Line Simplification filter

Minimum Ratio The Minimum Ratio method is a data dependent line thinning method. The method looks at each line segment in a vector line and determines the shortest line segment, as well as the total length of the line. The values are used in conjunction with the thinness ratio (from zero to 100) you specify to calculate the minimum distance used to filter that line. Define a Thinness Ratio by using the slider to determine which vertices are removed. The minimum distance, in this case, is not a unique value. The value is determined and applied for each line in the vector object. To calculate the minimum distance that is applied to a vector line, the method multiplies the total line length by the defined thinness ratio and divides the result by 100 and adds the length of the shortest line segment. The shortest line segment in a line generally differs for each line. If the length between two vertices is less than that defined by the minimum distance ratio, the vertex nearer the starting vertex of the line is removed.

355.3.2

Sliver Polygons

The Sliver Polygons filter removes polygons that are often not visible without zooming in on the vector object. When vector objects are merged or combined, borders may not always match up correctly. Borders may not meet or they may overlap slightly, creating trapped space inside small polygons, called sliver polygons. Sliver polygons can also be created when a line is unintentionally digitized twice. You can also use the Sliver Polygons filter to remove legitimate polygons of insignificant size. The Sliver Polygons filter removes undesired polygons from two dimensional vector objects. The Z values that exist in three dimensional vector

objects are not considered;   thus, the filter is inappropriate for use with three dimensional vector objects.
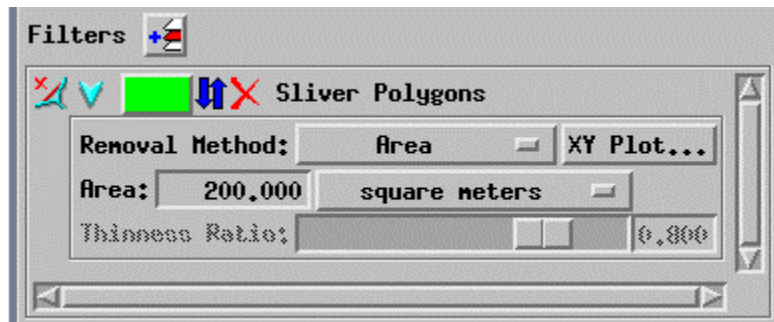
Sliver Polygons options

Click the Removal Method option to display the menu and select a method. There are two methods available, the Area method and the Thinness Ratio method.

Area The Area option lets you define an area in the units of your choice. Select the desired units of measure then enter the area in the text field below the Removal Method option button. Polygons in the vector object with an area equal to or less than the value specified are removed when you apply the filter. The illustration entitled *Sliver polygon removal* shows the results of the Sliver Polygons filter using the Area removal method. The two small sliver polygons highlighted in red (darker), as shown in the Test View window at the left, are removed when the filtering process is run resulting in the single line shown in the View window at the right.
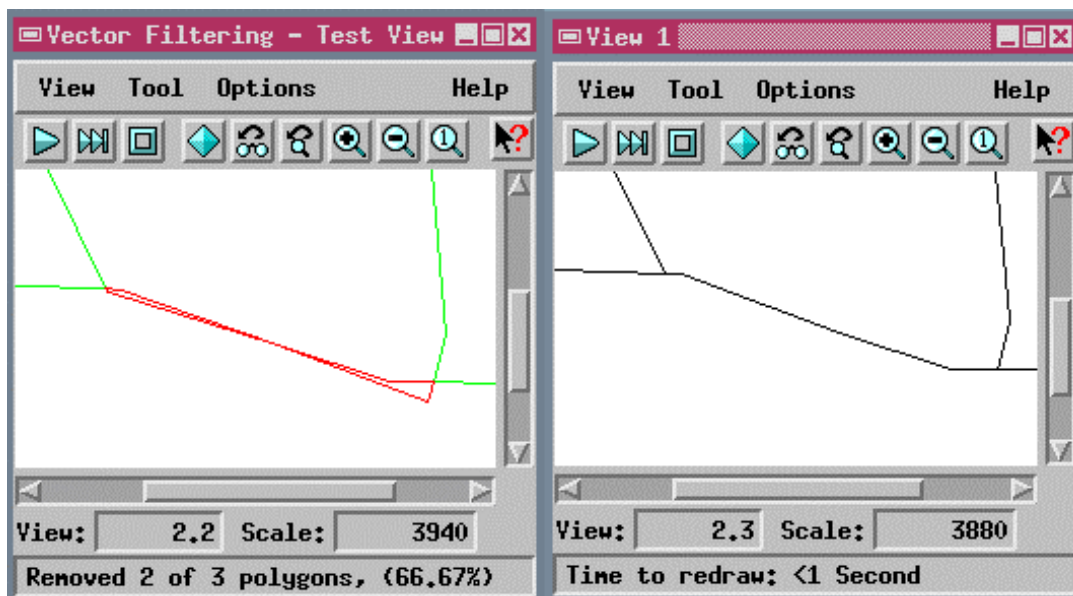
Sliver polygon removal

