Guide to ODS Graphics Editor in SAS® 9.2

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ABSTRACT

This paper describes the new ODS graphics editor in SAS v. 9.2. In this presentation we talk about a review of ODS graphics. It will be provided and explained in more detail about new ODS graphics editor and the ODS graphics designer and how it differs from the ODS graphics editor. ODS Graphics Editor is a point-and-click editor to edit graphs that are produced by procedures that use ODS Statistical Graphics. What are pre-requisites for editing a graph? How to create an editable graph? How to customize graph properties to satisfy your needs? Paper explores some of the new features of the ODS graphics in SAS 9.2.

INTRODUCTION

ODS statistical graphics are an extension of the output delivery system. In statistical procedures ODS graphics will produce graphics automatically in the same way that ODS creates tables. ODS graphics also offers different output destinations like rtf or pdf files, and different styles for professional graphics. **SAS/GRAPH® 9.2 ODS Graphics Editor** is an interactive, point-and-click editor that enables you to edit and enhance graphs that are produced by procedures that use ODS Statistical Graphics. You can use the ODS Graphics Editor to modify the existing elements of a graph such as titles and labels, or to add features such as text annotation for data points. Additionally, you can save your output as an image file or as an ODS Graphics Designer file (SGD file) that you can edit later. Note the changes are saved with the edited graph, **but they are not persisted if the original code is rerun.**

Let's explore some of these points in more detail. First we can edit existing data elements. When we edit a graph, we edit elements of the graph such as the title, footnote, or legend.   We can edit, add, or delete titles and footnotes and adjust the legend position and properties. We can also add special symbols, superscripts, and subscripts to titles and footnotes.

Edit Elements (title, footnote legend)
- – Add
- – Delete
- – Adjust size
- – Adjust position
- – Add special symbols
- – Add superscripts and subscripts

We can also change the visual characteristics of the plots, such as the colors and style of markers and lines, plot background, text fonts, and so on. We can customize overall graph properties such as graph style and graph size and resolution. In addition, we can show or hide data labels for selected data points in order to reduce clutter and add annotation such as text, lines, circles and markers. We can also add image icons for example the CALGB logo. Some of these changes can cause a relay out of the graph.
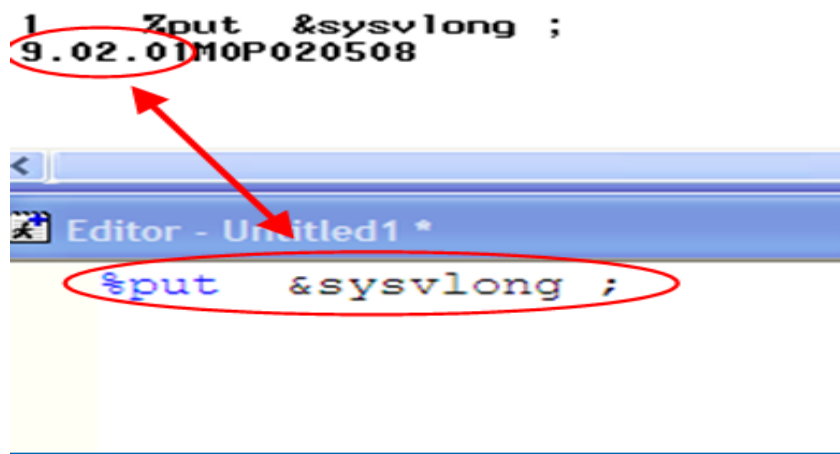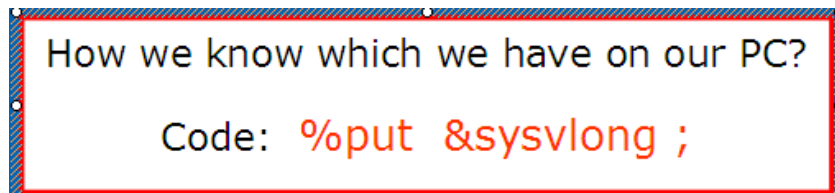
There are multiple ways to save your graph. One option is to save the results of your customization as an ODS Graphics Editor (SGE) file which allows you to make incremental changes to the file. The other option is to save the results as a Portable Network Graphics (PNG) image file for inclusion in other documents.

