

Painless Graphics: The Click, Drag and Drop Approach of Graph-N-Go

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ABSTRACT

Graph-N-Go is an intuitive, easy-to-use interactive application that is integrated into Version 8 SAS Display Manager System as part of SAS/Graph® software.

You can use GNG to build and customize a wide variety of interactive charts and plots based on data from any SAS Data Set or MDDB, without any knowledge of SAS/Graph software. You can print your work or export it to various types of files including HTML or SAS source files. Such source files contain SAS/Graph procedural code that can be submitted independent of Graph-N-Go to create equivalent charts and plots.

INTRODUCTION

This paper describes the main features of Graph-N-Go and focuses on source code generation and the direct creation of interactive web pages containing a Java or ActiveX version of the graph.

You can start Graph-N-Go from Display Manager in several ways:

- Select **Solutions Reporting Graph-N-Go** from the pull-down menus of any SAS window.
- Issue **gng** or **graphngo** from any SAS command line.
- Open a GFORM catalog entry from an Explorer window to start a Graph-N-Go session using that entry.

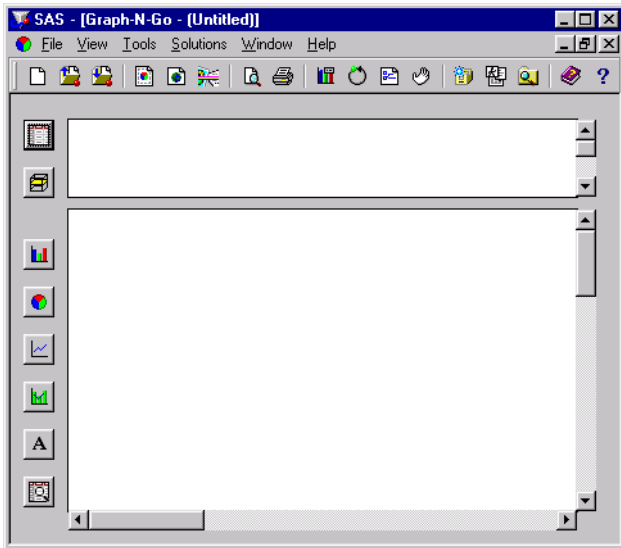


Figure 1: Graph-N-Go Window

The Graph-N-Go window has a set of buttons along the left side. You use these buttons to create objects that reside in the regions with a white background (**workareas**). The top two buttons enable you to create objects that are representations for data sources (**data models**). The lower six buttons enable you to create graphical, tabular, or text objects (**viewers**) that display the data model in some way. Data models always reside in the upper workarea and viewers always reside in the lower workarea.

Suppose you have access to SASUSER.CLASS, a SAS Data Set that contains information about students including columns for

Name, Age, Sex, Height, and Weight. You want to create a bar chart showing the average height of the females and the males.

To do this, first click on the top button to create a SAS Data Model for SASUSER.CLASS. Select the name of the data set in the dialog that appears and then close the dialog with OK.

Next, create a Bar Chart viewer by clicking on the third button and dropping the new viewer in the larger workarea. The viewer must be “connected” to some data model to produce a chart. There are several ways to do this, the easiest being to drag the data model object and drop it on the viewer object.

When you connect a data model and viewer, the viewer will always display something by default. In general, this display does not include the columns or statistic of interest. Each graph type has several **graphical roles** to which you can assign columns in order to produce the chart you want.

For Bar Charts, the supported roles are:

Role Name	Usage	Purpose
Category	required	determines primary bars
Subgroup	optional	subdivides bars
Group	optional	clusters bars
Response	optional	determines bar length

In this case we want to assign Sex to the **Category** role and Height to the **Response** role. For most graph types you can also designate a summary statistic. Here we want the “average” (mean) to be computed on Height.

One way to change the column or statistic on a graphical viewer is to click on an axis label or legend of the graph. This displays a popup or **context menu** from which you can select a different column or statistic for a certain role.

