OpenAIRE Guidelines for CRIS Managers

Release 1.2.0

OpenAIRE + euroCRIS

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CHAPTER

ONE

INTRODUCTION

1.1 Aim

The Guidelines provide orientation for CRIS managers to expose their metadata in a way that is compatible with the OpenAIRE infrastructure as well as the European Open Science Cloud (EOSC). These Guidelines also serve as an example of a CERIF-based (Common European Research Information Format) standard for information interchange between individual CRISs and other research e-Infrastructures.

By implementing the Guidelines, CRIS managers support the inclusion of metadata from their systems in the OpenAIRE Research Graph and related services. For developers of CRISs and other research e-Infrastructures, the Guidelines offer orientation on supporting the interoperability of research information.

The Guidelines support the interchange of information about research outputs (including publications, patents, research datasets and research software), about research projects and their funding, about actors in research (both persons and organizations, including organization units), about events and about instruments or other equipment.

The 1.2.0 release of the Guidelines extends the set of information that can be interchanged, incorporates updated versions of related semantic vocabularies and finetunes several details of the information exposure.

1.2 CERIF-CRIS

CERIF (Common European Research Information Format) is a standard data model for research information and a recommendation by the European Union to Member States. The care and custody of CERIF was handed over by the European Union to euroCRIS (https://eurocris.org), a not-for-profit organisation dedicated to fostering cooperation and knowledge-sharing across the research information community and promoting interoperability of research information through the CERIF standard.

In addition to a domain model and a formal data model, CERIF includes a mechanism to construct XML profiles (specialized subsets) for specific information interchange scenarios. The OpenAIRE profile of CERIF defined in these Guidelines supports harvesting and importing metadata from CRIS systems.

1.3 Compliance to the FAIR Principles

The compliance of these Guidelines to the FAIR Principles has been studied and is documented in a separate report.[1]

1.4 Acknowledgements

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[1] Czerniak, A.; Dvořák, J.; Schirrwagen, J.; Ivanović, D. (2023). *Compliance of the OpenAIRE Guidelines for CRIS Managers v1.1.1 with the FAIR Principles* (1.0). Zenodo. https://doi.org/10.5281/zenodo.6627245

1.5 Versions

- 1.2.0, June 2023, doi:10.5281/zenodo.8050936
- 1.1.1, December 2018, doi:10.5281/zenodo.2316420
- 1.1.0, June 2018, doi:10.5281/zenodo.1298650
- 1.0, June 2015, doi:10.5281/zenodo.17065

1.5.1 List of changes in the 1.2.0 version (since 1.1.1)

1. The **Medium** CERIF entity is brought into the profile to represent locations of files. It is never used as a top-level entity, so it does not have its own OAI-PMH set. (#59)
2. The **COAR Resource Types** controlled vocabulary is upgraded to Version 3.1. (#99 and #143)
3. The **COAR Access Types** controlled vocabulary is upgraded to Version 1.0. (#86)
4. Support for generic **Person Identifier**:s is added. (#91)
5. Some constraints in structured **Person Identifiers**:s were expanded. (#146 and #154)
6. Support for structured **OrgUnit Identifiers**:s is added. (#64)
7. The meaning of date fields in **Patent**:s is clarified. (#88)
8. ZDB-ID is added among structured identifiers for **Publication**:s (#66)
9. GrantDOI is added as a structured identifier for **Funding**.
10. Unmanaged entities are allowed without an **Internal Identifier** attribute. (#56)
11. The `xml:lang` attributes are no longer required. (#61)
12. DataCite Metadata Kernel *Dates* are supported in the **Product** (#84) and **Medium** (#150) entities with a common *DatesStructure__Group*.
13. The use of *SPDX License* URIs is recommended. (#134)
14. The rules for constructing the OAI identifiers have been relaxed (#126, #85)
15. Examples were added, documentation has been improved. (#65, #83, #88, #97)
16. Other minor extensions and cleanup.

1.5.2 List of changes in the 1.1.1 version (since 1.1.0)

1. **Digital Author Identifier** (DAI) is added as a person identifier type. (#49)
2. **Multiple person identifiers** of the same kind are allowed: where ambiguous or uncertain information is available, it should be listed in <`AlternativeXXX`> elements (where XXX is the identifier type). (#48)
3. **Multiple parents of an OrgUnit** are allowed so that e.g. interdisciplinary research centres can be represented faithfully. (#45)
4. The `xmlns:cfprocess` declaration was removed where it was not needed. (#43)
5. The upstream development of CERIF XML introduced changes in the `includes/cerif-commons.xsd` schema component.

6. Cached Schematron schemas are now being taken from a more authoritative source.
7. The documentation was improved regarding the precision of date/datetime fields (#47), regular expression constraints in the XML Schema (#50) and the DisplayName feature (#52).
8. The official location of the XML Schema files is now at https://www.openaire.eu/schema/cris/1.1/ (#51)

1.6 Feedback

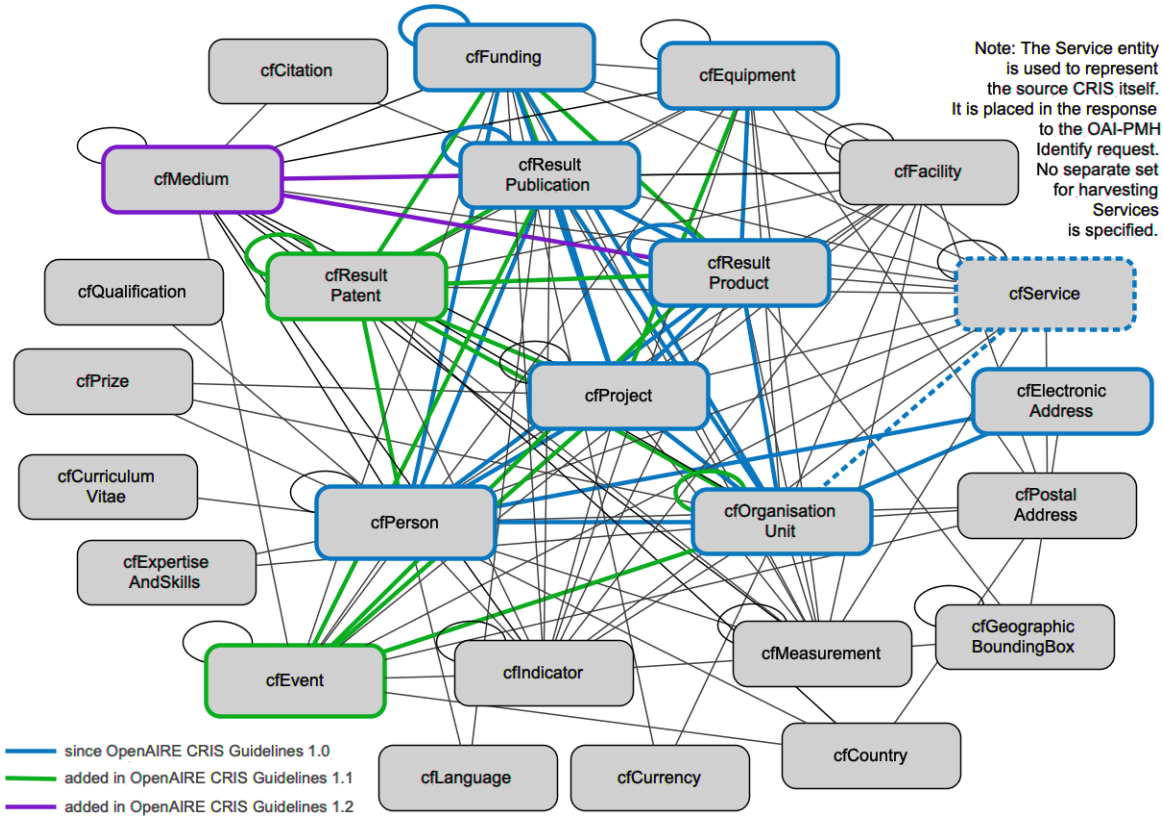
We welcome your comments and suggestions. Please see https://github.com/openaire/guidelines-cris-managers#contributing

CHAPTER

TWO

CRIS INFORMATION ELEMENTS RELEVANT FOR OPENAIRE

CERIF is a comprehensive model for the research domain. Only a subset of that information is relevant for OpenAIRE. For example, Publications, Products (including research datasets and software), and Events fall in the scope of the OpenAIRE profile, while Prizes and Geographic bounding boxes do not. The following diagram shows the part of the CERIF model is being used in this version of the OpenAIRE Guidelines:



The CERIF model provides for research information objects to be classified according to their type, status, subject, etc. and for expressing the types of relationships. It does not, however, fix the semantic vocabularies to be used for such classifications; CERIF only recommends some that may have common applicability. For information communication to be successful, any CERIF profile needs to specify the semantic vocabularies so that producers know what to produce and consumers know what to expect.

The OpenAIRE CERIF profile does precisely this and prescribes most vocabularies to be used. The most notable example is the fact that the types of research outputs are expressed using the COAR Resource

Types vocabulary.[1] CERIF has three entities to represent research outputs: Publications, Products and Patents. The COAR vocabulary was broken down into thee separate sub-vocabularies to be used with the respective entities.

The following sections define the CERIF data elements for the exchange of data between individual CRIS systems and the OpenAIRE infrastructure. The exclusive use of the defined data elements and vocabularies is mandatory, i.e. no other data elements and vocabularies can be used in the CERIF XML data exposed by CRIS systems to the OpenAIRE infrastructure. The vocabularies are sourced from relevant external sources; the remaining vocabularies are based on the CERIF Vocabularies project.

2.1 Publication

Description A text based scholarly publication or publishing channel that contains results of research. CRISs typically record metadata about scholarly publications from the scope of the CRIS (institutional CRIS for the institution, funder CRIS for the funding it distributed, etc.) in the context of the research projects, infrastructure, funding, organization units and authors/contributors. This entity typically represents the granularity level of a single published item for which attribution information is attached (usually in the form of a list of authors and contributors). This entity is also used to represent publishing channels and sources: journals and book series (incl. continuing conference proceedings series). (Taken from https://doi.org/10.1016/j.procs.2014.06.008)

Examples openaire_cerif_xml_example_publications.xml

Representation XML element `Publication`; the rest of this section documents children of this element

CERIF the ResultPublication entity (https://w3id.org/cerif/model#ResultPublication)

2.1.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the ResultPublicationIdentifier attribute (https://w3id.org/cerif/model#ResultPublication.ResultPublicationIdentifier)

2.1.2 Type

Description The type of the publication

Use mandatory (1)

Representation XML element `Type` from namespace https://www.openaire.eu/cerif-profile/vocab/COAR_Publication_Types

CERIF the ResultPublication_Classification (https://w3id.org/cerif/model#ResultPublication_Classification)

[1] See https://vocabularies.coar-repositories.org/resource_types/

Vocabulary Publication types extracted from the COAR Resource Types concept scheme: Types of publications as extracted from the COAR Resource Types concept scheme (https://vocabularies.coar-repositories.org/resource_types/, the term 'text' and its descendants in the hierarchy except 'patent'). Some terms are marked as deprecated; they can be removed in the next release of these Guidelines.

- **text** (http://purl.org/coar/resource_type/c_18cf): A resource consisting primarily of words for reading. Examples include books, letters, dissertations, poems, newspapers, articles, archives of mailing lists. Note that facsimiles or images of texts are still of the genre Text. [Source: http://purl.org/dc/dcmitype/Text]
  - **annotation** (http://purl.org/coar/resource_type/c_1162): An annotation in the sense of a legal note is a legally explanatory comment on a decision handed down by a court or arbitral tribunal. [Source: DRIVER info:eu-repo definition]
  - **bibliography** (http://purl.org/coar/resource_type/c_86bc): A list of the books and articles that have been used by someone when writing a particular book or article [Source: https://dictionary.cambridge.org/dictionary/english/bibliography]
  - **blog post** (http://purl.org/coar/resource_type/c_6947): A piece of writing or other item of content published on a blog. [Source: https://www.lexico.com/definition/blog_post]
  - **book** (http://purl.org/coar/resource_type/c_2f33): A non-serial publication that is complete in one volume or a designated finite number of volumes. [Source: Adapted from http://purl.org/eprint/type/Book]
    - **book part** (http://purl.org/coar/resource_type/c_3248): A defined chapter or section of a book, usually with a separate title or number. [Source: http://purl.org/spar/fabio/BookChapter]
  - **conference output** (http://purl.org/coar/resource_type/c_c94f): All kind of digital resources contributed to a conference, like conference presentation (slides), conference report, conference lecture, abstracts, demonstrations. For conference papers, posters or proceedings the specific sub-concepts should be used. [COAR definition]
    - **conference paper not in proceedings** (http://purl.org/coar/resource_type/c_18cp): A paper, typically the realization of a research paper reporting original research findings. Use this label when the paper is not published in a proceeding. [Source: Adapted from http://purl.org/spar/fabio/ConferencePaper]
    - **conference poster not in proceedings** (http://purl.org/coar/resource_type/c_18co): A display poster, typically containing text with illustrative figures and/or tables, usually reporting research results or proposing hypotheses, submitted for acceptance to and/or presented at a conference, seminar, symposium, workshop or similar event. Use this label when the poster is not published in a proceeding. [Source: http://purl.org/spar/fabio/ConferencePoster]
    - **conference presentation** (http://purl.org/coar/resource_type/R60J-J5BD): A set of slides containing text, tables or figures, designed to communicate ideas or research results, for projection and viewing by an

audience at a conference, symposium, seminar, lecture, workshop or other gatherings. [Source: Adapted from http://purl.org/spar/fabio/Presentation]

* **conference proceedings** (http://purl.org/coar/resource_type/c_f744): Conference proceedings is the official record of a conference meeting. It is a collection of documents which corresponds to the presentations given at the conference. It may include additional content. [Source: http://www.ieee.org/documents/confprocdefined.pdf]

  - **conference paper** (http://purl.org/coar/resource_type/c_5794): A paper, published within a conference proceeding, typically the realization of a research paper reporting original research findings. [Source: Adapted from http://purl.org/spar/fabio/ConferencePaper]

  - **conference poster** (http://purl.org/coar/resource_type/c_6670): A display poster, published within a conference proceeding, typically containing text with illustrative figures and/or tables, usually reporting research results or proposing hypotheses, submitted for acceptance to and/or presented at a conference, seminar, symposium, workshop or similar event. [Source: Adapted http://purl.org/spar/fabio/ConferencePoster]

- **lecture** (http://purl.org/coar/resource_type/c_8544): Transcription of an oral presentation/talk intended to present information or teach people about a particular subject, for example by a university or college teacher. [Source: Adopted from https://en.wikipedia.org/wiki/Lecture]

- **letter** (http://purl.org/coar/resource_type/c_0857): A brief description of important new research, also known as "communication". [Source: https://cerif.eurocris.org/vocab/html/OutputTypes.html#Letter]

- **magazine** (http://purl.org/coar/resource_type/c_2cd9): A popular interest periodical usually containing articles on a variety of topics, written by various authors in a nonscholarly style or a trade publication, unlike a consumer publication, covers a specific topic for people who work in that particular field or industry. [Source: Adapted from https://www.thebalance.com/what-is-a-trade-publication-exactly-2316039 and http://www.abc-clio.com/ODLIS/odlis_m.aspx]

- **manuscript** (http://purl.org/coar/resource_type/c_0040): A manuscript is a work of any kind (text, inscription, music score, map, etc.) written entirely by hand. [Source: https://products.abc-clio.com/ODLIS/odlis_m.aspx]

- **musical notation** (http://purl.org/coar/resource_type/c_18cw): Symbols used to write music, as in a music score, and to express mathematical concepts. [Source: Adapted from https://products.abc-clio.com/ODLIS/odlis_n.aspx]

- **newspaper** (http://purl.org/coar/resource_type/c_2fe3): A non-peer reviewed periodical, usually published daily or weekly, consisting primarily of editorials and news items concerning current or recent events and matters of public interest. [Source: http://purl.org/spar/fabio/Newspaper]

  * **newspaper article** (http://purl.org/coar/resource_type/c_998f): Work consisting of a news item appearing in a general-interest newspaper or other general news periodical, containing information of current and timely

interest in a field. (Adapted from http://www.reference.md/files/D018/mD018431.html)

- **other periodical** (http://purl.org/coar/resource_type/QX5C-AR31): A resource type that is not included in existing terms under the top concept "Text". [COAR definition]
- **periodical (deprecated)** (http://purl.org/coar/resource_type/c_2659): A periodical is a serial publication with its own distinctive title, characterized by a variety of contents and contributors, and issued at regular intervals. (Adapted from ODLIS) [Source: http://www.abc-clio.com/ODLIS/odlis_p.aspx]
  - **journal** (http://purl.org/coar/resource_type/c_0640): A journal is a serial publication devoted to disseminating original research and current developments on a subject. (Adapted from ODLIS) [Source: http://dspacecris.eurocris.org/cris/classcerif/classcerif00422]
    - **contribution to journal (deprecated)** (http://purl.org/coar/resource_type/c_3e5a): A contribution to a journal denotes a work published in a journal. If applicable sub-terms should be chosen.
    - **editorial** (http://purl.org/coar/resource_type/c_b239): A brief essay expressing the opinion or position of the chief editor(s) of a (academic) journal with respect to a current political, social, cultural, or professional issue. [Source: Adapted from ODLIS [Source: http://www.abc-clio.com/ODLIS/odlis_e.aspx]
    - **journal article** (http://purl.org/coar/resource_type/c_6501): An article, typically the realization of a research paper reporting original research findings, published in a journal issue. [Source: http://purl.org/spar/fabio/JournalArticle]
    - **corrigendum** (http://purl.org/coar/resource_type/c_7acd): A formal correction to an error introduced by the author into a previously published document. (adapted from https://sparontologies.github.io/fabio/current/fabio.html#d4e2712)
    - **data paper** (http://purl.org/coar/resource_type/c_beb9): A data paper is a scholarly publication describing a particular dataset or group of dataset, published in the form of a peer-reviewed article in a scholarly journal. The main purpose of a data paper is to describe data, the circumstances of their collection, and information related to data features, access and potential reuse. Adapted from https://en.wikipedia.org/wiki/Data_paper and http://www.gbif.org/publishing-data/data-papers
    - **research article** (http://purl.org/coar/resource_type/c_2df8fbb1): A research article is a primary source, that is, it reports the methods and results of an original study performed by the authors. (adapted from http://apus.libanswers.com/faq/2324)
    - **review article** (http://purl.org/coar/resource_type/c_dcae04bc): A review article is a secondary source, that is, it is written about other articles, and does not report original research of its own. [Source: Adapted from http://apus.libanswers.com/faq/2324]
    - **software paper** (http://purl.org/coar/resource_type/c_7bab): A software paper should include the rationale for the development of the

tool and details of the code used for its construction. [Source: Adapted from https://f1000research.com/for-authors/article-guidelines/software-tool-articles]

- **letter to the editor** (http://purl.org/coar/resource_type/c_545b): A letter addressed to the editor and comments on or discussed an item previously published by that periodical, or of interest to its readership. [Source: Adapted from http://purl.org/spar/fabio/Letter]

– **preprint (deprecated)** (http://purl.org/coar/resource_type/c_816b): A preprint is a scientific manuscript without peer-review and has not yet been accepted by a journal, typicaly submitted to a public server/ repository by the author. [Source: Adapted from https://asapbio.org/preprint-info/preprint-faq#qaef-637]

– **report** (http://purl.org/coar/resource_type/c_93fc): A report is a separately published record of research findings, research still in progress, policy developments and events, or other technical findings, usually bearing a report number and sometimes a grant number assigned by the funding agency. Also, an official record of the activities of a committee or corporate entity, the proceedings of a government body, or an investigation by an agency, whether published or private, usually archived or submitted to a higher authority, voluntarily or under mandate. In a more general sense, any formal account of facts or information related to a specific event or phenomenon, sometimes given at regular intervals. [Source: http://lu.com/odlis/odlis_R.cfm#report]

  * **clinical study** (http://purl.org/coar/resource_type/c_7877): A work that reports on the results of a research study to evaluate interventions or exposures on biomedical or health-related outcomes. The two main types of clinical studies are interventional studies (clinical trials) and observational studies. While most clinical studies concern humans, this publication type may be used for clinical veterinary articles meeting the requisites for humans. [Source: https://www.ncbi.nlm.nih.gov/mesh/2009830]

  * **data management plan** (http://purl.org/coar/resource_type/c_ab20): A formal statement describing how research data will be managed and documented throughout a research project and the terms regarding the subsequent deposit of the data with a data repository for long-term management and preservation. [Source: https://casrai.org/rdm-glossary]

  * **internal report (deprecated)** (http://purl.org/coar/resource_type/c_18ww): An internal report is a record of findings collected for internal use. It is not designed to be made public and may include confidential or proprietary information.

  * **memorandum** (http://purl.org/coar/resource_type/c_18wz): A formal note distributed internally to one or more persons in a company, agency, organization, or institution, with a header indicating the date it was sent and stating to whom it is addressed (To:), from whom it is sent (From:), and the subject of the text (Re:). Unlike a letter, a memo does not require a full salutation or signature at the end of the text–the sender may simply initial his or her name in the header. [Source: https://products.abc-clio.com/ODLIS/odlis_m.aspx#memorandum]

    - **other type of report (deprecated)** (http://purl.org/coar/resource_type/c_18wq): Other types of report may include Business Plans Technical Specifications, data management plans, recommendation reports, white papers, annual reports, auditor's reports, workplace reports, census reports, trip reports, progress reports, investigative reports, budget reports, policy reports, demographic reports, credit reports, appraisal reports, inspection reports, military reports, bound reports, etc. [Source: https://en.wikipedia.org/wiki/Report]
    - **policy report (deprecated)** (http://purl.org/coar/resource_type/c_186u): A policy report presents what is known about a particular issue or problem. It assembles facts and evidence to help readers understand complex issues and form a response. It might aim to be neutral, or it might aim to persuade readers in a particular direction. [Source: https://www.uow.edu.au/student/learning-co-op/assessments/policy-report/#]
    - **project deliverable** (http://purl.org/coar/resource_type/c_18op): A document containing a project report, intended to be delivered to a customer or funding agency describing the results achieved within a specific project. [Source: http://purl.org/spar/fabio/ProjectReportDocument]
    - **report part (deprecated)** (http://purl.org/coar/resource_type/c_ba1f): part of a report
    - **report to funding agency (deprecated)** (http://purl.org/coar/resource_type/c_18hj): A report to a funding agency is a document written by beneficiaries of project grants. The reporting documents can be e.g. periodic reports about progress of scientific and technical work and final report. For deliverables use 'Project deliverable'. [Source: http://ec.europa.eu/research/participants/fp7documents/funding-guide/6_projects/reports/reports_en.htm]
    - **research protocol** (http://purl.org/coar/resource_type/YZ1N-ZFT9): The protocol is a detailed plan of the research study including a project summary, project description covering the rationale, objectives, methodology, data management and analysis, ethical considerations, gender issues and references. [Source: Adapted from https://www.who.int/publications/i/item/a-practical-guide-for-health-researchers]
    - **research report** (http://purl.org/coar/resource_type/c_18ws): It is publication that reports on the findings of a research project or alternatively scientific observations on or about a subject. [Source: Adapted from https://en.wikipedia.org/wiki/Research_report]
    - **technical report** (http://purl.org/coar/resource_type/c_18gh): A document that describes the process, progress, or results of technical or scientific research or the state of a technical or scientific research problem. It might also include recommendations and conclusions of the research. [Source: http://guides.library.cornell.edu/ecommons/types]

- **research proposal** (http://purl.org/coar/resource_type/c_baaf): A research proposal is a document proposing a research project, generally in the sciences or academia, and generally constitutes a request for sponsorship of that research. [Source: https://en.wikipedia.org/wiki/Research_proposal]

- **review** (http://purl.org/coar/resource_type/c_efa0): A review of others' published work. [Source: Adapted from http://purl.org/spar/fabio/Review]
  - **book review** (http://purl.org/coar/resource_type/c_ba08): A written review and critical analysis of the content, scope and quality of a book or other monographic work. [Source: http://purl.org/spar/fabio/BookReview]
  - **commentary** (http://purl.org/coar/resource_type/D97F-VB57): A commentary is a more in-depth analysis written to draw attention to a work already published. Commentaries are somewhat like "reviews" in that the author presents his or her analysis of a work and why it would be of interest to a specific audience. [Source: https://www.enago.com/academy/perspective-opinion-and-commentary-pieces]
  - **peer review** (http://purl.org/coar/resource_type/H9BQ-739P): An evaluation of scientific, academic, or professional work by others working in the same field. [Source: Adopted from https://schema.datacite.org/meta/kernel-4.4/doc/DataCite-MetadataKernel_v4.4.pdf]
- **technical documentation** (http://purl.org/coar/resource_type/c_71bd): Technical documentation refers to any type of documentation that describes handling, functionality and architecture of a technical product or a product under development or use. [Source: https://en.wikipedia.org/wiki/Technical_documentation]
- **thesis** (http://purl.org/coar/resource_type/c_46ec): A book authored by a student containing a formal presentations of research outputs submitted for examination in completion of a course of study at an institution of higher education, to fulfil the requirements for an academic degree. Also know as a dissertation. [Source: http://purl.org/spar/fabio/Thesis]
  - **bachelor thesis** (http://purl.org/coar/resource_type/c_7a1f): A thesis reporting a research project undertaken as part of an undergraduate course of education leading to a bachelor's degree. [Source: http://purl.org/spar/fabio/BachelorsThesis]
  - **doctoral thesis** (http://purl.org/coar/resource_type/c_db06): A thesis reporting the research undertaken during a period of graduate study leading to a doctoral degree. [Source: http://purl.org/spar/fabio/DoctoralThesis]
  - **master thesis** (http://purl.org/coar/resource_type/c_bdcc): A thesis reporting a research project undertaken as part of a graduate course of education leading to a master's degree. [Source: http://purl.org/spar/fabio/MastersThesis]
- **transcription** (http://purl.org/coar/resource_type/6NC7-GK9S): A written record of words spoken in court proceedings or in a speech, interview, broadcast, or sound recording. [Source: Adapted from https://products.abc-clio.com/ODLIS/odlis_t.aspx]
- **working paper** (http://purl.org/coar/resource_type/c_8042): A working or discussion paper circulated publicly or among a group of peers. Certain disciplines, for example economics, issue working papers in series. [Source: http:

//www.ukoln.ac.uk/repositories/digirep/index/Eprints_Type_Vocabulary_Encoding_Scheme#:~:text=http%3A//purl.org/eprint/type/WorkingPaper]

2.1.3 Language

Description The language of the publication. Please use the IETF language tags as described in the IETF BCP 47 document.

Use optional (0..1)

Representation XML element `Language`

CERIF the ResultPublication_Classification linking entity (https://w3id.org/cerif/model#ResultPublication_Classification) with the http://publications.europa.eu/resource/authority/language semantics

2.1.4 Title

Description The title of the publication

Use optional, possibly multiple (0..*)

Representation XML element `Title` as a multilingual string

CERIF the ResultPublication.Title attribute (https://w3id.org/cerif/model#ResultPublication.Title)

2.1.5 Subtitle

Description The subtitle of the publication

Use optional, possibly multiple (0..*)

Representation XML element `Subtitle` as a multilingual string

CERIF the ResultPublication.Subtitle attribute (https://w3id.org/cerif/model#ResultPublication.Subtitle)

2.1.6 NameAbbreviation

Description The abbreviation of the title of the publication. E.g. the acronym of a journal.

Use optional, possibly multiple (0..*)

Representation XML element `NameAbbreviation` as a multilingual string

CERIF the ResultPublication.NameAbbreviation attribute (https://w3id.org/cerif/model#ResultPublication.NameAbbreviation)

2.1.7 PublishedIn

Description The source (another Publication) where this publication appeared. E.g. a journal article lists here the journal where it appeared. To be used for a publishing channel.

Use optional (0..1)

Representation XML element `PublishedIn` with embedded XML element `Publication`

CERIF the ResultPublication_ResultPublication linking entity (https://w3id.org/cerif/model#ResultPublication_ResultPublication) with the https://w3id.org/cerif/vocab/InterPublicationRelations#Publication semantics (direction :1)

2.1.8 PartOf

Description The Publication of which this publication is a part. E.g. a book chapter lists here the book that contains it. To be used for a containing publication.

Use optional (0..1)

Representation XML element `PartOf` with embedded XML element `Publication`

CERIF the ResultPublication_ResultPublication linking entity (https://w3id.org/cerif/model#ResultPublication_ResultPublication) with the https://w3id.org/cerif/vocab/InterPublicationRelations#Part semantics (direction :1)

2.1.9 PublicationDate

Description The date the publication appeared

Use optional (0..1)

Representation XML element `PublicationDate`

CERIF the ResultPublication.ResultPublicationDate attribute (https://w3id.org/cerif/model#ResultPublication.ResultPublicationDate)

Format any of:

- year (`YYYY`) with optional time zone indication
- year and month (`YYYY-MM`) with optional time zone indication
- full date (`YYYY-MM-DD`) with optional time zone indication
- date and time (`YYYY-MM-DD'T'hh:mm:ss(.SSS)`) with optional time zone indication

2.1.10 Number

Description The number of the publication (e.g. Article Number)

Use optional (0..1)

Representation XML element `Number`

CERIF the ResultPublication.Number attribute (https://w3id.org/cerif/model#ResultPublication.Number)

2.1.11 Volume

Description The volume of the publishing channel where this publication appeared

Use optional (0..1)

Representation XML element `Volume`

CERIF the ResultPublication.Volume attribute (https://w3id.org/cerif/model#ResultPublication.Volume)

2.1.12 Issue

Description The issue of the publishing channel where this publication appeared

Use optional (0..1)

Representation XML element `Issue`

CERIF the ResultPublication.Issue attribute (https://w3id.org/cerif/model#ResultPublication.Issue)

2.1.13 Edition

Description The edition of the publication

Use optional (0..1)

Representation XML element `Edition`

CERIF the ResultPublication.Edition attribute (https://w3id.org/cerif/model#ResultPublication.Edition)

2.1.14 StartPage

Description The page where this publication starts, in case the publishing channel or containing publication has numbered pages

Use optional (0..1)

Representation XML element `StartPage`

CERIF the ResultPublication.StartPage attribute (https://w3id.org/cerif/model#ResultPublication.StartPage)

2.1.15 EndPage

Description The page where this publication ends, in case the publishing channel or containing publication has numbered pages

Use optional (0..1)

Representation XML element `EndPage`

CERIF the ResultPublication.EndPage attribute (https://w3id.org/cerif/model#ResultPublication.EndPage)

2.1.16 DOI

Description The Digital Object Identifier

Use optional (0..1)

Representation XML element `DOI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `10\.\d{4,}(\.\d+)*/[^\s]+` (as per https://www.crossref.org/blog/dois-and-matching-regular-expressions/)

2.1.17 Handle

Use optional (0..1)

Representation XML element `Handle`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.18 PMCID

Use optional (0..1)

Representation XML element `PMCID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.19 ISI-Number

Use optional (0..1)

Representation XML element `ISI-Number`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.20 SCP-Number

Use optional (0..1)

Representation XML element `SCP-Number`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.21 ISSN

Description The International Standard Serial Number

Use optional, possibly multiple (0..*)

Representation XML element `ISSN`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{4}-?\d{3}[\dX]` and length between 8 and 9 characters (as per https://data.crossref.org/reports/help/schema_doc/4.4.1/schema_4_4_1.html#issn_t)

medium

Use optional

Representation XML attribute `medium`

Vocabulary ISSN Media List

- **Print** (http://issn.org/vocabularies/Medium#Print): Print (paper)
- **Online** (http://issn.org/vocabularies/Medium#Online): Online (online publication)
- **Digital carrier** (http://issn.org/vocabularies/Medium#DigitalCarrier): Digital carrier (CD-ROM, USB keys)
- **Other** (http://issn.org/vocabularies/Medium#Other): Other (Loose-leaf publications, braille, etc.)

2.1.22 ISBN

Description The International Standard Book Number

Use optional, possibly multiple (0..*)

Representation XML element `ISBN`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format any of:

- regular expression `978-\d+-\d+-\d+-\d` and length of exactly 17 characters (ISBN-13, human readable form)
- regular expression `978 \d+ \d+ \d+ \d` and length of exactly 17 characters (ISBN-13, human readable form)

- regular expression `979-[1-9]\d*-\d+-\d+-\d` and length of exactly 17 characters (ISBN-13, human readable form)
- regular expression `979 [1-9]\d* \d+ \d+ \d` and length of exactly 17 characters (ISBN-13, human readable form)
- regular expression `978\d{10}` and length of exactly 13 characters (ISBN-13, concise form)
- regular expression `979[1-9]\d{9}` and length of exactly 13 characters (ISBN-13, concise form)
- regular expression `\d+-\d+-\d+-[\dX]` and length of exactly 13 characters (ISBN-10, human readable form)
- regular expression `\d+ \d+ \d+ [\dX]` and length of exactly 13 characters (ISBN-10, human readable form)
- regular expression `\d{9}[\dX]` and length of exactly 10 characters (ISBN-10, concise form)

medium

Use optional

Representation XML attribute `medium`

Vocabulary ISSN Media List

- **Print** (http://issn.org/vocabularies/Medium#Print): Print (paper)
- **Online** (http://issn.org/vocabularies/Medium#Online): Online (online publication)
- **Digital carrier** (http://issn.org/vocabularies/Medium#DigitalCarrier): Digital carrier (CD-ROM, USB keys)
- **Other** (http://issn.org/vocabularies/Medium#Other): Other (Loose-leaf publications, braille, etc.)

2.1.23 URL

Use optional (0..1)

Representation XML element `URL`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.24 URN

Use optional (0..1)

Representation XML element `URN`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.1.25 ZDB-ID

Use optional (0..1)

Representation XML element `ZDB-ID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{1,7}-[Xx\d]` (as per https://www.wikidata.org/wiki/Property:P1042)

2.1.26 Authors

Description The authors of this publication

Use optional (0..1)

Representation XML element `Authors` with ordered embedded XML elements `Author` that can contain an embedded person with affiliations or organisation unit

Author

Use optional, possibly multiple (0..*)

Representation XML element `Author` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements, or `OrgUnit`. A `DisplayName` may be specified, too.

CERIF the Person_ResultPublication linking entity (https://w3id.org/cerif/model#Person_ResultPublication) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Author semantics; the OrganisationUnit_ResultPublication linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultPublication) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#Author semantics

2.1.27 Editors

Description The editors of this publication

Use optional (0..1)

Representation XML element `Editors` with ordered embedded XML elements `Editor` that can contain an embedded person with affiliations or organisation unit

Editor

Use optional, possibly multiple (0..*)

Representation XML element `Editor` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements, or `OrgUnit`. A `DisplayName` may be specified, too.

CERIF the Person_ResultPublication linking entity (https://w3id.org/cerif/model#Person_ResultPublication) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Editor semantics; the OrganisationUnit_ResultPublication linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultPublication) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#Editor semantics

2.1.28 Publishers

Description The publishers of this publication

Use optional (0..1)

Representation XML element `Publishers` with ordered embedded XML elements `Publisher` that can contain an embedded organisation unit or person

Publisher

Use optional, possibly multiple (0..*)

Representation XML element `Publisher` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the OrganisationUnit_ResultPublication linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultPublication) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#Publisher semantics; the Person_ResultPublication linking entity (https://w3id.org/cerif/model#Person_ResultPublication) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Publisher semantics

2.1.29 License

Description The license of the publication. We recommend using URIs from the SPDX License List (https://spdx.org/licenses/), which includes the Creative Commons licenses.

Use optional, possibly multiple (0..*)

Representation XML element `License` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultPublication_Classification (https://w3id.org/cerif/model#ResultPublication_Classification)

2.1.30 Subject

Description The subject of the publication from a classification

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultPublication_Classification (https://w3id.org/cerif/model#ResultPublication_Classification)

2.1.31 Keyword

Description A single keyword or key expression. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the ResultPublication.Keywords attribute (https://w3id.org/cerif/model#ResultPublication.Keywords)

2.1.32 Abstract

Use optional, possibly multiple (0..*)

Representation XML element `Abstract` as a multilingual string

CERIF the ResultPublication.Abstract attribute (https://w3id.org/cerif/model#ResultPublication.Abstract)

2.1.33 Status

Use optional, possibly multiple (0..*)

Representation XML element `Status` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultPublication_Classification (https://w3id.org/cerif/model#ResultPublication_Classification)

2.1.34 OriginatesFrom

Use optional, possibly multiple (0..*)

Representation XML element `OriginatesFrom` with embedded XML element `Project` or `Funding`

CERIF the Project_ResultPublication linking entity (https://w3id.org/cerif/model#Project_ResultPublication) with the https://w3id.org/cerif/vocab/ProjectOutputRoles#Originator semantics; the ResultPublication_Funding linking entity (https://w3id.org/cerif/model#ResultPublication_Funding) with the https://w3id.org/cerif/vocab/OutputFundingRoles#Originator semantics

2.1.35 PresentedAt

Description The event where this publication was presented.[1]

Use optional, possibly multiple (0..*)

Representation XML element `PresentedAt` with embedded XML element `Event`

CERIF the ResultPublication_Event linking entity (https://w3id.org/cerif/model#ResultPublication_Event) with the https://w3id.org/cerif/vocab/EventOutputRelationships#Presented semantics

2.1.36 OutputFrom

Description This publication contains the proceedings from the linked event

Use optional, possibly multiple (0..*)

Representation XML element `OutputFrom` with embedded XML element `Event`

CERIF the ResultPublication_Event linking entity (https://w3id.org/cerif/model#ResultPublication_Event) with the https://w3id.org/cerif/vocab/EventOutputRelationships#Output semantics

2.1.37 Coverage

Description The event that is covered by this publication (e.g. a report about the event)

Use optional, possibly multiple (0..*)

Representation XML element `Coverage` with embedded XML element `Event`

CERIF the ResultPublication_Event linking entity (https://w3id.org/cerif/model#ResultPublication_Event) with the https://w3id.org/cerif/vocab/EventOutputRelationships#Coverage semantics

2.1.38 References

Description Result outputs that are referenced by this publication

Use optional, possibly multiple (0..*)

Representation XML element `References` with embedded XML element `Publication` or `Patent` or `Product`

CERIF the ResultPublication_ResultPublication linking entity (https://w3id.org/cerif/model#ResultPublication_ResultPublication) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultPublication_ResultProduct linking entity (https://w3id.org/cerif/model#ResultPublication_ResultProduct) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultPublication_ResultPatent linking entity (https://w3id.org/cerif/model#ResultPublication_ResultPatent) with the

[1] Note: Video recordings of conference presentations are stored as alternative representations of the primary object: the conference paper. It would be unneccessarily complex to represent them as separate, linked Products.

https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1)

2.1.39 ns4:Access

Description The open access type of the publication

Use optional (0..1)

Representation XML element `Access` from namespace http://purl.org/coar/access_right

CERIF the ResultPublication_Classification (https://w3id.org/cerif/model#ResultPublication_Classification)

Vocabulary

- **open access** (http://purl.org/coar/access_right/c_abf2): Open access refers to a resource that is immediately and permanently online, and free for all on the Web, without financial and technical barriers.The resource is either stored in the repository or referenced to an external journal or trustworthy archive.
- **embargoed access** (http://purl.org/coar/access_right/c_f1cf): Embargoed access refers to a resource that is metadata only access until released for open access on a certain date. Embargoes can be required by publishers and funders policies, or set by the author (e.g such as in the case of theses and dissertations).
- **restricted access** (http://purl.org/coar/access_right/c_16ec): Restricted access refers to a resource that is available in a system but with some type of restriction for full open access. This type of access can occur in a number of different situations. Some examples are described below: The user must log-in to the system in order to access the resource The user must send an email to the author or system administrator to access the resource Access to the resource is restricted to a specific community (e.g. limited to a university community)
- **metadata only access** (http://purl.org/coar/access_right/c_14cb): Metadata only access refers to a resource in which access is limited to metadata only. The resource itself is described by the metadata, but neither is directly available through the system or platform nor can be referenced to an open access copy in an external journal or trustworthy archive.

2.1.40 FileLocations

Description The files that this Publication has as contents.

Use optional (0..1)

Representation XML element `FileLocations` with embedded XML element `Medium`

CERIF the ResultPublication_Medium linking entity (https://w3id.org/cerif/model#ResultPublication_Medium) with the https://w3id.org/cerif/vocab/MediaRelations#Contents semantics

2.2 Product

Description Any result of research other than Publication or Patent. This includes: (1) research datasets, (2) software, (3) visualisations: still or moving images, including maps and other cartographic material, (4) audio recordings, (5) other objects that can be perceived through human senses.

Examples openaire_cerif_xml_example_products.xml

Representation XML element `Product`; the rest of this section documents children of this element

CERIF the ResultProduct entity (https://w3id.org/cerif/model#ResultProduct)

2.2.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the ResultProductIdentifier attribute (https://w3id.org/cerif/model#ResultProduct.ResultProductIdentifier)

2.2.2 Type

Description The type of the resulting product (other than publication or patent)

Use mandatory (1)

Representation XML element `Type` from namespace https://www.openaire.eu/cerif-profile/vocab/COAR_Product_Types

CERIF the ResultProduct_Classification (https://w3id.org/cerif/model#ResultProduct_Classification)

Vocabulary Product types extracted from the COAR Resource Types concept scheme: Types of products as extracted from the COAR Resource Types concept scheme (https://vocabularies.coar-repositories.org/resource_types/, all types that do not descend from 'text').

- **cartographic material** (http://purl.org/coar/resource_type/c_12cc): Any material representing the whole or part of the earth or any celestial body at any scale. Cartographic materials include two- and three-dimensional maps and plans (including maps of imaginary places); aeronautical, navigational, and celestial charts; atlases; globes; block diagrams; sections; aerial photographs with a cartographic purpose; bird's-eye views (map views), etc. [Source: http://www.loc.gov/marc/cfmap.html]
  - **map** (http://purl.org/coar/resource_type/c_12cd): Defined as a representation normally to scale and on a flat medium, of a selection of material or abstract features on, or in relation to, the surface of the earth or of another celestial body. [Source: https://www.loc.gov/marc/bibliographic/bd007a.html]

- **dataset** (http://purl.org/coar/resource_type/c_ddb1): A collection of related facts and data encoded in a defined structure. [Source: Adapted from http://purl.org/spar/fabio/Dataset]
  - **aggregated data** (http://purl.org/coar/resource_type/ACF7-8YT9): Statistics that relate to broad classes, groups, or categories. The data are averaged, totaled, or otherwise derived from individual-level data, and it is no longer possible to distinguish the characteristics of individuals within those classes, groups, or categories. For example, the number and age group of the unemployed in specific geographic regions, or national level statistics on the occurrence of specific offences, originally derived from the statistics of individual police districts. [Source: https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
  - **clinical trial data** (http://purl.org/coar/resource_type/c_cb28): Data resulting from a research study in which one or more human subjects are prospectively assigned to one or more interventions (which may include placebo or other control) to evaluate the effects of those interventions on health-related biomedical or behavioral outcomes. [Source: Adapted from https://grants.nih.gov/policy/clinical-trials/definition.htm]
  - **compiled data** (http://purl.org/coar/resource_type/FXF3-D3G7): Data collected or assembled from multiple, often heterogeneous sources that have one or more reference points in common, and at least one of the sources was originally produced for other purposes. The data are incorporated in a new entity. For example, providing data on the number of universities in the last 150 years using a variety of available sources (e.g. finance documents, official statistics, university registers), combining survey data with information about geographical areas from official statistics (e.g. population density, doctors per capita, etc.), or using RSS to collect blog posts or tweets, etc. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
  - **encoded data** (http://purl.org/coar/resource_type/AM6W-6QAW): Qualitative data (textual, video, audio or still-image) originally produced for other purposes into quantitative data (expressed in unit-by-variable matrices) by using coding techniques in accordance with pre-defined categorization schemes. For example, coded party manifesto data like the "European Parliament Election Study 2009, Manifesto Study" (doi:10.4232/1.10204)". [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
  - **experimental data** (http://purl.org/coar/resource_type/63NG-B465): Data resulting from the experimental research method involving the manipulation of some or all of the independent variables included in the hypotheses. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
  - **genomic data** (http://purl.org/coar/resource_type/A8F1-NPV9): Genomic data refers to the genome and DNA data of an organism. They are used in bioinformatics for collecting, storing and processing the genomes of living things. Genomic data is a more extensive term than sequencing data. However genomic data mostly come from sequencing tech-

niques. It may include non-sequencing data such as data from microarrays, data from real-time PCR panels and data from pharmacogenomics studies. [Source: Adapted from https://www.techopedia.com/definition/31247/genomic-data]

- **geospatial data** (http://purl.org/coar/resource_type/2H0M-X761): Geospatial data are any type of data with spatial coordinates that allow them to be mapped to the Earth's surface. They can represent physical objects, discrete areas or continuous surfaces. Discrete geospatial data are usually represented using vector data consisting of points, lines and polygons, while continuous geospatial data are usually represented by raster data, consisting of a grid of cells that each has its own value. Any number of applications in a wide range of areas produce geospatial data, such as GIS, Remote Sensing equipment, GPS units, archaeological total stations, manual mapping and computer-aided design (CAD), in a number of formats, including images, vector, text, and tabular data. Vector-based geospatial data include tables listing archaeological sites along with their coordinates, text-based files (e.g., XML) containing coordinates and topology for historic road networks, voting figures for political parties by administrative area. Raster-based geospatial data include satellite images, aerial photographs, scanned maps, and digital maps of elevations, vegetation, land-use, sea surface temperatures, air pollution, soil-types, etc. [Source: https://ddialliance.org/Specification/DDI-CV/GeneralDataFormat_2.0.html]
- **laboratory notebook** (http://purl.org/coar/resource_type/H41Y-FW7B): A laboratory notebook (colloq. lab notebook or lab book) is a primary record of research. Researchers use a lab notebook to document their hypotheses, experiments and initial analysis or interpretation of these experiments. This label is used both for traditional and electronic laboratory notebook. [Source: Adapted from https://en.wikipedia.org/wiki/Lab_notebook]
- **measurement and test data** (http://purl.org/coar/resource_type/DD58-GFSX): Data resulting from assessing specific properties (or characteristics) of beings, things, phenomena, (and/ or processes) by applying pre-established standards and/or specialized instruments or techniques. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
- **observational data** (http://purl.org/coar/resource_type/FF4C-28RK): Data resulting from observational research, which involves collecting observations as they occur (for example, observing behaviors, events, development of condition or disease, etc.), without attempting to manipulate any of the independent variables. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
- **recorded data** (http://purl.org/coar/resource_type/CQMR-7K63): Data registered by mechanical or electronic means, in a form that allows the information to be retrieved and/or reproduced. For example, images or sounds on disc or magnetic tape. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]
- **simulation data** (http://purl.org/coar/resource_type/W2XT-7017): Data

resulting from modeling or imitative representation of real-world processes, events, or systems, often using computer programs. For example, a program modeling household consumption responses to indirect tax changes; or a dataset on hypothetical patients and their drug exposure, background conditions, and known adverse events. [Source: Adapted from https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html]

  - **survey data** (http://purl.org/coar/resource_type/NHD0-W6SY): Data resulting from a survey, which is defined as an investigation about the characteristics of a given population by means of collecting data from a sample of that population and estimating their characteristics through the systematic use of statistical methodology. Included are censuses, sample surveys, the collection of data from administrative records and derived statistical activities as well as questionnaires. [Source: Adapted from https://stats.oecd.org/glossary/detail.asp?ID=2620]

- **design** (http://purl.org/coar/resource_type/542X-3S04): Plans, drawing or set of drawings showing how something e.g. building, product is to be made and how it will work and look. [Source: Adapted from https://dictionary.cambridge.org/dictionary/english/design]

  - **industrial design** (http://purl.org/coar/resource_type/JBNF-DYAD): Industrial designs are applied to a wide variety of industrial products and handicrafts. They refer to the ornamental or aesthetic aspects of a useful article,including compositions of lines or colors or any three-dimensional forms that give a special appearance to a product or handicraft. [Source: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2018.pdf]

  - **layout design** (http://purl.org/coar/resource_type/BW7T-YM2G): Layout-design (topography) means the three-dimensional disposition, however expressed, of the elements of an integrated circuit (at least one of which is an active element) and of some or all of the interconnections of an integrated circuit, or such a three-dimensional disposition prepared for an integrated circuit intended for manufacture [Source: https://www.wipo.int/edocs/lexdocs/laws/en/hk/hk028en.pdf]

- **image** (http://purl.org/coar/resource_type/c_c513): A visual representation other than text, including all types of moving image and still image. [Source: Adapted from http://purl.org/dc/dcmitype/Image]

  - **moving image** (http://purl.org/coar/resource_type/c_8a7e): A moving display, either generated dynamically by a computer program or formed from a series of pre-recorded still images imparting an impression of motion when shown in succession. [Source: http://purl.org/spar/fabio/MovingImage]

    * **video** (http://purl.org/coar/resource_type/c_12ce): A recording of visual images, usually in motion and with sound accompaniment. [Source: http://www.ifla.org/files/assets/cataloguing/isbd/isbd-cons_20110321.pdf]

  - **still image** (http://purl.org/coar/resource_type/c_ecc8): A recorded static visual representation. This class of image includes diagrams, drawings, graphs, graphic designs, plans, photographs and prints. [Source: Adapted

from http://purl.org/spar/fabio/StillImage]

- **interactive resource** (http://purl.org/coar/resource_type/c_e9a0): A resource requiring interaction from the user to be understood, executed, or experienced. Examples include forms on Web pages, applets, multimedia learning objects, chat services, or virtual reality environments. Source: http://purl.org/dc/dcmitype/InteractiveResource
  - **website** (http://purl.org/coar/resource_type/c_7ad9): A collection of related web pages containing text, images, videos and/or other digital assets that are addressed relative to a common Uniform Resource Locator (URL). A web site is hosted on at least one web server, accessible via a network such as the Internet or a private local area network. [Source: http://purl.org/spar/fabio/WebSite]
- **learning object** (http://purl.org/coar/resource_type/c_e059): A digital resource that can be reused to enhance teaching and learning. [Source: https://icas-ca.org/archive/projects/coerc/oer-glossary]
- **other** (http://purl.org/coar/resource_type/c_1843): A resource type that is not included in existing terms. [COAR definition]
- **software** (http://purl.org/coar/resource_type/c_5ce6): A computer program in source code (text) or compiled form. [Source: http://purl.org/dc/dcmitype/Software]
  - **research software** (http://purl.org/coar/resource_type/c_c950): Software that is used to generate, process or analyse results that you intend to appear in a publication (either in a journal, conference paper, monograph, book or thesis). Research software can be anything from a few lines of code written by yourself, to a professionally developed software package. [Source: https://datashare.ed.ac.uk/handle/10283/785]
  - **source code** (http://purl.org/coar/resource_type/QH80-2R4E): Source code is any collection of code, with or without comments, written using a human-readable programming language, usually as plain text. [Source: https://en.wikipedia.org/wiki/Source_code]
- **sound** (http://purl.org/coar/resource_type/c_18cc): A resource primarily intended to be heard. Examples include a music playback file format, an audio compact disc, and recorded speech or sounds. [Source: http://dublincore.org/documents/dcmi-terms/#dcmitype-Sound]
  - **musical composition** (http://purl.org/coar/resource_type/c_18cd): Musical composition can refer to an original piece of music, the structure of a musical piece, or the process of creating a new piece of music. [Source: https://en.wikipedia.org/wiki/Musical_composition]
- **trademark** (http://purl.org/coar/resource_type/H6QP-SC1X): A sign used to distinguish the goods or services of one undertaking from those of others. A trademark may consist of words and combinations of words (for instance, names or slogans), logos, figures and images, letters, numbers, sounds, or, in rare instances, smells or moving images, or a combination thereof. [Source: https://www.wipo.int/trademarks/en]
- **workflow** (http://purl.org/coar/resource_type/c_393c): A recorded sequence of connected steps, which may be automated, specifying a reliably repeat-

able sequence of operations to be undertaken when conducting a particular job, for example an in silico investigation that extracts and processes information from a number of bioinformatics databases. [Source: Adapted from http://purl.org/spar/fabio/Workflow]

2.2.3 Language

Description The language or languages of the product, if applicable. Please use the IETF language tags as described in the IETF BCP 47 document.

Use optional, possibly multiple (0..*)

Representation XML element `Language`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the http://publications.europa.eu/resource/authority/language semantics

2.2.4 Name

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the ResultProduct.Name attribute (https://w3id.org/cerif/model#ResultProduct.Name)

2.2.5 VersionInfo

Use optional, possibly multiple (0..*)

Representation XML element `VersionInfo` as a multilingual string

CERIF the ResultProduct.VersionInfo attribute (https://w3id.org/cerif/model#ResultProduct.VersionInfo)

2.2.6 ARK

Use optional (0..1)

Representation XML element `ARK`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.2.7 DOI

Description The Digital Object Identifier

Use optional (0..1)

Representation XML element `DOI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `10\.\d{4,}(\.\d+)*/[^\s]+` (as per https://www.crossref.org/blog/dois-and-matching-regular-expressions/)

2.2.8 Handle

Use optional (0..1)

Representation XML element `Handle`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.2.9 URL

Use optional (0..1)

Representation XML element `URL`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.2.10 URN

Use optional (0..1)

Representation XML element `URN`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.2.11 Creators

Description The creators of this product

Use optional (0..1)

Representation XML element `Creators` with ordered embedded XML elements `Creator` that can contain an embedded person with affiliations or organisation unit

Creator

Use optional, possibly multiple (0..*)

Representation XML element `Creator` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements, or `OrgUnit`. A `DisplayName` may be specified, too.

CERIF the Person_ResultProduct linking entity (https://w3id.org/cerif/model#Person_ResultProduct) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Creator semantics; the OrganisationUnit_ResultProduct linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultProduct) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#Creator semantics

2.2.12 Publishers

Description The publisher or publishers of this product

Use optional (0..1)

Representation XML element `Publishers` with ordered embedded XML elements `Publisher` that can contain an embedded organisation unit or person

Publisher

Use optional, possibly multiple (0..*)

Representation XML element `Publisher` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the OrganisationUnit_ResultProduct linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultProduct) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#Publisher semantics; the Person_ResultProduct linking entity (https://w3id.org/cerif/model#Person_ResultProduct) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Publisher semantics

2.2.13 License

Description The license of the product. We recommend using URIs from the SPDX License List (https://spdx.org/licenses/), which includes the licenses commonly used for software and datasets.

Use optional, possibly multiple (0..*)

Representation XML element `License` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultProduct_Classification (https://w3id.org/cerif/model#ResultProduct_Classification)

2.2.14 Description

Use optional, possibly multiple (0..*)

Representation XML element `Description` as a multilingual string

CERIF the ResultProduct.Description attribute (https://w3id.org/cerif/model#ResultProduct.Description)

2.2.15 Subject

Description The subject of the product from a classification

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultProduct_Classification (https://w3id.org/cerif/model#ResultProduct_Classification)

2.2.16 Keyword

Description A single keyword or key expression. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the ResultProduct.Keywords attribute (https://w3id.org/cerif/model#ResultProduct.Keywords)

2.2.17 PartOf

Description Link to the research output of which this product is a part (e.g. a data set collection that contains it)

Use optional (0..1)

Representation XML element `PartOf` with embedded XML element `Publication` or `Patent` or `Product`

CERIF the ResultProduct_ResultProduct linking entity (https://w3id.org/cerif/model#ResultProduct_ResultProduct) with the https://w3id.org/cerif/vocab/InterProductRelations#Part semantics (direction :1)

2.2.18 OriginatesFrom

Use optional, possibly multiple (0..*)

Representation XML element `OriginatesFrom` with embedded XML element `Project` or `Funding`

CERIF the Project_ResultProduct linking entity (https://w3id.org/cerif/model#Project_ResultProduct) with the https://w3id.org/cerif/vocab/ProjectOutputRoles#Originator semantics; the ResultProduct_Funding linking entity (https://w3id.org/cerif/model#ResultProduct_Funding) with the https://w3id.org/cerif/vocab/OutputFundingRoles#Originator semantics

2.2.19 GeneratedBy

Description The equipment that generated this product

Use optional, possibly multiple (0..*)

Representation XML element `GeneratedBy` with embedded XML element `Equipment`

CERIF the ResultProduct_Equipment linking entity (https://w3id.org/cerif/model#ResultProduct_Equipment) with the https://w3id.org/cerif/vocab/OutputResearchInfrastructureRelations#Generation semantics

2.2.20 PresentedAt

Description The event where this product was presented

Use optional, possibly multiple (0..*)

Representation XML element `PresentedAt` with embedded XML element `Event`

CERIF the ResultProduct_Event linking entity (https://w3id.org/cerif/model#ResultProduct_Event) with the https://w3id.org/cerif/vocab/EventOutputRelationships#Presented semantics

2.2.21 Coverage

Description The event that is covered by this product (e.g. a video or audio interview about the event)

Use optional, possibly multiple (0..*)

Representation XML element `Coverage` with embedded XML element `Event`

CERIF the ResultProduct_Event linking entity (https://w3id.org/cerif/model#ResultProduct_Event) with the https://w3id.org/cerif/vocab/EventOutputRelationships#Coverage semantics

2.2.22 References

Description Result outputs that are referenced by this product

Use optional, possibly multiple (0..*)

Representation XML element `References` with embedded XML element `Publication` or `Patent` or `Product`

CERIF the ResultPublication_ResultProduct linking entity (https://w3id.org/cerif/model#ResultPublication_ResultProduct) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultProduct_ResultProduct linking entity (https://w3id.org/cerif/model#ResultProduct_ResultProduct) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultProduct_ResultPatent linking entity (https://w3id.org/cerif/model#ResultProduct_ResultPatent) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1)

2.2.23 ns4:Access

Description The open access type of the product

Use optional (0..1)

Representation XML element `Access` from namespace http://purl.org/coar/access_right

CERIF the ResultProduct_Classification (https://w3id.org/cerif/model#ResultProduct_Classification)

Vocabulary

- **open access** (http://purl.org/coar/access_right/c_abf2): Open access refers to a resource that is immediately and permanently online, and free for all on the Web, without financial and technical barriers.The resource is either stored in the repository or referenced to an external journal or trustworthy archive.
- **embargoed access** (http://purl.org/coar/access_right/c_f1cf): Embargoed access refers to a resource that is metadata only access until released for open access on a certain date. Embargoes can be required by publishers and funders policies, or set by the author (e.g such as in the case of theses and dissertations).
- **restricted access** (http://purl.org/coar/access_right/c_16ec): Restricted access refers to a resource that is available in a system but with some type of restriction for full open access. This type of access can occur in a number of different situations. Some examples are described below: The user must log-in to the system in order to access the resource The user must send an email to the author or system administrator to access the resource Access to the resource is restricted to a specific community (e.g. limited to a university community)
- **metadata only access** (http://purl.org/coar/access_right/c_14cb): Metadata only access refers to a resource in which access is limited to metadata only. The resource itself is described by the metadata, but neither is directly available through the system or platform nor can be referenced to an open access copy in an external journal or trustworthy archive.

2.2.24 Dates

Description Dates or date ranges to describe temporal aspects of the product. Semantically follows the dateType construct from the DataCite Metadata Schema 4.4. If an embargo period is to be expressed, its start should be expressed by the `startDate` on `Submitted` or `Accepted` (as appropriate) and end is represented by the `startDate` on `Available`.

Use optional (0..1)

Representation XML element `Dates` with embedded XML elements `Accepted` or `Available` or `Copyrighted` or `Collected` or `Created` or `Issued` or `Submitted` or `Updated` or `Valid` or `Withdrawn` from the shared structure *DatesStructure__Group*

2.2.25 FileLocations

Description The files that this Product has as contents.

Use optional (0..1)

Representation XML element `FileLocations` with embedded XML element `Medium`

CERIF the ResultProduct_Medium linking entity (https://w3id.org/cerif/model#ResultProduct_Medium) with the https://w3id.org/cerif/vocab/MediaRelations#Contents semantics

2.3 Patent

Description A set of exclusive rights granted by a sovereign state to an inventor or assignee for a limited period of time in exchange for detailed public disclosure of an invention. Source: Wikipedia

Examples openaire_cerif_xml_example_patents.xml

Representation XML element `Patent`; the rest of this section documents children of this element

CERIF the ResultPatent entity (https://w3id.org/cerif/model#ResultPatent)

2.3.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the ResultPatentIdentifier attribute (https://w3id.org/cerif/model#ResultPatent.ResultPatentIdentifier)

2.3.2 Type

Description The type of the patent (currently just one option)

Use mandatory (1)

Representation XML element `Type` from namespace https://www.openaire.eu/cerif-profile/vocab/COAR_Patent_Types

CERIF the ResultPatent_Classification (https://w3id.org/cerif/model#ResultPatent_Classification)

Vocabulary Patent types extracted from the COAR Resource Types concept scheme: Types of patents as extracted from the COAR Resource Types concept scheme (https://vocabularies.coar-repositories.org/resource_types/, the term 'patent' and its descendants in the hierarchy).

- **patent** (http://purl.org/coar/resource_type/c_15cd): A patent or patent application. A set of exclusive rights granted by law to applicants for inventions that are new, non-obvious and commercially applicable. A patent is valid for a limited period (generally 20 years), during which time patent holders can commercially exploit their inventions on an exclusive basis. [Source: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2018.pdf]
  - **PCT application** (http://purl.org/coar/resource_type/SB3Y-W4EH): A patent application filed through the WIPO-administered Patent Cooperation Treaty (PCT), also known as an international application. [Source: Adapted from https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2018.pdf]
  - **design patent** (http://purl.org/coar/resource_type/C53B-JCY5): A patent granted to any person who has invented any new and non-obvious ornamental design for an article of manufacture. The design patent protects only the appearance of an article, but not its structural or functional features. [Source: Adapted from https://www.uspto.gov/patents/basics/types-patent-applications/design-patent-application-guide#def]
  - **plant patent** (http://purl.org/coar/resource_type/Z907-YMBB): A patent granted to anyone who has invented or discovered and asexually reproduced any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber-propagated plant or a plant found in an uncultivated state. [Source: Adapted from https://www.uspto.gov/patents/basics/types-patent-applications/general-information-about-35-usc-161#heading-1]
  - **plant variety protection** (http://purl.org/coar/resource_type/GPQ7-G5VE): Plant variety protection, also called a "plant breeder's right" (PBR), is a form of intellectual property right granted to the breeder of a new plant variety . According to this right, certain acts concerning the exploitation of the protected variety require the prior authorization of the breeder. Plant variety protection is an independent sui generis form of protection, tailored to protect new plant varieties and has certain features in common with other intellectual property rights. [Source: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2018.pdf]

- **software patent** (http://purl.org/coar/resource_type/MW8G-3CR8): In order to obtain a patent, a software invention must not fall under other non-patentable subject matter (for example, abstract ideas or mathematical theories) and has to fulfill the other substantive patentability criteria (for example, novelty, inventive step [non-obviousness] and industrial applicability [usefulness]). [Source: https://www.wipo.int/patents/en/faq_patents.html]
- **utility model** (http://purl.org/coar/resource_type/9DKX-KSAF): A special form of patent right granted by a state or jurisdiction to an inventor or the inventor's assignee for a fixed period of time. The terms and conditions for granting a utility model are slightly different from those for normal patents (including a shorter term of protection and less stringent patentability requirements). The term can also describe what are known in certain countries as "petty patents," "short-term patents" or "innovation patents." [Source: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_943_2018.pdf]

2.3.3 Title

Use optional, possibly multiple (0..*)

Representation XML element `Title` as a multilingual string

CERIF the ResultPatent.Title attribute (https://w3id.org/cerif/model#ResultPatent.Title)

2.3.4 VersionInfo

Use optional, possibly multiple (0..*)

Representation XML element `VersionInfo` as a multilingual string

CERIF the ResultPatent.VersionInfo attribute (https://w3id.org/cerif/model#ResultPatent.VersionInfo)

2.3.5 RegistrationDate

Description Date on which the application was physically received at the Patent Authority. Also named Filing Date

Use optional (0..1)

Representation XML element `RegistrationDate`

CERIF the ResultPatent_Classification.StartDate linking entity attribute (https://w3id.org/cerif/model#ResultPatent_Classification.StartDate) with the https://w3id.org/cerif/vocab/PatentStatuses#Filed semantics

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.3.6 ApprovalDate

Description Date on which the application has been granted by the Patent Office

Use optional (0..1)

Representation XML element `ApprovalDate`

CERIF the ResultPatent_Classification.StartDate linking entity attribute (https://w3id.org/cerif/model#ResultPatent_Classification.StartDate) with the https://w3id.org/cerif/vocab/PatentStatuses#Granted semantics

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.3.7 PublicationDate

Description Date of making available to the public by printing or similar process of a patent document on which grant has taken place on or before the said date

Use optional (0..1)

Representation XML element `PublicationDate`

CERIF the ResultPatent_Classification.StartDate linking entity attribute (https://w3id.org/cerif/model#ResultPatent_Classification.StartDate) with the https://w3id.org/cerif/vocab/PatentStatuses#Published semantics

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.3.8 CountryCode

Use optional (0..1)

Representation XML element `CountryCode`

CERIF the ResultPatent.CountryCode attribute (https://w3id.org/cerif/model#ResultPatent.CountryCode)

2.3.9 Issuer

Description The issuer of the patent: the patent office

Use optional, possibly multiple (0..*)

Representation XML element `Issuer` with embedded XML element `OrgUnit`. A `DisplayName` may be specified, too.

CERIF the OrganisationUnit_ResultPatent linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultPatent) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#PatentIssuer semantics

2.3.10 PatentNumber

Use optional (0..1)

Representation XML element `PatentNumber`

CERIF the ResultPatent.PatentNumber attribute (https://w3id.org/cerif/model#ResultPatent.PatentNumber)

2.3.11 URL

Use optional (0..1)

Representation XML element `URL`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.3.12 Inventors

Description The inventors of this patent

Use optional (0..1)

Representation XML element `Inventors` with ordered embedded XML elements `Inventor`

Inventor

Description The inventor: The actual devisor of an invention that is the subject of a patent.

Use optional, possibly multiple (0..*)

Representation XML element `Inventor` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements. A `DisplayName` may be specified, too.

CERIF the Person_ResultPatent linking entity (https://w3id.org/cerif/model#Person_ResultPatent) with the https://w3id.org/cerif/vocab/PersonOutputContributions#Inventor semantics

2.3.13 Holders

Description The holders of this patent

Use optional (0..1)

Representation XML element `Holders` with ordered embedded XML elements `Holder` that can contain an embedded organisation unit or person

Holder

Description The patent rights holder, also known as the patentee or assignee

Use optional, possibly multiple (0..*)

Representation XML element `Holder` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Person_ResultPatent linking entity (https://w3id.org/cerif/model#Person_ResultPatent) with the https://w3id.org/cerif/vocab/PersonOutputContributions#PatentHolder semantics; the OrganisationUnit_ResultPatent linking entity (https://w3id.org/cerif/model#OrganisationUnit_ResultPatent) with the https://w3id.org/cerif/vocab/OrganisationOutputContributions#PatentHolder semantics

2.3.14 Abstract

Use optional, possibly multiple (0..*)

Representation XML element `Abstract` as a multilingual string

CERIF the ResultPatent.Abstract attribute (https://w3id.org/cerif/model#ResultPatent.Abstract)

2.3.15 Subject

Description The subject of the patent from a classification

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the ResultPatent_Classification (https://w3id.org/cerif/model#ResultPatent_Classification)

2.3.16 Keyword

Description A single keyword or key expression. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the ResultPatent.Keywords attribute (https://w3id.org/cerif/model#ResultPatent.Keywords)

2.3.17 OriginatesFrom

Use optional, possibly multiple (0..*)

Representation XML element `OriginatesFrom` with embedded XML element `Project` or `Funding`

CERIF the Project_ResultPatent linking entity (https://w3id.org/cerif/model#Project_ResultPatent) with the https://w3id.org/cerif/vocab/ProjectOutputRoles#Originator semantics; the ResultPatent_Funding linking entity (https://w3id.org/cerif/model#ResultPatent_Funding) with the https://w3id.org/cerif/vocab/OutputFundingRoles#Originator semantics

2.3.18 Predecessor

Description Patents that precede (i.e., have priority over) this patent

Use optional, possibly multiple (0..*)

Representation XML element `Predecessor` with embedded XML element `Patent`

CERIF the ResultPatent_ResultPatent linking entity (https://w3id.org/cerif/model#ResultPatent_ResultPatent) with the https://w3id.org/cerif/vocab/InterPatentRelations#Predecessor semantics (direction :1)

2.3.19 References

Description Result outputs that are referenced by this patent

Use optional, possibly multiple (0..*)

Representation XML element `References` with embedded XML element `Publication` or `Patent` or `Product`

CERIF the ResultPublication_ResultPatent linking entity (https://w3id.org/cerif/model#ResultPublication_ResultPatent) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultProduct_ResultPatent linking entity (https://w3id.org/cerif/model#ResultProduct_ResultPatent) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1); the ResultPatent_ResultPatent linking entity (https://w3id.org/cerif/model#ResultPatent_ResultPatent) with the https://w3id.org/cerif/vocab/InterOutputRelations#Reference semantics (direction :1)

2.3.20 FileLocations

Description The files that this Patent has as contents.

Use optional (0..1)

Representation XML element `FileLocations` with embedded XML element `Medium`

CERIF the ResultPatent_Medium linking entity (https://w3id.org/cerif/model#ResultPatent_Medium) with the https://w3id.org/cerif/vocab/MediaRelations#Contents semantics

2.4 Person

Description A human being as an individual. Source: https://en.oxforddictionaries.com/definition/person The kind of involvement of a Person in the research ecosystem is specified in the links with the organisations, the services, etc. This typically includes: (1) researchers (Persons performing research in an Organisation Unit as employees or students); (2) authors and contributors (Persons signing a publication, creators of data sets, software developers, etc.); (3) investigators and project participants (Persons involved in a Project as principal investigators, co investigators, project managers, consultants, etc.); (4) management (directors, rectors, deans, department heads, etc.); (5) support staffs (technicians, responsible for Equipment, librarians and digital asset curators, administrative staff, etc.). One Person typically has many of these relationships.

Examples openaire_cerif_xml_example_persons.xml

Representation XML element `Person`; the rest of this section documents children of this element

CERIF the Person entity (https://w3id.org/cerif/model#Person)

2.4.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the PersonIdentifier attribute (https://w3id.org/cerif/model#Person.PersonIdentifier)

2.4.2 PersonName

Description The name of the person

Use optional (0..1)

Representation XML element `PersonName` containing optional `FamilyNames`, optional `FirstNames` and optional `OtherNames`

CERIF the PersonName entity (https://w3id.org/cerif/model#PersonName) and the corresponding link (https://w3id.org/cerif/model#Person_PersonName)

FamilyNames

Use optional (0..1)

Representation XML element `FamilyNames`

CERIF the PersonName.FamilyNames attribute (https://w3id.org/cerif/model#PersonName.FamilyNames)

FirstNames

Use optional (0..1)

Representation XML element `FirstNames`

CERIF the PersonName.FirstNames attribute (https://w3id.org/cerif/model#PersonName.FirstNames)

OtherNames

Use optional (0..1)

Representation XML element `OtherNames`

CERIF the PersonName.OtherNames attribute (https://w3id.org/cerif/model#PersonName.OtherNames)

2.4.3 Gender

Description The gender of the person. Leave out in case the gender is unknown or not communicated.

Use optional (0..1)

Representation XML element `Gender`

CERIF the Person.Gender attribute (https://w3id.org/cerif/model#Person.Gender)

Vocabulary Genders (sociocultural, not linguistic)

- **Masculine** (`m`):
- **Feminine** (`f`):

2.4.4 ORCID

Description The ORCID identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `ORCID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format any of:

- regular expression `https://orcid\.org/0000-000(1-[5-9]|2-[0-9]|3-[0-4])[0-9]{3}-[0-9]{3}[0-9X]` (The original block of 20M identifiers reserved in 2013, as per https://support.orcid.org/knowledgebase/articles/116780-structure-of-the-orcid-identifier)
- regular expression `https://orcid\.org/0009-000[0-9]-[0-9]{4}-[0-9]{3}[0-9X]` (An additional block of 100M identifiers reserved in 2023, as per https://support.orcid.org/knowledgebase/articles/116780-structure-of-the-orcid-identifier)

2.4.5 AlternativeORCID

Description The ORCID identifiers in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeORCID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format any of:

- regular expression `https://orcid\.org/0000-000(1-[5-9]|2-[0-9]|3-[0-4])[0-9]{3}-[0-9]{3}[0-9X]` (The original block of 20M identifiers reserved in 2013, as per https://support.orcid.org/knowledgebase/articles/116780-structure-of-the-orcid-identifier)
- regular expression `https://orcid\.org/0009-000[0-9]-[0-9]{4}-[0-9]{3}[0-9X]` (An additional block of 100M identifiers reserved in 2023, as per https://support.orcid.org/knowledgebase/articles/116780-structure-of-the-orcid-identifier)

2.4.6 ResearcherID

Description The ResearcherID identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `ResearcherID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `[A-Z]{1,3}-[0-9]{4}-(19|20)[0-9][0-9]` (as per https://www.wikidata.org/wiki/Property:P1053)

2.4.7 AlternativeResearcherID

Description The ResearcherID identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeResearcherID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `[A-Z]{1,3}-[0-9]{4}-(19|20)[0-9][0-9]` (as per https://www.wikidata.org/wiki/Property:P1053)

2.4.8 ScopusAuthorID

Description The Scopus Author ID identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `ScopusAuthorID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `[0-9]{10,11}` (as per https://www.wikidata.org/wiki/Property:P1153)

2.4.9 AlternativeScopusAuthorID

Description The Scopus Author ID identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeScopusAuthorID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `[0-9]{10,11}` (as per https://www.wikidata.org/wiki/Property:P1153)

2.4.10 ISNI

Description The ISNI identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `ISNI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{4} \d{4} \d{4} \d{3}[\dX]` (as per https://www.wikidata.org/wiki/Property:P213)

2.4.11 AlternativeISNI

Description The ISNI identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeISNI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{4} \d{4} \d{4} \d{3}[\dX]` (as per https://www.wikidata.org/wiki/Property:P213)

2.4.12 DAI

Description The Digital Author Identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `DAI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `info\:eu\-repo/dai/nl/\d{8}[\dxX]` (as per https://wiki.surfnet.nl/display/standards/DAI)

2.4.13 AlternativeDAI

Description The Digital Author Identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeDAI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `info\:eu\-repo/dai/nl/\d{8}[\dxX]` (as per https://wiki.surfnet.nl/display/standards/DAI)

2.4.14 Identifier

Description A generic identifier, to be used only if your identifier does not fit in any of the above specific identifier types. This in particular applies to various national and service-specific identifiers that can be relevant in some interchange scenarios.

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.4.15 ElectronicAddress

Description An electronic address associated with the person

Use optional, possibly multiple (0..*)

Representation XML element `ElectronicAddress`

CERIF the ElectronicAddress entity (https://w3id.org/cerif/model#ElectronicAddress) and the corresponding link (https://w3id.org/cerif/model#Person_ElectronicAddress)

2.4.16 Affiliation

Description The organisation or organisation unit the person is affiliated with

Use optional, possibly multiple (0..*)

Representation XML element `Affiliation` with embedded XML element `OrgUnit`

CERIF the Person_OrganisationUnit linking entity (https://w3id.org/cerif/model#Person_OrganisationUnit) with the https://w3id.org/cerif/vocab/PersonOrganisationRoles#Affiliation semantics

2.5 OrgUnit

Description Organisation Unit: an organisation, a unit therein, a committee or any other group of people that has a collective goal. Organisation Units are not necessarily formalized as legal entities. In the research information domain Organisation Units typically represents: (1) organisations that perform research (universities, research institutes, corporations) and their subdivisions (faculties, schools, departments, research groups) and other associated bodies (boards, advisory bodies); (2) organisations that fund research (funders, their divisions and evaluation panels); (3) scientific associations and networks; (4) publishers, facility operators and other service providers in the research space; (5) authorities, such as patent offices and standardization or supervision bodies; and (6) other bodies: editorial boards, evaluation panels, or committees of all kinds.

Examples openaire_cerif_xml_example_orgunits.xml

Representation XML element `OrgUnit`; the rest of this section documents children of this element

CERIF the OrganisationUnit entity (https://w3id.org/cerif/model#OrganisationUnit)

2.5.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the OrganisationUnitIdentifier attribute (https://w3id.org/cerif/model#OrganisationUnit.OrganisationUnitIdentifier)

2.5.2 Type

Description The type of the organisation unit

Use optional, possibly multiple (0..*)

Representation XML element `Type` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the OrganisationUnit_Classification (https://w3id.org/cerif/model#OrganisationUnit_Classification)

2.5.3 Acronym

Description The acronym of the organisation unit

Use optional (0..1)

Representation XML element `Acronym`

CERIF the OrganisationUnit.Acronym attribute (https://w3id.org/cerif/model#OrganisationUnit.Acronym)

2.5.4 Name

Description The name of the organisation unit

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the OrganisationUnit.Name attribute (https://w3id.org/cerif/model#OrganisationUnit.Name)

2.5.5 RORID

Description The ROR identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `RORID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `https:\/\/ror\.org\/0[\da-hj-km-np-tv-zA-HJ-KM-NP-TV-Z]{6}\d{2}` (as per https://ror.org/facts/)

2.5.6 AlternativeRORID

Description The ROR identifiers in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeRORID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `https:\/\/ror\.org\/0[\da-hj-km-np-tv-zA-HJ-KM-NP-TV-Z]{6}\d{2}` (as per https://ror.org/facts/)

2.5.7 GRID

Description The GRID identifier in case its value is certain or known to be a preferred one. Please note that GRID has been discontinued with ROR as the recommended successor.

Use optional (0..1)

Representation XML element `GRID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `grid\.\d{4,}\.[0-9a-f]{1,2}` (as per https://www.wikidata.org/wiki/Property_talk:P2427)

2.5.8 AlternativeGRID

Description The GRID identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred. Please note that GRID has been discontinued with ROR as the recommended successor.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeGRID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `grid\.\d{4,}\.[0-9a-f]{1,2}` (as per https://www.wikidata.org/wiki/Property_talk:P2427)

2.5.9 ISNI

Description The ISNI identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `ISNI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{4} \d{4} \d{4} \d{3}[\dX]` (as per https://www.wikidata.org/wiki/Property:P213)

2.5.10 AlternativeISNI

Description The ISNI identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeISNI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `\d{4} \d{4} \d{4} \d{3}[\dX]` (as per https://www.wikidata.org/wiki/Property:P213)

2.5.11 FundRefID

Description The FundRef Registry Identifier in case its value is certain or known to be a preferred one.

Use optional (0..1)

Representation XML element `FundRefID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `https:\/\/doi.org\/10\.13039\/\d+` (as per https://www.crossref.org/display-guidelines/ https://www.wikidata.org/wiki/Q19822542)

2.5.12 AlternativeFundRefID

Description The FundRef Registry Identifier in case the value is not certain, e.g. because there is a conflicting statement with a different value. This can also represent deprecated identifiers/profiles that have been merged into a single, current one that is preferred.

Use optional, possibly multiple (0..*)

Representation XML element `AlternativeFundRefID`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `https:\/\/doi.org\/10\.13039\/\d+` (as per https://www.crossref.org/display-guidelines/ https://www.wikidata.org/wiki/Q19822542)

2.5.13 Identifier

Description A generic identifier, to be used only if your identifier does not fit in any of the above specific identifier types.

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.5.14 ElectronicAddress

Description An electronic address associated with the organisation unit

Use optional, possibly multiple (0..*)

Representation XML element `ElectronicAddress`

CERIF the ElectronicAddress entity (https://w3id.org/cerif/model#ElectronicAddress) and the corresponding link (https://w3id.org/cerif/model#OrganisationUnit_ElectronicAddress)

2.5.15 PartOf

Description Link to the larger unit that encompasses this unit. To be used for the immediate parents only. In order to represent the full path up through the hierarchy of an institution, use this construct recursively. In specific cases there may be several such parents at one time in parallel. An example: a interdisciplinary research centre within a university can be subordinated to several faculties.

Use optional, possibly multiple (0..*)

Representation XML element `PartOf` with embedded XML element `OrgUnit`

CERIF the OrganisationUnit_OrganisationUnit linking entity (https://w3id.org/cerif/model#OrganisationUnit_OrganisationUnit) with the https://w3id.org/cerif/vocab/InterOrganisationalStructure#Part semantics (direction :1)

2.6 Project

Description A temporary endeavor undertaken to create a unique product, service or result. Source: the Project Management Institute, https://www.pmi.org/about/learn-about-pmi/what-is-project-management In the research information domain, one typically tracks: (1) research projects, where the result is an addition to the body of knowledge of the mankind, (2) technology development projects, where the result is a particular technology or product, (3) innovation projects, where the result is an improvement of a product or process, and (4) projects that create or enhance infrastructure for research, technology development or innovation. Depending on the scope one can also track finer levels of granularity: stages, work packages, sometimes even down to individual tasks. All such activities are also modelled using the Project entity

and linked using the recursive link relationship. The Project entity only captures details of the project scope and plan. Information about the resources needed to execute the project such as the funding (i.e., the grants received), the people and organisations involved, the supporting infrastructures, the outputs produced, etc. is contained in separate entities (the Funding entity, the Person entity, the OrgUnit entity, the infrastructure entities, the result entities respectively) and is linked to the Project.

Examples openaire_cerif_xml_example_projects.xml

Representation XML element `Project`; the rest of this section documents children of this element

CERIF the Project entity (https://w3id.org/cerif/model#Project)

2.6.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the ProjectIdentifier attribute (https://w3id.org/cerif/model#Project.ProjectIdentifier)

2.6.2 Type

Description The type of the project

Use optional, possibly multiple (0..*)

Representation XML element `Type` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Project_Classification (https://w3id.org/cerif/model#Project_Classification)

2.6.3 Acronym

Description The acronym of the project

Use optional (0..1)

Representation XML element `Acronym`

CERIF the Project.Acronym attribute (https://w3id.org/cerif/model#Project.Acronym)

2.6.4 Title

Description The title of the project

Use optional, possibly multiple (0..*)

Representation XML element `Title` as a multilingual string

CERIF the Project.Title attribute (https://w3id.org/cerif/model#Project.Title)

2.6.5 Identifier

Description An identifier of the project

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.6.6 StartDate

Description The start date of the project

Use optional (0..1)

Representation XML element `StartDate`

CERIF the Project.StartDate attribute (https://w3id.org/cerif/model#Project.StartDate)

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.6.7 EndDate

Description The end date of the project

Use optional (0..1)

Representation XML element `EndDate`

CERIF the Project.EndDate attribute (https://w3id.org/cerif/model#Project.EndDate)

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.6.8 Consortium

Description The consortium of the project: the organisations (persons) who are contractually bound to do the work in the project

Use optional (0..1)

Representation XML element `Consortium` with unordered embedded XML elements `Coordinator` that can contain an embedded organisation unit or person or `Partner` that can contain an embedded organisation unit or person or `Contractor` that can contain an embedded organisation unit or person or `InkindContributor` that can

contain an embedded organisation unit or person or `Member` that can contain an embedded organisation unit or person

Coordinator

Description Project coordinator

Use optional, possibly multiple (0..*)

Representation XML element `Coordinator` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#Coordinator semantics; the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#Coordinator semantics

Partner

Description Project partner

Use optional, possibly multiple (0..*)

Representation XML element `Partner` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#Partner semantics; the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#Partner semantics

Contractor

Description Project contractor

Use optional, possibly multiple (0..*)

Representation XML element `Contractor` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#Contractor semantics; the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#Contractor semantics

InkindContributor

Description Project in kind contributor

Use optional, possibly multiple (0..*)

Representation XML element `InkindContributor` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#InkindContributor semantics; the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#InkindContributor semantics

Member

Description A member of the project consortium

Use optional, possibly multiple (0..*)

Representation XML element `Member` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#ConsortiumMember semantics; the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#ConsortiumMember semantics

2.6.9 Team

Description The project team: the persons who carry out the work in the project, typically as a part of their job at the organisations from the consortium

Use optional (0..1)

Representation XML element `Team` with unordered embedded XML elements `PrincipalInvestigator` or `Contact` or `Member`

PrincipalInvestigator

Description The principal investigator: the person responsible for the whole project, the head of the project team

Use optional, possibly multiple (0..*)

Representation XML element `PrincipalInvestigator` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements. A `DisplayName` may be specified, too.

CERIF the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#PrincipalInvestigator semantics

Contact

Description A person to contact in matters connected with her/his organisations' participation in the project

Use optional, possibly multiple (0..*)

Representation XML element `Contact` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements. A `DisplayName` may be specified, too.

CERIF the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#OrganisationContact semantics

Member

Description A member of the project team

Use optional, possibly multiple (0..*)

Representation XML element `Member` with embedded XML element `Person` optionally followed by one or several `Affiliation` elements. A `DisplayName` may be specified, too.

