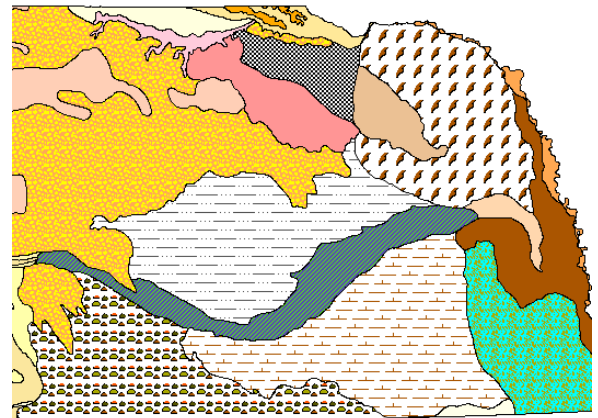


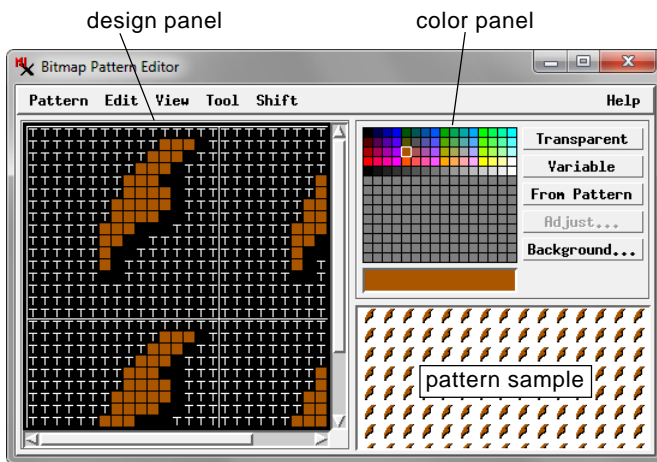
Bitmap Pattern Editor

The Bitmap Pattern Editor is used to create small raster (bitmap) images for use in displaying elements in geometric objects (vector, CAD, and shape). They can be used as point symbols or in repeating patterns as fills for polygons; examples are illustrated to the right. Individual cells in the bitmap pattern can be transparent, assigned a fixed color, or a *variable* color that can be set to a different color in each style that uses the pattern. Bitmap point symbols can be set to different sizes using the point symbol style controls. In contrast, bitmap polygon fills are drawn on screen with one pattern cell for each screen pixel, so the size of the pattern elements on screen is fixed regardless of the map scale of the display. Bitmap polygon fills work better for on-screen viewing than in prints because the small size of print elements in high-resolution printers and the dithering applied during printing reduce the scale of the patterns and the distinctions between different colors in the patterns.



Above, polygons with bitmap fill patterns.
Below, points with bitmap symbols.

The Bitmap Pattern Editor is opened by choosing the Bitmap option in the Fill Style or Point Style controls and then pressing the *Create or Edit Pattern* icon button. The Bitmap Pattern Editor window is divided into several sections (see illustration below). The menus at the top of the window allow you to choose a tool for editing the pattern and also provide options to open and save patterns and to change the view, position, and orientation of the pattern. The left side of the window is a design panel in which you can directly edit the cells in the unit pattern. The right side of the window provides a panel for setting the color for one or more cells in the pattern and a pattern sample area that shows the repeated fill pattern at the same size as it will be rendered in a polygon fill on screen.



Bitmap Pattern Editor

Design Panel

The Bitmap Pattern Editor opens with a new blank pattern. The design panel is a square grid with black background in which each square represents a cell in the bitmap pattern. Initially each cell is transparent, as indicated by a T symbol. Cells with a fixed color assigned are shown as squares in that color, and cells with the variable color assigned are shown by a V symbol (see illustration below).

The default size of a new bitmap pattern is 32 x 32 cells, but you can specify a different size when you manually create a new pattern (see section on the Pattern menu on the next page). The illustrations on this page show patterns that are 16 x 16 cells in size.

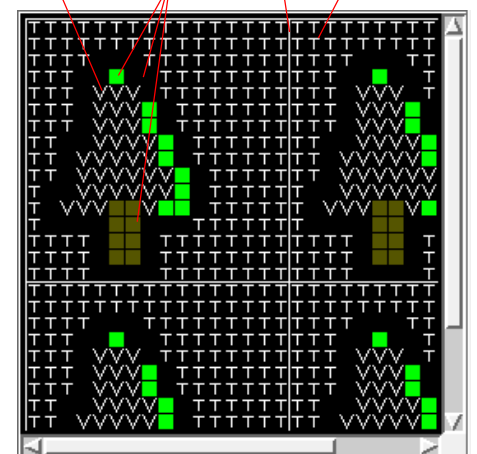
The design panel shows a 2 x 2 repeat of the pattern so that you can see how the pattern units fit together horizontally and vertically when used as a polygon fill. Thin solid white lines indicate the pattern unit boundaries in the panel, which has horizontal and vertical scroll bars so you can scroll to see portions of the repeat that don't fit in the panel.

Colors Panel

Use the controls in the top right portion of the Bitmap Pattern Editor to choose a color to assign to cells in the pattern. Left-click on a color tile in the palette to pick a fixed color. The rectangle below the palette shows the currently-selected color. You can add other colors to the default palette by clicking on one of the unassigned (gray) tiles in the lower portion of the palette, which activates the Adjust pushbutton. Pressing this button opens a standard Select Color window that you can use to select or design a custom color to add to the palette. The custom color can then be selected from the palette in the Bitmap Pattern Editor like any of the standard colors.

