

# **‘map5topo’ Een Nieuwe Topografische Kaart van Nederland**

**Just van den Broecke - justobjects.nl**

*map design: Niene Boeijen - nieneb.nl*

**[map5.nl](https://map5.nl) - [map5topo.nl](https://map5topo.nl)**

**14 sept, 2023 - FOSS4GNL - Middelburg**



Free Source  
Geospatial  
Professional @  
justobjects.nl



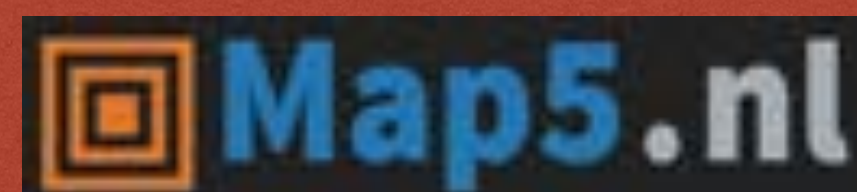
Member



Board



Cloud Services



Projecten o.a.





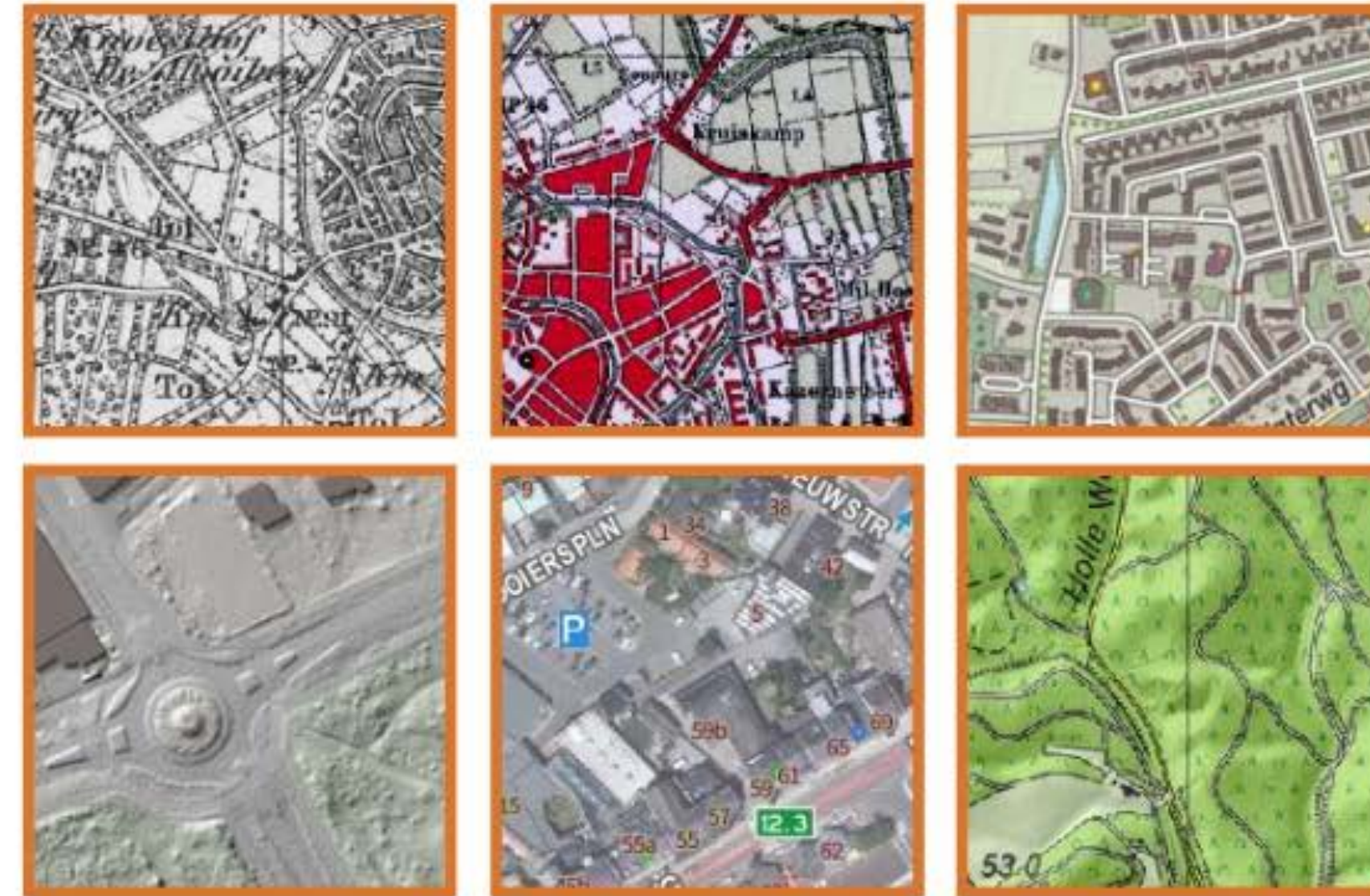
## Map5.nl: de fijnste kaarten voor al je toepassingen

Topografische kaarten van Nederland via open geo webstandaarden

- Topografische kaarten: [map5topo](#), [map5topo\\_simple](#)
- \*\* Lees meer [over map5topo kaarten](#)
- Gecombineerde Kadaster Top1000/500/250/100/50/25 rasterkaart
- Gecombineerde PDOK BRT en BGT achtergrondkaart
- PDOK Luchtfoto's met wegen en labels (geen Google Satellite meer nodig!)
- Reliëfkaarten op basis AHN2 (50cm resolutie) en AHN3 (5cm)
- Historische kaarten: Bonnebladen, TMK 1850
- Hoge schalen (tot 1:150)
- Standaarden: TMS, WMTS, WMS en Google/OSM (Web Mercator) tiles
- Tiling schema's: Nederlands (RD/PDOK) en Web Mercator (Google/OSM)
- Hoge zoom nivo's RD: 0-16 (vgl PDOK 0-14), Web Mercator: 0-23
- Gemakkelijk opnemen in toepassingen: web, desktop, mobiel
- Kaartlagen en apps via beveiligd HTTPS
- Printen (PDF) van kaarten mogelijk
- [Mobiele en desktop GIS apps](#), o.a. de populaire [KadViewer](#)
- Gebouwd met Open Source geo-componenten
- CORS headers voor bijv 3D rendering
- [Gratis of betaalde dienst](#)
- Eigen unieke URL: geen whitelisting, ingewikkelde PKI certificaten of wachtwoorden nodig
- Helpdesk ondersteuning



Bekijk in de NLTopo App, ook op je mobiel!



## Wat kost het?

Persoonlijk

€96<sup>00</sup>

per jaar - meer...

Professioneel

€960<sup>00</sup>

per jaar - meer...

\*Met een betaald abonnement verdwijnt de reclame op de hogere kaart-resoluties.

Waarom?  
Por qué?  
Per què?



# OpenTopo Kaart/Project - 2014-2022

## 1. Data - ETL



## 2. Map Making



## 3. Map Serving



Waarom?  
Por qué?  
Per què?