ODS Graphical Designer vs. ODS Graphics Editor

Here is the brief description of the ODS graphics designer and how it differs from the ODS graphics editor. The focus of this presentation is the **ODS graphics editor**.

SAS 9.2 phase I offers the ODS graphics Editor, while SAS 9.2 phase II offers the experimental ODS graphics designer.

To tell which version of SAS 9.2 is on your computer type **%put &sysvlong** into your code:

How we know which we have on our PC?

Code: %put &sysvlong ;

```
1       %put   &sysvlong ;
9.02.01M0P020508
```

Editor - Untitled1 *

%put   &sysvlong ;

On the picture above you got information that author has SAS 9 version 2.01 at her computer.

Editor and Designer are different products, designed for different cases. If you want to edit an ODS graphics output created by procedures, use Editor. If you want to create a brand new graph from scratch, use Designer. These two are not interchangeable. You cannot edit ODS graphics output using ODS Designer. You can create a graph using Designer and run it in batch using proc SGDESIGN. The resulting ODS graphics output can be edited using Editor. SAS/GRAPH is required for ODS Graphics functionality in SAS 9.2. To check if your version of SAS 9.2 is installed with the graphics editor capability look in the sys 9.2 system file for the folder called SASGraphODSGraphicsEditor. You must also have **Java version 5 update 12 or later**.

To see what Java version you have, run the following code:

**proc javainfo;**
run ;

```
1      proc javainfo;
2      run;

PFS_TEMPLATE = C:\Program Files\SAS\SASFoundation\9.2\core\sasmisc\qrpfstpt.xml
java.class.path = C:\PROGRA~1\SAS\SASVER~1\9.2\eclipse\plugins\SASLAU~1.000\SASLAU~1.JAR
java.class.version = 49.0
java.runtime.name = Java(TM) 2 Runtime Environment, Standard Edition
java.runtime.version = 1.5.0_12-b04
```

Ensure that you have java runtime version 5 update 12 or later.

SAS/GRAPH 9.2 ODS Graphics Editor

First you must enable editing for the duration of your SAS session by first selecting the Results window and then issue the SGEDIT ON command from the command line. Then to invoke the ODS Graphics Editor, submit your SAS program and then right-click in the Results window on the plot you want to edit and select **Edit**. You can disable editing by issuing the SGEDIT OFF command.

- Enable editing – type SGEDIT ON into the command line of the results window
- Run SAS procedure using ODS graphics
- Right click on the Graph in the result window
- Select EDIT
- Disable editing – type SGEDIT OFF into the command line of the results window
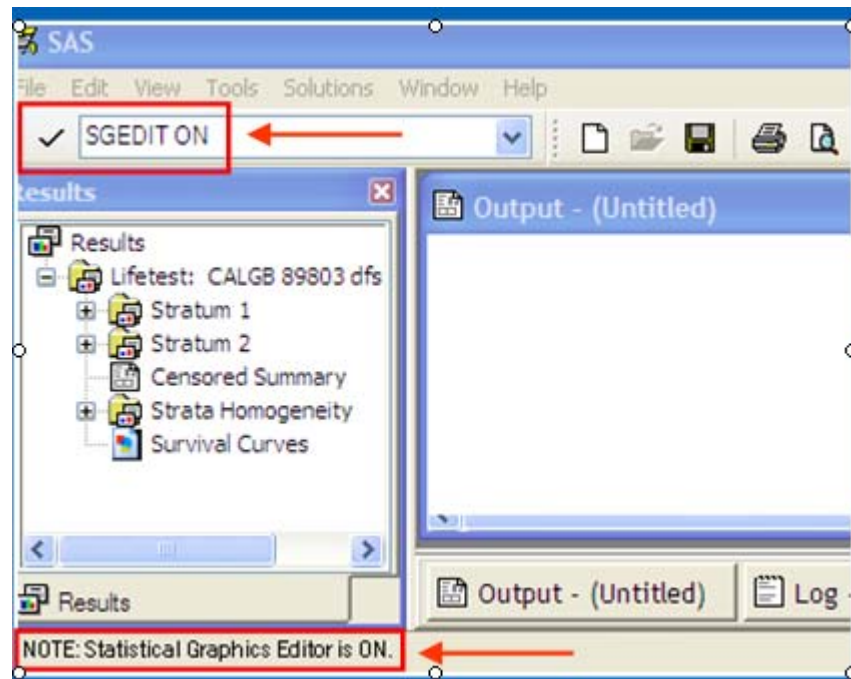

Here we have turned on the editing capability by typing SGEDIT ON into the command line. Notice the NOTE at the bottom indicating that '**Statistical Graphics Editor is ON**'.

