



# How to Manage Metadata

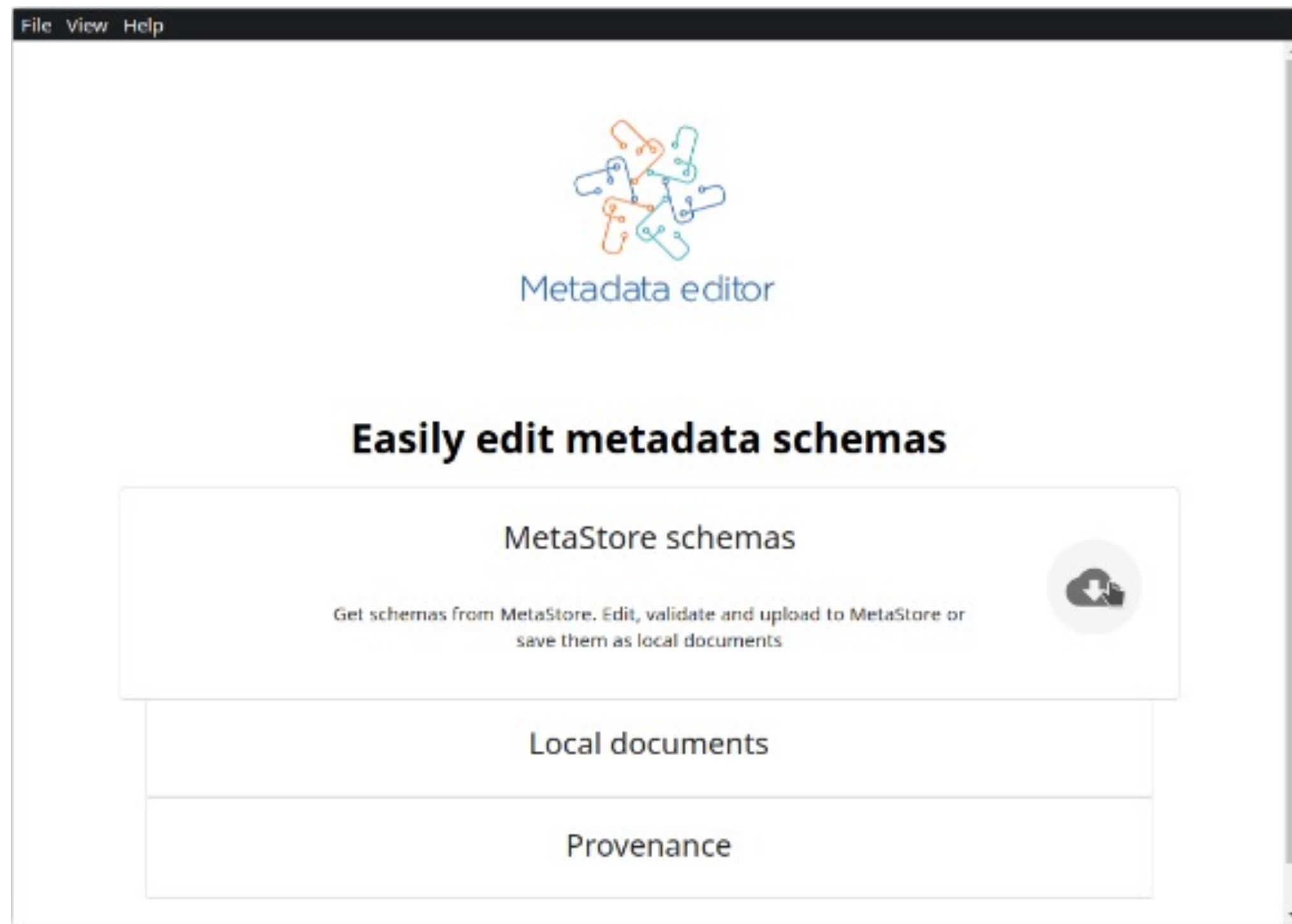
## The MetaRepo: Introduction

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# STATUS QUO



- Learned about FAIR principles
- Plan, organize, and publish FAIR data
- Metadata schemas and Metadata editor



# AGENDA



nffa.eu

**PILOT** 2021  
2026

# Why Metadata Management?



This initiative has received funding from the EU's H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project

# Data vs. Metadata – Differences

	Data	Metadata
<b>Nature and content</b>	Raw facts, measurements, observations	Information <b>providing context</b> and attributes
<b>Usage</b>	Analysis, decision-making, <b>research</b>	Data management, discovery, <b>interpretation</b>
<b>Representation</b>	Mostly <b>unstructured</b>	<b>Structured</b>
<b>Relationship</b>	Independent and <b>stand-alone</b>	<b>Linked</b> to data/other metadata
<b>Purpose and function</b>	Primary <b>source of information</b>	<b>Supporting framework</b> for organization, management, interpretation

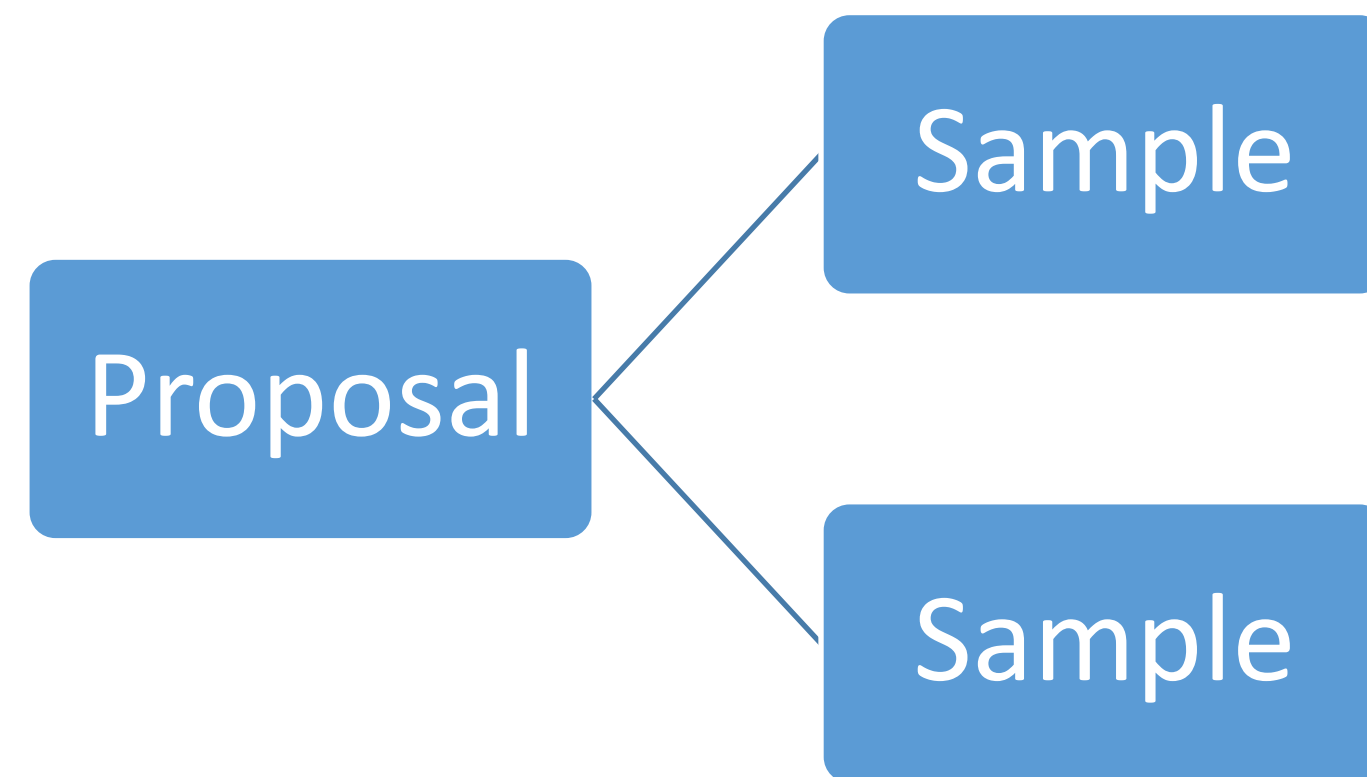
# Building the Framework

Proposal

- **Proposal information**, e.g., unique identifier, title, abstract, used techniques, sample information, etc.
- **Permission information**, e.g., team members, principal investigator
- Provides overall context, may be **basis for publication information**

