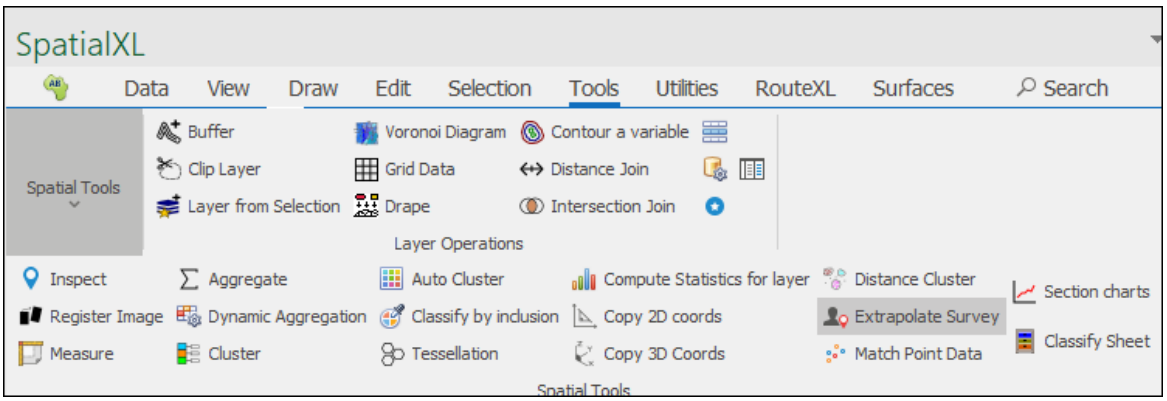
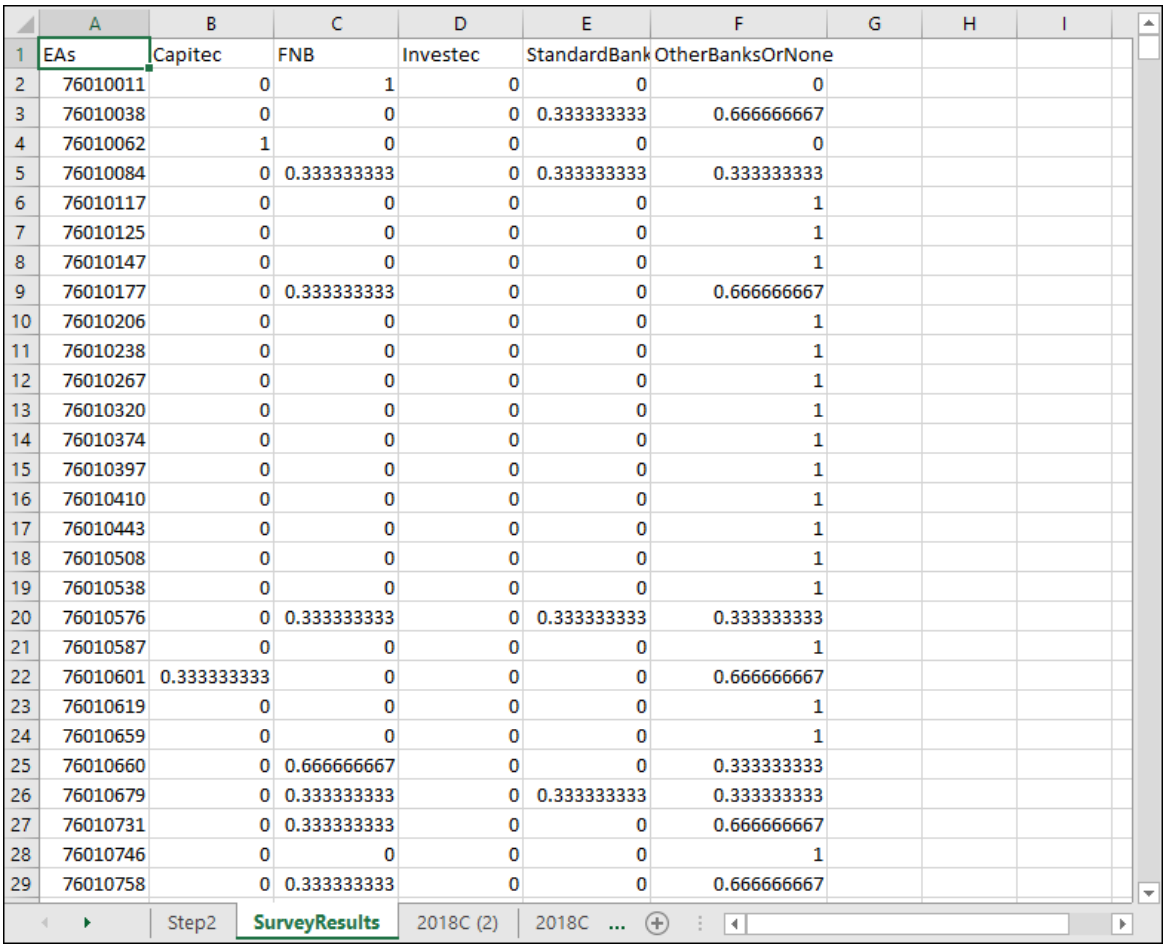
Extrapolate Survey User Guide

The **Extrapolate Survey** tool is a tool in all our spatial products that allows you to broaden a set of survey results already gotten into a wider area based on certain criteria; it can be found here:



Before using this tool, you will need to have some things set up.

Firstly, you will need a spreadsheet of your survey results:

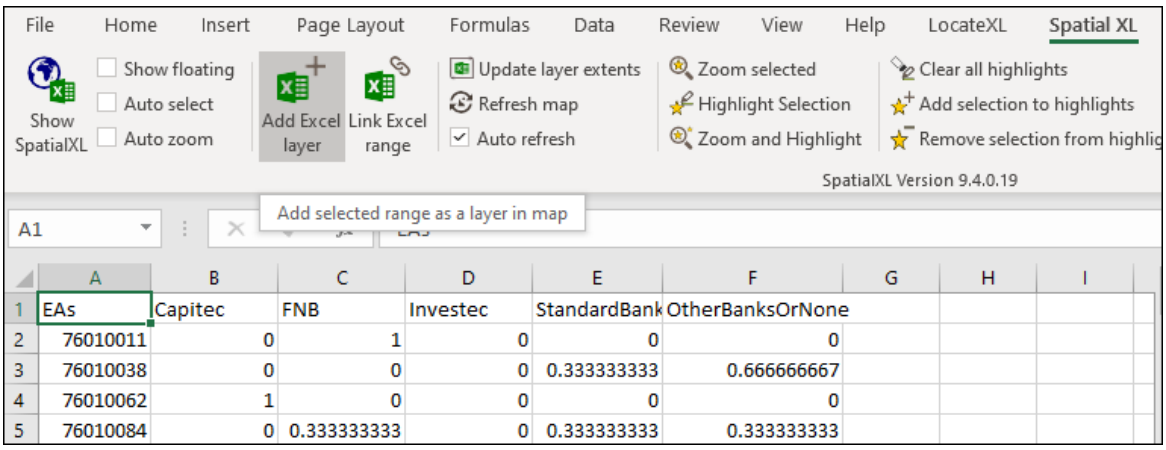


	A	B	C	D	E	F	G	H	I
1	EAs	Capitec	FNB	Investec	StandardBank	OtherBanksOrNone			
2	76010011	0	1	0	0	0			
3	76010038	0	0	0	0.333333333	0.666666667			
4	76010062	1	0	0	0	0			
5	76010084	0	0.333333333	0	0.333333333	0.333333333			
6	76010117	0	0	0	0	1			
7	76010125	0	0	0	0	1			
8	76010147	0	0	0	0	1			
9	76010177	0	0.333333333	0	0	0.666666667			
10	76010206	0	0	0	0	1			
11	76010238	0	0	0	0	1			
12	76010267	0	0	0	0	1			
13	76010320	0	0	0	0	1			
14	76010374	0	0	0	0	1			
15	76010397	0	0	0	0	1			
16	76010410	0	0	0	0	1			
17	76010443	0	0	0	0	1			
18	76010508	0	0	0	0	1			
19	76010538	0	0	0	0	1			
20	76010576	0	0.333333333	0	0.333333333	0.333333333			
21	76010587	0	0	0	0	1			
22	76010601	0.333333333	0	0	0	0.666666667			
23	76010619	0	0	0	0	1			
24	76010659	0	0	0	0	1			
25	76010660	0	0.666666667	0	0	0.333333333			
26	76010679	0	0.333333333	0	0.333333333	0.333333333			
27	76010731	0	0.333333333	0	0	0.666666667			
28	76010746	0	0	0	0	1			
29	76010758	0	0.333333333	0	0	0.666666667			

