

# 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

## 7 Hands-On

... you want to use a map

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

... constantly changing areas

### **Example:**

(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

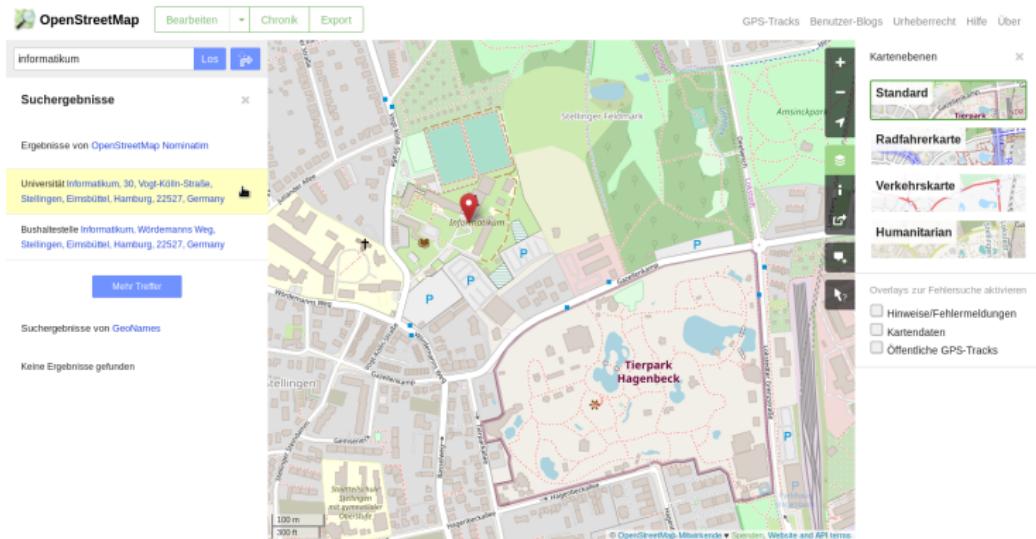
... there's a free map

And yes, it exists:

**OpenStreetMap**

(short: OSM)

