

August 1-3, Foundation University, Dumaguete



PIISITA ING MAA PA

open data & software • free maps • community • talks • workshops



KAART



mapbox



Mapillary UΔV4GEO

industrial leaf_type wood healthcare indoor hiking
capacity network colour service cycleway smoking
noexit covered vehicle from mtb railway man made opening_hours
sidewalk ruins motor tunnel FIXME religion
voltage boundary scale tunnel fee oneway stars
trees usage sac_scale historic toll fax ramp wall man made opening_hours
NHS sac_scale historic toll fax ramp wall man made opening_hours
psv layer footshop operator phone barrier addr:postcode boat
kerb height access addr:city office lit shop operator phone barrier addr:postcode boat
zoo bus amenity wires surface site waterway to hgv crossing bin
start_date url addr:housenumber wifi bus amenity wires surface site waterway to hgv crossing bin
pump is_in description sport area maxspeed addr:street leisure lanes power bench
male tram shelter admin level golf bridge refcraft website seats atm leisure lanes power bench
old_name attribution backrest horse uic_ref bicycle rooms tracktype router level
import min_height aeroway junction club

data mining

OpenStreetMap

With

Overpass Turbo



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OpenStreetMap (OSM)

- The world's largest free and co-created database of geodata, and maps.
- Free and open, **without** legal, or technical restrictions.



OSM data license

Freedoms

- **Share:** To copy, distribute and use the database.
- **Create:** To produce works from the database.
- **Adapt:** To modify, transform and build upon the database.

Conditions

- **Attribute:** You must attribute any public use of the database, or works produced from the database, in the manner specified in the ODbL.
- **Share-alike:** If you publicly use any adapted version of this database, or works produced from an adapted database, you must also offer that adapted database under the ODbL.
- **Keep open:** If you redistribute the database, or an adapted version of it, then you may use technological measures that restrict the work as long as you also redistribute a version without such measures.

URLs for bulk OSM data

- planet.osm.org
- download.geofabrik.de
- download.bbbike.org
- export.hotosm.org

overpass-turbo.eu

- **Overpass Turbo** is a web-based data-mining front-end for querying the powerful Overpass API, and display results on an interactive map.

OSM Elements

- OpenStreetMap objects are a combination of **geometries** and **tags**.
 - **Node** – a single point
 - **Way** – an ordered list of nodes
 - Polyline – first and last nodes do not coincide
 - Polygon – first and last nodes coincide
 - **Relation** – a logical grouping of nodes, ways, or other relations



OSM Elements

- OpenStreetMap objects are a combination of **geometries** and **tags**.
 - **Tags** are object attributes, and are composed of a **key-value** pair
 - Object may have at least one tag.

highway = traffic_signal

Key

Value

Examples:

amenity = bench

leisure = park

highway = residential

amenity = atm

OSM Elements



The Interface

The interface is divided into several sections:

- Menu:** Run, Share, Export, Wizard, Save, Load, Settings, Help
- Search Box:** A text input field at the top of the map area.
- Zoom to data your location:** A button with a magnifying glass icon.
- define bound box:** A button with a square icon.
- toggle wide map:** A button with a left-pointing arrow icon.
- toggle data overlay:** A button with a circular icon.
- Controls:** A vertical stack of navigation and zoom controls on the left side of the map.
- Query Box:** A text area on the left containing the following code:

```
1 /*
2 This has been generated by the overpass-turbo wizard.
3 The original search was:
4 "highway=traffic_signals in "San Juan, Metro Manila"
5 */
6 [out:json][timeout:25];
7 // fetch area "San Juan, Metro Manila" to search in
8 {{geocodeArea:San Juan, Metro Manila}}->.searchArea;
9 // gather results
10 (
11 // query part for: "highway=traffic_signals"
12 node["highway"]="traffic_signals"](area.searchArea);
13 way["highway"]="traffic_signals"](area.searchArea);
14 relation["highway"]="traffic_signals"](area.searchArea);
15 );
16 // print results
17 out body;
18 >;
19 out skel qt;
```
- Viewport:** The main map area showing a street map of Manila with highlighted traffic signals.
- Views:** Map, Data

Query Wizard

1

```
1 /*
2 This has been generated by the overpass-turbo wizard.
3 The original search was:
4 "highway = traffic_signals"
5 */
6 [out:json][timeout:25];
7 // gather results
8 (
9 // query part for: "highway=traffic_signals"
10 node["highway"]="traffic_signals"({{bbox}});
11 way["highway"]="traffic_signals"({{bbox}});
12 relation["highway"]="traffic_signals"({{bbox}});
13 );
14 // print results
15 out body;
16 >;
17 out skel qt;
```

