

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

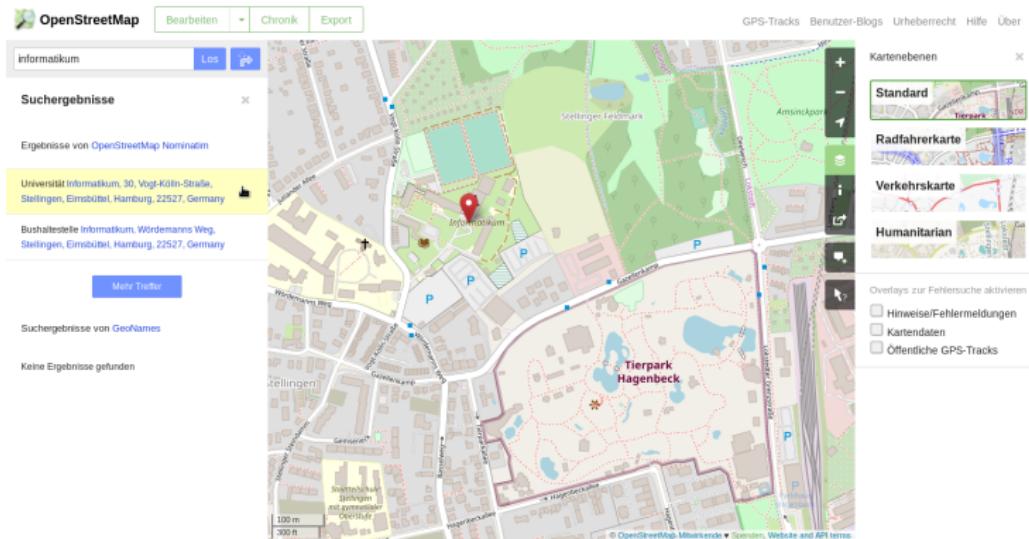
... there's a free map

And yes, it exists:

OpenStreetMap

(short: OSM)

