Grapher™ 12
The ultimate technical graphing package.

User’s 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.

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Chapter 1 - Introducing Grapher

Introduction to Grapher
Welcome to Grapher™, the easy-to-use technical graphing package for scientists, engineers, business professionals, or anyone who needs to generate publication quality graphs quickly and easily. Grapher is an efficient and powerful graphing program for all of your most complex graphing needs. Create exciting graphs and plots for presentations, papers, marketing, analysis, sales, and more. Capture the interest of your audience with 3D graphs.

With Grapher, creating a graph 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, though all of the graph settings can be modified. For example, you can change tick mark spacing, tick labels, axis labels, axis length, grid lines, line colors, symbol styles, and more. You can add legends, images, fit curves, and drawing objects to the graph. To apply the same custom settings to several graphs, you can create a Grapher template containing the preferred styles. Advanced automation is incorporated using Golden Software's Scripter™ program or any Active X automation program. Once the graph is complete, you can export it in a variety of formats for use in presentations and publications.

Major City Climate Comparison

Grapher is extremely flexible. For example, you can combine multiple plot types, display graph titles, customize axis settings, and more.
Chapter 1 - Introducing Grapher

System Requirements
The minimum system requirements for Grapher are:
- Windows XP SP 2 or higher, Vista, 7, 8, 10 or higher
- 512MB RAM minimum for simple data sets, 1GB RAM recommended
- At least 500MB free hard disk space
- 1024x768x16-bit color minimum monitor resolution

Grapher Demo Functionality
The Grapher demo version is a fully functioning read-only demo. This means that most commands work exactly as the command works in the full program. Saving, exporting, printing, and copying are disabled in the demo version.

The demo has no further restrictions on use. Any data set or image can be used to create any project. All properties can be changed in the demo version. The demo does not have a “time-out period” so will not expire after a certain number of hours or days of use. The demo can be installed on any computer that meets the system requirements.

Scripter
The Scripter program, included with Grapher, is useful in 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 ActiveX Automation using any compatible client, such as Visual BASIC. These two automation capabilities allow Grapher to be used as a data visualization and map generation post-processor for any scientific modeling system.

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
This is an overview of some of Grapher 12’s new features.

User Friendly
- New Date/Time Format Builder dialog provides more control over the display of date/time values.
- Add scripts to and run scripts from the Ribbon in the Developer | User Scripts section.
- Pin documents to the Recent Documents list.
- New keyboard commands for accessing the Property Manager and Object Manager.
- Enhanced worksheet window appearance.
- Switch and manage open windows.
- Use the docking mechanism to easily position managers within the application window.
- Added space for more commands in the Quick Access Toolbar.
- The zoom In, Out, and Rectangle view commands are persistent.
Graph Features
- Create Ternary Bubble Plots
- Add a title to color scales.
- Easily reverse the nodes of a color spectrum.
- Create 2D or 3D \( X = F(Y) \) function plots.
- Change the file paths for all worksheet references in a document simultaneously.
- Bar Chart Groups can be plotted adjacent to one another.
- Map Color Gradients to data values.
- Create horizontal box-whisker and notched box-whisker plots
- Move legend titles and entries with the **Move Labels** command.
- Flip the order of the entries in a legend.
- Class plot symbols are different colors by default.
- Only show legend entries for visible plots

Drawing and Digitizing Features
- Distribute objects horizontally or vertically with even spacing between objects.

Data Features
- Include mode when calculating worksheet statistics.
- Quickly convert **Numbers to Text** or **Text to Numbers** in the worksheet.
- Improved **Sort** operation.

Import and Export Improvements
- Export vector PDF files with layers
- Improved transparency and fill handling for Golden Software Interchange GSI files.
- Import ER Mapper ECW image files.
- Export plots to CSV or DAT XYZ Points files.
- Import LAS LiDAR Binary files in uncompressed (.las) and compressed (.laz) format.
- Import GPX GPS Exchange Format files.
- Import multiple sheets from multi-sheet Excel XLS, XLSM, XLSX files at the same time.
- Save multiple open worksheets to a multi-sheet Excel XLSX file.
- Import a selected subregion of a SID image file.
- Specify whether to render marker symbols or export points when exporting DXF files.
- Open and save MID files in the worksheet.
- Improved resolution for copied/pasted EMF clipboard files.

Automation
- Create and edit ternary bubble plots.
- Create and edit color scale titles.
- Convert Numbers to Text and Text to Numbers in the worksheet.
- Reverse nodes in a color spectrum.
Chapter 1 - Introducing Grapher

- Save multiple open worksheets to a multi-sheet Excel XLSX file.
- Distribute objects horizontally or vertically with equal spacing.
- Plot bar chart groups adjacent to one another and specify the gap between groups.
- Map a Color Gradient to specific minimum and maximum values or to the plot limits automatically.
- Create horizontal box-whisker graphs and plots.
- Change the legend entry order.

Installing Grapher

Check for Update
Updates contain corrections to the program. It is recommended that you keep automatic updates turned on, so that you are always using the most recent version of the program.

Manual Update
Use the File | Online | Check for Update command to check for the most recent version of Grapher. If there is an update available (i.e. Grapher 12.0 to Grapher 12.1), you can follow the directions to download and install the free update. An update contains minor changes to the program. Updates are available at no cost and there are not typically new features added in updates. A list of changes is located at www.goldensoftware.com/Grapher-Version-Info.

Before using this command, make sure your computer is connected to the Internet. Follow the directions in the dialog to complete the update if an update is available. If you have difficulties with the File | Online | Check for Update command, please contact technical support.

Automatic Update
The automatic update preference can be adjusted at any time using the File | Options command. Automatic updates allow the program to periodically check for an available update. Enabling automatic updates will allow your copy of Grapher to always automatically stay up-to-date.

Check for Internet Update
- Use the File | Online | Check for Update command, the Internet Update dialog appears.
- Click the Next button to proceed. Grapher will attempt to connect to the Golden Software server and check if an update exists for your version of the product.
- If no update exists and/or you are already running the latest version, a dialog will appear letting you know there are no updates for your current version of Grapher. Click the OK button and then the Internet Update dialog will close.
- If an update is available, the dialog will inform you about the specifics of the update. Click the Next button to download the update file. A progress gauge is displayed. If you choose not to download the update at this time, click the Cancel button. It is highly advised that updates be installed when they are found as updates contain corrections to problems that have been found in the program.
- When the download is complete, the Install Updates dialog will appear.
- Save any changes to your work and exit the Grapher program by choosing the File | Exit command. Click the Install button to proceed with the update.
- After the update is installed successfully, you can open Grapher and continue working.

Upgrade
To obtain an upgrade (i.e. Grapher version 12 to Grapher version 13), contact Golden Software.
Uninstall
To uninstall Grapher, follow the directions below for the operating system you are using.

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.

Welcome to Grapher Help
You can obtain help in Grapher in several ways:

Getting Help from the Help Commands
Within Grapher, the online help file is opened by clicking the Home | Help | Contents, Home | Help | Tutorial, or the Developer | Help | Automation commands, or by clicking the button in the upper right corner of the program. Alternatively, press F1 at anytime to open the help file.

In Scripter, Grapher's help file is opened by clicking the Help | Grapher Automation Help command.

Navigating the Help
You can navigate the help file using the Contents, Index, Search, and Favorites pages in the navigation pane to the left of the topic page. The navigation pane shows the Contents, Index, Search, and Favorites pages. The navigation pane is displayed by default.

The navigation pane can be displayed by clicking the button and hidden with the button.
• The **Contents** page allows you to search the predefined table of contents. The table of contents has a variety of help books and help topic pages. Double-click on a help book name or click the button to open the book.

• The **Index** page allows you to search index words to find a help topic. If you do not find a topic with an index word, try a search on the **Search** page.

• The **Search** page offers advanced search options including phrases, wildcards, boolean, and nested searching.

• The **Favorites** page allows you add help pages to a custom list. This allows you to quickly find favorite help topics that you reference frequently.

**Obtaining Information about Dialogs and Property Manager Options**
To obtain information about options in the **Property Manager**, click in the **Property Manager** area and press the F1 key on the keyboard. To obtain information about dialogs, click the button or click the **Help** button for information about the function of a command in an open dialog.

**Internet Help Resources**
There are several Internet help resources.

• Click the **Forums** or **Knowledge Base** buttons in online help to research a question or to post a question.

• Click the **File | Feedback** commands to send a problem report, suggestion, or information request by email.

• Search our website at www.goldensoftware.com or click the **File | Online** commands to update your copy of **Grapher** and for links to the Golden Software Home Page, Frequently Asked Questions, Knowledge Base, and Forums.

• The Golden Software website has a variety of resources including training videos, a support forum, a newsletter, a user image gallery, and a variety of free downloads.

**What’s New in Grapher**
Discover the new features in **Grapher** that make the product easier to use. New features are also listed on the Golden Software website.

**Complete the Grapher Tutorial**
The tutorial is a great way to get started in **Grapher**. The tutorial is designed to introduce you to some of **Grapher’s** basic features. After you have completed the tutorial, you should be able to begin creating your own graphs. The lessons should be completed in order; however, they do not need to be completed in one session.

**Automation Help**
The **Grapher Automation** help book in the table of contents is designed to help you work with **Scripter**. Each object, method, and property has a help topic in **Grapher**. Use the object hierarchy to determine how to access each object. Also, each method and property contains some sample code lines with the command. To find out how a particular method or property is accessed click the object name in the **Used by** list. In some cases, you may need to change some words to work with the particular object if the sample was not specifically written for the object. Several example scripts are located in the help file and in **Grapher’s** SAMPLES folder.
A Note About the Documentation
The Grapher documentation includes the online help and the quick start guide. Use the Home | Help | Contents command in the program to access the detailed online help. Information about each command and feature in Grapher is included in the online help. In the event the information cannot be located in the online help, other sources of Grapher help include our support forum, frequently asked questions, knowledge base, and contacting our technical support engineers.

Various font styles are used throughout the Grapher documentation. Bold text indicates menu commands, dialog names, and page names. Italic text indicates items 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 occasionally may be used 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.

Grapher Documentation
All of the available Grapher user documentation is included in the online help and the quick start guide. Check the Grapher support forum, FAQs, knowledge base, and technical support for additional information.

If you prefer printed documentation, the online help file can be printed in part or in full. See Printing the Online Help topic for more information. A full PDF user's guide that contains all of the information in this online help file can be purchased online.

A Note About the Documentation
The Grapher documentation includes the online help and the quick start guide. Use the Home | Help | Contents command, or click the in the upper right corner of the Grapher window to access the detailed online help. Information about each command and feature in Grapher is included in the online help. In the event the information cannot be located in the online help, other sources of Grapher help include our support forum, frequently asked questions, knowledge base, and contacting our technical support engineers.

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Chapter 1 - Introducing Grapher

Three-Minute Tour
We have included several sample files with Grapher so that you can quickly see some of Grapher's capabilities.

Sample Grapher Files
Sample files are a great way to quickly display completed graphs made in Grapher by Golden Software. Browse the sample files to get ideas and view different graphing possibilities that Grapher has to offer. Samples can be customized and turned into templates for future use. The sample file examples include only some 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. Click the following sample file name to see an image and brief description of each sample file.

To view the sample files:
1. Open Grapher.
2. Click the File | Open command.
3. In the Open dialog, browse to the Grapher Samples folder. By default, the Samples folder is located in C:\Program Files\Golden Software\Grapher 12\Samples. If your version of Grapher was installed elsewhere, look in that installation folder.
4. Select a .GRF or .GPJ file located and click the Open button. The sample file is now displayed. Repeat as necessary to see the files of interest.
5. Click on various parts of the graph, axes, and plots in the Object Manager. View the object properties in the Property Manager.

Using Grapher
To create graphs in Grapher, you will need data. Once data exists, you can use the commands on the Graphs tab to create the graph. The Graph Wizard can be used to create a new graph in Grapher.

To progress from a data file to a finished graph:
1. Create a data file. This file can be created in Grapher's worksheet window or outside of Grapher (using as ASCII text editor or Excel, for example).
2. Click the Graphs tab to select a graph type directly. For instance, click the Graphs | Create | Basic | Line Plot command.
3. In the Open Worksheet dialog, select the data file (i.e. Tutorial.dat), and click Open. The graph is created from the selected data file, using default graph properties.
4. Adjust the graph properties using the Property Manager.
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. Scripter can be used to perform almost any task in Grapher. You can do practically anything with a script that you can do manually with the mouse or your keyboard. Scripts are useful for automating repetitive tasks and consolidating a sequence of steps. Scripter is installed in the same location as Grapher. Refer to the Grapher Automation help book for more information about Scripter. We have included several example scripts so that you can quickly see some of Scripter’s capabilities.

Example Script Files
A variety of free script files are available. You can run the script as is or you can customize the script.

To run a sample script in Grapher’s Script Manager:
1. Open Grapher.
2. Check the View | Display | Script Manager command. A check mark will indicate the manager is turned on.
3. In the Script Manager, click the button. In the Open dialog, select a sample .BAS file (i.e. axis properties.bas), and click Open. The script is displayed.
4. Click the button, and the script is executed.

To run a sample script in Scripter:
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 and select a sample script .BAS file from the C:\Program Files\Golden Software\Grapher 12\Samples\Scripts folder.
3. Click the Script | Run command and the script is executed.
Chapter 1 - Introducing Grapher

Grapher User Interface

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.

