

KaleidaGraph Quick Start Guide

This document is a hands-on guide that walks you through the use of KaleidaGraph. You will probably want to print this guide and then start your exploration of the product. If you have any questions or problems, please contact technical support.

Please also refer to the ReadMe file which provides installation instructions, details on getting help, and much more.

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Getting Started

This guide contains four major examples to guide you through the operation of KaleidaGraph. We recommend that you try and complete all four at one sitting, however you can save the files and finish the tour at a later time.

These examples will show you how to do the following:

- Create a new data set, change the column titles and format, sort the data, and calculate simple statistics for the data.
- Create and modify a Scatter plot of the data from the first example. This example shows how to change the display of the variable, use of a few plot tools, and add a curve fit and error bars.
- Create a Column plot from a saved data set. This example shows how to modify the axes, change the display of the axis labels, and add value labels above the columns.

- Display the plots from the preceding examples on the same page using the layout window.

Some optional examples are also included in this guide to show you how to perform common operations not covered in the main examples. The topics include editing the legend text and frame, using Formula Entry, applying a user-defined curve fit, and modifying data in a saved plot.

A section on generating similar plots is also included to give you hints on how to maintain a consistent look for the plots that you create.

At this point, you are ready to start learning KaleidaGraph.

Example 1 - Generating a Sample Data Set

This example takes you through the process of typing data into the data window, changing the column titles and format, sorting the data, and calculating statistics on the raw data.

- Start KaleidaGraph by double-clicking the KaleidaGraph icon.

When you launch KaleidaGraph there will be two windows displayed: an empty data window and a Formula Entry window. The data window is a spreadsheet used to enter and store data for plotting and analysis. By default, new data windows are created with 10 columns and 100 rows. Each data window can contain a maximum of 1000 columns and 1 million rows.

The first step is to type some data into the data window. To do this:

- Type **4.3** into the first cell of column 0.
- Press the **Enter** (Windows), **Return** (Macintosh), or **Down Arrow** key to move down to the next cell.
- Type the values **2.9**, **4.8**, **3.2**, **3.9**, **3.5**, and **2.3** into column 0. After each value is entered, press the **Enter**, **Return**, or **Down Arrow** key to move down a row.
- Click the cell at row 0, column 1.
- Use the same method to type the data values **8.0**, **6.2**, **9.0**, **5.7**, **8.8**, **7.2**, and **4.9** into column 1.

Next we will change the titles and format for these two columns.

- Double-click the column title of column 0 (or choose **Data > Column Format**).

This will display the Column Format dialog. This dialog displays the names of the data columns to the left and contains a field below the listing where you can edit the names of the columns.

- Type **Time** into the field below the listing of column titles.
- Click the name of the second column (B).

- Type **Test 1** into the field below the listing of column titles.

This dialog can also be used to change the format of the data columns. The steps that follow will change the display of the data so that each value only has one decimal place.

- Press **Shift** and click both the **Time** and **Test 1** entries.
- From the **Format** pop-up menu, choose **Fixed**.
- From the **Decimals** pop-up menu, choose **1**.
- Click **OK** to apply the changes to the data window.

Your data window should resemble the one shown in Figure 1.

0	Time	Test 1
0	4.3	8.0000
1	2.9	6.2000
2	4.8	9.0000
3	3.2	5.7000
4	3.9	8.8000
5	3.5	7.2000
6	2.3	4.9000

Figure 1

Now we will sort the data to get the values in ascending order (from low to high).

- If it is not already selected, click the **Time** label in the data window to select the entire column.
- Choose **Functions > Ascending Sort**.
- Press **Shift** and click both the **Time** and **Test 1** entries.
- Click **OK** to apply the changes to the data window.

The final step will be to calculate a number of standard statistics on one of the data columns.

- Click the **Test 1** label in the data window to select the entire column.
- Choose **Functions > Statistics**.

A dialog will be displayed showing the calculated values for each of 10 different statistics. This dialog provides a **Copy to Clipboard** button to export the results for use in a data, plot, or layout window.

- Click **OK**.

At this point, you can proceed to the next example or save your data by choosing **File > Save Data**.

Example 2 - Creating a Scatter Plot with Linear Curve Fit and Error Bars

This example uses the data from the preceding example to create a Scatter plot. This example shows how to change marker type, size and color, use the Identify and Data Selection tools, apply a Linear curve fit, display the curve fit equation, and add error bars.

Now, let's create a plot using the example data entered in the previous exercise.

- Choose **Gallery > Linear > Line**.

This will display the Variable Selection dialog. Notice that the name of the data file and its column titles are displayed in this dialog.

- Select **Time** as the X variable and **Test 1** as the Y variable by clicking the appropriate buttons.

Figure 2 shows what your Variable Selection dialog should look like at this point.

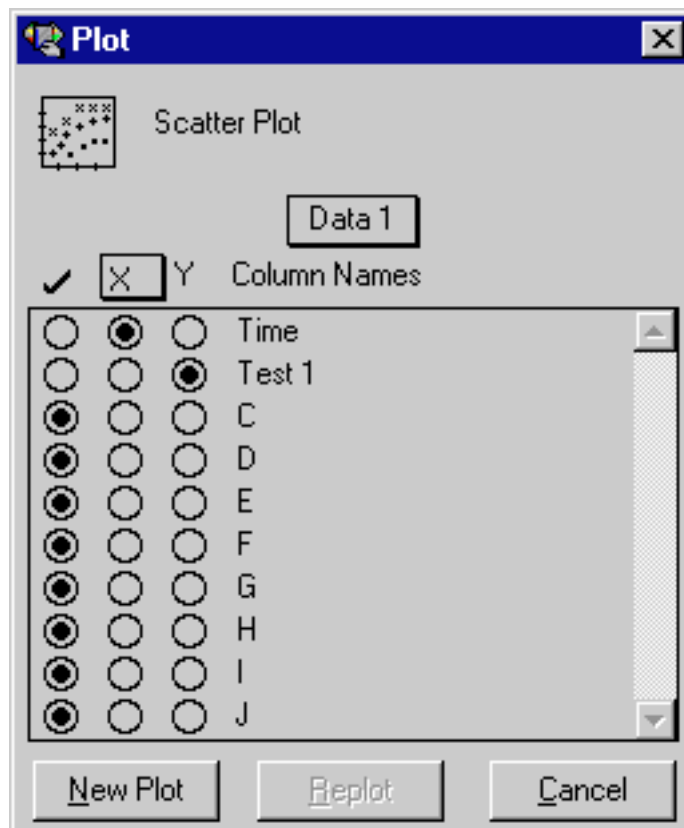


Figure 2

- Click **New Plot** to create a Scatter plot.

