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# OpenAIRE Guidelines

*Release 1.1.2-SNAPSHOT*

**OpenAIRE**

2022-02-17



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## INTRODUCTION

These guidelines describe the CERIF-XML profile for CRIS managers to be compatible with OpenAIRE.

### 1.1 Aim

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





### 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 (<http://www.eurocris.org>), a non-for-profit organisation dedicated to the interoperability of Research Information Systems (CRISs). 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 supports harvesting and importing metadata from CRIS systems.

### 1.3 Acknowledgements

We wish to acknowledge the following contributors and also those who provided feedback outside the formal editing and reviewing work.

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## 1.4 Versions

- 1.1.1, December 2018, [doi:10.5281/zenodo.2316420](https://doi.org/10.5281/zenodo.2316420)
- 1.1.0, June 2018, [doi:10.5281/zenodo.1298650](https://doi.org/10.5281/zenodo.1298650)
- 1.0, June 2015, [doi:10.5281/zenodo.17065](https://doi.org/10.5281/zenodo.17065)

### 1.4.1 List of changes in the 1.1.1 version (since 1.1.0)

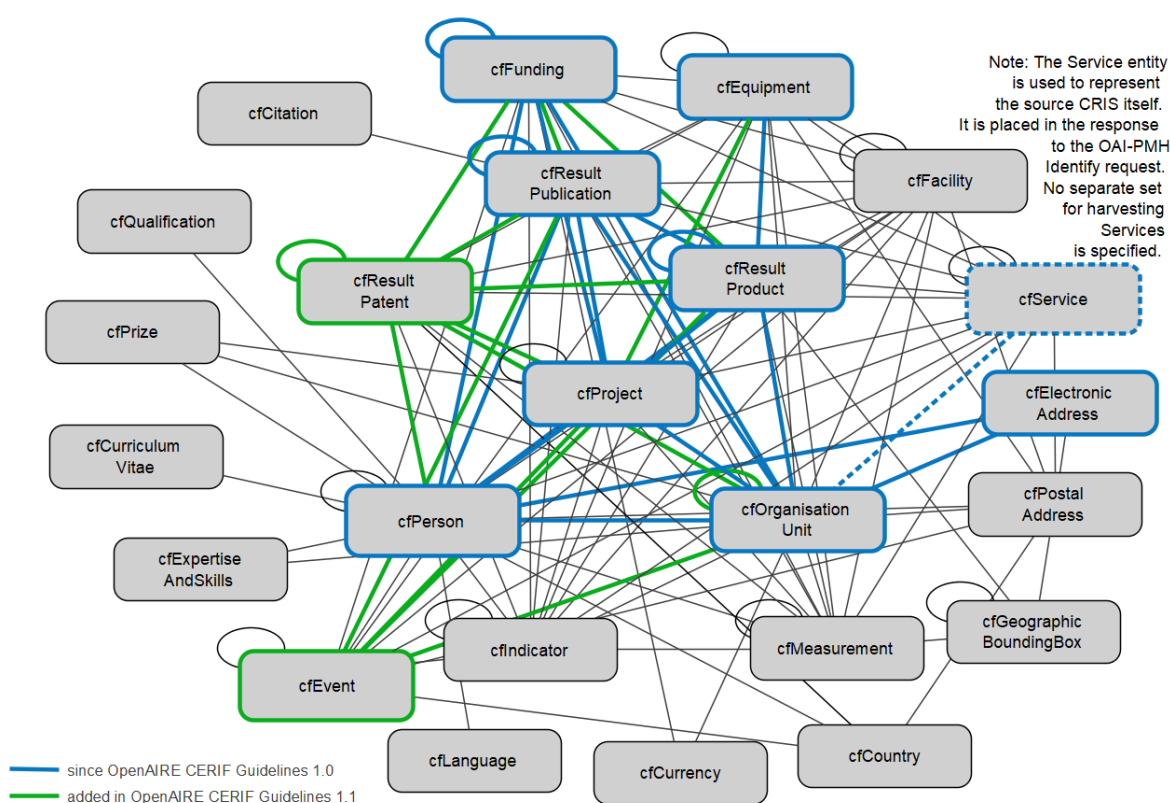
1. **Digital Author Identifier** (DAI) is added as a person identifier type. (#49)
2. **Multiple person identifiers** of the same kind are allowed: where ambiguous or uncertain information is available, it should be listed in <AlternativeXXX> elements (where XXX is the identifier type). (#48)
3. **Multiple 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)