CERIF the Project_Person linking entity (https://w3id.org/cerif/model#Project_Person) with the https://w3id.org/cerif/vocab/PersonProjectEngagements#TeamMember semantics

2.6.10 Funded

Description Information about funding of this project

Use optional, possibly multiple (0..*)

Representation XML element `Funded` with unordered embedded XML elements `By` that can contain an embedded organisation unit or person or `As`

By

Description The funder of the project

Use optional (0..1)

Representation XML element `By` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Project_OrganisationUnit linking entity (https://w3id.org/cerif/model#Project_OrganisationUnit) with the https://w3id.org/cerif/vocab/OrganisationProjectEngagements#Funder semantics

As

Description The specific funding device (grant, award, contract) for the project

Use optional (0..1)

Representation XML element `As` with embedded XML element `Funding`

CERIF the Project_Funding linking entity (https://w3id.org/cerif/model#Project_Funding) with the https://w3id.org/cerif/vocab/ProjectFundingRelations#Support semantics

2.6.11 Subject

Description The subject classification(s) of the project

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Project_Classification (https://w3id.org/cerif/model#Project_Classification)

2.6.12 Keyword

Description A single keyword or key expression that characterize the project. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the Project.Keywords attribute (https://w3id.org/cerif/model#Project.Keywords)

2.6.13 Abstract

Description The abstract of the project

Use optional, possibly multiple (0..*)

Representation XML element `Abstract`

CERIF the Project.Abstract attribute (https://w3id.org/cerif/model#Project.Abstract)

2.6.14 Status

Description The status of the project

Use optional, possibly multiple (0..*)

Representation XML element `Status` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Project_Classification (https://w3id.org/cerif/model#Project_Classification)

2.6.15 Uses

Description The equipment this project uses

Use optional, possibly multiple (0..*)

Representation XML element `Uses` with embedded XML element `Equipment`

CERIF the Project_Equipment linking entity (https://w3id.org/cerif/model#Project_Equipment) with the https://w3id.org/cerif/vocab/ProjectResearchInfrastructureRelations#User semantics

2.6.16 OAMandate

Description Information about the Open Access mandate that applies to this project

Use optional, possibly multiple (0..*)

Representation XML element `OAMandate`

mandated

Description The flag if Open Access is mandated in the project

Use required

Representation XML attribute `mandated`

Format `true` or `false` (data type `xs:boolean`)

uri

Description The Open Access policy that applies to the project

Use optional

Representation XML attribute `uri`

Format URI (data type `xs:anyURI`)

2.7 Funding

Examples openaire_cerif_xml_example_fundings.xml

Representation XML element `Funding`; the rest of this section documents children of this element

CERIF the Funding entity (https://w3id.org/cerif/model#Funding)

2.7.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the FundingIdentifier attribute (https://w3id.org/cerif/model#Funding.FundingIdentifier)

2.7.2 Type

Description The type of the funding

Use mandatory (1)

Representation XML element `Type` from namespace https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types

CERIF the Funding_Classification (https://w3id.org/cerif/model#Funding_Classification)

Vocabulary Types of funding for the OpenAIRE Guidelines for CRIS Managers

- **Funding Programme** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#FundingProgramme): A funding programme or a similar scheme that funds some number of proposals. Funding programmes can be broken down into sub-programmes.
- **Call** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Call): Call for proposals: a specific campaign for the funder to solicit proposals from interested researchers and institutions.
- **Tender** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Tender): Tender for services or deliveries: a specific campaign for the funder to solicit offers for services or deliveries.
- **Gift** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Gift): A donation connected with specific terms and conditions.
- **Internal Funding** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#InternalFunding): Internal funds used to amend or replace external funding.
- **Contract** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Contract):
- **Award** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Award):
- **Grant** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Grant):

2.7.3 Acronym

Description The acronym of the funding

Use optional (0..1)

Representation XML element `Acronym`

CERIF the Funding.Acronym attribute (https://w3id.org/cerif/model#Funding.Acronym)

2.7.4 Name

Description The name of the funding

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the Funding.Name attribute (https://w3id.org/cerif/model#Funding.Name)

2.7.5 Amount

Description The amount of the funding and its currency

Use optional (0..1)

Representation XML element `Amount`

CERIF the Funding.Amount https://w3id.org/cerif/model#Funding.CurrencyCode attribute (https://w3id.org/cerif/model#Funding.Amounthttps://w3id.org/cerif/model#Funding.CurrencyCode)

2.7.6 GrantDOI

Description The persistent identifier for the grant registered with Crossref (follows the syntax of DOI, uses certain specific prefixes)

Use optional (0..1)

Representation XML element `GrantDOI`

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

Format regular expression `10\.\d{4,}(\.\d+)*/[^\s]+` (as per https://www.crossref.org/blog/dois-and-matching-regular-expressions/)

2.7.7 Identifier

Description A generic identifier, to be used only if your identifier does not fit in any of the above specific identifier types. This in particular applies to various national and service-specific identifiers that can be relevant in some interchange scenarios.

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.7.8 Description

Description A description of the funding

Use optional, possibly multiple (0..*)

Representation XML element `Description` as a multilingual string

CERIF the Funding.Description attribute (https://w3id.org/cerif/model#Funding.Description)

2.7.9 Subject

Description The subject classification(s) of the funding

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Funding_Classification (https://w3id.org/cerif/model#Funding_Classification)

2.7.10 Keyword

Description A single keyword or key expression that characterize the funding. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the Funding.Keywords attribute (https://w3id.org/cerif/model#Funding.Keywords)

2.7.11 Funder

Description The funder or funders

Use optional, possibly multiple (0..*)

Representation XML element `Funder` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the OrganisationUnit_Funding linking entity (https://w3id.org/cerif/model#OrganisationUnit_Funding) with the https://w3id.org/cerif/vocab/OrganisationFundingRoles#Financier semantics

2.7.12 PartOf

Description Chain up to the larger funding that encompasses this funding

Use optional (0..1)

Representation XML element `PartOf` with embedded XML element `Funding`

CERIF the Funding_Funding linking entity (https://w3id.org/cerif/model#Funding_Funding) with the https://w3id.org/cerif/vocab/InterFundingRelations#Part semantics (direction :1)

2.7.13 Duration

Description Duration of the funding

Use optional (0..1)

Representation XML element `Duration`

CERIF the Funding_Classification linking entity (https://w3id.org/cerif/model#Funding_Classification) with the https://w3id.org/cerif/vocab/Durations#FundingDuration semantics

2.7.14 OAMandate

Description Information about the Open Access mandate that applies to this funding

Use optional, possibly multiple (0..*)

Representation XML element `OAMandate`

mandated

Description The flag if Open Access is mandated for this funding

Use required

Representation XML attribute `mandated`

Format `true` or `false` (data type `xs:boolean`)

uri

Description The Open Access policy that applies to this funding

Use optional

Representation XML attribute `uri`

Format URI (data type `xs:anyURI`)

2.8 Service

Description CRIS compatible with the OpenAIRE Guidelines for CRIS Managers

Examples sample Identify response

Representation XML element `Service`; the rest of this section documents children of this element

CERIF the Service entity (https://w3id.org/cerif/model#Service)

2.8.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the ServiceIdentifier attribute (https://w3id.org/cerif/model#Service.ServiceIdentifier)

2.8.2 Compatibility

Description OpenAIRE compatibility of the CRIS

Use optional, possibly multiple (0..*)

Representation XML element `Compatibility` from namespace https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility

CERIF the Service_Classification (https://w3id.org/cerif/model#Service_Classification)

Vocabulary Compatibility of service with the OpenAIRE Guidelines for CRIS Managers

- **OpenAIRE Guidelines 1.2 compatible CRIS** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility#1.2): CRIS compatible with OpenAIRE Guidelines for CRIS managers version 1.2
- **OpenAIRE Guidelines 1.1 compatible CRIS** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility#1.1): CRIS compatible with OpenAIRE Guidelines for CRIS managers version 1.1
- **OpenAIRE Guidelines 1.0 compatible CRIS** (https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility#1.0): CRIS compatible with OpenAIRE Guidelines for CRIS managers version 1.0

2.8.3 Acronym

Description Acronym of the service

Use optional (0..1)

Representation XML element `Acronym`

CERIF the Service.Acronym attribute (https://w3id.org/cerif/model#Service.Acronym)

2.8.4 Name

Description Name of the service

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the Service.Name attribute (https://w3id.org/cerif/model#Service.Name)

2.8.5 Identifier

Description An identifier of this service

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.8.6 Description

Description Description of the service

Use optional, possibly multiple (0..*)

Representation XML element `Description` as a multilingual string

CERIF the Service.Description attribute (https://w3id.org/cerif/model#Service.Description)

2.8.7 WebsiteURL

Description URL of the website of the CRIS

Use optional (0..1)

Representation XML element `WebsiteURL`

CERIF the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/IdentifierTypes#URL semantics; the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/ElectronicAddressTypes#Website semantics

2.8.8 OAIPMHBaseURL

Description Base URL for the OAI-PMH protocol endpoint of the CRIS

Use optional (0..1)

Representation XML element `OAIPMHBaseURL`

CERIF the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/IdentifierTypes#URL semantics; the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/ElectronicAddressTypes#OAI-PMH_Base semantics

2.8.9 SubjectHeadingsURL

Description The URL where the subject classification used by the CRIS can be obtained (using the HTTP GET)

Use optional, possibly multiple (0..*)

Representation XML element `SubjectHeadingsURL`

CERIF the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/IdentifierTypes#URL semantics; the FederatedIdentifier linking entity (https://w3id.org/cerif/model#FederatedIdentifier) with the https://w3id.org/cerif/vocab/ElectronicAddressTypes#SubjectHeadings semantics

2.8.10 Owner

Description The owner of the CRIS: The organisation the research of which the CRIS documents

Use optional, possibly multiple (0..*)

Representation XML element `Owner` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the OrganisationUnit_Service linking entity (https://w3id.org/cerif/model#OrganisationUnit_Service) with the https://w3id.org/cerif/vocab/OrganisationResearchInfrastructureRoles#Owner semantics

2.9 Equipment

Description An instrument or other device used to perform research

Examples openaire_cerif_xml_example_equipments.xml

Representation XML element `Equipment`; the rest of this section documents children of this element

CERIF the Equipment entity (https://w3id.org/cerif/model#Equipment)

2.9.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the EquipmentIdentifier attribute (https://w3id.org/cerif/model#Equipment.EquipmentIdentifier)

2.9.2 Type

Description The type of the equipment

Use optional, possibly multiple (0..*)

Representation XML element `Type` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Equipment_Classification (https://w3id.org/cerif/model#Equipment_Classification)

2.9.3 Acronym

Description Acronym of the equipment

Use optional (0..1)

Representation XML element `Acronym`

CERIF the Equipment.Acronym attribute (https://w3id.org/cerif/model#Equipment.Acronym)

2.9.4 Name

Description Name of the equipment

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the Equipment.Name attribute (https://w3id.org/cerif/model#Equipment.Name)

2.9.5 Identifier

Description An identifier of this equipment

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.9.6 Description

Description Description of the equipment

Use optional, possibly multiple (0..*)

Representation XML element `Description` as a multilingual string

CERIF the Equipment.Description attribute (https://w3id.org/cerif/model#Equipment.Description)

2.9.7 Owner

Description The owner of the piece of equipment

Use optional, possibly multiple (0..*)

Representation XML element `Owner` with embedded XML element `OrgUnit` or `Person`. A `DisplayName` may be specified, too.

CERIF the Person_Service linking entity (https://w3id.org/cerif/model#Person_Service) with the https://w3id.org/cerif/vocab/PersonResearchInfrastructureRoles#Owner semantics; the OrganisationUnit_Service linking entity (https://w3id.org/cerif/model#OrganisationUnit_Service) with the https://w3id.org/cerif/vocab/OrganisationResearchInfrastructureRoles#Owner semantics

2.10 Event

Description An event is something that happens at a given place and time. Definition Source: http://wordnetweb.princeton.edu/perl/webwn?s=event

Examples openaire_cerif_xml_example_events.xml

Representation XML element `Event`; the rest of this section documents children of this element

CERIF the Event entity (https://w3id.org/cerif/model#Event)

2.10.1 Internal Identifier

Use mandatory (1) in top level entity. When embedded in other entities the Internal Identifier must be included only for managed information (i.e. entities that have a concrete record in the local CRIS system). See *Metadata representation in CERIF XML*

Representation XML attribute `id`

CERIF the EventIdentifier attribute (https://w3id.org/cerif/model#Event.EventIdentifier)

2.10.2 Type

Description The type of the event

Use optional, possibly multiple (0..*)

Representation XML element `Type` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Event_Classification (https://w3id.org/cerif/model#Event_Classification)

2.10.3 Acronym

Description Acronym of the event

Use optional (0..1)

Representation XML element `Acronym`

CERIF the Event.Acronym attribute (https://w3id.org/cerif/model#Event.Acronym)

2.10.4 Name

Description Name of the event

Use optional, possibly multiple (0..*)

Representation XML element `Name` as a multilingual string

CERIF the Event.Name attribute (https://w3id.org/cerif/model#Event.Name)

2.10.5 Place

Description Location of the event (the city or town)

Use optional (0..1)

Representation XML element `Place`

CERIF the Event.CityTown attribute (https://w3id.org/cerif/model#Event.CityTown)

2.10.6 Country

Description Country of the location of the event

Use optional (0..1)

Representation XML element `Country`

CERIF the Event.CountryCode attribute (https://w3id.org/cerif/model#Event.CountryCode)

2.10.7 StartDate

Description The start date of the event

Use optional (0..1)

Representation XML element `StartDate`

CERIF the Event.StartDate attribute (https://w3id.org/cerif/model#Event.StartDate)

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.10.8 EndDate

Description The end date of the event

Use optional (0..1)

Representation XML element `EndDate`

CERIF the Event.EndDate attribute (https://w3id.org/cerif/model#Event.EndDate)

Format full date (`YYYY-MM-DD`) with optional time zone indication

2.10.9 Description

Description Description of the event

Use optional, possibly multiple (0..*)

Representation XML element `Description` as a multilingual string

CERIF the Event.Description attribute (https://w3id.org/cerif/model#Event.Description)

2.10.10 Subject

Description The subject category of the event from a classification

Use optional, possibly multiple (0..*)

Representation XML element `Subject` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Event_Classification (https://w3id.org/cerif/model#Event_Classification)

2.10.11 Keyword

Description A single keyword or key expression that characterize the event. Please repeat to serialize separate keywords or key expressions.

