
WebProtégé

Protégé going Web

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Protégé conference 2009

Amsterdam, June 24, 2009

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

The screenshot displays the Collaborative Protégé 3.4 beta interface. The main window is titled "collaborativePizza Protégé 3.4 beta (file:/work/protége/Protege_3.4_beta513/examples/collaborativePizza/collaborativ)". The menu bar includes File, Edit, Project, OWL, Reasoning, Code, Tools, Window, Change, Collaboration, and Help. The toolbar contains various icons for file operations and editing.

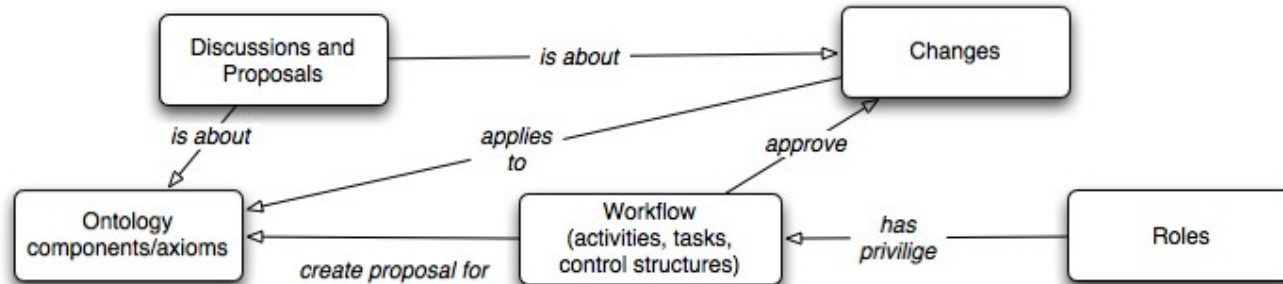
The interface is divided into several panels:

- SUBCLASS EXPLORER:** Shows the asserted hierarchy for the project "collaborativePizza". The hierarchy starts with "owl:Thing" and includes "DomainConcept", "Country", "IceCream", "Pizza", "MeatyPizza", "NamedPizza", "NonVegetarianPizza", "RealItalianPizza", "SpicyPizza", "SpicyPizzaEquivalent", "VegetarianPizza", "VegetarianPizzaEquivalent", "VegetarianPizzaEquivalent", "PizzaBase", "PizzaTopping", and "ValuePartition". A callout bubble points to the "DomainConcept" class, stating "has annotations".
- CLASS EDITOR for DomainConcept:** Shows the class "DomainConcept" with the property "rdfs:comment". A callout bubble points to the "rdfs:comment" property, stating "Annotations".
- Collaboration Panel:** Contains tabs for "Annotations", "Changes", "Discussion Threads", and "Search". The "Annotations" tab is active, showing a list of annotations on the "DomainConcept" class. Two annotations are visible: "ttania (10/24/08 07:59): This is a comment on the DomainConcept class" and "ttania (10/24/08 08:02): Re: This is a comment on the DomainConcept class". A callout bubble points to the "Collaborative Tabs" area, stating "Collaborative Tabs".
- Details Panel:** Shows the details for the selected annotation. The "Author" is "ttania" and the "Created" date is "10/23/2008 21:59:18 GMT-08:00". The "Subject" is "This is a comment on the DomainConcept class". The "Description" field contains the text: "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'](\"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." A callout bubble points to the "Annotation details" area, stating "Annotation details".

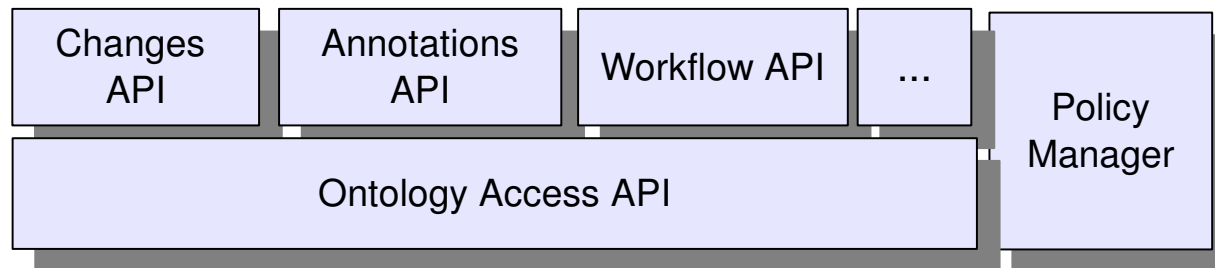
The bottom of the interface shows a status bar with "Logic View" and "Properties View" buttons.