Opening Windows

Selecting the File | Open command opens any of the three window types, depending on the type of file selected. The File | Open Excel command opens an Excel file in a native Excel window inside Grapher, if possible. The File | New | Plot command creates a new plot window. The File | New | Plot from Template command opens a new plot window, based on an existing template file. The File | New | Worksheet command creates a new worksheet window. The File | New | Template command creates a new plot window to use as a template file. The File | New | Excel Window opens a native Excel window inside Grapher, if possible.

Object Manager

When Grapher opens, the Object Manager is visible in the plot window by default. It contains a hierarchical list of the objects in the Grapher plot window. The Object Manager is initially docked at the left side of the window, giving the window a split appearance; however, it can be dragged and placed anywhere on the screen. The Object Manager can also be hidden as a tab, or displayed as a floating dialog.
Ribbon Tabs and Commands
All window types in Grapher include ribbons that contain icons for all Grapher commands. The ribbons are initially displayed in full size, but can be minimized by right-clicking on the ribbon and selecting Minimize the Ribbon. The ribbon is then displayed in a method similar to menus in older versions of Grapher.

To customize the ribbon, right-click on the ribbon and select Customize the Ribbon. Select any command and click Add to add it to the selected ribbon tab on the left side of the dialog. Commands can only be edited in custom groups or on custom tabs.

Quick Access Toolbar
The Quick Access Toolbar is the toolbar at the top of the screen. This toolbar can be customized to include any common commands.

To customize the Quick Access Toolbar, right-click on the ribbon and select Customize Quick Access Toolbar. Select any command and drag it to the desired place on the Quick Access Toolbar.

Tab View
The plot, worksheet, and grid windows are displayed as tabbed documents. When more than one window is open, tabs appear at the top of the document, allowing you to click on a tab to switch to a different window. The tabs may be dragged to reorder them. When a document contains unsaved changes, an asterisk (*) appears next to its tabbed name. The asterisk is removed once the changes have been saved. Click the X on the tab to close that tab. If unsaved changes are in the document, a prompt to save the document appears.

Grapher Layout
The following table summarizes the function of each component of the Grapher layout.

<table>
<thead>
<tr>
<th>Component Name</th>
<th>Component Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title Bar</td>
<td>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.</td>
</tr>
<tr>
<td>Ribbon</td>
<td>The ribbon contains the tabs and commands used to run Grapher. The commands are unique to the plot document, worksheet document, grid document, and script manager document.</td>
</tr>
<tr>
<td>Tabbed Windows</td>
<td>Multiple plot windows, worksheet windows, Excel worksheet windows and grid windows can be displayed as tabs. Click on the tab to display that window.</td>
</tr>
<tr>
<td>Plot Window</td>
<td>The plot window contains the graphs and other graphics. The plot window may also display worksheet data.</td>
</tr>
<tr>
<td>Status Bar</td>
<td>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.</td>
</tr>
</tbody>
</table>
Chapter 1 - Introducing Grapher

Managers

**Grapher** contains several managers including an **Object Manager**, **Property Manager**, **Worksheet Manager**, and **Script Manager**. Changes made in any manager are automatically reflected in the plot window, and vice versa. Managers can be dragged and placed at any location on the screen. Managers can be docked or floating.

<table>
<thead>
<tr>
<th>Manager</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Object Manager</strong></td>
<td>The <strong>Object Manager</strong> contains a hierarchical list of objects in a <strong>Grapher</strong> plot window; these objects can be selected, arranged, and renamed in the <strong>Object Manager</strong>. The <strong>Object Manager</strong> is initially docked on the left side above the <strong>Property Manager</strong>.</td>
</tr>
<tr>
<td><strong>Property Manager</strong></td>
<td>The <strong>Property Manager</strong> allows you to edit 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.</td>
</tr>
<tr>
<td><strong>Script Manager</strong></td>
<td>The <strong>Script Manager</strong> controls scripts that are recorded and run within <strong>Grapher</strong>. Right-click in the <strong>Script Manager</strong> to see relevant menu commands for opening, saving, and running scripts.</td>
</tr>
<tr>
<td><strong>Worksheet Manager</strong></td>
<td>The <strong>Worksheet Manager</strong> contains a view of all data loaded into <strong>Grapher</strong>. Edits made in the <strong>Worksheet Manager</strong> are automatically reflected in the graph. Right-click in the <strong>Worksheet Manager</strong> to save, edit, transform, sort, or obtain statistics on cells.</td>
</tr>
</tbody>
</table>

**Plot Document**

Plot windows contain the commands for creating and modifying graphs. When you first start **Grapher** you are presented with an empty plot window. The **Home** tab is automatically selected when switching to a plot document from a worksheet or grid document.

**Plot Document Commands**

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>File</strong></td>
<td>Opens, closes, saves, and prints files. Provides links to online references and email templates. Controls options and default settings. Provides access to serial number and <strong>Grapher</strong> version number.</td>
</tr>
<tr>
<td><strong>Home</strong></td>
<td>Contains undo, redo, cut, copy, paste, copy and paste format, import, export, and links to the tutorial and help file.</td>
</tr>
<tr>
<td><strong>Page Layout</strong></td>
<td>Contains margins, orientation, size, and printer options. Contains links to the page fill, header, and footer sections. Controls display of page outline, rulers, margins, grid, and page units.</td>
</tr>
<tr>
<td><strong>Draw</strong></td>
<td>Draws text, polygons, polylines, symbols, rectangles, rounded rectangles, ellipses, spline polylines, spline polygons, inset zooms, and inserted objects. Also reshapes drawing objects.</td>
</tr>
<tr>
<td><strong>Graphs</strong></td>
<td>Creates graphs, adds items to graphs, digitizes from graphs, calculates area, and controls various graph features.</td>
</tr>
<tr>
<td><strong>View</strong></td>
<td>Controls zoom and redraw; the display of toolbars, managers, status bar, tabbed documents; and the resetting of the window layout.</td>
</tr>
<tr>
<td><strong>Arrange</strong></td>
<td>Arranges, aligns, rotates, transforms, groups, and ungroups objects. Controls size of objects, position of objects, selecting objects, and rotating objects.</td>
</tr>
</tbody>
</table>
The Application/Document Control menu commands control the size and position of the application window or the document window.

**Tab View**
The plot, worksheet, and grid windows are displayed as tabbed documents. When more than one window is open, tabs appear at the top of the document, allowing you to click on a tab to switch to a different window. The tabs may be dragged to reorder them. When a document contains unsaved changes, an asterisk (*) appears next to its tabbed name. The asterisk is removed once the changes have been saved.

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

Check the **View | Display | Object Manager** command to show or uncheck the command to hide the **Object Manager**. A check mark indicates the manager is visible. No check mark indicates the manager is hidden. You can also show or access the **Object Manager** by pressing ALT+F11.

The **Object Manager** contains a list of all objects in a plot window. The **Object Manager** can be used to select objects, arrange objects, and control object visibility.

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

**Object Manager Tree**
If an object contains sub-objects, a ▼ or ▲ displays to the left of the object name. Click the ▼ or ▲ icon to expand or collapse the list. For example, a graph object contains a plot, e.g., line/scatter,
plus at least two axes. To expand the tree, click on the icon, select the item and press the plus key (+) on the numeric keypad, or press the right arrow key on your keyboard. To collapse a branch of the tree, click on the icon, select the item and press the minus key (-) on the numeric keypad, or press the left arrow key.

**Selecting Objects**
Click on the object name to select an object. The selection handles in the plot window change to indicate the selected item and the status bar displays the name of the selected object.

To select multiple objects, hold down the CTRL key and click on each object. To select multiple contiguous objects at the same level in the tree, click on the first object's name, hold down the SHIFT key, and then click on the last object's name.

**Opening Object Properties**
Click on the object name to display its properties in the **Property Manager**.

**Editing Object IDs**
Select the object and then click again on the selected item (two slow clicks) to edit the text ID associated with an object. 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 choose **Rename Object** or click the **Arrange | Selection | Rename** command.

**Arranging Objects**
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 pointer changes to a black right arrow if the object can be moved to the pointer location or a black 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 or into another graph object, but not into a group object.

Objects can also be arranged using the **Arrange | Move** commands: **To Front**, **To Back**, **Forward**, and **Backward**.

The cursor changes to a black horizontal arrow if an object can be moved to a new location in the **Object Manager**.
Deleting Objects
To delete an object, select the object and press the DELETE key. Some objects cannot be deleted. For example, you cannot delete an axis used by a plot in a graph.

Keyboard Commands
Press ALT+F11 to access the Object Manager. Pressing ALT+F11 will also show the Object Manager if it is hidden or pinned.

Use the UP ARROW and DOWN ARROW keys to navigate between objects in the Object Manager. Hold CTRL to select multiple contiguous objects. Press LEFT ARROW or RIGHT ARROW to collapse or expand an item in the Object Manager such as a graph or group.

Press ALT+ENTER to access the Property Manager for the selected item. If the selected item cannot be collapsed, such as a plot or axis, you can also press ENTER to access the object's properties. If the selected item can be collapsed, such as a group or graph, press ENTER to collapse or expand the item.

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 that the properties of selected objects are always visible.

When the Property Manager is hidden or closed, double-clicking on an object in the Object Manager, or pressing ALT+ENTER, opens the Property Manager with the properties for the selected object displayed. To turn on the Property Manager, check the View | Display | Property Manager command.

For information on a specific feature or property that is shown in the Property Manager, refer to the help page for that feature. For instance, if you are interested in determining how to set the Symbol column for a line/scatter plot or how to change the Foreground color for a bar chart, refer to the specific pages for Symbol Properties or Fill Properties.
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Expand and Collapse Features
Features with multiple options appear with a plus (+) or minus (−) to the left of the name. To expand a group, click on the + icon. To collapse the group, click on the − icon. For example, the expanded Worksheet rows feature contains three options, First row, Last row, and Step factor.

Changing Properties
The Property Manager displays the properties for selected objects. To change a property, click on the property's value and select a new property from the pop up box, scroll to a new number using the buttons, select a new value using the slider, select a new value from the list or palette, or type a property type. For example, a polyline has Style, Color, Opacity, Width, and an End Styles sub-section with Start, End, and Scale 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 % value and typing a new value or clicking on the slider bar and dragging it left or right to a new value. Changing the Width requires typing a new number or scrolling to a new number. Changing the End requires clicking on the existing style and clicking on a new style in the list.

You can modify more than one object at a time. For example, if you click on X Axis in the Object Manager and then hold the CTRL key and click on Y Axis, you can change the properties of each axis simultaneously in the Property Manager.

Occasionally, some properties are dependent on your other selections. For example, there is a Scale option in fill properties. This option is disabled (grayed out) unless you have selected a bitmap fill type as the Pattern.
Applying Property Manager Changes
Object properties automatically update after you select an item from a palette, press ENTER, or click somewhere else in the Property Manager. When using the or , changes are displayed on the graph immediately.

Keyboard Commands
Press ALT+ENTER to access the Property Manager. Pressing ALT+ENTER will also show the Property Manager if it is hidden or pinned.

When working with the Property Manager, the up and down arrow keys move up and down in the Property Manager list. The TAB key activates the highlighted property. The right arrow key expands collapsed sections, e.g., Plot Properties, and the left arrow collapses the section.

CTRL+A can be used to select all of the contents of a highlighted option, such as the function plot's \( Y = F(X) = \) equation. CTRL+C can be used to copy the selected option text. CTRL+V can be used to paste the clipboard contents into the active option.

Property Defaults
Use the File | Options command to change the default rulers and grid settings, digitize format, line, fill, symbol, and font properties. Use the File | Defaults command to set the default values for base objects, graphs, line type plots, bar type plots, 3D XYY plots, 3D XYZ plots, maps, other plots, axes, legend, wind chart legends, and class plot legends.

Property Manager Information Area
If the Display Property Manager info area is checked on the File | Options | Display page, a short help statement for each selected command in the Property Manager.

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. These commands are named similarly to the commands on the ribbon. Use the Graphs commands to create a graph in the current plot window. Use the Cells menu commands to transform, sort, or generate statistics for the worksheet data.
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Right-click in the **Worksheet Manager** to access all worksheet menu commands.

Check the **View | Display | Worksheet Manager** command to show or uncheck the box to hide the **Worksheet Manager**. A check mark indicates the manager is visible. No check mark indicates the manager is hidden.

You can see all data used in all open plot windows in the **Worksheet Manager**.

**Script Manager**

The **Script Manager** allows you to work with automation within **Grapher** rather than opening Golden Software’s automation program, **Scripter**, separately. All of **Scripter**’s toolbars, menus, etc. are available within the **Script Manager**. You need to right-click in the **Script Manager** to access **Scripter**’s menu commands.

Check the **View | Display | Script Manager** command to show or hide the **Script Manager**. A check mark indicates the manager is visible. No check mark indicates the manager is hidden. Typically, the **Script Manager** is located at the bottom of the **Grapher** window, tabbed with the **Worksheet Manager**.
The Script Manager is used to view, record, edit, and run scripts.

Changing the Window Layout
The managers display in a docked view by default; however, they can also be displayed as floating windows. The ribbon displays in full size by default; however, it can be displayed in a minimized view. The Quick Access Toolbar displays above the full size ribbon, but it can be displayed below the ribbon, as well. The visibility, size, and position of each manager may also be changed.

Manager Visibility
Use the View | Display commands to toggle the display of the Object Manager, Property Manager, Script Manager, Worksheet Manager, and Status Bar. Alternatively, you can click the button in the title bar of the Object Manager, Property Manager, Script Manager, or Worksheet Manager to close the manager window. If the Property Manager is currently closed, it can be opened by pressing the ALT+ENTER keys or double-clicking on an object.

