GOLDENSOFTWARE

MapViewer™8

Mapping & spatial analysis for publication-quality thematic maps.

Full User's 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.

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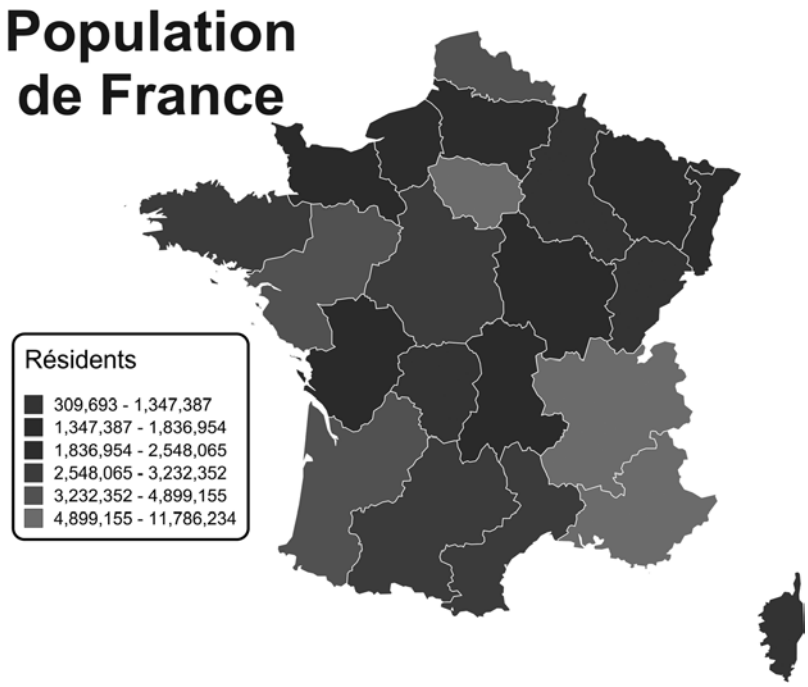
MapViewer™ 8 User's Guide

Thematic Mapping and Spatial Analysis Software for
Business, Science, and Education



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Chapter 1

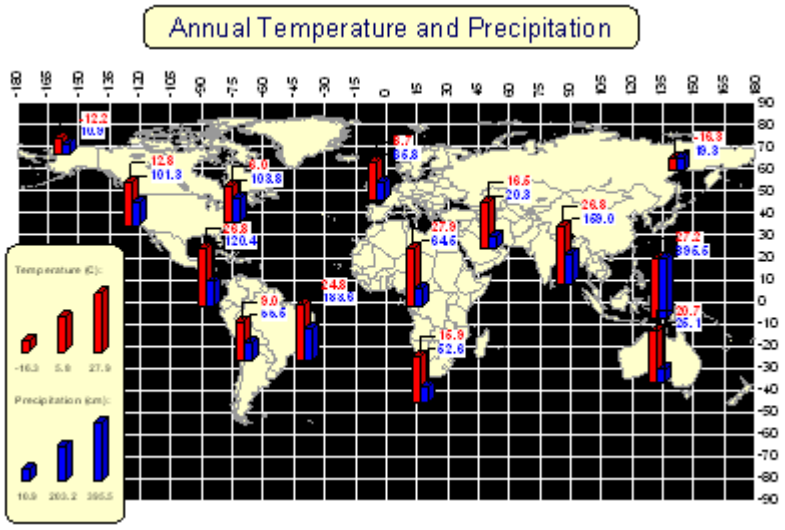
Introducing MapViewer

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.



Many options are available for customizing maps. This graphic shows a multivariate bar chart, legend, graticule, and text.

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 **MapViewer** to be a valuable asset.

System Requirements

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

Installing MapViewer

To install **MapViewer** from a CD:

1. Insert the **MapViewer** 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 **MapViewer** CD.
2. Choose Install **MapViewer** from the **MapViewer** Auto Setup dialog to begin the installation.

To install **MapViewer** from a download:

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

Updating MapViewer

To update **MapViewer**, 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 **MapViewer** (e.g. **MapViewer** 8.0 to **MapViewer** 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.

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.