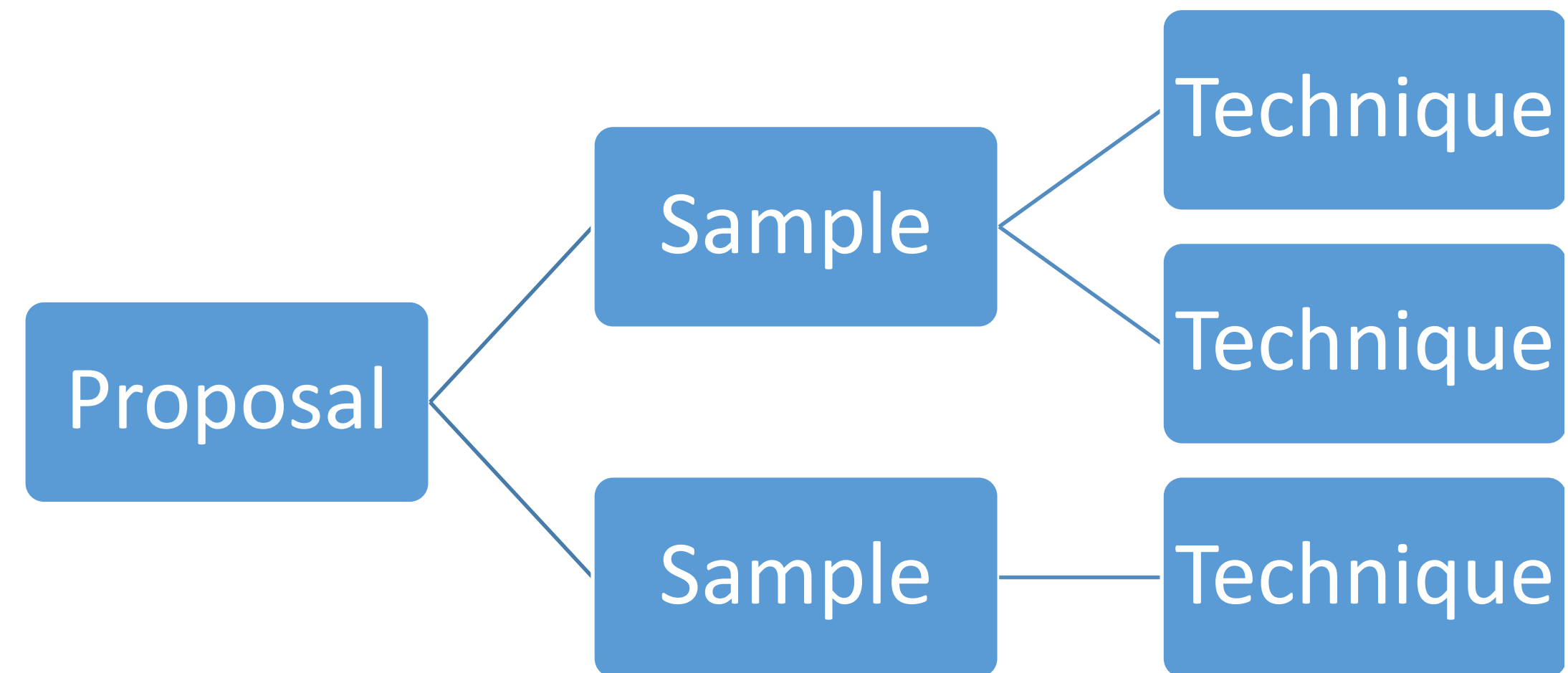


# Building the Framework



- Information on performed **steps and parameters** during **sample preparation**
- May support **findability** of particular measurement
- Allows **interpretation** of results

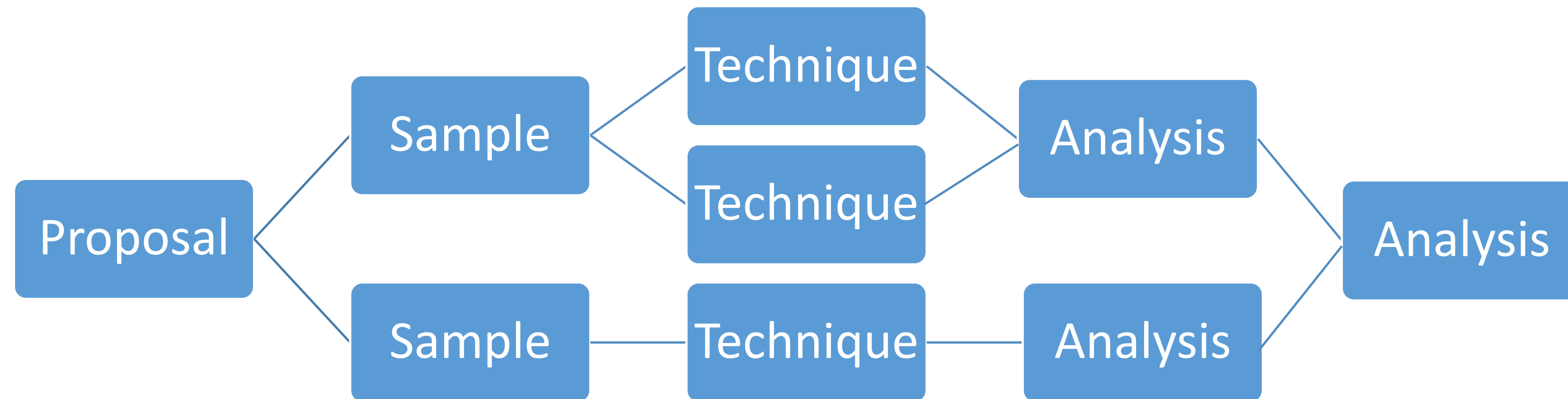
# Building the Framework



- Specific information on **used technique and parameters**
- **Raw data** capturing (and storage)
- Basis for **further analysis**



# Building the Framework

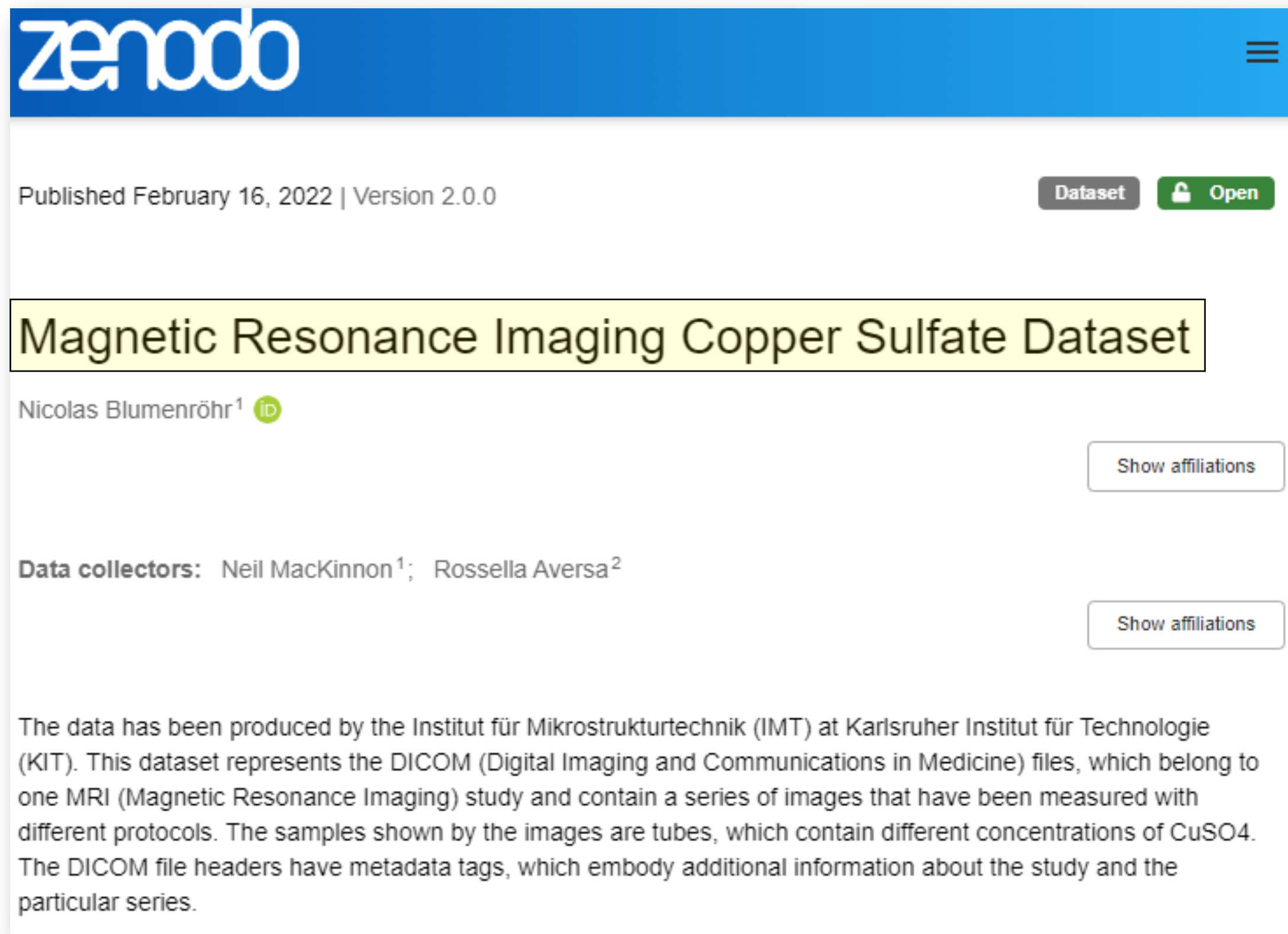


- Information on **used software and parameters**
- Should facilitate **reproducibility**
- May result in **derived data** or additional analysis **result metadata**

# Conclusions – Building the Framework

Pro	Contra
<b>Modular metadata</b> eases collection	Requires <b>disciplined recording</b>
<b>Metadata editor</b> helps user	Metadata <b>stored locally</b>
Local work <b>avoids accidental publishing</b>	Local metadata <b>hinders collaboration</b>

# Publication on Zenodo




The screenshot shows a Zenodo dataset page for "Magnetic Resonance Imaging Copper Sulfate Dataset". The page includes the Zenodo logo, a blue header bar, and a navigation menu. Below the header, it states "Published February 16, 2022 | Version 2.0.0" and has "Dataset" and "Open" buttons. The title "Magnetic Resonance Imaging Copper Sulfate Dataset" is highlighted in a yellow box. The author is "Nicolas Blumenröhr<sup>1</sup>" with an ORCID icon and a "Show affiliations" button. The "Data collectors" are "Neil MacKinnon<sup>1</sup>; Rossella Aversa<sup>2</sup>" with another "Show affiliations" button. A detailed description of the data follows.

