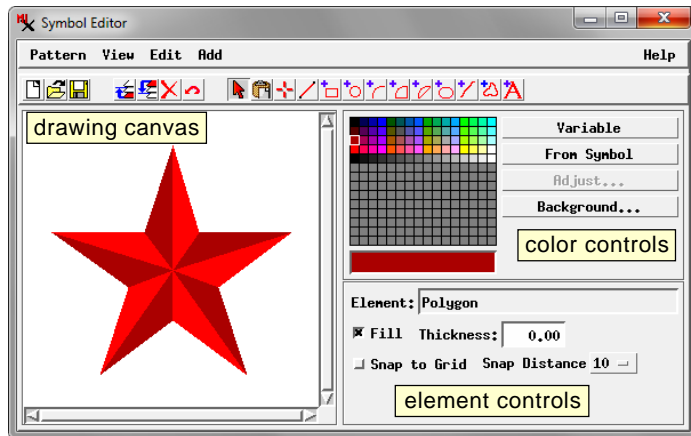


Point Symbol Editor

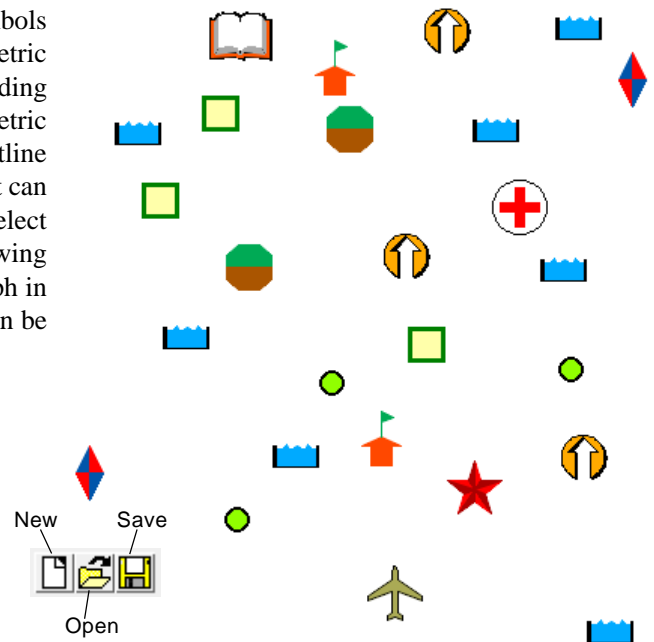
The Symbol Editor is used to create and edit small CAD graphic symbols for use as markers for point and node elements when displaying geometric objects (vector, CAD, shape, and TIN). You can create a symbol by adding one or more graphic elements including lines, polylines, various geometric shapes, and text. Closed-shape elements and text can be drawn in outline only or filled, and can be assigned a fixed color or a *variable* color that can be set to a different color in each style that uses the symbol. You can select any element of a symbol to manually edit it, delete it, change its drawing order, or rescale it. You can create a new symbol from a selected glyph in a TrueType font or paste a glyph into an existing symbol. Symbols can be saved to a style object, saved as text, or saved as a style query.



The Symbol Editor is opened by choosing the Symbol style option in the Point Style controls in the Style Editor window and then pressing the *Create or Edit Symbol* icon button. The Symbol Editor window is divided into several sections (see illustration above). The left side of the main window area is the *drawing canvas* in which you draw or edit elements of the symbol. The right side of the window provides *color controls* for choosing or creating a color for the current element and *element controls* for setting the thickness of lines and borders and whether to fill a closed shape. The menus and icon buttons at the top of the window allow you to open and save symbols, to zoom the drawing canvas, to choose a drawing tool, and to apply editing operations.

New, Open, and Save

The Symbol Editor opens with a blank drawing canvas. If you are creating a new symbol you can begin adding elements immediately. To open an existing symbol for editing press the Open icon button (or choose Pattern / Open). This option opens the Select Symbols window, which you can use to choose a symbol from the current style object or from any of the provided symbol libraries (see the Technical Guide entitled *Creating Styles for Points*). Press the Save icon button to save the symbol to the current style object. If you have created a new symbol from scratch, a Save As window opens for you to provide a name for the symbol. If you are editing a symbol that has already been saved to the style object, the Save button overwrites the previously-saved version. Use the Save As option



from the Pattern menu to save a modified symbol with a new name. After working with one symbol you can press the New icon button to clear the drawing canvas to begin working on a new symbol.

