Now you can create graphs without writing a single line of graph code by using the new ODS Graphics Designer. Designer is an interactive application for building graphs using a “point-and-click” process. Graphs created using Designer can also be run in batch with the same or new data.

**Launching Designer:** Designer can be launched from the SAS DMS interface on Windows and Unix systems. Designer was first shipped as production software with SAS 9.2 (TS2M3).

- **SAS 9.2:** Submit the macro code “`%sgdesign;`” in the program editor.
- **SAS 9.3:** Select “Tools->ODS Graphics Designer”.

**Designer GUI Interface:** Once the application starts, the user interface is displayed as shown in Figure 1. Along with the standard menus and menu bar, this interface includes the following main items:

- A palette of plots and insets.
- A graph gallery containing commonly used graphs and your custom graphs.

**The Graph Gallery:** This is a set of commonly used graphs used in many different domains. This gallery is organized into groups by tabs. Each tab contains a set of graphs that you can select as a starting point. These include “Basic”, “Grouped”, “Analytical”, “Custom”, “Matrix” and “Panels”.

**Building a Graph:** To build a graph, you can start with one of the graphs from the gallery or from a blank canvas. Let us now build a common distribution graph of vehicle horsepower starting with a basic Histogram from the gallery.

**Step 1:**
- Select Basic->Histogram in the gallery and click OK.
- The Assign Data dialog is displayed.
  - Set Library to SASHELP and Data Set to CARS.
  - Set the X variable to horsepower. Click OK.

**Step 2:**
- Once a graph is created, the “Plot Layers” palette is activated. You can drag and drop other relevant plots to the graph.
- In this case, we have added a Normal Density Plot and a Kernel Density Estimate to the graph.
- For each plot, the appropriate Assign Data dialog is displayed to select the plot variables.

**Step 3:**
- Use the Plot Properties dialog to assign line color, pattern etc. to different elements of the graph.
- Add a Discrete Legend and customize it.
- Customize the title and remove the footnote.
- The resulting graph is shown in Figure 3.
Multi-Cell Graphs: Designer supports three types of multi-cell graphs:

- **Ad-Hoc Multi-Cell Graph:** In this case, the graph region can be split into multiple cells. You can use the graph pop-up menu, select “Add Row” or “Add Column” to add a row or a column to your layout. Each cell is an independent graph, and is populated by dropping one or more compatible plots in the cell.

   By default, each cell will display its own axes. However, common external row and / or column axes can be created. Figure 4 shows a two cell graph.

- **Classification Panels:** Panels and Lattice graphs can be created using classification variables from the data itself as shown in Figure 5.

   This is a graph of cholesterol by sex and classified by weight status of the patient. The weight status variable is assigned to the Row option. It has three distinct levels, thus creating a graph with three rows of data.

   The graph has a common column axis to facilitate comparisons across the cells.

- **Scatter Plot Matrix:** A Scatter Plot Matrix is a very useful graph for viewing of relationships in your raw data. This graph creates a grid of pair wise scatter plots for all the variables in the list.

   This graph has a special Assign Data dialog that enables you to select the list of variables for the matrix. The graph and the dialog are shown in Figure 6.

**Code Generation:** Designer generates the GTL code for the graphs which can be viewed using View->Code.

**Batch Execution of Designer Graphs:** Graphs created using Designer can be saved to the file system as SGD files. These files can then be run in batch using the SGDESIGN Procedure. See documentation for details.

The SGD file includes a reference to the data set that was used when creating the graph. This same data set is used unless an optional data set name is provided. Designer allows the usage of multiple data sets for a graph (one per cell). In this case, a libname can be used to run the graph with different data. Dynamics in the graph can be substituted at runtime.

**Auto Charts with SAS 9.4:** In the Designer window, a new tool has been added under Tools->Auto Charts to create commonly used graphs from a set of variables in bulk. You can request univariate, bivariate, grouped and advanced graphs. A custom gallery of graphs is created from you selection of data set variables and settings. Now, you can open any of these graphs for further customization and use.

**Resources:** For detailed information on the ODS Graphics Designer, see the SAS documentation for the software. A quick introduction to the features of the software can be found in this paper: