

# Imposm

OpenStreetMap Daten einfach nutzen

Intergeo 2013, Essen

**Oliver Tonnhofer**  
**Omniscale GmbH & Co. KG**

# Über uns

- Omniscale GmbH & Co. KG, Oldenburg
- OpenSource WebGIS- und Serverentwicklung
- MapProxy Entwicklung, Support und Schulungen
- OpenStreetMap Kartendienste

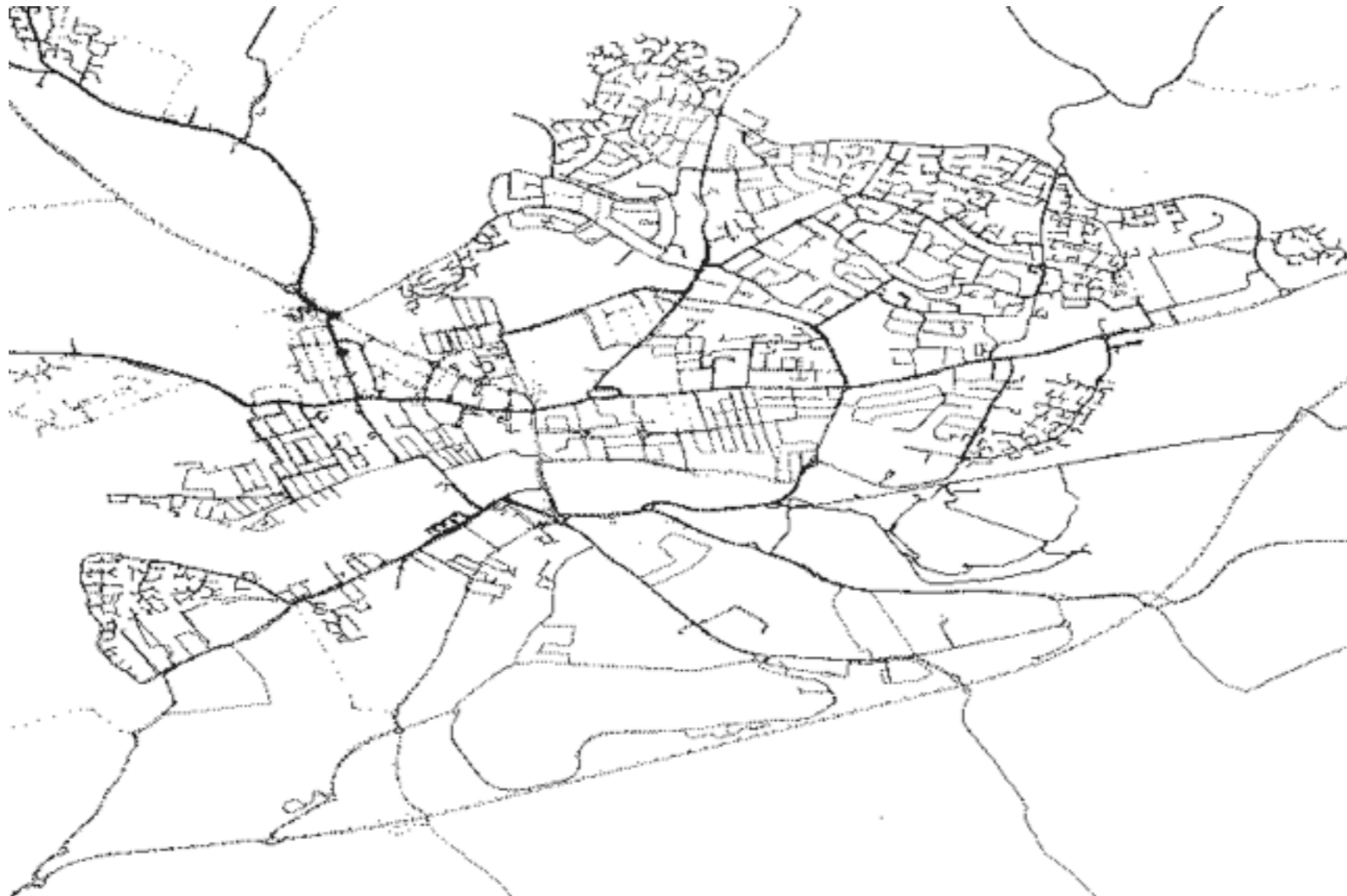
# OpenStreetMap

Von Nutzern gesammelte Geodaten

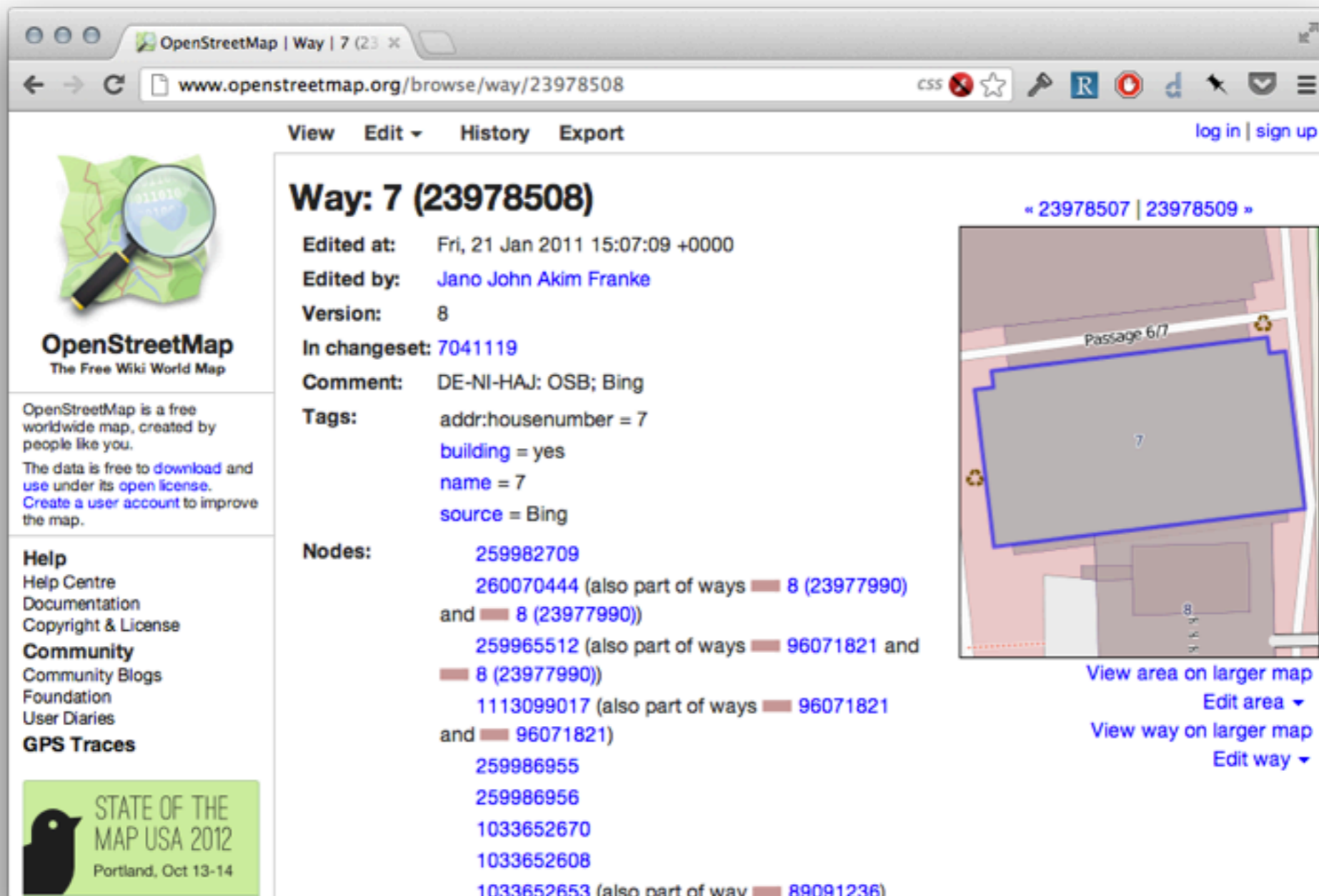
Kostenlos nutzen

Frei verarbeiten

# GPS Tracks



# OSM Daten



OpenStreetMap | Way | 7 (23 x)

www.openstreetmap.org/browse/way/23978508

View Edit History Export [log in](#) | [sign up](#)