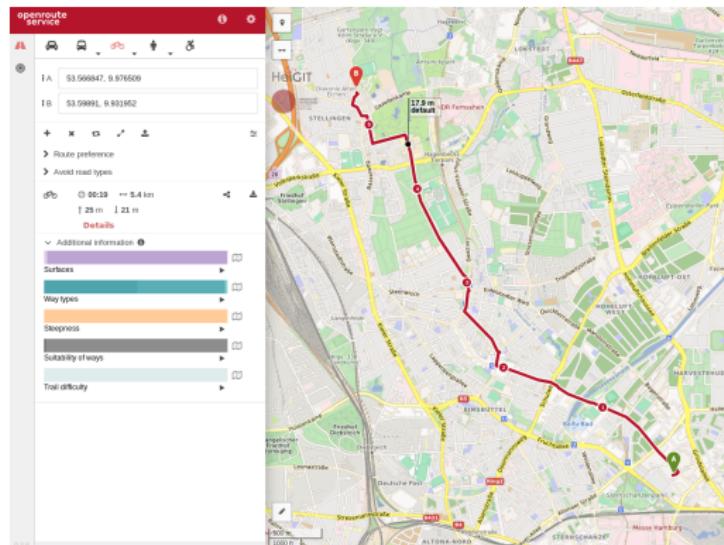
# OpenStreetMap website



<https://osm.org>



# OpenRouteService



<https://maps.openrouteservice.org>



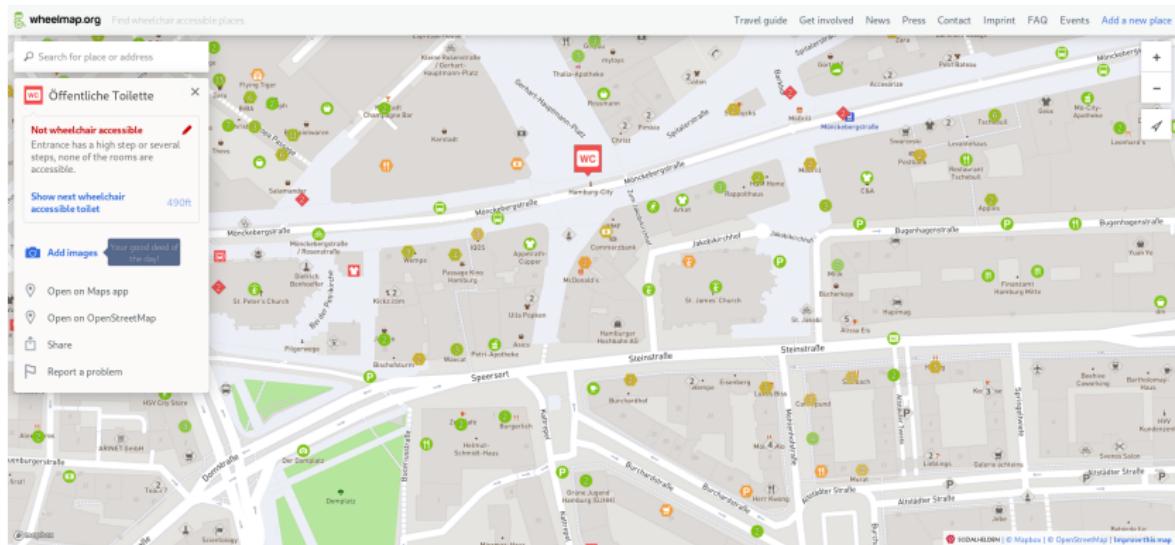
## OpenTopoMap website



<https://opentopomap.org>

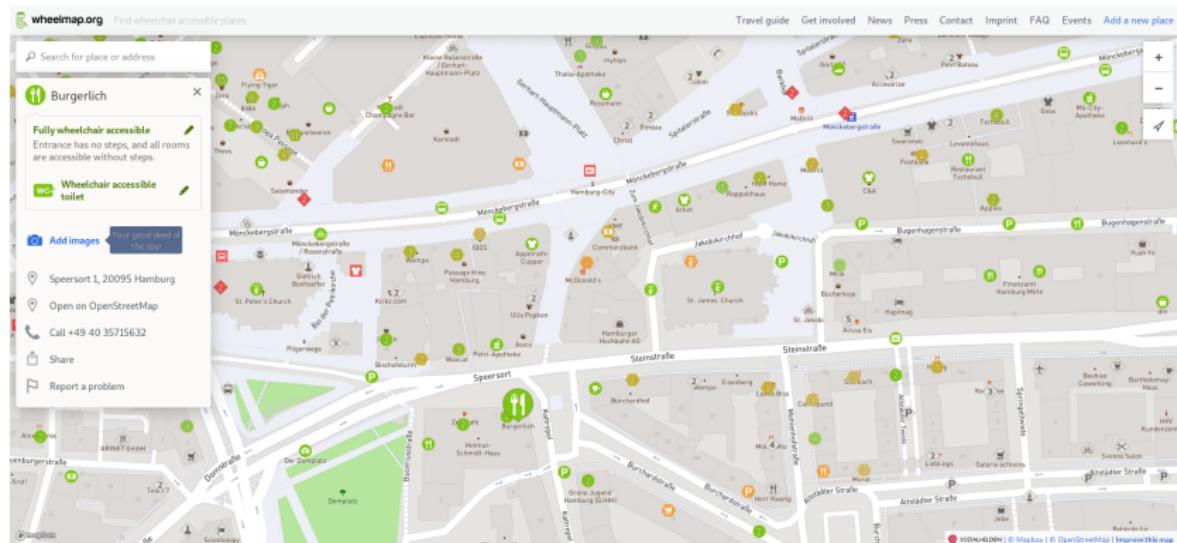


# Wheelmap



<https://wheelmap.org>

# Wheelmap



<https://wheelmap.org>

# OpenStreetMap Wiki

<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

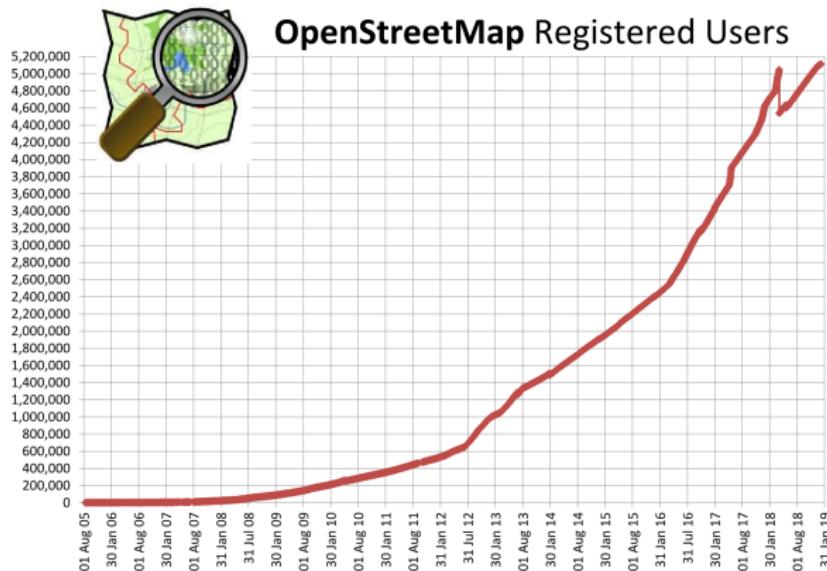
## Why has OpenStreetMap been created?

