

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:
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

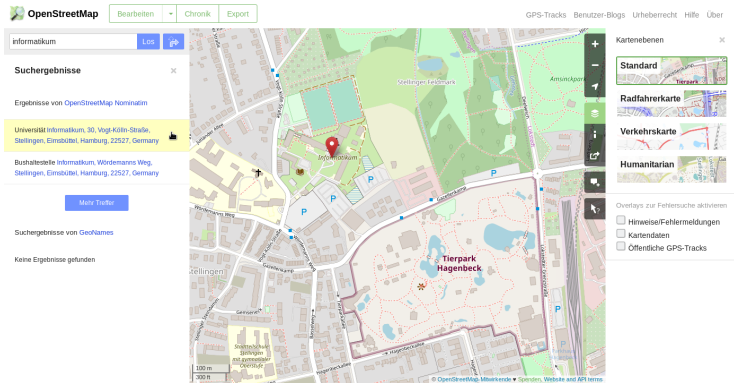
... there's a free map

And yes, it exists:

OpenStreetMap

(short: OSM)

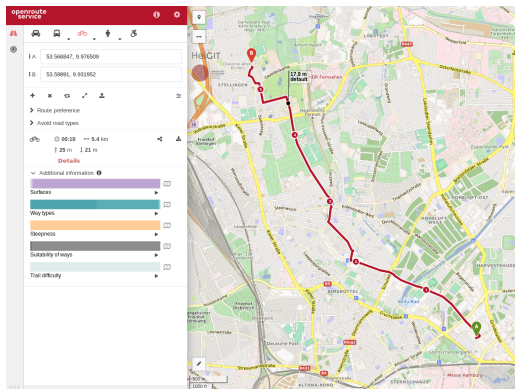
OpenStreetMap website



<https://osm.org>



OpenRouteService



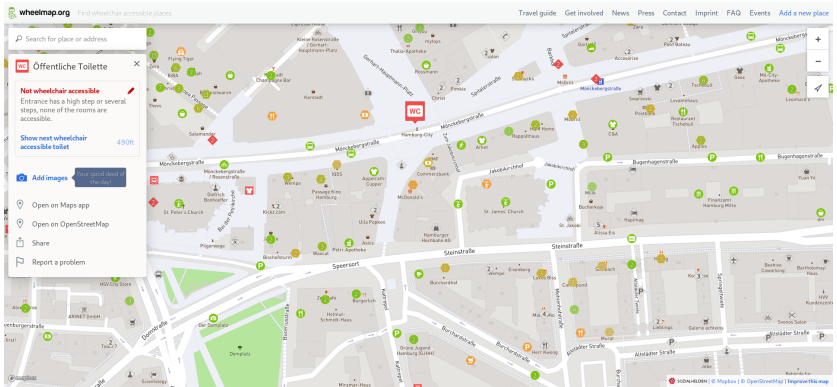
<https://maps.openrouteservice.org>

OpenTopoMap website



<https://opentopomap.org>

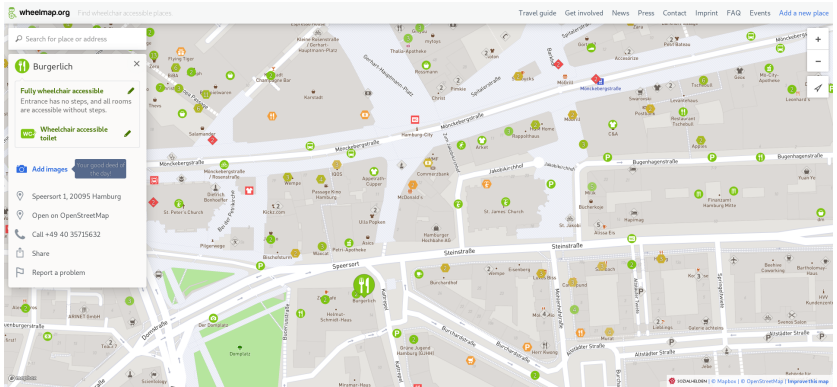
Wheelmap



<https://wheelmap.org>




Wheelmap



<https://wheelmap.org>



OpenStreetMap Wiki



Main Page
The map
Map Features
Contributors
Help
Blogs
Shop
Donations
Recent changes

Tools
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Related changes
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Printable version
Permanent link
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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](#)