The Collaboration Framework

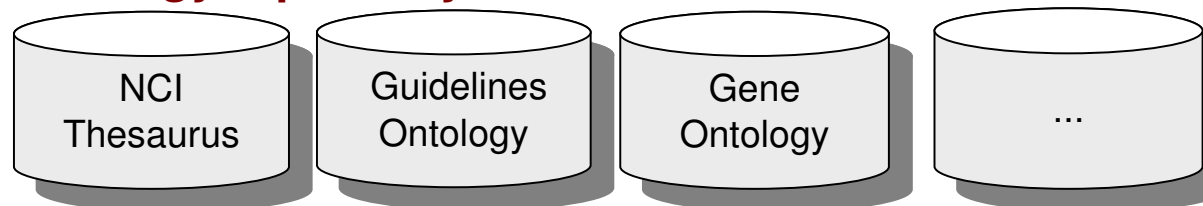
Ontologies supporting the collaboration process



API access

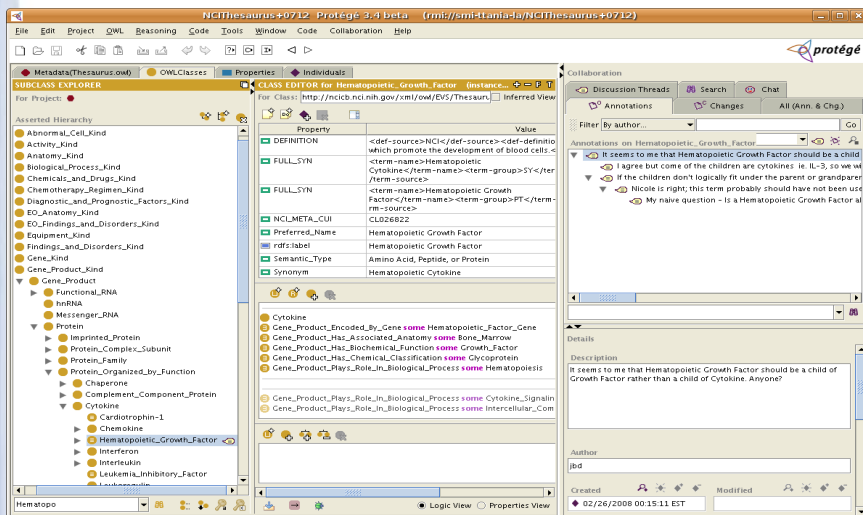


Ontology repository

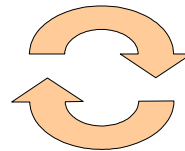
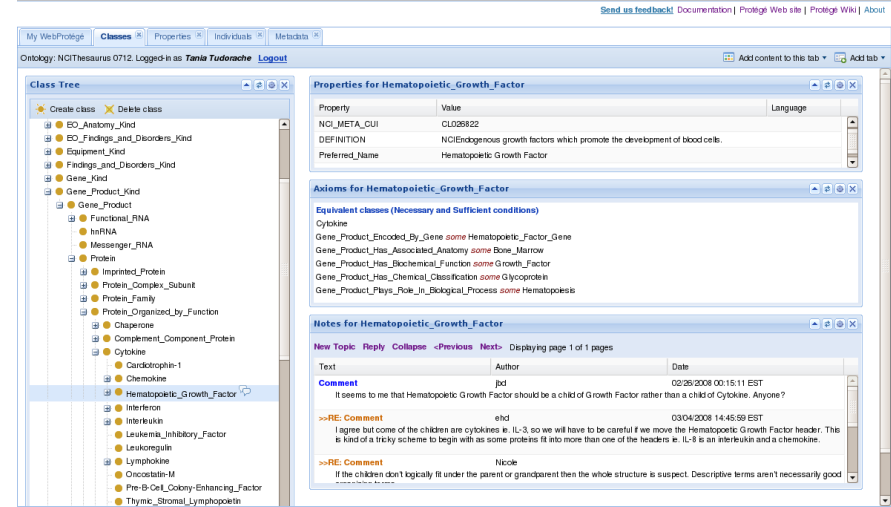


