

# The VRE4EIC Metadata Portal Manual Guidelines

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This Document is describing the full functionality of the VRE4EIC Metadata Portal by showing how it can be used for accomplishing tasks, such as editing user's profile, searching for metadata by constructing queries, taking advantage of the interactive map for geospatial entities, setting specific entity instances to be included in queries, constructing complex queries by enabling multiple filters, observing SPARQ Queries, fine tuning configuration options, Saving queries for future exploitation, importing new data in existing or new metadata-space.

This guide is for both novice and expert users and through the following chapters, several scenarios covering different aspects of the system's capabilities will be described in detail.

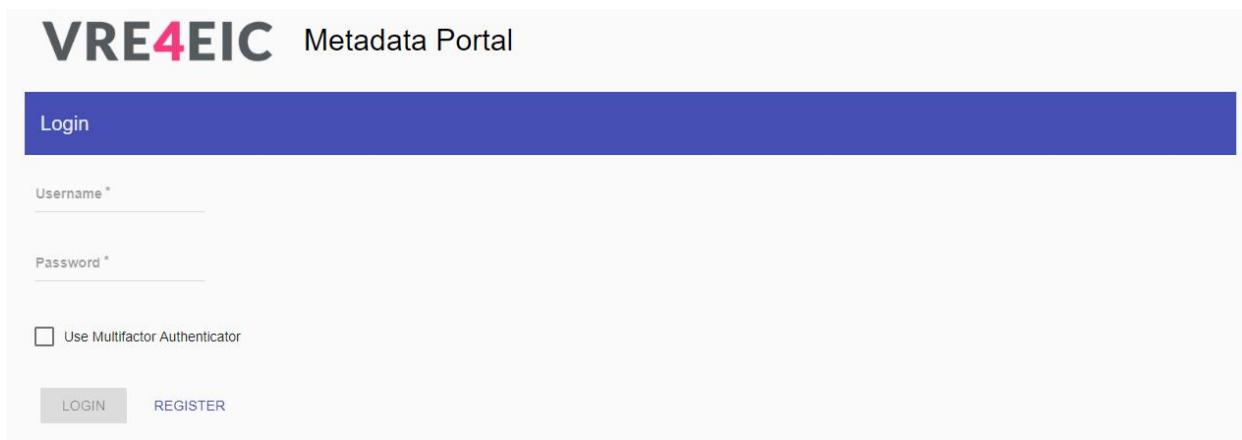
***Please note that all examples shown in this guide are based on synthetic data, for the purposes of this tutorial and do not reflect reality.***

## What the VRE4EIC Metadata Portal Is

The VRE4EIC Metadata Portal is a platform that facilitates the exploration, discovery and management of semantic metadata. It incorporates a multitude of features on top of an intuitive and user friendly environment, in order for both novice and expert users to execute complex queries. The platform is agnostic to the underlying conceptual model, yet it can be configured to take advantage of the main concepts designed.

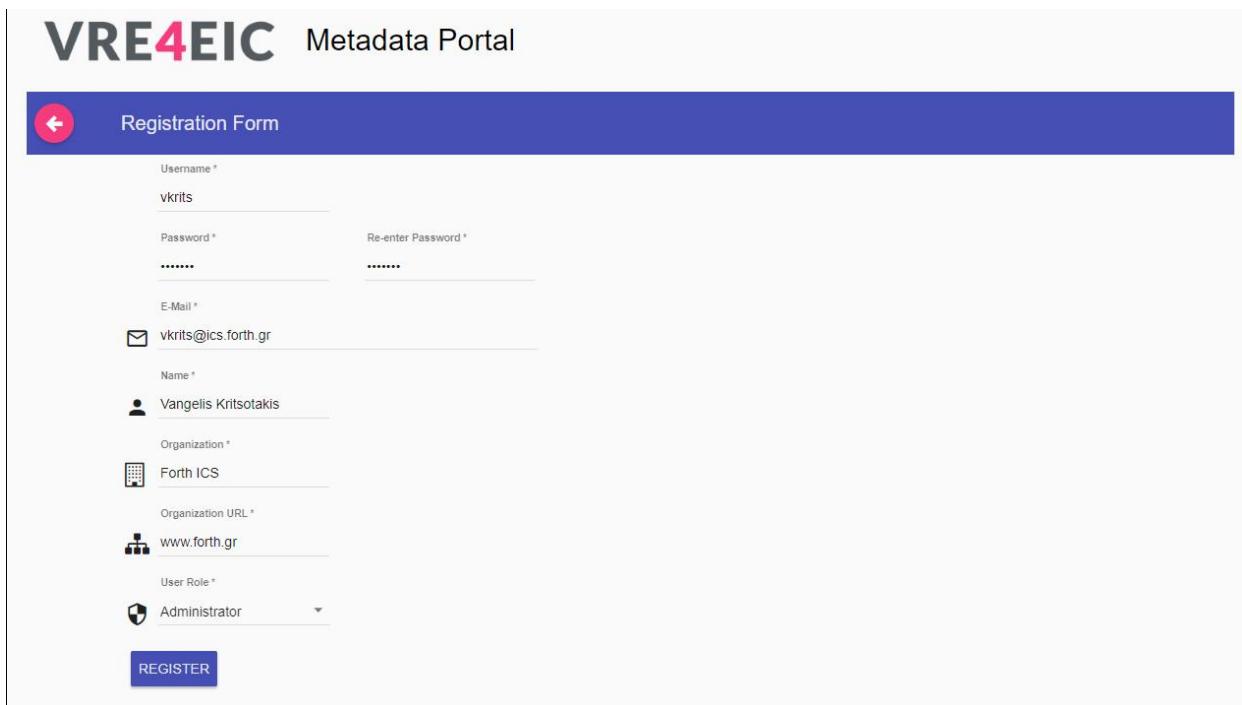
## User Registration and Authentication: First Page

Initially the user is asked to login by entering his/her credentials.



The screenshot shows the VRE4EIC Metadata Portal's login page. At the top, the portal's logo "VRE4EIC" is displayed in a stylized font, followed by the text "Metadata Portal". Below the logo is a blue header bar containing the word "Login". The main form area has a white background. It contains two input fields: "Username \*" and "Password \*". Below these fields is a checkbox labeled "Use Multifactor Authenticator". At the bottom of the form are two buttons: "LOGIN" and "REGISTER".

In case of a new user, that doesn't have credentials yet, a registration has to be applied first. This is done by clicking on the “Register” button.



The screenshot shows the VRE4EIC Metadata Portal's registration form. At the top, the portal's logo "VRE4EIC" is displayed in a stylized font, followed by the text "Metadata Portal". Below the logo is a blue header bar containing the text "Registration Form" next to a back arrow icon. The main form area has a white background and includes the following fields:

- Username \*: vkrits
- Password \*: ..... (redacted)
- Re-enter Password \*: ..... (redacted)
- E-Mail \*: vkrits@ics.forth.gr
- Name \*: Vangelis Kritsotakis
- Organization \*: Forth ICS
- Organization URL \*: www.forth.gr
- User Role \*: Administrator

At the bottom of the form is a blue "REGISTER" button.

As soon as the registration form is filled in and submitted, the user can login by using his/her new credentials. The platform supports two-factor authentication, which depends on the acquired credentials for the platform and a Telegram account which the user must possess. To login by using the two-factor authentication method, the username and password have to be filled in and the box “Use Multifactor Authentication” has to be checked. By clicking the login button, a dialog appears asking to enter a code received at user’s Telegram account.

The screenshot shows the VRE4EIC Metadata Portal login interface. A modal dialog box titled "Multifactor Authentication" is displayed over the login form. The dialog contains instructions: "In a few seconds you will receive some **code** on your mobile phone through the Telegram application." Below this is a text input field labeled "Enter Received Code \*". At the bottom of the dialog are "PROCEED" and "CANCEL" buttons. The background shows the login form with fields for "Username" (vkrts2) and "Password" (redacted), and a checked checkbox for "Use Multifactor Authenticator".

Once this step is fulfilled, and the “Proceed” button is pressed, the user is logged into the platform. The first view of the system provides three options: i) Search Metadata, ii) Import Data and iii) My Favorites.

The screenshot shows the VRE4EIC Metadata Portal home page. The top navigation bar includes the logo, a "Home" icon, and a user profile icon for "VANGELIS KRITSOTAKIS". The main content area features three cards:

- Search Metadata**: Describes data navigation through a simple and user friendly interface, enriched with auxiliary functionality. Simplifies the "data acquisition" process by splitting it in small easy to follow steps. Includes a magnifying glass icon and a "CONTINUE" button.
- Import Data**: Describes an easy to use tool for data import, organized into VREs. Just drag & drop the data files you need and start adding new data in minutes. Includes a database icon with a plus sign and a "CONTINUE" button.
- My Favorites**: Describes data navigation might require a few steps to be achieved. However, as soon as important findings are achieved, they can be stored for direct feature access. Includes a star icon and a "CONTINUE" button.

The “Search Metadata” section provides a query builder tool for the easy discovery of metadata, the “Import Data” Section allows users to import RDF data from files (there is a variety of supported files

available) and finally the last section, “My Favorites”, manages queries constructed and saved by the current user. In the following chapters, all three sections will be described in detail.

At the top right corner of this view, one can find a home ( icon-button and his/her name (as set during the registration phase). These two components are displayed in every view in the platform. The home button always navigates back at the welcome page while the user’s name is actually a menu, providing extra options.



The first option “My Profile” allows users to manage their profile information and is discussed next. The second option, “My Favorites”, allows users to access queries that have been constructed and saved and will also be explained in detail after a few chapters in this document. The third choice, “Privacy Policy” only provides the respective information and finally, the last option, “Logout”, is used for signing out of the portal.

## My Profile

Users have the chance to manage their own profile data by editing and saving them as many times as they like. During this phase, the system will prompt the user to enter his/her current password ensuring security and avoiding fraud incidents.

## Search for Metadata

The platform allows users to construct simple or advanced search queries, through an easy and friendly environment and aims in supporting them during this knowledge discovery process by offering significant assistance. The main concept of query construction follows a general pattern, according to which end-users who wish to search for a particular entity can start with partial information regarding this entity, but can narrow down their search space through appropriate refinements on other related entities, for which information is known.

