GMS

v. 9.2

GMS 9.2 Tutorial

Online Maps

Using free, dynamic online map data in GMS

Objectives

Learn how free online map data can quickly and easily be used to dynamically update background maps and aerial photography in GMS.

Prerequisite Tutorials

- None

Required Components

- An internet connection

Time

- 15-30 minutes

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1 Contents

2 Introduction

Online maps are free maps, aerial photos and DEMs that can be downloaded from the internet and displayed in the background in plan view. As you zoom in and out or pan the view, online maps download the required image data from the internet and update automatically. Depending on the speed of your internet connection, this usually takes just a few moments. Online maps can be saved locally as image files. Online maps can be helpful in the initial stages of setting up a groundwater model.

This tutorial requires an internet connection.

2.1 Outline

This is what you will do:

1. Position the project around Moab, Utah and add an online map showing an aerial photo
2. Zoom and pan to see how the image is updated automatically.
3. Add a second online map and explore image order and transparency.
4. Create a local image file from the online map.
5. Use the *Map Locator* to reposition the display.

3 Getting Started

Let's get started.

1. If necessary, launch GMS. If GMS is already running, select the *File* | *New* command to ensure that the program settings are restored to their default state.

4 Adding an Online Map

We'll start by adding an online map. First notice the current projection displayed in the bottom right of the *Graphics Window*. It should say "Local, U.S. Survey Feet". This means that no global projection has been defined.

1. Select the *Add Basemap* button . This opens the *Virtual Earth Map Locator* dialog.
2. Check the *Show Locator Tool* box.
3. In the *Where* field on the right, type **Moab, Utah**.
4. Click *OK*. This opens the *Get Online Maps* dialog.
5. In the top left corner select **World Imagery** and click OK.

After a few moments (depending on your internet connection) you should see an aerial photo of the city of Moab, Utah. Notice the projection displayed in the bottom right of the *Graphics Window* now says "UTM,NAD83...". Because there was no data in the project, GMS switched the display projection to UTM.

6. Using the scroll wheel on your mouse or the *Zoom tool* , zoom out repeatedly. Notice that the image updates with different resolution images as the zoom level changes.
7. Use the *Pan tool* to pan around the area. Notice that the image updates with the view.

Notice the icon for the online map item in the *Project Explorer* looks like the typical image item icon but with the addition of a globe in the bottom right corner indicating it is an online map. As the image is downloading from the internet the text next to the item in the *Project Explorer* will change to "*(processing) World Imagery*". Once the download is complete the "*(processing)*" is removed.

