

# THE SWEET COMPENDIUM OF ONTOLOGY BUILDING TOOLS

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Well, for another client and another purpose, I was goaded into screening my [Sweet Tools](#) listing of semantic Web and -related tools and to assemble stuff from every other nook and cranny I could find. The net result is this enclosed listing of some 140 or so tools — most open source — related to semantic Web ontology building in one way or another.

Ever since I wrote my [Intrepid Guide to Ontologies](#) nearly three years ago (and one of the more popular articles of this site, though it is now perhaps a bit long in the tooth), I have been intrigued with how these semantic structures are built and maintained. That interest, in no small measure, is why I continue to maintain the [Sweet Tools](#) listing.

As far as I know, the following is the largest and most comprehensive listing of ontology building tools available. I broadly interpret the classification of ‘ontology building’; I include, for example, vocabulary extraction and prompting tools, as well as ontology visualization and mapping.

There are some 140 tools, perhaps 90 or so are still in active use. (Given the scope, not every tool could be inspected in detail. Some listed as being perhaps inactive may not be so, and others not in that category perhaps should be.) Of the entire roster of tools, somewhere on the order of 12 to 20 are quite impressive and deserving of local installation, test runs, and close inspection.

There are relatively few tools useful to non-specialists (or useful to engaging knowledgeable publics in the ontology-building exercise). There appear to be key gaps in the entire workflow from domain scoping and initial ontology definition and vocabulary candidates, to longer-term maintenance and revision. For example, spreadsheets would appear to be a possible useful first step in any workflow process (which is why [irON](#) is listed), but the spreadsheet tool *per se* is not listed herein (nor are text editors).

I surely have missed some tools and likely improperly assigned others. Please drop me an email or comment on this post with any revisions or suggestions.

## Some Worth A Closer Look

In my own view, there are some tools that definitely deserve a closer look. My favorite candidates — for very different reasons and for very different places in the workflow — are (in no particular order): [Apelon DTS](#), [irON](#), [FlexViz](#), [Knoodl](#), [Protégé](#), [diagramic.com](#), [BooWa](#), [COE](#), [ontopia](#), [Anzo](#), [PoolParty](#), [Vine](#) (and [voc2rdf](#)), [Erca](#), [Graphl](#), and [GrOWL](#). Each one of these links is more fully described below. Also, all tools in the **Vocabulary Prompting Tools** category (which also includes extraction) are worth reviewing since all or nearly all have online demos.

Other tools may also be deserving, depending on use case. Some of the more specific analysis and conversion tools, for example, are in the **Miscellaneous** category.

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Also, some purists may quibble with why some tools are listed here (such as inclusion of some stuff related to [Topic Maps](#)). Well, my answer to that is there are no real complete solutions, and whatever we can pragmatically do today requires glueing together many disparate parts.