The X variable you selected is the independent variable and the Y variable is the dependent variable. By default, the X variable is plotted on the horizontal axis and the Y variable is plotted on the vertical axis.

The title of the plot is taken from the name of the data window. The X and Y axis titles are taken from the column titles of the variables being plotted. The Y variable title is also used in the legend.

Now that the graph has been created, it can be modified very easily. For example, let's change how the data is represented on the plot. You will use the Plot Style dialog to change the marker type, size, and color.

- Triple-click the marker displayed in the legend (or choose **Plot > Plot Style**).
- Select a different marker to represent the variable on the plot.

The markers are displayed on the left side of the dialog. The first six markers in the left column are transparent; all of the others are opaque.

- Change the value in the **Marker Size** field to 18 and select a different color from the color palette.
- Click **OK** and the plot will be redrawn to reflect the changes that have been made.

Now we will use the Identify tool from the toolbox to display the coordinates of the data. The Identify tool looks like a set of crosshairs.

- Select the Identify tool by either clicking it or pressing **I** on your keyboard.
- Once the tool is selected, click one of the data points. The X and Y coordinates are displayed in the upper-left corner of the plot window.

It is also possible to leave the coordinates directly on the plot. To do this:

- Press **Alt** (Windows) or **Option** (Macintosh) as you release the mouse button. This will place a label containing the coordinates to the right of the point.

You can quickly and easily fit a curve to a set of data points. To add a curve fit to the plot:

- Choose **Curve Fit > Linear**. This will display a dialog to select which variables to fit with the Least Squares Error method.
- Select a variable to be fit (in this case **Test 1**) by clicking its check box.
- Click **OK**. The curve fit is calculated and the curve fit line is drawn on the plot. By default, the curve fit results will also be displayed on the plot. If the equation is not displayed, turn on **Display Equation** in the **Plot** menu.

The position of the equation can be changed using the Selection Arrow.

- Click the Selection Arrow on the toolbox.
- Drag the equation to a new position.
- When the move is complete, click anywhere else in the window and the object handles will disappear.
- You can use the same technique to move the legend.

At this point, your plot should resemble Figure 3.

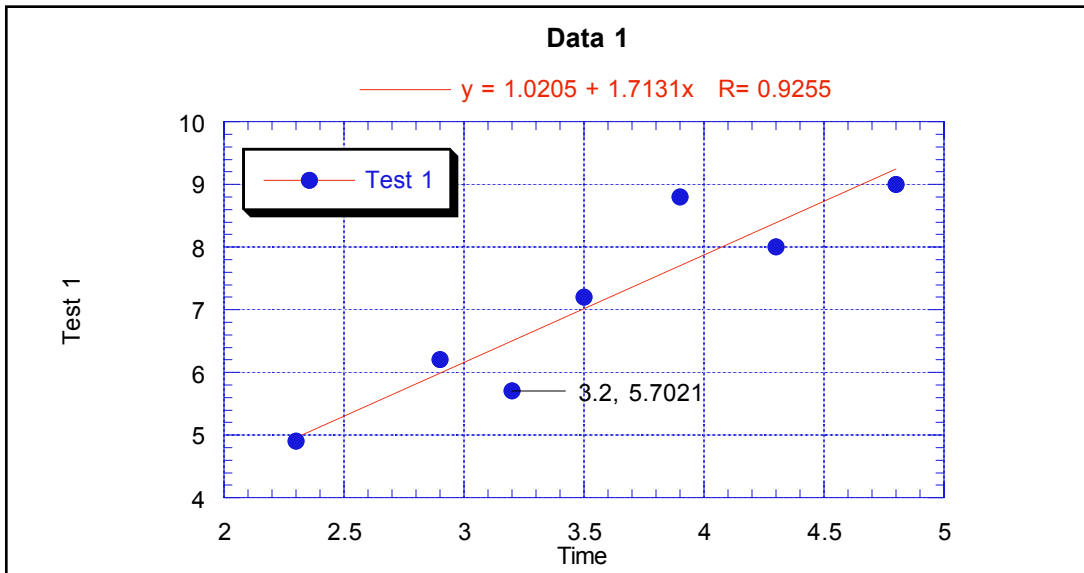


Figure 3

Once a curve fit is applied, you can copy the values of the curve fit line to the data window. These values are appended after the existing data in your data window. The first column will be a series of X values. The number of X values will be equal to the number of curve fit points specified in the Curve Fit Options dialog (**Format** menu). The second column will contain the values from the curve fit at each of these locations.

- Reselect **Linear** from the **Curve Fit** menu. A Curve Fit Selections dialog appears with a drop-down arrow under **View**.
- Click the drop-down arrow and choose **Copy Curve Fit to Data Window** from the pop-up menu.
- Click **OK** to return to the plot window.

Now we will use the Data Selection tool to graphically remove a point from the plot. The Data Selection tool is located below the Identify tool in the toolbox.

- Select the Data Selection tool by either clicking it or pressing **S** on your keyboard.

The Data Selection tool operates by enclosing a region of the plot in a polygon. Any data points outside the polygon are removed from the plot. By pressing **Alt** (Windows) or **Option** (Macintosh) as you make the polygon, you can eliminate the data inside of the polygon.

