



Grapher™12

The ultimate technical graphing package.

Quick Start Guide

Grapher™ Registration Information

Your **Grapher** serial number is located on the CD cover or in the email download instructions, depending on how you purchased **Grapher**.

Register your **Grapher** serial number online at www.GoldenSoftware.com. This information will not be redistributed.

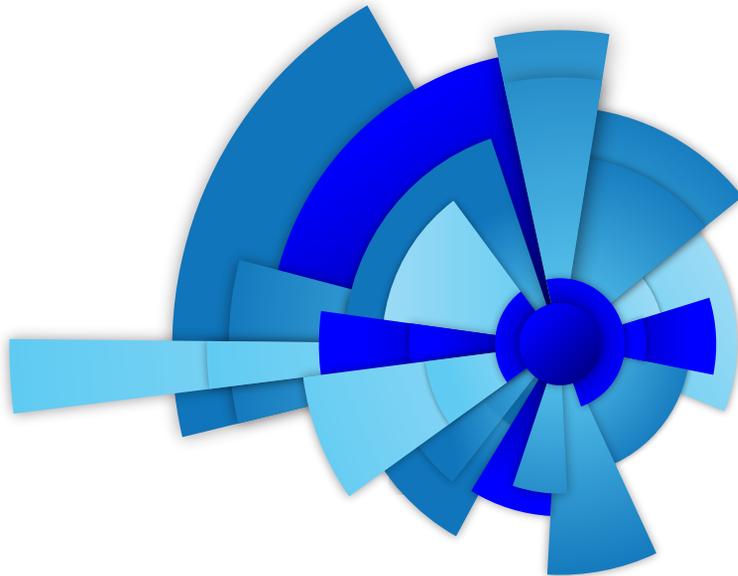
Registration entitles you to free technical support, free minor updates, and upgrade pricing on future **Grapher** releases. The serial number is required when you run **Grapher** the first time, contact technical support, or purchase **Grapher** upgrades.

For future reference, write your serial number on the line below.

Grapher™

Quick Start Guide

The Ultimate Technical Graphing Package



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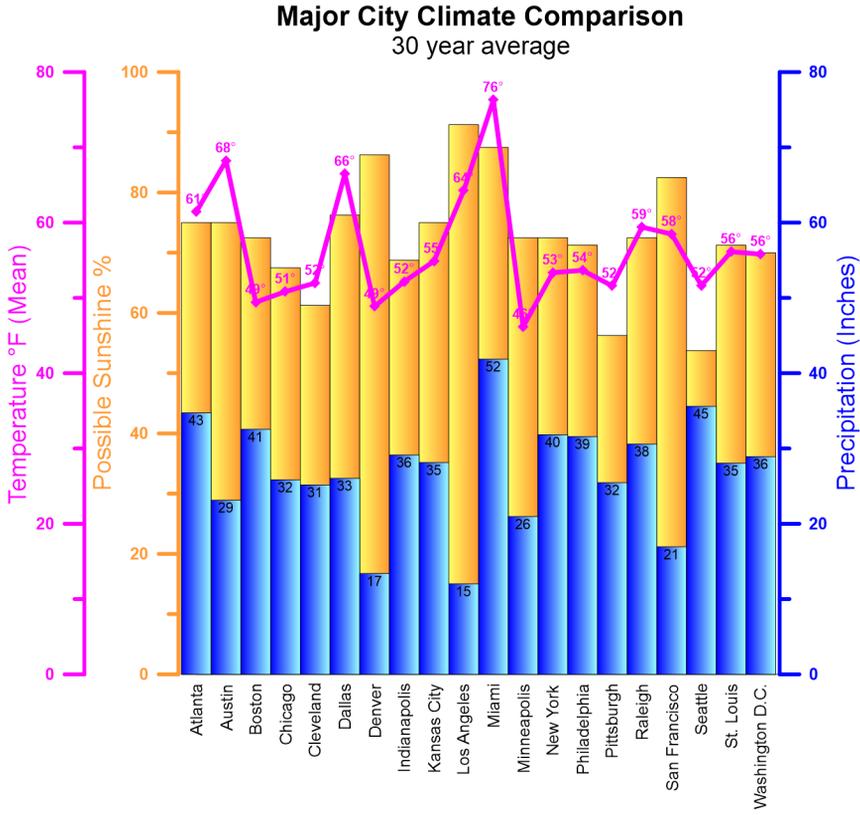
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Introduction to Grapher

Welcome to **Grapher**, the easy-to-use technical graphing package for scientists, engineers, business professionals, or anyone who needs to generate graphs quickly and easily.

Grapher is a sophisticated graphing program that transforms your data into any plot type you desire. **Grapher** creates over 70 different plot types, including 2D and 3D line, scatter, class scatter, bubble, step, function plots, and vector plots; 2D and 3D bar and floating bar charts; 2D and 3D histograms, pie charts, doughnut plots; box-whisker plots and Q-Q plots; polar line, scatter, class scatter, vector, function, bar, rose, and wind chart plots; ternary line, scatter, class, or bubble plots; stiff plots; high-low-close plots; radar plots; contour plots; and surface plots. Combine plot types to reveal information about your data. Add fit curves, confidence intervals, or display statistical information for your data. **Grapher** allows you to produce the finest publication quality graphs available.

Creating graphs is as easy as choosing the graph type, selecting the data file, and clicking the *Open* button. **Grapher** automatically selects reasonable default settings for each new graph. Changing the default settings for all future graphs is easy, allowing you to make the graph you want the first time, every time. All graphs allow quick and easy customization of all graph, axis, and plot settings. For example, you can change tick mark spacing, tick labels, axis title, axis length, grid lines, line colors, symbol styles, fill opacity, and more. You can add legends, images, fit curves, and drawing objects to the graph. You can import title blocks and company logos to create the final graph right in **Grapher**. To apply the same custom settings to several graphs, you can create a **Grapher** template containing the preferred styles. Once the graph is complete, you can export it in a variety of formats for use in all your presentations and publications.

The **Scripter** program, included with **Grapher**, is useful for creating, editing, and running script files that automate **Grapher** procedures. By writing and running script files, simple mundane tasks or complex system integration tasks can be performed precisely and repetitively without direct interaction. **Grapher** also supports Active X automation using any compatible client, such as Visual BASIC. These two automation capabilities allow **Grapher** to be used as a graph program for all your scientific, engineering, or business needs.

The script recorder records all commands as you make them in **Grapher**. When the script is run, **Grapher** performs the steps for you. This is ideal for users that need to perform repetitive tasks but are unfamiliar with automation, for advanced users who do not want to manually enter all of the syntax, or for average users having difficulty with syntax.

New features of **Grapher 12** are summarized:

- Online at: www.GoldenSoftware.com/products/Grapher#what-s-new
- In the program: click the **Home | Help | Contents** command and click on the *New Features* page in the *Introduction* book

System Requirements

The minimum system requirements for **Grapher** are:

- Windows XP SP2 or higher, Vista, 7, 8, 10, or higher
- 512 MB RAM minimum for simple data sets, 1 GB RAM recommended
- At least 500 MB of free disk space
- 1024 x 768 or higher monitor resolution with a minimum of 16-bit color depth

Installation Directions

Installing **Grapher 12** requires logging onto the computer with an account that has Administrator rights. Golden Software does not recommend installing **Grapher 12** over any previous version of **Grapher**. **Grapher 12** can coexist with older versions (e.g. **Grapher 11**) as long as they are installed in different directories, which is the default. For detailed installation directions, see the *Readme.rtf* file.

To install **Grapher** from a CD:

1. Insert the **Grapher** CD into the CD-ROM drive. The installation program automatically begins on most computers. If the installation does not begin automatically, double-click the *Autorun.exe* file located on the **Grapher** CD.
2. Click *Install Grapher* from the **Grapher Auto Setup** dialog to begin the installation.

To install **Grapher** from a download:

1. Download **Grapher** according to the directions you received.
2. Double-click on the downloaded file to begin the installation process.

Updating Grapher

To update **Grapher**, open the program and click the **File | Online | Check for Update** command. This will launch the Internet Update program which will check Golden Software's servers for any updates. If there is an update for your version of **Grapher** (i.e. **Grapher** 12.0 to **Grapher** 12.1), you will be prompted to download the update.

Uninstalling Grapher

Windows XP: To uninstall **Grapher**, go to the *Windows Control Panel* and double-click *Add/Remove Programs*. Select **Grapher 12** from the list of installed applications. Click the *Remove* button to uninstall **Grapher 12**.

Windows Vista: To uninstall **Grapher** when using the *Regular Control Panel Home*, click the *Uninstall a program* link. Select **Grapher 12** from the list of installed applications. Click the *Uninstall* button to uninstall **Grapher 12**.

To uninstall **Grapher** when using the *Classic View Control Panel*, double-click *Programs and Features*. Select **Grapher 12** from the list of installed applications. Click the *Uninstall* button to uninstall **Grapher 12**.

Windows 7: To uninstall **Grapher**, go to the *Windows Control Panel* and click the *Uninstall a program* link. Select **Grapher 12** from the list of installed applications. Click the *Uninstall* button to uninstall **Grapher 12**.

Windows 8: From the *Start* screen, right-click the **Grapher 12** tile and click the *Uninstall* button at the bottom of the screen. Alternatively, right-click anywhere on the *Start* screen and click *All apps* at the bottom of the screen. Right-click the **Grapher 12** tile and click *Uninstall* at the bottom of the screen.

Windows 10: Select *Settings* in the **Start** menu. In *Settings*, select **System | Apps & features**. Select **Grapher 12**, and then click *Uninstall*. To uninstall **Grapher** from the *Windows Control Panel*, click **Programs | Programs and Features**. Next select **Grapher 12** and click *Uninstall*.

A Note about the Documentation

The **Grapher** documentation includes this quick start guide and the online help. General information is included in the quick start guide. Detailed information about each command and feature of **Grapher** is included in the online help. Click the **Home | Help | Contents** command or click the  in the top right corner of the **Grapher** program to open the online help. In the event the information you need cannot be located in the online help, other sources of **Grapher** help include our support forum, knowledge base, FAQs, newsletters, blog, videos, and contacting our technical support.

You can purchase the full PDF user's guide that includes all of the documentation for the program. This PDF user's guide can be printed by the user, if desired. The guide can be purchased on the Golden Software website at www.GoldenSoftware.com.

Various font styles are used throughout the **Grapher** documentation. **Bold** text indicates command names, dialog names, and page names. *Italic* text indicates item properties in the **Property Manager** or items within a dialog such as group names, options, and field names. For example, the **Save As** dialog contains a *Save as type* list. Bold and italic text also may be used occasionally for emphasis.

In addition, commands appear as **Home | Clipboard | Copy**. This means, "click or scroll to the **Home** tab at the top of the document, then click the **Copy** command in the **Clipboard** group." The first word is always the ribbon tab name, followed by the group name(s), and the last word is always the specific command.

Three-Minute Tour

We have included several example files with **Grapher** so that you can quickly see some of **Grapher's** capabilities. Only a few example files are discussed here, and these examples do not include all of **Grapher's** many plot types and features. The **Object Manager** is a good source of information as to what is included in each file.

Example Grapher Files

To view the example **Grapher** files:

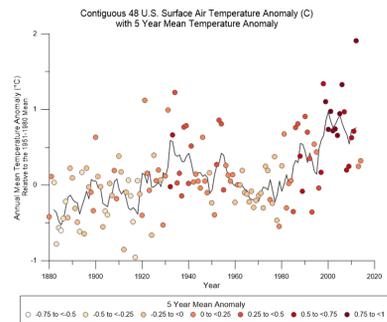
1. Open **Grapher**.
2. Click the **File | Open** command.
3. Click on a .GRF file or .GPJ file located in the Samples folder. By default, the **Grapher** Samples folder is located in C:\Program Files\Golden Software\Grapher 12\Samples.
4. Click *Open* and the file opens.

Class Scatter Plot.grf

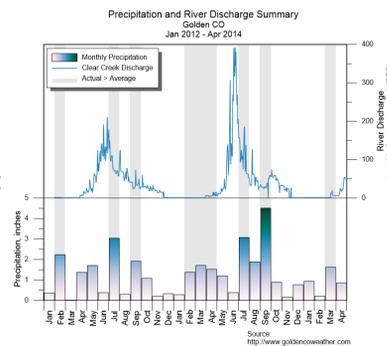
The Class Scatter Plot.grf sample file contains a graph with a class scatter plot, line plot, and class legend. The scatterplot consists of seven classes with different symbol colors.

