

# Project GeolCT

2021-2022

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# Herhaling QGIS

## Project GeolCT

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**Zelfstudie**

**Herhaling QGIS**

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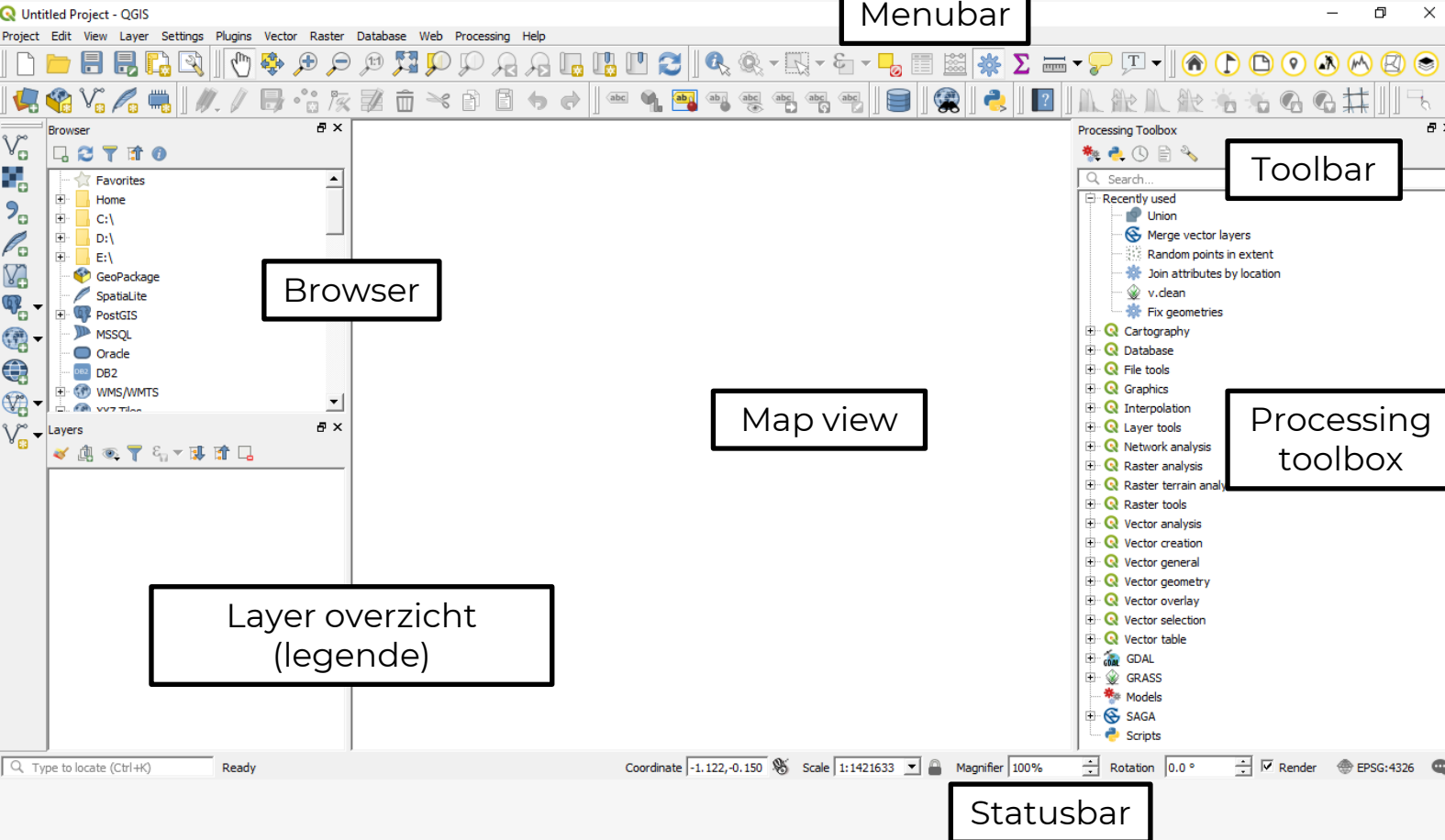


# QGIS: 3.x voor deze opleiding!

- Gratis en open-source GIS platform voor desktop toepassingen
- Basisfunctionaliteit aan te vullen met plugins
- Updates volgen elkaar snel op
- Ondersteunt veel dataformaten



## Enkele basisvaardigheden



## Enkele basisvaardigheden



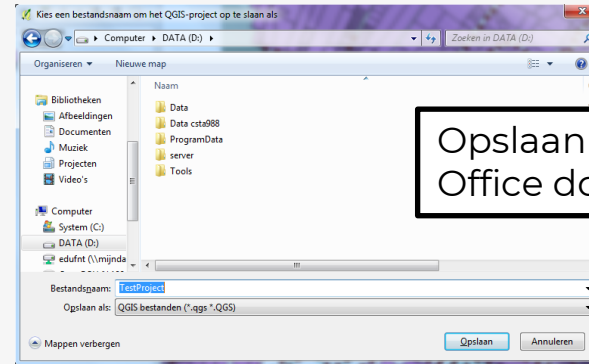
### Werken met projecten:

- New
- Open
- Save
- Save as...



TestProject.qgs

Qgs: geen data, maar referenties naar data, CRS, styles, ...



Opslaan zoals MS Office document

```
74 </filegroup>
75 </legendlayer>
76 </legend>
77 <projectlayers>
78 <maplayer simplifyAlgorithm="0" minimumScale="0" maximumScale="1e+08" simplifyDrawin
79 <id>Adp4301820170116164447237</id>
80 <datasource>D:/Data csta988/Projecten/GeoICT/S1/GRB_Zelzate/Shapefile/Adp43018.shp
81 <keywordList>
82 <value></value>
83 </keywordList>
84 <layername>Adp43018</layername>
85 <srs>
86 <spatialrefsys>
87 <proj4>+proj=loc +lat_1=51.16666723333333 +lat_2=49.83333339 +lat_0=90 +lon_0=0=
88 <srsid>2640</srsid>
89 <srid>31370</srid>
90 <authid>EPSG:31370</authid>
91 <description>Belge 1972 / Belgian Lambert 72</description>
92 <projectionacronym>lcc</projectionacronym>
93 <ellipsoidacronym>intl</ellipsoidacronym>
94 <geographicflag>>false</geographicflag>
95 </spatialrefsys>
96 </srs>
97 <provider encoding="System">ogr</provider>
98 <previewExpression></previewExpression>
99 <vectorjoins/>
100 <layerDependencies/>
```

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Toolbar:  
Toevoegen en verwijderen  
van panels en toolbars

