ASK THE EXPERT

How Can I Create Custom Geo Maps in SAS® Visual Analytics?

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Greg is a Senior Associate Technical Training Consultant on the SAS Education team. He is responsible for developing and maintaining training related to SAS programming and data visualization.

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Why should I care about custom geo maps?

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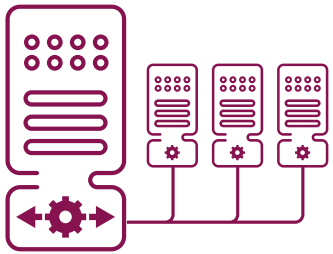
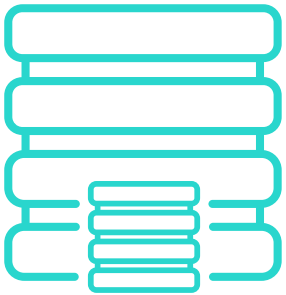
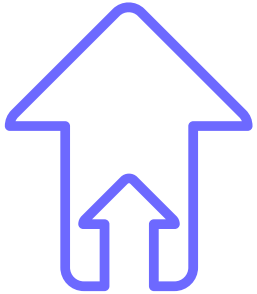
What is SAS Visual Analytics?



Cloud Analytic Services



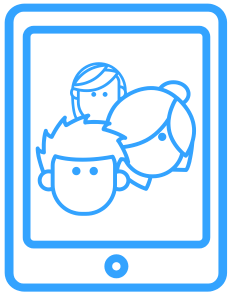
Analyze massive amounts of data



Import data

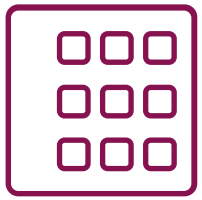
Explore data

Create reports



Share insights

What objects are available in SAS Visual Analytics?



Tables

Controls

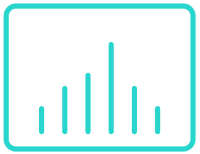
Content

Geo Maps

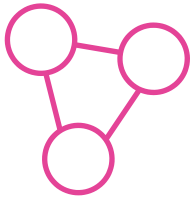
Containers

Machine Learning

Graphs

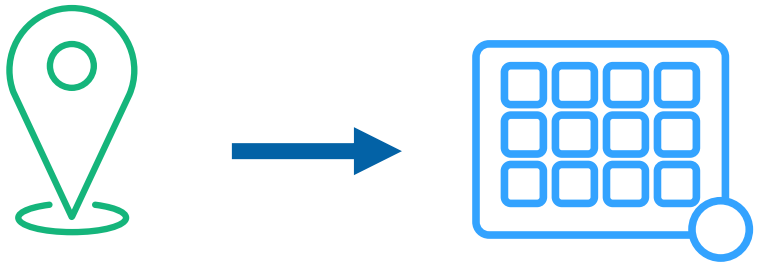


Analytics



Statistics

How do you create a geo map?



Geography data item

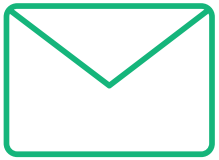
How do I create a geography data item?

Geographic name or code lookup

Country names or codes

State or province names or ID values

US state names or abbreviations



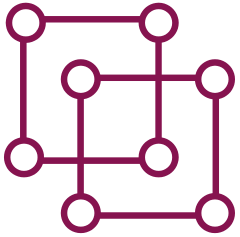
US postal codes

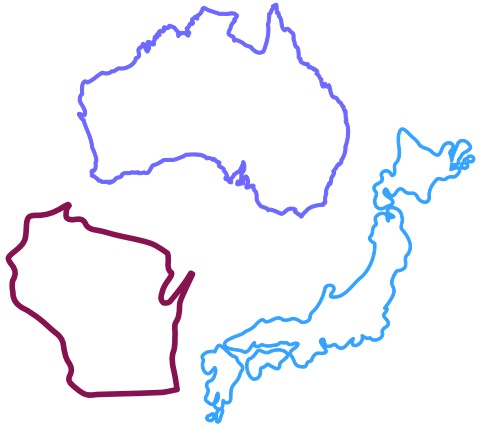
Latitude and longitude in data

Latitude

Longitude

Geographic data provider

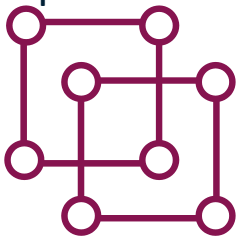




Geographic name or code lookup

Possible regions

Geographic data provider



What’s a geographic data provider?

