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The challenge of resolvable Persistent Identifiers

Implementation of HTTP PID in Spain for INSPIRE

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Technologies and Tools required to deliver INSPIRE

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Agenda

1. What is a resolvable PID?
2. Resolvable HTTP URI for INSPIRE PID
3. Proposal and prototype for Spain
4. Conclusions

What is a resolvable PID? Resolvable identifier

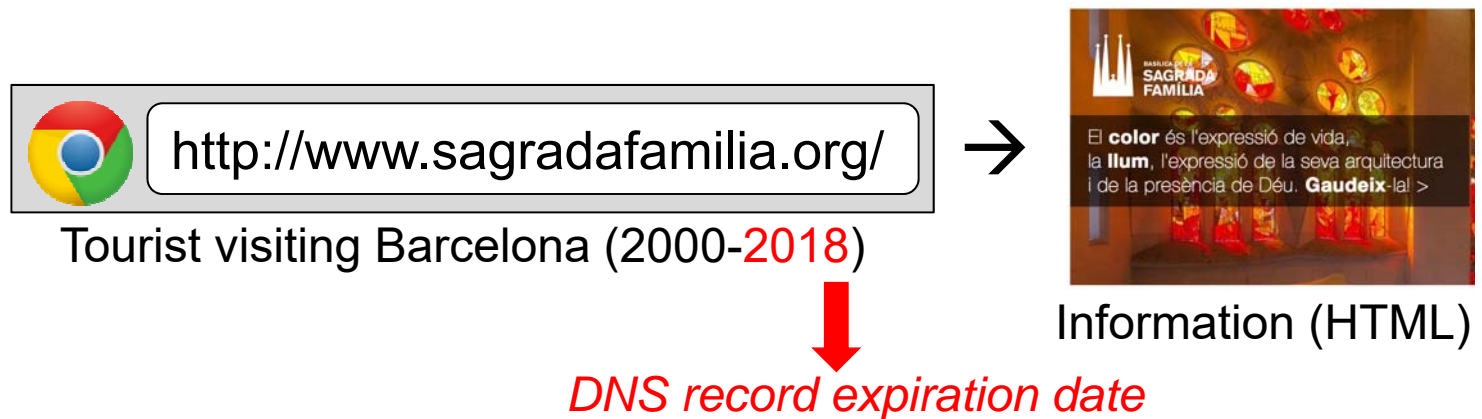
Identifier:

Scope (CharacterString) \rightarrow Resource, $t \in [t_0, t_1)$



Resolvable Identifier:

System(CharacterString, Context) \rightarrow Representation, $t \in [t_0, t_1)$



What is a resolvable PID?

Resolvable persistent identifier

Persistent identifier (PID):

Scope (CharacterString) \rightarrow Resource, $t \in [t_0, +\infty)$

doi 10.3989/ic.08.057 \rightarrow

Study
Evolution
Building

Permanent



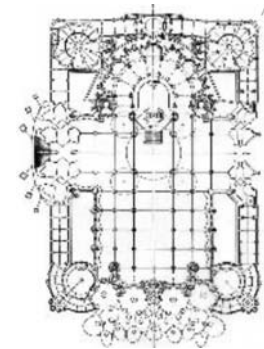
Resolvable persistent identifier (resolvable PID):

System(CharacterString, Context) \rightarrow Representation, $t \in [t_0, +\infty)$

PID proxy <http://doi.org/10.3989/ic.08.057>



PID 10.3989/ic.08.057



Architect interested in Sagrada Familia (2009- ∞)



Information (PDF)

Location + metadata while DOI/Handle system persist

Why you have to worry about this issue?



Resolvable HTTP URI for INSPIRE PID
INSPIRE has resolvable PID (but ...)

Directive 2007/2/CE INSPIRE → identifier

- **Spatial Objects**

Regulation 1089/2010 Spatial Data Sets → persistent

- **Data type *Identifier* for Spatial Objects**

Regulation 976/2009 Network Services → resolvable

- **Download services may use *Identifier* in requests**

http://www.ign.es/wfs-inspire/ngbe?service=WFS&version=2.0.0&request=GetFeature&STOREREDQUERY_ID=urn:ogc:def:query:OGC-WFS::GetFeatureById&ID=ES.IGN.NGBE.1733990

Europe prefers a different kind of resolvable HTTP PID

- **Several causes: Interoperability, Open Data, Web API, ...**

Resolvable HTTP URI for INSPIRE PID

Can we adapt our URIs?

