euroCRIS
Current Research Information Systems

euroCRIS Strategic Membership Meeting
"Research Information Management: from an Institutional to a National-Level Implementation"
November 26-28, 2018, WUT, Warsaw, Poland

# METIS2OpenAIRE

## Implementing the CERIF XML Guidelines for CRIS managers

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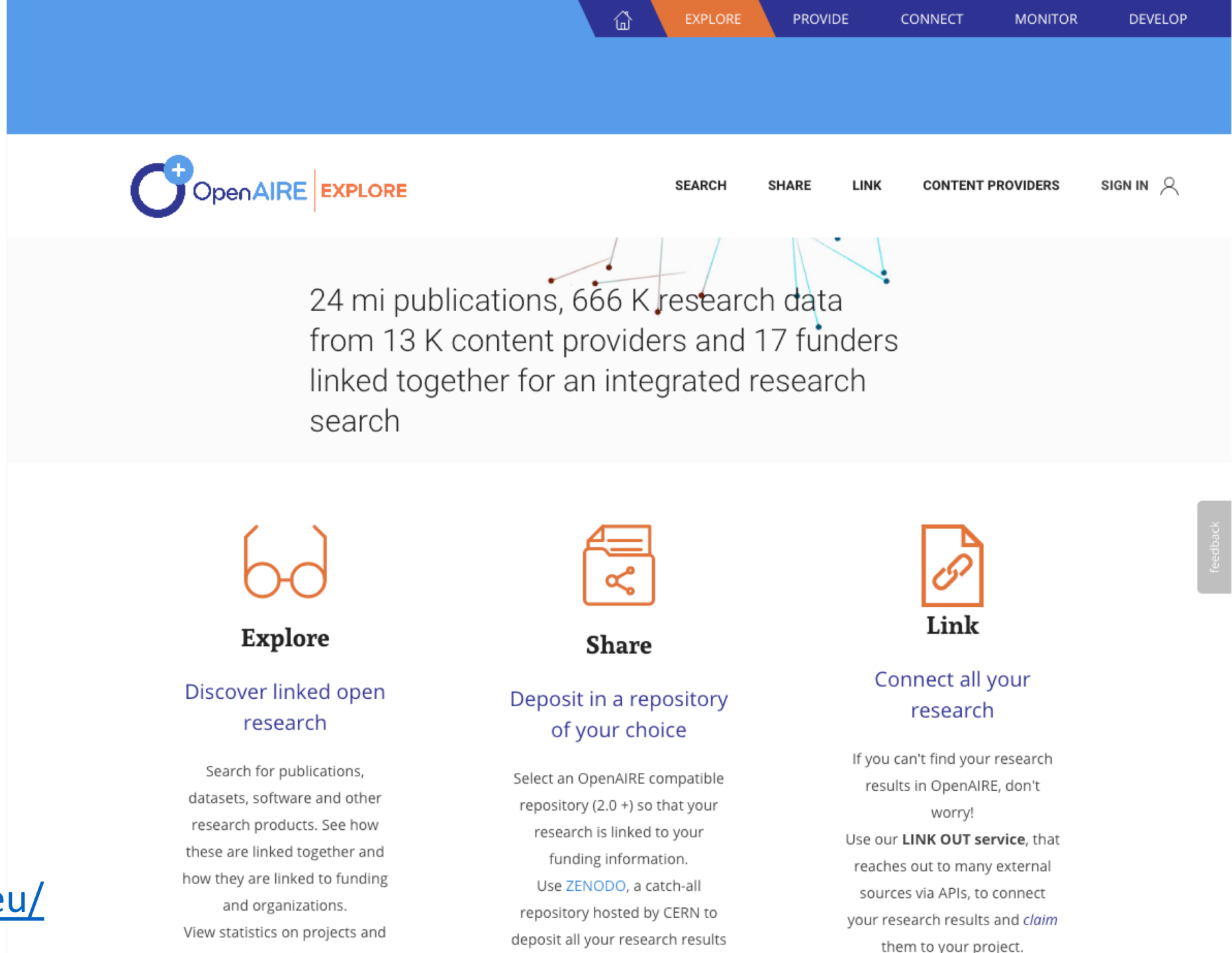
# Outline

1. Intro
2. METIS OpenAIRE endpoint
3. Recommendations to implementors
4. Ongoing activities & next steps

# OpenAIRE




https://explore.openaire.eu/

# What does OpenAIRE collect?

- Scientific literature metadata and full-texts from **institutional and thematic repositories**, Open Access **journals** and publishers;
- Dataset metadata from **data repositories** and **data journals**;
- Scientific literature, data and software metadata from **Zenodo**;
- Metadata about data sources, organizations, projects, and funding programs from **entity registries**, i.e. authoritative sources such as CORDA and other funder databases for projects, OpenDOAR for publication repositories, re3data for data repositories, DOAJ for Open Access journals;
- Coming soon: metadata of open source research software from **software repositories** (currently available only on https://beta.explore.openaire.eu/)
- Coming soon: metadata about **other types of research products**, like workflow, protocols, methods, research packages (currently available only on https://beta.explore.openaire.eu/)
- Coming soon: metadata about scientific literature, datasets, persons, organisations, projects, funding, equipment and services are collected through **CRIS** (Common Research Information Systems)

From https://www.openaire.eu/aggregation-and-content-provision-workflows accessed 2018-11-25

