

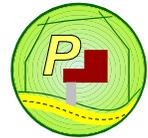
The CEDRA Corporation's COMMAND OF THE MONTH

A monthly information bulletin

August 2006

FEATURED COMMAND

Parcel Splitting



Application Description

When it comes to maintaining parcels one of the most common operations in this type of application is the task of splitting a parcel. Although simple sounding, there are a few caveats which can make the task a little more complicated than it seems. For example:

- Does the split line have to touch or cross the parcel sides.
- Can the split line contain curves.
- Can the split line be comprised of multiple line and curve features.

These are just a few of the issues which one can encounter from trying to split a parcel. Depending upon the specific circumstances, others may arise.

The CEDRA Solution

To address the application described above, the [PARCEL SPLIT] command, , can be employed. This tool may be displayed as indicated below depending upon the GIS system in use:

- (a) ArcGIS® users should activate the CEDRA-AVparcel-Tools toolbar to display the CEDRA-AVparcel-Tools toolbar shown in Figure 1.
- (b) ArcView® GIS users should select the {AVparcel Tools} [Tools on Toolbar (Hide/Show)] command, the result of which is shown in Figure 2.

Note that, regardless of the environment the user is working in, ArcGIS® or



Figure 1
CEDRA-AVparcel-Tools Toolbar for ArcGIS Users



Figure 2
CEDRA-AVparcel Tools on Toolbar (Hide/Show) for ArcView GIS Users

ArcView® GIS, the operation of the [PARCEL SPLIT] command is the same.

Split a Parcel Tool - Overview

As one would surmise, the function of this tool is to split a polygon into two or more polygons using a line as the means of division. In using this tool, the command differentiates between an ArcView/ArcGIS polygon feature and a CEDRA-AVparcel Parcel. A CEDRA-AVparcel Parcel carries with it certain topological information, while an ArcView/ArcGIS polygon does not.

Command Of The Month bulletin

This month's issue discusses the process of splitting parcels or polygon features.

For the purpose of this discussion, the splitting of an ArcView/ArcGIS polygon is referred to as Polygon Splitting, while splitting a CEDRA-AVparcel Parcel is referred to as Parcel Splitting. In addition, we will refer to an ArcView/ArcGIS polygon simply as a polygon,

while a CEDRA-AVparcel Parcel will be referred to as a parcel.

The [PARCEL SPLIT] command can be used to process both polygons and parcels.

Split a Parcel Tool - Operation

Once the tool has been activated, the following steps can be performed:

Polygon Splitting

1. Make a pick in the map area to identify the polygon to be processed. Only one polygon can be split at a time. Once the pick has been made and a feature found, a confirmation message box similar to the one shown in Figure 3 will be presented.

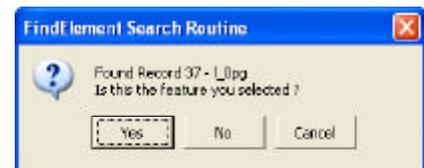
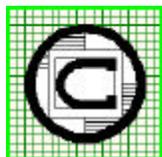


Figure 3
Polygon Confirmation Query Box



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2. Click at the:
 - *Cancel* button to terminate the command. At which point, the user can select another polygon or another command.
 - *No* button to denote that the feature, which was found, is not the desired feature and that the command should try to find another feature based upon the pick, which was made. If no element can be found, the program beeps, and the user is able to make another pick. If another element can be found, the confirmation box of Figure 3 reappears and the process is repeated.
 - *Yes* button to confirm the selection of the polygon.
3. Select the line or group of lines to act as the split line.

In establishing the split line, the user may pick a single line or define a rectangle that captures some portion of a group of lines. Only visible themes will be processed in establishing the split line. When multiple lines are selected, the command will merge the group of lines into a temporary single line. The line(s) that comprise the split line may be two-point lines or polylines. The split line must either cross or touch the polygon on at least two boundary sides. If a pick is made such that no element can be found, the program issues a beep and the user is prompted, in the status bar area, to define the split line as shown below.

Select line(s) to split parcel.

If at least one element is found, the confirmation message box of Figure 4 is displayed.



Figure 4
Split Line Confirmation Query Box

4. Click at the:
 - *Cancel* button to terminate the command.
 - *No* button to select another split line.
 - *Yes* button to confirm the selection of the split line.

If the split line *does not* cross or touch the polygon on at least two boundary sides, the warning message box of Figure 5 is displayed.



Figure 5
Split a Parcel Tool Error Message

Note that this message box notifies the user that new polygons were not created. In this case, make sure that the split line touches or crosses the polygon on at least two sides of the polygon.

- 5a. Click at the *OK* button to acknowledge, and abort the command.

