Mobility Map Tool Help

Table of Contents

1. Initialize Mobility Map
    - 1.1 Upload Road Base Layer to CRAB FTP
    - 1.2 Initialize Mobility Map
    - 1.3 Make Map Tool Visible
2. Mobility Map Tool Orientation
    - 2.1 Mobility Map Toolbar
        - 2.1.1 Open Project
        - 2.1.2 Add Spatial Layer
        - 2.1.3 Add Mobility Layer
        - 2.1.4 Close All Layers
        - 2.1.5 Refresh
        - 2.1.6 Print
        - 2.1.7 Save to Image
        - 2.1.8 Full Extent
        - 2.1.9 Zoom Mode
        - 2.1.10 Pan Mode
        - 2.1.11 Select Mode
        - 2.1.12 Find
    - 2.2 Layer Pane
    - 2.3 Attribute Pane
    - 2.4 Map Pane
3. Layer Properties Dialog
    - 3.1 Change Layer Color, Width, Style, etc.
    - 3.2 Add Labels to Layer
    - 3.3 Property Wizard
4. Glossary

1. Initialize Mobility Map

1.1 Upload Road Base Layer to CRAB FTP

The process for creating spatial layers from Mobility's linear inventories requires a base layer of a counties road system (Road Base Layer). There are many file types for spatial layers; Mobility **requires** that the road base layer be of the ESRI Shape file type (.shp).

The additional **requirement** for the road base layer is that it include the following attributes: Road Number, From Milepost, and To Milepost. Attributes for an ESRI Shape file are kept in an accompanying file with the same name, but instead of the .shp extension will have a .dbf extension. For example, your road base layer should consist of two files:

Road_Layer.shp
Road_Layer.dbf

If you have questions on how to obtain theses files you will need to contact your county GIS department.

After you have obtained the appropriate files remote Mobility users will need to upload them to the CRAB FTP site. The address for this site is: ftp://ftp.crab.wa.gov/Mobility. Open your county's ftp folder, then open the folder named "MobilityMap." Copy and paste your files (.shp and .dbf) into the "MobilityMap" folder. For organizational purposes, feel free to create subfolders in "MobilityMap" and paste your files into those folders.

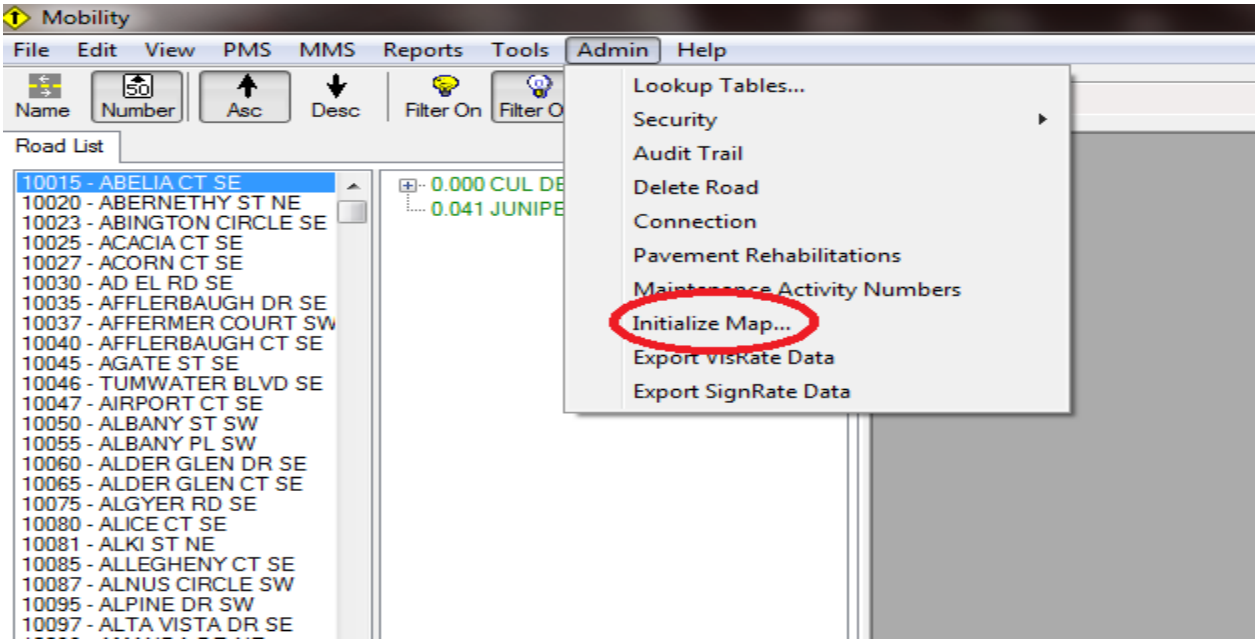
Mobility only requires the road base layer for the mapping tool to be functional; however, you can upload additional spatial layers if you were to find them useful in Mobility. For example, you may choose to upload spatial layers for bodies of water, urban boundaries, county boundary, etc. Keep in mind that your county is limited to a 40MB storage limit on our FTP site. This storage limit includes map layers, report exports, report formats, etc.

1.2 Initialize Mobility Map

After the road base layer has been uploaded, see section 1.1, the map tool can be initialized for your county. This initialization process will create spatial layers for the linear Mobility inventories. This is done by computing the spatial coordinates for Mobility inventory records from distance measurements in the road base layer.

