

## IMPORT SHAPEFILE

*After completing this exercise you'll know how to*

- *Add a custom polygon provider to your Viya installation*
- *Reduce the granularity of the shapes to improve performance (or even make it show up in VA for large shapefiles)*
- *Use the custom polygon provider to visualize data on a map*
- *Identify the projection of a shapefile*

## 1. Investigating the content of a shapefile

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1. A shape file is a format for storing geometric location and associate attribute information. The format of a shape file is a number of detailed files stored in the same folder or zip-file. The minimum requirements to make up a shape file is a .shp, a .shx and a .dbf file. The shp file stores the actual shapes, the shx holds an index and the dbf file holds attributes for each shape. You can read more about shapefiles here: <https://en.wikipedia.org/wiki/Shapefile>
2. A shapefile can be obtained in various ways. It can be that your organization has a department that produces shapefiles, or you can buy them from various vendors and finally there are online sites where you can download shapefiles under specific usage terms.
3. The shape file used in this exercise is downloaded from the AdminVector Administrative Maps of Belgium.

<http://www.ngi.be/NL/NL1-5-2.shtm> for Municipalities in both 2015 and 2019 (latest version).

### De administratieve kaart van België, vectorversie (Adminvector)

#### ■ Korte beschrijving

AdminVector is een vectordataset die de meest geometrisch nauwkeurige en semantisch gedetailleerde administratieve vectordata van het NGI bevat. De gegevens zijn afkomstig van de topogeografische inventaris van het Belgische grondgebied die door het Nationaal Geografisch Instituut wordt opgebouwd en bijgehouden. De dataset bevat 12 objectklassen met betrekking tot statistische sectoren, deelgemeenten, gemeenten, arrondissementen, provincies, gewesten en de lands- en zeegrenzen van België. De geometrie van de gegevens van al deze thema's wordt beschreven door x,y- of x,y,z-coördinaten.

[Gratis downloaden](#)

AdminVector 2019 Lambert 72 : [Shapefiles](#)  
AdminVector 2019 Lambert 2008 : [Shapefiles](#)  
AdminVector 2019 WGS84 : [Shapefiles](#)

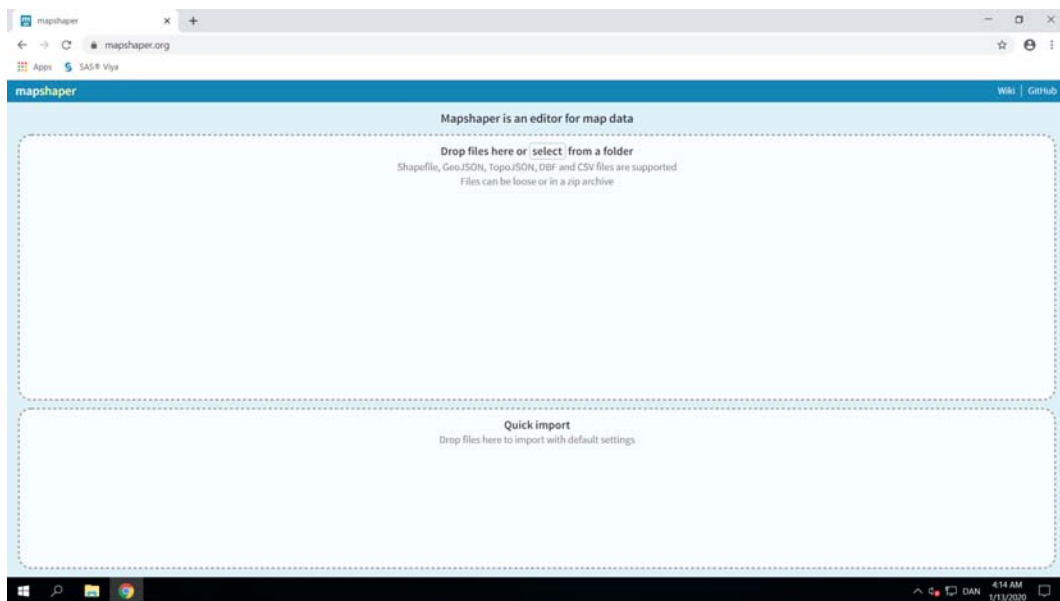
The default projection in Belgium is Lambert 2008. But SAS Visual Analytics uses WGS84 by default.

The Belgmap2019New files can be downloaded from my dropbox folder using this URL:

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<https://tinyurl.com/yx9ojymb> do a direct download and then move the files to your d:\workshop folder.

4. To investigate a shapefile you can use an online shapeviewer, here we are going to use mapshaper.org.
5. Login to the SAS Visual Analytics RACE environment as described in the general login instructions.
6. Open a browser and type in the URL mapshaper.org.



7. Press the select button and browse to D:\Workshop\belgmap\AdminVector\_2015\_WGS84\_shp, here you'll find 4-6 files for each Administrative Level. Select all of them and press Open.
8. In the next pop-up, press Import

AD\_2\_Municipality.dbf  
AD\_2\_Municipality.prj  
AD\_2\_Municipality.shp  
AD\_2\_Municipality.shx

#### Options

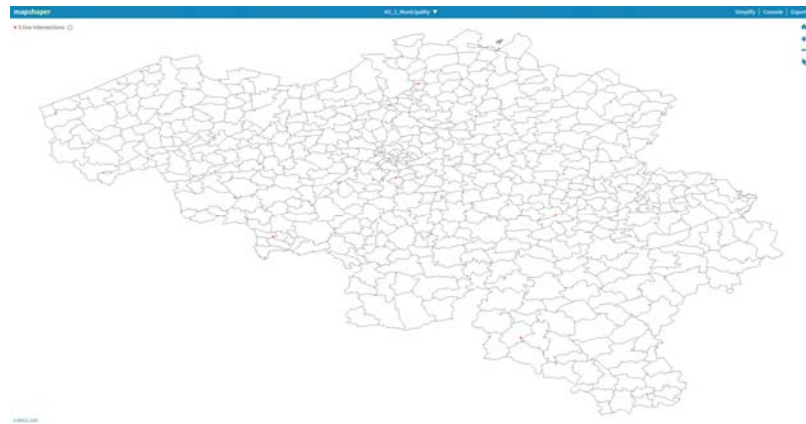
- ☒ detect line intersections ?  
☐ snap vertices ?


import options ?

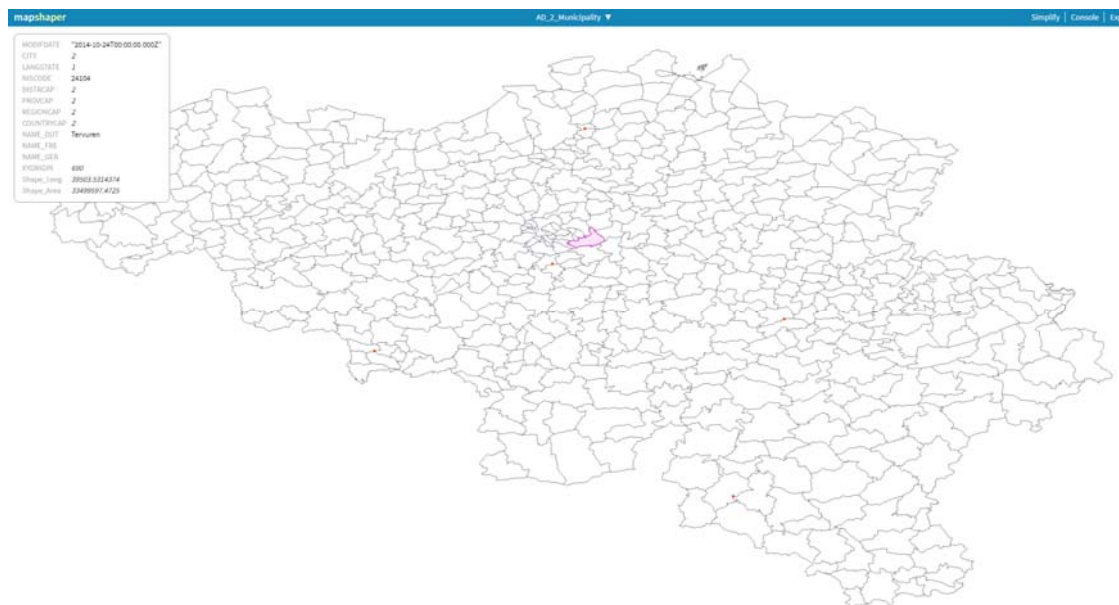
Cancel Select Import

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9. You should now see something like this, which is the borders of the different municipalities in Denmark.



10. Press the  icon on the right-hand side to have information about each shape presented when selecting a shape.



11. In this file the NisCode and the NAME\_DUT, FRE, GER are the interesting attributes that we can use to match a real-life municipality to the shapes in the file.
12. Try to open another browser tab and only import the dbf or the shp file in the mapshaper.org webpage and inspect the result. Here you'll clearly see the types of information stored in the

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two files. You'll see that the dbf file does not contain any shape information, whereas the shp files does not contain any information besides the shapes.