## Way: 7 (23978508)

**Edited at:** Fri, 21 Jan 2011 15:07:09 +0000  
**Edited by:** [Jano John Akim Franke](#)  
**Version:** 8  
**In changeset:** [7041119](#)  
**Comment:** DE-NI-HAJ: OSB; Bing  
**Tags:** `addr:housenumber = 7`  
`building = yes`  
`name = 7`  
`source = Bing`

**Nodes:** [259982709](#)  
[260070444](#) (also part of ways [8 \(23977990\)](#)  
and [8 \(23977990\)](#))  
[259965512](#) (also part of ways [96071821](#) and  
[8 \(23977990\)](#))  
[1113099017](#) (also part of ways [96071821](#)  
and [96071821](#))  
[259986955](#)  
[259986956](#)  
[1033652670](#)  
[1033652608](#)  
[1033652653](#) (also part of way [89091236](#))

« [23978507](#) | [23978509](#) »

Passage 6/7

7

8

[View area on larger map](#)  
[Edit area](#) ▾  
[View way on larger map](#)  
[Edit way](#) ▾


**OpenStreetMap**  
The Free Wiki World Map

OpenStreetMap is a free worldwide map, created by people like you.  
The data is free to [download](#) and [use](#) under its [open license](#).  
[Create a user account](#) to improve the map.

**Help**  
[Help Centre](#)  
[Documentation](#)  
[Copyright & License](#)

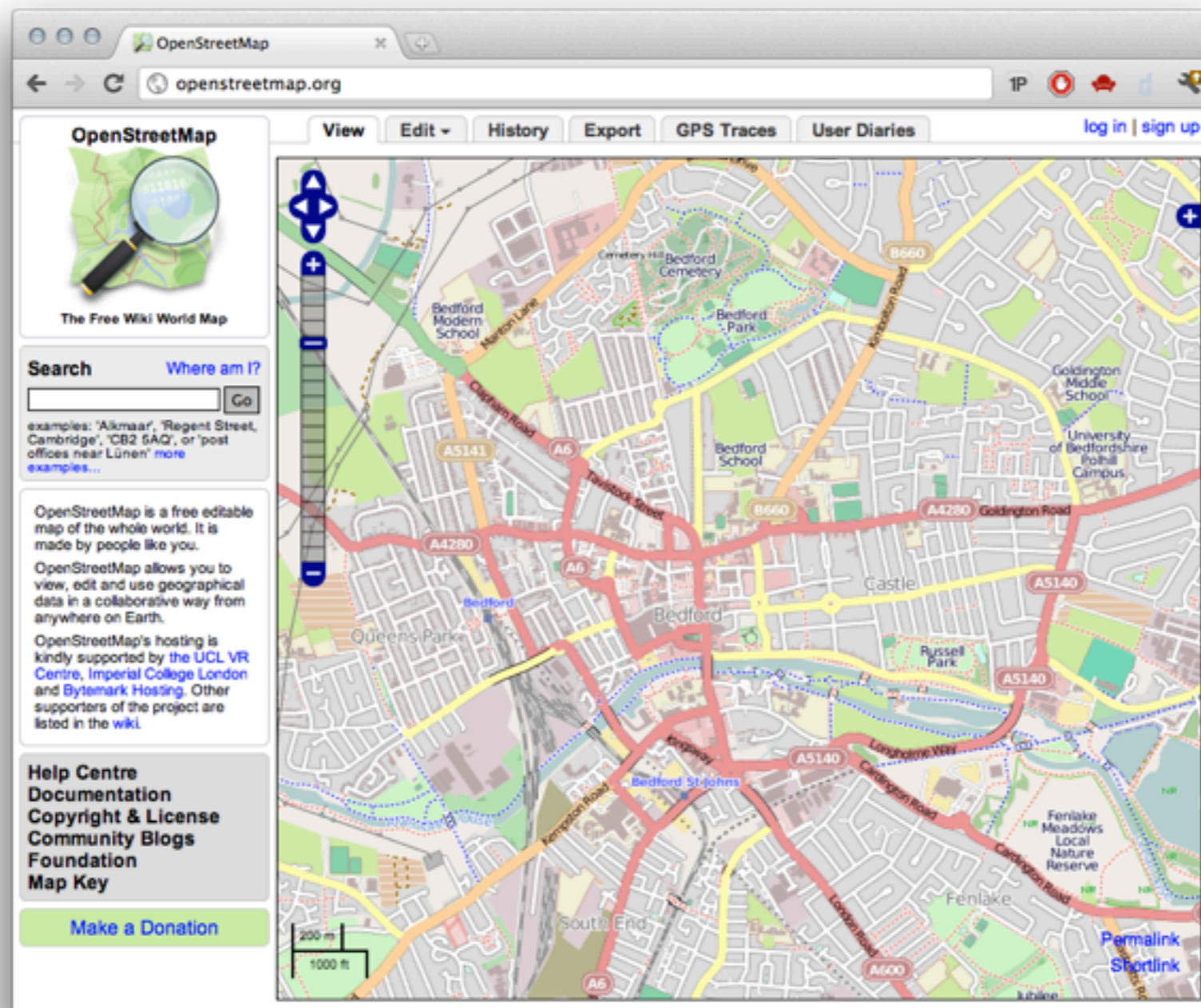
**Community**  
[Community Blogs](#)  
[Foundation](#)  
[User Diaries](#)

**GPS Traces**


 STATE OF THE MAP USA 2012  
Portland, Oct 13-14



# OpenStreetMap.org








## OpenRouteService.org

MAP&ROUTING HELP WIKI INFO&CONTACT Accessible Routing [close banner](#)

Routing with user-generated, collaboratively collected free geodata. This service is based on open standards by the Open Geospatial Consortium (OGC). Thanks to [OpenStreetMap.org](#) - please donate your geographic data to [openstreetmap.org!](#)

OSM-Data for Routing: 03.09.11  
OSM-Data for Geocoding: 14.06.11  
OSM-Data for POI-Search: every sunday



**Search**

**Routing**

Address-Search [Where am I?](#)

Start:

End:

[add Viapoint](#)

[more options](#)

Car (fastest way)

POI Search for Points of Interest

Calculates reachable regions in given time: [Accessibility Analysis](#)

