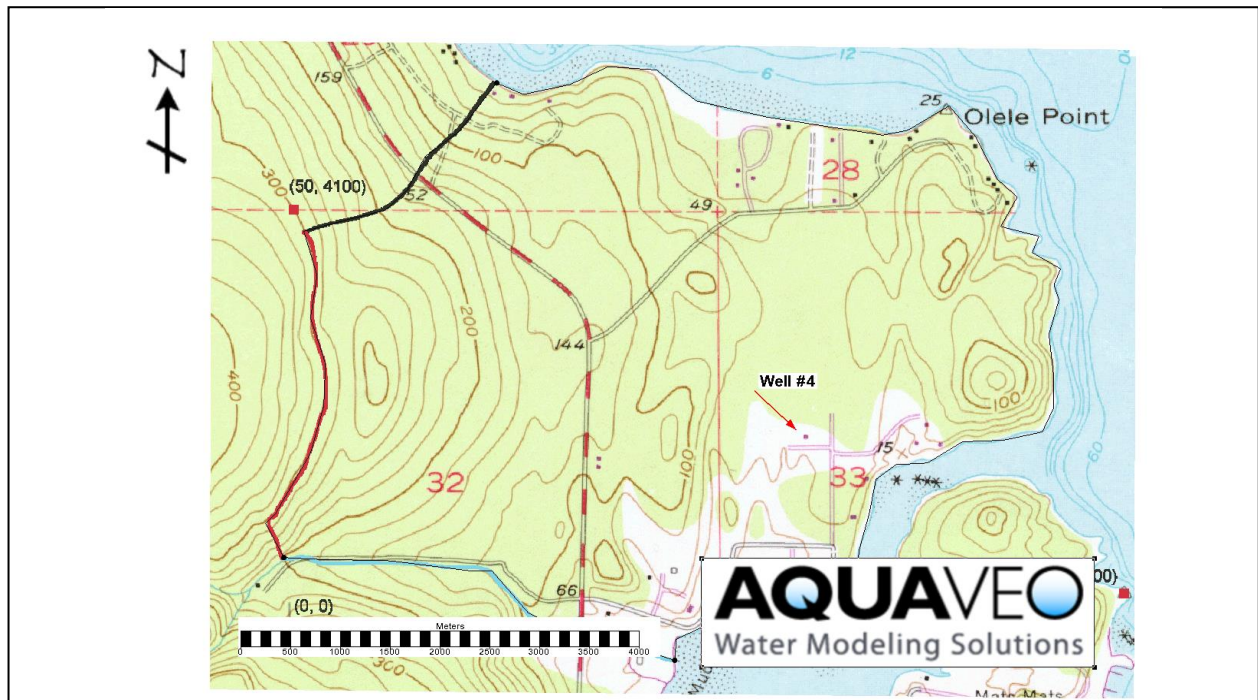


GMS 10.0 Tutorial

Annotation Tools

Use scale bars, North arrows, floating images, text boxes, lines, arrows, circles/ovals, and rectangles.



Objectives

GMS includes a number of annotation tools that can be used to visually enhance a project. These are often used to help prepare images and print copies for reports. This tutorial introduces the tools and shows how they work.

Prerequisite Tutorials

- None

Required Components

- Annotation module
- Map module

Time

- 10-20 minutes



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1 Introduction

The annotation tools in GMS facilitate the creation and display of annotation objects, which can be used to document, highlight, and assist with the presentation of data. Available annotation objects include screen-space images, North arrows, scale bars, text, and shapes. This tutorial demonstrates how the various annotation objects can be used in a project.

1.1 Outline

Here are the steps of this tutorial:

1. Use an annotation image to add a logo to the graphics window.
2. Add a North arrow to the graphics window.
3. Add a scale bar to the graphics window.
4. Add text, lines (arrows), and shapes to the graphics window.
5. Create a project file with annotations and then import the annotations into another project.



2 Getting Started

To get started, do the following:

1. If necessary, launch GMS.
2. If GMS is already running, select the *File* / **New** command to ensure that the program settings are restored to their default state.
3. Select the *File* | **Open** command.
4. Locate and open the directory entitled *Tutorials\intro\annotations*.
5. Select the “start.gpr” and click on the **Open** button.