13. Each shape is made up of several points, which the application that visualize the shape file, connects with lines to make up the shape. The order the coordinates should be connected is the order they are found in the shape file.
14. To make these shapes available in VA we must import the shape information into a dataset in cas and then tell cas how to interpret the shape data. That is which coordinate make up the shape and in which order they should be connected. This process is known as defining a custom polygon provider.

15. As described in the Administration Guide

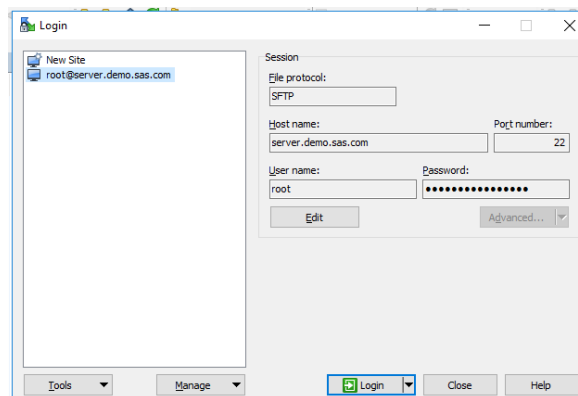
<https://support.sas.com/documentation/onlinedoc/viya/3.4/AdminDoc34.pdf> on page 161, SAS institute two SAS macros available for investigating and importing a shape file.

%SHPCNTNT      displays the contents of the specified shapefile.

%SHPIMPRT      converts a shapefile into a SAS data set and loads it into CAS.

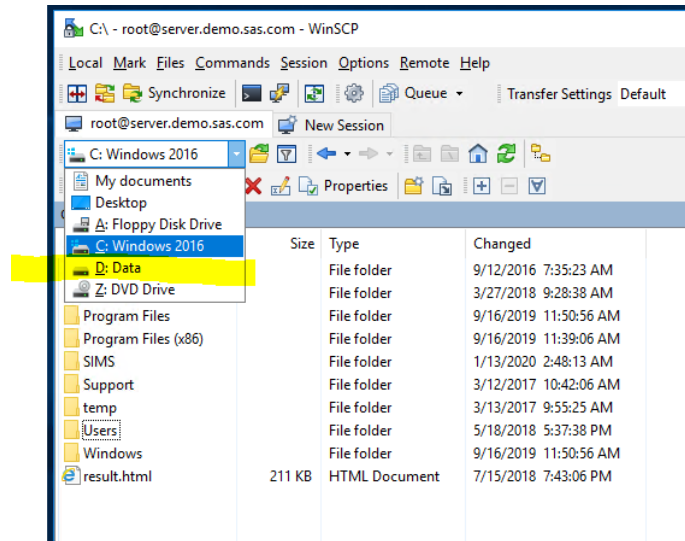
16. The macros can be run in any SAS Client. We will be using the SAS Studio web application available in the Viya environment. To do this we have to move the shapefiles to the Viya server.

17. In this environment we will be using WinSCP. Open WinSCP and press Login to login as root



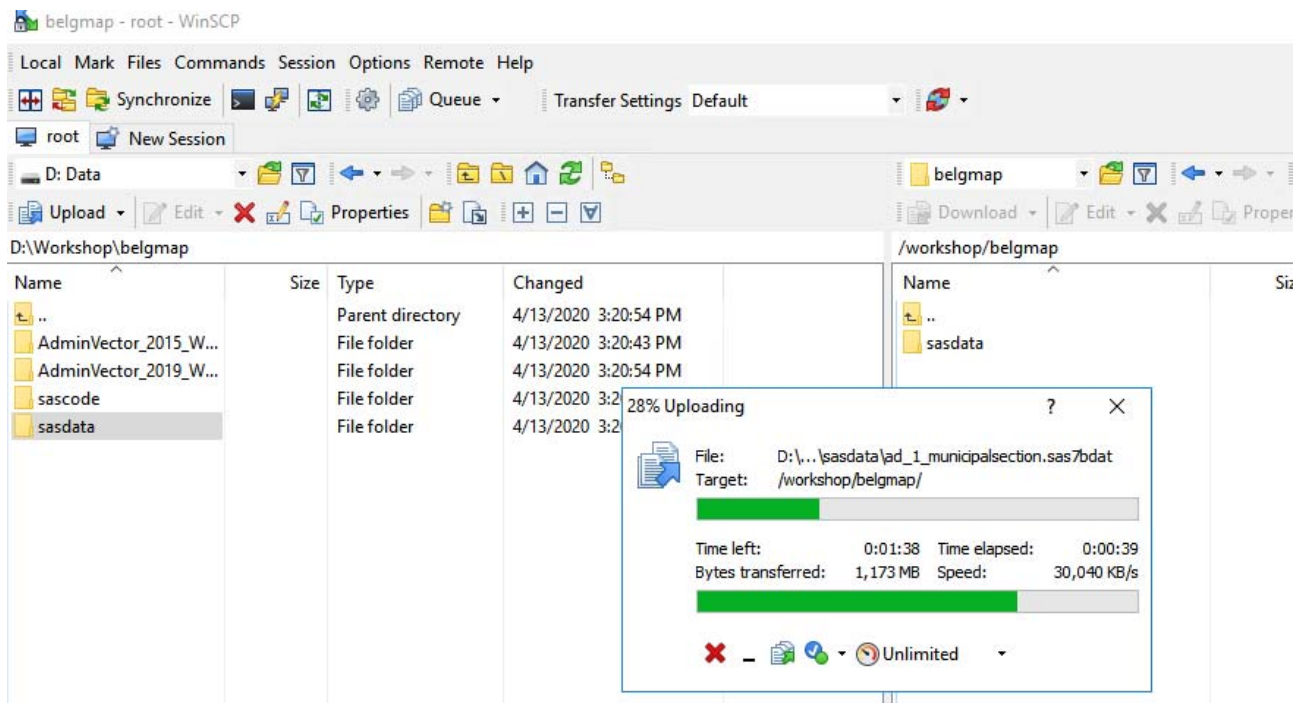
18. In the left side navigate to D-drive by pressing the drive drop down

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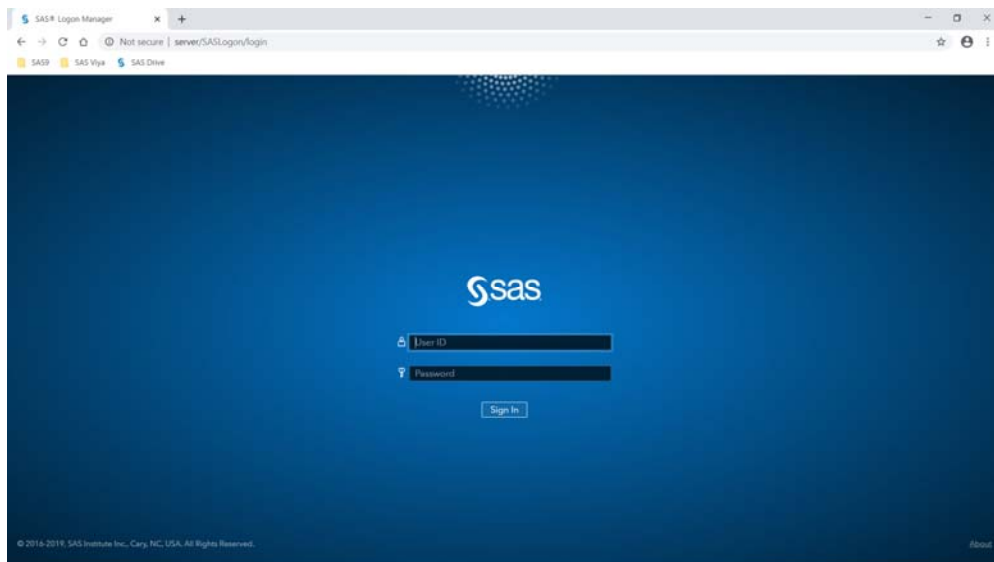
19. Then navigate to the shapefile folder and down into the dkmunicipality folder to see all the extracted shapefiles. At the right hand side, navigate to the **/workshop/belgmap/AdminVector\_2015\_WGS84\_shp** folder, this is a temporary folder created to store the shapefiles at the server. It can be any folder where you have the permission to write to.

20. Drag and drop the content of the belgmap folder from the left side to the right side of WinSCP



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21. Open a new browser window and press the SAS Drive bookmark. We need a user that can run SASStudio and are a member of SAS Administrators (as they have access to defining custom polygon providers).
22. Login using the credentials of Christine.