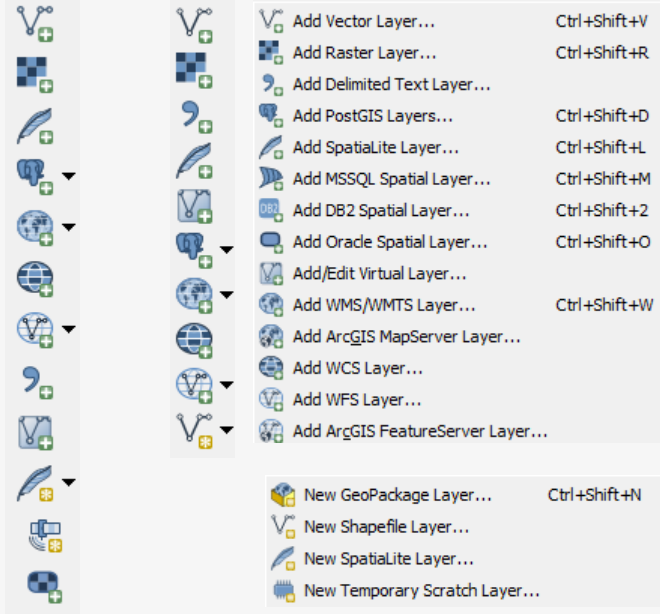
### Panels

- Advanced Digitizing Panel
- ✓ Browser Panel
- Browser (2) Panel
- GPS Information Panel
- Layer Order Panel
- Layer Styling Panel
- ✓ Layers Panel
- Log Messages Panel
- Overview Panel
- ✓ Processing Toolbox Panel
- Results Viewer Panel
- Spatial Bookmarks Panel
- Statistics Panel
- Tile Scale Panel
- Undo/Redo Panel

### Toolbars

- Advanced Digitizing Toolbar
- ✓ Attributes Toolbar
- ✓ Data Source Manager Toolbar
- ✓ Database Toolbar
- ✓ Digitizing Toolbar
- ✓ Geopunt toolbar
- ✓ Help Toolbar
- ✓ Label Toolbar
- ✓ Manage Layers Toolbar
- ✓ Map Navigation Toolbar
- ✓ OSMDownloader
- ✓ Plugins Toolbar
- ✓ Project Toolbar
- ✓ Raster Toolbar
- Shape Digitizing Toolbar
- Snapping Toolbar
- ✓ Vector Toolbar
- ✓ Web Toolbar

## Enkele basisvaardigheden



2.x

3.x

### Data toevoegen:

- Vector data (shp, gml, ...)
- Raster data (tif, grd, ...)
- Text separated file (csv, txt, ...)
- SpatialLite
- SQL database (postgis, ...)
- WMS(T)
- WCS
- WMS
- Virtual layer
- Oracle Raster
- ...

### Nieuwe laag maken:

- SpatialLite
- Shapefile
- ...



# Demo met enkele datasets

Gelieve de volgende datasets op te zoeken:

- Shapefile (polygoon): referentiebestand gemeentegrenzen
- WMS: Grootschalig referentiebestand (GRB)
- WFS: Grootschalig referentiebestand (GRB):
  - Administratieve percelen (ADP)
  - Wegverbindingen (WVB)
- WCS: Digitaal hoogtemodel Vlaanderen-II (DHMV-II)
- XYZ-tiles:
  - Google Maps
  - Google Satellite
  - Topografische kaarten NGI

## Enkele basisvaardigheden

The screenshot displays the QGIS desktop environment. The main map area shows an aerial photograph of a rocky terrain with several overlaid layers: a grey polygon representing a building footprint, pink and yellow polygons for other structures, and numerous green points. The left sidebar contains a 'Layers' panel with a list of layers including 'PHOTO\_POINT', 'PRIORITY\_VECTOR', 'MORTAR', 'HEIGHT', 'CONDITION', 'VEGETATION', 'PRIORITY', 'LOW\_RES\_ORTHO', 'Building AF\_SOUTH\_2100', and 'Building AF\_NORTH\_2100'. The bottom status bar shows the coordinate '669649.47,3894885.30', a scale of '1:247', and the CRS 'EPSG:2100'. Red arrows point from text boxes to specific elements: one to the layers list, one to the CRS, one to the coordinate field, and one to the scale field.

Punten  
Lijnen  
Polygon  
en  
Rasters

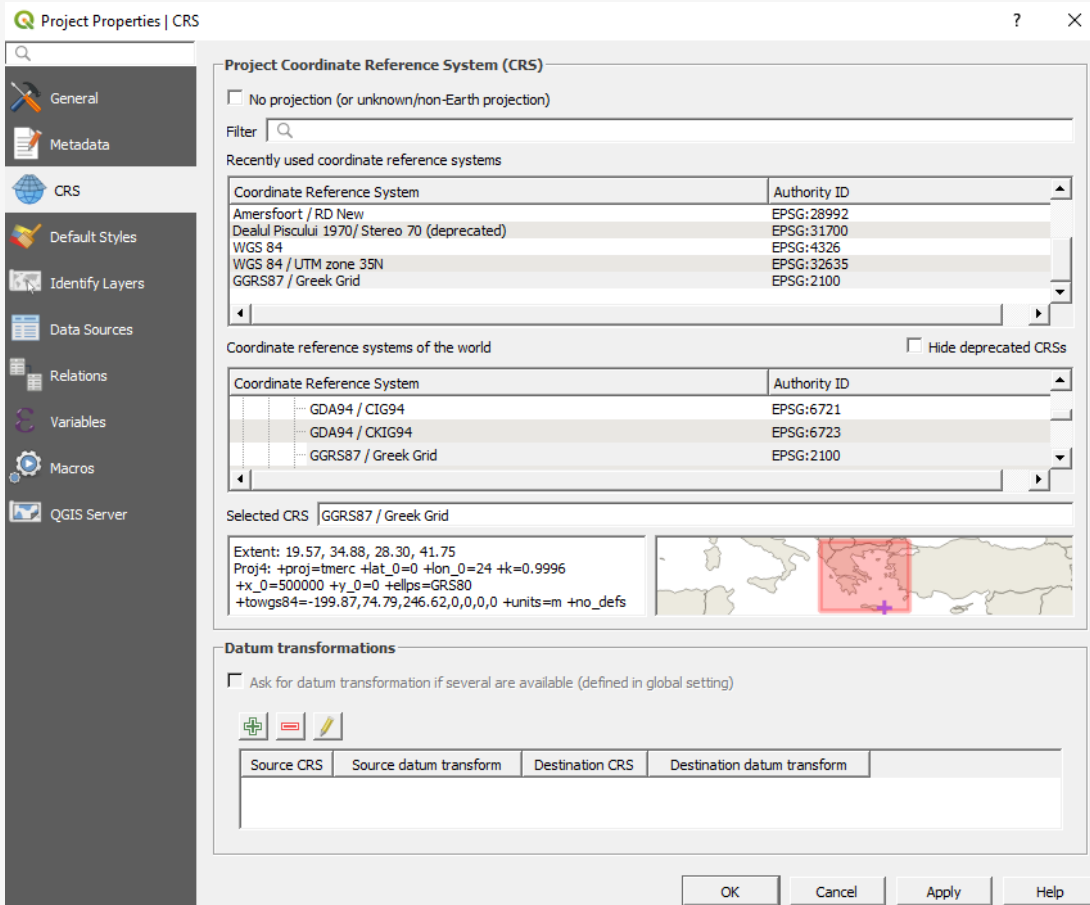
CRS  
(LB'72 = EPSG:31370)

Realistische  
coördinaten?