*Please have in mind that this guideline is always available through the portal itself and can be accessed by clicking the help icon button (, located on the horizontal toolbar of the “Search Metadata” section.*



Metadata Search



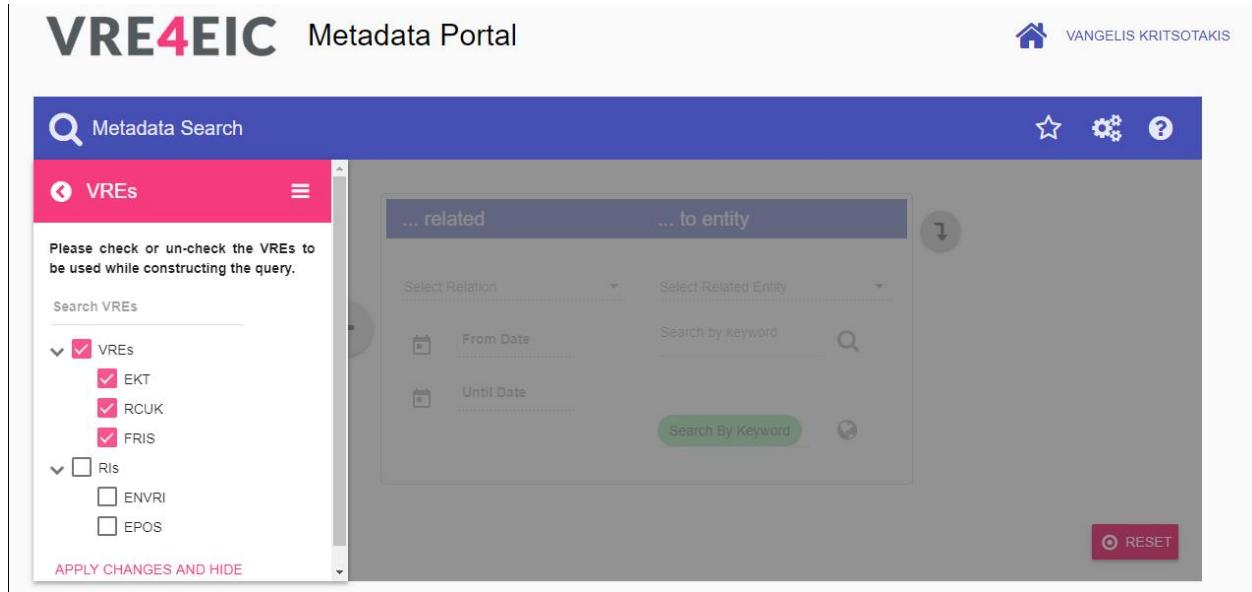
## Simple Search Use Case

In the following, the detailed steps for constructing queries through the GUI will be described, covering various discovery scenarios. Initially, a query capturing a very simple scenario will be described and then that scenario will be slightly altered, in order to capture the more advanced functionality of the platform.

This process will be repeated many times and eventually, after having described a few different scenarios for which queries will be constructed, the whole features of the system will have been explained in detail. The first scenario to follow is the following:

“We are looking for the members of any organization, whose name is Jeremy”

1. The initial view of the query builder prompts the user to select the desired VREs to be searched. By default, all the VREs are selected, but it is possible to restrict the search in certain VREs. This is achieved by unchecking or checking the respective boxes and closing this dialog (by clicking on “Apply Changes and Hide”). The dialog can be reopened at any time by clicking on the “” button and applying changes in the selected VREs.



The screenshot shows the VRE4EIC Metadata Portal. At the top, there's a navigation bar with icons for home, user profile (VANGELIS KRITSOTAKIS), and settings. Below the header is a search bar labeled "Metadata Search". A sidebar on the left is titled "VREs" and contains a message: "Please check or un-check the VREs to be used while constructing the query." It has two sections: "Search VREs" and "RIs". Under "Search VREs", "VREs" is checked, showing sub-options: EKT, RCUK, and FRIS. Under "RIs", "RIs" is unchecked, showing sub-options: ENVRI and EPOS. At the bottom of the sidebar is a red "APPLY CHANGES AND HIDE" button. The main panel is titled "... related" and "... to entity". It includes fields for "Select Relation" (dropdown), "From Date" (calendar), "Until Date" (calendar), "Select Related Entity" (dropdown), and a "Search by keyword" input field with a magnifying glass icon. Below these are "Search By Keyword" and "RESET" buttons. A small circular arrow icon is also present in the main panel area.

2. The view after closing the dialog consists of two main panels, the second of which looks disabled. The “Searching for...” panel will be used for filling in the target entity. The second panel is used for applying an initial filter on the target entity. This panel consists of two sub-panels one named “... related”, where a relation has to be selected and another one named “... to entity”, where a related entity has to be selected. When all fields are filled in and all options are selected, a sentence in the form “Searching for <Target\_Entity> related to <Related\_Entity>” will be expressed through this GUI.

At the very bottom of this view there are two buttons. The first one, “Search”, is for executing the constructed query and the second one, “Reset”, is for resetting everything to its initial view. When the Reset button is pressed, all work done regarding a potential query construction is reset. The “Search” button is available only when the current state of the query is executable (i.e., there are no empty fields or missing selections that are required in the view).

The screenshot shows the 'Metadata Search' interface. On the left, there is a search bar labeled 'Searching for...' with a dropdown menu 'Select Target Entity \*' containing 'Person'. Below it is a text input field 'Containing keyword' with the placeholder 'jerem|'. A blue '+' icon button is positioned next to the search bar. On the right, there are two filter sections: '... related' and '... to entity'. The '... related' section includes 'Select Relation' dropdowns for 'From Date' and 'Until Date', and a 'Search by keyword' input field with a magnifying glass icon. The '... to entity' section includes 'Select Related Entity' dropdowns for 'From Date' and 'Until Date', and a 'Search By Keyword' button.

- According to the described scenario, the target entity is a “Person” entity with first name “Jeremy”. Therefore, “Jeremy” is entered in the respective input text. While typing it, appropriate recommended keywords are displayed, which the user can either select or ignore.

The screenshot shows the 'Metadata Search' interface. The 'Select Target Entity \*' dropdown now shows 'Person'. In the 'Containing keyword' input field, the text 'jerem|' is typed, and a dropdown menu lists suggestions: 'Jeremie', 'Jeremiah', 'Jeremias', and 'Jeremy'. The blue '+' icon button is visible next to the search bar. The rest of the interface remains the same as the previous screenshot.

- After having filled in the appropriate search term, the **+** icon-button is pressed for adding the initial filter on the target entity.

The screenshot shows the 'Metadata Search' interface. The 'Select Target Entity \*' dropdown shows 'Person'. The 'Containing keyword' input field contains 'Jeremy' with a red 'X' icon to its right, indicating it has been selected. The blue '+' icon button is visible next to the search bar. The rest of the interface remains the same as the previous screenshots.

5. The previously disabled panel has now become enabled, allowing the user to fill in information about the relation and the related entity, for which it is known that the target entity ("Person") is associated with.

The screenshot shows the "Metadata Search" interface. On the left, under "Searching for...", the "Select Target Entity" dropdown is set to "Person". Below it, a list contains "Jeremy" with a delete icon. Under "Containing keyword", there is a text input field and a green "+" button. On the right, under "... related", the "Select Relation" dropdown is set to "is member of". The "Select Related Entity" dropdown is set to "Organisation". Below these are date range fields for "From Date" and "Until Date". To the right of these fields are "Search by keyword" and "Search By Keyword" buttons. At the bottom are "SEARCH" and "RESET" buttons.

6. The relation "is member of" and the related entity "Organization" are selected.

The screenshot shows the "Metadata Search" interface. The "Select Relation" dropdown is now set to "is member of". The "Select Related Entity" dropdown is set to "Organisation". The other fields remain the same as in the previous screenshot.

7. Then, the "Search" button is pressed to return the final results.

The screenshot shows the "Data Results" page. It displays a table with two columns: "NAME" and "SERVICE". The "NAME" column lists names such as Jeremy Stuterville, Jeremy Mizukami, Jeremy Clingenpeel, Jeremy Brabec, Jeremy Mlynek, Jeremy Barbini, Jeremy Taira, Jeremy Bourbois, Jeremy Crossno, and Jeremy McKissack. The "SERVICE" column lists "EKT CRIS" for each name. A note at the top of the table says: "To resolve any of the 'Person' results listed below, please click on the respective row."

NAME	SERVICE
Jeremy Stuterville	EKT CRIS
Jeremy Mizukami	EKT CRIS
Jeremy Clingenpeel	EKT CRIS
Jeremy Brabec	EKT CRIS
Jeremy Mlynek	EKT CRIS
Jeremy Barbini	EKT CRIS
Jeremy Taira	EKT CRIS
Jeremy Bourbois	EKT CRIS
Jeremy Crossno	EKT CRIS
Jeremy McKissack	EKT CRIS

8. By selecting any of the results, a new side panel is revealed, containing information about it. This information includes all the instances of the respective related entities.

The screenshot displays the VRE4EIC Metadata Portal. On the left, the main interface shows a search bar with "Searching for..." and dropdown menus for "Select Target Entity" (set to "Person") and "Containing keyword" (containing "Jeremy"). A green "+" button is located next to the search bar. Below this is a "SEARCH" button. To the right, a sidebar titled "Information regarding the selected Person" is open, showing details for "Jeremy Stuteville". The sidebar is divided into sections: "Person" (which is collapsed), "OrganisationUnit" (expanded, showing "is member of" relations to "DEUTSCHE NATIONALBIBLIOTHEK" and "DNB"), and "Project" (expanded, showing "is contact of" relations to "Keeping Emulation Environments Portable" and "KEEP"). At the bottom of the sidebar, there is a link "HIDE THIS SIDENAV".

9. By clicking on any instance of a related entity, the user can navigate to further information related to this entity, while the same pattern-format of the navigation view is retained. In this example, the Organization Unit “Deutsche National Bibliothek” is clicked. Navigating back to the previously displayed entity is done by clicking on the button located at the top right corner of this navigation panel, in this example named “Previous Entity (Person)”.

The screenshot displays the VRE4EIC Metadata Portal interface. On the left, the "Metadata Search" section shows a search bar with "Searching for..." and dropdown menus for "Select Target Entity" (set to "Person") and "Containing keyword" (with "Jeremy" entered). A green "+" button is next to the keyword input. Below this is a "SEARCH" button. To the right, a "... related" section allows selecting a relation ("is member of") and setting dates ("From Date" and "Until Date").

The main right-hand pane is titled "Information regarding the selected OrganisationUnit" and shows "DEUTSCHE NATIONALBIBLIOTHEK". It includes a "DNB" section and an "OrganisationUnit - DNB" section. A pink box highlights the word "Person". Below this, under "has member", it lists "Jeremy Stuterville", "King Dante", and "Delinda Yorty". Another pink box highlights the word "Project". Under "Project", it lists "is participant in" followed by several projects: "Keeping Emulation Environments Portable (KEEP)", "Alliance Permanent Access to the Records of Science in Europe Network (APARSEN)", "Implementation of quality indicators in Palliative Care sTudy (IMPACT)", and another entry starting with "is participant in".

## Using Temporal Data

In a slightly different scenario, temporal information may be required. Assume that the previously described scenario is altered as follows:

*"We are looking for some person with first name Jeremy who was member of some organization in the range of dates between 6/1/2015 and 6/30/2018, but there is no information about it"*

1. In that scenario, the only additional step would be to add the range of dates. This is achieved by opening the calendar input components located on the "...related" panel and selecting the desired dates.

**VRE4EIC Metadata Portal**

**Metadata Search**

**Searching for...**

Select Target Entity \* Person  
Jeremy X  
Containing keyword

**... related**

Select Relation \* is member of  
Select Related Entity \* Organisation

From Date 6/1/2015  
Until Date 6/30/2018

**... to entity**

SEARCH RESET

**VRE4EIC Metadata Portal**

**Metadata Search**

**Searching for...**

Select Target Entity \* Person  
Jeremy X  
Containing keyword

**... related**

Select Relation \* is member of  
Select Related Entity \* Organisation

From Date 6/1/2015  
Until Date 6/30/2018

Search by keyword

**... to entity**

SEARCH By Keyword SEARCH RESET

## Keyword Search on Related Entity

In another slightly different scenario, keyword terms can be used on filtering the available instances of the related entity. In that case, the scenario can be described as follows:

"We are looking for any Jeremy working in the University of Edinburgh"

1. In that scenario there are a few additional steps to be applied. For start, the desired key-word term, "University of Edinburgh" is entered in the respective input text of the "... to entity" panel. Since the keyword to be entered does not match any of the recommended ones, it can be set by either pressing the "Enter" key or by clicking anywhere on the screen. Note that more than one keywords can be used, if desired.

