

# QGIS - A SPARQLing Unicorn?

Eine Einführung in Linked Open Geodata  
zur Integration von RDF in QGIS Plugins



We are Research Squirrels  
and interested in Open  
Science and **Linked Data**



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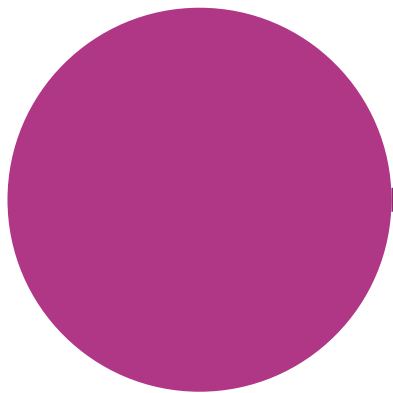


**Sophie & Martina**



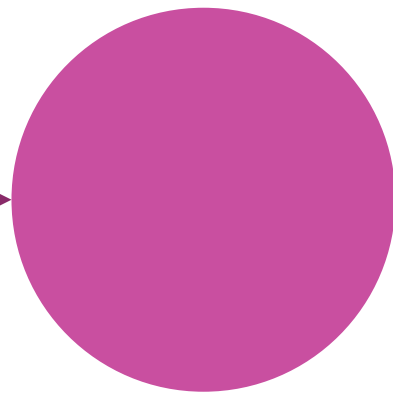
**Research Squirrel Engineers**

<http://squirrel.link>



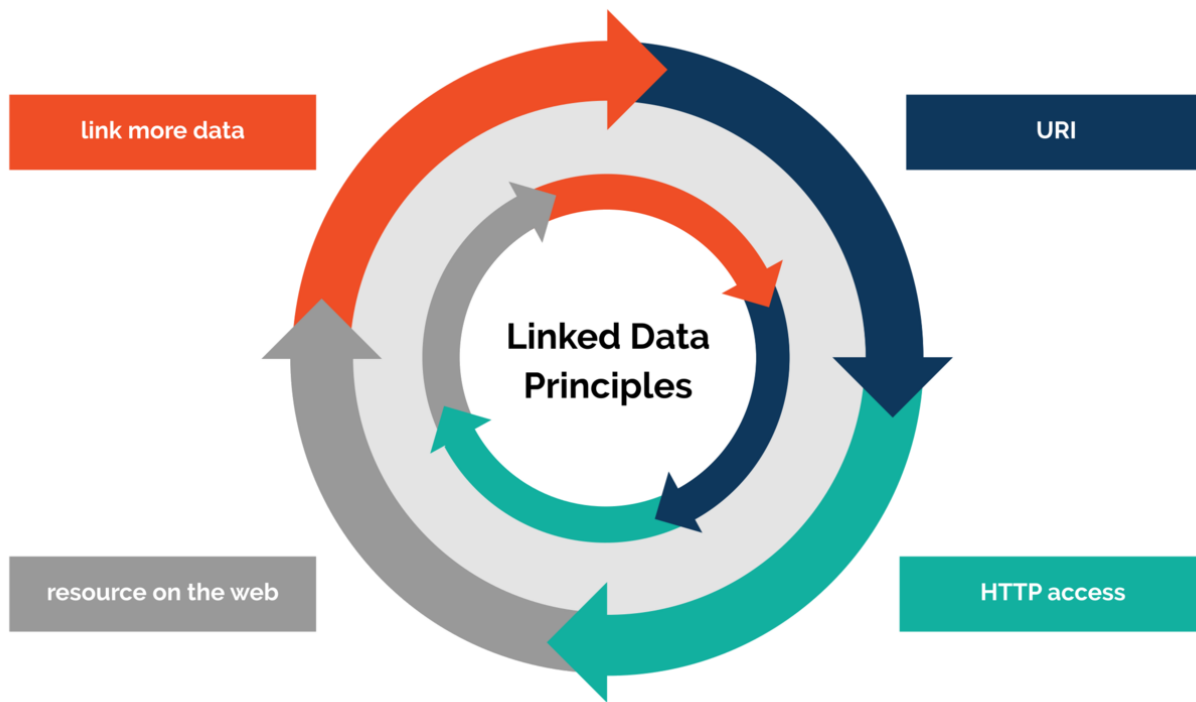
**Subjekt**

**Prädikat**



**Objekt**

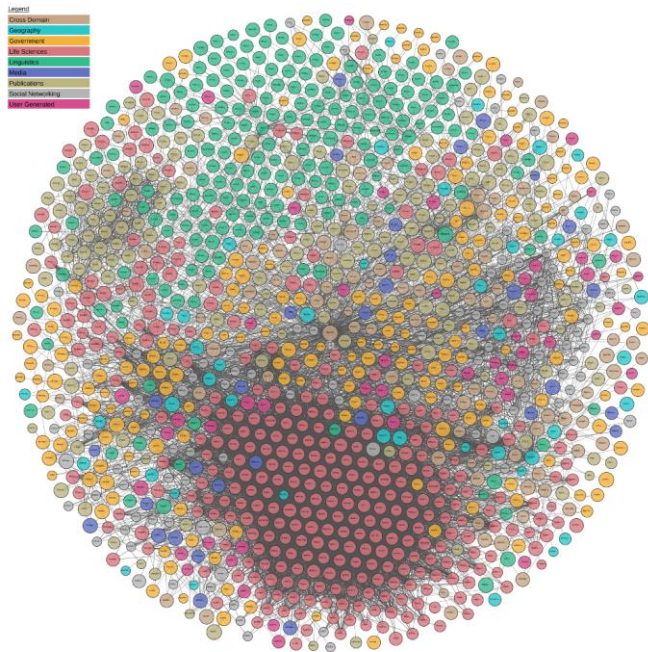






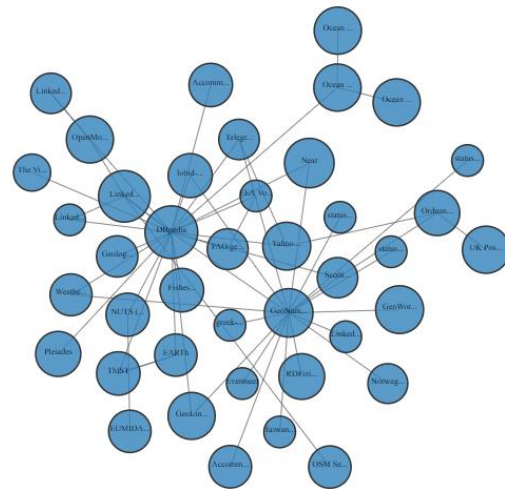
**Linked  
Open  
Usable  
Geodata**

**Linked (Open) Data**  
**Open Data**  
**Open Source Software**  
**Open Access**  
**Geo Data**  
**Usable Data/Interfaces**



Network visualization based on LodCloud.net

Legend  
Geography



The Geography Linked Open Data Cloud from lod-cloud.net



## The Linked Data Cloud via <https://lod-cloud.net>



- Main page
- Community portal
- Project chat
- Create a new item
- Create a new Lexeme
- Recent changes
- Random item
- Query Service
- Nearby
- Help
- Donate
- Tools
- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Concept URI
- Cite this page

Item Discussion

## Freiburg im Breisgau (Q2833)

large city in Baden-Württemberg, Germany  
Freiburg/Breisgau | Freiburg i. Br. | Freiburg i. B.

[in more languages](#)

Language	Label	Description	Also known as
English	Freiburg im Breisgau	large city in Baden-Württemberg, Germany	Freiburg/Breisgau Freiburg i. Br. Freiburg i. B.
German	Freiburg im Breisgau	Großstadt in Baden-Württemberg, Deutschland	Freiburg/Breisgau Freiburg i. Br. Freiburg i. B. Freiburg
British English	Freiburg im Breisgau	No description defined	
Polish	Fryburg Bryzgowjski	miasto w południowo-zachodniej części Niemiec	