Creating Editable Graphics

- Enable editing – type SGEDIT ON into the command line of the results window
- Run SAS procedure using ODS graphics
- Right click on the Graph in the result window
- Select EDIT
- Disable editing – type SGEDIT OFF into the command line of the results window

First you must enable editing for the duration of your SAS session by first selecting the Results window and then issue the SGEDIT ON command from the command line. Then to invoke the ODS Graphics Editor, submit your SAS program and then right-click in the Results window on the plot you want to edit and select **Edit**. You can disable editing by issuing the SGEDIT OFF command.
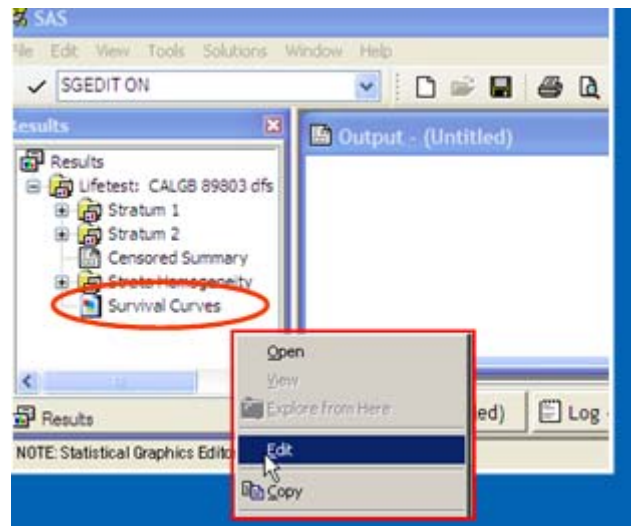
The following picture presents location of Editing Toolbar on the top of the Survival curve.
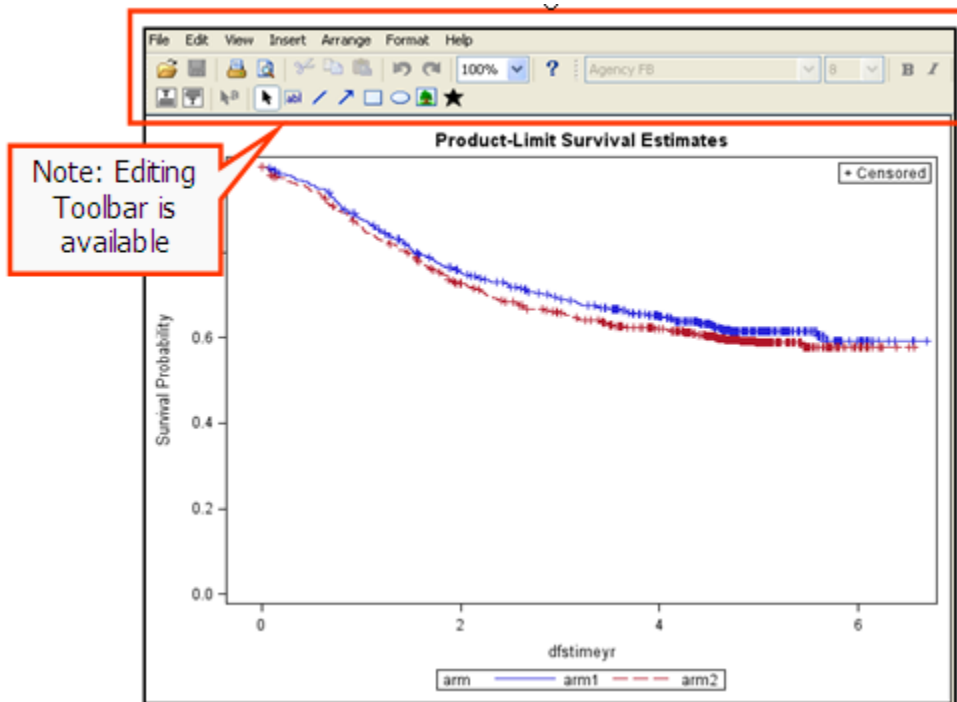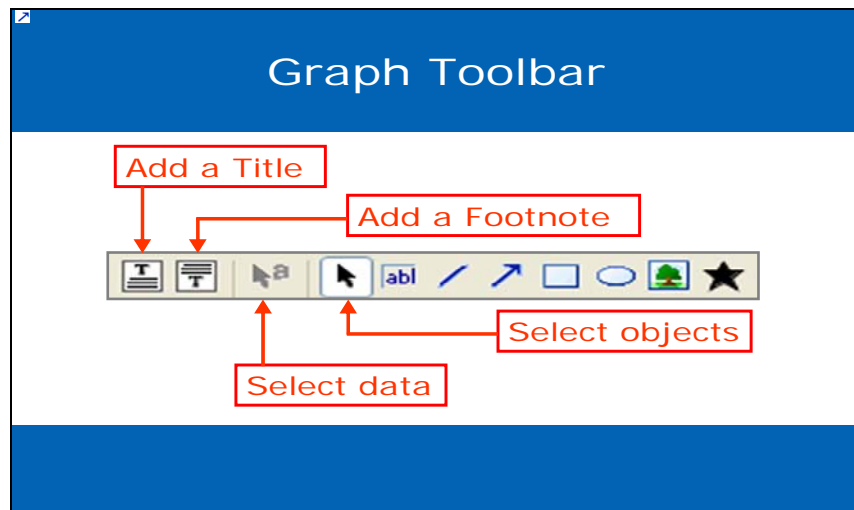
About the Graph Toolbar

