

MapViewer™ 8

Mapping & spatial analysis for publication-quality thematic maps.

Quick Start Guide

MapViewer™ Registration Information

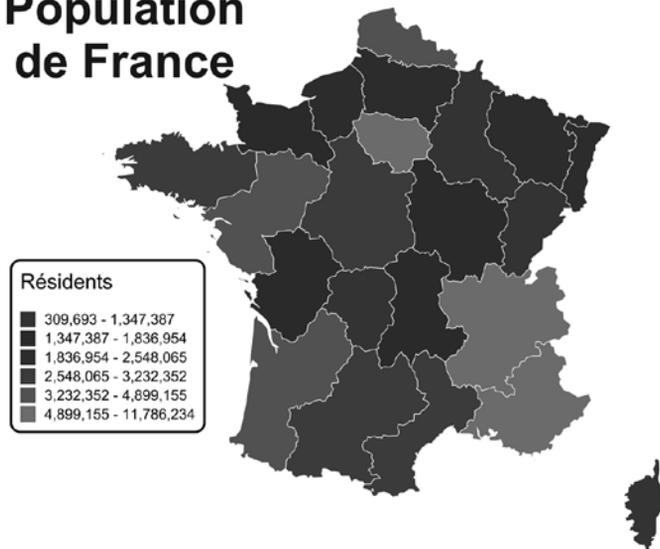
Your **MapViewer** serial number is located on the CD cover or in the email download instructions, depending on how you purchased **MapViewer**.

Register your **MapViewer** 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 **MapViewer** releases. The serial number is required when you run **MapViewer** the first time, contact technical support, or purchase **MapViewer** upgrades.

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

Population de France



Golden Software, LLC

809 14th Street, Golden, Colorado 80401-1866, U.S.A.

Phone: 303-279-1021 Fax: 303-279-0909

www.goldensoftware.com

COPYRIGHT NOTICE

Copyright Golden Software, LLC 2015

The **MapViewer™** program is furnished under a license agreement. The **MapViewer** software and quick start guide may be used or copied only in accordance with the terms of the agreement. It is against the law to copy the software or quick start guide on any medium except as specifically allowed in the license agreement. Contents are subject to change without notice.

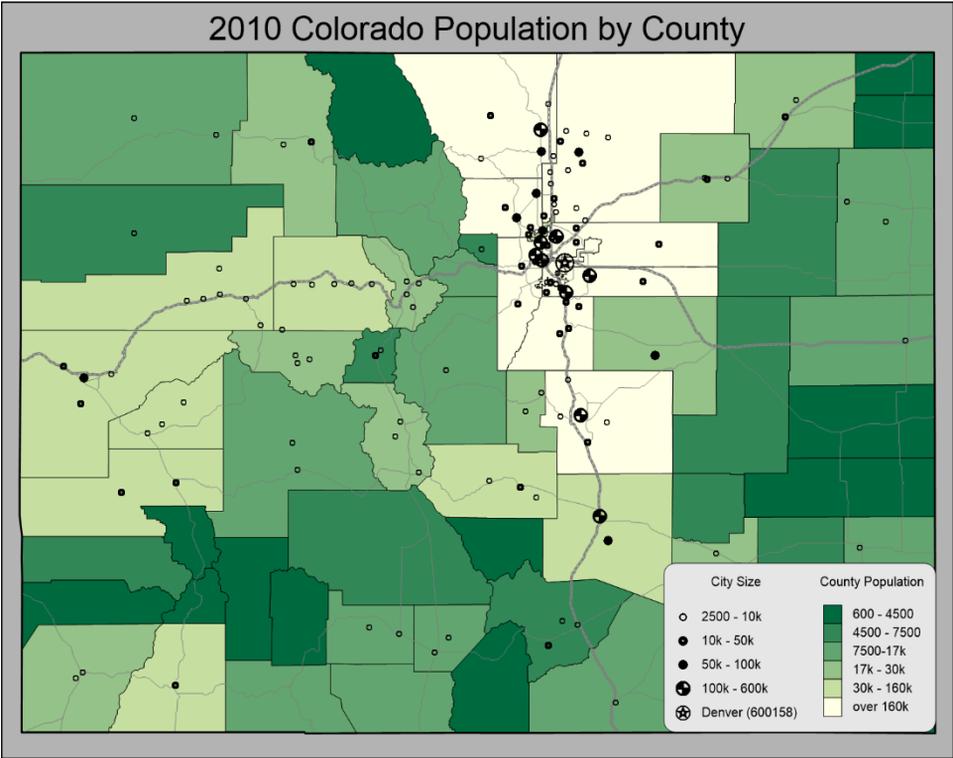
MapViewer is a registered trademark of Golden Software, LLC. All other trademarks are the property of their respective owners.

Table of Contents

Introduction to MapViewer™	1
Who Uses MapViewer?	1
System Requirements.....	2
Installation Directions.....	2
Installing MapViewer	2
Updating MapViewer	2
Uninstalling MapViewer	3
A Note about the Documentation	3
Three-Minute Tour	4
Example MapViewer Files.....	4
HatchMap.gsm	4
MultiGraphMap.gsm	4
Using MapViewer	5
Using Scriptor	5
Example Scriptor Files.....	5
MapViewer User Interface	6
Changing the Window Layout	8
Displaying Managers	8
Auto-Hiding Managers	8
Docking Managers.....	8
Customizing the Ribbon and Quick Access Toolbar.....	8
Plot Window.....	8
Menu and Tab Commands	9
Status Bar.....	9
Object Manager	9
Property Manager	10
Worksheet Window	12
How MapViewer Works	13
Introduction to Data.....	15
Boundary Types.....	16
Polygons	16
Polylines.....	16
Points	16
Other Shapes.....	16
Linking Data to Boundaries.....	17
Map Layers	17
Active Layer.....	17
Layers and Thematic Maps.....	18
Tips on Using Layers	18
Analyzing Maps.....	19
File Types.....	19
Data Files	19
Boundary Files	19
MapViewer Files	19
Map Types.....	20

Base Map	20
Pin Map	20
Hatch Map	20
Contour Map	20
Symbol Map	20
Density Map	21
Territory Map	21
Vector Map	21
Line Graph Map	21
Multi-Graph Map	21
Gradient Map	21
Bar Map	22
Flow Map	22
Prism Map	22
Pie Map	22
Cartogram Map	22
Tutorial	23
Using the Tutorial with the Demo Version	24
Lesson 1 - Data Files	24
Opening a Data File	24
Lesson 2 - Boundary Files	25
Lesson 3 - Creating a Thematic Map	26
Zooming in to Get a Better View	27
Viewing the Map Data	28
Changing the Map Type	28
Lesson 4 - Editing Map Properties	29
Changing the Hatch Map Colors	30
Changing the Number of Classes	30
Displaying the Primary IDs	31
Lesson 5 - Adding Map Accessories	33
Adding a Legend	33
Drawing Objects on the Plot	34
Adding Graticule Lines to Show the Map Coordinate System	35
Lesson 6 - Using Layers to Create Two Thematic Maps in One Plot Window	36
Creating a Pin Map	36
Lesson 7 - Changing the Projection	38
Lesson 8 - Saving and Exporting the Map	39
Using the Map in Other Applications	40
Opening an Existing Map File	40
Advanced Tutorial - Lesson 1 - Boundary Editing	41
Alaska and Hawaii	41
Importing the U.S., Canada, and Mexico	42
Advanced Tutorial - Lesson 2 - Downloading Online Maps	43
Adding a Server to the Data Source List	43
Downloading an Online Map	44
Tutorial Conclusion	45
Printing the Online Help	46

Getting Help 47
 Internet Resources 47
 Technical Support 48
 Contact Information..... 48
Index 49



Introduction to MapViewer™

MapViewer is an analytical, thematic mapping program. With thematic maps, data are linked to polygons, polylines, or points on a map, making it easy for you to visualize data distribution.

With **MapViewer**, you can define sales territories, outline marketing strategies, view demographic distributions, show ecological distribution, present epidemiological studies, produce geologic maps, teach cartography, or display any geographically distributed data. **MapViewer** helps you present your data in the most informative ways.

Although **MapViewer** includes a wide variety of boundary files, it does not limit you to only working with the included boundary files. You can define your own territories by tracing existing boundaries, drawing completely new boundaries, or importing boundaries from files. Then, you can use the data included with **MapViewer** to produce various types of maps, create your own data file in **MapViewer**, or import your own data for use with the map.

MapViewer can create the following map types: base, pin, hatch, contour, symbol, density, territory, vector, line graph, multi-graph, gradient, bar, flow, prism, pie, and cartogram maps. In addition, you can add map features such as data labels, graticules, legends, scale bars, and map collars. Most maps can be calibrated, scaled, limited in range, and projected. In addition, you can analyze the maps with tools such as queries.

It is recommended that all users spend a few minutes working through the tutorial. The tutorial introduces you to many of **MapViewer's** features and helps you to understand how **MapViewer** works. The tutorial is short and easy to follow. It will be a few minutes well spent.

The **Scripter™** program, included with **MapViewer**, is useful in creating, editing, and running script files that automate **MapViewer** procedures. By writing and running script files, simple mundane tasks or complex system integration tasks can be performed precisely and repetitively without direct interaction. **MapViewer** also supports ActiveX Automation using any compatible client, such as Visual BASIC.

The new features in **MapViewer 8** are summarized:

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

Who Uses MapViewer?

People in many different disciplines benefit from **MapViewer**. Scientists and engineers use **MapViewer** for spatial data analysis. Journalists, or anyone who creates articles, papers, or websites with maps, benefit from the visually appealing maps created with **MapViewer**. **MapViewer** maps can easily communicate complex location-based data.

Educators, students, large and small businesses, government agencies, independent consultants, GIS analysts, researchers, and more consider **MapView** to be a valuable asset.

System Requirements

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

- Windows XP SP2 or SP3, Vista, 7, 8 (excluding RT), and higher
- 512MB RAM minimum for simple data sets, 1GB RAM recommended
- At least 500 MB of free hard disk space
- 1024 x 768 or higher monitor resolution with a minimum 16-bit color depth

Installation Directions

Installing **MapView** requires logging onto the computer with an account that has Administrator rights. Golden Software does not recommend installing **MapView 8** over any previous versions of **MapView**. **MapView 8** can coexist with older versions (e.g. **MapView 7**) as long as both versions are installed in different directories. By default, the program installation directories are different.

Installing MapViewer

To install **MapView** from a CD:

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

To install **MapView** from a download:

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

Updating MapViewer

To update **MapView**, open the program and click the **File | Online | Check for Update** command. The Internet Update program will check Golden Software's servers for any free updates. If there is an update for your version of **MapView** (e.g. **MapView 8.0** to **MapView 8.1**), you will be prompted to download the update.

Uninstalling MapViewer

Windows XP: To uninstall **MapViewer**, go to the Control Panel and double-click *Add/Remove Programs*. Select **MapViewer 8** from the list of installed applications. Click the *Remove* button to uninstall **MapViewer 8**.

Windows Vista: To uninstall **MapViewer** when using the *Regular Control Panel Home*, click the *Uninstall a program* link. Select **MapViewer 8** from the list of installed applications. Click the *Uninstall* button to uninstall **MapViewer 8**.

To uninstall **MapViewer** when using the *Classic View Control Panel*, double-click *Programs and Features*. Select **MapViewer 8** from the list of installed applications. Click the *Uninstall* button to uninstall **MapViewer 8**.

Windows 7: To uninstall **MapViewer** go to the Windows Control Panel and click the *Uninstall a program* link. Select **MapViewer 8** from the list of installed applications. Click the *Uninstall* button to uninstall **MapViewer 8**.

Windows 8: From the *Start* screen, right-click the **MapViewer 8** tile and click *Uninstall* in the context menu. Alternatively, click the down arrow in the bottom left corner of the *Start* screen. Right-click the **MapViewer 8** tile and click *Uninstall* in the context menu.

A Note about the Documentation

The **MapViewer 8** documentation includes this Quick Start Guide and the online help file. Click the **Home | Help | Contents** command to access the online help. Basic information about each command and feature are included in the online help file. The online help file also includes advanced information such as creating multiple layer plots with multiple thematic elements. In the event you cannot find the information you need in the online help, other sources of **MapViewer** help include our support forum, knowledge base, FAQs, newsletters, blog, and technical support.

If you prefer printed documentation, you can purchase the full PDF user's guide that includes all documentation for the program. The PDF guide can be printed by the user, if desired. The guide can be purchased at www.goldensoftware.com. You can also print pages and books from the online help.