## Comprehensive Ontology Tools

- [Altova SemanticWorks](#) is a visual RDF and OWL editor that auto-generates RDF/XML or nTriples based on visual ontology design. No open source version available
- [Amine](#) is a rather comprehensive, open source platform for the development of intelligent and multi-agent systems written in Java. As one of its components, it has an ontology GUI with text- and tree-based editing modes, with some graph visualization
- The [Apelon DTS](#) (Distributed Terminology System) is an integrated set of open source components that provides comprehensive terminology services in distributed application environments. DTS supports national and international data standards, which are a necessary foundation for comparable and interoperable health information, as well as local vocabularies. Typical applications for DTS include clinical data entry, administrative review, problem-list and code-set management, guideline creation, decision support and information retrieval.. Though not strictly an ontology management system, Apelon DTS has plug-ins that provide visualization of concept graphs and related functionality that make it close to a complete solution
- [DOME](#) is a programmable XML editor which is being used in a knowledge extraction role to transform Web pages into RDF, and available as Eclipse plug-ins. DOME stands for DERI Ontology Management Environment
- [FlexViz](#) is a Flex-based, Protégé-like client-side ontology creation, management and viewing tool; very impressive. The code is distributed from [Sourceforge](#); there is a nice [online demo](#) available; there is a nice [explanatory paper](#) on the system, and the developer, Chris Callendar, has a useful [blog](#) with Flex development tips
- [Knoodl](#) facilitates community-oriented development of OWL based ontologies and RDF knowledge bases. It also serves as a semantic technology platform, offering a Java service-based interface or a SPARQL-based interface so that communities can build their own semantic applications using their ontologies and knowledgebases. It is hosted in the Amazon EC2 cloud and is available for free; private versions may also be obtained. See especially the [screencast](#) for a quick introduction
- The [NeOn toolkit](#) is a state-of-the-art, open source multi-platform ontology engineering environment, which provides comprehensive support for the ontology engineering life-cycle. The [v2.3.0 toolkit](#) is based on the Eclipse platform, a leading development environment, and provides an extensive set of [plug-ins](#) covering a variety of ontology engineering activities. You can add these plug-ins or get a current listing from the built-in updating mechanism
- [ontopia](#) is a relative complete suite of tools for building, maintaining, and deploying Topic Maps-based applications; open source, and written in Java. Could not find online demos, but there are [screenshots](#) and there is visualization of topic relationships
- [Protégé](#) is a free, open source visual ontology editor and knowledge-base framework. The Protégé platform supports two main ways of modeling ontologies via the Protégé-Frames and Protégé-OWL editors. Protégé ontologies can be exported into a variety of formats including RDF(S), OWL, and XML Schema. There are a large number of third-party plugins that extends the platform's functionality
  - [Protégé Plugin Library](#) – frequently consult this page to review new additions to the Protégé editor; presently there are dozens of specific plugins, most related to the semantic Web and most open source
  - [Collaborative Protégé](#) is a plug-in extension of the existing Protégé system that supports collaborative ontology editing as well as annotation of both ontology components and ontology changes. In addition to the common ontology editing operations, it enables annotation of both ontology components and ontology changes. It supports the searching and filtering of user annotations, also known as notes, based on different criteria. There is also an [online demo](#)

- [Sigma](#) is a knowledge engineering environment for developing, viewing and debugging theories in first order logic. It works with Knowledge Interchange Format (KIF) and is optimized for the Suggested Upper Merged Ontology (SUMO).
- [TopBraid Composer](#) is an enterprise-class modeling environment for developing Semantic Web ontologies and building semantic applications. Fully compliant with W3C standards, Composer offers comprehensive support for developing, managing and testing configurations of knowledge models and their instance knowledge bases. It is based on the Eclipse IDE. There is a free version (after registration) for small ontologies.

### **Not Apparently in Active Use**

- [Adaptiva](#) is a user-centred ontology building environment, based on using multiple strategies to construct an ontology, minimising user input by using adaptive information extraction
- [Exteca](#) is an ontology-based technology written in Java for high-quality knowledge management and document categorisation, including entity extraction. Though code is still available, no updates have been provided since 2006. It can be used in conjunction with search engines
- [IODT](#) is IBM's toolkit for ontology-driven development. The toolkit includes EMF Ontology Definition Metamodel (EODM), EODM workbench, and an OWL Ontology Repository (named Minerva)
- [KAON](#) is an open-source ontology management infrastructure targeted for business applications. It includes a comprehensive tool suite allowing easy ontology creation and management and provides a framework for building ontology-based applications. An important focus of KAON is scalable and efficient reasoning with ontologies
- [Ontolingua](#) provides a distributed collaborative environment to browse, create, edit, modify, and use ontologies. The server supports over 150 active users, some of whom have provided us with descriptions of their projects. Provided as an online service; software availability not known.

### **Vocabulary Prompting Tools**

- [AlchemyAPI](#) from Orchestr8 provides an API based application that uses statistical and natural language processing methods. Applicable to webpages, text files and any input text in several languages
- [BooWa](#) is a set expander for any language (formerly known as SEALS); developed by RC Wang of Carnegie Mellon
- [Google Keywords](#) allows you to enter a few descriptive words or phrases or a site URL to generate keyword ideas
- [Google Sets](#) (now abandoned, but link points to alternative) for automatically creating sets of items from a few examples
- [Open Calais](#) is free limited API web service to automatically attach semantic metadata to content, based on either entities (people, places, organizations, etc.), facts (person 'x' works for company 'y'), or events (person 'z' was appointed chairman of company 'y' on date 'x'). The metadata results are stored centrally and returned to you as industry-standard RDF constructs accompanied by a Globally Unique Identifier (GUID)
- [Query-by-document](#) from BlogScope has a nice phrase extraction service, with a choice of ranking methods. Can also be used in a Firefox plug-in (not tested with 3.5+)
- [SemanticHacker](#) (from [Textwise](#)) is an API that does a number of different things, including categorization, search, etc. By using 'concept tags', the API can be leveraged to generate metadata or tags for content
- [TagFinder](#) is a Web service that automatically extracts tags from a piece of text. The tags are chosen based on both statistical and linguistic analysis of the original text
- [Tagthe.net](#) has a demo and an API for automatic tagging of web documents and texts. Tags can be single words only. The tool also recognizes named entities such as people names and locations

