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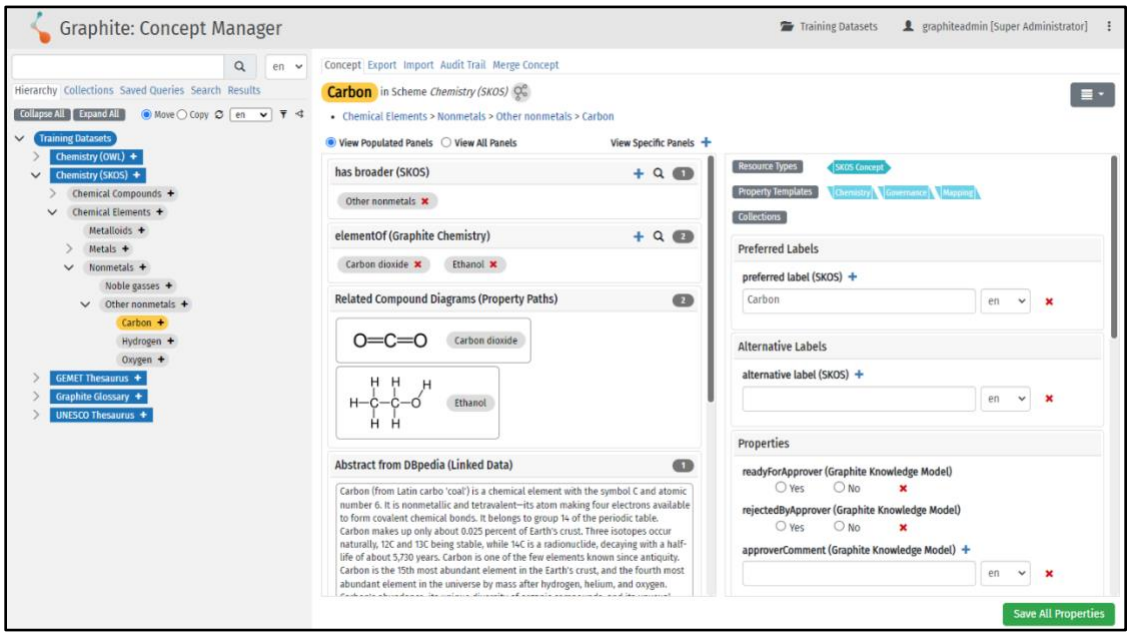
1 What Is Graphite?

Graphite is a software application for creating, curating, and disseminating Knowledge Organization Systems (KOS) based on Linked Data and Semantic Web standards. Graphite stores the KOS in an RDF graph database, also known as a semantic triple-store. The data architecture of Graphite is based on a family of W3C specifications including RDF, SKOS, and OWL.

With Graphite you can quickly design, build, and manage enterprise Knowledge Organization Systems using an intuitive graphical user interface. Graphite lets you manage and inter-relate all types of KOS and applications including controlled vocabularies, classification schemes, taxonomies, thesauri, lexicons, glossaries, indexing terminologies, as well as name authorities of people, places, products, brands, and organizations.



Graphite Graphical Concept Editing Interface

Knowledge Organization Systems help enterprises describe their information and knowledge assets in ways supporting precision search, inferencing, and analytics. Using Graphite, your enterprise terminologies can be organized within one or more concept Schemes, commonly called taxonomies. Different types of concepts can be managed using Templates, which define the permissible set of Annotation Properties and Relationship Types.

For example, a Template for geospatial entities may specify Annotation Properties such as latitude and longitude, whereas a Template of biographic entities may specify Annotation Properties like birthplace and birthdate. By designing KOS using an extensible set of user-defined Templates, Annotation Properties, and Relationship Types, enterprises can support both simple and complex data models and business processes.

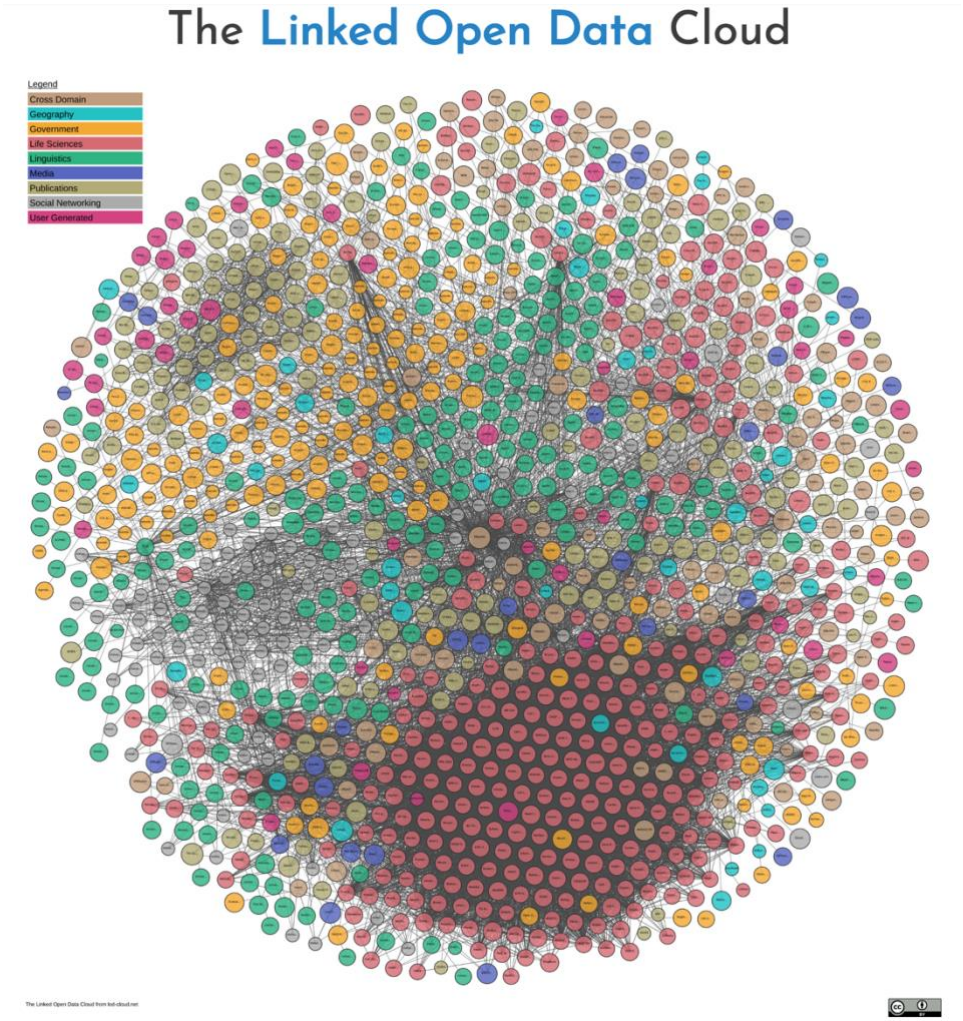
The logical structure of KOS enables powerful search and discovery applications to be layered over enterprise data, such as semantic and faceted search, and inference-based reasoning.

Graphite stores KOS as Linked Data. Every distinct entity or resource (i.e., each individual concept, or named person, place, etc.) is generically referred to as a *thing* and is identified by a unique HTTP-URI incorporating a Globally Unique Identifier (GUID). The Annotation Properties (text strings, dates, numbers, etc.) belonging to entities are identified via Annotation Property predicates, which also have unique HTTP-URIs. Likewise, the Relationship Types linking any pair of entities together are identified by unique HTTP-URIs. The graph database storing all this data is known as an RDF triple store. Triples comprise the combination of three elements: subject + predicate + object. Annotation triples take the form: URI of an entity + URI of an Annotation Property + a data value. Relationship triples take the form: URI of an entity + URI of a Relationship Type predicate + URI of a related entity. A simple way to paraphrase this is **Annotations link *things* to *strings*** and **Relationships link *things* to other *things*.**

Relational databases require information to conform to a predefined schema of tables, columns, and joins. By contrast, graph databases and Linked Data principles liberate databases from the need for pre-defined schema. New Schemes, Annotation Properties, and Relationship Types can quickly be created, adopted, and reused using a web-based user interface, **enabling enterprises to adapt and evolve with greater speed and reduced effort.**

Graphite lets users adopt publicly available ontologies (Annotation Properties and Relationship Type predicates) from the Linked Open Data cloud. This can drastically reduce the time and effort required to design and configure Knowledge Organization Systems.

In addition to providing a source of ontologies, the Linked Open Data cloud also provides access to a growing number of value-vocabularies, i.e., descriptive terminologies (taxonomies, thesauri, and name authorities). Examples include the MeSH medical subject headings, the NASA engineering thesaurus, the GeoNames geospatial authority, the Getty Art and Architecture thesaurus, and the Wikidata and DBpedia data sets. **These external resources provide an invaluable source of external domain knowledge to enrich the development of internal enterprise knowledge.**



Visualization of the Linked Open Data Cloud (http://cas.lod-cloud.net/) Accessed 20190624)

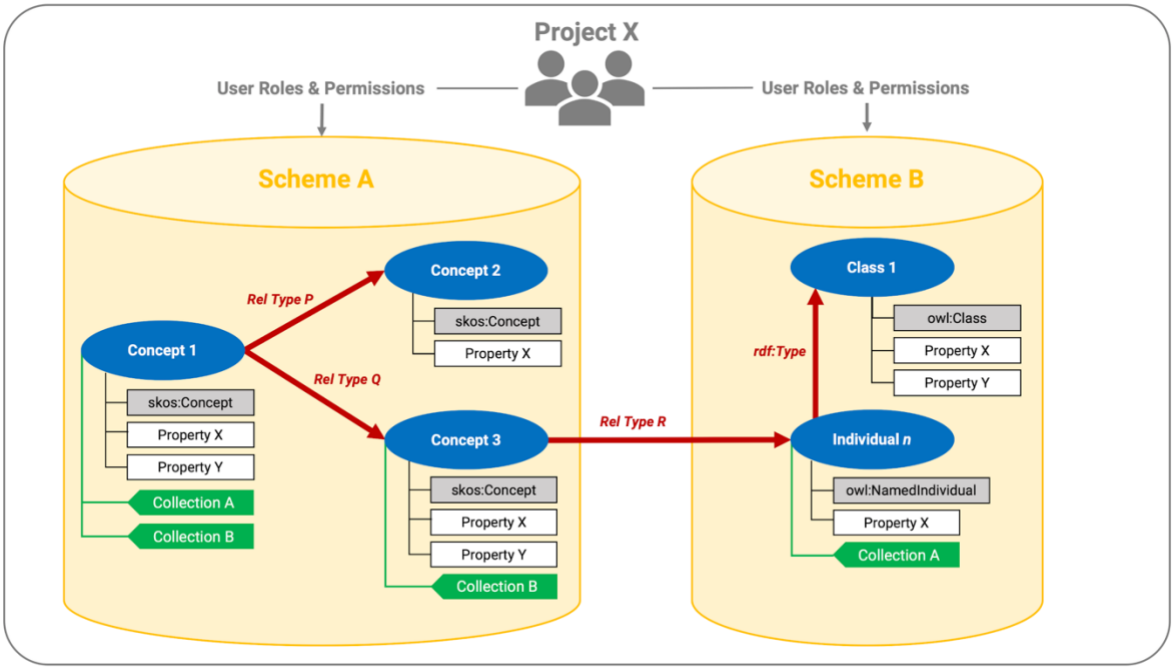
Key References
W3C: RDF: https://www.w3.org/standards/techs/rdf#w3c_all
W3C: SKOS: https://www.w3.org/TR/skos-reference/
W3C: OWL: https://www.w3.org/TR/2012/REC-owl2-primer-20121211/
Zeng, Mayr: KOS in the Semantic Web: https://doi.org/10.1007/s00799-018-0241-2

2 Overview for Designing Knowledge Organization Systems

Designing and enhancing Knowledge Organization Systems is a quick and easy process by adopting, creating, and re-using building blocks from the Graphite Design Stack. The Graphite Design Stack starts with a foundation layer of Namespaces and Predicates. Predicates are the essential building blocks for designing KOS. Predicates relevant to a particular type of conceptual resource, such as topics, people, places, events, etc., can be grouped together into a library of timesaving, re-usable data entry Templates. Finally, Schemes adopt Templates and support additional business rules such as cardinality constraints and inter-scheme relationship

permissions. Schemes are the logical containers for storing a coherent set of Concepts and/or Named Entities defining and describing a particular domain of knowledge. A discrete set of topical taxonomy Concepts or a discrete list of Named Entities constitutes a discrete KOS Scheme.

Entities in different Schemes can be related to each other via semantically expressive relationships. For example, a Named Entity ***John Doe*** in a *People* Scheme could be linked via a Relationship Type ***employedBy*** to a Named Entity ***Acme, Inc.*** in an *Organizations* Scheme. ***Acme, Inc.*** could then be linked via a Relationship Type ***locatedIn*** to a Named Entity ***New York City*** in a *Places* Scheme as well as linked via a Relationship Type ***manufacturerOf*** to a Concept ***Widgets*** in a *Products* Scheme. A set of interrelated Schemes form an extended Knowledge Organization System, also known as an ontology. In Graphite, Projects can quickly be defined to create customized views of interrelated Schemes and to control user access and editorial permissions.



Schematic Illustration of a Multi-KOS Project Using a Hybrid of SKOS and OWL Properties

2.1 Curating a Library of Reusable Namespaces, Predicates & Templates

Graphite's Namespace and Predicate administrative tools let users manage a library of reusable ontological components for building KOS Schemes (discrete Knowledge Organization Systems). Namespaces and Predicates define the elemental structure for all Linked Data. They comprise the values for the middle part of a triple. In other words, they are used as the link between a *thing* and a *string* or a *thing* and another *thing*.

Graphite's Namespace and Predicate interface allows the user to explore existing predicates from W3C-standard resources (such as SKOS, OWL, FOAF, Schema.org, and others) as well as providing the option to create custom Namespaces with unique Predicates.

Templates are a time-saving Graphite tool for managing named selections of Predicates. Templates select Predicates from one or more Namespaces pulling together the Annotation

Properties and Relationship Types fit for a particular purpose, such as describing topical concepts, people, places, organizations, events, etc.

2.2 Curating a Library of KOS Schemes

Schemes store the actual concepts (or classes) and named entities (or individuals) that collectively constitute a discrete Knowledge Organization System.

All KOS Schemes support two essential semantic functions: (1) they enumerate, define, and describe the conceptual and/or concrete entities known within a domain of knowledge; and (2) using semantically defined Predicates, they describe the logical relationships between pairs of entities (both within a Scheme and between different Schemes). There are many different types and applications for semantic relationships including: generic relationships such as association, hierarchy (genus/species, part/whole, class/subclass/instance), and equivalence (exact, near, etc.); as well as domain-context specific relationships such as *locatedIn* (to a place), *createdBy* (to a person), etc.

Schemes adopt one or more generic Templates and then apply additional Scheme-specific business rules to selected Predicates such as cardinality and inter-scheme relationship rules. A Scheme is used to select and gather Predicates from existing and custom Namespaces to organize a unique set of relationships.

2.3 Managing Projects and Users

Projects and Users define collaboration workspaces. They combine a selection of Schemes with a Selection of Users and then define very specific access control permissions for each User in relationship to each Scheme, including editorial permissions at the level of individual property fields.

3 The Graphite Design Stack

3.1 Namespaces

3.1.1 What Are They?

Generically, an XML Namespace is a mechanism for defining a set of uniquely named elements in an XML document. In the context of Graphite and the management of Knowledge Organization Schemes, a Namespace defines a set of predicates which originate from a common source and share a common root HTTP-URI.

3.1.2 How to Use Them

Namespaces are managed from the main menu by selecting the Namespace and Predicate Admin tool. External Namespaces may be referenced in order to adopt their predicates. New Namespaces may also be created.

Each Namespace requires a Label (which must be unique within Graphite) and a base URI. Optionally they may also specify a Namespace prefix and a definition. Predicates and Namespaces can also be imported from external RDF files (see section below describing Namespace & Predicate Import).

3.1.3 Examples

SKOS is an ontology for building Simple Knowledge Organization Systems. It is curated by the W3C. The set of SKOS core Predicates are referenced at: http://www.w3.org/2004/02/skos/core#. The Namespace prefix “skos” is commonly used.

DCT is an ontology for describing document metadata using the Dublin Core Terms metadata element set. It is curated by the Dublin Core Metadata Initiative (DCMI). The set of DCT predicates are referenced at: http://www.dublincore.org/specifications/dublin-core/dcmi-terms/. The Namespace prefix “dct” is commonly used.

3.2 Predicates

3.2.1 What Are They?

Predicates describe the properties belonging to a Concept, Named Entity, or other Resource (collectively known as ‘things’), or describe the relationships linking any pair of things together.

There are thus two distinct types of predicates: Annotation Properties and Relationship Types. Annotation Properties link a thing to a string, i.e., to a value of data, whereas Relationship Properties link a thing to another thing.

Predicates are curated by an identifiable authority, have an identifiable namespace, and every predicate has a unique HTTP-URI.

3.2.2 How to Use Them

Predicates are managed from the main menu by selecting the Namespace and Predicate Admin tool. External Predicates may be adopted, and new Predicates may be created. In Graphite, Predicates are managed under the Namespace to which they belong and then under one of three predicate-type sub-headings.

Graphite defines three predicate-types: (1) Properties, also known as Annotation Properties, which link things to strings (or more specific data types such as dates, integers, etc.); (2) Associative Relationships, which link things to other things; and (3) Hierarchical Relationships, which also link things to other things. Graphite differentiates between Associative and Hierarchical Relationship types in order to inform the UI whether to display recursive tree structures.

Predicates and Namespaces can also be imported from external RDF files. The best practice for building Linked Data KOS is to adopt external authoritative ontologies before adapting or creating them. This saves effort and maximizes the potential to integrate diverse data sets.

3.2.3 Examples

In the SKOS core ontology and Namespace there are, among other things, Annotation Property predicates (things to strings) for describing a Concept's Preferred Label using: http://www.w3.org/2004/02/skos/core#prefLabel and its definition using: http://www.w3.org/2004/02/skos/core#definition

The SKOS ontology and Namespace also has Relationship Type (things to things) for describing an associative relationship http://www.w3.org/2004/02/skos/core#related and a pair of hierarchical relationships http://www.w3.org/2004/02/skos/core#broader and http://www.w3.org/2004/02/skos/core#narrower. Note how each specific predicate uses the same root URI, which is based on the Namespace from which it originates.

3.3 Templates

3.3.1 What Are They?

In Graphite, a Template is a user-configurable named selection of Annotation Properties and/or Relationship Types that may be chosen from one or more Namespaces.

3.3.2 How to Use Them

Templates provide a time-saving tool to control the way entities with similar property structures are described. For example, different types of Concepts and Named Entities, such as people, places, companies, products, and topics, will typically be defined using a common set of properties.

Templates provide a way to group together common sets of Annotation Properties and Relationship Types. The Template Admin tool lets users create a library of data entry Templates that can be re-used across multiple Schemes and Projects.

3.3.3 Examples

A user defines a customized Thesaurus Template to represent conceptual entities by adopting a subset of SKOS Annotation Properties and Relationship Types meeting the particular needs of their KOS project, e.g., *altLabel*, *prefLabel*, *scopeNote* Annotation Properties along with *narrower*, *broader*, and *related* Relationship Types.

For example, a user defines a "Documents" Template for representing bibliographic entities by adopting a subset of DCT Properties including title, creator, and date.

3.4 Schemes

3.4.1 What Are They?

Schemes are the logical containers for storing a coherent set of Concepts and/or Named Entities defining and describing a particular domain of knowledge. A discrete set of topical taxonomy Concepts or a discrete list of Named Entities constitutes a discrete Scheme.

3.4.2 How to Use Them

Schemes are used to enumerate and organize the Concepts and/or Named Entities describing a domain of knowledge.

Schemes may be used to support hierarchical and associative navigation, as well as search query refinement and expansion. Concepts normally have preferred labels that are unique within each Scheme for any given natural language. These labels provide a controlled vocabulary of metadata values that may be used for tagging, indexing, and classifying content.

In Graphite, Schemes are configured to use one or more Templates, which impose constraints on the Annotation Properties and Relationship Types available to be used. Additional business rules, such as cardinality constraints and inter-scheme relationship permissions, can also be applied at the Scheme level.

3.4.3 3.4.3 Examples

A user defines one Scheme to store organization names and another Scheme to store product names.

The “Products” Scheme supports hierarchical and associative relationships to allow products to be grouped into classes, whereas the “Organizations” Scheme is organized as a flat list.

A *manufacturerOf* Relationship Type is defined to link organizations to the products they manufacture.

3.5 Concepts, Classes & Individuals

3.5.1 What Are They?

A Concept is an individual resource such as a Concept or a Named Entity. A concept may represent a class of things or a specific individual thing. In the SKOS ontology, classes and individuals are not distinguished through metadata, but in the OWL ontology it is possible to differentiate them through their Resource Type (owl:Class or owl:NamedIndividual).

In many knowledge domains, there is not a clear boundary between what is a class versus an individual. For example, following is a hierarchy of classes that one could argue terminates with an individual: ***Telecommunication Devices > Mobile Phones > iPhones > iPhone X***. iPhone X is a very specific make and model of mobile phone that constitutes an individual in the context of its manufacturer’s catalog of saleable products. But if we regard a physical instance of an iPhone X, one that is owned by user John Doe and has a unique serial number *n* then iPhone X becomes a class and John’s iPhone X with the serial number *n* is an individual.

3.5.2 How to Use Them

Concepts may be used to define a group of things (classes, sub-classes, categories, etc.) as well as to define specific individual instances or entities.

In Graphite, each individual Concept must have a unique HTTP-URI, a unique Preferred Label (per language), and may only belong to one Scheme. Concepts may, however, utilize one or more Templates.

3.5.3 Examples

The user creates a “Topics” Scheme comprising categories and subcategories, all of which belong to the previously described Thesaurus Template. Membership in the Thesaurus Template invokes data entry screens and permissions limited to the subset of SKOS Annotation Properties and Relationship Types assigned to that Template.

The user then creates bibliographic records using the Documents Template and links Document entities to relevant Topic Concepts using the DCT References Relationship Type.

3.6 Collections

3.6.1 What Are They?

Collections are a SKOS-defined feature allowing a Scheme to be divided into subsets.

The Concepts in a Scheme may be described as the Tags used to index content. Extending the analogy, Collections provide a mechanism to “tag the tags”, thereby defining subsets of Concepts in one or more Schemes.

3.6.2 How to Use Them

Individual concepts may be tagged with one or more Collection tags. A Collection tag may also be pushed down the hierarchy to tag all the subordinate concepts beneath any designated concept.

Once Concepts in a Scheme have been tagged to Collections, Collection tags may be used to filter search results and exports.

New Collections can be quickly added and shared across Schemes within a project.

3.6.3 Examples

Collections can be used to support many different types of business processes.

> ***Example 1***: Topical Collections may be created to divide a multi-disciplinary taxonomy into topical subsets, such as Economics, Law, Science, Medicine, etc.
>
> ***Example 2***: Governance Collections may be created to tag Concepts to a specific state within the enterprise governance workflow, such as Assigned to Team X, Requires SME Review, Pending Deprecation, etc.

Example 3: Consuming System Collections may be created to define subsets of Concepts needed by particular consuming systems, such as Magazine X Tagset, Database Y Tagset, Autocomplete Wordlist, etc.

3.7 Resource Types

3.7.1 What Are They?

A Resource Type is a very high-level property describing what type of thing any specific RDF Resource is.

3.7.2 How to Use Them

For most taxonomy and name authority management applications, Schemes may be configured to use the SKOS Concept Resource Type as the default for all Concepts and/or Named Entities in the Scheme.

Resource Types is a powerful feature for those Graphite users managing OWL ontologies or ingesting data from the Linked Open Data cloud, but the feature may be ignored for the more common business applications based on SKOS.

3.7.3 Examples

A Concept defined by the SKOS ontology will have the Resource Type *skos:Concept*.

A Class or Subclass defined by the OWL ontology will have the Resource Type *owl:Class*. A Named Individual will have the Resource Type *owl:NamedIndividual*.

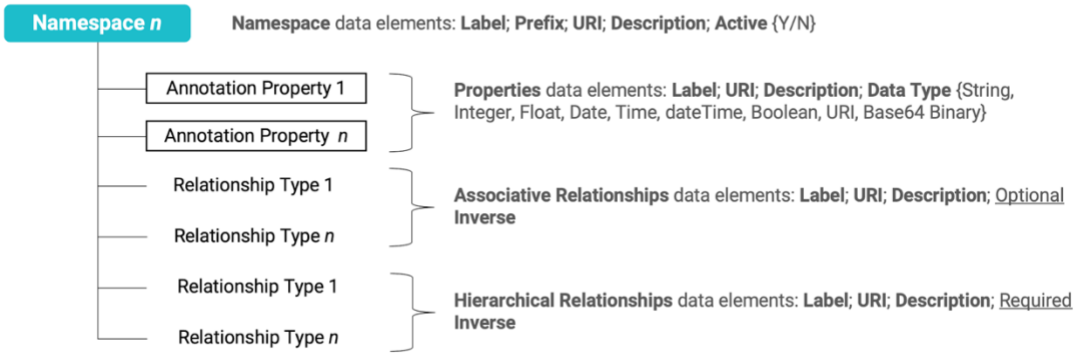
Some proprietary ontologies define their own Resource Types. For example, a Concept in the Getty Art and Architecture Thesaurus will have the Resource Type *gvp:Concept*.

4 Data Architecture Schematic Diagrams

The following schematic diagrams illustrate the data architecture and data elements for describing Namespaces, Predicates, Templates, Schemes, and Concepts, as well as Projects and Users.

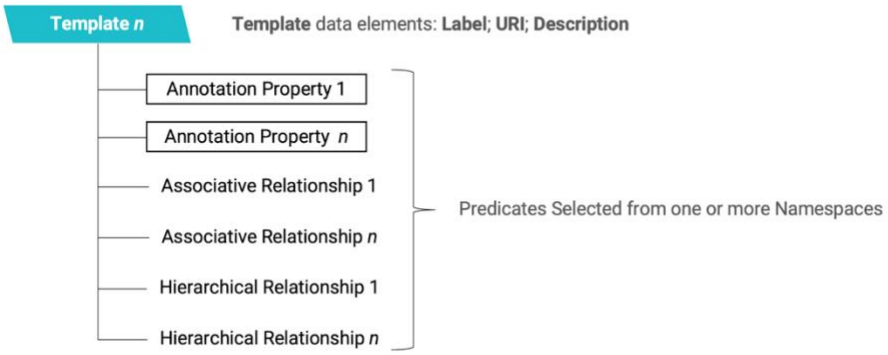
4.1 Namespace & Predicate Schematic

Graphite Schematic & Data Elements: **Namespaces & Predicates**



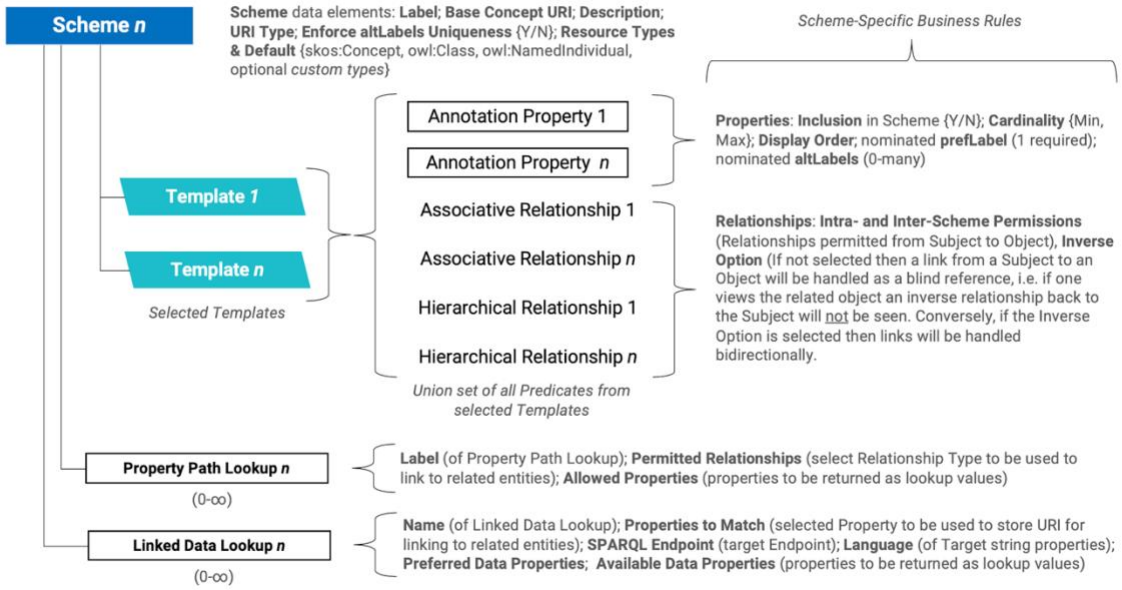
4.2 Template Schematic

Graphite Schematic & Data Elements: **Templates**

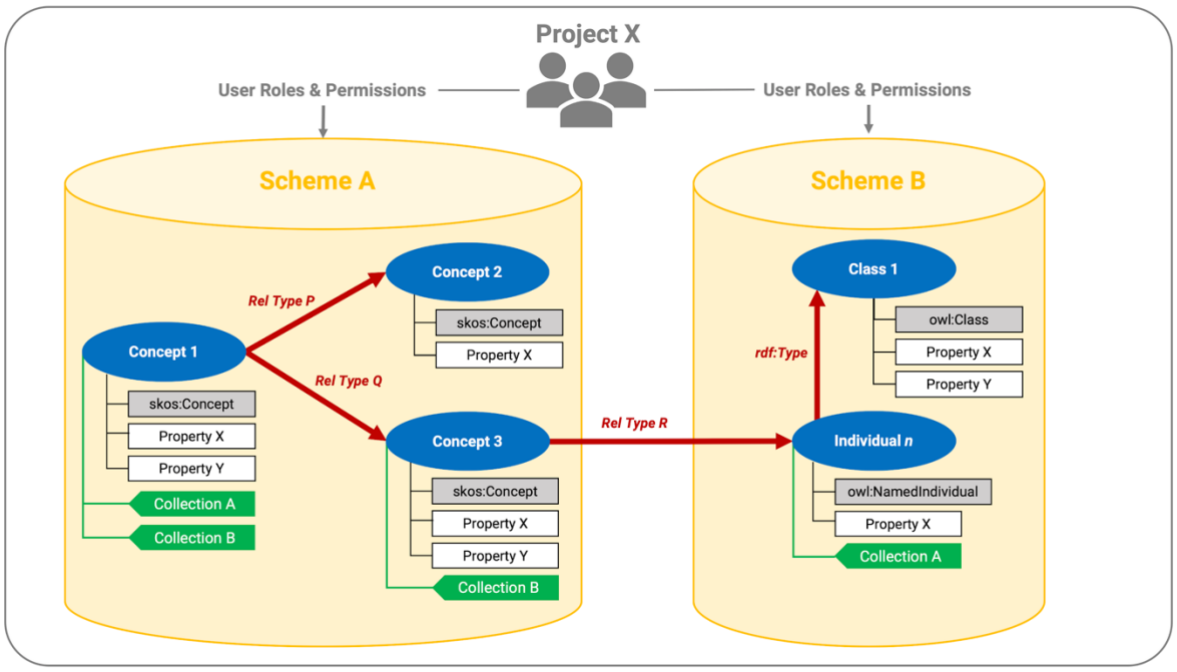


4.3 Scheme Schematic

Graphite Schematic & Data Elements: **Schemes**

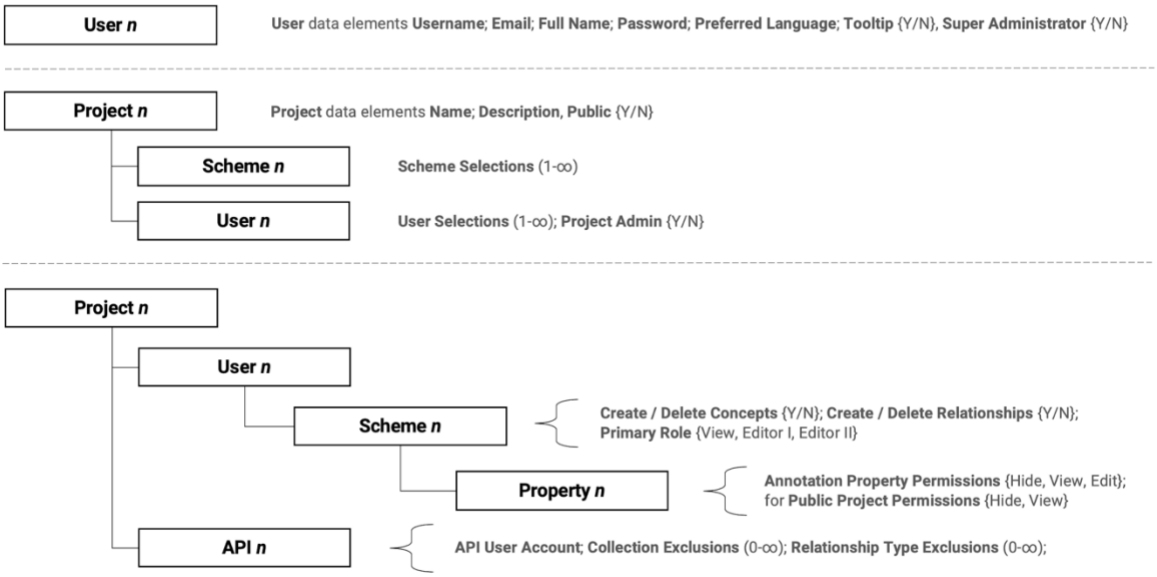


4.4 Concept Schematic



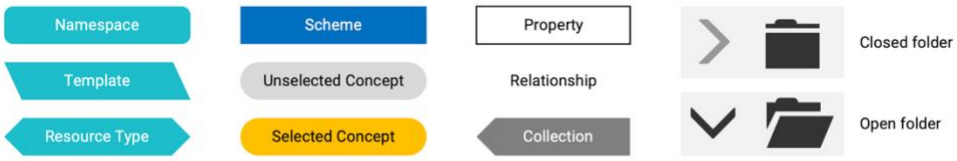
4.5 Users, Project & Permissions Schematic

Graphite Schematic & Data Elements: **Users, Projects & Permissions**

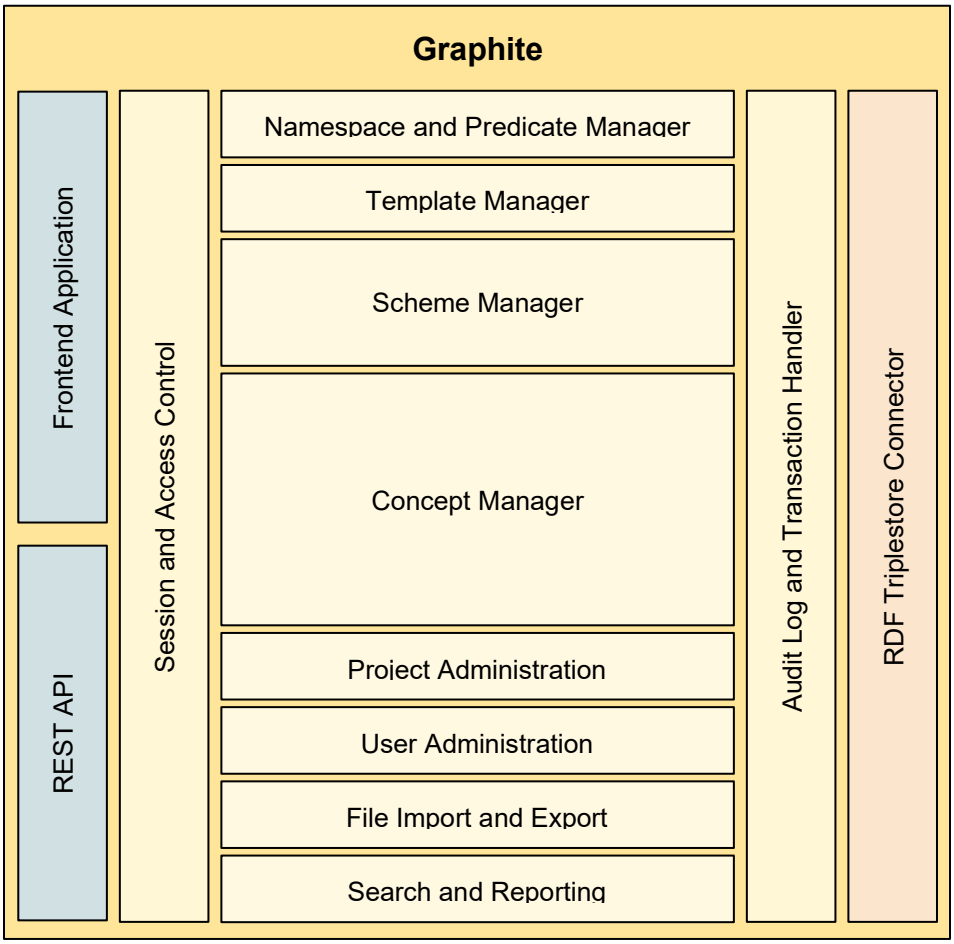


4.6 Graphite UI Iconography

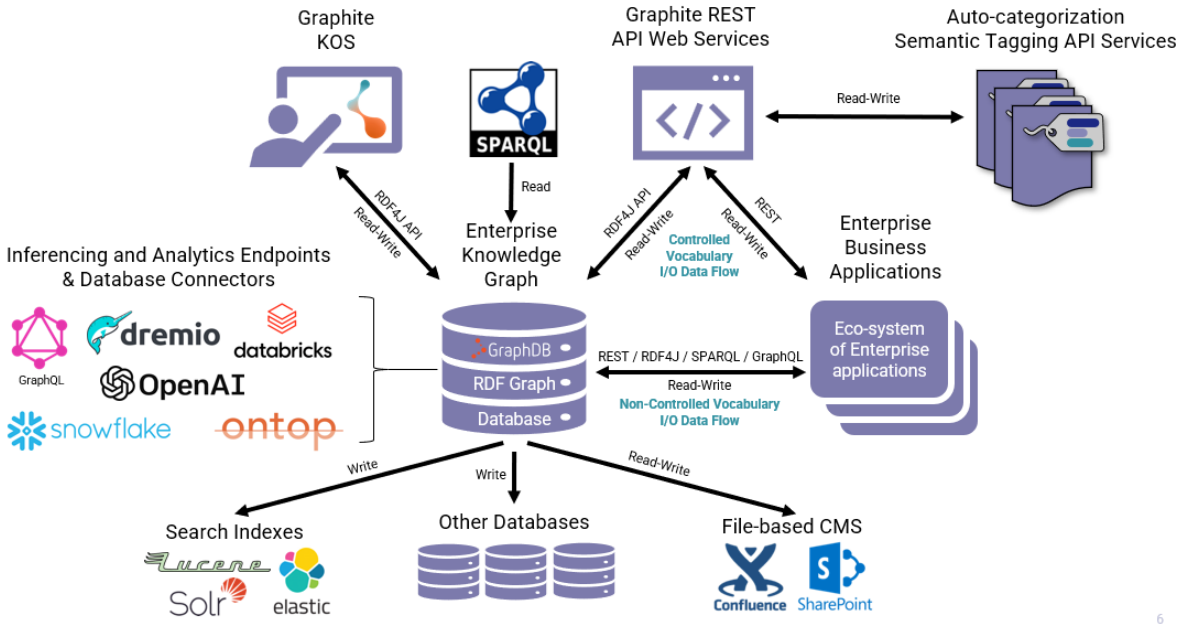
Graphite Schematic: **UI Iconography**



4.7 Graphite Architecture Component Diagram



4.8 Graphite Architecture Interconnectivity Diagram



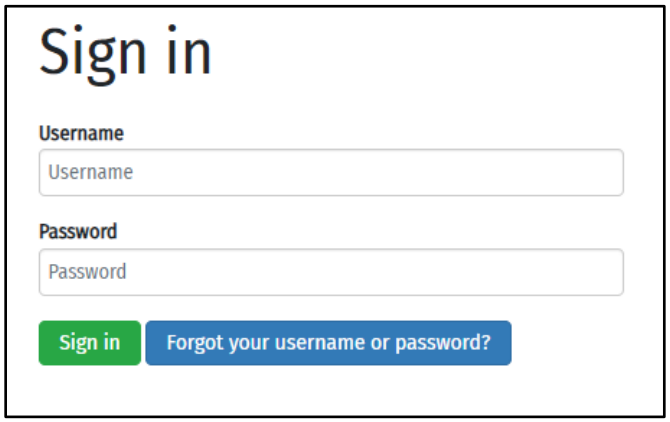
5 Guided Tours of Screens and Features

5.1 Logging in and Selecting a Project to View

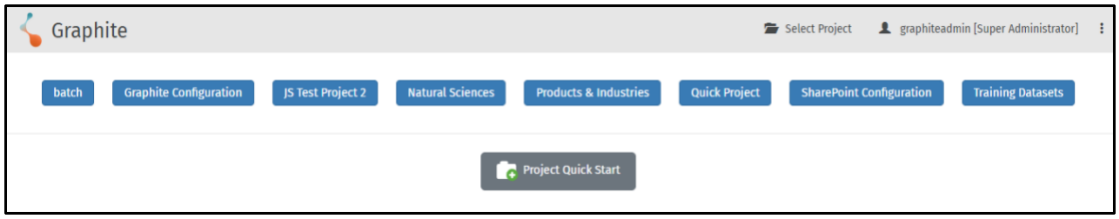
5.1.1 Accessing the Graphite System and Projects

Editorial and Administrative access to Graphite requires signing in with a username and password. Prior to signing in, the user will see a message stating there are no Projects available until signed in.

To access Projects and their associated Schemes for editing, or to access the administrative areas of the system, you will need to click on the *Sign in* link in the upper right-hand corner of the top menu bar.



After entering valid login credentials, the screen will refresh to display a list of all available Projects and the Project Quick Start functionality (see below).



5.1.2 Signing In with Single Sign-On (SSO)

Graphite integrates with single sign-on (SSO) providers to offer a common authentication scheme for users in an organization. Integration is achieved using the SAML 2.0 specification. See the

"*Graphite SSO Setup Guide*" document which provides a step-by-step guide to setting up SSO with Okta, OneLogin, and Azure Active Directory.

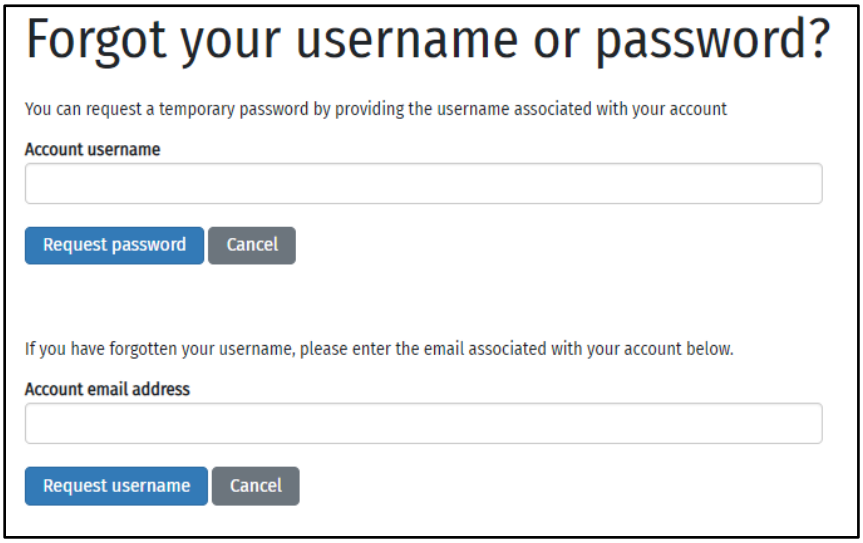
Once single sign-on (SSO) is set up, users will be able to log in directly into Graphite by simply navigating to the Graphite instance. If already signed in, the user will be automatically logged in to the system. If the user is not already signed in, clicking *Sign In* will sign the user in without entering a password.

5.1.3 Resetting a Forgotten Password

If you have forgotten either your username or password, click on the *Forgot your username or password?* link next to the *Sign in* button. This will take you to a page where you may enter your username to receive an email with your password. If you have forgotten your username, enter the email address associated with your account and you will receive an email with your username.

If you have neither of these items, please contact your system administrator to gain access.

> ***Note**: If you do not receive an email after submitting your email address, then you may not have entered one associated with a Graphite account and you should try another possible email or contact your Graphite administrator.*



Upon signing in to the system, you will have access to the Main Menu items for navigation.

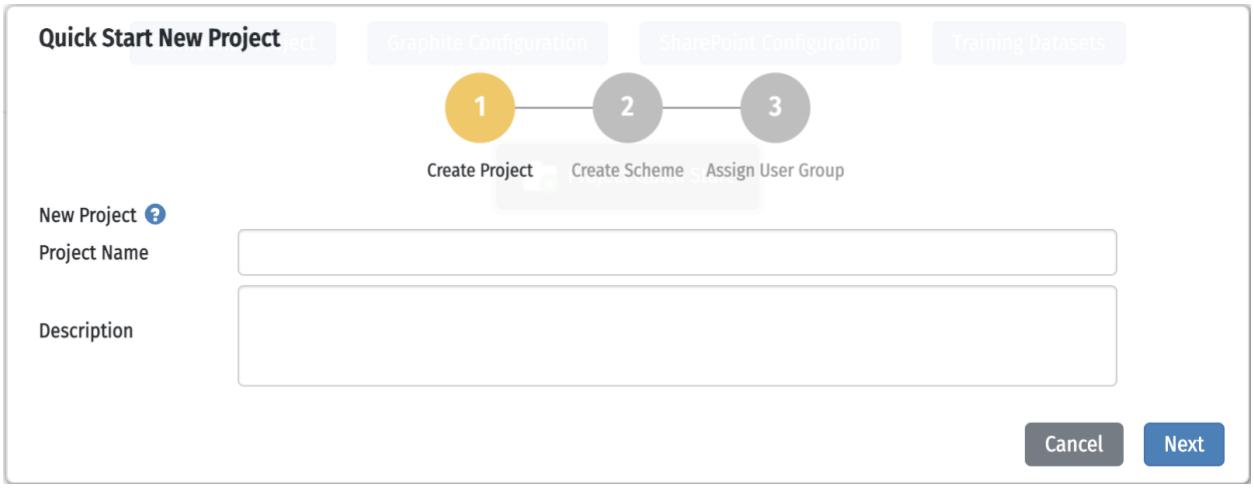
5.1.4 Project Quick Start

Project Quick Start provides an expedited means for creating Projects and Schemes. After logging in, the Project Quick Start button is available below any projects to which the logged in user may already have permissions. The Project Quick Start option is also present in the Project Selector (see below) Select Project dropdown menu.

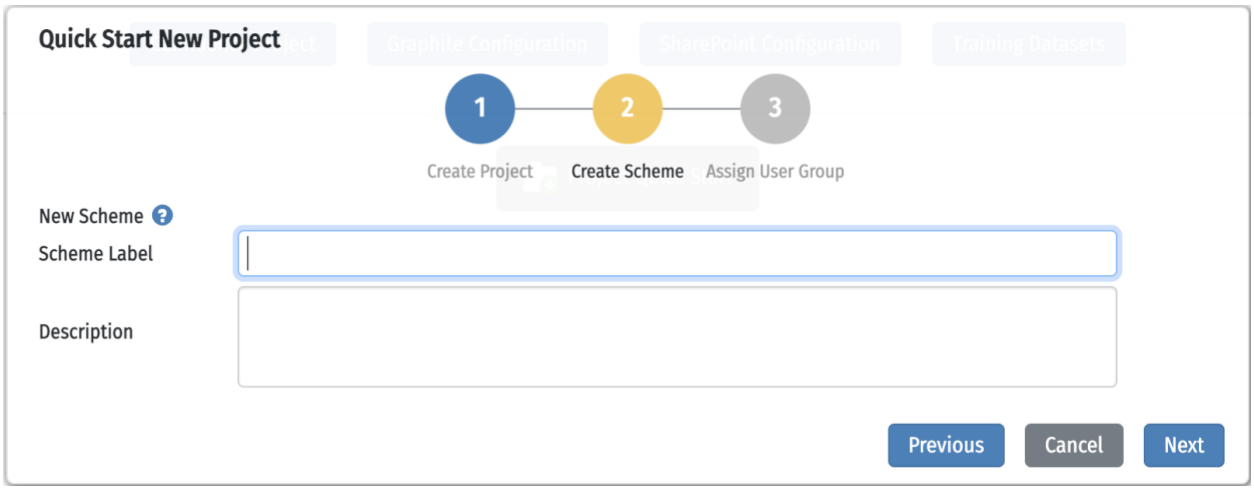
The Project Quick Start menu only appears as an option if the user is logged in as a Super Administrator or Project Administrator.

Selecting the Project Quick Start option from the Project Landing Page or Select Project menu will launch the Project Quick Start setup.

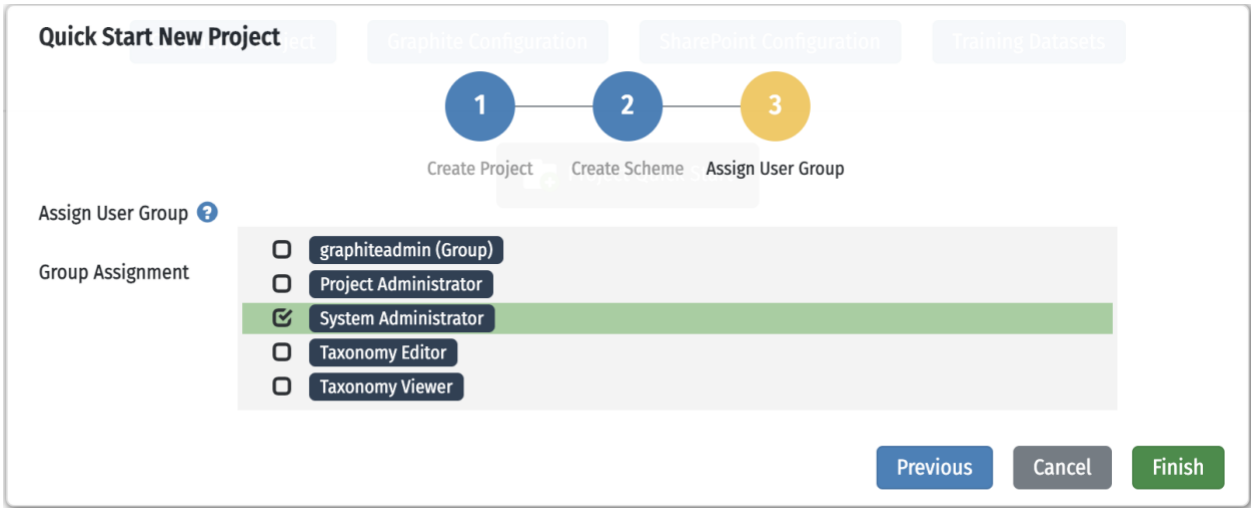
In Step 1, Create Project, enter the required Project Name and optional Description. The Cancel button will close the window and return to the Project Landing Page. The Next button will move to Step 2.



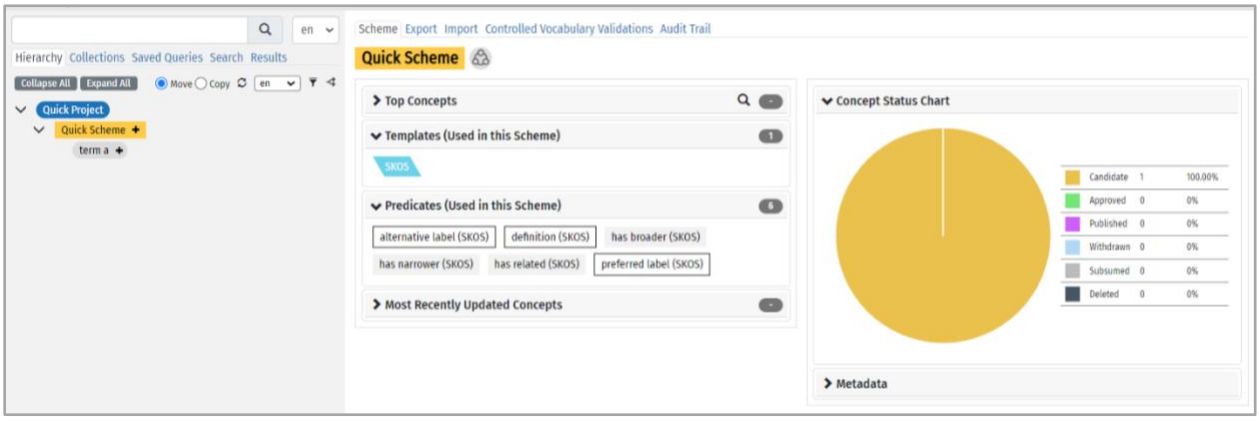
In Step 2, Create Scheme, enter a required Scheme Label and optional Description. The Previous button will return to Step 1. No information in Step 1 or 2 will be lost by using the Previous button. The Cancel button will close the window and return to the Project Landing Page. The Next button will move to Step 2.



In Step 3, Assign User Group, add one or more permission groups to the Project and Scheme. The default will be the System Administrator or Project Administrator user group to which the currently logged in user belongs. The Previous button will return to Step 2. No information in Step 1 or 2 will be lost by using the Previous button. The Cancel button will close the window and return to the Project Landing Page.



The Finish button will finish the setup process and bring the user to the new Project and Scheme.



The new Scheme, by default, will include the following SKOS properties and relationships:

- Preferred label (skos:prefLabel)
- Alternative label (skos:altLabel)
- Definition (skos:definition)
- Has broader (skos:broader)
- Has narrower (skos:narrower)
- Has related (skos:related)

Any settings configured using the Project Quick Start tool may be changed later in the existing administrative areas.

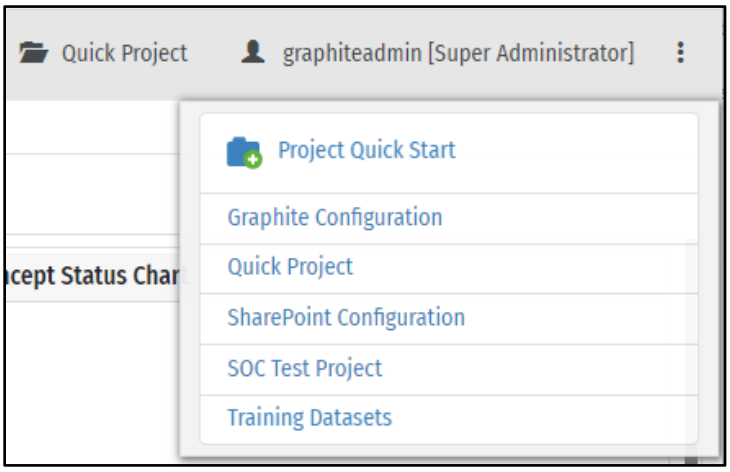
***Note**: Graphite System Properties in Namespace and Predicate Admin and the Project Quick Start Configuration Template in Template Admin should not be modified or deleted as this will affect the Project Quick Start functionality.*

5.2 Menu Bar

5.2.1 Project Selector

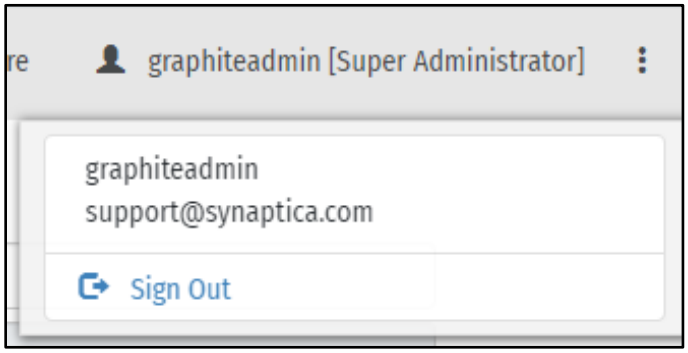
Once you have logged in to the Graphite system, you should select a Project. Note while it is possible to access certain tools using the Main Menu tool (designated by the three dots appearing in the upper right-hand corner of the interface) without selecting a Project, you will only see all the available menu choices after selecting a Project.

The selected project is listed on the menu bar. Click on the Project name to view a list of all Projects available to you, or to access the Project Quick Start tool.



5.2.2 Signed-In User and Sign-out Control

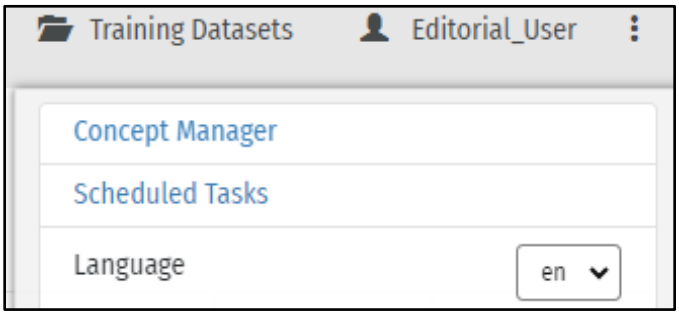
To the right of the Project selector is a control displaying the signed-in user. To Sign-out click on this link and then the sign-out option.



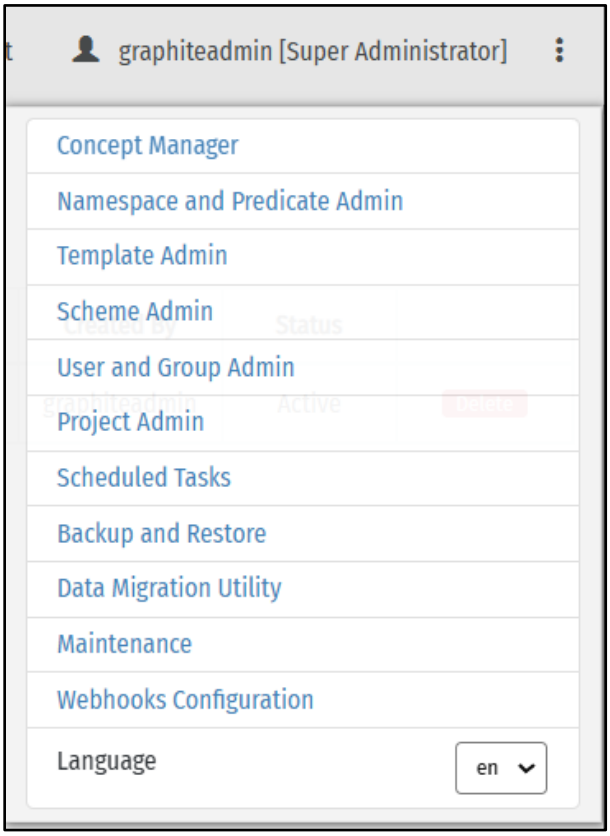
5.2.3 Main Menu

Depending on whether you are designated as a standard user or a Project Administrator, you will see different options under the menu.

As a standard user you will see the following options in the menu after selecting a Project.



As a Project Administrator you will see the following menu items:



Language Selector

A language selector control appears in the main menu. One may use the language selector to adjust the language of the user interface. Translations for the interface are stored as concepts in a system Scheme. Please contact Synaptica for information about adding language translations for the interface.

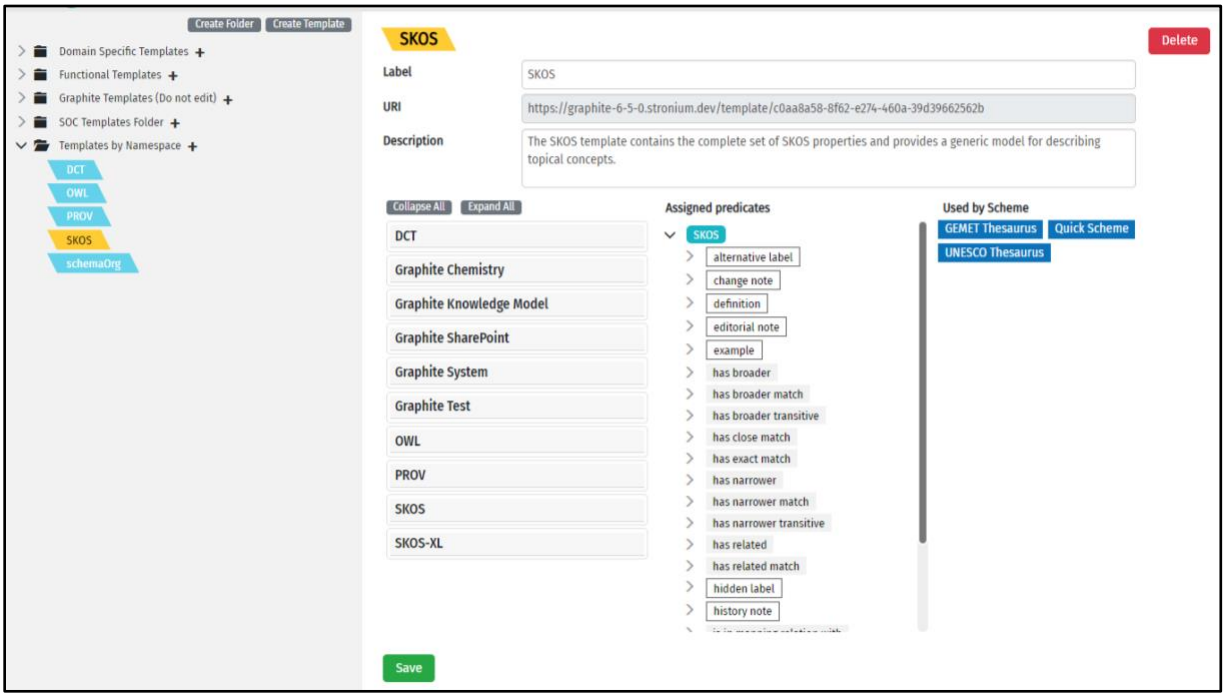
***Note**: Graphite's infrastructure supports localization of the UI into any language. All UI menus, labels, button-text and tooltips are referenced as a multilingual SKOS vocabulary.*

5.3 Discovery Panel and Workspace

The main display area of the Graphite interface consists of a left-hand Discovery Panel (with a grey shaded background) providing tabs for hierarchical navigation and search and a right-hand Workspace (with a white background). Throughout the system, the user will use the left-hand Discovery Panel to search, browse, view, and select items, whether they be for administrative work or for concept editing, and then view and perform edits in the right-hand Workspace.

For example, as a Project Administrator you are able to perform a variety of administrative tasks in the system, from User and Project Management to creating Templates and Schemes. In any of these instances, once you select the area you wish to visit from the Main Menu you will see the left-hand panel populated with selectable items. Upon selecting one, you will see the right-hand panel populated with details and actionable options associated with the item you selected.

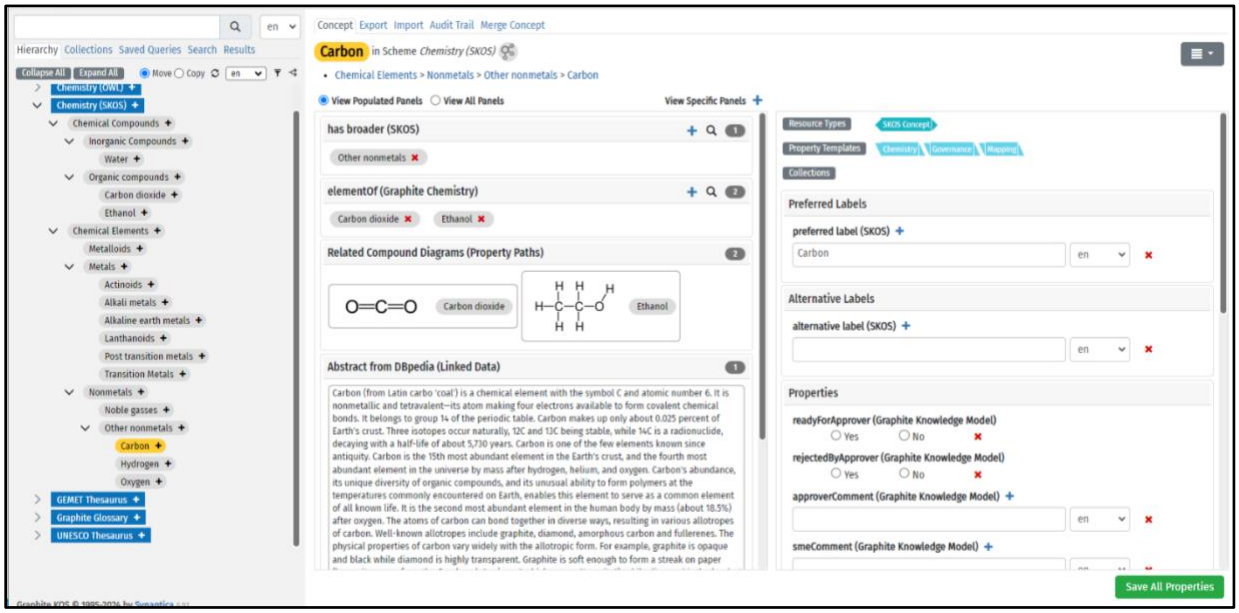
Below is an example using the Template Administrator, where a Template is selected in the Discovery Panel and then Properties and Predicates (relationships) are assigned to the Template in the Workspace.



5.3.1 Hierarchy Browser

When using the Concept Manager, the Discovery Panel presents a *Hierarchy* tab, a *Collections* tab, a *Saved Queries* tab, *a Search* tab, and a *Results* tab.

The *Hierarchy* tab presents a navigable hierarchical view of all Schemes in a Project. The top level is the name of the Project and, when selected, displays a Project Overview including *Collections* and *Total Concepts by Scheme*.



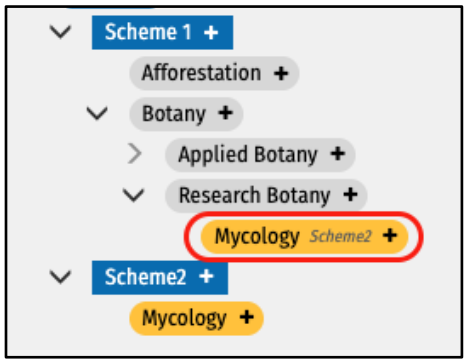
The user can search for or navigate to a term in the Concept Manager Discovery Panel and use the *Collapse All* and *Expand All* buttons above the hierarchies to assist with navigation. When the project name is selected, the *Collapse All* button will collapse all schemes so only the project name is visible. When the *Expand All* button is clicked, the schemes will expand one level at a time for each click. When a scheme is selected, when the *Expand All* button is clicked, the selected scheme will expand one level at a time for each click.

Use the hierarchy refresh icon to see changes made to concepts in the hierarchy. The language dropdown menu will display concepts which have alternate label descriptors in the selected language. Only concepts with the pre-existing alternative label descriptor in the selected language will appear.

