



NUI Galway  
OÉ Gaillimh



# Linked Logainm: Enhancing Library Metadata using Linked Data of Irish Place Names

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September 26, 2013



- The authority list of **Irish place names**, validated by the Placenames Branch.
- Delivering a more **detailed level** than in DBpedia, Geonames.
- Unique source of **Irish language place names**



The screenshot shows the homepage of the Placenames Database of Ireland. At the top, there's a search bar with placeholder text "Type a placename in Irish or English". Below it, a dropdown menu shows "Bunachar Logainmeacha na HÉIREANN" and "Placenames Database of Ireland". To the right, there are links for "About", "Ask a question", "Translate a list", "Read archive", "Glossary", "Logan Geogif", "Educational resources", "Educational games", "Information resources", and "Placenames orders".

The main content area has sections for "SEARCH", "BROWSE BY COUNTY", and "Welcome". The "SEARCH" section includes a map of Ireland with a red dot indicating a location. The "BROWSE BY COUNTY" section shows a map of Ireland divided into counties. The "Welcome" section displays statistics: "Current database contains 81,637 records 82,796 streets 3,484 electoral divisions 6,267 townlands 6,311 parishes 4,928 lakes 4,095 bogs and marshes 949 rivers 449 hills 477 bridges 276 mountains and mountain ranges 349 harbours 387 walls 249 monuments 220 fortifications 162 towers 102 burial mounds 82 megalithic sites 309 castles".



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- Unique source of **Irish language place names**
- But.. not easily accessible automatically



The screenshot shows the homepage of the Placenames Database of Ireland. At the top, there's a search bar with placeholder text "Type a placename in Irish or English". Below it, there are two sections: "SEARCH" and "BROWSE BY COUNTY", each accompanied by a map of Ireland. The "SEARCH" section includes a checkbox for "Include arrest names". The "BROWSE BY COUNTY" section shows a map of Ireland with county boundaries. To the right, there's a sidebar titled "Welcome" with information about the database being developed by DCU and the Placenames Branch. It also features a "Placename of the day" section with a link to "All an tSeanchaí go dtí 2013". Below that is a "Statistics" section with a map of Ireland showing county-level data. At the bottom, there's a "Database statistics" section with various counts of records and geographical features.

81,677 records	32,796 streets	3,485 electoral districts
6,207 towns and villages	6,207 parishes	1,000 townlands
4,938 lakes	3,095 rivers and streams	4,938 roads
2,091 hills	378 mountains and mountain ranges	349 ferries
490 bridges	2,000 meadows and pastures	387 walls
2,000 monuments	2,000 archaeological sites	3,000 trees

- The Longfield Maps are a set of 1,570 surveys carried out in Ireland between 1770 and 1840.
- Currently catalogued in MarcXML
- Integrating Logainm data into their workflow:
  - for enabling searching for place names in Irish
  - using Linked Data

# Longfield Map example



# Longfield Map example



## MARC/XML

```
<marc:datafield tag="650" ind1="" ind2="">
    <marc:subfield code="a">Land tenure</marc:subfield>
    <marc:subfield code="z">Ireland</marc:subfield>
    <marc:subfield code="z">Rathdown (Barony)</marc:subfield>
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    <marc:subfield code="z">Wicklow (County)</marc:subfield>
</marc:datafield>
```

- ① Translate Logainm database dump into RDF
- ② Determine links to other datasets based on:
  - Place names
  - Type
  - Geographical coordinates
  - Hierarchy of places
- ③ Evaluation of generated links
- ④ Library catalogue enhancement

## Providers:

- DBpedia
  - Exported from Wikipedia
- LinkedGeoData
  - Exported from OpenStreetMap
- GeoNames

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## Vocabularies:

- W3C Geo
  - SpatialThing
- NeoGeo
  - Feature vs Geometry
  - Spatial Relations (is\_part\_of)
- Most providers define their own

# 1. Converting Logainm dump to RDF



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A screenshot of a web-based application interface. At the top, there's a navigation bar with links like 'Home', 'About', 'Contact', 'Feedback', and 'Logout'. Below the navigation, there's a search bar and some descriptive text in Irish. The main content area features a map of Ireland with several locations marked by red dots. A red rectangular box is overlaid on the right side of the map, containing the large, bold text 'XML'. At the bottom of the page, there's a footer with a small logo and some legal text.

