Implementing INSPIRE Network Services for the Romanian INSPIRE Geoportal

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Legal aspects
Romanian Geospatial Information Infrastructure

- The transposition into national legislation - **OG 04/2010**
  - Published in Romanian Official Journal on January 29th, 2010
  - Entry in force on February 2\textsuperscript{nd}, 2010
  - [Link](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:72007L0002:EN:NOT#FIELD_RO)

- Has been set up an open and transparent process for the stakeholders participation

- Stakeholders are part of the **INIS Council** which is under coordination of **ANCPI** as a **LMO** in INSPIRE
  - **INIS** - National Infrastructure for Spatial Information in accordance to OG 04/2010, article 1, section 1

- **INIS Council** – 19 organizations
  - Technical Working Groups experts

Supporting the Romanian INSPIRE community
ANCPI plays a central role
ArcGIS for INSPIRE Implementation

Export, harmonize and publish the source data in an INSPIRE compliant form

Existing information/storage systems

ArcGIS for INSPIRE Geodatabase Templates

ArcGIS for INSPIRE View and Download services

transform

publish

ETL tools:
Data Interoperability, FME,
FME + INSPIRE Solution Pack, ..
Romanian INSPIRE Geoportal
Romanian Geospatial Information Infrastructure

- “Multitenant” INSPIRE Geoportal
  - Supported by ANCPI (National Agency for Cadaster and Land Registration)
  - Supports the INIS Council
- Stakeholders are part of the INIS Council which is under coordination of
  ANCPI as a LMO in INSPIRE
  - INIS - National Infrastructure for Spatial Information in accordance to OG 04/2010,
    article 1, section 1
  - INIS Council – 19 organizations
    - Technical Working Groups experts
Romanian INSPIRE Node Architecture
Performance/Availability/Reliability

- Business continuity
  - Recoverability | Redundancy | Maintainability
- Data
  - is an Asset | is Shared | is Accessible | is Secure.
- Separation of concerns
  - In terms of INSPIRE “functionality”
- Common use applications
- Compliance with law
Romanian INSPIRE Node Architecture
Romanian INSPIRE Node Architecture
Performance/Availability/Reliability

- Acceptance process
  - Testing compliance against INSPIRE Geoportal Metadata Validator
  - QoS Testing
    - Using SOAP UI & Load UI
  - Overall Security Testing
    - Done by a 3rd party governmental organization
Data harmonization – Annex I

Data is an asset, is shared, is accessible and secure

- Several geospatial data repositories within ANCPI
  - Different storage models
  - Different schema
  - Different workflows in data acquisition/updating processes
  - Stored in national coordinate system
- TopRO5 – 1:5.000 Topographic Map for Romania
- E-Terra – Romanian Cadaster and Land Registry
Data harmonization – Annex I

Data is an asset, is shared, is accessible and secure

- Understand data schemas (input/output)
- ArcGIS Data Interoperability to create ETLs for:
  - Administrative Units
  - Cadastral Parcels
  - Geographical Names
  - Hydrography
  - Transportation Network
- Ensure re-usability for ETLs
  - Data changes. This is not one “fire & forget” process

ArcGIS for INSPIRE Geodatabase Templates

Mapping existing data with the INSPIRE Geodatabase Templates

Build it right the first time

ETL tools: Data Interoperability, FME, FME + INSPIRE Solution Pack, ..
Data harmonization – Annex I
Data is an asset, is shared, is accessible and secure

- **Romanian INSPIRE Geoportal includes:**
  - five INSPIRE View Services
    - AU | CP | GN | HY | TN
  - five INSPIRE Interoperable Download Services
    - AU – publicly available
    - CP | GN | HY | TN – restricted

- **This approach leads to a problem**
  - Data changes take place in production environments
  - Synchronizing the changes with the INSPIRE compliant DB
  - Ensure object lifecycle management
Data synchronization – Annex I

Data is an asset, is shared, is accessible and secure

- **TopRO5 – Topographic Map 1:5.000**
  - Low rate in data change for most of data sets
    - Synchronization takes place once or twice a year
  - Medium rate in data change for Administrative Units
    - Synchronization takes place monthly
  - Data is served cached using Esri’s World Topographic Map Template
  - Re-caching is done just for updated areas
Data synchronization – Annex I
Data is an asset, is shared, is accessible and secure

- E-Terra – Cadaster and Land Registry
  - High rate in data change (daily changes)
  - Synchronized every night
  - Data changes are visible the next day
  - Automatic synchronization and reporting mechanism
  - ETL based on ArcGIS Data Interoperability and SQL
  - Leverages Oracle specific features: partitioning, parallel querying and spatial types
  - Data is served dynamically