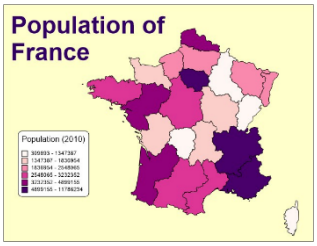
Example MapViewer Files

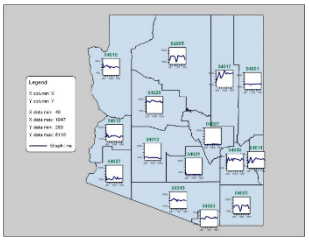
To view the example **MapViewer** files:

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.





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.

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 by default 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.

How MapViewer Works

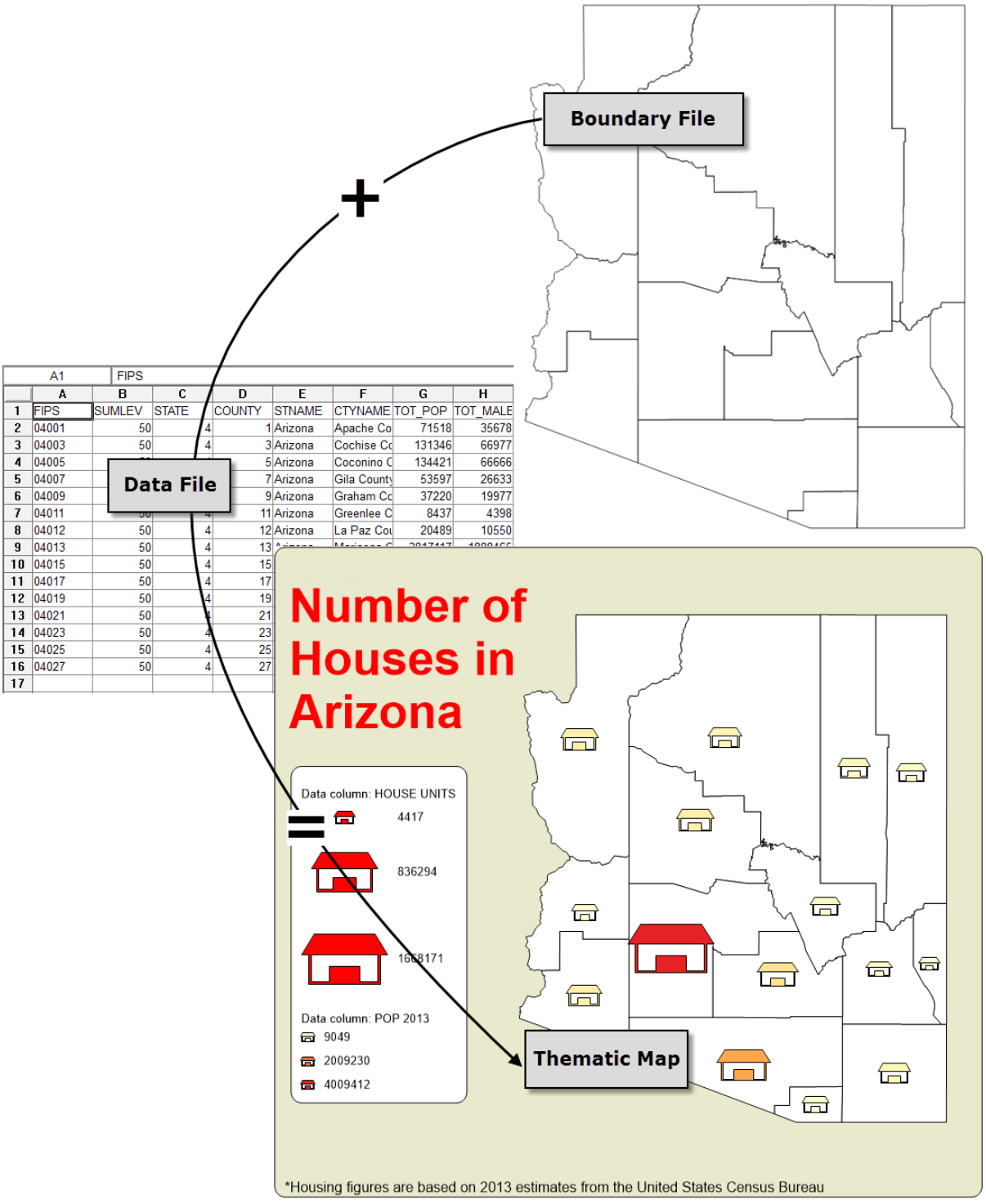
To create a thematic map in **MapViewer**, you need both a vector boundary file and a data file containing the data you want to represent on the map. With these two components, you can create any of the thematic map types. The boundary file can be imported as a base map before the data file is loaded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



