



Università degli Studi di Roma “Tor Vergata”

Protégé e VocBench

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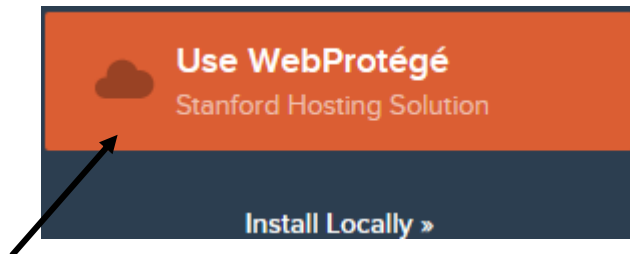
PROTÉGÉ

Protégé

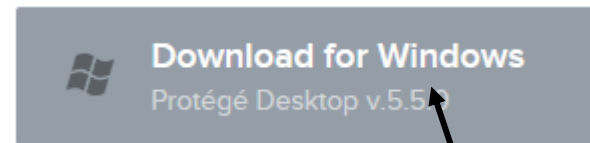
Protégé è «un editor di ontologie gratuito e open-source e un framework per costruire sistemi intelligenti».

<https://protege.stanford.edu/>

Esiste in due edizioni:



Offerto in modalità Software-as-a-Service (SaaS), può anche essere installato localmente



Esistono anche download per Linux e Mac OSX, ed una distribuzione indipendente dalla piattaforma che necessita dell'installazione di un Java Runtime Environment (versione 8 o superiore)

WebProtégé vs Protégé Desktop

WebProtégé	Protégé Desktop
	Conforme agli standard W3C
Interfaccia utente personalizzabile e <u>semplice</u>	Interfaccia utente personalizzabile
Ottimizzato per la collaborazione	-
Tracciamento delle modifiche e storia delle revisioni	-
Form web per editing specifico del dominio	-
Formati multipli di upload/download	-
-	Supporto per la visualizzazione
-	Supporto al refactoring di ontologie
-	Interfaccia diretta a reasoner
-	Architettura altamente pluggabile
Compatibilità incrociata con Protégé Desktop	Compatibilità incrociata con WebProtégé


Le slide successive forniscono una panoramica delle principali caratteristiche di WebProtégé.

È possibile provare WebProtégé in modo molto facile, registrandosi (gratuitamente) sulla installazione ospitata da Stanford.

WebProtégé – Home page

Projects Manuel Fiorelli ▾

[Create New Project](#)

Project name	Owner	Last opened	Last modified
Test	 Manuel Fiorelli	Less than one min...	2 minutes ago ☰

