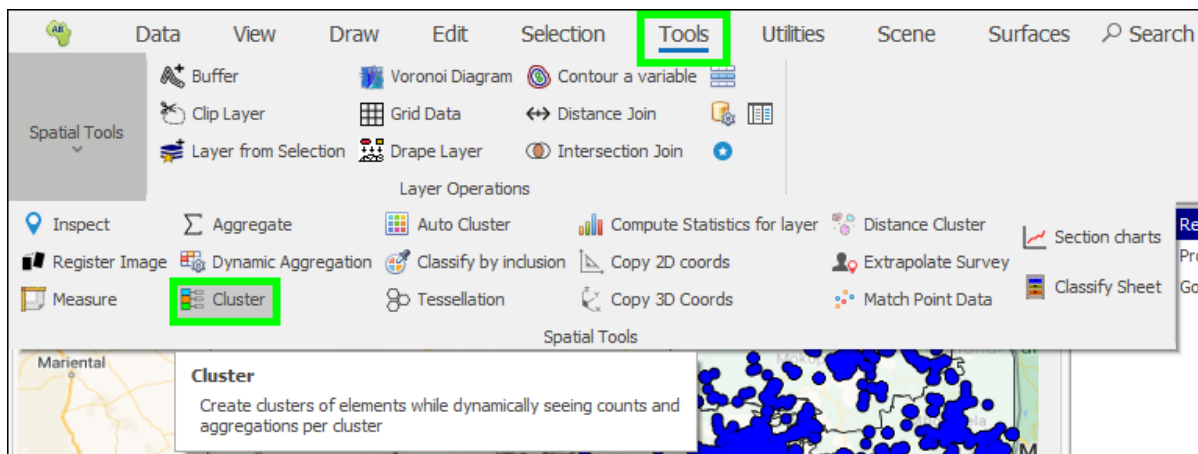




Cluster Tool



Contents

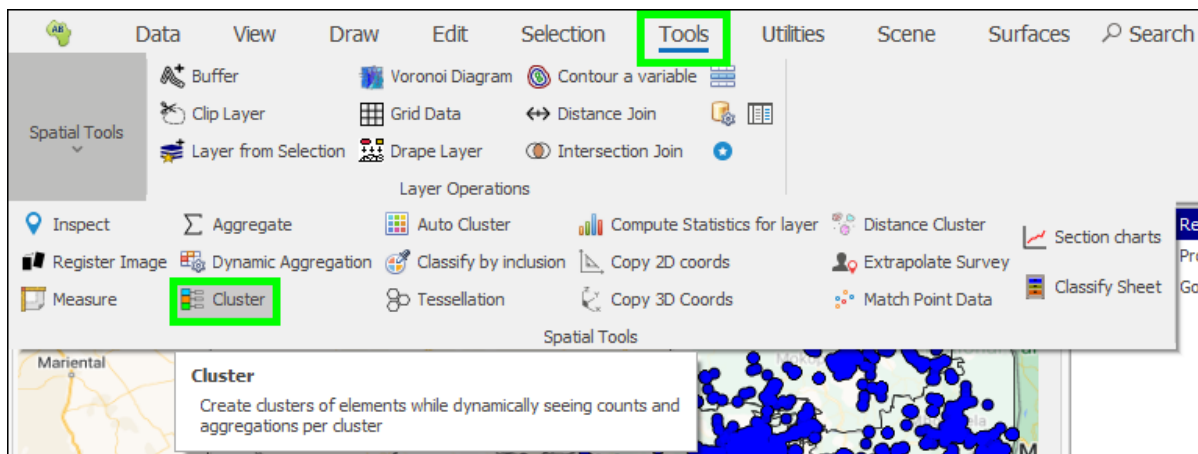
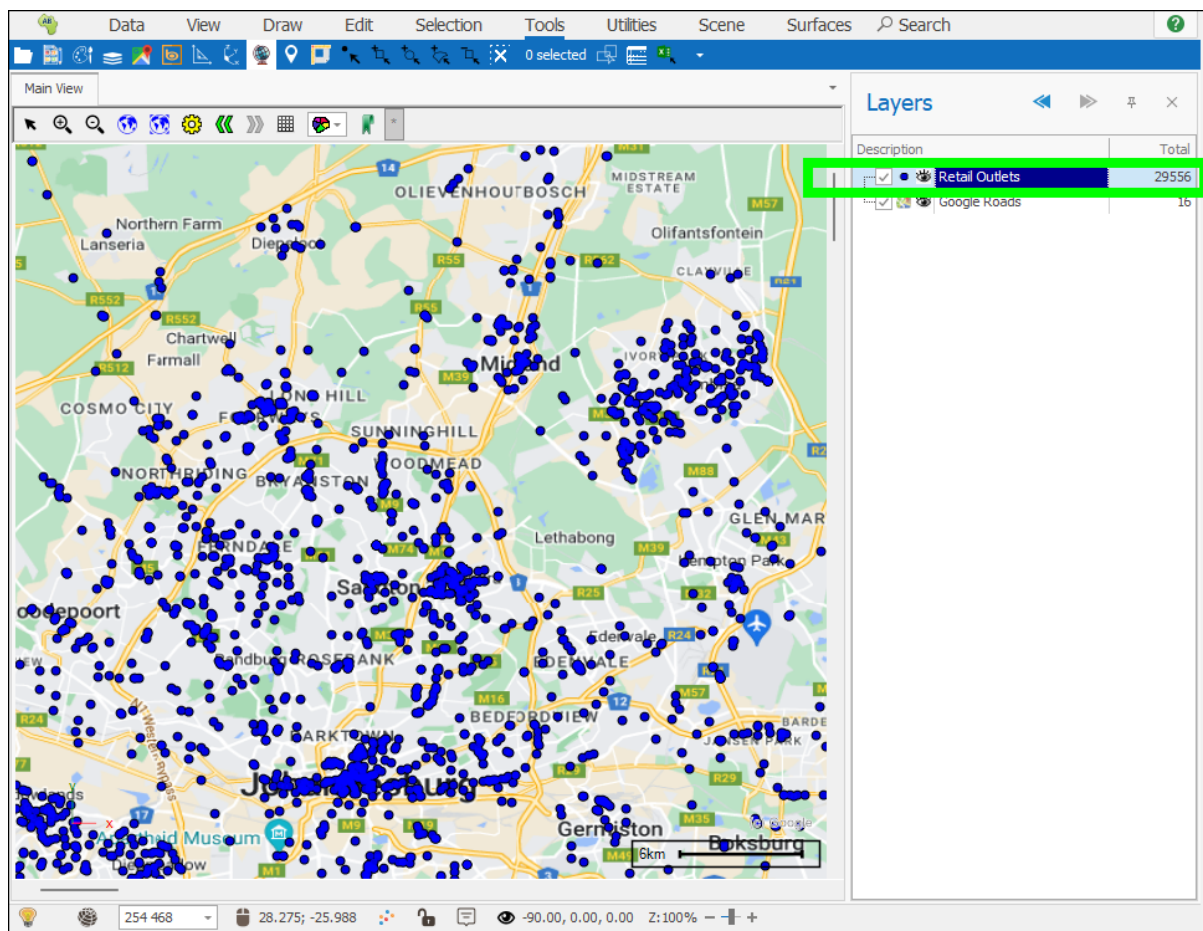
Cluster Tool.....	1
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Moving Points from One Cluster to Another	24
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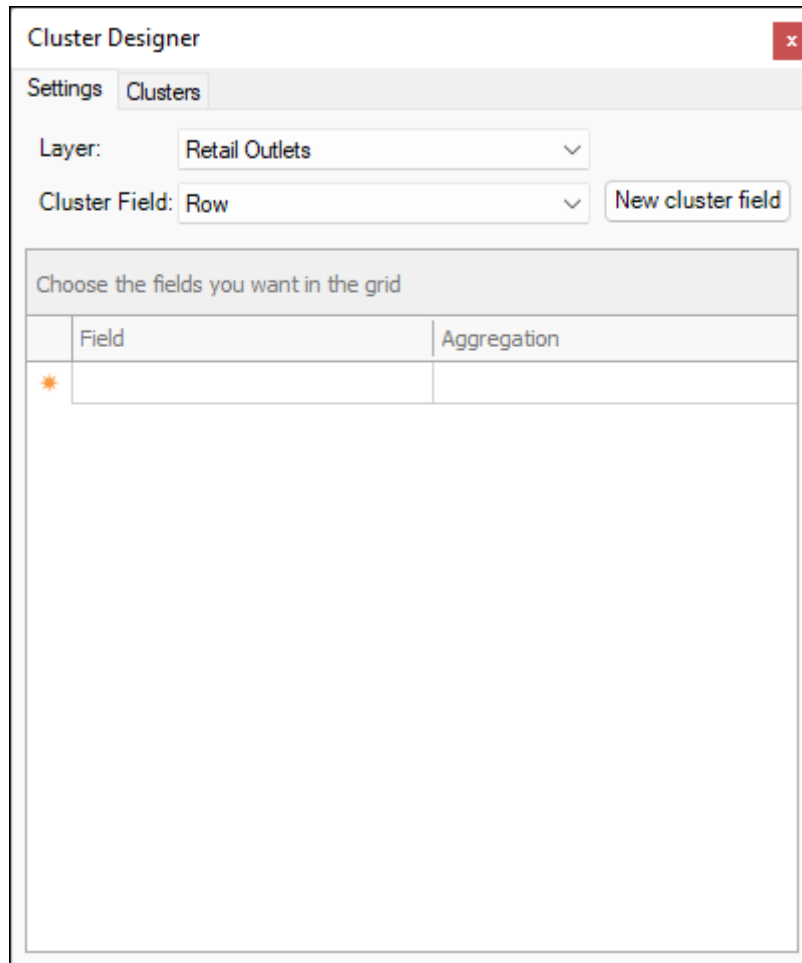
The **Cluster** tool can be used to build clusters or districts using both geographic and non-geographic parameters.

Cluster Tutorial

Make sure the layer you want to cluster is ticked on in the Layers Description box. Then click on the tool to bring up the Cluster Designer dialogue:

Cluster Tool User Guide

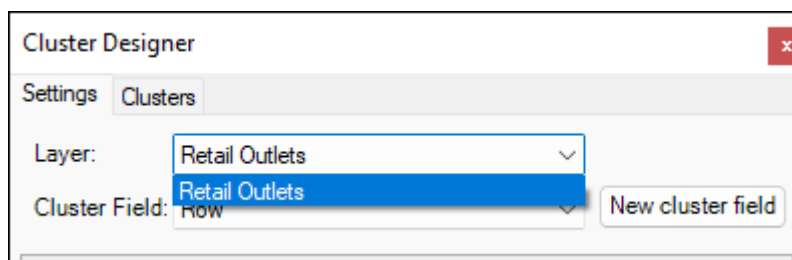





The Cluster Designer window has a title bar with a close button. It contains two tabs: 'Settings' and 'Clusters'. The 'Clusters' tab is active. Below the tabs, there are two dropdown menus: 'Layer:' with 'Retail Outlets' selected, and 'Cluster Field:' with 'Row' selected. To the right of the 'Cluster Field:' dropdown is a button labeled 'New cluster field'. Below these controls is a section titled 'Choose the fields you want in the grid'. This section contains a table with two columns: 'Field' and 'Aggregation'. The table is currently empty, with a small orange star icon in the first row of the 'Field' column.

Field	Aggregation

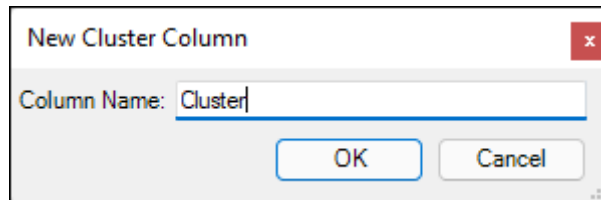
By **Layer**, choose the layer you will be clustering. By **Cluster Field** you can choose an existing column in your data to have your clusters populated in, or you can click **New Cluster Field** to create a new column, I will make a new cluster field in this example and call it Cluster:



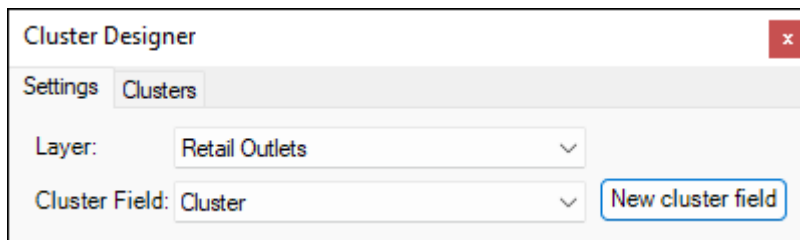
The Cluster Designer window is shown with the 'Clusters' tab active. The 'Layer:' dropdown menu is open, showing 'Retail Outlets' as the selected option. The 'Cluster Field:' dropdown menu is also open, showing 'Row' as the selected option. The 'New cluster field' button is visible to the right of the 'Cluster Field:' dropdown.



The Cluster Designer dialog box has two tabs: 'Settings' and 'Clusters'. The 'Clusters' tab is active. It contains two dropdown menus: 'Layer' set to 'Retail Outlets' and 'Cluster Field' set to 'Row'. To the right of the 'Cluster Field' dropdown is a button labeled 'New cluster field', which is highlighted with a green rectangular border.

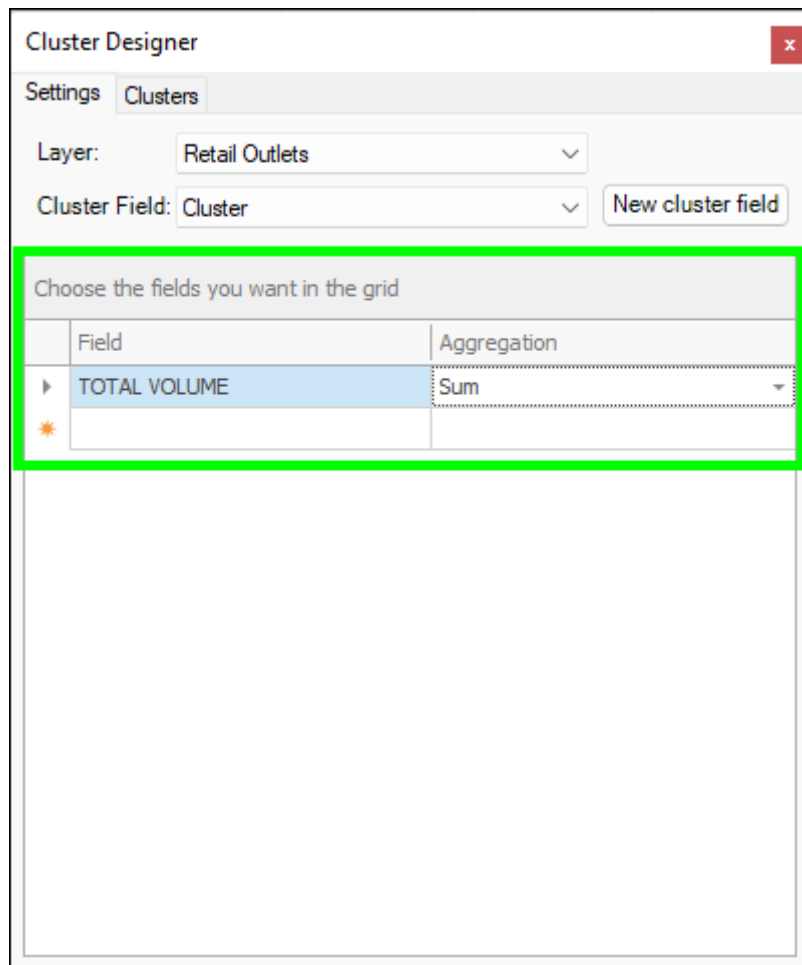


The New Cluster Column dialog box has a single text input field labeled 'Column Name:' containing the text 'Cluster'. Below the input field are two buttons: 'OK' and 'Cancel'.

