Workshop simple MAPS in QGIS

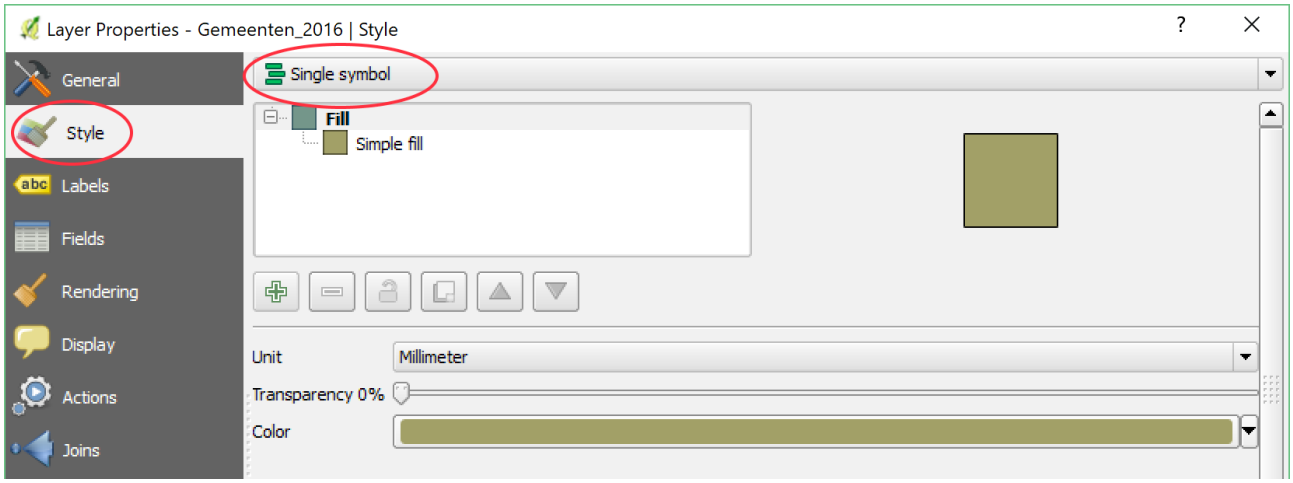
In this workshop we're going to:

- do some basic visualization of datasets;
- join spreadsheetdata to geodata;
- use that to make new maps.

We're using a CBS dataset: gemeenten_2016.shp. In this set you will find geometries of all municipalities in the Netherlands, combined with quit a few attributes (most of them demographics) for every municipality.

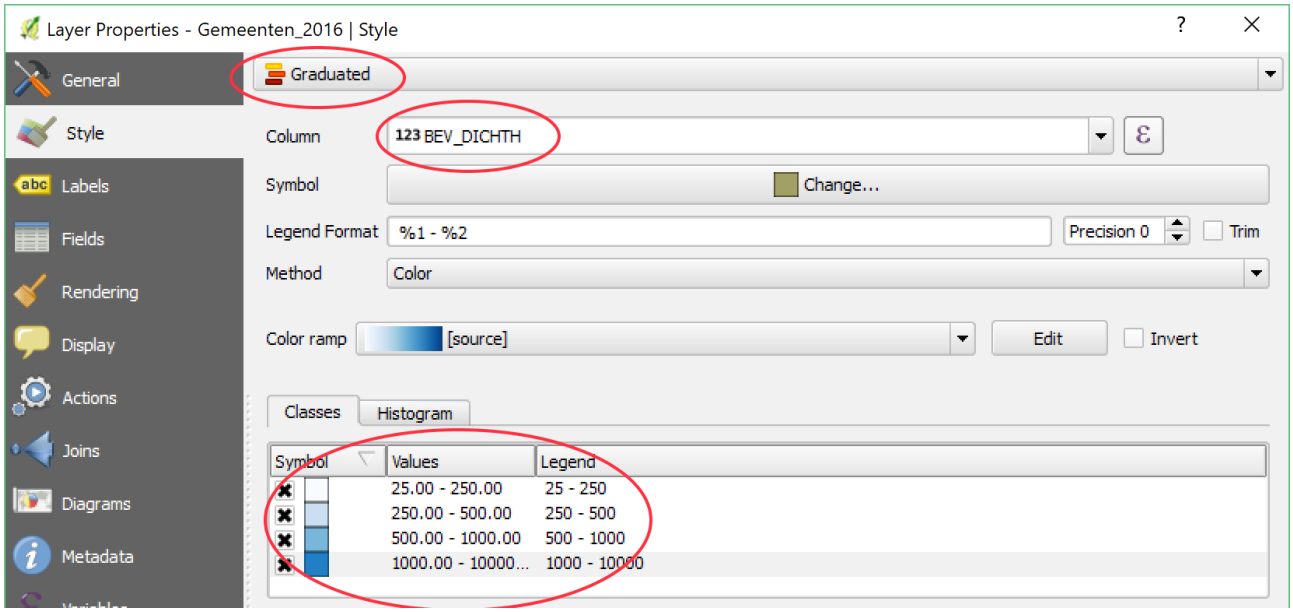
Drag and drop the gemeenten_2016.shp into QGIS. You will see that the mapwindow will now show a map of all municipalities in the Netherlands, all in one colour.
Right click the name of the file in the *Layers Panel* and click *Open Attribute Table* to see what's in the table.

