



QGIS Web Client (QWC) – project status and new developments

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SOURCEPOLE
Linux & Open Source Solutions





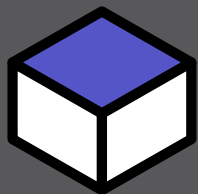
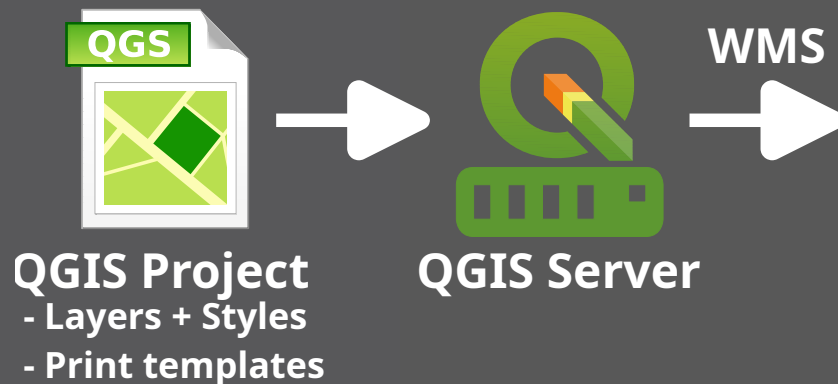
A quick introduction to QWC

> QWC

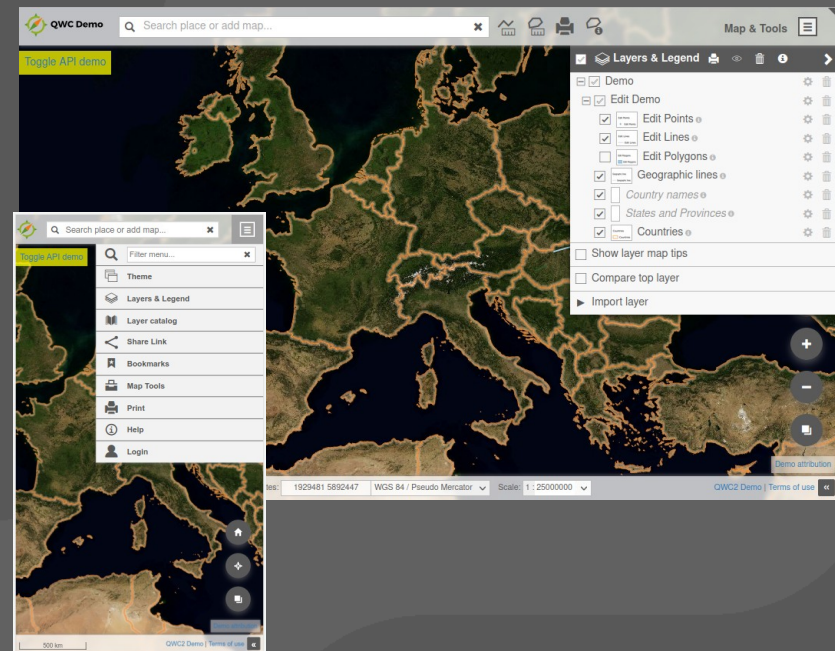
- > A modular WebClient tailored to QGIS Server
- > ReactJS + OpenLayers + Three.js
- > Static HTML/JS/CSS Web Application

> qwc-services

- > Microservices to extend the functionality

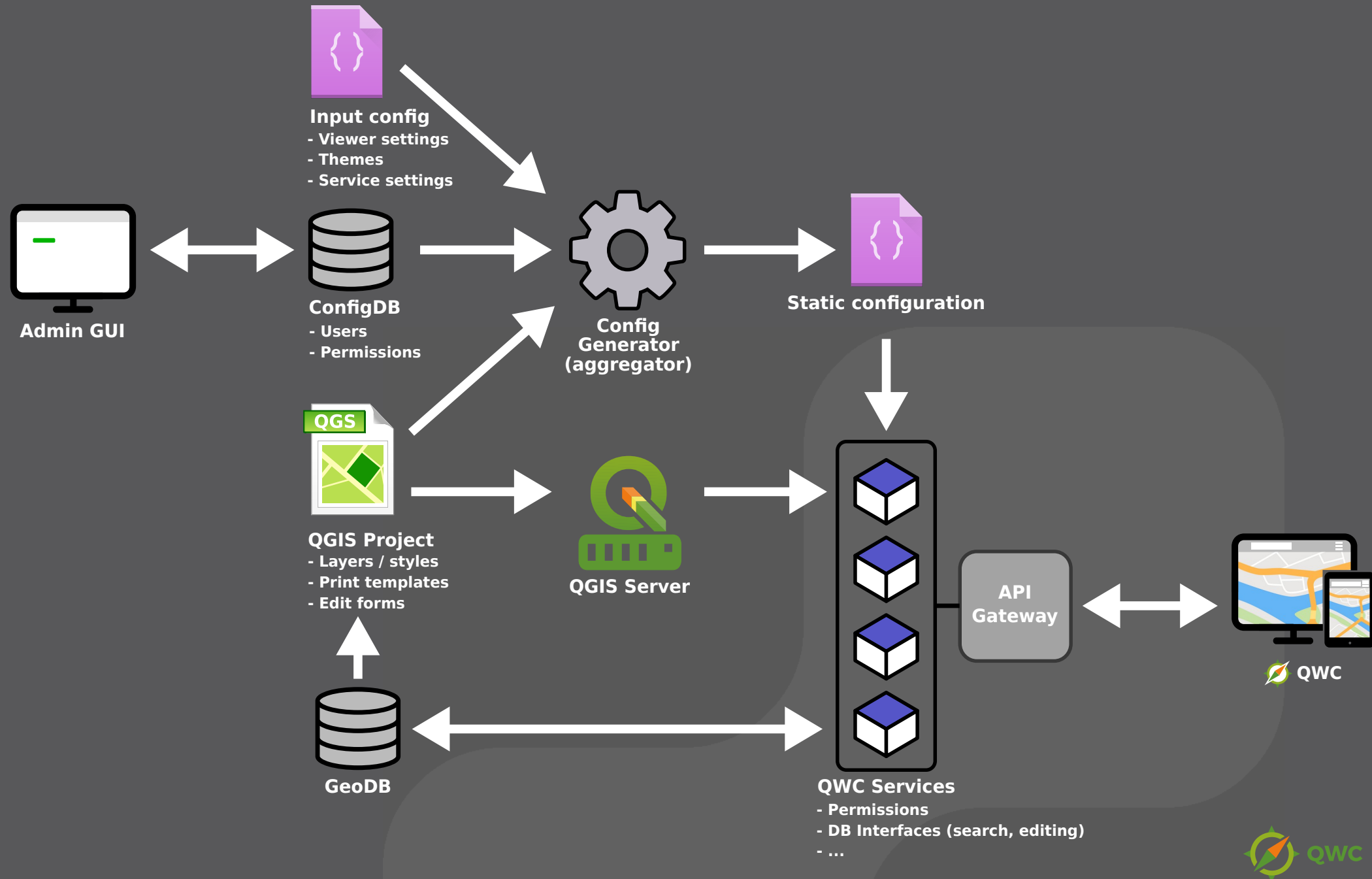


- > Users & Permissions
- > Editing
- > Permalinks
- > Search
- > ...





QGIS Web Client - Architecture





QGIS Server specific features

- > Web based printing (GetPrint)
- > External WMS layers
- > Redlining
- > Select objects
- > Filter objects
- > Layer opacities
- > Extended capabilities (GetProjectSettings)



Some QWC users

- > Canton Glarus
- > Canton Solothurn
- > City of Zurich
- > Energy sector: Amprion, Enerparc, Repower
- > German cities: Frankfurt, Wolfsburg, Munich (SWM)
- > Ville de Strasbourg
- > BGEO (Spain)
- > AGT (Belgium)
- > QGIS Cloud

Functionality overview

See also the QWC Homepage!

