Using the Capability Map

Overview

The VIVO Capability Map provides a visual means for finding people working in particular areas and for navigating through concepts and people. Using the capability map, one might find people to invite to a workshop, colleagues for a grant application, members of a dissertation committee, or experts for a technical advisory group. The map is very easy to use.

The capability map was originally developed by a team at the University of Melbourne for their VIVO, Find an expert. The concept was developed for Open VIVO and introduced to VIVO in version 1.9.0.

The capability map uses D3.js, a visualization tool used by the NY Times and others to provide modern graphics that are interactive, and responsive – that is, work on any device in any modern browser from a phone to a desktop computer.

In the examples that follow, we will use OpenVIVO. If your local VIVO is at version 1.9.0 or higher, it will have the capability map as described here.

A Tour of the Capability Map

Think of a research area that interests you. Perhaps you study ontologies and want to find other people who are interested in ontology. Click on the Capability Map link in the menu bar on the VIVO home page (see below). You do not need to be logged on. If you are using your local VIVO and you do not see the capability map link on the home page, please contact your local VIVO support for more information.
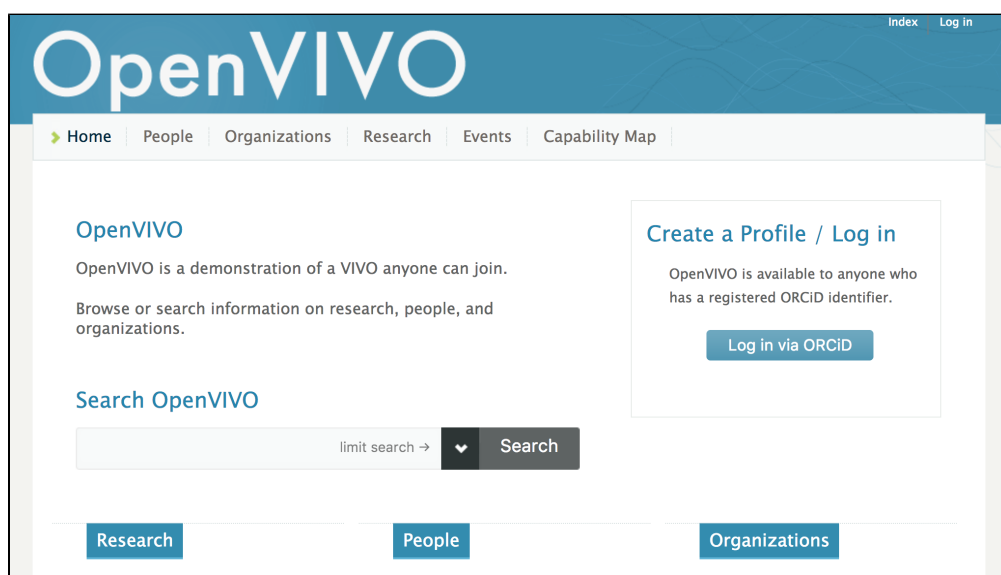
You will see the Capability Map page. Everything you do with the Capability Map will be done from this page. There are directions on the page. You'll want to read them all. Scroll down the page to see the rest of the directions.

OpenVIVO

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Search

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Capability Map

Build a 'first pass' capability map by typing in a search term that could be said to represent a broad research capability.

Cutoff: 10   Search   Search and Expand   Reset

Welcome to the Capability Mapping tool. This tool visualises how researchers relate to other researchers via search terms.

Search terms   Info

Current search terms

This panel displays a list of the search terms currently on the graph. Search for something to begin.

Getting Started

Enter a research area into the search field above and press 'Search'. The resulting diagram displays the search term, rendered in orange, connected to the blue group of researchers that are active in that area. Enter another search term to see how researchers from both searches relate. Keep adding search terms to build a capability map.

Tip: you can expand a broad search term into smaller concepts by clicking 'search and expand'.

Type ontology into the text box and press Search. You should see something similar to below. OpenVIVO is a VIVO anyone can join. As a result, the data in OpenVIVO at the time you are following these examples may be different from the data at the time the examples were captured for this document.