Schaal

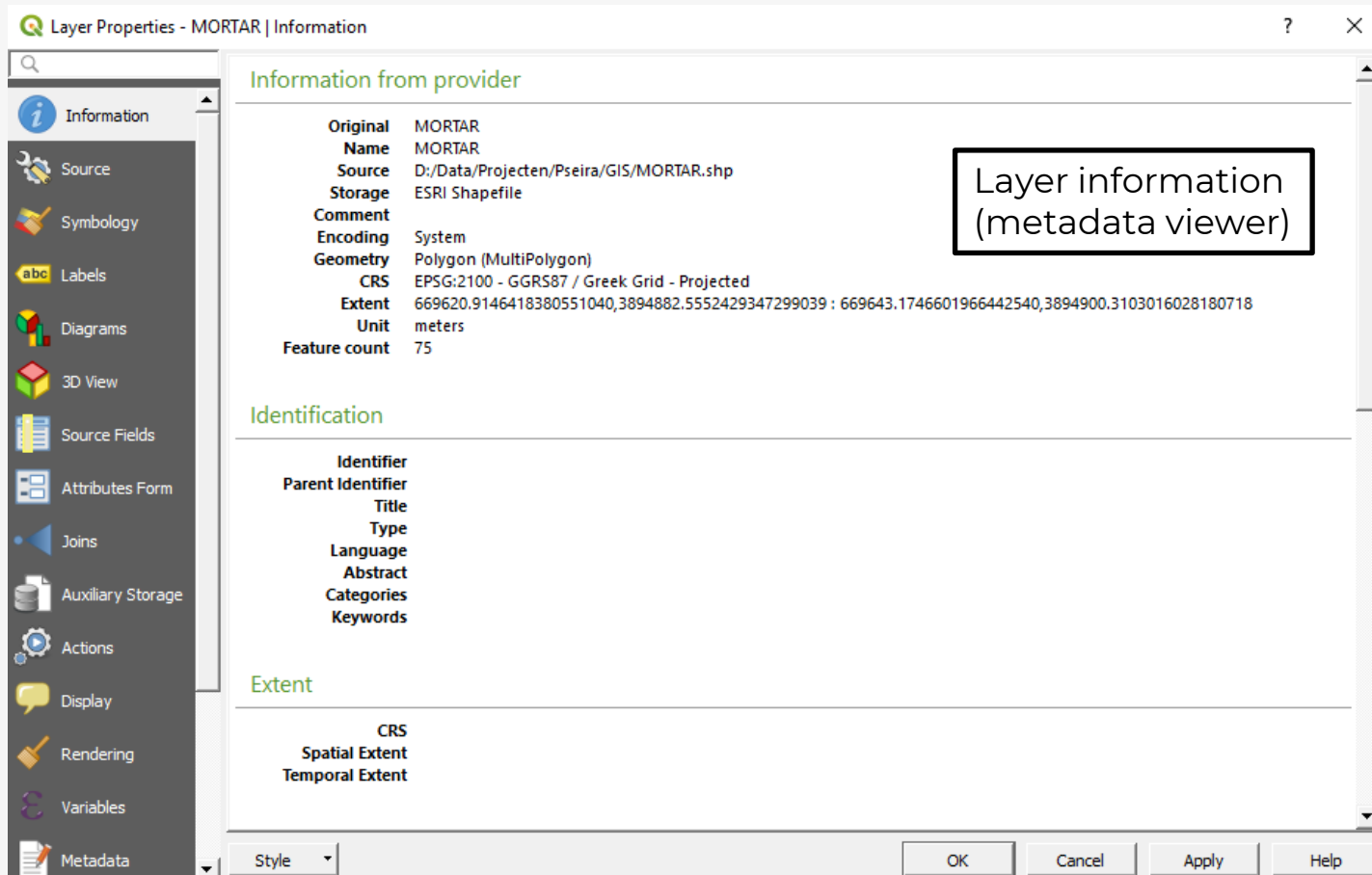
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## Enkele basisvaardigheden

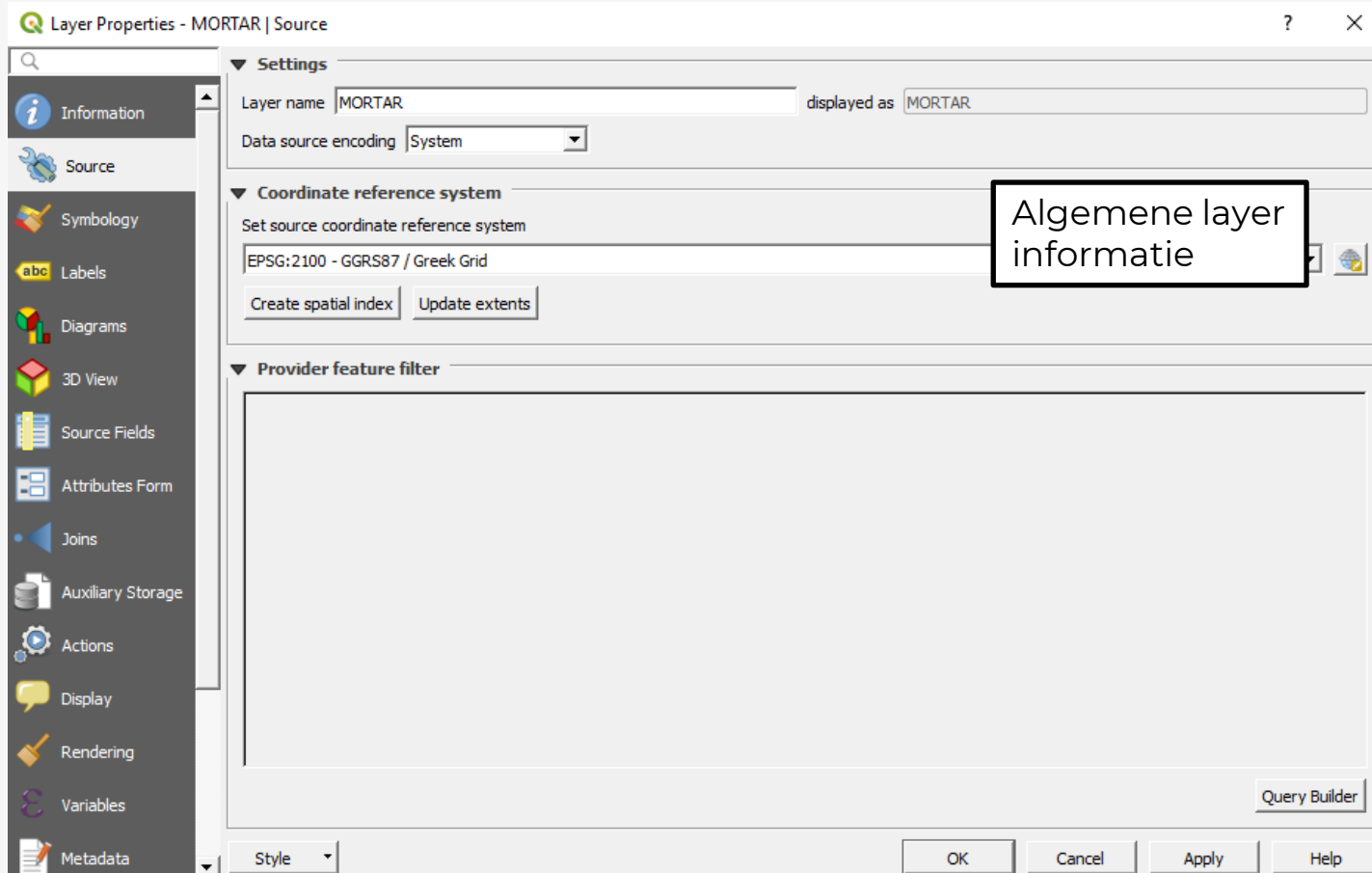


CRS vereist  
gemeenschappelijk  
CRS aanbevolen  
(niet altijd mogelijk)