River data.gpj

The River data.gpj sample file contains a graph with a bar chart, multiple line plots, multiple axes, and a legend. The bar chart displays actual monthly precipitation. The line plot is located above the bar



The class scatter plot.grf file contains a class scatter plot and line plot using the same axes.



The River data.gpj file contains text labels on the Y axes and date labels on the X axis.

chart and shows river discharge over the same time period. The shared X axis uses date labels, while the Y axes display text labels.

Using Grapher

Graphs can be created in several ways in **Grapher**. These various methods allow you to create graphs in a manner most comfortable for you. The most common method of creating a graph is with the **Graphs** commands. For information on how to create a graph with the other methods, refer to the *Creating Graphs* section on page 19 in this quick start guide.

Creating Graphs in the Plot Window

To create a graph with the **Graphs** commands in the plot window:

1. In the plot window, click or scroll to the **Graphs** tab.
2. In the **Create** group, click the **Basic, Bar, Polar, Ternary, Specialty, Statistical, or Contour Surface** button.
3. Click on the plot type you would like to create.
4. In the **Open Worksheet** dialog, select a data file and click the *Open* button. If you are creating a contour grid map or surface grid map, you are prompted for a .GRD file. If you are creating any type of function plot, you are not prompted for a data file.
5. The graph is created with the default properties. You can change the properties of any portion of the graph by clicking on the plot, axis, or graph and editing the properties in the **Property Manager**.
6. Click the **File | Save** command to save the file as a **Grapher** .GRF or .GPJ file.

The GPJ file format includes the data embedded in the **Grapher** file. This is a great format to use when sending graphs to other users. The GRF file format includes a link to the data. This format is good to use when the data will change periodically and the changed data updates the graph.

Using Scripter

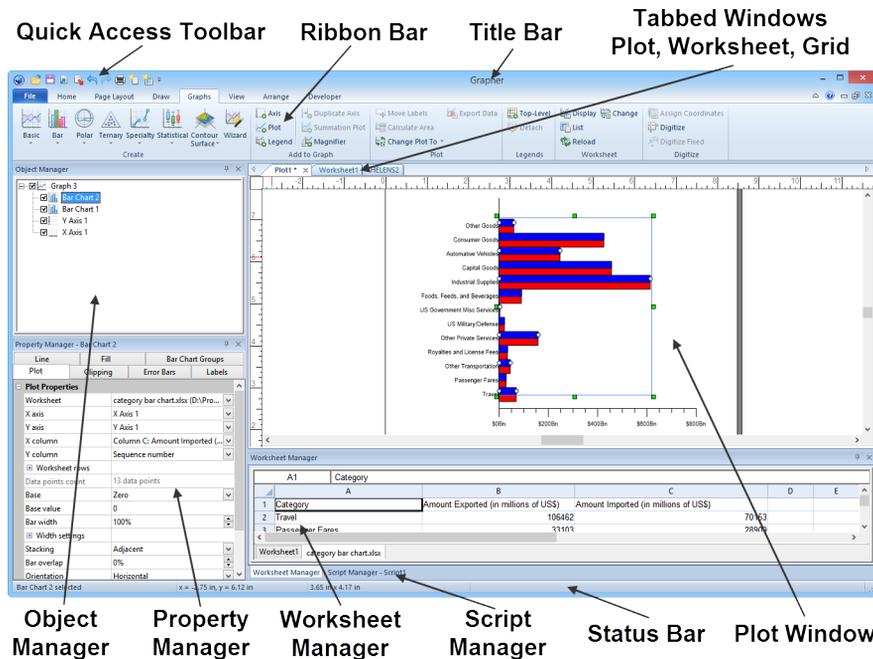
Tasks can be automated in **Grapher** using Golden Software's **Scripter** program or any ActiveX Automation-compatible client, such as visual BASIC. A script is a text file containing a series of instructions for execution when the script is run. You can do almost everything with a script that you can do manually with the mouse or from your keyboard. Scripts are useful for automating repetitive tasks and consolidating a sequence of steps. Scripts can be added to the **Developer | User Scripts** section of the ribbon. **Scripter** is installed in the same location as **Grapher**. Refer to the *Grapher Automation* help book in the online help for more information about **Scripter**. Several example scripts are included so you can quickly see **Scripter's** capabilities.

Example Script Files

To run a sample script:

1. Open **Scripter** by navigating to the installation folder, C:\Program Files\Golden Software\Grapher 12\Scripter. Double-click on the Scripter.exe application file.
2. Click the **File | Open** command.
3. Select a sample script file .BAS in the C:\Program Files\Golden Software\Grapher 12\Samples\Scripts folder and click *Open*.
4. Click the **Script | Run** command and the script is executed.
5. Most sample scripts will open **Grapher** and display a graph in the plot window.

Grapher User Interface



This is the **Grapher** window with the **Object Manager** and **Property Manager** on the left side. The plot window, where the graph is displayed, is tabbed with a worksheet window and grid window. The ribbon bar is displayed at the top and the status bar is displayed at the bottom.

Grapher contains four document window types: the plot window, worksheet window, Excel worksheet window, and grid window. Graphs and maps are displayed and edited in the plot window. The worksheet window displays, edits, transforms, and saves data in a tabular format. The Excel worksheet window allows a native Excel window to be

opened in **Grapher**. The grid window allows viewing of various grid files. The **Grapher** user interface consists of the quick access toolbar, ribbon tabs and commands, tabbed windows managers, and status bar.

The following table summarizes the function of the **Grapher** layout components.

Component Name	Component Function
Title Bar	The title bar lists the program icon, the quick access toolbar, and the saved Grapher file name, if any. An asterisk (*) after the file name indicates the file has been modified since it was last saved.
Ribbon	The ribbon contains the tabs and commands used to run Grapher . The commands are unique to the plot document, worksheet document, and grid document.
Quick Access Toolbar	The quick access toolbar contains buttons that are always available in the program. This can be customized so that the buttons used most often are listed in the quick access toolbar.
Tabbed Windows	Multiple plot windows, worksheet windows, Excel windows, and grid windows are displayed as tabs. Click on the tab to display a window.
Plot Window	The plot window contains the graphs and other graphics. The plot window may also display worksheet data.
Status Bar	The status bar shows information about the activity in Grapher . The status bar is divided into three sections that contain information about the selected command, object, or position.
Object Manager	The Object Manager contains a hierarchical list of the objects in a Grapher plot window. These objects can be selected, arranged, and renamed in the Object Manager . The Object Manager is initially docked on the left side above the Property Manager .
Property Manager	The Property Manager allows you to edit any of the properties of a selected object. Multiple objects can be edited at the same time by selecting all of the objects and changing the shared properties.
Worksheet Manager	The Worksheet Manager contains a view of all data loaded in Grapher . Edits made in the Worksheet Manager to any worksheet are automatically reflected in the graph. Right-click in the Worksheet Manager to save, edit, transform, sort, or obtain statistics on cells.
Script Manager	The Script Manager controls scripts that are recorded and run within Grapher . Right-click in the Script Manager to see relevant menu commands for opening, saving, and running scripts.

Changing the Window Layout

The managers display in a docked view by default; however, they can also be displayed as floating windows. The visibility, size, and position of each item may also be changed. Refer to the *Changing the Window Layout* topic in the online help for more information on layout options.

Displaying Managers

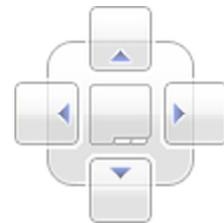
Check or uncheck the **View | Display** commands to show or hide the **Object Manager**, **Property Manager**, **Worksheet Manager**, or **Script Manager**. A check mark indicates the manager is visible. No check mark indicates the manager is hidden.

Auto-Hiding Managers

You can increase the plot document space by minimizing the managers with the *Auto Hide* feature. To hide the manager, click the  button in the upper right corner of the manager. When the manager is hidden, place the cursor directly over the tab to display the manager again. Click the  button to return the manager to docked mode.

Docking Managers

Grapher has a docking mechanism feature that allows for easy docking of managers. Left-click the title bar of a manager and drag it to a new location while holding down the left mouse button. The docking mechanism displays arrow indicators as you move the manager around the screen. When the cursor touches one of the docking indicators in the docking mechanism, a blue rectangle shows the window docking position. Release the left mouse button to allow the manager to be docked in the specified location.



The docking mechanism has docking indicators.

Tabbing Managers

To create tabbed managers:

1. If the manager is docked, click and drag the manager away from its docked position.
2. While holding the left mouse button, move the cursor over the center of the docking mechanism. The blue shaded area shows where the tabbed manager will display.
3. Release the mouse button.

To return to individual managers from the tabbed view:

- Double-click the manager's title bar to move the manager to a floating window.
- Click and drag the tab to move the manager to a new docked position.

Customizing the Quick Access Toolbar

You may customize **Grapher's** quick access toolbar by right-clicking in the ribbon and clicking the **Customize Quick Access Toolbar** command. This is useful to create quick buttons to your favorite commands. Select the command from the left list in the dialog. Click *Add>>* and the button is added to the toolbar commands at the selected location. Existing commands can be removed by clicking on the command name from the right list in the dialog. Click *<<Remove* and the button is removed from the toolbar commands. Click *OK* to see the changes on the quick access toolbar.

Customizing the Keyboard

You may customize any keyboard command by right-clicking in the ribbon and clicking the **Customize Quick Access Toolbar** or **Customize the Ribbon** command. In the dialog, click the *Customize* button next to *Keyboard shortcuts*. Click on any command to select it. In the *Press new shortcut key*, press the key combination that should be assigned to this command and click *Assign*. Click *Close* and *OK* to make the changes.

Customizing the Ribbon

You may customize **Grapher's** ribbon by right-clicking in the ribbon and clicking the **Customize the Ribbon** command. This is useful to turn off ribbon tabs that are not used, to create a custom tab that contains only the commands you want, or to rearrange groups on an existing tab.

To create a custom tab with any command on it, click the **File | Customize Ribbon** command. On the right side of the dialog, set the *Customize the Ribbon* option to *All Tabs* to see all tabs that exist on all document windows. Click in the desired section. Select *Main Tabs* if the new tab should be viewed across all document types, *Worksheet* if the tab should only appear in the worksheet, and *Plot* if the tab should only appear in a plot document. To create a new tab, click the *New Tab* button. To add groups to any tab, click the *New Group* button. To add commands to the new group, click on the command name on the left side of the dialog and click the *Add* button. Refer to the online help for additional information on customizing the ribbon.

Minimizing the Ribbon

Some users prefer to minimize the ribbon so that it does not take up as much space. To do this, right-click in the ribbon and click the **Minimize the Ribbon** command. The ribbon tabs minimize, showing only the tab names. To access any command, click the tab name and then click the command.

Plot Window

A plot window is the area used for creating and modifying graphs. When you first start **Grapher**, you are presented with an empty plot window. Multiple plot windows can be open at one time. Tabs can be used to easily move between multiple plot windows. If you need to change the display of tabs, click the **File | Options** command. Select *Display* on the left side of the dialog. Check or uncheck the *Tabbed documents* option on the right side of the dialog to turn tabs on and off.

Ribbon Bar Commands

The ribbon bar tabs contain commands that allow you to add, edit, and control the objects on the plot window page. See the *Introduction* help book in the online help for the *Plot Window Commands* help book that details the various plot window commands.

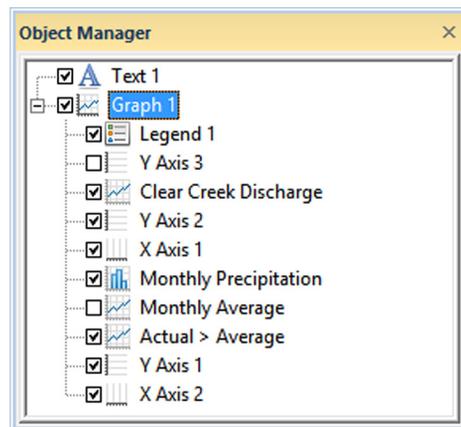
Status Bar

The status bar is located at the bottom of the window. Check or uncheck the **View | Display | Status Bar** command to show or hide the status bar. The status bar displays information about the current command or activity in **Grapher**. The status bar is divided into three sections. The left section shows the selected object name. If a menu command is selected, a brief description of the command appears in the left section. The middle section shows the cursor coordinates in inches or centimeters. The middle section also displays the graph's X and Y coordinates when using the **Graphs | Digitize** commands, or when *Display value on click* is checked in the **File | Options** dialog. The right section displays the dimensions of the selected object.