# Standardised metadata aggregation: OpenAIRE Guidelines

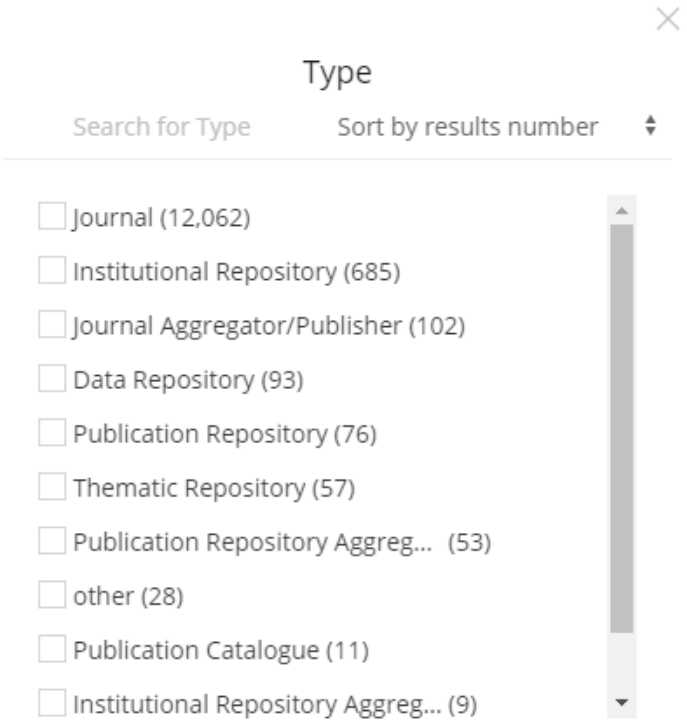
## OpenAIRE Guidelines

Welcome to the OpenAIRE Guidelines. The intention of this is to provide a public space to share OpenAIREs work on interoperability and to engage with the community. The OpenAIRE Guidelines helps repository managers expose publications, datasets and CRIS metadata via the OAI-PMH protocol in order to integrate with OpenAIRE infrastructure.

OpenAIRE Guidelines have been released for publication repositories, data archives and CRIS systems respectively:

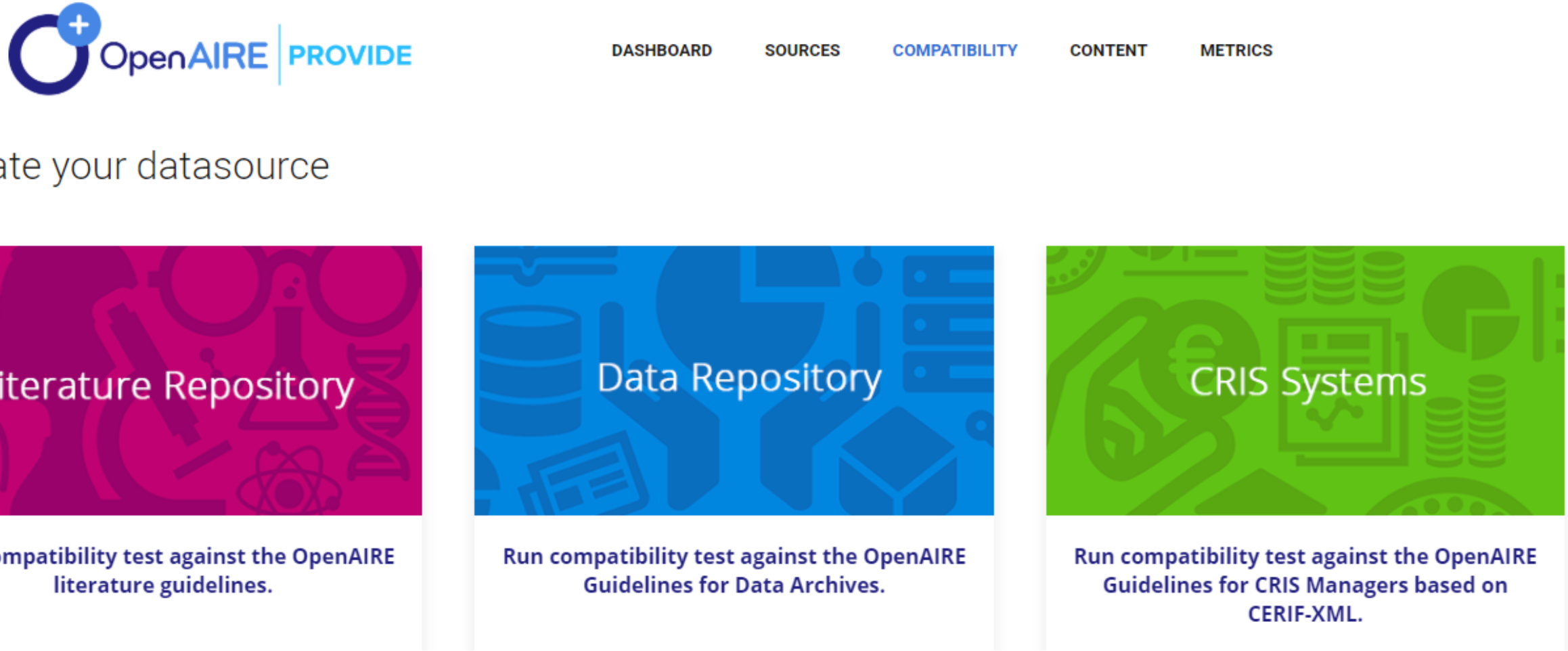
### Current Guidelines

- OpenAIRE Guidelines for Literature Repositories
- OpenAIRE Guidelines for Data Archives
- OpenAIRE Guidelines for CRIS Managers based on CERIF-XML