- [TermExtractor](#) extracts terminology consensually referred in a specific application domain. The software takes as input a corpus of domain documents, parses the documents, and extracts a list of “syntactically plausible” terms (e.g. compounds, adjective-nouns, etc.)
- [TermFinder](#) uses Poisson statistics, the Maximum Likelihood Estimation and Inverse Document Frequency between the frequency of words in a given document and a generic corpus of 100 million words per language; available for English, French and Italian
- [TerMine](#) is an online and batch term extractor that emphasizes part of speech (POS) and n-gram (phrase extraction). TerMine is the terminological management system with the C-Value term extraction and AcroMine acronym recognition integrated
- [Topia term extractor](#) is a part-of-speech and frequency based term extraction tool implemented in python. Here is a [term extraction demo](#) based on this tool
- [Topicalizer](#) is a service which automatically analyses a document specified by a URL or a plain text regarding its word, phrase and text structure. It provides a variety of useful information on a given text including the following: Word, sentence and paragraph count, collocations, syllable structure, lexical density, keywords, readability and a short abstract on what the given text is about
- [TrMExtractor](#) does glossary extraction on pure text files for either English or Hungarian
- [Wikify!](#) is a system to automatically “wikify” a text by adding Wikipedia-like tags throughout the document. The system extracts keywords and then disambiguates and matches them to their corresponding Wikipedia definition
- [Yahoo! Placemaker](#) is a freely available geoparsing Web service. It helps developers make their applications location-aware by identifying places in unstructured and atomic content – feeds, web pages, news, status updates – and returning geographic metadata for geographic indexing and markup
- [Yahoo! Term Extraction Service](#) is an API to Yahoo’s term extraction service, as well as many other APIs and services in a variety of languages and for a variety of tasks; good general resource. The service has been reported to be shut down numerous times, but apparently is kept alive due to popular demand.

## Initial Ontology Development

- [COE](#) COE (CmapTools Ontology Editor) is a specialized version of the CmapTools from IMHC. COE — and its CmapTools parent — is based on the idea of concept maps. A concept map is a graph diagram that shows the relationships among concepts. Concepts are connected with labeled arrows, with the relations manifesting in a downward-branching hierarchical structure. COE is an integrated suite of software tools for constructing, sharing and viewing OWL encoded ontologies based on these constructs
- [Conzilla2](#) is a second generation concept browser and knowledge management tool with many purposes. It can be used as a visual designer and manager of RDF classes and ontologies, since its native storage is in RDF. It also has an online collaboration server
- <http://diagramic.com/> has an online Flex network graph demo, which also has a neat facility for quick entry and visualization of relationships; mostly small scale; pretty cool. Does not appear to be code available anywhere
- [DogmaModeler](#) is a free and open source, ontology modeling tool based on ORM. The philosophy of DogmaModeler is to enable non-IT experts to model ontologies with a little or no involvement of an ontology engineer; project is quite old, but the software is still available and it may provide some insight into naive ontology development
- [Erca](#) is a framework that eases the use of Formal and Relational Concept Analysis, a neat clustering technique. Though not strictly an ontology tool, Erca could be implemented in a work flow that allows easy import of formal contexts from CSV files, then algorithms that computes the concept lattice of the formal contexts that can be exported as dot graphs (or in JPG, PNG, EPS and SVG formats). Erca is provided as an Eclipse plug-in