Object Manager

The **Object Manager** contains a hierarchical list of the objects in a **Grapher** plot window. The objects can be selected, arranged, moved, renamed, or deleted in the **Object Manager** or through the plot window commands. Changes made in the **Object Manager** are reflected in the plot window, and vice versa.

Each item in the **Object Manager** list consists of an icon indicating the object type, a text label for the object, and a check box. A indicates that the object is visible. A indicates that the object is not visible. Click the check box to change the visibility of the item. Invisible objects do not appear in the plot window or on printed output.



The **Object Manager** contains a hierarchical list of the objects in the **Grapher** plot window.

If an object contains sub-objects, a  or  button displays to the left of the object name. Click on the  or  button to expand or collapse the list. For example, a graph object contains a plot, e.g., line/scatter plot, plus at least two axes. The *Graph* can contain many other objects. To expand the *Graph 1* tree to see the axes and plots, click on the  button next to *Graph 1*. To collapse the *Graph 1* tree, click on the  button next to *Graph 1*.

Click on the object name to select an object and display its properties in the **Property Manager**. The plot window updates to show the selected object with a selection bounding box and the status bar displays the name of the selected object. To select multiple objects in the **Object Manager**, hold down the CTRL key and click on each object.

To edit an object's text ID, select the object and then click again on the selected item (two slow clicks). You must allow enough time between the two clicks so it is not interpreted as a double-click. Enter the new name into the box. Alternatively, you can right-click on an object name and select *Rename Object*, or you can select an object and press F2. Enter an ID in the **Rename Object** dialog and click *OK*.

To change the display order of the objects with the mouse, select an object and drag it to a new position in the list above or below an object at the same level in the tree. The cursor changes to a black arrow if the object can be moved to the cursor location or a red circle with a diagonal line if the object cannot be moved to the indicated location. For example, a line/scatter plot can be moved anywhere within its *Graph* object, to another *Graph* object, but not into a group object. In addition to dragging objects in the **Object Manager**, the order can be changed with one of the **Arrange | Move** commands.

To delete an object, select the object and press the DELETE key. Some objects cannot be deleted. For example, you cannot delete an axis that is currently in use by a plot in a graph.

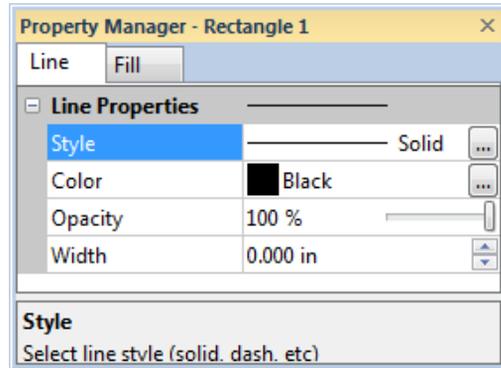
Property Manager

The **Property Manager** allows you to edit the properties of an object, such as a line or axis. The **Property Manager** contains a list of all properties for a selected object. The **Property Manager** can be left open so the properties of selected objects are always visible. Information about the object properties is located in the online help.

Features with multiple options appear with a  or  button to the left of the name. To expand a section, click on the  button. To collapse a section, click on the  button. For example, click on a line/scatter plot to select it. In the **Property Manager**, click on the **Plot** tab. Click the  next to *Worksheet rows* and you see three options: *First*

row, Last row, and Step factor.

To change a property, click on the property's value next to the property name. Select a new property from the pop up box, scroll to a new number using the  buttons, select a new value using the , select a new value from the drop-down list, or type a property value. How a property is changed depends on the property type. For example, a rectangle has a *Line Properties* section that contains *Style*, *Color*, *Opacity*, and *Width* properties. Changing the *Color*, requires clicking on the current color and selecting a new color from the color palette. Changing the *Opacity* requires highlighting the existing percentage and typing a new number or clicking on the slider bar and dragging it to a new value. Changing the *Width*, requires highlighting the current width and typing a new number or scrolling to a new number.



The **Property Manager** is used to change properties of selected objects.

You can modify more than one object at a time. Only shared properties are editable when multiple objects are selected. For example, click on *X Axis 1* in the **Object Manager**. Hold the CTRL key down and click on *Y Axis 1*. You can change the common properties of each axis simultaneously in the **Property Manager**.

Occasionally, some properties are dependent on other selections. For example, on the **Fill** page, the *Colormap* option is disabled unless a *Type* other than *None* is selected.

Objects in the plot window automatically update after you select an item from a palette, press ENTER, or click somewhere else in the **Property Manager**.

When working with the **Property Manager**, the up and down ARROW keys on the keyboard move up and down in the **Property Manager** list. The TAB key activates the options for the highlighted property. The right ARROW key expands a collapsed section. The left ARROW key collapses a section.

Worksheet Manager

The **Worksheet Manager** contains a view of all data loaded into **Grapher**. Multiple data files are displayed in a tabbed format. By default, the **Worksheet Manager** appears at the bottom of the **Grapher** window below the plot window.

Right-click inside the **Worksheet Manager** to open the worksheet menu commands. Use the **Graphs** menu commands to create a graph in the current plot window. Use the **Cells | Data** menu commands to transform, sort, or generate statistics for the worksheet data.

Script Manager

The **Script Manager** allows you to work with automation within **Grapher** rather than opening Golden Software's automation program, **Scripter**, separately. By default, the **Script Manager** is closed. When opened, the default location is at the bottom of the **Grapher** window, tabbed with the **Worksheet Manager**.

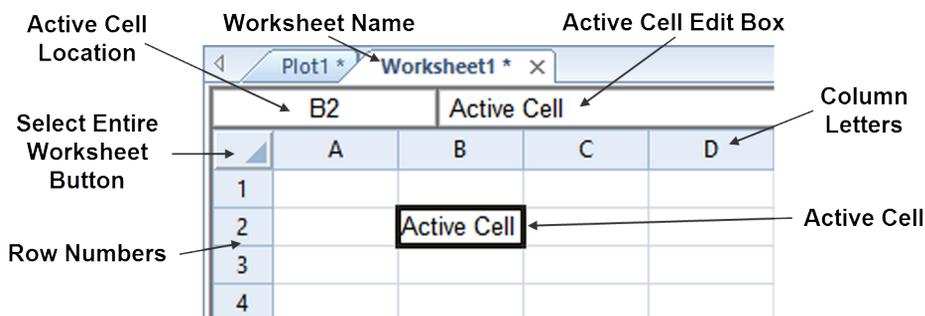
All of **Scripter's** toolbars, menus, etc. are available within the **Script Manager**. To access the menu commands, right-click in the **Script Manager**. Detailed information about **Scripter**, plus details about **Grapher's** automation objects, methods, and properties are located in the online help. Open the automation help by clicking the **Developer | Help | Automation** command in the **Grapher** program.

Sample scripts can be found in the Scripts folder, located in the **Grapher** installation folder. By default, the Scripts folder is located at C:\Program Files\Golden Software\Grapher 12\Samples\Scripts. If your version of **Grapher** was installed elsewhere, look in that installation folder. The Scripts folder has a variety of .BAS script files ready for you to use. Sample scripts can also be downloaded from www.GoldenSoftware.com.

The **Script Recorder** is a great way to use scripting and become familiar with automation. Complete *Lesson 8 - Working with the Script Recorder* section on page 39 in this quick start guide to practice using the **Script Recorder**.

Worksheet Window

To enter data in a worksheet, use the **File | Open** command to open an existing data file or click the **File | New | Worksheet** command to create a new blank worksheet. Data already used to create plots can be opened in the worksheet window with the **Graphs | Worksheet | Display** command.



The components of the worksheet window shown above are described in the table below.

Component Name	Component Function
Column Letters	The column letters identify a column of the worksheet.
Row Numbers	The row numbers identify a row of the worksheet.
Active Cell	The cell highlighted with a bold outline. The active cell receives data input (numeric values or text strings) from the keyboard. Only one cell is active at a time.
Active Cell Location	The location of the active cell is indicated with the column letter and row number (i.e. B4).
Active Cell Edit Box	The box displaying the data or text contained in the active cell. Data typed into an empty cell appears in both the edit box and the active cell.
Worksheet Name	The data file name of the worksheet or the worksheet number prior to saving is displayed on the tab.
Select Entire Worksheet Button	This button selects all cells in the worksheet.

See the *Worksheet Window Commands* help book, located in the *Introduction* help book in the online help for detailed information on the worksheet commands.

File Types

Several file types are used in **Grapher**.

Grapher Files

There are three types of **Grapher** files: **Grapher** .GRF, .GPJ, and .GRT files.

Grapher .GRF Files

Grapher .GRF files contain all of the information necessary to reproduce the graph, except for the data. When you save a **Grapher** file, all the scaling, formatting, and parameters for the graph are preserved in the file. **Grapher** .GRF files save a link to the data and do not store the data internally in the file. For example, if a .GRF file needs to be sent to a colleague, you would need to send the data file(s) used to create the graph, in addition to the .GRF file. This format is preferred for graphs where the data changes and needs to link to the external source data file.

Grapher .GPJ Project Files

Grapher .GPJ files store all of the information necessary to reproduce the graph, including embedding the data. All scaling, formatting, and parameters for the graph are preserved in the file. If a .GPJ file needs to be sent to a colleague, you would only need to send the .GPJ file. This format is preferred when you want to have the data and the graph contained in a single file and the data does not change often.

Grapher .GRT Template Files

Grapher .GRT files are used to create a template with set graphing preferences. A saved template file does not contain a reference to a specific data file. This means that once the template graph is created, you can use the template with any data set. You can use the template to set options such as the number of decimal places on axis tick mark labels, label angles, axis labels, graph titles, line plot colors, fill colors, symbol size, or any other graphing option. If a .GRT file is sent to a colleague, they can use their own data set with the file to create a graph based on the specifications in the template file. This format is preferred when the layout of the graph needs to remain consistent with a variety of similarly formatted data files.

Data Files

In most cases, there is a prompt for a data file when you create a graph in **Grapher**. Data files can be imported from a variety of sources, such as ASCII text files, Excel files, or database files. Data can be entered directly into **Grapher's** worksheet if the files do not already exist.

The data to be represented on a plot needs to be in column and row format. Each row is assigned to a single point on most plots. The columns contain the different variables to be represented on the plot. Some of the most commonly used data types are described in the following sections.

ASCII Data

ASCII files are generic format files that can be read or produced by most applications. There are three common ASCII data formats: .DAT, .CSV, and .TXT. These files can also be imported into most applications, including word processors, spreadsheets, and ASCII editors. The files differ in the types of delimiters, or column separators, between the data. ASCII files do not contain any worksheet formatting information such as row height, column width, or cell formatting. This format does not have a limitation on the number of rows or columns.

Excel Files

Microsoft Excel .XLS, .XLSX, and .XLSM files contain data and retain some cell formatting in **Grapher**. Some information, such as formulas, is ignored. Excel files can preserve all formatting information available in the Golden Software worksheet. An Excel 2003 .XLS worksheet has a 65,536-row limit and a 256-column limit; therefore, this format cannot be used to store very large data sets. An Excel 2007 .XLSX worksheet has a 1,048,576 row limit and a 16,384 column limit.

Use Caution when Saving Excel Files!

Use the **File | Save To Multi-Sheet Excel File** command to save multiple worksheets in a single Excel document.

A file can be saved in an Excel format from **Grapher**, *but only one worksheet can be saved* when using the **Save** or **Save As** commands. If a multi-worksheet Excel file is open and saved from the **Grapher**, be aware that only a single worksheet is saved in the document. If the existing file is overwritten, all the other worksheets are destroyed. In this case, a warning message is issued.

Retaining Excel Information

To save all the formatting, formulas, and worksheets in an .XLS or .XLSX file, you can use Excel directly in **Grapher**. Use the **File | Open Excel** command to utilize all of Excel's features and create graphs in **Grapher**. Excel disables the save command, so you can only use the **Save As** command and save to a new .XLS or .XLSX file.

Database Files

In **Grapher**, graphs can be created from Access .ACCDB and .MDB files and dBase .DBF files directly without first converting to a new worksheet. A graph is created

directly from the database file and will reference the database. Changes made in the database table will automatically update the graph.

Other database formats can be imported into **Grapher's** worksheet. Click the **File | Open** command. In the **Open** dialog, click the *Database* button. Step through the dialogs to import the file and the database is converted into a worksheet format. These files cannot be saved in their native format, but you can save the files in any of the available worksheet formats by clicking the **File | Save As** command.