The Collaborative Framework + Clients

Collaborative Protégé

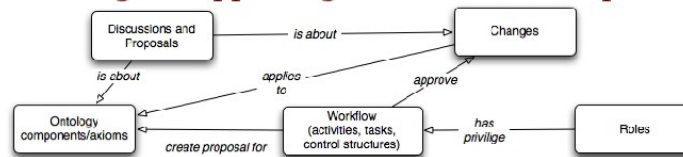


WebProtégé

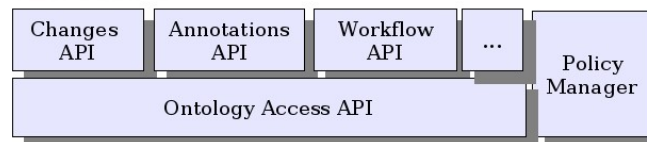


Collaborative Framework

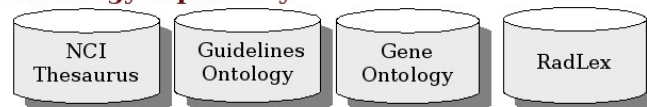
Ontologies supporting the collaboration process



API access



Ontology repository

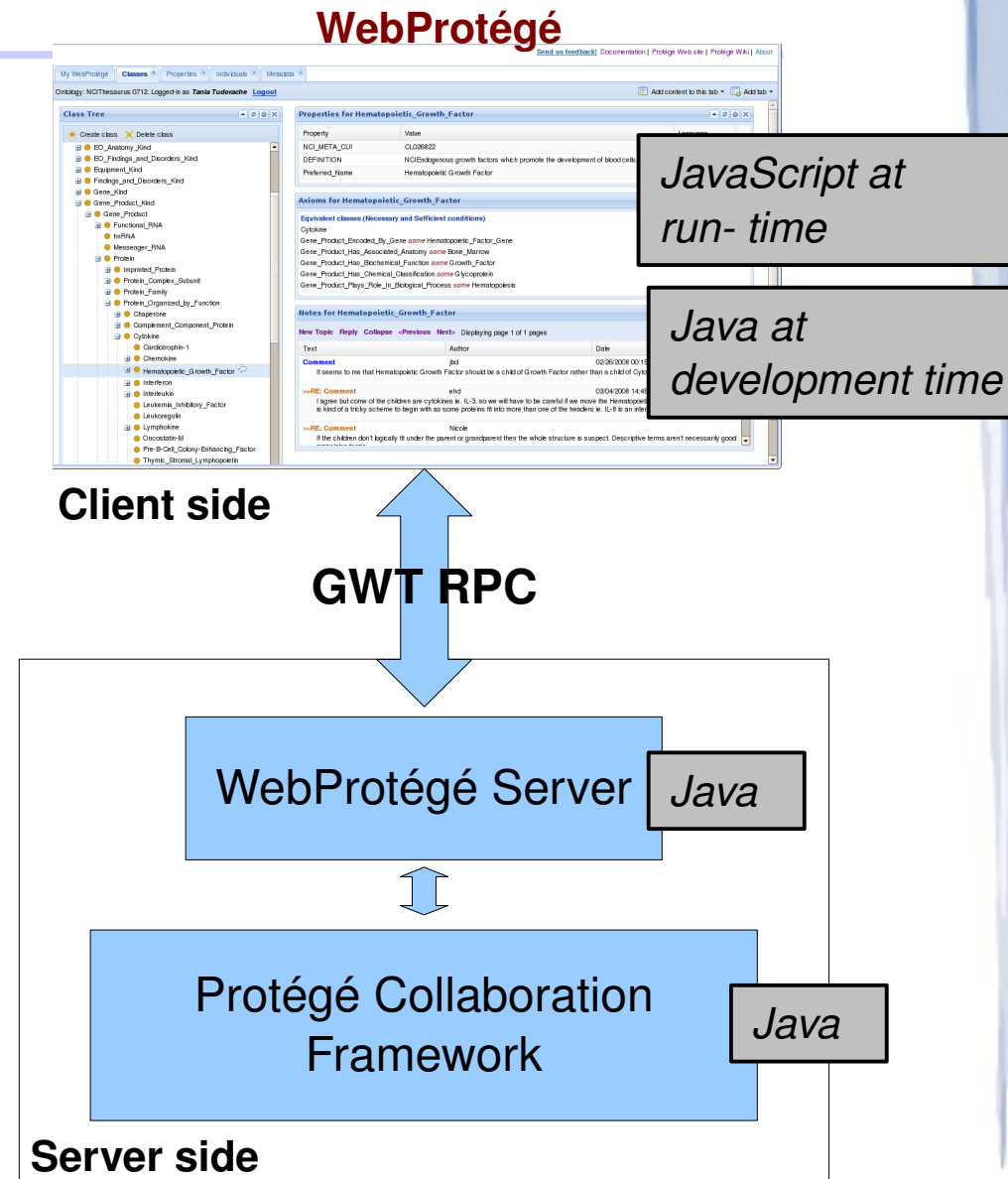


GWT – Google Web Toolkit

- 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)



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WebProtégéiGoogle

Het internet Afbeeldingen Video Maps Nieuws Discussiegroepen Mail meer tania.tudorache@googlemail.com Klassieke startpagina Mijn acco

iGoogle™

Geavanceerd zoeken
Voorkeuren
Taalhulpmiddelen

Google zoekenIk doe een gok

Doorzoek: ☒ het internet ☐ pagina's in het Nederlands ☐ pagina's uit Nederland

HomeMiscNewsEen tabblad toevoegen

Nieuw! Nederlandse Artiestenthema'sThema Klassiek wijzigenItems toevoegen»

Google Agenda

« juni 2009 »

Z	M	D	W	D	V	Z
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

Vandaag (wo, 24. jun)

Protege conference in Amsterdam
6:45pm Satsangh

Morgen (do, 25. jun)

Protege conference in Amsterdam
6:34pm 6:34PM - 0:52am Train Amsterdam - Stutt

vr, 26. jun

» 6:00pm Protege conference in Amsterdam
