



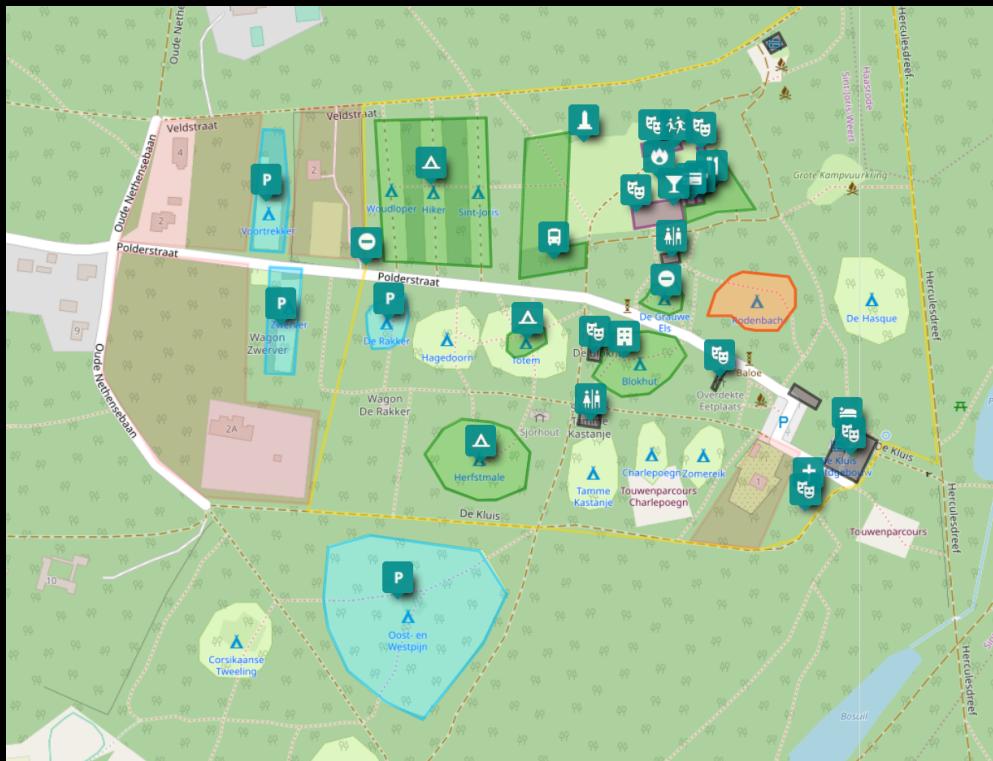
# OSM Tools

# **OSM has a diverse ecosystem**

- Difficult to know them all
- Constant change – projects start and die
- A tool for everything with different providers

# UMap

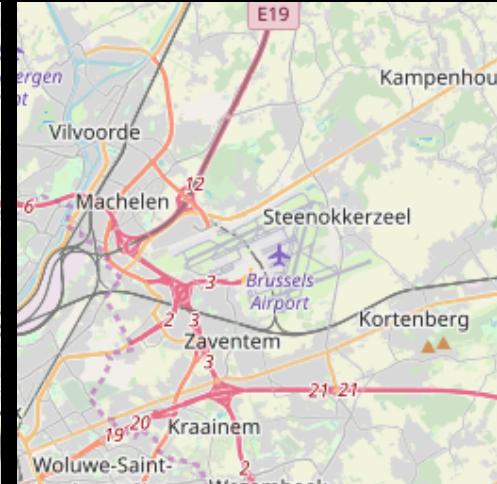
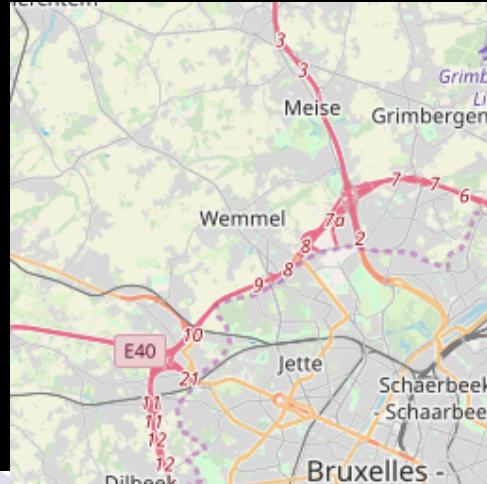
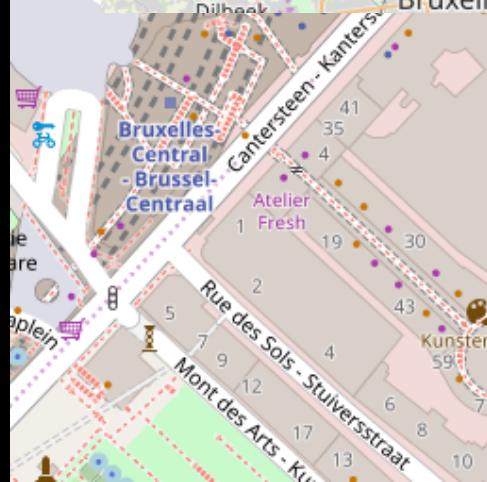
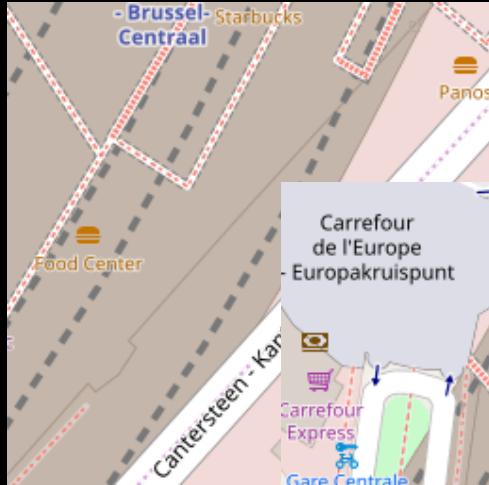
- Ideal to add geodata *not* suited for OSM itself
  - Preparing an event
  - Planning an outing
  - ...



