

Creating an EIS in Less Than 2 Hours

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Abstract

EIS - Executive Information System - is defined as 'an integrated series of applications for information delivery'. SAS/EIS® software provides many 'objects' to let you easily develop your system without having to do custom coding.

Participants in this workshop will learn to:

- Register data in a metabase for use with SAS/EIS
- Build the applications using SAS-supplied objects such as:
 - multi-column reports,
 - multi-dimensional reports,
 - 3-D charts, and
 - hotspots on graphics.
- Create a menu to link everything together.

This workshop is intended for users with no prior EIS development experience or those with only version 6.10 experience. Version 6.11 and Version 6.12 have several changes and additional objects which will be shown in the workshop.

Introduction

SAS/EIS provides a point-and-click method to create an EIS quickly. It also provides the flexibility to be customized for additional features. Probably the hardest part about creating an EIS with SAS/EIS is determining how to create your data sets in the first place while the most time-consuming part is usually registering your data in the metabase.

Creating your data sets

By 'creating your data sets', I'm simply referring to what you create as variables and observations. Two examples of the same data are shown below.

Example 1

<u>COUNTRY</u>	<u>REGION</u>	<u>STATE</u>	<u>FY 94 SALES</u>	<u>FY 95 SALES</u>	<u>FY 96 SALES</u>
USA	MIDWEST	OH	123,456	142,855	156,736
USA	WEST	CA	345,234	444,321	401,342
CANADA	WEST	BC	98,343	99,454	100,234
CANADA	EAST	NS	145,635	123,546	145,327

Example 2

<u>COUNTRY</u>	<u>REGION</u>	<u>STATE</u>	<u>FY</u>	<u>SALES</u>
USA	MIDWEST	OH	94	123,456
USA	MIDWEST	OH	95	142,855
USA	MIDWEST	OH	96	156,736
USA	WEST	CA	94	345,234
USA	WEST	CA	95	444,321
USA	WEST	CA	96	401,342
CANADA	WEST	BC	94	98,343
CANADA	WEST	BC	95	99,454
CANADA	WEST	BC	96	100,234
CANADA	EAST	NS	94	145,635
CANADA	EAST	NS	95	123,546
CANADA	EAST	NS	96	145,327

So which way is the appropriate way to set up your data? It depends on how you want to analyze the data. The first example works best if you want to compare yearly sales and subset your data based on the country/region/state combination. However, if you want the ability to combine years or create a graph by year, you'll need to use Example 2. These are rather simple examples but they can get very complex.

Workshop Data

The workshop will use a data set like Example 1. A partial listing of the data is shown below. The data are a rough estimate of the number of members in SAS users groups based upon the subscribers to SAS Communications®. Each ZIP CODE was assigned to a local group, a state, a regional group and a country where appropriate. However, we know in reality there may be overlap. For example, the WISAS local group really consists of members in Wisconsin and Illinois. Since I could only assign it to one state, it was assigned to Illinois because the current contact person is in Illinois. This is another example of some of the data problems you will encounter in setting up your data set. You'll also need to decide how to handle data when there isn't a value. For example, Colorado isn't in a regional group so I put it in the region 'unassigned'. Leaving a blank value could be confusing to users. Also, some modules are not able to process missing values.

Country	Region	State	Local	ZIP	Members	Est97
US	Unassigned	CO	Boulder	80307	4	4
US	Unassigned	CO	Boulder	80309	15	16
US	Unassigned	CO	Boulder	80314	5	5
US	WUSS	AZ	Valley of the Sun	85001	3	3
US	WUSS	AZ	Valley of the Sun	85003	12	13
US	WUSS	AZ	Valley of the Sun	85004	6	6
US	WUSS	AZ	Valley of the Sun	85005	1	1
US	WUSS	AZ	Valley of the Sun	85006	3	3

Starting SAS/EIS

- There are several ways to start SAS/EIS once you are in SAS. You can
 - Type 'eis' in the command bar or command box or command line
 - Select Globals → Develop → EIS application builder from the pull-down menu
 - Start SAS/ASSIST and select EIS → SAS/EIS from the main menu
 - Customize your toolbar to have an icon which starts EIS

Which method you use will depend upon how your SAS session is configured. SAS/EIS starts with another menu. For this workshop, we will only use "Metabase" and "Build EIS". Many people will be tempted to start with "Build EIS" but you must first use "Metabase".

Registering variables in the metabase

A metabase is basically a data set describing the contents of other data sets. This information is used to give you your choices when you are building your EIS. For example, if you are creating a variance report to show the difference in two values, you will not see any character variables in your selection choices.

