

# OpenStreetMap

## What is that and how can I contribute?

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## 1 Imagine...

## 2 Applications

## 3 What is OSM?

## 4 The data

## 5 Contributing to OSM

## 6 Editors

... you want to use a map

- up to date
- complete streets, paths, cycleways, ...
- routable (car, bicycle, foot, ...)

... constantly changing areas

**Example:**  
**Construction of A7**

(Hamburg-Stellingen, Germany)

## ... unusual use cases

- hiking or trekking
- travel by (motor) boat
- search POIs by accessibility (e.g. for people with limited mobility)

... you want to print/show maps

- route to weddings/birthday/party/...
- in presentations
- in commercial uses
  - ▶ software
  - ▶ bus/train stop
  - ▶ public city map

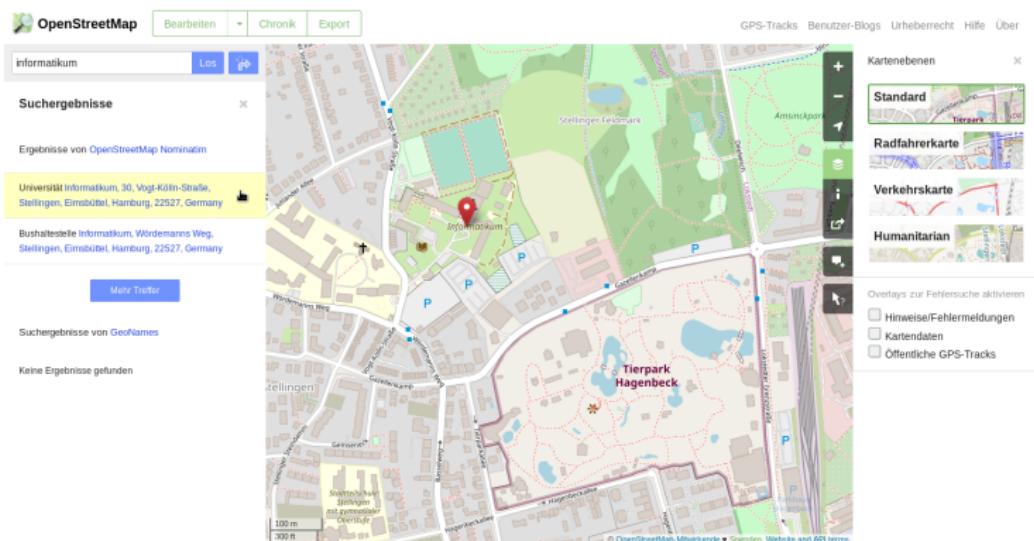
... there's a free map

And yes, it exists:

**OpenStreetMap**

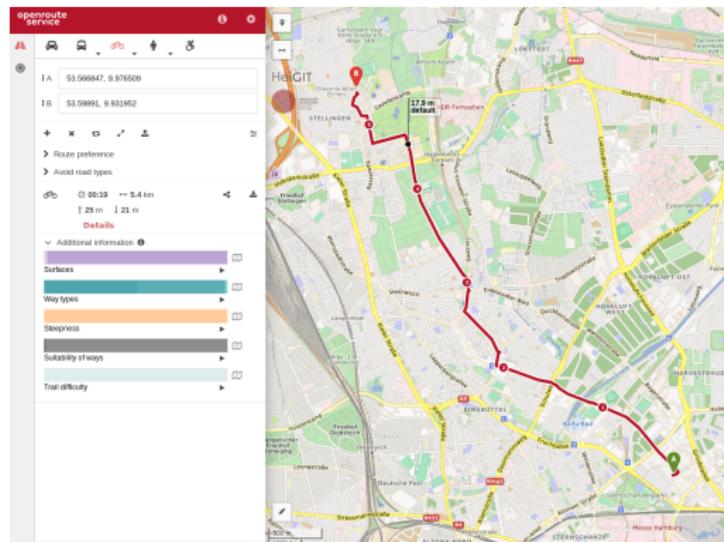
(short: OSM)

