

The CEDRA Corporation's COMMAND OF THE MONTH

A monthly information bulletin

May 2011

FEATURED COMMAND

Splitting Multiple
Polygon Features



Application Description

Recently we were asked if it was possible to split multiple polygon features using polygon features in another layer as the splitting feature.

Specifically, the application involved determining the amount of certain land uses in specific water sheds. In this particular case there was a polygon layer containing the various land use designations and another polygon layer denoting the various water sheds.

When the application was described to us we thought that our [Split Polygon] tool could be used. However, when we were informed that there were more than 10,000 polygons that needed to be processed it was immediately clear that the [Split Polygon] tool was not a viable solution (an understatement to say the least).

After reviewing the requirements we determined that within a few days we could create a new command that would address this application.

The CEDRA Solution

To address the application described above, the [Split Polygons] command within the {CEDRA-Polygon-Tools} toolbar, shown in Figure 1, was created. This command enables the user to split multiple polygon features using polyline or polygon features in another layer in a single operation.

In addition to splitting the polygon features, the attribute values of the poly-

gon being split are transferred to the resultant polygons. In so doing, the user is able to post-process or analyze the resultant polygons.

Split Polygons Overview

The [Split Polygons] command can operate on a selected set of polygon features or on all of the features in a user-specified layer.

Upon selection of the command, a check is made for the presence of any layers and any polygon layers. If either of these checks fail, an appropriate error message is displayed.

Command Of The Month bulletin

This month's issue discusses how to split multiple polygon features using polyline or polygon features in another layer.

If the checks pass, a multi-input dialog box is displayed prompting the user for:

- the name of the polygon layer to be split,
- the name of the polyline or polygon layer containing the splitting features,
- whether all of the polygon features in the layer to be split or only the selected polygon features are to be processed,
- whether the polygon being split is to be deleted or not and
- the maximum number of passes to be made.

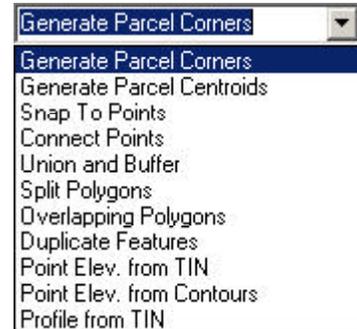


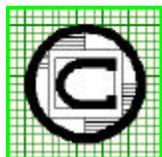
Figure 1
CEDRA-Polygon-Tools Toolbar

The first four parameters are a series of drop-down choice lists and are self-explanatory. The last parameter, however, needs a little clarification.

The splitting process involves a number of passes. The first pass involves a split using the first splitting feature found. Note, it is possible for the polygon being split to have multiple splitting features. However, the first pass only uses the first splitting feature it encounters.

Following the first pass, the command begins a loop of splitting the resultant polygons, which were created during the previous pass, using all of the splitting features. The looping continues until there are no resultant polygons created.

By specifying a maximum number of passes the user is able to control how many loops the command should make. So that, if the user wanted to see the results after a single pass, the maximum number of passes should be set to 1.



The CEDRA Corporation

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Split Polygons Operation

To use this menu command, the user should:

- **1** Scroll down in the {CEDRA-Polygon-Tools} menu combo box, and select the [Split Polygons] menu command (see Figure 1) to display the multi-input dialog box shown in Figure 2.
- **2** Scroll down in the *Polygon Layer to be Split*: data field, and select the polygon layer to be processed.
- **3** Scroll down in the *Layer containing Split Lines*: data field, and select the polyline or polygon layer containing the splitting features.
- **4** Scroll down in the *Mode of Operation*: data field, and select the desired mode of operation. That is, should all polygon features or only the selected polygon features in the Polygon Layer to be Split be processed.
- **5** Scroll down in the *Delete Polygon that Split*: data field, and select Yes or No to indicate if the polygon feature being split is to be deleted after the split operation is complete.
- **6** Enter in the *Maximum Number of Passes*: data field, the maximum number of loops to be made by the command in splitting polygons.
- **7** Click at either the **OK** button, or at the **Cancel** button to abort the command.

If the OK button is selected, the command begins the splitting process displaying in the status bar area a progress bar indicating the number of the pass and its percent of completion. The resultant polygons are stored in the same layer as the polygon that was split.