Various font styles are used throughout the **MapViewer** documentation. **Bold** text indicates tab or menu commands, dialog names, and page names. *Italic* text indicates items within a dialog such as group box names, options, and field names. For example, the **Import File** dialog contains a *Look in* list. Bold and italic text may occasionally be used for emphasis. In the online help, hyperlinks often replace the Bold text for commands and dialogs. Click the hyperlink to see the help page for the command or dialog.

Menu commands appear as **Draw | Shape | Text**, for example. This means, "click on the **Draw** tab at the top of the ribbon bar, then click on **Text** within the **Shape**

section.” The first word is always the tab name, and the second word is the ribbon section. If applicable, the next word is a command group. The final word is the command. The **Draw | Image | Filters | Spatial** command is an example of a command contained in a command group.

Three-Minute Tour

We have included several example files so that you can quickly see some of **MapViewer**’s capabilities. The **MapViewer** samples folder includes an example of each map type, many boundary files, and population, demographic, or location data files. Only two example files are discussed here, and these examples do not include all of **MapViewer**’s many map types and features. The **Object Manager** is a good source of information as to what is included in each file.

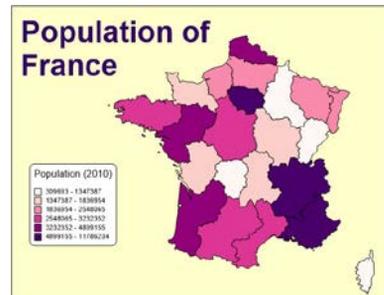
Example MapViewer Files

To view the example **MapViewer** files:

1. Open **MapViewer**.
2. Click the **File | Open** command.
3. Click on a .GSM file located in the Samples folder. By default, the **MapViewer** Samples folder is located in C:\Program Files\Golden Software\MapViewer 8\Samples.
4. Click *Open* and the file opens.

HatchMap.gsm

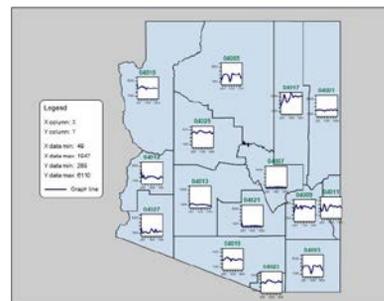
The hatch map sample file contains a map with a single map layer, title, map collar, and legend. The map shows the population of France by region, where darker regions have a greater population than lighter regions.



The HatchMap.gsm map shows the population of France.

MultiGraphMap.gsm

The multi-graph map sample file contains a map with a single map layer, map collar, and legend. The map displays unique line graphs for each county.



The MultiGraphMap.gsm map shows a multigraph map for Arizona counties.

Using MapViewer

The general steps to progress from a data set and boundary file to a finished map are as follows:

1. Create or import the boundary file in the **MapViewer** plot window. The boundaries can be created in **MapViewer**, imported from the **MapViewer** samples folder, or imported from another source. Boundaries to be used in a map must have assigned Primary IDs.
2. Create or import the data file. The data file must consist of a Primary ID (PID) column and at least one data column. The data file can be created in the **MapViewer** worksheet window or outside of **MapViewer**, for example by using an ASCII text editor or Excel.
3. Select a map type to create a thematic map. The data file in step two is linked to the boundary file in step one in the **Open Data File** dialog. Boundaries are linked to their specific data values by their Primary ID.
4. Click on the map layer in the **Object Manager** to view and edit the map properties in the **Property Manager**. Add more layers and map features, such as scale bars and legends, as desired.
5. Click the **File | Save** command to save the plot as a **MapViewer** .GSM file, which contains all the information to recreate the map.

Using Scripter

Tasks can be automated in **MapViewer** 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 **MapViewer**. Scripts are useful for automating repetitive tasks and consolidating a sequence of steps. Refer to the *MapViewer Automation* help book in the online help for more information about **Scripter**. The C:\Program Files\Golden Software\MapViewer 8\Samples\Scripts folder includes several example scripts so that you can quickly see some of **Scripter**'s capabilities.

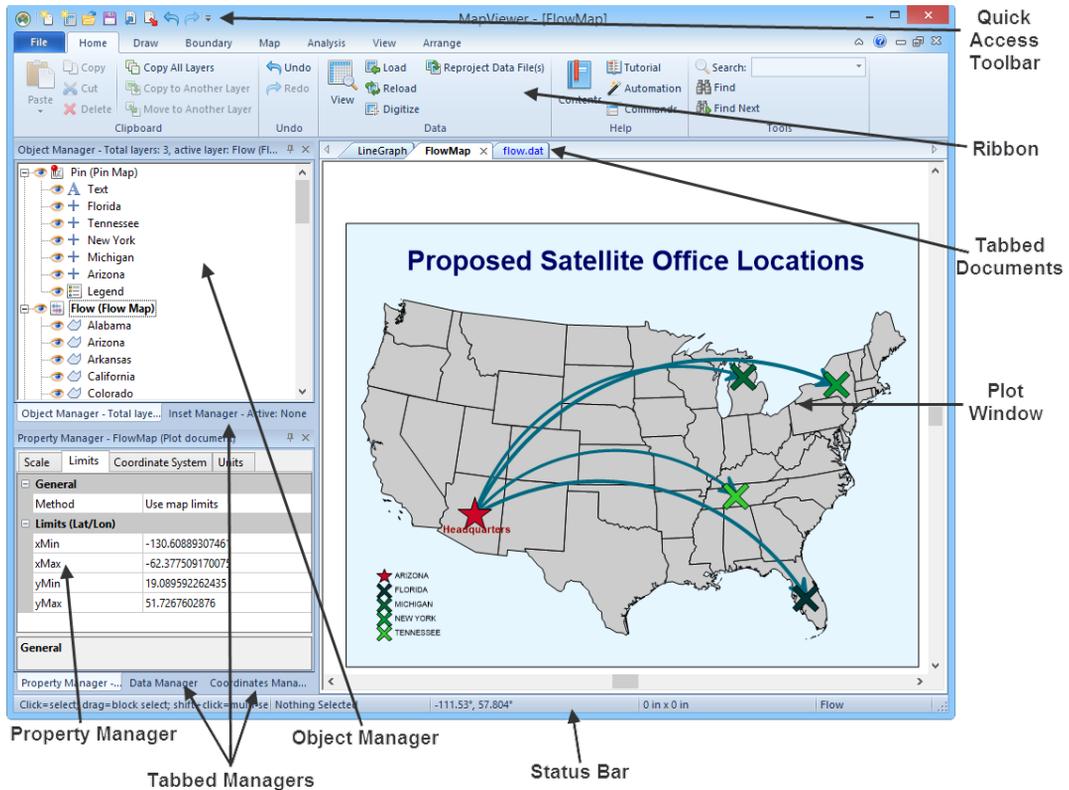
Example Scripter Files

To run a sample script:

1. Open **Scripter** by navigating to the installation folder, C:\Program Files\Golden Software\MapViewer 8. Double-click on the Scripter.exe application file.
2. Click the **File | Open** command.
3. Select a sample script .BAS file in the C:\Program Files\Golden Software\MapViewer 8\Samples\Scripts folder.
4. Click *Open* and the script file opens.
5. Click the **Script | Run** command and the script is executed.
6. Most sample scripts will open **MapViewer** and display a map in the plot window.

MapViewer User Interface

MapViewer contains two document window types: the plot window and the worksheet window. Maps are created and displayed in the plot window. The worksheet window displays, edits, transforms, and saves data in a tabular format. The **MapViewer** user interface consists of the Quick Access Toolbar, Ribbon, tabbed documents, managers, and status bar.



This is the **MapViewer** window. The Quick Access Toolbar and ribbon bar are at the top of the window. To the right, the plot window shows the current displayed plot. Above the plot window are the open document tabs. By default, plot documents have black text, and worksheet documents have blue text. To the left of the plot window are the managers. The **Object Manager** is open on top, with the **Inset Manager** tabbed. The **Property Manager** is open below the **Object Manager** and is tabbed with the **Data Manager** and **Coordinates Manager**. The managers can be undocked from the left of the window and split apart. The status bar is along the bottom of the window.

The following table summarizes the function of each component of the **MapView** layout.

Component Name	Component Function
Quick Access Toolbar	The Quick Access Toolbar offers quick access to frequently used commands. New Plot, New Worksheet, Open, Save, Print, Import, Export, Undo, and Redo are included by default. The Quick Access Toolbar can be customized.
Ribbon Bar	The ribbon bar contains all of MapView 's commands. The ribbon bar can be customized.
Tabbed Documents	Multiple plot windows and worksheet windows can be open simultaneously and displayed as tabbed documents. Click on a tab to display the window. By default, plot windows have black text, and worksheet windows are indicated by blue text on the tab.
Object Manager	The Object Manager contains a hierarchical list of the objects in the plot window. Objects are displayed in the plot window in the order they are arranged in the Object Manager . These objects can be selected, arranged, edited, and renamed in the Object Manager . The Object Manager is initially docked on the left side and tabbed with the Inset Manager .
Property Manager	The Property Manager contains all of the properties for the selected object, layer, or plot. Select an object or layer to edit its properties. Select nothing or click the Map Plot Plot Properties command to edit the plot properties. Properties of multiple objects can be edited by first selecting the objects in the Object Manager or plot window, and then editing the shared properties in the Property Manager .
Inset Manager	The Inset Manager displays information about insets in the plot and contains commands for editing, adding, or removing insets.
Data Manager	The Data Manager has two views, Data view and Stats view. View or edit the data values for the selected object in the Data view, and view the data statistics in the Stats view.
Coordinates Manager	View and edit the selected object's center and boundary vertices in the Coordinates Manager .
Status Bar	The status bar displays information about the activity in MapView . The status bar is split into five sections, from left to right: tool tips for the current command, selected object information, cursor coordinates, selected object size in page units, and the active layer name.

Changing the Window Layout

The windows and managers display in a docked view by default; however, they can also be displayed as floating windows. The ribbon bar can be minimized for a view similar to the classic menu layout. The visibility, size, and position of each manager and document may also be changed. Refer to the *Ribbon, Manager Layout, Tabbed Documents*, and the **View | Window** commands' topics in the online help for more information on layout options.

Displaying Managers

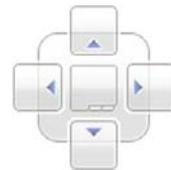
Click the appropriate **View | Managers** command to display the various managers. A check mark indicates the manager is visible. No check mark indicates the manager is hidden. Click the **View | Managers | Show All** or **View | Managers | Hide All** command to display or close all five managers.

Auto-Hiding Managers

You can increase the view window space by minimizing the managers. To hide a manager, click the  button in the upper right corner of the manager when the manager is docked. When the manager is hidden, place the cursor directly over the tab to display the manager again. Click the  button to return the manager to a docked position.

Docking Managers

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



The docking indicators show docking locations when the cursor hovers over each section.

Customizing the Ribbon and Quick Access Toolbar

You can customize **MapView**'s ribbon and Quick Access Toolbar by clicking the **File | Customize Ribbon** command or right-clicking on the ribbon or Quick Access Toolbar and selecting one of the customize options in the context menu. The commands can be added, removed, or rearranged on the ribbon and Quick Access Toolbar.

Plot Window

The plot window is the area used for creating and modifying maps. When you first start **MapView**, you are presented with an empty plot window. Multiple plot windows can be open, and the document tabs can be used to easily move between them. If you need to change the display of the tabs, select the **File | Options**

command. Then, click *User Interface* on the left side of the dialog. Next, set the *MDI tab style*. Setting the *MDI tab style* to *None* turns the tabular display off.

Menu and Tab Commands

Along the top of the ribbon bar are tabs for the **File** menu and the **Home**, **Draw**, **Boundary**, **Map**, **Analysis**, **View**, and **Arrange** tabs. Clicking on the **File** tab opens the **File** menu, and clicking on any other tab displays that tab's commands on the ribbon bar. Hover over a command and press F1 to open the command's help page. See the *Plot Window Commands* section in the *Introduction* book of the online help for a list of commands on each tab and links to each command help topic. You can also access tab and command help pages by clicking **Home | Help | Commands**.

Status Bar

The status bar is located at the bottom of the window. Use the **View | Display | Status Bar** command to show or hide the status bar. The status bar displays information about the activity in **MapViewer**. The status bar is split into five sections, from left to right: tool tips for the current command, selected object information, cursor coordinates, selected object size in page units, and the active layer name.

