



# Vector Tiles from OpenStreetMap

FOSSGIS 2016

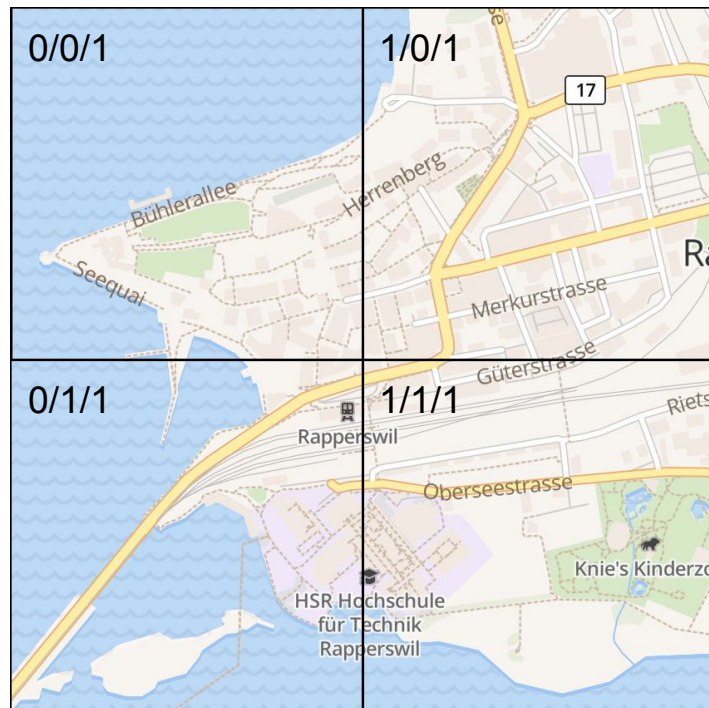
# About us and OSM2VectorTiles

- Lukas Martinelli and Manuel Roth
- Computer Science Students at Hochschule Rapperswil, Switzerland
- Make OpenStreetMap more accessible to developers
- Allow every developer to create a basemap



# What are Tiles?

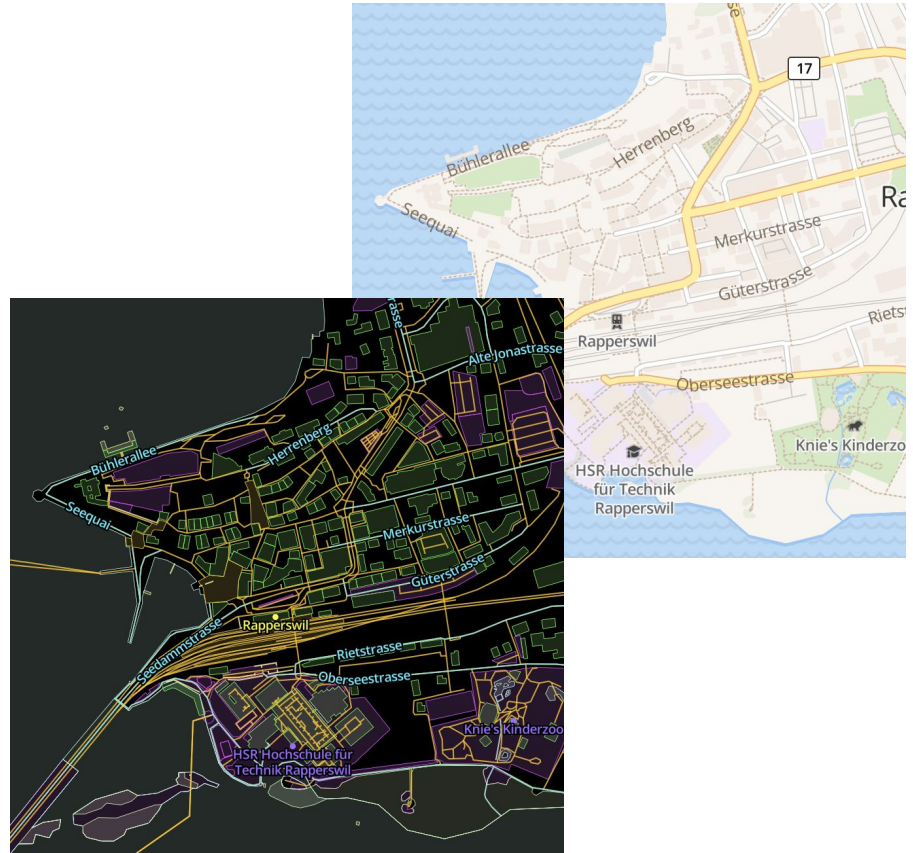
- Raster Map
  - Send one large image for viewport
  - **Tiles:** Send many small square images
- Advantages
  - More performance
  - Caching and pre-computing