Auto-Hiding Managers
Click the button to auto-hide a docked manager. The manager slides to the side or bottom of the Grapher main window and a tab appears with the window name.

The Object Manager appears as a tab on the side of the window.

Position the mouse pointer over the tab to view the manager. Move your mouse away from the manager and the manager "hides" again. You can also click inside the manager to anchor it at its current position. Click in another manager to release the anchor and hide the manager. Click the button to disable the auto hide feature.
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Size
Drag the sides of a floating plot window, worksheet window, manager, toolbar, or menu bar to change its size. If a window or manager is docked, its upper and lower bounds are indicated by a \( \rightarrow \) or \( \leftarrow \) cursor. Move the cursor to change the size.

Position
To change the position of a docked manager, click the title bar and drag it to a new location. A thick light gray rectangle indicates that the manager is floating.

Docking Mechanism
Left-click the title bar of a manager and drag it to a new location while holding the left mouse button. The docking mechanism displays with arrow indicators as you move the manager. If the manager can be tabbed with another manager, the center of the docking mechanism will include a tabbed indicator.

![Docking Mechanism Diagram]

The docking mechanism makes it easy to position managers.

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 dock the manager in the specified location.

Alternatively you can double-click the title bar of a manager to switch between the docked and floating styles.

Tabbed Managers
To create tabbed managers:
1. Left-click and drag the manager over the non-moving manager. A docking mechanism will be displayed.
2. Hover the cursor over the center of the docking mechanism. The blue rectangle shows where the tabbed manager will display.
3. Release the mouse button.

To return to individual managers from the tabbed view:
1. Click on the manager’s name on the tab.
2. Drag the tab to a new position.

![Tabbed Managers Diagram]

Click on the manager’s tab and drag the cursor to a new position to separate the managers.
**Restoring the Managers to Their Original Locations**
If the managers have moved or become invisible, or if they are in undesired locations, you can use the **View | Display | Reset Windows** command to move them back to their original locations. You must restart **Grapher** for the changes to take effect.

**Worksheet Document**
The worksheet window contains commands to display, edit, enter, and save data. The worksheet window has several useful and powerful editing, transformation, and statistical operations available. Several import and export options are available for opening data files from other spreadsheet programs. The **Cells** tab is automatically selected when you open or switch to a worksheet document.

**Worksheet Commands**

<table>
<thead>
<tr>
<th>File</th>
<th>Opens, closes, saves, imports, exports, and prints files. Provides links to online references and email templates. Provides access to serial number and <strong>Grapher</strong> version number.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Contains undo, redo, cut, copy, paste, and links to the tutorial and help file.</td>
</tr>
<tr>
<td>Graphs</td>
<td>Creates graphs.</td>
</tr>
<tr>
<td>View</td>
<td>Controls the display of toolbars, managers, status bar, tabbed documents; and the resetting of the window layout.</td>
</tr>
<tr>
<td>Developer</td>
<td>Contains links to record or run a script and open the automation or <strong>BASIC</strong> language help files.</td>
</tr>
<tr>
<td>Cells</td>
<td>Contains clear, insert, delete, find, replace, cell formatting, column width, row height, and commands to sort, transform, or display statistics for data.</td>
</tr>
</tbody>
</table>

The Application/Document Control menu commands control the size and position of the application window or the document window.

**Grid Document**
The grid window contains the commands for viewing the XYZ value of grid nodes and displaying contour lines. Each grid node is indicated with a "+" in the grid window by default. The active node is highlighted with a red diamond. To move between grid nodes, press the arrow keys, or left-click a node to make it the active node. The **Grid** tab is automatically selected when you open or switch to a grid document.

**Grid Document Commands**

<table>
<thead>
<tr>
<th>File</th>
<th>Opens, closes, saves, imports, exports, and prints files. Provides links to online references and email templates. Provides access to serial number and <strong>Grapher</strong> version number.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>Contains undo, redo, cut, copy, paste, and links to the tutorial and help file.</td>
</tr>
<tr>
<td>Graphs</td>
<td>Creates graphs.</td>
</tr>
<tr>
<td>View</td>
<td>Controls the display of toolbars, managers, status bar, tabbed documents; and the resetting of the window layout.</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Developer</th>
<th>Contains links to record or run a script and open the automation or BASIC language help files.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grid</td>
<td>Controls the contour levels and displays grid information</td>
</tr>
</tbody>
</table>

The Application/Document Control menu commands control the size and position of the application window or the document window.

**Script Manager**

Use the **Script Manager** window to create, display, edit, and save scripts. To display the **Script Manager**, check the **View | Display | Script Manager** command. If there is a check next to the manager name, the manager is visible. By default, the **Script Manager** is displayed at the bottom of the screen, tabbed with the **Worksheet Manager**.

![Script Manager Window](image)

*Click on the circled location to display the Script Manager.*

When the **Script Manager** is displayed, you can create, edit, or run script files for use in **Grapher** and other programs.

![Script Manager Window](image)

*The Script Manager is displayed at the bottom of the Grapher window. You can open, edit, or run scripts in this window.*

**Script Manager Menu Commands**

Right-click in the **Script Manager** window to access the following menu options.

<table>
<thead>
<tr>
<th>File</th>
<th>Create, open, close, save, and print scripts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit</td>
<td>Undo and redo changes; copy and paste changes; change formatting; find and replace specific text; call out various script commands; edit a UserDialog; and edit script references</td>
</tr>
</tbody>
</table>
View | View or hide macros, windows, toolbar, status bar, and edit buttons; view and change font and tab spacing; view or hide object and proc lists
---|---
Macro | Run, pause, or end a macro
Debug | Navigate statements; toggle and clear break points; watch and add expressions; view the selected objects methods and properties
Sheet | Open Uses statements, close statements
Help | Display help for WinWrap Basic, Basic language, and the selected word; display information about WinWrap Basic

The Application/Document Control menu commands control the size and position of the application window or the document window.

**Grapher Project Files**
If you would like to store worksheet data internally with the graph rather than saving a reference to the data file as with .GRF files, save the graph as a **Grapher** project file .GPJ.

If changes are made to the internal data in **Grapher**, it is not necessary to save the changed worksheet as long as the file is saved as a project file. .GPJ project files do not link to an external data file. Changes made to the external data file that was used to create the .GPJ file do not update the .GPJ. The change must be made to internal data file displayed in Grapher when the .GPJ file is opened.

If the project is saved as a .GRF, the data must be stored separately from the .GRF. When the data needs editing, the external data source is edited. For example, this may be a .XLSX file. When the separate .XLSX file is updated, the graph in a .GRF file automatically updates. The graph in the .GPJ file would not update because it is no longer externally linked to the .XLSX file.

**Template Graphs**
Template graphs are used to store 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 graph is created, you can use the template to create a new graph with any compatible data set.

**Creating a Template**
To create a new template:
1. In the 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 images, add borders, or customize the graph in any way you prefer.
2. Click the **File | Save As** command.
3. In the **Save As** dialog, specify the directory and a **File name**.
4. Set the Save as type to **Plot Template (*.grt)**.
5. Click the **Save** button and the file is saved as a complete template file.

**Creating a New Plot from a Template**
To create a new plot from a template:
1. Click the **File | New | Plot from Template** command.
2. In the **Open** dialog, select a .GRT template file, and click the **Open** button.
3. When prompted, select the 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. The plot uses all the settings from the template and the specified data file.

Alternatively, you can open a template using the steps listed below in the Editing a Template section.

Editing a Template
To edit a template:
1. Click the File | Open command.
2. In the Open dialog, select the .GRT template file and click the Open button.
3. When prompted, select the data file(s) to use with the template and click the Open button.
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 template is loaded with the specified data set.
7. After the template file appears, make any desired changes.
8. Choose File | Save to save the updated template file.

Tips About Templates
- There are few restrictions on data types that can be used in a template. The axes limits change to accommodate the new data set if the Auto box is checked for axis minimum and maximum. If the data set cannot be used with the template, i.e., log axis with negative data, an error message appears.
- If an empty plot appears after the data set is selected, check the plot’s plot properties on the Plot page of the Property Manager. Make sure the selected data columns contain numeric data. Also, check the axes limits to see if they have been set beyond the data range.
- To save the file with a reference to a specific worksheet, click the File | Save As command and set the Save as type to Grapher File (*.grf).
- To save the file with the worksheet data embedded in the file, click the File | Save As command and set the Save as type to Grapher Project (*.gpj).
- Templates can use multiple data files or multiple data columns. To use one worksheet for all plots, check the Use this worksheet for remaining items box when selecting data files. When using the Open method in automation, the template only uses one worksheet or grid file.
- Check the Set columns box to display the Select Columns dialog and select the data columns to use in the graph. If you have more than one plot in the template, make sure Use this worksheet for remaining items is not enabled so you can select the columns for each plot separately.
- When opening a template, all references to worksheets, including linked text, will cause a prompt to select the data file. If all worksheet references are to the same worksheet, check the Use this worksheet for remaining items box.

Template Alternatives
- Click the File | Options command to set default settings such as line, fill, symbol, and font properties.
- Click the File | Defaults command to set default settings for basic objects, graphs, plots, maps, axes, and legends.
• If a graph is saved as a *Grapher File (*.grf) or Grapher Project (*.gpj)*, you can still use it as a "template." To do so, open the graph as normal using the **File | Open** command. Then, select the plot and click the **Plot** tab in the **Property Manager**. Change the columns used to create the plot or click the **Worksheet** button to change the data used to create the plot.

**Data File Formats**
Import and export worksheet data in several data file formats.

Use **File | Import** to import the following formats into the worksheet:
- ACCDB Microsoft Access 2007-2010
- BLN Golden Software BLN Files
- BNA Atlas BNA Files
- CSV Comma Separated Variable CSV Files
- DAT Files
- DBF Database Files
- MDB Microsoft Access 1997-2003 Files
- SEG Data Exchange Format
- P1 Data Exchange Format
- SLK Sylk Spreadsheet Files
- TXT Text Data Files
- XLS Excel Files
- XLSX Excel Files
- XLSM Excel Files

Use **File | Open Excel** to import Excel files into a native Excel window.
- XLS, XLSX, XLSM Excel Files

Use **File | Save As** to export the following formats from the worksheet:
- BLN Golden Software BLN Files
- BNA Atlas BNA Files
- CSV Comma Separated Variable CSV Files
- DAT Files
- SLK Sylk Spreadsheet Files
- TXT Text Data Files
- XLS Excel Files
- XLSX Excel Files
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**Data Overview**
Data files contain the information used to create a graph. Each record in a data file occupies a single row and is comprised of at least two values (X, Y) for most plot types and at least three values for XYZ plots, contour maps, and surface maps (X, Y, Z). At least three values are also required for class plots, floating bar, hi-low-close, bubble, ternary, vector. The X, Y, and Z values are each placed in separate columns. X and Y coordinates define the position of the point on the graph.

**Creating Data**
Data files can be created in the Grapher worksheet, an ASCII editor, or any program that can produce files in one of the file formats listed in the Open dialog.

**Graphing and Viewing Data**
When graphing a data file, the data are loaded into an internal worksheet. It is not necessary to open the data in a worksheet window before creating a graph. If you want to view or alter the data in a data file, you can use the File | Open, Graphs | Worksheet | Display, or View | Display | Worksheet Manager commands to gain access to the data.

The order of the data in the file is the order the data are plotted. Descriptive headers in row 1 of each column are helpful but not required. When text appears in row 1 of a column, this text appears in list boxes as column titles. If a number resides in row 1, it is not incorporated into the list boxes, and instead, the column heading (such as column B) is displayed.

Rows with non-numeric entries (empty cells or text) are excluded when graphing. These records are not considered during the graphing operation.

**Data File Content**
Data files can contain up to one billion columns. Since you can specify the columns to be graphed, your data can occupy any columns. This allows you to have columns containing additional information particular to each point. The data file can contain several columns, so you can produce several graphs using the same data file.

Data files may contain data in addition to the X, Y coordinates. For example, when creating a scatter graph with the Graphs | Create | Basic | Scatter Plot command, additional columns can be used to specify the plot labels and axis labels.

**Excel Files**
Microsoft Excel .XLS, .XLSX 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. Grapher can import multiple sheets from an Excel file simultaneously.

Grapher supports the import of .XLS, .XLSX, and .XLSM Excel files. Grapher supports the export of .XLS and .XLSX files.

**Excel .XLS**
Excel .XLS files are Microsoft Excel documents. Worksheet cell data and some cell formatting are retained with this format. Other types of information, such as formulas, are ignored.
Excel .XLS format files can preserve all formatting information available in the Golden Software worksheet. This format has a 65,536-row limit and a 256-column limit in Excel 97 and greater. Therefore, this format cannot be used to store very large data sets.

**Excel .XLSX**
Excel .XLSX files are Microsoft Excel 2007/2010 XML spreadsheets. Worksheet cell data and some cell formatting are retained with this format. Other types of information, such as formulas, are ignored.

Excel .XLSX format files can preserve all formatting information available in the Golden Software worksheet. This format has a 1,048,576-row limit and a 16,384-column limit in Excel 2007 and greater.

**Excel .XLSM**
Excel .XLSM files are Microsoft Excel 2007/2010 XML spreadsheets. XLSM files can contain macros and VBA scripts. Worksheet cell data and some cell formatting are retained with this format. Other types of information, such as formulas, are ignored.

Excel .XLSM format files are not saved in Grapher.