Graphite supports multilingual vocabularies and character sets on preferred labels, alternative labels, and string property fields. Graphite supports the following languages: Albanian (sq), Arabic (ar), Armenian (hy), Azerbaijani (az), Basque (eu), Bulgarian (bg), Bosnian (bs), Catalan (ca), Chinese (zh), Chinese (PRC) (zh-cn), Croatian (hr), Czech (cs), Danish (da), Dutch (nl), English (en), Estonian (et), Finnish (fi), French (fr), Georgian (ka), German (de), Greek (el), Hungarian (hu), Icelandic (is), Irish (ga), Italian (it), Japanese (ja), Korean (ko), Lithuanian (lt), Latvian (lv), Macedonian (mk), Maltese (mt), Norwegian (no), Norwegian Bokmål (nb), Norwegian Nynorsk (nn), Polish (pl), Portuguese (pt), Romanian (ro), Russian (ru), Serbian (sr), Slovak (sk), Slovenian (sl), Spanish (es), Swedish (sv), Turkish (tr), and Ukrainian (uk). Additional languages can be supported as needed.

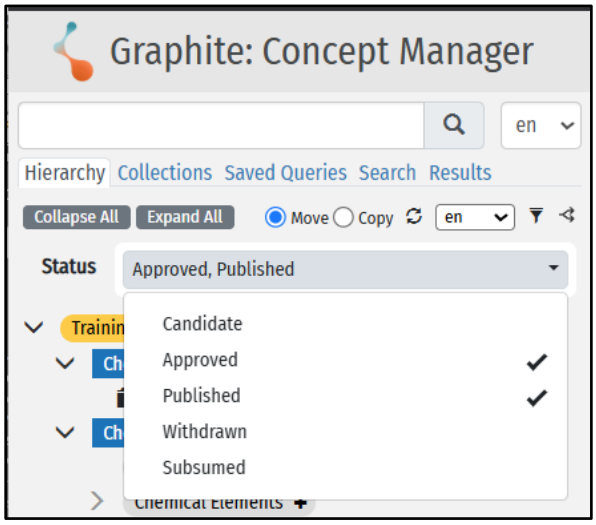
5.3.1.1 Scheme Display in Hierarchy View

When a Concept in one Scheme is linked using a hierarchical relationship to a Concept in a second Scheme within the same Project, the Concept listing in the hierarchical view will display the Scheme to which the Concept belongs.



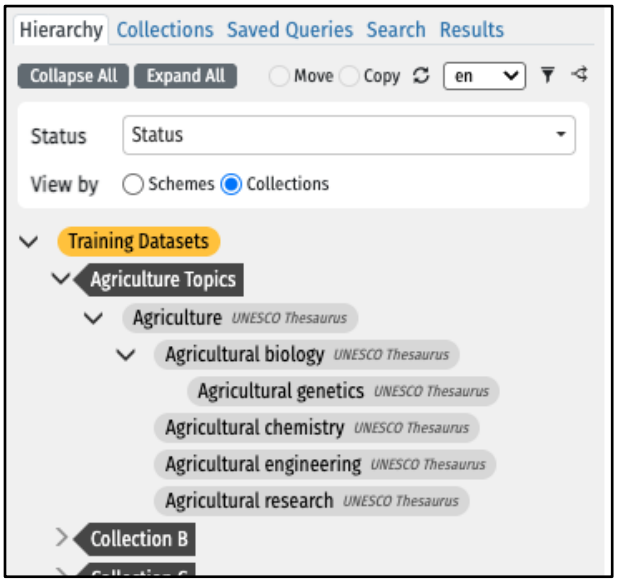
5.3.1.2 Concept Status Hierarchy Filter

The *Filter by Concept Status* dropdown will filter the hierarchy view by the status of each concept and can be viewed by selecting the funnel icon above the hierarchy pane. The options are *Candidate*, *Approved*, *Published*, *Withdrawn*, and *Subsumed*. The default hierarchy shows all concepts regardless of status.



There are two option to view the hierarchy filtered by status:

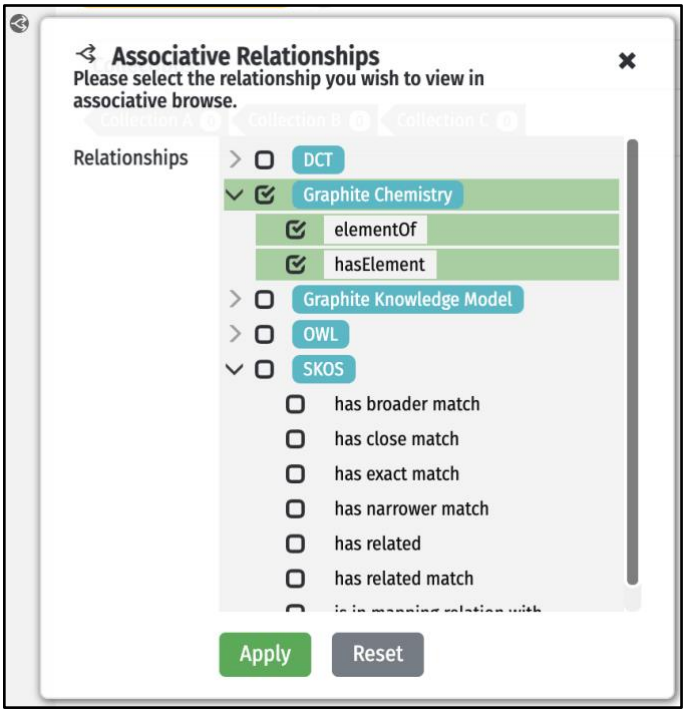
1. The *Scheme* radio button limits the display in the hierarchy view to only concepts matching the selected status(es).
2. The *Collections* radio button displays an expandable list of available collections and a hierarchical list of assigned concepts also filtered by selected status.



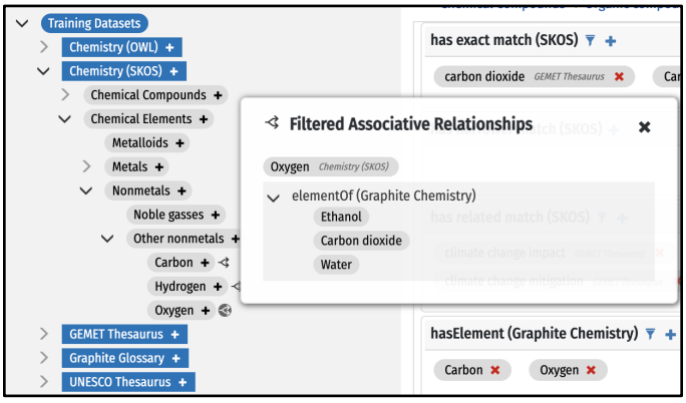
5.3.1.3 Associative Relationships Filter

It is possible to filter hierarchies in the Discovery Panel to display associative relationships as well as the default hierarchical relationships displaying nested concepts.

Selecting the double arrow icon to the far right of the hierarchy menu will present a menu showing namespaces and their included associative relationships.



Selecting the namespace to select all relationships or selecting individual associative relationships from the list will refresh the hierarchy and display concepts which include these relationships after hitting the Apply button. The filter panel can be reset using the Reset option. The relationship must be populated in order for the double arrow icon to appear next to concepts.

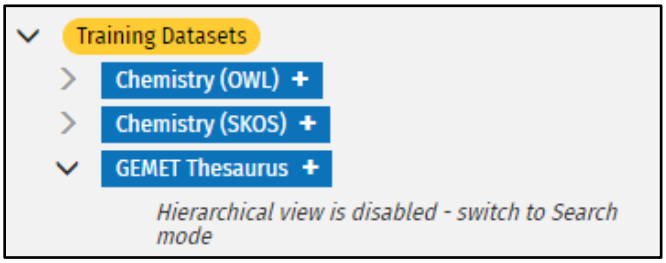


Selecting the double arrow icon next to the concept will open a dialog box displaying the relationship and the related concepts. If the concept has more than one selected associated relationship populated, all relationships and related concepts will be displayed. The dialog box can be closed using the X in the corner.

In addition to the search option for returning concept values, one may use the hierarchical navigation method as well. The user can click on the **>** button next to any Concept to expand and view any narrower child concepts. This may be repeated until a term appears without the **>** next to it, indicating it is an end node with no narrower terms.

5.3.1.4 Hierarchy Browse Display Limits

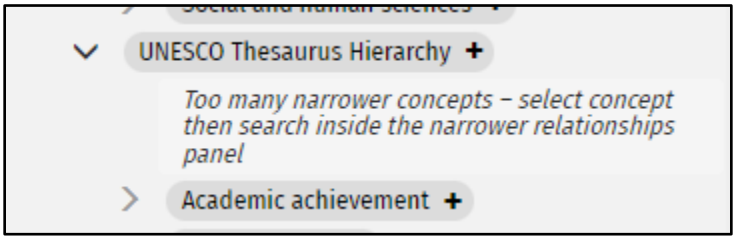
When creating or editing a Scheme, a Graphite Administrator may choose to disable the Hierarchical View option in cases where there are a large number of top concepts that might cause performance and/or display problems. This option is set in the Scheme Admin area. When Hierarchy Display is disabled, the below message is displayed:



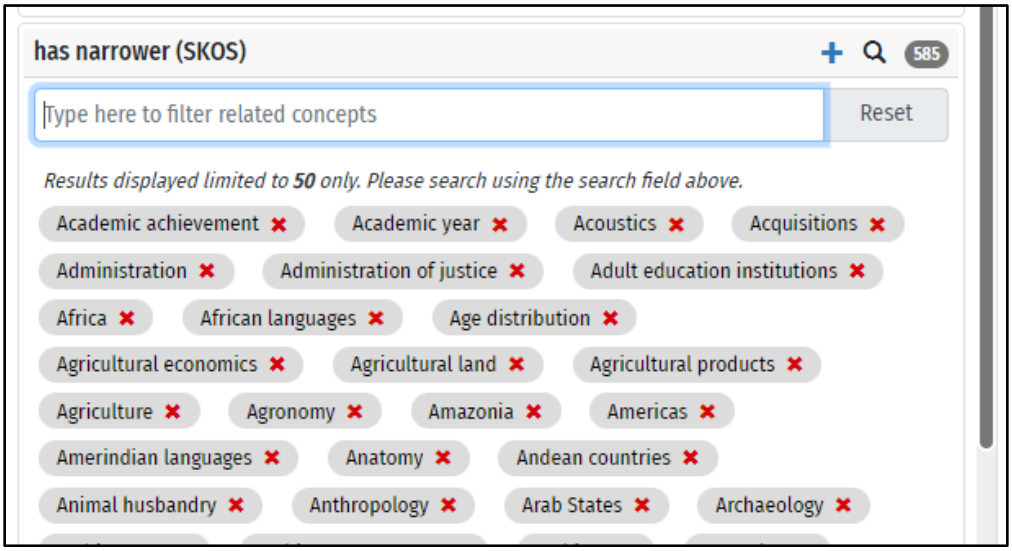
Users should use the Search feature to filter, view, select, and edit concepts in Schemes where the hierarchy view has been deactivated.

Graphite Administrators may also set a limit on how many narrower or related concepts are displayed in the Hierarchy Browse area. The number of allowed related concepts is set in the

Graphite Configuration Scheme described in this document. When that limit has been exceeded, the following message is displayed in the hierarchical display:



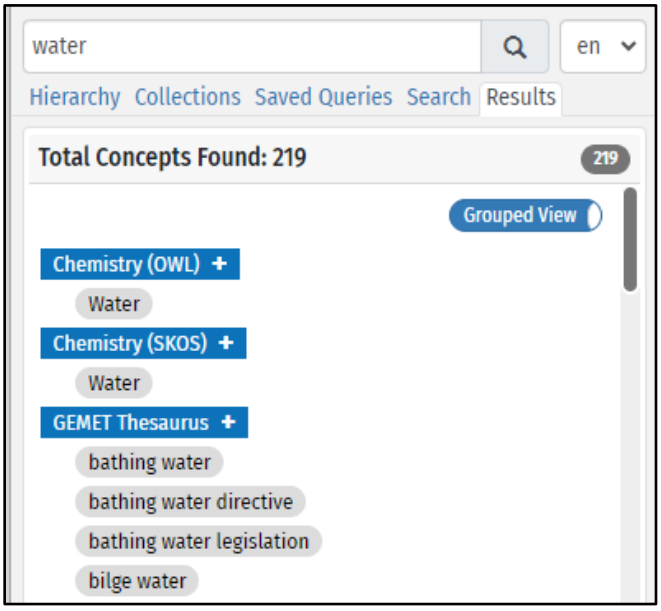
To view narrower or other related concepts, the user should select to highlight the primary concept to view the main concept details screen to view related concepts in the appropriate relationship panel. However, please note that there may also be a limit set by a Graphite Administrator in the Graphite Configuration Scheme for the allowable number of related concepts that may be displayed in each panel. If that limit is exceeded, a message will be shown and the user can apply search and filtering options within the panel to view additional related concepts.



5.3.2 Search

5.3.2.1 Quick Search

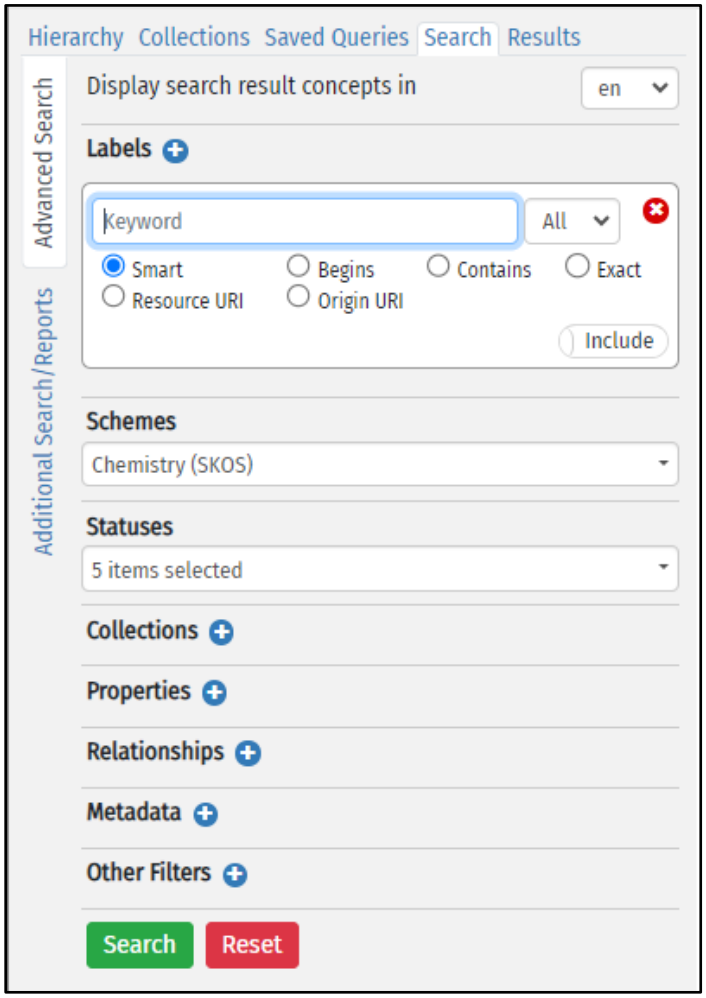
The Quick Search box at the top of the Discovery Panel allows the user to enter a value and search for Concepts across Schemes in the Project to find matching results. The language selector next to the search box allows searches against concepts in a specific language.



Upon receiving results in the *Results* tab, you may select the appropriate concept and it will populate the full concept listing (properties and relationships) in the Workspace area. If you return to the hierarchy display, you may jump to the concept you selected within the context of the hierarchy by clicking on the refresh icon of circular arrows.

5.3.2.2 Advanced Search

To access the *Advanced Search* interface, click on the *Search* tab under *Concept Manager*. The *Search* tab includes two sub-tabs for *Advanced Search* and *Additional Search/Report*. The top-level Universal Search box is then removed.



The filtering criteria included in the *Advanced Search* options are:

- Display search result concepts in [language]
- Labels: Concept Keyword or Phrase [language]
- Type of Search [Smart, Begins, Contains, Exact] [Include/Exclude]
- Resource URI or Origin URI [Include/Exclude]
- Concept Scheme
- Concept Status
- Concept Collection [Include/Exclude]
- Concept Properties [Include/Exclude]
- Concept Relationships [Include/Exclude]
- Concept Metadata
    - Concept Created By
    - Concept Last Modified By
    - Concept Created At
    - Concept Last Modified At
- Other Filters

- Concept Resource Type
- Concept Template
- Concept Is Top Concept

These search criteria will be used to filter and narrow down results for all the criteria selected. Unselected or partially selected criteria will be ignored during the search.

Display search results concepts in

The *Display search results concepts in* option will narrow search results to include only concepts in the language selected from the dropdown.

Label & URI

The *Labels* field allows for the inclusion of one or more free text keywords for search. The *Language* dropdown option is set to *All* by default will show concepts matching the free text entered into the *Keyword* box in all languages or the selected language only. It is also possible to choose whether to *Include* (default) or *Exclude* the text included in the *Keywords* text box.

The plus icon next to *Labels* allows for the addition of another *Labels* field. Each added *Labels* parameter is combined in the search as an AND option. *Labels* can be removed using the red *X* icon.

The Keyword field also supports URI search. The URI search is an exact match.

Type of Search

You may select which type of search you wish to perform within each *Labels* box.

- **Smart** mode allows you to enter up to five keywords or parts of words. The search retrieves all concepts whose labels begin with all the words or parts of words, regardless of the order in which they appear. = [char]* [char]* [char]* [char]* [char]*

  Example: *bot wat* will yield *bottled water* and *water bottling*

- **Begins** mode will look for the entered word, phrase, or character string only at the beginning of a concept label. = [char] * * *

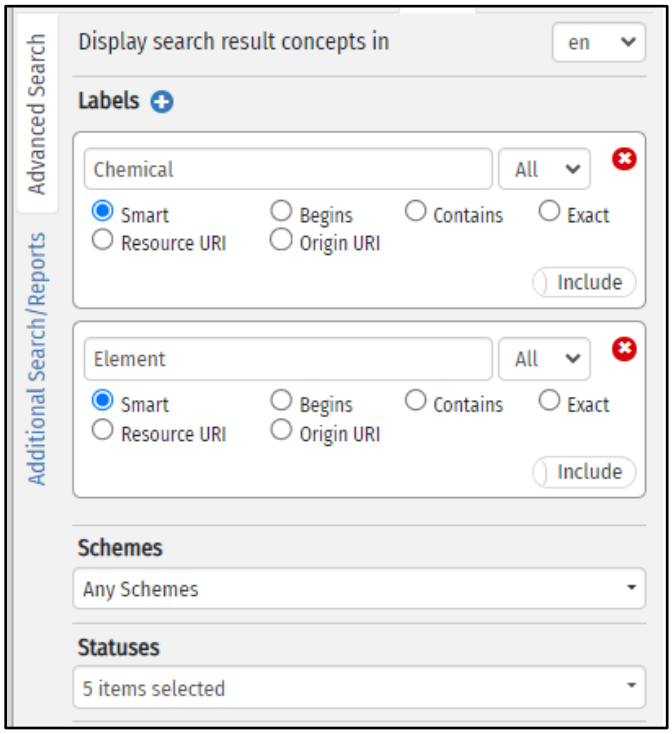
  Example: *bo* will yield *bottled water*

- **Contains** mode retrieves all those terms containing a single search entry anywhere within their descriptors. = * [char] *

  Example: *ottl* will yield *bottled water* and *water bottling*

- **Exact** looks for the exact string entered into the search box. = “[char]”

Example: *bottle* will yield only *bottle*

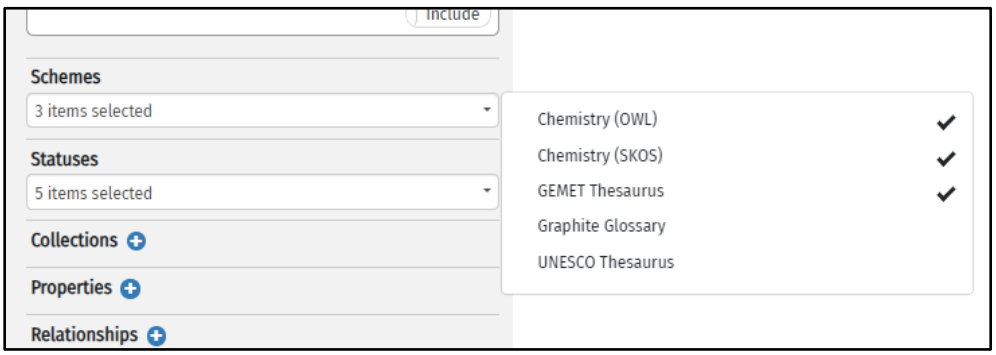


Resource URI and Origin URI

Selecting Resource URI or Origin URI will search for a resource's URI. When using replication and forking options, a second URI is generated. All concepts in a versioned Scheme will be assigned an Origin URI and a Resource URI. The Origin URI is the same URI as the original concept from which it was versioned. The Resource URI is a unique URI applied to the newly versioned concept.

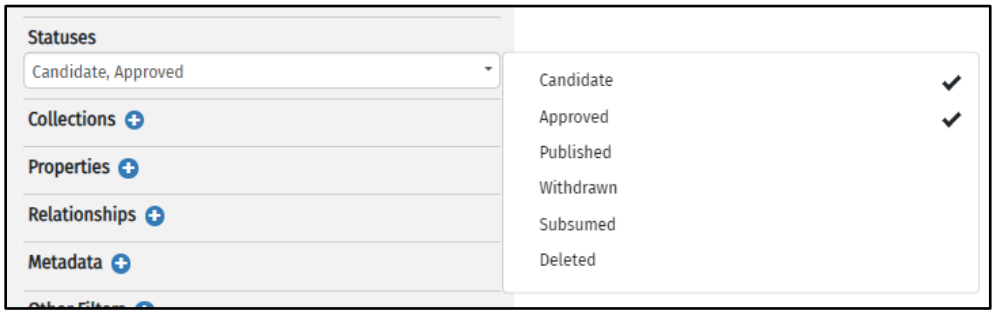
Filter by Concept Scheme

The dropdown selections displayed for Concept Schemes will be filtered based on permissions for the user as well as the selected Project. The concept scheme dropdown supports multi-select options, which will return a union of the search result of each scheme.



Filter by Concept Status

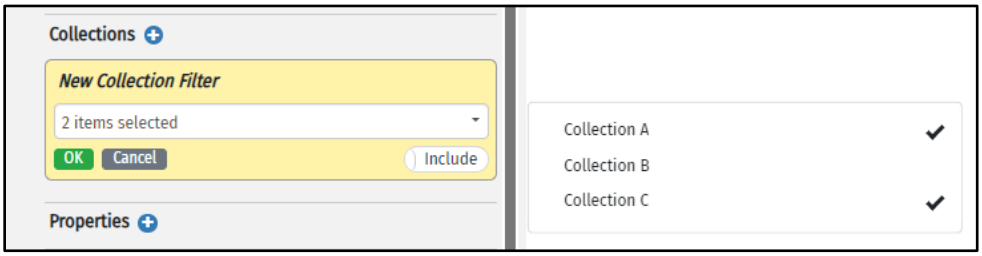
The dropdown selections for concept status consist of *Candidate*, *Approved, Published*, *Withdrawn*, *Subsumed*, and *Deleted*. The Status drop-down supports multi-select which returns a union of the search result of each status.



Filter by Concept Collection

The dropdown selections for a concept collection will also be filtered based on user permissions and the selected Project. The concept collection dropdown supports multi-select which returns a union of the search result of each collection.

It is also possible to choose whether to *Include* (default) or *Exclude* the selected *Collections*.

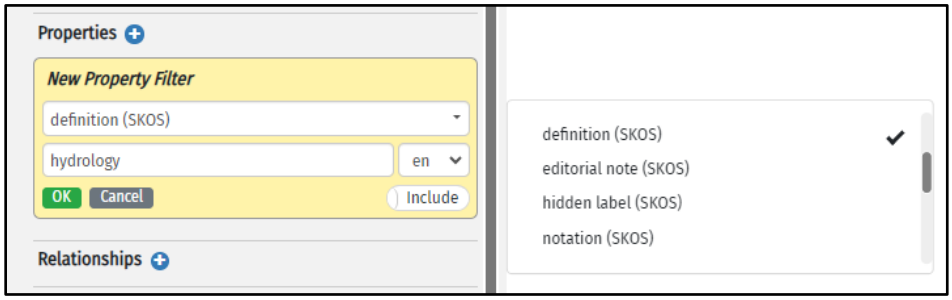


Filter by Properties

Properties available to Schemes selected are available to select in the *Properties* dropdown. Select the Property you wish to search within and, in the next box, enter a value. The option to enter a value depends on the data type of the property. For string properties, a keyword can be entered. For Boolean properties, a Yes/No or True/False value can be selected.

The plus icon next to *Properties* allows for the addition of another *Properties* field. Each added *Properties* parameter is combined in the search as an AND option. *Properties* can be removed using the red *X* icon.

It is also possible to choose whether to *Include* (default) or *Exclude* the values for the selected *Properties*.

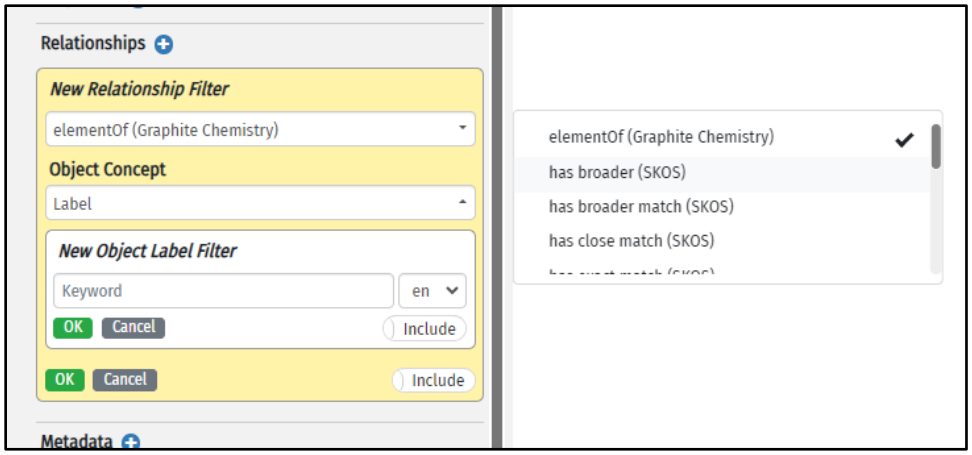


Filter by Relationships

Relationships available to Schemes selected are available to select in the *Relationships* dropdown. Select the Relationship you wish to search for and, in the next box, enter an *Object Concept*, either a *Label* or a *Scheme*.

The plus icon next to *Relationships* allows for the addition of another *Relationships* field. Each added *Relationships* parameter is combined in the search as an AND option. *Relationships* can be removed using the red *X* icon.

It is also possible to choose whether to *Include* (default) or *Exclude* the values for the selected *Relationships*.



Filter by Metadata

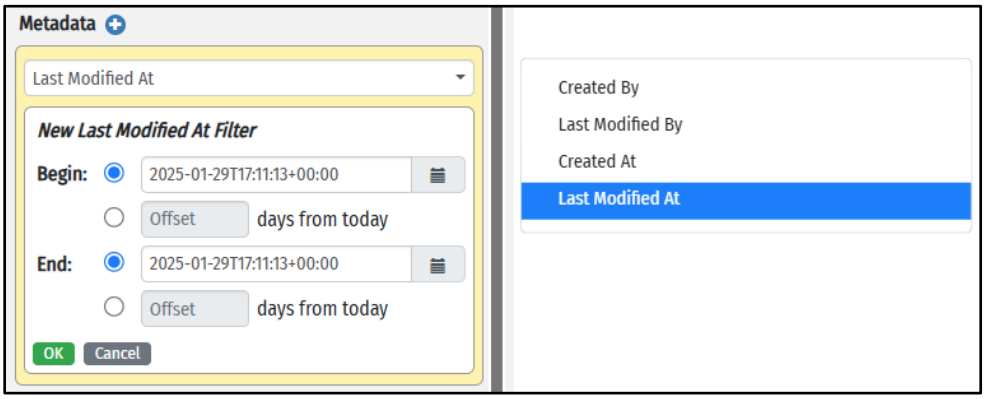
Concept metadata are available to select in the *Metadata* dropdown. Select the Metadata field you wish to search for and, in the next box, select either a user name or a date range.

Metadata supports filtering concepts based on creation or modification made by user(s). The user drop-down selections will be filtered based on permissions for the users and the selected Project.

Metadata also supports filtering the concepts based on creation or modification date and time. Search results can be filtered by indicating a range between a starting date and time and ending

date and time. The results will be filtered based on concept modification or creation date and time ranges respectively.

The plus icon next to *Metadata* allows for the addition of another *Metadata* field. Each added *Metadata* parameter is combined in the search as an AND option. *Metadata* can be removed using the red *X* icon.

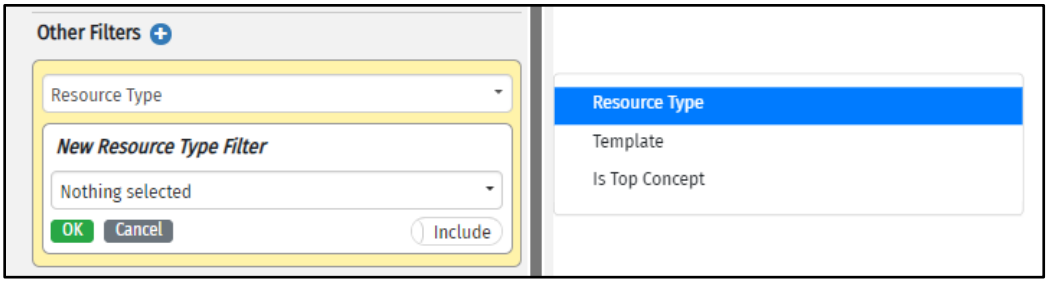


Filter by Other Filters

Other Filters available to Schemes selected are available to select in the *Other Filters* dropdown. Select the Filter you wish to search for and, in the next box, select a *Resource Type*, *Template* available to the selected Schemes, or *Is Top Concept*.

The plus icon next to *Other Filters* allows for the addition of another *Filter* field. Each added *Filter* parameter is combined in the search as an AND option. *Filters* can be removed using the red *X* icon.

It is also possible to choose whether to *Include* (default) or *Exclude* the values for the selected *Resource Types*.



Once all filter types are selected, click *Search* to run the search or *Reset* to clear the form and select different search values.

If the user wishes to stop the search process after it has been initiated, they may use the *Abort Search* option.

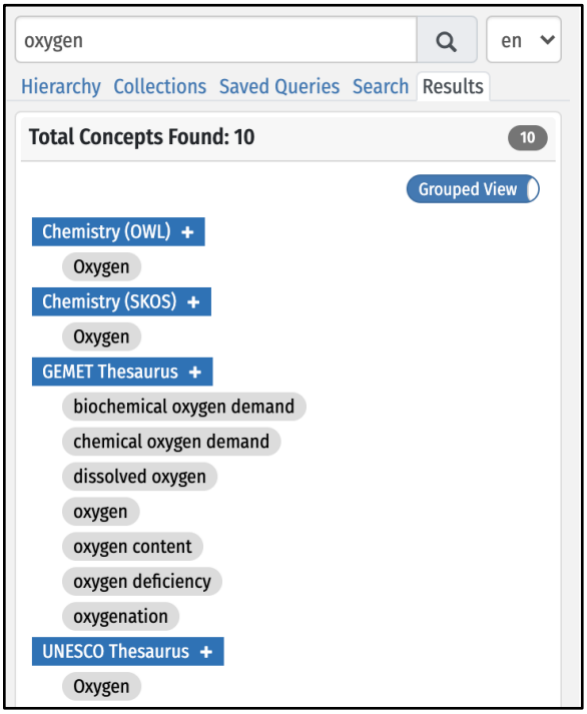
Results from search will be displayed in the *Results* tab automatically, and the user may switch between these tabs and not lose any results, search parameters, or other information.

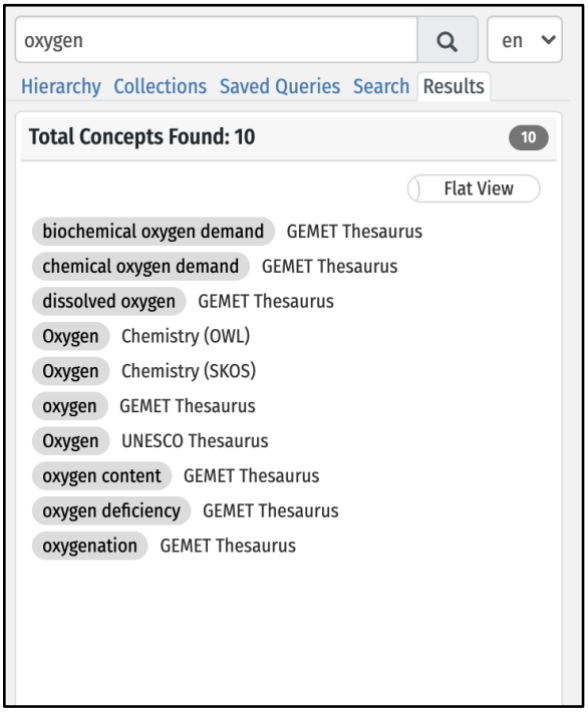
For *Search*, the results can be output with *Saved Query and Report* or batch edited using *Batch Edit Search Results*.

Search Results

Results from search will be displayed in the *Results* tab automatically, and the user may switch between these tabs and not lose any results, search parameters, or other information.

Search results can be displayed in either the default Grouped View or Flat View. Grouped View presents an alphabetized list grouped under Schemes. Flat View presents an alphabetized list across all Schemes with each concept displaying the Scheme to which it belongs in parentheses.

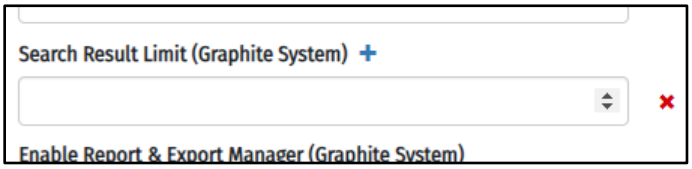




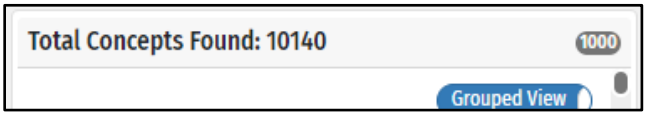
Concepts can be added in search results using the **+** icon just as concepts can be added in the hierarchy tab. The concept will be added as a Top Concept in the selected Scheme.

Search Display Limits

A Graphite Administrator may set limits in the Graphite Configuration Scheme to prevent the display of a large number of search results which may impact system performance.



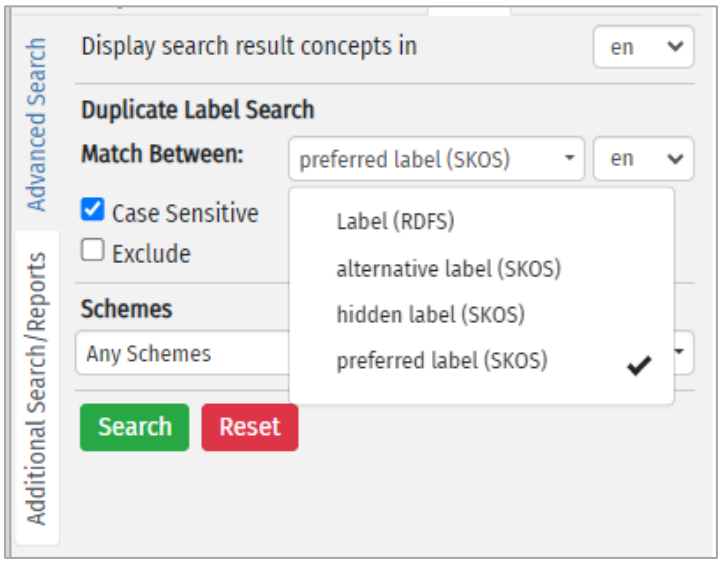
When enacted the total count of results will be shown at the top of the *Results* column with the number of displayed results based on the limit setting to the right.



The user may click on *More Results* to display the next set of results up to the configured limit, which in this case would be the next 1000 results.

5.3.2.3 Additional Search/Report

The *Search* tab includes two sub-tabs for *Advanced Search and Additional Search/Report*. The *Additional Search/Report* tab includes a duplicate search report.



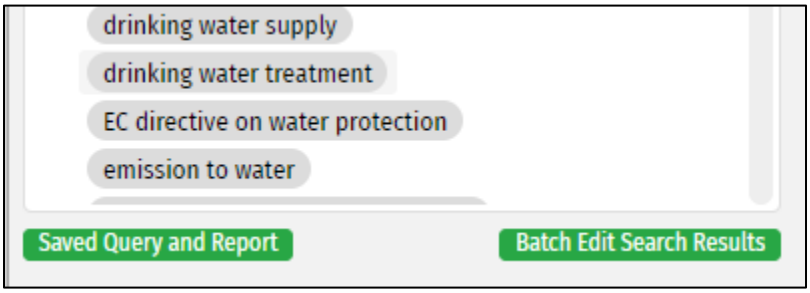
Match Between

The *Match Between* search allows users to find duplicate labels between the *Label (RDFS)*, *alternative label (SKOS)*, *hidden label (SKOS)*, and *preferred label (SKOS)*. The *Match Between* label can be matched within a selected language or between *All* languages.

It is possible to match *Case Sensitive* (default) and to choose whether to *Include* (default) or *Exclude* the label. Schemes can also be selected. Once all filter types are selected, click *Search* to run the search or *Reset* to clear the form and select different search values.

Results from search will be displayed in the *Results* tab automatically, and the user may switch between these tabs and not lose any results, search parameters, or other information.

For *Search*, the results can be output with *Saved Query and Report* or batch edited using *Batch Edit Search Results*.



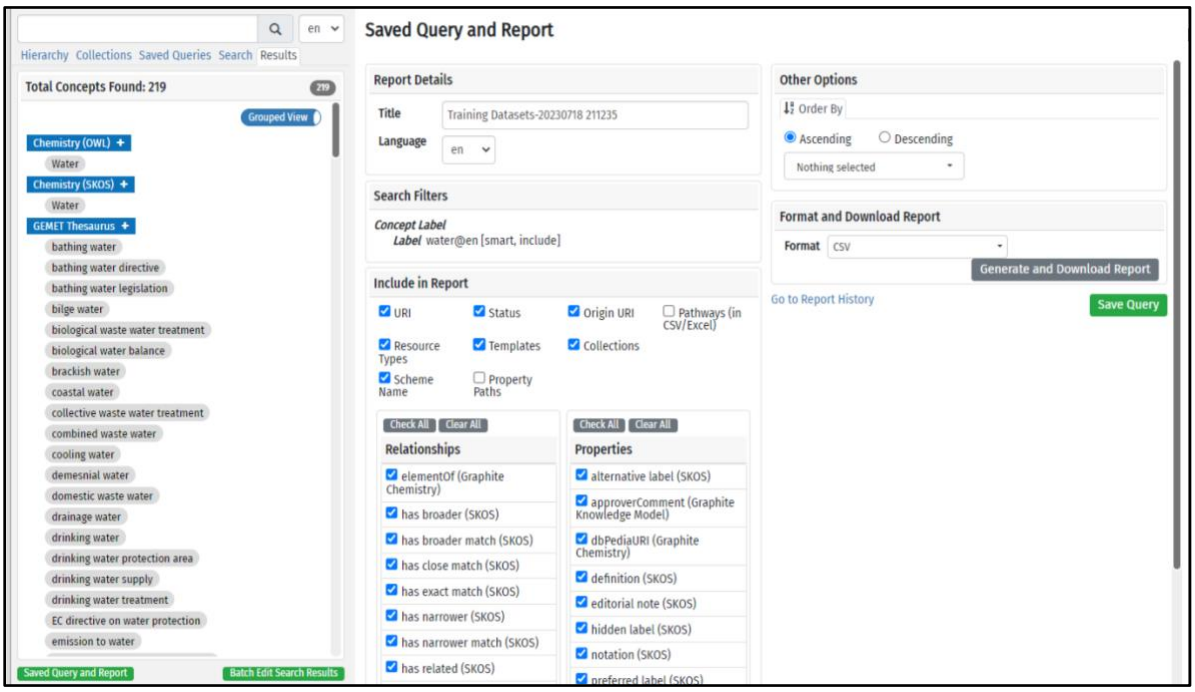
5.3.3 Saved Query and Report

When *Saved Query and Report* is selected from the *Results* tab, the report parameters and output options are displayed in the workspace panel.

The report *Title* is automatically populated but can be changed. Beneath the title, the language of the report output can be set. The applied search parameters for the report are listed under *Search Filters*. Under *Include in Report*, concept metadata fields, relationships, and properties can be selected for inclusion or exclusion from the report. In *Other Options*, the report can be ordered by *Ascending* or *Descending* and *alternative label, preferred label*, or other defined properties. Finally, the report can be output in the following formats.

- CSV
- Hierarchical CSV
- CSV (Unique Property Columns)
- CSV (Unique Property Columns - Verbose)
- Excel
- Hierarical Excel
- Excel (Unique Property Columns)
- Excel (Unique Property Columns - Verbose)
- JSON-LD
- N3
- N-Triples

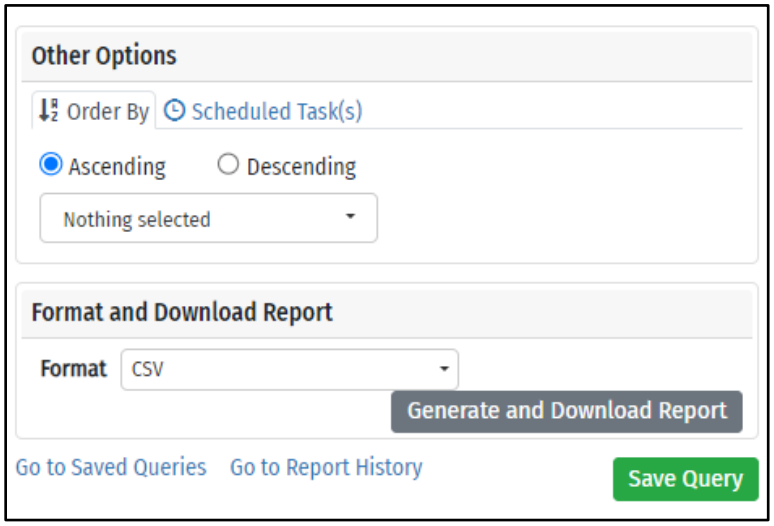
- RDF-XML
- TriX
- TriG
- Turtle
- Binary RDF



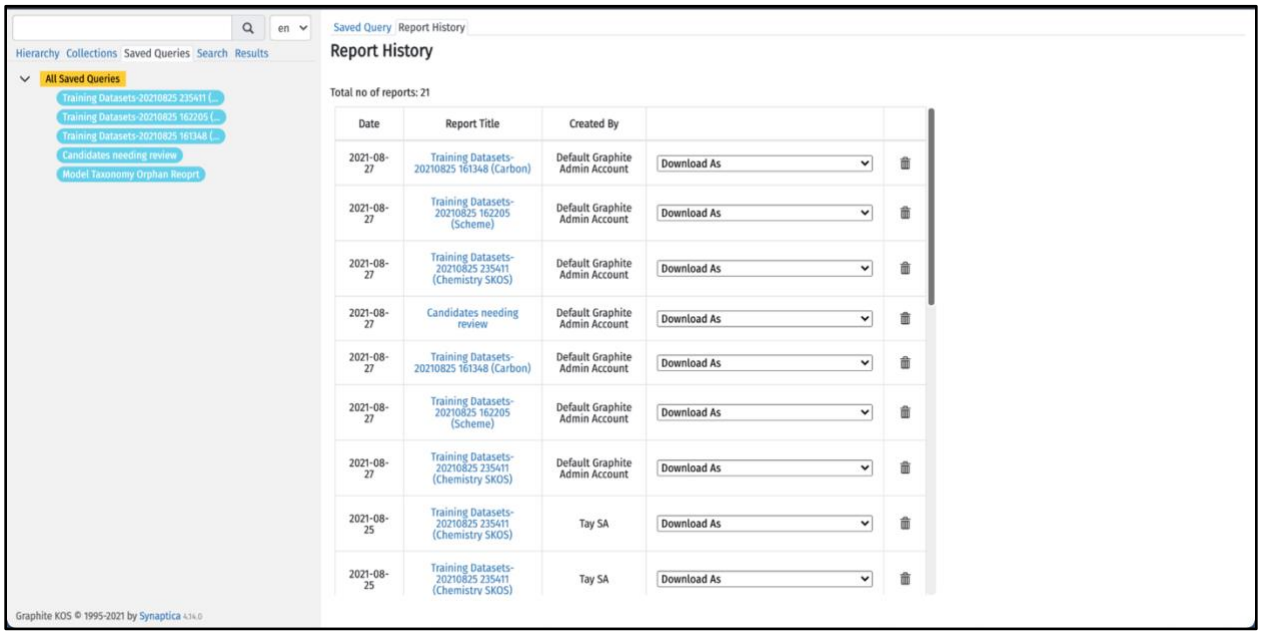
Selecting *Generate & Download Report* will output the report in the desired format.

5.3.4 Saved Query

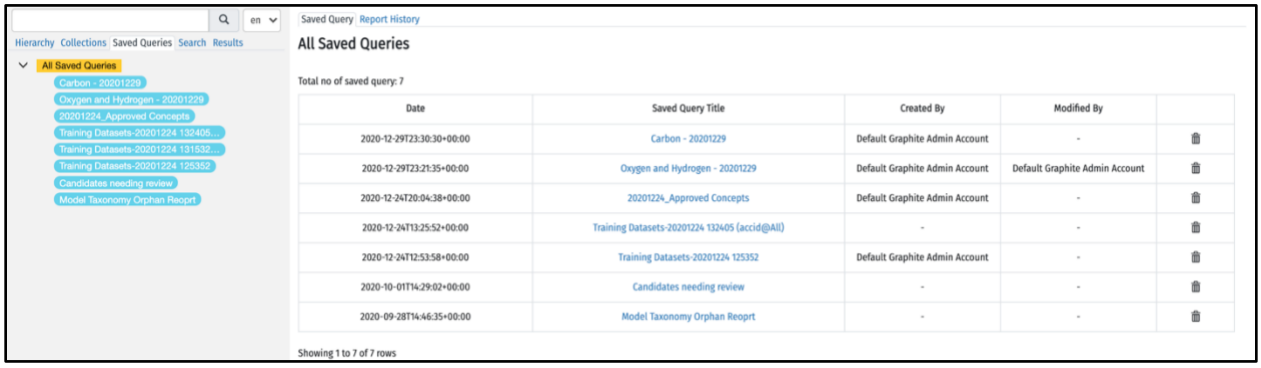
Reports in the *Saved Query and Report* can be saved to be rerun or viewed later. From the *Saved Query and Report* screen, select *Save Query*. When the query is saved, a message will alert the user that the save was successful.



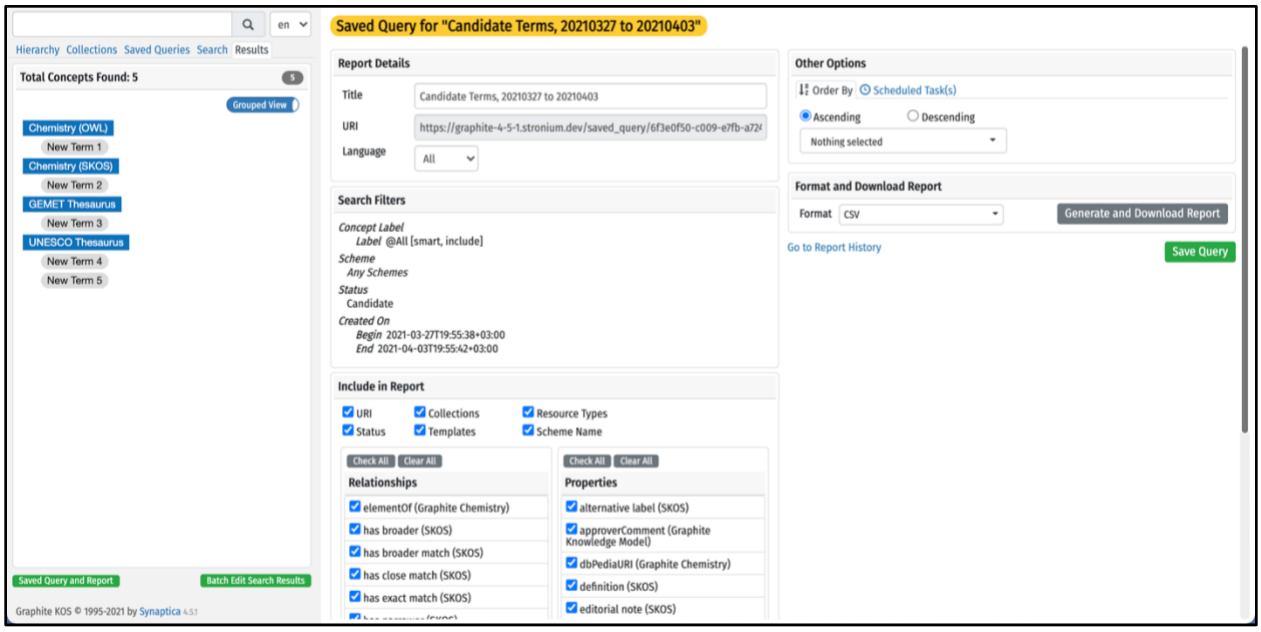
To see the history of downloaded reports, select *Go to Report History*. The *Report History* tab will display all downloaded reports. It is possible to download existing reports in all but hierarchical formats. Previously run and downloaded reports can be deleted using the trash can icon.



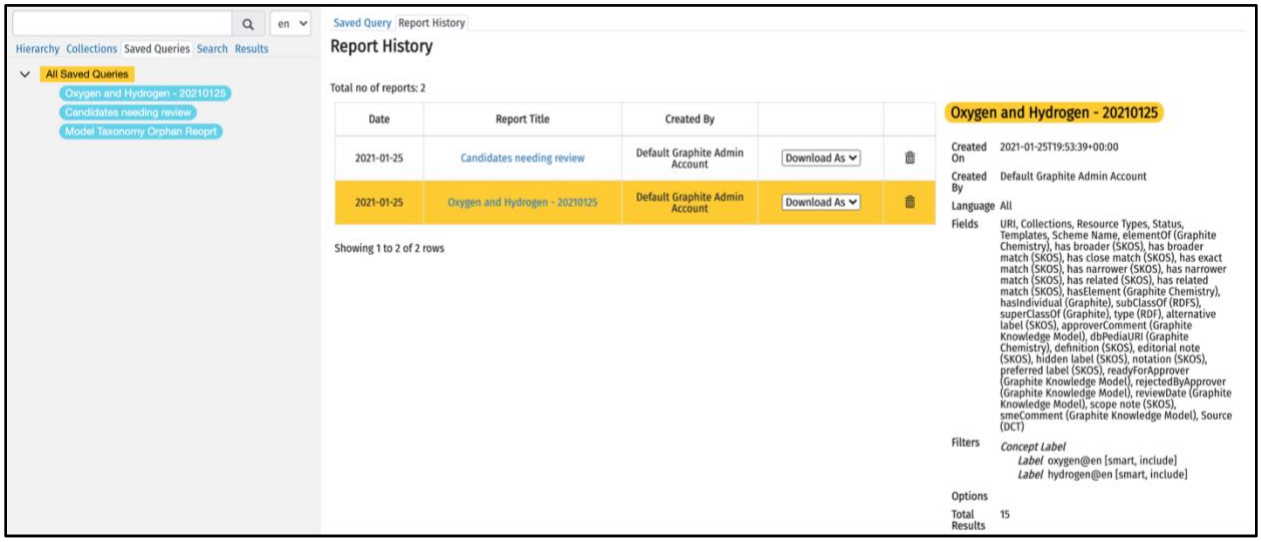
To see saved queries, select the *Saved Queries* tab from the left-hand navigation pane. Selecting the top level, *All Saved Queries* will display all saved queries in the left-hand navigation and in the *Saved Query* tab in the workspace panel.



Selecting an individual saved query from the list in the navigation pane or under the *Saved Query Title* column in the workspace pane will reload the original query and populate the results tab in the same manner as the *Saved Query and Report* button from the *Results* tab. Saved Queries can be deleted using the trash can icon. When a saved query is retriggered, the original search parameters will be populated in the *Search* tab and can then be modified to run a new report or create a new saved query. For example, candidate terms spanning a week's time can be reported and then the parameters reloaded and changed to run a new report.



The *Report History* tab will display a history of all generated and downloaded reports whether saved or not and can also be accessed from the *Go to Report History* button from the *Saved Query and Report* screen. Selecting the linked *Report Title* displays the details of the report. The report can be downloaded again in the same or different format using the *Download As* dropdown. Reports can be deleted using the trash can icon.



5.3.5 Scheduled Tasks

Reporting tasks can be set up in the Scheduled Tasks admin area. See section *on Scheduled Tasks Admin Tools* for more information.

5.3.6 Batch Editing

The concepts in the search results from a *Quick Search* or *Advanced Search* can be edited at one time using the *Batch Editor*. Select the *Batch Edit Search Results* button at the bottom of the search results panel and the *Batch Editor* workspace will be populated.

In the *Batch Editor* results workspace, the *List of Concepts for Batch Editing* is presented, and individual items can be removed using the red **X** next to the concept before proceeding to make batch edit changes. Hovering over a concept in the *List of Concepts for Batch Editing* panel will display the name of the scheme in which the concept is located.

The user must have the appropriate permissions for all Concepts they wish to edit.

The items which can be edited in the *Batch Editor* include:

- Resource Types (Add or Delete), which will display all of the Resource Types available in the Project.
- Templates (Add or Delete), which will display all of the common Templates for the selected concepts.
    - Only the Templates available to assign based on the intersection between available Templates for the concept's Scheme can be added.
- Collections (Add or Delete), which will display all of the Collections available in the Project.
- Relationships (Add, Append, or Delete), which will display all of the common Relationships for the selected concepts based on the permitted relationships of the concepts.
    - Relationships are based on inter/intra scheme permissions and Project Admin write access.
    - For hierarchical relationships, if the subject or object is *topConcept*, when the relationship is assigned, a dialog will prompt the user to decide whether to retain or remove *topConcept*.
    - Polyhierarchy will be established if the subject or object already has a parent concept.
- Properties (Append or Delete), which will not display the preferred label but will show the alternative label if the alt label uniqueness is turned off.
    - Click on the pencil icon to edit the property.
    - Click on *Clear All Existing Data* to remove all the data for all the concepts under the selected property.

- Metadata, which will display if the user has Editor II status.
    - The Concept Status (Change State) can be changed and saved.

For any field with a **+**, information can be added to the field. Once the **+** is selected, a minimum of three typed characters will begin the contains search for permitted concepts.

All of the concepts and their information in the *Batch Editor* can be deleted using the *Delete* button and once deleted can be restored with *Restore* or permanently deleted with *Permanently Delete*.

If the items in the results share properties and relationships defined in a common Template, Scheme, and Project Admin permissions, then pre-existing common values will be displayed and can be edited or removed. For example, the concept *Oxygen* shares the following elements which can be edited across Schemes.

- Resource Types (Add or Delete)
- Templates (Add or Delete)
- Collections (Add or Delete)
- Annotation Properties (by Property Type) (Add or Delete)
- Concept Status (Change State)

Batch Edit Display Limits

If the number of search results to be batch edited exceeds system configured display limits, a message will be shown instructing the user to search for specific entries.

> ***Note:*** *Please note that even when search is used in this area and a subset of the total search results list is displayed ALL concepts in the original result set will still be affected by a Batch Edit, and not just the subset being displayed in the panel.*

Template and Collection Editing

To remove a Template or Collection using the *Batch Editor*, click on the red **X** next to the assigned value. To assign a new Template or Collection, click on the **+** to select a new value.

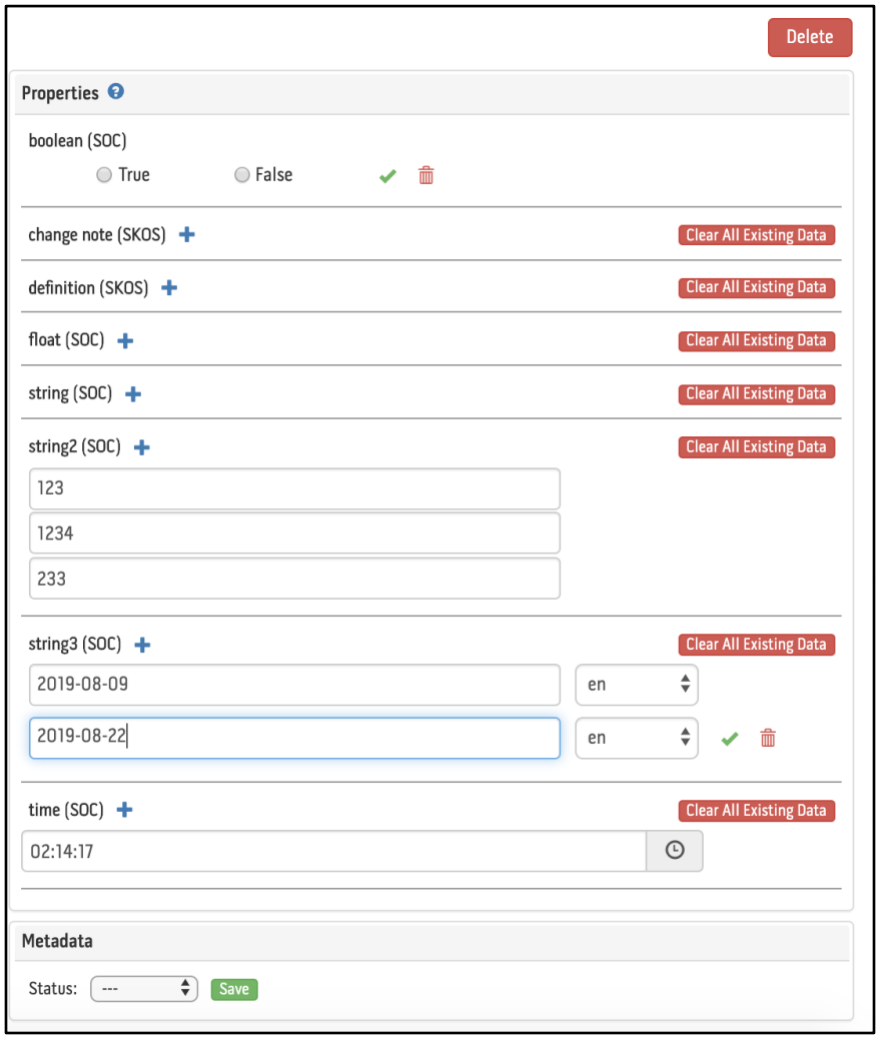
> ***Note**: It is possible both through individual concept editing and through batch editing to remove a Template assigned to a concept. When this happens, the annotation properties and relationships associated with that Template will disappear from view for the affected concept. The data itself has not been deleted, and upon reassignment of the Template the values will reappear.*

Relationship Editing
To add new relationships for the selected concepts, click on the **+** icon for any given relationship type to open a type-ahead search to look for and then select a value.

In this example, a group of terms containing the word *carbon* were passed to the batch editor, and then a search via the *skos:Related* predicate was made to identify concepts containing the word *emissions*. After making selections, it would then be possible to relate a batch of concepts about *carbon* to a selected concept about *emissions*. In the type-ahead relationship creation, a "No more results" message will appear to indicate the end of the list of matching concepts.

Common Attributes Editing
Common attributes can be edited in the *Batch Editor*. The **+** icon can be used to add new fields to complete with attributes which should be added to all selected concepts. Once added, users can click the green checkmark or the trash icon to save or delete the new common value.

Click on *Clear All Existing Data* to remove all the data for all the concepts under the selected property.



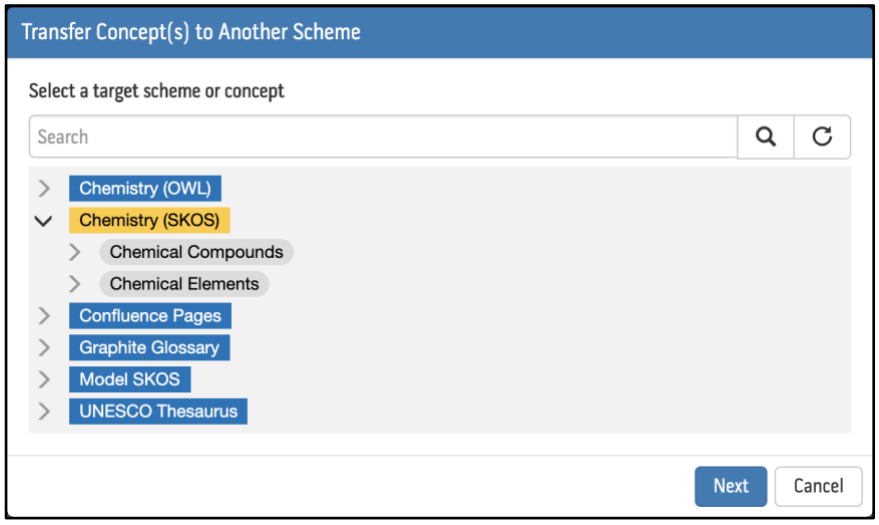
Alternative Label Editing
One may add alternative labels to the group of terms being batch edited as well.

> ***Note**: This feature is only available if the Scheme is set to allow duplicate Alt Labels in the Scheme Manager by making sure the "Enforce altLabel uniqueness" option is not selected.*

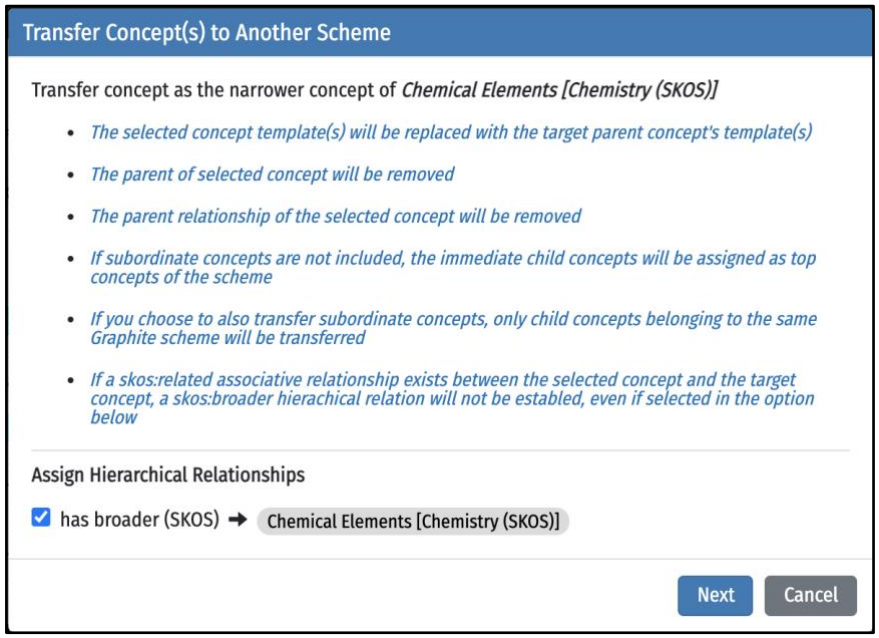
5.3.6.1 Batch Concept Move

Multiple concepts can be moved from one Scheme to another using the Batch Editor. In this example, all concepts with the word "oxygen" are being moved from one Scheme to another. Since the concept "oxygen" already exists in the target Scheme, it has been removed from the *List of Concepts for Batch Editing* window.

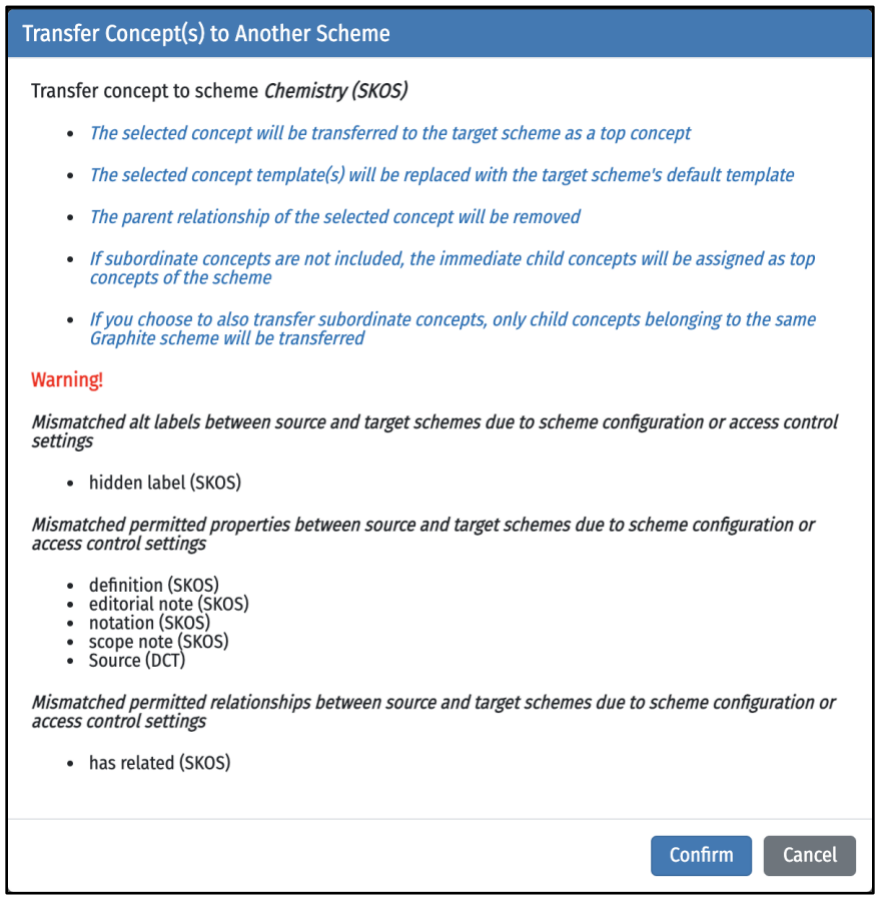
Selecting *Transfer* in the upper right-hand corner of the Workspace will first prompt a target Scheme selection. Only one Scheme can be selected.



