



# MapInfo Pro Release Notes

Version 2023

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# Introduction

This document gives you a list of the new and enhanced features introduced in this release. It also provides information about resolved issues and known issues that are important to MapInfo® Pro users.

## What's New in MapInfo Pro

Thank you for upgrading to the most advanced computer mapping product in the Precisely software family! As the field of computer mapping continues to expand, Precisely leads the way with new products that are designed to fulfill your computer mapping needs from the most basic to the most specialized. This is a list of the most important features and enhancements scheduled to be released with MapInfo Pro 2023.

Here are the highlights:

## New Features

### 3D support in MapInfo Pro

#### *Overview*

A 3D or three-dimensional map represents a physical or virtual space with height, depth, and width information. Unlike traditional 2D maps that depict geographical features and locations using only latitude and longitude coordinates, a 3D map offers a multidimensional view of the world. It provides a valuable tool for understanding and navigating complex environments. It gives a more realistic depiction of the environment and helps you to understand the topography, terrain, and spatial relationships within a given area.

Using the 3D support in MapInfo Pro, you can:

- Visualize your vector and raster data in a new 3D window inside MapInfo Pro using OpenGL rendering.
- Terrain use case
  1. Raster Terrain 3D model sourced from any MI Raster-supported Format.
  2. Terrain Model from Elevation encoded imagery or tiles.
  3. Drape Surface (Imagery or Tiles) over a 3D model.
- Add Vector tables onto a 3D window.
- Extrude vector tables – get elevation from attributes or nodes.
- Access your local tables or data from cloud and tile servers.

## Terminology and Concepts

### WebView2

This is the embedded browser window used to display the HTML generated by the processor. It also has a mechanism for calling JavaScript in the hosted file and receiving messages from it.

### DECK.GL

This is the WebGL 3D visualization library we are using to render the 3D Map and interact with it. For more details, see [DECK.GL](#).

### 3D Layer Control

This docking panel created by the add-in uses the 3D Map model to show the Map and layers. It lets you see and change the properties to visualize the data better.

### Current View

A set of properties describing the current view shown in a 3D window, including (latitude, longitude, zoom, altitude, pitch, and bearing)

### 3D Map

Each 3D map window is a docking window created by the add-in that uses a hosted WebView2 browser control to render the 3D Map.

### Template HTML

The 3D Map is rendered as an HTML and JavaScript file, starting with a template file in the Templates folder.

## 3D Layer Types

A 3D map window comprises of a view type (Map, Globe, Orthographic, FirstPerson) and a set of 3D Layers.

**Bitmap** - A bitmap layer is a geo-referenced image shown on the map. PNG and maybe GEOTIFF are the preferred formats.

**Vector-** A vector layer is a 3D or 3D vector geometry shown on the map. We will usually be using GeoJSON as the format.

**Terrain -** A Terrain layer (or topographic layer) uses some elevation or other height data to represent the earth's surface by creating a 3D mesh.

In addition, a raster layer or a raster tile layer can be draped over the top of the mesh to show realistic terrain.

Finally Vector Layers can be rendered on top of the terrain or draped over the terrain.

**Clip/Mask-** A clip layer is a vector layer of polygons that masks other layers to only show their content that falls within the mask layer's geometries.

**Labels-** A point layer is used to render text on the map for labels.

**Shape Scenograph Layer -** A shape layer is used to render 3D "symbols" at a given point on the map. These are real 3D objects with textured surfaces. Think windmill, cell tower, tree, etc.

## Understanding Elevation

You can visualize your vector data on a 3D map in different ways. Here are some ways for 3D tables and 2D tables. For Vector layers, the three main options are:

- **Absolute:** Draw the objects using the elevation/height values. For the 2D layer, this is 0.
- **RelativeToTerrain:** Draw the objects using the elevation/height values offset from the values of the terrain. Add an Elevation source (Terrain Layer) to enable.
- **Drape:** Drape the objects on top of the elevation surface. The objects follow the contours of the elevation. Add an Elevation source (Terrain Layer) to enable.

In addition, certain layers like regions or point columns can be "Extruded" - which means turning a flat 2D object into a 3-dimensional object by giving it a height.

3D Shape Layers can also be displayed Absolute, RelativeToTerrain, or Draped.

### 3D Vector Data

#### Buildings (Regions) with Z values on nodes 'Absolute'

Building polygons with 3D values on nodes - The buildings are displayed at their own Z values. Each node can have its own Z. The regions are flat. It only looks good if the elevations match what is in the terrain. See the **Height** section in the 3D layer control. Absolute is used.

#### Extruded Building polygons with 3d values on nodes

Display in 3D window extruded - The buildings are drawn at the elevation specified. There is no relation to the terrain elevation, and the height goes up (or down) from there. Use **Extrude**, **Absolute**, and **Height Expression**. Also use a height column from the table or a hard-coded value for the building height.

#### Building polygons with 3d values on nodes - treating as 2D

Polygons are draped over terrain regardless of **Extrude** value and **Drape** option is unchecked.

**Note:** The **Extrude** has no effect.

If you want to extrude flat buildings or polygons, save the table as a 2D table first using **Save Copy As...** in MapInfo Pro.

### **Building polygons with 3D values on nodes - Relative to the Terrain Layer (Elevation Source)**

Polygons are displayed at the elevation of terrain + Z value in nodes. The regions are flat. Use the and **Relative To Terrain** option.

Useful if your data has relative heights for Z values.

### **Extruded Building polygons with 3D values on nodes relative to terrain**

Polygons are displayed at the elevation of terrain + Z value in nodes with height going up (or down) from there.

Use the **Extrude**, **Relative To Terrain**, and **Height Expression** options.

## *2D Vector Data*

**Drape:** If you have a Terrain layer in your map, you can drape points, lines, and polygons on top of it. They follow the height of the elevation.

For polygons, shapes, or point columns there are several other ways to visualize them.

- If **Absolute** is used the polygon is drawn at elevation 0.
- **RelativeToTerrain** - drawn on top and optionally extruded with height expression.
- **Absolute**- starts at 0 and optionally extruded with height expression.

## *Using Elevation with Raster Images*

By default, a Raster image is displayed flat at an elevation of 0 (zero) meters. Make sure the **Height** option is selected and the height expression is 0.

**Note:** You can change the expression to change the elevation where the image is displayed.

The second option is to drape the image over an elevation source (terrain layer) if one exists in the 3D map.

The raster follows the elevation of the terrain layer. This is the same as when creating a new 3D map with a terrain layer, but you can also do it afterward with one or more raster images, even if the terrain layer is tiled.

Besides displaying a raster image at a flat elevation or draping it over a terrain, you can also position a raster with different Z values at each corner with a little effort.

One use case is registering a photo from a particular location and adding it to your 3D map. Using the **FirstPerson** view, you could position the camera to see the image from where the picture was taken.

Selecting the **Override Bounds** option on the image lets you specify the x,y, and z for each corner of the picture. The tooltip shows the format.

### *Draping 2D Tile Layers*

You can display 2D Tile layers at 0 (zero) elevations or drape over an Elevation Source (Terrain Layer). This is true, even if the elevation source was created from a local raster image and not tiled.

## **3D Implementation Details**

### *OpenGL Rendering*

MapInfo Pro uses **DECK.GL**, a WebGL-powered framework to simplify high-performance, WebGL-based visualization of large data sets. You can quickly get impressive visual results with minimal effort by composing existing layers, or leverage DECK.GL's extensible architecture to address custom needs.

### *Workspace Serialization*

The 3D Map definition is stored in JSON file and the Workspace calls into 3D add-in to load each window. For example,

```
run uri
"mapinfopro://application:MapInfo3D.mbx;deserializeWindow/Oksenvad_DTM
Map 3D/Oksenvad_DTM Map 3D.json"
```

### *Hosted Web Browser*

- MapInfo Pro 3D functionality uses the Microsoft Edge WebView2 control to embed and render web technologies (HTML, CSS, and JavaScript). The WebView2 control uses Microsoft Edge as the rendering engine to display the web content in native apps.
- Right-click anywhere on the 3D map and the click **Inspect** to open Microsoft Edge DevTools browser debugger.

### *Data Conversion and Caching*

Elevation/Terrain Data must be encoded into **RGBA** values in a .PNG or tiled image. An elevation decoder formula is specified to recalculate the elevation from the RGB image values. Popular Mercator (epsg:3857) is the projection.

- Vector Data is usually provided in the GeoJSON format in WGS84 coordinates.

- Bitmaps are also converted to .PNG format in Popular Mercator (EPSG:3857) projection.
- Elevation source definitions are stored in a file `ElevationsSources.json`.
- The intermediate files are stored in a cache in a directory called `elev_Cache` created underneath it.
- Each workspace or 3D map has a location specified when a 3D map is created. The map definition file `<map Name>.json` and the generated HTML file are stored there. A cache folder `_3Dcache` is created for intermediate files underneath this folder.

## Limitations

### Layers

- QuadKey tile servers, such as Bing, are yet to be supported.
- Only raster images opened with MIRaster (MIRasterHandler.rha or MIRasterHandlerGDAL.rha) are supported as bitmap layers or surface images.
- WMS, WMTS, and GridLine layers are not currently supported.
- Raster Images is currently being processed on the main thread and can take a while for large images.
- Images with width or height > ~15000 need to be tiled.

### Styling

- Embedded Styles are not supported. The default style is that of the first object.
- Fill Patterns are not supported.
- Mixed geometry types in the same layer only support the style of the dominant object type.
- Labeling is only supported on point layers.
- For point layers, opacity applies to both the symbols and the label text.
- Only Ranged and Individual Value themes are supported.
- Styling in the 3D map is defined by DECK.GL properties. There is no one-to-one mapping with MapInfo Pro styles, but overall, you can achieve nice-looking maps.

### Miscellaneous

- Elevation is in Meters.
- When using a tiled elevation source, the surface must also be tiled.
- The surface must also be a single image when using an elevation source single image.

## 3D Ribbon Main Page

The **3D** tab contains commands for visualizing your vector and raster data in a new 3D window inside MapInfo Pro using the OpenGL rendering. The **3D** tab is available on the ribbon unless it is minimized.