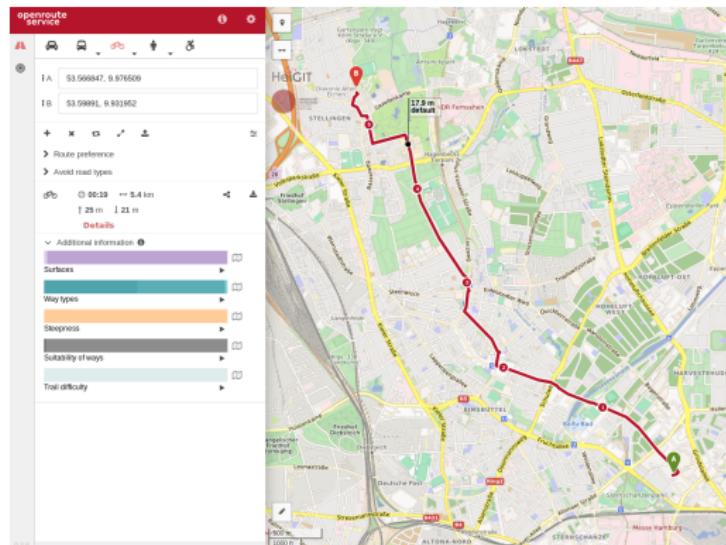
OpenStreetMap website



<https://osm.org>



OpenRouteService



<https://maps.openrouteservice.org>

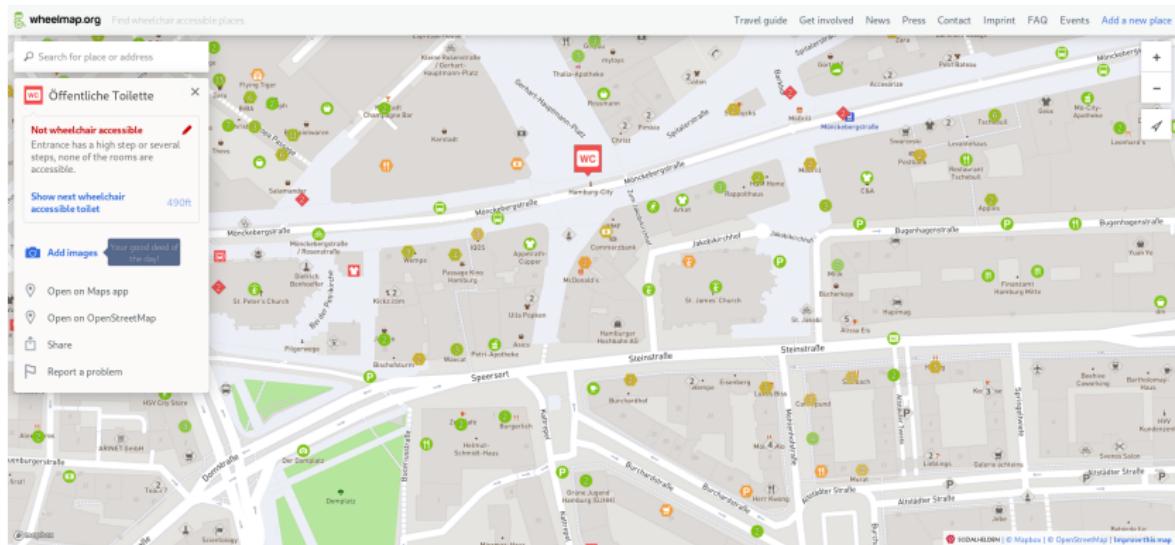
OpenTopoMap website



<https://opentopomap.org>

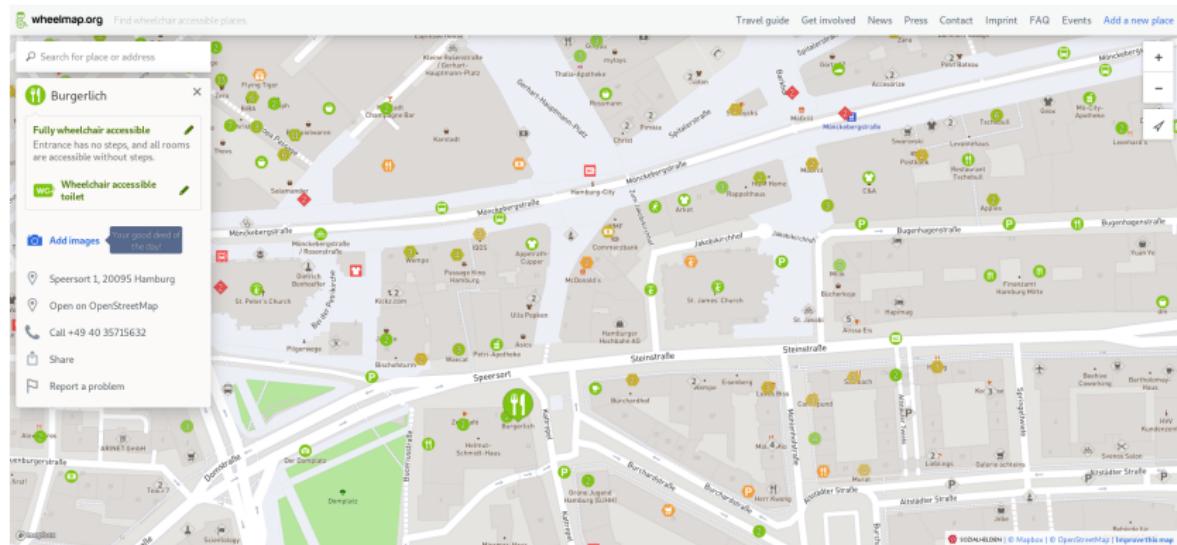


Wheelmap



<https://wheelmap.org>

Wheelmap



<https://wheelmap.org>

OpenStreetMap Wiki

<https://wiki.osm.org>

What is OpenStreetMap?

- free¹ project collecting **free accessible** geodata
- open database for geodata
- ODC-ODbL
 - ▶ OpenDataCommons Open Database License
 - ▶ Ersetzt CC BY-SA 2.0 (share alike & attribution)

¹free as in freedom

Motivation

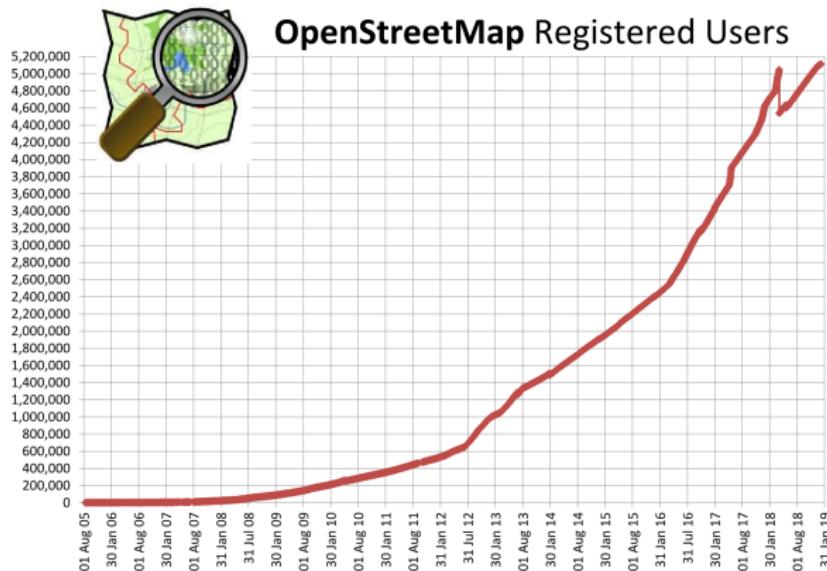
Why has OpenStreetMap been created?