# A webmap on your website



# Slippy map



Also known as WMS ( Web Mapping Service),  
TMS (Tile Mapping Service) or WMPS

# Slippy map: pro

- One big computer takes *all* the data and creates lots of images for all zoom levels
- Clients download these tiles when they need them
- Simple for the client
- Lots of space needed on the central computer
- Static (style changes?)



# Slippy map: con

- Lots of space and internet needed on the central computer
- Internet is required for the client
- Leaks sensitive private data – trust the provider
- Central point of failure
- Static (style changes?)

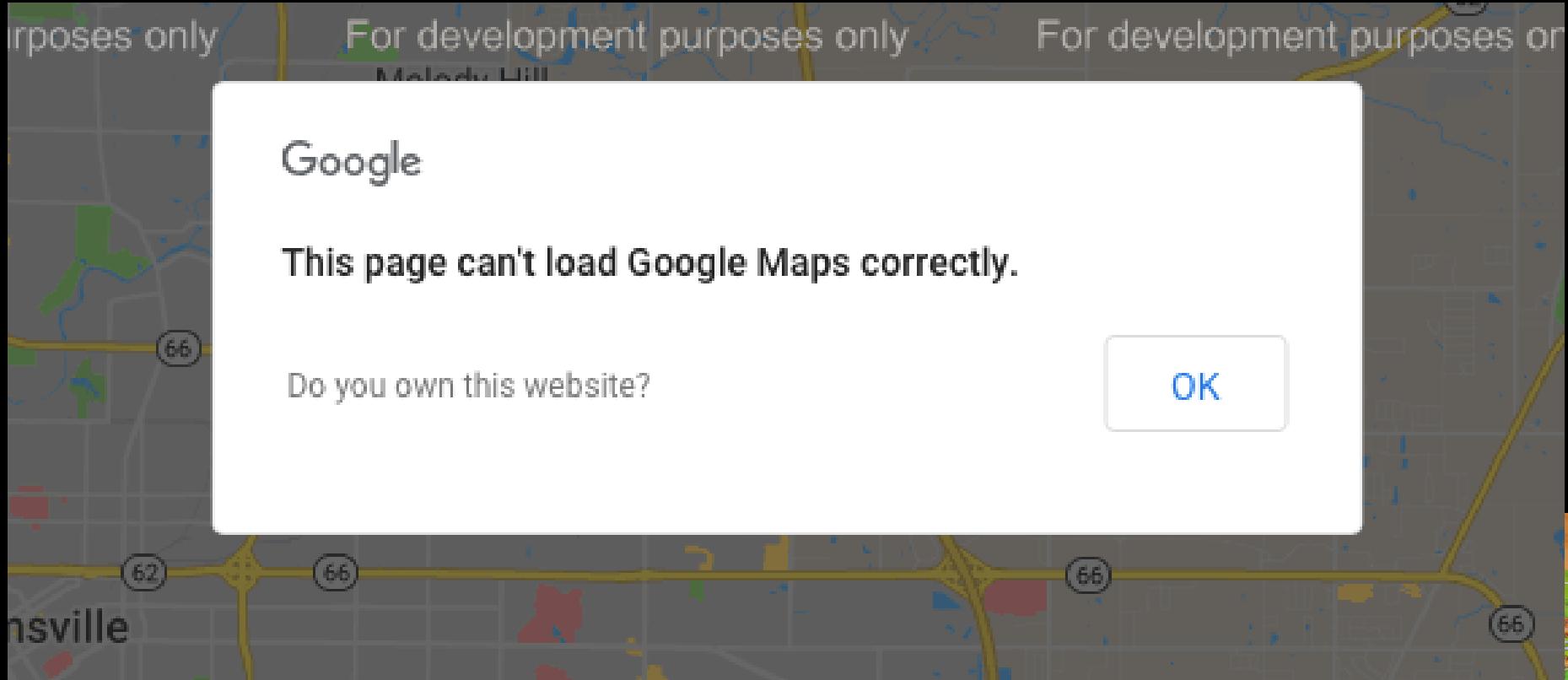


# Tile providers

- Hobby/small projects: osm.org
- Belgium only: Geo6 (see osm.be)
- Big projects: commercial providers
  - Mapbox
  - Maptiles
- Non-OSM layers with aerial/satellite
  - Flanders: AIV (also: GRB, older layers)
  - Wallonia: SPW
  - Mapbox/ESRI/Bing/Maxar
- See <https://switch2osm.org/providers/>



# Tile providers



# Slippy map

- We know where to get the tile images...
- But how to neatly show them?