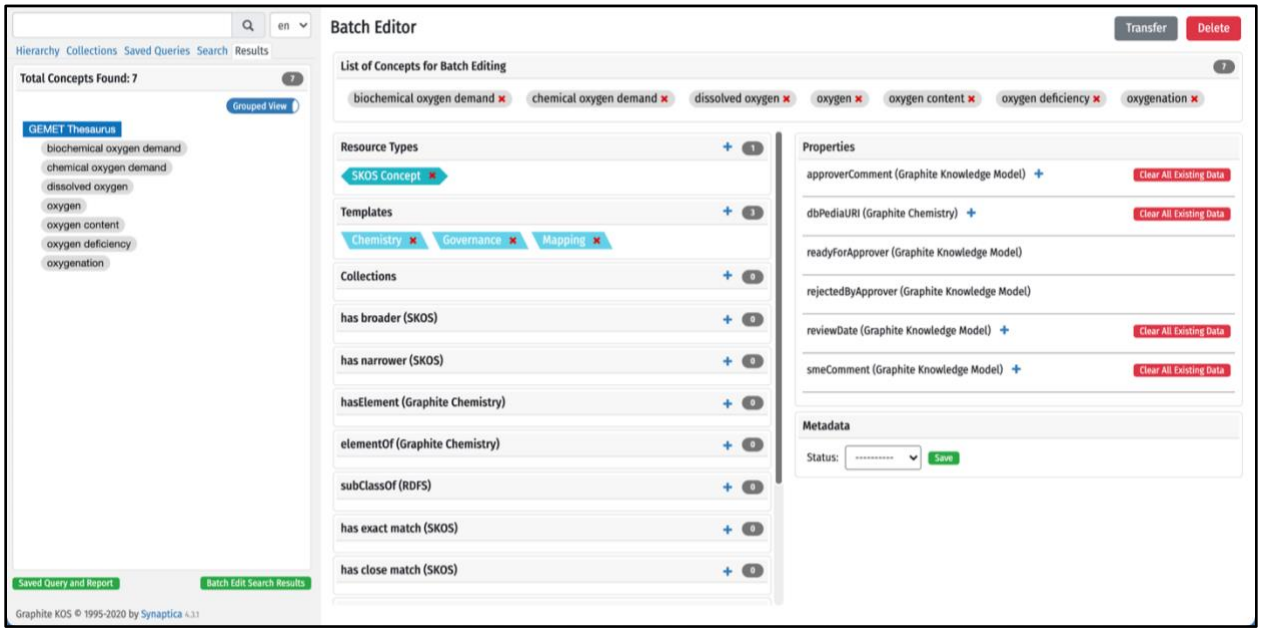
Depending on the selection, several warning messages will appear before moving to the next step of the transfer. It will also be necessary to select the type of hierarchical relationship which will be used for the transferred concepts.



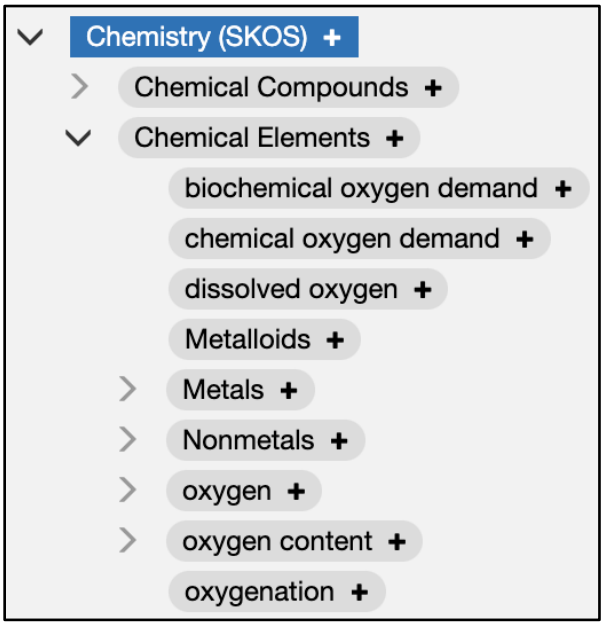
Selecting *Next* will present additional warnings specific to the property and relationship differences between the origin and target Schemes.



Selecting *Confirm* will transfer the concepts to the new Scheme. Since the concepts are still grouped for Batch Editing, the newly shared properties, relationships, and replaced Templates of the transferred concepts are now displayed in the Batch Editor.

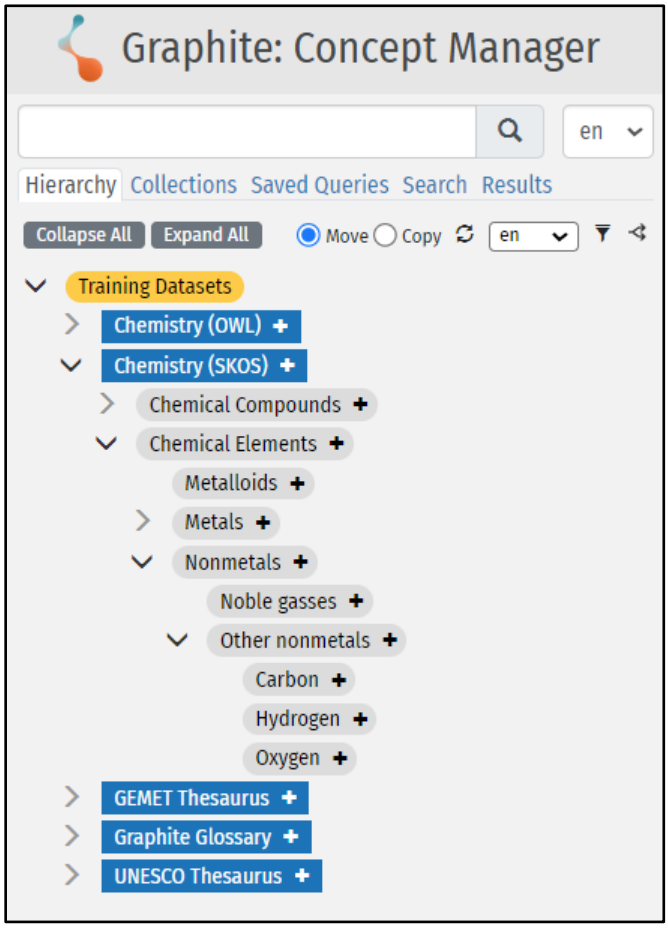


All transferred concepts now appear under the target concept.



5.4 Concept Manager and Editing Workspace

As an editor, you will spend most of your time viewing Concept Schemes and making edits to the Concepts they contain. This work will be done in the Concept Manager area.



5.4.1 Viewing Projects, Schemes, and Concepts

At any point in the hierarchy, the user may select the Project, a Scheme, or one of the concepts to view or edit by clicking on it. The item will then be highlighted in yellow and the Workspace area will be populated with all of its associated information, including hierarchical paths below the concept label, properties, and relationships. Selecting a Project displays the *Project* tab with information about Collections, the concepts by Scheme, and metadata. Selecting a Scheme displays the *Scheme* tab, an *Export* tab, an *Import* tab, *Controlled Vocabulary Validations* tab, and an *Audit Trail* tab. Selecting a concept displays the *Concept* tab, an *Export* tab, an *Import* tab, Audit *Trail* tab, and a *Merge Concepts* tab.

5.4.1.1 Project Landing Page

After initially selecting a Project, the user will see a Project Landing Page. This page contains information about what Schemes are contained in the Project, along with a list of any SKOS Collections assigned, a total Concept count, and the Project URI. A pie chart provides a graphic representation of Schemes in the Project, based on the number of Concepts in each.

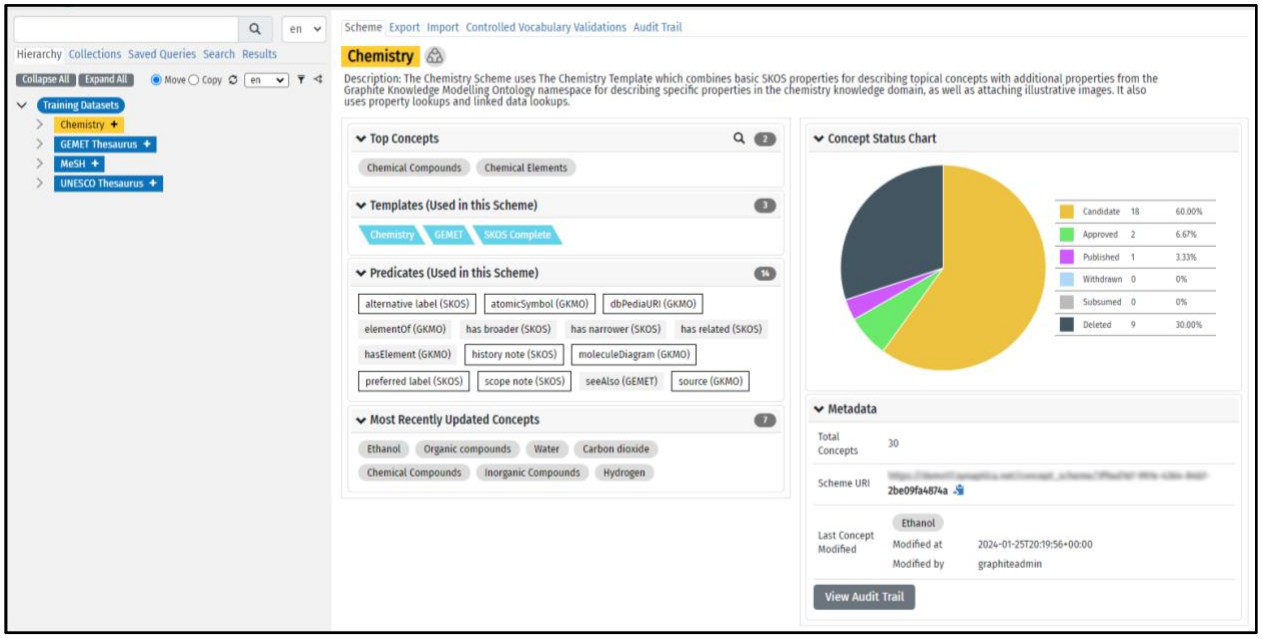
> ***Note:*** *In the Project and Scheme landing pages, counts are not displayed in the section headers until they have been opened. This is done to avoid performance or system*

resource issues that may delay the opening of the page if the number of results for a section is large.

5.4.1.2 Scheme Landing Page

Clicking on any of the Schemes (displayed with the blue background) will open the Scheme Landing Page. The page will show details about the Scheme including:

- The Top Concepts
- Templates used in the Scheme
- All Predicates (Properties and Relationships) in use in the Scheme
- A list of the most recently updated Concepts
- A graphic representation of Concept status (e.g. Candidate, Approved, Published, etc.)
- Additional Scheme metadata including a total Concept count, Scheme URI, and other details.



Note: *In the Project and Scheme landing pages, counts and other details are not displayed in the section headers until the section has been opened. This is done to avoid performance or system resource issues that may delay the opening of the page if the number of results for a section is large.*

Tabs are available on the Scheme landing page to perform the following tasks:

- Export the complete Scheme
- Import into the Scheme
- Run Controlled Vocabulary Validations to check for structural or display anomalies
- Review the Audit Trail of editorial activities for all Concepts in the Scheme

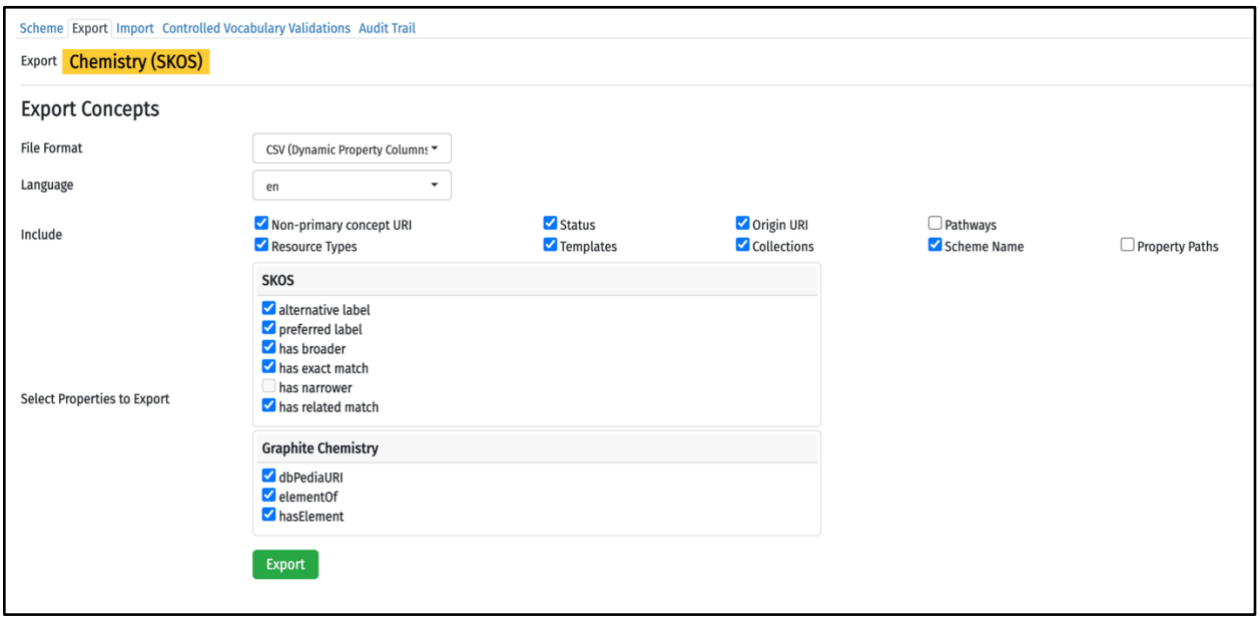
5.4.1.2.1 Scheme Export

To export a complete Scheme, click on the “Export” tab while viewing the Scheme landing page. A variety of export options and formats are available in this area including:

- CSV (Dynamic Property Columns)
- Relationship Export CSV
- Hierarchical CSV (Dynamic Property Columns)
- CSV (Unique Property Columns)
- CSV (Unique Property Columns - Verbose)
- Hierarchical Excel (Dynamic Property Columns)
- Excel (Dynamic Property Columns)
- Excel (Unique Property Columns)
- Excel (Unique Property Columns - Verbose)
- JSON-LD

- N3
- N-Triples
- RDF-XML
- TriX
- TriG
- Turtle
- Binary RDF

When selecting any of the CSV or Excel options, a variety of filters are available to determine what will be included in the export file. These include selecting language filters and specific Scheme elements such as Scheme metadata, Properties, and Relationships to be included in the columnar file output.



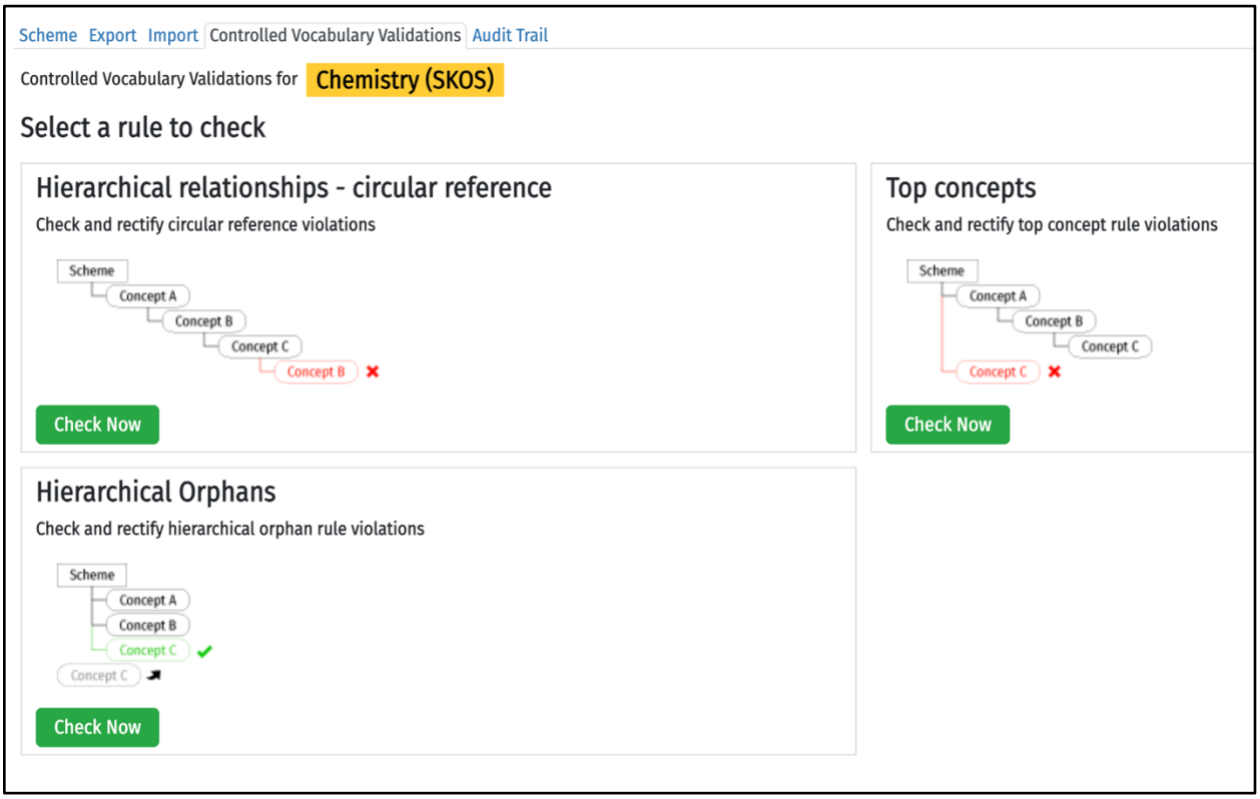
When selecting any of the other file formats such as JSON or RDF-XML, the filtering options are not displayed due to the more self-contained, machine-readable nature of the file contents.

5.4.1.2.2 Scheme Import

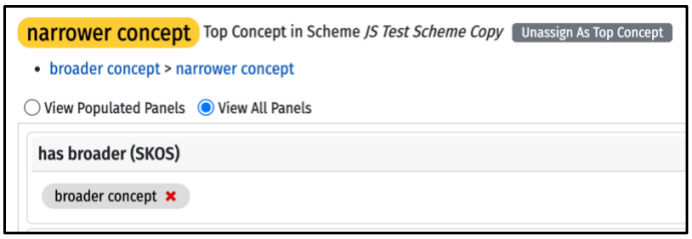
Please see the separate ***Graphite Import Guide*** for detailed instructions on uploading and importing Properties, Predicates, Concepts, and Attributes.

5.4.1.2.3 Controlled Vocabulary Validations

After importing a file or performing certain tasks such as merging concepts, the structure and organization of a Scheme may display unexpected results. The *Controlled Vocabulary Validations* tools can be used to check for these situations.



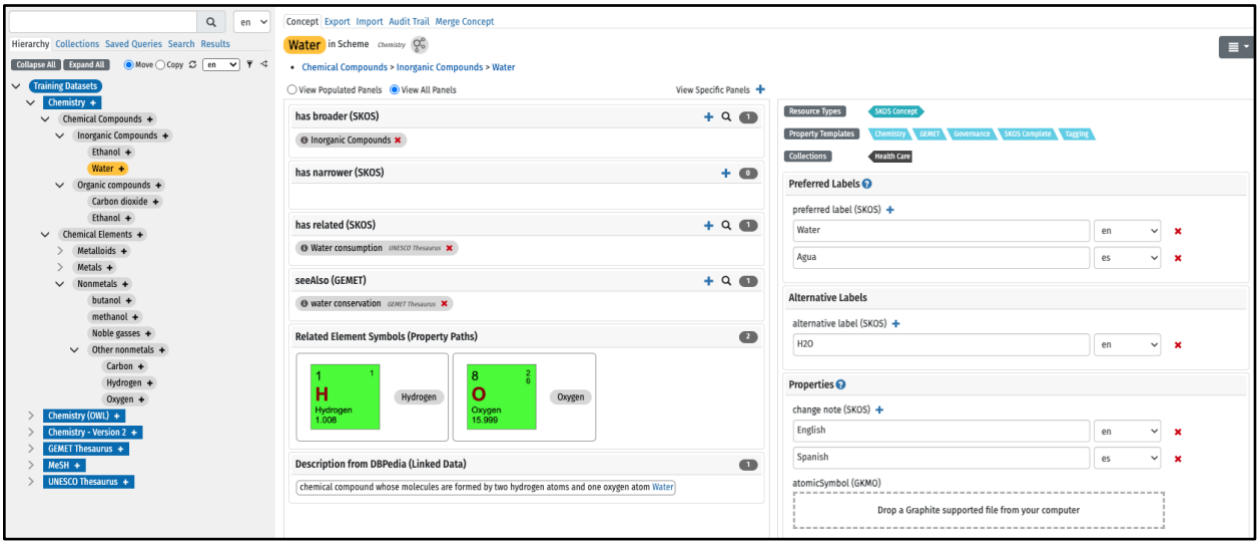
- **Hierarchal relationships – circular references**: While rare, in some circumstances following an import or merging concepts, a situation may occur called a "Circular Reference" where a concept appears in a hierarchical structure that refers back to itself creating an infinite loop. To check to see if any instances of this exist within a Scheme the user may run the Circular Reference check which will identify any instances and allow for corrective editing.
- **Hierarchical Orphans**: To identify any Concepts that so not have a broader concept assigned but should be placed within the hierarchical structure of a Scheme, the user can run this validation check. Results will identify instances of these "orphan" concepts to be inserted into the hierarchy.
- **Top Concepts**: This validation check will identify any Concepts that *do* have a broader Concept relationship present but are also showing as a Top Concept in the hierarchical structure and display. Once identified, the user can open the Concept Details page and will see the option to "Unassign As Top Concept" next to the displayed concept name. Clicking on this will eliminare the Concept from being displayed as both a Top and Narrower Concept and only show it in locations in the hierarchy where a broader concept has been assigned.



5.4.1.2.4 Scheme Audit Trail

The Audit Trail tab in this location displays the complete set of editorial activities across the entire Scheme of all member Concepts. For detailed information about the Audit Trail, please see the “Audit Trail (Transaction Log for Concept)” description under the *Concept Details* section in this guide below.

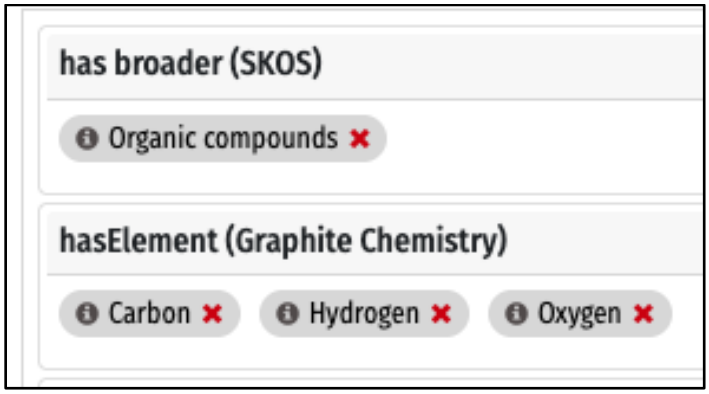
5.4.1.3 Concept Details Screen



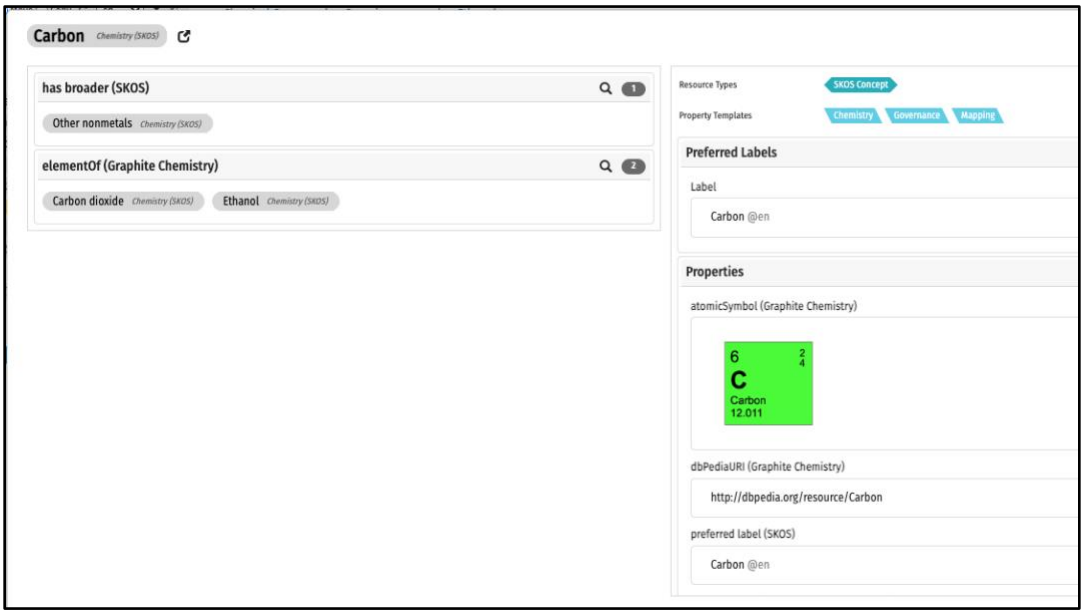
To view narrower or other related concepts, the user should select to highlight the primary concept to view the main concept details screen to view related concepts in the appropriate relationship panel.

5.4.1.4 Related Concept “Info” Icon

As Graphite version 7.7, for all related concepts, an “Info” icon is displayed to open a pop-up window with information for the related concept without having to navigate away from the concept being viewed or edited.

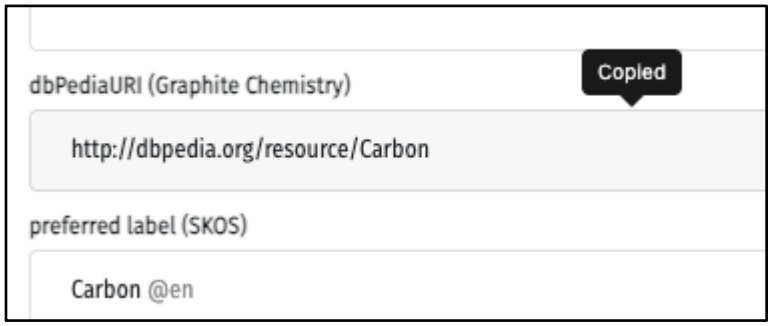


Clicking on the (i) icon will open a pop-up window with relationship, property, and metadata details for the related concept.

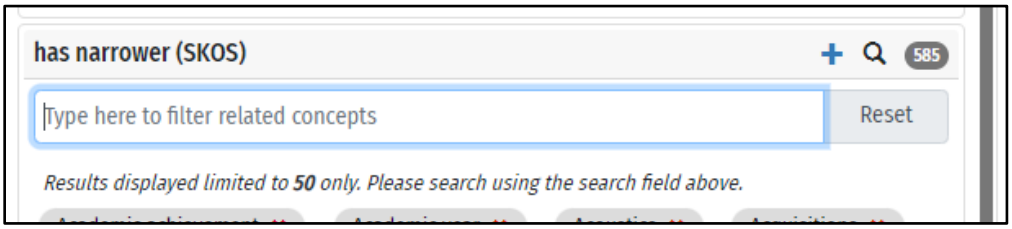


Users may navigate to other related concepts within the pop-up, or click on the icon next to the concept name in the upper left-hand corner to open the full Concept Details page for the related concept in a new browser tab.

Relationship and property values in the pop-up window are not editable. However, clicking on any property values in the pop-up window will copy that value to the clipboard.



Note: *There may be a limit set by a Graphite Administrator in the Graphite Configuration Scheme to set the allowable number of related concepts displayed in each panel. If that limit is exceeded, a message will be shown, and the user can apply search and filtering options within the panel to view additional related concepts. Refer to Graphite Configuration Scheme to set limits.*



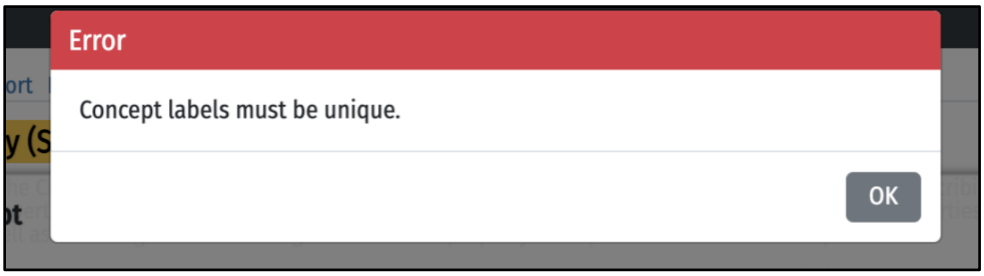
If a concept includes multiple hierarchical pathways, these will display under the concept label name in the workspace. If there are too many to display, a *View All Concept Pathways* message will display. When clicked, all hierarchical pathways will be displayed in an overlay window.

5.4.2 Creating Concepts

To create a concept, click the **+** button at any point in the hierarchy and complete the information in the *New Concept* panel.

As the user types, if there is an existing concept with the same name in the same Scheme, it will appear in the type-ahead dropdown as the user enters text. If the dropdown value is selected, the screen will refresh to show the concept discovery panel for the selected concept.

If the user tries to enter the text and create a new concept when there is an existing concept with the same name, the system will warn the user.



***Note**: Concepts with long label names will wrap in both the hierarchical tree view and within workspace panels.*

5.4.3 Creating and Editing Relationships

Graphite controls which types of relationships, also known as Relational Predicates, are available to connect any pair of concepts based on the Template(s) each Concept belongs to. The business rules for these Template-based relationship permissions are managed by System Administrators and/or Project Administrators. Permissions may be set either within one Scheme or between different Schemes.

Displayed on the left half of the Concept Workspace is a vertical stack of all the Relationships available to the user. Graphite controls the relationships each user can see and edit based on a number of control filters.

First, the Template(s) to which a concept belongs; second, the Scheme to which a concept belongs; and, third, the individual permissions of the user.

There are two methods for creating relationships by drag-and-drop. Relationships between concepts can be created by a simple drag-and-drop user action within the tree structure in the discovery panel and drag-and-drop from the discovery panel to the workspace.

In addition, relationships can be created within relationship fields using type-ahead to locate the concept.

The user can search for or navigate to a term in the Concept Manager Discovery Panel and use the *Collapse All* and *Expand All* buttons above the hierarchies to assist with navigation. When the project name is selected, the *Collapse All* button will collapse all schemes so only the project name is visible. When the *Expand All* button is clicked, the schemes will expand one level at a time for each click. When a scheme is selected, when the *Expand All* button is clicked, the selected scheme will expand one level at a time for each click.

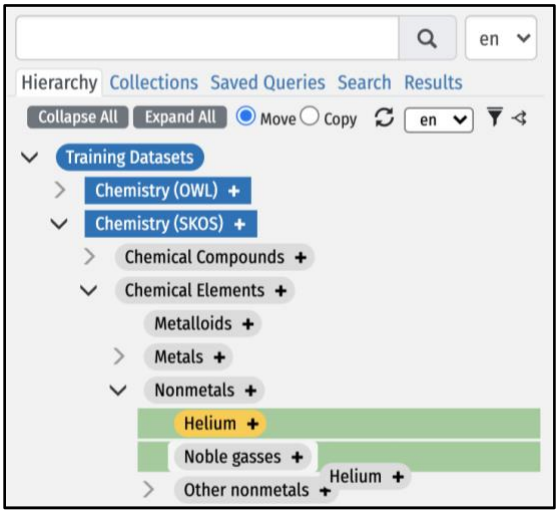
5.4.4 Creating Hierarchical Relationships

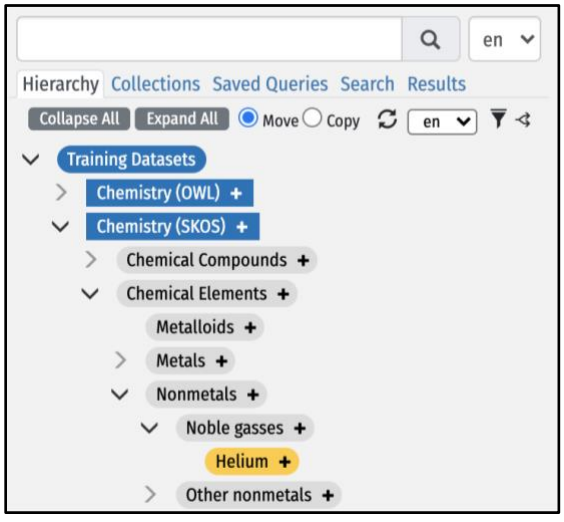
Hierarchical relationships can be created by moving or copying concepts within the hierarchy view or by using the type-ahead field in a hierarchical relationship panel when a concept is selected.

5.4.4.1 Move Concepts Within and Between Schemes

The first drag-and-drop option is to drag a Concept over another Concept in the Hierarchical display to create a Parent/Child relationship (the term being dragged becoming the Child term). Note the default radio button *Move* will move the term from one location to another when selected and terms are dragged and dropped within the hierarchy.

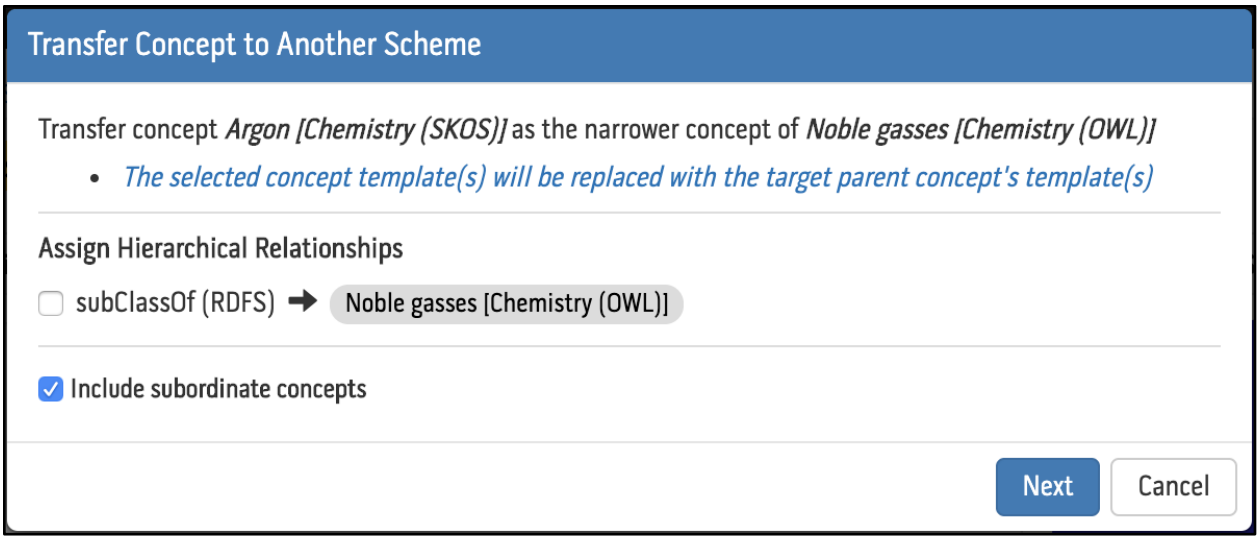
> ***Note**: OWL Named Individual concepts created in the Individuals folder can have relationships with concepts outside the Individuals folder, but they cannot be moved or copied within the hierarchy within or between Schemes.*



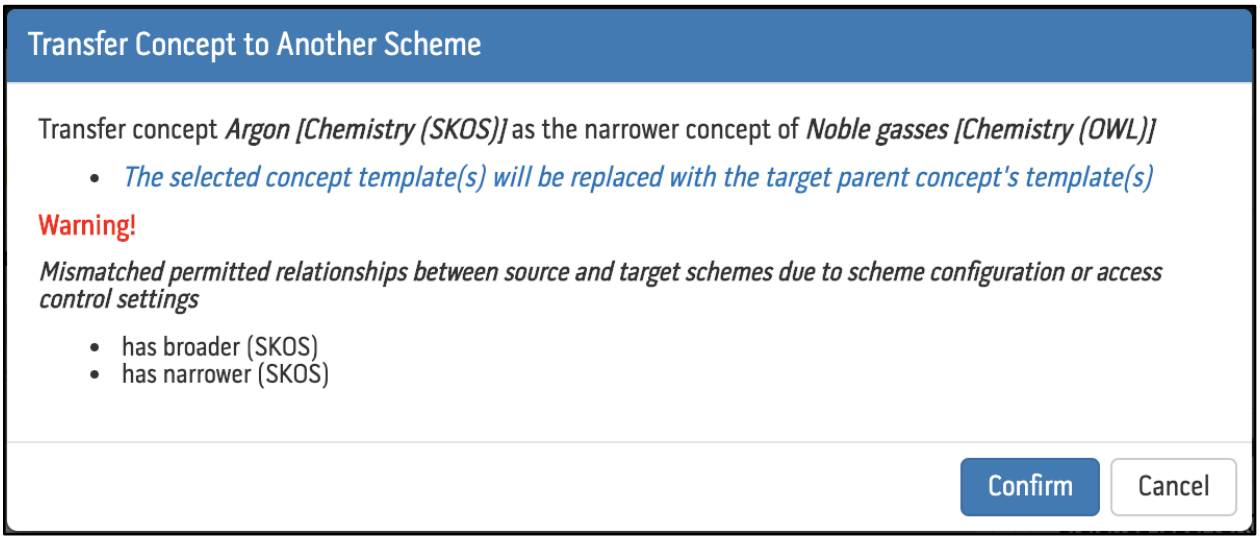


It is possible to move concepts between Schemes using the same method. With the *Move* radio button selected, a concept can be dragged and dropped to a destination location in another Scheme. The system will notify the user that the concept's existing Template will be replaced by the target Scheme's Template assigned to the target concept and prompt the user to select the

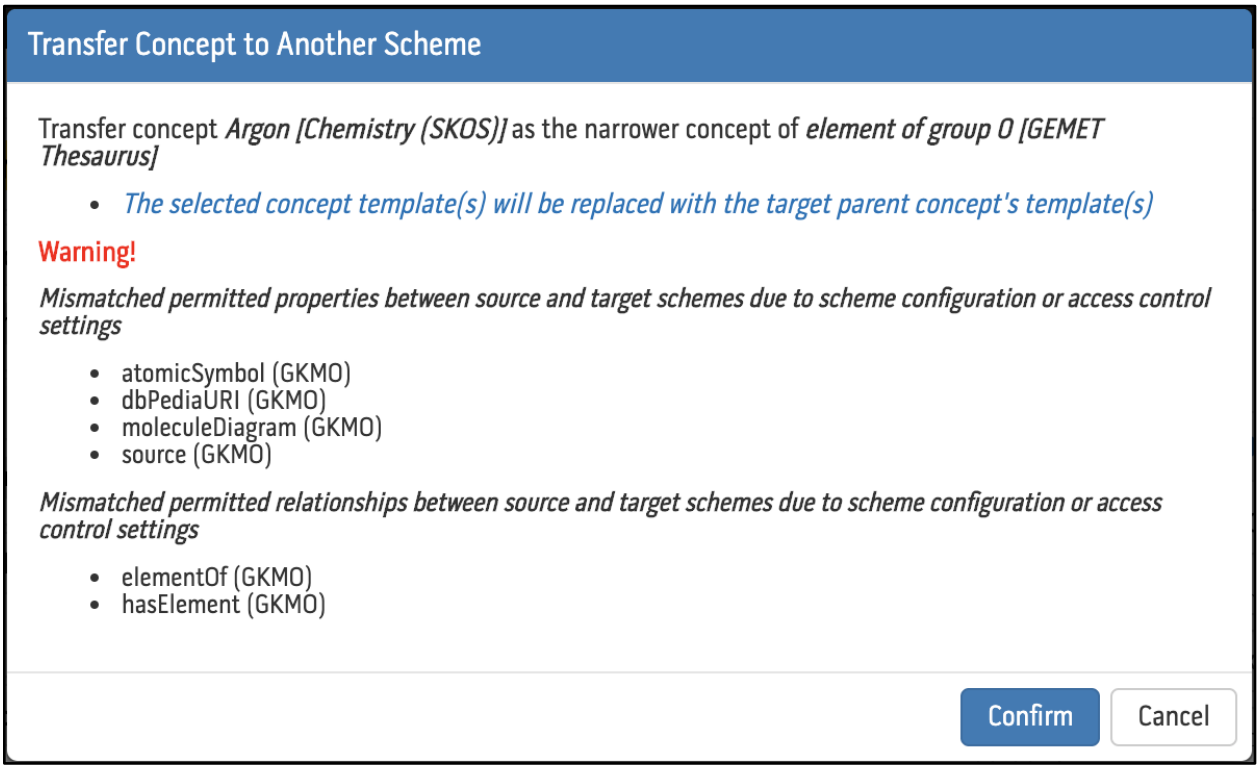
appropriate relationship. The user will also be prompted to choose whether the moved concept's subordinate concepts should also be moved.



If there is a difference in configuration between the source and target Schemes, a warning message will appear noting the differences between Schemes. In this case, the *hasBroader/hasNarrower* relationship will be dropped from the concept and replaced with the *subClassOf* relationship in the target Scheme.



In this example, both relationships and properties differ between the source and target Schemes. These changes should be reviewed before proceeding with a concept move.



Properties and relationships which are added or removed during a concept move will be replaced if the concept is moved back to its original source Scheme or if the original properties from the source Scheme are subsequently added to the target Scheme.

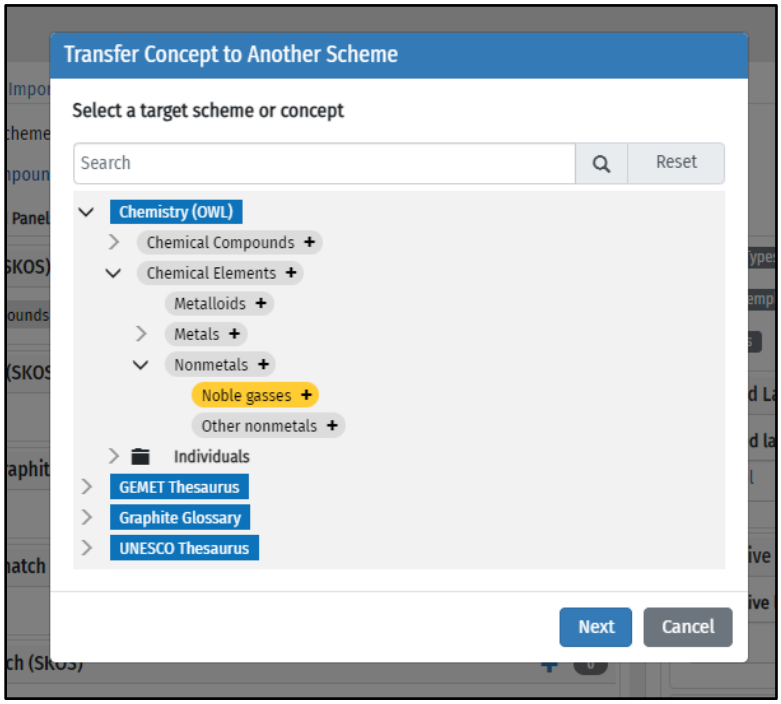
> ***Note**: Concepts moved between Schemes may add or lose properties or relationships, but these properties and relationships are never permanently removed from the triple store in the database. Hence, a property or relationship added to a concept after it has been moved to a new Scheme may surface old property or relationship information if it is later added to the new target Scheme.*

5.4.4.2 Move Concepts Between Hierarchy and Workspace

The second relationship editing method is to drag a concept from the Discovery Panel into another concept already displayed in the Workspace. OWL Named Individual concepts in the *Individuals* folder can also create relationships in this way.

5.4.4.3 Move Concepts Within and Between Schemes Using Transfer

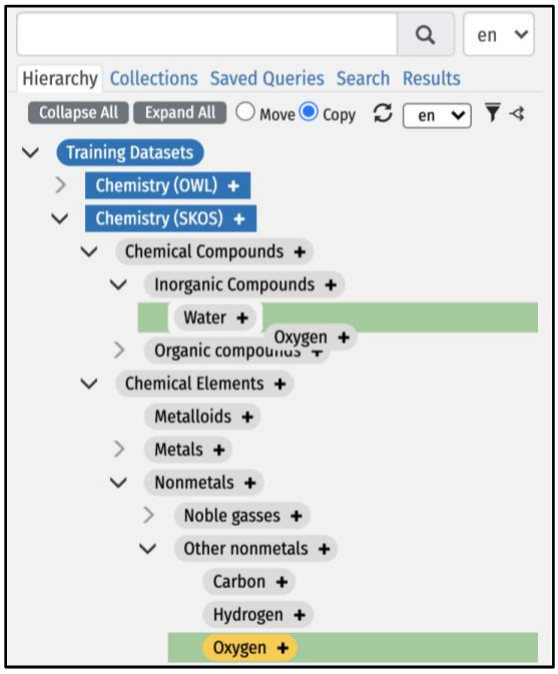
A final option for moving a concept within and between Schemes is to select the *Transfer Concept* option from the dropdown menu at the top right corner of the concept workspace and then searching or navigating to the desired location.

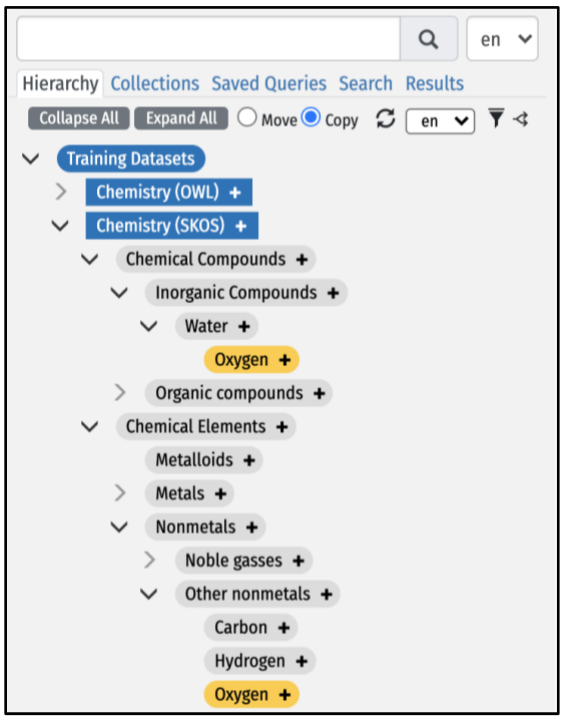


Using the transfer option then brings the user to the relationship selection shown above when a concept is moved within the hierarchy.

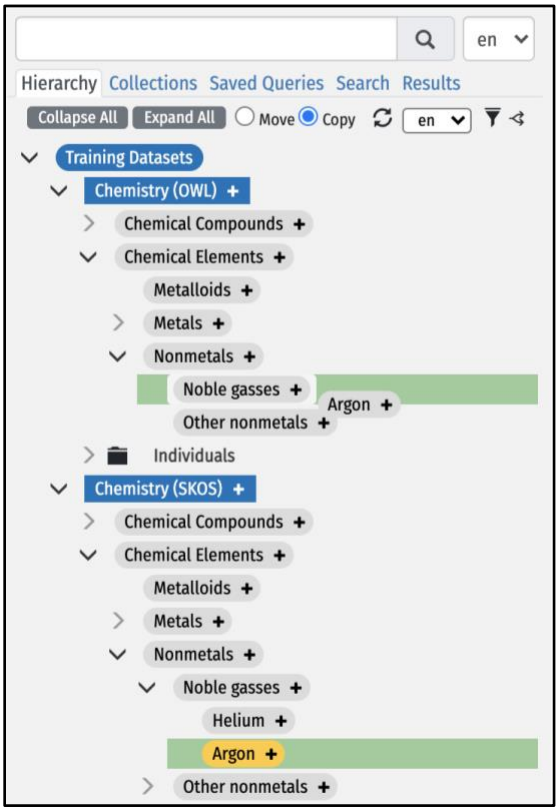
5.4.4.4 Copy Concepts Within and Between Schemes

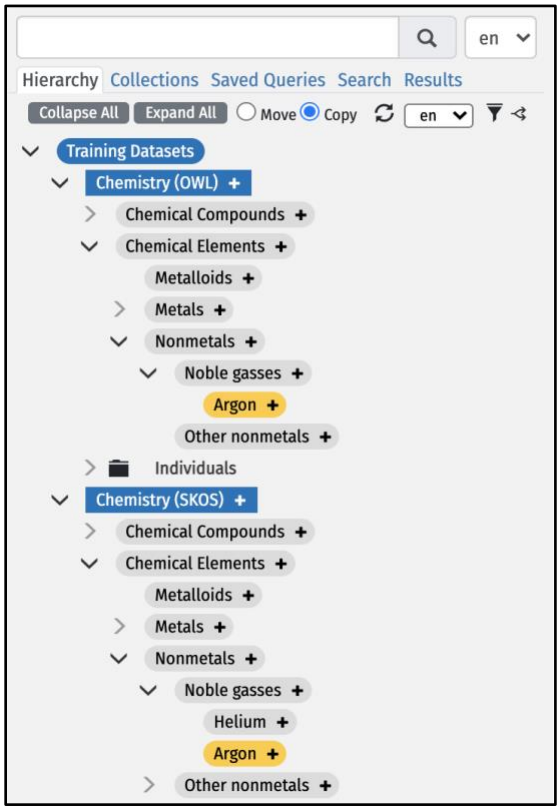
You can create polyhierarchy by selecting the *Copy* radio button at the top of the Discovery panel when dragging Concepts within the hierarchy.





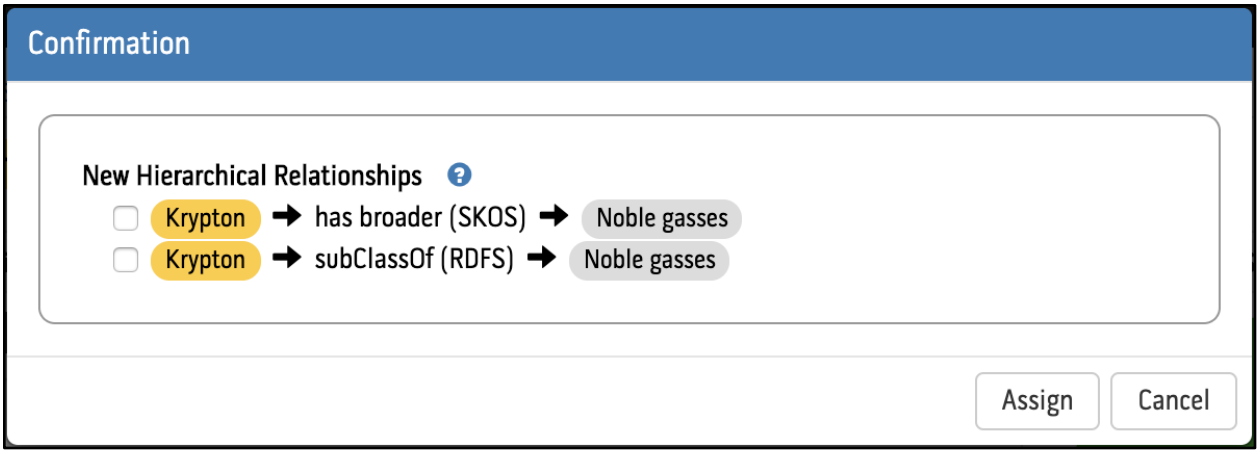
Concepts can be copied between Schemes if the relationships permit. In this example, the concept *Argon* has been dragged and dropped in the hierarchy to another Scheme with the *Copy* radio button selected.





If the relationship rules between the source and target Schemes do not allow the copy and move between Schemes, the user will see a warning message explaining the error.

If more than one hierarchical relationship is available between the source and target Schemes, the user will be prompted to choose one or more before the concept is copied.



> ***Note**: In RDF, anything with a subject URI is called a resource. Resource Types are native classes describing the data model for any given resource. Because resource types are inherent to concepts, they are not changed when a concept is moved or copied between Schemes and can only have additional resource types applied if allowed for the target Scheme.*

Use the hierarchy refresh icon to see changes made to concepts in the hierarchy. The language dropdown menu will display concepts which have alternate label descriptors in the selected language. Only concepts with the pre-existing alternative label descriptor in the selected language will appear.

This method is dependent on the type of relationship. For narrower terms, the result will produce a polyhierarchical instance in which the concept dragged to the new location will show there as well as in its original location in the Scheme. The functionality is the same within and between Schemes if the relationships are available in both origin and target Schemes and both Schemes permit the relationship.

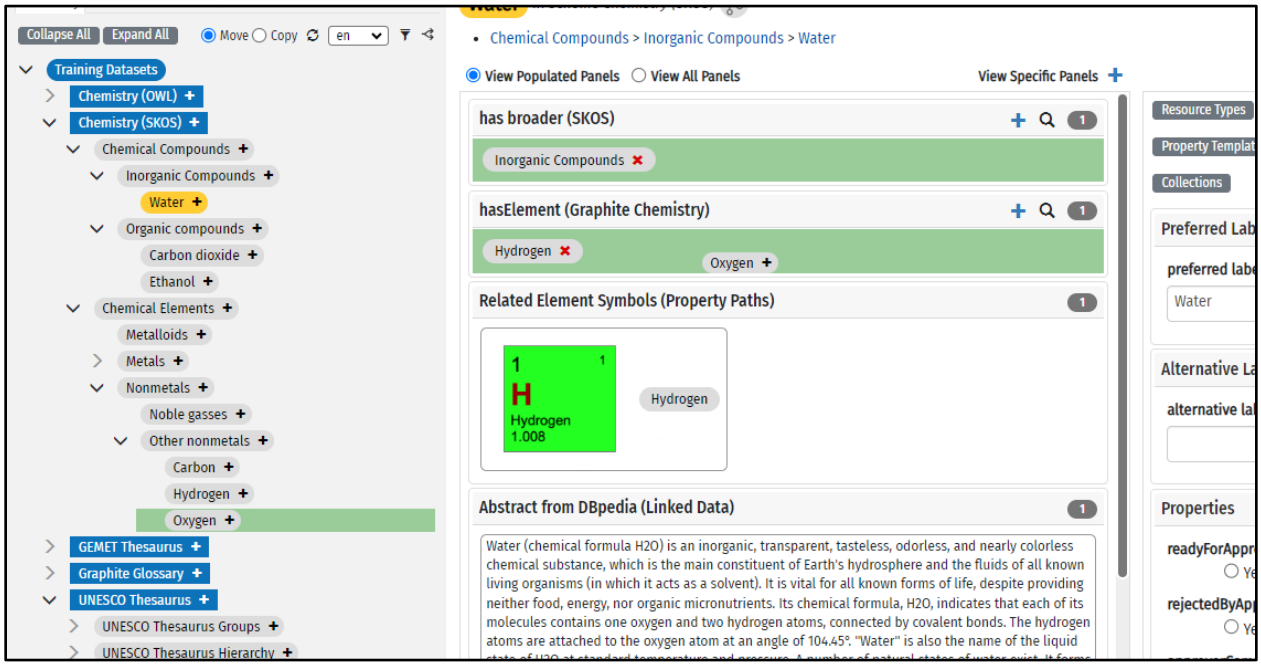
5.4.5 Creating Associative Relationships

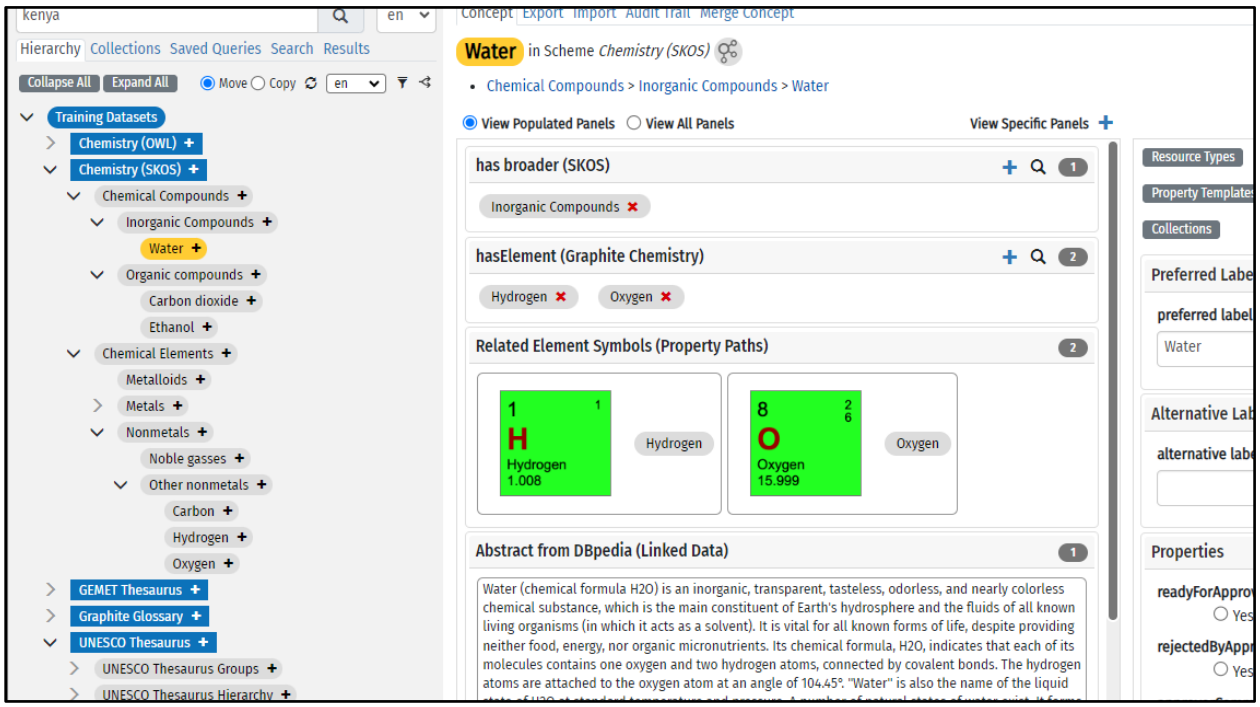
Associative relationships can be created by moving concepts within the hierarchy view or by using the type-ahead field in an associative relationship panel when a concept is selected.

To create associative relationships, it is possible to use the method of dragging from the Discovery Panel to the Workspace if the relationships are available within or between the Scheme(s) assigned to the target concept.

The user drags the concept and drops it on to the relationship container, thereby building an inter-scheme link between the two concepts. The relational predicate used for the link is determined by the container into which the concept is dropped.

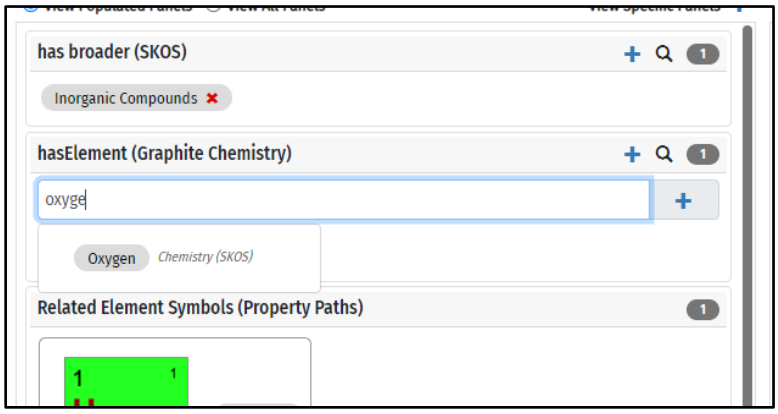
With this method, the system indicates where the user can drop concepts by highlighting valid locations in green.



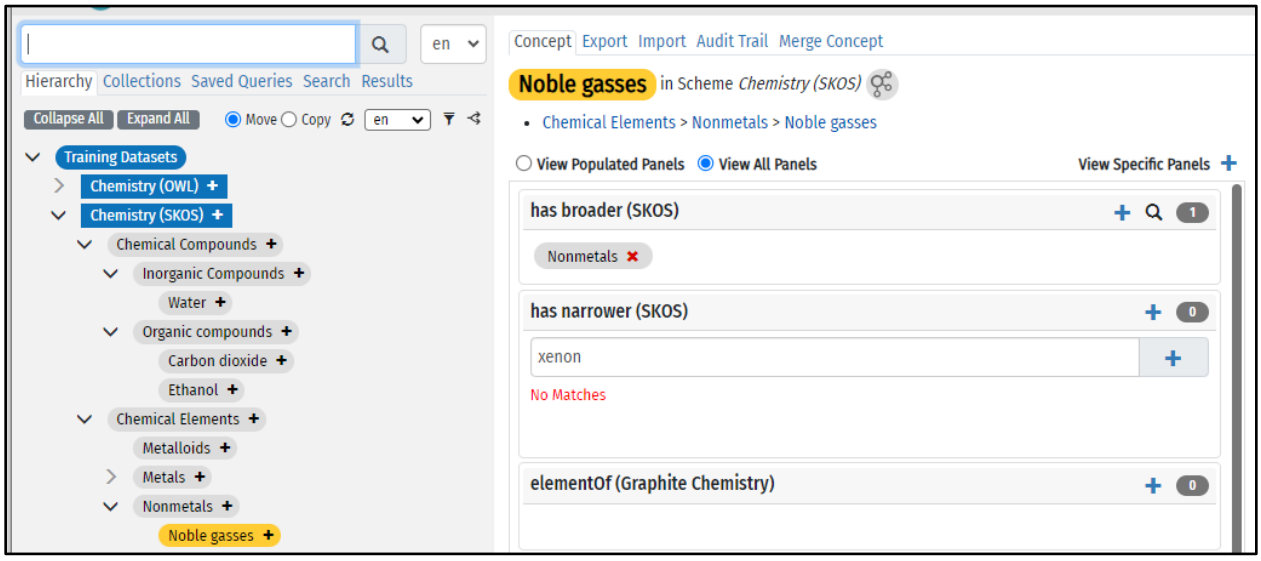


5.4.6 Creating Relationships Using Type-ahead

Relationships can also be created within and between Schemes by adding concepts within a predicate space using the **+** button next to the predicate name. The type-ahead field will begin to bring up a list of matching concepts and the correct option can be selected. In the type-ahead relationship creation, a “No more results” message will appear to indicate the end of the list of matching concepts.

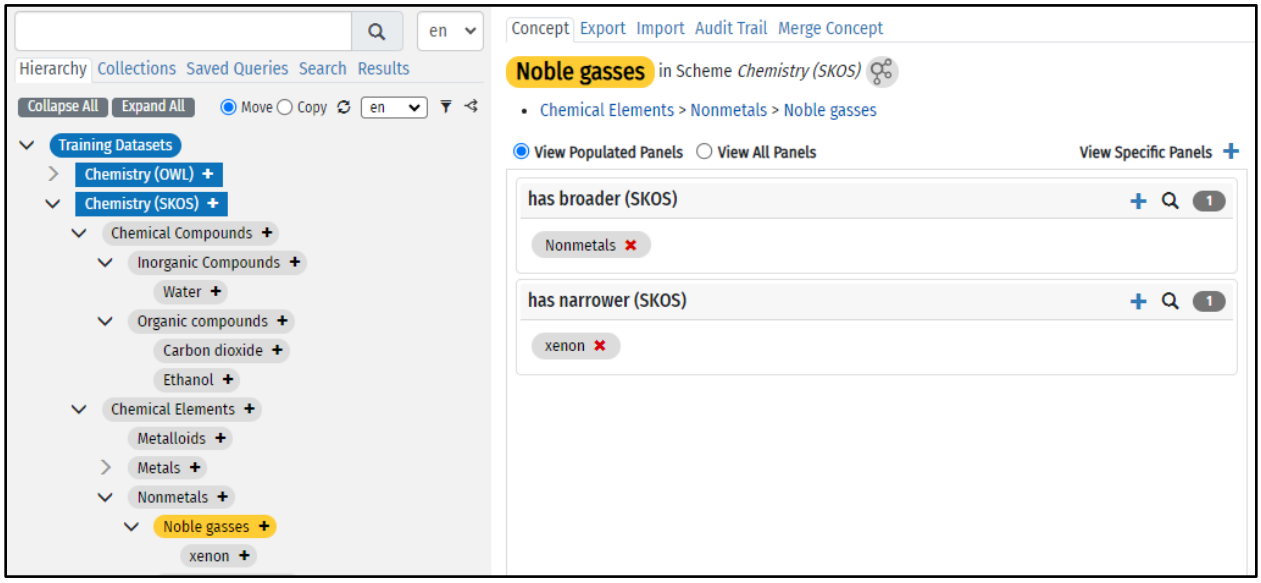


If an allowed concept is not found in the scheme, a new concept can be added directly from the relationship field by clicking the + next to *Create concept from keyword*.



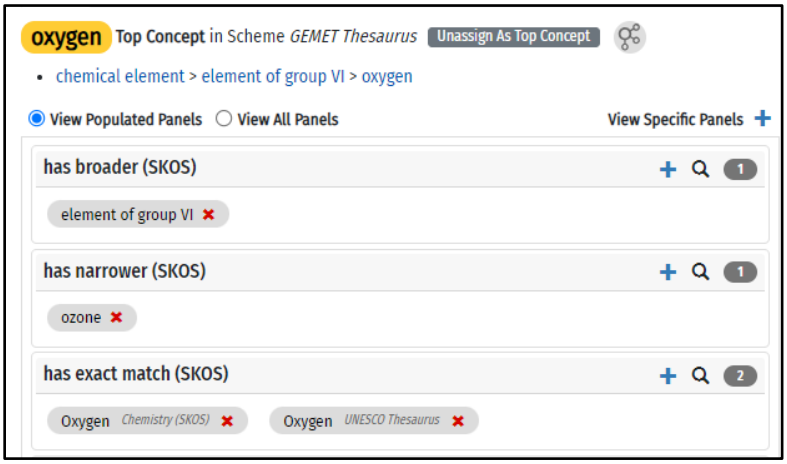
Next, select the target scheme. If the relationship is only allowed within a single Scheme, hitting the **+** button will automatically add the concept to that Scheme.

The new concept appears in the selected scheme per the relationship.

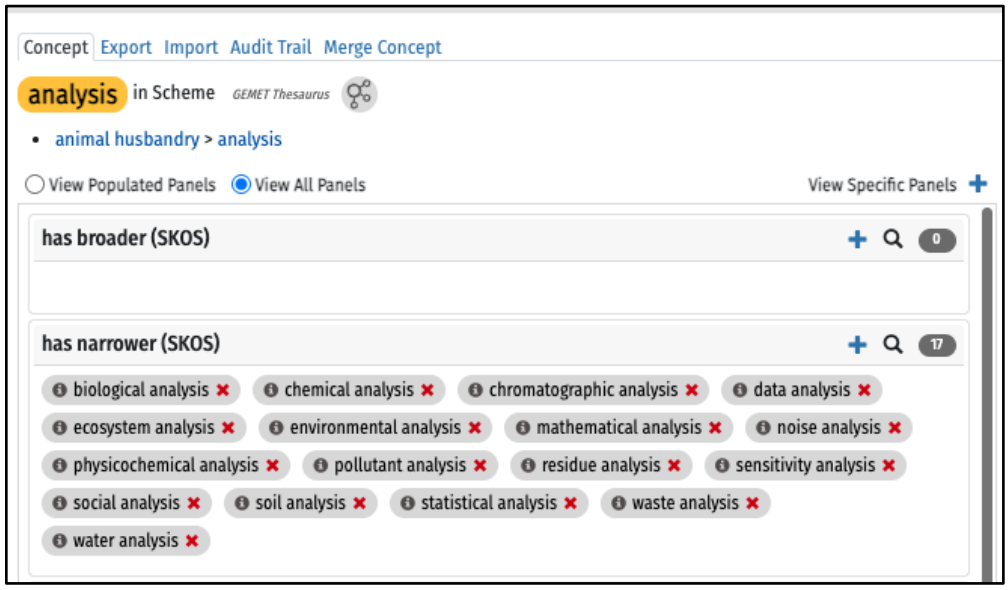


***Note**: For hierarchical relationships, the concept will be created in the appropriate location in the hierarchy. For associative relationships, the new concept will be created as a Top Concept.*

Concept labels include the name of their home scheme after the concept label in the relationship panel unless the relationship is to a concept within the same scheme. This is true for any concept but is especially helpful when concept names are the same.