The screenshot shows the VRE4EIC Metadata Portal interface. At the top, there's a navigation bar with icons for home, user profile, settings, and help. Below the header, there's a search bar labeled "Metadata Search". The main area has two main sections: "Searching for..." and "... related" and "... to entity". In the "Searching for..." section, "Person" is selected as the target entity, and "Jeremy" is listed under "Containing keyword". A green "+" button is next to this section. In the "... related" and "... to entity" section, "Is member of" is selected as the relation, and "Organisation" is selected as the related entity. A search bar contains "university of edinburgh", which is highlighted with a blue border. Below the search bar, a message says "No terms matchi...". There are "From Date" and "Until Date" fields, and a "Search By Keyword" button. At the bottom, there are "SEARCH" and "RESET" buttons.

2. Then, the user has two choices to make according to his/her needs. The first one is to execute the query by clicking the "search" button (as described in the first scenario) and get the results. By doing so, the keyword set is considered as part of the query itself, and filters the returned results. However, there is a second option, which is to search for specific instances and select them to be used in the query instead of the defined search term. This is done by clicking on the "Q" icon-button to search for such instances. During this phase, the keyword defined ("university of edinburgh") is used as a matching criterion.

# VRE4EIC Metadata Portal

Metadata Search

SEARCH BY KEYWORD

	NAME	ACRONYM	SERVICE
<input type="checkbox"/>	THE UNIVERSITY OF EDINBURGH UEDIN		EKT CRIS
<input type="checkbox"/>	Human Genetics Unit (University of Edinburgh)		RCUK GfR
<input type="checkbox"/>	Mass spectrometry service, School of Chemistry, University of Edinburgh		RCUK GfR
<input type="checkbox"/>	THE UNIVERSITY OF EDINBURGH EPCC		EKT CRIS
<input type="checkbox"/>	Bones Collective, Social Anthropology, University of Edinburgh		RCUK GfR
<input type="checkbox"/>	University of Edinburgh, University of Basel		RCUK GfR
<input type="checkbox"/>	University of Edinburgh, MRC Human Genetics Unit		RCUK GfR
<input type="checkbox"/>	THE UNIVERSITY OF EDINBURGH Univ. Edinburgh		EKT CRIS
<input type="checkbox"/>	THE UNIVERSITY OF EDINBURGH UEdin EPCC		EKT CRIS

Number of Results: 13

CLOSE

3. The new dialog that appears lists the organizations matching the entered keyword. By default, the box “Search by Keyword” is checked and the list of results is grayed out (disabled), denoting that no specific instances have been selected yet. To change that, this box has to be unchecked. As soon as this is done, the user is able to select the desired instances by selecting them. In the shown example, three instances are selected.

<input type="checkbox"/> SEARCH BY KEYWORD	NAME	ACRONYM	SERVICE
<input checked="" type="checkbox"/>	THE UNIVERSITY OF EDINBURGH UEDIN		EKT CRIS
<input type="checkbox"/>	Human Genetics Unit (University of Edinburgh)	-	RCUK GtR
<input type="checkbox"/>	Mass spectrometry service, School of Chemistry, University of Edinburgh	-	RCUK GtR
<input checked="" type="checkbox"/>	THE UNIVERSITY OF EDINBURGH EPCC		EKT CRIS
<input type="checkbox"/>	Bones Collective, Social Anthropology, University of Edinburgh	-	RCUK GtR
<input type="checkbox"/>	University of Edinburgh, University of Basel	-	RCUK GtR
<input type="checkbox"/>	University of Edinburgh, MRC Human Genetics Unit	-	RCUK GtR
<input checked="" type="checkbox"/>	THE UNIVERSITY OF EDINBURGH Univ. Edinburgh		EKT CRIS
<input type="checkbox"/>	THE UNIVERSITY OF EDINBURGH UEdin EPCC		EKT CRIS

4. To apply that step, the “Select” button located on the left-bottom corner of this dialog is clicked. The dialog hides and the previous view is revealed and enhanced with an extra panel. This panel lists the selected instances to be included in the query.

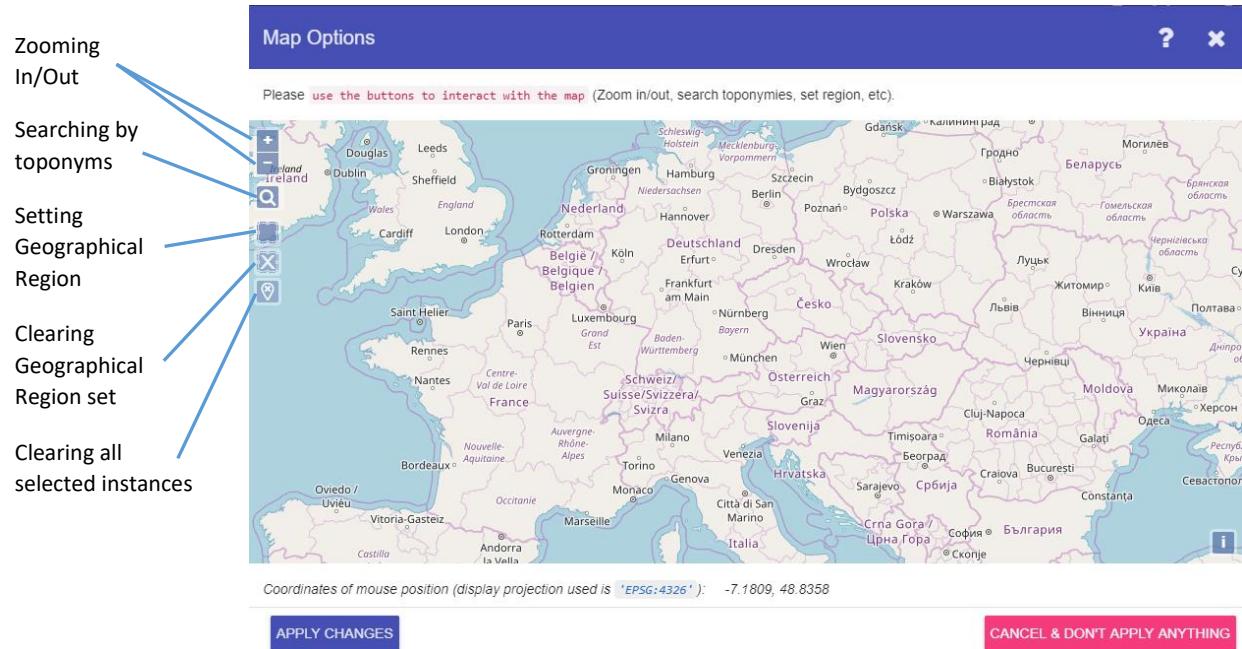
The screenshot shows the VRE4EIC Metadata Portal search interface. On the left, there is a search form with fields for 'Searching for...', 'Select Target Entity' (set to 'Person'), and a keyword input field containing 'Jeremy'. A green '+' button is next to the search bar. In the center, there are two sections: '... related' and '... to entity'. The '... related' section has dropdowns for 'Select Relation' (set to 'is member of') and 'Select Related Entity' (set to 'Organisation'). It also includes date range filters 'From Date' and 'Until Date'. The '... to entity' section has a dropdown for 'Select Related Entity' (set to 'Organisation') and a search bar 'Search by keyword' with the text 'university of edinb...'. On the right, a panel titled 'Search Results' is displayed, listing three entries: 'THE UNIVERSITY O...', 'THE UNIVERSITY O...', and 'THE UNIVERSITY O...'. Each entry includes a small thumbnail, the full name, and a delete icon. A blue arrow icon is positioned above the results panel.

5. The new query is now completed and can be executed by pressing the “Search” button.

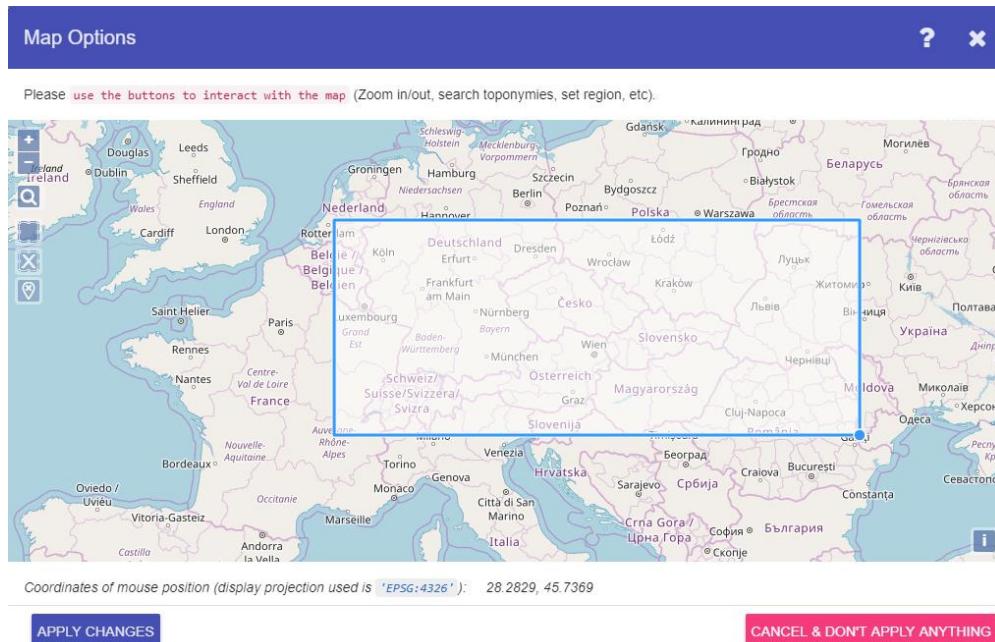
The screenshot shows the VRE4EIC Metadata Portal search interface after executing the search. At the top, the search form is identical to the previous screenshot. Below it, a large 'Data Results' panel is visible. The panel contains a message: 'To resolve any of the "Person" results listed below, please click on the respective row.' Below this message, there is a table with two columns: 'NAME' and 'SERVICE'. The 'NAME' column contains 'Jeremy Puffett' and the 'SERVICE' column contains 'EKT CRIS'. At the bottom of the page, there are navigation links for 'First', 'Previous', '1', 'Next', and 'Last'. A status message 'Returned 1 Results' is at the very bottom right.

## Interactive Map on the Related Entity

In case that the related entity is of geospatial nature, an interactive map becomes available, enhancing users' capabilities with extra features. At this point and before working on any potential scenario for constructing any query, it is better to describe the map's functionality first. Considering that the map is already displayed (will be described how this is done afterwards), one can find several buttons on the left side for i) zooming in/out ii) searching by toponym iii) setting geographical region iv) clearing geographical region previously set v) clearing any currently selected instances.



Selecting a geographical region is achieved by firstly clicking on the icon-button and then with two more consecutive clicks on the map.



Once that is done any instance of the respective entity appears within the drawn region represented by a pin.

**Map Options**

Please use the buttons to interact with the map (Zoom in/out, search toponymies, set region, etc).

As soon as there are pins displayed on the map click on them to select / deselect "Organisation" instances

Coordinates of mouse position (display projection used is 'EPSG:4326'): -2 2591, 49.8946

**ADD MARKED REGION**   **ADD SELECTED PINS (0)**   **CANCEL & DON'T APPLY ANYTHING**

Hovering over a pin, reveals information about the instance it represents on a pop-overed label.

