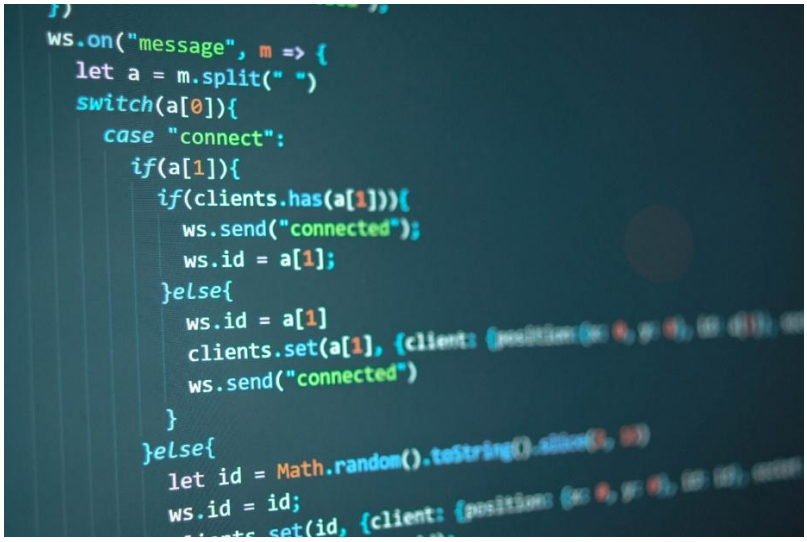
PrimeThought Software Solutions

Scripting in Our Spatial Products



Contents

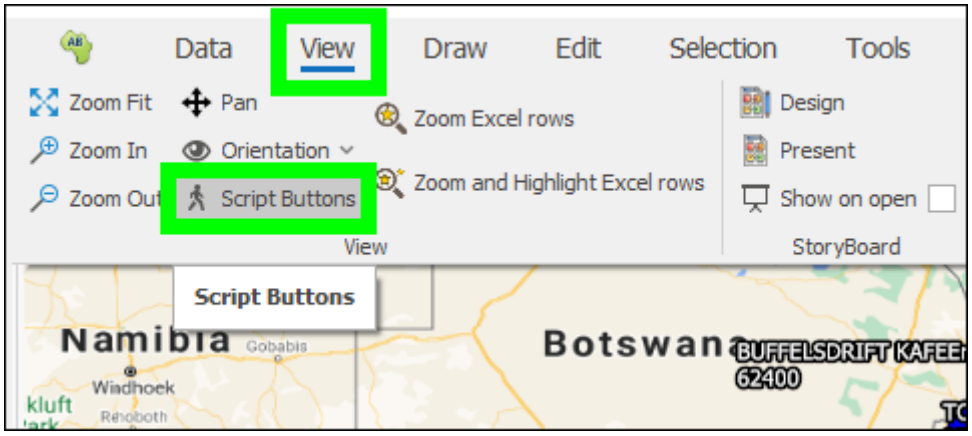
Scripting in Our Spatial Products 1
Intro 2
Script Buttons 2
Event Scripts 3
Referring to Columns 4
Links 10
Text 11
Thematics 14
Projection 16
Stored and Calculated Columns 17
General Layer Operation 19
Geometry Extraction 20

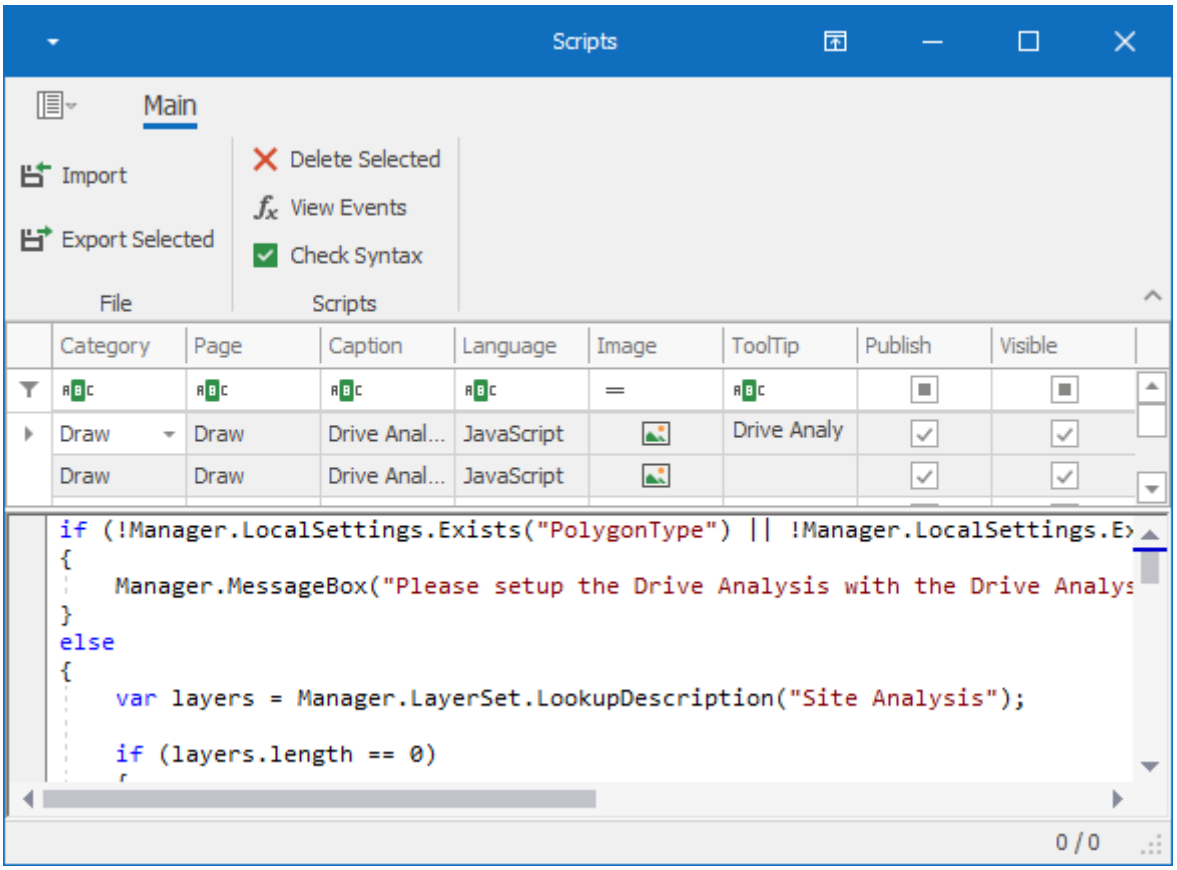
Intro

In all our spatial products there is full scripting capability with intelligent code completion. The scripting uses JavaScript and applies across many aspects of the product.

Script Buttons

In the View tab there is Script Buttons, which allows you to write scripts that create buttons that can do various things. In this way you can add custom buttons and controls to your spatial product, you can write them yourself or PrimeThought can create them for you:

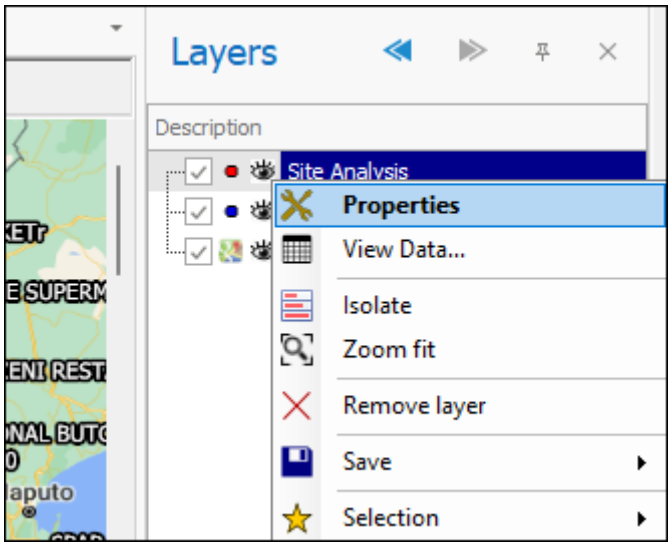


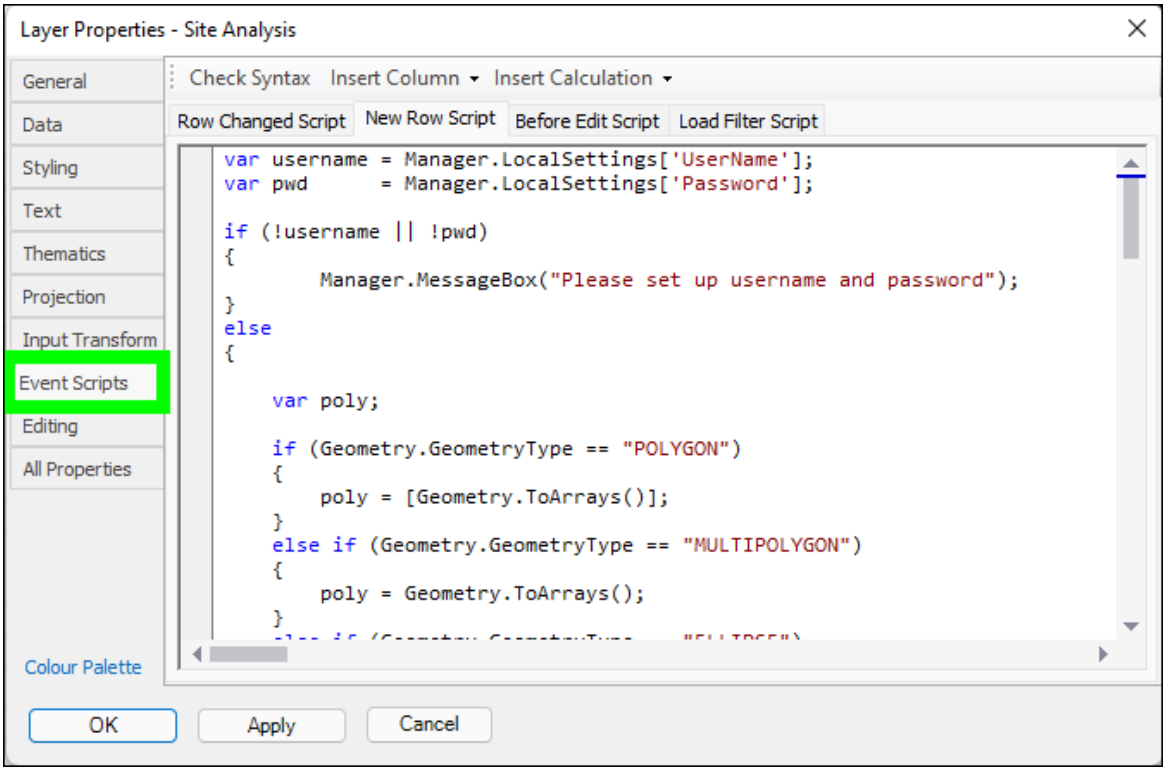


For full information on how to use Script Buttons refer to the *Script Buttons manual*.