2



3

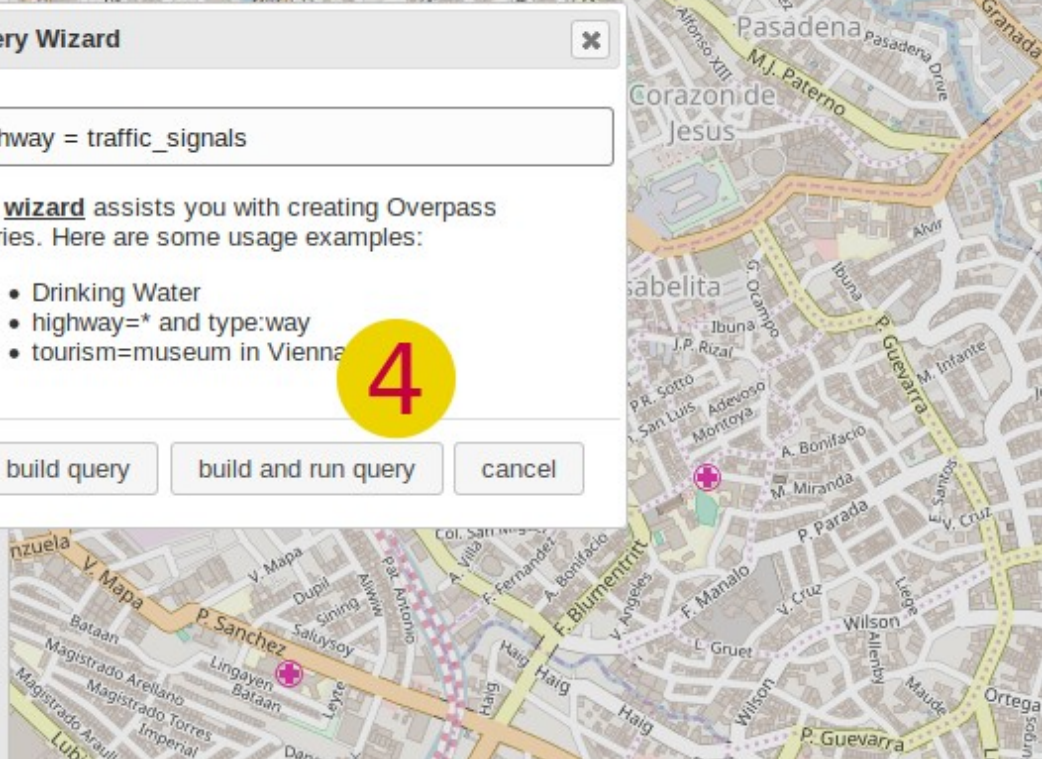
Query Wizard

The **wizard** assists you with creating Overpass queries. Here are some usage examples:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

build query build and run query cancel

4



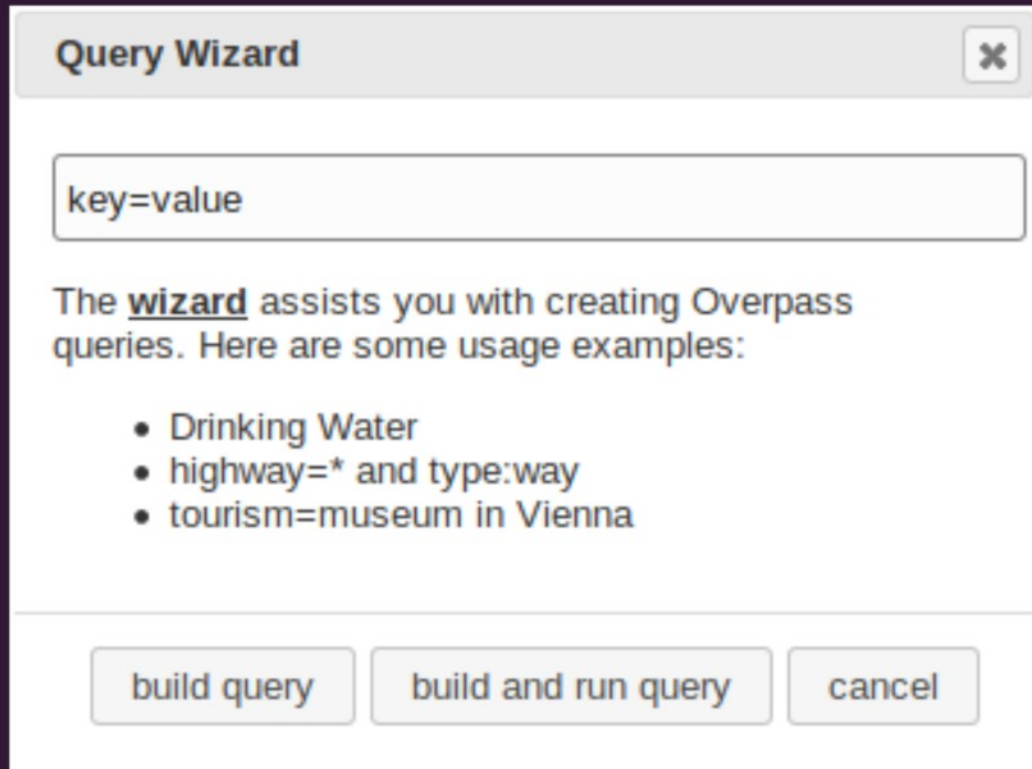
Results

Run Share Export Wizard Save Load Logout Settings Help overpass turbo Map Data

```
1  /*
2  This has been generated by the overpass-turbo
3  wizard.
4  The original search was:
5  "highway=traffic_signals"
6  */
7  [out:json][timeout:25];
8  // gather results
9  (
10     // query part for: "highway=traffic_signals"
11     node["highway"="traffic_signals"]({{bbox}});
12     way["highway"="traffic_signals"]({{bbox}});
13     relation["highway"="traffic_signals"]
14     ({{bbox}});
15 );
16 // print results
17 out body;
18 >;
19 out skel qt;
```

Loaded – nodes: 65, ways: 0, relations: 0
Displayed – pois: 65, lines: 0, polygons: 0

Shops in Dumaguete



- The **Query Wizard** allows anyone to query OSM features

Shops in the area

Run Share Export Wizard Save Load Settings Help overpass turbo

```
1  /*
2  This has been generated by the
3  overpass-turbo wizard.
4  The original search was:
5  "shop=convenience"
6  */
7  [out:json][timeout:25];
8  // gather results
9  (
10   // query part for:
11   "shop=convenience"
12   node["shop"="convenience"]
13   ({{bbox}});
14   way["shop"="convenience"]
15   ({{bbox}});
16   relation["shop"="convenience"]
17   ({{bbox}});
18 )
19 // print results
20 out body;
21 >;
22 out skel qt;
```

Map Data

500 m

Loaded - nodes: 53, ways: 3, relations: 0
Displayed - pois: 41, lines: 0, polygons: 3

