



Tools for semantic interoperability: Re3gistry software and Register of Registries federation tool

JRC Re3gistry Team

The Re3gistry

The Re³gistry software

- The [Re3gistry software](#) is a reusable open-source solution for **managing and sharing ‘reference codes’** through the use of persistent URIs, ensuring concepts are correctly referenced in any domain.
- Funded by [ELISE](#), it is an [ISA2 solution](#), recognised by [European Interoperability Framework Toolbox](#), as tool supporting interoperability.



Re3gistry implements the following:

[Principles](#)

✓ [Openness](#)

✓ [Reusability](#)

✓ Technological neutrality

✓ [User-centricity](#)

✓ [Multilingualism](#)

✓ [Administrative simplification](#)

✓ [Preservation of information](#)

[Interoperability layers](#)

✓ [Interoperability](#) governance

✓ [Semantic interoperability](#)

[Conceptual model](#)

✓ Conceptual model

✓ [Base registries](#)

Re3gistry implements the following recommendations as explained below:

✓ **Recommendation 4 | Principle 2: [Openness](#)**

The Re3gistry is a source of common reference codes, hence it enables public administrations to use and reuse open specifications in relation to geospatial domain.

✓ **Recommendation 7 | Principle 4: [Reusability](#)**

The Re3gistry enables the sharing and reuse of data across borders and sectors.

✓ **Recommendation 8 | Principle 5: [Technological neutrality](#)**

Re3gistry features

- Recently released [version 2 of the Re3gistry](#)
- This new version greatly improves the former Re3gistry 1.3
 - User-friendly editing interface
 - Built-in ISO 19135:2005 Procedures for item registration
 - Easy User and Group management
 - Ready to use & customisable public user interface (web application)
 - Installation wizard including migration from Re3gistry 1.3
 - RESTful API
 - Easy data export & (SOLR) re-indexing

Re3gistry public instance

- The INSPIRE re3gistry is an instance of the Re3gistry
- It will soon be upgraded to Re3gistry v2
- Reused by member States

The screenshot shows the INSPIRE Registry page for the 'application' media type. The page header includes the European Commission logo and the text 'INSPIRE Registry'. A search engine is located in the top right corner. The main content area is titled 'application' and contains several sections:

- Help us improving the Re3gistry software!** Please fill our quick survey at <http://europa.eu/!Bn84Ct>
- ID:** <http://inspire.ec.europa.eu/media-types/application> (labeled **Persistent URI**)
- Initial version:** <http://inspire.ec.europa.eu/media-types/application:1>
- Latest version:** <http://inspire.ec.europa.eu/media-types/application> (labeled **Versioning**)
- Label:** application
- Definition:** This register contains the sub-types of the media type application used for spatial data sets in INSPIRE, in particular in INSPIRE download services. Whenever sub-types exist that are registered with IANA or are in the registration process these are used. For all other formats, no commonly used sub-type exists and INSPIRE has to - at least temporarily - define their own types. In accordance with the rules for media types in RFC 2046/RFC 4288, these start with x-. At this time, all entries in this register have the status 'valid'. Sub-types that are no longer recommended for use will be marked as 'deprecated', but will always be kept in this register as download services may still be using deprecated sub-types. (labeled **Customisable fields**)
- Status:** Valid (labeled **Item lifecycle management**)
- Other formats:** [RDF/XML](#) [JSON](#) [Atom](#) [CSV](#) (labeled **Default formats + JSON API**)
- Subtypes:** A table listing various subtypes and their status. The table has columns for 'Label' and 'Status'. The first 10 subtypes are highlighted with a yellow box and labeled **Link to Externally managed values**. The last three subtypes are highlighted with a yellow box and labeled **Internally managed values**.