<https://qwc.app/>



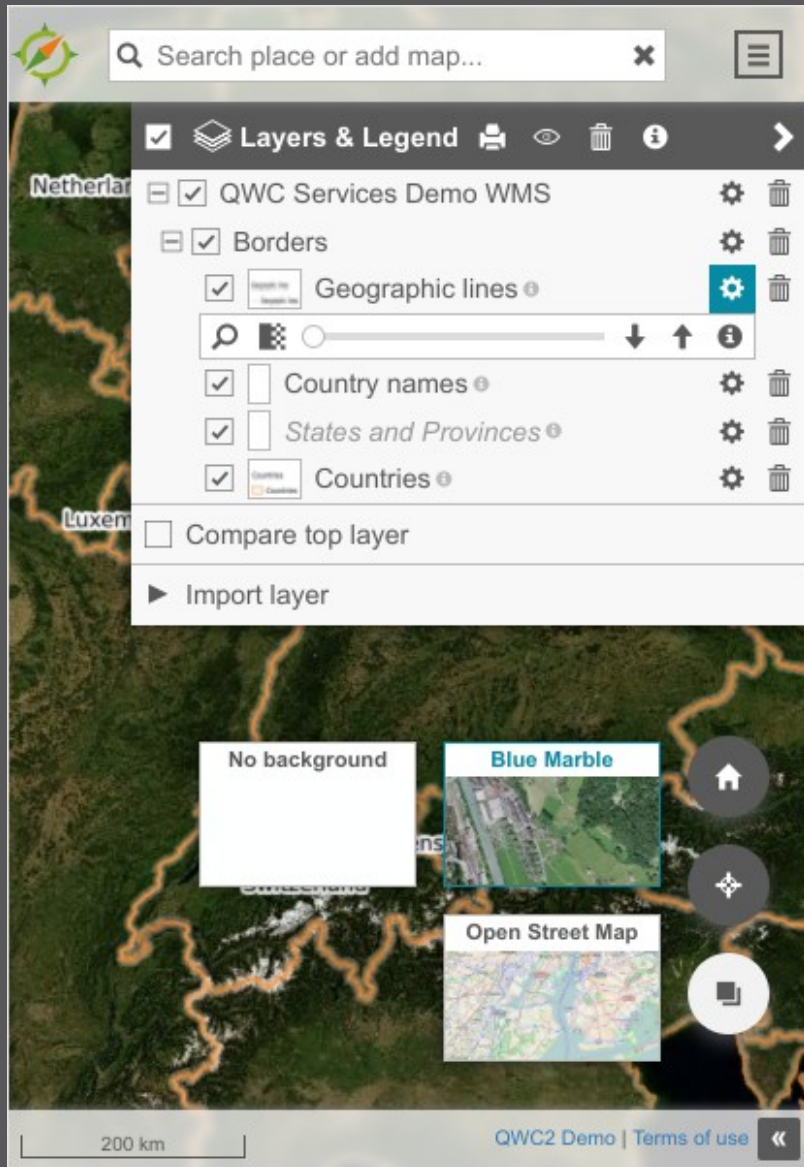
QWC Features - Theme Switcher

- > 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 web interface. At the top, there is a search bar with the text "Search place or add map...". Below it, a "Feature Info" popup is open, showing details for a selected feature. The feature is identified as "Kataster der belasteten Standorte - Altlasten: 27706". The popup contains a table with the following data:

OID	106acb8d-8559-466c-9c7d-2a80454f2e4c
Katasternummer	27706
Bezeichnung	Wyden
Standort	
Standorttyp	Ablagerungsstandort
Status AltIV	Belastet, weder überwachungs- noch sanierungsbedürftig

Below the table, there is an "Export format:" dropdown menu set to "json" and an "Export" button. In the bottom left corner, a "Position" popup is open, displaying the following information:

Position

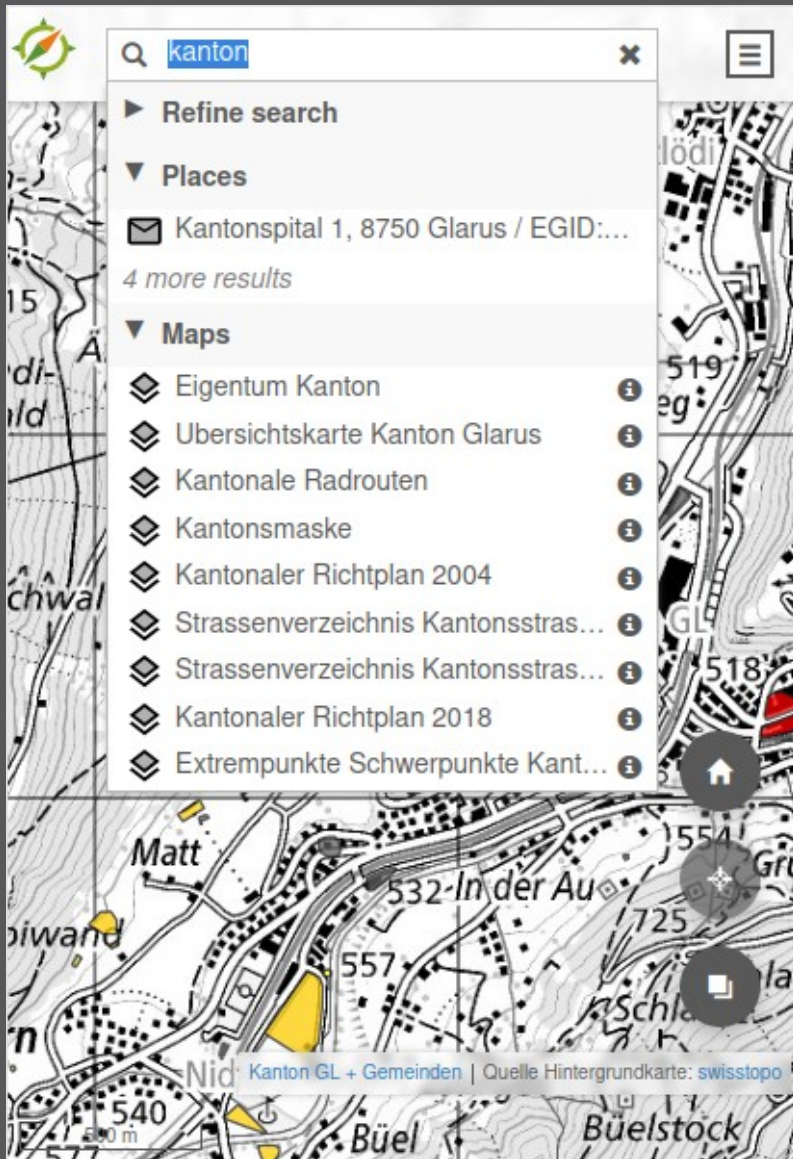
CH1903+ / LV95: 2724072, 1205827
WGS 84: 9.0698, 46.9919
Elevation: 528 m
Gemeinde: Glarus Süd

The background is a topographic map showing various geographical features and place names like "Mitlödi", "Steg", "en GL", "519", "518", "554", "553", "Matt", "Büel", "Büelstock", and "540".

- > 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

Print output

1 of 1 Automatic Zoom

Legend
— Geographic lines
— Countries
— Blue Marble

200 400 600 800 km

Print

Layout: A4 Landscape
Format: PDF
Atlas feature: Pick in layer countries...
Scale: 1 : 12500000
Resolution: 300 dpi
Rotation: 0.0
Grid: ☐
Print series: ☐

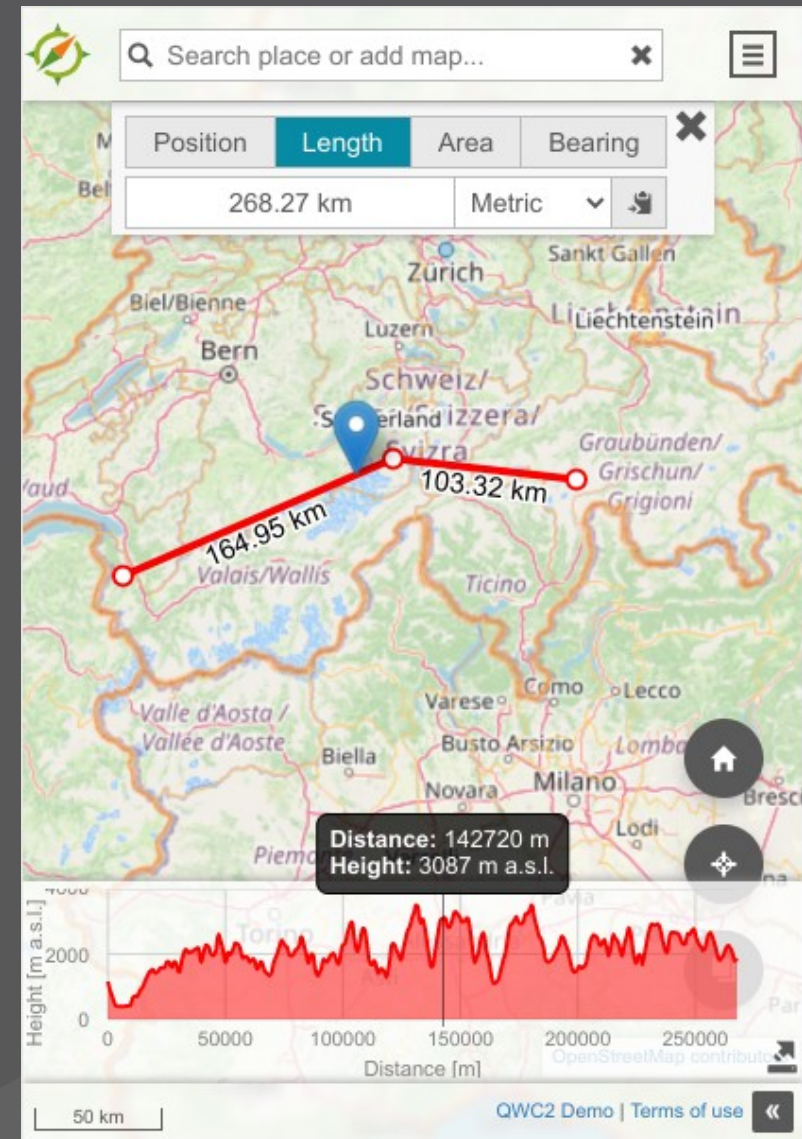
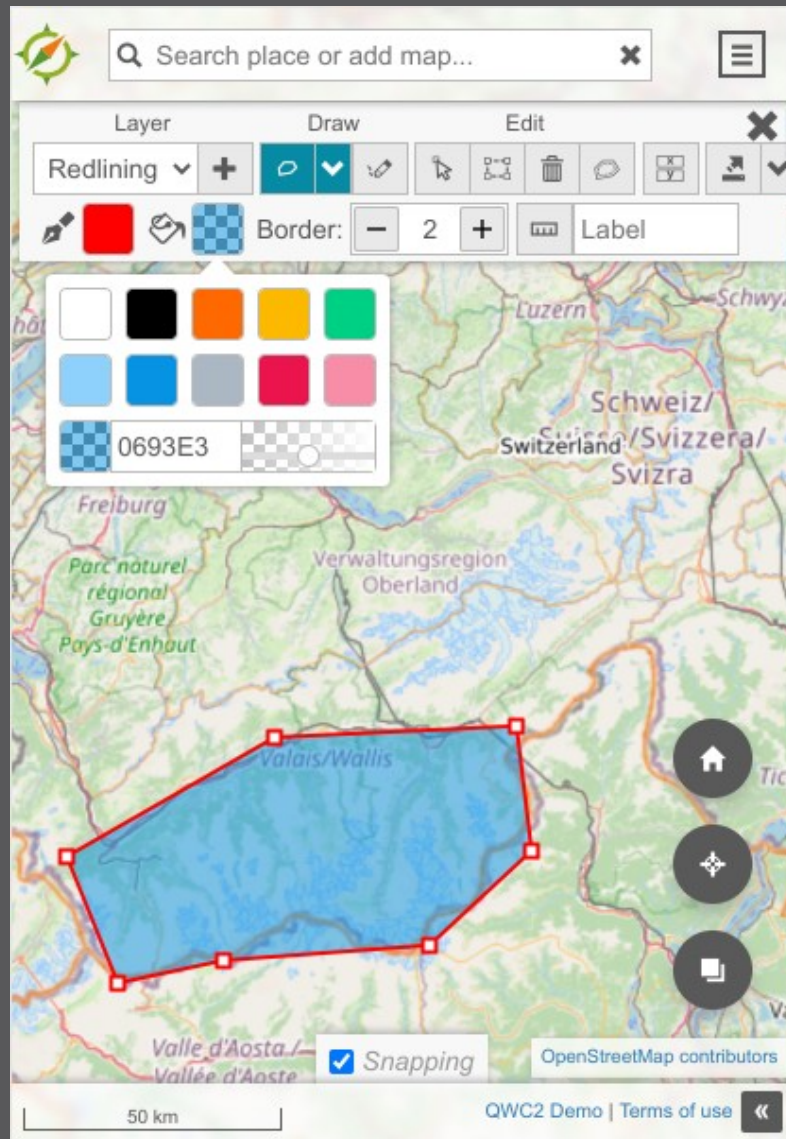
Print