- 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

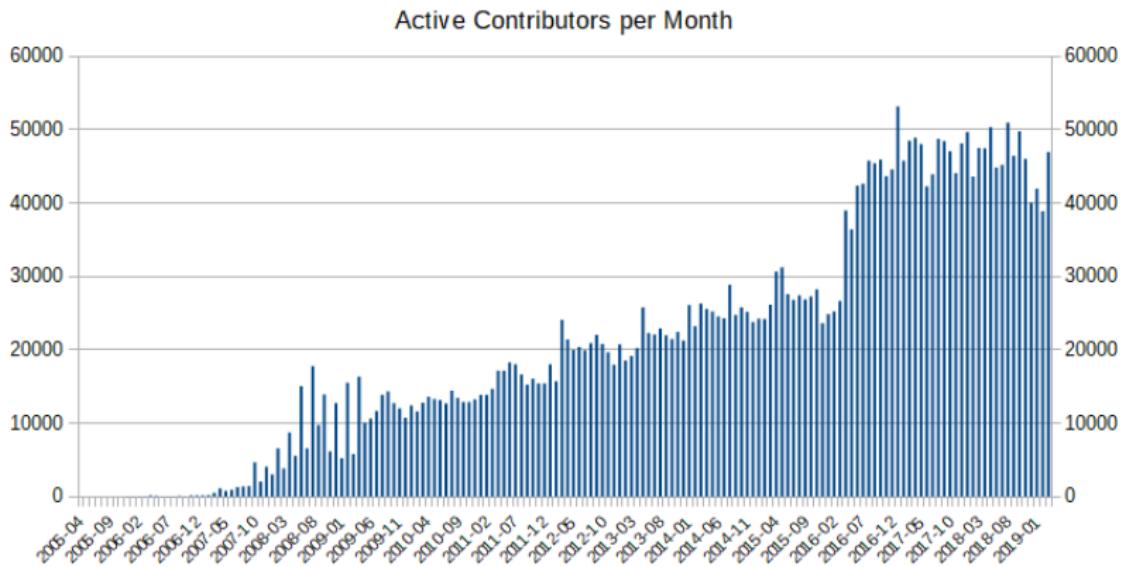
- 2004 – OSM founded
- 2006 – release JOSM-Editor
- 2006 – first map rendered with Mapnik
- 2007 – TIGER data import USA started
- 2008 – TIGER data import USA finished
- 2009 – API 0.6 (still latest version)
- 2009 – cooperation with Wikipedia
- 2010 – Bing Imagery allowed usage for OSM
- 2013 – 1 mio.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

