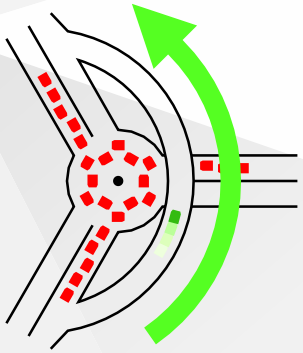


Overpass
API

Overpass API

An API to query OpenStreetMap data.

About this presentation:

- 👨‍💻 User:Binnette
- 📅 2021-12-20
- 🟢 License MIT

1 Intro

🧙 What is Overpass API*?

🔗 http://overpass-api.de/

- A **read only** API that serves custom selected parts of OSM data
- It has 2 query languages:
  - **Overpass XML**: very verbose but trully explicit 🗣️
  - **Overpass QL**: lightweight but a bit magic ✨
- 💾 It can export data to JOSM, OSM data file, CSV, GeoJSON, ...

✳️ API = Application Programming Interface

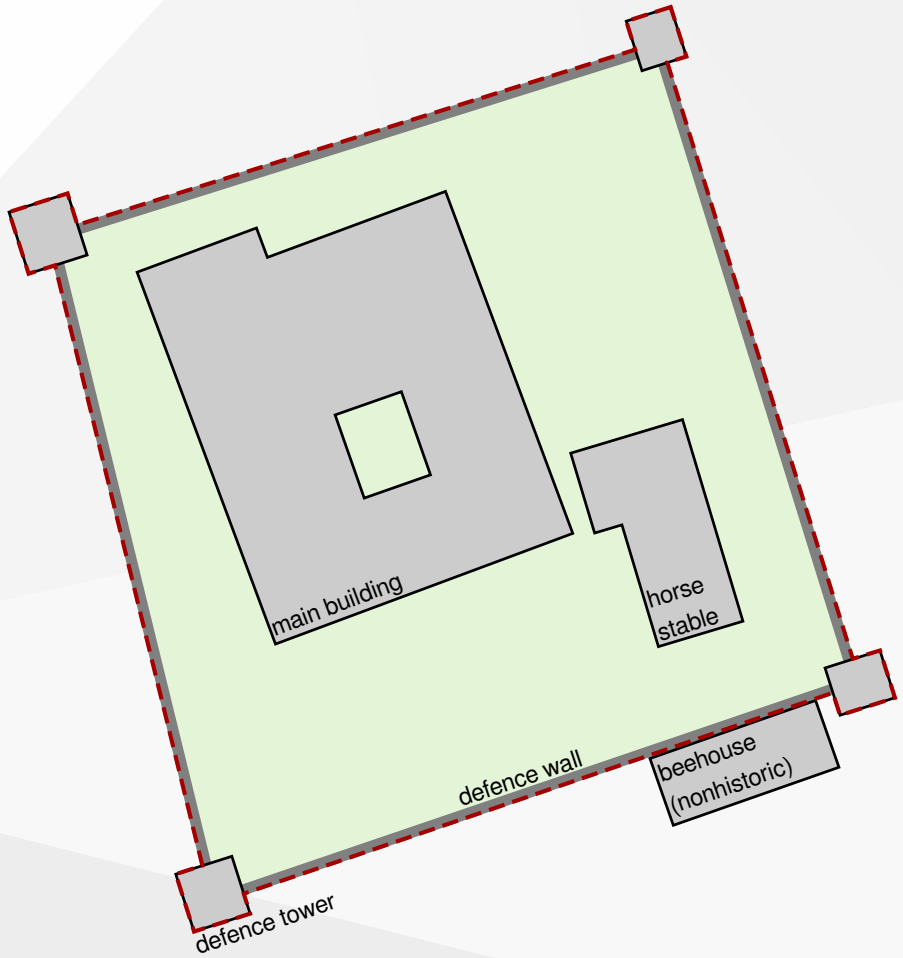
👷 Technical details

- Overpass API do not query OSM database directly. Instead it queries a clone of the main database based on a planet file (export of OSM database)
  - 🕒 It explains why data are not always up-to-date in Overpass API
- Overpass API is an ✅ OpenSource software and have many instances:
  - Main instance: 🇩🇪 https://overpass-api.de/api/interpreter
  - And a lot of others: 🇫🇷 OSM-fr, 🇨🇭 OSM-ch, 🇷🇺 OSM-ru, 🇹🇼 OSM-tw, ...