## 1.5 Feedback

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

## 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.<sup>1</sup> CERIF has three entities to represent research outputs: Publications, Products and

<sup>1</sup> See <https://www.coar-repositories.org/activities/repository-interoperability/coar-vocabularies/deliverables/>

Patents. The COAR vocabulary was broken down into three 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 outside sources; some of the vocabularies are based on the CERIF 1.5 Semantics. Extensions are possible in the review phase of these Guidelines.

## 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](https://www.openaire.eu/cerif-profile/vocab/COAR_Publication_Types)

**CERIF** the `ResultPublication_Classification` ([https://w3id.org/cerif/model#ResultPublication\\_Classification](https://w3id.org/cerif/model#ResultPublication_Classification))



**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/](https://vocabularies.coar-repositories.org/resource_types/), the term ‘text’ and its descendants in the hierarchy except ‘patent’).

- **text** ([http://purl.org/coar/resource\\_type/c\\_18cf](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.
  - **annotation** ([http://purl.org/coar/resource\\_type/c\\_1162](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.
  - **bibliography** ([http://purl.org/coar/resource\\_type/c\\_86bc](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.
  - **blog post** ([http://purl.org/coar/resource\\_type/c\\_6947](http://purl.org/coar/resource_type/c_6947)): A piece of writing or other item of content published on a blog.
  - **book** ([http://purl.org/coar/resource\\_type/c\\_2f33](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.
    - \* **book part** ([http://purl.org/coar/resource\\_type/c\\_3248](http://purl.org/coar/resource_type/c_3248)): A defined chapter or section of a book, usually with a separate title or number.
  - **conference output** ([http://purl.org/coar/resource\\_type/c\\_c94f](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.
    - \* **conference presentation** ([http://purl.org/coar/resource\\_type/R60J-J5BD](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.
    - \* **conference proceedings** ([http://purl.org/coar/resource\\_type/c\\_f744](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.
      - **conference paper** ([http://purl.org/coar/resource\\_type/c\\_5794](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.
      - **conference poster** ([http://purl.org/coar/resource\\_type/c\\_6670](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.
    - \* **conference paper not in proceedings** ([http://purl.org/coar/resource\\_type/c\\_18cp](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.

- \* **conference poster not in proceedings** ([http://purl.org/coar/resource\\_type/c\\_18co](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.
- **journal** ([http://purl.org/coar/resource\\_type/c\\_0640](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.
- \* **editorial** ([http://purl.org/coar/resource\\_type/c\\_b239](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.
- \* **journal article** ([http://purl.org/coar/resource\\_type/c\\_6501](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.
  - **corrigendum** ([http://purl.org/coar/resource\\_type/c\\_7acd](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](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](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](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](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. (adapted from <http://apus.libanswers.com/faq/2324>)
  - **software paper** ([http://purl.org/coar/resource\\_type/c\\_7bab](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.
- \* **letter to the editor** ([http://purl.org/coar/resource\\_type/c\\_545b](http://purl.org/coar/resource_type/c_545b)): A letter to the editor is a letter sent to a periodical about issues of concern from its readers. (adapted from Wikipedia)
- **lecture** ([http://purl.org/coar/resource\\_type/c\\_8544](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.