- 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

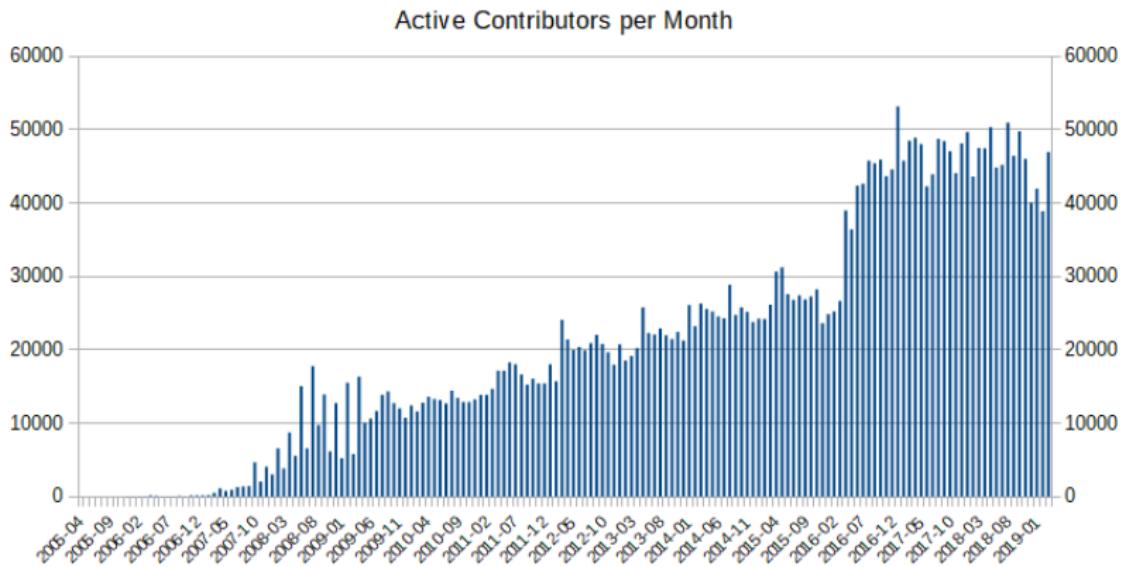
- 2004 – OSM founded
- 2006 – release JOSM-Editor
- 2006 – first map rendered with Mapnik
- 2007 – TIGER data import USA started
- 2008 – TIGER data import USA finished
- 2009 – API 0.6 (still latest version)
- 2009 – cooperation with Wikipedia
- 2010 – Bing Imagery allowed usage for OSM
- 2013 – 1 mio.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

Statistics



https://wiki.openstreetmap.org/wiki/File:Osmdbsstats1_users.png, 2019-05-25

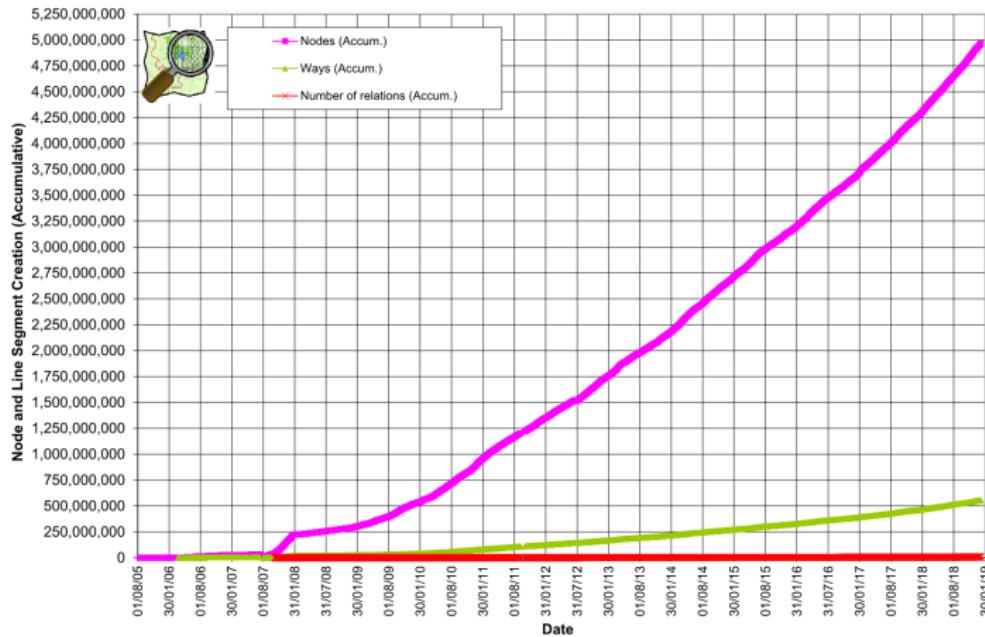
Statistics



https://wiki.openstreetmap.org/wiki/File:Active_contributors_month.png, 2019-05-25