3 Working with Annotations

Annotation data is contained within a unique folder in the Project Explorer. Annotation data are further organized into layers. Every annotation object belongs to a layer. There are two types of annotation layers: screen-space and world-space.


Objects created in a screen-space layer are anchored to certain locations in the main graphics window. When zoom, pan, or rotate operations are performed, objects in screen-space layers do not move. In world-space layers, objects are anchored to world space locations. These objects are always drawn based at their world-space locations when panning or zooming the display. **Screen-space**  and **World-space**  tools have different icons in the Project Explorer.


4 Adding an Annotation Image

An annotation image is an image that is anchored in screen space. This is useful for adding various images to a project, such as a company logo. Multiple annotation images can be added, and common image file formats (BMP, JPG, TIF, PNG, etc.) are supported.


Do the following to add an annotation image for a company logo at the top right of the graphic:

1. Right-click in the Project Explorer and select *New / Annotation Layer – Screen Space* command.

Notice that an “Annotation Data”  folder appears in the Project Explorer. A screen space layer was created because annotation images are only anchored in screen space and thus not available in world space layers.

2. From the toolbar select the **Add Annotation Image**  tool.
3. Drag a box anywhere in the main graphics window. An *Open* dialog will appear.
4. Make sure the *Files of type* is set to “Images” or “PNG File.”
5. Select “Aquaveo.png” in the *Tutorials\intro\annotations* folder, and click **Open**.

The imported image appears and is anchored to the screen coordinates where the box was created. The image can be moved, stretched, and resized by selecting the image and editing the properties. Since the annotation is a company logo, it may look best anchored to the lower right corner of the screen. To move and adjust the image, do the following:

6. Switch to the **Select Annotation Objects**  tool.
7. Select the image and drag it to the lower right corner of the graphics window.
8. Resize the image by dragging a corner.

9. With the image selected, right-click on the image and select **Properties...** from the menu.

By default, the aspect ratio for an annotation image is fixed. The aspect ratio can be unlocked and modified by turning off the *Fixed aspect ratio* toggle. This allows the image to be stretched in a single direction. Transparency options can also be set for the image. This is useful if the background color of the image doesn't match the background color of the main graphics window.

10. In the *Image Properties* dialog, turn on the *Use transparency* and *Specify color* options.
11. Click on the drop-down menu beside the *Specify color* option, which will reveal a color palette.

The palette is populated with colors from the annotation image. In this case, a range of colors is shown: from white and light blue to black.




12. Select the first dark black color.

Notice that the black letters in the logo are now transparent and the graphics window background color shows through. Since the background color of our logo already matches well with the graphics window background color, the transparency options are not necessary in this case.

13. Click the **Cancel** button to exit the dialog without making any changes.

5 Adding an Annotation North Arrow

North arrows are used to orient data displayed in the graphics window. As the display is rotated, the North arrow will always align with the Y-axis. To add a North arrow as seen in Figure 1, do the following:

1. Select the **Create Annotation North Arrow**  tool.
2. Drag a box in the upper left-hand corner.
3. Select the "north-arrow.jpg" file from the *Tutorials\intro\annotations* folder, and click **Open**.
4. Select the **Rotate**  tool, and rotate the display. Notice that the North arrow is fixed to the Y-axis.
5. Select the **Plan View**  button to return the display to its original orientation.

