



QGIS Web Client (QWC) Latest from the project

Sandro Mani
Sourcepole AG, Zürich
www.sourcepole.ch



SOURCEPOLE
Linux & Open Source Solutions



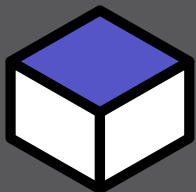
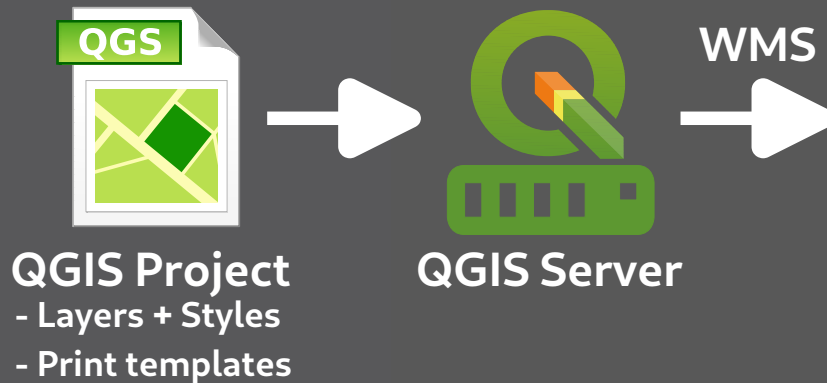
A quick introduction to QWC

> QWC

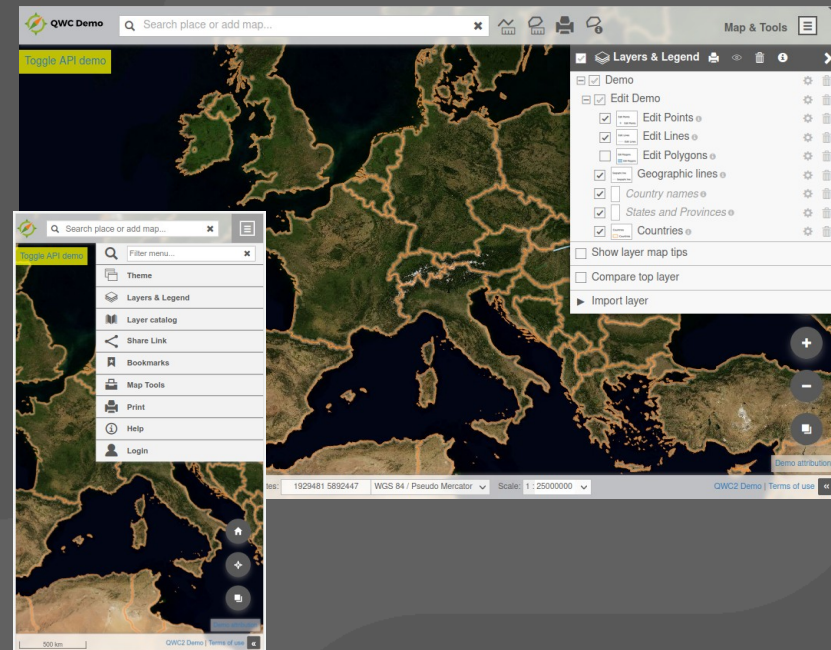
- > A modular WebClient taylorred to QGIS Server
- > ReactJS + OpenLayers + Three.js
- > Static HTML/JS/CSS Web Application

> qwc-services

- > Microservices to extend the functionality

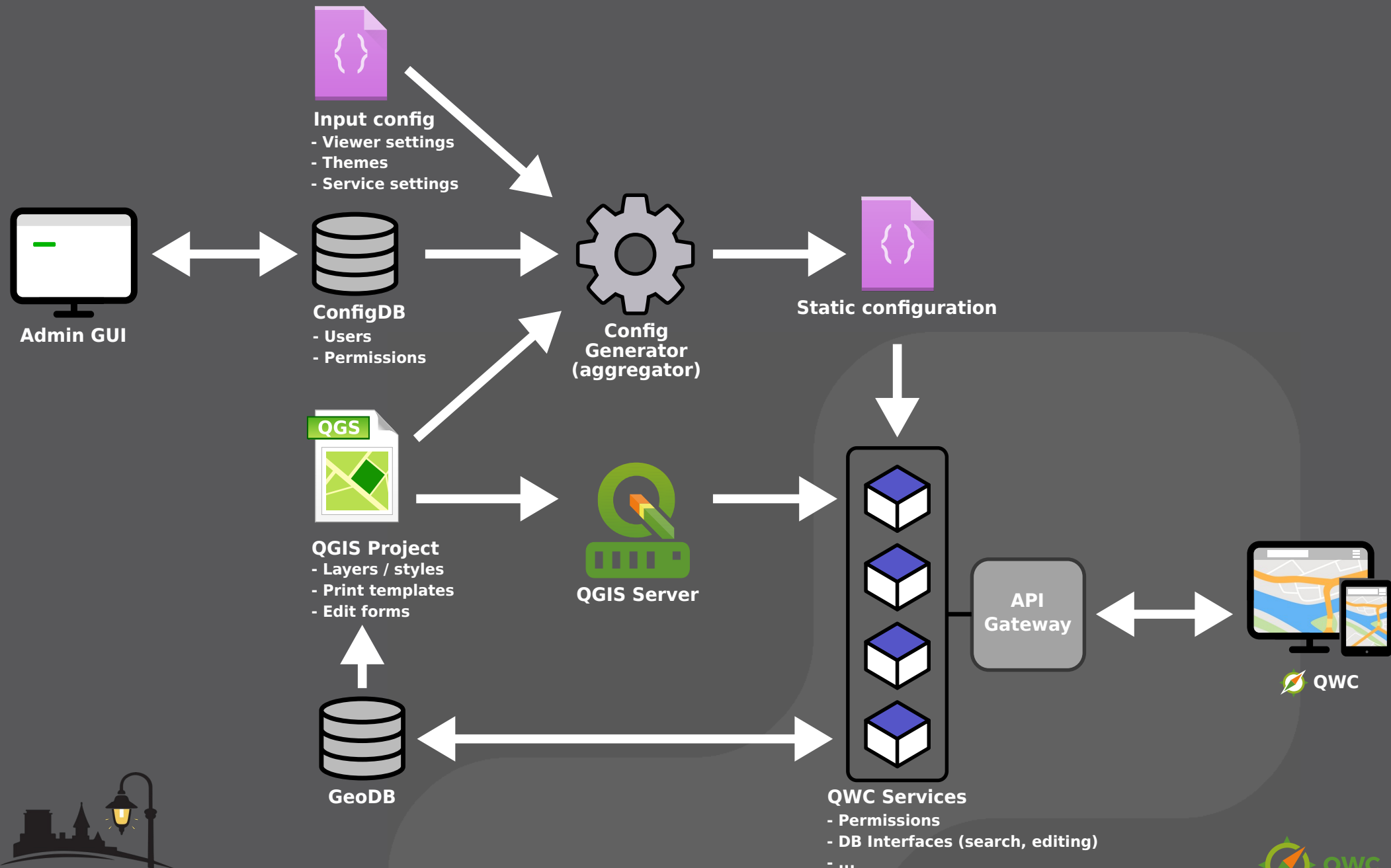


- > Users & Permissions
- > Editing
- > Permalinks
- > ...





QGIS Web Client - Architecture





QGIS Web Client - Source code & installation

› Source code on GitHub

- › <https://github.com/qgis/qwc2>
- › <https://github.com/qwc-services/>

› Deploy as a Docker Application

- › <https://github.com/qwc-services/qwc-docker>
- › Long Term Release with 1 year bugfixing
- › Development releases

› QWC as a framework / NPM library

- › <https://www.npmjs.com/package/qwc2>



Functionality overview

See also the QWC Homepage!

<https://qwc.app/>



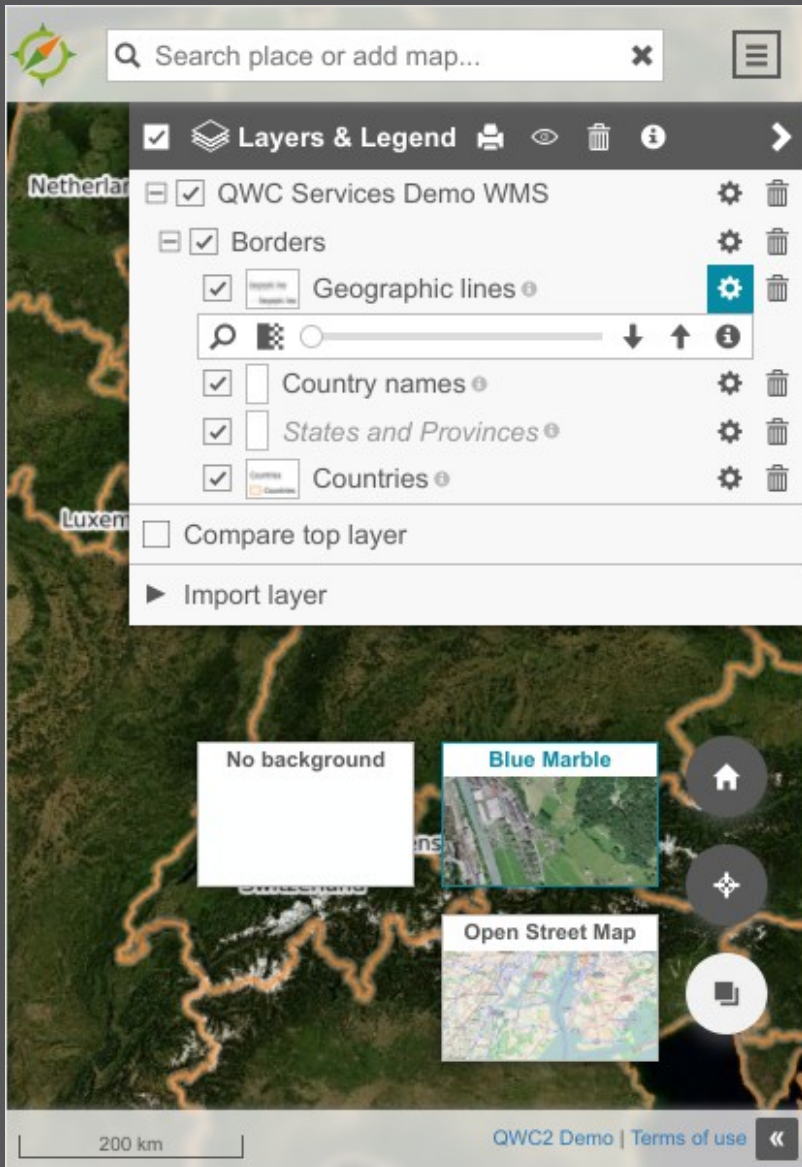
QWC Features - Theme Switcher



- A theme corresponds to a QGIS project published with QGIS Server



QWC Features - Layertree



- Visibility / transparency
- Reorder layers
- Import external layers
 - WMS/WMTS/WFS/KML/GeoJSON/SHP
- Compare top layer
- Switch background layer



QWC Features - Feature & Map Info

The screenshot displays the QWC interface with a map of a region in Switzerland. Two information popups are visible:

- Feature Info:** A popup titled "Kataster der belasteten Standorte - Altlasten: 27706" containing the following data:

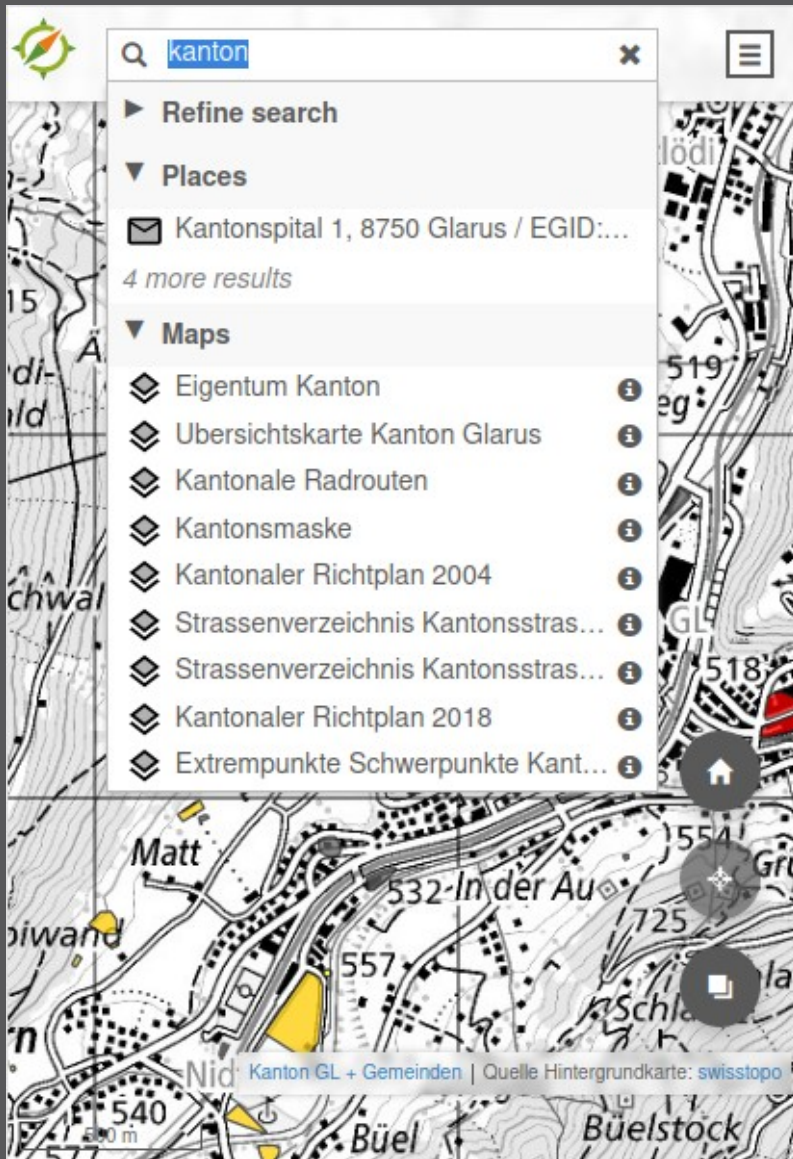
OID	106acb8d-8559-466c-9c7d-2a80454f2e4c
Katasternummer	27706
Bezeichnung	Wyden
Standort	
Standorttyp	Ablagerungsstandort
Status AltIV	Belastet, weder überwachungs- noch sanierungsbedürftig
- Position:** A popup showing coordinates and elevation:

CH1903+ / LV95:	2724072, 1205827
WGS 84:	9.0698, 46.9919
Elevation:	528 m
Gemeinde:	Glarus Süd

- Info for selected feature
 - WMS GetFeatureInfo
- Info for selected position
 - Position, elevation
 - Custom information