Grid Files

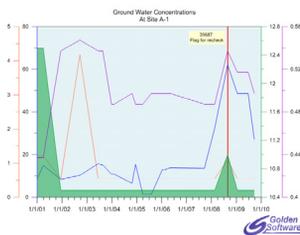
Grid files are used to produce contour and surface grid-based maps in **Grapher**. Grid files contain a regularly spaced rectangular array of Z values organized in columns and rows. Grid files can be imported from a wide variety of sources. For example, the *contour grid map.GPJ* sample file uses a **Surfer** .GRD file to create a contour XY grid map.

Plot Types

Several different 2D and 3D plot types can be created with **Grapher**. The **Graphs** menu includes **Basic**, **Bar**, **Polar**, **Ternary**, **Specialty**, **Statistical**, and **Contour Surface**. Detailed information about each plot type and an example graphic is located in the online help in the *Introduction* book on the *Plot Types* page.

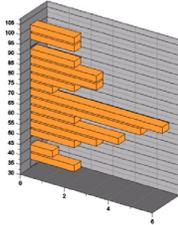
You can combine multiple plots in a single graph. A graph can contain as many axes and plots as needed to display your data.

Basic Plots



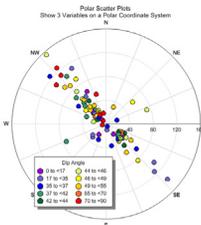
Basic plots include 2D line plots, scatter plots, line/scatter plots, step plots, function plots, bubble plots, and class plots. In most cases, two variables are displayed on two axes. The **Basic** plots also include ribbon plots, wall plots, ribbon step plots, and function plots with a 3D aspect. In these cases, two variables are displayed with a 3D view. **Basic** plots also include XYZ line/scatter plot, bubble plots, and class plots. These are true 3D plots, using at least three variables and three axes.

Bar Plots



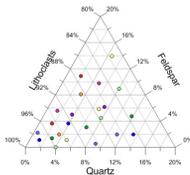
Bar plots include 2D and 3D horizontal and vertical bar charts and floating bar charts. In 2D cases, two variables are displayed on two axes. In 3D, either two variables are displayed with a 3D aspect or three variables are displayed on three axes. 2D bar charts can also be created directly from category data.

Polar Plots



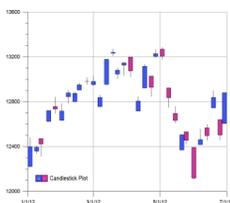
Polar plots include polar line plots, scatter plots, line/scatter plots, class plots, vector plots, function plots, bar charts, rose charts, wind charts, and radar charts. Data are positioned on a circular plot at an angle and a specified distance away from the center location.

Ternary Plots



Ternary plots include ternary scatter, line/scatter, line, class, and bubble plots. All ternary plots display three variables on three axes, arranged in a triangle display. Classification information can be displayed on the plot when using a ternary class plot. Ternary bubble plots add a fourth dimension to the plot by varying symbol size based on another data column.

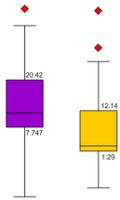
Specialty Plots



Specialty plots include high-low-close plots; candlestick plots; 2D and 3D vector plots; and stiff plots.

High-low-close and candlestick plots display at least three variables on two axes. Vector plots display four or six variables on two or three axes. Vectors can be displayed between two points (XYXY and XYZ-XYZ plot types) or from a starting point to another point (XYAM and XYZ-dx, dy, dz plot types).

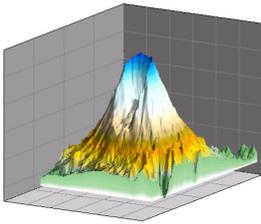
Statistical Plots



Statistical plots include 2D and 3D vertical and horizontal histograms, box-whisker plots, notched box-whisker plots, 2D and 3D pie charts, Q-Q plots, normal Q-Q plots, and 2D and 3D doughnut plots.

Histograms read raw data and count the number of instances in each bin, creating a frequency of each data count. Pie charts display data as percentages of a whole. Doughnut plots are similar to pie charts, but can be stacked and have a hole in the center. Box-whisker plots and notched box-whisker plots display median, quartile, and outliers for a data set. Q-Q plots and normal Q-Q plots display a data set compared to another data set or to the normal distribution.

Contour Surface Plots



Contour maps include contour data maps, grid maps, and function maps. Contour maps are 2D representations of three variables. The contour line defines the equal Z values across the map. Contour maps can be displayed with an XY or XZ orientation. **Surface Maps** include surface data maps, grid maps, and function maps. Surface maps are 3D color representations of three variables.

Creating Graphs

Graphs can be created using the **Graphs** commands, the **Graph Wizard** dialog, and from templates.

Creating Graphs with the Graphs Create Commands

The most common method of creating graphs is to use the **Graphs** menu **Create** commands. This method is discussed in the *Using Grapher* section on page 5 of this quick start guide.

Creating Graphs with the Graphs Create Commands in a Worksheet

If you are working with data in the worksheet, you can create a graph without switching to the plot window. Simply select the columns you wish to plot and choose the plot type you wish to create.

To create a graph from the worksheet:

1. Open a data file by clicking the **File | Open** command.

2. Select a data file in the **Open** dialog and click the *Open* button.
3. Highlight the columns to use in the plot.
4. Click or scroll to the **Graphs** tab.
5. Select the plot type you would like to create and the graph is created with the default plot properties in a new plot window.
6. You can change the properties of a selected graph, plot, or axis through the **Property Manager**.

If you are working with the data in the **Worksheet Manager**, right-click anywhere in the window and select the **Graphs** menu command in step 4.

Creating Graphs with the Graph Wizard

The graph wizard leads you through the necessary steps to create a new graph or add a plot to an existing graph. This is often the simplest way to make a graph if you are not familiar with **Grapher** or if you want to change some portion of the graph before it is created. You can set some of the plot features through the wizard, although most plot parameters use the default settings to create the graph.

To create a graph with the graph wizard:

1. In the plot window, click the **Graphs | Create | Wizard** command.
2. In the **Graph Wizard** dialog, select the plot type from the *Plot Categories* list.
3. Select a specific plot from the *Plot Types* section. A description of the selected plot type is listed in the *Description* section.
4. If you want to create a new graph, select *New graph* next to *Add plot to* at the bottom of the dialog. If you want to add a plot to an existing graph, select the graph name next to *Add plot to*.
5. Check the box next to *Display preview*, if a plot preview of the data is desired.
6. Click the *Next* button.
7. In the **Open Worksheet** dialog, choose a new data file to open, or click on a previously opened data file in the *Open worksheets* list. Click the *Open* button.
8. In the **Graph Wizard** dialog, set the plot, line, and fill properties. You can review the plot properties and see the *Plot Preview* if the *Display preview* option is checked.
9. If the plot does not appear the way you want, click the *Back* button to make changes. If the settings are acceptable, click the *Finish* button to create the graph. The graph is created with the specified properties.
10. Additional plot, axis, and graph properties can be changed by clicking on the appropriate object in the **Object Manager** and changing the properties in the **Property Manager**.

Creating Graphs from a Template File

Template graphs are used to set graphing preferences in **Grapher**. When a template file is saved, it does not contain a reference to any data file. This means that once the template file is created, it can be used it to create a graph with any data set.

To Create a Template

1. In a plot window, design the graph exactly the way you want the final graph to appear. Create any plot type, set the axes properties, add titles, format legends, import company logos, set background properties, add text, etc.
2. Click the **File | Save As** command.
3. In the **Save As** dialog, specify a *Save in* location, a *File name*, and choose *Plot Template (*.grt)* for the *Save as type*. Click the *Save* button to save the completed template file.

To Create a Plot From a Template

1. Click the **File | New | Plot from Template** command or click the **File | Open** command.
2. In the **Open** dialog, select a .GRT template file, and click the *Open* button.
3. If prompted, select a data file to use with the template.
4. Check the *Use this worksheet for remaining items* if all the plots in a template use the same worksheet.
5. Check the *Set columns* if you want to change the column specifications for individual plots in the graph.
6. Click the *Open* button and the new plot is created.

Automation

Grapher operations can be controlled through automation scripts. You can do almost everything with a script that you can do manually with the mouse or from the keyboard. Scripts are used to automate repetitive tasks, consolidate a complicated sequence of steps, or act as a "front end" to help novice users access **Grapher's** capabilities without having to become familiar with **Grapher**. A script can be added to the **Developer | User Scripts** section of the ribbon to quickly run the script.

Since **Grapher** exposes its services through automation, you can use any programming tool that accesses automation objects. Such tools include Visual BASIC, Windows Scripting Host, and many of the Microsoft Office applications, among others.

Scripter

Golden Software's **Scripter** is a program for developing and running scripts. A script is a text file containing a series of instructions carried out when the script is run. Instructions are written in a Visual BASIC-like programming language. **Scripter** offers many features to help you write, edit, and debug scripts. Its features include language syntax coloring, a list of the procedures defined in the script, an object browser for examining procedures available in external objects, a visual dialog editor, break points, single-step execution (including options to step over and to step out of procedures), a watch window for displaying the values of script variables, and more.

To start the **Scripter** program, select it from the Windows Start menu. **Scripter** is installed in the same program group as **Grapher 12**. To open **Scripter**, click the Windows Start button and locate **Golden Software Grapher 12 | Scripter**. If **Scripter** is not present, the installation of **Scripter** may have been skipped when **Grapher** was installed. See the *Readme.rtf* file for information about the installation process.

Once **Scripter** is open, open a script file with the **File | Open** command. In the **Open** dialog, select any .BAS file and click *Open*. Execute the script by clicking the **Script | Run** command.

Script Recorder

Grapher 12 includes a **Script Recorder**, accessed through the **Developer** tab commands. The **Script Recorder** records each process as you do it in **Grapher**. The script can be saved for later use. When the script is run, **Grapher** performs all the recorded steps for you. This is ideal for users who need to perform repetitive tasks but are unfamiliar with automation, for advanced users who do not want to manually enter all of the syntax, or for average users who have difficulties with syntax. Open the **Script Manager** by checking the **View | Display | Script Manager** command, if you would like to view a script while it is recording. Recording must be stopped before you can edit scripts in the **Script Manager**.

See *Tutorial Lesson 8 - Working with the Script Recorder* on page 39 to learn more about using the **Script Recorder**.

Tutorial

The tutorial is designed to introduce you to some of **Grapher's** basic features and should take less than an hour to complete. After you have completed the tutorial, you will have the skills needed to begin creating your own graphs with your own data. The tutorial can be accessed in the program using the **Home | Help | Tutorial** command.

Tutorial Lesson Overview

The following is an overview of lessons included in the tutorial.

- *Lesson 1 - Viewing and Creating Data* opens and edits an existing data file and creates a new data file.
- *Lesson 2 - Creating a Graph* shows you one way to create a graph.
- *Lesson 3 - Modifying Plot Properties* shows you how to open and edit the plot properties.
- *Lesson 4 - Editing Axes* shows you how to add an axis title, how to change the tick mark spacing, and how to change the tick label source.
- *Lesson 5 - Adding Additional Plots to the Graph* shows you how to add a second plot to an existing graph.
- *Lesson 6 - Editing Graph Properties* shows you how to edit properties of the graph, such as adding a graph title.
- *Lesson 7 - Adding and Editing a Legend* shows you how to create and edit a legend.
- *Lesson 8 - Working with the Script Recorder* shows you how to use the **Script Recorder** with the techniques in the previous lessons and adds a few new items. This is an optional advanced lesson. Because other features are covered in this advanced lesson, it is highly encouraged that you complete *Lesson 8*, even if you do not wish to use the script recorder.

The lessons should be completed in order; however, they do not need to be completed at one time. Advanced lessons are available in **Grapher** by clicking the **Home | Help | Tutorial** command. These lessons are optional, but we encourage you to read through them as they provide additional detailed knowledge about **Grapher's** features.

Using the Tutorial with the Demo Version

Some **Grapher** features are disabled in the demo version, which means that some steps, such as saving a graph or script, cannot be completed by users running the demo version. This is noted in the tutorial lessons.

Starting Grapher

To begin a **Grapher** session:

1. Navigate to the installation folder, which is C:\Program Files\Golden Software\Grapher 12 by default.
2. Double-click on the Grapher.exe application file.
3. Select the type of document to create in the **Welcome to Grapher** dialog. For the tutorial, select *Plot*.
4. A new empty plot window opens in **Grapher**. This is the work area for producing graphs.

If this is the first time that you have opened **Grapher**, you will be prompted for your serial number before step 3. Your serial number is located on the CD cover, or in the email download instructions, depending on how you purchased **Grapher**. Once input, you may access your serial number at any time by clicking **File | About Grapher** in the **Grapher** window.