Next right-click the filename again, click *Properties*.



In the *Style* tab you see that every object (municipality) is drawn the same way (*Single symbol*), with a simple fill.

Now we're going to see what happens if we use a *Graduated* scheme. After choosing *Graduated*, you'll have to pick a field from the table. Here BEV_DICHTH is used as an example.

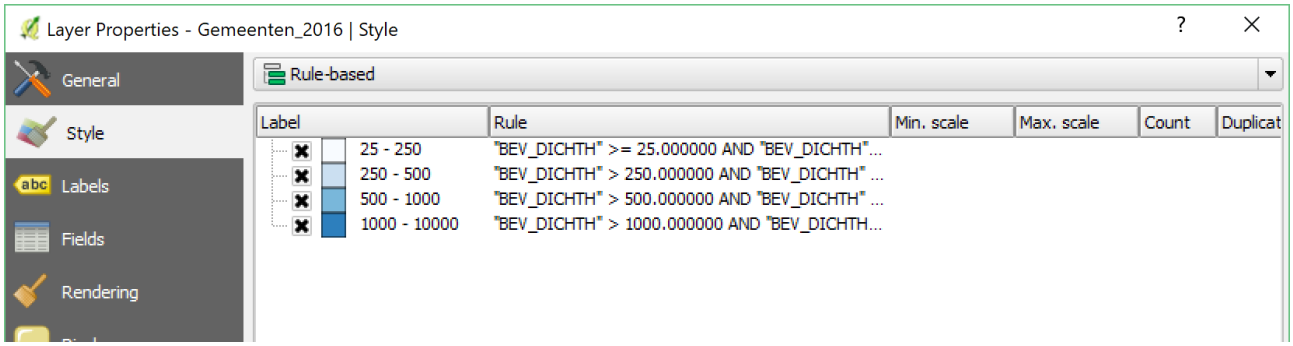


I've changed the values manually. You can also use one of the distibution options below this field.

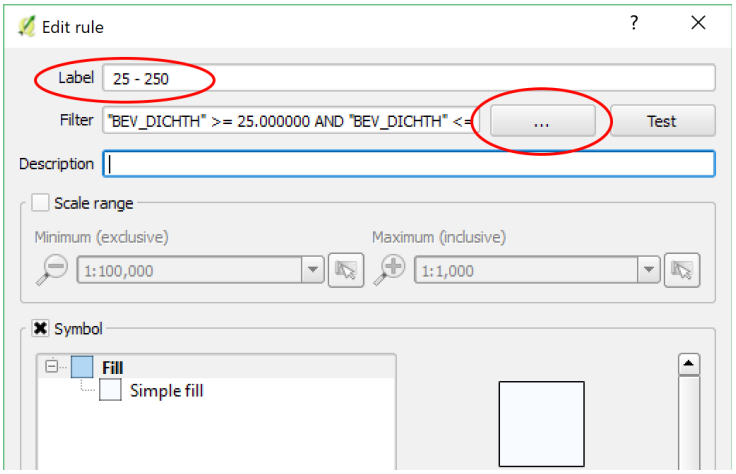
Now try to make a map to see where a relative large portion of the population is “old” (use P_65_EO_JR for this). Use any other field if you prefer another subject.

