WebProtégé – quick overview

- WebProtégé is an open source light-weight ontology editor for the Web
- It is a Collaborative Protégé client
- Main features of WebProtégé:
  - Browsing of ontologies on the Web
  - Lightweight ontology editing
  - Designed using a portal metaphor: The user interface is composed of reusable components, called portlets
  - Customizable UI by drag-n-drop and by showing or hiding different ontology tabs
  - Extensible: Developers may easily implement their own tabs and portlets
Collaborative Protégé – Big brother of WebProtege

Collaborative Tabs

Annotations

Annotation details

has annotations

Annotations on DomainConcept

Details

Author: ttania  
Created: 10/23/2000 21:59:10 GMT-06:00

Subject:
This is a comment on the DomainConcept class

Description:
This is an example of a comment on a class.

You may also insert internal links to other entities in the ontology. For example, if you refer to class Pizza, you select from the "Add Internal Link" combo box, Class and select the class Pizza. This will generate the following link:

@http://www.co-ode.org/ontologies/pizza/2005/10/18/pizza.owl#Pizza

If you click on the link above, a window will pop up with the details of class Pizza.
The Collaboration Framework

Ontologies supporting the collaboration process

API access

Ontology repository

- Changes API
- Annotations API
- Workflow API
- Ontology Access API
- Policy Manager

- NCI Thesaurus
- Guidelines Ontology
- Gene Ontology
- ...
GWT – Google Web Toolkit

- GWT: write web client applications in Java
- GWT compiles the Java code into optimized JavaScript
- The server side is written in Java
- Client-Server communication through RPC (JSON, others also available)
WebProtégé - Architecture

- 2 sides of the story: server and client
- Server is completely implemented in Java and makes API calls to Protégé
- Client side is developed in Java, and later compiled into JavaScript
- Communication between server – client is done with GWT RPC (can be done in other ways, too)
Our inspiration...
WebProtégé UI

- Portal metaphor (inspired from MyYahoo and iGoogle)
  - Portlets are panels that have some functionality (e.g. display the properties of a class) and can be dragged around
  - Users can customize the layout of WebProtege:
    - Enable/disable tabs
    - Customize the portlets in a tab
    - Configuration is stored on server and it per project/user
- Uses a 3rd party widget library: GWT-ext
WebProtégé GUI – showing the NCI Thesaurus

Properties for Hematopoietic_Growth_Factor

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCI_META_GUI</td>
<td>C025822</td>
<td></td>
</tr>
<tr>
<td>DEFINITION</td>
<td>NCI Endogenous growth factors which promote the development of blood cells.</td>
<td></td>
</tr>
<tr>
<td>Preferred_Name</td>
<td>Hematopoietic Growth Factor</td>
<td></td>
</tr>
</tbody>
</table>

Axioms for Hematopoietic_Growth_Factor

Equivalent classes (Necessary and Sufficient conditions)

- Cytokine
- Gene_Product_Encoded_by_Gene some Hematopoietic_Factor_Gene
- Gene_Product_Has_Associated_Anatomy some Bone_Marrow
- Gene_Product_Has_Biochemical_Function some Growth_Factor
- Gene_Product_Has_Chemical_Classification some Glycoprotein
- Gene_Product_Plays_Role_In_Biological_Process some Hematopoiesis

Notes for Hematopoietic_Growth_Factor

New Topic  Reply  Collapse  <Previous  Next>

<table>
<thead>
<tr>
<th>Text</th>
<th>Author</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>It seems to me that Hematopoietic Growth Factor should be a child of Growth Factor rather than a child of Cytokine. Anyone?</td>
<td>jbd</td>
<td>02/25/2003 00:15:11 EST</td>
</tr>
<tr>
<td>&gt;&gt;RE: Comment</td>
<td></td>
<td>03/04/2003 14:45:59 EST</td>
</tr>
<tr>
<td>I agree but some of the cytokines are IL-3, so we will have to be careful if we move the Hematopoietic Growth Factor header. This is hint to tricky scheme to begin with as some proteins fit into more than one of the headers i.e. IL-8 is an interleukin and a chemokine.</td>
<td>nicole</td>
<td></td>
</tr>
<tr>
<td>&gt;&gt;RE: Comment</td>
<td>nicole</td>
<td></td>
</tr>
<tr>
<td>If the children don't logically fit under the parent or grandparent then the whole structure is suspect. Descriptive terms aren't necessarily good synonyms.</td>
<td>nicole</td>
<td></td>
</tr>
</tbody>
</table>

http://bmir-protege-dev1.stanford.edu/webprotege/
First page in WebProtégé

Open the same ontology in Collaborative Protégé for editing

http://bmir-protege-dev1.stanford.edu/webprotege/
Opening Collaborative Pizza

Login to edit

Discussions

Drag-n-drop, resize, close portlets
What is already out there..

Tabs:
- Classes
- Properties
- Individuals
- Discussions
- Metadata
- Other terminologies (BioPortal search)
- etc.
What is already out there...

• Portlets:
  – Class/property tree
  – Property values
  – Restrictions
  – Notes and discussion
  – Individuals list
  – Property form
  – OBO ↔ OWL converter
  – etc.
<list>
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      <portlet>
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        </name>
        <height>600</height>
        <width>0</width>
      </portlet>
    </portlets>
  </tab>
  <portlet>
    <name>
      edu.stanford.bmir.protege.web.client.ui.portlet.propertyForm.PropertyFieldPortlet
    </name>
    <height>600</height>
    <width>0</width>
  </portlet>
</list>

UI configuration
Other terminologies tab – see possibly related concepts from terminologies in BioPortal
WebProtégé installation

- Tomcat or another servlet engine
- Download the war file from the WebProtégé wiki page
- Follow the step-by-step Administrators' Guide
Extending WebProtégé

- Plug-in infrastructure very similar to Protégé's: create your own tabs and portlets
- Just extend: AbstractTab and AbstractEntityPortlet
- Implement your own RPCs, if needed
- Reuse existing portlet code
- Writing a tab – as easy as creating an empty class that extends AbstractTab
- Promise to have soon some more documentation :)
What's next?

- **Short term**
  - Migrate Collaborative Protégé and WebProtégé to Protégé 4
  - Finalize the plug-in mechanism
  - Improve the editing support
  - Migrate to a new widget library
  - Documentation!
What's next? (cont.)

- **Medium term**
- Support collaboration features that are not yet available
- Conflict management
- Workflow support
- Evaluate in different projects (We need your help!)

- **Long term**
- You tell us!
Get involved!

- If you would like to get involved, talk to us!
- Contributions from the community are welcome
- Implement your own plug-ins for WebProtégé
- If you used any of the tools, we would be happy to get your feedback!

THANK YOU!
Resources

- **Collaborative Protégé Users' Guide**

- **Collaborative Protégé paper:**

- **WebProtégé short paper:**

- **Try WebProtégé out:**

- **Accessing Collaboration features from other applications:**

- **Protégé client-server tutorial**