# OpenStreetMap website



<https://osm.org>

# OpenRouteService



<https://maps.openrouteservice.org>

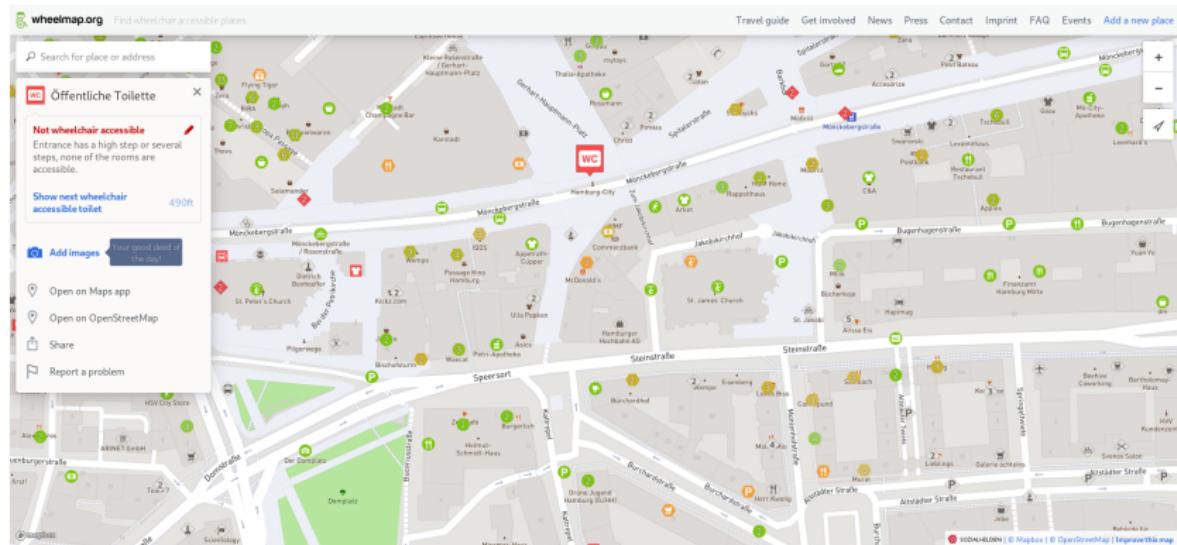


# OpenTopoMap website



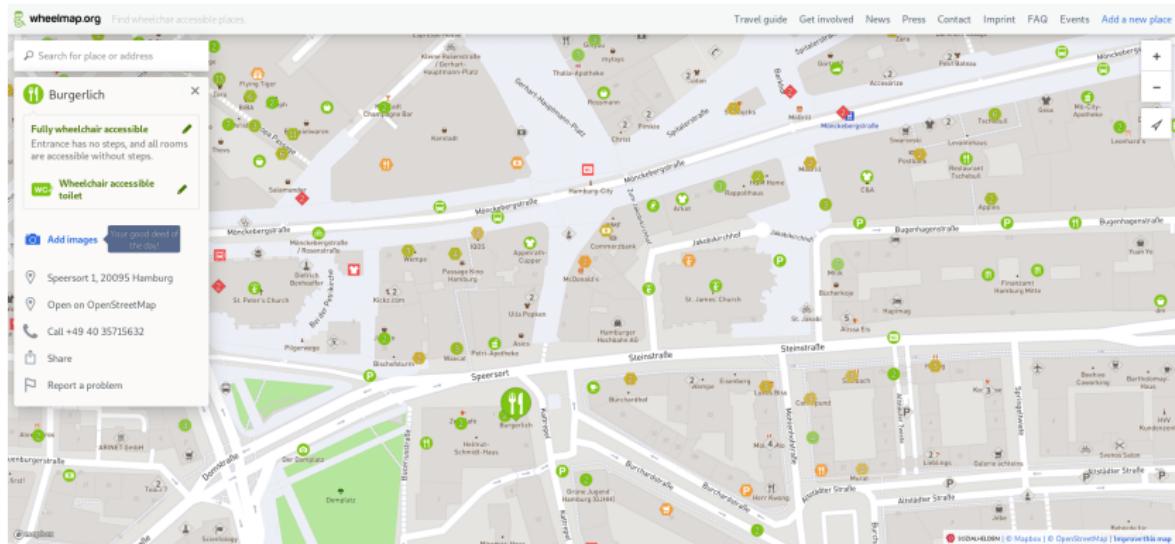
<https://opentopomap.org>

# Wheelmap



<https://wheelmap.org>

# Wheelmap



<https://wheelmap.org>

# OpenStreetMap Wiki



Main page Discussion Read View source View history Search OpenStreetMap Wiki

Available languages — Main Page     purge · Help

- Afrikaans • asturianu • azərbaycanca • Bahasa Indonesia • Bahasa Melayu • bosanski • brezhoneg • català • čeština • dansk • Deutsch • estoni • English • español • Esperanto • euskara • français • Frysk • galego • hrvatski • interlingua • íslenska • italiano • kreyòl gwadloupien • kurdi • latviešu • Lëtzebuergesch • lietuvių • magyar • Nederlands • norsk • očcián • polski • português • română • slovenčina • slovenščina • suomi • svenska • Tiếng Việt • Türkçe • زبان زاکار • српски / srpski • български • مالیٹک • ملکیتی • ملکیتی

Other languages — Help us translate this wiki

Welcome to OpenStreetMap, the project that creates and distributes free geographic data for the world. We started it because most maps you think of as free actually have legal or technical restrictions on their use, holding back people from using them in creative, productive, or unexpected ways.

