Understanding the benefits of the provision RDF services on INSPIRE data and how these services support eGovernment services

Agenda

1. Guadaltel: Pilot project to address use cases/applications in the area of Environment
2. Netage: Improving the information position of emergency responders with Linked INSPIRE Data
3. Interactive Instruments: RDF vocabularies and guidelines

Agenda

1 ***Guadaltel: Pilot project to address use cases/applications in the area of Environment***

2 Netage: Improving the information position of emergency responders with Linked INSPIRE Data

3 Interactive Instruments: INSPIRE RDF vocabularies and guidelines

Pilot project to address use cases/applications in the area of Environment. Provision of hydrography RDF services from national INSPIRE data.

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Stakeholders

- CNIG (Centro Nacional de Información Geográfica)
  - Promote and market the products of the Spanish National Geographic Institute
  - Data Provider: INSPIRE Hydrography datasets / Publish RDF services
- Guadalquivir River Basin Agency
  - Guadalquivir River Basin management
  - Incorporate RDF services in internal business processes
- Andalusian Regional Government Corporate GIS
  - Provision of horizontal tools and services for Andalusian Regional Government
  - Spread INSPIRE RDF guidelines and tools
- GUADALTEL
  - Consultancy, SDI and Corporate GIS solutions provider
  - Solution developer for RDF spatial data integration

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Bussiness case

- Publish INSPIRE National hydrography datasets provided by CNIG
- Business information for River Basin Agencies can be linked to Hydrography Spatial Data
- Increase the use and interoperability of hydrography physical data
- Hydrography data may also be consumed by non-GIS third parties

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Process

- Provide existing information from CNIG converting INSPIRE hydrography-physical data model to RDF format.
  - Identify and harvest National INSPIRE data via public WFS services
  - Match hydrography dataset attributes against INSPIRE data model
  - Match hydrography dataset attributes against INSPIRE RDF vocabularies
  - Develop a process to translate from INSPIRE hydrography datasets to INSPIRE RDF
  - Publish RDF produced data

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Issues and solutions

- Technological implementation references for GIS RDF data migration
  - INSPIRE RDF guidelines
- Lack of resources and business priorities to incorporate RDF in internal processes
  - Make information and knowledge more available
  - Enrich use cases to highlight RDF benefits

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Benefits of INSPIRE RDF

- High added-value solution to link spatial and non-spatial data
- Publish hydrography data in a more extended format and less specific services than OGC in the world wide web.
- Can be indexed in machine to machine searches and so it can be found and used by more parties
- Use of existing tools to locate and process data from RDF
- Cross-sectorial use for published data adding value for: floods, transport planning or agriculture

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SMART DATA FOR SMARTER FIRE FIGHTERS

Fire Service Base Registration Objects

Combine various public and private datasets to generate a contextual image for the fire service, both in preperation, prevention and operations

Motivation

The Fire Service depends on a combination of data from various sources to build a complete image

- Building
  - Size
- Company Register
  - Type of business registered
- Permit Register
  - Type of activities allowed, including hazmat indication
- Address and Parcel register
  - Which other types of buildings are located on premise

The fire service has NO authority over any of this data, it must be harvested by the relevant public bodies

Problem description

Combination of INSPIRE and non INSPIRE themes

- Locations
  - Addresses
  - Buildings
  - ..
- Registrations
  - Company register
  - Property tax register
  - ..

All none INSPIRE themes are related to INSPIRE themes

  - e.g. usage permits on buildings

- One object could be related to multiple INSPIRE themes
  - Addresses , buildings, parcels
- Registration relation can be on any of the above

Current method

‘Use spatial tools to push a pin through the various layers, everything that sticks is probably related’

Disadvantages

- Computing intensive
- Semantics in the relations are unknown
- No use of authoritative identifiers
- None spatial relations are missed
  - Company register shows subsidiary across the street

Project Method

Convert data to RDF both INSPIRE and non INSPIRE

- Create authoritative identifiers in INSPIRE datasets
- Relate all registrations to their respective identifiers

Build model to contain

- Mashup between various INSPIRE themes
  - Based on a address which building and parcel are involved
- Data from various registration on the current object
- Metadata references to the source of the data

- Issues
  - Its huge ! One city generates millions of tripples
  - Missing themes (Dwellings)
- Success
  - Provenance
  - Semantics