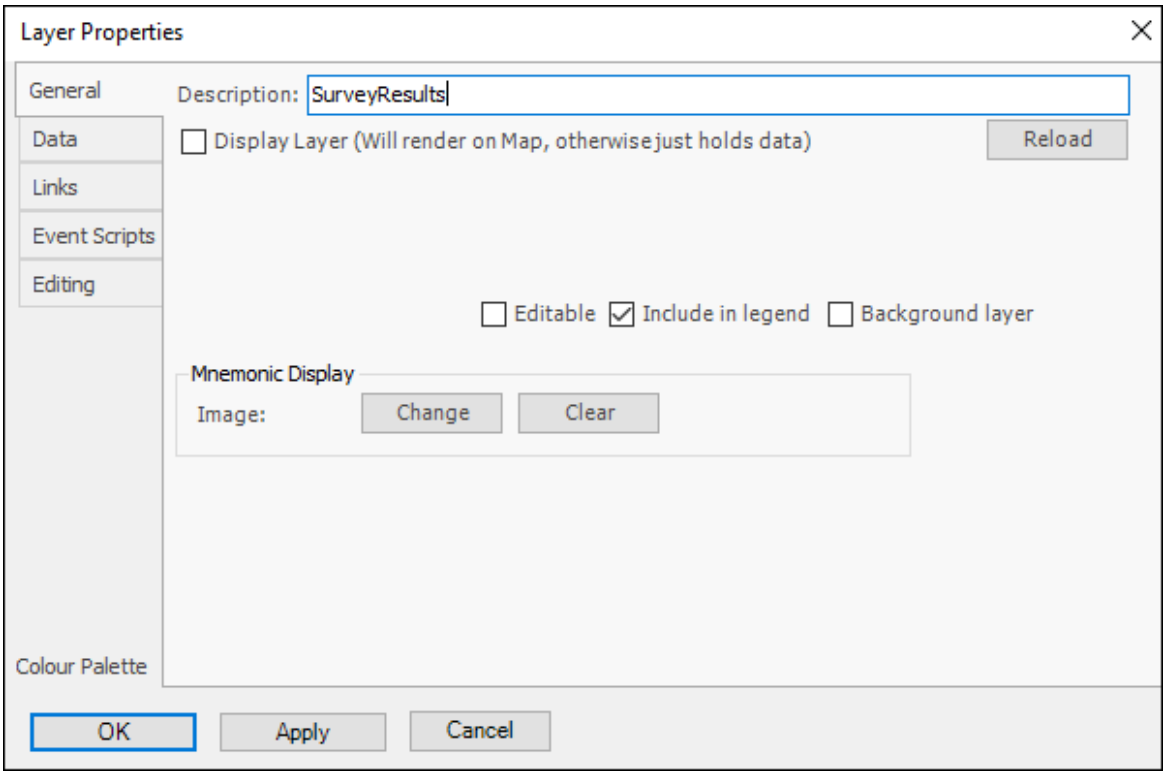
Step2 | SurveyResults | 2018C (2) | 2018C ...

In my survey data there is data about percentage of people who use a particular bank in a particular enumeration area (EA).

In order to use this data in the tool it will need to be added as a layer in the spatial pane:



	A	B	C	D	E	F	G	H	I
1	EAs	Capitec	FNB	Investec	StandardBank	OtherBanksOrNone			
2	76010011	0	1	0	0	0			
3	76010038	0	0	0	0.333333333	0.666666667			
4	76010062	1	0	0	0	0			
5	76010084	0	0.333333333	0	0.333333333	0.333333333			


Layer Properties
General
Data
Links
Event Scripts
Editing
Colour Palette
Description: SurveyResults
Display Layer (Will render on Map, otherwise just holds data)
Reload
Editable
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Background layer
Mnemonic Display
Image:
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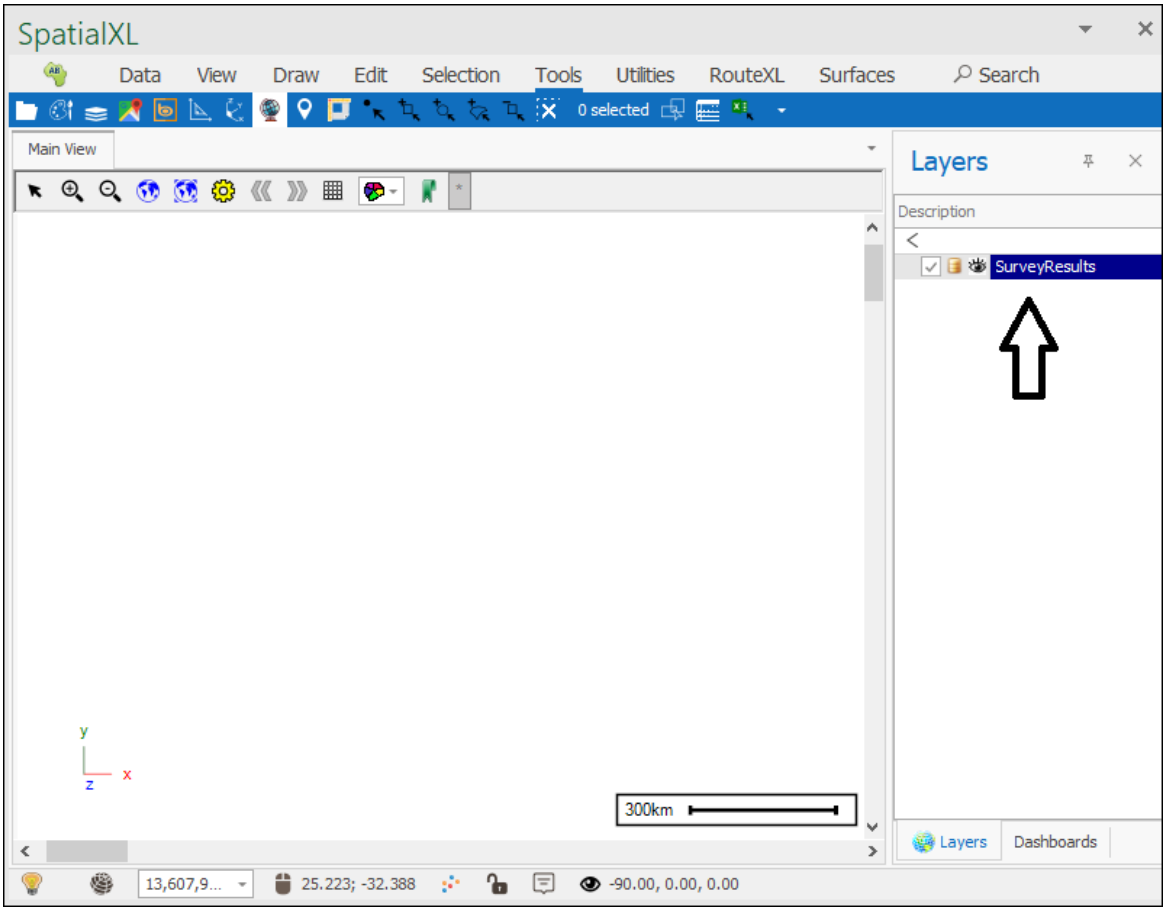
SpatialXL
Data
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Selection
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Main View
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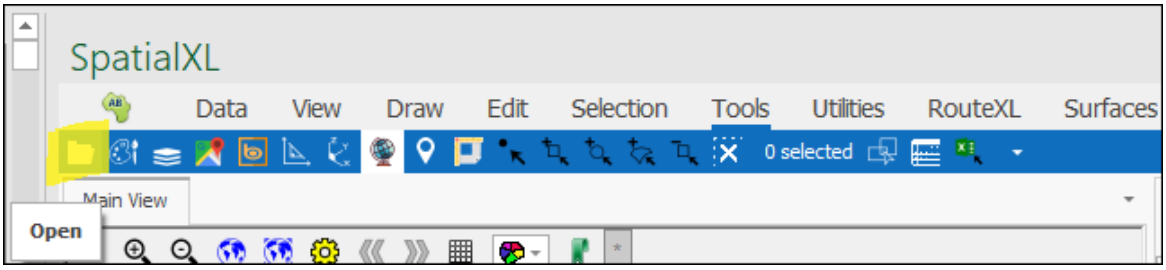
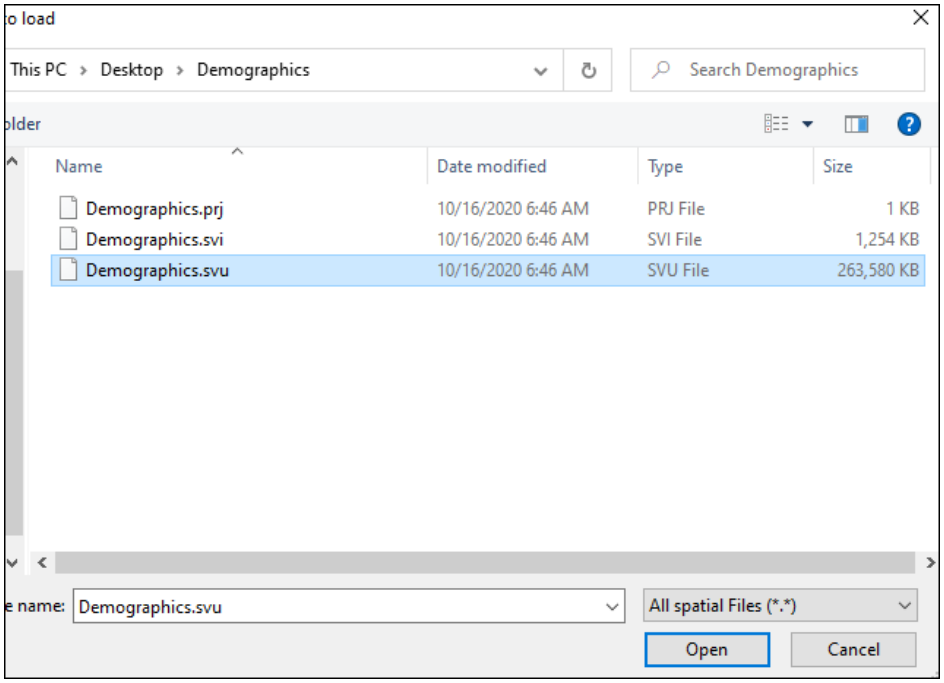
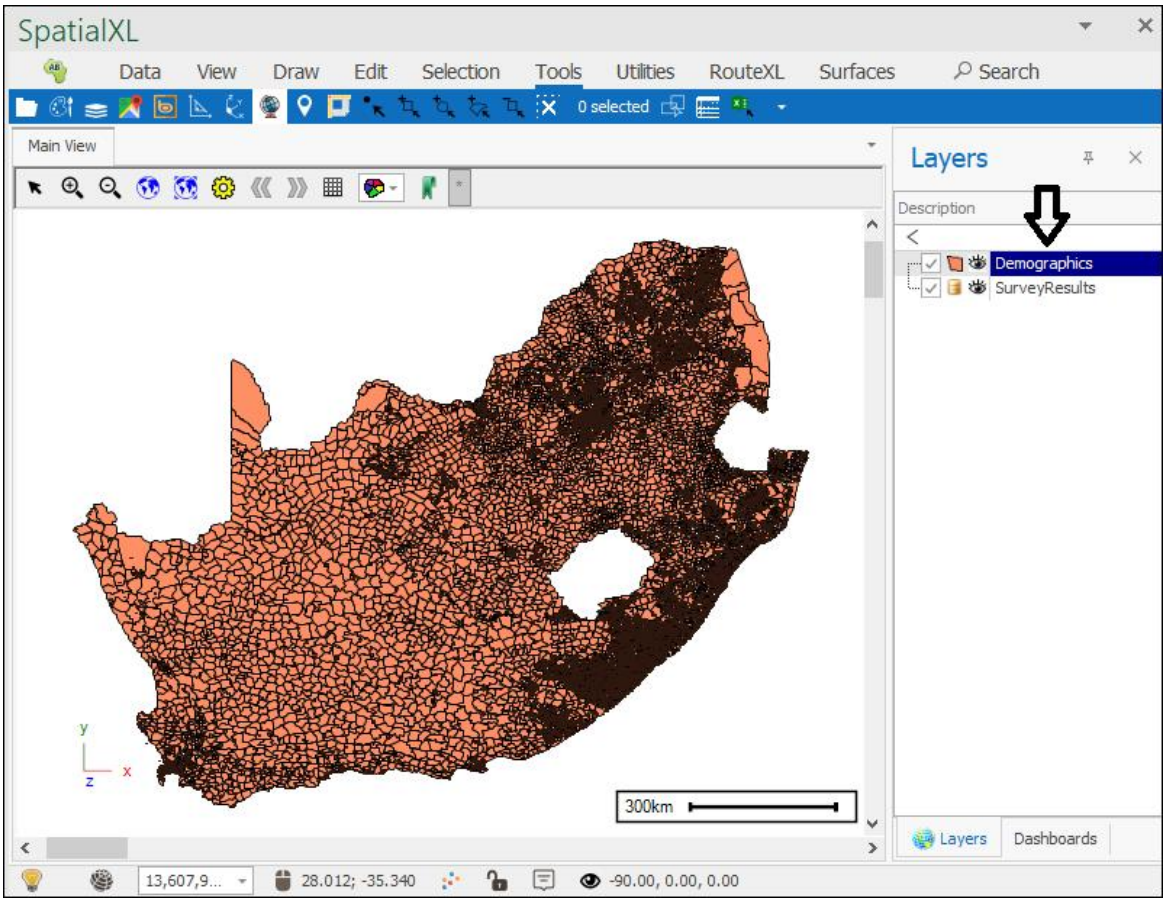
300km
Layers
Dashboards
13,607,9...
25.223; -32.388
-90.00, 0.00, 0.00

