

Creating Custom Map Regions in SAS® Visual Analytics

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ABSTRACT

Discover how to answer the “Where?” question of data visualization by leveraging SAS® Visual Analytics. Geographical data elements within SAS Visual Analytics provides users the capability to quickly map data by countries and regions, by states or provinces, and by the centroid of US ZIP codes. This paper demonstrates how easy it is to map by these elements. Of course, once your manager sees your new maps they will ask for more granular shapes (such as US counties or US ZIP codes). Respond with “Here it is!” Follow the steps provided to add custom boundaries by parsing the shape files into consumable data objects and loading these custom boundaries into SAS Visual Analytics.

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SECTION 2: LOADING CUSTOM REGIONS

SET UP A CUSTOM MAP LIBRARY

Before beginning this section, set up and add to your autoexec a library for holding custom map data sets.

For this example, the author created a single maps library:

```
libname MAPCUSTM "/customer/warehouse/project/maps";
```

And added it to the application server autoexec program found at:

```
../Lev1/SASApp/appserver_autoexec_usermods.sas
```

Note that the SAS Workspace Server must have access to read this custom map library. Also, a restart of the SAS Object Spawner is required to pick up this autoexec modification.

BACKUP SAS VISUAL ANALYTICS CONFIGURATION

SAS Visual Analytics is shipped with configuration data. Back it up before beginning (or continuing with) any modifications. It is much easier to restore a file than to reconfigure/reinstall the solution.

Copy the SAS Visual Analytics configuration files found at ../940/Lev1/SASApp/Data/valib:

```
libname valib "../940/Lev1/SASApp/Data/valib";
libname bkup "/home/me/valib";
proc datasets library=valib;
  copy out=bkup;
run;
```

Of course, you can also use other tools at the physical level to copy and paste these tables into a backup folder. The important item to remember is that a backup is a best practice and is highly recommended by the author.

ENABLING COUNTY MAPPING

As mentioned previously, country and state are available within the product. Country is noted as Level 0, while State is Level 1. In order to complete county-level mapping and use the ‘Subdivision ..’ geographical data types, county must be moved up to Level 1.

BEFORE YOU RUN THIS CODE: Back up the SAS Visual Analytics data tables found in ../Lev1/SASApp/Data/valib.

Create a custom library ‘MapCustm’.	<pre>libname MAPCUSTM "/customer/warehouse/project/maps";</pre>
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Open a connection to the SAS Visual Analytics map library 'valib'.	<pre>libname valib "../940/Lev1/SASApp/Data/valib";</pre>
Move the US Counties (ISO = 840 and Level = 2) up to Level =1. This enables the use of the "Subdivision (State, Province) SAS Map ID Value" Geographical Data Element.	<pre>proc sql; update valib.attrlookup set LEVEL=1, ID2="", ID2NAME="" where ISO="840" and LEVEL=2; quit;</pre>
Copy the boundary data sets into our custom map library.	<pre>proc datasets library=MAPSGFK noprint; copy out=MAPCUSTM; select NAMERICA1; quit;</pre>
Merge NAMERICA Level=1 and Level=2 boundary data sets into the custom map library Level=1 table.	<pre>proc append base=MAPCUSTM.NAMERICA1 data=MAPSGFK.NAMERICA2; run;</pre>
Update the centlookup table to point to Level=1, and Level=2 NAMERICA to the custom merged table.	<pre>proc sql; update valib.centlookup set mapname="MAPCUSTM.NAMERICA1" where mapname in ("MAPSGFK.NAMERICA1", "MAPSGFK.NAMERICA2"); quit;</pre>

Note that the names of the boundary data sets match the level of the attrlookup table. This becomes important when loading custom regions.

After completing the steps above, the SAS Visual Analytics equipment will need to be restarted because these lookup tables are loaded during system start up. An example of this command on the author's equipment is:

```
../940/Lev1/Web/WebAppServer/SASServer12_1/bin/tcruntime-ctl.sh restart
```

Then verify the use of the "Subdivision (State, Province) SAS Map ID Values" geography type by following the steps in Section 1: Creating Geographical Maps.

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CONTACT INFORMATION

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