

# OSM Daten zu Papier bringen

Hartmut Holzgraefe

*hartmut@php.net*

SOTM 2018 - Jul 29, 2018

# 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



# Who am I?

- Hartmut Holzgraefe
- from Bielefeld, Germany
- studied electric engineering and computer science
- OpenStreetMapper since 2007



# 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 facilites 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

OpenStreetMap

Edit History Export GPS Traces User Diaries Copyright Help About Log In Sign Up

Search Where am I? Go

Share

Link or HTML  Include marker

[Link](http://www.openstreetmap.org/map) [Short Link](#) [HTML](#)

Geo URI <geo:50.7390,7.0927?z=16>

Image  Set custom dimensions

Format: [PDF](#)

Scale: 1: 2050

Image will show standard layer at 2380 x 1677

[Download](#)

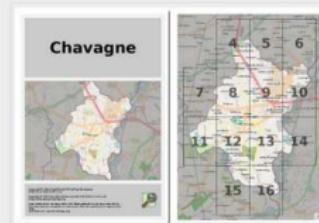
OpenStreetMap contributors [Make a Donation](#)

# 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

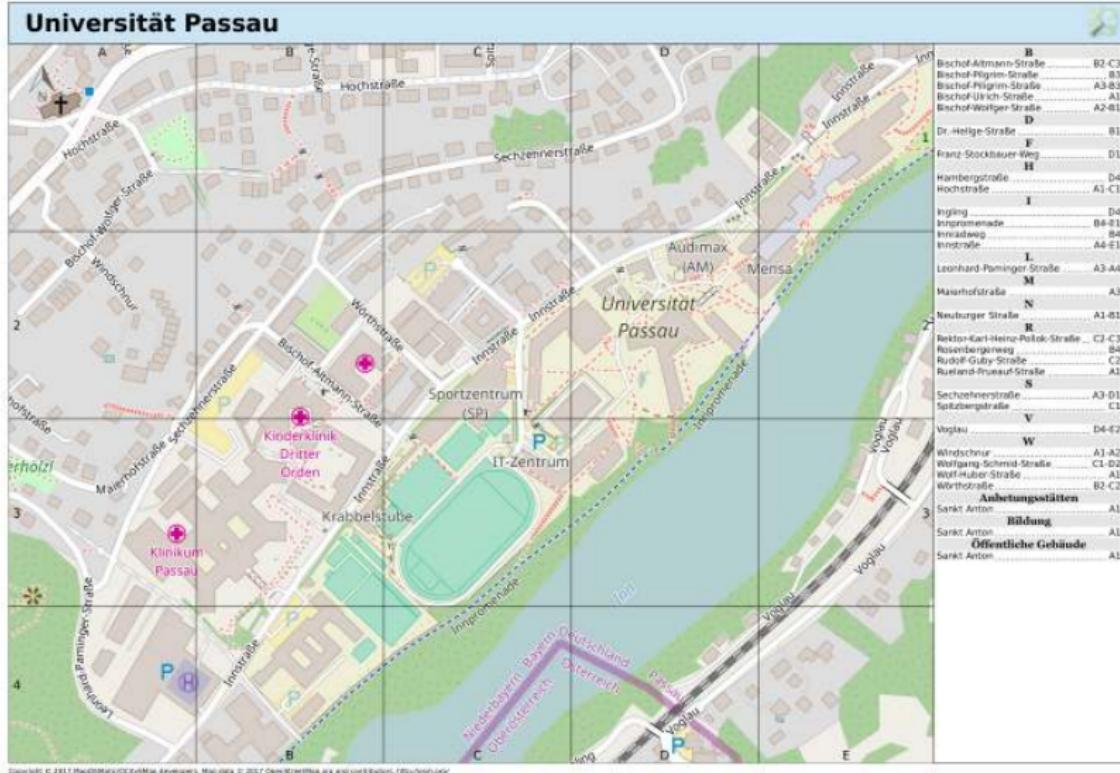
## Donate

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

Universität Passau

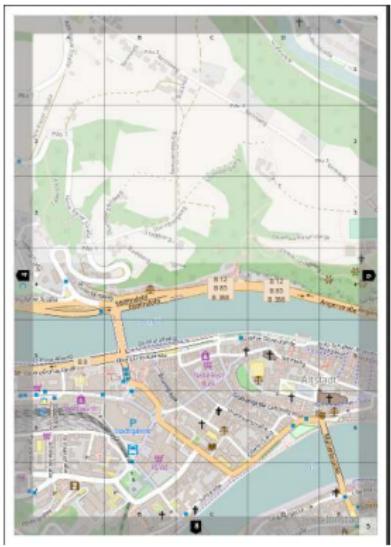


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# MapOSMatic – Multi Page

## Passau mehrseitig

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Map: OpenStreetMap contributors  
Raster Data: © 2011 Google and MapQuest (via Nominatim).  
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This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.  
This file has been generated according to the license below, down the page.  
More: <http://www.maposmatic.org>



Bischot-Altmann-Straße	5, B7	I	7, C1-E1 8, A1-E1	5, B7 7, C1-E1 8, B4
	5, B7		4, A7 6, A7	4, A7 6, A7
T, C1-E1	5, B2-E3		6, A7 7, C4	5, B7 7, D2
T, C1-E1	5, B2-E3		6, A7 7, C4	5, B7 7, D2
Bischot-Pilgrim-Straße	5, B7	A	6, A4 7, C3	5, B2 7, E2
	5, B7		6, A4 7, C3	5, B2 7, E2
Bischot-Pilgrim-Straße	5, B7-C7	Innstadt	4, C1-D7 5, B1-E1	5, C7 6, A1-E1
	5, B7-C7		4, C1-D7 5, B1-E1	5, C7 6, A1-E1
Bischot-Ulrich-Straße	4, A7	C	6, A7 7, C3	5, C1 6, A3
	4, A7		6, A7 7, C3	5, C1 6, A3
Bischot-Wolfgang-Straße	4, A7-C7	Vorstadt	4, C1-E7 5, B1-E3	5, C7 6, A1-E3
	4, A7-C7		4, C1-E7 5, B1-E3	5, C7 6, A1-E3
Bischot-Wolfgang-Straße	5, B1-C7	L	6, B1-E4 7, C1-E1	7, D3 8, A1-E1
	5, B1-C7		6, B1-E4 7, C1-E1	7, D3 8, A1-E1
Dr. Hege-Straße	4, D7	M	5, C7 6, B1-C4	4, C7-E7 5, A7-C7
	5, B7		5, C7 6, B1-C4	4, C7-E7 5, A7-C7
Franz-Stockhausen-Weg	4, B7	N	6, B1-C3 7, B2-C2	5, A7-C7 6, B2-C2
	5, A7		6, B1-C3 7, B2-C2	5, A7-C7 6, B2-C2
Hambergerstraße	4, E7	R	5, B1-C1 6, B1-C1	7, D2-E2 8, A1-E1
	5, A7		5, B1-C1 6, B1-C1	7, D2-E2 8, A1-E1
Hochstraße	4, A7-C7	Wolfsgrabenweg	4, D7 5, B2-E3	4, D7 5, B2-E3
	5, A7-C7		4, D7 5, B2-E3	4, D7 5, B2-E3

# My own MapOSMatic instance

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

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.

[Einen Plan erstellen >](#) [Mehr erfahren](#)

The screenshot shows a map of the area around Chavagne, France. The map is divided into 16 numbered regions (1-16) for planning purposes. Region 1 is highlighted in yellow. Below the map, there is a legend and some descriptive text in French.

Hartmut Holzgraefe (OpenStreetMap)

OSM Daten zu Papier bringen

SOTM 2018 - Jul 29, 2018

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# Select area

✓ MyOSMatic [Home](#) [Create map](#) [Maps](#) [About](#) [English](#)  Search for a map

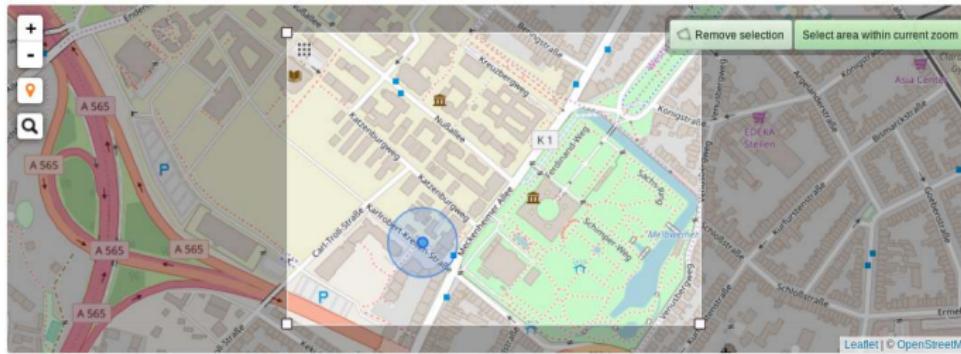
## Generate your own map

[City search](#)

[Geographic area](#)

[GPX track](#)

[Umap data file](#)