- [GraphMind](#) is a mindmap editor for Drupal. It has the basic mindmap features and some Drupal specific enhancements. There is a [quick screencast](#) about how GraphMind looks like and what it does. The Flex source is also available from [Github](#)
- [GrOWL](#) is the software framework to provide graphical, intuitive browsing and editing of knowledge maps. GrOWL is open source and is used in several projects worldwide. None of the online demos apparently work, but the screenshots look interesting and the code is still available
- [irON](#) using spreadsheets, via its notation and specification. Spreadsheets can be used for initial authoring, esp if the irON guidelines are followed. See further this case study of Sweet Tools in a [spreadsheet using irON \(common\)](#)
- [ITM T3](#) stands for Terminology, Thesaurus, Taxonomy, Metadata dictionary. ITM T3 includes a range of functions for managing enterprise shareable multilingual domain-specific taxonomies, thesaurus, terminologies in a unified way. It uses XML, SKOS and RDF standards. Commercial; from Mondeca
- [MindRaider](#) is Semantic Web outliner. It aims to connect the tradition of outline editors with emerging technologies. MindRaider mission is to organize not only the content of your hard drive but also your cognitive base and social relationships in a way that enables quick navigation, concise representation and inferencing
- [Topincs](#) is a Topic Map authoring software that allows groups to share their knowledge over the web. It makes use of a variety of modern technologies. The most important are Topic Maps, REST and Ajax. It consists of three components: the Wiki, the Editor, and the Server. The server requires AMP; the Editor and Wiki are based on browser plug-ins.

## Ontology Editing

- First, see all of the **Comprehensive Tools** listing above
- [Anzo](#) (with Excel) includes an (RDFS and OWL-based) ontology editor that can be used directly within Excel. In addition to that, Anzo for Excel includes the capability to automatically generate an ontology from existing spreadsheet data, which is very useful for quick bootstrapping of an ontology.
- [Hozo](#) is an ontology visualization and development tool that brings version control constructs to group ontology development; limited to a prototype, with no online demo
- [Lexaurus Editor](#) is for off-line creation and editing of vocabularies, taxonomies and thesauri. It supports import and export in Zthes and SKOS XML formats, and allows hierarchical / poly-hierarchical structures to be loaded for editing, or even multiple vocabularies to be loaded simultaneously, so that terms from one taxonomy can be re-used in another, using drag and drop. Not available in open source
- [Model Futures OWL Editor](#) combines simple OWL tools, featuring UML (XMI), ErWin, thesaurus and imports. The editor is tree-based and has a “navigator” tool for traversing property and class-instance relationships. It can import XMI (the interchange format for UML) and Thesaurus Descriptor (BT-NT XML), and EXPRESS XML files. It can export to MS Word.
- [OntoTrack](#) is a browsing and editing ontology authoring tool for OWL Lite. It combines a sophisticated graphical layout with mouse enabled editing features optimized for efficient navigation and manipulation of large ontologies
- [OWLViz](#) is an attractive visual editor for OWL and is available as a Protégé plug-in
- [PoolParty](#) is a triple store-based thesaurus management environment which uses SKOS and text extraction for tag recommendations. See further this [manual](#), which describes more fully the system’s functionality. Also, there is a PoolParty [Web service](#) that enables a Zthes thesaurus in XML format to be uploaded and converted to SKOS (via skos:Concepts)
- [SKOSeD](#) is a plugin for Protege 4 that allows you to create and edit thesauri (or similar artefacts) represented in the Simple Knowledge Organisation System (SKOS).
- [TemaTres](#) is a Web application to manage controlled vocabularies, taxonomies and thesaurus. The vocabularies may be exported in Zthes, Skos, TopicMap, etc.



- [ThManager](#) is a tool for creating and visualizing SKOS RDF vocabularies. ThManager facilitates the management of thesauri and other types of controlled vocabularies, such as taxonomies or classification schemes
- [Vitro](#) is a general-purpose web-based ontology and instance editor with customizable public browsing. Vitro is a Java web application that runs in a Tomcat servlet container. With Vitro, you can: 1) create or load ontologies in OWL format; 2) edit instances and relationships; 3) build a public web site to display your data; and 4) search your data with Lucene. Still in somewhat early phases, with no online demos and with minimal interfaces.