If you already have been working with **Grapher**, open a new plot window by clicking the **File | New | Plot** command, clicking the  button on the quick access toolbar, or pressing CTRL+N on the keyboard.

Lesson 1 - Viewing and Editing Data

A data file is a file containing columns of data values. At minimum, two columns are required to create most 2D graphs in **Grapher**. Data files can contain header information, labels, point identifiers, filter information, and multiple columns of data. It is often a good idea to examine the data file contents before creating your graph.

Opening an Existing Data File

If you would like to view or edit data, you can open the data file in **Grapher**. There are several ways to view a data file. If a graph has already been created, the most common method to view the data is to use the **Worksheet Manager**. If a graph is not yet created, you can open the data in the worksheet window.

1. Click the **File | Open** command, click the  button on the quick access toolbar, or press CTRL+O on the keyboard. The **Open** dialog displays.
2. If you are not in the Samples folder, browse to it. The Samples directory is located at C:\Program Files\Golden Software\Grapher 12\Samples, by default. In the list of files, click *Tutorial.dat*.
3. Click the *Open* button to display the data in the worksheet window.

Notice that there are several columns of data. Column A contains Month number data. Columns B through I contain site information. Column J contains an abbreviation of month names. Row 1 contains header text, which is helpful for identifying which column contains which data. When a header row exists, the information in the header row is used in the **Property Manager** when selecting worksheet columns.

Editing Data

To edit any value, click in the cell to select it. Type information and the existing value is overwritten. Data can be sorted, transformed, or transposed in this window. You can also calculate statistics for the worksheet data in this window. New columns or rows can also be added. For instance, if we noticed that the value in cell B2 was incorrect,

we could change it.

1. Click in cell B2.
2. Type the value 47.2.
3. Press ENTER on the keyboard.
4. After making changes to the worksheet, the file can be saved by clicking the **File | Save** command. Data cannot be saved in the demo version.

	A	B	C	D	E	F	G	H	I	J
1	Month	Site A	Site B	Site C	Site D	Site E	Site F	Site G	Site H	Month Name
2	1	45.2	47.2	42	63.6	27.7	36.1	27.1	33.7	Jan
3	2	50.4	33.1	50.3	67.5	32.9	41.2	35.7	34.6	Feb
4	3	51.2	37.7	53.5	68.3	38	44.8	41.7	37.8	Mar
5	4	53.1	47.5	60.1	71.5	45.6	54.5	50.8	46.8	Apr
6	5	57.2	54.2	66.2	74.1	58	60.5	55.5	57.9	May
7	6	59.7	58.9	73.3	80.7	65.6	67.2	63.4	67	Jun
8	7	62.2	64.1	78.9	83	69.4	74.4	67.4	71.8	Jul
9	8	62.7	62.6	74.7	81.9	66.4	69.7	66.1	70.5	Aug
10	9	58.5	58.3	70.5	81.3	61.9	66.3	61.8	65.2	Sep
11	10	55.1	48.5	61.7	75.4	50.4	53.3	53.6	52.5	Oct
12	11	48.5	28.8	48.3	73.8	38.3	45.6	34.4	44.5	Nov
13	12	42.2	22.5	43.3	67.1	28.5	36.7	30.1	36.5	Dec

The data is displayed in a worksheet window. Note that each variable is in a separate column. Row 1 contains column headers to describe the data.

Calculating Statistics on the Data

Sometimes, it is necessary to know some basic statistical information about the data. For instance, with this data, what is the high value for each site and how do the average values relate to one another? This information can be calculated in the worksheet.

To display basic statistical information for one column:

1. Click on the header B to select all of Column B: Site A.

2. Click the **Cells | Data | Statistics** command.
3. In the dialog, check the items that should be displayed. For instance, if we are interested in the highest value, we would check *Maximum*. Since we are interested in the highest value and average values, check *Maximum* and *Mean*.
4. Click *OK* and the information is displayed in a small report window.
5. We can note that the *Maximum* value is 62.7 for this site and the *Mean* is 54. Click *Close* to close the report window.

To compare multiple site average values and compare confidence in the values, we could click on each column separately or we could display all of the information at once. To display all of the information at once:

1. Click on the header B and hold down the left mouse button. Drag the mouse across all columns until column I is highlighted. All *Site* columns are now selected.
2. Click the **Cells | Data | Statistics** command.
3. In the dialog, check the items that should be displayed. In this case, we are interested in the highest value, average values, and confidence in the average values. Check *Maximum*, *Mean*, *Standard error of the mean*, and *95% confidence interval for the mean*.
4. Select *Copy to worksheet* and set the *Starting in cell* to K1 to display the summary information in the same worksheet as the actual data instead of in a report window.
5. Click *OK* and the information is displayed in columns K through S.
6. Mean values can be compared visually. The standard error of the mean and 95% confidence value can also be compared. In addition, plots can be created directly from the summary statistics information, if desired.

Creating a New Data File

The **Grapher** worksheet can also be used to create a new data file. Use these steps to open a new worksheet window and begin entering data.

1. Click the **File | New | Worksheet** command, click the  button in the quick access toolbar, or press CTRL+W on the keyboard. A new empty worksheet window is displayed.
2. Data are entered into the active cell of the worksheet. The active cell is selected by clicking on the cell or by using the arrow keys to move between cells. When a cell is active, enter a value or text, and the information is displayed in both the active cell and the active cell edit box.
3. To preserve the typed data in the active cell, move to a new cell. Move to a new cell by clicking a new cell with the mouse, pressing one of the arrow keys, or pressing ENTER.

Refer to the *Worksheet Window* section on page 14 of this guide for information about the various portions of the worksheet window.

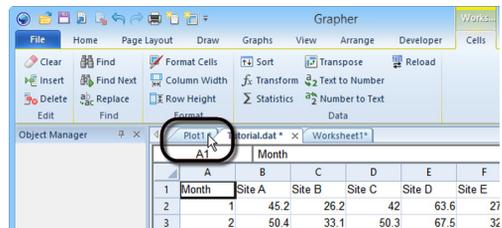
Saving the Data File

When you have completed entering all of the data, the data can be saved in a variety of formats. Data cannot be saved in the demo version.

1. Click the **File | Save** command, click the  button on the quick access toolbar, or press CTRL+S on the keyboard. The **Save As** dialog is displayed if you have not previously saved the data file.
2. In the *Save as type* list, choose the *DAT Data (*.dat)* option.
3. Type the name of the file in the *File name* box.
4. Click the *Save* button and the **Data Export Options** dialog opens.
5. Accept the defaults in the **Data Export Options** dialog by clicking *OK*.
6. The file is saved in the Data .DAT format with the file name you specified. The name of the data file appears in the title bar and on the worksheet tab.

Lesson 2 - Creating a Graph

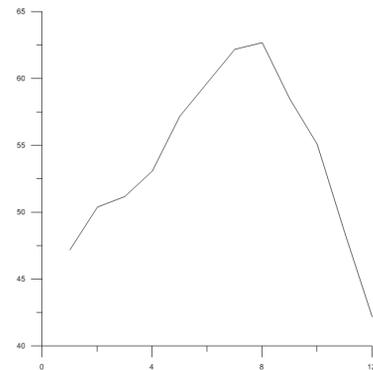
You can create graphs in several ways in **Grapher**. The various methods are discussed in the *Creating Graphs* section on page 19 of this quick start guide. In the tutorial, we use the most common method, creating a graph through the **Graphs** tab **Create** group. We will create a line plot from an existing data set.



Click on the Plot1 tab to select the existing plot window.

To create a line plot:

1. If the worksheet window is still open, click on the *Plot1* tab. Alternatively, you can create a new plot window by clicking the **File | New | Plot** command.
2. Click the **Graphs | Create | Basic** command and select the **Line Plot** button .
3. In the **Open Worksheet** dialog, select the *Tutorial.dat* samples file. You can select the file in the file list section or in the *Open worksheets* section at the bottom of the dialog.
4. Once the file is selected, click *Open*.



The line plot is created with the default settings.

A line plot is created using the default properties. By default, **Grapher** uses the first two columns containing numeric or date/time data in the data file. So, X is column A and Y is column B.

Lesson 3 - Modifying Plot Properties

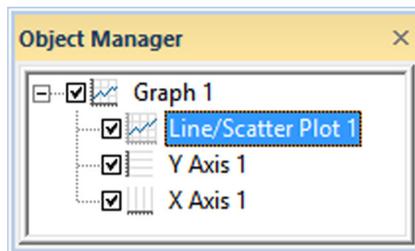
You can edit any of the plot properties after the graph has been created. You can edit the columns used to create the plot, the plot line color, the symbol display, label display, add fill to the plot, or just about anything you see on the plot. In this example, let's change the line plot created in the *Lesson - 2 Creating a Graph* section to a scatter plot and add labels. The graph from *Lesson 2 - Creating a Graph* should already exist in the plot window before you proceed with this lesson.

Selecting the Line/Scatter Plot

The **Object Manager** is the easiest way to select an object, so this method is used throughout the rest of the tutorial. Methods for selecting objects are discussed in detail in the online help topic, *Selecting Objects*. Once an object is selected, its properties are available for editing in the **Property Manager**.

To select the line/scatter plot:

1. Make sure the **Object Manager** is open. If you do not see the **Object Manager**, check the box next to the **View | Display | Object Manager** command. A check mark is displayed next to the visible managers.
2. In the **Object Manager**, left-click the *Line/Scatter Plot 1* object. This selects the line/scatter plot and opens the line/scatter plot properties in the **Property Manager**.



*Click on Line/Scatter Plot 1 in the **Object Manager** to select the plot.*

Changing the Line/Scatter Plot Properties

The **Property Manager** contains all of the properties for the selected object on multiple pages. A line/scatter plot contains **Plot**, **Clipping**, **Error Bars**, **Labels**, **Symbol**, **Line**, and **Fill** tabs. Click the tab name to open that property page.

You may need to click on the  or  buttons next to section names to access the properties as discussed in the *Property Manager* section on page 11 of this quick start guide.

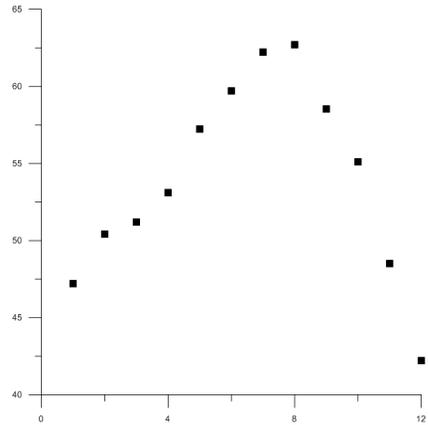
Changing the Line Plot to a Scatter Plot

If the **Graphs | Create | Basic | Scatter Plot** command had been originally clicked, a scatter plot would have been created. Any line plot can be changed to a scatter plot or a scatter plot to a line plot by changing the plot properties. A quicker method is discussed in the *Changing the Plot Type* section on page 34. The method discussed here

allows other properties to be changed, if desired.

To change the line plot to a scatter plot:

1. In the **Property Manager**, click on the **Symbol** tab to edit the symbol properties.
2. Next to the *Symbol frequency* option, click the up arrow once. Alternatively, highlight the number 0, type the number 1, and press ENTER on your keyboard. The plot is updated with the default symbol at every data value.
3. The current symbol is located next to *Symbol*. Click the current symbol, which by default is a ●. Clicking on the current symbol opens the symbol palette. Click the filled square, symbol *Number 10*, two boxes to the left of the default symbol. Once you click on the filled square, the symbol palette closes and the plot automatically updates to show the new symbol.
4. Click on the **Line** tab to edit the line properties.
5. Click on the current line style, next to the *Style* option, to open the line style palette. Click on the invisible line style, which is the second entry in the list. Once you click on the invisible line style, the line style palette closes and the plot changes to a scatter plot.



Create the scatter plot by adding symbols and setting the line style to invisible.

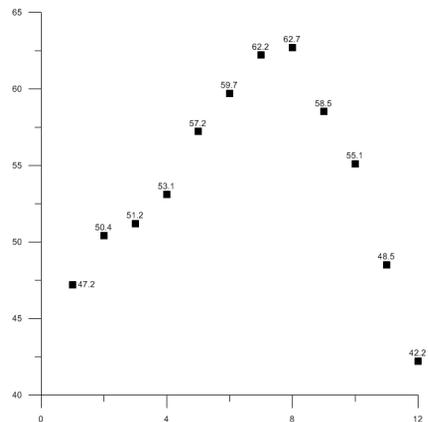
Displaying Plot Labels

Labels can be displayed at any data point on the plot. Labels can come from the X or Y data columns or from any other data column in the worksheet. To display labels for the data points:

1. Click on the *Line/Scatter Plot 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Labels** tab to display the plot label properties.
3. Check the box next to the *Display labels* option.