All entered languages

### Statements

instance of	big city	<a href="#">edit</a>
	start time	1534 <a href="#">edit</a>
		<a href="#">0 references</a> <a href="#">+ add reference</a>
	college town	<a href="#">edit</a>
		<a href="#">0 references</a> <a href="#">+ add reference</a>

- Wikipedia (34 entries) [edit](#)
- af Freiburg im Breisgau
  - als Freiburg im Breisgau
  - an Frìburg de Brisgòbia
  - ar فرابورج
  - ast Frìburgu de Brisgovia
  - az فرابورج
  - az Frayburg im-Braisgau
  - be\_x-old Фрайбург-іа-Брайсгау
  - be Фрайбург
  - bg Фрайбург
  - br Freiburg im Breisgau
  - ca Fruburg de Brisgòvia
  - ceb Freiburg (kapital sa distrito nga go
  - co Freiburg im Breisgau
  - cs Freiburg im Breisgau
  - cy Freiburg im Breisgau
  - da Freiburg im Breisgau
  - de Freiburg im Breisgau
  - el Φραιβουργ
  - en Freiburg im Breisgau
  - eo Freiburg
  - es Frìburg de Brisgovia
  - et Freiburg
  - eu Frìburg
  - fa فرابورج
  - f Frìburg im Breisgau
  - fr Freiburg im Breisgau

located on terrain feature

[Breisgau](#) [edit](#)

[0 references](#) [+ add reference](#)

[Upper Rhine Trinalational Metropolitan Region](#) [edit](#)

[0 references](#) [+ add reference](#)

[+ add value](#)

coordinate location

[edit](#)

47°59'41"N, 7°50'59"E

[1 reference](#) [+ add value](#)

# Wikidata: hier Freiburg im Breisgau (Q2833)



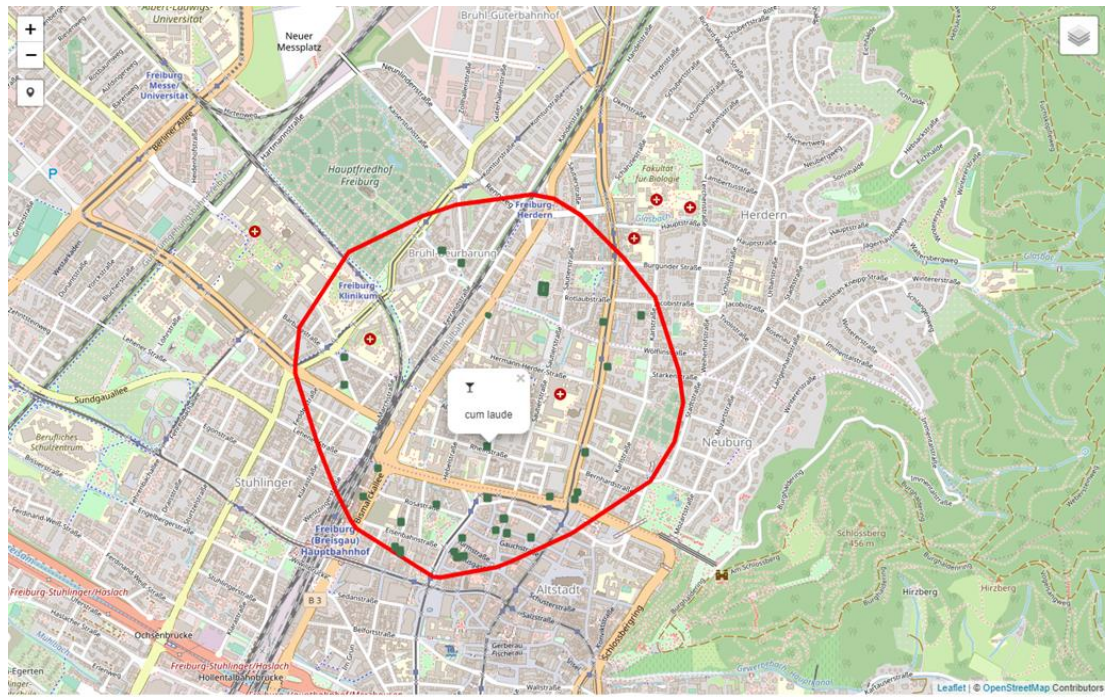
opossum

center latitude: 48.00203  
center longitude: 7.84887  
search area: walking area  
time: 10 min