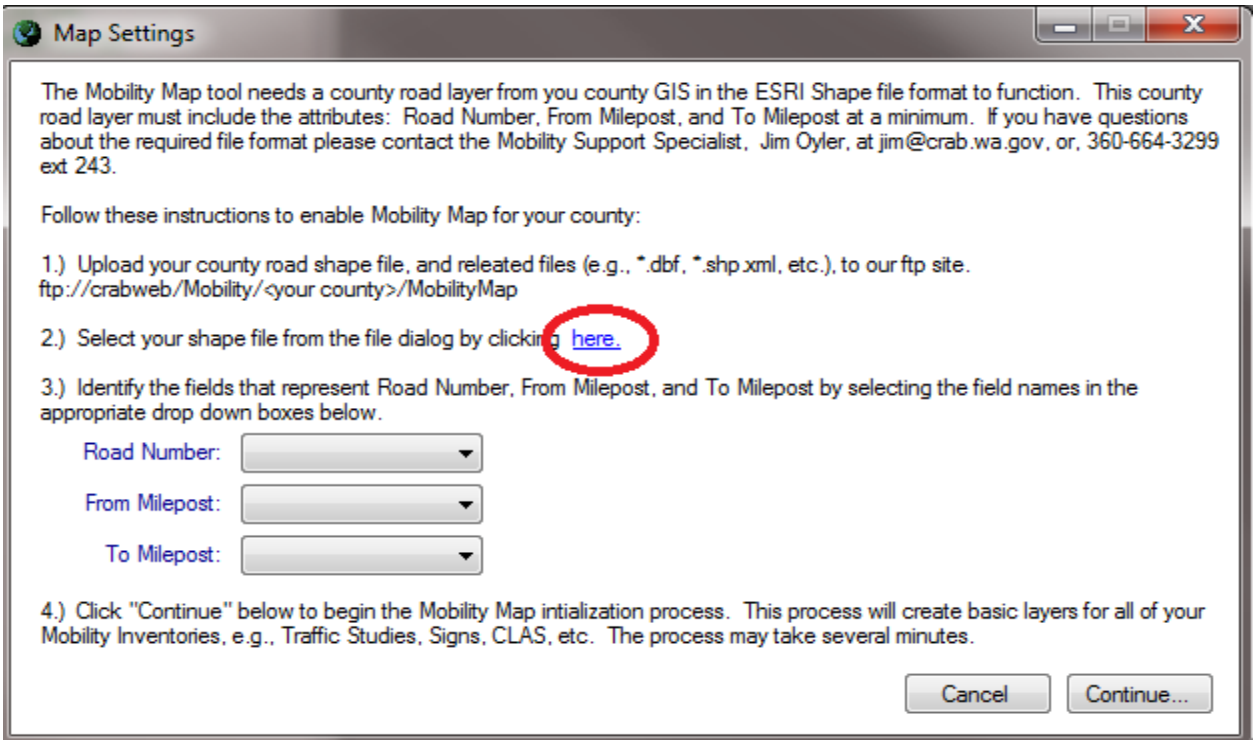
The Mobility map initialization process can only be performed by a Mobility administrator. To access the map initialization screen, click "Initialize Map…" from the "Admin" menu (Figure 1.2 A).

Figure 1.2 A



After accessing the map initialization screen take a few seconds to read through the instructions. Before clicking continue, identify the road base layer. This can be done by clicking the hyperlink labeled “here” (Figure 1.2 B). A file open dialog will appear, navigate to the “MobilityMap” folder on the CRAB FTP for your county, and select the road base layer, e.g., road_layer.shp, and click “Open.”

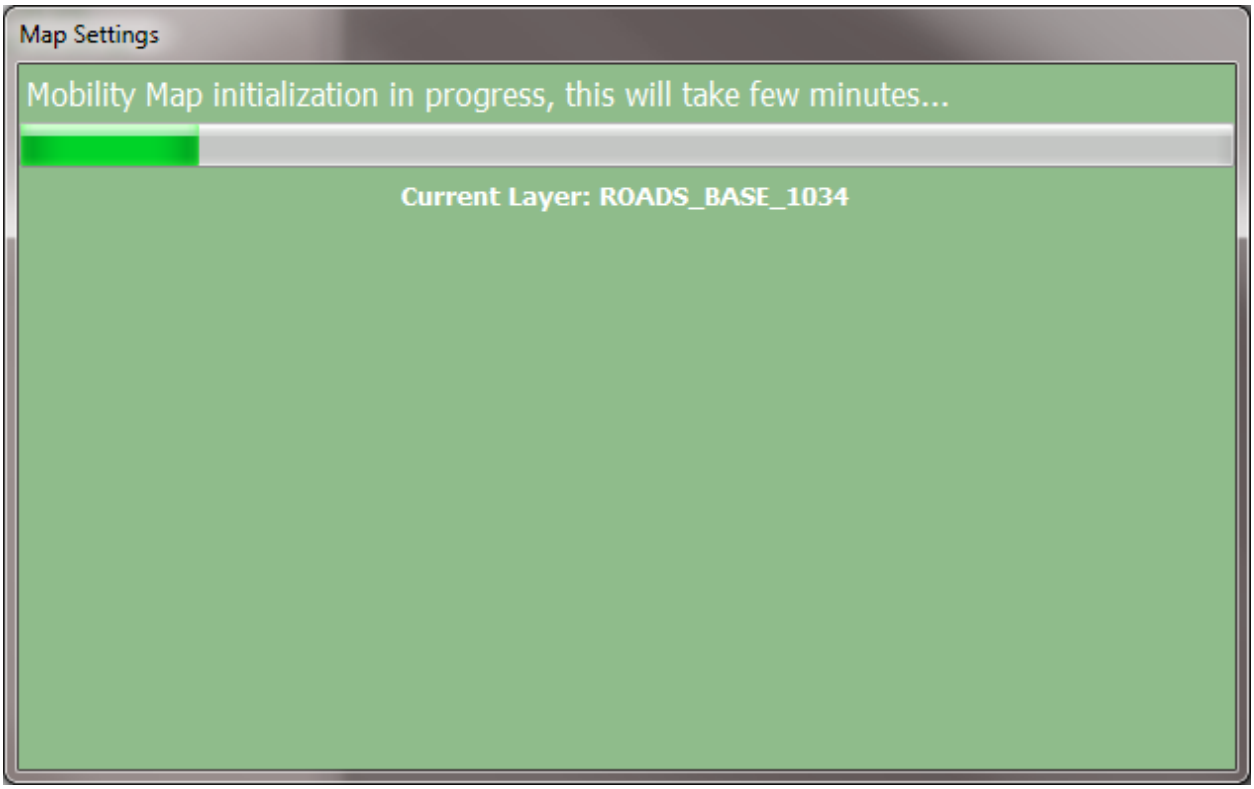
Figure 1.2 B



After the road base layer has been identified the drop down lists for road number, from milepost, and to milepost will be populated with the available attributes names. Select the attribute name that represents the appropriate data. For example, road number = rd_num, from milepost = bmp, and to milepost = emp.

Now click "Continue…" A progress screen will be displayed and will take several minutes to complete (Figure 1.2 C). When the initialization completes a message will appear signifying that the process was either successful or unsuccessful. If the process was successful you can begin using the Mobility map tool (continue reading for assistance). If the process was unsuccessful, repeat the steps in the instructions and ensure the appropriate road base layer is selected, and the correct road number, from milepost, and to milepost attribute names are identified.