zenodo

Published February 16, 2022 | Version 2.0.0 Dataset Open

**Magnetic Resonance Imaging Copper Sulfate Dataset**

Nicolas Blumenröhr<sup>1</sup> 

Show affiliations

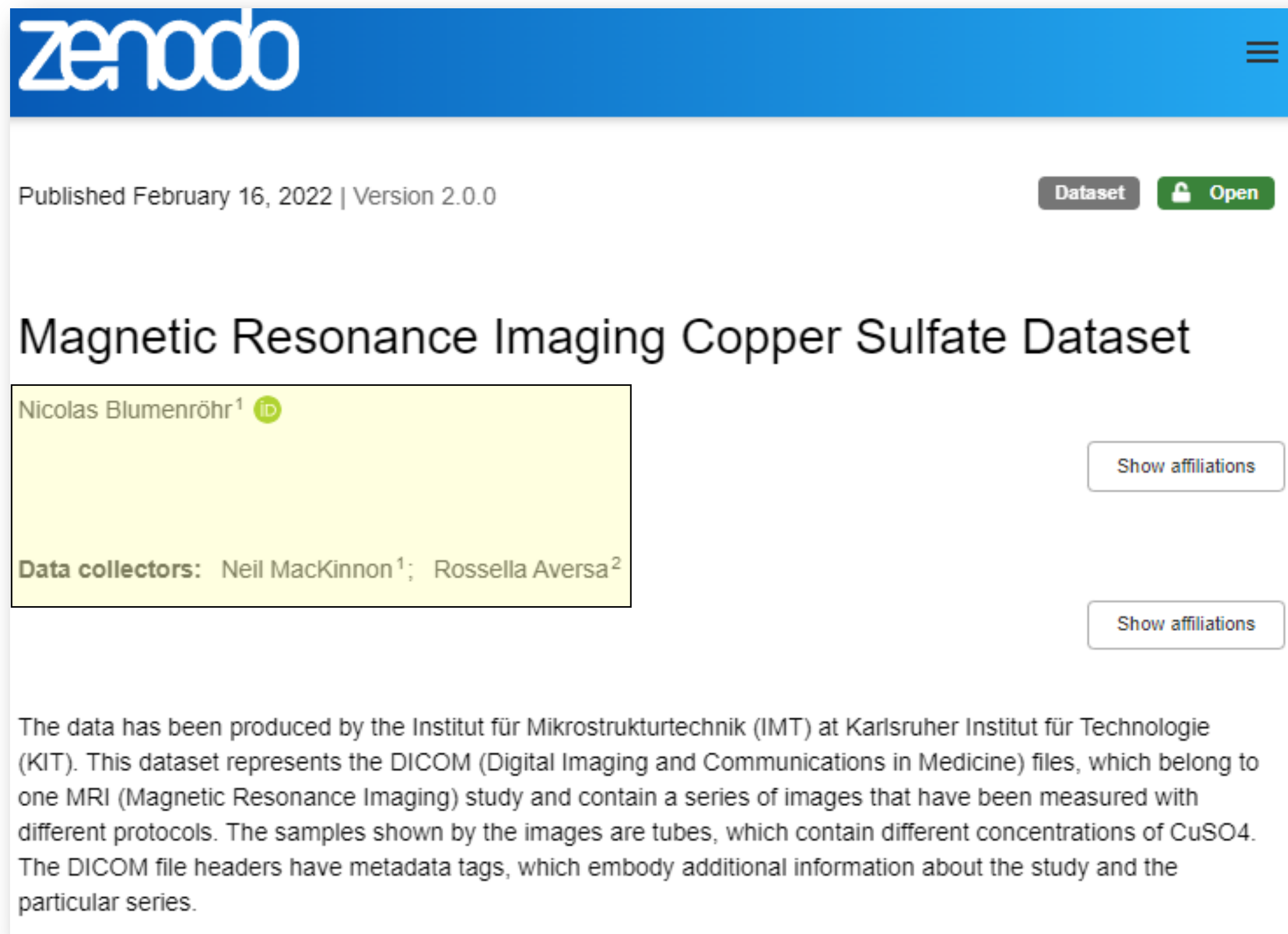
**Data collectors:** Neil MacKinnon<sup>1</sup>; Rossella Aversa<sup>2</sup>

Show affiliations

The data has been produced by the Institut für Mikrostrukturtechnik (IMT) at Karlsruher Institut für Technologie (KIT). This dataset represents the DICOM (Digital Imaging and Communications in Medicine) files, which belong to one MRI (Magnetic Resonance Imaging) study and contain a series of images that have been measured with different protocols. The samples shown by the images are tubes, which contain different concentrations of CuSO<sub>4</sub>. The DICOM file headers have metadata tags, which embody additional information about the study and the particular series.

- (Proposal) title

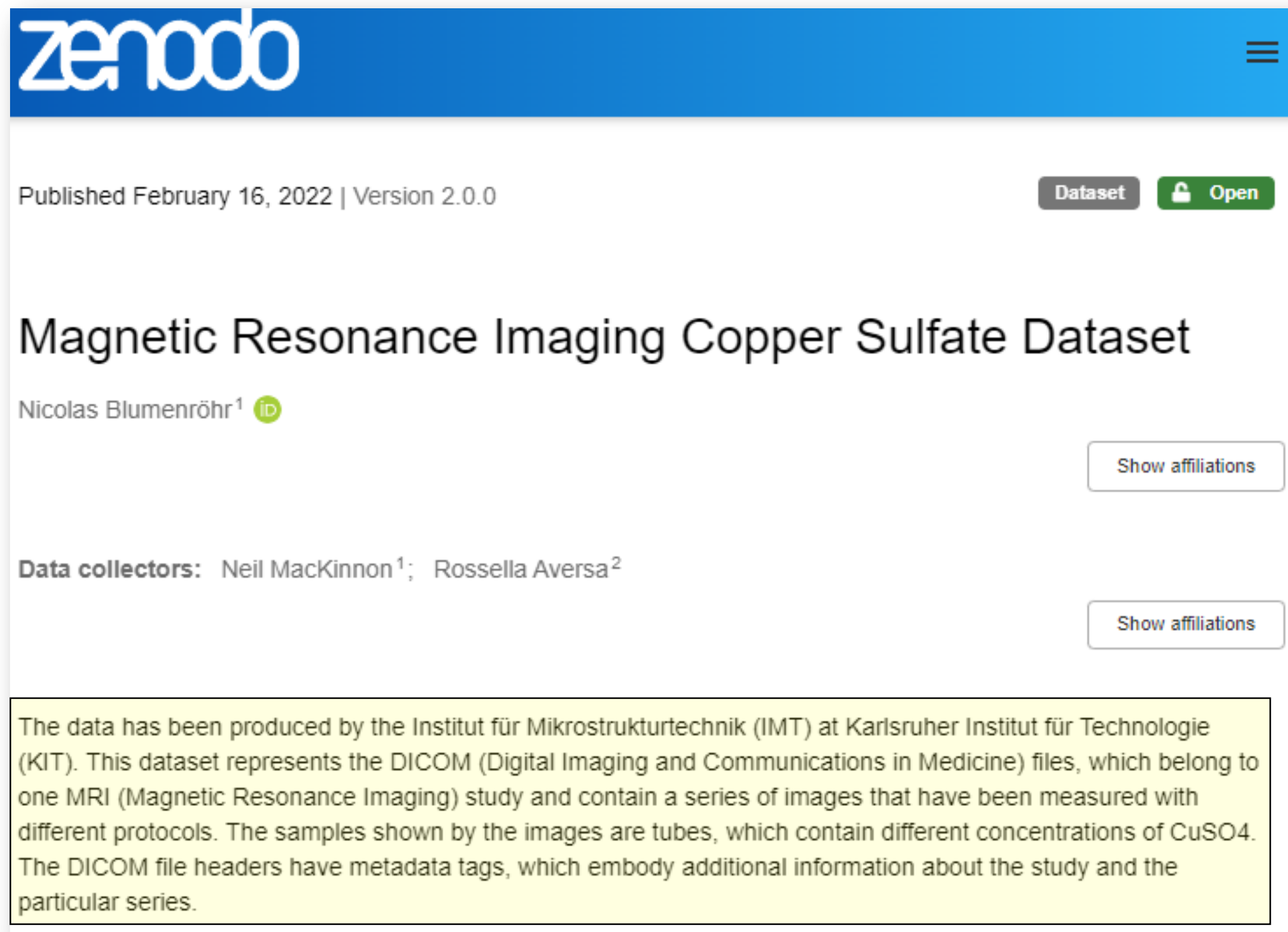
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- (Proposal) title
- Team members


# Publication on Zenodo



zenodo

Published February 16, 2022 | Version 2.0.0 Dataset Open

## Magnetic Resonance Imaging Copper Sulfate Dataset

Nicolas Blumenröhr<sup>1</sup> 

[Show affiliations](#)

**Data collectors:** Neil MacKinnon<sup>1</sup>; Rossella Aversa<sup>2</sup>

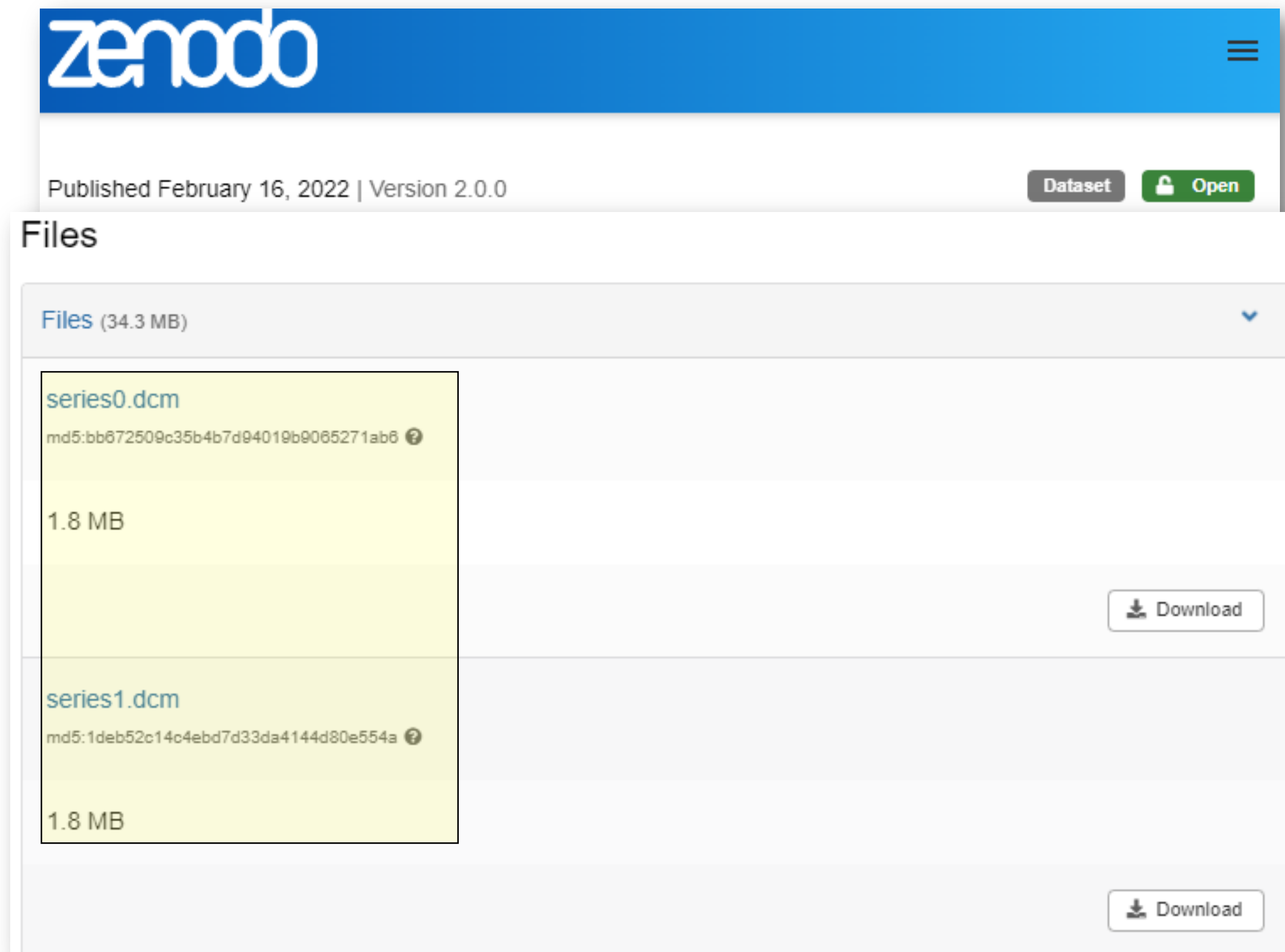
[Show affiliations](#)