- Once the tool is selected, press **Alt** (Windows) or **Option** (Macintosh) and create a polygon around the data point in the lower-left corner of the plot window. Once the polygon is complete, the point will be removed and the curve fit will be recalculated.
- Double-click the Data Selection tool to return the plot to its original state.

The last modification to the plot will be the addition of error bars. Error bars illustrate the amount of error for the plotted data.

- Choose **Plot > Error Bars** to display the Error Bar Variables dialog.
- Click the check box in the **Y Err** column to add vertical error bars. A dialog will be displayed so you can choose the type of error to be used.
- From the pop-up menu, choose **Standard Error** for the error type.

Both of the pop-up menus will have Standard Error selected because the **Link Error Bars** check box is selected. Otherwise, it would be possible to have the error bar display one type of error for the positive portion of the bar and a different error (or no error at all) for the negative portion.

Your Error Bar dialog should look like the one in Figure 4.

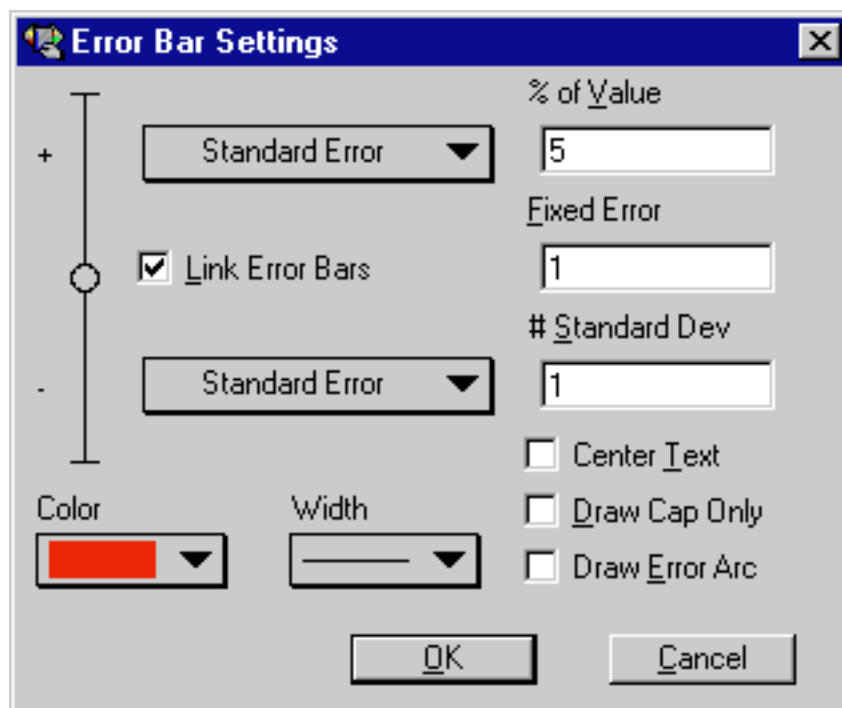


Figure 4

- Click **OK** and you will return to the Error Bar dialog.
- Click **Plot** and error bars will be added to the plot. The error bars represent the standard error of the entire data column.

The finished plot is shown in Figure 5.

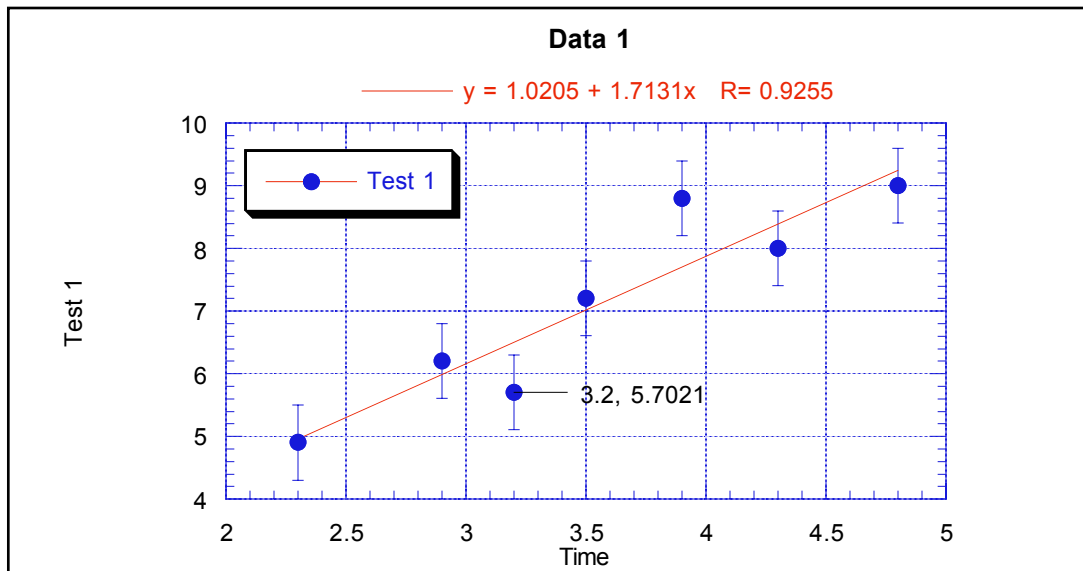


Figure 5

You have just created a customized plot. You can continue on to the next example or you can save the plot by choosing **File > Save Graph**. If you save the graph, a copy of the data window will be saved with the plot (in the same file). The process of opening a saved plot and extracting the data is covered in one of the optional examples later in this guide.

Example 3 - Creating a Column Plot with Value Labels

This example uses a Column plot to show how to adjust major and minor ticks, axis labels, fill patterns, column spacing, plot color, label rotation, and display values above the columns.

We will begin this example by opening a saved data set.

- Choose **File > Open**.
- Locate and open the **Data** folder, which is located in the **Examples** folder.
- Double-click the **Housing Starts** file.

This will open the file in a new data window. Notice that the data in the column titled **Month** is left justified. This is because it contains text, not numbers. When a text column is used as the X axis variable (in a Column plot), you can have up to 300 labels and an unlimited number of rows (categories) plotted.

Now, let's create a plot using this data.

