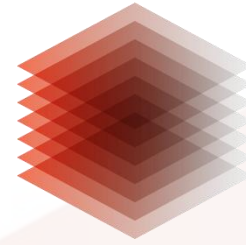


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TIB

# How to find existing ontologies (Terminology Service of NFDI4Ing)

MSE Day 2023: Research field crossing activities

14. Nov. 2023, Dr.-Ing. Felix Engel (<https://orcid.org/0000-0002-3060-7052>)

# Agenda



- **Research Data Management**
- **NFDI4Ing Terminology Service**
- **NFDI4Ing Terminology Service Sandbox**



# Research Data Management (I/II)



Research data is of inestimable value (\*)

- Empowers research
- Advance knowledge

New research bases on existing research data (\*)

- Transparent
  - Reproducible
- } Reusable

Current situation in Germany (\*)

- Data is stored decentrally
- Stored temporarily
- **Non-standardised metadata**
- Varied quality



# Terminology Service (I/II)

1. **Domain specific** (Engineering, Culture, Chemistry, ...) and **community specific**
  2. **Evolving continuously and dynamically over time**
  3. Must be **accepted, developed** and **maintained** by a **designated community (avoid isolated solution!)**.  
Includes a.o.
    - a) promotion (make community aware of its existence)
    - b) aligned with further metadata initiatives (moving away from silos)
    - c) applicable in RDM (in RDM practise)
- NFDI4Ing supports terminology development and use through **introduction of engineering specific Terminology Services for Ontologies**
  - **Ontologies** → Enabling a machine-usable, formal description of information and knowledge (more on this in the next presentation(s)).

# Terminology Service (II/II)

TIB TS NFDI4Ing



NFDI4Ing  
**Terminology  
Service**



**Terminology Service:** a collection of tools to foster reuse of existing engineering ontologies

## Functional service offer

- Freetext search searching  
(for- and within ontologies)
- Browsing and filtering
- Visualisation
- Issue tracker
- Machine to machine communication (REST interfaces)

## Some statistics

1. 93 ontologies
2. ~160.000 Terms
3. ~12.000 properties

The image shows a screenshot of the NFDI4Ing Terminology Service website and its LinkedIn page. The website header includes the logo and navigation links: HOME, ONTOLOGIES, HELP, DOCUMENTATION, USAGE, ABOUT. A search bar is present with the text "Search for ontology, term, properties and individuals" and a "Search" button. Below the search bar, there are three icons representing different features: a book, a person with a magnifying glass, and a hand pointing at a screen. The main content area is divided into three columns: "What is this service for?", "Who uses the Service?", and "Where is the Service in use?". The LinkedIn page below shows the profile for "NFDI4Ing Terminology Service" with a bio: "Our goal is to provide an open service for community-driven development, alignment and standardisation of terminologies." and "202 followers".

**Stay up to date with our LinkedIn page!**

# Terminology Service (II/II)

TIB TS NFDI4Ing: Browse and Search



### Browse Ontologies

Results Per Page  sorted by

|                                                                                                                                                                                                                                                             |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>cco All Core Ontology</b>                                                                                                                                                                                                                                | 1415 Classes       |
| An import of all the Common Core mid-level ontologies into a single file so that content is easy to view. The All Core Ontology is not an ontology in the sense it contains no unique content. As such it should not be added to, but can be extended from. | 338 Properties     |
|                                                                                                                                                                                                                                                             | Loaded: 2023-07-05 |
| <b>atomistic Atomistic</b>                                                                                                                                                                                                                                  | 531 Classes        |
| An EMMO-based domain ontology for atomistic and electronic modelling. Atomistic is released under the Creative Commons Attribution 4.0 International license (CC BY 4.0).                                                                                   | 84 Properties      |
|                                                                                                                                                                                                                                                             | Loaded: 2023-08-23 |
| <b>bo Base Ontology</b>                                                                                                                                                                                                                                     | 23 Classes         |
| This file contains the Base Ontology of oneM2M as specified in TS-0012                                                                                                                                                                                      | 42 Properties      |
|                                                                                                                                                                                                                                                             | Loaded: 2023-07-05 |
| <b>bfo Basic Formal Ontology</b>                                                                                                                                                                                                                            | 35 Classes         |
| The upper level ontology upon which OBO Foundry ontologies are built.                                                                                                                                                                                       | 24 Properties      |

