Map making workshop
from Wikidata to interactive off-Wiki maps in three steps

Wikimania 2019, Stockholm, 18-8-2019

Olaf Janssen, National Library of the Netherlands

User:OlafJanssen // olaf.janssen@kb.nl // @ookgezellig
Module 1, basic: Understand steps to make **basic flat and layered maps** in Wikidata, based on geo referenced (P625) items and SPARQL queries
Learning objectives

Module 1, basic: Understand steps to make basic flat and layered maps in Wikidata, based on geo referenced (P625) items and SPARQL queries.

Module 2, intermediate: Understand steps to embed maps in Wikimedia sites like Wikipedia, Wikimedia Commons and Wikidata.
Learning objectives

Module 1, basic: Understand steps to make basic flat and layered maps in Wikidata, based on geo referenced items and SPARQL queries

Module 2, intermediate: Understand steps to embed maps in Wikimedia sites like Wikipedia, Wikimedia Commons and Wikidata

Module 3, advanced: Understand steps to create Wikidata-based off-Wiki maps
Learning objectives

Module 1, basic: Understand steps to make basic flat and layered maps in Wikidata, based on geo referenced items and SPARQL queries

Module 2, intermediate: Understand steps to embed maps in Wikimedia sites like Wikipedia, Wikimedia Commons and Wikidata

Module 3, advanced: Understand steps to create Wikidata-based off-Wiki maps

Access to map making resources, SPARQL examples and Python code snippets to build upon
Workshop outline and notes

Last update: 12th August 2019

Module 1: Basic flat & layered maps

Prerequisites for this Module

- Wikimedia account
- Working knowledge of Wikidata
- Basic understanding of SPARQL and the Wikidata Query Service (WDQS)
- A Wikidata set of items with geo coordinates P625

If you have the necessary prerequisites, we recommend:

1. Building a map of a country
2. A map of the entire world
3. A map of Europa
4. Volcanos
5. Airports around the equator (between -10 and +10 degrees latitude)
Tips & tricks welcome!

I’m not a maps / Wikidata / SPARQL guru....
3 MODULES

1) Basic flat & layered maps
2) Embedded maps in Wikimedia projects
3) Interactive, layered off-Wiki maps driven by Wikidata
MODULE 1
Basic flat & layered maps
For this Module, you will need

- Wikimedia account
- Working knowledge of Wikidata...
- ... and SPARQL
- A Wikidata set of items with geo coordinates (P625)....
coordinate location (P625)

Geocordinates of the subject. For Earth, please note that only WGS84 coordinating system is supported at the moment.

Also known as:
- coordinates
- co-ordinate location
- co-ordinates
- coords
- co-ords
- geographic coordinate
- gps coordinate
- gps co-ordinate
- gps coordinates
- gps co-ordinates
- gps location
- geotag
- wgs 84
- wgs-84
- wgs84
- position
- longitude
- latitude
- gps
- coordinate location
- geographical coordinates
- geo
- location
- point on a map
- point on the globe
- point on earth
- location on earth
- geolocation
- geocoordinates
- Location on map

In more languages:

<table>
<thead>
<tr>
<th>Language</th>
<th>Label</th>
<th>Description</th>
<th>Also known as</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>coordinate location</td>
<td>geocordinates of the subject. For Earth, please note that only WGS84 coordinating system is supported at the moment</td>
<td>coordinates, co-ordinate location, co-ordinates, coords, co-ords, geographic coordinate, gps coordinate, gps co-ordinate, gps coordinates, gps co-ordinates, gps location, geotag, wgs 84, wgs-84, wgs84, position, longitude, latitude, gps, coordinate location, geographical coordinates, geo, location, point on a map, point on the globe, point on earth, location on earth, geolocation, geocoordinates, Location on map</td>
</tr>
<tr>
<td>German</td>
<td>geographische Koordinaten</td>
<td>Koordinaten eines sich auf der Erde befindlichen Objekts, momentan werden nur WGS84 Koordinaten für Erdobjekte unterstützt.</td>
<td>Koordinate, geografische Koordinate, Koordinaten, Ort auf der Weltkarte, Ort auf der Erde, geolokalisation, geokoordinaten, Ort auf der Weltkarte</td>
</tr>
</tbody>
</table>
Stockholm

wd:Q1754

coordinate location

P625

Point(18.0685, 59.3269)

59°19′46″N, 18°47′E
Some minutes to create your own P625 dataset
If you don’t have a Wikidata P625 set

