

Integration of mapping tool Cocoda with OntoPortal

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Cocoda mapping tool

- ▶ Web application to **create and manage mappings**
- ▶ Actively developed since 2015 at VZG
- ▶ Public instances without limitations
- ▶ There are screencasts and a manual
- ▶ *Just try it out!*

<https://coli-conc.gbv.de/cocoda/>

Cocoda mapping tool

NFDI4Objects Mapping-Editor

IKMK_MATERIAL Material aus IKMK

Suche Silber

1 Silber

Konzept Meta Links

Silber bevorzugt: de
Silber bevorzugt: en

Hierarchie

- 1 Silber
- 10 Stain
- 11 Messing
- 12 Kupfer
- 13 Silber, vergoldet
- 14 Zinn
- 15 Stahl
- 16 Gips
- 17 Eisen
- 18 Elfenbein
- 19 Porzellan
- 2 Bronze
- 20 Nickel

Mapping-Editor

IKMK_MATERIAL = Silber

nicht gespeichert

keine Konkordanz

Konkordanzen Suche Navigator

Mappings 3 von 3

GND	Silber	=	DDC	669.23 Silber	±0
GND	Silber	=	STW	14308-2 Silber	±0
GND	Silber	=	DDC	546.654 Silber	±0

Enthaltene Mappings 5 von 5

GND	Silber	=	WD	Q1090 Silber	
GND	Silber	=	STW	14308-2 Silber	
GND	Silber	=	LCSH	Silber	
GND	Silber	=	DDC	546.654 Silber	
GND	Silber	=	DDC	669.23 Silber	

Vorschläge 2 von 2

IKMK_MA	1 Silber	GND	Silber	
IKMK_MA	13 Silber, vergoldet	GND	Silber	

Co-Occurrences 5 von 10

GND Gemeinsame Normdatei

Suche Silber

Edelmetall
Erste Nebengruppe
Vier-d-Element
Silber

Konzept Meta Links

Silber bevorzugt: de

Blattsilber
Silbensotop
Brandsilber

Schnellauswahl

keine Konzepte vorhanden

Mappings

- ▶ <https://d-nb.info/gnd/4062527-8> *Venus (planet)*
- ▶ = <http://www.wikidata.org/entity/Q313> *Venus*
- ▶ \approx <http://dewey.info/class/523.42/e23/> *Venus*
- ▶ < <http://uri.gbv.de/terminology/bk/39.53> *Planets*

More than a triple

- ▶ Source concept(s)
- ▶ Mapping type
 - ▶ `skos:exactMatch`, `skos:broadMatch`, `owl:sameAs`...
- ▶ Target concept(s)
- ▶ Stable identifier
- ▶ Metadata (creator, date, membership...)
- ▶ Annotations/reviews

Data model: JSKOS Concept mapping

```
{
  "from": { "memberSet": [ {
    "uri": "https://ikmk.smb.museum/ndp/material/1"
  } ] },
  "to": { "memberSet": [ {
    "uri": "https://d-nb.info/gnd/4133759-1",
  } ] },
  "type": [ "http://www.w3.org/2004/02/skos/core#exactMatch" ],
  "creator": [ {
    "uri": "https://orcid.org/0000-0002-7613-4123",
    "prefLabel": { "en": "Jakob Voß" }
  } ],
  "created": "2025-09-26T11:16:07.893Z",
  "annotations": [ ],
  "uri": "https://coli-conc.gbv.de/api/mappings/4f0b1c22-b25b-4d
}
```

JSKOS data format

- ▶ Unified data format for **semantic artefacts**
- ▶ SKOS in JSON-LD with **several extensions**:
- ▶ Mappings
- ▶ Concordances
- ▶ Annotations
- ▶ Qualified statements
- ▶ ...

```
{ "uri": "http://example.org/animal",  
  "notation": ["A"],  
  "prefLabel": {  
    "en": "animals",  
    "de": "Tiere"  
  },  
  "broader": [ {  
    "prefLabel": {  
      "en": "creatures" }  
    } ] }
```