Coordinates: -5852708 6985573 WGS 84 / Pseudo Mercator Scale: 1 : 25000000

Homepage | Terms of use



QWC Features - Redlining & Measure





QWC Features - Editing

> Edit geometries and attributes

- > QGIS edit forms
- > File uploads
- > Value relations
- > 1:N relations

> Attribute table

The screenshot shows the QWC editing interface. On the left, a map displays a street grid. In the center, the 'animals - Feature Attributes' form is open, showing fields for 'Animal' (Cat), 'name' (Mily), 'age' (4), 'gender' (Female), 'weight' (5), and 'picture' (a file upload field). On the right, the 'Editing' panel shows the 'Fluffy animals' layer with a 'Pick' button. Below the form, the 'Attribute Table' is visible, showing a table with columns: id, name, age, birthdate, size, hungry, sleepy, remarks, Animal, and picture. The table contains three rows of data.

id	name	age	birthdate	size	hungry	sleepy	remarks	Animal	picture
2	Minni	0	04 / 25 / 2011	5	☐	☐		Cat	minni.jpg
1	Mily	2	02 / 13 / 2019	6	☒	☒		Selec	11.jpg
3	asd	1	mm / dd / yyyy	6	☐	☐		Cat	Browse...

Attribute Table

Layer: Fluffy animals

	id	name	age	birthdate	size	hungry	sleepy	remarks	Animal	picture
☐	2	Minni	0	04 / 25 / 2011	5	☐	☐		Cat	minni.jpg
☐	1	Mily	2	02 / 13 / 2019	6	☒	☒		Selec	11.jpg
☐	3	asd	1	mm / dd / yyyy	6	☐	☐		Cat	Browse...

Page 1 of 1, 50 per page, Sort by id



QWC Features - Admin Backend

[Home](#) [Users](#) [Groups](#) [Roles](#) [Resources](#) [Permissions](#) [Registration](#) [Logout](#)

Permissions

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

[<](#) [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



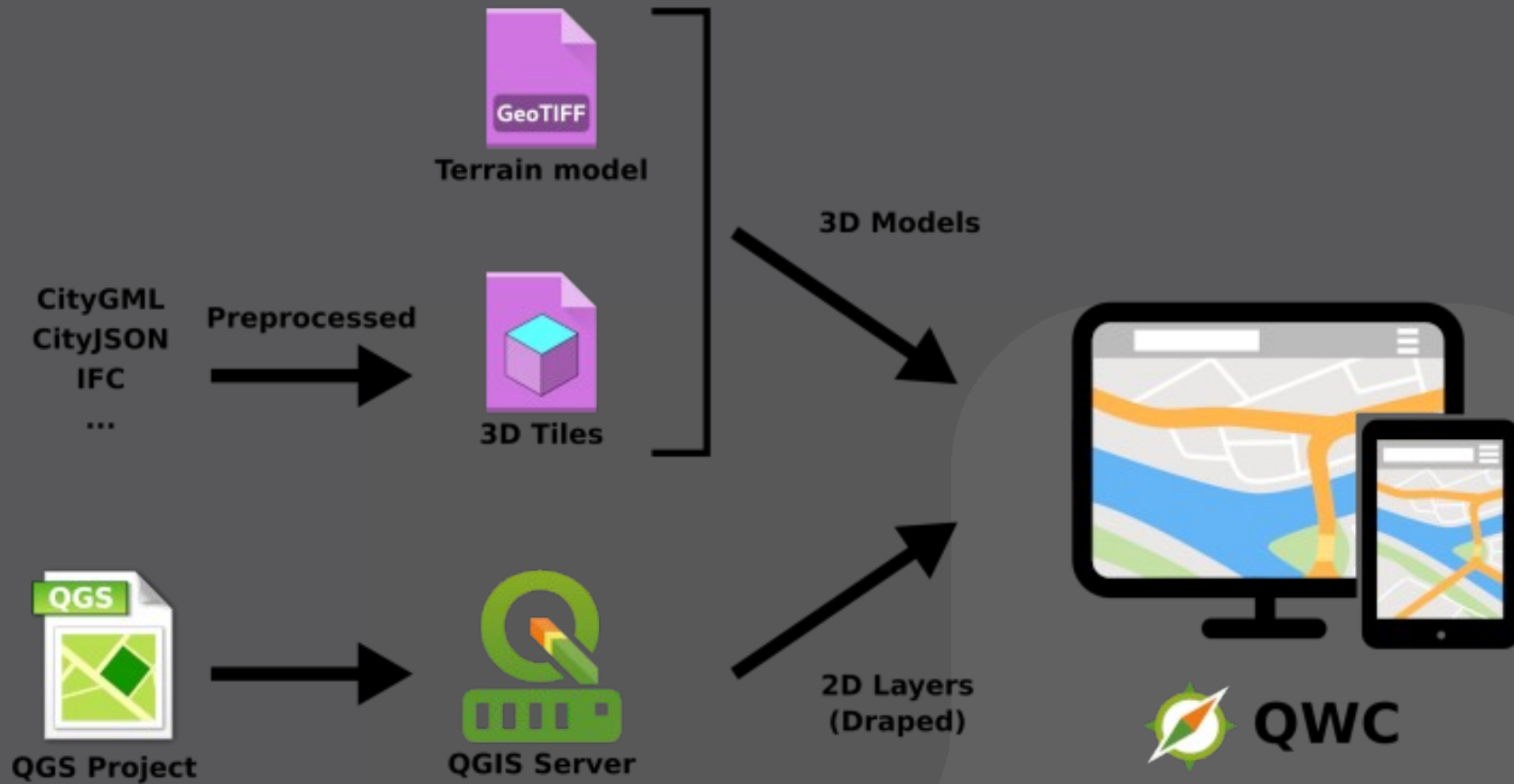
News from the project



- > 3D view based on THREE.js and Giro3D
- > 3D objects from 3D tiles, terrain from COG (Cloud Optimised GeoTIFF)
- > Layers from the 2D view will be rendered as draped textures on the 3D terrain
- > **Functions**
 - > Measure
 - > Draw
 - > Compare different layers
 - > Hide objects
 - > Light and shadows
 - > Sun exposure
 - > Viewshed