The Y data values are shown as labels to the data points on the plot. By default, the column used for the labels is the Y data column, although you can uncheck the box next to the *Labels in Y column*

option and set the *Column* to any worksheet column to display the label from that column. This is useful when you are wanting to display point names or IDs.



Add plot labels to easily distinguish between data points.

Moving Labels

Grapher allows you to manually move labels that are displaying for plots and axes. In addition, you can move axis, legend, and graph titles and legend entries.

1. With the plot selected, click on the **Graphs | Plot | Move Labels** command.
2. The first label will appear with a box around it, like: .
3. Click on the label, hold down the left mouse button, and drag the label to the desired location. Alternatively, press the ARROW keys on the keyboard to move the label a small amount.
4. When you are finished moving this label, click on another label to move it. Repeat the clicking on labels and moving until all labels are in the desired location.
5. When finished, press the ESC key on the keyboard to end moving labels mode.

To return the labels to their original position, click the *Reset* button next to the *Reset positions* option on the **Labels** tab for a plot or the **Tick Labels** tab for an axis.

Lesson 4 - Editing Axes

Grapher's axes can be modified to fit any design needs. The axis scale, axis length, tick mark spacing, tick labels, axis titles, colors, etc. can all be customized.

Selecting the Axis

The graph from *Lesson 2 - Creating a Graph* should already exist in the plot window before proceeding with this lesson. Click on the *Y Axis 1* in the **Object Manager** to display the axis properties in the **Property Manager**.

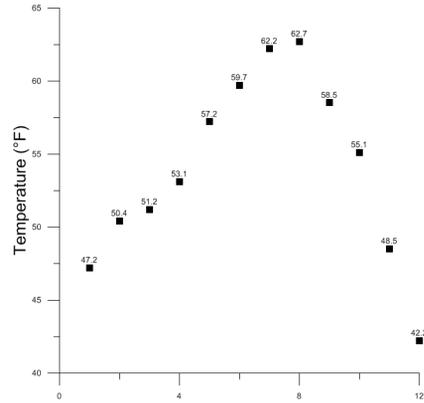
Adding an Axis Title

Once the axis is selected, all of the axis properties are displayed in the **Property Manager**. Standard axes, such as the selected *Y Axis 1*, have **Axis**, **Grid Lines**, **Tick Marks**, **Tick Labels**, **Break Axis**, **Link Axis**, and **Line** tabs. The axis title options are on the **Axis** tab.

To add an axis title:

1. Click the **Axis** tab in the **Property Manager** to edit the axis properties.
2. Open the *Title* section by clicking the  next to *Title*, if necessary.
3. In the *Title* section, click the *Editor* button next to the *Title* option. The **Text Editor** opens.
4. In the **Text Editor**, type the words *Temperature (F)*.
5. Click in the space just before the *F* and click the  button.

6. In the **Symbol Properties** dialog, change the *Symbol Set* to *Arial* and select the degree symbol, symbol *Number 144*. Click *OK* to return to the **Text Editor**. Alternatively, you can click in the space before the *F* and press and hold the ALT key. Type the number 0176. This will also insert the symbol, without opening the **Symbol Properties** dialog. This is a good method to use when inserting Unicode or international characters in any text box.
7. Next, let's change the properties of the axis title. In the **Text Editor**, highlight the text *Temperature (°F)*.
8. Highlight the current font size and type 18, to make the font 18 points. The font size is located to the right of the font name in the upper left corner of the dialog. Only the highlighted text changes size, so be sure to select all of the text.
9. Click *OK* to close the **Text Editor** and save the axis title.



Add axis titles to the graph by clicking on the axis and adding titles on the **Axis** tab in the **Property Manager**.

The text *Temperature (°F)* now appears along the Y axis. Use this same procedure to add the title *Month* to the *X Axis 1*.

Changing the Tick Mark Spacing

Tick marks are a means of indicating units of measure and are typically equally spaced like the lines on a ruler. Tick marks are the lines that extend perpendicularly from an axis. Normally, the major tick marks are longer and the minor tick marks are shorter and appear between the major tick marks. In the graph created in *Lesson 2 - Creating a Graph*, the major tick mark spacing on the Y axis is five units, i.e., 40, 45, 50, 55, 60, and 65. In addition, there is a single unlabeled minor tick mark between each set of major tick marks. In the following exercise, the tick spacing is changed to ten units. The number of minor tick marks is changed to five.

To change the tick mark spacing:

1. Click on the *Y Axis 1* in the **Object Manager** to select it.
2. In the **Property Manager**, click on the **Tick Marks** tab.
3. Click the \boxplus next to *Major Ticks*, if necessary.
4. Change the *Spacing* from 5 to 10. To change the *Spacing*, highlight the existing number 5, type the new number 10, and press ENTER on your keyboard.
5. Click the \boxplus next to *Minor Ticks*, if necessary.
6. Change the *Divisions* from 2 to 5. To change the *Divisions*, highlight the existing number 2, type the new number 5, and press ENTER on your keyboard.

The Y Axis 1 tick mark spacing changes to ten in the plot window and additional minor tick marks are added. In addition, the axis limits automatically adjust so that an even number of tick marks are displayed on the axis. Apply this same procedure to the X axis, changing the major tick mark *Spacing* from four to one and the *Divisions* to 1, so no minor tick marks are displayed.

Changing the Tick Labels

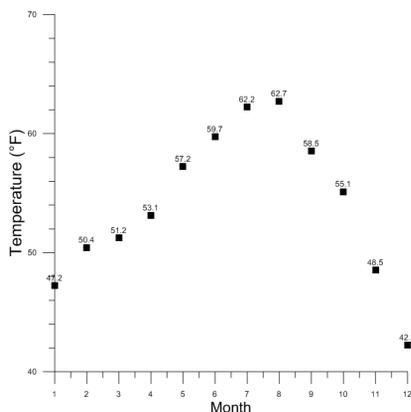
Tick labels can be displayed using different label sources including *Automatic*, *Date/Time*, and *From worksheet*. Automatic labels are the default, however there may be situations where either using a number to represent date/time values or labels directly from a worksheet source may be useful. For this tutorial, we will change the X axis labels to use a data column from the worksheet where we have tick label names specified.

To change the tick labels source:

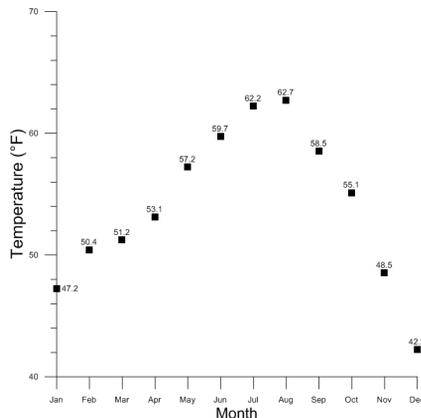
1. Click on the X Axis 1 in the **Object Manager**.
2. In the **Property Manager**, click on the **Tick Labels** tab.
3. Click the \oplus next to the *Major Label Text* section, if necessary.
4. Click on the word *Automatic* next to the *Label source* option. In the drop-down list, select *From worksheet*. This activates the *Worksheet* option.
5. Next to *Worksheet*, click the word *None* to display a drop-down list of open worksheets and the *Browse* option. The *Browse* option would be used to select a worksheet that is not already open. In this tutorial, the worksheet we want to use is already open. Select the *Tutorial.dat* file from the list.
6. Next to the *Data column* option, click the existing column and select *Column A: Month*.
7. Next to the *Label column* option, click the existing column and select *Column J: Month Name*.

The graph updates with the worksheet labels defined by the text in column J of the worksheet.

If the axis labels or the axis title overlap or need to be moved slightly, click the **Graphs | Plot | Move Labels** command. Click on the label or axis title,



Customize the Spacing between axis tick marks and the number of minor tick marks between major ticks.



Customize the axis to display descriptive tick labels, defined in a worksheet column.

hold down the left mouse button, and drag the label or title to the new location. For example, in the graph to the right, the first plot label was moved. Press ESC on the keyboard when all of the labels are in the desired location.

Adding Grid Lines

Grid lines make it easier to see how the data relate to the axes. You can add grid lines at major tick marks, minor tick marks, or at values specified in a data file. All of the line properties such as color, width, and style can also be edited for each type of grid line separately.

If you are making the same change to multiple objects, all of the items can be selected and edited at the same time. Since we want grid lines on both axes, we can select both axes and add grid lines at the same time.

To add grid lines to both axes:

1. In the **Object Manager**, click on *X Axis 1*, hold down the CTRL key on your keyboard, and click on *Y Axis 1*. Both axes are selected.
2. Note the **Property Manager** shows only those properties common to all selected objects when multiple objects are selected. Since both objects are axes, all of the axis properties are displayed. Click on the **Grid Lines** tab to open the grid line properties.
3. Click the next to *Major Lines*, if necessary.
4. Check the box next to the *At major ticks* option. Grid lines appear on both axes on the graph.
5. Click the next to *Major line properties*, if necessary.
6. Click on the current color next to the *Color* option. In the color palette, click on the *20% Black* color, which is the color directly below *Black*. Once you click on the *20% Black* color, the palette closes and the axes grid lines update with the new color.

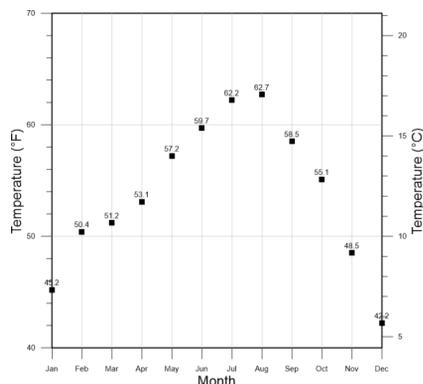
Adding a Secondary Linked Axis

Secondary axes are used to display different scales on the graph. In this example we will add a second Y axis to display temperature in degrees Celsius.

1. Click on the *Graph 1* object in the **Object Manager**.
2. Click the **Graphs | Add to Graph | Axis** command to add a second Y axis.
3. In the **Axis Type** dialog select *Y Axis* from the list and click *OK*.
4. In the **Position Y Axis 2** dialog, check the *Flip tick marks and labels* check box.

5. Click *OK*.
6. Click the **Link Axis** tab in the **Property Manager** to link the new axis.
7. In the *Link axis* field, click *None* and select *Y Axis 1* from the list.
8. Check the *Link limits* check box.
9. In the *Limits Y = F(X) =* field, highlight the current text, type $(X-32)*5/9$, and press ENTER.

Now the secondary Y axis is displayed to the right of the graph with a degrees Celsius scale. Add an axis title and change the tick mark spacing using the processes in the previous sections if you desire.



Add multiple axes to display alternate scales on the graph.

Lesson 5 - Adding Additional Plots to the Graph

You can add several plots to one graph in **Grapher**. In *Tutorial.dat*, columns B through I are additional Y data, making it simple to add additional plots to the graph.

Adding a New Plot to an Existing Graph

1. Click on *Line/Scatter Plot 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Plot** tab.
3. Click the *Create* button next to the *New plot* option.

Clicking the *Create* button creates a new line/scatter plot using the same worksheet as the original plot. The same axes and plot properties are also used for the new plot. The *X column* stays the same and the *Y column* increments to the next column with data. The new plot is selected, the **Property Manager** title changes to **Property Manager - Line/Scatter Plot 2**, and the *Y column* changes to *Column C: Site B*.

All of the data must be contained in one data file to use the *New plot* feature. In addition, not all plot types have this option. When many plot types are selected, the **Graphs | Add to Graph** commands are available. These allow additional axes, plots from a different data file, legends, summation plots, duplicate axes, and magnifiers to be added to the selected graph. For additional information on these command, see the *Plot - Add to Graph* topic in the *Plots* book in the *Graph Features* book in the online help.

Changing the Plot Type

Let's change the new scatter plot into a line plot to help differentiate between the

two curves. Previously, we changed from a line plot to a scatter plot by editing the **Line** and **Symbol** properties in the **Property Manager**. There is also a shortcut to changing between plot types.

To change a scatter plot into a line plot:

1. Click on the *Line/Scatter Plot 2* in the **Object Manager**.
2. Click the arrow next to the **Graphs | Plot | Change Plot To** command. Select **Line** from the list. The scatter plot changes to a line plot.
3. To remove the labels, click on the **Labels** tab in the **Property Manager**.
4. Uncheck the box next to the *Display labels* option.