<p>Use OpenStreetMap</p>  <p>Using OpenStreetMap</p> <ul style="list-style-type: none"> Browse our world map Check the ready-to-use products for your mobile device, your desktop computer or the web services ...more on using OpenStreetMap 	<p>Contribute free map data</p>  <p>Beginners' Guide</p> <ul style="list-style-type: none"> Browse the map feature documentation Browse the Mapping projects ...more on contributing map data 	<p>Software Development</p>  <p>Develop and use the Platform</p> <ul style="list-style-type: none"> Use OpenStreetMap for your software Contribute to the OpenStreetMap software
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[Image of the week](#) [Event Calendar](#) [Get your first fix](#)

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

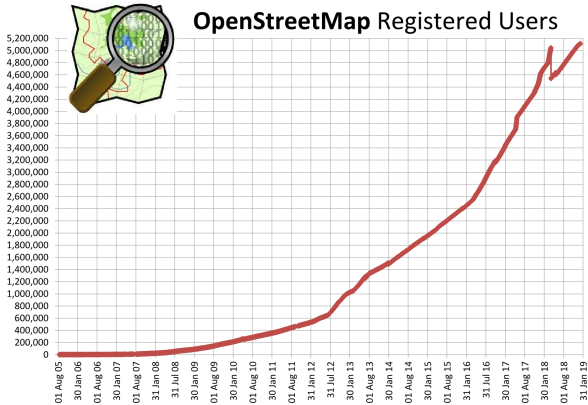
Why has OpenStreetMap been created?

- 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

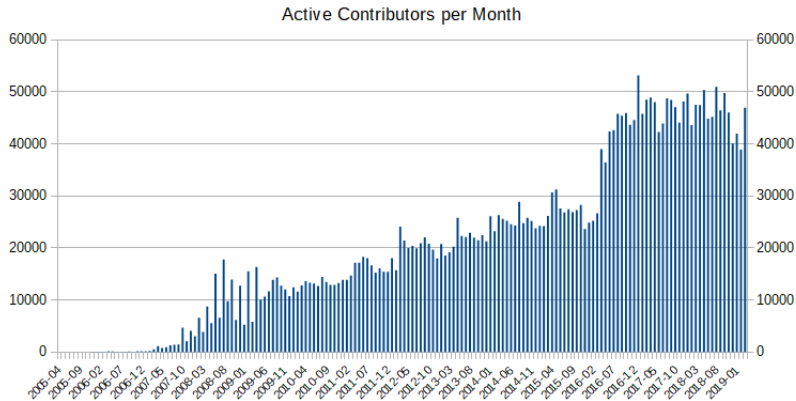
Statistics



https://wiki.openstreetmap.org/wiki/File:Osmdbstats1_users.png, 2019-05-25



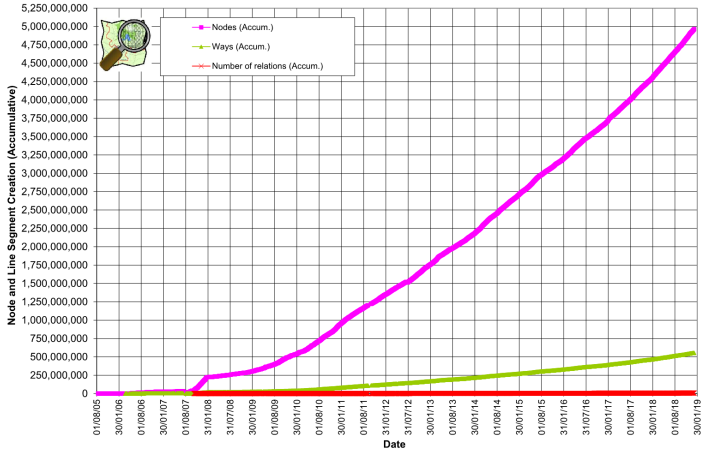
Statistics



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

Statistics

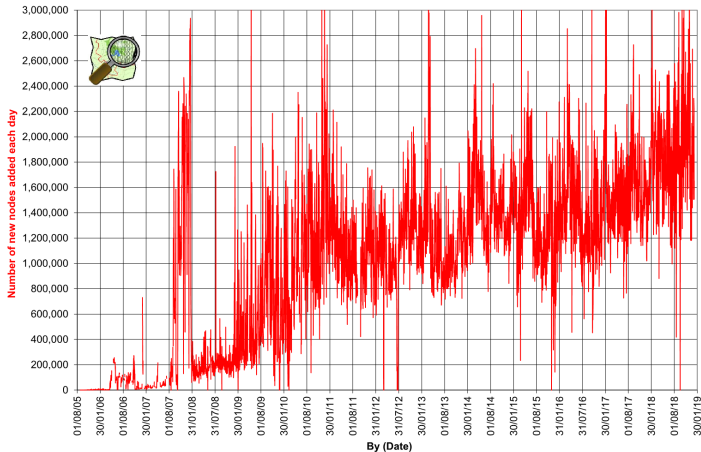
OpenStreetMap Database Statistics Node, Way and Relation Creation