To display the Graph toolbar:
Select: V**iew** > **Toolbars** > **Graph** from the main menu

Each of the icons on the tool bar allows you to perform a common edit or enhancement. From left to right the icons allow you to

- Add a title field to an ODS graph in which you can write a title.
- Add a footnote field to an ODS graph in which you can write a footnote.
- Select data and then show or hide labels for the selected data.
- Select an object on your graph for editing.

Graph Toolbar
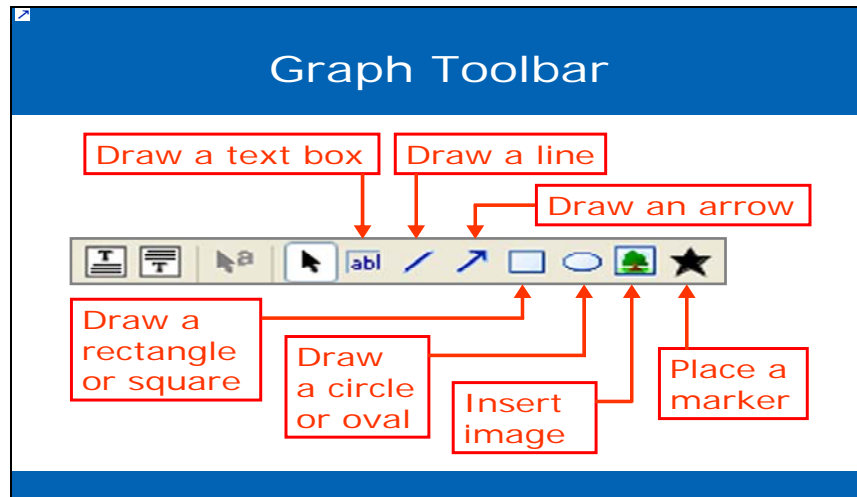
Details about function of each icon are:

Enables you to draw a text box on your graph, to which you can add text.
Enables you to draw a line on your graph.
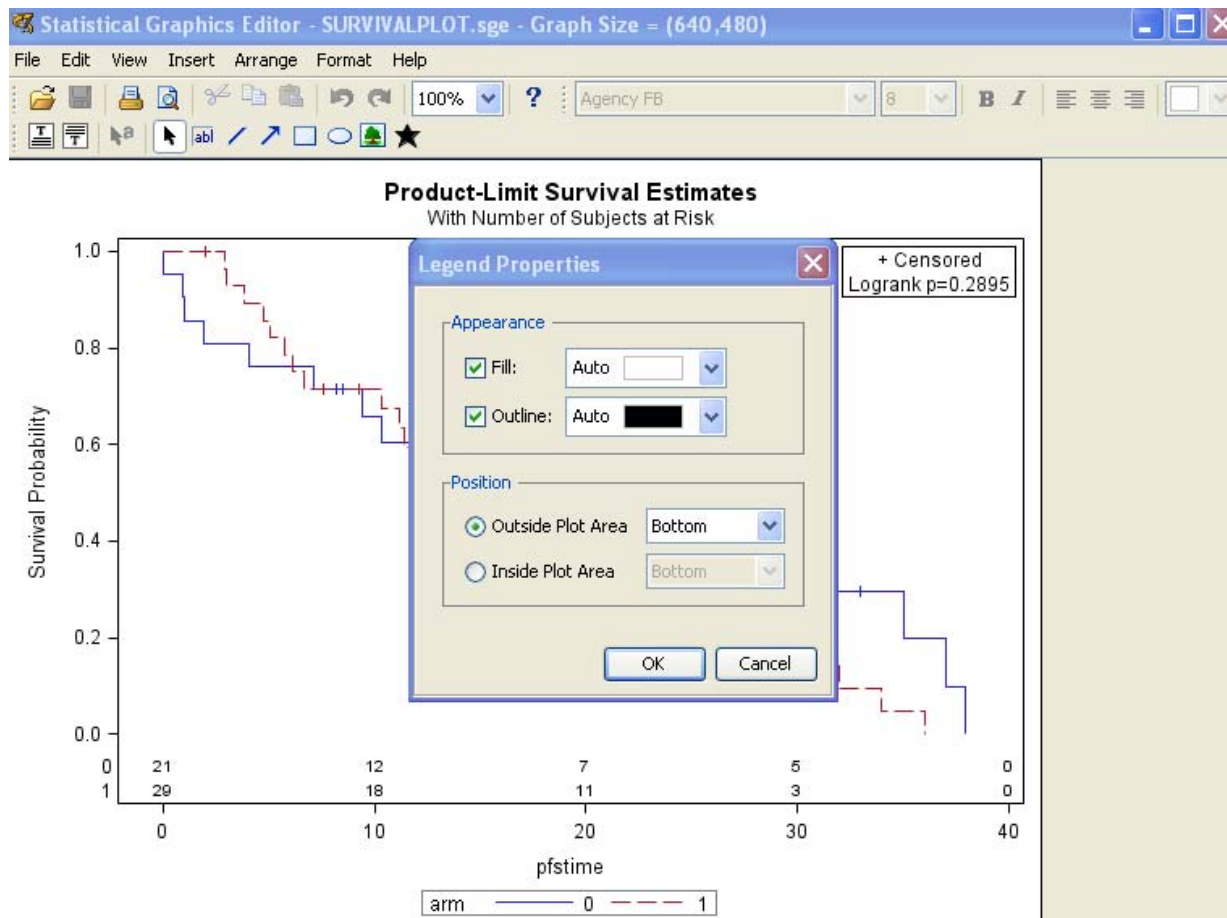Enables you to draw an arrow on your graph.
Enables you to draw a rectangle or a square on your graph.
Enables you to draw an oval or a circle on your graph.
Enables you to select an image to insert into the graph.
Places a marker at a place you select on your graph.

Also you are able working with Legends.

- Right-click the legend
- Select Legend Properties
- Change the background color
- Select fill check box. Then click the down arrow in the fill color list box to select a color.
- Move legend Inside or outside plot area

Working with Axis Labels
- Edit
  - Double-click the axis label
  - Enter or delete text
  - Change the font characteristics
  - Add special characters
- Add
  - Right click next to axis
  - Select Add ('Edit') label
  - Add and modify text as desired
- Show or Hide
  - Right click on axis
  - Select Axis Properties
  - Select axis whose label you want to show or hide
  - Check or uncheck the label box.
- Delete
  - Right click the axis
    - Select Edit Delete
  - Select the axis

- Press the Delete key

You can edit an existing X or Y axis label (or X,Y, and Z labels for three-dimensional graphs) if the same axis is displayed on both sides of the graph (right and left or top and bottom), then your edits apply to both of the axis labels. To edit the label double click on it and then you can add or delete text, change the font style and color and add special characters.

