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The BioPortal Import Plugin for Protégé

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Reusing terms from other ontologies is an essential part of the ontology development process. Ideally, the ability to reuse terms from other sources should be naturally supported in any ontology development environment. The BioPortal Import Plugin is integrated into the Protégé ontology editor [1] and supports the import of classes from ontologies and terminologies stored in BioPortal[2] – an open repository of over 250 biomedical ontologies and terminologies. The Bio-Portal import, unlike the OWL import, copies a class from the BioPortal source ontology to the local ontology together with the selected set of properties. The source class and the imported (copied) class share the same ID (class IRI), and have hence the same identity.

As projects have different requirements for the import process, we have made the plugin generic and configurable. The main features of the BioPortal Import plugin include:

1. Import only a class or a sub-tree of classes up to the desired depth,
2. Import into the current ontology, or into a new or existing imported ontology,
3. Import the preferred label, synonyms or definitions for a term, and also specify the local annotation properties, if needed,
4. Import metadata for the imported classes or ontologies (e.g., import author, timestamp, BioPortal version, url, and so on),
5. Store the current import configuration for later use in other Protégé working sessions.

Figure 1 shows the basic steps involved in using the plugin to import classes from a BioPortal ontology. The plugin is implemented as a Protégé project plugin and it integrates naturally in the toolbar of the OWL Classes Tab. The plugin uses the BioPortal RESTful services to show a list of all ontologies and their content from BioPortal right in the Protégé user interface (Fig. 1). The user can select one of the ontologies as the source for the import, and a class, which can be imported with a simple button click into the local ontology. The user is also able to customize the import by clicking on the *Configure import ...* button that will bring up the configuration dialog shown in Fig. 2. Once a user makes a configuration, it will be stored as part of the Protégé project file, and can be used for other similar imports. In a future version, we plan to make the import configuration executable, so that the same import can be run again on the same local ontology, for example, if a new version of the source ontology is available in BioPortal.

The BioPortal Import Plugin is open source and available for download from: `http://protegewiki.stanford.edu/wiki/BioPortal_Import_Plugin`.