Label	Status
atom+xml	Valid
geo+json	Valid
geopackage+sqlite3	Valid
gml+xml	Valid
vnd.google-earth.kml+xml	Valid
vnd.google-earth.kmz	Valid
vnd.las	Valid
vnd.shp	Valid
vnd.sqlite3	Valid
x-asciigrid	Valid
x-ecw	Valid
x-filegdb	Valid

Re3gistry behind the scenes

- Easy user & group management as basis for the item registration governance

Main actors
ISO 19135:2005

Submitting organisations

Control body

Register/Registry manager

User profile

Name Test user *

E-mail test@user.eu

Insert date 2019-08-19 16:46:13

Submitting Organisations dashboard

Action details

← Back to Actions list

Label	Start date	Register	Status	User (owner)	Actions
Action on INSPIRE application schema register	2020-04-17 14:48:16	INSPIRE application schema register	Draft	Test user	Submit to Control Body Discard action

Control body dashboard

Actions list

Label	Start date	Register	Status	User (owner)	Actions
Action on INSPIRE glossary	2020-04-23	INSPIRE glossary	Submitted (by Test user)	Test user	Approve Approve with changes Reject

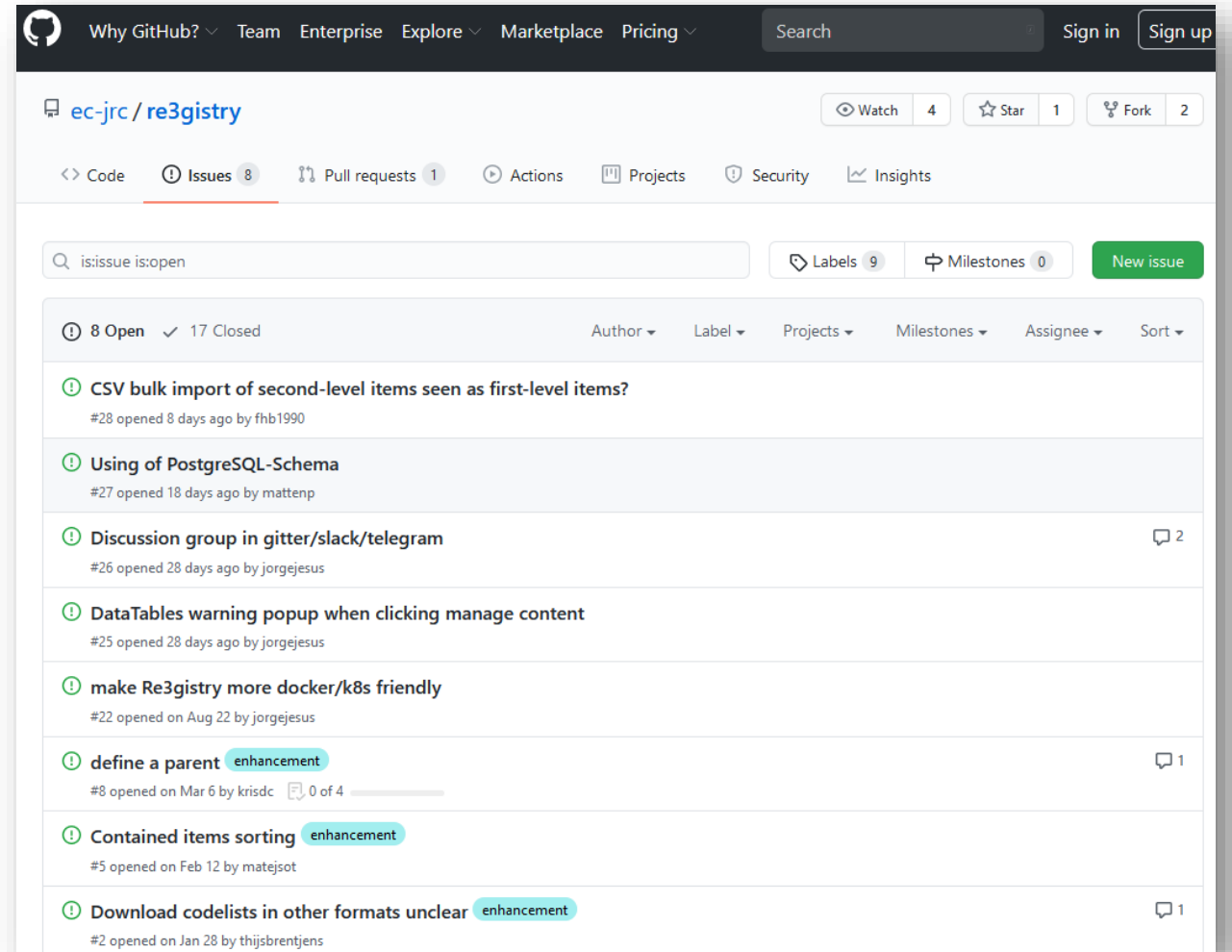
Register manager dashboard

Actions list

Label	Start date	Register	Status	User (owner)	Actions
Action on INSPIRE glossary	2020-04-23 08:28:24	INSPIRE glossary	Accepted (by Test user)	Test user	Publish

The Re3gistry Open source Community

- Re3gistry is published as an **open source project** on the **GitHub** platform with the aim to foster the **creation of a community** helping to improve and maintain it.
- EUPL 1.2 license
- Co-developed with the National Land Survey of Finland.
- Reused by different member States
- Already included in the OSGEOLive environment 14 version



Register of Registers federation tool (ROR)

INSPIRE Register Federation



- The *INSPIRE Register Federation tool* was born as a testbed to put together **national extensions of INSPIRE data models** in a single place to assure the sharing of codes for a better understanding of the semantics when using data
- The testbed comprises: the tool, best practice document and conformance classes for the RoR Descriptor files

Filter Label	Filter Publisher	Filter URI
Label	Publisher	URI
European Geoscience Registry	BRGM	https://data.geoscience.earth/ncl/
Système de publication de registres de l'IDG française	BRGM	http://registre.geocatalogue.fr/registry
INSPIRE registry	European Commission, Joint Research Centre	http://inspire.ec.europa.eu/registry
EEA Data Dictionary vocabularies	European Environment Agency	http://dd.eionet.europa.eu/vocabularies
