

5. DOWNLOAD PROCESSES, ORDERING AND DOWNLOAD OF DESIRED DATA

The concept of download in ESDI

- “Download services, enabling copies of spatial data sets, or parts of such sets, to be downloaded and, where practicable, accessed directly (Article 11 of the INSPIRE directive)
- Different than Google Maps, Mapy.cz, etc.
 - You may download “real” data



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Not providing data for download under INSPIRE

- “By way of derogation from Article 11(1), Member States may limit public access to spatial data sets and services through the services referred to in points (b) to (e) of Article 11(1), or to the e-commerce services referred to in Article 14(3), where such access would adversely affect any of the following:

(a) the confidentiality of the proceedings of public authorities, where such confidentiality is provided for by law;

(b) international relations, public security or national defence;

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Not providing data for download under INSPIRE...a long list

(c) the course of justice, the ability of any person to receive a fair trial or the ability of a public authority to conduct an enquiry of a criminal or disciplinary nature;

(d) the confidentiality of commercial or industrial information, where such confidentiality is provided for by national or Community law to protect a legitimate economic interest, including the public interest in maintaining statistical confidentiality and tax secrecy;

(e) intellectual property rights;

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(f) the confidentiality of personal data and/or files relating to a natural person where that person has not consented to the disclosure of the information to the public, where such confidentiality is provided for by national or Community law;

(g) the interests or protection of any person who supplied the information requested on a voluntary basis without being under, or capable of being put under, a legal obligation to do so, unless that person has consented to the release of the information concerned;

(h) the protection of the environment to which such information relates, such as the location of rare species.”

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The concept of download in ESDI

- “download services, enabling copies of spatial data sets, or parts of such sets, to be downloaded and, where practicable, accessed directly” (Article 11)

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What about payments?

- **Question: How do I know whether I have to pay for data or whether they are free of charge?**
 - **Sure, in metadata describing those data**
- Article 14: “Where public authorities levy charges for the services referred to in points (b), (c) or (e) of Article 11(1), Member States shall ensure that e-commerce services are available. Such services may be covered by disclaimers, click-licences or, where necessary, licences.”
- **What does that mean?**

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INSPIRE Download service

- Equals to ISO 19142
 - ISO 19142 equals to the OGC Web Feature Service 2.0.0
 - Only version 2.0.0!
- Implemented together with ISO 19143
 - ISO 19143 equals to the OGC Filter Encoding 2.0.0 implementation specification
- Standard for e-shop of GI products
 - Still none, discussion about OGC e-commerce services

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Two possibilities of connecting to a discovery service

1. Through a “thin” client

- typically a Web browser...however, you have to exactly what to type and what to see



2. Through a “thick” client

- e.g. GIS software, common for GI professionals

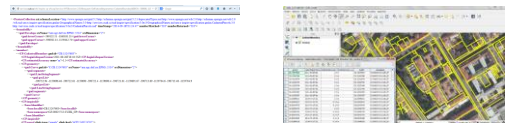


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Legislation background

- Again, all this is originating from INSPIRE legislation (the same as for discovery services)



- COMMISSION REGULATION (EC) No 1088/2010 of 23 November 2010 amending Regulation (EC) No 976/2009 as regards download services and transformation services
- <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32010R1088>

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

- Type in <http://services.cuzk.cz/wfs/inspire-cp-wfs.asp?service=WFS&version=2.0.0&request=GetFeature&typename=CadastralBoundary&BBOX=-599098,-1159750,-598602,-1159520&srsName=urn:ogc:def:crs:EPSG::5514>



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Operations of an INSPIRE download service

- **Get Download Service Metadata**
- **Get Spatial Data Set**
- **Describe Spatial Data Set**
- **Link Download Service**

Is it OGC compliant service?

DOWNLOAD SERVICES

PART 1

Download Operation

1. LIST OF OPERATIONS

In order to be compliant with Article 10(3)(c) of Directive 2007/2/EC, the Download Service shall at least provide the operations listed in Table 1 of this Annex.

Operation	Notes
Get Download Service Metadata	Provides all essential information about the service, the available Spatial Data Sets, and describes the service capabilities.
Get Spatial Data Set	The Get Spatial Data Set operation returns the content of a Spatial Data Set.
Describe Spatial Data Set	This operation returns the description of all the types of Spatial Objects contained in the Spatial Data Set.
Link Download Service	Provides the capabilities of a Download Service in a list form. The capabilities of Download Services for the downloading Spatial Data Sets as their parameters, Spatial Objects, through the Member State's Download Service shall maintain the interoperability capability of the basic operations of the Download Service.

The request and response parameters of each operation complete the description of each operation and form an integral part of the Download Service's technical specifications.