- Data provided in XML

# 1. Converting Logainm dump to RDF



- Data provided in XML
- Translated to RDF using XSPARQL



# 1. Converting Logainm dump to RDF



XML

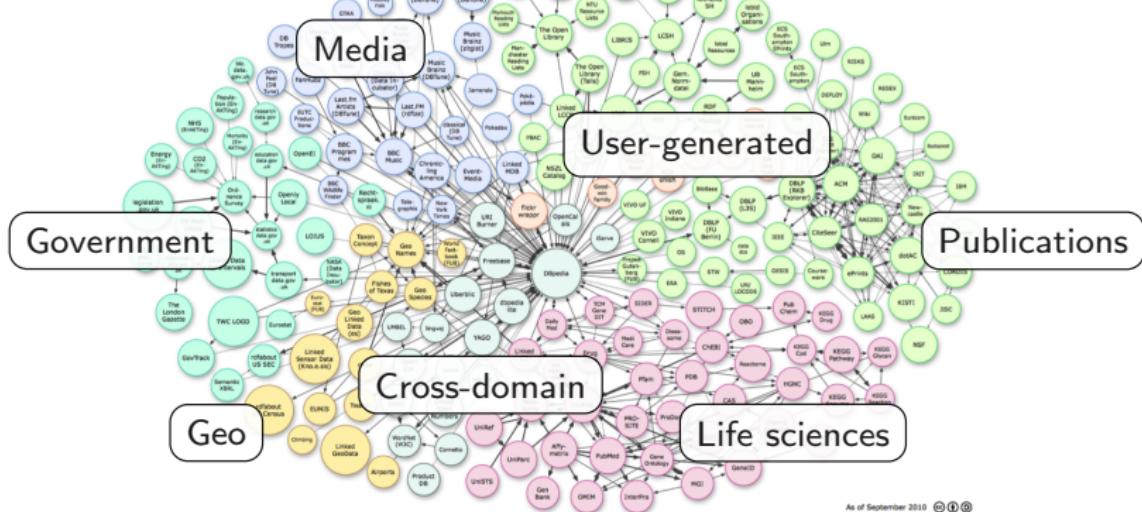
XSPARQL  
ML ↔ DF

- Data provided in XML
- Translated to RDF using XSPARQL
- Exposed using Openlink Virtuoso

~ 1.3M triples

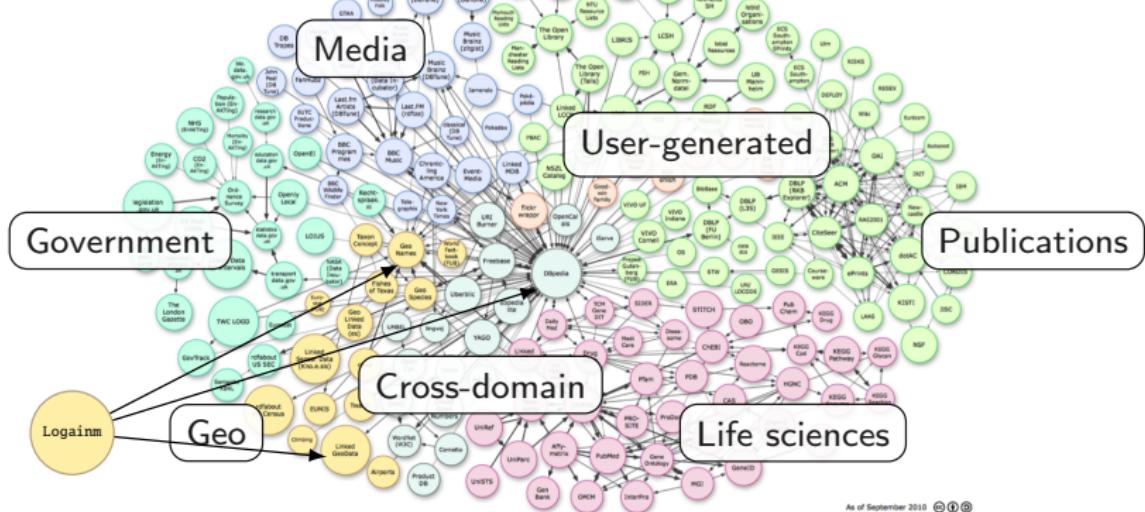


The screenshot shows a web-based RDF triple store interface. It displays a query result for the "Dublin" dataset, which includes a list of triples and their corresponding SPARQL queries.