# **Leafletjs.com**

- Small & friendly JS-library





Here we create a map in the 'map' div, add tiles of our choice, and then add a marker with some text in a popup:

```
var map = L.map('map').setView([51.505, -0.09], 13);

L.tileLayer('https://s.tile.openstreetmap.org/{z}/{x}/{y}.png', {
    attribution: '&copy; <a href="https://www.openstreetmap.org/copyright">OpenStreetMap</a> contributors'
}).addTo(map);

L.marker([51.5, -0.09]).addTo(map)
    .bindPopup('A pretty CSS3 popup.<br>Easily customizable.')
    .openPopup();
```

# **Leafletjs.com**

- Small & friendly JS-library
- Read their docs! They are awesome!





This reference reflects **Leaflet 1.5.0** and **Leaflet 1.5.1**. Check [this list](#) if you are using a different version of Leaflet.

Map	UI Layers	Other Layers	Utility	Base Classes
<a href="#">Usage example</a>	<a href="#">Marker</a>	<a href="#">LayerGroup</a>	<a href="#">Browser</a>	<a href="#">Class</a>
<a href="#">Creation</a>	<a href="#">Popup</a>	<a href="#">FeatureGroup</a>	<a href="#">Util</a>	<a href="#">Evented</a>
<a href="#">Options</a>	<a href="#">Tooltip</a>	<a href="#">GeoJSON</a>	<a href="#">Transformation</a>	<a href="#">Layer</a>
<a href="#">Events</a>		<a href="#">GridLayer</a>	<a href="#">LineUtil</a>	<a href="#">Interactive layer</a>
	Raster Layers		<a href="#">PolyUtil</a>	<a href="#">Control</a>
Map Methods		Basic Types		<a href="#">Handler</a>
	<a href="#">TileLayer</a>		DOM Utility	<a href="#">Projection</a>
<a href="#">Modifying map state</a>	<a href="#">TileLayer.WMS</a>	<a href="#">LatLng</a>		<a href="#">CRS</a>
<a href="#">Getting map state</a>	<a href="#">ImageOverlay</a>	<a href="#">LatLngBounds</a>	<a href="#">DomEvent</a>	<a href="#">Renderer</a>
<a href="#">Layers and controls</a>	<a href="#">VideoOverlay</a>	<a href="#">Point</a>	<a href="#">DomUtil</a>	
<a href="#">Conversion methods</a>		<a href="#">Bounds</a>	<a href="#">PosAnimation</a>	Misc
<a href="#">Other methods</a>	Vector Layers	<a href="#">Icon</a>	<a href="#">Draggable</a>	
		<a href="#">DivIcon</a>		<a href="#">Event objects</a>
Map Misc	<a href="#">Path</a>			<a href="#">global switches</a>
	<a href="#">Polyline</a>	Controls		<a href="#">noConflict</a>
<a href="#">Properties</a>	<a href="#">Polygon</a>	<a href="#">Zoom</a>		<a href="#">version</a>
<a href="#">Panes</a>	<a href="#">Rectangle</a>	<a href="#">Attribution</a>		
	<a href="#">Circle</a>	<a href="#">Layers</a>		
	<a href="#">CircleMarker</a>	<a href="#">Scale</a>		
	<a href="#">SVGOVERLAY</a>			
	<a href="#">SVG</a>			
	<a href="#">Canvas</a>			

# Getting specific data



# Getting specific data

- Where are all the chimneys/hairdressers/roads with cobblestone/... in ... ?
- Ask overpass!



# Overpass

- Easily **query** the OSM-database
- Can be used to create an on-the-fly, automatically up-to-date map\*
- Lots of complicated features
- 10'000 queries/(day\*project)

(\* often a few minutes behind osm.org)



# Overpass-turbo.eu

- Where are all the chimneys/hairdressers/roads with cobblestone/... in ... ?
- Ask overpass!



# Using overpass-turbo

- 1) Lookup the tag(s) on wiki.osm.org
- 2) Go to overpass-turbo.eu
- 3) Click 'wizard'
- 4) Enter your query

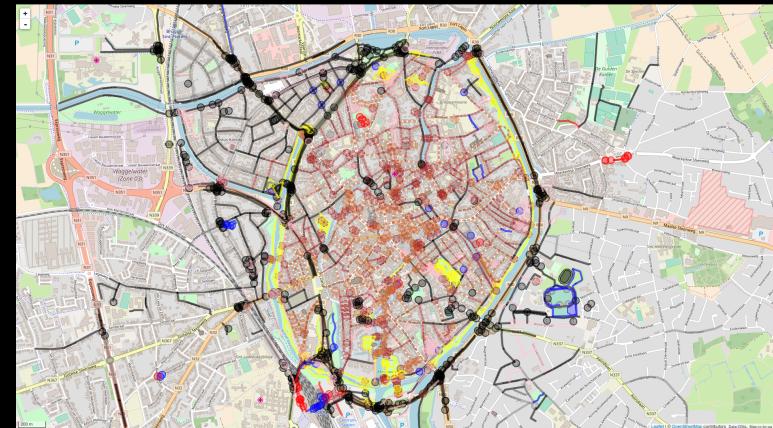
highway=\* & surface=\*

natural=water | water=\*

natural=tree in Brussels

...

