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RADAR Metadata Documentation with attribute values and controlled vocabularies

Version 0.5

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Description:

A central feature of the RADAR project is a metadata schema, which manages and characterizes all archived and published research data. The schema aims to enhance the traceability and usability of research data by maintaining a discipline-agnostic character and simultaneously allowing a description of discipline-specific data. For this purpose, a set of generic parameters were chosen, which allow an accurate and consistent identification of a resource for citation and retrieval purposes and also meet the requirements of more discipline-specific datasets. Furthermore, the schema provides recommended use instructions. The following metadata profile includes 10 mandatory fields which represent the general core of the scheme. These contain the main requirements for the DOI registration, in accordance with the DataCite Metadata Schema[1] and must be supplied when submitting metadata to RADAR. Additionally, 13 optional metadata parameters serve the purpose of describing discipline-specific data. These were implemented with a combination of controlled-vocabularies and free-text entries, thereby covering heterogeneous data produced by a multitude of disciplines. Some of the optional metadata were also modelled after the DataCite Metadata Schema. The controlled-vocabulary entries were defined in accordance with established regulations (for example, ISO standards for language and country of origin of the data). RADAR clients who wish to enhance the prospects of their metadata being found, cited and linked to original research are strongly encouraged to submit the optional as along with the mandatory set of properties. Furthermore, there is the option to provide additional metadata for individual files within a dataset.

Table of Contents:

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[1] http://schema.datacite.org/meta/kernel-3 DOI: https://doi.org/10.5438/0010

Document Status Sheet:

Version	Date	Comment
0.1	04.08.2014	First draft, english
0.2	11.11.2014	Revision, with modification of properties 2. and 19.
0.3	16.01.2015	Modification properties 8.1
0.4	28.07.2016	Revision, according to DataCite repuirements

1. Overview

The following schema relates to the dataset level and provides metadata elements for the description of a dataset as a whole. In the case of additional metadata specifications for single files or directories within a dataset, a reduced schema applies. Please refer to chapter 4 for details.

10 Mandatory properties

ID	Element description	XML
1.	**identifier** (unique string which identifies a resource)	<identifier>
1.1	identifierType (Handle or DOI)	<identifierType>
2.	**creator** (persons involved in producing the data)	<creator>
2.1	creator name (name(s) of the creator(s))	<creatorName>
2.1.1	family name (surname)	<familyName>
2.1.2	given name (first name)	<givenName>
2.2	name identifier (unique ID of an individual or legal entity)	<nameIdentifier>
2.2.1	name identifier scheme (e.g. ORCID, ISNI)	<nameIdentiferScheme>
2.2.2	scheme URI	<schemeURI>
2.3	creator affiliation (e.g. institution, company)	<creatorAffiliation>
3.	**title**	<title>
4.	**publisher** (e.g. corporate/institutional or personal name)	<publisher>
5.	**production year** (year, in which data was created/refers to)	<productionYear>
6.	**publication year** (year, in which the resource was published)	<publicationYear>
7.	**subject area** (scientific fields appropriate for the resource)	<subjectArea>
7.1	controlled subject area	<controlledSubjectAreaName>
7.2	additional subject area (further details on the subject area)	<additionalSubjectAreaName>
8.	**resource** (information on the resource's content)	<resource>
8.1	resource type (type of the resource to be archived/published)	<resourceType>
9.	**rights**	<rights>
9.1	controlled rights (provides a rights management statement)	<controlledRights>
9.2	additional rights (free text to specify rights)	<additionalRights>
10.	**rightsholder** (institution/person owning property rights)	<rightsholder>

13 Optional properties for discipline-specific data descriptions

ID	Element description	XML
11.	**additional title** (complementary textual information)	<additionalTitle>
11.1	additional title type (e.g. translated title)	<additionalTitleType>
12.	**description** (further textual information)	<description>
12.1	description type (e.g. abstract)	<descriptionType>
13.	**keyword** (keyword(s) describing focus of the data)	<keyword>
14.	**contributor** (institution/person associated to resource)	<contributor>
14.1	contributor type (e.g. data collector)	<contributorType>
14.2	contributor name	<contributorName>
14.2.1	family name (surname)	<familyName>
14.2.2	given name (first name)	<givenName>
14.3	name identifier (unique ID of an individual or legal entity)	<nameIdentifier>
14.3.1	name identifier scheme (e.g. ORCID, ISNI)	<nameIdentiferScheme>
14.3.2	scheme URI	<schemeURI>
14.4	contributor affiliation	<contributorAffiliation>
15.	**language**	<language>
16.	**alternate identifier** (e.g. local accession number)	<alternateIdentifier>
16.1	alternate identifier type	<alternateIdentifierType>
17.	**related identifier** (identifiers of related resources)	<relatedIdentifier>
17.1	related identifier type (e.g. DOI, ARK, ISBN)	<relatedIdentifierType>
17.2	relation type (description of relation, e.g. "is cited by")	<relationType>
18.	**geo location** (region/place the resource originated/refers to)	<geoLocation>
18.1	geo location country (country of origin)	<geoLocationCountry>