- Choose **Gallery > Bar > Column**. The Variable Selection dialog is displayed.
- Select **Month** as the X variable and **1966(K)** as the Y variable by clicking the appropriate buttons.
- Click **New Plot** to create a Column plot.

The first set of changes will be made in the Axis Options dialog. This dialog contains the majority of the settings for the axes, grid lines, tick marks, and axis labels.

- Triple-click the X axis (or choose **Plot > Axis Options**). This will display the dialog in Figure 6.

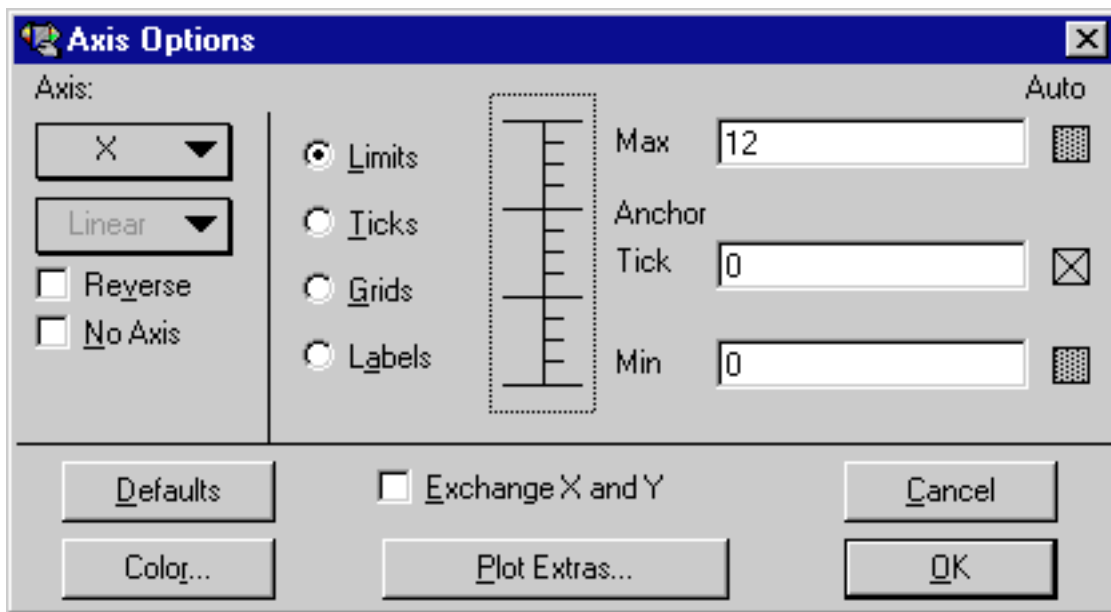


Figure 6

The first change will be to remove the vertical grid lines.

- Click **Grids**. The dialog will change to show the options that can be selected for the major and minor grids.
- Choose **None** from the pop-up menu to the right of **Major**.

The next change will be to remove the tick marks on the X axis.

- Click **Ticks**. The dialog will change to show the options that can be selected for the major and minor ticks.
- Choose **None** from the pop-up menus below both **Major** and **Minor**.

The next change also involves the tick marks, but this time on the Y axis.

- Select the **Y** axis from the pop-up menu under **Axis**.

- Choose **Out** from the pop-up menus below both **Major** and **Minor**.

The last step is to change the maximum Y axis limit from 140 to 160.

- Click **Limits**. The dialog will change to show the options that can be selected for the limits.
- Change the value in the **Max** field from 140 to 160.
- Click **OK** to have the plot updated.

Now you can change the fill pattern for the columns using the Plot Style dialog.

- Triple-click the small square in the legend which is filled with the same pattern as the columns (or choose **Plot > Plot Style**).
- You can now choose a different fill pattern for the columns. Click one of the fill patterns and a frame will appear around that pattern to show that it is selected.
- Click **OK**.

The next step will be to increase the amount of space between the columns.

- Choose **Format > Plot Extras**.
- Change the **Column Offset** percentage from 20 to 40%.
- Click **OK** to update the plot.

At this point, your plot should resemble the one shown in Figure 7.

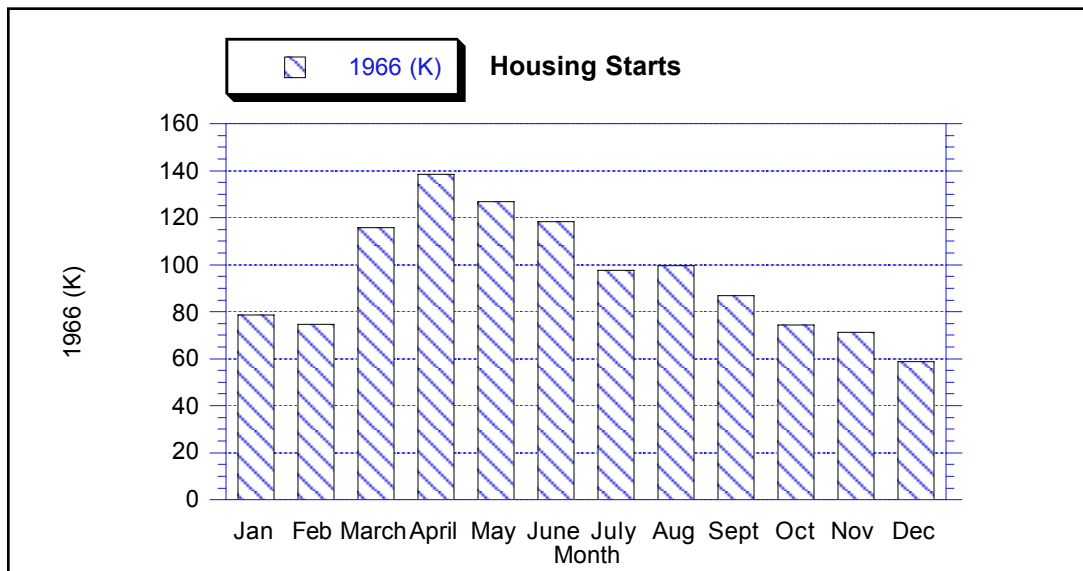


Figure 7

The next step will be to add some color to the interior of the plot. By default, plots are created without interior and background colors. To select an interior color:

- Click any of the four axes to select the plot.