Drawing Canvas

The default background color of the drawing canvas is black. You can change the color by pressing the Background pushbutton in the color controls, which opens a standard color selection window from which you can choose a color from a palette or design a custom color. The drawing canvas uses a local x,y coordinate system with the coordinate origin (0,0) at the center of the canvas. The View menu provides options to change the zoom level of the canvas: Zoom In, Zoom Out, Zoom 1X, and Full (zooms to the full extents of the symbol).

Color Controls

Use the color controls in the right half of the Symbol Editor to choose a color to assign to a new or selected element in the canvas. Left-click on a color tile in the palette to pick a fixed color. The rectangle below the palette shows the currently-selected color. If you open a symbol that includes colors not found in the palette, you can add them by selecting an element that uses the desired color and pressing the From Symbol pushbutton. 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 Symbol Editor window like any of the standard colors.

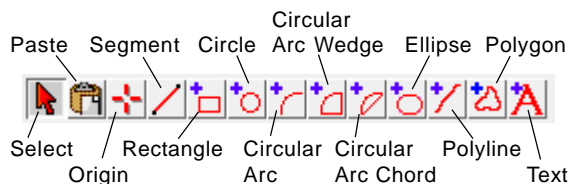
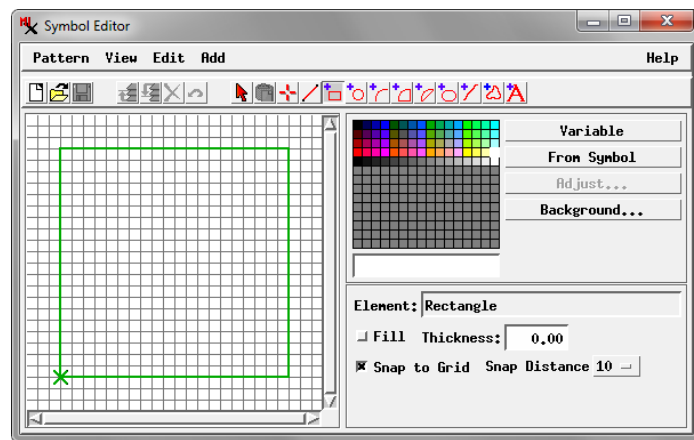
Instead of assigning a fixed color to a symbol element, you can press the Variable pushbutton next to the palette (the word "Vari-
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able” is then shown in the color sample area below the palette). When the symbol is used in a style, any element set to the “variable” color is assigned the color currently set for the point style. The same symbol can then be used for a number of different styles that have different style colors.

Element Controls

The Element text field shows the type of drawing tool (e.g., segment, polygon) that is currently selected (if any). The Fill toggle button applies to closed shapes and sets whether the shape is filled with the selected color or drawn in outline. The Thickness field value sets the relative thickness of a line element or the border of a closed shape element. The default value of 0.00 produces the thinnest available line width when the symbol is rendered in a geospatial view, to a print, or to a raster.

When you turn on the Snap to Grid toggle, a grid of horizontal and vertical guide lines is activated in the drawing canvas (see illustration below). The distance between the grid lines is set by the Snap Distance menu selection. When you draw in the canvas, the components of the element you are drawing are automatically snapped to the grid: the vertices of a line segment, polyline, or polygon, the sides of a rectangle, or the center of a circle, ellipse, or arc element. The snap grid allows you to more precisely set the position, shape, and size of each element in the symbol.



Drawing Tools

You can activate any of the drawing tools by turning on its icon button on the Symbol Editor toolbar (illustrated above) or by selecting the tool from the Add menu. Each tool has a separate Controls window that opens when you activate the tool and closes automatically when you switch tools. You can draw elements in the canvas using the mouse or use the tool’s Controls window to enter precise local coordinates and dimensions. When you have finished drawing the element, check that you have selected the desired color and fill setting, then press the Apply pushbutton on the Controls window or right-click in the drawing canvas to add the element.

After drawing a prospective element, you can reposition it and change its shape before adding it. Left click and drag on a line segment, polyline, or the inside of a closed shape to reposition it. Left-click and drag the edge or perimeter of a closed shape to resize it. Some graphics can be rotated as described below. Left-click away from/outside of the tool graphic to clear it and start over.

Segment: Use the Segment tool to add a 2-point line to the symbol. Left-click in the canvas to place one endpoint and drag to the desired endpoint position. Left-click and drag either endpoint (marked with an “x”) to resize the line. Hold down the Shift key while dragging the segment to rotate it around the farther endpoint.