**Map Options**

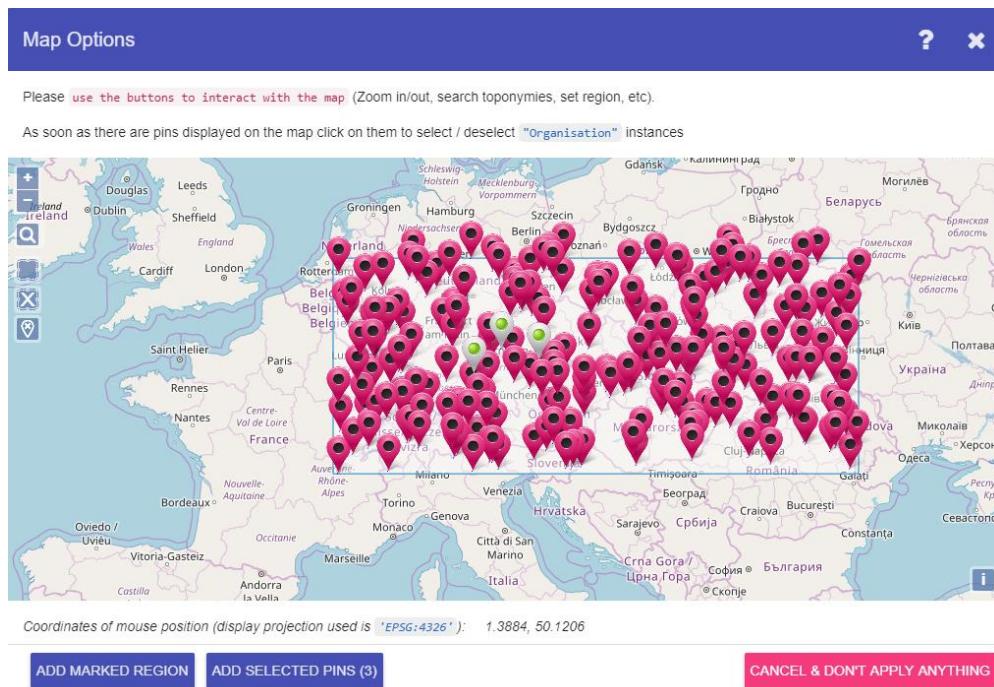
Please use the buttons to interact with the map (Zoom in/out, search toponymies, set region, etc).

As soon as there are pins displayed on the map click on them to select / deselect "Organisation" instances

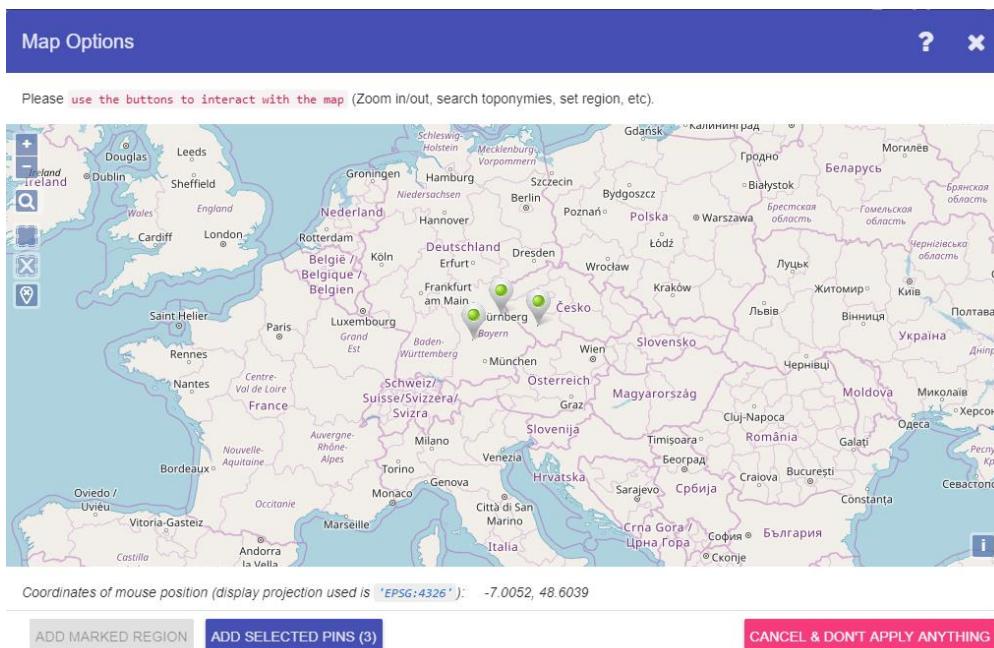
Coordinates of mouse position (display projection used is 'EPSG:4326'): 14.0007, 49.5822

**ADD MARKED REGION**   **ADD SELECTED PINS (0)**   **CANCEL & DON'T APPLY ANYTHING**

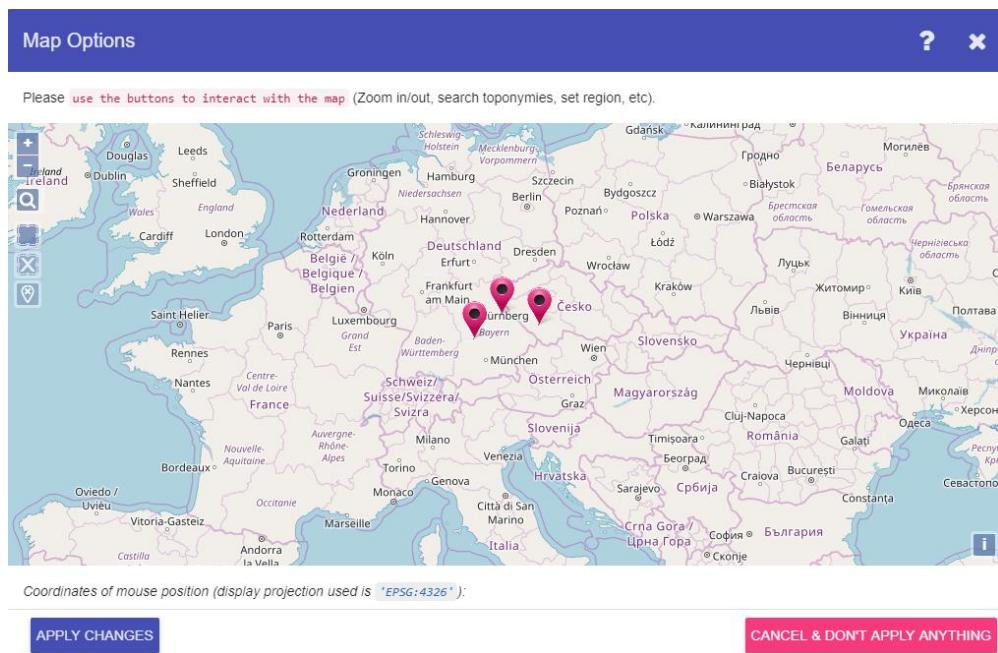
Clicking on any pin selects the respective instance it represents. Selected pins are presented in green color.



The region can be cleared out by clicking on the icon-button.



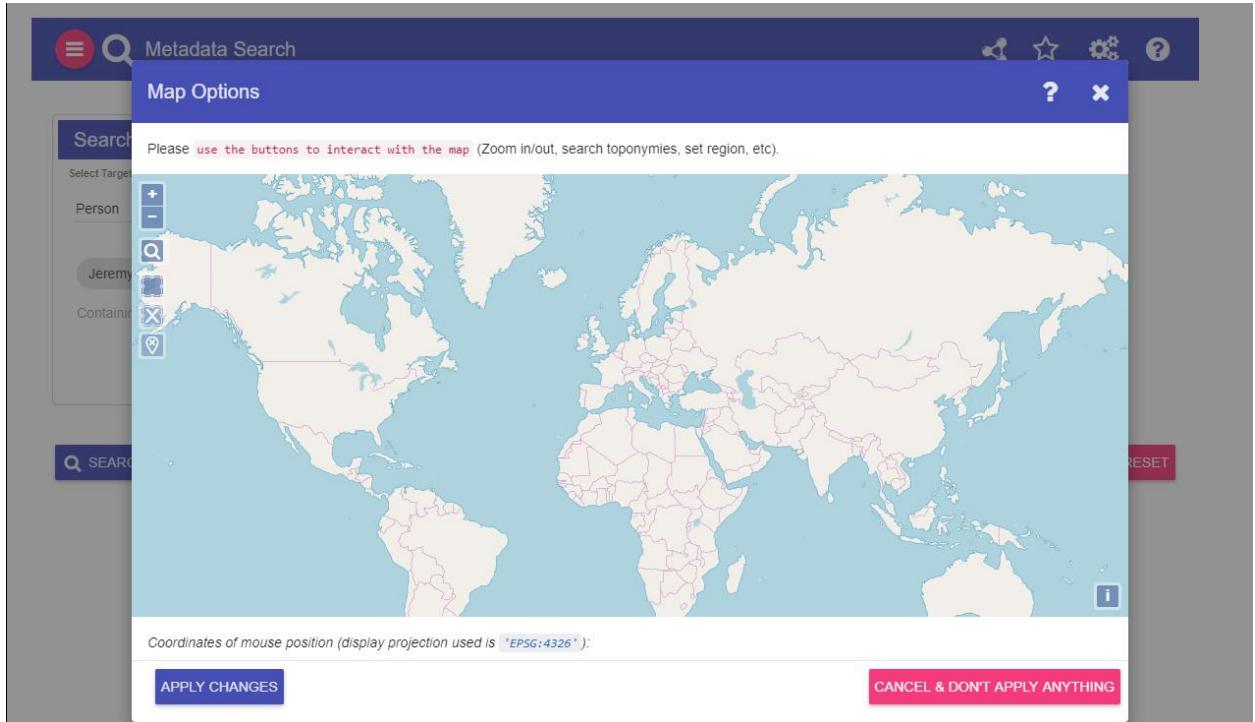
All pins can be deselected either by re-clicking on them (one by one), or by clicking on the icon-button.



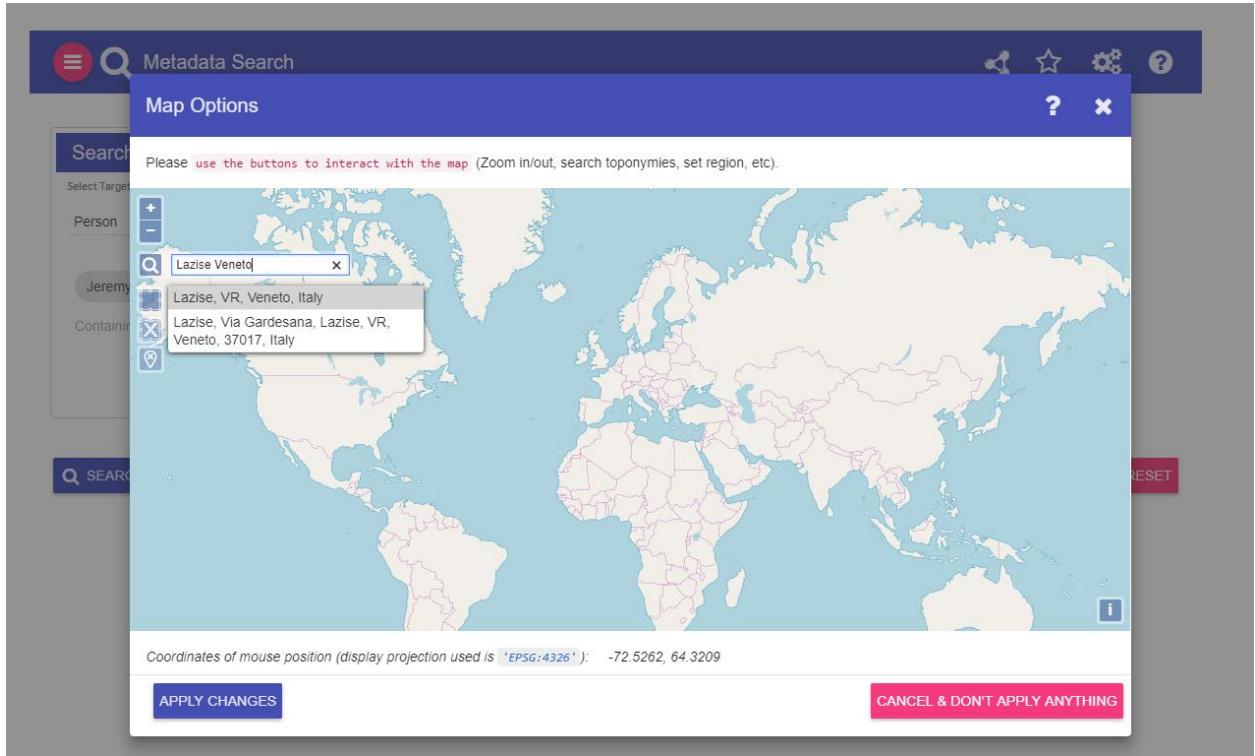
Now that a general overview of the map's functionality is presented, one can imagine how to exploit the interactive map for selecting specific instances, rather than searching for them by entering search-terms. A similar to the previous scenario, for which the map is used, is the following:

*"We are looking for some person with first name Jeremy who is member of some specific organization located around Lazise, in the Italian region of Veneto, but there is no more information about it"*

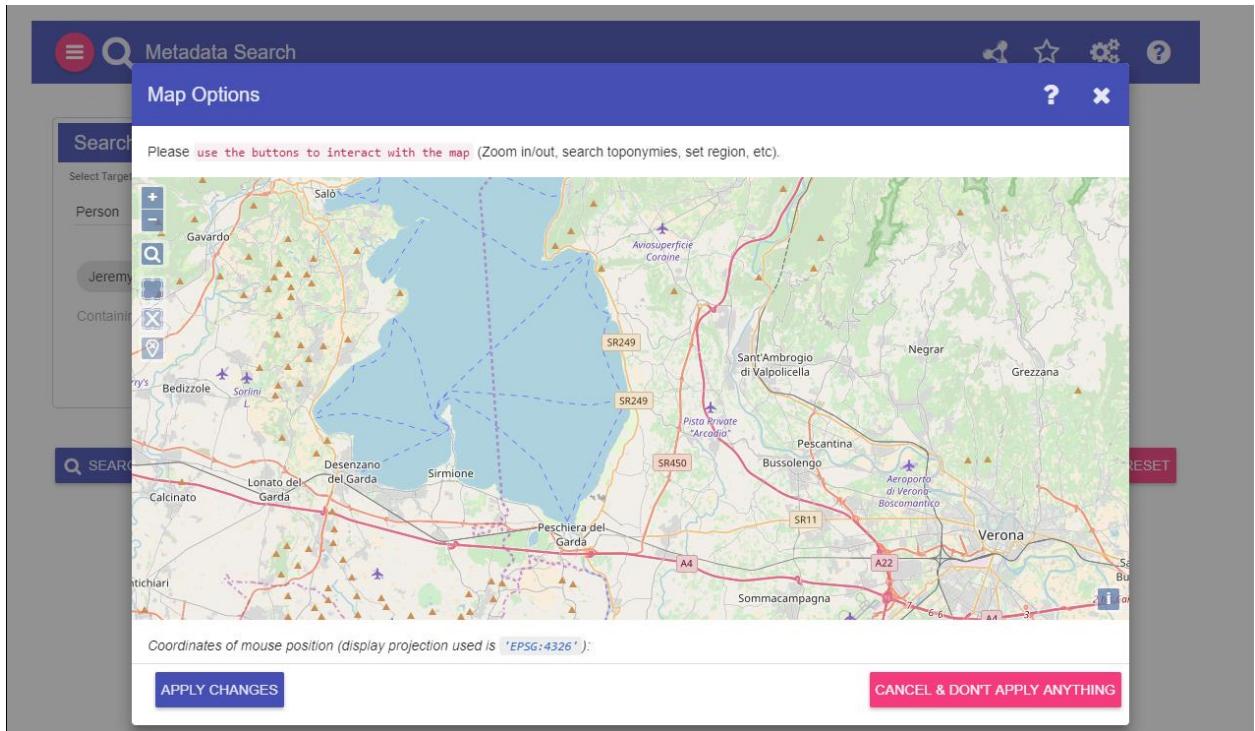
1. In this scenario, there is additional geospatial information that can be used for constructing the query. Clicking on the icon-button opens an interactive map in a new dialog.



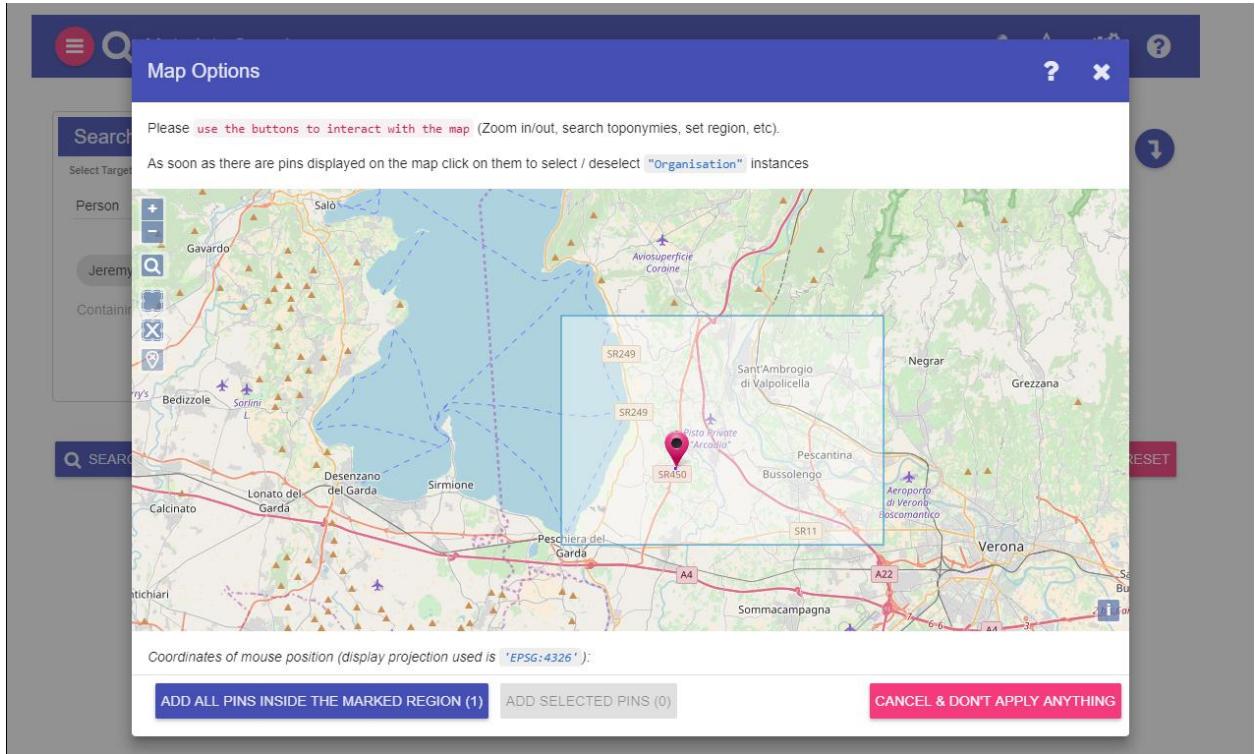
2. Clicking on the  icon-button reveals an extra input-text for entering toponyms. According to the scenario, the desired input could be something like “Lazise Veneto”.



3. Once again, the input is assisted by appropriate recommendations. Selecting the first one will force the map to fly over that place.



4. By clicking on the  icon-button first and then with another two consecutive clicks on the map, a rectangular is drawn, defining the desired region.



5. All available instances within the drawn region appear instantly on the map, each one represented by a pin. In this case, there is just one pin, however more could have been there if they existed. Then, all respective instances (in that case just one) can be added in the query by pressing the “Add all Pins Inside the Marked Region (1)” button.

10. Similar as before, the query is executed by pressing the “search” button, returning two persons.

The screenshot shows the VRE4EIC Metadata Portal search interface. The top navigation bar includes the logo 'VRE4EIC' and the text 'Metadata Portal'. On the right, there are icons for a house (User Profile), 'VANGELIS KRITSOTAKIS', a gear (Settings), a star (Favorites), a gear (Help), and a question mark (FAQ).

The main search area has a blue header 'Metadata Search' with a magnifying glass icon. Below it, the search form is divided into three sections:

- Searching for...**: A dropdown menu set to 'Person' with a search input field containing 'Jeremy' and a remove button (X). Below it is a 'Containing keyword' input field.
- ... related**: A dropdown menu set to 'is member of'.
- ... to entity**: A dropdown menu set to 'Organisation'.

On the right side of the search form, there is a 'Search Results' section showing one result:

KONINKLIJKE NEDE...	X
KNAW EKT CRIS	

At the bottom left is a 'SEARCH' button with a magnifying glass icon, and at the bottom right is a 'RESET' button with a circular arrow icon.

The results page has a blue header 'Data Results' with a gear icon. It displays the following information:

NAME	SERVICE
Jeremy Clingenpeel	EKT CRIS
Jeremy Crossno	EKT CRIS

Below the table are navigation buttons: First, Previous, 1, Next, Last. At the bottom right of the results page, it says 'Returned 2 Results'.

### Applying Filters on Target and Related Entities

So far, it was shown how to construct quite simple queries that only comprised a target and a single related entity (Target – Related with Related entity). However, the system allows the creation of more complex queries, where many filters can be applied on the target or any of the related entities. To better present this functionality, a new query will be constructed step by step satisfying the following scenario:

*“We are looking for persons for which the first or last names are unknown, however it is known that they are members of an organization, the name of which contains the word “London” and which organization is participant in a project with acronym “COBRA”. Furthermore, the persons that are looked for are authors of a publication with title “Cytomegalovirus-Induced Brain Malformations in Fetuses”.*

Note that the above scenario can actually be split in three parts:

- “We are looking for persons that are members of an organization, the name of which contains the word “London””*
- “That organization is participant in a project with acronym “COBRA””*
- “The persons that we are looking for are authors of a publication with title “Cytomegalovirus-Induced Brain Malformations in Fetuses”*

The steps to construct the respective query are:

- The steps for the first part are already explained earlier at the very first scenario described in this document and include the selection of the desired VREs, target entity, related entity and inserting the keyword “London” in the respective input for the related entity.

**VRE4EIC Metadata Portal**

The screenshot shows the VRE4EIC Metadata Search interface. At the top right, there is a user profile icon with the name "VANGELIS KRITSOTAKIS". The main search area has two tabs: "Searching for..." on the left and "... related" and "... to entity" on the right. Under "Searching for...", "Person" is selected as the target entity. Under "... related", "is member of" is selected as the relation, and "Organisation" is chosen as the related entity. A green circular button with a plus sign is located between the two tabs. Below the tabs are date range fields ("From Date" and "Until Date") and a search bar with a magnifying glass icon. A blue circular button with a downward arrow is positioned above the search bar. At the bottom are "SEARCH" and "RESET" buttons.

- In order to satisfy the second part of the scenario, a new filter has to be applied on the related entity “Organization”. This is done by pressing the icon-button.

The screenshot shows the VRE4EIC Metadata Search interface after applying a filter. The "... related" tab now displays a message: "Filter on entity \*Organization\* Matching key-words: London". A green circular button with a plus sign is located between the "Searching for..." and "... related" tabs. To the right of the "... related" tab, another green circular button with a plus sign is visible. Below the tabs are date range fields and a search bar. A blue circular button with a downward arrow is positioned above the search bar. At the bottom are "SEARCH" and "RESET" buttons.

3. A new panel will emerge, that will be used for filling in the information that is known about the involved organization, i.e., that the organization should be participant in a project with acronym “COBRA”.

The screenshot shows the Metadata Search interface. At the top, there is a navigation bar with icons for user profile, star, gear, and help. Below the navigation bar, the main search area is divided into three panels:

- Searching for...**: A panel for selecting target entities. It has a dropdown menu set to "Person". Below it is a "Containing keyword" input field with "London" typed in. To the right of the input field are two green circular buttons with "+" and "-" symbols.
- ... related** and **... to entity**: Two side-by-side panels for defining relationships. The "Select Relation" dropdown is set to "is member of". The "Select Related Entity" dropdown is set to "Organisation". Below these are date range fields for "From Date" and "Until Date", both currently empty. To the right of these fields are a search input field containing "London" and a green "Search By Keyword" button.
- ... related** and **... to entity**: A second set of related and entity selection panels. The "Select Relation" dropdown is set to "is participant in". The "Select Related Entity" dropdown is set to "Project". Below these are date range fields for "From Date" and "Until Date", both currently empty. To the right of these fields are a search input field containing "COBRA" and a green "Search By Keyword" button. This panel is enclosed in a blue-bordered box with a close button "X" in the top right corner.

At the bottom of the interface are two buttons: a blue "SEARCH" button on the left and a red "RESET" button on the right.

4. As soon as the second part of the scenario is satisfied, it is time to follow the same process for the third part, as well. To do so, the icon-button is clicked revealing two regular expression options. Now, it has to be decided whether “AND” or “OR” has to be selected.

The screenshot shows the Metadata Search interface with the "OR" button selected in the first panel. The interface remains largely the same as the previous screenshot, with the addition of the "OR" button being highlighted.

The first panel now includes three buttons: a green "+" button, a grey "OR" button (which is highlighted), and a grey "AND" button. The other panels and buttons remain the same as in the previous screenshot.

5. Let us explain the available choices of regular expression. “AND” denotes that the first filter is already applied on the target entity and is the one to be applied now, acting conjunctively (intersection of their results is returned). “OR” denotes that the filters will act disjunctively (union of their results is returned). In this case “AND” is selected as both filters have to be satisfied at the same time. Furthermore, the respective inputs are filled in such that the persons that are looked for are also authors of the specific publication described in the scenario.

VRE4EIC Metadata Portal
 VANGELIS KRITSOTAKIS

Metadata Search

**First filter applied on target entity “Person”**

**Searching for...**  
 Select Target Entity \*  
 Person  
 Containing keyword

...

...

x

... related      ... to entity

Select Relation \*      Select Related Entity \*

is member of      Organisation

From Date      London X

Until Date

Search by keyword

**Second filter applied on target entity “Person”**

Filter on entity “Organisation”  
 Matching key-words:  
 London

...

...

x

... related      ... to entity      Search Results

Select Relation \*      Select Related Entity \*

is participant in      Project

From Date      COBRA X

Until Date

Search by keyword

Intersection of their results

AND

... related      ... to entity

Select Relation \*      Select Related Entity \*

is author of      Publication

From Date      Cytomegalovirus-Ind...

Until Date      2014-01-01

Brain Malformations X

Search by keyword

EKT CRIS

## 6. Executing this query returns one person

Data Results		⚙
To resolve any of the "Person" results listed below, please click on the respective row .		
NAME	SERVICE	
Sara Cipriani	EKT CRIS	

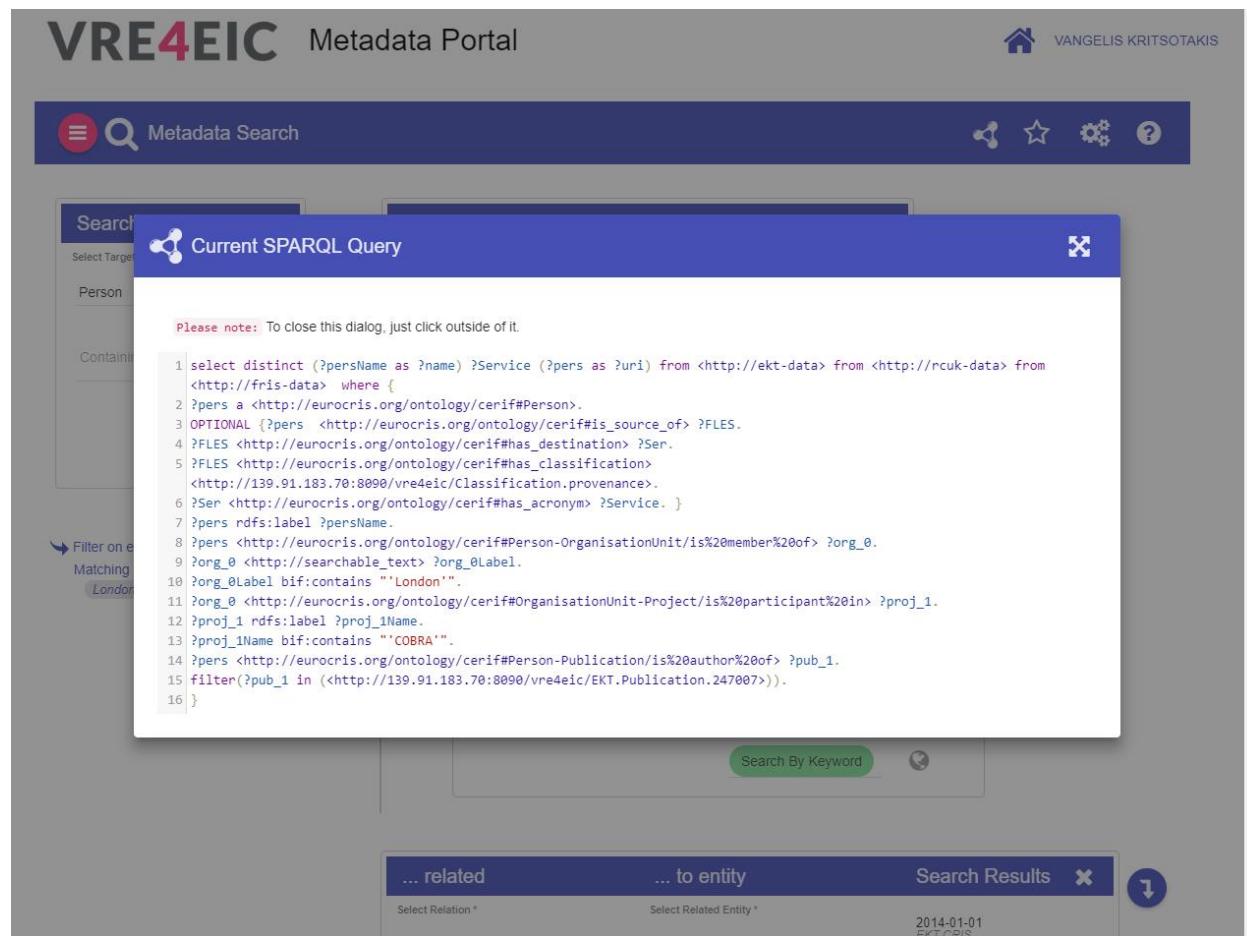
First Previous **1** Next Last

Returned 1 Results

## SPARQL Observer

The main functionality of the “Search Metadata” section was covered from the previously described scenarios. However there are some more features that can easily be explained in a more generic way. One of them is the available option for the user to observe the so far constructed SPARQL, as long as it is available. Please note that SPARQL becomes available only when the query is considered valid (i.e., there is no filter with empty selections in the UI).

By clicking on the  icon-button, located at the top horizontal toolbar, a new dialog with the constructed SPARQL query opens.



The screenshot shows the VRE4EIC Metadata Portal interface. A central modal dialog is titled "Current SPARQL Query". Inside the dialog, a text area contains the following SPARQL query:

```

1 select distinct (?persName as ?name) ?Service (?pers as ?uri) from <http://ekt-data> from <http://rcuk-data> from
<http://fris-data> where {
2 ?pers a <http://eurocris.org/ontology/cerif#Person>.
3 OPTIONAL {?pers <http://eurocris.org/ontology/cerif#is_source_of> ?FLES.
4 ?FLES <http://eurocris.org/ontology/cerif#has_destination> ?Ser.
5 ?FLES <http://eurocris.org/ontology/cerif#has_classification>
<http://139.91.183.70:8090/vre4eic/Classification.provenance>.
6 ?Ser <http://eurocris.org/ontology/cerif#has_acronym> ?Service. }
7 ?pers rdfs:label ?persName.
8 ?pers <http://eurocris.org/ontology/cerif#Person-OrganisationUnit/is%20member%20of> ?org_0.
9 ?org_0 <http://searchable_text> ?org_0_Label.
10 ?org_0Label bif:contains "London".
11 ?org_0 <http://eurocris.org/ontology/cerif#OrganisationUnit-Project/is%20participant%20in> ?proj_1.
12 ?proj_1 rdf:type ?proj_1Name.
13 ?proj_1Name bif:contains "COBRA".
14 ?pers <http://eurocris.org/ontology/cerif#Person-Publication/is%20author%20of> ?pub_1.
15 filter(?pub_1 in (<http://139.91.183.70:8090/vre4eic/EKT.Publication.247007>)).
16 }

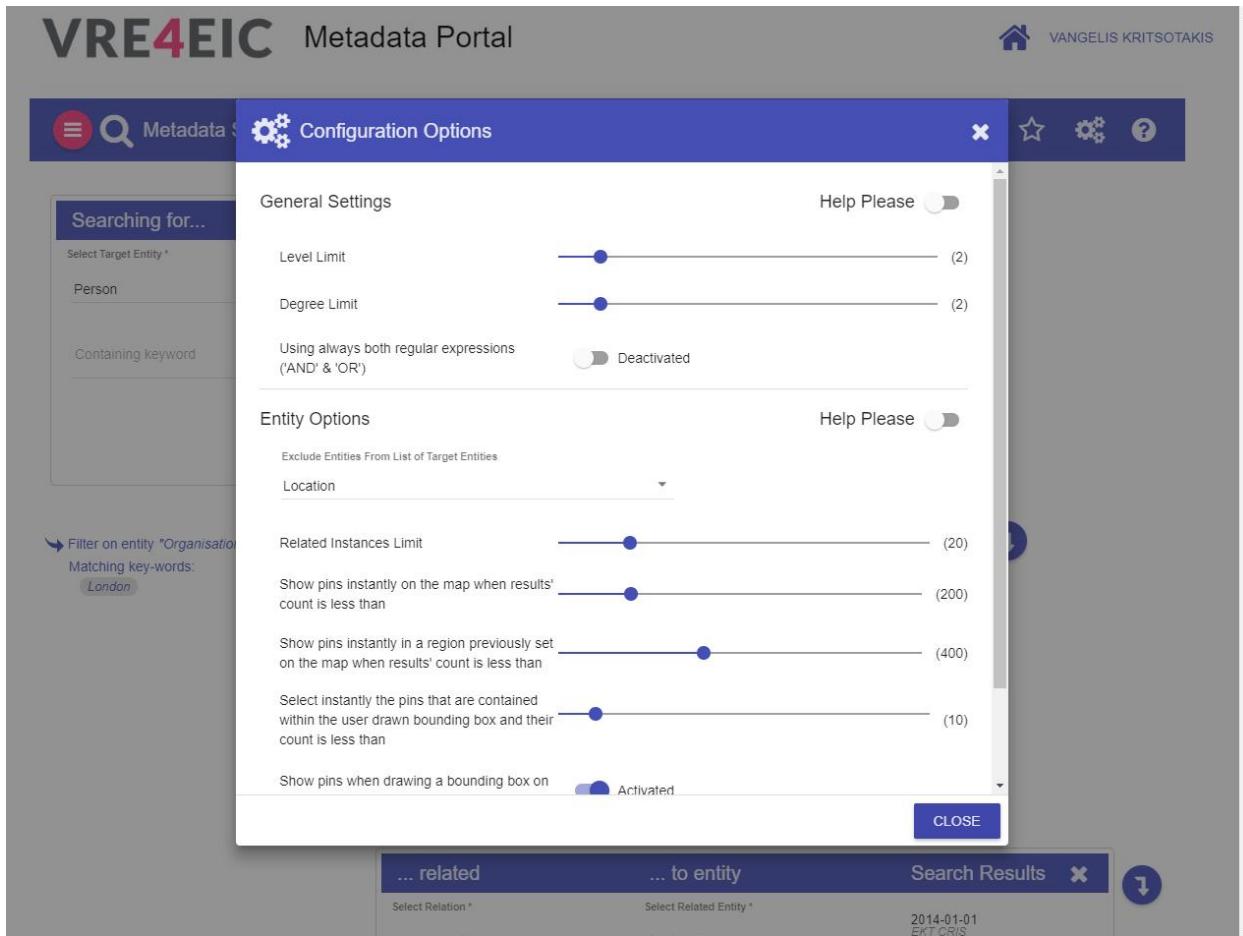
```

Below the modal, the main interface shows search filters on the left, including "Select Target", "Person", "Contain", and "Filter on entity Matching London". At the bottom, there are buttons for "... related", "... to entity", "Search Results", and a download icon.

## Configuration Options

The platform is configurable on many different levels, based on a specialized dashboard, in order to enhance flexibility, robustness and simplicity. Configuration options are accessed directly through the GUI (an administrator user role is required) and can significantly affect functionality, system performance and the level of complexity. These parameters are mainly restrictions, regulations and option exceptions to be set on queries, on the logical expressions used, or on the available entities.

Configuration options are accessed by clicking on the  icon-button, located at the top horizontal toolbar.



To avoid erroneous settings on critical aspects, help assistance is provided by swiping right the respective "Help Please" toggler-button.

**VRE4EIC** Metadata Portal

**Metadata Search** Configuration Options

General Settings

Limits the max allowed number of filters applied on the same level (i.e. Level Limit: 2)

Level Limit: 2

Limits the max allowed number set as depth of the whole tree (i.e. Degree Limit: 2)

Degree Limit: 2

When deactivated, the first chosen reg. expr. will be used (applied per level)

Using always both regular expressions ('AND' & 'OR')  Deactivated

Entity Options

Exclude Entities From List of Target Entities

Location

Related Instances Limit: 20

CLOSE

... related ... to entity Search Results

Select Relation: Select Related Entity: 2014-01-01 EKT CRIS

The full description of configuration options is listed in the table below:

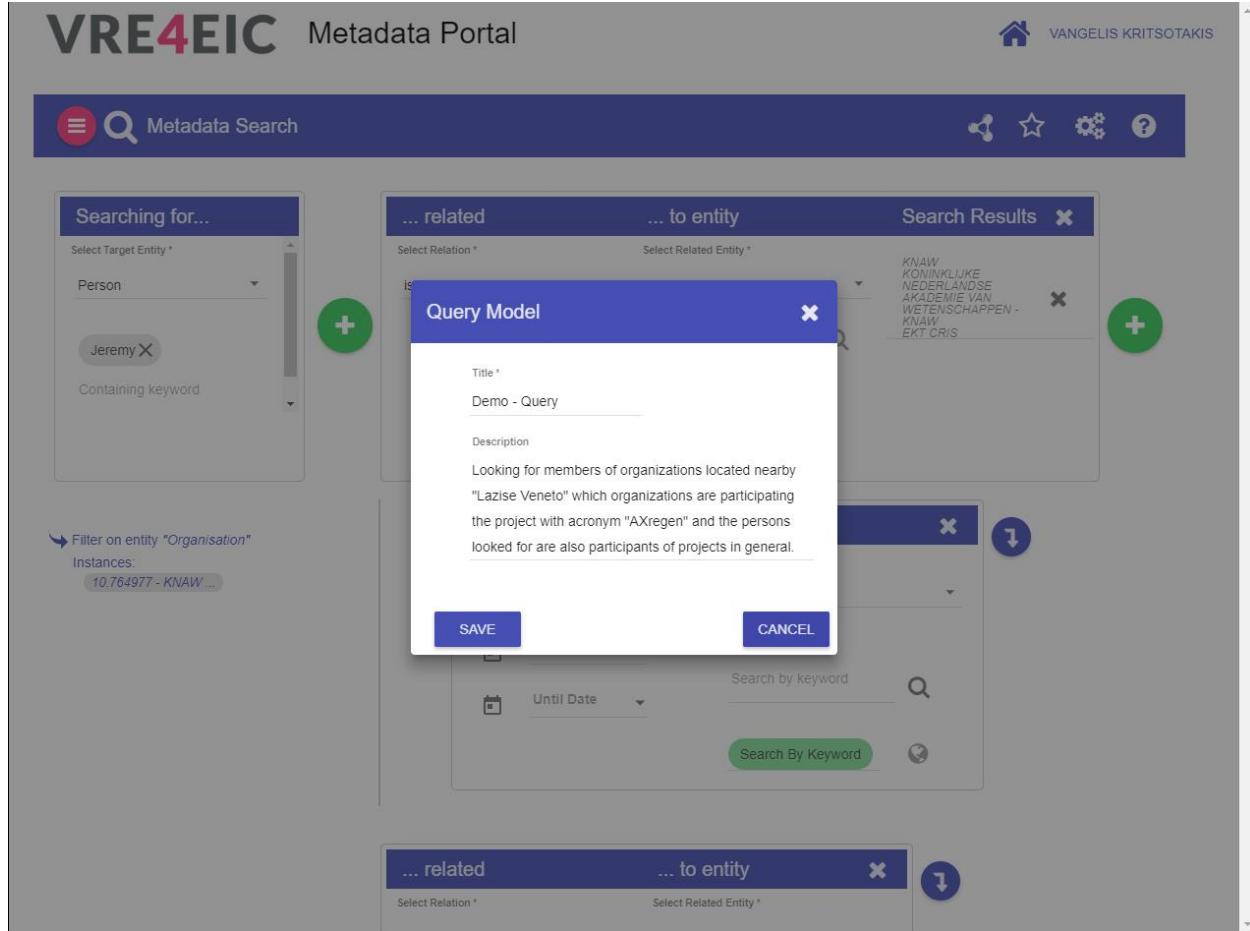
Configuration	Type & Range of values	Description
<b>General Settings</b>		
Level Limit	Type: <i>Integer</i> Range: 1 to 10	Limits the max allowed number of filters applied on the same level (i.e. Level Limit: 2)
Degree Limit	Type: <i>Integer</i> Range: 1 to 10	Limits the max allowed number set as depth of the whole tree (i.e. Degree Limit: 2)
Using always both regular expressions ('AND' & 'OR')	Type: <i>Boolean</i> Options: <i>Activated / Deactivated</i>	When deactivated, the first chosen regular expression will be used (applied per level)
<b>Entity Options</b>		
Exclude Entities From List of Target Entities	Type: <i>List of Strings</i> <i>Zero or more entities can be selected</i>	The selected entities will be hidden from the available options when selecting target entity
Related Instances Limit	Type: <i>Integer</i> Range: 1 to 100	The max allowed number of instances to be selected as filter. Instances can be selected from the search or the map at each related entity

Show pins instantly on the map when results' count is less than	Type: <i>Integer</i> Range: <i>0 to 1000</i>	The max number of results that are instantly shown on the map when opened. If the number of results is larger than this number, then you have to search for them to be shown. That can be achieved by holding down " <i>Ctrl + left mouse click</i> " while selecting some area on the map.
Show pins instantly in a region previously set on the map when results' count is less than	Type: <i>Integer</i> Range: <i>0 to 1000</i>	The max number of results that are instantly shown in a region previously set on the map when opened. If the number of results is larger than this number, then you are asked whether you want to show them on the map or not. By choosing not to show them, an empty region will be marked and no pins will be shown. You can always show instances, by holding down " <i>Ctrl + left mouse click</i> " while selecting some area on the map.
Select instantly the pins that are contained within the user drawn bounding box and their count is less than	Type: <i>Integer</i> Range: <i>0 to 1000</i>	The maximum number of results contained within a user drawn bounding box to be instantly auto-selected as instances. Thus, if the result count (within the drawn bounding box) is less than this number, instead of setting bounding box, the respectively contained instances are selected (automatically). If this number is set to "0" then this feature will never be applied.
Show pins when drawing a bounding box on the map	Type: <i>Boolean</i> Options: <i>Activated / Deactivated</i>	When activated, pins representing coordinates will be shown instantly within each drawing box drawn. When deactivated the drawn bounding box will appear empty. You can always hold down " <i>Ctrl + left mouse click</i> " while selecting some area on the map to display pins.
Always show pins for the selected instances on the map no matter what	Type: <i>Boolean</i> Options: <i>Activated / Deactivated</i>	When activated, already selected instances are always shown on the map (pins) even when they are located outside of the potential rectangle or bounding box drawn. It requires that "Show pins when drawing a bounding box on the map" is activated

### Store Queries into "My Favorites"

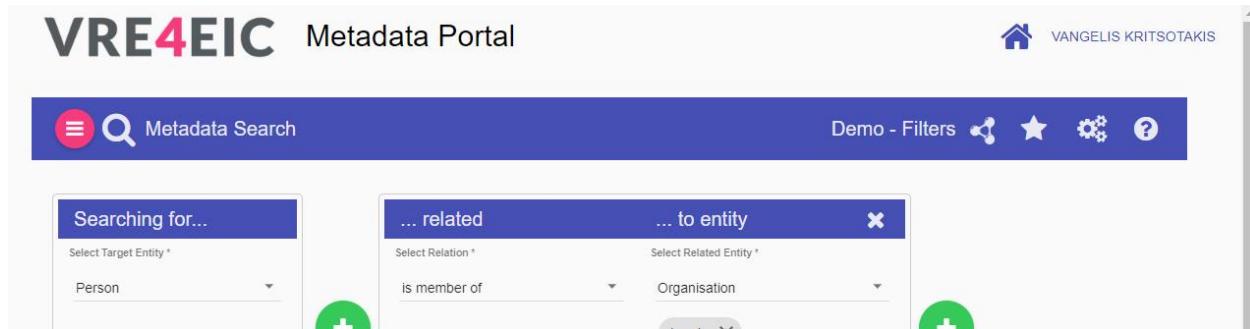
The platform allows users to store their constructed queries for feature exploitation. Each user is granted access to his/her own stored queries. A future version of the system will allow sharing queries among users.

Storing a query into “My Favorites” is achieved by pressing the  icon-button located at the top horizontal toolbar. A new dialog pops up, prompting the user to enter a title and a description of the query. This information will be used as reference for finding the desired query from a list.