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Second possible approach

A direct access download service extends the functionality of a pre-defined dataset download service to include the ability to query and download subsets of datasets. The direct access download service allows more control over the download than the simple download of a pre-defined dataset or pre-defined part of a dataset. It can therefore be considered to be more „advanced“ than pre-defined dataset download. In this case, the spatial information is typically stored in a repository (e.g. a database) and only accessible through a middleware data management system (although the precise implementation may vary). The term direct access is used to mean the capability of a client application or client service to interact directly with the contents of the repository, e.g. by retrieving parts of the repository based upon a query. The query can be based upon spatial or temporal criteria, or by specific properties of the instances of the spatial object types contained in the repository.

Do you understand it?

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Direct access download service

- **Get Spatial Object**
 - i.e. GetFeature/GetCoverage according to the OGC
- **Describe Spatial Object Type**
 - i.e. DescribeFeatureType/DescribeCoverageType according to the OGC

PART II

Direct Access Download Operations

A. LIST OF OPERATIONS

When the Download Service gives direct access to spatial data sets, it shall provide, in addition to the operations listed in Table 1, the operations listed in Table 2 of this Annex.

Table 2

Operation	Role
Get Spatial Object	This operation allows the retrieval of Spatial Objects based upon a query.
Describe Spatial Object Type	This operation returns the description of the specified Spatial Object types.

The request and response parameters of each operation complete the description of each operation and form an integral part of the Download Service's technical specifications.

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“Indirect” access INSPIRE download service

- For instance, <http://services.cuzk.cz/gml/inspire>

Directory listing [/gml/inspire/]

```
<!-- To Parent Directory -->
<!-- / -->
<!-- / -->
```

Directory listing [/gml/inspire/au/]

```
<!-- To Parent Directory -->
date time size name
<!-- / -->
<!-- / -->
```

Directory listing [/gml/inspire/AU/epsg-5514/]

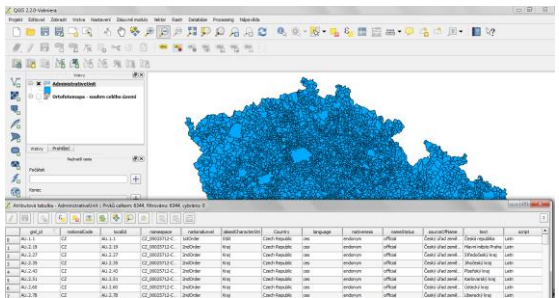
```
<!-- To Parent Directory -->
date time size name
16.09.2014 02:10 78171149 AdminOnsiteC1.esig
```

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“Indirect” access INSPIRE download service

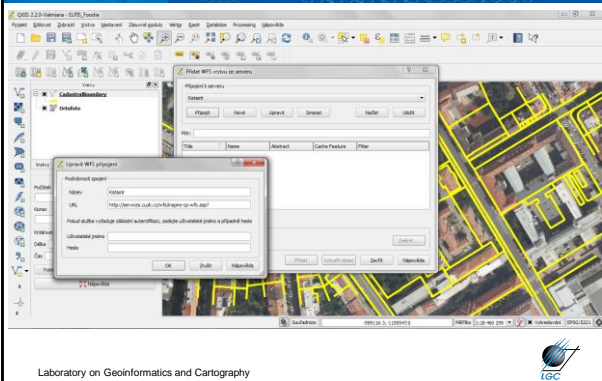
- **Result: NO INSPIRE KNOWLEDGE, NO DATA**



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Direct access download service



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Even more downloadable data

- Much more downloadable data under INSPIRE than discovered through the INSPIRE Geoportal
- Several agreements, such as with European Space Agency (ESA) <http://www.vito-eodata.be>



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Quality of service

- Again defined in legislation
- For the **Get Download Service Metadata** operation, the response time for sending the initial response shall be **maximum 10 seconds** in normal situation.
- For the **Get Spatial Data Set** operation and for the **Get Spatial Object** operation, and for a query consisting exclusively of a bounding box, the response time for sending the initial response shall be **maximum 30 seconds** in normal situation then, and still in normal situation, the download service shall maintain a sustained **response greater than 0,5 Megabytes per second or greater than 500 Spatial Objects per second**.

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Quality of service

- For the Describe Spatial Data Set operation and for the Describe Spatial Object Type operation, the response time for sending the initial response shall be maximum 10 seconds in normal situation then, and still in normal situation, the download service shall maintain a sustained **response greater than 0,5 Megabytes per second or greater than 500 descriptions of Spatial Objects per second**.
- The probability of a Network Service **to be available** shall be **99 % of the time**.

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Quality of service...still the same

Uptime [%]	Maximum downtime		
	Per week	Per month	Per year
95	8.4 hours	36.00 hours	18.25 days
99	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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