Public libraries in The Netherlands
https://w.wiki/6dx

Dutch national heritage sites
https://w.wiki/6dy

Big cities
https://w.wiki/6e3
If you don’t have a Wikidata P625 set

Volcanos of the world
https://w.wiki/6e9

Airports around equator
https://w.wiki/6eB
1.1) Basic flat map
Public libraries in The Netherlands

https://w.wiki/6dx
<table>
<thead>
<tr>
<th>dpl</th>
<th>dplLabel</th>
<th>dplDescription</th>
<th>dplLoc</th>
<th>dplImage</th>
</tr>
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<tbody>
<tr>
<td>wd:Q63677419</td>
<td>'t Harde public library service point</td>
<td>Public library in the village of 't Harde, The Netherlands</td>
<td>Point(5.877917 52.4172699)</td>
<td></td>
</tr>
<tr>
<td>wd:Q61915721</td>
<td>Aalsmeer public library</td>
<td>Public library in Aalsmeer, The Netherlands</td>
<td>Point(4.7496987 52.2679063)</td>
<td></td>
</tr>
<tr>
<td>wd:Q59772713</td>
<td>Aalst public library</td>
<td>Public library in Aalst, The Netherlands</td>
<td>Point(5.1259789 51.7841643)</td>
<td></td>
</tr>
<tr>
<td>wd:Q60499424</td>
<td>Abbeekerk public library</td>
<td>Public library in Abbeekerk, municipality of Medemblik, The Netherlands</td>
<td>Point(5.0160659 52.7313345)</td>
<td></td>
</tr>
<tr>
<td>wd:Q63385185</td>
<td>Achterveld public library</td>
<td>Public library in the village of Achterveld, municipality of Leusden, The Netherlands</td>
<td>Point(5.4973655 52.1365067)</td>
<td></td>
</tr>
<tr>
<td>wd:Q60020855</td>
<td>Aduard public library</td>
<td>Public library in Aduard, province of Groningen, The Netherlands</td>
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<tr>
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<td>Akersloot public library</td>
<td>Public library in Akersloot, The Netherlands</td>
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<tr>
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<td>Public library in Alblasserdam, The Netherlands</td>
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<tr>
<td>wd:Q63890048</td>
<td>Alkmaar De Mare public library</td>
<td>Public library in Alkmaar De Mare, The Netherlands</td>
<td>Point(4.7588585 52.6535348)</td>
<td></td>
</tr>
<tr>
<td>wd:Q63890041</td>
<td>Alkmaar Oudorp public library</td>
<td>Public library in the Oudorp neighbourhood in the city of Alkmaar, The Netherlands</td>
<td>Point(4.7657342 52.6340395)</td>
<td></td>
</tr>
<tr>
<td>Label</td>
<td>dpIDescription</td>
<td>dpILoc</td>
<td>dpILmage</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>S-Heerenberg public library</td>
<td>Public library in s-Heerenberg, municipality of Montferland, The Netherlands</td>
<td>Point(6.2454886      51.8731333)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalst public library</td>
<td>Public library in Aalst, The Netherlands</td>
<td>Point(5.1259789       51.7841643)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aalsmeer public library</td>
<td>Public library in Aalsmeer, The Netherlands</td>
<td>Point(4.7496987       52.4179063)</td>
<td></td>
<td></td>
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<td>Abbekerk public library</td>
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<td>Point(5.0160659       52.7313345)</td>
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<td></td>
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<td>Point(5.4570135       53.2599615)</td>
<td></td>
<td></td>
</tr>
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<td>Public library in Akersloot, The Netherlands</td>
<td>Point(4.7322704       52.5633782)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alblasserdam public library</td>
<td>Public library in Alblasserdam, The Netherlands</td>
<td>Point(4.65723        51.86473)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkmaar De Mare public library</td>
<td>Public library in Alkmaar De Mare, The Netherlands</td>
<td>Point(4.7588585       52.6535348)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkmaar Oudorp public library</td>
<td>Public library in the Oudorp neighbourhood in the city of Alkmaar , The Netherlands</td>
<td>Point(4.7657342       52.6340396)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Default map view

#Is Dutch public library branch
?dpl wdt:P31 wdt:Q28564. #public library
?dpl wdt:P31 wdt:Q11396180. #library branch
?dpl wdt:P17 wdt:Q55. #in the Netherlands
?dpl wdt:P628 ?dplLoc. #Location of the dpl
OPTIONAL{?dpl wdt:P18 ?dplImage} #Image of the dpl
SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}