Two sets of icons will be displayed at the bottom of the toolbox. The first icon displays two overlapping rectangles which control the interior and background color of the plot.

- Click the rectangle in the foreground and select one of the lighter colors from the color palette that appears. The selected color will be used to fill the interior of the plot.

The following steps will show how to remove the X axis title, resize the Y axis title, and rotate the X axis labels.

- Click the X axis title, **Month**, and press **Backspace** (Windows) or **Delete** (Macintosh).
- Click the Y axis title, **1966 (K)**. Drag any one of the four object handles to increase the font size of the label. It is also possible to change the font size by double-clicking the text label.
- Double-click one of the X axis labels. Notice that this dialog has its own set of menus.
- Choose **Format > 90 Degree Rotation**.
- Also choose **Format > Right Justify** so that the rotated labels will line up evenly.
- Click **OK** to get back to the plot window.
- Drag one of the X axis labels closer to the axis. You can also use the arrow keys to move selected objects one pixel at a time in the specified direction (10 pixels if you press **Shift** while using the arrow keys).

The last step is to display the values of each column. To do this:

- Turn on **Add Values** in the **Plot** menu.

The values are placed at the top of each column. The values can be moved as a group by dragging them to a new location.

The Column plot is now complete.

Example 4 - Laying out Plots for Printing

This example shows how to use the layout window to place the plots created in the previous examples on a single page.

Note: The following steps assume the two plots from the previous examples are still available. If you had saved the plots and quit before reaching this example, use the **Open** command (**File** menu) to open these plots. If you do not have them any longer, you can open any two plots from the **Plots** folder in the **Examples** folder.

- Choose **Windows > Show Layout > KG Layout**. If no layout has been created previously, an empty layout window will be displayed.
- Use the **Select Plot** command (**Layout** menu) to select the two plots that were created in the previous examples. At this point, do not worry about their overall placement.
- Choose **Layout > Arrange Layout**. The Arrange Layout dialog allows you to enter the number of rows and columns to divide the layout window into equal sections.
- The default settings (two rows and one column) are sufficient for this example, so click **OK**.

Notice that the layout window was divided into two equal sections and the plots were automatically resized and placed into these sections.

It is possible to display more than just plots in the layout window. The plot tools are available, enabling you to add text and other objects to the layout. Various graphic images can be imported into the layout window. Also, a background pattern and frame can be added to the layout using the **Set Background** command (**Layout** menu).

Feel free to print the layout by choosing **File > Print Layout**. The contents of the layout window can be copied to the Clipboard using the **Copy Layout** command (**Edit** menu). It is also possible to export the layout in a variety of formats using the appropriate command from the **Export** submenu (**File** menu).

- Close the layout window by choosing **File > Close**.

Where to Go from Here

We have just taken you on a pretty informative tour on the use of KaleidaGraph. At this point, you can begin to experiment on your own or you may continue with some or all of the additional examples in the following section. These examples cover some more specific topics than those you have just completed. If you need more information on any of the commands you have used up to now, you can get more complete details in the online manual.

If you would like to quit for now, choose **Exit** (Windows) or **Quit** (Macintosh) from the **File** menu.

Additional Examples

This section contains some optional examples to show you some of the finer points of KaleidaGraph. Unlike the major examples you completed earlier, you do not have to follow the additional examples in any order. You can pick out those topics which are relevant to the way you will be using KaleidaGraph to get a greater feel for the program. These examples will show you how to do the following:

- Edit the legend frame and text.
- Use the Formula Entry window to perform calculations in the data window.
- Apply a user-defined curve fit, display the resulting equation, and change the display of the curve fit line.
- Open a saved plot, display the original data, and, after making changes to the data, automatically update the plot and curve fit.

A section on generating similar plots is also included after this section to give you hints on how to maintain a consistent look for the plots that you create.

Editing the Legend

This example shows how to edit the legend frame and text.

The attributes of the legend frame are controlled by the bottom three icons on the toolbox. Most of the changes to the legend frame involve the last icon in the toolbox, which is divided into two sections: a Line Style icon on the left and a Line Width icon on the right. The steps below will use these two sections of the icon to make various changes.

- Open the **Sample Plot** file which is located in the **Plots** folder in the **Examples** folder.
- Click the legend to select it.
- From the toolbox, click the Line Width icon (the up and down arrows) and choose **Hairline** from the pop-up menu. Notice that the legend frame changes from a shadow box to a hairline width line.
- Now click the Line Style icon (the one to the left of the up and down arrows) and select one of the dashed lines from the pop-up menu. Notice that the line surrounding the legend now contains the dashed pattern you selected.
- Finally, choose **None** from the Line Style pop-up menu. This removes the legend frame completely.

Now we can edit the text inside the legend.

- Select the Text tool from the toolbox. This is the tool to the right of the Selection Arrow. You can select this tool by either clicking it or pressing **T** on your keyboard.

- Double-click any of the three labels inside the legend. A dialog will be displayed that will let you modify the information.
- Delete the text in this dialog and type any information you like. Feel free to change the font, size, and style as well.
- Click **OK** to return to the plot and see the change.

The changes you made only affect this one label. If you use the Selection Arrow instead of the Text tool, you can change the attributes of all legend items at once. However, you cannot edit the text with the Selection Arrow.

Using Formula Entry

This example shows how to use the Formula Entry window, shown in Figure 8, to operate on the data window. Details on executing a multi-line formula are also included.