Easy: Define a national HTTP URI schema for INSPIRE PID

- For example

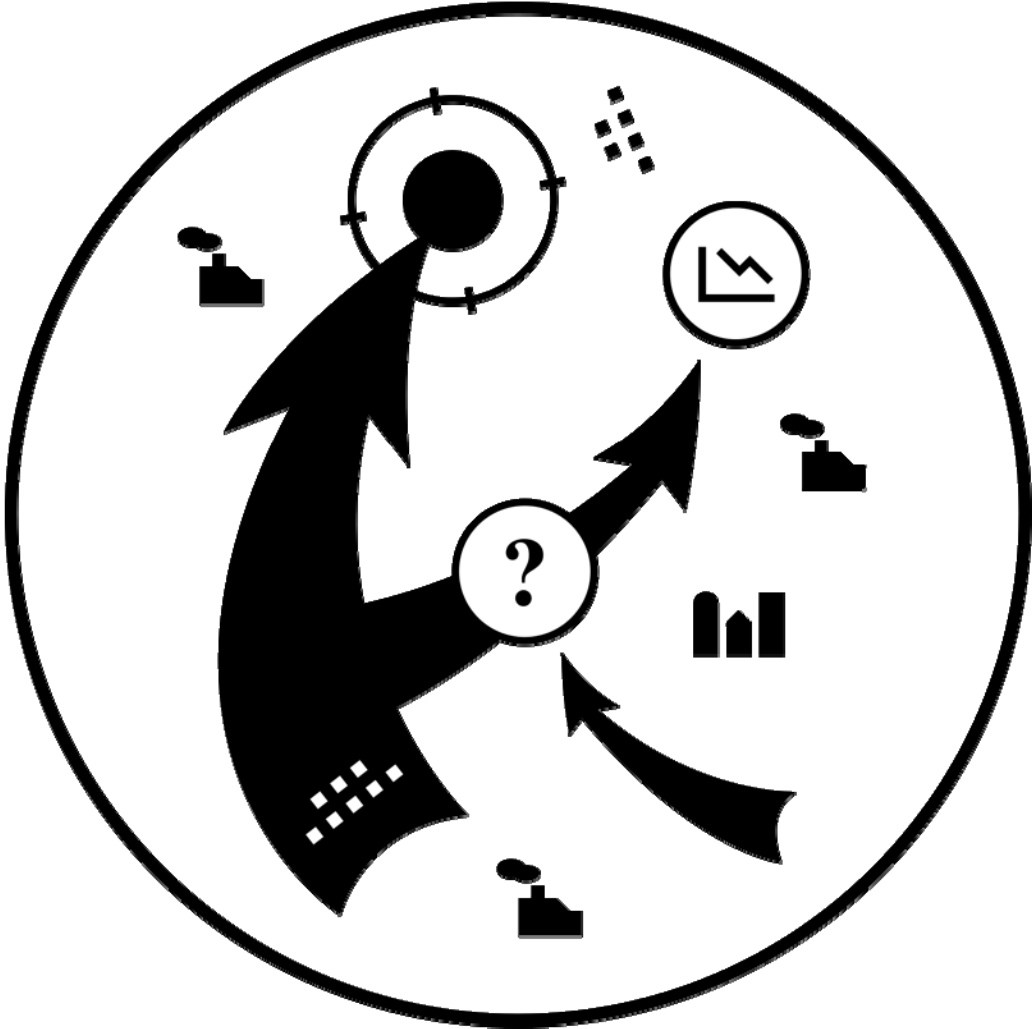
<http://environment.data.gov.uk/id/bathing-water/ukc2102-03800>

Hard: Integrate with existing national INSPIRE infrastructure

- Register or harvest millions of Identifiers from Spatial Objects from data providers and keep them updated (location, status, ...)
- Resolve HTTP URI to requests to download services

Challenge: Ensure long-term persistence of HTTP URI

Proposal and prototype for Spain



Proposal and prototype for Spain

Legal framework

Spanish legal framework

- INSPIRE, regulations and technical guides
- ENI → National Interoperability Schema (rules of interoperability for public administrations in Spain)
- Autonomic norms

ENI: few constraints but significant gaps

- Mandatory URI scheme for public information resources
- Lack of URI governance framework
- Lack of persistent identifier governance framework

Proposal and prototype for Spain

A practical proposal

HTTP URI schema for INSPIRE

ENI → `http://{base}/recurso/{namespace}/{localId}` ←INSPIRE

Integration with existing INSPIRE architecture

- Harvest identifiers of spatial objects in download services
- Resolve HTTP URI INSPIRE to requests to download services

Ensuring long-term persistence of HTTP URI INSPIRE

- Central registry of namespaces
- Central archive of identifiers (long-term persistence)
- Central resolver (long-term resolution)
- Local registries of identifiers synchronized with the central archive and local resolvers for larger data providers

Proposal for Spain

Prototype – current status

“Harvester” → Running prototype (under test)

- Sources WFS IGN, Junta de Andalucía
- Spatial Objects of type Crossing → 31948 (IGN)
- Spatial Objects of type NamedPlace → 1114875 (IGN) 121905 (JdeA)

Resolver system → Running prototype (under test)

Archive → In development

PID browser/resolver (Beta, harvested PID)

- <http://laloteta05.cps.unizar.es:8080/pid-registry/api/ns>

Proposal for Spain

Prototype – current status



Namespaces

[Volver a la página anterior](#)

Hay 2 namespaces

Mostrando 1 - 2 de 2

Id. Namespace	Tipo de fuente
ES_IGN_IGR_HI	WFS
ES.IGN.NGBE	WFS

Espacio de Nombres ES.IGN.NGBE

[Volver a la lista de Namespaces](#)

Detalles básicos

Identificador	ES.IGN.NGBE
Contenido	Hay 1114875 IdentificadoresPersistentes
Tareas	Listado
Renovación	DAILY

Fuente

Tipo de Fuente	WFS
Localización	http://www.ign.es/w
Objeto Espacial contenido	NamedPlace
Esquema de Eplicación	http://inspire.ec.eu
Prefijo del Esquema de Aplicación requerido por el extractor	gn
Propiedad equivalente a geometry requerido por el extractor	geometry
Propiedad equivalente a beginLifespanVersion requerido por el extractor	beginLifespanVersi
Umbral entre profundizar o recuperar requerido por el extractor	10000
Extensión requerido por el extractor	[-10.0, 34.5, 5.0, 44
Actuar como servidor proxy requerido por el resolevedor	false

Espacio de Nombres ES.IGN.NGBE

[Volver a la lista de Namespaces](#)

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Tipo de Fuente	WFS
Localización	http://www.ign.es/wfs-inspire/ngbe
Objeto Espacial contenido	NamedPlace

Conclusions

Resolvable HTTP URI for INSPIRE are an opportunity

- Visibility, integration with other systems, ...

Technically feasible? → Yes

Organisational challenge? → Yes

- Need of some national framework supporting the system
- Need of PID policies in data providers



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Thanks for your attention



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