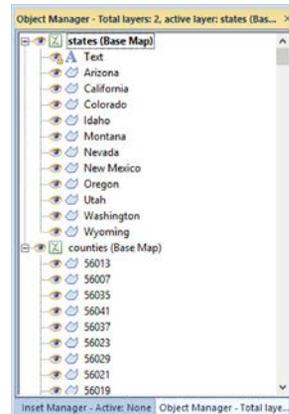
Object Manager

The **Object Manager** contains a hierarchical list of the objects in the plot window. Objects are displayed in the plot window in the order they are arranged in the **Object Manager**. These objects can be selected, arranged, edited, and renamed in the **Object Manager**. The **Object Manager** is initially docked on the left side and tabbed with the **Inset Manager**.

Each item in the **Object Manager** list consists of an icon indicating the object type, a text label for the object, and an "eye"  to indicate visibility.

Layers have a plus or minus icon to expand or collapse the layer in the **Object Manager**. Click the  button to expand the layer, and click the  button to collapse the layer. For example, a base map layer can contain polygon boundary objects, text objects for a title and other information, lines, and shapes to enhance the visual appeal of the map. To expand the layer to view all of the objects, click the  button.

Click the  to show or hide the object or layer. The layer that contains the graticule is indicated by the graticule icon in the



*In the **Object Manager**, the "states" and "counties" layers are expanded, showing the polygon objects contained on each. The "states" layer also contains a text object. The layer icons indicate that both layers are base maps.*

top right corner of the “eye.” When a layer or object is locked, a “lock” icon appears in the lower right corner of the “eye.” For example, when a locked layer contains the graticule, the “eye” appears as .

Click on an object’s or layer’s name to select the object or layer and edit its properties in the **Property Manager**. The selection handles in the plot window change to indicate the selected object(s), and the status bar displays the name of the selected object or number of selected objects. To select multiple objects in the **Object Manager**, press and hold the CTRL key while clicking each object. To select a contiguous group of objects, click the first item in the list, hold the SHIFT key, and click the last item in the list.

To edit an object’s name, click the object and then click again on the selected object (two slow clicks). You must allow enough time between the two clicks so it is not interpreted as a double-click. Enter the new name into the box.

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 within the current layer. The cursor changes to a black arrow if the object can be moved to the cursor location or a red circle with a diagonal line if the object cannot be moved to the indicated location. In addition to dragging objects in the **Object Manager**, the order can be changed with the **Arrange | Move** commands. To change the display order of the layers with the mouse, select a layer and drag it to a new position in the **Object Manager**.

To delete an object or layer, select the object or layer and press the DELETE key. The plot must contain at least one layer. To move objects from one layer to another, use the **Home | Clipboard | Copy to Another Layer** or **Home | Clipboard | Move to Another Layer** command, or right-click the object and select *Copy to Another Layer* or *Move to Another Layer* in the context menu.

Property Manager

The **Property Manager** contains all of the properties for the selected object, layer, or plot. Select an object or layer to edit its properties. Click the **Map | Plot | Plot Properties** command to edit the plot properties. Shared properties of multiple objects can be edited by first selecting the objects in the **Object Manager** or plot window, and then editing the shared properties in the **Property Manager**.

The **Property Manager** has multiple pages for every object and map. The **Property Manager** shows only the **Info** page for a base map layer with no data. For every other object or layer, click the tabs at the top of the **Property Manager** to switch between the pages.

Sections with multiple properties appear with a  or  to the left of the name. Click on the button to expand or collapse the list. For example, click on an object, and next click the **Info** page of the **Property Manager**. Click the  button to see the *PID*, *SID*, and *Hyperlink* properties.

To change a property, click on the property's value next to the property name. Select a new property from the list, type a new value into the field, scroll to a new number using the  buttons, or select a new value with the . For example, a rectangle has a **Fill** page that contains *Fill Properties* and *Gradient* sections. When a pattern is selected, it also has *Pattern Offset* and *Pattern Scale* sections. Changing the pattern or color requires clicking on the current selection, and selecting a new color in the color palette or a new pattern in the pattern palette. Changing the opacity requires typing in a new percentage or clicking and dragging the slider bar. To change the *Pattern Offset X* value, type a new number into the field or click the  buttons.

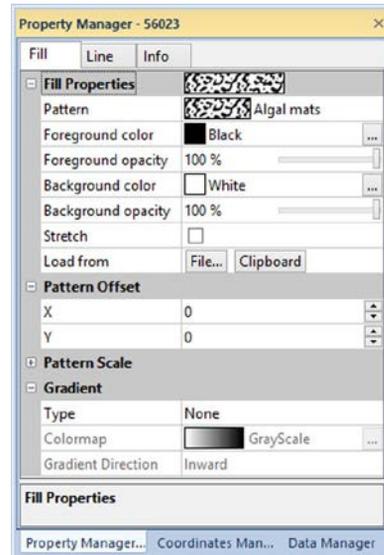
The shared properties of multiple objects can be edited at one time. For example, you can select a polyline and polygon object and then change the line properties for both objects at the same time. Changing the fill properties while both objects are selected has no effect on the polyline.

Often, some properties are dependent on other selections. For example, in the image above the *Pattern Offset* and *Pattern Scale* sections are only available when an image pattern is selected in the *Pattern* field of the *Fill Properties* section.

Objects in the plot window are automatically updated when you change a property in the **Property Manager** by selecting an item from a list or palette, pressing ENTER, or clicking somewhere else in the **Property Manager**.

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. *Pattern Scale*, and the left arrow collapses the section.

Use the **File | Options** command to change the default properties for line, fill,

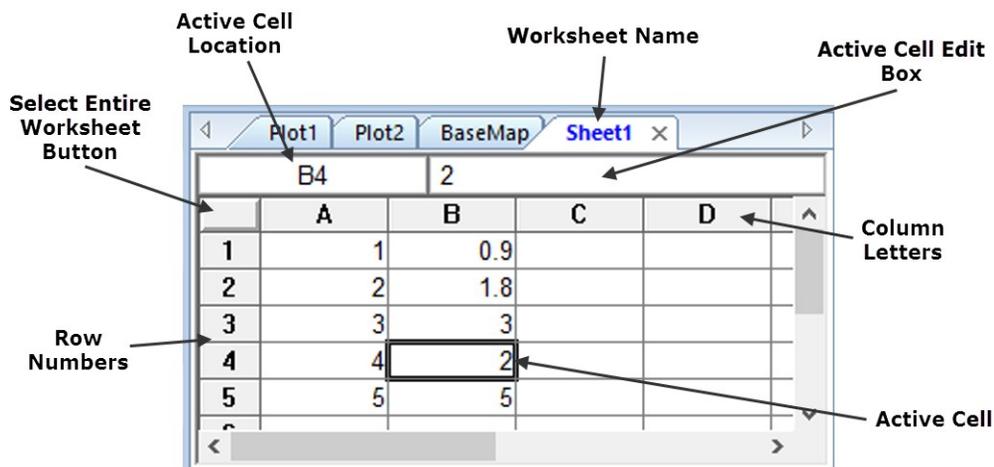


*The **Fill** page of the **Property Manager** contains options for a closed object's fill. The title bar shows the object's PID in this example.*

symbol, font, and label properties. If *Show Property Manager info area* is checked on the **Options** dialog **User Interface** page, a short help statement is displayed at the bottom of the **Property Manager** for the selected property.

Worksheet Window

The worksheet window is for creating or editing data files. Data can be altered, transformed, sorted, or filtered. The **Data** tab is available on the ribbon bar when the worksheet window is open.



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

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

How MapViewer Works

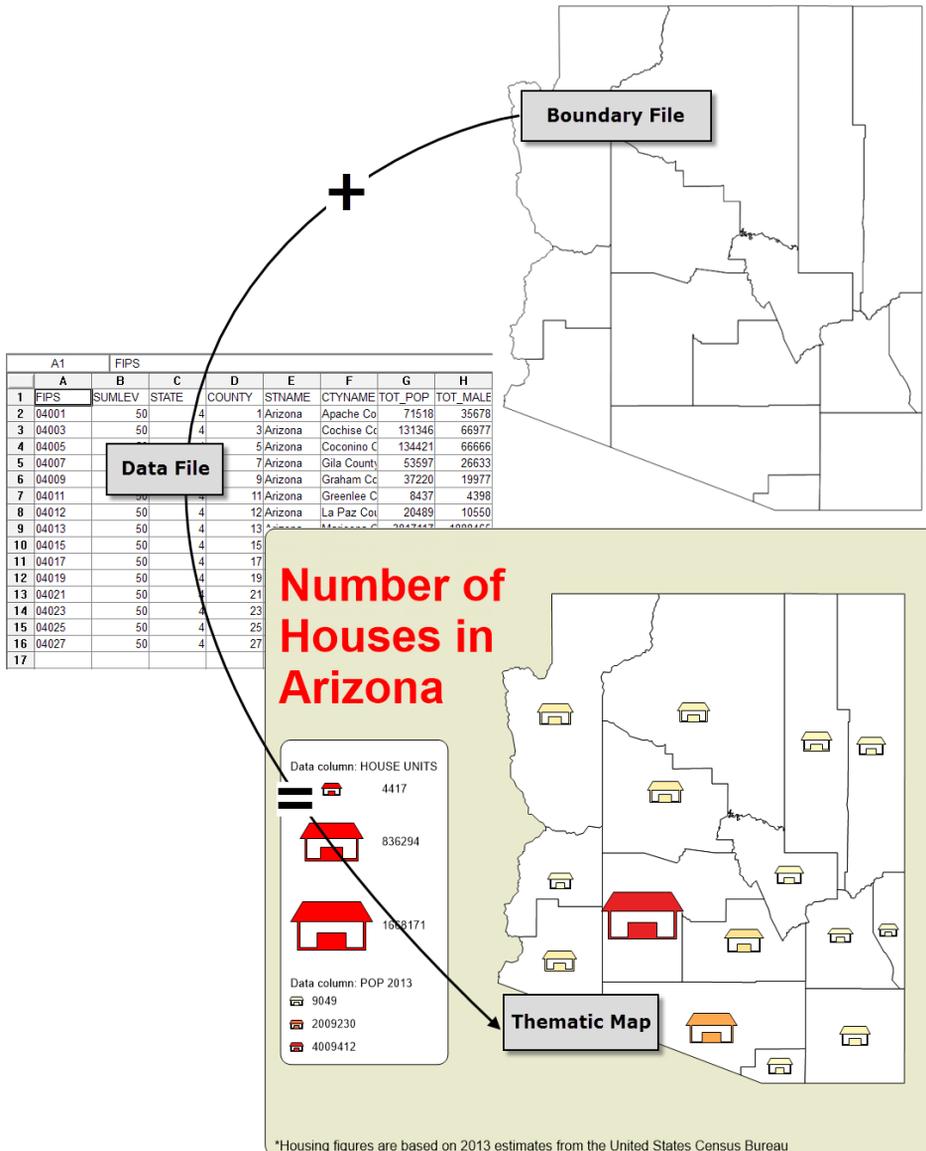
To create a thematic map in **MapViewer**, you need both a vector boundary file and a data file containing the data you want to represent on the map. With these two components, you can create any of the thematic map types. The boundary file can be imported as a base map before the data file is loaded and thematic map is created. Alternatively, the boundary file and data file can be loaded as the thematic map is created.

Boundary files may consist of polygons, polylines, and points. Polygons, polylines, and points are also called boundaries or boundary objects. Polygons are closed shapes that can display a fill property. Polylines are a connected set of XY coordinate positions forming either straight or curved lines. Points consist of a symbol marking an XY coordinate position.

MapViewer thematic maps link data to polygons, polylines, or points on maps. Boundary objects are linked to data by using Primary IDs. A Primary ID (PID) is a unique identifier associated with each polygon, polyline, or point represented on the thematic map. This Primary ID is also found in the corresponding data file.

The data contains the Primary IDs and the data for each polygon, polyline, or point you would like to represent on a map. Each row contains the Primary ID and data values for a single boundary object on the map.

The graphic shown on the next page illustrates the relationship between map boundaries and worksheet data. Notice that the Primary IDs are displayed for all areas on the map and are contained in column A of the worksheet portion shown.



*This graphic illustrates the relationship between the boundary file and the data when creating a thematic map in **MapViewer**. Each polygon (county) contains a the Primary ID (FIPS CODE). The Primary IDs are also located in column A of the worksheet. The data (POP 2013 and HOUSE UNITS) are linked to the counties on the map to create the bivariate symbol map above.*

Introduction to Data

The data represented on a **MapView** map needs to be in column and row format. Each row contains the information for a single polygon, polyline, or point on the map. The row of data is linked to the boundary object by its Primary ID. When you create a thematic map, **MapView** selects a variable to be displayed. You can select the variable or variables to use in the map on the **General** page of the **Property Manager** when the layer is selected in the **Object Manager**. You can also show the map's properties in the **Property Manager** by clicking the **Map | Layer | Layer Properties** command. The columns contain the different variables, or data values, to be represented on the map.