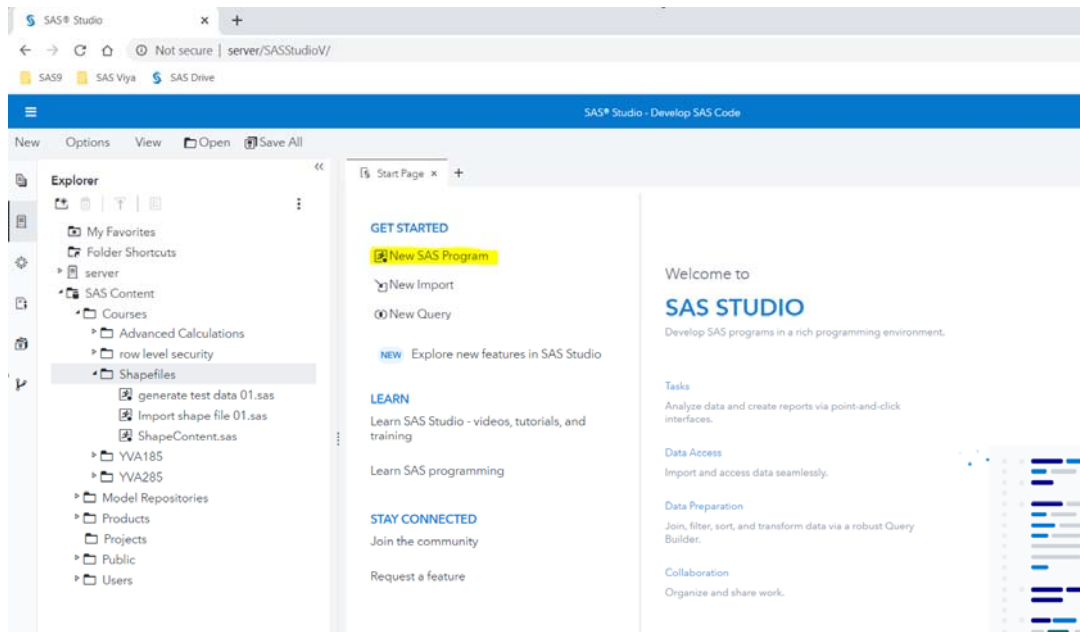
23. Press yes when prompted to assume the administrator role. This is needed as we need to create a caslib to store the shape data in and it is also needed to be able to create the Custom Polygon Provider with-in SAS Visual Analytics.
24. Open SAS Studio by clicking the burger menu in the upper left corner and select Develop SAS Code option.



25. Press the New Program



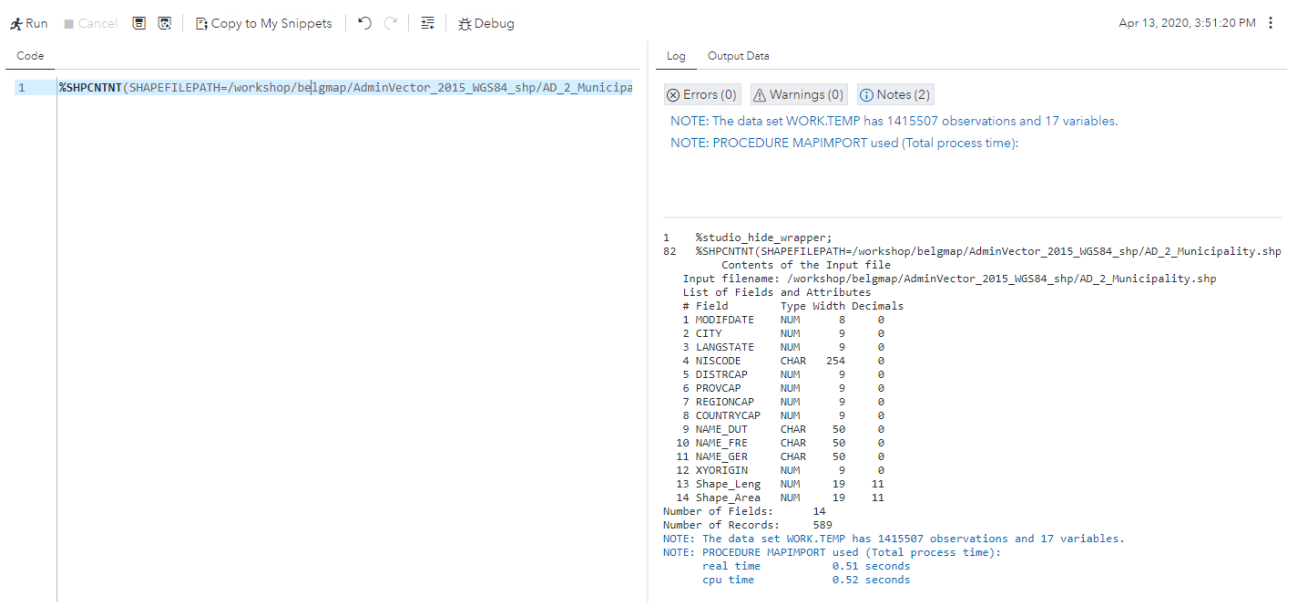
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26. In the program window type in the command to run the shape content macro  
%SHPCNTNT(SHAPEFILEPATH=/workshop/belgmap/AdminVector\_2015\_WGS84\_shp/AD\_2\_Municipality.shp);

27. Run the program by pressing F3 (make sure your cursor is positioned in the code part of the screen) or the Run button.

28. The log should contain no errors

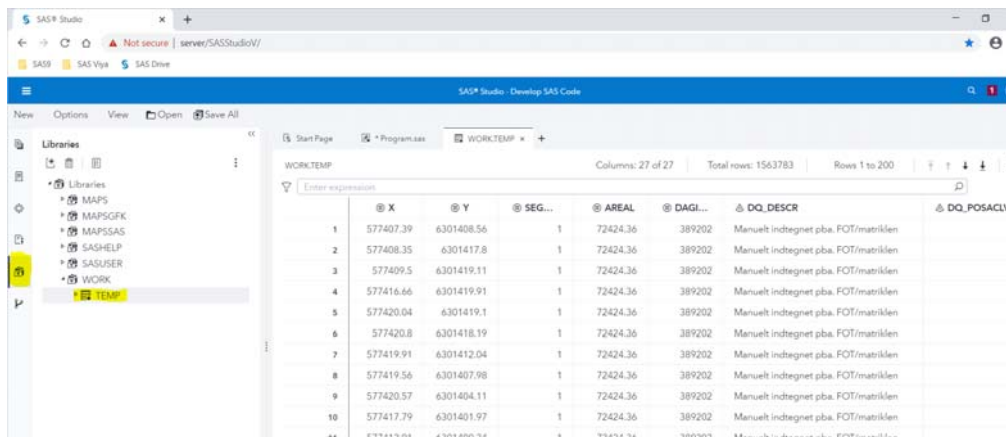


29. Note that a temp dataset has been created in work. It contains 1.563.783 observations, indicating that the shapes all together are made up of 1.563.783 coordinates.



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30. Select the libraries tab and navigate to the work library in the left part of the screen. Double-click the temp dataset to open it, it has all the shapes as x/y coordinates for each id. The order of the rows indicates the order the x/y coordinates should be connected to from the desired shapes. A shape can consist of multiple segments within a given ID. Segments are not connected with lines.

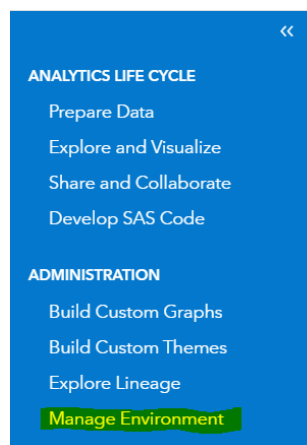


The screenshot shows the SAS Studio interface. On the left, the 'Libraries' pane is open, showing the 'WORK' library with a 'TEMP' dataset highlighted. The main window displays the 'WORKTEMP' dataset with 11 rows and 7 columns. The columns are: X, Y, SEG, AREAL, DAGL, DQ\_DESCR, and DQ\_POSACLV. The data represents coordinates and segments for various shapes.

	X	Y	SEG	AREAL	DAGL	DQ_DESCR	DQ_POSACLV
1	577407.39	6301408.56	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
2	577408.35	6301417.8	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
3	577409.5	6301419.11	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
4	577416.66	6301419.91	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
5	577420.04	6301419.1	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
6	577420.8	6301418.19	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
7	577419.91	6301412.04	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
8	577419.56	6301407.98	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
9	577420.57	6301404.11	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
10	577417.79	6301401.97	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	
11	577412.91	6301400.24	1	72424.36	389202	Manuelt indtegnnet pba. FOT/matriklen	