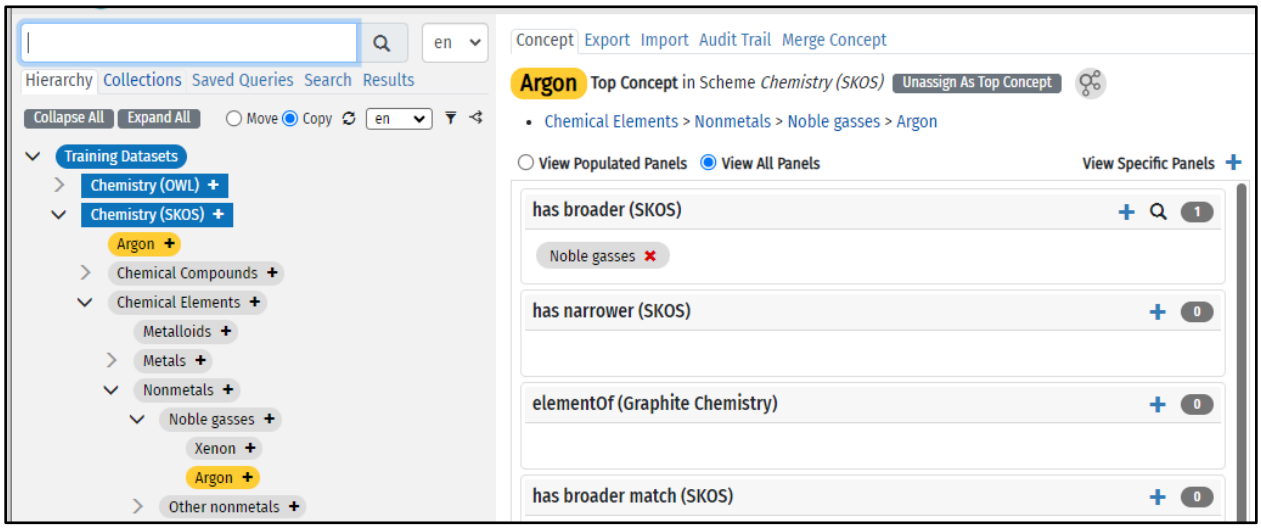


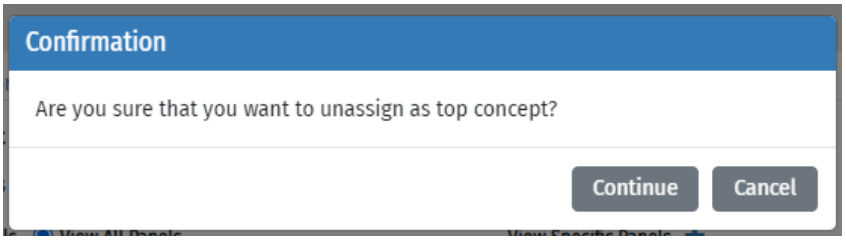
Predicate values can be filtered by selecting the magnifying glass (search) icon next to the name of the Predicate. Only concepts within the Predicate field containing the search filter value will be displayed.



If a concept is added using the property field type-ahead, the term will be added as a polyhierarchical instance.

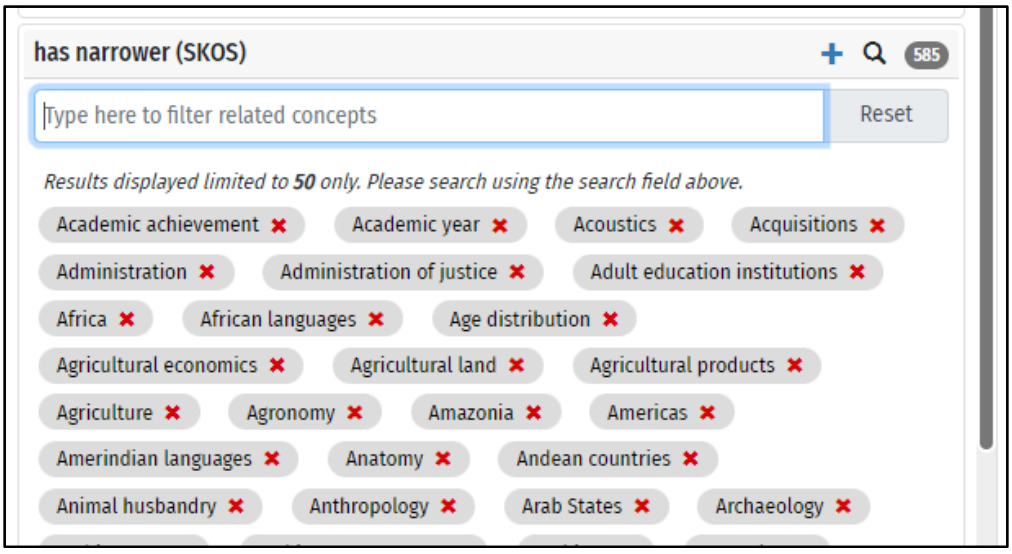
If a top concept is added using the property field type-ahead, the term will be added as a polyhierarchical instance and can be removed from the top-level position by selecting *Unassign As Top Concept*.





5.4.7 Related Concepts Display Limits

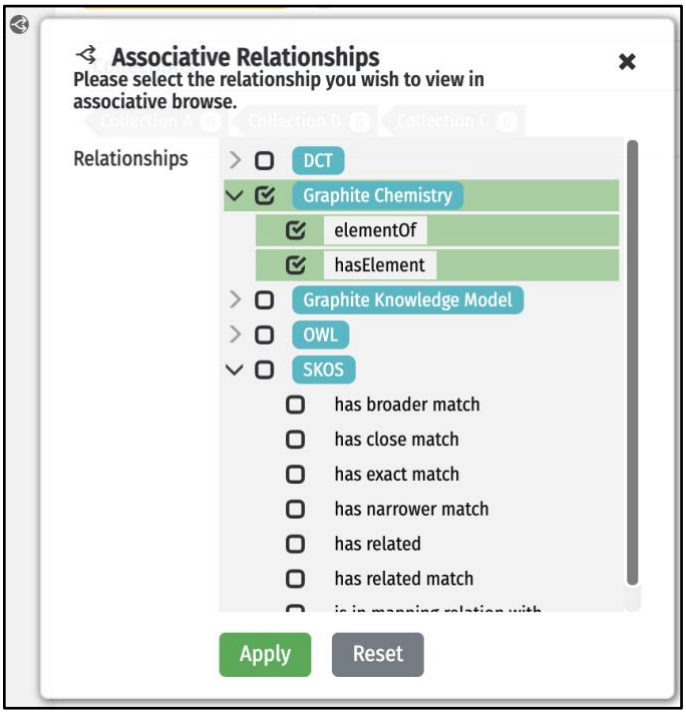
In cases where there are a large number of related concepts which may cause performance issues, system configured limits may prevent their display in the panel. The number of related concepts allowed to be displayed is configured in the Graphite Configuration Scheme. If that limit is exceeded, a message will be shown, and the user can apply search and filtering options within the panel to view additional related concepts. Refer to Graphite Configuration Scheme to set limits.



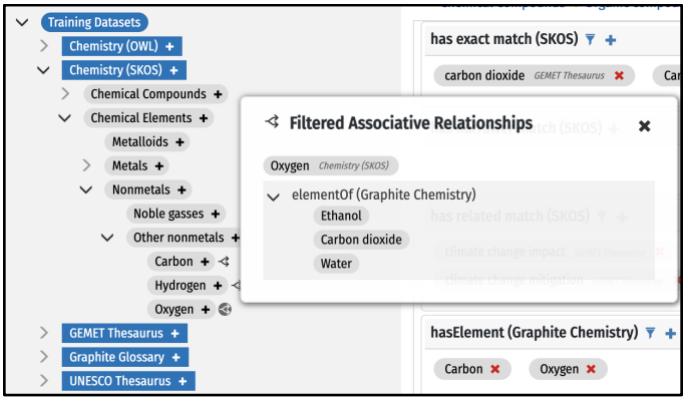
5.4.8 Associative Relationships Filter

It is possible to filter hierarchies in the Discovery Panel to display associative relationships as well as the default hierarchical relationships displaying nested concepts.

Selecting the double arrow icon to the far right of the hierarchy menu will present a menu showing namespaces and their included associative relationships.



Selecting the namespace to select all relationships or selecting individual associative relationships from the list will refresh the hierarchy and display concepts which include these relationships after hitting the Apply button. The filter panel can be reset using the Reset option. The relationship must be populated in order for the double arrow icon to appear next to concepts.



Selecting the double arrow icon next to the concept will open a dialog box displaying the relationship and the related concepts. If the concept has more than one selected associated relationship populated, all relationships and related concepts will be displayed. The dialog box can be closed using the X in the corner.

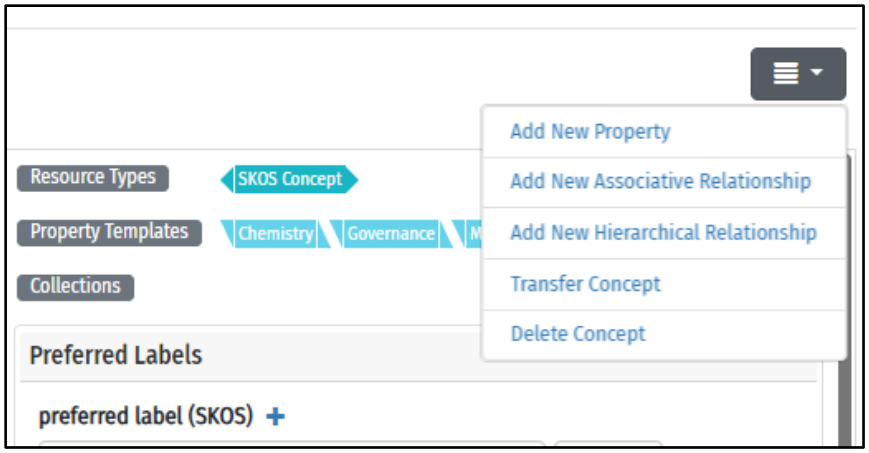
5.4.9 Adding & Editing Properties

Displayed on the right half of the Concept Workspace is a vertical stack of all the Data Properties available to the user. Graphite controls the properties each user can see and edit based on a number of control filters.

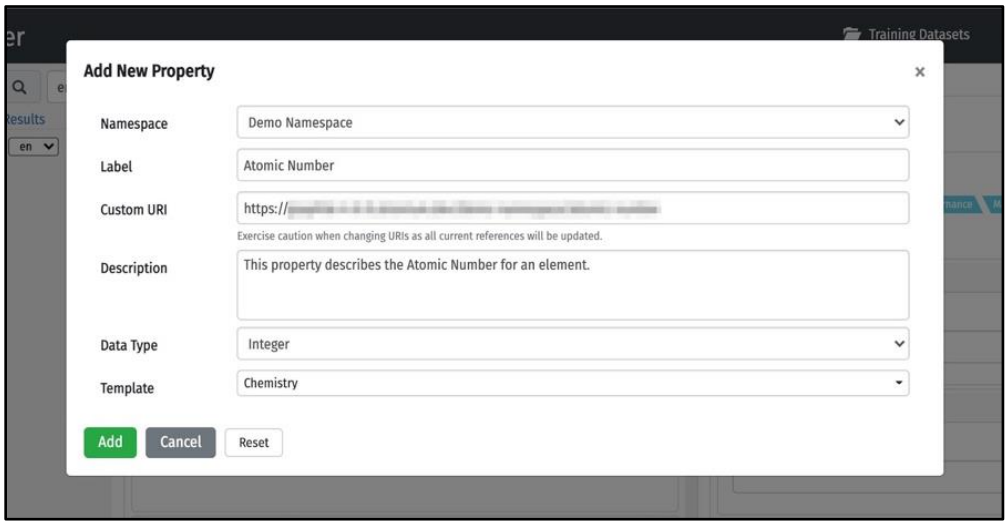
First, the Template(s) to which a concept belongs; second, the Scheme to which a concept belongs; and third, the individual permissions of the user.

Only System Administrators and Project Administrators can change these filters. They are set within the Template Admin, Scheme Admin, and Project Admin configuration tools. The property set available to any individual user may contain a mixture of properties they can view and properties they can edit. Users with editorial permissions may add, change, or delete a property value.

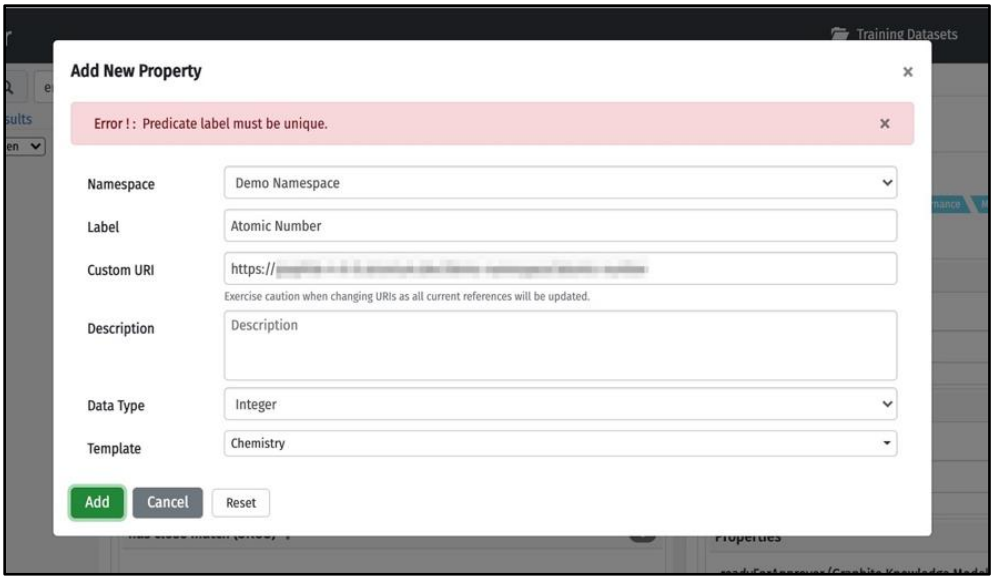
Users with editorial permissions may *Add New Property*, *Add New Associative Relationship*, and *Add New Hierarchical Relationship* through the *Concept Manager* UI using the dropdown menu in the top right-hand corner of the concept workspace.



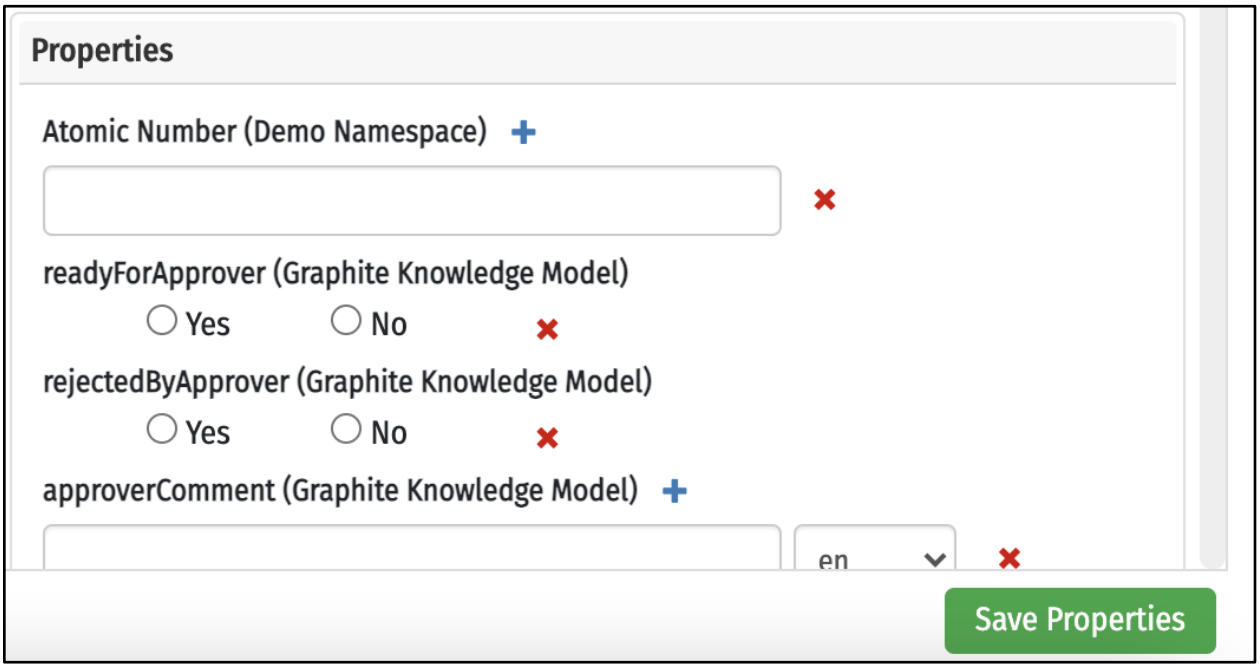
Selecting the *Add New Property* option allows the user to add a new property to the concept. The *Add New Property* dialog box includes the same options as adding a new property in the *Namespace and Predicate Admin* area.



Choose an existing Namespace from the *Namespace* dropdown. Create a unique label name in the *Label* field. The URI will populate based on the Namespace, but the *Custom URI* can be edited. It is possible to add a *Description*. Select the *Data Type* and one or more *Templates* and click *Add*. If the property already exists in the Namespace, a warning message will appear and the new property will not be added.

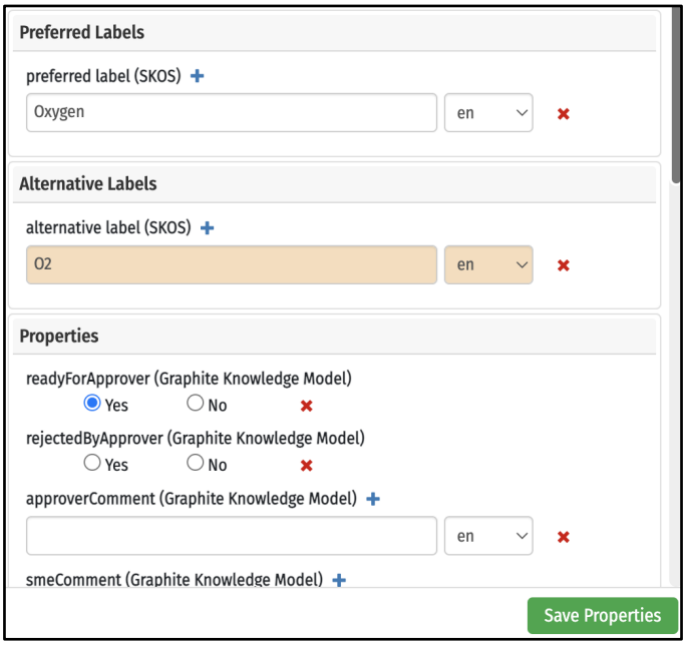


Once the new property is added, it will appear in *Namespace and Predicate Admin* and will be available to the selected Template and Scheme. The new property will appear in the concept immediately.



To add another field under a Property listing, click on the plus sign **+** next to the Property label, creating a new entry field to add another value. The new value may or may not be assigned to a different language depending upon what type of Property it is and what uniqueness checks are in place. Properties assigned a language are first sorted alphabetically by language and then alphabetically by value.

To change a property value, click in any available property in the Workspace when the concept is selected. When a property string or URI value is being added or edited, the background will turn yellow to indicate that the property value is being edited and changes have not yet been committed. To save properties, hit the *Enter* key or click *Save Properties*. Changes to Boolean properties are committed immediately. To create a carriage return within a property, especially within an XML Literal data type property, use Shift + Enter to create a carriage return.

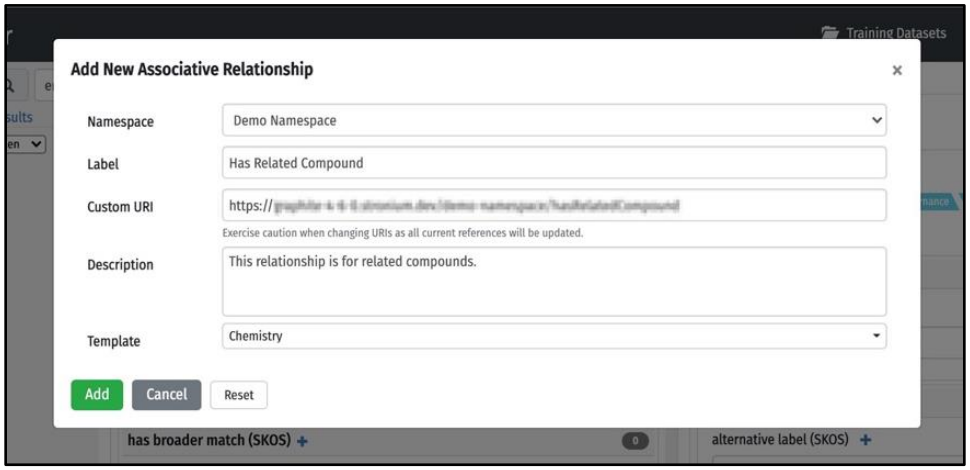


To delete a property value, click the red **X** next to the property field. To delete an entire concept, click on the *Delete Concept* option in the dropdown menu in the upper right-hand corner of the Workspace panel.

Remember to select *Save Properties* after making changes to properties before moving away from the Workspace unless the *Enter* key is used. A warning will display if changes to any value are detected and the user attempts to navigate away before saving those changes.

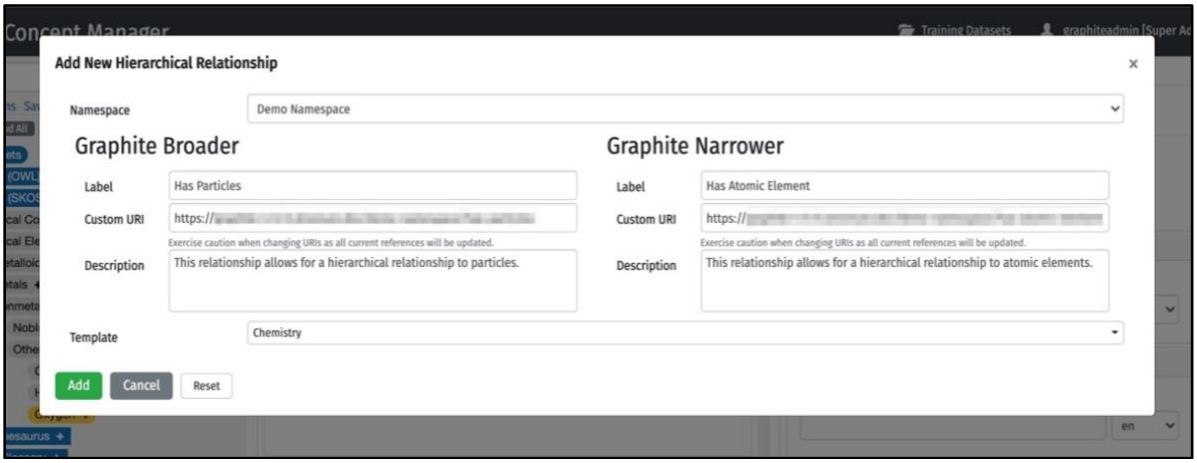
5.4.10 Adding Relationships

Selecting the *Add New Associative Relationship* option allows the user to add a new associative relationship to the concept. The *Add New Associative Relationship* dialog box includes the same options as adding a new associative relationship in the *Namespace and Predicate Admin* area.



Choose an existing Namespace from the *Namespace* dropdown. Create a unique label name in the *Label* field. The URI will populate based on the Namespace, but the *Custom URI* can be edited. It is possible to add a *Description*. Select one or more *Templates* and click *Add*. If the relationship already exists in the Namespace, a warning message will appear, and the new property will not be added.

Once the new relationship is added, it will appear in *Namespace and Predicate Admin* and will be available to the selected Template and Scheme. The new relationship will appear in the concept immediately.



Selecting the *Add New Hierarchical Relationship* option allows the user to add a new property to the concept. The *Add New Hierarchical Relationship* dialog box includes the same options as adding a new hierarchical relationship in the *Namespace and Predicate Admin* area.

Choose an existing Namespace from the *Namespace* dropdown. Create a unique label name in the *Label* field. The URI will populate based on the Namespace, but the *Custom URI* can be edited. It is possible to add a *Description*. For hierarchical relationships, both reciprocal relationships must be defined and uniquely named. Select one or more *Templates* and click *Add*. If the relationship already exists in the Namespace, a warning message will appear and the new property will not be added.

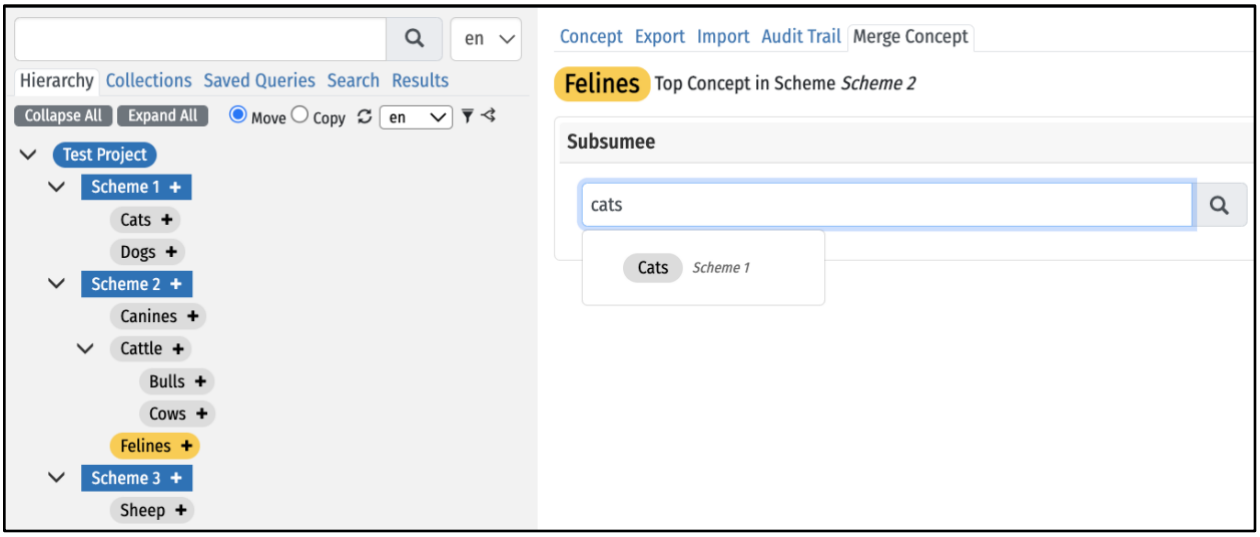
Once the new relationship is added, it will appear in *Namespace and Predicate Admin* and will be available to the selected Template and Scheme. The new relationship will appear in the concept immediately.

5.4.11 Merge Concepts

Selecting the working concept (the subsumer) and the Merge Concept tab allows for the merging of two concepts. Search for a target concept in the Subsumee search box will return concepts from any scheme in the current project.

In the following example, there are two schemes which have similar concepts. Some should be preferred labels and others should be alternative labels. To combine these concepts, use the Merge Concept feature.

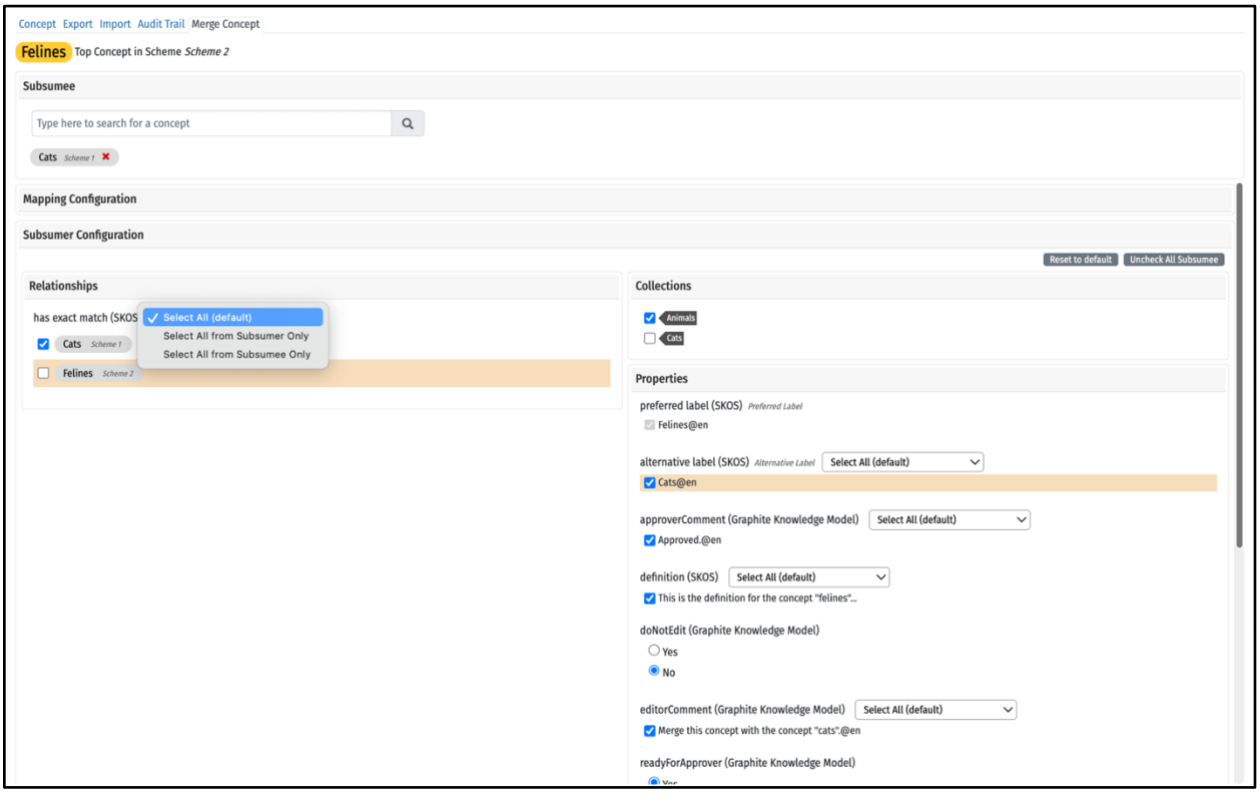
The concept “felines” should be the preferred concept and the concept “cats” should be merged with it and made an alternative label. Select the concept “felines” and search for the subsumee concept.



When the concept is selected from the search dropdown, the merge concept panel is populated with populated properties and relationships. All options are checked by default.

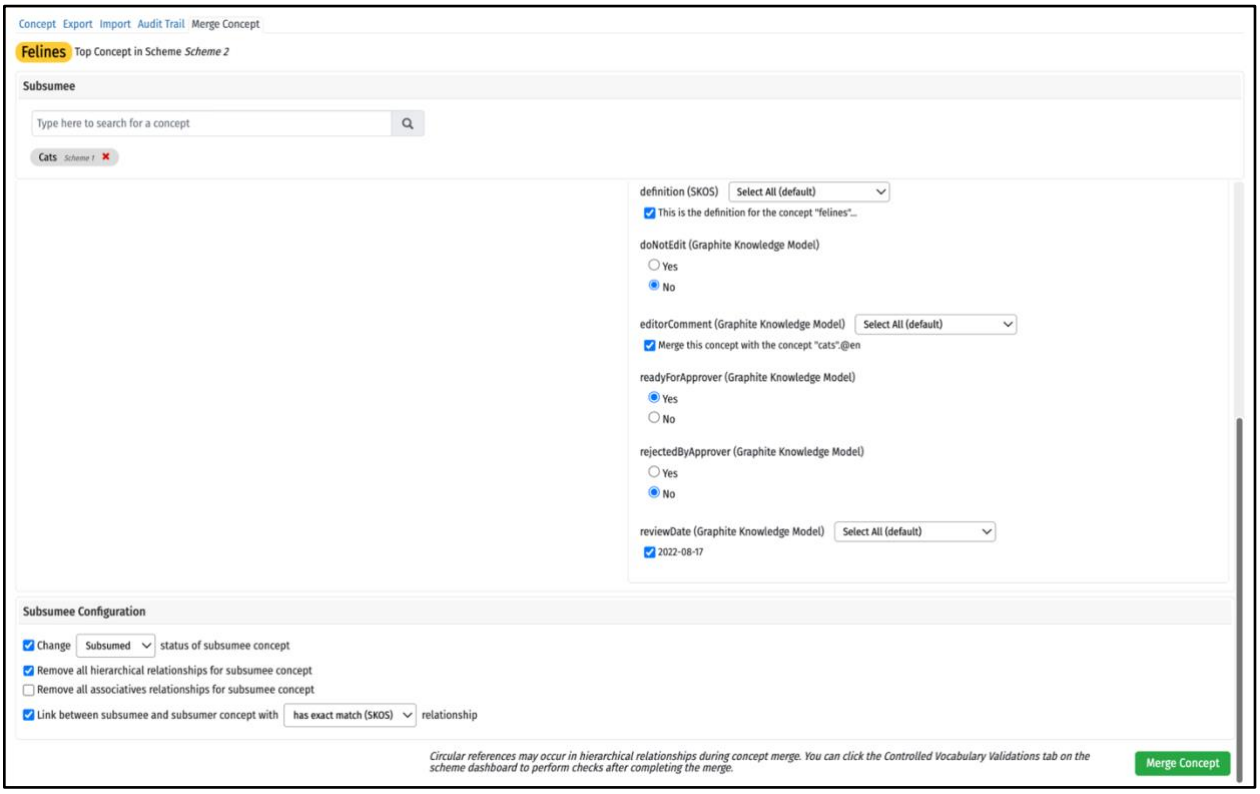
The Subsumer preferred label(s) will be retained as the preferred label(s) in languages present in the concept. The Subsumee preferred label(s) and alternative label(s) in languages present in the concept can be included as alternative label(s) for the final merged concept.

In the Subsumer Configuration section, there is an option to select Relationships. By default, all current relationships are selected, but it is possible to Select All from Subsumer Only and Select All from Subsumee Only in the dropdown. Consider whether relationships may become recursive if selected.

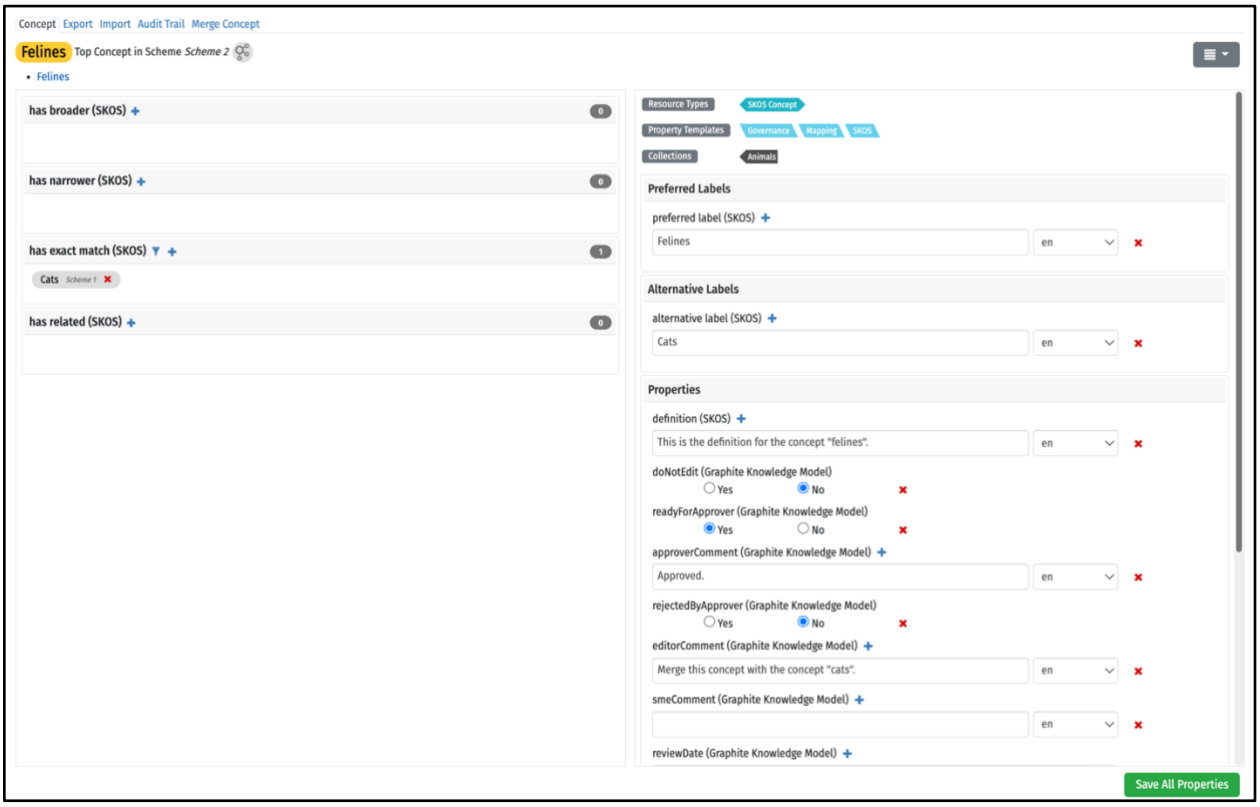


Any Collections which have been applied can be retained on the concept. All other properties which have values will also be available to retain or ignore for the final concept. The Subsumer concept label will be set as the preferred label. All other preferred labels and alternative labels from both the Subsumer and Subsumee concepts will be set as alternative labels and can be included or not in the final merged concept.

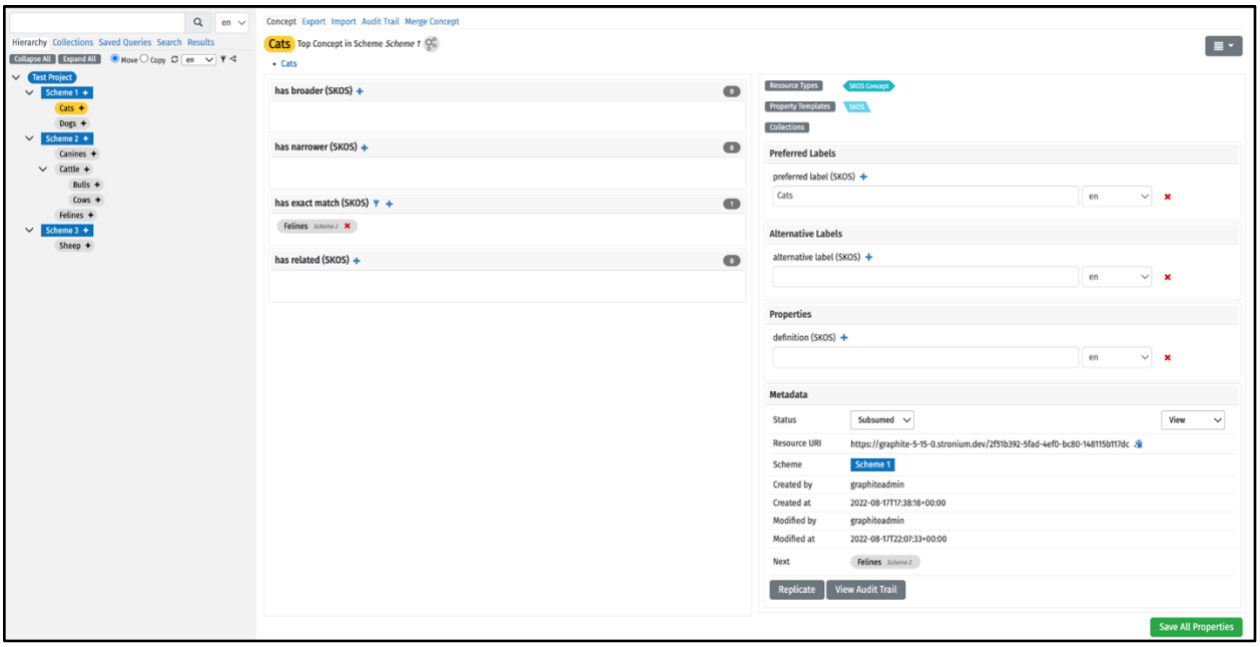
In the Subsumee Configuration section, it is possible to set the status of the subsumed concept to “Subsumed” and choose relationship options for the subsumed concept, including a mapping relationship between the Subsumer and Subsumee concepts.



Once the Merge Concept button is selected, the Subsumer concept includes all properties and relationships assigned to it from both concepts.



The subsumed concept is retained in the hierarchy, but it is now marked with the “Subsumed” status and is mapped to the concept “Felines” using the *has exact match (SKOS)* relationship. Concepts in the “Subsumed” status can be found in search like any other concept status.



***Note**: Circular references may occur in hierarchical relationships during concept merge. You can click the Controlled Vocabulary Validations tab on the scheme dashboard to perform checks after completing the merge.*

5.4.12 Resource Type Manager

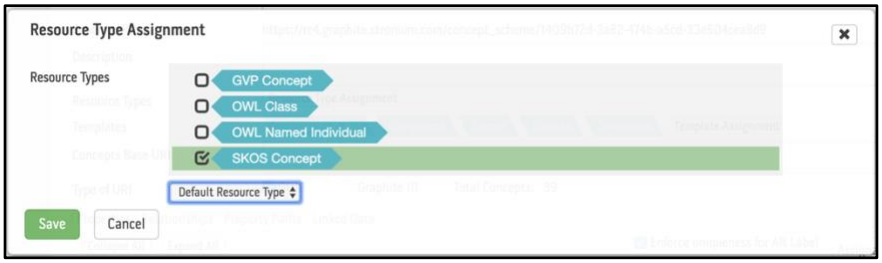
In RDF, anything with a subject URI is called a resource. Resource Types are native classes describing the data model for any given resource. Classes are a way of defining meaningful groups into which resources can be placed. Any resource placed in a class is an individual of that class. An *rdf:type* is used to state a resource is an instance of a class.

The following native resource types are supported in Graphite:

- SKOS Concept
- OWL Class
- OWL Named Individual

Additional valid RDF Resource Types can be added, edited, or deleted when imported using the Namespace & Predicate Import Tool.

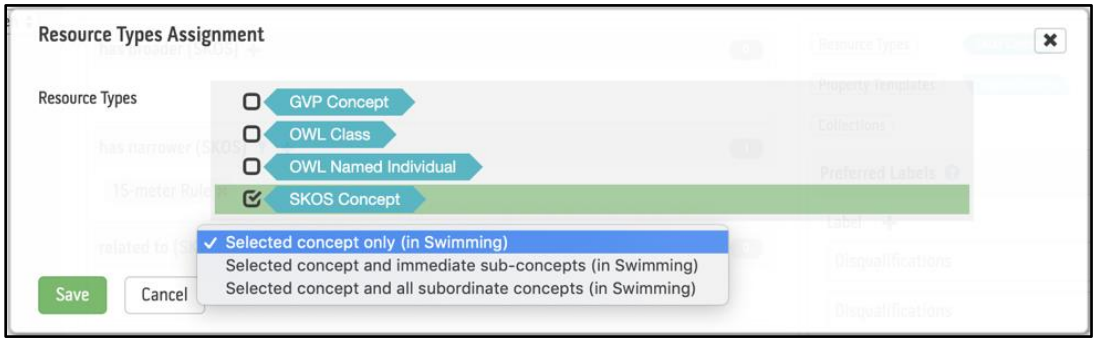
In *Scheme Admin*, Resource Types can be applied to a Scheme and the selected resource type can be made the default by selecting Default Resource Type in the dropdown.



Available Resource Types can be applied to a selected concept using the *Resource Types* button in the Workspace. One or more Resource Types can be selected for a concept and applied

- Assign Resource Type(s) to *Selected concept only* will assign Resource Types to the Concept only.
- Assign Resource Type(s) to *Selected concept and immediate sub-concepts* will assign Resource Types to the Concept and its immediate child concepts (one level lower in the hierarchy).
- Assign Resource Type(s) to *Selected concept and all subordinate concepts* will assign the Resource Type to the concept and all its descendant concepts to the end-node of that hierarchical branch.

The new Resource Type can be appended or replace existing assigned Resource Types.



When creating a new concept, users can select the Resource Type from the Resource Type filter at that time or edit it later.

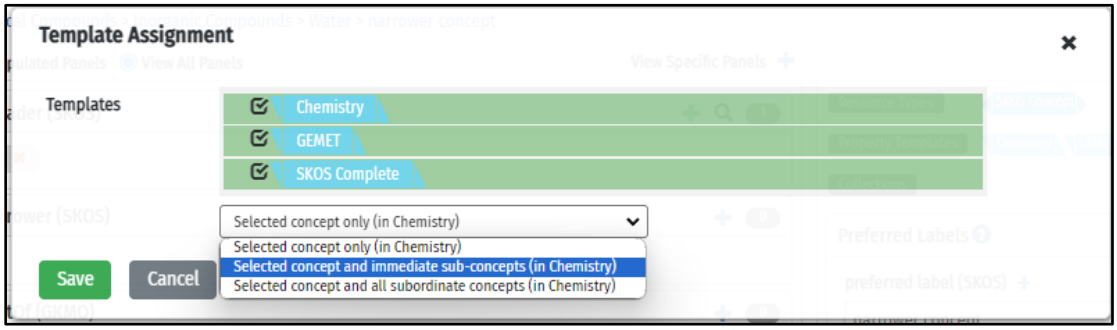
When OWL named individuals are imported, the system automatically detects their type and creates a Smart Folder called Named Individuals in the tree view with the OWL Named Individual Resource Type applied.

5.4.13 Property Templates (Templates)

Property Templates (also referred to as *Templates* throughout this document) may be selected and assigned here to ensure properties and relationships assigned to available templates are displayed and editable when reviewing individual concepts. *Templates* are assigned to *Schemes* in the Scheme Admin area (see *Scheme Admin Tools* section) and, if marked as a "Default Template", their associated properties and relationships should be automatically available.

However, if a Template is assigned to a Scheme after a concept has already been created, or if the Templates are not designated as "Default", it may be necessary to assign them here (or using the Batch Editor feature to assign to multiple concepts at once) to ensure that desired properties and relationships are displayed.

To assign a Template the user will click on the "Property Template" button and select the desired Templates. The user has the option of also assigning to immediate narrower concepts or to all subordinate concepts by opening the dropdown window and making the desired selection.

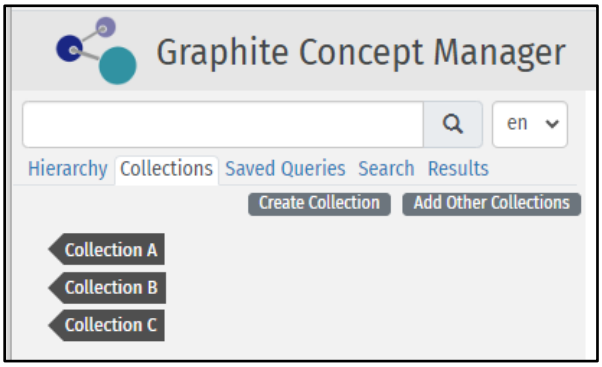


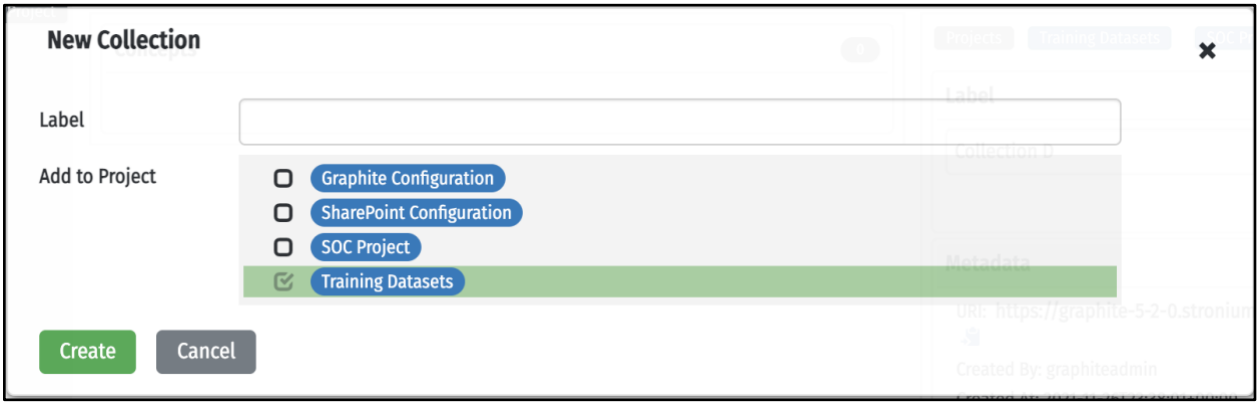
5.4.14 Collections

Collections are a means of grouping concepts together. The link to assign a concept to a Collection is located in the Concept Manager Discovery Panel.

Create a Collection

The creation of a Collection is done by navigating to the *Collections* tab in *Concept Manager* and clicking on the *Create Collection* button.





When creating the Collection, the user has the option to choose which Project or Projects the new Collection should be available to.

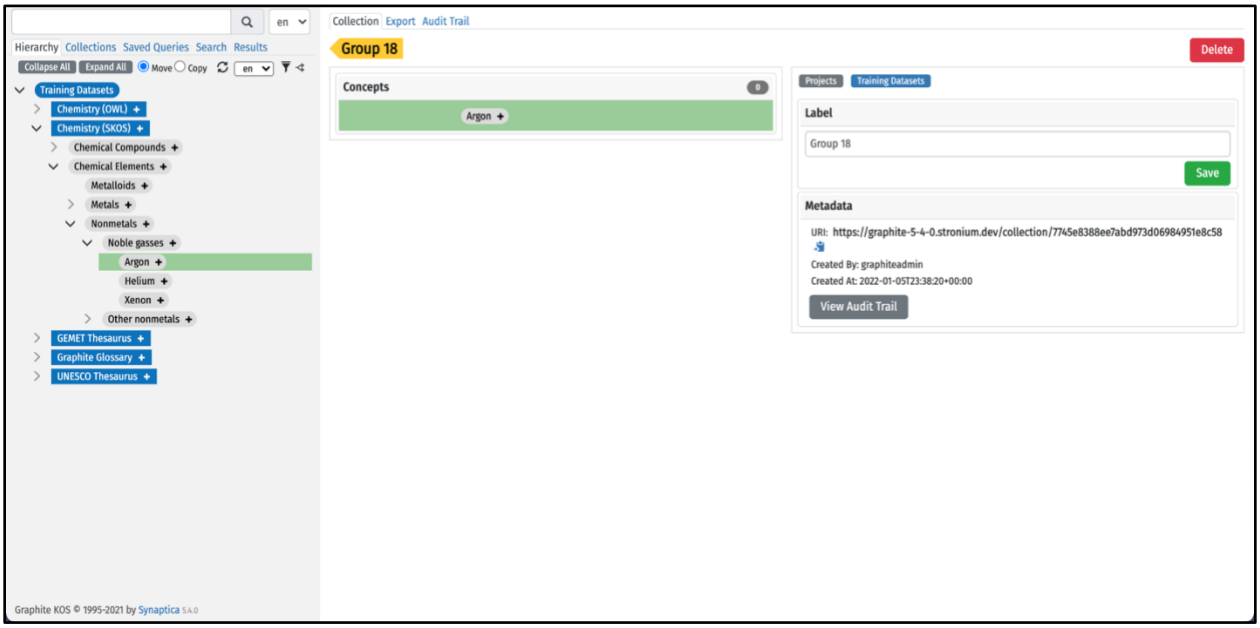
Assign a Collection

It is possible to assign a Collection to a Project using the *Collections in Project* option in the Collections tab. Any Collections the user has permissions to are available to share across Projects to which the user also has permissions.

It is possible to assign a Collection to a concept using drag-and-drop. First, select the Collection to which you would like to add the concept by navigating to the Collections tab in the Concept Manager space.

Next, select the Hierarchy tab and select the concept you wish to add to the Collection by clicking the concept, holding the click, and then releasing when the concept is over the Concepts field and the field highlights green.

It is possible to use the same method by selecting concepts in the Results tab and using drag and drop to add concepts to a selected Collection.

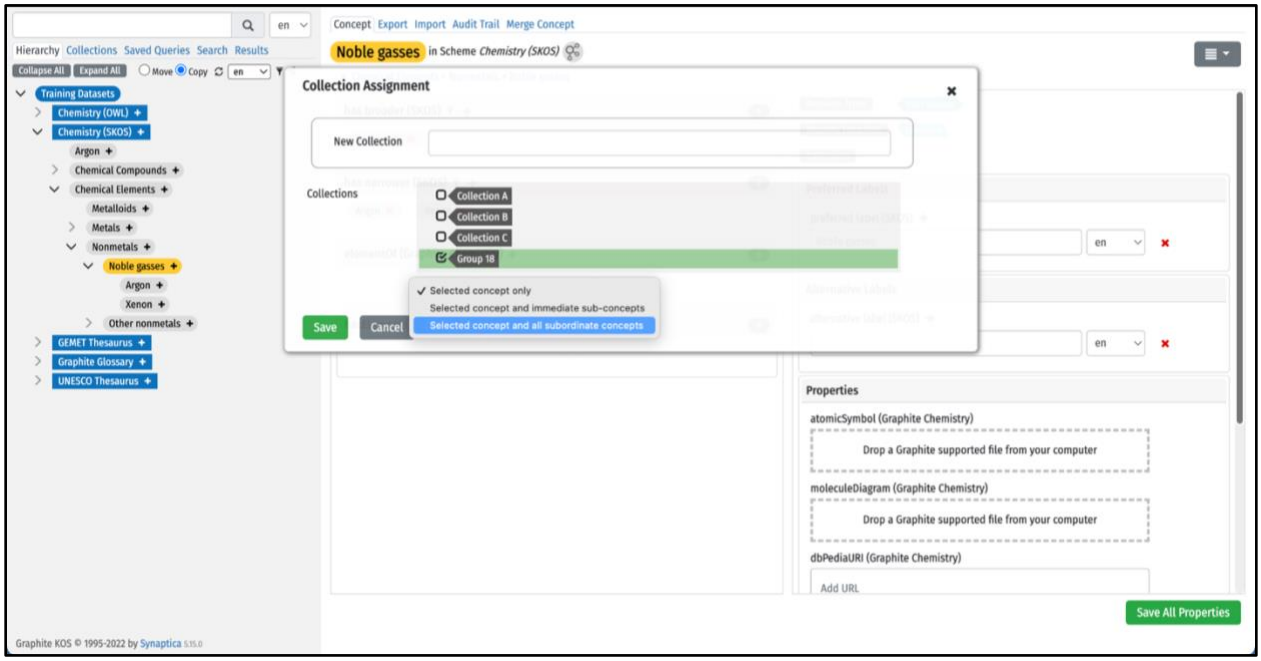


Create and Assign a Collection

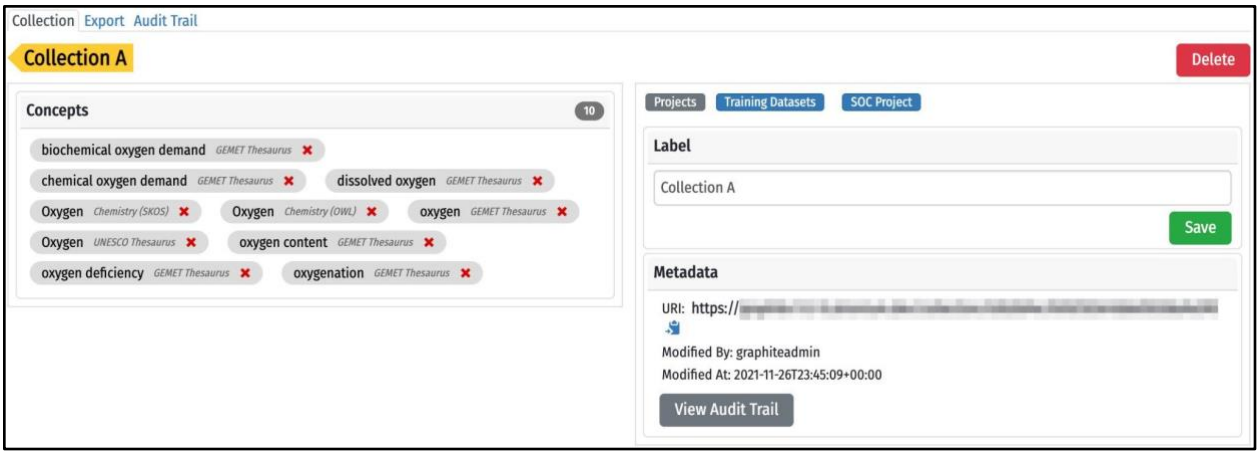
Alternatively, a Collection can be created and assigned at the same time by selecting the *Collections* button in a concept Workspace. In the Collection Assignment dialog box, enter the label of the collection in the *New Collection* text field and click the *Save* button.

Multiple collections can be selected as targets when assigning a concept. Note that clicking the Save button will unassign the concept from all the unselected collections in the Collection Assignment pop-up window.

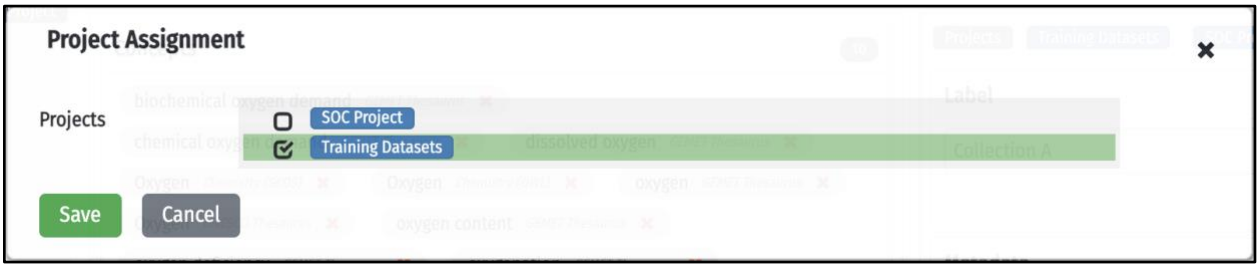
- Assign Collection(s) to *Selected concept only* will assign Collections to the Concept only.
- Assign Collection(s) to *Selected concept and immediate sub-concepts* will assign Collections to the Concept and its immediate child concepts (one level lower in the hierarchy).
- Assign Collection(s) to *Selected concept and all subordinate concepts* will assign the Collections to the concept and all its descendant concepts to the end-node of that hierarchical branch.



When selected in the Collections tab, a Collection will display concepts appended with their Scheme name, which projects include the Collection, and metadata information.



Selecting the *Projects* button allows the user to view and select which projects should include the Collection. The Collection can not be removed from all Projects and must instead be deleted if it is to be removed completely.



Editing Collections

A Collection can be edited by selecting it from the *Collections* tab. Concepts can be removed from a Collection by clicking the red **X** next to the concept name. The label of the Collection can be modified at any time in the *Label* field. Collections may be deleted by clicking the *Delete* button in the top right corner.

The metadata section for a collection shows details including the URI, the creator, and the creation date and time for the collection.

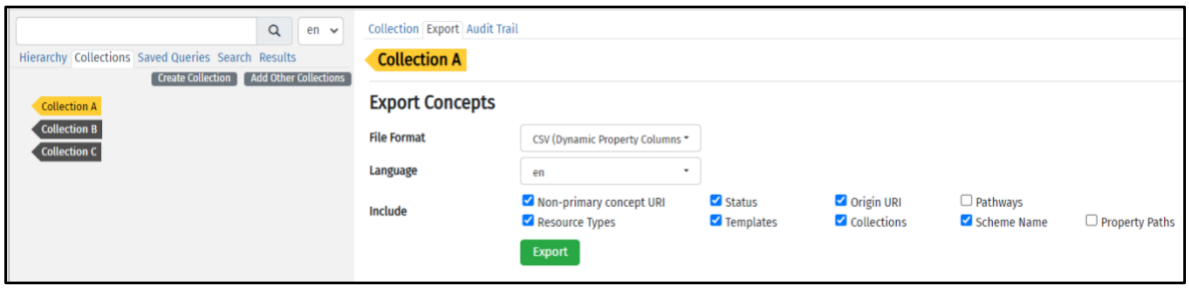
Collection Export

Exporting a Collection will export all the concepts contained in the Collection plus their corresponding details, such as properties and relationships.

Collections can be exported in the following formats:

- CSV (Dynamic Property Columns)
- Relationship Export CSV
- Hierarchical CSV
- CSV (Unique Property Columns)
- CSV (Unique Property Columns - Verbose)
- Hierarchical Excel (Dynamic Property Columns)
- Excel (Dynamic Property Columns)

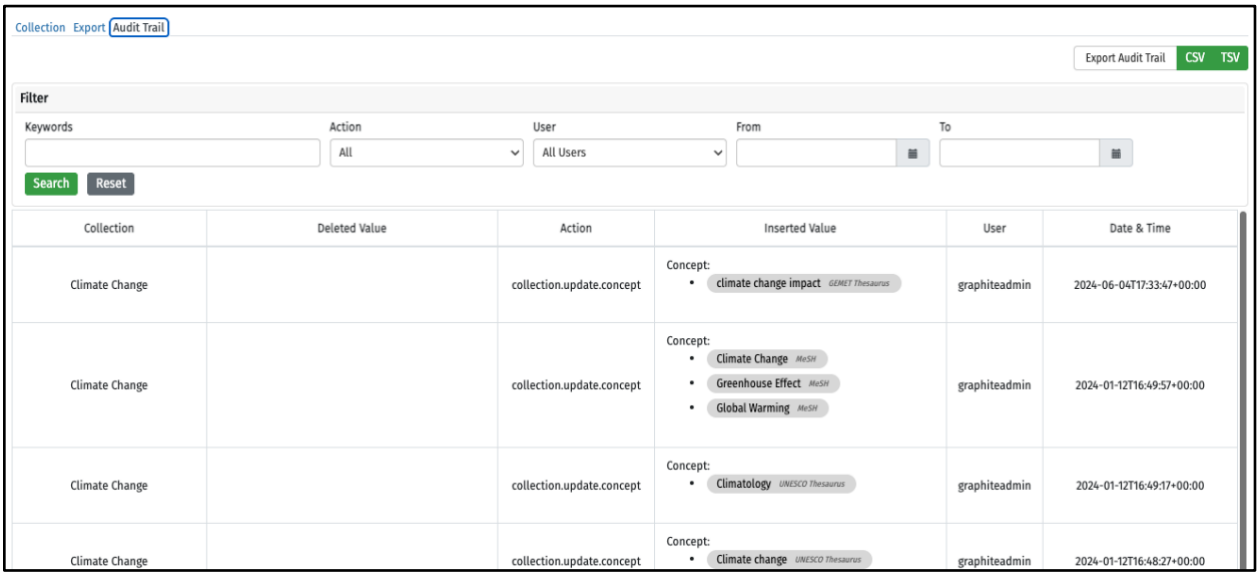
- Excel (Unique Property Columns)
- Excel (Unique Property Columns - Verbose)
- JSON-LD
- N3
- N-Triples
- RDF-XML
- TriX
- TriG
- Turtle
- Binary RDF



Audit Trail for Collections

The Audit Trail for Collections is similar to the Audit trail for concepts, except it only logs actions related to the Collection. Audit trails will record the creation of the Collection, the assignment of Concepts to the Collection, the removal of Concepts from the Collection, and modifications to the Collection. The Audit Trail can be searched by Keywords, Action, User, and a date range.

The Audit Trail can be exported using the “Export Audit Trail” button. Export is available in CSV and TSV formats.

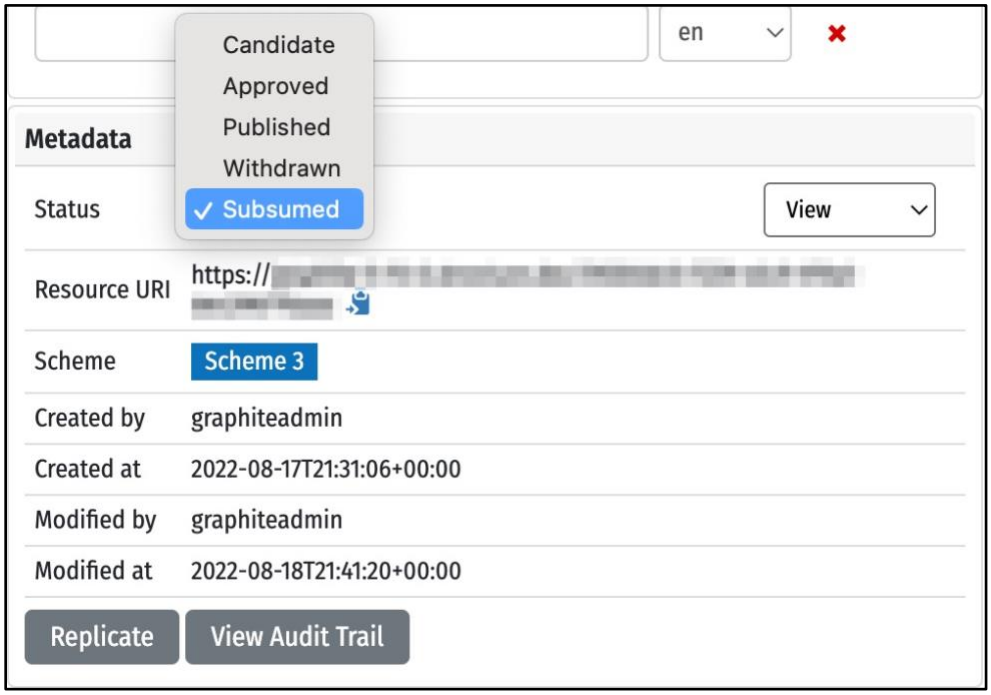


5.4.15 Concept Metadata

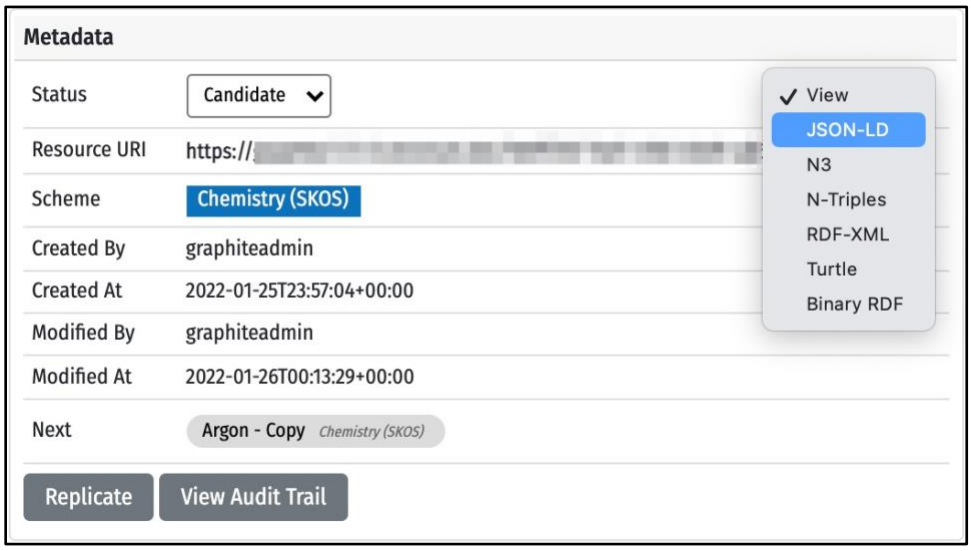
For any selected concept in *Concept Manager*, the Metadata section for the concept can be found in the lower right-hand corner of the Workspace panel. Here you will see system information about the concept such as its status, URI, and Scheme membership. Information like Created By, Created At, Modified By, and Modified At are added to the metadata panel as the concept is modified.

