



Developing a national PID Management System

A proposal for Spain

Parallel Session: Technologies and Tools
September 6, 2017

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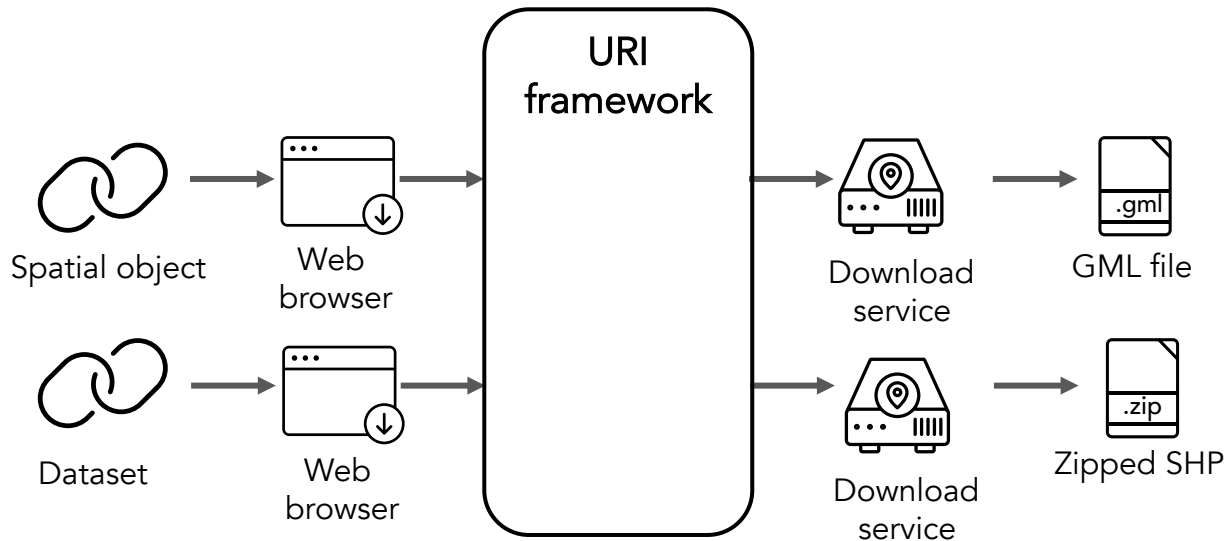
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INSPIRE Conference 2017

PID challenges

- INSPIRE recommends to use URIs in the http scheme
 - Spatial Object & Datasets
 - Shared resources
- INSPIRE recommends to support dereferencing
 - ... but is not going to organise the URI framework



