

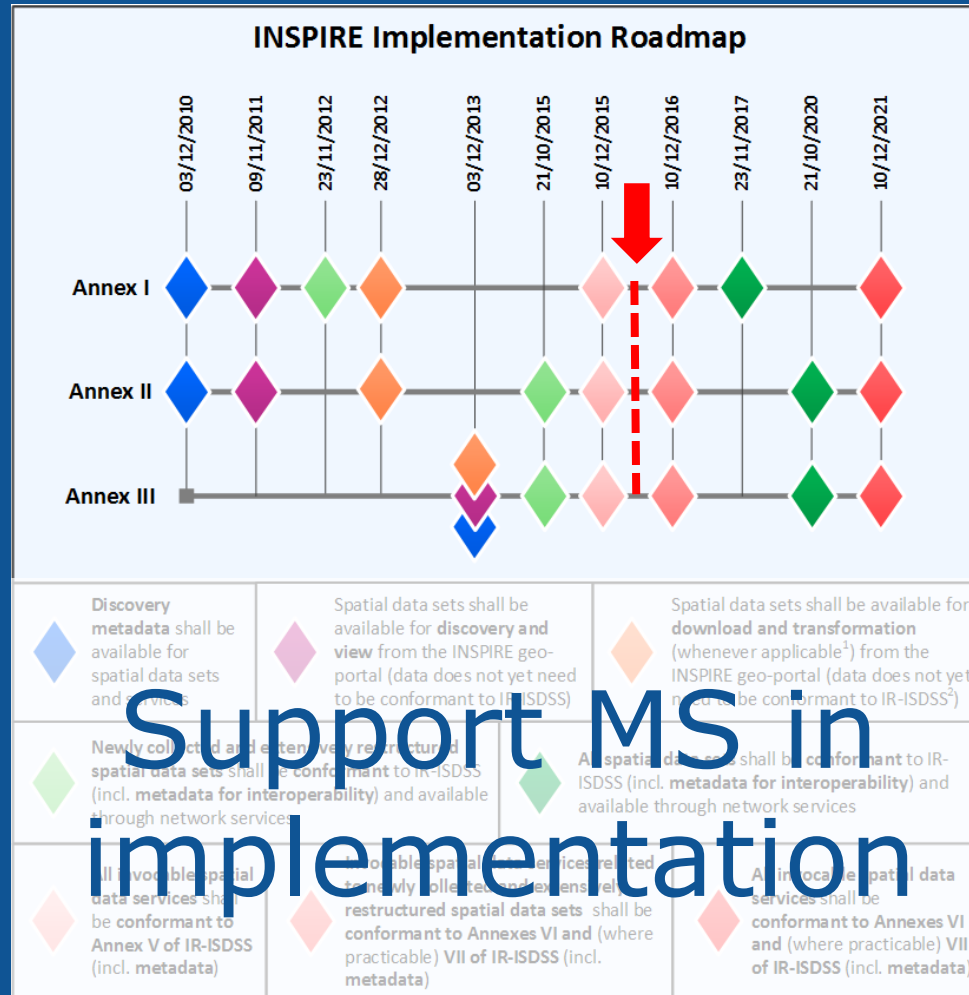


From the INSPIRE Engine Room

Michael Lutz

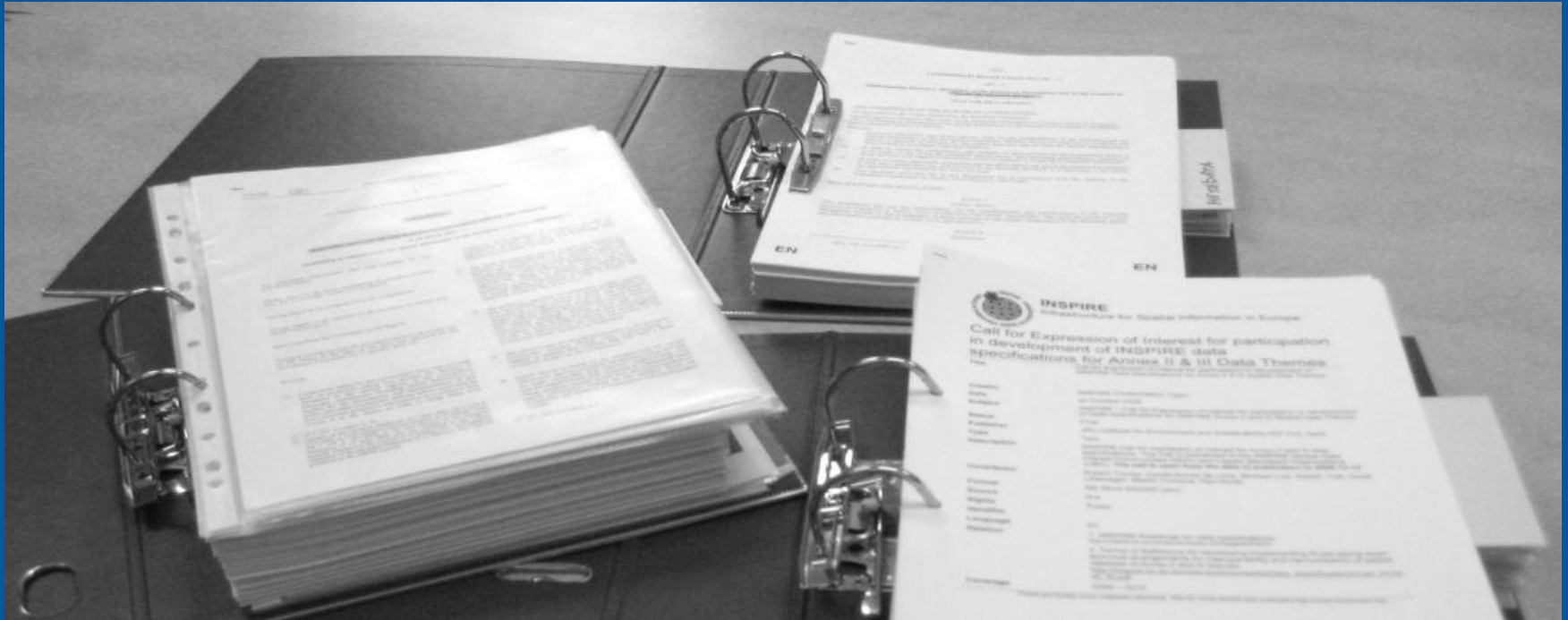
ENiiG Conference, Lisbon
9 November 2016

The JRC's role in INSPIRE



Support MS in implementation

The JRC's role in INSPIRE



Maintain 6 legal acts and
40+ Technical Guidelines

The JRC's role in INSPIRE



The screenshot shows the INSPIRE Registry page. At the top, it says "INSPIRE REGISTRY" and "Enhancing access to European spatial data". Below this, it lists the ID, Language, Label, Registry manager, and Content Summary. The Registry manager is "European Commission, Joint Research Centre". The Content Summary describes the INSPIRE infrastructure and its purpose. At the bottom, there is a section for "Registers" with a table listing various registers and a "Showing 1 to 4 of 4 entries" indicator.

INSPIRE REGISTRY
Enhancing access to European spatial data

European Commission > INSPIRE > INSPIRE registry

INSPIRE registry

ID: <http://inspire.ec.europa.eu/registry>

Language: en

Label: INSPIRE registry

Registry manager: European Commission, Joint Research Centre


Content Summary: The INSPIRE infrastructure involves a number of items, which require clear descriptions and the possibility to be referenced through unique identifiers. Examples for such items include INSPIRE themes, code lists, application schemas or discovery services. Registers provide a means to assign identifiers to items and their labels, definitions and descriptions (in different languages). The INSPIRE registry provides a central access point to a number of centrally managed INSPIRE registers. The content of these registers are based on the INSPIRE Directive, Implementing Rules and Technical Guidelines.

Other formats: XML JSON Atom

Registers

Items per page	Filter
50	
INSPIRE application schema register	Label
INSPIRE code list register	
INSPIRE feature concept dictionary	
INSPIRE theme register	

Showing 1 to 4 of 4 entries



The screenshot shows the INSPIRE Geoportal page. At the top, it says "INSPIRE GEOPORTAL" and "Access spatial information in the European Union". Below this, there is a search bar and a navigation menu. The main content area is titled "INSPIRE Data Themes" and features a row of icons representing different themes. The "Production and industrial facilities" theme is selected, showing a description and a map of Europe. The map highlights various countries and regions, with a legend indicating different types of facilities.

INSPIRE GEOPORTAL
Access spatial information in the European Union

European Commission > INSPIRE Geoportal >

Home Browse catalogue Discover data Combine maps Login Register yourself

INSPIRE Data Themes

Production and industrial facilities

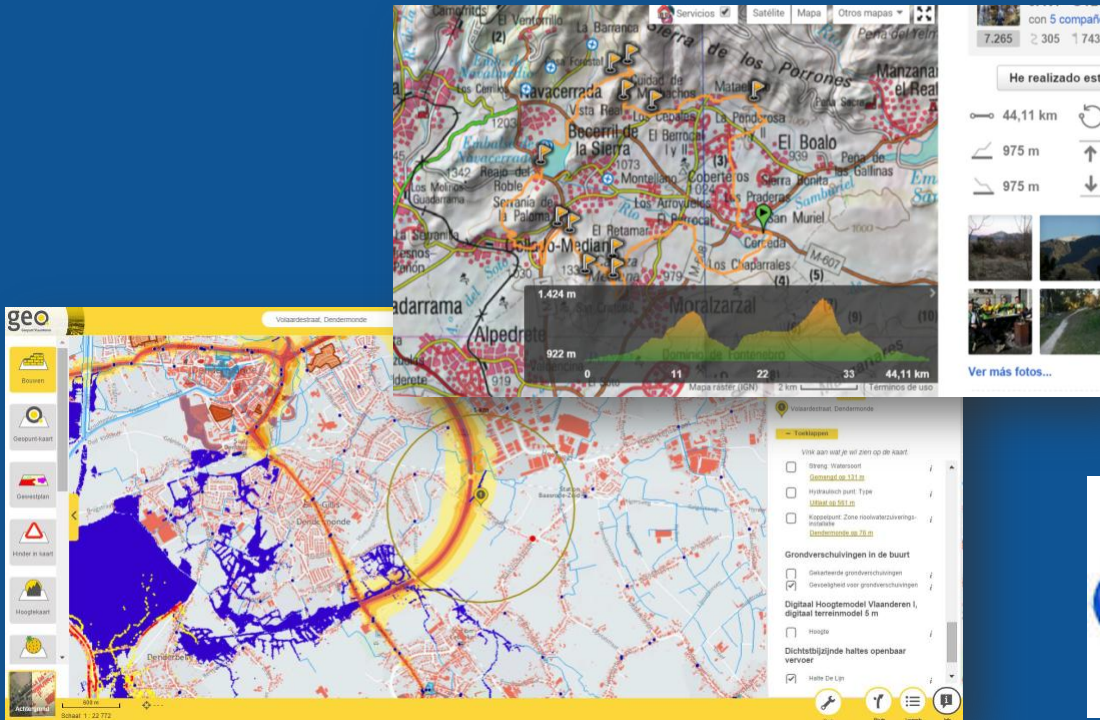
Discover Browse

Industrial production sites, including installations covered by Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control (1) and water abstraction facilities, mining, storage sites.

Protected sites Addresses Land use Natural risk zones Land cover Administrative units Geology Habitats and biotopes Buildings Cadastral parcels