Editor I level users are restricted to work with *Candidate* concepts. With Editor II permissions, a user may also change a Concept's Status to any one of the available levels: *Candidate*, *Approved*, *Published*, or *Withdrawn*. These will be used to determine a Concept's approval and publication status.

- **Candidate**: concepts which have been added but have not gone through an approval workflow.
- **Approved**: concepts which have been approved but are limited to the system.
- **Published**: concepts which have been approved and are published for use by consuming systems.
- **Withdrawn**: concepts which have been Approved and possibly Published but have been removed from the workflow but not deleted from the Scheme.
- **Subsumed**: concepts which have been merged with another concept. The Subsumer is the preferred concept. The Subsumee receives the "Subsumed" status.



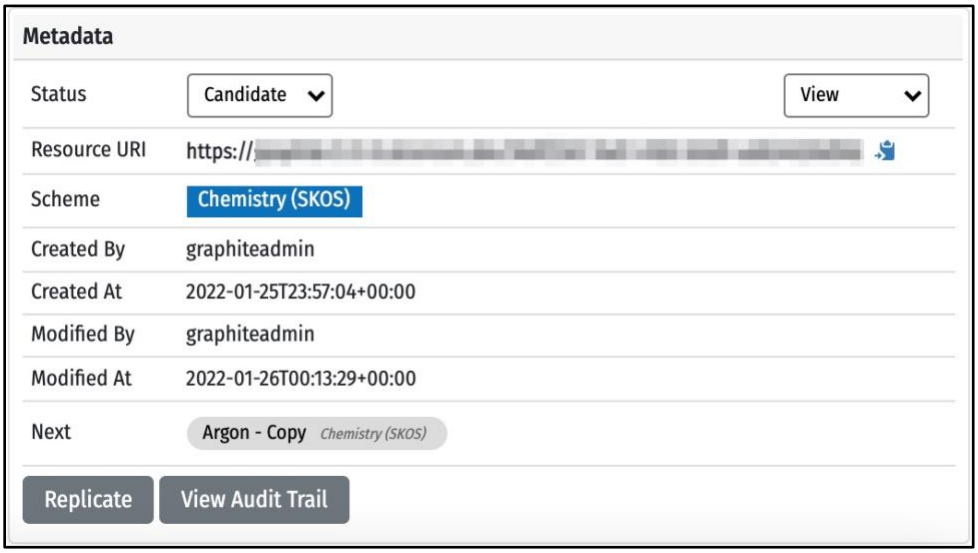
One may also produce a quick extract for a specific Concept in a variety of RDF formats by selecting from the View drop-down window.



Upon selecting one of the formats, the system will immediately open a new browser tab containing the requested output information which may then be copied, pasted, and saved for external use.

It is possible to copy the Concept URI to your computer's clipboard by clicking on the icon next to the URI string.

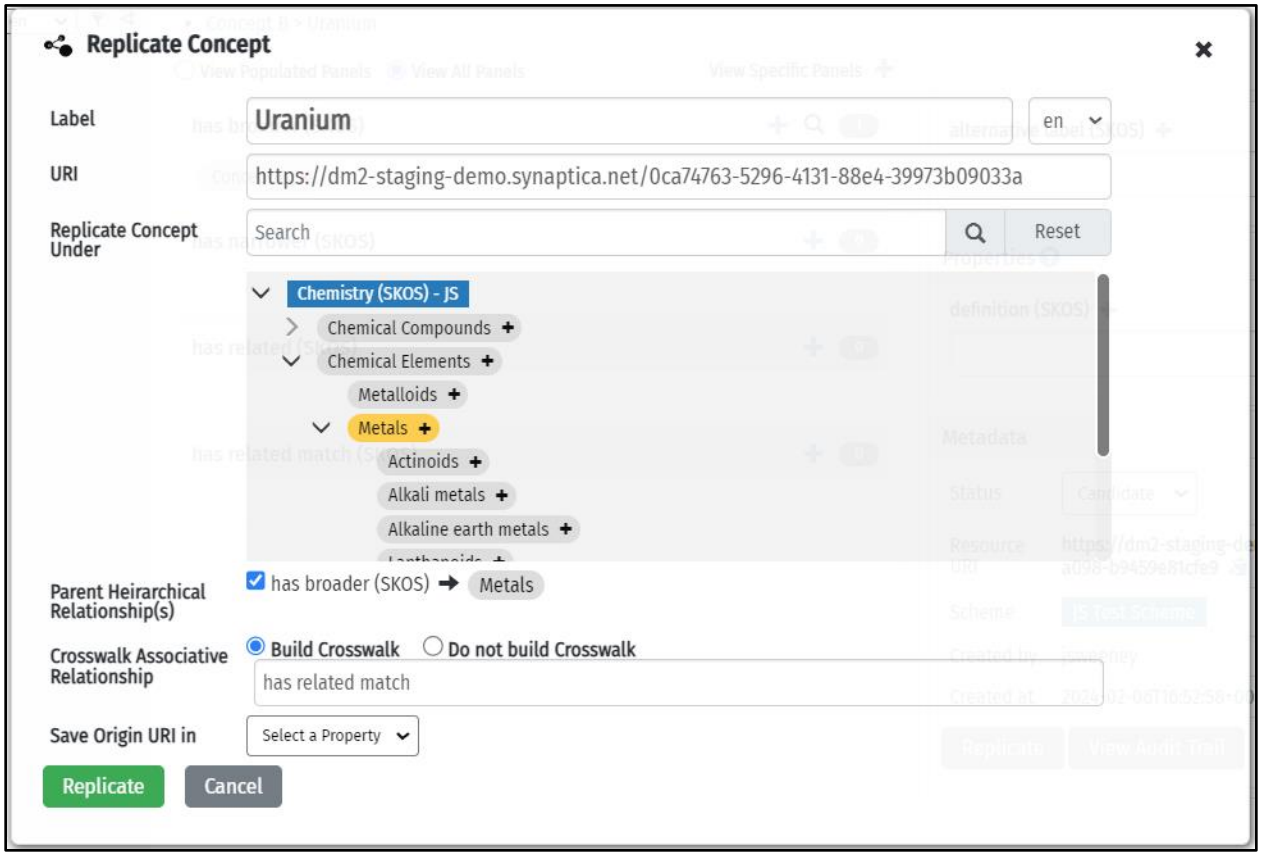
***Note**: The Copy URI function may not work in the Chrome browser due to security configurations. If you are using Chrome, please highlight and copy the URI if the copy function does not work.*



Concepts can be replicated from the *Metadata* panel using the *Replicate* button. When the Replicate button is selected, the user is prompted to search or browse for a location to create the newly replicated concept. Replicated concepts are initially created with "**-Copy**" appended to the name, but this can be changed before committing the concept. If the replicated concept will be placed in a different Scheme "**-Copy**" will not be appended.

Replicating a concept is not the same as creating a polyhierarchical instance of a concept, in which the original concept and the copy are the same concept with the same URI. Instead, a replicated concept is a new concept which may be used in a different context for a different purpose. Additionally, a replicated concept can act as a template for a new concept with a new label and new properties.

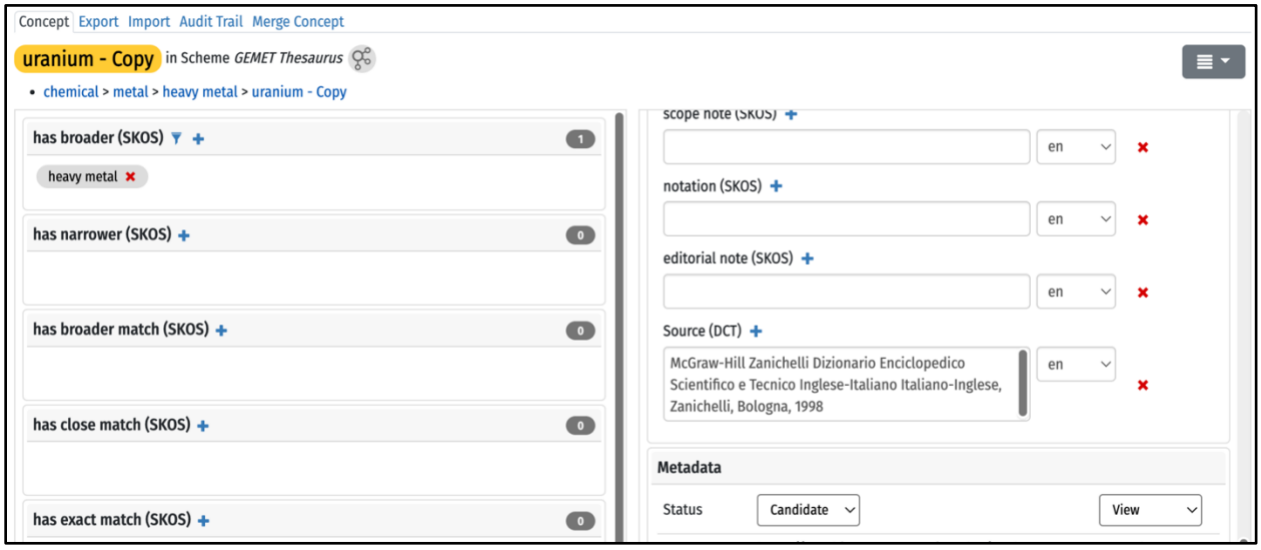
The replicated concept location can be selected by browsing or searching.



If more than one hierarchical relationship is available, the user may select the preferred one as part of the process.

A *Crosswalk* relationship may also be created at the time of replication to establish a link between the original concept and the replicated instance. The crosswalk relationship to be used is selected from a list of available associative relationships assigned to the targeted Scheme. If a *Default Crosswalk Relationship* has been assigned in Scheme Admin, it will be shown as the default. However, it may be changed if more than one associative relationship is available. (See Scheme Admin section below.)

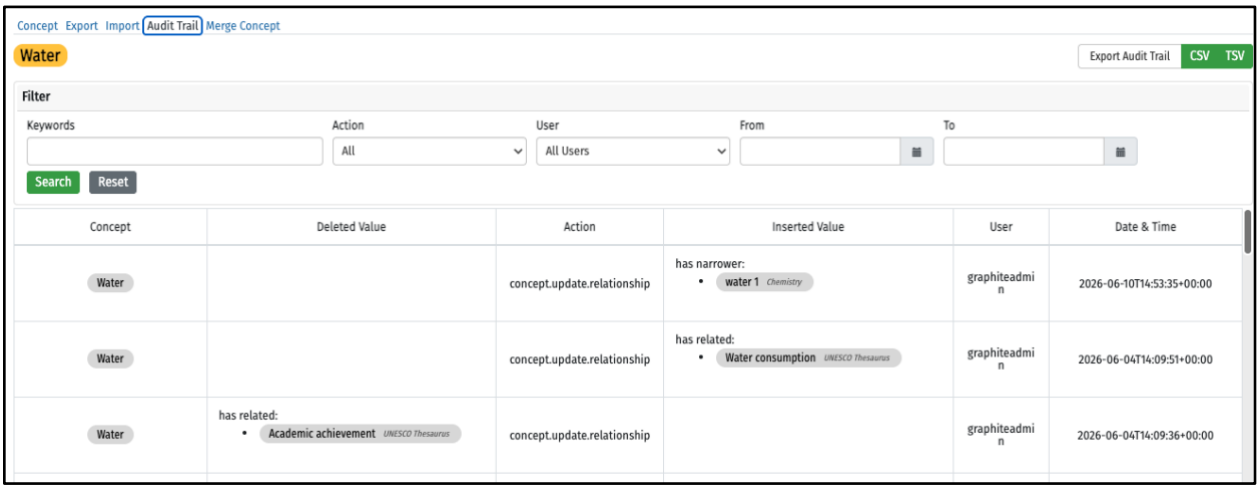
The replicated concept will be given a new, unique Resource URI and displays the originating concept from which it was copied.



The originating concept will retain its original Resource URI and displays the concept copied from it.

5.4.16 (Transaction Log for Concept)

The Audit Trail records the changes made to a concept as well as all changes made to all concepts belonging to a Scheme. To view all changes within a Scheme, click on the *Audit Trail* tab or the *View Audit Trail* button in the Scheme metadata section while viewing the Scheme.

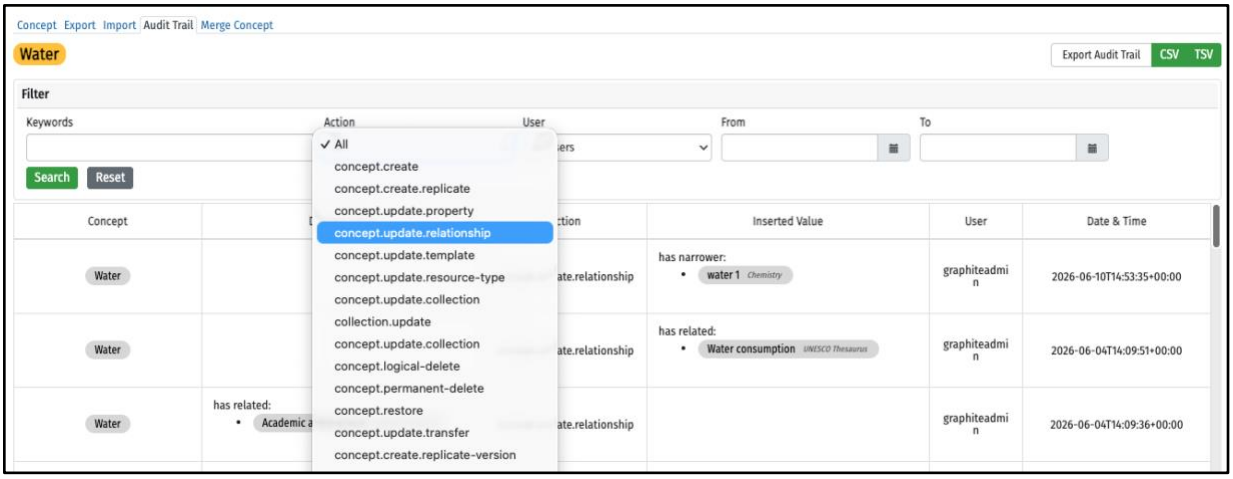


For a concept, the audit trail can be accessed by selecting a concept under Concept Manager and then clicking on the *View Audit Trail* button in the Concept Metadata section or on the *Audit Trail* tab above the concept workspace display.

The Audit Trial table displays all editorial changes made to the concept identifying the following actions:

- concept.create
- concept.update.property
- concept.update.property
- concept.update.property
- concept.update.relationship
- concept.update.relationship
- concept.update.relationship
- concept.update.template
- concept.update.template
- concept.update.template
- concept.update.resource-type
- concept.update.resource-type
- concept.update.collection
- concept.update.collection
- concept.update.collection
- concept.update.collection
- concept.logical-delete
- concept.permanent-delete
- concept.restore
- concept.create.replicate
- concept.create.replicate-fork
- concept.create.replicate-version
- concept.update.import
- concept.update.merge
- concept.update.publish
- concept.transfer
- collection.create
- collection.update.concept
- collection.update.concept
- collection.update

***Note**: Labels for editorial actions displayed in the Audit Trail table were changed starting in Graphite version v7.0. For information regarding previously used labels please refer to a prior Graphite User Guide or contact support@synaptica.net.*



Users may search across audit information by entering a keyword or phrase and/or by selecting a specific action from the available drop-down window. Filtering for actions made by a specific user and/or during a specific time-period are also available. All activities will be displayed if no filters are applied.

The following columns will be included in the search:

- **Concept**: Label of the concept in the currently selected language. It will be replaced with a URI if the label of the language is not available.

- **Deleted Value**: When applicable, this column will show the original value changed. For example, it will display the original value for a property if the property was edited.
- **Action**: Different types of changes will be displayed in chronological order for any of the actions noted above.
- **Inserted Value**: This column will show the new value for the action identified when applicable.
- **User**: The name of the user who performed the action.
- **Date & Time**: The date and time when the action was performed.

Any Concepts displayed in the Audit Trial page are shown in link form where the user may click on them to view the Concept Details page for that item. The table display is limited to 1000 rows.

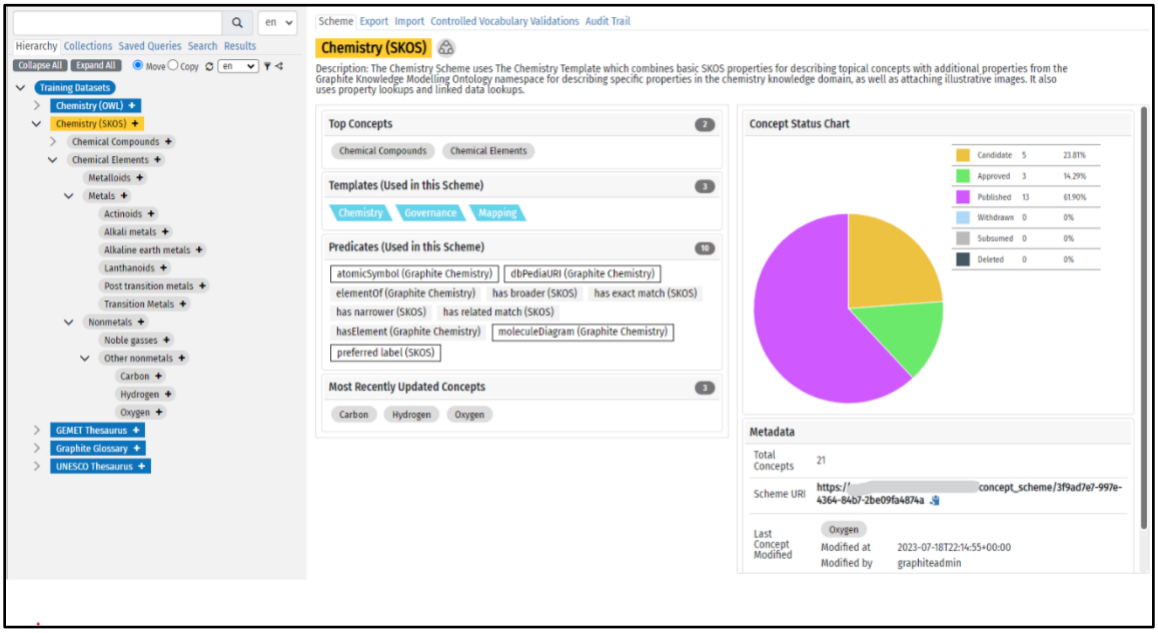
The full Audit Trial logs may be exported in a CSV or TSV formats by clicking on the button in the upper right corner of the page.

5.4.17 Visualization

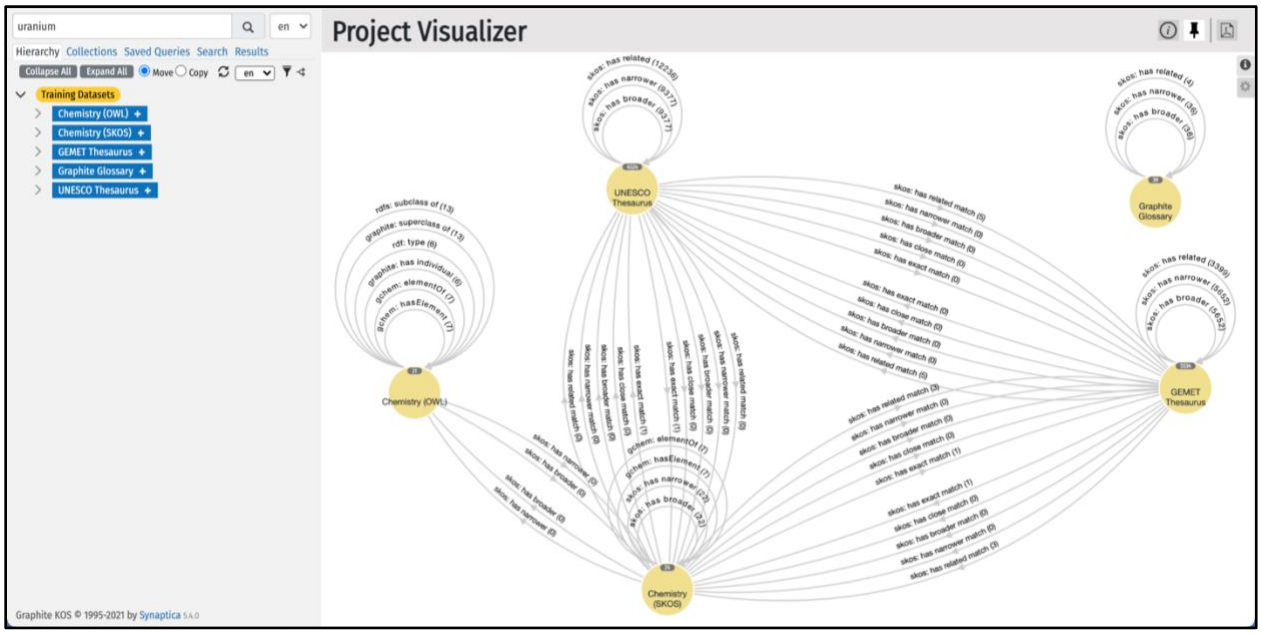
Projects, Schemes, and Concepts can be visualized in the Graphite Workspace panel.

5.4.17.1 Project Visualization

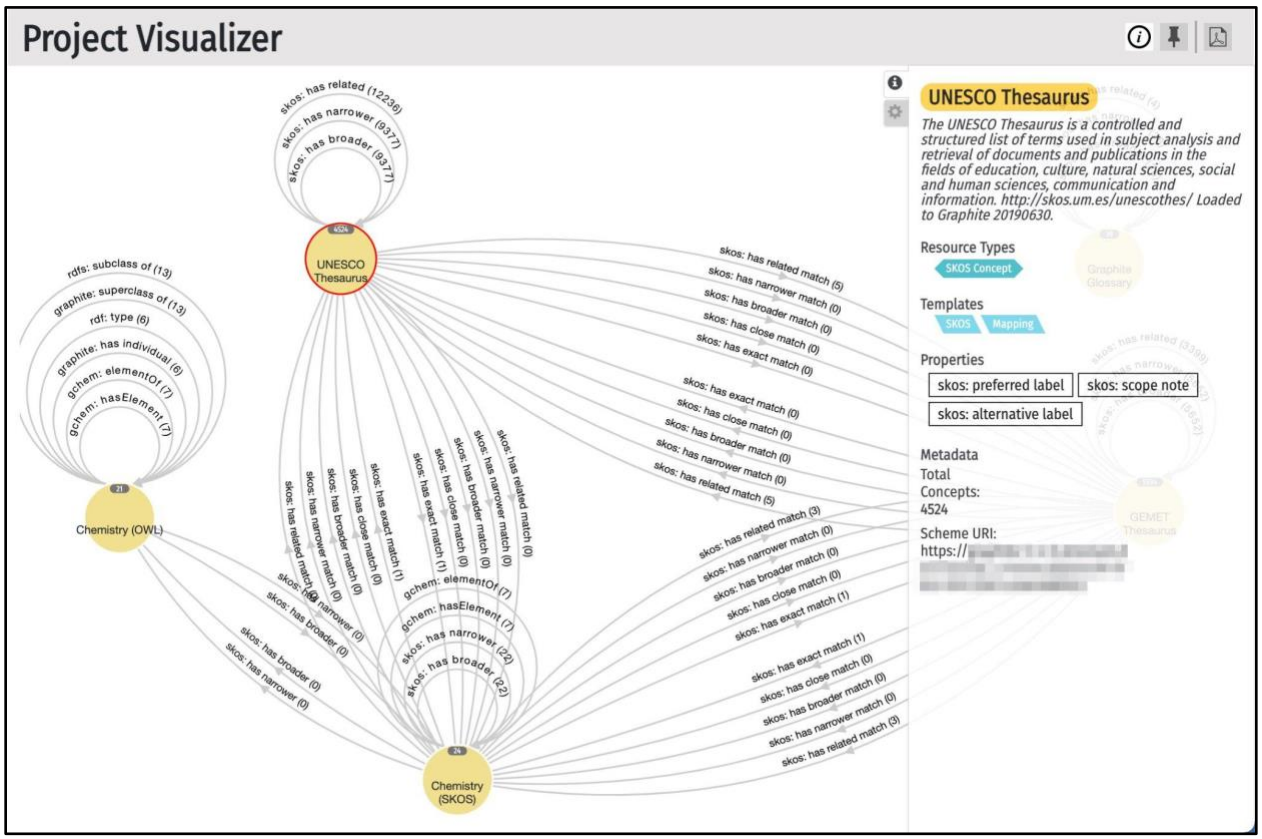
Projects can be visualized in the Project Visualizer. Select the top-level Project and select the three circle visualizer icon next to the Project name in the concept workspace.



The default view presents all Schemes and relationships present in the Project. Each Scheme circle includes the number of concepts in the Scheme. Each relationship connector displays the name and direction of the relationship and the number of relationships within and between Schemes.

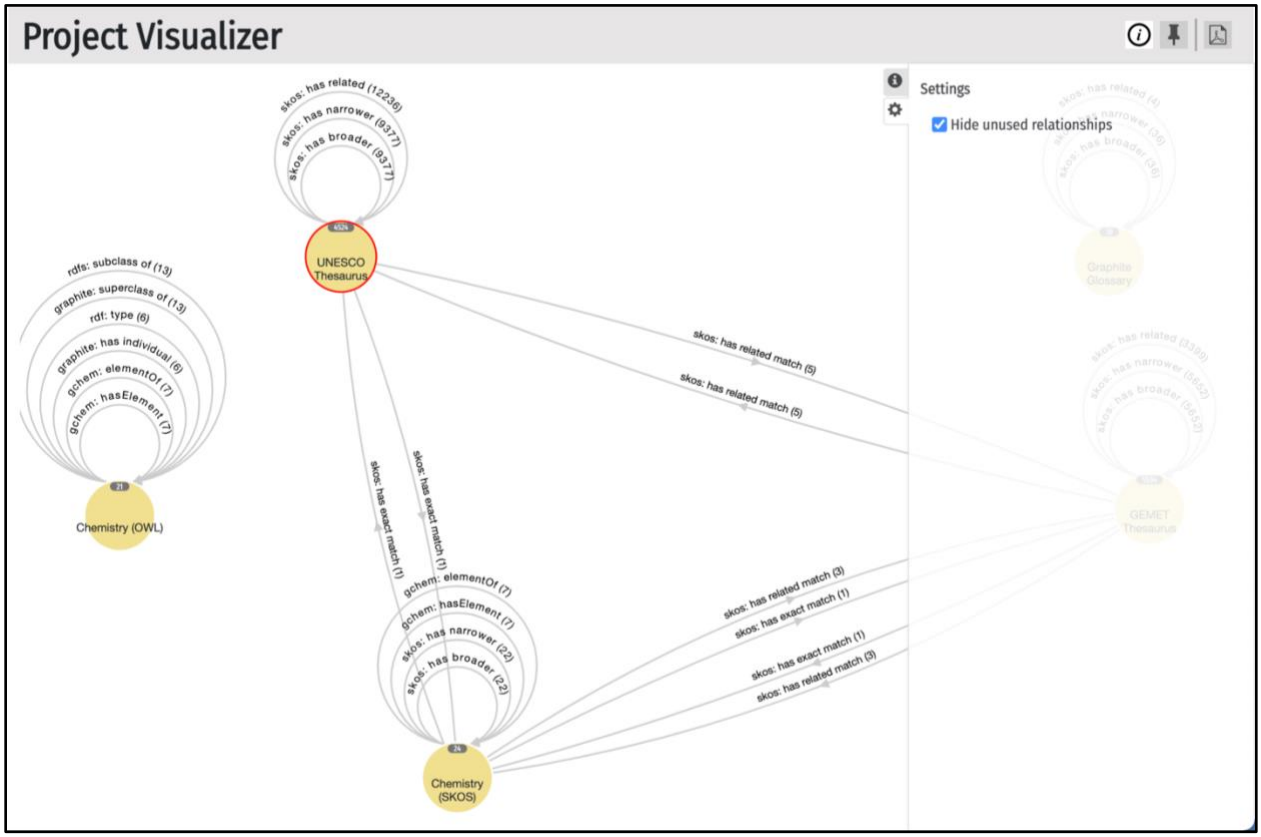


Using the default control *Information* (the first icon in the upper right-hand menu of the Project Visualizer), Schemes can be moved by left-clicking and holding the node while dragging. Clicking on a Scheme node will open the information panel to the right of the visualization and the selected node will be highlighted with a red ring. The information panel can be opened and closed without selecting a label by clicking the *i* icon on the panel tab. The information panel displays the Scheme's Resource Types, Templates, Properties, and Metadata.



Clicking the *Pin/Unpin* icon will freeze a concept in the visualization when it is dragged to a new position. Clicking the pinned node again will unfreeze it. In this example, the Schemes were dragged and pinned to show relationships clearly with no overlap.

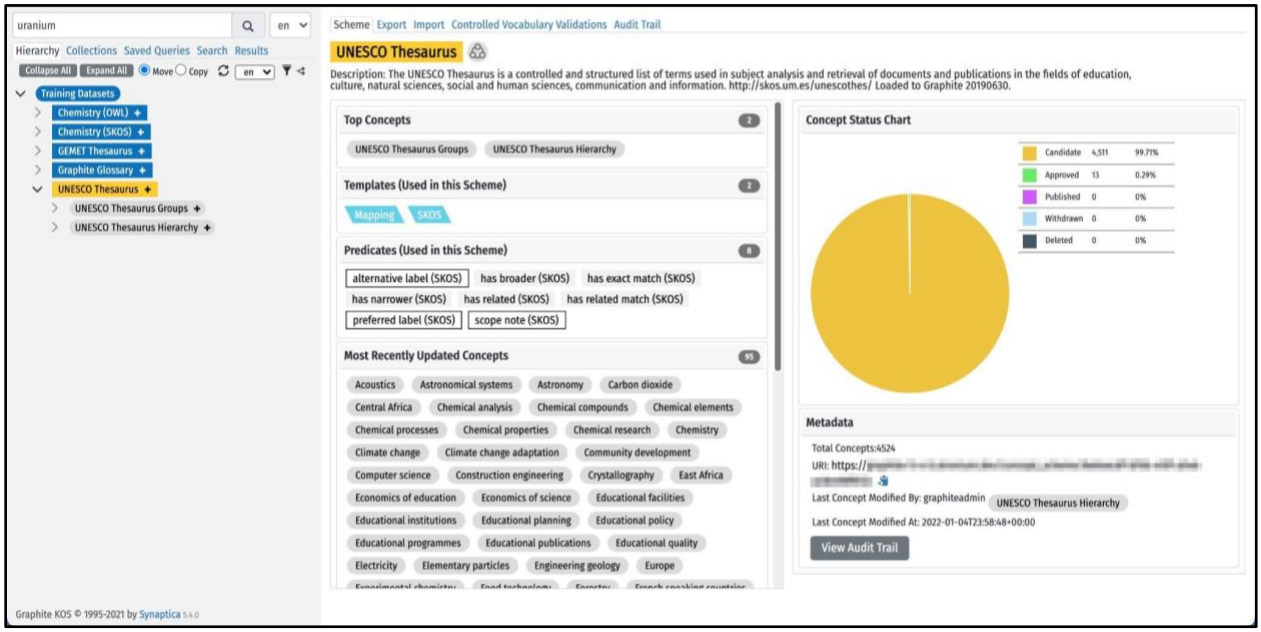
Below the information tab is the *Settings* tab. Selecting this option will show the *Hide unused relationships* which, when clicked, will hide all relationships with a zero (0) count.



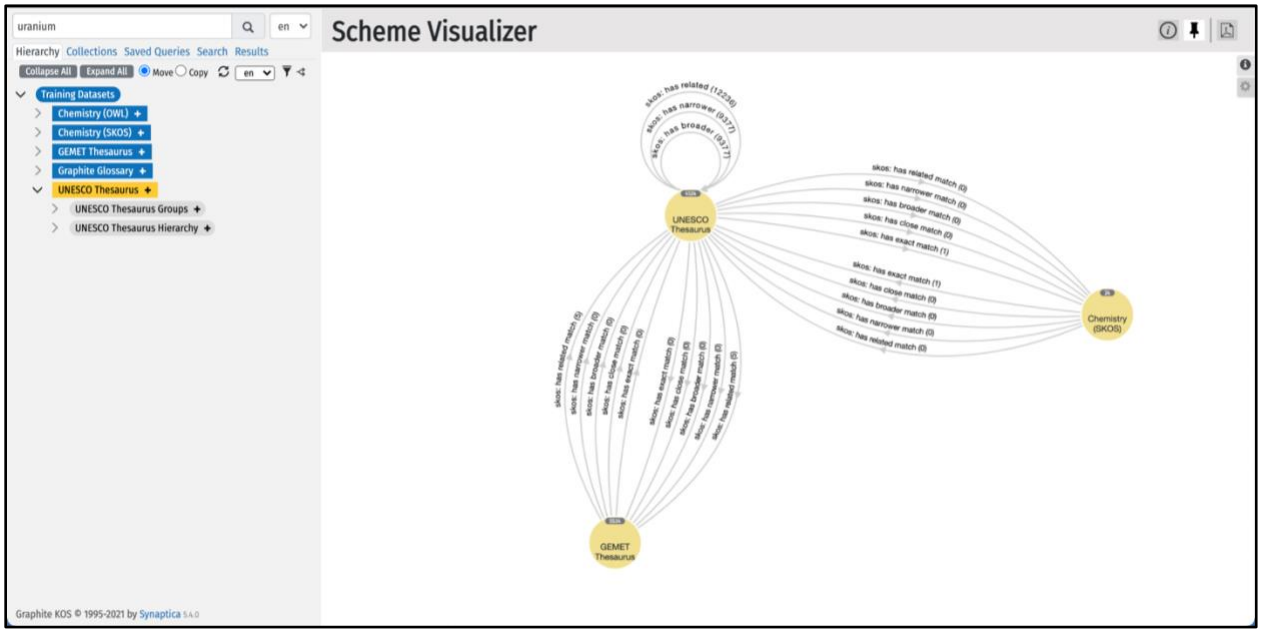
The visualization can be exported as a PDF file using the PDF icon to the far right of the menu in the upper right-hand corner of the workspace.

5.4.17.2 Scheme Visualization

Schemes and their relationships can be visualized in the Scheme Visualizer. Select any Scheme and select the three-circle visualizer icon next to the scheme name in the scheme workspace. Visualizations work within and between Schemes based on the relationships allowed between concepts.

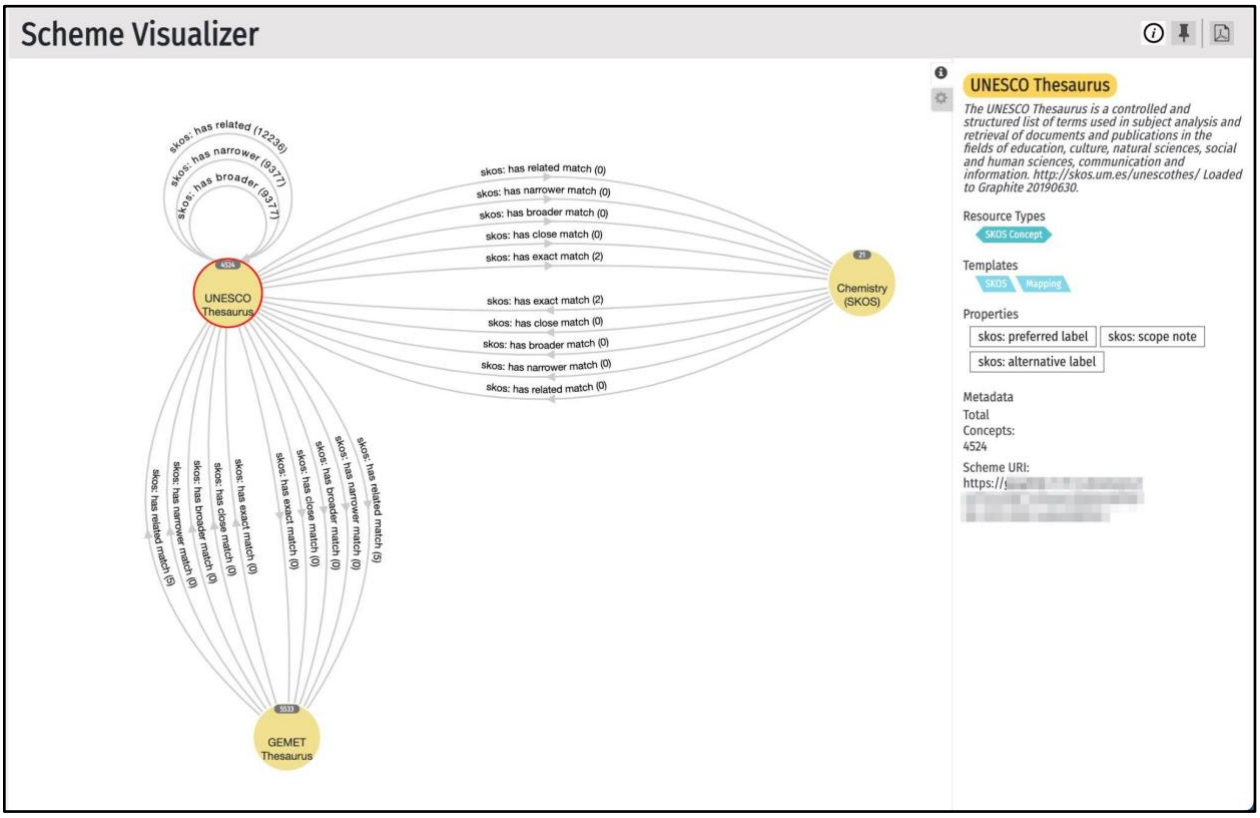


The default view presents the selected Scheme and relationships within and between Schemes. Each Scheme circle includes the number of concepts in the Scheme. Each relationship connector displays the name and direction of the relationship and the number of relationships within and between Schemes.

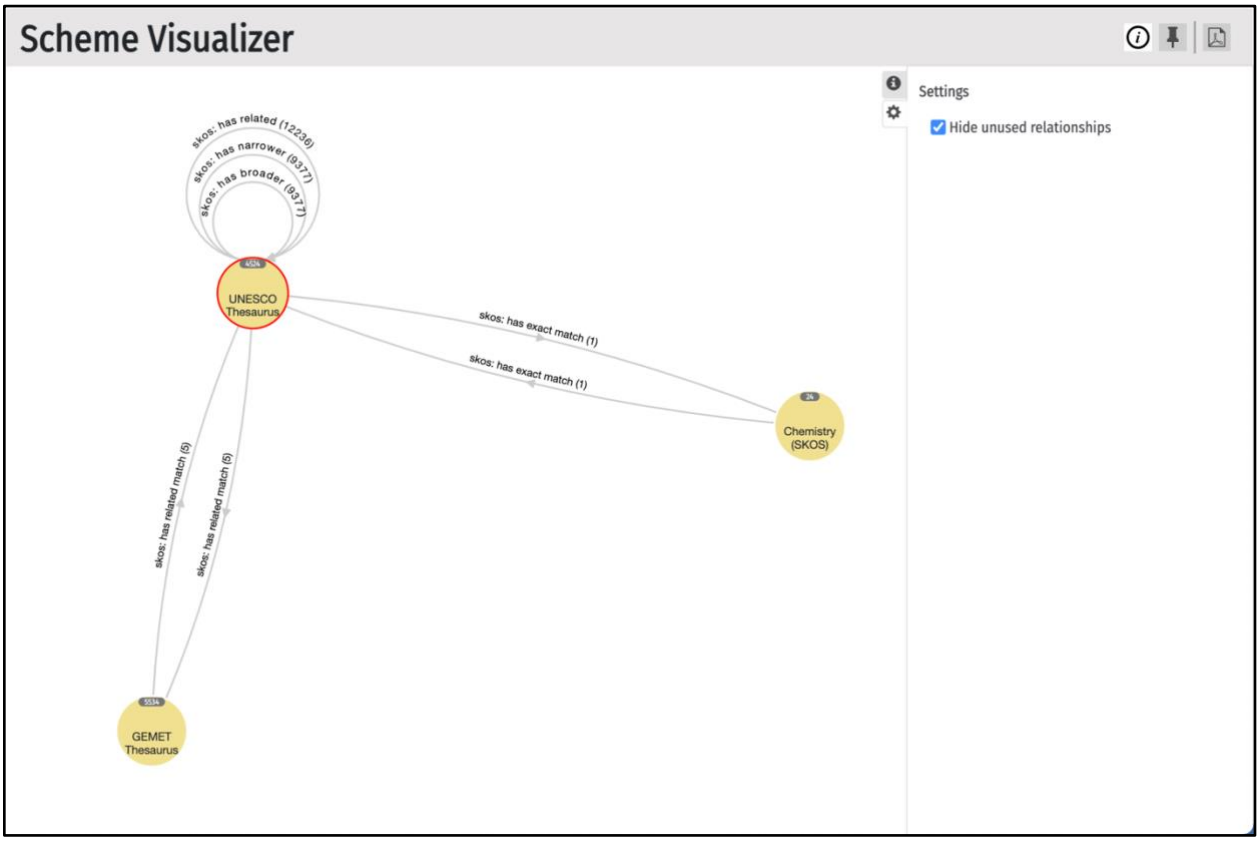


Using the default control *Information* (the first icon in the upper right-hand menu of the Project Visualizer), Schemes can be moved by left clicking and holding the node while dragging. Clicking on a Scheme node will open the information panel to the right of the visualization and the selected

node will be highlighted with a red ring. The information panel can be opened and closed without selecting a label by clicking the *i* icon on the panel tab. The information panel displays the Scheme's Resource Types, Templates, Properties, and Metadata.



Below the information tab is the *Settings* tab. Selecting this option will show the *Hide unused relationships* which, when clicked, will hide all relationships with a zero (0) count.

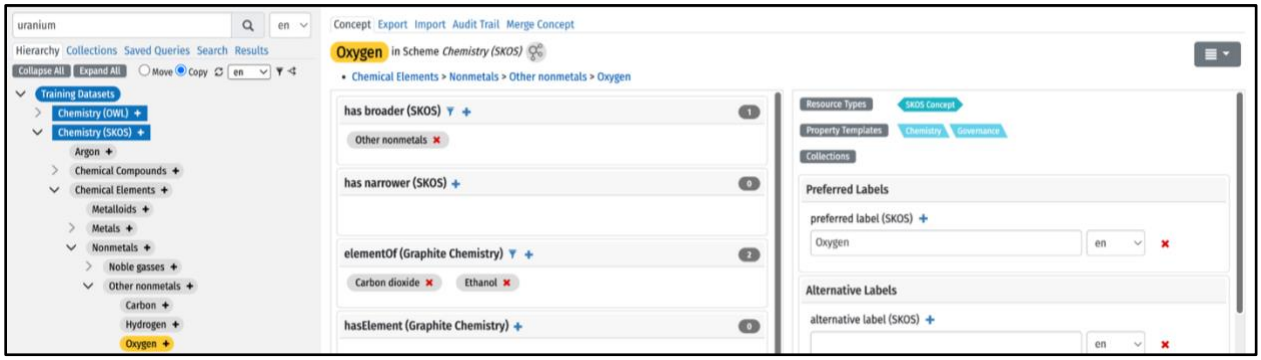


Clicking the *Pin/Unpin* icon will freeze a concept in the visualization when it is dragged to a new position. Clicking the pinned node again will unfreeze it.

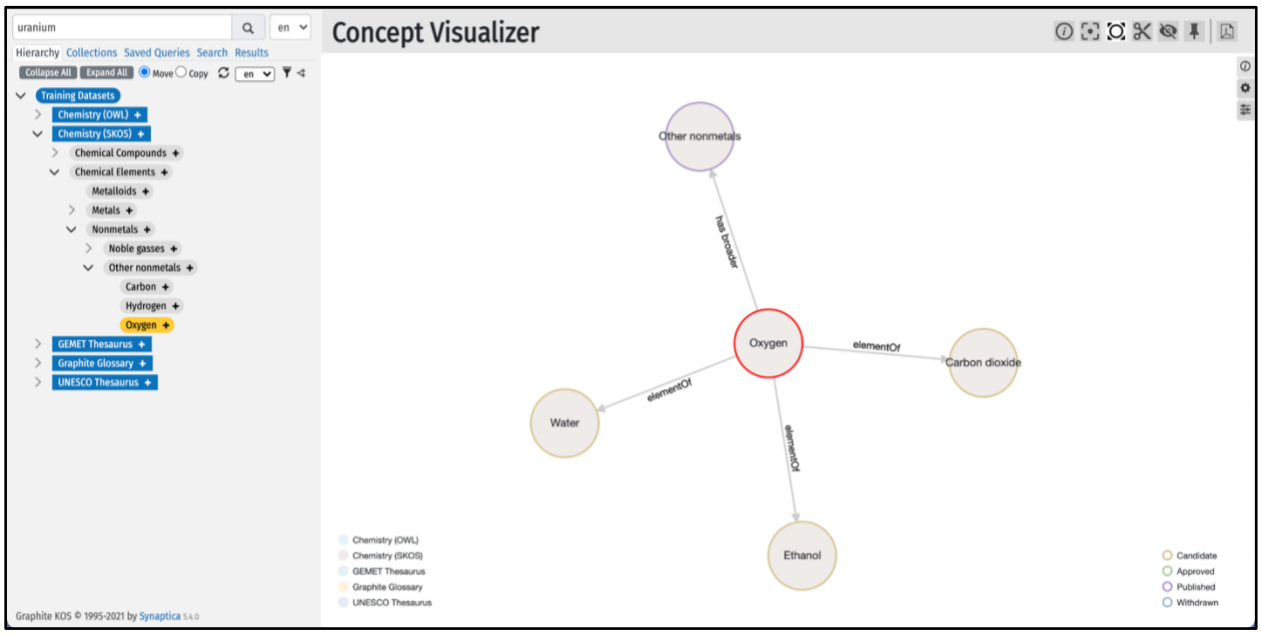
The visualization can be exported as a PDF file using the PDF icon to the far right of the menu in the upper right hand corner of the workspace.

5.4.17.3 Concept Visualization

Concepts and their relationships can be visualized in the Concept Visualizer. Select any concept in a Scheme and select the three-circle visualizer icon next to the concept name in the concept workspace. Visualizations work within and between Schemes based on the relationships allowed between concepts.



The visualizer default view will display the concept at the center circled in red with its related concepts surrounding it in a radial map. Each concept includes its label and each relationship line is labeled with the relationship type.

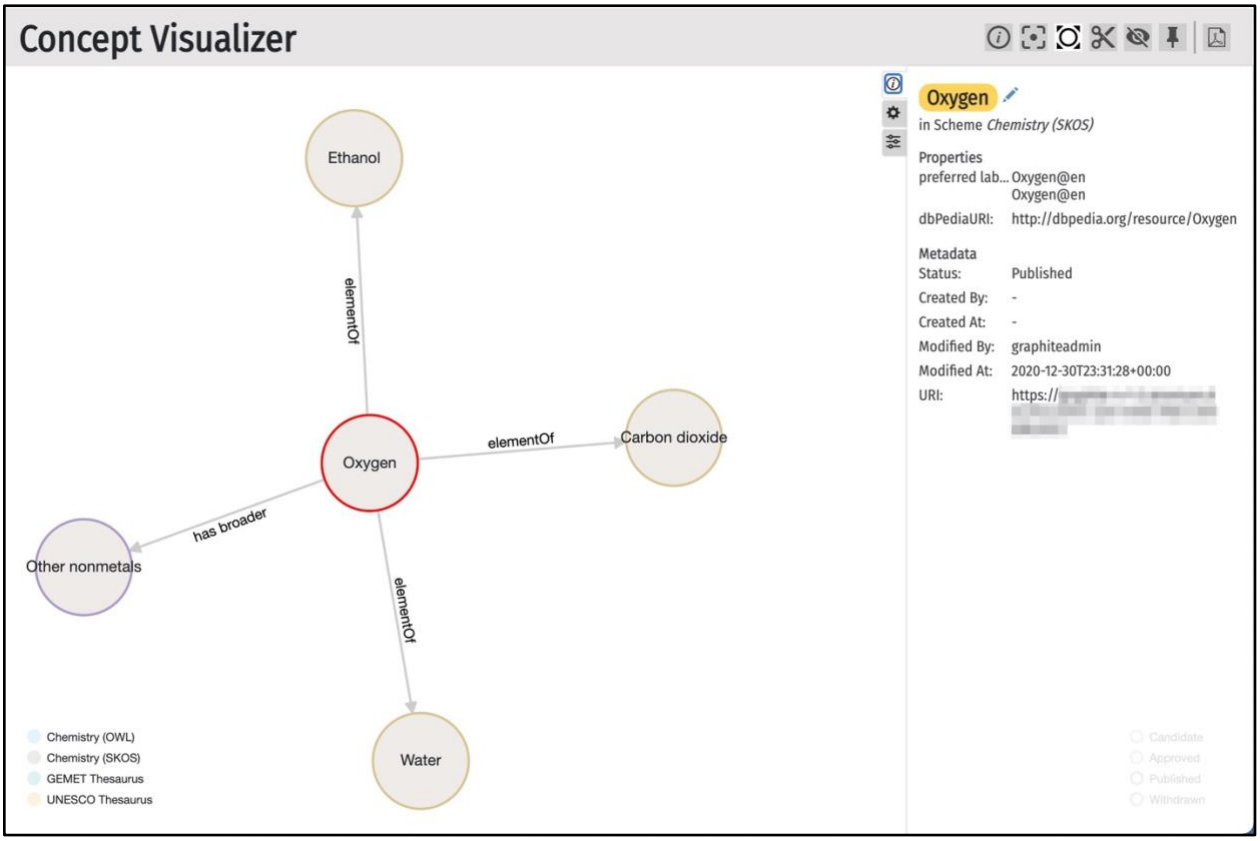


When the status of a concept is changed, the concept node outline will change color as indicated in the key in the lower right-hand corner of the Concept Visualizer. Schemes are color-coded as indicated in the key in the lower left-hand corner of the Concept Visualizer.

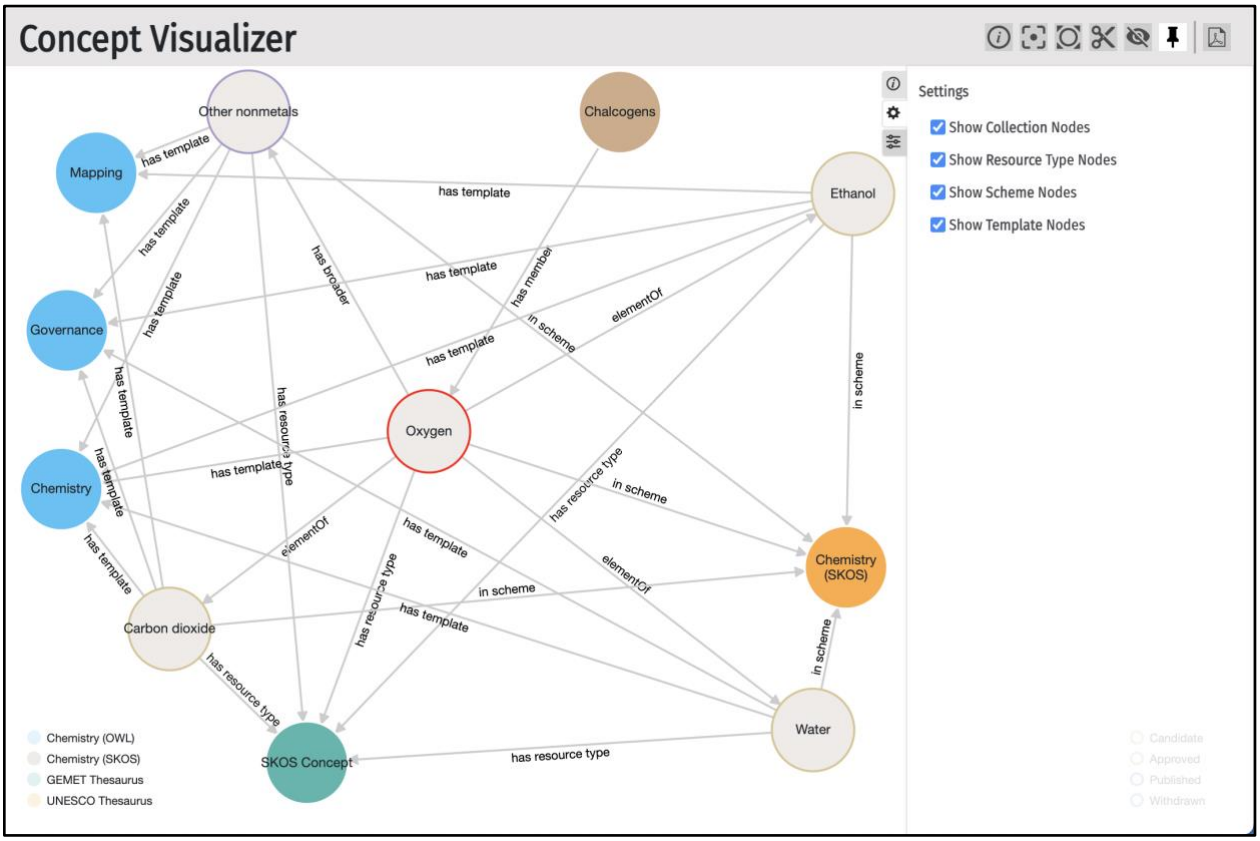
Using the default control *Multi Concept Display* (the third icon in the upper right-hand menu of the Concept Visualizer), concepts can be moved by left clicking and holding the concept node while dragging. Clicking on a concept will expand the concept and display its related concepts and relationships. Whenever a new concept is clicked, that concept will be expanded to display all related concepts and relationships.

Selecting the *i (Concept Information)* tab will open the information panel to the right of the visualization when a concept is selected. This panel can be opened and closed without selecting

a label by clicking the “i” icon on the panel tab. The information panel displays the concept’s Properties, such as alternative labels, scope notes, status, and URI, and Metadata. Clicking the pencil icon in the information inset will reload the screen with the selected concept’s workspace pane for viewing or editing.

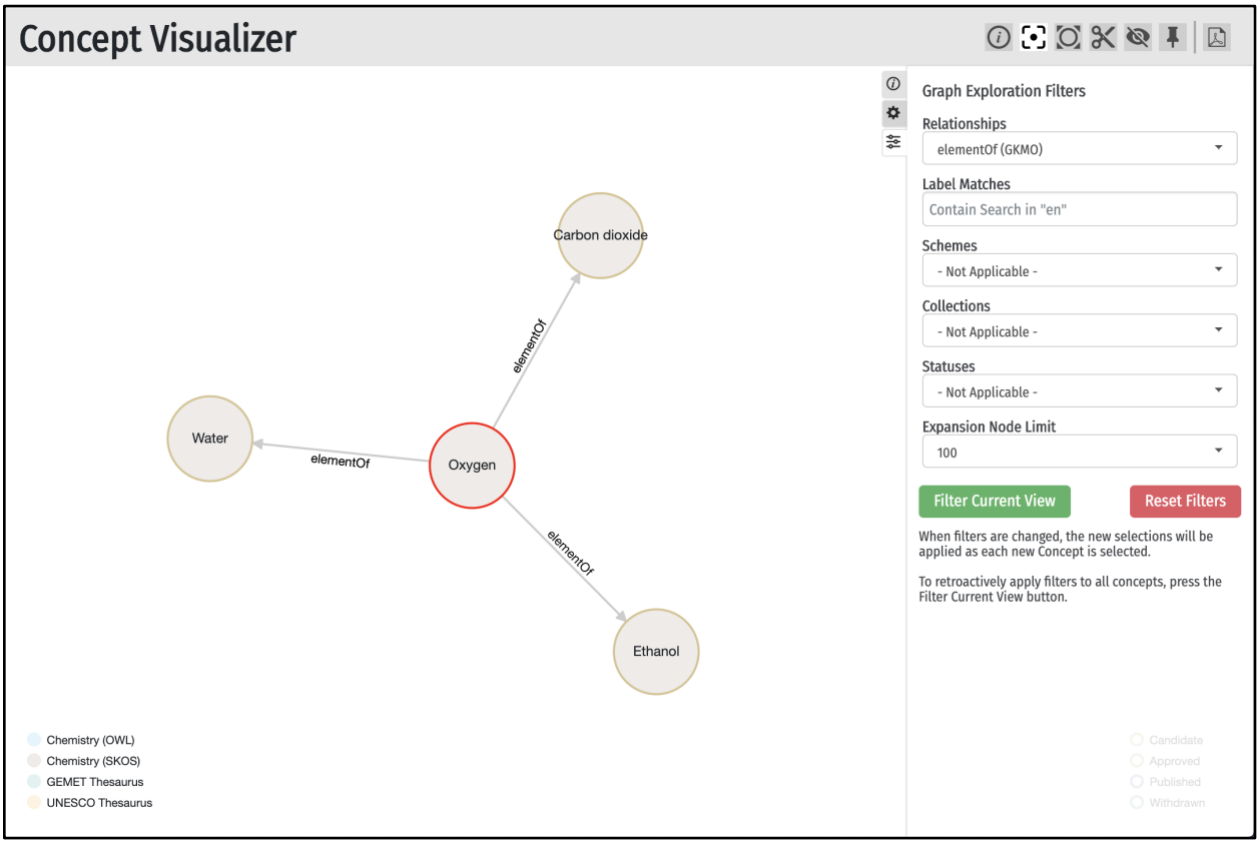


Below the *i* tab is the gear icon for concept settings. Here, it is possible to *Show Collection Nodes*, *Show Resource Type Nodes*, *Show Scheme Nodes*, and *Show Template Nodes*. When selected, these relationships display in the visualization. Relationships between the concept, Collections, Resource Types, Schemes, and Templates are displayed, including *has member*, *in scheme*, *has resource type*, *has template*, and any relationships defined for the Scheme.

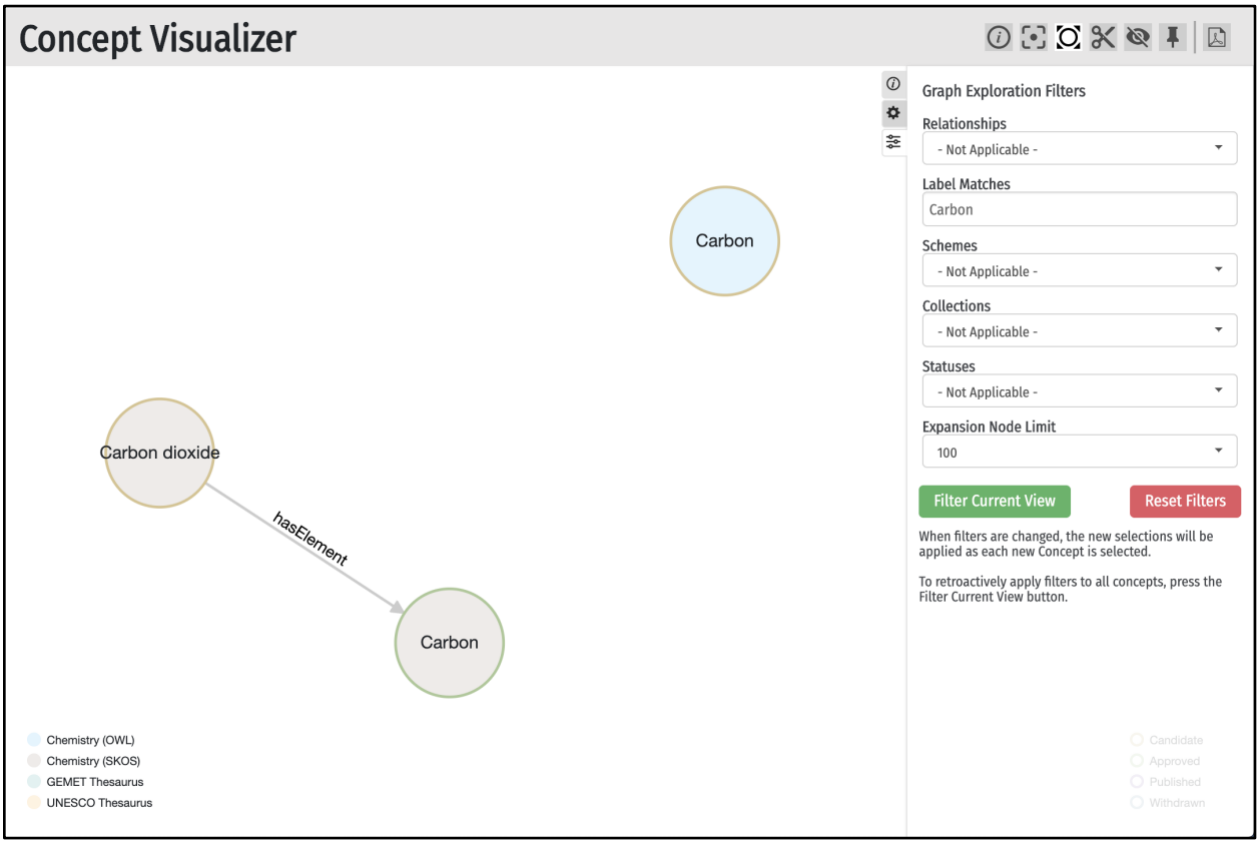


Below the gear icon tab is the filter icon for filtering the visualization. Here, it is possible to filter the visualization on *Relationships*, *Label Matches*, *Schemes*, *Collections*, *Statuses*, and set the *Expansion Node Limit*. The parameter must be selected first and then will be applied once a concept is clicked and the *Filter Current View* button is selected.

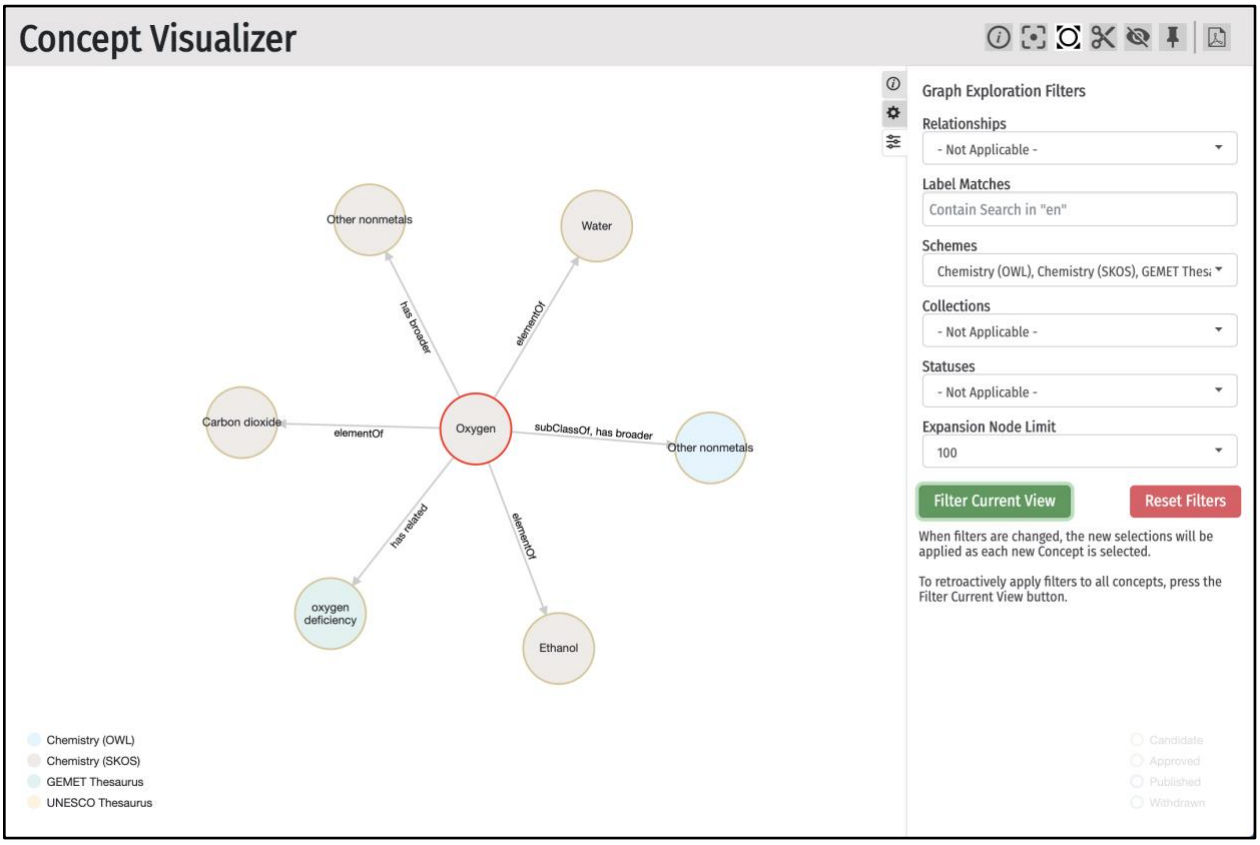
The *Relationships* filter will show only the relationships selected from the dropdown and hide all other relationships. Here, the relationship *elementOf* has been selected and applied.