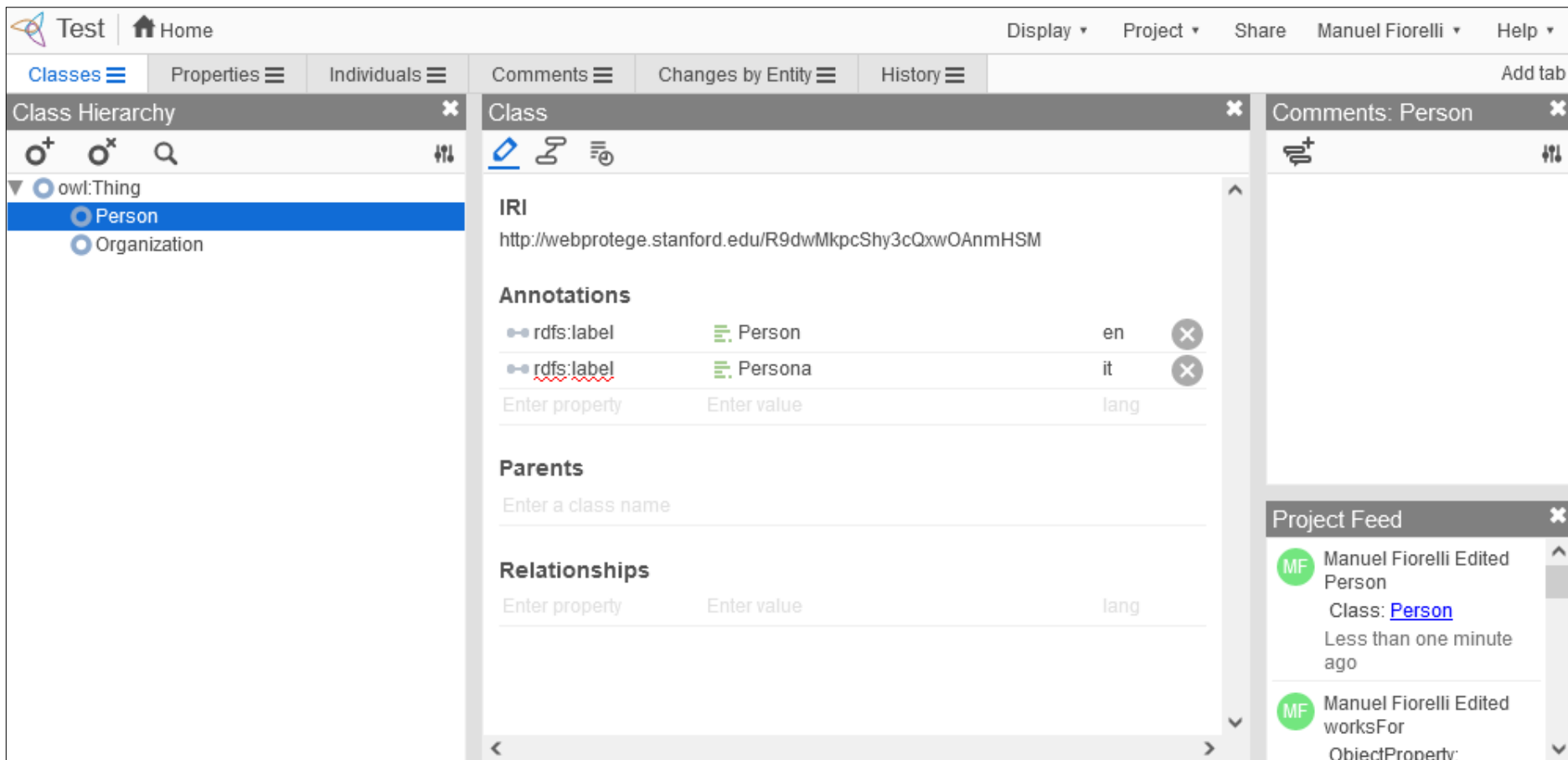
Owned by Me

Shared with Me

Trash

Sort by Last Opened ▾

WebProtégé – Editing di classi



The screenshot displays the WebProtégé web interface. The top navigation bar includes 'Test', 'Home', 'Display', 'Project', 'Share', 'Manuel Fiorelli', and 'Help'. Below this, a menu bar contains 'Classes', 'Properties', 'Individuals', 'Comments', 'Changes by Entity', and 'History'. The main workspace is divided into three panes:

- Class Hierarchy:** Shows a tree view with 'owl:Thing' expanded to show 'Person' and 'Organization'.
- Class:** The central pane for editing the selected class. It shows:
 - IRI:** `http://webprotege.stanford.edu/R9dwMkpcShy3cQxwOAnmHSM`
 - Annotations:** A table with two rows:

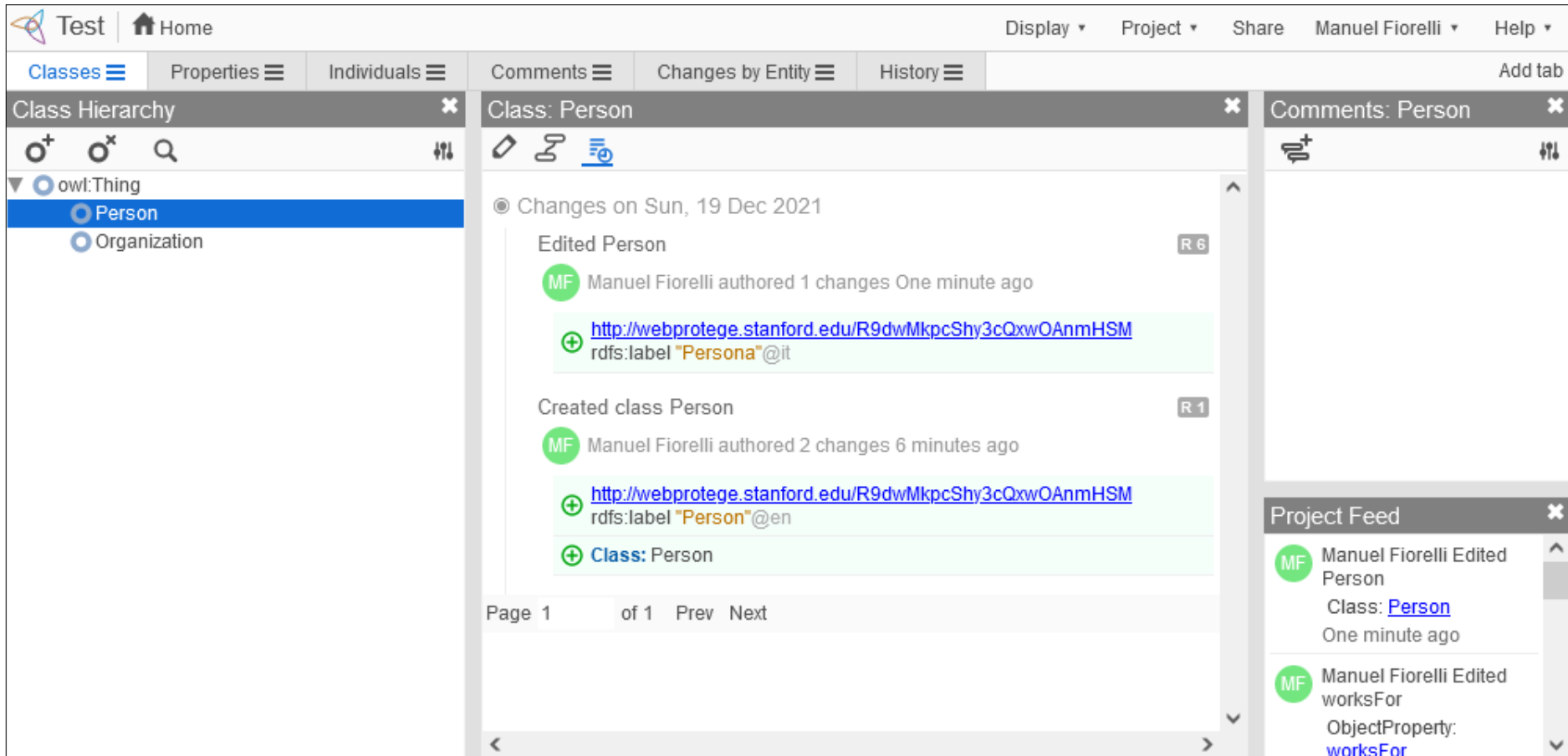
rdfs:label	Person	en	[X]
rdfs:label	Persona	it	[X]

Below the table are input fields for 'Enter property', 'Enter value', and 'lang'.
 - Parents:** An input field for 'Enter a class name'.
 - Relationships:** Input fields for 'Enter property', 'Enter value', and 'lang'.
- Comments: Person:** A pane for adding or editing comments for the class.