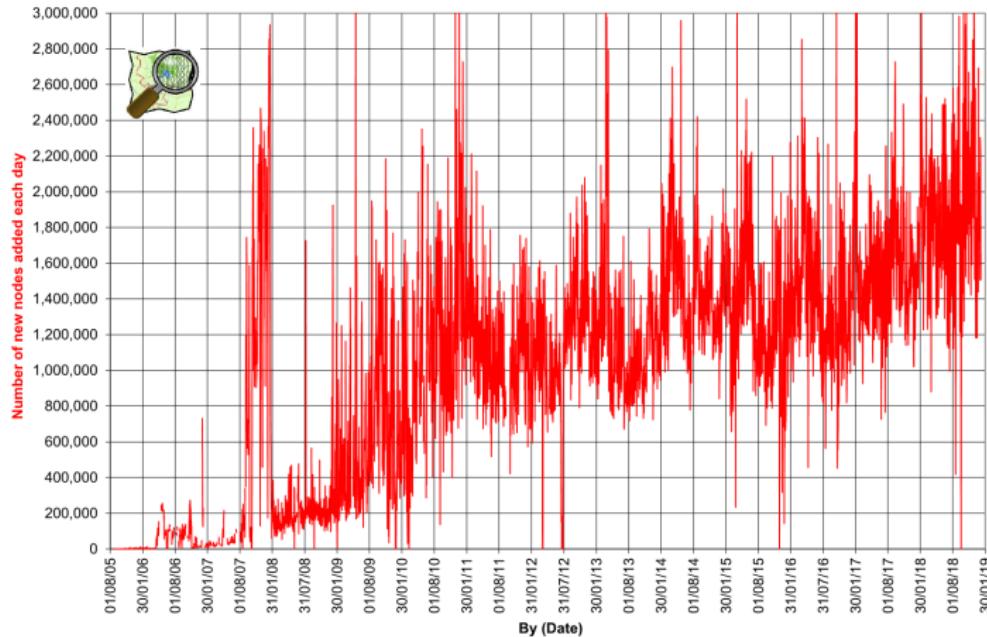
Statistics

OpenStreetMap Database Statistics
Node, Way and Relation Creation



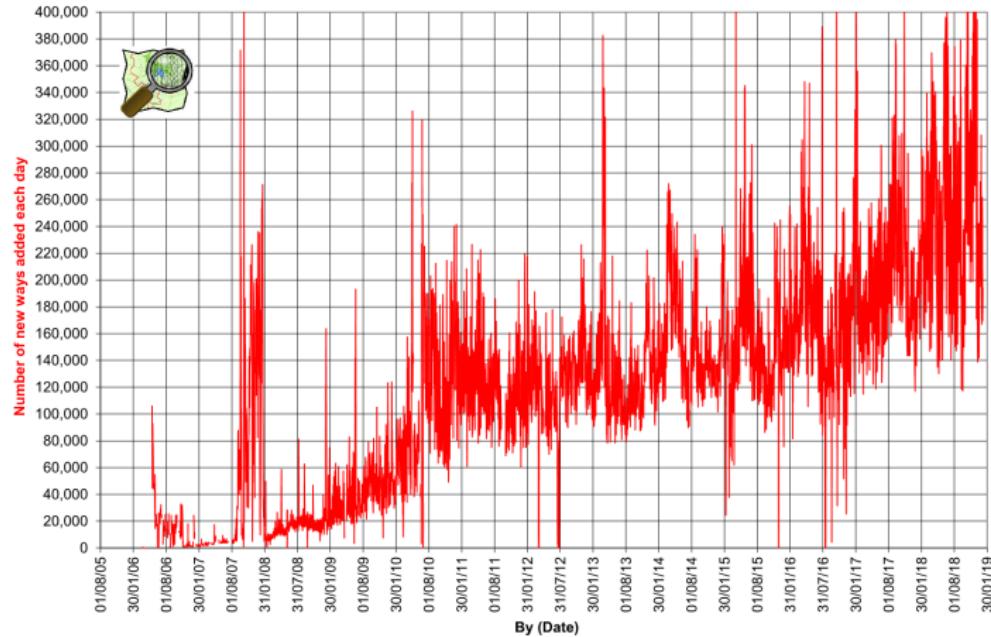
Statistics

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

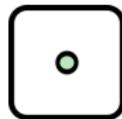
- iD
- JOSM

7 Hands-On

Geometries

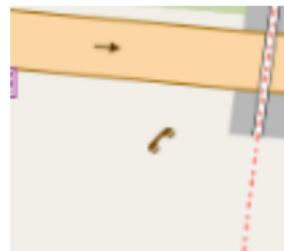
Node

- single location on map



(1)

amenity=telephone
covered=booth



(1) https://wiki.openstreetmap.org/wiki/File:Red_telephone_box_-_geograph.org.uk_-_919348.jpg,

2019-05-25

Geometries

Way

- line on map
- 2-2000 points per way



highway=secondary



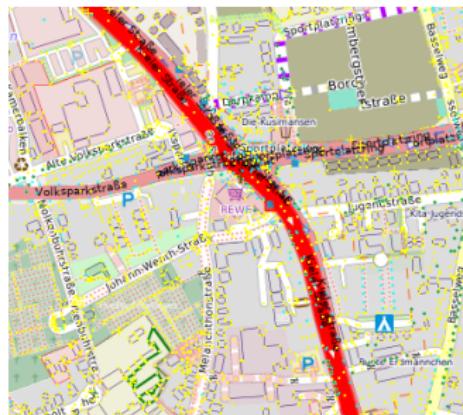
(1)

(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

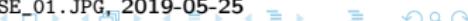
`landuse=forest`
`leaf_type=broadleaved`



(1)



(1) https://commons.wikimedia.org/wiki/File:Stellinger_Feldmark_ESE_01.JPG 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

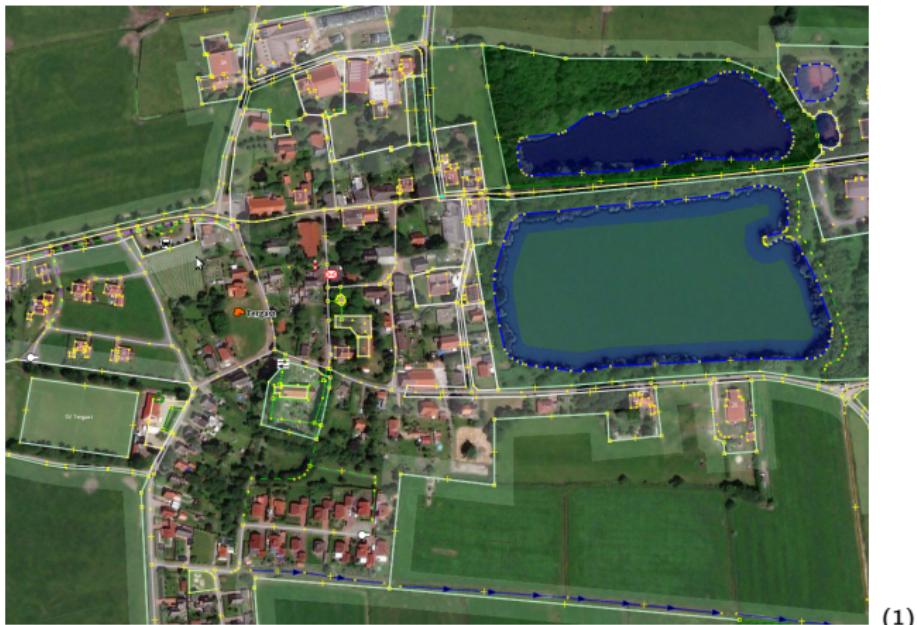


Tags

- 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

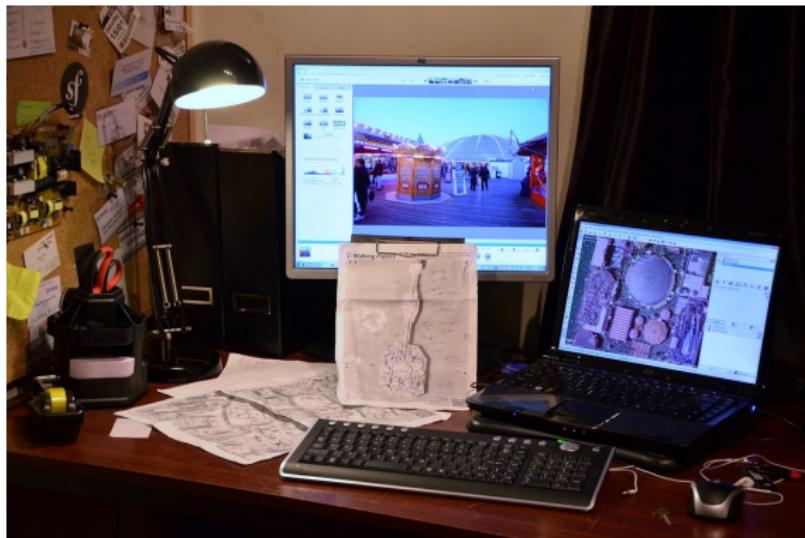


(1)

(1) https://en.wikipedia.org/wiki/File:Motion_X_GPS_and_OSM.jpg, 2019-05-25

Go outside

Mapping



(1)

(1) https://en.wikipedia.org/wiki/File:Adding_data_to_OSM_after_mapping_Brighton_Pier.jpg.