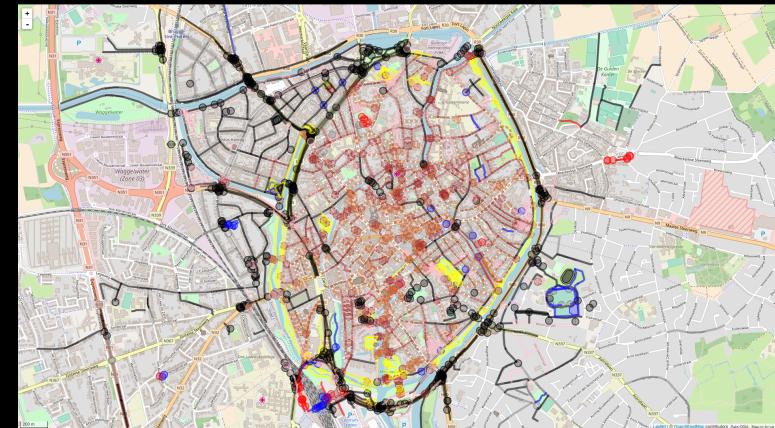
- 5) Click 'Build and run query'



# Using overpass-turbo

Users of DuckDuckGo:

- 1) !wosm *bicycle parking*
- 2) !otw *amenity=bicycle\_parking*
- 3) Done

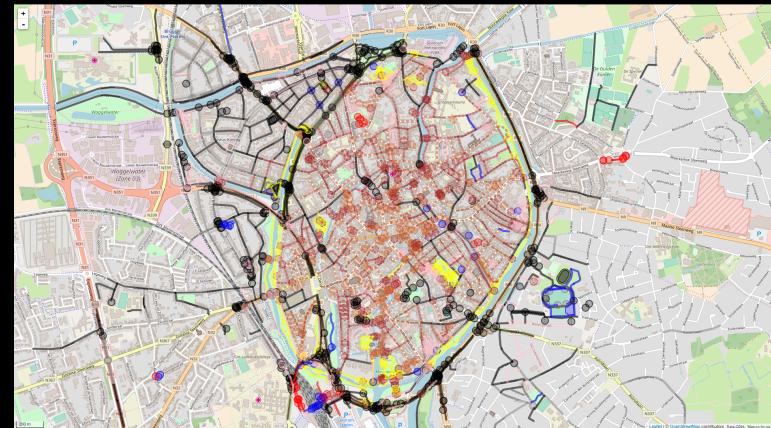


# Using overpass-turbo

Click 'export' to save as  
GeoJson, GPX, XML, ...

... or to get a URI to query in another app  
*(such as JS to pass it to Leaflet)*

Click 'share' to share with others



# Using overpass-turbo

Click 'export' to save as  
GeoJson, GPX, XML, ...

... or to get a URI to query in another app  
*(such as JS to pass it to Leaflet)*

