Getting Started with SAS/EIS® Software

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Introduction

SAS/EIS Software enables Rapid Applications Development of Menu Screens, Drill Down Graphics, Drill Down Reports and other dynamic graphical reports.

Using SAS/EIS Software involves preparing your data by "Registering" it, and then creating different graphical and textual reports using the registered data files. SAS/EIS Software has an excellent Tutorial. The software also includes an example application called International Airways.

The overview of the process is simple.

1. Data must be registered. Every variable must be classified as a type of data. A simple concept could use Gender to categorize data and Salary to analyze data.

2. Pre-built objects come with EIS. They use the registered information about the data to perform various functions. Some objects create graphs, some reports, and more.

3. After several objects with data have been created, they can all be tied together with a simple menuing system that comes with EIS.

Starting An EIS Session

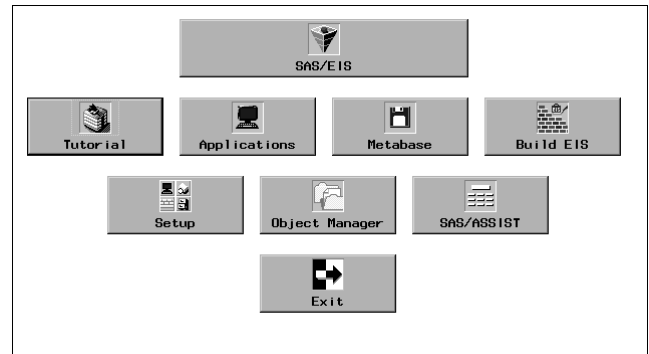To start SAS/EIS software, simply type the following command:

```
Command===> EIS
00001
00002
00003
```

or select the item from the Pull down menus.
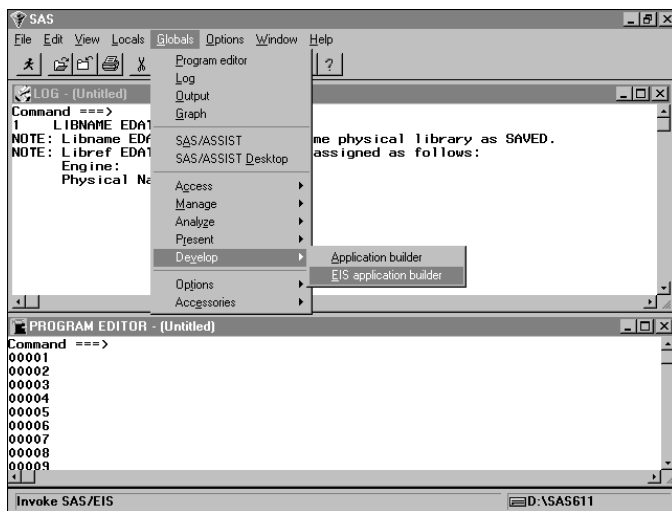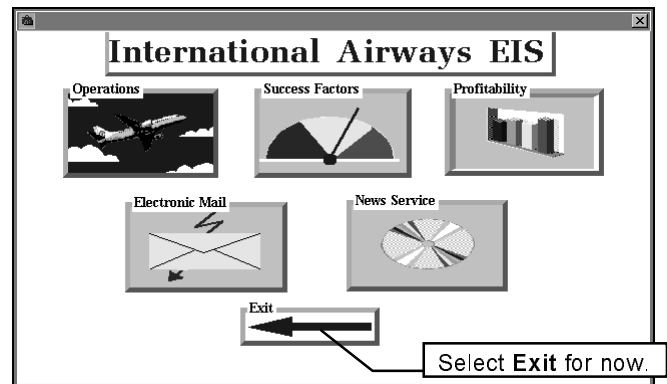

Running The Tutorial and Demo

The Tutorial and International Airways example are accessed from the Main Menu:

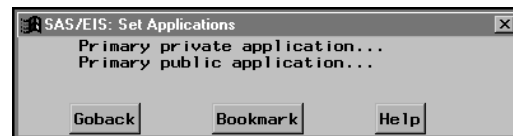Press Applications to Choose the International Airways Demo.

Select [International Airways Demo] and the following screen appears.

Select **Exit** for now.

Specifying An Existing Application

You can set your own applications in the Set applications area:

You can fill this screen in later when the application is built. Let's go back to the main EIS menu.

After the Workshop Session, we will concentrate on the METABASE and BUILD EIS aspects of SAS/EIS Software.

Registering Data

Before you can build an application with EIS, you need to register your data. This is done through the Metabase system.

- A metabase is simply a list of SAS data sets that the EIS uses to define the real data to the objects.

- A metalist is simply a list of metabases.