### **Not Apparently in Active Use**

- [Omnigator](#) The Omnigator is a form-based manipulation tool centered on Topic Maps, though it enables the loading and navigation of any conforming topic map in XTM, HyTM, LTM or RDF formats. There is a free evaluation version.
- [OntoGen](#) is a semi-automatic and data-driven ontology editor focusing on editing of topic ontologies (a set of topics connected with different types of relations). The system combines text-mining techniques with an efficient user interface. It requires .Net.
- [OWL-S-editor](#) is an editor for the development of services in OWL-S, with graphical, WSDL and import/export support
- [ReTAX+](#) is an aide to help a taxonomist create a consistent taxonomy and in particular provides suggestions as to where a new entity could be placed in the taxonomy whilst retaining the integrity of the revised taxonomy (c.f., problems in ontology modelling)
- [SWOOP](#) is a lightweight ontology editor. (Swoop is no longer under active development at mindswap. Continuing development can be found on SWOOP's Google Code homepage at <http://code.google.com/p/swoop/>.)
- [WebOnto](#) supports the browsing, creation and editing of ontologies through coarse grained and fine grained visualizations and direct manipulation.

### **Ontology Mapping**

- [COMA++](#) is a schema and ontology matching tool with a comprehensive infrastructure. Its graphical interface supports a variety of interaction
- [ConceptTool](#) is a system to model, analyse, verify, validate, share, combine, and reuse domain knowledge bases and ontologies, reasoning about their implication
- [MatchIT](#) automates and facilitates schema matching and semantic mapping between different Web vocabularies. MatchIT runs as a stand-alone or plug-in Eclipse application and can be integrated with popular third party applications. MatchIT's uses Adaptive Lexicon™ as an ontology-driven dictionary and thesaurus of English language terminology to quantify and rank the semantic similarity of concepts. It apparently is not available in open source
- [myOntology](#) is used to produce the theoretical foundations, and deployable technology for the Wiki-based, collaborative and community-driven development and maintenance of ontologies instance data and mappings
- [OLA/OLA2](#) (OWL-Lite Alignment) matches ontologies written in OWL. It relies on a similarity combining all the knowledge used in entity descriptions. It also deal with one-to-many relationships and circularity in entity descriptions through a fixpoint algorithm
- [Potluck](#) is a Web-based user interface that lets casual users—those without programming skills and data modeling expertise—mash up data themselves. Potluck is novel in its use of drag and drop for merging fields, its integration and extension of the faceted browsing paradigm for focusing on subsets of data to align, and its application of simultaneous editing for cleaning up data syntactically. Potluck also lets the user construct rich visualizations of data in-place as the user aligns and cleans up the data.

- [PRIOR+](#) is a generic and automatic ontology mapping tool, based on propagation theory, information retrieval technique and artificial intelligence model. The approach utilizes both linguistic and structural information of ontologies, and measures the profile similarity and structure similarity of different elements of ontologies in a vector space model (VSM).
- [Vine](#) is a tool that allows users to perform fast mappings of terms across ontologies. It performs smart searches, can search using regular expressions, requires a minimum number of clicks to perform mappings, can be plugged into arbitrary mapping framework, is non-intrusive with mappings stored in an external file, has export to text files, and adds metadata to any mapping. See also <http://sourceforge.net/projects/vine/>.