The table below shows a typical data layout that would be effective in **MapView**. Notice that row 1 contains column headings. These names are useful for identifying the data contained in each column. The variable names are displayed in the **Property Manager** and map dialogs to assist in selecting the variable to be represented on a thematic map. If there are no text entries in row 1, the column letters (Column A, Column B, etc.) are used in the dialogs and **Property Manager** pages instead.

	Column A	Column B	Column C	Column D
Row 1	Primary ID	Secondary ID	Population	Sales in Dollars
Row 2	Jackson	MO	343033	34867
Row 3	Franklin	MO	563198	56798
Row 4	Adams	MO	435667	47653

The Primary ID can be text or numbers. Polygons, polylines, or points on a map are linked to the data by the Primary ID. For the example above, the data rows with Primary IDs Jackson, Franklin, and Adams would be associated with objects in the plot document with Jackson, Franklin, and Adams as the assigned PIDs.

While the majority of map types use the above data layout, some do not. The data file for a multi-graph map has multiple rows with repeating PIDs for each object. The flow map data file contains a Start PID column, End PID column, and data column when the *Connect Centroids* method is used. See the online help pages for flow maps and multi-graph maps for more information about data requirements specific to these maps.

Boundary Types

There are three types of boundary objects in **MapViewer**: polygons, polylines, and points. You can draw these types of objects with the **MapViewer** drawing tools or you can import files that contain these types of boundaries using the **File | Import or Map | Create Map** commands. **MapViewer** includes a number of boundary files in the SAMPLES folder.

Assign a Primary ID to an object to link data to it. You can also assign a Secondary ID and an unlimited number of attributes that can be used as additional identifiers for the object. You can also assign hyperlinks to link your objects to documents or web links.

Polygons

Polygons, also referred to as areas, are closed boundaries. The beginning and ending points for the boundary are identical, forming a closed shape. A minimum of three vertices are required to form a polygon. Polygons can be assigned a fill color, fill pattern, and line style. Polygons can be drawn by clicking **Draw | Shape | Polygon** or **Draw | Shape | Spline Polygon**.

Polylines

Polylines, also called curves, are lines drawn on a map to show features such as roads or streams. Polylines can be drawn by clicking **Draw | Shape | Polyline** or **Draw | Shape | Spline Polyline**.

Points

Points show point locations on a map and are represented by a symbol. Points can be placed on a map using the **Map | Create | Pin Map** command, or they can be drawn using the **Draw | Shape | Point** command.

Other Shapes

Objects such as rectangles, rounded rectangles, ellipses, and text are not **MapViewer** boundaries so you cannot link data to these types of features. Squares and circles are special types of rectangles and ellipses. Select the **Draw | Shape | Rectangle**, **Rounded Rectangle**, or **Ellipse** command and hold the CTRL key while clicking and dragging to draw a square, rounded square, or circle. You can add these types of objects to any type of map as decorative features, or you can use these objects to highlight regions on a map. However, if you need to use a rectangle, rounded rectangle, square, circle, or ellipse as a boundary, draw the shape, select it, and then use the **Boundary | Edit Boundaries | Change Boundary Type | Symmetric Shape to Area** command to convert it into a polygon boundary object.

Linking Data to Boundaries

A Primary ID (PID) is an identifier used by **MapViewer** as a link between a boundary object (polygon, polyline, or point) and data. Every boundary object in **MapViewer** can have a Primary ID. The Primary ID for a selected object is displayed in the **Object Manager** and the status bar at the bottom of the **MapViewer** window.

Notice in the image on page 14 that the county FIPS codes displayed on the map match the FIPS codes in column A of the data file. Primary IDs must match exactly between the boundaries on the map and the Primary ID column in the data.

MapViewer ignores leading or trailing spaces in a Primary ID, but any other character is considered part of the Primary ID. When there is not an exact match, data is not represented for that polygon, polyline, or point on the map. If none of the Primary IDs matches between the data and boundaries, you will receive an error message when trying to produce a thematic map, indicating that there is insufficient data to produce the map. In this case, you should verify that the boundary Primary IDs and the data Primary IDs match exactly.

If you create your own boundaries for a map, select a boundary and assign a Primary ID in the **Info** page of the **Property Manager**. The PID must be assigned in the **Property Manager Info** page or with one of the **Boundary | Attributes** commands. After you have assigned all primary IDs for all the boundaries on your map, click the **Home | Data | View** command and a worksheet window is opened with all your Primary IDs in column A. If you have a data file that already contains the Primary IDs, you can use the **Home | Data | Load** command to import your data file.

Map Layers

Layers partition a map into one or more overlays. Objects can be isolated by placing them on separate layers. Layers are created with the **Map | Layer | New Layer** command or by right-clicking in the **Object Manager** and selecting *New Layer* in the context menu. Layers are manipulated in the **Object Manager**.

Active Layer

Only one layer can be active at a time. For most commands, objects on other layers remain unaffected by any changes you make on the active layer. However, some commands apply to all layers at the same time.

The following commands apply to all layers when used:

- The **Home | Clipboard | Copy All Layers** command copies all objects on all map layers.
- The **Map | Plot | Move/Size All Layers** command moves and/or resizes all objects on all layers at the same time.

- The **Assign Coordinate System** dialog converts the projection across all map layers. Access the **Assign Coordinate System** dialog by clicking **Map | Plot | Plot Properties**, the **Coordinate System** page of the **Property Manager**, then the *Change* button.
- Access the **Scale** page in the **Property Manager** by clicking **Map | Plot | Plot Properties** to scale the boundary objects on all layers.
- The **Map | Plot | Calibrate** command converts the coordinates for all objects on all layers.
- The **File | Import** command appends imported objects to all boundary objects on all layers when the *Append image* check box is checked in the **Import** dialog.
- The **File | Export** command exports all objects on all layers, unless *Selected objects only* is checked in the **Export** dialog.

Layers and Thematic Maps

Each layer may contain a single thematic map and have only one data file associated with the layer. By using more than one layer, you can combine different map types to make visually dynamic plots. For example, a symbol map showing sales numbers can be placed over a hatch map showing population.

Tips on Using Layers

There are several things you can accomplish when you use layers in **MapView**. When using layers, here are a few tips and tricks that might help you.

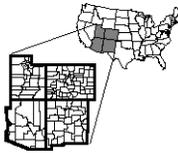
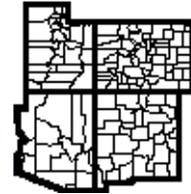
- If you want to move a plot on the page, use the **Move/Size All Layers** command. This moves all objects on all layers simultaneously.
- When copying a multi-layer map to the clipboard, use the **Copy All Layers** command. This copies all objects on all layers simultaneously.
- Use layer names (specified in the **Object Manager**) to easily keep track of what you have included on each layer.
- Right-click in the **Object Manager**, and click *Collapse All Layers* to simplify what is displayed in the **Object Manager**. Then expand a layer by clicking the  button when you need to edit the objects on that layer.

Below are some possible applications for working with multiple layers.



Make a plot with different thematic maps on different layers. This way, you can display different data variables on a single plot document. You could show a hatch map on one layer, and a symbol map on another layer.

Use layers to emphasize particular boundaries. An example is to have two layers, one with the county outlines and one with the state outlines. In this situation, you can place the state boundaries on a top layer and set the fill *Pattern* to *None*. Then give the states a heavy line style relative to the county boundaries.



Show “zoomed” maps, with a small-scale map and large-scale map on the same page. This could be used to indicate a location from the small-scale map, and then present the data on the large-scale map.

Analyzing Maps

When you create a thematic map or pin map, you have a number of commands available to obtain information from the map. Most of these commands are located in the **Analysis** tab on the ribbon bar. For example, you could create a hatch map of world population. Next, you could use the **Query** command to select countries with populations greater than 10,000,000. Then, you could generate a boundary records report for the selected countries with the **Boundary Records** command.

File Types

MapViewer uses three basic file types: data, boundary, and **MapViewer** .GSM files.

Data Files

Data files contain the input data provided by the user, and are used to produce thematic maps or pin data points on a map. These files are generally referred to as “data files” or “worksheets” throughout the documentation. Data can be read from various file types, and most contain a numeric/text Primary ID as well as additional attributes and numeric data for creating a thematic map.

Boundary Files

Boundary files are vector files that contain polygons, polylines, and/or points. Boundary files are used to create a base map or boundary portion of a thematic map.

MapViewer Files

MapViewer .GSM files preserve all the objects and object settings contained in a plot window. These files are called **MapViewer** .GSM files throughout the documentation. **MapViewer 8** can open .GSM files from previous versions of **MapViewer**. By default, the data files linked to the layers are embedded within a **MapViewer** .GSM file, so a **MapViewer** .GSM file contains all the components to exactly recreate the saved map.

Map Types

The following map types are available in **MapView**.



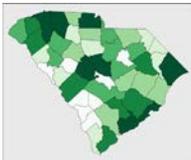
Base Map

Base maps contain boundaries without any data representation. Boundaries can be polygons, polylines, and points. Base maps can be used with other maps to show features such as roads, streams, city locations, cities, administrative boundaries, and so on. You can overlay base maps on thematic maps by creating the base map on a separate **MapView** layer.



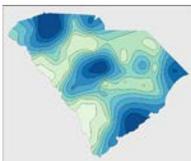
Pin Map

Pin maps draw points at particular locations on a map. Pin maps can be used to show locations, post labels, or display data values. Pin map point locations are based on XY locations, such as longitude/latitude or US 5-digit ZIP code centroids. Pin maps can also use colors and symbols to represent data ranges or classes of data. Pin maps color code or symbol code locations based on the data value associated with pins.



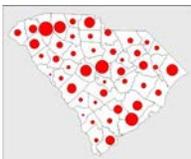
Hatch Map

Hatch maps use colors to represent classes of data for each polygon, polyline, or point on the map. Hatch maps color code objects based on the data values or text classes associated with them. Data values are placed in classes that are defined by data ranges, and one color is associated with each class.



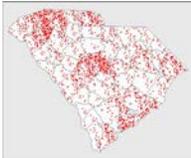
Contour Map

Contour maps interpolate from discrete data values to create a regularly spaced grid. The grid is displayed as lines of constant data values. The areas between the lines may be filled with colors and patterns of your choice.



Symbol Map

Symbol maps place a scaled symbol on a polygon, polyline, or point location on the map. The symbols are scaled and/or colored in proportion to the data values. The larger the symbol, the greater the associated data value.



Density Map

Density maps, also called dot density maps, use symbols to represent data values for areas on a map. On a density map, each symbol represents a data value, so the number of symbols drawn in an area is in relation to the data value associated with that area. Areas with more symbols have higher associated data values.



Territory Map

Territory maps allow polygons, polylines, or points to be grouped into territories by defining a grid, data class, text class, or manually selecting the areas for territories. All objects within a territory are displayed with the same color. Statistical information about the objects' associated data is available in the **Info** page of the **Property Manager**



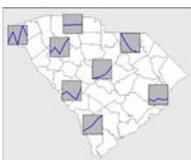
Vector Map

Vector maps interpolate from discrete data values to create a regularly spaced grid. Vectors are drawn to show the direction and magnitude of the steepest slopes across the grid.



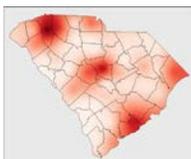
Line Graph Map

Line Graph maps show line graphs of the data at each polygon, polyline, or point location. By looking at a single line graph, you can see how the individual data value relates to the whole data set. The graph fill color represents the data value.



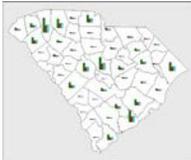
Multi-Graph Map

Multi-Graph maps display a unique line graph or scatter plot for objects in a map. The different data are displayed for each object in the plot. The data sets can be compared visually for a group of objects.



Gradient Map

Gradient maps display a range of colors based on information from polygons, polylines, and points. The centroid of a polygon, all vertices of a polyline, and center of a point are used as data point locations and the data value of the object is interpolated onto a regularly spaced grid. The gridded data values are assigned colors based on the selected color spectrum. The resulting map is a smooth color spectrum between the original data.



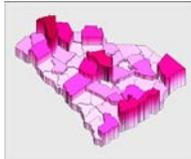
Bar Map

Bar maps can be created for polygons, polylines, or points, and are a way to represent several data values. Bar charts can show one or more variables where each variable is represented by a proportionally sized bar.



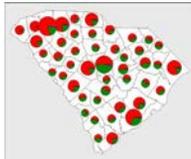
Flow Map

Flow maps scale the width of existing curves on the map or connect the centroids of boundary objects based on starting and ending locations. The curves are scaled in proportion to the data values represented for each curve. The wider the curve, the greater the data value associated with the curve.