More about OpenStreetMap | How to contribute | Where to get help



<https://wiki.osm.org>

# What is OpenStreetMap?

- free<sup>1</sup> project collecting **free accessible** geodata
- open database for geodata
- ODC-ODbL
  - ▶ OpenDataCommons Open Database License
  - ▶ Ersetzt CC BY-SA 2.0 (share alike & attribution)

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<sup>1</sup>free as in freedom

# Motivation

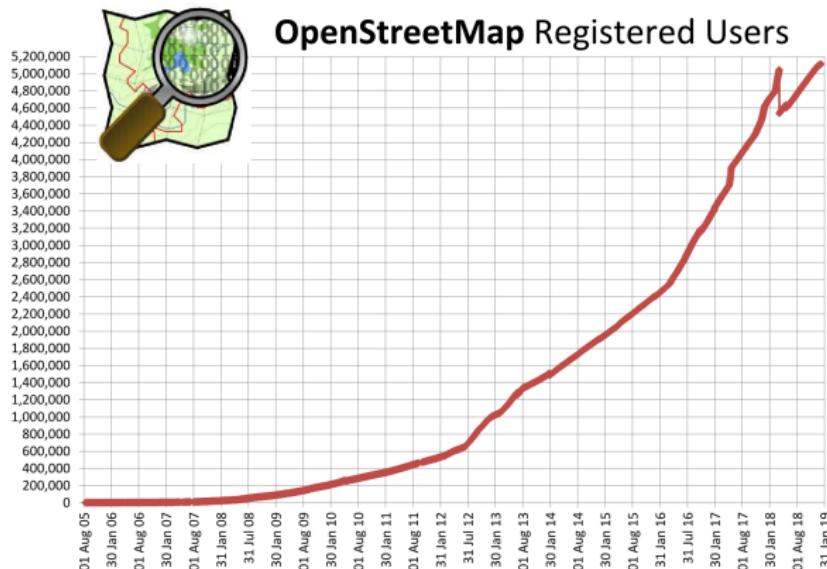
## Why has OpenStreetMap been created?

- proprietary maps old and faulty
- focus on cars and traffic
- no access to raw data
  - ▶ error correction not possible
- Google Maps *not directly evil* – but **not free**
- license problems with (nearly) all map service providers

# History

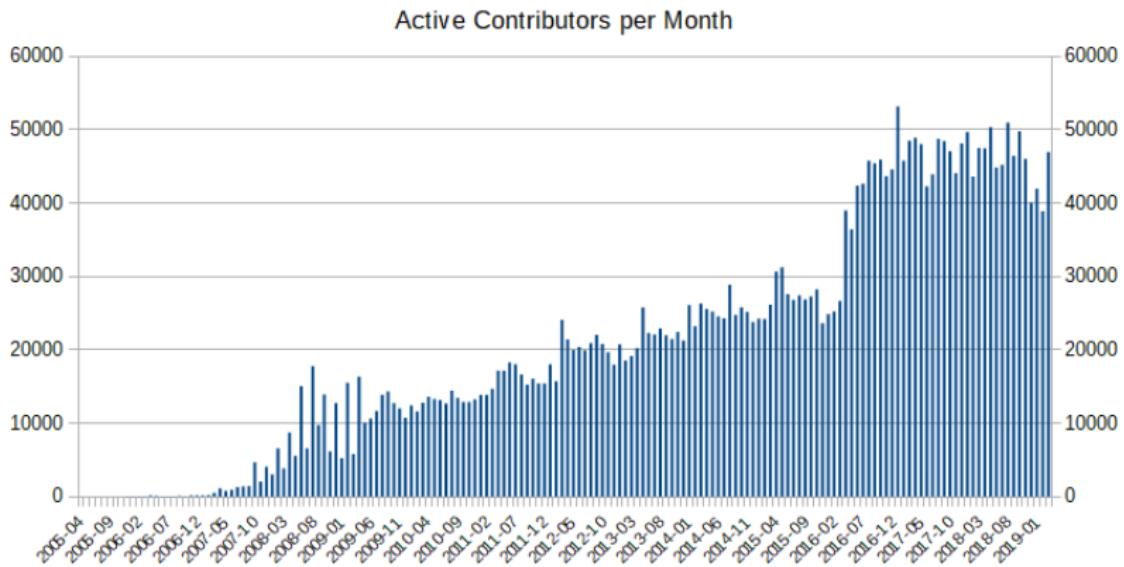
- 2004 – OSM founded
- 2006 – release JOSM-Editor
- 2006 – first map rendered with Mapnik
- 2007 – TIGER data import USA started
- 2008 – TIGER data import USA finished
- 2009 – API 0.6 (still latest version)
- 2009 – cooperation with Wikipedia
- 2010 – Bing Imagery allowed usage for OSM
- 2013 – 1 mio. registered users
- 2016 – Maps.me app enabled edits