Note: Once you edit a label, then the alternate short text is no longer used for the label. For more information, see Use of Alternate Short Text in Graph Elements.

To add an axis label, right click along the axis where you want to add a label. Select **Add ('Edit') Label** from the pop-up menu and a text box will appear. Enter the label for your axis in the text box. The label cannot exceed 256 characters.

To show or hide an axis label right-click the axis label and select **Axis Properties**. In the **Axis** list box, select the axis whose label you want to show or hide.

Check or uncheck the **Label** box to show or hide the label. Click **OK**.

To delete an axis label permanently from a graph: Click the axis label that you want to delete. Select **Edit Delete**. Alternatively, you can press the DELETE key.

Working with Data Labels
- Click the data label icon in the Graph toolbar.
- Select observations
  - Click an observation to select it.
  - Pressing CTRL to select multiple observations.
  - Click and drag to select an area within the plot. All the observations in this area are selected.

To display or hide data labels:
Click the data label icon in the Graph toolbar. Select the observations for data label management in any of the following ways:
1. Click an observation to select it. If you press CTRL and click an observation, you can toggle the observation on and off. Pressing CTRL also enables you to select multiple observations.
2. Click and drag to select an area within the plot. All the observations in this area are selected.
3. You can add more items to the selection list by pressing CTRL while you click and drag to select another area containing additional observations.

Right-click and select one of the following label options:

Show Only Selected shows labels only for those data points that are currently selected. This option first turns off all the data labels and then displays the labels only for the selected data points.

Show Selected shows labels for the data points that are selected. This option leaves unchanged the data labels for all other data points that are not currently selected. For example, if you previously selected data points and set them to show, with this option they remain selected.

Hide Selected hides labels for those data points that are selected.

Show All shows labels for all the data points.

Hide All hides labels for all the data points.

Annotation Enhancements

- Add text
- Draw an arrow annotation head-to-tail.
  - After you create a line or arrow, you can rotate the line or arrow in 15-degree increments.
  - If a line or arrow annotation is attached to the data, then you can specify data values to position the line or arrow
- Draw circles or rectangles
  - After you create an oval or rectangle, you can resize the oval or rectangle while maintaining the aspect ratio of the original annotation.
- Add images
- Add markers

Finally you can make annotation enhancements. When you annotate a graph, you add objects on top of the original graph. Annotation objects are rendered in a separate layer on top of the graphical elements and do not cause any relay out of the graph.

ODS Statistical Graphics in PROC LIFETEST

- Survival Plots – displays the estimated survival functions.
  - display the numbers of subjects at risk
  - Display the confidence bands.
- Hazard Plots –displays the estimated hazard function.
  - Kernel-smoothed estimates are produced for the product-limit method.
- Diagnostic Plots – you can specify:
  - negative log of the estimated survivor function
  - log of negative log of the estimated survivor function.

Conclusion
- The SAS GRAPH ODS Graphics Editor is the very important tool for customizing ODS graphics output
- The SAS GRAPH ODS Graphics Editor does not allow you to change the data.
- The results can be saved in a .SGE file for future editing, or as a PNG as an image file.
- You can copy the results directly to other documents or presentations

REFERENCES:

SAS/GRAPH 9.2 ODS Graphics Editor User's Guide
http://support.sas.com/documentation/cdl/en/grstateditug/61951/PDF/default/grstateditug.pdf

What's New in SAS/GRAPH 9.2: ODS Graphics Editor
http://support.sas.com/documentation/cdl/en/whatsnew/62580/HTML/default/viewer.htm#/documentation/cdl/en/what
snew/62580/HTML/default/grstateditugwhatsnew902.htm

Rodriguez, R. N. (2008), "**Getting Started with ODS Statistical Graphics in SAS 9.2**," Proceedings of the Thirty-
third Annual SAS Users Group International Conference. Cary, NC: SAS Institute Inc.
http://www2.sas.com/proceedings/forum2008/305-2008.pdf