Build a 'first pass' capability map by typing in a search term that could be said to represent a broad research capability.

ontology   Cutoff: 10   Search   Search and Expand   Reset

pause   hide group labels

Search terms   Info

Current search terms

Delete selected

☐ ontology

4 ●
  ■ ontology

Capability — size indicates researchers in field
Edge — color indicates people connected
Group — color indicates degree
● 2 links — label shows people in group
● 3 links
● ≥ 4 links

Doesn't look like much, but we're just getting started. we have a very simple "graph" – a network diagram. The diagram has a legend in the lower right. There are three kinds of things on the graph: 1) terms or capabilities (orange squares); 2) groups of people (purple circles), and 3) edges (grey lines). Terms or capabilities are also called "research areas" or "research interests". They are concepts that are associated with individuals through works such as publications, grants, datasets and presentations, and through self-identification. People with VIVO profiles can select their research areas of interest using the profile editing features of VIVO. Each orange square represents a concept, and each is labeled. The purple dots represent groups of people. People are in the group if they have the research interests that connect to the group. In the figure above, there is just one concept – ontology – and just one group – the group of people with ontology as a research interest. Note the number of people in the group is shown (4). If there is just one person, the person's name will be shown. The edge indicates that the people in the group are "connected" to the term.

Click on the group of people. The right hand area indicates the people who are in the group. You can click on any of them to go to their VIVO page.
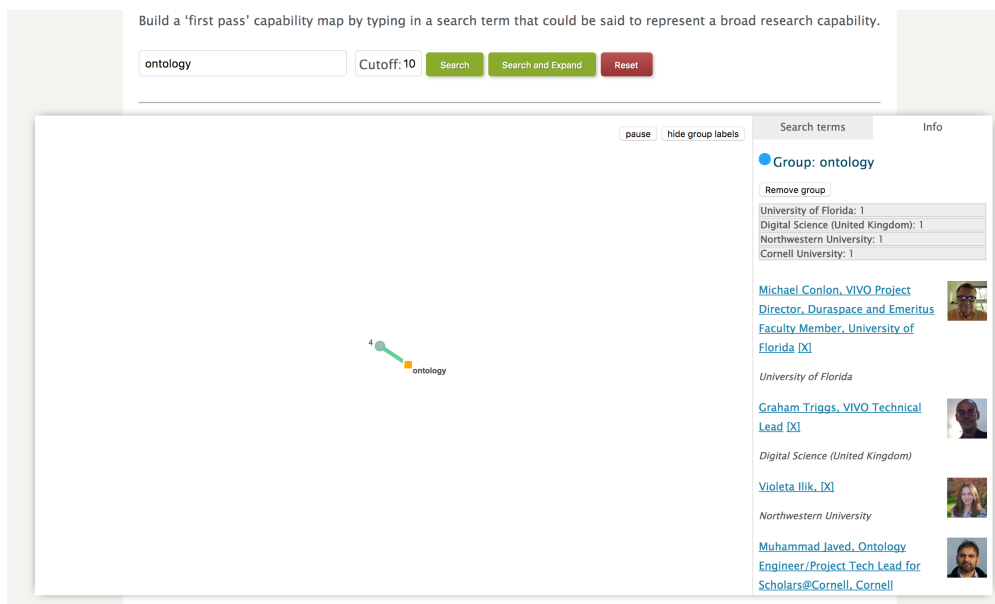
Let's add to the network. Click on Search and Expand. We now see the concepts of each of the four original people, with people associated with those concepts, connected in a graph showing common interests. Some people have many interests, some have just a few. Note that concepts are always connected to groups of people who have that concept has a research interest.
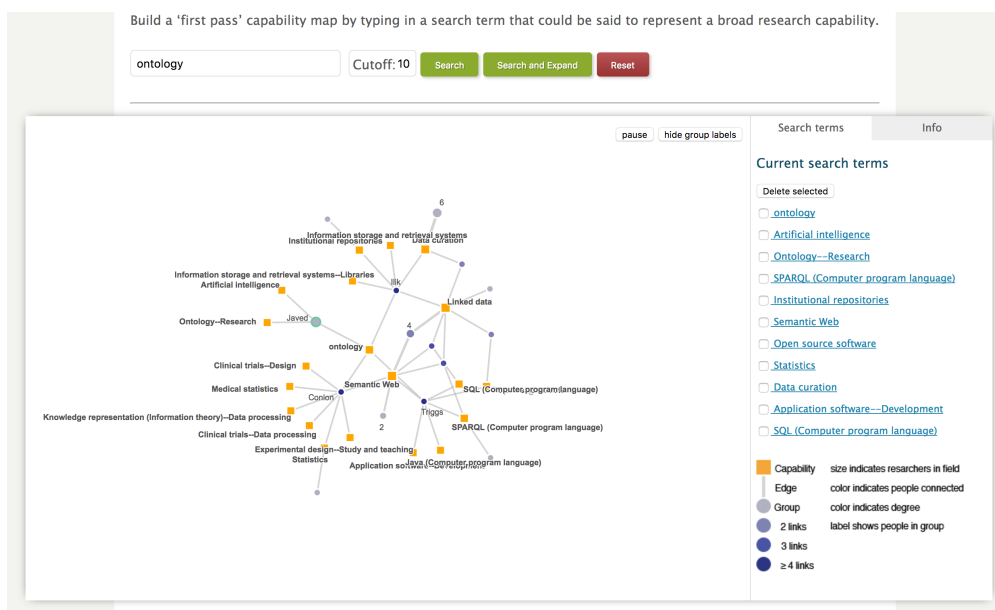
Click on the group of people near the center of the map, between linked data and semantic web. You should see a display similar to the one below. The group is highlighted along with the concepts common to the group (linked data and semantic web). Not that the right hand display shows the group as being defined as those people who are interested in both linked data and semantic web.
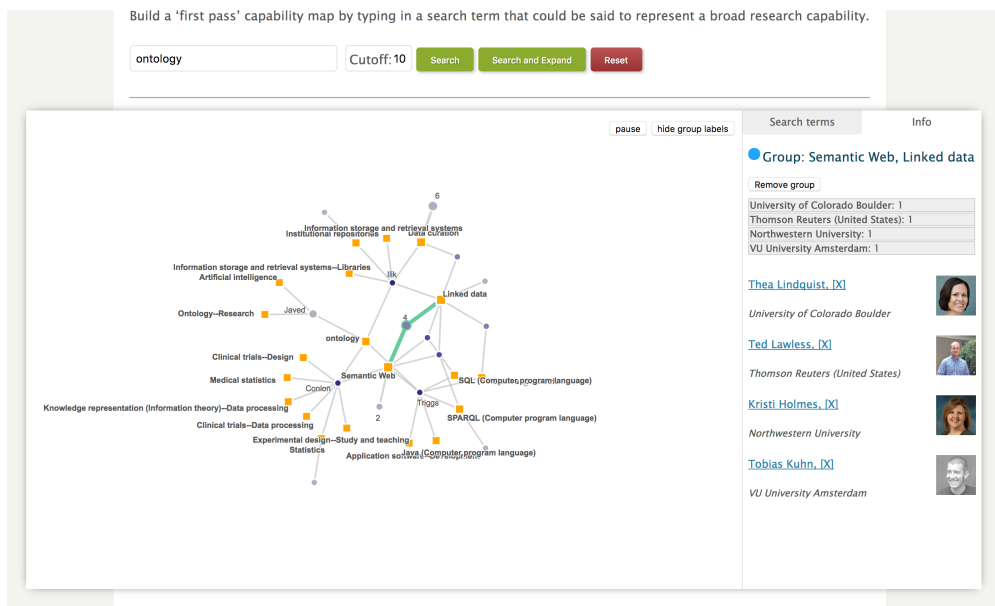
The map is a little cluttered with the names of the people who are in groups with one member. Click hide group labels. You see a map similar to the one below.
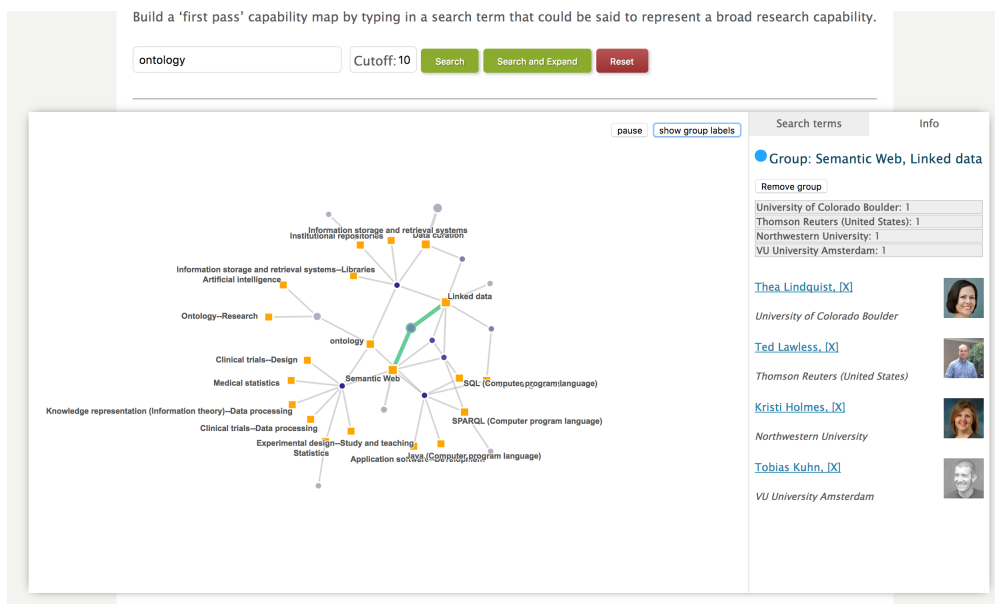
Double click on ontology. Two things happen. The map zooms in one ontology, and the ontology term is highlighted. One of the groups connected to ontology is highlighted.