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- (Proposal) title
- Team members
- (Proposal) abstract



# Publication on Zenodo



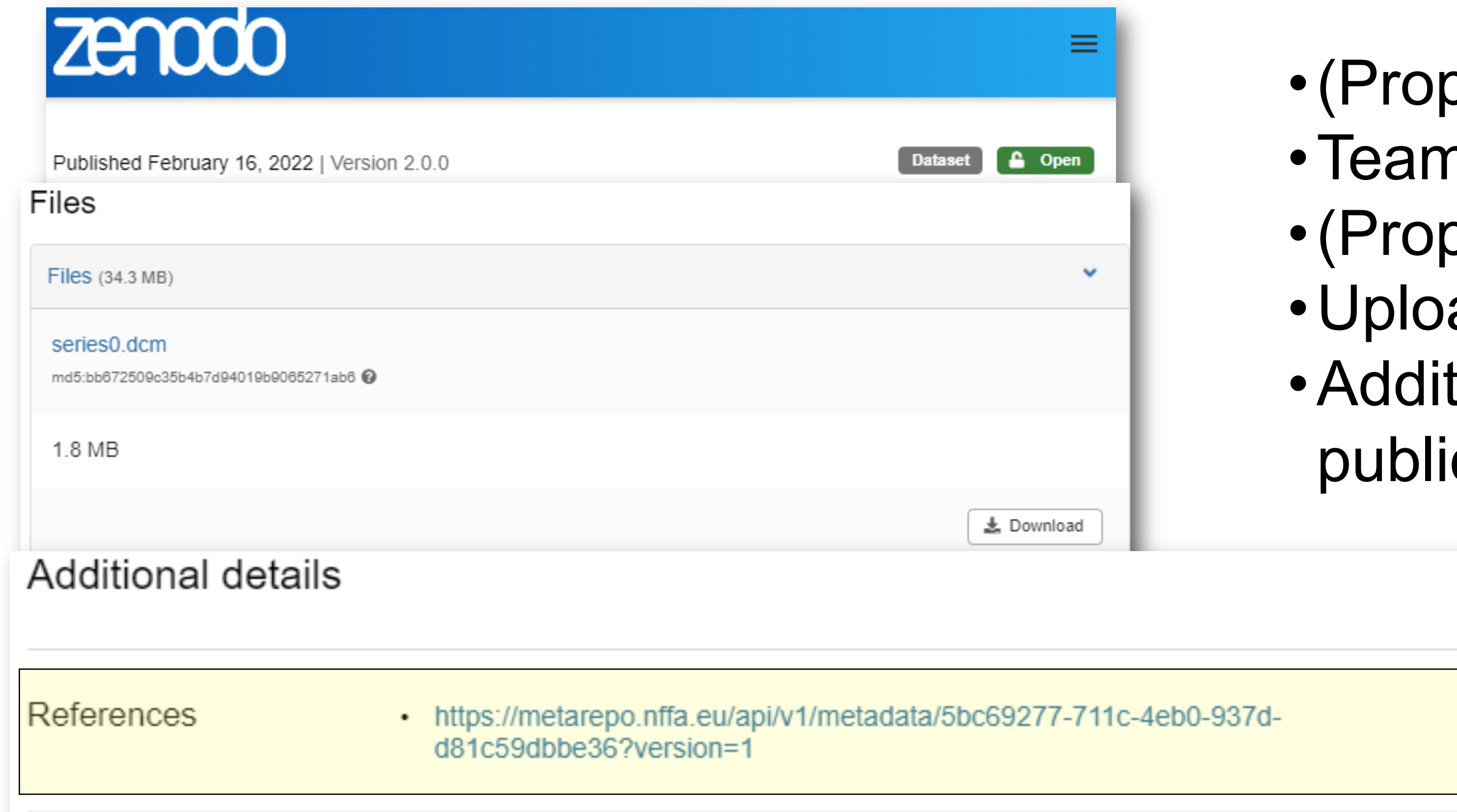
- (Proposal) title
- Team members
- (Proposal) abstract
- Upload files from datashare
- Additional metadata exported from Metadata editor and uploaded



# Conclusions - Publication

Pro	Contra
Publication <b>makes (meta)data findable</b>	Findability limited to <b>publication metadata</b>
<b>Additional metadata</b> can be uploaded...	...but is handled as <b>opaque files</b>
Data and metadata <b>accessible and reusable</b>	Both <b>must be downloaded</b> for insights
Published data is <b>fixed</b>	Updates require <b>re-publishing</b>

# How to Improve

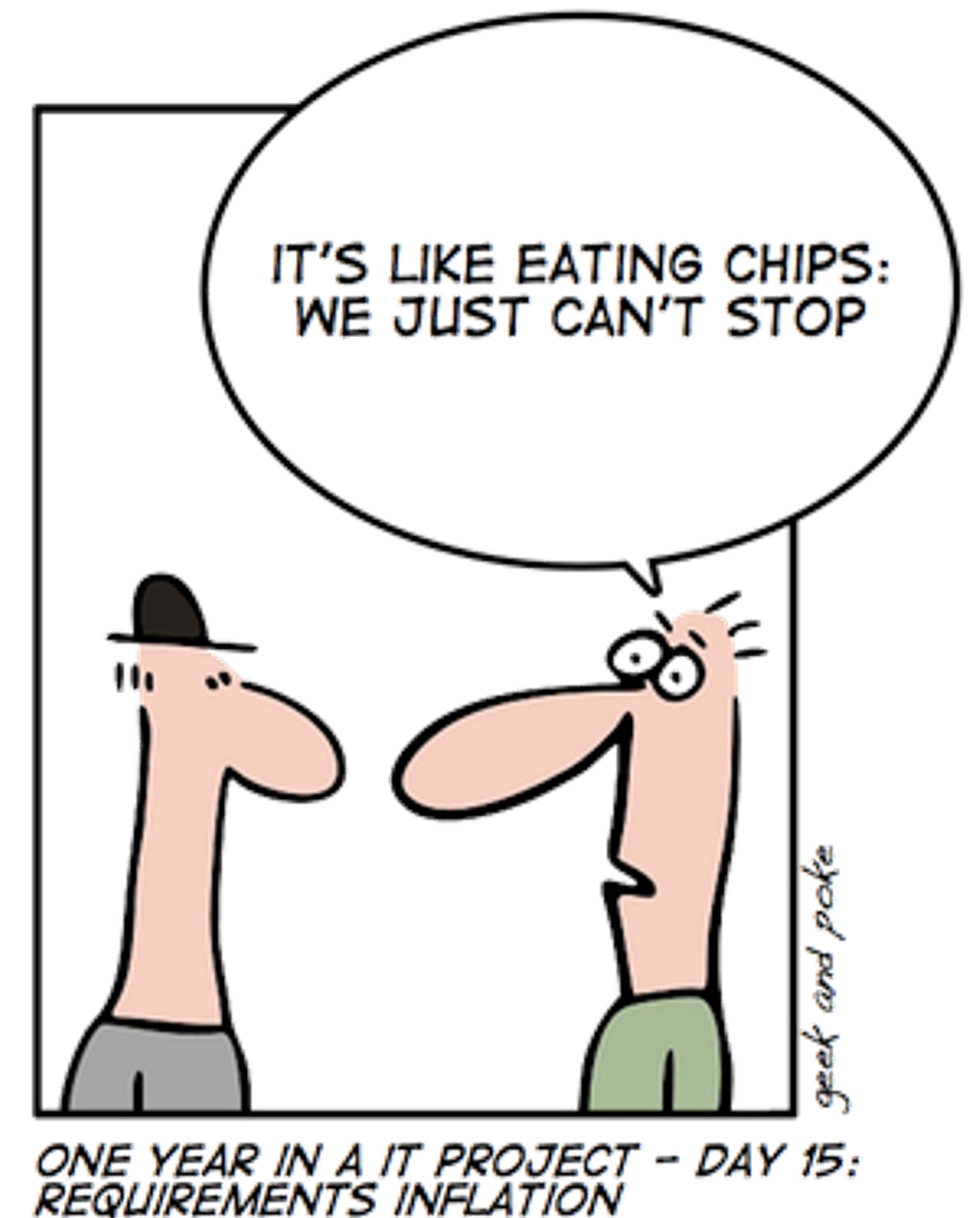


The screenshot shows a Zenodo dataset page. At the top, the Zenodo logo is visible. Below it, the text "Published February 16, 2022 | Version 2.0.0" is displayed. There are two buttons: "Dataset" and "Open". The "Files" section shows a file named "series0.dcm" with a size of 1.8 MB and an MD5 hash. A "Download" button is present. The "Additional details" section is highlighted, showing a "References" section with a single link: <https://metarepo.nffa.eu/api/v1/metadata/5bc69277-711c-4eb0-937d-d81c59dbbe36?version=1>

- (Proposal) title
- Team members
- (Proposal) abstract
- Upload files from datashare
- Additional metadata **linked** to publication

# Additional Requirements

- Metadata must be **accessible online**
- **Possible integration** into existing infrastructure(s)
- Metadata must be **traceably editable** for corrections/additions
- **Access management** required for write operations
- Metadata validation required to preserve **consistent state**



<https://geekandpoke.typepad.com/geekandpoke/images/2008/04/06/day015.jpg>

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# What's MetaStore?