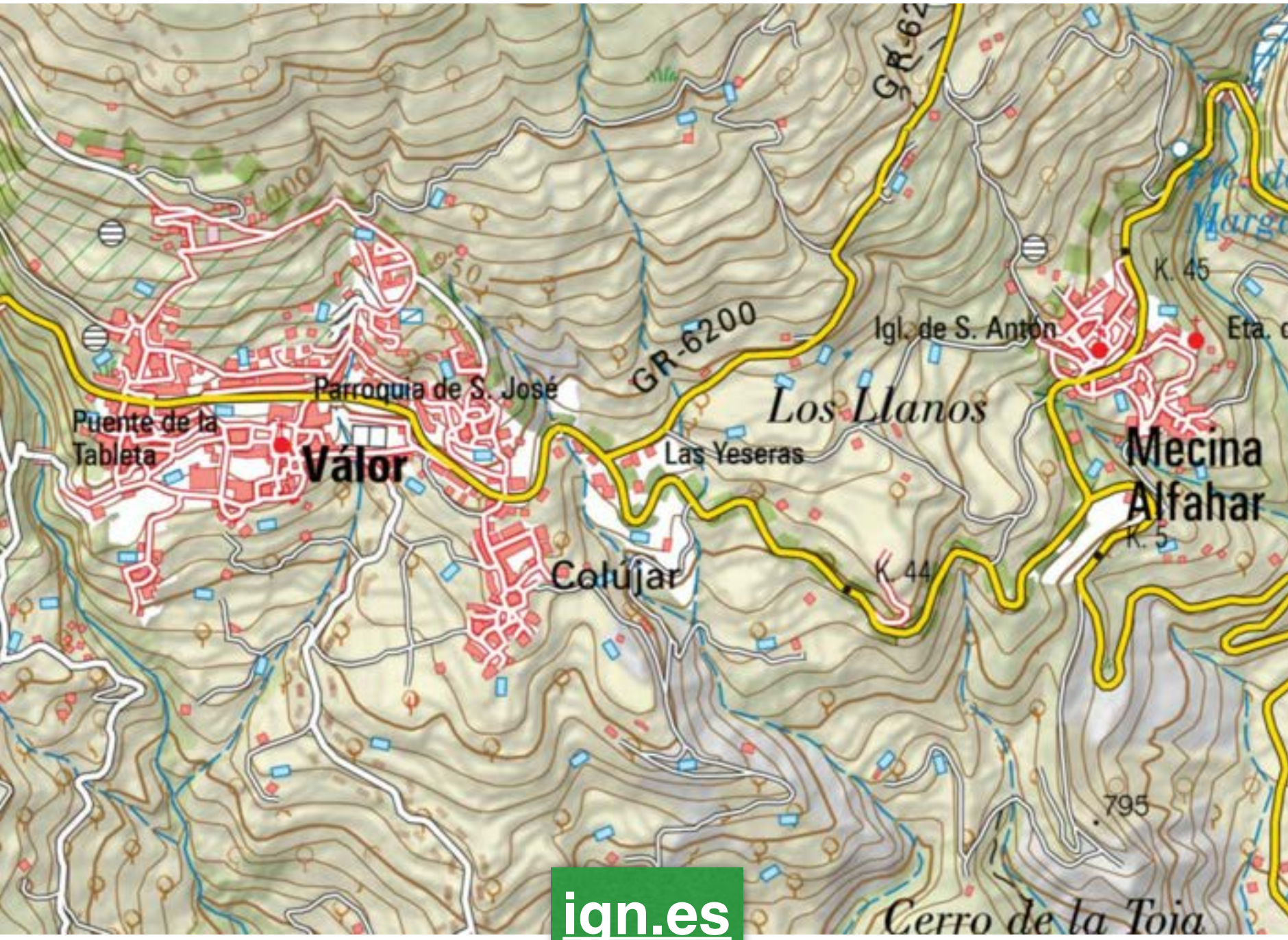
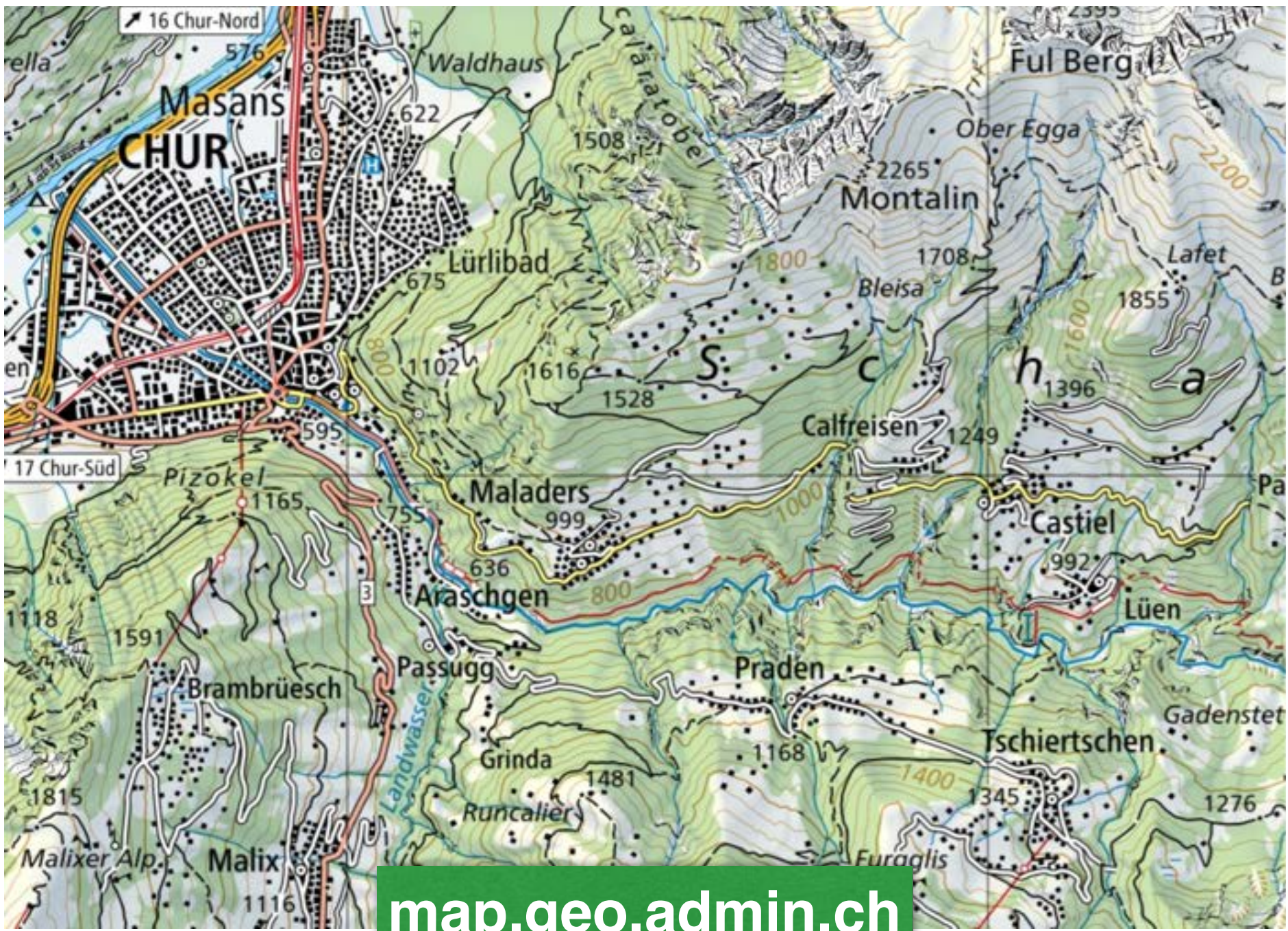


# Waarom een nieuwe kaart?

- OpenTopo nu Topoplus via SpotInfo
- Goede (wandel)kaart nodig - “Developer’s Itch”
- ***Kaarten maken is leuk!***