Shops with multi-floors

The screenshot shows the Overpass Turbo web interface. At the top, there are navigation buttons: "Load", "Settings", "Help", and "overpass turbo". On the right, there are "Map" and "Data" tabs. A search bar is visible on the left side of the map. A "Query Wizard" dialog box is open, displaying the query: `shop=convenience && "building:levels"=*`. Below the query, it explains that the wizard assists with creating Overpass queries and provides usage examples: "Drinking Water", "highway=* and type:way", and "tourism=museum in Vienna". At the bottom of the wizard are buttons for "build query", "build and run query", and "cancel". A popup window for "Way 291045664" is also open, showing its tags: "building=retail", "building:levels=1", "name=La Tienda", and "shop=convenience". The "building:levels=1" tag is highlighted with a red dashed border. The map shows a street grid with labels like "E. Rovira", "E. J. Blanco", "Aldecoa Drive", "Flores Avenue", "Larena Drive", "San Jose Steet", "San Jose Extension", "Dr. Vicente Locsin", "Rizal Avenue", and "Dumaguete". A scale bar indicates 500 meters. At the bottom right, there is a status bar: "Loaded - nodes: 4, ways: 1, relations: 0" and "Displayed - pois: 0, lines: 0, polygons: 1".

Load Settings Help overpass turbo Map Data

Way [291045664](#)

Tags:

- building=retail
- building:levels=1
- name=La Tienda
- shop=convenience

Query Wizard

shop=convenience && "building:levels"=*

The **wizard** assists you with creating Overpass queries. Here are some usage examples:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

build query build and run query cancel

500 m

Loaded - nodes: 4, ways: 1, relations: 0
Displayed - pois: 0, lines: 0, polygons: 1

Shops with phone or email

The image shows a screenshot of the Overpass Turbo web interface. A 'Query Wizard' dialog box is open on the left, and a 'Node 3707452936' information popup is open on the right. The background is a map of Dumaguete, Philippines, with several blue circles highlighting shop locations. The 'Query Wizard' dialog has a text input field containing the query `shop=* && (phone=* || email=*)`. Below the input field, there is explanatory text and a list of usage examples. The 'Node 3707452936' popup displays the tags for that node, including the phone number `phone=+63 35 225 1046` and the shop name `shop=florist`. The map shows streets like E. Rovira, Larena Drive, and San Jose Street, and landmarks like Johnny's Tree House. A scale bar indicates 500 meters.

Query Wizard

`shop=* && (phone=* || email=*)`

The **wizard** assists you with creating Overpass queries. Here are some usage examples:

- Drinking Water
- highway=* and type:way
- tourism=museum in Vienna

build query build and run query cancel

Node 3707452936

Tags:

addr:city=Dumaguete
addr:street=Maria Christina
name=Expressions Flower Shop
phone=+63 35 225 1046
shop=florist

Coordinates:

9.3096973 / 123.3062631 (lat/lon)

Loaded – nodes: 16, ways: 0, relations: 0
Displayed – pois: 16, lines: 0, polygons: 0

Shops tagged as buildings in San Carlos City

The screenshot displays a map interface with a 'Query Wizard' window overlaid on the left. The wizard contains a search box with the query `shop=* && building=* in "San Carlos City"`. Below the search box, a brief description states: 'The **wizard** assists you with creating Overpass queries. Here are some usage examples:'. The map itself shows a street grid in San Carlos City, with several buildings highlighted in yellow and blue. A 'Save More' icon is visible on the map. A status bar at the bottom right of the map area provides the following data: 'Loaded - nodes: 24, ways: 5, relations: 0' and 'Displayed - pois: 1, lines: 0, polygons: 5'. A scale bar at the bottom left indicates 200 meters.

Query Wizard

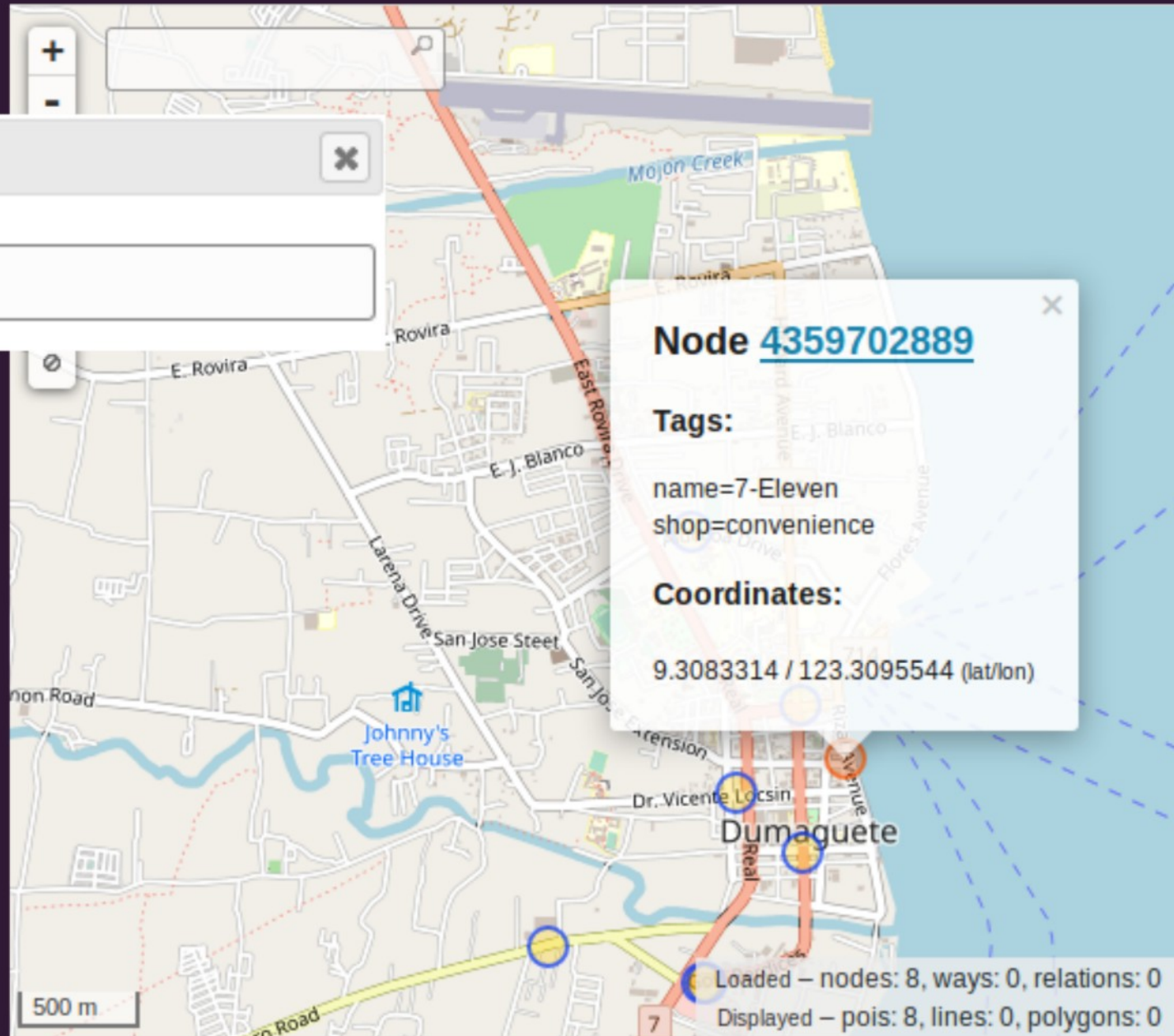
`shop=* && building=* in "San Carlos City"`