QWC Features - Search



- Search with configurable providers
 - Places
 - Layers
 - Themes
- QGIS Feature Search
 - WMS GetFeatureInfo + Filter

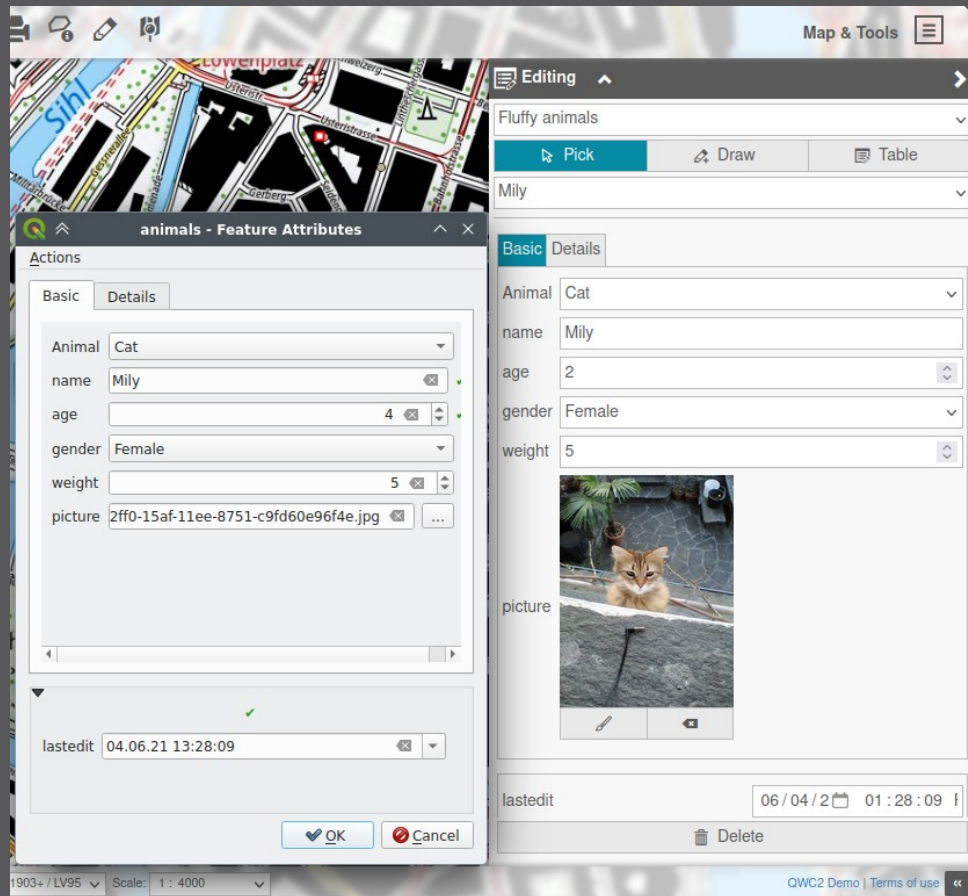


QWC Features - Printing

The screenshot displays the QWC printing interface. On the left, a 'Print output' window shows a preview of the map with a legend and a scale bar. The legend includes 'Geographic lines', 'Countries', and 'Blue Marble'. The main map area shows Europe with a blue rectangular selection box. On the right, a 'Print' dialog is open, showing settings for layout (A4 Landscape), format (PDF), scale (1:12500000), resolution (300 dpi), and rotation (0.0). The dialog also includes options for grid and print series, both of which are currently disabled. A 'Print' button is located at the bottom of the dialog. At the bottom of the main map area, there is a status bar with coordinates (-5852708 6985573), projection (WGS 84 / Pseudo Mercator), and scale (1:25000000). A 'Demo attribution' link is also visible in the bottom right corner of the map area.



QWC Features - Editing



➤ Edit geometries and attributes

➤ QGIS edit forms

➤ File uploads

➤ Value relations

➤ 1:N relations

➤ Attribute table

The screenshot shows the 'Attribute Table' window for the 'Fluffy animals' layer. The table has columns for 'id', 'name', 'age', 'birthdate', 'size', 'hungry', 'sleepy', 'remarks', 'Animal', and 'picture'. The data is as follows:

id	name	age	birthdate	size	hungry	sleepy	remarks	Animal	picture	
<input type="checkbox"/>	2	Minni	0	04/25/2011	5	<input type="checkbox"/>	<input type="checkbox"/>		Cat	minni.jpg
<input type="checkbox"/>	1	Mily	2	02/13/2019	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Selec	11.jpg
<input type="checkbox"/>	3	asd	1	mm/dd/yyyy	6	<input type="checkbox"/>	<input type="checkbox"/>		Cat	Browse...



QWC Features - 3D

The screenshot displays the QWC 3D interface. At the top left is the QWC logo and a search bar. The main view shows a 3D city model with a drawing tool overlay. The tool has three tabs: Layer (set to Drawings), Draw, and Edit. The Edit tab is active, showing tools for Translate (orange square), Scale, Rotate, and a grid icon. A 3D coordinate system with red, green, and blue axes is positioned over a yellow cube in the city model. On the right, a 'Map & Tools' sidebar contains a search bar and a list of features: Layers, Draw, Measure, Compare, Hide Objects, Light and Shadows, Export Map, Export Objects, Theme, Share Link, and Bookmarks. At the bottom right, there are buttons for 3D/2D view toggling and a 3D button. The bottom status bar shows a 100% zoom level, coordinates (2683315 1246884 428), and a layer identifier (CH1903+ / LV95).



QWC Features - Admin Backend

Home Users Groups Roles Resources Permissions Registration Logout

Permissions

[+ New Permission](#) Role Filter: All Type Filter: All Search

< 1 2 >

ID	Role	Resource type	Resource	Priority	Write		
31	admin	Attribute	Long name (<i>countries</i>)	0	False	Edit	Remove
32	admin	FeatureInfo layer	Orthofoto_2015_stdzh_0.5_jpeg (<i>test1</i>)	0	False	Edit	Remove
8	public	Data	animal_names (<i>test1</i>)	0	False	Edit	Remove
6	public	Data	animals (<i>test1</i>)	0	True	Edit	Remove
7	public	Data	doctable (<i>test1</i>)	0	True	Edit	Remove
9	public	Data	document_types (<i>test1</i>)	0	False	Edit	Remove
3	public	Data	edit_lines (<i>qwc_demo</i>)	0	True	Edit	Remove
2	public	Data	edit_points (<i>qwc_demo</i>)	0	True	Edit	Remove
4	public	Data	edit_polygons (<i>qwc_demo</i>)	0	True	Edit	Remove
10	public	Data	Hauptbahnhof (<i>test1</i>)	0	True	Edit	Remove

QWC Features - Extended functionality

Search place or add map...

Routing

Route | Reachability

Car | Bus | Bicycle | Pedestrian | Settings

Tenero, Tenero-Contra, Circolo d
Bellinzona, Circolo di Bellinzona, Dist

Roundtrip
+ Add route point | Clear

00:19:19 | 17.20 km | Export

Exit the roundabout onto Via Cantonale/13. Continue on 13.
00:11:09 | 10.67 km

Turn left onto Via Franco Zorzi/2/13. Continue on 2/13.

Position

WGS 84 / Pseudo Mercator:	1003033, 5810276
WGS 84:	9.0104, 46.1864
Elevation:	226 m
Country:	Switzerland

Route: From here | To here | Via here

QWC2 Demo | Terms of use

QWC Demo | Search place or add map...