The screenshot shows the VRE4EIC Metadata Portal interface. In the center, a modal dialog box titled "Query Model" is open. It contains fields for "Title" (set to "Demo - Query") and "Description" (containing a detailed text about looking for members of organizations nearby). At the bottom of the dialog are "SAVE" and "CANCEL" buttons. The background shows search results for "KNAW" and other related entities. The top navigation bar includes a "Metadata Search" section and various user icons.

As soon as this small form is filled in, the “Save” button is pressed to store the query into user’s favorites. Once the query is successfully saved, the icon-button gets a solid fill ().



The screenshot shows the VRE4EIC Metadata Portal interface again. The "Query Model" dialog is now closed, and the main search results area displays a query entry under "Search Results". The entry is titled "Demo - Filters" and includes the description text from the previous screenshot. The "Save" button has been replaced by a solid-filled star icon, indicating the query is saved. The top navigation bar remains visible.

When applying some change on a query that was previously loaded from favorites, the respective icon-button (for saving the query) becomes “redish” (), denoting that changes are made and the query should be saved again. This way, the user is always aware when the earlier saved constructed query is not up-to date. Re-saving the query is done by clicking on that “redish” star icon-button.

## My Favorites

As already noted, users are able to store their queries for future exploitation (expanding them, changing them, retrieving the underline SPARQL query etc.). There are two ways to access that space. The first one is from the welcome page by selecting the respective section.

The screenshot shows the VRE4EIC Metadata Portal home page. At the top right, there is a user profile icon labeled "VANGELIS KRITSOTAKIS". Below the header, there are three main sections: "Search Metadata" (with a magnifying glass icon), "Import Data" (with a database icon), and "My Favorites" (with a star icon). The "My Favorites" section is highlighted with a red border. Each section has a "CONTINUE" button at the bottom right.

The second way is to access that space from the menu located at the very top right corner of the current page.

The screenshot shows the VRE4EIC Metadata Portal with the "My Favorites" option selected in the top right menu. The menu items include "My Profile", "My Favorites" (which is highlighted with a grey background), "Privacy Policy", and "Logout". The main search interface is visible below the menu, featuring a search bar, filters, and related entity selection fields.

The “My Favorites” space, constitutes the place from where users can manage their own queries. It provides very few capabilities at the moment, however more could be added in a future version. The main view consists of a list of queries (w.r.t. to the title and the description), from which the user can select one and either load it or delete it.

TITLE	DESCRIPTION
Test - Query	Looking For persons members of specific instance of organization participating in specific project with acronym "Eurovision"
Demo - Query	Looking for members of organizations located nearby "Lazise Veneto" which organizations are participating the project with acronym "AXregen" and the persons looked for are also participants of projects in general.
Demo - Filters	We are looking for persons for which the first or last names are unknown, however it is known that they are members an organization, the name of which contains the word "London" and that organization is participant in a project with acronym "COBRA". Furthermore, the persons that we are looking for are authors of a publication with title "Cytomegalovirus-Induced Brain Malformations in Fetuses"

## Import Data

The platform allows data import from a variety of RDF file formats on either existing or new defined graphs. The process is as simple as a drag & drop and supports multiple file upload in a single step. During this process, the system acquires any available user-profiling material and uses it as extra provenance information to accompany the imported data. This provenance information is important for knowing who has import what and where.

“Import Data” section is accessed from the welcome page by selecting the respective section.

The main view consists of an empty area where files can be dragged and dropped simultaneously. At the bottom of the view there are two input components for setting the content-type of the files and the name of the VRE (space where metadata will be imported).



Import to Triplestore from File

Content-Type: Automatic [?](#)

Drop file(s) here or click to upload.

Automatic  Named Graph

The files' content-type is selected through a drop down list. The “Automatic” choice is recommended in most cases, allowing each file to have different content type. However, setting specific content-type is possible, as long as it is the same for all files.

Import to Triplestore from File

Content-Type: Automatic [?](#)

Drop file(s) here or click to upload.

Automatic  Named Graph

application/rdf+xml  
text/rdf+n3  
text/plain  
application/x-turtle

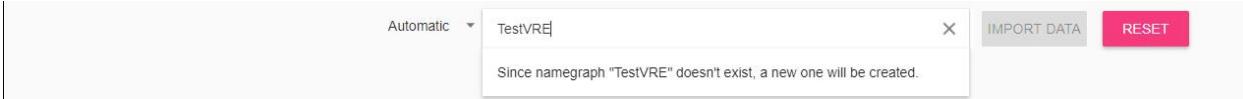
Setting the data-space can easily be achieved by either selecting one from the existing ones or by entering a new one. The input component allows users to type text while at the same time the matching VREs are listed below.

Automatic  Named Graph

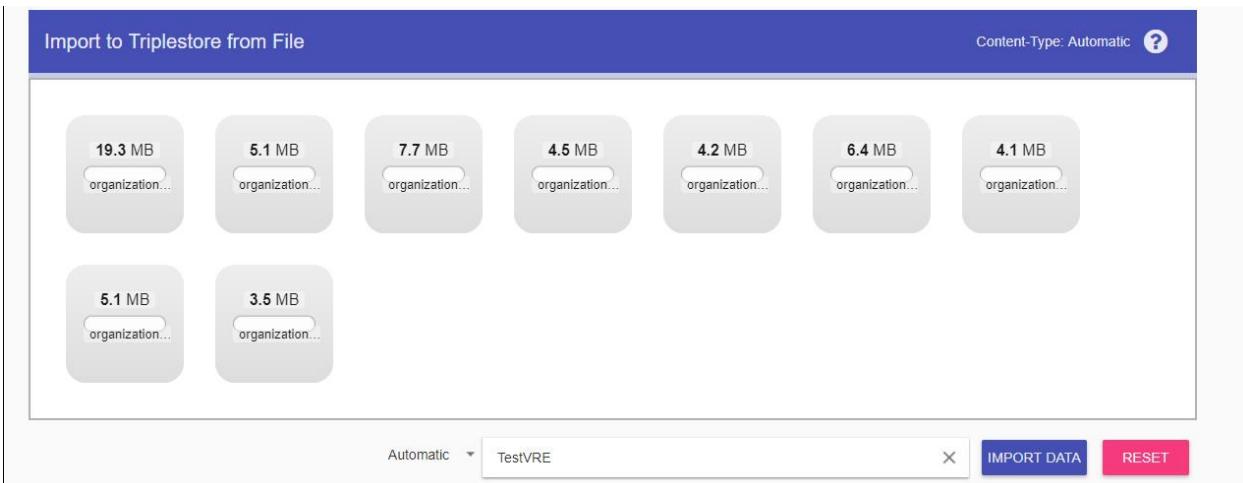
EKT  
RCUK  
FRIS  
ENVRI  
EPOS



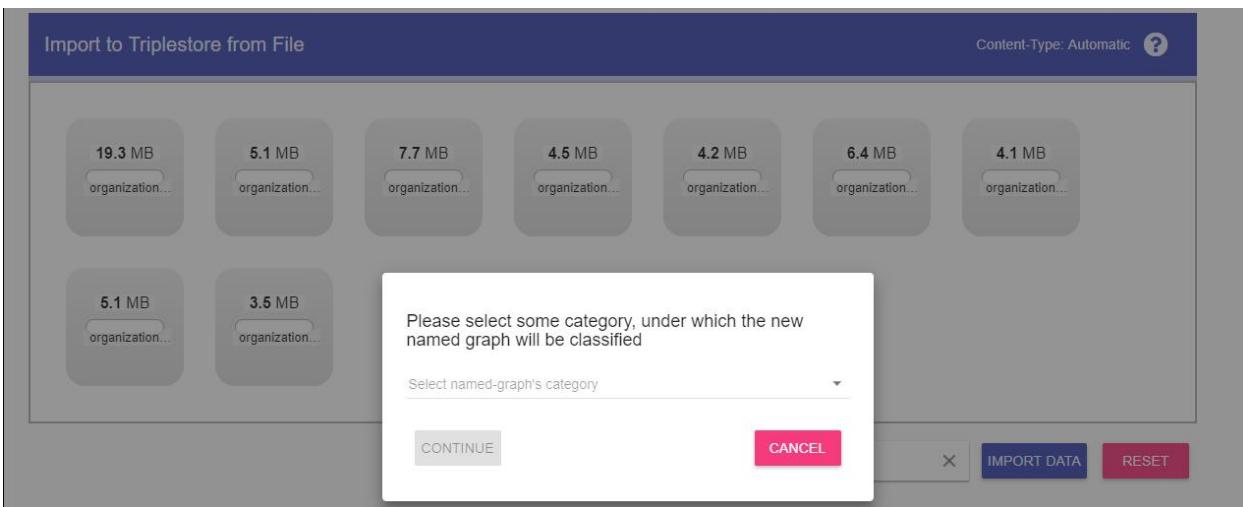
In case that the user's input doesn't match any of the existing VREs, a new one will be created to hold the new emerged data.



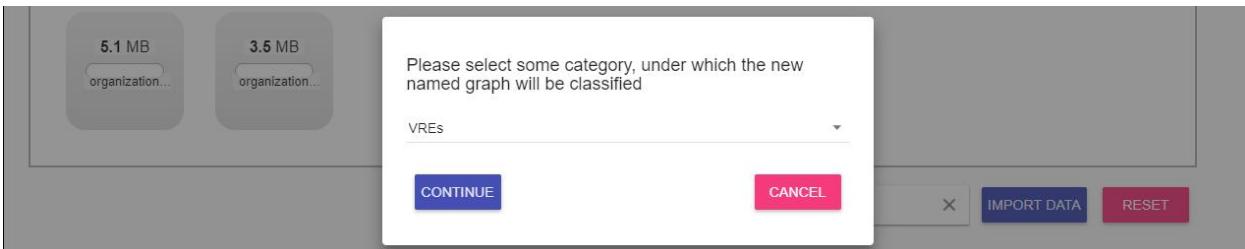
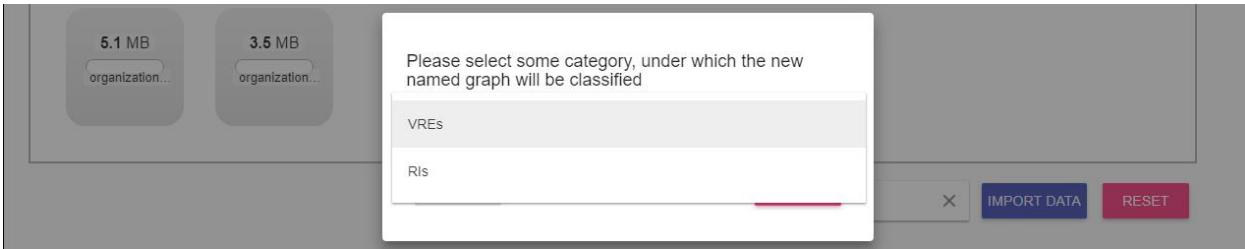
The files holding the desired data can be dragged & dropped into the large empty space defined in the view.



As soon as all the pre-requirements of the import process are met, the "Import Data" button becomes enabled. In this example the defined VRE doesn't exist, and because of that the system prompts for extra information to be provided for this metadata space.



The portal classifies the metadata spaces into VREs (Virtual Research Environment) and RIs (Research Infrastructure). For that reason the user has to select a category under which the new space will be classified.



The import procedure starts immediately when pressing the Continue button. During this process the files are imported sequentially. As already mentioned, the platform associates the emerged data with provenance information from the user's profile along with snapshot metadata of the initiation time of the process, ensuring that this action is reversible (has to be applied by an administrator offline).