ORDER BY ?dplLabel

https://w.wiki/6eq
Relation between query and popup

https://w.wiki/6eq
Relation between query and popup

```sql
  #Is Dutch public library branch
  ?dpl wdt:P31 wd:Q28564. #public library
  ?dpl wdt:P31 wd:Q11396180. #library branch
  ?dpl wdt:P17 wd:Q55. #in the Netherlands
  ?dpl wdt:P625 ?dplLoc. #Location of the dpl
  OPTIONAL {?dpl wdt:P18 ?dplImage} #Image of the dpl
  SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}
}
ORDER BY ?dplLabel
```
Relation between query and popup

```wikidata
#All public library branches of the Netherlands

  ?dpl a wd:LibraryBranch. #Is Dutch public library branch
  ?dpl wdt:P31 wd:Q28564. #public library
  ?dpl wdt:P31 wd:Q11396180. #library branch
  ?dpl wdt:P17 wd:Q55. #in the Netherlands
  ?dpl wdt:P625 ?dplLoc. #Location of the dpl
  OPTIONAL{?dpl wdt:P18 ?dplImage} #Image of the dpl
  SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}
}
ORDER BY ?dplLabel
```

https://w.wiki/6eq
Relation between query and popup

```sql
# All public library branches of the Netherlands
#defaultView:Map

  ?dpl wdt:P31 wd:Q28564. # public library
  ?dpl wdt:P31 wd:Q11396180. # library branch
  ?dpl wdt:P17 wd:Q55. # in the Netherlands

  ?dpl wdt:P625 ?dplLoc. # Location of the dpl

  OPTIONAL{?dpl wdt:P18 ?dplImage} # Image of the dpl

  SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}

  ORDER BY ?dplLabel
}
```

https://w.wiki/6eq
Hiding fields from popup

Hide image and coordinates

```
#All public library branches of the Netherlands
#defaultView:Map

    Is Dutch public library branch
    ?dpl wdt:P31 wd:Q28564. #public library
    ?dpl wdt:P31 wd:Q11396180. #library branch
    ?dpl wdt:P17 wd:Q55. #in the Netherlands
    ?dpl wdt:P625 ?dplLoc. #Location of the dpl
    OPTIONAL{?dpl wdt:P18 ?dplImage} #Image of the dpl

    SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}
}

ORDER BY ?dplLabel
```
Hiding fields from popup

```sparql
# All public library branches of the Netherlands

#defaultView:Map{"hide": ["?dplLoc", "?dplImage"]}

  ?dpl wdt:P31 wd:Q28564. #public library
  ?dpl wdt:P31 wd:Q11396180. #library branch
  ?dpl wdt:P17 wd:Q55. #in the Netherlands
  ?dpl wdt:P625 ?dplLoc. #Location of the dpl
  OPTIONAL{?dpl wdt:P18 ?dplImage} #Image of the dpl

  SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}

  ORDER BY ?dplLabel
}
```

https://w.wiki/6mU
Hiding fields from popup
1.2) Clustered flat map
#All public library branches of the Netherlands

defaultView:Map{"markercluster": {"maxClusterRadius": 30}}

  #Is Dutch public library branch
  ?dpl wdt:P31 wd:Q28564. #public library
  ?dpl wdt:P31 wd:Q11396180. #library branch
  ?dpl wdt:P17 wd:Q55. #in the Netherlands

  ?dpl wdt:P625 ?dplLoc. #Location of the dpl

  OPTIONAL{?dpl wdt:P18 ?dplImage} #Image of the dpl

  SERVICE wikibase:label {bd:serviceParam wikibase:language "en" .}
}

ORDER BY ?dplLabel

https://w.wiki/6ew
1.3) Basic layered map
Libraries layered by province
Expand your query with layering variable

→ Include provinces

https://w.wiki/6gJ
Some minutes to expand your query
Non-custom layer names = labels from WD-items
Layer order
1.4) Layered map, custom layer names

Libraries layered by postal code zone
| Postal code zone | 1000 - 1999 | P281 | Postal code | 1063RT |
#Maps of public library branches The Netherlands, layered by postal codes zones (1000-1999, 2000-2999 etc)

#defaultView:Map("layer":"?pczone")