At the bottom right, a 'Project Feed' pane shows recent activity:

- Manuel Fiorelli Edited Person
Class: [Person](#)
Less than one minute ago
- Manuel Fiorelli Edited worksFor
ObjectProperty:

WebProtégé – Storia delle modifiche su una risorsa



The screenshot displays the WebProtégé interface with the following components:

- Top Bar:** Test | Home | Display | Project | Share | Manuel Fiorelli | Help
- Navigation Tabs:** Classes | Properties | Individuals | Comments | Changes by Entity | History | Add tab
- Class Hierarchy (Left Panel):**
 - owl:Thing
 - Person
 - Organization
- Class: Person (Main Panel):**
 - Changes on Sun, 19 Dec 2021
 - Edited Person (R 6):** Manuel Fiorelli authored 1 changes One minute ago. Added `rdfs:label "Persona"@it`.
 - Created class Person (R 1):** Manuel Fiorelli authored 2 changes 6 minutes ago. Added `rdfs:label "Person"@en` and `Class: Person`.
- Comments: Person (Right Panel):** Empty comment list.
- Project Feed (Bottom Right):**
 - Manuel Fiorelli Edited Person. Class: [Person](#). One minute ago.
 - Manuel Fiorelli Edited worksFor. ObjectProperty: [worksFor](#).
- Page Navigation:** Page 1 of 1 | Prev | Next

WebProtégé – Storia delle revisioni

Test | Home | Display | Project | Share | Manuel Fiorelli | Help

Classes | Properties | Individuals | Comments | Changes by Entity | **History** | Add tab

Project History

Changes on Sun, 19 Dec 2021

Edited worksFor R 5

Manuel Fiorelli authored 1 changes Less than one minute ago

- worksFor **Range** Organization

Edited worksFor R 4

Manuel Fiorelli authored 1 changes Less than one minute ago

- worksFor **Domain** Person

Created object property worksFor as a sub-property of owl:topObjectProperty R 3

Manuel Fiorelli authored 3 changes One minute ago

- <http://webprotege.stanford.edu/R7hgpjlnqY2WqTwnJ9VFysi> rdfs:label "worksFor"@en
- ObjectProperty:** worksFor
- worksFor **SubPropertyOf** owl:topObjectProperty

Revert changes in revision 4
Download revision 4

Page 1 of 1 Prev Next

Protégé Desktop

Protégé Desktop è un editor di ontologie OWL2, con pieno supporto per la visualizzazione di conoscenza inferibile (attraverso la connessione a reasoner)

Utilizza le OWL API (a partire dalla versione 4) per rappresentare (in memoria) ontologie OWL

Ha una vasta libreria di plugin...anche se è frazionata tra le principali (incompatibili) versioni del tool (3 vs ≥ 4)

Protégé Desktop – Panoramica

The screenshot displays the Protégé Desktop interface for an ontology. The main window title is "untitled-ontology-6 (http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6)". The interface includes a menu bar (File, Edit, View, Reasoner, Tools, Refactor, Window, Help) and a search bar. The active ontology is "untitled-ontology-6". The class hierarchy is shown on the left, with "owl:Thing" at the root, and "Director" highlighted. The description of the "Director" class is shown on the right, including the annotation "rdfs:label director" and the class axiom "Equivalent To :Person and (headOf some :Program)".

untitled-ontology-6 (http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6) : [http://www.semanticweb.org/manue/ontologies/202...

File Edit View Reasoner Tools Refactor Window Help

< > untitled-ontology-6 (http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6) Search...

>:Person >:Director

Active ontology x Entities x Individuals by class x DL Query x

Annotation properties Datatypes Individuals Classes Object properties Data properties

Annotations Usage

Class hierarchy: :Director Annotations: :Director

Annotations +

rdfs:label director

Description: :Director

Equivalent To +

:Person and (headOf some :Program)

SubClass Of +

General class axioms +

SubClass Of (Anonymous Ancestor)

Instances +

Target for Key +

Disjoint With +

No Reasoner set. Select a reasoner from the Reasoner menu Show Inferences

Protégé Desktop – Utilizzare un reasoner

The screenshot shows the Protégé Desktop interface. The 'Reasoner' menu is open, displaying the following options:

- Start reasoner (Ctrl-R): Starts a new reasoner and initializes a cache of reasoning results including the inferred class hierarchy and the inferred types of individuals.
- Explain inconsistent ontology
- Configure...
- Hermit 1.4.3.456
- None

The left sidebar shows the 'Class hierarchy' for the ontology. The hierarchy is as follows:

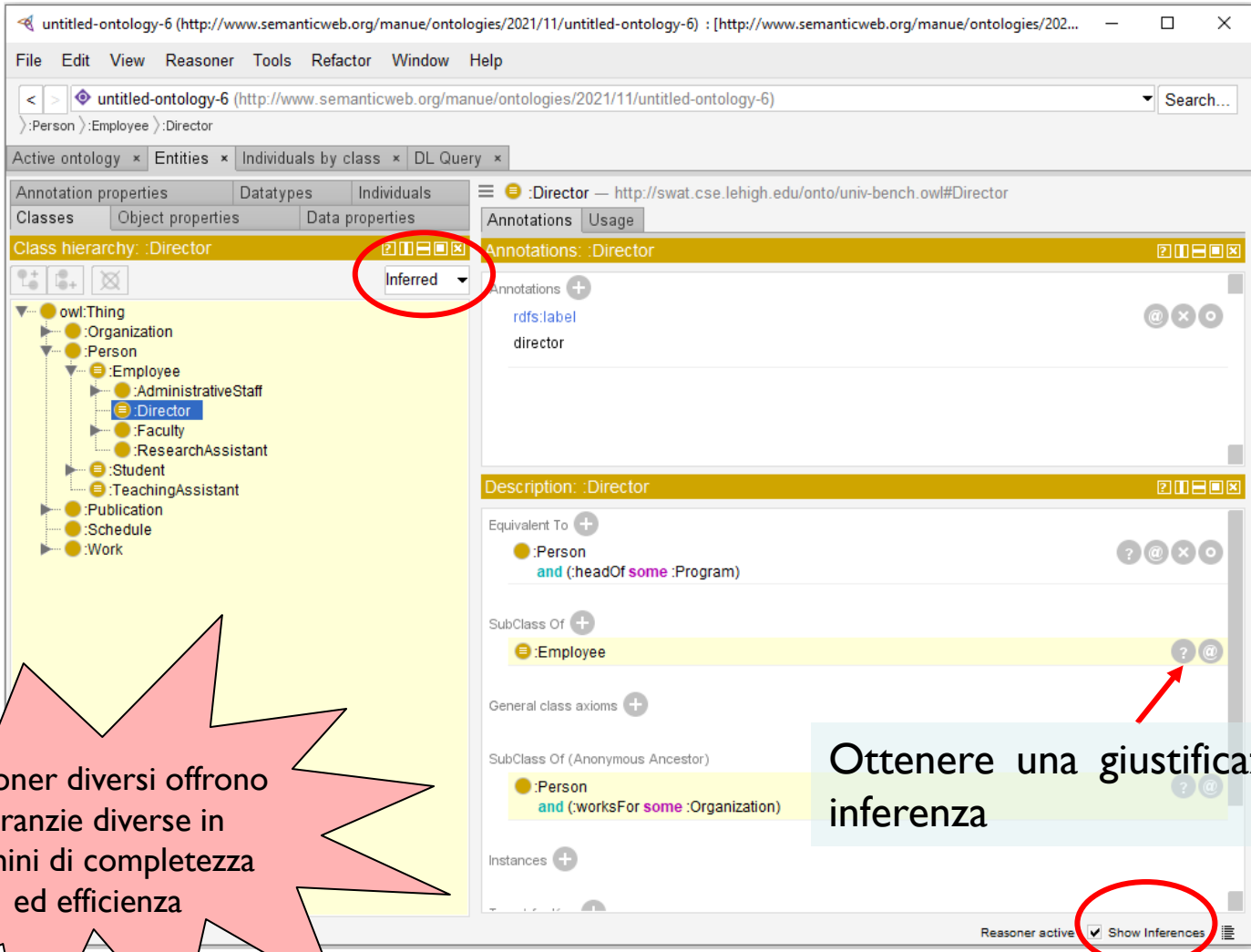
- owl:Thing
 - .Organization
 - .Person
 - .Chair
 - .Director
 - .Employee
 - .GraduateStudent
 - .ResearchAssistant
 - .Student
 - .TeachingAssistant
 - .Publication
 - .Schedule
 - .Work

The main workspace shows the 'Annotations' and 'Description' for the selected class ':Director'. The 'Annotations' section shows 'rdfs:label' with the value 'director'. The 'Description' section shows the following logical definition:

Equivalent To: .Person and (headOf some .Program)

At the bottom of the interface, there is a status bar that reads: 'To use the reasoner click Reasoner > Start reasoner' and a checked checkbox for 'Show Inferences'.

Protégé Desktop – Visualizzazione inferenze



Reasoner diversi offrono garanzie diverse in termini di completezza ed efficienza

Ottenere una giustificazione della inferenza

Protégé Desktop – Spiegazione inferenze (1/2)