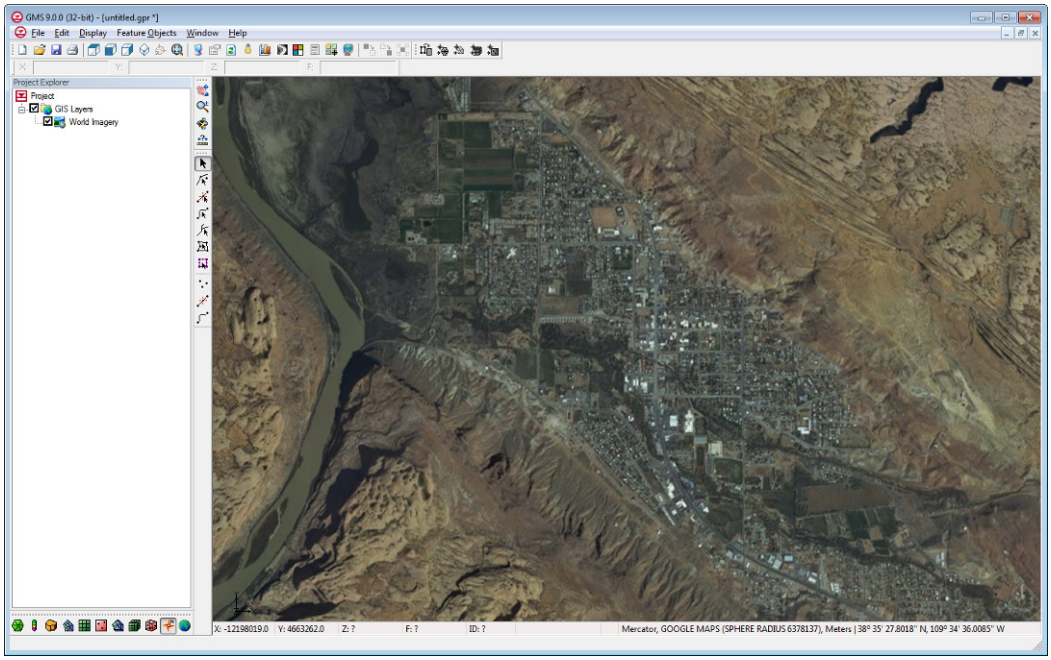

Figure 1. Online map of Moab, Utah.

5 Adding Another Online Map

Let's add another online map.

1. Select the *Add Basemap* button .

Notice the *Virtual Earth Map Locator* dialog does **not** open this time because we already have some data in the project. We are taken directly to the *Get Online Maps* dialog.

2. Select *World Street Map* and click *OK*.

After a few moments you should see a nice map of the area showing roads and other features.

6 Changing the Display Order

Images are displayed in the order they appear in the *Project Explorer*, with images on top getting drawn last.

1. In the *Project Explorer*, select and drag the *World Street Map* item so that it is underneath the *World Imagery* item.

Notice that the aerial photo is visible once again.

2. Return the *World Street Map* back on top by dragging it in the *Project Explorer* so that it is above *World Imagery*.

7 Transparency

The transparency of online maps can be set just as it can with normal images.

1. Right-click on the *World Street Map* item in the *Project Explorer* and select the *Transparency* command from the drop-down menu.

2. Change the transparency to around 40% and click *OK*.

You should now see the World Imagery photo bleeding through the World Street Map image.

8 Exporting an Image File

We can save a copy of the online map currently displayed in the *Graphics Window* as an image file. The image file is saved on disk and is loaded with the project and does not need an internet connection.

1. In the *Project Explorer*, right click on the *World Street Map* item and select the *Export* command from the drop-down menu.

The *Export Image* dialog appears. Often it is desirable to save the image at a higher resolution than is currently displayed on screen. Remember that the image file will not update with higher resolution imagery when we zoom in and we will be limited to whatever resolution the image is saved at.

We want to have the static image included in GMS.

2. Make sure the *Resampling ratio* is **2.0** and the *Add to project after saving* toggle is **on**.

3. Click *OK*.

4. In the *Save Image* dialog, accept the defaults and click *Save*.

A dialog will appear indicating the progress of the image export. Once the download is complete there will be three images in the *Project Explorer*. The new image at the top of the list has the standard image icon  to indicate that it is not an online map.

9 Image Properties

Let's look at the properties of the image we just created.

1. In the *Project Explorer*, right click on the *World Street Map* image at the top of the list that we just created and select the *Properties* command from the drop-down menu.

The properties dialog shows the path to the file on disk, the image type, the image projection (which is saved in the .tif file, the image extents in X and Y, the pixel width and height, and the real world size corresponding to each pixel.

2. Click *Done* to exit the dialog.

10 Map Locator

Earlier when we first downloaded an online map, GMS opened the *Map Locator* dialog so that we could position ourselves on the globe. It did this because we had no data in the project at the time. Later, when we already had an image in the project and went to get another online map, the *Map Locator* dialog did not appear.

The *Map Locator* dialog can be used at any time to move the *Graphics Window* to different places on the globe.

1. Click on the *Map Locator* tool  .
2. In the *Virtual Earth Map Locator* dialog, use the mouse scroll wheel or the - and + controls to zoom as far out as you can.
3. Click *OK*.

You should now see a map of the entire world.

11 Other Online Maps

At this point you may want to experiment with the other online map types available in the *Get Online Maps* dialog.

12 Conclusion

This concludes the tutorial. Here are some of the key concepts in this tutorial:

- Free online maps can be obtained quickly and easily in GMS.
- Online maps require a global projection.
- Image files can be saved locally from online maps.
- The *Map Locator* tool can be used at any time to move the view to different places on the globe.