### Map Group

Command	Keyboard Shortcut	Description
New 3D Map	Ctrl+Shift+3	Create a 3D Map window with an elevation source and layers on top.
Layers > Map Layers	F10	Add layers from a Map to a 3D Map.
Layers > 3D Shapes		Add a point layer using a 3D shape for its symbol.
Layers > Terrain Layer		Add terrain (elevation layer) from an elevation source to a 3D Map.

### Elevation Group

Command	Keyboard Shortcut	Description
Sources	F11	Add, edit or remove Elevation sources like Raster images with elevation or tiled elevation images.

### Tools Group

Command	Keyboard Shortcut	Description
Layer Control		Toggle (show/hide) the <b>3D Layers</b> control panel.

### View Group



Command	Keyboard Shortcut	Description
Full View		Set view to the map's full extents.
Top View		Change the camera view to look down at the center of the map by setting bearing and pitch to 0 (zero).
Center		Set center of the map to the centroid of the first selected object.
Center/Zoom		Set center and zoom of the 3D map to match the bounds of the last regular map window.

## Output Group

Command	Keyboard Shortcut	Description
Export Image		Export the current map view to a bitmap file.
Copy Image		Copy the current view image to the clipboard.

## 3D Dialog Box Descriptions

### New 3D Map

#### Command

#### What is the purpose of New 3D Map?

Create a 3D Map window with an elevation source and layers on top.

#### When is New 3D Map active?

This command is always active.

#### How do I access New 3D Map?

On the **3D** tab, in the **Map** group, click **New 3D Map**.

## Dialog

In the **New 3D Map** dialog, you specify how your new 3D map should look.

### Name

Enter a name for the new 3D map. By default, it will display the name of the frontmost map window and add **3D** to the name of the map. It will also ensure that the name of the new 3D map doesn't already exist.

### Location

By default, the path of the current workspace is used. If you don't have a current workspace, it will use your preferred folder for tables. You can use the **Browse** button to select a different folder to use. At this location, the cached files for your vector layer will get created in a subfolder.

### View Type

Select the **View Type** for your 3D map. For details, see [View Types](#) on page 10.

### Elevation

Select which elevation source you want to use, if any. You won't necessarily need an elevation source to create a 3D map. It depends on what you are trying to visualize.

To use an elevation source, select it from the **Source** in the **Elevation** group. You can also use the **Elevation Source** button to the right of the **Source** list to open the **Elevation Sources** dialog and create a new elevation source.

If you have selected an elevation source, you can also choose a **Surface** to drape on top of the elevation source. This will often be a tile server layer open in your map window.

### Add Layers From

Select **Add Layers From** to select additional layers from your current map window. If you choose this option, the **Add Map Layers** dialog is displayed when you click **OK**.

## View Types

### Map

This viewport creates a camera that looks at a geospatial location on a map from a certain direction.

**Keys:** Use the arrow keys to pan, arrow keys with shift/ctrl down to rotate, and +/- to zoom.

**Mouse:** Use the mouse wheel to zoom, drag to pan, and shift/ctrl + drag to rotate.

### Globe

This view projects the earth into a 3D globe.

**Keys:** Use the arrow keys to pan and +/- to zoom.

**Mouse:** Use the mouse wheel to zoom and drag to pan.

### *First Person*

First Person view describes a camera placed at a provided location, looking towards the direction and orientation specified by viewState.

**Keys:** Use arrow keys to move the camera, arrow keys with shift/ctrl down to rotate, and +/- to zoom.

**Mouse:** Use the mouse wheel to zoom and drag to rotate.

### *Orthographic*

Orthographic Map view creates a top-down view of the XY plane.

**Keys:** Use the arrow keys to pan and +/- to zoom.

**Mouse:** Use the mouse wheel to zoom and drag to pan.

### Map

This viewport creates a camera that looks at a geospatial location on a map from a certain direction.

**Keys:** Arrow keys to pan, arrow keys with shift/ctrl down to rotate, and +/- to zoom.

**Mouse:** Mouse wheel to zoom, drag to pan, and shift/ctrl + drag to rotate.

### Globe

This view projects the earth into a 3D globe.

**Keys:** Arrow keys to pan and +/- to zoom.

**Mouse:** Mouse wheel to zoom and drag to pan.

### First Person

First Person View describes a camera placed at a provided location, looking towards the direction and orientation specified by viewState.

**Keys:** Arrow keys to move the camera, arrow keys with shift/ctrl down to rotate, and +/- to zoom.

**Mouse:** Mouse wheel to zoom and drag to rotate.

### Orthographic

Orthographic Map View that creates a top-down view of the XY plane.

**Keys:** Arrow keys to pan and +/- to zoom.

**Mouse:** Mouse wheel to zoom and drag to pan.

## Add Layers from Map dialog

### Command

#### What is the purpose of Map Layers?

Add layers from a Map to a 3D Map.

#### When is Map Layers active?

This command is always active.

#### How do I access Map Layers?

On the **3D** tab, in the **Map** group, click **Layers** and then click **Map Layers**.

### Dialog

From the **Add Layers from Map** dialog, you can select one or more layers to add to your new or existing 3D map.

**Note:** You can only add layers that exist in an open map window.

#### Map

Select the map window you want to add layers from. If you have an active map window, this active map window will be the default map.

#### Filter

Use the **Filter** option to determine which layers you want to see in the layer list below. You can filter by

- Layer types (Vector, Raster, or Tiles)
- Object types in the layer
- 2D or 3D layer, or both.

In the layers list, select the layer(s) you want to add to your 3D map. By default, the layers already existing in the 3D map will be unselected in the list of layers.

Select or remove all layers using the **Check/Uncheck All** option at the bottom.

Once you have selected the layer(s) to add, click **OK** to add the layer(s) to your 3D map. If the **OK** button is disabled, make sure that you have selected at least one layer from the list.

## Add 3D Shape Layer dialog

### Command

#### What is the purpose of 3D Shapes?

Add a point layer using a 3D shape for its symbol.

**When is 3D Shapes active?**

This command is always active.

**How do I access 3D Shapes?**

On the **3D** tab, in the **Map** group, click **Layers** and then click **3D Shapes**.

*Dialog*

To add a point layer:

**Layer**

Select the layer to which you want to add a 3D shape.

**Uri**

Browse for a 3D shape.

*Add Terrain Layer dialog**Command***What is the purpose of Terrain Layer?**

Add terrain (elevation layer) from an elevation source to a 3D Map.

**When is Terrain Layer active?**

This command is always active.

**How do I access Terrain Layer?**

On the **3D** tab, in the **Map** group, click **Layers** and then click **Terrain Layer**.

*Dialog***Source**

Choose an elevation source on which to drape a surface and vector layers.

**Surface**

Choose a surface to drape over the elevation source.

*Elevation Sources dialog**Command***What is the purpose of Elevation Sources?**

Add, edit, or remove Elevation sources like Raster images with elevation or tiled elevation images.

### **When is Elevation Sources active?**

This command is always active.

### **How do I access Elevation Sources?**

On the **3D** tab, in the **Elevation** group, click **Sources**.

## *Dialog*

### **Add**

Click to add a new elevation source. Available types are:

1. Local Raster Image
2. Tile Server

### **Edit**

Click to edit an existing elevation source.

### **Remove**

Click to remove an existing elevation source.

### **Set Default**

Set an elevation source as default.

### **Folder**

Browse to load an elevation source.

## *Tiled Elevation Source dialog*

## *Command*

### **What is the purpose of Tiled Elevation Source?**

To add a Tile Server image as an elevation source.

### **When is Tiled Elevation Source active?**

This command is always active.

### **How do I access Tiled Elevation Source?**

1. On the **3D** tab, in the **Elevation** group, click **Sources**.
2. Click **Add** on the **Elevations Sources** dialog and then select **Tile Server**.

### *Dialog*

Enter a **Name** and **Description** for the elevation source.

#### **Uri**

The full URI to the Tile Server and any API keys, if needed.

#### **Attribution**

Any required attribution for the source of the data.

#### **Tile Settings**

Enter **Tile Size** and **Minimum** and **Maximum Zoom Level**.

#### **Elevation Decoder**

Enter the elevation decoder settings.

### *Local Elevation Source dialog*

### *Command*

#### **What is the purpose of Local Elevation Source?**

To add a Local Raster image as an elevation source.

#### **When is Local Elevation Source active?**

This command is always active.

#### **How do I access Local Elevation Source?**

1. On the **3D** tab, in the **Elevation** group, click **Sources**.
2. Click **Add** on the **Elevations Sources** dialog and then select **Local Raster Image**.

### *Dialog*

Select a local Raster **Table**, **Field**, and **Band** for the elevation source.

Enter a **Name** and **Description** for the elevation source.

#### **Uri**

The full URI to the Tile Server, along with any API keys, if needed.

#### **Attribution**

Any required attribution for the source of the data.

#### **Null Elevation**

Value to be used as elevation when the cell is NULL. Value is in meters.

#### **Process Image**

Click to process the image now. This converts the image to popular visualization CSYS, converts it to RGB elevation format, and saves it as a PNG image. Optionally, you can also tile it.

### Clear Cache

Deletes any cached files for this image source, forcing them to get regenerated the next time they are used.

### Elevation Decoder

Enter the elevation decoder settings.

## 3D Layers Control Panel

### Command

#### What is the purpose of 3D Layers Control Panel?

Use the 3D Layers Control Panel to view and interact with your 3D Maps more effectively.

#### When is Map Layers active?

This command is always active.

#### How do I access Map Layers?

On the **3D** tab, in the **Tools** group, click **Layer Control**.

### 3D Layers Control Panel Properties

#### Tabs

##### View tab

Setting	Description
Long	Longitude at the map center. Decimal degrees.
Lat	Latitude at the map center. Decimal degrees.
Target	The world position at the center of the viewport [x,y,x].
Bearing	Bearing angle in degrees. 0 (zero) is north.
Pitch	Pitch angle in degrees. 0 (zero) is top-down.