# Statistics



[https://wiki.openstreetmap.org/wiki/File:Osmdbstats1\\_users.png](https://wiki.openstreetmap.org/wiki/File:Osmdbstats1_users.png), 2019-05-25

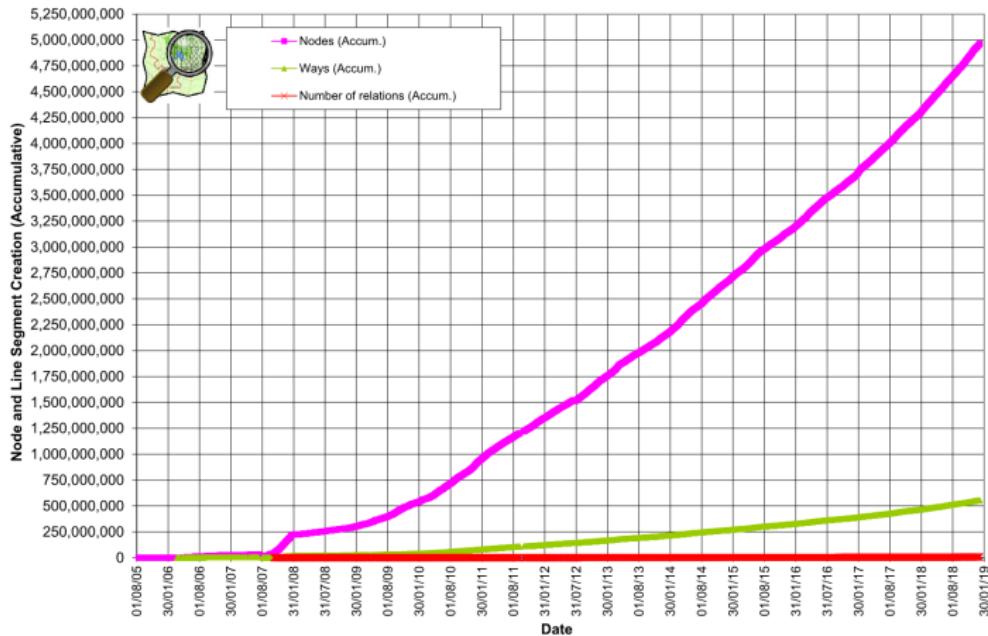
# Statistics



[https://wiki.openstreetmap.org/wiki/File:Active\\_contributors\\_month.png](https://wiki.openstreetmap.org/wiki/File:Active_contributors_month.png), 2019-05-25