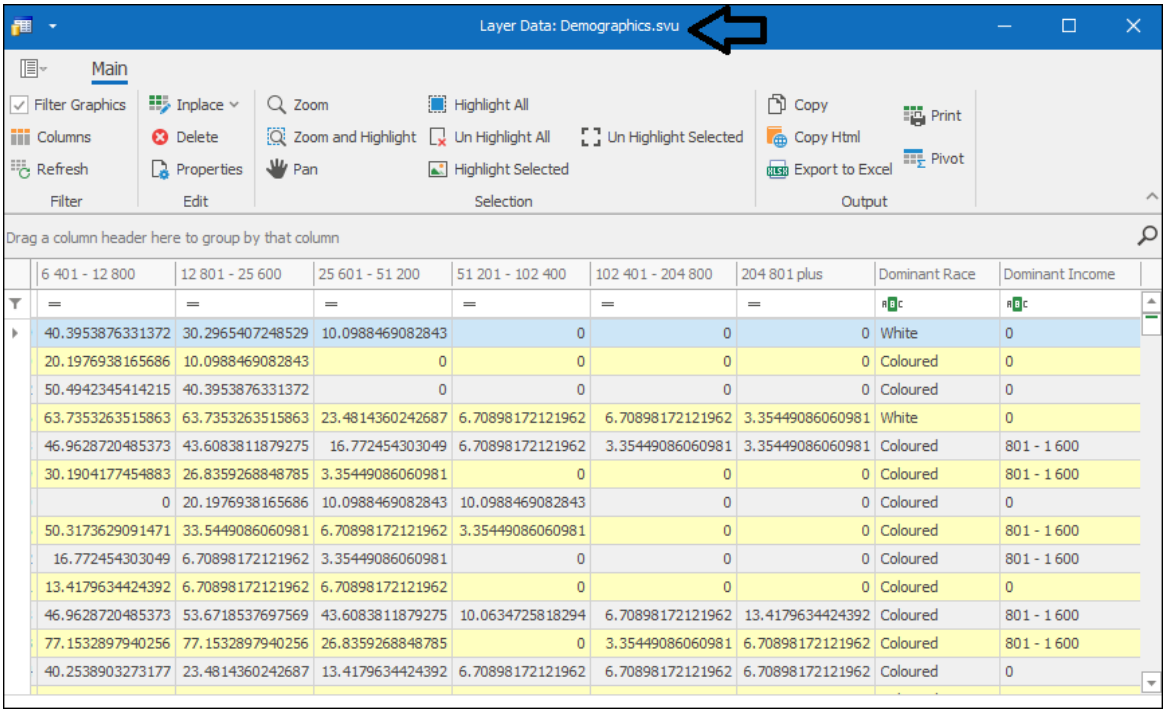
If you have no coordinate data for the areas in your survey results then it is just added as a data layer, meaning it does not display on the scene but just holds data (which is the case in this example).

The next thing you would have is a set of data with the same areas as those in your survey results and more, plus some extra information for those areas that your survey results don't have such as Dominant Race in that area or Dominant Income. For this I have a **Demographics** layer which actually exits as a SpatialVU file and I will bring it in: (if this data existed as a spreadsheet you would go through the same steps above to add as it as a layer):