Rodriguez, R. N., and T. E. Balan. 2006. "Creating Statistical Graphics in SAS 9.2: What Every Statistical User
Should Know." Proceedings of the Thirty-first Annual SAS Users Group International Conference. Cary, NC: SAS
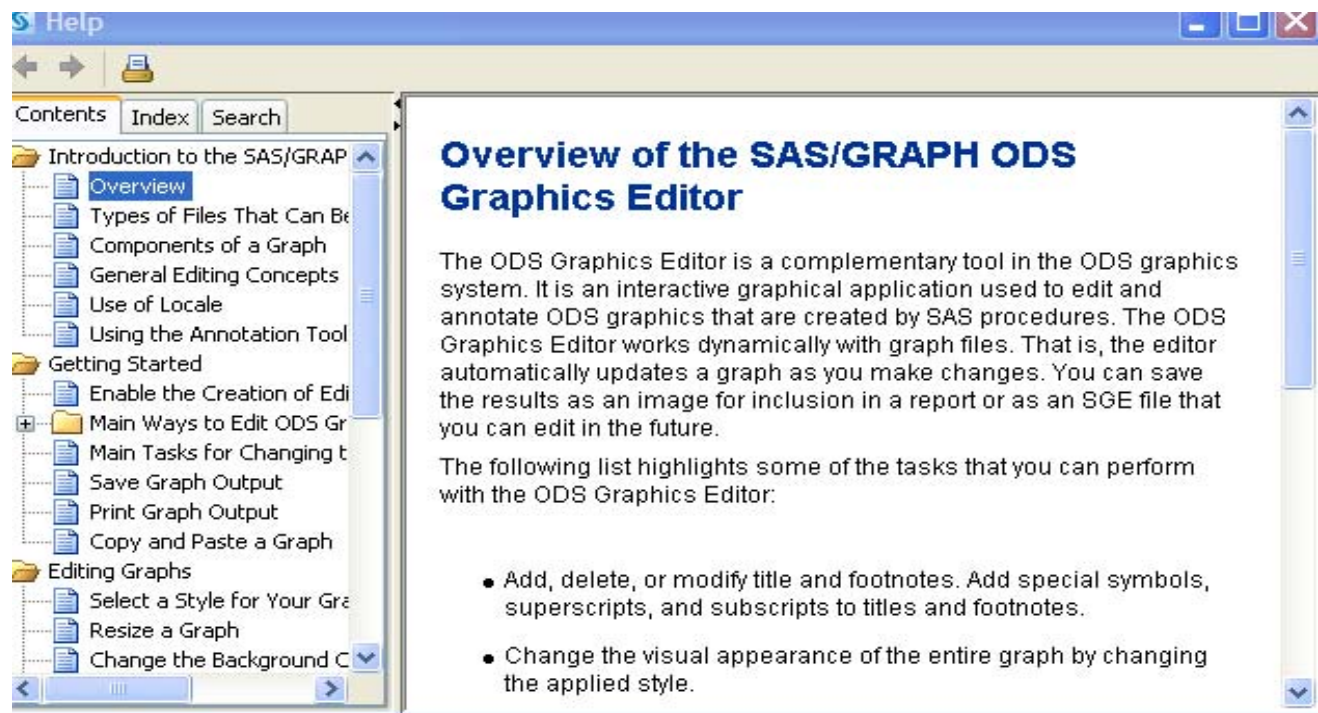Institute Inc.
http://www2.sas.com/proceedings/sugi31/192-31.pdf

Sanjay Matange, (2008) '**ODS Graphics Editor"** Proceedings of the 21st NESUG SAS Users Group Conference.

What's New in SAS/GRAPH 9.2: ODS Graphics Editor
http://support.sas.com/documentation/cdl/en/whatsnew/62580/HTML/default/viewer.htm#/documentation/cdl/en/what
snew/62580/HTML/default/grstateditugwhatsnew902.htm

Himesh Patel, Enhancements to SAS/GRAPH Software in SAS 9.2, SAS Institute Inc., Cary, NC
http://support.sas.com/resources/papers/sgf2008/sasgraph.pdf

Help in Graphics Editor Toolbar

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