Austrian INSPIRE registry	CCCA Data Centre	http://registry.inspire.gvat
INSPIRE Italia Registry	Agency for Digital Italy	http://registry.geodati.gov.it/registry
Lithological Classification Austria - extended values	Geological Survey of Austria	http://resource.geolba.ac.at/lithology/0
Spanish INSPIRE registry	Centro Nacional de Información Geográfica	http://registro.idee.es/registry
BRGM (French geological survey) registry tool	BRGM	https://data.geoscience.fr/ncl/
IUGS CGI Geoscience Vocabularies for Linked Data	Geoscience Terminology Working Group (GTWG)	http://resource.geosciml.org/

INSPIRE helpdesk » MIWP 2014-2016 » MIWP-6: Registers

Overview Activity Issues News Documents Wiki

Wiki » Register-tg-bp »

Registry federation requirements

This page describes the requirements that a resource shall fulfill in order to be part of the INSPIRE Register Federation. There are 3 levels of conformance: the first one is mandatory and contains the minimum information required for the RoR to register the Registry and the Registers in the federation. The second level, contains the information to enable the automatic harvesting of the information. The third one is recommended in order to provide complete information related to each resource.

The following paragraphs will describe the *required/recommended fields* to be provided for each of the classes and the *format* to create the exchange documents (subsequently called "*descriptors*").

The idea of the *descriptors* is to provide metadata and data about the *registries* and *registers* to be included in the federation in a RDF/XML document (subsequently called "*Registry descriptor*" or "*Register descriptor*") that is publicly available through an http URI.

The proposed approach is as follows:

- The `W3C Data Catalog vocabulary (DCAT)` is used to model entity *registry* (`dc:Catalog`).
- The `W3C Simple Knowledge Organization System (SKOS)` is used to model entity *register* (`skos:ConceptScheme`) and *item* (`skos:Concept`).

At the end of each conformance class there are one example file for the *Registry descriptor* and one for the *Register descriptor* (the examples contain also code comments to better understand each of the fields).

A useful resource to validate the conformance of the Registry and Register descriptors to the following classes are the XSL validators.

Note: the RoR needs a direct link to the Descriptors. Cloud platforms like Dropbox, OneDrive or Google Drive are not supported.

