Interactive Query Builder

Point, line, or polygon elements in a geometric layer can be marked (selected) in a TNT display manually or by applying a query that evaluates the element attributes stored in associated database tables. The Mark by Query window is an intuitive interface for designing and applying a query. The window provides interactive controls that let you build the query step by step and automatically generate the proper query syntax.

The Mark by Query window can be opened from the View toolbar using the Mark by Query icon button, from the right mouse-button menu for the object's listing in the Display Manager or View sidebar legend, or from the right mouse-button menu for an element type in the Display Manager (see box below).
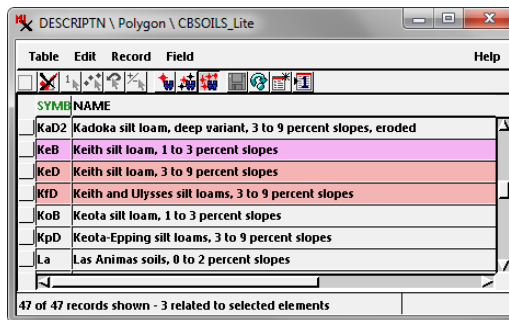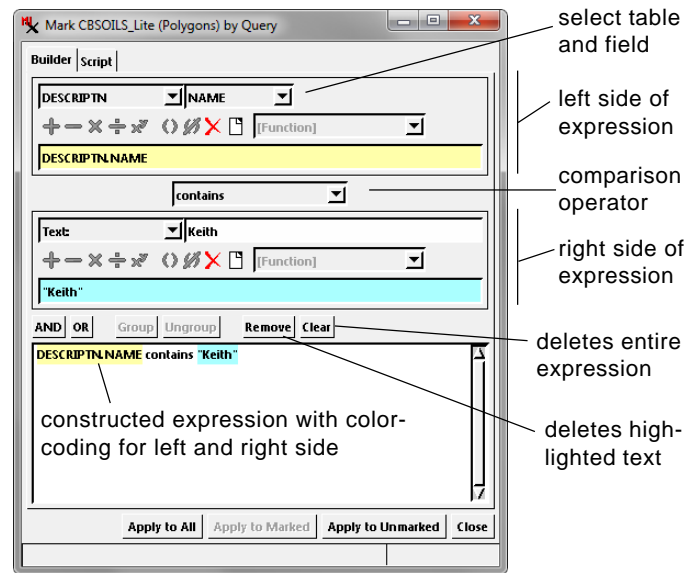
Builder Panel

The Builder tabbed panel in the Mark by Query window provides the interactive controls for constructing a query. You start by choosing a database table and a field from the menus at the top of the panel to provide a 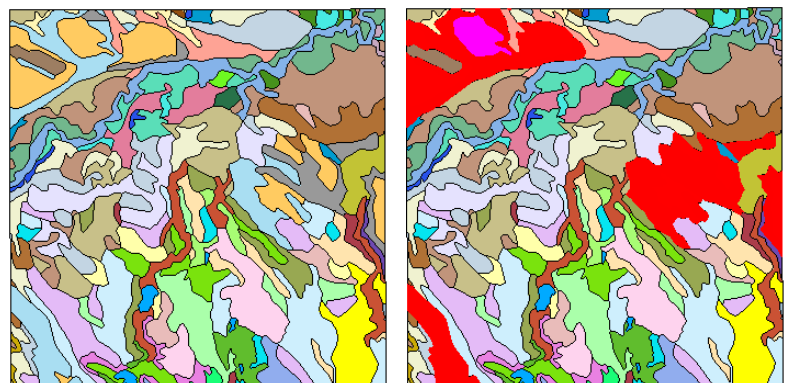value for the left side of the expression. The resulting TABLE.FIELD expression is shown in the field with a yellow background. The selected table is automatically opened so that you can view its contents.

Use the comparison operator menu (see illustration above right) to choose an operator for the query expression. All standard operators, such as *is greater than or equal to*, *contains*, and *does not contain*, are provided.

Use the controls in the box below the operator menu to construct the right side of the expression. The menu at the top left of the box provides a number of ini-

select table and field

left side of expression

comparison operator

right side of expression

deletes entire expression

deletes high-lighted text

constructed expression with color-coding for left and right side

The single-expression query constructed above selects soil polygons of three variants of the Keith silt loam soil type. The table selected for the left side of the expression is automatically opened (left); the records matching the query are highlighted in the table. The marked polygons are shown by default in red, and the active polygon in magenta (as illustrated below).

tial choices. The default selection of *Value:* enables a menu to the right from which you can choose any of the values in the field database field used in the left side of the expression. The selections *Number:* (for a numeric field) and *Text:* (for a text field) enable a field to the right in which you can enter a numeric or text value (respectively). For numeric fields you can also choose *Constant:*, which provides a menu to the right from which you can choose predefined constants such as pi, e, True, and False. If there are additional database tables associated with the element you are querying, the menu also allows you to choose any of these tables and then select a field in that table to provide the value. The result is shown in the field with the cyan background.

