

OSM Daten zu Papier bringen

Hartmut Holzgraefe

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Who am I?

- Hartmut Holzgraefe



Who am I?

- Hartmut Holzgraefe
- from Bielefeld, Germany



Who am I?

- Hartmut Holzgraefe
- from Bielefeld, Germany
- studied electric engineering and computer science



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- Hartmut Holzgraefe
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Who am I?

- Hartmut Holzgraefe
- from Bielefeld, Germany
- studied electric engineering and computer science
- OpenStreetMapper since 2007
- Datenbank Support Engineer for MariaDB Corp.
(and prev. MySQL, Sun, Oracle, SkySQL)



Motivation

I like to have a city map in my flat



Motivation

I've got a a large Printer



Motivation

Over the last years I created neighbourhood plans for social facilities and refugee shelters



Plan A

Lets just print a screen shot!



Lets just print a screen shot!



- Only works up to a certain paper size

Lets just print a screen shot!



- Only works up to a certain paper size
- ... unless you have a **very** high resolution screen

Lets try Plan B ...

openstreetmap.org share -¿ download

The screenshot shows the OpenStreetMap website interface. At the top, there is a navigation bar with the OpenStreetMap logo, buttons for 'Edit', 'History', and 'Export', and links for 'GPS Traces', 'User Diaries', 'Copyright', 'Help', and 'About'. On the right side of the top bar are 'Log In' and 'Sign Up' buttons.

Below the navigation bar is a search bar with the text 'Search' and 'Where are you?' followed by a 'Go' button and a location pin icon. The main area is a satellite-style map of a city street grid. A semi-transparent white box is overlaid on the map, containing a search bar and a 'Go' button. On the right side of the map, there is a vertical toolbar with icons for zooming in (+), zooming out (-), home, layers, info, and help (?).

On the right side of the page, there is a 'Share' section with a close button (X). It includes a 'Link or HTML' section with an 'Include marker' checkbox and three buttons: 'Link', 'Short Link', and 'HTML'. Below these is a text input field containing the URL 'http://www.openstreetmap.org/#map'. The 'Geo URI' section shows 'geo:50.7390,7.0927?z=16'. The 'Image' section has a checked 'Set custom dimensions' checkbox, a 'Format' dropdown menu set to 'PDF', and a 'Scale' input field set to '1 : 2050'. Below this, it says 'Image will show standard layer at 2380 x 1677' and a 'Download' button.

At the bottom of the map, there is a scale bar showing 100 meters and 300 feet, and a copyright notice: '© OpenStreetMap contributors' with a 'Make a Donation' link.

So lets start Plan C ...

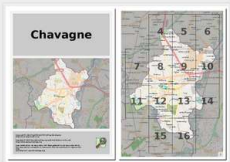
Welcome to MapOSMatic!

MapOSMatic is a free software web service that allows you to generate maps of cities using [OpenStreetMap](#) data. The generated maps are available in PNG, PDF and SVG formats and are ready to be printed.

As the data used to generate maps is coming from OpenStreetMap, you can freely reuse, sell, or modify the generated maps under the [terms of the OpenStreetMap license](#).

Create a map »

Learn more



Platform status

✓ All systems are operational. The rendering daemon is running and the GIS database was updated 1 minute ago.

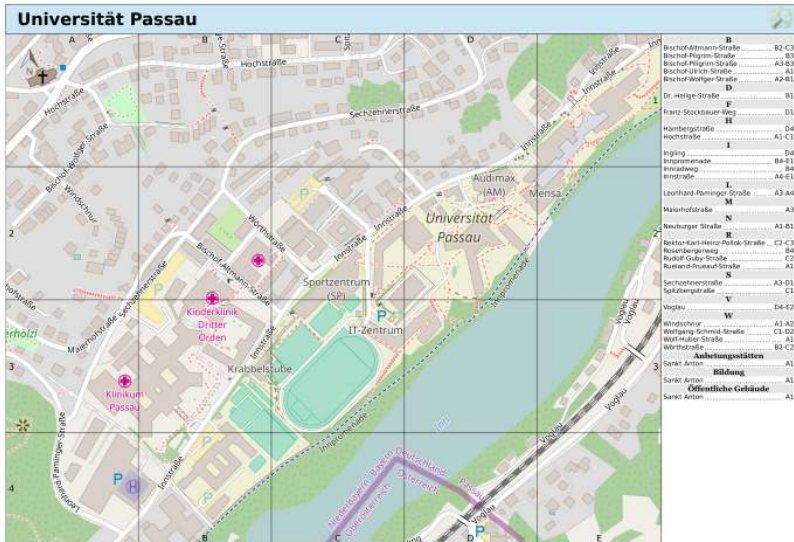
- ### Latest news
- [New storage for MapOSMatic.org](#)
published 2 years, 2 months ago
 - [MapOSMatic is back!](#)
published 3 years, 8 months ago
 - [Service interruption](#)
published 3 years, 11 months ago
 - [Talk at the Libre Software Meeting](#)
published 4 years, 1 month ago

Donate

You can donate to help us improve the service. See our [donation](#) page for more information on how donations are processed and how they help us keep MapOSMatic free (and ad-free!).

Donate via PayPal »

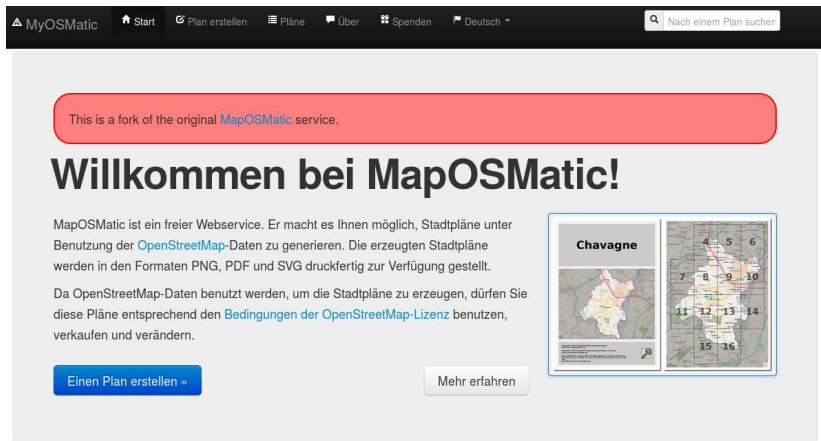
MapOSMatic – Single Page



Copyright © 2011 MapOSMatic.com/Map developers. Map data © 2007 OpenStreetMap.org, and other contributors. HTTP://openstreetmap.org
Map rendered on: 22 März 2017, OSM data updated on: 22 März 2017 06:14. This map may be incomplete or inaccurate.