Tiled raster map (XYZ)

# What are Vector Tiles?

- **Tiles are great!**
- Send vector data
- Style on client
- Cut vector data into tiles

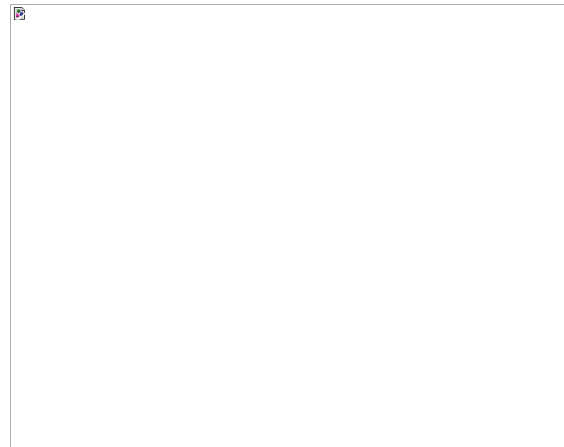


# Advantages of Vector Tiles

- Better user experience
  - Smooth zooming
  - Mobile Apps
- Smaller Size
- Scaling is easier!
- **Create once, use everywhere!**

# What do I need to create my own map?

- Vector tiles
- Style Definition
  - JSON file created by hand or with Mapbox Studio
- Client Library
  - Mapbox GL JS, Mapbox GL C++
  - OpenLayers



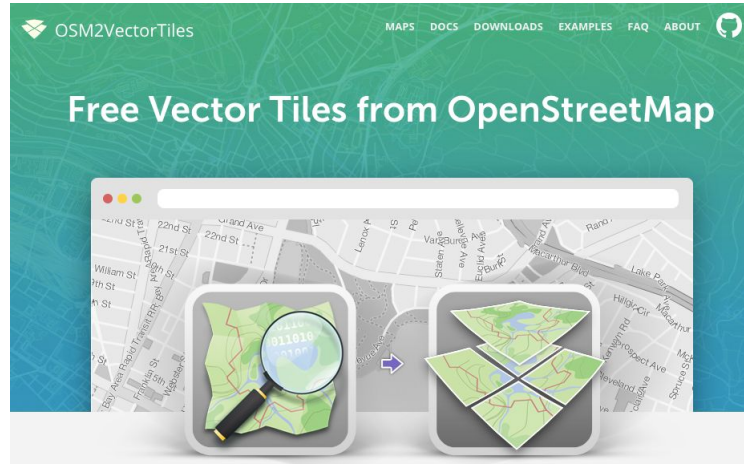
# Where can I get them?

- Mapbox and Mapzen provide vector tile services
  - Free for small to mid-sized developers
  - Proprietary data
  - Require access key
  - Restricted offline possibilities



# Why use OSM2VectorTiles?

- Creating your own vector tiles is hard
  - **We prerendered the entire planet for you!**
- Workflow and vector tiles are Open Source
- Mapbox Vector Tile Specification
  - Mapbox Studio
  - Mapbox GL, Mobile SDKs
- No vendor lock-in
  - Host tiles yourself
  - Offline