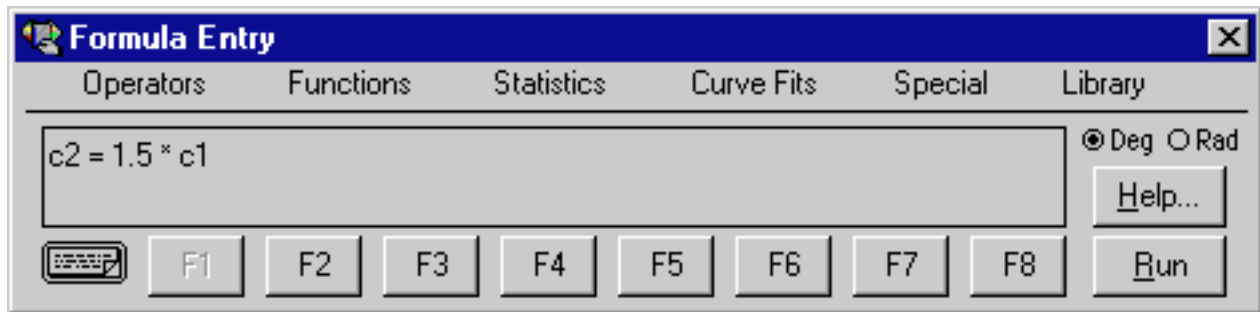


Figure 8

The Formula Entry window is a very powerful tool for data analysis. Use Formula Entry to enter equations (functions) that generate and manipulate data in the frontmost data window. The results of a formula can be placed in a data column, a single cell, or a memory location.

Memory locations and column numbers can be used in formulas. Memory locations range from 0 to 99 and need to be preceded by an **m** when used in a formula (m15, m35, and so on).

Column numbers range from 0 to 999 and need to be preceded by a **c** when used in a formula (c10, c55, and so on). Column numbers are displayed in a box at the top of the column. Please note that when a selection is made in the data window, the first column in the selection becomes column 0.

The following are a few examples of basic formulas along with a description of each:

- $c2=c0+c1$; Adds the first two columns together and stores the results in column 2
- $c1=c0/1000$; Divides column 0 by 1000 and stores the results in column 1
- $c2=\cos(c0)$; Calculates the cosine of column 0 and stores the results in column 2

Let's get started by running a few formulas and seeing their effects on the data window:

- Choose **File > New** to display an empty data window.

To execute a formula from the Formula Entry window, a data window must be open. Otherwise, the **Run** button is unavailable.

- Choose **Windows > Formula Entry**.

By default the F1 function button will be selected. The F1-F8 buttons can be used to store common formulas, however we recommend that you leave F1 for general use and store your formulas in F2-F8.

Note: In the steps that follow, you can press **Enter** (Windows) or **Return** (Macintosh) instead of clicking **Run**.

- Click **F2**, type **c0=index() + 1**, and click **Run**.

This creates a series from 1 to 100 in column 0.

- Click **F3**, type **c1=log(c0)**, and click **Run**.

This function calculates the logarithm of each value in column 0 and stores the results in column 1.

- Click **F4**, type **c2=c1^2**, and click **Run**.

This formula squares each value in column 1 and stores the results in column 2.

- Click **F5**, type **cell(0,3)=csum(c2)**, and click **Run**.

This formula calculates the total sum of the values in column 2 and stores the result in the cell at row 0, column 3. You will need to click the right scroll arrow to see the result of this formula.

It is not necessary to enter and execute each formula individually. KaleidaGraph has a method to enter multiple formulas and execute them all at once.

To the left of the F1 button is a Posted Note button. Clicking this button displays a text editor. You can enter multiple formulas into the editor and execute them all at once by clicking **Run**. The formulas must be on separate lines and each must be terminated with a semicolon.

Let's try using the same formulas from before, but this time executing them using the Posted Note window:

- Choose **File > New** to display an empty data window.
- Choose **Windows > Formula Entry**.
- Click the Posted Note button in the Formula Entry window to display a text editor. This button is located to the left of the F1 button.

- Type the following formulas into the Posted Note window. Note that each formula ends with a semicolon and appears on a separate line.

```
c0=index() + 1;
c1=log(c0);
c2=c1^2;
cell(0,3)=csum(c2);
```

- After the formulas are entered, choose **File > Exit** to return to the Formula Entry window. A message will be displayed in the Formula Entry window telling you to click **Run** to execute the Formula Posted Note.
- Click the **Run** button to execute all of the formulas at once.

As you can see, this is a very convenient method to execute multiple formulas at once. Using this method you can save the formulas as a text file from the Posted Note dialog that can be opened at a later time.

Applying a General (user-defined) Curve Fit

This example takes you through the process of defining and applying a user-defined curve fit. KaleidaGraph's General curve fit is based on the Levenberg-Marquardt algorithm. You can solve up to nine unknown parameters during the fitting process.

We will start by creating a data set from scratch.

- Choose **File > New** to display an empty data window.
- Choose **Windows > Formula Entry**.

The Formula Entry window is used to analyze and manipulate data in the active (frontmost) data window. Any function you run will always operate on the active data window.

- If it is not already selected, click **F1**.
- Type **c0=index()-50** into the Formula Entry window and click **Run**.

This will generate a unit series of -50 to 49 in the first data column (column 0). The index() command simply returns the current row number each time the formula is executed.

- Click **F2**, type **c1=5+10*exp(-c0*c0/(20*20))**, and click **Run**. The results will be placed in the second data column (column 1).

Now let's create a Line plot of this data.

- Choose **Gallery > Linear > Line**.
- Select **A** as the X variable and **B** as the Y variable.

- Click the **New Plot** button to create a Line plot.

Now we are ready to apply a General curve fit. The first step in this process is to define the curve fit and add it to the list of available General curve fits.

- Choose **Curve Fit > General > Edit General**. This will display the dialog in Figure 9.