Develop and maintain central infrastructure components & tools

The JRC's role in INSPIRE



**GEO-
DCAT**
APPLICATION
PROFILE FOR
EUROPEAN
DATA PORTALS

Support technical evolution and use of INSPIRE data & services

The JRC's role in INSPIRE

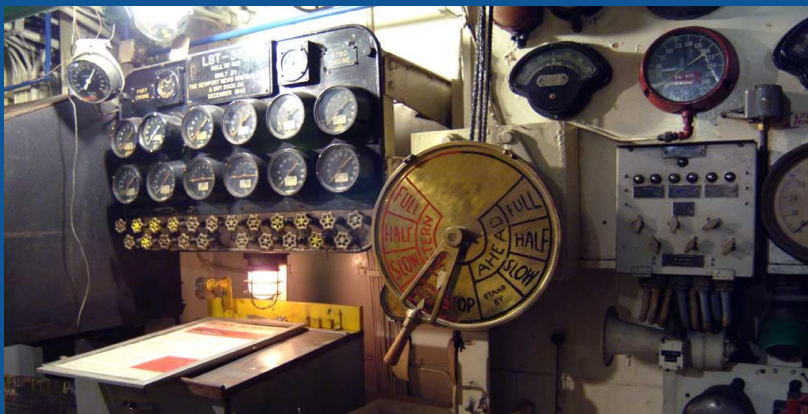


Coordinate with other policies
and discuss strategic direction

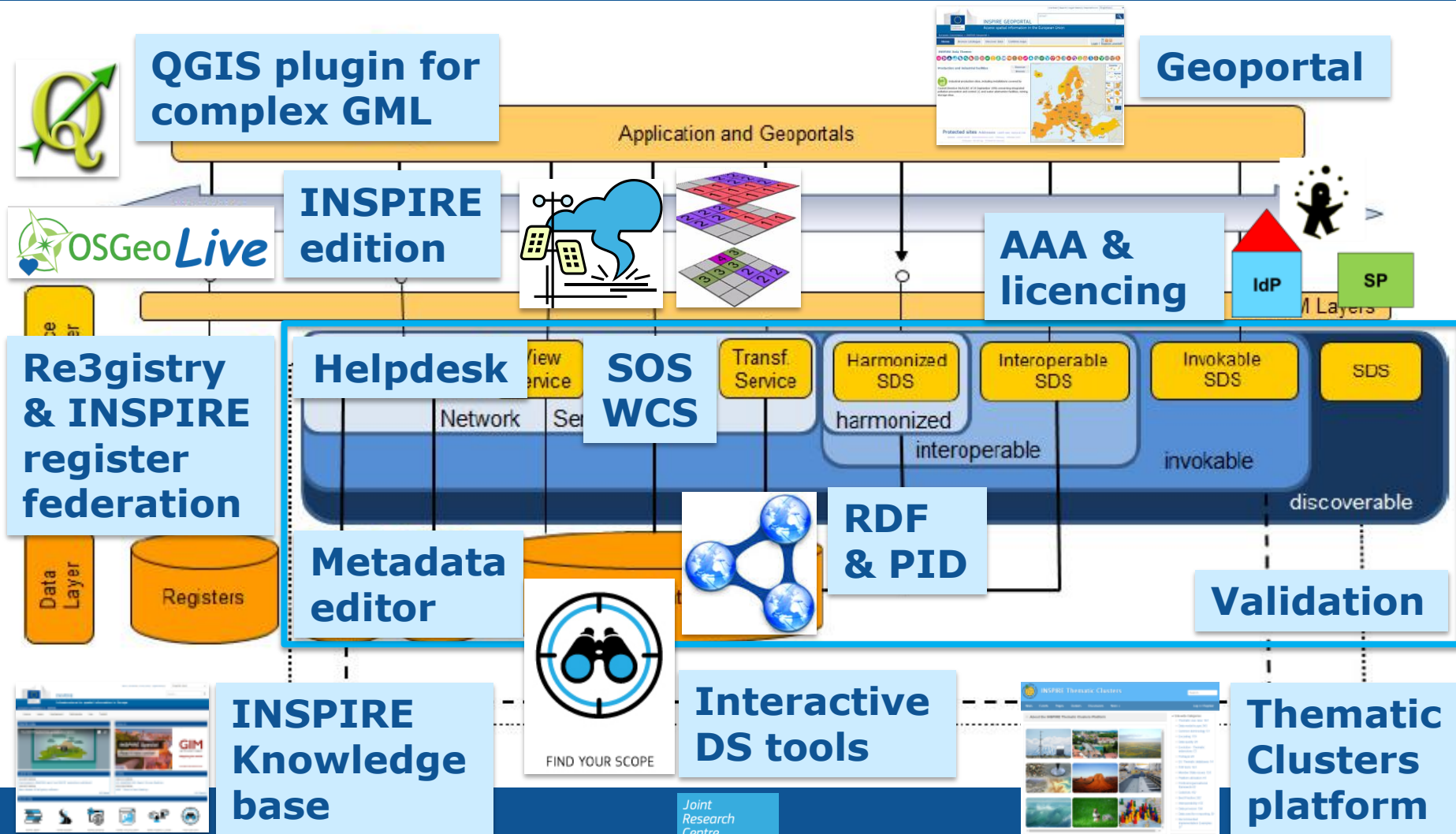
The JRC's role in INSPIRE

- Coordination of the permanent technical sub-group (MIG-T) of the Commission Expert Group on INSPIRE Maintenance & Implementation (MIG)
 - Members nominated by Member States
 - Multi-annual rolling work programme (MIWP) agreed by EC, EEA and MS
- Coordination of and participation in technical actions / sub-groups for specific tasks
 - Members from a “pool of experts” (proposed by SDICs and LMOs)

The engine room – an overview



The engine room – an overview



Overview

- Common validator
- The INSPIRE registry & register federation
- TGs & tools for observation & coverage data
- Best practices for data model extensions
- INSPIRE knowledge base
 - Interactive data specification tool kit
 - INSPIRE in practice
 - Thematic Clusters platform
- OSGeoLive – INSPIRE edition
- QGIS plugin for complex GML features

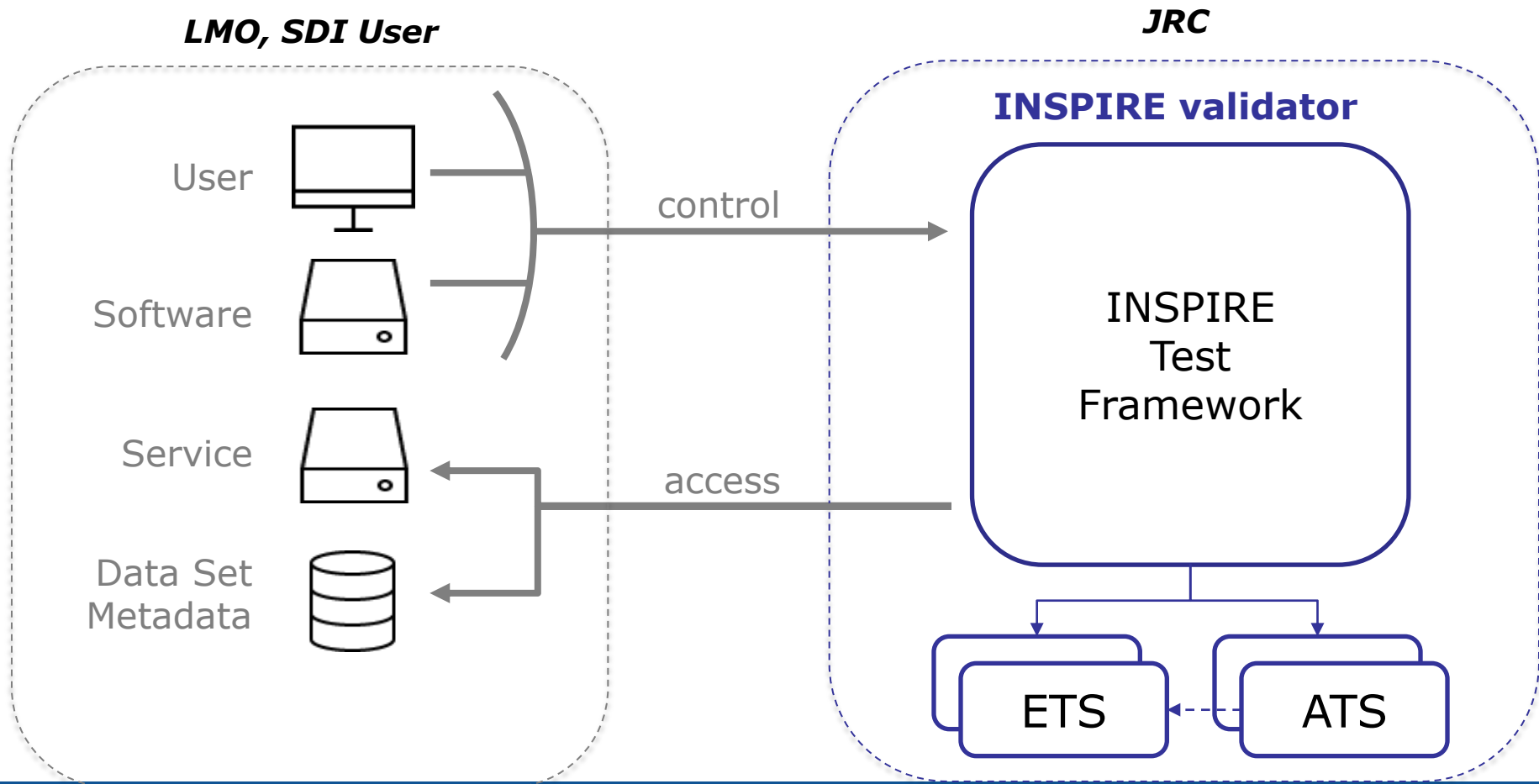
Common INSPIRE validator – Why?

- In the implementation phase there is a need for tools for validation (of metadata, services, data)
 - for implementers to understand where they are with their implementation & where there are gaps
 - for national coordinators for monitoring the implementation in their countries
 - for DG ENV/JRC/EEA to monitor the implementation across Europe
 - for solution providers to check their software solutions against the INSPIRE requirements
- Validation service available from JRC and in some Member States and projects
 - duplication of effort
 - potentially inconsistent results

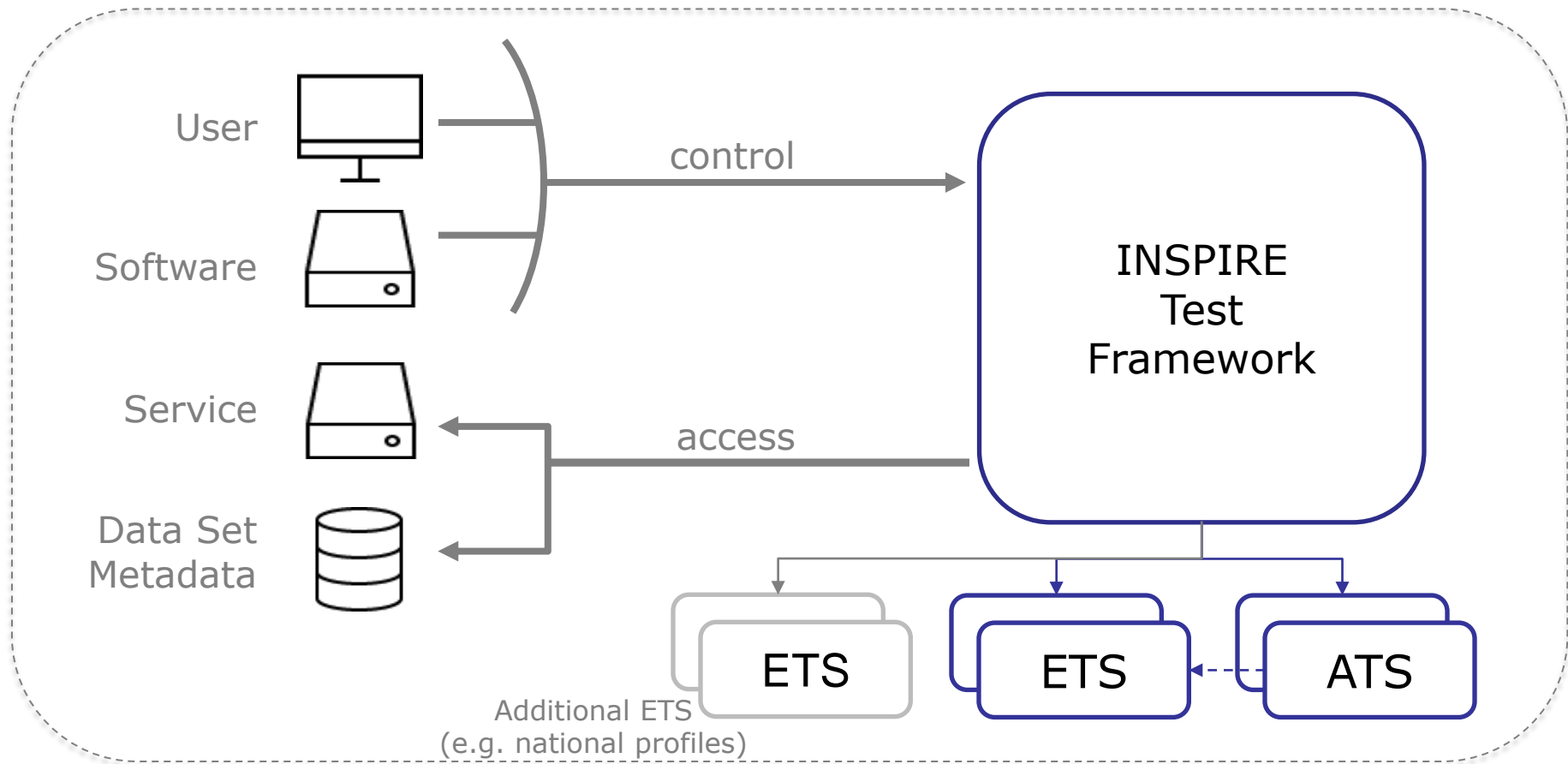
Common INSPIRE validator – Status

- Supported by ARE3NA ISA action
 - Contractors: PwC and interactive instruments
 - Support and accelerate ongoing work in the MIG-T (MIWP-5)
- Scope: Conformance testing of INSPIRE Metadata, Network Services and Data Sets based on an agreed set of abstract tests
- Aims
 - Development of a reusable, open source, reference validator
 - Build upon existing solutions
 - Offering configurable software and test rules for organisations to test conformance
 - Create a 'reusable' testing infrastructure for INSPIRE

Central deployment

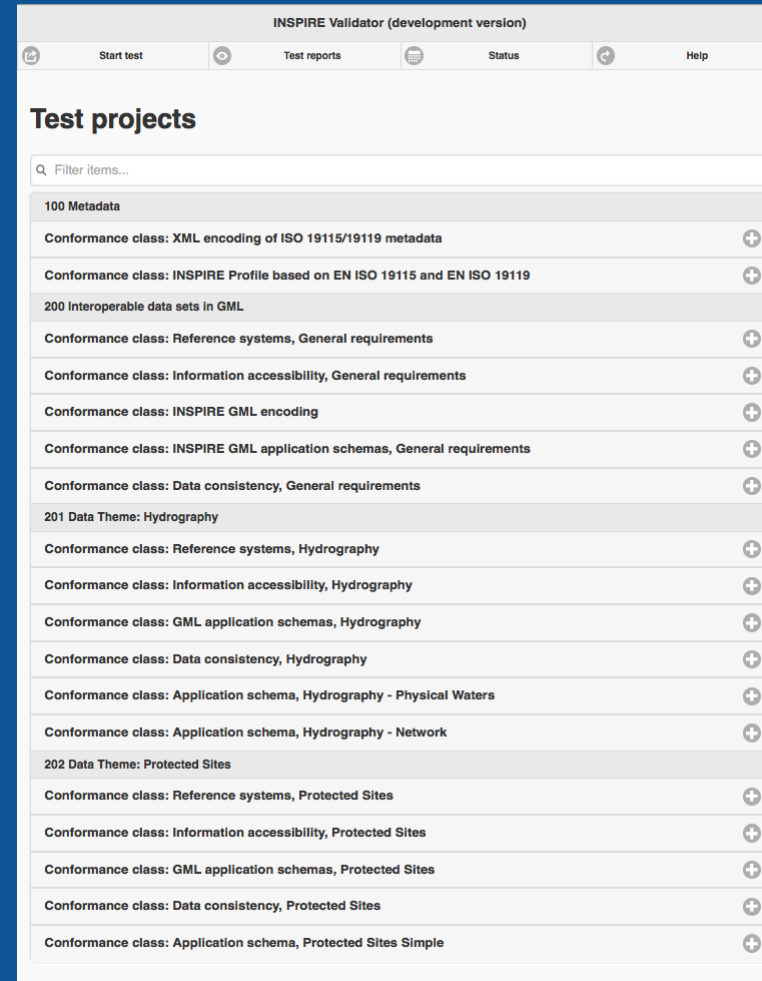


Reusable, e.g. by an LMO



ETS development – current status

- Available draft test suites
 - Metadata (ISO 19115/19119)
 - Data Specification Template
 - Data Specification – Hydrography
 - Data Specification – Protected Sites
- Under development
 - Other Annex I data specifications
- Next
 - Download services