The **Graph | Change Plot To** command is not available for all plot types. It can be used to convert line, scatter, line/scatter, step, and bar charts to other line, scatter, line/scatter, step, and bar charts. It can also be used, when the entire graph is selected, to convert a 2D graph to a 3D graph, or vice versa.

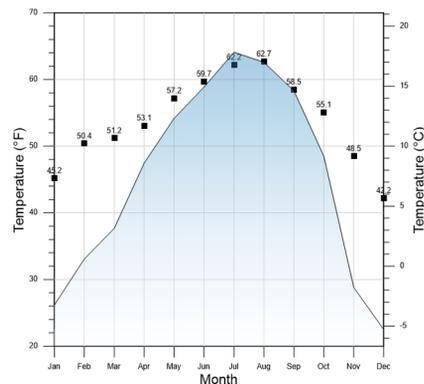
Adding Semi-Transparent Fill to the Line Plot

Adding a semi-transparent fill to the line plot will help distinguish it from the scatter plot. Color gradients can be used to enhance the appearance of the fill and can be mapped to specific values.

To add fill to the line plot:

1. Click on the *Line/Scatter Plot 2* in the **Object Manager**, if it is not already selected.
2. Click on the **Fill** tab in the **Property Manager** to display the fill properties.
3. If necessary click the \oplus next to *Gradient* to expand the gradient properties.
4. Change the *Type* to *Linear*.
5. Click the  button next to the *Colormap* selection to open the **Color Gradient** dialog.
6. In the *Presets* list, select the *Blues2* preset.
7. In the *Opacity* field, highlight the current 100% value and type 40.
8. In the *Maximum* field, type 83.
9. Click *OK*.

A gradient fill has been added to Line/Scatter Plot 2. The color gradient was mapped between the overall minimum and maximum values in the data file, 22.5 (December at Site B) and 83 (July at Site D). Mapping the color gradient to specific values allows you to represent equal data values with the same color across multiple plots when the plots use the same color gradient.



Add a semi-transparent gradient fill to highlight the new plot.

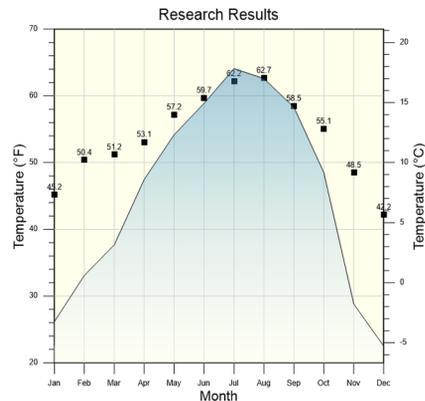
Lesson 6 - Editing Graph Properties

Graph properties control settings that affect the entire graph, such as titles, background line and fill colors, and fill patterns that fill between multiple plots. Let's add a graph title and set the background fill and line properties for the graph.

Adding a Graph Title

To add a graph title:

1. Click on the *Graph 1* object in the **Object Manager** to select the entire graph.
2. In the **Property Manager**, click on the **Title** tab.
3. Click the *Editor* button next to the *Title* option.
4. In the **Text Editor**, type the graph title, *Research Results*.
5. Highlight all of the text.
6. Highlight the existing font size and change it to 20.
7. Click *OK* and the title appears on the graph.
8. By default, the title contains a box around it. To turn off the display of the box, click the next to the *Box Line Properties* section, if necessary.
9. Click on the line sample next to *Style* and select the invisible line. When you select the invisible line, the graph title automatically updates.



Set graph properties by clicking on the Graph object to add a final finished appearance to the graph.

Setting Background Fill and Line Properties

To set the background fill and line properties:

1. With the *Graph 1* selected, click on the **Background** tab in the **Property Manager**.
2. Click the next to the *Background line* section, if necessary.
3. Click on the line sample next to *Style* and select the solid line, the first option.
4. Set the *Width* of the line by highlighting the number next to *Width*, typing a new value, and pressing ENTER on the keyboard. Set the *Width* to 0.020 inches.
5. Click the next to the *Background Fill* section, if necessary.
6. Set the *Foreground color* to *Pale Yellow* by clicking on the existing color and selecting the *Pale Yellow* color from the palette.

The graph now has a light yellow background, all axes and the graph are labeled.

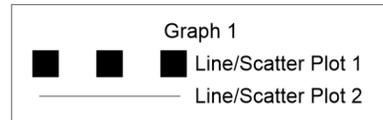
Lesson 7 - Adding and Editing a Legend

Legends provide information for interpreting a graph. You can add a legend for most plot types. Typically, legends are linked to the graph so that any changes made to the graph are automatically updated in the legend. The legend features, such as font and legend placement, can be customized.

Adding a Legend

To add a legend:

1. Select any part of the graph by clicking on an object in the graph, such as *Y Axis 1* or *Line/Scatter Plot 2*.
2. Click the **Graphs | Add to Graph | Legend** command.



*When a legend is first created, it contains the graph and plot names, as listed in the **Object Manager**.*

A legend is created for the graph using the default properties. These properties can be changed. Currently, the legend displays *Graph 1* for the title and *Line/Scatter Plot 1* and *Line/Scatter Plot 2* for the plot names. Let's move the legend, and change the names to reflect the data.

Moving the Legend

To move the legend:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. Once the legend is selected, position the cursor over the legend in the plot window, click and hold the left mouse button.
3. Drag the legend to a new location and release the mouse button.

Editing the Legend Title

To change the legend title:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click on the **Legend** tab.
3. Click the *Editor* button next to *Title*. This opens the **Text Editor** and allows you to edit the legend title.
4. In the **Text Editor**, highlight *Graph 1* and type the title *Site Location Key*.
5. Click *OK* and the legend is updated.

Editing the Plot Names

To change the plot names in the legend:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click on the **Legend** tab.
3. Next to the *Entries* option, click the *Edit* button. The **Legend Entries** dialog

opens.

4. In the **Legend Entries** dialog, click *Line/Scatter Plot 1* under the *Name* column and click the *Rename* button. The **Text Editor** opens.
5. Let's change the text to *Site A* to match the worksheet. Highlight *Line/Scatter Plot 1* and type *Site A*.
6. Click *OK* to close the **Text Editor**.
7. In the **Legend Entries** dialog, click *Line/Scatter Plot 2* under the *Name* column and click the *Rename* button. The **Text Editor** opens.
8. Another way to change the text is to link the text to a worksheet cell. Highlight the *Line/Scatter Plot 2* text and press the **DELETE** key on your keyboard.
9. Click the **Worksheet...** button.
10. In the **Open Worksheet** dialog, click the *Tutorial.dat* file and click *Open*.
11. Click the **Insert cell...** button.
12. In the **Enter Cell** dialog, type *C1* and click *OK*. The text <<@C1>> will be displayed in the **Text Editor**, indicating linked worksheet text.
13. Click *OK* in the **Text Editor**. The *Line/Scatter Plot 2* is updated to *Site B*. This text will automatically update if the text in cell *C1* of the worksheet changes.
14. Click *OK* to close the **Legend Entries** dialog. The legend updates with the modified names.

Changing the Number of Symbols

The number of symbols in a legend can be set from 0 to 3. To change the number of symbols:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click the **Legend** tab.
3. Click on the number 3 next to the *Number of symbols* option and select 1 from the list. The legend is updated displaying only one symbol.

Changing the Symbol Size

To change the symbol size to match that of the symbols on the plot:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click the **Legend** tab.
3. Click the *Edit* button next to the *Entries* option. The **Legend Entries** dialog opens.
4. Select the *Site A* in the *Name* column and click the *Symbol Size* button. The **Symbol Size** dialog opens.
5. Change the *Size* from *Fixed* to *Plot size*.
6. Click *OK* to return to the **Legend Entries** dialog.
7. Click *OK* in **Legend Entries** dialog. The symbol size in the legend now matches the symbol size in the plot.

Changing the Line Length

In addition to changing the number and size of the symbols, the length of the displayed line can be changed. To change the line length:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click the **Legend** tab.
3. Highlight the value next to the *Line length* option. Type the new value of 0.5 and press ENTER on the keyboard. The line next to *Site B* is shortened to 0.5 inches.

Adding a Drop Shadow

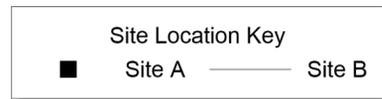
To add a shadow behind the legend:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click the **Legend** tab.
3. Check the box next to the *Display shadow* option and a shadow is added behind the legend.

Creating Multiple Columns in the Legend

Longer legends may need to be split into multiple columns to make the best use of the page space. To separate a legend into multiple columns:

1. Click on *Legend 1* in the **Object Manager** to select the legend.
2. In the **Property Manager**, click the **Legend** tab.
3. Highlight the value next to the *Number of columns* option. Type a new value, such as 2, and press ENTER on the keyboard. The legend is updated to show the new number of columns.



All properties of the legend are fully customizable, including the number of columns and the text being displayed for each plot.

Lesson 8 - Working with the Script Recorder

Scripter is Golden Software's automation program. You may record your actions in **Grapher** with the **Script Recorder** rather than writing the scripts manually in **Scripter**. Detailed information about automation is located in the online help *Grapher Automation* book.

New **Grapher** users should go through the steps in this lesson to learn a bit more about **Grapher** - even if you do not intend to use automation.

The **Script Recorder** can be used for many tasks. We will provide one scenario to demonstrate the **Script Recorder**. For example, let's say you receive a data file once a quarter. The file has the same file name each quarter and the same number of columns, but the information contained in the file updates each time. Each quarter you need to create the graph and export it for use in your quarterly reports. You can

automate this process with the **Script Recorder** to save time and increase efficiency.

The graph in this example is fairly simple for time's sake, but keep in mind that complex graphs are very well suited to automation. We will record the process of creating a graph, changing some features of the graph, and exporting the graph. The creation of this graph uses the features included in the previous lessons and includes a few new items. If you do not understand part of the directions, review the material in the previous lessons or consult the online help.

Opening the Script Manager

The **Script Manager** can be used to view scripts as they record. Check the box next to the **View | Display | Script Manager** command to display the **Script Manager**. A check mark is displayed next to visible managers. By default, the **Script Manager** is located at the bottom of the **Grapher** window, tabbed with the **Worksheet Manager**. Click the **Script Manager** tab to view the **Script Manager**.

Developer Tab

The **Developer** tab in the ribbon is used to start and stop recording scripts. Help for **Grapher** automation and Basic Language help information can also be accessed on the **Developer** tab.

Start Recording

Click the **Developer | Scripts | Record** command to start recording. The button changes color from green to red and the word *Record* changes to *Stop Recording* to indicate that the script is recording. Information appears in the **Script Manager** as soon as recording begins. This code starts **Grapher** when the script is run later. Every action taken will be recorded in the **Script Manager** until the recording is stopped.

Opening a New Plot Window

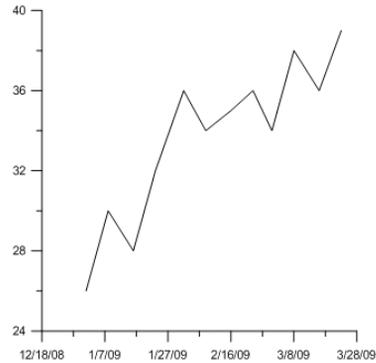
Let's open a new plot window to start. Click the **File | New | Plot** command to create a new plot window.

Creating a Line Plot

To create the line plot:

1. Click the **Graphs | Create | Basic** command and click the **Line Plot** button .
2. The **Open Worksheet** dialog appears. Browse to **Grapher's** Samples folder. If the software was installed in the default folder, the path is C:\Program Files\Golden Software\Grapher 12\Samples.
3. Click the *tutorial script recorder.xls* file and click *Open* to create the default graph.

A 2D line plot is created with the first two available columns using the default properties. **Grapher** can create graphs from data containing date/time information. In this example, column A contains dates so dates are plotted on the X Axis.



The line/scatter plot is created using the default properties.

Changing the X Axis Date/Time Limits

The axis limits can use the default limits or can be changed to show only a portion of the graph. Limits can be based on numerical values or on date/time values. To change the X Axis limits using date/time values:

1. Select the *X Axis 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Axis** tab to display the axis properties.
3. Click the to the left of the *Limits* section to expand the axis limits.
4. Click the next to the *12/18/2008 0:00:00* value next to *Minimum date/time* to open the **Select Date Time** dialog.
5. Change the *Date* to *1/1/2009* and click *OK*.
6. Dates can also be edited directly in the **Property Manager**. Highlight the *3/28/2009 0:00:00* value next to *Maximum date/time* and type *4/1/2009* and press ENTER.