Figure 1.2 C



1.3 Make Map Tool Visible

The map tool is contained in the tab "Map" on the main Mobility screen. To make this tab visible, ensure "Map" is checked from the "Tools" menu (Figure 1.3 A). If "Map" is checked the "Map" tab will appear next to the "Road List" tab directly below the road list sorting toolbar (Figure 1.3 B).

Figure 1.3 A

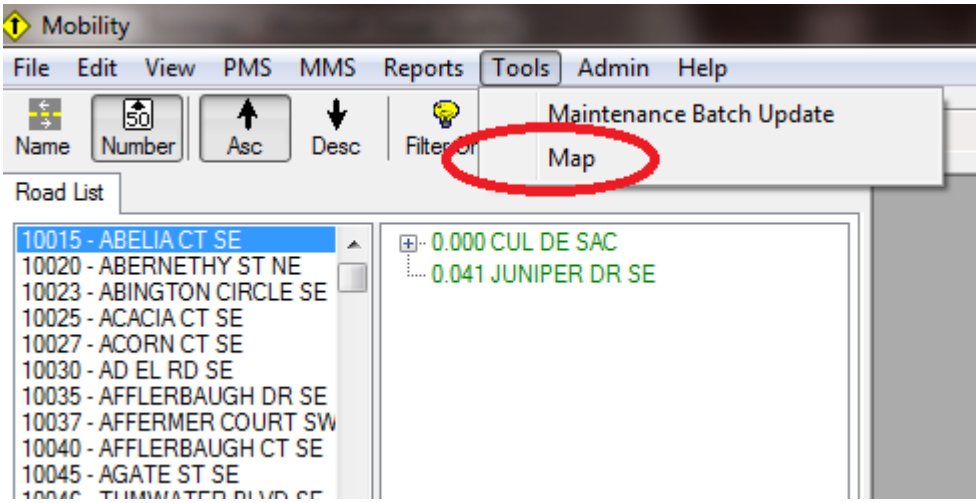
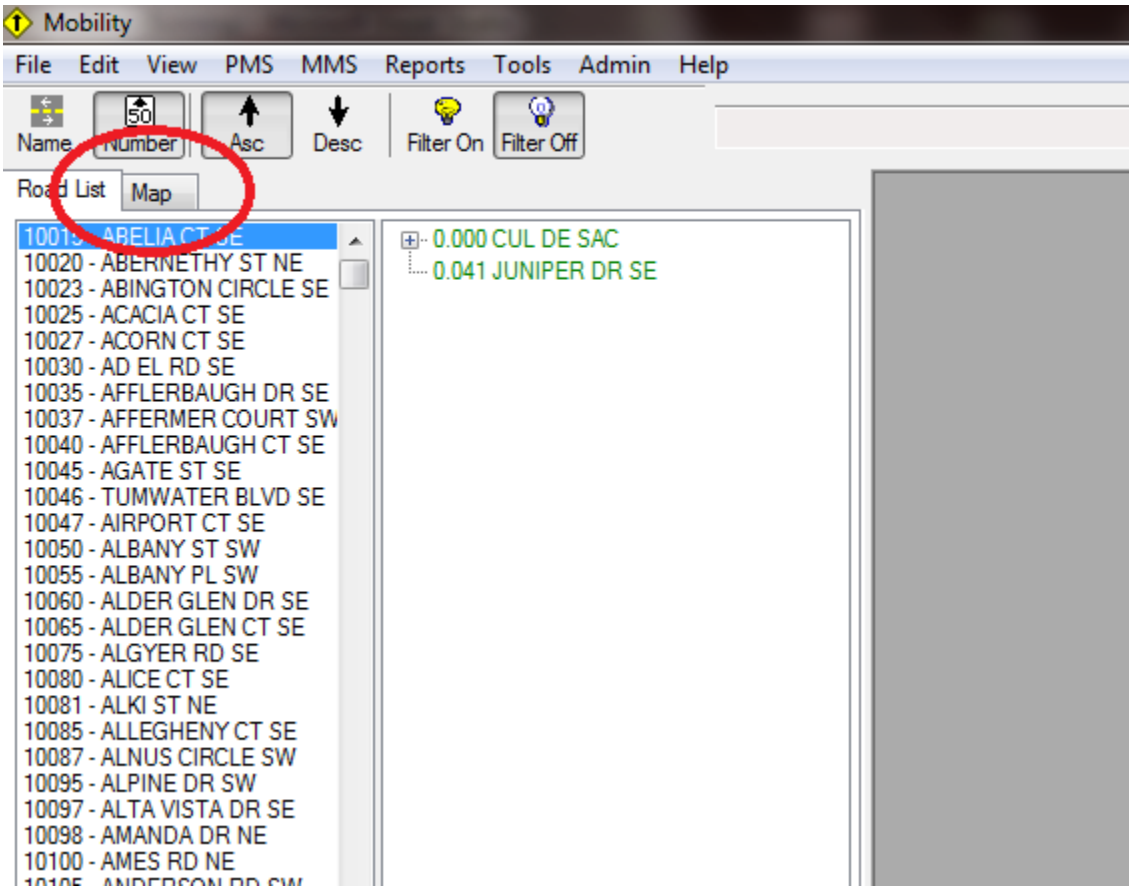


Figure 1.3 B

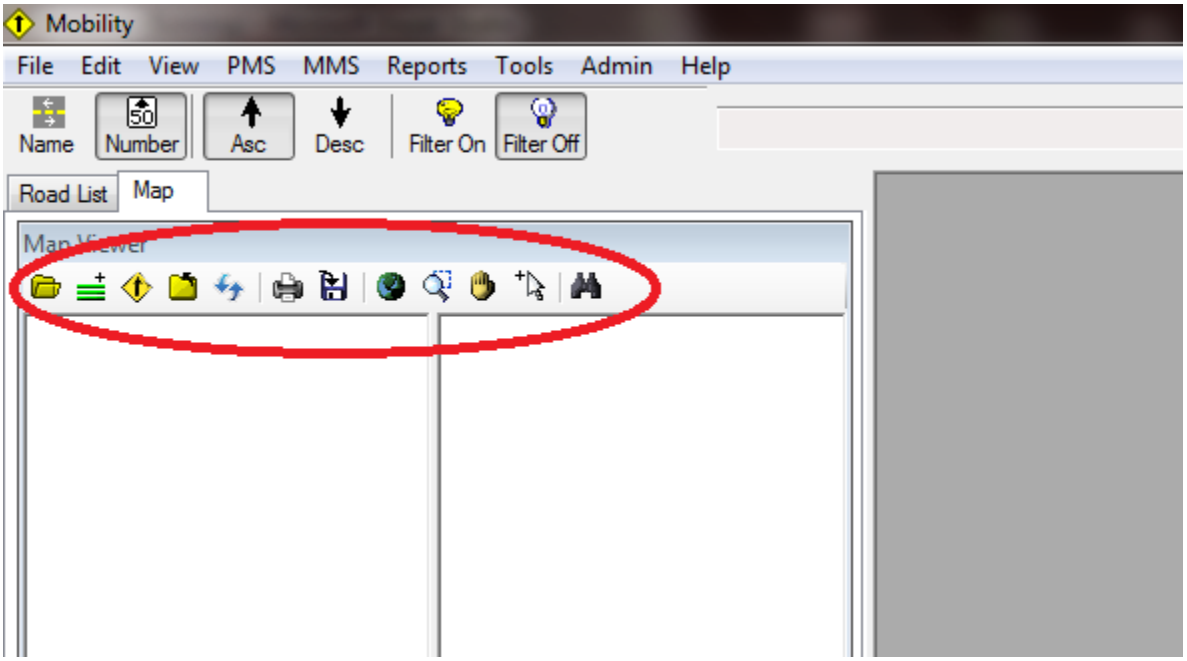


2. Mobility Map Tool Orientation

2.1 Mobility Map Toolbar

The Mobility Map toolbar (Figure 2.1 A) allows for many actions to be performed on the map by clicking one of the icons. This section will cover each one of the actions in detail.

Figure 2.1 A



2.1.1 Open Project

Toolbar Icon = 

The Mobility map tool utilizes a project file for maintaining the state of the map when Mobility is closed. This "state" information includes which layers you had opened, which layers were active, what labels each layer has, etc.

The "Open Project" toolbar command can be used to open a project file (extension .ttkgp), or to open a single layer to begin a new project. By default your project file is saved when closing Mobility, and reloaded when Mobility is opened.

2.1.2 Add Spatial Layer

Toolbar Icon = 

The map supports multiple layers. The "Add Spatial Layer" toolbar command can be used to append an ESRI Shape file layer. These layers won't be your Mobility data layers, but layers that may be useful with Mobility data, e.g., bodies of water, city boundaries, etc.

2.1.3 Add Mobility Layer

Toolbar Icon = 

Mobility layers are kept in a database, not ESRI Shape files. The map initialization process creates layers for most of the linear Mobility inventories. These layers can be added by clicking the "Add Mobility Layer" command. A dialog will open with two options (Figure 2.1.3 A):

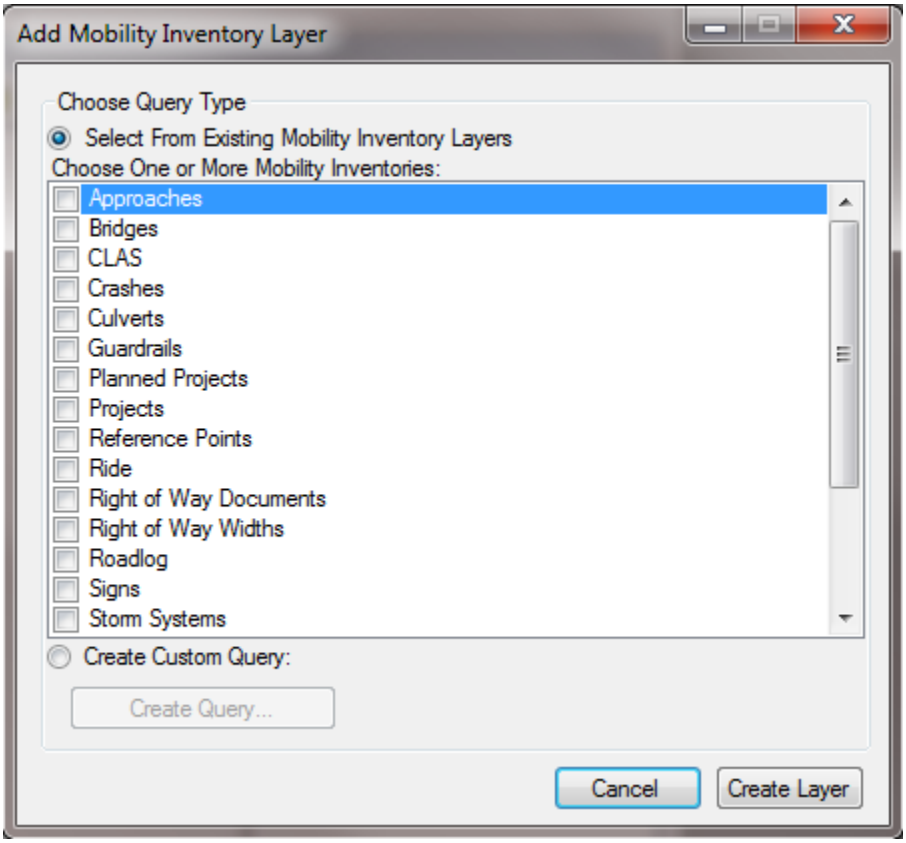
Option 1: Select From Existing Mobility Inventory Layers

Option 2: Create Custom Query

Option 2 will create a new layer based off of the query written in the custom query window. This custom query window is very similar to the one used in custom reports. To access the custom query window click "Create Query." For help on writing custom reports see the Custom Report section of the Mobility help file.

After selecting option 1 or 2 and identifying the layers to add to the map, click "Create Layer."

Figure 2.1.3 A



2.1.4 Close All Layers

Toolbar Icon = 

All layers will be closed immediately by clicking this toolbar command.

2.1.5 Refresh

Toolbar Icon = 

The static Mobility layers that are stored in the database are updated when changes are made to the inventory. The Mobility map tool does not refresh automatically when changes are made to the database. To get the latest changes to appear on the map, click the "Refresh" toolbar command.

Note: The refresh command does NOT refresh custom query layers.

2.1.6 Print

Toolbar Icon = 

This command will send the map to the printer.

2.1.7 Save to Image

Toolbar Icon = 

This command will save the map as an image to the CRAB FTP site.

2.1.8 Full Extent

Toolbar Icon = 

The "Full Extent" toolbar command will bring the entire map into view.

2.1.9 Zoom Mode

Toolbar Icon = 

Click the "Zoom Mode" command, the click and draw a box on the map to zoom to that area of the map. Drawing the box from left to right and top to bottom will zoom in, and any other direction will zoom out. The mouse wheel can also be used to zoom in and out.

2.1.10 Pan Mode

Toolbar Icon = 

Click the "Pan Mode" toolbar command, then click and hold the mouse down over the map pane. Move the mouse up, down, left, and right to pan the map in those directions.

2.1.11 Select Mode

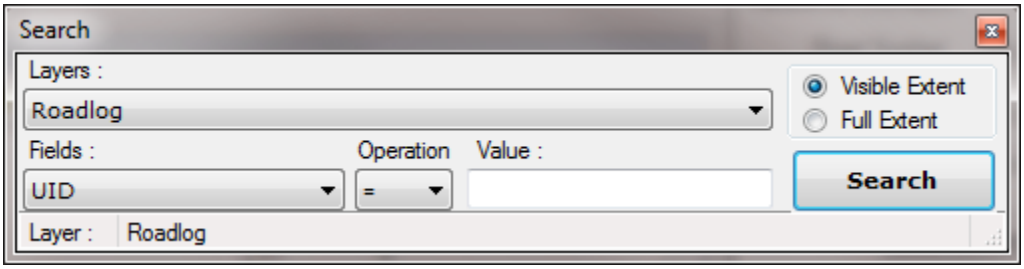
Toolbar Icon = 

Click the "Select Mode" toolbar command. Select a layer from the layer pane. When a layer is selected it will be highlighted yellow. Click an event on the map. The selected event will flash yellow and red. After the event is done flashing it will remain red while selected. The Attributes pane will fill with the attributes of the event. If you have selected an event that belongs to a Mobility layer, the inventory form will open.

2.1.12 Find

Toolbar Icon = 

Click the "Find" toolbar command to open the find dialog (Figure 2.1.12 A).



Follow these instructions to search:

1. Select the layer you want to search
2. Select "Visible Extent" (search only the area of the map that is visible) or "Full Extent" (search the entire map).
3. Select the attribute you want to search on, e.g., road_number, federal function class, etc.
4. Select the logical operator to use, i.e., =, <>, <, >, >=, <=.
   Note: <> is the symbol for not equal to.
5. Enter the value you would like to search on.
6. Click "Search"

After clicking search, the events on the map that match your search criteria will flash yellow and red.

2.2 Layer Pane

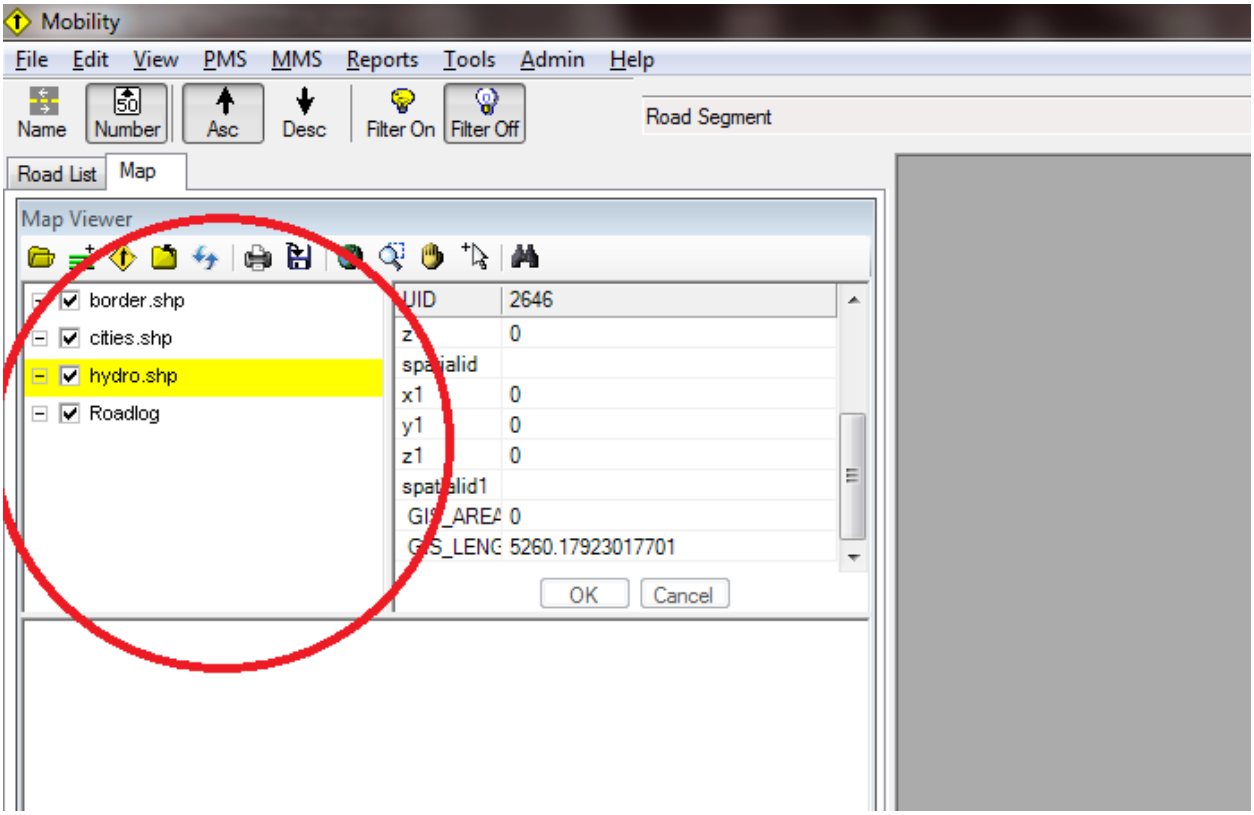
The layer pane (Figure 2.2 A) will list all layers currently loaded into the map tool. If the checkbox to the left of each layer is checked, it will be visible on the map. Unchecking the checkbox will hide the layer on the map.

When a layer in the layer pane is clicked it will be highlighted yellow. This makes the layer "active" when using the "Select Mode" toolbar command (see section 2.1.11). Also, if you right click the "active" layer, the one highlighted yellow, a context menu will appear with options the either remove or export the layer. Click "Remove Layer…" to remove the layer from the layer pane and the map tool. Click "Export Layer…" to export the "active" layer to the CRAB FTP site.