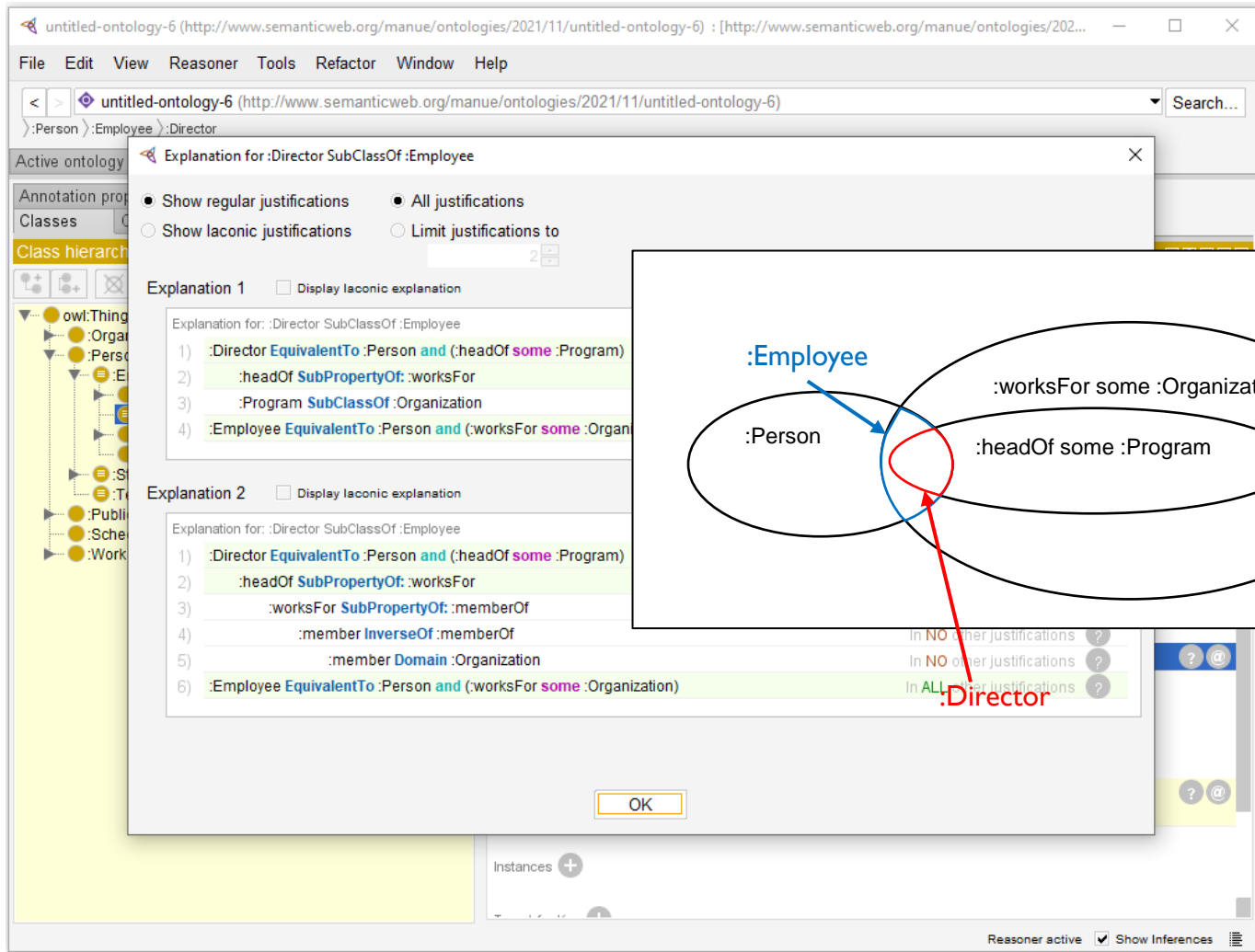
Una giustificazione è un insieme minimale di assiomi da cui segue una certa inferenza

The screenshot shows the Protégé Desktop interface with an 'Explanation for :Director SubClassOf:Employee' dialog box open. The dialog has two tabs: 'Show regular justifications' (selected) and 'Show laconic justifications'. It lists two explanations, each with a table of axioms and their frequency in other justifications.

Explanation	Axiom	Frequency
Explanation 1	1) :Director EquivalentTo:Person and (:headOf some :Program)	In ALL other justifications
	2) :headOf SubPropertyOf:worksFor	In ALL other justifications
	3) :Program SubClassOf:Organization	In NO other justifications
	4) :Employee EquivalentTo:Person and (:worksFor some :Organization)	In ALL other justifications
Explanation 2	1) :Director EquivalentTo:Person and (:headOf some :Program)	In ALL other justifications
	2) :headOf SubPropertyOf:worksFor	In ALL other justifications
	3) :worksFor SubPropertyOf:memberOf	In NO other justifications
	4) :member InverseOf:memberOf	In NO other justifications
	5) :member Domain:Organization	In NO other justifications
6) :Employee EquivalentTo:Person and (:worksFor some :Organization)	In ALL other justifications	

Nella prova scritta le spiegazioni dovranno essere molto più chiare

Protégé Desktop – Spiegazione inferenze (1b/2)



untitled-ontology-6 (http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6) : [http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6]

File Edit View Reasoner Tools Refactor Window Help

untitled-ontology-6 (http://www.semanticweb.org/manue/ontologies/2021/11/untitled-ontology-6) Search...

>:Person >:Employee >:Director

Active ontology

Annotation properties

Classes

Class hierarchy

owl:Thing

owl:Organization

owl:Person

owl:Employee

owl:Director

owl:Program

owl:Work

Explanation for :Director SubClassOf :Employee

Show regular justifications All justifications

Show laconic justifications Limit justifications to

Explanation 1 Display laconic explanation

Explanation for :Director SubClassOf :Employee

- 1) :Director EquivalentTo :Person and (:headOf some :Program)
- 2) :headOf SubPropertyOf :worksFor
- 3) :Program SubClassOf :Organization
- 4) :Employee EquivalentTo :Person and (:worksFor some :Organization)

Explanation 2 Display laconic explanation

Explanation for :Director SubClassOf :Employee

- 1) :Director EquivalentTo :Person and (:headOf some :Program)
- 2) :headOf SubPropertyOf :worksFor
- 3) :worksFor SubPropertyOf :memberOf
- 4) :member InverseOf :memberOf
- 5) :member Domain :Organization
- 6) :Employee EquivalentTo :Person and (:worksFor some :Organization)

In NO other justifications ?

In NO other justifications ?

In ALL other justifications ?

OK

Instances +

Reasoner active Show Inferences

Diagram illustrating the logical relationships:

- :Employee (blue oval)
- :Person (black oval)
- :Director (red oval)
- :worksFor some :Organization (black oval)
- :headOf some :Program (black oval)

Arrows indicate relationships:

- Blue arrow from :Employee to :Person
- Red arrow from :Director to :worksFor some :Organization
- Red arrow from :Director to :headOf some :Program

Protégé Desktop – Spiegazione inferenze (2/2)

una giustificazione laconica è un tipo di giustificazione i cui assiomi non contengono parti superflue

Explanation for :Director SubClassOf :Employee

Show regular justifications All justifications
 Show laconic justifications Limit justifications to

Explanation 1 Display laconic explanation

Explanation for :Director SubClassOf :Employee

- 1) :Director SubClassOf :headOf some :Program In 1 other justifications ?
- 2) :headOf SubPropertyOf :worksFor In ALL other justifications ?
- 3) :Program SubClassOf :Organization In 1 other justifications ?
- 4) :Director SubClassOf :Person In 1 other justifications ?
- 5) :Person and (worksFor some :Organization) SubClassOf :Employee In ALL other justifications ?