10:50pm 6:34PM - 0:52am Train Amsterdam - Stutt

VandaagToevoegen

Opties▼

Voorpaginanieuws

Kamer uit stevige kritiek over Catshuisbrand
De Telegraaf -
[alle 121 gerelateerde nieuwsberichten »](#)

Reders voelen zich in de steek gelaten
Trouw - [alle 16 gerelateerde nieuwsberichten »](#)

Inspectie: negen op tien praktijklokalen
onveilig
Trouw - [alle 51 gerelateerde nieuwsberichten »](#)

Startnotitie tweede kerncentrale
Financieele Dagblad -
[alle 54 gerelateerde nieuwsberichten »](#)

Kerkenraad: 'atheïstische' predikant geen
gevaar
Volkskrant -
[alle 14 gerelateerde nieuwsberichten »](#)

Slashdot

On the Humble Default

Hospital Confirms Steve Jobs's Liver Transplant

The Imminent Demise of SORBS

Weerbericht

Palo Alto, CA

21°C

Huidige
situatie: Onbewo

Wind: NO met
0 km/h

di

wo

31° | 13°30° | 12°

Sibiu

13°C

Huidige
situatie: Regen

Wind: W met
6 km/h

wo

do

25° | 11°26° | 13°

Quotes of the Day

I haven't spoken to my wife in years. I didn't want to interrupt her.
- [Rodney Dangerfield](#)

Done

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

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My WebProtégé **Classes** Properties Individuals Metadata

Ontology: NCIThesaurus 0712. Logged-in as **Tania Tudorache** [Logout](#)