WHERE {
  ?dpl wdt:P625 ?dplLoc. #Geo location of the library

  ?dpl (p:P281/ps:P281) ?postcode. #postal code of the library, format = 4 digits + 2 letters, e.g. '1073RT'

  BIND(SUBSTR(str(?postcode), 1, 4) as ?pcdigits). #get 4 first digits of postal code

  # Create layer object (= ?pczone) with the postal code zones as layers
  BIND(
    IF(?pcdigits > "1000" && ?pcdigits <= "1999", "1000-1999",
    IF(?pcdigits > "2000" && ?pcdigits <= "2999", "2000-2999",
    IF(?pcdigits > "3000" && ?pcdigits <= "3999", "3000-3999",
    IF(?pcdigits > "4000" && ?pcdigits <= "4999", "4000-4999",
    IF(?pcdigits > "5000" && ?pcdigits <= "5999", "5000-5999",
    IF(?pcdigits > "6000" && ?pcdigits <= "6999", "6000-6999",
    IF(?pcdigits > "7000" && ?pcdigits <= "7999", "7000-7999",
    IF(?pcdigits > "8000" && ?pcdigits <= "8999", "8000-8999",
    IF(?pcdigits > "9000" && ?pcdigits <= "9999", "9000-9999",
    "REST")))]){))

  ?pczone)

SERVICE wikibase:label { bd:serviceParam wikibase:language "[AUTO_LANGUAGE],en".}

ORDER BY ?pczone #ascending order by postal code zone
Custom layer names
1.5) Other cool layered maps

Big cities, by population
https://w.wiki/3fx
1.5) Other cool layered maps

Disasters, by type
https://w.wiki/6gY
1.5) Other cool layered maps

Medieval churches, by century of construction
https://w.wiki/6ga
1.5) Other cool layered maps

Dutch municipalities, by number of public libraries
https://w.wiki/6gb
MODULE 2
Embedded maps in Wikimedia projects
For this Module, you will (also) need

- User page on Wikipedia, Commons, Wikidata
- With Sandbox

Nice to have: some knowledge about
- OpenStreetMap and
- GeoJSON
The Kartographer extension powers interactive maps on Wikimedia wikis. This page shows techniques for creating dynamic maps by using the Kartographer tags `<mapframe>`, which embeds maps right in wiki pages, and `<maplink>`, which creates links to dynamic maps.

Contents:
1. Getting started
2. `<mapframe>` usage
   2.1 Frames
3. `<maplink>`
   3.1 `<maplink>` and auto-counters
4. Markers
5. Groups
6. External data
   6.1 GeoShapes via Wikidata Query
   6.2 Map data from Commons
   6.3 Combining multiple data
7. Styling
   7.1 Styling Wikidata ID elements
   7.2 Overlapping elements

Basic embedded map, no data
(in my Sandbox on Dutch Wikipedia)

Basic embedded map of The Netherlands

<mapframe width=600 height=700 zoom=7 latitude=52.20 longitude=5.179627565 text="Basic embedded map of [[w:The_Netherlands|The Netherlands]]" align=left/>
2.1) Single location, hard-coded
One public library in Amsterdam, geo coordinates hard-coded

```json
  "type": "Feature",
  "geometry": { "type": "Point", "coordinates": [4.8502319, 52.3693887] },
  "properties": {
    "title": "[https://www.oba.nl/vestigingen/oba-mercatorplein.html OBA Mercatorplein]",
    "description": "[[File:Mercatorplein west.JPG|300px]]",
    "marker-symbol": "library",
    "marker-size": "large",
    "marker-color": "ea9809"
  }
</mapframe>
```
Styling of markers

- [https://github.com/mapbox/simplestyle-spec/tree/master/1.1.0#3-client-behavior](https://github.com/mapbox/simplestyle-spec/tree/master/1.1.0#3-client-behavior)