Click 'share' to share with others

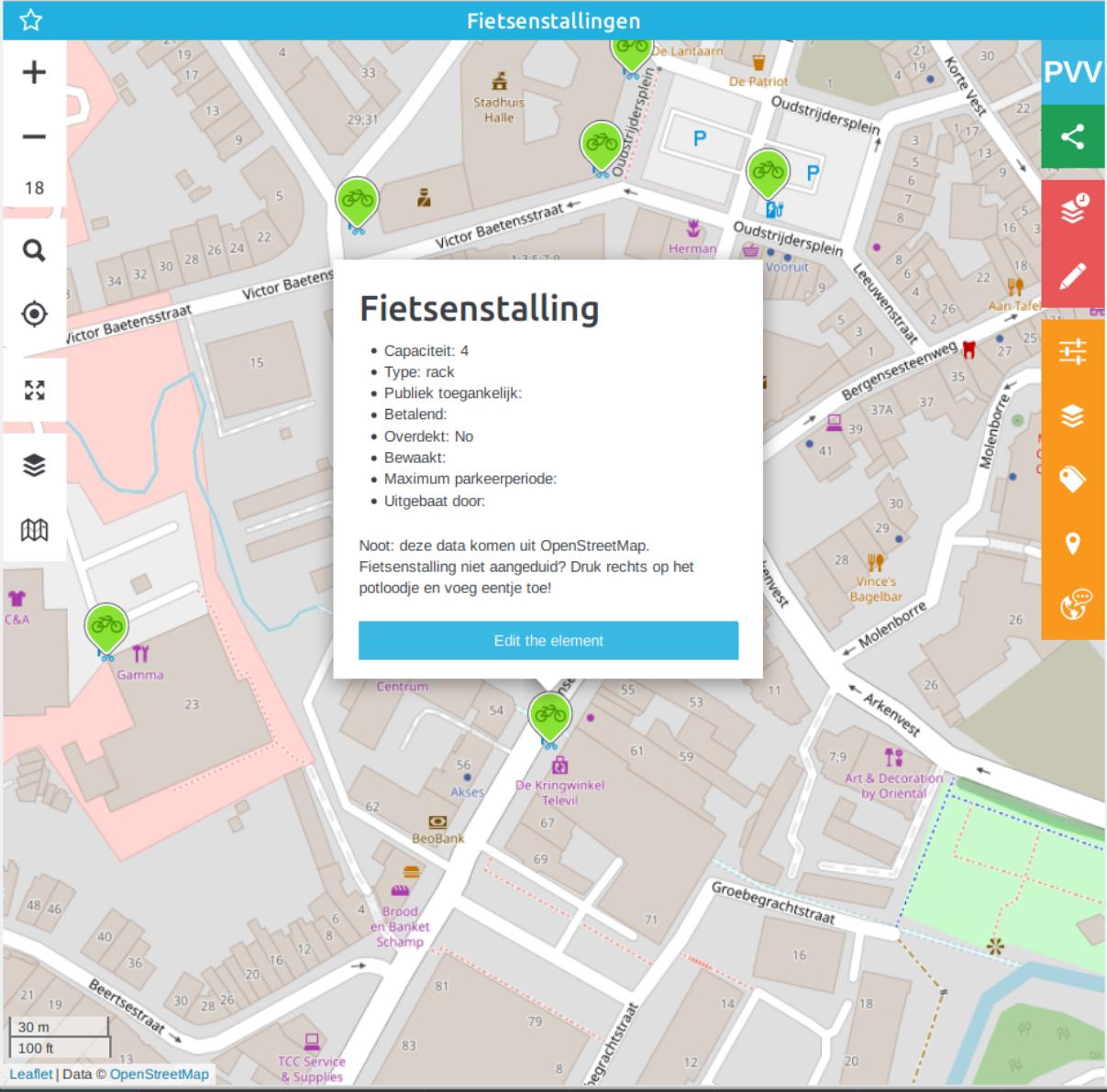


# MapContrib

Visualises a query

Allows to add data easily

Easy to help surveying



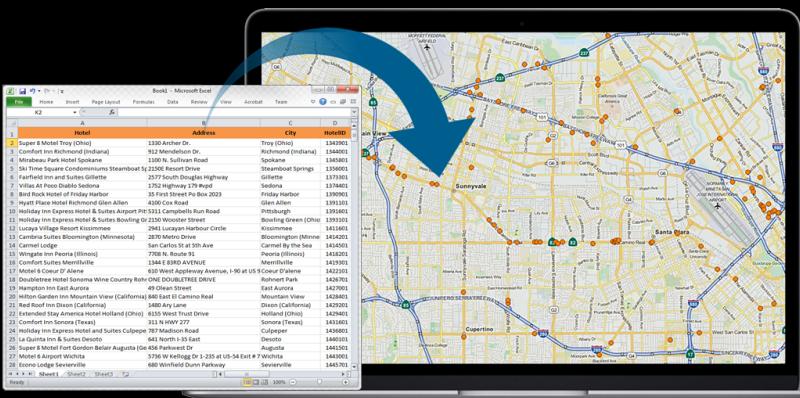
# Geocoding

The diagram illustrates the geocoding process. On the left, a Microsoft Excel spreadsheet titled "Book1 - Microsoft Excel" is shown. The spreadsheet contains four columns: "Hotel", "Address", "City", and "HotellID". The data includes 28 rows of hotel information, such as "Super 8 Motel Troy (Ohio)" at "1330 Archer Dr." in "Troy (Ohio)" with ID "1343901". On the right, a map of the San Francisco Bay Area shows the locations of these hotels as orange dots. A large blue arrow points from the Excel spreadsheet to the map, indicating the transformation of address data into geographic coordinates.

Hotel	Address	City	HotellID
Super 8 Motel Troy (Ohio)	1330 Archer Dr.	Troy (Ohio)	1343901
Comfort Inn Richmond (Indiana)	912 Mendelson Dr.	Richmond (Indiana)	1344001
Mirabeau Park Hotel Spokane	1100 N. Sullivan Road	Spokane	1345801
Ski Time Square Condominiums Steamboat Sp	2150E Resort Drive	Steamboat Springs	1356001
Fairfield Inn and Suites Gillette	2577 South Douglas Highway	Gillette	1373301
Villas At Poco Diablo Sedona	1752 Highway 179 #pvd	Sedona	1374401
Bird Rock Hotel of Friday Harbor	35 First Street Po Box 2023	Friday Harbor	1390901
Hyatt Place Hotel Richmond Glen Allen	4100 Cox Road	Glen Allen	1391101
Holiday Inn Express Hotel & Suites Airport Pit	5311 Campbells Run Road	Pittsburgh	1391601
Holiday Inn Express Hotel & Suites Bowling Gr	2150 Wooster Street	Bowling Green (Ohio)	1393101
Lucaya Village Resort Kissimmee	2941 Lucayan Harbour Circle	Kissimmee	1411601
Cambria Suites Bloomington (Minnesota)	2870 Metro Drive	Bloomington (Minne	1414201
Carmel Lodge	San Carlos St at 5th Ave	Carmel By the Sea	1414501
Wingate Inn Peoria (Illinois)	7700 N. Route 91	Peoria (Illinois)	1418201
Comfort Suites Merrillville	1344 E 83RD AVENUE	Merrillville	1419301
Motel 6 Coeur D'Alene	610 West Appleway Avenue, I-90 at US 9 Coeur D'alene	Coeur D'Alene	1422101
Doubletree Hotel Sonoma Wine Country Rohr	ONE DOUBLETREE DRIVE	Rohnert Park	1426701
Hampton Inn East Aurora	49 Olean Street	East Aurora	1427001
Hilton Garden Inn Mountain View (California)	840 East El Camino Real	Mountain View	1428401
Red Roof Inn Dixon (California)	1480 Ary Lane	Dixon (California)	1429201
Extended Stay America Hotel Holland (Ohio)	6155 West Trust Drive	Holland (Ohio)	1429401
Comfort Inn Sonora (Texas)	311 N HWY 277	Sonora (Texas)	1431601
Holiday Inn Express Hotel and Suites Culpepe	787 Madison Road	Culpeper	1436801
La Quinta Inn & Suites Desoto	641 North I-35 East	Desoto	1440101
Super 8 Motel Fort Gordon Belair Augusta (Ge	456 Parkwest Dr	Augusta	1441501
Motel 6 Airport Wichita	5736 W Kellogg Dr 1-235 at US-54 Exit # 7 Wichita	Wichita	1443001
Econo Lodge Sevierville	680 Winfield Dunn Parkway	Sevierville	1445701