Add content to this tab Add tab

Class Tree

Create class Delete class

- EO_Anatomy_Kind
- EO_Findings_and_Disorders_Kind
- Equipment_Kind
- Findings_and_Disorders_Kind
- Gene_Kind
- Gene_Product_Kind
 - Gene_Product
 - Functional_RNA
 - hnRNA
 - Messenger_RNA
 - Protein
 - Imprinted_Protein
 - Protein_Complex_Subunit
 - Protein_Family
 - Protein_Organized_by_Function
 - Chaperone
 - Complement_Component_Protein
 - Cytokine
 - Cardiotrophin-1
 - Chemokine
 - Hematopoietic_Growth_Factor**
 - Interferon
 - Interleukin
 - Leukemia_Inhibitory_Factor
 - Leukoregulin
 - Lymphokine
 - Oncostatin-M
 - Pre-B-Cell_Colony-Enhancing_Factor
 - Thymic_S

Properties for Hematopoietic_Growth_Factor

Property	Value	Language
NCI_META_CUI	CLO26822	
DEFINITION	NCIEndogenous growth factors which promote the development of blood cells.	
Preferred_Name	Hematopoietic Growth Factor	

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](#) Displaying page 1 of 1 pages

Text	Author	Date
Comment It seems to me that Hematopoietic Growth Factor should be a child of Growth Factor rather than a child of Cytokine. Anyone?	jbd	02/26/2008 00:15:11 EST
>>RE: Comment I agree but come of the children are cytokines ie. IL-3, so we will have to be careful if we move the Hematopoietic Growth Factor header. This is kind of a tricky scheme to begin with as some proteins fit into more than one of the headers ie. IL-8 is an interleukin and a chemokine.	ehd	03/04/2008 14:45:59 EST
>>RE: Comment If the children don't logically fit under the parent or grandparent then the whole structure is suspect. Descriptive terms aren't necessarily good	Nicole	

<http://bmir-protege-dev1.stanford.edu/webprotege/>

First page in WebProtégé

WebProtégé - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://bmir-protege-dev1.stanford.edu/webprotege/WebProtege.html#Collat

Smart Bookmarks Yahoo mail Google Mail G. Cal Protégé ProtegeWiki Y. Cal GForge Protege Bugzilla Main Page

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My WebProtégé Classes Properties Individuals Metadata

Ontology: Collaborative Pizza. [Login](#) for more features. Add content to this tab Add tab

Name	Description	Owner	Action
Biomedical Resource Ontology	The Biomedical Resource Ontology	Daniel Rubin	Open in Protege
CA ADI 2003	The CA ADI 2003 project	Samson Tu	Open in Protege
Collaborative Newspaper	A frames example project about Newspapers. The project supports the collaborative features.	Ray Fergerson	Open in Protege
Collaborative Pizza	The OWL pizza project with collaborative toppings..	Jennifer Vendetti	Open in Protege
Human Studies	The Human Studies ontology	Herb Hagler	Open in Protege
OBI (demo version)	Ontology for Biomedical Investigations Link to home page	Daniel Schober	Open in Protege
OCReStart Here	the OCR Start Here ontology	Samson Tu	Open in Protege
OCReStartHere wBFO	the OCReStartHere wBFO ontology	Samson Tu	Open in Protege
OCRestart-all	the OCR Restart All ontology	Samson Tu	Open in Protege
OMV_2_4	Ontology Metadata Vocabulary. Link: http://omv.ontoware.org/	Amir Ghazvinian	Open in Protege
RadLex	A Lexicon for Uniform Indexing and Retrieval of Radiology Information Resources External Link	Daniel Rubin	Open in Protege
Wines	A Frames project for wine lovers (no collaboration support). This project is configured as <u>read-only</u> .	Natasha Noy	Open in Protege
ckc_challenge	An ontology about research with collaborative sup WWW07.		Open in Protege

Select a project

Open the same ontology in Collaborative Protégé for editing

<http://bmir-protege-dev1.stanford.edu/webprotege/>

Opening Collaborative Pizza

WebProtégé - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://bmir-protege-dev1.stanford.edu/webprotege/WebProtege.html#

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My WebProtégé **Classes** Properties Individuals Metadata