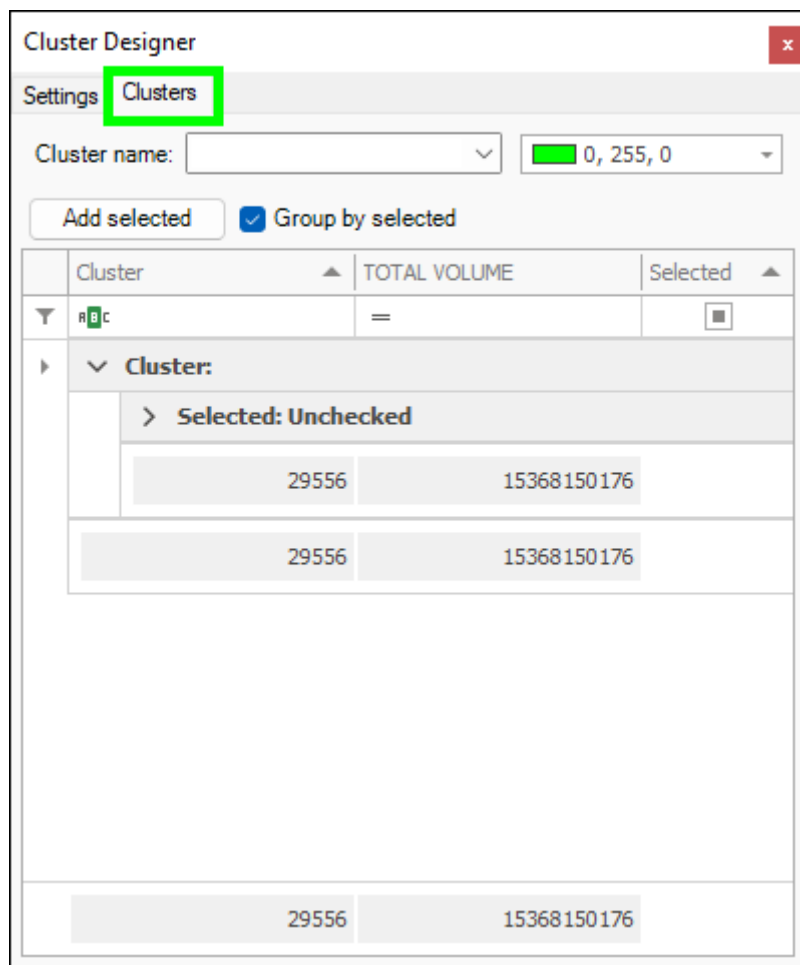


The Cluster Designer dialog box is shown again, but now the 'Cluster Field' dropdown menu is set to 'Cluster'. The 'New cluster field' button remains highlighted with a green rectangular border.

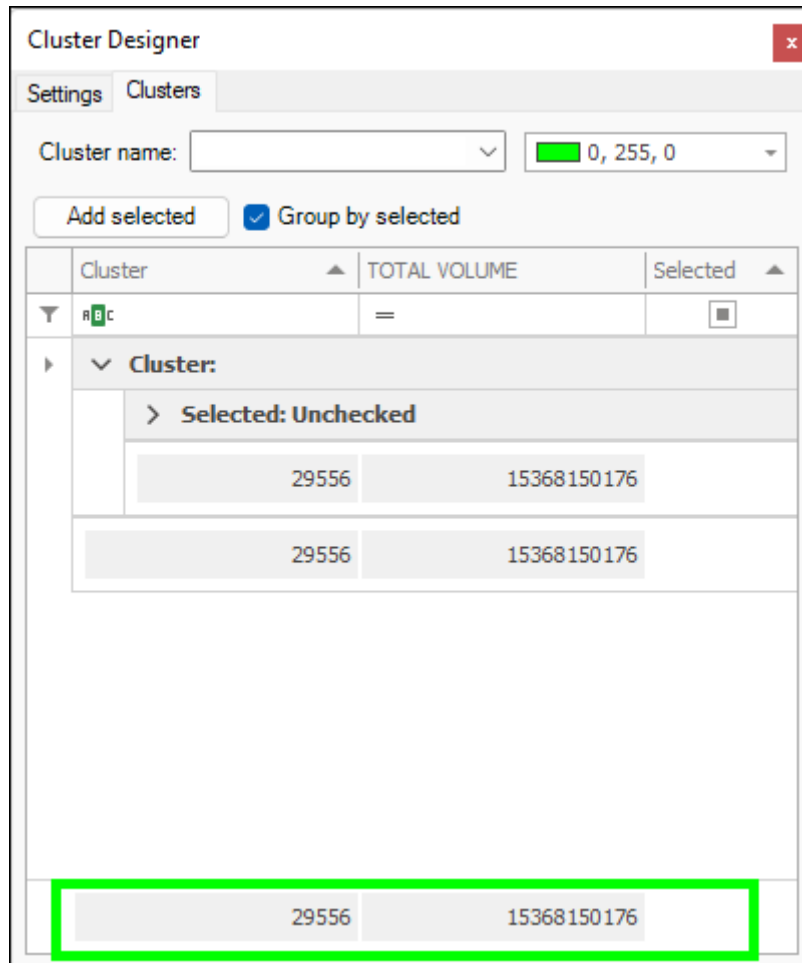
Then, in the grid below you can choose columns in your data that you would like to aggregate on in creating clusters, in this way you can cluster based on this aggregated value or use it as a guide, choose the **Field** and **Aggregation** type, you can then click below to add more fields if you want:



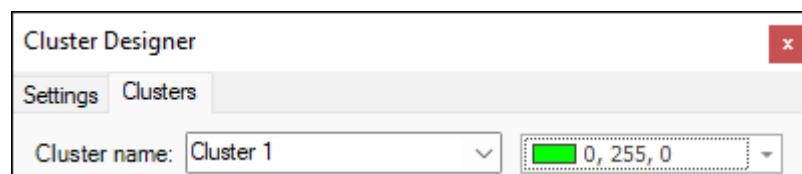
We are now ready to start creating our clusters, go to the **Clusters** tab:



The total number of points and the aggregated Total Volume (the field I chose to aggregate on) of all those points is shown at the bottom of the grid below:

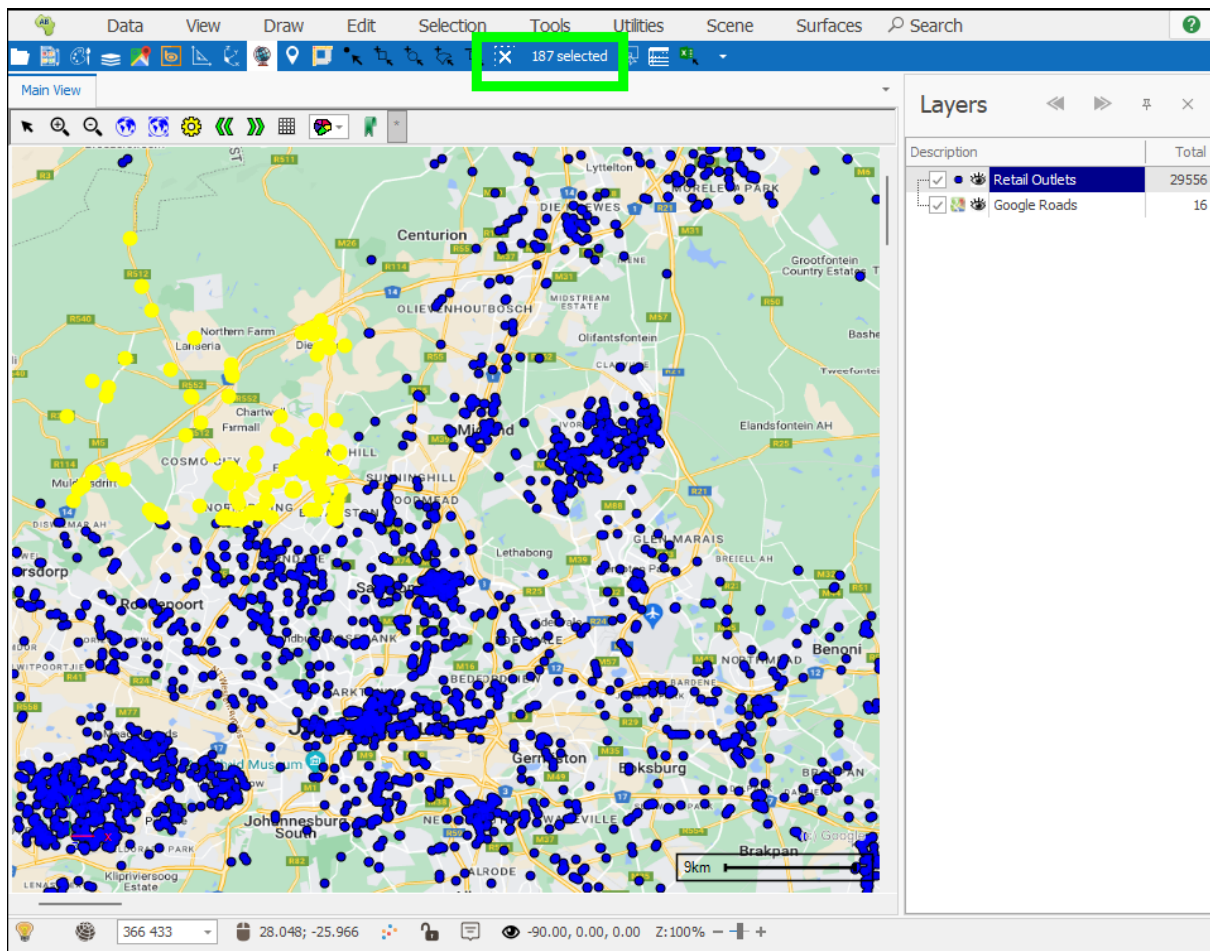


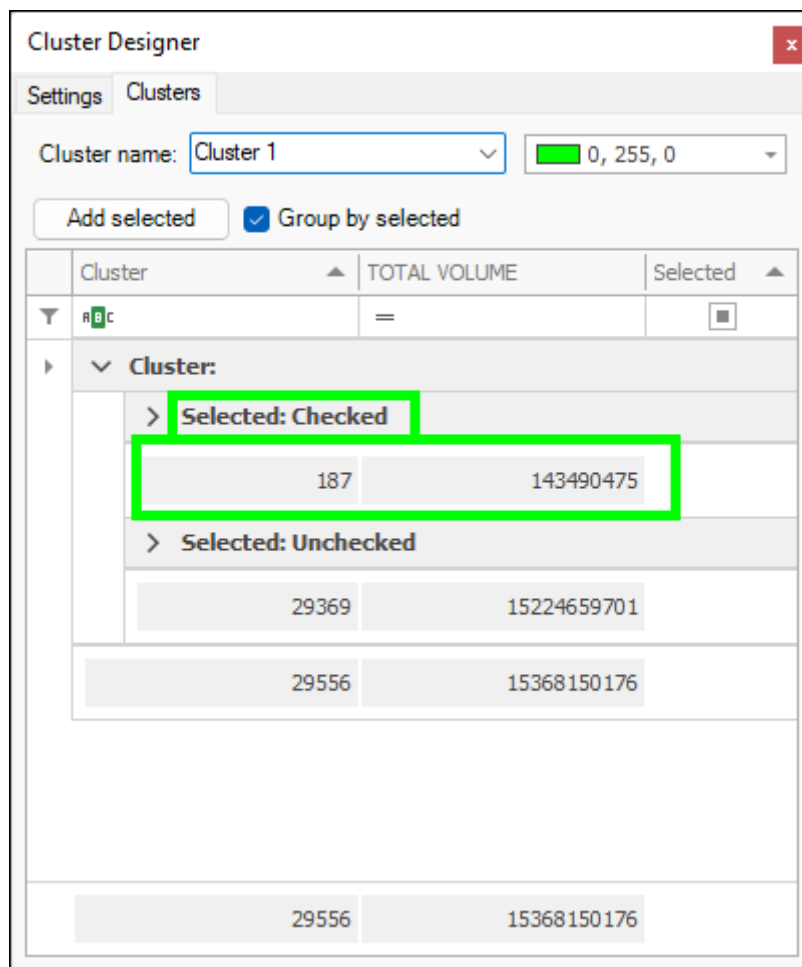
By **Cluster name**, type in the name of the first cluster you will create, then next to it, choose the colour you want the points in this cluster to be coloured by:



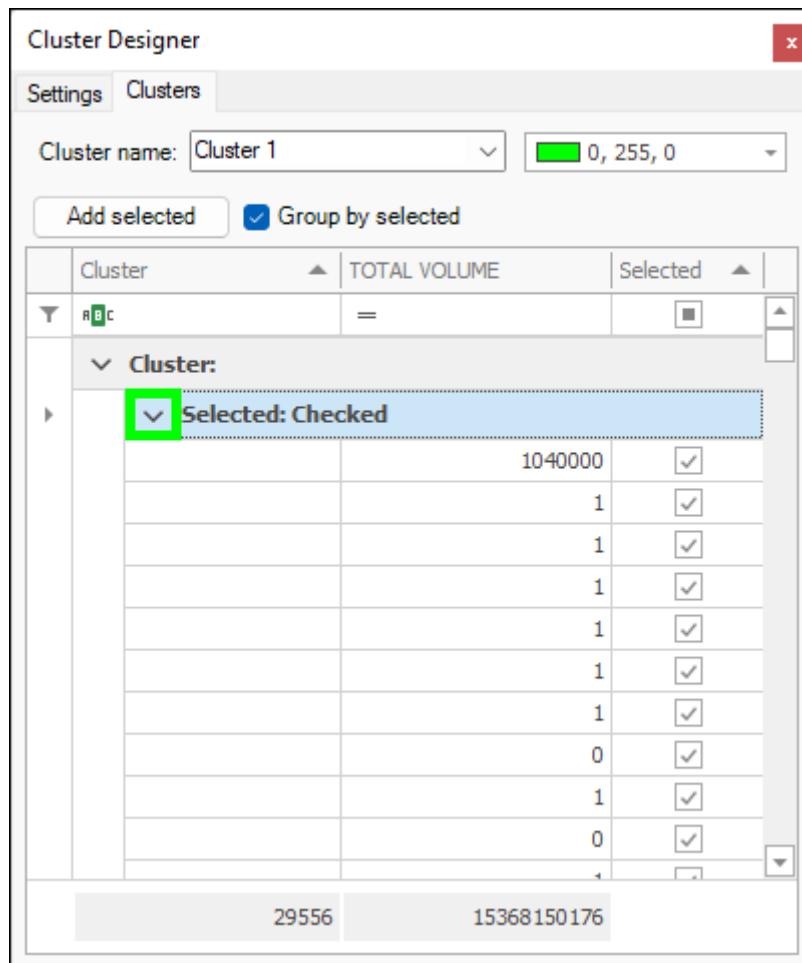
Next, go to your scene and select the points you want to add to your first cluster using one of the selection tools, as you select them the number of selected items is shown in the grid below as well as the Total Volume of those items, which is the field I chose to aggregate on:

Cluster Tool User Guide

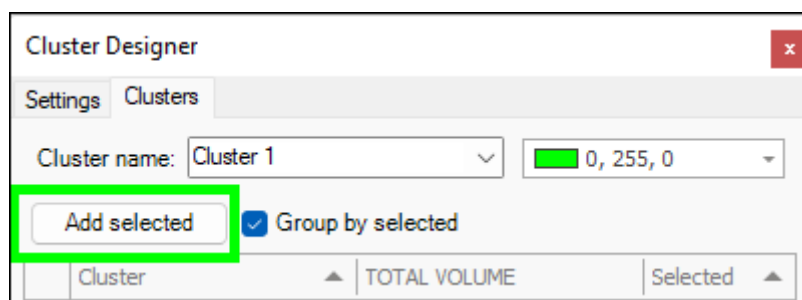


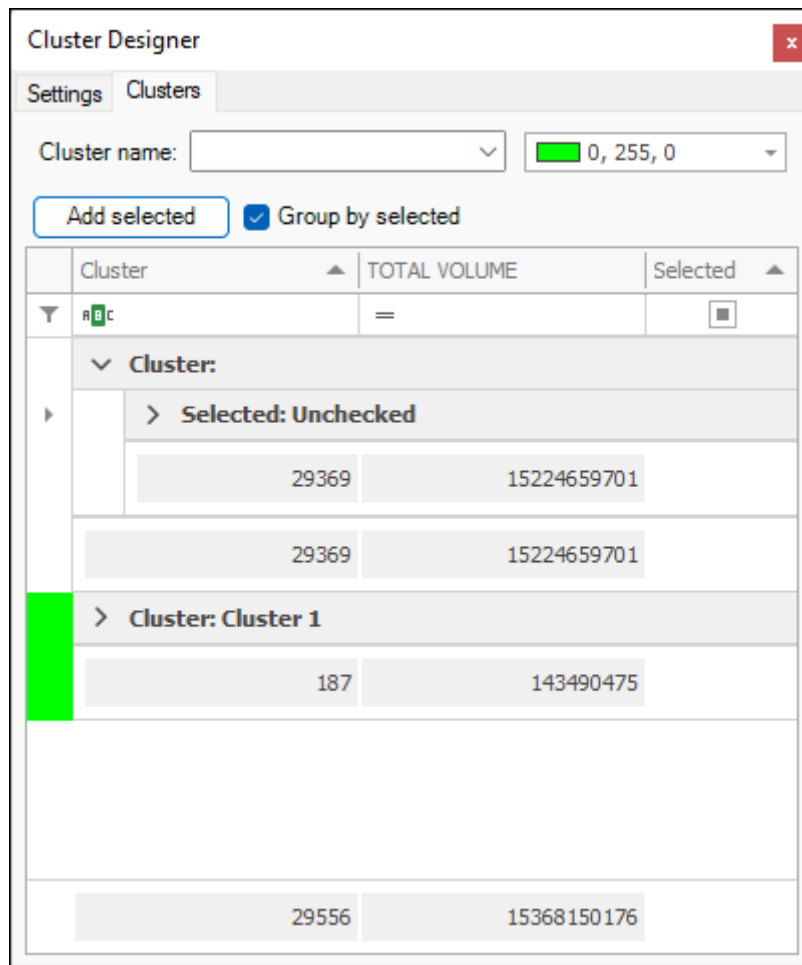


You can expand this as well to see the breakdown of the aggregated value (in this case Total Volume) for each point:

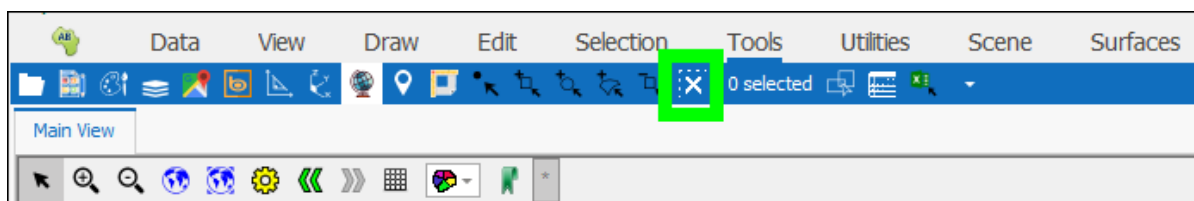


If I am happy with this selection, I can then add this to my first cluster by clicking **Add selected**:

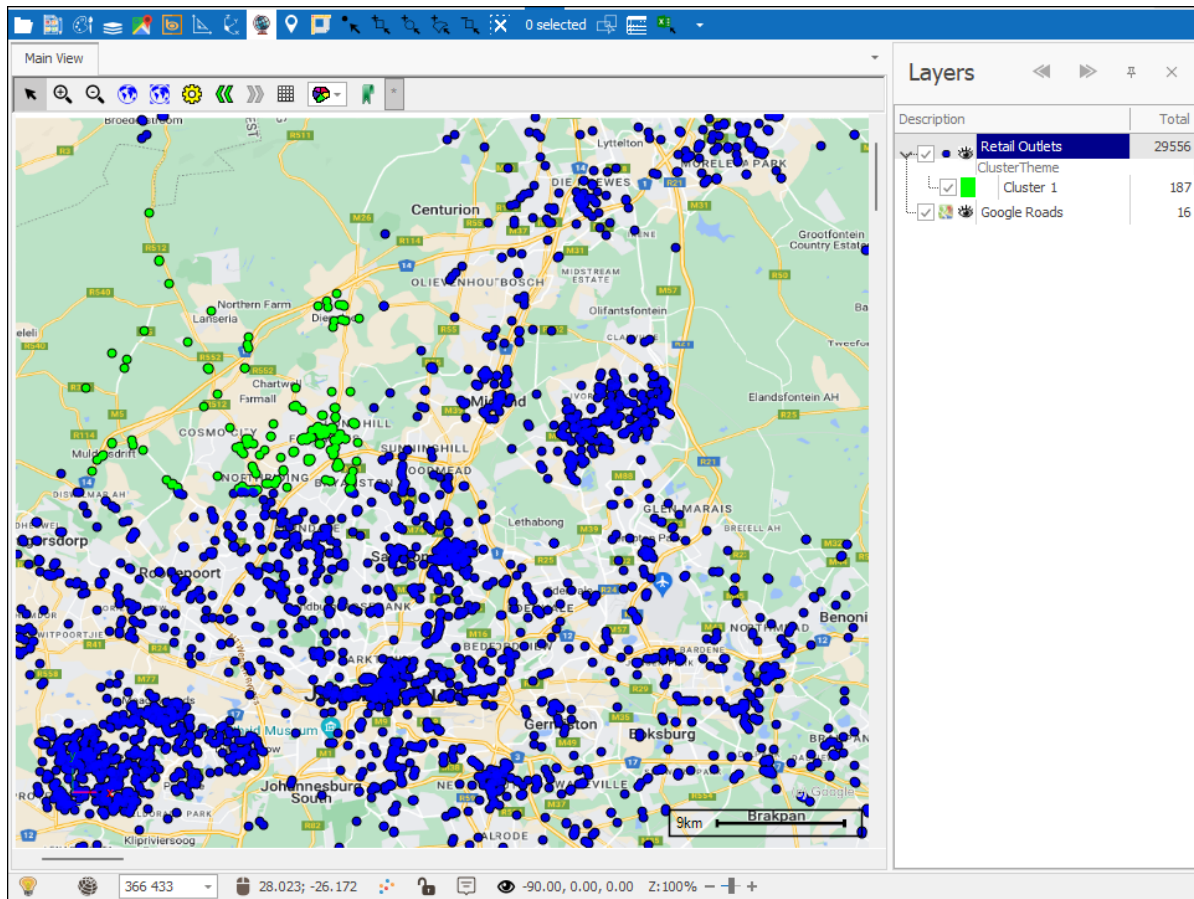




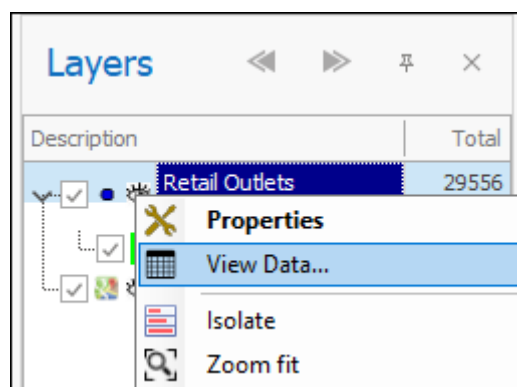
My points have been added to the first cluster, to see this in the scene, clear your selection, and you will see they are coloured accordingly:



Cluster Tool User Guide



The Cluster column is populated with the cluster values as well, in the Layer Data Grid and Excel spreadsheet if this is an Excel layer:



Cluster Tool User Guide

Layer Data: Retail Outlets

Main

Filter Graphics Inplace Zoom Highlight All Copy Print Columns Delete Zoom and Highlight Un Highlight All Un Highlight Selected Copy Html Export to Excel Pivot Refresh Properties Pan Highlight Selected

Filter Edit Selection Output

Drag a column header here to group by that column

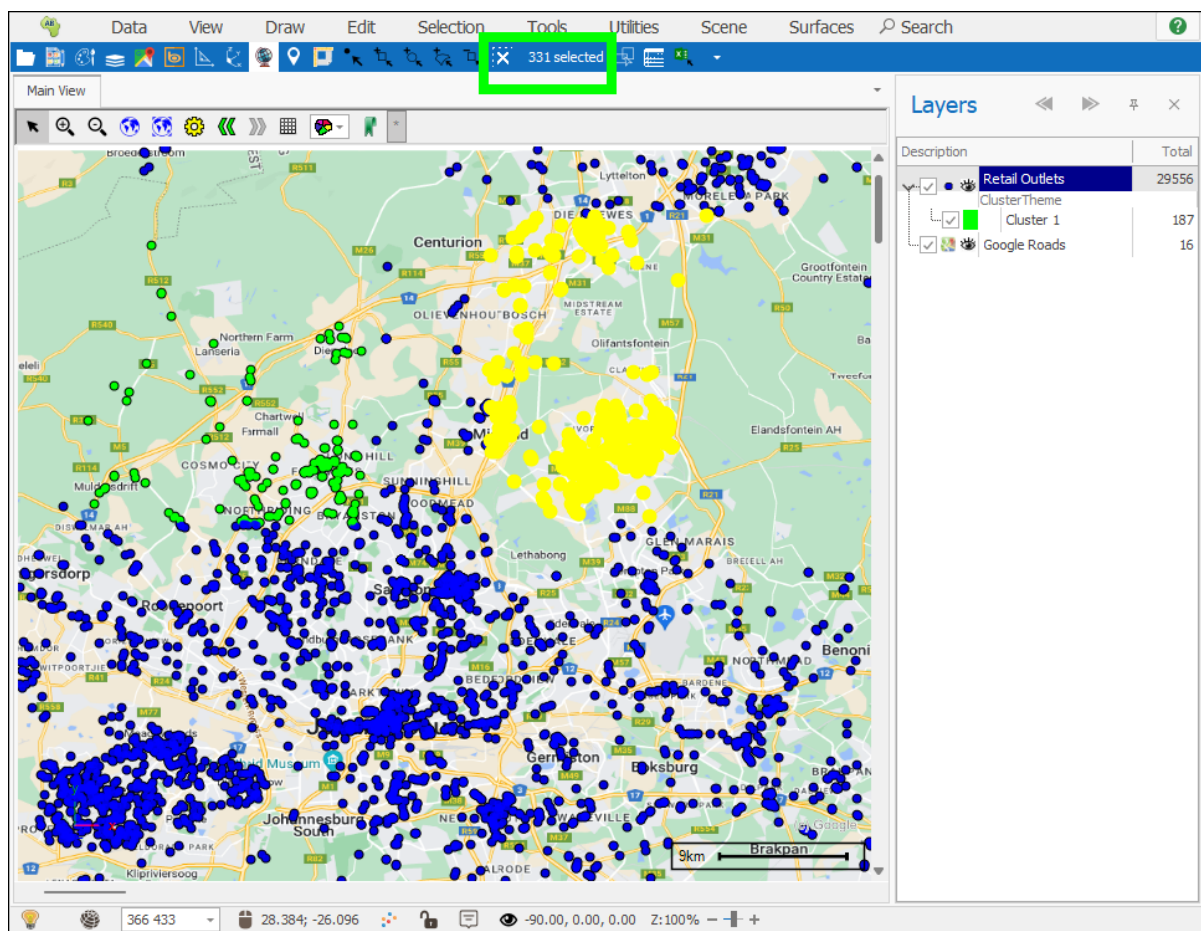
CALL DAY	SP CODE	SP NAME	MP CODE	MP NAME	MAIN PLACE TYPE	DOMINANT LSM	DOMINANT RACE	Cluster
MONDAY	68803005	Green Park	68803	Fochville	Town	6	BLACK	
MONDAY	68803005	Green Park	68803	Fochville	Town	6	BLACK	
THURSDAY	77421014	Craigavon AH	77421	Randburg	City	9	BLACK	Cluster 1
THURSDAY	77421067	Witkoppen	77421	Randburg	City	10	BLACK	Cluster 1
THURSDAY	77421067	Witkoppen	77421	Randburg	City	10	BLACK	Cluster 1
THURSDAY	77421067	Witkoppen	77421	Randburg	City	10	BLACK	Cluster 1
THURSDAY	77421014	Craigavon AH	77421	Randburg	City	9	BLACK	Cluster 1