Cyclomedia Viewer

Jul 18, 2010

Primarschule "Gemeindezentrum"

Kirchgasse

Hauptstrasse

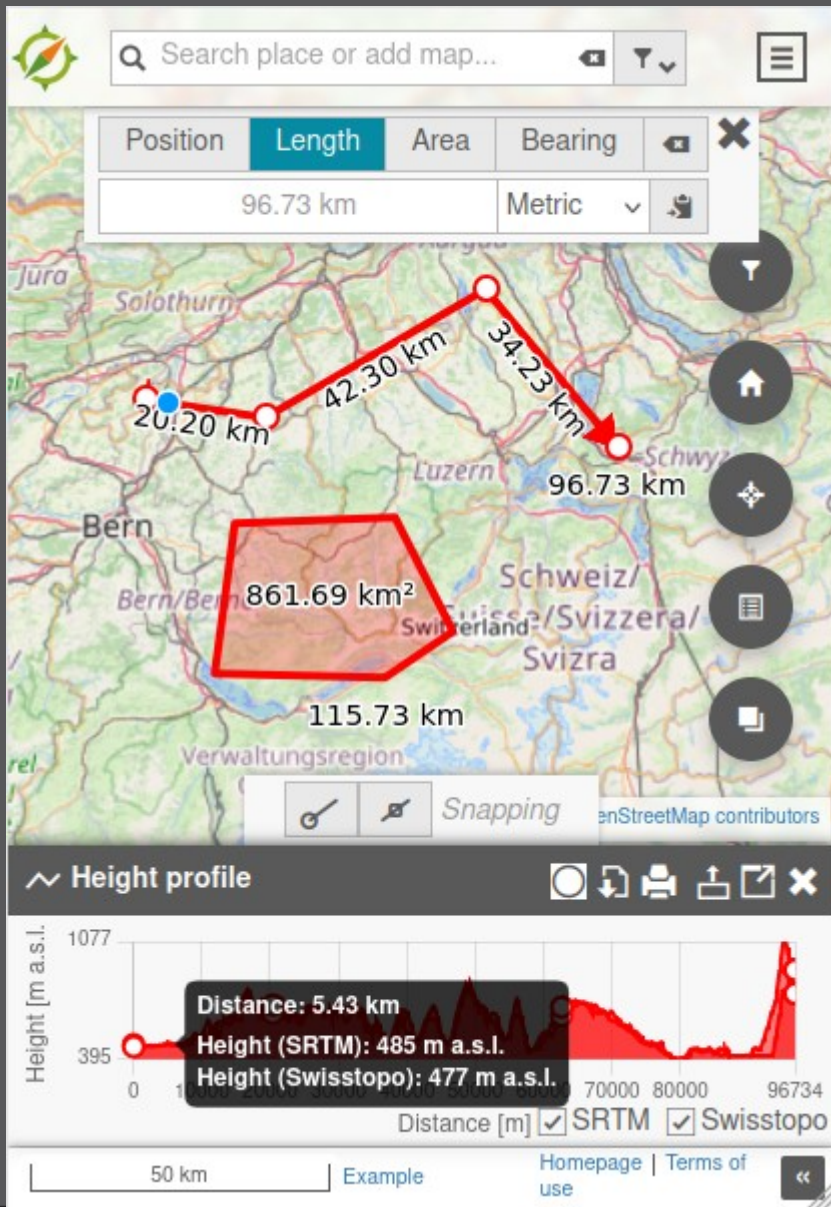
Restauran Kreuz

Restauran Kreuz

© Cyclomedia



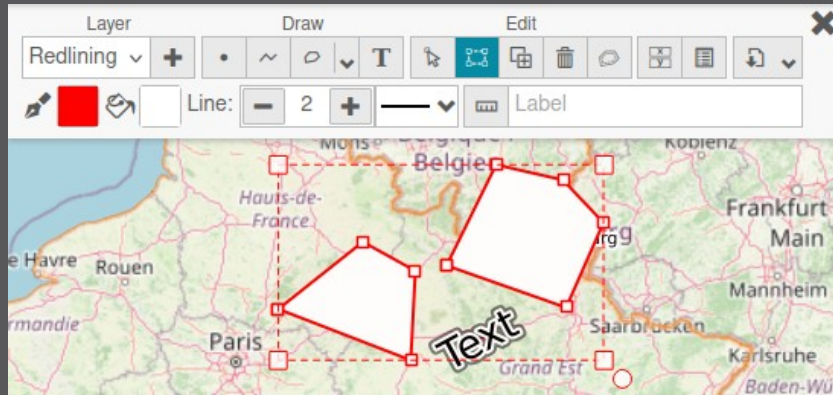
Neues from the project



- Multiple measurement geometries
 - Persistent and printable
- Head- and tail-markers
- Multiple elevation profiles



News - Redlining



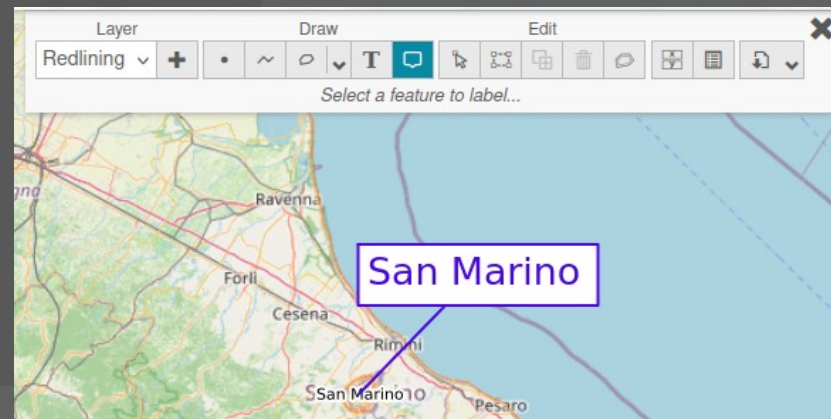
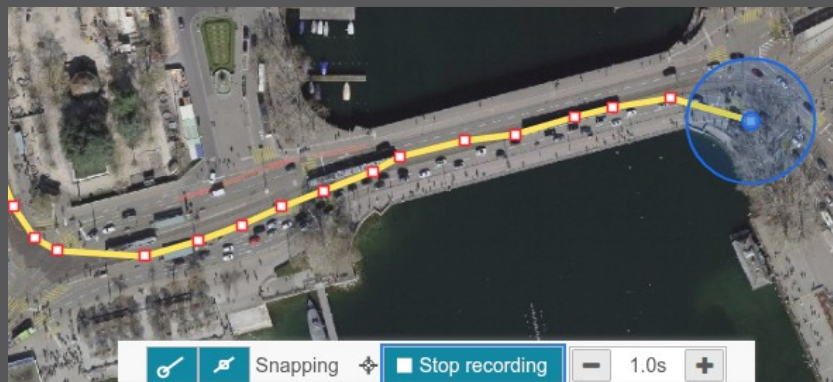
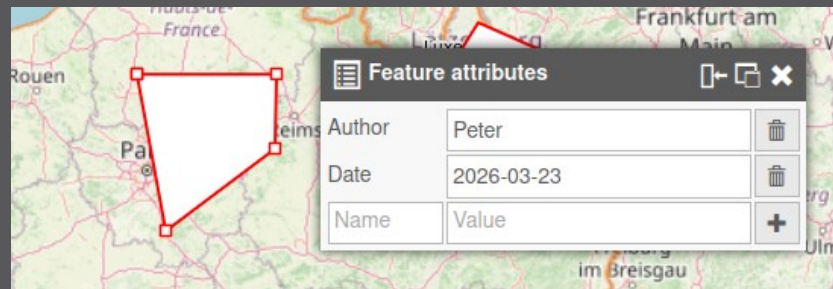
➤ Select & transform multiple features