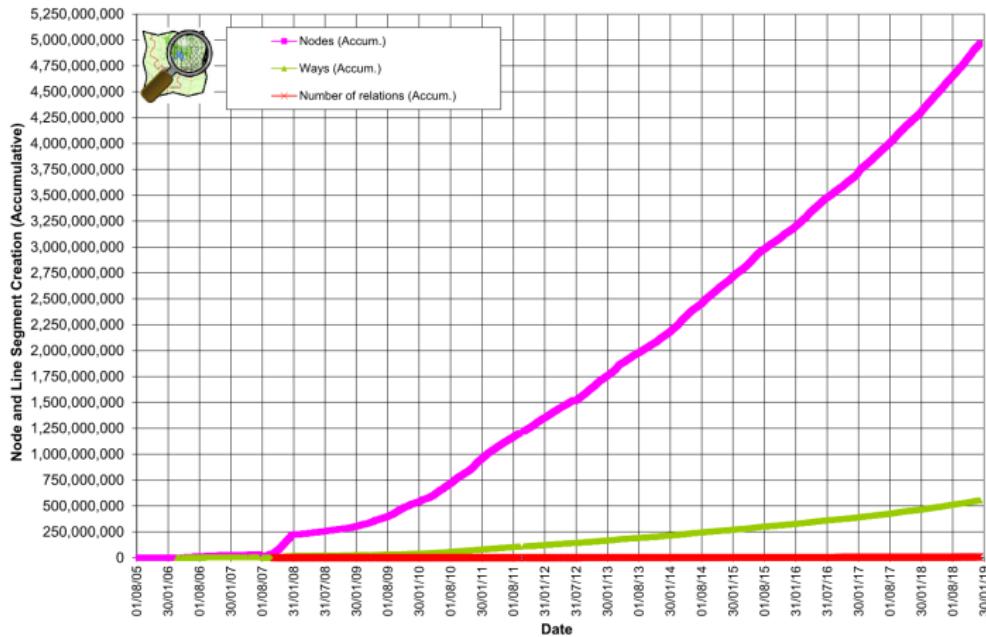
# Statistics



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

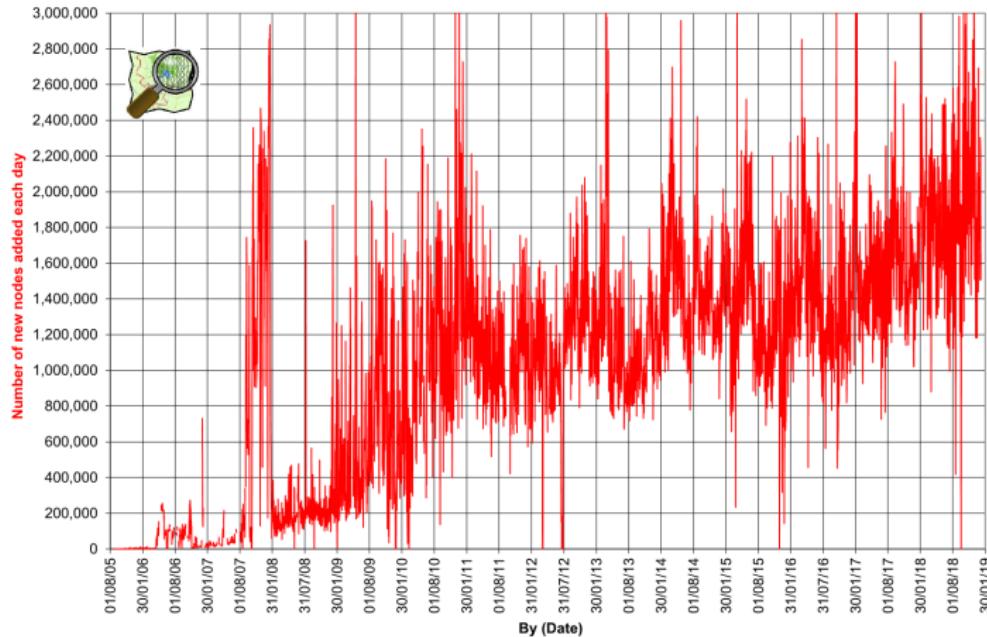
# Statistics

OpenStreetMap Database Statistics  
Node, Way and Relation Creation



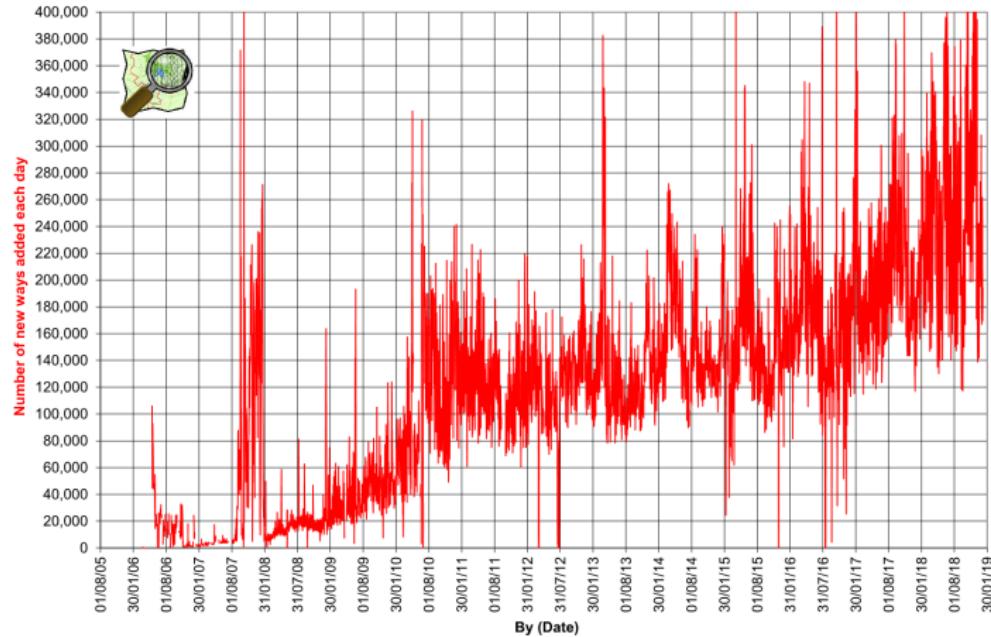
# Statistics

**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

# Geometries

## ■ Socialize

## 6 Editors

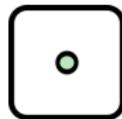
- iD
- JOSM

## 7 Hands-On

# Geometries

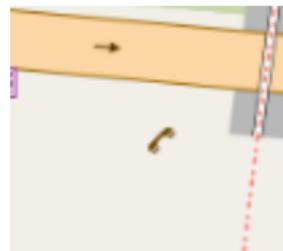
## Node

- 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



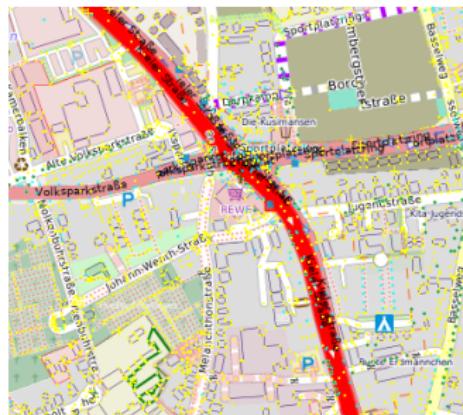