INSPIRE Infrastructure for Spatial Information in Europe

Best Practices for registers and registries & Technical Guidelines for the INSPIRE register federation

Title	Best Practices for registers and registries & Technical Guidelines for the INSPIRE register federation
Creator	JRC registry team
Date of publication	2017-05-31
Subject	Best Practices for registers and registries & Technical Guidelines for the INSPIRE register federation
Status	Version 1.0 This document has been endorsed by the INSPIRE maintenance and implementation group (MIG) through written procedure on 28/02/2017.
Publisher	INSPIRE Maintenance and Implementation Group (MIG)
Type	Text
Description	This document describes best practices for setting up registers for INSPIRE, including for extended INSPIRE code lists. It also includes technical guidance for sharing national or community registers in the INSPIRE register federation and for using the federation's access point (the "register of registers") to search and browse through the registers included in the federation.
Format	PDF
License	Creative Commons Attribution (cc-by) 4.0 (https://creativecommons.org/licenses/by/4.0/)
Identifier	http://inspire.ec.europa.eu/documents/registers-and-registry-federation/1
Configenda	http://inspire.ec.europa.eu/documents/registers-and-registry-federation/1/0configenda
Language	EN

INSPIRE Register Federation

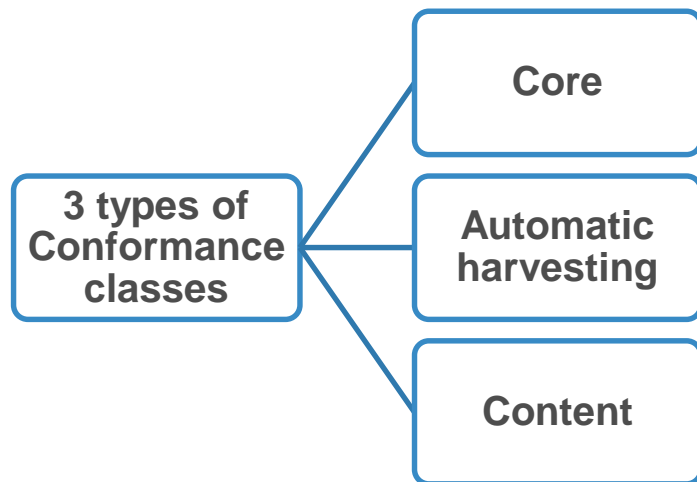


- We are currently working in releasing the **source code as Open source**
- It is **fully compatible with the Re3gistry** that provides on demand **RoR descriptor formats**
- **Descriptors files** provide metadata and data about the registries and registers and their relationships to be included in the federation in a RDF/XML document
- The tool allows searching in the different registers and the items contained in them.
- The RoR can be accessed using graphical **user interface** and / or **API**
- This tool helps putting together information from reference code systems without affecting their technical setting, there's only need to provide a descriptor file to be exchanged .
- The upcoming European Data ecosystems could benefit from this type of crosscutting technologies to connect them at a semantical level.