18.2	geo location region (region of resource)		<geoLocationRegion>
18.3	geo location point (single latitude-longitude pair)		<geoLocationPoint>
18.4	geo location box (box of two latitude & longitude coordinates)		<geoLocationBox>
19.	**data source** (information on data origin)		<dataSource>
19.1	data source detail (e.g. instrument, observation, trial)		<dataSourceDetail>
20.	**software type** (software used in the research process)		<softwareType>
20.1	software name (software description)		<softwareName>
20.1.1	software version (version)		<softwareVersion>
20.2	alternative software (description of software alternative(s))		<alternativeSoftwareName>
20.2.1	alternative software version (version of software alternative(s))		<alternativeSoftwareVersion>
21.	**data processing** (specifies further processing, e.g. statistics)		<dataProcessing>
22.	**related information** (e.g. database number)		<relatedInformation>
22.1	related information type (e.g. CAS registry number)		<relatedInformationType>
23.	**funding reference** (Information about financial support)		<fundingReference>
23.1	funder name		<funderName>
23.2	funder identifier		<funderIdentifier>
23.2.1	funder identifier type		<funderIdentifierType>
23.3	award number		<awardNumber>
23.3.1	award URI		<awardURI>
23.4	award title		<awardTitle>

Notes on following tables and abbreviations:

The following tables provide a detailed description of the mandatory and optional properties, together with their sub-properties and XML examples, respectively. In the third column an indicator of whether the property being described is an attribute (A) or a child (C) of the corresponding property that has preceded it is given. The forth column, Occurrence (Occ), indicates quantity constraints for the properties as follows:

0-n = optional and repeatable; 0-1 = optional, but not repeatable; 1-n = required and repeatable; 1 = required, but not repeatable.

2. Mandatory properties

ID	Element	Definition	A/C	Occ	Allowed values, examples, other constraints
1	**identifier**	The identifier is a unique string which identifies a resource. In RADAR Handles and DOIs are used as identifiers.		1	**The assignment of the identifier is automatically done by RADAR.** Please note that different Persistent Identifiers (PIDs) are used in RADAR: - Handle for preservation only. - DOI for data publication & preservation.
1.1	**identifier type**	Handle or DOI.	A	1	Selection list: - Handle - DOI Handle: A handle is an abstract reference to a resource. Digital Object Identifier: A DOI is a character string used to uniquely identify an object. A DOI name is divided into two parts, a prefix and a suffix, separated by a slash.
2	**creator**	The main researchers		1-n	Free-text field. May be a corporate/institutional or

		involved in producing the data, or the authors of the publication, in priority order.			personal name.
2.1	creator name	The name of the creator.	C	1	The personal name format may be: family, given. Non-roman names should be transliterated according to the ALA-LC schemes14: http://www.loc.gov/catdir/cpso/roman.html
2.1.1	family name	The surname or last name of the creator.		0-1	Surname.
2.1.2	given name	The personal or fist name of the creator.		0-1	First name.
2.2	name identifier	Uniquely identifies an individual or legal entity, according to various schemes.	C	0-n	Format depends on the scheme of the name identifier.
2.2.1	name identifier scheme	The name of the identifier scheme.	A	1	If name identifier is given, it is mandatory to state the nameIdentifier scheme. E.g.: ORCID, ISNI **Note**: Within the RADAR User Interface (www.radar-service.eu), this function is limited to ORCID. If another name identifier scheme should be applied, please use the XML upload or API.
2.2.2	scheme URI	Optional URI of the name identifier scheme.		0-1	Optional. Examples: http://www.orcid.org http://isni.org
2.3	creator affiliation	Organizational or institutional affiliation of the creator(s).	C	0-1	Optional free-text field.
3	title	A heading or caption by which a resource is well described.		1	Free-text field.
4	publisher	The name of the entity that holds, archives, publishes, prints, distributes, releases, issues, or produces the data.		1-n	Free-text field. May be a corporate/institutional or personal name. The personal name format may be: family, given. Non-roman names should be transliterated according to the ALA-LC schemes14: http://www.loc.gov/catdir/cpso/roman.html
5	production year	Year or time span in which the		1	Format: YYYY or YYYY-YYYY or "unknown"