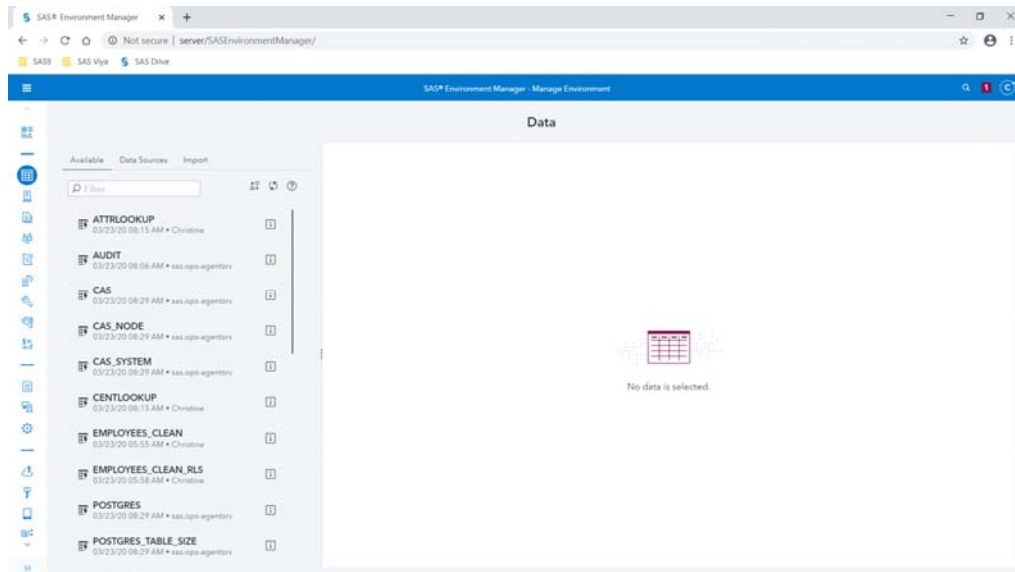
## 2. Import the content of a shapefile

31. When importing the shapedata we need a cas library to store the data. Open the environment Manager in the browser by clicking the burger menu and select Manage Environment



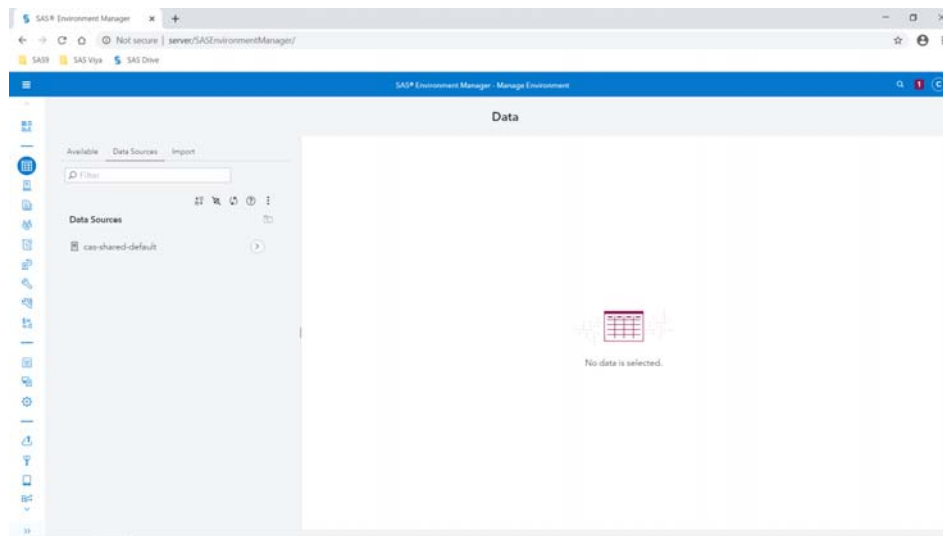
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## 32. Select the data menu option



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33. Click on Data Sources and select the connect icon



34. Fill out the window as indicated, and press SAVE.

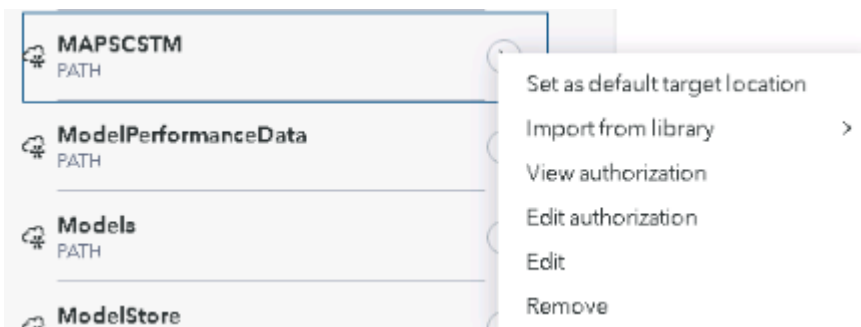
A screenshot of the 'Connection Settings' dialog box. The 'Name' field is 'MAPSCSTM'. The 'Server' dropdown is 'cas-shared-default'. The 'Type' dropdown is 'File system'. The 'Source type' dropdown is 'PATH'. The checkbox 'Persist this connection beyond the current session' is checked. Below these are tabs for 'Settings' and 'Advanced'. Under 'Settings', it says 'Specify the PATH connection information.' The 'Path' field is '/workshop/belgmap/sasdata'. There is a 'Description' field below it. At the bottom, there is a checkbox 'Include subdirectories' and three buttons: 'Test Connection', 'Save', and 'Cancel'.

35. You can choose any name for the caslib and any path which is fit for your environment.

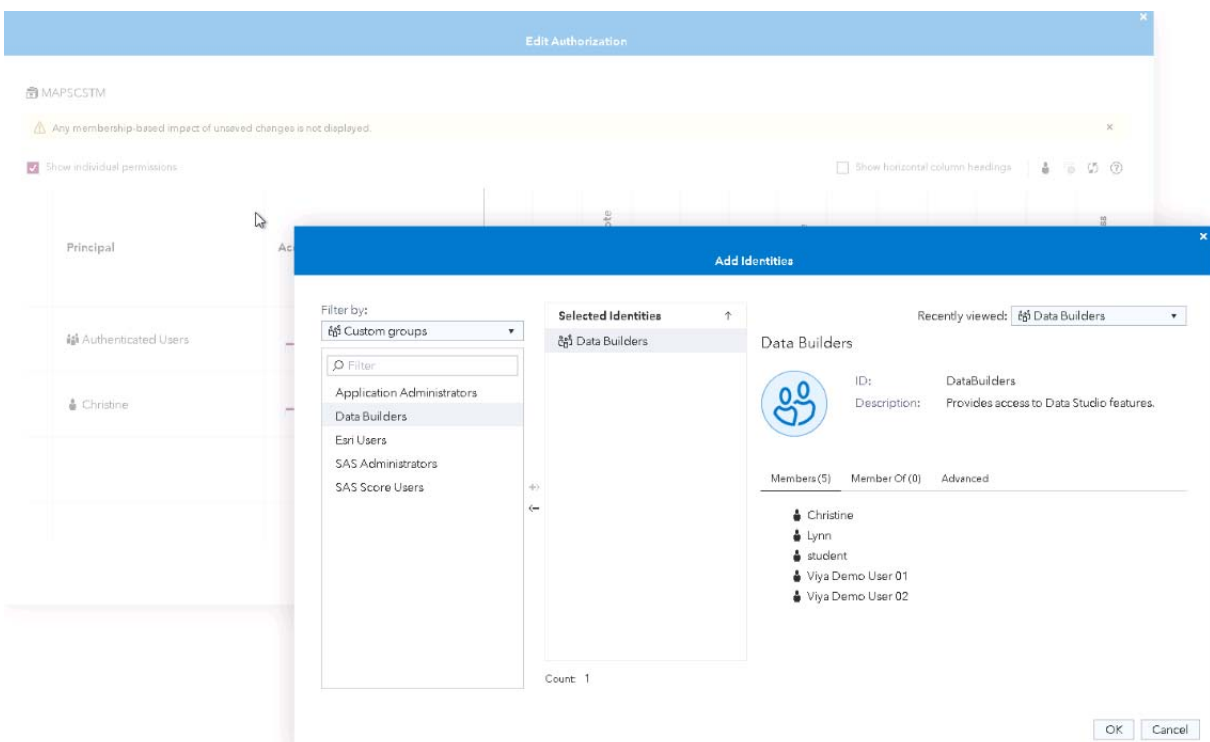
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36. The caslib is shown in the list of caslibs if you drill into the cas-shared-default server.
37. Usually this cas library is already created by the administrator, likewise it will have the appropriate authorization settings.
38. We will give Authenticated Users read access to this cas library to allow for them to read the imported shape data. We also need to add the Data Builders Group, to give them Write access and the SAS Administrators to grant Full Control.

Use Right Mouse Click on the CASlibrary MAPSCSTM: Edit Authorizations



Add the Group Data Builders and SAS Administrators:



Make the following changes to the Edit Authorizations:

- Authenticated Users: Grant ReadInfo and Select Permissions (or use the slider and grant Read)
- Data Builders: Grant Write (use the slider to select Write)

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- SAS Administrators: Grant Full Control (use the slider to grant Full Control)
- In a real environment, you would remove the permissions for Christine to avoid person specific permissions.

Select Save to save the permission settings:

Principal	Access Level	ReadInfo	Select	LimitedPromote	Promote	CreateTable	DropTable	DeleteSource	Insert	Update	Delete	AlterTable	AlterCaalib	ManageAccess
Authenticated Users	Read	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Christine	Full Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Data Builders	Write	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
SAS Administrators	Full Control	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

39. Now go back to the SAS Studio by clicking the burger menu and select **Develop SAS Code** once more.

40. Add an additional program in SAS studio by pressing the New Option in menu line, and open the program in SAS Content -> Courses -> Shape files -> Import shape file 01

Run Cancel Copy to My Snippets Debug

Code

```

1 cas;
2 libname mapscstm cas caslib=mapscstm;
3 proc sql;
4 drop table mapscstm.munty2015; quit;
5
6
7 %shpimprt(shapefilepath=/workshop/belgmap/AdminVector_2015_WGS84_shp/AD_2_Municipality.shp,
8 id=niscode, outtable=munty2015, cashost=server, casport=5570, caslib='mapscstm');
```

41. The first 3 lines are included if there should be a need to run the program multiple times. It will delete and imported shape file dataset before importing again.

