

Basic Mapping in Oasis montaj

Oasis montaj can be used to produce an intelligent entity called a *map*. Physically a map is a special graphic file (*.MAP) containing drawings and images. We call the map intelligent because it enables you to edit it interactively, apply dynamic linking and track the map creation processes. This How-To Guide walks you through basic map creation.

Maps provide a key tool for interpretation for many earth science applications. Oasis montaj provides a wide range of capabilities for performing both basic and advanced mapping. In addition, the map is an important part of the dynamic linking and imaging capabilities in Oasis montaj.

Topics covered in this How-To Guide:

- Map preparation
- Creating a new map
- Setting up map layout templates
- Creating a base map
- Plotting survey lines
- Plotting profiles

Other How-To Guides focus on custom map creation, dynamic linking and imaging, and adding special elements to maps.

Maps in Oasis montaj

In Oasis montaj, maps are special items that serve a number of purposes in the system. First, the map window provides the basic mechanism for creating maps, images and linking to other maps and data. Secondly, maps provide a means of editing graphics, adding text and creating highly customized final presentations for output to printers and plotters. To work effectively with maps, you need to be familiar with the purposes of maps in the system as well as the role of views and groups.

Oasis montaj supports on-the-fly image re-projection, so images may be used in a single map (previously, images that used plug-ins would not re-project and you had to create a separate map to display the image). Also the speed of redrawing re-projected data groups on maps has been improved significantly. True transparency has also been added and is automatically enabled, with video cards that support it.

For users who don't have true transparency supporting video cards, the 'Light table' display technology is used. With this technology, each group or layer in a map has individual transparency settings, controlled from the *View/Group manager*. These transparency settings affect both 2D and 3D raster images and vector line work.

When you create a new map the system opens up a new blank *Map Window*. After a *Map Window* is open, you can add a wide variety of data- and base map-related information.

Understanding the Parts of a Map

Oasis montaj uses views to organize information on a map. Map groups determine how (in what order) that information is displayed.

Base and Data Views

Geosoft Maps use views to organize and display information. A view divides the information on a map into a *base view*, which uses paper coordinates, and a *data view*, which uses ground coordinates. As you use the system, you will become familiar with the information that is stored in each type of view and how to manipulate them (for example, by turning off a map layer for plotting purposes).

- **Base view** - map surrounds, north arrows, scale bars
- **Data view** - map coordinates, contours, grids, images

3D Views

A 3D view can include data from an existing 2D view or group already displayed on a map and 2D grid files. Like 2D views, a 3D view also represents coordinates, but in this case in X,Y **and** Z. 3D views may also contain any number of drawing planes. Any group or drawing object that can be drawn on a 2D view can be drawn on a plane in a 3D view. Each plane in a 3D view can be oriented independently in the 3D coordinate system. A plane in a 3D view can be flat or it can have a surface relief defined by a grid file.

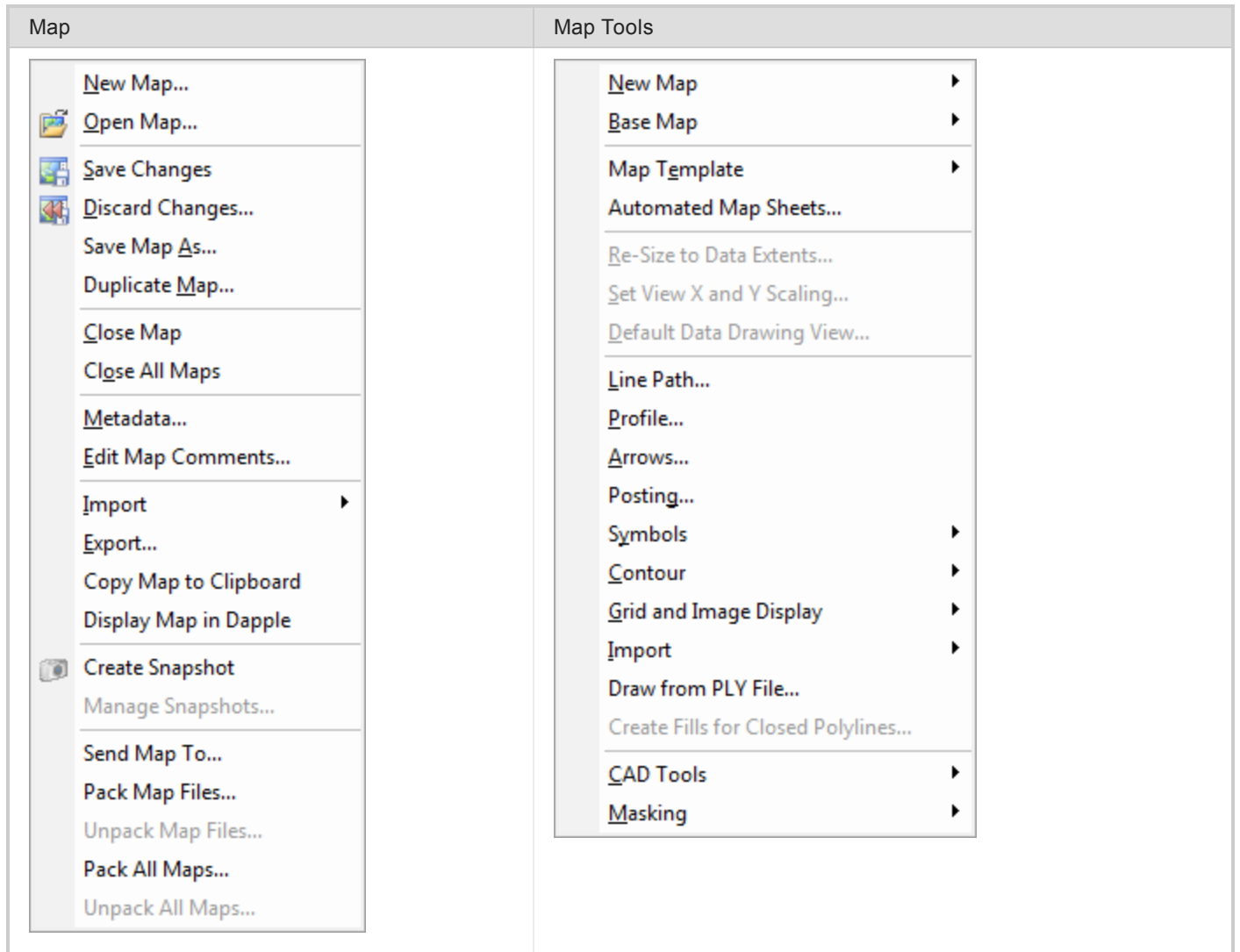
The *3D Viewer* provides all of your 3D-mapping tools, functions and settings in one integrated 3D environment. The 3D Viewer enables you to change the orientation of the 3D view, relative to your point of view, by rotating the coordinate system horizontally and vertically and by zooming and panning. The 3D view can be modified using the 3D Tools, including defining the orientation, setting relief grid controls and transparency levels of individual planes, and specifying axis labels.