This initiative has received funding from the EU's H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project

# MetaStore – Motivation and Goals

## Motivation

- Different stakeholders from different domains
- Integration/support of domain-specific, single-purpose systems expensive and hard to maintain
- Need for customizable user experience depending on use case



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## Motivation

- Different stakeholders from different domains
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- Need for customizable user experience depending on use case

## Goals

- Offer general purpose metadata management system
- Domain-agnostic on metadata management level
- Support for extensibility and customizability





# MetaStore – A short History

## MetaStore v1



- Started around 2016
- Focus on schema-compliant XML metadata
- METS standard as core metadata model
- Machine-readable API to read/write METS documents
- Fine-grained permissions and indexing

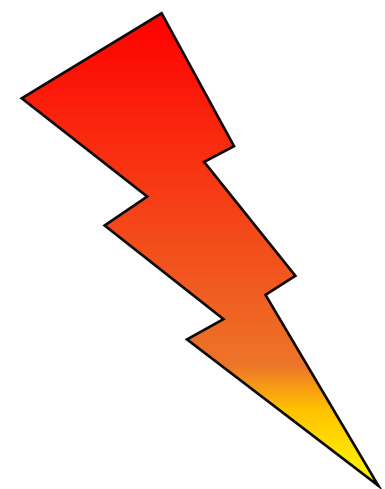
```
1 <mets>
2   <metsHdr/>
3   <dmdSec/>
4   <amdSec/>
5   <fileSec/>
6   <structMap/>
7   <structLink/>
8   <behaviorSec/>
9 </mets>
```

# MetaStore – A short History

## MetaStore v1



- Started around 2016
- Focus on schema-compliant XML metadata
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- Machine-readable API to read/write METS documents
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- Technically outdated software stack
- XML too strict and hard to handle
- Increasing importance of JSON

```
1 <mets>
2   <metsHdr/>
3   <dmdSec/>
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5   <fileSec/>
6   <structMap/>
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8   <behaviorSec/>
9 </mets>
```

# MetaStore – A short History

## MetaStore2

- Public release 2020 (20 releases since then)
- Applied in national and international projects
- Schema registry and metadata repository
- Support for XML and JSON
- Build-in versioning and harvesting support
- Support for external access management and indexing
- Clear and intuitive API structure

GET	/api/v1/schemas/{schemaId}
GET	/api/v1/schemas
PUT	/api/v1/schemas/{schemaId}
POST	/api/v1/schemas
POST	/api/v1/schemas/{schemaId}/validate
DELETE	/api/v1/schemas/{schemaId}
GET	/api/v1/metadata/{id}
GET	/api/v1/metadata
PUT	/api/v1/metadata/{id}
POST	/api/v1/metadata
POST	/api/v1/metadata/{schemaId}/search
POST	/api/v1/metadata/search
DELETE	/api/v1/metadata/{id}
GET	/oaipmh



# MetaStore – Register a Metadata Schema

## Metadata Schema

```
schema.json:
{
  "$schema": "http://json-schema.org/draft/2019-09/schema#",
  "$id": "http://www.example.org/schema/json",
  "type": "object",
  "title": "Json schema for tests",
  "default": {},
  "required": [
    "title"
  ],
  "properties": {
    "title": {
      "$id": "#/properties/string",
      "type": "string",
      "title": "Title",
      "description": "Title of object."
    }
  },
  "additionalProperties": false
}
```

## Administrative Metadata

```
schema-record4json.json:
{
  "schemald" : "my_first_json",
  "type" : "JSON"
}
```

## API-Call

```
$ curl 'http://localhost:8040/api/v1/schemas' -i -X POST \
-H 'Content-Type: multipart/form-data' \
-F 'schema=@schema.json;type=application/json' \
-F 'record=@schema-record4json.json;type=application/json'
```

# MetaStore – Register a Metadata Document

## Metadata Document

```
metadata.json:
{
  "title": "My first JSON document"
}
```

## API-Call

```
$ curl 'http://localhost:8040/api/v1/metadata' -i -X POST \
-H 'Content-Type: multipart/form-data' \
-F 'record=@metadata-record4json.json;type=application/json' \
-F 'document=@metadata.json;type=application/json'
```

## Administrative Metadata

```
metadata-record4json.json:
{
  "relatedResource": {
    "identifier": "anyResourceId",
    "identifierType": "INTERNAL"
  },
  "schema": {
    "identifier": "my_first_json",
    "identifierType": "INTERNAL"
  },
  "schemaVersion": 1
}
```

# MetaStore – Conclusions

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This is devil's stuff!



It's an infrastructure component.





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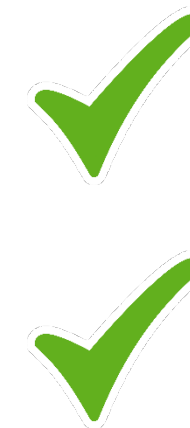


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Additional details

References

- <https://metarepo.nffa.eu/api/v1/metadata/5bc69277-711c-4eb0-937d-d81c59dbbe36?version=1>



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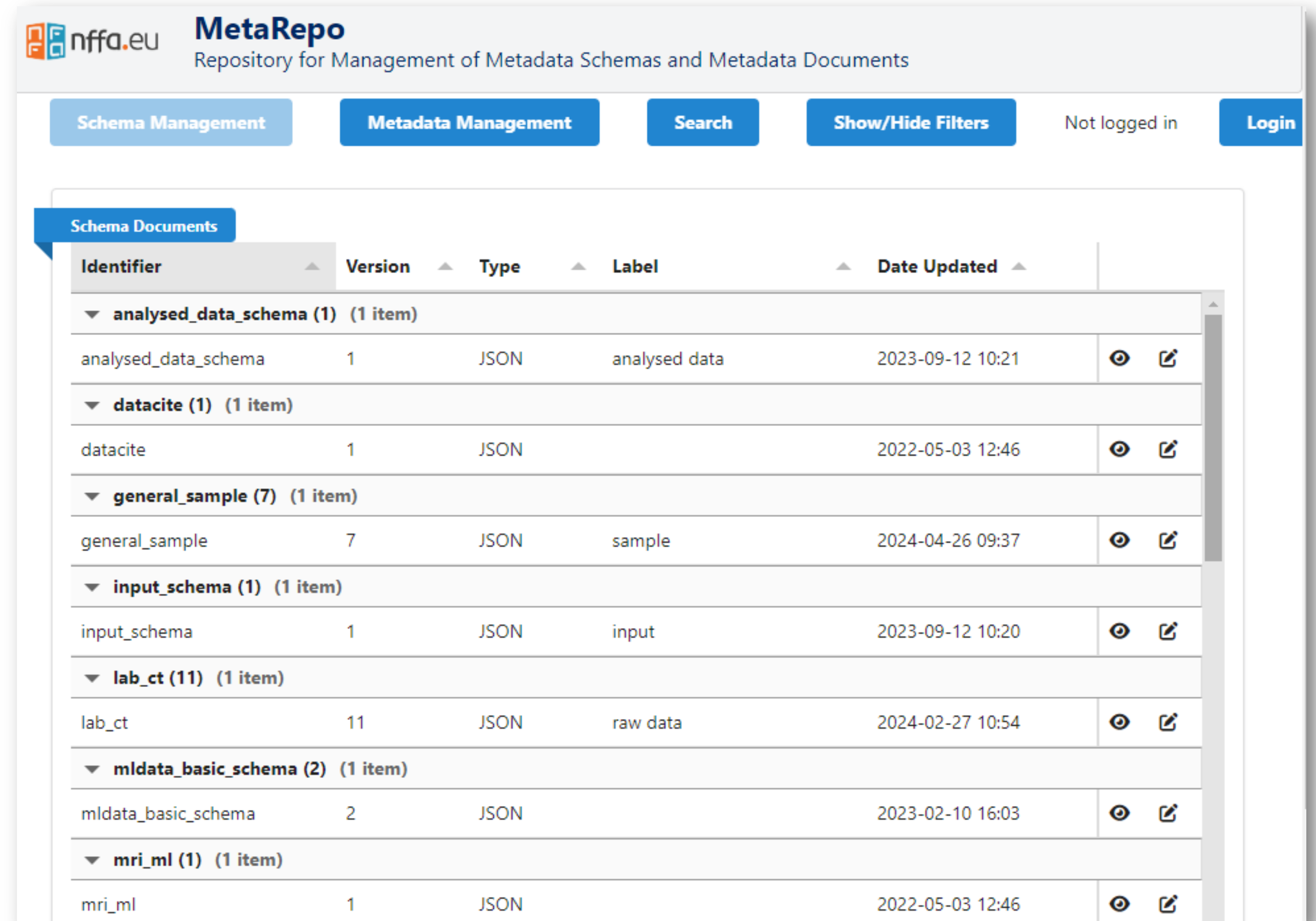
# Introducing MetaRepo



This initiative has received funding from the EU's H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project

# MetaRepo – An Instance of MetaStore

- Customized frontend



The screenshot shows the MetaRepo web interface. At the top, there is a navigation bar with buttons for 'Schema Management', 'Metadata Management', 'Search', and 'Show/Hide Filters'. The user is 'Not logged in' and there is a 'Login' button. The main content area is titled 'Schema Documents' and contains a table with the following columns: Identifier, Version, Type, Label, Date Updated, and two action icons (eye and edit).