42. Run the program. The result should resemble this.

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The screenshot displays the SAS Visual Analytics interface. The top bar shows the 'Start Page', 'Program.sas', 'WORKTEMP', and 'Import Shape file BE.sas'. The main area is divided into three panes: Code, Log, and Output Data.

**Code Pane:** The SAS program is as follows:

```

1 cas;
2 libname mapscstm cas caslib=mapscstm;
3 proc sql;
4 drop table mapscstm.munty2015; quit;
5
6
7 %shpimport(shapefilepath=/workshop/belnap/AdminVector_2015_WGS84_shp/AD_2_Municipality.shp,
8 id=NISCODE, outtable=munty2015, cashost=server, casport=5570, caslib=mapscstm);

```

**Log Pane:** The log shows the execution of the program, including the CASUTIL procedure and the drop table statement.

**Output Data Pane:** The output data is displayed in a table format, showing the results of the CASUTIL procedure.

The CASUTIL Procedure									
Table Information for Ca									
Table Name	Number of Rows	Number of Columns	Indexed Columns	NLS encoding	Created	Last Mod			
MUNTY2015	1415507	18	0	utf-8	2020-04-13T16:26:07-04:00	2020-04-			


Detail Information for munty2015 in Caslib MAPSCSTM									
Node	Number of Blocks	Active Blocks	Rows	Data size	Variable Data size	Blocks Mapped	Memory Mapped	Blocks Unmapped	Memory Unmapped
ALL	1416	1416	1415507	758711752	0	1416	758873288	0	

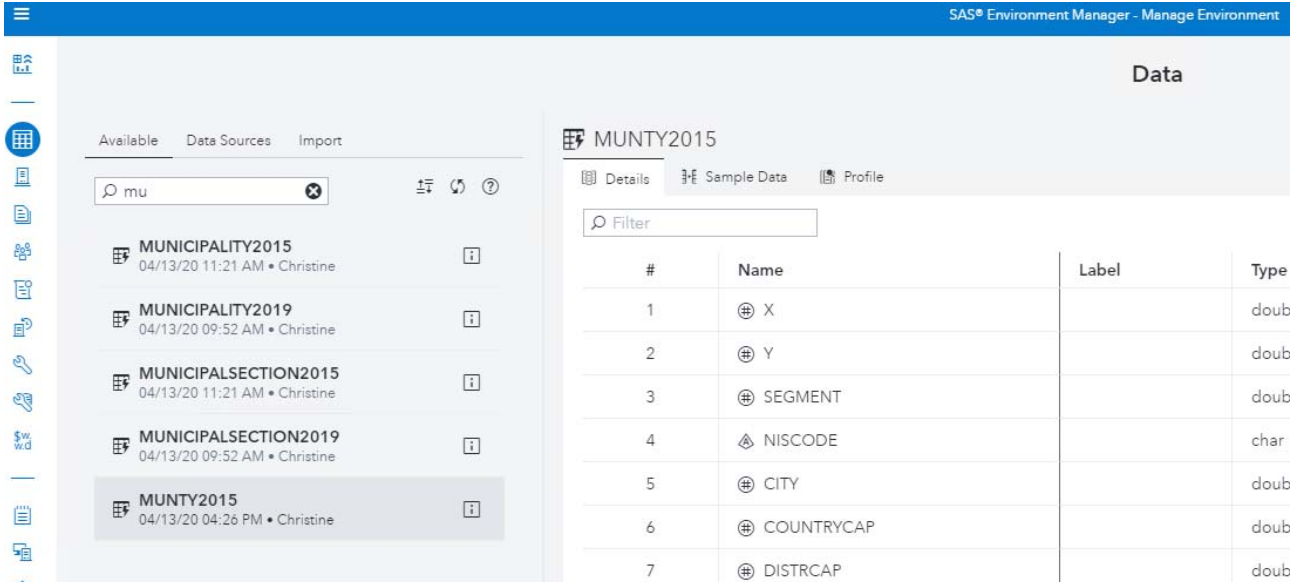
  

Column Information for MUNTY2015 in Caslib MAPSCSTM						
Column	Type	Length	Formatted Length	Format Width	Format	Format Decimal
X	double	8	12	0		0
Y	double	8	12	0		0
SEGMENT	double	8	12	0		0
NISCODE	char	254	254	0		0
CITY	double	8	12	0		0
COUNTRYCAP	double	8	12	0		0
DISTRCAP	double	8	12	0		0
LANGSTATE	double	8	12	0		0
MODIFDATE	double	8	12	0		0
NAME_DUT	char	50	50	0		0
NAME_FRE	char	50	50	0		0
NAME_GER	char	50	50	0		0
PROVCAP	double	8	12	0		0
REGIONCAP	double	8	12	0		0
Shape_Area	double	8	12	0		0
Shape_Leng	double	8	12	0		0
XYORIGIN	double	8	12	0		0
_seq__	double	8	12	0		0

43. Verify that there are no errors in the Log. This first time this program is submitted there will be a warning from the drop table statement indicating that the dataset does not exist. This is OK.

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44. Using the burger menu go back to the Environment Manager and verify that the Munty2015 has been loaded to the MAPSCSTM caslib. If you do not see both datasets press the refresh button 



The screenshot shows the SAS Environment Manager interface. On the left, a list of datasets is displayed under the 'Available' tab. The dataset 'MUNTY2015' is selected. On the right, the 'Details' view for 'MUNTY2015' is shown, displaying a table of data points.

#	Name	Label	Type
1	⊕ X		doub
2	⊕ Y		doub
3	⊕ SEGMENT		doub
4	△ NISCODE		char
5	⊕ CITY		doub
6	⊕ COUNTRYCAP		doub
7	⊕ DISTRCAP		doub

45. We are now done importing the shapefile.

### Remarks:

- 1) Visual Analytics can only show maps with less than 250.000 data points. The map we have here has 1.4 milj data points.
- 2) The name of the Municipalities is either in Dutch, French or German. Depending on the langstate, we should select the proper name or create a bilingual combination.
- 3) The encoding of the shape files should be UTF-8 so that special characters are treated correctly.
- 4) The imported shape file contains too many columns, flags that indicate if a municipality is capital of country, district or province, if it is a city, ... these are attributes of the municipality that are not required in the map dataset.

To address these issues, I have created a special program that handles all these problems:

Select the Server>SAS Content>Shapefiles:

Choose the Upload Files button and upload the 2 programs, I have create:



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Explorer



My Favorites

Folder Shortcuts

server

Home

sasuser.viya

Belgmap\_polygonload.sas

Belgmap\_polygonload2015.sas

SAS Content

Courses

Advanced Calculations

Shapefiles

generate test data 01.sas

Import shape file 01.sas

Import Shape file BE.sas

Import Shape file BE.sas

ShapeContent.sas

WGS84\_Belgmap\_2015.sas

WGS84\_Belgmap\_2019.sas

Select: WGS\_84\_Belgmap\_2015.sas and WGS84\_Belgmap\_2019.sas:

Upload Files

Size limit for each selected file is 100 MB.

Upload to: /Courses/Shapefiles

Attachments (2)



WGS84 Belgmap 2019.sas

12.7 KB



WGS84 Belgmap 2015.sas

10.5 KB



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The code will import the Shape files for

StatisticSector, MunicipalSection, Municipality, District, Province and Region.