# In andere landen...





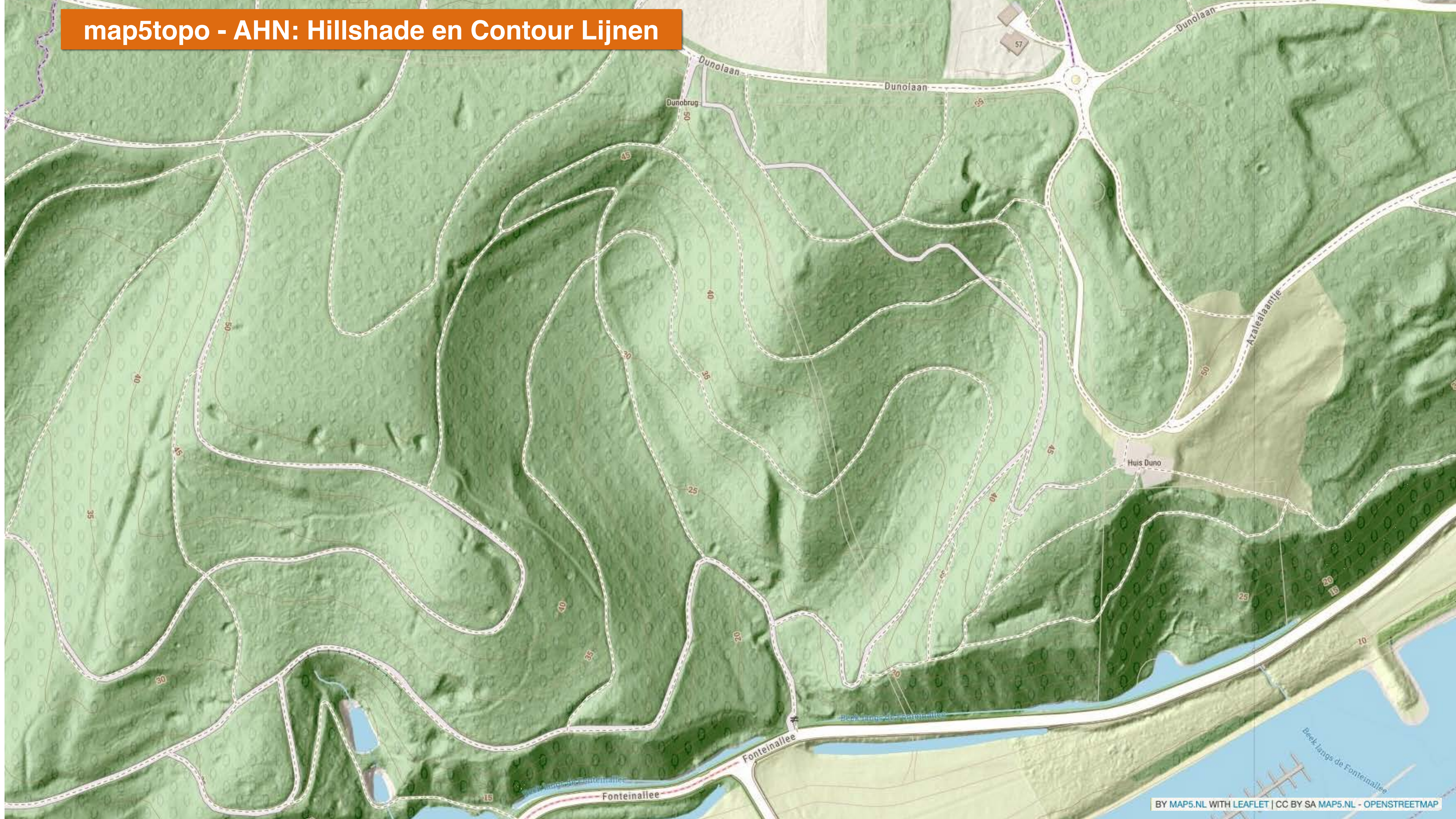
**Tijd om iets te laten zien...**







# map5topo - AHN: Hillshade en Contour Lijnen

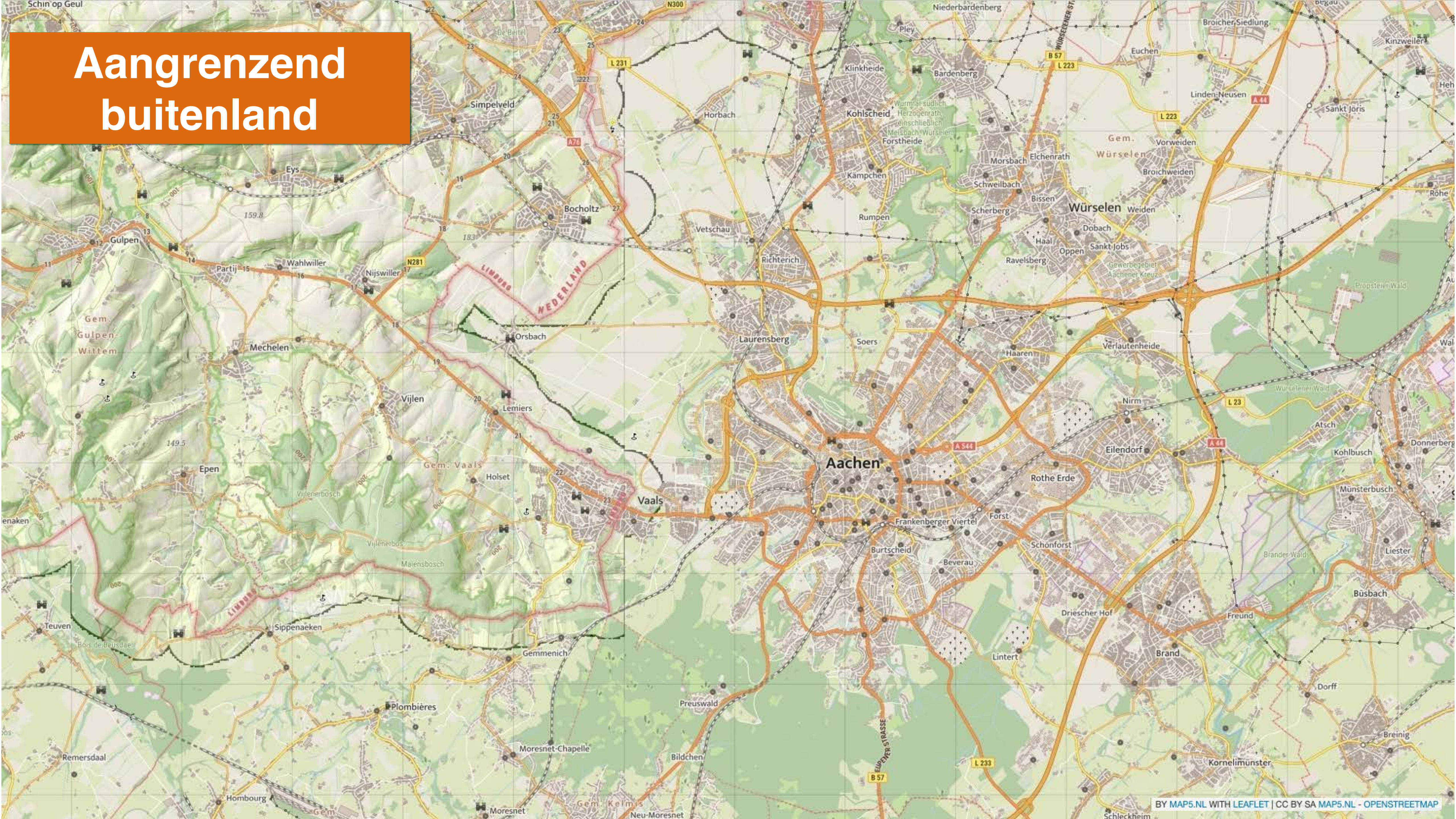






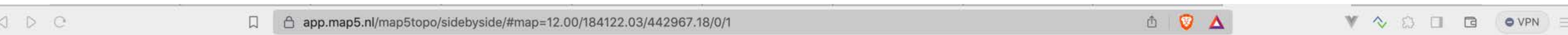


# Aangrenzend buitenland





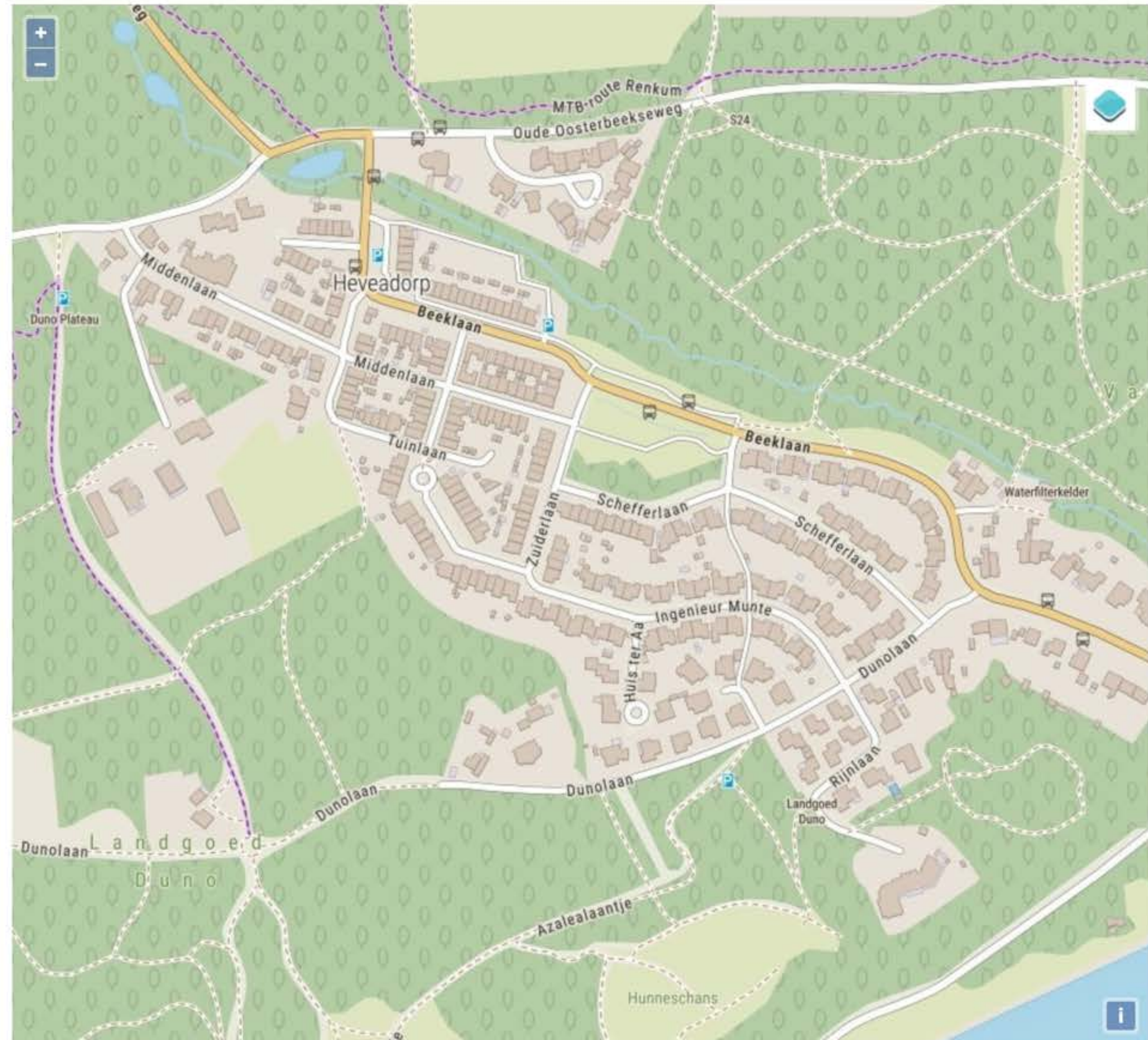
# map5topo - Standaard en Smpel



Map5 - map5topo zoom=12 - feedback -



Map5 - map5topo simple





**What?**

**Qué?**

**Què?**



# map5topo specs

- Vier varianten ('lagen'):
  - \* Standaard en Simpel (achtergrondkaart) edition
  - \* Beide als 'grijskaart'
- Tiling: Dutch Tilegrid (EPSG:28992) en Web Mercator ('OSM/Google tiles')
- Standaarden: WMTS, TMS, XYZ, WMS
- Ook aangrenzend buitenland (DE, BE, FR)
- Open Source project
- ***Data: best-of OpenStreetMap met NL Open Data***

Info: Nieuwsbrieven (Dutch)- via <https://map5.nl/support.html>

What?  
Qué?  
Què?



# Data - Basisregistraties

- BAG - Panden (onroerend goed)
- BRK - Kadastrale Grenzen
- BRT - Topografie - Top10NL, Top50NL,...
- BGT - Detail Topografie (zoom 13)
- AHN - reliëf en hoogtelijnen- 5m and 50cm resolutie
- en meer: o.a. NWB

***Maar: basisregs brondata vaak complexe GML :-(  
Daarom conversie met  - [nlextract.nl](https://nlextract.nl)***



# Data - OpenStreetMap

- Transport infra (wegen, spoorlijnen etc)
- Adressen
- Panden niet in BAG (o.a. recreatie-woningen)
- Zee (behalve Oosterschelde!)
- Alle data in aangrenzend buitenland

What?  
Qué?  
Què?



# **Uitdaging!**

**Hoe gaan we al die data:  
Basisregistraties, OpenStreetMap,  
voor binnen-/buitenland,  
op verschillende zoomlevels,  
“mengen”?**