My own MapOSMatic instance

<http://maposmatic.osm-baustelle.de/>



The screenshot shows the homepage of a MapOSMatic instance. At the top is a dark navigation bar with the logo 'MyOSMatic' and menu items: 'Start', 'Plan erstellen', 'Pläne', 'Über', 'Spenden', and 'Deutsch'. A search bar on the right contains the text 'Nach einem Plan suchen'. Below the navigation bar is a red rounded rectangle containing the text: 'This is a fork of the original [MapOSMatic](#) service.'

Willkommen bei MapOSMatic!

MapOSMatic ist ein freier Webservice. Er macht es Ihnen möglich, Stadtpläne unter Benutzung der [OpenStreetMap](#)-Daten zu generieren. Die erzeugten Stadtpläne werden in den Formaten PNG, PDF und SVG druckfertig zur Verfügung gestellt.

Da OpenStreetMap-Daten benutzt werden, um die Stadtpläne zu erzeugen, dürfen Sie diese Pläne entsprechend den [Bedingungen der OpenStreetMap-Lizenz](#) benutzen, verkaufen und verändern.

Two buttons are located below the text: 'Einen Plan erstellen »' (highlighted in blue) and 'Mehr erfahren'.

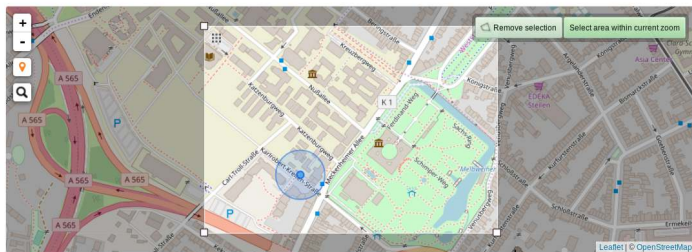
On the right side, there are two map thumbnails. The left one is titled 'Chavagne' and shows a map of a region with a red line. The right one is a grid map with numbers 4 through 16, also showing a red line.

Select area

MyOSMatic [Home](#) [Create map](#) [Maps](#) [About](#) [English](#)

Generate your own map

[City search](#) [Geographic area](#) [GPX track](#) [Umap data file](#)



Select city boundary

MyOSMatic Home Create map Maps About Donate English Search for a map

Generate your own map

City search Geographic area

Passau

- Passau, Lower Bavaria, Bavaria, Germany
- Passau, Lower Bavaria, Bavaria, Germany
- Passau, Hermagor, Carinthia, Austria

Geographic area selection

Start by choosing the city or geographic area you want to render. Suggestions will appear as you start typing. If you can't find the city you want, or if you prefer to choose the exact area you want to render yourself, select the *Geographic area* tab and use the mini-map to set the limits of the rendered area.

GPX import

City search

Geographic area

GPX track

Umap data file



52.0320

8.5178

→

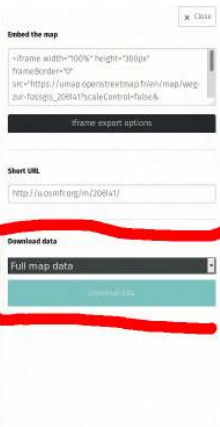
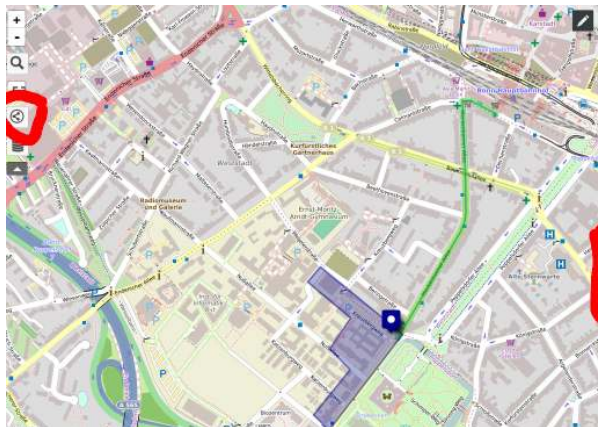
52.0225