➤ Line dash patterns

➤ Attributes

➤ Record GPS position

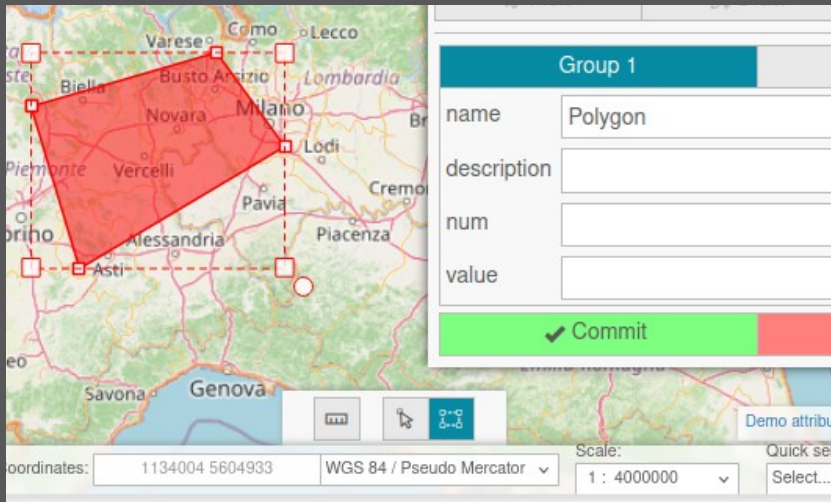
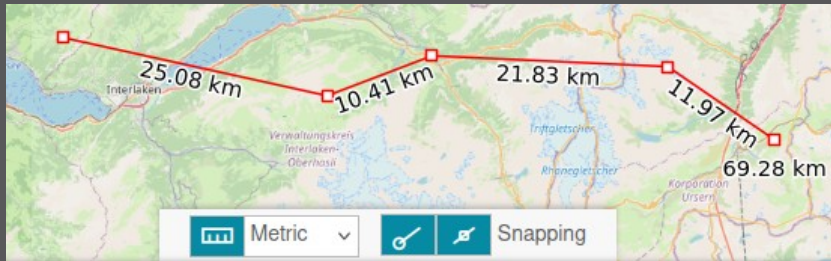
➤ Label objects





News - Editing

Width	2.3
Height	4.6
Area	10.58 m ²



- Support for virtual fields
- Measure while editing
- Transform entire object
- Record GPS position
- Copy features with attributes
- Attribute table
 - Serverside pagination
 - Omit hidden fields



News - Editing

Editing ^ >

soccer_team v

Pick Draw Table

id 2

team_name Young Boys

head_coach Lustrinelli v ✎ +

Delete

Namen

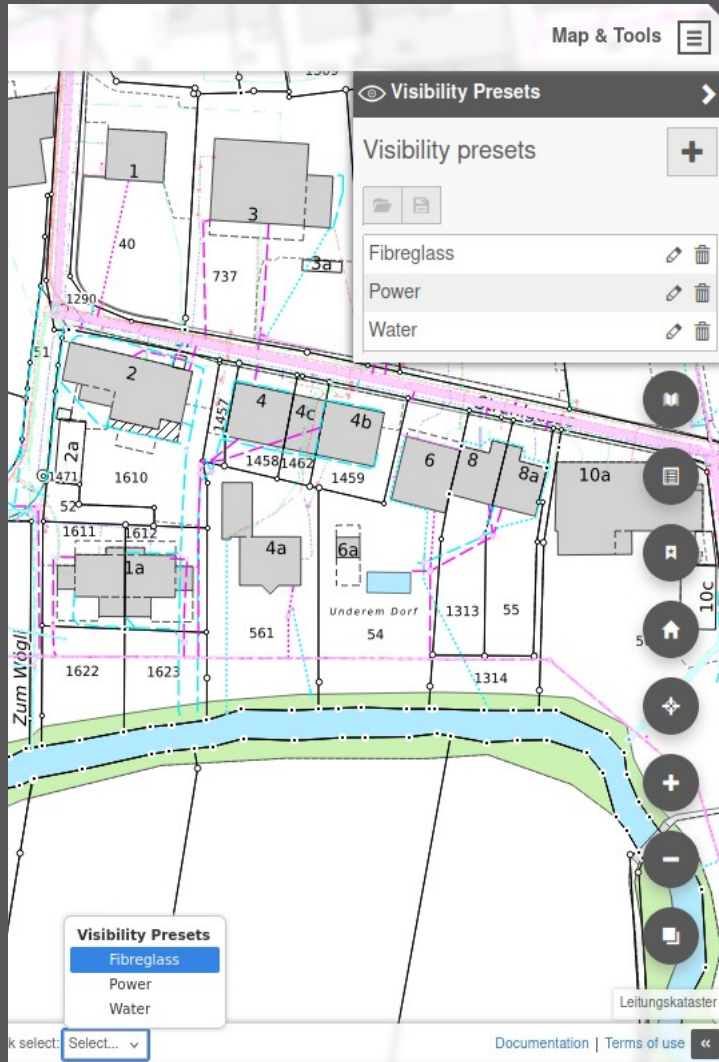
Peter	✎
Paul	✎
Hans	✎

Add

- Support for relation references
 - "Editable combobox"
 - Add new values
 - Edit existing values
- Value lists
 - Array data types



News - Visibility presets



- Manage visibility presets
 - Layer visibility / style configuration
 - Switch presets on the fly without full map reload
- "Quick select" in the bottom bar



News - Feature info

Feature Info

Countries: France		Countries: Switzerland	
<i>featurecla</i>	Admin-0 country	<i>featurecla</i>	Admin-0 country
<i>sovereight</i>	France	<i>sovereight</i>	Switzerland
<i>sov_a3</i>	FR1	<i>sov_a3</i>	CHE
<i>adm0_dif</i>	1	<i>adm0_dif</i>	0
<i>level</i>	2	<i>level</i>	2
<i>type</i>	Country	<i>type</i>	Sovereign country
<i>admin</i>	France	<i>admin</i>	Switzerland
<i>adm0_a3</i>	FRA	<i>adm0_a3</i>	CHE
<i>geou_dif</i>	0	<i>geou_dif</i>	0
<i>geounit</i>	France	<i>geounit</i>	Switzerland
<i>gu_a3</i>	FRA	<i>gu_a3</i>	CHE
<i>su_dif</i>	0	<i>su_dif</i>	0
<i>subunit</i>	France	<i>subunit</i>	Switzerland
<i>su_a3</i>	FRA	<i>su_a3</i>	CHE
<i>brk_diff</i>	0	<i>brk_diff</i>	0

7 feature(s)

- Paginated view
- Side-by-side comparison of selected results
- Export as Shapefile and XLSX



News - Object list

Search place or add map...

Object list

<u>name</u>
<input type="checkbox"/> Somaliland
<input type="checkbox"/> Finland
<input type="checkbox"/> Poland
<input type="checkbox"/> Ireland
<input type="checkbox"/> Switzerland
<input type="checkbox"/> Netherlands
<input type="checkbox"/> Thailand
<input type="checkbox"/> Greenland
<input type="checkbox"/> New Zealand

1 50 per page

name ~ land

Limit to map extent

2000 km

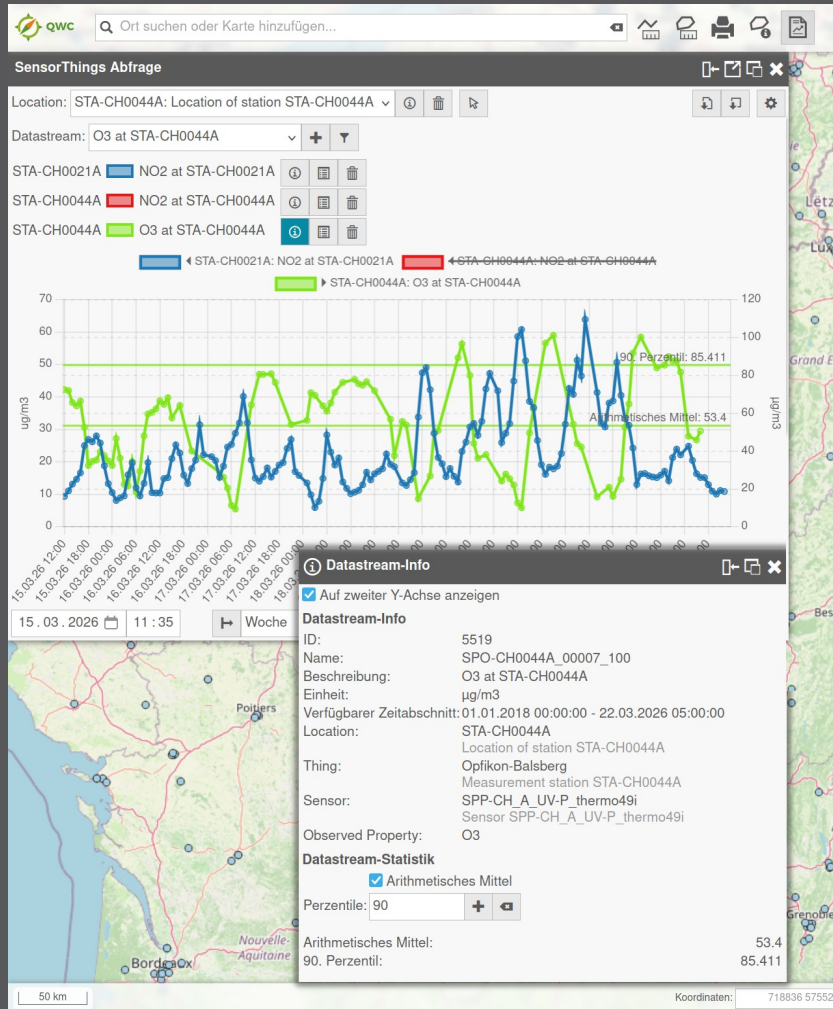
Demo attribution | OpenStreetMap contributors

Homepage | Terms of use

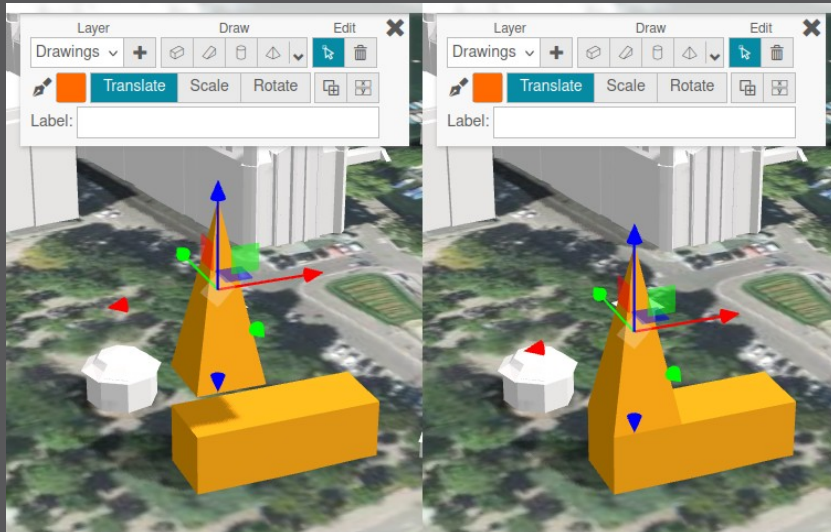
- Streamlined attribute table
- Only display field
- Highlight geometries in the map
- Filter features
- Export selected features



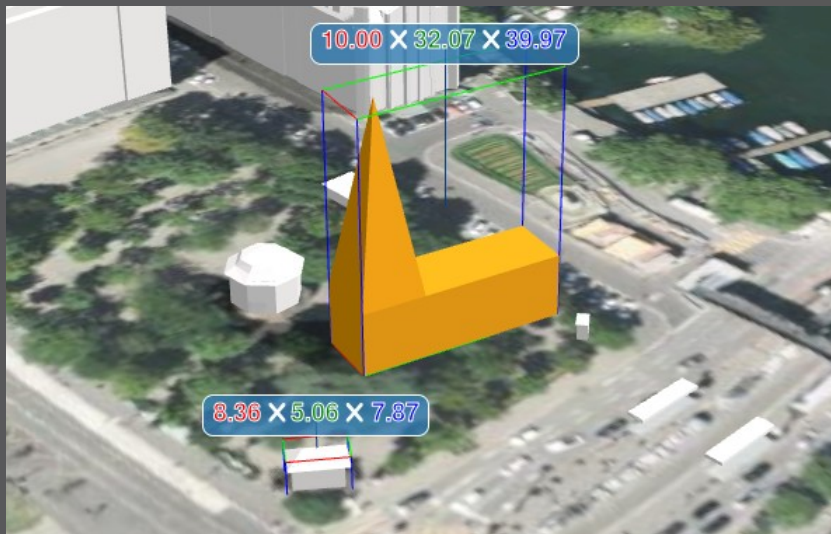
News - SensorThings Plugin



- Display sensor data streams at selected map locations
- Display datastream statistics
- Setup with QGIS SensorThings API plugin