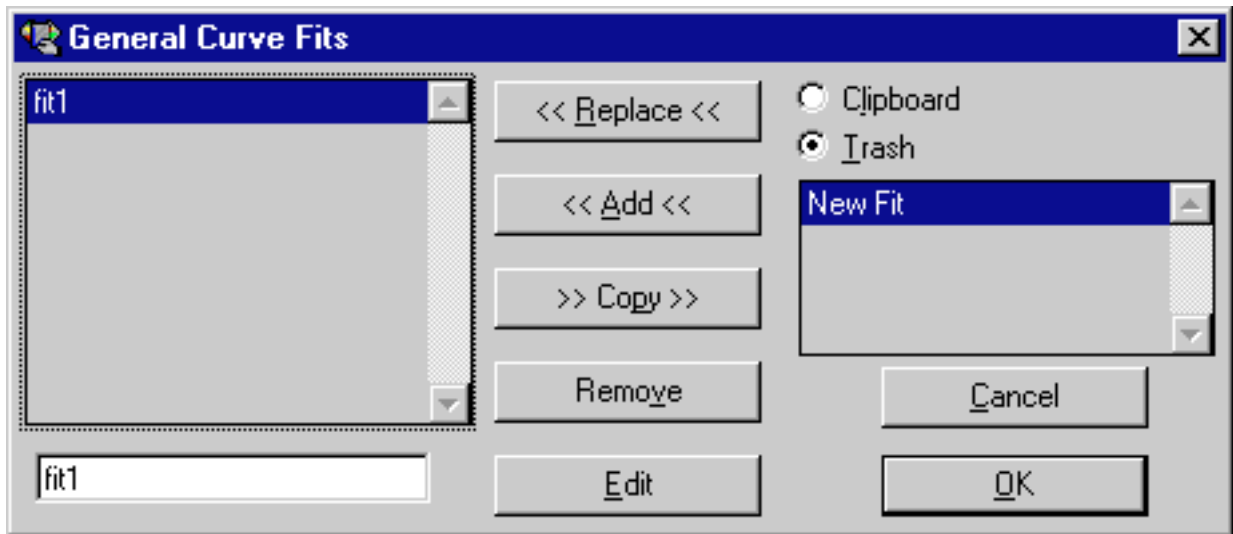


Figure 9

- Click **Add**.
- Click the **New Fit** that was added to the listing on the left side of the dialog. The name can be changed in the field below the listing. Change the name to **Gaussian**.
- Click **Edit** to display the Curve Fit Definition dialog, shown in Figure 10, for the General curve fit. This is where we will enter the curve fit definition.

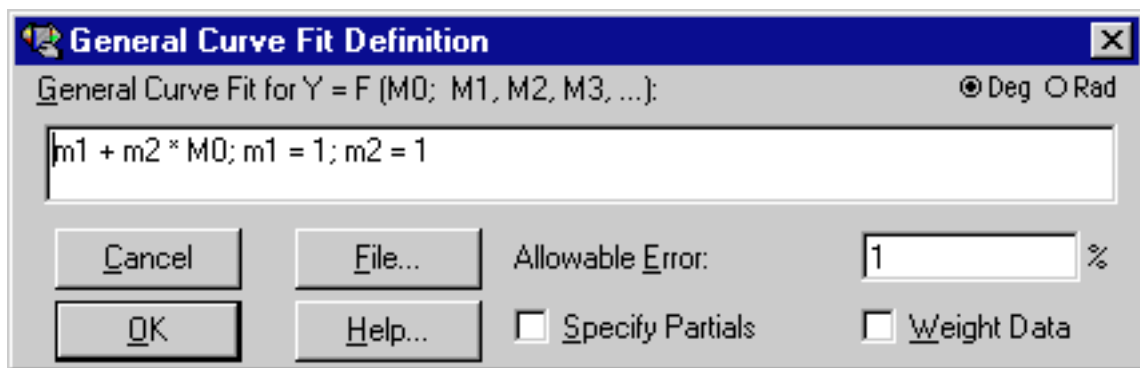


Figure 10

A Gaussian curve fit is of the form $y=a+b*e^{-(x-c)^2/d^2}$. In KaleidaGraph, you should enter the equation (using m0 as X and m1-m9 as your unknowns) with some initial guesses to give the algorithm a starting point. The format for adding initial guesses is to follow the equation with a semicolon and separate each initial guess with a semicolon.

- Type **m1+m2*exp(-(m0-m3)*(m0-m3)/(m4*m4));m1=1;m2=5;m3=1;m4=10** into the Curve Fit Definition dialog and click **OK** to each dialog to return to the plot.

Now that the curve fit has been defined, it can be applied to the data.

- Choose **Curve Fit > General > Gaussian**. This is the curve fit that we added in the previous set of steps.
- In the dialog that appears, click the check box in front of **B** to apply the curve fit to this variable.
- Click **OK** and the curve fit will be calculated and displayed on the plot.
- If the resulting equation is not displayed already, turn on **Display Equation** in the **Plot** menu to show a table containing the results of the fit.

The table lists the values of the unknown parameters along with the standard error of these values. It should be read as the parameter value +/- the standard error. The Chi Square and R values are also displayed as part of the curve fit results.

- Turn off **Display Equation** to hide the table.

The final changes will be to increase the number of markers, hide the variable line, and change the color and line style of the curve fit line.

- Triple-click the marker in the legend (or choose **Plot > Plot Style**).
- From the **Show Markers** pop-up menu, choose **Every 5th** marker.
- Select **None** from the **Style** column to hide the variable line.
- Click **Curve Fit**. Now you can control the appearance of the curve fit line.
- Select a different line style, line width, and color for the curve fit. Click **OK** to apply the changes.

Modifying Data in a Saved Plot

This example shows how to modify a data point in a saved plot and have the plot and any curve fits automatically updated.

To get started, we need to open a saved plot and extract the data. To do this:

- Choose **File > Open** and open the **Sample Plot** file (located in the **Plots** folder, within the **Examples** folder).

- With the plot foremost, choose **Plot > Extract Data**. The original data used to create the plot will be displayed.

The title of the window begins with the same name as the original data file. Additionally, a time and date stamp is appended to the name, identifying when the data was archived in the plot. The data is still linked to the plot window, so nothing with regard to the curve fit, etc. has changed.

Now we can make changes to the data and have the plot updated.