Setting	Description
Position	Meter offsets of the camera from the long-lat anchor point [x,y,z].
Min Pitch	Minimum pitch level to which a map can be set.
Max Pitch	Maximum pitch level to which a map can be set.
Min Zoom	Minimum zoom level to which a map can be set.
Max Zoom	Maximum zoom level to which a map can be set.
Zoom	Zoom level (Tile lever). Minimum is 0 (zero).

### View Type tab

Setting	Description
View Type	<p>Choose a view type for the new 3D map. See <a href="#">View Types</a> on page 10 for more details.</p> <p><b>Note:</b> Based on the <b>View Type</b> selected, the settings available in the <b>View</b> and <b>View Type</b> tabs may differ.</p>
Altitude	Distance of the camera relative to the viewport height.
Fovy	Field of view covered by the camera in the perspective case, in degrees.
Near	Distance of near clipping plane in meters.
Far	Distance of fat clipping plane in meters.
Focal	Modifier of viewport scale. Corresponds to the number of pixels per meter.

### Interaction tab

On 3D Click - Select to control interaction with the 3D map on a click.

Setting	Description
Select object in original table	Click to select an object in the original table.
Find Selection	This setting is enabled only when <b>Select object in original table</b> option is selected.
Show record in Info Window	Click to show the record details in the <b>Info</b> window.

### Info tab


Setting	Description
Name	Name of the 3D map.
Location	Location of the 3D map on disc.
Cache	Name of the cache folder.

### Layer Properties

Layer Type	Description
3D Layers	Click the + icon to add a new 3D layer.
2D Layers	Click the + icon to add a new 2D layer.
Elevation Sources	Click the + icon to add a new elevation source.

Right-click on a layer for context menu options:

Setting	Description
Show Layer	Show a layer on the map. Alternatively, you can also select the checkbox beside each layer.

Setting	Description
Hide Layer	Hide a layer on the map. Alternatively, you can also deselect the checkbox beside each layer.
Selectable On	Enable click and select an object from its layer. Alternatively, you can click on the  icon on the right of each layer title to enable.
Selectable Off	Disable click and select an object from its layer. Alternatively, you can click on the icon on the right of each layer title to disable.
Extrude On	Enable Extrude polygons property.
Extrude Off	Disable Extrude polygons property.

### Additional commands

Click on the  icon on the right of each layer title to display the additional commands.

Setting	Description
View Entire Layer	Click to view the entire layer.
Move Up	Click to move layer up by one position.
Move Down	Click to move layer down by one position.
Set as Clip Layer	Click to render only data within this layer in the 3D map.
Rename Layer	Click to rename the selected layer.
Duplicate Layer	Click to create a duplicate layer on the 3D map.
Delete Layer	Click to delete the selected layer.

Some settings are shared between all layer types, and some are displayed based on the types of layer added to the 3D map.

### Style

Setting	Description
Filled	Whether to fill polygons, based on the color selected from the color palette.
Stroked	<p>Whether to draw an outline around the polygon.</p> <p><b>Note:</b> Both the outer polygon and the outlines of any holes will be drawn.</p> <p>Width: The width of the polygon's outline, in units, specified by lineWidthUnits (default meters).</p> <p>Available only when the <b>Extrude</b> property in the <b>Height</b> group is not selected.</p>
Wireframe	<p>Whether to generate a line wireframe of the object. The outline will have horizontal lines closing the top and bottom polygons and a vertical line (strut) for each vertex on the polygon.</p> <p>Available only when the <b>Extrude</b> property in the <b>Height</b> group is selected.</p>
Opacity	Layer Opacity. From 0.0 (transparent) to 1.0 (opaque)
Symbol	<p>The size of the point object, in units specified by radiusUnits (default pixels)</p> <p>Icon: Render symbols using icons from a MapInfo font.</p> <p>Circle: Render symbols as circle.</p> <p>None: Do not render any symbol. Usually used to label points with text.</p>

Setting	Description
Label	<p>JavaScript expression used to determine label based on table columns.</p> <p>To construct a JavaScript expression using the columns of the table, click "..." to open the <a href="#">Label JavaScript Expression Editor</a>.</p> <p><b>Label Properties</b></p> <p>Use the <b>Font, Text Color, Outline, Background</b>, etc. properties to style your label.</p> <p>Rotation: The rotating angle of each text label in degrees.</p> <p>Anchor: Horizontal label position relative to the start, middle, or end of the text.</p> <p>Baseline: Horizontal label position relative to the top, center, or bottom of the text.</p> <p>Word Break: Where to wrap text past the maximum width.</p>
Show Texture	Show elevation mesh using selected color instead of draping texture on it.

## Height

Setting	Description
Use Object Z	If selected, use the Z value to draw the object either at its own value (absolute) or its own value plus the terrain value (offset). If not selected, the object is draped on the terrain, if any.
Extrude	Whether to extrude the polygons based on the elevation heights provided by the geometry. If not selected, all the polygons will be flat.
Absolute	Draw the objects using the elevation/height values.
Relative to Terrain	Draw the objects using the elevation/height values offset from the values of the terrain.

Setting	Description
Height Expression	The elevation with which to extrude each polygon. If a cartographic projection mode is used, height will be interpreted as meters; otherwise it will be in unit coordinates.  To construct a JavaScript expression using the columns of the table, click "..." to open the <a href="#">Height JavaScript Expression Editor</a> .
Override Bounds	Manually set the x, y, and z coordinates of each corner to tilt or rotate the bitmap image.
Scale	Elevation multiplier.

## Processing Options

Setting	Description
Re-project	Select to re-project the image.
Clip Invalid Cells	Select to clip the invalid cells
Render	Select to render the map.

## Commands


Setting	Description
Clear Cache	Delete the 3D cache file.
Open Cache Folder	Open the cache folder in Windows Explorer.
Refresh Data	Regenerate the cached data if the original table has changed.

## Tool Tip

Setting	Description
Tool Tip	<p>An HTML and JavaScript expression displayed when you hover over a selectable layer's object.</p> <p>To construct a JavaScript expression using the columns of the table, click "..." to open the <a href="#">Tooltip JavaScript Expression Editor</a>.</p>

## More Properties

Styling in the 3D map is defined by [DECK.GL](#) properties.

Click the  icon to display the **More Properties** dialog. You can add, edit, remove, and reorder the DECK.GL properties using this dialog.

**Note:** Click on a property in the **Properties** group to display and edit the values in the **Current Property** group.

Setting	Description
Add	Add a new empty DECK.GL property.
Delete	Delete a DECK.GL property.
Move Up	Move selected property up one position.
Move Down	Move selected property down one position.
Key	Name of the DECK.GL property.
Type	Type of the DECK.GL property. Determines what type of input you are prompted for.
Prompt	Label for the input control.
Help Text	Tool tip on the input control.
Default Value	A MapBasic expression that is evaluated to return the default value of the input control. A string must be enclosed using double quotes ("").
Values	A MapBasic expression that is evaluated. Its use depends on the type of the property.

Setting	Description
Properties	<p>Options are:</p> <p><b>Don't allow empty strings</b></p> <p>The pattern is a .Net expression. A validation error occurs if the value entered does not match the pattern.</p> <p><b>Foreground Color</b></p> <p>This is a WPF XAML property on the input text box or combo box. See XAML documentation for allowed values and other properties.</p> <p><b>Limit string length</b></p> <p>Input is limited to the number of characters specified.</p> <p><b>List or values allow multiple select</b></p> <p>You can select multiple values using checkboxes. The result is a semi-colon limited list in a string.</p> <p><b>List or Values editable</b></p> <p>The text box portion of the combo box allows input unless <b>AllowMultiSelect</b> is also true.</p> <p><b>Numeric Min and Max</b></p> <p>A validation error occurs if the number is not within the range.</p> <p><b>Numeric thousands separator</b></p> <p>The number is displayed with the specified formatting.</p> <p><b>Wider textbox or combobox</b></p> <p>This is a WPF XAML property on the input text box or combo box. See XAML documentation for allowed values and other properties.</p>

### **Height JavaScript Expression Editor dialog**

This dialog allows you to construct a JavaScript expression using the columns of the table.

1. Double-click on a column item to insert an expression at the cursor position in the **Height Expression** box.
2. If text is selected in the **Height Expression** box, double-click on a column item to replace the selected text with the expression.
3. The column name, when inserted in the **Height Expression** box is preceded by `f.properties.`. This string is required for **deck.gl** to evaluate the expression.
4. a. You can use any valid JavaScript language or libraries in the **deck.gl** package.
5. Currently, there is no way to validate the expression in the dialog.



### Label JavaScript Expression Editor dialog

This dialog allows you to construct a JavaScript expression using the columns of the table.

1. Double-click on a column item to insert an expression at the cursor position in the **Label Expression** box.
2. If text is selected in the **Label Expression** box, double-click on a column item to replace the selected text with the expression.
3. The column name when inserted in the **Label Expression** box is preceded by `f.properties`. This string is required for **deck.gl** to evaluate the expression.
4. You can use any valid JavaScript language or libraries that are a part of the **deck.gl** package.
5. Currently, there is no way to validate the expression in the dialog.

### Tooltip JavaScript Expression Editor dialog

This dialog allows you to construct an HTML and JavaScript expression using the columns of the table.

1. Double-click on a column item to insert an expression at the cursor position in the **Tooltip Expression** box.
2. If text is selected in the **Tooltip Expression** box, double-click on a column item to replace the selected text with the expression.
3. The column name when inserted in the **Tooltip Expression** box is preceded by `object.properties`. This string is required for **deck.gl** to evaluate the expression.
4. You can use any valid JavaScript language or libraries that are a part of the **deck.gl** package.
5. The HTML is used to render the tool tip when the mouse cursor is over an object in the 3d map window.
6. Currently, there is no way to validate the expression in the dialog.

**Note:** The base style of the tool tip is included in the HTML template file.

## M/Z support in MapInfo Pro

You can now create Native and NativeX tables supporting each node's Z and M values. MapBasic support for creating Native and NativeX tables with *M/Z supportmz* token is added.