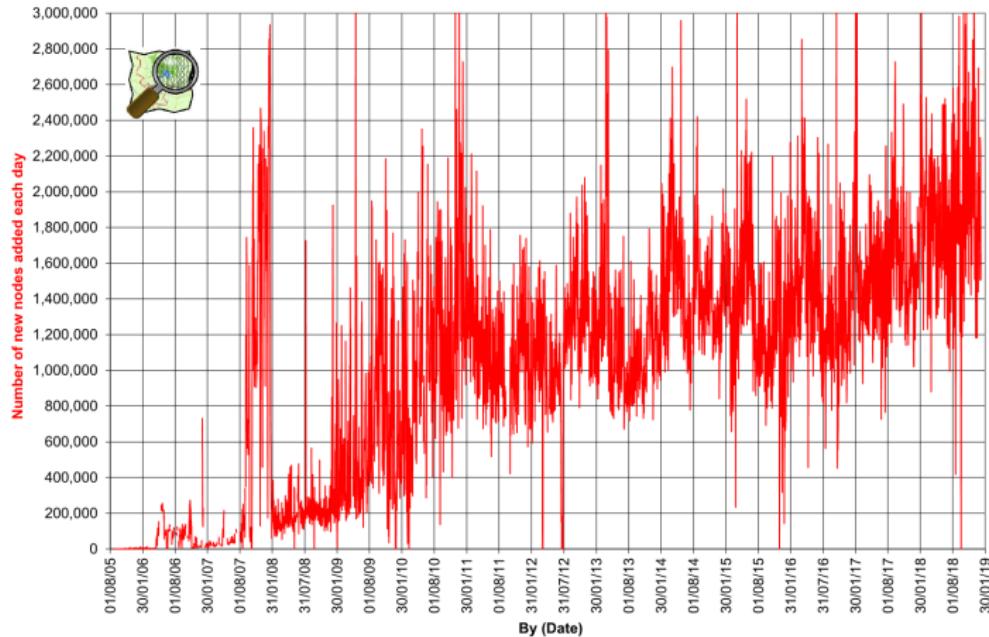
# Statistics

OpenStreetMap Database Statistics  
Node, Way and Relation Creation



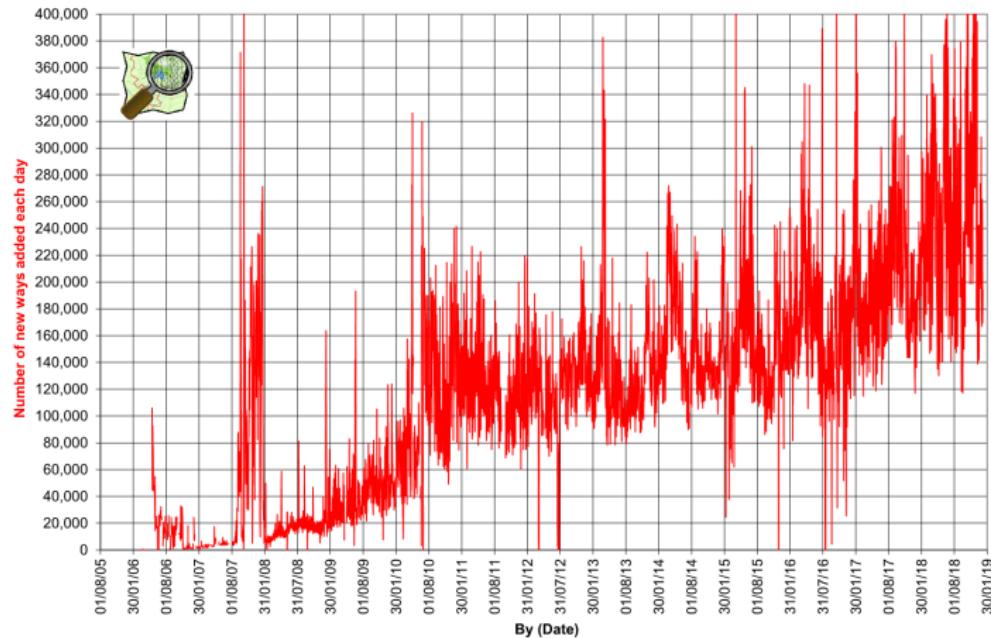
# Statistics

**OpenStreetMap Database Statistics**  
Number of nodes added each day



# Statistics

**OpenStreetMap Database Statistics**  
Number of ways added each day



## Community

### What is done?

- developing software and tools
- actual mapping
- creating and maintaining documentation
- doing public relations activities

## Community

### How is it done?

- going outside collecting information
- using imagery services
- meet other mappers
- participating in a mapathon

## 1 Imagine...

## 2 Applications

## 3 What is OSM?

- Motivation
- History
- Statistics
- Community

## 4 The data

- Geometries
- Tags

## 5 Contributing to OSM

- Trace aerial imagery
- Go outside
- Report errors

Imagine...  
ooooo

Applications  
oooooo

What is OSM?  
oooooooooooo

The data  
●oooooo

Contributing to OSM  
oooooooo

Editors  
oo

# Geometries

## ■ Socialize

### 6 Editors

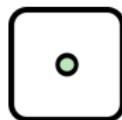
- iD
- JOSM



## Geometries

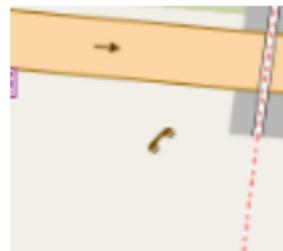
### Node

- single location on map



(1)

amenity=telephone  
covered=booth



(1) [https://wiki.openstreetmap.org/wiki/File:Red\\_telephone\\_box\\_-\\_geograph.org.uk\\_-\\_919348.jpg](https://wiki.openstreetmap.org/wiki/File:Red_telephone_box_-_geograph.org.uk_-_919348.jpg),