<https://gbv.github.io/jskos/>

JSKOS API

- ▶ Access to semantic artefacts and related JSKOS entities
- ▶ “Get mappings from X to Y of type T annotated by A...”
- ▶ At least four implementations exist (three of them by VZG)
- ▶ Reference implementation: jskos-server (NodeJS)

<https://github.com/gbv/jskos-server#api>

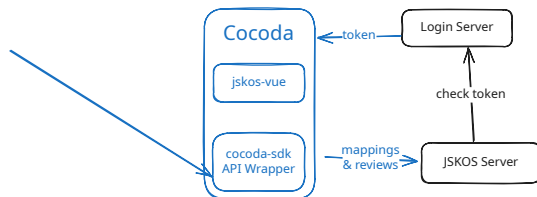
Technical Architecture & Integration

Technology of Cocoda

- ▶ Client-Side Web application with Vue framework
- ▶ Several NodeJS libraries (cocoda-sdk, login-client...)
- ▶ Service-Oriented Architecture
- ▶ Common data model JSKOS

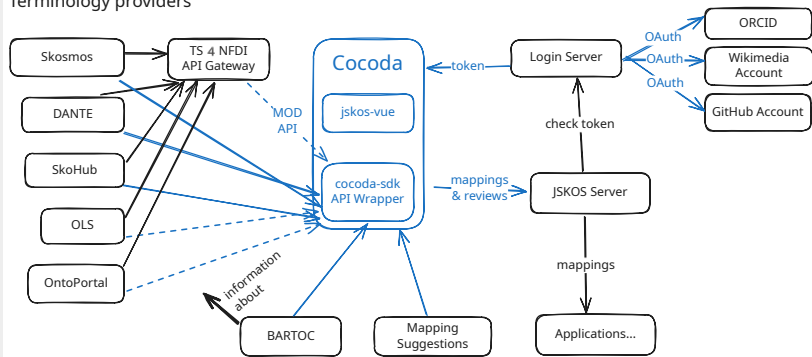
Components

Terminology providers



Components

Terminology providers



Integration with OntoPortal

Integration of Mappings into OntoPortal

- ▶ Just query mapping sources via JSKOS API
- ▶ Write access requires access-tokens: WIP
- ▶ OntoPortal or its auth backend could be integrated into login-server

Ontoportal API

- ▶ Looks good but not fully analyzed yet
- ▶ Some inspiring features such as subtree search
- ▶ Possible show-stopper: API Key
- ▶ No mappings API

<https://demodata.ontoportal.org/documentation>

Workarounds

- ▶ Server wrapper (TS4NFDI API Gateway)
- ▶ Remove API Key for read-only methods
- ▶ Extend OntoPortal to use temporary tokens instead of API key, also for fine-grained access
- ▶ Use MOD API or JSKOS API

MOD API

- ▶ Yet another API?
- ▶ Limitations, such as local ids instead of URIs
- ▶ One artefact, multiple skos:ConceptScheme

↯ **graphql** GraphQL
↯ **jskos** JSKOS API
↯ **lobid-gnd** Lobid GND API
↯ **loc** Library of Congress
↯ **lod** Linked Open Data (LOD)
↯ **mycore** MyCoRE Classification API
↯ **noterms** Network of Terms
↯ **oaipmh** OAI-PMH
↯ **ols** Ontology Lookup Service (OLS)
↯ **ontoportal** OntoPortal
↯ **opentheso** Opentheso
↯ **reconciliation** Reconciliation
↯ **rss** RSS
↯ **skohub** Skohub
↯ **skosmos** Skosmos API
↯ **sparql** SPARQL endpoint
↯ **sru** Search/Retrieve via URL (SRU)
↯ **tematres** TemaTres API
↯ **webservice** Unspecified Webservice
↯ **xtree** xTree API

Summary

Summary

- ▶ Mature Web application to create and manage mappings
- ▶ Client side, components connected via Web APIs
- ▶ Single-Sign-On (ORCID, GitHub, Wikimedia...)
- ▶ Mapping databases using JSKOS Server
- ▶ Just use JSKOS and our API for mappings
- ▶ Unified Access to terminologies
 - a) [cocoda-sdk](#)
 - b) MOD-API via TS4NFDI API Gateway