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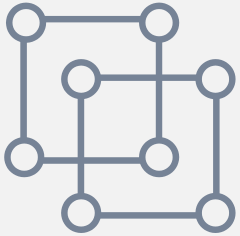
Latitude and longitude



Geographic data provider

Geographic name or code lookup

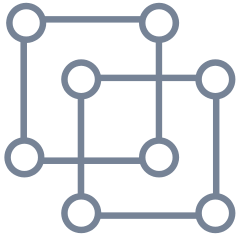
Data source

Geographic locations or regions

How does a geographic data provider work?

Data source

- CAS table
- Contains business data to be displayed on a map



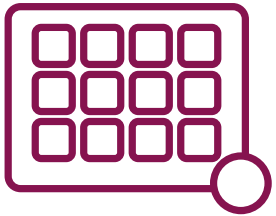
Geographic data provider

- Contains information about how to plot polygons

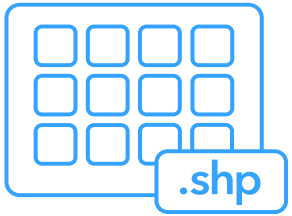
What can I use to create a geographic data provider?

Esri feature services

- Hosted on ArcGIS Online
- Stored on your Esri server



SAS data sets



Shapefiles

- Common format for storing geospatial data

How do I create a geographic data provider using a shapefile?

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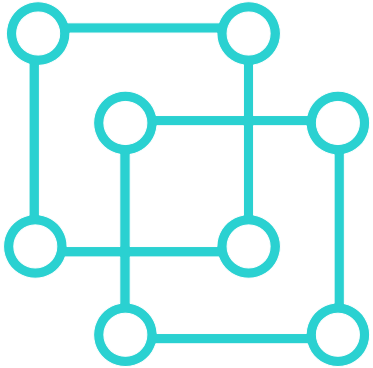
What is a shapefile?

Point

Polyline



Polygon

Fewer points

- Smaller file size
- Less smooth curves

More points

- Larger file size
- Smoother curves

.shp file

shape format

.shx file

shape index

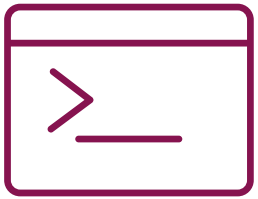
.dbf file

attribute data

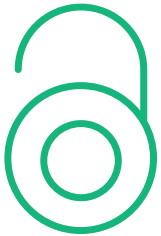
.prj file

projection information

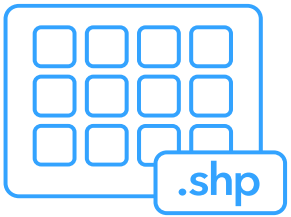
What's needed?



Access to a SAS programming interface



Permissions to define geographic data providers

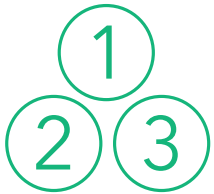


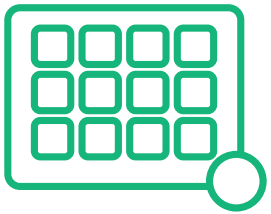
Shapefile data

How do I use a shapefile?

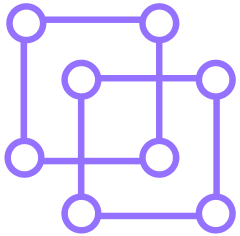
View → Import → Define

- Identify ID variable





- Convert shapefile to a SAS data set
- Add sequence variable



- Create geographic data provider

View → Import → Define

```
PROC MAPIMPORT OUT=map-data-set
                        DATAFILE='path-to-shapefile';
      <SELECT field-identifier > ;
      <EXCLUDE field-identifier>;
      <RENAME 'field-identifier-1'=variable-name-1>;
      <ID field-identifier> ;
RUN;
```

Is there an easier way to import shapefiles?