2019-05-25

Go outside

Mapping (before)

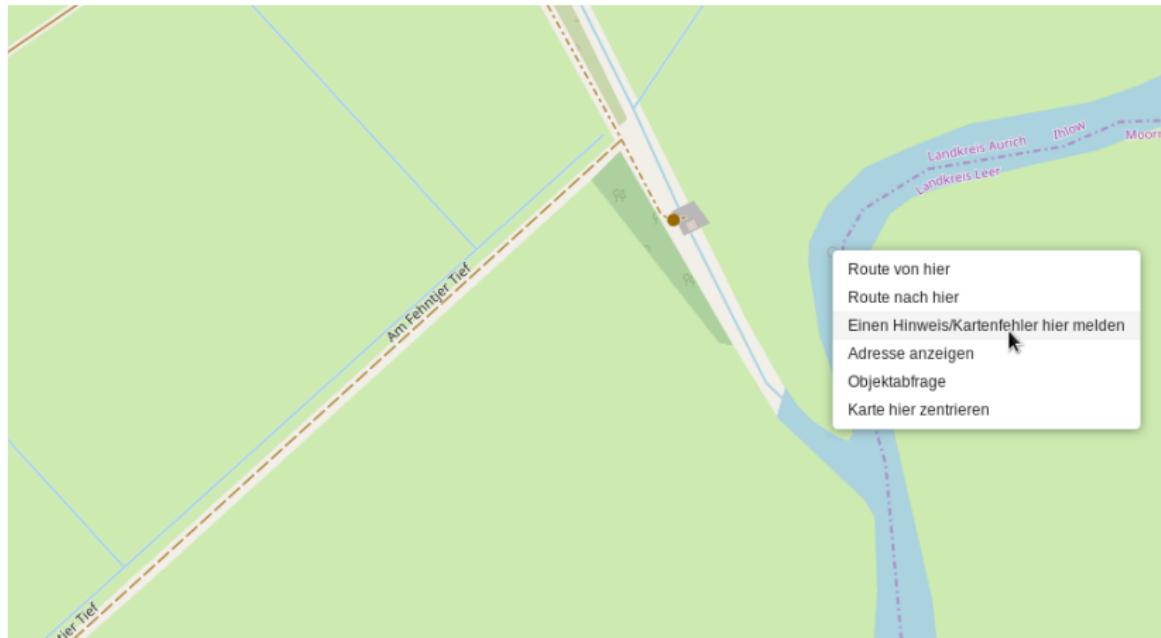


Go outside

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.

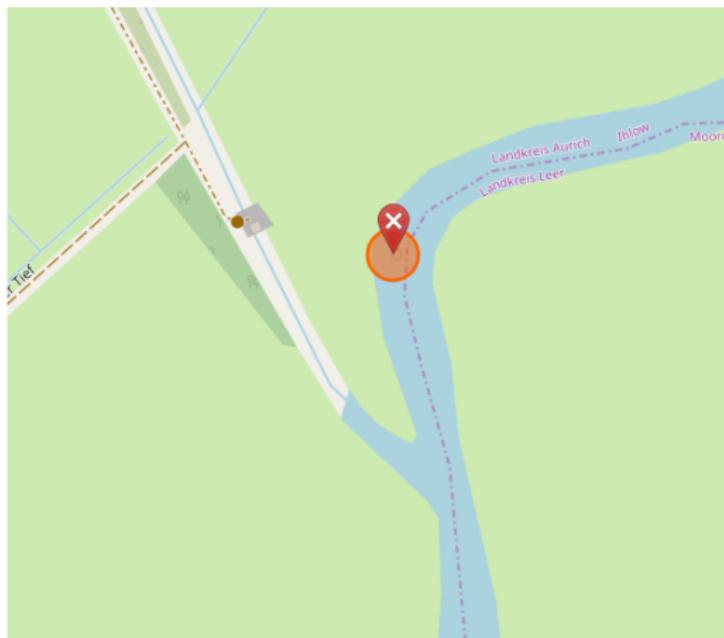
Diesen Hinweis melden

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.

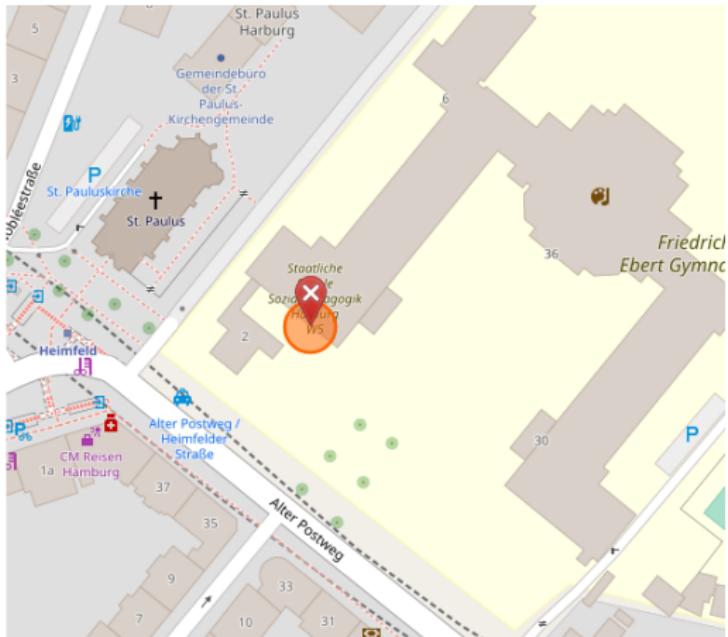
[Diesen Hinweis melden](#)

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

Weißt du auch wohin die sind?