8.5306

GPX Ergebnis



UMAP exportieren



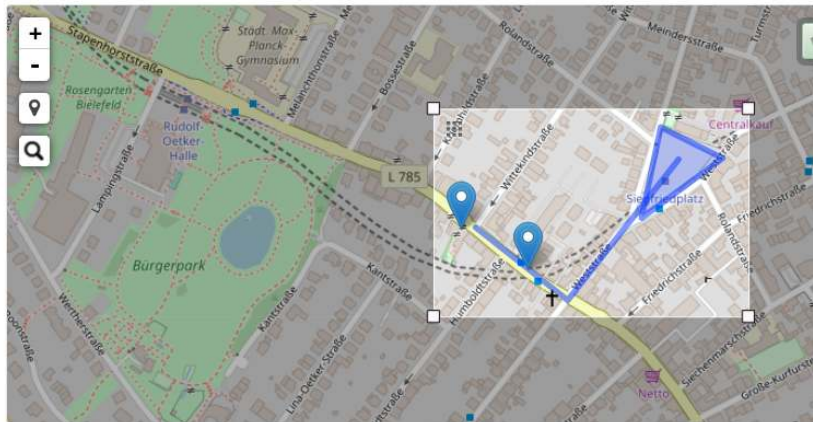
UMAP importieren

City search

Geographic area

GPX track

Umap data file



52.0288

8.5181

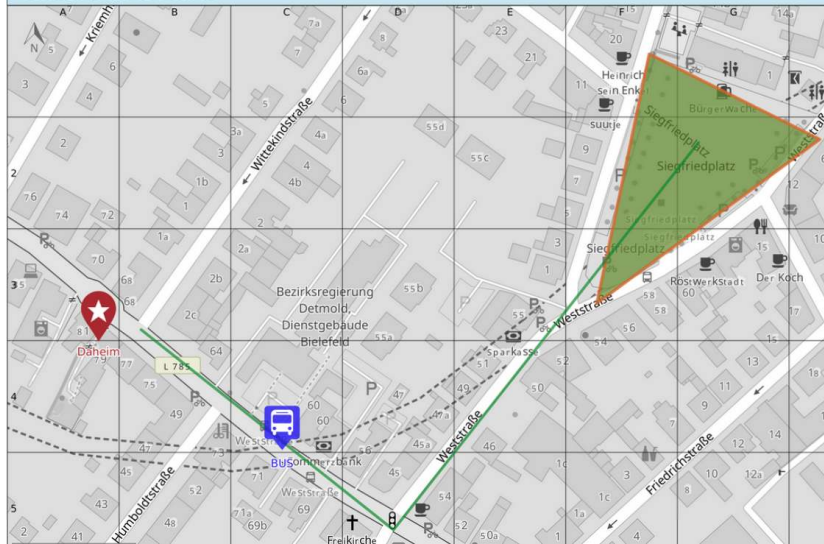


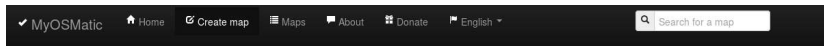
52.0265

8.5238

UMAP Ergebnis

Unbenannte Karte





Generate your own map

Layout

- Full-page layout without street index
- Full-page layout with the street index at the bottom
- Full-page layout with the street index on the side
- Multi-page layout



Map layout

The map layout determines how the map and the index are rendered. The *Multi-page layout* produces a booklet very suitable for printing and binding.

Generate your own map

Stylesheet

- Current CartoCSS OSM style
- Current CartoCSS OSM style without streetnames
- Monochrome version of CartoCSS OSM
- The Maposmatic printable stylesheet
- HikeBikeMap style
- HOT Humanitarian style
- MapQuest Europe stylesheet
- CartoOSM based German style
- French OSM style
- Stripped down CartoCSS OSM style
- OpenTopoMap
- Mapbox OSM Bright style
- Open River Boat Map
- Pistemap
- Veloroad by Ilya Zverev
- Mapbox Pencil Style
- Mapbox Space Station Style
- Blossom style by Steffen Kühne
- Empty basemap for overlay testing



Map stylesheet

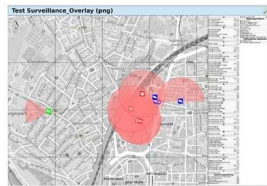
The map stylesheet determines the style and appearance of the map itself. Note that the stylesheet also drives what details will be visible on the map.

MyOSMatic Home Create map Maps About Donate English Search for a map

Generate your own map

Overlays

- height contour lines
- Fire Hydrant Overlay
- MaxSpeed Overlay
- Way Marked Trails - Hiking
- Way Marked Trails - Cycling
- Way Marked Trails - Mountain Biking
- Way Marked Trails - Riding
- Way Marked Trails - Skating
- Way Marked Trails - Slopes
- Golf course detail overlay
- Surveillance Cameras
- pimap Public Transport Overlay
- Schwarz-Plan Overlay
- Scale bar



Map overlays

Overlays render extra objects on top of the chosen base style. Multiple overlays can be selected to add different kinds of additional information on top of the map.

Erzeugen Sie Ihren eigenen Plan

Papierformat

- A4 (21.0 × 29.7 cm²)
- A3 (29.7 × 42.0 cm²)
- A2 (42.0 × 59.4 cm²)
- A1 (59.4 × 84.1 cm²)
- A0 (84.1 × 118.9 cm²)
- US letter (21.6 × 27.9 cm²)
- Automatische Auswahl (9.2 × 9.2 cm²)

Papierausrichtung

- Hochkant
- Quer



Papierformat und -größe

Wählen Sie Format, Größe und Ausrichtung für Ihren Plan

Title and Language

✓ MyOSMatic

Home

Create map

Maps

About

Donate

English

Search for a map

Generate your own map

Map title

St. Augustin

Language

Deutschland (DE)

Your Email address (for notifications, optional)

hartmut@php.net



Summary

Location: Oldinghausen, Enger, Kreis Herford, Regierungsbezirk Detmold, North Rhine-Westphalia, Germany

Layout: Full-page layout without street index

Stylesheet: Current CartoCSS OSM style

Overlay: Surveillance Cameras

Paper format: Portrait, Din A4 (21.0 x 29.7 cm²)

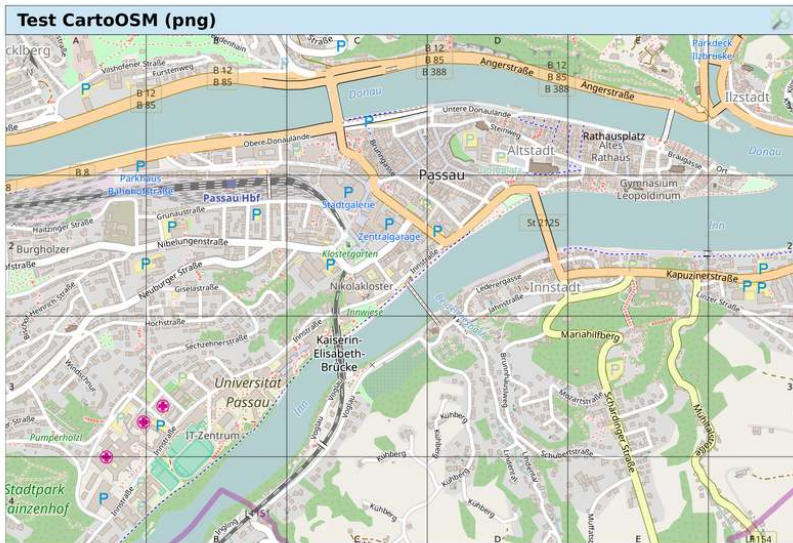
Generate »

Almost there!

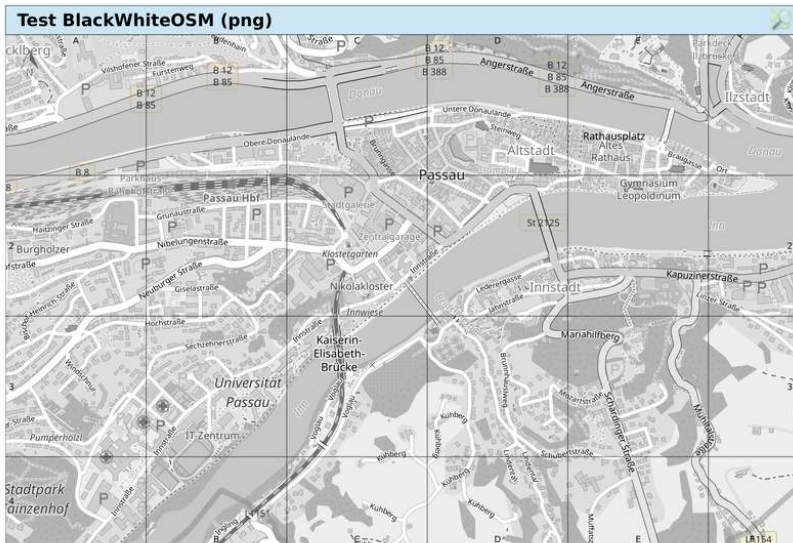
You're almost ready to request to map rendering! Select the map language, eventually adjust the title of your map, and you're good to go!