About OSM data

3 types of data ("elements"):

- nodes: a point with lat/lon
- ways: connexion between multiples points
  - And also closed ways, areas, ...
- relations: virtual objects linking nodes and/or ways



Overpass query languages

```
/* Overpass QL: lightweight and implicit */
(
   node(51.249,7.148,51.251,7.152);
   <;
);
out meta;
```

```
<!-- XML: verbose but explicit -->
<union>
  <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  <recurse type="up"/>
</union>
<print mode="meta"/>
```

https://overpass-turbo.eu/s/1e5Y

😅 Overpass XML 'almost' explicit...

```
<union>
  <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  <recurse type="up"/>
</union>
<print mode="meta"/>
```

```
<!-- The exact same query but even more verbose... -->
<union into="_">
  <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  <recurse from="_" into="_" type="up"/>
</union>
<print e="" from="_" geometry="skeleton" ids="yes" limit="" mode="meta" n="" order="id" s="" w=""/>
```

😆 Overpass XML 'full' explicit

```
<union into="_">
  <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  <recurse from="_" into="_" type="up"/>
</union>
<print e="" from="_" geometry="skeleton" ids="yes" limit="" mode="meta" n="" order="id" s="" w=""/>
```

```
<!-- The exact same query but over verbose... -->
<union into="_">
  <query into="_" type="node">
    <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  </query>
  <recurse from="_" into="_" type="up"/>
</union>
<print e="" from="_" geometry="skeleton" ids="yes" limit="" mode="meta" n="" order="id" s="" w=""/>
```

😎 Let convert it back to Overpass QL...

```
<union into="_">
  <query into="_" type="node">
    <bbox-query s="51.249" w="7.148" n="51.251" e="7.152"/>
  </query>
  <recurse from="_" into="_" type="up"/>
</union>
<print e="" from="_" geometry="skeleton" ids="yes" limit="" mode="meta" n="" order="id" s="" w=""/>
```

```
(
   node(51.249,7.148,51.251,7.152);
   <;
);
out meta;
```

So now, you better understand the X of eXtensible in XML. 🤣

🔧 Overpass-Turbo: a tool to call Overpass API

🤩 http://overpass-turbo.eu (stable version)

😍 https://tyrasd.github.io/overpass-turbo/ (latest version)

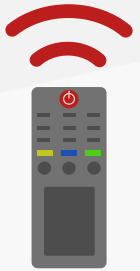
Still the same query 😅:

- In Overpass QL: http://overpass-turbo.eu/s/1e1F
- In Overpass XML: http://overpass-turbo.eu/s/1e1G

Use the 'Export' button to convert to QL or XML...