50.7275 - 7.0865 → 50.7235 - 7.0954



# 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.

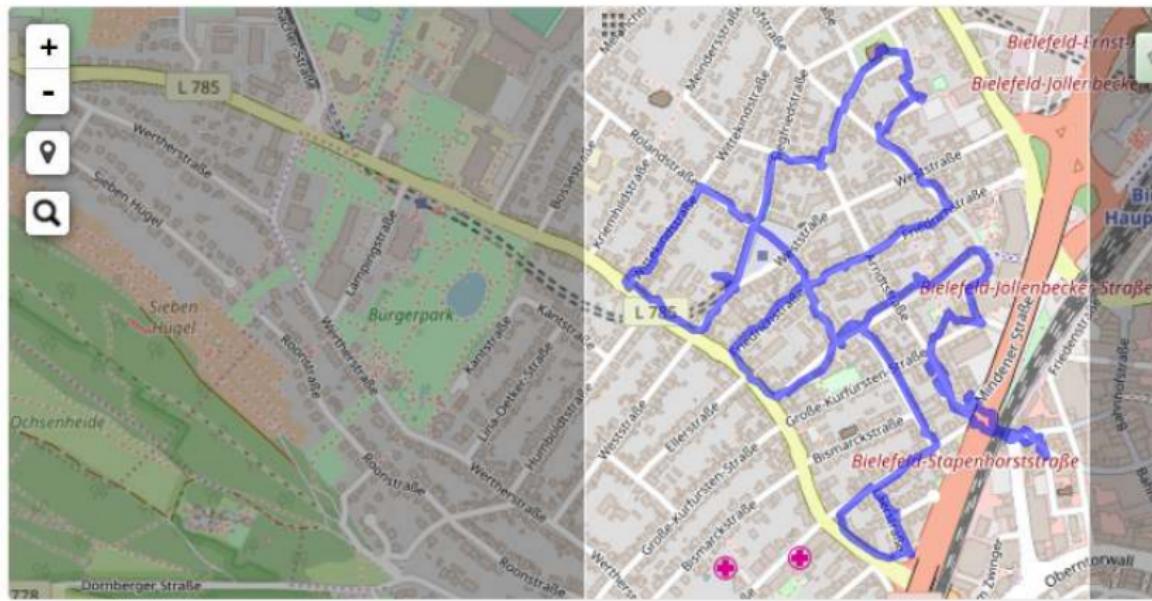
# GPX import

City search

Geographic area

GPX track

Umap data file



52.0320

. 8.5178

→

52.0225

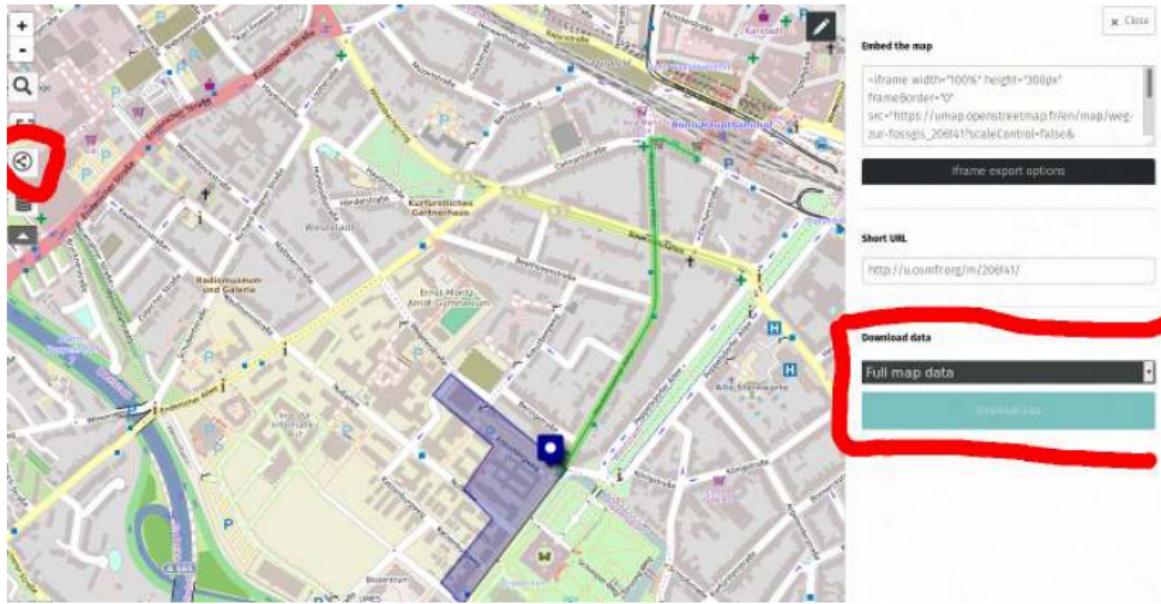
. 8.5306



# GPX Ergebnis



# UMAP exportieren



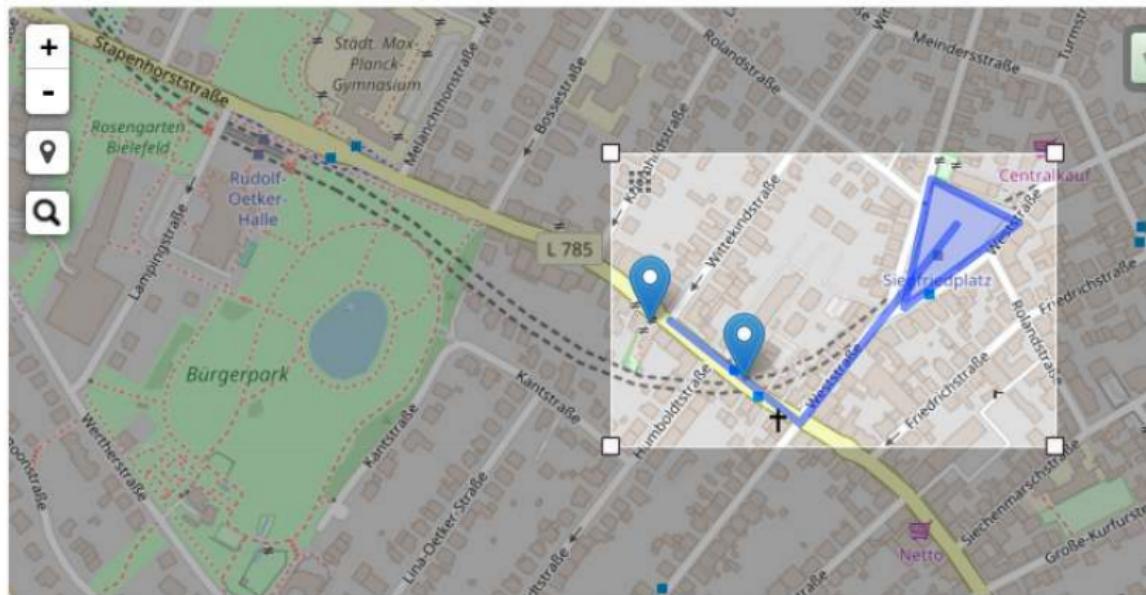
# UMAP importieren

City search

Geographic area

GPX track

Umap data file



52.0288

8.5181

→ 52.0265

8.5238



# UMAP Ergebnis

## Unbenannte Karte



# Layout

MyOSMatic Home Create map Maps About Donate English

Search for a map

## 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.



# Map styles

✓ MyOSMatic

Home

Create map

Maps

About

Donate

Deutsch

Search for a map

## Generate your own map

### Stylesheet

- Current CartoCSS OSM style
- Current CartoCSS OSM style without streetnames
- Monochrome version of CartoCSS OSM
- The Mapomatic 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.

# Overlays

✓ MyOSMatic

[Home](#)

[Create map](#)

[Maps](#)

[About](#)

[Donate](#)

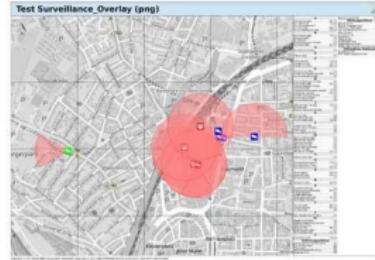
English ▾

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
- ptmap 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.

# Paper format

A screenshot of the MyOSMatic website header. It includes a logo, navigation links for 'Start', 'Plan erstellen', 'Pläne', 'Über', 'Spenden', and language selection ('Deutsch'). A search bar at the top right contains the placeholder 'Nach einem Plan suchen'.

## Erzeugen Sie Ihren eigenen Plan

### Papierformat

- A4 (21.0 × 29.7 cm<sup>2</sup>)
- A3 (29.7 × 42.0 cm<sup>2</sup>)
- A2 (42.0 × 59.4 cm<sup>2</sup>)
- A1 (59.4 × 84.1 cm<sup>2</sup>)
- A0 (84.1 × 118.9 cm<sup>2</sup>)
- US letter (21.6 × 27.9 cm<sup>2</sup>)
- Automatische Auswahl (9.2 × 9.2 cm<sup>2</sup>)

### Papierausrichtung

- Hochkant
- Quer



### Papierformat und -größe

Wählen Sie Format, Größe und Ausrichtung für Ihren Plan

# Title and Language

The screenshot shows the top navigation bar of the MyOSMatic website. It includes links for 'Home', 'Create map', 'Maps', 'About', 'Donate', and a language dropdown set to 'English'. A search bar at the top right contains the placeholder '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 × 29.7 cm<sup>2</sup>)

Generate »

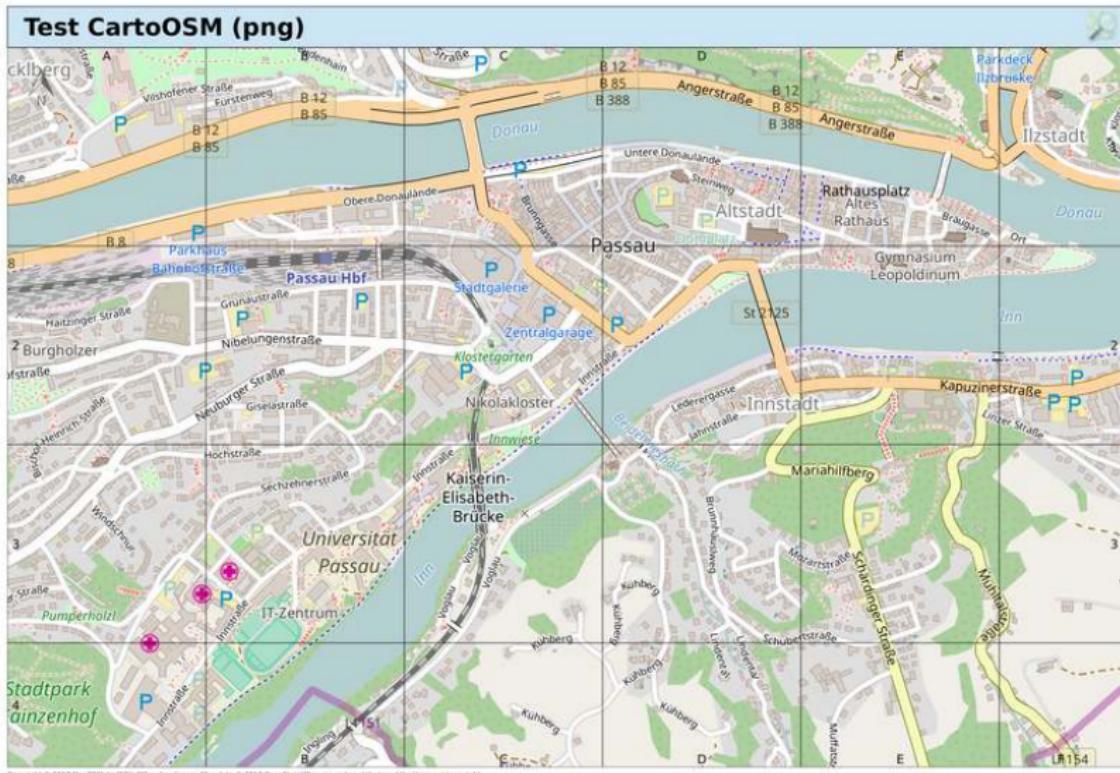
### Almost there!