The **wizard** assists you with creating Overpass queries. Here are some usage examples:

Loaded - nodes: 24, ways: 5, relations: 0
Displayed - pois: 1, lines: 0, polygons: 5

200 m

Shops with “eleven”



Using “around” vs “in”

The screenshot shows the Overpass Turbo web interface. The top navigation bar includes buttons for Run, Share, Export, Wizard, Save, Load, Settings, and Help, along with the text "overpass turbo" and a search icon. On the right, there are "Map" and "Data" tabs. The main area is split into a code editor on the left and a map on the right. The code editor contains the following text:

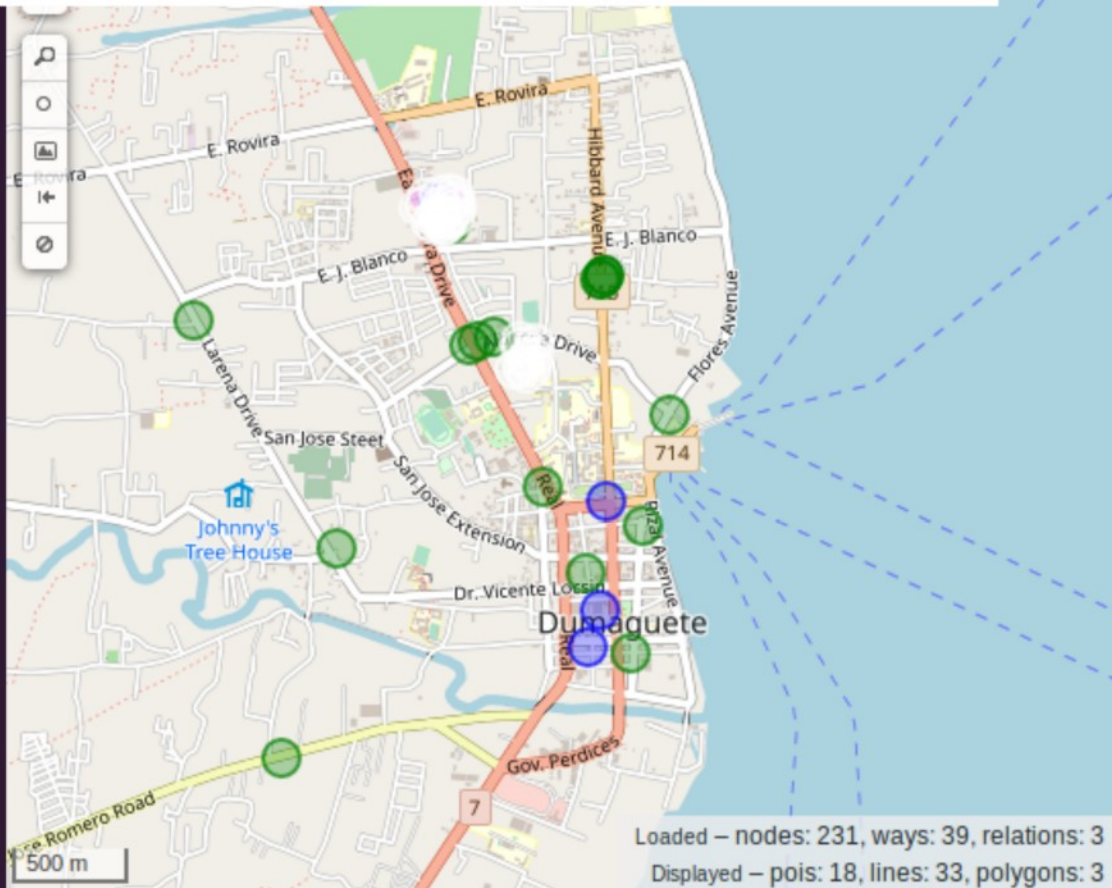
```
1  /*
2  This has been generated by
3  the overpass-turbo wizard.
4  The original search was:
5  "amenity=fast_food around
6  "Foundation University"
7  */
8  [out:json][timeout:25];
9  // adjust the search radius
10 (in-meters)-here
11 {{radius=1000}}
12 // gather results
13 (
14   // query part for:
15   "amenity=fast_food"
16
17   node["amenity"="fast_food"]
18   (around:{{radius}},
19    {{geocodeCoords:Foundation
20    University}});
21   way["amenity"="fast_food"]
22   (around:{{radius}},
23    {{geocodeCoords:Foundation
24    University}});
25
26   relation["amenity"="fast_foo
27   d"] (around:{{radius}},
28    {{geocodeCoords:Foundation
29    University}});
30 )
```

The map on the right shows a street view of an area around Foundation University. A red dashed circle highlights the university campus. A blue circle highlights a fast-food location. A "Query Wizard" window is open, showing the query: "amenity=fast_food:around:Foundation University". The word "around" is highlighted with a red dashed box. The map includes labels for "Seventh Day Adventist Church", "Dastraum", "Foundation University - North Campus", "Grade School", "High School", "Dr. Vicente Locsin", "Dr. Miciano Road", "Computer Sciences Building", "Main Library", "Tati's Place", "HMT", "white knight", and "Colon-Miciano". A scale bar indicates 100 meters. At the bottom right, the status bar shows: "Loaded - nodes: 43, ways: 5, relations: 0" and "Displayed - pois: 21, lines: 0, polygons: 5".