Tesbed : <https://inspire-regadmin.jrc.ec.europa.eu/ror/>

RoR descriptor file

- The W3C Data Catalog vocabulary (DCAT) is used to model entity registry (dcat:Catalog).
- The W3C Simple Knowledge Organization System (SKOS) is used to model entity register (skos:ConceptScheme) and item (skos:Concept).



```
<rdf:RDF>
  <!--
    ## Registry descriptor: Mandatory Conformance Class ##
  -->
  <!-- URI / URL of the registry -->
  <rdf:Description rdf:about="http://inspire.ec.europa.eu/registry">
    <rdf:type rdf:resource="http://www.w3.org/ns/dcat#Catalog"/>
    <!-- Name of the registry -->
    <dct:title xml:lang="en">INSPIRE registry</dct:title>
    <!-- Re
  -->
  <dct:partOf rdf:resource="http://inspire.ec.europa.eu/registry">
    <!--
      ## Register descriptor: Automatic Harvesting Conformance Class ##
    -->
    <!-- URI / URL of the register -->
    <rdf:Description rdf:about="http://dd.eionet.europa.eu/vocabulary/inspire/DesignationSchemeValue">
      <rdf:type rdf:resource="http://www.w3.org/2004/02/skos/core#ConceptScheme"/>
      <!-- Reference to the registry operating the register -->
      <dct:isPartOf>
        <dcat:Catalog rdf:about="http://dd.eionet.europa.eu/vocabularies"/>
      </dct:isPartOf>
      <!--
        Reference to the external register on which this register relies on
      -->
      <voaf:reliesOn rdf:resource="http://inspire.ec.europa.eu/codelist/DesignationSchemeValue"/>
      <!-- Name of the register -->
      <skos:prefLabel xml:lang="en">Designation Scheme</skos:prefLabel>
      <!--
        Update frequency. For conformance with DCAT-AP, this needs to be specified by using the
        MDR Frequency register maintained by the EU Publications Office:
        http://publications.europa.eu/mdr/authority/frequency/
      -->
      <dct:accrualPeriodicity rdf:resource="http://publications.europa.eu/resource/authority/frequency/DAILY"/>
      <!-- Register publisher / responsible / contact point -->
      <dct:publisher>
        <!--
          This is the URI for the organisation taken from the MDR Corporate Bodies register maintained by
          the EU Publications Office: http://publications.europa.eu/mdr/authority/corporate-body/
          These URIs should be used for EU institutions and bodies.
          Organisation not included in the MDR Corporate Bodies register should use their official URI (e.g.,
          maintained by a national register), if any or use a well defined URI-pattern (an example could be a
          Dbpedia URI)
        -->
        <foaf:Agent rdf:about="http://publications.europa.eu/resource/authority/corporate-body/EEA">
          <foaf:name xml:lang="en">European Environment Agency</foaf:name>
          <foaf:mbox rdf:resource="mailto:cr@eionet.europa.eu"/>
          <foaf:homepage rdf:resource="http://www.eea.europa.eu"/>
        </foaf:Agent>
      </dct:publisher>
    </rdf:Description>
  </rdf:RDF>
```

Registry descriptor file

Register descriptor files



Registries

Registries available in the federation tool

Filter Label	Filter Publisher	Filter URI
Label	Publisher	URI
European Geoscience Registry	BRGM	https://data.geoscience.earth/ncl/
Système de publication de registres de l'IDG française	BRGM	http://registre.geocatalogue.fr/registry
INSPIRE registry	European Commission, Joint Research Centre	http://inspire.ec.europa.eu/registry
EEA Data Dictionary vocabularies	European Environment Agency	http://dd.eionet.europa.eu/vocabularies
Austrian INSPIRE registry	CCCA Data Centre	http://registry.inspire.gv.at
INSPIRE Italia Registry	Agency for Digital Italy	http://registry.geodati.gov.it/registry
Lithological Classification Austria - extended values	Geological Survey of Austria	http://resource.geolba.ac.at/lithology/0
Spanish INSPIRE registry	Centro Nacional de Información Geográfica	http://registro.idee.es/registry
BRGM (French geological survey) registry tool	BRGM	https://data.geoscience.fr/ncl/
IUGS CGI Geoscience Vocabularies for Linked Data	Geoscience Terminology Working Group (GTWG)	http://resource.geosciml.org/

Items per page 10 Showing 1 to 10 of 10 entries

First Previous 1 Next Last

REST URL: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/registries>

Web Service details



Relations **Austrian register extending the INSPIRE for "land cover class" codelist**

Filter Local ID	Filter Subject	Filter Predicate	Filter Object
Local ID	Subject	Predicate	Object
4a08196ef68976c0b5ba460cff80aa86	EEA Data Dictionary vocabularies - Corine Land Cover	relies on	INSPIRE registry - Land Cover Class
a6fbcd0c2eb7b29e79c1abd5ddd98580	INSPIRE Italia Registry - Glossary	relies on	INSPIRE registry - INSPIRE glossary
b5a5b92eea7f0204599326cc3a211425	Austrian INSPIRE registry - LISA Land Cover Class	relies on	INSPIRE registry - Land Cover Class
dcca808e5ae2816c7b532fe68166fff0	EEA Data Dictionary vocabularies - DesignationSchemeValue	relies on	INSPIRE registry - Designation Scheme