INSPIRE Validator (development version)

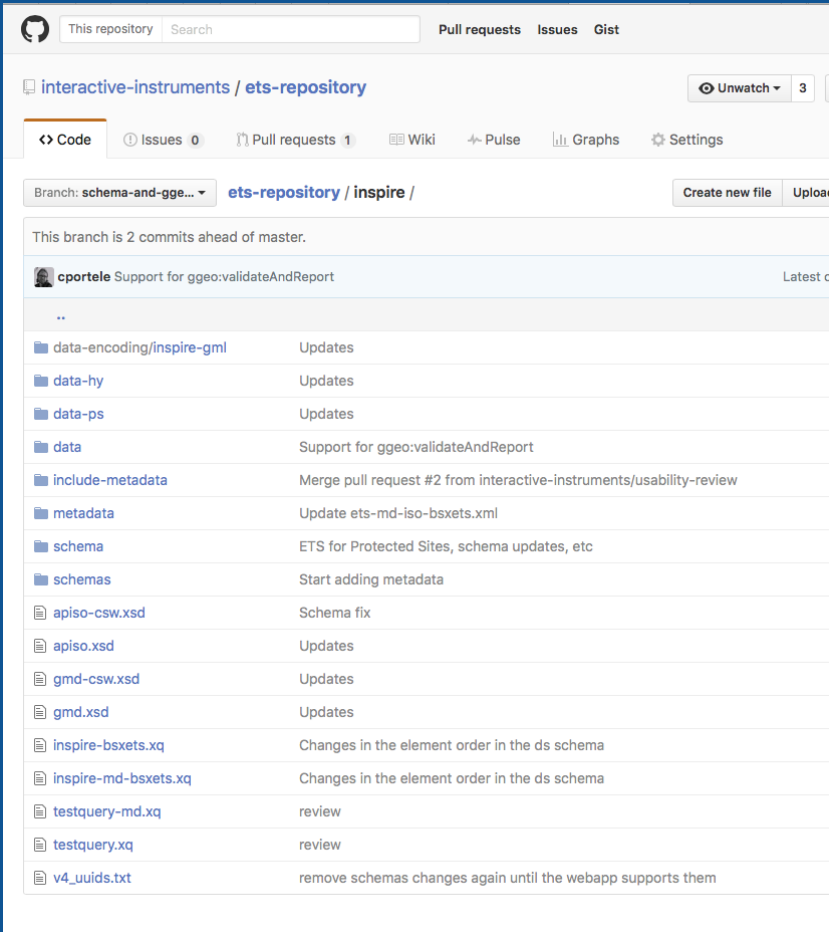
Start test Test reports Status Help

Test projects

Filter items...

100 Metadata	
Conformance class: XML encoding of ISO 19115/19119 metadata	+
Conformance class: INSPIRE Profile based on EN ISO 19115 and EN ISO 19119	+
200 Interoperable data sets in GML	
Conformance class: Reference systems, General requirements	+
Conformance class: Information accessibility, General requirements	+
Conformance class: INSPIRE GML encoding	+
Conformance class: INSPIRE GML application schemas, General requirements	+
Conformance class: Data consistency, General requirements	+
201 Data Theme: Hydrography	
Conformance class: Reference systems, Hydrography	+
Conformance class: Information accessibility, Hydrography	+
Conformance class: GML application schemas, Hydrography	+
Conformance class: Data consistency, Hydrography	+
Conformance class: Application schema, Hydrography - Physical Waters	+
Conformance class: Application schema, Hydrography - Network	+
202 Data Theme: Protected Sites	
Conformance class: Reference systems, Protected Sites	+
Conformance class: Information accessibility, Protected Sites	+
Conformance class: GML application schemas, Protected Sites	+
Conformance class: Data consistency, Protected Sites	+
Conformance class: Application schema, Protected Sites Simple	+

ETS development – on GitHub



The screenshot shows the GitHub interface for the 'ets-repository' under the 'interactive-instruments' organization. The 'Code' tab is selected, showing a file tree. The current branch is 'schema-and-gge...'. The repository is 2 commits ahead of master. A commit by 'cportele' is highlighted: 'Support for ggeo.validateAndReport'. The file tree lists various files and folders with their last update status:

File/Folder	Status
data-encoding/inspire-gml	Updates
data-hy	Updates
data-ps	Updates
data	Support for ggeo.validateAndReport
include-metadata	Merge pull request #2 from interactive-instruments/usability-review
metadata	Update ets-md-iso-bsxets.xml
schema	ETS for Protected Sites, schema updates, etc
schemas	Start adding metadata
apiso-csw.xsd	Schema fix
apiso.xsd	Updates
gmd-csw.xsd	Updates
gmd.xsd	Updates
inspire-bsxets.xq	Changes in the element order in the ds schema
inspire-md-bsxets.xq	Changes in the element order in the ds schema
testquery-md.xq	review
testquery.xq	review
v4_uuids.txt	remove schemas changes again until the webapp supports them

BaseX: Testing XML documents

Clemens Portele edited this page a day ago · 11 revisions

Required knowledge

To develop Executable Test Suites for testing XML documents in ETF using BaseX, you should be familiar with:

- [XQuery](#) and XML technologies in general
- the ETF domain model (TODO: create overview page)

Introduction

In ETF, sets of XML documents are tested using [BaseX](#), an XML database. An Executable Test Suite is essentially an [XQuery](#) that operates on the set of XML documents under test and returns an XML document with the root element `etf:TestTaskResult`.

The content model is specified using an [XML schema](#).

The current stable schema is available [here](#) and can be used for validating ETF XML structures:

```
<EtfModelItem xmlns="http://www.interactive-instruments.de/etf/2.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.interactive-instruments.de/etf/2.0 http://services.int
</EtfModelItem>
```

Here is a simple example with one test case with two test assertions:

```
<TestTaskResult xmlns="http://www.interactive-instruments.de/etf/2.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.interactive-instruments.de/etf/2.0 http://services.int
```

Sample test report

52.59.153.56

Test run on 13.09.2016 - 14:54 with executable test suite 'Conformance class:
Application schema, Hydrography - Network'

Status Failed

Duration 0.001 s

	Total	Skipped	Failed	Warnings	Manual
Test suites	4	0	1	0	1
Test cases	11	0	3	0	5
Assertions	34	0	4	0	10

Show

Level of detail

All

Only failed

Only manual

All details

Less information

Simplified

+ Conformance class: INSPIRE GML encoding 1

+ Conformance class: INSPIRE GML application schemas, General requirements Failed: 3 / 4

+ Conformance class: GML application schemas, Hydrography 1

+ Conformance class: Application schema, Hydrography - Network 5

Report generated by ETF

GML model

Failed 2 / 3

Simplified

Verify that the XML documents meet the requirements of the GML model that are not tested by XML schema validation alone.

Status Failed
Duration 0.090 s

gmias.c.1: Consistency with the GML model

Inspect each property element and verify that it either carries a URI reference to an object (@xlink:href) that can be retrieved using HTTP GET, contains one or more object elements as child elements or contains a non-empty text node (whitespace is trimmed before checking for empty text).

Strictly, empty string values are valid according to the GML model, but they are not an appropriate value for any of the string-valued attributes in INSPIRE.

Relevant requirements:

- IR Requirement Article 4 (2): Types for the Exchange and Classification of Spatial Objects. Spatial object types and data types shall comply with the definitions and constraints and include the attributes and association roles set out in the Annexes.
- IR Requirement Article 4 (3): Types for the Exchange and Classification of Spatial Objects. The enumerations and code lists used in attributes or association roles of spatial object types or data types shall comply with the definitions and include the values set out in Annex II. The enumeration and code list values are uniquely identified by language-neutral mnemonic codes for computers. The values may also include a language-specific name to be used for human interaction.

Source: [Abstract Test Case 'GML model'](#)

Status Failed
Duration 0.075 s

Messages

The dataset has 876 feature(s) with errors for this assertion.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_329700301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_329720301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337800301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337820301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337830301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337850301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337860301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337870301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337880301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337900301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337920301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337930301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337940301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337950301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337960301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337970301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337980301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_337990301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

XML document 'es-watercourselink.xml', WatercourseLink 'HY-N_WATERCOURSELINK_338000301L': The following properties of the feature have an empty value: beginLifespanVersion. While this is valid against the XML schema, this is not valid according to the GML model. Please correct the process that generates the GML documents.

Joint
Research
Centre

52.59.153.56

+ Conformance class: INSPIRE GML encoding

+ Conformance class: INSPIRE GML application schemas, General requirements

+ Conformance class: GML application schemas, Hydrography

- Conformance class: Application schema, Hydrography - Network

This test suite examines requirements associated with the application schema.
This is a draft version. It has limitations and is expected to contain errors. Please report any issues or problems [in GitHub](#).
Known limitations are documented in the description of the applicable test case or test assertion. There is a general limitation in all assertions that extensions in additional application schemas are not fully supported.
Source: [Conformance Class 'Application schema, Hydrography - Network'](#)
Pre-requisite conformance classes:

- [Conformance Class 'GML application schemas, Hydrography'](#)

Status Passed, manual checks required
Duration 0.099 s

- Geometry

Verify that geometries are consistent with the geometries of other features in the data set.

Status Passed, manual checks required
Duration 0.001 s

- hy-n-as.b.2: Level of detail

Verify that the level of detail is explicit in data sets covering multiple resolutions, i.e. if features are provided at different spatial resolutions, verify that the spatial resolution is specified for each of the features in the levelOfDetail attribute.

Relevant requirements:

- IR Requirement Annex II Section 8.7.4 (1): Theme-specific Requirements – Geometry representation. If spatial objects are provided at different spatial resolutions, the spatial resolution must be specified for each spatial object using the levelOfDetail attribute where applicable.

Source: [Abstract Test Case 'Geometry'](#)

Status Passed, manual checks required
Duration 0.001 s

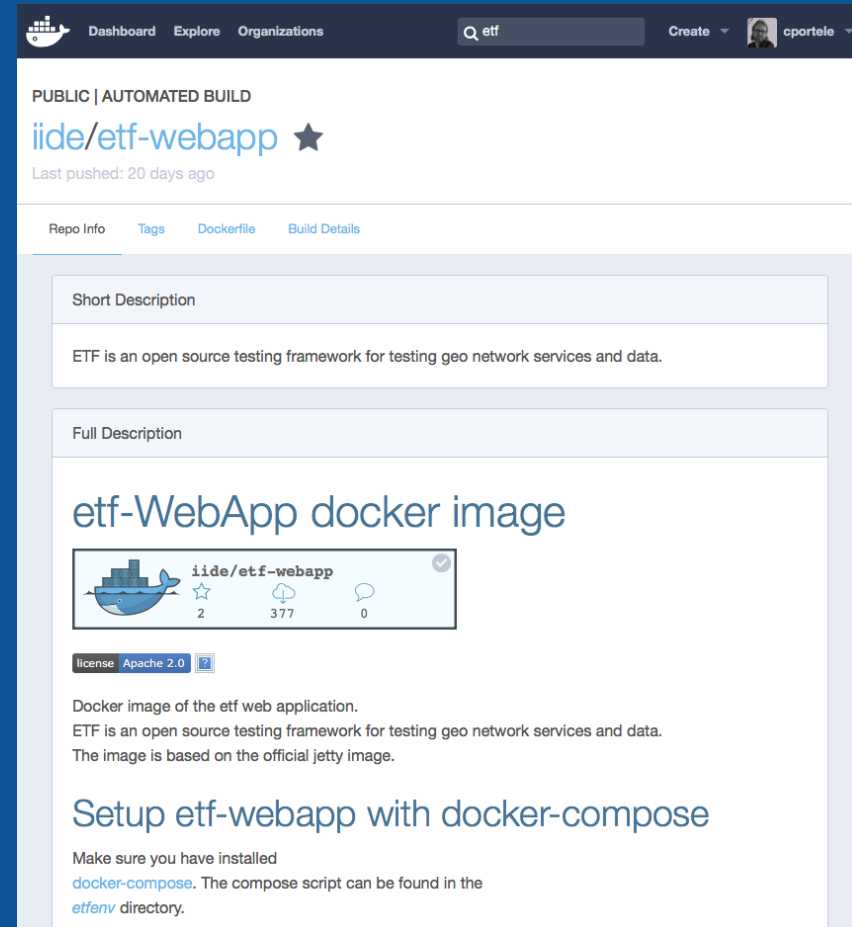
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ETS development – planned reuse

- Use ETF tests for DLS + VS as starting point
 - WMS 1.3 / INSPIRE View Service
 - WFS 2.0 Pre-defined / INSPIRE Download Service
 - WFS 2.0 Direct Access / INSPIRE Download Service
 - ATOM INSPIRE Download Service
 - Updates needed based on the Abstract Test Suites and to improve usability
- Integrate OGC CITE Tests

Local deployment

- Easiest option will be using the Docker image of ETF
 - [note: needs to be updated to the latest software version]
- Adding the Executable Test Suites from the repository on GitHub
- Steps to be documented soon



Why do we need reference codes?