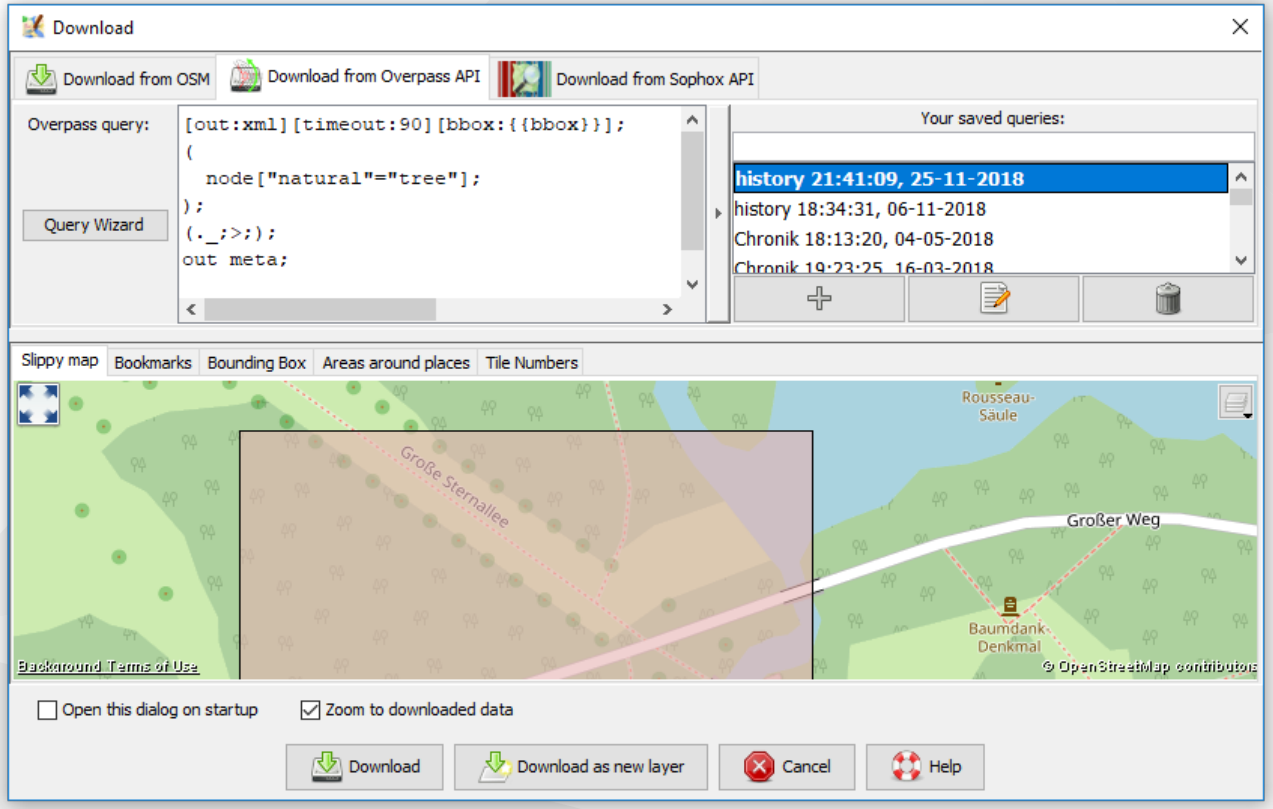
From Overpass-Turbo to JOSM

- Launch JOSM and enable the "Remote control": https://josm.openstreetmap.de/wiki/Help/Preferences/RemoteControl
- Go to Overpass Turbo and run your query
- Click on Export > Data > JOSM
- Your data are loaded in JOSM



Overpass API directly in JOSM

- Open JOSM setting
- Enable 'Advanced mode'
- Click on download button
- Tab 'Download from Overpass API' is displayed



From Overpass API to Maproulette

Why not creating MapRoulette challenges by querying wrong or incomplete OSM data with Overpass API?

https://maproulette.org/

MapRoulette

2 Back to the basics

🌎 Helloworld with Overpass

Get "drinking water" for a given "bbox":

```
node
  [amenity=drinking_water]
  ({{bbox}});
out;
```

Try it for free!!! 💵 http://overpass-turbo.eu/s/1e1S

Instruction 'area' or how to get a specific zone

```
area[name="France métropolitaine"]->.FRM;

area["ISO3166-2"="FR-ARA"]->.ARA; // Auvergne-Rhône-Alpes

area[name="Grenoble-Alpes Métropole"]->.LaMetro;

area[name="Grenoble"]->.Grenoble;

area["ISO3166-2"="FR-07"]->.Ardèche;

area[name="Mariac"]->.Mariac;
```

😴 Get only amenity nodes

```
area[name="Mariac"]->.a;
node[amenity](area.a);
out geom;
```

http://overpass-turbo.eu/s/1e1U

🤦 Get amenity nodes and ways

```
area[name="Mariac"]->.a;
nw[amenity](area.a);
out geom;
```

http://overpass-turbo.eu/s/1e1V

🤔 Get amenity nodes and ways... again

```
area[name="Mariac"]->.a;
nw[amenity](area.a);
out geom;
```

http://overpass-turbo.eu/s/1e1V

```
area[name="Mariac"]->.a;
(
  node[amenity](area.a);
  way[amenity](area.a);
);
out geom;
```

http://overpass-turbo.eu/s/1e1X

🤨 Get amenity nodes, ways and relations

```
area[name="Mariac"]->.a;
nwr[amenity](area.a);
out geom;
```

http://overpass-turbo.eu/s/1e1Y

```
area[name="Mariac"]->.a;
(
  node[amenity](area.a);
  way[amenity](area.a);
  rel[amenity](area.a);
);
out geom;
```

http://overpass-turbo.eu/s/1e1X

📽 DEMO TIME

All my overpass queries:

https://wiki.openstreetmap.org/wiki/User:Binnette/OverpassQueries

Appendix

- Official Overpass API documentation
- On OSM wiki:
  - Overpass API
  - Overpass QL
  - Query example
  - Styling Overpass Turbo with CSS
  - All my Overpass Queries

💡 Any question ?

- Feel free to contact me by private message:
  - On OSM: https://www.osm.org/user/Binnette
  - On the Wiki: https://wiki.openstreetmap.org/wiki/User:Binnette