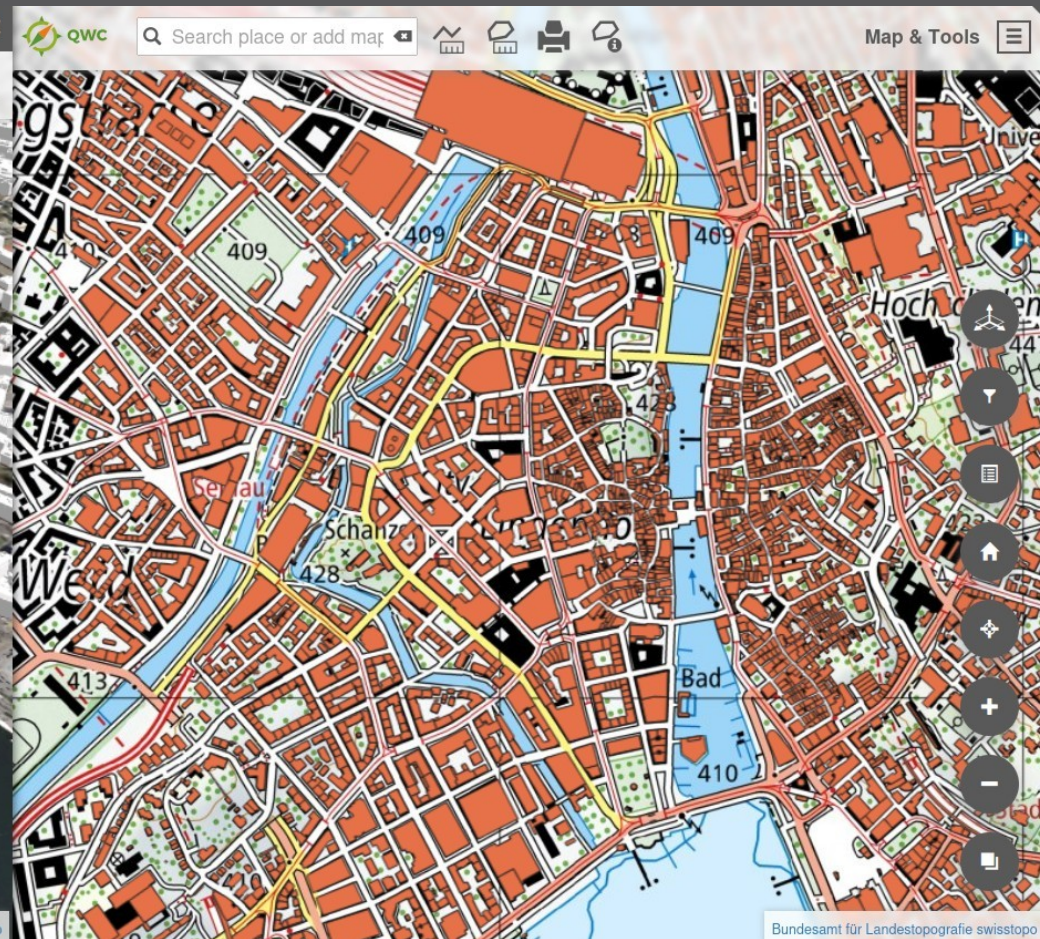
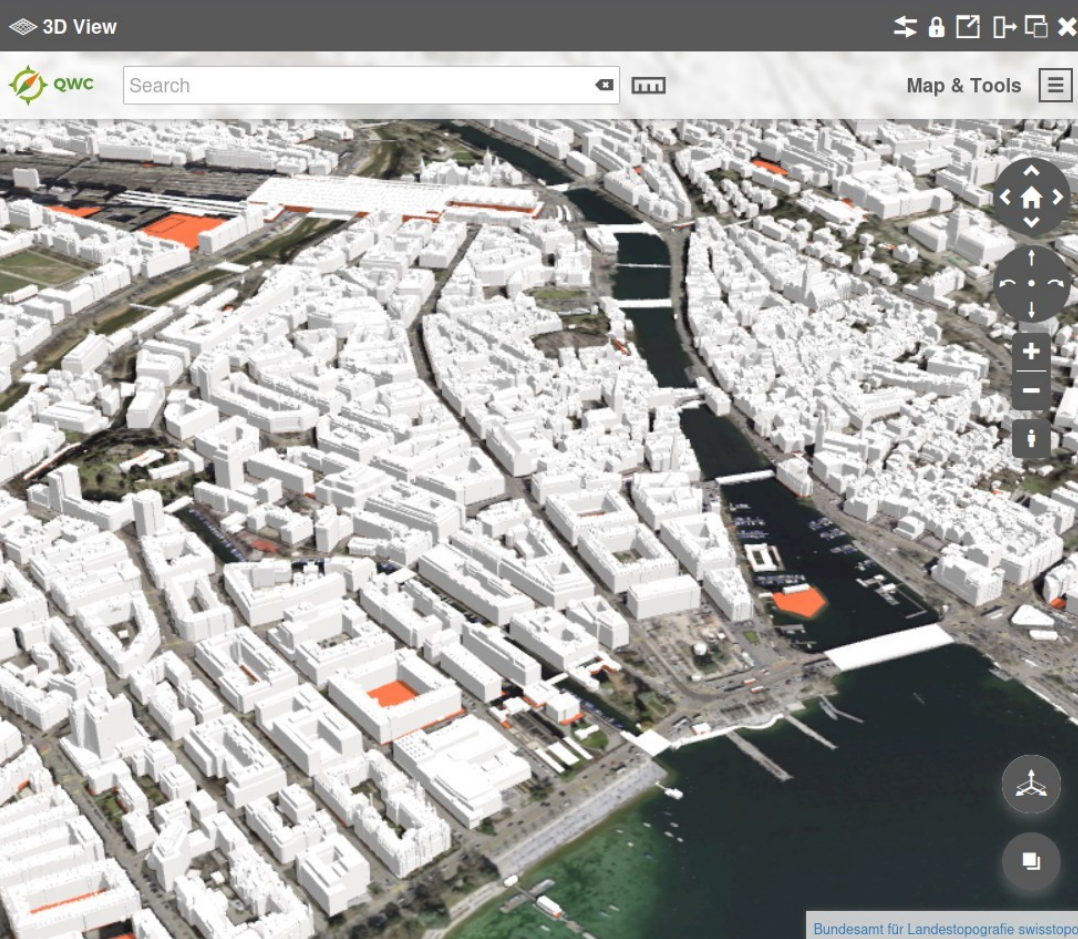


News - 3D





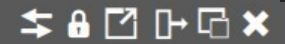
News - 3D





3D measure

3D View



Search



Map & Tools



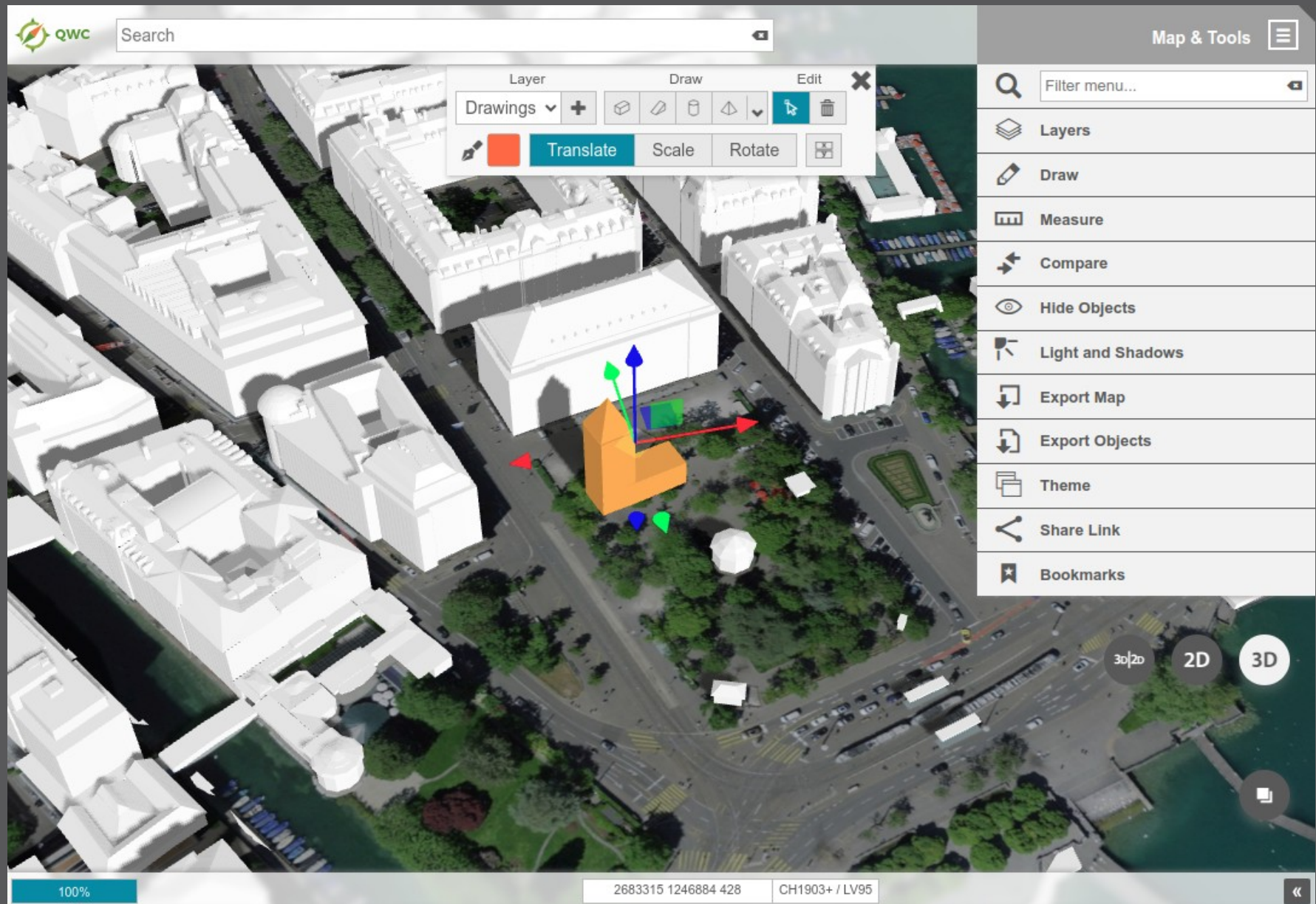
Position	Height diff.	Length	Area
	74.68 m		
		Metric	