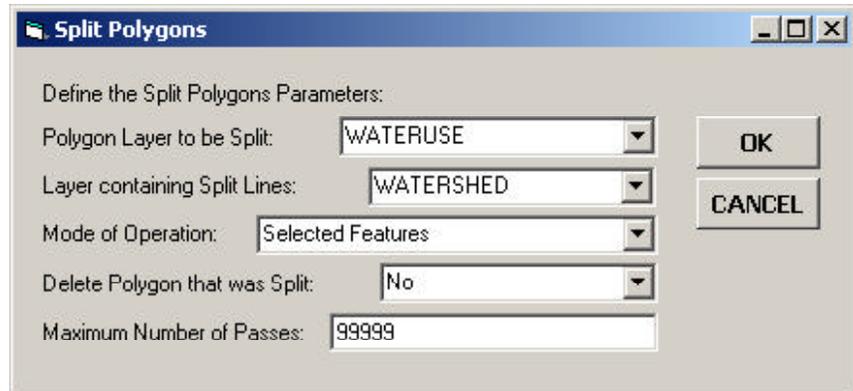


Figure 2 - [Split Polygons] Multi-Input Dialog Box

Should the user get unexpected results, the {Edit }[Undo Split Features] command can be selected.

Shown in Figure 3 is a sample where two polygon features, in this case multipart polygons, are to be split using three polylines as the splitting features. All three split lines meet at a common point.

Figure 4 illustrates the resultant polygons that are created using the [Split Polygons] command. In the figure, each of the resultant polygons are shown in a different color to better indicate the polygon that is created. Depending upon the classification applied to the Polygon Layer to be Split, this may or may not be the case.

Summary

As far as we are aware there is no out-of-the-box ArcMap command that accomplishes the same task as the [Split Polygons] command. In this particular situation, it is quite apparent that a command with this type of functionality was required since a manual approach was totally out of the question.

The implementation of the [Split Polygons] menu command is a recent enhancement and a direct result of a request from a CEDRA software user. As a matter of fact, it was seven calendar days from the day that the request was made to the day that the command was ready for use.

Users with a software support agreement should check with The CEDRA Corporation on how to obtain a software update so as to be able to utilize this new functionality.

As always, users who have a need for functionality that is not presently available in CEDRA software should feel free to forward these requests to CEDRA, as well as, any other comments or suggestion you may have.

If you have a request for Command Of The Month, feel free to phone, fax or e-mail your request to The CEDRA Corporation.