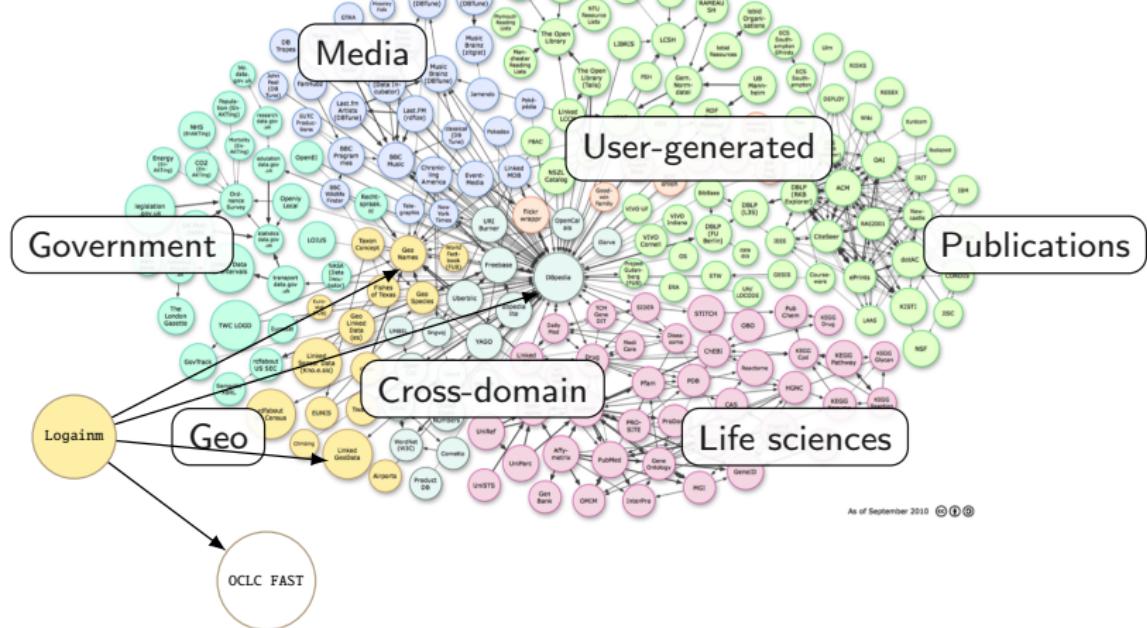
As of September 2010

<http://lod-cloud.net/>



As of September 2010

<http://lod-cloud.net/>



As of September 2010

<http://lod-cloud.net/>

## 2. Place name matching using Silk

### ① Place Name

- Island, Cavan: 2641 "Place"s in DBpedia
- Airport, Dublin: 7828

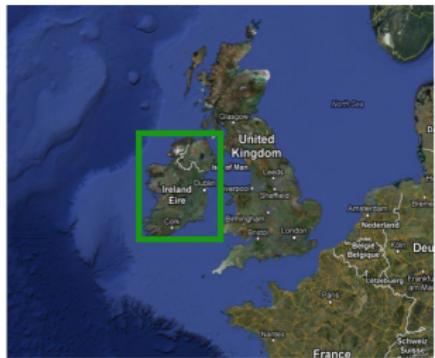
## 2. Place name matching using Silk

### ① Place Name

- Island, Cavan: 2641 "Place"s in DBpedia
- Airport, Dublin: 7828

### ② Geographical Location

- ~50% of place names in logainm contain geographical information



## 2. Place name matching using Silk

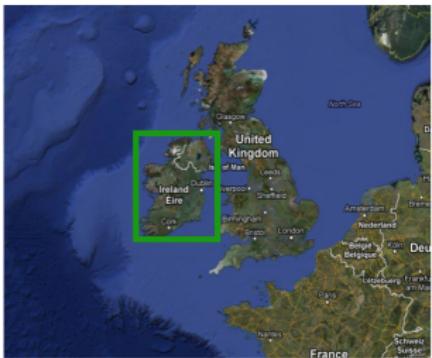
### ① Place Name

- Island, Cavan: 2641 "Place"s in DBpedia
- Airport, Dublin: 7828

### ② Geographical Location

- ~50% of place names in logainm contain geographical information

### ③ Name of the county / parent place name



## 2. Place name matching using Silk

### ① Place Name

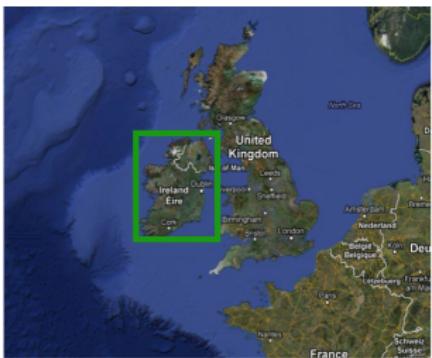
- Island, Cavan: 2641 "Place"s in DBpedia
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### ② Geographical Location