Level up! Rule based styling!
Next, we’re going to show in a map the distibution of men and women. We’ll make it simple: a municipality will be coloured pink if there are more women than men, blue if it’s more men, and yellow when there’s a tie.

Start by changing *Graduated* to Rule-based. If you do that while you have another visualization set, you’ll see that this visualization is automagically changed into a set of rules:



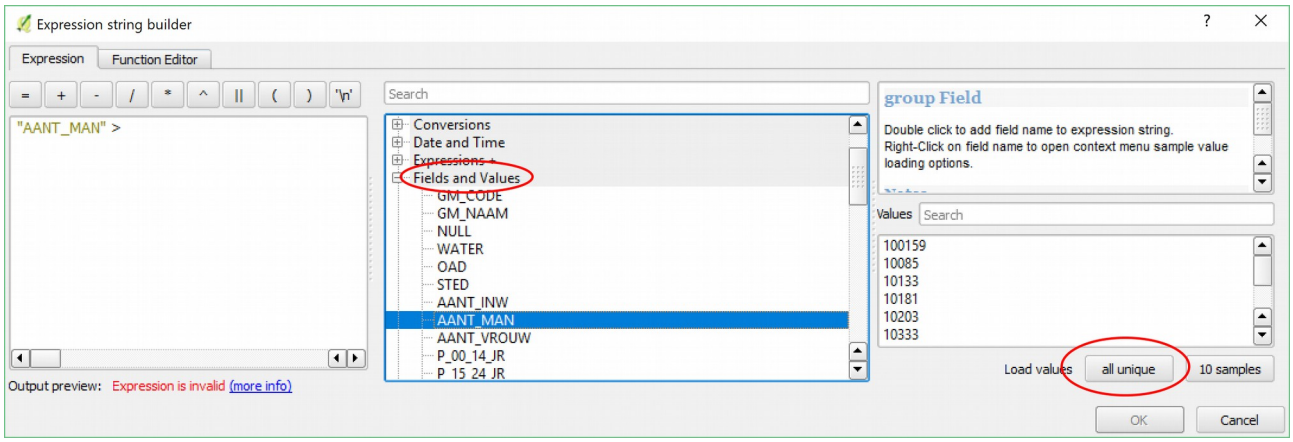
by double clicking a rule, the *Edit rule* window opens. Here you can make all the adjustments to a specific rule.



Start by changing the label. This is the part that ends up in the map legend.

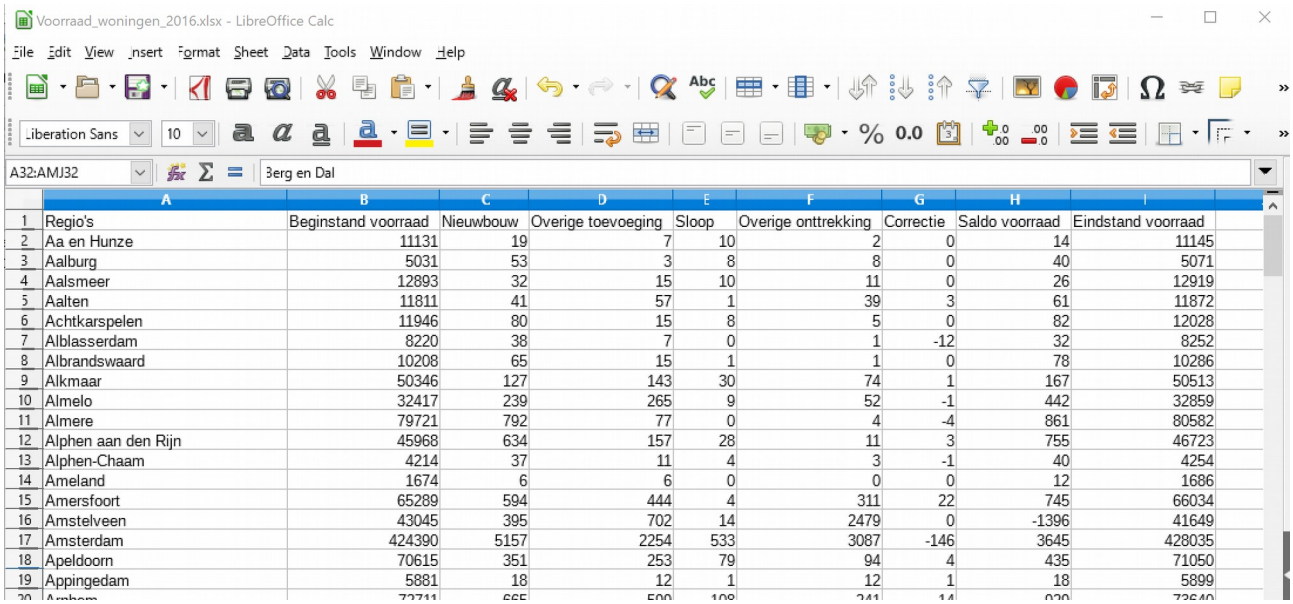
Next, adjust the rule to your needs. You can edit the filter line, but most of the time that is not very convenient: hardly any workspace.