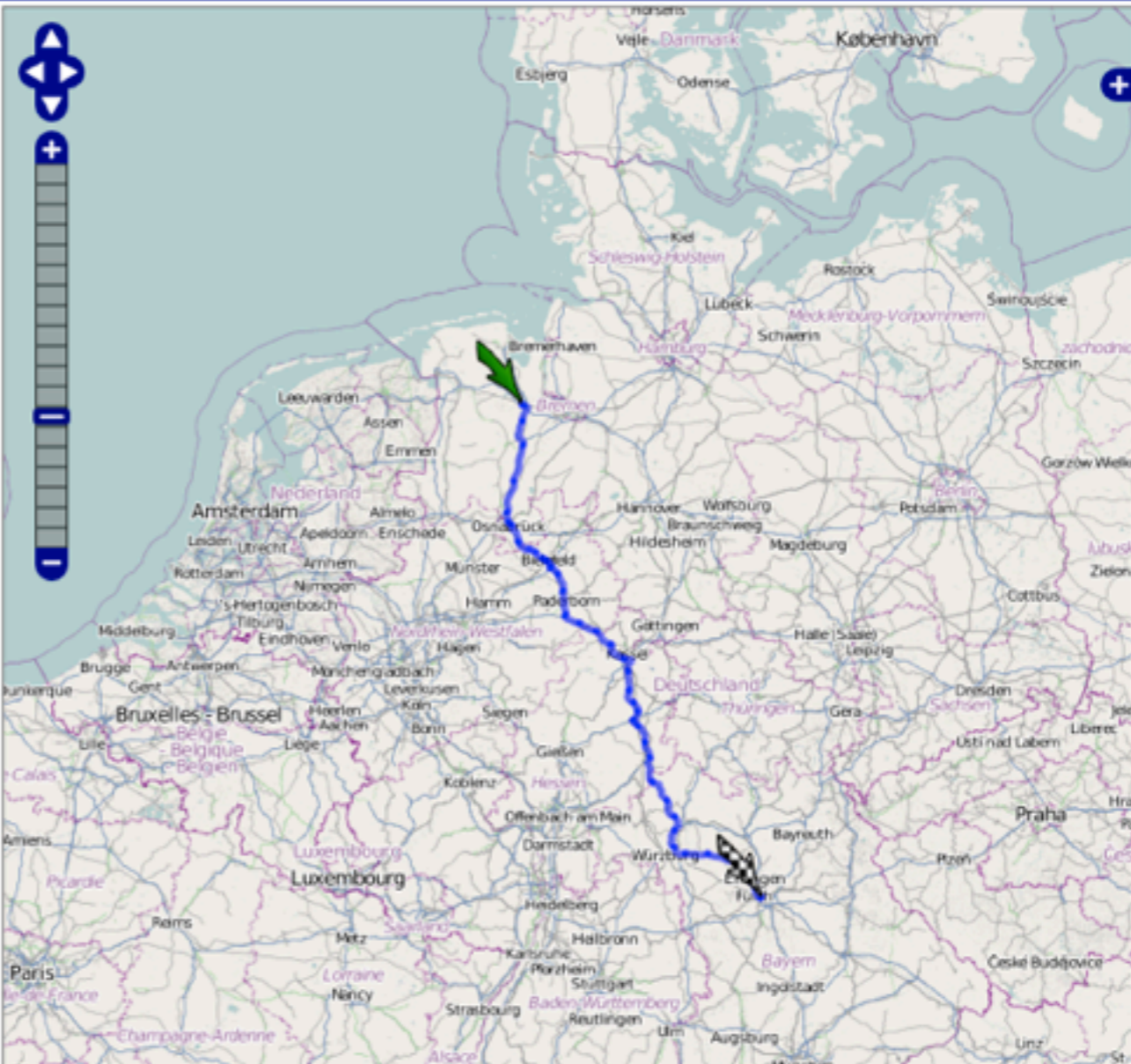
Display your GPX track: [upload](#)

Extras/Download: [Route profile](#) [Route Link](#) [GPX](#) [XML](#)

**RouteSummary (Print)**

Total-Time: ~ 5 hour(s)  
16 minute(s)  
Total-Distance: ~ 584.8 km

Nr.	Route-Instruction	Distance (Total)
1.	Start (West) auf Schloßplatz	1.0 km (0.0 km)
2.	Fahre links auf Marschweg	0.7 km (1.0 km)
3.	Fahre links	0.3 km (1.7 km)



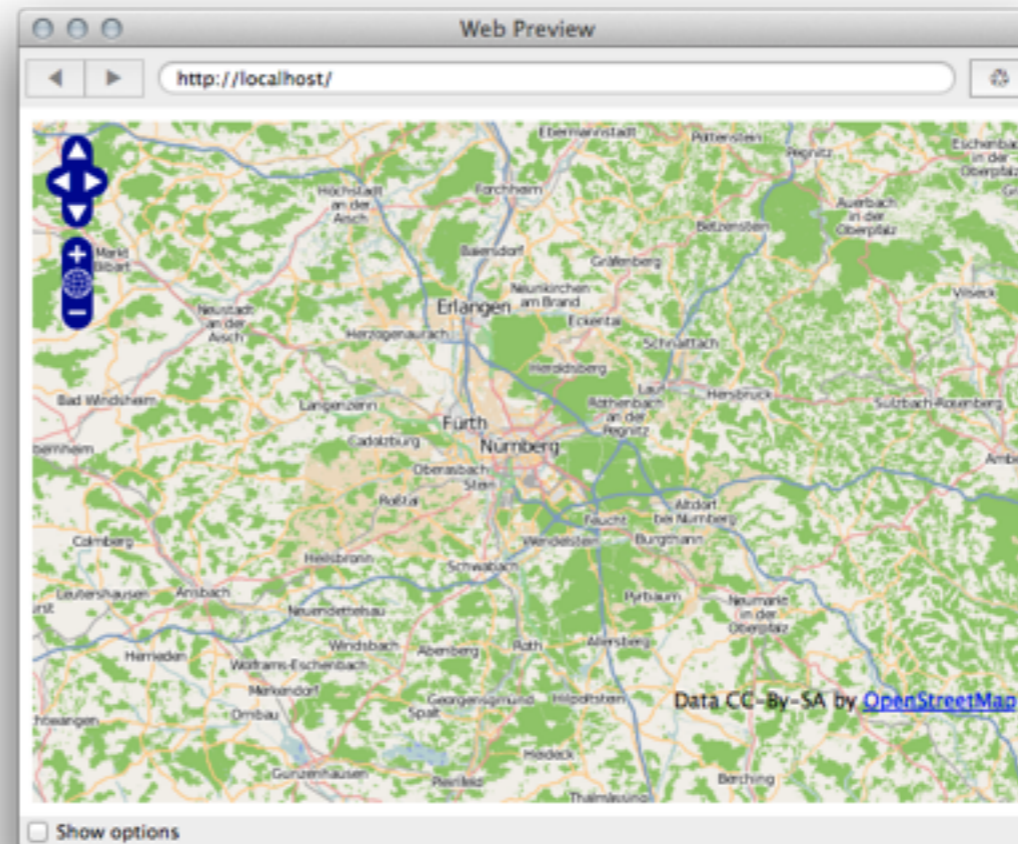
# Kostenlos nutzen

```
<html><body>
  <div id="demoMap"></div>
  <script src="http://www.openlayers.org/api/OpenLayers.js"></script>
  <script>
    map = new OpenLayers.Map("demoMap");
    map.addLayer(new OpenLayers.Layer.OSM());
    map.zoomToMaxExtent();
  </script>
</body></html>
```