Identifier	Version	Type	Label	Date Updated		
▼ analysed_data_schema (1) (1 item)						
analysed_data_schema	1	JSON	analysed data	2023-09-12 10:21	👁	✎
▼ datacite (1) (1 item)						
datacite	1	JSON		2022-05-03 12:46	👁	✎
▼ general_sample (7) (1 item)						
general_sample	7	JSON	sample	2024-04-26 09:37	👁	✎
▼ input_schema (1) (1 item)						
input_schema	1	JSON	input	2023-09-12 10:20	👁	✎
▼ lab_ct (11) (1 item)						
lab_ct	11	JSON	raw data	2024-02-27 10:54	👁	✎
▼ mldata_basic_schema (2) (1 item)						
mldata_basic_schema	2	JSON		2023-02-10 16:03	👁	✎
▼ mri_ml (1) (1 item)						
mri_ml	1	JSON		2022-05-03 12:46	👁	✎

# MetaRepo – An Instance of MetaStore

- Customized frontend
- Single sign-on integration

The screenshot displays the MetaRepo web interface, which is a repository for managing metadata schemas and documents. The interface includes a navigation bar with 'Schema Management' and 'Metadata Management' tabs. Below this, there is a 'Schema Documents' section with a table listing various schemas. A Keycloak logo is overlaid on the right side of the screenshot, indicating single sign-on integration.

Identifier	Version	Type	Label		
▼ analysed_data_schema (1) (1 item)					
analysed_data_schema	1	JSON	analys		
▼ datacite (1) (1 item)					
datacite	1	JSON			
▼ general_sample (7) (1 item)					
general_sample	7	JSON	sample	2024-04-26 09:37	👁️ 📄
▼ input_schema (1) (1 item)					
input_schema	1	JSON	input	2023-09-12 10:20	👁️ 📄
▼ lab_ct (11) (1 item)					
lab_ct	11	JSON	raw data	2024-02-27 10:54	👁️ 📄
▼ mldata_basic_schema (2) (1 item)					
mldata_basic_schema	2	JSON		2023-02-10 16:03	👁️ 📄
▼ mri_ml (1) (1 item)					
mri_ml	1	JSON		2022-05-03 12:46	👁️ 📄

# MetaRepo – An Instance of MetaStore

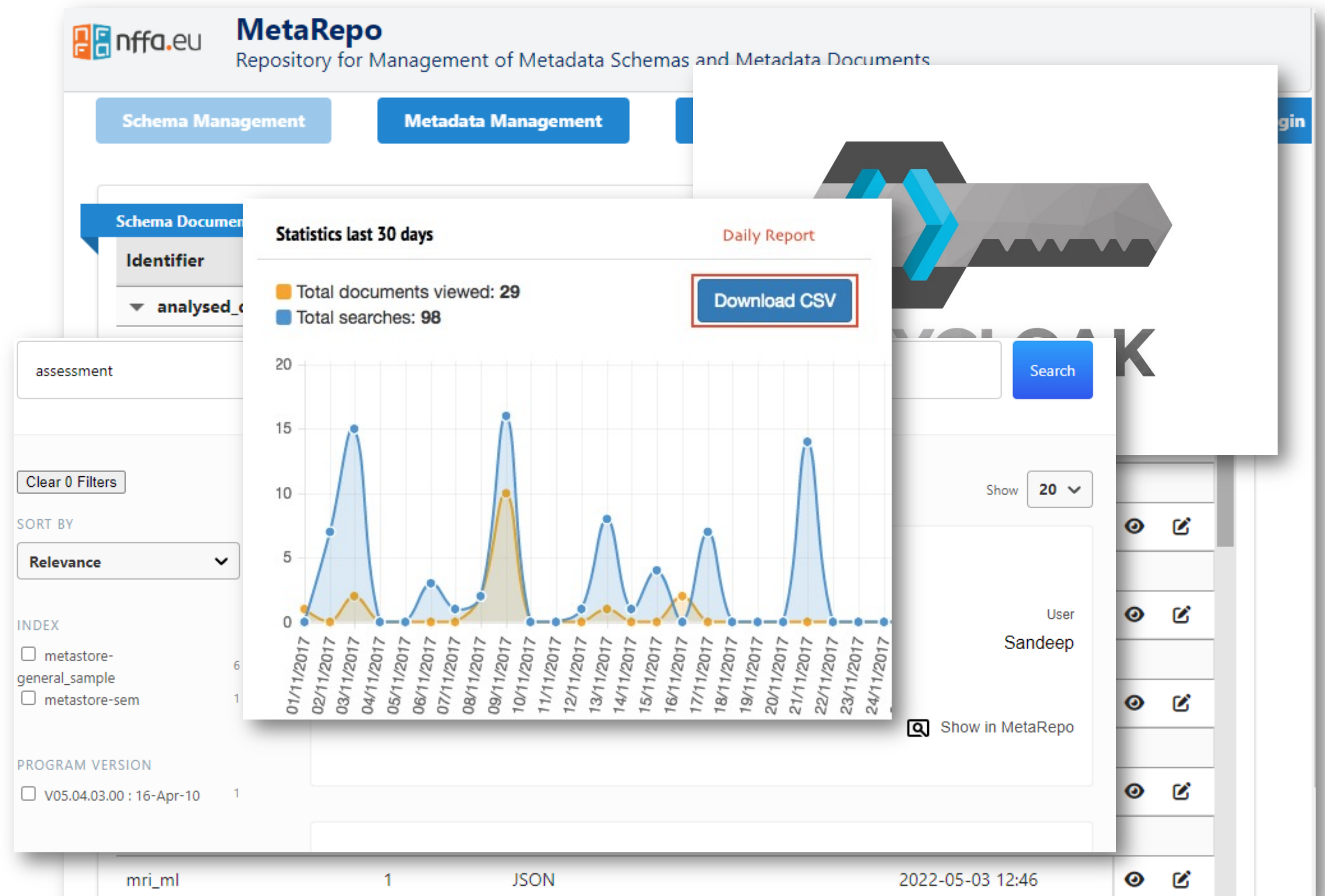
- Customized frontend
- Single sign-on integration
- Custom search

The screenshot displays the MetaRepo web interface. At the top, the nffa.eu logo and the title 'MetaRepo' are visible, along with the subtitle 'Repository for Management of Metadata Schemas and Metadata Documents'. Below this, there are navigation buttons for 'Schema Management' and 'Metadata Management'. A 'Schema Documents' section shows a table with columns for 'Identifier', 'Version', 'Type', and 'Label'. A search bar contains the text 'assessment' and a 'Search' button. Below the search bar, there are filter options: 'Clear 0 Filters', 'SORT BY Relevance', and 'INDEX' (with checkboxes for 'metastore-general\_sample' and 'metastore-sem'). A 'PROGRAM VERSION' section is also visible. The search results show a single item: 'C04\_200nm\_A403.tif' with a 'SEM 1 kV' tag, a 'Zeiss ULTRA PLUS (ULTRA PLUS-40-44)' description, and an 'assessment (to given categories or values)' label. The user 'Sandeep' is listed. A 'Show in MetaRepo' button is present. At the bottom, a table shows the following data: 'mri\_ml', '1', 'JSON', and '2022-05-03 12:46'.



# MetaRepo – An Instance of MetaStore

- Customized frontend
- Single sign-on integration
- Custom search
- Virtual access monitoring



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# Hands-on



This initiative has received funding from the EU's H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project

Schema Management Metadata Management Search Show/Hide Filters Not logged in Login

Metadata Documents

Identifier	
▼ general_sample (version=8) (1 item)	
0ab5c6c5-fffa-4007-a649-aa18dabcd68d	 
Related Resource test_r_r	
Schema Identifier <a href="#">general_sample (version=8)</a>	
Date Updated 2024-06-03 08:43	
▼ general_sample (version=5) (5 items)	
0bd9a58f-ae53-4bd1-8405-bb3b62b5617b	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-03-05 22:11	
13db4e85-b31d-409f-b9f3-a173d6604939	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:45	
9015ab39-d5d6-4f8a-8cd9-9860cd76a46f	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:49	
b62270fb-fc9f-42ab-ad1f-428a5fcc25c	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif</a>	











Register new Metadata Document

- Ensure Metadata Management is selected



Schema Management Metadata Management Search Show/Hide Filters Not logged in **Login**

Metadata Documents











Identifier	
▼ general_sample (version=8) (1 item)	
0ab5c6c5-fffa-4007-a649-aa18dabcd68d	 
Related Resource test_r_r	
Schema Identifier <a href="#">general_sample (version=8)</a>	
Date Updated 2024-06-03 08:43	
▼ general_sample (version=5) (5 items)	
0bd9a58f-ae53-4bd1-8405-bb3b62b5617b	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-03-05 22:11	
13db4e85-b31d-409f-b9f3-a173d6604939	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:45	
9015ab39-d5d6-4f8a-8cd9-9860cd76a46f	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:49	
b62270fb-fc9f-42ab-ad1f-428a5cfcc25c	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif</a>	

[Register new Metadata Document](#)

- Ensure Metadata Management is selected
- Login with your NFFA credentials

Schema Management Metadata Management Search Show/Hide Filters Not logged in Login

Metadata Documents

Identifier	
▼ general_sample (version=8) (1 item)	
0ab5c6c5-fffa-4007-a649-aa18dabcd68d	 
Related Resource test_r_r	
Schema Identifier <a href="#">general_sample (version=8)</a>	
Date Updated 2024-06-03 08:43	
▼ general_sample (version=5) (5 items)	
0bd9a58f-ae53-4bd1-8405-bb3b62b5617b	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/C04_200nm_A403.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-03-05 22:11	
13db4e85-b31d-409f-b9f3-a173d6604939	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15031_07_InAsInAsNanowire_Carina.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:45	
9015ab39-d5d6-4f8a-8cd9-9860cd76a46f	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/d16on%20Si_w49T_28_GaN_NW_r.tif</a>	
Schema Identifier <a href="#">general_sample (version=5)</a>	
Date Updated 2024-02-27 13:49	
b62270fb-fc9f-42ab-ad1f-428a5fcc25c	 
Related Resource <a href="https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif">https://matwerk.datamanager.kit.edu/api/v1/dataresources/c1c8126f-f1f3-4486-a8c2-aa18736d87e0/data/15033-05_GaAsNWs_Carina.tif</a>	

Register new Metadata Document

- Ensure Metadata Management is selected
- Login with your NFFA credentials
- Click **Register new Metadata Document**



Create Metadata ×**Record Metadata**

Metadata Document

Related Resource \*

The identifier of the related resource, i.e., a URL or any internally handled kind of identifier.