Country: **Italia**
Theme: **Suolo**



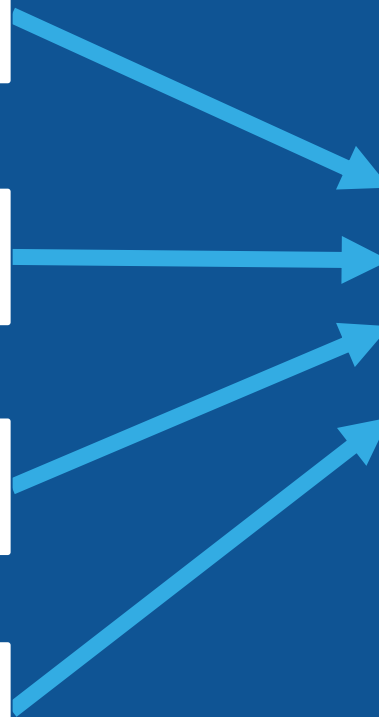
Country: **Deutschland**
Theme: **Boden**



Country: **Ελλάδα**
Theme: **έδαφος**



Country: **DE**
Theme: **Boden**



Why do we need reference codes?



Country: **countryCode/it**
Theme: **theme/so**



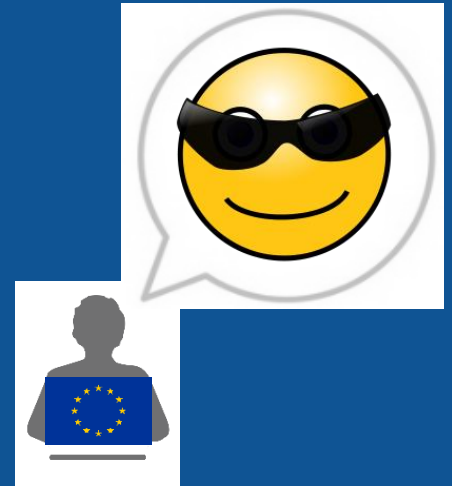
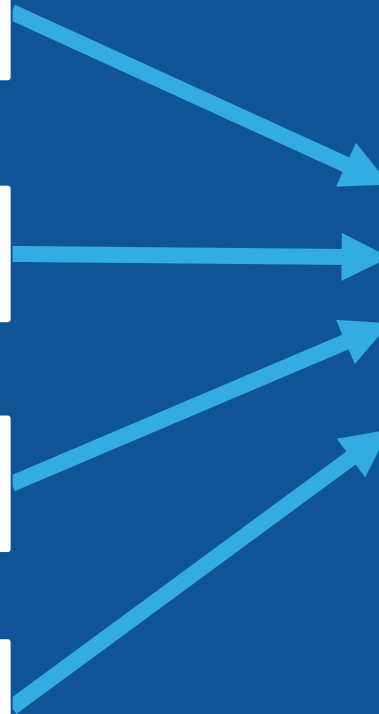
Country: **countryCode/de**
Theme: **theme/so**



Country: **countryCode/el**
Theme: **theme/so**



Country: **countryCode/de**
Theme: **theme/so**



Why do we need registries in INSPIRE?

- **Key infrastructure components to**
 - allow unambiguous references to items
 - provide unique and persistent identifiers for resources
 - allow their consistent management and versioning
- **Central INSPIRE registry contains registers for**
 - themes
 - code lists and values
 - enumerations and values
 - feature concepts
 - Metadata code lists and values
 - application schemas
 - glossary
 - reference documents
 - layers







Re3gistry Software – Features (v1.2)

About | Contact | Legal notice English (en) Search...

Natura2000 Designation

ID: <http://inspire.ec.europa.eu/codelist/Natura2000DesignationValue>
This version: <http://inspire.ec.europa.eu/codelist/Natura2000DesignationValue:1>
Latest version: <http://inspire.ec.europa.eu/codelist/Natura2000DesignationValue>

Label: **Natura2000 Designation**
Definition: A code list for the Natura2000 designation scheme, in accordance with Council Directive 92/43/EEC (Habitats Directive).
Governance level: eu-legal
Status: Valid
Parents: Designation
Themes: Protected sites
Application schema: Protected Sites Simple
Extensibility: Not extensible

Other formats:  XML Re3gistry  XML ISO 19135  RDF/XML  JSON  Atom  CSV

Code list values

Filter Label	Filter Governance level	Filter Status
Label	Governance level	Status
proposed site of community importance	eu-legal	Valid
proposed special protection area	eu-legal	Valid
site of community importance	eu-legal	Valid
special area of conservation	eu-legal	Valid
special protection area	eu-legal	Valid

Items per page 50 Showing 1 to 5 of 5 entries First Previous 1 Next Last

Multi-lingual

Search

Versioning

Common data

Custom data

Status (valid, superseded, ...)

Parent-child hierarchy

Linked items

Multiple formats

Hierarchical registers (collections)

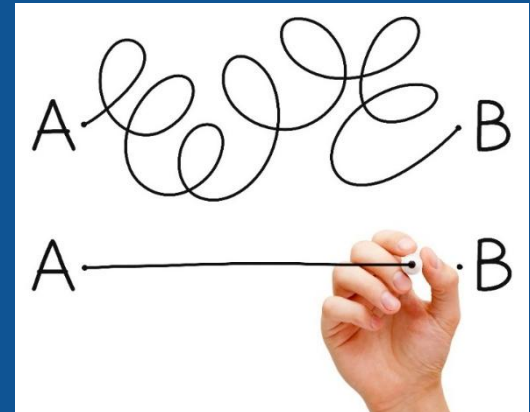
Outlook: Future **Re3gistry** versions

Version 1.3 (pre-release testing)

- Reference to externally defined values
- Register Federation support (MIWP-6)

Version 2.0 – Planned improvements

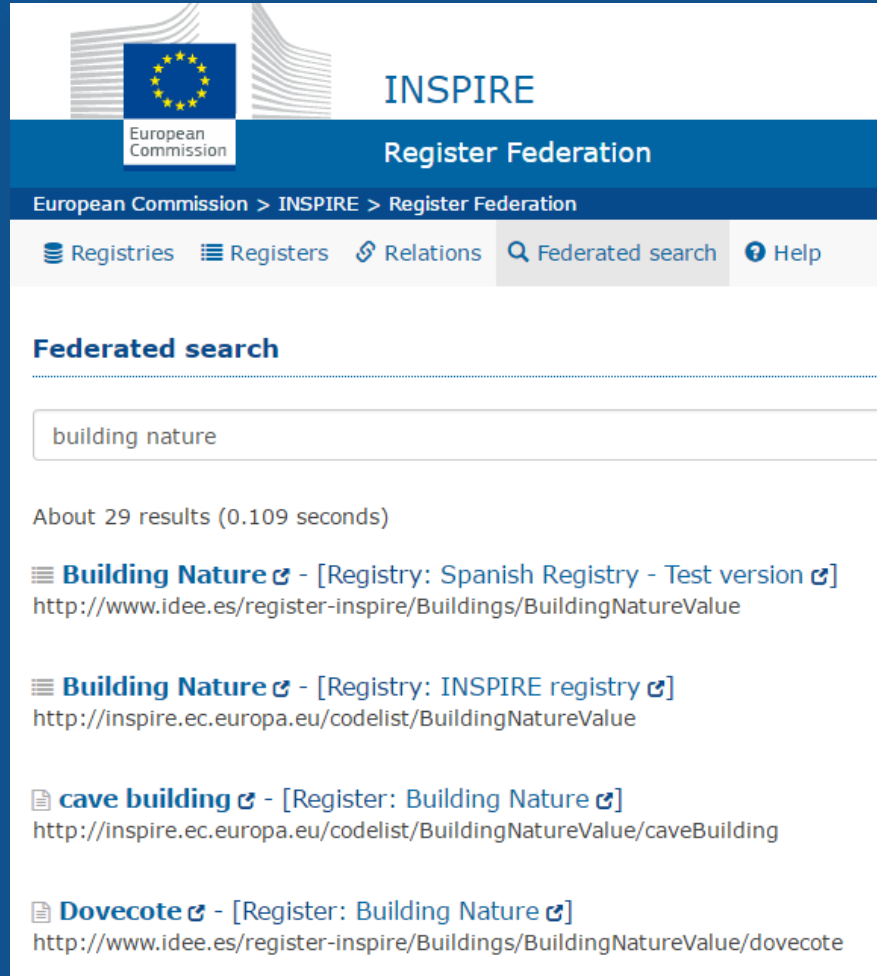
- Editing user interface
- Guided software installation
- API (direct calls)
- Re3gistry software as a service (SaaS)
- Other suggestions?



INSPIRE register federation – Status

- Guidance / best practices document finalised
 - Best practices for setting up registers / registries
 - for register managers & users
 - INSPIRE Register Federation – Overview
 - How to join the INSPIRE register federation
 - for register managers
 - How to use the INSPIRE register federation
 - for register users
 - Annexes (examples of descriptors, validation stylesheet)
- Register of Registers (RoR) prototype
 - <http://inspire-regadmin.jrc.ec.europa.eu/ror>
- Support of Register federation exchange format in central INSPIRE registry service

Registries and registers – Status



The screenshot shows the INSPIRE Register Federation interface. At the top, there is a header with the European Commission logo and the text 'INSPIRE Register Federation'. Below this is a breadcrumb trail: 'European Commission > INSPIRE > Register Federation'. A navigation bar contains links for 'Registries', 'Registers', 'Relations', 'Federated search' (which is highlighted), and 'Help'. The main content area is titled 'Federated search' and shows a search input field with the text 'building nature'. Below the input field, it states 'About 29 results (0.109 seconds)'. There are four search results listed, each with a document icon, a title, a registry name, and a URL. The results are: 'Building Nature' (Spanish Registry - Test version), 'Building Nature' (INSPIRE registry), 'cave building', and 'Dovecote'.

European Commission

INSPIRE

Register Federation

European Commission > INSPIRE > Register Federation

Registries Registers Relations Federated search Help

Federated search

building nature

About 29 results (0.109 seconds)

- Building Nature** - [Registry: Spanish Registry - Test version]
<http://www.idee.es/register-inspire/Buildings/BuildingNatureValue>
- Building Nature** - [Registry: INSPIRE registry]
<http://inspire.ec.europa.eu/codelist/BuildingNatureValue>
- cave building** - [Register: Building Nature]
<http://inspire.ec.europa.eu/codelist/BuildingNatureValue/caveBuilding>
- Dovecote** - [Register: Building Nature]
<http://www.idee.es/register-inspire/Buildings/BuildingNatureValue/dovecote>

Registries and registers – Status

European Commission > INSPIRE > Register Federation

Registries Registers Relations Federated search Help

Private area Logout

Registry descriptor

Filter Registry file	Filter Added by	Filter Action
Registry file	Added by	Action
http://inspire-regadmin.jrc.ec.europa.eu/register-federation/example-descriptors/registry/	francdb	Stop sharing

Show 10 entries Showing 1 to 1 of 1 entries

First Previous 1 Next Last

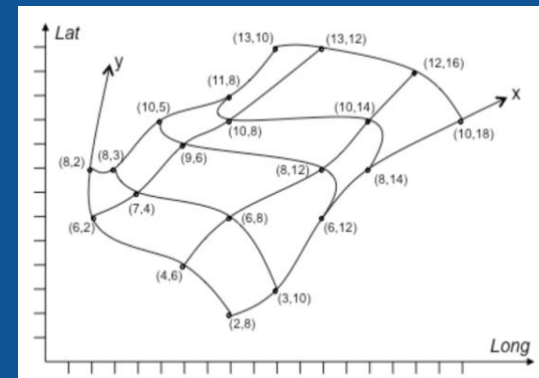
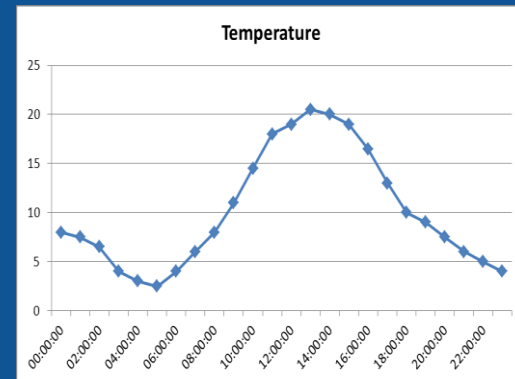
Harvesting jobs

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Filter Descriptor	Filter Type	Filter Date last jc	Filter Date next j	Filter Status	Filter Action
Descriptor	Type	Date last job	Date next job	Status	Action
https://inspire-regadmin.jrc.ec.europa.eu/register-federation/example-descriptors/codelist/LandCoverClassValue/LandCoverClassValue.rdf	Register	2016-06-21 00:01:04	2016-06-22 00:01:00	Success	Start register harvest Show report
https://inspire-regadmin.jrc.ec.europa.eu/register-federation/example-descriptors/codelist/DesignationSchemeValue/DesignationSchemeValue.rdf	Register	2016-06-21 00:01:04	2016-06-22 00:01:00	Success	Start register harvest Show report

TGs & tools for observation & coverage data – Why?

- Many Annex II+III data sets are based on observations or coverages
- Available solutions in TGs for Download services (WFS and Atom) not suited for providing direct access to observation or coverage data
- Additional opportunities by sharing data using SOS/WCS



TGs & tools for observation & coverage data – Status

- Technical Guidelines for Download Services based on SOS and WCS (INSPIRE SOS/WCS profiles) → MIG-T review completed
- Update of D2.9 Guidelines for the use of O&M and SWE → MIG-T review completed
 - Focus on implementers
 - Guidance tailored to INSPIRE
 - Previously existing content as Annexes
 - Simpler and shorter document
 - Alignment with TG for download services
- SOS Open Source Implementation (52North) with support for additional observation types (e.g. PointObservation, ProfileObservation, TrajectoryObservation, ...)