**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 worksheet, but only one worksheet can be saved when using the **File | Save** or **File | Save As** command. If a multi-worksheet Excel file is opened and saved as an .XLS or .XLSX file from the Grapher worksheet, be aware that only the single worksheet is saved in the document. If the existing file is overwritten, all the unused worksheets are destroyed. In this case, a warning message is issued. The message reads: Saving this worksheet will destroy all but one of the sheets in the existing *.xls, *.xlsx file. To overwrite the file, click OK. To choose a different file name, click Cancel.

**Special Characters Used in Excel Files**
There are a number of special characters that can be contained in an Excel file that the worksheet cannot handle in the same way as Excel. For these characters, Grapher substitutes a reasonable representation so the value displayed in the cell looks similar to what was displayed in Excel.

**Font Color in Excel Files**
Font color is maintained when opening XLSX and XLSM files in the worksheet. However XLS files are opened with black font, regardless of font color in the XLS file.

**Retaining Excel Information**
To save all the formatting, formulas, and worksheets in an .XLS, .XLSX file, you can use Excel directly in Grapher. Use **File | Open Excel** to utilize all of Excel’s features, save multi-sheet files, and create graphs in Grapher.

Import Options Dialog
See **Excel Import Options Dialog**
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Import Automation Options
See Import Automation Options String.

Export Options
See Excel Export Options Dialog.

Export Automation Options
See Export Automation Options

Microsoft Access .MDB and .ACCDB File Description

Microsoft Access .MDB is a binary database file format used by pre-2007 versions of Microsoft Access. The .ACCDB format is used in Access 2007 and 2010. Grapher can import data from tables and queries in both Access .MDB and .ACCDB formats.

Import Options
See Database Tables and Fields Dialog.

Import Automation Options
See Microsoft Access .MDB Import Automation Options

Export Options
Grapher does not currently export Microsoft Access .MBD or .ACCDB files.

Microsoft Access (MDB) Import Options Dialog
If the .MDB file contains multiple tables, you can select which table to load in the Choose Table To Load list. The other controls in the dialog show previews of the data that will be imported. See Microsoft Access .MBD Import Options Dialog.

64-Bit Access Driver
In order to import Microsoft Access Database (*.mdb, *.accdb) files, you must have the Microsoft Access Database driver installed on your machine. It’s shipped as part of the Microsoft Office suite and comes in 32-bit and 64-bit versions. Installing the 32-bit Microsoft Office suite will install the 32-bit Access Database driver. Installing the 64-bit Microsoft Office suite will install the 64-bit Access Database driver. Unfortunately, Microsoft doesn’t allow BOTH to be installed simultaneously on a 64-bit Windows platform. If you need to import data from Microsoft Access Database files into Golden Software products, you must install the 32-bit version of our product if you have a 32-bit Access Database driver. You must install the 64-bit version of our product if you have a 64-bit Access Database driver. If you don’t need to import Access Database data with our product, you may install either version on a 64-bit Windows platform.

ASCII Database .DBF File Description

Grapher imports data from dBase/xBase database .DBF files.
XBase is a complex of data files .DBF, indexes .NDX, .MDX, .CDX, etc. and eventually note files .DBT for storing large amounts of formatted data in a structured form.

DBase’s database system was one of the first to provide a header section for describing the structure of the data in the file. This meant that the program no longer required advance knowledge of the data structure, but rather could ask the data file how it was structured. Note that there are several variations on the .DBF file structure, and not all dBase-related products and .DBF file structures are necessarily compatible.

A second filetype is the .DBT file format for memo fields. While character fields are limited to 254 characters each, a memo field is a 10-byte pointer into a .DBT file which can include a much larger text field. DBase was very limited in its ability to process memo fields, but some other xBase languages treat memo fields as strings just like character fields for all purposes except permanent storage.

DBase uses .NDX files for indexes. Some xBase languages include compatibility with .NDX files while others use different file formats.

Import Options Dialog
No import options dialog is displayed.

Import Automation Options
No import options are available.

Export Options
**Grapher** does not currently support .DBF export.

**Golden Software Grid .GRD File Description**

**Grapher** imports and exports two-dimensional uniform lattices (elevation grids) in the **Surfer** Grid file format. Both ASCII and binary variants are supported.

Files with the .GRD extension are **Surfer** grid files. To preserve faulting information and to use double precision values in **Grapher**, be sure to save the grid in the Surfer 7 format. If you need to use a grid in **Surfer 5 or Surfer 6**, save the grid as GS ASCII .GRD or GS Binary .GRD. Keep in mind that these two formats do not retain fault information or double precision values.
Customizing Commands
The **Customize** dialog allows the **Quick Access Toolbar**, Ribbon, and keyboard shortcuts to be customized.

**Customizing the Quick Access Toolbar**
The Quick Access Toolbar is a customizable toolbar. One method that can be used to add commands to the Quick Access Toolbar is to right-click on the command in the ribbon and choose **Add to Quick Access Toolbar**. The command is automatically added to the end of the toolbar.

To customize the commands in the **Quick Access Toolbar** dialog, right-click on the ribbon and select **Customize Quick Access Toolbar**. In the **Quick Access Toolbar** dialog,
1. To add a command, select the command from the list on the left that you want to add. Click the **Add>>** button and the command is added to the list on the right.
2. To add a separator between commands, set the **Choose commands from** to Main on the left side of the dialog. Select **<Separator>** and click **Add>>**. Move the separator to the desired position.
3. To delete a command, select the command from the list on the right. Click the **<<Remove** button and the command is removed from the list on the right.
4. To rearrange commands or move separators, click on the command or separator name from the list on the right that you want to move. Click the up and down arrow buttons on the far right to move the command up or down the list. Commands are shown in the exact order that they are displayed in the Quick Access Toolbar.
5. To reset the Quick Access Toolbar to the default display, click the **Reset** button below the list on the right side of the dialog.
6. Click **OK** and all changes are made.

Note: to add individual plot types as buttons to the Quick Access Toolbar, set the **Choose commands from** to **Plot | Plot Menu**. Then on the left side of the dialog, select the appropriate plot type, such as **3D Bar Chart**. Click **Add>>** and the plot type is added with an icon to the right side. Click **OK** and the plot type is displayed in the Quick Access Toolbar.

**Customizing the Ribbon**
The ribbon is customizable in **Grapher**. To customize the commands in the ribbon, right-click on the ribbon and select **Customize the Ribbon**.

In the **Customize Ribbon** dialog, you can add new tabs, add groups, hide existing tabs or custom groups, and add commands to any custom group. You can also rearrange the tabs into an order that fits your needs better.

To customize the commands in the **Customize Ribbon** dialog, right-click on the ribbon and select **Customize the Ribbon**. In the **Customize Ribbon** dialog, use the following options.

**Tab options:**
1. To add a custom tab, set the **Customize the Ribbon** section to **All Tabs**. Click in the list on the right side of the dialog where the custom tab should be located and click the **New Tab** button.
2. To delete custom tab, right-click on the tab name in the list on the right side of the dialog and select **Delete**.
3. To rename a default or custom tab, click on the tab name in the list on the right side of the dialog. Click the **Rename** button. Type the new name and press **OK** to make the change.
4. To hide a default or custom tab, uncheck the box next to the tab name on the right side of the dialog. Only checked tabs will be displayed.
5. To change the order of default or custom tabs, click on the tab name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right
side of the dialog to move the selected tab up or down. Default tabs must remain in their major group.

**Group options:**
1. To add a custom group to a default or custom tab, click on the next to the tab name. Click in the list of group names where the new group should be located and click the New Group button.
2. To delete a default or custom group on any tab, right-click on the group name in the list on the right side of the dialog and select Delete.
3. To rename a default or custom group on any tab, click on the group name in the list on the right side of the dialog. Click the Rename button. Type the new name and click OK to make the change.
4. To change the order of default or custom groups on any tab, click on the group name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected group up or down in the list.
5. To replace a default group with a custom group, right-click on the default group name and select Delete. Click the New Group button. Add the desired commands to the new group that you want displayed. Rename the new group, if desired.

**Command options:**
Commands can only be added to or deleted from custom groups. Commands can only be rearranged or renamed in custom groups. If commands in default groups are desired to be edited, the default group should be deleted and a new custom group should be created with the same commands.
1. To add a command to a custom group, set the choose commands from list to All Tabs so that all commands are listed on the left side of the dialog. Select the desired command that should be added. On the right side of the dialog, click the next to the custom group name. Click on the desired position in the list of commands. If no commands exist in the group yet, click on the group name. Click the Add>> button and the command is added to the custom group.
2. To delete a command from a custom group, right-click on the command name in the list on the right side of the dialog and select Delete. Only commands from custom groups can be deleted.
3. To rename a command in a custom group, click on the command name in the list on the right side of the dialog. Click the Rename button. Type the new name and click OK to make the change. Only commands in custom groups can be renamed.
4. To change the order of commands in a custom group, click on the command name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected command up or down in the list.

**Customize the Keyboard**
Keyboard shortcuts can be changed by right-clicking on the ribbon and selecting Customize the Ribbon. In the Customize Ribbon dialog, click the Customize button next to Keyboard shortcuts. On the left side of the dialog, select the tab name in the Categories list. This is the name of the tab where the command is located in the ribbon. On the right side of the dialog, click on the command name in the Commands list. Click in the Press new shortcut key box and press and hold the keys that should be used for the command. For instance, you might press and hold the CTRL, ALT, SHIFT, or any character key on the keyboard. The key names will be listed in the Press new shortcut key box.

If no other command uses the key combination, the Assigned to section lists [Unassigned]. When the keys are unassigned, click the Assign button at the bottom of the dialog to assign the key combination to the selected command.
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If the key combination is currently assigned to another command, the command will be listed in the Assigned to section. If a key combination is currently assigned to another command, select the currently assigned command name. Click on the Current Keys combination that you want to reassign and click the Remove button at the bottom of the dialog. Click back on the original command. Click in the Press new shortcut key box and press the keys on the keyboard. Click the Assign button to assign the key combination to the new command.

Click Close to make the new commands effective. Click Reset All to reset all customizations to the defaults.

Sharing Customizations Between Computers

All of the Grapher Quick Access Toolbar, ribbon, and keyboard commands are stored in the registry. The registry key can be copied and pasted onto other computers to easily share customizations. Be very careful when editing the registry! A small mistake can cause the program or computer to become unresponsive.

1. Make any customizations to the ribbon, quick access toolbar, and any keyboard commands you desire.
2. When all customizations have been made, close Grapher.
3. Open the registry. In Windows Vista and 7, you can do this by clicking the Windows Start button and typing regedit into the Start Search box.
4. Go to the HKEY_CURRENT_USER\Software\Golden Software\Grapher\12\BCGSettings\BCGRibbonBar-59398 key.
5. Click the File | Export command.
6. Type a name, such as My Customizations, and make sure that the Selected range is set to the Selected branch.
7. Click Save.
8. Locate the .REG file on your computer and copy it to a CD, USB drive, or network share location.
9. On another computer, close Grapher.
10. Paste the .REG file in a place where it is easily found on the new computer.
12. Click Yes if you are prompted if you want to change the computer.
13. Open Grapher. The customizations have been applied to the new machine.

Displaying Classic Menu Appearance

To display the ribbons in a format that is similar to the older menu interface,

1. Click the File | Options command.
2. On the left side of the dialog, select Display.
3. On the right side of the dialog, check the box next to Display ribbon menus.
4. Click OK.
5. A new Plot Menu tab is displayed in the plot window. This tab displays old style menu drop-down lists. A similar Worksheet Menu tab is displayed in the worksheet window and Grid Menu tab is displayed in the grid window.

To turn off the display of other tabs,

1. Click the File | Customize Ribbon command.
2. On the right side of the dialog, select All Tabs in the Customize the Ribbon list.
3. Uncheck the boxes next to all tab names except for Worksheet Menu, Plot Menu, and Grid Menu.
4. Click OK and only the class style tab is displayed.

To access the commands with the keyboard, click the ALT+M and then the appropriate keyboard keys.
Ribbon

The Ribbon is the strip of buttons and icons located above the plot, worksheet, and grid windows. The Ribbon replaces the menus and toolbars found in earlier versions of Grapher. The ribbon is designed to help you quickly find the commands that you need to complete a task.

Above the Ribbon are a number of tabs, such as Home, Developer, and Graphs. Clicking or scrolling to a tab displays the options located in this section of the ribbon. The tabs have commands that are organized into a group. For instance, all the script related commands are on the Developer tab.

Minimizing the Ribbon

The ribbon can be minimized to take up less space on the screen. To minimize the ribbon, right-click on the ribbon and select Minimize the Ribbon or click the button in the top right portion of the Grapher window. When displayed in a minimized mode, only the tabs at the top of the screen are visible. To see the commands on each tab, click the tab name. After selecting a command, the ribbon automatically minimizes again.

Customizing the Ribbon

The ribbon is customizable in Grapher. To customize the commands in the ribbon, right-click on the ribbon and select Customize the Ribbon.

In the Customize Ribbon dialog, you can add new tabs, add groups, hide existing tabs or custom groups, and add commands to any custom group. You can also rearrange the tabs into an order that fits your needs better.
To customize the commands in the **Customize Ribbon** dialog, right-click on the ribbon and select **Customize the Ribbon**. In the **Customize Ribbon** dialog, use the following options.