Statistics

OpenStreetMap Database Statistics

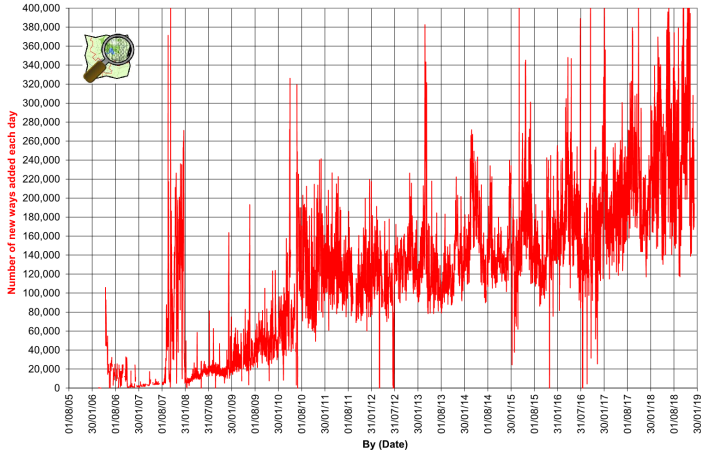
Number of nodes added each day



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



(1)

highway=secondary

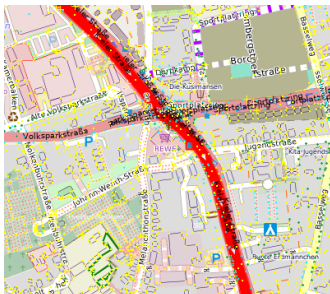


(1) <https://wiki.openstreetmap.org/wiki/File:Meyenburg-L134.jpg>, 2019-05-25

Geometries

Relation

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



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

Geometries

Area

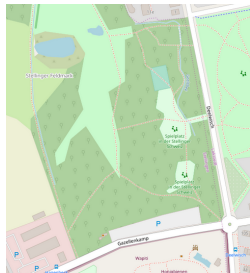
- basically a closed way with special tags

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



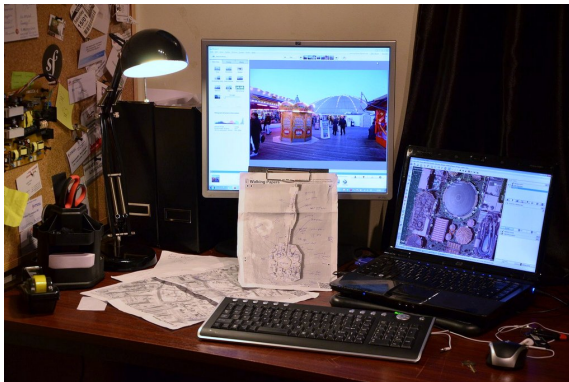
(1)

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



Go outside

Mapping



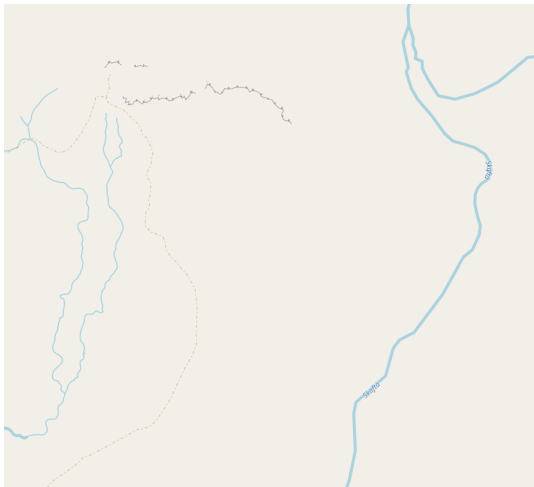
(1)

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

2019-05-25

Go outside

Mapping (before)