Groups

Oasis montaj uses groups to determine the order in which objects are displayed (rendered) on a map. Examples of Groups in the Base view include a north arrow, title text box, or a scale bar. Examples of Groups in the Data view include lines, polygons, grids, and images. You can create, edit, move, hide, and mask groups. You can also move groups in front and behind each other. Any new object you add to a map, such as a polygon or line, is added to the current group. Map group names have a limit of **1024** characters.

Map Menus

There are two main map menus, *Map* and *Map Tools*, as shown below:



Map Preparation

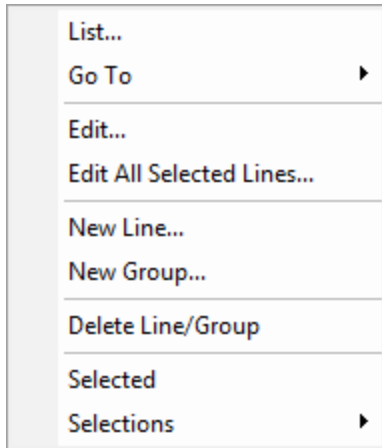
Oasis montaj creates base maps and map elements, and performs other processing (such as gridding) based on the lines (or groups) selected in the database.

Selecting Data for Mapping

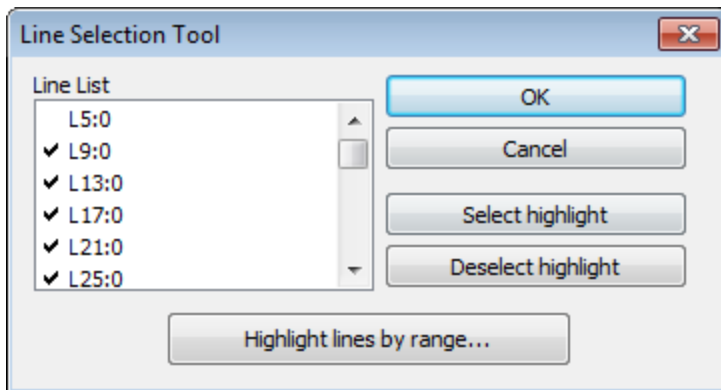
By default, when you import data, all lines are selected.

To Select Data for Processing

1. First ensure that the database is open and selected in your current project.
2. Select (highlight) the line header cell.
3. Right-click and select **Selections** from the pop-up menu.



4. Select **Selection Tool**. The *Line Selection Tool* dialog appears.



5. You can highlight the lines you want to select or deselect individually, or click the **Highlight lines by range** button to select lines by range. Lines that are selected will have a check mark beside them and lines that are not selected will have no check mark beside them.



*Clicking **Select highlight** or **Deselect highlight** either adds a check mark beside the highlighted lines or removes the checkmark.*

6. Once you have made your selections, click **OK**. The data for mapping is selected.

Creating a New Map

When you create or open a map in Oasis montaj, the system displays a *Map* window in the project. For a new map, the window is initially empty. For an existing map, all map elements are displayed when the window opens. For more information on mapping, map components and working with maps, click the *Help* button on the dialog of interest.

Creating a map from X and Y Coordinates

Maps can be created from a 'X,Y' coordinates, Long/Lat, or a template. The example below demonstrates how to create a new map from X and Y coordinates using data from the current database.

To Create a New Map from X,Y

1. Open a database in your current project.
2. On the *Map Tools* menu, select *New Map* and then select **New Map from X,Y**.
The *Data range to map* dialog appears.

The screenshot shows a dialog box titled "Data range to map". It has a title bar with a question mark and a close button. The main area contains four text input fields labeled "Minimum X:", "Minimum Y:", "Maximum X:", and "Maximum Y:". Below these is a dropdown menu for "Distance unit:" currently showing "metre". At the bottom is another dropdown for "Coordinate System:" showing "*unknown". At the very bottom are five buttons: "Next>", "Scan data", "Scan grid", "Interactive", and "Coordinate System".