**Tab options:**
1. To add a custom tab, set the **Customize the Ribbon** section to **All Tabs**. Click in the list on the right side of the dialog where the custom tab should be located and click the **New Tab** button.
2. To delete custom tab, right-click on the tab name in the list on the right side of the dialog and select **Delete**.
3. To rename a default or custom tab, click on the tab name in the list on the right side of the dialog. Click the **Rename** button. Type the new name and press OK to make the change.
4. To hide a default or custom tab, uncheck the box next to the tab name on the right side of the dialog. Only checked tabs will be displayed.
5. To change the order of default or custom tabs, click on the tab name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected tab up or down. Default tabs must remain in their major group.

**Group options:**
1. To add a custom group to a default or custom tab, click on the **$** next to the tab name. Click in the list of group names where the new group should be located and click the **New Group** button.
2. To delete a default or custom group on any tab, right-click on the group name in the list on the right side of the dialog and select **Delete**.
3. To rename a default or custom group on any tab, click on the group name in the list on the right side of the dialog. Click the **Rename** button. Type the new name and click OK to make the change.
4. To change the order of default or custom groups on any tab, click on the group name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected group up or down in the list.
5. To replace a default group with a custom group, right-click on the default group name and select **Delete**. Click the **New Group** button. Add the desired commands to the new group that you want displayed. Rename the new group, if desired.

**Command options:**
Commands can only be added to or deleted from custom groups. Commands can only be rearranged or renamed in custom groups. If commands in default groups are desired to be edited, the default group should be deleted and a new custom group should be created with the same commands.

1. To add a command to a custom group, set the **choose commands from** list to **All Tabs** so that all commands are listed on the left side of the dialog. Select the desired command that should be added. On the right side of the dialog, click the **$** next to the custom group name. Click on the desired position in the list of commands. If no commands exist in the group yet, click on the group name. Click the **Add>>** button and the command is added to the custom group.
2. To delete a command from a custom group, right-click on the command name in the list on the right side of the dialog and select **Delete**. Only commands from custom groups can be deleted.
3. To rename a command in a custom group, click on the command name in the list on the right side of the dialog. Click the **Rename** button. Type the new name and click OK to make the change. Only commands in custom groups can be renamed.
4. To change the order of commands in a custom group, click on the command name that should be moved in the list on the right side of the dialog. Click the up and down arrow buttons on the far right side of the dialog to move the selected command up or down in the list.
**Reset the Ribbon**
To reset all customizations on the ribbon, click the *Reset* button at the bottom of the **Customize Ribbon** dialog.

**Displaying Classic Menu Appearance**
To display the ribbons in a format that is similar to the older menu interface,

1. Click the **File | Options** command.
2. On the left side of the dialog, select **Display**.
3. On the right side of the dialog, check the box next to **Display ribbon menus**.
4. Click **OK**.
5. A new **Plot Menu** tab is displayed in the plot window. This tab displays old style menu drop-down lists. A similar **Worksheet Menu** tab is displayed in the worksheet window and **Grid Menu** tab is displayed in the grid window.

To turn off the display of other tabs,

1. Click the **File | Customize Ribbon** command.
2. On the right side of the dialog, select **All Tabs** in the **Customize the Ribbon** list.
3. Uncheck the boxes next to all tab names except for **Worksheet Menu**, **Plot Menu**, and **Grid Menu**.
4. Click **OK** and only the class style tab is displayed.

   ![Plot Menu Tab](image)

   *The classic style menus are displayed on the **Plot Menu** tab.*

To access the commands with the keyboard, click the ALT+M and then the appropriate keyboard keys.

**Quick Access Toolbar Commands**
The Quick Access Toolbar is at the top of the **Grapher** window. This toolbar has frequently used commands and can be customized by the user. The commands in the Quick Access Toolbar are the same regardless of the type of window displayed in **Grapher**.

   ![Quick Access Toolbar](image)

   *The Quick Access Toolbar is displayed at the top of the **Grapher** window.*

**Customizing the Quick Access Toolbar**
The Quick Access Toolbar is a customizable toolbar. One method that can be used to add commands to the Quick Access Toolbar is to right-click on the command in the ribbon and choose **Add to Quick Access Toolbar**. The command is automatically added to the end of the toolbar.

To customize the commands in the **Quick Access Toolbar** dialog, right-click on the ribbon and select **Customize Quick Access Toolbar**. In the **Quick Access Toolbar** dialog,
1. To add a command, select the command from the list on the left that you want to add. Click the Add>> button and the command is added to the list on the right.
2. To add a separator between commands, set the Choose commands from to Main on the left side of the dialog. Select <Separator> and click Add>>. Move the separator to the desired position.
3. To delete a command, select the command from the list on the right. Click the <<Remove button and the command is removed from the list on the right.
4. To rearrange commands or move separators, click on the command or separator name from the list on the right that you want to move. Click the up and down arrow buttons on the far right to move the command up or down the list. Commands are shown in the exact order that they are displayed in the Quick Access Toolbar.
5. To reset the Quick Access Toolbar to the default display, click the Reset button below the list on the right side of the dialog.
6. Click OK and all changes are made.

Note: to add individual plot types as buttons to the Quick Access Toolbar, set the Choose commands from to Plot | Plot Menu. Then on the left side of the dialog, select the appropriate plot type, such as 3D Bar Chart. Click Add>> and the plot type is added with an icon to the right side. Click OK and the plot type is displayed in the Quick Access Toolbar.

**Displaying the Quick Access Toolbar Below the Ribbon**

To display the Quick Access Toolbar below the ribbon, right-click on the ribbon and select Show Quick Access Toolbar Below the Ribbon. This setting is useful if you have added many commands to the Quick Access Toolbar. More commands display, by default, when the Quick Access Toolbar is below the ribbon. When combined with the minimized ribbon appearance, this can give single click access to all your most used commands and maximize the viewing area for the plot.

Keyboard Commands

Keyboard commands can be used to increase efficiency and precision in the Grapher environment.

**Plot Window**

You can use the keyboard to move the pointer within the plot window, to select and move objects, and perform commands.

- The ARROW keys move the pointer within the plot window when no object is selected.
- The ARROW keys move selected objects.
- Press CTRL+TAB to change switch between document windows.
- Pressing the SPACEBAR is equivalent to clicking the left mouse button.
- "Double-clicking" the SPACEBAR by pressing the spacebar twice is the same as double-clicking the mouse.
- Press SHIFT+SPACEBAR to deselect all objects.
Manager Access
- Press ALT+ENTER to activate the Property Manager.
- The ARROW keys move between properties in the Property Manager.
- Press ALT+F11 to activate the Object Manager.
- The ARROW keys move the selection in the Object Manager.

Tab Commands Access
The keyboard can be used to access the menu commands.
- Press the ALT key and press any letter or number that appears in a box to indicate the desired ribbon tab.
- When the appropriate tab is displayed, you can access a command by pressing the letter or number that appears in a box to indicate the desired command.
- Press ALT and the ARROW keys on the keyboard to switch between ribbon tabs.

Dialog Access
You can also use the keyboard to move around in a dialog.
- The TAB key moves between the options in the dialog. As you use the TAB key to move through the dialog, the options are highlighted as they become active.
- The SPACEBAR is used to simulate mouse clicks, allowing you to toggle check boxes or press buttons that provide you with access to other dialogs or close the current dialog.
- You can also use the underlined hotkeys by holding down the ALT key and typing the letter. This moves you immediately to the desired option. Note that not all of the dialogs have ALT key access.

Customize the Keyboard
Keyboard shortcuts can be changed by right-clicking on the ribbon and selecting Customize the Ribbon. In the Customize Ribbon dialog, click the Customize button next to Keyboard shortcuts. On the left side of the dialog, select the tab name in the Categories list. This is the name of the tab where the command is located in the ribbon. On the right side of the dialog, click on the command name in the Commands list. Click in the Press new shortcut key box and press and hold the keys that should be used for the command. For instance, you might press and hold the CTRL, ALT, SHIFT, or any character key on the keyboard. The key names will be listed in the Press new shortcut key box.

If no other command uses the key combination, the Assigned to section lists [Unassigned]. When the keys are unassigned, click the Assign button at the bottom of the dialog to assign the key combination to the selected command.

If the key combination is currently assigned to another command, the command will be listed in the Assigned to section. If a key combination is currently assigned to another command, select the currently assigned command name. Click on the Current Keys combination that you want to reassign and click the Remove button at the bottom of the dialog. Click back on the original command. Click in the Press new shortcut key box and press the keys on the keyboard. Click the Assign button to assign the key combination to the new command.

Click Close to make the new commands effective. Click Reset All to reset all customizations to the defaults.
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#### General Commands
These keyboard commands are used in the plot or worksheet windows.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>File</strong></td>
<td></td>
</tr>
<tr>
<td>CTRL+N</td>
<td>Open a new plot window</td>
</tr>
<tr>
<td>CTRL+W</td>
<td>Open a new worksheet window</td>
</tr>
<tr>
<td>CTRL+O</td>
<td>Open a file</td>
</tr>
<tr>
<td>CTRL+S</td>
<td>Save a <strong>Grapher</strong> .GRF file</td>
</tr>
<tr>
<td>CTRL+P</td>
<td>Print the drawing in the current plot window or print the worksheet contents</td>
</tr>
<tr>
<td>ALT+F4</td>
<td>Close Grapher</td>
</tr>
<tr>
<td>CTRL+I</td>
<td>Import a file into the plot window</td>
</tr>
<tr>
<td>CTRL+E</td>
<td>Export the plot window to a file</td>
</tr>
<tr>
<td><strong>Home</strong></td>
<td></td>
</tr>
<tr>
<td>CTRL+V</td>
<td>Paste the clipboard contents into the plot window or worksheet</td>
</tr>
<tr>
<td>CTRL+X</td>
<td>Cut the selected objects to the clipboard</td>
</tr>
<tr>
<td>CTRL+C</td>
<td>Copy the selected objects to the clipboard</td>
</tr>
<tr>
<td>CTRL+SHIFT+C</td>
<td>Copy the format of the selected object</td>
</tr>
<tr>
<td>CTRL+SHIFT+V</td>
<td>Paste the format of the object to the newly selected objects</td>
</tr>
<tr>
<td>CTRL+Z</td>
<td>Undo the last command</td>
</tr>
<tr>
<td>CTRL+Y</td>
<td>Redo the previous undo command</td>
</tr>
<tr>
<td>F1</td>
<td>Open help</td>
</tr>
<tr>
<td><strong>View</strong></td>
<td></td>
</tr>
<tr>
<td>CTRL+D</td>
<td>Zoom so all objects fill the plot window</td>
</tr>
<tr>
<td>CTRL+L</td>
<td>Zoom in on selected objects so they fill the view</td>
</tr>
<tr>
<td>CTRL+G</td>
<td>Zoom to the extents of the page</td>
</tr>
<tr>
<td>F11</td>
<td>Zoom to the full screen</td>
</tr>
<tr>
<td>CTRL++</td>
<td>Zoom in twice the scale at the center of the screen</td>
</tr>
<tr>
<td>CTRL+-</td>
<td>Zoom out twice the scale from the center of the screen</td>
</tr>
<tr>
<td>CTRL+R</td>
<td>Zoom on a selected rectangle</td>
</tr>
<tr>
<td>F5</td>
<td>Redraw the screen</td>
</tr>
<tr>
<td><strong>Arrange</strong></td>
<td></td>
</tr>
<tr>
<td>CTRL+A</td>
<td>Select all the objects in the plot window</td>
</tr>
<tr>
<td>CTRL+SHIFT+A</td>
<td>Deselect all the objects in the plot window</td>
</tr>
<tr>
<td>F2</td>
<td>Rename the selected object</td>
</tr>
<tr>
<td>DELETE</td>
<td>Delete the selected objects in the plot window, clear cells in the worksheet</td>
</tr>
<tr>
<td>CTRL+PAGE DOWN</td>
<td>Move selected object backward</td>
</tr>
<tr>
<td>SHIFT+PAGE DOWN</td>
<td>Move selected object to back</td>
</tr>
</tbody>
</table>
CTRL+PAGE UP | Move selected object forward
SHIFT+PAGE UP | Move selected object to front

Application Control Window

<table>
<thead>
<tr>
<th>Key Combination</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRL+F4</td>
<td>Close the plot or worksheet window</td>
</tr>
<tr>
<td>ALT+F4</td>
<td>Close Grapher</td>
</tr>
<tr>
<td>ALT+SPACE</td>
<td>Display the application control menu</td>
</tr>
<tr>
<td>ALT+HYPHEN</td>
<td>Display the document window control menu</td>
</tr>
<tr>
<td>CTRL+F6</td>
<td>Next document window</td>
</tr>
<tr>
<td>CTRL+SHIFT+F6</td>
<td>Previous document window</td>
</tr>
<tr>
<td>CTRL+TAB</td>
<td>Switch between Grapher windows</td>
</tr>
<tr>
<td>ALT or F10</td>
<td>Activate the tabs in the ribbon</td>
</tr>
<tr>
<td>CTRL+ESC</td>
<td>Display the Windows start menu</td>
</tr>
<tr>
<td>ALT+TAB</td>
<td>Switch to the last active application</td>
</tr>
</tbody>
</table>

Worksheet Commands

These keyboard commands are specific to the worksheet.