INSPIRE knowledge base



The screenshot displays the INSPIRE website interface. At the top, there is a navigation bar with links for 'About', 'Contact Us', 'Privacy Policy', and 'Legal Notice', along with a language selector set to 'English (en)'. Below this is a search bar. The main header features the INSPIRE logo and the tagline 'Infrastructure for spatial information in Europe'. A secondary navigation bar includes links for 'Home', 'Learn', 'Implement', 'Participate', 'Use', and 'Toolkit'. The content area is divided into several sections: 'INSPIRE Video' featuring a video titled 'The INSPIRE Directive: a brief description'; 'Focus on' highlighting a 'GIM International' report; 'Latest News' with dates and titles such as 'Commission's INSPIRE report and REFIT evaluation published!'; and 'Events' listing upcoming meetings. A 'Quick Links' section provides icons and text for 'INSPIRE LIBRARY', 'INSPIRE ROADMAP', 'INSPIRE GEOPORTAL', 'INSPIRE IN YOUR COUNTRY', 'INSPIRE THEMATIC CLUSTERS', and 'FIND YOUR SCORE'. The footer contains a grid of links organized under categories like 'INSPIRE', 'News & Events', 'INSPIRE Tools', and 'INSPIRE knowledge base', with a 'Joint Research Centre' logo on the left and social media icons on the right.

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Infrastructure for spatial information in Europe

European Commission

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19/07/2016
New release of Re3gistry software

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5th INSPIRE MIG Expert Group Meeting

25/10/2016
MIG T face-to-face Meeting

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INSPIRE

Directive aims to create a European Union spatial data infrastructure for the EU environmental policies and policies or activities which may have an impact on the environment. This European Spatial Data Infrastructure will enable the sharing of spatial information among public sector organisations, facilitate public access to spatial information across Europe and assist in policy-making across boundaries.



based on the infrastructures for spatial information established and operated by Member States of the European Union. The Directive addresses 34 spatial data themes for environmental applications.

It came into force on 15 May 2007 and will be implemented in [various stages](#), with full implementation required by 2021.

This video provides an overview of why INSPIRE is needed and what types of spatial are covered by INSPIRE.



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Maintenance and Implementation Framework

for implementers

came into force on 15 May 2007 and will be implemented in implementation required by 2019.

and the policy background leading to its adoption can be found in



my country?

obliged to ensure that appropriate structures and mechanisms are designated for coordination, across the different levels of government, the contributions of all those with an interest in their infrastructures for spatial information.

The [INSPIRE in your country](#) section provides information for the individual countries.

What do we have to do to implement INSPIRE?

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the INSPIRE Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas

- [Metadata](#)
- [Data Specifications](#)
- [Network Services](#)
- [Data and Service Sharing](#)
- [Spatial Data Services](#)
- [Monitoring and Reporting](#)

Which data?

One of the major goals of INSPIRE is to create harmonised spatial data sets that can be used seamlessly in cross-border applications. In order to reach this goal it is necessary to agree on common definitions for the [34 themes](#) covered by INSPIRE.

What are the deadlines?

The [INSPIRE Roadmap](#) sets out the deadlines for INSPIRE implementation.

Are there any step by step guides for implementers?

[INSPIRE in Practice](#) collects implementation examples from implementers. The examples can be either full or partial descriptions of implementations that illustrate step by step the procedure to follow in order to generate INSPIRE resources.

Tools and resources

The [tools and resources repository](#) provides access to resources developed by the INSPIRE EC/EEA team.

Category:

[INSPIRE](#)

[Implement](#)

Implement

Guide for implementers
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Data Specifications

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Data Specifications > Themes > **Cadastral parcels**

Areas defined by cadastral registers or equivalent.
Annex 1




Description


 [INSPIRE Data Specification on Cadastral Parcels – Technical Guidelines 3.1](#)

 [Read/Compare Technical Guidelines](#)

 [Registry entry for \[Cadastral parcels\]](#)

 Thematic Clusters Links

[Topographic and Cadastral Reference Data](#)
[Cadastral parcels](#)

 [\[Cadastral parcels\] Data on INSPIRE Geoportal](#)

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Representing Rules and Technical Guidance documents and the [maintenance and implementation framework](#) have been based on a participatory process, involving experts from stakeholder organisations in the Member States.



Pool of experts

The MIG is complemented by a pool of experts drawn from the stakeholder community. The experts in this pool are called upon when MIG sub-groups are formed to address specific implementation or maintenance issues, but will also provide the opportunity to reach out to experts involved or interested in particular aspects of INSPIRE implementation or maintenance.

The call is open to all individuals with a high level of expertise in one or several of the aspects relevant for INSPIRE implementation and maintenance.

- [Call text](#)
- [List of registered experts](#)

Open discussions

Each year a European [INSPIRE Conference](#) is held to provide a forum for stakeholders from government, academia and industry to hear about and discuss the latest developments of the INSPIRE Directive.

In addition the [INSPIRE Thematic Clusters](#) is a single entry point for INSPIRE implementers and users to share experiences, best practices, raise questions and resolve issues in their thematic domains.

INSPIRE in your country

Each Member State is required to ensure that coordinating structures are set up in their country. Learn about [INSPIRE in your country here](#).

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About INS

The INSPIRE directive came into force on 15 May 2007 and will be implemented in various stages, with full implementation required by 2019. Details of the Directive and the policy background leading to its adoption can be found in the [background section](#).



Which data is covered by INSPIRE?

One of the major goals of INSPIRE is to create harmonised spatial data sets that can be used seamlessly in cross-border applications. In order to reach this goal it is necessary to agree on common definitions for the [34 themes](#) covered by INSPIRE.

How can I use INSPIRE Data and Services

INSPIRE data and services can be used for a large variety of applications to support e.g.

- the implementation and monitoring of environmental policies including environmental reporting and easy access of environmental information for the public,
- eGovernment strategies,
- other policy areas (e.g. disaster management, energy, intelligent transport systems, Copernicus), and
- the data economy.

Where do I find the INSPIRE data?

The [INSPIRE Geoportal](#) provides the central access point into the INSPIRE infrastructure.

Are there any examples of INSPIRE being used?

This [INSPIRE Pilots](#) section provides examples of where INSPIRE data and services are already used and additional resources for users of the infrastructure.

What tools and resources are available?

The [tools and resources repository](#) provides access to resources developed by the INSPIRE EC/EEA team.

Who do I talk to in my country?

Each member state is obliged to ensure that appropriate structures and mechanisms are designated for coordination, across the different levels of government, the contributions of all those with an interest in their infrastructures for spatial information.

The [INSPIRE in your country](#) section provides information for the individual countries.

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INSPIRE Video

The INSPIRE Directive: a brief description



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New release of Re3gistry software

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Focus on

INSPIRE

Europe's *knowledge base* for
connecting geospatial information

Attending the INSPIRE Conference in Barcelona?
Join us at the INSPIRE stand for a guided tour
of the INSPIRE Knowledge Base

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Infrastructure for Spatial Information in the European Community

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INSPIRE Thematic Clusters


INSPIRE GeoPortal

INSPIRE Registry

INTERACTIVE Data Specifications

INSPIRE DIRECTIVE

The INSPIRE Directive: a brief description



In Europe a major recent development has been the entering in force of the INSPIRE Directive in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment.

INSPIRE is based on the infrastructures for spatial information established and operated by the 28 Member States of the European Union. The Directive addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a unique example of a legislative 'regional' approach.

Legislation

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007.

To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and Reporting). These IRs are adopted as Commission Decisions or Regulations, and are binding in their entirety. The Commission is assisted in the process of adopting such rules by a regulatory committee composed of representatives of the Member States and chaired by a representative of the Commission (this is known as the Comology procedure).

- Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) 14.03.2007
- INSPIRE Metadata Regulation 03.12.2008
- Commission Decision regarding INSPIRE monitoring and reporting 05.06.2009
- Commission Regulation (EC) No 976/2009 of 19 October 2009 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the Network Services 19.10.2009
- Corrigendum to INSPIRE Metadata Regulation 15.12.2009
- Regulation on INSPIRE Data and Service Sharing 29.03.2010
- COMMISSION REGULATION (EU) No 1089/2010 of 23 November 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services 08.12.2010
- Commission Regulation amending Regulation (EC) No 976/2009 as regards download services and transformation service 08.12.2010
- Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets and services 08.12.2010
- COMMISSION REGULATION (EU) No 102/2011 of 4 February 2011 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services 05.02.2011
- COMMISSION REGULATION (EU) No 1253/2013 of 21 October 2013 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC as regards interoperability of spatial data sets and services 10.12.2013
- Commission Regulation (EU) No 1311/2014 of 10 December 2014 amending Regulation (EC) No 976/2009 as regards the definition of an INSPIRE metadata element 11.12.2014
- Commission Regulation (EU) No 1312/2014 of 10 December 2014 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data services 11.12.2014

SEARCH INSPIRE

INSPIRE Documents
INSPIRE Variables

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INSPIRE Conference 2016
(Barcelona, 20th - 26th September)

INSPIRE

IN YOUR COUNTRY

INSPIRE 2016


NEWS | EVENTS

- 17-Aug-16 Horizon 2020 Igniting new European GNSS applications
- 24-Jul-16 Commission's INSPIRE report and RPTT evaluation published!
- 19-Jul-16 New release of ReSpire software
- 18-Jul-16 INSPIRE Conference 2016 programme online
- 14-Jul-16 European competition for reusable IT solutions in public administration

Archive

<http://inspire.ec.europa.eu/webarchive/>

Thematic Clusters platform












INSPIRE Thematic Clusters

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► About the INSPIRE Thematic Clusters Platform



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Thematic Clusters platform – Why?

- Many implementation questions, approaches, best practices and planned extensions are theme-specific
- A number of theme-specific issues have been raised for several data specification TGs
- TGs still allow some degrees of freedom for implementing the IRs → develop “harmonised” approaches for implementation.
- Discuss links to other environmental policies and reporting obligations

Thematic Clusters platform – Status

- Discussion of concrete theme-specific implementation issues & questions
- Important source for identifying implementation issues
 - Simplification / bug-fixing of TGs
- Community implementation knowledge base
 - Exchanging implementation practices
- Dedicated thematic webinars, e.g.
 - Coverages, GeoSciML, land cover / land use

Some stats (Sep 2016) ...

- 705 registered members
- 50 groups & sub-groups
- 441 discussion topics
- 1000+ responses
- 76 pages on specific topics

INSPIRE in practice



INSPIRE

INSPIRE in Practice

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Create an ECAS account | ECAS Login

Land Cover spatial datasets harmonization in Portugal using HALE

Author

Paulo PATRÍCIO

Post date:

29 Sep 2016

Last modified:

29 Sep 2016

Country:

Portugal

Themes:

Land cover

Needs Review

The Land Cover Map of Portugal, named COS, is one of the spatial datasets produced by the NMA of Portugal with major relevance for the environmental and planning activities in Portugal.

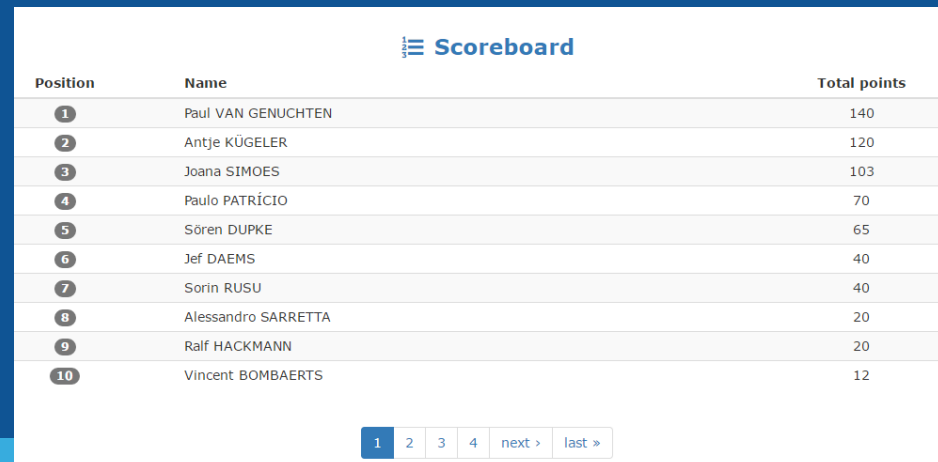
The harmonization process included different phases starting with the analysis of the INSPIRE directive standards and specifications for the II.2 Land Cover (LC) theme.

A review of methodologies and tools was performed that considered the data models (UML), the spatial data transformation tools (e.g. HALE, FME) and its application. The process of validating the harmonization results was also analyzed, taking into account the methodologies recommended by the INSPIRE Directive, the Abstract Test Suit (ATS) included in the data specifications, the types of tests to be performed (e.g. xsd; gml Schematron; thematic shematron) and the available validation tools (e.g. XML Spy, Oxygen XML Editor, eEnvPlus).

The validation experience obtained in collaboration with the eENVplus validation team, during the EAGLE 6 project, was a major contribution to this task. The harmonization process implied creating a matching table establishing the correspondences between COS 2010 attributes (source schema) and II.2 LC theme data specifications attributes (target schema).