The button with the three dots is the real thing to look at here. This opens the *Expression string builder*, which has a nice editing interface for building your query. In *Fields and Values* you’ll find all fields from the *attribute table*. Clicking the *All unique* values button while having a field selected will show all values that occur within that specific field in the table



Right, let’s get to work with our pink-blue map. Hint: AANT_MAN gives the number of men in a municipality. AANT_VROUW does the same for women.

Next step up: joining a spreadsheet (or CSV, or any other table)
While you can make a large number of different choropleth maps using only this dataset, most of the time you'll find that the data you want to show is not readymade in a nice shapefile or other geodata format. For some obscure reason unbeknownst to me, people tend to collect data in things like spreadsheets without giving proper and just attention to the geometry involved. Luckily, there is nearly always a field that contains some kind of georeference: an address, a city, a municipality, or a zipcode. That's where a JOIN comes in handy.


Voorraad_woningen_2016.xlsx - LibreOffice Calc

File Edit View Insert Format Sheet Data Tools Window Help

Liberation Sans 10

A32:AMJ32 Berg en Dal

	A	B	C	D	E	F	G	H	I
1	Regio's	Beginstand voorraad	Nieuwbouw	Overige toevoeging	Sloop	Overige onttrekking	Correctie	Saldo voorraad	Eindstand voorraad
2	Aa en Hunze	11131	19	7	10	2	0	14	11145
3	Aalburg	5031	53	3	8	8	0	40	5071
4	Aalsmeer	12893	32	15	10	11	0	26	12919
5	Aalten	11811	41	57	1	39	3	61	11872
6	Achtkarspelen	11946	80	15	8	5	0	82	12028
7	Alblasserdam	8220	38	7	0	1	-12	32	8252
8	Albrandswaard	10208	65	15	1	1	0	78	10286
9	Alkmaar	50346	127	143	30	74	1	167	50513
10	Almelo	32417	239	265	9	52	-1	442	32859
11	Almere	79721	792	77	0	4	-4	861	80582
12	Alphen aan den Rijn	45968	634	157	28	11	3	755	46723
13	Alphen-Chaam	4214	37	11	4	3	-1	40	4254
14	Ameland	1674	6	6	0	0	0	12	1686
15	Amersfoort	65289	594	444	4	311	22	745	66034
16	Amstelveen	43045	395	702	14	2479	0	-1396	41649
17	Amsterdam	424390	5157	2254	533	3087	-146	3645	428035
18	Apeldoorn	70615	351	253	79	94	4	435	71050
19	Appingedam	5881	18	12	1	12	1	18	5899

Here you see a download from Statline (great! Loads of statistic data on the Netherlands, by CBS). Note that the field containing the municipalities is named *Regio's*. In this table, you'll find data on houses in 2016: how much there were at the first of January, how many got constructed, etc. Ask your Dutch speaking neighbour for details.

This gives you a lot of extra options to investigate: want to know where the strongest grow in the Netherlands takes place? Is it a regional trend there, or coincidence? Where are most houses being replaced, in stead of just added? Of course we can calculate a lot using this table and a spreadsheet program, but seeing it in a map is more fun! Therefore we'll be *JOINing* this table to our municipalities.