Project website with tutorials, examples and downloads





Demo

# Use Public CDN

- Visit maps section on project website ([www.osm2vectortiles.org](http://www.osm2vectortiles.org))
- Choose your favorite style
- Copy HTML code below the map

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <meta charset='utf-8' />
5   <title>OSM2VectorTiles with Bright style</title>
6   <meta name='viewport' content='initial-scale=1,maximum-scale=1,user-scalable=no' />
7   <script src='https://api.tiles.mapbox.com/mapbox-gl-js/v0.18.0/mapbox-gl.js'></script>
8   <link href='https://api.tiles.mapbox.com/mapbox-gl-js/v0.18.0/mapbox-gl.css' rel='stylesheet' />
9   <style>
10    body { margin:0; padding:0; }
11    #map { position:absolute; top:0; bottom:0; width:100%; }
12  </style>
13 </head>
14 <body>
15   <div id='map'></div>
16   <script>
17     var map = new mapboxgl.Map({
18       container: 'map', // container id
19       style: 'https://raw.githubusercontent.com/osm2vectortiles/mapbox-gl-styles/master/styles/bright-v9-cdn.json',
20       center: [8.5456, 47.3739], // starting position
21       zoom: 11 // starting zoom
22     });
23   </script>
24 </body>
25 </html>
```