		resource was created or the resource refers to.			For year format, please refer to ISO-8601: http://www.w3.org/TR/NOTE-datetime If unsure or want to leave open, please use "unknown".
6	**publication year**	Year, in which the resource was published.		1	Format: YYYY **The assignment of the publication year is automatically done by RADAR.**
7	**subject area**			1-n	Selection list.
7.1	**controlled subject area**	RADAR specific list of scientific research areas. Please select appropriate field(s). Multiple selections are possible.	C	1	Please assign one or more of the given list of scientific fields that are appropriate for your resource. Also consider that the subject area can be used as a filter system during data search. Selection list: - Agriculture - Architecture - Arts and Media - Astrophysics and Astronomy - Biochemistry - Biology - Behavioural Sciences - Chemistry - Computer Science - Economics - Engineering - Environmental Science and Ecology - Ethnology - Geological Science - Geography - History - Horticulture - Information Technology - Life Science - Linguistics - Materials Science - Mathematics - Medicine - Philosophy - Physics - Psychology - Social Sciences - Software Technology - Sports - Theology - Veterinary Medicine - Other
7.2	**additional subject area**	If "Other", please specify area to which the data relates.	C	0-n	Free-text field.
8	**resource**	General information on the resource's content.		1	Free-text field. A description which refers to the resource type.
8.1	**resource type**	Specifies the	A	1	Selection list.

| | | type of the resource to be archived/published. | | | Please select one item which best fits your resource from the resource type list. After selection, a further free-text description of the resource type may be added.

Selection list:
- Audiovisual
- Collection
- Dataset
- Event
- Image
- Interactive Resource
- Model
- Physical Object
- Service
- Software
- Sound
- Text
- Workflow
- Other

Definition of resource types:
Audiovisual - A series of visual representations imparting an impression of motion when shown in succession. May or may not include sound.
Example: May be used for films, video, etc.

Collection - An aggregation of resources of various types. If a collection consists of a single type, please state the single type.
Example: A collection of samples, or various files making up a report.

Dataset - Data encoded in a defined structure.
Example: Data file or files.

Event - A non-persistent, time-based occurrence.
Example: Descriptive information and/or content that is the basis for discovery of the purpose, location, duration, and responsible agents associated with an event such as a webcast or convention.

Image - A visual representation other than text.
Example: Digitized or born digital images, drawings or photographs.

Interactive Resource - A resource requiring interaction from the user to be understood, executed, or experienced-
Example: Training modules, files that |

			6		require use of a viewer (e.g., Flash), or query/response portals. **Model -** An abstract, conceptual, graphical, mathematical or visualization model that represents empirical objects, phenomena, or physical processes. Example: Modelled descriptions of different aspects of languages or a molecular biology chain reaction. **Physical Object -** An inanimate, three-dimensional object or substance. Example: Artefacts, specimens. **Software -** A computer program in source code (text) or compiled form. Example: Software supporting research. **Sound -** A resource primarily intended to be heard. Example: Audio recording. **Text -** A resource consisting primarily of words for reading. Example: Grey literature, lab notes, accompanying materials. **Workflow -** A structured series of steps which can be executed to produce a final outcome, allowing users a means to specify and enact their work in a more reproducible manner. Example: Computational workflows involving sequential operations made on data by wrapped software and may be specified in a format belonging to a workflow management system, such as Taverna. **Other -** If selected, please supply a value for resource type including your own description.
9	**rights**			1	Selection list.
9.1	**controlled rights**	Provides a rights management statement (= data licence) for the resource uploaded to RADAR.	C	1	Please choose from the selection list an appropriate licence for your resource. The licence indicates, if, how and in which context others may use your resource. A detailed description of each licence is provided upon selection. If none of the provided licences seems appropriate, you may also include a different licence or specify rights - in the latter case please use the field '**other**'.