## Enkele basisvaardigheden

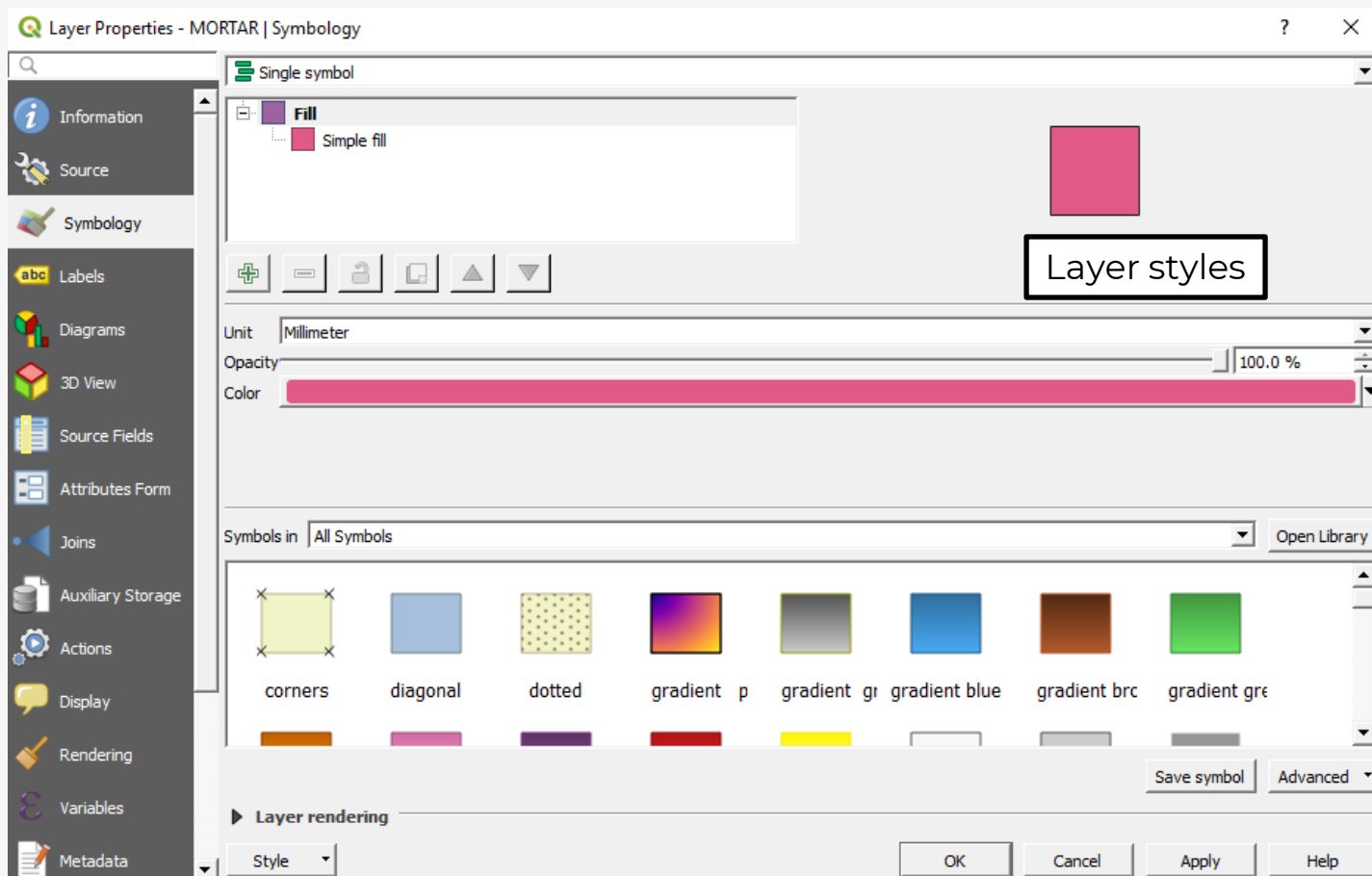


## Enkele basisvaardigheden





## Enkele basisvaardigheden



## Enkele basisvaardigheden

Layer Properties - MORTAR | Symbology

Information  
Source  
Symbology  
Labels  
Diagrams  
3D View  
Source Fields  
Attributes Form  
Joins  
Auxiliary Storage  
Actions  
Display  
Rendering  
Variables  
Metadata

Single symbol  
No symbols  
Single symbol  
Categorized  
Graduated  
Rule-based  
Inverted polygons  
2.5 D

Unit: Millimeter  
Opacity: 100.0 %  
Color: [Pink color bar]

Symbols in: All Symbols [Open Library]

corners diagonal dotted gradient p gradient gr gradient blue gradient brc gradient gre

Save symbol Advanced

Layer rendering

Style

OK Cancel Apply Help

Style afhankelijk van geometrie, data type, attributen, condities, ...

## Enkele basisvaardigheden

Layer Properties - MORTAR | Symbology

Information  
Source  
Symbology  
Labels  
Diagrams  
3D View  
Source Fields  
Attributes Form  
Joins  
Auxiliary Storage  
Actions  
Display  
Rendering  
Variables  
Metadata

Categorized

Column: abc layer

Symbol: [Color swatch] Change...

Color ramp: [Color ramp]

Symbol	Value	Legend
<input checked="" type="checkbox"/> [Red]	AF-N_MO...	AF-N_MORTAR_2_feature
<input checked="" type="checkbox"/> [Red]	AF-N_MO...	AF-N_MORTAR_4_feature
<input checked="" type="checkbox"/> [Red]	AF-N_MO...	AF-N_MORTAR_5_feature
<input checked="" type="checkbox"/> [Red]	AF-N_MO...	AF-N_MORTAR_6_feature
<input checked="" type="checkbox"/> [Red]	AF-N_MO...	AF-N_MORTAR_7_feature
<input checked="" type="checkbox"/> [Red]	AF-S_MO...	AF-S_MORTAR_2_feature
<input checked="" type="checkbox"/> [Red]	AF-S_MO...	AF-S_MORTAR_7_feature

Classify [Add] [Remove] Delete all

Advanced

Layer rendering

Style

OK Cancel Apply Help

Categorische symbologie  
(discrete variabelen)

## Enkele basisvaardigheden

Layer Properties - MORTAR | Symbology

Information  
Source  
Symbology  
Labels  
Diagrams  
3D View  
Source Fields  
Attributes Form  
Joins  
Auxiliary Storage  
Actions  
Display  
Rendering  
Variables  
Metadata

Graduated

Column: 1.2 AREA

Symbol: Change...

Legend Format: %1 - %2 Precision 1 Trim

Method: Color

Color ramp: [Color ramp bar]

Classes | Histogram

Symbol	Values	Legend
<input checked="" type="checkbox"/>	0.001 - 3.842	0.0010 - 3.8420
<input checked="" type="checkbox"/>	3.842 - 7.683	3.8420 - 7.6830
<input checked="" type="checkbox"/>	7.683 - 11.524	7.6830 - 11.5240
<input checked="" type="checkbox"/>	11.524 - 15.365	11.5240 - 15.3650
<input checked="" type="checkbox"/>	15.365 - 19.206	15.3650 - 19.2060