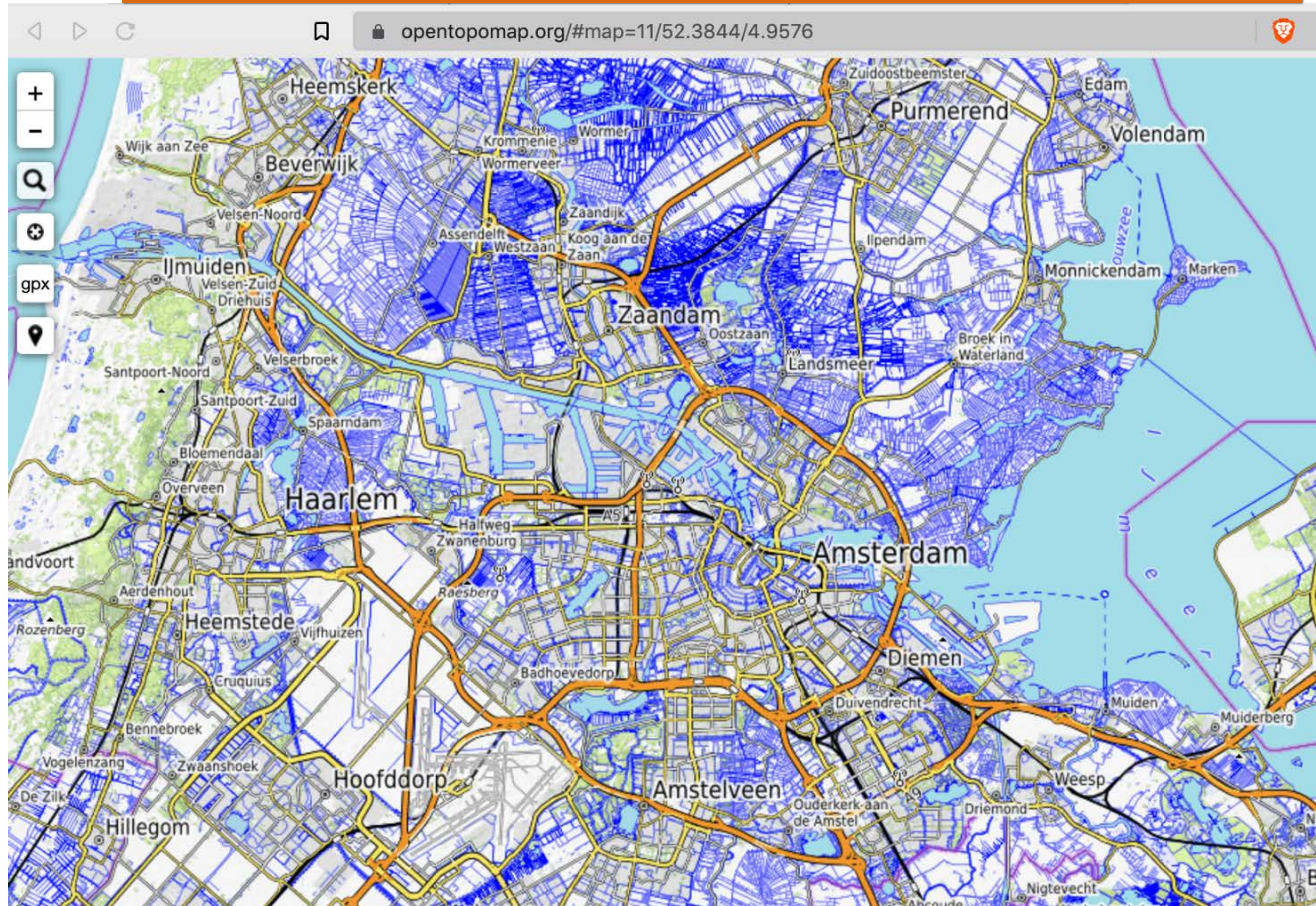
**How?**

**Cómo?**

**Com?**



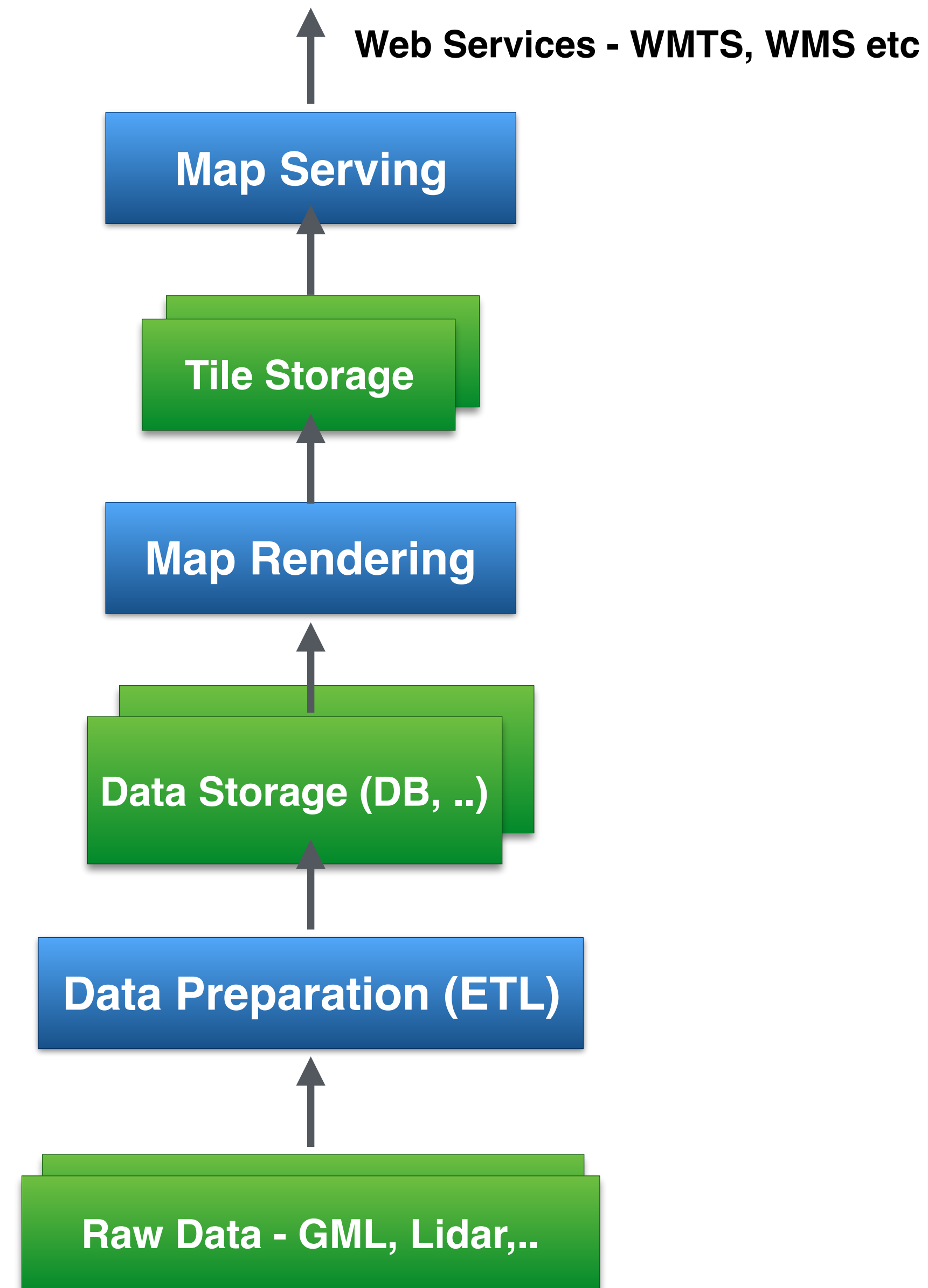
## Startpunt: OpenTopoMap - Zoom into NL - “why mapmaking is often a local matter”



How?  
Cómo?  
Com?



# Architectuur - Kaartmaken tot serveren - meta flow



## Legenda

Data Verwerking

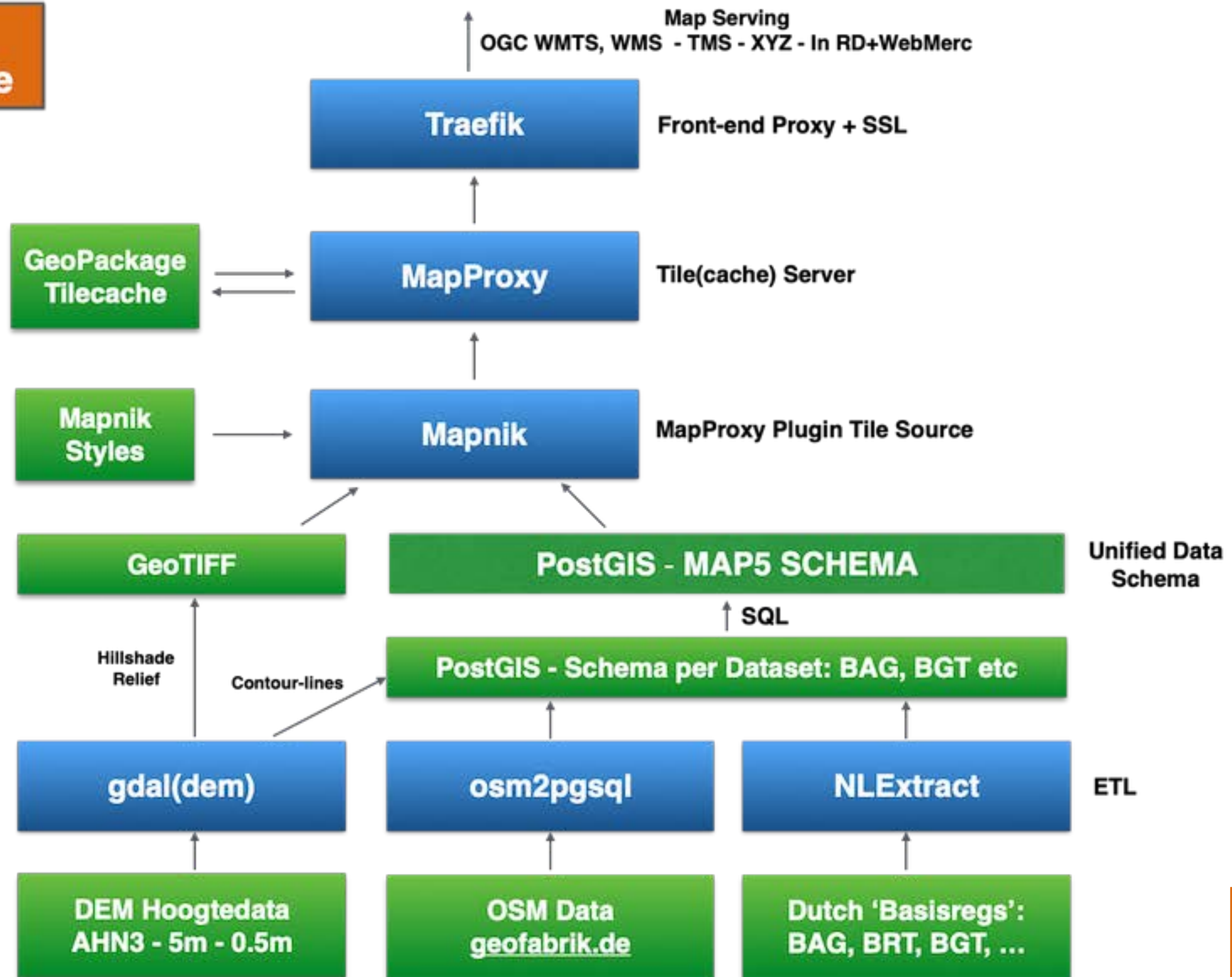
Data ↑ Stroom

Data Opslag

How?  
Cómo?  
Com?



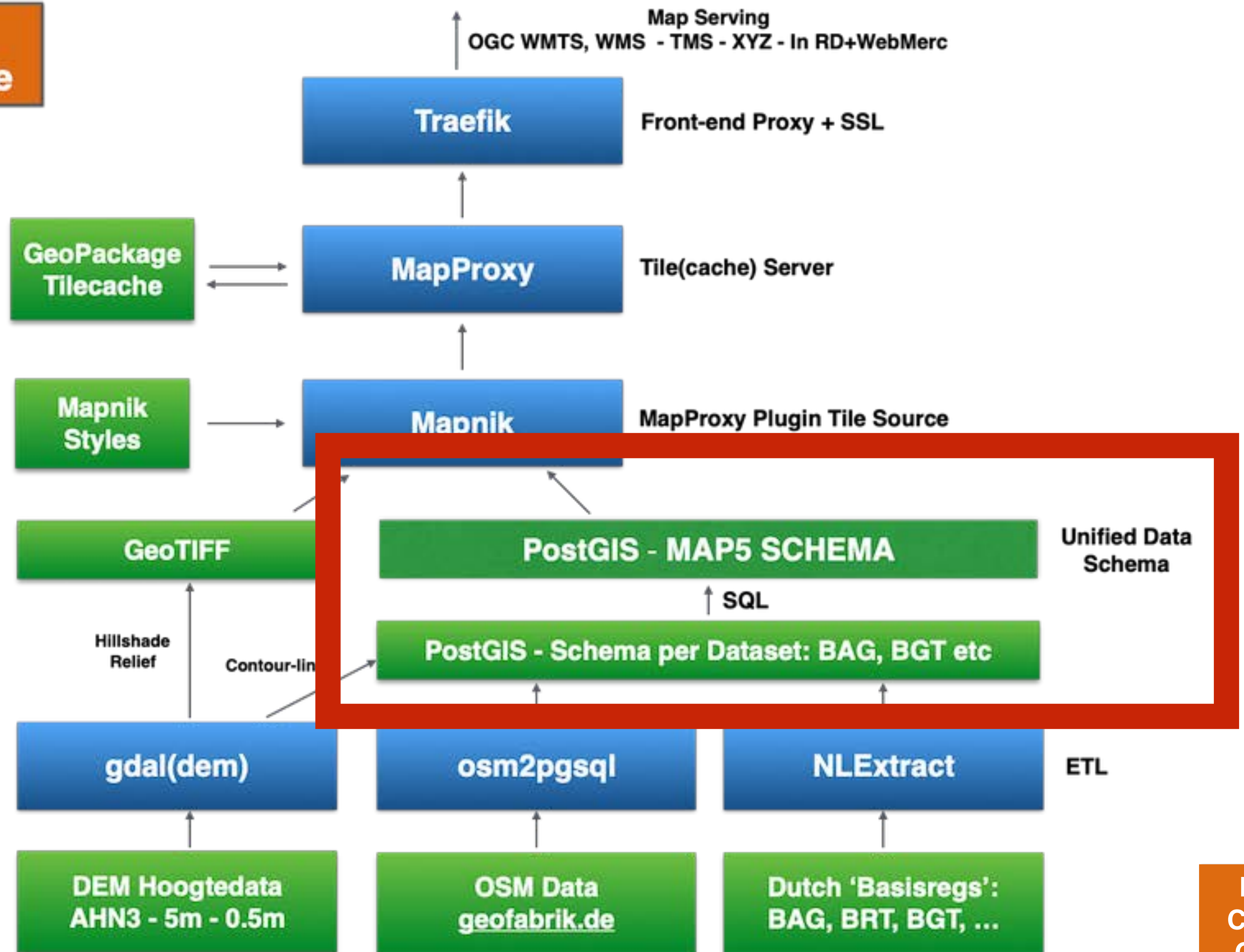
# map5topo Full Stack Architecture



Hoe?  
Cómo?  
Com?



