

# Software for management of knowledge organization systems

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*This report is much more usable in HTML at <https://bartoc.org/software!>*

The terminology registry **BARTOC** collects information about all kinds of **knowledge organization systems** (KOS) such as controlled vocabularies, classifications, ontologies, and other semantic artifacts. This report summarizes information about [software for KOS management](#).

## Scope

This report is limited to [specialized KOS software for editing, vizualizing and/or analyzing terminologies](#). The term “terminology” in this document is used as synonym for all kinds of KOS. Software is excluded if:

- it is not aimed at KOS management in particular but [more generic software](#) such as database management systems, content management systems and text editors,
- it is [more specific software](#), restricted to a limited type of KOS, such software for linguistic terminology management and identifier systems,
- it [cannot be used](#) as stand-alone application, like programming libraries, and hosted services.

Software for **ontology alignment** is only included if it is more then a research prototype and if we managed to get it running. See Bergman (2018) for a comprehensive list of software in this category. The [Ontology Alignment Evaluation Initiative \(OAEI\)](#) motivates the creation of tools for automated ontology alignment.

## KOS software

This report includes **71** instances of KOS software so far. The list is managed [in a JSON file](#) as array of [CodeMeta](#) records with fields as [described below](#). Applications without license or repository are closed source. Deprecated applications are included for historical reference.

Table 1

name	system	edit	api	languages	license	repository	update	category	applicationCategory
<a href="#">Semantic MediaWiki</a>	Web			PHP	GPL	<a href="#">github</a>	2025	editor	SoftwareImage
<a href="#">Wikibase</a>	Web			PHP	GPL	<a href="#">wikimedia</a>	2025	database, editor	ServerApplication
<a href="#">TemaTres</a>	Web			PHP	GPL	<a href="#">github</a>	2025	editor	ServerApplication
<a href="#">iQvoc</a>	Web			Ruby	Apache	<a href="#">github</a>	2025	editor	
<a href="#">VocBench</a>	Web			Java, JavaScript	BSD	<a href="#">bitbucket</a>	2025	editor	
<a href="#">Skosmos</a>	Web	-		PHP	MIT	<a href="#">github</a>	2025	viewer	
<a href="#">Cocoda</a>	Web		-	JavaScript	MIT	<a href="#">github</a>	2025	mapping editor	
<a href="#">MSCR</a>	Web			Java	MIT	<a href="#">github</a>	2025	mapping editor	
<a href="#">JSKOS Server</a>	Web			JavaScript	MIT	<a href="#">github</a>	2025	database	