Rectangle: Draw a box with the Rectangle tool by left-clicking in the canvas and dragging from one box corner to its diagonally opposite corner. Drag any corner or side of the rectangle to resize it. Hold down the Shift key while dragging a corner to rotate the box around the opposite corner.

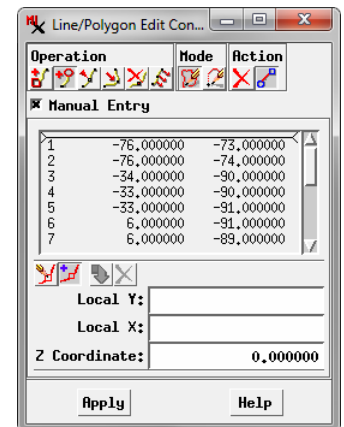
Circle: Left-click to place the center of the circle and drag in any direction to set the radius of the circle.

Circular Arc, Circular Arc Wedge, Circular Arc Chord: Use these tools to draw a circular arc (segment of the perimeter of a circle) or a closed arc wedge or arc chord shape. Left-click to place the center of the circle and drag to set the radius. The arc, wedge, and chord graphics are bounded by two radii which you can drag to set the direction of the element and the angle between the radii. Drag the perimeter of the arc to change the radius size.

Ellipse: Draw an ellipse with vertical and horizontal radii. Left-click to place the center of the ellipse and drag away from it to set its size and shape. The horizontal and vertical components of the direction you drag set the relative lengths of the horizontal and vertical radii of the ellipse. Hold down the Shift key while dragging on the outer end of a radius to rotate the ellipse.

PolyLine and Polygon:

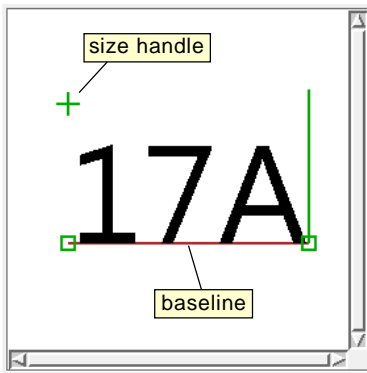
When you select either of these tools, the Line/Polygon Edit Controls window opens. Use these controls to add vertices to the end or start of the polyline or polygon or to insert, reposition, or delete vertices.



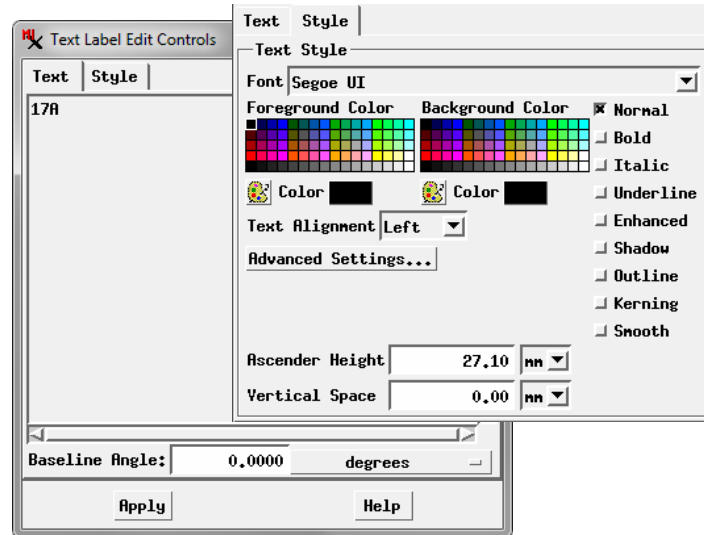
Text:

When you select the Text tool, the Text Label Edit Controls window opens (see illustration on the next page). Enter the text for the symbol in the Text tabbed panel of this window. The text tool graphic then appears in the symbol canvas. Drag the baseline of the text graphic to reposition the text. Drag the size handle of the text graphic (“+” symbol) to change the size of the text, or enter a value in the Ascender Height field on the Style tabbed panel of the Text Label Edit Controls. Drag the

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Use the Text tool to add a text string to the symbol. Enter the text in the Text tabbed panel of the Text Label Edit Controls. Move the text in the canvas by dragging the baseline, and resize it by dragging the size handle. Rotate the label by dragging either endpoint of the baseline.



node on either end of the text baseline to rotate the text; you can also enter an angle value in the Baseline Angle field on the Text tabbed panel.

