



The CODS Protégé Server





Goals



Collaborative Ontology Development

- Approaches
 - Browse with limited Edit
 - Version Control (analogous to cvs, svn)
 - But should be ontology aware
 - Shared Document Approach (Protégé Server)



Browsing and Editing

- Semantic Wiki's (NCI Biomed GT)
- Protégé Web Client
- BioPortal (More browsing oriented)
- Attributes
 - Simpler Editing Interfaces
 - For people with less experience with ontologies
 - Compelling Display of Ontology Contents
 - Easily shared



Version Control

- Requires an Ontology Versioning System
 - Cvs, svn, etc are not sufficient
 - Somebody needs to make one (NeOn?)
- Independent updates to ontologies by experts
 - Changes are shared via a commit
- Simplifies other tools (Editing, inference,...)
 - Performance
 - Distribution of tools on the server-client (inference)



Ontology Servers

- Clients can interact while editing
 - Updates are shared immediately
 - Chat Tab for discussion of changes
 - Collaborative Protégé
- Access very large ontologies
 - Resource intensive activities can be done on the server



Goal

- To develop all three approaches and to be able to combine them as needed
- Cim3.net will be a testing ground for the latest technologies.



The Present



Protégé Server at cim3.net

- Protégé Server is up and running.
 - `protege1.cim3.net:4025`
 - In transition - soon `protege2.cim3.net`
- Users can create their own accounts.
- New Ontologies can be added as needed through Peter Yim
- Policy Controls
- Snapshots of these ontology projects through svn