2019-05-25

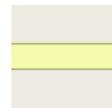
## Geometries

### Way

- line on map
- 2-2000 points per way



highway=secondary



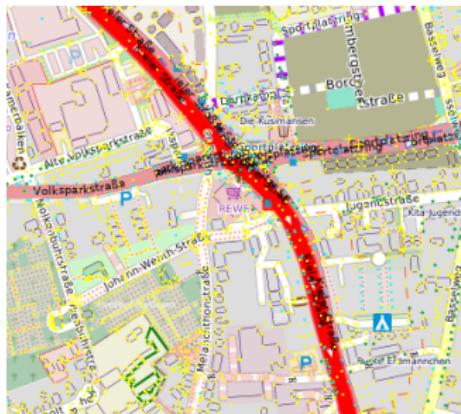
(1)

(1) <https://wiki.openstreetmap.org/wiki/File:Meyenburg-L134.jpg>, 2019-05-25

# Geometries

## Relation

- combination of ways (e.g. to a bus route)



`type=route  
route=bus  
name=MetroBus 4  
ref=4  
from=Wildacker  
to=Brandstwiete`

# Geometries

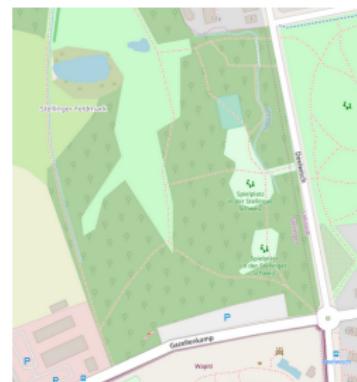
## Area

- basically a closed way with special tags

landuse=forest  
leaf\_type=broadleaved



(1)



(1) [https://commons.wikimedia.org/wiki/File:Stellinger\\_Feldmark\\_ESE\\_01.JPG](https://commons.wikimedia.org/wiki/File:Stellinger_Feldmark_ESE_01.JPG), 2019-05-25

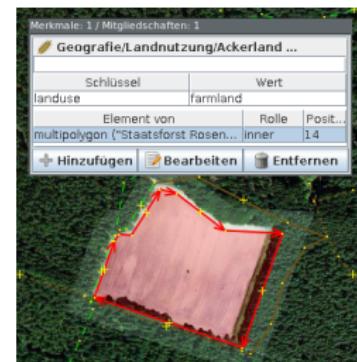
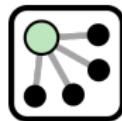


## Geometries

### Multipolygon

- basically a polygon with polygons inside
- role inner and outer

landuse=farmland



(1) Microsoft©BingTM Maps Platform; (2) Microsoft©BingTM Maps Platform inside JOSM editor



# Tags

- free tagging system
- unlimited amount of tags
- consider conventions (s. wiki)

format	notation	example
normal	key=value	highway=service
multiple values	key=v1;v2	amenity=library;cafe
namespace	key:namespace=value	addr:housenumber=42

# Trace aerial imagery



(1) Microsoft©BingTM Maps Platform from JOSM editor

Go outside

## Surveying

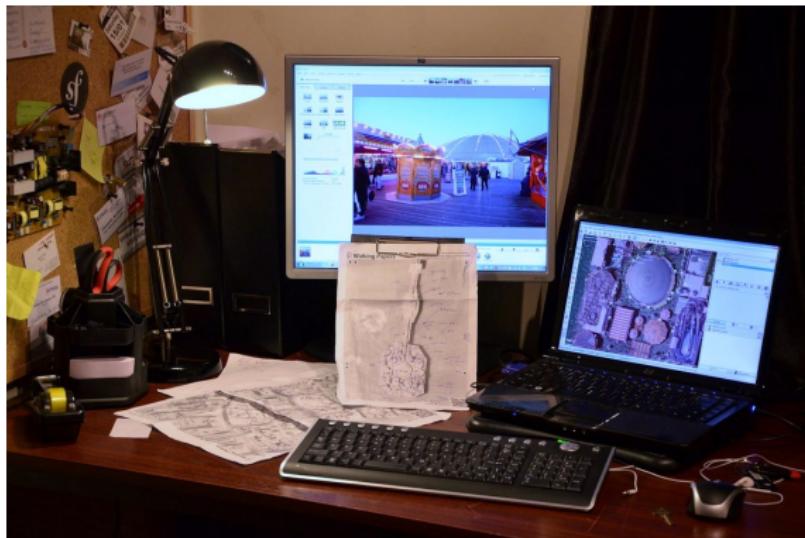


(1)

(1) [https://en.wikipedia.org/wiki/File:Motion\\_X\\_GPS\\_and\\_OSM.jpg](https://en.wikipedia.org/wiki/File:Motion_X_GPS_and_OSM.jpg), 2019-05-25