Outlining Shapes in a Different Color

A filled closed-shape element uses the same assigned color for its outline and its fill. However, it is easy to create a composite symbol with a filled shape that is outlined in a different color. When you add an element to the symbol, the tool graphic remains active in the same location in the drawing canvas. Thus after adding a filled element, you can simply turn off the Fill toggle, change the element color to a contrasting outline color, set an appropriate thickness, and add the new element, which appears to outline the underlying filled shape.

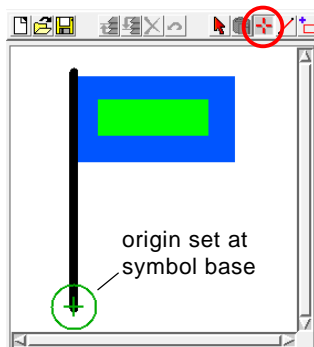


Symbol consisting of two overlaid circles with the same position and size: a filled yellow circle with a black unfilled circle overlying it.

Setting the Symbol Origin

The *symbol origin* determines how the symbol is positioned relative to a point element it represents in the display of a geometric object. It is the symbol location (“hotspot”) that is positioned exactly at the point element coordinates. For new symbols the origin coincides with the center of the drawing canvas (symbol coordinate origin). You can use the Origin tool to indicate a different symbol origin position, such as at the base of a flag symbol as illustrated. (Doing so offsets the “hotspot” from the symbol coordinate origin; it does not change the symbol element coordinates.)

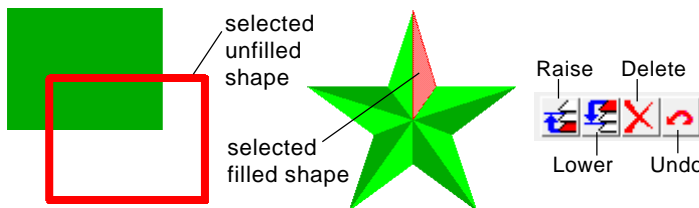
The Origin tool provides a standard point tool graphic that you can drag to reposition the origin. Right-click in the canvas or press the Apply pushbutton in the Point Edit Controls to accept the new position. There is no visible indication of the symbol origin position when the Origin tool is not active.



Element Order and Selecting Elements

Activate the Select tool on the Symbol Editor toolbar to select a symbol element to change its color, its drawing order, or to edit it. Left-click on or close to an element to select it. A se-

lected element is highlighted in red (solid for lines, outlines of unfilled shapes, and text; stippled for fills).



Overlapping elements in a symbol are drawn in order from bottom to top. You can change the drawing order one element at a time by selecting the element and pressing the Raise icon button on the toolbar to raise the element one level in the drawing order, or the Lower icon button to move it down one level. These options are also available from the Edit menu, which also provides the options To Top (moves the element to the top of the drawing order) and To Bottom.

Undo and Undo All

You can cancel the last change you made to the symbol by pressing the Undo icon button or choosing the Undo option from the Edit menu. The text of this menu entry varies to indicate the nature of the last change (e.g., Undo Change Color, Undo Add, or Undo Edit). You can use the Undo action to step back through multiple changes in the symbol.

Select the Undo All option from the Edit menu to remove all changes you have made to the symbol. If you are editing an existing symbol, choosing Undo All restores the symbol to the way it looked when you opened it in the Symbol Editor. If you are creating a new symbol, Undo All removes all elements you have added and returns to a blank drawing canvas.

Editing and Deleting Elements

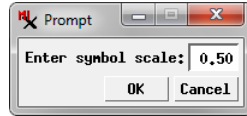
You can edit any element in a symbol by selecting it and choosing the Edit option from the Edit menu. This action activates the tool graphic in the drawing canvas and opens the Edit Controls for the type of element you have selected, allowing you to change its shape and geometry. Press the Apply pushbutton or right-click in the drawing canvas to apply the changes to the element.

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To delete a selected element, press the Delete icon button on the toolbar or choose Edit / Delete.

Scale and Scale All

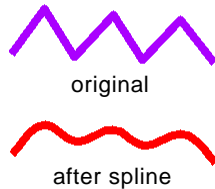
You can use the Scale option on the Edit menu to change the size of the selected element. When you select this option a Prompt window opens with a numeric field to set the desired scale (size) relative to the original element size (scale = 1.0). The default value of 0.5 reduces the linear dimensions of the element to half of the original size. A scale value of 2.0 makes the linear dimensions of the element twice as large as the original size.



The Scale All option is always active on the Edit menu and can be used to change the size of all elements in the symbol, using the same Prompt window as the Scale option.

Spline

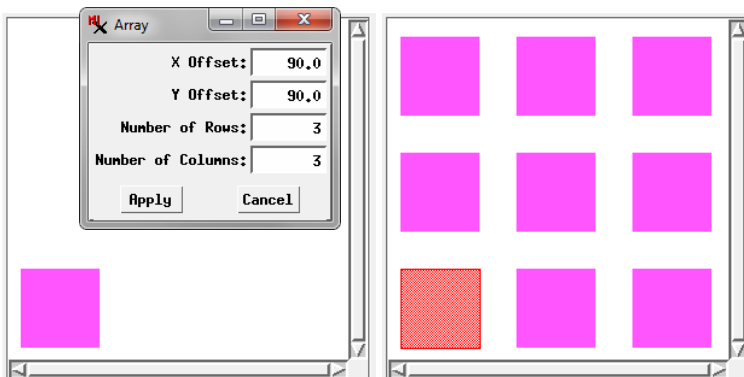
The Spline option is available on the Edit menu when a polyline or polygon element is selected. It creates a smoothly curving line that is a best fit to the original set of vertices, and thus can be used to smooth an initially jagged polyline.



Duplicate and Array

The Duplicate option on the Edit menu creates a duplicate of the selected element. The duplicate appears over the original in the canvas and the corresponding tool Controls window opens, allowing you to reposition or edit the duplicate.

The Array option on the Edit menu allows you to make multiple replicates of the selected element and distribute them in a regular x-y array. When you select this option, the Array controls window opens. This window provides fields for setting the number of rows and columns in the array. The X Offset and Y Offset fields set the distance each replicate is offset from the adjacent position in the array; the default values are the width and height of the selected element, so you should increase these values if you wish to separate the replicated elements. Only positive offset values are applied, so the the base element is replicated to the right and upward in the canvas.



Rectangle element replicated in a 3 x 3 grid using the Array option.

Copy and Paste

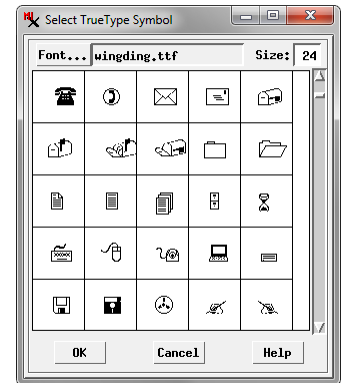
The Edit menu includes a Copy option (copies the selected element to the clipboard) and a Copy All option (copies all

elements to the clipboard. Selecting either option activates the Paste icon button on the toolbar and the Paste option on the Edit menu.

You can paste elements from the clipboard into the same symbol or into a different symbol you open (new or existing). These options allow you to transfer elements from one symbol to another. When you paste, an elastic box initially appears in the canvas and the Box Edit Controls window opens. You can move the box to reposition the element(s) and resize the box to change their size. When you are satisfied with the placement, press the Apply button on the Controls window or right-click in the canvas to complete the paste operation.

Open or Paste TrueType Symbol

You can use characters (glyphs) from any TrueType font to create a symbol or add to a symbol. Use the Open TrueType Symbol option on the Pattern menu to create a new symbol using the TrueType glyph or the Pattern / Paste TrueType Symbol option to paste the glyph into an existing symbol you are editing. When you select either option, the Select TrueType Symbol window opens. Press the Font button on this window to choose any installed TrueType font; the name of the selected font is shown in the adjacent text field. The glyphs in the font are shown in an array of squares in the scrolling list. Left-click on the desired glyph and press OK to select it.



When you use Open TrueType Symbol, the glyph is automatically scaled to fit in the visible portion of drawing canvas. When you paste a TrueType glyph, an elastic box appears in the canvas and the Box Edit Controls window opens, so you can reposition and resize the glyph as you would for any pasted element. In either case the glyph is converted to one or more symbol elements (one for each closed shape) which can be selected in order to assign color and fill, or for editing.



TrueType numeral glyph pasted into a symbol.

Save as Text / Load from Text

You can easily transfer symbols from one style object to another in the form of text descriptions. Use the Pattern / Save as Text option to create a file with the ".sym" file extension and the Pattern / Load from Text option to load the symbol in the Symbol Editor from the text file.

Save as Query

You can convert a symbol to a style script that you can use with the Style: By Script option for displaying points in other geometric objects. To do so, choose *Pattern / Save as text file (*.qry)*. You can open the style script in the Script Editor to changes settings such as drawing color and scale. However, you cannot reopen a style script in the Symbol Editor to convert it to a standard symbol.