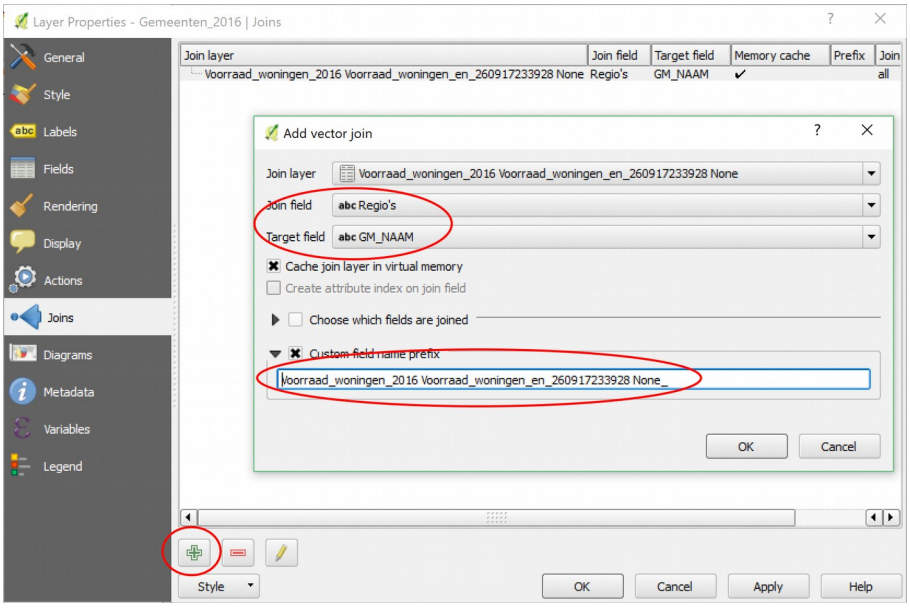
Joins in QGIS are easy. Line of thought here is that you have a geographic dataset (e.g. gemeenten_2016.shp), and you *Join* another table to it, based on a pair of identical values (the keypair). So you start at the geodataset. Go to the properties of that dataset (right-click on the name, choose *Properties*). Find the tab *Joins*.

Make a new join by clicking the green plus-button.

Join layer is the table you'd like to join to your gedoataset.

Join Field and Target Field form the keypair: if they match, the record in the join layer is added to the record in the geodataset.

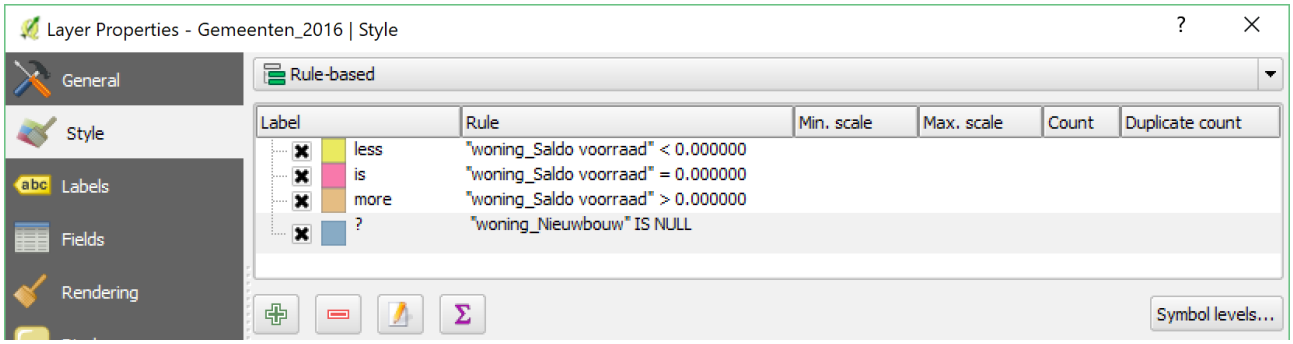
You might want to change the prefix: default is that every joined field starts with the table name it originates from...