### ***Not Apparently in Active Use***

- [ASMOV](#) (Automated Semantic Mapping of Ontologies with Validation) is an automatic ontology matching tool which has been designed in order to facilitate the integration of heterogeneous systems, using their data source ontologies
- [Chimaera](#) is a software system that supports users in creating and maintaining distributed ontologies on the web. Two major functions it supports are merging multiple ontologies together and diagnosing individual or multiple ontologies
- [CMS](#) (CROSI Mapping System) is a structure matching system that capitalizes on the rich semantics of the OWL constructs found in source ontologies and on its modular architecture that allows the system to consult external linguistic resources
- [ConRef](#) is a service discovery system which uses ontology mapping techniques to support different user vocabularies
- [DRAGO](#) reasons across multiple distributed ontologies interrelated by pairwise semantic mappings, with a vision of peer-to-peer mapping of many distributed ontologies on the Web. It is implemented as an extension to an open source Pellet OWL Reasoner
- [Falcon-AO](#) (Finding, aligning and learning ontologies) is an automatic ontology matching tool that includes the three elementary matchers of String, V-Doc and GMO. In addition, it integrates a partitioner PBM to cope with large-scale ontologies
- [FOAM](#) is the Framework for ontology alignment and mapping. It is based on heuristics (similarity) of the individual entities (concepts, relations, and instances)
- [hMAFRA \(Harmonize Mapping Framework\)](#) is a set of tools supporting semantic mapping definition and data reconciliation between ontologies. The targeted formats are XSD, RDFS and KAON
- [IF-Map](#) is an Information Flow based ontology mapping method. It is based on the theoretical grounds of logic of distributed systems and provides an automated streamlined process for generating mappings between ontologies of the same domain
- [LILY](#) is a system matching heterogeneous ontologies. LILY extracts a semantic subgraph for each entity, then it uses both linguistic and structural information in semantic subgraphs to generate initial alignments. The system is presently in a demo version only
- [MAFRA Toolkit](#) – the Ontology MApping FRAmework Toolkit allows users to create semantic relations between two (source and target) ontologies, and apply such relations in translating source ontology instances into target ontology instances
- [OntoEngine](#) is a step toward allowing agents to communicate even though they use different formal languages (i.e., different ontologies). It translates data from a “source” ontology to a “target”
- [OWLS-MX](#) is a hybrid semantic Web service matchmaker. OWLS-MX 1.0 utilizes both description logic reasoning, and token based IR similarity measures. It applies different filters to retrieve OWL-S services that are most relevant to a given query
- [RiMOM](#) (Risk Minimization based Ontology Mapping) integrates different alignment strategies: edit-distance based strategy, vector-similarity based strategy, path-similarity based strategy, background-knowledge based strategy, and three similarity-propagation based strategies

- [semMF](#) is a flexible framework for calculating semantic similarity between objects that are represented as arbitrary RDF graphs. The framework allows taxonomic and non-taxonomic concept matching techniques to be applied to selected object properties
- [Snoggle](#) is a graphical, SWRL-based ontology mapper. Snoggle attempts to solve the ontology mapping problem by providing a graphical user interface (similar to which of the Microsoft Visio) to guide the process of ontology vocabulary alignment. In Snoggle, user-defined mappings can be serialized into rules, which is expressed using SWRL
- [Terminator](#) is a tool for creating term to ontology resource mappings (documentation in Finnish).

## Ontology Visualization/Analysis

Though all are not relevant, see my post from a couple of years back on [large-scale RDF graph software](#).

- [Social network graphing tools](#) (many covered elsewhere)
- [Cytoscape](#) is a bioinformatics software platform for visualizing molecular interaction networks and integrating these interactions with gene expression profiles and other state data; I have also written specifically about [Cytoscape's use in UMBEL](#)
  - [RDFScape](#) is a project that brings Semantic Web “features” to the popular Systems Biology software Cytoscape
  - [NetworkAnalyzer](#) performs analysis of biological networks and calculates network topology parameters including the diameter of a network, the average number of neighbors, and the number of connected pairs of nodes. It also computes the distributions of more complex network parameters such as node degrees, average clustering coefficients, topological coefficients, and shortest path lengths. It displays the results in diagrams, which can be saved as images or text files; used by SD
- [Graphl](#) is a tool for collaborative editing and visualisation of graphs, representing relationships between resources or concepts of the real world. Graphl may be thought of as a visual wiki, a place where everybody can contribute to a shared repository of knowledge
- [igraph](#) is a free software package for creating and manipulating undirected and directed graphs
- [Network Workbench](#) is a very complex, comprehensive; Swiss Army Knife
- [NetworkX](#) – Python; very clean
- [Stanford Network Analysis Package](#) (SNAP) is a general purpose network analysis and graph mining library. It is written in C++ and easily scales to massive networks with hundreds of millions of nodes
- [Social Networks Visualizer](#) (SocNetV) is a flexible and user-friendly tool for the analysis and visualization of Social Networks. It lets you construct networks (mathematical graphs) with a few clicks on a virtual canvas or load networks of various formats (GraphViz, GraphML, Adjacency, Pajek, UCINET, etc) and modify them to suit your needs. SocNetV also offers a built-in web crawler, allowing you to automatically create networks from all links found in a given initial URL
- [Tulip](#) may be incredibly strong
  - quite active (but not much online stuff): <http://sourceforge.net/projects/auber/files/>
- [Springgraph](#) component for Flex
- [VizierFX](#) is a Flex library for drawing network graphs. The graphs are laid out using GraphViz on the server side, then passed to VizierFX to perform the rendering. The library also provides the ability to run ActionScript code in response to events on the graph, such as mousing over a node or clicking on it.