MapCSS - Color Coding

Query Wizard

amenity~"(hospital|clinic)"



```
{{style:
```

```
node, area
```

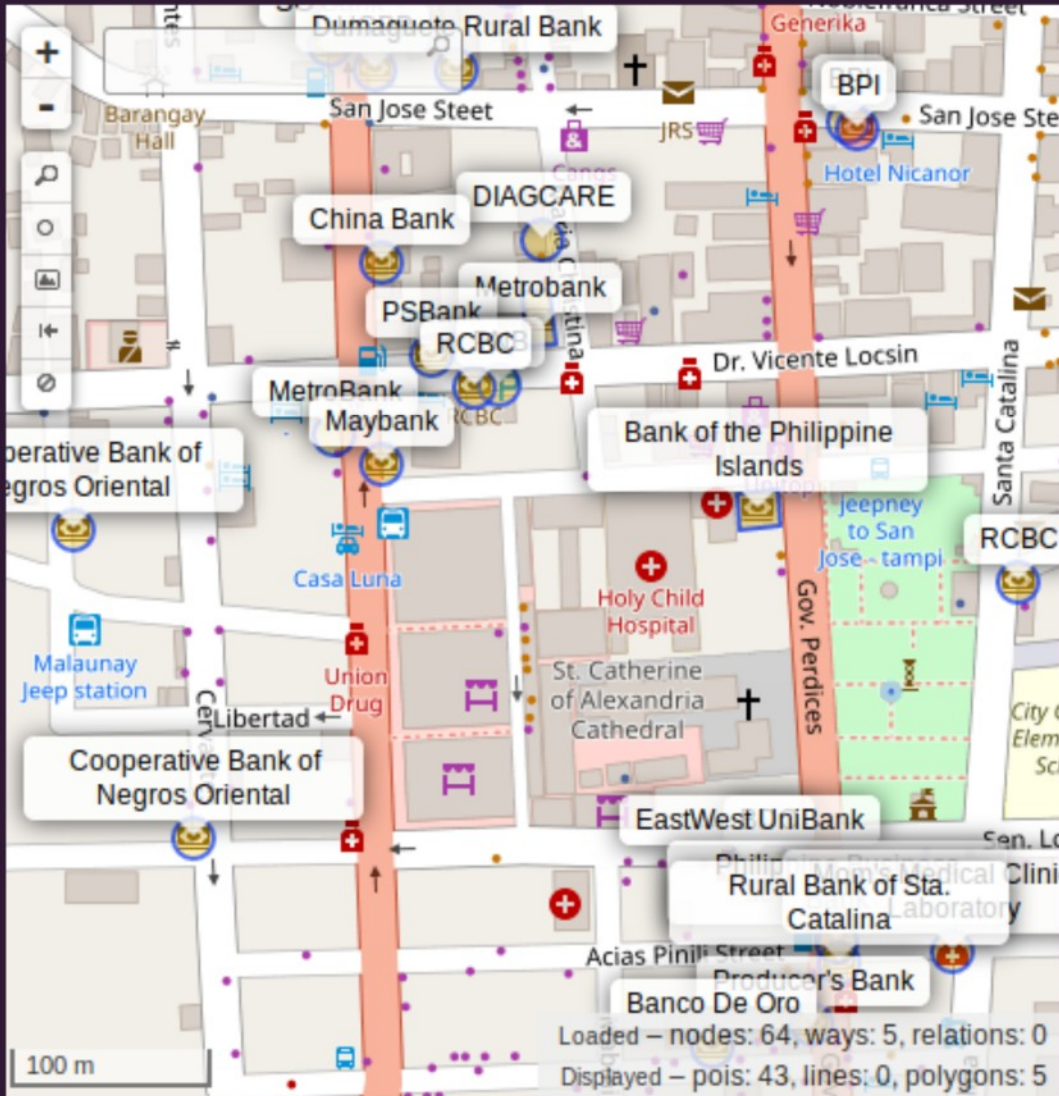
```
{ color:white; fill-  
color:white; }
```

```
node[amenity=hospital]  
{ color:blue; fill-  
color:blue; }
```

```
node[amenity=clinic]  
{ color:green; fill-  
color:green; }
```