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

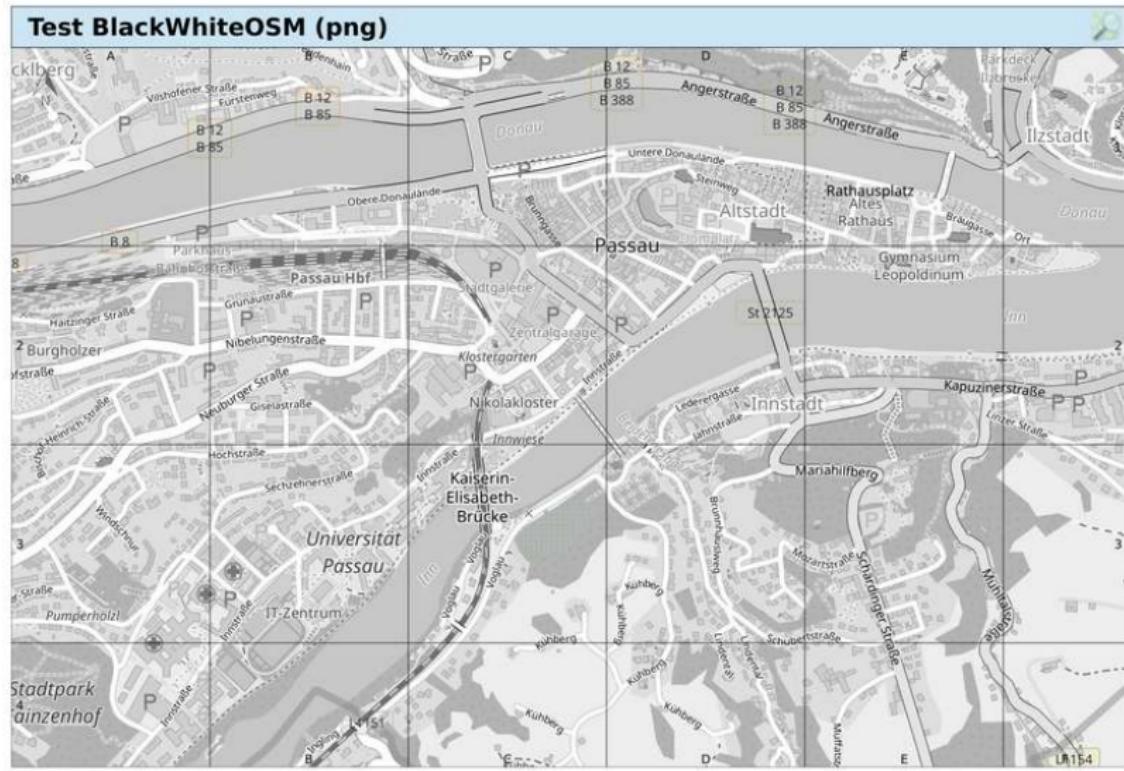


## An overview of available map styles

# OSM Carto Style

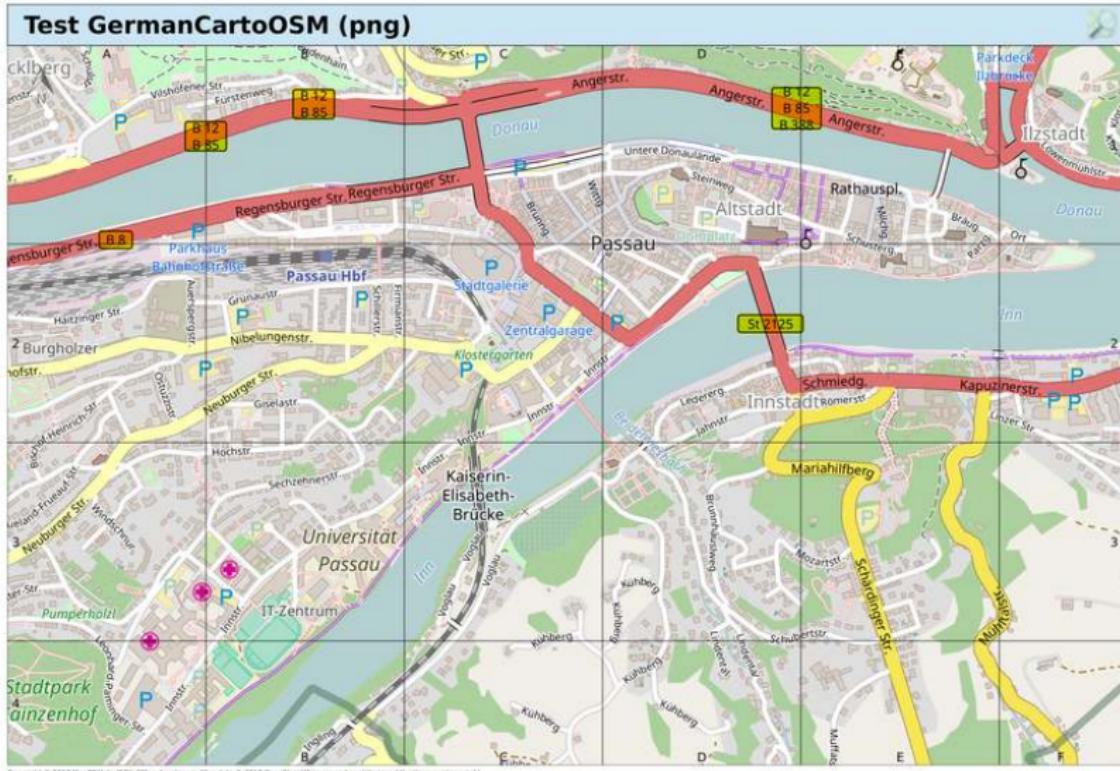


## Test BlackWhiteOSM (png)



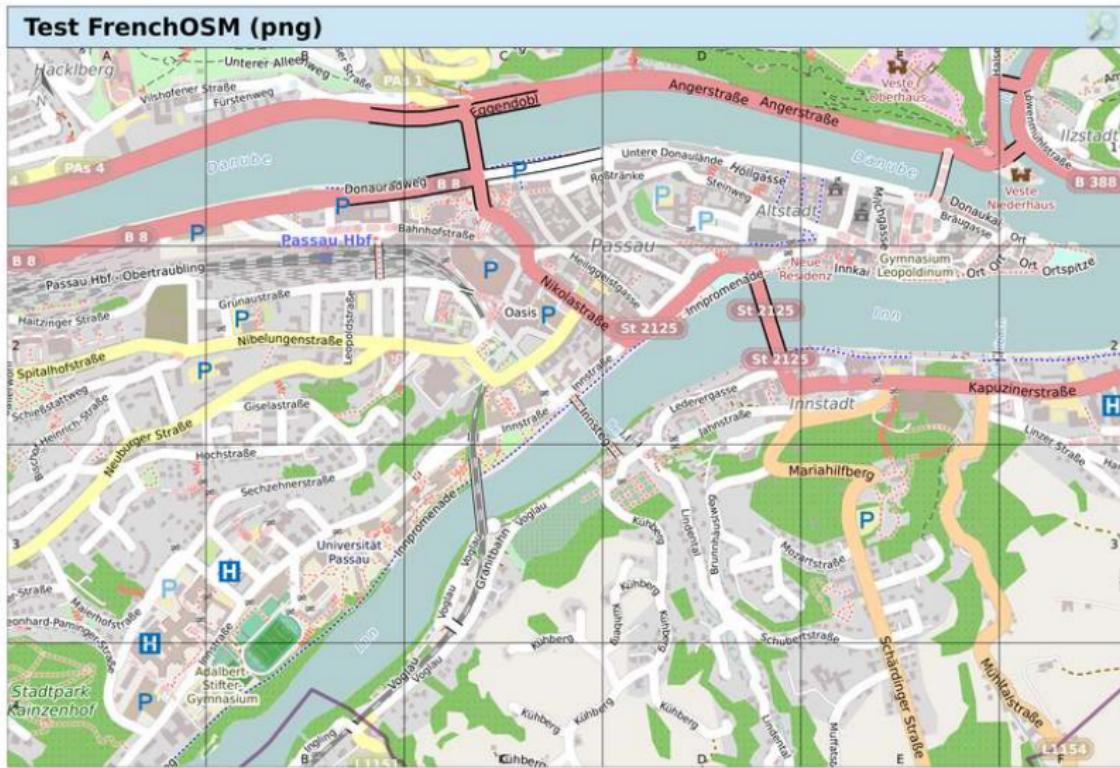
Copyright © 2017 MapOSMatic/OCCityMap developers. Map data © 2017 OpenStreetMap.org and contributors. <http://www.osm.org/copyright>. Map rendered on: 18 August 2017. OSM data updated on: 35 August 2017 22:30. The map may be incomplete or inaccurate.