The *Data range to map* dialog is used to create a new blank map to fit the data range specified. The data range can be entered manually, or it can be determined from the range of the selected data (**Scan data**) in the current database, from the range of a grid file (**Scan grid**), or interactively by defining an area on a map (**Interactive**).

3. Click **Scan data** to have the system query the database for the *Minimum* and *Maximum* coordinates and the *Distance* units.



If the scanned data or grid file does not have an established unit, "metres" is assumed. It is important that the distance units accurately reflect the units of the data range. This default value can be modified in the Default Settings dialog.

4. Click **Next**. The *Create a new map* dialog appears.

The screenshot shows a dialog box titled "Create a new map". It has a title bar with a question mark and a close button. The main area contains a text input field for "Map name:" with a browse button (...). Below it is a dropdown menu for "Map template:" showing "landscape letter". Then there is a text input field for "Map scale:". At the bottom is a dropdown for "Distance unit:" showing "metre". At the very bottom are four buttons: "<Back", "Finish", "Scale", and "Templates".

5. Enter a *Map name* and location.

- From the drop-down list, select the correct **Map template**.
- Click **Scale** . The system automatically calculates a scale that will fit the data on the map template. If no scale is specified, a scale will be chosen which will fit all of the data within the chosen map sheet.



It's recommended to round the scale to a more appropriate number, for example 100000. (If you round the scale, you must always increase the number, thereby reducing the scale).

- Click **Finish** to display the new blank map.

Map Templates and Base Maps

An important component of the map is the map template. Templates control placement of base map elements (surrounds), contours, grids, plots, images and any other graphics elements required to complete your map.

Creating MAPPLOT Map Templates (manual)

The system provides a variety of default templates that enable you to create your own standard maps with logos, custom layouts and other elements as required. For example, you may use the default A4 or A3 templates to create your own layout that you use regularly for making a map.



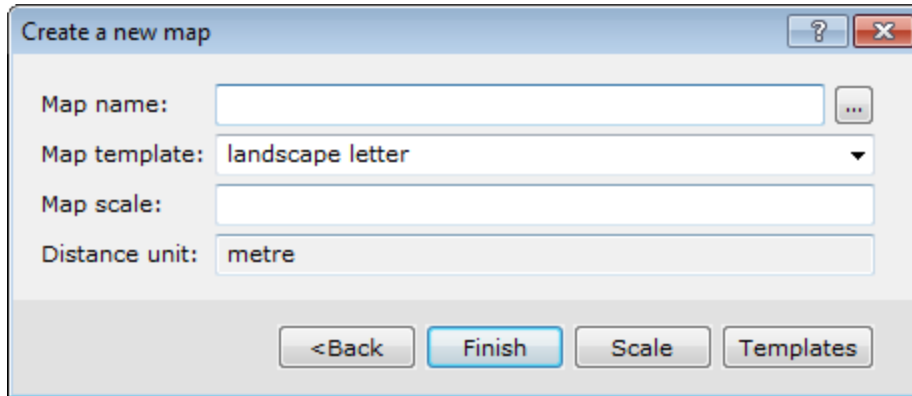
When you create a map template, it is saved permanently in your system. When you are learning the system, we suggest you experiment using the same template until you are ready to create a final version with a custom name. You may want to make up a testing template, called TEST, for example.

To Create Your Own MAPPLOT Map Template

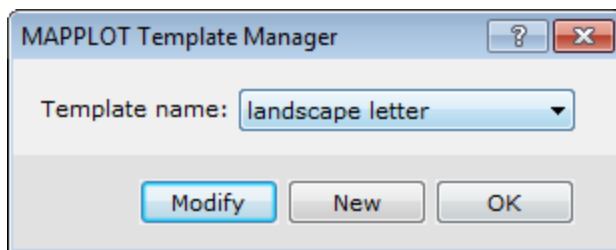
In this example we create a new map from X,Y coordinates and save the results as a MAPPLOT Map Template.

- On the *Map Tools* menu, click **New map**.
- Click **New map from X,Y**. The *Data range to map* dialog appears.

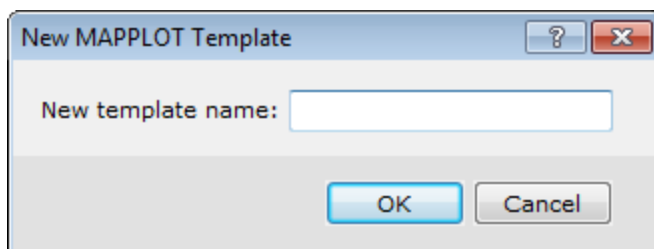
- Confirm the X,Y Coordinates and Units.
- Click **Next**. The *Create a New Map* dialog appears.



