On the way of providing INSPIRE Addresses

Anna Lleopart, Inma Menacho, Anna Muñoz, Carles Serra

INSPIRE - Geospatial World Forum 2015
Lisboa, May 2015
Agenda
Agenda

- Introduction
- Municipal Database of Addresses of Catalonia data specification
- Transformation to INSPIRE Addresses data specification
- Conclusions
Introduction
Cartographic Coordination Commission of Catalonia (C4)

- Catalonia Government Administration
- Local authorities
- Meeting
- Collaboration
- Coordination
- Mapping
- Geographic information

(C4) (2006)
Cartographic Plan of Catalonia (CPC)

- Coordinated and supported by C4
- Geographic datasets produced and used by Catalonia’s public administration
- Data structure & quality
- Data availability & updating
- Interoperability & access

CPC (2010)
One of C4 responsibilities is establishing rules and standards to be applied in the elaboration of CPC Datasets.

C4 operates through thematic commissions and working groups.

Working groups define and write CPC dataset specifications, if they don’t exist.
Address information

- Address information is one of the datasets included in the CPC.

- According to CPC, its compilation and maintenance is responsibility of the municipalities.
Before CPC ...

- Municipality 1 Addresses data model
- Municipality 2 Addresses data model
- Municipality 3 Addresses data model
- Supra municipal 2 Addresses data model
- Supra municipal 1 Addresses data model
- Municipality 4 Addresses data model
- INSPIRE Addresses data model
- ICGC Addresses data model
With CPC...

- 2013: definition of a common specification in the C4 framework.
- Participation of the stakeholders:
  - Local administration (municipalities, supramunicipal organizations)
  - Catalonia Government Administration (ICGC, IDESCAT)
- BDMAC: Municipal Database of Addresses of Catalonia
BDMAC data specifications

- Provide:
  - Unified criteria for data collection.
  - Minimum agreed quality level.
  - A starting point for new address data bases implementation in the municipalities.
  - A common data model for data exchange and integration.

- Define several options for data exchange:
  - GML
  - Shapefile
Current situation

- Municipalities, supramunicipal bodies and ICGC are starting to apply BDMAC specification for generating the official datasets.

- Within C4 activities, a web service to validate the compliance of the datasets with the specification will be put in place.
Transformation services

BDMAC to INSPIRE Addresses
Goal

- Institutional coordination and collaboration beyond data:
  - In addition to sharing data
    - exchanging
    - publishing
  - Sharing processes to support data generation and dissemination
    - validation and quality control web services
    - transformation web services
BDMAC datasets hold information included in INSPIRE Addresses datasets.

BDMAC data model is compatible with INSPIRE Addresses data model

Within C4 activities, a web transformation service from BDMAC to INSPIRE Addresses is being put in place.
Transformation
BDMAC – INSPIRE Addresses

UML class diagram: BDMAC v1.1 application schema
# BDMAC to INSPIRE Matching table

## Target data model: INSPIRE Addresses

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Element</th>
<th>ComplexType</th>
<th>Attribute Local Constraint</th>
<th>Type</th>
<th>Voidable</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address [via]</td>
<td>insrid</td>
<td>Identifier</td>
<td></td>
<td>CharacterString</td>
<td>Identifier [local]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>name</td>
<td>namespace</td>
<td></td>
<td>CharacterString</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>variantId</td>
<td></td>
<td></td>
<td>CharacterString</td>
<td></td>
<td></td>
</tr>
<tr>
<td>gml_id</td>
<td>position</td>
<td>GeographicalPosition [1..*]</td>
<td></td>
<td>GM_Point</td>
<td>geometry</td>
<td>yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>default</td>
<td></td>
<td>Boolean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>specificationMethod</td>
<td></td>
<td>GeometrySpecificationValue</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>locator</td>
<td>AddressLocator [1..*][ordered]</td>
<td></td>
<td>locator [6]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>designator</td>
<td></td>
<td>CharacterString</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>name</td>
<td></td>
<td>LocationName [0..*][ordered]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>alternativeIdentifier</td>
<td></td>
<td>CharacterString [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>status</td>
<td></td>
<td></td>
<td>StatusValue [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>validFrom</td>
<td></td>
<td></td>
<td>Date-Time [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>validTo</td>
<td></td>
<td></td>
<td>Date-Time [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>beginLifeSpanVersion</td>
<td></td>
<td></td>
<td>Date-Time [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>endLifeSpanVersion</td>
<td></td>
<td></td>
<td>Date-Time [0..1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>component</td>
<td>relationships [1..*]</td>
<td></td>
<td>UnitedPobloc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MunicipalityMNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PostCodePostal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Party</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Source data model: BDMAC

<table>
<thead>
<tr>
<th>Table name</th>
<th>Attribute</th>
<th>Type</th>
<th>Voidable</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdresaVia</td>
<td>ESGEC.BDMAC.DE</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;insrid&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;name&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;type&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;level&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;AddressNumber&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;AddressNumber/Extension&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Name&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Name/Extension&quot;</td>
<td>GM_Point</td>
<td>fixed value</td>
<td></td>
</tr>
</tbody>
</table>
BDMAC to INSPIRE Transformer

Addresses .xsd

BDMAC_INSPIRE_matchingTable.xlsx

or

BDMAC SHP

bdmacv11gm 1.xsd

ETL transformer implementation (FME)
BDMAC to INSPIRE transformation

- BDMAC
- SHP
- or
- BDMAC
- XML

ETL Transformer (FME)

INSPIRE ADDRESSES
- XML

Geospatial World Forum

May 2015
BDMAC Source data
INSPIRE Addresses transformed data
CONCLUSIONS

- The definition of a common specification with the participation of the data providers that specify:
  - criteria for data collection
  - a minimum agreed quality level

ensures greater homogeneity of the data, facilitating its integration and exploitation as a whole.

- Allows the development of validation and transformation web services to be used by the community of users, with the consequent saving of resources.
Thanks for your attention

Institut Cartogràfic i Geològic de Catalunya
Parc de Montjuïc,
E-08038 Barcelona
41°22’12” N, 2°09’20” E (ETRS89)

www.icgc.cat
icgc@icgc.cat
twitter.com/ICGCat
facebook.com/ICGCat

Tel. (+34) 93 567 15 00
Fax (+34) 93 567 15 67