To link to the course library, a statement similar to the following must be been issued prior to this EIS session or from SETUP. NOTE: the location of the data will be different depending on your site and platform. However, the name of the libname should be EDATA in order to use the demonstration objects supplied with this course.

```
Command ===>
00001   LIBNAME EDATA 'D:\SAS\DATA';
00002
00003
```
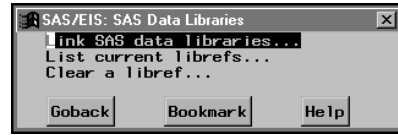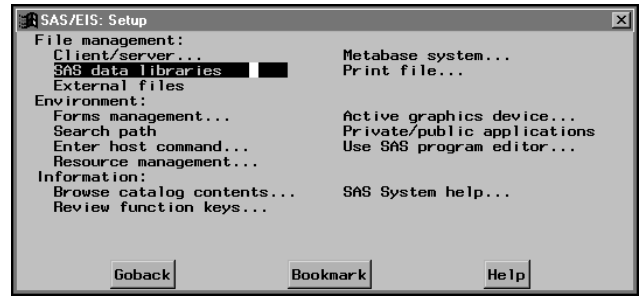
We begin by looking at the data file we're going to use. This is a SAS data set called DEMOG. It is in the course library.
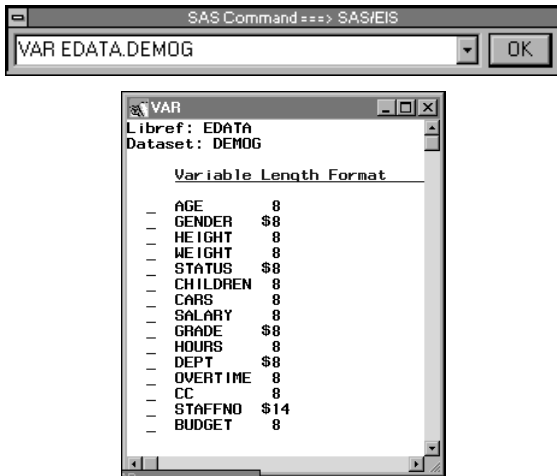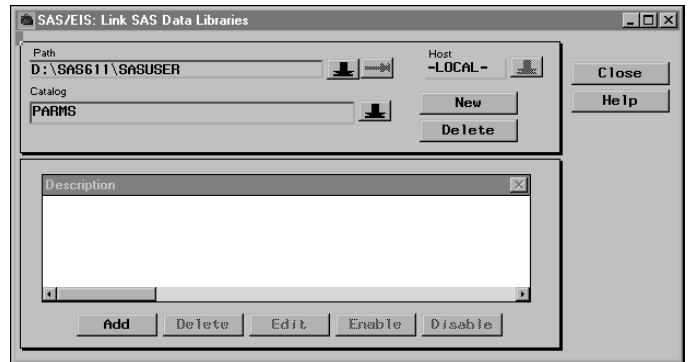

Before starting, its worthwhile considering where you will store the EIS. Assign a Libref to a directory and use this libref when creating a metabase.
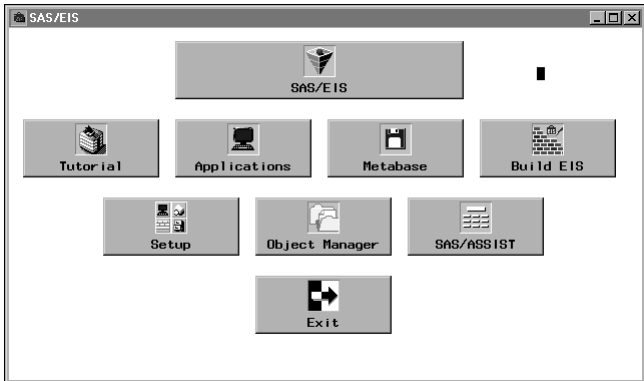
Select

The following screen appears:

Let's examine what current libraries are available by selecting the ⬇ button.

D:\SAS\DATA	EDATA
D:\SAS611\SASUSER	GDEVICE0
D:\SAS611\SASUSER	GFONT0
D:\SAS611\af\sashelp D:\SAS611\assist...	IAW
D:\SAS611\SASUSER	SASUSER
D:\SAS\DATA	SAVED
C:\#TD91119	WORK

We can create a new catalog in an existing library to put our information in by selecting New

The following screen appears.
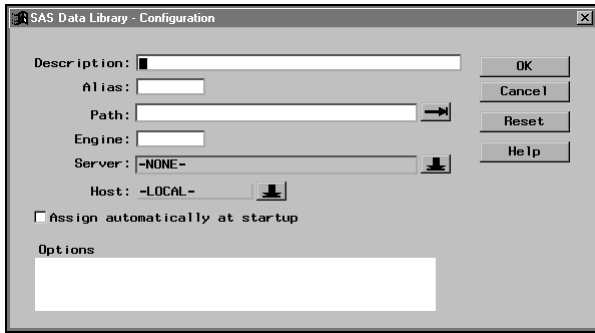

We specify the name of the new catalog.


and hit OK .

Now, let's click the ⬇ button to see the current catalogs in this library.

Catalog of my EIS development	DEMO1
PARMS	PARMS

If we wanted to create a new libref, we must select the Add button to obtain the following prompting screen:
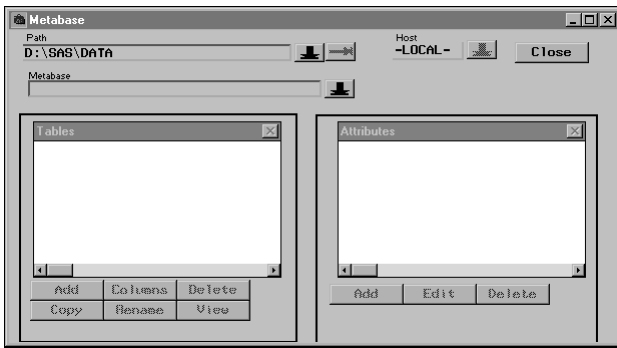
We could fill in all of the appropriate details and select [OK] if desired. Let's back out to the main screen. Enter the Metabase system. Select the '**Database Icon**' from the main menu to see a screen similar to the following:
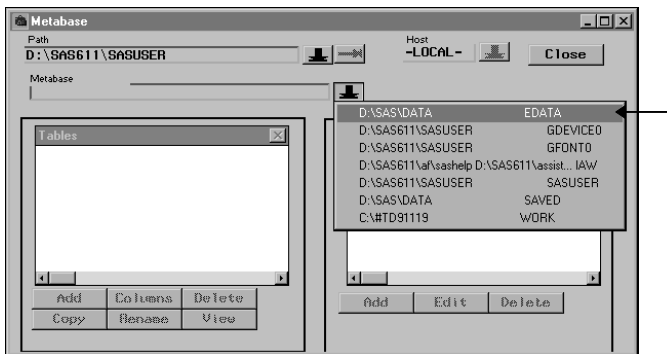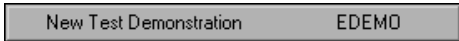