<a href="#">SkoHub Vocabs</a>	Web			JavaScript	Apache	<a href="#">github</a>	2025	viewer	
<a href="#">OpenTheso</a>	Web			Java	GPL	<a href="#">github</a>	2025	editor	
<a href="#">Ontology Lookup Service (OLS)</a>	Web	-		JavaScript, Java	Apache	<a href="#">github</a>	2025	viewer	
<a href="#">OntoPortal Alliance</a>	Web	-		Ruby	BSD	<a href="#">github</a>	2025	viewer	
<a href="#">ShowVoc</a>	Web	-	-	JavaScript	BSD	<a href="#">bitbucket</a>	2025	viewer	
<a href="#">voc4cat-tool</a>	CLI, GitHub, Excel	-	-	Python	BSD	<a href="#">github</a>	2025	converter	
<a href="#">VocExcel</a>	Excel, CLI	-	-	Python	BSD	<a href="#">github</a>	2025	converter	
<a href="#">Protégé</a>	JVM		-	Java	BSD	<a href="#">github</a>	2025	editor	
<a href="#">jskos-cli</a>	CLI	-	-	JavaScript	MIT	<a href="#">github</a>	2025	converter, validator	
<a href="#">TS4NFDI API Gateway</a>	Web	-		Java, JavaScript	MIT	<a href="#">github</a>	2025	viewer, converter	
<a href="#">jskos-proxy</a>	Web	-		JavaScript	MIT	<a href="#">github</a>	2025	viewer, converter	
<a href="#">sssom-py</a>	CLI	-	-	Python	MIT	<a href="#">github</a>	2025	converter	
<a href="#">sssom-java</a>	CLI	-	-	Java	GPL	<a href="#">github</a>	2025	converter	
<a href="#">sssom-js</a>	CLI	-	-	JavaScript	MIT	<a href="#">github</a>	2025	converter	
<a href="#">Network of Terms</a>	Web	-		Typescript	EUPL	<a href="#">github</a>	2025	converter	
<a href="#">TerminoloGit</a>	Web, git	-	-	Python	GPL	<a href="#">gitlab</a>	2025	converter	
<a href="#">Chowlk</a>	Web	-	-	Python	Apache	<a href="#">github</a>	2025	converter	
<a href="#">Ontology Development Kit</a>	CLI	-	-	Python	BSD	<a href="#">github</a>	2025	converter, validator	
<a href="#">O'FAIRE</a>	Web	-		Java	MIT	<a href="#">github</a>	2025	validator	
<a href="#">EVOKS</a>	Web		-	Python	MIT	<a href="#">github</a>	2025	editor, converter	SoftwareImage, CommandLineApp
<a href="#">OOPS!</a>	Web	-	-	Java	?	<a href="#">github</a>	2025	viewer	
<a href="#">WIDOCO</a>	JVM	-	-	JavaScript, Java	Apache	<a href="#">github</a>	2025	viewer	
<a href="#">FOOPS!</a>	Web	-	-	Java, JavaScript	Apache	<a href="#">github</a>	2025	validator	
<a href="#">Jekyll RDF</a>	Web	-		Ruby	MIT	<a href="#">github</a>	2024	viewer	
<a href="#">Atramhasis</a>	Web			Python	GPL	<a href="#">github</a>	2024	editor	
<a href="#">Snowstorm</a>	Web	-		Java	Apache	<a href="#">github</a>	2024	viewer	
<a href="#">OnToology</a>	Web, git	-	-	Python	Apache	<a href="#">github</a>	2024	viewer, validator	
<a href="#">SkoHub Shapes</a>	RDF	-	-	SHACL	?	<a href="#">github</a>	2024	validator	
<a href="#">OxO</a>	Web	-		JavaScript	Apache	<a href="#">github</a>	2024	viewer	