An overview of available map styles

OSM Carto Style



Copyright © 2017 MapOSMatic/OSM CartoMap developers. Map data © 2017 OpenStreetMap.org and contributors. <http://osm.org/copyright>
Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:30. The map may be incomplete or inaccurate.

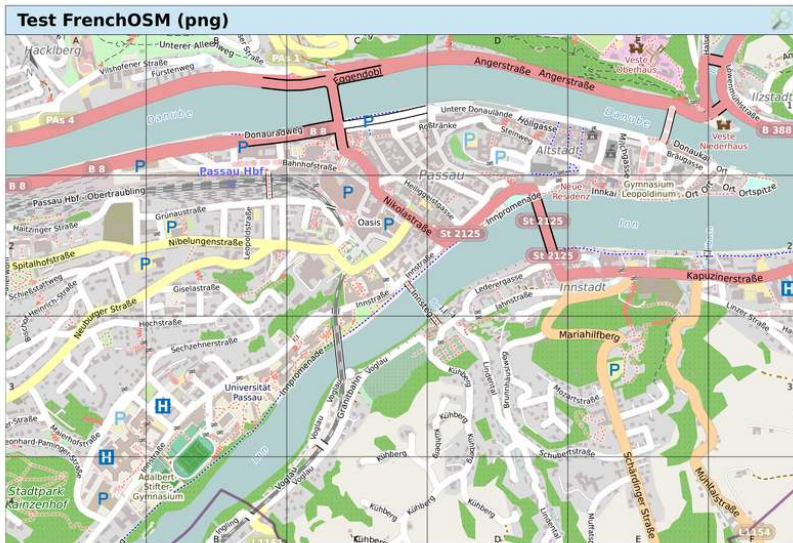


German OSM Style



Copyright © 2017 MapOSMatic/OSM StyleMap developers. Map data © 2017 OpenStreetMap.org and contributors. <http://osm.org/copyright>
Map rendered on 18 August 2017. OSM data updated on 15 August 2017 22:46. The map may be incomplete or inaccurate.

French OSM Stil

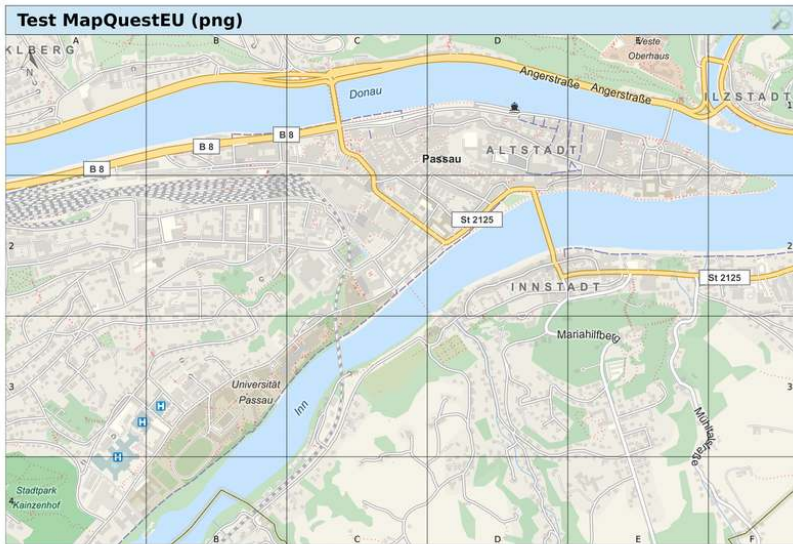


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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:46. The map may be incomplete or inaccurate.

MapOSMatic Printable Style



MapQuest EU Style



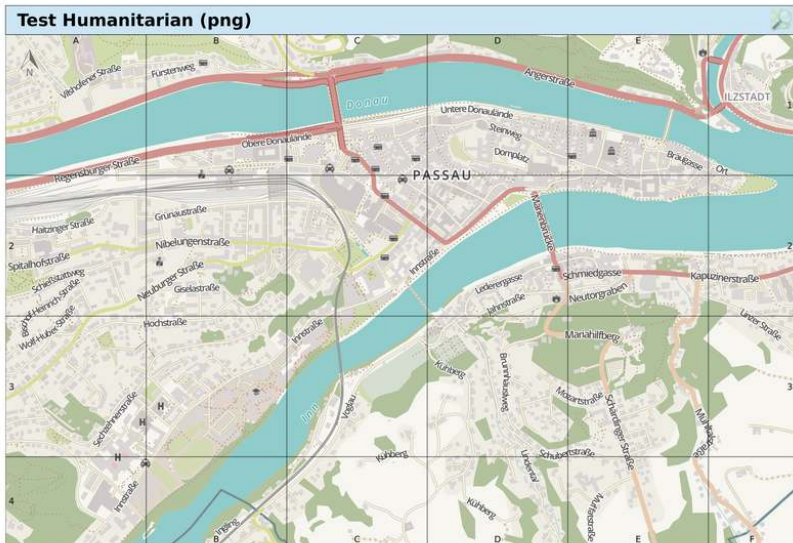
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Map rendered on: 18 August 2017. OSM data updated on: 25 August 2017 22:44. The map may be incomplete or inaccurate.

OSM Bright Style



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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:44. The map may be incomplete or inaccurate.