https://guidelines.openaire.eu/en/latest/

# OpenAIRE data provider validation




https://provide.openaire.eu/compatibility/validate

July 3, 2015

Dataset Open Access

# OpenAIRE Guidelines for CRIS Managers 1.0

Houssos, Nikos; Joerg, Brigitte; Dvořák, Jan

The Guidelines specify the interoperability layer between Current Research Information Systems (CRIS) and the OpenAIRE infrastructure. The information interchange is based on the Common European Research Information Format (CERIF) data model, the CERIF XML exchange format, and the OAI-PMH protocol. The Guidelines are intended mainly for implementers and administrators of CRIS who plan to communicate research information to OpenAIRE. OpenAIRE (openaire.eu) is the European infrastructure enabling researchers to comply with the European Union requirements for Open Access to research results. OpenAIRE collects metadata from a variety of data sources: publication repositories, data archives and CRIS across Europe and beyond. Interoperability guidelines are defined for each type of source. CERIF is a standard data model for research information and a recommendation by the European Union to its Member States. The custody of CERIF has been entrusted by the European Union to euroCRIS (eurocris.org), an international not-for-profit organisation dedicated to the interoperability of CRIS.

The Guidelines consist of the following files: Guidelines document: - OpenAIRE_Guidelines_for_CRIS_Managers_v.1.0.pdf OpenAIRE CERIF Semantics: - OpenAIRE_CERIF_Semantics_v.1.0.xlsx - OpenAIRE_CERIF_Semantics_v.1.0.xml OpenAIRE CERIF XML Schema: - cerif-1.6-2_openaire-1.0.xsd Examples: - openaire_cerif_xml_example_datasets.xml - openaire_cerif_xml_example_funding.xml - openaire_cerif_xml_example_orgunits.xml - openaire_cerif_xml_example_persons.xml - openaire_cerif_xml_example_projects.xml - openaire_cerif_xml_example_publications.xml - openaire_cerif_xml_example_services.xml

Preview



**Publication date:**

July 3, 2015

**DOI:**

DOI 10.5281/zenodo.17065

**Keyword(s):**

OpenAIRE guidelines CERIF CRIS interoperability

June 26, 2018

Project milestone | Open Access

# OpenAIRE Guidelines for CRIS Managers 1.1

Dvořák, Jan; Bollini, Andrea; Rémy, Laurent; Schirrwagen, Jochen

The Guidelines provide orientation for CRIS managers to expose their metadata in a way that is compatible with the OpenAIRE infrastructure. By implementing the Guidelines, CRIS managers support the inclusion and therefore the reuse of metadata in their systems within the OpenAIRE infrastructure. For developers of CRIS platforms, the Guidelines provide guidance to add supportive functionalities for CRIS managers and users. Exchange of information between individual CRIS systems and the OpenAIRE infrastructure is an example of point-to-point data exchange between CRIS systems, since the OpenAIRE infrastructure is itself a CRIS system.

Preview

Files (548.9 kB)

| Name | Size | |
|---|---|---|
| OpenAIRE_Guidelines_for_CRIS_Managers-samples_v1.1.0.zip<br>md5:af8e5f43ba8fb38540c060aae7140ae9 | 24.0 kB | Preview Download |
| OpenAIRE_Guidelines_for_CRIS_Managers-schemas_v1.1.0.zip<br>md5:23cd4c1e60858205b8bc65f7f4125766 | 73.5 kB | Preview Download |
| OpenAIRE_Guidelines_for_CRIS_Managers_v1.1.0.pdf<br>md5:07ea0c5df8480674da406cd3d3ea9345 | 451.3 kB | Preview Download |