Here we can choose our path and see any metabases that exist. In this location there are none, so let's select the EDATA path.
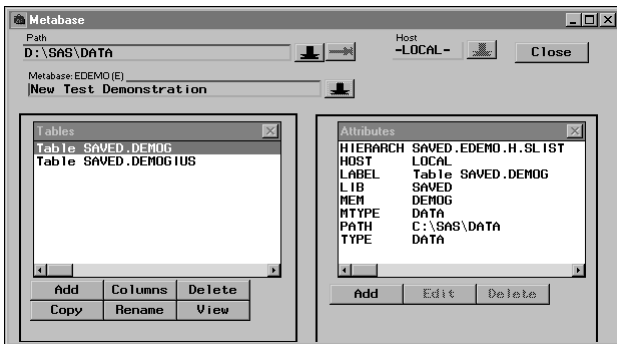
The following screen appears:

To see any existent Metabases, select the [⬛] button next to Metabase.

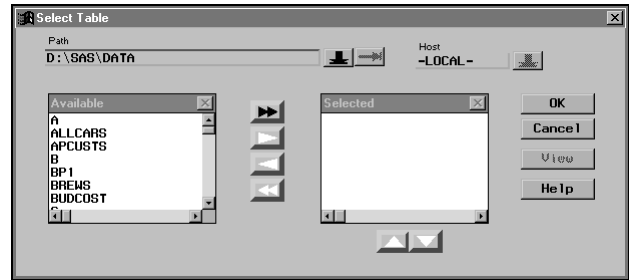| New Test Demonstration	EDEMO

After selecting an item, the following screen appears:

In this course, we suggest you use a directory/catalog that you have read write access to.

Data sets must be added to the Metabase to be registered. Select the [Add] button to see a list of data sets available.
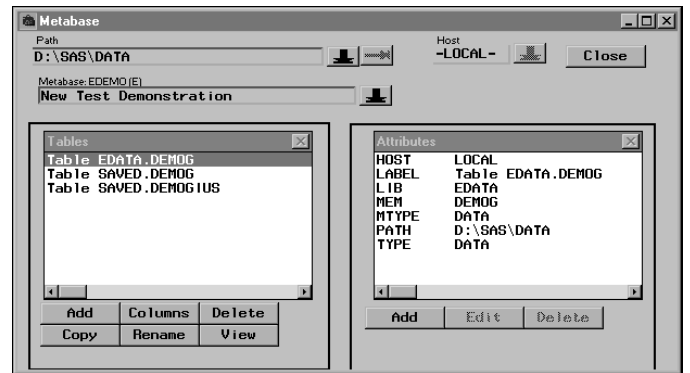

You can specify a data set from a different default library by selecting a different path. Highlight the data set DEMOG, and select the right arrow to add the data set to the metabase.
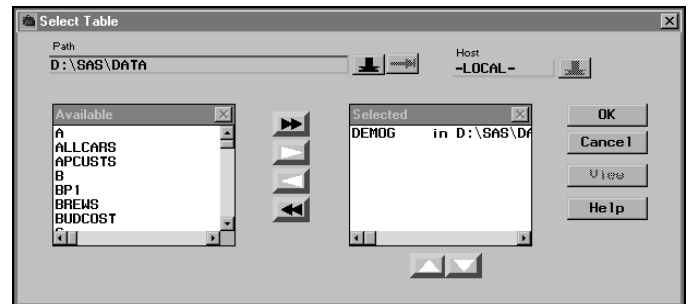

Select [OK] when complete.

The data set is now available and has certain attributes already assigned.


You can add as many SAS data sets to the metabase as you need.

Setting Column Attributes

Once the data set is registered, you must consider how each variable will be used in the EIS. To see the default attributes for each variable, select the [Columns] button. The following screen will be displayed:
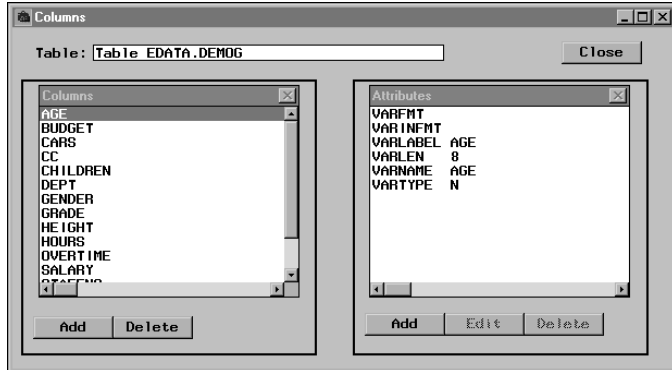