The order of the layers in the layer pane will determine the Z-order of the layers on the map. The first layer in the layer pane will be the lowest layer in the map, and the next layer in the layer pane will be on top of the first layer in the map, so-on and so-forth. If you would like to change the order of the layers, click and drag the layer in the layer pane to a different position.

Lastly, if you double click a layer in the layer pane the properties dialog window will be opened. These properties will be covered in **Section 3: Layer Properties Dialog**.

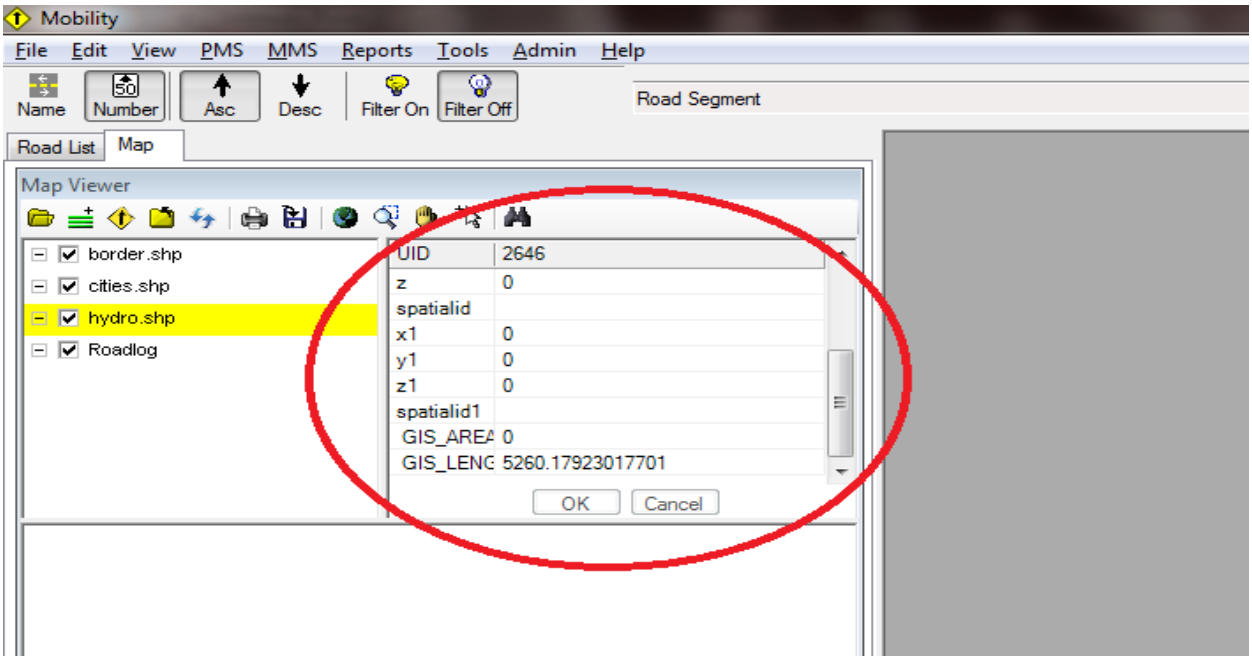
Figure 2.2 A



2.3 Attribute Pane

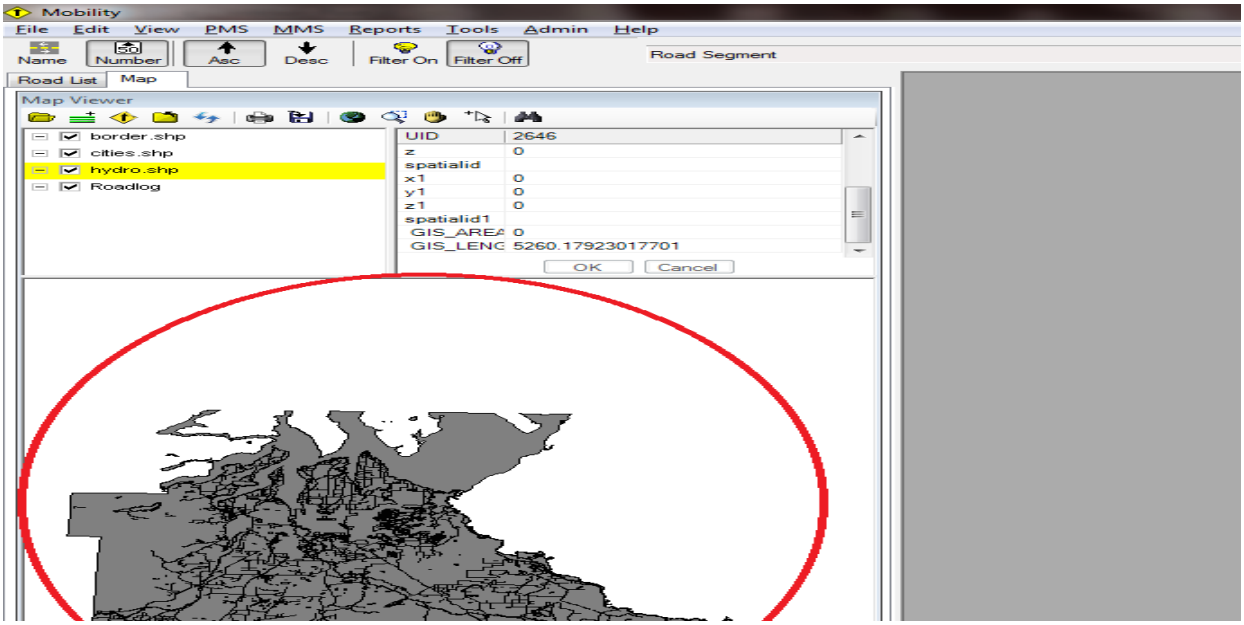
The attributes pane (Figure 2.3 A) will display the attributes associated with a selected event on the map. For help selecting a map event see **Section 2.1.11: Select Mode**.