	V	W	X	Y	Z	AA	AB
1	MP CODE	MP NAME	MAIN PLACE TYPE	DOMINANT LSM	DOMINANT RACE	Cluster	
8323	77423	Roodepoort	City	10	COLOURED		
8324	68803	Fochville	Town	7	WHITE		
8325	68804	Kokosi	Township	5	BLACK		
8326	68806	Merafong City Part 2	MBD Name	5	BLACK		
8327	68804	Kokosi	Township	5	BLACK		
8328	68804	Kokosi	Township	5	BLACK		
8329	68804	Kokosi	Township	5	BLACK		
8330	68803	Fochville	Town	7	WHITE		
8331	68803	Fochville	Town	6	BLACK		
8332	68803	Fochville	Town	6	BLACK		
8333	77421	Randburg	City	9	BLACK	Cluster 1	
8334	77421	Randburg	City	10	BLACK	Cluster 1	
8335	77421	Randburg	City	10	BLACK	Cluster 1	
8336	77421	Randburg	City	10	BLACK	Cluster 1	
8337	77421	Randburg	City	9	BLACK	Cluster 1	
8338	77315	Germiston	City	10	WHITE		
8339	62106	Kudumane	MBD Name	4	BLACK		
8340	62106	Kudumane	MBD Name	4	BLACK		
8341	77408	Ivory Park	Township	6	BLACK		
8342	77408	Ivory Park	Township	6	BLACK		
8343	77408	Ivory Park	Township	6	BLACK		
8344	77408	Ivory Park	Township	6	BLACK		
8345	77406	Ebony Park	Township	6	BLACK		
8346	77408	Ivory Park	Township	6	BLACK		
8347	77324	Tembisa	Township	6	BLACK		
8348	77408	Ivory Park	Township	6	BLACK		
8349	77408	Ivory Park	Township	6	BLACK		
8350	77408	Ivory Park	Township	6	BLACK		
8351	77408	Ivory Park	Township	6	BLACK		
8352	77408	Ivory Park	Township	6	BLACK		
8353	77408	Ivory Park	Township	6	BLACK		
8354	77408	Ivory Park	Township	6	BLACK		
8355	77408	Ivory Park	Township	6	BLACK		
8356	77408	Ivory Park	Township	6	BLACK		
8357	77408	Ivory Park	Township	6	BLACK		
8358	77408	Ivory Park	Township	6	BLACK		

Retail_Outlets

Cluster Tool User Guide

I will now add my next cluster, type in the name of your next cluster by **Cluster name**, choose its colour, then select the points in your scene and click **Add Selected**:



Cluster Designer

Settings

Clusters

Cluster name:

Cluster 2

0, 223, 254

Add selected

☒ Group by selected



Cluster	TOTAL VOLUME	Selected
<div><div>Cluster:</div><div><div>> Selected: Checked</div><div>33172251621</div><div>> Selected: Unchecked</div><div>2903815152408080</div><div>2936915224659701</div></div></div>		
<div><div>> Cluster: Cluster 1</div><div>187143490475</div></div>		
<div>2955615368150176</div>		

Cluster Designer ✕

Settings Clusters

Cluster name:

☒ Group by selected

Cluster	TOTAL VOLUME	Selected
	=	
Cluster:		
Selected: Unchecked		
29038	15152408080	
29038	15152408080	
Cluster: Cluster 1		
187	143490475	
Cluster: Cluster 2		
331	72251621	
29556	15368150176	

Continue adding clusters in this way until you are done, you can then close the Cluster Designer box:

Cluster Designer

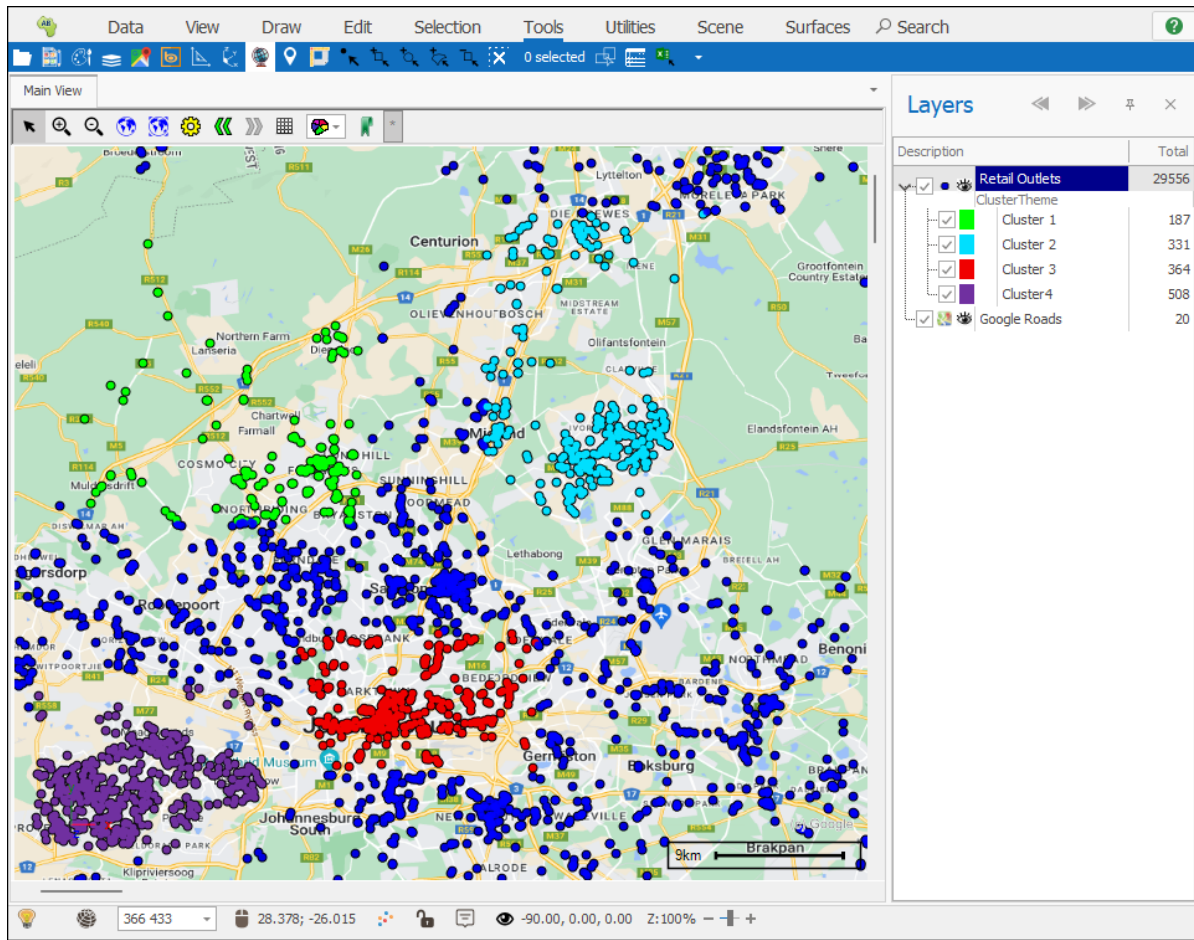
Settings Clusters

Cluster name: 112, 48, 160

☒ Group by selected

Cluster	TOTAL VOLUME	Selected
ABC	=	
> Selected: Unchecked		
28166	14397846622	
28166	14397846622	
> Cluster: Cluster 1		
187	143490475	
> Cluster: Cluster 2		
331	72251621	
> Cluster: Cluster 3		
364	550079095	
> Cluster: Cluster4		
508	204482363	
29556	15368150176	

Cluster Tool User Guide



All your clusters are now populated in your data as well:

Layer Data: Retail Outlets

Filter Graphics, Columns, Refresh, Inplace, Delete, Properties, Zoom, Zoom and Highlight, Pan, Highlight All, Un Highlight All, Highlight Selected, Copy, Copy Html, Export to Excel, Print, Pivot

Drag a column header here to group by that column

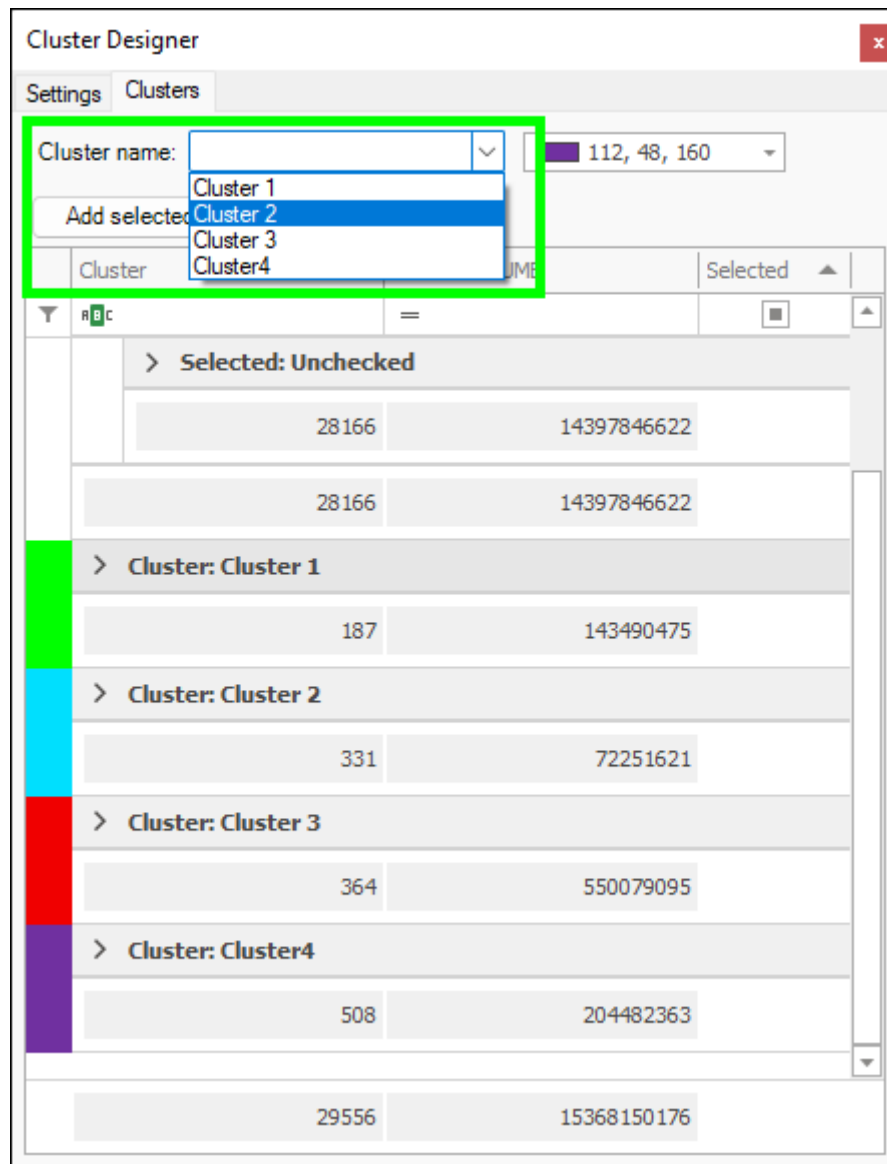
SER	REP CODE	CALL DAY	SP CODE	SP NAME	MP CODE	MP NAME	MAIN PLACE TYPE	DOMINANT LSM	DOMINANT RACE	Cluster
	REP006	TUESDAY	77409073	Emmarentia	77409	Johannesburg	City	10	BLACK	Cluster 3
	REP006	TUESDAY	77421065	Windsor Glen	77421	Randburg	City	10	WHITE	
	REP006	TUESDAY	77421018	Darrenwood	77421	Randburg	City	10	WHITE	
	REP006	MONDAY	77421021	Ferndale Ext 3	77421	Randburg	City	10		
	REP006	TUESDAY	77421065	Windsor Glen	77421	Randburg	City	10	WHITE	
	REP006	MONDAY	77421026	Hunters Hill	77421	Randburg	City	6	BLACK	
	REP006	TUESDAY	77421012	Cedar Lakes	77421	Randburg	City	10	WHITE	Cluster 1
	REP006	TUESDAY	77409073	Emmarentia	77409	Johannesburg	City	10	BLACK	Cluster 3
	REP006	TUESDAY	77421043	Northgate Ext 4	77421	Randburg	City	10	WHITE	Cluster 1
	REP006	MONDAY	77421065	Windsor Glen	77421	Randburg	City	10	WHITE	

Cluster							
	V	W	X	Y	Z	AA	AB
1	MP CODE	MP NAME	MAIN PLACE TYPE	DOMINANT LSM	DOMINANT RACE	Cluster	
28317	77409	Johannesburg	City	6	COLOURED		
28318	77409	Johannesburg	City	6	COLOURED		
28319	77423	Roodepoort	City	5	BLACK	Cluster4	
28320	77423	Roodepoort	City	10	COLOURED		
28321	77423	Roodepoort	City	10	WHITE		
28322	77423	Roodepoort	City	10	WHITE		
28323	77423	Roodepoort	City	10	COLOURED	Cluster4	
28324	68803	Fochville	Town	7	WHITE		
28325	68804	Kokosi	Township	5	BLACK		
28326	68806	Merafong City Part 2	MBD Name	5	BLACK		
28327	68804	Kokosi	Township	5	BLACK		
28328	68804	Kokosi	Township	5	BLACK		
28329	68804	Kokosi	Township	5	BLACK		
28330	68803	Fochville	Town	7	WHITE		
28331	68803	Fochville	Town	6	BLACK		
28332	68803	Fochville	Town	6	BLACK		
28333	77421	Randburg	City	9	BLACK	Cluster 1	
28334	77421	Randburg	City	10	BLACK	Cluster 1	
28335	77421	Randburg	City	10	BLACK	Cluster 1	
28336	77421	Randburg	City	10	BLACK	Cluster 1	
28337	77421	Randburg	City	9	BLACK	Cluster 1	
28338	77315	Germiston	City	10	WHITE	Cluster 3	
28339	62106	Kudumane	MBD Name	4	BLACK		
28340	62106	Kudumane	MBD Name	4	BLACK		
28341	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28342	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28343	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28344	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28345	77406	Ebony Park	Township	6	BLACK	Cluster 2	
28346	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28347	77324	Tembisa	Township	6	BLACK	Cluster 2	
28348	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28349	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28350	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28351	77408	Ivory Park	Township	6	BLACK	Cluster 2	
28352	77408	Ivory Park	Township	6	BLACK	Cluster 2	