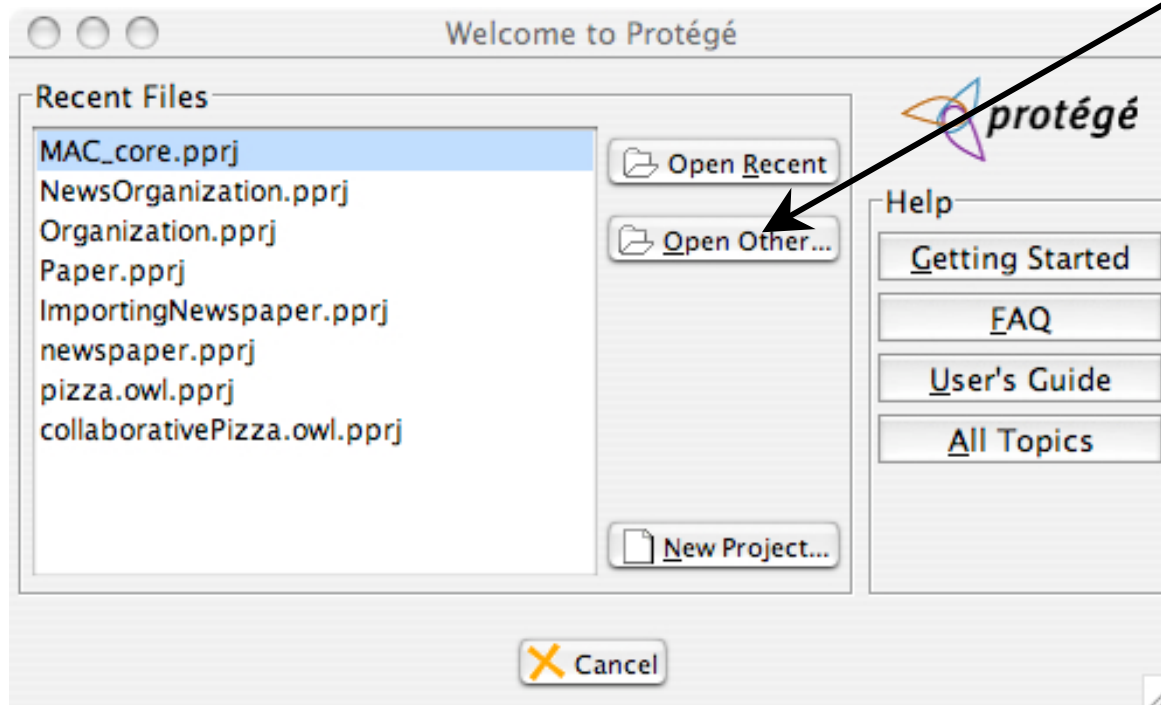
Running Protégé

- Obtain Protégé 3.4.1
 - <http://protégé.stanford.edu>
- Install and run

Running Protégé

Opening Screen

Select Open Other



Running Protégé

Registering

2. Server Address

3. Create New Account

Open Project

File Host Machine Name protege2.cim3.net:4025

URL User Name

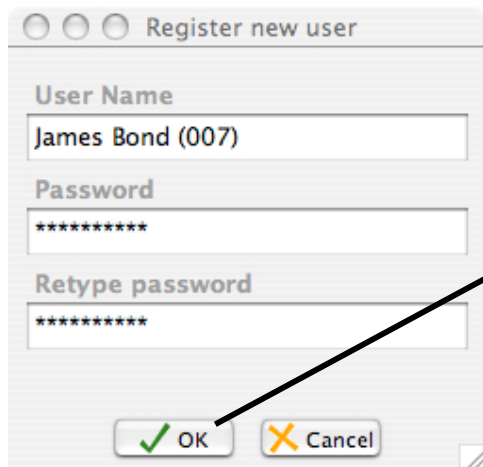
Server Password

New user

OK Cancel

1. Select "Server"

Setting Up the Account



Register new user

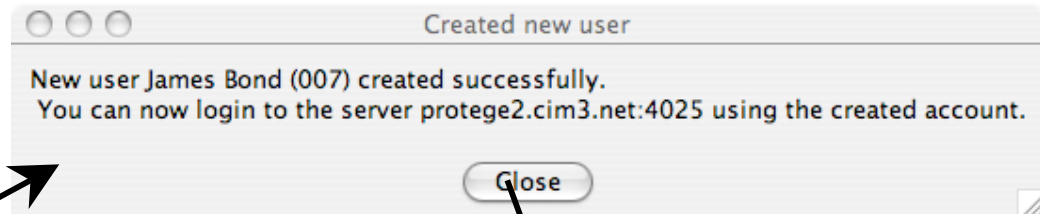
User Name
James Bond (007)

Password

Retype password

OK Cancel

Click

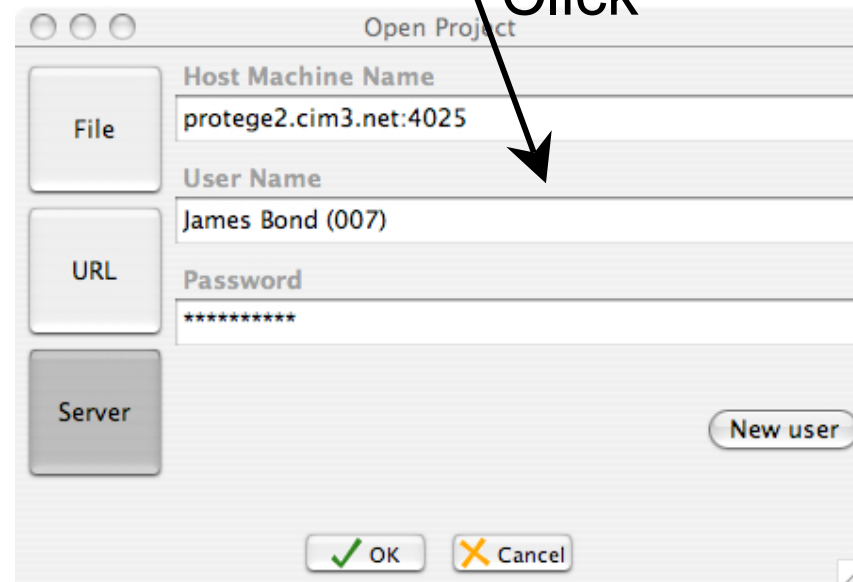


Created new user

New user James Bond (007) created successfully.
You can now login to the server protege2.cim3.net:4025 using the created account.

Close

Click



Open Project

File
Host Machine Name
protege2.cim3.net:4025

URL
User Name
James Bond (007)