Items per page Showing 1 to 4 of 4 entries

[First](#) [Previous](#) [1](#) [Next](#) [Last](#)

REST URL: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/relations>

[Web Service details](#)

Details

Label:	LISA Land Cover Class		
URI:	http://registry.inspire.gv.at/codelist/LISALandCoverClassValue		
Publisher:	CCCA Data Centre http://ccca.ac.at chris.schubert@ccca.ac.at http://ccca.ac.at	Information on the extended code list. Based on the RoR description file exchanged	
Registry:	Austrian INSPIRE registry http://registry.inspire.gv.at		
Update frequency:	Not available		

REST URL: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/registers/99764810fa2ea48df25730c663701e09>

Associated Relations

Filter Local ID	Filter Subject	Filter Predicate	Filter Object
Local ID	Subject	Predicate	Object
b5a5b92eea7f0204599326cc3a211425	Austrian INSPIRE registry - LISA Land Cover Class	relies on	INSPIRE registry - Land Cover Class

Items per page 10 Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Filter Local ID	Filter Subject	Filter Predicate	Filter Object
Local ID	Subject	Predicate	Object
b5a5b92eea7f0204599326cc3a211425	Austrian INSPIRE registry - LISA Land Cover Class	relies on	INSPIRE registry - Land Cover Class

Items per page

Showing 1 to 1 of 1 entries

[First](#)
[Previous](#)
[1](#)
[Next](#)
[Last](#)

Austrian values contained in the extended INSPIRE Land Cover Class

Available items

Filter Label
Label
abiotic
bare rock
biotic
building
built-up
bushes
coniferous trees
deciduous trees
dwarf shrubs
herbaceous

Items per page

Showing 1 to 10 of 26 entries

[First](#)
[Previous](#)
[1](#)
[2](#)
[3](#)
[Next](#)
[Last](#)

REST URL: https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/relations/q/subjectRegister_objectRegister_id=99764810fa2ea48df25730c663701e09





Federated search

Search in the INSPIRE Register Federation ...

Search

This search engine will search through all of the items available in the INSPIRE Register Federation.

In addition to the simple queries you can also use more complex syntax:

Enclose exact words in quotes: "example terms"

Use AND, OR operators

Prepend the sign - (minus) the words to exclude: -example, - "example terms"

If you cannot find a page that you know exists, please let us know using the [feedback platform](#)

Federated search


REST URL: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/registers>

[Web Service details](#)

WADL location: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/application.wadl>

REST filter pattern: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/<registries|registers|relations>/q/<field>=<value>>

API

REST URL: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/registers> 

 [Web Service details](#)

WADL location: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/application.wadl> 

REST filter pattern: <https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/<registries|registers|relations>/q/<field>=<value>>

API

```
JSON Raw Data Headers
Save Copy Collapse All Expand All Filter JSON
▼ relations:
  ▼ 0:
    ▼ relation:
      ▼ subjectRegister:
        ▼ registry:
          id: "610c0ded611293d8177f927851059168"
          label: "EEA Data Dictionary vocabularies"
          uri: "http://dd.eionet.europa.eu/vocabularies"
          id: "b328055036f92c8fde8b8ae70438a4b1"
          label: "DesignationSchemeValue"
          ▼ uri: "http://dd.eionet.europa.eu/vocabulary/cdda/DesignationSchemeValue"
        predicate: "relies on"
      ▼ objectRegister:
        ▼ registry:
          id: "3fa3533606d113d81e36b7aa1d13d5d6"
          label: "INSPIRE registry"
          uri: "http://inspire.ec.europa.eu/registry"
          id: "993473a6bd1f2d6d24ec0024254615ea"
          label: "Designation Scheme"
          ▼ uri: "http://inspire.ec.europa.eu/codeList/DesignationSchemeValue"
        id: "dcca008e5ae2816c7b532fe68166fff0"
        status: "http://inspire.ec.europa.eu/registry/status/valid"
  ▼ 1:
    ▼ relation:
      ▼ subjectRegister:
        ▼ registry:
```

Example of request:
<https://inspire-regadmin.jrc.ec.europa.eu/ror/rest/relations>

Thank you!



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