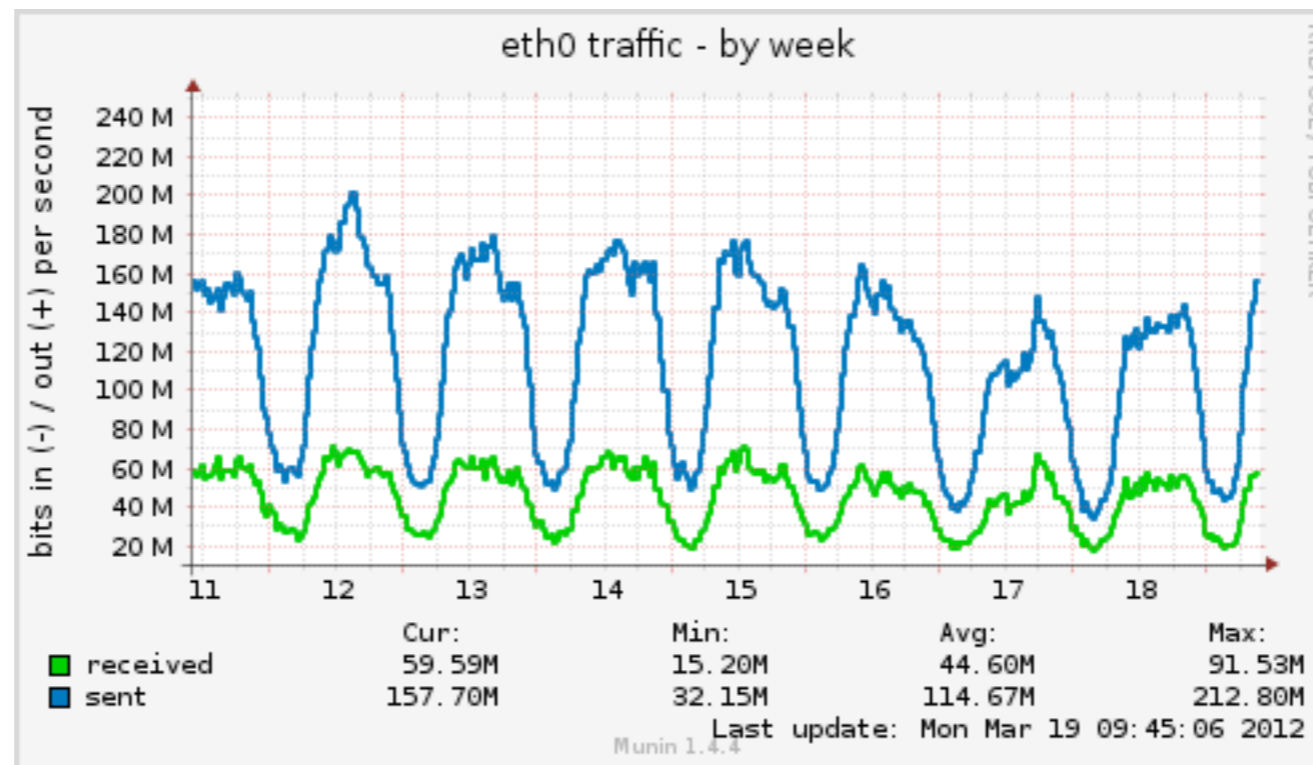
# Kostenlos nutzen

```
<html><body>
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  <script src="http://www.openlayers.org/api/OpenLayers.js"></script>
  <script>
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  </script>
</body></html>
```



# Kostenlose Karten

- Nutzt limitierte Ressourcen



# Kostenlose Karten

- Ungewöhnliches Kartendesign
- Farbauswahl, Linen...



# Kostenlose Karten

- Informationsflut
- Strommasten, Altpapiercontainer, POIs, ...





# Eigene Karten?

- OpenStreetMap XML/PBF Daten
- PostGIS Datenbank
- Mapnik oder MapServer Kartenrenderere

# PostGIS Import

- osm2pgsql
  - offizielles Importtool
  - viel Speicher oder sehr lange Importdauer
  - statisches Datenbank Schema
  - keine Optimierungen für schnelles Rendering

# Anforderungen

- Anpassbares Datenbankschema
- Optimierungen für schnelles Rendering
- Niedriger Speicherverbrauch

# Imposm

- Neuentwicklung von Omniscale
- OpenSource seit März 2011
- Läuft unter Linux/Unix/Mac OS X
- Open Source (Apache Software Lizenz)



# Imposm

- Liest .osm, .osm.bz2, .pbf Dateien
- Importiert in PostGIS Datenbanken
- Optimiert für schnelles Rendering

# Datenbank Schema

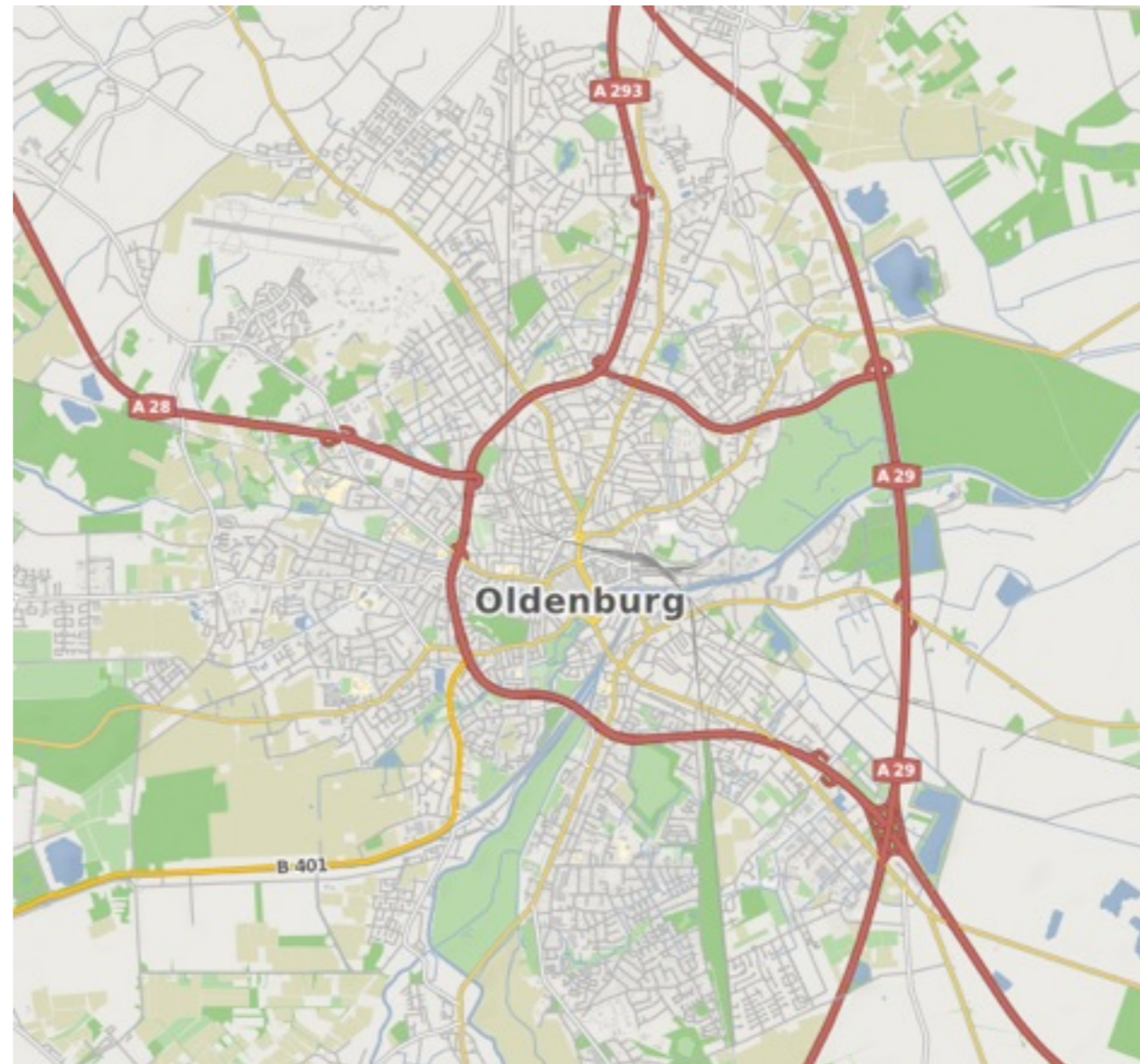
```
Points(  
    name = 'towers',  
    mapping = {  
        'man_made': (  
            'tower',  
            'water_tower',  
        )  
    }  
    fields = (  
        ('height', Integer()),  
    )  
)
```

```
LineStrings(  
    name = 'roads',  
    mapping = {  
        'highway': '__any__',  
    },  
    fields = (  
        ('name', StreetNames()),  
        ('tunnel', Bool()),  
        ('bridge', Bool()),  
        ('oneway', Direction()),  
    )  
)
```