Humanitarian Style



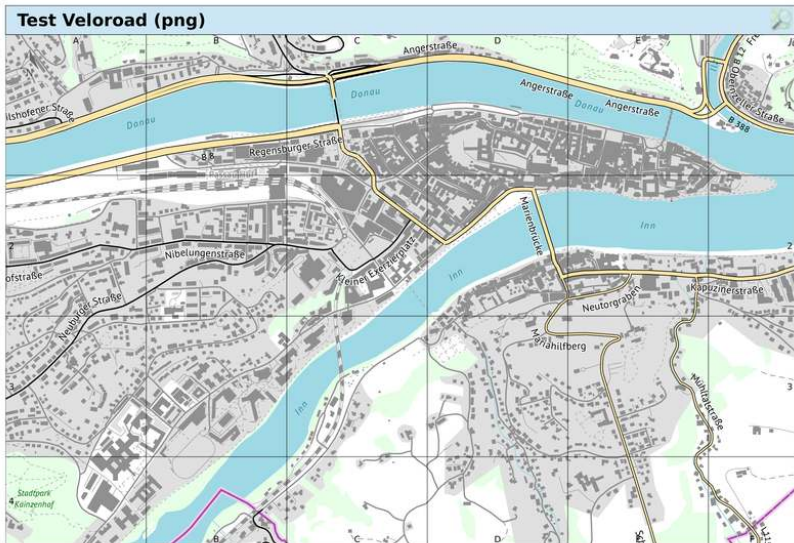
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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:30. The map may be incomplete or inaccurate.

Hike and Bike Map Stil



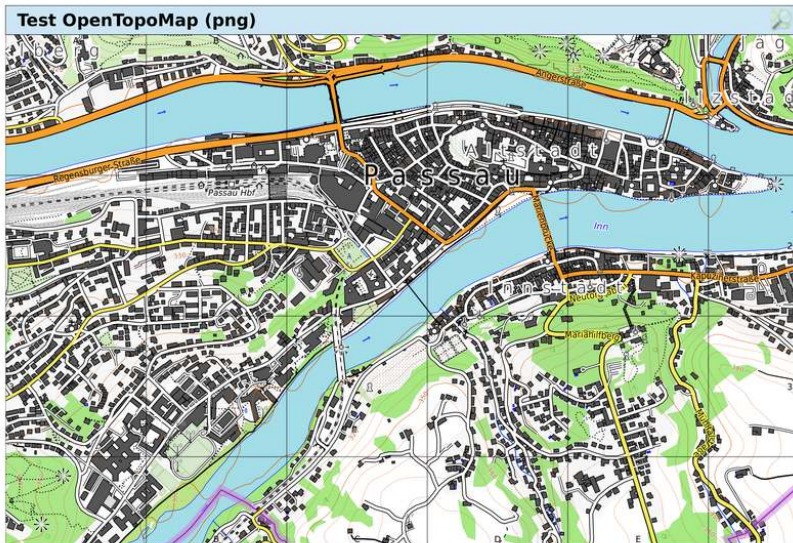
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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:30. The map may be incomplete or inaccurate.

Veloroad Stil

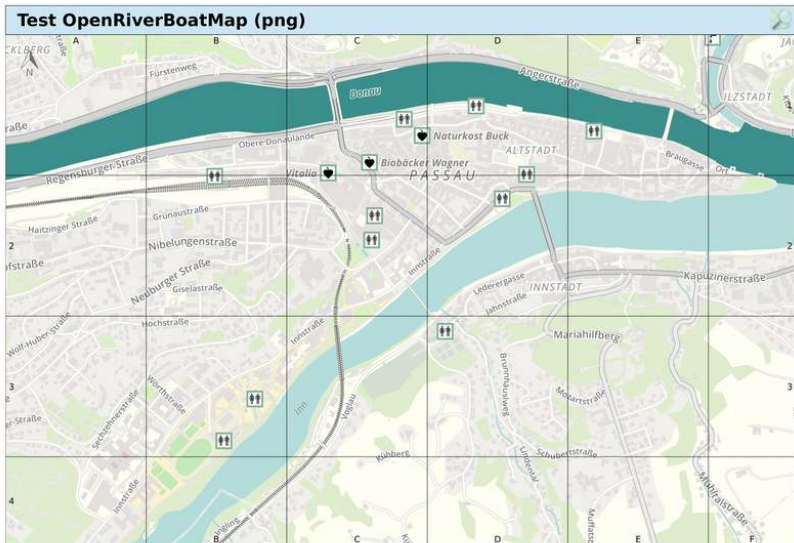


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Map rendered on: 18 August 2017. OSM data updated on: 25 August 2017 22:46. The map may be incomplete or inaccurate.