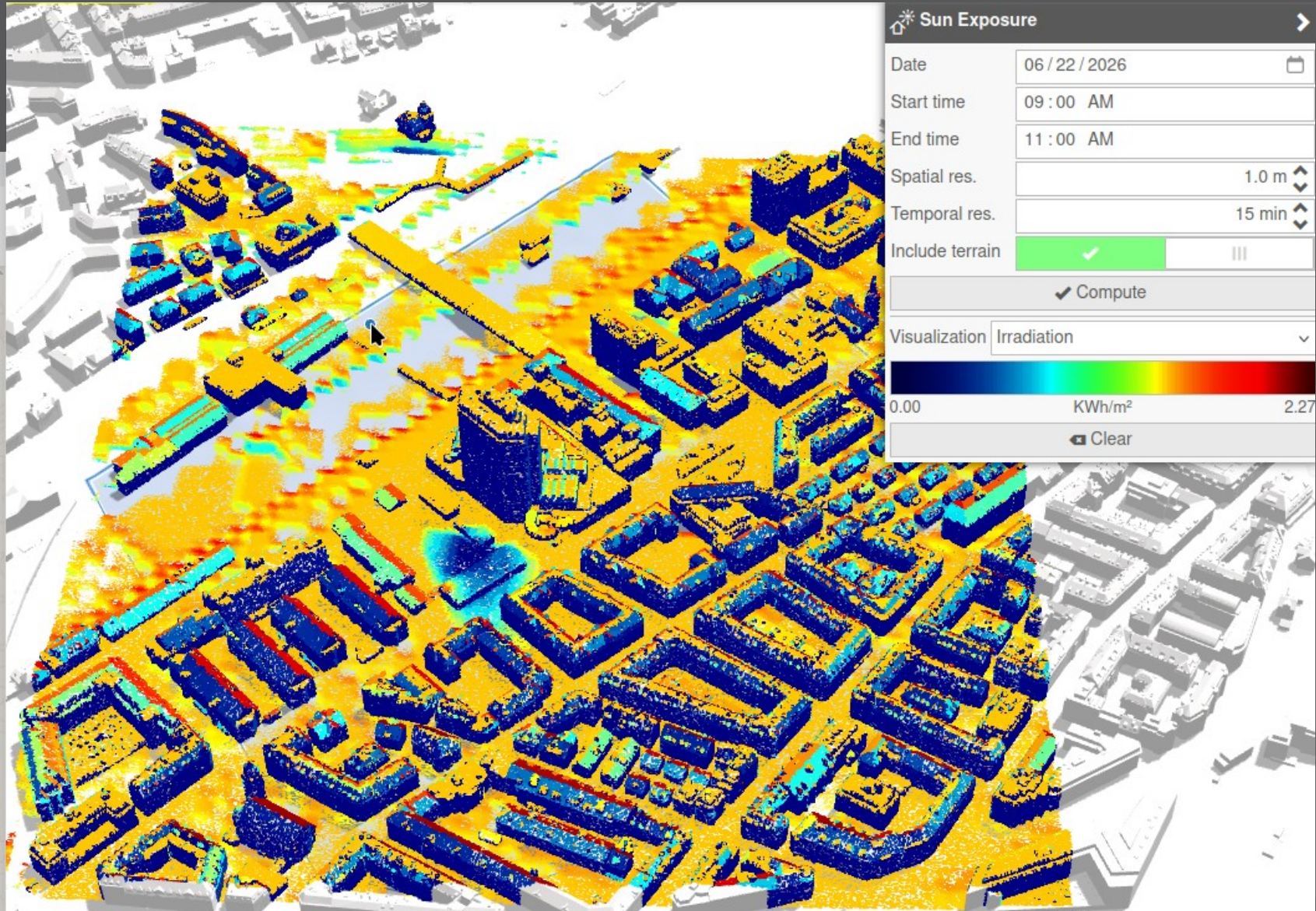


- **Snapping while drawing in 3D**
 - Snap to other 3D objects
 - Snap to 2D layers
- **Measure objects**
- **Improved support for instanced 3D-Tiles**