# Standard DB-Schema

places,  
admin,  
motorways,  
mainroads,  
buildings,  
minorroads,  
transport\_points,  
railways,  
waterways,  
waterareas,  
aeroways,  
transport\_areas,  
landusages,  
amenities

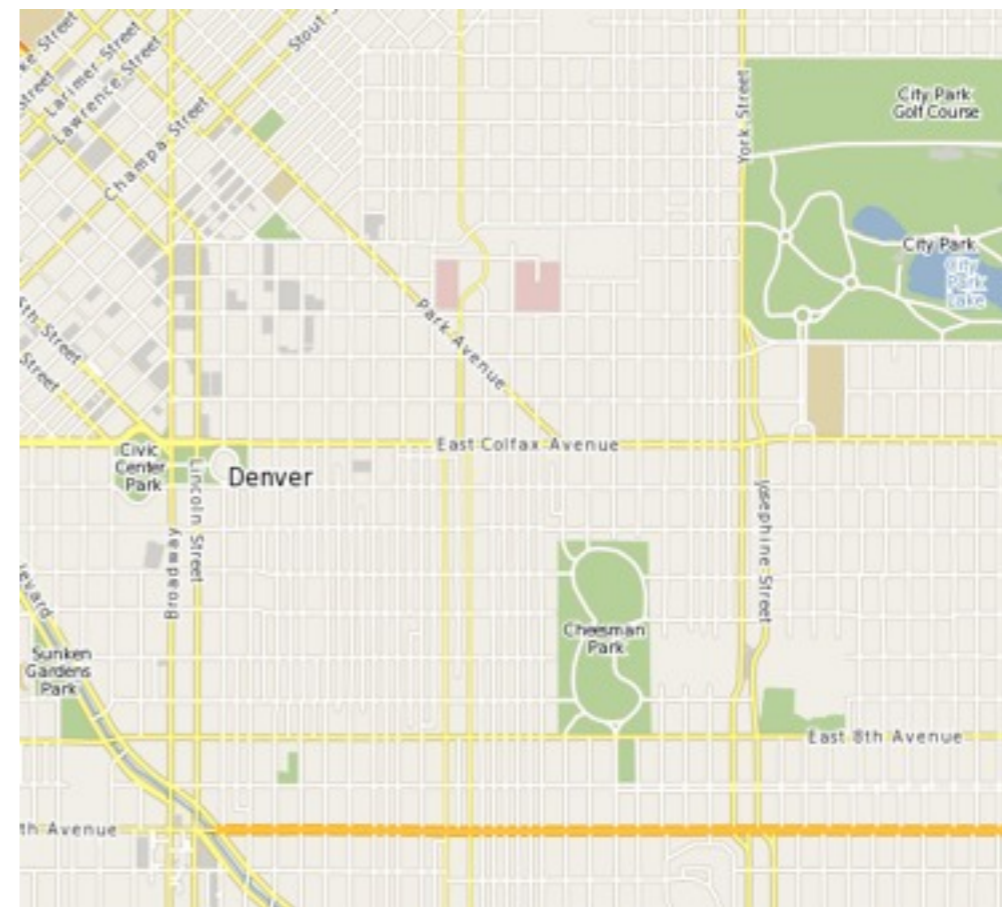


# Eigene Karten

- Angepasstes Design
  - Farben, Schriften, ...
- Anpassen an Zweck
  - Hintergrundkarte? POIs? Themenkarte?