# German OSM Style

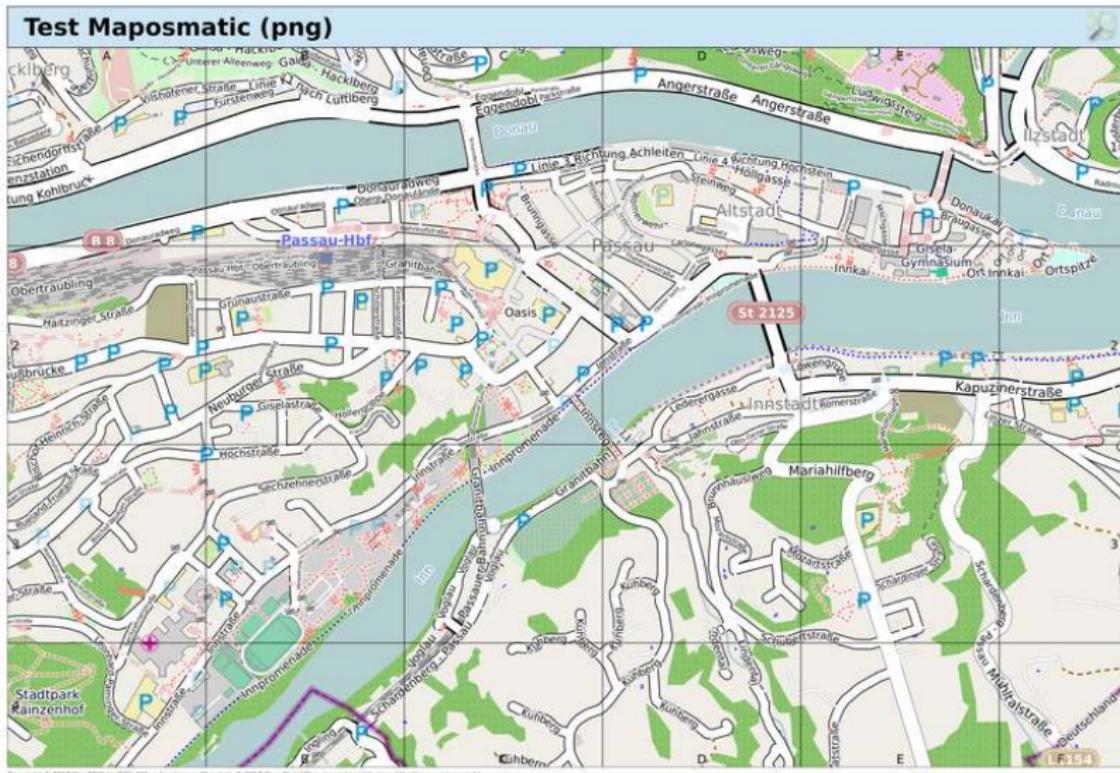


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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017.22:44. The map may be incomplete or inaccurate.

# French OSM Stil



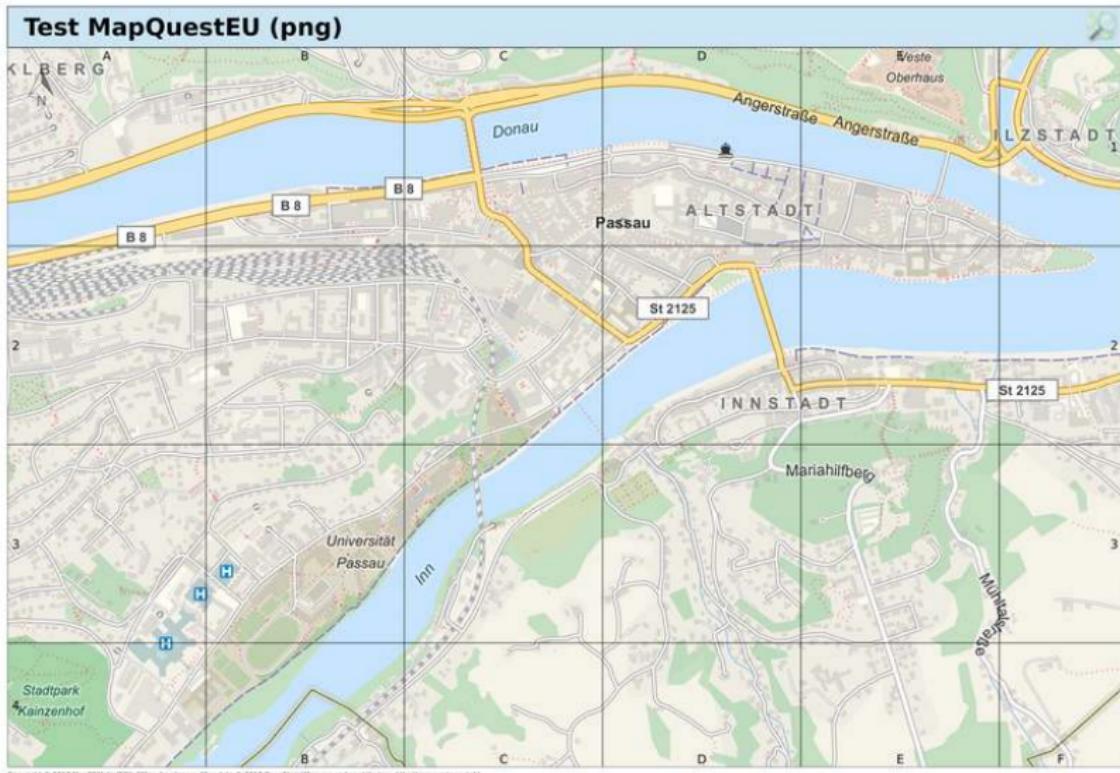
# MapOSMatic Printable Style



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017.22.39. The map may be incomplete or inaccurate.

# MapQuest EU Style



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017.22.44. The map may be incomplete or inaccurate.

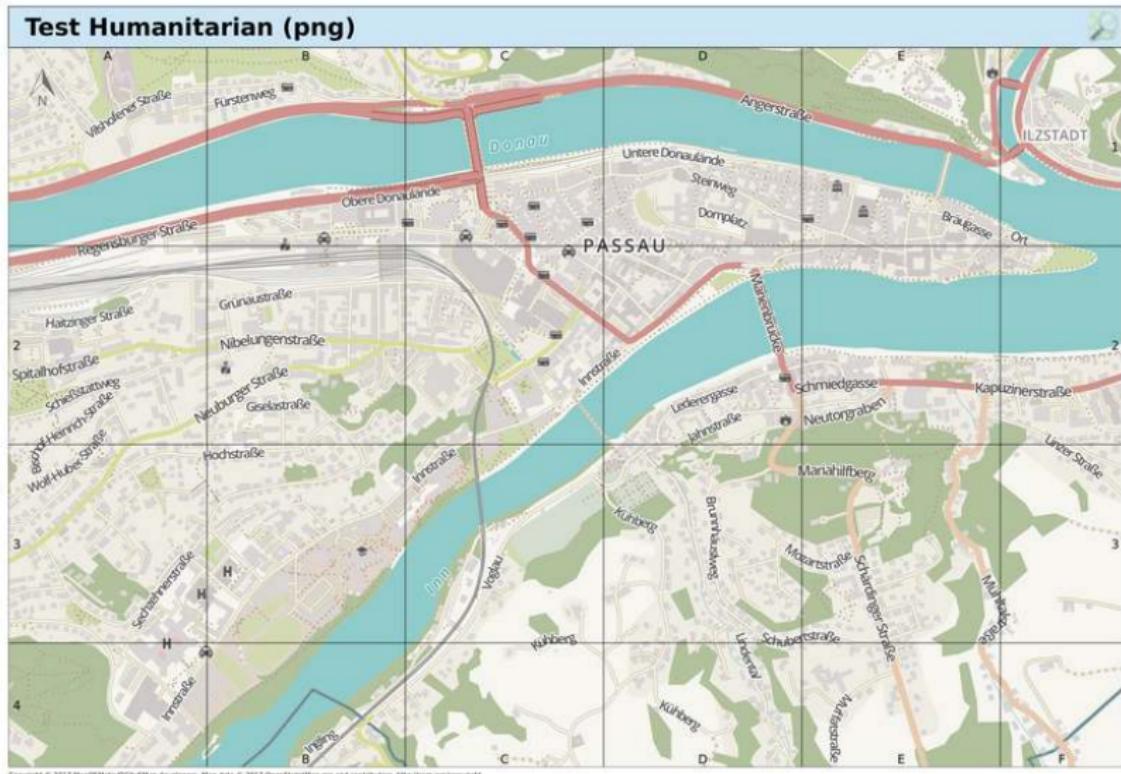
# OSM Bright Style



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017.22.44. The map may be incomplete or inaccurate.