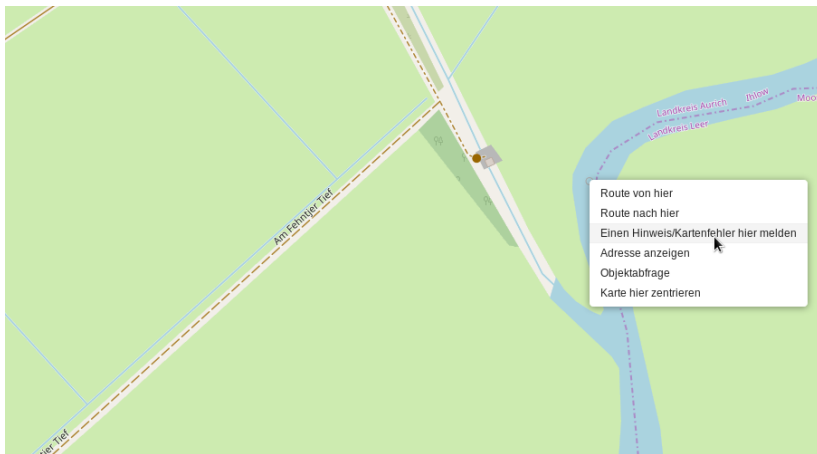


Go outside

Mapping (after)



Report errors



Report errors

Unerledigter Kartenfehler Nr. 1610297 ✕

Beschreibung

Pumpwerk im fahrwasser?

Erstellt von Anonym vor 6 Monate

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

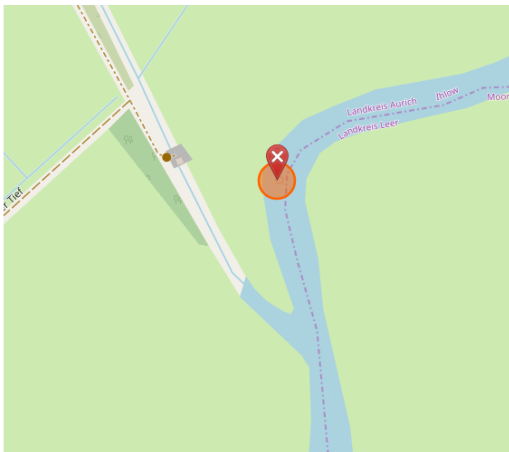
[Diesen Hinweis melden](#)

Kommentar von [hauke-stieler](#) vor 11 Tage

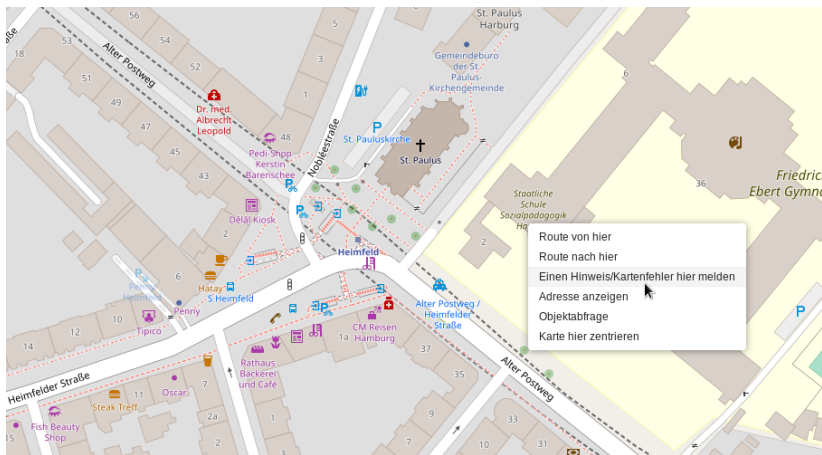
Kommt mir auch seltsam vor. Für mich sieht das nach Fehler aus und kann meinetwegen gelöscht werden. Vielleicht war das eigentliche Pumpwerk daneben gemeint?

Erledigt

Kommentar



Report errors



Report errors

Unerledigter Kartenfehler Nr. 1770846 ✕

Beschreibung

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

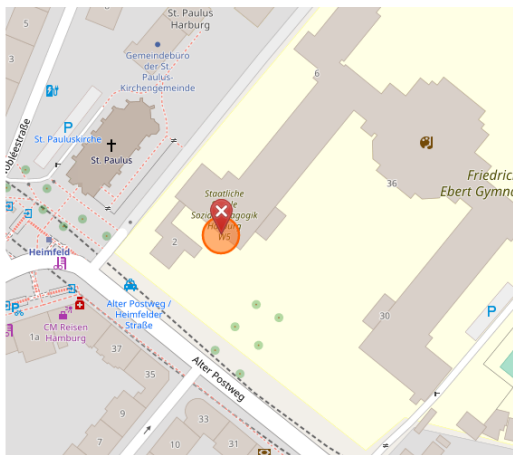
Erstellt von [Anonym vor 17 Tage](#)

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?



Socialize



(1)

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



OpenStreetMap Bearbeiten Chronik Export

Objekt bearbeiten

Zimmer

Alle Felder

Etage: -1

Eigenname: Hamburg Bf-Bots (Labor)

Zimmersummer: F-015

Typ: shop, yes, office...