Ontology: Collaborative Pizza. [Login](#) for more features. **Login to edit**

Add content to this tab Add tab

Class Tree

Create class Delete class

- owl:Thing
 - AnotherTestClass
 - DomainConcept
 - Country
 - Pizza
 - CheeseyPizza
 - InterestingPizza
 - MeatyPizza
 - NamedPizza
 - NonVegetarianPizza
 - RealItalianPizza**
 - SpicyPizza
 - SpicyPizzaEquivalent
 - VegetarianPizza
 - VegetarianPizzaEquivalent1
 - VegetarianPizzaEquivalent2
 - PizzaBase
 - PizzaTopping
 - MINE_EQUIPMENT
 - SomeClass
 - TestClass

Discussions

Properties for RealItalianPizza

Property	Value	Language
rdfs:comment	This defined class has conditions that are part of the definition: ie any Pizza that has the country of origin, Italy is a RealItalianPizza. It also has conditions that merely describe the members - that all RealItalianPizzas must only have ThinAndCrispy bases.	en
rdfs:label	PizzaitalianaReal	pt
hasTopping	PizzaTopping	
hasBase	PizzaBase	

Axioms for RealItalianPizza

Equivalent classes (Necessary and Sufficient conditions)

Pizza
hasCountryOfOrigin *has* Italy

Superclasses (Necessary conditions)

hasBase *only* ThinAndCrispyBase

Notes for RealItalianPizza

New Topic Reply Expand <Previous Next> Displaying page 0 of 0 pages

Text	Author	Date
------	--------	------

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.

UI configuration

```
<list>
  <tab>
    <name>edu.stanford.bmir.protege.web.client.ui.ontology.classes.ClassesTab</name>
    <columns>
      <column>
        <width>0.33</width>
        <portlets>
          <portlet>
            <name>edu.stanford.bmir.protege.web.client.ui.ontology.classes.ClassTreePortlet</name>
            <height>600</height>
            <width>200</width>
            <properties>
              <entry>
                <string>topClass</string>
                <string>ICD_Category</string>
              </entry>
            </properties>
          </portlet>
        </portlets>
      </column>
      <column>
        <width>0.66</width>
        <portlets>
          <portlet>
            <name>edu.stanford.bmir.protege.web.client.ui.portlet.propertyForm.PropertyFieldPortlet</name>
            <height>600</height>
            <width>0</width>
            <properties>
              <entry>
                <string>tabs</string>
                <list>
                  <map>
                    <entry>
                      <string>title</string>
                      <string>Metadata</string>
                    </entry>
                    <entry>
```

Form-based editing support

WebProtégé iGoogle WebProtégé

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My WebProtégé Collaborative Pizza ICD 1.5

Classes

Ontology: ICD 1.5. [Login](#) for more features. [Save Layout](#)

Add content to this tab Add tab

Class Tree

Create Delete

- ICD_Category
 - Endocrine, nutritional, and metabolic diseases
 - Heart disease
 - Myocardial Infarct
 - Hypertensive disease
 - Kidney disease
 - Mental and behavioural disorders
 - Pregnancy, childbirth and the puerperium
 - Respiratory Diseases
 - Skin and subcutaneous tissue diseases

Properties

Metadata Diagnostic Criteria Etiology

ICD-ID: Generated by the system

Text Definition: Tahoma
The infarction of heart muscle tissue due to the blockage of cardiac vasculature

Synonyms:

Synonym	Lang		
Heart attack	en:colk		
Acute coronary syndrome	en		
Coronary thrombosis	en		

Reference Code:

Preferred term	code	Terminology		
Myocardial Infarct	2229800	SCT		
myocardial infarction	RID3236	RadLex		
Acute myocardial infarction	410	ICD9		

Editorial_status: In_discussion

Other terminologies tab – see possibly related concepts from terminologies in BioPortal

WebProtégé - Mozilla Firefox

File Edit View History Bookmarks Tools Help

(414 unread) ... Protege 3.4.1... WebProtégé NCBO Bioport... NCBO Bioport... WebProtégé Zimbra: Inbox... ISWC 2009 W... Open Biomed... Loading...