74.68 m





3D draw





3D compare layers

3D View



Search



Map & Tools



Object comparison is active [Modify](#)

Compare

☒ **Compare objects**

☒ Toggle all

☒ Terrain

☒ Stadt Zürich

☒ Toggle all

☒ Terrain

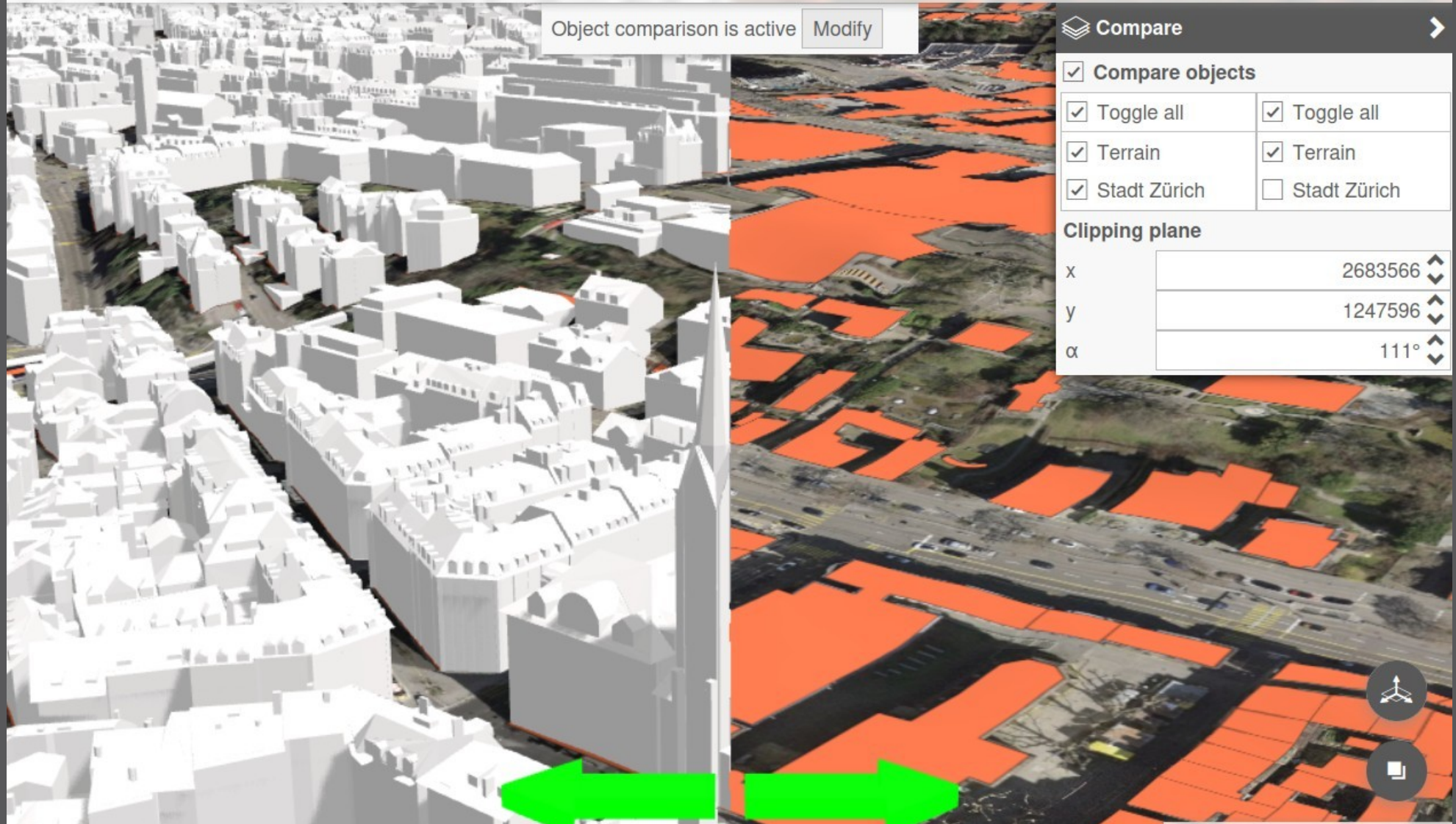
☐ Stadt Zürich

Clipping plane

x 2683566

y 1247596

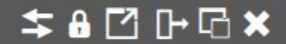
α 111°





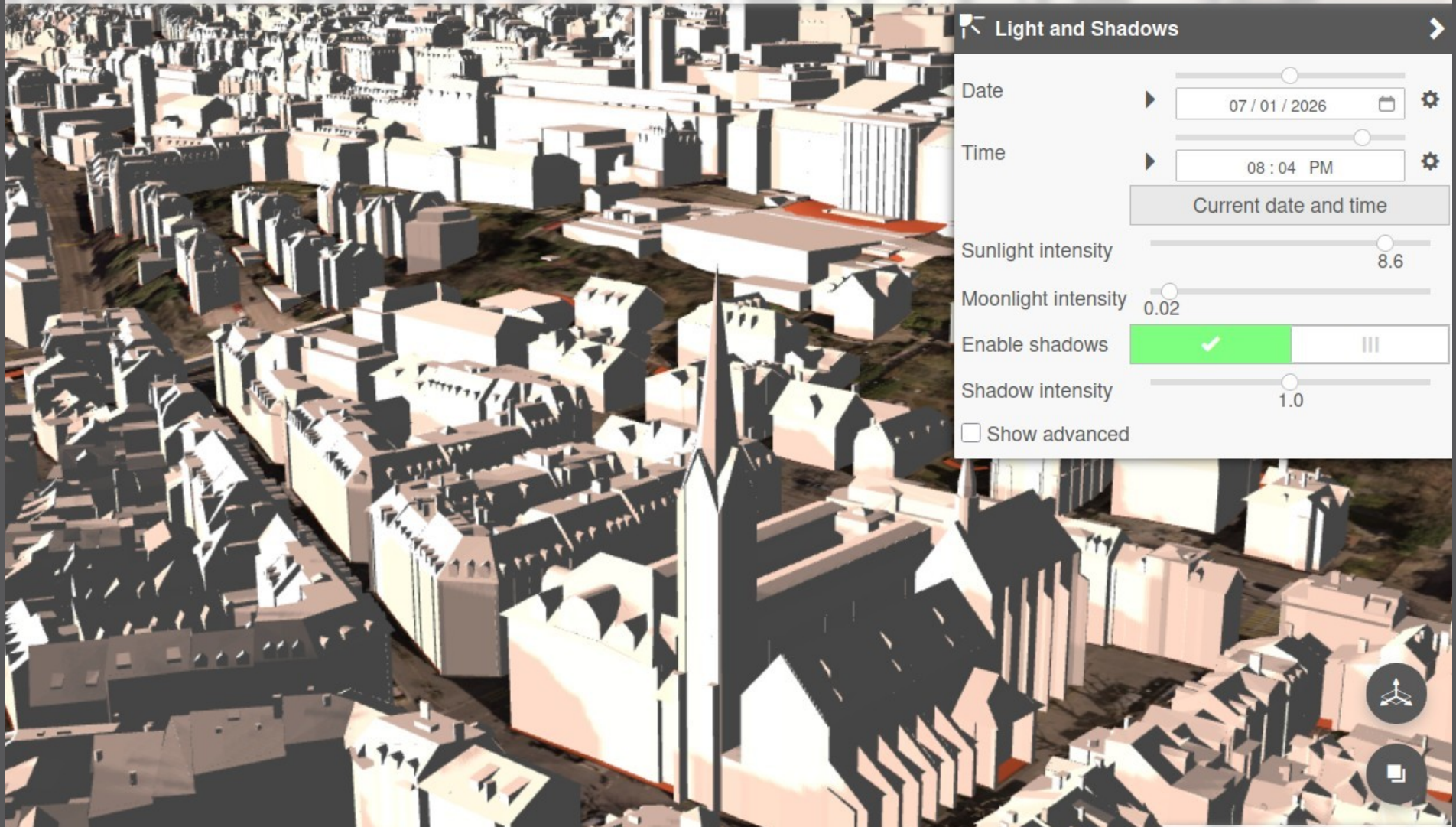