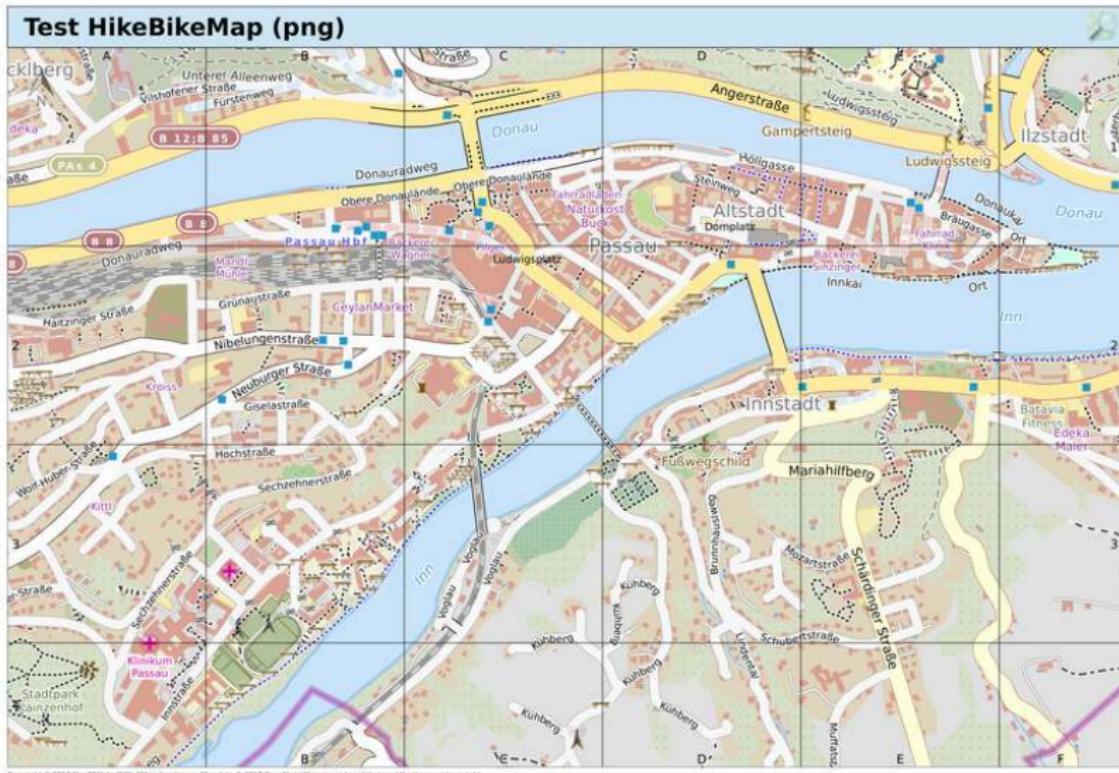
## Humanitarian Style

## Test Humanitarian (png)



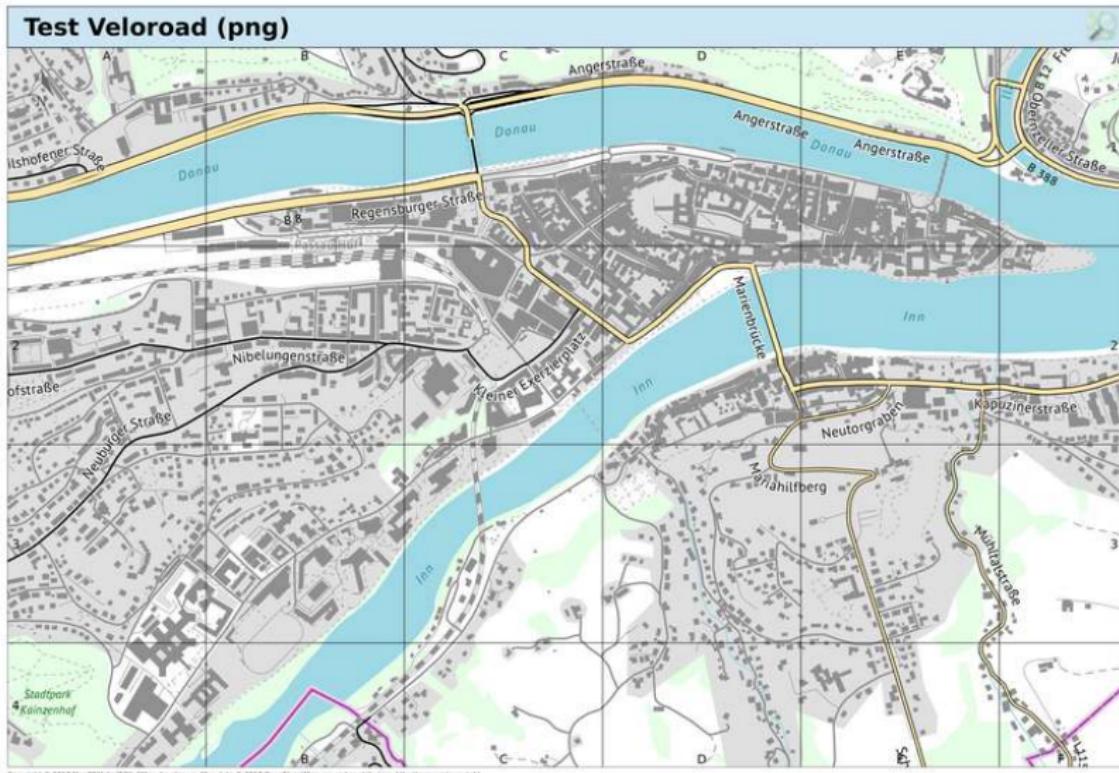
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Map rendered on 18 August 2017. OSM data updated on: 25 August 2017 22:30. The map may be incomplete or inaccurate.

# Hike and Bike Map Stil



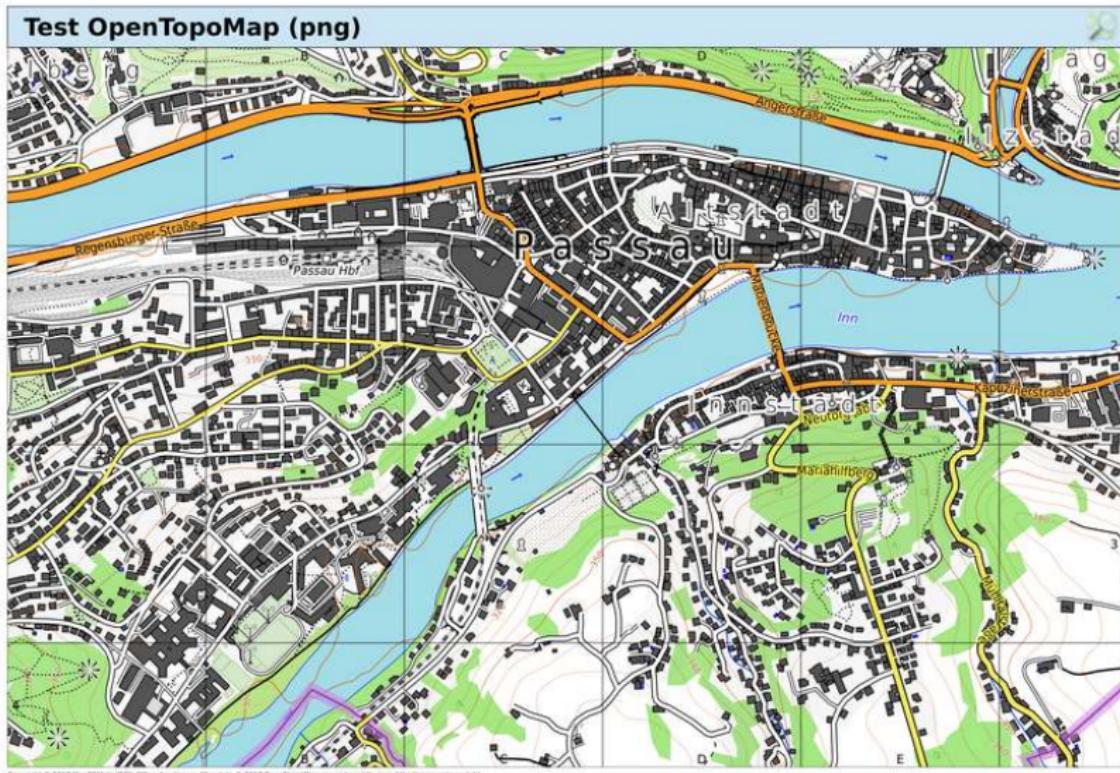
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# Veloroad Stil

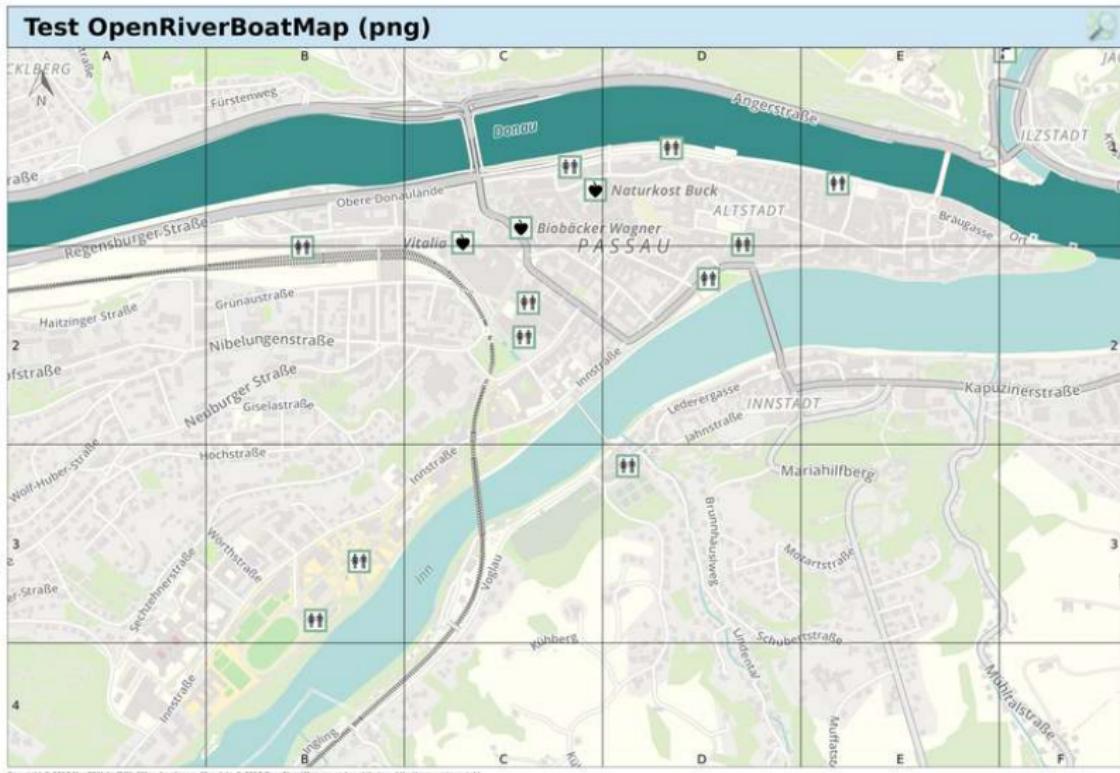


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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017. The map may be incomplete or inaccurate.

# OpenTopoMap Stil



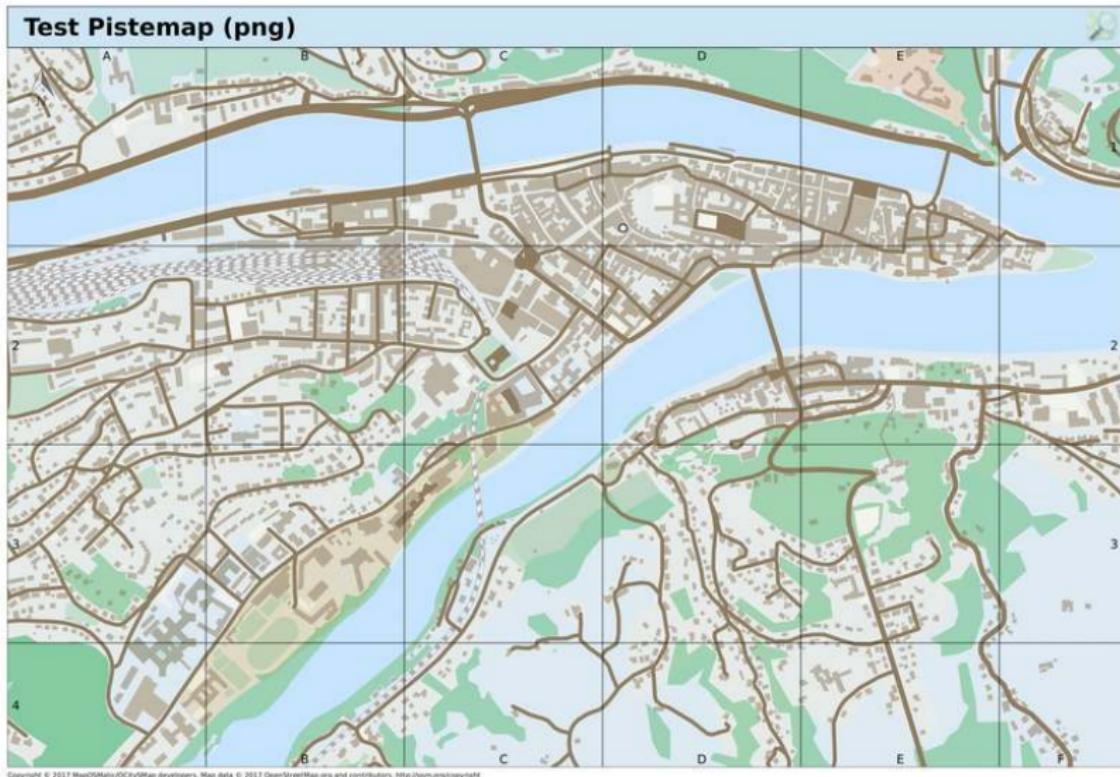
# OpenRiverBoat Stil



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017. The map may be incomplete or inaccurate.