Explanation 2 Display laconic explanation

Explanation for :Director SubClassOf :Employee

- 1) :Director SubClassOf :headOf some :Program In 1 other justifications ?
- 2) :headOf SubPropertyOf :worksFor In ALL other justifications ?
- 3) :worksFor SubPropertyOf :memberOf In 2 other justifications ?
- 4) :memberOf SubPropertyOf :inverse (member) In 2 other justifications ?
- 5) :member Range :Person In 1 other justifications ?
- 6) :Program SubClassOf :Organization In 1 other justifications ?
- 7) :Person and (worksFor some :Organization) SubClassOf :Employee In ALL other justifications ?

OK

Instances +

Reasoner active Show Inferences

VOCBENCH

«VocBench è una piattaforma di sviluppo collaborativo, basata sul web, multilingua per la gestione di ontologie OWL, tesauri SKOS(/XL), lessici OntoLex-Lemon e dataset RDF in generale»

<http://vocbench.uniroma2.it/>

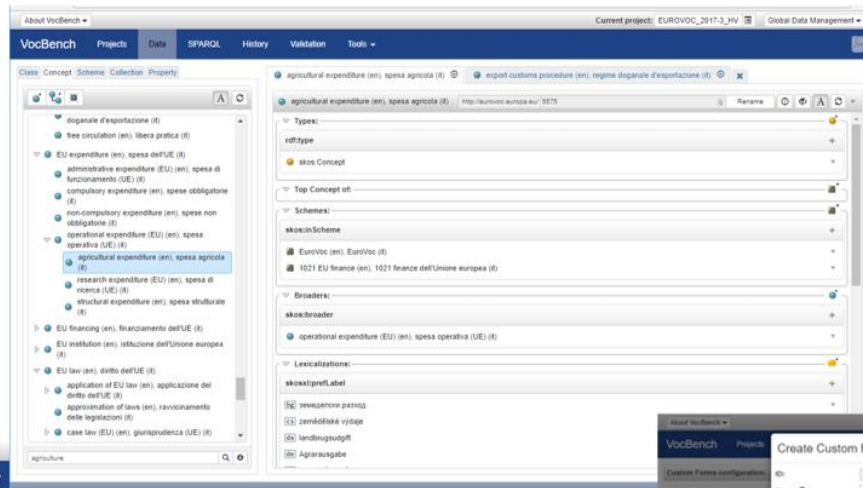
Gratuito e open-source (licenza BSD-3-Clause)

È una soluzione di riferimento per i paesi della Unione Europea, il cui sviluppo è stata finanziato dal programma ISA² della Commissione Europea

<https://ec.europa.eu/isa2/solutions/vocbench3>

VocBench (2/2)

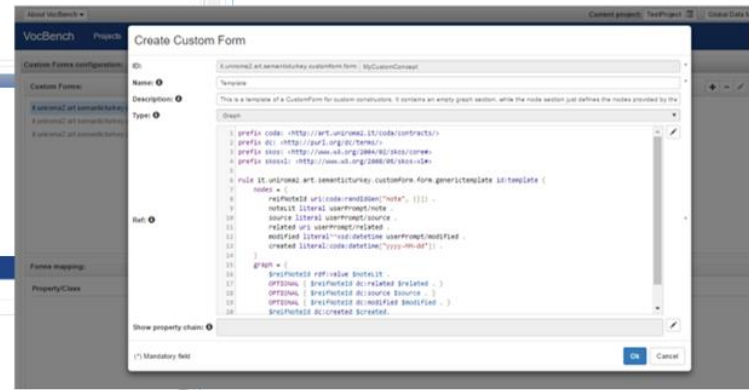
VocBench enables management of the publication workflow, through history and validation



The screenshot shows the VocBench web interface. On the left, there is a tree view of classes and concepts, including 'agricultural expenditure (en), spesa agricola (it)'. The main area displays details for a selected concept, showing its URI, types (like 'skos:Concept'), top concept, schemes, and broader concepts. The interface is clean and professional, with a blue header and clear navigation options.

Staged commits

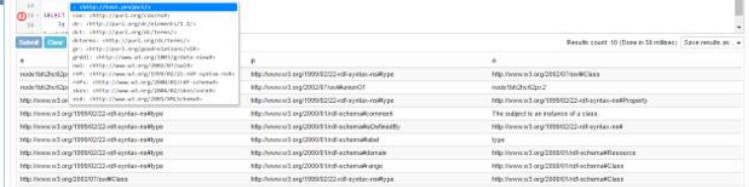
Commit	Action	1st Param	Other param(s)	User	Date	Validate
http://eurovoc.europa.eu/metadata/169579-212c-4656-b6b0-676a7f81666a	SKOSCreateConcept	label: 'Sales Manager'@en	broaderConcept: <http://eurovoc.europa.eu/5081>	Amando Stelato <stelato@uniroma2.it>	29/09/17	Accept
http://eurovoc.europa.eu/metadata/c5fac139-ed6d-4aed-99a7-2696707658d4	SKOSXUsePrefLabel	concept:	literal: '公共公共'@ch	Amando Stelato <stelato@uniroma2.it>	05/26/02	Accept
http://eurovoc.europa.eu/metadata/7806d65-3077-4595-8d0-91aaf3f9e44	SKOSXUsePrefLabel	concept:	literal: '公共公共'@ch	Amando Stelato <stelato@uniroma2.it>	05/24/22	Accept
http://eurovoc.europa.eu/metadata/95ab362c-49b8-4b81-8a3f-6b0562a9526	SKOSXUsePrefLabel	concept:	literal: '公共公共'@ch	Amando Stelato <stelato@uniroma2.it>	29/09/17	Accept
http://eurovoc.europa.eu/metadata/992bd159-800c-4e43-c6d1-9900a8703049	SKOSXUsePrefLabel	concept:	literal: '公共公共'@ch	Amando Stelato <stelato@uniroma2.it>	29/09/17	Accept