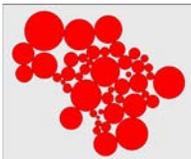
Prism Map

Prism maps draw each polygon, polyline, or point as a raised prism, where the height of the prism is relative to the associated data value. Taller prisms indicate higher data values. Prism maps can be colored using the boundary colors, a colormap, or data classes. Fill and image textures can be applied to a prism map.



Pie Map

Pie maps can be created for polygons, polylines, or points, and are a way to represent several data values by drawing a proportionally sized pie chart for each location. Pie charts show two or more variables where each variable is represented by a proportionally sized slice of the pie. Within a single pie, the size of the slices gives you the relative proportion of the values for that particular polygon, polyline, or point. The entire pie chart is sized in relation to the total of all variables for the boundary object, as compared to the totals of the variables for other boundary objects.



Cartogram Map

Cartogram maps display variables by varying area size. **MapView** offers three types of cartogram maps: Dorling, Noncontiguous, and Contiguous cartograms. In cartogram maps, objects are scaled according to the data value. Dorling Cartograms replace the areas with circles. Noncontiguous cartograms maintain object shape but do not maintain connectivity. Contiguous cartograms maintain object connectivity but do not maintain object shape.

Tutorial

The tutorial is designed to introduce you to some of **MapViewer**'s basic features. After you have completed the tutorial, you should be able to begin creating your own maps. We strongly encourage completing the tutorial before proceeding with **MapViewer 8**, even if you have used previous versions of the program.

If you find you still have questions after you have completed the tutorial, you should consider reviewing the material in **MapViewer**'s extensive online help file. However, if you still have questions, do not hesitate to contact Golden Software's technical support at mapviewersupport@goldensoftware.com. We are happy to answer your questions before they become problems.

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

- *Lesson 1 - Data Files* shows you how to create and format a data file to use in mapping.
- *Lesson 2 - Boundary Files* explains boundary files used to create a map.
- *Lesson 3 - Creating a Thematic Map* shows you how to create a thematic map.
- *Lesson 4 - Editing Map Properties* shows you how to change thematic map properties.
- *Lesson 5 - Adding Map Accessories* describes some of the **MapViewer** features such as legends.
- *Lesson 6 - Using Layers to Create Two Thematic Maps in One Plot Window* shows you how to add another thematic map layer to a single document.
- *Lesson 7 - Changing the Projection* shows you how to change the map projection.
- *Lesson 8 - Saving and Exporting the Map* explains how to save and export maps.
- *Advanced Tutorial - Lesson 1 - Boundary Editing* provides some boundary editing examples while creating a useful template.
- *Advanced Tutorial - Lesson 2 - Downloading Online Maps* shows you how to link to a WMS server and download online maps.
- *Advanced Tutorial - Lesson 3 - Querying* gives an example of the three **Query** commands. This lesson is only available in the online help.

The lessons should be completed in order; however, they do not need to be completed in one session.

If you prefer printed documentation, you can purchase the full PDF user's guide that includes all documentation for the program. The PDF guide can be printed by the user, if desired. The guide can be purchased at www.goldensoftware.com. You can also print pages and books from the online help. See the *Printing the Online Help* topic for more information.

Various font styles are used throughout the **MapView** documentation. **Bold** text indicates tab or menu commands, dialog names, and page names. *Italic* text indicates items within a dialog such as group box names, options, and field names. For example, the **Import File** dialog contains a *Look in* list. Bold and italic text may occasionally be used for emphasis.

Also, menu commands appear as **Draw | Shape | Text**. This means, “click on the **Draw** tab at the top of the ribbon bar, then click on **Text** within the **Shape** section.” The first word is always the tab name, and the second word is the ribbon section. If applicable, the next word is a command group. The final word is the command. The **Draw | Image | Filters | Spatial** command is an example of a command contained in a command group.

Using the Tutorial with the Demo Version

If you are using the demo version of MapViewer, you will not be able to complete some of the steps due to disabled features. 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.

Lesson 1 - Data Files

A **MapView** data file must contain a Primary ID (PID) and at least one variable. Each row contains a PID that is linked to an object on the map and that object's associated data values.

If the data are already in a file, note that you do not need to display the data in a worksheet window. However, if the data are not in a file, you must first create a data file before you create a map. See the *Worksheet Document* help page for additional information on data files, worksheet windows, and how to manipulate data in the worksheet.

Opening a Data File

To look at an example of a data file, please open TUTORIAL.XLS into a worksheet window.

1. Click the **File | Open** command or click the  button on the Quick Access Toolbar.
2. In the **Open** dialog, click the down arrow in the *File type* field and select *XLS Excel Spreadsheet (*.xls)*.
3. In **MapView's** Samples folder, click TUTORIAL.XLS and then click the *Open* button.

Although it is not required, the header text (the text in row 1) is helpful to identify the type of data in the column, and this information is used in dialog boxes when selecting data columns. You do not need to open the data file before creating a map, although it

is useful to view the data to be sure the correct data are contained in the file.

Lesson 2 - Boundary Files

MapView contains boundary files in the Samples folder. In addition to these boundary files, you can create your own boundaries or import them from another source. All maps must have Primary IDs assigned to the boundary objects (polygons, polylines, and points). If you are importing boundaries from an outside source, keep in mind that Atlas Boundary [.BNA], ESRI ArcInfo Export Format [.E00], MapInfo Interchange [.MIF], and ESRI Shapefiles [.SHP] files can carry primary IDs.

To import a boundary file:

1. Select the **File | New | Plot** command or click the  button on the Quick Access Toolbar. This creates a new plot document for displaying a map. Note: Opening a new plot automatically switches to the new plot document in the **MapView** window. You can click the tabs at the top of the window to switch between plot and worksheet documents. If you opened **MapView** and directly started the tutorial, you should have Plot1, TUTORIAL, and Plot2 document tabs at the top of the window.
2. Click the **Map | Create Map | Base** command to display the **Import** dialog. The boundary file for the layer in the map window is selected in the **Import** dialog. Alternatively, you can select the **File | Import** command or click the  button on the Quick Access Toolbar to open the **Import** dialog.
3. In the **Import** dialog, browse to the **MapView 8 Samples** folder. Next, click the down arrow in the *File type* field, and then choose *Common Graphic Files (*.*)*. In the list of files, click TUTORIAL.GSB and the name appears in the *File name* box. Check the *Append image*, *Show options if they are available*, and *Scale map if it's too big* boxes if they are not already checked. Next, click the *Open* button.
4. In the **Import Options** dialog, you can define the ID columns for the Primary ID, Secondary ID, attributes, and hyperlink. For this example, the default import options are acceptable. Click the *OK* button and the boundary map is displayed in the map window. Note: The default properties are as follows: *Create PID* is set to *Primary* and *Create SID* is set to *Secondary*. The *Create Hyperlink* box is not checked. *All available attributes* and *Import objects to their specified layers if multi-layers exist* are selected. The *Import attributes list to linked worksheet* and *Import objects that are (partially) within the limits of the existing map* options are unchecked.

If the file you are importing does not contain data/text attributes, for example, AutoCAD Drawing [.DXF] files, you can assign IDs to objects in the map by selecting the boundary object (for example, click on a polygon) and typing the ID into the *PID* field of the **Info** page in the **Property Manager**.

When you are creating a thematic map, you are prompted for a boundary file automatically unless a boundary file is already loaded. See *Lesson 3 - Creating a Thematic Map* for information on this procedure.

Lesson 3 - Creating a Thematic Map

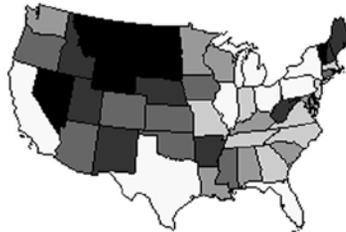
For the first mapping example, we will create a hatch map. A hatch map uses colors or patterns to represent data ranges. It is one of the most common ways to display information on a map because it provides an easy-to-understand visual representation of the data. On a hatch map, all the data values are assigned to a particular class or range of data. In this example, each class is assigned a different fill color that is gradational between two or more colors. Intermediate classes are assigned gradational colors depending on where they fall in the data range.

As mentioned previously, thematic maps require both a boundary file and a data file. When you choose a thematic map command, you are required to select a boundary file and data file you would like to use. To begin creating a thematic map, simply choose the map command you want to use from the **Map | Create Map** section of the ribbon bar.

The following steps are for continuing the tutorial from Lesson 2. If you have not completed the preceding lessons, see the four-step process on page 27 for quickly creating a hatch map.

1. Click the **Map | Create Map | Hatch** command to convert the base map on Layer #1 to a hatch map. The TUTORIAL.xls file we opened in Lesson 1 needs to be linked to the layer to create the thematic map. Clicking the **Map | Create Map | Hatch** command opens the **Open Data File** dialog.
2. Click the TUTORIAL.xls file in the **Open Data File** dialog. Notice the *File name* changes to TUTORIAL. Since we opened TUTORIAL.xls earlier, we can alternatively select TUTORIAL in the *Use loaded worksheet* list. Click the *Open* button.
3. The TUTORIAL.xls data file is now linked to Layer #1 and a hatch map is displayed in the plot window.
4. It is good practice to name layers when using multiple layers and map types in a plot document. Rename Layer #1 by clicking on it in the **Object Manager**, wait a moment, then click again to enable editing. Type "Hatch Map" and press ENTER to name the layer.

Your tutorial hatch map should look similar to the map on the following page. The colors may vary depending on your settings. Changing the colors is discussed as part of Lesson 4.



Your hatch map should look similar to the image above.

If you have not completed Lessons 1 and 2, you can quickly generate a similar hatch map with the four steps below.

1. Open a new plot window by selecting the **File | New | Plot** command.
2. To begin creating a hatch map, click the **Map | Create Map | Hatch** command to display the **Import** dialog.
3. Select the TUTORIAL.gsb file in the Samples folder in the **Import** dialog. Next click the *Open* button. Click the *OK* button in the **Import Options** dialog. See Lesson 2 for more information on importing a boundary file and the associated dialog options.
4. Next, the **Open Data File** dialog is displayed, prompting you for the data file to use. Click the TUTORIAL.xls file in the Samples folder in the **Open Data File** dialog. Next click the *OK* button. See Lesson 1 for more information on opening a data file.

There is now a hatch map displayed in the plot window.

Zooming in to Get a Better View

The **View** tab contains a number of helpful commands that control the level of detail shown for your map. For example, the map window might be quite large, and the map itself relatively small so there is a lot of empty space surrounding the map. Conversely, portions of the map might extend outside the map window limits, so only a portion of the map is displayed. In these cases, a quick way to adjust your view of the map is to use the **View | Zoom | Fit to Window** command. This makes the map as large as possible in the map window while still allowing the entire map to be seen. You can also press CTRL+D to use the **Fit to Window** command. You might try using this command if you need it again while proceeding through the rest of the tutorial. You can also use the other **View** tab commands to change the view level of your map.

If your mouse is equipped with a wheel, you can zoom in and zoom out by rolling the mouse wheel forward and backward. You can also click and hold the mouse wheel to pan the window.

Viewing the Map Data

When a thematic map is created, you are required to open a data file for the map. The data file does not need to be displayed in a worksheet window to be used in a thematic map. However, if you want to view or edit the data associated with a map, you may open the worksheet window as follows:

1. Click the **Home | Data | View** command. A worksheet window is opened displaying the data for the thematic map. Notice for this tutorial, TUTORIAL.xls contains Primary IDs in column A, Population (1000's) in column B, and Land Area in column C.
2. To return to the map, click the Plot2 tab next to the worksheet window.

Changing the Map Type

Although hatch maps are very effective for displaying data distribution, you might consider some of **MapView**'s other thematic map types to display the same data. **MapView** can easily change between map types to show the same data on the map. In most cases, changing the map type is as simple as selecting the type in the **Map** tab. For example, consider this brief exercise in which you can create a symbol map and density map with the same data.

To change the hatch map into a symbol map, click the **Map | Create Map | Symbol** command.



Symbol maps display variables according to symbol size.

To change the symbol map into a density map, click the **Map | Create Map | Density** command.



Density maps display a greater number of symbols in areas with higher data values.

You can experiment with any of the map parameters for any of the map types you create. The most important point to keep in mind is that the location of the PID (Primary ID) column in the data is the only parameter you should not change on an existing map. If you change this, the link between the map boundaries and the data is broken until you change back to the correct PID column.

Often, **MapView**'s default data column selections make a seamless transition between map types. However, some map types can present more than one data column, and flow and multi-graph maps require a unique data column arrangement. You can change the data column selections in the **General** page of the **Property Manager**. Occasionally other layer properties need to be edited after changing map type to better display the map.