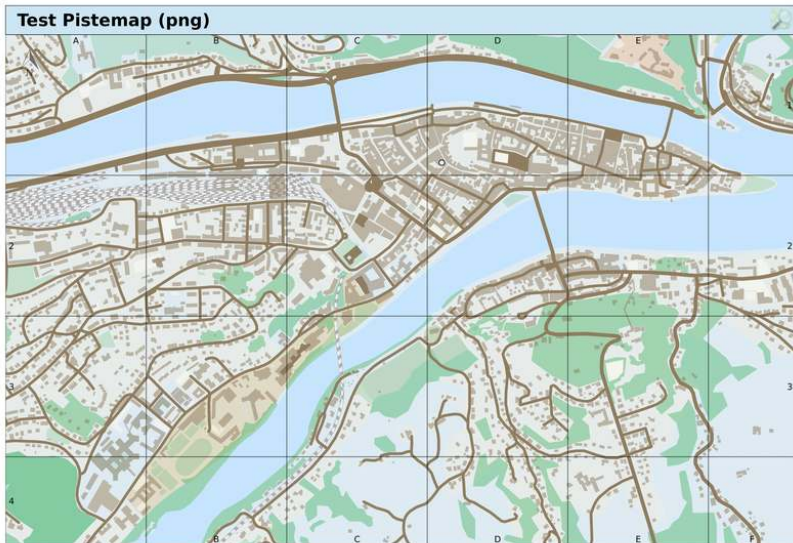
OpenTopoMap Stil



OpenRiverBoat Stil

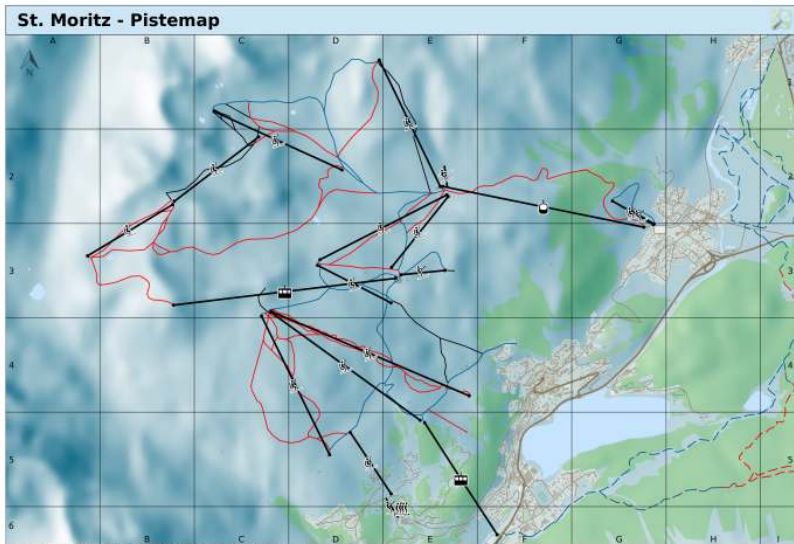


Pistemap Stil



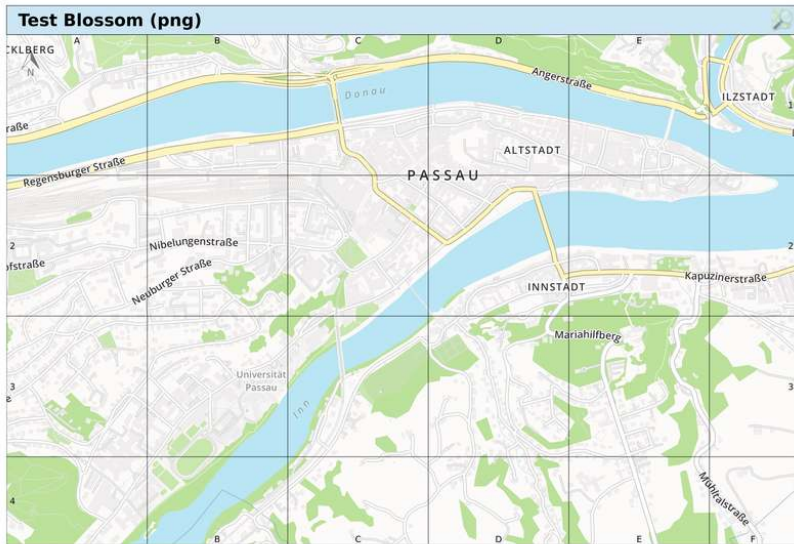
Copyright © 2017 MapOSMatic/OSCityMap developers. Map data © 2017 OpenStreetMap.org and contributors. <http://osm.com/copyright>
Map rendered on 18 August 2017. OSM data updated on: 15 August 2017 22:44. The map may be incomplete or inaccurate.

Pistemap Stil



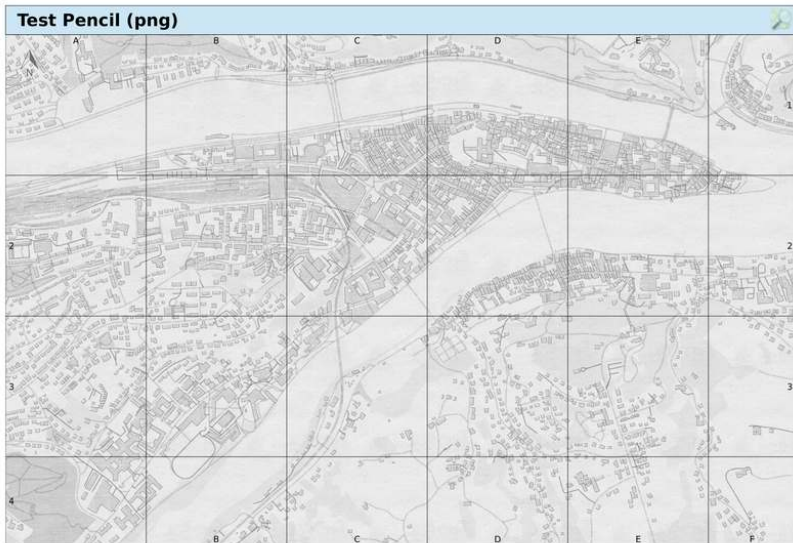
Copyright © 2017 Mapbox/Mapbox/OSM/Map developers. Map data © 2017 OpenStreetMap.org and contributors. <https://openstreetmap.org>
Map rendered on 22 März 2017. OSM data updated on 22 März 2017 11:45. The map may be incomplete or inaccurate.

Blossom Stil



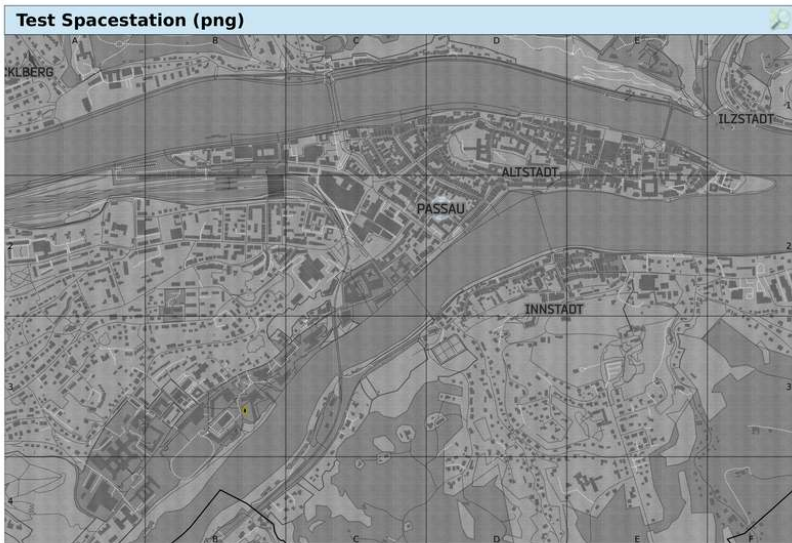
Copyright © 2017 MapOSMatic/OSCityMap developers. Map data © 2017 OpenStreetMap.org and contributors. <http://osm.org/copyright>
Map rendered on: 18 August 2017. OSM data updated on: 25 August 2017 22:44. The map may be incomplete or inaccurate.

Pencil Stil



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Map rendered on: 18 August 2017. OSM data updated on: 31 August 2017 22:46. The map may be incomplete or inaccurate.