# map5topo Full Stack Architecture



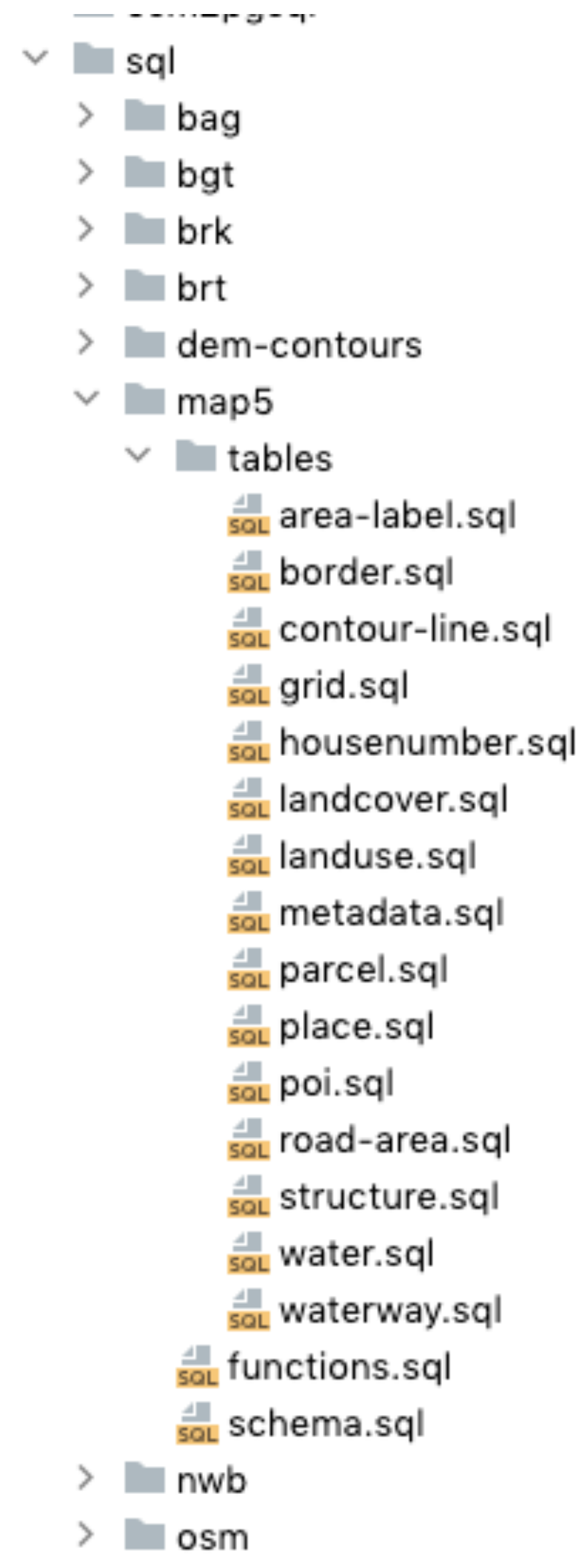
Hoe?  
Cómo?  
Com?



# Unified PostGIS schema: “map5” - common table structure

## Common Structure

```
CREATE TABLE map5.xyz (  
  -- table-specific columns, usually classifications  
  (lod1-lod3)  
  ..  
  ..  
  ..  
  
  -- COMMON COLUMNS  
  --  
  
  -- Relative height  
  z_index INTEGER DEFAULT 0,  
  
  -- min and maxzoom in Dutch RD  
  -- when to show an object on the map  
  rdz_min INTEGER,  
  rdz_max INTEGER,  
  
  -- Where the data record originates from  
  src_schema TEXT,  
  src_table TEXT,  
  src_idref TEXT,  
  
  -- Is the object in NL or outside (abroad)?  
  abroad BOOLEAN DEFAULT FALSE,  
  
  -- Geometry in Dutch EPSG  
  geom GEOMETRY(POINT|POLYGON|LINESTRING, 28992)  
);
```



```
CREATE TABLE map5.landcover (  
  lod1 TEXT,  
  lod2 TEXT,  
  lod3 TEXT,  
  area BIGINT DEFAULT 0,  
  z_index INTEGER DEFAULT 0,  
  rdz_min INTEGER DEFAULT -1,  
  rdz_max INTEGER DEFAULT 13,  
  src_schema TEXT,  
  src_table TEXT,  
  src_idref TEXT,  
  abroad BOOLEAN DEFAULT FALSE,  
  geom GEOMETRY(POLYGON, 28992)  
);  
  
CREATE TABLE map5.water (  
  lod1 TEXT,  
  lod2 TEXT,  
  intermittent INTEGER DEFAULT 0,  
  area BIGINT DEFAULT 0,  
  z_index INTEGER DEFAULT 0,  
  rdz_min INTEGER DEFAULT -1,  
  rdz_max INTEGER DEFAULT 13,  
  src_schema TEXT,  
  src_table TEXT,  
  src_idref TEXT,  
  abroad BOOLEAN DEFAULT FALSE,  
  geom GEOMETRY(MULTIPOLYGON, 28992)  
);  
  
CREATE TABLE map5.poi (  
  lod1 TEXT,  
  lod2 TEXT,  
  lod3 TEXT,  
  text1 TEXT DEFAULT '',  
  rank INTEGER DEFAULT 0,  
  rdz_min INTEGER DEFAULT -1, -- minzoom in RD  
  rdz_max INTEGER DEFAULT 13, -- maxzoom in RD  
  src_schema TEXT,  
  src_table TEXT,  
  src_idref TEXT,  
  abroad BOOLEAN DEFAULT FALSE,  
  geom GEOMETRY(POINT, 28992)  
);
```



# map5topo - Unified PostGIS schema: “map5” - common table structure

## ETL with SQL - Hierarchical Classification through “Levels of Detail”: lod1, lod2 (lod3)

```
CREATE TABLE map5.landcover (
    lod1 TEXT,
    lod2 TEXT,
    lod3 TEXT,
    area BIGINT DEFAULT 0,
    z_index INTEGER DEFAULT 0,
    rdz_min INTEGER DEFAULT -1,
    rdz_max INTEGER DEFAULT 13,
    src_schema TEXT,
    src_table TEXT,
    src_idref TEXT,
    abroad BOOLEAN DEFAULT FALSE,
    geom GEOMETRY(POLYGON, 28992)
);
```

lod1	lod2	lod2 (Dutch)
agriculture	arable	bouw/akkerland
	orchard	boomgaard
	pastoral	grasland agrarisch
trees	deciduous	loofbos
	mixed	gemengd bos
	pine	naaldbos
greenery	grass	grasland
	scrub	allerlei soorten groen (greenery), behalve b
heath	heath	heide
wetland	reed	rietland - kwelder - slik
	tidalflat	wad, wadden
sand	sand	duin - stuifzand
bare	yard	erf
	bare	kaal, alles wat niet-erf of niet-urban is
	urban	bebouwd gebied, staden etc.

-- lod 3 can add 'swamp' for any of the above.

-- DATASET PER RD ZOOM

Dataset	RD ZOOM
BGT	13
TOP10NL	10-12
TOP50	6-9
OSM	0-5 and 6-13 Abroad

```
BEGIN;
INSERT INTO map5.landcover
SELECT
CASE
    WHEN s.typelandgebruik IN ('akkerland', 'boomgaard', 'boomkwekerij', 'fruitkwekerij')
    THEN 'agriculture'
    WHEN s.typelandgebruik IN ('bos: gemengd bos', 'bos: loofbos', 'bos: naaldbos', 'populieren')
    THEN 'trees'
    WHEN s.typelandgebruik IN ('grasland', 'dodenakker')
    THEN 'greenery'
    WHEN s.typelandgebruik = 'heide'
    THEN 'heath'
    WHEN s.typelandgebruik = 'bos: griend'
    THEN 'wetland'
    WHEN s.typelandgebruik IN ('duin', 'zand')
    THEN 'sand'
    WHEN s.typelandgebruik IN ('aanlegsteiger', 'basaltblokken, steenglooiing', 'bebouwd gebied', 'braakliggend', 'spoorbaanlichaam')
    THEN 'bare'
    ELSE
    'bare'
END AS lod1,
CASE
    WHEN s.typelandgebruik IN ('akkerland', 'boomkwekerij', 'fruitkwekerij')
    THEN 'arable'
    WHEN s.typelandgebruik = 'boomgaard'
    THEN 'orchard'
    WHEN s.typelandgebruik IN ('bos: loofbos', 'populieren')
    THEN 'deciduous'
    WHEN s.typelandgebruik IN ('bos: gemengd bos')
    THEN 'mixed'
    WHEN s.typelandgebruik = 'bos: naaldbos'
    THEN 'pine'
    WHEN s.typelandgebruik = 'grasland'
    THEN 'grass'
    WHEN s.typelandgebruik = 'dodenakker'
    THEN 'scrub'
    WHEN s.typelandgebruik = 'heide'
    THEN 'heath'
    WHEN s.typelandgebruik = 'bos: griend'
    THEN 'reed'
    WHEN s.typelandgebruik IN ('duin', 'zand')
    THEN 'sand'
    WHEN s.typelandgebruik = 'bebouwd gebied'
    THEN 'urban'
    ELSE
    'bare'
END AS lod2,
s.typelandgebruik AS lod3,
ST_Area(s.geometrie_vlak) AS area,
0 AS z_index,
-- Show between these RD zoomlevels
6 AS rdz_min,
9 AS rdz_max,
'stop50nl' AS src_schema,
'terrein_vlak' AS src_table,
s."lokaalid" AS src_idref,
FALSE AS abroad,
(ST_Dump(ST_ForcePolygonCW(ST_CollectionExtract(s.geometrie_vlak, 3)))) AS geom
FROM
top50nl."terrein_vlak" AS s;
COMMIT;
```