## Go outside

## Mapping

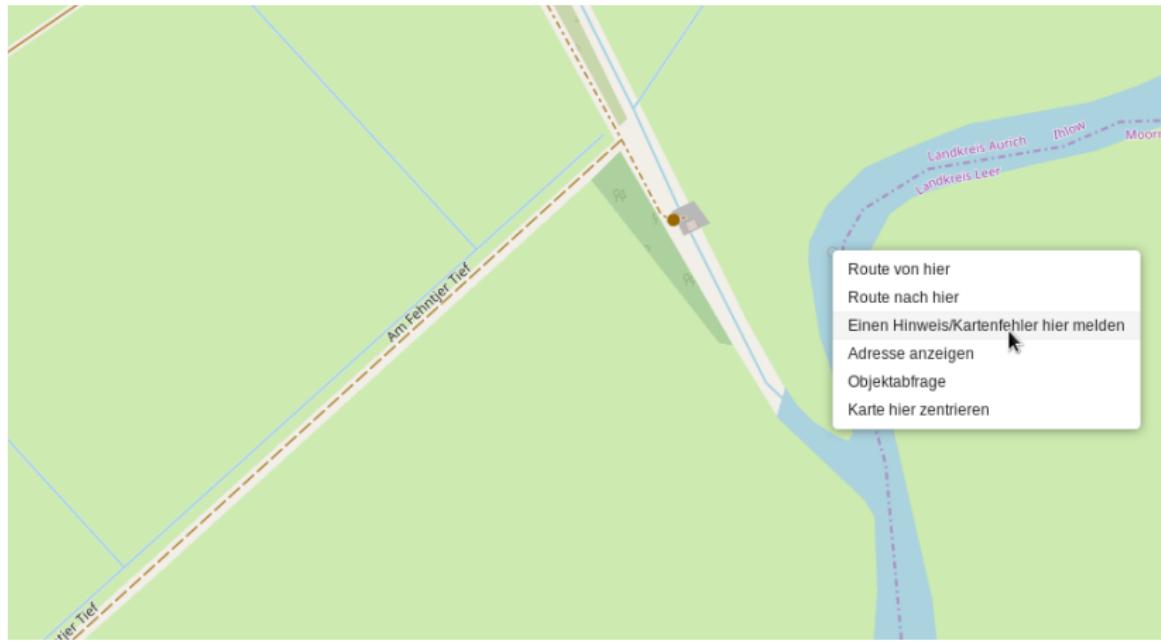


(1)

(1) [https://en.wikipedia.org/wiki/File:Adding\\_data\\_to\\_OSM\\_after\\_mapping\\_Brighton\\_Pier.jpg](https://en.wikipedia.org/wiki/File:Adding_data_to_OSM_after_mapping_Brighton_Pier.jpg).

2019-05-25

# Report errors



# Report errors

## Unerledigter Kartenfehler Nr. 1610297 ×

### Beschreibung

Pumpwerk im fahrwasser?

Erstellt von Anonym vor 6 Monate

Dieser Hinweis enthält Kommentare von anonymen Benutzern, die unabhängig geprüft werden sollten.

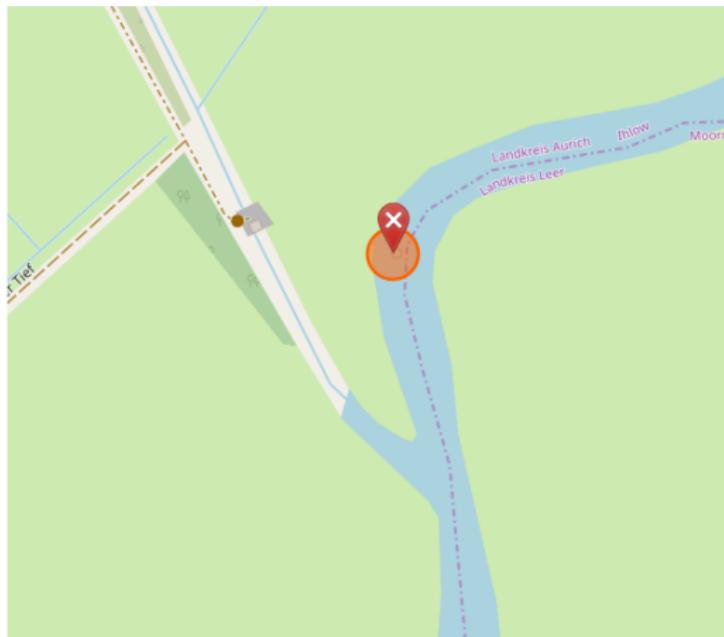
Diesen Hinweis melden

Kommentar von hauke-stieler vor 11 Tage

Kommt mir auch seltsam vor. Für mich sieht das nach Fehler aus und kann meinewegen gelöscht werden. Vielleicht war das eigentliche Pumpwerk daneben gemeint?