The screenshot shows the SAS Studio interface. At the top, there is a toolbar with buttons for 'Start Page', 'Program.sas', 'WORK.TEMP', 'Import Shape file BE.sas', and 'WGS84\_Belg'. Below the toolbar is a 'Run' button and a 'Cancel' button. To the right of these are icons for 'Copy to My Snippets', 'Undo', 'Redo', and 'Debug'. The main area is titled 'Code' and contains a SAS program. The program starts with a macro variable definition for the path, followed by a comment about the shapefile version. It then defines the shapefile version and the version number. A macro variable for the session is defined. The program then enters a 'proc casutil' block. Inside this block, it drops two tables: 'StatisticSector&version' and 'StatisticSector&version' (with a different caslib). It then terminates the session. After the 'proc casutil' block, it includes a macro for the shapefile path and then imports the shapefile into a table named 'StatisticSector&version'. The import options include 'ID=NISCODE', 'outtable=StatisticSector&version', 'cashost=server', 'casport=5570', 'caslib='casuser'', and 'reduce=1'. A comment block follows, explaining that the code creates a default CAS session and creates SAS librefs for existing caslibs. The program then enters a 'data' block, creating a table named 'StatisticSector&version' with a length of 9 for the 'niscode' variable. It then sets the 'casuser' table to the 'StatisticSector&version' table and drops the 'shape\_Area' and 'shape\_leng' variables. Finally, it runs the program.

```
1 %let path=/workshop/belgmap;
2 /*let shapeversion=AdminVector_2019_WGS84_shp; */
3 %let shapeversion=AdminVector_2015_WGS84_shp;
4 %let version=%scan(&shapeversion,2,_);
5 %put &version;
6 cas mysession;
7
8 proc casutil ;
9   droptable casdata="StatisticSector&version" incaslib='mapscstm' quiet;
10  droptable casdata="StatisticSector&version" incaslib='casuser' quiet;
11  quit;
12
13  cas mysession terminate ;
14
15  %shpcntnt(shapefilepath=&path/&shapeversion/AD_0_StatisticSector.shp)
16
17  %include "/opt/sas/spre/home/SASFoundation/sasautos/shprduce.sas";
18
19  %shpimprt(shapefilepath=&path/&shapeversion/AD_0_StatisticSector.shp,
20           ID=NISCODE,
21           outtable=StatisticSector&version,
22           cashost=server,
23           casport=5570,
24           caslib='casuser',
25           reduce=1)
26  /******
27  /* Create a default CAS session and create SAS librefs for existing caslibs *,
28  /* so that they are visible in the SAS Studio Libraries tree.          *,
29  /******
30
31  cas mysession;
32  caslib _all_ assign;
33
34  data mapscstm.StatisticSector&version (promote=yes replace=yes);
35  length niscode $ 9;
36  set casuser.StatisticSector&version;
37  IDNAME=NISCODE;
38
39  drop
40    modifdate shape_Area shape_leng;
41  run;
```

## 3. Import Some Test Data

46. To insert some relevant data, you can download Accidents data for 2018:

[https://data.gov.be/en/search/site/accidents?f%5B0%5D=ss\\_language%3Anl](https://data.gov.be/en/search/site/accidents?f%5B0%5D=ss_language%3Anl)

The screenshot shows the Data.gov.be search results for 'accidents'. The left sidebar contains filters for Dataset language (Dutch, French (55), English (28), German (0)), Geo coverage (Belgium (13)), Category (Transport (13)), and File type (CSV (13)). The main content area displays the dataset 'Verkeersongevallen 2018' with a description in Dutch and a metadata section. The right sidebar shows a message 'Not found what you're looking for'.

Select the most recent data from 2018:

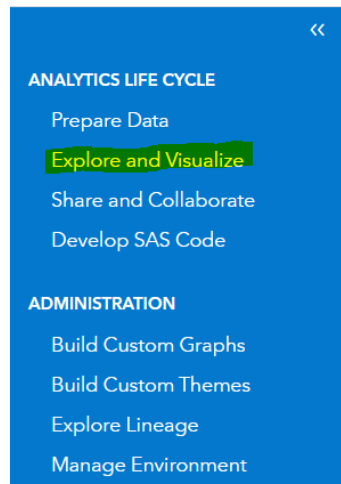
The screenshot shows the dataset page for 'Verkeersongevallen 2018'. The left sidebar contains filters for Dataset language, Geo coverage, Category, and File type. The main content area displays the dataset details, including a description in Dutch, a metadata section, and a publisher section. The right sidebar shows a message 'Not found what you're looking for'.

Download the XLSX version of the Road accidents in Belgium:

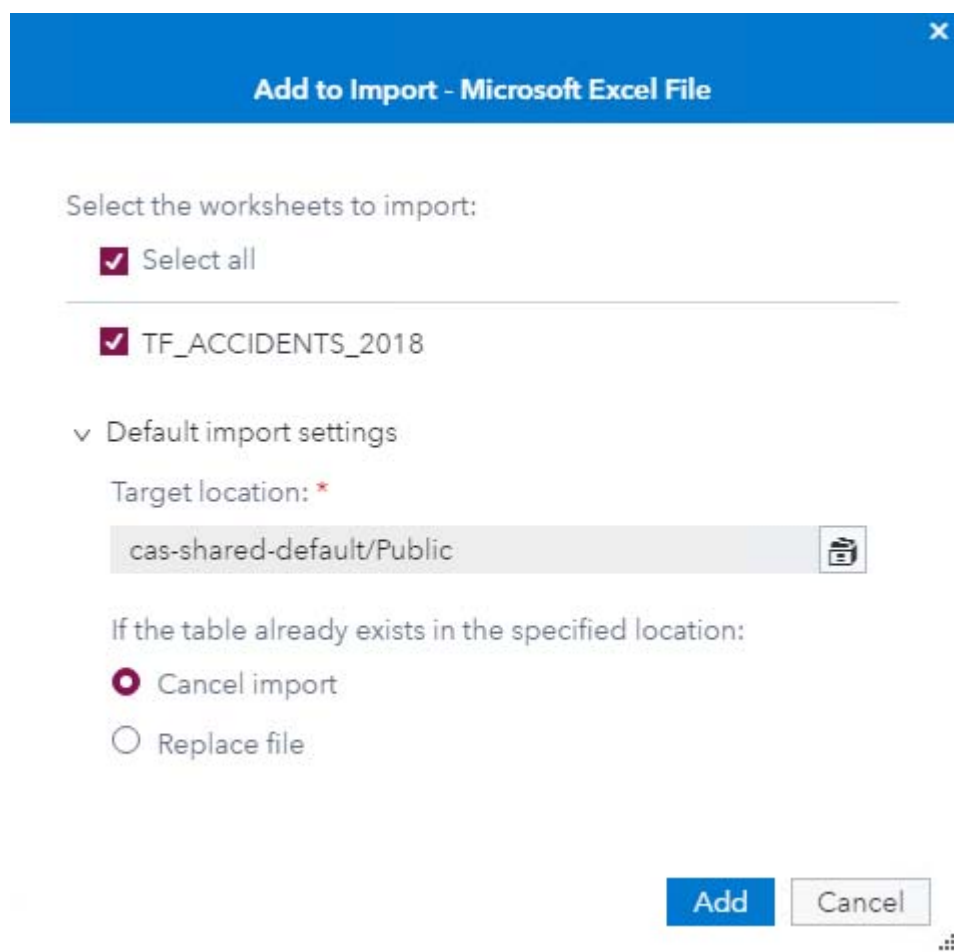
TF\_Accidents\_2018.xlsx.

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47. Using the main menu, open Visual Analytics (Explore and Visualize).



Select in the Hamburger menu: Explore and Visualize:  
Select the Data panel, and select Select Import Local Files>Local File



Finish by selecting Import Item. Then select OK.

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TF\_ACCIDENTS\_2018.xlsx

Import Item

Target table name: \*

Target location: \*

TF\_ACCIDENTS\_2018\_TF\_ACCIDENTS\_2018

cas-shared-default/Public



Find

☐ Save as an in-memory table only

If target table name exists:

☐ Cancel import

☒ Replace file

Label:

Format: ⌵

Enter label

sashdat

File Specifications    Advanced

☒ Specify a worksheet to import:

TF\_ACCIDENTS\_2018

☒ First row contains column names

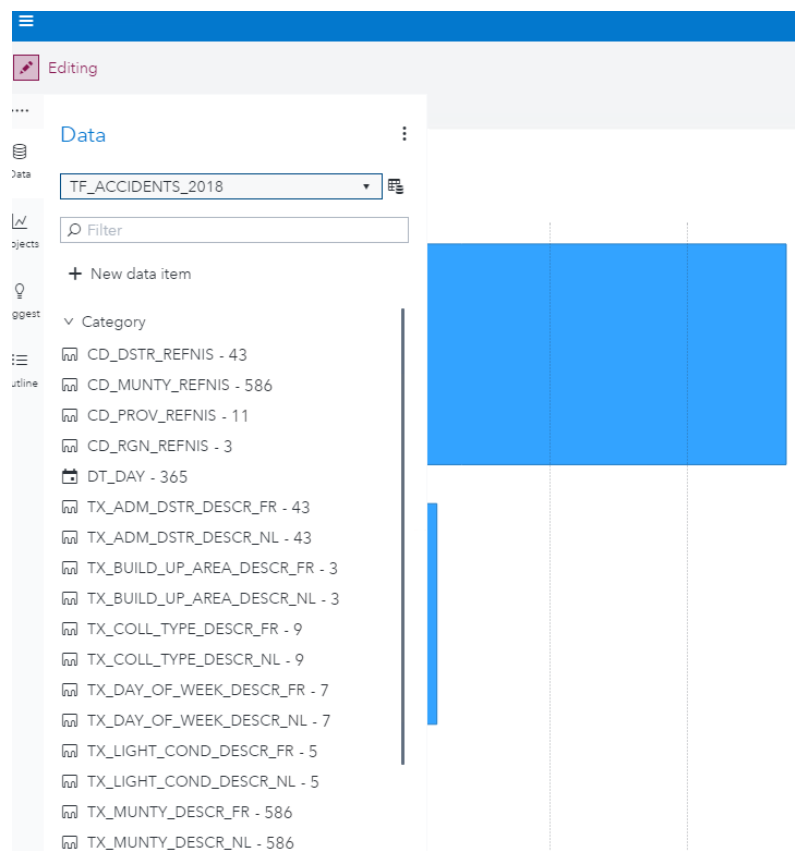
☐ Limit the range of imported rows and columns