3D Light and shadow

3D View



Search

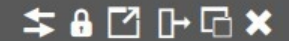
Map & Tools





3D Viewshed

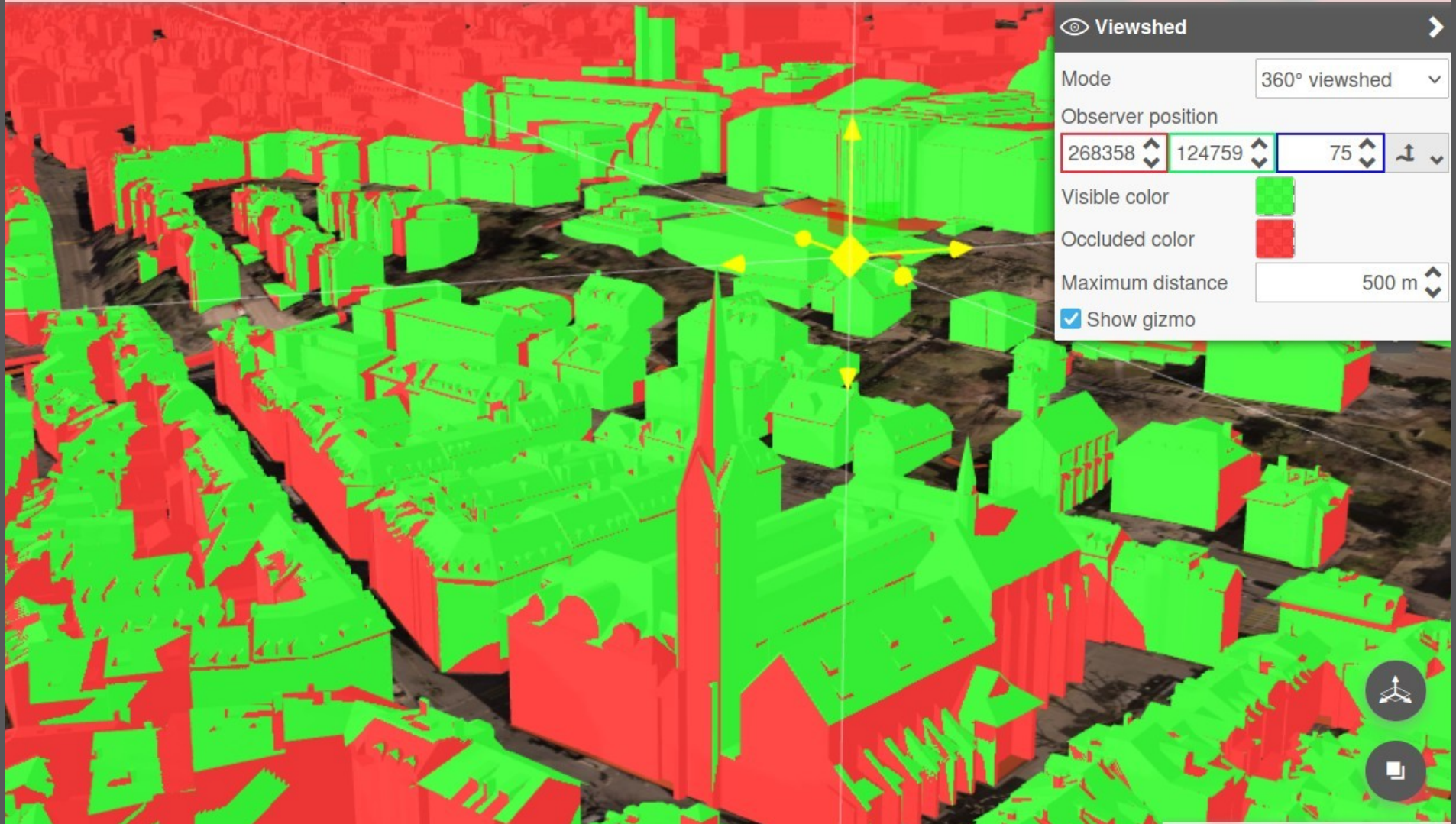
3D View



Search

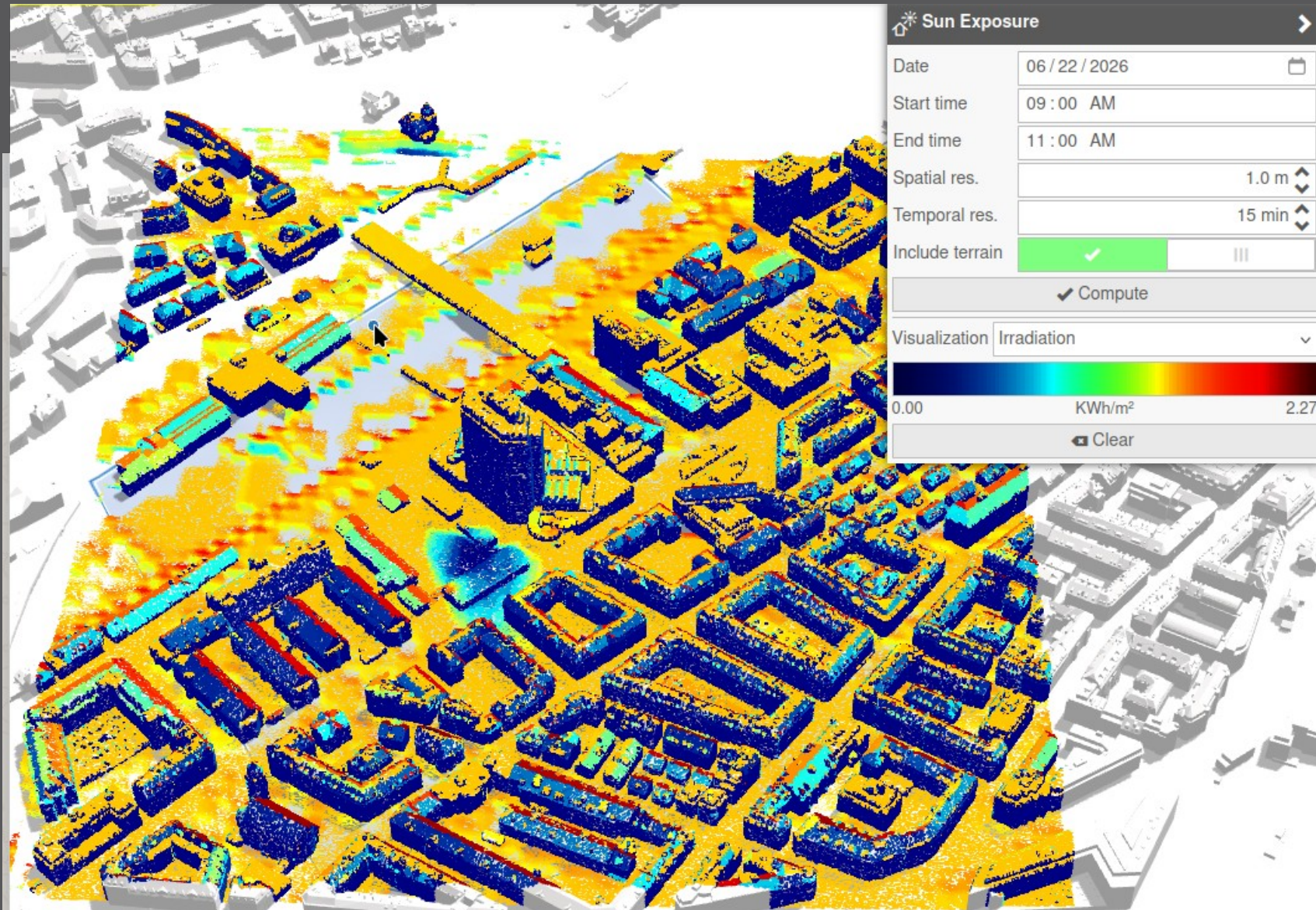


Map & Tools



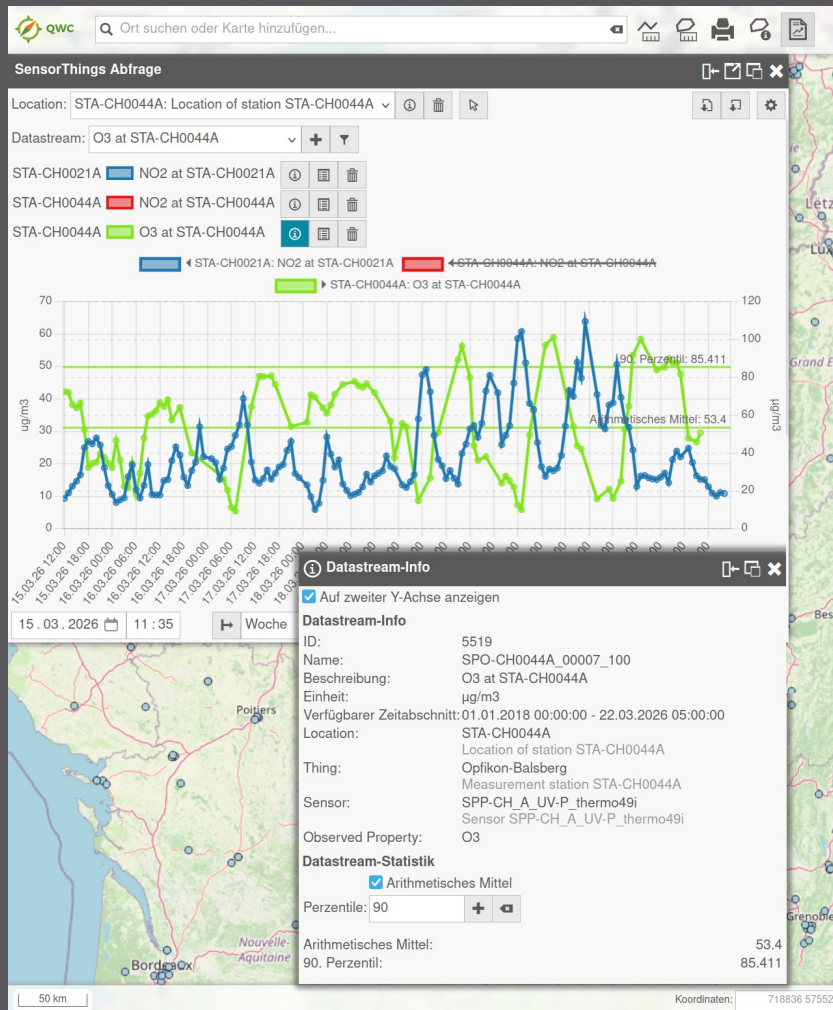


3D Sun Exposure Analysis

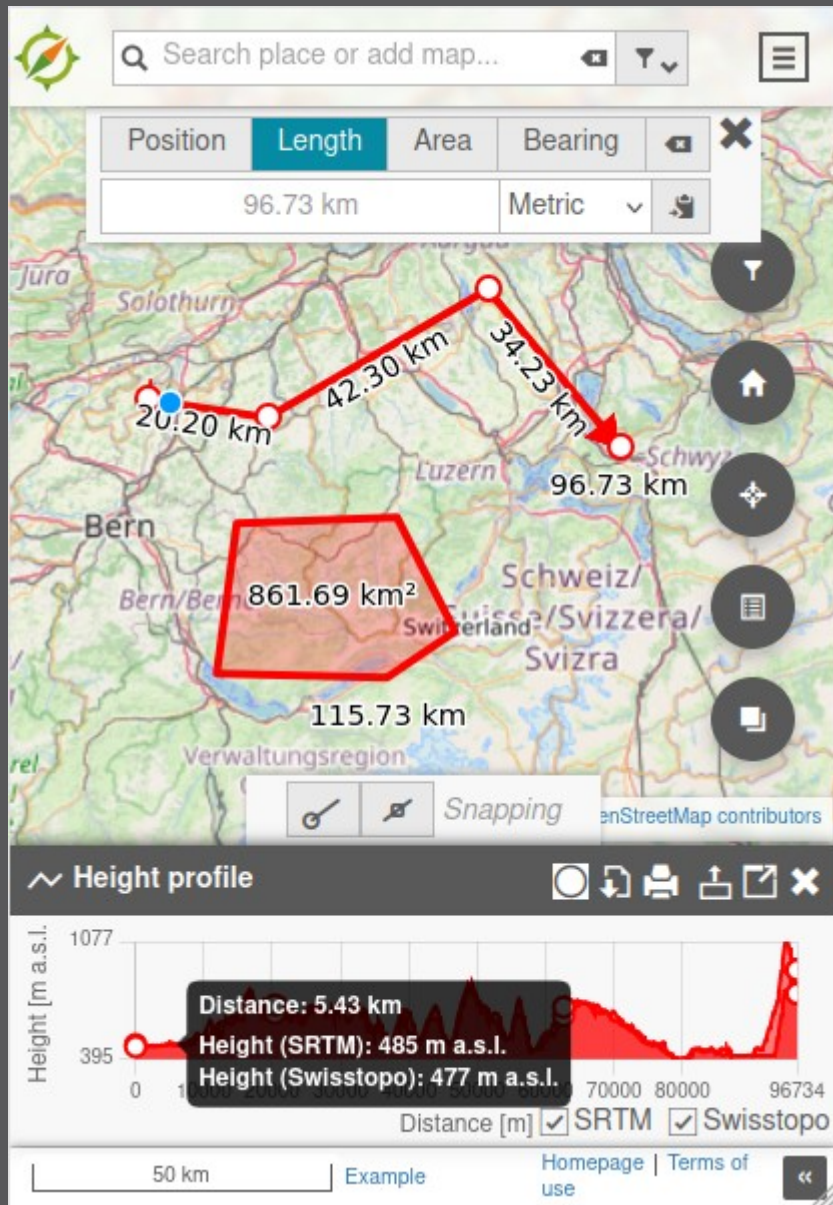




News - SensorThings Plugin



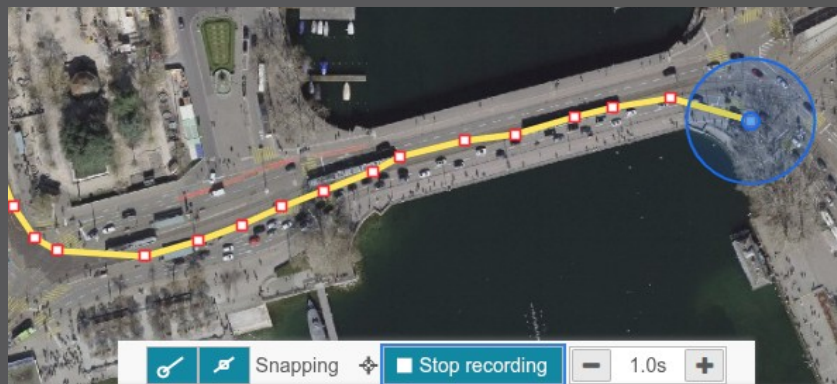