Making Changes to Your Clusters

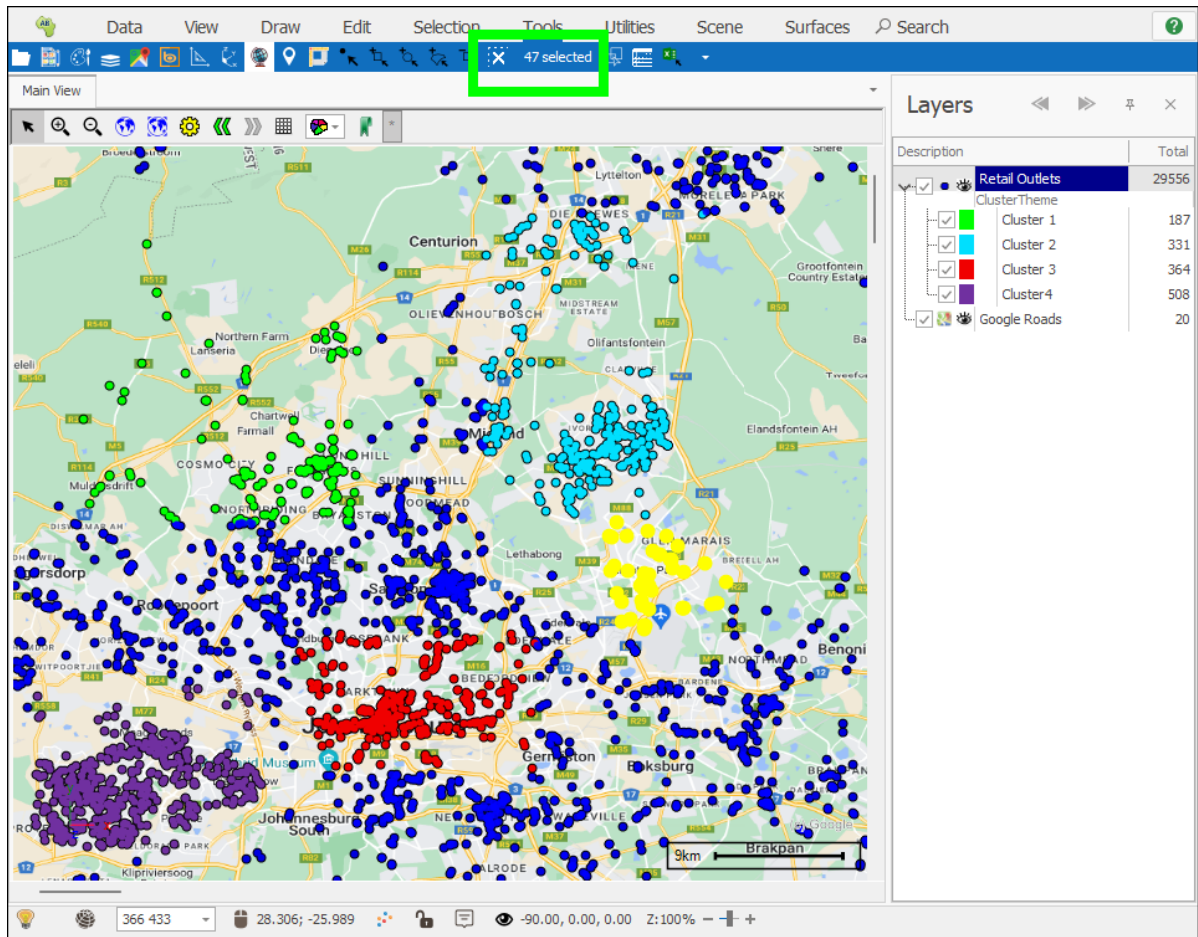
Adding Points to Your Cluster

To make changes to your clusters you can open the **Cluster** tool again and your current clusters will be there, the clusters you have already created will appear in the **Cluster Name** dropdown box, select the name of the cluster you want to add points to:



Then, use the map selection tools to select the points you want to add on the map:

Cluster Tool User Guide



Then click **Add Selected** and the points will add to your existing cluster and the values in your cluster grid will update accordingly:

Cluster Designer

Settings Clusters

Cluster name: Cluster 2 112, 48, 160

Add selected ☒ Group by selected

Cluster	TOTAL VOLUME	Selected
RBC	=	
> Selected: Checked		
47	4522820	
> Selected: Unchecked		
28119	14393323802	
28166	14397846622	
> Cluster: Cluster 1		
187	143490475	
> Cluster: Cluster 2		
331	72251621	
> Cluster: Cluster 3		
364	550079095	
> Cluster: Cluster 4		
29556	15368150176	

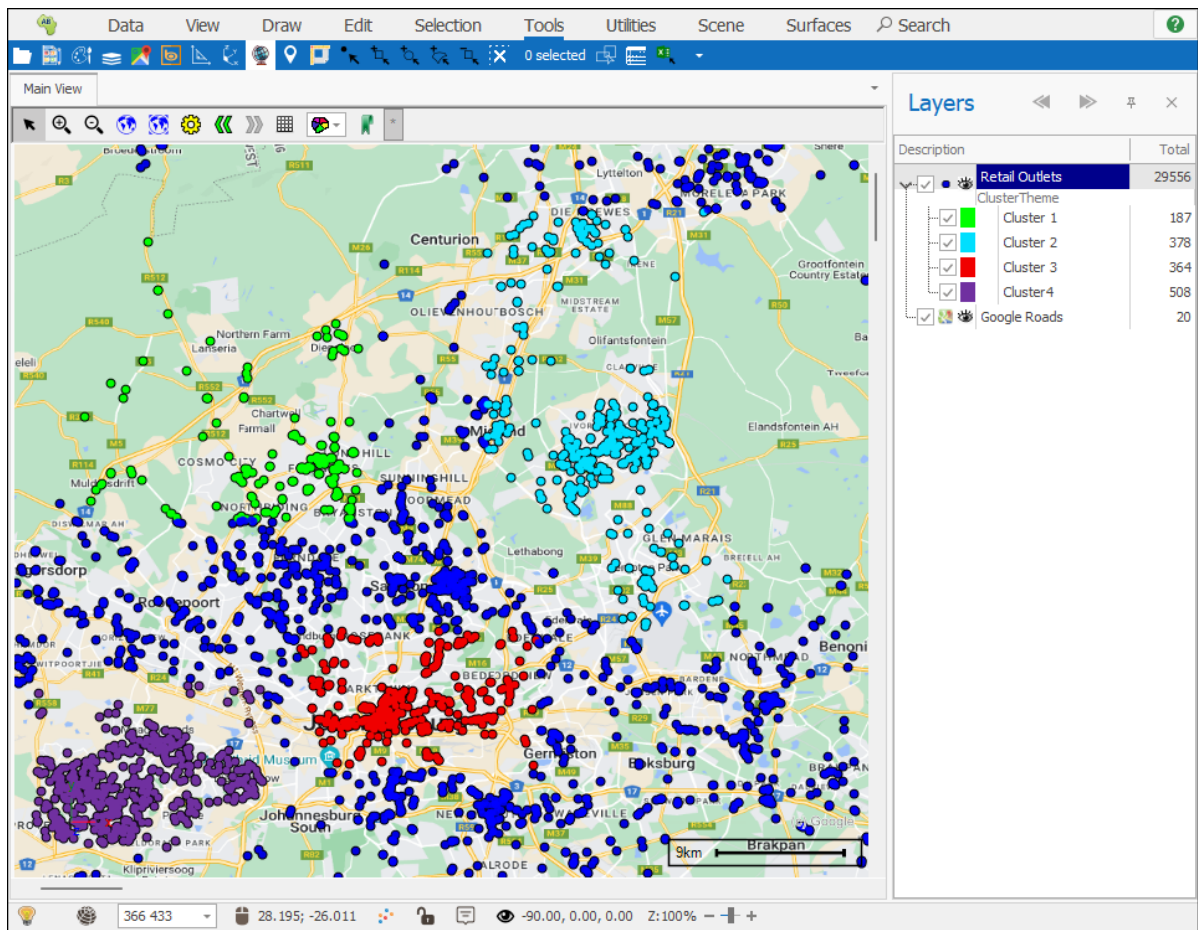
Cluster Designer

Settings Clusters

Cluster name: 112, 48, 160

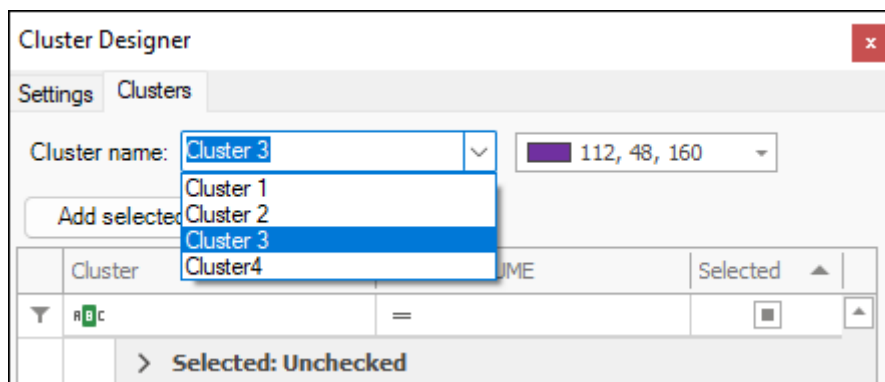
☒ Group by selected

Cluster	TOTAL VOLUME	Selected
Y n c	=	<input type="checkbox"/>
> Selected: Unchecked		
28119	14393323802	
28119	14393323802	
> Cluster: Cluster 1		
187	143490475	
> Cluster: Cluster 2		
378	76774441	
> Cluster: Cluster 3		
364	550079095	
> Cluster: Cluster4		
508	204482363	
29556	15368150176	

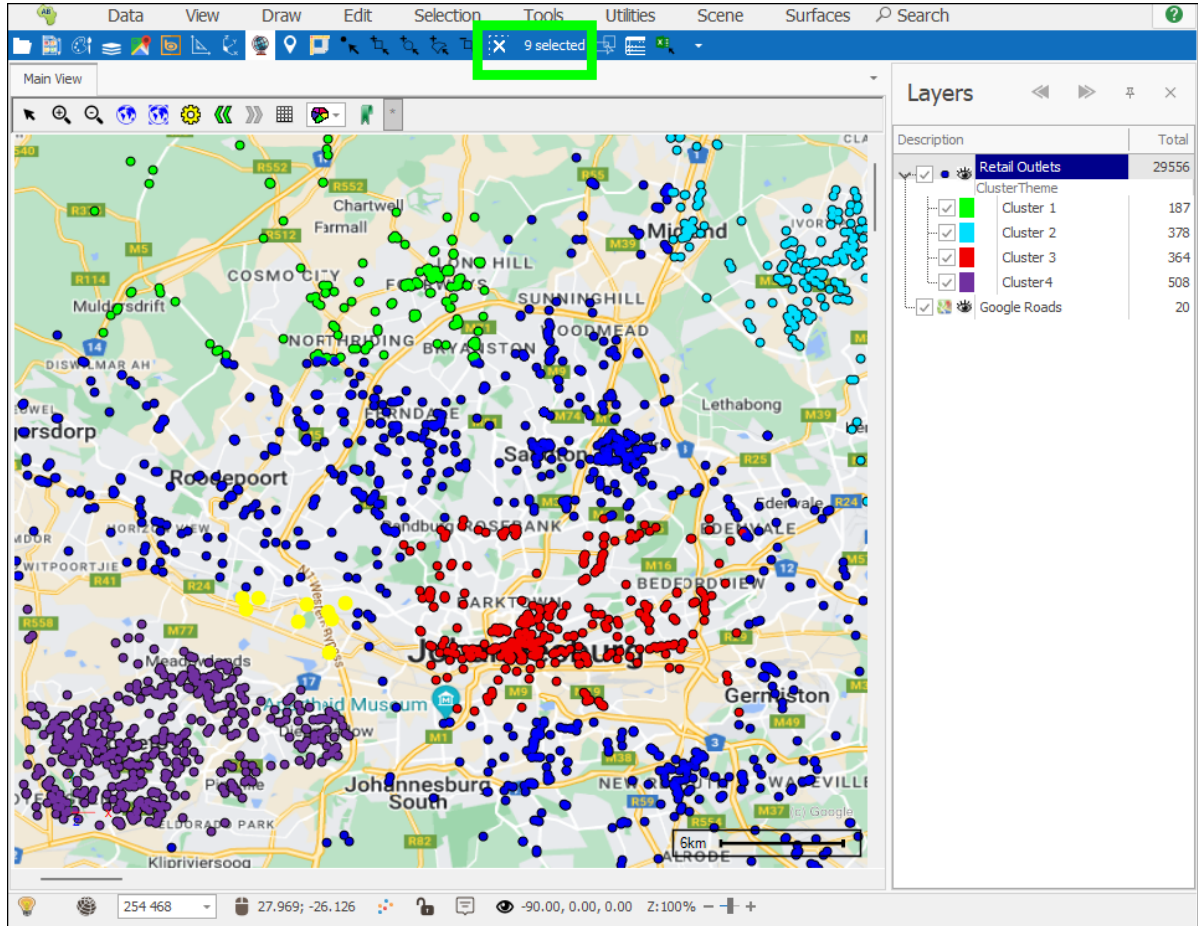


Moving Points from One Cluster to Another

In the **Cluster Name** dropdown box select the cluster you want to move points to:



Use one of the map selection tools to select the points you want to move on the map, in this case I want to move some **Cluster 4** points to **Cluster 3**, so I will select the Cluster 4 points I want to move:



The points I have selected from Cluster 4 is indicated in the grid, I will then click **Add Selected** to add these to Cluster 3, the values of Cluster 3 will then update:

Cluster Designer

Settings

Clusters

Cluster name:

Cluster 3

112, 48, 160

Add selected

☒ Group by selected

Cluster	TOTAL VOLUME	Selected
Cluster: Cluster 1		
187	143490475	
Cluster: Cluster 2		
378	76774441	
Cluster: Cluster 3		
364	550079095	
Cluster: Cluster4		
Selected: Checked		
9	416003	
Selected: Unchecked		
499	204066360	
508	204482363	
29556	15368150176	

Cluster Designer

Settings

Clusters

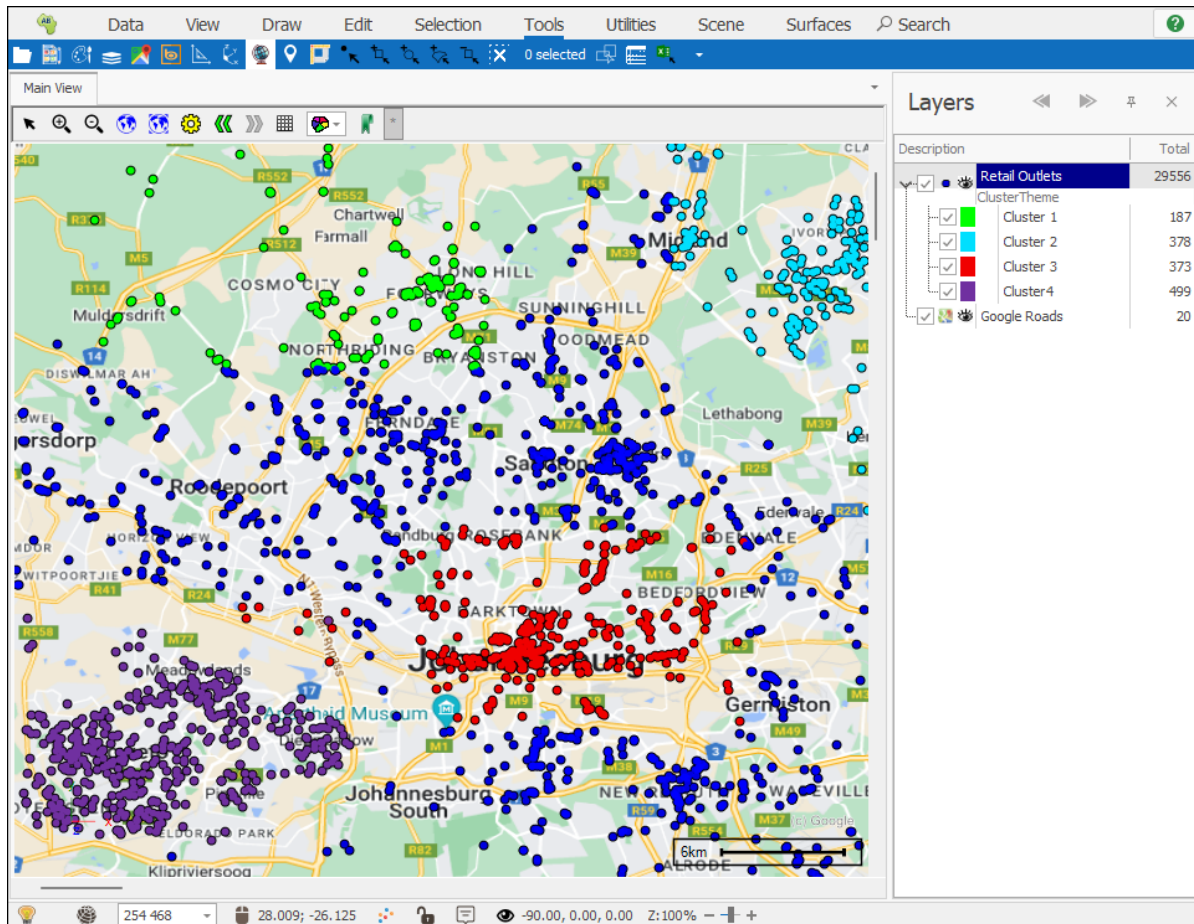
Cluster name:

112, 48, 160

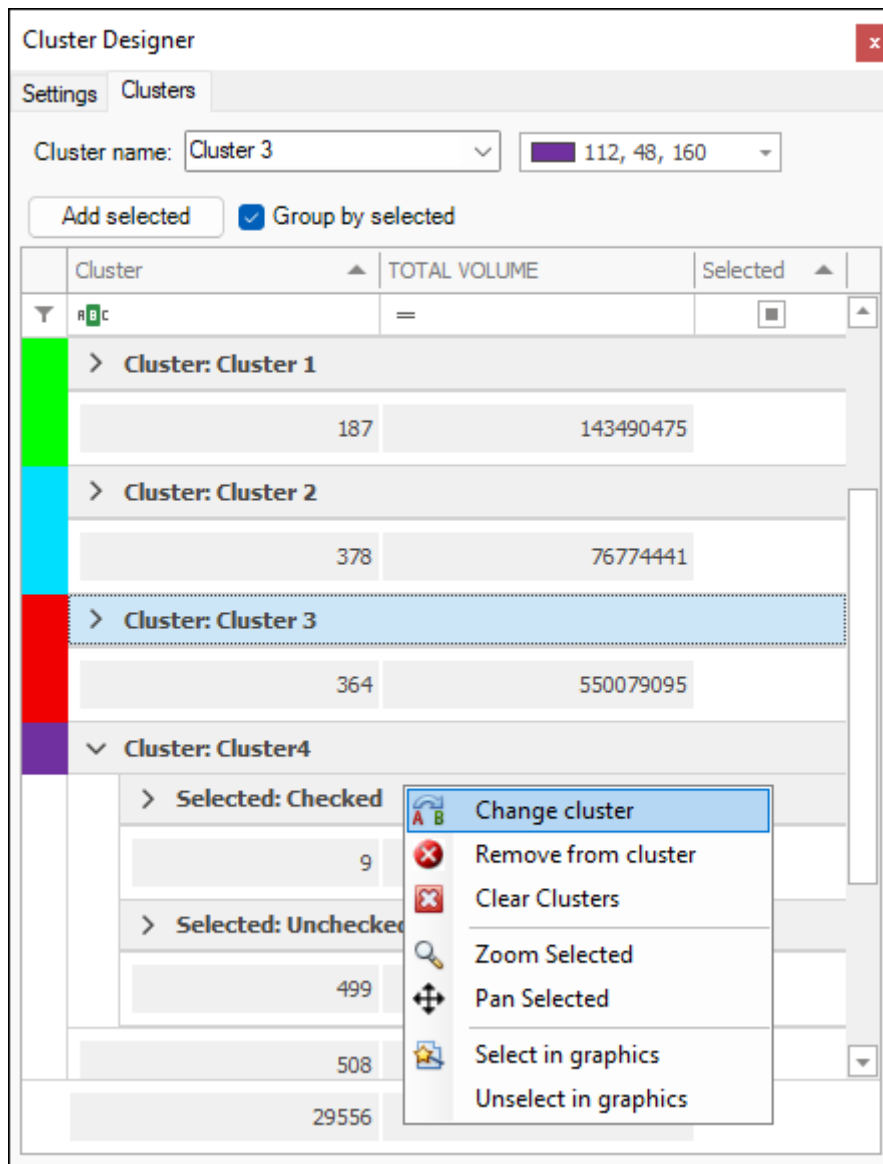
Add selected

☒ Group by selected

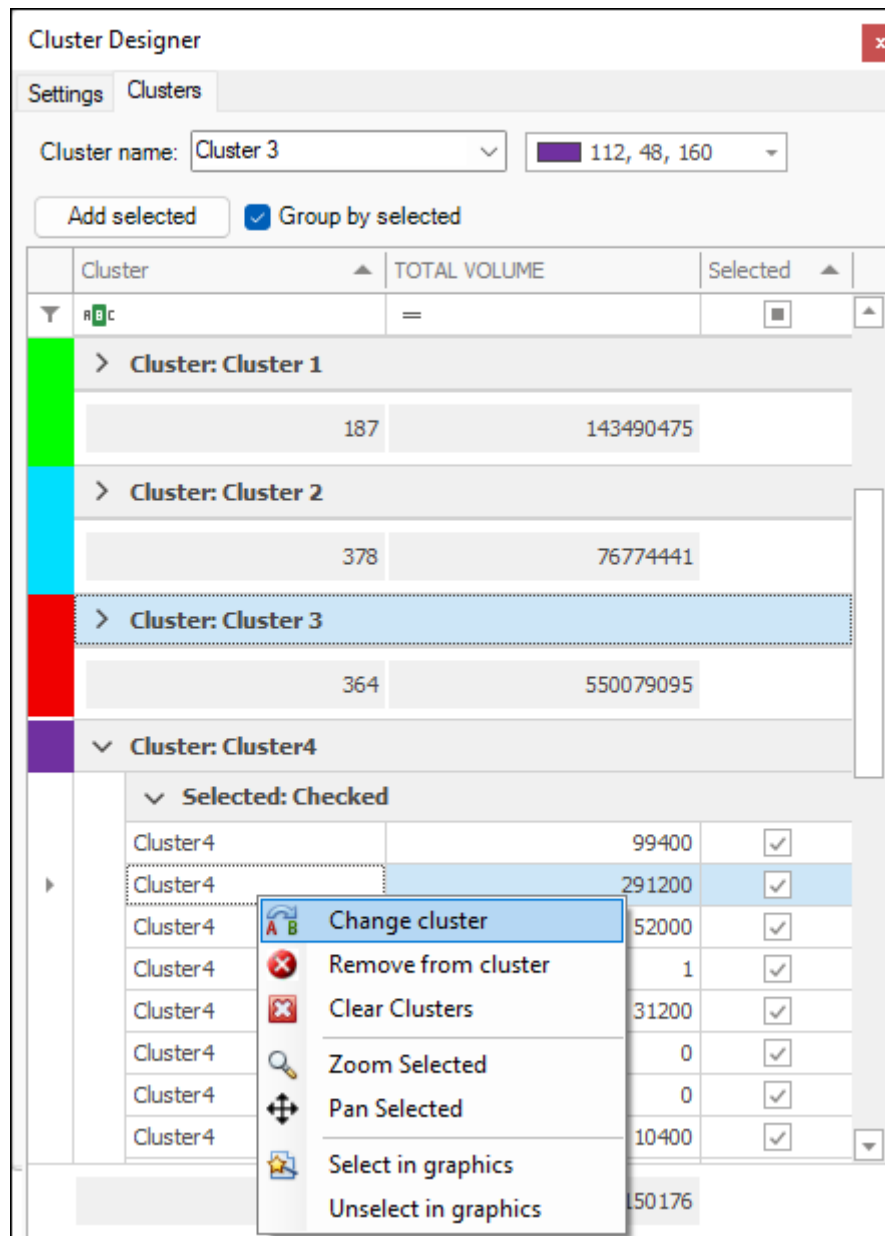
Cluster	TOTAL VOLUME	Selected
<div><div></div><div>ABC</div></div>	=	<div><div></div></div>
> Selected: Unchecked		
28119	14393323802	
28119	14393323802	
> Cluster: Cluster 1		
187	143490475	
> Cluster: Cluster 2		
378	76774441	
> Cluster: Cluster 3		
373	550495098	
> Cluster: Cluster4		
499	204066360	
29556	15368150176	



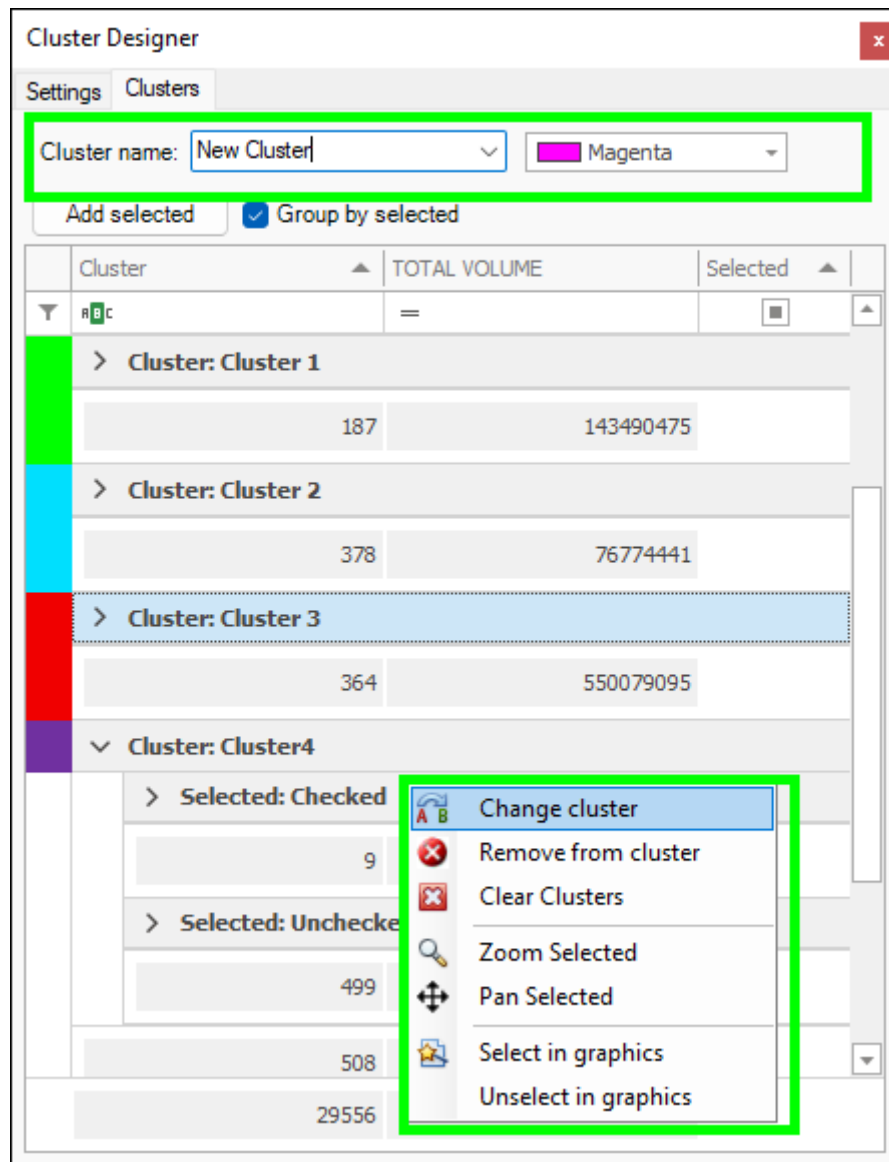
You can also move points to another cluster by right clicking on the selected items (**Selected:Checked** header) in the grid and then choose **Change cluster**, make sure the cluster you want to change to is selected in the **Cluster name** box:



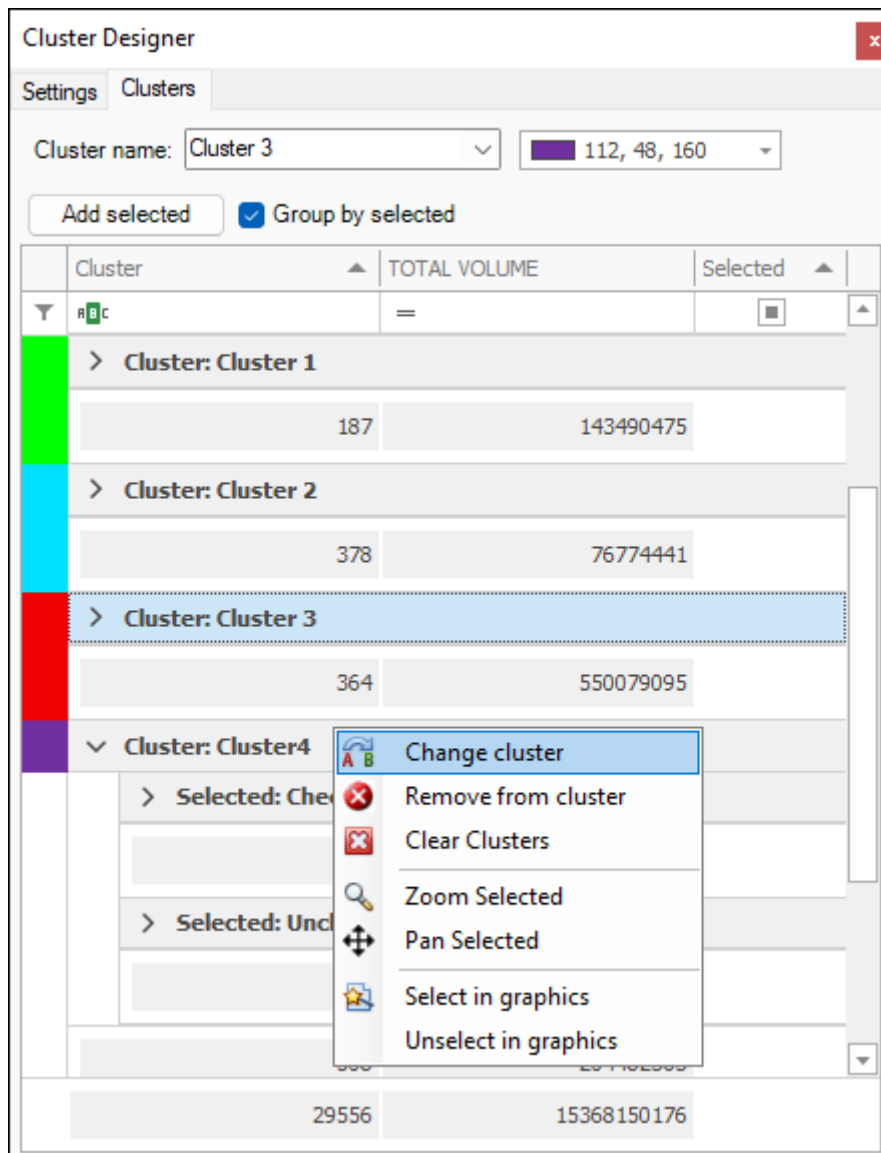
By dropping down on the **Selected:Checked** header you can also choose specific points out of the selected to add to the different cluster:



With moving points from one cluster to another, you can move to an existing cluster or you can even specify a new cluster name in the **Cluster name** box for the points to be moved to:

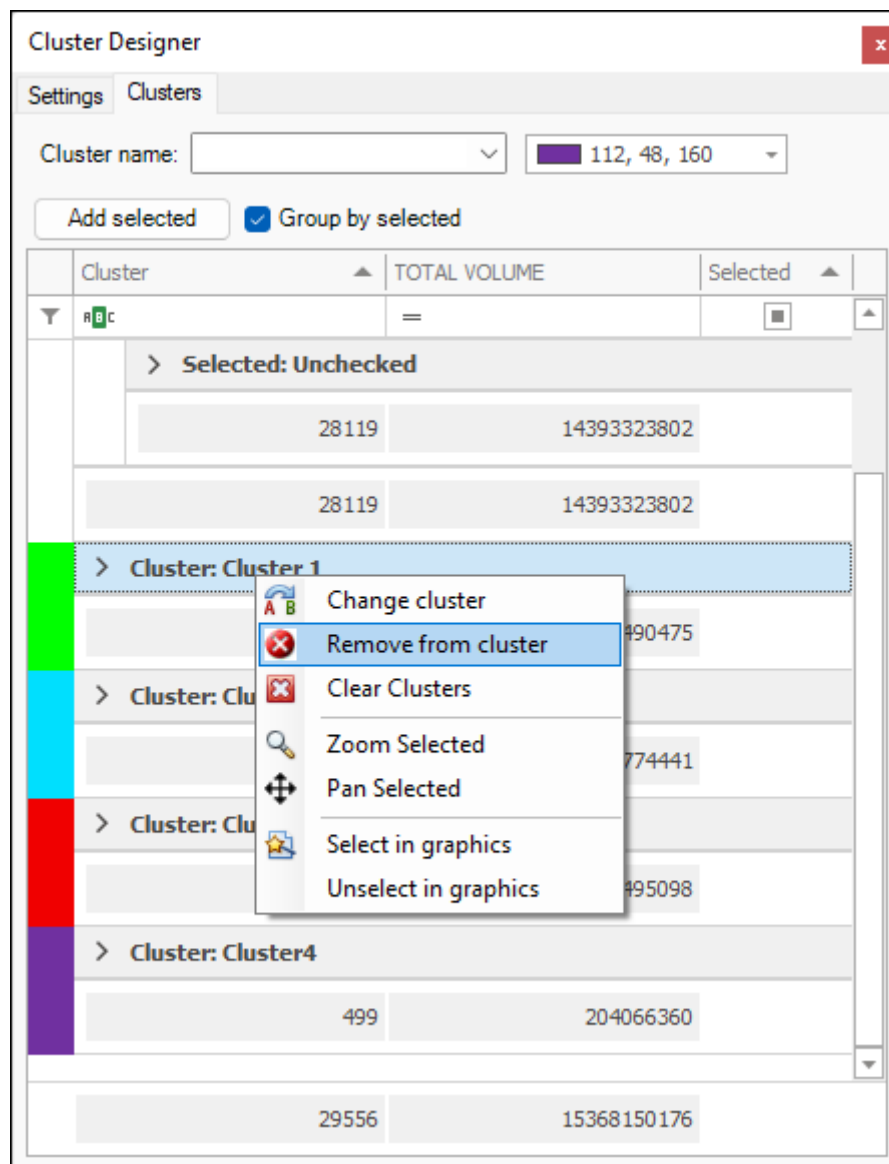


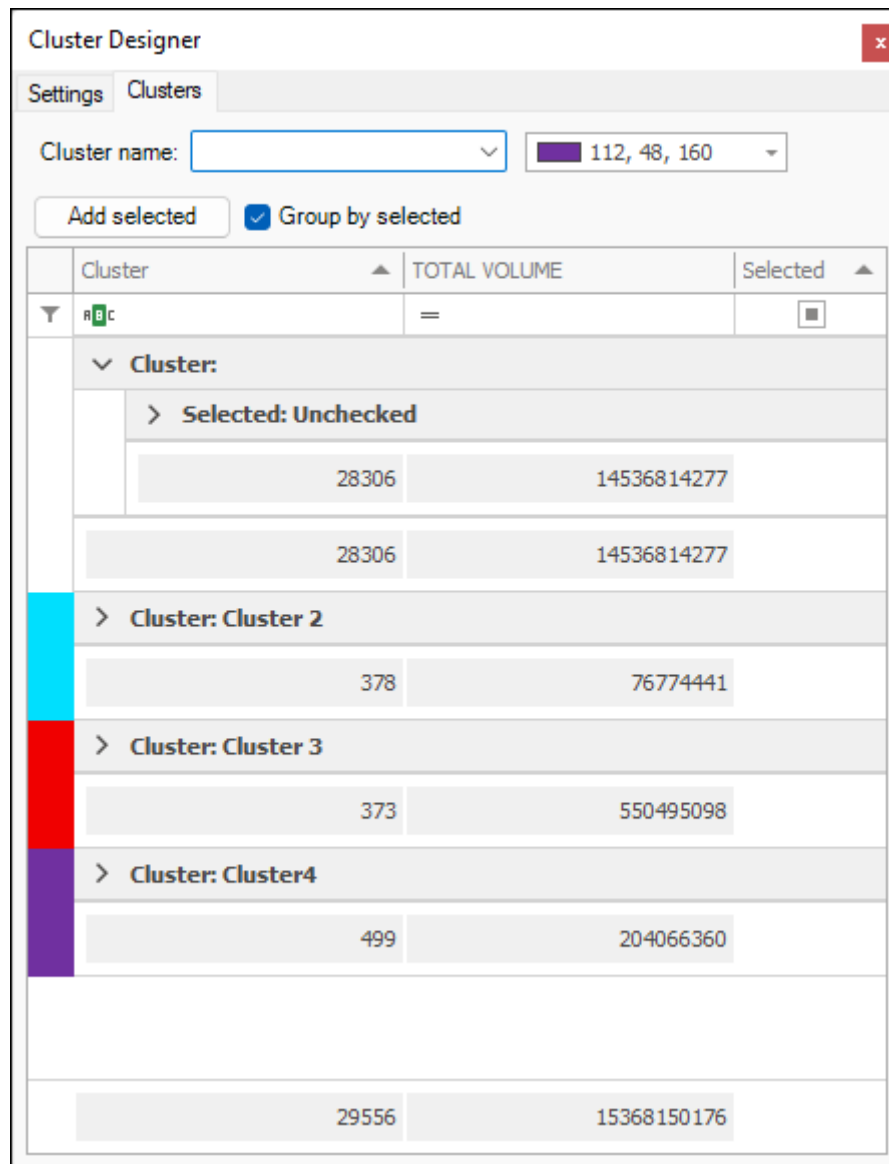
You can also move an entire cluster, and not just selected points in it, to another cluster by right clicking on the Cluster heading itself and then selecting **Change Cluster**:



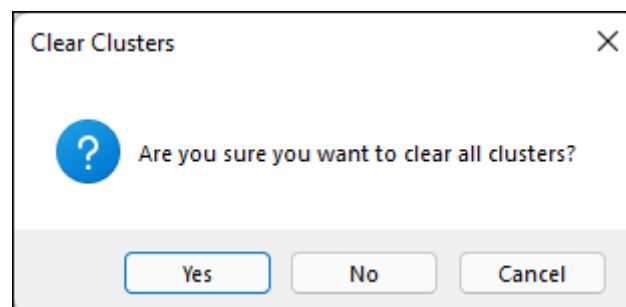
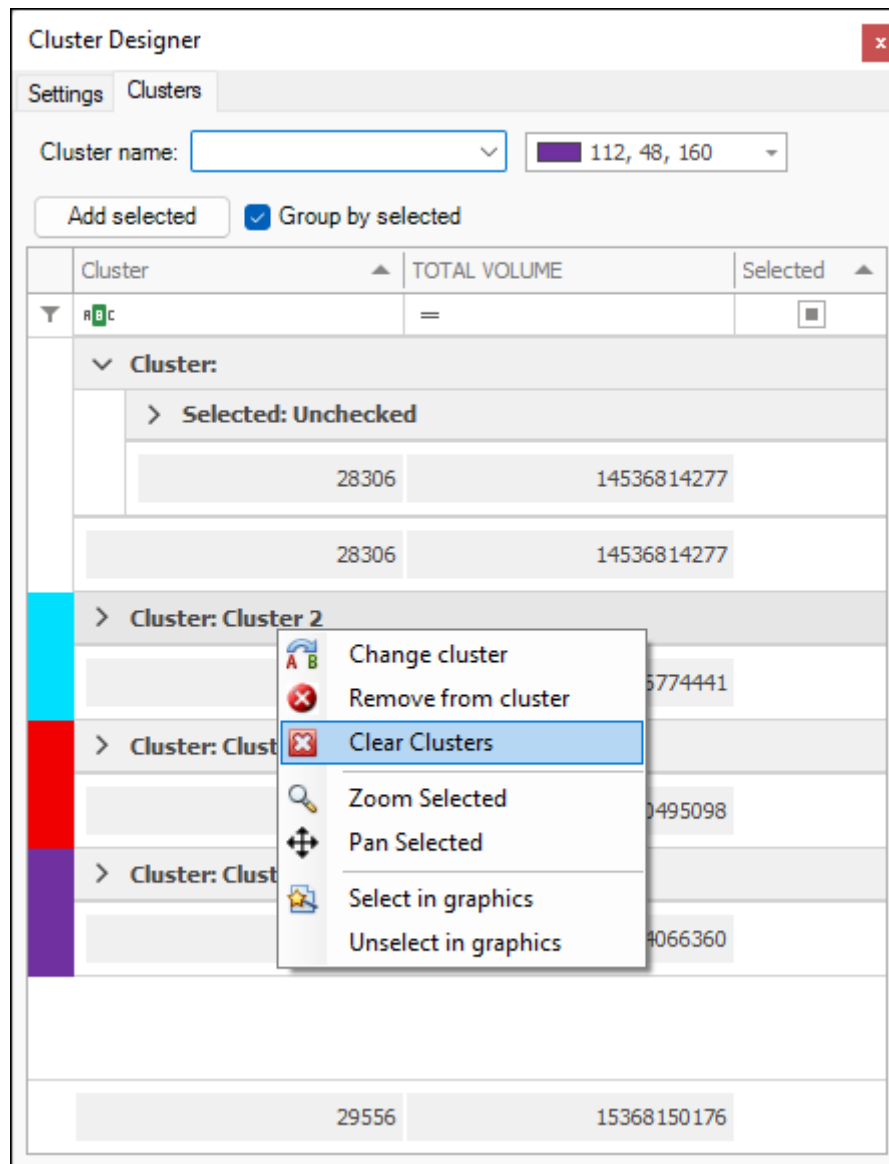
Removing a Cluster

To remove a cluster right click the name of the cluster and click **Remove from cluster**:





To remove all clusters right click a row and click **Clear Clusters**:

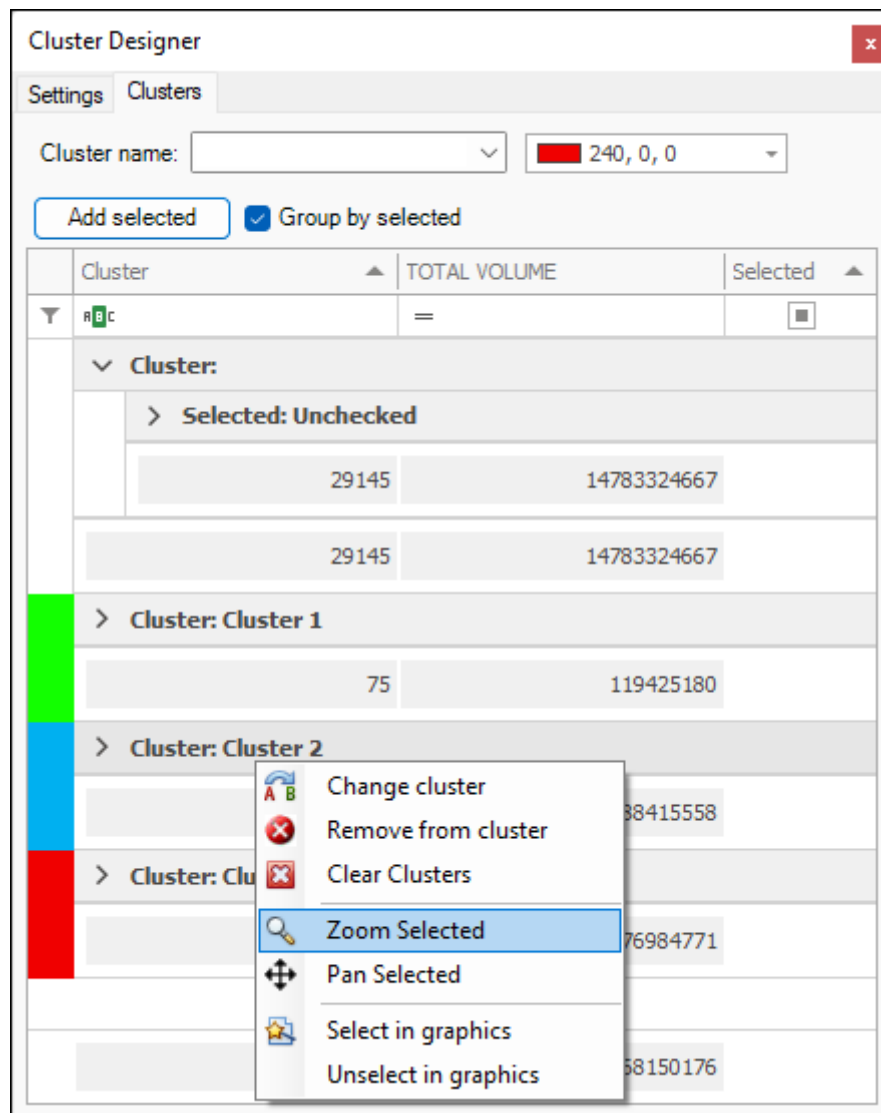


And then say **Yes**.