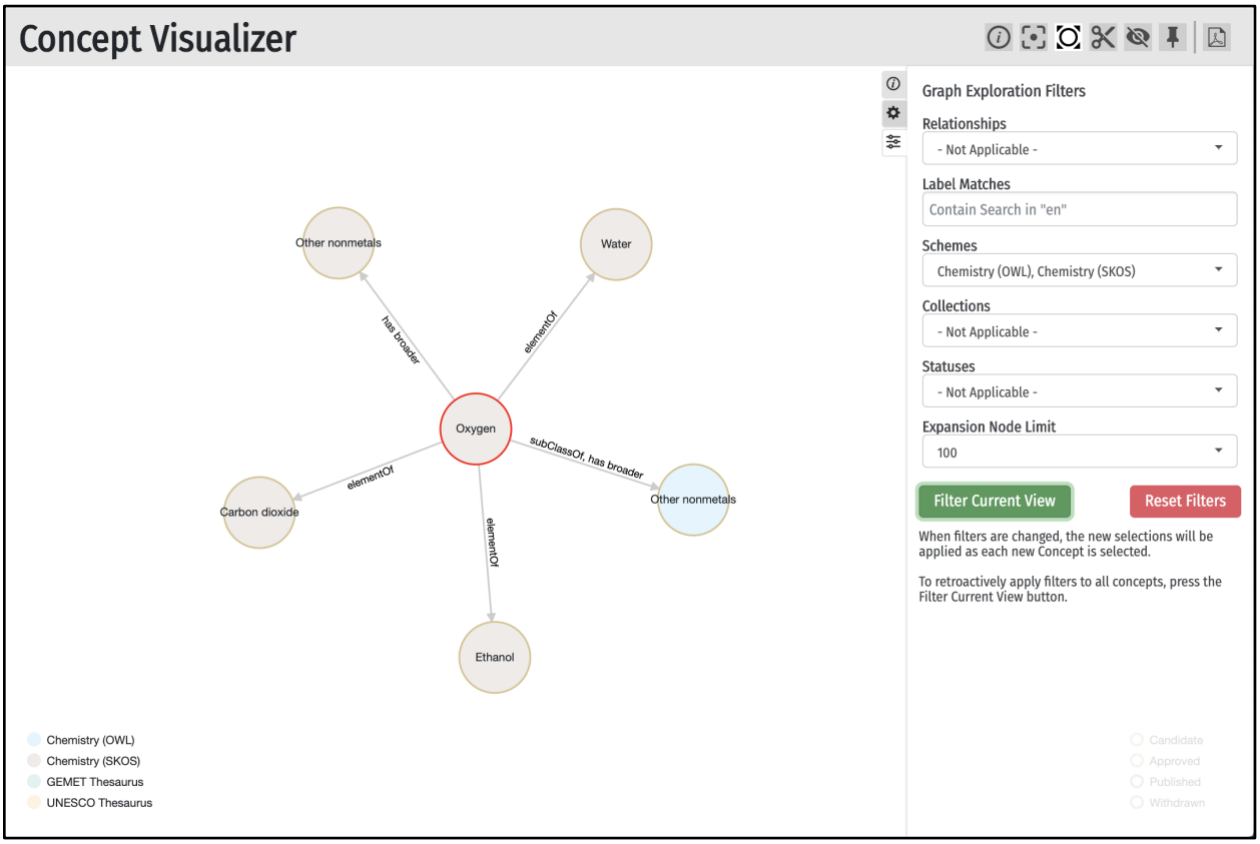


The *Label Matches* filter will show only the label matches applied in the free text keyword field and hide all other concepts. Here, the keyword *Carbon* has been selected and applied to the term *Oxygen*.

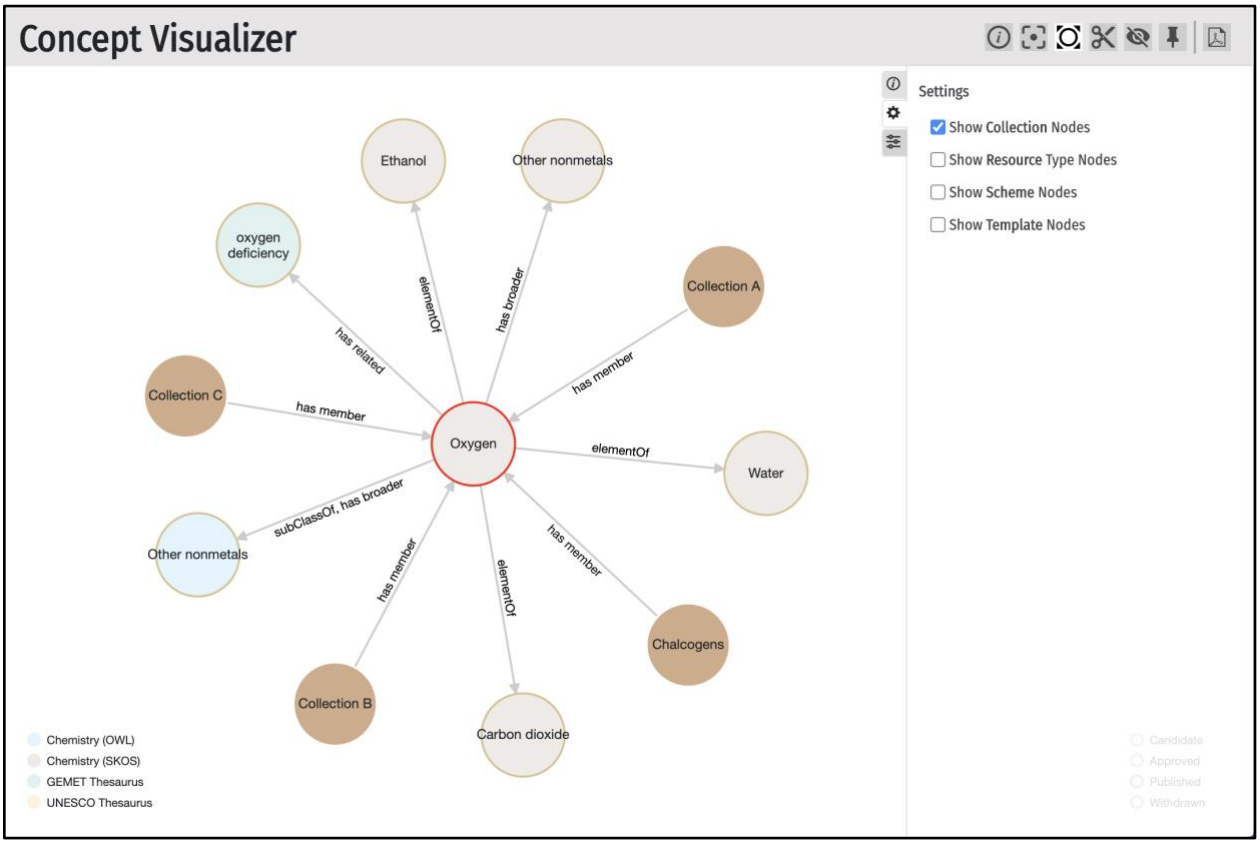


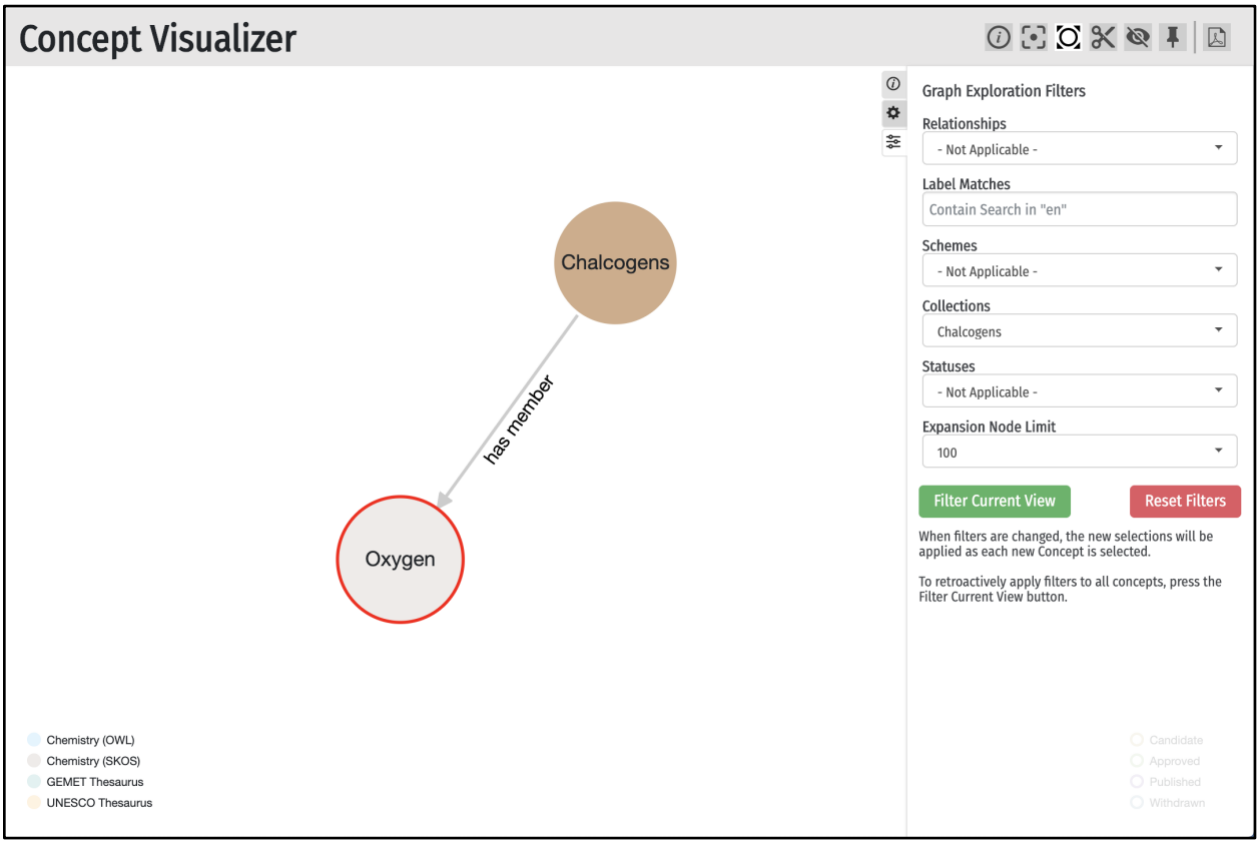
The *Schemes* filter will show only the Scheme(s) selected from the dropdown and hide all other concepts from Schemes which have not been included. Here, the concept *Oxygen* appears in the *Chemistry (OWL)* and *Chemistry (SKOS)* schemes and has relationships to concepts in the *GEMET Thesaurus* scheme. Selecting only the *Chemistry (OWL)* and *Chemistry (SKOS)* schemes hides all concepts from the *GEMET Thesaurus* scheme.


Concept Visualizer
Other nonmetals
Water
has broader
elementOf
Carbon dioxide
elementOf
Oxygen
subClassOf, has broader
Other nonmetals
has related
elementOf
oxygen deficiency
Ethanol
Graph Exploration Filters
Relationships
- Not Applicable -
Label Matches
Contain Search in "en"
Schemes
Chemistry (OWL), Chemistry (SKOS), GEMET Thes
Collections
- Not Applicable -
Statuses
- Not Applicable -
Expansion Node Limit
100
Filter Current View
Reset Filters
When filters are changed, the new selections will be applied as each new Concept is selected.
To retroactively apply filters to all concepts, press the Filter Current View button.
Chemistry (OWL)
Chemistry (SKOS)
GEMET Thesaurus
UNESCO Thesaurus
Candidate
Approved
Published
Withdrawn

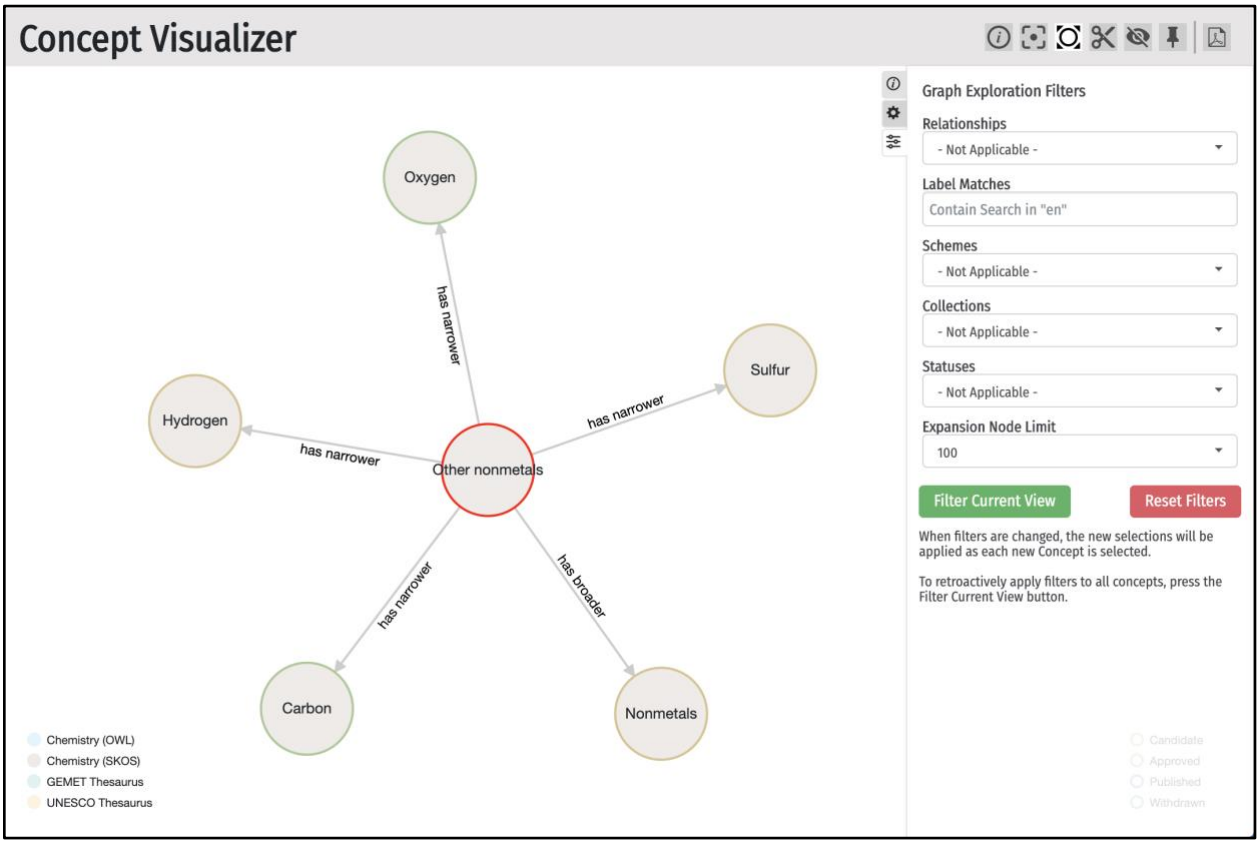


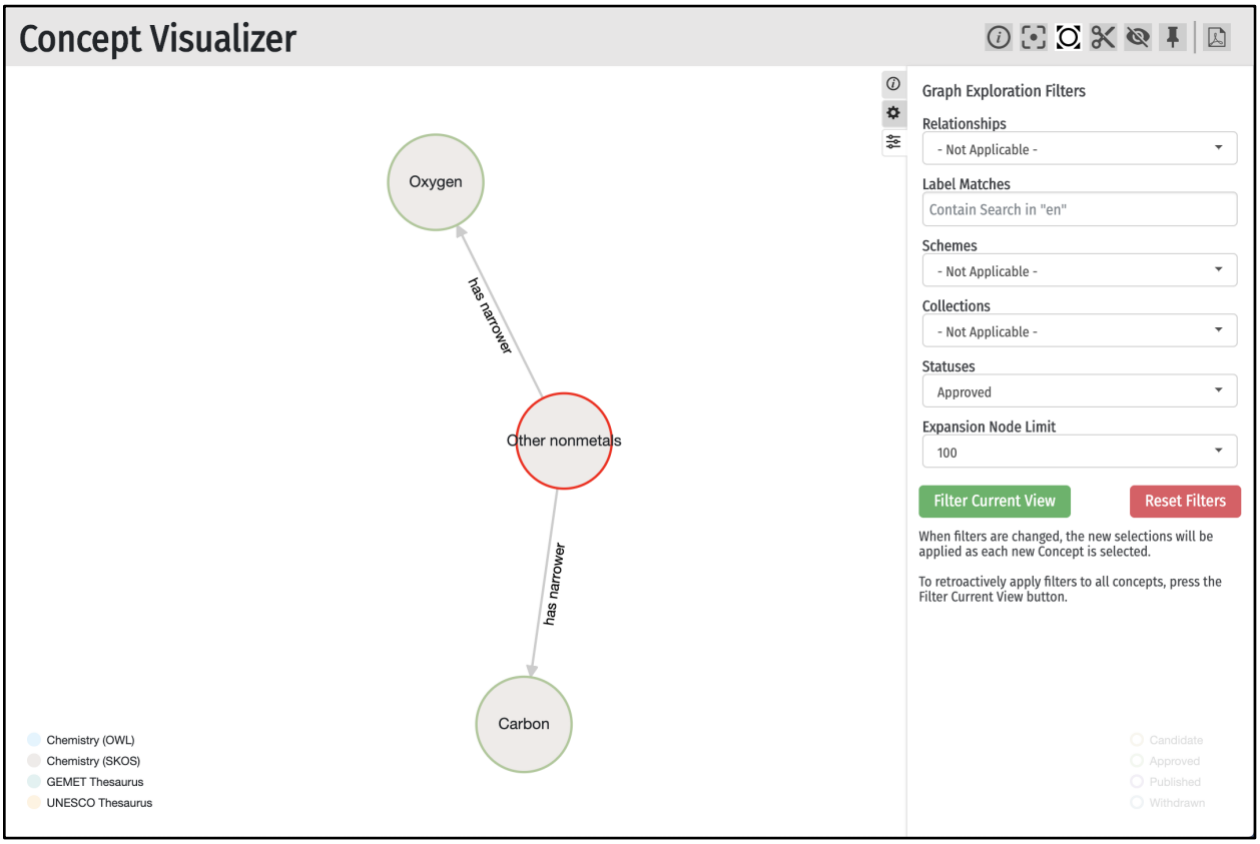
The *Collections* filter will show only the Collection(s) selected from the dropdown and hide all other concepts which do not share the Collection(s) which have not been included. Here, only the concept *Oxygen* is included in the *Chalcogens* collection, so all other concepts are hidden.


Concept Visualizer
Settings
Show Collection Nodes
Show Resource Type Nodes
Show Scheme Nodes
Show Template Nodes
Ethanol
Other nonmetals
oxygen deficiency
Collection A
Collection C
Oxygen
Water
Other nonmetals
Chalcogens
Collection B
Carbon dioxide
elementOf
has broader
has related
has member
has member
elementOf
subClassOf, has broader
has member
elementOf
has member
Chemistry (OWL)
Chemistry (SKOS)
GEMET Thesaurus
UNESCO Thesaurus
Candidate
Approved
Published
Withdrawn

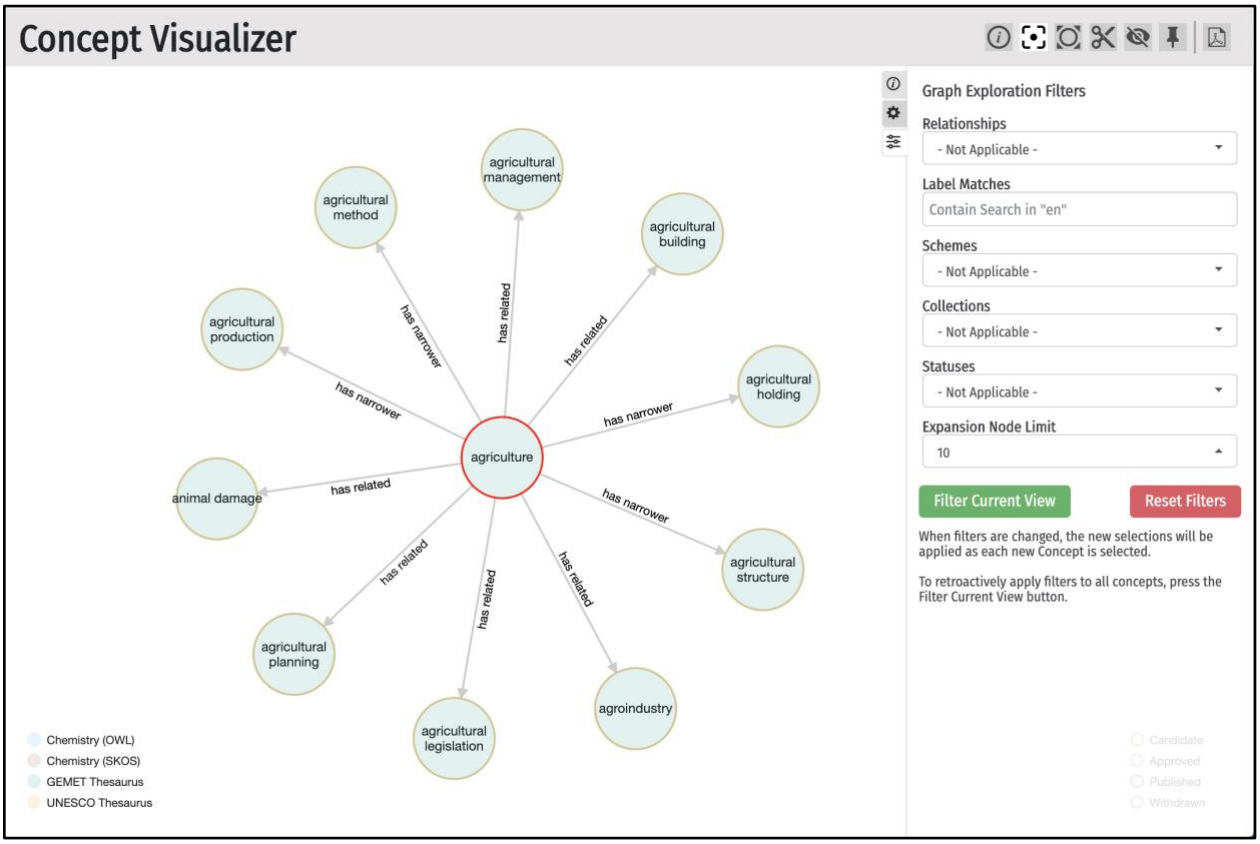


The *Statuses* filter will show only the Statuses selected from the dropdown and hide all other concepts which do not share the Status which have not been included. Here, only the *Approved* concepts under *Other nonmetals* are displayed.

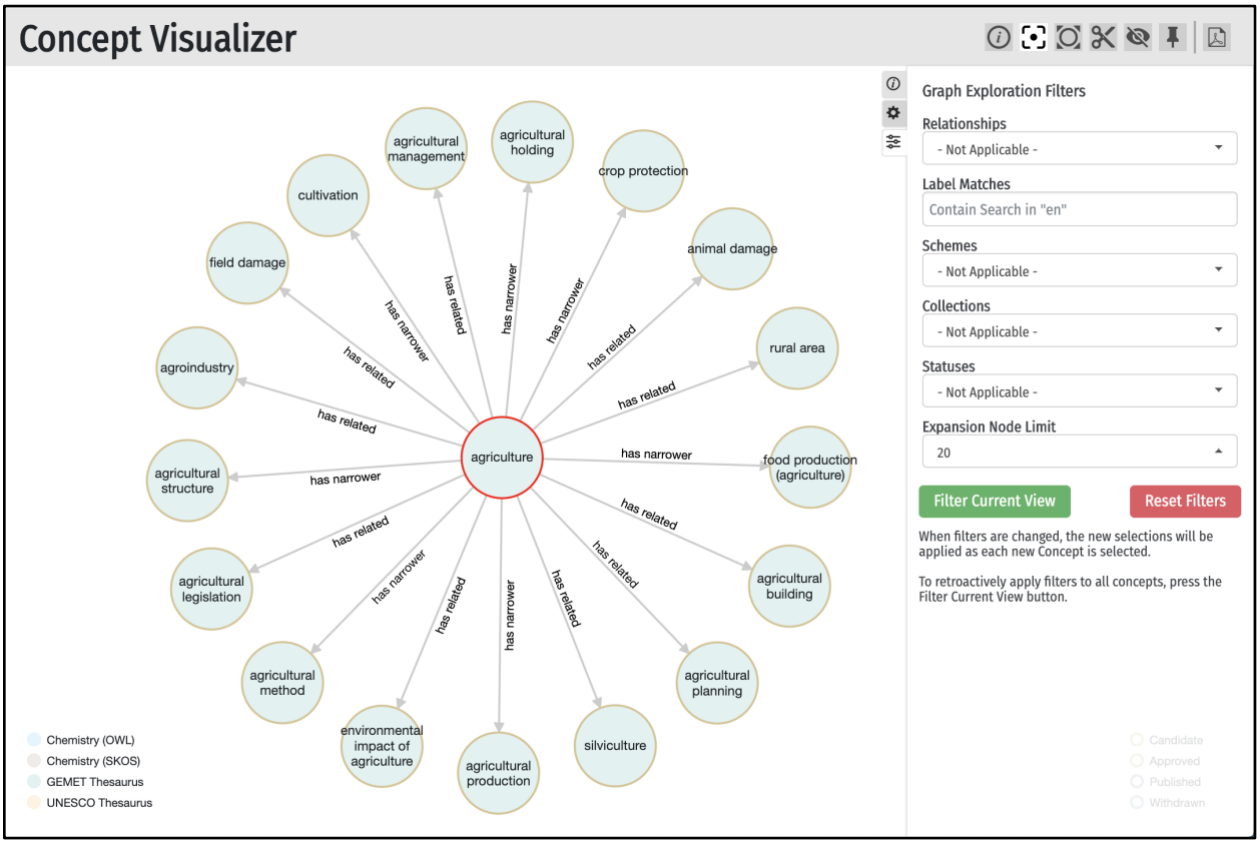

Concept Visualizer
Oxygen
has narrower
Sulfur
Hydrogen
has narrower
has narrower
Other nonmetals
has narrower
has broader
Carbon
Nonmetals
Chemistry (OWL)
Chemistry (SKOS)
GEMET Thesaurus
UNESCO Thesaurus
Graph Exploration Filters
Relationships
- Not Applicable -
Label Matches
Contain Search in "en"
Schemes
- Not Applicable -
Collections
- Not Applicable -
Statuses
- Not Applicable -
Expansion Node Limit
100
Filter Current View
Reset Filters
When filters are changed, the new selections will be applied as each new Concept is selected.
To retroactively apply filters to all concepts, press the Filter Current View button.
Candidate
Approved
Published
Withdrawn



Clicking on a node with many relationships may prompt a user message stating that the relationship limit for display has been reached to indicate there are more nodes for the concept. When the setting is set to 10, only up to ten concepts of any given relationship will be displayed at a time.



The *Expansion Node Limit* will limit or expand the number of concepts per relationship type displayed for any given node in the visualization. When the number is set to 20, only up to twenty concepts of any given relationship type will be displayed. Increments increase by 10 up to 100 concepts.

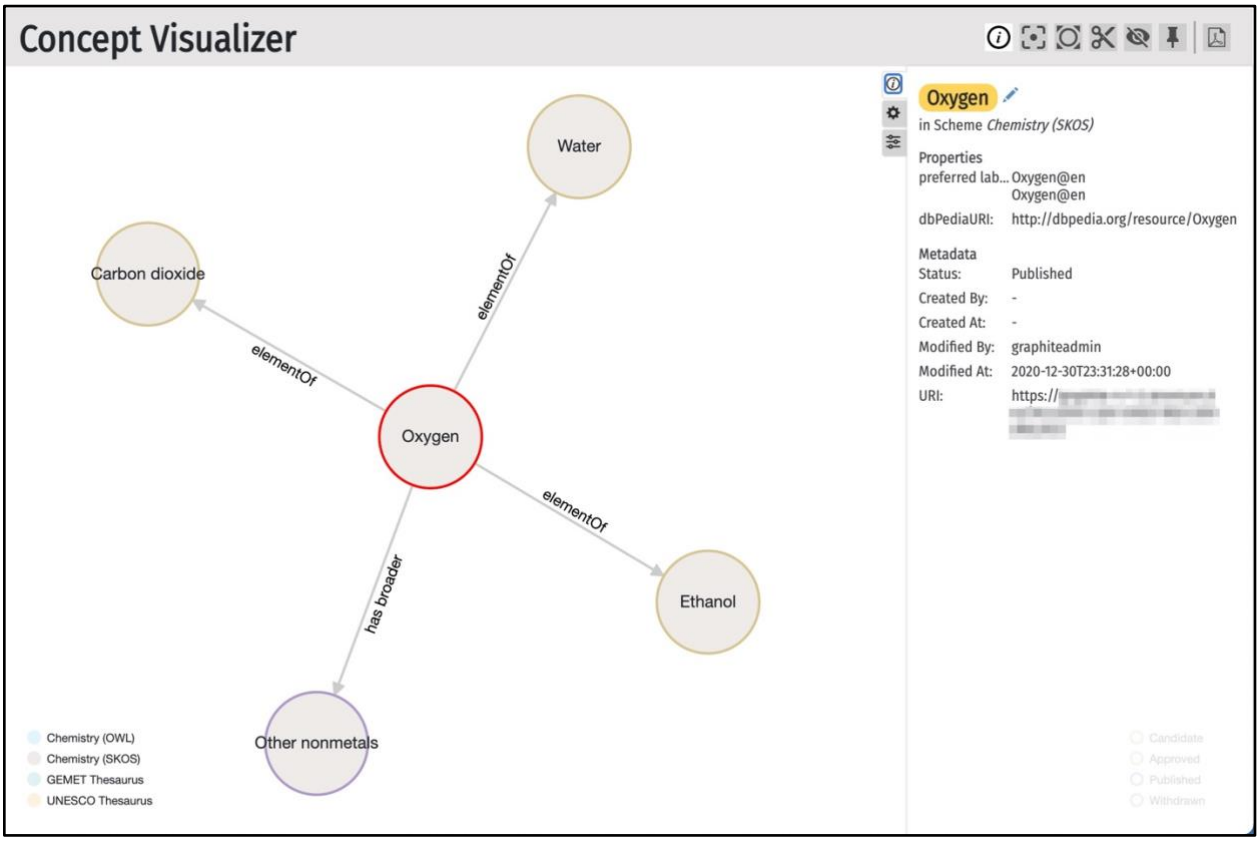


Clicking the *Reset Filters* button will reset the *Graph Exploration Filters* menu.

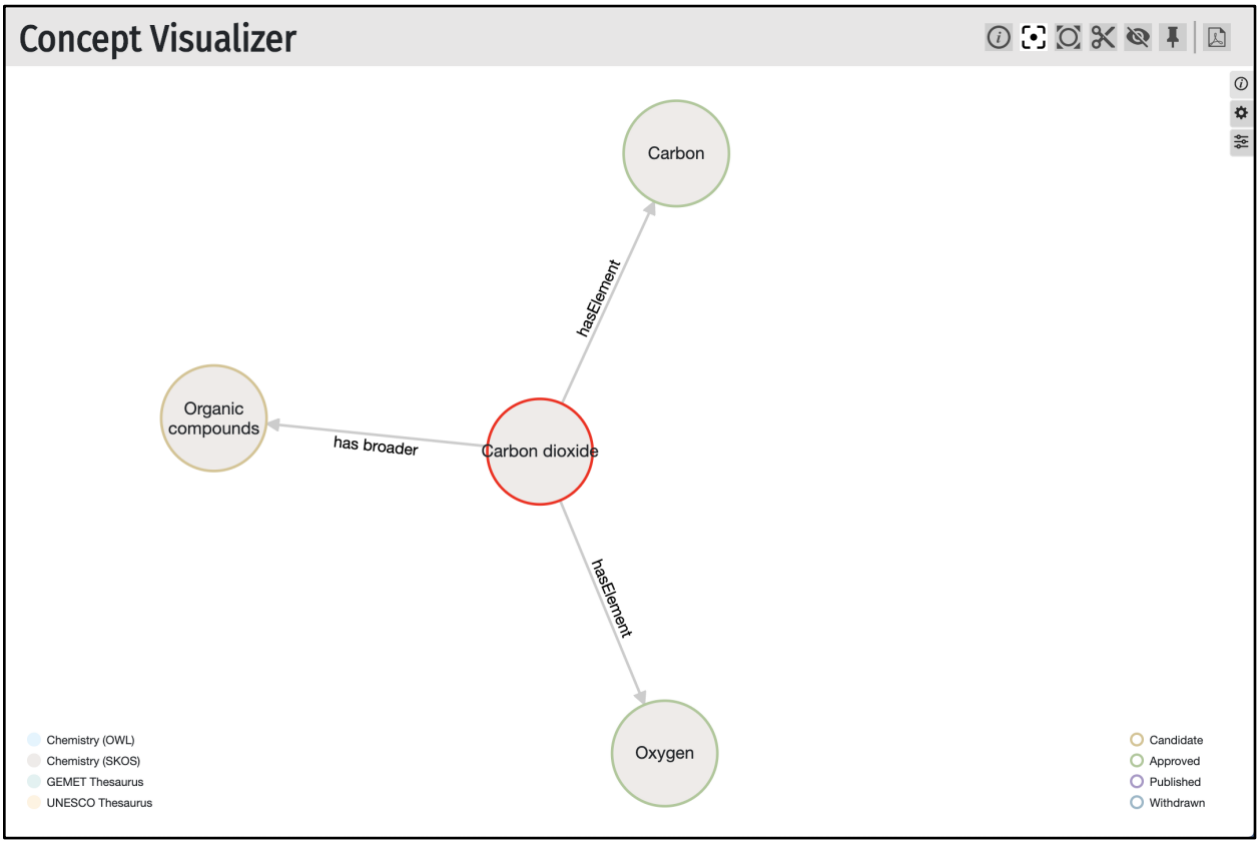
Concept Visualizer Menu Items

In the upper right-hand menu of the Concept Visualizer, there are options to change the visualization.

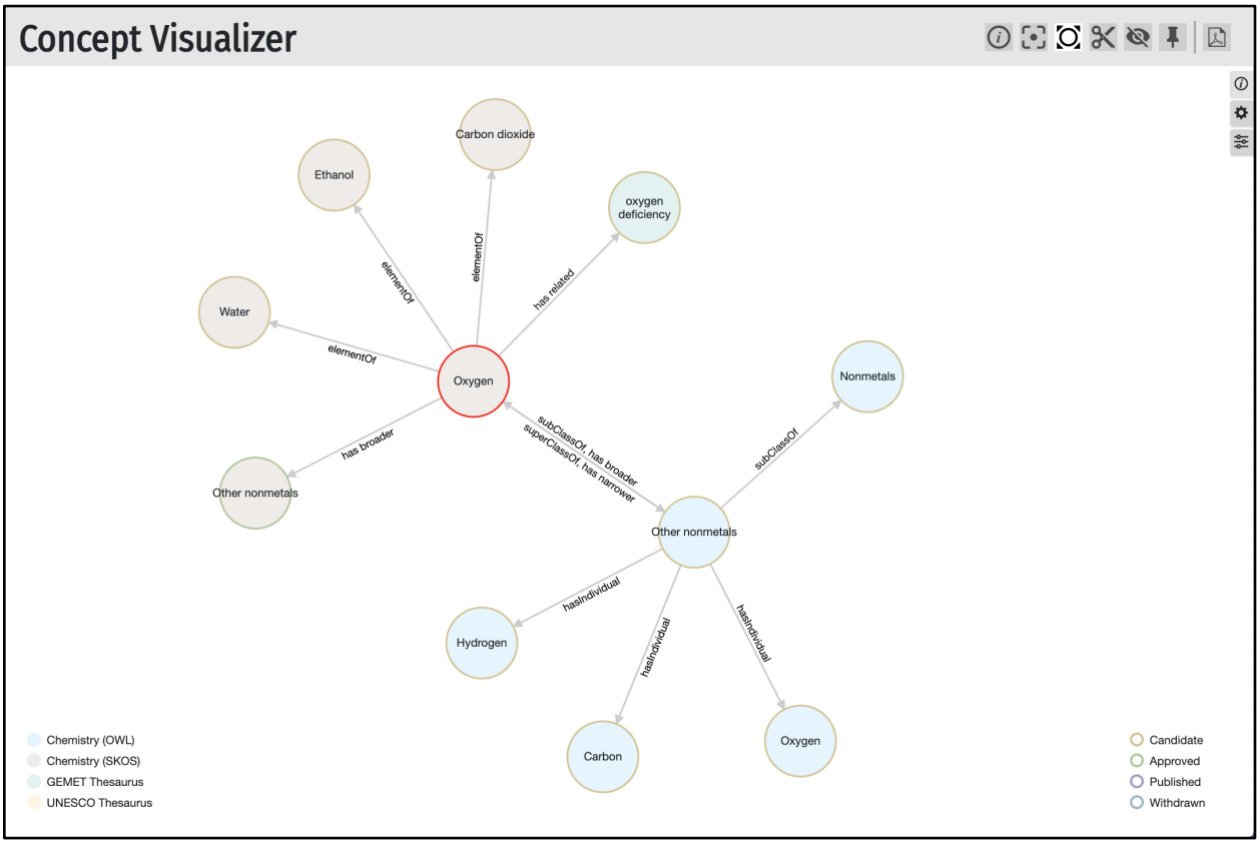
Selecting the *i (Concept Information)* button, the first icon, and then clicking on a concept will display concept information in an inset panel including information such as alternative labels, scope notes, status, and URI. The outline of the selected concept will turn red to indicate it is the concept associated to the information panel.

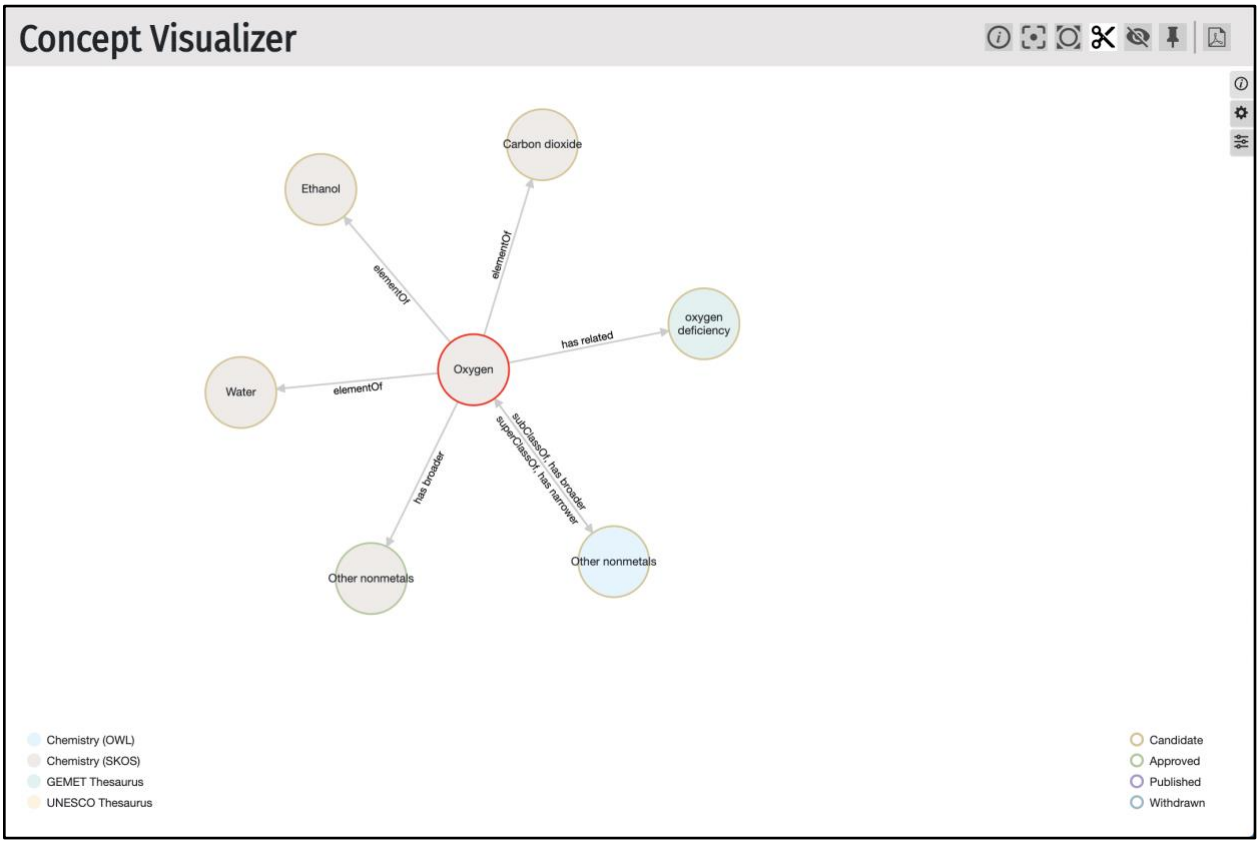


The *Single Concept Display* control, the second icon, allows for the same control as the default navigation icon with the difference that when each concept is clicked, the focus shifts to center the newly clicked concept and only that concept and its related concepts and relationships are displayed. The original concept and its relationships will no longer be displayed. In this example, the concept node for *Carbon dioxide* was selected and the visualization refocused on that concept.

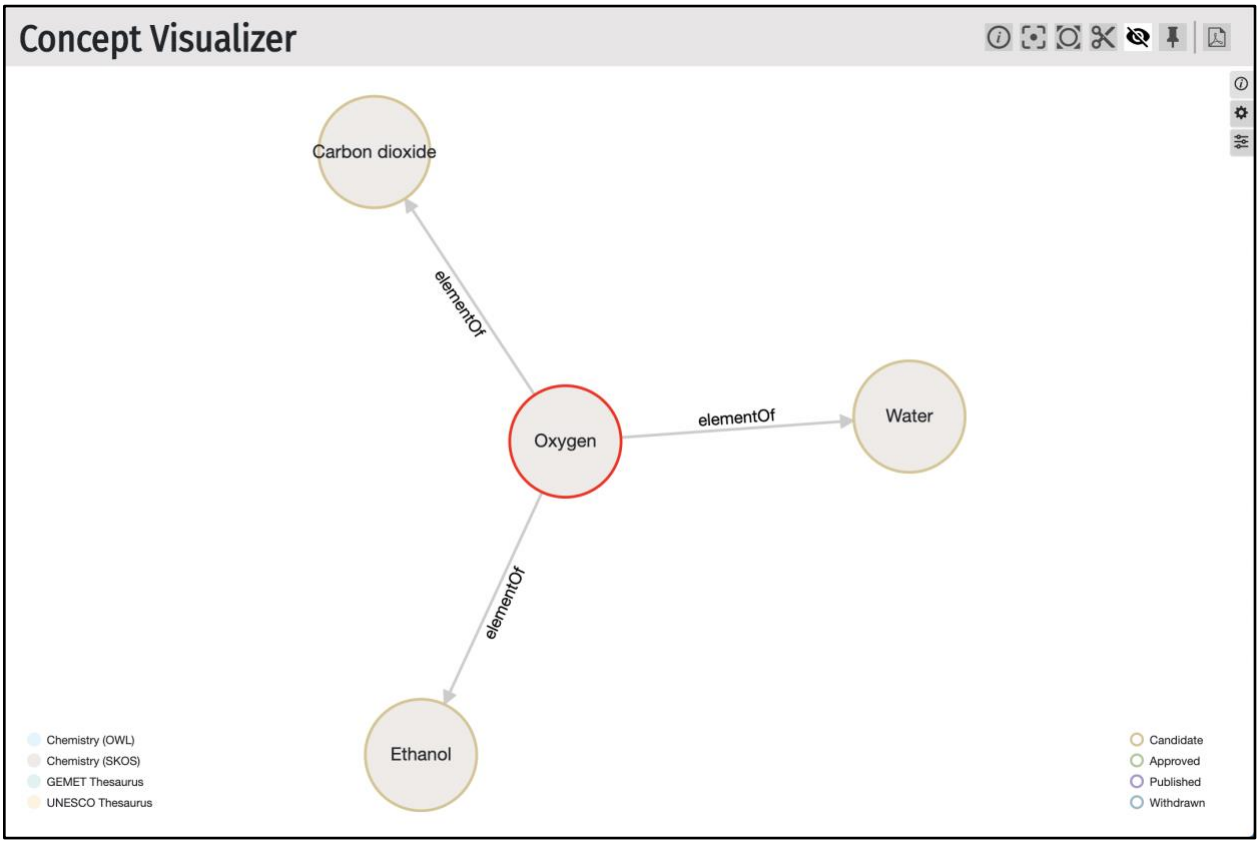


Clicking the *Trim* control, the fourth icon, and then clicking a concept will remove the concept relationships and any additional nodes from the visualization. Here, selecting *Other nonmetals* removes its relationships and related nodes.

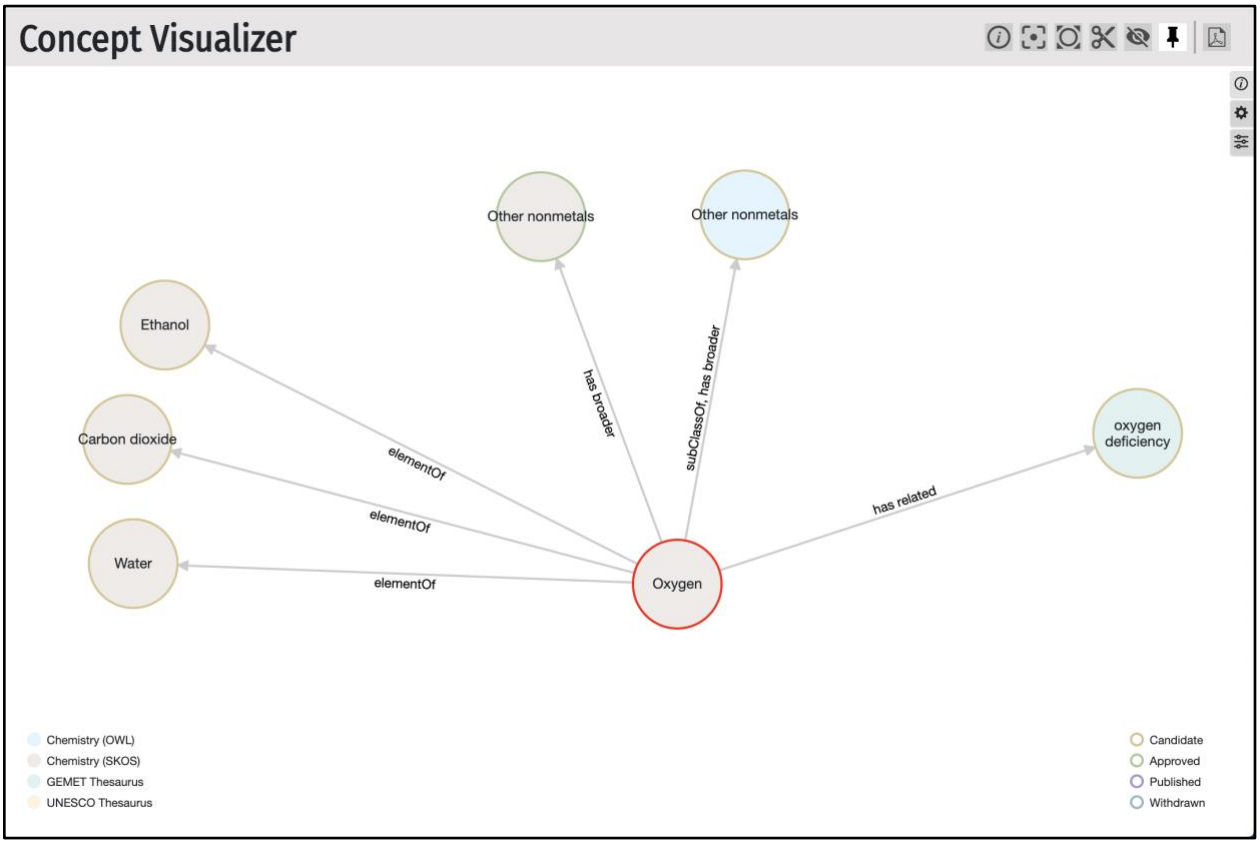

Concept Visualizer
Carbon dioxide
Ethanol
oxygen deficiency
Water
Oxygen
Nonmetals
Other nonmetals
Other nonmetals
Hydrogen
Carbon
Oxygen
elementOf
elementOf
has related
elementOf
has broader
subClassOf, has broader
superClassOf, has narrower
subClassOf
hasIndividual
hasIndividual
hasIndividual
Chemistry (OWL)
Chemistry (SKOS)
GEMET Thesaurus
UNESCO Thesaurus
Candidate
Approved
Published
Withdrawn



Clicking the *Hide Concept* control, the fifth icon, and then clicking a concept will remove that concept and its relationships from the visualization.



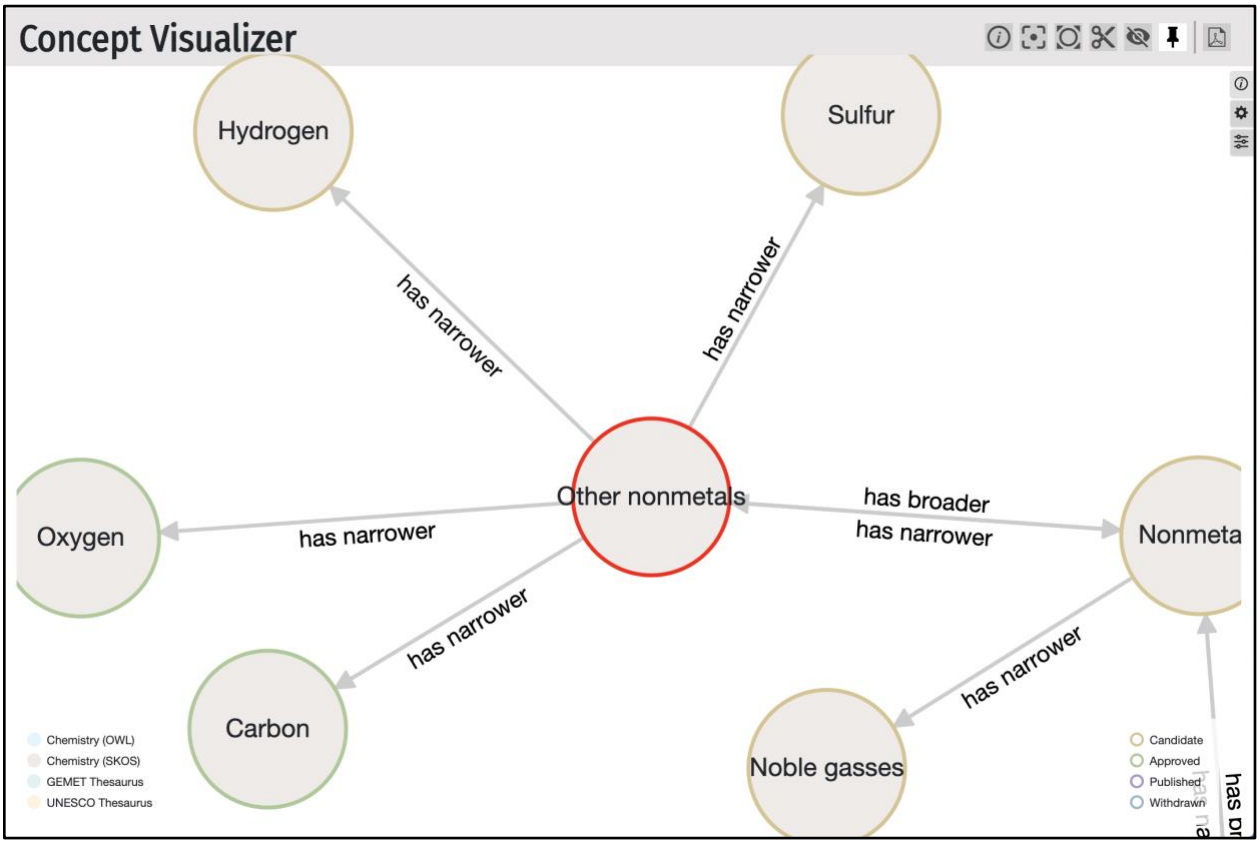
Clicking the *Pin/Un-pin Concept to Canvas* icon will freeze a concept in the visualization when it is dragged to a new position. Clicking the pinned node again will unfreeze it. In this example, dragging and pinning concepts allows for the visual separation of different types of concepts.



The visualization can be exported as a PDF image file using the *Save as PDF* icon to the far right of the menu in the upper right hand corner of the workspace.

Concept Visualizer Other Functions

Double-clicking within the visualization pane will magnify the visualization. Using a mouse wheel or touchpad, it is possible to zoom in or out of the visualization. Individual concepts can be moved by left-clicking and holding the concept node while dragging. It is possible to move the entire visualization by left-clicking and holding outside the visualization to drag and move all nodes and relationships. To reset the visualization, click on the same or another concept from the tree view.

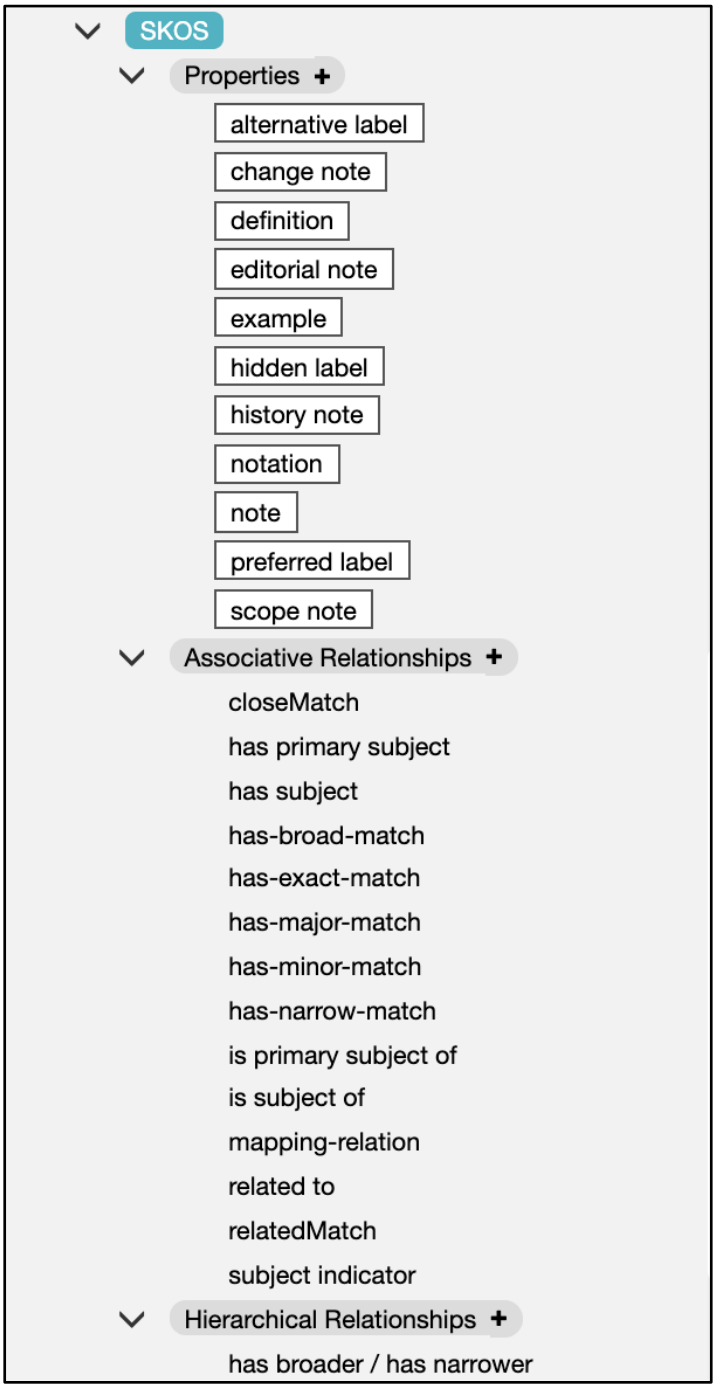


5.5 Import Tools

Please see the separate ***Graphite Import Guide*** for detailed instructions on uploading and importing Properties, Predicates, Concepts, and Attributes.

5.6 Namespace and Predicate Admin Tools

The *Namespace and Predicate Admin* (formerly *Ontology Admin*) area is where one creates and edits system namespaces, which are the basis for the relationships and properties providing structure within and between Schemes. Each Graphite system may come preloaded with a base set of ontologies, such as Dublin Core (DCT), SKOS, or OWL. One may also create custom namespaces by establishing new properties as well as associative and hierarchical relationships. These provide specific descriptive information which may be more meaningful to the taxonomies and other vocabularies rather than using existing namespace content.

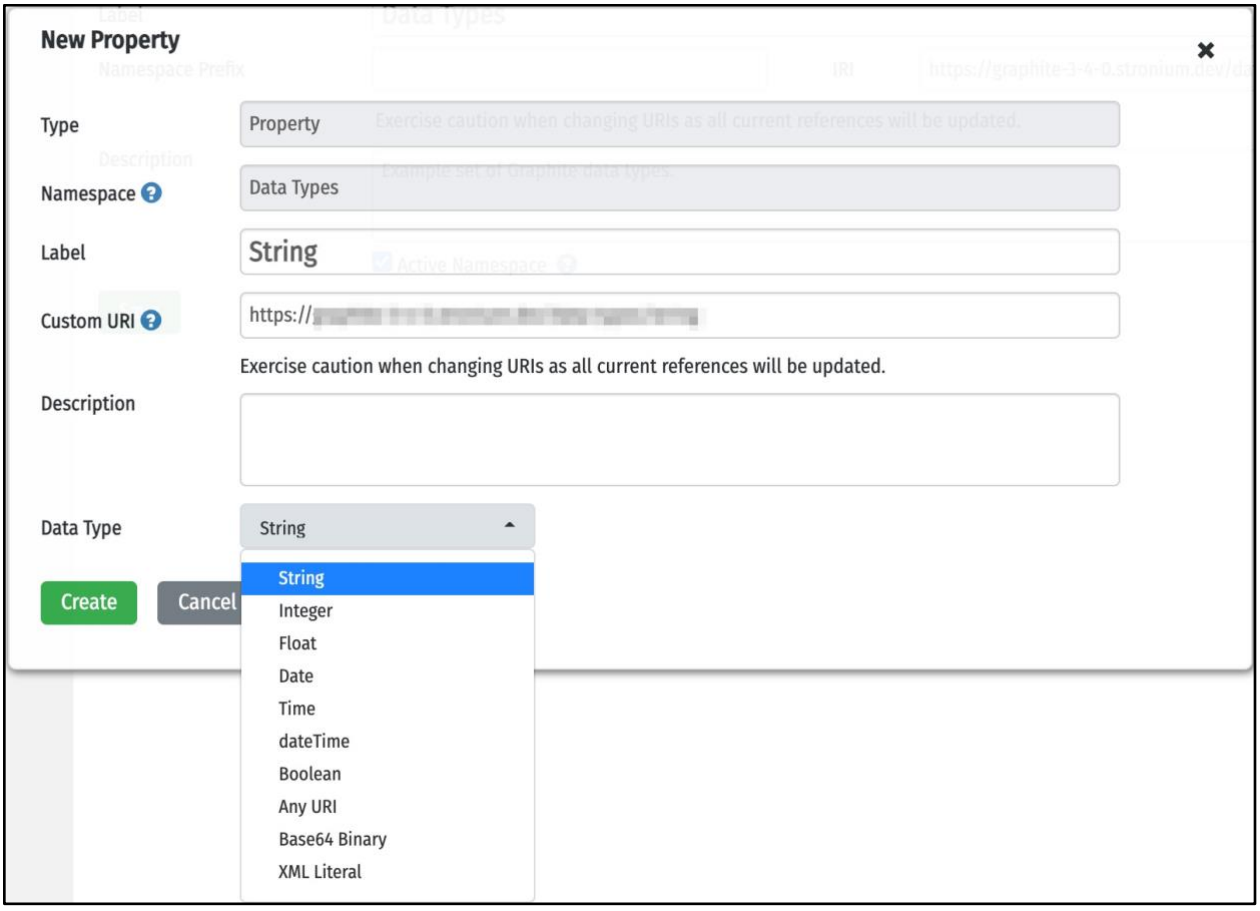


5.6.1 Creating Custom Namespaces, Properties, and Relationships

On the *Namespace and Predicate Admin* page you will see *Create Namespace* listed in the Discovery portion of the screen. Upon clicking, you will be provided with a form to enter the new Namespace's label, prefix, URI (if available), and a description. You may also mark it as active or not to determine whether it will be made available as a resource to create Templates in the next step.

Once the Namespace is created, it will be displayed in the Discovery panel. To create properties and relationships for the namespace, click on the **+** sign next to *Properties*, *Associative Relationships*, or *Hierarchical Relationships* from the Namespace hierarchy. You will be provided with additional forms to add details for properties or your new relationship types, respectively.

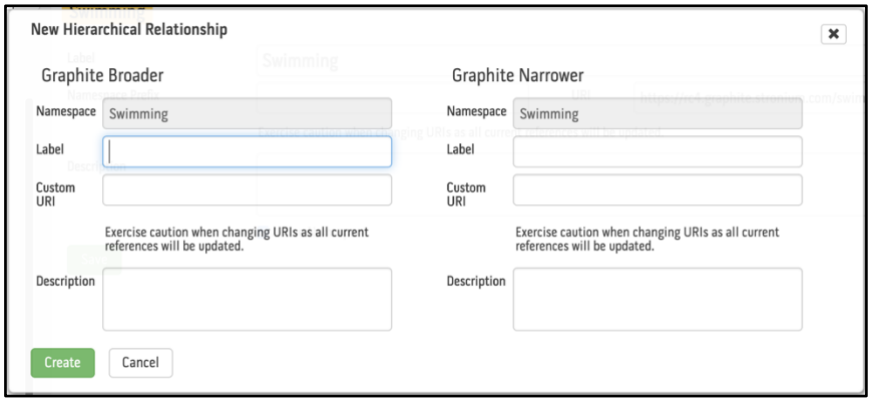
To add a new Property, the Label field must be completed. Provide a Custom URI and Description if desired.



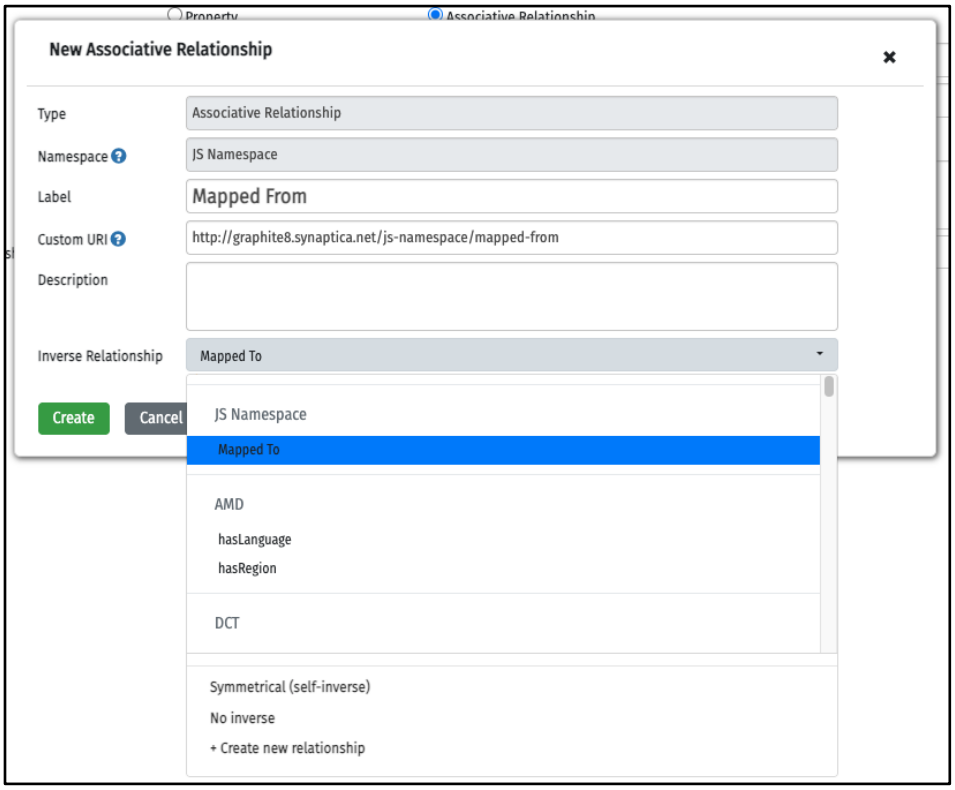
Properties can be created as String, Integer, Float, Date, Time, dateTime, Boolean, Any URI, Base64 Binary, and XML Literal data types.

- **String**: supports any string of characters and numbers.
- **Integer**: supports any whole number without a decimal point.
- **Float**: supports real numbers with a variable number of digits before and after the decimal point in IEEE 754 binary format.
- **Date**: supports dates in YYYY-MM-DD format.
- **Time**: supports times in HH:MM:SS format.
- **dateTime**: supports dates and times in YYYY-MM-DD THH:MM:SS+/-HH.MM format.
- **Boolean**: supports yes/no or true/false binary variables.
- **Any URI**: supports any URL or URI and can be clicked to access the resource in a new tab.
- **Base64 Binary**: supports files such as .jpg, .png, .csv, .xls, .doc, and .pdf.
- **XML Literal**: supports XML exactly as entered. The XML Literal field will validate XML syntax and present an error message if the XML syntax is incorrect.

To add a new Hierarchical Relationship, provide a Label name for the relationship and its inverse. Provide a Custom URI and Description if desired.



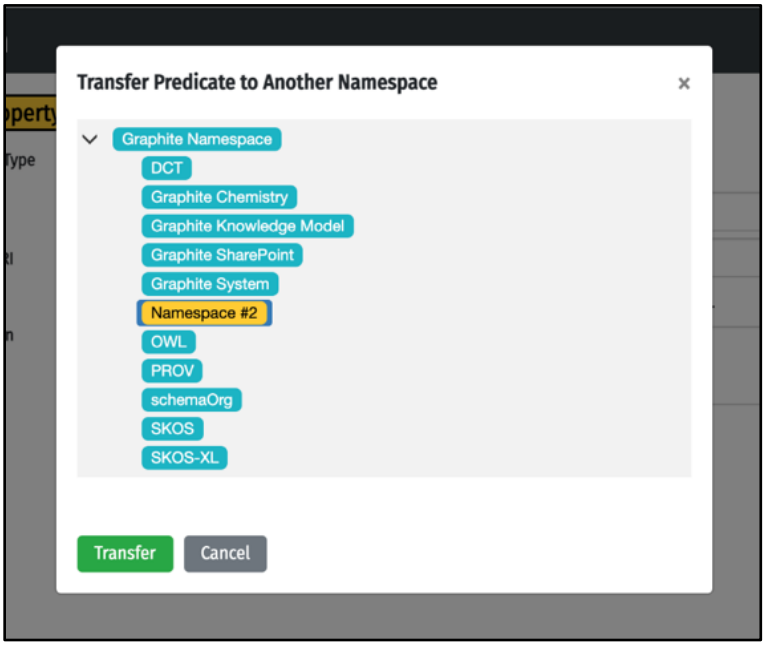
To add a new Associative Relationship, provide a Label name for the relationship. Provide a Custom URI and Description if desired. You will also be asked to assign or create an *Inverse Relationship*. You may select from existing associative relationships, create a new one, select the *Symmetrical* option to use same relationship as the inverse, or select "*No Inverse"* if you want the relationship to have a "one way" directional function.