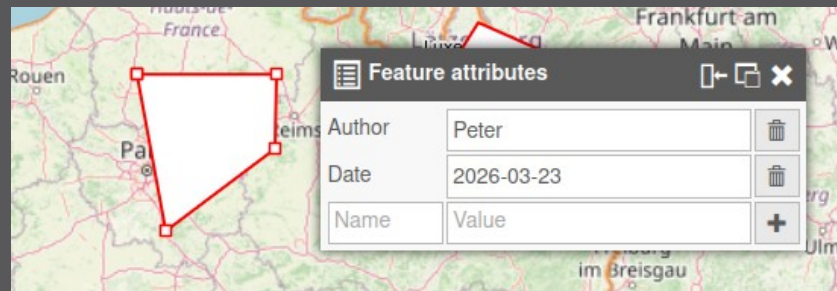
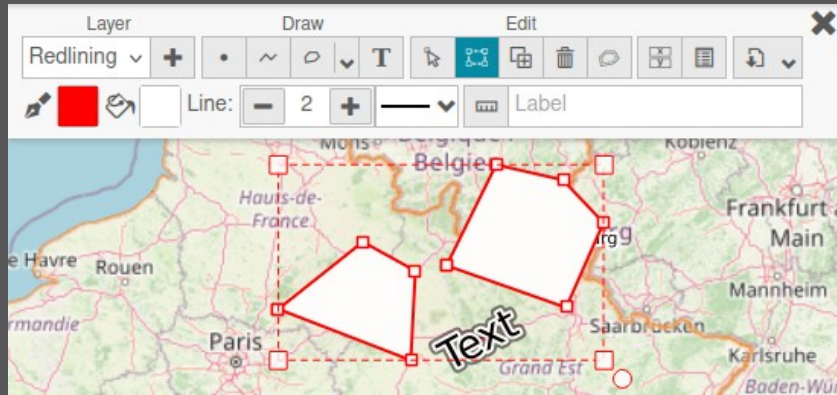
- > Display sensor data streams at selected map locations
- > Display datastream statistics
- > Setup with QGIS SensorThings API plugin



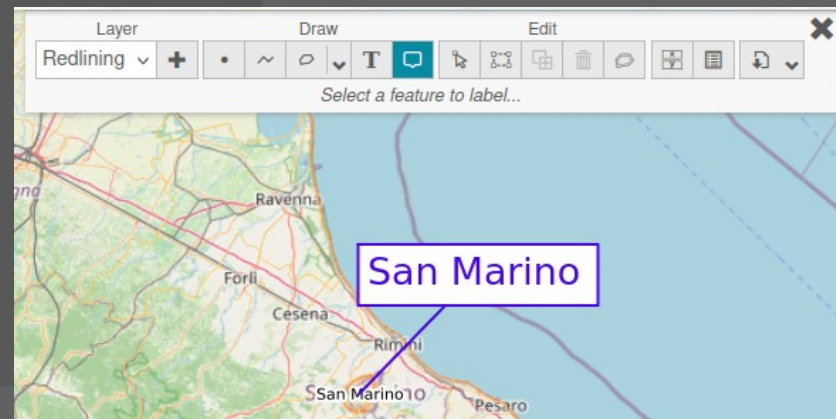
- > Multiple measurement geometries
 - > Persistent and printable
- > Head- and tail-markers
- > Multiple elevation profiles