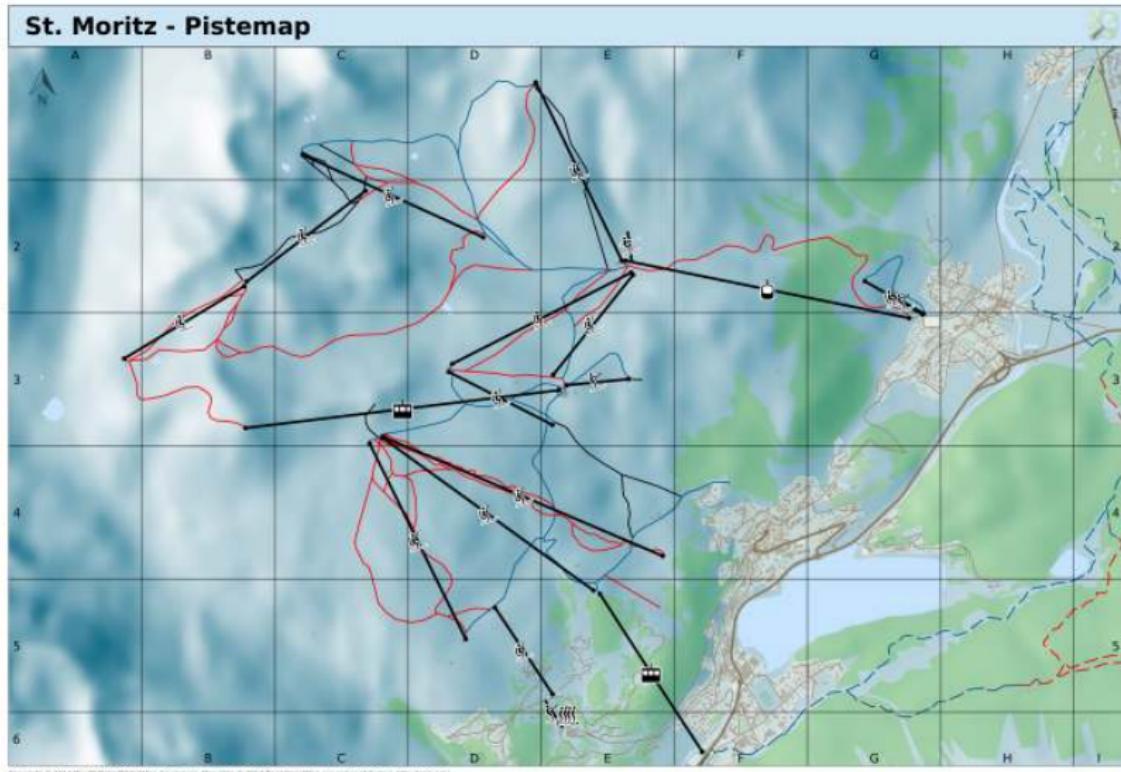
# Pistemap Stil

## Test Pistemmap (png)

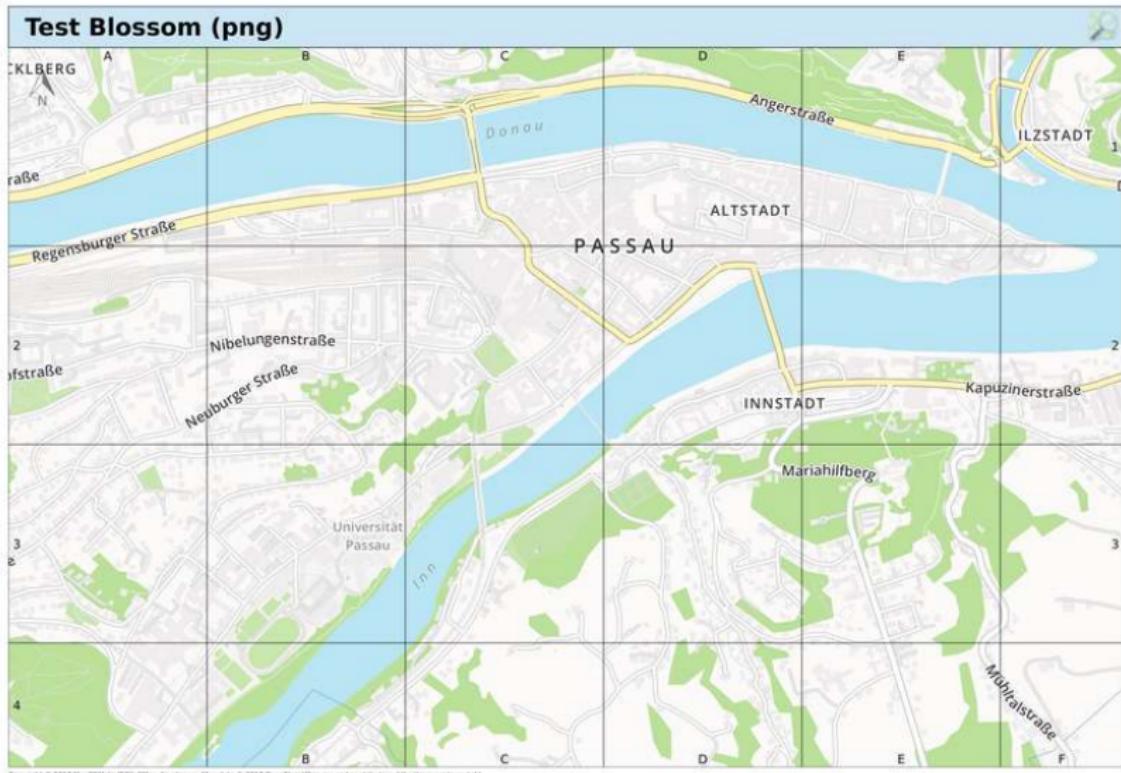


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Map rendered on 18 August 2017. OSM data updated on: 25 August 2017 22:44. The map may be incomplete or inaccurate.