For example,

```
Create Map For Untitled CoordSys Earth Projection 1, 104 supportmz
```

The new token *SupportMZ{On|Off}* in the `Commit Table` statement indicates if the destination table contains M and/or Z values. This is an optional parameter. If not passed, the table is saved with M,Z values from the source table.

```
Commit Table table
  [ As filespec
    [ Type { NATIVE [ Charset char_set ] |
      NATIVEX [ Charset char_set ] [ Locale locale ] |
      DBF [ Charset char_set ] |
      Access Database database_filespec Version version Table tablename
      [ Password pwd ] [ Charset char_set ] |
      QUERY |
      ODBC Connection ConnectionNumber Table tablename
      [ Type SQLServerSpatial { Geometry | Geography } ]
      [ ConvertDateTime { ON | OFF | INTERACTIVE } ] |
      GPKG [ Database database_filespec ] [ Table tablename ]
      [ Charset char_set ] } ]
    [ CoordSys... ]
    [ Version version_pro ] ]
  [ Interactive ]
    [ SupportMZ {On|Off} ]
  [ Background [View None|Automatic|Map|Browse|Add To Map]
    [Into { Variable var_name }]] [Calling
mb_sub_with_1_param_and_error_trap] ]
  [BlockSize block_size ]
  [ { Interactive | Automatic commit_keyword } ]
  [ ConvertObjects { ON | OFF | INTERACTIVE } ]
```

## Object info dialog updates

The Object dialog boxes now contain the read-only **Has Z** and **Has M** check boxes. Their selected state indicate that the object has M and Z values.

List of Objects that indicates if they have Z/M Values :

- Point
  - For Point objects, actual Z and M values are shown in the **Point Object** dialog box.
- MultiPoint
- Polyline
- Polygon
- Collection

## MapBasic changes to support Z and M value

### Create Object statement

#### Syntax

Z/M values are supported for Point, PLine, region, multipoint, and collection objects only.

#### Create Point

```
Create Point      [ supportmz ]
                  [ Into { Window window_id | Variable var_name } ]
                  ( x, y[, [z][,m]] )
                  [ Symbol... ] [ Priority n ] [ Name filename ]
```

*window\_id* is a window identifier.

*var\_name* is the name of an existing object variable.

*x, y* specifies the location of the point.

The Symbol clause specifies a symbol style.

*n* is an integer value indicating the Z-Order value of objects (frames) on the Layout window.

*filename* is a string representing the name for this item in a Layout window.

*supportmz* token is optional, passed when setting the z/m value.

**z is a Z value.**

**m is an M value.**

#### Create Pline

```
Create Pline      [ supportmz ]
                  [ Into { Window window_id | Variable var_name } ]
                  [ Multiple num_sections ]
                  num_points ( x1, y1[, [z1][,m1]] ) ( x2, y2[, [z2][,m2]]
) [ ... ]
                  [ Pen... ]
                  [ Smooth ] [ Priority n ] [ Name filename ]
```

*window\_id* is a window identifier.

*var\_name* is the name of an existing object variable.

*num\_points* specifies how many nodes the polyline will contain.

*num\_sections* specifies how many sections the multi-section polyline will contain.

Each *x, y* pair defines a node of the polyline.

The Pen clause specifies a line style.

*n* is an integer value indicating the Z-Order value of objects (frames) on the Layout window.

*framename* is a string representing the name for this item in a Layout window.

*supportmz* token is optional, passed when setting the z/m value.

**z is a Z value.**

**m is an M value**

### Create Region

```
Create Region [ supportmz ]
    [ Into { Window window_id | Variable var_name } ]
    num_polygons
    [ num_points1 ( x1, y1[, [z1][,m1]] ) ( x2, y2[, [z2][,m2]]
) [ ... ] ]
    [ num_points2 ( x1, y1[, [z1][,m1]] ) ( x2, y2[, [z2][,m2]]
) [ ... ] ... ]
    [ Pen ... ]
    [ Brush ... ]
    [ Center ( center_x, center_y ) ]
    [ Priority n ] [ Name framename ]
```

*window\_id* is a window identifier.

*var\_name* is the name of an existing object variable.

*num\_polygons* specifies the number of polygons that will make up the region (zero or more).

*num\_points1* specifies the number of nodes in the region's first polygon.

*num\_points2* specifies the number of nodes in the region's second polygon, etc.

Each *x, y* pair specifies one node of a polygon.

Pen is a valid **Pen clause** to specify a line style.

Brush is a valid **Brush clause** to specify fill style.

*center\_x* is the x-coordinate of the object centroid.

*center\_y* is the y-coordinate of the object centroid.

*n* is an integer value indicating the Z-Order value of objects (frames) on the Layout window.

*framename* is a string representing the name for this item in a Layout window.

*supportmz* token is optional, passed when setting the z/m value.

**z is a Z value.**

**m is an M value**

### Create Multipoint

```
Create Multipoint [ supportmz ]
    [ Into { Window window_id | Variable var_name } ]
```

```
[ num_points ]
( x1, y1[, [z1][,m1]] ) ( x2, y2[, [z2][,m2]] ) [ ... ]
[ Symbol... ]
```

*window\_id* is a window identifier.

*var\_name* is the name of an existing object variable.

*num\_points* is the number of points inside a Multipoint object.

*x, y* specifies the location of the point.

*supportmz* token is optional, passed when setting the z/m value.

**z is a Z value.**

**m is an M value.**

## Alter Object statement

### Syntax

Z/M values are supported for Point, PLine, region, multipoint, and collection objects only.

```
Alter Object obj
  { Info object_info_code, new_info_value |
    Geography object_geo_code , new_geo_value |
    Node {
      Add [ Position polygon_num, node_num ] ( x, y[, [z][,m]] )
    |
      Set Position polygon_num, node_num ( [x],[ y][, [z][,m)] |
      Remove Position polygon_num, node_num } }
```

**Note:** You are not required to pass x,y if only z or m need to be modified.

## Commit Table statement

### Syntax

Use the `SupportMZ` token to save a table as `supportmz` values or not.

```
Commit Table MZ_Native1 As "C:\Users\\Documents\MZ_Native11.TAB"
TYPE NATIVEX
Background [SupportMZ {On | Off}]
```

*[SupportMZ {On | Off}]* - This parameter is optional. If not passed, the table is saved with M, Z values from the source table.

## Show M/Z values in a status bar

If an object or node underneath the cursor has z and/or m, then z and/or m are shown in addition to x and y values in the status bar only when the **Snap to Node** functionality is enabled.

To enable the **Snap to Node** functionality, open the **Spatial** tab in the menu and Click **Snap to Node**, which will show the z/m value present in the node or object in the cursor location of the status bar.

Once the **Snap to Node** functionality is enabled, you can see a cross-hair icon, and the Z and M values are shown for the following objects:

1. Region
2. Polyline
3. Point
4. Multipoint

## Exporting Tables with Z/M values

You can now export tables with Z/M values for OGR formats (Shape, GeoJson, GeoPackage, CSV)

## New MapBasic Tools

- **BatchMIF**- Use this tool to
  - Import Multiple MIFMID files in a batch.
  - Save them as Native\NativeX files.
  - Map each after import or close them after import.
- **Save Table with New BlockSize**- Convert Tables to use the new Map File block size for optimization in 64-bit or use in 3rd-party libraries. (For example, MITAB, cannot read map files in block sizes other than 512).
- **MGRS<->XY Converter**- Use this tool to
  - Convert Military Grid Reference System (MGRS) <-> XY in any Earth Coordinate system.
  - Update XY or MGRS columns.
  - Create points from MGRS coordinate strings.
  - Basic MGRS <-> XY conversion calculator.
- **USNG<->XY Converter**- Use this tool to
  - Convert US National Grid (USNG) <-> XY in any Earth Coordinate system.
  - Update XY or USNG columns.
  - Create points from USNG coordinate strings.
  - Basic USNG <-> XY conversion calculator.

- **FindUSNG**- Find the location on a map using the USNG coordinate string.
- **FindMGRS**- Find the location on a map using the MGRS coordinate string.
- **RasterSeam**- Build a seamless raster table from a folder of images (For example, with .geotiff or world files).
- **PublicFunctions**- Add a series of custom MapBasic functions for use in
  - MapInfo Pro
    - Update Column
    - SQL
    - SQL Select
    - Expression dialogs
  - MapBasic window
    - Ceiling
    - InstrRev
    - Repeat\$
    - Replace\$
    - StripLeft\$
    - StripRight\$
    - Trim\$
    - DateTimeMidPoint
    - DayNumToLetter
    - DaysInMonth
    - EventLength
    - IsDate
    - IsLeapYear
    - TemporalOverlap
    - TemporalOverlapInterval.

## Enhancements and Updates

### Updated MapBasic Tools

**SyncWindows**- Added **Draw Polygon** tool to **SyncWindows**.

**DegreeConverter-** Fixed issue for rescanning columns when changing tables or DMS\Decimal conversion options.

**Concentric Buffers-** Added an optional check box to add a *RingID* column to the result buffer table. This option allows you to join these buffer records to another table using a common identifier.

## New Find Selection option

Added a new option, **Find Selection**, to the **Browser** context menu. Use this option to make your selection visible in all windows.

## Gridline Layer Label Expressions

The **Label with** expression in **Gridline** modifies the Labels shown on **Gridline** Layers. The example below shows the before and after truncation of the **Gridline** Label values to use only the first two numbers.

**Note:** A **Gridline Label with** expression will generate a version 2300 workspace file. If the expression is the default **GridLabel**, the workspace version should not be increased.

