

# Ontology

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## Overview

A unique feature of the eagle-i software is that the data collection and search tools are completely driven by ontologies. These ontologies are a set of modules that are written in the OWL language and edited and managed using Protégé. Beginning in 2009, the eagle-i Research Resource Ontology (ERO) was developed alongside the eagle-i applications to model various biomedical research resources such as instruments, Core Facilities, protocols, reagents, animal models and biospecimens. It has now [been integrated](#) into the [VIVO-ISF Ontology](#), which leverages and expands upon both the eagle-i and VIVO ontologies to create a semantic framework that describes not only scientific resources but research activities and clinical activities. Anyone interested in contributing to the VIVO-ISF should contact the [OpenRIF \(Open Research Information Framework\)](#) community for more information.

The ontology modules utilized by the eagle-i software now include:

- files with application content that drives the functionality of the eagle-i software
- files with domain content that are generated from the VIVO-ISF eagle-i modules

The guides and instructions in the pages below will help you understand the ontology structure, configure Protégé, edit the ontology, and add annotations to drive the user interfaces.

## Status and Availability

- Starting with version 1.10.2.1, new releases of the eagle-i VIVO-ISF modules are available at: <https://www.eagle-i.net/ero/>
- Historical ERO releases have been archived at: <https://open.med.harvard.edu/svn/ero/>
- The full VIVO-ISF Ontology is available on GitHub: <https://github.com/openrif/vivo-isf-ontology>
- The main ontology [can be browsed in OntoBee](#). All purls resolve to [OntoBee](#).

### For example:

<a href="http://purl.obolibrary.org/obo/ERO_0000008">http://purl.obolibrary.org/obo/ERO_0000008</a>	antibody reagent
<a href="http://purl.obolibrary.org/obo/ERO_0000020">http://purl.obolibrary.org/obo/ERO_0000020</a>	biological specimen
<a href="http://purl.obolibrary.org/obo/ERO_0000431">http://purl.obolibrary.org/obo/ERO_0000431</a>	expression construct

## Term Tracker

Ontology term requests are kept in the VIVO-ISF Ontology term tracker on GitHub: <https://github.com/openrif/vivo-isf-ontology/issues>.

When making a term request, it is most helpful to provide as much of the following information as possible:

Term request template field	Example
A name/label for the proposed term	Four-terminal resistance sensor
A textual definition (with source) for the proposed term	"Four-terminal resistance sensors are electrical impedance measuring instruments that use separate pairs of current-carrying and voltage-sensing electrodes to make accurate measurements that can be used to compute a material's electrical resistance." Taken from: <a href="http://en.wikipedia.org/wiki/Four-terminal_sensing">http://en.wikipedia.org/wiki/Four-terminal_sensing</a>
An example of usage for the proposed term	Measuring the inherent (per square) resistance of doped silicon.

The desired asserted SuperClass in the ERO hierarchy or Reference Branch	Instrument, Biological process, Disease, Human studies, Instrument, Organism, Reagent, Software, Technique, Organization or any sub-classes. Consult the <a href="#">Ontology Browser</a> for a list of possible SuperClasses.
Any additional info, synonyms, etc.	AKA - 4T sensors, 4-wire sensor, or 4-point probe

## Documentation

A guide for editing the ISF-based eagle-i ontology is being drafted as a Google doc at [https://docs.google.com/a/essaid.com/document/d/1Radat4PqKJuWktxJ3RgxWp\\_osfW07RZ6-EBVLG8YAsw/edit?usp=sharing](https://docs.google.com/a/essaid.com/document/d/1Radat4PqKJuWktxJ3RgxWp_osfW07RZ6-EBVLG8YAsw/edit?usp=sharing)

This documentation is still undergoing final review and will be transferred to this site soon.

## Publications

Torniai C, Brush M, Vasilevsky N, Segerdell E, Haendel M, Shaffer C, Johnson T, Corday K. Developing an application ontology for biomedical resource annotation and retrieval: Challenges and lessons learned , International Conference of Biomedical Ontologies (ICBO) 2011. [Download the paper](#) | [Download the presentation](#)

Mitchell S, Torniai C, Lowe, B, Corson-Rikert J, Wilson M, Ahmed M, Chen S, Ding Y, Rejack N, Haendel MA. Aligning research resource and researcher representation: the eagle-i and VIVO use case. Poster presentation at: International Conference on Biomedical Ontology 2011; July 26–30, 2011; Buffalo, NY. [Download the paper](#)

Brush MH, Vasilevsky N, Torniai C, Johnson T, Shaffer C, Haendel MA. Developing a reagent application ontology within the OBO Foundry Framework. Poster presentation at: International Conference on Biomedical Ontology 2011; July 26–30, 2011; Buffalo, NY. [Download the paper](#)