INSPIRE in practice

- Collaborative platform for sharing (and looking up)
 - implementation examples
 - usage examples
 - tools
 - applications
- Structured using vocabularies for
 - assets
 - actors
 - implementation tasks
- Help us improve the platform – play the game

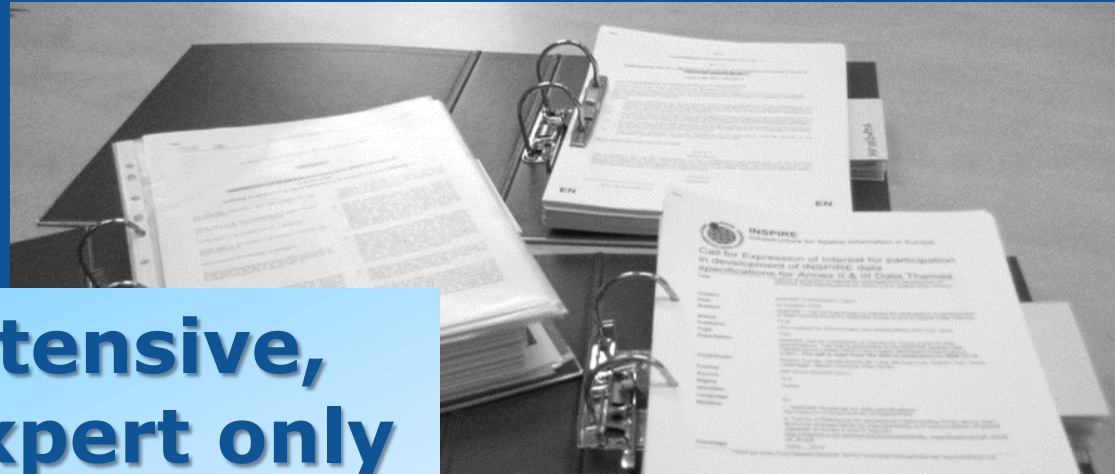


The screenshot shows a 'Scoreboard' interface with a table of participants and their scores. The table has three columns: Position, Name, and Total points. The participants are ranked from 1 to 10. At the bottom right, there is a pagination bar with buttons for 1, 2, 3, 4, next, and last.

Position	Name	Total points
1	Paul VAN GENUCHTEN	140
2	Antje KÜGELER	120
3	Joana SIMOES	103
4	Paulo PATRÍCIO	70
5	Sören DUPKE	65
6	Jef DAEMS	40
7	Sorin RUSU	40
8	Alessandro SARRETTA	20
9	Ralf HACKMANN	20
10	Vincent BOMBAERTS	12

1 2 3 4 next > last >

INSPIRE legal & technical documentation



**Extensive,
+ expert only
reading**



INSPIRE Thematic Scope

Annex I

1. Coordinate reference systems
2. Geographical grid systems
3. Geographical names
4. Administrative units
5. Addresses
6. Cadastral parcels
7. Transport networks
8. Hydrography
9. Protected sites



Annex II

1. Elevation
2. Land cover
3. Ortho-imagery
4. Geology

Annex III

1. Statistical units
2. Buildings
3. Soil
4. Land use
5. Human health and safety
6. Utility and governmental services
7. Environmental monitoring facilities
8. Production and industrial facilities
9. Agricultural and aquaculture facilities
10. Population distribution – demography
11. Area management/ restriction/regulation zones & reporting units
12. Natural risk zones
13. Atmospheric conditions
14. Meteorological geographical features
15. Oceanographic geographical features
16. Sea regions
17. Bio-geographical regions
18. Habitats and biotopes
19. Species distribution
20. Energy Resources
21. Mineral resources


INSPIRE **Interactive** Data Specifications

Set of tools/applications to make the **INSPIRE Data specifications more accessible and usable**

Target user groups

- INSPIRE data providers
- INSPIRE newcomers
- Thematic policy makers
- Service / Solution providers

<http://inspire-regadmin.jrc.ec.europa.eu/dataspecification>




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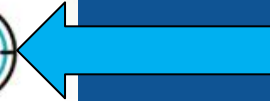
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Find your scope

- helps you with data transformation tasks by selecting the INSPIRE spatial object type(s) and their properties relevant to your datasets using the following tools:

Interactive Workflow



offers with an intuitive selection of INSPIRE data theme followed by the selection of relevant application schema(s). The next step is about selecting concrete spatial objects based on their definitions.

Direct Search



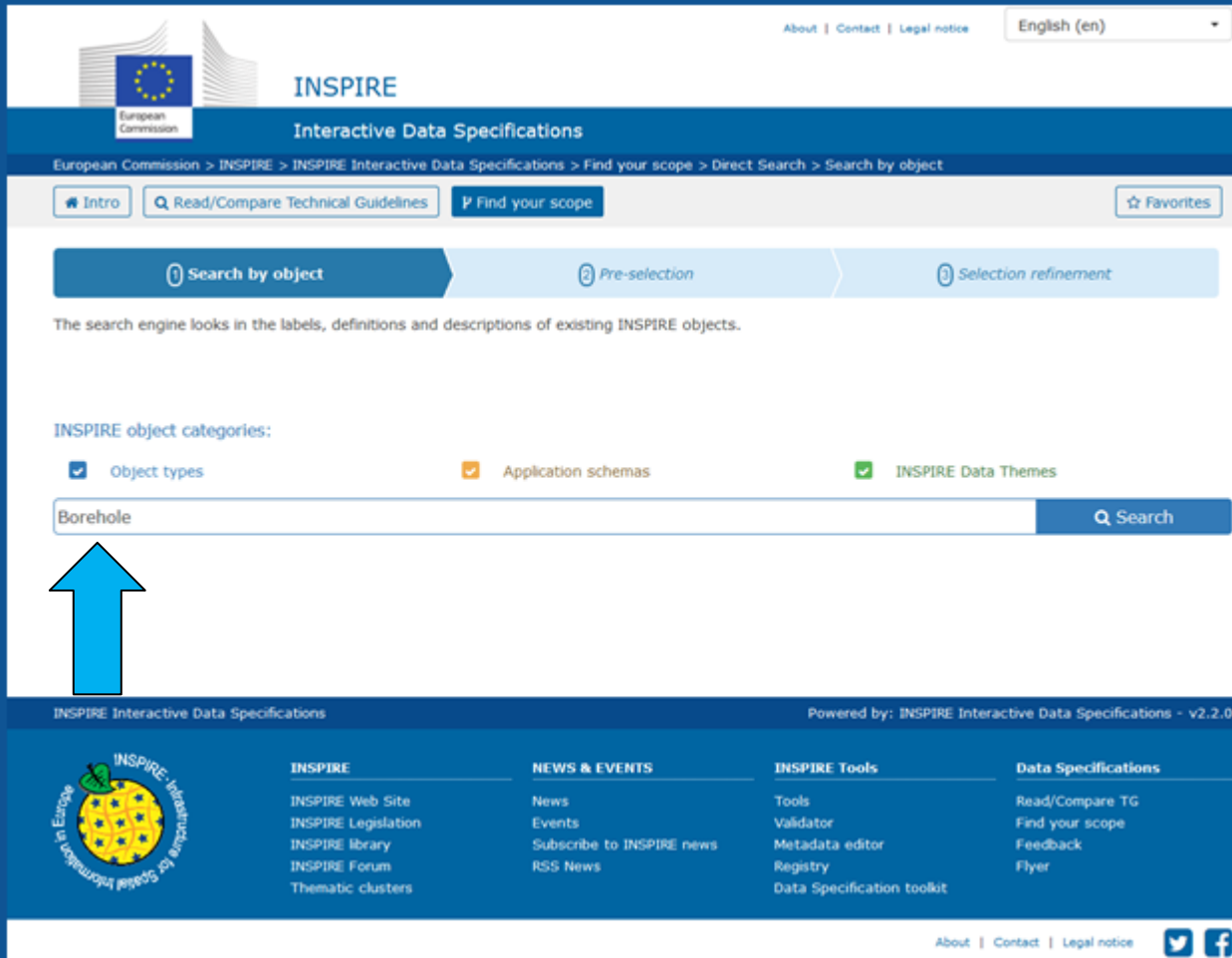
helps you to iteratively search for INSPIRE objects. The search engine looks in the labels, definitions and descriptions of all existing/defined INSPIRE spatial objects, application schemas and data themes.

Catalogue of INSPIRE objects



presents a Catalogue of all spatial objects defined by INSPIRE. The Catalogue allows you to search for objects in alphabetical order. The Catalogue can also be filtered to show only spatial object types, data types or code lists / enumerations.

Find your scope – direct search



INSPIRE
Interactive Data Specifications

European Commission > INSPIRE > INSPIRE Interactive Data Specifications > Find your scope > Direct Search > Search by object

Intro Read/Compare Technical Guidelines Find your scope Favorites

Search by object Pre-selection Selection refinement


The search engine looks in the labels, definitions and descriptions of existing INSPIRE objects.

INSPIRE object categories:

☒ Object types ☒ Application schemas ☒ INSPIRE Data Themes

Borehole Search

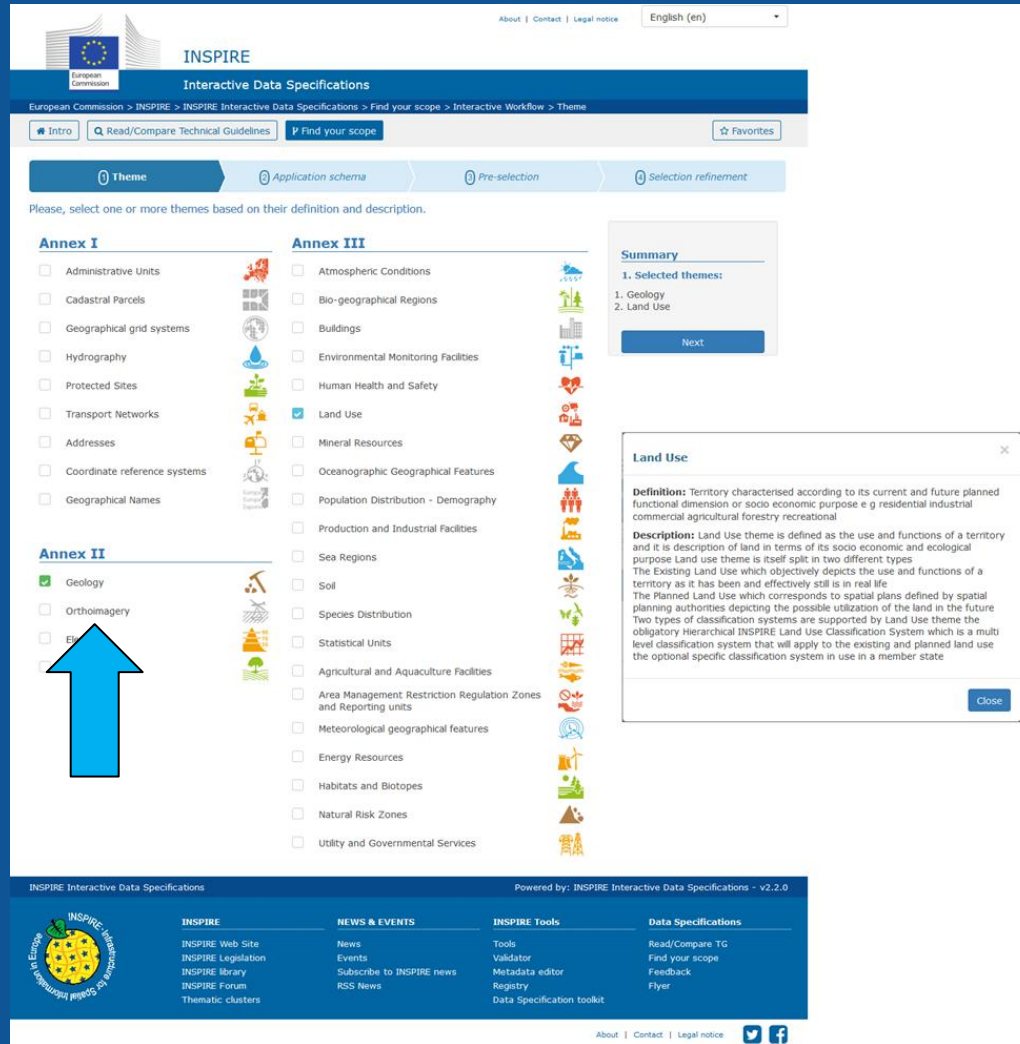
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Find your scope – interactive workflow



INSPIRE Interactive Data Specifications

European Commission > INSPIRE > INSPIRE Interactive Data Specifications > Find your scope > Interactive Workflow > Theme

Intro Read/Compare Technical Guidelines Find your scope Favorites

Theme Application schema Pre-selection Selection refinement

Please, select one or more themes based on their definition and description.

Annex I

- ☐ Administrative Units
- ☐ Cadastral Parcels
- ☐ Geographical grid systems
- ☐ Hydrography
- ☐ Protected Sites
- ☐ Transport Networks
- ☐ Addresses
- ☐ Coordinate reference systems
- ☐ Geographical Names

Annex II

- ☒ Geology
- ☐ Orthoimagery
- ☐ Buildings
- ☐ Environmental Monitoring Facilities
- ☐ Human Health and Safety
- ☒ Land Use
- ☐ Mineral Resources
- ☐ Oceanographic Geographical Features
- ☐ Population Distribution - Demography
- ☐ Production and Industrial Facilities
- ☐ Sea Regions
- ☐ Soil
- ☐ Species Distribution
- ☐ Statistical Units
- ☐ Agricultural and Aquaculture Facilities
- ☐ Area Management Restriction Regulation Zones and Reporting units
- ☐ Meteorological geographical features
- ☐ Energy Resources
- ☐ Habitats and Biotopes
- ☐ Natural Risk Zones
- ☐ Utility and Governmental Services

Annex III

Summary

1. Selected themes:

1. Geology
2. Land Use

Next

Land Use

Definition: Territory characterised according to its current and future planned functional dimension or socio-economic purpose e.g. residential industrial commercial agricultural forestry recreational

Description: Land Use theme is defined as the use and functions of a territory and it is description of land in terms of its socio-economic and ecological purpose. Land use theme is itself split in two different types: The Existing Land Use which objectively depicts the use and functions of a territory as it has been and effectively still is in real life. The Planned Land Use which corresponds to spatial plans defined by spatial planning authorities depicting the possible utilization of the land in the future. Two types of classification systems are supported by Land Use theme: the obligatory Hierarchical INSPIRE Land Use Classification System which is a multi-level classification system that will apply to the existing and planned land use and the optional specific classification system in use in a member state.