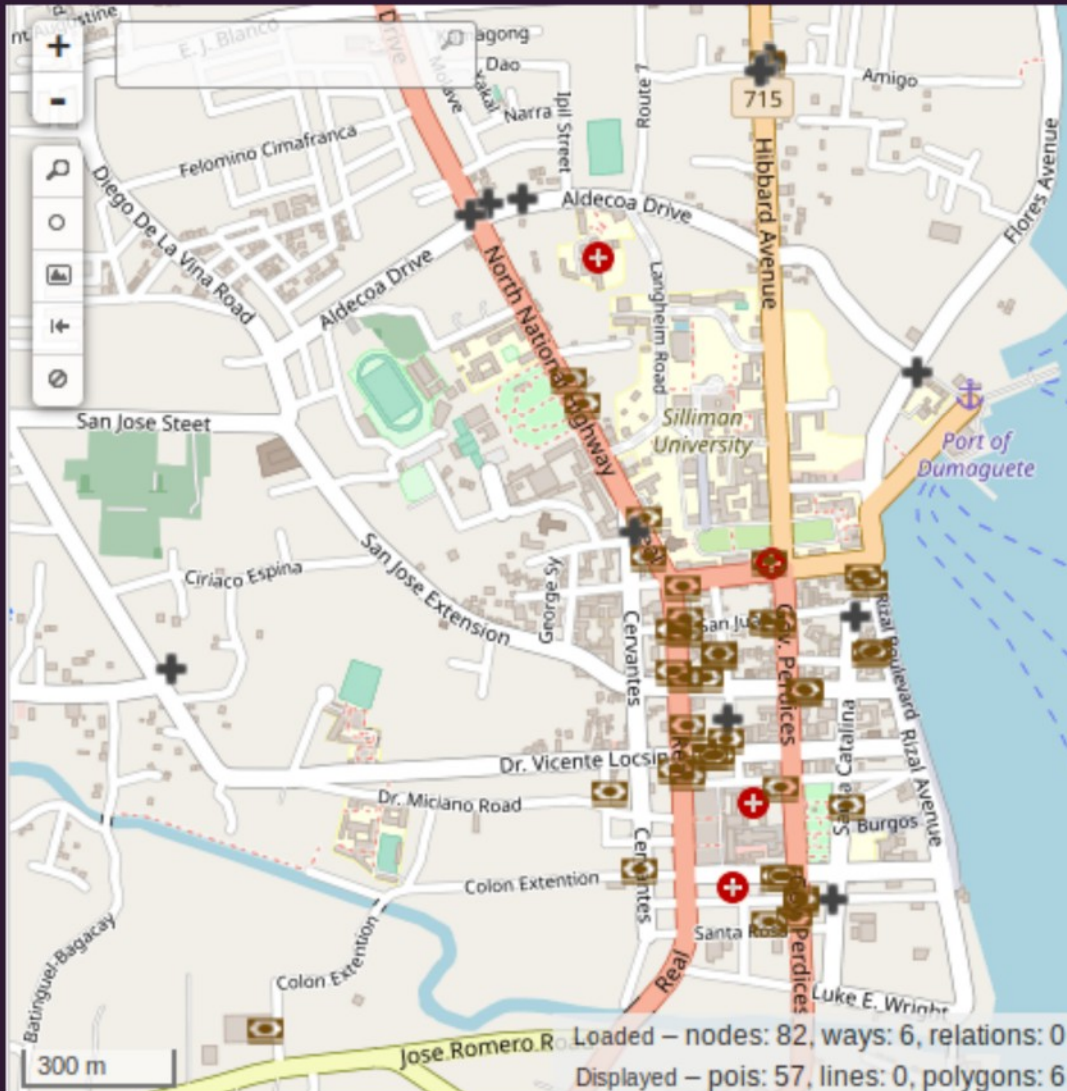
```
}}
```

MapCSS – with text



```
{{style:  
node, way,  
relation{text: name;}  
}}
```

MapCSS – Using Icons



```
{{style:
```

```
node[amenity=clinic] {  
    icon-image:  
    url('icons/maki/hospital-12.png');  
    icon-width: 18;  
}
```

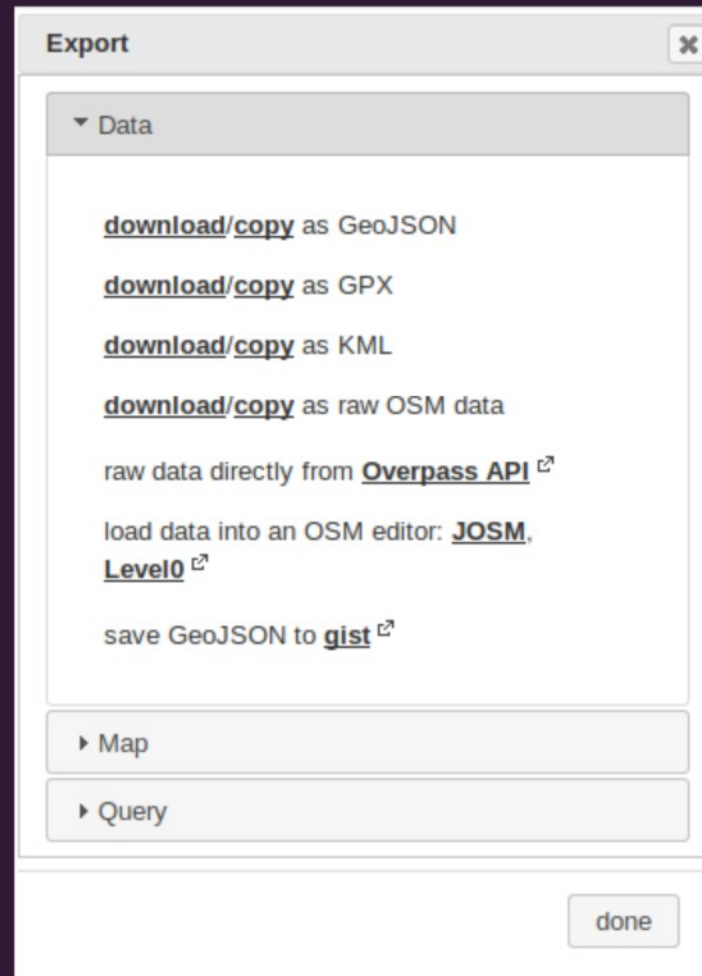
```
node[amenity=bank] {  
    icon-image:  
    url('https://wiki.osm.org/w/images/thumb/3/3b/Bank-16.svg/16px-Bank-16.svg.png');  
    icon-width: 18;  
}
```

Changing Tile Servers

- `http://{s}.tile.openstreetmap.fr/hot/{z}/{x}/{y}.png`
- `http://{s}.tile.stamen.com/watercolor/{z}/{x}/{y}.png`
- `https://maps.wikimedia.org/osm-intl/{z}/{x}/{y}.png`
- More: https://wiki.osm.org/wiki/Tile_servers

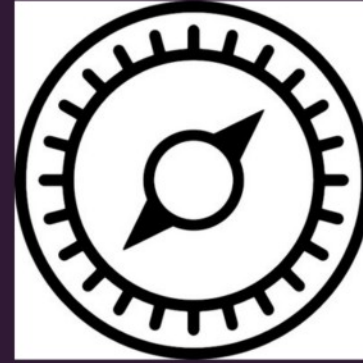
Exporting Results

- Data
- Map
- Query



Overpass at work ...