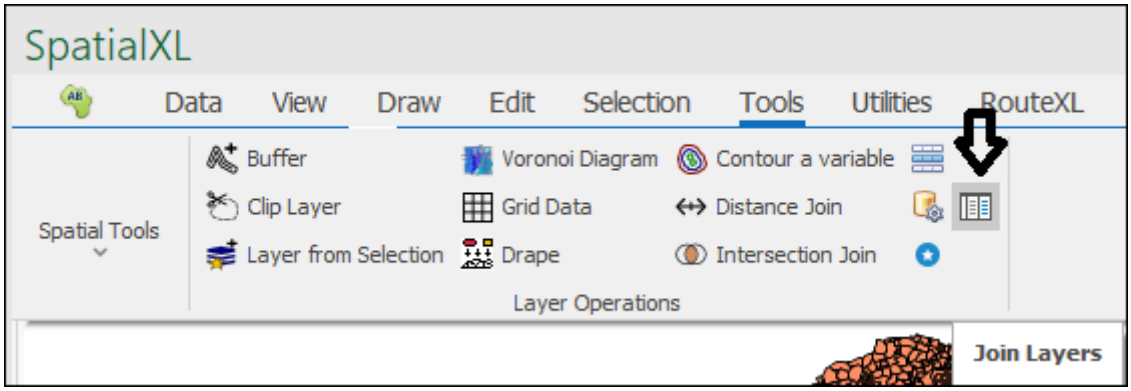




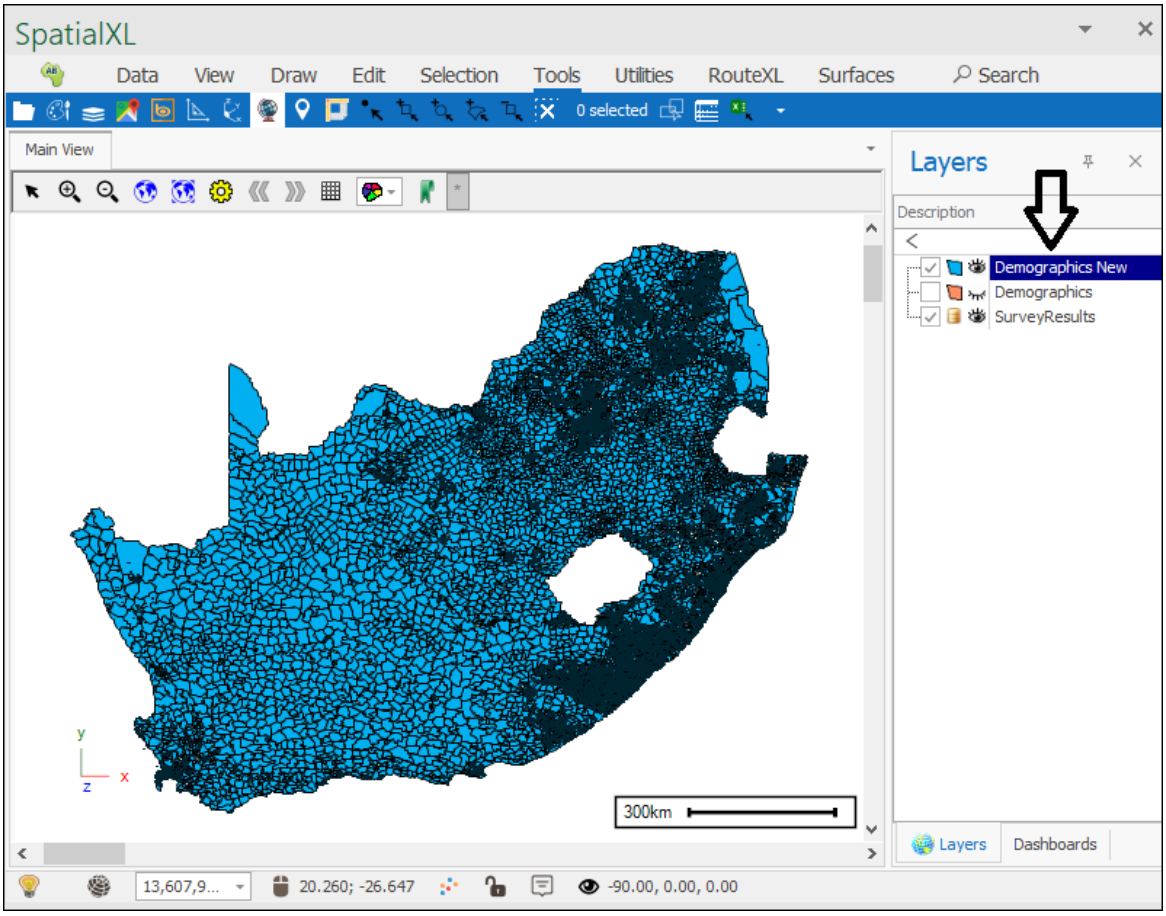
6 401 - 12 800	12 801 - 25 600	25 601 - 51 200	51 201 - 102 400	102 401 - 204 800	204 801 plus	Dominant Race	Dominant Income
40.3953876331372	30.2965407248529	10.0988469082843	0	0	0	White	0
20.1976938165686	10.0988469082843	0	0	0	0	Coloured	0
50.4942345414215	40.3953876331372	0	0	0	0	Coloured	0
63.7353263515863	63.7353263515863	23.4814360242687	6.70898172121962	6.70898172121962	3.35449086060981	White	0
46.9628720485373	43.6083811879275	16.772454303049	6.70898172121962	3.35449086060981	3.35449086060981	Coloured	801 - 1 600
30.1904177454883	26.8359268848785	3.35449086060981	0	0	0	Coloured	801 - 1 600
0	20.1976938165686	10.0988469082843	10.0988469082843	0	0	Coloured	0
50.3173629091471	33.5449086060981	6.70898172121962	3.35449086060981	0	0	Coloured	801 - 1 600
16.772454303049	6.70898172121962	3.35449086060981	0	0	0	Coloured	801 - 1 600
13.4179634424392	6.70898172121962	6.70898172121962	0	0	0	Coloured	0
46.9628720485373	53.6718537697569	43.6083811879275	10.0634725818294	6.70898172121962	13.4179634424392	Coloured	801 - 1 600
77.1532897940256	77.1532897940256	26.8359268848785	0	3.35449086060981	6.70898172121962	Coloured	801 - 1 600
40.2538903273177	23.4814360242687	13.4179634424392	6.70898172121962	6.70898172121962	6.70898172121962	Coloured	0

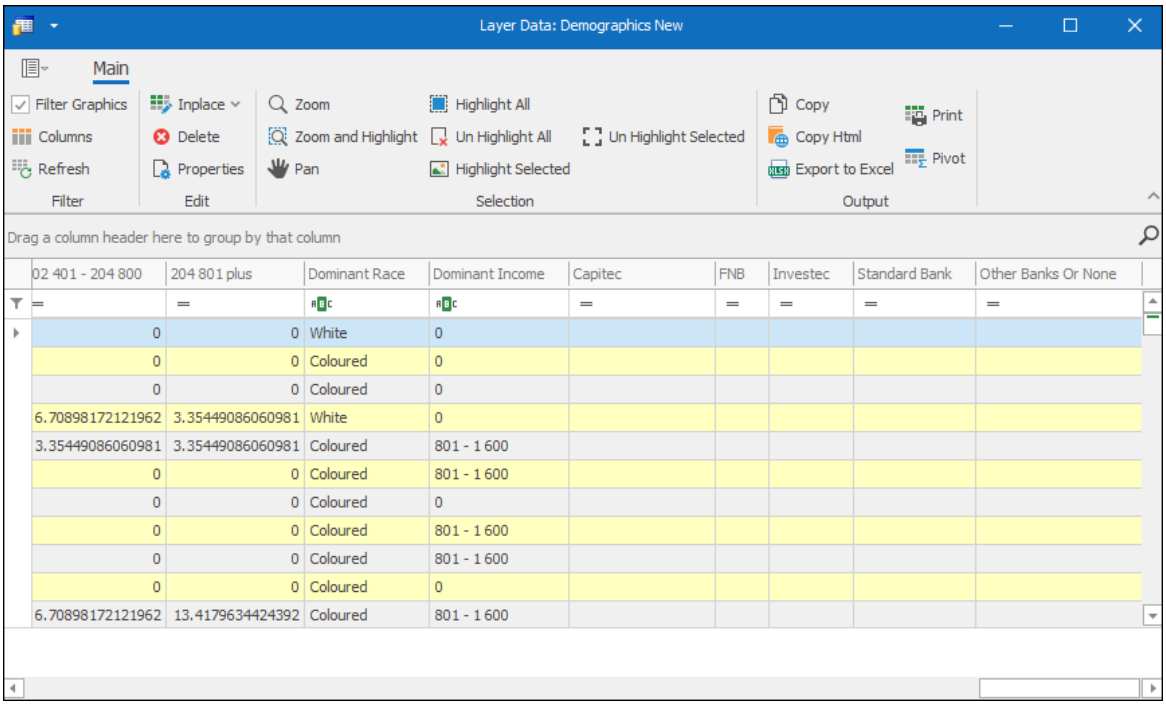
This demographics data does have coordinate data as well, so it is displayed on the scene.

Now the next thing you would want to do is a join of these two sets of data to have all this data nicely linked up and in one place. To do this you use the **Join Layers** tool. (to see how to use this tool refer to the **Join Layers** Tool manual):



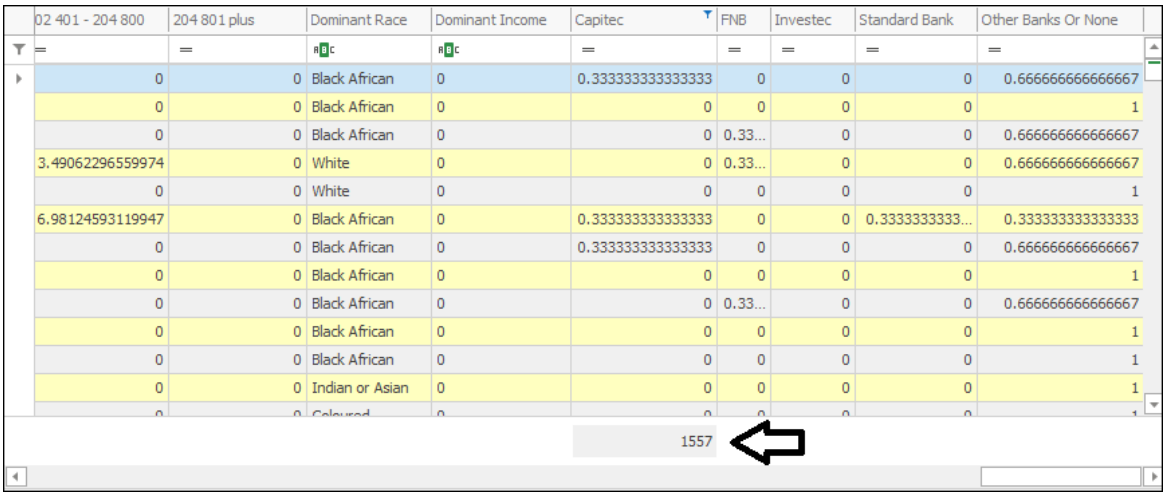
After having done the join, your data will now be linked up:



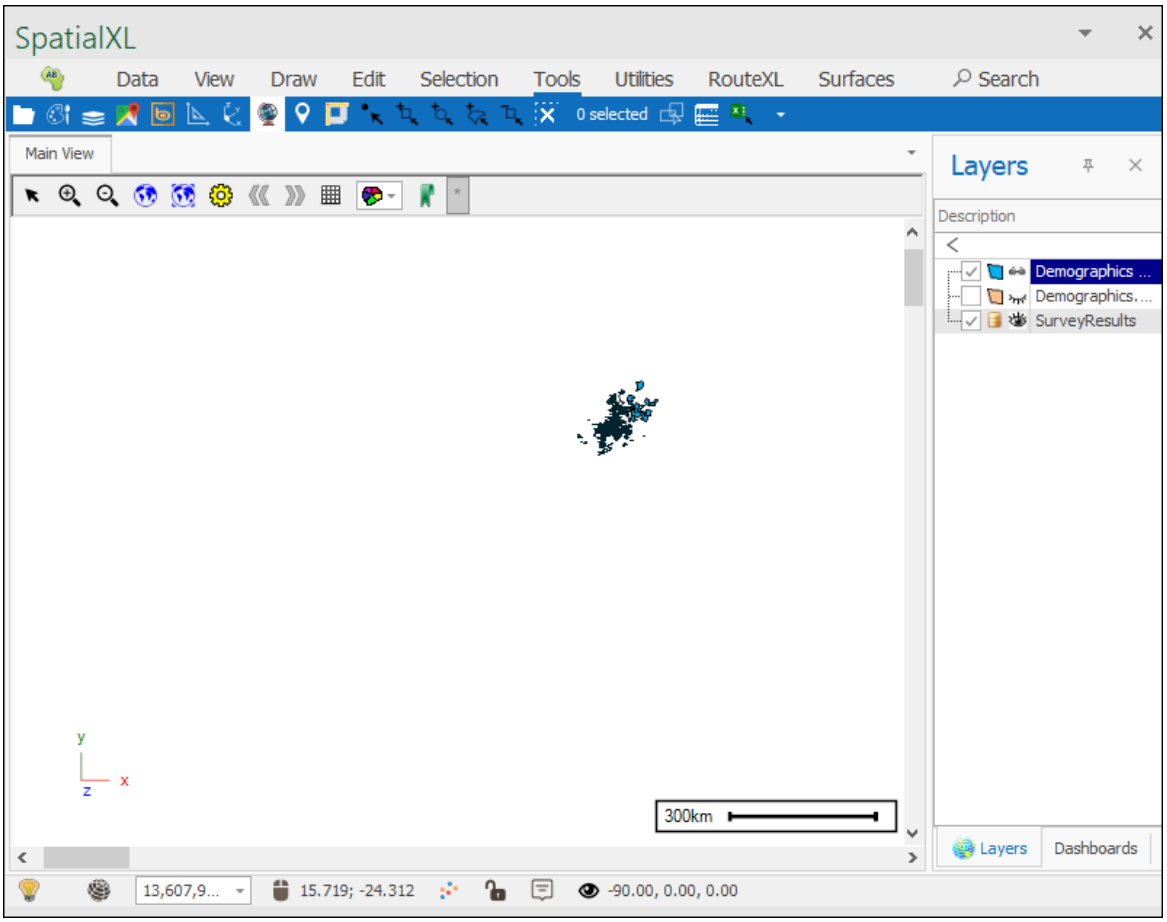


02 401 - 204 800	204 801 plus	Dominant Race	Dominant Income	Capitec	FNB	Investec	Standard Bank	Other Banks Or None
0	0	White	0					
0	0	Coloured	0					
0	0	Coloured	0					
6.70898172121962	3.35449086060981	White	0					
3.35449086060981	3.35449086060981	Coloured	801 - 1 600					
0	0	Coloured	801 - 1 600					
0	0	Coloured	0					
0	0	Coloured	801 - 1 600					
0	0	Coloured	801 - 1 600					
0	0	Coloured	0					
6.70898172121962	13.4179634424392	Coloured	801 - 1 600					

I will filter out the blanks and see how many areas were surveyed:

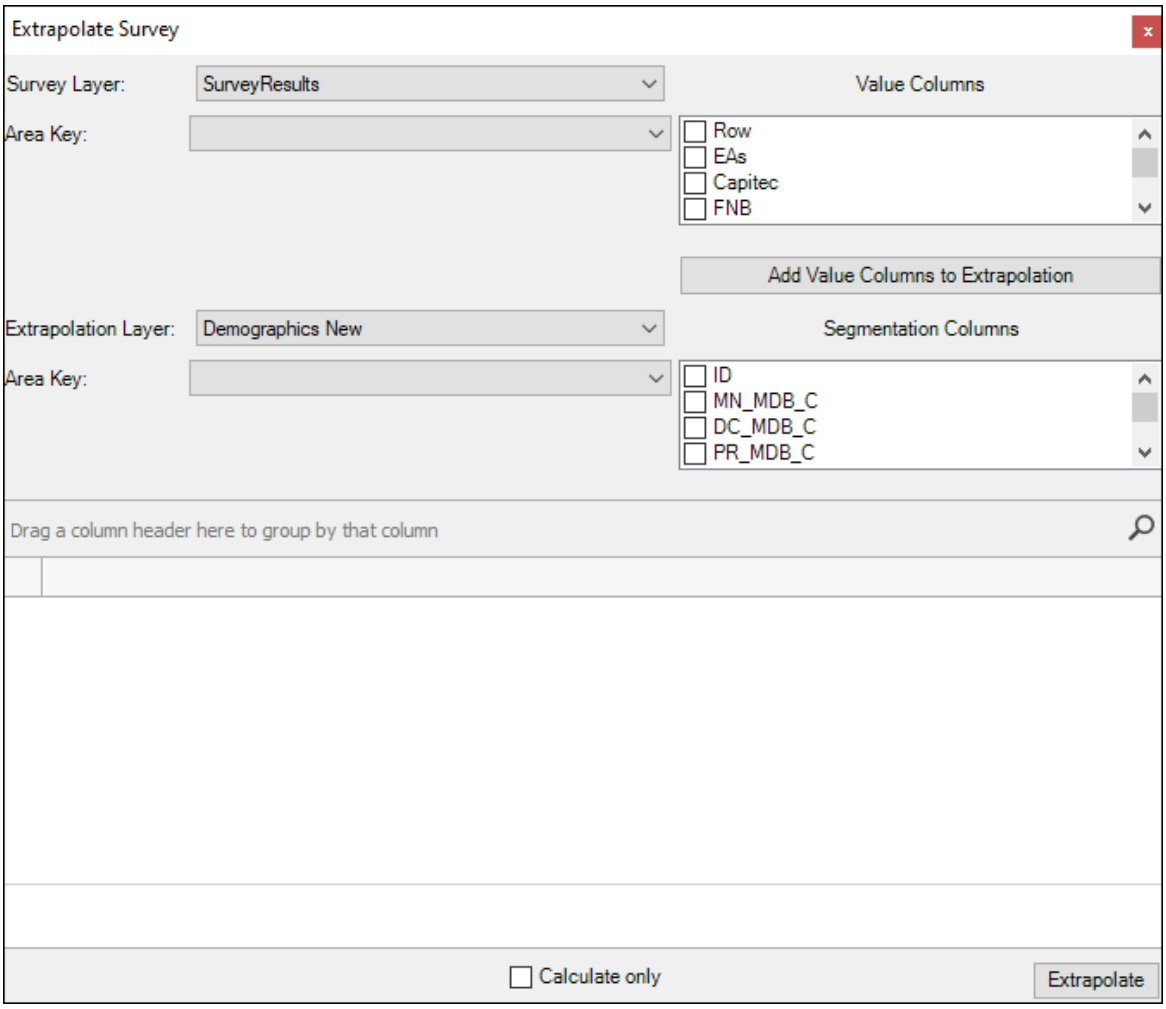


02 401 - 204 800	204 801 plus	Dominant Race	Dominant Income	Capitec	FNB	Investec	Standard Bank	Other Banks Or None
0	0	Black African	0	0.333333333333333	0	0	0	0.666666666666667
0	0	Black African	0	0	0	0	0	1
0	0	Black African	0	0	0.33...	0	0	0.666666666666667
3.49062296559974	0	White	0	0	0.33...	0	0	0.666666666666667
0	0	White	0	0	0	0	0	1
6.98124593119947	0	Black African	0	0.333333333333333	0	0	0.3333333333...	0.333333333333333
0	0	Black African	0	0.333333333333333	0	0	0	0.666666666666667
0	0	Black African	0	0	0	0	0	1
0	0	Black African	0	0	0.33...	0	0	0.666666666666667
0	0	Black African	0	0	0	0	0	1
0	0	Black African	0	0	0	0	0	1
0	0	Indian or Asian	0	0	0	0	0	1
				1557				

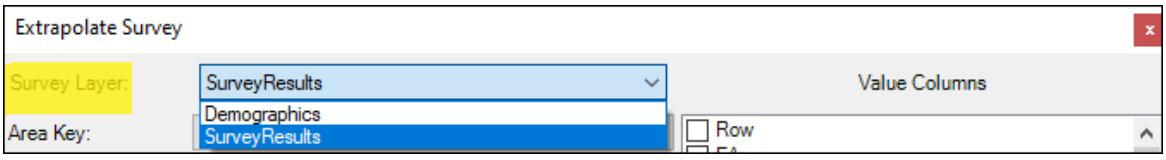


As you can see **1557** areas were surveyed.