Close

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- Metadata editor
- Registry
- Data Specification toolkit

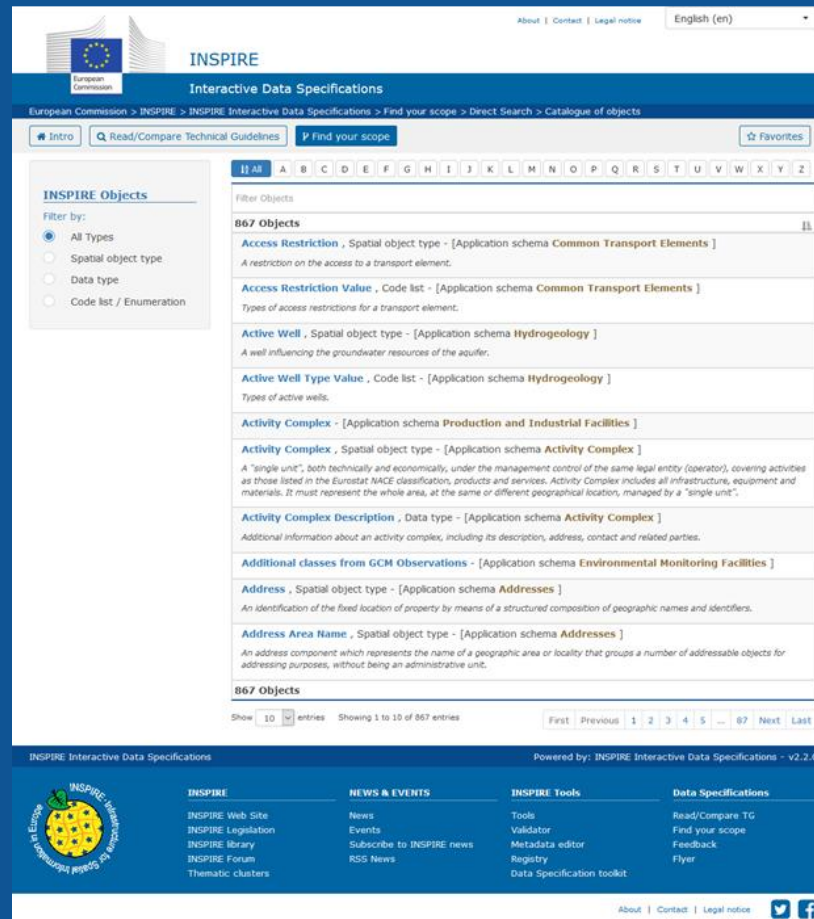
Data Specifications

- Read/Compare TG
- Find your scope
- Feedback
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Find your scope – catalogue of INSPIRE object types

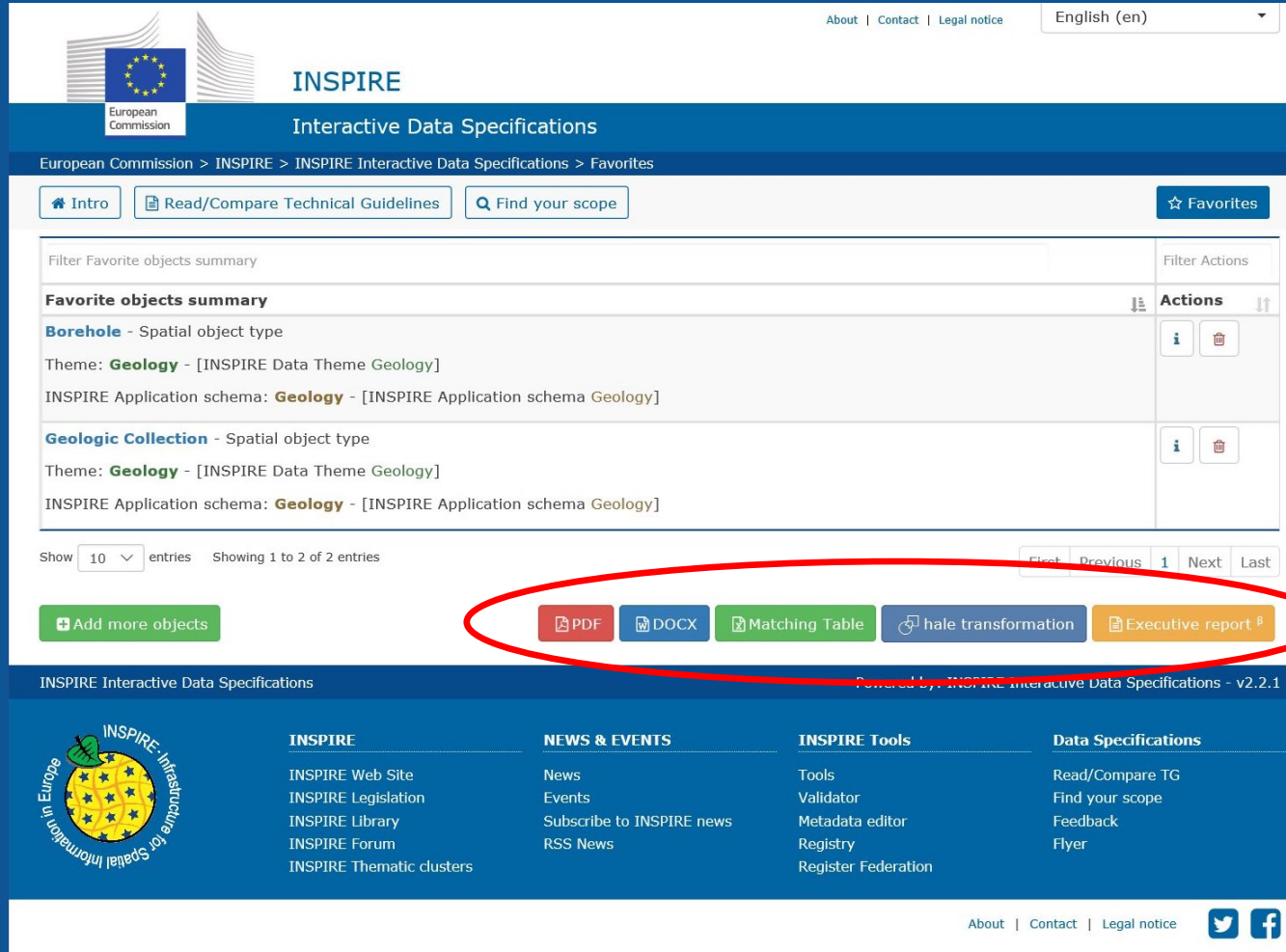


The screenshot shows the INSPIRE Interactive Data Specifications website. The header includes the European Commission logo and the text 'INSPIRE Interactive Data Specifications'. The main navigation bar has links for 'Intro', 'Read/Compare Technical Guidelines', 'Find your scope', and 'Favorites'. The 'Find your scope' section is active, displaying a list of object types under the heading 'INSPIRE Objects'. The list is filtered by 'All Types' and shows 867 objects. The first few objects listed are:

- Access Restriction**, Spatial object type - [Application schema Common Transport Elements]
A restriction on the access to a transport element.
- Access Restriction Value**, Code list - [Application schema Common Transport Elements]
Types of access restrictions for a transport element.
- Active Well**, Spatial object type - [Application schema Hydrogeology]
A well influencing the groundwater resources of the aquifer.
- Active Well Type Value**, Code list - [Application schema Hydrogeology]
Types of active wells.
- Activity Complex** - [Application schema Production and Industrial Facilities]
- Activity Complex**, Spatial object type - [Application schema Activity Complex]
A "single unit", both technically and economically, under the management control of the same legal entity (operator), covering activities as those listed in the Eurostat NACE classification, products and services. Activity Complex includes all infrastructure, equipment and materials. It must represent the whole area, at the same or different geographical location, managed by a "single unit".
- Activity Complex Description**, Data type - [Application schema Activity Complex]
Additional information about an activity complex, including its description, address, contact and related parties.
- Additional classes from GCM Observations** - [Application schema Environmental Monitoring Facilities]
- Address**, Spatial object type - [Application schema Addresses]
An identification of the fixed location of property by means of a structured composition of geographic names and identifiers.
- Address Area Name**, Spatial object type - [Application schema Addresses]
An address component which represents the name of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit.

The bottom of the page features a footer with the INSPIRE logo, a 'NEWS & EVENTS' section, 'INSPIRE Tools' (including a validator, metadata editor, registry, and toolkit), and 'Data Specifications' (including a Read/Compare TG, Find your scope, Feedback, and Flyer). The footer also includes social media links for Twitter and Facebook.

Find your scope – output



The screenshot shows the INSPIRE Interactive Data Specifications website. The header includes the European Commission logo and the text "INSPIRE Interactive Data Specifications". The main navigation bar has links for "Intro", "Read/Compare Technical Guidelines", "Find your scope", and "Favorites". The "Find your scope" section displays a table of favorite objects with columns for "Favorite objects summary" and "Actions". The table lists two objects: "Borehole" and "Geologic Collection", both with the theme "Geology". Below the table, there are pagination controls showing "10" entries and "Showing 1 to 2 of 2 entries". A red circle highlights the output options: "PDF", "DOCX", "Matching Table", "File transformation", and "Executive report". The footer contains the INSPIRE logo, a list of links for "INSPIRE", "NEWS & EVENTS", "INSPIRE Tools", and "Data Specifications", and social media icons for Twitter and Facebook.

European Commission





INSPIRE

Interactive Data Specifications

European Commission > INSPIRE > INSPIRE Interactive Data Specifications > Favorites

Intro Read/Compare Technical Guidelines Find your scope Favorites

Filter Favorite objects summary Filter Actions

Favorite objects summary	Actions
Borehole - Spatial object type Theme: Geology - [INSPIRE Data Theme Geology] INSPIRE Application schema: Geology - [INSPIRE Application schema Geology]	 
Geologic Collection - Spatial object type Theme: Geology - [INSPIRE Data Theme Geology] INSPIRE Application schema: Geology - [INSPIRE Application schema Geology]	 

Show 10 entries Showing 1 to 2 of 2 entries

First Previous 1 Next Last

Add more objects PDF DOCX Matching Table File transformation Executive report ^β

INSPIRE Interactive Data Specifications

INSPIRE-Infrastructure for Spatial Information in Europe

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Data specifications Technical guidelines

- simplifies on-line reading of selected parts of the INSPIRE Data Specifications
- compares sections of two different data themes (e.g. The Use case descriptions or recommended Portrayal rules).



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English (en)

European Commission > INSPIRE > INSPIRE Interactive Data Specifications > Read/Compare Related Themes > Use cases

Intro
Read/Compare Technical Guidelines
Find your scope
Favorites

Home Overview
Executive Summary
Detailed description
Data content and structure
Data quality
Metadata
Delivery
Data capture
Portrayal
Abstract Test Suite
Use cases
Code list values
Additional information

Geology
Land Use

Annex B (informative)
Use cases

This annex describes the use cases related to Geology, Hydrogeology & Geophysics that were used as a basis for the development of the data specification. Geographical information is mostly collected or produced to be used by other thematic domains (space-based environmental, ensuring safe disposal of waste, preventing construction material etc.) as described in the document "Examples of use". The following use cases are described:

- UC01: Providing geological data to detect geo-hazards
- UC02: Providing geological data to ensure safety disposal of waste
- UC03: Providing geological data to detect ground instability in a flat area
- UC04: Linking the deep fractured zones in the basement (Geothermal exploration)
- UC05: Checking background radiation level changes
- UC06: Providing data to undertake water balance to ensure compliance with the WFD
- UC07: Groundwater reporting for WFD
- UC08: Providing data to assess Connectivity to Underground Assets
- UC09: Providing data to assess Connectivity to Underground Assets
- UC10: Providing data to plan tunnelling operations safety and efficiency

B.1 UC01: Providing geological data to detect geo-hazards

This use case is related to example of use:
GE-02: Detecting geo-hazards.

Overview and involved actors
The use case is a part of a more general use case which provides risk maps in a process that involves many other data than geological data (Soil meteorological data, elements of risk, ...) in the disaster management plan.
The goal of this use case is to deliver geological data to the engineer responsible for establishing risk maps.

Actors
Geological surveys to provide geological information (Geological Surveys represent the Member States).
Engineers, responsible for establishing risk maps using the geological information in combination with other data.

Narrative description
The hazard is often defined as the probability of occurrence of a potentially damaging phenomenon within a given area and a given period of time. To deliver this probability the engineer has to access data describing the physical, chemical, mechanical properties of rocks.

Detailed description

Use case description	
Name	Providing geological data to detect geo-hazards
Priority	High

B.1 Introduction

The use cases section intends to sum up the understanding of the Thematic Working Group on Land Use after having reviewed 47 use cases and 10 reference materials provided by the SSCs and the LMAs and after having conducted interviews to ascertain the use requirements. The objective of a use case is to give a description of situations where land use datasets are required to perform a given task. These use cases are documented in order to understand how the requirements have been derived in view of developing a conceptual model generic enough to cover potential use cases and simple enough to minimise the burden on the shoulder of data producers and users.

Sections B2 to B5 identify the use cases considered relevant and express the requirements in broad terms. First use cases have been selected as representative of those reported by SSCs and LMAs to the land use Thematic working group:

- land planning,
- analysis of land consumption,
- ecological network mapping,
- greenhouse inventory reporting.

Current information collection was considered heterogeneous, for these reasons these first use cases have been fully documented using the INSPIRE template to reach a harmonisation with other themes. Figure 21 provides an overview of the use cases regarding the type of land use that is required, the temporality of the required land use data, (either past, present or future land use) and the type of activities that require land use data.

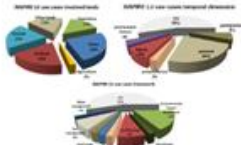



Figure 21 - Graphs of use cases study about lands involved, temporal dimension and content of use framework.

Four other use cases are also presented although less detailed in section B6: Land Use for environmental impact assessment, Land Use for the food domain, Statistics for Land Use, Land Use for soil management.

Sections B2 to B5 sum up the data requirements resulting from the use case analysis. They are summarised in a table, and presented below.