Table 1

name	system	edit	api	languages	license	repository	update	category	applicationCategory
<a href="#">Onto4ALL Editor</a>	Web		-	JavaScript, PHP	<a href="#">Apache</a>	<a href="#">github</a>	2024	editor	
<a href="#">VocPrez</a>	Web	-		Python	<a href="#">GPL</a>	<a href="#">github</a>	2024	viewer	
<a href="#">qSKOS</a>	CLI	-		Java	<a href="#">GPL</a>	<a href="#">github</a>	2024	validator	
<a href="#">VocPub Profile</a>	RDF	-	-	SHACL	<a href="#">CC</a>	<a href="#">github</a>	2024	validator	
<a href="#">Vocabseditor</a>	Web		-	Python	<a href="#">MIT</a>	<a href="#">github</a>	2024	editor	
<a href="#">ODM2 Controlled Vocabularies</a>	Web			Python	<a href="#">BSD</a>	<a href="#">github</a>	2024	editor	
<a href="#">Neologism</a>	Web			JavaScript	<a href="#">MIT</a>	<a href="#">github</a>	2023	editor	
<a href="#">Django Controlled Vocabularies</a>	Web			Python	<a href="#">BSD</a>	<a href="#">github</a>	2023	editor	
<a href="#">Web Protégé</a>	Web		-	Java	<a href="#">BSD</a>	<a href="#">github</a>	2023	editor	
<a href="#">Alignment API and Alignment Server</a>	CLI	-		Java	<a href="#">GPL</a>	<a href="#">inria</a>	2023	database	
<a href="#">Amalgame</a>	Web		-	prolog	<a href="#">BSD</a>	<a href="#">github</a>	2023	mapping editor	
<a href="#">Wandora</a>	JVM		-	Java	<a href="#">GPL</a>	<a href="#">github</a>	2023	editor	
<a href="#">Ginco</a>	Web			Java	<a href="#">GPL</a>	<a href="#">github</a>	2022	editor	
<a href="#">SKOSjs</a>	Web		-	JavaScript	<a href="#">Apache</a>	<a href="#">github</a>	2022	editor	
<a href="#">WebVOWL</a>	Web	-	-	JavaScript	<a href="#">MIT</a>	<a href="#">github</a>	2022	viewer	
<a href="#">VoCol</a>	Web		-	JavaScript	<a href="#">MIT</a>	<a href="#">github</a>	2021	editor	
<a href="#">mc2skos</a>	CLI		-	Python	<a href="#">Unlicense</a>	<a href="#">github</a>	2021	converter	
<a href="#">Skosify</a>	CLI	-		Python	<a href="#">MIT</a>	<a href="#">github</a>	2021	converter, validator	
<a href="#">Themis</a>	Web	-		Java	<a href="#">Apache</a>	<a href="#">github</a>	2021	validator	
<a href="#">LODE</a>	Web	-		Java	<a href="#">ISC</a>	<a href="#">github</a>	2020	viewer	
<a href="#">OpenSKOS</a>	Web	-		PHP	<a href="#">GPL</a>	<a href="#">github</a>	2020	viewer, editor	
<a href="#">SISSVoc</a>	Web	-		XSLT	<a href="#">Apache</a>	<a href="#">github</a>	2019	viewer	
<a href="#">OntoBee</a>	Web	-		PHP, JavaScript	<a href="#">Apache</a>	<a href="#">github</a>	2018	viewer	
<a href="#">SKOS Play</a>	Web	-	-	Java	<a href="#">CC</a>	<a href="#">bitbucket</a>	2018	viewer, converter	
<a href="#">SKOS Editor</a>	Web			Java	<a href="#">LGPL</a>	<a href="#">github</a>	2016	editor	
<a href="#">HIVE Vocabulary Server</a>	Web		-	Java	<a href="#">BSD</a>	<a href="#">github</a>	2015	viewer	
<a href="#">COMA</a>	Web		-	Java	<a href="#">AGPL</a>	<a href="#">sourceforge</a>	2013	mapping editor, viewer	DesktopApplication
<a href="#">ASKOSI</a>	Web	-	-	Java	<a href="#">GPL</a>	<a href="#">askosi</a>	2011	viewer	
<a href="#">THManager</a>	JVM		-	Java	<a href="#">LGPL</a>	<a href="#">sourceforge</a>	2006	editor	
<a href="#">OntoServer</a>	Web				-	-		viewer	
<a href="#">PoolParty Thesaurus Server</a>	Web				-	-		editor	
<a href="#">Lexasaurus</a>	Web				-	-		editor	
<a href="#">Fiblio</a>	Web		-		-	-		editor	

Please [open an issue](#) if some relevant software is missing or data seems invalid!

## Metadata

Machine-readable description of the software is based on [CodeMeta](#) plus custom fields `api` and `edit`.

Field	Purpose
<code>name</code>	name with link to homepage
<code>operatingSystem</code>	operating system or similar dependency (Web, CLI...)
<code>api</code>	whether a web service or similar API is provided to connect to
<code>edit</code>	whether vocabularies can be modified with the software
<code>programmingLanguage</code>	programming language(s)
<code>license</code>	license of the software (if free software)
<code>codeRepository</code>	source Code repository (if open source)
<code>dateModified</code>	year of most recent update
<code>applicationSubCategory</code>	type of KOS software

## KOS software categories

- **viewer**: to display terminologies (23)
- **editor**: to create and modify terminologies (24)
- **mapping editor**: to create and modify mappings/alignments (3)
- **converter**: to convert from one format into another (15)
- **validator**: to check terminologies (10)
- **database**: to store terminologies (3)

## Related software

Knowledge organization systems can also be managed with other types software [excluded from this report](#).