Use optional, possibly multiple (0..*)

Representation XML element `Keyword` as a multilingual string

CERIF the Event.Keywords attribute (https://w3id.org/cerif/model#Event.Keywords)

2.10.12 Organizer

Description The organizer of the event

Use optional, possibly multiple (0..*)

Representation XML element `Organizer` with embedded XML element `OrgUnit` or `Project`

CERIF the OrganisationUnit_Event linking entity (https://w3id.org/cerif/model#OrganisationUnit_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Organizer semantics; the Project_Event linking entity (https://w3id.org/cerif/model#Project_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Organizer semantics

2.10.13 Sponsor

Description The sponsor of the event

Use optional, possibly multiple (0..*)

Representation XML element `Sponsor` with embedded XML element `OrgUnit` or `Project`

CERIF the OrganisationUnit_Event linking entity (https://w3id.org/cerif/model#OrganisationUnit_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Sponsor semantics; the Project_Event linking entity (https://w3id.org/cerif/model#Project_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Sponsor semantics

2.10.14 Partner

Description The partner of the event

Use optional, possibly multiple (0..*)

Representation XML element `Partner` with embedded XML element `OrgUnit` or `Project`

CERIF the OrganisationUnit_Event linking entity (https://w3id.org/cerif/model#OrganisationUnit_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Partner semantics; the Project_Event linking entity (https://w3id.org/cerif/model#Project_Event) with the https://w3id.org/cerif/vocab/EventRelationshipKinds#Partner semantics

2.11 Medium

Representation XML element `Medium`; the rest of this section documents children of this element

CERIF the Medium entity (https://w3id.org/cerif/model#Medium)

2.11.1 Type

Description The type of the medium

Use optional, possibly multiple (0..*)

Representation XML element `Type` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Medium_Classification (https://w3id.org/cerif/model#Medium_Classification)

2.11.2 Title

Description Name of the medium

Use optional, possibly multiple (0..*)

Representation XML element `Title` as a multilingual string

CERIF the Medium.Title attribute (https://w3id.org/cerif/model#Medium.Title)

2.11.3 URI

Description An URI of this medium

Use optional (0..1)

Representation XML element `URI`

CERIF the Medium.UniformResourceIdenfier attribute (https://w3id.org/cerif/model#Medium.UniformResourceIdenfier)

2.11.4 MimeType

Description The MIME type of the medium

Use optional (0..1)

Representation XML element `MimeType`

CERIF the Medium.MimeType attribute (https://w3id.org/cerif/model#Medium.MimeType)

2.11.5 Size

Description The size (in octets) of the medium

Use optional (0..1)

Representation XML element `Size`

CERIF the Medium.Size attribute (https://w3id.org/cerif/model#Medium.Size)

2.11.6 Identifier

Description An identifier of this medium

Use optional, possibly multiple (0..*)

Representation XML element `Identifier` with a required `type` attribute (the URI of the identifier scheme)

CERIF the FederatedIdentifier entity (https://w3id.org/cerif/model#FederatedIdentifier)

2.11.7 ns4:Access

Description The open access type

Use optional (0..1)

Representation XML element `Access` from namespace http://purl.org/coar/access_right

CERIF the Medium_Classification (https://w3id.org/cerif/model#Medium_Classification)

Vocabulary

- **open access** (http://purl.org/coar/access_right/c_abf2): Open access refers to a resource that is immediately and permanently online, and free for all on the Web, without financial and technical barriers.The resource is either stored in the repository or referenced to an external journal or trustworthy archive.
- **embargoed access** (http://purl.org/coar/access_right/c_f1cf): Embargoed access refers to a resource that is metadata only access until released for open access on a certain date. Embargoes can be required by publishers and funders policies, or set by the author (e.g such as in the case of theses and dissertations).
- **restricted access** (http://purl.org/coar/access_right/c_16ec): Restricted access refers to a resource that is available in a system but with some type of restriction for full open access. This type of access can occur in a number of different situations. Some examples are described below: The user must log-in to the system in order to access the resource The user must send an email to the author or system administrator to access the resource Access to the resource is restricted to a specific community (e.g. limited to a university community)
- **metadata only access** (http://purl.org/coar/access_right/c_14cb): Metadata only access refers to a resource in which access is limited to metadata only. The resource itself is described by the metadata, but neither is directly available through the system or platform nor can be referenced to an open access copy in an external journal or trustworthy archive.

2.11.8 License

Description The license of the file. We recommend using URIs from the SPDX License List (https://spdx.org/licenses/), which includes the Creative Commons licenses.

Use optional, possibly multiple (0..*)

Representation XML element `License` containing the classification identifier and having a `scheme` attribute to specify the classification scheme identifier

CERIF the Medium_Classification (https://w3id.org/cerif/model#Medium_Classification)

2.11.9 Dates

Use optional (0..1)

Representation XML element `Dates` with embedded XML elements `Accepted` or `Available` or `Copyrighted` or `Collected` or `Created` or `Issued` or `Submitted` or `Updated` or `Valid` or `Withdrawn` from the shared structure *DatesStructure__Group*

2.12 *Common Parts*

2.12.1 DatesStructure__Group

Accepted

Description Use the `startDate` attribute for the date the publisher accepted the resource into their system.

Use optional (0..1)

Representation XML element `Accepted`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Accepted semantics

Available

Description Use the `startDate` and possibly also `endDate` attributes for the dates the resource is or was publicly available.

Use optional (0..1)

Representation XML element `Available`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Available semantics

Copyrighted

Description Use the `startDate` attribute to give the specific, documented date at which the resource receives a copyrighted status, if applicable

Use optional (0..1)

Representation XML element `Copyrighted`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Copyrighted semantics

Collected

Description Use the `startDate` and `endDate` attributes to describe the date range in which the resource content was collected. To indicate precise or particular timeframes in which research was conducted.

Use optional (0..1)

Representation XML element `Collected`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Collected semantics

Created

Description Use the `startDate` and `endDate` attributes to describe the date range in which the resource itself was put together.

Use optional (0..1)

Representation XML element `Created`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Created semantics

Issued

Description Use the `startDate` attribute for the date the resource was published or distributed, e.g. to a data centre.

Use optional (0..1)

Representation XML element `Issued`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Issued semantics

Submitted

Description Use the `startDate` attribute for the date the creator submits the resource to the publisher. This could be different from Accepted if the publisher then applies a selection process.

Use optional (0..1)

Representation XML element `Submitted`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Submitted semantics

Updated

Description Use the `startDate` and `endDate` attributes to describe the date range of the last update to the resource, when the resource is being added to.

Use optional (0..1)

Representation XML element `Updated`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Updated semantics

Valid

Description Use the `startDate` and `endDate` attributes to indicate the period in which the dataset or resource is accurate.

Use optional (0..1)

Representation XML element `Valid`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Valid semantics

Withdrawn

Description Use the `startDate` attribute for the date the resource is removed.

Use optional (0..1)

Representation XML element `Withdrawn`

CERIF the ResultProduct_Classification linking entity (https://w3id.org/cerif/model#ResultProduct_Classification) with the https://w3id.org/cerif/vocab/DataCiteMetadataSchema_DateType#Withdrawn semantics

CHAPTER

THREE

TECHNICAL IMPLEMENTATION GUIDELINES

3.1 Metadata representation in CERIF XML

The CRIS-to-OpenAIRE information interchange uses the OAI-PMH 2.0 protocol with the CERIF XML defined by these Guidelines as the metadata language. This CERIF XML uses the namespace https://www.openaire.eu/cerif-profile/1.2/. Its structure is defined and constrained by the corresponding XML Schema.[1] Accompanying these Guidelines is a comprehensive set of examples.[2]

Each metadata object is represented as a top-level XML element: `Publication`, `Product`, `Patent`, `Person`, `OrgUnit`, `Project`, `Funding`, `Event`, `Equipment`. The content model for each of these elements is specified in the previous section; the rest of this subsection gives guidelines to its usage.

CERIF represents titles, names, abstracts and similar text attributes as multi-lingual. In CERIF XML the language is expressed using the standard `xml:lang` attribute. Unless stated otherwise this is considered to be the value in the original language.

While syntactically, the CERIF profile XML allows to construct structures of any depth, the contents of each metadata record should be kept limited to the nearest objects that are representable by a top-level element. These neighboring objects should be expressed using as much detail as is practical to identify them. This includes links to any higher level structures of which the object is part, e.g. to an institution of which an organisation unit is part. More specifically, the Person record eventually embedded in the `Author` element of a `Publication` should not include any affiliation information (but also Editors and similar scenario in other entities). Instead, the `Affiliation` element inside the `Author` tag should keep all the `OrgUnit` up to the root organisation including for intermediate level only the name and identifiers.

However, the neighboring object XML shall never contain more information or different information from what is expressed in the main record for that object i.e., where the object is retrieved as a top-level object. This is a stronger form of a requirement of functional dependency.

Display names. In some cases it is important to represent the name of a person or organisation as it appeared in a document (e.g. in the list of authors of a journal article): it can differ from the current official name. The OpenAIRE CERIF profile XML Schema allows to place such a name in a `DisplayName` XML element on some links. Where admissible, it shall occur before the `Person` or `OrgUnit` XML element.

In the extreme case where just the display name of a person or an organisation is known, the `DisplayName` with an empty `Person` or `OrgUnit` XML element can be used.

Also intermediate cases are supported such as the case where the CRIS system doesn't maintain an authority for external people but has additional information about it such as an ORCID. In such case an

[1] The XML schema is located at https://www.openaire.eu/schema/cris/1.2/openaire-cerif-profile.xsd.

[2] Please see an overview map at https://github.com/openaire/guidelines-cris-managers/blob/v1.2/docs/_illustrations/OpenAIRE-examples-map.png; the individual examples as full OAI-PMH 2.0 response messages https://github.com/openaire/guidelines-cris-managers/tree/v1.2/samples

embedded `Person` without an Internal Identifier is allowed with the known information about the person.

However, it is recommended that CRIS managers keep managed authority lists everywhere where these are feasible.

Embedded entities In some cases the CRIS doesn't maintain authority over entities that are only of secondary interest for the institution and thus are not managed. This is often the case for publication channels that are represented in CERIF as a `Publication`, but could apply also to parts of other entities such as the `Event`, `Person`, `Funding` and others. In these cases, in analogy with the Display names section above, the use of an embedded entity without an internal identifier is allowed.

3.2 OAI-PMH for Harvesting

OpenAIRE uses the OAI-PMH 2.0 protocol[3] for harvesting metadata from CRIS systems.

3.2.1 Metadata Format and Prefix

The OAI-PMH 2.0 metadata prefixes starting with `oai_cerif_openaire` are reserved for these Guidelines, including this release and any previous or future ones.

OpenAIRE Guidelines 1.2 compatible CRIS shall use an OAI-PMH metadata prefix starting with `oai_cerif_openaire` and XML metadata contents from the https://www.openaire.eu/cerif-profile/1.2/ namespace.

OpenAIRE Guidelines 1.1 compatible CRIS shall use an OAI-PMH metadata prefix starting with `oai_cerif_openaire` and XML metadata contents from the https://www.openaire.eu/cerif-profile/1.1/ namespace.

These Guidelines do not restrict other metadata formats, they only need to use a metadata prefix not with starting `oai_cerif_openaire`. The metadata prefixes supported by any OAI-PMH 2.0 endpoint shall be unique.

A sample response to a ListMetadataFormats OAI-PMH request is available in openaire_oaipmh_example_ListMetadataFormats.xml.

3.2.2 OpenAIRE OAI-PMH Sets

For harvesting the records relevant to OpenAIRE, the use of specific OAI-PMH sets at the local CRIS system is mandatory. All of the following OAI-PMH sets shall be recognized by the CRIS, even if not all of them are populated.

OpenAIRE_CRIS_publications (setSpec: `openaire_cris_publications`): The list of CERIF XML records for publications and publishing channels.

OpenAIRE_CRIS_products (setSpec: `openaire_cris_products`): The list of CERIF XML records for datasets and other research products.

OpenAIRE_CRIS_patents (setSpec: `openaire_cris_patents`): The list of CERIF XML records for patents.

[3] Lagoze, C.; Van de Sompel, H.; Nelson, M.; Warner, S.: *The Open Archives Initiative Protocol for Metadata Harvesting*. Open Archives Initiative, 2002-06-14. https://www.openarchives.org/OAI/openarchivesprotocol.html

OpenAIRE_CRIS_persons (setSpec: `openaire_cris_persons`): The list of CERIF XML records for persons.

OpenAIRE_CRIS_orgunits (setSpec: `openaire_cris_orgunits`): The list of CERIF XML records for organisations and organisation units.

OpenAIRE_CRIS_projects (setSpec: `openaire_cris_projects`): The list of CERIF XML records for projects.

OpenAIRE_CRIS_funding (setSpec: `openaire_cris_funding`): The list of CERIF XML records for funding.

OpenAIRE_CRIS_events (setSpec: `openaire_cris_events`): The list of CERIF XML records for events.

OpenAIRE_CRIS_equipments (setSpec: `openaire_cris_equipments`): The list of CERIF XML records for equipment.

A sample response to a ListSets OAI-PMH request is available in openaire_oaipmh_example_ListSets.xml.

Referential integrity constraints for all relationships among entities that have an internal identifiers (the `id` attribute) must be satisfied in the CERIF XML data provided by the CRIS system.

Note that there is no set for services. Exactly one Service record, namely the one representing the CRIS, shall be given in the response to an OAI-PMH Identify request. For an example please see openaire_oaipmh_example_Identify.xml.

Also note that there is no set of **Medium**:s as these are intended solely as embedded entities, not top-level ones. For that reason no internal identifiers (the *id* attributes) are supported on **Medium**:s.

3.2.3 OAI identifiers

The identifiers of objects from the source CRIS shall be represented as OAI identifier of the form `oai:{service}:{internal ID}` where `{service}` denotes the internet domain name of the CRIS, and `{internal ID}` denotes an internal identifier of the object that MUST be unique within the CRIS across all the entity types. This is usually the case when UUIDs are used, but it can also be achieved by adding the entity type as a prefix to serially generated id numbers (when other distinction is not available and there is a possibility of conflicts), as illustrated in the accompanying examples (e.g. Publications/893204).

The types are expressed by the plural form of the XML element that represents the object i.e., the name of the collection of all such objects.

The internal identifiers are also used in the `id` attributes in the CERIF XML mark-up. If several candidate internal identifiers are available, the most persistent one should be preferred. In many cases a UUID – if it is assigned – is more likely to be persistent than integer IDs.

For example a publication with internal ID of 560d48b6-42c3-4ef9-81d6-32c949fb2cdb (a UUID) from a CRIS running on behalf of the University of Exampleton (www.exampleton.ac.uk with a cris running at cris.exampleton.ac.uk) could have the OAI identifier `oai:cris.exampleton.ac.uk:560d48b6-42c3-4ef9-81d6-32c949fb2cdb`

If the CRIS system provides also PID such as an handle, for instance 123456789/1, the OAI identifier could be `oai:cris.exampleton.ac.uk:123456789/1` Finally, in the case the CRIS system has only numeric ID not unique across the whole system, the OAI identifier could be `oai:cris.exampleton.ac.uk:Publications/1`

3.2.4 Compatibility of aggregators

Aggregating CRISs (e.g. at the regional or national levels) can also become compliant to these Guidelines. These CRISs should provide additional provenance information about its records. The relevant section of the institutional and thematic Repository Guidelines should be followed.