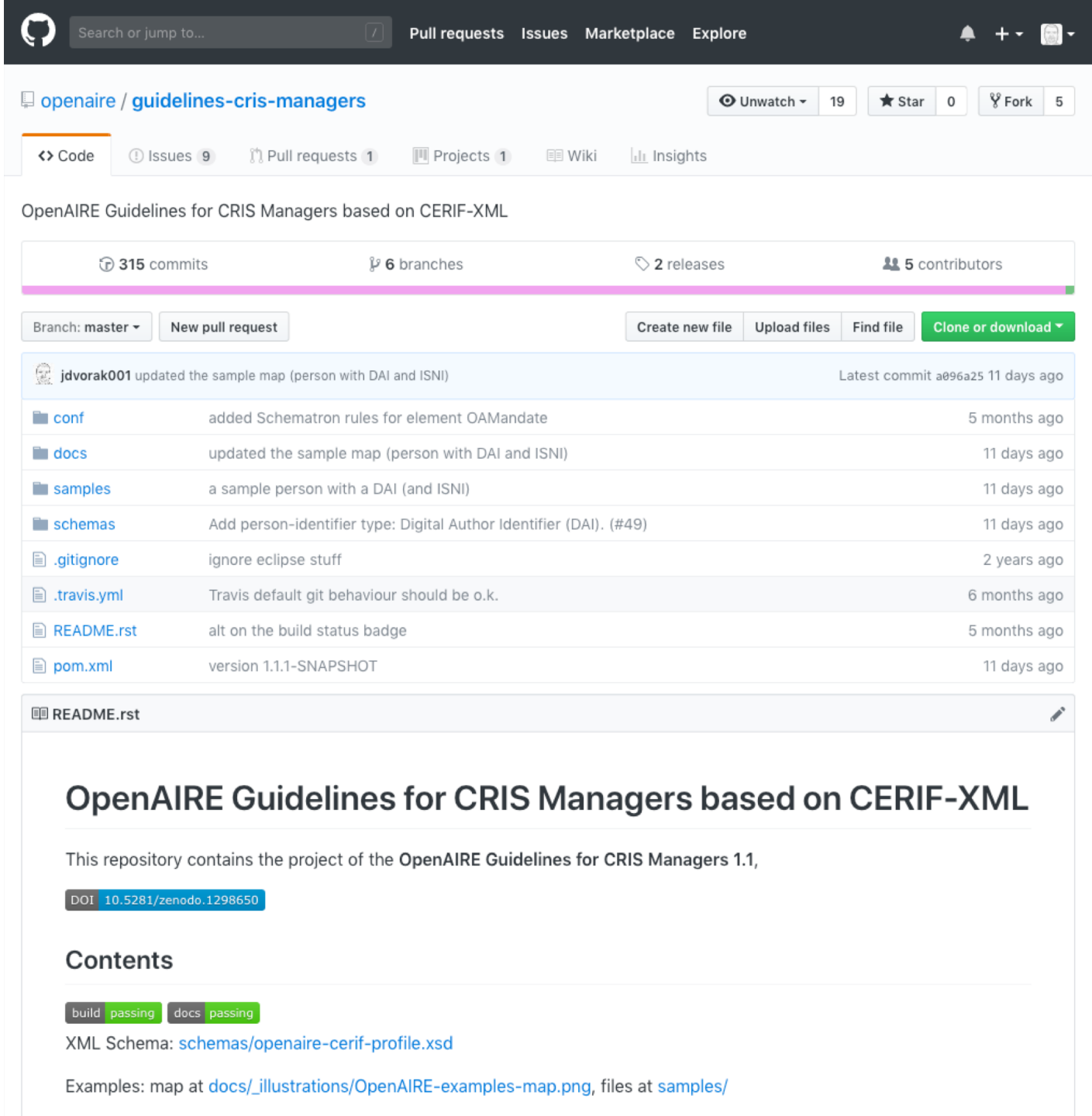
**Publication date:**
June 26, 2018
**DOI:**
DOI 10.5281/zenodo.1298650
**Keyword(s):**
content aggregation | OpenAIRE.eu

# OpenAIRE Guidelines 1.1 features

- CERIF Profile
  - Uses the updated CERIF XML format
- Aligned vocabularies
  - COAR Resource Types
  - COAR Access Rights
  - ISSN Media Types
- Scope slightly expanded from 1.0
  - Patents
  - Events
  - a few links

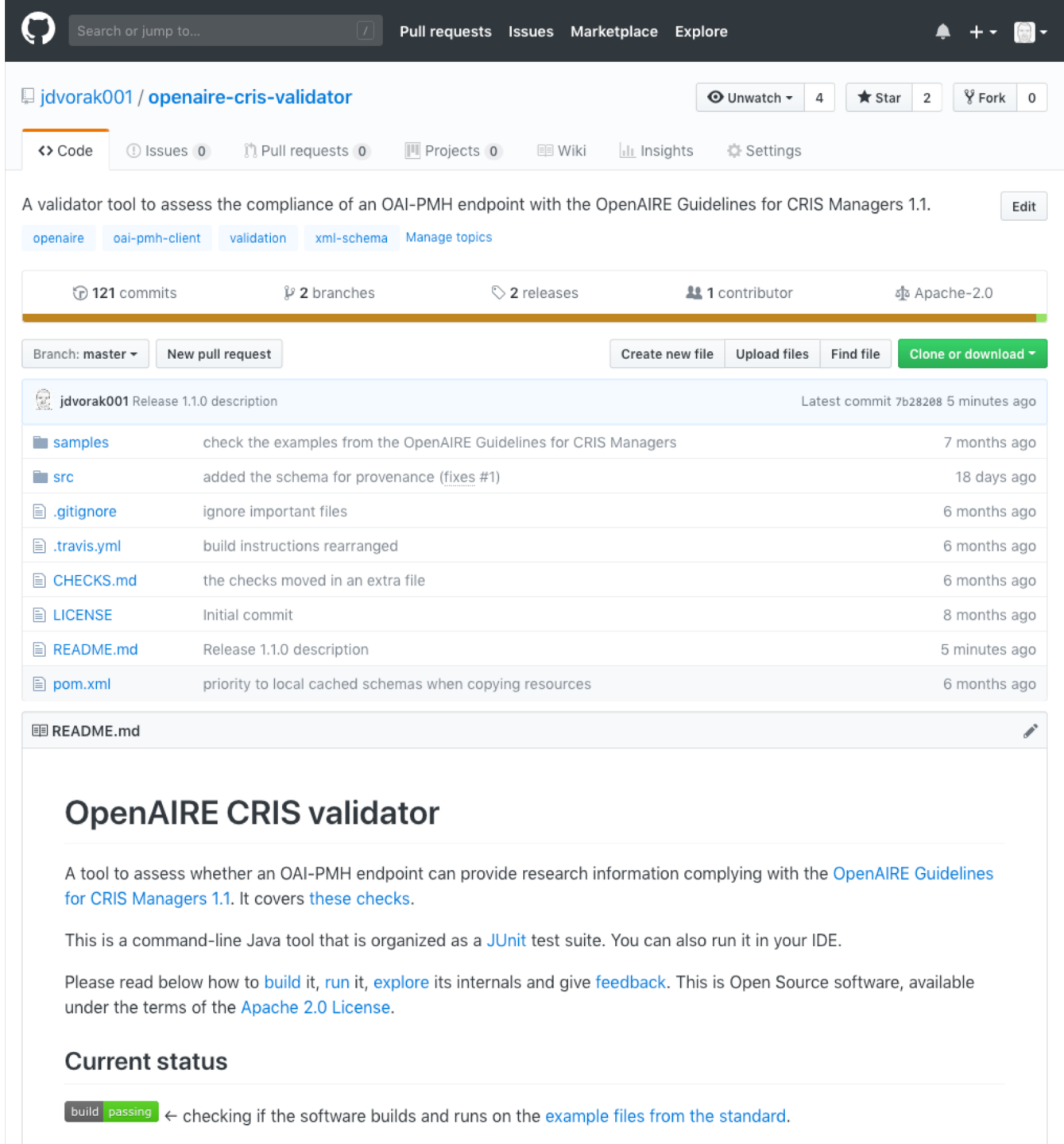
# Project
(on GitHub)

https://github.com/openaire/guidelines-cris-managers



# Prototype Validator (on GitHub)

https://github.com/jdvorak001/openaire-cris-validator



# METIS2OpenAIRE

Project coordinated by euroCRIS

Funded by OpenAIRE

# METIS2OpenAIRE Concept

- Main aim: to make a first CRIS System OpenAIRE-compatible (METIS at Radboud University Nijmegen)
- In-house-built system chosen as allows full institutional control on dev
- To widen the project scope, further CRIS solutions included as budget-neutral partners beyond METIS: Omega-PSIR & PURE
- Project WPs include:
  - Setting up an OAI-PMH end-point on METIS
  - Building a minimally sufficient validator for CERIF-XML CRIS feeds
  - Test METIS feed against CERIF-XML Guidelines in several iterations until compliance is achieved
  - Support parallel mapping exercises by budget-neutral project partners

https://www.eurocris.org/projects/metis2openaire

# METIS

- In-house built CRIS at Radboud University (Nijmegen, NL)
- Currently in use at two Dutch Universities

Now with an OpenAIRE CRIS Guidelines 1.1 compatible endpoint

☞ ☞ ☞ https://oamemtfa.uci.ru.nl/metis-oaipmh-endpoint/OAIHandler ☜ ☜ ☜

(RU acceptance testing environment)

METIS
OAI
Endpoint

Identify –>


```
<?xml version="1.0" encoding="UTF-8" ?>
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0">
 <responseDate>2018-11-24T16:58:43Z</responseDate>
 <request verb="Identify">https://oamemtfa.uci.ru.nl/metis-oaipmh-endpoint/OAIHandler</request>
 <Identify>
  <repositoryName>Metis Radboud University</repositoryName>
  <baseURL>https://oamemtfa.uci.ru.nl/metis-oaipmh-endpoint/OAIHandler</baseURL>
  <protocolVersion>2.0</protocolVersion>
  <adminEmail>admin@ru.nl</adminEmail>
  <earliestDatestamp>1990-01-01</earliestDatestamp>
  <deletedRecord>persistent</deletedRecord>
  <granularity>YYYY-MM-DD</granularity>
  <compression>gzip</compression>
  <compression>deflate</compression>
  <description>
   <Service xmlns="https://www.openaire.eu/cerf-profile/1.1/" id="xxx">
    <Compatibility xmlns="https://www.openaire.eu/cerf-
profile/vocab/OpenAIRE_Service_Compatibility">https://www.openaire.eu/cerf-
profile/vocab/OpenAIRE_Service_Compatibility#1.1</Compatibility>
    <Acronym>metis.ru.nl</Acronym>
    <Name xml:lang="en">Metis Radboud University</Name>
    <Description xml:lang="en">Metis, the CRIS of Radboud University that complies with the OpenAIRE
Guidelines for CRIS Managers v.1.1.</Description>
    <WebsiteURL>http://www.ru.nl/research-information-services/</WebsiteURL>
    <OAIPMHBaseURL>https://oamemtfa.uci.ru.nl/metis-oaipmh-endpoint/OAIHandler</OAIPMHBaseURL>
    <Owner>
     <OrgUnit id="00000000">
      <Acronym>RU</Acronym>
     </OrgUnit>
    </Owner>
   </Service>
  </description>
  <!-- ... -->
 </Identify>
</OAI-PMH>
```

METIS
OAI
Endpoint

ListMetadata
Formats –>

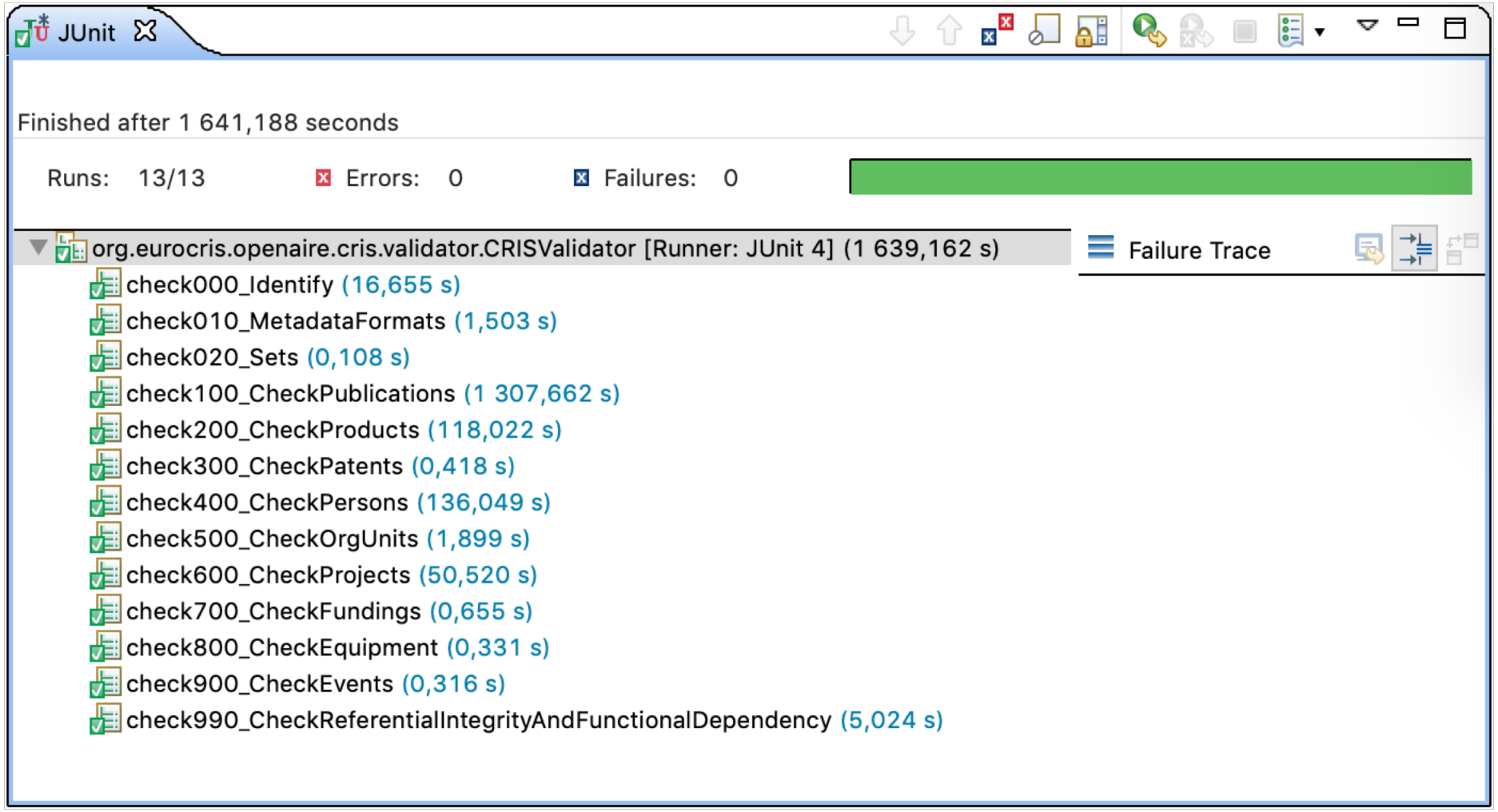
```
<?xml version="1.0" encoding="UTF-8" ?>
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/">
 <responseDate>2018-11-24T16:58:51Z</responseDate>
 <request verb="ListMetadataFormats">http://oamemtfa.uci.ru.nl:80/metis-oaipmh-endpoint/OAIHandler</request>
 <ListMetadataFormats>
  <metadataFormat>
   <metadataPrefix>didl</metadataPrefix>
   <schema>http://standards.iso.org/ittf/PubliclyAvailableStandards/MPEG-
21_schema_files/did/didl.xsd</schema>
   <metadataNamespace>urn:mpeg:mpeg21:2002:02-DIDL-NS</metadataNamespace>
  </metadataFormat>
  <metadataFormat>
   <metadataPrefix>oai_dc</metadataPrefix>
   <schema>http://www.openarchives.org/OAI/2.0/oai_dc.xsd</schema>
   <metadataNamespace>http://www.openarchives.org/OAI/2.0/oai_dc/</metadataNamespace>
  </metadataFormat>

  <metadataFormat>
   <metadataPrefix>oai_cerif_openaire</metadataPrefix>
   <schema>https://github.com/openaire/guidelines-cris-managers/raw/master/schemas/openaire-cerif-
profile.xsd</schema>
   <metadataNamespace>https://www.openaire.eu/cerif-profile/1.1/</metadataNamespace>
  </metadataFormat>

  <metadataFormat>
   <metadataPrefix>pk_dare_all</metadataPrefix>
   <schema>http://purl.utwente.nl/ns/metis.xsd</schema>
   <metadataNamespace>http://poas.uci.kun.nl/metis</metadataNamespace>
  </metadataFormat>
 </ListMetadataFormats>
</OAI-PMH>
```