### More generic software

Simple terminologies can be managed in a **spreadsheet** (LibreOffice Calc, Excel, Google Sheets...). This software lacks most special functionality for terminology management but the usability and accessibility is very high. Some tools in the list above (VocExcel, voc4cat-tool) enhance standard spreadsheets with terminology management functionalities.

The same applies to **database management systems** (RDBMS, NoSQL, RDF triple stores, property graph databases...) with some additional features such as unique key constraints but less usability. An edge case might be systems for management of knowledge graphs (such as Wikibase), included above.

Tools for personal **knowledge management** (such as [Obsidian](#) and [Notion](#)) help to structure ideas and concepts. Similar tools exist for enterprises to support data integration, knowledge management and/or business intelligence of an organization (for instance [PoolParty Semantic Suite](#)).

Several **Content Management Systems** (CMS) allow to manage a list or hierarchy of topics or other entities for knowledge managements. If these lists can be exported, the CMS can be applied to manage terminologies. An example is [Drupal](#), which was used for the first version of BARTOC terminology registry.

Terminologies can also directly be managed in **files** for instance in RDF/Turtle syntax. This only requires a **text editor** but the risk is high to introduce errors. A **version control system** such as git can be used on top to track changes.

### More specific software

The term **terminology management** is also used for systems to organize the terms, definitions, and translations used in an organization. See Montoro (2018) for a list of terminology management systems. The focus of these systems is more on translation but there is some overlap with KOS management. Software aimed at simple lists of terms, definitions, glossaries and similar is also excluded from this report.

Several systems and applications exist to manage identifiers (Domain Name System, [w3id...](#)). These **identifier systems** are relevant to manage KOS but they are rarely enough for KOS management alone. See [Bioregistry](#) for a registry of identifier systems used with KOS.

Several tools, frameworks and programming languages exist for **data transformation** between different formats and/or models ([XSLT](#), [jq](#), [Catmandu](#), [DTL](#), [LinkML-map](#), [QVT...](#)). These transformations often imply or make use of terminology mappings.

Some tools for **data curation** also make use of or require terminologies, for instance [OpenRefine](#) and [mix'n'match](#). The latter comes close to a mapping editor but it is limited to mappings with Wikidata.

### Limited use

Some organizations run **hosted services** for KOS management or related services. Examples include [DANTE](#), [xTree](#) and [Linked Open Vocabularies \(LOV\)](#). More examples may be found in the [BARTOC list of terminology registries](#).

**programming libraries** such as [cocoda-sdk](#), [TSS Widgets](#), [jskos-vue](#), [SeMRA](#), and [ng-skos](#) are used to build KOS software.

### Other software

The following do not fit into the software categories above or there was not enough information:

- [Scripts to analyze concept drift](#) as part of a research project (Open Source)
- [TopBraid EDG](#) is a commercial knowledge graph editor
- [Apelon DTS](#) (Distributed Terminology System) and [Apelon TermManager](#) are commercial terminology editors. An earlier [version from 2013](#) is available as Open Source.
- [Grafo](#) is a collaborative knowledge graph editor, available as commercial web application
- [Vitro](#) is a framework for semantic web applications, used in [VIVO](#)

### Related works

This report is based on two reports (Voß 2016a, 2016b) from the beginning of [project coli-conc](#) that led to a [a wiki page](#) managed between 2020 and 2024. See also Miles and Bechhofer (2009) for a report created during the specification of SKOS W3C Recommendation, the corresponding wiki pages at <https://www.w3.org/2001/sw/wiki/Category:Editor>, and Bergman (2018) for a list of software for ontology alignment.

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