A1	FIPS							
	A	B	C	D	E	F	G	H
1	FIPS	SUMLEV	STATE	COUNTY	STNAME	CTYNAME	TOT_POP	TOT_MALE
2	04001	50	4	1	Arizona	Apache Co	71518	35678
3	04003	50	4	3	Arizona	Cochise Co	131346	66977
4	04005			5	Arizona	Coconino C	134421	66666
5	04007			7	Arizona	Gila County	53597	26633
6	04009			9	Arizona	Graham Co	37220	19977
7	04011			11	Arizona	Greenlee C	8437	4398
8	04012	50	4	12	Arizona	La Paz Cou	20489	10550
9	04013	50	4	13				
10	04015	50	4	15				
11	04017	50	4	17				
12	04019	50	4	19				
13	04021	50	4	21				
14	04023	50	4	23				
15	04025	50	4	25				
16	04027	50	4	27				
17								

This graphic illustrates the relationship between the boundary file and the data when creating a thematic map in MapViewer. Each polygon (county) contains 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.

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 to a map. These files are generally referred to as "XYZ data files" or "data files" throughout the documentation. Data can be read from various file types, and most contain a numeric/text primary ID as well as numeric Z values or text classes. The Z values contain the variable to be modeled, such as elevation, concentration, rainfall, or similar types of values.

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 GSM 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.

MapViewer Files [.GSM] contain all information displayed in a plot window. This includes boundaries, drawing objects, graticules, associated data files, and window settings. All layers and thematic information are also stored. These files are binary and cannot be edited.

To load a [.GSM] file into the current document window, use the **File | Open** command. To save the current document window as a [.GSM] file, use the **File | Save** or **File | Save As** command.

Occasionally, you may want to merge two [.GSM] files together. To do so, use the **File | Import** command. When a [.GSM] file is imported, all layers of the file are inserted before the active layer in the current document. Therefore, if you want the map in the file to be placed behind the map in the current document, use the **Object Manager** and make the bottom layer active before performing the import. If you want the map in the file to be placed in front of the layer in the current map, use New Layer to create a new layer (which is placed on top of all existing layers). Then import the [.GSM] file (which is placed before this top layer), and delete the new layer.

MapViewer Documentation

The **MapViewer 8** documentation includes a quick start guide and the online help file. 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 maps with multiple thematic elements. Other sources of **MapViewer** help include our support forum, FAQs, and technical support.

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. Often, hyperlinks replace the **Bold** text for commands and dialogs. Click the hyperlink to see the help page for the command or dialog.

Also, menu commands appear as **Draw | Shape | Text**. This means, "Click on the **Draw** tab at the top of the ribbon bar, and 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.

New Features

General

- Find commands easily with the sleek new ribbon bar user interface
- Keep your data and your map together by embedding data in GSM files
- Be able to use bigger files with the new 64-bit installation option
- Import and export data with an unlimited number of attribute fields
- Zoom easily and more precisely using mouse scroll wheel at cursor location
- Change coordinate systems easier than ever with a **Surfer**-like Coordinate System dialog
- Click Move/Size Inset command, Draw commands, and Zoom commands just once to use them multiple times consecutively
- Pin managers to easily collapse and expand them with a single click
- Move and size objects easily with the new position/size toolbar
- Find and edit object properties quickly with the **Object Manager** and **Property Manager**
- Get helpful hints with the Tip of the Day, which displays on startup

Maps

- New map type: Create a line/scatter plot for each boundary by using the new Multi-Graph map
- New map option: Display your cartogram map as contiguous to keep adjacent areas connected
- New map option: Size pin map symbols proportional to a data value in between the min and max symbol sizes
- Download raster maps from online WMS servers
- Territory map: Create territory from text column in worksheet
- Hatch map: Bin classes from text column in worksheet
- Pie map: Remove 100% line
- Pin map: Save classes based on string values
- Allow scaling of plot containing prism map