News - Redlining



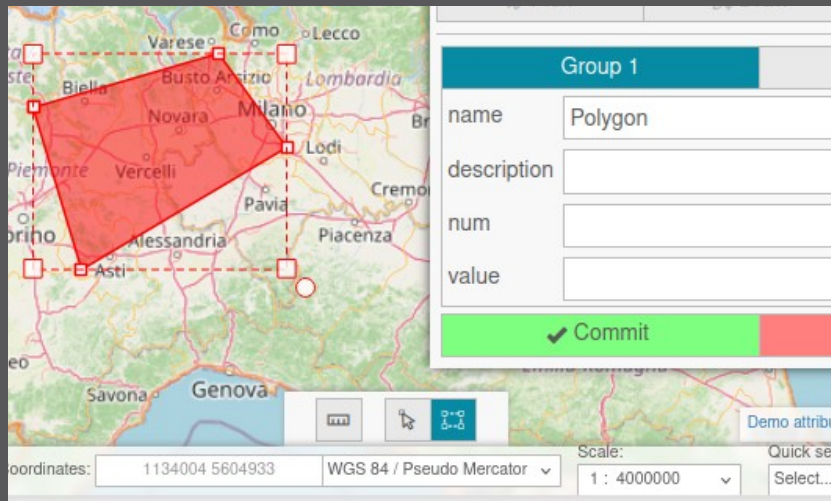
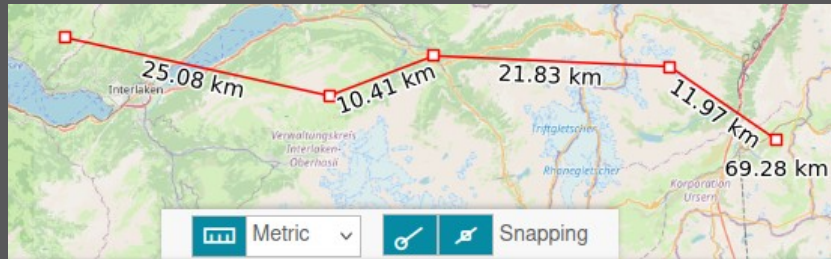
- > Select & transform multiple features
- > Line dash patterns
- > Attributes
- > Record GPS position
- > Label objects





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 edit +

Delete

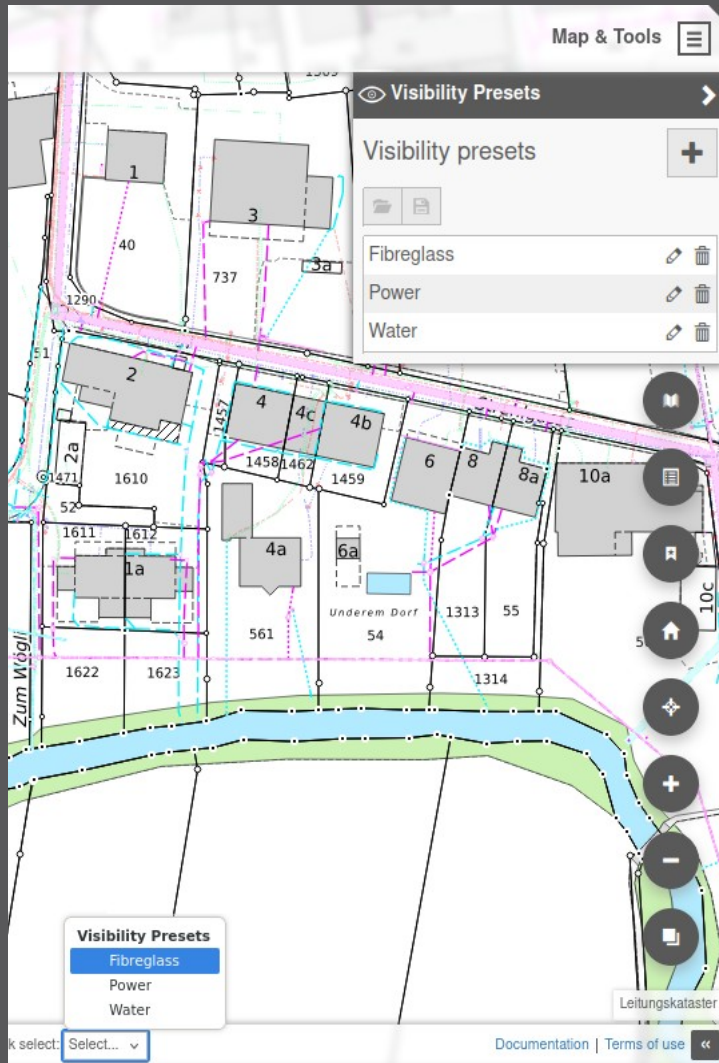
Namen

Peter	trash
Paul	trash
Hans	trash
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

featurecla	Admin-0 country
sovereignty	France
sov_a3	FR1
adm0_dif	1
level	2
type	Country
admin	France
adm0_a3	FRA
geou_dif	0
geounit	France
gu_a3	FRA
su_dif	0
subunit	France
su_a3	FRA
brk_diff	0

☐ Countries: Switzerland

featurecla	Admin-0 country
sovereignty	Switzerland
sov_a3	CHE
adm0_dif	0
level	2
type	Sovereign country
admin	Switzerland
adm0_a3	CHE
geou_dif	0
geounit	Switzerland
gu_a3	CHE
su_dif	0
subunit	Switzerland
su_a3	CHE
brk_diff	0

7 feature(s)

1 2 3 4

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



News - Object list

Search place or add map...

Object list

Countries

☐	name
☐	Somaliland
☐	Finland
☐	Poland
☐	Ireland
☐	Switzerland
☐	Netherlands
☐	Thailand
☐	Greenland
☐	New Zealand

1 50 per page

name ~ land

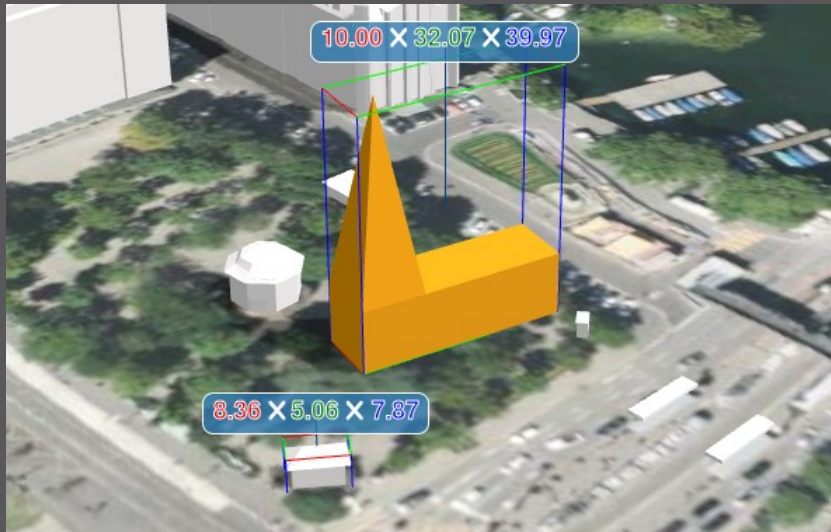
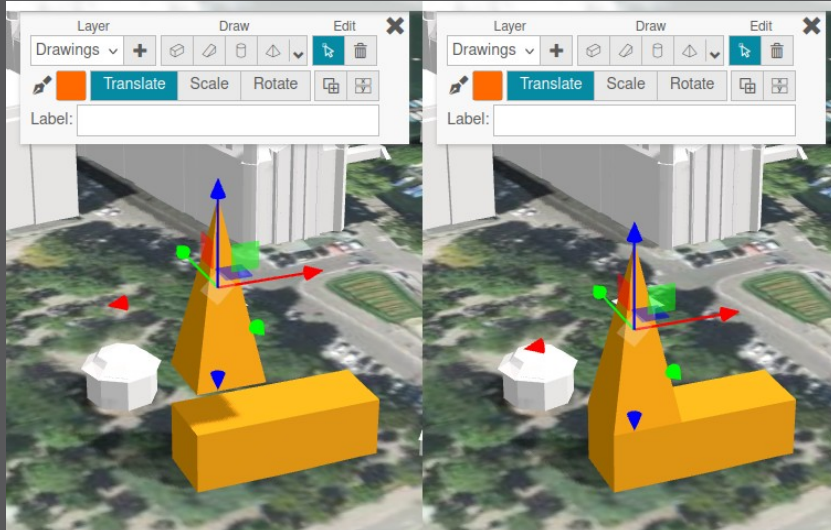
☐ Limit to map extent

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

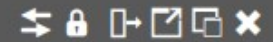


- > **Snapping while drawing in 3D**
 - > Snap to other 3D objects
 - > Snap to 2D layers
- > **Measure objects**
- > **Improved support for instanced 3D-Tiles**



News - Oblique Aerial View

Oblique Aerial View



Wolfsburg 2025 ▾

Scale: 1 : 2,500 ▾



QGIS Web Client - Quickstart

- > demo.qwc.app
- > <https://docs.qwc.app/master/QuickStart/>
- > QWC as a standalone viewer
- > QWC / QWC services with docker-compose
- > QGIS Cloud (www.qgiscloud.com) to use QWC and QGIS server as a hosted service



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!



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