The variables are listed alphabetically and the attributes are different defaults for numeric vs. character variables. The above screen shows the AGE variable and its numeric defaults. These attributes are created from the header portion of the SAS data set and can be modified in this window. The next screen highlights a character variable and shows the character defaults.
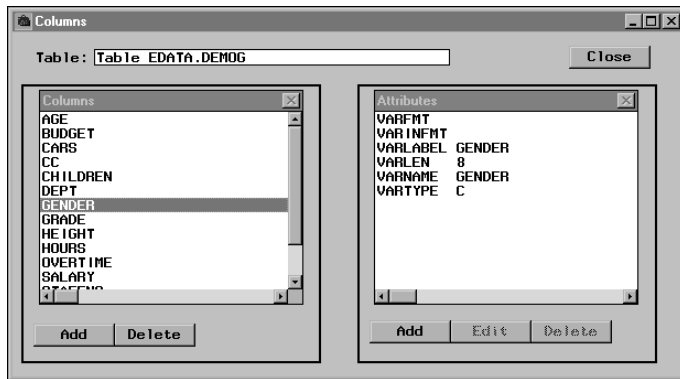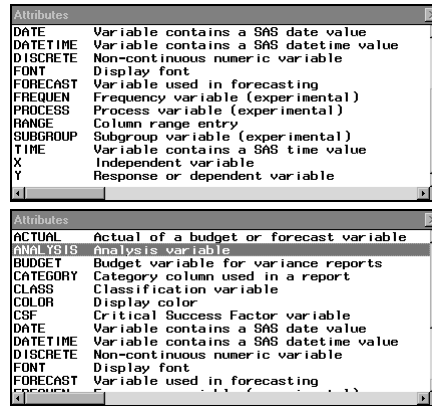

To add an attribute to a variable, providing more functionality in future objects, simply highlight the variable.

Then select the [Add] button in the attributes window. The following screen is displayed:
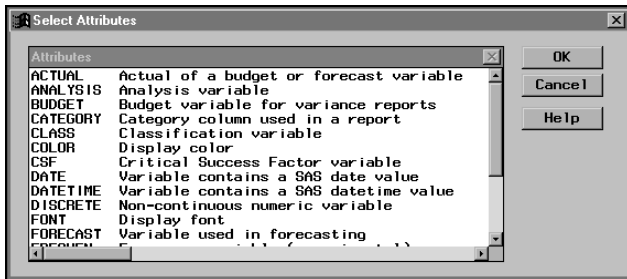
Scrolling forward shows us more available attributes.

Let's consider what we are looking at. Numeric variables can be classified with an attribute of analysis for standard uses in most objects. Selecting Analysis would yield the following screen of possible descriptive statistics:
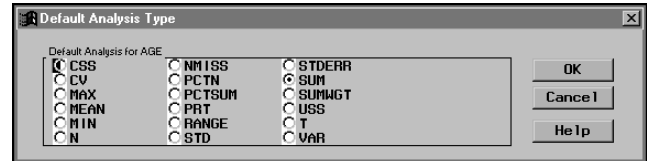

Alternatively, various objects that come with SAS/EIS require different attribute classifications. These objects use variables with specific attributes. When the objects are created, they look for those attributes.

For example, an object that is designed to plot points on a graph requires two variables, one classified as an X attribute and another classified as a Y attribute.

Another example would be an object that creates a variance report. The object looks for numeric variables classified as BUDGET and ACTUAL.
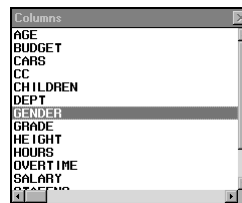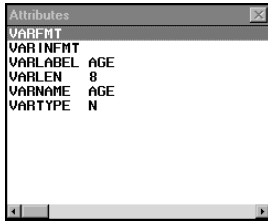

If we selected a character variable in the previous screen such as GENDER. Select [Add], then we would see the following possible attributes we could choose:
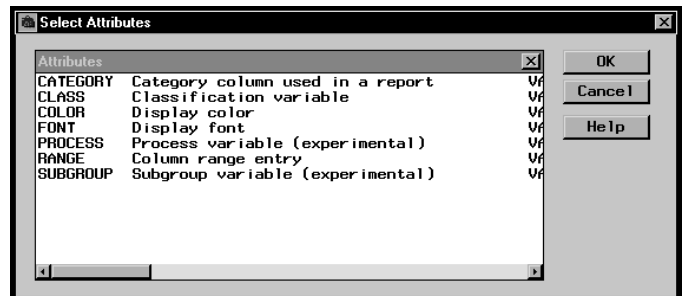
Let's return to the Columns window and discuss some of its functionality.
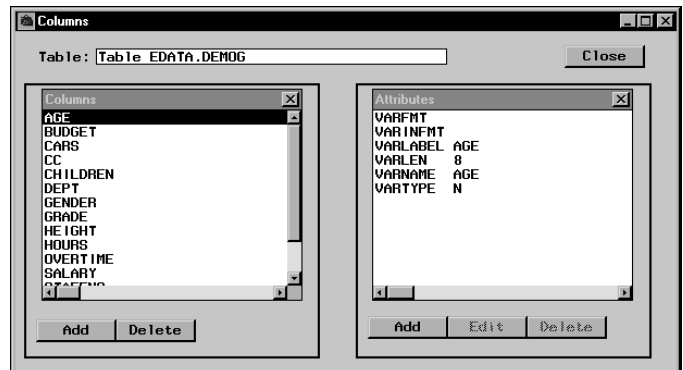
We can also delete any variables we do not want available when using this data in an EIS object. An attribute can be edited by highlighting it and depressing the [Edit] button. This is a very useful way to assign formats for your variables in case the EIS object that you use later does not offer this feature.