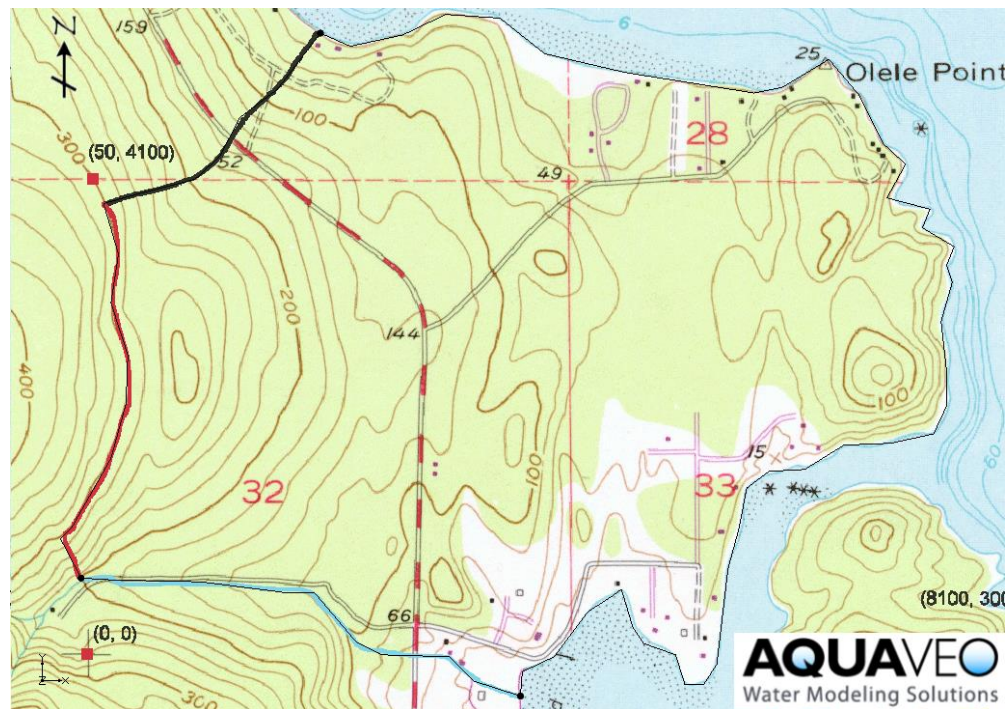



Figure 1 Inserting a logo and a North arrow

6 Adding an Annotation Scale Bar

Scale bars are used to provide context for world space in the graphics window. To create a scale bar, follow these steps:


1. Select the **Create Annotation Scale Bar**  tool.
2. Drag a box near the lower left corner of the screen.
3. The *Scale Bar Properties* window will appear.
4. The units will automatically correspond with the current project units (meters).
5. Select **OK** to exit the *Scale Bar Properties* dialog.
6. A scale bar will appear in the space where the box was drawn.

As is the case with other annotation objects, scale bars can be moved and resized. Other options such as font type, division widths, and background fills can also be adjusted in the *Scale Bar Properties* dialog.


7 Adding Text and Shapes


Annotation text and shapes are created to add labels and descriptions to a project. Annotation text and shapes can be created in screen- or world-space layers. Since these

objects will be used to label certain locations in the view, a world-space layer is used for this example.


1. Right-click on “Annotation Data” in the Project Explorer and select **Create world space layer** from the menu.
2. Select the **Create Line Object**  tool and click once to begin and then double-click to end a line that points to any location in the image.
3. The *Line Properties* dialog will appear.
4. Under *Width*, change the entry to “3.”
5. Under *Line color*, select a bold color such as red.
6. In the drop-down menu for *Arrowheads*, choose “End” to place an arrowhead at the end of the line.
7. Click **OK** to exit the *Line Properties* dialog.

Now to experiment with adding various circles/ovals and rectangles to the project. As with other annotation objects, shapes can be moved and edited with the **Select**

Annotations Object  tool. To create a circle or oval, follow these steps:

1. Click on the **Circle**  tool.
2. Hold down the left-click button and drag the cursor over an area where the circle is desired.
3. The *Rectangle/Oval Properties* dialog will appear.
4. Under *Line*, choose *Dashed*.
5. Change the *Width* to “3.”
6. Change the *Line color* to blue.
7. Under *Fill*, click on the drop down menu and choose green, then click **OK**.

To create a rectangle, do the following:

1. Click on the **Rectangle**  tool.
2. The *Rectangle/Oval Properties* dialog will appear.
3. Under *Line*, leave the default option, *Solid*, selected.
4. Change the *Width* to “5.”
5. Change the *Line color* to green.

- Under *Fill*, click on *No fill*, then click **OK**.

To add annotation text to the project as seen in Figure 2, do the following:

- Select the **Create Text Object** **T** tool and click near the line arrow created previously.
- The *Text Properties* dialog will appear.
- In the *Text* field, enter “Location A.”
- Click on the letters next to the *Font* option, not on the arrow,
- This will bring up the *Font* dialog where the font, font style, and font size can be changed. Here, simply change the font size to “14,” and click **OK**.
- In the drop-down menu for *Color*, choose red.
- Click **OK** to exit the *Text Properties* dialog.

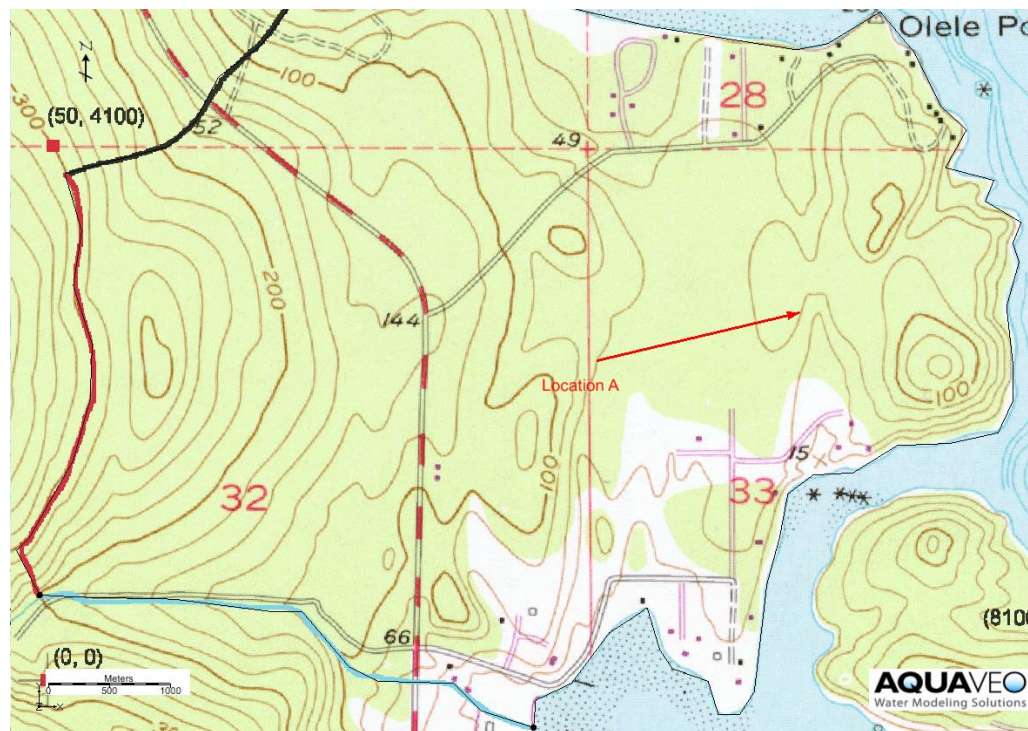



Figure 2 Project with annotation objects




8 Importing and Exporting Annotations

Once annotations are set up in one project, that project’s annotations can be imported into other project. This can be accomplished by saving a project file containing only the annotations and then importing the project’s annotation(s) into the other project. The

steps below illustrate how to create a project file containing only the newly added annotations and then how to import the new annotations into an existing project file.

1. Select the *File* | **Save As...** command.
2. Enter “annoImport.gpr” for the file name.
3. Click **Save** to save the new project file.
4. Remove the “Map Data” folder from the Project Explorer by right-clicking on it and selecting **Delete**.
5. Save the project file by selecting the **Save**  button.

Now this project file’s annotations can be imported into other projects. The next step is to open another project file into which the annotations can be imported.

6. Select the **New**  button to close the project.
7. Select the **Open**  button to open a different project.
8. Locate and open the directory entitled *Tutorials\Intro\annotations*.
9. Open the file entitled “start.gpr.”
10. Select the **Open**  button.
11. At the bottom of the *Open* dialog, turn on the *Import into current project* option.
12. Select the “annoImport.gpr” project file and click **Open**.
13. All the previously created annotations will now appear on the image.

9 Conclusion

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

- Annotation objects can be used to document and highlight interesting parts of the main graphic’s view.
- Annotation layers are created by right-clicking in the Project Explorer and selecting the *New* | **Annotation Layer** command.
- There are two types of annotation layers: screen space and world space.
- Annotation objects can be edited by selecting the appropriate annotation layer in the Project Explorer and then using the Annotation toolbar.

- Annotations that are needed for several GMS project files can be created in a single project file and then imported into other projects.