View → Import → Define

%SHPCNTNT

- Displays contents of the shapefile
- Identify the ID column

%SHPIMPRT

- Imports the shapefile
- Adds the _seq_ variable
- Loads the table to CAS

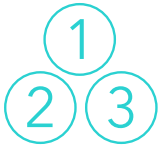
View → Import → Define

%SHPCNTNT(SHAPEFILEPATH=*path-to-file***)**

View → **Import** → Define

```
%SHPIMPRT(SHAPEFILEPATH=path-to-file,
        ID=id-column,
        OUTTABLE=table-name,
        CASHOST=machine-name,
        CASPORT=port-number,
        CASLIB=library-name,
       <REDUCE=0|1>);
```

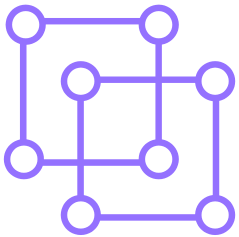
View → Import → Define



GEOID	X	Y	segment	_seq_
01001	-86.413115	32.707386	1	1
01001	-86.412342	32.503636	1	2
01001	-86.411172	32.409937	1	3
01001	-86.425072	32.402436	1	4

How do I define a geographic data provider?

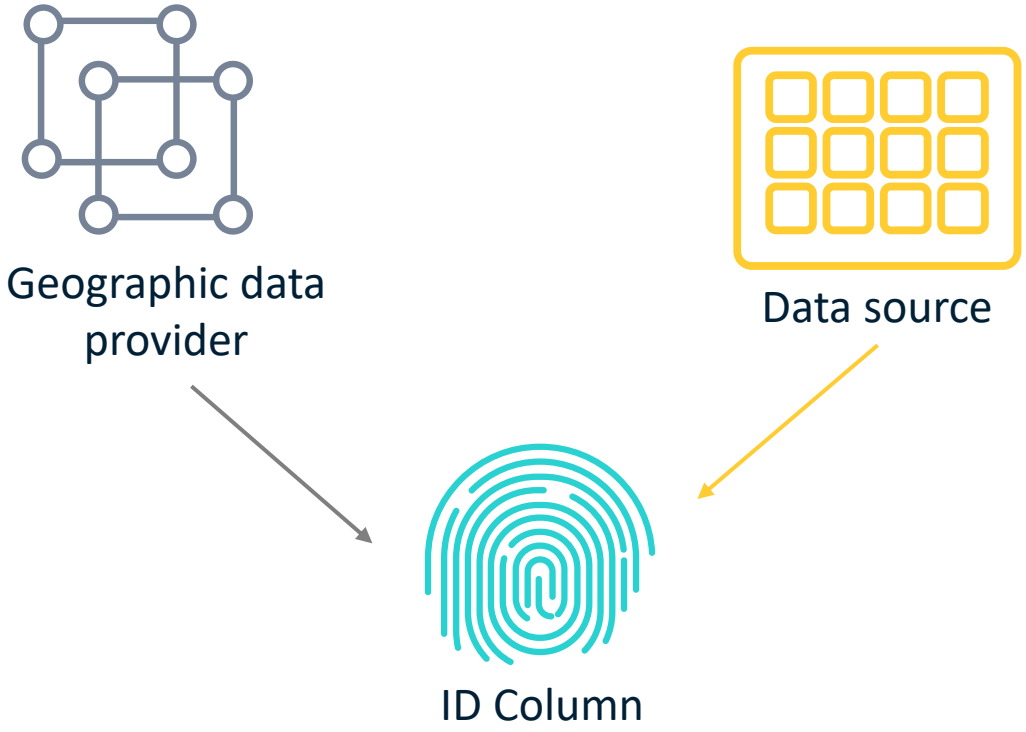
View → Import → Define

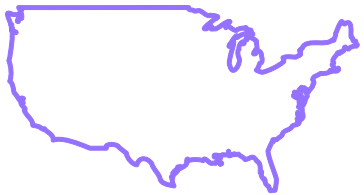


Geographic data provider

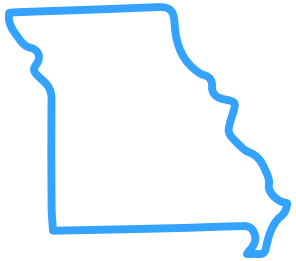
- Create a new geographic data provider
- Match ID columns in the shapefile and geography data item
- Specify a polygon, polyline, or coordinate

How do I match ID columns?