Mode: Equal Interval  
Delete all

Classes: 5 Advanced

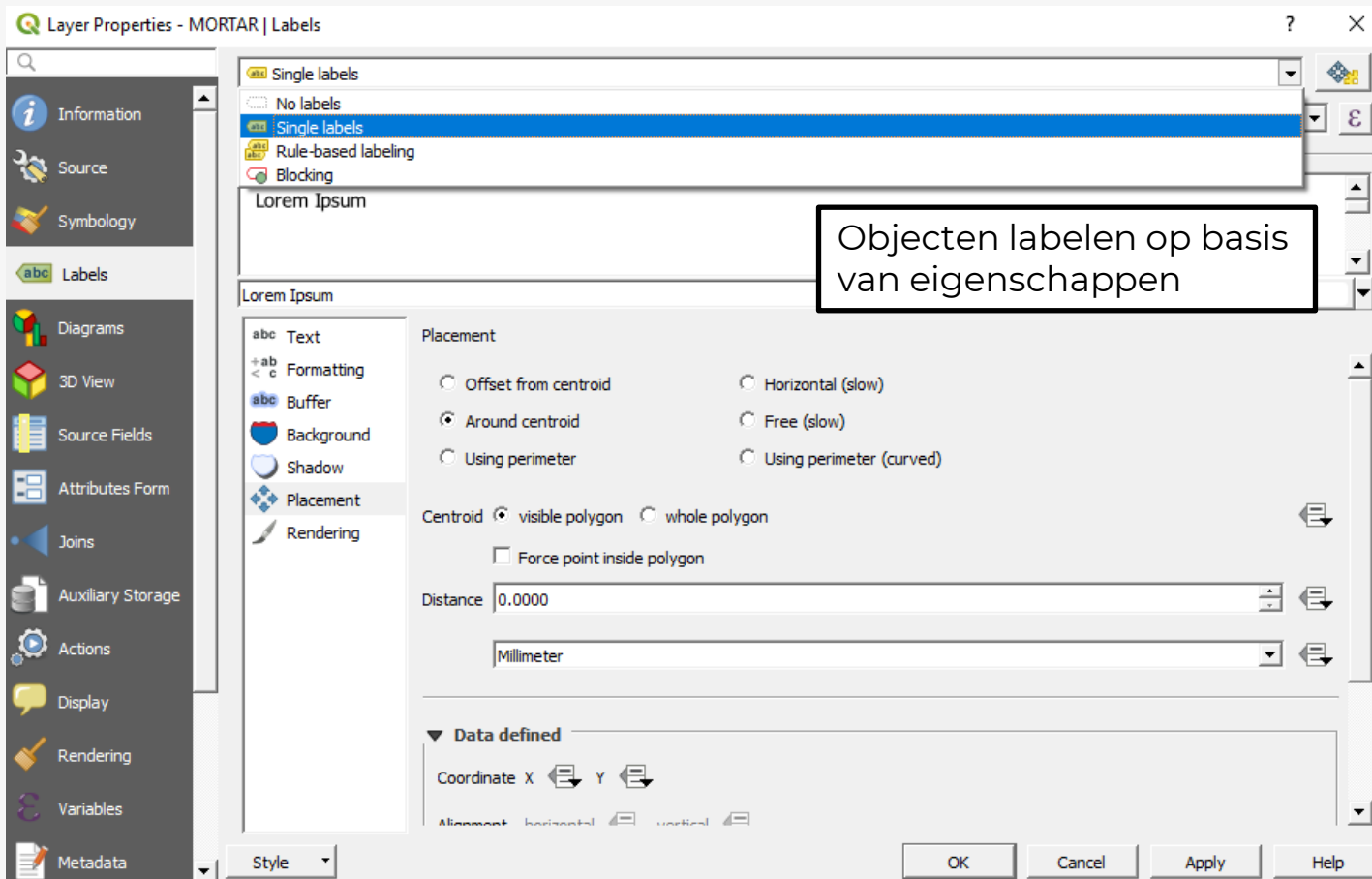
Layer rendering

Style

OK Cancel Apply Help

Graduele styling (continue variabelen)

## Enkele basisvaardigheden





## Enkele basisvaardigheden

Layer Properties - MORTAR | Source Fields

Information  
Source  
Symbology  
Labels  
Diagrams  
3D View  
Source Fields  
Attributes Form  
Joins  
Auxiliary Storage  
Actions  
Display  
Rendering  
Variables  
Metadata

Id	Name	Alias	Type	Type name	Length	Precision	Comment	WMS	WFS
abc 0	Source		QString	String	11	0		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
abc 1	layer		QString	String	21	0		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
123 2	DN		qlonglong	Integer64	16	0		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
123 3	MORTAR_ID		int	Integer	3	0		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
123 4	AREA		double	Real	10	3		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Velden en data types:

- Inspecteren
- Toevoegen/verwijderen
- Bewerken
- Velden berekenen

Style

OK Cancel Apply Help

## Enkele basisvaardigheden

Layer Properties - MORTAR | Joins

Setting Value

Information  
Source  
Symbology  
Labels  
Diagrams  
3D View  
Source Fields  
Attributes Form  
Joins  
Auxiliary Storage  
Actions  
Display  
Rendering  
Variables  
Metadata

Style

+

-

✎

OK Cancel Apply Help

?

X

?