Agenda

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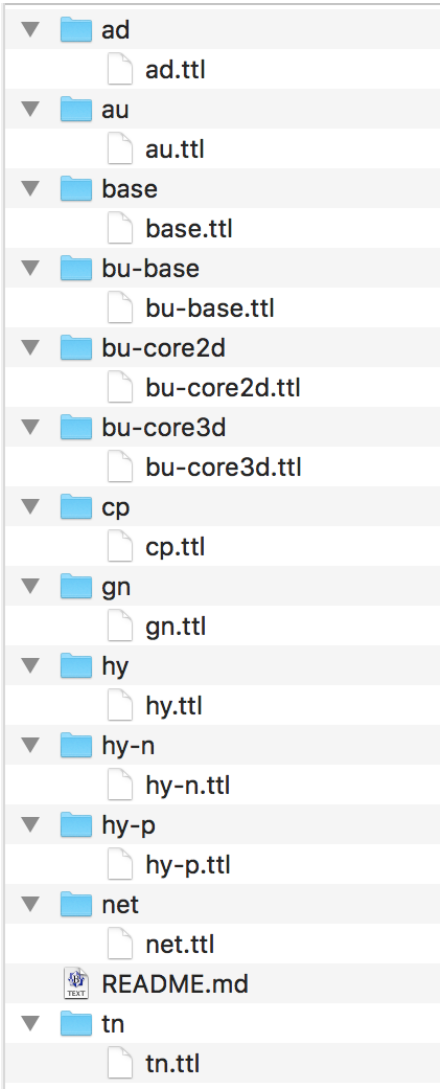
3. ***Interactive Instruments: INSPIRE RDF vocabularies and guidelines***

INSPIRE RDF vocabularies and guidelines

Goal: RDF vocabularies for INSPIRE themes

- Derived from the INSPIRE application schemas that are the basis for the Implementing Rule (regulation 1089/2010) and the INSPIRE Data Specifications

- Iterative process
  - Start with a selection of themes to test and learn
  - Extend to additional themes in the future as needed
- RDF as an optional encoding
  - Does not supersede or replace encoding requirements in INSPIRE Data Specifications

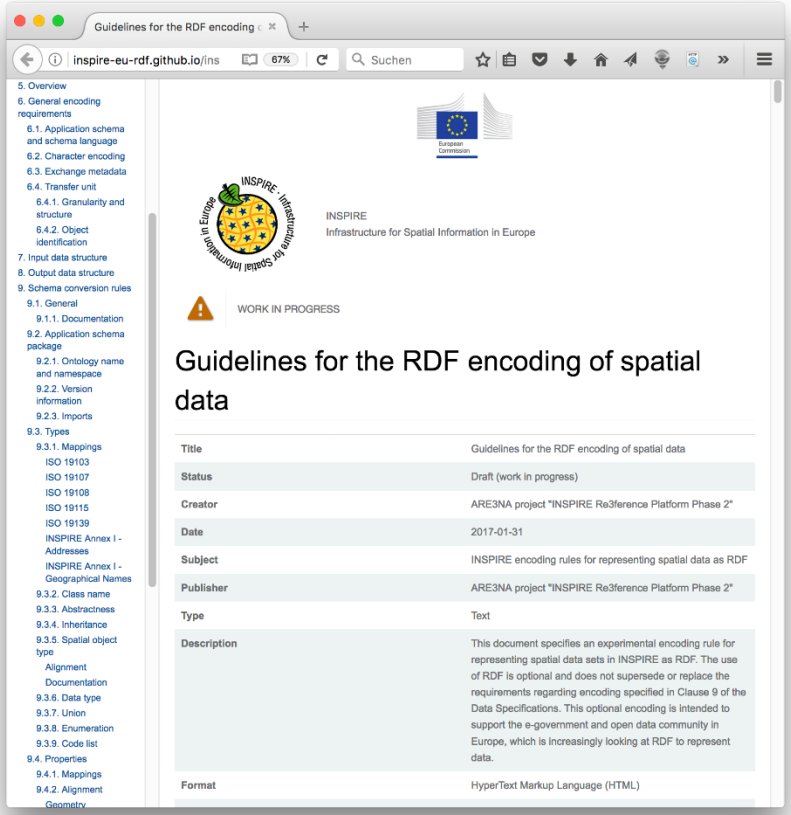


This requires guidelines

- Article 7 of regulation 1089/2010 requires the specification of an encoding rule that specifies how the spatial objects and their properties are represented in RDF

  → the guidelines

- Builds on the results of a previous ARE3NA project (2014) and addresses open issues
- The goal is a draft for a new encoding rule for INSPIRE data, ready for stakeholder review



http://inspire-eu-rdf.github.io/inspire-rdf-guidelines/

Key chapters

Schema conversion rules

Documents the rules for converting INSPIRE application schemas to an OWL ontology

Topics:

- Application schemas
- Types
- Properties
- Association classes
- Constraints

Instance conversion rules

Describe how datasets and spatial objects are converted to RDF resources

Topics:

- Resource identifiers
- Spatial objects vs real-world entities
- Encoding geometry
- Encoding metadata
- Value collections

Process and next steps

- Open development on GitHub
- Feedback from the community - and the pilots
- Next steps (July)
  - Update guidelines and the draft RDF vocabularies
  - Based on input and feedback received

- Drafts of the guidelines and INSPIRE RDF vocabularies
  - http://inspire-eu-rdf.github.io/inspire-rdf-guidelines/
  - https://github.com/inspire-eu-rdf/inspire-rdf-vocabularies
- Raise, discuss and resolve questions and open issues
  - https://github.com/inspire-eu-rdf/inspire-rdf-guidelines/issues