<table>
<thead>
<tr>
<th>Key</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F2</td>
<td>Edit active cell</td>
</tr>
<tr>
<td>ARROW KEYS</td>
<td>Move to adjacent cell</td>
</tr>
<tr>
<td>ENTER</td>
<td>Preserve the typed contents in the cell</td>
</tr>
<tr>
<td>HOME</td>
<td>Go to the first row containing data in the selected column</td>
</tr>
<tr>
<td>END</td>
<td>Go to the last row containing data in the selected column</td>
</tr>
<tr>
<td>PAGE UP</td>
<td>Scroll the table up by the number of visible rows</td>
</tr>
<tr>
<td>PAGE DOWN</td>
<td>Scroll the table down by the number of visible rows</td>
</tr>
<tr>
<td>TAB</td>
<td>Move the active cell right one column</td>
</tr>
<tr>
<td>CTRL+HOME</td>
<td>Move the active cell to the top cell of the left most column</td>
</tr>
<tr>
<td>CTRL+END</td>
<td>Move the active cell to the bottom occupied row and right most column</td>
</tr>
</tbody>
</table>

Maximize the Plot Window Display Space

Several options exist to maximize the plot window display space. See some common options below.

Turn Manager Display Off

One of the easiest ways of maximizing the plot window display space is to turn on only the managers that you use. To turn off other managers, click the View tab in the ribbon. In the Display section, uncheck the boxes for the managers that you do not regularly use. For instance, if you do not use the Script Manager or Worksheet Manager, unchecking these options will provide much additional space.
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To temporarily turn the display of all of the managers off, click the View | Display | Hide All command. To turn the display of all of the managers back on, click the View | Display | Show All command. Alternatively, check only those managers that you want to see.

Minimize the Ribbon
The ribbon can be minimized so that the tab names appear more like menus instead of tabs. To minimize the ribbon, right-click on the ribbon and select Minimize the Ribbon. When displayed in a minimized mode, only the tabs at the top of the screen are visible. To see the commands on each tab, click the tab name. After selecting a command, the ribbon automatically minimizes again.

Create a Custom Quick Access Toolbar
No option exists to switch the user interface back to the old style File, Edit, View, etc. menu, toolbar, and command appearance. But, you can customize the Quick Access Toolbar and display it below the ribbon to make it appear similar to an older style toolbar.

To customize the commands in the Quick Access Toolbar dialog, right-click on the ribbon and select Customize Quick Access Toolbar. In the Quick Access Toolbar dialog,

1. To add a command, select the command from the list on the left that you want to add. Click the Add>> button and the command is added to the list on the right.
2. To add a separator between commands, set the Choose commands from to Main on the left side of the dialog. Select <Separator> and click Add>>. Move the separator to the desired position.
3. To delete a command, select the command from the list on the right. Click the <<Remove button and the command is removed from the list on the right.
4. To rearrange commands or move separators, click on the command or separator name from the list on the right that you want to move. Click the up and down arrow buttons on the far right to move the command up or down the list. Commands are shown in the exact order that they are displayed in the Quick Access Toolbar.
5. To reset the Quick Access Toolbar to the default display, click the Reset button below the list on the right side of the dialog.
6. Click OK and all changes are made.

To display the Quick Access Toolbar below the ribbon, right-click on the ribbon and select Show Quick Access Toolbar Below the Ribbon. You now have a custom set of buttons displayed directly above the plot window.

Plot Types
Several unique 2D and 3D plot types can be created, modified, and displayed with Grapher. An example of each plot type is shown below. The Graphs tab Create commands or the graph wizard are used to create a graph.

The plot types are organized in the Graphs tab by category:

Basic Plots
Basic plots are plots that display data as lines, points, and bubbles on two or three axes. All properties of the plot are editable, including the display of symbols and lines. All properties of the containing graph are also editable, including the axes, graph title, and graph background.
Line Plot  
Scatter Plot  
Line/Scatter Plot  
Step Plot  
YX Function Plot  
XY Function Plot  
Parametric Function Plot  
Bubble Plot  
Class Plot  
3D Ribbon Plot  
3D Wall Plot  
3D Ribbon Step Plot  
3D XYZ Plot  
3D YX Function Plot  
3D XY Function Plot
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Bar Plots
Bar plots display data as bars or floating bars in two and three dimensions. All properties of the plot are editable, including the bar width, bar colors, and number of bars. All properties of the containing graph are also editable, including the axes, graph title, and graph background.
**Polar Plots**

Polar plots display data as lines, points, and bars on polar axes. Data are defined by angle and distance from the center of the plot. Various options exist for each plot type, including setting the axis properties, line properties, symbol properties, and bar properties. Some plots have other properties, such as binning and number of axes.
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**Ternary Plots**
Ternary plots represent relative percentages in a three component system. Ternary class plots are used to show classification information in the plot. Ternary bubble plots add a fourth dimension to the presented information by varying the symbol size. Various properties, including axis properties, line properties, symbol properties, class properties, and bubble properties can be edited.

**Specialty Plots**
Specialty plots incorporate many different graph types. Various properties, including axis properties, line properties, bar width properties, number of slices, and method of defining the variables can be edited.
Statistical Plots

Statistical plots are plots that display data in a format used to determine some statistical property of the data. Statistical plots can be displayed in two or three dimensions and include a variety of plot types. All properties of the plot are editable, including the display of symbols, lines, and bars. All properties of the containing graph are also editable, including the axes, graph title, and graph background.
Contour Surface Maps

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
You can create graphs in several ways in **Grapher**. These various methods allow you to create graphs in a manner most comfortable for you. Graphs can be created:

- from the Graphs tab,
- with the graph wizard,
- from the worksheet,
- and from templates.
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Additional plots, axes, legends, titles, summation plots, duplicate axes, and magnifiers can be added to the graph after it is created. All properties of the plot can be edited after the graph is created.

Creating Graphs in the Plot Window
The most common method of creating graphs is to use the plot window Graphs tab.

To create a graph 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. Select a data file in the Open Worksheet dialog and click Open. 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 or grid file.

The graph is created with the default properties. You can change the properties of a selected plot or axis through the Property Manager.

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 the 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 for the most part default plot parameters are used to create the graph.

To create a graph with the graph wizard:

1. Click the Graphs | Create | Wizard command.
2. In the Graph Wizard dialog, select the plot category from the Plot Categories list, and select a plot type from the Plot Types section. A description of the selected plot type is listed in the Description section.
3. If you want to create a new graph, select New graph next to Add plot to. If you want to add a curve to an existing graph, select the graph name next to Add plot to.
4. Click the Next button.
5. In the Open Worksheet dialog, choose a new data file to open, or click on an open data file in the Open worksheets list. Click the Open button.
6. In the Graph Wizard dialog, check the box next to Display preview, to see what the worksheet data looks like with the current plot type.
7. Set the plot, line, and fill properties. You can review or edit the plot properties and see the Plot Preview update as the options are changed if the Display preview box is checked.
8. If these plot settings are not acceptable, click the Back button to make changes.
9. Once the plot settings are acceptable, click the Finish button to create the graph.

The graph is created with the properties specified. You can change the properties of a selected plot or axis through the Property Manager.
Creating Graphs from the Worksheet
If you are working with the 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 graph type you wish to create.

To create a graph from the worksheet:
1. Open the worksheet using one of the following methods:
   - Click the File | Open command, select a data file in the Open dialog, and click the Open button.
   - Click the File | New | Worksheet command to open a new worksheet. In the worksheet, select File | Open, choose a data file in the Open dialog, and click the Open button.
   - Click the button in the Quick Access Toolbar to open a new worksheet.
   - Click the button in the Quick Access Toolbar to open a new worksheet.
   - In the plot window, check the View | Display | Worksheet Manager command to view data files already loaded into the program.
2. Highlight the columns to use in the plot.
3. Click the Graphs menu. If you are using the Worksheet Manager, right-click in the worksheet and select Graphs from the context menu.
4. In the Create group, click the Basic, Bar, Polar, Ternary, Specialty, Statistical, or Contour Surface button. In the Worksheet Manager, click the Basic, Bar, Polar, Ternary, Specialty, Statistical, or Contour Surface in the context menu.
5. Select the plot type you would like to create and the graph is created with the default plot properties.

You can change the properties of a selected plot or axis through the Property Manager.

Creating Graphs Using Templates
Template graphs are used to set graphing preferences in Grapher. When a template file is saved it does not contain any reference to a data file. This means that once the template graph is created, you can use the template to create a new graph with any compatible data set.

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

You can change the properties of a selected plot or axis through the Property Manager. Refer to template graphs for information on creating or saving an edited template.
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Printing the Online Help

The online help topics may be printed.

A full PDF user’s guide that contains all of the information in this online help file can be purchased online. Consider purchasing the user guide and printing sections of the PDF if you need the help information in paper form.

Printing One Topic

To print one help topic:

1. Open the online help file by choosing Home | Help | Contents in the Grapher window.
2. Select the help topic you want to print.
3. Click the button in the upper right corner of the topic.
4. In the Print dialog, click the Print button, and the help topic is printed.

Technical Support

Golden Software’s technical support is free to registered users of our products. Our technical support staff is trained to help you find answers to your questions quickly and accurately. We are happy to answer any 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. To allow us to support all customers equitably, an individual user’s daily support time may be limited.

Technical support is available Monday through Friday 8:00 AM to 5:00 PM Mountain Time, excluding major United States holidays. We will respond to email and fax technical questions within one business day. When contacting us with your question, please have the following information available:

- Your Grapher serial number, found in the File | About Grapher dialog, on the CD cover, or in the email received with the download directions
- Your Grapher version number, found in File | About Grapher
- The operating system you are using (Windows XP, Vista, 7, or higher)
- The steps you took prior to experiencing your problem
- The exact wording of the first error message (if any) that appeared

If you cannot find the answer to your question in the online help, the frequently asked questions, the knowledge base, or in the support forums, please do not hesitate to contact us:

Email: GrapherSupport@GoldenSoftware.com
Web: www.GoldenSoftware.com
Phone: 303-279-1021
Fax: 303-279-0909
Mail: Golden Software, LLC, 809 14th Street, Golden, Colorado, 80401-1866, USA
Sales Information

For questions about pricing, upgrades, or to purchase software, please contact our sales department:

Web: www.goldensoftware.com (includes a secure online order form)
Email: info@goldensoftware.com
Mail: Golden Software, LLC, 809 14th Street, Golden, Colorado, 80401-1866, USA
Phone: 303-279-1021 or 800-972-1021 (U.S. only)
Fax: 303-279-0909

For pre-sales technical questions, please contact our technical support staff.

Serial Number
Your Grapher™ serial number is located on the CD cover or in the email received with the download directions. You may also access your serial number at any time by clicking File | About Grapher in the Grapher window.

Register Your Serial Number
Please remember to register your software by filling out the registration form online. Registering your serial number entitles you to free technical support, announcements, and Grapher upgrade pricing. Our database is confidential. Please take a minute to register your copy of Grapher with us.

Convert Older Grapher Files
Older files that were created in Grapher DOS and Grapher 1 cannot be opened by the current version of Grapher. When you try to open these files, you will see:

![Grather Error dialog box]

DOS and Grapher 1 files are no longer supported by Grapher. Contact Grapher support for information on converting these GRF files.

The error message appears when trying to open older Grapher GRF files.

If you have an older copy of Grapher available, such as Grapher 2, 3, 4, 5, 6, or 7, it is recommended that you open the file in that version and save the GRF file using the new format. Once the file is saved in a newer format, it can be opened in the current version of Grapher.

If you do not have an older copy of Grapher available, use the free online file converter at www.goldensoftware.com.
Chapter 2 - Tutorial

Tutorial Introduction
Welcome to the Grapher tutorial. This 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 lessons should be completed in order; however, they do not need to be completed in one session.

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

Starting Grapher shows you how to begin a new Grapher session and open a new plot window.

Lesson 1 - Viewing and Creating Data
Viewing and Creating Data opens and edits an existing data file and creates a new data file.

Lesson 2 - Creating a Graph
Creating a Graph shows you one way to create a graph.

Lesson 3 - Modifying Plot Properties
Modifying Plot Properties shows you how to open and edit the plot properties.

Lesson 4 - Editing Axes
Editing Axes shows you how to add an axis title, how to change the tick mark spacing, how to change the tick label source, and how to add a second linked axis.

Lesson 5 - Adding Additional Plots to the Graph
Adding Additional Plots to the Graph shows you how to add a second plot to an existing graph.

Lesson 6 - Editing Graph Properties
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
Adding and Editing a Legend shows you how to create and edit a legend.

Lesson 8 - Working with the Script Recorder
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.

Advanced Tutorial Lessons
Saving Graphs shows you how to save a graph.
Using the Magnifier shows you how to add a magnifier to your graph.
Chapter 2 - Tutorial

Using the Inset Zoom shows you how to draw an inset zoom on your plot page.
Combining Plots from Different Graphs demonstrates how to add an existing plot to a second existing graph.

A Note About the Documentation
Various font styles are used throughout the Grapher quick start guide and online help. Bold text indicates command names, dialog names, and page names. Italic text indicates items within a dialog such as group box names, options, and field names. For example, the Save As dialog contains a Save as type list. Bold and italic text occasionally may be used 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.

Topic Links
Each topic contains several links to other topics.

Click on the link for an in-depth discussion on the subject. Use the button to return to the tutorial topic.

Using the Tutorial with the Demo Version
If you are using the demo version of Grapher, you will not be able to complete some of the steps due to disabled save, export, and print features. The demo version is a fully functional read-only version of the program. When this is a factor it is noted in the text and you are directed to proceed to the next step that can be accomplished with the demo.

Starting Grapher
To begin a Grapher session:
1. Navigate to the installation folder, 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 New 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 received with the download directions, 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 have already been working with Grapher, open a new plot window before starting the tutorial. To open a new plot window, click the File | New | Plot command, click the button on the quick access toolbar, or press CTRL+N on the keyboard.