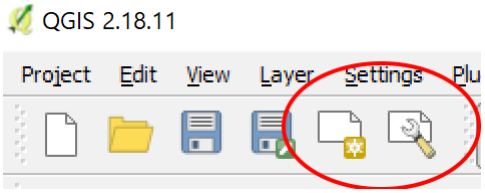
Once you've set up your *Join* and clicked *OK*, it just happens. No feedback, nothing. So what you do is that you check manually. Open the *Attribute table* and scroll to the far right. You should be able to find he joined fields there. Clicking the field name sorts the columns (low-high, click again for high-low). If not all municipalities got joined, you'll find empty fields there.

Now use the values in these joined fields to make a map that really tells a story about the housing market in the Netherlands…

you can use rules-based styling again, or anything you feel comfortable with. In this example, notice that the prefix for the joined fields is shortened to "*woning_*".
Also notice that there is an added rule for municipalities where the join has gone wrong, or is otherwise empty.

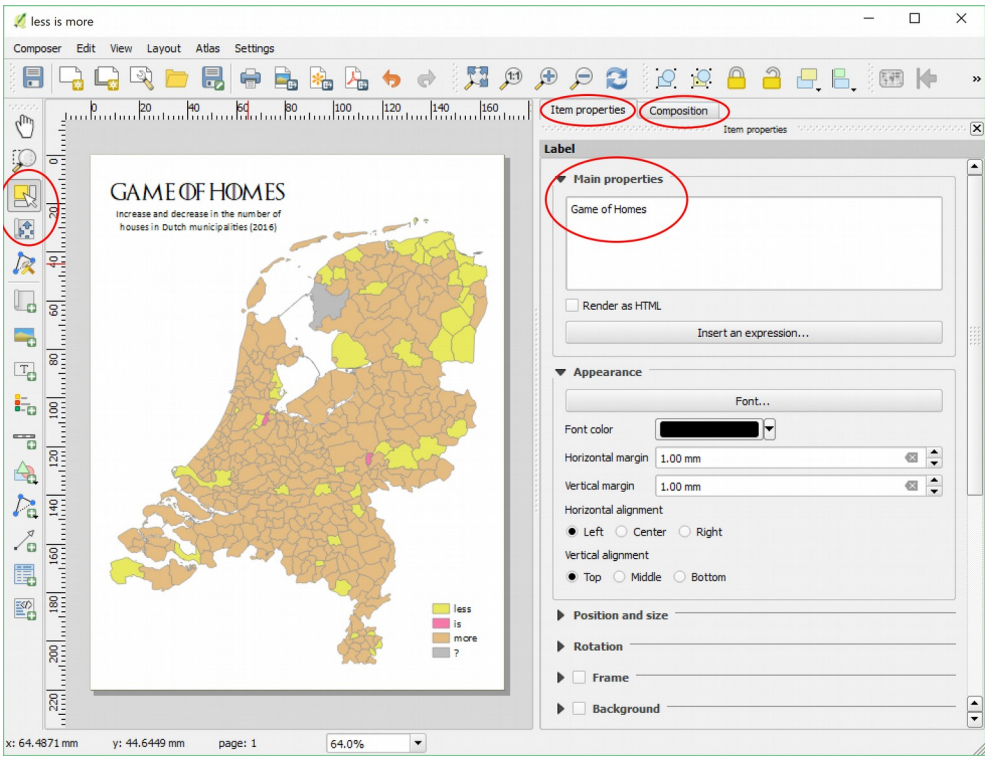


Next step: preparing the actual map!
Once you're happy with the colour scheme, you'll want to prepare the map for production, other then just making a screenshot. QGIS has a seperate module for that, called the *Print Composer*.



Find these two buttons (normally somewhere top-left). The left one is for a *New Print Composer*. That's what we're going to use. Give your map a nice name, and continue.

A new screen opens, where you can setup everything about your map. This will be live demo'd, too much going on there.



Important takeaways:
Use the tab *Composition* for everything that take place on your canvas.

Use *Item properties* tab for editing everything about a map item (for example editing your title)

The two buttons on the left: the top one is for selecting and manipulating map items. Moving the contnets of a map is done with the bottom one.

Happy? Export and show!

Maptime Amsterdam

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Erik Meerburg.

More info on QGIS: www.qgis.org, mailing lists, forums…

Need or want training in geo-information, GIS and cartography?
Visit www.geo-academie.nl

Or contact Erik at:
+31 6 28167631
erik@geo-academie.nl
@geogoeroe