X

Join layer VEGETATION

Join field 123 DN

Target field 123 DN

☒ Cache join layer in virtual memory

☐ Create attribute index on join field

☐ Dynamic form

▶ ☐ Editable join layer

▼ ☐ Choose which fields are joined

☐ Source

☐ layer

☐ DN

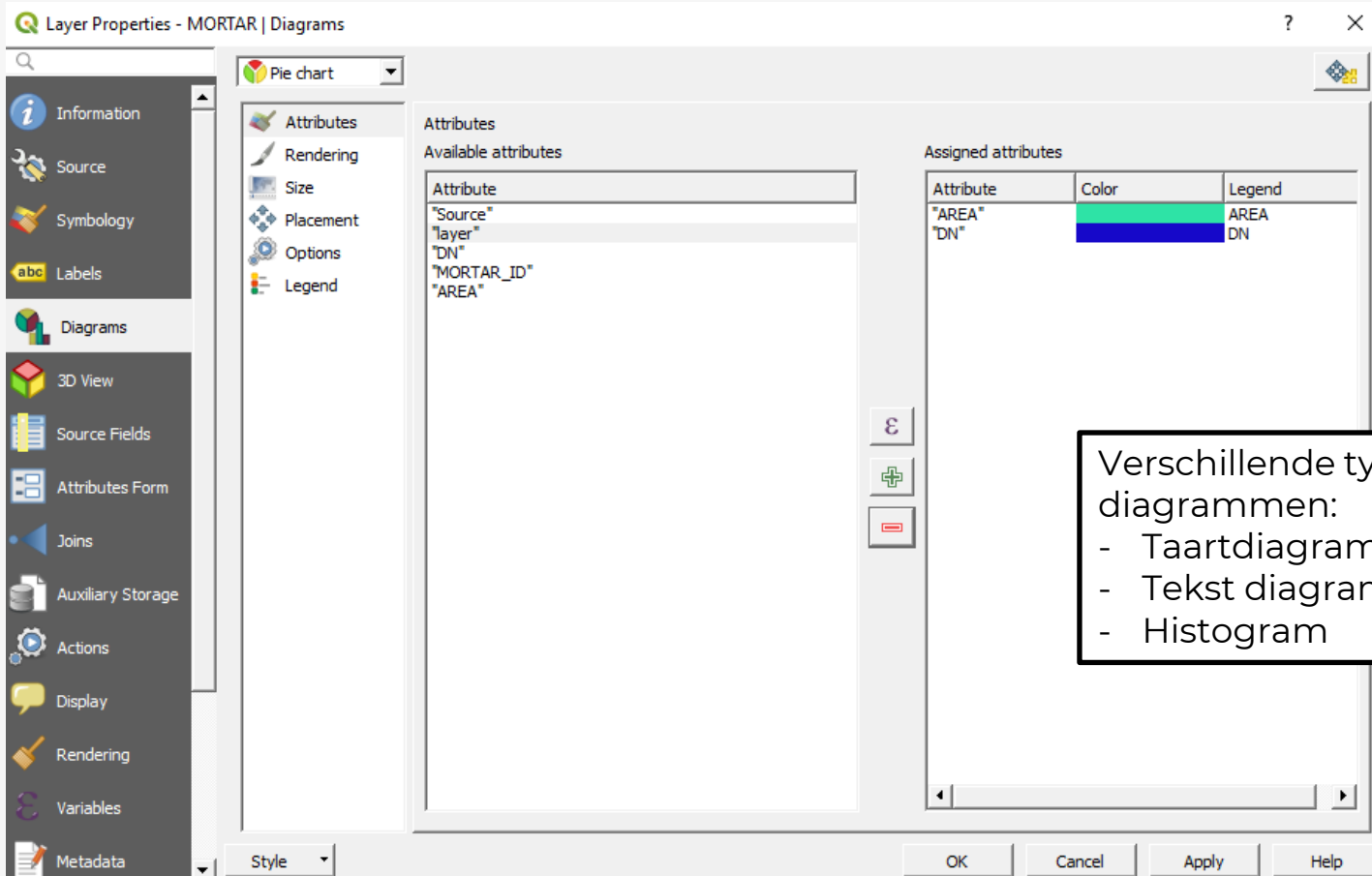
Custom field name prefix

VEGETATION\_

OK Cancel

Layers of niet-ruimtelijke tabellen samenvoegen op basis van gemeenschappelijke velden

## Enkele basisvaardigheden



## Enkele basisvaardigheden

Layer Properties - MORTAR | Metadata

Identification | Categories | Keywords | Access | Extent | Contact | Links | History | Validation

This page describes the basic attribution of the dataset. Please use the tooltips for more information.

Parent identifier

Identifier

Title

Type

Language

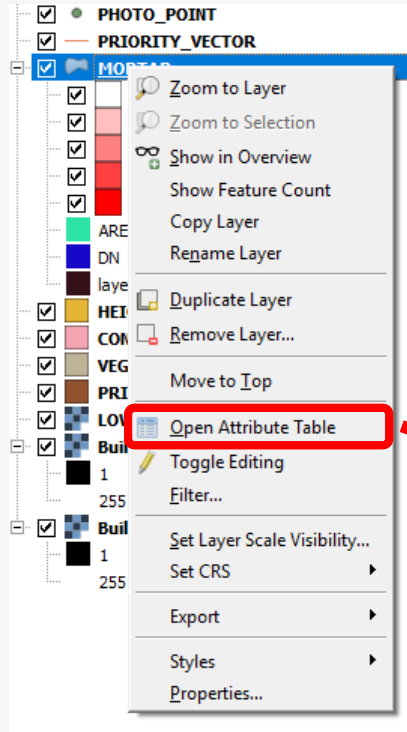
Abstract

Metadata

OK Cancel Apply Help

Metadata aanmaken en beheren

## Enkele basisvaardigheden



Objecteigenschappen bekijken:

- Gehele layer → attribute table
- Individuele objecten → Via identifier

MORTAR :: Features Total: 22, Filtered: 22, Selected: 0

	Source	layer	DN	MORTAR_ID	AREA
1	AF-N	AF-N_MORTAR_...	1	2	0.001
2	AF-N	AF-N_MORTAR_...	1	6	0.071
3	AF-N	AF-N_MORTAR_...	1	6	0.097
4	AF-N	AF-N_MORTAR_...	1	6	0.161
5	AF-N	AF-N_MORTAR_...	1	4	0.196
6	AF-N	AF-N_MORTAR_...	1	6	0.198
7	AF-S	AF-S_MORTAR_...	1	2	0.206
8	AF-S	AF-S_MORTAR_...	1	7	0.206
9	AF-N	AF-N_MORTAR_...	1	7	0.237
10	AF-N	AF-N_MORTAR_...	1	6	0.276
11	AF-N	AF-N_MORTAR_...	1	7	0.296
12	AF-N	AF-N_MORTAR_...	1	2	0.409

Show All Features



Identify Results

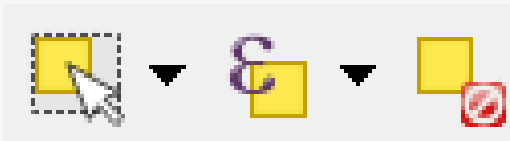
Feature	Value
MORTAR	
MORTAR_ID	2
(Derived)	
(Actions)	
Source	AF-N
layer	AF-N_MORTAR_2_feature
DN	1
MORTAR_ID	2
AREA	19.206