[Erledigt](#)

[Kommentar](#)

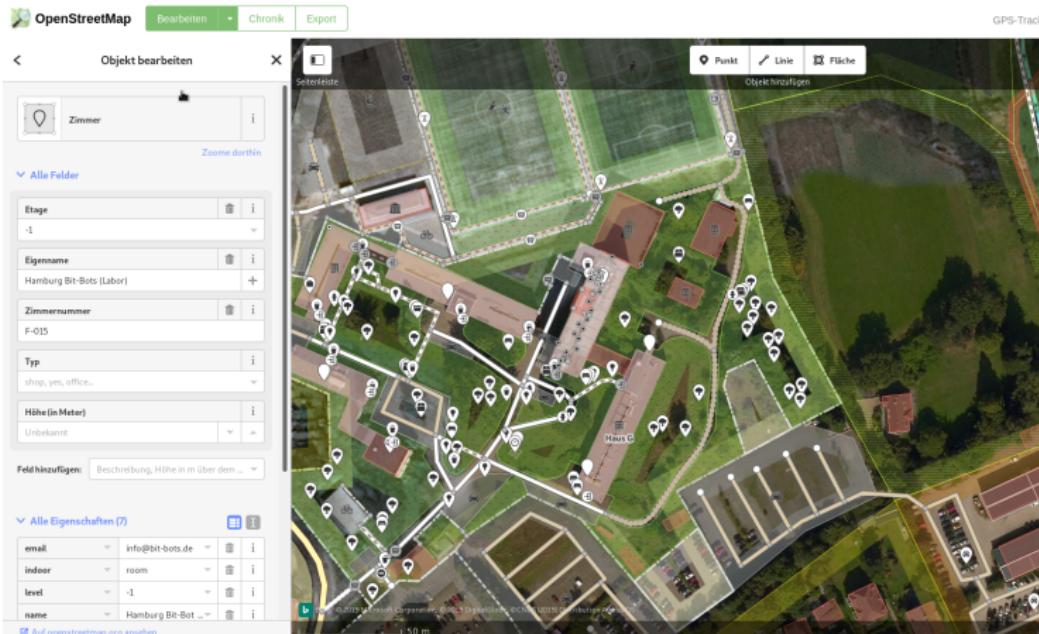


Socialize



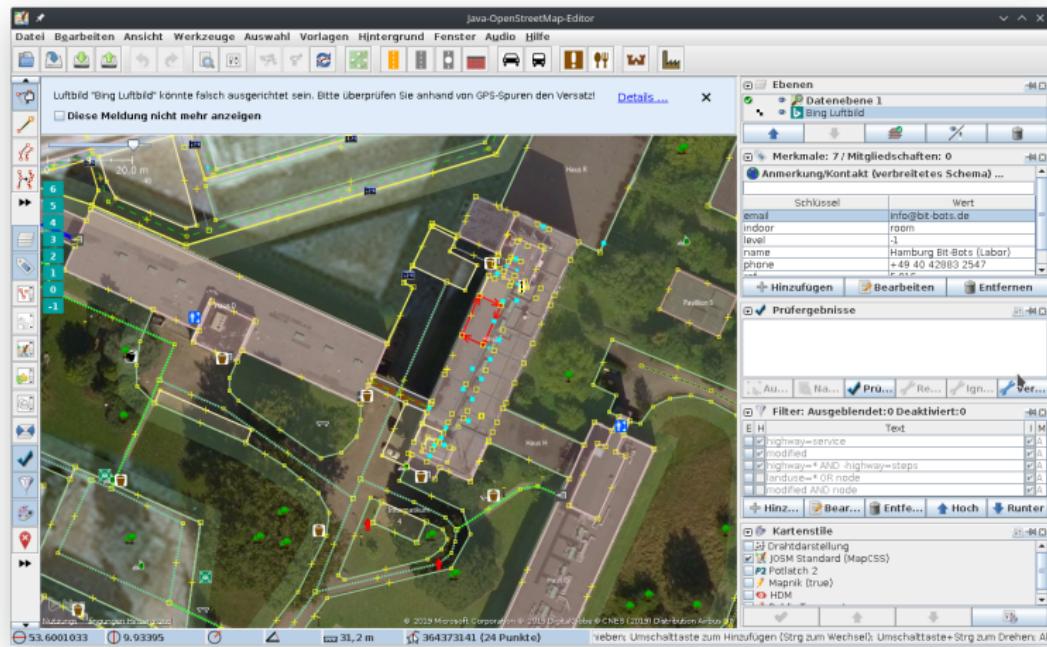
(1)

