

# Extract from Vector

The Extract from Vector process (Geometric / Extract / Vector) extracts elements from one or more input vector objects to create new vector objects. You can select one or more element types to extract, specify a subset of each selected element type, and set the spatial extents of the extraction area and how elements crossing the extraction boundary should be handled. You can also direct the extracted elements from an input vector to multiple output vector objects based on attribute value or by polygon areas in a separation vector object.

## Input Vector Objects

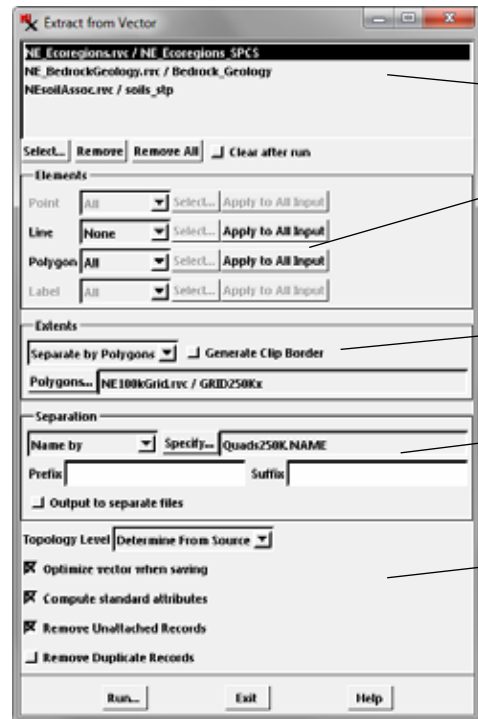
Press the Select button on the Extract from Vector window to open the standard Select Objects window and select one or more input vector objects. You can use this button at any time to add input vectors to the existing list. To remove an object from the list, left-click on the list entry to highlight it and press the Remove button. Press the Remove All button to clear the input list. Turn on the *Clear after run* checkbox to automatically clear the input list after running the process. Leave this checkbox turned off if you wish to do multiple extractions from the same input object(s).

**NOTE:** Different extraction parameters can be set for different input vector objects. The settings shown in the Extract from Vector window are those for the vector object that is currently highlighted in the input list. When you are processing multiple input vectors, be sure to check the settings for each of the inputs. Shortcuts are provided to apply element selection settings and extraction region settings to all input objects (see below).

## Elements

The controls in the Elements box set which element types to extract from an input object and allow designating a subset of elements in a selected type. Point, Line, Polygon, and Label controls are active if the currently highlighted input vector includes the corresponding element type. A menu for each element type lets you specify *None* or *All* and provides additional options (*By Element*, *By Script*, *By Attribute*) for specifying a subset of the elements to extract. Choosing any of the last three options activates the Select button for the associated element type. Pressing the Select button opens a window for specifying the element subset. The Select button for the By Element option opens a standard view window (Select Elements) that provides several ways of marking the elements to extract. You can mark individual elements manually using the Select tool, open the GeoToolbox and use any of the provided graphic tools or a selected region to mark multiple elements, or press the Mark by Query icon button to open the Query Builder to construct a query to mark the desired elements. Pressing Select when using the By Script option opens the Script Editor window which you can also use to compose a selection query.

The By Attribute option is available if the selected element type in the input vector has a database table with a primary key field



Select one or more vector objects from which to extract elements.

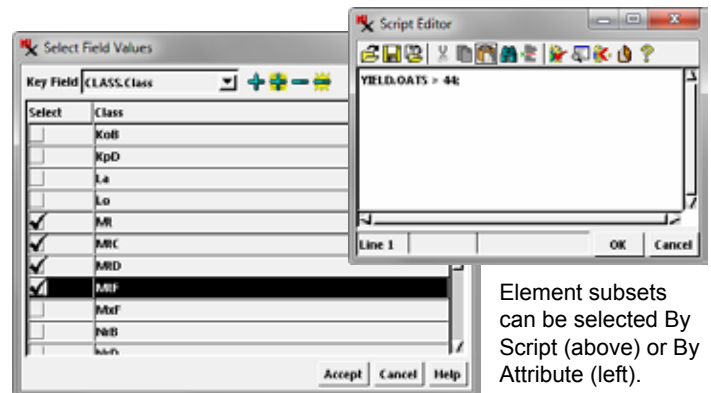
Set element types and element subsets to extract.

Set extents of the extraction area or choose to separate by polygons.

Settings for extracting by polygon or by attribute

Set topology level and options for handling attribute records.

identifying a unique attribute value for each record attached to the elements. The Select button for the By Attribute option opens the Select Field Values window (example illustrated below), which provides a checklist of all of the key field values. Turn on the checkbox for the desired attribute value(s) and press the Accept button to make the selection.



Element subsets can be selected By Script (above) or By Attribute (left).