Mode: Current layer    Auto open form: ☐

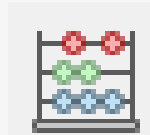
View: Tree    Help



# Voor vandaag...

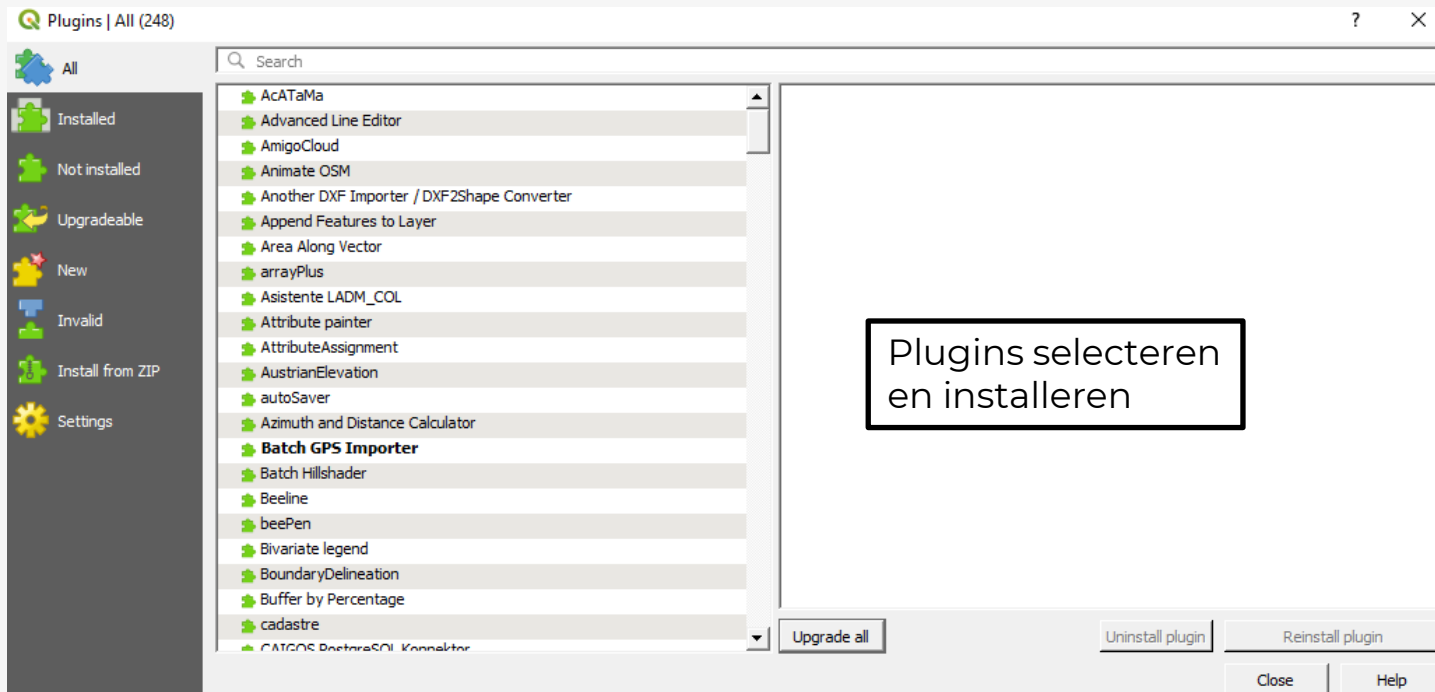


Data selecteren

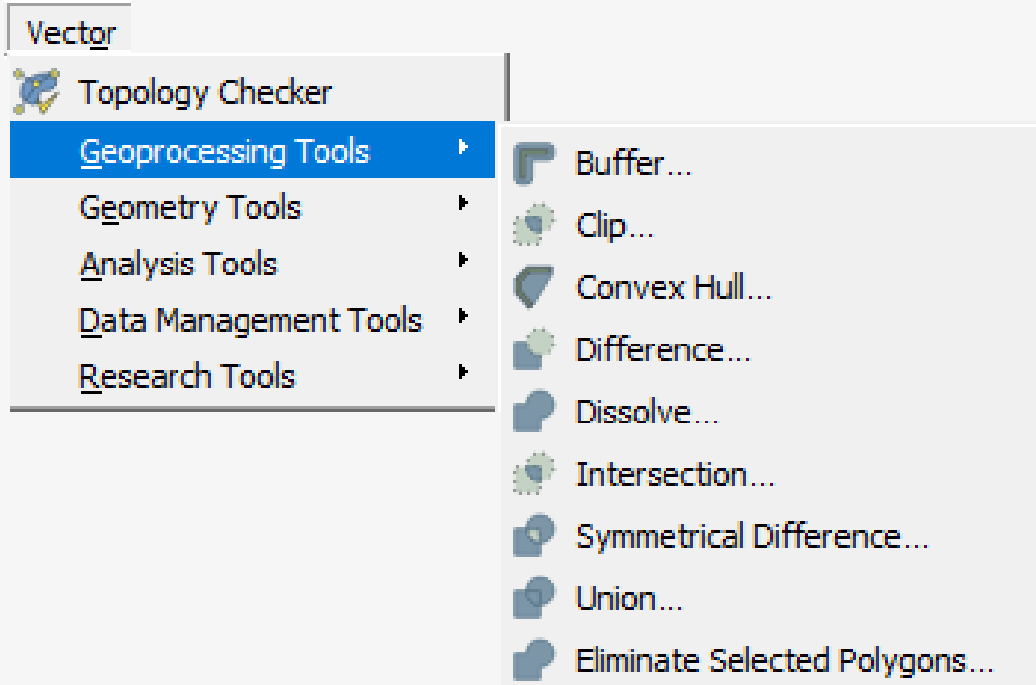


Velden berekenen

# Voor vandaag...

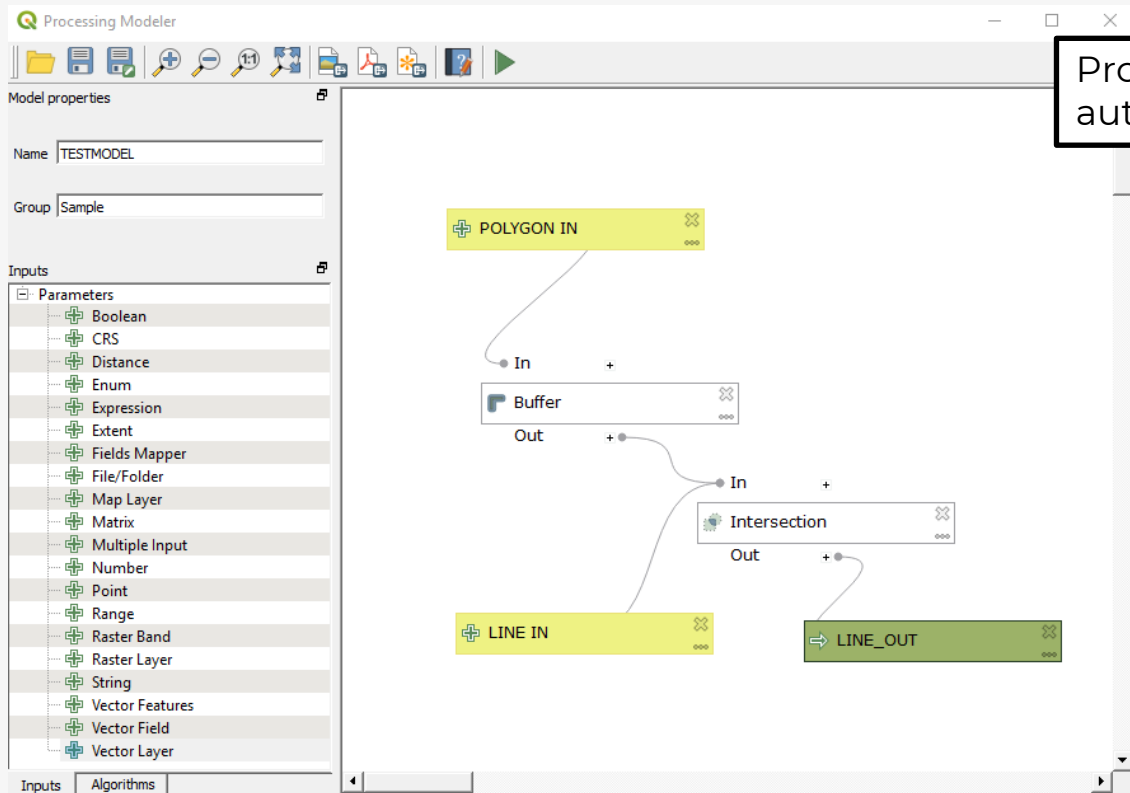


# Voor later nog...



Data  
analyseren

# Andere mogelijkheden...



Processen automatiseren

# Andere mogelijkheden...

Python Console

```
1 Python Console
2 Use iface to access QGIS API interface or T
  ype help(iface) for more info
3
```