Höhe (in Meter): Unbekannt

Feld hinzufügen: Beschreibung, Höhe in m über dem ...

Alle Eigenschaften (7)

email: info@bft-bots.de

indoor: room

level: -1

name: Hamburg Bf-Bot ...

[Auf openstreetmap.org ansehen](https://www.openstreetmap.org/edith)

Seitenleiste

Punkt Linie Fläche

GPS-Track

50 m

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

JOSM

java-OpenStreetMap-Editor

Datei Bearbeiten Ansicht Werkzeuge Auswahl Vorlagen Hintergrund Fenster Audio Hilfe

Luftbild "Bing Luftbild" könnte falsch ausgerichtet sein. Bitte überprüfen Sie anhand von GPS-Spuren den Versatz!
 Diese Meldung nicht mehr anzeigen

Ebenen

- Datenebene 1
- Bing Luftbild

Merkmale: 7 / Mitgliedschaften: 0

Anmerkung/Kontakt (verbreitetes Schema) ...

Schlüssel	Wert
email	info@bt-bots.de
indoor	room
level	-1
name	Hamburg Bit-Bots (Labor)
phone	+49 40 42983 2547

Prüfergebnisse

Filter: Ausgeblendet: 0 Deaktiviert: 0

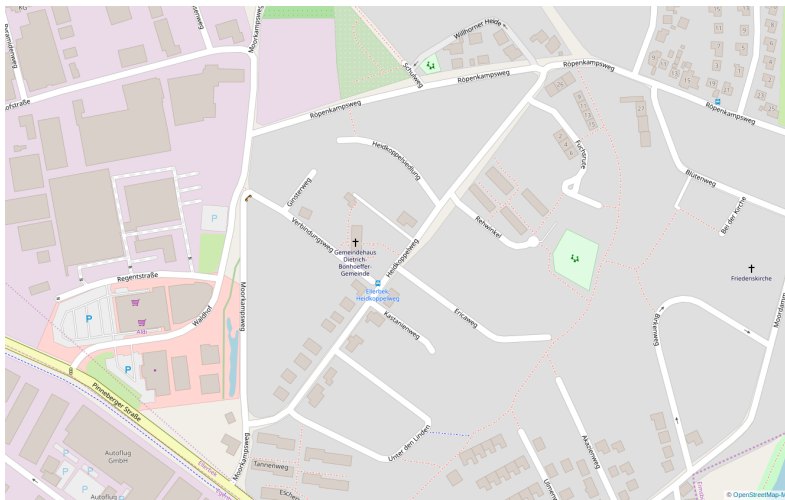
E	H	Text	I	M
<input type="checkbox"/>	<input type="checkbox"/>	highway=service	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	modified	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	highway=* AND highway=steps	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	landuse=* OR node	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	modified AND node	<input type="checkbox"/>	<input type="checkbox"/>

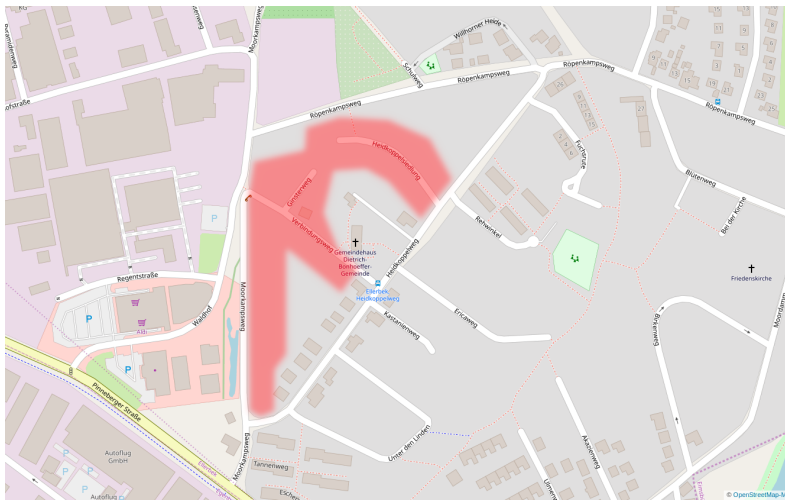
Kartenstile

- Drahtdarstellung
- JOSM Standard (MapCSS)
- Postlatch 2
- Magrik (true)
- HDM

© 2012 Microsoft Corporation © 2013 DeLorme © CNES (2013) Distribution Airbus

53.6001033 9.93395 31.2 m 364373141 (24 Punkte) webers Umschalttaste zum Hinzufügen (Strg zum Wechseln), Umschalttaste+Strg zum Drehen; Alt





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