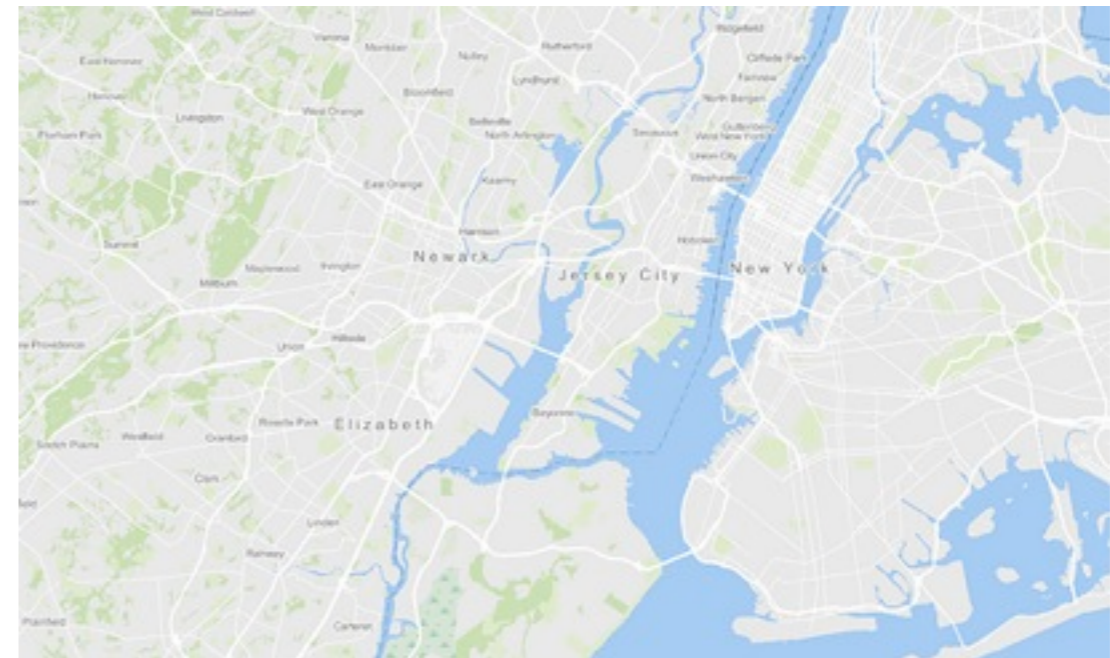
# Mapserver Styling

- mapserver-utils Projekt
- “Google”-Style
- Als Mapfile verfügbar



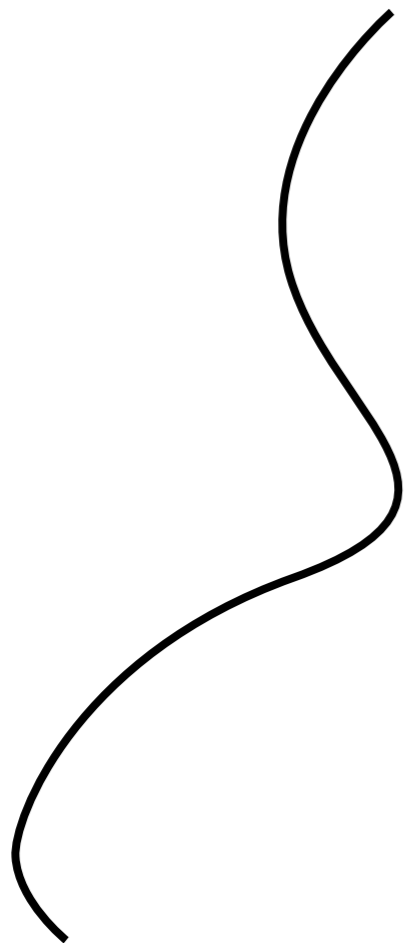
# Mapnik Styling

- OSM-Bright Style
- Als Carto Datei
  - Für TileMill
- Konvertieren nach Mapnik XML



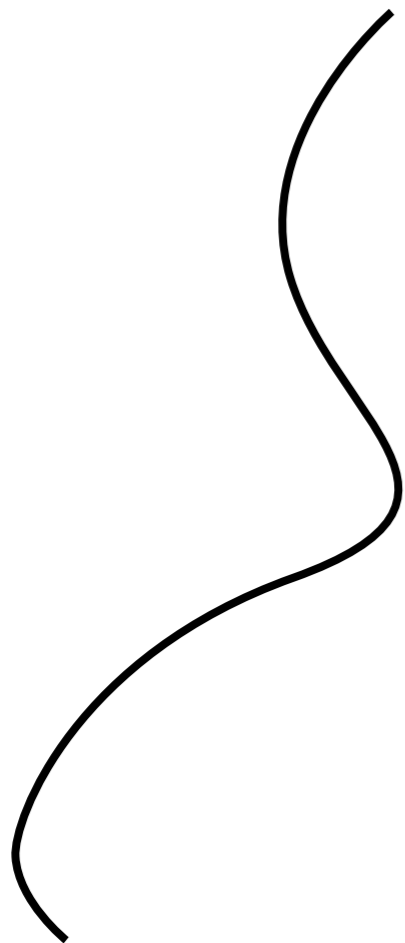
# Optimierungen

# Generalisierung

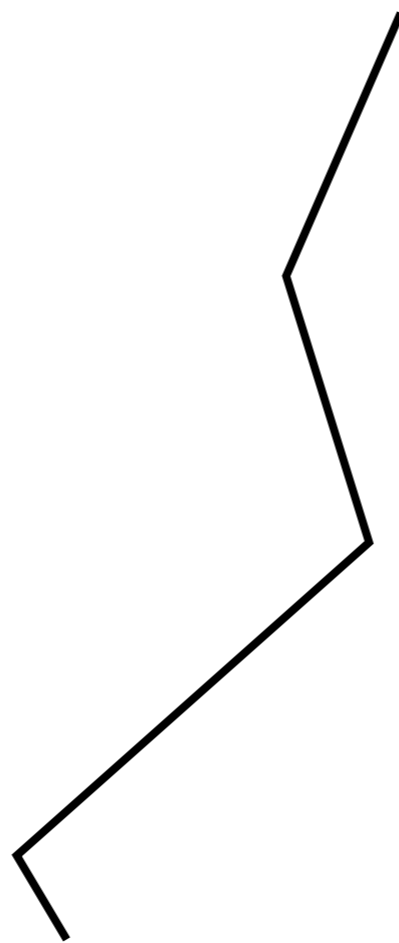


osm\_roads

# Generalisierung



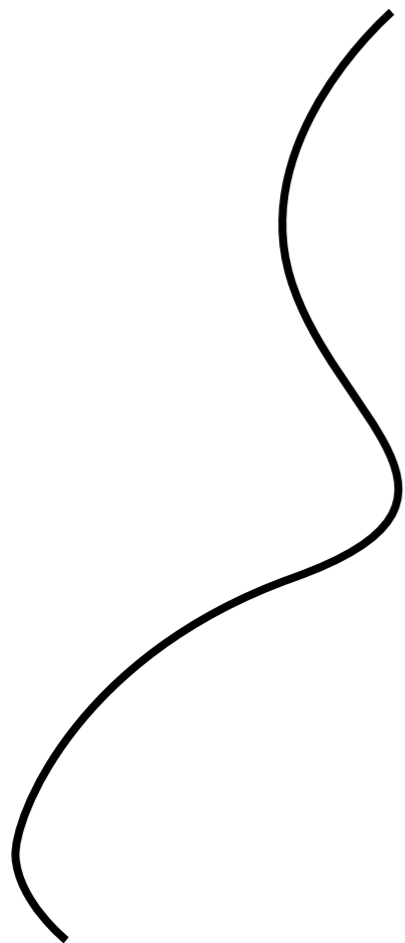
osm\_roads



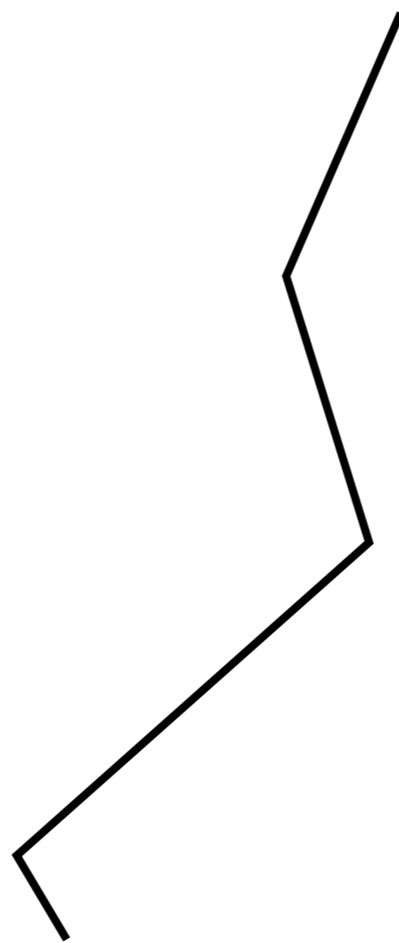
osm\_roads\_gen1



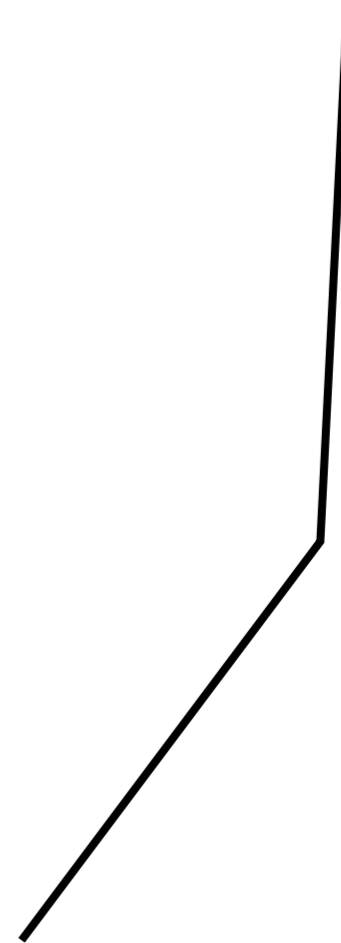
# Generalisierung



osm\_roads



osm\_roads\_gen1



osm\_roads\_gen0

# Tabelle pro Feature-Klasse

- Zeichnen von Landnutzung (Wälder/Wiesen/etc.)
  - osm2pgsql: planet\_osm\_polygon
  - imposm: osm\_landusages