## Miscellaneous Ontology Tools

- [Apolda](#) (Automated Processing of Ontologies with Lexical Denotations for Annotation) is a plugin (processing resource) for GATE (<http://gate.ac.uk/>). The Apolda processing resource (PR) annotates a document like a gazetteer, but takes the terms from an (OWL) ontology rather than from a list
- [DL-Learner](#) is a tool for learning complex classes from examples and background knowledge. It extends Inductive Logic Programming to Description Logics and the Semantic Web. DL-Learner now



has a flexible component based design, which allows to extend it easily with new learning algorithms, learning problems, reasoners, and supported background knowledge sources. A new type of supported knowledge sources are SPARQL endpoints, where DL-Learner can extract knowledge fragments, which enables learning classes even on large knowledge sources like DBpedia, and includes an OWL API reasoner interface and Web service interface.

- [LexiLink](#) is a tool for building, curating and managing multiple lexicons and ontologies in one enterprise-wide Web-based application. The core of the technology is based on RDF and OWL
- [mopy](#) is the Music Ontology Python library, designed to provide easy to use python bindings for ontology terms for the creation and manipulation of music ontology data. mopy can handle information from several ontologies, including the Music Ontology, full FOAF vocab, and the timeline and chord ontologies.
- [OBDA](#) (Ontology Based Data Access) is a plugin for Protégé aimed to be a full-fledged OBDA ontology and component editor. It provides data source and mapping editors, as well as querying facilities that, in sum, allow you to design and test every aspect of an OBDA system. It supports relational data sources (RDBMS) and GLAV-like mappings. In its current beta form, it requires Protege 3.3.1, a reasoner implementing the OBDA extensions to DIG 1.1 (e.g., the DIG server for QuOnto) and Jena 2.5.5
- [OntoComP](#) is a Protégé 4 plugin for completing OWL ontologies. It enables the user to check whether an OWL ontology contains “all relevant information” about the application domain, and extend the ontology appropriately if this is not the case
- [Ontology Browser](#) is a browser created as part of the CO-ODE (<http://www.co-ode.org/>) project; rather simple interface and use
- [Ontology Metrics](#) is a web-based tool that displays statistics about a given ontology, including the expressivity of the language it is written in
- [OntoSpec](#) is a SWI-Prolog module, aiming at automatically generating XHTML specification from RDF-Schema or OWL ontologies
- [OWL API](#) is a Java interface and implementation for the W3C Web Ontology Language (OWL), used to represent Semantic Web ontologies. The API is focused towards OWL Lite and OWL DL and offers an interface to inference engines and validation functionality
- [OWL Module Extractor](#) is a Web service that extracts a module for a given set of terms from an ontology. It is based on an implementation of locality-based modules that is part of the OWL API.
- [OWL Syntax Converter](#) is an online tool for converting ontologies between different formats, including several OWL syntaxes, RDF/XML, KRSS
- [OWL Verbalizer](#) is an on-line tool that verbalizes OWL ontologies in (controlled) English
- [OwlSight](#) is an OWL ontology browser that runs in any modern web browser; it's developed with Google Web Toolkit and uses Gwt-Ext, as well as OWL-API. OwlSight is the client component and uses Pellet as its OWL reasoner
- [Pellint](#) is an open source lint tool for Pellet which flags and (optionally) repairs modeling constructs that are known to cause performance problems. Pellint recognizes several patterns at both the axiom and ontology level.
- [PROMPT](#) is a tab plug-in for Protégé is for managing multiple ontologies by comparing versions of the same ontology, moving frames between included and including project, merging two ontologies into one, or extracting a part of an ontology.
- [SegmentationApp](#) is a Java application that segments a given ontology according to the approach described in “Web Ontology Segmentation: Analysis, Classification and Use” (<http://www.co-ode.org/resources/papers/seidenberg-www2006.pdf>)
- [SETH](#) is a software effort to deeply integrate Python with Web Ontology Language (OWL-DL dialect). The idea is to import ontologies directly into the programming context so that its classes are usable alongside standard Python classes
- [SKOS2GenTax](#) is an online tool that converts hierarchical classifications available in the W3C SKOS (Simple Knowledge Organization Systems) format into RDF-S or OWL ontologies