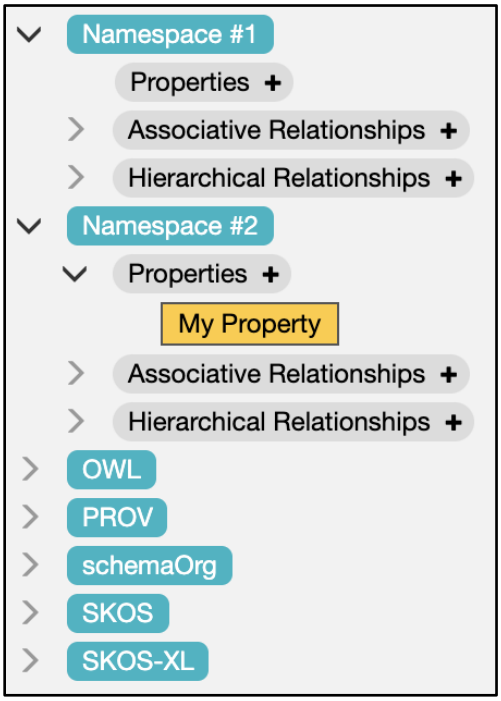
Once you have entered all relevant information for the properties and relationship types, such as labels, URIs, descriptions, and inverse relationships where applicable, they will be available to use as building blocks to create Templates to then assign to Schemes.

> ***Note**: When managing imported URIs or creating custom URIs in Graphite, it is advised to avoid using special characters to avoid issues with consuming systems. In addition, properties and relationships should be planned in advance to avoid changes to URIs which may affect multiple Graphite instances (such as Development, Test, and Production) or other integrated consuming systems.*

It is possible to move an existing property, associative relationship, or hierarchical relationship from one namespace to another. Select the predicate to be moved and then select the *Transfer* button, opening a new window. Select the target Namespace.



Select *Transfer* in the window and the property will be moved to the target namespace.

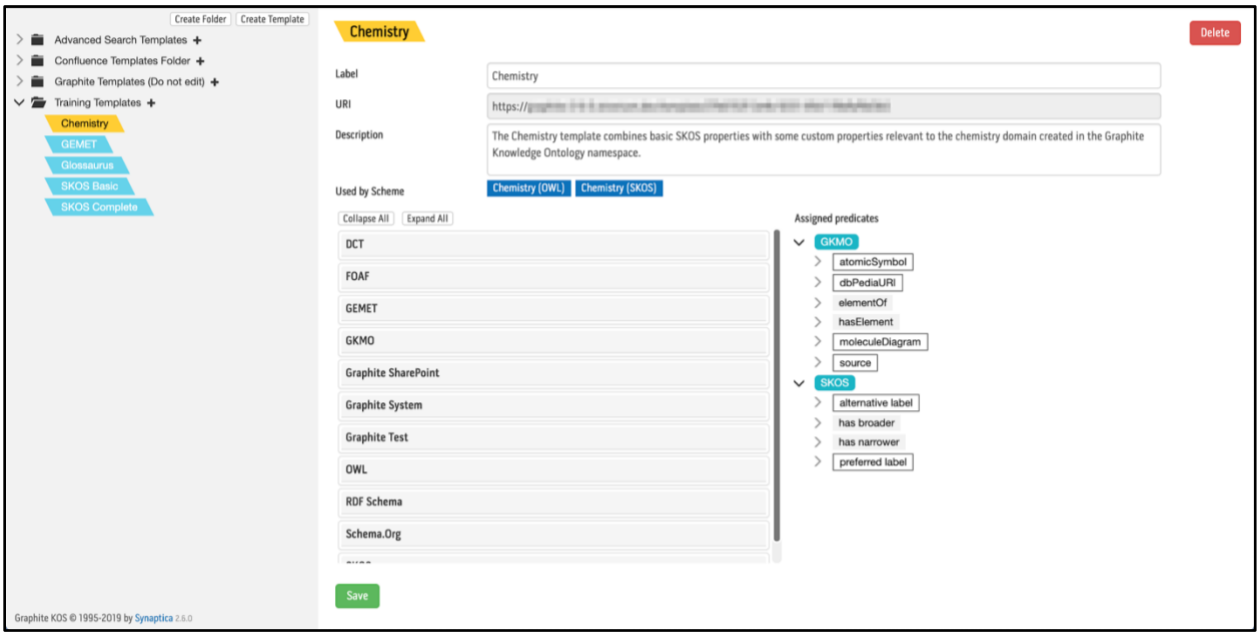


***Note**: When an associative relationship is moved, any inverse relationship defined in the Inverse Relationship field will not be moved and reciprocal relationships will exist in two separate namespaces.*

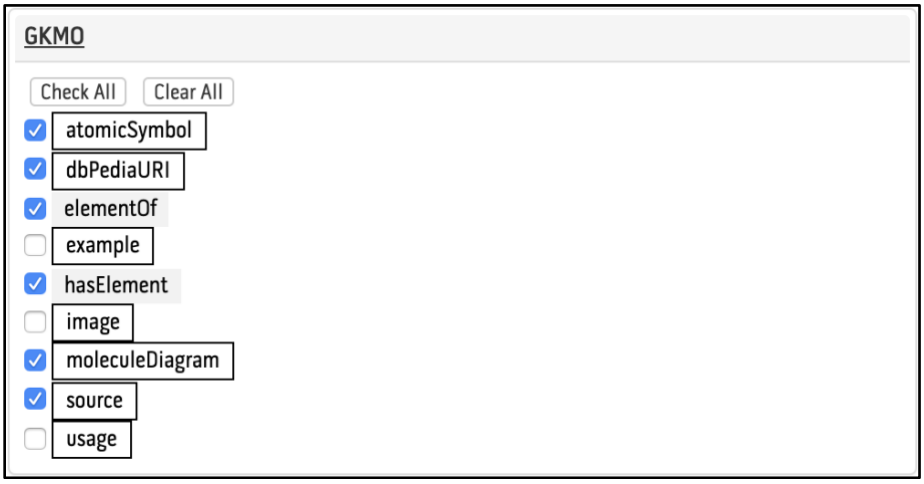
5.7 Template Admin Tools

As mentioned above, Templates are composed of properties and relationships from standard and custom Namespaces within the Graphite system. To create a template, open the *Template Admin* area from the main menu.
Create a new Template by clicking on the *Create Template* button, where you will enter a *Label* and a *Description*.

You may also select an existing Template to edit. In the next step, select the Properties and Relationships you wish to use from the provided list of Namespaces.



For any given relationship, remember to select the reciprocal relationship as well to ensure you see all available relationships when editing, especially between Schemes.



Once saved, you will see all selected items displayed on the right-hand side of the Workspace. Once the Template has been assigned to one or more Schemes, they will appear for quick reference.

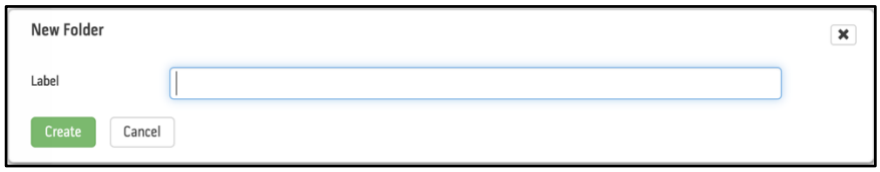
You may create as many Templates as are required for the Schemes you will be managing. Additionally, you will be able to select subsets of the Templates relationships and/or properties to assign to Schemes. When exporting a scheme in RDF format, template hierarchies can be represented in OWL and will be correctly displayed in the class tree view of other ontology editors.

In *Scheme Admin*, Templates can be made available to a Scheme.

5.7.1 Template Admin Folder

The Template Folder was introduced to allow users to categorize user templates in a folder. Template Folder URIs are not editable.

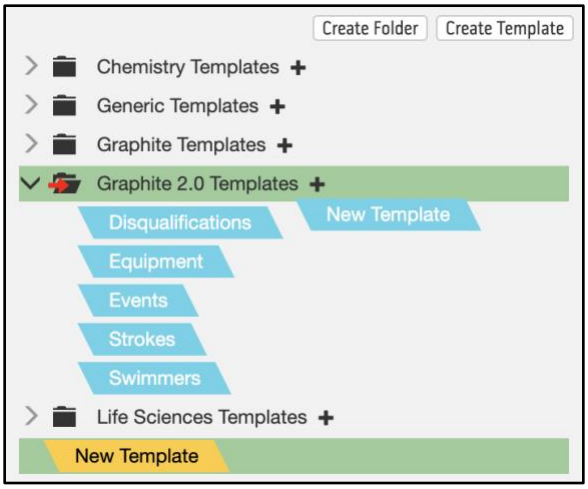
To create a Template Admin folder, in the *Template Admin* page, click on the *Create Folder* button. In the popup form, fill in the folder *Label* name and click *Create*. Click the *Cancel* or **X** button to close the popup form.

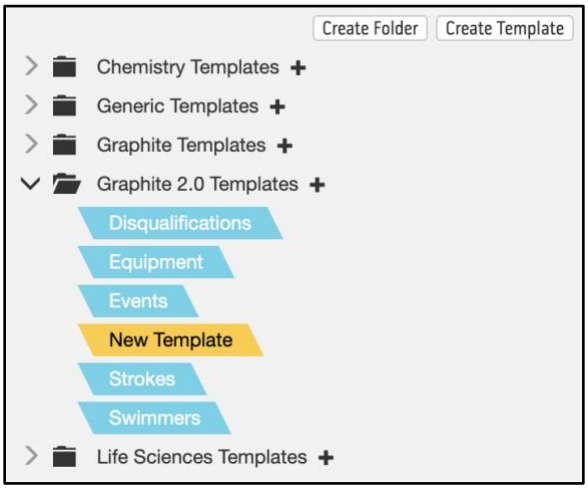


To edit a Template Admin folder label, select the folder. The Edit Folder page will display the Folder *Label* and *URI*. The Folder *Label* value can be changed. Folder URIs cannot be changed. Click *Save*.

To delete a folder, in the Edit Folder page, click on the *Delete* button.

To drag-and-drop Templates into a Template Admin folder, click and drag on the Template and move it to the desired Folder. The Folder will be highlighted in light green. An arrow in red indicates where the Template will be dropped. Release the mouse click, and the Template will be dropped inside the folder.

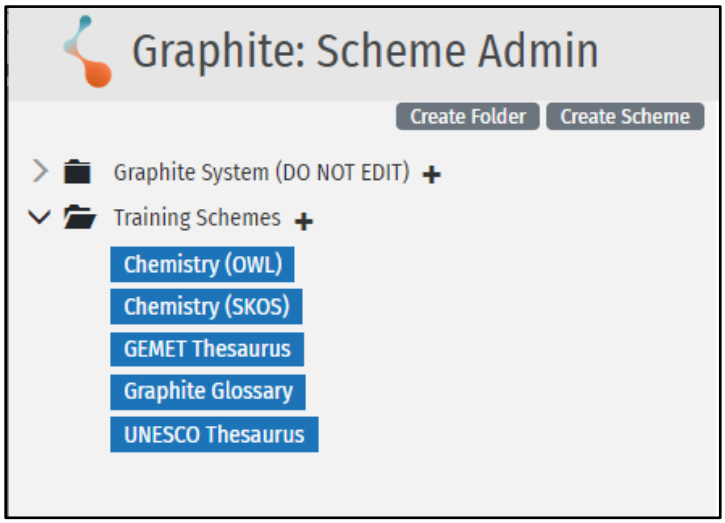




To move a Template out from a Folder, click and drag on the Template and move it out from the folder. The arrow will again indicate where the Template can be dropped. It can be dropped to another Folder or outside the Folder.

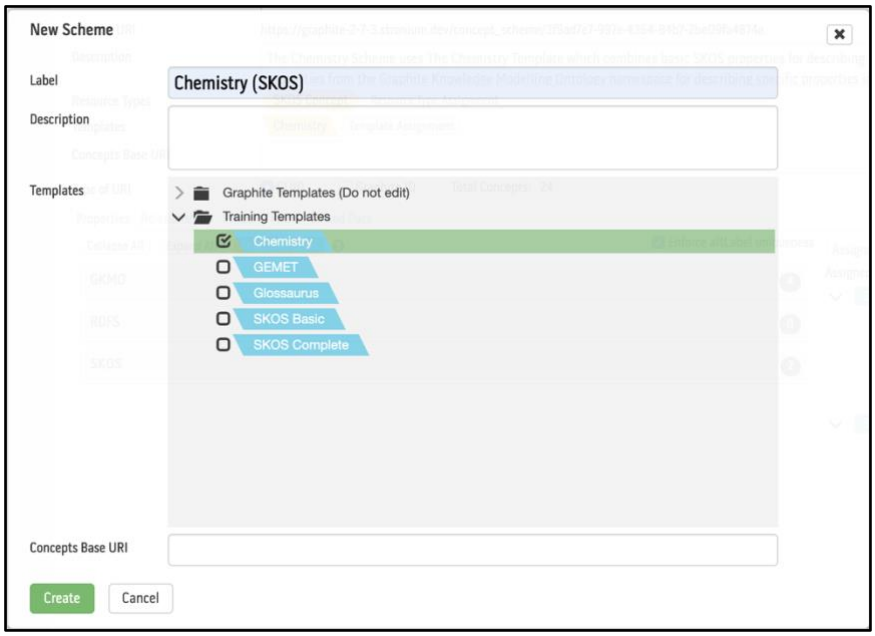
5.8 Scheme Admin Tools

Scheme Admin is the area in which one designs Schemes and selects which properties and relationships will be available to use for concept management. You may either create a new or edit an existing Scheme using the left-hand interface. Folders may also be used to organize Schemes if desired. (See *Scheme Admin Folder* section for more information.)

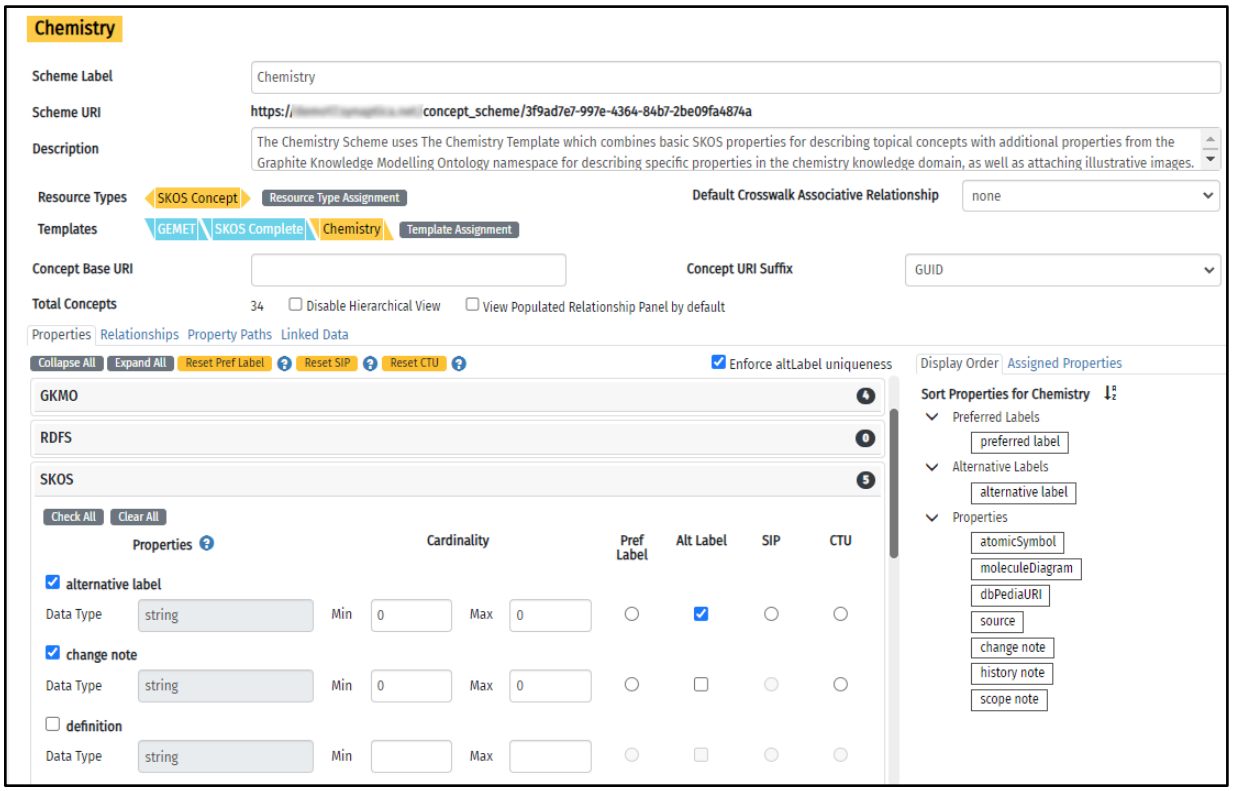


When creating a new Scheme, you will enter the *Label* and an optional *Description*. You may also select which Templates you want to associate with the Scheme. A custom URI to be used for concepts in the Scheme may be entered here as well if that is preferred to using the system generated one.

***Note**: The custom Concepts Base URI may be entered here or edited later.*



Once this information is added, or after selecting an existing Scheme from the available list, the primary Scheme management page is displayed.

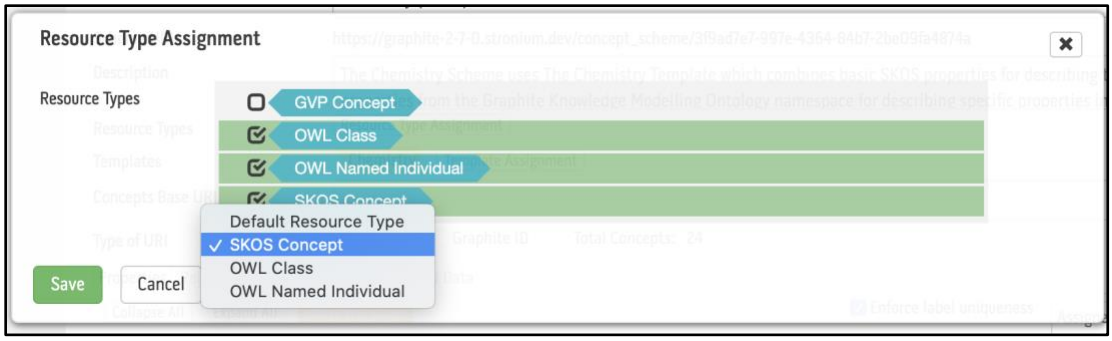


***Note**: The Scheme Label and Description fields can be edited at any time, but the Scheme URI may not be changed after being generated.*

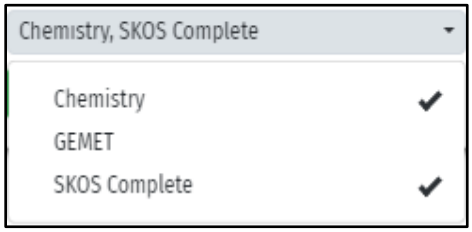
When creating a new Scheme, the "SKOS Concept" *Resource Type* and "SKOS" *Template* are selected automatically as default values. The SKOS "preferred label" is also automatically selected as the default *Pref Label* value for the Scheme. These automated selections are made to ensure that all necessary Scheme design components are assigned for correct application operation and data integrity. However, any of these selections may be changed or edited at any time during the Scheme creation process or at a later date.

Clicking on *Resource Type Assignment* (see section *Resource Type Manager*) or *Template Assignment* (see section *Template Admin Tools*) allows for the selection of Resource Types and Templates assigned to the Scheme.

The *Resource Type* and *Templates* are assigned in Scheme Admin using the corresponding buttons.

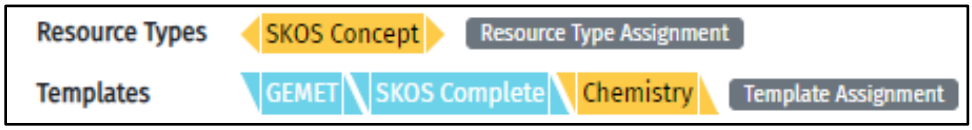


More than one Resource Type and/or Template may be assigned to any Scheme, and one or more may be identified as the default.

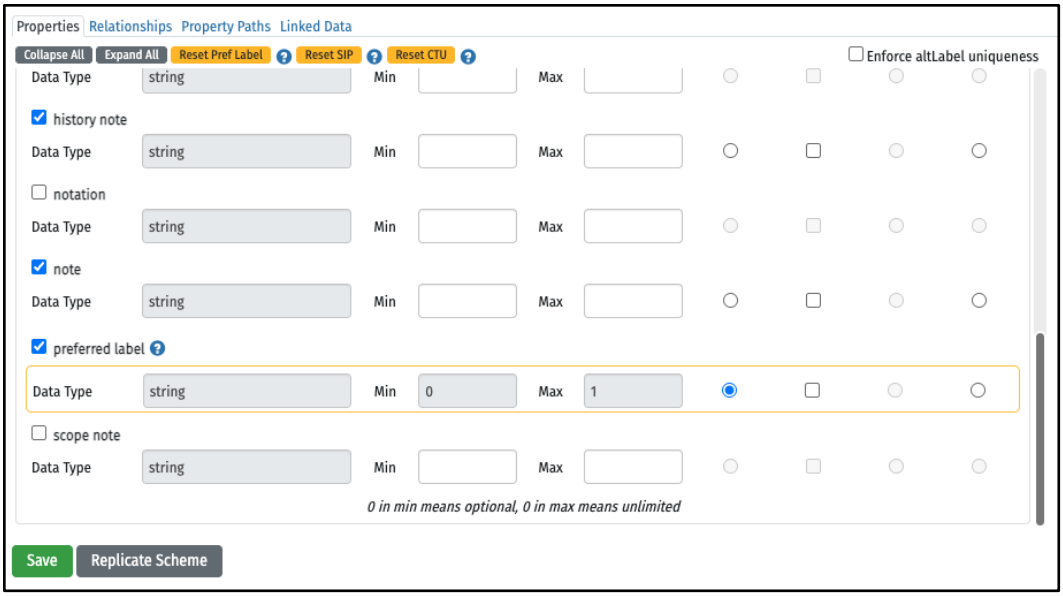


Setting more than one default Resource Type and/or Template will ensure the corresponding characteristics and predicates will be available for any new concepts added to the Scheme. Resource Types and Templates may also be assigned during editing from the concept workspace for new and existing concepts. However, it may be preferable to mark them as default in advance. (See *Property Templates* section for more information.)

Default Resource Type(s) and Templates are displayed with a yellow background while other selected design elements not chosen as default selections are shown with a blue background.



The *Pref Label* is assigned in the *Properties* section by selecting the corresponding radio button for the desired property in the Namespace section containing the desired property. As noted above, the SKOS "preferred label" property receives this designation by default when creating a new Scheme, but it may be changed at any time. Only one property may be selected as the Pref Label for a given Scheme.



The *Concepts Base URI* allows for the definition of a base URI string. If a custom Concept Base URI is defined, newly created concepts will have that specified URI as a prefix to the selected unique identifier (see below). This helps when Graphite is used to create/edit concepts meant to be resolved externally (i.e., published on a different site).

The *Type of URI* dropdown selection includes the following option:

- **GUID**: All Concepts in the Scheme will receive a URI utilizing a globally unique, 36-character GUID as its primary identifier.

  ***Note**: The CIDER feature enables Graphite to obtain identifiers for concepts from an external endpoint URL. Endpoints shown in Scheme Admin in Graphite can be configured following the instructions in the "Graphite Installation and Administration Guide".*

Default Crosswalk Associative Relationship

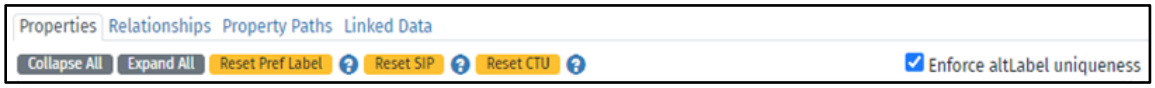
The Default Crosswalk Relationship is used in cases of replicating individual concepts or using the *Forking* method of Scheme replication (see section of Forking below). When applicable, the default selection will be applied to create a *crosswalk* relationship between the original and replicated concepts. Note that a different selection may be made at the time of replication if there are multiple associative relationships available, but the default selection will be applied if no changes are made.

5.8.1 The Properties Tab

Based on which Templates have been selected for the Scheme and are highlighted, the administrator is able to view and select Properties presented to concept editors. When the *Properties* tab is selected, each property that is part of a selected Template will be shown in expandable/collapsible sections. Clicking on each Namespace will reveal the properties that are available to the Scheme. There, the administrator may select from those listings to create the Scheme properties.

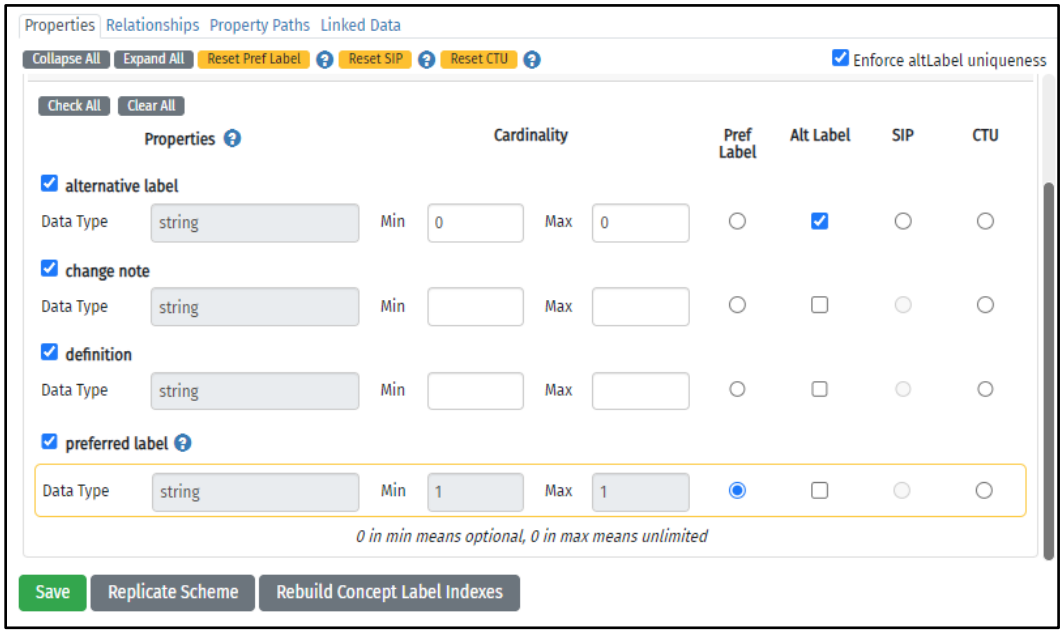
Above the collapsible Namespace Property selection sections, the following options are available:

- **Collapse All**: Closes all Namespace Property sections.
- **Expand All**: Expands all Namespace Property sections.
- **Reset Pref Label**: Resets and clears the *Pref Label* radio button selection. By default, all Preferred Labels must be unique within a Scheme. However, if the *Pref Label* radio button is not selected, it is possible to add duplicate preferred labels in a Scheme.
- **Reset SIP**: Resets and clears the existing SIP selection from its assigned property. (See *Sequenced Integer Property (SIP)* section for more information about this feature.)
- **Reset CTU**: Resets and clears the CTU selection from its assigned property. (See *Custom Target URI (CTU)* section for more information about this feature.)
- **Enforce altLabel uniqueness**: The *Enforce altLabel uniqueness* is not selected by default and must be checked to enforce Alternate Label uniqueness. When checked, all Alternate Label (altLabel) values will need to be unique within the Scheme.



In the list of available Properties, the RDFS section will always appear regardless of what properties have been assigned to the Namespace. This property makes the reserved property predicate *rdfs:label* available. When the *Pref Label* radio button is checked, label uniqueness is enforced in the Scheme and the preferred *rdfs:label* is written out as a triple every time a concept is created. Find out more about the *rdfs:label*.

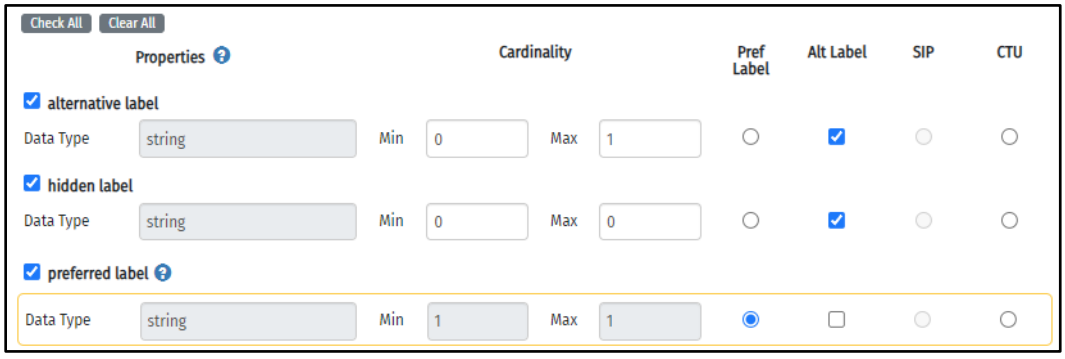
Each Property has the property name and *Data Type*. When the check box next to each property name is selected, it will be included in the Scheme.



Should you wish to set a Minimum or Maximum for the number of values any one of the Properties may have in a given language, use the *Cardinality* options. A value of one or more in the Minimum field will require that a value is entered for the Property.

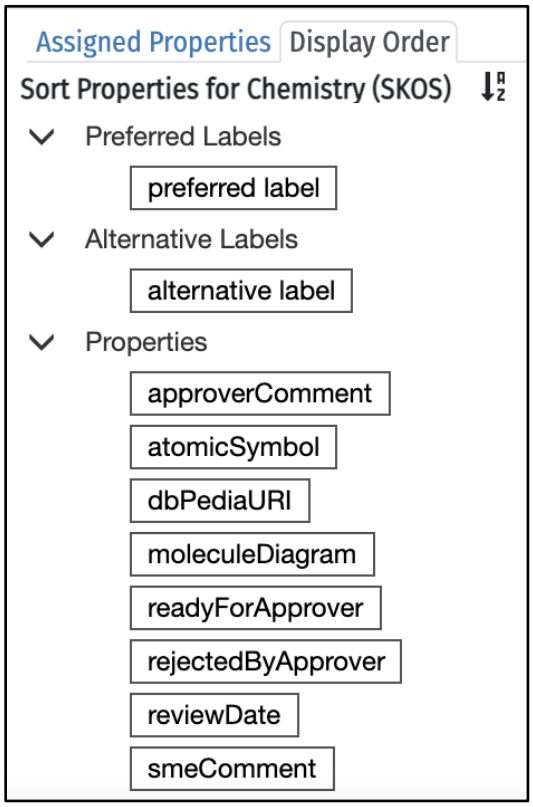
In the below example, the “definition” property will require a minimum of one entry and have a maximum of three entries (per assigned language) for all new and edited concepts. A warning message will be displayed if the user attempts to save a concept that doesn’t meet these conditions.

While only one property may be designated as the *Pref Label*, multiple properties can be designated as holding *Alt Label* values. Properties assigned as Alt Labels are included in things like quick searches and may have a “altLabel uniqueness” check applied to ensure that none of those values are duplicated withing a Scheme. (See description above.)



As properties are added, they will be listed on the right-hand side in the *Assigned Properties* tab under the appropriate Template heading.

In the *Display Order* tab, it is possible to drag-and-drop to arrange how the Properties are sorted on the Concept Manager page.

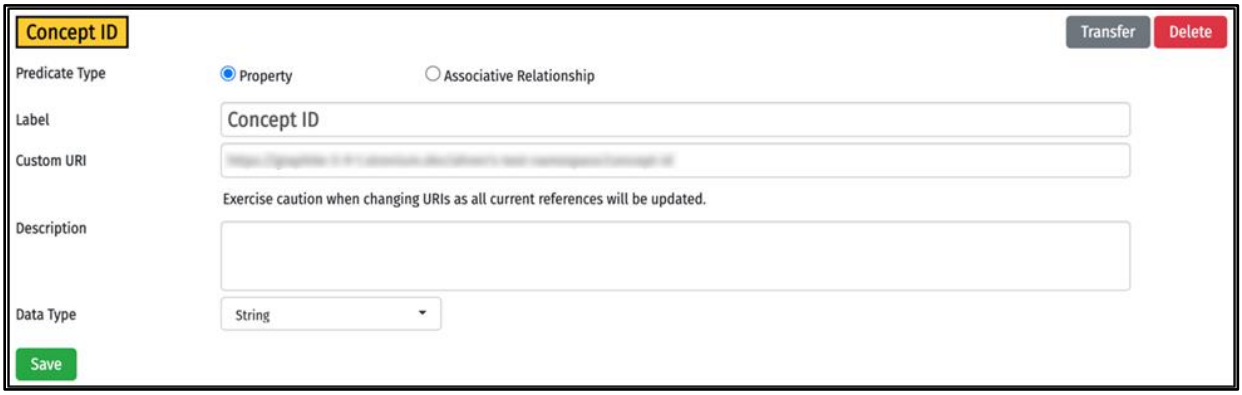


Click *Save* after properties are selected and defined.

5.8.1.1 Sequenced Integer Property (SIP)

The Sequence Integer Property (SIP) supports an instance-wide globally unique sequential integer id data property. SIP can be added by a Graphite administrator for use in any concept Scheme. Whenever a new concept is created in the Graphite UI or created through the API, a new sequenced integer is applied to the concept.

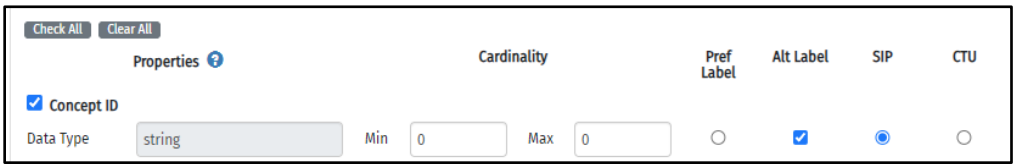
In Namespace Admin, create a property with an easily identifiable label such as “Concept ID”. For the Data Type, select “String”.



In Template Admin, add the SIP property to an existing Scheme template. It is also possible to add only this property to a specifically created SIP template.

In Scheme Admin, add the SIP template to the Scheme requiring the SIP property. In order for this property to be applied to all existing and/or future concepts added to a Scheme, make the Template one of the defaults assigned Templates in the Template Assignment area in Scheme Admin.

In Scheme Admin, add the SIP property to the Scheme(s) requiring the sequence integer property by checking the box next to the name of the property. Check the “altLabel” radio button so the property is indexed and searchable. This also allows the integer to be viewed as an altLabel in search results along with the prefLabel. Check the “SIP” radio button to select the SIP property. It is possible to have more than one altLabel selected for a Scheme, but only one can be a SIP property. “Enforce altLabel uniqueness” is not enforced for the SIP property. To reset which property is selected as the SIP value, use the “Reset SIP” button.

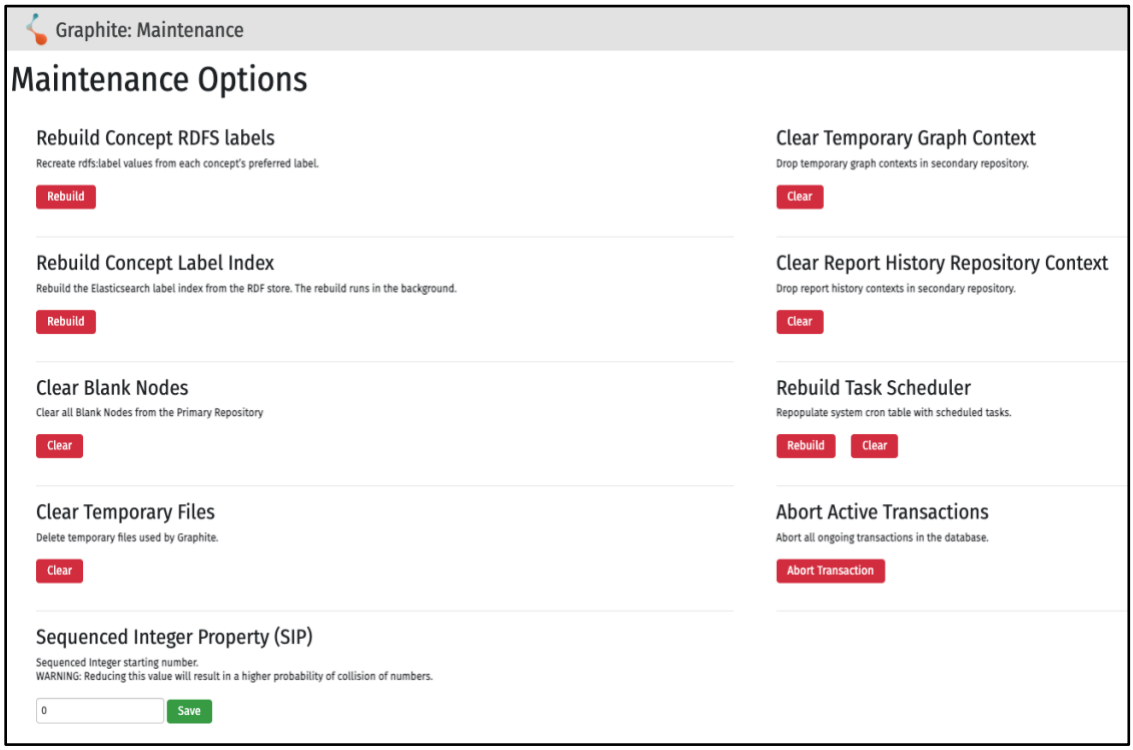


In User and Group Admin, set the SIP property to View All so the values cannot be edited.

In Concept Manager, make sure all concepts have the appropriate template to make the SIP property available. If assigned as a default Template in Scheme Admin, all new concepts should have this property. For existing concepts, the Template may need to be added.

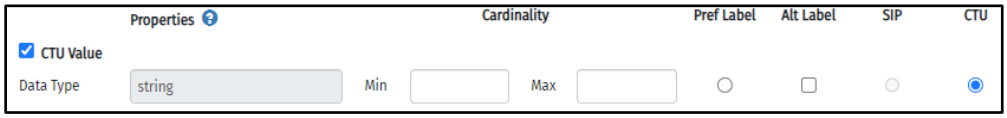
If applying the SIP property to an existing Scheme, use the Populate SIP function in Scheme Admin. Select the Scheme which should have SIP integers applied. The Scheme should be prepared with a SIP property as explained above. Select “Populate SIP”. This will apply sequenced integers to the target Scheme after an import with no SIP integers included.

The starting number for the sequenced integer is viewable on the *Maintenance* page in the “Sequenced Integer Property” section. (See below)



5.8.1.2 Custom Target URI (CTU)

The Custom Target URI (CTU) feature allows a property to be selected to hold a value that will be used as the URI unique identifier when the concept is replicated. The purpose of the CTU is to allow Graphite users to generate custom URI strings based on a user entered value, rather than appending a standard GUID as the identifier portion of the full URI. When utilized, the CTU feature will effectively override the Concept URI Suffix selection for that scheme, but only for replicated concepts.



An example of this would be:

- In *Scheme A,* the CTU option is selected for the property labelled “CTU Value”.
- For *Concept A* in *Scheme A,* a value “A123” is added to property “CTU Value”.
- When *Concept A* is replicated, the newly created concept, “*Concept A1”*, will show a URI that ends with “A123” rather than using a GUID.

5.8.2 The Relationships Tab

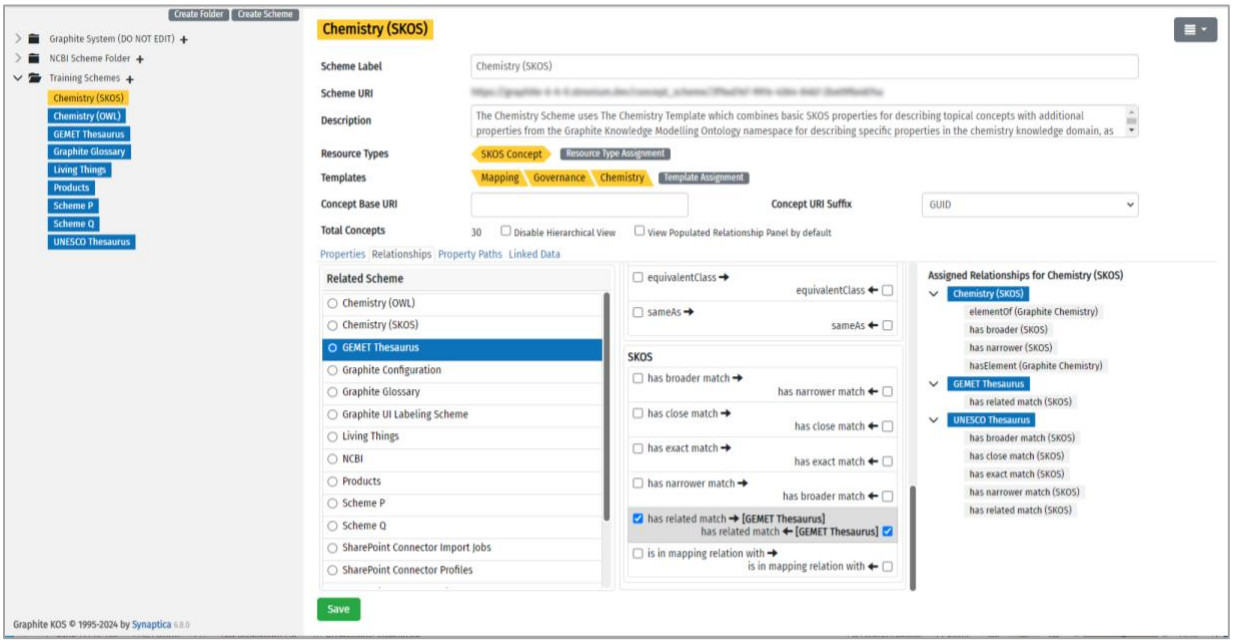
When the *Relationship* tab is selected, the Admin should select the Scheme in which they want to create relationships. To create relationships within the Scheme in which you are working, select the same Scheme name. If the desire is to create a relationship between Schemes, select an alternate Scheme from the list and then select the appropriate relationships from those available.

If you don't see the relationship you wish to add, make sure you have the correct Template(s) selected above.

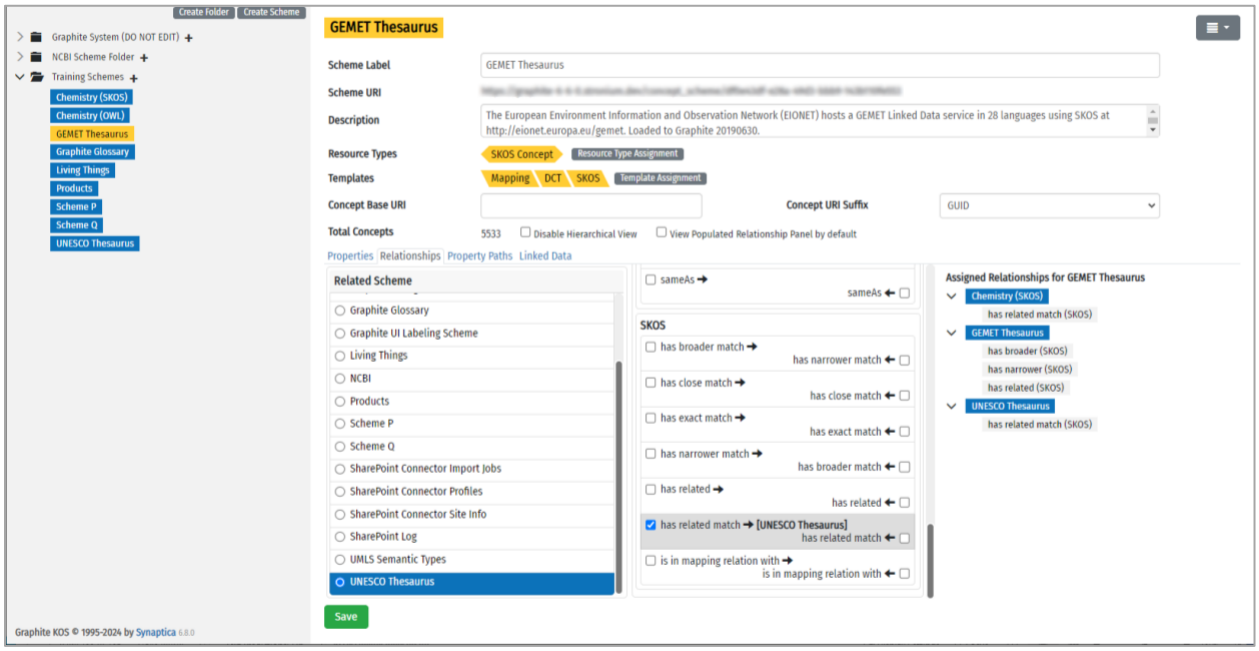
As relationships are added, the Admin has the option of selecting which reciprocal pairing should be made available to link terms. If both directions of a relationship are selected (the inverse), the concepts in the relationship will have pointers in both directions. For example, a broader concept has a narrower concept and that narrower concept has the broader concept.

If only one direction of a relationship is selected, the predicate is treated as uni-directional. The preference may be that the relationship is uni-directional or that users should only see the relationship pointing in one direction and not its reciprocal.

In this example, the *Chemistry (SKOS)* Scheme is related to the *GEMET Thesaurus* Scheme. For any concept in the *Chemistry (SKOS)* Scheme, the *has related match* relationship can have one or more values from the *GEMET Thesaurus* Scheme. For any concept in the *GEMET Thesaurus* Scheme, the *has related match* relationship can have one or more values from the *Chemistry (SKOS)* Scheme.



In this example, the *GEMET Thesaurus* Scheme is related to the *UNESCO Thesaurus* Scheme. For any concept in the *GEMET Thesaurus* Scheme, the *has related match* relationship can have one or more values from the *UNESCO Thesaurus* Scheme. For any concept in the *UNESCO Thesaurus* Scheme, however, the *has related match* relationship does not appear. The relationship is unidirectional and has no inverse.

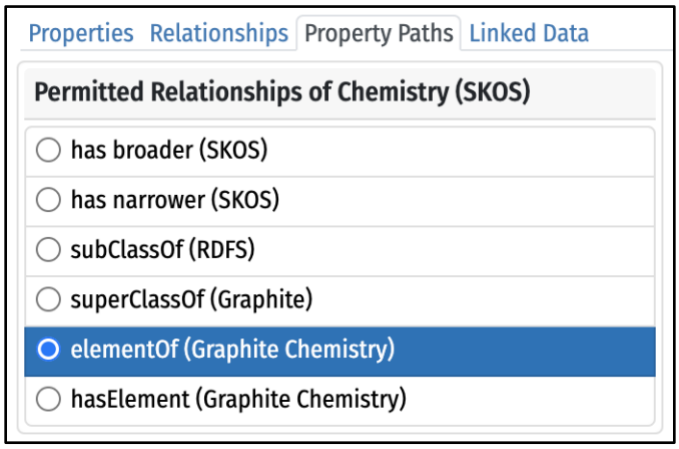


5.8.3 Property Paths

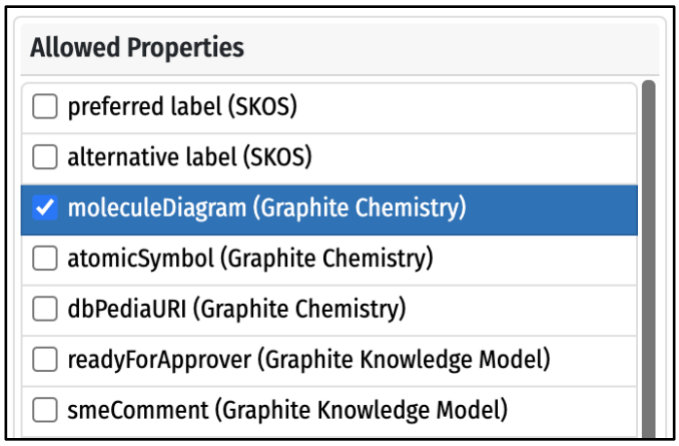
Property Paths are used to map Property values from Concepts to others held in related Concepts. Property Paths work for both associative relationships and hierarchical relationships, as well as for both inter-scheme and intra-scheme relationships. For example, images stored in a Base64 property type will be displayed as a thumbnail and document files will be displayed as filenames when joined to another concept using Property Paths.

To create a Property Path, select the *Property Paths* tab in *Scheme Admin*. Make sure you have assigned a relationship to a Scheme which will be used to visualize the properties from the object of the relationship. In this example, the relationship assigned is named *elementOf*.

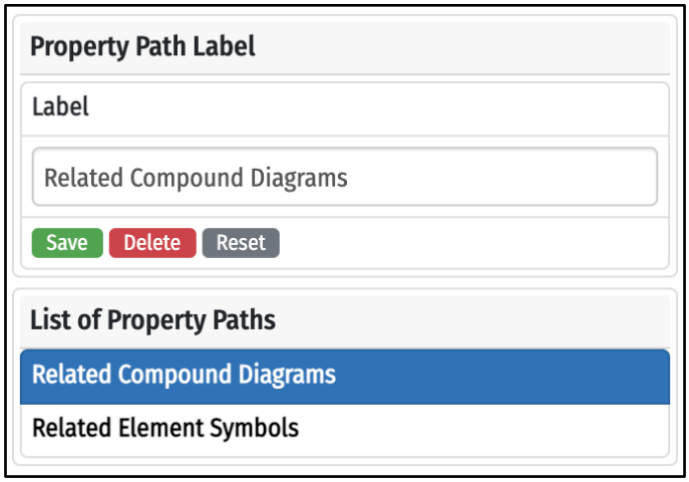
Select the relationship that is to represent the Property Path in the *Permitted Relationship of [Scheme Name]* area.



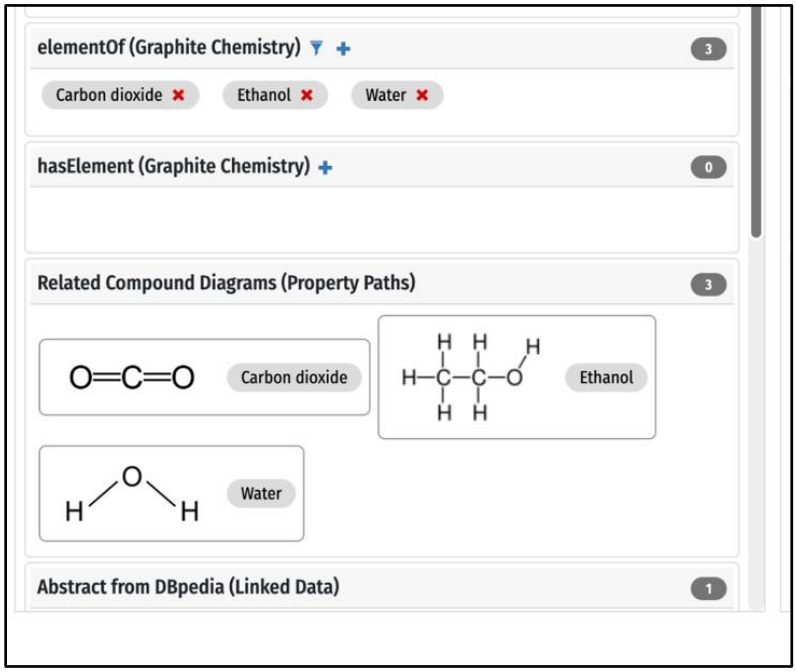
Next, select the properties to be displayed in the concept in the *Allowed Properties* panel.



Enter the label of the Property Path relationship in the *Property Path Label* field and save the relationship.



The saved property paths will be listed in the *List of Property Paths* panel which allows for editing and deleting. In the *Concept Manager*, all the assigned properties from a Property Path will display in the section labeled with the suffix *(Property Paths)*.



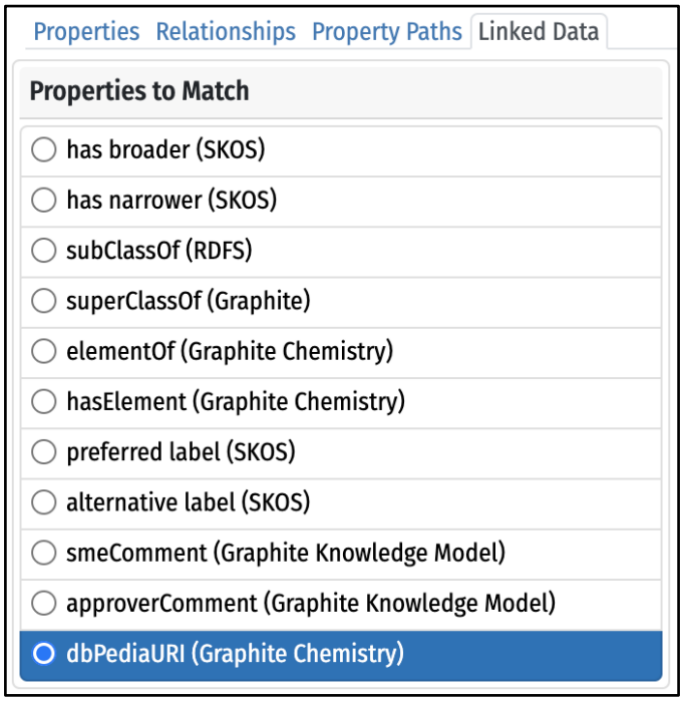
5.8.4 Linked Data Mapper

The Linked Data mapper is used to map external Linked Data sources with concepts in Graphite and display values from selected data properties associated with those concepts. It is required to manually specify the external Linked Data resource URI in either the string or URI data type property or as an associative relationship. When mapping external data to a Graphite property, the external entity is linked through the URI as the value of one of the properties.

To create a Linked Data relationship, select the *Linked Data* tab in *Scheme Admin*. Make sure you have assigned a new or existing Property within the desired Template and Scheme which will be used to contain the URI mapping to the Linked Data source and concept.

In this example, the Property containing the URI in the concept Workspace is a description link.

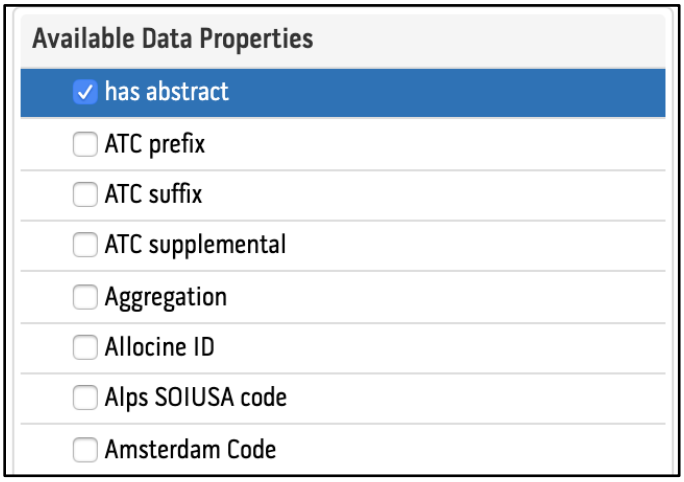
Choose the Property that will contain the externally Linked Data URI under *Properties to Match*.



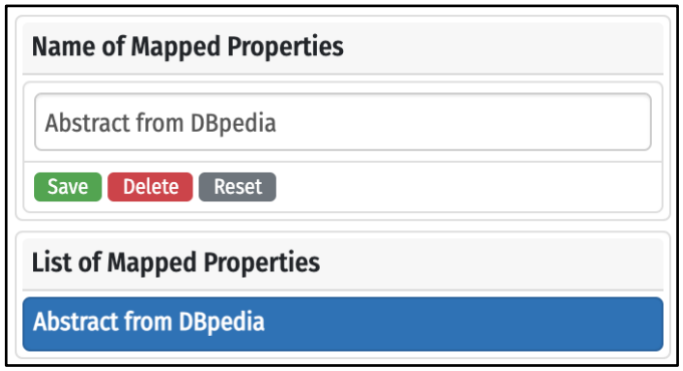
Enter the valid SPARQL endpoint URL in the *SPARQL Endpoint* field (e.g., https://dbpedia.org/sparql) and click on the *Get Available Properties* button. A list of properties from the SPARQL endpoint will be shown in the *Available Data Properties* area.

In the *Available Data Properties* area, select the properties you wish to link to and display with the concepts in the targeted Scheme. Additional properties can be viewed by increasing the default 1000 elements retrieved.

Alternatively, it is possible to enter a URL manually to specify the external Linked Data resource URI in either the string or URI data type property or as an associative relationship. Go to the Linked Data resource page (e.g., DBpedia) for the resource you wish to link, right click on the property, and copy the link address. Enter this address in the *Preferred Data Properties* box. Once this URL has been entered, the associated property from the list will be selected.

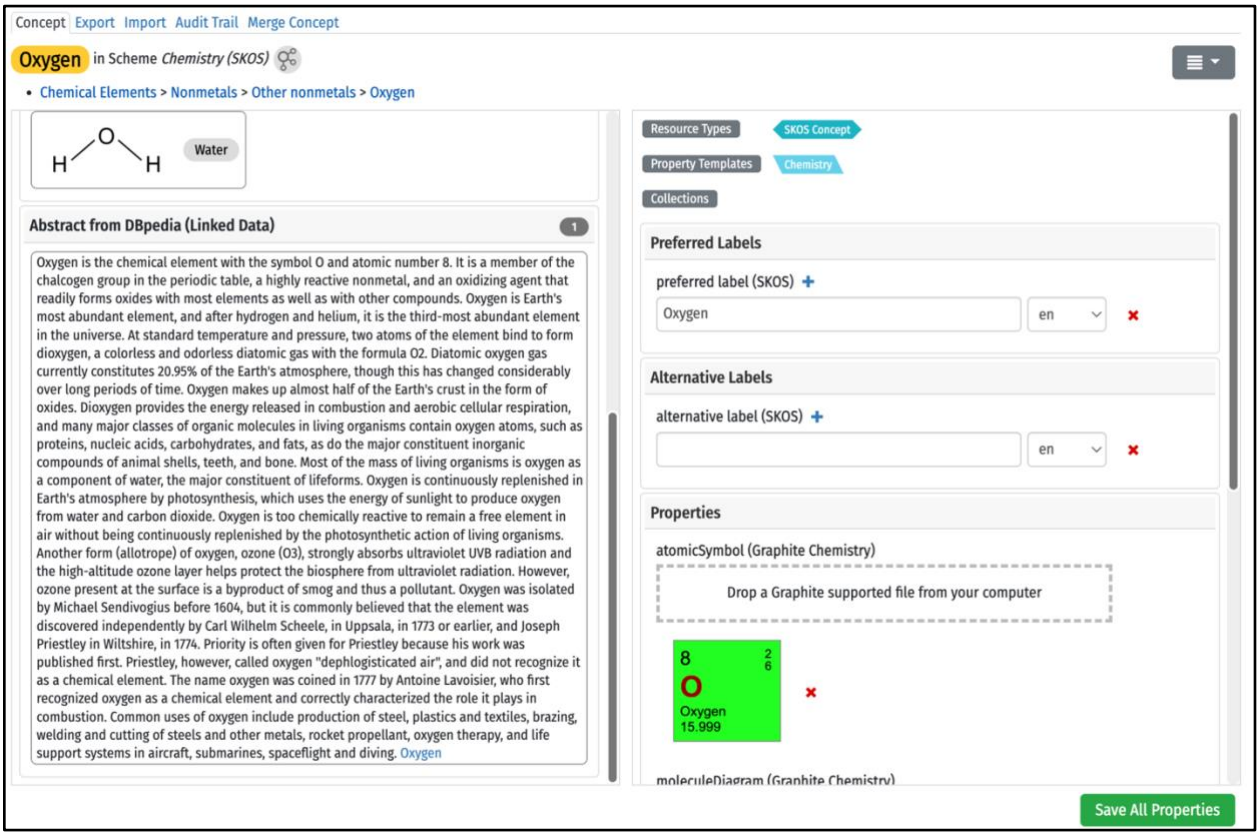


Enter the label for the Linked Data relationship in the *Name of Mapped Properties* field and click *Save*. The saved mapped properties will be listed in the *List of Mapped Properties* section which allows for editing and deleting.



In *Concept Manager,* add the external URI of a specific Linked Data concept/entity/object to the previously designated URI property of a concept. You may need to change *page* to *resource* in the URL address if it is from a DBpedia page.

The values of the selected data properties from the Linked Data concept/entity/object's properties will display on a new section with the label suffix *(Linked Data)* in the center panel also displaying concept relationships and Collections.

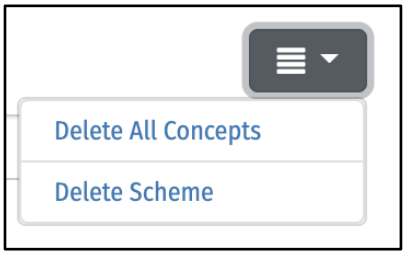


Map Linked Data through a Concept Relationship

Mapping Linked Data through relationships is useful when the concept property required to display is not saved locally in Graphite. The setup of Linked Data mapping through a Concept relationship is the same as Linked Data mapping through a Concept Property.

5.8.5 Delete a Scheme

To delete a Scheme, first all the concepts from the Scheme must be deleted using the *Delete All Concepts* button in the dropdown menu in the upper right-hand corner of the *Scheme Admin* workspace. After all concepts are deleted, it is possible to delete the Scheme using the *Delete Scheme* button in the same dropdown menu.



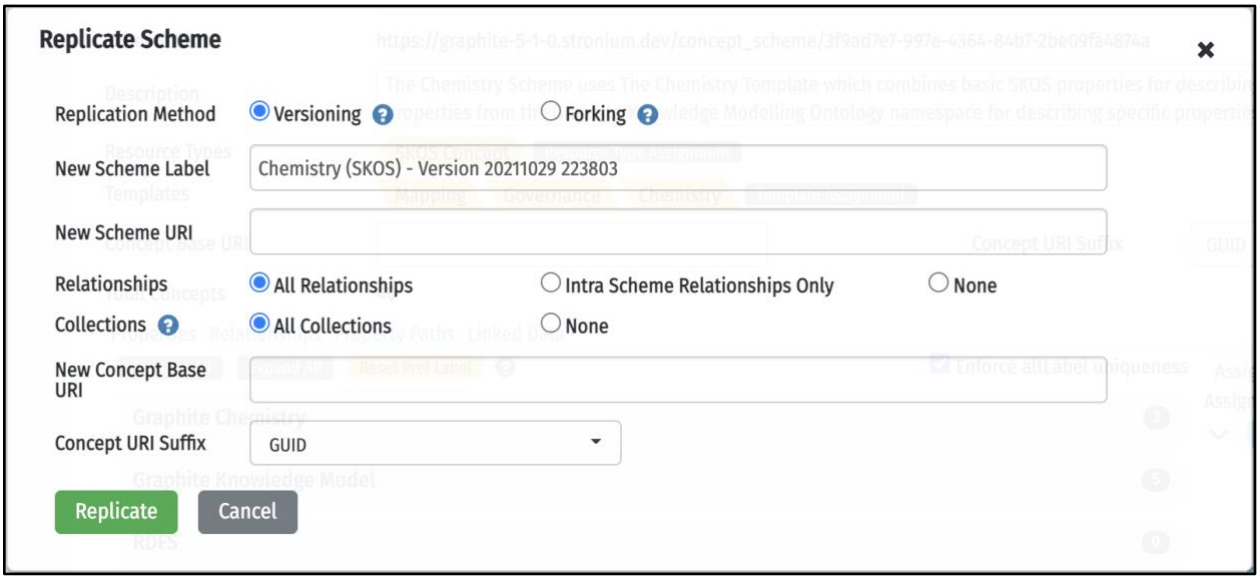
5.8.6 Replicate Scheme

In addition to managing a Scheme in *Scheme Admin*, there is the option to create a version or a copy of a Scheme using the *Replicate Scheme* button.

Scheme replication can be used for many reasons, such as creating a Scheme to use as a template for a new Scheme without having to create Namespaces, Predicates, Templates, and Schemes from scratch. In addition, a Scheme can be replicated and saved or exported for versioning purposes. A scheme may also be copied as a new Scheme for use as a forked version which can then be changed separately from its origin Scheme.

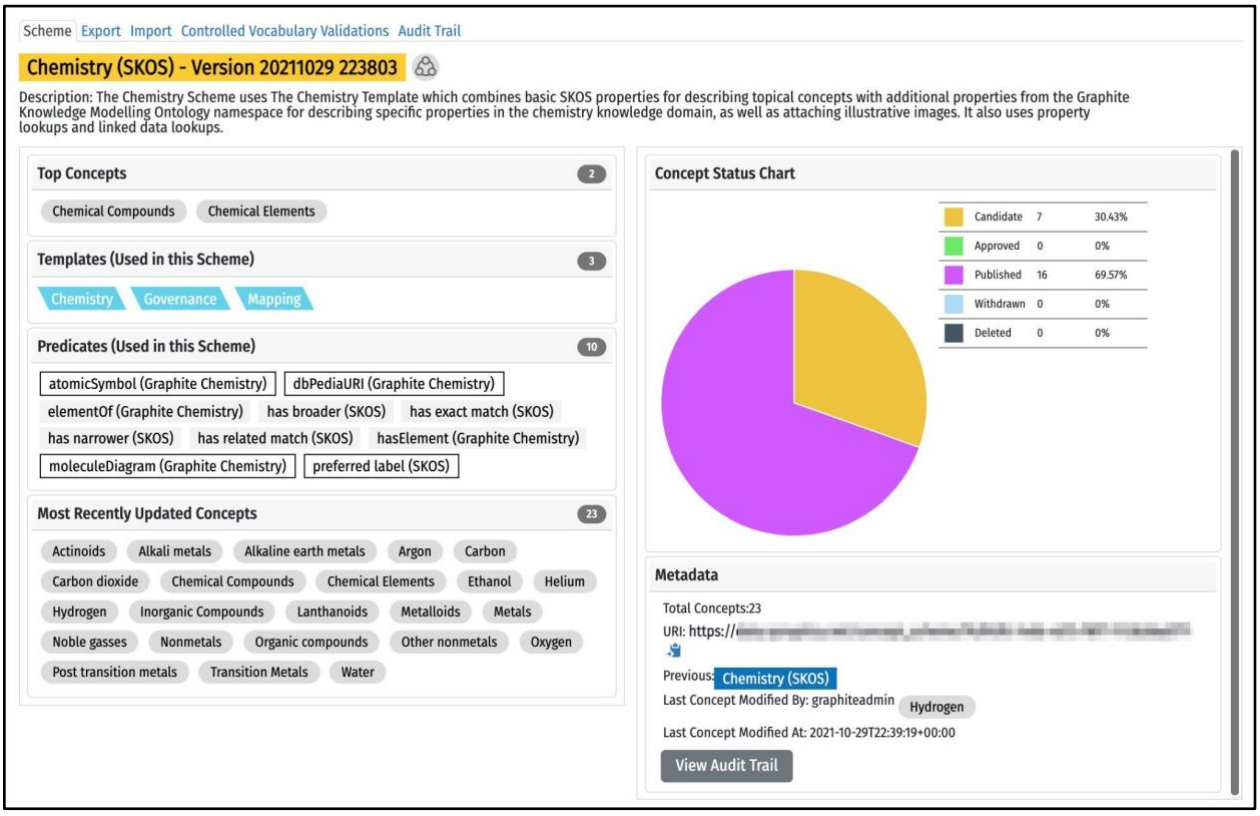
5.8.6.1 Versioning

Once the *Replicate Scheme* button is selected, the user has the option to create a version or fork a version of the original Scheme.