Erledigt

Kommentar



# Report errors



# Report errors

## Unerledigter Kartenfehler Nr. 1770846 ×

### Beschreibung

Diese Schule hat den Standort gewechselt, dieses Gebäude gehört zum Friedrich-Ebert Gymnasium

Erstellt von Anonym vor 17 Tage

Dieser Hinweis enthält Kommentare von anonymen Benutzern, die unabhängig geprüft werden sollten.

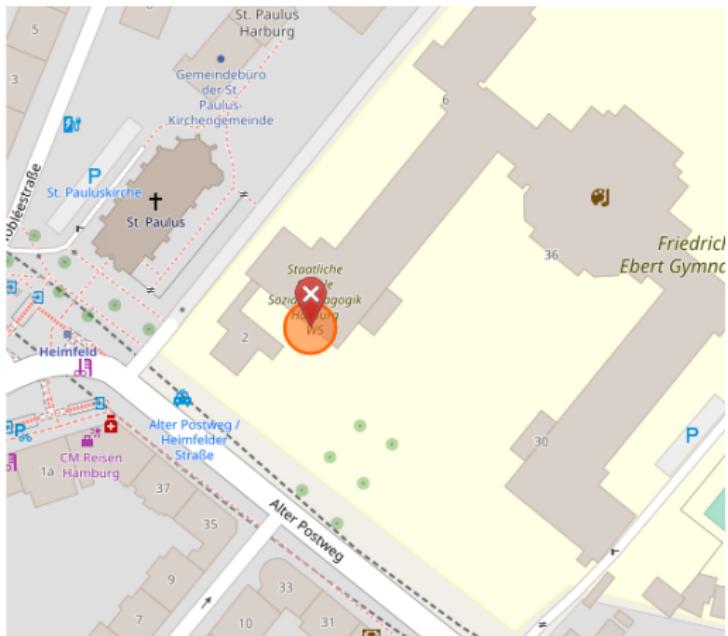
[Diesen Hinweis melden](#)

Kommentar von [ma-rt-in](#) vor 4 Tage

Weißt du auch wohin die sind?

[Erledigt](#)

[Kommentar](#)



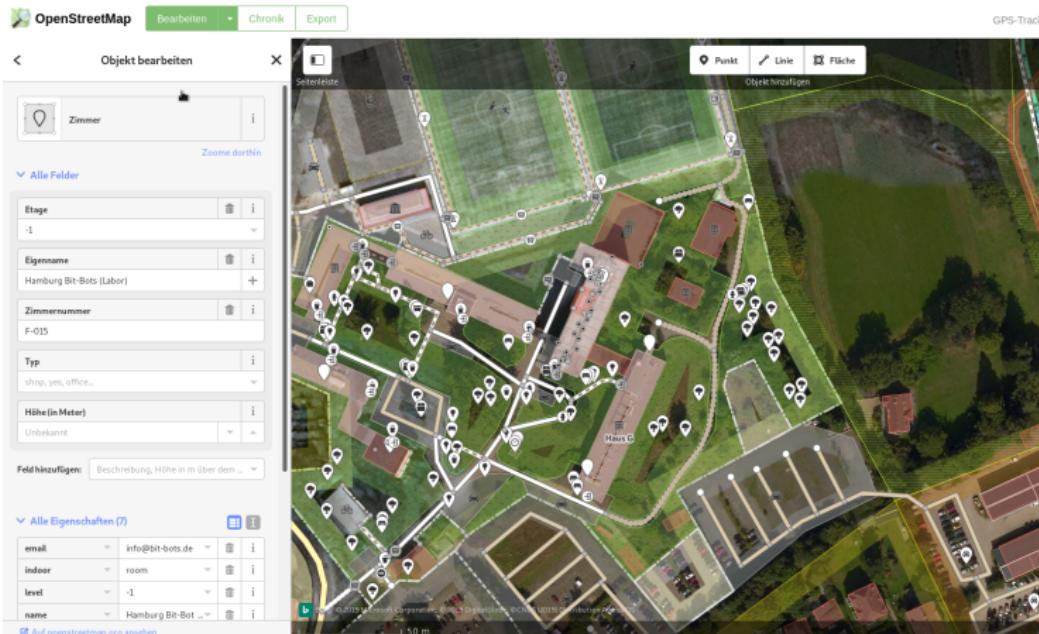
# Socialize



(1)

(1) [https://wiki.openstreetmap.org/wiki/File:20110407\\_osm\\_stammtisch\\_hl.jpg](https://wiki.openstreetmap.org/wiki/File:20110407_osm_stammtisch_hl.jpg), 2019-05-25

## iD



<https://www.openstreetmap.org/edit>

## JOSM