						Selection list:
				7		- *CC BY 4.0* Attribution

Selection list:
- *CC BY 4.0* Attribution
- *CC BY-ND 4.0* Attribution-NoDerivs
- *CC BY-SA 4.0* Attribution-ShareAlike
- *CC BY-NC 4.0* Attribution-NonCommercial
- *CC BY-NC-SA 4.0* Attribution-NonCommercial-ShareAlike
- *CC BY-NC-ND 4.0* Attribution-NonCommercial-NoDerivs
- *CC0 1.0 Universal* Public Domain Dedication
- All rights reserved
- Other

Definition of rights:
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9.2	**additional rights**	If "Other" is selected, please specify the rights management statement (= data licence) for the resource.	C	0-1	Free-text field. If selected, please state further details regarding the licence/rights management statement chosen for your resource.
10	**rightsholder**	The institution or person owning or managing property rights, including intellectual property rights, utilization rights and/or exploitation rights over the resource uploaded to RADAR.		1-n	Free-text field. Please state one or several institution(s) and/or person(s) owning or managing property rights, including intellectual property rights, utilization rights and/or exploitation rights over the resource. The personal name format should be: family, given. Non-roman names should be transliterated according to the ALA-LC schemes: http://www.loc.gov/catdir/cpso/roman. html

3. Optional properties

ID	Element	Definition	A/C	Occ	Allowed values, examples, other constraints
11	**additional title**	Complement-ary textual information to the main title of the resource.		0-n	Free-text field. A caption which refers to the additional title type.
11.1	**additional title type**	Specifies the type of additional title.	A	1	Selection list. Please choose from the selection list the additional title type appropriate for giving details about your resource. Selection list: - Subtitle - TranslatedTitle - AlternativeTitle **Subtitle -** A subtitle complements your main heading or caption and provides additional information on the resource. **TranslatedTitle -** A translated title provides the main title of the resource in a different language. **AlternativeTitle -** An alternative title might be used as a substitute to the main title associated to your resource.
12	**description**	A textual description containing additional information about resource (English is strongly recommended as primary language).		0-n	Free-text field. Please state the context within the description type.
12.1	**description type**	Specifies the type of text introduced to describe the resource.	A	1	Selection list. Please choose from the selection list a description type appropriate for giving details about your resource. Selection list: - Abstract - Methods - SeriesInformation - TableOfContents - TechnicalInfo - Other **Abstract -** A short description of the resource which highlights the context in which the resource was created. The provision of an abstract is highly recommended for discovery. Example:

					http://data.datacite.org/10.1594/PANGAEA.771774 **Methods -** A description of the methodology used to obtain the resource; recommended for discovery. Example: Section "Sampling, Processing and Quality Control Methods" in the following dataset record: http://knb.ecoinformatics.org/knb/metacat?action=read&qformat=knb&sessionid=0&docid=knb-lter-gce.275.16 **SeriesInformation –** Information about a repeating series (e.g. volume, issue, number). **TableOfContents -** A listing of the Table of Contents. Example: http://data.datacite.org/10.5678/LCRS/FOR816.CIT.1031 **TechnicalInfo** A description of technical aspects which particularly describes/refers to the resource. **Other** - Information that does not fit into an existing category.
13	**keyword**	Keyword(s) describing the subject focus of the resource (English is strongly recommended as primary language).		0-n	Free-text field. Please select one or more keyword(s) which describe the context/content of your resource; note that using the English language is highly recommended to increase discovery.
14	**contributor**	The institution or person responsible for collecting, managing, distributing, or otherwise contributing to the development or creation of the resource.		0-n	Free-text field. Please state the name(s) of the contributor (institution(s)/persons(s)). The personal name format should be: family, given. Non-roman names should be transliterated according to the ALA-LC schemes: http://www.loc.gov/catdir/cpso/roman.html
14.1	**contributor type**	Specifies the origin of the contributor.	A	1	Selection list. Please choose from the selection list the contributor type who participated in the creation/development of your resource. Selection list: - ContactPerson - DataCollector - DataCurator

- DataManager
- Distributor
- Editor
- HostingInstitution
- Producer
- ProjectLeader
- ProjectManager
- ProjectMember
- RegistrationAgency
- RegistrationAuthority
- RelatedPerson
- Researcher
- ResearchGroup
- Sponsor
- Supervisor
- WorkPackageLeader
- Other

ContactPerson - Person with knowledge of how to access, troubleshoot, or otherwise treat issues related to the resource. May also be the "Point of Contact" in the organization that is responsible for the data upload to RADAR.

DataCollector - Person/Institution responsible for finding, gathering/collecting data under the guidelines of the author(s) or Principal Investigator (PI). Can also be used to credit survey conductors, interviewers, event or condition observers, or person responsible for monitoring key instrument data.