The X Axis limits now range from 1/1/09 to 4/1/09.

Changing the X Axis Date/Time Tick Mark Spacing

Tick marks can be spaced at any desired interval. Tick marks can be changed to show one tick mark every X number of units or can be based on date/time units, such as minutes, days, months, or years. To set the tick marks to display one tick and label spacing per month:

1. Select the *X Axis 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Tick Marks** tab to display the tick mark properties.
3. Click the to the left of the *Major Ticks* section to expand the major tick options.
4. Check the box next to the *Use date/time spacing* option.
5. Next to *Date/time spacing*, click *Every Year* to open the **Date/Time Spacing** dialog.
6. Change *Year* to *Month* and click *OK*.

The X Axis major tick marks are displayed as 1/1/09, 2/1/09, 3/1/09, and 4/1/09.

Changing the X Axis Date/Time Tick Label Format

There are a variety of tick label formatting options available. One of the options is to change the display of the date/time labels. There are many different predefined date/time labels available or you can create your own custom format.

To change the major label format from M/d/yy (1/1/09) to MMM-yy (Jan-09):

1. Select the *X Axis 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Tick Labels** tab to display the tick label properties.
3. Click the next to *Major Labels* to expand the major label options.
4. Click the next to *Format* to expand the label format section.
5. Click the *Select* button next to *Date/time format* to open the **Date/Time Format Builder** dialog.
6. Type *MMM-yy* in the *Date/Time format (edit to change)* field.
7. Click *OK*.

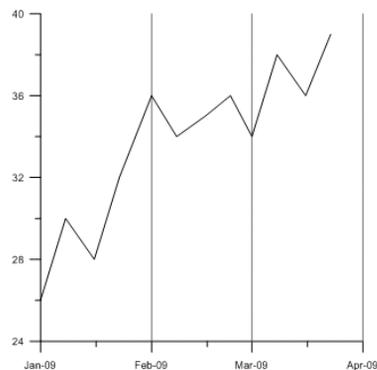
The X Axis tick labels are displayed as Jan-09, Feb-09, Mar-09, and Apr-09.

Adding X Axis Grid Lines

Grid lines make it easier to determine the data values on a graph. There are many options for grid lines, such as showing the grid lines at major ticks, minor ticks, or at values defined in a worksheet.

To add grid lines to the X Axis:

1. Select the *X Axis 1* in the **Object Manager**.
2. In the **Property Manager**, click on the **Grid Lines** tab to display the grid line properties.
3. Click the next to *Major Lines* to open the major grid line section.
4. Check the box next to *At major ticks*.
5. Click the to the left of *Major line properties* to expand the major line properties.
6. Next to *Color*, click *Black* to open the color palette and select *20% Black*. The color palette automatically closes with the new line color selected. 20% black grid lines are added to the graph at the major ticks.



Set tick mark, tick label, and grid line properties in the **Property Manager**.

Adding Linked Text to the Graph Title

It would be a good idea to add text explaining the information contained in the graphs. In this file, cell A1 contains the data's time range, January through March 2009. The next quarter's data file will contain April through June 2009. With linked text, the information is updated on the graph any time the information changes in the cell in the data file. When the script is run, the date in the data file appears on the graphs. To add linked text information to the graph title:

1. Select *Graph 1* in the **Object Manager**.
2. In the **Property Manager**, click the **Title** tab to open the graph title properties.
3. Next to *Title*, click the *Editor* button to open the **Text Editor**.
4. Click the **Worksheet...** button to select the worksheet that contains the text.
5. In the **Open Worksheet** dialog, select the *tutorial script recorder.xls* file from the *Open worksheets* section and click *Open*.
6. Click the **Insert cell...** button in the **Text Editor**. Type *A1* into the **Enter Cell** dialog and click *OK*. <<@A1>> appears in the **Text Editor**.
7. Highlight all of the text in the **Text Editor**. Change the size of the text to 24 by highlighting the existing value and typing 24 in the font size box. The size box is located to the right of the font name.
8. Change any other properties, such as text color, if desired.
9. Click *OK* in the **Text Editor** to close the dialog and apply the changes.

Although we could add many more features to the graph, we will stop here. Additional features may be added now if you like.

Exporting the Graph

Since the graphs are used to create a report, the graph must be exported for use in another program.

To export the graph:

1. Click the **File| Export** command.
2. Type *tutorial script recorder* into the *File name* field in the **Export** dialog.
3. Select *PDF (Vector) (*.pdf)* from the *Save as type* list.
4. Check the *Show options dialog* box. Checking this option enables you to make any changes in the exported options.
5. Uncheck the *Use graph coordinates for export (when applicable)* box. The *Use graph coordinates for export (when applicable)* exports the graph using graph coordinates. For reports and images, it is best to have this option unchecked.
6. Uncheck the *Selected options only* box. The *Selected options only* option only exports the items that are currently selected in the graph window.
7. Click the *Save* button.
8. In the **Export Options** dialog, check the *Use application page size (if applicable)*

box. This exports the entire page, not just the graph.

9. Check the *Compress images* and *Compress pages* boxes to make the file size as small as possible.
10. Click *OK* and the PDF file is created.

Stopping and Saving the Script

Now that the graph has been created, it is time to stop recording and save the script.

To stop recording and save the script:

1. Click the **Developer | Scripts | Stop Recording** command.
2. In the **Save As** dialog, type *tutorial script recorder* into the *File name* box.
3. Click the *Save* button.
4. Right-click in the **Script Manager** and click **File | Close** to close the script in the **Script Manager**.

The recording is stopped and the *tutorial script recorder.bas* is saved for future use.

Running Scripts within Grapher

Assuming the file name is the same each time; the graphs are automatically created and updated each time the script is run. The script can be run from **Scripter** or from the **Script Manager** in **Grapher**. In our tutorial scenario, when you receive the next set of data, with the same file name, run the script to produce the needed graph. To run the script within **Grapher**:

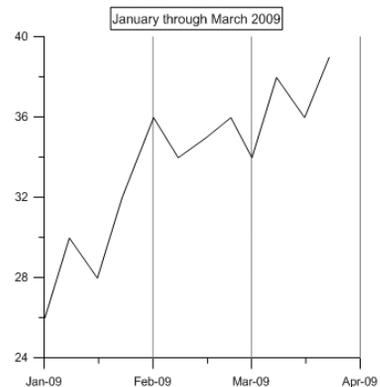
1. Click the **Developer | Scripts | Run** command.
2. Click on *tutorial script recorder.bas* in the **Open** dialog and click *Open*. You can watch the graph as it is created.

Running Scripts from Scripter

Scripts can also be run from **Scripter**.

To run the script from **Scripter**:

1. Click on the Windows Start button.
2. Open the program list, select **Golden Software Grapher 12**, and click the **Scripter** link.
3. Click the **File | Open** command.
4. In the **Open** dialog, select the *tutorial script recorder.bas* file and click *Open*.
5. Click the **Script | Run** command or click the  button to start the script.



The script runs and creates a graph based on the steps you recorded.

Printing the Online Help

The online help topics may be printed. You can print a single topic, a section of the table of contents, or all topics in the table of contents. Open the online help by clicking the **Home | Help | Contents** command in the **Grapher** window.

To print one topic, click the topic you wish to print and click the  button. If the **Contents** page is open in the help navigation pane, the **Print Topics** dialog appears. Select *Print the selected topic* and click *OK*.

To print one book, the *Tutorial* for example, click the **Contents** tab on the left side of the help window. Expand the *Grapher 12* book and click on the book you want to print,

such as the *Tutorial* book, to select the book. Click the  button. In the **Print Topics** dialog, select *Print the selected heading and all subtopics* and click *OK*. All the topics included in the *Tutorial* book are printed.

To print all of the topics in the help file table of contents, select the top-level book in

the help book, *Grapher 12*. Click the  button. In the **Print Topics** dialog, select *Print the selected heading and all subtopics* and click *OK*. All the topics included in the online help table of contents are printed.

WARNING: Printing the entire help file takes hundreds of letter-sized sheets of paper and is very time consuming. There is no table of contents or index printed with the file.

You can purchase the full PDF user's guide that includes all of the documentation for the program. This PDF user's guide can be printed by the user, if desired. The guide can be purchased on the Golden Software website at www.GoldenSoftware.com.

Getting Help

The quick start guide is a quick way to learn about the basics in **Grapher**. There are also other sources of help with **Grapher**.

Online Help

Extensive information about **Grapher** is located in the online help. Click the **Home | Help | Contents** command to access the online help. You can navigate the online help using the **Contents**, **Index**, **Search**, and **Favorites** tabs on the navigation pane to the left of the topic page.

Context-Sensitive Help

Grapher also contains context-sensitive help. Highlight a window, manager, or dialog and press the F1 key to display help for the highlighted item. In addition, most dialogs contain a help button. Click the  button in a dialog title bar to open the help topic for the displayed properties.

Automation Help

Advanced users needing help in **Scripter** can use the **Developer | Help | Grapher Automation Help** command for specific information about **Grapher's** objects, methods, and properties. Click the **Developer | Help | BASIC Language Help** command for information about BASIC commands. Or, click the **Help | Contents** command in **Scripter** for information about the **Scripter** program.

Internet Resources

There are several internet help resources.

- Direct links to the Golden Software home page (www.GoldenSoftware.com), main **Grapher** product page, frequently asked questions, knowledge base, and forums are available by clicking the **File | Online** commands.
- The **File | Feedback** commands send a problem report, suggestion, or information request by email directly to **Grapher** technical support.
- Click the *Forums* button in the online help (**Home | Help | Contents** command) to post a question to our public support forums.
- Click the *Knowledge Base* button in the online help to search for an answer in our frequently updated knowledge base.
- Browse newsletter articles on our website at www.GoldenSoftware.com/newsletter.
- Browse FAQs on our website at www.GoldenSoftware.com/products/grapher#faqs.
- Watch training videos on our website at www.GoldenSoftware.com/products/Grapher#training-videos.
- Read through our blog items at www.GoldenSoftware.com/blog.

Technical Support

Golden Software's technical support is free to registered users of Golden Software products. Our technical support staff is trained to help you find answers to your questions quickly and accurately. We are happy to answer all of your questions about any of our products, both before and after your purchase. We also welcome suggestions for improvements to our software and encourage you to contact us with any ideas you may have for adding new features and capabilities to our programs.

Technical support is available Monday through Friday 8:00 AM to 5:00 PM Mountain Time, excluding major United States holidays. We respond to email and fax technical questions within one business day.

When contacting us with your question, have the following information available:

- Your **Grapher** serial number (located on the CD shipping cover or in the **File | About Grapher** dialog)
- Your **Grapher** version number, found in **File | About Grapher**
- The operating system you are using (Windows XP, Vista, 7, 8, 10 or higher)
- Whether you are using a 32-bit or 64-bit **Grapher** program and operating system

If you encounter problems with **Grapher**, you are welcome to send an email message to Golden Software using the **File | Feedback | Problem Report** command. This message is delivered directly to GrapherSupport@GoldenSoftware.com. Report the steps you perform when the problem occurs and include the full text of any error messages that are displayed. You are welcome to attach a .ZIP file (10 MB maximum) containing the .GRF, .GPJ, or data files that illustrate the problem. Contact technical support for other arrangements if you have very large zipped attachments to send.

Contact Information

Telephone: 303-279-1021

Fax: 303-279-0909

Email: GrapherSupport@GoldenSoftware.com

Web: www.GoldenSoftware.com

Mail: Golden Software, LLC; 809 14th Street; Golden, Colorado 80401-1866, USA

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Before calling, please check the following available resources as your question may already be answered.

Registration: Register online at www.goldensoftware.com or fax to the number below.
Knowledge Base: www.GoldenSoftware.com/knowledge-base or in the Grapher program using the File Online Knowledge Base command.
Forums: www.goldensoftware.com/forum or in the Grapher program using the File Online Forums command.
Frequently Asked Questions: In the Grapher program using the File Online Frequently Asked Questions command
Tutorial: Complete the tutorial section in this quick start guide or in the Grapher program using the Home Help Tutorial command
Online Help: In the Grapher program using the Home Help Contents command
Support Videos: www.GoldenSoftware.com/products/grapher#training-videos for Grapher specific training videos and webinars

Business Hours

Technical Support:

Monday through Friday, 8:00 AM - 5:00 PM, Mountain Time

Product Sales:

Online orders available 24 hours, 7 days a week

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