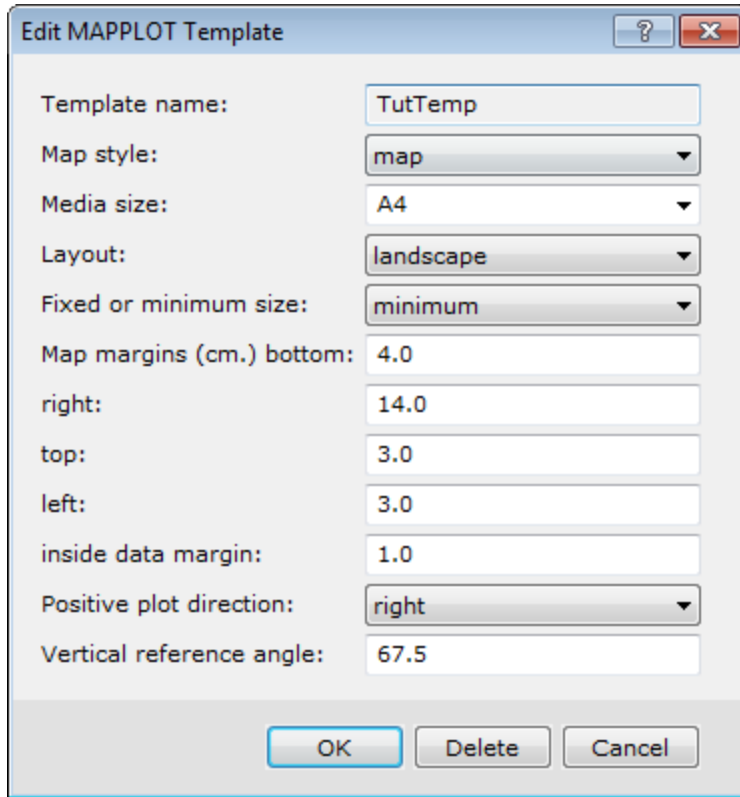
5. Specify a *Map name* and location.
6. From the drop-down list, select the *Map template*.
7. Click **Templates**. The *MAPPLOT Template Manager* dialog appears.



8. Click **New** to create a new template, so that the original template is not overwritten. The *New MAPPLOT Template* dialog appears.



9. Specify a *New template name*.
10. Click **OK**. The *Edit MAPPLOT Template* dialog appears.



11. Select the **Map style**.
Figure style maps have a layout with the title, scale bar and north arrow located at the bottom of the map, whereas *Map* style maps have a layout with the title box, scale bar and north arrow along the right hand side of the map.
12. Define the other Template settings. You can specify margins, and set the plot direction.



For detailed information on each setting, click the **Help** button.

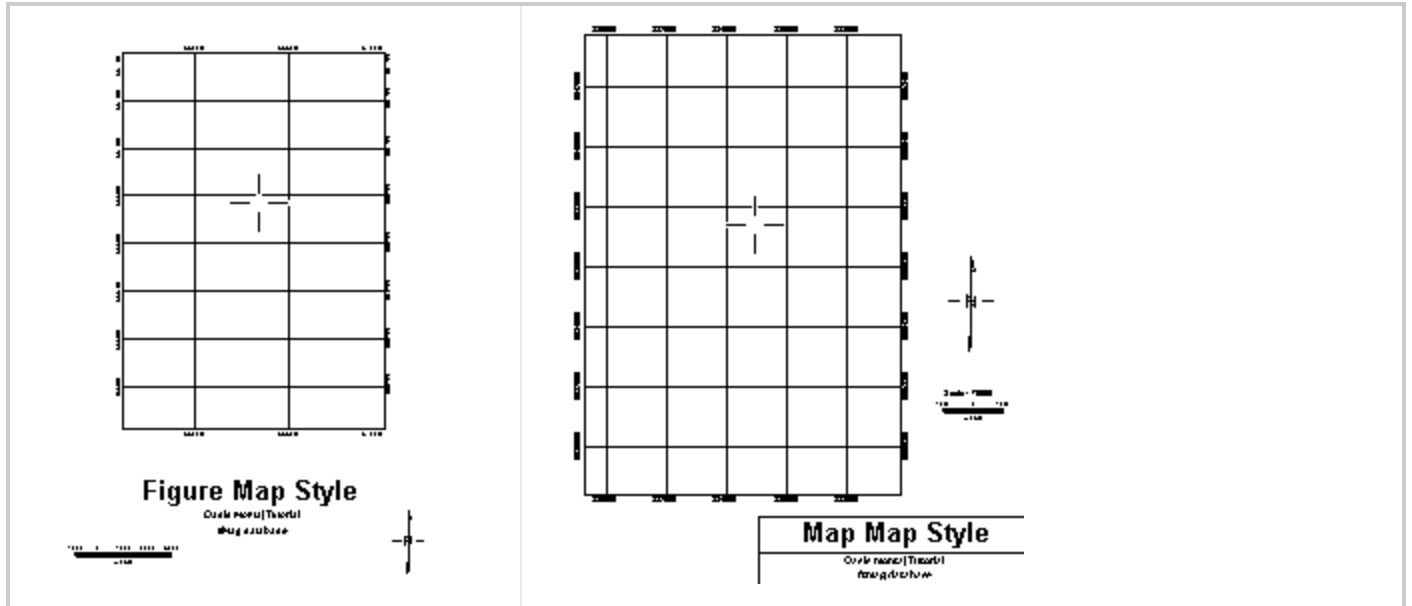
13. When complete, click **OK** to continue. The system returns you to the *MAPPLOT Template Manager* dialog.
14. Click **OK**. The *Create a new map* dialog reappears.
15. Click **Finish** to display the new blank map.

For more information on using MAPPLOT commands, see the *Geosoft Executables (GXs) | MAPPLOT Topics and Command Reference* topics, located in the Oasis montaj Application Help System (*Help/Help Topics*).