The screenshot shows the 'Create Custom Form' dialog in VocBench. It allows users to define a custom form for a specific concept. The dialog includes fields for 'Name', 'Description', and 'Type'. Below these, there is a 'Ref' section with a text area containing a JSON-LD snippet for defining a custom form. The snippet includes fields like 'pref:code', 'pref:label', and 'pref:source'. The dialog also has 'Form mapping' and 'Property class' sections, and a 'Show property chain' button.

Custom Forms: a powerful form description language allows for project tailored representation of the data.

SPARQL Editing with syntax completion and highlight



The screenshot shows the SPARQL editor in VocBench. It features a text area with SPARQL queries, a 'Select' button, and a 'Clear' button. Below the editor, there is a table showing the results of the query, with columns for 'id', 'type', and 'uri'. The results are displayed in a structured format, showing the hierarchical relationships between concepts.

Powered by Semantic Turkey!



Basta seguire i link forniti nella pagina dei *download*:

<http://vocbench.uniroma2.it/downloads/>

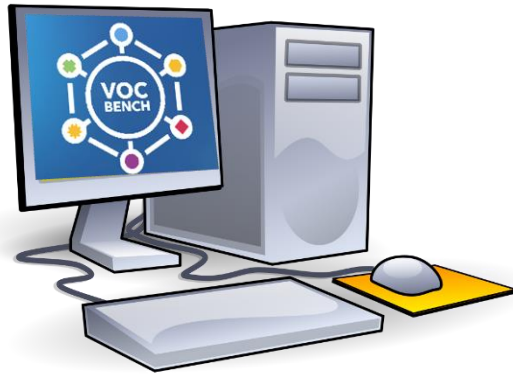
Nella demo utilizzeremo l'ultima versione 10.1.1

Questa versione:

- richiede (esattamente) Java 8
- è stata testata con GraphDB 9.8.1

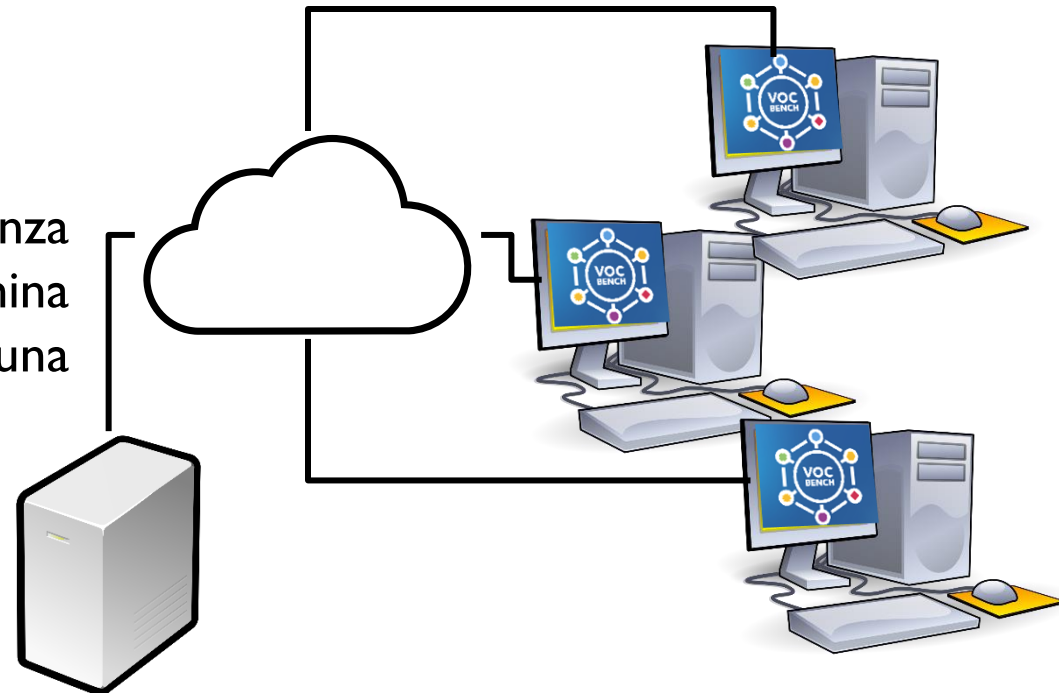
(<https://download.ontotext.com/owlim/40f76740-e3f4-11eb-bcaf-42843b1b6b38/graphdb-free-9.8.1-dist.zip>)

VocBench – Opzioni di deployment



VocBench può essere utilizzato come un'applicazione desktop, grazie alla possibilità di configurare un utente amministratore predefinito

È anche possibile ospitare una istanza condivisa di VocBench su una macchina server, permettendone l'accesso ad una moltitudine di utenti



Semantic Turkey – Una piattaforma a servizi per supportarli tutti

Publicazione di dati e hosting di portali di dati

ShowVoc

Browse ShowVoc datasets

Dataset type

- KOS
- Ontologies
- Lexicons
- Only open datasets

Datasets

Dataset	Model	Lexicalization
ESTAT_CN2019 http://publications.europa.eu/resource/authority/estat/cn2019/	skos	skos
ESTAT_CN2020 http://publications.europa.eu/resource/authority/estat/cn2020/	skos	skos
ESTAT_CN2021 http://publications.europa.eu/resource/authority/estat/cn2021/	skos	skos
ESTAT_CN2022 http://publications.europa.eu/resource/authority/estat/cn2022/	skos	skos