DataCurator - Person who curates data in one/several of the following ways: enhancing, reviewing, cleaning, standardizing metadata and associated data, in order to prepare the data for storage, use, and maintenance within a data center or a repository.

DataManager - Person (or organization with a staff of data managers) responsible for maintaining the resource. The stated person/organization is responsible for:
- keeping the resource up-to-date in terms of software/hardware support
- the provision of appropriate access levels
- the storage in accordance with industry standards and
- a secure handling in accordance with the applicable management requirements before the resource was uploaded to RADAR.

Distributor - Institution tasked with

responsibility to generate/disseminate copies of the resource in either electronic or print form. Data stored in more than one archive/repository may credit each as a distributor.

Editor - Person who oversees the details related to the publication format of the resource.

HostingInstitution - Organization allowing the resource to be available online through the provision of its hardware/software/operating support. May also be used for an organization that stores the data offline. Often a data center (if that data center is not the "publisher" of the resource).

Producer - Person/Organization responsible for the artistry and form of a media product. In the data industry, this may be a company "producing" media products such as DVDs that package data for future dissemination by a distributor.

ProjectLeader - Person officially designated as head of project team or sub-project team instrumental in the work necessary to development of the resource. The Project Leader is not "removed' from the work that resulted in the resource; they remain intimately involved throughout the life of the particular project team.

ProjectManager - Person officially designated as manager of a project. A project may consist of one or many project teams and sub-teams. The manager of a project often has more administrative responsibility than actual work involvement.

RegistrationAgency - Institution/organization officially appointed by a Registration Authority to handle specific tasks within a defined area of responsibility.

RegistrationAuthority - A standards-setting body from which Registration Agencies obtain official recognition and guidance. Example: the IDF serves as the Registration Authority for the International Standards Organization (ISO) in the domain of Digital Object Identifiers.

					RelatedPerson - A person without a specifically defined role in the development of the resource, but who is someone the author wishes to acknowledge. This person could be an author's intellectual mentor, a person providing intellectual leadership in the discipline or subject domain, etc.
					Researcher - A person involved in analyzing data or the results of an experiment or formal study. May indicate an intern or assistant to one of the authors who helped with research but who was not so "key" as to be listed as (co-)author(s). Should be a person, not an institution. Note that a person involved in the gathering of data would fall under the contributorType "DataCollector." The researcher may find additional data online and correlate it to the data collected for the experiment or study, for example.
					ResearchGroup - A group of individuals/scientists with a lab, department, or division; the group has a particular, defined focus of activity. May operate at a narrower level of scope; may or may not hold less administrative responsibility than a project team.
					Sponsor - Person/Organization that issued a contract or under the auspices of which a work has been conducted, written, printed, published, developed, etc. Includes organizations that provide in-kind support, through donation, provision of people or a facility or instrumentation necessary for the development of the resource, etc.
					WorkPackageLeader - A Work Package is a recognized data product, not all of which is included in publication. The package, instead, may include notes, discarded documents, etc. The Work Package Leader is responsible for ensuring the comprehensive contents, versioning, and availability of the Work Package during the development of the resource.
					Other - Any person or institution making a significant contribution to the development and/or maintenance of the resource, but whose contribution does not "fit" other controlled vocabulary for contributor type. Examples: Could be a photographer, artist, or writer whose contribution

					helped to publicize the resource (as opposed to creating it), a reviewer of the resource, someone providing administrative services to the author (such as depositing updates into an online repository, analysing usage, etc.), or one of many other roles.
14.2	contributor name	The name of the contributor.	A	1	Mandatory if contributor is used. The personal name format may be: family, given. Non-roman names should be transliterated according to the ALA-LC schemes14: http://www.loc.gov/catdir/cpso/roman.html
14.2.1	family name	The surname or last name of the contributor.		0-1	Surname.
14.2.2	given name	The personal or fist name of the contributor.		0-1	First name.
14.3	name identifier	Uniquely identifies an individual or legal entity, according to various schemes.	C	0-n	Format depends on the scheme of the name identifier.
14.3.1	name identifier scheme	The name of the identifier scheme.	A	1	If nameIdentifier is given, it is mandatory to state the nameIdentifier scheme. E.g.: ORCID, ISNI **Note**: Within the RADAR User Interface (www.radar-service.eu), this function is limited to ORCID. If another name identifier scheme should be applied, please use the XML upload or API.
14.3.2	scheme URI	Optional URI of the name identifier scheme.		0-1	Optional. Examples: http://www.orcid.org http://isni.org
14.4	contributor affiliation	Organizational or institutional affiliation of the creator(s).	C	0-1	Optional free-text field.
15	language	Main language used or relevant to the resource.		0-1	Selection list: ISO-639-3; http://www.sil.org/iso639-3/codes.asp Three letter codes from ISO-639-3 but only for languages that have also an ISO 639-1 code. Example: eng, fre, ger
16	alternate identifier	An identifier or identifiers other than the primary Identifier applied to the		0-n	Free-text field. This may be any alphanumeric string which is unique within its domain of issue. May be used for local identifiers; an alternate identifier should be used