Lesson 4 - Editing Map Properties

MapView maps are highly customizable. Properties for plots, layers, and objects are located in the **Property Manager**. Select an object by clicking on it in the plot window or **Object Manager** to view its properties in the **Property Manager**. We will continue the tutorial by changing our hatch map colors and classes. We will also display the Primary IDs for the states on the map.

To continue the tutorial, we need to display the hatch map properties in the **Property Manager**. Click the layer name in the **Object Manager** to select the hatch map layer. If you changed the layer name in Lesson 3, click "Hatch Map." Otherwise, click "Layer #1." Alternatively, click the **Map | Layer | Layer Properties** command and **MapView** will select the active layer and show its properties in the **Property Manager**. The **Layer Properties** command is useful for quickly selecting the map layer for editing when the plot contains many layers and objects.

If you changed the map type in the previous lesson, click the **Map | Create Map | Hatch** command to change the map back to a hatch map.

Changing the Hatch Map Colors

After creating a map, you can change how the map is displayed. Most of the time, the **MapView** defaults create a visually appealing hatch map, but there are times when you might want to customize the map. For example, you might want to change the colors used for the hatch map fill. This is accomplished by opening the hatch map properties.

Click on the map layer name in the **Object Manager** or click the **Map | Layer | Layer Properties** command to select the hatch map layer.

To change the fill colors:

1. Open the hatch map properties by using one of the methods listed above.
2. In the **Property Manager**, click on the *Map* tab to view the **Map** page.
3. Click the **Edit...** button in the *Classes* field to open the **Data Classes** dialog.
4. Click the *Fill* column title to open the **Color Spectrum** dialog.
5. Click the *Foreground colors* spectrum and select *Sunrise* in the color spectrum list for the hatch map. *Sunrise* is about halfway down the color spectrum list.
6. Click *OK* in the **Color Spectrum** and **Data Classes** dialogs to apply the new color spectrum to the map.

If you desire, you can change the individual colors in a hatch map by double-clicking on the class color in the *Fill* column in the **Data Classes** dialog.

Changing the Number of Classes

You can also change the number of classes on the hatch map. In this example, we will change the number of classes and classification method so the hatch map displays eight classes of equal size.

Click on the map layer name in the **Object Manager** or click the **Map | Layer | Layer Properties** command to select the hatch map layer.

To change the number of classes and classification method:

1. Open the hatch map properties with one of the methods described above.
2. In the **Property Manager**, click on the *General* tab to view the **General** page.
3. Click the *Use user-defined limits* check box to enable editing in the *Min limits* and

Max limits fields.

4. Type "0" into the *Min limits* field then press ENTER. Type "40000" into the *Max limits* field and press ENTER.
5. In the **Property Manager**, click on the *Map* tab to view the **Map** page.
6. Click the **Edit...** button in the *Classes* field to open the **Data Classes** dialog.
7. Type "8" into the *Number of classes* input box or click the  button until the *Number of classes* value is "8."
8. Click the *Classification method* and select *Equal intervals* from the list. Notice the *Increment* field displays 5000. Also look at the *Count* column of the *Objects in classes* list. Notice there are no states in classes 5 or 7.
9. Click the *OK* button.

The hatch map now has 8 classes, each with a range of 5000. Because the population data is in thousands, each class size corresponds to 5 million people. Changing the number of classes, classification method, and hatch map colors lets you control the way your data is displayed.

Displaying the Primary IDs

As mentioned previously, the primary ID is the link between the map boundaries and the data. But you might have noticed that the primary IDs are not displayed on the map. By default, the display of primary IDs is turned off. There are two methods for displaying Primary IDs on the map: displaying data labels and the **Show Objects** command.

To display PIDs on the map as data labels:

1. Click on the hatch map layer in the **Object Manager** or click **Map | Layer | Layer Properties**
2. In the **Property Manager**, click on the *Data Labels* tab to view the **Data Labels** page.
3. Click the *Show data labels* check box. Notice the *Label set* is *Column A: Primary ID*. The *Label Sets* section is used for selecting the data column that is displayed, and multiple labels can be added to each object. For the purpose of this tutorial, we will display only the PIDs.
4. Scroll down on the **Data Labels** page of the **Property Manager** and enter "14" in to the *Size (points)* field of the *Font Properties* section.

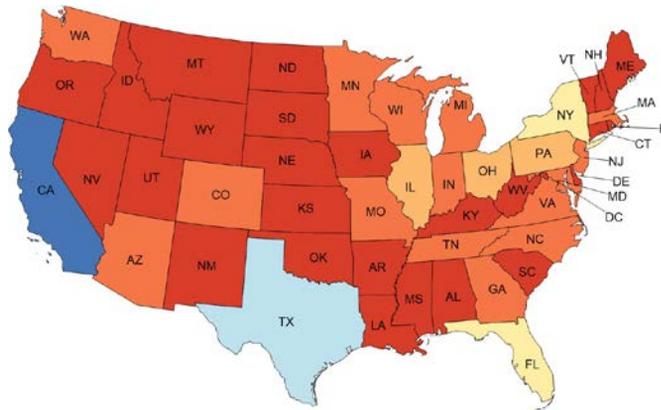
The PID data labels are now shown on the map. Any combination of data from the worksheet can be added to the map.

Data labels can also be moved individually. We will now move some of the PIDs and add leader lines to increase our map's readability.

To move data labels:

1. Click the *Start* button in the *Move/edit labels* field to begin moving labels. The *Move/edit labels* field is located at the top of the **Data Labels** page in the *General* section.
2. Click and drag labels to move them. Move the northeastern states' data labels so they can be easily read. For example, move DC, MD, DE, NJ, CT, RI, and MA east off of the map. Also you can move VT and NH north.
3. Click the *Finish* button in the *Move/edit labels* field to stop moving labels. Note: You can click the *Clear* button next to *Clear custom labels* to revert the labels back to their default locations.
4. In the *Leader Line - Column A: Primary ID* section of the **Data Labels** page, click the *Show* check box.

Now the hatch map has readable PIDs and lead lines have been added to the data labels. The lead lines are not visible for PIDs that have not been moved. If you have followed the tutorial up to now, your map should look similar to this:



*The primary IDs can be displayed on all the map boundaries.
On the tutorial map, the states use the two-letter
designations as primary IDs.*

The PIDs can be quickly displayed with the **View | Display | Show Objects** command. Leader lines cannot be added automatically to PIDs showed with the **Show Objects** command. For customizing PID labels, use the **Data Labels** page in the **Property Manager**. When customization is not needed, use the **Show Objects** command for quickly adding PIDs.

Lesson 5 - Adding Map Accessories

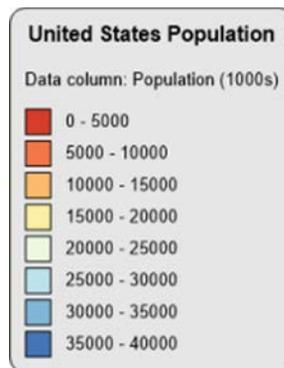
MapView has many mapping and drawing utilities that enhance your maps. Many of these accessories are located in the **Draw** and **Map** tabs. For example, you can add text to the map with **Draw | Shape | Text**, add a scale bar to the map with **Map | Add | Scale Bar**, etc. A few of these features are discussed in this lesson.

Adding a Legend

When you make a thematic map, it is helpful to provide some explanation of the way in which data is represented on the map. You can easily add legends to any type of thematic map. **MapView** legends show quantitative information about the thematic map.

To add a legend:

1. Click the **Map | Add | Legend** command. Then, click the newly created legend and move it off of the map. When you click the legend in the plot window it is also selected in the **Object Manager**, and its properties are shown in the **Property Manager**.
2. Now add a title. In the **Property Manager**, click the *Layer* tab to view the **Layer** page. Replace the "Legend of Hatch Map" ("Legend of Layer #1") text with "United States Population" in the *Text* row in the *Title* section. Press ENTER to change the legend title.
3. Next add a fill to the legend. In the **Property Manager**, click the *Frame* tab to view the **Frame** page.
4. Click the *Pattern* selection (currently *None*) and select *Solid* from the pattern palette.
5. Click the *Foreground color* selection (currently *Black*) and select *10% Black* in the color palette.



Legends display information about the map.

Drawing Objects on the Plot

Next, we will add a title for the map by drawing rounded rectangle and text objects.

First we will draw a rounded rectangle to surround the text.

1. Click the **Draw | Shape | Rounded Rectangle** command. The cursor changes to a crosshair in the plot window to indicate draw mode is enabled.
2. Click and drag in the plot window to create the rounded rectangle.
3. Press ESC or click the **Draw | Tools | Select** command to end draw mode.
4. Click the Rounded Rectangle in the **Object Manager** if it isn't already selected. Next, click the *Fill* tab in the **Property Manager** to view the **Fill** page.
5. Select *Solid* in the *Pattern* palette and select **10% Black** in the *Foreground color* palette.

Next we will draw a text object for the map title.

1. Click the **Draw | Shape | Text** command. The cursor changes to a crosshair to indicate draw mode is enabled.
2. Click the plot window where you want the text to be drawn. The point you click is a reference point for drawing the text. Later, you can edit the text location in relation to the reference point in the **Font** properties page.
3. Clicking in the plot window opens the **Text Editor**. Change the font size to about 40 pts and type a title into the **Text Editor**. Click *OK* when you are finished adding text.

The rounded rectangle can be moved and resized by clicking and dragging on the object or its selection handles. The text box can be moved and sized in this manner, or by changing the font size in the **Property Manager** or **Text Editor**. Below is one method for aligning the objects to make a visually appealing title.

1. First, be sure that the "Text" object is above the "Rounded Rectangle" in the **Object Manager**. If the draw order is reversed, the rounded rectangle fill will cover the text, so it is not visible. Change object order in the **Object Manager** by clicking and dragging the object name, or using the **Arrange | Move** commands.
2. Next, hold CTRL and click the "Text" object and "Rounded Rectangle" object in the **Object Manager**. Or, hold SHIFT and click the text and rounded rectangle objects in the plot window.
3. Click the **Arrange | Align | Center** and **Arrange | Align | Middle** commands to have **MapView** align the objects.
4. While both objects are selected, click and drag them to your desired location.

You can experiment with the **Align Objects** commands, **Arrange | Size** and **Position** fields, **Text Editor**, and **Font Properties** to further refine object placement in relation to the map or relation to the page.

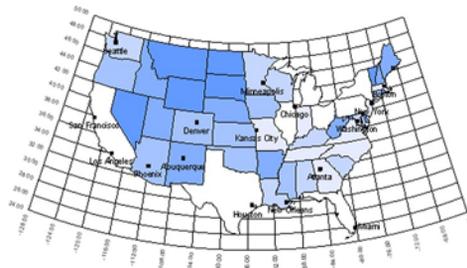
Adding Graticule Lines to Show the Map Coordinate System

The graticule consists of grid lines that indicate the map coordinate system. The graticule lines are commonly based on latitude/longitude coordinates (as in this example), but they can also indicate any type of map coordinate system. In this example, we will add a graticule, add graticule labels, and change the graticule limits.

To add a graticule:

1. Click the **Map | Add | Graticule** command.
2. Click the **Map | Plot | Plot Properties** command to show the plot properties in the **Property Manager**. You can also show the plot properties by clicking empty space in the **Object Manager** or plot window.
3. In the **Property Manager**, click the *Graticules* tab to view the **Graticules** page.
4. In the *General* section of the **Graticules** page, if there is not a check mark next to *Draw graticules under map* check box, click the box to enable this option. *Draw graticules under map* is used to move the graticule behind the boundaries and other objects on the map layer. Otherwise, the graticule is drawn over the top of all boundary objects on the layer.
5. In the *Y Graticules* section, change the *Graticule end* to 50 and press ENTER.
6. In the **Property Manager**, click the Graticules Ticks tab to open the **Graticule Ticks** page. This page contains options for displaying labels and ticks on the graticule lines.
7. In both the *X Graticules* and *Y Graticules* sections, click the *Show start labels* check boxes.

Notice that the graticule lines are curved on the map. This reflects the map projection. This map uses an Albers Equal Area projection.



Graticule lines show the map coordinate system for the map.

Lesson 6 - Using Layers to Create Two Thematic Maps in One Plot Window

One of **MapViewer**'s strengths is the ability to add layers to your maps. Each time you open a new map window, Layer #1 is automatically created and it is the active layer, ready to receive any type of input such as imported boundary files, drawing objects, and so on. Important characteristics of layers are that each layer can have only one thematic map, can consist of any number of boundary files, and can have only one data file associated with it.

