

3. DISCOVERY PROCESSES, SEARCHING FOR SPATIAL DATA AND WEB SERVICES

The concept of discovery in ESDI

- The main ingredients we need to discover relevant spatial data/data series/services/... are:
 - 1. **Metadata describing a resource**
(in exchangeable format)
 - 2. **Discovery service**



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Designation of the same is different in OGC services and INSPIRE

- Get used to it!
- Do you know OGC (Open Geospatial Consortium) **Catalogue Service for Web?**
 - Then you know **INSPIRE Discovery service**
- Do you know OGC (Open Geospatial Consortium) **Web Map Service?**
 - Then you know **INSPIRE View service**
- Do you know OGC (Open Geospatial Consortium) **Web Feature Service?**
 - Then you know **INSPIRE download service**
- To be continued...

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Two possibilities of connecting to a discovery service

- Through a **“thin” client**
 - typically a Web browser



- Through a **“thick” client**
 - e.g. a catalogue client, common for GI professionals

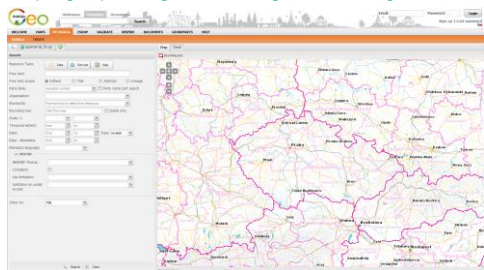


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Let's make it simple...a use case with Web browser

- Type in <http://inspire-geoportal.ec.europa.eu/discovery/> or <http://geoportal.gov.cz/web/guest/catalogue-client>



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Legislation background

- Sure, all this is originating from INSPIRE legislation



- 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
- <http://inspire.ec.europa.eu/index.cfm/pageid/5>

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Minimum search criteria

INSPIRE metadata elements

Classification of spatial data and services (for spatial data sets and spatial data set entries)

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For the following INSPIRE metadata elements or set of elements shall be also available as search criteria:

(a) Resource Title;
 (b) Resource Abstract;
 (c) Resource;
 (d) Unique identifier;
 (e) Temporal extent

To allow for discovering resources through a combination of search criteria, logical and conjunction operators shall be supported.

To allow for discovering resources based on the geographic location of the resources, the spatial queries listed in Table 2 shall be supported.

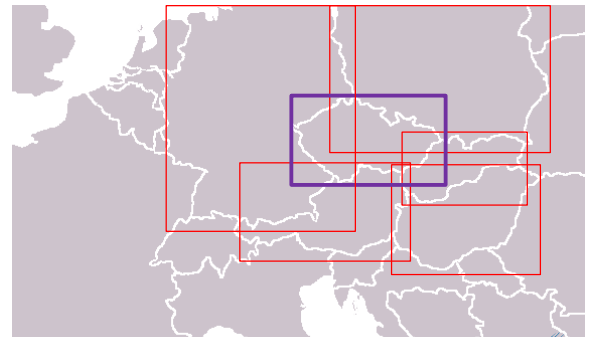
Official Journal of the European Union

Aren't you missing anything?

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Intersect as a spatial operator



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Operations of an INSPIRE discovery service

- **Get Discovery Service**
 - i.e. GetCapabilities
- **Discover Metadata**
 - i.e. GetRecords according to INSPIRE
- **Publish metadata**
 - i.e. harvest, transaction
- **Link Discovery service**
 - an equivalent of service discovery according to OGC

In order to be in conformity with Article 11(1) of Directive 2007/2/EC, the Discovery Service shall provide the information listed in Table 3 of this Annex.

| Operation | Role |
|--------------------------------|---|
| Get Discovery Service Metadata | Provides all necessary information about the service and discoverer service capabilities. |

The Discover Metadata operation allows requesting INSPIRE metadata elements of resources based on a query statement to be returned from the target Discovery Service.

In order to be in conformity with Article 12 of Directive 2007/2/EC, the Discovery Service shall support the operations listed in Table 4 of this Annex.

| Operation | Role |
|------------------|---|
| Publish Metadata | The Publish Metadata operation allows editing INSPIRE metadata elements of resources in the Discovery Service (push or pull metadata mechanisms). Editing meaning: insert, update and delete. |

The Link Discovery Service function allows the declaration of the availability of a Discovery Service for the discovery of resources through the Member State Discovery Service while maintaining the resource metadata at the source location.