- **letter** ([http://purl.org/coar/resource\\_type/c\\_0857](http://purl.org/coar/resource_type/c_0857)): A brief description of important new research, also known as “communication”. (adapted from Euro-CRIS)
- **magazine** ([http://purl.org/coar/resource\\_type/c\\_2cd9](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.
- **manuscript** ([http://purl.org/coar/resource\\_type/c\\_0040](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.
- **musical notation** ([http://purl.org/coar/resource\\_type/c\\_18cw](http://purl.org/coar/resource_type/c_18cw)): Symbols used to write music, as in a music score, and to express mathematical concepts.
- **newspaper** ([http://purl.org/coar/resource\\_type/c\\_2fe3](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.
  - \* **newspaper article** ([http://purl.org/coar/resource\\_type/c\\_998f](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.
- **preprint** ([http://purl.org/coar/resource\\_type/c\\_816b](http://purl.org/coar/resource_type/c_816b)): Pre-print describes the first draft of the article - before peer-review, even before any contact with a publisher. This use is common amongst academics for whom the key modification of an article is the peer-review process. Another use of the term pre-print is for the finished article, reviewed and amended, ready and accepted for publication - but separate from the version that is type-set or formatted by the publisher. This use is more common amongst publishers, for whom the final and significant stage of modification to an article is the arrangement of the material for putting to print.
- **report** ([http://purl.org/coar/resource\\_type/c\\_93fc](http://purl.org/coar/resource_type/c_93fc)): A report is a separately published record of research findings, research still in progress, 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.
  - \* **clinical study** ([http://purl.org/coar/resource\\_type/c\\_7877](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.

- \* **data management plan** ([http://purl.org/coar/resource\\_type/c\\_ab20](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.
- \* **memorandum** ([http://purl.org/coar/resource\\_type/c\\_18wz](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.
- \* **policy report** ([http://purl.org/coar/resource\\_type/c\\_186u](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.
- \* **project deliverable** ([http://purl.org/coar/resource\\_type/c\\_18op](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.
- \* **research protocol** ([http://purl.org/coar/resource\\_type/YZ1N-ZFT9](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.
- \* **research report** ([http://purl.org/coar/resource\\_type/c\\_18ws](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.
- \* **technical report** ([http://purl.org/coar/resource\\_type/c\\_18gh](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.
- **research proposal** ([http://purl.org/coar/resource\\_type/c\\_baaf](http://purl.org/coar/resource_type/c_baaf)): documentation for grant request
- **review** ([http://purl.org/coar/resource\\_type/c\\_efa0](http://purl.org/coar/resource_type/c_efa0)): A review of others' published work.
- \* **book review** ([http://purl.org/coar/resource\\_type/c\\_ba08](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.
- \* **commentary** ([http://purl.org/coar/resource\\_type/D97F-VB57](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.
- \* **peer review** ([http://purl.org/coar/resource\\_type/H9BQ-739P](http://purl.org/coar/resource_type/H9BQ-739P)): An evaluation of scientific, academic, or professional work by others working in the

same field.

- **technical documentation** ([http://purl.org/coar/resource\\_type/c\\_71bd](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.
- **thesis** ([http://purl.org/coar/resource\\_type/c\\_46ec](http://purl.org/coar/resource_type/c_46ec)): A thesis or dissertation is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings.
  - \* **bachelor thesis** ([http://purl.org/coar/resource\\_type/c\\_7a1f](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.
  - \* **doctoral thesis** ([http://purl.org/coar/resource\\_type/c\\_db06](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.
  - \* **master thesis** ([http://purl.org/coar/resource\\_type/c\\_bdcc](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.
- **transcription** ([http://purl.org/coar/resource\\_type/6NC7-GK9S](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.
- **working paper** ([http://purl.org/coar/resource\\_type/c\\_8042](http://purl.org/coar/resource_type/c_8042)): A working paper or preprint is a report on research that is still on-going or which has not yet been accepted for publication.
- **other** ([http://purl.org/coar/resource\\_type/c\\_1843](http://purl.org/coar/resource_type/c_1843)): A resource type that is not included in existing terms.