Other

- Query across multiple layers
- Set scale bar title offset
- Use new Collect Colors command to quickly add custom colors to the color list with a click

Labels/Text

- Unicode support
- Use the new text editor to have more control over your text properties
- Control label opacity
- Customize your plot by moving/editing/hiding individual data labels

- Display graticule labels in Degree Minute Second (DMS) format
- Move posted label and have leader line point back to centroid

Objects

- Set partial transparency/opacity
- Create an immovable title block by locking objects (or layers)
- Draw text that follows a curve
- Reverse any color spectrum
- Utilize additional line styles
- Fill objects with linear or radial gradient fills

Legend

- Edit legend entry formatting and font properties
- Support label frequency for map types with numeric legend entries
- Pie map: Specify 1 or 0 Samples in legend
- Symbol map: Choose symbol levels

Worksheet

- Custom and locale-based date/time formats
- Allow commas as decimal delimiters
- Percentage format support
- Transpose rows to columns and vice versa
- Transform: PI() and ROUND() added to Formulas list
- New "Mode" statistics calculation
- Ignore blanking value when calculating statistics

Automation

- Support for /x flag when running via command line
- Pass command line arguments to a script
- TXT import: Use comma as decimal symbol option
- Updated MVProjection Type values to include new projections
- Allow Inset to list all layers it contains
- Ignore blanking value when calculating Statistics

Import/Export

<u>General</u>

- Tiff Import: Support YCbCr Color Format
- PDF Import: Increase DPI
- PDF Export: Support compression, page size option
- PDF Vector Export: Support partial transparency for image fill patterns
- Import bitmap at original DPI
- GSI Export: save symbol properties, save coordinate system info internally
- BLN Export: Blanking Flag option in BLN Export Options dialog
- KML Export: Option to export text as 'label' placemarks instead of icons or areas/curves
- Improved export of stock fill patterns
- Remember last export file type

New Import and Export Formats

- Google Earth KML/KMZ
- Excel XLSX
- JPEG2000 (JP2)
- SEG SP1

New Import Formats

- Excel XLSM
- Access 2007
- MrSID
- GPX
- Zipped Shapefiles
- LASer LiDAR data
- PDF (as raster)
- TerraGo GeoPDF
- ECW ER Mapper
- Tiled TIF (import all tiles at once)
- 56-bpp Landsat based GeoTIFF

New Export Formats

- SVG Scalable Vector Graphics
- HTML Image Map
- GeoPDF
- Transparent TIF/PNG/GIF/PDF/GSI
- Vector PDF with layers

More Coordinate Systems

General

- Save custom projection and datum information
- Search for Coordinate System/EPSG code in Assign Projection dialog
- Set Datum to Popular Visualization when ellipsoid same as Popular Visualization
- WGS84: change spheroid definition to be compatible with ArcMap

New Coordinate Systems

- New Zealand Transverse Mercator 2000
- Hungarian National Grid EOV
- Russia Pulkovo
- Posgar94
- Sweref99
- British National Grid & Ordnance Survey (OSGB36)
- WGS84 Web Mercator
- Japan Plane Rect.
- Swiss LV95 and LV03
- Bursa-Wolf (7-parameter) Transformation Version of the CH1903 Coordinate System
- South African Grid

- Taiwan TWD67 and TWD97
- Irish National Grid
- Portuguese National Grid
- Australian GDA94 with GDA94 datum
- Michigan GeoRef (1point+azimuth)
- Kentucky Single Zone
- ISG
- Europe UTM zone 29N using European 1950 - Port./Spain datum
- ITM: Irish Transverse Mercator
- SVY21
- More Australian grid coordinate systems
- WGS84 Web Mercator (900913) and WGS84 Web Mercator (EPSG 3857)
- France: RGF93 / CC (zones 42-50)

New Projections

- New Zealand Map Grid
- Hotine Oblique Mercator 2-Point
- Gauss-Boaga
- Mount Eden Circuit 2000
- Support Ordnance Survey
- SCOPQ (MTM)

New Datums

- D_Hartebeesthoek_1994
- Potsdam 1983 (PD83)
- NGO 1948
- NWS-84
- Japanese Geodetic Datum 2000
- ITRF94

Customer Service Resources

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

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