METIS
OAI
Endpoint

ListSets –>

```
<?xml version="1.0" encoding="UTF-8" ?>
<OAI-PMH xmlns="http://www.openarchives.org/OAI/2.0/" xmlns:dc="http://purl.org/dc/elements/1.1/">
 <responseDate>2018-11-24T16:58:58Z</responseDate>
 <request verb="ListSets">http://oamemtfa.uci.ru.nl:80/metis-oaipmh-endpoint/OAIHandler</request>
 <ListSets>
  <set>
   <setSpec>openaire_cris_products</setSpec>
   <setName>OpenAIRE_CRIS_products</setName>
   <setDescription>
    <dc:description>The list of CERIF XML records for datasets and other research products.</dc:description>
   </setDescription>
  </set>
  <set>
   <setSpec>openaire_cris_projects</setSpec>
   <setName>OpenAIRE_CRIS_projects</setName>
   <setDescription>
    <dc:description>The list of CERIF XML records for projects.</dc:description>
   </setDescription>
  </set>
  <set>
   <setSpec>openaire_cris_persons</setSpec>
   <setName>OpenAIRE_CRIS_persons</setName>
   <setDescription>
    <dc:description>The list of CERIF XML records for persons.</dc:description>
   </setDescription>
  </set>
  <set>
   <setSpec>openaire_cris_orgunits</setSpec>
   <setName>OpenAIRE_CRIS_orgunits</setName>
   <setDescription>
    <dc:description>The list of CERIF XML records for organisations and organisation units.</dc:description>
   </setDescription>
  </set>
  <!-- ... -->
 </ListSets>
</OAI-PMH>
```

# METIS Check with the Prototype Validator



# METIS Contents Summary

| | |
|---|---|
| OpenAIRE_CRIS_publications: | ~**132,500** items (incl. ~14,200 journals) |
| OpenAIRE_CRIS_products: | ~**17,000** items |
| OpenAIRE_CRIS_patents: | — |
| OpenAIRE_CRIS_persons: | ~**25,000** items |
| OpenAIRE_CRIS_orgunits: | ~**550** items |
| OpenAIRE_CRIS_projects: | ~**5,100** items |
| OpenAIRE_CRIS_funding: | — |
| OpenAIRE_CRIS_events: | — |
| OpenAIRE_CRIS_equipments: | — |

295 MB of total XML

268 MB of CERIF XML

~7 mio. lines

takes ~30 min

# Recommendations to Implementers

The do’s and don’ts
of setting up
an OpenAIRE CRIS Guidelines 1.1 compatible endpoint
in your institutional CRIS

# Recommendations for the devel process

Start with a reasonably sized sample of your CRIS data

- E.g. 2 larger departments × projects, events & outputs from 3 years
- Real data!

Test & validate as much as possible

- Preferably as a part of your Continuous Integration setup

=> Invest some time up front! <=

(… and avoid getting grey hair from waiting …)

# Recommendations for the QA process

Correct problems in your data as they surface

Unless you've always had strict validations on inputs and perfect data migrations.

Typos in idanteflyer sintex, strænge cHarąktørß, h-y–p—h_e–ns' hell, `quo»tes“, n e w l i n e s, …

E.g.:
In Publication[@id="448992"]: cvc-pattern-valid:
Value '**10.1049/ip-ifs: 20055019**' is not facet-valid with respect to pattern '10\.\d{4,}(\.\d+)*/[^\s]+' for type '**DOI**__SimpleType'.

=> Be nice to your librarian! <=
(You will need her/his assistance.)

# Suggested feature implementation sequence

0. An empty, but compliant OAI endpoint (Service)
1. Your institution and its organisational structure (OrgUnits)
2. Your academic staff with affiliations to your departments (Persons, OrgUnits)
3. The funders you have met (OrgUnits)
4. Funding programmes, incl. the links to their funders (Funding, OrgUnits)
5. Equipment
6. Projects
7. Journals your staff has published in (Publications)
8. Your staff's journal articles (Publications)
9. Proceedings, conferences (Publications, Events)
10. Your staff's other publication outputs (Publications)
11. Datasets, software, websites, videos and other outputs (Products)
12. Patents

=> Have the foundations in place before starting with the roof! <=

# Make sure you only expose public information

Do not show:

- Project proposals
- Contractual research projects
- Metadata of internal documents and non-disclosable outputs
- Persons who exercised their right to be forgotten
  - or some other opt-out

=> Do not show what you wouldn’t put on your institution’s public website! <=

# Make your data understandable from outside

Only show what is relevant for RTD:

- No support staff
- No support units

Start with a year you're having

- consistent &
- reasonably complete

information for

=> You will need to describe your contents! <=

*

# The Road Ahead

1. More CRISs with OpenAIRE CERIF XML endpoint
2. The OpenAIRE Pipeline: Validator –> Aggregator –> Portal
3. Updates of the Guidelines
4. The DRIS as the registry of CRISs

* Landscape near Paracas, Peru. Photo CC BY 4.0 Jan Dvořák.

