

Map Grids

You can add one or more map grids to a geospatial group to provide a visual geographic reference to the presentation. A group can have map grids aligned to coordinate reference systems with projected (e.g., UTM) or geographic (longitude, latitude) coordinates. For each map grid you can choose whether to display grid lines, labels, a neatline, inside or outside tick marks around the boundary, and interior tick marks. You also can set the placement, orientation, coordinate format, and font style of map grid labels.

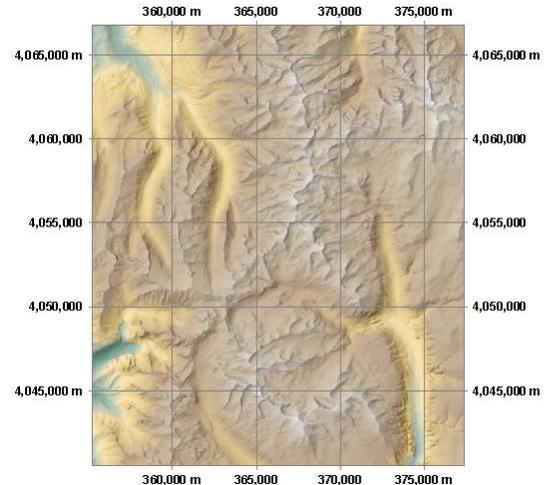
Map Grid Layer Controls

To add a map grid to a group, press the Add Map Grid icon button in the Display Manager toolbar. The Map Grid Layer controls window then opens to allow you to set the characteristics for the map grid. Each map grid is a separate layer in the group containing its associated spatial data. The grid layer is automatically named using the coordinate reference system you select for the grid. You can reopen the Map Grid Layer Controls window at any time to adjust the settings by pressing the Layer Controls icon button for the map grid in the Display Manager layer list.

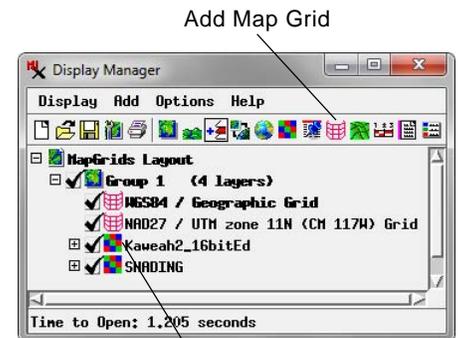
Interval / Extents Panel

Use the controls on the Interval / Extents tabbed panel to set the coordinate reference system, grid intervals, spatial extents, and scale range for the map grid.

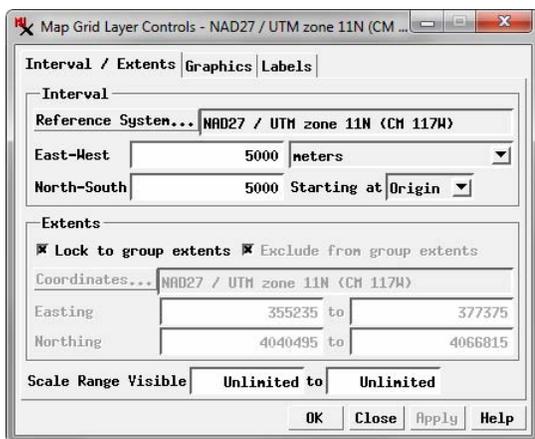
The Reference System field in the Interval box defaults to the coordinate reference system (CRS) for the group, but you can press the Reference System button to open the standard Coordinate Reference System window to choose any CRS for the grid. Enter values in the East-West and North-South numeric fields to set the horizontal and vertical spacing (intervals) for the grid. For a grid with projected coordinates, choose the units for the interval spacing from the menu to the right of the numeric fields. Intervals for geographic grids are specified in degrees, minutes, and seconds. Appropriate intervals will vary depending on the spatial extents of the group and (for map layouts) the design scale.



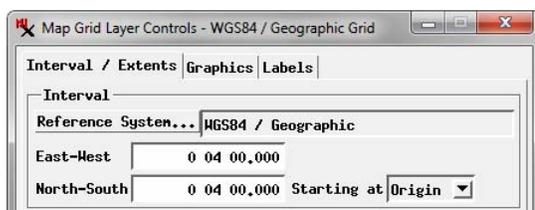
Group with a UTM map grid and labels.



Map Grid Layer Controls



Interval / Extents panel for a map grid using projected coordinates (above) and geographic coordinates (below).



Use the *Starting at* menu to specify the starting coordinates for grid generation. The Origin option creates a grid starting at the 0,0 position for the coordinate system, but only grid lines falling within the designated extents are actually drawn. Using the Origin option with round-numbered intervals (e.g., 2,000 meters, 5 kilometers, 1°00') creates grid lines at round-numbered coordinates, which is the usual design on published maps for grids that reference well-known coordinate systems. If you want to create an unlabeled grid merely for visual rather than geographic reference, you can choose Extents from the *Starting at* menu, so that the first grid lines coincide exactly with the minimum designated extents for the grid.