# Tabelle pro Feature-Klasse

- Zeichnen von Landnutzung (Wälder/Wiesen/etc.)
  - osm2pgsql: planet\_osm\_polygon
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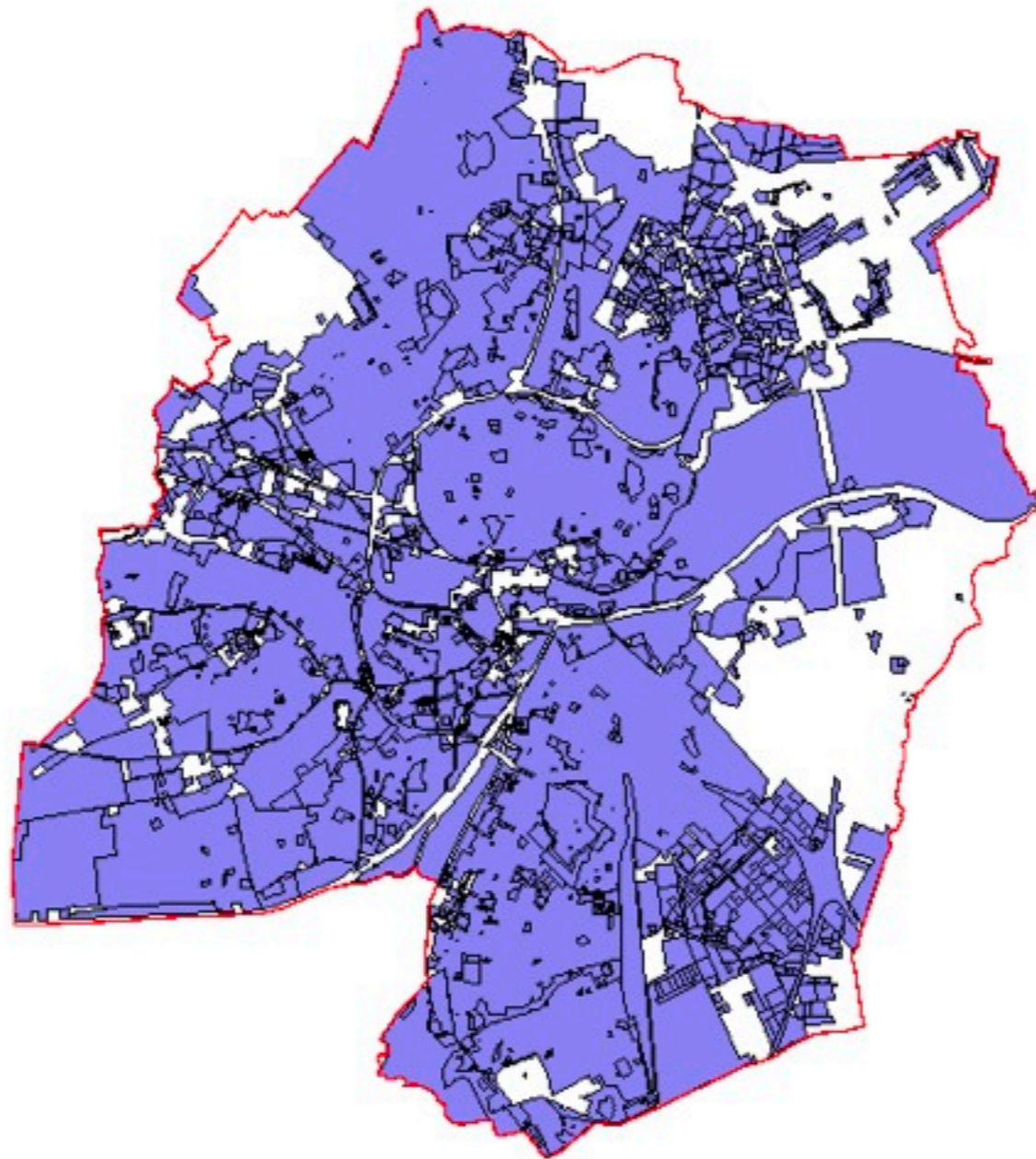
Effizientere Datenbank abfragen