(1)

(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

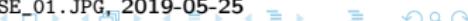
`landuse=forest`  
`leaf_type=broadleaved`



(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)



(2)

(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

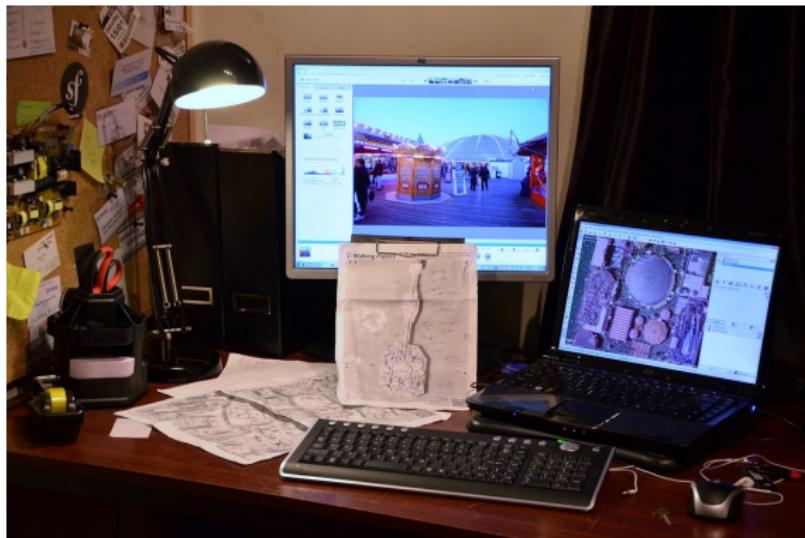


(1)

(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

## Go outside

### Mapping (before)

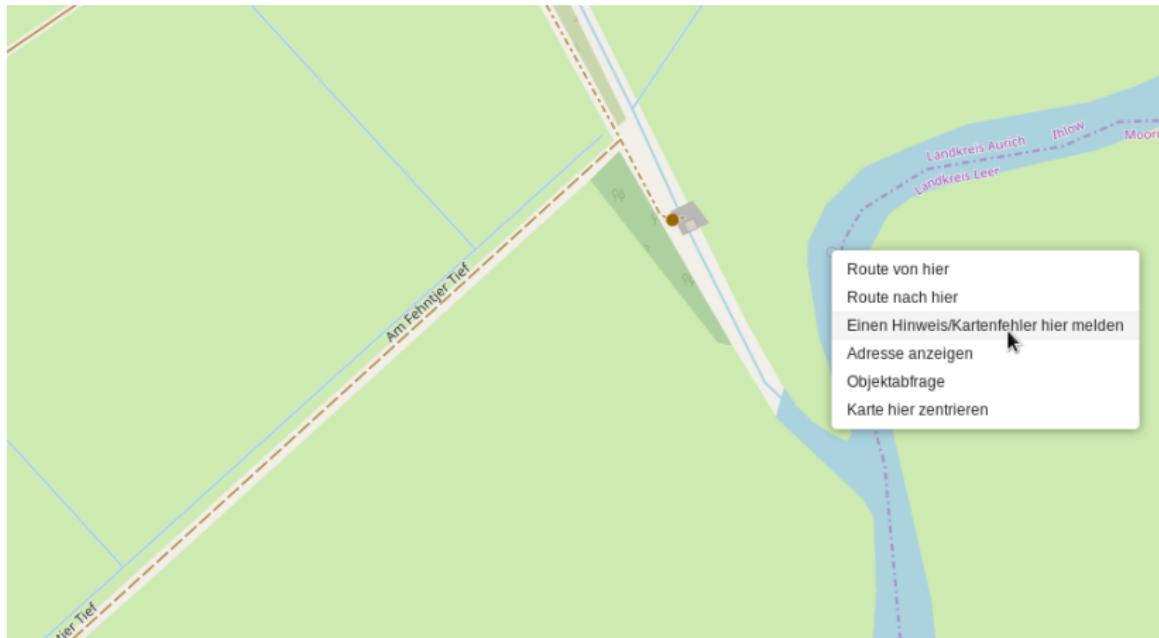


## Go outside

## Mapping (after)



# Report errors



# Report errors

## Unerledigter Kartenfehler Nr. 1610297 ×

### Beschreibung

Pumpwerk im fahrrwasser?