Label Expression example:

```
Set Map Layer 1 Label with Val(Left$(Right$(GridLabel, 6), 2))
```

While using the **Gridline** layers, a temporary hidden table is created in the *mapinfo* temp folder that contains the lines and the following attribute columns:

1. The **GridLabel** columns contain the calculated label value that depends on the CoordSys used and the gridline properties.
2. The **LineType** columns contain a value 1 for horizontal lines and 2 for vertical lines.
3. The **LabelPosition** is a number representing where the label is drawn. Use an expression like:

```
Set Map Window 3004 Layer 1 Label With  
GridLabel+"_"+Str$(LineType)+"_"+Str$(LabelPosition) to see the various values.
```

You can find the alias and path of the gridline table using MapBasic:

```
print layerinfo(3002, 1, LAYER_INFO_ALIAS) ' Gridline0001  
print layerinfo(3002, 1, LAYER_INFO_PATH) '  
C:\Users\Santa.Claus\AppData\Local\Temp\MIPRO\MapInfo.Application.x64_26724\Gridline0003.TAB
```



## Token-based Authentication (Basic) updates

### WMS, WFS and WMTS dialog changes

The Basic Authentication group in the **WMS**, **WFS**, and **WMTS** dialogs contains the following fields:

- **User Name**
- **Password**
- **Token URL** - The token URL of the token-based authentication server.

### Secure Licensing Communication

We now provide secure licensing communication support for served licenses. The secure licensing communication provides *ciphertext* communication, whereas insecure licensing communication provides a plain text communication between **MapInfo Pro** and the **License Server Utility**. You can decide whether to use *ciphertext* communication or continue with plain text communication based on your requirements.

### MapBasic Implementation

#### Register Table

##### WFS

```
Register Table "C:\Documents\Usa.xml" Type "WFS" Charset "WindowsLatin1"
CoordSys Earth Projection 1,
62 Symbol (35,0,12) linestyle Pen (1,2,0) regionstyle Pen (1,2,0) Brush
(2,16777215,16777215)
user "admin" pass "admin" Into "C:\Documents\Usa.TAB"
```

##### WMS

```
Register Table "C:\Users\Documents\Untitled.xml" Type "WMS" CoordSys
Earth Projection 1, 104
user "admin" pass "admin" Into "C:\Users\Documents\Untitled.TAB"
```

##### WMTS

```
Create Table "Untitled" File "C:\USERS\\DESKTOP\Untitled"
Type TILESERVER TileType "WMTS"

URL"http://10.2.105.81:8080/rest/Spatial/WMTS?SERVICE=WMTS&REQUEST=GetCapabilities&VERSION=2.0.2
&request=GetCapabilities&service=WMTS&version=1.0.0"
```

```
tokenurl "http://10.2.105.81:8080/security/rest/token/access/0"
user "admin" password "admin" layer "USA_WMTS_Layer_ID1"
tilematrixset "WorldWebMercatorQuad_0_to_19" style "default" format
"image/png"
CoordSys Earth Projection 10, 157, "m", 0 Bounds (-20037508.34,
-20037508.34) (20037508.34, 20037508.34)
```

### Refresh Table

```
Open Table "C:\Documents\Usa.TAB" Interactive wfs refresh table Usa user
"admin" pass "admin"
```

**Note:** The Token URL is stored in Usa.xml

## MapUploader updates

**New Run URI commands** - If the **NRCreator** add-in is registered or running, these commands will work. If not, executing these commands will result in an error.

Brings up the **Server/Preferences** dialog

```
run uri "mapinfo:pro://application:NRCreatorAddIn.mbx;showServersDialog"
```

Brings up the **Server/Preferences** dialog

```
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;showPreferencesDialog"
```

Brings up a dialog to select a repository folder path. This path is where the named table resource is created.

- The login dialog will be presented if you are not logged in.
- The selected folder path is returned in a global string variable in the add-in named *CommandUriResult* in JSON format.
- An empty string is returned if canceled or an error occurs.

```
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseRepositoryFolders\server:port"
//For example,
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseRepositoryFolders\http://10.2.105.24:8080"
```

Brings up a dialog to select a named connection. This connection is where the table will be uploaded.

- The login dialog will be presented if you are not logged in.
- The selected connection repository path is returned in a global string variable in the add-in named *CommandUriResult* in JSON format.
- An empty string is returned if canceled or an error occurs.

```
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseNamedConnections\server:port"
//For example,
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseNamedConnections\http://10.2.105.24:8080"
```

---

Brings up a dialog to select a data folder path from a named connection.

- This connection is where the tables data will be uploaded
- The login dialog will be presented if you are not logged in.
- The selected folder path is returned in a global string variable in the add-in named "*CommandUriResult*" in JSON format.
- An empty string is returned if canceled or an error occurs.

```
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseConnectionFolders\server:port/
\NamedConnectionPath"
//For example,
run uri
"mapinfo:pro://application:NRCreatorAddIn.mbx;browseConnectionFolders\
http://10.2.105.24:8080/\Samples/NamedConnections/SampleData"
```

---

For the commands that return a result in a global variable inside the *NRCreator.mbx* – the value can be obtained in three ways:

- through the *IMapBasicApplication* interface on the object model
- through the *COM* interface
- through *DDE*

## Interoperability with Spectrum Spatial

### ***Ability to open, view, and edit named vector tables using the feature service***

Using the OGR Web Connection dialog:

1. Select the **MapInfo Feature Service**.

2. Prefix the **Spectrum Spatial Server Instance** with "MIFS:" and click **OK**
3. On the **OGR Options** dialog for the MIFS driver, increase the paging size for large tables and click **OK**.
4. Enter the credentials for the server.
5. On the **Select One or More Tables to Open** dialog, select one or more tables and set the options.
6. Click **OK** to register and open the selected named tables.

**Note:** You can only open vector tables this way.

Large tables can take time to open as the data is cached locally. The tables, including the spatial edits, can be viewed and edited normally in MapInfo Pro.

### **Ability to upload Map Info Pro tables using the export and the feature service**

You can upload any vector table open in MapInfo Pro to a Spectrum Spatial Server Instance as a named table. The table is first converted into a native table and then uploaded using the **OGR MapInfo Feature Service** (MIFS) driver. You can use the Map Uploader add-in (*NRCreator.mbx*) to browse the repository, named connections, etc. For this to work, you must have the add-in registered or loaded. If not, the browse capability will not work. You can still upload, but you must type the correct values into the export dialog.

1. Select one or more tables to upload in the table list and right-click to choose **Export**, or use the **Export** button on the table tab and select tables to upload.
2. From the **Export Table(s) to File(s)**, select the MIFS driver.
3. Click **OK** to display the **MapInfo Feature Service Export Options** dialog.

**Note:** The server URLs configured in the Map Uploader are listed in the URL combobox.

4. Click **OK** to create a background task for each table being uploaded.

**Note:** Some table types such as RDB or WFS must be processed in the main thread so the application execution is blocked as they are uploaded.

A local OGR tab file is created in the specified location for each table uploaded. Use this file to open the named tables from the server in MapInfo Pro.

## OGR Support for opening web or server based tables

### *How to Access the MapInfo Feature Service (MIFS)*

1. On the **HOME** tab, under the **File** group, click **Open Connections**.

2. Select the **OGR** option as the **Connection Type**.
3. In the **OGR Web Connection** dialog, enter the **OGR Web URL**, select the MIFS driver, and click **OK**.
4. In the **Vector File (OGR) Open Options** dialog, enter the server details and the prefix "**MIFS**" and click **OK**.
5. Enter the credentials for the server.
6. On the **Select One or More Tables to Open** dialog, select a table and click **OK**.

### MapBasic additions to Register table

```
Register Table "MIFS:http://10.2.105.24:8080/" TYPE "OGR" TABLE
"/Samples/NamedTables/STATES" DRIVER "MIFS"
  OpenOptions "AUTH=BASIC;NAMEDTABLE=/Samples/NamedTables/STATES" CoordSys
  Earth Projection 1,
  62 Charset "UTF-8" WebTable Cache On Into "C:\Users\
Documents\Samples_NamedTables_STATES.tab"
Open Table "C:\Users\ Documents\Samples_NamedTables_STATES.tab"
Interactive
Map From Samples_NamedTables_STATES
```

You can open .csv, .zip, and .shp files similarly. Select the OGR(csv) driver for .csv files and the OGR(.shp) driver for .zip and .shp files.

## Specifying a new CSys when exporting

For the MapInfo 3D visualization changes (see MapInfo 3D for details), the tables should be in the **Longitude/ Latitude (WGS 84)[ epsg:4326]: CoordSys Earth Projection 1, 104** projection. Use the optional *CoordSys* clause in the MapBasic export statement to change the CoordSys of a given tab file.

### MapBasic Export Statement

```
Export table

Into file_name
[ Type
  { "MIF" |
  "DBF" [ Charset char_set ] |
  "ASCII" [ Charset char_set ] [ Delimiter "d " ] [ Titles ] |
  "CSV" [ Charset char_set ] [ Titles ]
  "OGR" [ Charset char_set ] [ Driver driver_name ]
  [ Drivercreateoptions driver_create_options ]
  [ Layercreateoptions layer_create_options ]
  [Background [Into Variable var_name]
  [Calling calling_sub_with_one_param_and_errortrap]]
} ]
```

```
[ Overwrite ]
    CoordSys Earth

[ Projection type,
  datum,
  unitname
  [ , origin_longitude ]
  [ , origin_latitude ]
  [ , standard_parallel_1 [ , standard_parallel_2 ] ]
  [ , azimuth ]
  [ , scale_factor ]
  [ , false_easting ]
  [ , false_northing ]
  [ , range ] ]
[ Affine Units unitname, A, B, C, D, E, F ]
[ Bounds ( minx, miny) ( maxx, maxy ) ]
```

For example,

```
Export "jfk_Vertical_Polygon_Object" Into
"<path>\ShapeMZ\ShapeMZ\JFK\jfk_Vertical_Polygon_Object.geojson"
Type "OGR" Driver "GeoJSON" Layercreateoptions "ID_GENERATE=NO"
Background
CharSet "UTF-8" Overwrite CoordSys Earth Projection 1, 104
```

Using the *CoordSys* clause in the *Export* statement, you can change the coordinate system of any table to the desired coordinate system.

## Icon indicator for read only tables

You can now distinguish the files whose data, layer, map, and table are not editable with a read-only lock icon for all the file formats.