The active layer is indicated on the right end of the status bar at the bottom of the **MapViewer** window. If you cannot see the entire status bar, click the  button in the upper right corner of the main **MapViewer** window. The **MapViewer** window fills the screen, and the entire status bar is displayed.

The **Object Manager** also displays the layer information in **MapViewer**. You can rename layers, change the order of layers, make a layer active, and remove layers in the **Object Manager**. The active layer name is indicated with **Bold** text.

In this example, we add a second thematic map to our hatch map, creating a pin map over the top of the hatch map. Pin maps show point locations by drawing a symbol at each point to be shown on the map.

To create a new layer:

1. Choose the **Map | Layer | New Layer** command. A new layer is created in the **Object Manager**.
2. Rename the new layer by clicking once, waiting a moment, and clicking again on the new layer's name in the **Object Manager**. Type "Pin Map" and press ENTER.

Clicking on a layer name in the **Object Manager** makes the layer the active layer. You do not need to move the layer to the front to make it active. You can only select objects on the active layer when clicking in the plot window. Click "Pin Map" in the **Object Manager** to make it the active layer, and then click on objects in the plot window. Notice that because all of the objects are on the "Hatch Map" layer, none are selected.

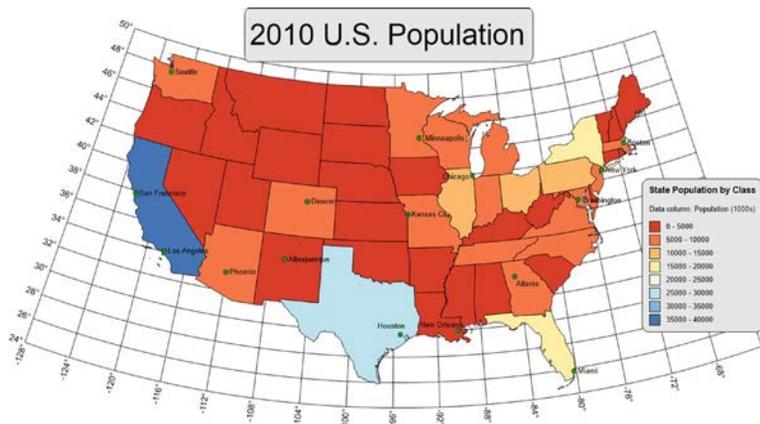
Creating a Pin Map

Now you are ready to create the pin map on the new layer:

1. Click the **Map | Create Map | Pin** command. The **Open Data File** dialog opens and you must select a data file. In the **MapViewer** Samples folder, double-click the file USCITY.XLS.

2. In the **Property Manager**, click the *General* tab to open the **General** page. Make sure the *Locating method* is set to *Coordinate*.
3. Verify the following settings: In the *PID Column* field, *Column A: Cities* is selected. *Column B: Longitude* for the *X coordinate* and *Column C: Latitude* for the *Y coordinate* should be selected.
4. In the **Property Manager**, click the *Map* tab to open the **Map** page. Click the *Method* selection and select *Uniform symbol* from the list if it is not the current *Method*.
5. In the **Property Manager**, click the *Symbol* tab to view the **Symbol** page. Select a symbol in the *Symbol* list
6. There are many symbol sets in **MapView**. You can browse the *Symbol* options for each *Symbol Set* and select a symbol for your pin map.
7. In the **Property Manager**, click the *Pin Labels* tab to open the **Pin Labels** page. Click the *Show label* box and choose *Column A: Cities* from the *Label source* column list. This adds the city names next to the points on the map. Click and drag the labels to move them. You can also delete individual labels by clicking them and pressing DELETE on your keyboard.

At this point, you may wish to remove the data labels from the Hatch Map layer. Select the Hatch Map in the **Object Manager** and uncheck the *Show data labels* option in the **Property Manager Data Labels** page. Your data label settings will be saved. So, if you decide to show the state PIDs again, they will be unchanged from before.



Pin maps draw point locations on a map, and can show optional labels. This pin map is on a layer on top of an existing hatch map.

Lesson 7 - Changing the Projection

Maps are usually seen in a flat, two-dimensional medium such as a drawing on paper or an image on a computer screen. Since the surface of the Earth is curved, or three-dimensional, the visual elements on the surface must be transformed from three dimensions to two in order to display a map of the Earth's surface. Projections are a mathematical process by which the visual elements are transformed from three dimensions to two. The *Introduction to Map Projections* online help page discusses map projections in detail.

You can select the target coordinate system for your plot in the plot properties **Coordinate System** page in the **Property Manager**. Data and boundary files may have different, or undefined, projections. **MapView** converts the information for the map layers from their source coordinate system to the target coordinate system.

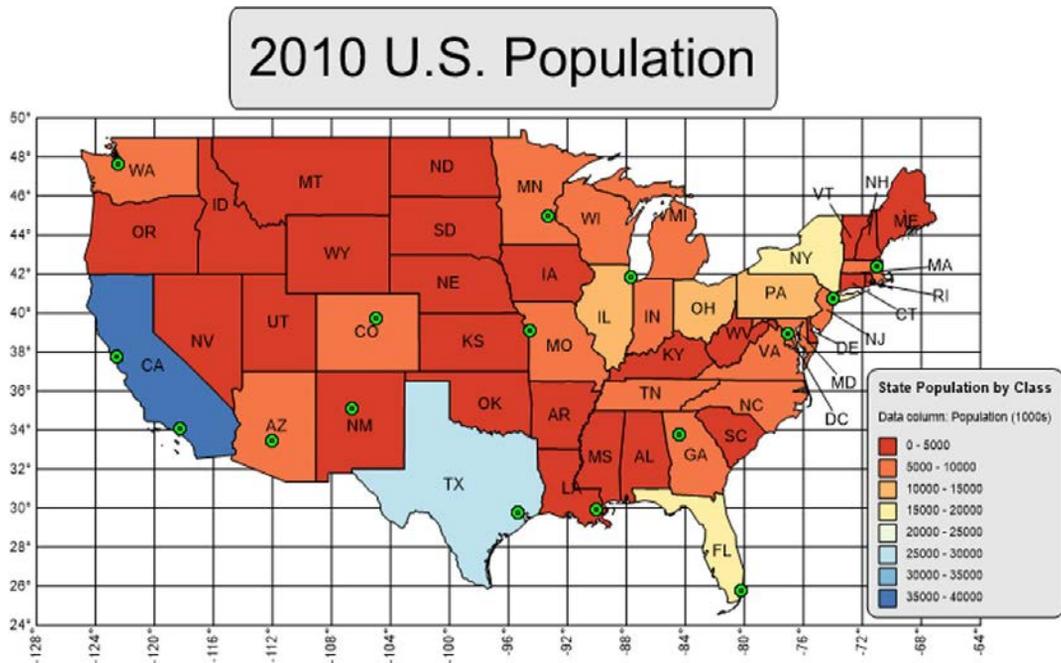
To change the map projection:

1. View the plot properties in the **Property Manager** by clicking the **Map | Plot | Plot Properties** command or clicking empty space in the **Object Manager** or plot window.
2. In the **Property Manager**, click the Coordinate System tab to view the **Coordinate System** page.
3. Click the *Change...* button in the *Coordinate system* field to open the **Assign Coordinate System** dialog.
4. Navigate to the *Templates* section by clicking the expand  buttons next to *Predefined* and *Templates*. Select *Template - Equidistant Cylindrical Projection* in the projection list.
5. Click the *OK* button.

Notice the title text, title rectangle, and edited data labels have appeared to move or rotate. Actually their locations relative to the map coordinates has not changed. Use the *Move/edit data labels* mode in the Hatch Map **Property Manager Data Labels** page to reposition the state PIDs for the northeastern states. Use the **Arrange | Rotate | Rotate** and/or the **Arrange | Rotate | Free Rotate** commands to rotate the map title text and rectangle. Notice that the graticule limits have also changed. You can change the graticule limits in the **Graticules** page of the plot properties.

Alternatively, you can press CTRL+Z or click **Home | Undo | Undo** to revert back to the map's original projection.

Map projections can be modified, saved, and managed in the **Assign Coordinate System** and **Define Coordinate System** dialogs.



Lesson 8 - Saving and Exporting the Map

You can save the map so you can access it at a later time to make changes or to use it in other applications.

Maps are saved in **MapViewer** in the .GSM format. The .GSM format is only recognized by **MapViewer**, and this format preserves the map exactly as it exists on the screen. To save in the .GSM format:

- Use the **File | Save As** command. This allows you to save the map to a new name or to specify a file name for an entirely new map. Simply type a name into the *File name* box and click the *OK* button. The map file is saved with a .GSM extension.
 - When you open a .GSM file and make changes, you can save the map to the same file name by choosing the **File | Save** command. In this case, no dialog is displayed, and the map is saved to the same file name used when you opened the file. Again, this saves the map in .GSM format.
1. Select the **File | Save As** command.
 2. Select a location to save your file in the left window pane of the **Save As** dialog.

3. Type the name "My Map" into the *File name* box.
4. Click the *OK* button and the file "My Map.gsm" is saved in the current folder. The .GSM extension is automatically added for you.

If you are using the demo version of **MapView** you cannot save the map.

Using the Map in Other Applications

When you have a completed map, you might want to use the map in another application. For example, you might want to incorporate the map in a report in a word processing program. When this is the case, you should consider using the Windows clipboard commands to copy the map and then paste it into the other application. To do this, it is easiest and best to choose the **Home | Clipboard | Copy All Layers** command. This copies all boundary objects from all layers, including graticule lines, to the Windows clipboard. In your word processor, you can use the **Paste** command to paste the copy of the map into your document. This is very quick and easy.

Alternatively, there are a number of export file formats available by using the **File | Export** command. When you need the map to be saved in a file that can be read by other applications, you should consider one of the many export formats.

If you are using the demo version of **MapView** you are not able to copy or export the map.

Opening an Existing Map File

When you have a completed map, it can be saved to a **MapView** .GSM file. **MapView** .GSM files preserve the entire map with all the map features. Then, when you want to retrieve the file, you can use the **File | Open** command.

Opening a GSM file example:

1. Choose the **File | Open** command.
2. In the **Open** dialog, switch to the **MapView** Samples folder. Click on HatchMap.gsm.
3. Click the *Open* button and HatchMap.gsm is opened in another plot window. This is a hatch map of France showing population by region, similar to the map you created earlier in this tutorial.

Advanced Tutorial - Lesson 1 - Boundary Editing

There are many useful **MapViewer** sample boundary and data files. One boundary file that is not included with **MapViewer** is a single map that includes the states or provinces of the United States, Canada, and Mexico. In the first Advanced Tutorial lesson, we will use a few of the boundary editing tools in **MapViewer** to generate a useful template file.

1. Click **File | New | Plot** or the  button on the Quick Access Toolbar.
2. Create three additional layers by clicking the **Map | Layer | New Layer** command.
3. Name the layers by clicking once on the layer in the **Object Manager**, waiting a moment, and clicking again. Name Layers #2-4 "United States" "Canada" and "Mexico" by typing in the name and pressing ENTER. Layer #1 will eventually be deleted and does not need to be renamed.
4. Click on Layer #1 in the **Object Manager** to make it the active layer.

Alaska and Hawaii

The US50LL.gsb and US50Alb.gsb sample files have Alaska and Hawaii moved from their actual location for more convenient presentation in a map of the United States. This will not suffice for our map. So we have to import Alaska and Hawaii and make them each single objects.

1. Verify that Layer #1 is the active layer in the **Object Manager**. If it is not, click on Layer #1.
2. Select **File | Import**. Select the AK2010.GSB sample file in the **Import** dialog and click *Open*. The default import options are sufficient for this tutorial, so click *OK* in the **Import Options** dialog.
3. Click the **Arrange | Selection | Select All** command. You can also select all the objects in the **Object Manager** or select all the objects by clicking and dragging around the objects in the plot window.
4. Click the **Boundary | New Boundaries | Union of Polygons** command. Uncheck *Keep original areas* and *Keep inner lakes* if their boxes are checked in the **Union of Areas** dialog, and then click *OK*.
5. Again, click the **Select All** command. Next, click the **Boundary | Islands/Lakes | Combine** command.
6. Next click on the *Info* tab in the **Property Manager** to view the **Info** page. Change the PID to "AK" and the SID to "Alaska."
7. Notice there are two interior boundaries still visible in Alaska.

If you wish to remove the interior boundaries, click the **Boundary | Edit Boundaries | Reshape** command to enable boundary editing mode. The polygon line color changes to red and vertices are indicated by red squares. Click on a vertex to select it. The selected vertex is indicated by green fill. Click on an interior vertex and the press

the DELETE key to remove the vertex. Continue removing vertices until the interior lines are removed. Click the **Boundary | Edit Boundaries | Reshape** command again, or press the ESC key, to stop editing boundaries with the **Reshape** command.