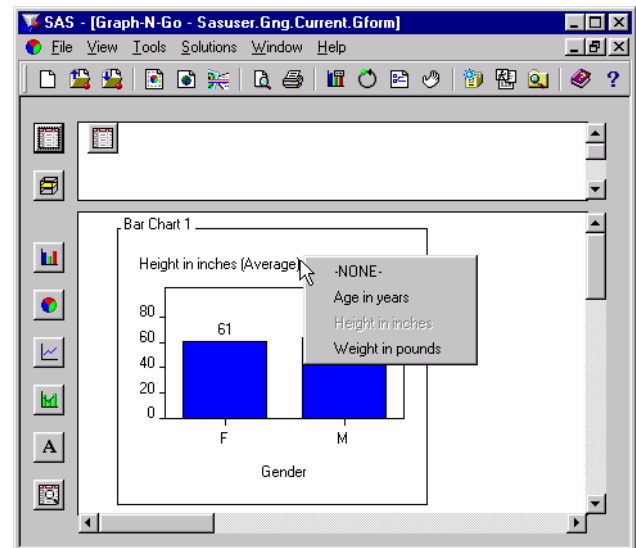


Figure 2: Changing the Response Column on a Bar Chart Viewer

Note: If a column has a label associated with it, Graph-N-Go displays the label instead of the column name in graph and related selection lists.

A more comprehensive way to make role assignments is to click on the viewer object to display its context menu. This menu provides quick access to the most common features you can set:

<ul style="list-style-type: none"> Copy Delete Move Grow/Shrink Maximize Bring to front Send to back Export > Print Preview... Properties Model > Outline Category > Response > Subgroup > Group > Statistic > Bar Values Vertical Chart Legend 	<p>These items offer control over the size and position of the viewer.</p> <p>This item displays another menu offering several export targets.</p> <p>This item displays a dialog for setting all properties.</p> <p>Selecting a role name displays another menu containing the available columns.</p> <p>These items adjust some basic visual properties without opening the properties dialog.</p>
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Figure 3: Bar Chart Viewer Context Menu

All data-related information can be set from Data tab in the viewer's properties dialog.

Figure 4: Property Dialog for Bar Chart Viewer – Data tab

The remaining tabs control titling, sizing and other visual characteristics of the chart.

For example, the Appearance tab enables you to set the bar style, color scheme, bar orientation, axis sort order, and scrolling options when there are many bars.

Figure 5: Property Dialog for Bar Chart Viewer – Appearance tab

Note: Sample charts change as you make your choices but do not display the actual data.

PRINTING AND EXPORTING

In Version 8.00 Graph-N-Go supports printing on PC and Unix hosts. With the advent of Universal Printing in the first Version 8 minor release, printing will be supported on all hosts where Graph-N-Go is available (PC, Unix, and VMS).

Graph-N-Go also enables you to export your work to files. You can export individual graphical viewers or the contents of the visible viewer workarea (which may contain multiple objects as a composition).

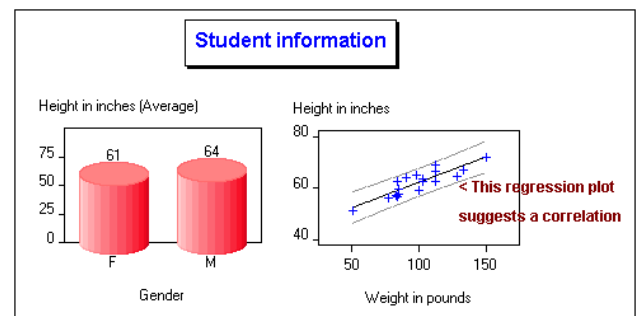


Figure 6: Export of Viewer Workarea to GIF file

The choices for both forms of exporting include several graphics file formats such as GIF and JPEG, as well as SAS Image entries, and simple non-interactive HTML files.

Individual viewers support additional export targets such as source files and interactive HTML in the form of an ActiveX control or Java applet.

The program below is an excerpt of the actual generated source file for the simple bar chart shown above. The complete program contains several GOPTIONS and ODS statements. Also, there are many comments and instructions for modifying the program interspersed throughout the code.

```

axis1 minor=none label=("Gender")
      order=( "F" "M");
axis2 minor=none
      label=("Height in inches (Average)")
      order=(0 to 75 by 25) ;

proc gchart data=SASUSER.CLASS;
  vbar3d SEX / type=MEAN sumvar=HEIGHT
  maxis=axis1 discrete noframe
  shape=CYLINDER outside=MEAN woutline=1
  coutline=CX000000 caxis=CX000000
  raxis=axis2;

run;
quit;

```

The generated source code incorporates several new features of SAS/Graph and ODS available in Version 8. You can store the program in a .SAS file or a Source catalog entry.