Creating a Base Map

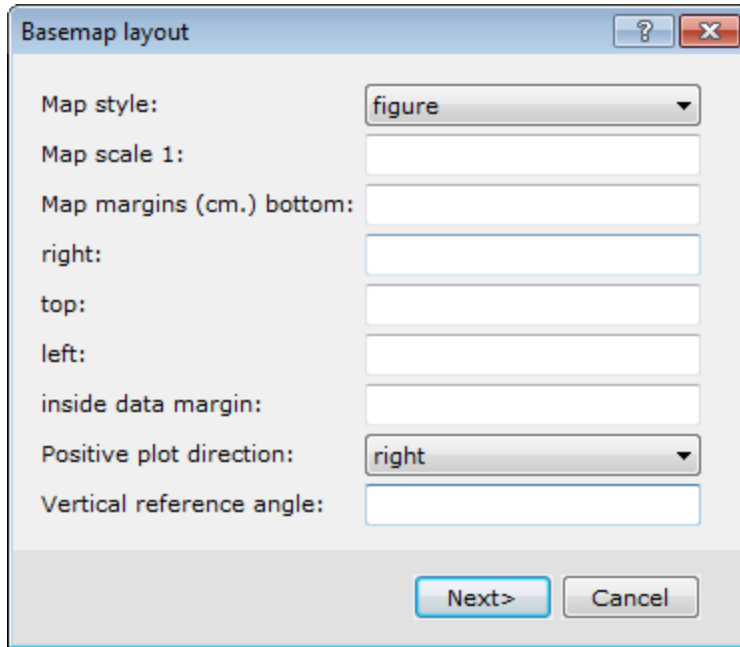
Maps are composed of views. A view is a coordinate translation and a masking region and is used to organise and display information on a map. Maps consist of a *Base view*, which uses paper coordinates with an origin at the bottom left corner of the page, and a *Data view*, which uses ground coordinates.

You can customize your base map with many elements, including map surround, north arrow, scale bar, reference grids, latitude/longitude annotations, text blocks/balloons and titles. The layout of your base map can either be map or figure style. Figure style maps have a layout with the title, scale bar and north arrow located at the bottom of the map, whereas map style maps have a layout with the title box, scale bar and north arrow along the right hand side of the map. The following images show the difference in layout between the two styles.



To Create and Plot a Figure Style Base Map

1. Make sure your map file is open and selected in the project.
2. On the *Map Tools* menu, select *Base Map* and then select **Draw Base Map**. The *Basemap layout* dialog appears.



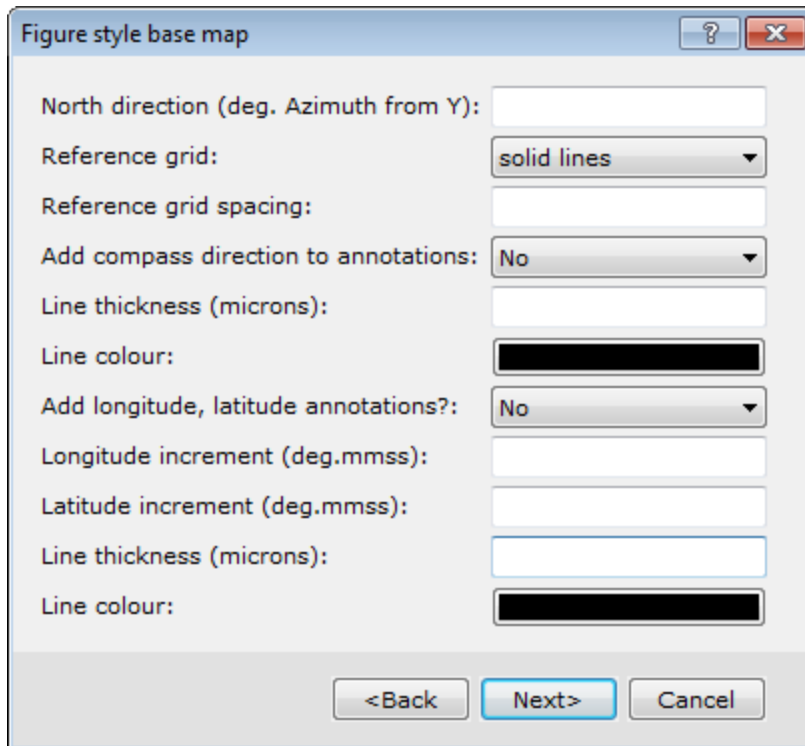
This dialog is the first dialog in the base map layout wizard. The type of *Map style* that you choose here will reflect the type of dialogs to follow.




*For this example, we select the **figure** style.*

3. Select the *figure* style.
4. Click **Next>** to continue.

The *Figure style base map* dialog appears.

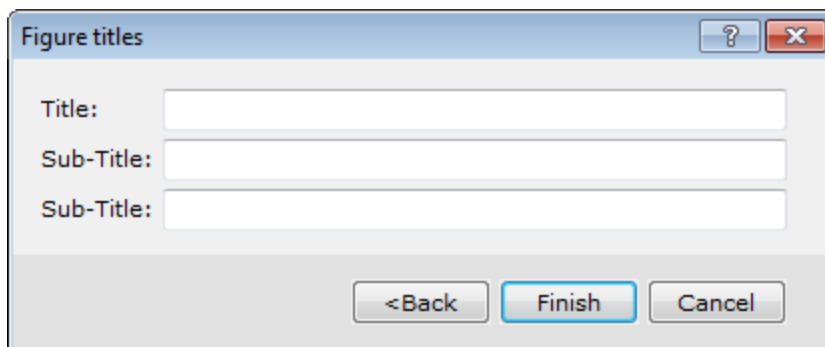


- Specify the display characteristics of the base map elements.

 For detailed information on each setting, click the **Help** button.