[1] `http://protege.stanford.edu`

[2] `http://bioportal.bioontology.org`

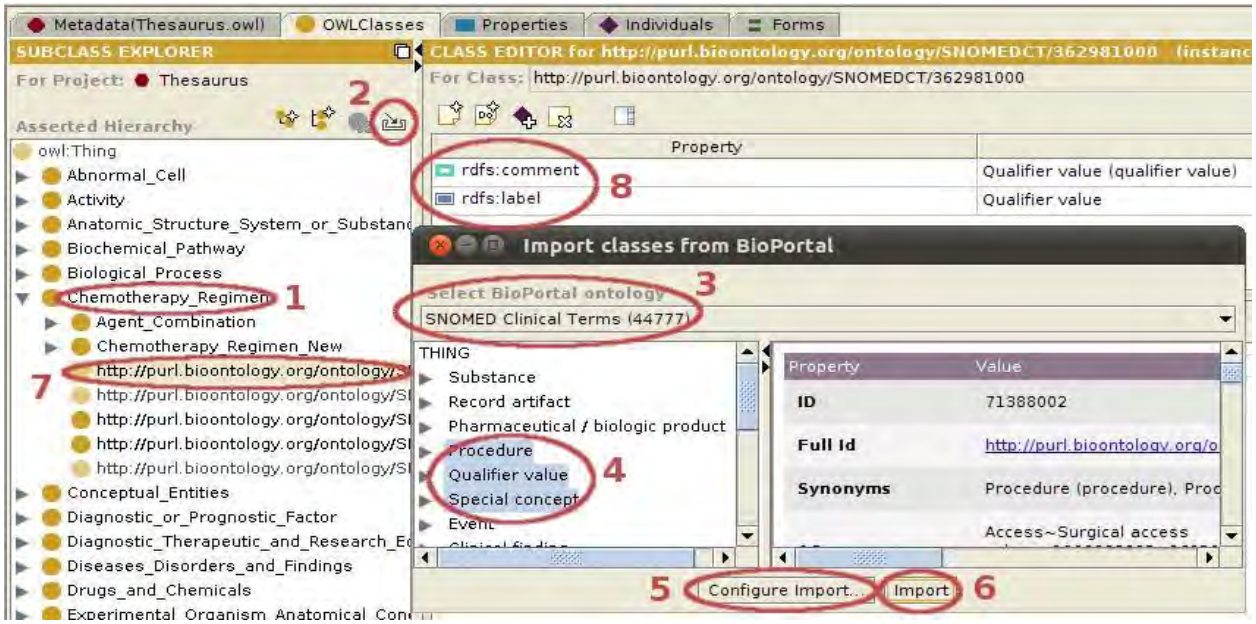

Figure 1. The steps for importing classes from a BioPortal ontology using the BioPortal Import Plugin are as follows: (1) Select a class of a local ontology from the OWLClasses tab. (2) Invoke the plugin by clicking on the icon. (3) Select a BioPortal ontology to import classes from. (4) Browse the BioPortal ontology and select one or more classes to import. (5) If required, change the import settings by clicking on *Configure Import*. (6) Click on *Import*. (7) The imported classes show up as subclasses of the class selected in (1). (8) shows the imported property values for each imported class.

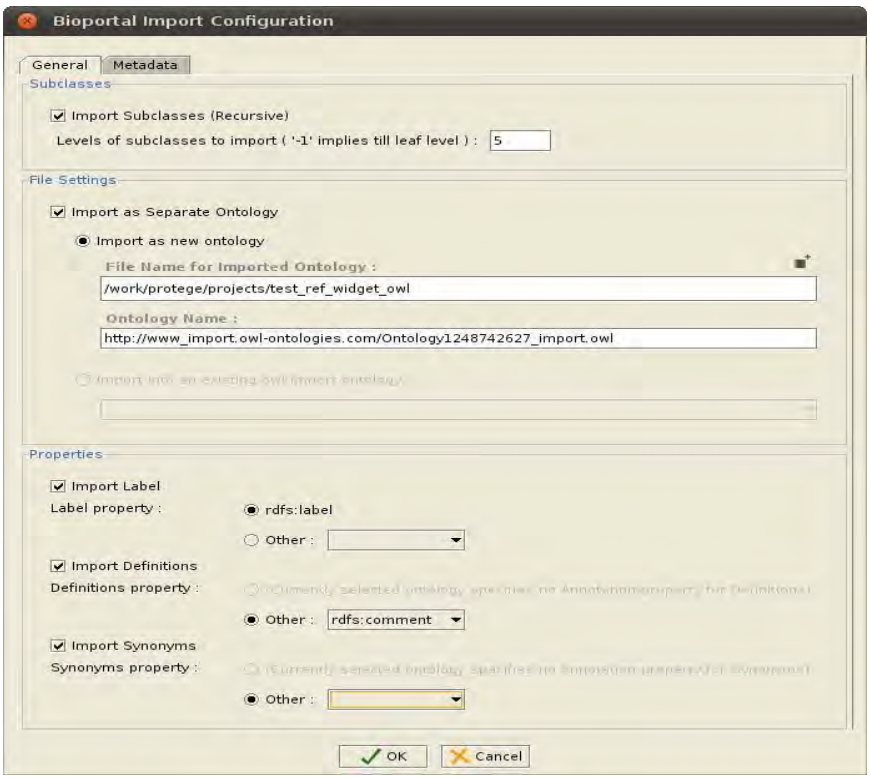

Figure 2. The import configuration for the BioPortal import. Users may configure the import depth, the import target (current ontology, new or existing import) and the properties to import. They may also specify the metadata to import for each imported class or ontology in the Metadata tab.