		resource being registered.			for another identifier of the same instance (same location, same file).
16.1	**alternate identifier type**	The type of the alternate identifier given for the resource.	A	1	Free-text field. Please state here the type/description of the alternate identifier which is also used, e.g. within your institute or field of research, to refer to the resource. Example: local accession number: XFD_20061131
17	**related identifier**	Identifiers of related resources. These must be globally unique identifiers.		0-n	Free-text field. The value of the appropriate related identifier type(s).
17.1	**related identifier type**	Identifies the type of the related identifier.	A	1	Selection list. Please choose from the selection list which type of the related identifier is given. Selection list: - ARK - arXiv - bibcode - DOI - EAN13 - EISSN - Handle - IGSN - ISBN - ISSN - ISTC - LISSN - LSID - PMID - PURL - UPC - URL - URN **ARK -** Archival Resource Key; URL designed to support long-term access to information objects. **arXiv** - arXiv identifier used in the arXiv.org repository. Used for preprints if scientific papers from the fields of mathematics, physics, astronomy, computer science, quantitative biology, statistics and quantitative finance. **bibcode** - Astrophysics Data System bibliographic codes; a 19 character identifier according to the syntax yyyyjjjjvvvvmppppa. Further description: http://info-uri.info/registry/OAIHandler?verb=GetRecord&metadataPrefix=reg&identifier=info:bibcode/

					DOI - Digital Object Identifier; a character string used to uniquely identify an object. A DOI name is divided into two parts, a prefix and a suffix, separated by a slash.
					EAN13 - European Article Number, now renamed International Article Number, but retaining the original acronym, is a 13-digit barcoding standard which is a superset of the original 12-digit Universal Product Code (UPC) system.
					EISSN - Electronic International Standard Serial Number; ISSN used to identify periodicals in electronic form (also eISSN or e-ISSN).
					Handle - A handle is an abstract reference to a resource.
					IGSN – International Geo Sample Number; a 9-digit alphanumeric code that uniquely identifiers samples from the natural environment.
					ISBN - International Standard Book Number; a unique numeric book identifier. There are 2 formats: a 10-digit ISBN format and a 13-digit ISBN.
					ISSN - International Standard Serial Number; a unique 8-digit number used to identify a print or electronic periodical publication.
					ISTC - International Standard Text Code; a unique "number" assigned to a textual work. An ISTC consists of 16 numbers and/or letters.
					LISSN - The linking ISSN or ISSN-L enables collocation or linking among different media versions of a continuing resource.
					LSID - Life Science Identifiers; a unique identifier for data in the Life Science domain. Format: urn:lsid:authority:namespace:identifier:revision
					PMID - PubMed identifier; a unique number assigned to each PubMed record.
					PURL - Persistent Uniform Resource Locator. A PURL has three parts: (1) a protocol, (2) a resolver address, and (3) a name.

						UPC - Universal Product Code is a barcode symbology used for tracking trade items in stores. Its most common form, the UPC-A, consists of 12 numerical digits. **URL -** Uniform Resource Locator, also known as web address, is a specific character string that constitutes a reference to a resource. The syntax is: scheme://domain:port/path?query_string#fragment_id **URN -** Uniform Resource Name; is a unique and persistent identifier of an electronic document. The syntax is: urn:< NID>:<NSS> The leading urn: sequence is case-insensitive, <NID> is the namespace identifier, <NSS> is the namespace-specific string.
17.2	**relation type**	Description of the relationship of the resource being registered (**A**) and the related resource (**B**).	A	1	Selection list: - IsCitedBy - Cites - IsSupplementTo - IsSupplementedBy - IsContinuedBy - Continues - HasMetadata - IsMetadataFor - IsNewVersionOf - IsPreviousVersionOf - IsPartOf - HasPart - IsReferencedBy - References - IsDocumentedBy - Documents - IsCompiledBy - Compiles - IsVariantFormOf - IsOriginalFormOf - IsIdenticalTo - IsReviewedBy - Reviews - IsDerivedFrom - IsSourceOf **IsCitedBy -** Indicates that **B** includes **A** in a citation. **Recommended for discovery**. **Cites -** Indicates that **A** includes **B** in a citation. **IsSupplementTo -** Indicates that **A** is a supplement to **B**. **IsSupplementedBy -** Indicates that **B** is a supplement to **A**.