(continued)

To Open the Mark by Query Window:

1. Press the Mark by Query icon button on the View toolbar to mark elements in the active geometric layer.

— or —

2. Select from the right mouse-button menu for the geometric object listing in the Display Manager or View sidebar legend.

If more than one element type has attribute tables, you are prompted to choose the element type you wish to mark.

— or —

3. Select from the right mouse-button menu for the element listing in the Display Manager.

The full query expression is shown in the pane in the lower part of the window. The pushbuttons at the bottom of the window let you apply the query to all elements, only to unmarked elements, or only to currently-marked elements; the latter option lets you apply queries sequentially to progressively narrow a selection.

Numeric Computations

When your query uses numeric fields, you can perform computations using field values and other numeric values

Add Multiply Raise to Power Ungroup Clear
Subtract Divide Group Remove

within the left side and/or right side of the query expression. Icon buttons for each side of the expression let you insert standard numeric operators (add, subtract, multiply, divide, and raise to power; see illustration above). The last component added to the expression is highlighted in a slightly darker color. The Remove icon button deletes the element currently highlighted. The Clear icon button clears the expression for that side of the query.
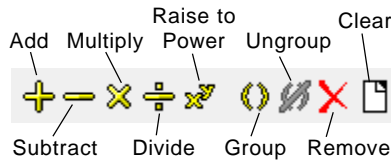
You can enclose components in parentheses by shift-clicking to highlight all of the required components and then pressing the Group icon button. Construction of an expression in the left side of a query to compute the average potential yield for two different crop types is illustrated below.

Compound Queries

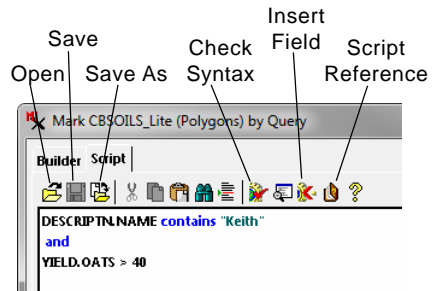You can also use the Builder controls to construct compound queries that involve multiple query criteria using two or more query expressions. After entering the first complete selection expression, press the AND or OR pushbutton above the expression pane to insert the desired conditional operator. This action also clears the controls above so that you can enter the next expression for the compound query.

Each complete comparison expression and each conditional operator is shown on a separate line in the expression pane. You can left-click on any line to highlight it. The Remove pushbutton deletes the highlighted lines, and the Clear pushbutton clears the entire query. You can group a series of expressions (enclose them in parentheses) by shift-clicking to highlight all of the desired lines, then pressing the Group pushbutton.
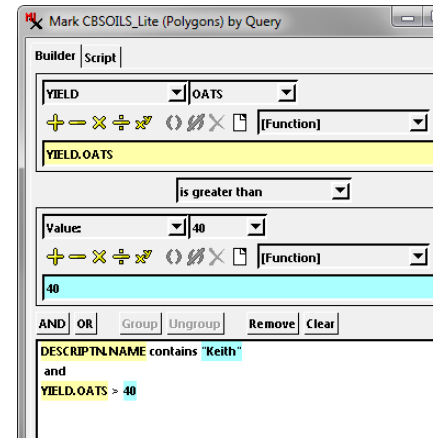
Script Panel

The Script tabbed panel shows the query with syntax highlighting and includes the standard script/query editor controls. On this panel you can manually edit the query, check the query syntax, save it to a query file or query object, or open a previously-saved query.

To construct the computation (YIELD.WHEAT + YIELD.OATS) / 2:

select YIELD.WHEAT

press the Add icon button

choose OATS as the field

shift-click on YIELD.WHEAT to select both field entries

press the Group icon button to enclose in parentheses

press the Divide icon button

choose Number:

enter 2

Insert Field
Save Check Script
Open Save As Syntax Reference

Available in Any View

All TNT processes with a View provide access to the Mark by Query window for use in marking elements. For example, you can mark elements by query for processing in the Extract from Vector, Vector to Raster Conversion, Buffer Zone Generation, and Geometric Element Statistics by Polygon processes, among others.