Figure 2.3 A



2.4 Map Pane

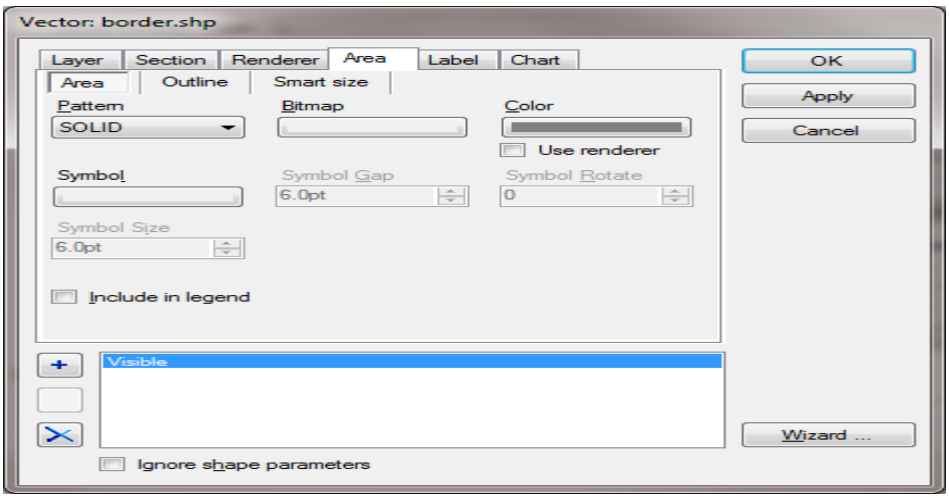
The map pane (Figure 2.4 A) displays the visible layers from the map pane.



3. Layer Properties Dialog

Open the layer properties dialog (Figure 3 A) by double clicking a layer in the layer pane. For more information on the layer pane see **Section 2.2: Layer Pane**. There are many options in the layers properties dialog and this section will cover a few of the most important. You are encouraged to explore the properties dialog to discover different possibilities.

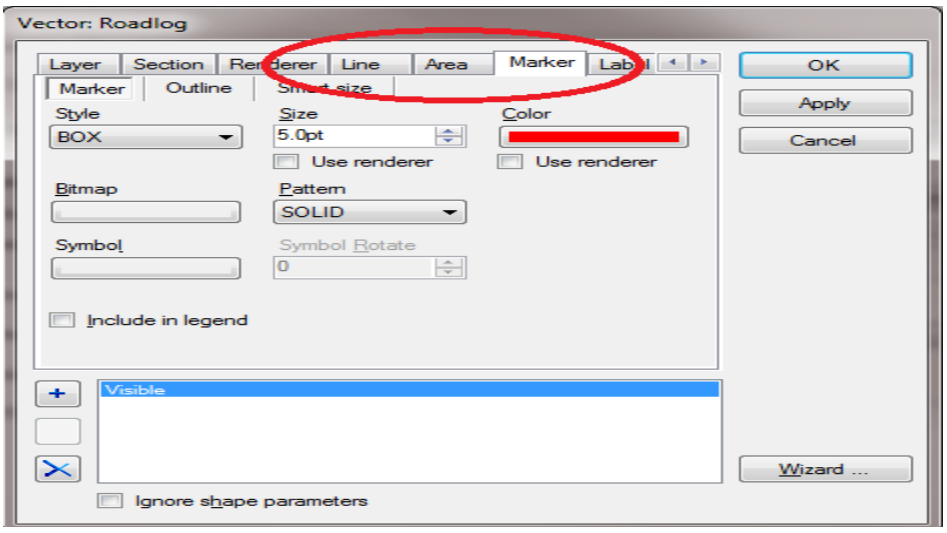
Figure 3 A



3.1 Change Layer Color, Width, Style, etc.

There are three primary types of layers: polyline, polygon, and point. Polyline would be used for inventories such as roads, polygon is used for inventories like bodies of water, and point is used for inventories such as reference points. This distinction is important when setting the color, width, or style of your layer. The properties dialog has three tabs for this: Line, Area, and Marker (Figure 3.1 A). Line = Polyline, Area = Polygon, and Point = Marker.

Figure 3.1 A



3.2 Add Labels to Layer

Add a label to your layer from the “Label” tab of the layer properties dialog (Figure 3.2 A). From the “Label” tab use the drop down list under “Field” to select what attribute you want to use as your label. If you are setting a label for roadlog, or any polyline layer, you may want to set the label position to have the label follow the line (Figure 3.2 B).

Figure 3.2 A

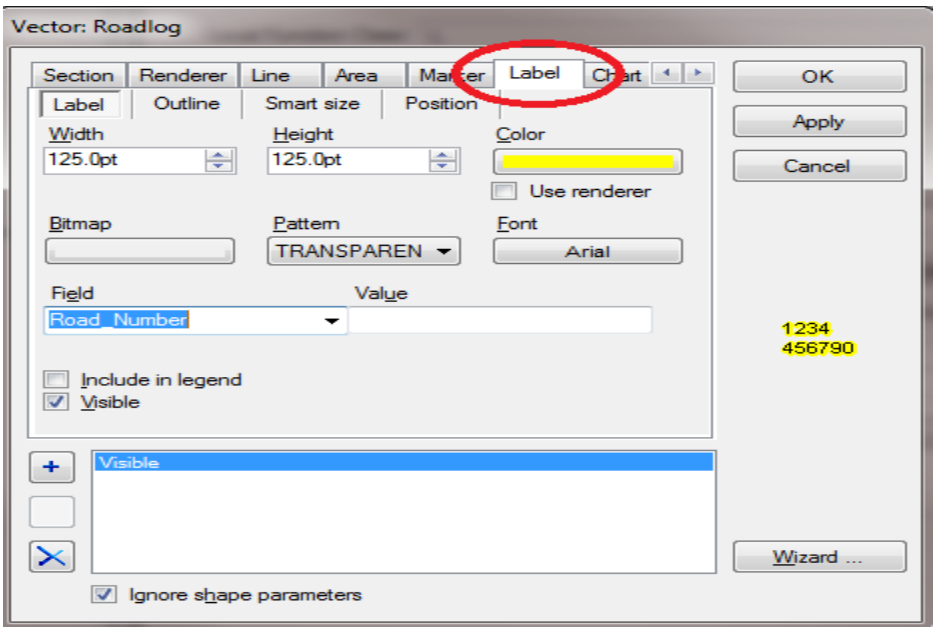
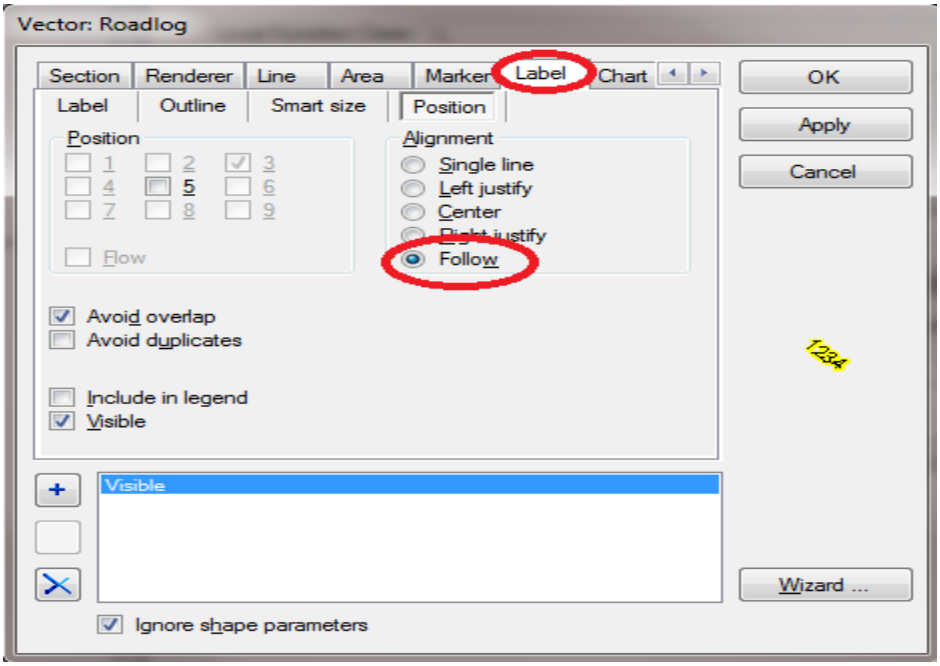