Setting Data Set Attributes

Attributes can be set up for the Metabase itself in addition to the variables. Let's return to the following screen:
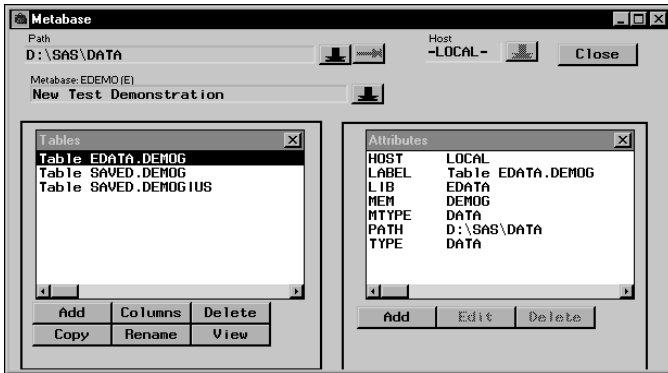
The Tables window has the current SAS data set highlighted. Select [Add] from the Attributes window to see the following data set attributes that can be added:
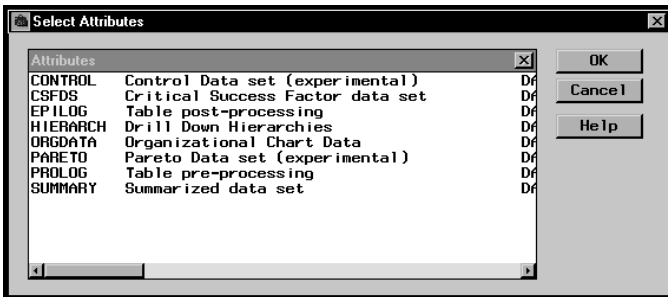
The following descriptions are currently available from the [Help] button in SAS Software:

CSFDS Attribute

The CSFDS attribute identifies data sets to use when creating Critical Success Factor widgets in various EIS objects. Use the CSF attribute to identify the variable to use for the pointer in the CSF dial.

EPILOG Attribute

Register SAS tables with the EPILOG table attribute to perform processing after a table has been accessed by objects during the execution or development environment. For example, you could specify an epilog program that uploads a table to a remote host and then signs off. When you create a SAS/AF® SCL program to be used for EPILOG processing, include the following parameters in the entry or method statement:

```
return-code, metabase, dsname
```

HIERARCH Attribute

A hierarchy defines the drill-down order between columns in a table. The order you specify in the hierarchy controls the default order for drilling down when you use the hierarchy in

applications that support the HIERARCH attribute. You can define multiple hierarchies for a given table. When you register a SAS table with the HIERARCH attribute, you may optionally request that the metabase create a summary table by specifying the name of the table. This summary table, called a levels table, contains every unique combination of drill variable values that the registered table contains.

ORGDATA Attribute

The ORGDATA attribute identifies a data set that contains information that the ORGCHART object uses with a mapping list to place each node in the organizational tree. The Mapping List window enables you to associate data set variables with node variables that control the placement of each node with a level number for each node or by specifying a data set variable that identifies the parent of each node. The Mapping List Window also enables you to use data set variables to control the node text, the node colors, or the image that appears with each node.

PROLOG Attribute

Register SAS tables with the PROLOG table attribute to perform processing before a table is accessed by objects during the execution or development environment. For example, you could specify a prolog program that signs on to a remote host and downloads a copy of a table to use in a chart application.

When you create a SAS/AF SCL program to be used for PROLOG processing, include the following parameters in the entry or method statement:

```
return-code, metabase, dsname
```

SUMMARY Attribute

The SUMMARY attribute identifies data sets that contain presummarized data. The attribute value identifies the _TYPE_ variable and the hierarchy used to summarize the data. Data sets registered with the SUMMARY attribute can be used in any object that requires summarized data.

## Registering Variables For Demonstration

Drill Hierarchy

Drill Hierarchies are designed to allow you to roll up data to a summarized level, similar to a Class variable. As you need to know more detailed information, you can drill down through a predetermined hierarchy. First, we need to establish an appropriate hierarchy. An example of a demographic hierarchy might be Country, State, County, City, etc... or Gender, Marital Status, Number of Children in the household, etc...
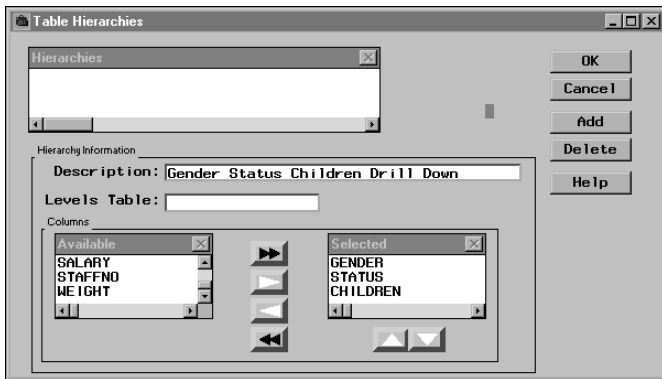
Each EIS will allow a drill down hierarchy. Drill downs should not go more than 8 or 10 variables deep, to keep the application flexible and straightforward.
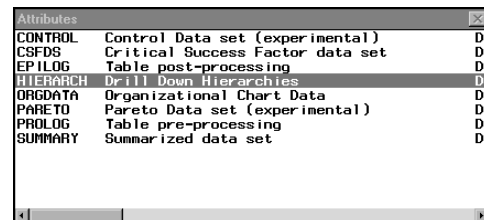
Let's register a Drill Down Hierarchy. The following table appears:
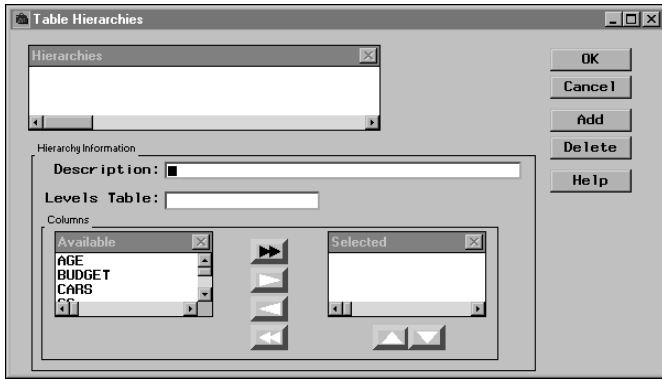
Select GENDER, STATUS and CHILDREN in this order and a description to obtain the following:

For large amounts of data or static data that will not change, SAS has the ability to specify a LEVELS table. This stores all levels of rollups for these HIERARCH analyses and creates them during registration and not execution. This can save time during application execution. However, it is not designed for data that changes, data where rollup values may be different each time, and small amounts of data.

Selected EIS Objects

In this section, we concentrate on creating several EIS objects.

TEXT REPORTS:	*GRAPHIC REPORTS:*
Expanding Report	*Grouped Bar Chart*
Comparison Report	*Business Plots*
Variance Report	*Business Charts*
Multi-column Report	

There are many other types of EIS objects, but these are covered through example and are not specifically addressed here.

Objects Overview

SAS/EIS software comes with several pre-defined objects designed to use registered data to create reporting, graphics and more.

All of the EIS objects possible in the current release of SAS are broken out in categories of Object Databases and within each database, a list of Objects. The following screens show how the selections appear.
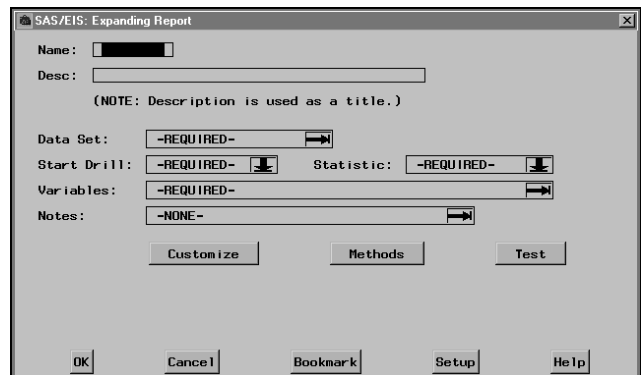
Expanding Report

This is an excellent text report for drilling down through data. The build screen allows customization of colors, formats and labels. The run screen has the choice of a chart.
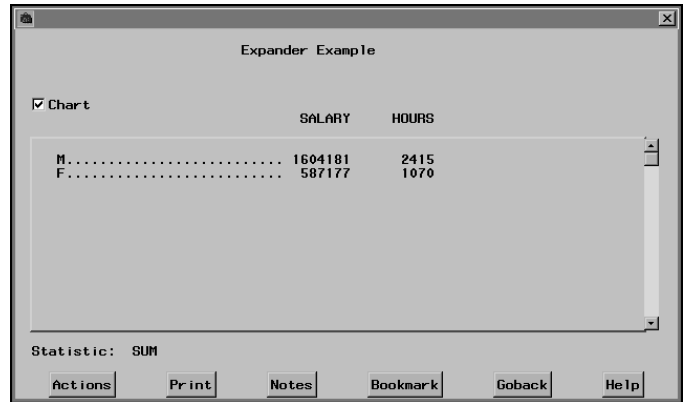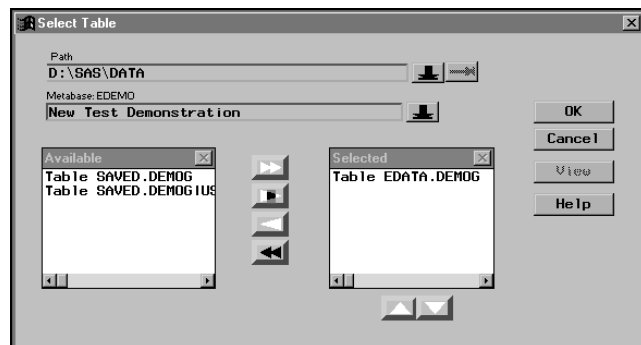
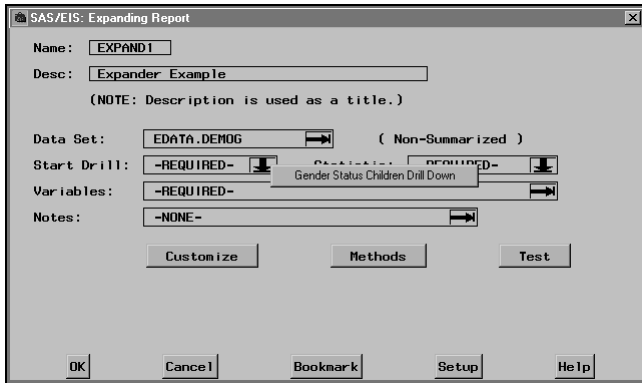Let's create it. Select the following:
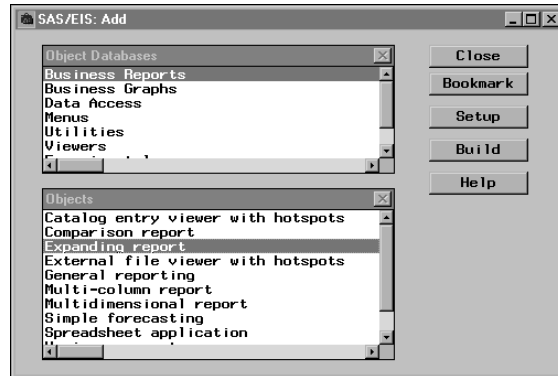
Then click on [Build]. The following screen appears:

Give the new object a name and specify all of the information needed similar to the following screens. Select the right arrow on the Data Set line.
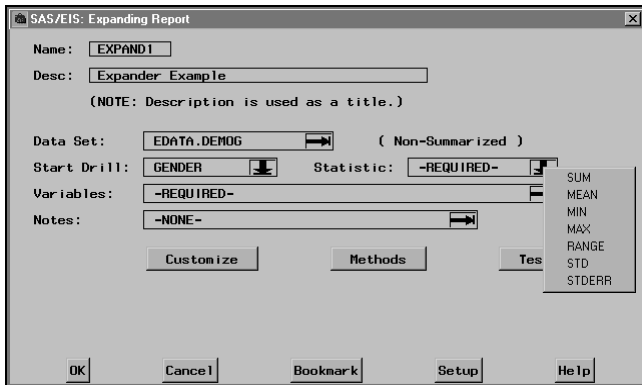
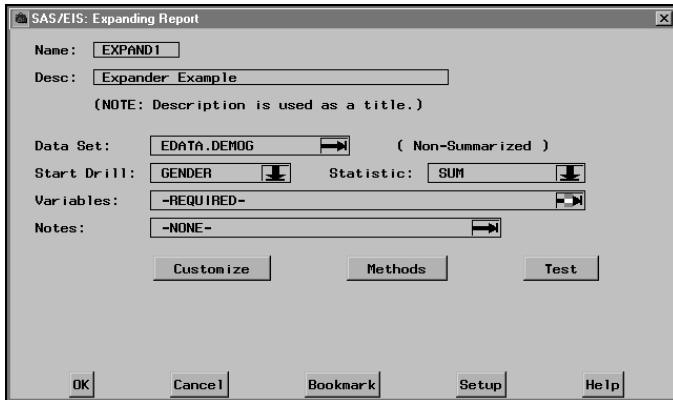Specify the SAS data set and then [OK]. Select how the drill down will work.

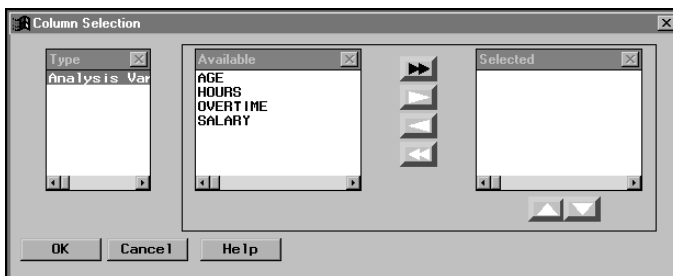You are prompted for which drill variable to start with.

  Select the statistic.

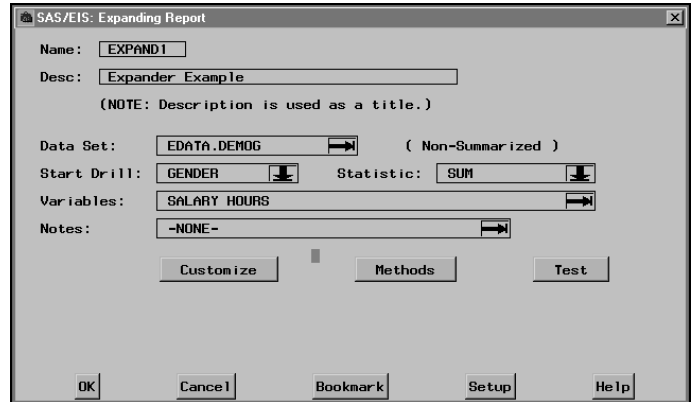We choose SUM. Now select the variables to analyze.

The following screen appears:

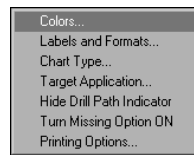We select SALARY, then HOURS to obtain the following result:

Select `OK` to accept.

The Notes item is available to allow specification of a particular catalog entry that can contain text information about the object.
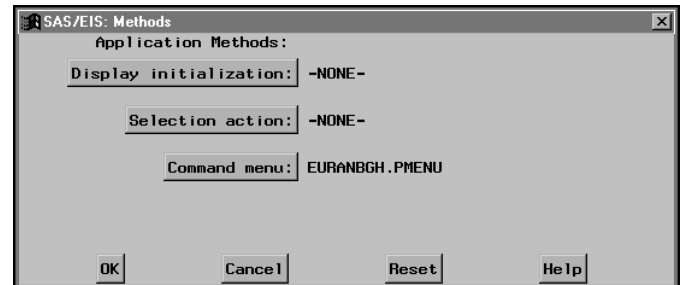
Let's examine the `Customize` button.

 This is designed to allow the following custom selections for this object.

Let's examine the `Methods` button.