# map5topo - Unified PostGIS schema: "map5" - metadata table

```
1  -- Metadata and statistics to be extracted from all map5 tables
2  -- useful for analysis and documentation generation
3
4  -- Create table with metadata/stats of all records from all other tables in map5 schema.
5  DROP TABLE IF EXISTS map5.metadata CASCADE;
6
7  CREATE TABLE map5.metadata
8  (
9      table_name TEXT,          -- map5 table name
10     rdzoom     INT,           -- RD zoomlevel
11     wmzoom     INT,           -- Webmerc zoomlevel
12     src_schema TEXT,          -- source schema of the record
13     src_table  TEXT,          -- source table in source schema of the record
14     abroad     BOOLEAN,       -- is the record abroad (outside NL)?
15     records    INT,           -- number of records from source table
16     created    TEXT DEFAULT to_char(current_timestamp, 'YYYY-Mon-DD-HH24:MI:SS'),
17     gid SERIAL PRIMARY KEY
18 );
19
20
21 -- add key and indexes
22 -- ALTER TABLE map5.metadata ADD COLUMN gid SERIAL PRIMARY KEY;
23 CREATE INDEX map5_metadata_table_name_idx ON map5.metadata USING btree (table_name);
24
25 -- Function to extract meta data and stats from a map5 table.
26 DROP FUNCTION IF EXISTS map5.create_table_metadata(p_table_name TEXT);
27 CREATE OR REPLACE FUNCTION map5.create_table_metadata(p_table_name TEXT)
28 RETURNS TABLE (table_name TEXT, rdzoom INT, wmzoom INT, src_schema TEXT, src_table TEXT, abroad BOOLEAN, records INT) AS $$
29 DECLARE
30     i INT;
31     result_record RECORD;
32 BEGIN
33     FOR i IN 0..13 LOOP
34         FOR result_record IN
35             EXECUTE format('
36                 SELECT %1$L AS rdzoom, src_schema, src_table, abroad, count(src_schema) AS records
37                 FROM %2s
38                 WHERE %1$L BETWEEN rdz_min AND rdz_max
39                 GROUP BY rdzoom, src_schema, src_table, abroad', i, p_table_name)
40             LOOP
41                 -- Return the result for each iteration
42                 table_name := p_table_name;
43                 rdzoom := result_record.rdzoom;
44                 wmzoom := rdzoom + 5;
45                 src_schema := result_record.src_schema;
46                 src_table := result_record.src_table;
47                 abroad := result_record.abroad;
48                 records := result_record.records;
49                 RETURN NEXT;
50             END LOOP;
51         END LOOP;
52     END LOOP;
53
54     RETURN;
55 END;
56 $$ LANGUAGE plpgsql;
57
58 -- Example usage
59 -- SELECT * FROM map5.create_table_metadata('map5.landcover');
60
61 -- Example usage
62 -- DELETE FROM map5.metadata WHERE table_name = 'map5.landcover';
63 -- INSERT INTO map5.metadata
64 --     SELECT * FROM map5.create_table_metadata('map5.landcover');
```



# map5topo - Unified PostGIS schema: "map5" - metadata table

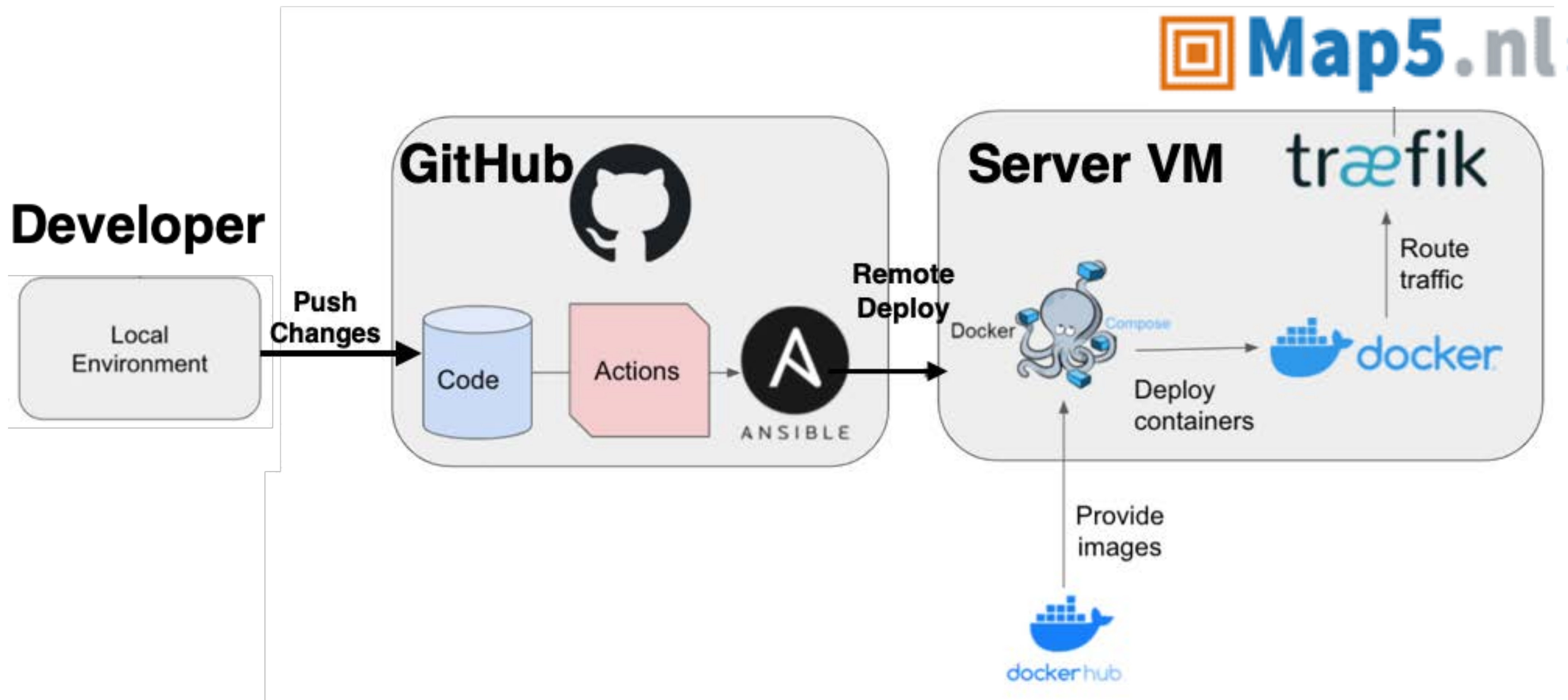
```
1 SELECT * FROM map5.metadata where abroad is false and rdzoom = 12
```

Data Output Messages Notifications

	table_name text	rdzoom integer	wmzoom integer	src_schema text	src_table text	abroad boolean	records integer	created text	
1	map5.area_label	12	17	top10nl	geografischgebied	false	15865	2023-Jul-16-22:38:14	
2	map5.area_label	12	17	osmnl	planet_osm_polygon	false	74761	2023-Jul-16-22:38:14	
3	map5.area_label	12	17	osmnl	planet_osm_point	false	90254	2023-Jul-16-22:38:14	
4	map5.border	12	17	osmnl	planet_osm_polygon	false	357	2023-Jul-16-22:38:29	
5	map5.contour_line	12	17	dem	contours	false	112187	2023-Jul-16-22:38:41	
6	map5.landuse	12	17	osmnl	planet_osm_polygon	false	7408	2023-Jul-16-23:06:55	
7	map5.parcel	12	17	brk	kadastralegrens	false	7871858	2023-Jul-16-23:11:26	
8	map5.place	12	17	osmnl	planet_osm_point	false	9602	2023-Jul-16-23:12:02	
9	map5.poi	12	17	osmnl	planet_osm_polygon	false	8347	2023-Jul-16-23:15:45	
10	map5.poi	12	17	osmnl	planet_osm_point	false	585496	2023-Jul-16-23:15:45	
11	map5.poi	12	17	nwb	hectoborden	false	159143	2023-Jul-16-23:15:45	
12	map5.poi	12	17	top10nl	hoogte_punt	false	78901	2023-Jul-16-23:15:45	
13	map5.road_area	12	17	osmnl	planet_osm_polygon	false	8542	2023-Jul-16-23:22:39	
14	map5.structure	12	17	bgt_lean	kunstwerkdeel_vlak	false	182473	2023-Jul-16-23:34:44	
15	map5.structure	12	17	osmnl	planet_osm_polygon	false	38548	2023-Jul-16-23:34:44	
16	map5.structure	12	17	bag	pand	false	10874597	2023-Jul-16-23:34:44	
17	map5.structure	12	17	bgt_lean	overigbouwwerk_multivlak	false	1066015	2023-Jul-16-23:34:44	
18	map5.structure	12	17	bgt_lean	gebouwinstallatie_vlak	false	1328327	2023-Jul-16-23:34:44	
19	map5.water	12	17	osmnl	sea_polygons	false	4	2023-Jul-16-23:41:51	
20	map5.water	12	17	top10nl	waterdeel_vlak	false	295180	2023-Jul-16-23:41:51	
21	map5.waterway	12	17	top10nl	waterdeel_lijn	false	2867200	2023-Jul-16-23:44:07	
22	map5.landcover	12	17	top10nl	terrein_vlak	false	2194227	2023-Jul-18-13:58:38	
23	map5.landcover	12	17	osmnl	planet_osm_polygon	false	1694	2023-Jul-18-13:58:38	



# map5topo - GitOps Workflow - CI/CD



How?  
Cómo?  
Com?



# Niene Boeijen - Map Styling



# NIENE BOEIJEN

## > Online Projects

## > Offline Projects

## > Talks

## > Workshops

## > About me

I am a freelance full stack web map developer. Everything I make is with a creative focus, from geo-data analysis to cartographic visualizations on the web. Check my [online projects](#) for my work online.

Next to building things I love to talk and teach about web GIS. Check my workshops and presentations for past and future work and reach out to me if you would like me speak!

In my free time I am always creating things. As artist and tinkerer. Check my [offline projects](#) for everything tangible I



## DATAVOORZIENING ENERGIETRANSITIE

De Datavoorziening Energietransitie Gebouwde Omgeving (DEGO) helpt gemeenten bij het werken met de data die nodig zijn voor het maken van o.a een Transitievisie Warmte. Een gebruiksvriendelijke viewer, die helpt bij het exploreren van de vele datasets die beschikbaar zijn.



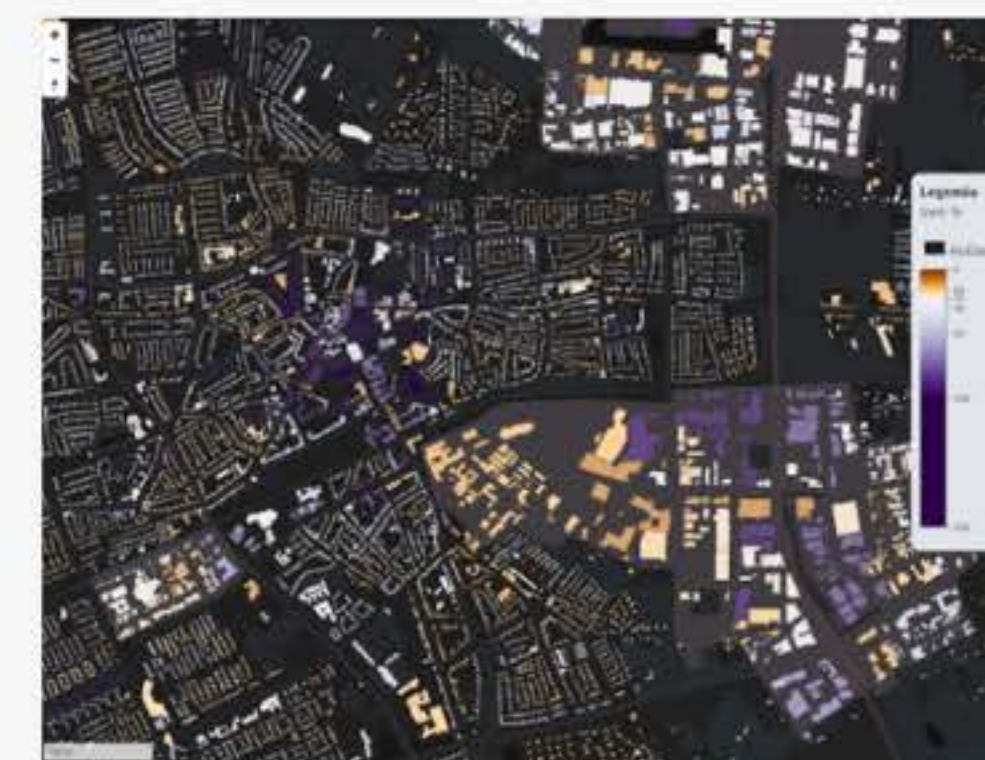
## DATAVOORZIENING WIJKPASPOORT

De Datavoorziening Wijkpaspoort Warmtetransitie is tot stand gekomen door een samenwerking tussen het Kadaster en VNG. Het Kadaster en VNG zetten zich beide in om gemeenten te ondersteunen bij het datagedreven werken aan de energietransitie in de gebouwde omgeving



## LISTEN TO THE MAP

Simply [listen](#) to the data



## BLOG: R STATISTICS > D3.JS COLOR SCALES > MAPBOXGL.JS

For a assignment of the [VNG](#) my

How?  
Cómo?  
Com?

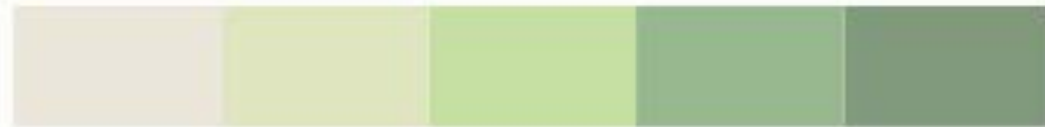


# map5topo - styling - by @bniene

Achtergrond



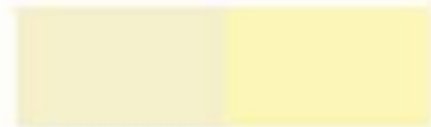
water, vaarroutes & labels



Landuse & outlines



Heide



Zand



Gebouwen & residential



Contourlijnen



Percelen



Gebouwen & adressen



Spoorlijnen, tekst labels, icoontjes



Wegen

A1

N22

Roboto Condensed  
Christian Robertson

6 styles

Whereas recognition of the  
inherent dignity

Lato  
Łukasz Dziedzic

10 styles

Whereas recognition of  
the inherent dignity

Roboto Slab  
Christian Robertson

Variable

Whereas recognition  
of the inherent dignity

Mukta  
Ek Type

7 styles

Whereas recognition of  
the inherent dignity



# Styling met Mapnik - Layers

```
&postgis-settings;  
</Datasource>  
</Layer>
```

```
<Layer name="parcels">  
  <StyleName>parcels</StyleName>  
  <Datasource>  
    <Parameter name="table">  
      (SELECT geom,rdz_min,rdz_max FROM map5.parcel  
       WHERE (rdz(!scale_denominator!)) BETWEEN rdz_min AND rdz_max) AS parcels  
    </Parameter>  
    &postgis-settings;  
  </Datasource>  
</Layer>
```

Iedere Layer = PostGIS Query

```
<Layer name="water">  
  <StyleName>water</StyleName>  
  <Datasource>  
    <Parameter name="table">  
      (SELECT geom,lod1,lod2,intermittent,area,rdz_min,rdz_max FROM map5.water  
       WHERE (rdz(!scale_denominator!)) BETWEEN rdz_min AND rdz_max) AS water  
    </Parameter>  
    &postgis-settings;  
  </Datasource>  
</Layer>
```

```
<Layer name="waterway">  
  <StyleName>waterway</StyleName>  
  <Datasource>  
    <Parameter name="table">  
      (SELECT geom,lod1,brunnel,intermittent,length,rdz_min,rdz_max FROM map5.waterway  
       WHERE (rdz(!scale_denominator!)) BETWEEN rdz_min AND rdz_max) AS waterway  
    </Parameter>  
    &postgis-settings;  
  </Datasource>  
</Layer>
```

```
<Layer name="landcover-over-water">  
  <StyleName>landcover-over-water</StyleName>  
  <Datasource>
```

How?  
Cómo?  
Com?



# Styling met Mapnik - Styles

Stijlbestand per Layer

```
82 </Rule>
83
84 <!-- less then -->
85 <Rule>
86     &maxscale_zoom13_rd8;
87     &minscale_zoom13_rd8;
88     <Filter>[area] < 50000 and [intermittent] = 0</Filter>
89     <LineSymbolizer stroke="&blue_dark;" stroke-width="0.5" stroke-opacity="0.5"/>
90 </Rule>
91
92 <Rule>
93     &maxscale_zoom14_rd9;
94     &minscale_zoom17_rd12;
95     <Filter>[intermittent] = 0</Filter>
96     <PolygonSymbolizer fill="&blue_1;" />
97     <LineSymbolizer stroke="&blue_dark;" stroke-width="1" />
98 </Rule>
99
100 <Rule>
101     &maxscale_zoom18_rd13;
102     &minscale_zoom18_rd13;
103     <Filter>[intermittent] = 0</Filter>
104     <PolygonSymbolizer fill="&blue_1;" />
105     <LineSymbolizer stroke="&blue_dark;" stroke-width="0.3" />
106 </Rule>
107
108 <!-- intermittent -->
109 <!-- The intermittent value (0/1) is used to indicate that a waterway or body of water does not permanently contain water. -->
110
111 <Rule>
112     &maxscale_zoom9_rd4;
113     &minscale_zoom11_rd6;
114     <Filter>[intermittent] = 1</Filter>
115     <PolygonSymbolizer fill="&blue_dark_2;" fill-opacity="0.2" />
116     <PolygonPatternSymbolizer file="symbols-map5/water-pattern-lowz.png" opacity="0.7" />
117 </Rule>
118
119 <Rule>
120     &maxscale_zoom12_rd7;
121     &minscale_zoom18_rd13;
122     <Filter>[intermittent] = 1</Filter>
123     <PolygonSymbolizer fill="&blue_dark_2;" fill-opacity="0.2" />
124     <PolygonPatternSymbolizer file="symbols-map5/water-pattern2.png" opacity="0.7" />
125 </Rule>
126
127 <!-- swimming pool -->
128 <Rule>
129     &maxscale_zoom13_rd8;
130     &minscale_zoom18_rd13;
131     <Filter>[lod1] = 'swimming pool'</Filter>
```

How?  
Cómo?  
Com?