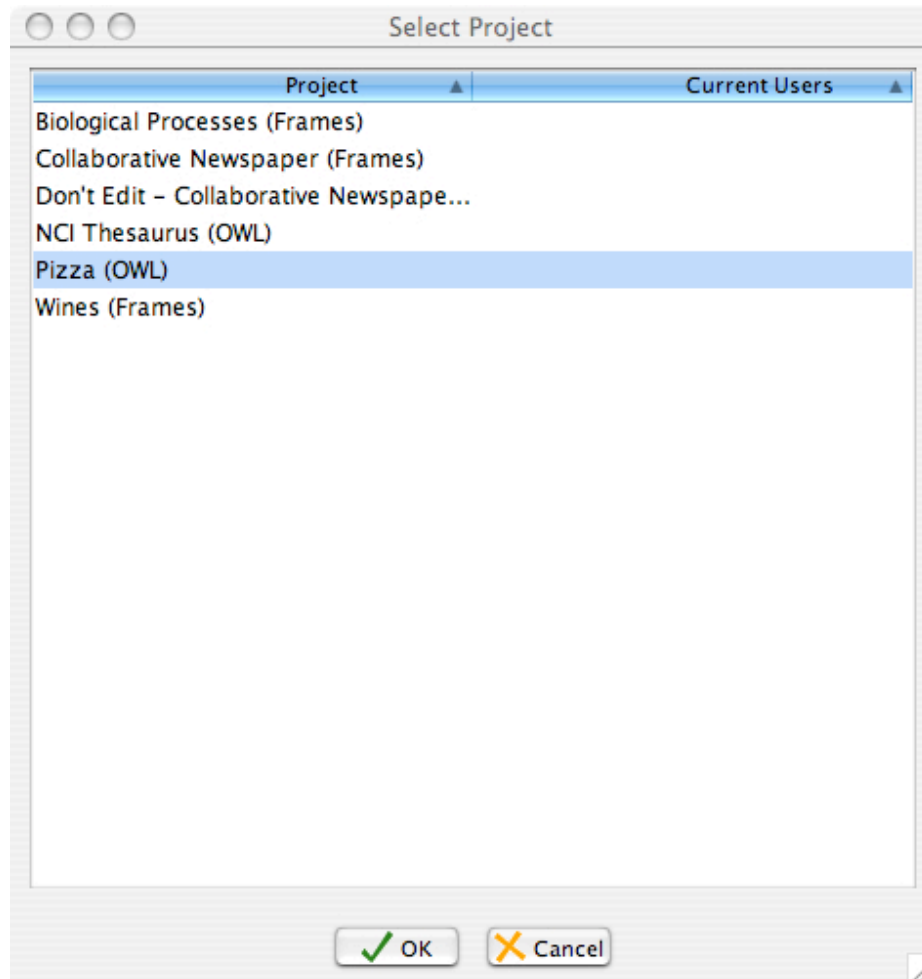
Server
Password

New user

OK Cancel

Don't Choose a great Password.

Choose the Project



Hungry?



Metadata (pizza.owl) OWLClasses Properties Individuals

SUBCLASS EXPLORER

For Project: ●

Asserted Hierarchy

- owl:Thing
 - DomainConcept
 - Country
 - IceCream
 - Pizza
 - CheesyPizza**
 - InterestingPizza
 - MeatyPizza
 - NamedPizza
 - NonVegetarianPizza
 - RealltalianPizza
 - SpicyPizza
 - SpicyPizzaEquivalent
 - VegetarianPizza
 - VegetarianPizzaEquivalent1
 - VegetarianPizzaEquivalent2
 - PizzaBase
 - PizzaTopping
 - ValuePartition

CLASS EDITOR

For Class: CheesyPizza

(instance of owl:Class) Inferred View

Property	Value	
rdfs:comment	Any pizza that has at least 1 cheese topping.	en
rdfs:label	PizzaComQueijo	pt

Annotations

Asserted Conditions

NECESSARY & SUFFICIENT

- Pizza
- hasTopping **some** CheeseTopping

NECESSARY

INHERITED

- hasBase **some** PizzaBase [from Pizza]