- Place of Worship
- Restaurants
- Amenity
- Wikipedia

LOAD DATA

<http://opossum.linkedgeodesy.org>



# LinkedGeoData: Freiburg, Restaurants in Uninähe





## Das SPARQLing Unicorn QGIS Plugin



The screenshot shows the QGIS interface with a map of Europe. A layer named 'unicorn Airports Germany' is active, showing red dots representing airports. The 'SPARQL Unicorn Wikidata Plugin' dialog box is open, showing the following configuration:

- Query: Interlink, Enrich
- Select endpoint: Wikidata --> ?geo requir
- Or: Load From File
- layer name: unicorn\_
- Airports\_Germany
- Layer concept: airport(Q1246784)
- Query Templates: Item+Label
- Constraint by Area Type: city (Q515)
- Area: (empty)
- Constraint By BBOX

The dialog box contains the following SPARQL query:

```
# Example: Airports in Germany
SELECT ?label ?geo ?item WHERE {
  ?item wdt:P31 wd:Q1246784; #Airport
  ?range wd:Q183; #Germany
  wdt:P625 ?geo;
  rdfs:label ?label.
  FILTER((LANG(?label)) = "en")
} LIMIT 100
```

Buttons at the bottom of the dialog include 'add layer', 'load unicorn layers', 'unicorn\_Airports\_Germany', 'Export Loaded Layer as TTL', and 'Schließen'.

# Funktion 1: Vereinfachtes Querying von Semantic Web Datenquellen

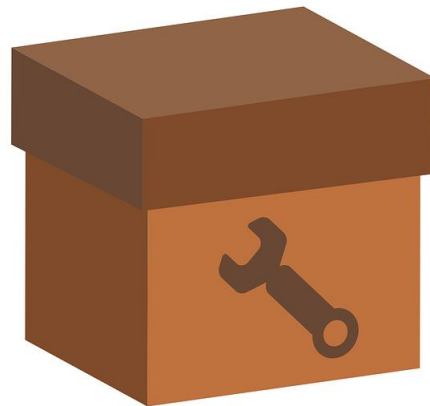


The screenshot shows the QGIS interface with a map of Freiburg im Breisgau. A red bounding box is drawn around the city area. A 'Choose BoundingBox' dialog is open, showing the selected area. Below the map, a SPARQL query window is open, displaying the following query:

```
Query: Interlink, Enrich
Select endpoint: DBpedia --> ?lat ?lon rec | Or: Load From File | layer name: unicorn_ | Freiburg_University
Layer concept: http://dbpedia.org/ontology/University | Query Templates: Item+Label
Constraint By Area Type: city (Q515) | Area: | Constraint By BBOX

Unknown namespace prefix : bf
SELECT ?item ?label ?lat ?lon WHERE {
  ?item rdf:type <http://dbpedia.org/ontology/University> .
  ?item rdfs:label ?label .
  ?item <http://www.w3.org/2003/01/geo/wgs84_pos#lat> ?lat .
  ?item <http://www.w3.org/2003/01/geo/wgs84_pos#long> ?lon .
  FILTER (langMatches (lang(?label), 'EN'))
  FILTER (bif:st_within(bif:st_point(?lon, ?lat), bif:st_point(7.844935088530677, 47.98392131997689), 100)) . }
LIMIT 10
```

# Funktion 1: Vereinfachtes Querying von Semantic Web Datenquellen



**Funktion 2: Anreicherung von Geodaten**  
**Funktion 3: Anreicherung und Konvertierung von RDF Daten**



**Das Unicorn freut sich auf Mithilfe aus der Geo-Community!**

# Thx!

Any questions?

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[rse@fthiery.de](mailto:rse@fthiery.de)

<http://sparqlunicorn.link>

<https://plugins.qgis.org/plugins/sparqlunicorn/>



Research Squirrel Engineers



# Credits

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