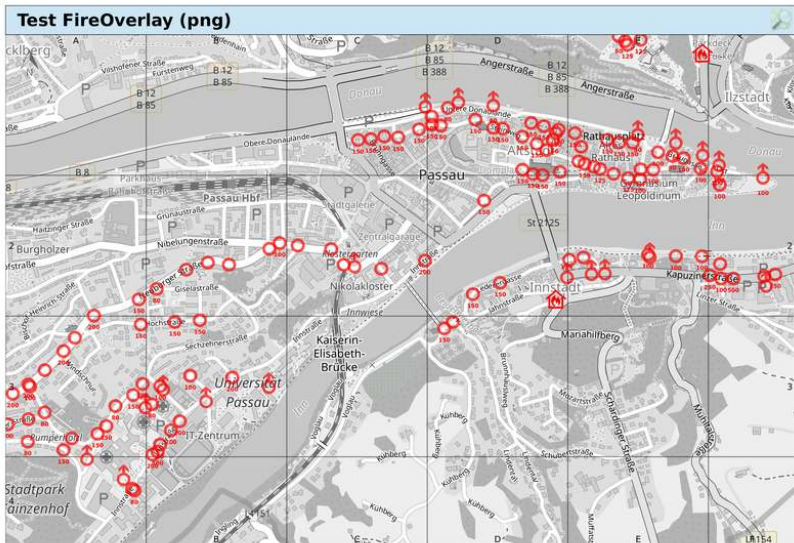
Space Station Stil



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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:46. The map may be incomplete or inaccurate.

Overlays

Emergency Overlay



Emergency Overlay Source

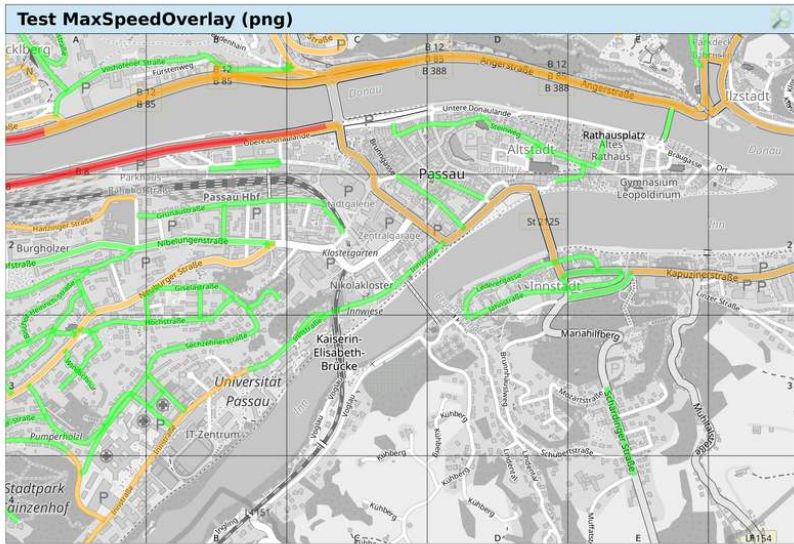
```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE Map [
]>

<Map srs="+init=epsg:3857" bgcolor="transparent">

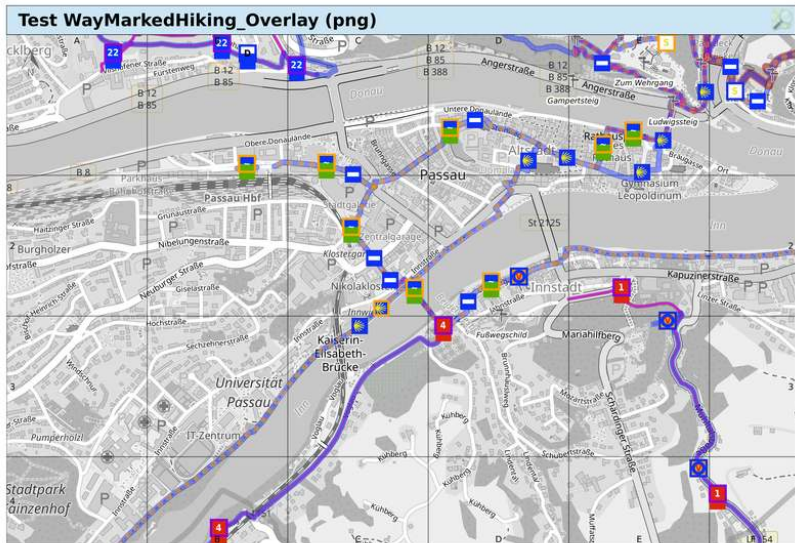
<Style name="fire_hydrant">
  <Rule>
    <MaxScaleDenominator>20000</MaxScaleDenominator>
    <PointSymbolizer file="symbols/fire_hydrant.png"/>
  </Rule>
</Style>

<Layer name="fire_hydrant" status="on" srs="+init=epsg:3857">
  <StyleName>fire_hydrant</StyleName>
  <Datasource>
    <Parameter name="table">
      (SELECT way
       FROM planet_osm_point
       WHERE tags->'emergency' = 'fire_hydrant'
       ) AS way
    </Parameter>
    <Parameter name="geometry_field">way</Parameter>
    <Parameter name="dbname">gis</Parameter>
    <Parameter name="estimate_extent">>false</Parameter>
    <Parameter name="extent">-20037508, -19929239, 20037508, 19929239</Parameter>
    <Parameter name="user">maposmatic</Parameter>
    <Parameter name="type">postgis</Parameter>
    <Parameter name="port">5432</Parameter>
  </Datasource>
</Layer>
```

MaxSpeed Overlay

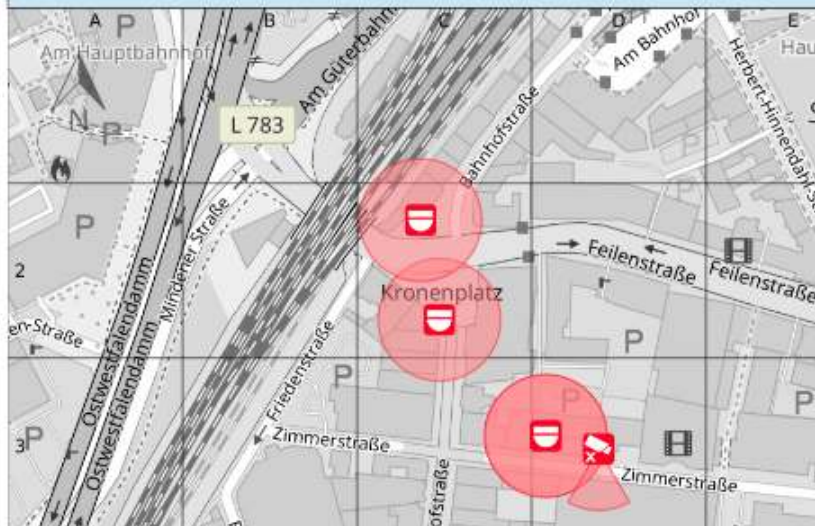


WayMarked Trails Overlay



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Map rendered on: 18 August 2017. OSM data updated on: 15 August 2017 22:46. The map may be incomplete or inaccurate.