Build a 'first pass' capability map by typing in a search term that could be said to represent a broad research capability.

ontology   Cutoff: 10   Search   Search and Expand   Reset

pause   show group labels   Search terms   Info

■ Term: ontology

Cornell University: 1
Digital Science (United Kingdom): 1
Northwestern University: 1
University of Florida: 1

Remove capability   Expand

● Group: ontology, Artificial intelligence, Ontology--Research

Remove group

Cornell University: 1

Muhammad Javed, Ontology Engineer/Project Tech Lead for Scholars@Cornell, Cornell University [X]

Cornell University

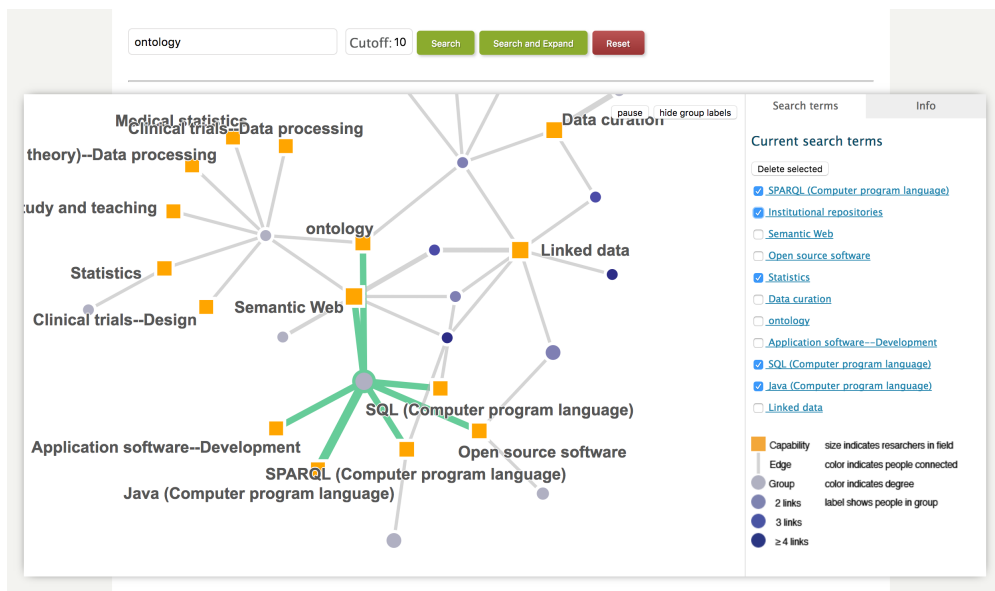● Group: ontology, Application software--Development, SPARQL (Computer program language), Semantic Web, Open source software, SQL (Computer program