Erstellt von Anonym vor 6 Monate

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

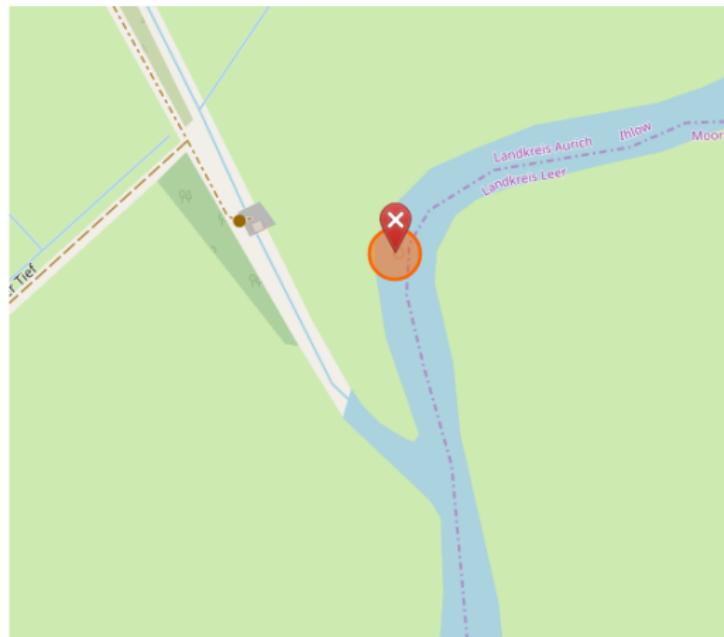
Diesen Hinweis melden

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.

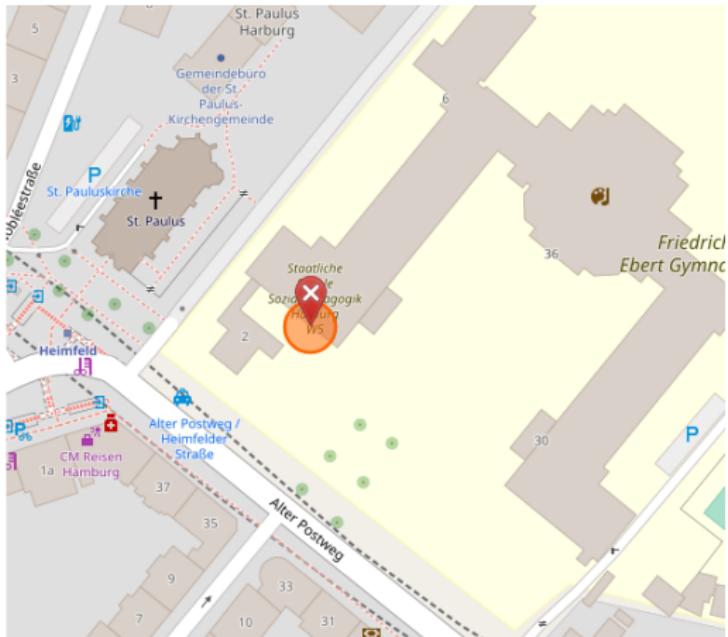
[Diesen Hinweis melden](#)

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

Weißt du auch wohin die sind?

[Erledigt](#)

[Kommentar](#)

