

Linked Open Data Pilot – Kick-Off

Clemens Portele interactive instruments GmbH

INSPIRE Drafting Team Data Specifications (Chair)

What is INSPIRE?

- A European Directive
- INSPIRE = Infrastructure for Spatial Information in Europe
- Aims to establish a EU-wide spatial data infrastructure (SDI)
 - Obligations on public sector organisations
 - To share spatial information relevant for the environment
 - To assist policy-making across boundaries
- In force since May 2007
- Implementation ongoing
- http://inspire.ec.europa.eu/

2067 EN

Official Journal of the European Union

1.1088

-1

(Acts adopted under the BC Treaty/Euroteen Treaty whose publication is obligatory)

DIRECTIVES

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)

THE BURGHEAN PARLIAMENT AND THE COUNCE, OF THE BURGHEAN UNION.

Having regard to the Treaty establishing the European Communine and in particular Article 175(1) thereof.

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social Committee (%).

After unrealting the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the Tevaty, in the light of the Joint text approved by the Conciliation Committee on 17 January 2007 (*),

Wherea

(i) Community policy on the environment must aim at a high level of protection taking into account the diversity of situations in the waitous regions of the Community, Moreover, information, including spatial information, is needed for the formation and implementation of this policy and other Community policies, which must integrate environmental protection regions must in accordance with Article 6 of the Teasy. In order to bring about such migration, it is necessary to enablish a measure of coordination between the users and providers of the information so that information and knowledge from different sectors can be combined.

- 7) The Sath Invironment Action Programme adopted by Decision No 1800/2002/EV of the European Parlament and of the Council of 22 July 2002 (1) requires full consideration to be given to ensuring that the Community environmental policy-making is undertaken in an tograted way, taking into account regional and local difference. A number of problems exact regarding the availability, quality, organization, accessibility and sharing of spatial information needed in order to achieve the objectives set out in this programme.
- (8) The problems regarding the availability, quality, organisation, accessibility and sharing of spatial information are common to a large number of policy and information there is an absolute of the problems and are experienced across the various levels of public anthority. Solving these problems requires measures that address exchange, sharing, access and use of intemperable spatial data and spatial data services across the various levels of public arthority and across different sectors. An infrastructure for spatial information in the Community should therefore be exhabited.
- (4) The infrastructure for Spatial Information in the European Community [Inspire] should assist policy-making in relation to policies and activities that may have a firest or indirect impact on the environment.
- (8) Inspire should be hased on the infrastructures for spatial information that are created by the Meinber States and that are made compatible with openion implementing rules and are supplemented with seasons at Community level. These measures should ensure that the infrastructures for spatial information created by the Member States are compatible and usable in a Community and transboundary contest.

⁽¹⁾ O) C 221, 8.9.2005, p. 53.

⁽⁵⁾ Opinion of the European Parlament of 7 June 2005 (O) C 124 E, 333,3005, p. 13, 6 Seated Currents Position of 23 Juneary 2006 (O) C 126 E, 505,2006, p. 14) and parlam of the European Fulliment of 15 June 2006 (not yet published in the Official Journal). Decision of the Council of 29 Juneary 2007 and legislative resolution of the European Fadlament of 13 February 2007 (not yet published in the Official Journal).

^{(5.} OLL 242, 10.9.2002, p. L.

Identifiers in INSPIRE

Resources:

- Spatial Objects (abstract representations of real-world phenomena)
 - Spatial Data Sets
- Other Registered Items
 - Vocabularies and Terms
 - Coordinate Reference Systems
 - Portrayal Rules and Symbols
 - etc.
- Spatial Data Services

Main purpose:

- Unambiguously trace resources and their lifecycle
- Support reuse by providing access to these resources

Types of identifiers in spatial data sets



Types of identifiers in spatial data sets



Types of identifiers related to spatial data

identifier

linguistically independent sequence of characters capable of uniquely and permanently identifying that with which it is associated

object identifier

identifier associated with a spatial object

thematic identifier

identifier used to identify a realworld phenomenon

registered item identifier

identifier of a resource maintained in a register

geographic identifier

spatial reference in the form of a label or code that identifies a location

From regulation to implementation

- Identifiers in the legal framework have been defined independent of an implementation platform as
 - a namespace and
 - a local identifier in the namespace
- In practice, INSPIRE is implemented as part of the web and the implementation of INSPIRE should follow the rules of the web

The web and identifiers

- In the web, http URIs have become the primary way to reference information resources
- These http URIs must be stable
- There is an expectation that using the URI information about the identified resource can be retrieved using HTTP

Implications

- Need to map all identifiers in INSPIRE to http URIs
- URIs must be independent of implementation details and should be short and mnemonic
- Member States, the Commission and other organisations assigning identifiers need to develop URI schemes to manage assignment of http URIs
- Typically this should be done with a wider scope than just spatial data
- Infrastructure needs to be set up and maintained to resolve http URIs and return information resources

Illustration

Real World

Abstraction

INSPIRE Spatial Object

Description

INSPIRE Representation (GML)

Cadastral Parcel



http://kataster.example.de/id/parcel/07/123/28/255-1

CadastralParcel	
geometry	255/1
cadastral reference	07012302802550001
identifier	http://location.example.de/so/AA A/DERPAL00ah5ztj3js2
area value	673.5 m ²

<cp:CadastralParcel
gml:id="DERPAL00ah5ztj3js2">

<gml:identifier>

http://location.example.de/so/

AAA/DERPAL00ah5ztj3js2

</gml:identifier>

<cp:areaValue uom="m2">
673.5

</cp:areaValue>

<cp:label>255/1</cp:label>

<cp:nationalCadastralReference>
 07012302802550001

</cp:nationalCadastralReference>

<cp:geometry>

<gml:Polygon>... </gml:Polygon>

</cp:geometry>

...

</cp:CadastralParcel>

http://xyz.de/doc/parcels? ...&ID=DERPAL00ah5ztj3js2 (Request to INSPIRE Download Service)

INSPIRE

Object identifiers as http URIs

- The URI of the spatial object
 http://location.example.de/so/AAA/DERPAL00ah5ztj3js2
- follows a simple pattern in this example:
 http://location.example.de/so/{namespace}/{localid}
- Retrieving this URI would redirect using standard HTTP to an INSPIRE service that provides representations of the spatial object, e.g. in GML, JSON, HTML, RDF, etc.
- The identifier of the spatial object is stable and not affected by changes in the implementation / download services
- References to the spatial object use the stable http URI, not the URI provided by the download service

Identifiers of other shared resources

- Spatial objects reference a number of other resources that are maintained in registers and used consistently
- These resources are identified by URIs, too
- Example: The coordinate reference system of a geometry

http://www.opengis.net/def/crs/EPSG/0/4258

Example: A code list value

http://inspire.ec.europa.eu/codelist/countrycode/nl

Status

- Stable http URIs as identifiers for spatial objects and spatial data sets are currently recommendations
- Additional discussions between Member States and the Commission required to develop an agreed URI strategy
- Stable http URIs for centrally managed, shared resources are being defined

Relevance for Linked Open Data

- To provide location context to "business information" in a way that can be used in web/mobile applications
 - property rights associated with a parcel
 - timetable of a railway station
 - statistical information for a statistical unit
 - materials used at an industrial facility,
 - etc.
- Typically a RDF encoding of spatial objects will be useful to support Linked Open Data applications