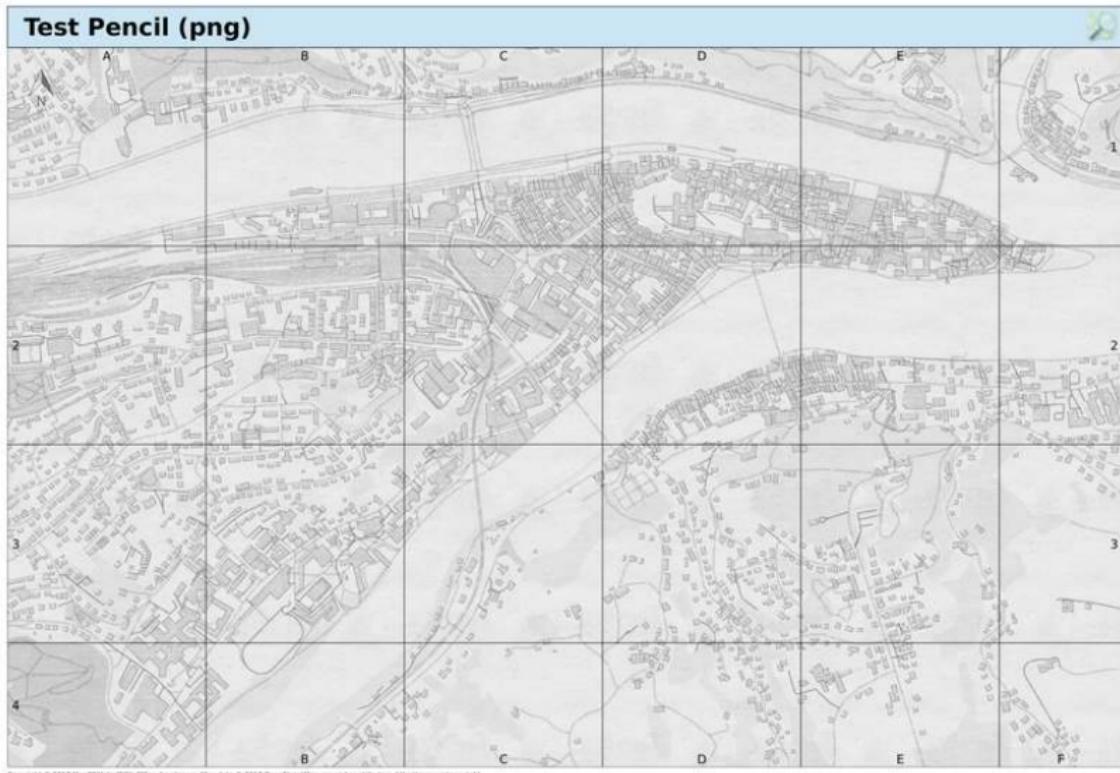
# Pistemap Stil



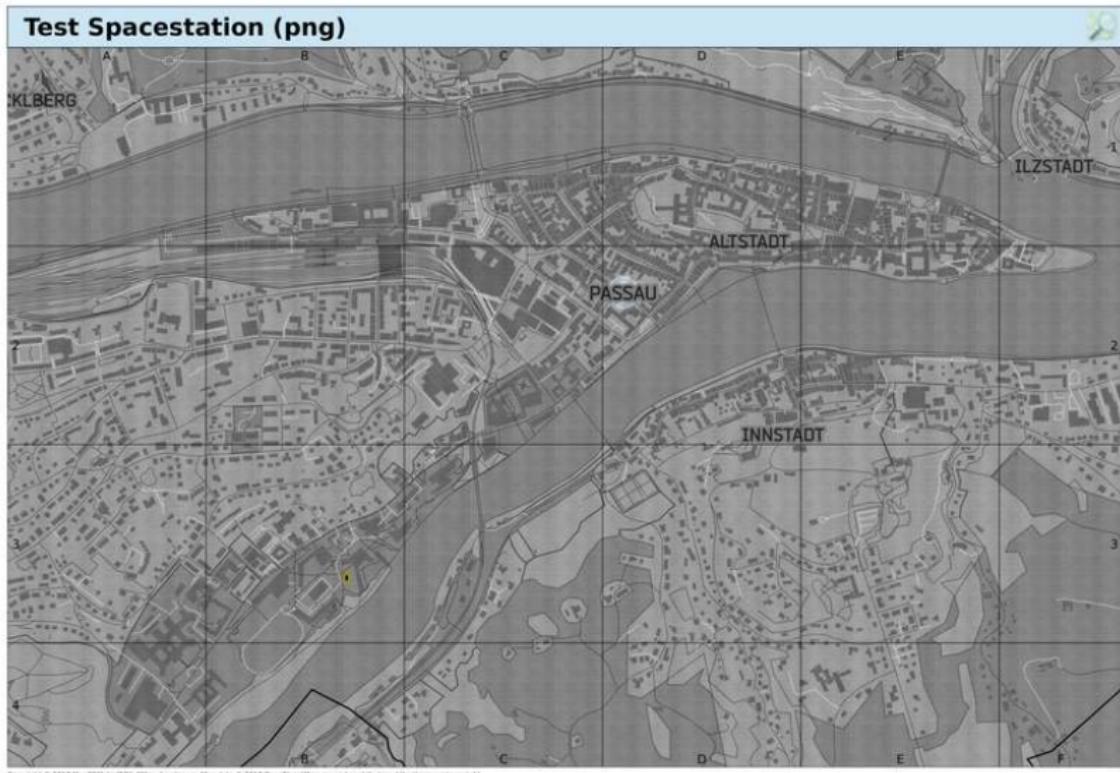
# Blossom Stil



# Pencil Stil

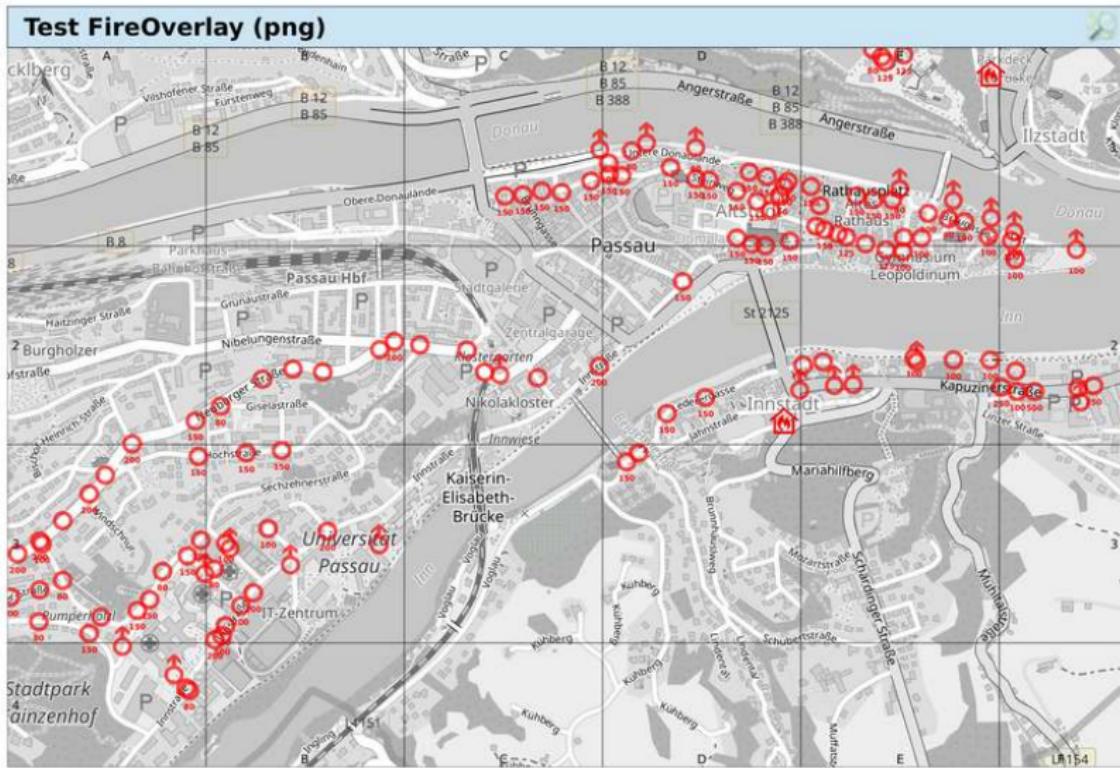


# Space Station Stil



# Overlays

# Emergency Overlay



# Emergency Overlay Source

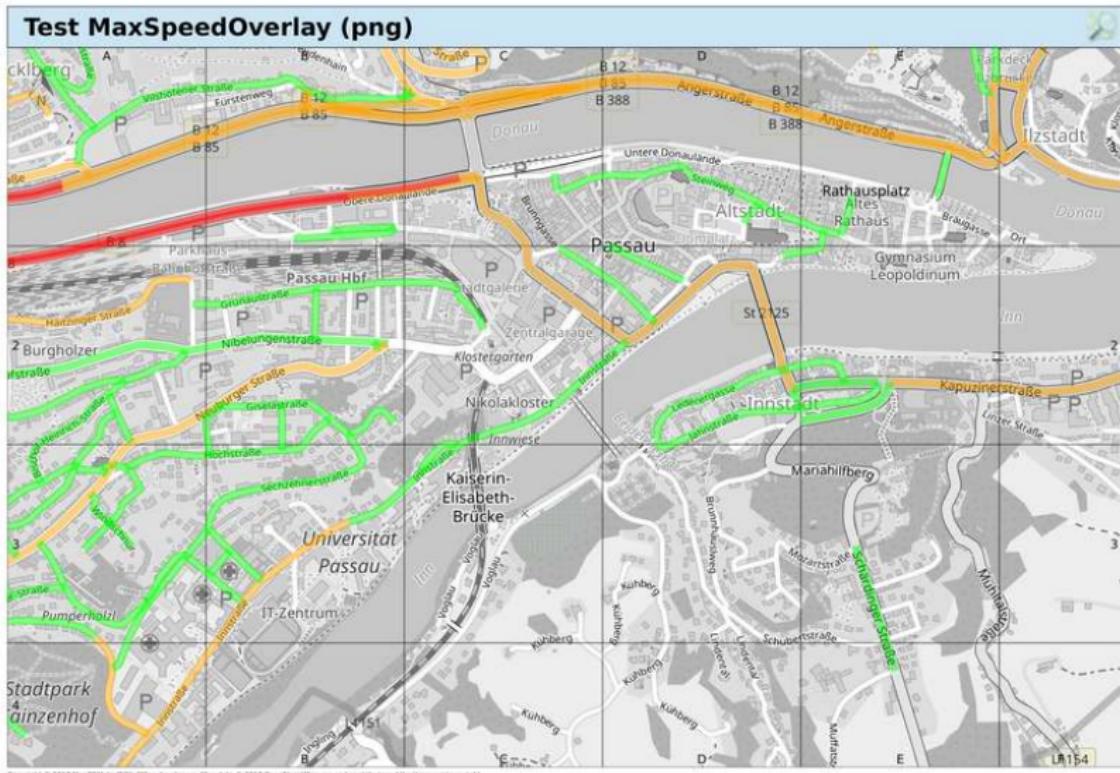
```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE Map [
]>

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

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

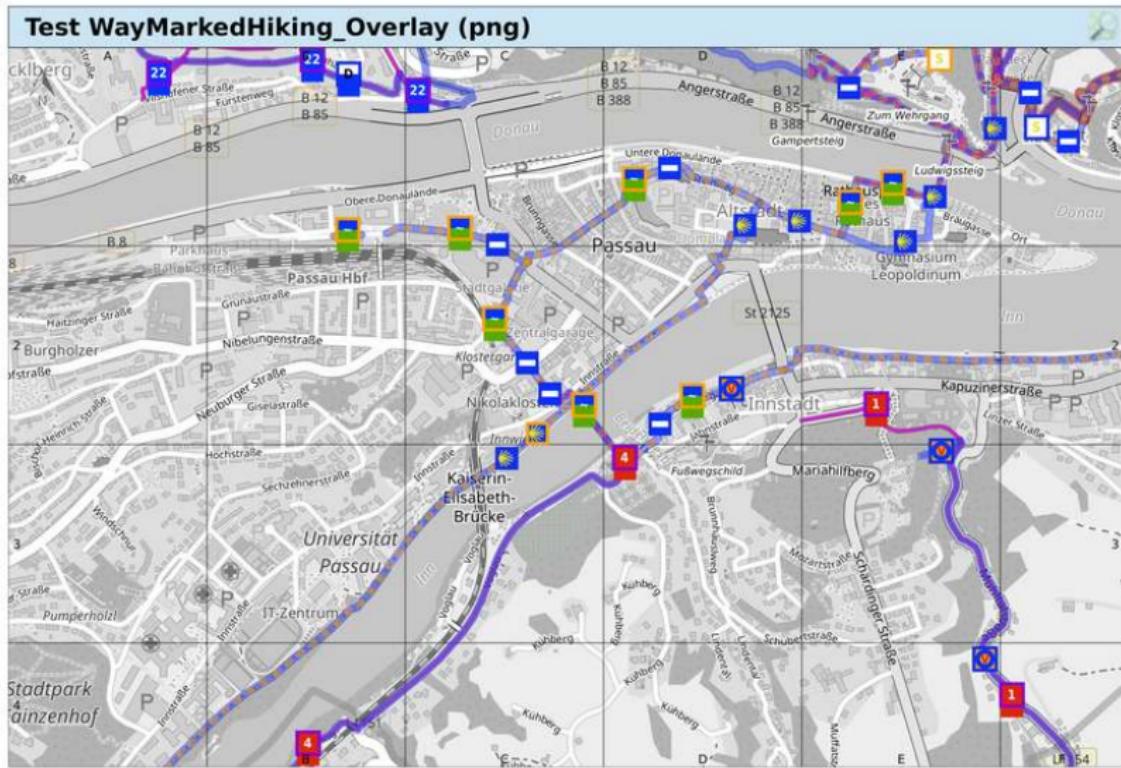
<Layer name="fire_hydrant" status="on"  srs="+init=epsg:3857">
  <StyleName>fire_hydrant</StyleName>
  <Datasource>
    <Parameter name="table">
      (SELECT way
       FROM planet_osm_point
       WHERE tags->'emergency' = 'fire_hydrant'
     ) AS way
    </Parameter>
    <Parameter name="geometry_field">way</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



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017.22.44. The map may be incomplete or inaccurate.

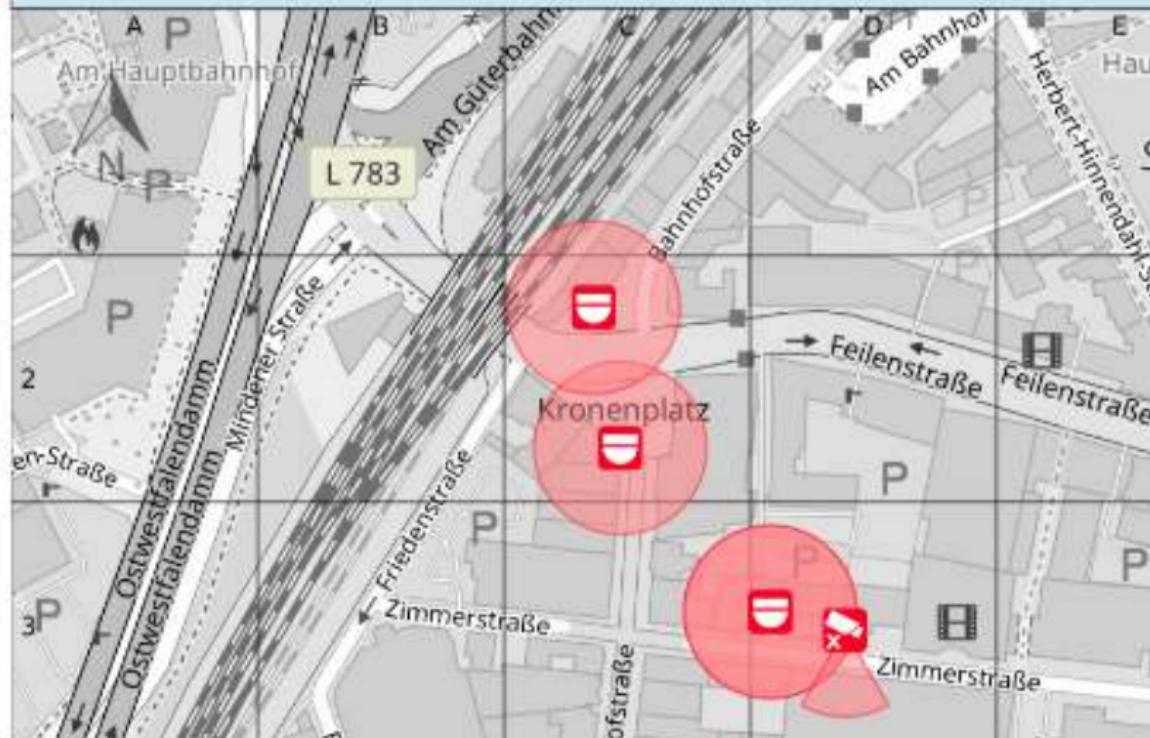