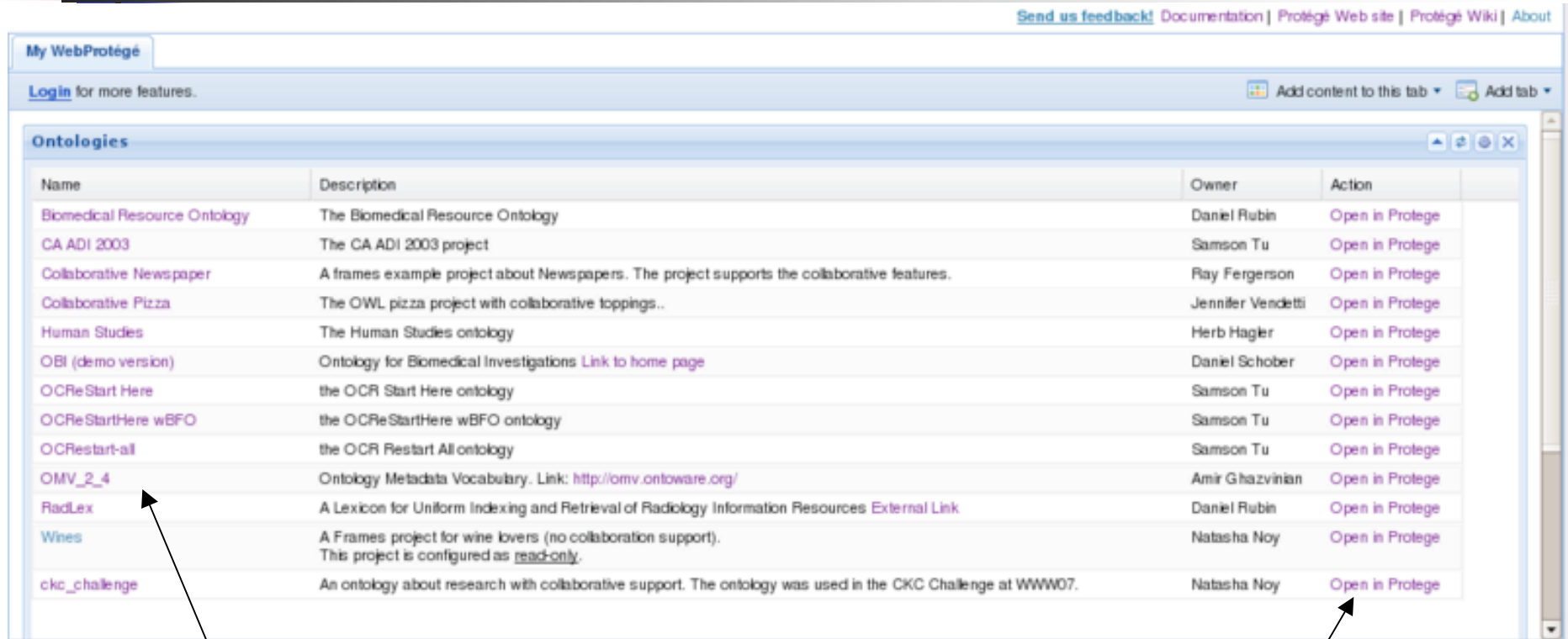
Disjoints



Protégé Plugins

- Editing
 - Query, Navigation, Forms
- Alignment (PROMPT)
- Collaboration
 - Collaboration Tab, Chat, Changes
- Scripting
- Visualization
 - Jambalaya, OWLViz, OntoViz
- Inference
 - DL, PAL, SWRL, Jess

Combining Web Protégé and the Thick Client



The screenshot shows the 'My WebProtégé' interface. At the top right, there are links for 'Send us feedback!', 'Documentation', 'Protégé Web site', 'Protégé Wiki', and 'About'. Below the navigation bar, there is a 'Login for more features.' link and 'Add content to this tab' and 'Add tab' buttons. The main content area is titled 'Ontologies' and contains a table with the following data:

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 Ferguson	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 read-only .	Natasha Noy	Open in Protege
ckc_challenge	An ontology about research with collaborative support. The ontology was used in the CKC Challenge at WWW07.	Natasha Noy	Open in Protege

Browser

Thick Client





The Future (Protégé 4)