Related Resource Identifier Type \*

The type of the identifier, i.e., URL or INTERNAL.

Schema Identifier

The identifier of the validation schema for the provided metadata document.

Schema Version

The version of the metadata schema to be used. If not provided, the most recent version will be used.

ACL

Metadata Document File

A local file containing the metadata document.

 Keine ausgewählt

- Select Record Metadata tab
- Check available attributes

## Create Metadata ✕

Record Metadata

Metadata Document

Related Resource \*

The identifier of the related resource, i.e., a URL or any internally handled kind of identifier.

thomas.jejkal@nep.summer.school

Related Resource Identifier Type \*

The type of the identifier, i.e., URL or INTERNAL.

INTERNAL

Schema Identifier

The identifier of the validation schema for the provided metadata document.

Feedback

Schema Version

The version of the metadata schema to be used. If not provided, the most recent version will be used.

ACL

+

Metadata Document File

A local file containing the metadata document.

File auswählen Keine ausgewählt

Validate

Close

Submit ✓

- Select Record Metadata tab
- Check available attributes
- Assign related resource identifier
  - Must be unique
  - **firstname.lastname@nffa.summer.school**
- Set identifier type to **INTERNAL**

Create Metadata ✕

## Record Metadata

Metadata Document

## Related Resource \*

The identifier of the related resource, i.e., a URL or any internally handled kind of identifier.

## Related Resource Identifier Type \*

The type of the identifier, i.e., URL or INTERNAL.

## Schema Identifier

The identifier of the validation schema for the provided metadata document.

## Schema Version

The version of the metadata schema to be used. If not provided, the most recent version will be used.

## ACL

## Metadata Document File

A local file containing the metadata document.

 Keine ausgewählt

- Select Record Metadata tab
- Check available attributes
- Assign related resource identifier
  - Must be unique
  - **firstname.lastname@nffa.summer.school**
- Set identifier type to **INTERNAL**
- Select schema from dropdown
  - Choose **Feedback**

Create Metadata ×

## Record Metadata

Metadata Document

## Related Resource \*

The identifier of the related resource, i.e., a URL or any internally handled kind of identifier.

## Related Resource Identifier Type \*

The type of the identifier, i.e., URL or INTERNAL.

## Schema Identifier

The identifier of the validation schema for the provided metadata document.

## Schema Version

The version of the metadata schema to be used. If not provided, the most recent version will be used.

## ACL

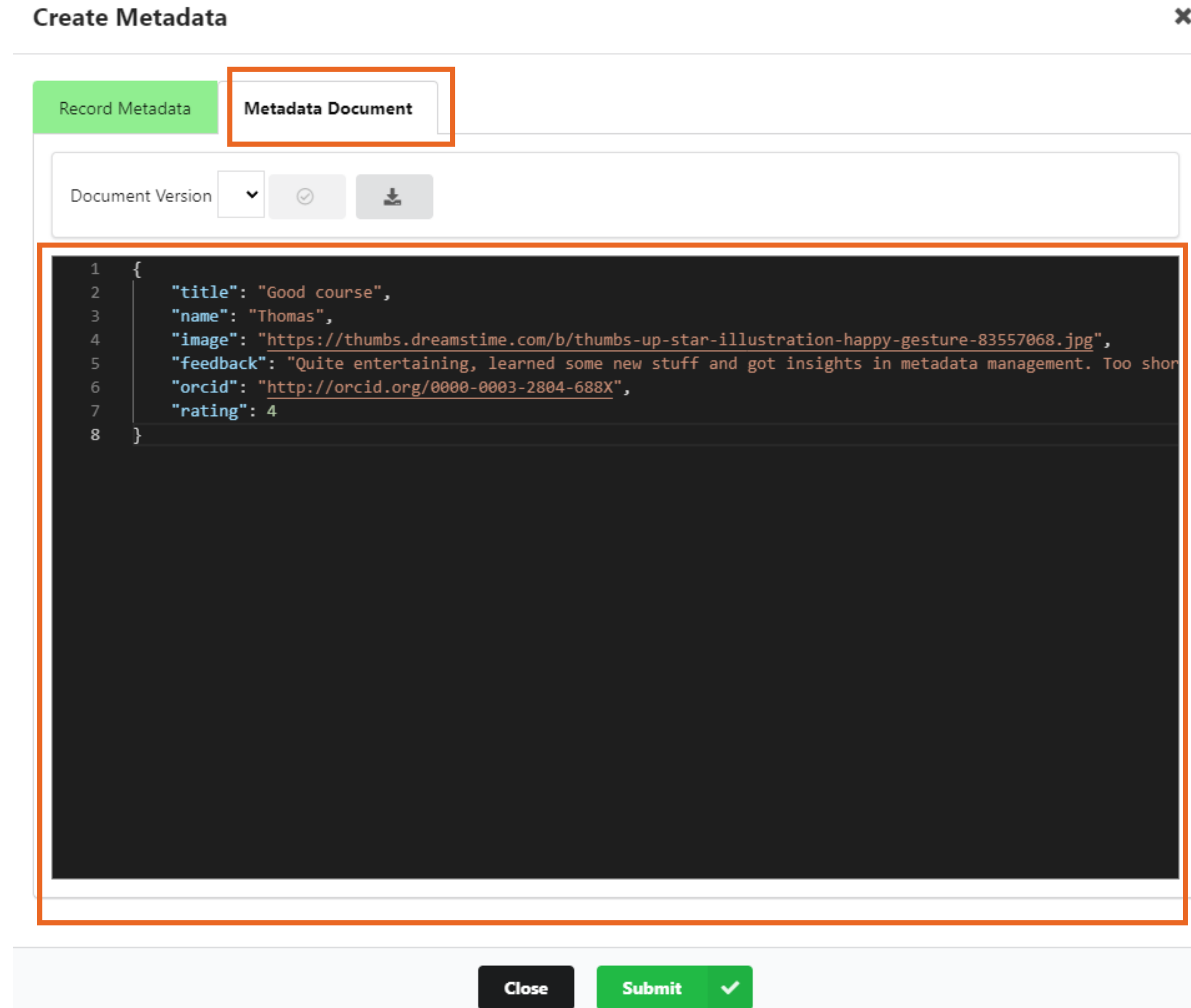
## Metadata Document File

A local file containing the metadata document.

 Keine ausgewählt

- Select Record Metadata tab
- Check available attributes
- Assign related resource identifier
  - Must be unique
  - **firstname.lastname@nffa.summer.school**
- Set identifier type to **INTERNAL**
- Select schema from dropdown
  - Choose **Feedback**
- Click Validate to proceed to next step

- Select **Metadata Document** tab
- Enter your feedback document
- Autocomplete attributes via Shift+Space (MacOS) or Strg/Ctrl+Space (Windows)
- Check proper types
  - Title: String (8 – 64 Characters)
  - Name: String
  - Orcid: String + URL
  - Image: String + URL
  - Feedback: String (<= 512 Characters)
  - Rating: Number (1-5)
- Double-check before submission!



Create Metadata

Record Metadata Metadata Document

Document Version

```
1 {
2   "title": "Good course",
3   "name": "Thomas",
4   "image": "https://thumbs.dreamstime.com/b/thumbs-up-star-illustration-happy-gesture-83557068.jpg",
5   "feedback": "Quite entertaining, learned some new stuff and got insights in metadata management. Too short",
6   "orcid": "http://orcid.org/0000-0003-2804-688X",
7   "rating": 4
8 }
```



Close Submit ✓





- Select Show/Hide Filters
- Enter filter as shown and apply filter

Schema Management   Metadata Management   Search   **Show/Hide Filters**

**Table Filter**

Schema Identifier ▾   like ▾   Feedback    



**Metadata Documents**

Identifier	
▾ Feedback (version=1) (1 item)	
1f865d44-2217-499d-802a-56e7ff20310c	 
<b>Related Resource</b>	thomas.jejkal@nep.summer.school
<b>Schema Identifier</b>	Feedback (version=1)
<b>Date Updated</b>	2024-06-04 12:07



- Select Show/Hide Filters
- Enter filter as shown and apply filter
- Select **Search**

Schema Management   Metadata Management   **Search**   Show/Hide Filters

**Table Filter**

Schema Identifier ▼   like ▼   Feedback      

**Metadata Documents**

Identifier	
▼ Feedback (version=1) (1 item)	
1f865d44-2217-499d-802a-56e7ff20310c	 
<b>Related Resource</b>	thomas.jejkal@nep.summer.school
<b>Schema Identifier</b>	Feedback (version=1)
<b>Date Updated</b>	2024-06-04 12:07

- You should see the result as on the screenshot
- Login
- You should also see your own feedback
- Play around, try out filters

Search

Clear 0 Filters

**SORT BY**

Relevance
▼

**INDEX**

- metastore-sem 14
- metastore-general\_sample 9
- metastore-mri\_schema 4
- metastore-feedback 1

**PROGRAM VERSION**

- V06.00.00.00 : 09-Jun-16 7
- 7.6.1.4139 3
- V05.04.00.00 : 08-May-09 3
- V05.04.03.00 : 16-Apr-10 1

**USERNAME**

- SABINE 7
- TIFR 3
- supervisor 3
- Sandeep 1

Showing 1 - 19 out of 19 Show 20 ▼

$O=CeO$

Sample
CeO2
Haz

Sample ID

**SCeO5\_PorousCeria**

Simon Falkner

CeO2 prepared by thermal decomposition of Ce2(C2O4)3 at 350Å°C for 15 min in air Ce2(C2O4)3 was prepared by precipitation out of Ce(NO3)3 and K2C2O4 in ethanol-water mixture and consecutive washing with ethanol...

Show in MetaRepo

$In \equiv As$

Sample
InAs
Haz

Sample ID


**CVD15030\_InAs**

Carina B. Maliakkal, Mahesh Gokhale

No preparation description.