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My WebProtégé Classes **Other terminologies** Discussions

Ontology: ICD 11. [Login](#) for more features. [Search](#)

Class Tree

Create class Delete class

- owl:Thing
 - ICD11
 - ICD11 (A00-B99) Certain infectious and parasitic diseases (CHAPTER I)
 - ICD11 (A00-A09) Intestinal infectious diseases
 - ICD11 (A15-A19) Tuberculosis**
 - ICD11 (A20-A28) Certain zoonotic bacterial diseases
 - ICD11 (A30-A49) Other bacterial diseases
 - ICD11 (A50-A64) Infections with a predominantly sexual mode of transmission
 - ICD11 (A65-A69) Other spirochaetal diseases
 - ICD11 (A70-A74) Other diseases caused by chlamydiae
 - ICD11 (A75-A79) Rickettsioses
 - ICD11 (A80-A89) Viral infections of the central nervous system
 - ICD11 (A90-A99) Arthropod borne viral fevers and viral haemorrhagic fevers
 - ICD11 (B00-B09) Viral infections characterized by skin and mucous membrane lesions
 - ICD11 (B15-B19) Viral hepatitis
 - ICD11 (B20-B24) Human immunodeficiency virus (HIV) disease
 - ICD11 (B25-B34) Other viral diseases
 - ICD11 (B35-B49) Mycoses
 - ICD11 (B50-B64) Protozoal diseases
 - ICD11 (B65-B83) Helminthiasis
 - ICD11 (B85-B89) Pediculosis acariasis and other infestations
 - ICD11 (B90-B94) Sequelae of infectious and parasitic diseases
 - ICD11 (B95-B97) Bacterial viral and other infectious agents
 - ICD11 (B99) Other infectious diseases
 - ICD11 (C00-D48) Neoplasms (CHAPTER II)
 - ICD11 (E00-E90) Endocrine nutritional and metabolic diseases (CHAPTER IV)
 - ICD11 (F00-F99) Mental and behavioural disorders (CHAPTER V)

BioPortal search results for ICD11 (A15-A19) Tuberculosis

Contents	Ontology
Tuberculosis	Bleeding History Phenotype
TUBERCULOSIS	DermLex
Tuberculosis	Galen
TUBERCULOSIS	ICD9
Tuberculosis	NCI Thesaurus
tuberculosis	Human disease
tuberculosis	Experimental Factor Ontology
Mycobacterium tuberculosis subsp. tuberculosis	NCBI organismal classification
A15-A19 Tuberculosis	International Classification of Diseases (10th Revision)
avian tuberculosis	Human disease
Bone Tuberculosis	NCI Thesaurus
bovine tuberculosis	Human disease
cardiovascular tuberculosis	Human disease
cutaneous tuberculosis	Human disease
endocrine tuberculosis	Human disease
gastrointestinal tuberculosis	Human disease
generalized tuberculosis	Human disease
hepatic tuberculosis	Human disease
Joint Tuberculosis	NCI Thesaurus
joint tuberculosis	Human disease
laryngeal tuberculosis	Human disease
Lung Tuberculosis	NCI Thesaurus

Done

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
 - http://protegewiki.stanford.edu/index.php/Collaborative_Protege
- Collaborative Protégé paper:
 - Supporting collaborative ontology development in Protégé, T. Tudorache, N. F. Noy, S. W. Tu, M. A. Musen, 7th International Semantic Web Conference, Karlsruhe, Germany, Springer. Published in 2008, http://bmir.stanford.edu/file_asset/index.php/1374/BMIR-2008-1331.pdf
- WebProtégé short paper:
 - Web-Protege: A Lightweight OWL Ontology Editor for the Web. Tania Tudorache, Jennifer Vendetti and Natalya Noy, http://www.webont.org/owled/2008/papers/owled2008eu_submission_40.pdf
- Try WebProtégé out:
 - <http://bmir-protege-dev1.stanford.edu/webprotege/>
- Accessing Collaboration features from other applications:
 - http://protegewiki.stanford.edu/index.php/ChAO_API
- Protégé client-server tutorial
 - http://protegewiki.stanford.edu/index.php/Protege_Client-Server_Tutorial