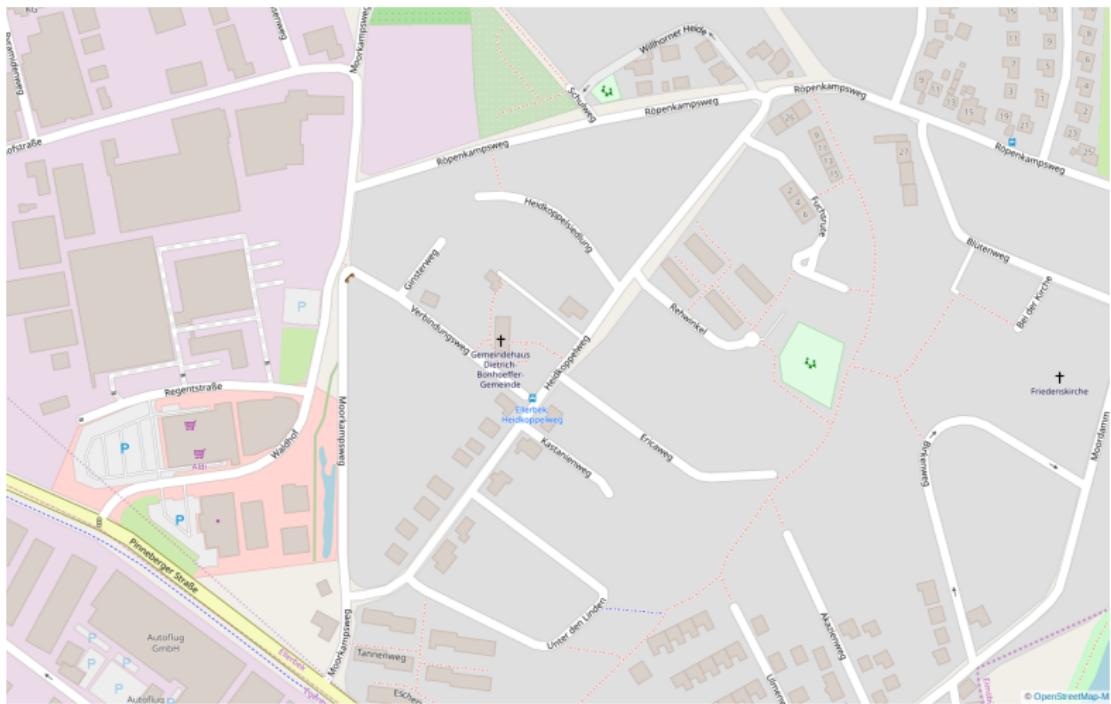
(1) https://wiki.openstreetmap.org/wiki/File:20110407_osm_stammtisch_hl.jpg, 2019-05-25

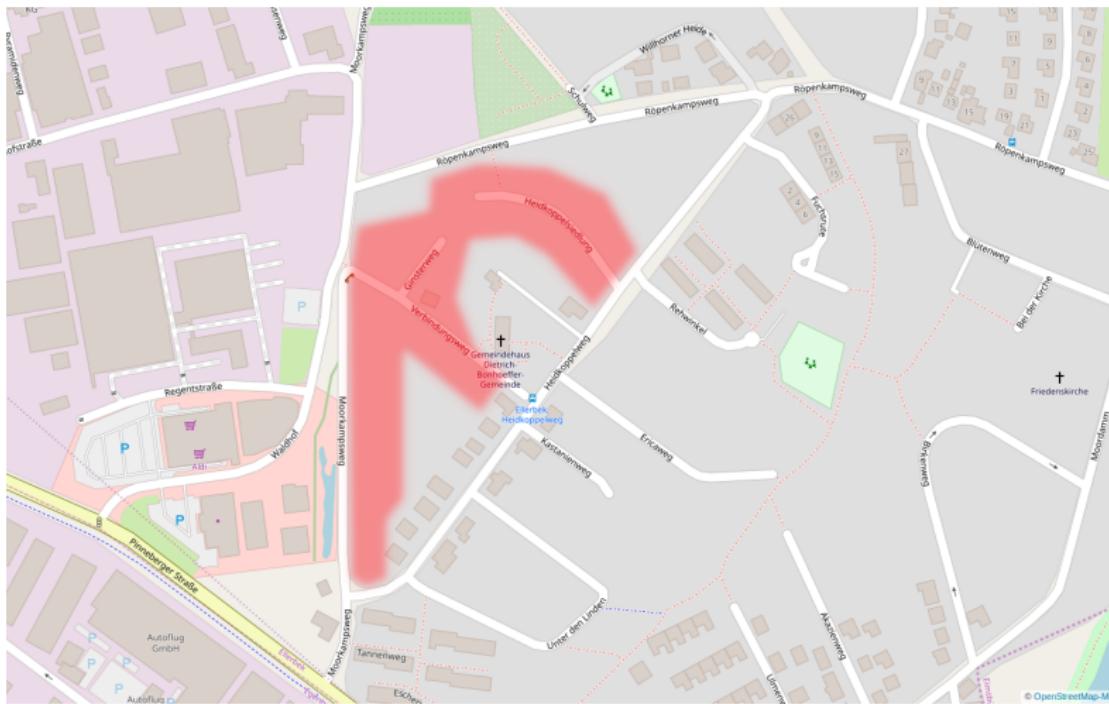


<https://www.openstreetmap.org/edit>

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 wiki² for information
3. ask for a review
4. upload data

²wiki.openstreetmap.org