Lesson 1 - Viewing and Creating Data
A data file is a file that contains 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. As such, it is often a good idea to examine the data file contents before creating your graph.
The following sections are included in **Lesson 1 - Viewing and Editing Data**:

*Opening an Existing Data File*
*Editing Data*
*Calculating Statistics on the Data*
*Creating a New Data File*
*Saving the Data File*

**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.

The data is displayed in a worksheet window. Note that each variable is a separate column. Row 1 contains a description of what the column contains.
Chapter 2 - Tutorial

**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, save the file by clicking the **File | Save** command. Accept the default save options and click **OK**.

Note, data cannot be saved in the demo version.

**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**.

![Statistics Dialog](image)

*Check the box next to Maximum and Mean to calculate the high and average values.*
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.

<table>
<thead>
<tr>
<th></th>
<th>L</th>
<th>M</th>
<th>N</th>
<th>O</th>
<th>P</th>
<th>Q</th>
<th>R</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>62.7</td>
<td>64.1</td>
<td>78.9</td>
<td>83</td>
<td>69.4</td>
<td>74.4</td>
<td>67.4</td>
<td>71.8</td>
</tr>
<tr>
<td>Site B</td>
<td>54</td>
<td>45.2</td>
<td>60.2333</td>
<td>74.016667</td>
<td>48.568333</td>
<td>54.191667</td>
<td>48.966667</td>
<td>51.566667</td>
</tr>
<tr>
<td>Site C</td>
<td>1.8349717</td>
<td>4.32308094</td>
<td>3.66933310</td>
<td>1.9076335</td>
<td>4.4566168</td>
<td>3.8626702</td>
<td>4.2184360</td>
<td>4.2006192</td>
</tr>
</tbody>
</table>

Visually inspect the statistical results to compare various site data.

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. Refer to the Worksheet Window section on for information about the various portions of the worksheet window.

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 page for additional 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.

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. Graphs can be created from the Graphs tab, with the graph wizard, from the worksheet, and from templates. All of these methods are discussed in the Creating Graphs topic. In the tutorial, we use the most common method, creating a graph through the Graphs tab Create group. We will create a line/scatter plot from an existing data set.
To create a line plot graph:

1. If the worksheet window is still open, click the Plot1 tab. Alternatively, you can create a new plot window by clicking the File | New | Plot command.

2. Click the Graphs | Create | Basic | Line Plot command.

3. In the Open Worksheet dialog, select the Tutorial.dat samples file, from the Samples directory. 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 the Open button.

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. With this data file, the X Axis is equal to column A and the Y Axis is equal to column B.

By default, the line plot is selected after the graph is created. The selected plot appears with a bounding box around the outside and selection handles on the line.
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.

The following sections are included in Lesson 3: Modifying Plot Properties:

Selecting the Line/Scatter Plot
Changing the Line/Scatter Plot Properties
Changing Line Plot to a Scatter Plot
Displaying Plot Labels
Moving Labels

Selecting the Line/Scatter Plot - Tutorial

The Object Manager is the easiest way to select the exact object you want, so this method is used throughout the rest of the tutorial. Methods for selecting objects are discussed in the Selecting Objects topic. 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 View | Display | Object Manager command. A check mark is displayed next to the visible managers. If the Object Manager box is not checked, click in the empty box next to Object Manager to display it.
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. When the line/scatter plot is selected, a selection box appears around the plot and selection symbols appear on the line.

Changing the Line/Scatter Plot Properties - Tutorial

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 the section names to access the properties, as discussed in the Property Manager topic.

Changing Line Plot to a Scatter Plot - Tutorial

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 in Lesson 5. 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 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.

Type the number "1" in the Symbol frequency box to add a symbol at every data point on the line/scatter plot.

The line plot is updated to display the default symbol.
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.

*Click the current symbol to open the symbol palette and select a new symbol to use for the plot.*

![Symbol Properties](image)

The graph is updated to display symbol *Number 10*. 
4. Click on the **Line** tab to edit the line properties.

5. Click on the current line style, which by default is a solid line, next to **Style**, to open the line style palette. Click on the **Invisible** line style, which is the second entry in the line palette list. Once you click on the **Invisible** line style, the line style palette closes and the plot changes to a scatter plot.

*Click on the current line style to open the line palette. Select the Invisible line style.*

*A scatter plot is created by adding symbols and changing the line to invisible.*
Displaying Plot Labels - Tutorial

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 labels properties.
3. Check the box next to Display labels.

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 the Y column 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.

Moving Labels

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

To move the plot labels:

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 command 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 mark labels, axis titles, colors, etc. can all be customized.

The following sections are included in Lesson 4 - Editing Axes:

- Selecting the Axis
- Adding an Axis Title
- Changing the Tick Mark Spacing
- Changing the Tick Labels
- Adding Grid Lines
- Adding a Secondary Linked Axis

Selecting the Axis - Tutorial

The graph from Lesson 2 - Creating a Graph should already exist in the plot window before you proceed with this lesson. Click on Y Axis 1 in the Object Manager to select it and display the axis properties in the Property Manager. The axis can be selected in the plot window or in the Object Manager. The tutorial will use the Object Manager method.

To select the axis:

1. Make sure the Object Manager is open. If you do not see the Object Manager, check the View | Display | Object Manager command. A check mark is displayed next to the visible managers.
2. In the Object Manager, left-click the Y Axis 1 object. This selects the axis and displays the axis properties in the Property Manager. When the axis is selected, a selection box appears around the axis.

Adding an Axis Title - Tutorial

Once the axis is selected, all of the axis properties are displayed in the Property Manager. Standard axes 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 [x] next to Title if necessary.
3. In the Title section, click the Editor button next to the Title option. The Text Editor opens.
Chapter 2 - Tutorial

4. In the **Text Editor** dialog, type the word *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, *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.
Highlight the text in the **Text Editor** and then change its properties.

9. Click **OK** to close the **Text Editor** and save the axis title.

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

Your graph should appear similar to this one:
Changing the Tick Mark Spacing - Tutorial

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 emerge 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 the Tick Marks tab to open the tick mark properties.
3. Click the button 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. The word Auto is automatically replaced with the word Custom, indicating a custom spacing value.

You can type a new value for the tick mark Spacing or click the up or down arrows to scroll to a new value.

5. Click the button 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. Your graph should appear similar to this one:
You can customize the axis properties, including changing the tick mark spacing.

**Changing the Tick Labels - Tutorial**

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 either 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** to select it.
2. In the **Property Manager**, click on the **Tick Labels** tab to open the tick label properties.
3. Click the \[ \] next to **Major Label Text**, if necessary.
4. Click the word **Automatic** next to the **Label source** option. In the list, select **From worksheet**. This activates the **Worksheet** option.
5. Next to **Worksheet**, click the word **None** to display a 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**.
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The Major label text section controls the tick mark labels.

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

You can customize tick labels to display information from a column in 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, hold down the left mouse button, and drag the label or title to the new location. Press ESC on the keyboard when all of the labels are in the desired location.

**Adding Grid Lines - Tutorial**

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, opacity, 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 simultaneously. Since we want grid lines on both axes, we can select both axes and add grid lines to both 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 that the **Property Manager** title bar contains **Multiple Objects Selected**. Only properties common to all selected objects appear in the **Property Manager** 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. A check mark should be displayed in the box and 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* in the color palette. Once you click on the 20% *Black* color, the palette closes and the graph is updated with the newly colored grid lines.
Adding a Secondary Linked Axis - Tutorial

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.

To add a linked axis:
1. Click on the Graph 1 object in the Object Manager.
2. Click the Graphs | Add to | 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. The axis limits automatically update to apply the equation to the dependent axis limits. X in the equation refers to the controlling axis. So, the Minimum value (40) has 32 subtracted from it and then is multiplied by 5/9 to get the Minimum value for the new dependent axis. The same process is used with the Maximum value (70) to calculate the dependent axis maximum. The new axis Minimum is 4.444 and the Maximum is 21.111.
10. We also want the axis to stay located in the same relative location when the graph moves. Check the boxes next to Link X position and Link Y position. Now, when any portion of the graph is moved, the axis will also move.

Now the secondary Y axis is displayed to the right of the graph with a degrees Celsius scale. When the graph is moved or the axis limits change, the Y Axis 2 automatically updates to stay in the same relative location and the same relative axis limits as Y Axis 1. Add an axis title and change the tick mark spacing using the processes in the previous sections if you desire.
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.

The following sections are included in Lesson 5 - Adding Additional Plots to the Graph:

Adding a New Plot
Changing the Plot Type
Adding Semi-Transparent Fill

Adding a New Plot
To add a plot to the graph created in Creating a Graph:

1. Click on Line/Scatter Plot 1 in the Object Manager to display the properties in the Property Manager.
2. Click the Plot tab in the Property Manager.
3. Click the Create button next to the New plot option to add a new plot to the graph.

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 after the command is executed. 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, duplicate axes, plots from a different data file, legends, summation plots, and magnifiers to be added to the selected graph. For additional information on this command, see Plot - Add to Graph.
The second line/scatter plot is added to the graph using the same axes and properties as the first plot.

**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 the scatter plot into a line plot:

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

The Graphs | Plot | 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.
You can change the properties in the new plot to distinguish it from the first plot.

Adding Semi-Transparent Fill
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 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 ▶️ next to Gradient to expand the gradient properties.
4. Change the gradient 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 in the Color Gradient dialog.

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.
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.

The following sections are included in Lesson 6 - Editing Graph Properties:

Adding a Graph Title
Setting Background Fill and Line Properties

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. Click on the Title tab in the Property Manager.
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 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.
Add a graph title to display additional information about 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. The graph should look similar to this:
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.

The following sections are included in Lesson 7 - Adding and Editing a Legend:

Adding a Legend
Moving the Legend
Editing the Legend Title
Editing the Plot Names
Changing the Number of Symbols
Changing the Symbol Size
Changing the Line Length
Adding a Drop Shadow
Creating Multiple Columns in the Legend
Filling the Legend

Adding a Legend - Tutorial

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.

A legend is created for the graph using the default properties. These properties can be changed by selecting the legend and using the **Property Manager**. 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.

By default, the legend may not be in an ideal location.
Editing the Legend Title - Tutorial

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.

The legend title is updated with the changes made in the Text Editor.

Editing the Plot Names - Tutorial

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 to open the legend properties.
3. Next to the Entries option, click the Edit button. This opens the Legend Entries dialog.
4. In the Legend Entries dialog, click Line/Scatter Plot 1 under the Name column.
5. Click the Rename button. This opens the Text Editor.
6. Let's change the text to Site A to match the worksheet. Highlight Line/Scatter Plot 1 and type Site A.
7. Click OK to close the Text Editor.
The **Legend Entries** dialog is used to edit the legend entry names.

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

![Legend Entries dialog](image)

**Site Location Key**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Site A</td>
<td>Site B</td>
<td></td>
</tr>
</tbody>
</table>

The legend is updated with the changes made in the **Legend Entries** dialog.

**Changing the Number of Symbols - Tutorial**

The number of symbols in a legend can be set from zero to three.

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 on the **Legend** tab to open the legend properties.
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.
Chapter 2 - Tutorial

Changing the Symbol Size - Tutorial
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 on the Legend tab.
3. Click the Edit button next to the Entries option to open the Legend Entries dialog.
4. Select the Site A in the Name column and click the Symbol Size button to open the Symbol Size dialog.
5. Change the Size from Fixed to Plot size. If the other plot also displayed symbols, checking the Apply to all entries option would make all plots show the symbols at the size they are displayed in the plot.
6. Click OK in the Symbol Size dialog to make the change.
7. Click OK in the Legend Entries dialog.

The symbol sizes in the legend now match the symbol sizes in the plot.

Changing the Line Length - Tutorial
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 the Legend 1 in the Object Manager to select the legend.
2. In the Property Manager, click on 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 .5 inches.

The line length is now shorter in the legend.

Adding a Drop Shadow - Tutorial
To add a drop shadow behind the legend:
1. Click on the Legend 1 in the Object Manager to select the legend.
2. In the Property Manager, click on the Legend tab.
3. Check the box next to Display shadow to add a shadow behind the legend.
4. Click the color next to Shadow color to open the color palette and change the shadow color if desired.

The drop shadow is added to the legend.

Creating Multiple Columns in the Legend - Tutorial
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. The typed value is the number of columns used to display in the legend.

Filling the Legend - Tutorial
To add fill to the legend:
1. Click on Legend 1 in the Object Manager to select the legend.
2. Click the Fill tab in the Property Manager to open the fill properties.
3. On the Fill page, next to Foreground color, click the existing color, Black, to open the color palette. Choose 20% Black. The Pattern automatically changes to Solid and the legend now has a gray background.
4. Adjust the Foreground opacity value if you want the background to be semi-transparent.
The final graph displays with the customized legend.

Refer to the Saving Graphs lesson for information on how to save a graph.

**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**. See the Script Manager, Introducing Scripter, and Script Recorder topics for more information about automation. The Grapher Automation book in the table of contents contains all of the help topics related to 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 that 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 graphs and then export the graph for reports. You could 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 some graphs, changing some features of a graph, saving the graphs, and exporting the graphs. 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 automation information in this help file.
The following sections are included in **Lesson 8 - Working with the Script Recorder**:

- Opening the Script Manager
- Start Recording
- Opening a New Plot Window
- Creating a Line Plot
- Changing the X Axis Date/Time Limits
- Changing the X Axis Date/Time Tick Mark Spacing
- Changing the X Axis Date/Time Tick Label Format
- Adding X Axis Grid Lines
- Adding Linked Text to the Graph Title
- Exporting the Graph
- Stopping and Saving the Script
- Running Scripts within Grapher
- Running Scripts from Scripter
- Automation Help

### Opening the Script Manager

The **Script Manager** can be used to view scripts as they record. Check 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**.