# Serve your own vector tiles

- Download vector tiles
- Install and run a tileserver
- Reference public endpoint in your style



Planet



Country



City

Salzb

Austria, Salzburg

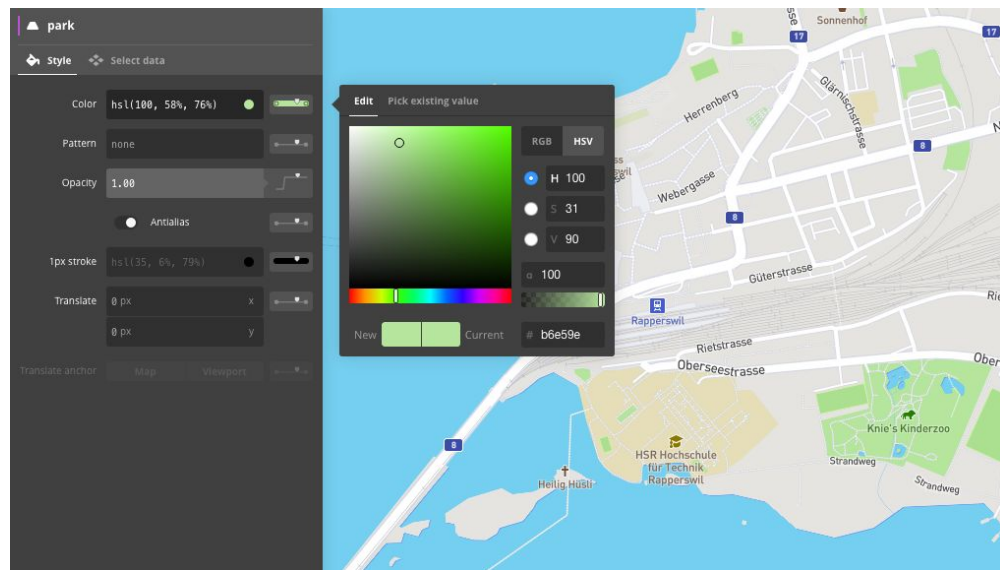
17.4 MB

<https://osm2vectortiles-downloads.os.zhdk.clouc>



# Create a custom map style

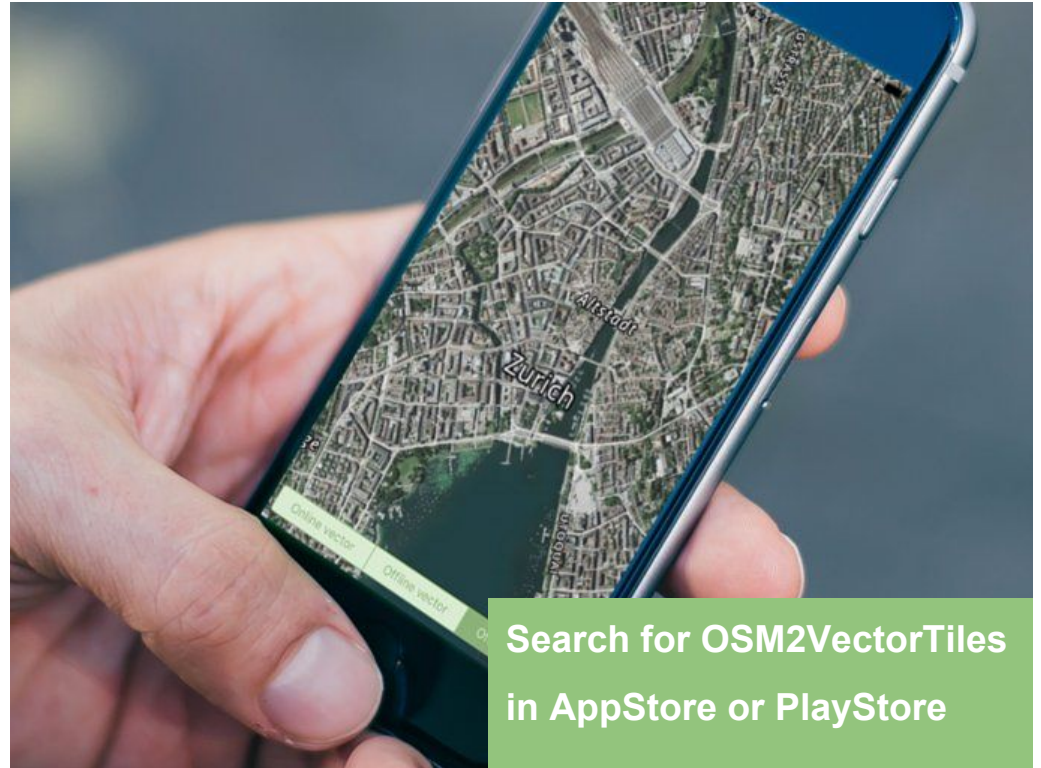
- Design a custom map style with Mapbox Studio
- Download style
- Point style to your self hosted vector tiles



Designing a custom basemap with the help of Mapbox Studio

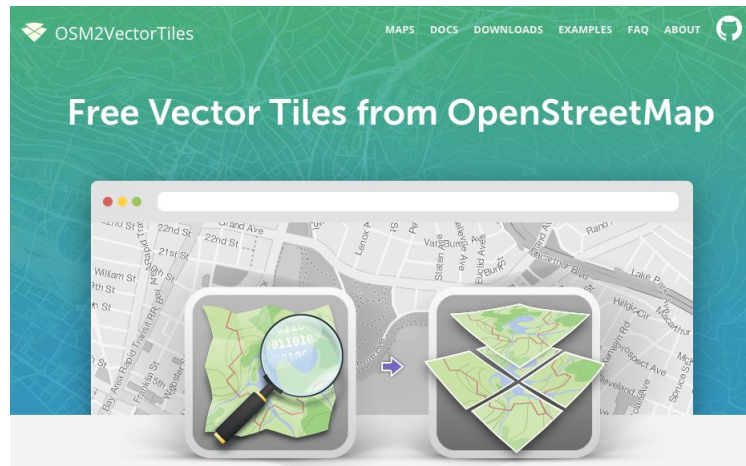
# Mobile Apps

- Use Mapbox native SDKs
  - iOS, Android, QT
- Offline capable apps



# Summary

- Downloadable vector tiles provided on project website
  - Entire planet (~ 57GB)
  - 693 city and 219 country extracts
- Open workflow to create vector tiles based on OSM
- Vector tiles are up to date with OSM
- Visit the project website for detailed tutorials
- Third version planned



Project Website with tutorials, examples and downloads



Thank you for your attention

More information on [www.osm2vectortiles.org](http://www.osm2vectortiles.org)

More in depth talk at 30th of August



**FOSS4G** BONN  
2016