# Geocoding

- Convert an address string into a coordinate
    - Or reverse geocoding: what is close to a coordinate?
  - Hobby projects: use [nominatim.osm.org](http://nominatim.osm.org)
  - Big projects: contact a commercial player
    - See [switch2osm.org](http://switch2osm.org)



# 3<sup>rd</sup> party route planning

- Providers exists who do route planning (we are one)
  - Hobby projects: see the graphhopper instance
  - Bigger projects: search a commercial provider...
  - (Or use routable tiles!)



# On your phone!



# On your phone!

An app for every usecase

- Some are simple, some have tons of features
- Some are paid, some are “free”
- Some focus on cyclists, hikers, vegetarians, ...
- Some are playful! (#PoGo)
- Some are crappy



# Navigation apps

- OsmAnd
- Maps.me
- Magic Earth
- ...

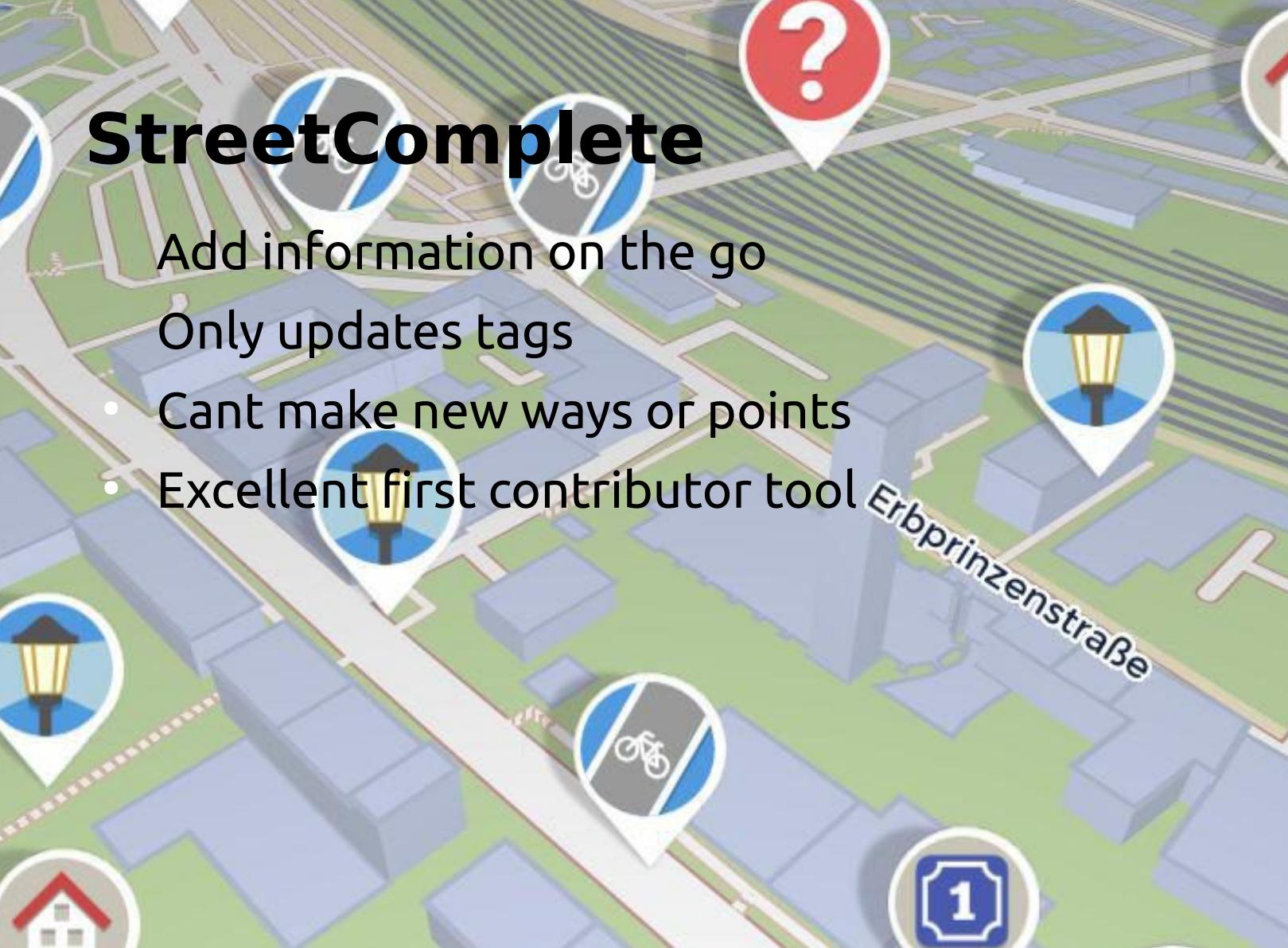


# StreetComplete

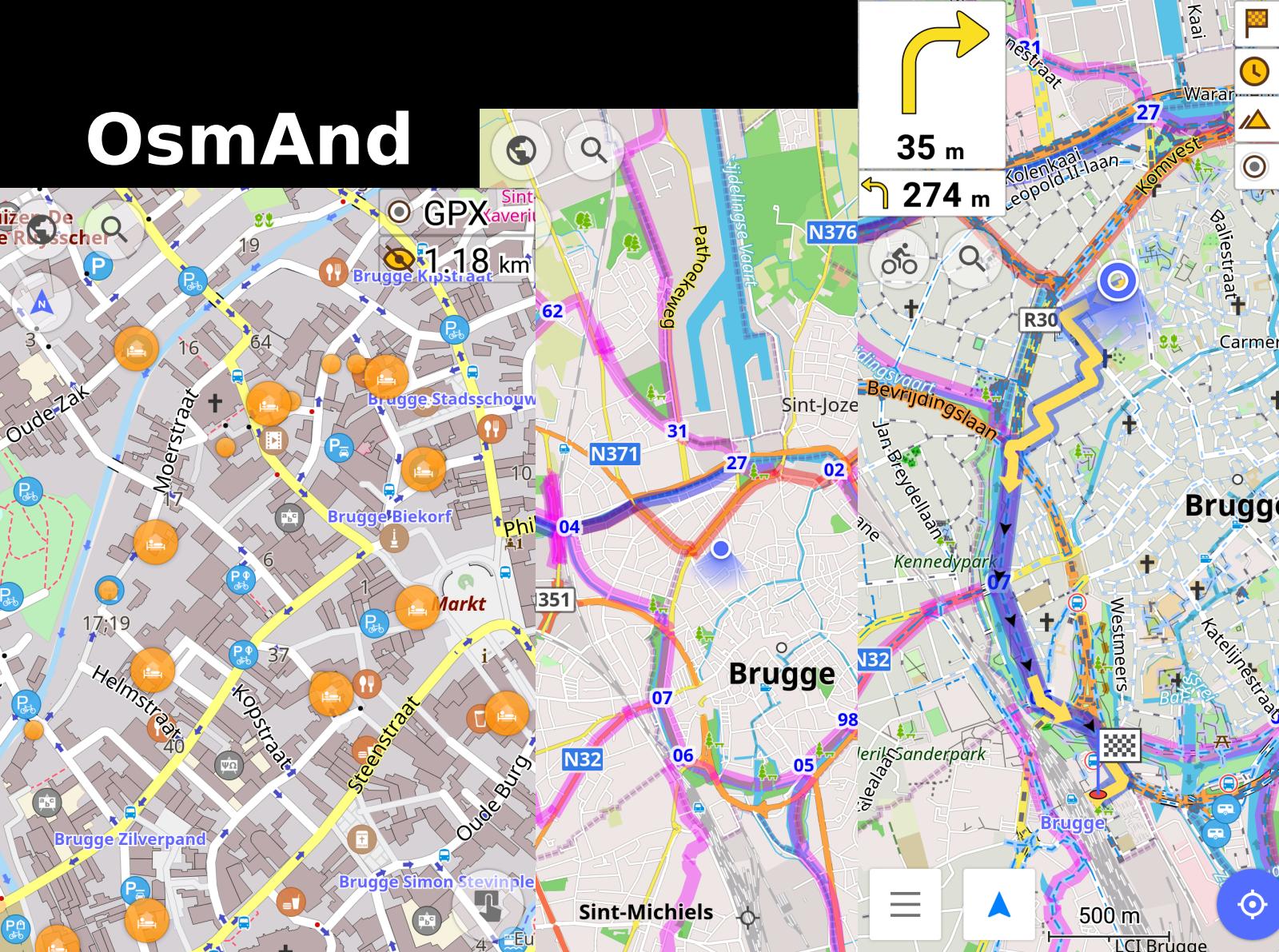
Add information on the go

Only updates tags

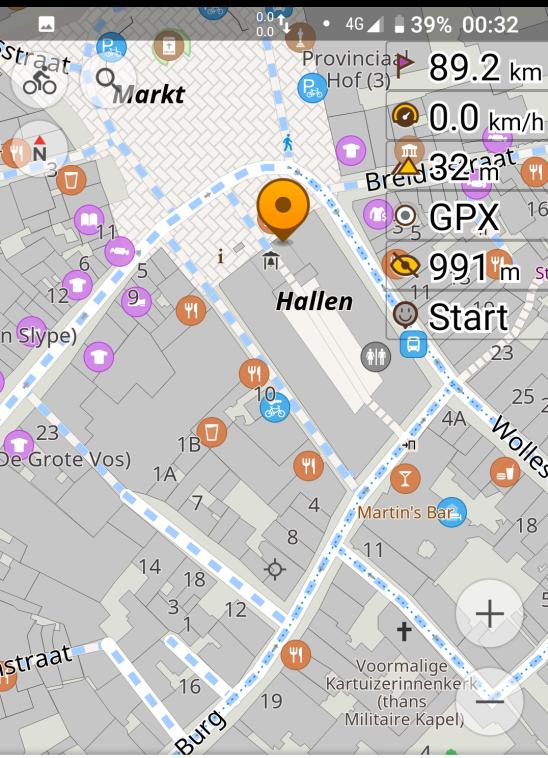
- Can't make new ways or points
- Excellent first contributor tool



# OsmAnd



# OsmAnd

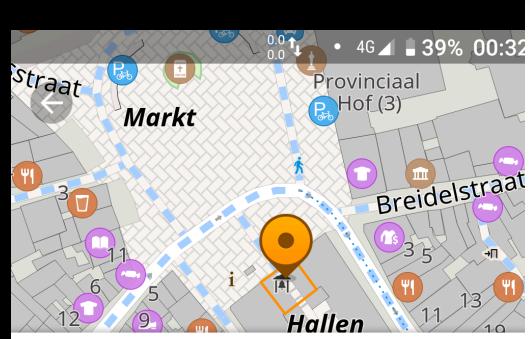


## Belfry of Bruges

Wikipedia: Hallen, Brugge-Centrum

▼ 885 m

[READ ARTICLE](#)



## Belfort

Tower: Hallen, Brugge-Centrum

Open from 09:30 • ▾ 888 m

Add Marker Share Actions