- JOSM
- MapRoulette
- MapContrib
- OsmHydrant
- Umap
- ...



Up-to-date map with Umap



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Search maps

Search



uMap let you create maps with [OpenStreetMap](#) layers in a minute and embed them in your site.



- ✓ Choose the layers of your map
- ✓ Add POIs: markers, lines, polygons...
- ✓ Manage POIs colours and icons
- ✓ Manage map options: display a minimap, locate user on load...
- ✓ Batch import geosructured data (geojson, gpx, kml, osm...)
- ✓ Choose the license for your data
- ✓ Embed and share your map



And it's [open source!](#)

[Create a map](#)

[Play with the demo](#)

Export query to “compact”

Run Share Export Wizard Sa Export

```
1 /*
2 This has been generated by the
3 turbo wizard.
4 The original search was:
5 "amenity~(atm|bank)"
6 */
7 [out:json][timeout:25];
8 // gather results
9 (
10 // query part for:
11 "amenity~(atm|bank)"/
12 node["amenity"~(atm|bank)]
13 ({{bbox}});
14 way["amenity"~(atm|bank)]
15 relation["amenity"~(atm|bank)]
16 ({{bbox}});
17 );
18 // print results
19 out body;
20 >;
21 out skel qt;
```

Export

- ▶ Data
- ▶ Map
- ▼ Query

[download/copy as standalone query](#)

[download/copy as raw query](#)

[download/copy as osm wiki](#)

convert to [Overpass-XML](#)

convert to **compact** [OverpassQL](#)

done

Map Data

714

Katada Street

Mercury Drug

San Juan

Gov. Perdiges

San Jose Street

Duma

Ba

Rizal Boulevard

Rizal Avenue

Burgos

Robinsons Supermarket

Santa Catalina

Gov. Perdiges

Acias P... Streets

Santa Rosa

abini

Gov.

anta Catalina

200 m

Loaded – nodes: 73, ways: 5, relations: 0
Displayed – pois: 52, lines: 0, polygons: 5

Banks and ATMs

The image shows a screenshot of a map editing application. The main map area displays a street map with several icons representing banks and ATMs. The icons are in two colors: purple and olive green. The map includes labels for streets like '24th Main Road', 'Bannergang', and 'BDA 80 Feet Rd', and landmarks like 'Puttenhalli Lake' and 'M S RAMAIAH CITY'. A scale bar at the bottom left indicates 300 meters and 1000 feet. The top of the interface has a title bar 'Editing Untitled map' and buttons for 'Cancel' and 'Save'. On the right side, a properties panel is open, showing options for 'Display on load' and 'Data is browsable', both set to 'ON'. Below these are sections for 'Shape properties', 'Advanced properties', 'Interaction options', and 'Remote data'. The 'Remote data' section includes a 'Url' field with the value 'https://overpass-api.de/api/interpreter?data=[c', a 'Format' dropdown set to 'osm', and 'From zoom' and 'To zoom' fields.

Editing Untitled map ?

Cancel Save

300 m
1000 ft

Map tiles by [CartoDB](#), under [CC BY 3.0](#). map data © [OpenStreetMap contributors](#) under [ODbL](#) — [About](#) — [Home](#)

ON Display on load

ON Data is browsable ?

Shape properties

Advanced properties

Interaction options

Remote data

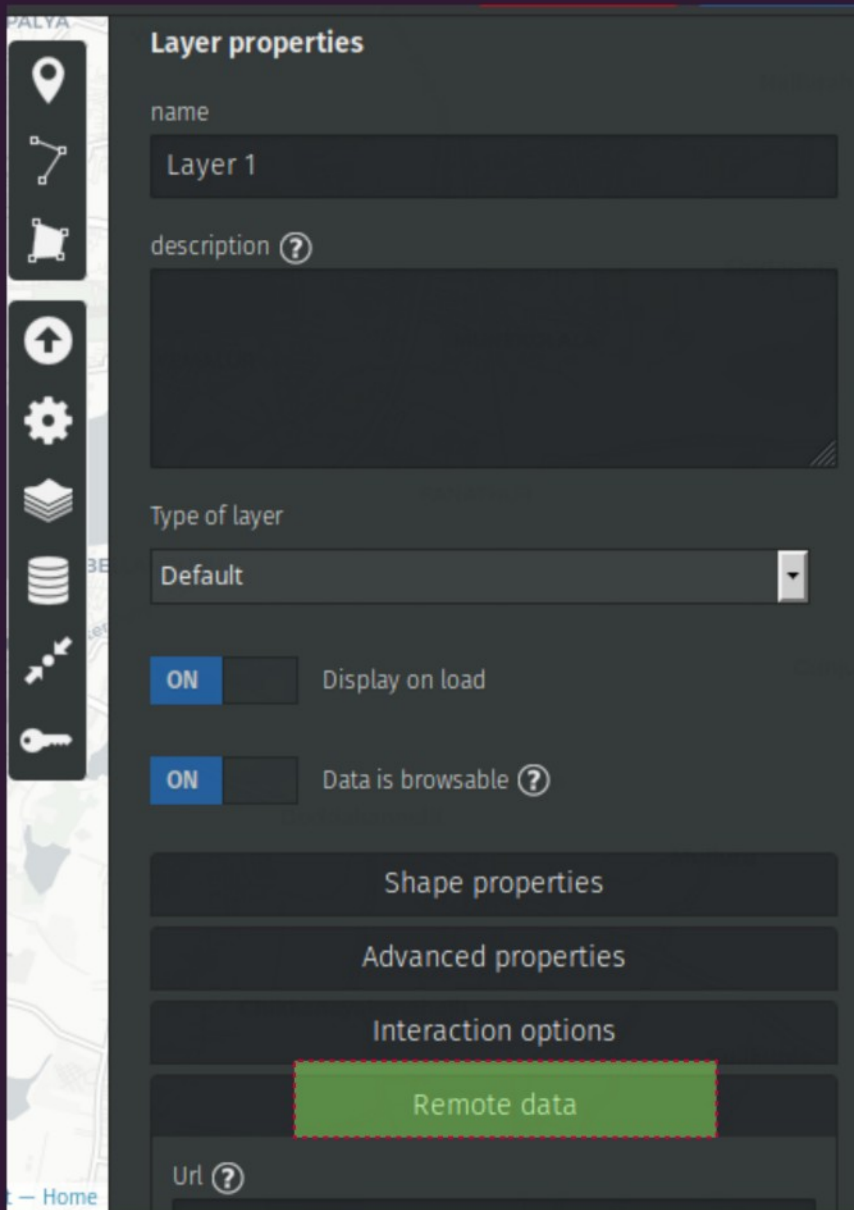
Url ?
`https://overpass-api.de/api/interpreter?data=[c`