### NFDI4Ing Terminology Service

HOME ONTOLOGIES HELP DOCUMENTATION USAGE ABOUT SANDBOX

agent

Examples: electric, vehicle, agent

#### Filter Results

554 results found for "agent" Results Per Page

[Clear All Filters](#)

Type

- class 410
- property 126
- individual 18

Ontologies

- TEMA 125
- CCO 117
- SEPIO 39
- OEO 25
- DICL 23

+ Show More

[property] agent   
http://www.w3.org/ns/prov#agent

Ontology: PROV

Also in:

[class] Agent   
http://purl.org/dc/terms/Agent

A resource that acts or has the power to act.

Ontology: dcterms

Also in:

[class] Agent   
http://xmlns.com/foaf/0.1/Agent

Ontology: FOAF

Also in:

# Terminology Service (II/II)

## TIB TS NFDI4Ing: Metadata and Swagger



NFDI4Ing Terminology Service

HOME ONTOLOGIES HELP DOCUMENTATION USAGE ABOUT SANDBOX

Search in prov  Search

Examples: electric, vehicle, agent

### The PROV Ontology

<http://www.w3.org/ns/prov-o#>

Overview **Class Tree** Property Tree Individuals Class List

Jump to:

- Activity
- Agent
- Entity
- Influence
- InstantaneousEvent
- Location
- Role

swagger Select a spec default

### TIB Terminology Service Documentation <sup>1.0</sup>

[ Base URL: service.tib.eu/cs4ctb ]  
<https://service.tib.eu/cs4ctb/v2/api-docs>

TIB Terminology Service API Reference for Developers

[Terms of service](#)  
[Imprint](#)

- api-unavailable Api Unavailable
- data-preparation-controller The Properties, Terms and Individuals in a particular context such as an ontology or a classification
- hello-controller Hello Controller
- individual-controller The Individuals resources are used to list ontology individuals (instances) without a reference ontology
- ontology-config-controller Ontology Config Controller
- ontology-controller The Ontologies resources are used to list ontologies in this service

Detail Graph View

|             |                                                                                                                                                                                                      |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Label       | Activity                                                                                                                                                                                             |
| Synonyms    | N/A                                                                                                                                                                                                  |
| CURIE       | N/A                                                                                                                                                                                                  |
| Term ID     | Activity                                                                                                                                                                                             |
| Description | An activity is something that occurs over a period of time and acts upon or with entities; it may include consuming, processing, transforming, modifying, relocating, using, or generating entities. |
| fullIRI     | <a href="http://www.w3.org/ns/prov#Activity">http://www.w3.org/ns/prov#Activity</a> <input type="button" value="copy"/>                                                                              |
| SubClass Of | • Thing                                                                                                                                                                                              |
| category    | starting-point                                                                                                                                                                                       |
| component   | entities-activities                                                                                                                                                                                  |
| constraints | <a href="http://www.w3.org/TR/2013/REC-prov-constraints-20130430/#prov-dm-constraints-fig-dm">http://www.w3.org/TR/2013/REC-prov-constraints-20130430/#prov-dm-constraints-fig-dm</a>                |
| dm          | <a href="http://www.w3.org/TR/2013/REC-prov-dm-20130430/#term-Activity">http://www.w3.org/TR/2013/REC-prov-dm-20130430/#term-Activity</a>                                                            |

# TS Sandbox and Applications (I/VIII)



- **Sandbox** is a place to **introduce and gather feedback** for new ideas to work on- and with ontologies
- Developed within (at this time) **four projects**
- A first insight from Sandbox tools **candidates**
  - **Development**
    - **Semantic Difference** over commit history
    - **Ontology Mapping** → Presentation Nenad
    - WebProtege <-> Git integration
  - **Application**
    - Domain specific **Entity Recognition** in text
- **Go live:** ~ September 2023





# THANKS!



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