- [SpecGen](#) (v5) is an ontology specification generator tool. It's written in Python using Redland RDF library and licensed under the MIT license
- [Text2Onto](#) is a framework for ontology learning from textual resources that extends and re-engineers an earlier framework developed by the same group (TextToOnto). Text2Onto offers three main features: it represents the learned knowledge at a metalevel by instantiating the modelling primitives of a Probabilistic Ontology Model (POM), thus remaining independent from a specific target language while allowing the translation of the instantiated primitives
- [Thea](#) is a Prolog library for generating and manipulating OWL (Web Ontology Language) content. Thea OWL parser uses SWI-Prolog's Semantic Web library for parsing RDF/XML serialisations of OWL documents into RDF triples and then it builds a representation of the OWL ontology
- [TONES Ontology Repository](#) is primarily designed to be a central location for ontologies that might be of use to tools developers for testing purposes; it is part of the TONES project
- [Visual Ontology Manager](#) (VOM) is a family of tools enables UML-based visual construction of component-based ontologies for use in collaborative applications and interoperability solutions.
- [Web Ontology Manager](#) is a lightweight, Web-based tool using J2EE for managing ontologies expressed in Web Ontology Language (OWL). It enables developers to browse or search the ontologies registered with the system by class or property names. In addition, they can submit a new ontology file
- [RDF evoc \(external vocabulary importer\)](#) is an RDF external vocabulary importer module (evoc) for Drupal caches any external RDF vocabulary and provides properties to be mapped to CCK fields, node title and body. This module requires the RDF and the SPARQL modules.

### ***Not Apparently in Active Use***

- [Almo](#) is an ontology-based workflow engine in Java supporting the ARTEMIS project; part of the OntoWare initiative
- [ClassAKT](#) is a text classification web service for classifying documents according to the ACM Computing Classification System
- [Elmo](#) provides a simple API to access ontology oriented data inside a Sesame RDF repository. The domain model is simplified into independent concerns that are composed together for multi-dimensional, inter-operating, or integrated applications
- [ExtrAKT](#) is a tool for extracting ontologies from Prolog knowledge bases.
- [F-Life](#) is a tool for analysing and maintaining life-cycle patterns in ontology development.
- [Foxtrot](#) is a recommender system which represents user profiles in ontological terms, allowing inference, bootstrapping and profile visualization.
- [HyperDAML](#) creates an HTML representation of OWL content to enable hyperlinking to specific objects, properties, etc.
- [LinkFactory](#) is an ontology management tool, it provides an effective and user-friendly way to create, maintain and extend extensive multilingual terminology systems and ontologies (English, Spanish, French, etc.). It is designed to build, manage and maintain large, complex, language independent ontologies.
- [LSW](#) – the Lisp semantic Web toolkit enables OWL ontologies to be visualized. It was written by Alan Ruttenberg
- [Ontodella](#) is a Prolog HTTP server for category projection and semantic linking
- [OntoWeaver](#) is an ontology-based approach to Web sites, which provides high level support for web site design and development
- [OWLLib](#) is a PHP library for accessing OWL files. OWL is w3.org standard for storing semantic information
- [pOWL](#) is a Semantic Web development platform for ontologies in PHP. pOWL consists of a number of components, including RAP

- [ROWL](#) is the Rule Extension of OWL; it is from the Mobile Commerce Lab in the School of Computer Science at Carnegie Mellon University
- [Semantic Net Generator](#) is a utility for generating Topic Maps automatically from different data sources by using rules definitions specified with Jelly XML syntax. This Java library provides Jelly tags to access and modify data sources (also RDF) to create a semantic network
- [SMORE](#) is OWL markup for HTML pages. SMORE integrates the SWOOP ontology browser, providing a clear and consistent way to find and view Classes and Properties, complete with search functionality
- [SOBOLEO](#) is a system for Web-based collaboration to create SKOS taxonomies and ontologies and to annotate various Web resources using them
- [SOFA](#) is a Java API for modeling ontologies and Knowledge Bases in ontology and Semantic Web applications. It provides a simple, abstract and language neutral ontology object model, inferencing mechanism and representation of the model with OWL, DAML+OIL and RDFS languages; from [java.dev](#)
- [WebScripter](#) is a tool that enables ordinary users to easily and quickly assemble reports extracting and fusing information from multiple, heterogeneous DAMLized Web sources.

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