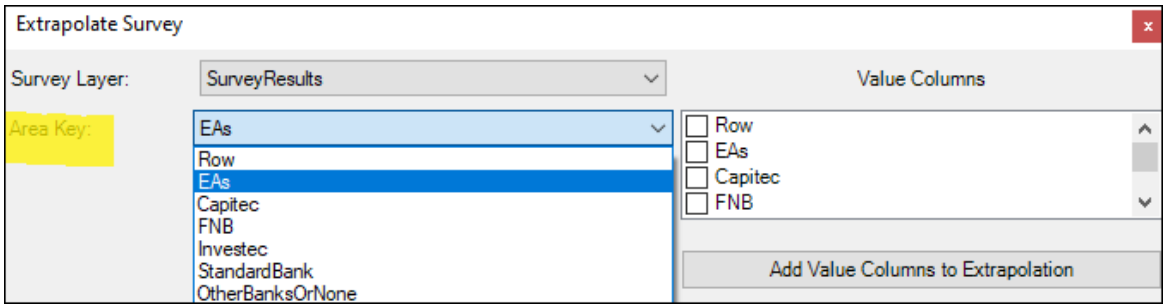
Now what we would like to do is expand these survey results into more areas so let's go ahead and open the **Extrapolate Survey** tool:



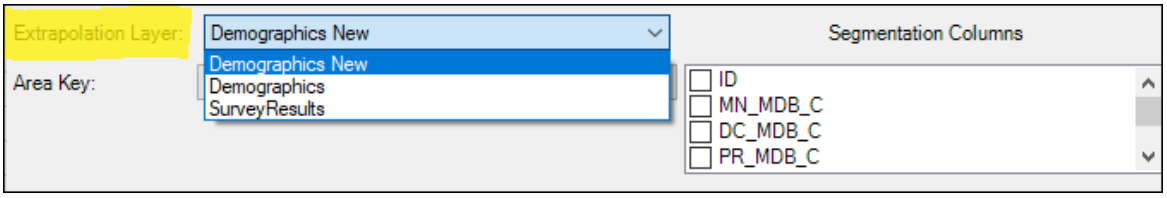
The first step is to choose which layer is the **Survey Layer**:



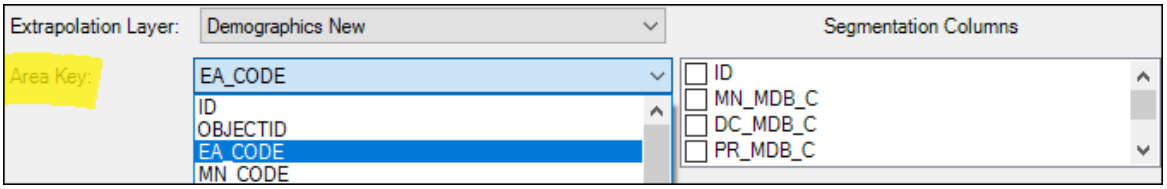
Then you need to choose your **Area Key** in your survey results data which is basically the unique identifier for the areas surveyed:



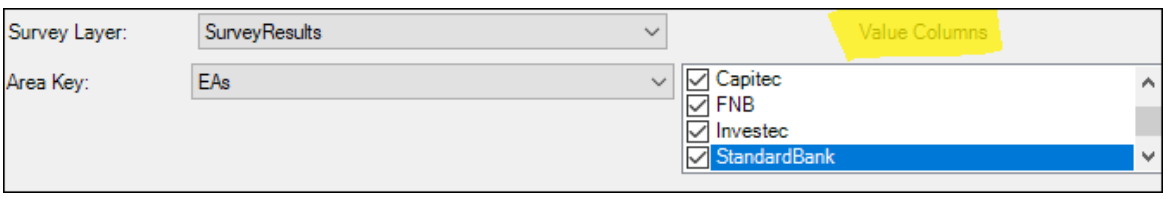
Next, choose which layer is the **Extrapolation Layer**, which is the layer that the survey results will be extrapolated to:



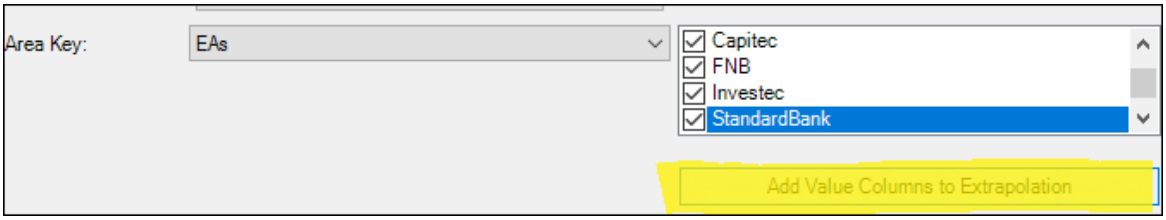
Then you need to choose an **Area Key** in this set of data as well and it will be a key shared by your survey layer:



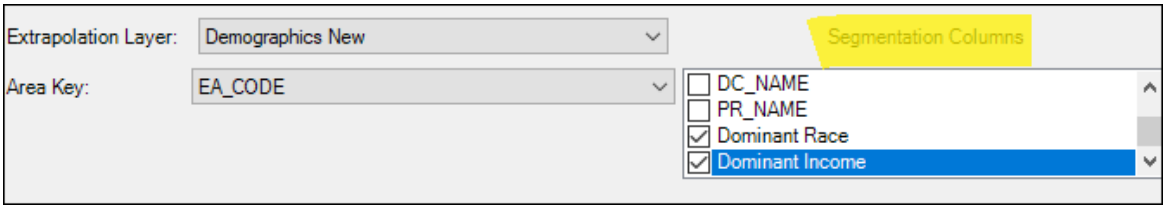
Next you will choose the **Value Columns** in your survey layer that you would like to be extrapolated to the extrapolation layer:



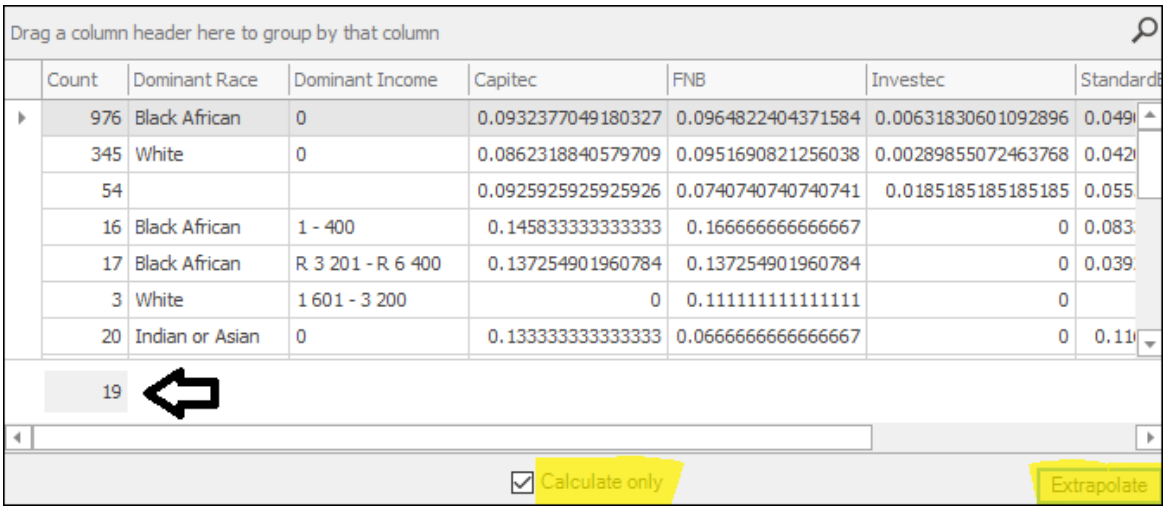
Below this is an **Add Column Values to Extrapolation** button which you would press if these columns didn't also exist in the extrapolation layer, but luckily we did a join so they do exist and the extrapolated data can be populated there:



Next you will choose what columns in your extrapolation layer you will use to act as a signature for a particular surveyed area, meaning your surveyed areas will be segmented according to particular characteristics in the **Segmentation Columns** chosen and then any un-surveyed area(which is what we are trying to extrapolate into) which shares the same signature will have that survey data extrapolated into it, this is the essence of what this tool does:

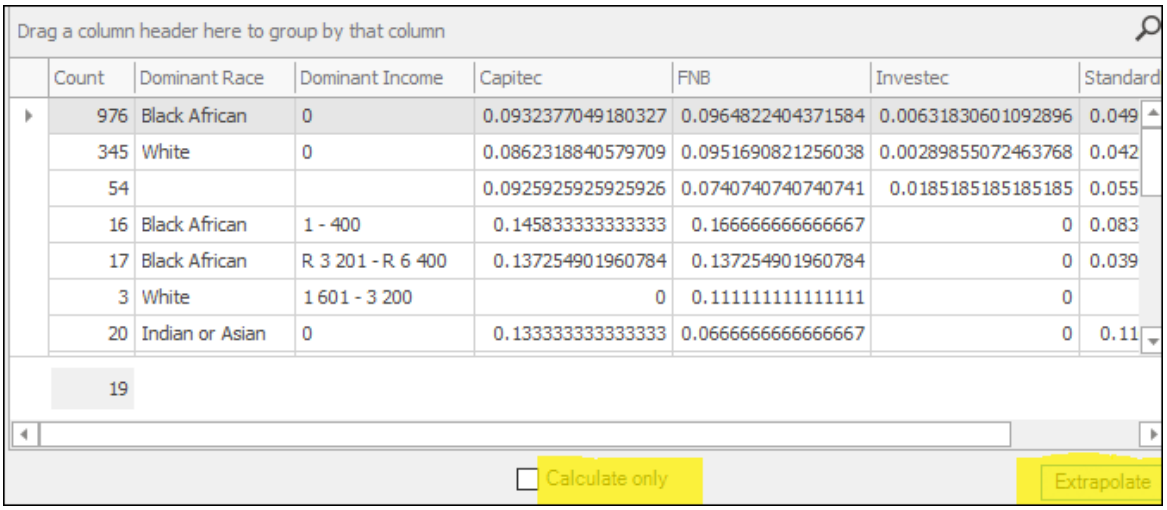


Now what you can do before you extrapolate is have **Calculate only** ticked on and then click **Extrapolate**, the calculations done by the tool will be populated in the grid below and you can view them:

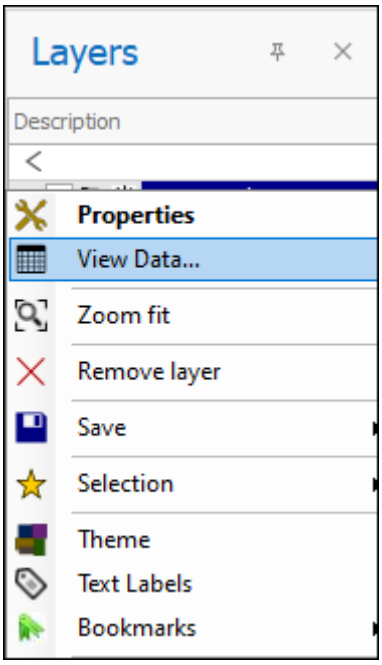


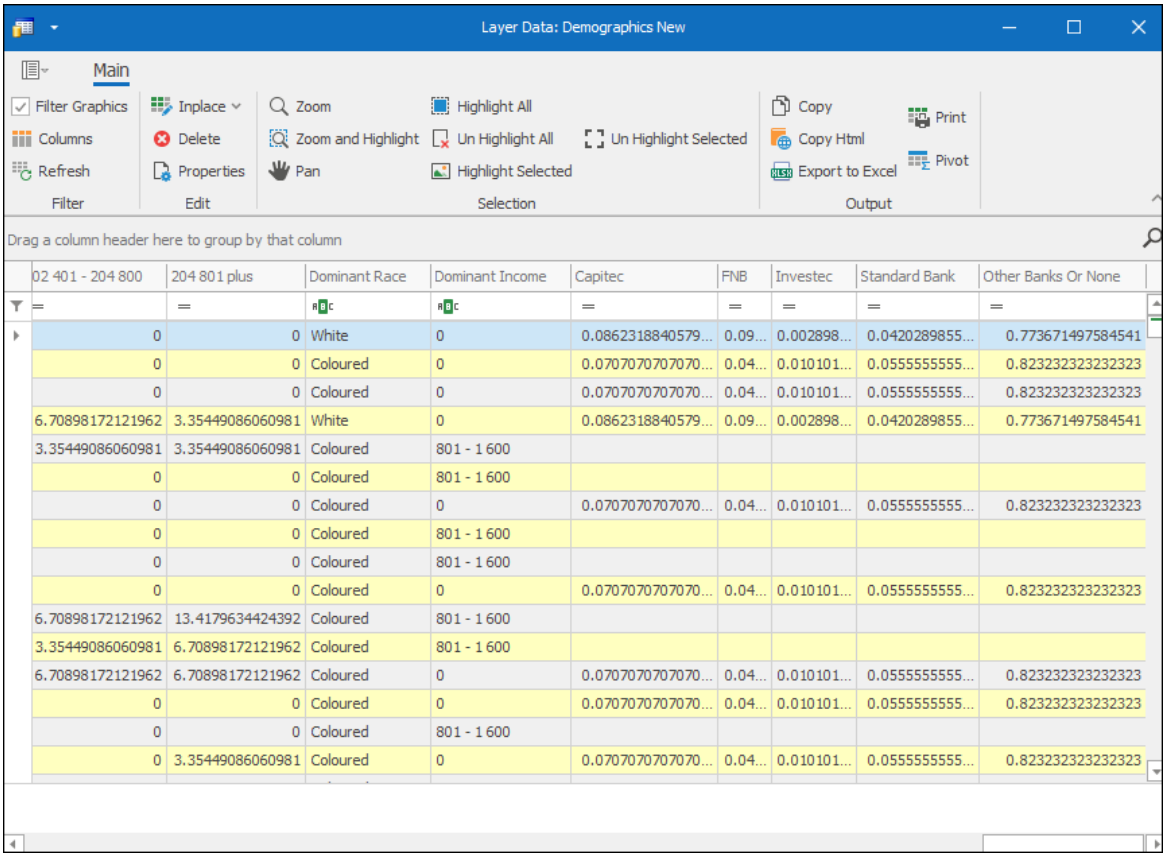
So as you can see here it created a total of **19** segments each with a unique signature, and as an example in the first row you can see there are **976** areas that have a signature of Dominant Race Black African and Dominant Income 0.

Once you have seen the calculations you can now untick **Calculate only** and click **Extrapolate** to do the extrapolation:



Your data has now been extrapolated and you can view it in the extrapolation layer by right clicking it and selecting **View Data:**

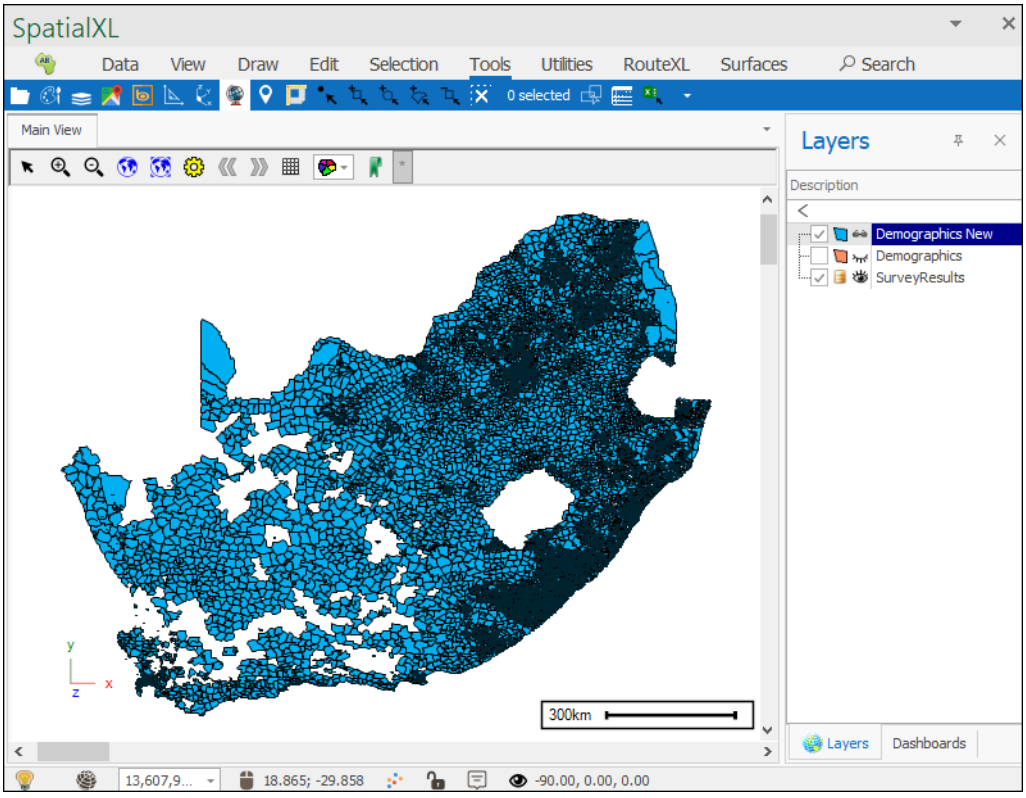


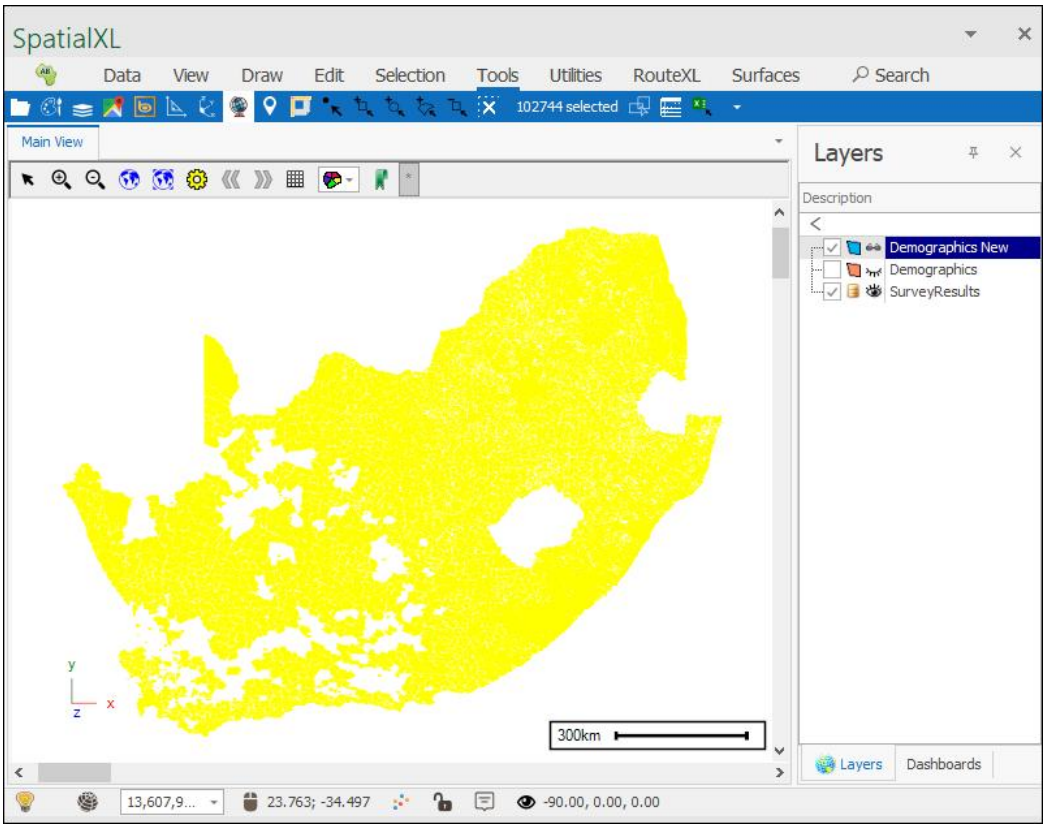


If you filter out the blanks and do a count you will see there are now 102 744 areas with survey results whereas before we only had 1557:

02 401 - 204 800	204 801 plus	Dominant Race	Dominant Income	Capitec	FNB	Investec	Standard Bank	Other Banks Or None
0	0	White	0	0.0862318840579...	0.09...	0.002898...	0.0420289855...	0.773671497584541
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
6.70898172121962	3.35449086060981	White	0	0.0862318840579...	0.09...	0.002898...	0.0420289855...	0.773671497584541
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
6.70898172121962	6.70898172121962	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	3.35449086060981	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
10.0988469082843	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
0	0	Coloured	0	0.0707070707070...	0.04...	0.010101...	0.0555555555...	0.823232323232323
				102744				

Once all the blanks are filtered out it will also be filtered in the scene and what you can then do is select these areas and create a new layer from that so that you have all surveyed areas in one layer:




SpatialXL
Data
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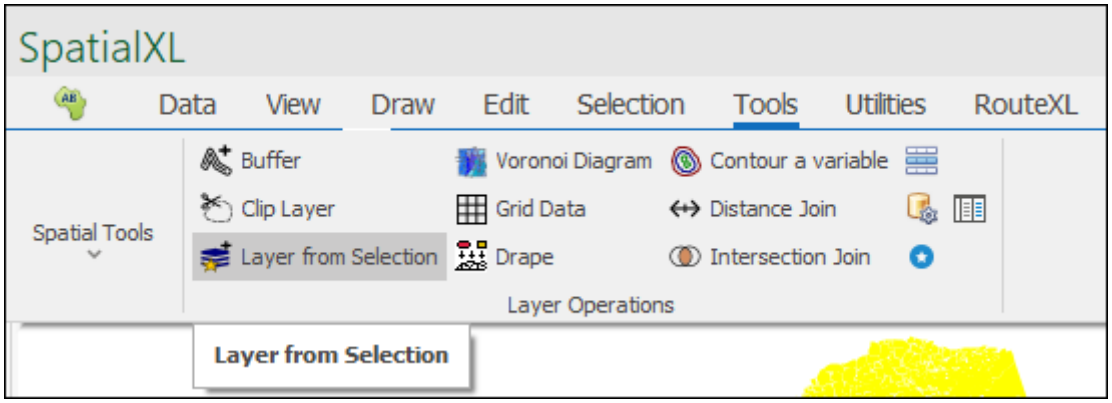
Utilities
RouteXL
Surfaces
Search
102744 selected
Main View
Layers
Description
Demographics New
Demographics
SurveyResults
300km
Layers
Dashboards
13,607,9...
23.763; -34.497
-90.00, 0.00, 0.00


SpatialXL
Data
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Draw
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Selection
Tools
Utilities
RouteXL
Spatial Tools
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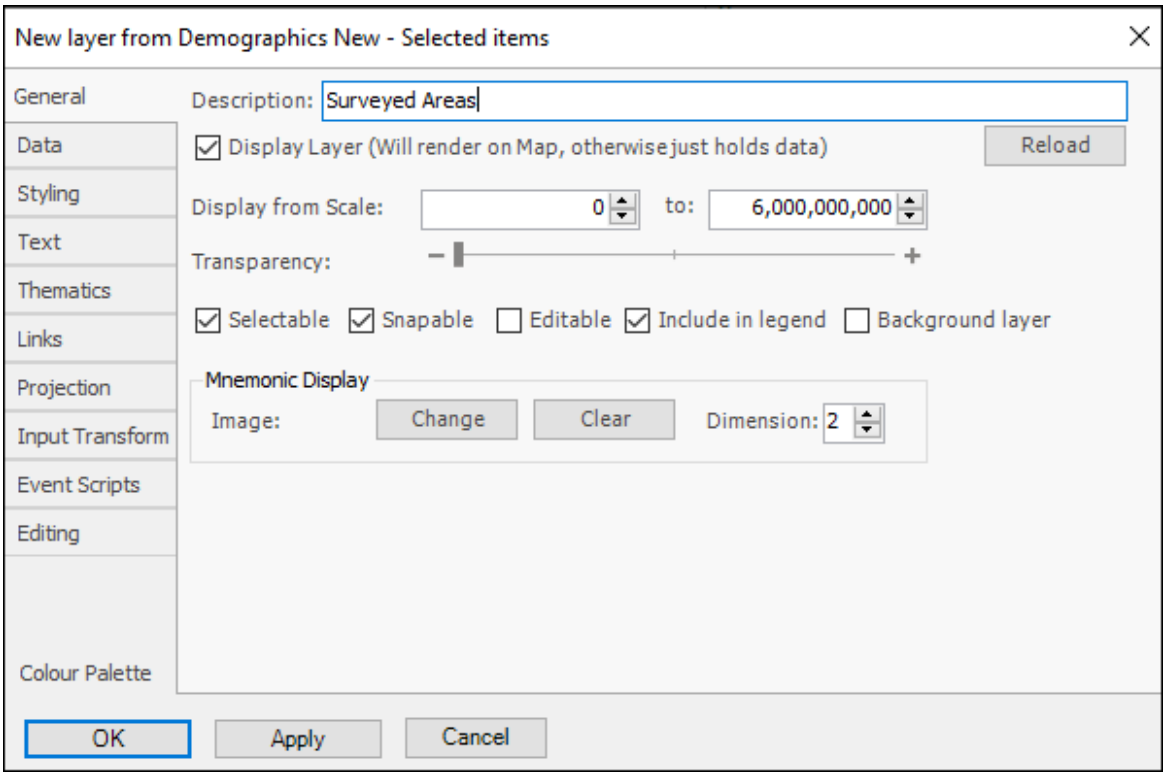
Layer from Selection
Voronoi Diagram
Grid Data
Drape
Contour a variable
Distance Join
Intersection Join
Layer Operations
Layer from Selection


New layer from Demographics New - Selected items
General
Data
Styling
Text
Thematics
Links
Projection
Input Transform
Event Scripts
Editing
Colour Palette
Description: Surveyed Areas
Display Layer (Will render on Map, otherwise just holds data)
Reload
Display from Scale: 0 to: 6,000,000,000
Transparency:
Selectable
Snapable
Editable
Include in legend
Background layer
Mnemonic Display
Image:
Change
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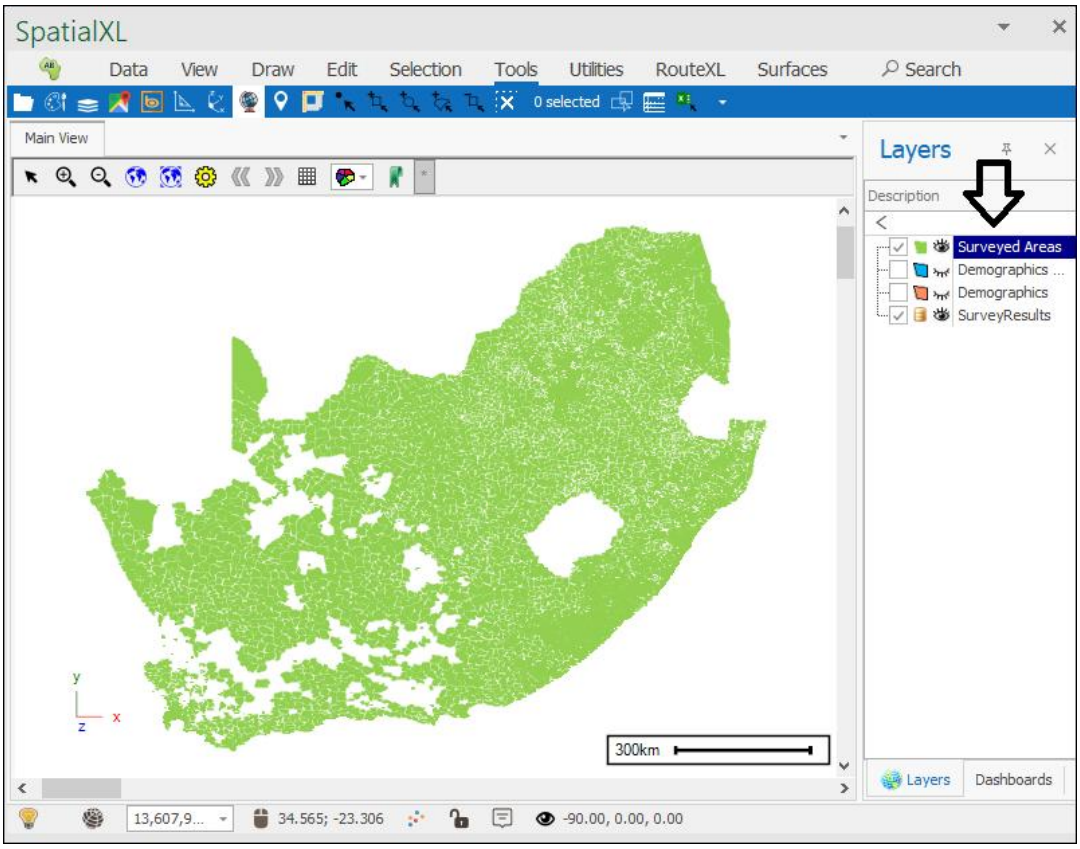
Dimension: 2
OK
Apply
Cancel


SpatialXL
Data
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Draw
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Selection
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Utilities
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Search
0 selected
Main View
Layers
Description
Surveyed Areas
Demographics ...
Demographics
SurveyResults
300km
Layers
Dashboards
13,607,9...
34.565; -23.306
-90.00, 0.00, 0.00

Support

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