Filter

About ShowVoc v. 1.1.1 © ART Group

Current project: agrovoc-core Global Data Management About VocBench en

VocBench Projects Data Metadata SPARQL History Validation Tools

Class Concept Scheme Collection Property

Datatype

- activities (en), Attività (it)
 - accident reporting (en), Comunicazione di sinistro (it)
 - accounting (en), Contabilità (it)
 - administration (en), Amministrazione (it)
 - advocacy (en), Sostegno civile (it)
 - aid programmes (en), Programmi di aiuto (it)
 - analysis (en), Analisi (it)
 - application (en), Applicazione (it)
 - assessment (en), Quantificazione (it)
 - berthing (en)

Search

accounting (en), Contabilità (it) http://aims.fao.org/aos/agrovoc/c_52 Rename

Types:

- rdf:type
 - skos:Concept

Top concept of:

Schemes:

- skos:inScheme
 - http://aims.fao.org/aos/agrovoc

Broaders:

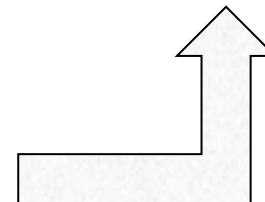
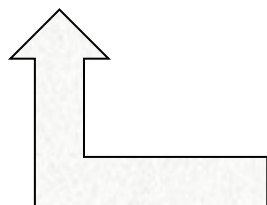
- skos:broader
 - activities (en), Attività (it)
- skos:broadMatch

ResView TermView Code Status

v. 10.1.2-SNAPSHOT © ART Group, 2016

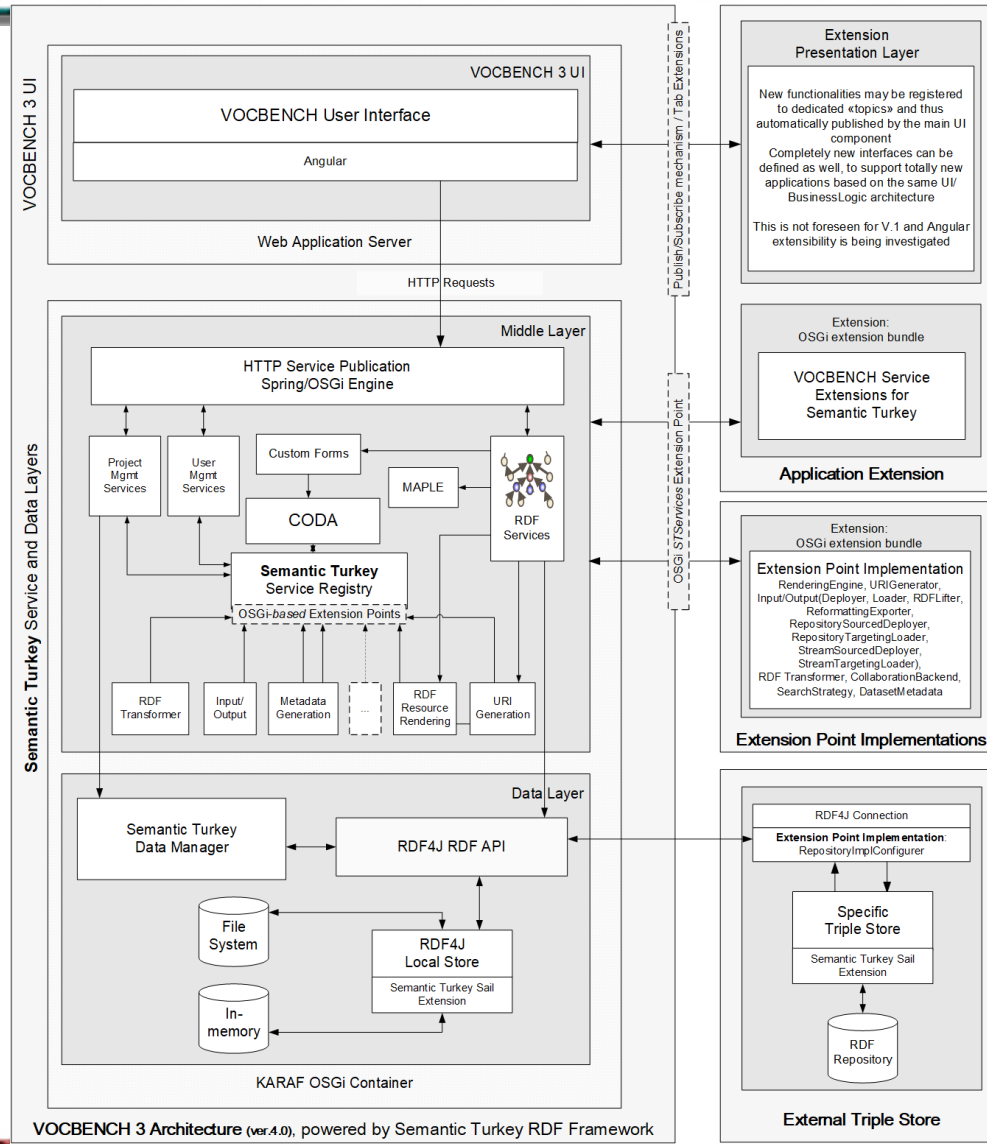
<http://showvoc.uniroma2.it/>

<http://vocbench.uniroma2.it/>



<http://semanticturkey.uniroma2.it/>

VocBench – Architettura



VocBench - DEMO