Note: The graphical viewers you manipulate in Graph-N-Go are not produced by SAS/Graph procedures. Graph-N-Go attempts to create a SAS/Graph program that produces a similar graph.

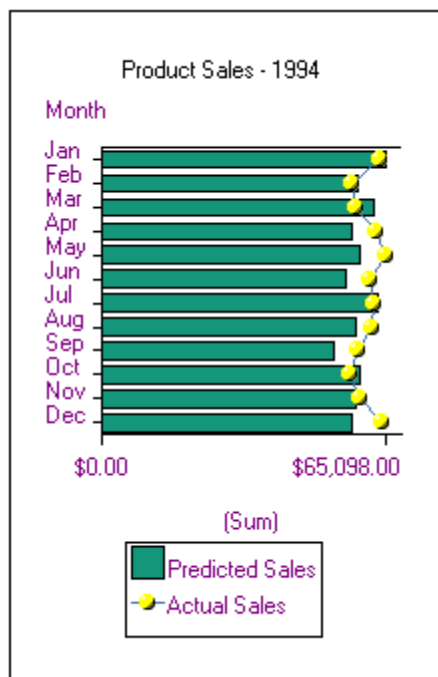


Figure 7: Overlay chart

Certain Graph-N-Go features like overlays (charts and plots sharing a category axis and superimposing multiple response columns), do not lend themselves to general representation by SAS/Graph procedures and thus cannot be exported as source.

The other export option that individual viewers offer is to create a SAS/Graph client graph. Client graphs are created by SAS/Graph programs and ODS statements used in conjunction with certain device drivers. In Version 8 these drivers include ACTIVEX and JAVA. SAS/Graph supplies the Graph, Map and Contour Java applets that enable interactive graphics in a web page on all platforms. Additionally, for Windows platforms only, SAS/Graph installs an ActiveX control known as the Graph Control. The Graph Control can be embedded as an interactive graph in a web page. Being a true OLE object, it can also be directly integrated OLE documents.

Note: See paper "Graphs in a Minute" (P158-25) in the SUGI 25 Proceedings for more information on the Graph Control and its applications.

The Graph Control and various Java applets support most of the features of SAS/Graph procedures GCHART, GPLOT, GMAP, GCONTOUR, and G3D.

Further information on SAS/Graph client graphs can be found at <http://www.sas.com/rnd/webgraphs/>

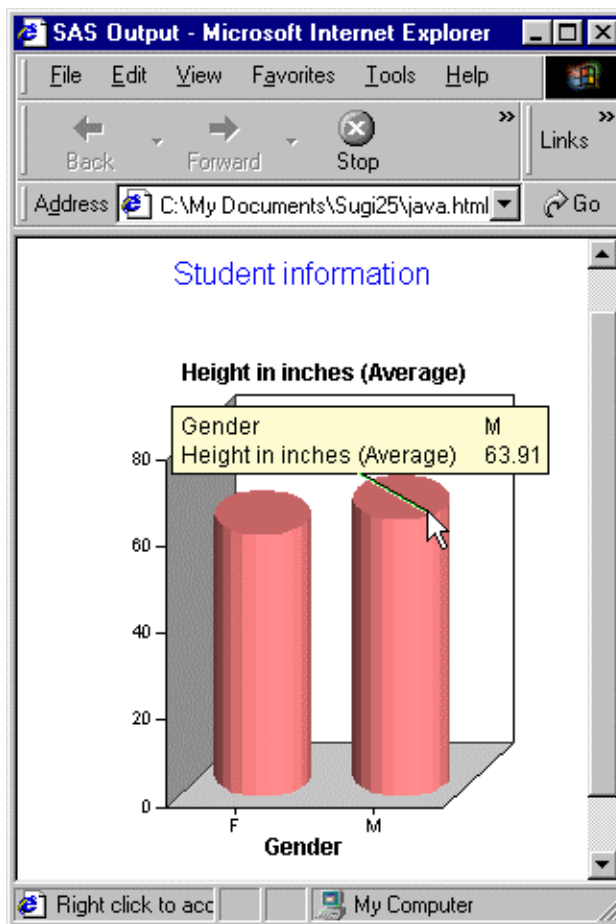


Figure 7: Java Applet created by Graph-N-Go

CONCLUSION

Graph-N-Go provides an easy to use interface that produces results quickly. GNG is an evolving application - in the future more graphical types and features will be introduced including interactive 3-D charts.

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