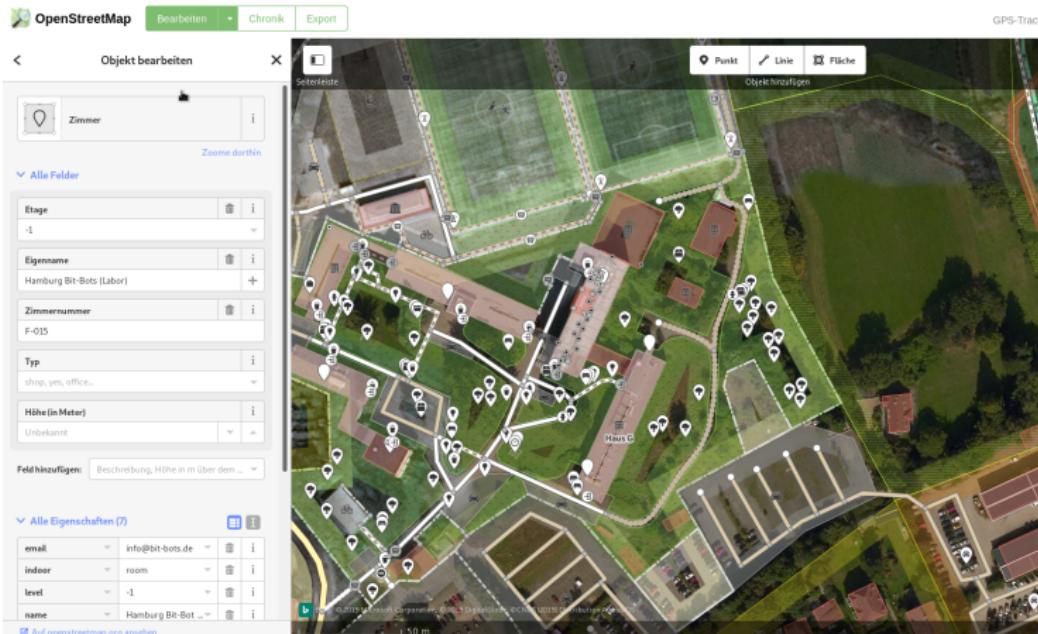


# Socialize



(1)

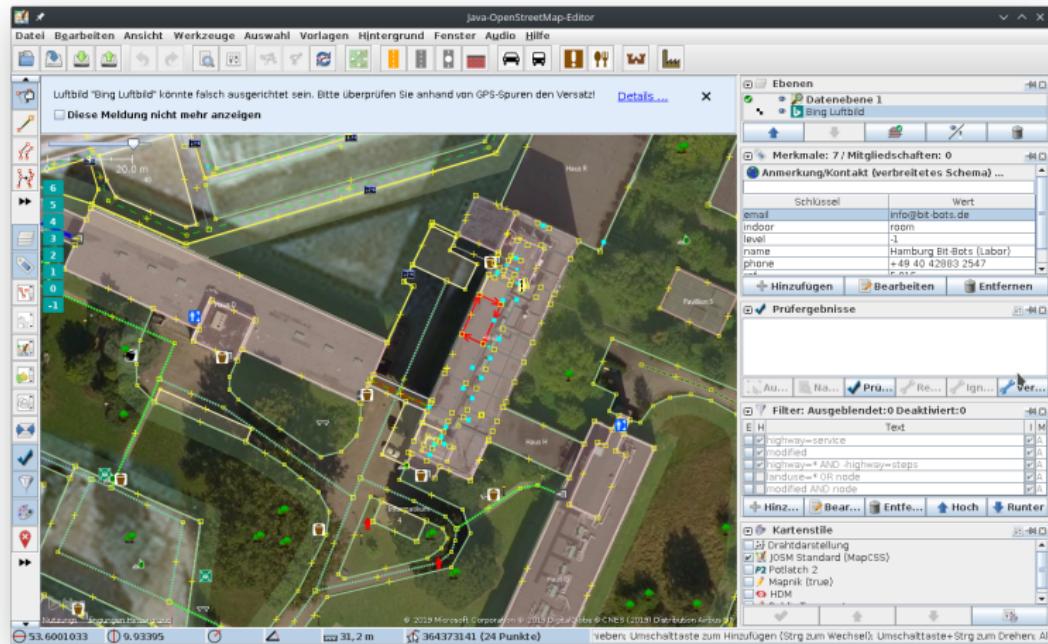
(1) [https://wiki.openstreetmap.org/wiki/File:20110407\\_osm\\_stammtisch\\_hl.jpg](https://wiki.openstreetmap.org/wiki/File:20110407_osm_stammtisch_hl.jpg), 2019-05-25