## 4. Defining the custom polygon provider

---

48. Select the “Start with data” and select the test dataset TF\_ACCIDENTS\_2018 from the public cas library.

49. Notice there are 586 distinct values of CD\_MUNTY\_REFNIS and TX\_MUNTY\_DESCR\_NL/FR.

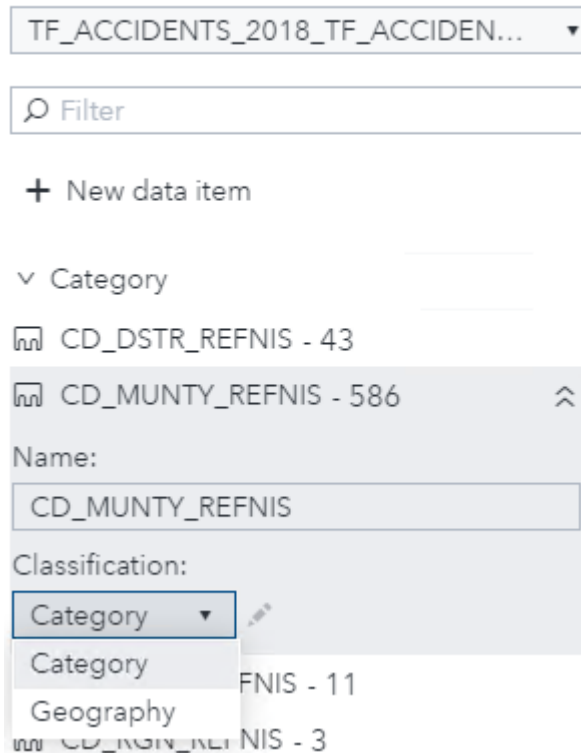


## SAS® Visual Analytics on Viya, Advanced topics

50. We will use the CD\_MUNTY\_REFNIS variable as base for the geocoded variable.

Right click the CD\_MUNTY\_REFNIS variable and change the Classification from Category to Geography

Data



51. In the window: Edit Geography Item:

In the Geography Data: Select Geographic data provider

Geographic Data provider: select New



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**Edit Geography Item**

Name:

Based on:

Geography data:

Geographic data provider: \*  
 **New**

Region ID: \*  
 **Edit**

Latitude (y):

Longitude (x):

Coordinate Space:

Map available

52. In the window: New Geographic Data Provider:  
Enter following information:

- Name: BE\_Municipality\_REFNIS
- Label: BE Municipality REFNIS 2015
- Library: MAPSCSTM
- Table: Municipality2015

## New Geographic Data Provider

Name:\*  
BE\_Municipality\_Refnis2015

Label:\*  
BE Municipality Refnis 2015

Type:  
CAS Table

Server:  
cas-shared-default

Library:  
MAPSCSTM

Table:  
MUNICIPALITY2015

OK Cancel


53. Fill in additional columns:


The \_\_seq\_\_ column was created as part of the import process.

- ID Column: niscode
- Sequence Column: \_\_seq\_\_
- Advanced: Segment Column: Segment


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## Edit Geographic Data Provider


 niscode

Sequence Column:  
 \_\_seq\_\_

▼ Advanced

Segment Column:  
 SEGMENT

Latitude (y) Column:  
 Y

Longitude (x) Column:  
 X

Coordinate Space:\*

EPSG:4326

Delete OK Cancel

54. The coordinate space of your shape file can be seen in the \*.prj file. Open a Windows Explorer and open the AD\_2\_Municipality.prj file.

```
D:\Workshop\belgmap2019NEW\belgmap\AdminVector_2015_WGS84_shp\AD_2_Municipality.prj - Notepad++ [Administrator]
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
appserver_autoexec_usemods.sas AD_2_Municipality.prj AD_2_Municipality.prj
1 GEOGCS["GCS_WGS_1984",DATUM["D_WGS_1984",SPHEROID["WGS_1984",6378137,298.257223563]],PRIMEM["Greenwich",0],UNIT["Degree",0.017453292519943295]]
```

55. Google the GCS\_WGS\_1984 projection

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spatialreference.org › ref › epsg › wgs-84 ▼

## WGS 84: EPSG Projection -- Spatial Reference

Aug 27, 2007 - WGS84 Bounds: -180.0000, -90.0000, 180.0000, 90.0000; **Projected** Bounds: -180.0000, -90.0000, 180.0000, 90.0000; Scope: Horizontal ...

### People also search for

wgs84 vs epsg:4326   wgs 84  
epsg:3857   epsg:4978  
epsg 4979   epsg meaning

56. This reveals that the WGS84 projection has the coordinate space EPSG:4326

← → ↺ ↻ ↵ spatialreference.org/ref/epsg/wgs-84/

SAS9 SAS Viya SAS Drive

## Spatial Reference epsg projection 4326 - wgs 84

[Home](#) | [Upload Your Own](#) | [List user-contributed references](#) | [List all references](#)

Previous: [EPSG:4324: WGS 72BE](#) | Next: [EPSG:4327: WGS 84 \(geographic 3D\)](#)

## EPSG:4326

WGS 84 ([Google it](#))

- **WGS84 Bounds:** -180.0000, -90.0000, 180.0000, 90.0000
- **Projected Bounds:** -180.0000, -90.0000, 180.0000, 90.0000
- **Scope:** Horizontal component of 3D system. Used by the GPS satellite navigation system and for NATO military geodetic surveying.
- **Last Revised:** Aug. 27, 2007
- **Area:** World

- [Well Known Text as HTML](#)
- [Human-Readable OGC WKT](#)
- [Proj4](#)
- [OGC WKT](#)
- [JSON](#)
- [GML](#)
- [ESRI WKT](#)
- [.PRJ File](#)
- [USGS](#)
- [MapServer Mapfile](#) | [Python](#)
- [Mapnik XML](#) | [Python](#)
- [GeoServer](#)
- [PostGIS spatial\\_ref\\_sys INSERT statement](#)
- [Proj4js format](#)

57. Change the coordinate space only if your Shapefiles were not stored in WGS84 or EPSG4326 projection.

Belgian Shape files can also be in Lambert 2008 projection

## 5. EPSG:3812

ETRS89 / Belgian Lambert 2008 ([Google it](#))

- **WGS84 Bounds:** 2.5400, 49.5100, 6.4000, 51.5000
- **Projected Bounds:** 517579.6608, 523633.8376, 797118.5854, 745328.5980
- **Scope:** Large and medium scale topographic mapping and engineering survey.
- **Last Revised:** Aug. 5, 2008
- **Area:** Belgium - onshore

58. And press OK. Now we have to select the ID variable on our validate dataset that corresponds to the ID variable in the custom polygon provider. Obviously, this is CD\_MUNTY\_REFNIS  
Once the Geographic Data Provider is created, fill in the Region ID: to the CD\_MUNTY\_REFNIS.

**Edit Geography Item**

Name:

Based on:

Geography data:

Geographic data provider\*:

Region ID\*:

Latitude (y):

Longitude (x):

Coordinate Space:

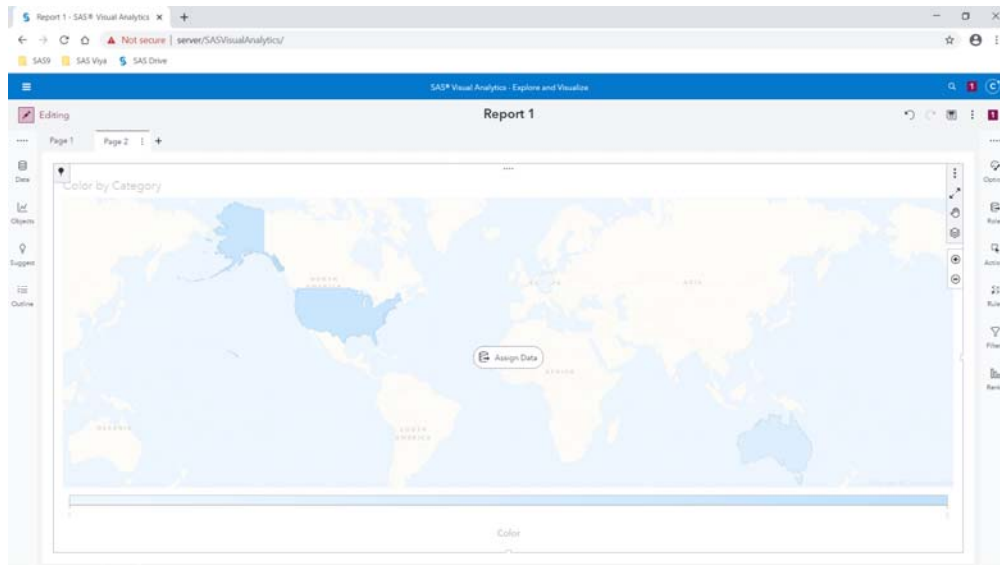
100% mapped

Map of Belgium showing municipalities.

Visual Analytics reports that 100% values are mapped, but no shapes are drawn, this indicates a problem. Let's try to visualize the new geographic data item. Press OK.