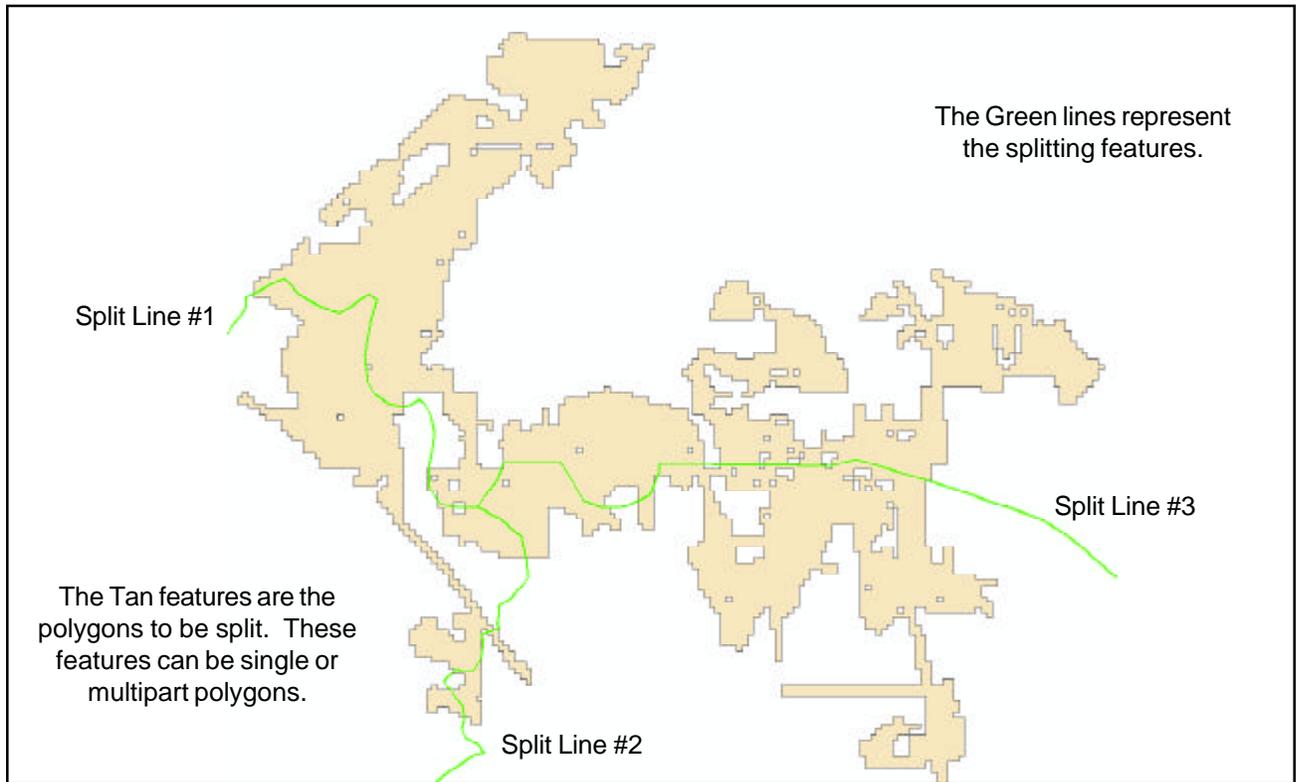


Figure 3 - Two Multi-Part Polygon Features to be Split

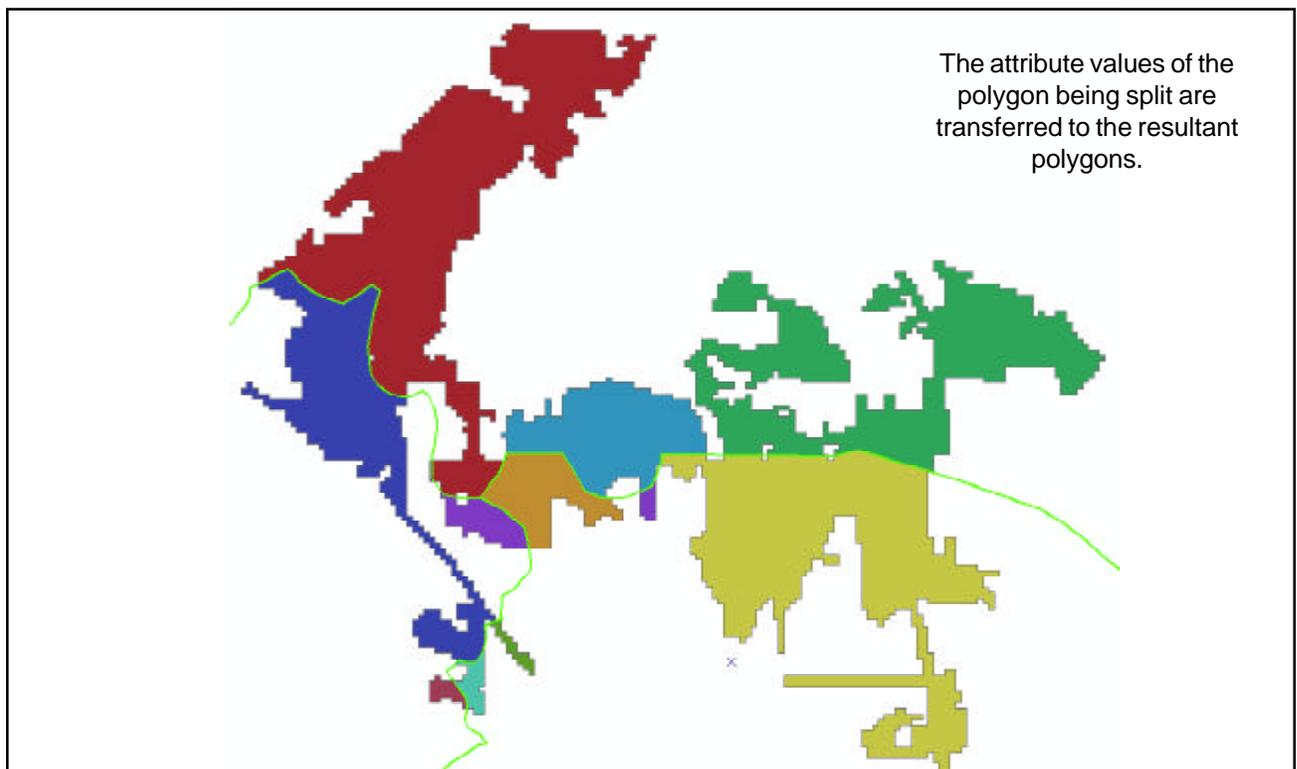


Figure 4 - Resultant Polygons Created using the [Split Polygons] Command