Right-click in the **Script Manager** to access the menu commands.

![Script Manager](image)

*Click the **Script Manager** tab to view the data used in the plot. Right-click in the **Script Manager** to access the menu commands.*

### Start Recording

The **Developer** tab 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.
To start recording, click the Developer | Scripts | Record command. The button changes to 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.

To open a new plot window, click the File | New | Plot command.

Creating a Line Plot

To create a line plot:

1. Click the Graphs | Create | Basic command and select the Line Plot button.
2. The **Open Worksheet** dialog appears. Browse to **Grapher's** Samples folder. The location of this folder varies depending on where the software was installed. If the software was installed in the default folder, the path is C:\Program Files\Golden Software\Grapher 12\Samples.

3. Click on the *tutorial script recorder.xls* file and click Open to create the default graph.

A 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.

![Grapher 12 User's Guide](https://via.placeholder.com/150)

**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:

1. Click on the *X Axis 1* in the **Object Manager** to select it.
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 value next to Maximum date/time and type 4/1/2009 and press ENTER.

The X Axis limits now range from 1/1/2009 to 4/1/2009.
Changing the X Axis Date/Time Tick Mark Spacing - Tutorial

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. Click on the X Axis 1 in the Object Manager to select it.
2. In the Property Manager, click on the Tick Marks tab to display the tick mark properties.
3. Click the dropdown to the left of the Major Ticks section to expand the major tick options, if necessary.
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.
The X Axis tick mark spacing can be based on date/time units.

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 could create your own custom label format.

To change the major label format from M/d/yy (1/1/2009) to MMM-yy (Jan-09):
1. Click on the X Axis 1 in the Object Manager to select it.
2. In the Property Manager, click on the Tick Labels tab to display the tick label properties.
3. Click the \( \mathbb{2} \) to the left of the Major Labels section to expand the major label options, if necessary.
4. Click the \( \mathbb{2} \) next to Format to expand the label formatting 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.
The X Axis date/time labels can be formatted with a predefined or custom format.

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 the worksheet.

To add grid lines on the X Axis:

1. Click on the X Axis 1 in the Object Manager to select it.
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, if necessary.
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, if necessary.
6. Next to Color, click Black to open the color palette and select 20% Black. The color palette automatically closes with the new color line selected.

20% black grid lines are added to the graph at the major ticks.
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. Click the Title tab in the Property Manager 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. The worksheet name is updated in the Text Editor.
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 typing 24 in the size box or clicking the next to the size box to change the size to 24. The font 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.
Chapter 2 - Tutorial

Exporting the Graph
If you are using the demo version of Grapher you will not be able to export the graph. Please proceed to Stopping and Saving the Script.

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

To export the graph:

1. Click the File | Export command or the button on the quick access toolbar.
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, click on the Vector PDF Options tab.
9. Check the Use application page size (if applicable) box. This exports the entire page, not just the graph.
10. Check the Compress images and Compress pages boxes to make the file size as small as possible.
11. 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 and save the script:

1. Click the Developer | Scripts | Stop Recording command.
2. A Save As dialog appears. Type tutorial script recorder into the File name box.
3. Click the Save button.
4. Right-click in the Script Manager and select 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 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.

The script will run and recreate what you recorded. This is what the first quarter sample data looks like.
Chapter 2 - Tutorial

**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.

**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.

Congratulations, you have completed the Grapher tutorial! Consider continuing on to the Advanced Lessons.

**Advanced Lessons**

**Advanced Tutorial - Saving Graphs**
If you are using the demo version of Grapher you will not be able to save the graph.

When you have completed a graph in the plot window, you can save the graph to a Grapher .GRF file or a Grapher .GPJ project file. These files contain all the information necessary to reproduce the graph. When you save a graph, all the scaling, formatting, and parameters for the graph are preserved in the file.

The difference between a Grapher .GRF file and a Grapher .GPJ project file is that .GPJ files store data within the file and .GRF files save a link to the data but do not store the data internally in the file. If a .GRF file needs to be sent to a colleague, for example, you would need to send the data file along with the .GRF file. .GRF files are most useful when the data changes, as in the Lesson 8 tutorial. .GPJ files are most useful when the data does not change.

To save a graph:
1. Click the File | Save command or click the button in the quick access toolbar. The Save As dialog is displayed because the graph has not been previously saved.
2. Type a file name into the File name box.
3. In the Save as type list, select Grapher File (*.grf) or Grapher Project (*.gpj).
4. Click the Save button to save the file to the current folder. The saved graph remains open and the Grapher title bar changes reflecting the changed name.
Advanced Tutorial - Using the Magnifier

The **Graphs | Add Graph | Magnifier** allows you to magnify a portion of a 2D graph.

To open a sample file and add a magnifier to a 2D graph:

1. Click the **File | Open** command.
2. Navigate to C:\Program Files\Golden Software\Grapher 12\Samples, select *candlestick.grf* and click *Open*.
3. Select **Graph 2** in the **Object Manager**.
4. Click the **Graphs | Add to Graph | Magnifier** command or right-click on **Graph 1** and select **Add Magnifier**.
5. The cursor changes to . Left-click and drag to define an area to magnify.

6. Release the cursor and the magnifier is created with the default settings. A **Graph Magnifier 1** object is added to the **Object Manager**.
7. Select the Graph Magnifier 1 in the Object Manager.
8. In the Property Manager, click the Magnifier tab to display the magnifier properties. The Selected box is Zoomed area box by default. The zoomed area box has six green boxes surrounding it in the plot window, indicating it is selected. Left-click the zoomed area box and drag it to a new location.

9. Drag the lower-right green box and drag the cursor to resize the zoomed area box.
10. In the **Property Manager**, click the **Magnifier** tab to display the magnifier properties. Change the **Selected box** to **Area selection box**. The six green squares now surround the area selection box.

11. Drag a green square to resize the area selection box. The zoomed area box automatically updates to reflect the changes made to the area selection size and location.
12. In the **Property Manager**, click the **Tick Labels** tab to display the tick labels properties. The **X Axis 1** is selected by default.

13. Click the ☰ next to **Major Labels** to expand the major label properties.

14. Click the ☰ next to **Font** to expand the label **Font** section.

15. Change the **Size (points)** to 26.

16. Check the box next to **Bold**.

17. Next to **Offset**, type 1.60 in and press ENTER. The 9/1/12 label on the X Axis moves up.

18. Next to **Angle**, type 90 and press ENTER. The Jan-06 label on the X Axis rotates 90 degrees.

19. Next to **Axes**, click on **X Axis 1** and select **Y Axis 1** from the list.

20. In the **Major Labels** section, expand the **Font** section.

21. In the **Font** section, change the **Size (points)** to 26.
22. Check the box next to **Bold**.
23. In the **Minor Labels** section, check the **Show labels** box.
24. Change the **Frequency** to 2.
25. In the **Font** section, change the **Size (points)** to 26.
26. Check the box next to **Bold**.

To magnify a portion of a 3D graph or polar plot, see the *Using the Inset Zoom* advanced tutorial lesson.

**Advanced Tutorial - Using the Inset Zoom**

The **Draw | Inset Zoom** command allows you to magnify a graph or any portion of the plot page. This type of inset is similar to changing the zoom level of the screen.

To open a sample file and draw an inset zoom:

1. Click the **File | Open** command.
2. Navigate to C:\Program Files\Golden Software\Grapher 12\Samples, select *polar class scatter.grf* and click **Open**.
3. Click the **Draw | Inset Zoom** command.
4. The cursor changes to **. Left-click and drag to define an area to zoom in on.**
5. Release the cursor and the inset zoom is created with the default settings. An Inset Zoom 1 object is added to the Object Manager.
6. Select the *Inset Zoom 1*. In the **Property Manager**, click the **Magnifier** tab to display the magnifier properties. The *Selected box is Zoomed area box* by default. The zoomed area box has six green boxes surrounding it in the plot window, indicating it is selected. Left-click the zoomed area box and drag it to a new location.

7. Drag the lower right green box and drag the cursor to resize the zoomed area box.

8. In the **Property Manager**, click the **Lines** tab to display the lines properties.
9. Click the **** to the left of *Zoom Box* to expand the zoom box section.
10. Click the **** to the left of *Line* to expand the line properties.
11. Next to *Width*, type 0.03 in and press ENTER.
12. Next to *Color*, click *Black* to open the color palette. Select *Magenta*. The color palette closes and the lines update to the new color.
13. Next to *Opacity*, enter 50% and press ENTER.
14. In the **Property Manager**, click the **Connector** tab to display the connector properties.
15. Click the **** to the left of *Fill style* to expand the fill style properties.
16. Next to *Foreground color*, click 50% *Black* to open the color palette. Select *Magenta*. The color palette closes and the lines update to the new color.
17. Next to *Foreground opacity*, enter 10% and press ENTER.
Combining Plots from Different Graphs

In **Grapher**, a **Graph** is an object that contains the plots, axes, legends, summation plots, and other items used to display data as any of the plot types. **Plots** are the lines, symbols, or bars that display the data on the graph. Plots can be added to a graph with the **Graphs | Add to Graph | Plot** command or can be moved between graphs in the **Object Manager**.

### Adding a Plot to an Existing Graph

To add a plot to an existing graph:

1. Click on the existing plot, axis, or graph in the **Object Manager** to select it.
2. Click the **Graphs | Add to Graph | Plot** command.
3. Select the plot type and click **OK**.
4. Set the axes to use for the new plot, if required, and click **OK**.
5. Select the worksheet to use for the new plot, if required, and click **Open**.
6. The new plot is added to the existing graph.

### Dragging a Plot from One Graph to Another

To drag a plot from one graph to another:

1. Click on a plot in the **Object Manager**.
2. Hold down the left mouse button and drag the plot to a different graph object.
3. Release the mouse button.
4. If multiple axes exist in the new graph, select the **Graph, X Axis, and Y Axis** in the dialog and click **OK**.
5. The plot is moved to the new graph and is drawn using the selected axes. The old graph still exists, but can be deleted if desired.
Copying a Plot from One Plot Window to Another
To copy a plot from one plot window to another:
1. Open a .GRF, .GPJ, or .GRT file.
2. Click on a plot in the Object Manager.
3. Click the Home | Clipboard | Copy command.
4. Open another .GRF, .GPJ, or .GRT file.
5. Click the Home | Clipboard | Paste command.
6. In the Choose Axes dialog, select the appropriate Graph, X Axis, and Y Axis. Click OK.
7. The plot is copied to the new plot window in the appropriate graph.

Notes:
- Some plot types, such as radar plots and pie charts, cannot be moved between plots.
- When more than one axis of any type exists on the graph, a dialog appears where you specify which axes to use.
- 2D plots can be moved to 3D plots, but the plot does not become a 3D plot. If you want to move a 2D plot to a 3D plot, first convert the 2D plot to a 3D plot using the Graphs | Plot | Change Plot To | Convert to 3D command. Then, drag and drop the 3D plot into the other 3D graph.
- A 3D XYY plot can be moved to a 2D graph. The 3D XYY plot becomes a 2D plot.
- A 3D XYZ plot can be moved to a 2D or 3D XYY graph. If you drag a 3D XYZ plot to a 2D graph, only two dimensions are displayed. If you drag a 3D XYZ plot to a 3D XYY graph, Grapher automatically adds a new Z axis.

Congratulations! You have completed the Grapher advanced tutorial lessons.
Chapter 3 - Data Files and the Worksheet

Data Overview
Data files contain the information used to create a graph. Each record in a data file occupies a single row and is comprised of at least two values (X, Y) for most plot types and at least three values for XYZ plots, contour maps, and surface maps (X, Y, Z). At least three values are also required for class plots, floating bar, hi-low-close, bubble, ternary, vector. The X, Y, and Z values are each placed in separate columns. X and Y coordinates define the position of the point on the graph.

Creating Data
Data files can be created in the Grapher worksheet, an ASCII editor, or any program that can produce files in one of the file formats listed in the Open dialog.

Graphing and Viewing Data
When graphing a data file, the data are loaded into an internal worksheet. It is not necessary to open the data in a worksheet window before creating a graph. If you want to view or alter the data in a data file, you can use the File | Open, Graphs | Worksheet | Display, or View | Display | Worksheet Manager commands to gain access to the data.

The order of the data in the file is the order the data are plotted. Descriptive headers in row 1 of each column are helpful but not required. When text appears in row 1 of a column, this text appears in list boxes as column titles. If a number resides in row 1, it is not incorporated into the list boxes, and instead, the column heading (such as column B) is displayed.

Rows with non-numeric entries (empty cells or text) are excluded when graphing. These records are not considered during the graphing operation.

Data File Content
Data files can contain up to one billion columns. Since you can specify the columns to be graphed, your data can occupy any columns. This allows you to have columns containing additional information particular to each point. The data file can contain several columns, so you can produce several graphs using the same data file.

Data files may contain data in addition to the X, Y coordinates. For example, when creating a scatter graph with the Graphs | Create | Basic | Scatter Plot command, additional columns can be used to specify the plot labels and axis labels.

Data File Formats
Import and export worksheet data in several data file formats.

Use File | Import to import the following formats into the worksheet:
- ACCDB Microsoft Access 2007-2010
- BLN Golden Software BLN Files
- BNA Atlas BNA Files
- CSV Comma Separated Variable CSV Files
- DAT Files