(continued)

variable color cell cells with fixed colors pattern unit boundary transparent cell



Design panel for a 16 x 16 pattern

Instead of assigning a fixed color to a pattern cell, you can press the Variable pushbutton next to the palette (the word “Variable” is then shown in the color sample area below the palette). When the bitmap pattern is used in a style, a cell with the “variable” color is assigned the color currently set for the point symbol or polygon fill. The same bitmap pattern can then be used for a number of different styles simply by changing the style color.

You can also quickly select a color that is already in use in the pattern by pressing the From Pattern pushbutton, then left-clicking on the pattern cell containing the desired color, which is then highlighted in the color palette. Press the Transparent pushbutton when you want to make cells in the pattern transparent.

Press the Background pushbutton to open the Select Color window and change the color used as the background for the pattern sample area in the window. The background color is not part of the pattern; this option simply allows you to preview how the transparent portions of the pattern will appear over different colors when used in the View window.

Changing Pattern Cell Colors: the Tool Menu

Once you have chosen a color, you can left-click in the design panel to apply that color to one or more pattern cells. The action taken when you left-click is governed by the current choice on the Tool menu (see illustration below):

Point: only the cell you click on is changed to the current color setting.

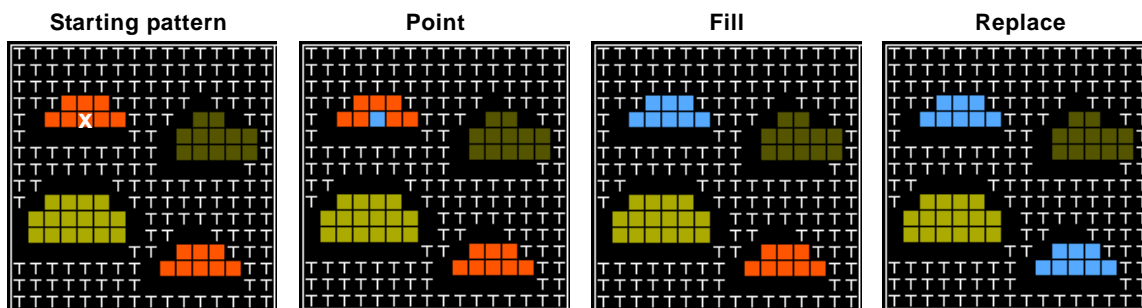
Fill: all contiguous cells with the same color are changed to the current color. Contiguous cells are in contact side-to-side or top-to-bottom; cells in contact only at a corner are not considered to be contiguous.

Replace: all cells with the same color setting as the one you click on are changed to the current color.

Use the Set Hot Spot option with a point symbol bitmap pattern to left-click at the pattern location that should align with the point location. There is no display of the hotspot location in the design panel.

View Menu

You can see the pattern design area at different scales using selections on the View menu. Choose Zoom In and Zoom Out to zoom in or out by steps. The Zoom 1X option returns the design panel to its default zoom level.



Effects of the Point, Fill, and Replace tools when clicking on the cell marked with the white “x” in the starting pattern graphic. The current selected color is blue. The Point mode changes only the cell that is clicked on. The Fill mode changes all contiguous cells with the same color setting as the cell at the click location. The Replace mode changes all cells (anywhere in the pattern) that have the same color setting as the click location.

The Sample Border toggle option on the View menu changes the display of the pattern in the pattern sample area by adding a transparent margin around each sample unit so that the individual pattern units are spaced farther apart (see adjacent illustration). This makes it easier to visualize how the pattern might appear as a point symbol.



Pattern shown in the sample area with sample border off (left) and on (right).

Edit and Shift Menus

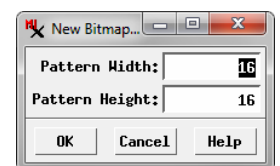
You can reverse all of the cumulative changes you have made to the current pattern by choosing Undo All from the Edit menu. The Replace All option from this menu replaces all cells in the pattern with the current color setting. For example, you can replace the initial transparent setting for all cells in a new pattern with a single fixed “background” color before performing additional edits. The Flip Vertically and Flip Horizontally options produce mirror images of the pattern vertically and horizontally, respectively. The Rotate Right and Rotate Left options rotate the pattern by 90 degrees clockwise and counterclockwise, respectively. The Shift menu provides options to move the pattern by one cell at a time Up, Down, Left, and Right.

Pattern Menu

When you have finished creating a bitmap pattern, choose Save or Save As from the Pattern menu to name the pattern and save it to the current style object. If you make incremental changes to a named pattern, choose Save to overwrite the previously-saved pattern. To create a new pattern, choose New from the Pattern menu. The New Bitmap Pattern window opens (see illustration below). Enter values (in cells) in the Pattern Width and Pattern Height fields to set the size of the pattern.

To open an existing pattern, choose Open from the Pattern menu; the Select Pattern window then opens. Use the Pattern Set menu to choose the current style object or a standard pattern library as the source set, or press the browse icon button to choose a style object from another Project File. Highlight the desired pattern in the list and press OK to complete the selection.

You can export the bitmap pattern using the Export to PNG option from the Pattern menu, or choose Import ICO File to import a pattern.



When you choose New from the Pattern menu, the New Bitmap Pattern window opens to allow you to set the width and height of the pattern (in cells).