Event Scripts

In the Layer Properties of any layer, you can specify event scripts that will run each time a certain event happens:

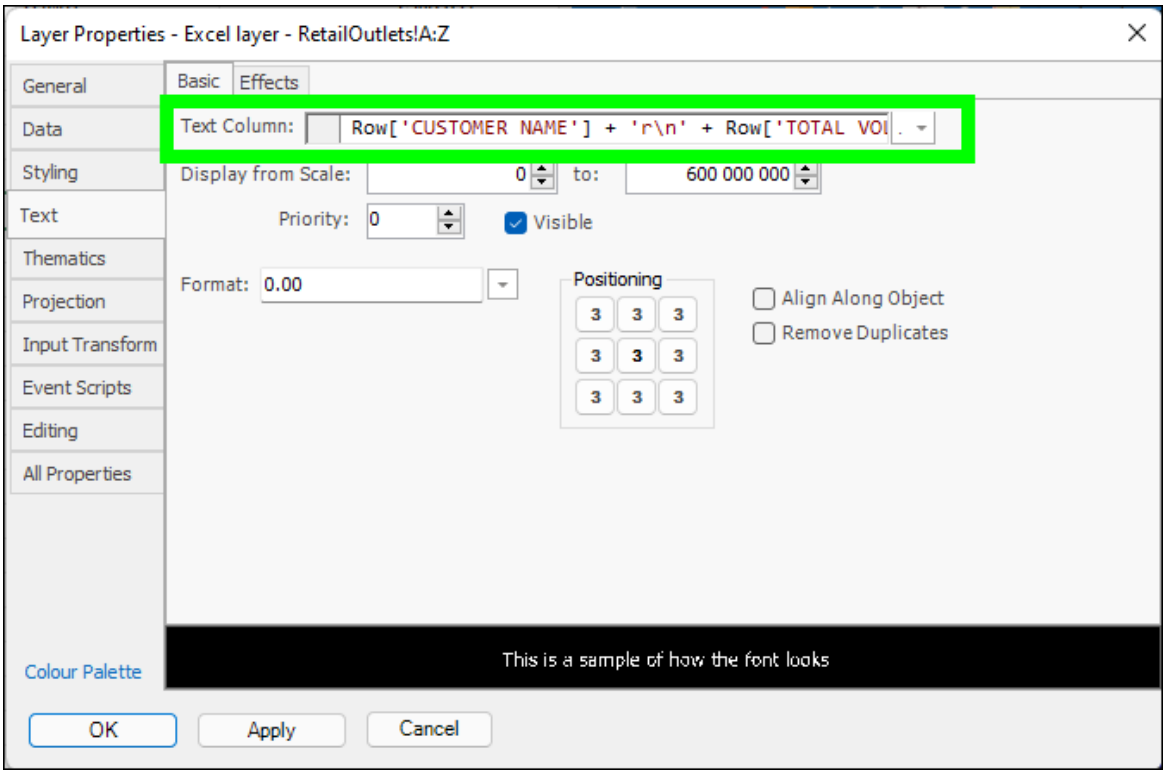




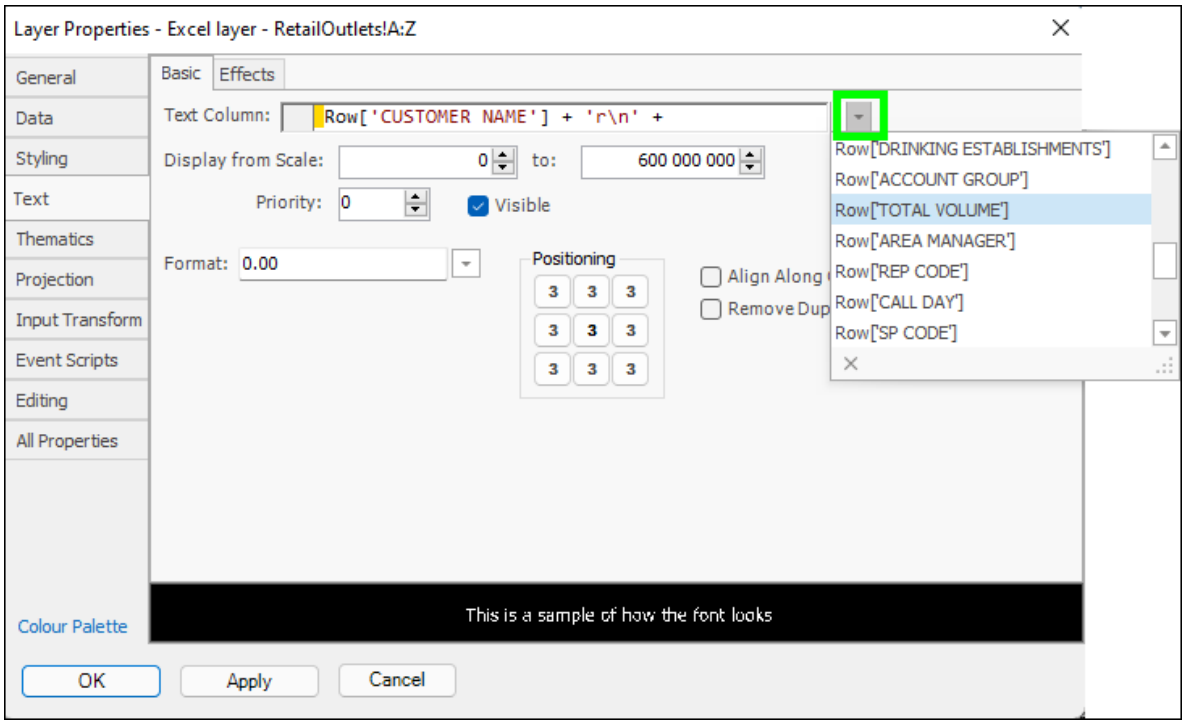
For full information on how to use event scripts refer to the *Event Scripts manual*.

Referring to Columns

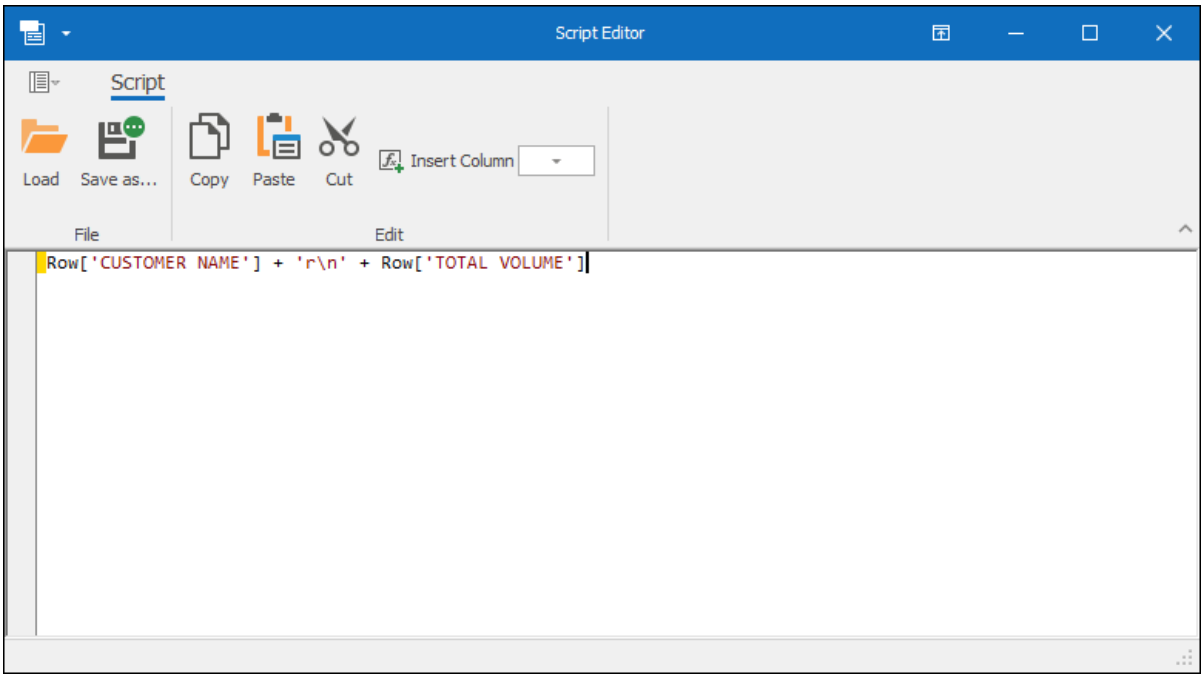
Everywhere in Spatial Studio where you can refer to a column from your data, it is done as an expression; You can choose just one column or you can add two columns together, refer to linked columns in other layers etc. and much more:



You can type in your expression and drop down to choose the columns in the column box:

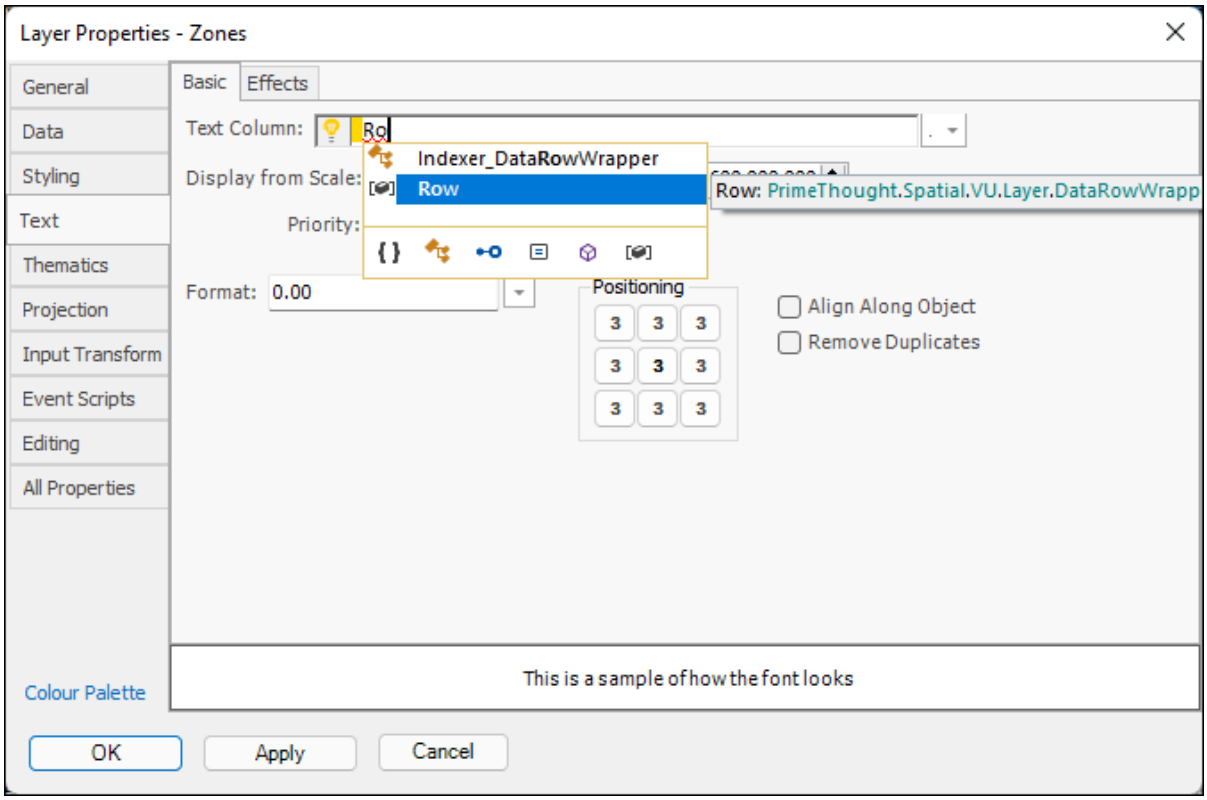


Or you can open the script editor window by clicking in the column box and then pressing **ctrl P**:

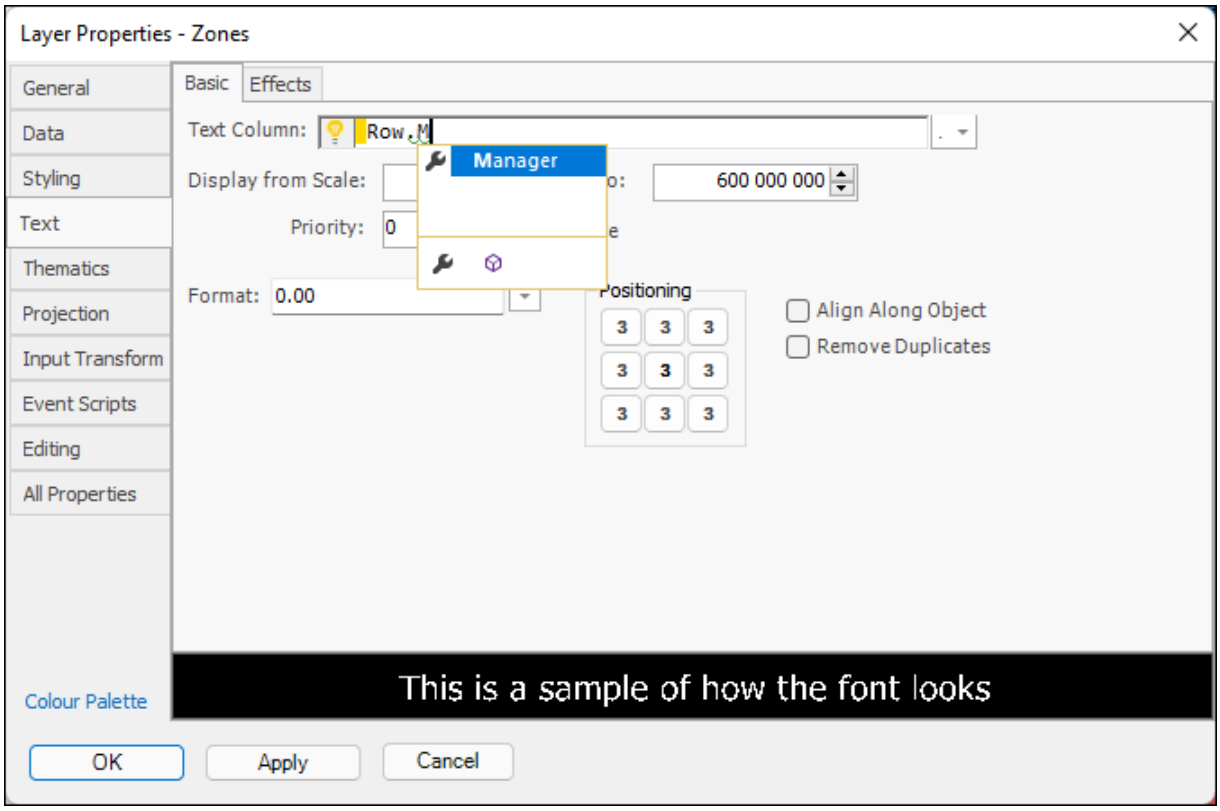


In the Script Editor you can type in your expression and choose your columns with **Insert Column**. Furthermore, you can save out and load scripts. There is full intelligent code completion capability as well as error highlighting and tooltips on code elements and errors.

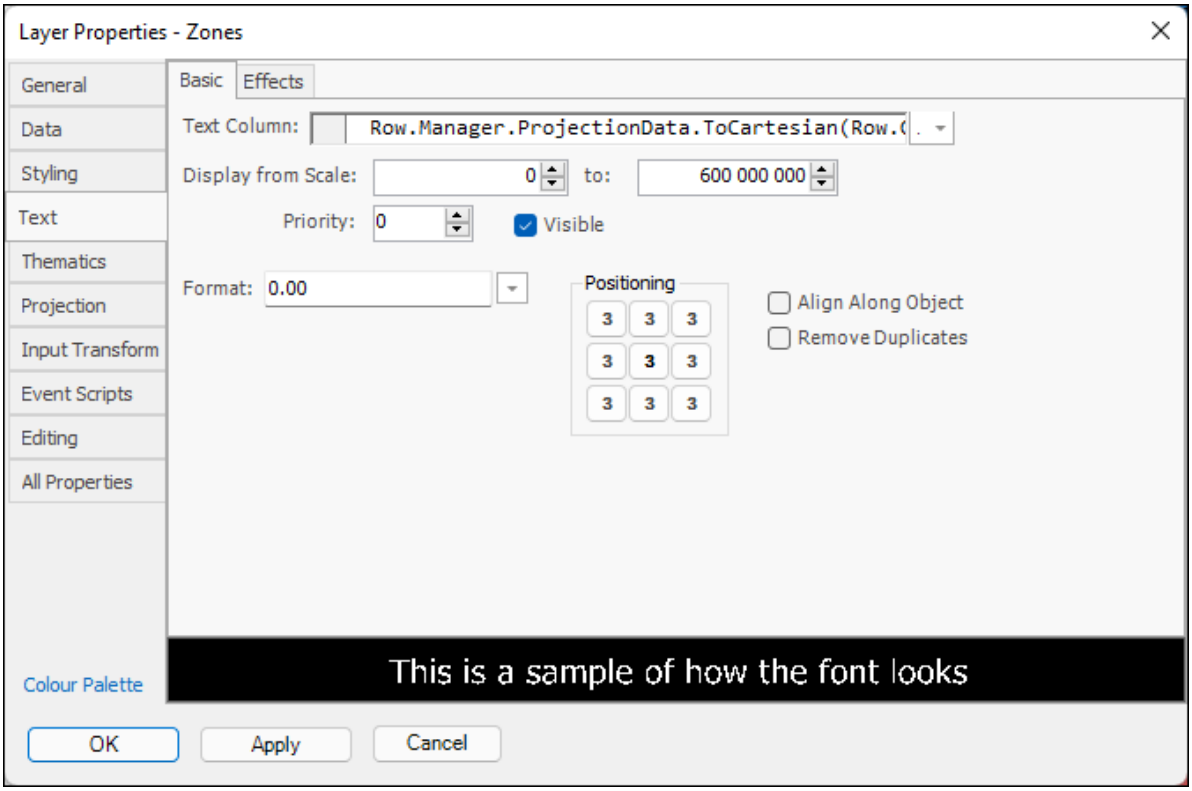
To bring up code completion on initial items that you are typing in, press **ctrl space bar**; for example, as I type in 'Ro' I can press ctrl space bar and code completion comes up giving me options to choose from:

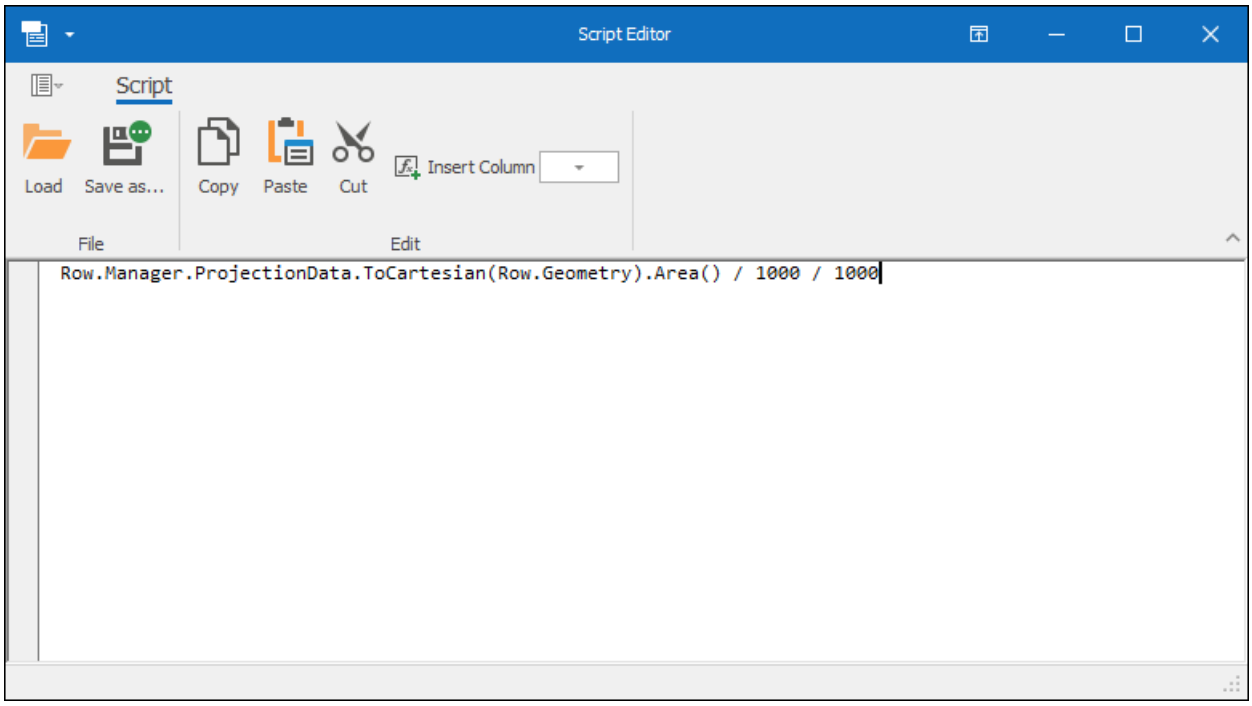


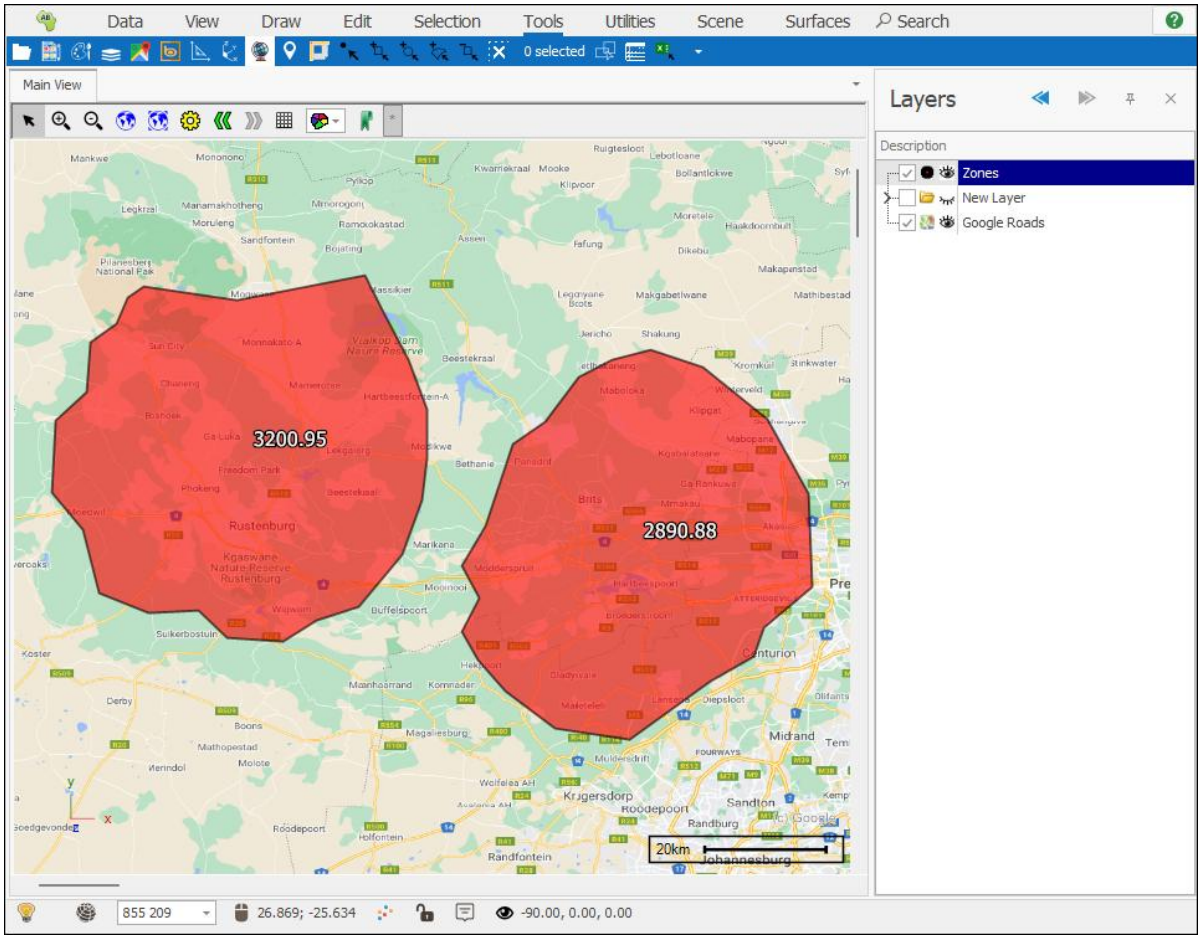
As I continue typing in code completion continues being prompted:



In this example here I am writing an expression to get the area of the elements in my Zones layer, this will then display as text labels:

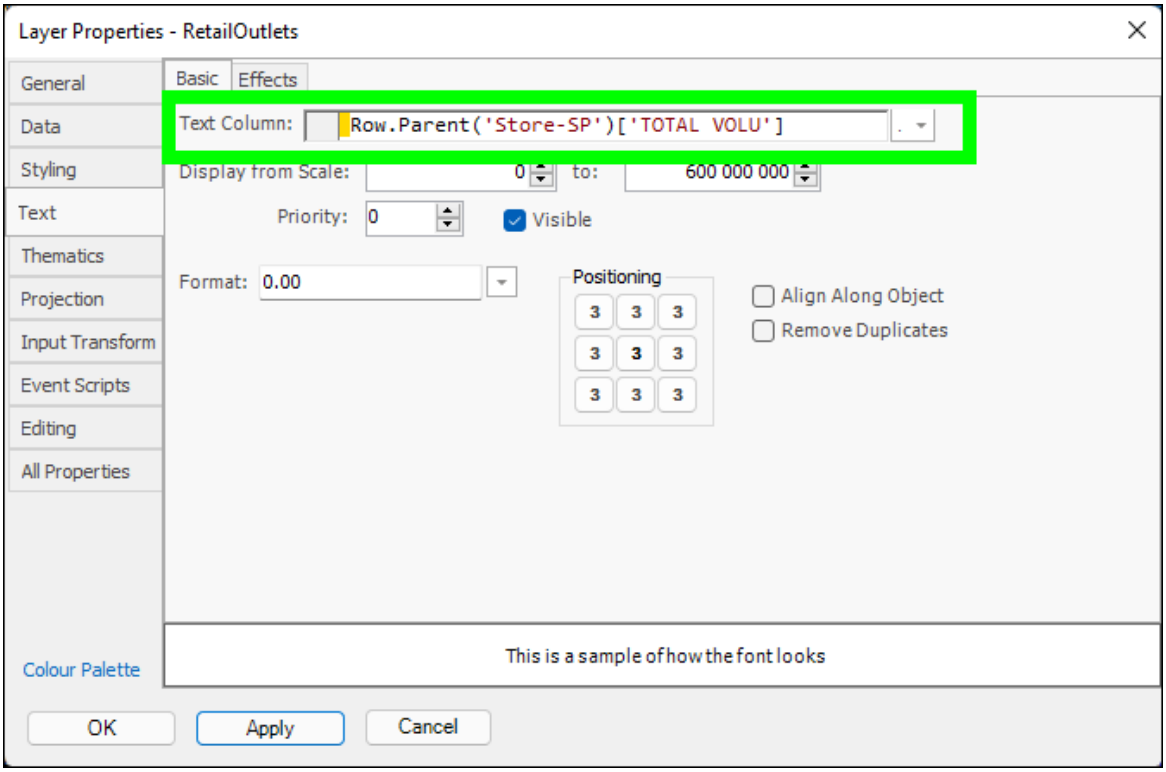



Script Editor
Script
Load
Save as...
Copy
Paste
Cut
Insert Column
File
Edit
Row.Manager.ProjectionData.ToCartesian(Row.Geometry).Area() / 1000 / 1000

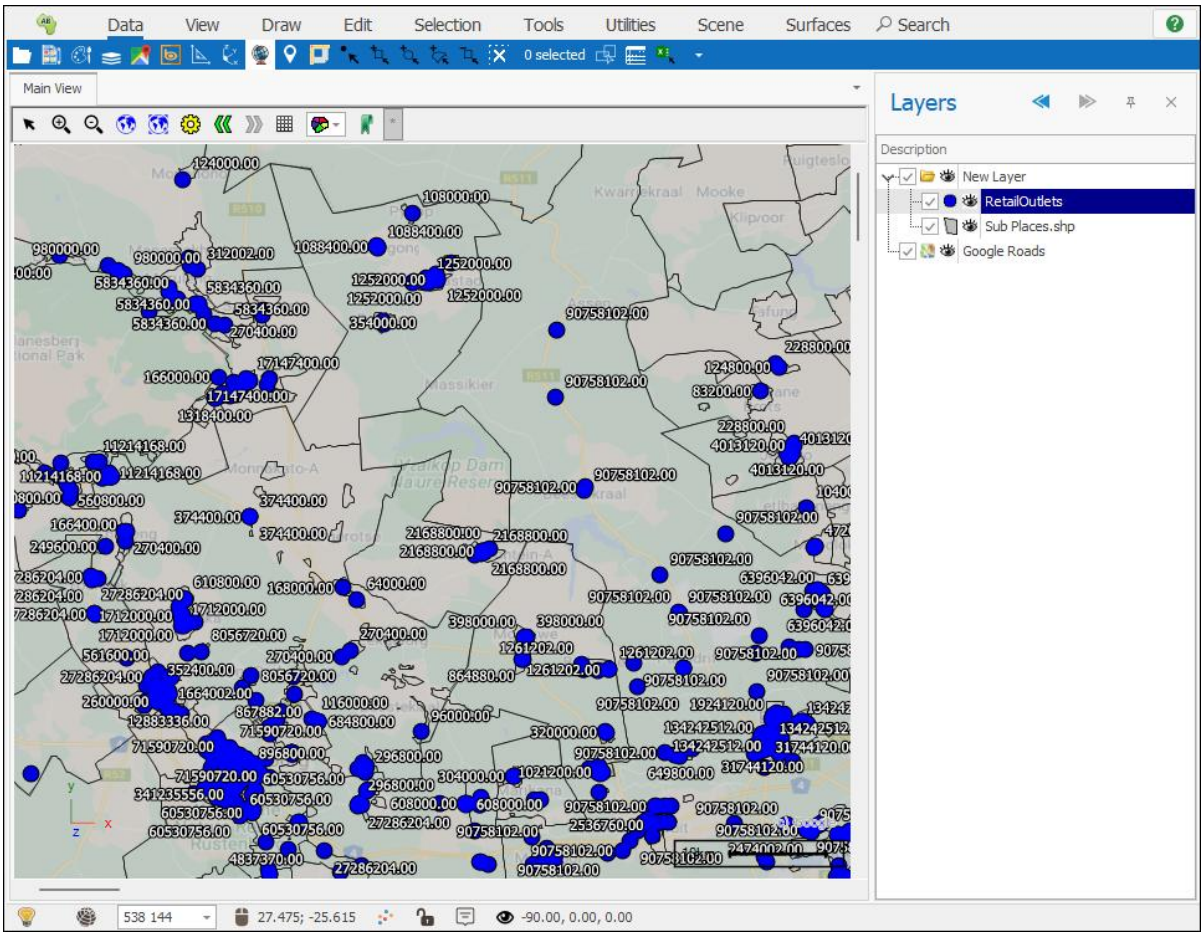

Data
View
Draw
Edit
Selection
Tools
Utilities
Scene
Surfaces
Search
0 selected
Main View
Layers
Description
Zones
New Layer
Google Roads
3200.95
2890.88
Rustenburg
Centurion
Midrand
Krugersdorp
Roodepoort
Sandton
Randburg
Randfontein
Johannesburg
20km
855 209
26.869; -25.634
-90.00, 0.00, 0.00

Links

All data links between layers are done using **Relations**, refer to the *Relations manual* for more data on how to use this. To refer to a Parent column in a relation, you would use the following script: *Row.Parent('relation name')['parent column name']*. For example, I will refer to a parent column in my Sub Places layer(TOTAL VOLU) in a relation(Store-SP), in order to get a text label for this in my RetailOutlets layer:

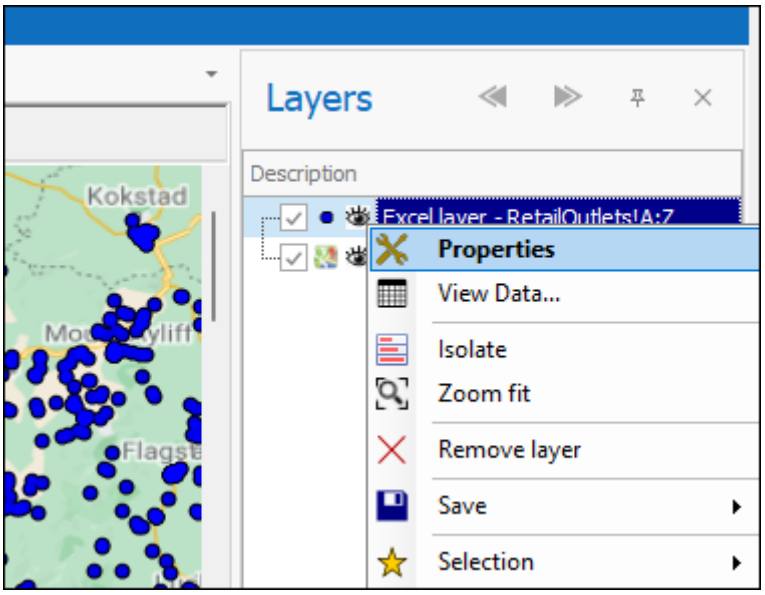


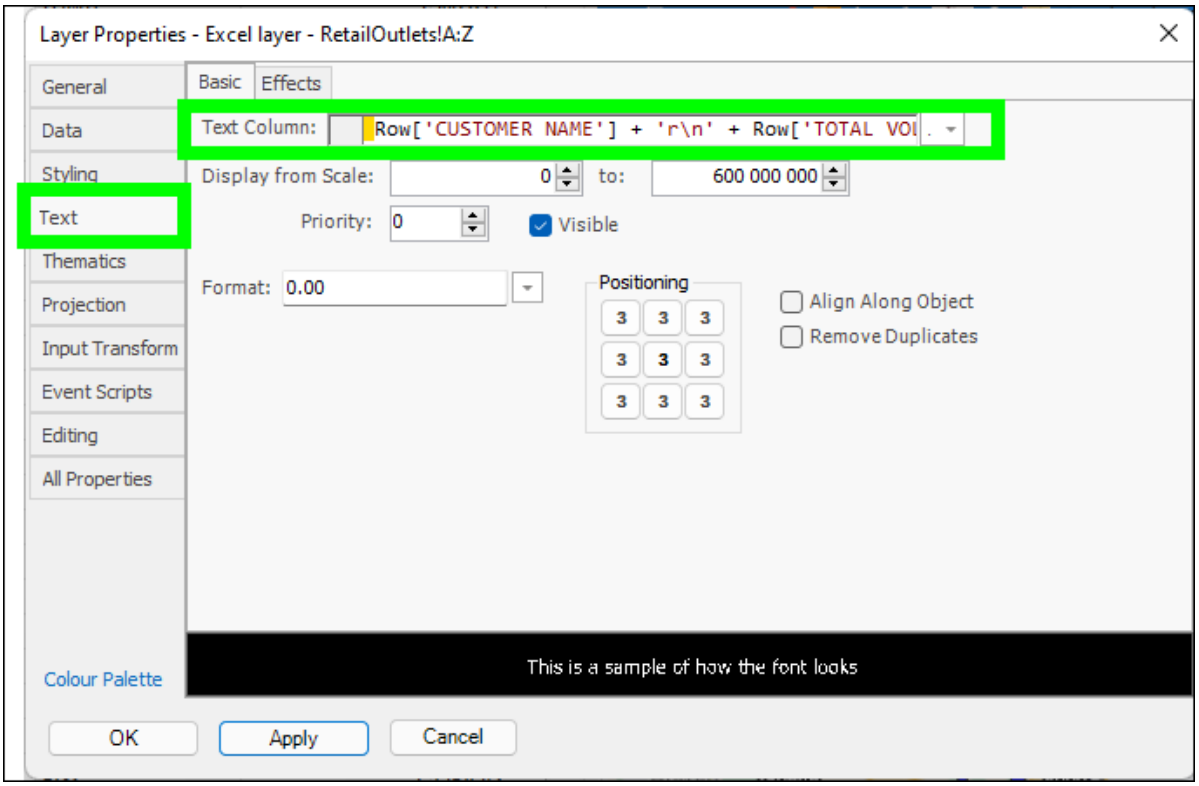
I now have text labels showing the Total Volume of the Sub Place area that my points in my RetailOutlets layer falls in:

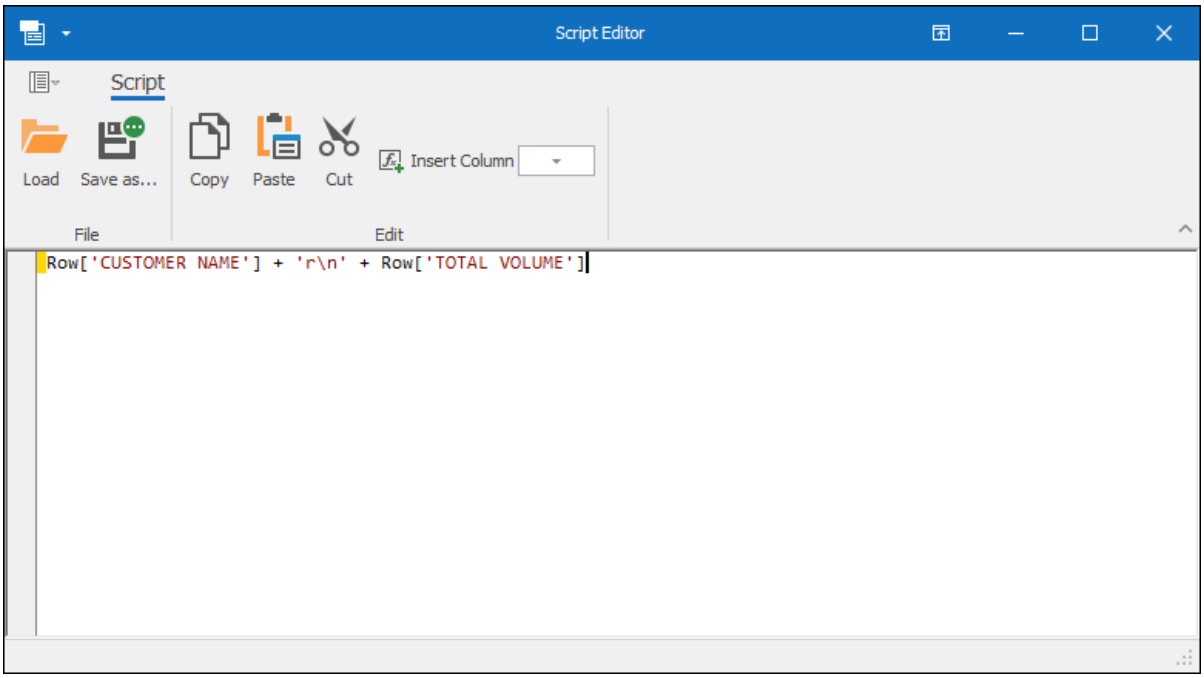


Text

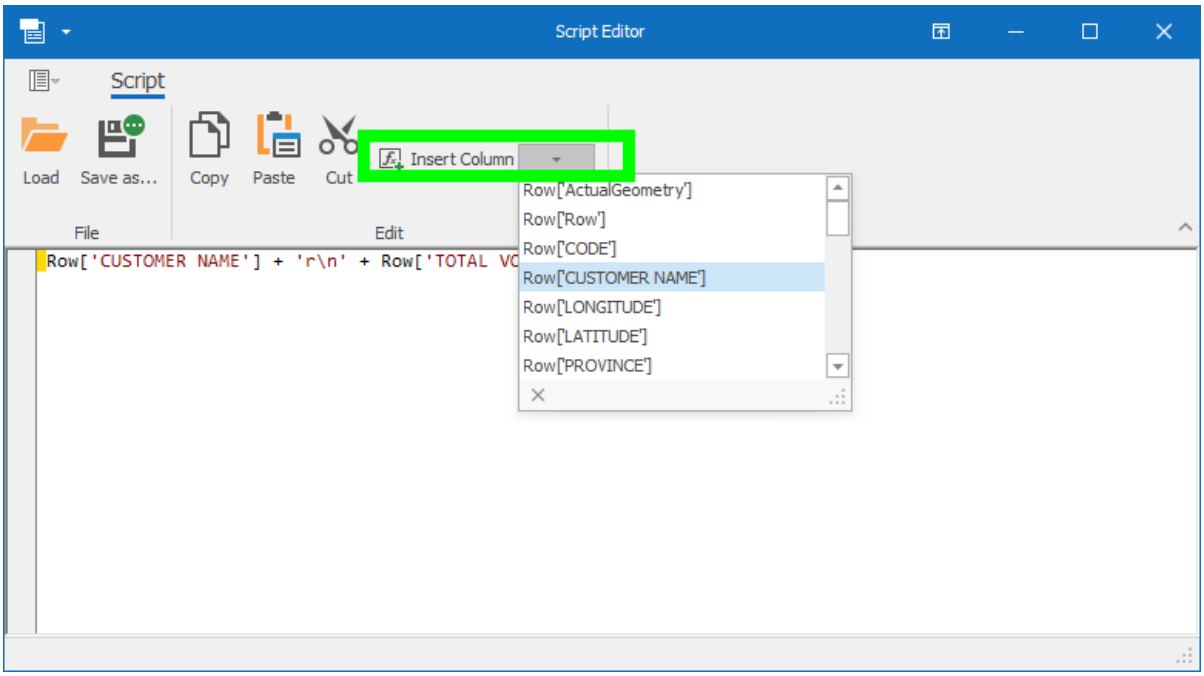
In choosing a column for text labels in the **Text** tab you can specify a script that can concatenate two or however many column labels together, one on top of the other, next to each other or however you specify it. To pop out the script editor window where you can write and edit this script, click in the Text Column box and **ctrl P**:


Layers
Description
Kokstad
Properties
View Data...
Isolate
Zoom fit
Remove layer
Save
Selection

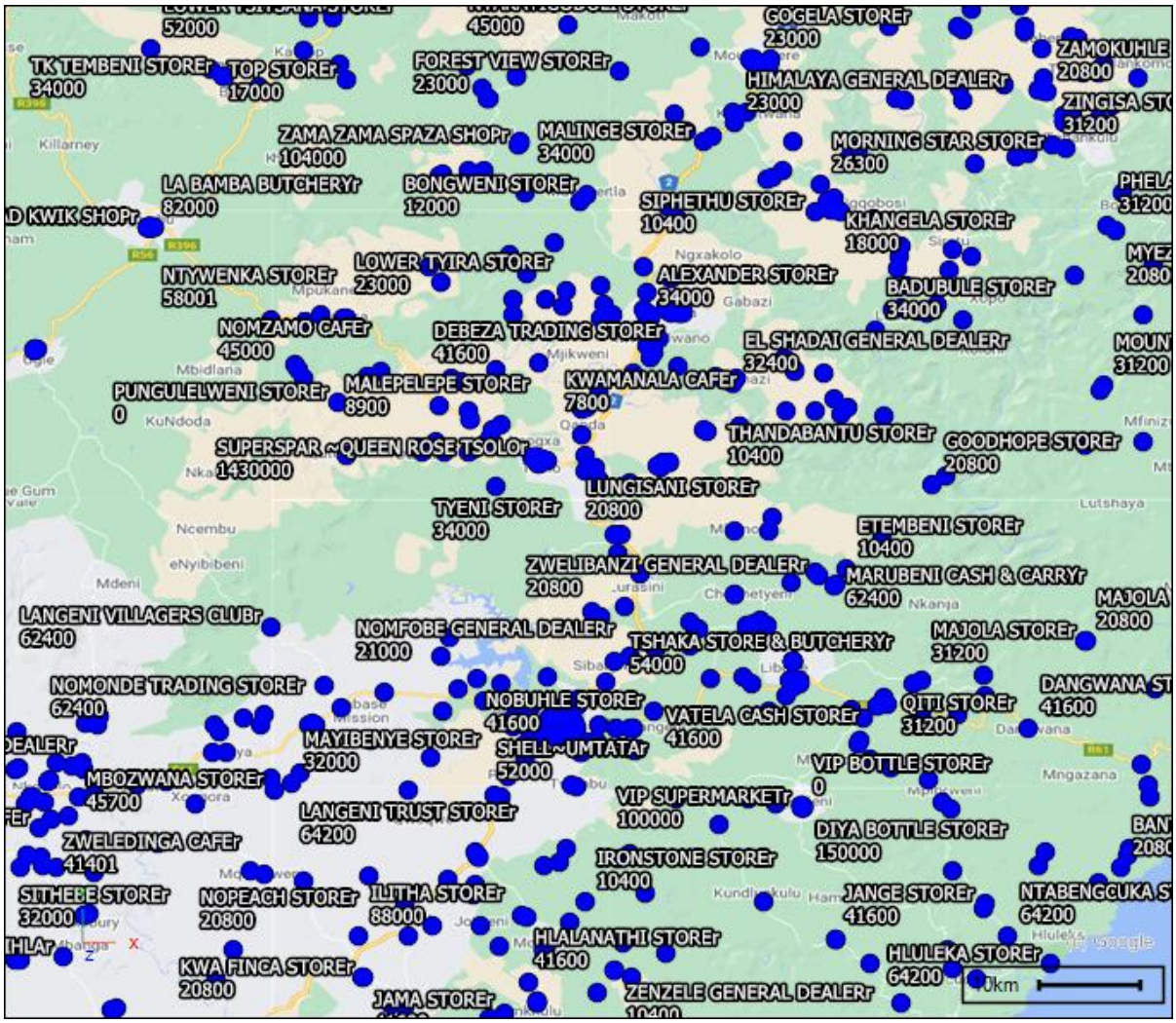

Layer Properties - Excel layer - RetailOutlets!A:Z
General
Data
Styling
Text
Thematics
Projection
Input Transform
Event Scripts
Editing
All Properties
Basic
Effects
Text Column:
Row['CUSTOMER NAME'] + 'r\n' + Row['TOTAL VOL
Display from Scale:
0
to:
600 000 000
Priority:
0
Visible
Format:
0.00
Positioning
Align Along Object
Remove Duplicates
This is a sample of how the font looks
Colour Palette
OK
Apply
Cancel



Here, I've specified that my text labels should show the Customer Name and Total Volume with the Total Volume placed beneath the Customer Name. To insert a column name into your expression, drop down on **Insert Column** and choose the column:

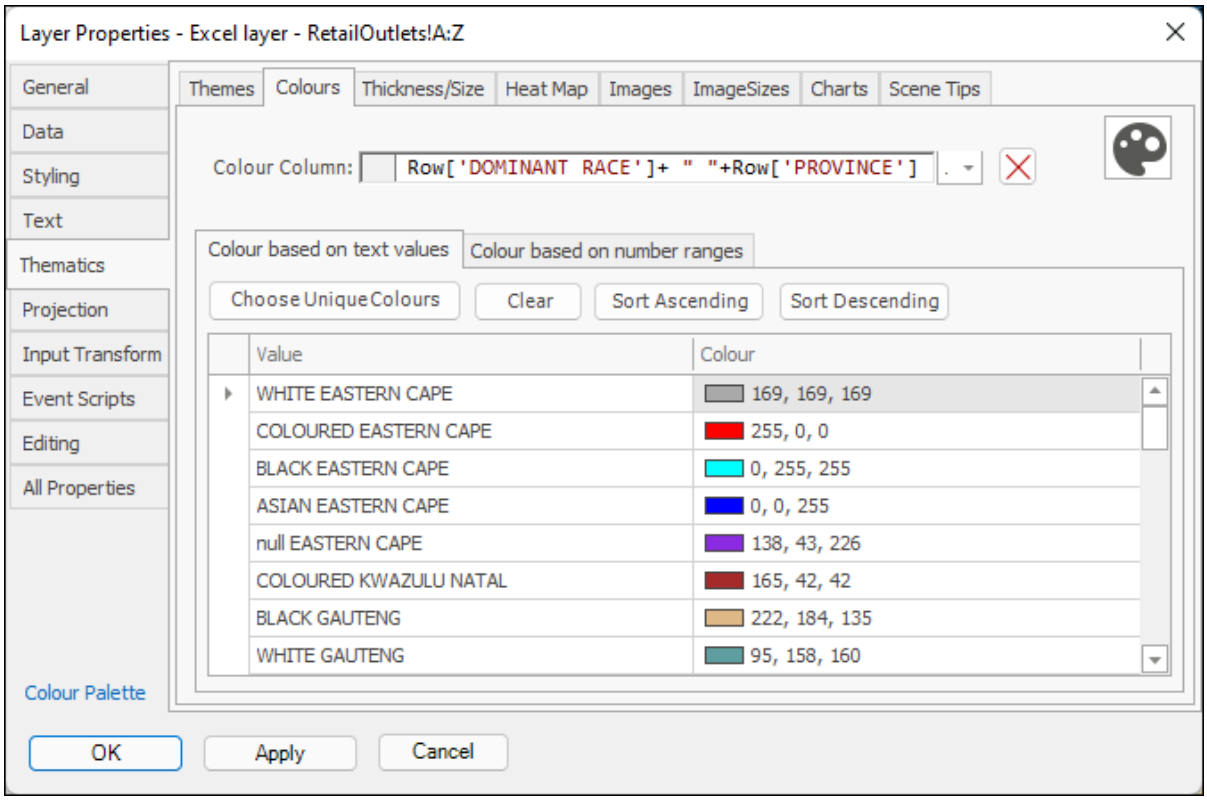


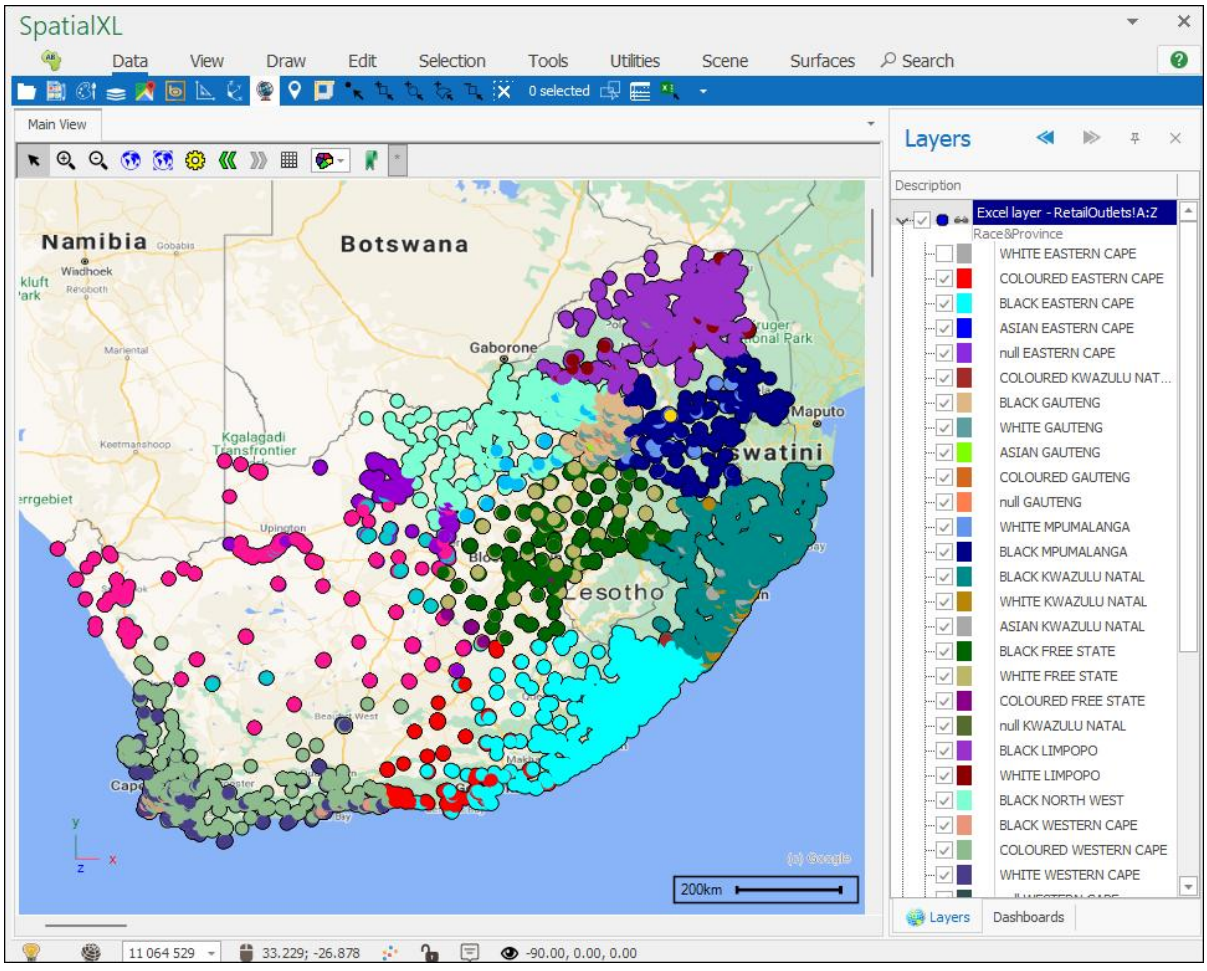
When you are done putting in your expression you can then exit the script editor window, and the script is saved. You can then click OK on the Layer Properties window, and the labels are now showing as I specified in the script:



Thematics

In choosing a column to theme on you can have a script specified as well, for example, you can add together the values of two different columns and then do a colour theme on this. Here I added together the Dominant Race and Province columns:

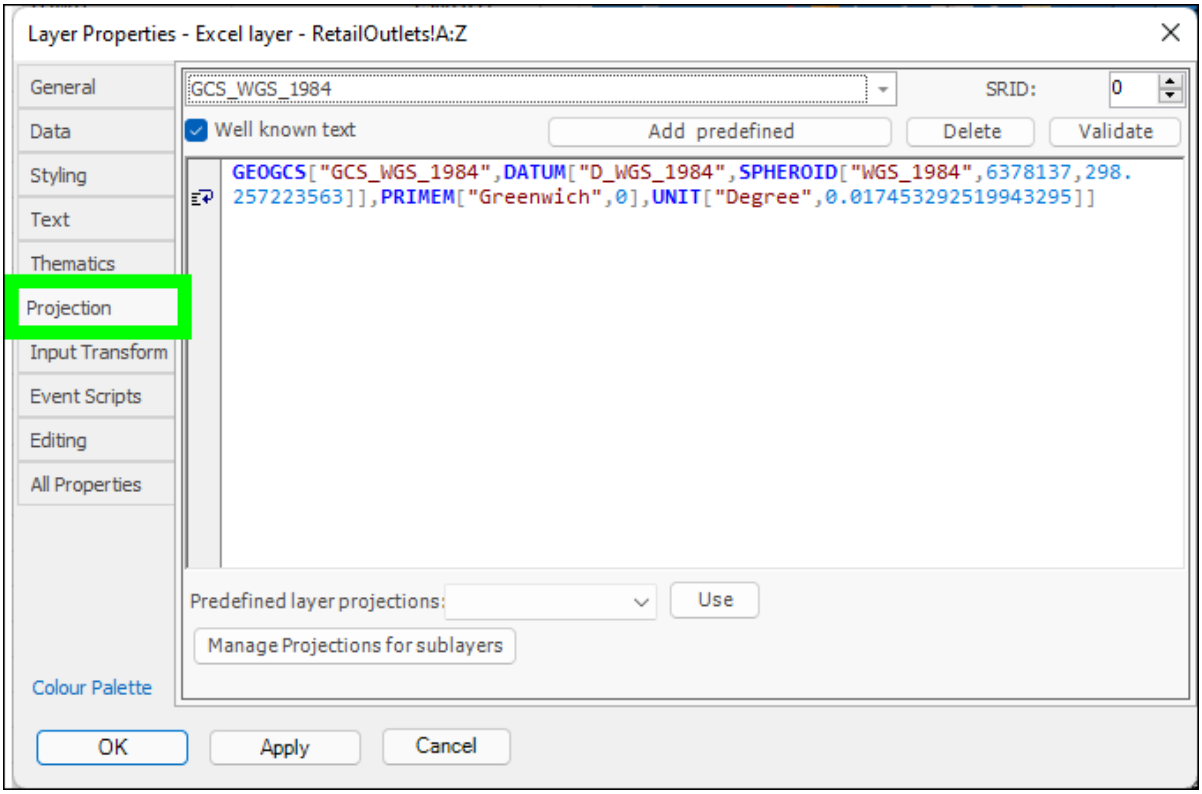

Layer Properties - Excel layer - RetailOutlets!A:Z
General
Data
Styling
Text
Thematics
Projection
Input Transform
Event Scripts
Editing
All Properties
Colour Palette
Themes
Colours
Thickness/Size
Heat Map
Images
ImageSizes
Charts
Scene Tips
Colour Column:
Row['DOMINANT RACE']+ " "+Row['PROVINCE']
Colour based on text values
Colour based on number ranges
Choose Unique Colours
Clear
Sort Ascending
Sort Descending
Value
Colour
WHITE EASTERN CAPE 169, 169, 169
COLOURED EASTERN CAPE 255, 0, 0
BLACK EASTERN CAPE 0, 255, 255
ASIAN EASTERN CAPE 0, 0, 255
null EASTERN CAPE 138, 43, 226
COLOURED KWAZULU NATAL 165, 42, 42
BLACK GAUTENG 222, 184, 135
WHITE GAUTENG 95, 158, 160
OK
Apply
Cancel