The request and response parameters of each operation complete the description of each operation and form an integral part of the Discovery Service technical specification.

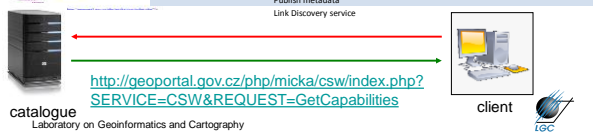
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Get Discovery Service Metadata

- Intended for “thick” clients
- Not applicable for an ordinary user with a Web browser

| | |
|-----------------------------|---|
| Title | Czech Republic INSPIRE metadata catalogue |
| Service type | INSPIRE Discovery Service (CSW – Catalogue Service for Web according to the OGC) |
| Service version | 2.0.2 |
| Supported languages | Czech, English |
| Fees | Free of charge |
| Responsible Party | CENIA, Czech Environmental Information Agency |
| E-mail | info@cenia.cz |
| Supported operations | Get Discovery Service Metadata Discover Metadata Publish metadata Link Discovery service |



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Discover Metadata

1. Choose a resource type
2. Select search criteria as defined by legislation
3. Start searching

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Discover Metadata

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Discover Metadata

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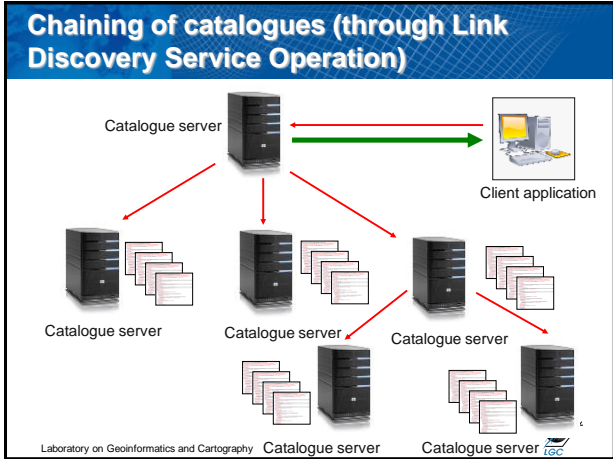
Preview of discovered Web service

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Where is the difference in comparison to other catalogues?

- It is an SDI catalogue! Enables to search in other associated catalogues as well at the same time.

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Publish metadata (harvest)

- I would like to update your catalogue
 - my authorization details
 - list of metadata records including IDs and the date of the last revision
- OK, three of four of your metadata records are new, I am updating them

Note: publish metadata, in this version designated as harvesting (harvest records) may be set up periodically.

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Publish metadata (transaction)

- I would like to update the metadata record with ID 1e400a010817
 - authorization details
- OK, authorization details are correct, here is the metadata record with ID 1e400a010817
- Uploading the modified metadata record with ID 1e400a010817

| Resource Title | National parks in the Czech Republic |
|-------------------|---|
| Identifier | 1e400a010817 |
| Abstract | A database contains detailed information about all 4 national parks in the Czech Republic. This database... |
| Classification | Environment |
| Keyword | Protected Sites |
| Date of creation | 1995-01-05 |
| Date of revision | 2014-08-21 |
| Linkage | http://mmapy.cz/data/NatPark -v2.0 |
| Responsible Party | IRMmapy.cz company |
| E-mail | info@irmmapy.cz |

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Quality of service

- Again defined in legislation
- The response time for sending the initial response to a Discovery service request shall be **maximum 3 seconds in normal situation**. Normal situation represents periods out of peak load. It is set at 90 % of the time.
- The **minimum number of served simultaneous requests** to a discovery service according to the performance quality of service shall be **30 per second**.
- The probability of a Network Service **to be available** shall be **99 % of the time**.

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Quality of service

| Uptime [%] | Maximum downtime | | |
|---------------|----------------------|------------------------|----------------------|
| | Per week | Per month | Per year |
| 95 | 8.4 hours | 36.00 hours | 18.25 days |
| 98 | 3.4 hours | 14.40 hours | 7.30 days |
| 99 | 1.7 hours | 7.27 hours | 3.63 days |
| 99.9 | 10 minutes | 0.73 hours | 8.76 hours |

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