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Summary **INSPIRE Interactive Data Specifications**

- Simplifies the use of INSPIRE data interoperability documentation
- Understand whether your datasets need to be transformed and which parts
- Direct entry (Target schema) to the transformation SW tool HALE
- Find quickly information (e.g. definition and data properties) about each INSPIRE object type
- Facilitates data interoperability in the environmental and other domains.



PDF



DOCX



Matching Table



hale transformation



Executive report ^β

Data model extensions – Why?

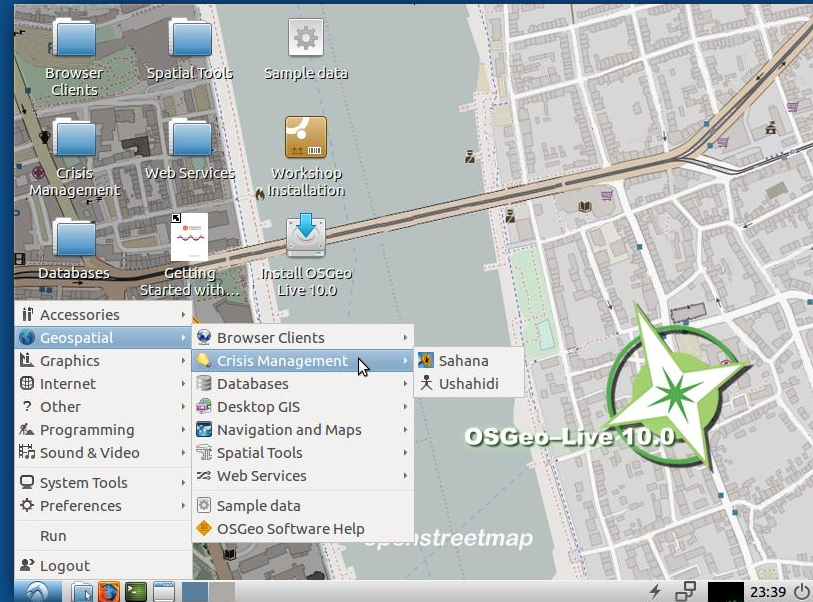
- Data sets in MS are often much richer (and thus more valuable/useful for many applications) than the data models in the data interoperability IRs and TGs
- To preserve this richness and value specifications have to be extended.
- Extensions can be done in many different ways, and data providers often don't know where/how to start or which approaches are recommended under which conditions
- Aim: Collect, analyse and document *patterns* for extending INSPIRE data models

Data model extensions – Status

- 2 workshops to collect existing examples and discuss patterns with community experts
- Outcomes:
 - Inventory of existing Model Extensions
 - Extension Methodology and MDA Summary
 - Pattern Catalogue
 - End-to-End Tutorial Project
 - Documentation – <http://inspire-extensions.wetransform.to/>

OSGEO-Live

- Open source bundle of the OSGEO foundation
- Many FOSS solutions, e.g.
 - GeoNetwork
 - Geoserver
 - Deegree
 - 52N SOS
 - Quantum GIS
- *.vmdk / Docker (soon)
- Full control over DB/Services/etc.
- US flavour (datasets)

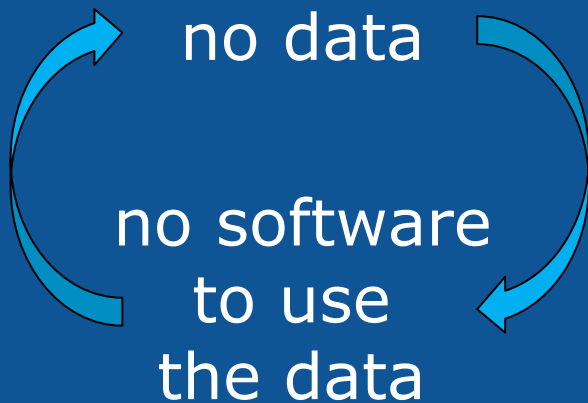


OSGEO-Live (European edition)

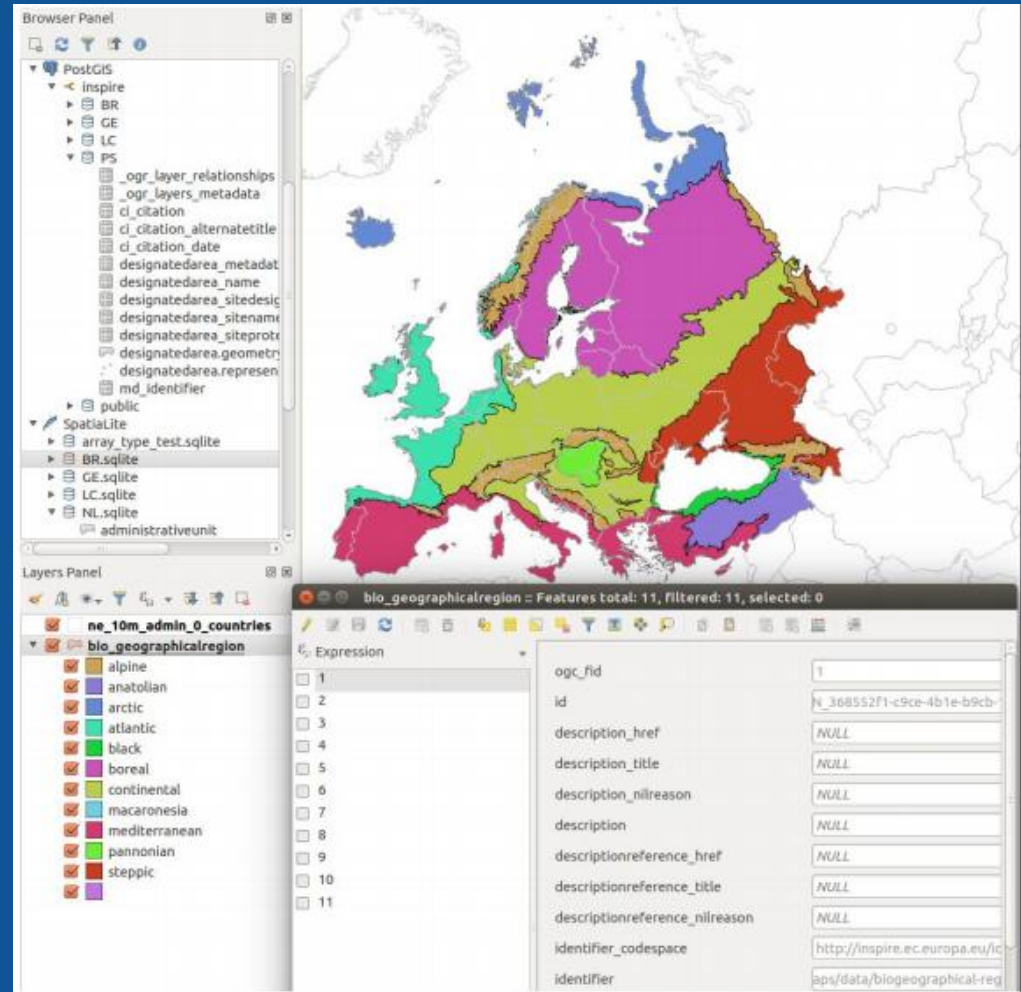
- Finetune existing OSGEO tools for INSPIRE
- Work with
 - The main OSGEO-Live version (not a branch!)
 - Communities behind the projects
 - MIG-T
- Add missing tools (e.g. HALE)
- Add European services/data
 - We count on you ;-)
- Wikify the whole approach

QGIS plugin for complex GML features

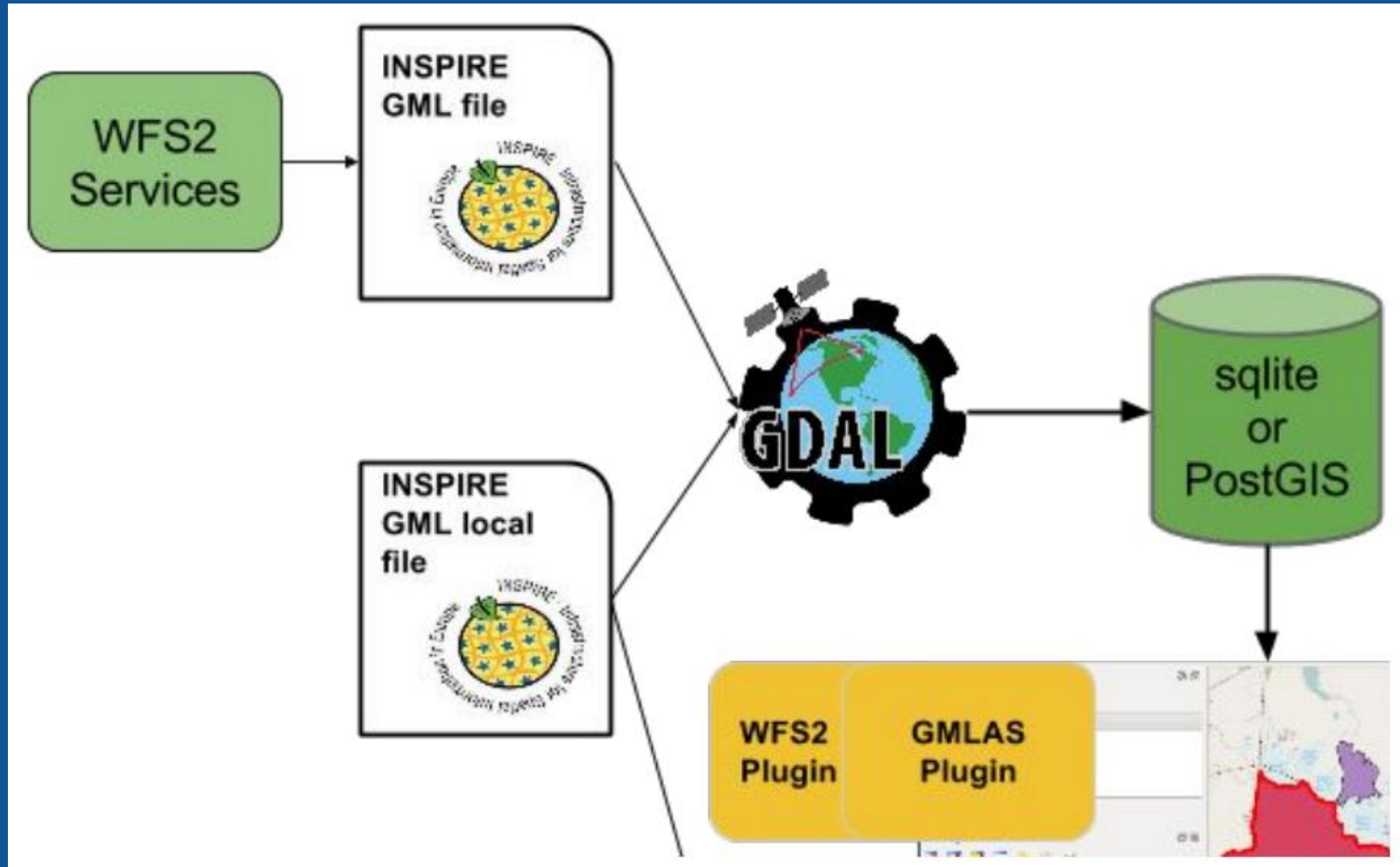
- Break the circle



- funded by Copernicus / EEA



QGIS plugin for complex GML features



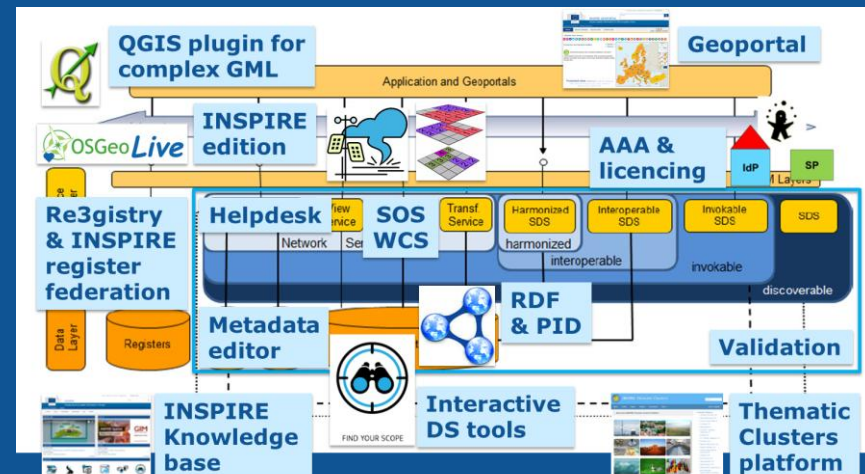
Outlook – Spatial data on the web

- W3C/OGC SDW working group
 - <https://www.w3.org/2015/spatial/>
 - SDW Use Cases & Requirements: <https://www.w3.org/TR/sdw-ucr/>
 - SDW Best Practices: <https://www.w3.org/TR/sdw-bp/>
- Geonovum testbed
 - <https://github.com/geo4web-testbed/general/blob/master/README.md>
 - follow-up in ELISE ISA2 action
- Work on INSPIRE linked data in ARE3NA action
 - <https://joinup.ec.europa.eu/asset/are3na-reuse>



Summary

- Many tools are available to implement and use INSPIRE – from JRC, EEA, open source and commercial vendors
- The INSPIRE knowledge base is a rich source of knowledge
- Use the interactive platforms to ask, share and provide feedback on what's not working or missing
- Talk to your national INSPIRE team



Find out more! Get involved!

- Check out the **INSPIRE knowledge base**
 - <http://inspire.ec.europa.eu>
- Register in the **pool of experts**
 - <http://europa.eu/!yP87VM>
- Participate in the **thematic clusters**
 - <https://themes.jrc.ec.europa.eu>
- Join a **temporary sub-group**
 - <http://europa.eu/!Hy67Fu>
- Get in touch
 - ✉ michael.lutz@jrc.ec.europa.eu
 - 🐦 @michellutz