[COLLAPSE](#)

[DIRECTIONS](#)

Historic\_yes

yes

Mon-Sun 09:30-18:00

Description

Belfort-Hal of Halletoren

Height

83

Fee

€10/adult;€8/senior (>

Alt\_name

Halletoren

## Belfry of Bruges

The **Belfry of Bruges** (Belfort van Brugge) is a [medieval bell tower](#) in the centre of [Bruges, Belgium](#). One of the city's most prominent symbols, the belfry formerly housed a treasury and the municipal archives, and served as an observation post for spotting fires and other danger. A narrow, steep staircase of 366 steps, accessible by the public for an entry fee, leads to the top of the 83 m (272 feet) high building, which leans 87 centimeters to the east.

To the sides and back of the tower stands the former market hall, a rectangular building only 44 m broad but [READ FULL ARTICLE \(ONLINE\)](#) courtyard. The belfry, accordingly, is



# Maps.me



# On paper: maposmatic

✓ MyOSMatic Home Create map Maps About English

Search for a map

## Welcome to MyOSMatic

This is a free software web service that allows you to generate maps of cities using OpenStreetMap data. The generated maps are available in PNG, PDF and SVG formats and are ready to be printed.

As the data used to generate maps is coming from OpenStreetMap, you can freely reuse, sell, or modify the generated maps under the [terms of the OpenStreetMap license](#).