2.2) Three locations, hard-coded
Library, museum and archive in Amsterdam, geo coordinates hard-coded

```json
<mapframe text="Library, museum and archive in Amsterdam, geo coordinates hard-coded" width=700 height=700 zoom=14 latitude=52.3693887 longitude=4.8722319 {
    "type": "FeatureCollection", "features":
    [
        "type": "Feature",
        "geometry": { "type": "Point", "coordinates": [4.8502319, 52.3693887] },
        "properties": {
            "title": "[https://www.oba.nl/vestigingen/cba-mercatorplein.html OBA Mercatorplein]",
            "description": "[[File:Mercatorplein west.JPG|300px]]",
            "marker-symbol": "library",
            "marker-size": "large",
            "marker-color": "ea9809"
        }
    },
    "type": "Feature",
    "geometry": { "type": "Point", "coordinates": [4.8846644, 52.3598658] },
    "properties": {
            "title": "[https://www.rijksmuseum.nl Rijksmuseum]",
            "description": "[[File:Rijksmuseum.Amsterdam.jpg|300px]]",
            "marker-symbol": "museum",
            "marker-size": "small",
            "marker-color": "f01080"
        },
        "type": "Feature",
        "geometry": { "type": "Point", "coordinates": [4.8923905, 52.3645600] },
        "properties": {
            "title": "[https://www.amsterdam.nl/stadsarchief/ Stadarchief Amsterdam]",
            "description": "[[File:gebouw de Bazel.jpg|300px]]",
            "marker-symbol": "-letter",
            "marker-size": "medium",
            "marker-color": "228b22"
        }
    ]
} />
```
<mapframe text="Library, museum and archive in Amsterdam, geo coordinates hard-coded" width=700 height=700 zoom=14 latitude=52.3693887 longitude=4.8767568 {
    "type": "FeatureCollection", "features":
    [ 
      { "type": "Feature",
        "geometry": { "type": "Point", "coordinates": [4.8502319, 52.3693887] },
        "properties": {
          "title": "[https://www.oba.nl/vestigingen/cba-mercatorplein.html OBA Mercatorplein]",
          "description": "[[File:Mercatorplein west.jpg|300px]]",
          "marker-symbol": "library",
          "marker-size": "large",
          "marker-color": "ea9809" }
      },
      { "type": "Feature",
        "geometry": { "type": "Point", "coordinates": [4.8846644, 52.3598658] },
        "properties": {
          "title": "[https://www.rijksmuseum.nl Rijksmuseum]",
          "description": "[[File:Rijksmuseum.Amsterdam.jpg|300px]]",
          "marker-symbol": "museum",
          "marker-size": "small",
          "marker-color": "f01080" }
      },
      { "type": "Feature",
        "geometry": { "type": "Point", "coordinates": [4.8923905, 52.3645600] },
        "properties": {
          "title": "[https://www.amsterdam.nl/stadsarchief/ Stadsarchief Amsterdam]",
          "description": "[[File:Gebouw de Bazel.jpg|300px]]",
          "marker-symbol": "-letter",
          "marker-size": "medium",
          "marker-color": "228b22" }
      }
    ]
} </mapframe>
2.3) Outline (GeoShape) via Wikidata & OpenStreetMap

Outline (geoshape) of Amsterdam public library (main site), using Wikidata and Open Street Map

Outline (geoshape) of Amsterdam public library (main site), using Wikidata and Open Street Map

```
<mapframe width=700 height=700 zoom=15 latitude=52.3757964 longitude=4.9079461 text="Outline (geoshape) of Amsterdam public library (main site), using Wikidata and Open Street Map" align=left>
{
  "type": "ExternalData",
  "service": "geoshape",
  "ids": "Q50413436",
  "properties": {
    "fill": "#07c63e", "title": "Amsterdam public library, main site"  
  }
}
</mapframe>
```
Amsterdam Public Library, OBA Oosterdok (Centrale) (Q50413436)

Main visitor location and administration offices of the Amsterdam Public Library, The Netherlands

OBA Oosterdok (Centrale)

In more languages

<table>
<thead>
<tr>
<th>Language</th>
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<th>Description</th>
<th>Also known as</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Amsterdam Public Library, OBA Oosterdok (Centrale)</td>
<td>Main visitor location and administration offices of the Amsterdam Public Library, The Netherlands</td>
<td>OBA Oosterdok (Centrale)</td>
</tr>
<tr>
<td>German</td>
<td>No label defined</td>
<td>Bibliothek</td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>No label defined</td>
<td>No description defined</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>No label defined</td>
<td>bibliothèque</td>
<td></td>
</tr>
<tr>
<td>Italian</td>
<td>No label defined</td>
<td>No description defined</td>
<td></td>
</tr>
<tr>
<td>Dutch</td>
<td>OBA Oosterdok (Centrale)</td>
<td>Hoofdvestiging en administratief hoofdkantoor van de Openbare Bibliotheek Amsterdam</td>
<td>OBA Oosterdok (Centrale) Centrale OBA</td>
</tr>
</tbody>
</table>