Information storage and retrieval systems
Institutional repositories
Data curation
...nation storage and retrieval systems--Libraries
Artificial intelligence
...logy--Research
Linked data
ontology
Clinical trials--Design
Medical statistics
Semantic Web
SQL (Computer program...
...theory))--Data processing
Clinical trials--Data processing
SPARQL (Computer program...
Experimental design--Study and teaching
Statistics
Application software--Development
Java (Computer program language)

suppose we wish to reduce the number of terms that have been generated by expanding the graph – some of these are closely related to ontology, while others may be less so. Terms aon on the graph because someone who has ontology an an interest has one of these terms as an additional interest. Click on SQL (Computer Program Language), then in the right hand panel, click on "Search Terms" This lists all the terms currently in the graph.

ontology   Cutoff: 10   Search   Search and Expand   Reset

pause   hide group labels   Search terms   Info

Current search terms

Delete selected

☑ SPARQL (Computer program language)
☑ Institutional repositories
☐ Semantic Web
☐ Open source software
☑ Statistics
☐ Data curation
☐ ontology
☐ Application software--Development
☑ SQL (Computer program language)
☑ Java (Computer program language)
☐ Linked data

■ Capability   size indicates researchers in field
Edge   color indicates people connected
Group   color indicates degree
● 2 links   label shows people in group
● 3 links
● ≥ 4 links

Medical statistics
Clinical trials--Data processing
Data curation
...theory)--Data processing
...udy and teaching
ontology
Linked data
Statistics
Semantic Web
Clinical trials--Design
SQL (Computer program language)
Application software--Development
Open source software
SPARQL (Computer program language)
Java (Computer program language)

Select five of the terms as shown and press "Delete Selected" The pruned graph is shown below. We seem more clearly the group of people interested in linked data and the semantic web.
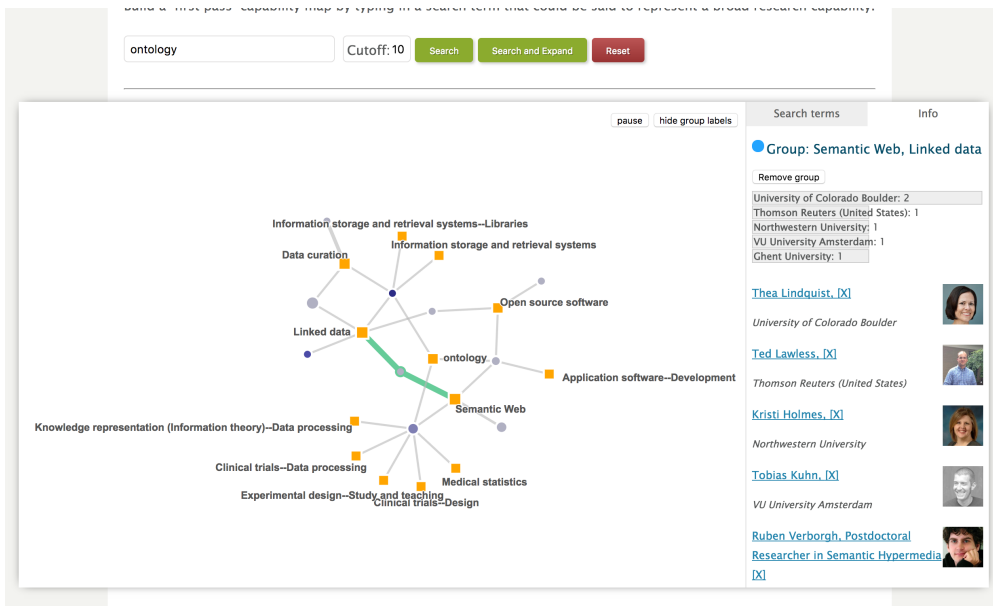
We can search and expand at any time to add groups and terms related to those on the graph. And if we want to start over, we can press Reset.

Using the Capability Map we can find groups of people interest in common research areas, and we can discover which research areas are often held in common across researchers.