- ~50% of place names in logainm contain geographical information

### ③ Name of the county / parent place name

### ④ Mapping of types from Logainm to types in other datasets



logainm.ie	DBpedia	LinkedGeoData	Geonames
townland	Populated Place	Locality	LCTY, PPLF

### 3. Silk results

	Entities IE	# Links	% Links
DBpedia <sup>1</sup>	10,715	1,552	14.5
LinkedGeoData <sup>2</sup>	36,237	6,611	18
GeoNames <sup>3</sup>	23,102	8,229	35.5

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<sup>1</sup> Entities of type “Place” or “Feature”

<sup>2</sup> Entities of type “Node”

<sup>3</sup> No hierarchy info

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#### Links in other datasets

	Entities	# Links	% Links
DBpedia	873,643	653,707 <sup>4</sup>	74.84
LinkedGeoData	6,251,067	462,098	7.4

<sup>1</sup> Entities of type “Place” or “Feature”

<sup>2</sup> Entities of type “Node”

<sup>3</sup> No hierarchy info

<sup>4</sup> Including internal & Freebase links

	Links	Checked	Correct
DBpedia	1,552	1,552 (100%)	98%
LinkedGeoData	6,611	500 (7.5%)	96%
GeoNames	8,229	500 (6%)	99%

- Same place names can be “towns”, “population centre”, and “townland” in logainm.ie. DBpedia contains only one entry:
  - Adrigole (population centre) and Adrigole (townland)
  - <http://dbpedia.org/resource/Adrigole>
- Similar for LinkedGeoData

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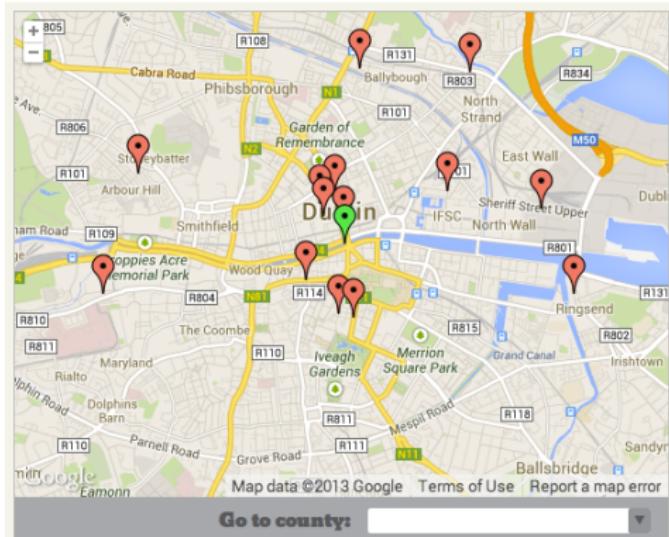
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</marc:datafield>
<marc:datafield tag="651" ind2="7" ind1="">
    <marc:subfield code="2">logainm.ie</marc:subfield>
    <marc:subfield code="a">Rathdown</marc:subfield>
    <marc:subfield code="0">http://data.logainm.ie/place/283</marc:subfield>
</marc:datafield>
```

# Demo page:

<http://apps.dri.ie/locationLODer>



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## logalm.ie ▶

Ainm: Baile Atha Cliath Name: Dublin  
Type: city County: Dublin

## DBpedia ▶



Dublin is the capital and most populous city of Ireland. The English name for the city is derived from the Irish name Dubhlinn, meaning "black pool". Dublin is situated near the midpoint of Ireland's east coast, at the mouth of the River Liffey and the centre of the Dublin Region. Originally founded as a Viking settlement, it evolved into the Kingdom of Dublin and became the island's principal city following the Norman invasion. The city expanded rapidly from the 17th century; it was briefly the second largest city in the British Empire and the fifth largest in Europe. Dublin entered a period of stagnation following the Act of Union of 1801, but it remained the economic centre.



## National Library of Ireland ▶

- 1 A map of a piece of ground on the north side of Parkgate Street in the City of Dublin belonging to Doct. Filton. Surveyed by J. Longfield. April 1824
- 2 A map of that part of the Royal Canal intended to pass through the County of Dublin from Summer Hill to Ashtown. By John Brownrigg 1790. Scale 500

## Europeana ▶

- 1 A smokey chimney
- 2 Traffic in Dublin
- 3 Blue Tit
- 4 Coal Tit
- 5 Common Frog
- 6 Grey Squirrel
- 7 Heron

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## Future work

- Improve the Silk matching rules to obtain better matching
  - Street level matching
- Enhancing the NLI's cataloguing system (VuFind)

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Thank you! Questions?