Format
osm

From zoom

Optional

To zoom



```
https://overpass-  
api.de/api/  
interpreter?  
data=[out:json]  
[timeout:25];  
(nwr["amenity"="ba  
nk"]  
(around:1500,12.89  
558285,77.60262192  
2761););out;>;out  
skel qt;
```

Remote data

Url ?

`https://overpass-api.de/api/interpreter?data=[c`

Format

osm

From zoom

Optionnal.

To zoom

Optionnal.

ON

Dynamic ?

Licence

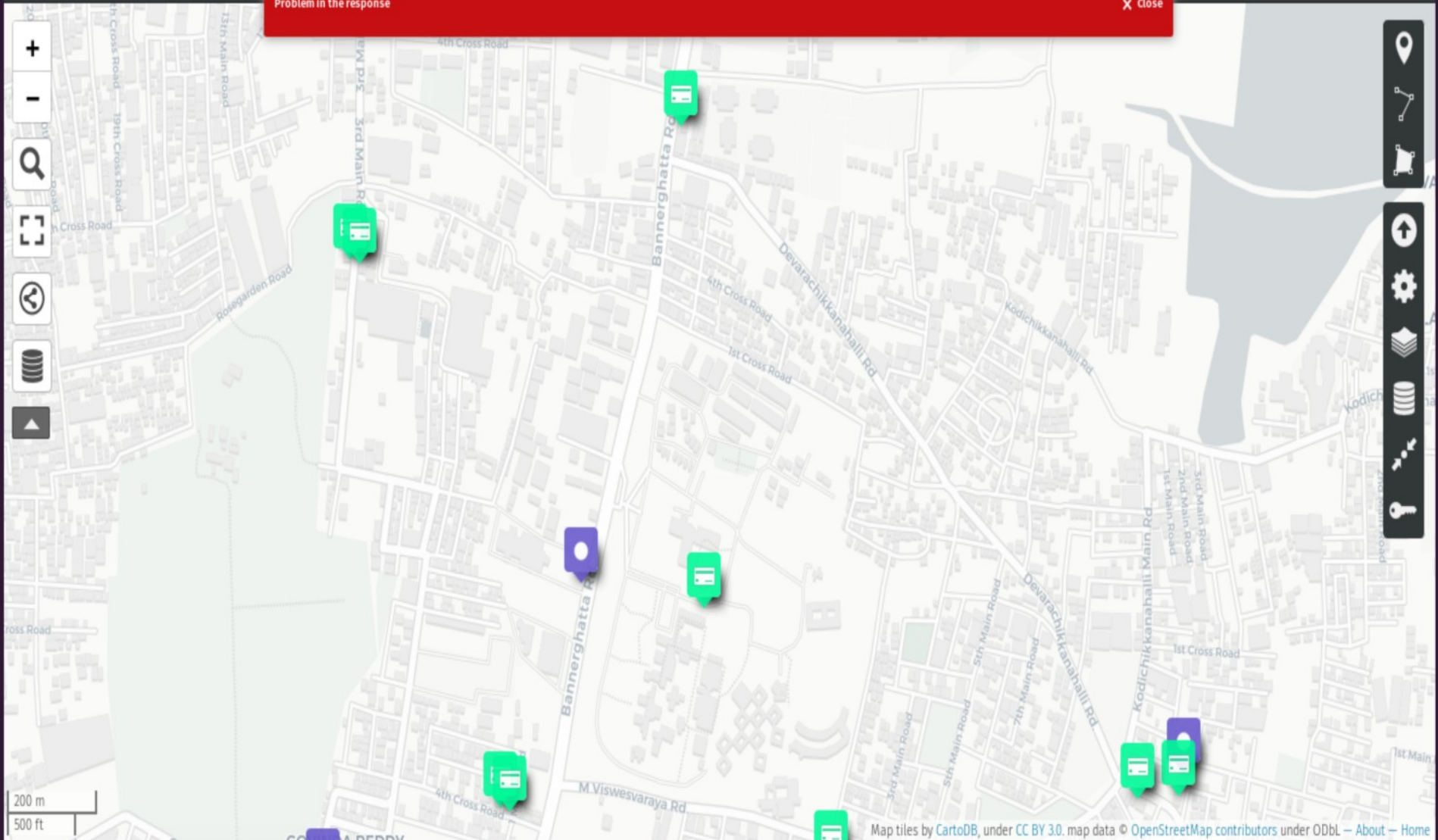
Please be sure the licence is compliant with your use.

OFF

Proxy request ?

Problem in the response

Close



References

- Project - github.com/tyrasd/overpass-turbo
- Reference - osm.org/wiki/Overpass_turbo
- OSM features - osm.org/wiki/Map_Features
- Deck copy - speakerdeck.com/gowin/data-mining-openstreetmap-with-overpass-turbo

Questions?