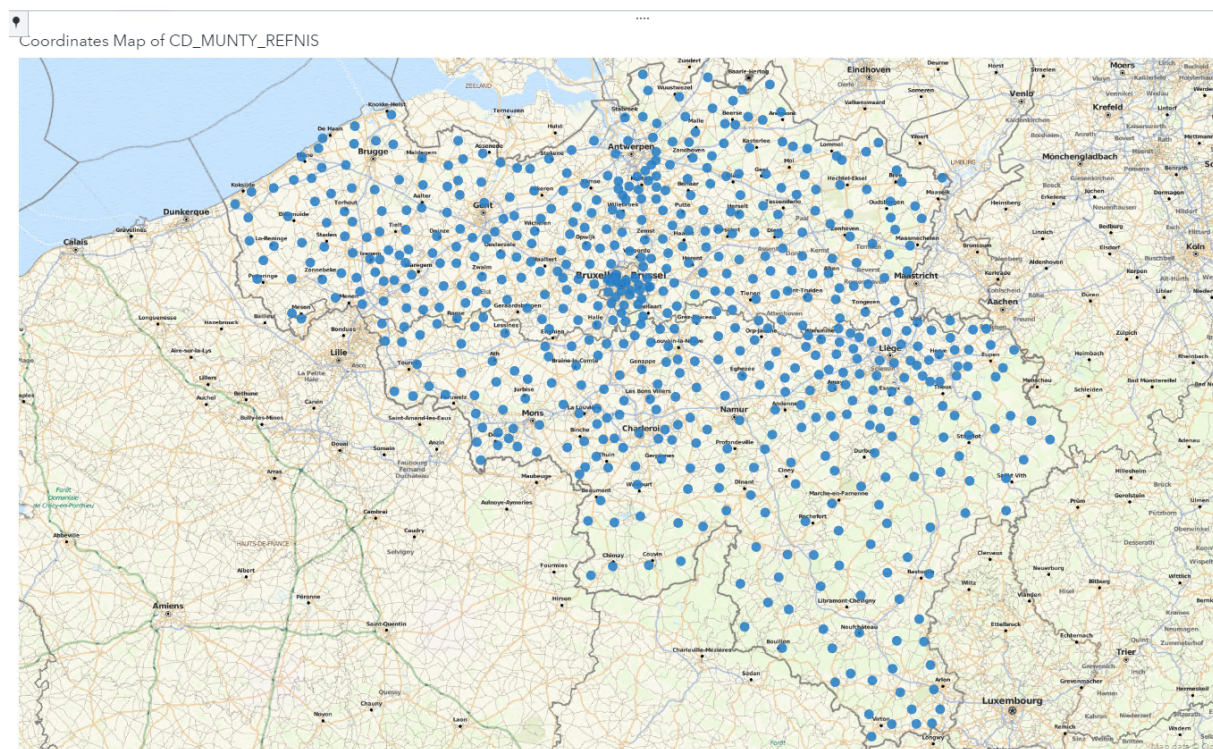
# SAS® Visual Analytics on Viya, Advanced topics

1. Add a new page to the report by pressing + right next to Page 1.
2. Drag a Geo region object to the canvas



3. Assign the CD\_MUNTY\_REFNIS data item as Geography

Add the CD\_MUNTY\_REFNIS to the Report: Using AutoChart, the default Visualization is a Geographic Coordinate Map using Frequency as Measure.



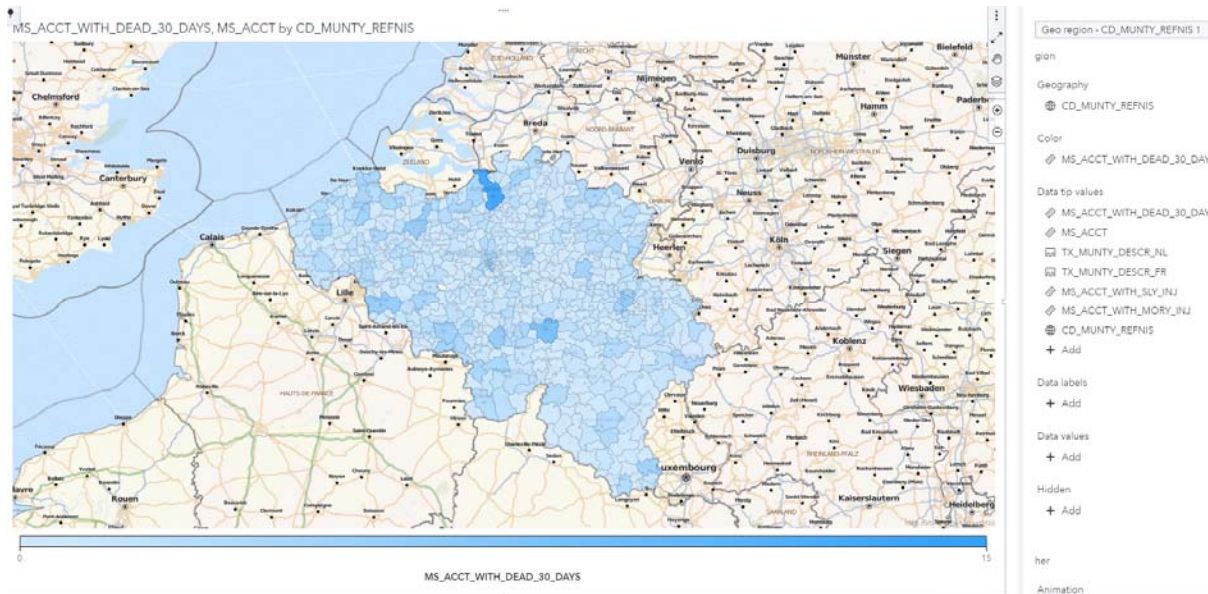


# SAS® Visual Analytics on Viya, Advanced topics

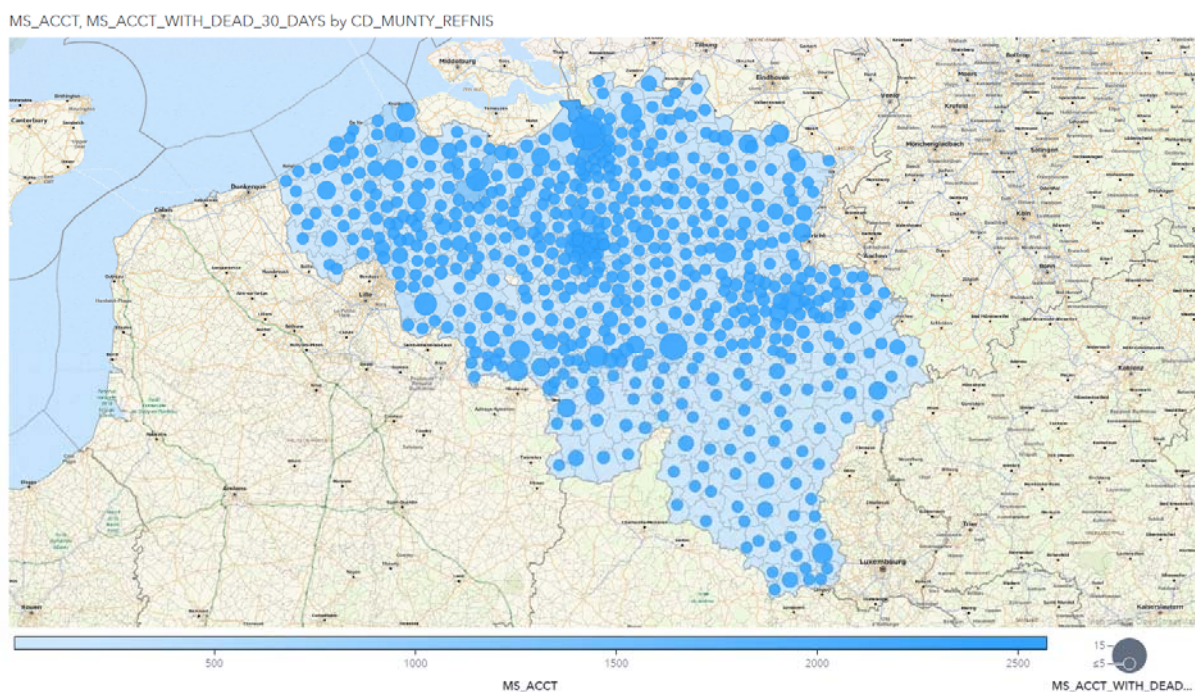
You can change the Coordinates map to a Region Map:

Select the snowman menu of the Visualisation and change it to Region Map.

And add the Measure MS\_ACCT or MS\_ACCT\_With\_DEAD\_30\_Days:



Finally it is also possible to use the combination of a Region and Coordinate map:



Save your report in the Public >Belgium Geo Maps



## SAS® Visual Analytics on Viya, Advanced topics

Save your data settings as a Data View:

×

Save Data View

No data views

Name:

TF\_ACCIDENTS\_2018\_RefNIS\_2015

Description:

TF\_Accidents\_2018 with RefNis 2015 Geography Data Items

☒ Default data view

☒ Shared data view

Save

Cancel