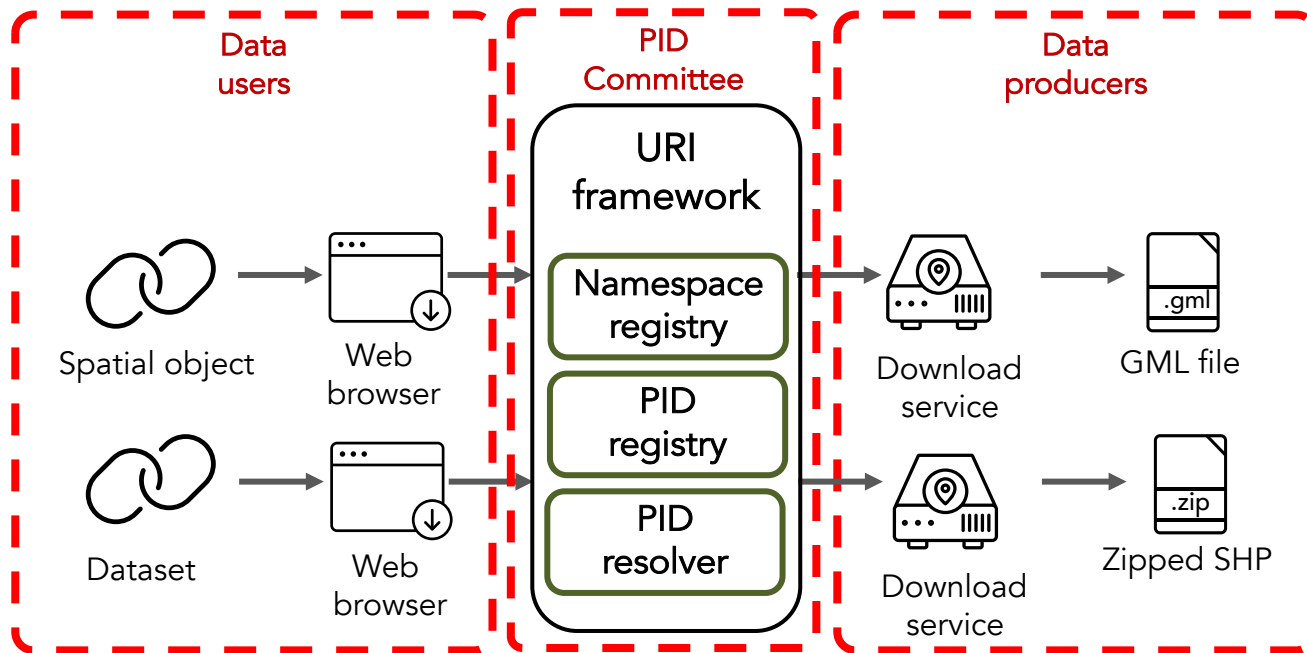
Blueprint for a national solution

- Business view

- Governing committee
- Technical secretariat
- Procedures and policies

- Technical view

- Namespace Central Registry
- Automated PID Registry
- PID resolver service



Our proposal: Business View

- Governing Committee
 - Members from IDEE WG and CODIIGE (Spanish GI governing board)
 - Strategic decisions
 - Application scope
- Technical Secretariat
 - IGN
 - Technical/operative decisions
 - Infrastructure maintenance
- Relevant stakeholders
 - Data providers with local registries (volume, complexity, norm ...)
 - Commercial search engines → PID dissemination

Our proposal: Technical View

- INSPIRE PID URI schema proposal
 - `https://datos.idee.es/recurso/{namespace}/{localId}[/{versionId}]`
- Namespace Central Registry (a.k.a. “Namespace Registry”)
 - What: namespaces and sources (download services, local registries)
 - Who: owners
- Automated PID Registry (a.k.a. “PID Registry”)
 - What: resources with PID
 - How: harvesting registered sources INSPIRE at Namespace Registry
- PID Resolver Service (a.k.a. “PID Resolver”)
 - What: resolves registered PID requests
 - How: looks up PID at PID Registry and redirects to the source

Use case: namespace registry



- A **data provider requests** to be registered in Namespace Registry



- The **Technical Secretariat verifies** the application



- The **data provider registers** in Namespace Registry the namespace “administrative-units” (administrative boundary data)



- PID Registry **harvests** all spatial objects within the source



- PID Registry **processes** each spatial object found and **mints** a PID



- PID Registry **publishes** on the web all minted PID plus metadata

Use case: discovery and dereferencing



- Googlebot indexes all the data published by PID Registry



- An entrepreneur discovers these PIDs at Google and adds them into an app that uses the boundaries of the Spanish municipalities



- The app at runtime dereferences the http PID that identifies the boundaries of a municipality



- The PID Resolver looks up the PID Registry



- PID Resolver returns a GET KVP WFS request to the source that will return a geometry encoded in GML
 - Content negotiation for other formats
 - Proxy when source does not support a GET KVP WFS request
 - Cache to reduce latency and traffic

Use case: monitoring and data quality



- The **Technical Secretariat** uses PID Registry to **monitoring** each source compliance with PID governing rules



- The **Technical Secretariat** discovers that PIDs in the namespace “administrative-units” are not persistent and **notifies** the issue to the **namespace owner**



- The **entrepreneur** discovers some glitches in its **app** due to data quality issues in the namespace “administrative-units”



- The **entrepreneur** **looks up** the **Namespace Registry** for the **namespace owner** and then **notifies** the issue to him

Use case: resilience



- A year later, due to an administrative reorganization, the ownership of the is **transferred** to a **different entity**



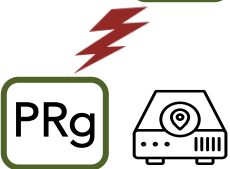
- The **new owner** plan to **upgrade** the WFS infrastructure and **move** to a new domain



- The change of ownership is **reported** to the **Technical Secretariat** and the **ownership** is **transferred** in the **Namespace Registry**



- The **new owner** **updates** the details of the location of the source of the “**administrative-units**” namespace



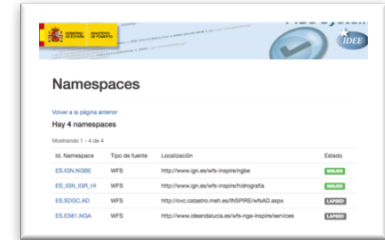
- **PID Registry** keeps the PIDs but replaces smoothly the old locations by the new ones; no third party **app** is affected

Expected benefits

- INSPIRE
 - Meet the http PID recommendation
- Adoption
 - Probably fast → Uncomplicated process
- Visibility on the web
 - Web friendly
- Added values
 - Monitoring, resilience, provenance ...

Expected costs

- Proof of concept
 - Funded by CNIG (IGN)
 - <http://laloteta05.cps.unizar.es:8080/pid-registry/api/ns>
- Prototype
 - In development → Universidad Zaragoza, GeoSLab
 - <https://github.com/IAAA-Lab/pid-ms>
- URI Framework
 - Namespace Registry, PID Registry, PID Resolver → 6 person-month
- Maintenance URI Framework
 - Technical Secretariat → 4 person-month each year
 - Dedicated servers



Namespaces

Ver en la página anterior

Hay 4 namespaces

Mostrando 1 - 4 de 4

N. Namespace	Tipo de fuente	Localización	Estado
ES.IGN.NGBE	WFS	http://www.ign.es/wfs/inspirengbe	Activo
ES.IGN.IGN_H	WFS	http://www.ign.es/wfs/inspirehigrafi	Activo
ES.SGICAD	WFS	http://www.catalogo.mah.es/INSPIRE/wfsAD.aspx	Activo
ES.ESE:NGA	WFS	http://www.ideneidatocata.es/wfs-ign-inspire/tematicas	Activo



Espacio de Nombres ES.IGN.NGBE

Ver en la lista de Namespaces

Detalles básicos

Identificador	ES.IGN.NGBE
Contenido	Hay 114893 Identificadores Persistentes
Tareas	Actualizar
Renovación	MONTHLY

Fuente

Tipo de Fuente	WFS
Localización	http://www.ign.es/wfs/inspirengbe
Objeto Especial contenido	NamedSpace
Esquema de Esquemas	http://inspire.es/europe/arc/chemes/igrid
Perfil de Esquema de Aplicación requerido por el extractor	ign
Propiedad equivalente a geometry requerido por el extractor	geometry
Propiedad equivalente a begin/Referencia requerido por el extractor	begin/Referencia



Identificadores Persistentes de ES.IGN.NGBE

Ver en la página anterior

Hay 114893 Identificadores Persistentes

Mostrando 1 - 21 de 114893

N. Persistente	N. Local	N. Version	Estado
ES.IGN.NGBE/1679482015	167948	2015	Activo
ES.IGN.NGBE/1679482015	167948	2015	Activo
ES.IGN.NGBE/1679482015	167948	2015	Activo

Conclusions & other research lines

- A nearly-automated http URI Framework is feasible
 - It can be extended...
- e.g. Network services gateway
 - Service PID resolves to service endpoint
- e.g. Metadata without link rot → Navigable SDI
 - Metadata PID resolves to metadata file
 - Metadata file uses inside PID instead of URL for online resources (datasets, services and other metadata)

Thanks for your attention

https://pid

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