The left image above shows the area in Reshape mode with one vertex selected. The image on the right shows the area after interior vertices have been deleted.

8. With AK selected in the **Object Manager** or plot window, click the **Home | Clipboard | Move to Another Layer** command. Select *United States* in the **Move to Layer** dialog and click **OK**.
9. Verify that Layer #1 is still the active layer in the **Object Manager**, then import HI2010.gsb from the **MapView** samples file folder.
10. Click **Arrange | Selection | Select All** and then **Boundary | Island/Lakes | Combine**.
11. In the **Property Manager Info** page, change the PID to "HI" and SID to "Hawaii."
12. Select HI in the **Object Manager** or plot window and click the **Home | Clipboard | Move to Another Layer** command. Select *United States* in the **Move to Layer** dialog and click **OK**.
13. Click on Layer #1 in the **Object Manager** and press the DELETE key.

Importing the U.S., Canada, and Mexico

1. Next we will import the rest of the boundaries to complete the map.
2. Click Mexico in the **Object Manager**, and then click **File | Import**.
3. Select MEXICO.GSB in the **Import** dialog and click *Open*. Next, click **OK** in the **Import Options** dialog.
4. Import US48LL.gsb to the United States layer and Canada.gsb to the Canada layer in the same method.
5. MEXICO.GSB includes an object encompassing all of Mexico. You may wish to delete the Mexico polygon object in the Mexico layer.

Congratulations, you have a single boundary file with all of the American and Mexican states and Canadian provinces. If you wish to save this boundary file for later use, click the **File | Save As** command.

Advanced Tutorial - Lesson 2 - Downloading Online Maps

One of **MapViewer 8's** new features is the ability to download online maps from WMS (Web Map Service) Servers. In this tutorial, we will add a new server to the data source list, add a map to the *Favorites* group, and download the map.

Adding a Server to the Data Source List

The **Download Online Maps** dialog contains a few servers and multiple maps, but many other free and "paid-for" WMS servers exist. Many of the free or public WMS servers require only that the user cites the map's creator when publishing or presenting the map.

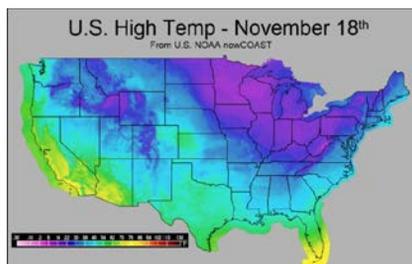
1. In a new plot, click the **Map | Add | Download Map** command. The **Download Online Maps** dialog opens.
2. Right-click in the *Select Data Source (right click for options)* list at the top of the dialog, and select *Add New Category*. In the **Create Category** dialog, type "NOAA nowCOAST" and click *OK*. The map we will use for the tutorial is provided by the NOAA nowCOAST service.
3. Right-click on the new category, NOAA nowCOAST, and select *Add Map Source*. This opens the **Add Data Source** dialog. Type "Forecast" into the *Name* field, and type: "http://nowcoast.noaa.gov/wms/com.esri.wms.Esrimap/forecasts?service=wms&version=1.1.1&request=GetCapabilities" into the *URL* field. This, and other NOAA available WMS servers, can be found by navigating to nowcoast.noaa.gov in your web browser and clicking on the Map Services link in the top right corner of the web page.
4. After you have entered the Name and URL, click the *Next >* button. The next page shows you if the server connection succeeded or failed, and also shows general information about the server. Click the *Finish* button when you are finished looking at the server information.
5. In the *Select Data Source (right click for options)* list, click the arrow next to NOAA nowCOAST to expand the group. Currently, you should only have the *Forecast* server listed. Should you desire, you can repeat the process and add other NOAA nowCOAST WMS servers to the list. Click the Map Services link at the top right of the nowcoast.noaa.gov web page to see the other server URLs.
6. Click the expand arrow next to the *Forecast* server, and scroll through the list of maps. The NOAA provides background maps and wave height, high temperature, low temperature, wind speed, relative humidity, and precipitation forecast maps.
7. Find and right-click on the *NDFD Maximum Surface Air Temperature 0 Day Fcst - Raster* map. Click *Add Favorite* in the context menu. This map is today's high temperature forecast for the United States. "1 Day" through "3 Day" maps are forecasts for one to three days from today.
8. Now navigate to the *Favorites* group in the *Select Data Source (right click for options)* list. Notice the map is now saved under your *Favorites*. If after this tutorial you wish to remove the map from your *Favorites*, right-click on the map and select *Remove Favorite* from the context menu.

Downloading an Online Map

Now that we have added a new server and added a map to our *Favorites* list, we will download the map and add a boundary file.

1. Continuing from the above section, click the *NDFD Maximum Surface Air Temperature 0 Day Fcst - Raster* map in the *Select Data Source (right click for options)* list. It should now be located in both the *Favorites | Forecast* and *NOAA nowCOAST | Forecast* groups.
2. Next, we will only download the contiguous 48 states, so we will select the *Specify Latitude/Longitude extents* in the *Select Area to Download* section. Type -128, 50, 24, and -65 into the *West*, *North*, *South*, and *East* fields respectively.
3. The *Select Image Resolution to Download* slider bar selects the image resolution. To the right of the slider bar, you will see the scale, image size in pixels, and image file size, for example "1 : 4M (5K x 2K pixels, 39MB)." Increasing the resolution, increases file size, which increases download time. Increasing the extents of the map also increases the file size and download time. For this tutorial, you can select whichever position you desire, but since you likely won't publish this map, you should select low resolution to shorten the download time.
4. Now that you have selected a map, specified the extents, and selected a resolution, click OK to download the map.

A new layer is created in the plot named *WMS - NDFD Maximum Surface Air Temperature 0 Day Fcst - Raster* containing an image of the downloaded map. The map does not include a legend, but reading the help section on the *nowCOAST* website, you will find that map items can be downloaded by typing certain URLs into your web browser. To get the legend for the map, enter "http://nowcoast.noaa.gov/LayerInfo?layer=NDFD_RAS_MAXT_0_12&data=legend" into your web browser. Then, save and import the image into **MapView**. The following map also had the *US48LL.gsb* sample boundary file, a map collar, and a title added to it.



The NDFD Maximum Surface Air Temperature map.

See the online help for *Advanced Tutorial Lesson 3 - Querying*.

Tutorial Conclusion

Congratulations on finishing the **MapViewer** tutorial. This tutorial only scratches the surface of the many options and features in **MapViewer**. Now, however, you should have a good idea of the procedure to create plots. You can also navigate between plot and worksheet windows and use the **Object Manager** and **Property Manager** to edit layer and object properties. The **MapViewer** online help is full of information, and here are some topics you may find particularly useful:

Map Types	The <i>Map Types</i> online help page includes a brief description of the thematic map types available in MapViewer . Links are provided to specific map pages in each map description.
Menu/Tab Commands	This online help page is a good starting point for finding detailed information on every command in MapViewer .
File Format Chart	This online help page presents the boundary and data file formats that can be saved, opened, imported, or exported (or any combination thereof) in MapViewer .
Sample Files	Sample MapViewer [*.GSM] files for every thematic map type are included with MapViewer 8 . Opening and editing the sample files is a great way to experiment in MapViewer . Sample boundary [*.GSB] and data [*.DAT] files are also included to get you started on creating your own maps.
Browse the <i>Managers Property Manager Pages</i> section of the Online Help Contents	In the navigation pane to the left of the topic window is the help contents. You can quickly access information about Property Manager pages in this section. The Property Manager help pages are useful for determining what a particular property affects, which method to use for classification, how to add and edit data labels, change the map units, etc.
Options and Default Settings	If you find you dislike a particular user interface style, often change the same property for every map you create, etc. there is probably an option or default setting you can change to streamline your workflow.
Customizing Commands	The ribbon bar and Quick Access Toolbar can be customized in MapViewer .

Printing the Online Help

The online help topics may be printed. You can print part of the file or the complete file. Open the online help by clicking **Home | Help | Contents**.

To print one topic:

1. Open the topic you wish to print.
2. Click the  button.
3. If the *Contents* page is open in the help navigation pane, you are prompted to *Print the selected topic or Print the selected heading and all subtopics*. Select *Print the selected topic* and then click the *OK* button.

To print one section, using the tutorial for an example:

1. Click the *Contents* page on the left side navigation pane.
2. Click on the *Tutorial* book to expand the book.
3. Click on a topic, such as *Tutorial Introduction*, within the *Tutorial* book.
4. Click the  button within the help window.
5. A prompt appears asking if you would like to *Print the selected topic or Print the selected heading and all subtopics*. Select *Print the selected heading and all subtopics* and then click the *OK* button. All the topics in the *Tutorial* book are printed.

To print all of the topics in the help file Table of Contents:

1. Open the **MapViewer 8** book. This is the top-level book in the help file.
2. Click on the *Printing the Online Help* topic in the *Contents* page.
3. Click the  button within the help window.
4. A prompt appears asking if you would like to *Print the selected topic or Print the selected heading and all subtopics*. Select *Print the selected heading and all subtopics* and then click the *OK* button. All the topics in the table of contents book are printed.

WARNING: Printing the entire help file takes approximately 1400 sheets of letter-sized paper and is very time consuming to print. There is no table of contents or index printed with the file.

You can purchase the full PDF user's guide that includes all of the documentation for the program. This PDF user's guide can be printed by the user, if desired. The guide

can be purchased on the Golden Software website at www.goldensoftware.com.

Getting Help

The Quick Start Guide is a quick way to learn the basics in **MapViewer**. There are also other sources of help with **MapViewer**.

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

MapViewer also contains context-sensitive help. Highlight a menu command, window region, or dialog and press the F1 key, or press SHIFT+F1 then click on a command, button, or screen region to display help for the highlighted item. The help window opens with information about the selected item. In most dialogs, click the ? button in the dialog title bar or click the *Help* button to obtain help for that dialog.

Internet Resources

There are several Internet help resources.

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

Technical Support

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

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

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

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

Contact Information

Telephone: 303-279-1021

Fax: 303-279-0909

Email: mapviewersupport@goldensoftware.com

Web: www.goldensoftware.com (includes FAQs, knowledge base, support forum, training videos, newsletters, blogs, downloads, and more!)

Mail:

Golden Software, LLC

809 14th Street

Golden, Colorado 80401-1866, USA

Index

A

active layer 17
analyze map 19
automation 5

B

bar map 22
base map 20
bold text 3
boundary
 files 19, 25
 link to data 17
 types 16

C

cartogram map 22
change map type 28
circle 16
classes 30
color 30
colormap 30
commands 9
Contiguous cartogram 22
contour map 20
create map 26, 36

D

data 15, 17
 files 19, 24
data labels 31
density map 21
display Primary IDs 31
Dorling cartogram 22

E

ellipse 16
export 39, 40

F

file types 19
flow map 22

G

gradient map 21
graticule 35

H

hatch map 20
help 47, 48
 FAQ 47
 forums 47
 knowledge base 47
 print 46
 problem report 48
 suggestions 47

I

import 5, 25
install 2
italic text 3

L

layer 17, 18, 36
legend 33
line graph map 21
link
 data to boundaries 17

M

managers 8
map types 20
MapView
 files 19
 how it works 13
 introduction 1
multi-graph map 21

N

Noncontiguous cartogram 22

O

object manager 9
open 40
 boundary files 25
 data file 24

P

pie map 22
pin map 20
plot window 6, 8
point 16
polygon 16
polyline 16
primary ID 15, 17
prism map 22
projection 38
property 11, 29
property manager 10

Q

query 19

R

rectangle 16
rounded rectangle 16

S

sample files
 MapView 4
 Scripter 5
save 39
Scripter 1, 5
square 16
status bar 9
symbol map 20
system requirements 2

T

technical support 48
territory map 21
text 34
thematic map 18, 20, 26, 36
tutorial 23

U

uninstall 3
update 2
user interface
 plot window 6
 worksheet window 12

V

vector map 21
view 8
 data 28

W

window layout 8
worksheet window 12

Z

zoom 27

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

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

Business Hours

Technical Support:

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

Product Sales:

Online orders available 24 hours, 7 days a week with 2 business hour delivery

Golden Software Contact Information

www.goldensoftware.com

mapviewersupport@goldensoftware.com

phone: 303-279-1021

fax: 303-279-0909



www.goldensoftware.com

Golden Software, LLC
809 14th Street
Golden, Colorado 80401 USA

Phone +1 303 279 1021
Fax +1 303 279 0909

www.goldensoftware.com