IsContinuedBy - Indicates *A* is continued by the work *B*.

Continues - Indicates *A* is a continuation of the work *B*.

HasMetadata - Indicates resource *A* has additional metadata *B*.

IsMetadataFor - Indicates additional metadata *A* for a resource *B*.

IsNewVersionOf - Indicates *A* is a new edition of *B*, where the new edition has been modified or updated.

IsPreviousVersionOf - Indicates *A* is a previous edition of *B*.

IsPartOf - Indicates *A* is a portion of *B*; may be used for elements of a series.

HasPart - Indicates *A* includes the part *B*.

IsReferencedBy - Indicates *A* is used as a source of information by *B*.

References - Indicates *B* is used as a source of information for *A*.

IsDocumentedBy - Indicates *B* is documentation about/explaining *A*.

Documents - Indicates *A* is documentation about/explaining *B*.

IsCompliedBy - Indicates *B* is used to compile or create *A*.

Complies - Indicates *B* is the result of a compile or creation event using *A*.

IsVariantFormOf - Indicates *A* is a variant or different form of *B*, e.g. calculated or calibrated form or different packaging.

IsOriginalFormOf - Indicates *A* is the original form of *B*.

IsIdenticalTo - Indicates that *A* is identical to *B*, for use when there is a need to register two separate instances of the same resource.
IsIdenticalTo should be used for a resource that is the same as the registered resource but is saved on another location, maybe another institution.

					IsReviewedBy - Indicates that *A* is reviewed by *B*. **Reviews** - Indicates that *A* is a review of *B*. **IsDerivedFrom** - Indicates that *B* is a source upon which *A* is based, for example a derivative of an original resource. **IsSourceOf** - Indicates that *A* is a source upon which *B* is based. It describes the original resource from which a derivative was created.
18	**geo location**	Spatial region or place where the resource was originated or which the resource refers to.		0-n	If the resource can be geo-referenced, please provide the appropriate description in the following fields. You may repeat this property to indicate several different locations.
18.1	**geo location country**	Country of resource origin or the country, which the resource refers to.	C	0-1	English country code of data origin: ISO 3166; ftp://ftp.fu-berlin.de/doc/iso/iso3166-countrycodes.txt
18.2	**geo location region**	Region of resource origin or the region, which the resource refers to.	C	0-1	Free-text field. Please use to describe a geographic location.
18.3	**geo location point**	A point location on earth.	C	0-1	Point contains a single latitude-longitude pair, separated by whitespace - according to the WGS 84 (World Geodetic System): http://spatialreference.org/ref/epsg/wgs-84/ and http://earth-info.nga.mil/GandG/publications/tr8350.2/wgs84fin.pdf Please use WGS 84 coordinates. Use only decimal numbers for coordinates. Longitudes are -180 to 180 (0 is Greenwich, negative numbers are west, positive numbers are east), Latitudes are -90 to 90 (0 is the equator; negative numbers are south, positive numbers north).
18.3.1	**latitude**	Latitudinal dimension of point.		1	Mandatory if geo location point is used. WGS 84.
18.3.2	**longitude**	Longitudinal dimension of point.		1	Mandatory if geo location point is used. WGS 84.
18.4	**geo location box**	The spatial limits of a place on earth.	C	0-1	Please use WGS 84 coordinates. Use only decimal numbers for coordinates. RADAR requires four box