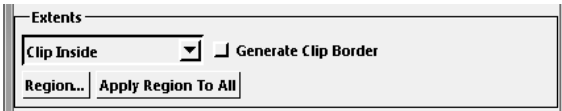
The element selection settings shown in the Extract from Vector window apply to the vector object currently highlighted in the input vector list. You can press the *Apply to All Input* pushbutton under an element type to apply the current selection settings for that type to all input vector objects. When using the By Attribute and By Script options, make sure that all of the inputs have consistent attribute sets before using the Apply to All Input option.

## Extents

The controls in the Extents box set the spatial extents of the extraction area and how elements crossing the extraction boundary

(continued)

are handled. The default selection (Full) on the Extents menu uses the full extents of the input vector object. A number of additional menu options (shown in the table below) specify how elements are processed using an extraction area; these selections trigger the appearance of a Region pushbutton below the Extents menu (see illustration below). Press the Region pushbutton to open the Define Region window to specify the extraction area using drawing tools or by selecting a region object (see the Technical Guide entitled *Geometric Extract: Define Region for Extraction* for details).



Extents Options using an Extraction Region	
Partially Inside	All elements that are completely or partially inside the extraction area are copied in their entirety.
Completely Inside	Only elements that are completely inside the extraction area are copied.
Clip Inside	Elements inside the extraction area are copied and those that cross the boundary of the extraction area are clipped at the boundary. Polygon elements are closed where clipped.
Partially Outside	All elements that are completely or partially outside the extraction area are copied in their entirety.
Completely Outside	Only elements that are completely outside the extraction area are copied.
Clip Outside	Elements outside the extraction area are copied and those that cross the boundary of the extraction area are clipped at the boundary. Polygon elements are closed where clipped.

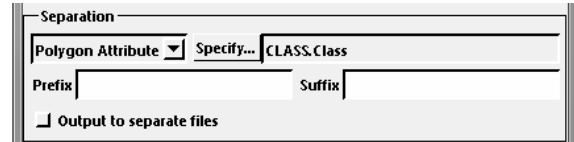
By default the designated region selection applies only to the vector object currently highlighted in the input list. You can press the *Apply Region to All* pushbutton to associate the current extraction region with all input objects.

An additional option on the Extents menu, *Separate by Polygons*, prompts you to choose an additional vector object with polygon elements to specify multiple extraction areas, one for each polygon in the separation vector. The output objects are named automatically from the value in an associated polygon attribute field that you designate; the field you specify is shown in a text field the Separation box. See the TechGuide entitled *Geometric Extract: Separate Vector Objects by Polygons* for more information.

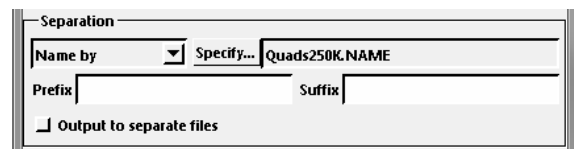
For all choices on the Extents menu other than Full, the *Generate Clip Border* checkbox is active. Turning this checkbox on generates a border (made up of one or more line elements) along the extraction area boundary in the output vector object(s). Note that a clip border is not required to close clipped polygon elements, which are automatically closed at the extraction boundary.

## Separation

Controls in the Separation panel can be used to choose an element type and associated attribute field to use to create a separate output vector object for each value of the selected attribute field. All elements with the same separation attribute value are extracted to the same output vector object. When you choose Point Attribute, Line Attribute, or Polygon Attribute from the Separation menu (see illustration below), you are automatically prompted to choose a table and field containing the separation attribute values. The field to the right of the menu then shows the selected table and field. For more information, see the TechGuide entitled *Geometric Extract: Separation of Vectors by Attribute*.



When you choose *Separate by Polygons* in the Extents panel, the Separation menu is set automatically to *Name by*, and the field to the right shows the attribute table and field you selected to supply the name for each separate output vector object.



The *Output to separate files* checkbox is available when you separate the output vectors by polygon or by attribute. When this checkbox is turned off, the separate vectors for each input are written to the single Project File you select and are named using the designated separation (or polygon) attribute and the optional text set in the Prefix and Suffix text fields. When this checkbox is turned on, you are prompted to choose a destination folder, and each output vector object is written to its own Project File that is named in the same fashion.

## Topology and Attribute Settings

The bottom panel of the Extract from Vector window provides miscellaneous additional settings controls. The default selection on the Topology Level menu, *Determine from Source*, sets the topology level for each output vector object to be the same as that of its input object. You can set a specific topology level for the output vector object(s) by choosing Polygonal, Planar, or Network from the menu.

The spatial optimization created by turning on the *Optimize vector when saving* checkbox orders vector elements so that sequentially-numbered elements are close to each other, which speeds zoomed-in displays of large vector objects. The remaining checkboxes provide options to *Compute standard attributes* for each selected element type, to *Remove Unattached Records* resulting from extraction of element subsets, and to *Remove Duplicate Records*.