### 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](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](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](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/doi-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](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](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](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](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](https://w3id.org/cerif/model#OrganisationUnit_ResultPublication)) with the <https://w3id.org/cerif/vocab/OrganisationOutputContributions#Editor> semantics

[org/cerif/model#OrganisationUnit\\_ResultPublication](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](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](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

**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](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](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](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](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](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.<sup>1</sup>

**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](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](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](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](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](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](https://w3id.org/cerif/model#ResultPublication_ResultPatent)) with the <https://w3id.org/cerif/vocab/InterOutputRelations#Reference> semantics (direction :1)

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<sup>1</sup> Note: Video recordings of conference presentations are stored as alternative representations of the primary object: the conference paper. It would be unnecessarily complex to represent them as separate, linked Products.

### 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](http://purl.org/coar/access_right)

**CERIF** the ResultPublication\_Classification ([https://w3id.org/cerif/model#ResultPublication\\_Classification](https://w3id.org/cerif/model#ResultPublication_Classification))

#### Vocabulary

- **open access** ([http://purl.org/coar/access\\_right/c\\_abf2](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](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](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](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 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](https://www.openaire.eu/cerif-profile/vocab/COAR_Product_Types)

**CERIF** the `ResultProduct_Classification` ([https://w3id.org/cerif/model#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/](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](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.
  - **map** ([http://purl.org/coar/resource\\_type/c\\_12cd](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.
- **dataset** ([http://purl.org/coar/resource\\_type/c\\_ddb1](http://purl.org/coar/resource_type/c_ddb1)): A collection of related facts and data encoded in a defined structure. (adapted from fabio; DataCite)
  - **aggregated data** ([http://purl.org/coar/resource\\_type/ACF7-8YT9](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.
  - **clinical trial data** ([http://purl.org/coar/resource\\_type/c\\_cb28](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.

- **compiled data** ([http://purl.org/coar/resource\\_type/FXF3-D3G7](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.
- **encoded data** ([http://purl.org/coar/resource\\_type/AM6W-6QAW](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)”.
- **experimental data** ([http://purl.org/coar/resource\\_type/63NG-B465](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.
- **genomic data** ([http://purl.org/coar/resource\\_type/A8F1-NPV9](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 techniques. It may include non-sequencing data such as data from microarrays, data from real-time PCR panels and data from pharmacogenomics studies.
- **geospatial data** ([http://purl.org/coar/resource\\_type/2H0M-X761](http://purl.org/coar/resource_type/2H0M-X761)): 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.
- **laboratory notebook** ([http://purl.org/coar/resource\\_type/H41Y-FW7B](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.
- **measurement and test data** ([http://purl.org/coar/resource\\_type/DD58-GFSX](http://purl.org/coar/resource_type/DD58-GFSX)): Data resulting from assessing specific properties (or char-

acteristics) of beings, things, phenomena, (and/ or processes) by applying pre-established standards and/or specialized instruments or techniques.

- **observational data** ([http://purl.org/coar/resource\\_type/FF4C-28RK](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.
- **recorded data** ([http://purl.org/coar/resource\\_type/CQMR-7K63](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.
- **simulation data** ([http://purl.org/coar/resource\\_type/W2XT-7017](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.
- **survey data** ([http://purl.org/coar/resource\\_type/NHD0-W6SY](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.
- **design** ([http://purl.org/coar/resource\\_type/542X-3S04](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.
  - **industrial design** ([http://purl.org/coar/resource\\_type/JBNF-DYAD](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.
  - **layout design** ([http://purl.org/coar/resource\\_type/BW7T-YM2G](http://purl.org/coar/resource_type/BW7T-YM2G)): Layout-design (topography) means the three-dimensional disposition, however expressed, of the interconnections of an integrated circuit, or such a three-dimensional disposition prepared for an integrated circuit intended for manufacture the elements of an integrated circuit (at least one of which is an active element) and of some or all.
- **image** ([http://purl.org/coar/resource\\_type/c\\_c513](http://purl.org/coar/resource_type/c_c513)): A visual representation other than text, including all types of moving image and still image.
  - **moving image** ([http://purl.org/coar/resource\\_type/c\\_8a7e](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. (adapted from fabio)
  - \* **video** ([http://purl.org/coar/resource\\_type/c\\_12ce](http://purl.org/coar/resource_type/c_12ce)): A recording of visual images, usually in motion and with sound accompaniment.