					coordinates: 1. Western boundary (Longitude) 2. Eastern boundary (Longitude) 3. Southern boundary (Latitude) 4. Northern boundary (Latitude) Longitudes are -180 to 180 (0 is Greenwich, negative numbers are west, positive numbers are east), Latitudes are -90 to 90 (0 is the equator; negative numbers are south, positive numbers north): http://spatialreference.org/ref/epsg/wgs-84/
18.4.1	**south west point**	Contains latitude and longitude of the south west point.		1	Mandatory if geo location box is used. WGS 84.
18.4.2	**north east point**	Contains latitude and longitude of the north east point.		1	Mandatory if geo location box is used. WGS 84.
19	**data source**	Specifies the origin of the data contained in the resource.		0-n	Free-text field.
19.1	**data source detail**	Specifies the type of data source.	A	1	Selection list. If a data source is given, please state the details of its origin. Selection list: - Instrument - Media - Observation - Trial - Organism - Tissue - Other **Instrument -** An analytical instrument used for the creation of the resource. **Media -** A media type that was used for the creation of the resource. **Observation -** A non-persistent, time-based occurrence/event which describes the origin of the resource. **Trial -** A controlled, planned study carried out within a specific time-frame which describes the origin of the resource. **Other -** If none of the stated devices can be applied for your resource description. <u>Example</u>: Could be a unique testing system exclusively developed for your kind of study/experiment.

20	software type	Specifies the software used during the research process and its role in respect to the data in the resource.		0-n	Please state how the software was used and provide a description of the software, including the version which was used. Selection list: - Resource Production - Resource Processing - Resource Viewing - Other **Resource Production -** Software used to produce the resource. **Resource Processing -** Software used to process or modify the resource. **Resource Viewing -** Software used to view the resource. **Other -** If none of the stated can be applied for your software type. You may repeat this property to indicate several software applications related to the resource. You may also specify software alternatives that could be used to produce, process, view or otherwise utilize the resource.
20.1	software name	Specifies the name of the software used in the production, processing, viewing or another kind of utilization of the resource.	C	1-n	Free-text field. Please state software used to produce, process, view or otherwise utilize the resource.
20.1.1	software version	Specifies the respective version of the software.	A	1	Free-text field. Please state the version(s) of the software specified. Please state 'unknown' when unsure.
20.2	alternative software	Specifies the name of software that could be alternatively used to produces, process, view or otherwise utilize the resource.	C	0-n	Free-text field. You may also state and describe software that could be used as alternative software, e.g. open source software, to produce, process, view or otherwise utilize the resource.
20.2.1	alternative software version	Specifies the version of the software alternative.	A	1	Free-text field. Please state the version of the software that could be used as alternative software, e.g. open source software, to produce, process, view or otherwise utilize the resource. Please state 'unknown' when unsure.
21	data processing	Specifies the data processing		0-n	Free-text field. If applicable, please describe the data

		instructions, used for creating the data in the digital resource.			processing applied to the raw data (e.g. statistics) and, if applicable, how information thereof was be extracted.
22	related information	Specifies relevant information on the sample used to produce the digital data in the resource.		0-n	Free-text field. Please indicate relevant information on the sample used to produce the digital data in the resource, for example database or serial number of the sample, sample components, substance or system under study.
22.1	related information type	Specifies the database type of related information relevant information on the sample used to produce the digital data in the resource.	A	0-1	Free-text field.
23	funding reference	Information about financial support for the resource.		0-n	Please state funding information if appropriate.
23.1	funder name	Name of the finding provider.	A	1	Example: Deutsche Forschungsgemeinschaft (DFG)
23.2	funder identifier	Unique ID of a funding entity.	A	0-1	Example: http://dx.doi.org/10.13039/501100001659
23.2.1	funder identifier type	Type of the funder identifier.		0-1	Controlled list: ISNI GRID CrossRef Funder Other **Note**: Within the RADAR User Interface (www.radar-service.eu), this function is limited to CrossRef Funder. If another funder identifier scheme should be applied, please use the XML upload or API.
23.3	award number	Code assigned by the funder to a grant.	A	0-1	Example: BE 1042/7-1
23.3.1	award URI	URI leading to a page provided by the funder for more information.		0-1	Example: http://gepris.dfg.de/gepris/projekt/237143194
23.4	award title	Title of the grant.	A	0-1	Example: RADAR Research Data Repositorium

4. Metadata for data files and directories within a dataset

Data providers have the possibility to provide additional, optional metadata specifications for directories or single files within a dataset. If such metadata specifications on a file level are supplied, RADAR provides a reduced metadata schema. With the exception of the following

parameters, all parameters for metadata specifications as mentioned above are provided. The reduced schema <u>does not</u> contain the following parameters:

1. identifier
4. publisher
6. publication year
9. rights
10. rightsholder
23. funding reference

These values are only possible on dataset level. Please also note that for a directory or data file description, all of the metadata parameters are optional fields. If the data provider specifies additional metadata information on a file/directory level, a separate landing page shows the metadata of the respective data file or directory in RADAR.