# WayMarkedTrails Overlay



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Map rendered on: 16 August 2017. OSM data updated on: 25 August 2017. The map may be incomplete or inaccurate.

## Bielefeld Surveillance



# Overlay Plugins

- 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

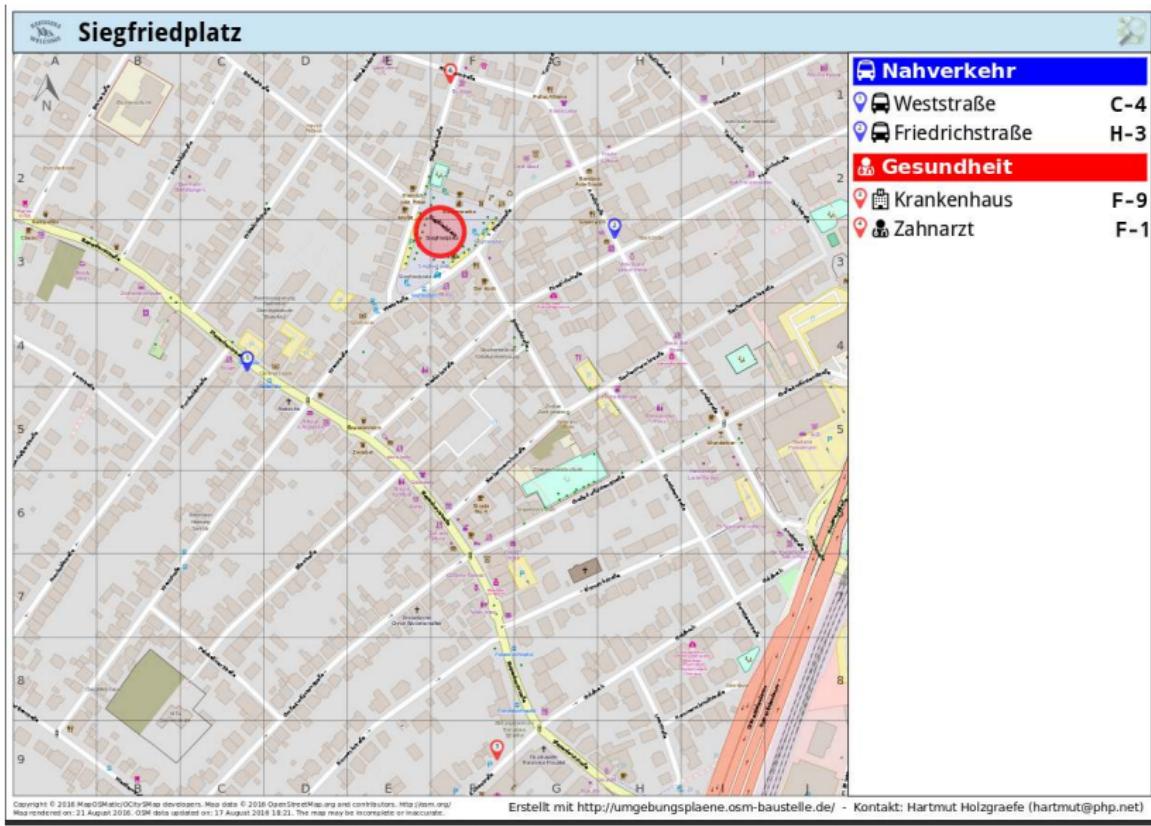
A plugin needs to implement exactly one function:  
def render(renderer, ctx):

renderer is an OcitysMap renderer object

ctx is a cairo graphics context

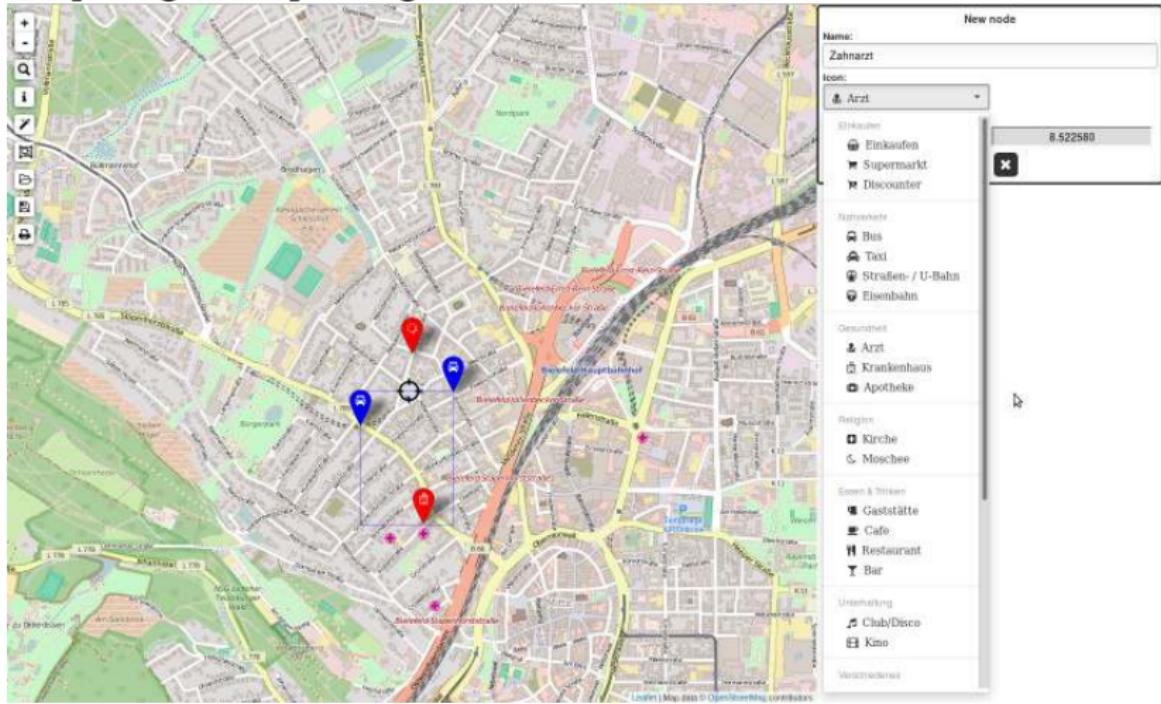


# Neighbourhood plans



# Umgebungsplan-Frontend

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



# 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

# Requirements

- 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

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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 ...?

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- 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?



# Quellen

Contact [hartmut@php.net](mailto: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](https://github.com/hholzgra/maposmatic-vagrant)