Show in MetaRepo

nffa.eu  
**PILOT** 2021  
2026



This initiative has received funding from the EU's H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project

- You should see the result as on the screenshot
- Login
- You should also see your own feedback
- Play around, try out filters
- Click “Show in MetaRepo”

Search

Clear 0 Filters

**SORT BY**

Relevance
▼

**INDEX**

- metastore-sem 14
- metastore-general\_sample 9
- metastore-mri\_schema 4
- metastore-feedback 1

**PROGRAM VERSION**

- V06.00.00.00 : 09-Jun-16 7
- 7.6.1.4139 3
- V05.04.00.00 : 08-May-09 3
- V05.04.03.00 : 16-Apr-10 1

**USERNAME**

- SABINE 7
- TIFR 3
- supervisor 3
- Sandeep 1

Showing 1 - 19 out of 19 Show

$O=CeO$

Sample
CeO2
Haz

**SCeO5\_PorousCeria** Sample ID  
13391

Simon Falkner

CeO2 prepared by thermal decomposition of Ce2(C2O4)3 at 350Å°C for 15 min in air Ce2(C2O4)3 was prepared by precipitation out of Ce(NO3)3 and K2C2O4 in ethanol-water mixture and consecutive washing with ethanol...

Show in MetaRepo

$In \equiv As$

Sample
InAs
Haz


**CVD15030\_InAs** Sample ID  
CVD15030\_InAs

Carina B. Maliakkal, Mahesh Gokhale

No preparation description.

Show in MetaRepo

nffa.eu  
**PILOT** 2021  
2026





This initiative has received funding from the EU’s H2020 framework program for research and innovation under grant agreement n. 101007417, NFFA-Europe Pilot Project





- Select Show/Hide Filters
- Enter filter as shown and apply filter
- Click Edit button

Schema Management   Metadata Management   Search   Show/Hide Filters

Table Filter

Schema Identifier ▾   like ▾   Feedback      


Metadata Documents

Identifier	
▾ Feedback (version=1) (1 item)	
1f865d44-2217-499d-802a-56e7ff20310c	 
<b>Related Resource</b>	thomas.jejkal@nep.summer.school
<b>Schema Identifier</b>	Feedback (version=1)
<b>Date Updated</b>	2024-06-04 12:07

- Scroll to ACL section
- Add new access control entry

The permission granted to the subject with the given identifier.

ADMINISTRATE



Sid


A subject identifier defining to whom a certain kind of access is granted. Typically, this is an email address.

anonymousUser

Permission

The permission granted to the subject with the given identifier.

READ



Metadata Document URI

Direct access URI where the associated metadata document is stored.

`https://demo.datamanager.kit.edu:8443/metastore/api/v1/metadata/1f865d44-2217-499d-802a-56e7ff20310c?vers`

Document Hash

The hashcode of the associated metadata document.

`sha1:ee2705c50a8280b00273a0612efac50cf5467fbe`

Metadata Document File


A local file containing the metadata document.

Keine ausgewählt

- Scroll to ACL section
- Add new access control entry
  - Sid: anonymousUser
  - Permission: READ

The permission granted to the subject with the given identifier.

ADMINISTRATE



Sid


A subject identifier defining to whom a certain kind of access is granted. Typically, this is an email address.

anonymousUser

Permission

The permission granted to the subject with the given identifier.

READ



Metadata Document URI

Direct access URI where the associated metadata document is stored.

`https://demo.datamanager.kit.edu:8443/metastore/api/v1/metadata/1f865d44-2217-499d-802a-56e7ff20310c?vers`

Document Hash

The hashcode of the associated metadata document.

`sha1:ee2705c50a8280b00273a0612efac50cf5467fbe`

Metadata Document File


A local file containing the metadata document.

Keine ausgewählt

- Scroll to ACL section
- Add new access control entry
  - Sid: anonymousUser
  - Permission: READ
- Validate and Submit changes

The permission granted to the subject with the given identifier.

ADMINISTRATE



Sid


A subject identifier defining to whom a certain kind of access is granted. Typically, this is an email address.

anonymousUser

Permission

The permission granted to the subject with the given identifier.

READ



Metadata Document URI

Direct access URI where the associated metadata document is stored.

`https://demo.datamanager.kit.edu:8443/metastore/api/v1/metadata/1f865d44-2217-499d-802a-56e7ff20310c?vers`

Document Hash

The hashcode of the associated metadata document.

`sha1:ee2705c50a8280b00273a0612efac50cf5467fbe`

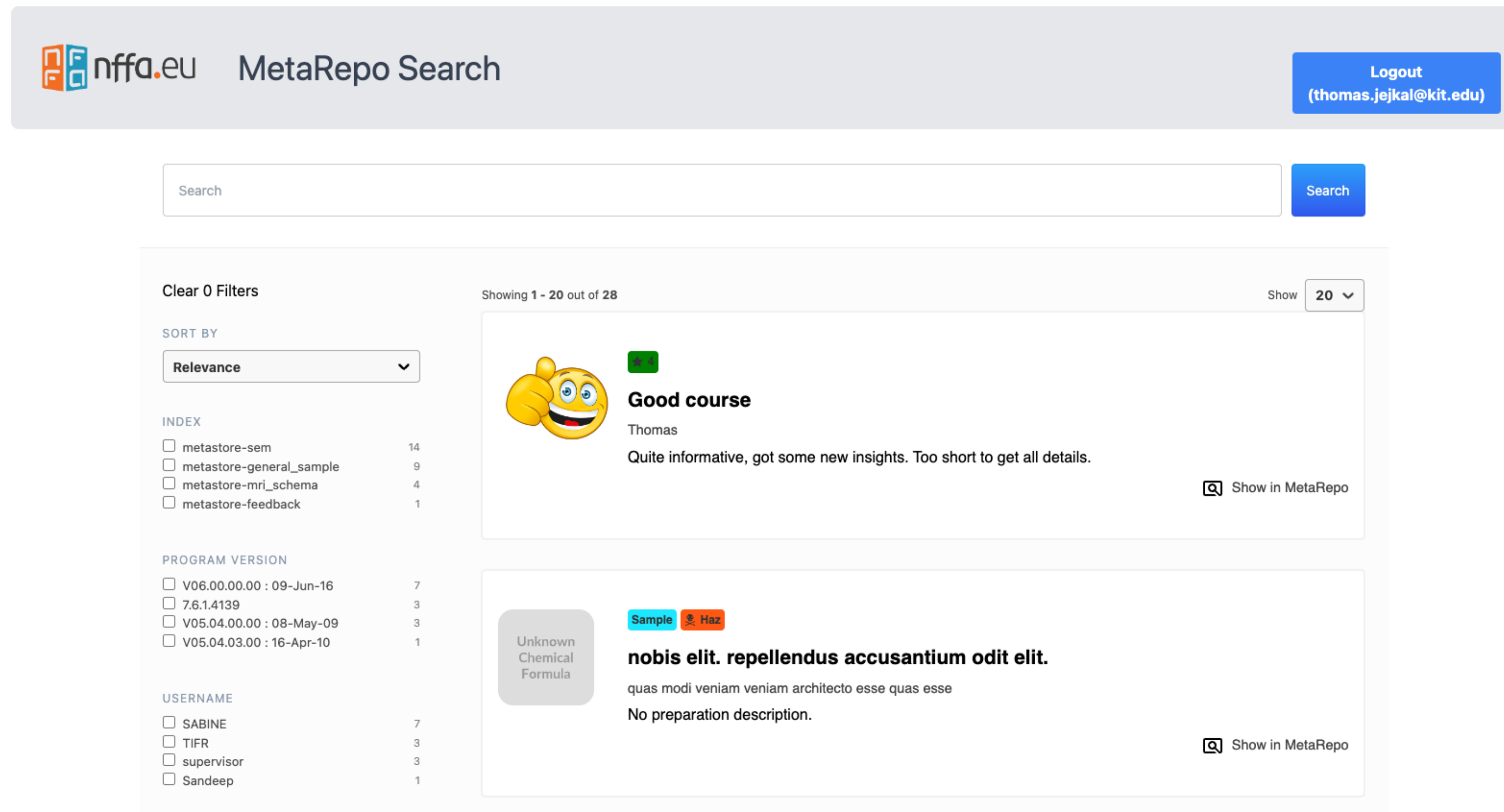
Metadata Document File

A local file containing the metadata document.

Keine ausgewählt



- You should see all feedbacks (with and without login)
- Try out “Show in MetaRepo”



The screenshot shows the MetaRepo Search interface. At the top, there is a search bar with the text "Search" and a blue "Search" button. To the right of the search bar is a "Logout" button with the email address "(thomas.jejkal@kit.edu)".

Below the search bar, there are several filter sections on the left:

- Clear 0 Filters**
- SORT BY**: A dropdown menu set to "Relevance".
- INDEX**: A list of checkboxes with counts:
  - metastore-sem: 14
  - metastore-general\_sample: 9
  - metastore-mri\_schema: 4
  - metastore-feedback: 1
- PROGRAM VERSION**: A list of checkboxes with counts:
  - V06.00.00.00 : 09-Jun-16: 7
  - 7.6.1.4139: 3
  - V05.04.00.00 : 08-May-09: 3
  - V05.04.03.00 : 16-Apr-10: 1
- USERNAME**: A list of checkboxes with counts:
  - SABINE: 7
  - TIFR: 3
  - supervisor: 3
  - Sandeep: 1

On the right side, there is a "Showing 1 - 20 out of 28" indicator and a "Show 20" dropdown menu. Below this, there are two feedback entries:

- Good course**: A yellow thumbs-up emoji, a green status indicator, the name "Thomas", and the text "Quite informative, got some new insights. Too short to get all details." A "Show in MetaRepo" button is visible.
- nobis elit. repellendus accusantium odit elit.**: A grey box labeled "Unknown Chemical Formula", a "Sample" tag, a "Haz" tag, the text "quas modi veniam veniam architecto esse quas esse", and "No preparation description." A "Show in MetaRepo" button is visible.

# Acknowledgements

- The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) under the National Research Data Infrastructure – NFDI 38/1 – project number 460247524
- The Joint Laboratory Model and Data driven Materials Characterization (JL MDMC), a cross-centre platform of the Helmholtz Association
- NFFA-Europe-Pilot (EU H2020 – n. 101007417)
- The research program “Engineering Digital Futures” of the Helmholtz Association of German Research Centers
- The Helmholtz Metadata Collaboration Platform



# Contact us

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