- **still image** ([http://purl.org/coar/resource\\_type/c\\_ecc8](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.
- **interactive resource** ([http://purl.org/coar/resource\\_type/c\\_e9a0](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.
  - **website** ([http://purl.org/coar/resource\\_type/c\\_7ad9](http://purl.org/coar/resource_type/c_7ad9)): A website, also written as web site or simply site, is a set of related web pages typically served from a single web domain. A website is hosted on at least one web server, accessible via a network such as the Internet or a private local area network through an Internet address known as a uniform resource locator (URL). All publicly accessible websites collectively constitute the World Wide Web.
- **other** ([http://purl.org/coar/resource\\_type/c\\_1843](http://purl.org/coar/resource_type/c_1843)): A rest category which may cover text, interactive, sound, or image-based resources not explicitly addressed in any concept in this vocabulary
- **software** ([http://purl.org/coar/resource\\_type/c\\_5ce6](http://purl.org/coar/resource_type/c_5ce6)): A computer program in source code (text) or compiled form.
  - **research software** ([http://purl.org/coar/resource\\_type/c\\_c950](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 code** ([http://purl.org/coar/resource\\_type/QH80-2R4E](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.
- **sound** ([http://purl.org/coar/resource\\_type/c\\_18cc](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.
  - **musical composition** ([http://purl.org/coar/resource\\_type/c\\_18cd](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.
- **workflow** ([http://purl.org/coar/resource\\_type/c\\_393c](http://purl.org/coar/resource_type/c_393c)): A recorded sequence of connected steps, which may be automated, specifying a reliably repeatable 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.

### 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](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/does-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](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](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](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](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

**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](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](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](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](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](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](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](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](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](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](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](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](http://purl.org/coar/access_right)

**CERIF** the ResultProduct\_Classification ([https://w3id.org/cerif/model#ResultProduct\\_Classification](https://w3id.org/cerif/model#ResultProduct_Classification))

**Vocabulary**

- **open access** ([http://purl.org/coar/access\\_right/c\\_abf2](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](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](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](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.

## 2.3 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](https://www.openaire.eu/cerif-profile/vocab/COAR_Patent_Types)

**CERIF** the `ResultPatent_Classification` ([https://w3id.org/cerif/model#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/](https://vocabularies.coar-repositories.org/resource_types/), the term ‘patent’ only).

- **patent** ([http://purl.org/coar/resource\\_type/c\\_15cd](http://purl.org/coar/resource_type/c_15cd)): A patent or patent application.
- **PCT application** ([http://purl.org/coar/resource\\_type/SB3Y-W4EH](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.
- **design patent** ([http://purl.org/coar/resource\\_type/C53B-JCY5](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.
- **plant patent** ([http://purl.org/coar/resource\\_type/Z907-YMBB](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.
- **plant variety protection** ([http://purl.org/coar/resource\\_type/GPQ7-G5VE](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.
- **software patent** ([http://purl.org/coar/resource\\_type/MW8G-3CR8](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]).
- **utility model** ([http://purl.org/coar/resource\\_type/9DKX-KSAF](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.”

### 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](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](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](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](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](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](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](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](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](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](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](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](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](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](https://w3id.org/cerif/model#ResultPatent_ResultPatent)) with the <https://w3id.org/cerif/vocab/InterOutputRelations#Reference> semantics (direction :1)

## 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](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** regular expression `https://orcid\.org/0000-000(1-[5-9]|2-[0-9]|3-[0-4])[0-9]{3}-[0-9]`  
(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** regular expression `https://orcid\.org/0000-000(1-[5-9]|2-[0-9]|3-[0-4])[0-9]{3}-[0-9]`  
(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] - [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] - [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}[\dX]` (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 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](https://w3id.org/cerif/model#Person_ElectronicAddress))

#### 2.4.15 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](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](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.

**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](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.

**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](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`

### 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](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](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](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 mandatory `type` attribute

**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](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](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](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](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](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](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](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](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](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](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](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](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](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](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](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](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](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](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](https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types)

**CERIF** the Funding\_Classification ([https://w3id.org/cerif/model#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](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](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](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](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](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](https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Contract)):
- **Award** ([https://www.openaire.eu/cerif-profile/vocab/OpenAIRE\\_Funding\\_Types#Award](https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Funding_Types#Award)):
- **Grant** ([https://www.openaire.eu/cerif-profile/vocab/OpenAIRE\\_Funding\\_Types#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 Identifier

**Description** An identifier of the funding

**Use** optional, possibly multiple (0..\*)

**Representation** XML element Identifier with mandatory type attribute

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

### 2.7.7 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>)

### 2.7.8 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](https://w3id.org/cerif/model#Funding_Classification))

### 2.7.9 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>)

### 2.7.10 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](https://w3id.org/cerif/model#OrganisationUnit_Funding)) with the <https://w3id.org/cerif/vocab/OrganisationFundingRoles#Financier> semantics

### 2.7.11 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](https://w3id.org/cerif/model#Funding_Funding)) with the <https://w3id.org/cerif/vocab/InterFundingRelations#Part> semantics (direction :1)

### 2.7.12 Duration

**Description** Duration of the funding

**Use** optional (0..1)

**Representation** XML element `Duration` *TODO*

**CERIF** the Funding\_Classification linking entity ([https://w3id.org/cerif/model#Funding\\_Classification](https://w3id.org/cerif/model#Funding_Classification)) with the <https://w3id.org/cerif/vocab/Durations#FundingDuration> semantics

### 2.7.13 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](https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility)

**CERIF** the Service\_Classification ([https://w3id.org/cerif/model#Service\\_Classification](https://w3id.org/cerif/model#Service_Classification))

**Vocabulary** Compatibility of service with the OpenAIRE Guidelines for CRIS Managers

- **OpenAIRE Guidelines 1.1.1 compatible CRIS** ([https://www.openaire.eu/cerif-profile/vocab/OpenAIRE\\_Service\\_Compatibility#1.1.1](https://www.openaire.eu/cerif-profile/vocab/OpenAIRE_Service_Compatibility#1.1.1)): CRIS compatible with OpenAIRE Guidelines for CRIS managers version 1.1.1
- **OpenAIRE Guidelines 1.1 compatible CRIS** ([https://www.openaire.eu/cerif-profile/vocab/OpenAIRE\\_Service\\_Compatibility#1.1](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](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 mandatory type attribute

**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](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](https://w3id.org/cerif/model#OrganisationUnit_Service)) with the <https://w3id.org/cerif/vocab/OrganisationResearchInfrastructureRoles#Owner> semantics

## 2.9 Equipment

**Description** An equipment is an instrumentality needed for an undertaking or to perform a service: Definition Source: <http://wordnetweb.princeton.edu/perl/webwn?s=equipment>

**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](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 mandatory type attribute

**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](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](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](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](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](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](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](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](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](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](https://w3id.org/cerif/model#Project_Event)) with the <https://w3id.org/cerif/vocab/EventRelationshipKinds#Partner> semantics

## 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/1.1/>. Its structure is defined and constrained by the corresponding XML Schema.<sup>1</sup> Accompanying these Guidelines is a comprehensive set of examples.<sup>2</sup>

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.

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<sup>1</sup> The XML schema is located at <https://www.openaire.eu/schema/cris/1.1/openaire-cerif-profile.xsd>. This has changed in the 1.1.1 release of these Guidelines.

<sup>2</sup> Please see an overview map at [https://github.com/openaire/guidelines-cris-managers/blob/v1.1/docs/\\_illustrations/OpenAIRE-examples-map.png](https://github.com/openaire/guidelines-cris-managers/blob/v1.1/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/v1.1/samples>

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 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 for harvesting metadata from CRIS systems.

### 3.2.1 Metadata Format and Prefix

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

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.

**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 (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](#).

### 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 [Literature Repository Guidelines](#) should be followed.