- Set the *North direction*. If blank, no North arrow is drawn.
- You can specify different types of display styles for the *Reference grid* via the dropdown list.
- Configure the other base map options as desired.
- Click **Next>** to continue.

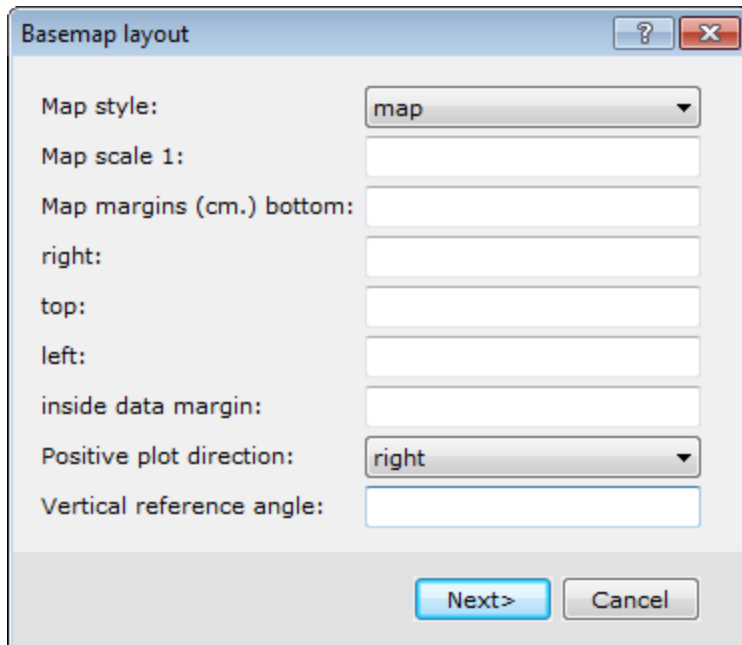
The *Figure titles* dialog box appears.



- You can specify the map titles and sub-titles, if desired.
- Click **Finish** to plot the base map on your current open map.

To Create and Plot a Map Style Base Map

1. Make sure your map file is open and selected in the project.
2. On the *Map Tools* menu, select *Base Map* and then select **Draw base map**.
The *Basemap layout* dialog appears.




This dialog box is the first dialog box in the base map layout wizard. The type of *Map style* that you choose here will reflect the type of dialog boxes to follow.



*For this example, we select the **Map** style.*

3. Select *map*.
4. Click **Next>** to continue.
The *Full map style base map* dialog appears.

 For detailed information on each setting, click the **Help** button.

5. Set the *North direction*. If blank, no North arrow is drawn.
6. You can specify different types of display styles for the *Reference grid* via the dropdown list.
7. Configure the other base map options as desired.
8. When complete, click **Next>**.
The *Map title block* dialog appears.

The image shows a dialog box titled "Map title block". It contains the following fields from top to bottom:

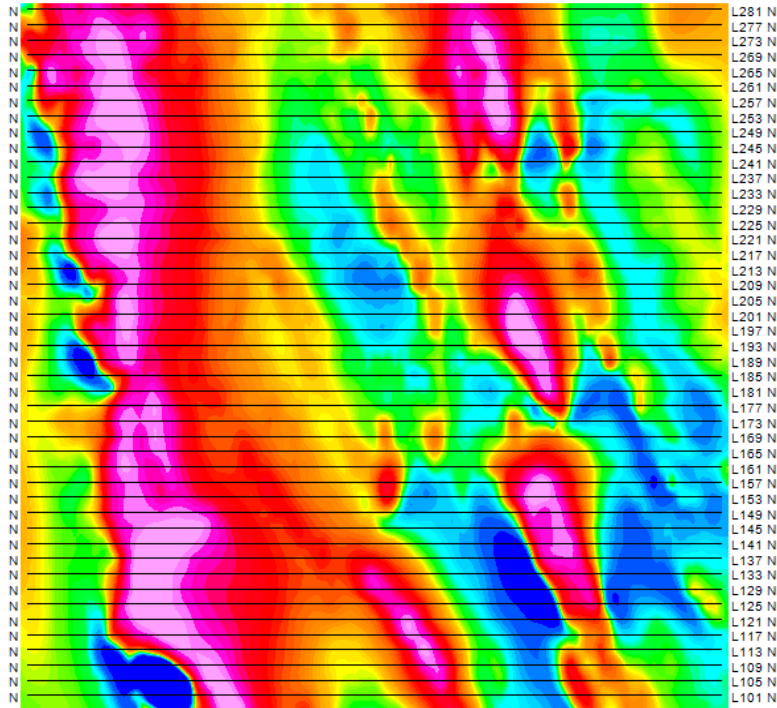
- client: [text input]
- map title: [text input]
- sub-title: [text input]
- sub-title: [text input]
- text line 1: [text input]
- text line 2: [text input]
- text line 3: [text input]
- text line 4: [text input]
- map creator: [text input]

At the bottom of the dialog, there are three buttons: "<Back", "Finish", and "Cancel".

9. You can specify the map titles and sub-titles, if desired.
10. Click **Finish** to plot the base map on the current open map.