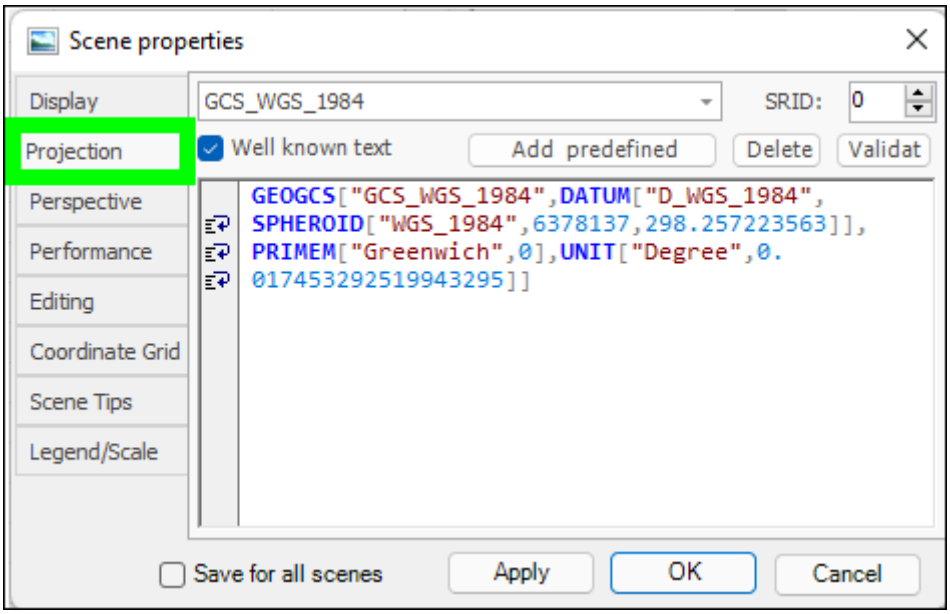

SpatialXL
Data
View
Draw
Edit
Selection
Tools
Utilities
Scene
Surfaces
Search
Main View
Namibia
Botswana
Gaborone
Maputo
Lesotho
Layers
Description
Excel layer - RetailOutlets!A:Z
Race&Province
WHITE EASTERN CAPE
COLOURED EASTERN CAPE
BLACK EASTERN CAPE
ASIAN EASTERN CAPE
null EASTERN CAPE
BLACK GAUTENG
WHITE GAUTENG
ASIAN GAUTENG
COLOURED GAUTENG
null GAUTENG
WHITE MPUMALANGA
BLACK MPUMALANGA
BLACK KWAZULU NATAL
WHITE KWAZULU NATAL
ASIAN KWAZULU NATAL
BLACK FREE STATE
WHITE FREE STATE
COLOURED FREE STATE
null KWAZULU NATAL
BLACK LIMPOPO
WHITE LIMPOPO
BLACK NORTH WEST
BLACK WESTERN CAPE
COLOURED WESTERN CAPE
WHITE WESTERN CAPE
200km
Layers
Dashboards

All the different types of themes in the Thematics tab of the Layer Properties have this same full scripting ability for columns chosen.

Projection

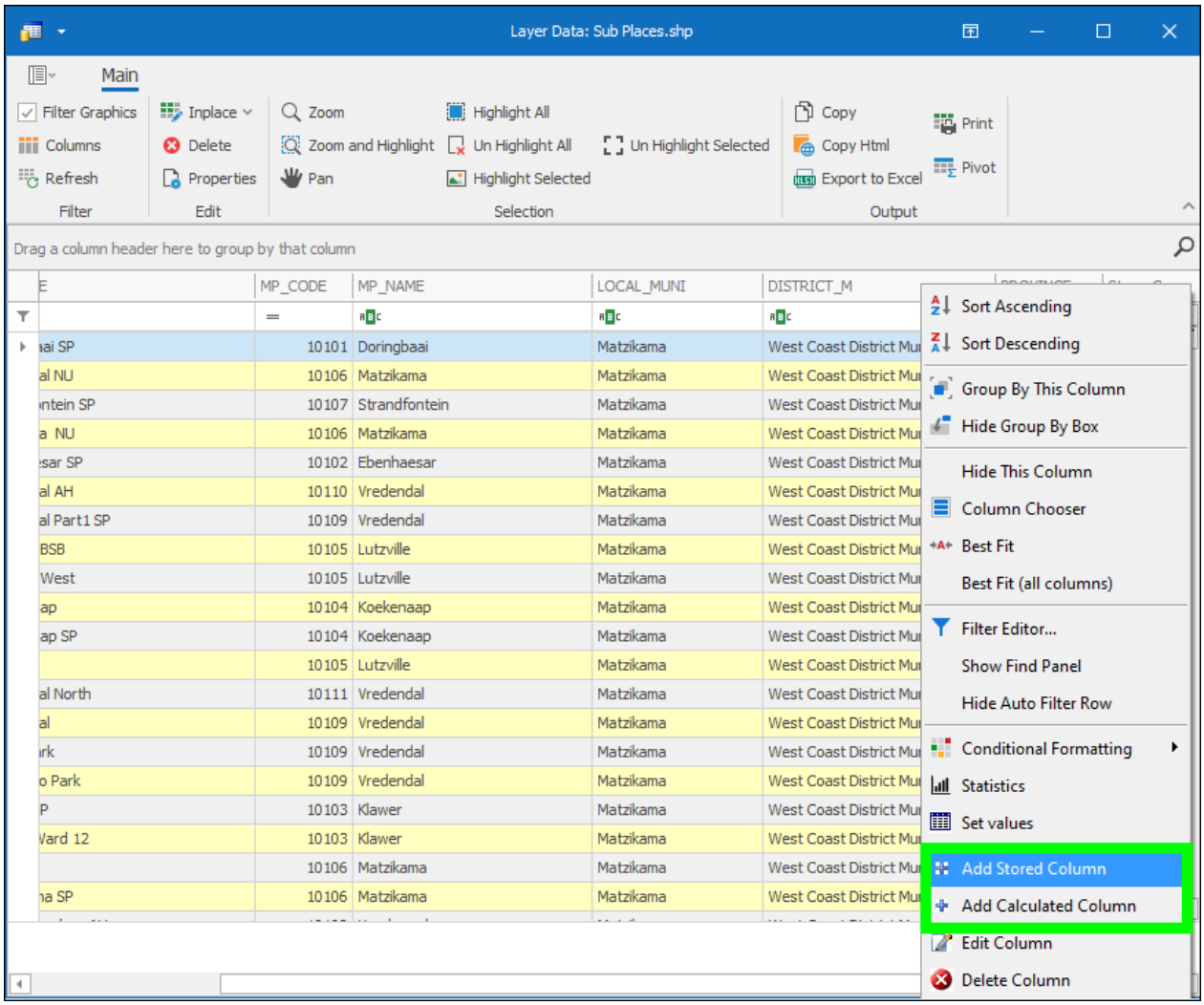
In the **Projection** tab in Layer Properties and Scene properties you can tick on **Well Known Text** to show the well known text of a projection and allow editing of it, there will be the same scripting features available here as in the other areas:

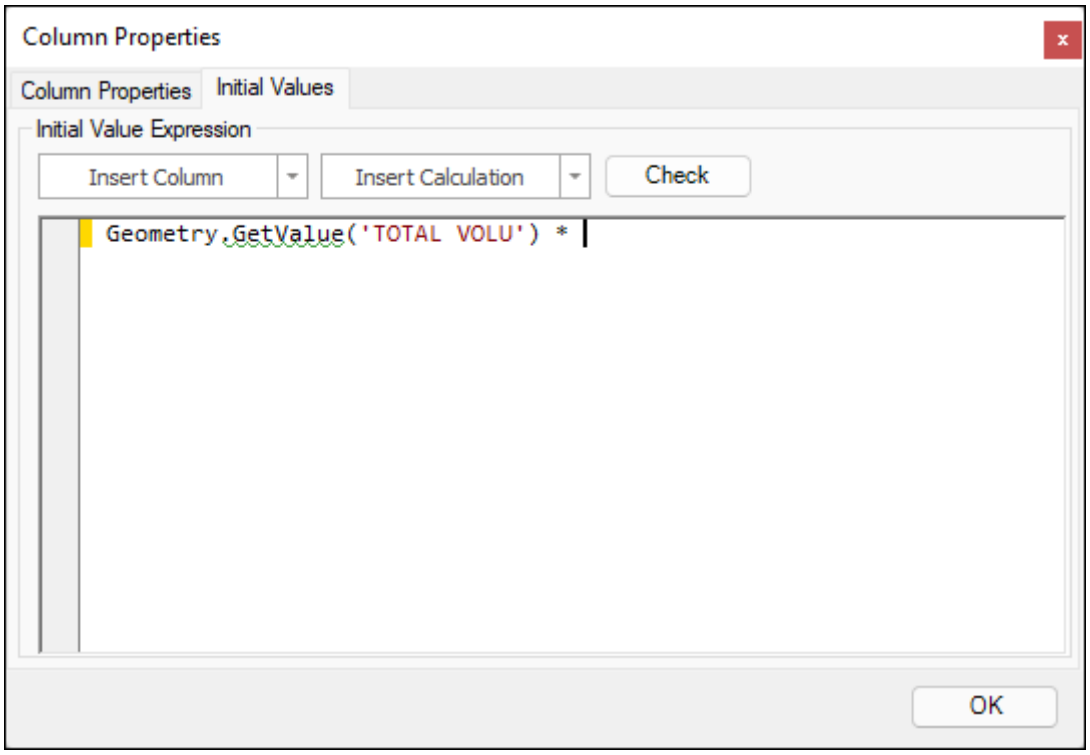




Stored and Calculated Columns

In the Layer Data Grid of any layer, you can add Stored or Calculated columns. In adding these columns, you can specify expressions/scripts in order to set the initial values of the columns, all the same scripting features exist here as in other areas:

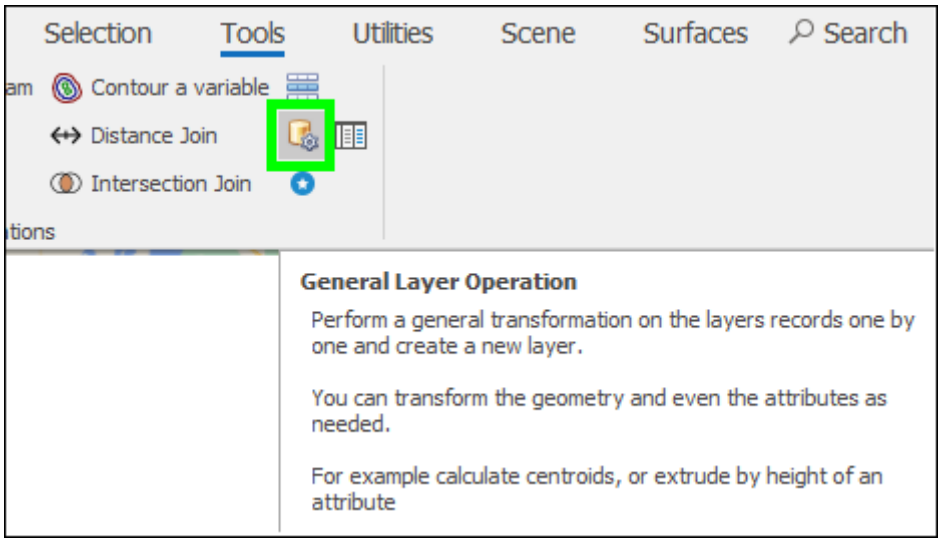

Layer Data: Sub Places.shp
Main
Filter Graphics
Columns
Refresh
Filter
Inplace
Delete
Properties
Edit
Zoom
Zoom and Highlight
Pan
Highlight All
Un Highlight All
Highlight Selected
Un Highlight Selected
Selection
Copy
Copy Html
Export to Excel
Print
Pivot
Output
Drag a column header here to group by that column
MP_CODE
MP_NAME
LOCAL_MUNI
DISTRICT_M
Sort Ascending
Sort Descending
Group By This Column
Hide Group By Box
Hide This Column
Column Chooser
Best Fit
Best Fit (all columns)
Filter Editor...
Show Find Panel
Hide Auto Filter Row
Conditional Formatting
Statistics
Set values
Add Stored Column
Add Calculated Column
Edit Column
Delete Column