This displays the following screen:

This allows specification of predefined methods available for processing. This a more advanced topic and is best examined in the SAS/EIS Reference manual. Select `Cancel` to back out.
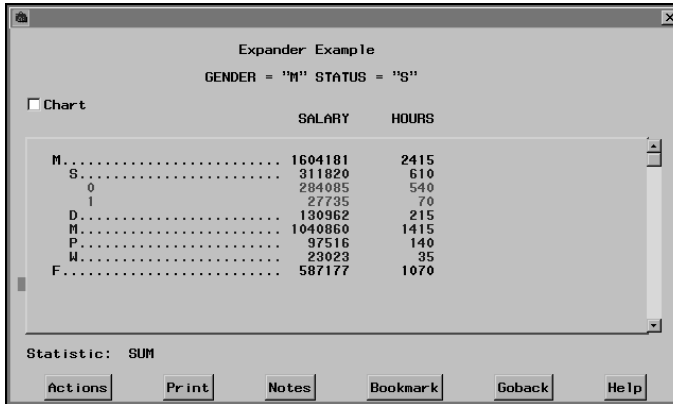
Let's test the object to see how it works. Depress the `Test` button to yield the following:
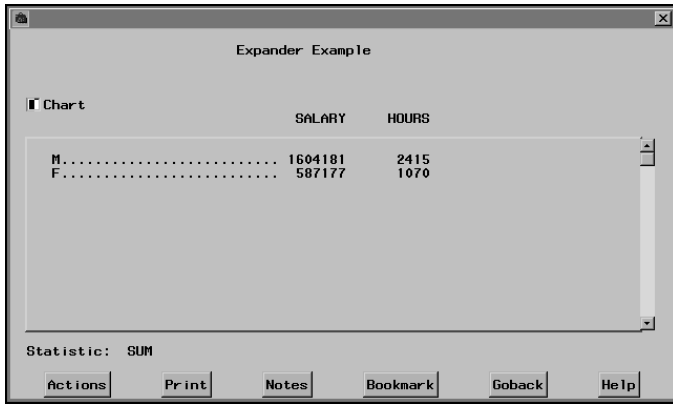
This is the report, grouped to the level of GENDER. If you click on one of the items, you will see the next drill down level.
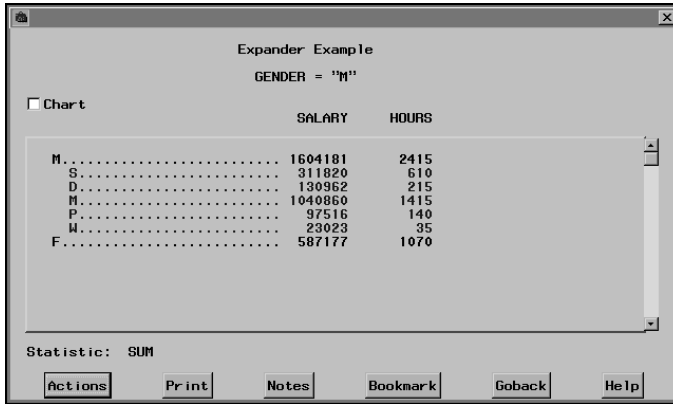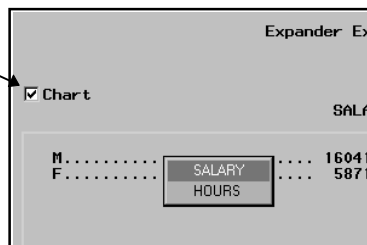

And again.

This is why it is called an **Expander Report**.

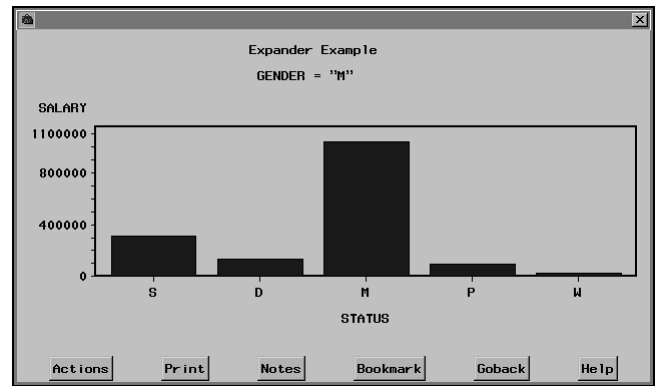When the Actions button is pressed, this popup menu appears.

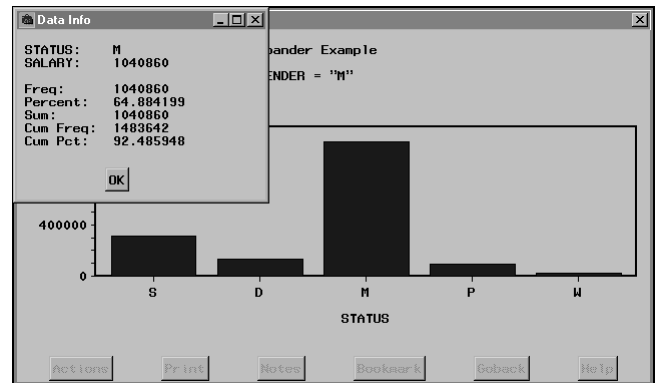We can choose to reset the drill down selections.

This object offers a Chart selection. Check this box and click on one of the line items. A popup list of the analysis variables appears. Select SALARY.
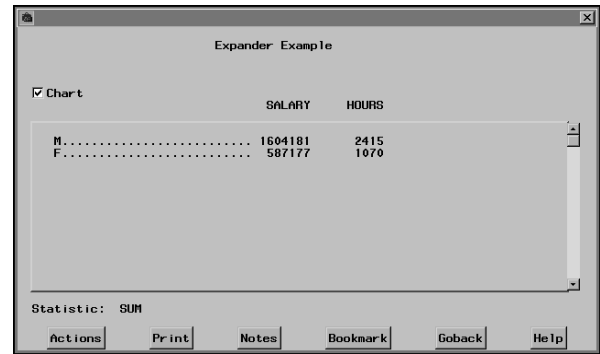

The following chart is displayed:

Each bar is a hotspot, so go there and hit it. The following statistical window is displayed:

When you are done, click OK and Goback to return to the original expanding report.

Other EIS objects can also be created. Refer to the 'Using SAS/EIS Software' manual.

More objects will be demonstrated during this presentation.