Plotting Survey Lines

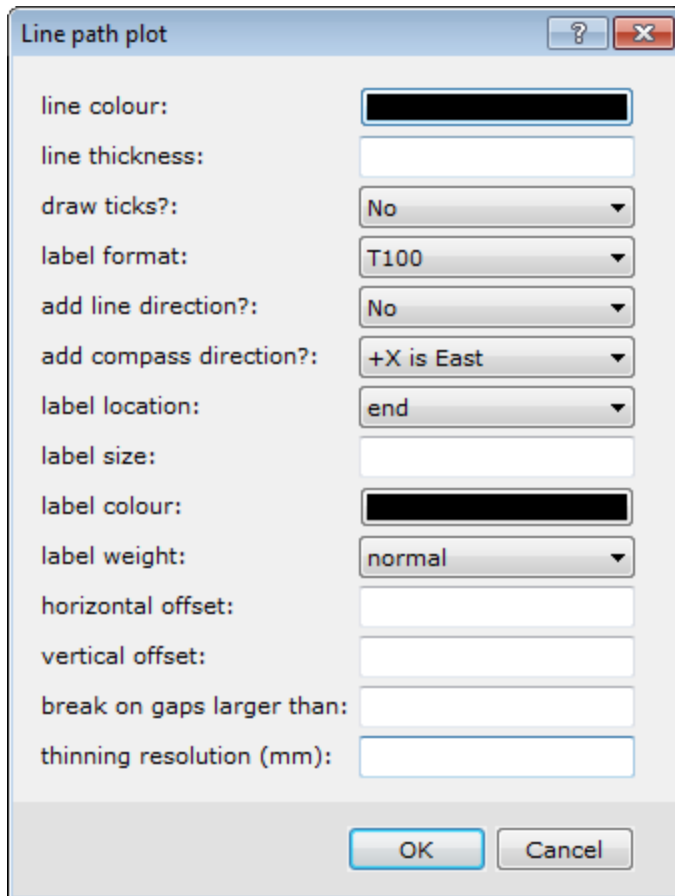
For line-oriented Geoscience surveys, you may want to display survey lines (flight lines for airborne surveys). An example is shown below.



To Plot Survey Lines

When plotting survey lines, make sure that the lines you want to plot are selected in your current database (see *Selecting Data for Mapping*).

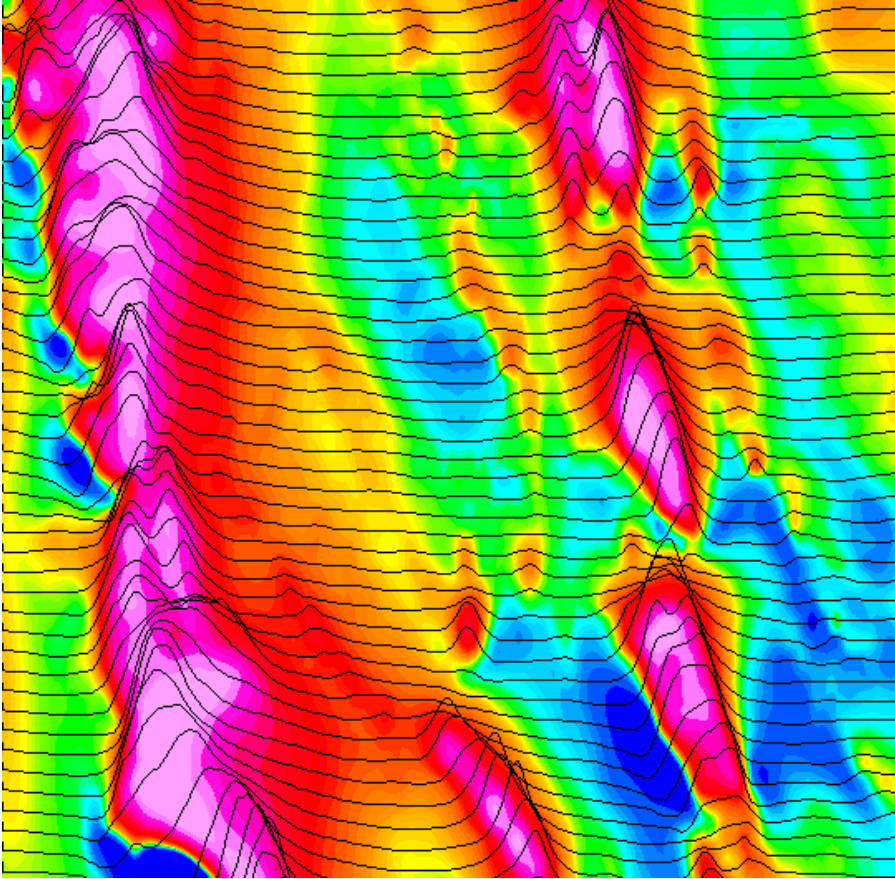
1. Select (highlight) the map.
2. On the *Map Tools* menu, select **Line Path**.
The *Line path plot* dialog appears.



- Specify how the line paths should appear on your map. You can select the line colour, label size and colour, and other display settings. For more information on line path settings, click the **Help** button.
- Click **OK**. You may be asked to confirm the map scale. The survey lines appear on your map.

Plotting Profiles

For line-oriented Geoscience surveys, you can display plan view profiles of the data values for each survey line. An example is shown below.