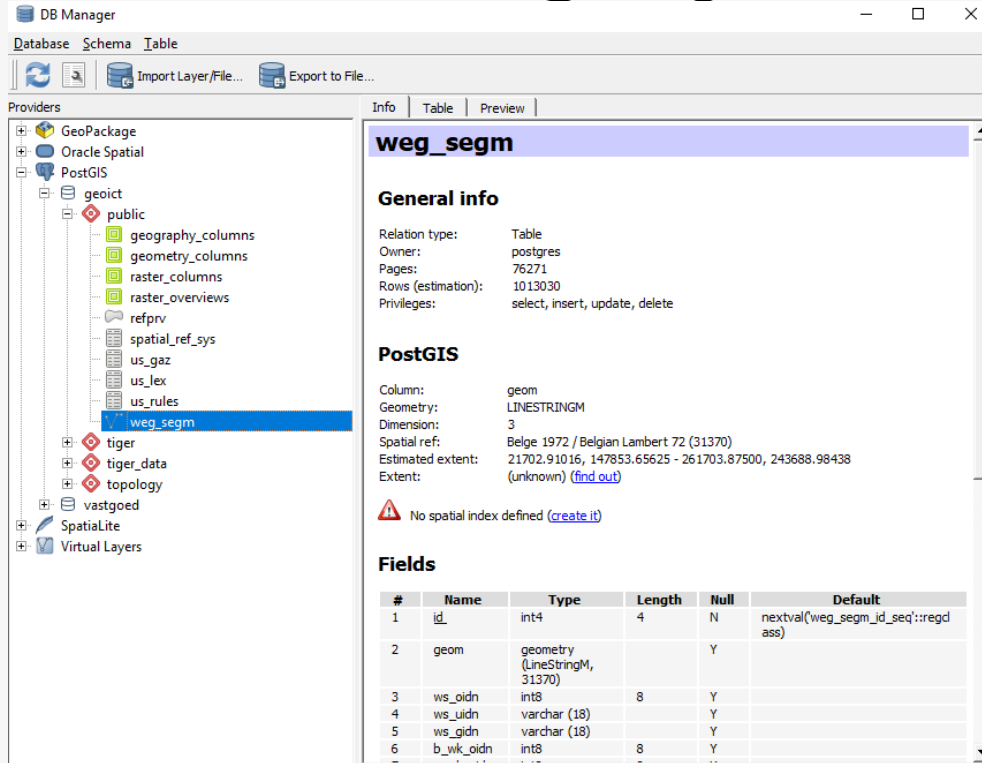
>>>

convert.py

```
1 import processing
2 import glob, os
3
4 -def convertPlan(thisPath, thisName):
5     print('Starting: ' + thisName)
6
7     plan = QgsRasterLayer(thisPath + thisName + '.tif', thisName)
8     - if not plan.isValid():
9         print("Plan failed to load!")
10    - else:
11        # POLYGONIZE ..
12        param_polygonize = {'INPUT': plan, 'BAND': 1, 'FIELD': "DN", 'EIGHT
13        processing.run('gdal:polygonize', param_polygonize)
14        print('\t' + thisName + '.polygonized')
15
16        # FIX GEOMETRIES (1)
17        param_fixgeometries = {'INPUT': thisPath + 'tmp_polygon.shp', 'OUTP
18        processing.run('qgis:fixgeometries', param_fixgeometries)
19        print('\t' + thisName + '.fixed')
20
```

Processen automatiseren  
met PyQGIS

# Andere mogelijkheden...



The screenshot shows the QGIS DB Manager interface. On the left, a tree view under 'Providers' shows a PostgreSQL connection named 'geoict'. Under the 'public' schema, the 'weg\_segm' table is selected. The main panel displays the 'weg\_segm' table details:

**General info**

- Relation type: Table
- Owner: postgres
- Pages: 76271
- Rows (estimation): 1013030
- Privileges: select, insert, update, delete

**PostGIS**

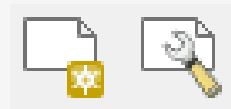
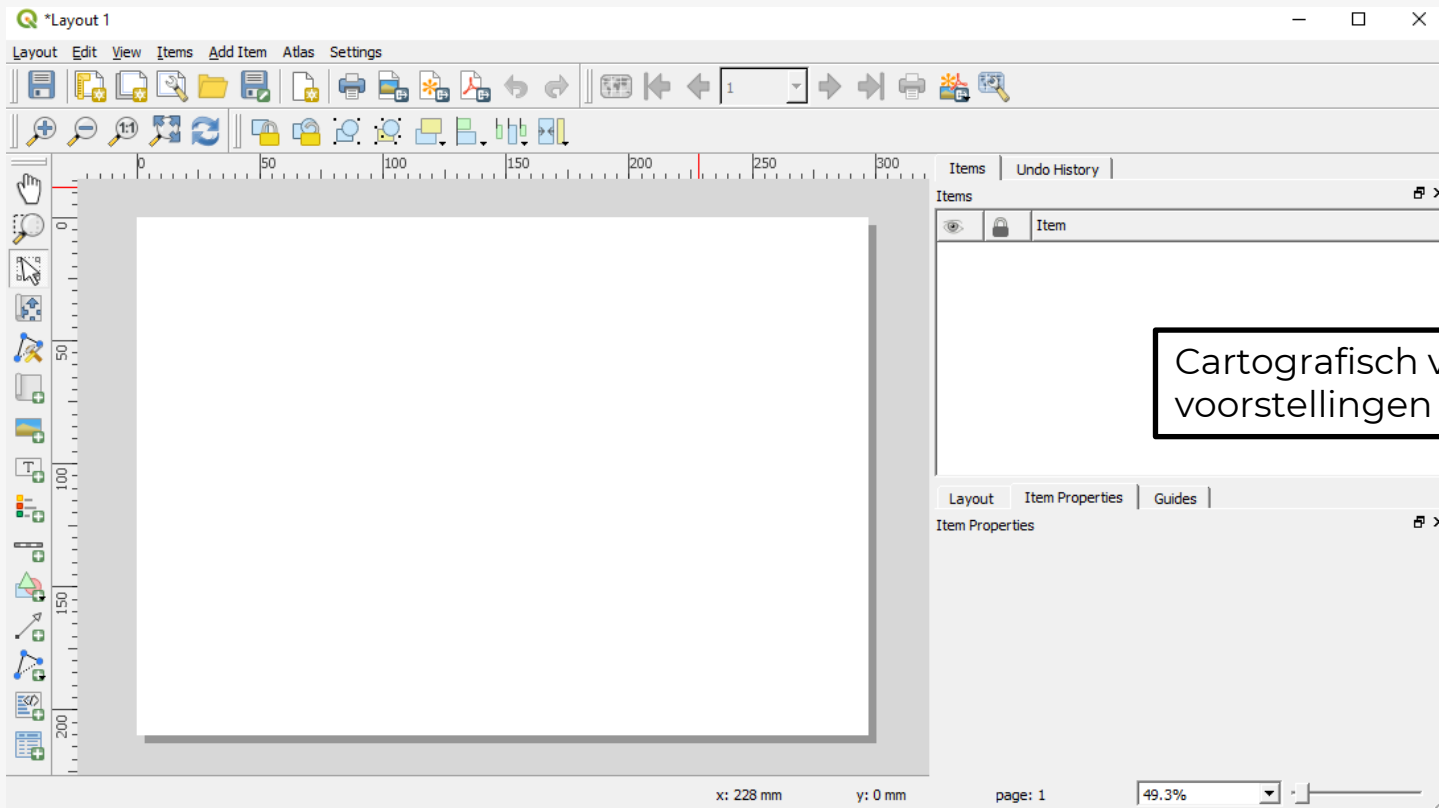
- Column: geom
- Geometry: LINESTRINGM
- Dimension: 3
- Spatial ref: Belge 1972 / Belgian Lambert 72 (31370)
- Estimated extent: 21702.91016, 147853.65625 - 261703.87500, 243688.98438
- Extent: (unknown) ([find out](#))

**Fields**

#	Name	Type	Length	Null	Default
1	id	int4	4	N	nextval('weg_segm_id_seq'::regclass)
2	geom	geometry (LineStringM, 31370)		Y	
3	ws_oidn	int8	8	Y	
4	ws_uidn	varchar (18)		Y	
5	ws_gidn	varchar (18)		Y	
6	b_wk_oidn	int8	8	Y	

Database  
management

# Andere mogelijkheden...



Cartografisch verantwoorde  
voorstellingen maken

# QGIS Tutorials

<http://www.qgistutorials.com/nl/>





Einde

**Zelfstudie**

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