Statements

instance of

- public library
  - 0 references
  + add reference

- library branch
  - 0 references
  + add reference
<table>
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<tr>
<th>Tag</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>address</td>
<td>Amsterdam</td>
</tr>
<tr>
<td>house_number</td>
<td>143</td>
</tr>
<tr>
<td>postcode</td>
<td>1011 DL</td>
</tr>
<tr>
<td>street</td>
<td>Oosterdokskade</td>
</tr>
<tr>
<td>alt_name</td>
<td>Openbare Bibliotheek Amsterdam</td>
</tr>
<tr>
<td>amenity</td>
<td>library</td>
</tr>
</tbody>
</table>

**Website:**
https://www.oba.nl/nestigingen/centrale-oba.html

**Wheelchair Accessible:**
Yes

**Wikidata:**
Q50413436

**GeoShape in OSM:**
https://www.openstreetmap.org/way/240467636#map=19/52.37605/4.90853
2.4) Many locations, GeoJSON .map file
Map of Dutch public libraries, work in progress, 21-5-2019

```html
<mapframe width=800 height=800 zoom=8 latitude=52.20 longitude=5.119627565 text="Map of Dutch public libraries, work in progress, 21-5-2019" align=left>
{
  "type": "ExternalData",
  "service": "page",
  "title": "DutchPublicLibraries.map",
}
</mapframe>
```
Map of Dutch public libraries, work in progress, 21-5-2019

<mapframe width=800 height=800 zoom=8 latitude=52.20 longitude=5.119627565 text="Map of Dutch public libraries, work in progress, 21-5-2019" align=left>
{
  "type": "ExternalData",
  "service": "page",
  "title": "DutchPublicLibraries.map",
}
</mapframe>
Map of Dutch public libraries, work in progress, 21-5-2019

https://commons.wikimedia.org/wiki/Data:DutchPublicLibraries.map
Bewerken van Data:DutchPublicLibraries.map

Note: When you edit this page, you agree to release your contribution under the CC0.

```json
1 {  
2  "license": "CC0-1.0",  
3  "description": {  
4     "en": "Map of Dutch public libraries, work in progress, 21-5-2019"  
5  },  
6  "sources": "",
7  "zoom": 7,
8  "latitude": 52.091656341,
9  "longitude": 5.119627565,
10  "data": {  
11     "type": "FeatureCollection",
12     "features": [{  
13         "type": "Feature",
14         "properties": {  
15             "title": "[d:Q59772713|Aalst public library]",
16             "marker-size": "small",
17             "marker-color": "#ee7302",
18             "type": "Point"
19         },  
20     }
21  }
22 }
```
https://www.mediawiki.org/wiki/Help:Map_Data

Help: Map Data

Note: When you edit this page, you agree to release your contribution under the CC0 1.0. See Public Domain Help Pages for more info.

Map data allows users to store GeoJSON data on wiki, similar to images. Other wikis may use this data to draw on top of the maps, together with other map customizations.

To create a new map data, go to Wikimedia Commons, and create a new page in the Data namespace with the .map suffix, such as Data:Sandbox/Name/Example.map. For now, page content can only be edited in the raw JSON format. Eventually, we hope there will be a page editor to simplify GeoJSON creation.

Data licensing

All data in the Data: namespace must licensed under one of the following licences:

- CC0-1.0
- CC-BY versions: CC-BY-1.0, CC-BY-2.0, CC-BY-2.5, CC-BY-3.0, CC-BY-4.0, CC-BY-4.0+
- CC-BY-SA versions: CC-BY-SA-1.0, CC-BY-SA-2.0, CC-BY-SA-2.5, CC-BY-SA-3.0, CC-BY-SA-4.0, CC-BY-SA-4.0+
- ODbL-1.0

The default license is empty string (e.g invalid license) and when a user tries to save page with invalid license, they will be notified of the allowed licenses.