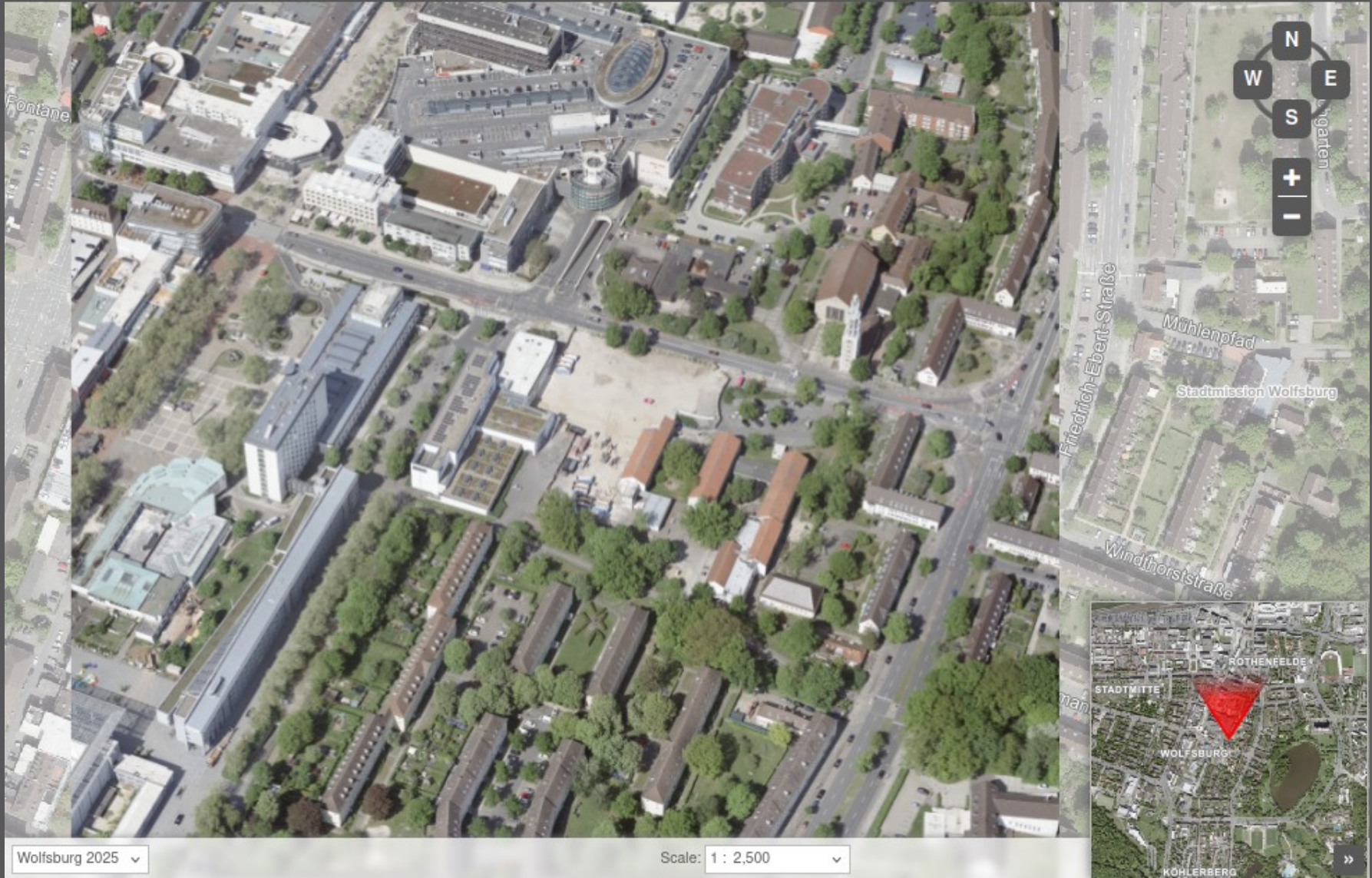
News - 3D Sun Exposure Analysis





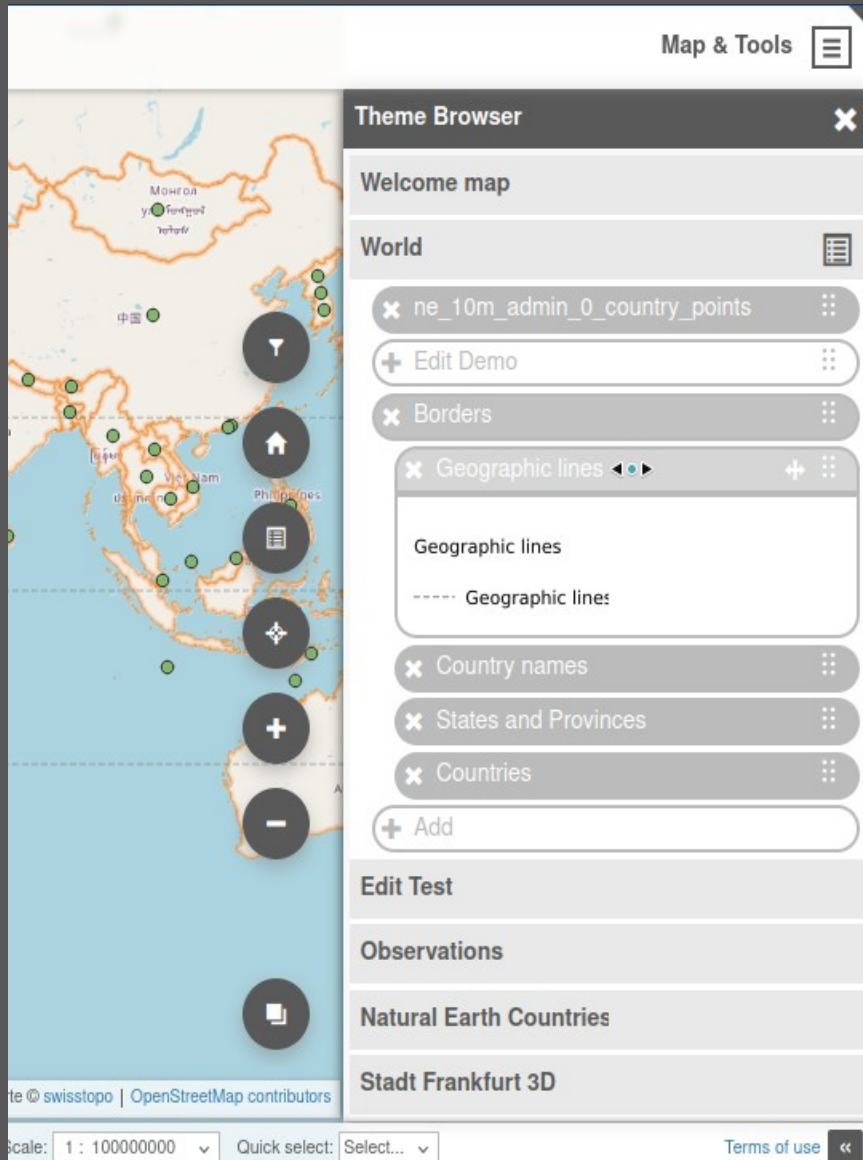
News - Oblique Aerial View

Oblique Aerial View

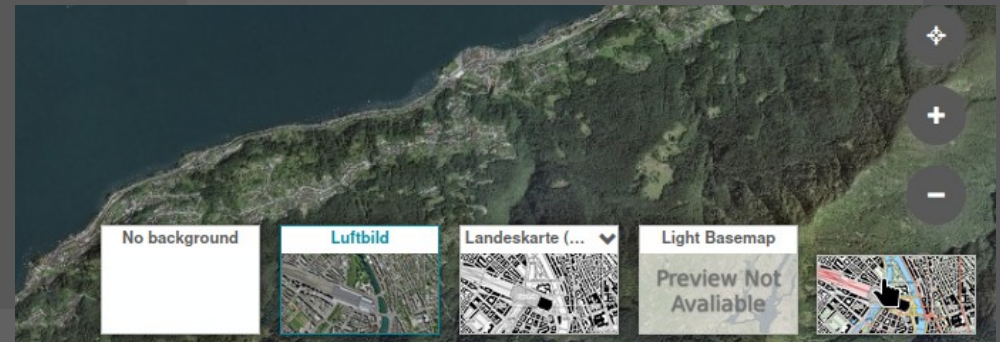




News - New UI Elements



- Theme Browser
 - Unified Theme switcher + Layertree
- Background switcher
 - "Cycle"-Mode





- **postMessage interface**
 - Cross-Origin API calls
 - Useful for controlling QWC in an iframe

```
let qwcframe = document.getElementById("qwciframe");  
  
qwcframe.contentWindow.postMessage({  
  "method": "zoomToPoint",  
  "params": [[2684764, 1247841], 18, "EPSG:2056"]  
}, "http://<qwc_hostname>:<port>")
```



News · Locale & Accessibility

- **Translated QGIS projects**
 - Layer names, field names, print layout names
 - QGIS *.ts files + auxiliary JSON files
- **Keyboard navigation**
 - Large part of the functionality accessible via keyboard



News - Admin GUI & OGC Service

Landing page

QWC OGC Service

Available services

QWC Demo

- WMS Capabilities

Natural Earth Countries

- WMS Capabilities

WFS Test

- WMS Capabilities
- WFS Capabilities
- Feature collections
- Conformance classes
- API description

Stadt Zürich 3D

- WMS Capabilities
- WFS Capabilities
- Feature collections
- Conformance classes
- API description

➤ OGC Service

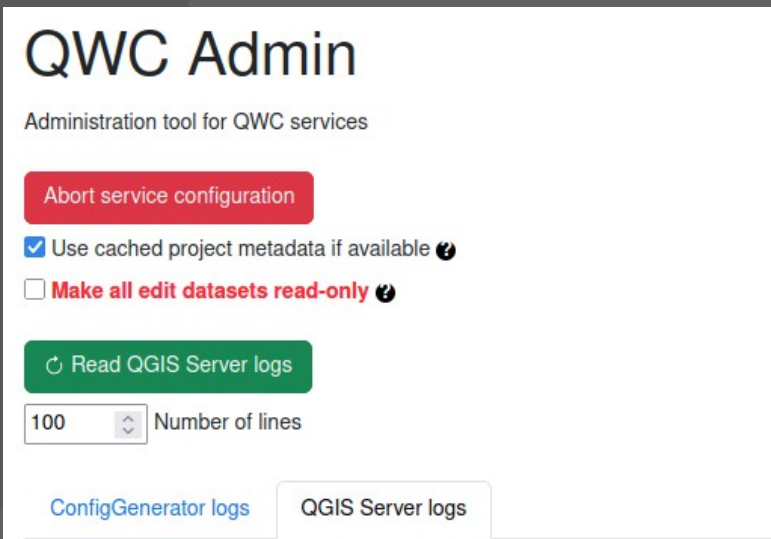
➤ Landing Page

➤ Support OGC API Features

➤ Support WFS-T

➤ Admin GUI

➤ Allow aborting configuration



The screenshot shows the 'QWC Admin' interface, described as an 'Administration tool for QWC services'. It features a red button labeled 'Abort service configuration'. Below this, there are two checkboxes: one checked for 'Use cached project metadata if available' and one unchecked for 'Make all edit datasets read-only'. A green button labeled 'Read QGIS Server logs' is present, along with a dropdown menu set to '100' for 'Number of lines'. At the bottom, there are two tabs: 'ConfigGenerator logs' and 'QGIS Server logs'.



Outlook

- › **Editing**
 - › Multi-geometries
 - › Boolean operators
- › **Client side layer grouping**
- › **3D viewshed analysis**
- › **QWC-Services: unified OGC Service**
 - › Merge FeatureInfo-, Legend- und Print-Service into OGC Service
- › **Cache projects when starting QGIS Server instances**



References

› GitHub Repositories

- › <https://github.com/qgis/qwc2>
- › <https://github.com/qwc-services/qwc-docker>

› Homepage, Documentation & ChangeLog

- › <https://qwc.app>
- › <https://docs.qwc.app>
- › https://docs.qwc.app/master/release_notes/ChangeLog

› Examples

- › <https://demo.qwc.app>
- › <https://qgiscloud.com>
- › <https://geo.so.ch/map/>
- › <https://map.geo.gl.ch>



Thanks!



Sandro Mani
smani@sourcepole.ch