

Linking to External Vocabularies

Linking via concept services

From the [VIVO 1.4 release announcement](#):

Many people have requested support for associating terms from established controlled vocabularies with people, publications, grants, organizations, and other types of data in VIVO. While small taxonomies or vocabularies may most easily be imported in their entirety into VIVO, a number of the more popular controlled vocabularies are very large in proportion to the number of terms likely to be referenced within a single VIVO instance. Incorporating terms by reference helps keep terms in sync as these vocabularies continue to evolve and is more consistent with linked data principles.

Stony Brook University's Department of Medical Bioinformatics, led by Dr. Moisés Eisenberg, hosts an RDF version of the National Library of Medicine's Unified Medical Language System or UMLS (<http://www.nlm.nih.gov/research/umls/>). Through a 2011 VIVO mini-grant, Stony Brook has developed a web service that accepts incoming term requests from VIVO and returns one or more matching UMLS concepts with stable URIs. VIVO displays the label associated with the UMLS concept but the concept's URI ensures that references remain unambiguous, even across multiple VIVO instances at different institutions.

The interface from VIVO to the UMLS service has been implemented to allow linking to additional vocabulary services such as GEMET (<http://www.eionet.europa.eu/gemet>), and we will offer additional choices in upcoming releases.

Sample VIVO RDF statements referencing external concepts

When external concepts are added to VIVO, they retain their original URI from the external vocabulary. Since we have no way of knowing whether these URIs represent OWL classes or RDF instance data, VIVO does not assert a type for the concepts, which will therefore only be interpreted as being of type `owl:Thing`.

subject	predicate	object
http://vivo.cornell.edu/individual/individual22972	http://vivoweb.org/ontology/core#hasResearchArea	http://link.informatics.stonybrook.edu/umls/CUI/C1518584
http://link.informatics.stonybrook.edu/umls/CUI/C1518584	<code>rdfs:label</code>	ontology
http://vivo.cornell.edu/individual/individual22972	http://vivoweb.org/ontology/core#hasResearchArea	http://link.informatics.stonybrook.edu/umls/CUI/C0036612
http://link.informatics.stonybrook.edu/umls/CUI/C0036612	<code>rdfs:label</code>	semantic
http://vivo.cornell.edu/individual/individual22972	http://vivoweb.org/ontology/core#hasResearchArea	http://www.eionet.europa.eu/gemet/concept/3645
http://www.eionet.europa.eu/gemet/concept/3645	<code>rdfs:label</code>	geographic information system
http://vivo.cornell.edu/individual/individual22972	http://vivoweb.org/ontology/core#hasResearchArea	http://link.informatics.stonybrook.edu/umls/CUI/C0599807
http://link.informatics.stonybrook.edu/umls/CUI/C0599807	<code>rdfs:label</code>	informatics
http://vivo.cornell.edu/individual/individual22972	http://vivoweb.org/ontology/core#hasResearchArea	http://link.informatics.stonybrook.edu/umls/CUI/C0872261
http://link.informatics.stonybrook.edu/umls/CUI/C0872261	<code>rdfs:label</code>	repository

Other vocabularies to potentially integrate as services

Agrovoc

- <http://aims.fao.org/standards/agrovoc/about> is currently available as a service.

National Agriculture Library Thesaurus

- http://www.nal.usda.gov/news/NALT_LOD.shtml is currently available for download but not as a service.

Getty

- <http://www.getty.edu/research/tools/vocabularies/lod/index.html> is expected to be made available as linked open data in late 2013.

Alternatives to VIVO's concept service connector

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The [Hasselt University](#) (Belgium) has developed an [ontology plug-in](#) which can be used as an authority tool in the submission process of any repository, document or content management system. It searches multiple thesauri and ontologies simultaneously by using a web service broker. The broker can be configured to access any web service.

At this moment, it searches [AGROVOC](#) webservice, and an [ASKOSI](#) server containing the AGROVOC, [ASFA](#), [Plant Ontology](#), [NERC-C19 ontology](#), and [OceanExpert](#).

For more information:

- Source code available under an open source Apache License 2.0 at <https://code.google.com/p/ontology-plugin/>.
- Demo at <http://193.190.8.15/ontwebapp/ontology.html>