Thinness Ratio The Thinness Ratio method removes polygons based on the shape of the polygons in a vector object. Use the Thinness Ratio slider or type a ratio in the box to the right of the slider to set the thinness ratio. The ratio can vary from zero to one and is calculated for each polygon by the formula: four Pi times the

area divided by the square of the border length. The resulting value, reflecting the shape of the polygon, is compared to the entered ratio and determines which polygons are removed. Smaller ratios, such as two tenths (0.2) or less, for example, identify thinner or rougher polygons, while higher ratios, such as six tenths (0.6), identify more regularly shaped polygons. Polygons with a Thinness Ratio less than that entered are removed when the filter is applied.

Clicking the XY Plot button opens the XY Plot window that graphically presents the polygon area (x axis) versus the border length (y axis). The XY Plot window is updated to reflect the current vector polygons each time a new vector object is highlighted in the Vector Filters window. Menu options on the XY Plot window include File, View, Tool, Show, Style, and Help. Options on the File, View, and Help menus operate similarly to those of the Vector Filtering - Test View window View and Help menus. Options on the Tool menu are Measure and Zoom Box. Options on the Show menu are used to select which features are graphically displayed on the XY Plot window and include: Labels, Grid, Line, Spline, Centroid, Regression, Hough, and Arrow. The Grid option displays a white grid that can visually enhance the spatial relationship of the XY plot. The Line, Spline, Centroid, Hough, and Arrow options display in the colors in which the options are listed. Style options for points on the XY Plot include: Cross, Rectangle, Triangle, Circle, and Diamond.

355.3.3

Dangling Lines

The Dangling Lines filter removes vector lines with only one end attached to another element, or those that are not attached to other elements. Such lines are occasionally added as "overshoots" when a vector object is created by X-Y digitizing. They could also reflect a mismatch along a seam where vector objects were merged.
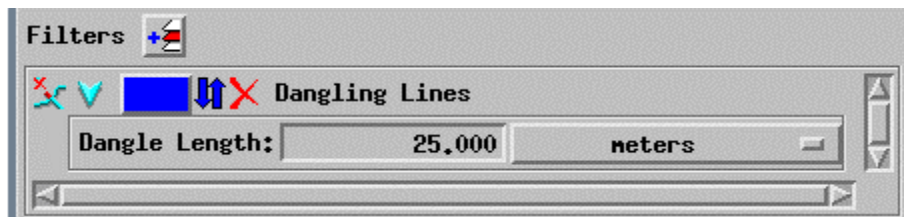
Dangling Lines options

Select the desired unit of measure and then enter the length in the Dangle Length text field. Dangling lines in the selected vector object that have a length less than the specified length are removed. The illustration entitled *Dangling Lines filter* shows the filtered vector object in blue (darker).