# map5topo - WIP Sept 11, 2023 - Immediate Mapnik Output on Style Change



resident-8



resident-9



resident-10



resident-11



resident-12



resident-13



roads-8



roads-9



roads-10



roads-11



roads-12



roads-13



rural-8



rural-9



rural-10



rural-11



rural-12



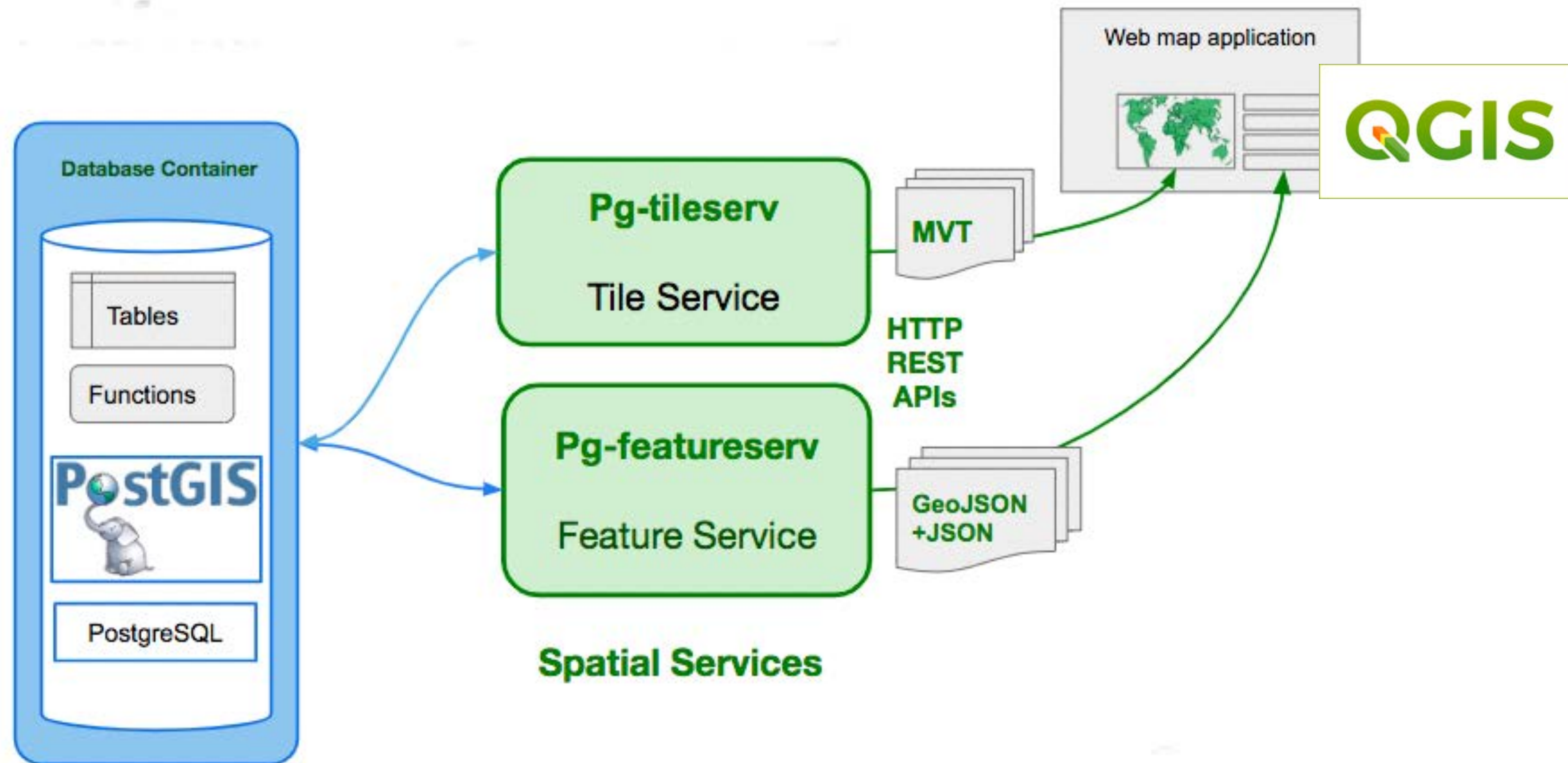
rural-13

How?  
Cómo?  
Com?



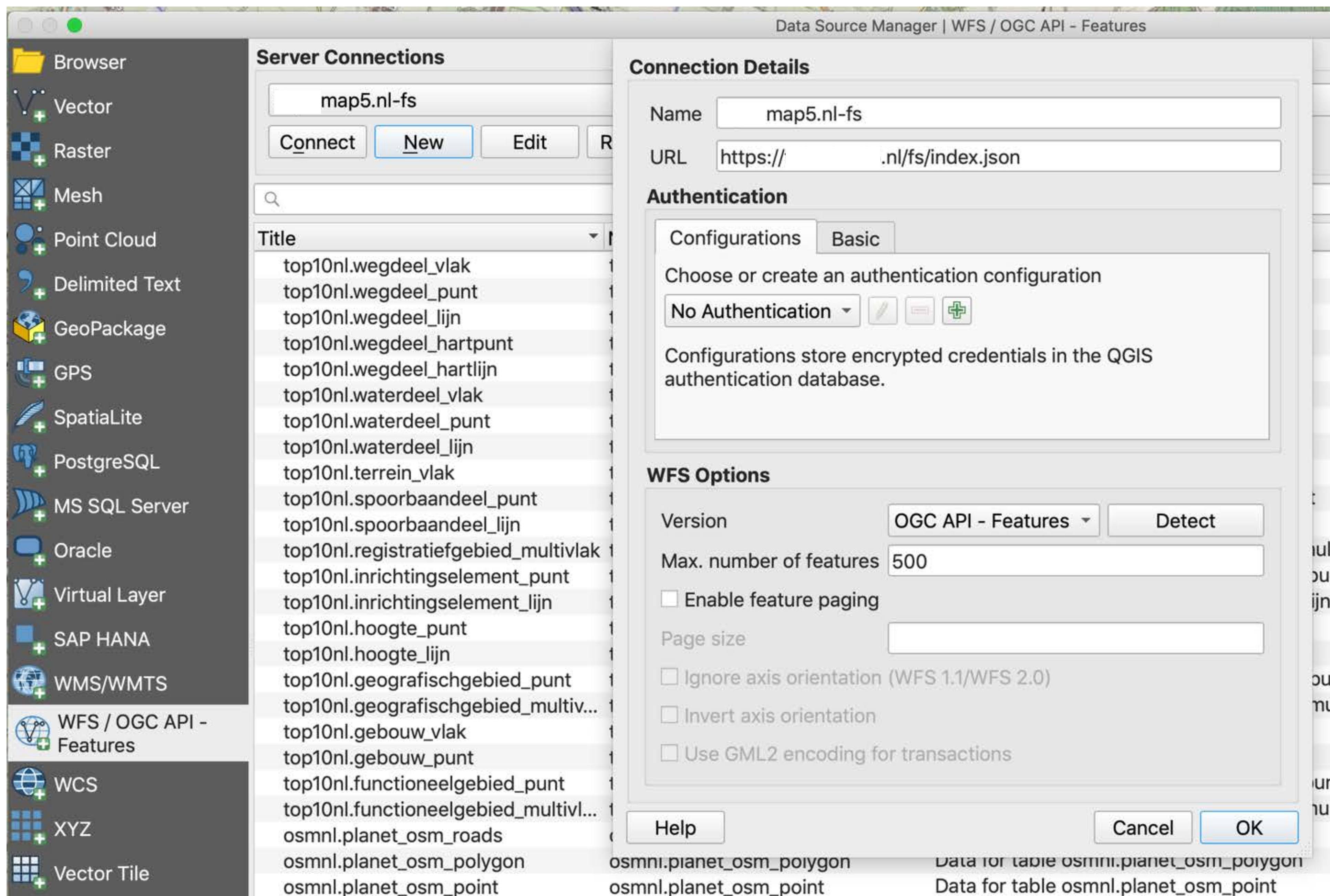
*“A lightweight RESTful geospatial feature server for PostGIS, ....  
...supports the OGC API - Features REST API standard.”*

[https://access.crunchydata.com/documentation/pg\\_featureserv/latest/](https://access.crunchydata.com/documentation/pg_featureserv/latest/)



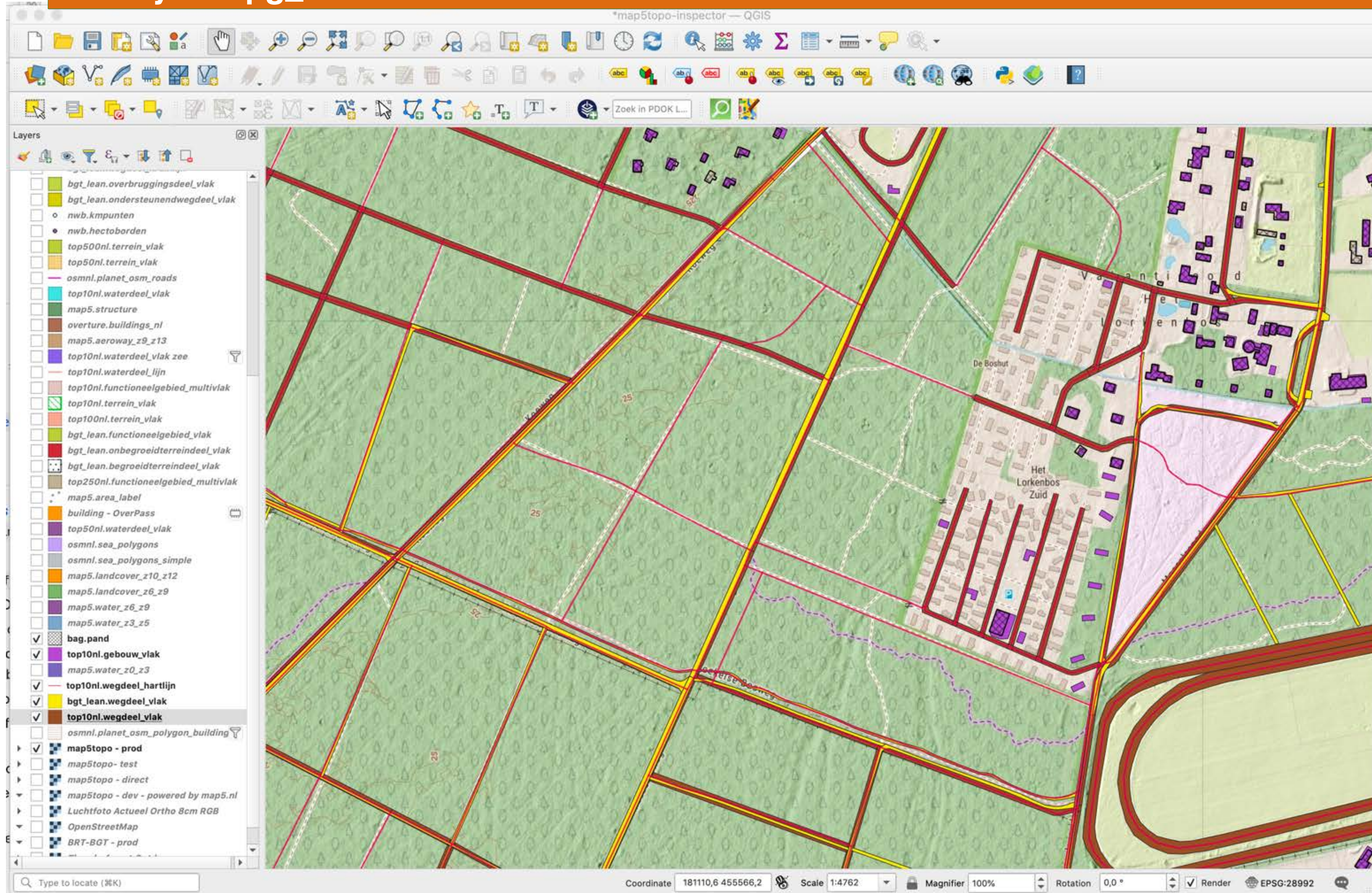


# Analysis - pg\_featureserv - access PostGIS data remote in QGIS as OGC API Features





# Analysis - pg\_featureserv - access PostGIS data remote in QGIS as OGC API Features





# TODO en Plannen

- Opzetten Open Source Project - Wie doet mee?
- Migratie Mapnik XML naar CartoCSS en Kosmtik
- Vector Tiles
- Nog meer automation (ETL, rendering, QA,...)



# Bedankt voor uw aandacht!

## Vragen?

Nieuwsbrieven: <https://map5.nl/contact.html>

Documentatie: <https://map5topo.nl>

Viewers: <https://app.map5.nl/map5topo/>

Social: <https://mapstodon.space/@map5nl>

Abonnement: <https://map5.nl>