# More CRISs with OpenAIRE CERIF-XML endpoint

Budget-neutral partners in the METIS2OpenAIRE project:

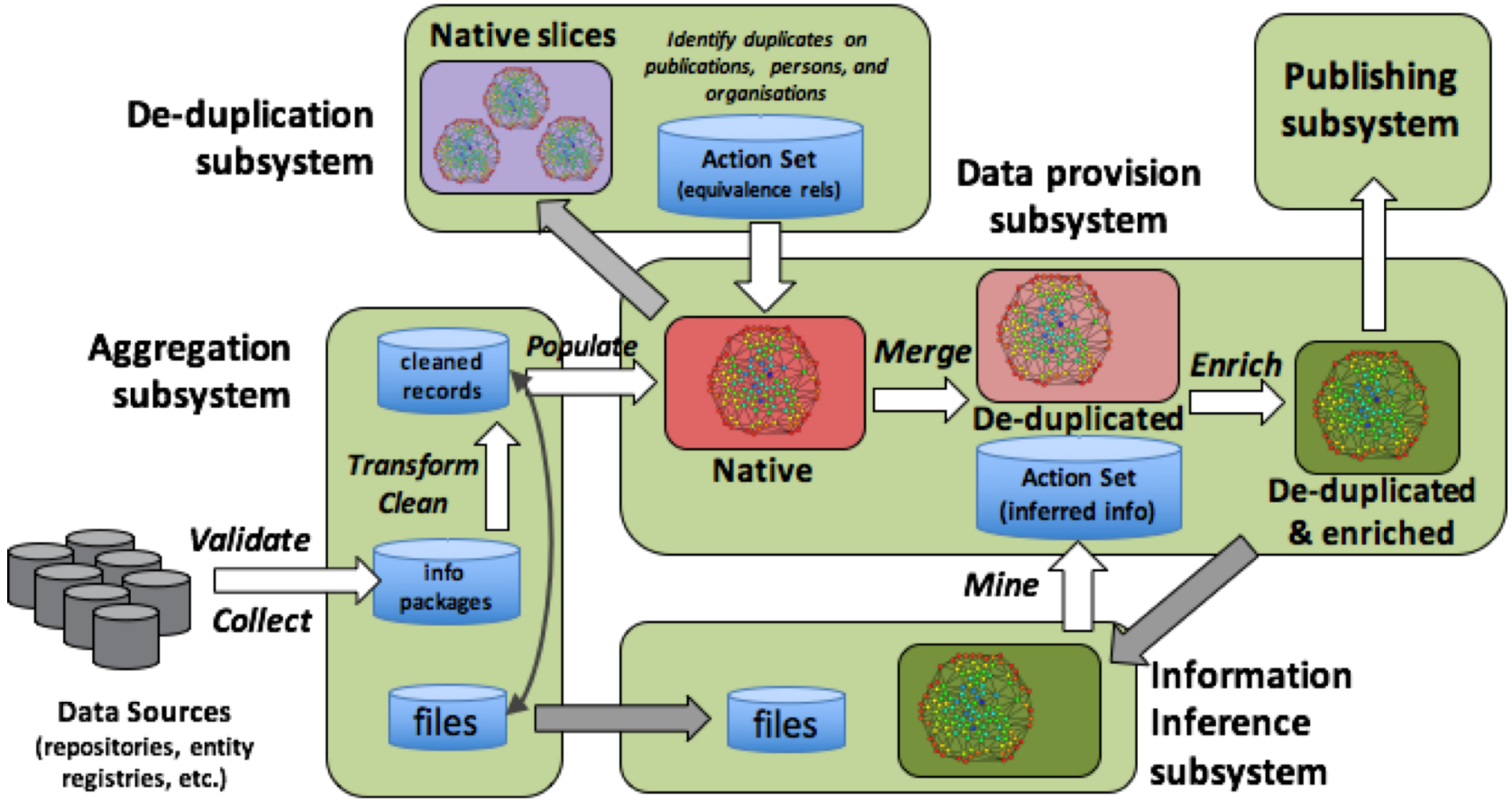
- Omega-PSIR ( –> see the Omega-PSIR track tomorrow )
- PURE ( –> see the talk tomorrow by Anna Clements)

And:

- VIRTA ( –> see the talk tomorrow by Joonas Nikkanen and Dragan Ivanović)
- NARCIS (in development)
- DSpace-CRIS (planned)

… to be tested with the Prototype Validator

# OpenAIRE Aggregation Pipeline




From https://www.openaire.eu/aggregation-and-content-provision-workflows accessed 2018-11-25

# OpenAIRE Final Validator

- To be realized by the OpenAIRE team
- Based on the Prototype Validator

- To make the “handshake” happen
  between producers and the consumer of the research information

# Update to the Guidelines

Small **extensions** based on feedback:

1. Allow multiple parents for OrgUnits
   - To represent interdisciplinary centres faithfully
2. Add Digital Author Identifiers
   - From NARCIS [NL]

–> v.1.1.1

=> Please tell us about your experience! <=

# Support in the DRIS

- DRIS = Directory of Research Information Systems
- Created and maintained by euroCRIS
- Currently undergoing a deep change
- Will track specifically OpenAIRE CERIF XML Guidelines endpoint
  - URL
  - compatibility level

(–> separate talk by PdC in the next session)

=> Your input is welcome! <=

# Conclusions

1. METIS harvested
2. Recommendations for implementations
3. Coming:
   - More CRISs
   - OpenAIRE official validator
   - Minor extensions to the standard
   - Support by the DRIS