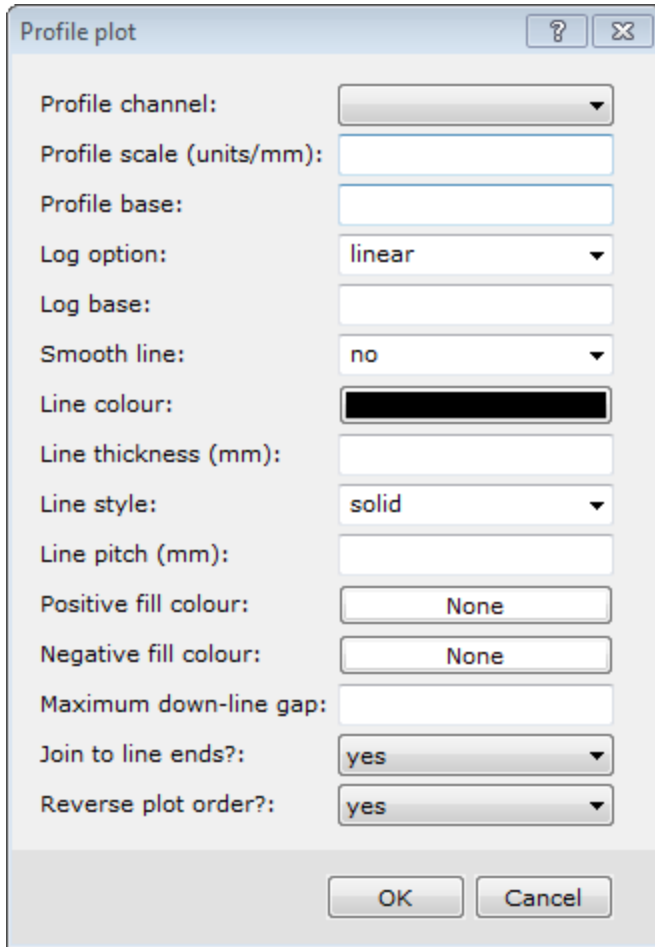


 Click the **Help** button for more information regarding the parameter selections available in the *Profile plot* dialog box.

To Plot Profiles

When plotting profiles, make sure that the lines you want to plot are selected in your current database (see *Selecting Data for Mapping*).

1. Make sure the map is open and selected in your project.
2. On the *Map Tools* menu, select **Profile**.
The *Profile plot* dialog appears.



3. Select the channel to profile using the *Profile channel* dropdown list.
4. Specify the profile's vertical scale in units/mm.
5. Specify how the survey lines should display. You can define line colours, styles, and other options.
6. Click **OK**. The plan profiles of the selected channel appears on your map.












Moving Around the Map

Once you have your map displayed, you may want to zoom into the map so that more detail is displayed. You may also wish to move around the map using other options.

 You can also access these commands by right-clicking on a map and selecting the options from the pop-up menu.

Map Layout

The following is a list of some of the different types of viewing options available for moving around and viewing the map with ease:

 <p>Zoom Box</p>	<p>Click this button to activate the Zoom Box. Click on the map, then while holding down the left mouse button and move your cursor to box in the area of the map you want to zoom. Click to select the area. Click the mouse button again to zoom to the area selected.</p> <p> <i>Once the box has been defined, the cursor and the box are linked and by moving the cursor around the map you can move the box to another location, and then click the left mouse button to zoom to the boxed area.</i></p>
 <p>Pan</p>	<p>Click this button to Pan around in the currently selected map. Click the left mouse button and while holding the button down, move the hand cursor to pan around the current map area.</p>
 <p>Interactive Zoom</p>	<p>Click this button to activate the interactive zoom. Click on the area of the map you want to zoom (e.g. an anomalous location on a grid), then while holding down the left mouse button, move your cursor left to zoom out and right to zoom in on the selected area.</p>
 <p>Zoom In</p>	<p>Click this button to zoom in and increase the displayed map features by 50%.</p>
 <p>Zoom Out</p>	<p>Click this button to zoom out and shrink the displayed map features by 50%.</p>
 <p>Full Map</p>	<p>Click this button to display the whole map area in the map window.</p>
 <p>Zoom to Selection</p>	<p>Click this button to zoom to the selected map view or group.</p>
 <p>Previous Extent</p>	<p>Click this button to undo all changes that you have made since the last time you saved the map. This command is useful for removing text and graphics that you may have added accidentally.</p> <p>When working on a map, you may prefer to use this command periodically so that you undo only a few changes at a time rather than your entire set of map edits and other changes.</p>
 <p>Next Extent</p>	<p>Click this button to redo the latest changes that you have made since the last time you saved the map. This command is useful for adding text and graphics that you may have removed accidentally.</p>
 <p>Redraw</p>	<p>If you manually resize the map window or perform editing on the map you may need to redraw the map to refresh its current view</p>

Map Tools



The *Map Tools* menu provides several options which enable you to control how your map appears and which menus are active. The last three buttons on the toolbar determine on which maps zooming occurs:

- > **This Map Only** button will zoom only the current map, which will be highlighted.
- > **All Maps** button will zoom all the maps, which share the same coordinate system.
- > **Other Maps Only** button will zoom all the other maps, which share the same coordinate system, with the exception of the current map. This enables the use of one map as a reference.

 To find out the function of the other buttons on the *Map Tools Bar*, hold the cursor over the button until a description appears.

Map Pop-Up Menus

Map Views	Map Groups
Views ▶	Groups ▶
Coordinate System...	Edit This Group E
ArcGIS Transformations...	Next Group W
Next View W	Previous Group Q
Previous View Q	Grid Value ▶
	Delete Group Del

Map Window Status Bar

The projection information in the status bar is cleared when there are no active maps.

Configurable Hotkeys

Oasis montaj provides configurable *Hotkeys* enabling quick and easy access to menu items including all map tools. To access the *Shortcut Keys* dialog, an interactive dialog enabling you to set your own Hotkeys or view the defaults, select the *GX|Database Settings|Configure GDB Shortcut Keys* menu item.

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