FIPS_Code	State
29051	MO
29027	MO
29019	MO



FIPS	County	Income
29051	Cole	$34,228
29027	Callaway	$30,266
29019	Boone	$30,340

Demo: Creating a Geographic Data Provider from a Shapefile

This demonstration illustrates how to import a shapefile to CAS and create a new geographic data provider.

How do I create a geographic data provider using an Esri feature service?

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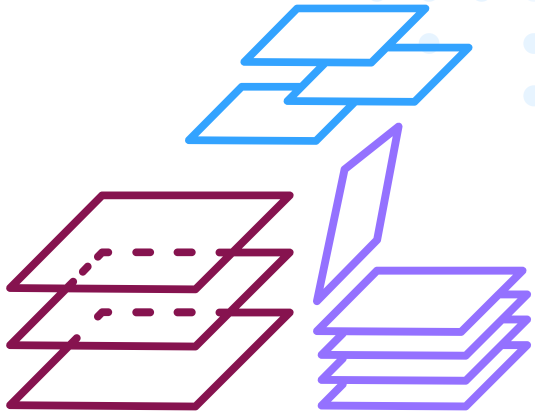
What's an Esri feature service?

Esri feature service

- Created in ArcGIS
- Published to ArcGIS Online
- Hosted on an Esri server

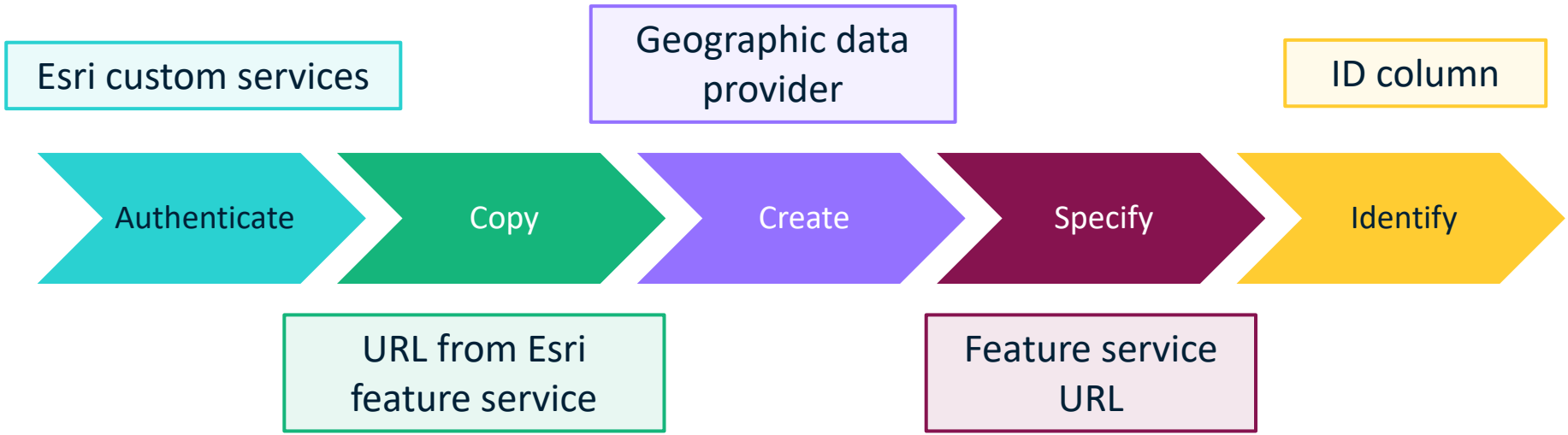


Available layers

Cameroon Department Boundaries

NOAA Coal Reef Watch

How do I use an Esri feature service?



Demo: Using an Esri Feature Service

This demonstration illustrates how to create a geographic data provider using an Esri feature service.