For example, the WFS, WMS, Tile Server, Shapefiles, and the Raster formats come under read-only file formats, whereas the Native, OGR, and Geopackage are all editable formats.

## On 3D Click

You can now show the clicked 3D objects as selected and also show them in the **Info** tool using the **On 3D Click** functionality under the **Interaction** tab in the **3D Layer** control.

The **On 3D Click** has three options:

1. **Select object in original table-** Use this option to see all the attributes for the clicked object in the 3D window. Use this to query the database, select clicked objects from the table, and create a results table that you can view in a **Map** or **Browser** window.

2. **Find Selection**- Use this option to locate the selected clicked object in all currently open windows.
3. **Show record in Info Window**- Use this option to display the **Object Attribute** dialog box for a selected object (editable or read-only) in a **Map** window and specify geographic attributes for an object.

Note: By default, the **Find Selection** option is disabled and is enabled when the **Select object in the original table** option is selected.

## New Coordinate Systems, Projections and Datums

"Albers Equal-Area Conic (ESRI:102003)", 9, 74, 7, -96, 37.5, 29.5, 45.5, 0, 0

## MapCad Update

### *Mirror on Axis*

Objects will be mirrored on any free axis (Line).

Supported object types: All (Arcs will be converted to Polylines)

1. Select the object(s) you want to mirror vertically.
2. Select the **Mirror on Axis** function.
3. Draw a free axis (line) to be mirrored.

## New Version of FME - 2021.1

Quick Translator tool and Open Universal Data feature were updated to use the latest FME version 2021.1.

# Progress and Resolution of Outstanding Issues

## MapInfo Pro 2023

Issue Number	Description and Resolution
MIPRO-125200	In MWS format, all the layers are selectable even when there are layer(s) not selected when saved. <b>Resolution:</b> Fixed.
MIPRO-125258	Issue with the <b>Max Feature</b> attribute. <b>Resolution:</b> Fixed.
MIPRO-125467	Error 'ORA-00917: missing comma' thrown when saving table to Oracle DB. <b>Resolution:</b> Fixed.
MIPRO-125655	If you open existing workspaces from Windows Explorer, they open as <b>Untitled</b> in MapInfo Pro. <b>Resolution:</b> Fixed.
MIPRO-125985	In Universal Translator, the <b>Choose Projection</b> dialog does not appear when opened. <b>Resolution:</b> Fixed.
MIPRO-126023	Opening the <b>Select Export from the Table</b> tab using a non existent path results in an error. <b>Resolution:</b> Fixed.
MIPRO-126196	MapInfo Pro: <b>Save Copy As</b> of an OGR Table cannot be opened. <b>Resolution:</b> Fixed.
MIPRO-126395	The <b>Cancel</b> button on some dialogs does not cancel the operation. <b>Resolution:</b> Fixed.



# MapInfo Pro Advanced

## Progress and Resolution of Outstanding Issues

### MapInfo Pro Advanced 2023

Issue Number	Description and Resolution
MIPRO-126122 (L3REQ-31953 and L3REQ-45605)	MapInfo Pro unexpectedly closes while performing Rasterize operations on a vector file. <b>Resolution:</b> Fixed.
MIRAST-19521 (L3REQ-41273)	Region stats gives unexpected results in MapInfo Pro version 2021. <b>Resolution:</b> Fixed.
MIRAST-19517	The MIRaster SDK crashes in a high multi-threaded setup. <b>Resolution:</b> Fixed.
MIPRO-126025	Geopackage data with a single raster table is supported for read and write operations. <b>Note:</b> Geopackage with multiple rasters in it is not supported.

## System Requirements

This product is tested on the following Microsoft Windows Desktop Operating Systems:

- Windows 10 64-bit
- Windows 11 64-bit
- Windows 2019 Server

- Windows 2019 Server 64-bit with XenApp 7.9
- Windows 2019 Server 64-bit with Citrix Virtual Apps 1912
- Windows 2022 Server 64-bit

## Dependencies and Prerequisites

We recommend ensuring that your machine has the latest updates before installing Pro.

The install wizard checks for the following and prompts you if not already on your system; you can choose to have the install wizard install these requirements, or cancel the installation if you do not want to proceed.

- Microsoft Visual C++ 2015 Update3 Redistributable (x64)
- Microsoft Visual C++ 2017 Redistributable (x64)
- Microsoft Visual C++ 2019 Redistributable (x64)
- Microsoft Edge WebView2 Runtime Installer (x64)
- Microsoft office Access database Engine 2010 (x64) - for 32-bit Microsoft Office
- Microsoft office Access database Engine 2016 (x64) - For 64-bit Microsoft Office
- Microsoft .NET Framework 4.7.2
- Windows fixes and updates:

Operating System	Required Update
Windows 10 *	Cumulative Update KB3156387

\* On Windows 10, the install wizard does not install the Cumulative Update. Ensure this update is installed before installing this release.

## Installing Microsoft Access Driver Engine on 32-bit and 64-bit Office

MapInfo Pro installs different versions of Microsoft Access Driver Engine based on the Microsoft Office Architecture present on the system:

1. If Microsoft office 32-bit is present on the system, MapInfo Pro will Install Microsoft Access Driver Engine 2010 (64-bit).
2. If Microsoft office 64-bit is present on the system, MapInfo Pro will Install Microsoft Access Driver Engine 2016 (64-bit).
3. If no Microsoft office is present on the system, MapInfo Pro will Install Microsoft Access Driver Engine 2016 (64-bit).

## Opening Office 2013 32-bit Excel and Access Files

There is a potential issue when both 32-bit and 64-bit versions of MapInfo Pro are installed on the same machine along with the 32-bit version of Microsoft Office 2013. The 32-bit version of MapInfo Pro can close unexpectedly when opening tables generated in the 32-bit version of Excel 2013 or Access 2013.

The section *Installing 32-bit and 64-bit Microsoft Office Drivers* in the *MapInfo Pro Install Guide* describes how to install the Microsoft Office 32- and 64-bit drivers on the same system. If after following these steps your 32-bit version of MapInfo Pro closes unexpectedly when opening Excel 2013 and Access 2013 tables, then follow the steps outlined below.

1. Uninstall both of the Microsoft Access database engine 2016 drivers.
  - a) From the **Start** menu, select **Control Panel**.
  - b) On the **Control Panel**, select **Programs and Features**.
  - c) Scroll through the list to locate and select **Microsoft Access database engine 2016**. There will be two instances of this application in the list.
  - d) Select **Uninstall** and follow the instructions that the uninstall procedure provides.
  - e) Select the second **Microsoft Access database engine 2016** and uninstall it.
2. Download and install the 32-bit version of Microsoft Access Runtime 2013 (called `AccessRuntime_x86_en-us.exe`) from <https://www.microsoft.com/en-us/download/details.aspx?id=39358>.
3. Download the 64-bit version of Microsoft Access Database Engine 2016 (called `AccessDatabaseEngine_x64.exe`) from <https://www.microsoft.com/en-us/download/details.aspx?id=54920>. Make note of the download location, such as `C:\Users\myname\Downloads`.

**CAUTION:** Do not run (install) from your internet browser window, download it first.

4. Install the 64-bit version of Microsoft Access Database Engine 2016 (called `AccessDatabaseEngine_x64.exe`).
  - a) Open a command prompt window with Administrator privileges. In the system folder `C:\Windows\System32`, right-click on `cmd.exe` and select **Run as Administrator**.
  - b) At the command prompt, change directories to the `AccessDatabaseEngine_x64.exe` file (type `cd C:\Users\myname\Downloads` and press **Enter**).
  - c) At the command prompt, type `AccessDatabaseEngine_x64.exe /quiet /norestart` and press **Enter**.
5. If you have a 32-bit version of Microsoft Office 2007, 2010, 2013, or 2016 installed, then delete or rename its `mso.dll` registry key.
  - a) Open the **Registry Editor** window. On the Microsoft **Start** menu, type `regedit` in the **Search** field, and then click **regedit.exe**.
  - b) In the **Registry Editor** window, navigate to `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Office\16.0\Common\FilePaths`.
  - c) If there is a `mso.dll` value, either delete it or rename it.  
If you do not delete or rename the file, then may see a reconfigure message when you open a Microsoft Office application.

Both 32-bit and 64-bit drivers are now installed on your system, and you can open Access 2013 and Excel 2013 files in both 32-bit and 64-bit versions of MapInfo Pro.

## MapInfo Pro Database Connectivity and Support

MapInfo Pro supports the following spatial database servers:

- Microsoft SQL Server 2019
- Microsoft SQL Server 2017
- Microsoft SQL Server 2016 SP1 (also called SQL Server Spatial)
- PostGIS 3.1 using PostgreSQL 13.2
- PostGIS 2.5 using PostgreSQL 10.1
- PostGIS client is 13.01 x64
- SQLite v3.8 / FDO 3.8
- Oracle 21c
- Oracle 19c msp19c
- Oracle 18c msp18c
- Oracle Spatial 12C r2 msp12cr2
- Oracle11gr2

In order for MapInfo Pro to access a remote database, you must install a client or driver. The following are ODBC drivers that MapInfo Pro supports:

- Microsoft Access ODBC (64-bit)
- Microsoft SQL Server 2019
- Microsoft SQL Server 2017
- Microsoft SQL Server 2016
- Microsoft SQL Server 2012 QFE Native Client v11 (64-bit)
- PostgreSQL Unicode and ANSI ODBC driver 13.01 (64 bit)
- FDO toolkit 3.8 (used by SQLite and installed with MapInfo Pro)
- Oracle Instant Client 19.11 (64-bit)
- Microsoft ODBC Driver for SQL Server 17.8

You can also open tables of data from the following and make them mappable, but only for point data:

- Microsoft Access 2013, 2016, and 2019 (64-bit)

For more about working with remote database information, see *Accessing Remote Data and Setting your Database Connection Preferences* in the *Help System*.

#### *PostgreSQL ODBC Driver Requires the Use Declare/Fetch Option*

To avoid an error when using the PostgreSQL Unicode ODBC driver, you must enable the **Use Declare/Fetch** option. When enabled, the driver automatically uses declare cursor/fetch to handle SELECT statements and keeps 100 rows in a cache. When disabled, which is the default setting, the driver buffers the entire result set. For large tables this could use all the Windows memory resources. For details, see the *MapInfo Pro Install Guide*.

## Microsoft Office Support

MapInfo Pro supports Microsoft Excel (\*.xls, \*.xlsx) and Microsoft Access (\*.mdb, \*.accdb) formats for versions 2010, 2013 and 2016.

For details, see [Installing Microsoft Access Driver Engine on 32-bit and 64-bit Office](#) on page 43

# MapInfo Pro Web Server Support

MapInfo Pro supports the following web servers:

- GML (Geospatial data in XML format) 2.1.2
- FME Quick Translator) supports versions up to 3.2.1
- Web Feature Service (WFS) 1.0, 1.1, and 2.0
- Web Feature Service with transactions (WFS-T) using WFS 1.0
- Web Map Service (WMS) 1.3
- Web Map Tile Service (WMTS) 1.0

MapInfo Pro also supports the mapping tile servers:

- Microsoft Bing Tile server
- MapXtreme.NET v9.3 tile server
- OpenStreetMap tile server
- Spatial Server v18.2
- WMTS including Spatial Server
- GeoMap

## Installing MapInfo Pro

When MapInfo Pro starts it checks the operating system directory location

`C:\Users\username\AppData\Roaming\MapInfo\MapInfo` for the following files:

- `MapInfoPro.WOR`
- `STARTUP.WOR`
- `MapInfoPro.wox`
- `MapInfoPro.pref`

If these files exist, then MapInfo Pro uses them at startup. If these files do not exist in the location, then MapInfo Pro creates them all except for the `STARTUP.WOR`.

Application data (AppData) files are the non-executable data files that MapInfo Pro uses during operation.

We recommend you to make sure of the following before starting the process to install / upgrade:

- You must have Administrator rights to run the Installer.
- The Installer requires that your TEMP variable be set to a valid directory.
- You must exit from all Windows programs before beginning the installation process.

The installer for MapInfo Pro will install all the files necessary to run Pro in multiple languages. During the installation process the first question will be what language would you like to run Pro in. This will be the default language of the Pro Application. The list of available languages to choose from will depend on what is available in the installer. Eventually all languages will be available as the localization process finishes up.

MapInfo Pro users who register with a Precisely online account are able to run MapInfo Pro in a connected **Viewer** Only (subscription) mode. The MapInfo Pro installer adds a shortcut (Icon) to the Windows Start Menu to start MapInfo Pro in Viewer (subscription) mode. This icon is located next to the regular MapInfo Pro Start Menu shortcut.

Advanced users may wish to run Pro in a different language than was chosen at installation time. This will now be possible by copying the MapInfoPro.exe.config from a language sub-folder (such as fr, de, ja, zh-CN) under the MapInfo Pro installation location on top of the MapInfoPro.exe.config in the MapInfo Pro installation location. Most users will never need to do this, but if you do try it, be sure to make a copy of the file first! Be aware that many Pro settings such as ribbon customization are locale-specific.

These are the language versions of Pro and the sub folders used (Changing AppLocale or System Charset via .config file is for advanced users only).

UI Locale and Sub Folder Name	AppLocale Name	AppLocale code	Language Country/Region	CodePage	SystemCharset Name
zh-CN	zh-cN	2052	Chinese (Simplified)	936	WindowsSimpChinese
cs	cs-CZ	1029	Czech - Czech Republic	1250	WindowsLatin2
da	da-DK	1030	Danish - Denmark	1252	WindowsLatin1
nl	nl-NL	1043	Dutch - The Netherlands	1252	WindowsLatin1
en	en-US	1033	English - United States	1252	WindowsLatin1
fi	fi-FI	1035	Finnish - Finland	1252	WindowsLatin1
fr	fr-FR	1036	French - France	1252	WindowsLatin1
de	de-DE	1031	German - Germany	1252	WindowsLatin1
he	he-IL	1037	Hebrew - Israel	1252	WindowsHebrew

UI Locale and Sub Folder Name	AppLocale Name	AppLocale code	Language Country/Region	CodePage	SystemCharset Name
it	it-IT	1040	Italian - Italy	1252	WindowsLatin1
ja	ja-JP	1041	Japanese - Japan	932	WindowsJapanese
pl	pl-PL	1045	Polish - Poland	1250	WindowsLatin2
pt	pt-BR	1046	Portuguese - Brazil	1252	WindowsLatin1
ru	ru-RU	1049	Russian - Russia	1251	WindowsCyrillic
es	es-ES	1034	Spanish - Spain	1252	WindowsLatin1
sv	sv-SE	1053	Swedish - Sweden	1252	WindowsLatin1
tr	tr-TR	1055	Turkish - Turkey	1254	WindowsTurkish

You can install or upgrade MapInfo Pro using the Interactive Installation Wizard or silently through the command line.

**Note:** For detailed instructions on installing MapInfo Pro, see the *MapInfo Pro Install Guide*. To access the *MapInfo Pro Install Guide* and other documents, launch the MapInfo Pro DVD auto-start presentation by double clicking the `autostart.exe` in the root folder of the DVD and then clicking **Online Reference** and **MapInfo Pro Install Guide**.

## Installing MapInfo Pro Interactively

You must have Administrator rights to run the Installer, and the Installer requires that your TEMP variable be set to a valid directory.

**CAUTION: We strongly recommend that you exit from all Windows programs before beginning the installation process. If you are upgrading from an earlier version of MapInfo Pro, we recommend that you uninstall before upgrading.**

MapInfo Pro provides its application data files to each user. Called a Per-User install, this functionality runs the first time you run MapInfo Pro or MapInfo Pro client on a machine, and each time the MapInfo Pro Installer is run thereafter. The application data files include, among others, the Pen Styles file, Custom Symbols files, and Thematic Legend templates. These files allow different users to have custom settings.



To install MapInfo Pro:

1. If installing from a DVD, the Installer automatically launches. If the Installer does not automatically launch, then go to the DVD drive and click on `autostart.exe`. If installing from a download, go to the directory into which you downloaded MapInfo Pro and right-click the `setup.exe` file, select **Run as Administrator** from the pop-up menu to install using elevated privileges.

If you see a prompt for permission to continue. Click **Allow** or **Yes** to proceed.

The wizard begins to lead you through the installation process.

2. On the **Launcher** menu, choose **Install Products**.
3. Choose **MapInfo Pro** and then choose **MapInfo Pro Installer**.

You may see a prompt for permission to continue. Click **Allow** or **Yes** to proceed (if you do not respond and the message times-out, the install is unsuccessful).

4. Select the language in which you want to install MapInfo Pro.  
In version 2023, you have the option of installing MapInfo Pro in sixteen different languages other than English. You can choose between Brazilian, Chinese, Czech, German, Danish, Spanish, Finnish, French (Standard), Hebrew, Italian, Japanese, Dutch, Polish, Russian, Swedish and Turkish.
5. If any of the prerequisites listed under **Dependencies and Prerequisites** are not already installed on your system, a display will prompt users to install the missing prerequisites. Click **Install**. Installing the prerequisites takes several minutes—the status of each prerequisite updates as it installs.
6. If you see a message that MapInfo Pro requires a reboot, click **Yes**. You must reboot to continue with the installation.
7. Click **Next** to continue the process.
8. On the **License Information** dialog box, review the license. Click **Next** to continue.
9. On the **Customer Information** dialog box, do one of the following:

- Select the **MapInfo Pro - Licensed or Trial version** check-box, type your user name, organization, serial number, and access code in the corresponding fields and click **Next** to continue.

The user name and organization fields are mandatory. If you also enter the serial number and access code, MapInfo Pro Licensed version is installed. If no credentials are entered, the trial version of MapInfo Pro is installed.

This installs MapInfo Pro Licensed or Trial version based on the information provided and creates a shortcut to MapInfo Pro in the **Start** menu.

- Select the **MapInfo Viewer Subscription** check-box, type your user name and organization and click **Next** to continue.

This installs MapInfo Pro in the subscription mode and creates a shortcut to MapInfo Viewer in the **Start** menu.

- Select both the check-boxes and click **Next** to continue. Shortcuts to both MapInfo Pro and MapInfo Viewer are created in the **Start** menu.

**Note:** If you choose to select both **MapInfo Pro - Licensed or Trial version** and **MapInfo Viewer Subscription** check boxes, MapInfo Pro would be the default application associated with MapInfo Pro registered file types such as workspace (\*.wor) or table (\*.tab).

The serial number and access code are listed on the Product Activation Information Card or emailed with your license details, and are used to activate your product.

10. Do one of the following:

- If your organization purchased node-locked licenses, the third character of your serial number is "N". Skip this step and go to **step 12**.
- If your organization purchased concurrent licenses, the third character of your serial number is "S" or a distributable license, the third character of your serial number is "D". In this case, the **License Server Name** and **License Server Port Number** fields display on the dialog box.

**Note:** For more information about node-locked, concurrent and distributable licenses, see **Starting and Activating MapInfo Pro** under Chapter 3 of the MapInfo Pro Install Guide.

If you know the license server name and port number, type them here. If you do not, you can continue with the installation without filling in the license server name and port number. You will have another opportunity to supply this information when you start MapInfo Pro.

11. Click **Next** to continue.

12. Select one of the following options and then click **Next** to continue:

- **Typical** – Choose this option if you will be using MapInfo Pro as a desktop application including remote database access and connectivity.
- **Custom** – Choose this option to restrict the components that are installed by the installation program. For example, you can prevent the installer from adding the documentation and tools.

13. Select the destination folder where you want to install MapInfo Pro and click **Next**.

14. Click **Install** to finish the installation process.

For detailed instructions on installing MapInfo Pro interactively, see **Chapter 2: Installing MapInfo Pro** from the **MapInfo Pro Install Guide**.

## Installing MapInfo Pro Silently

You can only perform a completely silent install of MapInfo Pro when your install process has elevated administrative privileges.

The command-line options `/q` and `/qn` do not work when the User Access Control (UAC) is turned on and your install process does not run with elevated administrative privileges. These options turn off the user interface during the installation, which suppresses the Windows UAC. Users must interact with the UAC to provide the necessary credentials to run the installation as an administrator. If the user interface is turned off, the installation is terminated without warning because the UAC cannot gather the appropriate credentials.

To work around the problem, use the `/qb` option in the command line when you run the silent install. This option gives the installation a basic user interface and allows the UAC to display on the dialog box.

To perform a silent install using the `/qb` option:

1. From the command prompt, go to the MapInfo Pro setup directory. The MapInfo Pro installation `setup.exe` indicated in the steps below can be found on the installation DVD (D:\) in this directory: `\Install\MI_PRO\DISK1`.
2. Type the following command:

```
setup.exe /L#### /s /v"/qb USERNAME=\"MyUser\"
COMPANYNAME=\"MyCompanyName\"
PIDKEY=M##### ACCD=#####\" MPRO=##### MVWR=#####
ENABLE_SECURE_LICENSE_COMMUNICATION=True\"
ADDLOCAL=ProgramFiles,Python310,FME,Documentation,Tools,FDODriver,CatalogBrowser"
```

where:

`/L####` is the 4 digit language code identifier. For example, for English type `setup.exe /L1033`, for French type `setup.exe /L1036`, for German type `setup.exe /L1031`. and for Japanese type `setup.exe /L1041`. DO NOT leave a space between the `/L` and the 4 digit language code.

`PIDKEY=M#####` is the product serial number.

`ACCD=#####` is the access code.

`MPRO=True` creates the MapInfo Pro shortcut in the **Start** menu and sets the default file association of registered MapInfo Pro file types such as workspace (\*.wor) or table (\*.tab) with MapInfo Pro.

`MVWR=True` creates the MapInfo Viewer shortcut in the **Start** menu. It also sets the default file association of registered MapInfo Pro file types such as workspace (\*.wor) or table (\*.tab) with the new MapInfo Viewer (subscription) if the `MPRO` parameter above is not set to `True`. For details of this new feature, see [MapInfo Pro Viewer](#).

If both the `MPRO` and `MVWR` parameters above are set to `True`, `MPRO` takes precedence and MapInfo Pro would be the default application associated with MapInfo Pro registered file types such as workspace (\*.wor) or table (\*.tab).

`ENABLE_SECURE_LICENSE_COMMUNICATION` enables secure license communication. Values are `True` or `False`.

`ADDLOCAL=ProgramFiles,Python310,FME,Documentation,Tools,FDODriver,CatalogBrowser`. From version 2019.1 **FDODriver** and **CatalogBrowser** are not installed as default components. Use the `ADDLOCAL` parameters to enable the MapInfo Pro silent installer to install these

components. Please note that the `ProgramFiles`, `Documentation` and `Tools` parameters are required for a proper MapInfo Pro installation. You can omit other components like `Python37`, `FME`, `FDODriver` and `CatalogBrowser` if you do not want to install them.

3. When User Access Control displays on the dialog box, click **Allow** or **Yes**.

For concurrent licenses, the license server name and port number parameters must be included:

```
SNAME="LicenseServerName"
LSPN="LicenseServerPortNumber"
```

Substitute the appropriate license server name and port number when you perform the silent install.

For detailed instructions on installing MapInfo Pro silently, see **Chapter 5: Silent Installation Procedures** from the **MapInfo Pro Install Guide**.

## Installing from a DVD Requires a Drive Letter

The Installer must be run from a drive with a letter such as "G" and not from an explicit uniform naming convention (UNC) path. For example, you might have the MapInfo Pro DVD in your computer as `USERSPC`. Other users may share this device as `USERSPC`; however, it would not contain a drive letter. The MapInfo Pro Installation program requires a drive letter. To remedy this situation, map your network drive to a specific drive letter:

1. In Windows Explorer, right-click the shared directory or DVD drive that contains the MapInfo Pro `SETUP.EXE` and select Map Network Drive.
2. Choose a drive letter to map.
3. Run the Installation Program again from the newly mapped drive letter.

## License Server Utility

If you have a previous version of the License Server Utility (LSU) installed to manage distributable licenses, then you must upgrade to the latest License Server Utility version 5.5. Using a previous version of the License Server Utility with MapInfo Pro 2023 will cause MapInfo Pro to become unresponsive.

Using an incompatible version of the License Server Utility might result in the following issues while fetching licenses for MapInfo Pro:

- MapInfo Pro is unable to borrow a license.
- MapInfo Pro is unable to activate a distributed license from the License Server.

If this occurs, contact your License Server administrator and have them upgrade the latest License Server version.

After successfully borrowing or activating a license, if you again roll back to an older version of License Server Utility, you cannot transfer the borrowed/activated license back to the License Server Utility. You will not see an error message as the operation simply hangs.

## Repairing MapInfo Pro from the .MSI file

The repair process fails using the .msi file when the Microsoft User Account Control (UAC) is turned on. Depending on the installation conditions the repair stops with the following error message:

You have MapInfo Pro running, please close it and run setup again.

- Shut off the UAC (User Account Control), this requires System Administrative privileges, reboot the machine, and rerun the repair.
- Run the original `setup.exe` file and then run the repair from maintenance mode.
- Run the installed copy of the MapInfo Pro 2023 .msi file as an administrator. Go to `C:\Windows\Installer` and search for the MapInfo Pro 2023 .msi file. It will have a name similar to `8e95f1.msi`, where the name is different for each machine. Go to `C:\Windows\System32` and find the `cmd.exe` file. Right click this file and select **Run as Administrator** (this may require an administrator password). Run the command `C:\Windows\Installer\nameofMiPro2023.msi` and select **Repair** from maintenance mode.

## Disabling User Account Control (UAC) on Windows 7 or Server 2008 R2

To disable UAC on Windows 7 or Server 2008 R2:

1. Launch **MSCONFIG** by from the **Run** menu.
2. In the **System Configuration** dialog box, click the **Tools** tab.
3. Click **Change UAC Settings**.
4. Click **Launch**.
5. Move the slider to **Never Notify**.
6. Click **OK** to close the dialog box.
7. Reboot the machine to have this change take effect.

## Disabling User Account Control (UAC) on Windows 8.1 or Windows Server 2012 R2

To disable UAC on Windows 8.1 or Windows Server 2012 R2:

1. • On Windows 8.1, go to the **Search Charm** and type `Change User Account Control settings`.  
• On Windows 2012 R2, on the **Control Panel**, select **User Accounts**, and click on **Change User Account Control Settings**.
2. In the **User Account Control Settings** console, move the slider to **Never Notify**.
3. Click **OK**.  
You may see a prompt to confirm your selection or to enter an administrator password.
4. Reboot the machine to have this change take effect.

## Disabling User Account Control (UAC) on Windows 10

To disable UAC on Windows 10:

1. On the **Control Panel**, select **User Accounts**, and click on **Change User Account Control Settings**.
2. In the **User Account Control Settings** console, move the slider to **Never Notify**.
3. Click **OK**.

## Support Notices

### *Bing Maps Expiration Date*

Bing Maps has a limited license period, which is specific to each version of MapInfo Pro. Bing Maps and the **Add Bing Roads to Map** and the **Move Map to** features cease working after this date:

- MapInfo Pro 2019 on January 1st, 2021
- MapInfo Pro 17.0 on January 1st, 2019
- MapInfo Pro 16.0 on January 1st, 2018
- MapInfo Pro 15.0 and 15.2 on January 1st, 2017

For details, contact your account representative.

## Downloading Tools and Applications

The following web sites give access to MapInfo Pro documents, trials, and supporting materials:

- The MapInfo Pro page: <http://www.precisely.com/product/precisely-mapinfo/mapinfo-pro>
- The MapInfo Pro support page: <http://support.precisely.com>

## Locating Your Documentation

MapInfo Pro documentation, in the form of PDF files, installs with MapInfo Pro in to the `Documentation` sub folder (for example, `C:\Program Files\MapInfo\Professional\Documentation`). You must have the Adobe Acrobat reader installed to view PDF files. To download a free copy of the Adobe Acrobat Reader, go to <http://www.adobe.com>.

For instructions on installing MapInfo Pro, see the *MapInfo Pro Install Guide*. To access the *MapInfo Pro Install Guide* and other documents, launch the MapInfo Pro DVD autostart presentation by double clicking the `autostart.exe` in the root folder of the DVD and clicking **Online Reference** and **MapInfo Pro Install Guide**.

Documentation is also available on our website from <http://support.precisely.com>.

### *Installation Instructions are Available in the Install Guide*

For system requirements, installation instructions, and System Administrator notes for performing a work group installation, see the *MapInfo Pro Install Guide*. From the software installer, click **Online Reference** and then **MapInfo Pro Install Guide**.

### *Instructions for Activating your License are in the Install Guide*

Instructions for activating your MapInfo Pro license are in the *MapInfo Pro Install Guide*. The same information is also in the *Activating Your Product*. From the software installer, click **Online Reference** and then **MapInfo Pro Install Guide** or **Activating Your Product**.

### *The MapInfo Pro Data Directory Document*

MapInfo Pro's sample data comes with the *MapInfo Pro Data Directory* document, which describes the sample data. From the software installer, click **Online Reference** and then **MapInfo Pro Data Directory**.

## Sample Data Enhancements

To help you get started, Precisely provides you with some United States-based and world-wide maps you can use as a background to your data. To install the free data provided with MapInfo Pro see the section titled *Installing Data* in the *MapInfo Pro Install Guide*. For a description of the sample data supplied with this product, see the *MapInfo Pro Data Directory* document.

## Open Source Attribution

This product contains GeoJSON.NET, which is licensed under the MIT license. The license can be downloaded from <https://github.com/GeoJSON-Net/GeoJSON.Net/blob/master/LICENSE.md>. The source code for this software is available from <https://github.com/GeoJSON-Net/GeoJSON.Net>.





1700 District Ave Ste 300  
Burlington, MA 01803-5231  
USA

[www.precisely.com](http://www.precisely.com)

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