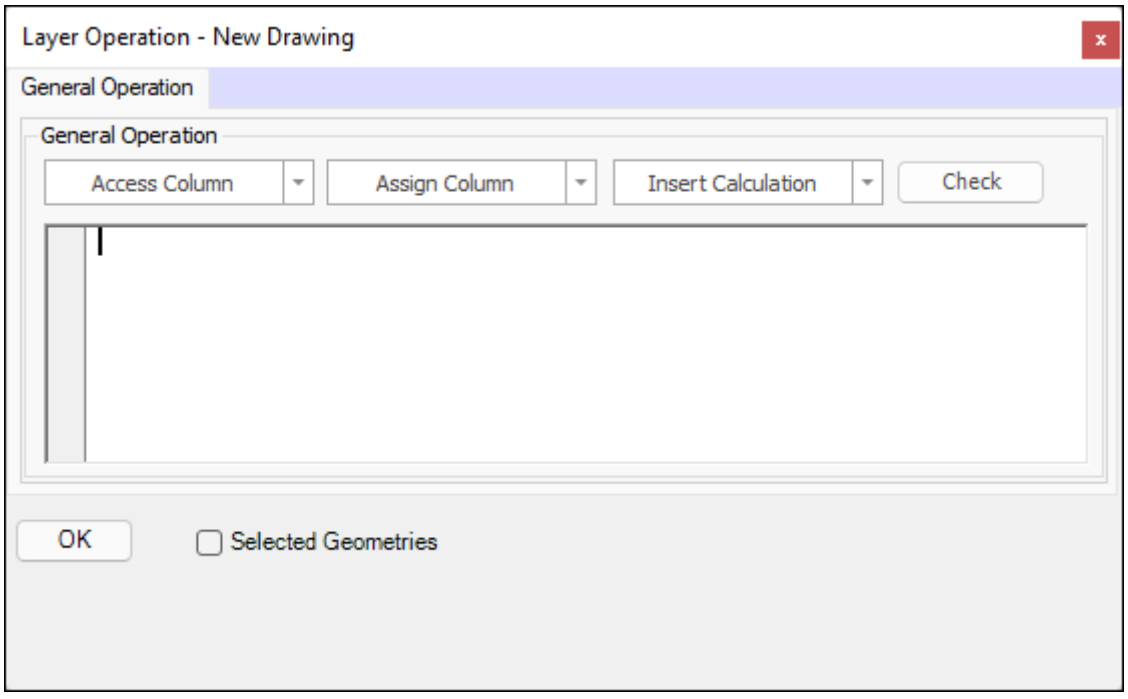
For full info on the Layer Data Grid and all actions you can do here, refer to the *Layer Data Grid manual*.

General Layer Operation

In the Tools tab is the **General Layer Operation tool**. This tool allows you to perform a general transformation on layers or records one by one and create a new layer. You can transform the geometry and even the attributes as needed. For example, you can calculate the centroids of a polygon layer:



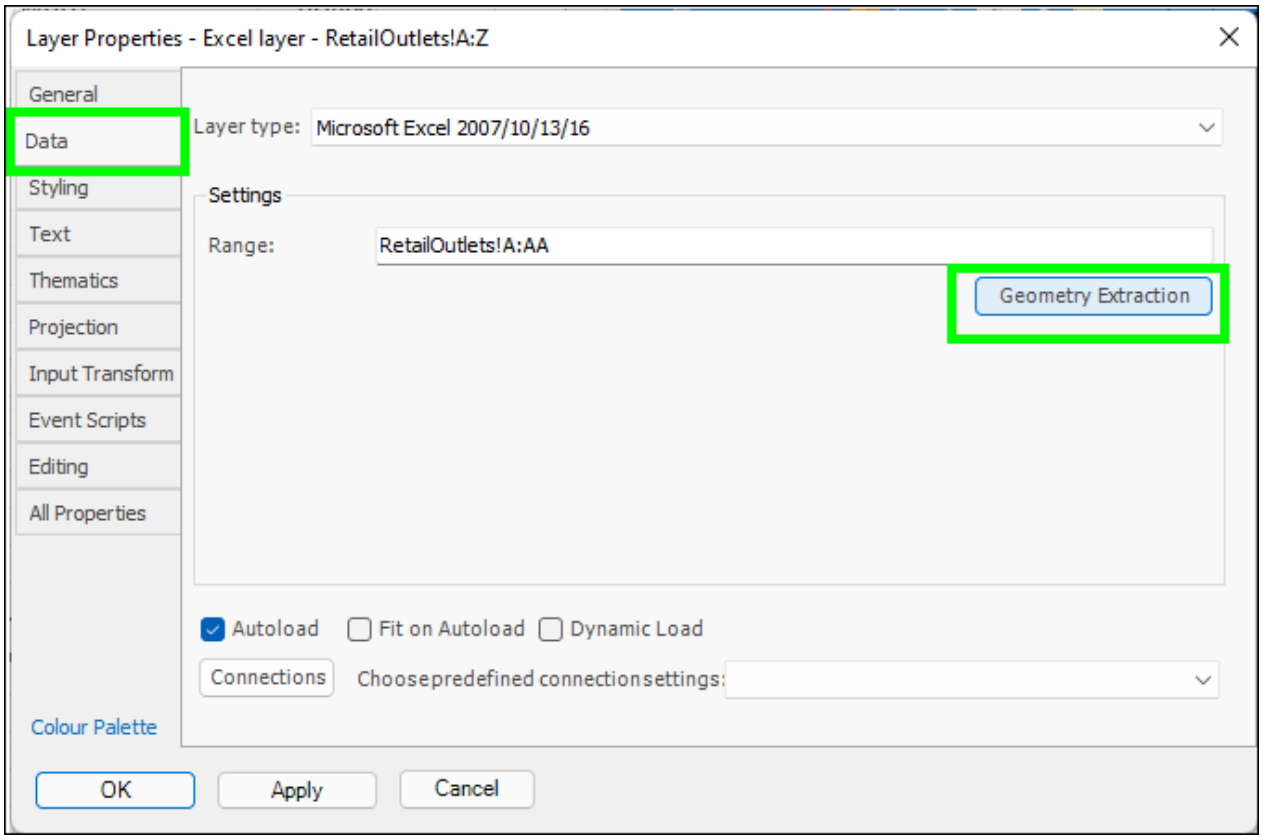
Clicking on it brings up the following dialogue where you can write scripts to do various things. The same scripting features exist here as other areas:

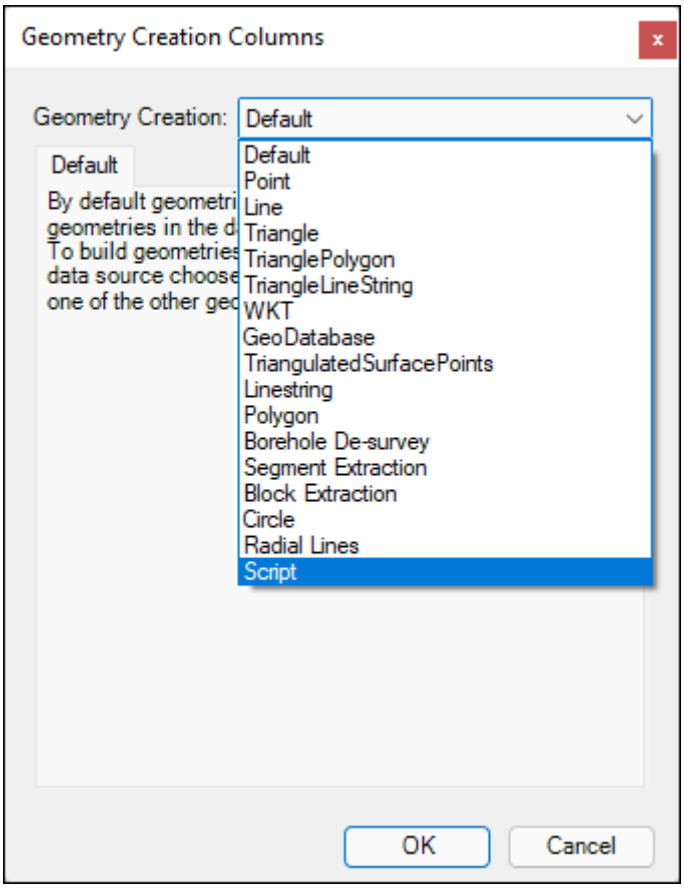


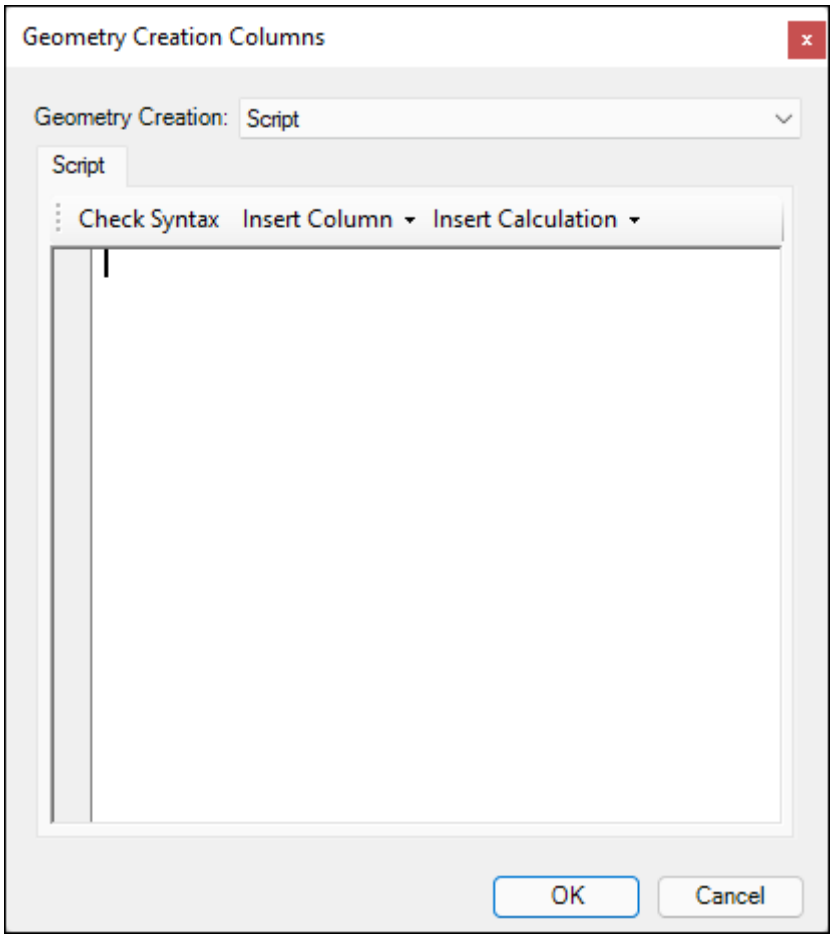
For full information on how the General Layer Operation tool works, refer to the *General Layer Operation guide*.

Geometry Extraction

In the Layer Properties of layers, in the Data tab, you can specify Geometry Extractions for that layer; this says how to extract the geometric data of the layer and display it on the scene. There are many different types of Geometry Extractions you can do, one of these methods is **Script**. Here you can write a script specifying how the data should be extracted. This scripting dialogue contains the same scripting features as other areas:




Geometry Creation Columns
Geometry Creation:
Default
Default
Point
Line
Triangle
TrianglePolygon
TriangleLineString
WKT
GeoDatabase
TriangulatedSurfacePoints
Linestring
Polygon
Borehole De-survey
Segment Extraction
Block Extraction
Circle
Radial Lines
Script
Default
By default geometri
geometries in the d
To build geometries
data source choose
one of the other geo
OK
Cancel



In addition, you can check the syntax of your script with **Check Syntax** button; you can insert a column from your data to refer to in the script with **Insert Column;** and you can insert some predefined calculations into your script with **Insert Calculation** button.

For an example of using the **Script** method of Geometry Extraction, refer to the *3D Capability in 2D Maps guide*.

Support

T: +27871354351

PrimeThought Software Solutions

support@primethought.biz - primethought.biz
Kyalami Estate, Midrand, Johannesburg,
1684, South Africa