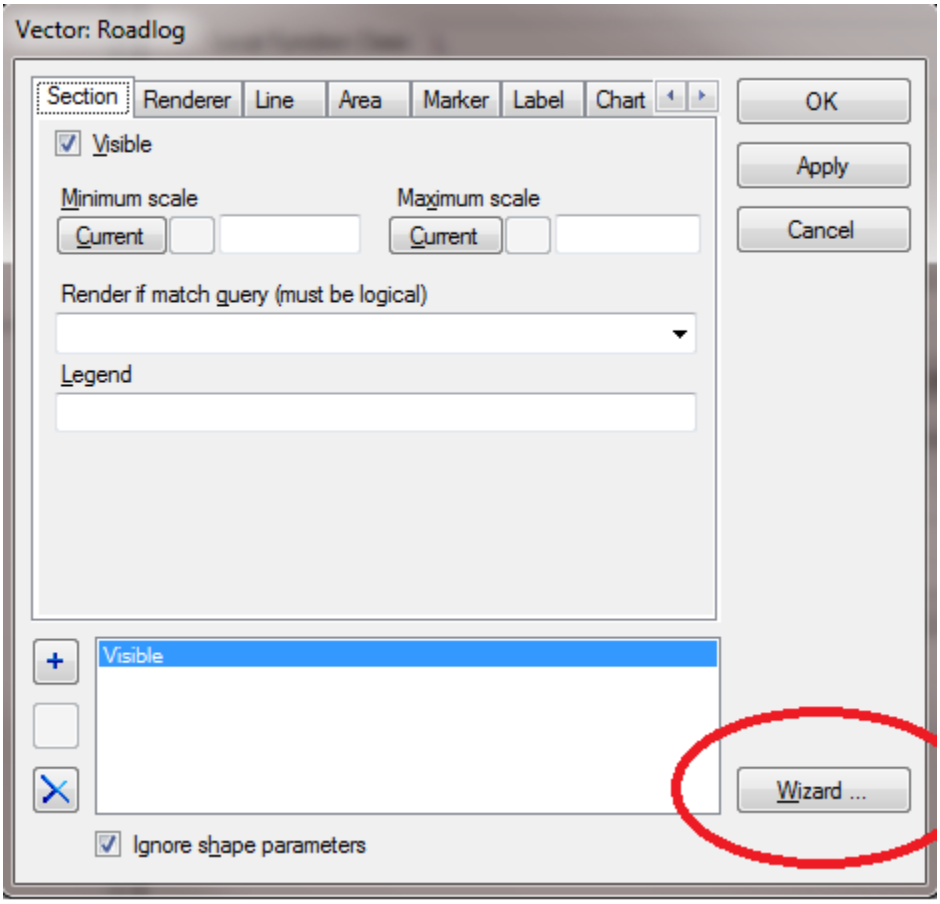
Figure 3.2 B



3.3 Property Wizard

The property wizard (Figure 3.3 A) can be used to quickly render events in your layer based on the attributes. For instance, a roadlog layer can be color coded by jurisdiction very easily.

Figure 3.3 A



4. Glossary

1.) **Attribute:** Nonspatial information about a geographic feature in a GIS, usually in a table and linked to the feature by a unique identifier. For example, attributes of a river might include its name, length, and sediment load at a gauging station.

2.) **Event:** A geographic location stored in tabular rather than spatial form. Even types include roadlog segments, reference points, and street lights.

3.) **Layer:** The visual representation of a geographic dataset in any digital map environment. Conceptually, a layer is a slice or stratum of the geographic reality in a particular area, and is more or less equivalent to a legend item on a paper map. On a road map, for example, roads, national parks, political boundaries, and rivers might be considered different layers.

4.) **Point:** A geometric element defined by a pair of x,y coordinates.

5.) **Polygon:** On a map, a closed shape defined by a connected sequence of x,y coordinate pairs, where the first and last coordinate pair are the same and all other pairs are unique.

6.) **Polyline:** a shape defined by one or more paths, in which a path is a series of connected segments. If a polyline has more than one path (a multipart polyline), the paths may either branch or be discontinuous.
7.) **Shape:** The characteristic appearance or visible form of a geographic object as represented on a map. A GIS uses points, line, and polygons to represent the shapes of geographic objects.
8.) **ShapeFile:** A vector data storage format for storing the location, shape, and attributes of geographic features. A shapefile is stored in a set of related files and contains one feature class.
9.) **Spatial:** Related to or existing within space.
10.) **Spatial Data:** Information about the locations and shapes of geographic features and the relationships between them, usually stored as coordinates and topology.

This glossary covers the GIS terms used in this help. The glossary definitions are provided from the ESRI Online GIS Dictionary. For more GIS term definitions you can find the ESRI Online GIS Dictionary here: http://resources.arcgis.com/glossary/2/letters.