Client-Server Model

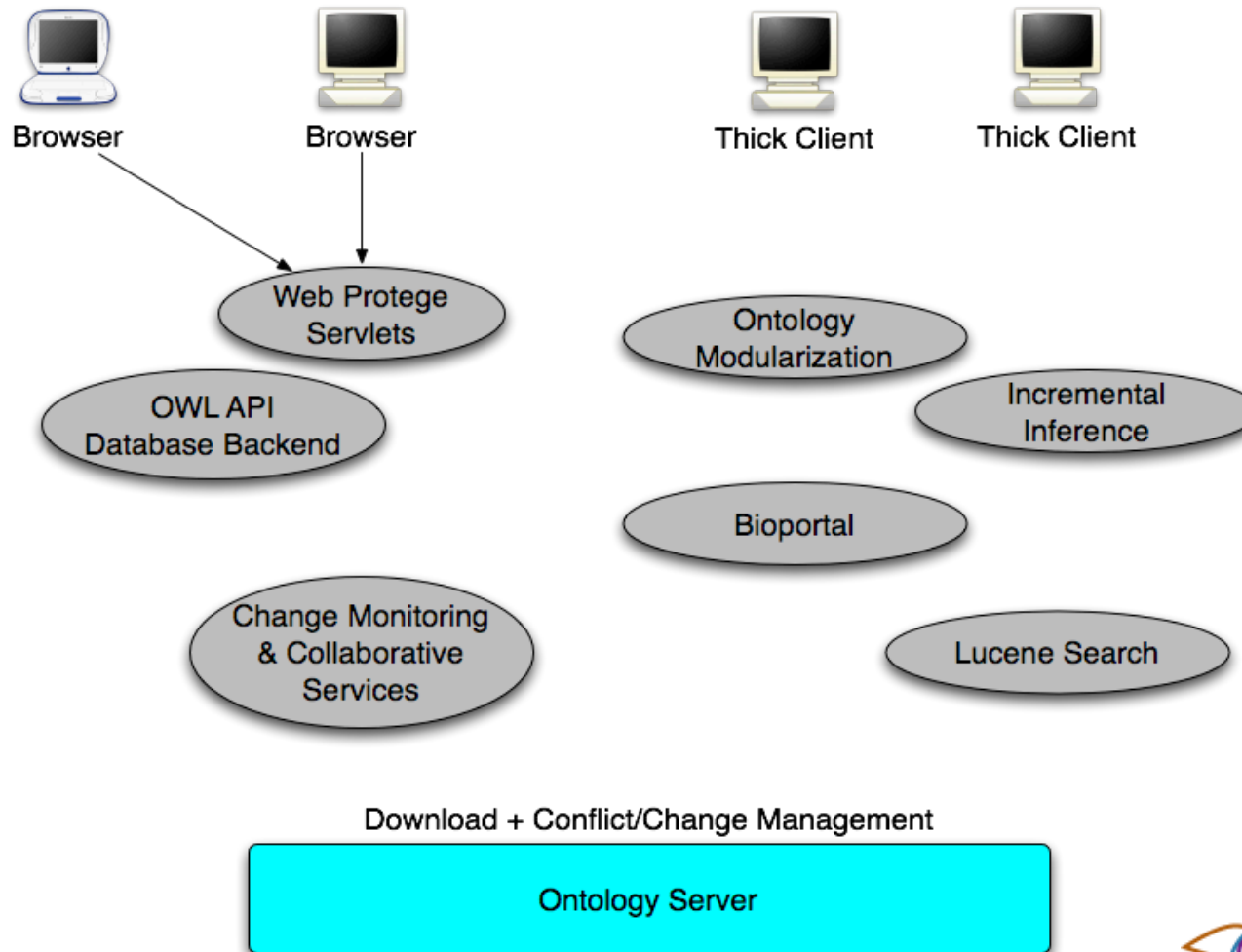
- Benefits
 - Collaborative Editing
 - Distributed Applications
- Disadvantages
 - Hard to get performance out of network
 - Complexity



Client-Server Lessons

- Fine grained network api difficult to maintain
 - Network Latency (1ms - 80ms)
 - Network Outages
- Thread Safe OWL api essential
- Performance is constantly being tuned

Full Featured Protégé Server





Client-Server Approach

- Web Protégé
 - Client is lightweight
 - Network interface must be fine grained
 - Limited Functionality
- Thick Client
 - Capable of loading ontologies
 - Ontology Service
 - Download
 - Change Management



Web Protégé

- Browse and Edit ontology using ordinary web browser
- Benefits
 - No installation
 - Powerful Tools
 - Instant Gratification
- Disadvantages
 - Limits on capabilities



Thick Client

- Install a powerful client
- Benefits
 - Best performance and power
 - All the tools of Web Protégé
 - Sandbox Capability
- Disadvantages
 - Requires installation



Collaborative Protégé

- Adding shared notes to an ontology
 - Discussion threads
- View and discuss changes made to an ontology
- Live Chat during editing



Future (BioPortal & Protégé)

- Advanced API's (Manchester OWL API)
- Advanced Services
 - Incremental Inference
 - Lucene Search
- Merge Capabilities
 - Protégé 4 Client
 - Web-Protégé
 - BioPortal