- Turn on **Auto Link** in the **Plot** menu. When this command is active, you can make changes to the data and have the plot automatically updated after each individual change.
- Change the value in the first row of column 1 from 78.5 to 100.
- Use one of the arrow keys to move to another cell to activate the Auto Link feature. The plot and curve fit will automatically be updated to reflect the modified data value.

If you need to add or edit multiple data points, it may be more efficient to use the **Update Plot** command (**Plot** menu) because Auto Link causes the plot to update after each change. In this case, turn off **Auto Link**, make any changes to the data, and choose **Update Plot**. The plot will be updated to reflect all of the changes at once.

Generating Similar Plots

If you routinely create the same types of plots, it would be helpful to set up some defaults or templates so that most of the work could be done automatically. KaleidaGraph provides several features that can be used to generate similar plots.

This section discusses the use of Style files, Template plots, and Plot Scripts to achieve a consistent look for your plots. The following will give you a general idea of when to use each:

- **Style files** - This feature is useful for setting program defaults like font information, plot characteristics, colors, and so on. This information is used any time a new plot is created. It is possible to export separate Style files so that you can load different settings as needed.
- **Template plots** - This feature is useful when you have an existing plot and would like to replace the data, keeping the look of the plot intact. If the original plot contains curve fits or error bars, the resulting plot will also have these applied. The plot and axis titles will remain the same; however, the legend will reflect the name of the new variable.
- **Plot Scripts** - This feature is useful when you need to generate several identical plots at one time from different data sets. If the script is pointed at a plot that contains curve fits or error bars, each resulting plot will also have these applied. Other features include the option to automatically save or print each plot and the ability to set the titles and legend information for each plot.

Style Files

One way to generate similar plots is through the use of Style files. KaleidaGraph stores most of your dialog settings and program defaults into a Style file. The Style file also stores layouts for each of the various plot types, in addition to any defaults you may have set for colors and text labels. This section will explain how to define plot layouts and set defaults for text labels.

Each of the plots in the **Gallery** menu can have its own layout. The layout remembers the default style for the legend, the position of the axis titles, plot title, axes, and legend, and the size of the axes, frame, and legend.

To define the layout for a plot:

- Create a plot of the type you want to define.
- Modify the position and size of the titles, plot, and legend.
- Choose **Plot > Define Layout**. A dialog appears, asking if you want to save the layout for this plot type.
- Click **OK** to save the layout.

Defining the layout of a plot only saves the position of the titles and legend. It does not save any of the settings for the text labels.

To set defaults for text labels:

- Choose **Format > Text Options**.
- Click the labels for which you want to set new defaults. The different text labels are described below:
 - Standard Labels - Axis titles and any text created with the Text tool.
 - Legends - Any text that appears in the legend.
 - Plot Titles - The text representing the plot's title.
 - Equation Labels - Text that appears when displaying the equation calculated by a curve fit.
 - Value Labels - Text that appears when **Add Values** is turned on or text error bars are applied.
 - X, Y, Y2, or X2 Axis Labels - The labels placed at major tick marks to display their value.
 - Y2 Legend - Text that appears in the Y2 legend of a Double Y or Double XY plot.
- Click **OK**. You will return to the plot window and any labels that had their attributes changed will be updated.

For these changes to be remembered the next time you launch KaleidaGraph, you must save the Style file when quitting. If you would like to create individual Style files for different projects, choose **File > Export > Style**. This way you can save any number of different Style files which can be opened at a later time using the **Open** command.

Template Plots

The Template plot is used to generate the same type of plot, using different data. It allows you to take any graph and use it as a base for plotting new data. This works for both new graphs and graphs that have been saved.

The new data will be autoscaled unless the limits are specified otherwise in the Axis Options dialog. The legend will reflect the new variables being plotted, but all other text labels and objects will remain the same as the template. Any curve fits or error bars on the original will be applied and recalculated on the new plot.

Once a Template plot has been created, it can be modified in the same way as any other plot. The limitation when using the Template plot is that only one plot can be generated at a time. If you need the ability to generate multiple plots at once, use the Plot Script feature instead.

To use a plot as a template for creating other plots:

- Open or create the plot you want to use as a base for creating other plots.
- Choose **Gallery > Template**. A Variable Selection dialog will appear.
- Click the appropriate buttons to select the variables to be plotted.
- Click **New Plot** to generate a plot based on your selections.

It is not necessary to use the Template plot if you are only modifying the original data used to create the plot. Instead you can extract the data from the plot, modify it, and then update the plot. This process is covered in one of the additional examples in this guide.

Plot Scripts

Another feature that allows you to generate similar plots is the **Plot Script** command in the **Windows** menu. This command enables you to select any plot type or an existing plot and use it as a template for creating new plots.

Plot scripts are intended for the user who has a Template plot and wants to plot different data sets against it, and then save, print, or view the resulting curves. Even if you only need to generate a simple plot, but you generate it all of the time with different data, you will find the Plot Script very useful.

The advantage of a script over a Template plot is that a script can generate, print, and save multiple plots at once. Also, a script allows you to control legend descriptions and plot titles. In a Template plot, the legend descriptions come from the column titles of the new data and the plot title does not change.

To create a plot script:

- Choose **Windows > Plot Script** to display a dialog which is used to make your selections for the current script.

- If groups are already listed in this window, click **Clear All**. Then, click **Yes** to the dialog which asks if you want to delete the script. The groups will be removed and you are ready to create a script.
- Use the **Graphic Template** pop-up menu to select a template plot. You can either select an existing plot (if one is open) or one of the choices from the **Gallery** submenu. Only one template per script is allowed.
- Click **Add**. A Variable Selection dialog will be displayed.
- Select the variables to be plotted.
- Click **OK**. **Group 1** will be listed in the Plot Script window. Continue using the **Add** button to create new groups as needed. Each group generates a separate plot.
- When you are finished creating groups, click **Run** to execute the script.

The settings for the Plot Script window are saved as part of the KG Script file when quitting KaleidaGraph. If an existing plot was selected as the template, a copy of this plot will be saved in the same directory as the KG Script file. Opening the script will automatically open the template plot.

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