Top-level fields

Map data has several required and optional top-level elements:

- The required "license" field must always be set to one of the allowed string values, e.g. "cc0-1.0" (see Data licensing).
- The optional "description" field must be set to a localized string value - an object with at least one key-value, where the key is a language code (e.g. "en"), and the value is the string that will be displayed.
- The optional "sources" field must be a Wiki markup string value that describes the source of the map data.
- The optional "zoom" field must be an integer between 0 and 18. This value is only used for displaying map on its own page, not when including it in the articles.
- The optional "latitude" and "longitude" fields specify the center of the map when displaying it on its own page, not when including it in the articles.
- The required "data" field must be set to the valid GeoJSON content. Per GeoJSON specification, "properties" field may be set for every Feature object. The map properties, such as "title", "description", "fill" (color), and others. Additionally, the "title" and "description" fields may be either strings or localized (tabular data). This allows the same map data to appear differently depending on the user's language.
https://commons.wikimedia.org/wiki/Data:DutchPublicLibraries.map

```json
{
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  "description": {
    "en": "Your English title here"
  },
  "sources": "",
  "zoom": 8,
  "latitude": 52.091656341,
  "longitude": 5.119627565,
  "data":
  INSERT YOUR GEOJSON DATA HERE (output of http://geojson.io)
}
```
Geojson.io

```json
{
  "type": "FeatureCollection",
  "features": []
}
```
Geojson.io

### Bestand uploaden

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</table>
Adapt this query, save output as .tsv


Copy-paste in browser!
2.5) Combining data types

GeoShape + .map
Combining geoshape (with geomask) and .map


https://commons.wikimedia.org/wiki/Data:DutchPublicLibrariesNorthHolland.map

```xml
<mapframe width=400 height=700 zoom=9 latitude=52.65 longitude=4.95 text="Map of public libraries in the province of North-Holland, The Netherlands. Geomask is used" align=left>
[
{
"type": "ExternalData",
"service": "geoshape",
"service": "geomask",
"ids": "Q701",
"properties": {
"fill": "#07c63e", "title": "Noord-Holland"
},
},
{
"type": "ExternalData",
"service": "page",
"title": "DutchPublicLibrariesNorthHolland.map"
}
]
</mapframe>
```
2.6) GeoShapes using SPARQL and OSM

Countries in Africa, color coded by land area

2.6) GeoShapes using SPARQL and OSM

https://www.openstreetmap.org/relation/192758#map=5/22.086/20.039

GeoShape of Libya
Maps with geoshapes based on SPARQL queries in Wikidata


```sparql
BEGIN SPARQL query // Make sure you only use single quotes (') in the query, otherwise you get a JSON parse error ---
SELECT DISTINCT
?id  #Wikidata Qid matching the geoshape on Open Street Map
?title #Popup title when you click on the country
?description #Description in the popup
?fill #Color the geoshape is filled with
?stroke #Color of the geoshape outline

WHERE {
?id wdt:P31 wd:Q6256; wdt:P30 wd:Q15. #Country in the continent of Africa
?id wdt:P2046 ?area. # Land area of the country

?id rdfs:label ?idLabel . FILTER(lang(?idLabel)='en') #only English labels

BIND(?idLabel as ?title)
BIND(CONCAT('This is a short description of ',STR(?title)) as ?description)

# Fill & stroke colors depend on land area of country
BIND(
  IF(?area < 5000, '#F0F8FF',
  IF(?area < 100000, '#B0E0E6',
  IF(?area < 300000, '#87CEEB',
  IF(?area < 800000, '#1E90FF',
  IF(?area < 1000000, '#4682B4',
  IF(?area < 1500000, '#6A5ACD',
  IF(?area < 2000000, '#9A2BE2',
    '#AB0082'))))))) AS ?color)
BIND(?color as ?fill)
BIND(?color as ?stroke)
}

END SPARQL query -----------
```

https://bit.ly/2YBxV4t

<table>
<thead>
<tr>
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<th>fill</th>
<th>stroke</th>
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https://bit.ly/2YBxV4t
Variables must have these names

Only use single quotes, otherwise you’ll get a JSON parse error
2.7) Other cool embedded maps

[Image: Railway lines around Klang Valley, Malaysia]

https://nl.wikipedia.org/wiki/Gebruiker:OlafJanssen/KladblokMapMakingWorkshopWM2019,
from https://en.wikipedia.org/wiki/User:*angys*/sandbox
MODULE 3
Interactive, layered off-Wiki maps driven by Wikidata
For this Module, it’s nice to have basic experience with

- Python
- PAWS / Jupyter Notebooks
- (Jupyter-Leaflet & Jupyter-widgets)
MediaWiki account + login

https://www.mediawiki.org
Start your PAWS server
https://paws.wmflabs.org/paws/hub
Starting your PAWS server

You might see this screen...
Starting your PAWS server

https://paws.wmflabs.org/paws/hub/user/USERNAME
Your PAWS server running

.ipynb = interactive python notebook

https://paws.wmflabs.org/paws/user/USERNAME/tree

• https://en.wikipedia.org/wiki/Project_Jupyter#Jupyter_Notebook
• https://realpython.com/jupyter-notebook-introduction
Stopping your PAWS server

https://paws.wmflabs.org/paws/user/USERNAME/tree
Stopping your PAWS server

https://paws.wmflabs.org/paws/hub/home
Your PAWS public folder (even when server is offline)

Index of /paws-public/19781798/

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</table>

PAWS alternative: local Notebook installation

- https://jupyter.org/install
- https://www.anaconda.com/distribution/
Go to public PAWS folder of User:OlafJanssen

Example notebook we will use

This notebook in **raw format (json)**

```json
{
  "cells": [
    {
      "cell_type": "markdown",
      "metadata": {},
      "source": [
        "Building a stand-alone off-Wiki layered map using Wikidata & SPARQL",
        "This Jupyter notebook shows you step by step **how to make a Wikidata-driven layered map that can be used off-Wiki**.
        "It is part of Module 3 of the map making workshop **[From Wikidata to interactive off-Wiki maps in three steps](https://github.com/ockgezeilig/WikidataMapMakingWorkshop)**
        "See [https://github.com/ockgezeilig/WikidataMapMakingWorkshop/blob/master/OutlineAndNotes.md](https://github.com/ockgezeilig/WikidataMapMakingWorkshop/blob/master/OutlineAndNotes.md) for the full layout of this workshop",
        "For questions about this notebook, contact [Olaf Janssen](https://www.wikidata.org/wiki/User:OlafJanssen) on Wikidata // olaf.janssen@kb.nl
        "**********
      ]
    },
    {
      "cell_type": "markdown",
      "metadata": {},
      "source": [
        "# Start of code
      ]
    },
    {
      "cell_type": "markdown",
      "metadata": {},
      "source": [
        "To make the map we will use",
        "1. **PAWS** (Jupyter Notebooks as a cloud service) - [https://www.mediawiki.org/wiki/PAWS](https://www.mediawiki.org/wiki/PAWS)
        "2. **SPARQL queries** from Wikidata - [https://query.wikidata.org/](https://query.wikidata.org/)
      ]
    }
  ]
}
```

Save this **raw file** to your PC
... and upload it to your PAWS server

https://paws.wmflabs.org/paws/user/USERNAME/tree
... and upload it to your PAWS server
... and upload it to your PAWS server
Building a stand-alone off-Wiki layered map using Wikidata & SPARQL

This Jupyter notebook shows you step by step how to make a Wikidata-driven layered map that can be used off-Wiki.

It is part of Module 3 of the map making workshop From Wikidata to interactive off-Wiki maps in three steps.

For more context to this workshop you can check the
- full layout, and
- full slides (pdf)

This notebook is publicly available at

https://paws.wmflabs.org/paws/user/USERNAME/notebooks/WikidataMapMakingWorkshop.ipynb

For questions about this notebook, contact Olaf Janssen on Wikidata // olaf.janssen@kb.nl // https://twitter.com/ookenzellig
The notebook should be self-explanatory, so

Adapt, play, understand, get frustrated, learn

Make your own interactive, layered map
Exporting your map to stand-alone, off-Wiki HTML page

As a final step for this workshop, we want to export the map to a (stand-alone, off-Wiki) HTML page that can be viewed in a browser.

https://ipywidgets.readthedocs.io/en/latest/embedding.html#python-interface

The map above is available at http://ookgezellig.github.io/WikidataMapMakingWorkshop/NetherlandsPublicLibrariesHeatmap.html

```
# Export the map to html file
# https://ipywidgets.readthedocs.io/en/latest/embedding.html#python-interface
# The addition of 'state=dependency_state[m]' keeps the html file growing too large
embed_minimal_html(['NetherlandsPublicLibrariesHeatmap.html', views=m, state=dependency_state[m]]

# This map is available at http://ookgezellig.github.io/WikidataMapMakingWorkshop/Netherlan
```

This is the end of the workshop
Exporting your map to stand-alone, off-Wiki HTML page
Exporting your map to stand-alone, off-Wiki HTML page

file:///C:/Users/oja010/AppData/Local/Temp/NetherlandsPublicLibrariesHeatmap.html
THANKS!!!

Let me know your feedback on this workshop

In person // User: OlafJanssen // olaf.janssen@kb.nl // @ookgezellig

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