A map grid can be set to cover just the extents of its group, a smaller area, or a larger area. Settings for this purpose are in the Extents box on the Interval / Extents panel. Turning on the *Lock to group extents* toggle sets the grid extents to coincide exactly with the extents of the group and disables the other controls in the box. Grid exterior tick marks and labels, which extend outside the group extents, are not considered part of the group extents with this setting. Turning off the *Lock to group extents* toggle activates the other Extents controls. The Easting and Northing fields in the box initially show the group minimum and maximum extents; edit these fields to decrease or increase the grid extents. You can also choose a different CRS for specifying the grid extents by pressing the Coordinates button. Turning on the *Exclude from group extents* toggle button ensures that the map grid and its exterior annotations are

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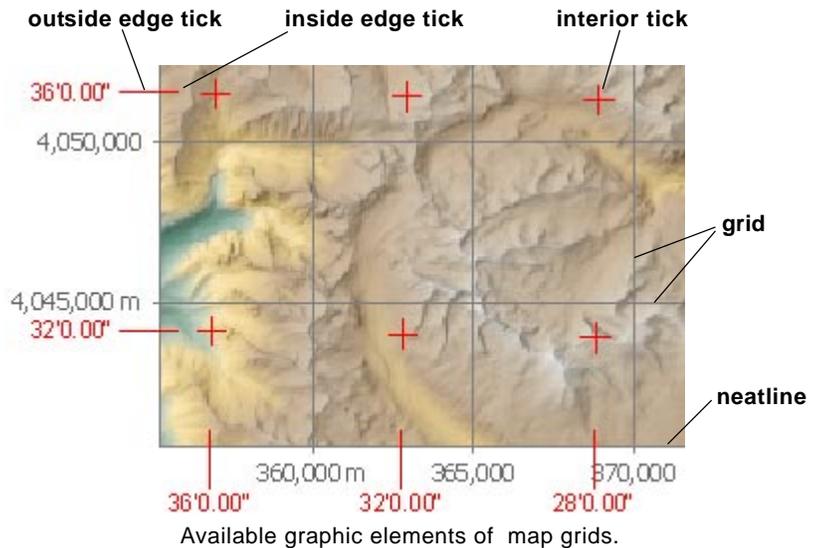
not considered part of the group extents; this setting may influence the positioning of groups with relative attachments in page layouts.

You can enter map scale values in the Scale Range Visible Fields to limit the range of scales at which the map grid is drawn. For example, you can set the scale range to automatically hide the map grid layer when the display is zoomed out in order to reduce visual clutter. See the TechGuide entitled *Display Layers, Elements, and Groups by Scale* for more information.

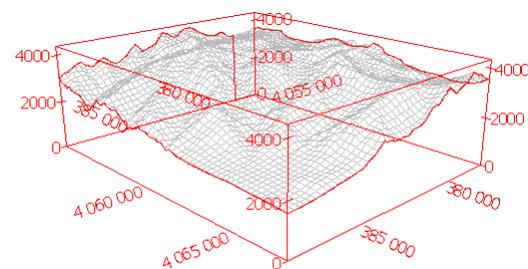
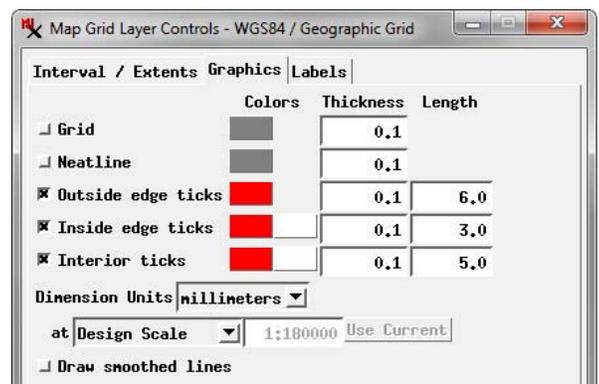
Graphics Panel

Controls on the Graphics tabbed panel of the Map Grid Layer Controls window let you choose the map grid elements to show and set their color and dimensions. The available grid elements are illustrated above right. Each map grid element has a toggle button on the Graphic panel to control its display (see illustration to the right). The Grid toggle controls the grid lines that are drawn across the interior of the group. The Neatline is a line outlining the outer boundary of the grid. You can also choose to show edge ticks (inside and/or outside the neatline) and interior ticks. Interior ticks and inside edge ticks are provided for cases in which you do not want to show full grid lines (which if used will overwrite these tick marks).

Each grid element has a color pushbutton that opens a standard Choose Color window for selecting the element color, and a Thickness field for entering the line thickness. The tick elements also have a Length field. Use the Dimension Units menu below the individual element controls to choose the reference measurement units for thickness and length (millimeters, inches, or points). These dimensions can be set to apply at the Design Scale (for a layout) or at a Specified Scale, which you can enter in the numeric field to the right of the scale menu. You can enter the full map scale fraction (e.g., 1:24000), just the denominator of the map scale fraction, or press the Use Current pushbutton to apply the current display scale. Turn on the *Draw smoothed lines* toggle for smoother rendering of thin grid lines using anti-aliasing and hinting.



Available graphic elements of map grids.



3D perspective view (wireframe mode) of group with map grid with vertical tick marks and elevation scale.

Labels Panel

Use the controls on the Labels tabbed panel to choose the labels to show (grid and/or corner), their orientations, the label styles, and coordinate formats. These controls are described in detail in the TechGuides entitled *Map Grid Label Formats* and *Map Grid Label Placement and Orientation*.

3D Panel

When the map grid's group includes a terrain layer, the Map Grid Layer Controls window has a 3D tabbed panel with controls for setting the grid display in 3D perspective views (see illustrations to the left). Use the Vertical Corners menu to set which vertical edges of the rectangular grid volume are drawn (None, All, Farthest, Farthest Two, or Farthest Three). Use the labeled fields to set the Z Interval, Z Range, and Z Offset for the vertical corners of the grid volume; tick marks and labels are only shown on these corners if you turn on the *Show vertical ticks* and *Show vertical scale* toggle buttons, respectively.

Labels for the map coordinates are rendered in perspective in the map plane at the bottom of the volume. The *Show grid coordinates* and *Show corner coordinates* toggle buttons enable rendering of these map coordinate labels if the corresponding labels have been selected on the Labels panel. The grid borders at the bottom and top of the grid volume are enabled by turning on the *Show neatline below* and *Show neatline above* toggle buttons, respectively.