Some of the attributes that can be set include identifying hierarchies, analysis variables, actual and budget variables, critical success factors, date variables, independent and dependent variables. These are described in detail in the EIS manual. Depending upon which EIS modules you wish to use, you may not need to set all of them.

The following steps assume there are no existing metabases in your directory path. If metabases do exist, you will see additional choices.

- Step 1 Click on METABASE.
- Step 2 Specify the path for your metabase. Click on the down arrow to see the directory paths you have assigned to a libref.

- Step 3 Specify the metabase name and description. Create a new metabase using FILE→NEW from the pull-down menu.
- Step 4 Click ADD from the TABLES section of the window. A table is a data set.
- Step 5 Specify the directory path for your data set. You will see the available data sets in the box on the left. Highlight the appropriate data set and click on the right arrow to move the data set to the box on the right. You can select as many as you want and you can even select from multiple paths. Use the double right arrows to select all the data sets. To 'unselect' a data set, highlight the data set in the Selected box and click on the left arrow to return it to the available list. When all data sets are selected, click on OK to return to the Metabase window.
- Step 6: Click on a data set to view the default attributes for the data set. If the data set has a label, it will appear in the TABLES box instead of LIBREF.MEMNAME. To add a data set attribute, click on ADD under the ATTRIBUTES box. Click on the desired attribute.
- Step 7 Complete the windows for the attribute selected and return to the Metabase window. Add as many attributes as applicable.
- Step 8: Click on COLUMNS under the TABLES box to assign attributes to the table columns (data set variables). Assign attributes like you did for the data set. Return to the METABASE window when done.
- Step 9: Click on CLOSE to leave the METABASE and return to the main menu.

For the workshop, a hierarchy will be created. It will consist of the variables country, region, state, and local. These variables will all be assigned the attribute of 'category' in addition to their default attributes. Members and est97 will be defined as 'analysis' variables. Members will also be defined as 'actual' and est97 as 'budget'. As you develop your EIS, you may discover you need to go back and assign other attributes for certain modules.

Building the EIS

- Step 1 Click on BUILD EIS.
- Step 2 Specify the path for your EIS. Click on the down arrow to see the directory paths you have assigned to a libref.
- Step 3 Specify the APPLICATION DATABASE name and description. Click on the NEW button to create a new database. The database name must be unique within the directory path and can not be the same as a metabase.
- Step 4 Click ADD to add a new object. Complete the windows for the object and return to the BUILD EIS window. See below for completing one of the objects in this workshop.

Expanding Report

You will find Expanding Report under Business Reports. The following screen shows how to build the expanding report. NAME is used to identify each object you build. DESC will appear to users as the title. DATA SET lets you select the data set from the list of available data sets. START DRILL will let you choose which hierarchy you want and at what level you start. In this example, country is the highest level but you could start at state if you knew your data had been subset to just the US. STATISTIC specifies if you want the sum, mean or another statistic for your analysis variables. VARIABLES will specify the columns in the order they are to appear.

Variable	Type	Default	Label	Format	Width
MEMBERS	N	L	Estimated # of MEMBERS	BE510	15
EST197	N		EST197	BE510	8
COUNTRY	C		COUNTRY	BE510S	5
REGION	C		REGION	BE510B	6

Other objects are created in a similar manner although the actual build screen will vary. Several other examples are part of the workshop but not included in the proceedings due to space.

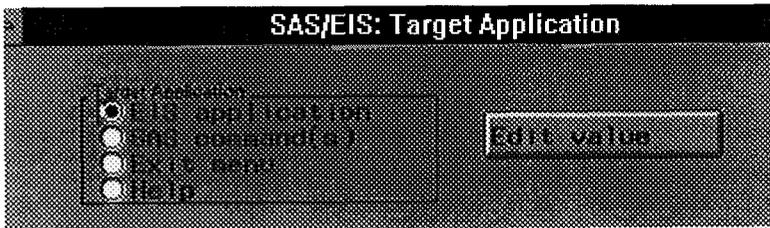
Finishing Touches

Now that the components of your EIS have been created, you will need to create a desktop to easily select them. Select MENUS and GRAPHICS MENU BUILDER. The build screen simply requires NAME and DESCRIPTION. After supplying these values, click on the BUILD button. This will give you a blank screen labeled BUILD:DISPLAY TEMP.FRAME. You'll probably want a title for your EIS so select ACTIONS→MAKE→GRAPHIC TEXT from the pull-down menu. A dashed-line box will show you the outline for the text. Click to place it on the screen. The next window will let you specify your text. You can also change fonts and colors. Click OK to return to the previous window where you can move or resize the box holding your text. There also several other features of the text that can be changed using ACTIONS→REGION ATTRIBUTES. Under LOCALS→GENERAL ATTRIBUTES you can make some changes that apply to the entire desktop.