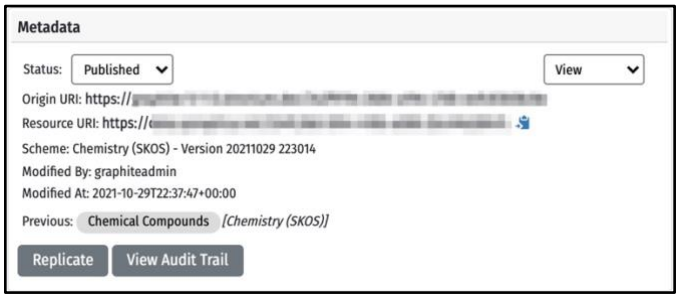
Selecting *Versioning* will append **- Version YYYMMDD HHMMSS (UTC)** to the original Scheme name, but this can be changed in the *New Scheme Label* field. It is also possible to create and add a *New Scheme URI*. Options to replicate *All Relationships*, *Intra Scheme Relationships Only*, or *None* and *All Collections* or *None* are available. A *New Concept Base URI* prefix can be entered.

The versioned Scheme will be given a new, unique URI and displays the originating Scheme from which it was copied.



The originating Scheme will retain its original URI and displays the Scheme copied from it.

All concepts in the versioned Scheme will be assigned an Origin URI and a Resource URI. The Origin URI is the same URI as the original concept from which it was versioned. The Resource URI is a unique URI applied to the newly versioned concept. Both appear in the concept Metadata panel.



5.8.6.2 Forking

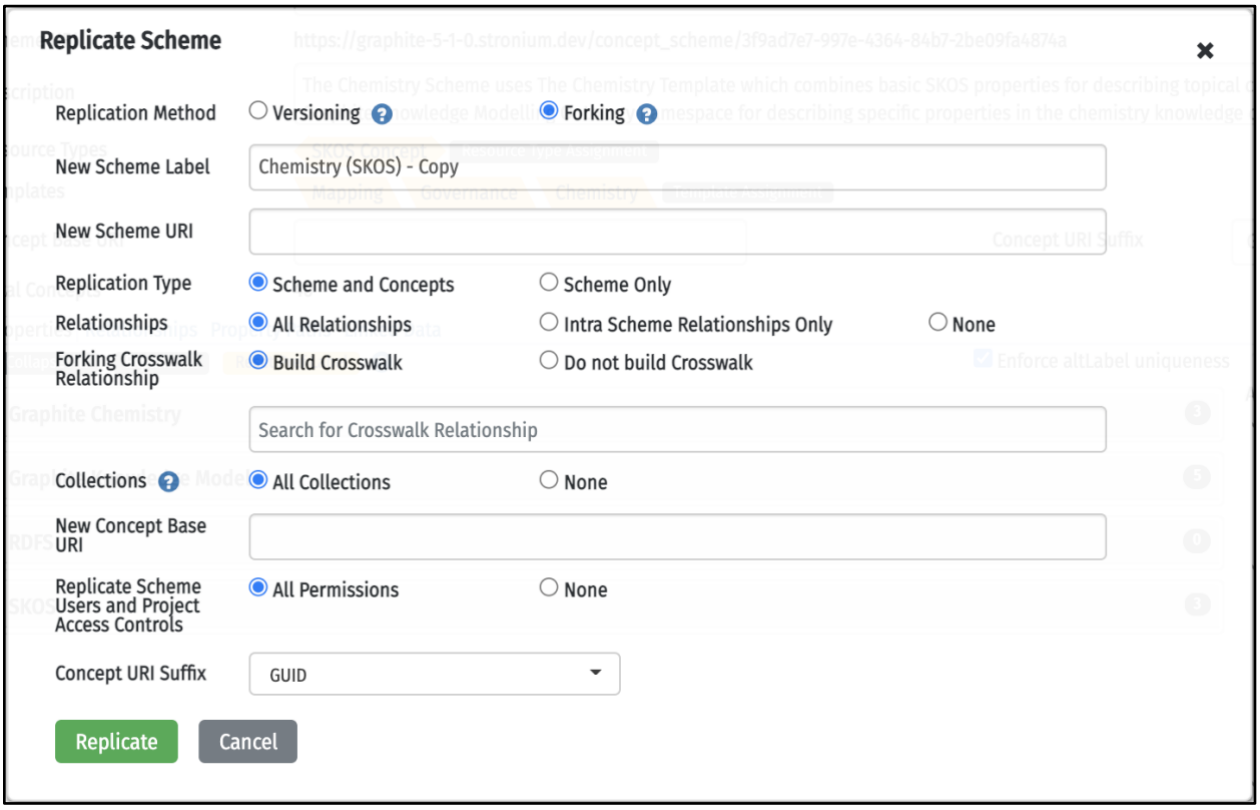
Selecting *Forking* will append **- Copy** to the original Scheme name, but this can be changed in the *New Scheme Label* field. It is also possible to create and add a *New Scheme URI*. Options to replicate the *Scheme and Concepts* or the *Scheme Only* and *All Relationships*, *Intra Scheme Relationships Only*, or *None* are available.

The *Forking Crosswalk Relationship* permits the use of specific crosswalk relationships between the origin and forked Schemes rather than the default Previous/Next relationship displayed in a versioned Scheme's metadata. The *Search for Crosswalk Relationship* box will display a type-ahead selection menu.

> ***Note:*** *The Crosswalked Relationship must be created first in Namespace and Predicate Admin, added to a Template in Template Admin, and made available to the Scheme in Scheme Admin in order to appear in the type-ahead menu.*

The selected Default Crosswalk Relationship is used in cases of replicating individual concepts or using the *Forking* method of Scheme replication. When applicable, the default selection will be applied to create a *crosswalk* relationship between the original and replicated concepts. Note that a different selection may be made at the time of replication if there are multiple associative relationships available, but the default selection will be applied if no changes are made.

All Collections or *None* can be replicated. A *New Concept Base URI* can be entered and an option to *Replicate Scheme Users and Project Access Controls* can be selected.



The forked Scheme will be given a new, unique URI and displays the originating Scheme from which it was copied. All concepts in the forked scheme will be assigned a new Resource URI. The Resource URI is a unique URI applied to the newly copied concept and is different than its origin concept Resource URI.

5.8.7 Scheme Admin Folder

The Scheme Admin folder was introduced to allow users to categorize Schemes in a folder. Scheme Admin folder URIs are not editable. The steps for creating, editing, moving, and deleting Scheme Admin folders are the same as Template Admin folders (see section *on Template Admin Folder*).

To create a Scheme Admin folder, click on the *Create Folder* button in the *Scheme Admin* page. In the popup form, fill in the folder *Label* name and click *Create*. Click the *Cancel* or **X** button to close the popup form.

After creating a New Folder, the Edit Folder page will display the Folder *Label* and *URI*. The Folder *Label* value can be changed.

In the Edit Folder page, click on the *Delete* button to delete the Folder.

To move a Scheme to a folder, click and drag on a Scheme. The folder will be highlighted in light green. An arrow in red indicates where the Scheme will be dropped. Release the mouse click, and the Scheme will be dropped inside the folder.

To move out from the Folder, click and drag on the Scheme and move it out from the folder. The arrow will again indicate where the Scheme can be dropped. It can be dropped to another Folder or outside the Folder.

5.9 User and Group Admin Tools and Permissions

Graphite's permissions are defined on a per Project basis and allow fine-grained control of which concept Schemes and individual Properties each User Group can see and edit. For more guidance on the creation and management of Users and Groups, see the *Graphite_Managing User and Group Permissions_[YYYYMMDD]* document.

Within the User and Group Admin area, an Administrator may add, manage, and edit users and groups.

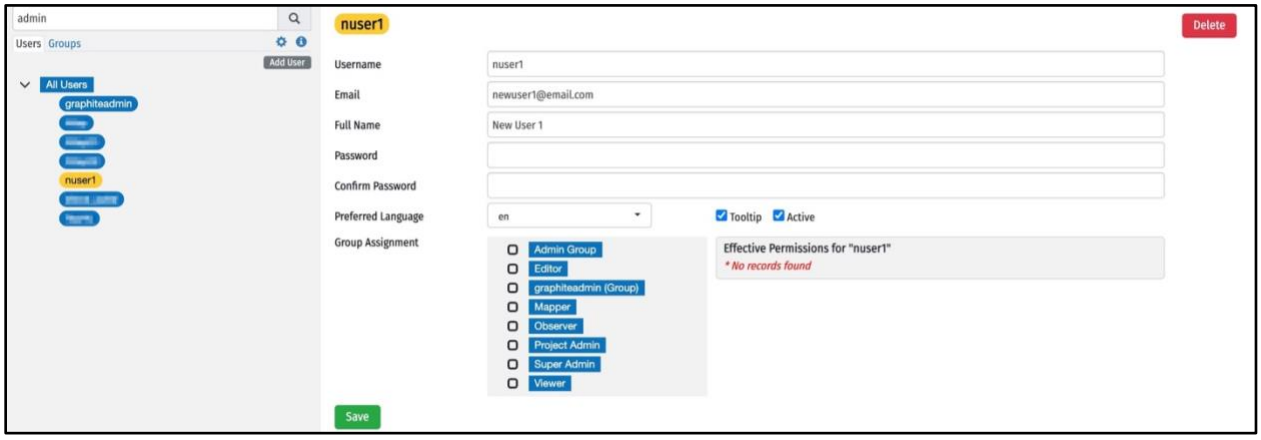
To view all users at a glance, select the *All Users* grouping in the *Users* tab.

5.9.1 Create a User

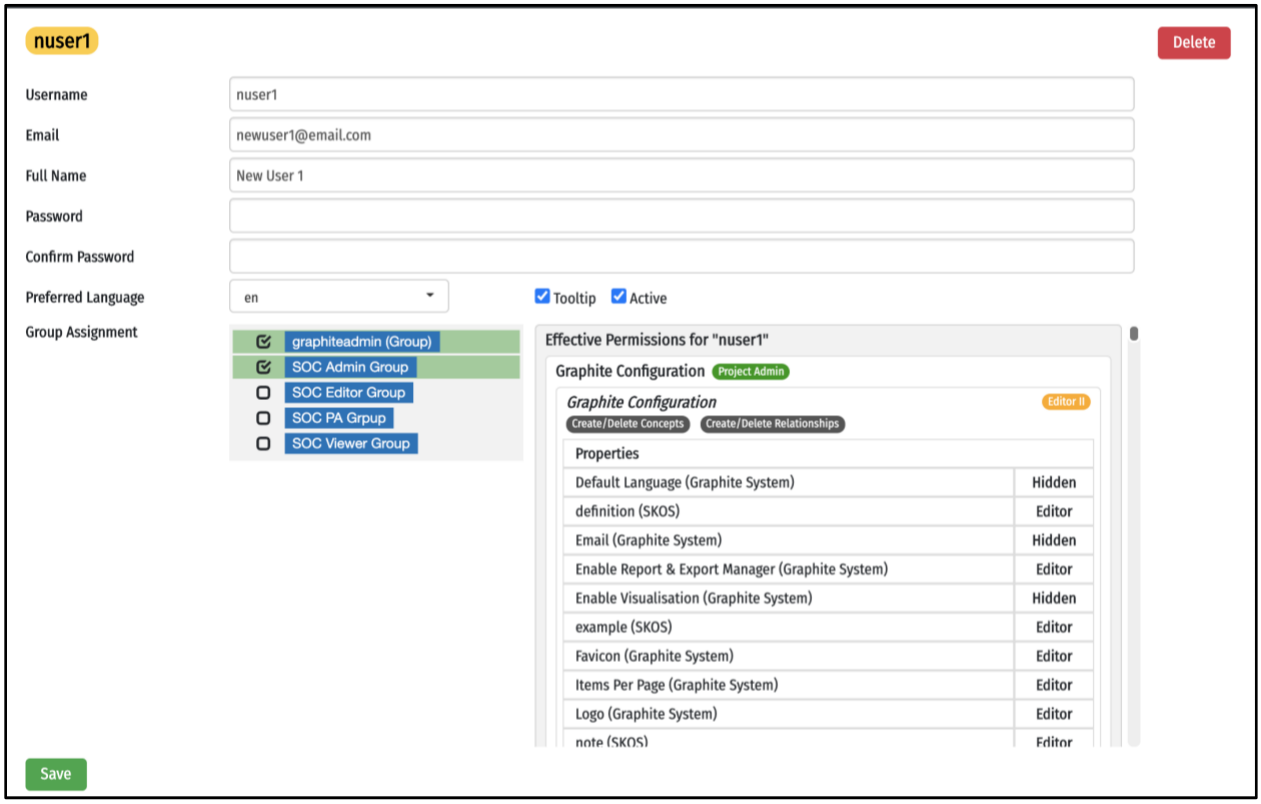
To create a new user, in the *Users* tab, click on the *Add User* button to the right of the *All Users* group or in the upper right hand corner of the workspace when the *All Users* grouping is selected and an entry form will be displayed.

Enter a Username, valid email address, the user's full name, and a password. If your Graphite system has available translations, you may choose a default preferred language. You may also select whether or not the user should be displayed mouse-over tooltips as they are working within the system.

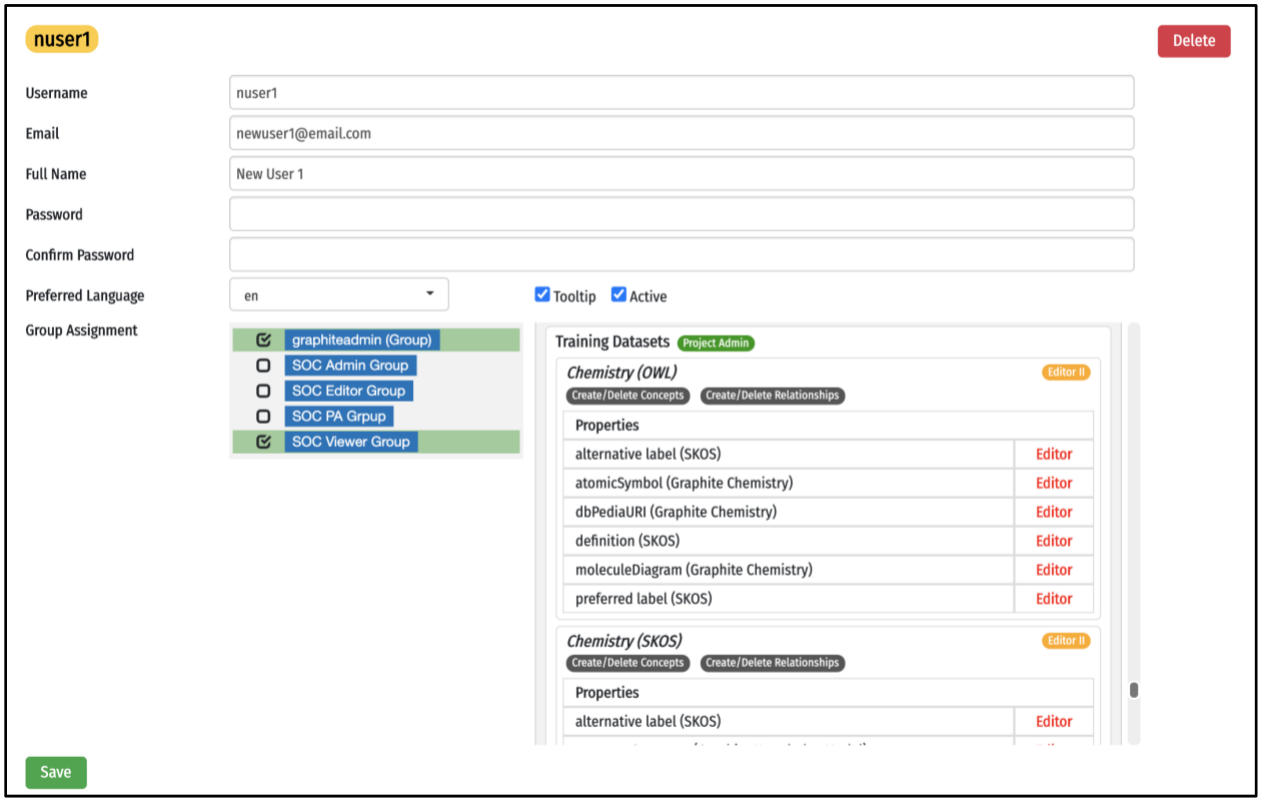
After clicking *Create*, the user appears in the user list in the tree view in the left pane. When the user is selected, it is possible to assign the user to existing groups.



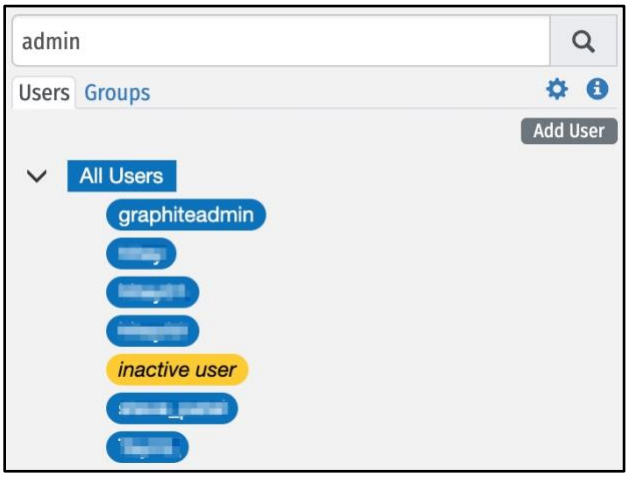
Once a group or groups has been selected, selecting the Save button will save the record and present effective permissions for the selected group(s) which were set when the group was created. See the section *Create a Group* below.



If group permissions conflict, the user will receive the most permissive setting and the conflict will be designated in red in the permissions. In this example, the graphiteadmin (Group) has more permissive settings as an Editor on the Chemistry (OWL) scheme whereas the SOC Viewer group has only Viewer permissions on the same scheme. The Editor permissions level is indicated in red as the most permissive level allowed on the scheme.



The Active flag can be checked or unchecked to be used for SSO provisioning and de-provisioning as described below in the section *Setting up Single-Sign On*. When the Active flag is unchecked, the user will appear marked in pale yellow and italics in the list of users. It is not possible to mark a user inactive if logged in as that user. Graphite includes an API System for Cross-domain Identity Management (SCIM) 2.0 specification support.



5.9.1.1 Special Note on Deleting User Accounts

Please note that, while user accounts may be deleted in this area it is important to remember that they may be associated with scheduled tasks and other operations such as DMU transfers and publications that will be impacted if the user account is deleted. For this reason, it is

advised that user accounts are deactivated by unchecking the “Active” option if there is any question about how and where the account is being used prior to them being completely deleted. This will prohibit the user from accessing the system but will not disrupt any scheduled tasks or other operations associated with the account.

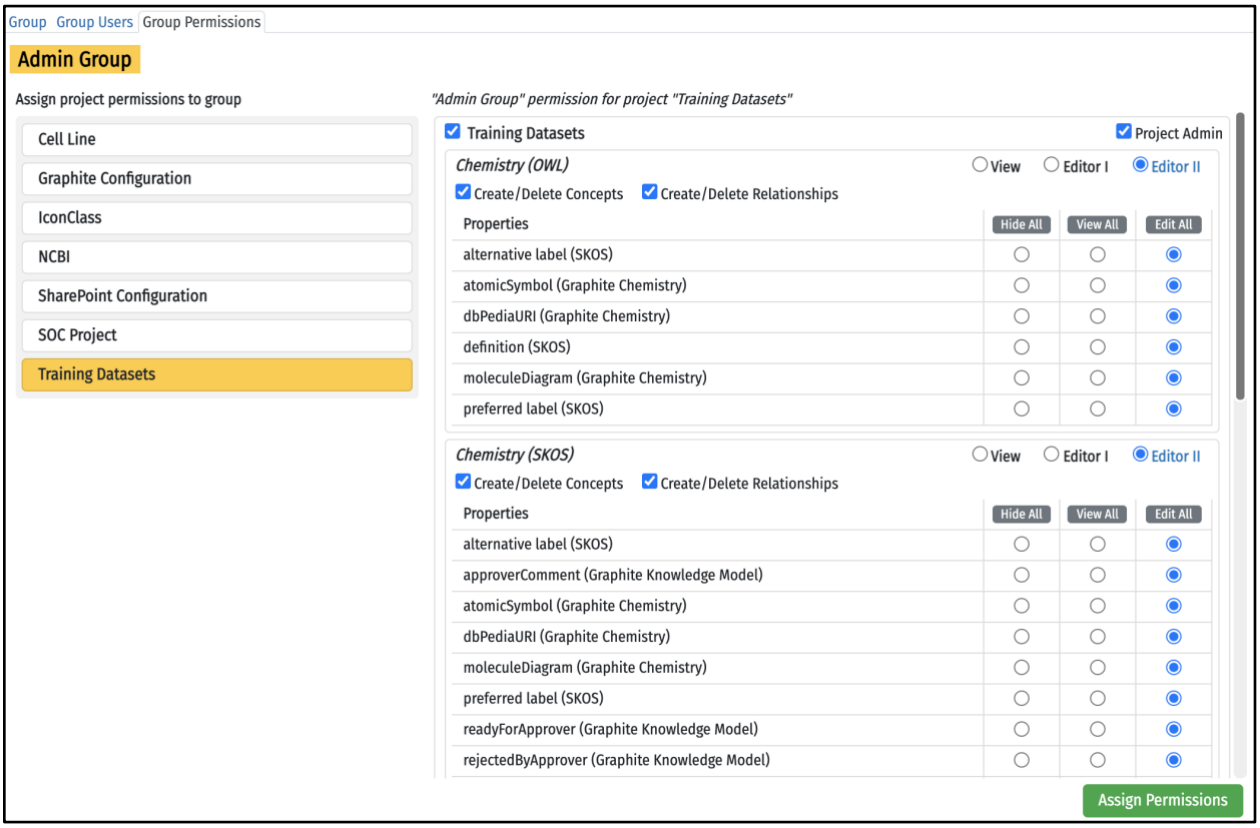
5.9.2 Create a Group

To create a new group, click on the *Create Group* button in the *Groups* tab in the left-hand navigation and an entry form will be displayed.

Enter a Group Name and an optional Description.

After clicking *Create*, the group appears in the group list in the tree view in the left pane. When the group is selected, it is possible to make the group an *Administrator Group* in the *Group* tab in the main workspace.

In the *Group Users* tab, select users to include in the group permissions. In the *Group Permissions* tab, first select a Project and then assign the appropriate permissions. Once *Assign Permissions* is selected, it is possible to select another project and assign additional scheme and property permissions.



Select whether or not group members should be a Project Administrator with rights to add Schemes to the Project. Set a permission level of either View, Editor I, or Editor II for each of the Schemes individually.

- **View**: In view mode, the User will be able to see any Properties and Relationships for the selected project, as long as they are not marked with Hide below. They will not be able to make any edits to existing Properties or Relationships or create them.

- **Editor I**: In this mode, the user can edit any Properties and Relationships selected in the below area. They may also be granted permission to create new concepts and relationships between concepts.

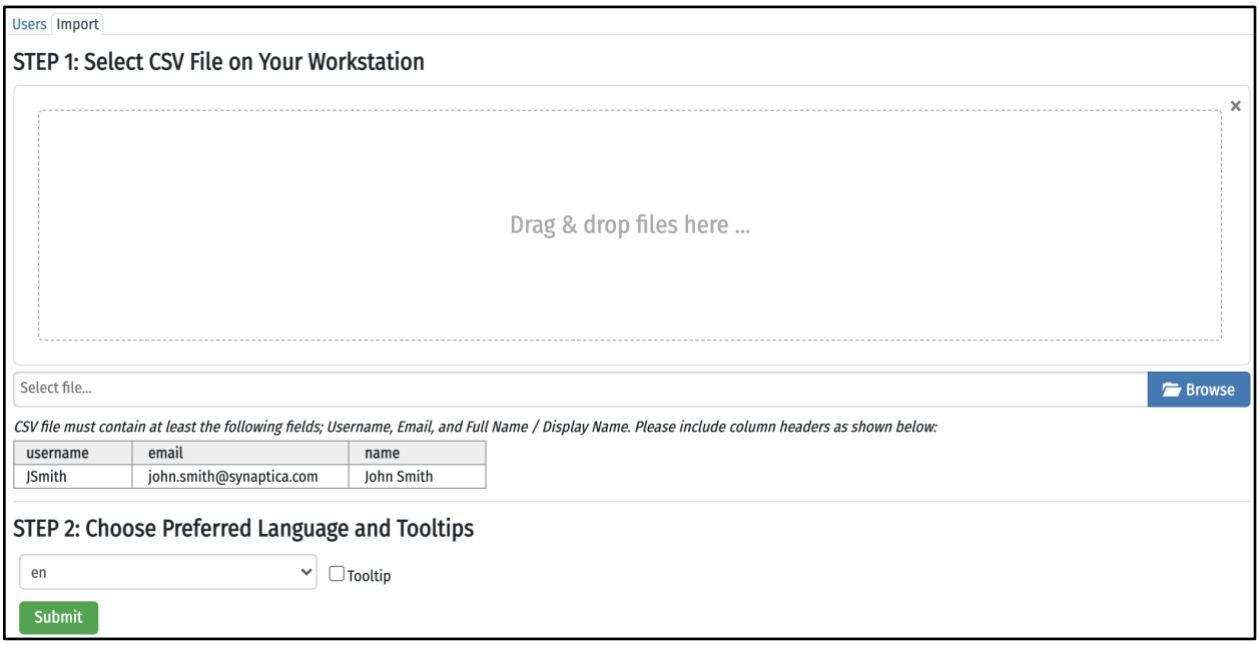
- **Editor II**: This level has all of the functionality of the Editor I level, plus is able to adjust Concept Status metadata to mark a term as a Candidate, Approved, Published, Withdrawn, or Subsumed.

  Note: *Being a Project Admin does not immediately make Schemes viewable or accessible to edit by that user. Scheme level access must still be established for the Project Admin to view and edit concepts.*

5.9.3 Batch Create Users

In User and Group Admin, it is possible to create multiple users by selecting the *Users* tab, selecting the *All Users* group, and then selecting the *Import* tab. Upload a CSV file by dragging and dropping or browsing to a file formatted to include *username*, *email*, and *name*. User names and

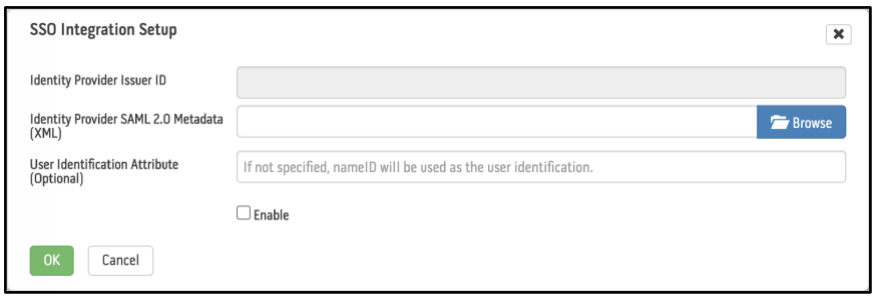
Names do not need to conform to a specific format, though it is best practice to determine a standard user name format, such as *firstinitiallastname*. After uploading the file, choose the preferred language and whether users will have mouse-over tooltips appear for guidance within the Graphite UI.



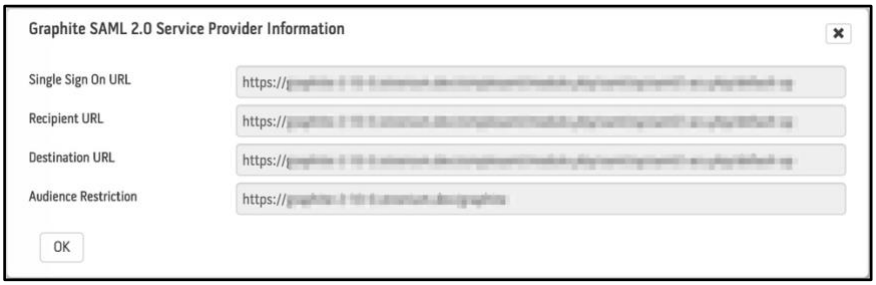
Once the users are successfully uploaded, they can be set up with a password, set to Active, assigned to user groups.

5.9.4 Setting up Single Sign-On

In User and Group Admin, it is possible to set up single sign-on (SSO). Selecting the gear icon opens the SSO Integration Setup window.



Selecting the information icon opens the Graphite SAML 2.0 Service Provider Information window.

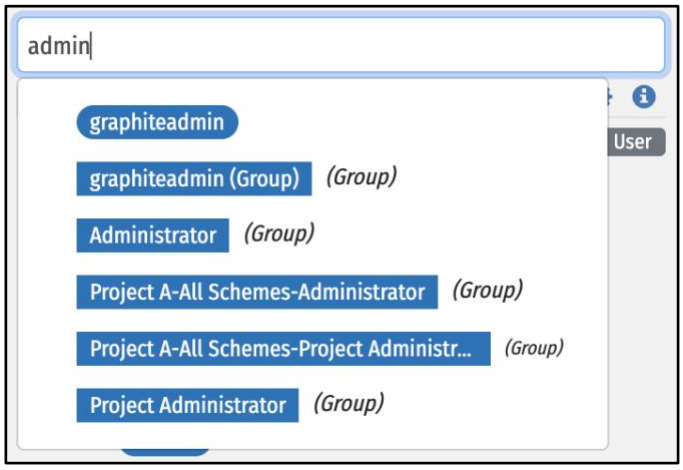


For detailed instructions on how to set up SSO, see the "*Graphite SSO Setup Guide*" document which provides a step-by-step guide to setting up SSO with Okta, OneLogin, and Azure Active Directory.

5.9.5 Searching in User and Group Admin

The search box allows searches across users and groups. As the search keyword is typed, the smart search will begin matching names in users and groups, displaying each retrieved entry in an oval if a user and in a rectangle with *(Group)* appended for a group.

It is possible to select from the dropdown list of results and populate the right hand workspace panel with user or group information.



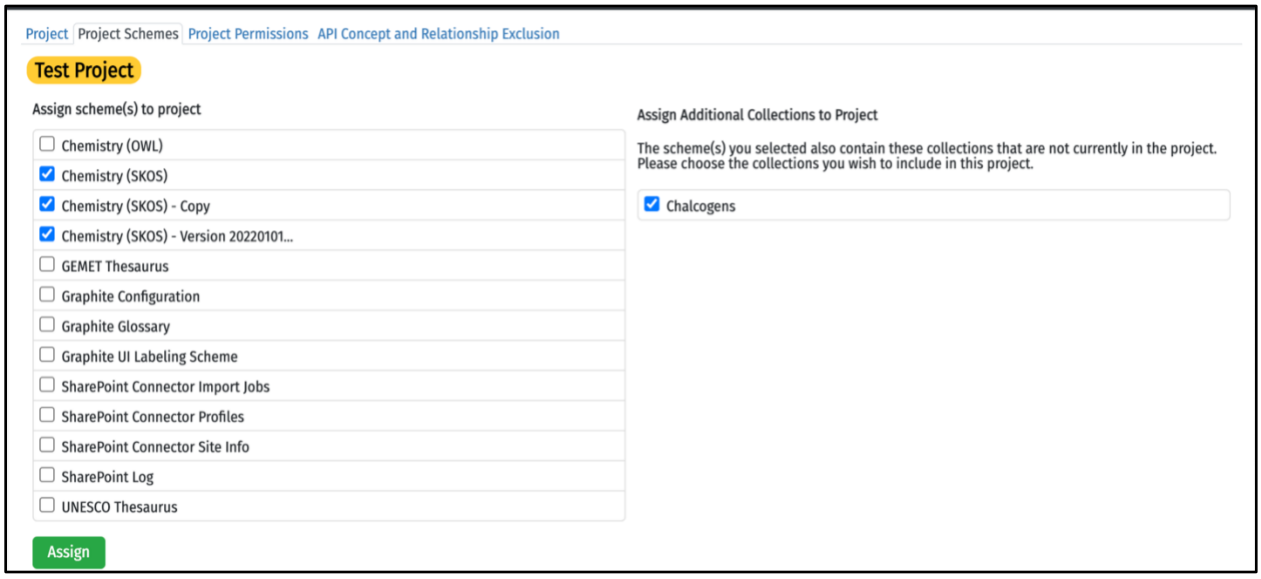
5.10 Project Admin Tools and Permissions

In the Project Admin area, an Administrator will create, edit, and delete Projects. A Project is a point of access for users containing Administrator-specified Schemes and overall permissions for each User on those Schemes.

5.10.1 Adding a New Project

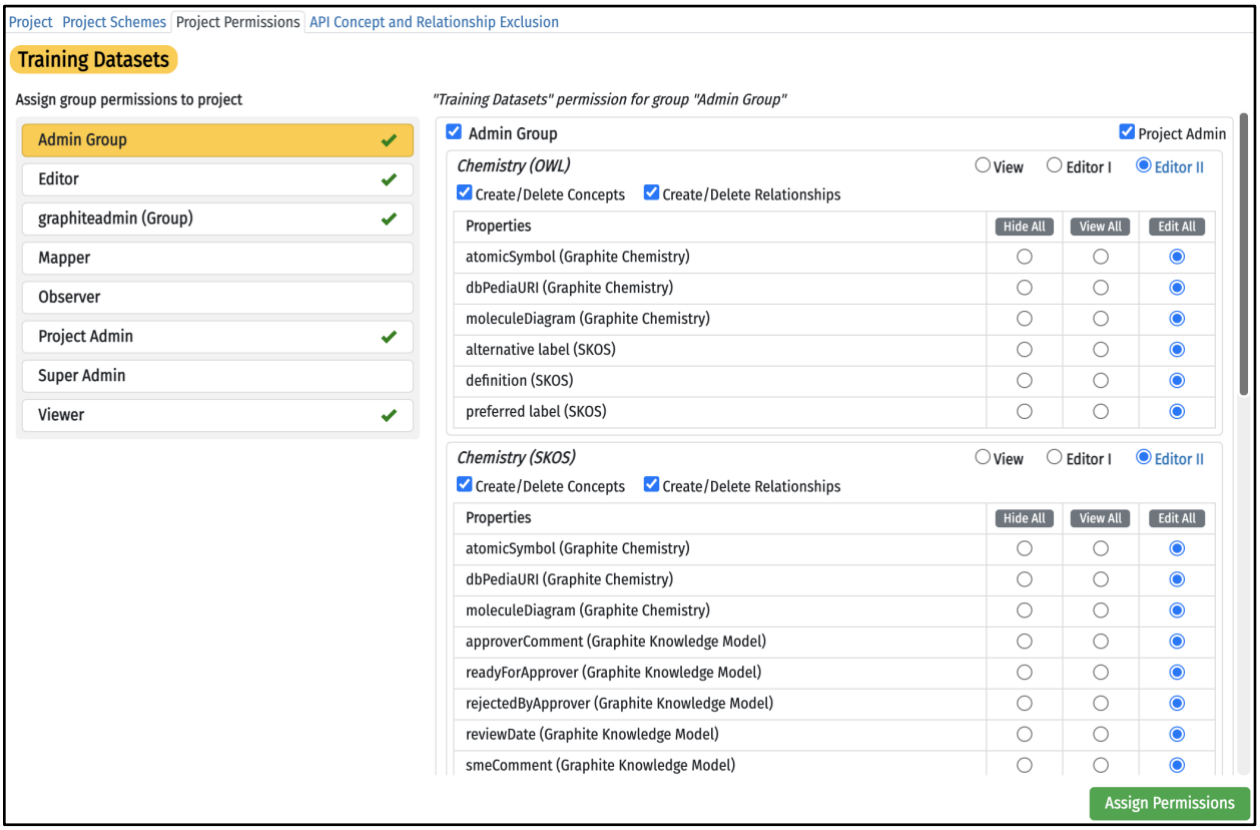
To add a new Project, click on the *Create Project* button and a simple form to enter a *Project Name* and *Description* of the Project will be displayed.

In the *Project Schemes* tab, it is possible to select the schemes to include in the project. Click the check box next to each scheme you want to be a part of the Project. Remember that a Scheme may be a part of more than one Project. If there are any existing collections associated with the schemes, the option to select these collections for inclusion in the new project will be presented.



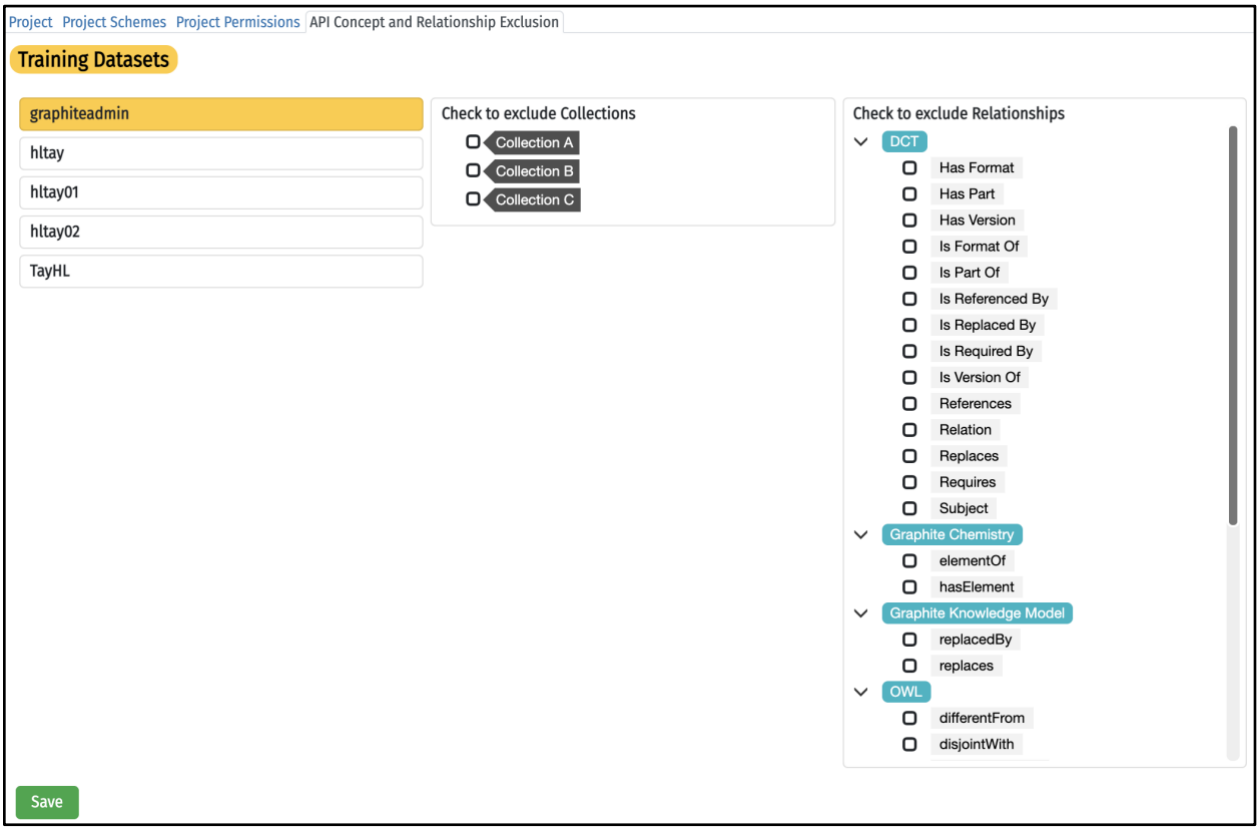
5.10.2 Setting User Permissions

In the *Project Permissions* tab, the groups assigned to the project in User and Group Admin are visible. As in the User and Group Admin *Group Permissions* tab, permissions can be edited for the group. Any changes made here will be reflected in the User and Group Admin area and vice-versa.



5.10.3 API Concept and Relationship Exclusions

The *API Concept and Relationship Exclusion* tab allows for the exclusion of specific concepts from a user's view based on Collection membership and/or relationships a concept employs. Select from the list of users to select individual filters based on Collection and relationship type.

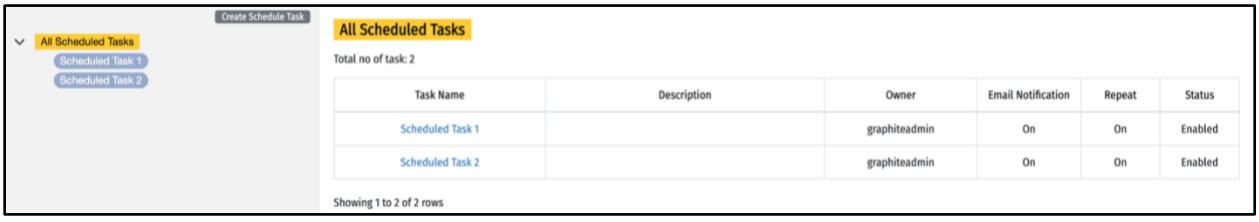


Once the filters are set, the user will no longer see any concepts matching those criteria, and there will be no indication to the user that anything is being excluded from their view.

5.11 Scheduled Tasks Admin Tools

Scheduled tasks can be created and saved using the *Scheduled Tasks* button from the main menu.

Clicking on the *All Scheduled Tasks* header will display all scheduled tasks in the left-hand navigation pane and in the right hand workspace pane.



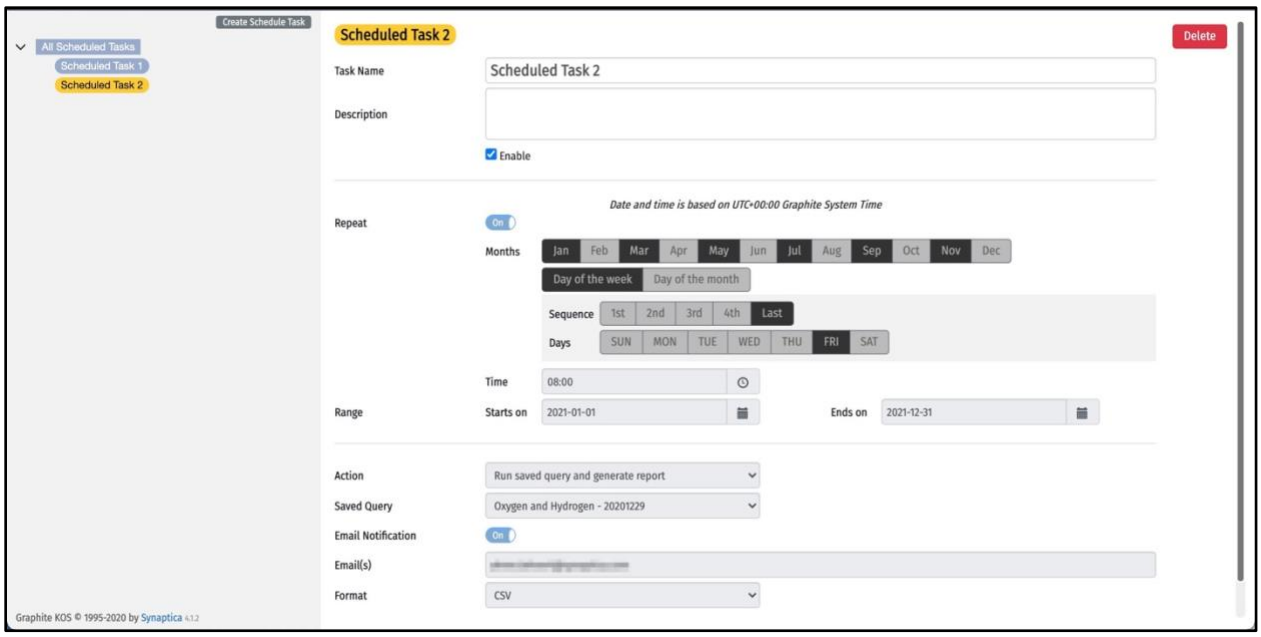
A new scheduled task can be created by selecting the *Create Scheduled Task* button in the left-hand navigation pane. In the *New Scheduled Task* workspace area, a user can add the *Task Name*, *Description*, and whether or not the task is enabled.

In the second section, the task can be set as one-time or repeating, and the month, days of the week, days of the month, sequence, specific days, time, and date range can all be set.

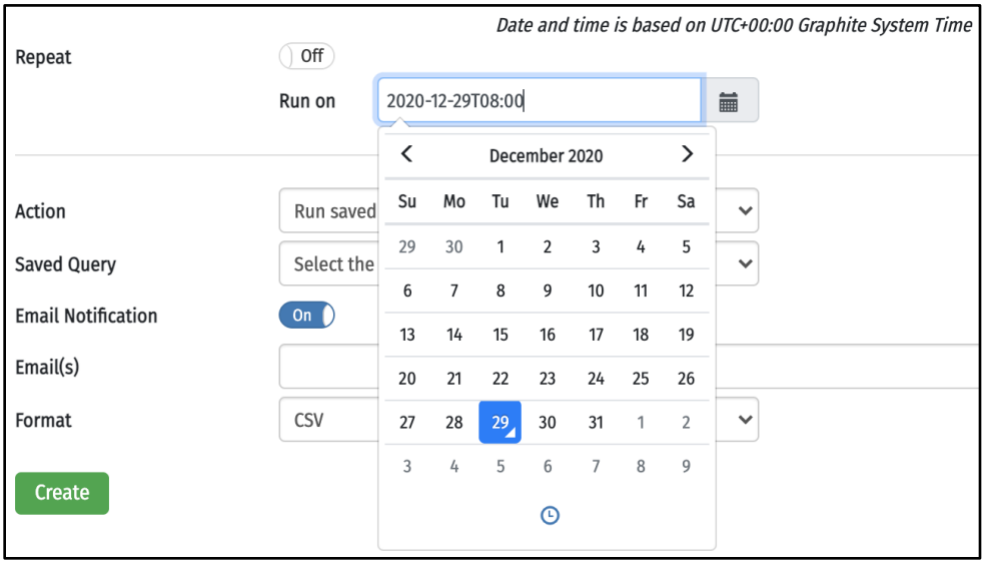
In the final section, the user can choose an existing query, whether or not there should be an email notification, email recipient(s), and the format. The query can be saved using the *Create* button. The scheduled task can be deleted using the *Delete* button.

The email sent from the system includes a link to download the scheduled report in the format specified in the Scheduled Tasks administration area.

> ***Note**: If you do not see an email from "do-not-reply@synaptica.com" including an expected scheduled report, check your email client's junk email folder and change the settings so emails from Graphite are not marked as junk.*



When *Repeat* is set to *Off*, the user can set a date and time from a single dropdown.



***Note**: Please note that scheduled tasks and other operations such as DMU transfers and publications may be adversely impacted if the associated User Account is deleted. For this reason, it is advised that user accounts are deactivated by unchecking the "Active" option if there is any question about how and where the account is being used prior to them being completely deleted.*

5.12 System Maintenance Menu

The *System Maintenance* menu can be accessed by selecting *Maintenance* from the three-dot administration menu in the upper right-hand corner. This area includes options to refresh or clear various indexes and other database maintenance functions and is only available to Graphite Administrators. Many of the maintenance options may be applied to potentially resolve certain functional, display, or performance issues in Graphite. A partial list of those issues and suggested resolutions is listed here.

Special Note About Using Graphite Maintenance Tools
Due to the resource intensive and irreversible nature of executing many of these features, Synaptica strongly recommend that customers contact technical support before using these tools and run them at the advice of support staff after additional troubleshooting guidance has been provided.

***Note:** Please ensure that a backup is made of existing data before executing any maintenance actions in the admin page. Many of these processes are permanent and irreversible.*

Additional information about each Maintenance Options may be found in the ***Graphite Installation and Administration Guide***.

Overwrite Graphite Concept Labels: When a new preferred label property is selected for a Scheme and that property has existing values, clicking *Refresh* will update the *rdfs:labels* for

every concept with the values from the newly selected preferred label property. Please note that the update is applied system wide for all schemes.

Refresh Rule Set & Concept Label Index: If the hierarchical tree view is not correctly displaying inferred hierarchical links when filtering concepts by workflow status, the *Refresh* button here will rebuild the Graphite ruleset in its associated GraphDB instance. The *Graphite Default* ruleset should always be used unless the GraphDB database is being accessed directly and there are specific requirements for RDFS inferences.

The Label Index process facilitates searches across Graphite concepts by making sure concept *prefLabel* and *altLabel* values are more rapidly accessible and recognized. This tool may be used when experiencing problems with search, such as receiving incomplete results or abnormally poor performance.

> ***Note:*** *Using this feature performs several major steps that involve Graphite's core database and Elasticsearch label index. This can be quite resource-intensive, especially for large datasets, and may impact overall system performance. If being run frequently and performance problems are experienced, system tuning and/or server hardware upsizing may be necessary.*

Clean Blank Nodes: Blank nodes are not supported in the application and occasionally can be introduced through external data sources or imports. If present, they may cause unexpected errors or inconsistent behavior. Use this option to detect and remove any blank nodes from your data to ensure compatibility and stability.

Clear Temporary Files: This feature should be used from time-to-time to clear temporary, cached data to recover storage space on the server.

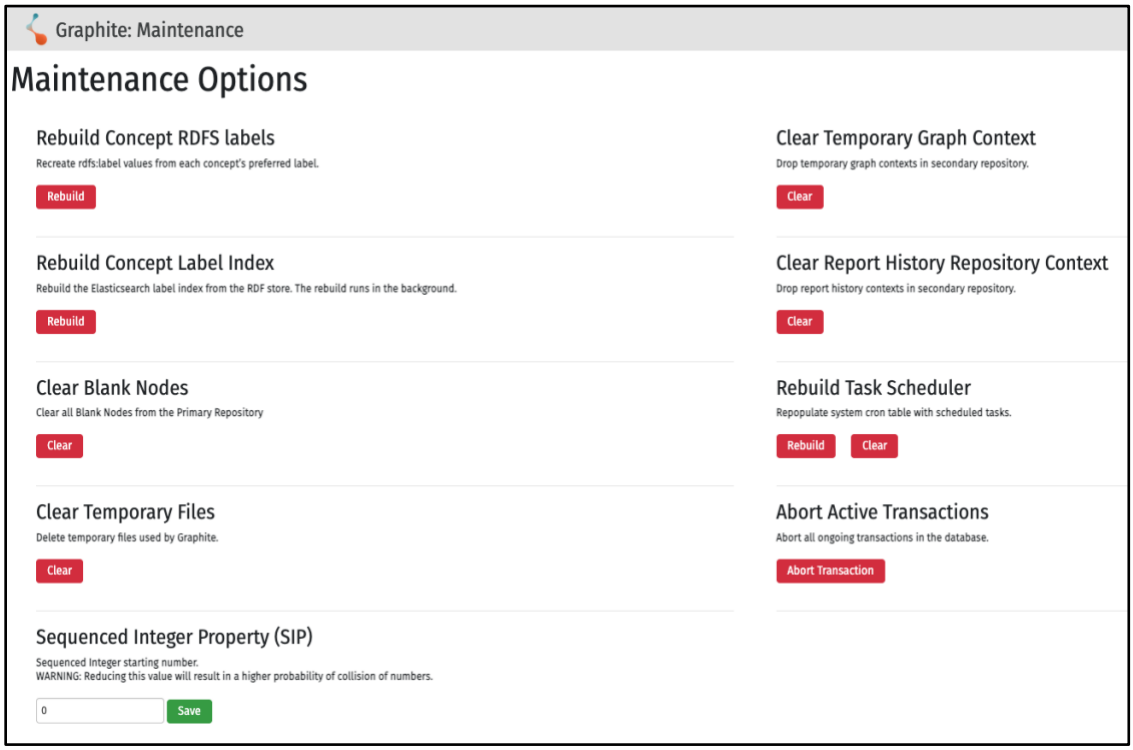
Sequenced Integer Property (SIP): This area allows an Administrator to set the system-wide starting integer value for the SIPs property when being used. Please see the section about the use and management of the SIPs feature for more details.

Clear Temporary Graph Context: Use this option to clear any residual temporary data in GraphDB's secondary data repository, which is used primarily for temporary storage when uploading files to Graphite.

Clear Report History Repository Context: This tool will clear all report history that has been generated by Project scheduled tasks and the execution of saved queries.

Refresh Task Scheduler: If there are problems with the execution of scheduled tasks on the system, a *Refresh* should be applied. The *Clear* option will disable all Data Migration and Project scheduled tasks (until the Refresh button is clicked). This feature may be used to quickly disable all scheduled tasks for troubleshooting in situations where a misconfigured task cannot quickly be identified.

Active Transactions: If a process is initiated in the system and the interface becomes non-responsive, the *Abort Transactions* option will close all listed, active processes.



5.13 Webhooks Configuration

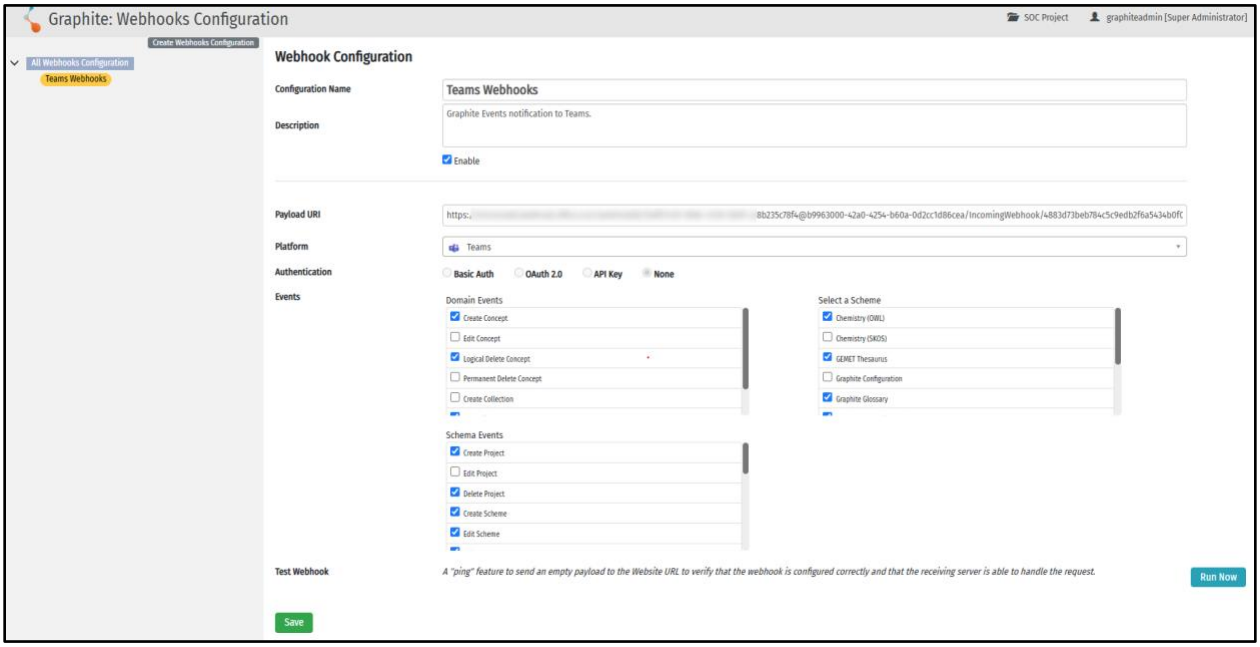
Webhooks are a means of delivering real-time notifications from customer applications or services when a specific event or activity takes place in Graphite. The webhooks utility provides mechanisms for direct connections to Microsoft Teams and Slack, as well as a generic "Graphite" option that allows for setting up notification delivery from other applications and services.

> ***Note:*** *For detailed information about configuring and enabling webhooks please see the* ***Graphite Webhooks Processor Configuration Guide****.*

In the *Webhooks Configuration* screen in Graphite a Name and Description will be entered to identify the webhook details, along with the option to mark it as "Enabled" and therefore active or not active.

Next the "Payload URI" will be entered to identify the address for the application or service where the payload should be delivered and from which notifications will be sent. Please see the ***Graphite Webhooks Processor Configuration Guide*** for a complete explanation.

Dedicated payload generation and delivery options are available for **Microsoft Teams** and **Slack** applications. For delivery to any other system or messaging application the "Graphite" option should be selected. Detailed instructions about configuration are provide in the configuration guide.



The interface next allows for the selection of what specific events and/or activities should generate a payload and notification, and in what Schemes. There are two main categories of events being:

- ***Domain Events***
- ***Schema Events***

For *Domain Events* the following activities can be selected to produce a notification:

- Create Concept
- Edit Concept
- Logical Delete Concept
- Permanent Delete Concept
- Create Collection
- Edit Collection
- Delete Collection

For *Schema Events* the following activities can be selected to produce a notification:

- Create Project
- Edit Project
- Delete Project
- Create Scheme
- Edit Scheme
- Delete Scheme
- Create User
- Edit User
- Delete User
- Create Group
- Edit Group
- Delete Group

- Create Namespace
- Edit Namespace
- Delete Namespace
- Create Predicate
- Edit Predicate
- Delete Predicate

Note: *For a detailed explanation of how events are labelled and identified please see the* ***Graphite Webhooks Processor Configuration Guide***.

After the desired Schemes have been selected corresponding to events the “Run Now” option may be used to test whether notifications are successfully being made via the targeted application or service. Once it has been confirmed that event notifications are successfully being delivered the configuration should be saved. If marked as “Enabled” it should automatically produce a notification when any of the identified events occur within the selected Schemes.

5.14 Permissions Overview

The following chart shows all privileges and permission levels.

For each of the permission levels listed, properties and relationships can also be individually set to *Hide All* and *View All*. *Hide All* hides selected properties and relationships from view. *View All* allows users to see but not edit properties and relationships. Both options are available for any permission level. For instance, a Project Administrator may have all privileges for a project but may only have *View All* options for a Scheme without the ability to edit concepts. A Project Administrator, however, can change these options.

Any items highlighted in yellow means the selection is optional for the permission level.

	Permission Level					
Privileges	Hide All (optional)	View All (optional)	Editor I	Editor II	Project Administrator	Super Administrator
View Scheme	X	X	X	X	X	X
View Concepts	X	X	X	X	X	X
View Linked Data	X	X	X	X	X	X
View Properties		X	X	X	X	X
View Relationships		X	X	X	X	X
Edit Properties			X	X	X	X
Edit Relationships			X	X	X	X
Create Concept			X	X	X	X
Delete Concept			X	X	X	X

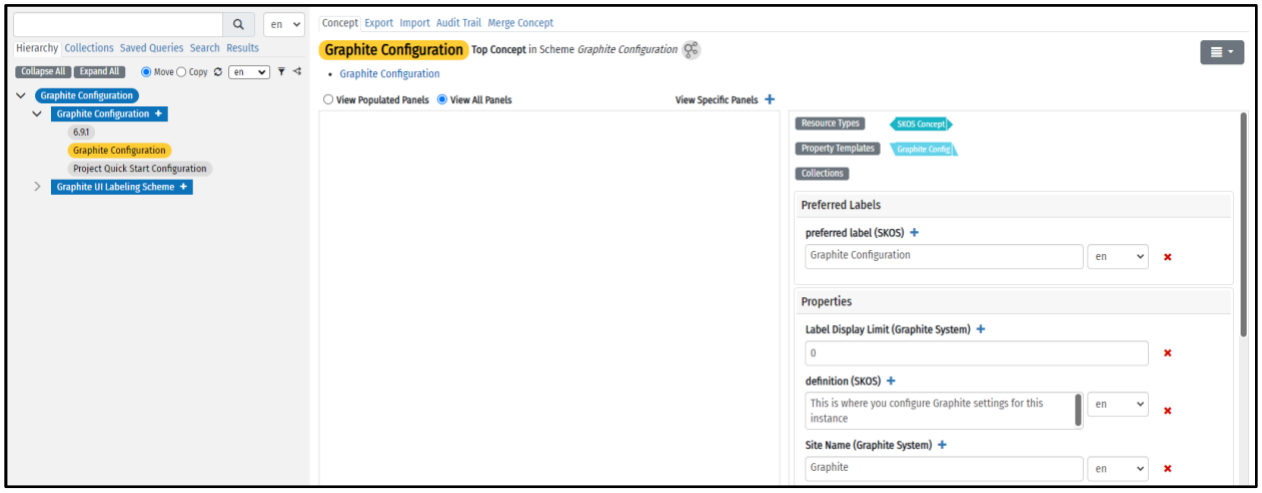
Create Relationships			X	X	X	X
Delete Relationships			X	X	X	X
Adjust Concept Status				X	X	X
View All Namespaces					X	X
Create Namespace					X	X
View All Templates					X	X
Create Template					X	X
View Template Folders					X	X
Create Schemes					X	X
View Scheme Folders					X	X
Add Group					X	X
Add User					X	X
Create Projects					X	X
View All Schemes						X
View All Projects						X

5.15 Graphite Configuration Scheme

The Graphite Configuration Project comes pre-loaded in Graphite and includes two Schemes: Graphite Configuration and Graphite UI Labeling Scheme.

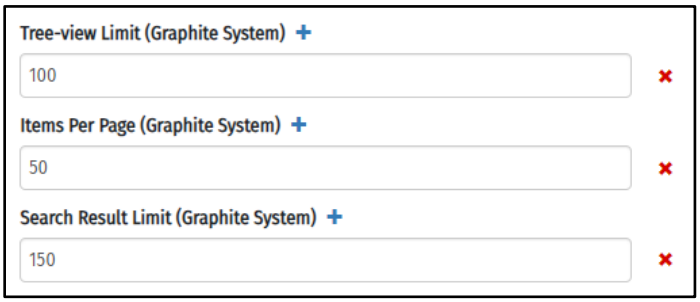
In the Graphite Configuration Scheme, the top level consists of a Graphite version number and Graphite Configuration concept. The Graphite Configuration concept includes information about configuring Graphite settings.

> ***Note:*** *For more information about making changes to the Graphite Configuration Scheme please contact a Graphite Administrator or Synaptica representative, as changes made in this area will have a global impact to Graphite's display and functional behaviors.*



Here, a Graphite Administrator can enter specific values to configure settings such as the Tree-view Limit to determine how many concepts are displayed in the Hierarchical view; the Items Per Page limit to determine how many concepts will be displayed in Related Concepts Panels; and the Search Result Limit to limit the number of those lists.

Note: *If no values are entered the default limit for all of these is set to 100.*

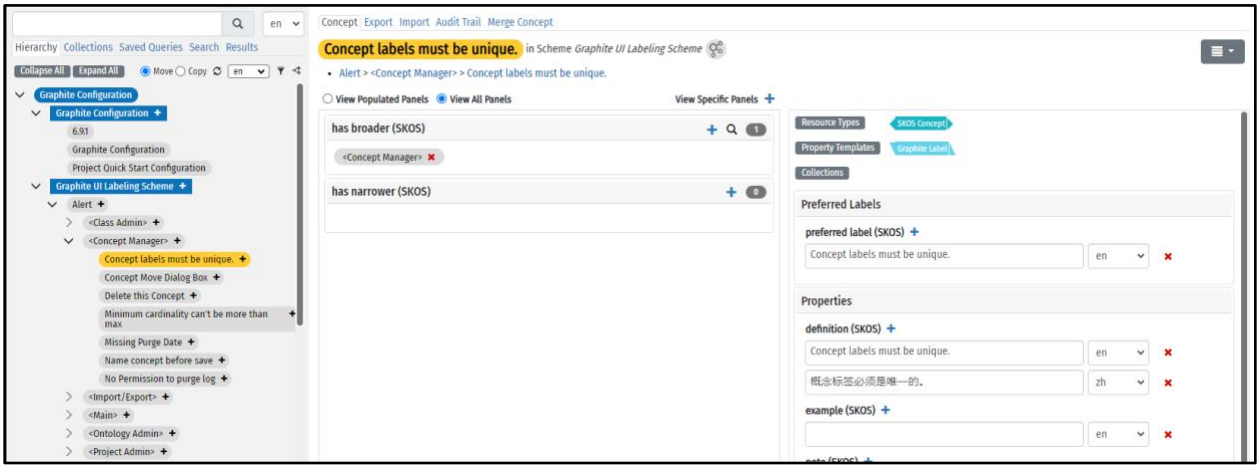


A Session Timeout value in seconds to determine how long to wait before logging out a user due to inactivity may also be set in this area.

5.16 Graphite UI Labeling Scheme

The Graphite UI Labeling Scheme allows users to configure what labels are used on the front end and the text of those labels. Labels are part of the system configuration and should only be edited when necessary. For instance, the *Data Type > Boolean* could be changed from *True/False* to *Yes/No*.

Note: *For more information about making changes to the Graphite UI Labeling Scheme please contact a Graphite Administrator or Synaptica representative, as changes made in this area will have a global impact to Graphite's display and functional behaviors.*


Hierarchy
Collections
Saved Queries
Search
Results
Collapse All
Expand All
Move
Copy
Graphite Configuration
Graphite Configuration
6.9.1
Graphite Configuration
Project Quick Start Configuration
Graphite UI Labeling Scheme
Alert
<Class Admin>
<Concept Manager>
Concept labels must be unique.
Concept Move Dialog Box
Delete this Concept
Minimum cardinality can't be more than max
Missing Purge Date
Name concept before save
No Permission to purge log
<Import/Export>
<Main>
<Ontology Admin>
<Project Admin>
Concept
Export
Import
Audit Trail
Merge Concept
Concept labels must be unique.
in Scheme Graphite UI Labeling Scheme
Alert > <Concept Manager> > Concept labels must be unique.
View Populated Panels
View All Panels
View Specific Panels
has broader (SKOS)
<Concept Manager>
has narrower (SKOS)
Resource Types
SKOS Concept
Property Templates
Graphite Label
Collections
Preferred Labels
preferred label (SKOS)
Concept labels must be unique.
en
Properties
definition (SKOS)
Concept labels must be unique.
en
概念标签必须是唯一的。
zh
example (SKOS)
en