[Learn more](#) [Create a map »](#)



Plain Layout

## Platform status

All systems are operational.

✓ The rendering daemon is running.

✓ The GIS database is online and up to date, updated 0 minutes ago.

✓ The Waymarked route database is online and up to date, updated 2 minutes ago.

## Latest news

- Coming soon: multi file uploads published 1 week, 2 days ago
- Upcoming: new papersize form step published 3 weeks, 4 days ago
- Data area bounds revisited published 1 month ago
- Custom paper size choice published 1 month ago

MapOSMatic is a free software webservice to generate maps of cities using OpenStreetMap data.

[hartmut@php.net](mailto:hartmut@php.net) [irc://irc.freenode.net/#maposmatic](#)

[Privacy statement](#)

✓ MyOSMatic Home Create map Maps About English Search for a map

« 1 2 ... 4209 4210 »

## Maps

North Shore

### Bounding Box

49°31'17"N, 123°25'38"W ↘ 49°16'36"N, 122°48'31"W (ca. 44 x 27 km<sup>2</sup>)



plain

OpenTopoMap

1264x844 mm<sup>2</sup>

Canada

Submitted Feb. 26, 2020, 1:38 a.m.

Started Feb. 26, 2020, 1:38 a.m., after 0 minutes in the queue

Feb. 26, 2020, 1:41 a.m., after 2 minutes



[Recreate](#)

hüringen

» 51°16'10"N, 10°0'57"E ↘ 51°10'36"N, 10°15'19"E (ca. 16 x 10 km<sup>2</sup>)



plain

StreetsWithoutNames

594x420 mm<sup>2</sup>