# Schnelle Darstellung vieler Daten



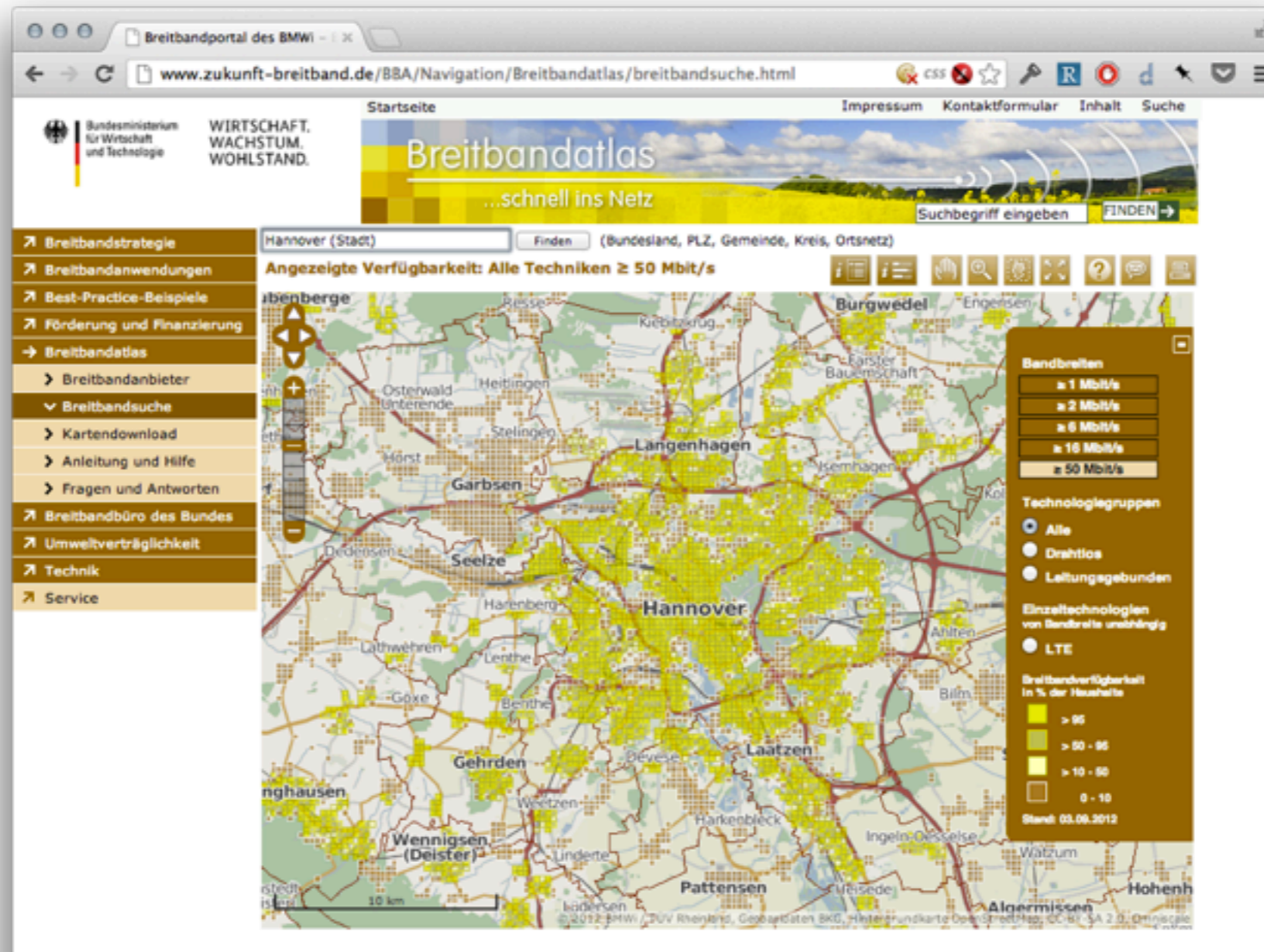


# Polygon-Clipping



# Beispielanwendungen

# Breitbandatlas





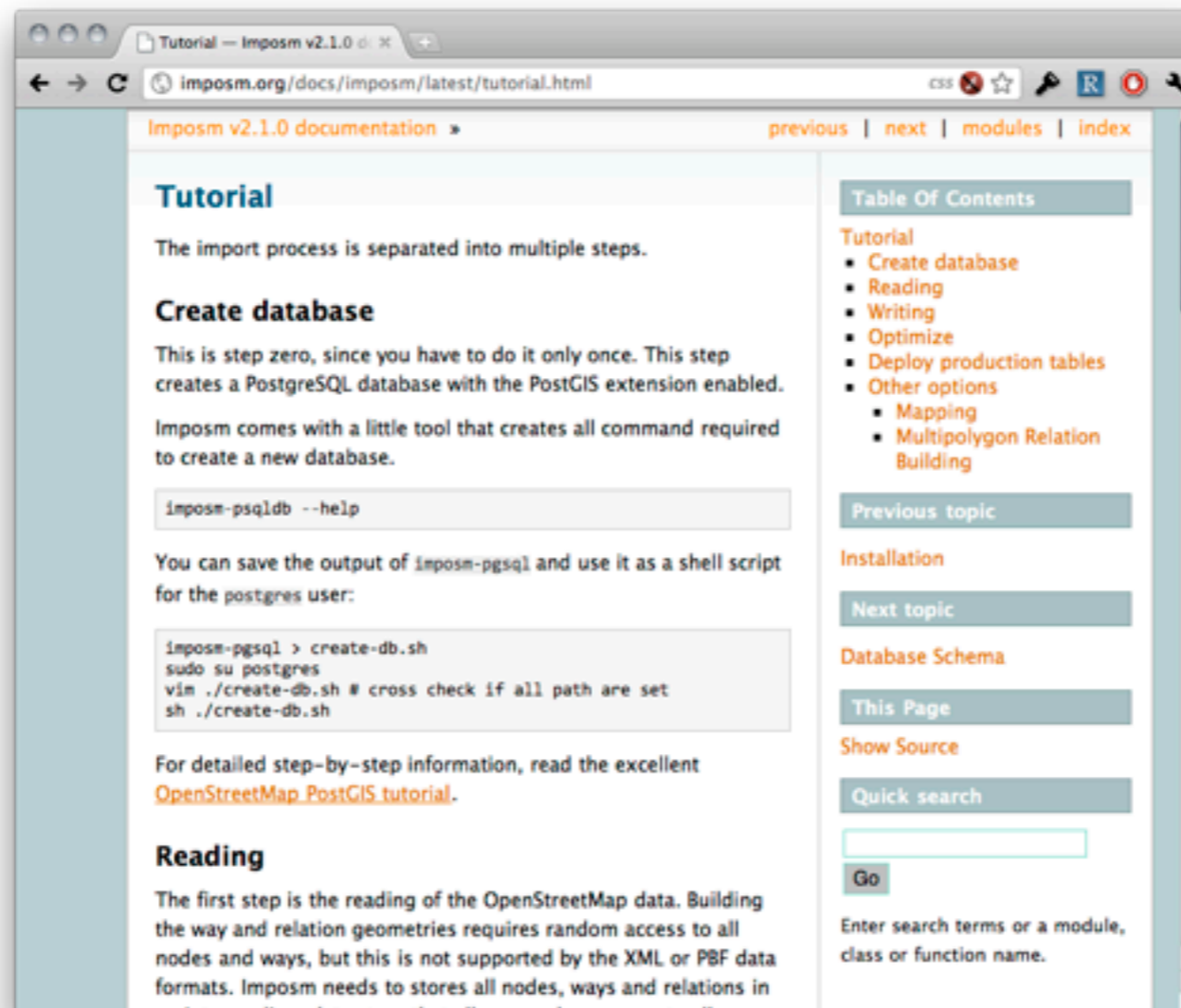
# Mecklenburg Vorpommern



# Imposm 3

- Komplette Neuentwicklung
- Noch höhere Geschwindigkeit
- Diff-Unterstützung (Live-Aktualisierung)

# imposm.org



The screenshot shows a web browser window displaying the 'Tutorial' page for Imposm v2.1.0. The page is titled 'Tutorial' and contains the following content:

**Tutorial**

The import process is separated into multiple steps.

**Create database**

This is step zero, since you have to do it only once. This step creates a PostgreSQL database with the PostGIS extension enabled. Imposm comes with a little tool that creates all command required to create a new database.

```
imposm-psqldb --help
```

You can save the output of `imposm-psqldb` and use it as a shell script for the postgres user:

```
imposm-psqldb > create-db.sh
sudo su postgres
vim ./create-db.sh # cross check if all path are set
sh ./create-db.sh
```

For detailed step-by-step information, read the excellent [OpenStreetMap PostGIS tutorial](#).

**Reading**

The first step is the reading of the OpenStreetMap data. Building the way and relation geometries requires random access to all nodes and ways, but this is not supported by the XML or PBF data formats. Imposm needs to stores all nodes, ways and relations in a PostgreSQL database that allows random access to all

The right sidebar contains a 'Table Of Contents' section with the following items:

- Tutorial
  - Create database
  - Reading
  - Writing
  - Optimize
  - Deploy production tables
  - Other options
    - Mapping
    - Multipolygon Relation Building
- Installation
- Next topic
- Database Schema
- This Page
- Show Source
- Quick search
- Go

At the bottom of the sidebar, there is a search box with the text: 'Enter search terms or a module, class or function name.'

# Imposm

Importieren von OpenStreetMap in PostGIS

Optimierungen für schnelles  
Kartenrendering

Einfach anpassbares Datenbankschema

# Vielen Dank

**Oliver Tonnhofer**  
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**Fragen**

Omniscale Stand im OSGeo Park

**Homepage**

<http://imposm.org>

**Mailingliste**

[imposm@googlegroups.com](mailto:imposm@googlegroups.com)