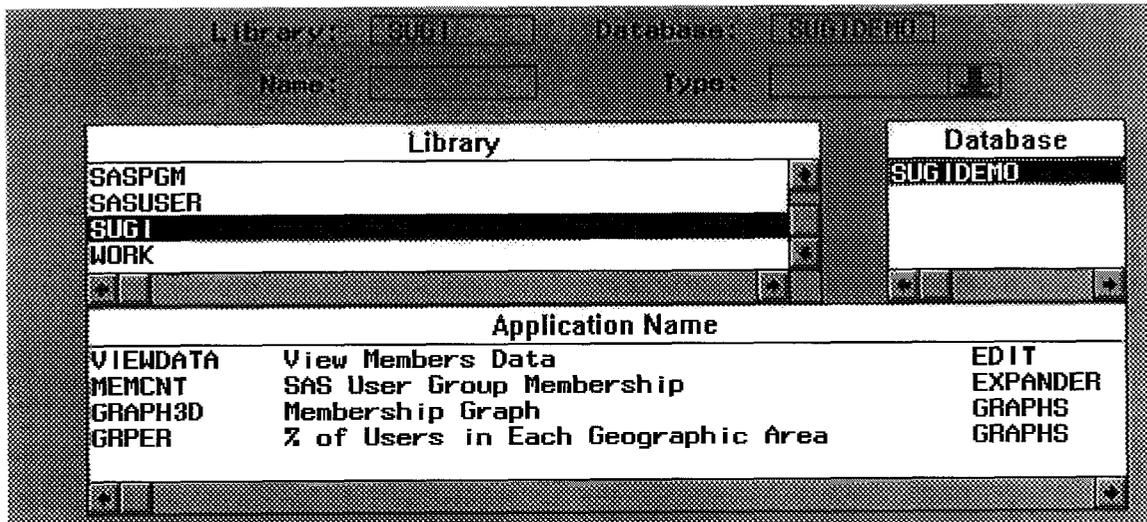
Once you have a title, you'll also need to add a way for the user to start the expanding report that was created earlier. One way is to create a push button using ACTIONS→MAKE→PUSH BUTTON. Once again, click to place the box on the screen and bring up the object attributes window. LABEL is the text that will appear on the push button. I usually leave the default length and resize it on the build screen so I can tell if my label fits. Select TARGET APPLICATION to indicate the action the push button should take.

Push Button Attributes	
Label:	Expanding Report
Color:	BLACK
Length:	13
Alignment:	<input type="radio"/> Left <input type="radio"/> Right <input checked="" type="radio"/> Center
Target Application:	<input type="radio"/> Direct help ... <input checked="" type="radio"/> Target application ...

Select EIS application and click on EDIT VALUE to specify the application.



Specify your LIBRARY and DATABASE to get a list of the available applications. In this example, click on MEMCNT. Click on OK on each screen to return to the desktop build screen.



Close your screen to return to the GRAPHICS MENU BUILDER screen. Click on TEST to test your push button. You will get the screen your users will see. Try the push button and you should get the expanding report.

If it works, you've just finished building a very simple EIS - well, almost finished. Usually you don't want your users starting SAS and then starting the EIS. To start your newly created EIS directly from an icon is easy. Create an autoexec file for your application to specify the libname statement(s) for your application and data. Copy the SAS-supplied config file to a new location for the application. Add the autoexec line to direct SAS to the new autoexec. The AWSTITLE is optional but it changes the application work space title to be your EIS name instead of SAS. The INITCMD tells SAS what it should do first when it starts. In this case, it should run EIS and the application is the desktop that was just created.

```
-awstitle 'My EIS'
-autoexec l:\sasapps\myeis.aut
-initcmd "runeis appl='mylibref.mycatalg.mainmenu.desktop'
```

Your icon will have the normal command to start SAS followed by the -config option to direct SAS to the new config file. Users just need to click on the icon to be taken directly to the desktop that you have created.

Summary

Creating an EIS using SAS-supplied objects is easy and quick. You can also modify these objects or create your own - but that's another workshop! How much time a real EIS takes to develop will depend

upon your data, how many objects you need to create and if you need to customize any objects. SAS Institute is also adding new objects to new versions so Version 6.12 users will see some additional selections from 6.11. Existing objects may also have been modified so you may need to convert parts of your EIS to the new version or perhaps recreate an object.

REFERENCES:

SAS Institute Inc., SAS/EIS Software: Reference, Version 6, Second Edition, Cary, NC: SAS Institute Inc., 1995. 252 pp.

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