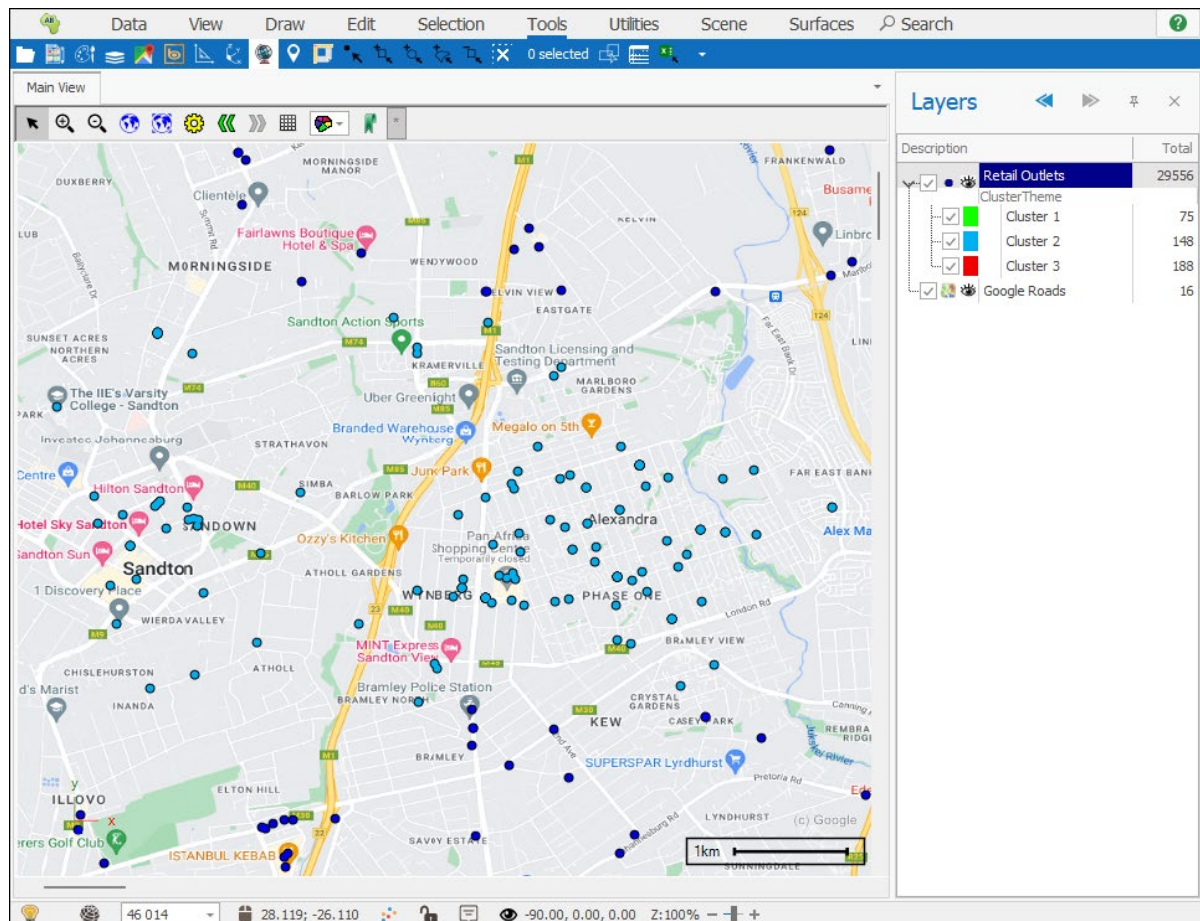
Extra Points and Features

By right clicking on a Cluster or specific items in the Cluster grid of the Cluster Designer box, you can zoom, pan to and select those items in the scene.

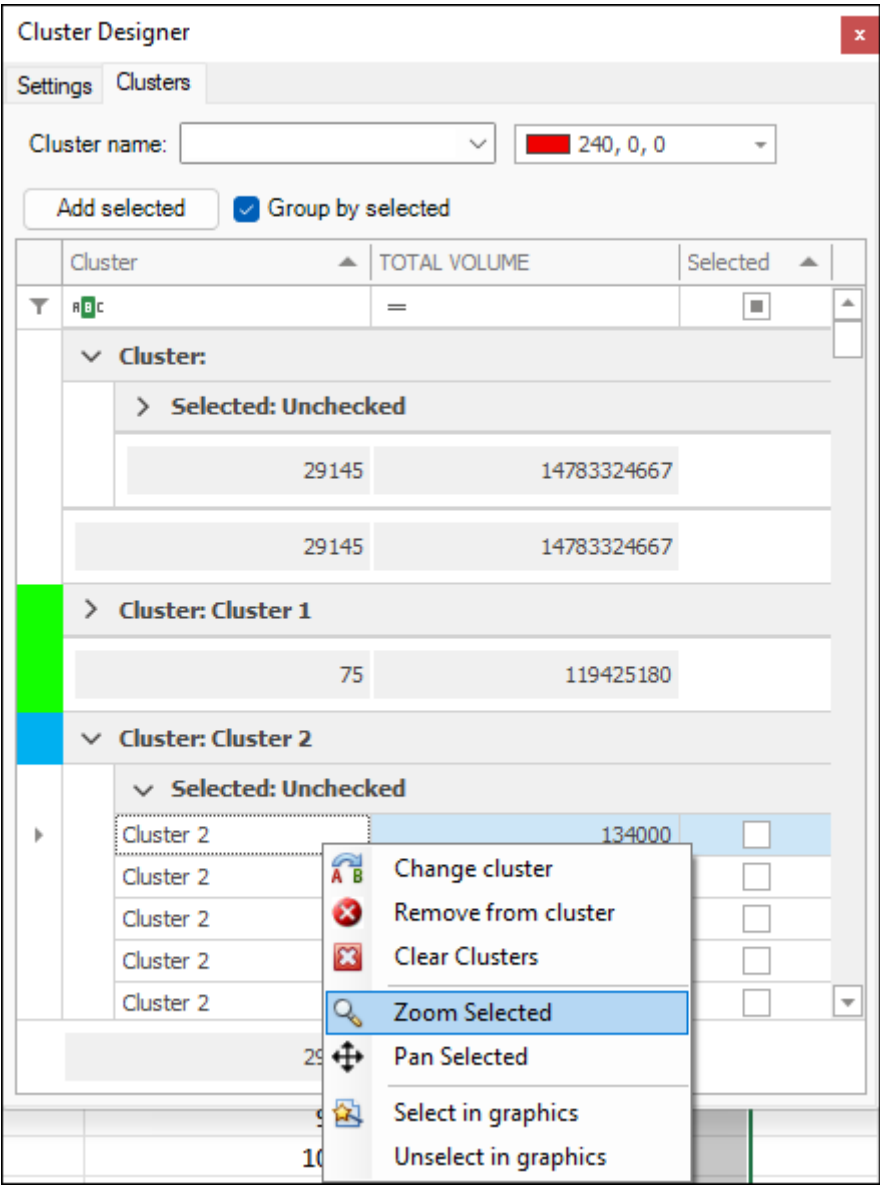
Zooming to a Cluster:

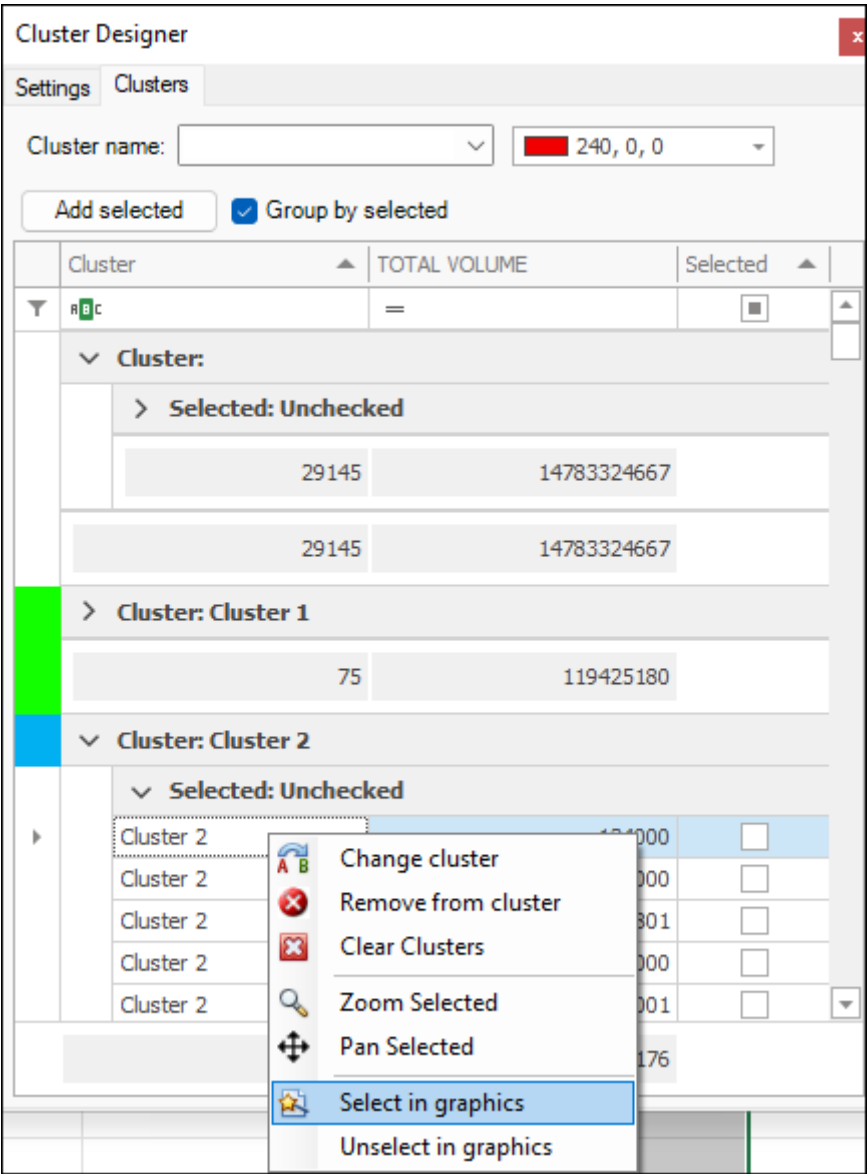


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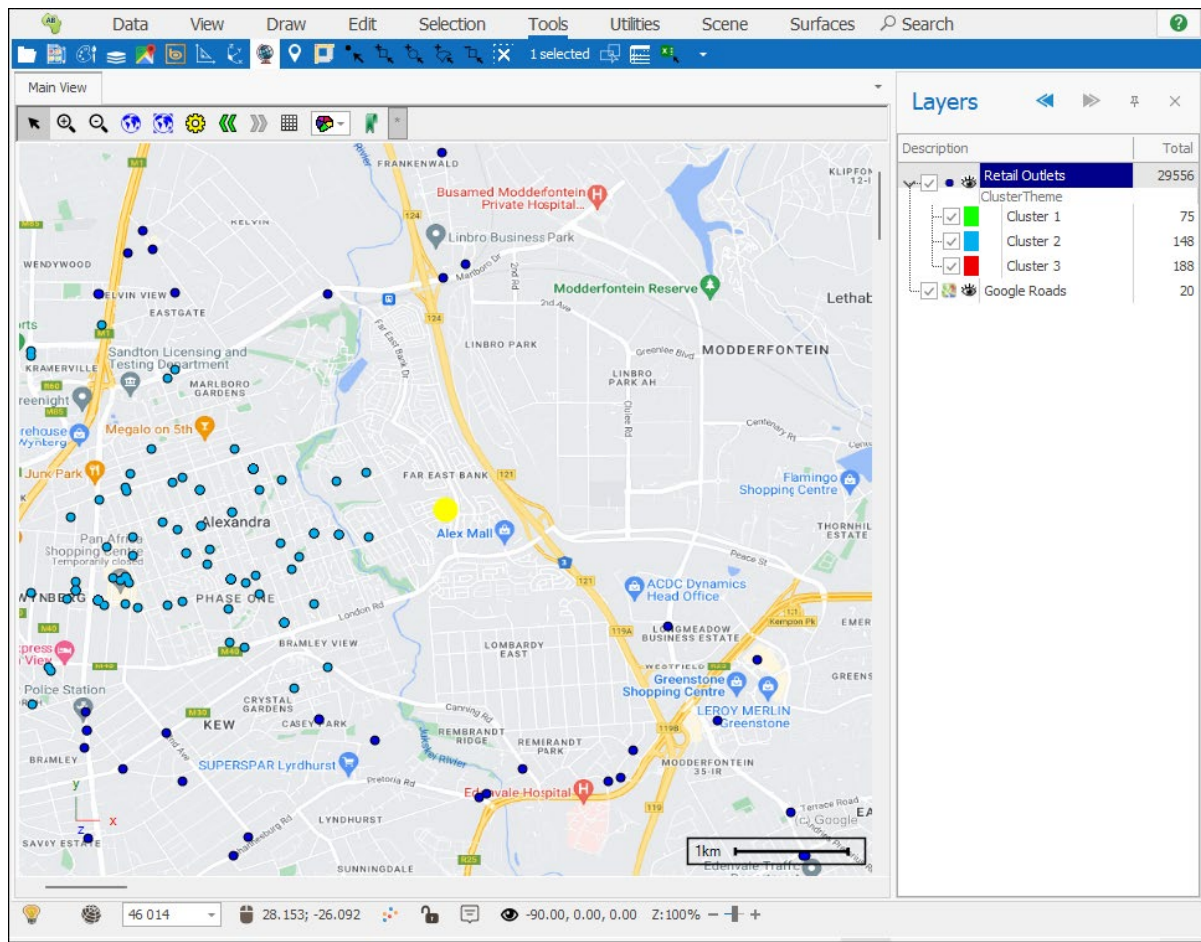


Zooming to a specific item in a Cluster and selecting it in graphics as well:





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You can also do different aggregations on the values given in the grid by right clicking and changing the aggregation type. For example, here I will change this sum aggregation on my Total Volume column that's being done by right clicking and selecting **Average**:

Cluster Designer

Settings

Clusters

Cluster name:

240, 0, 0

Add selected

☒ Group by selected

Cluster	TOTAL VOLUME	Selected
<div><div></div><div></div></div>	=	<div><div></div></div>
> Cluster:		
29145	14783324667	
> Cluster: Cluster 1		
75	119425180	
> Cluster: Cluster 2		
148	884	
> Cluster: Cluster 3		
188	3769	
29556	15368150176	

Sum

Min

Max

Count

Average


None

Cluster Designer x

Settings Clusters

Cluster name: 240, 0, 0

☒ Group by selected

Cluster	TOTAL VOLUME	Selected
 Cluster:	=	<input type="checkbox"/>
> Cluster:		
29145	AVG=507233.65	
> Cluster: Cluster 1		
75	AVG=1592335.73	
> Cluster: Cluster 2		
148	AVG=597402.42	
> Cluster: Cluster 3		
188	AVG=2005238.14	
29556	15368150176	

Support

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