Bielefeld Surveillance



- In the last overlay we could see circles and circle segments
- Neither Mapnik nor PostGIS really support this
- So we're drawing these directly into the cairo context of the map
- ... using a rather simple plugin API

Overlay Plugins 2

All plugins are in the folder

`ocitysmap/ocitysmap/layout/render_plugins`

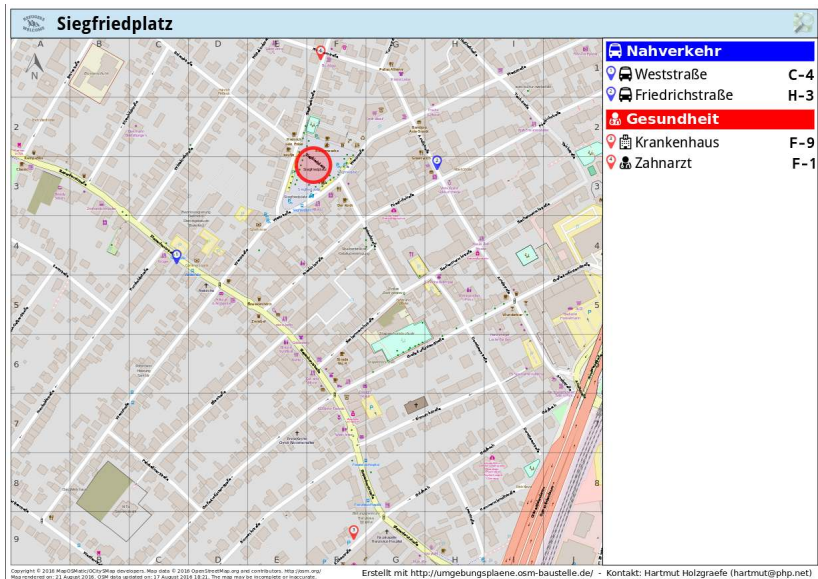
A plugin needs to implement exactly one function: `def`

`render(renderer, ctx):`

`renderer` is an `OcitysMap` `renderer` object

`ctx` is a `cairo` graphics context

Neighbourhood plans



Umgebungsplan-Frontend

<http://get-maps.org/>

The screenshot displays the OpenStreetMap web interface. The main map area shows a city street grid with several location markers: two red pins, two blue pins, and a black circle with a crosshair. A 'New node' dialog box is overlaid on the right side of the map. The dialog box has the following fields and options:

- Name:** (empty text field)
- Zahnarzt:** (checkbox)
- Icon:** (dropdown menu showing 'Arzt' selected)
- Streichen:** (checkbox) with a list of categories: Einkaufen, Supermarkt, Discounter.
- Transport:** (checkbox) with a list of categories: Bus, Taxi, Straßen- / U-Bahn, Eisenbahn.
- Gesundheit:** (checkbox) with a list of categories: Arzt, Krankenhaus, Apotheke.
- Religion:** (checkbox) with a list of categories: Kirche, Moschee.
- Essen & Trinken:** (checkbox) with a list of categories: Gaststätte, Cafe, Restaurant, Bar.
- Unterhaltung:** (checkbox) with a list of categories: Club/Disco, Kino.
- Wohnimmobilien:** (checkbox)

The dialog box also features a text input field containing the number '8.522560' and a close button (X).

Running your own instance

Own instance – why?

Own instance – why?

- Tweaking your own private stylesheets, esp. overlays

Own instance – why?

- Tweaking your own private stylesheets, esp. overlays
- Work offline

Own instance – why?

- Tweaking your own private stylesheets, esp. overlays
- Work offline
- Keep your results private

Own instance – why?

- Tweaking your own private stylesheets, esp. overlays
- Work offline
- Keep your results private
- Work on new features or fixing bugs

- Mapnik

Requirements

- Mapnik
- Mapnik Stylesheets

Requirements

- Mapnik
- Mapnik Stylesheets
- Extra data for:

Requirements

- Mapnik
- Mapnik Stylesheets
- Extra data for:
 - Coast lines

Requirements

- Mapnik
- Mapnik Stylesheets
- Extra data for:
 - Coast lines
 - Elevation data

Requirements

- Mapnik
- Mapnik Stylesheets
- Extra data for:
 - Coast lines
 - Elevation data
 - ...

Requirements

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 - Coast lines
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- OSM Data in a local PostGIS database

Requirements

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 - typically `osm2pgsql` for importing the data

Requirements

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- Mapnik
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 - ...
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 - OSM .xml or .pbfs als input data
 - typically `osm2pgsql` for importing the data
- A local webserver
- ...

That's a lot ...

Wouldn't it be nice if this somehow worked “out of the box” already?

A virtual machine ...

```
git clone https://github.com/hholzgra/maposmatic-vagrant  
  
cd maposmatic-vagrant  
  
wget -o data.osm.pbf http://download.geofabrik.de/...  
  
vagrant up
```


Where to go from here ...?

What I've learned

What I've learned

- Rendering for print is more challenging than for the screen

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- Rendering for print is more challenging than for the screen
- Tools to make it possible exist

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- Tools to make it possible exist
- A web frontend seems to ease things a lot
- Getting there took more time than expected
- ... and was frustrating at times

What I've learned

- Rendering for print is more challenging than for the screen
- Tools to make it possible exist
- A web frontend seems to ease things a lot
- Getting there took more time than expected
- ... and was frustrating at times
- ... but succeeded in the end

Questions? Suggestions? Wishes?



Contact hartmut@php.net

My MapOSMatic Instance <http://maposmatic.osm-baustelle.de/>

Neighbourhood plans <http://umgebungsplaene.osm-baustelle.de/>

Github Projects [maposmatic web interface](#)

<https://github.com/hholzgra/maposmatic>
[maposmatic render script](#)

<https://github.com/hholzgra/ocitysmap>
[maposmatic vagrant VM](#) <https://github.com/hholzgra/maposmatic-vagrant>