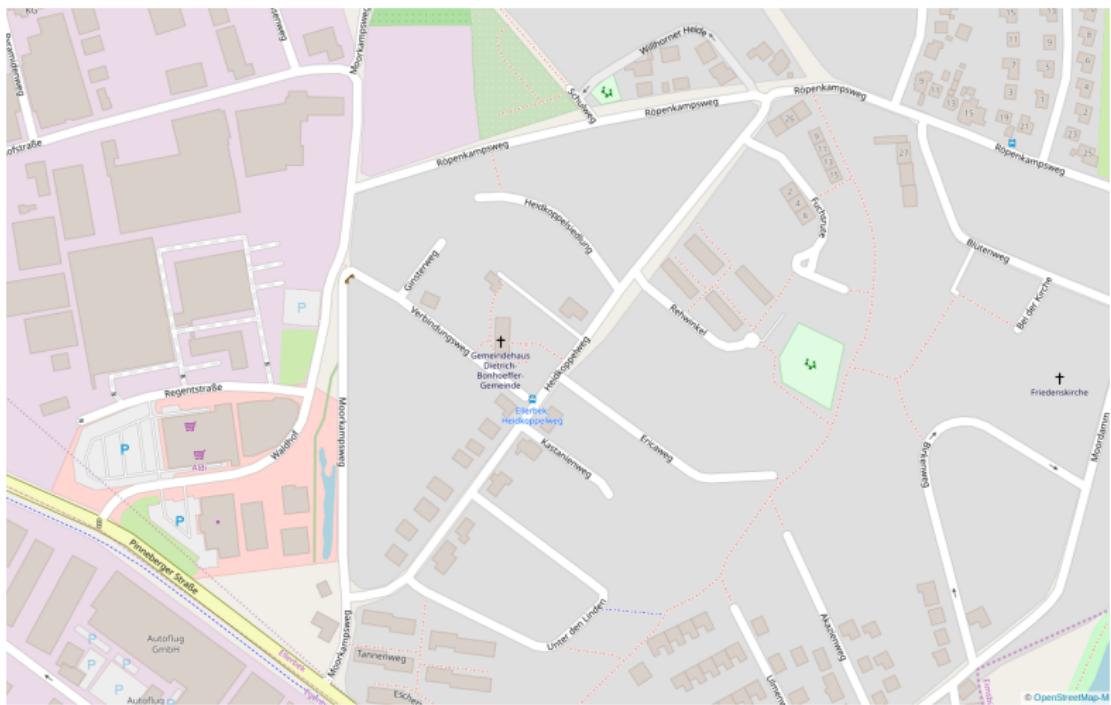


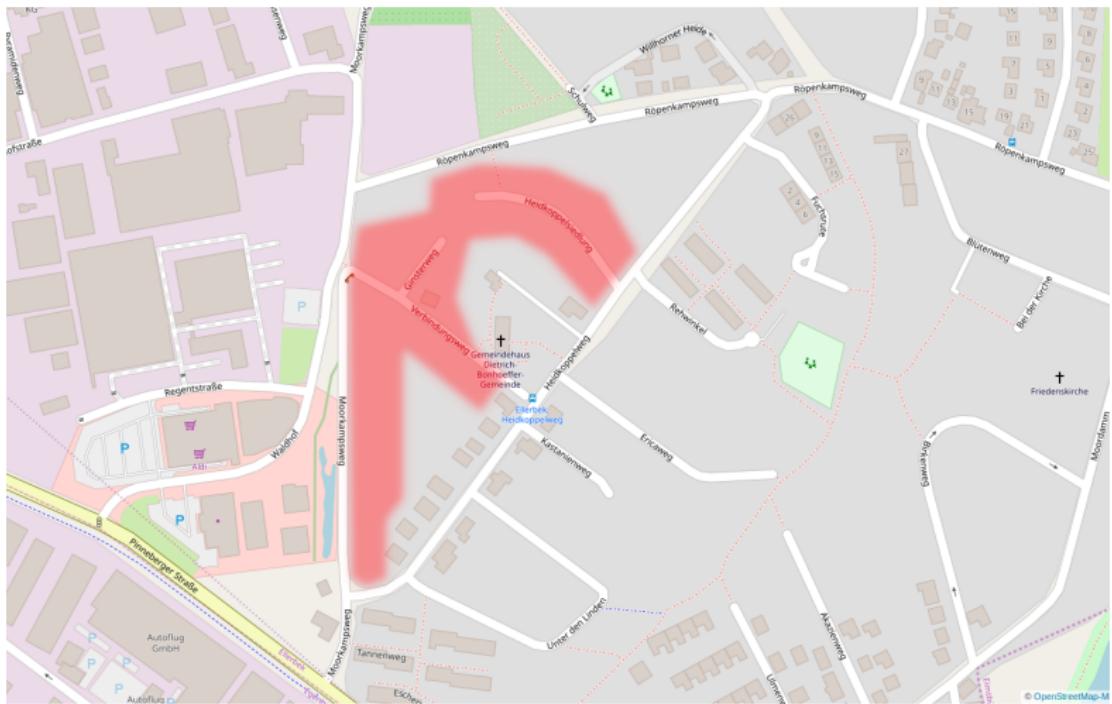
<https://www.openstreetmap.org/edit>



# JOSM







## Get ready

1. Create an OSM-Account
2. Possibly install JOSM

3. Download collected data

<https://hauke-stieler.de/kbs/Ellerbek.zip>

4. If in JOSM: Download OSM data

File → Download data → choose rectangle → download data

5. Open GPX-File

## Good practices

- Do correct errors
- Map what's on the ground
- Data should be verifiable
- Don't map for renderers and routers
- Use good comments and source information

## Workflow for today

1. draw outline of one building
2. add appropriate tags
  - ▶ building
  - ▶ address
  - ▶ use the wiki<sup>2</sup> for information
3. ask for a review
4. upload data

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<sup>2</sup>[wiki.openstreetmap.org](http://wiki.openstreetmap.org)