If the split line *does* cross or touch the polygon on at least two boundary sides, the query message box of Figure 6 is displayed informing the user that new polygons have been created, and asking whether the original polygon should be deleted, or not.



Figure 6
Delete Original Polygon Query

- 5b. Click at the *Yes* button, or at the *No* button as it may be desired.

The command remains active for processing another polygon if desired.

Parcel Splitting

If a parcel is to be split, the user has the option of either pre-selecting or not the desired feature. If the parcel is to be pre-selected, native ArcGIS® or ArcView® GIS functionality can be used to select the desired parcel prior to activating this command. As such there are two conditions, within this case, which this command can function under:

A parcel is not selected prior to activating this command:

- 1a. The user makes a pick in the map area to identify the parcel to be processed. Once the pick has been made and a feature found, a confirmation message box similar to the one shown in Figure 7 will be presented.

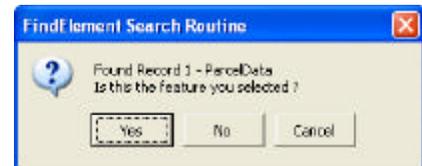


Figure 7
Parcel Confirmation Query Box

- 2a. Click at the:
 - *Cancel* button to terminate the command. At which point, the user can select another parcel or another command.
 - *No* button to denote that the feature, which was found, is not the desired feature and that the command should try to find another feature based upon the pick, which was made. If no element can be found, the program beeps, and the user is able to make another pick. If another element can be found, the confirmation box of Figure 7 reappears and the process is repeated.
 - *Yes* button to confirm the selection of the parcel.

At this point, the user should proceed to Step 5.

A parcel is selected prior to activating this command:



Figure 8
Parcel Selection Choice Box

1b. Select from the choice message box the option of how the user wishes to identify the parcel to be split, see Figure 8.

2b. Click at the *OK* button to confirm the option selection, or at the *Cancel* button to abort the command.

As can be seen, the user can select to process the selected parcel by selecting the Table Selection option, or the user can ignore the selected parcel and select another parcel by choosing the Graphical Selection option. As such:

Table Selection Option

Under this mode of parcel identification, the command will use the selected parcel and the user can proceed to Step 5 for confirmation of the selected parcel.

Note, if this option is selected and more than one parcel is selected, an appropriate warning message will be displayed, see Figure 9. Only one parcel can be split at a time.



Figure 9
Split a Parcel Tool Error Message

Graphical Selection Option

Under this mode of parcel identification the user graphically selects the specific parcel to be split. As such, the selected parcel is ignored and the user should:

3b. Make a pick in the map area to identify the parcel to be processed. Once the pick has been made and a feature found, a confirmation message box similar to the one shown in Figure 7 will be presented.

- 4b. Click at the:
- *Cancel* button to terminate the command. At which point, the user can select another parcel or another command.
 - *No* button to denote that the feature, which was found, is not the desired feature and that the command should try to find another feature based upon the pick, which was made. If no element can be found, the program beeps, and the user is able to make another pick. If another element can be found, the confirmation box of Figure 7 reappears and the process is repeated.
 - *Yes* button to confirm the selection of the parcel.

A query message box similar to that of Figure 10, identifying the parcel by its Print-Key value, is displayed for further verification.

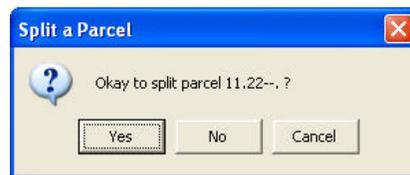


Figure 10
Parcel Confirmation Query Box

5. Click at the *Yes* button to confirm, or click at the *No* or *Cancel* button to abort the command.
6. Select the line or group of lines to act as the split line.

In establishing the split line, the user may pick a single line or define a rectangle that captures some portion of a group of lines. Only visible themes will be processed in establishing the split line. When multiple lines are selected, the command will merge the group of lines into a

temporary single line. The line(s) that comprise the split line may be two-point lines or polylines. The split line must either cross or touch the parcel on at least two boundary sides. If a pick is made such that no element can be found, the program issues a beep and the user is prompted, in the status bar area, to define the split line as shown below.

Select line(s) to split parcel.

If at least one element is found, the confirmation message box of Figure 4 is displayed.

7. Click at the:
- *Cancel* button to terminate the command.
 - *No* button to select another split line.
 - *Yes* button to confirm the selection of the split line.

If the split line *does not* cross or touch the parcel on at least two boundary sides, the warning message box of Figure 11 is displayed.



Figure 11
Split a Parcel Tool Error Message

Note that this message box notifies the user that new parcels were not created. In this case, make sure that the split line touches or crosses the parcel on at least two sides of the parcel.

- 8a. Click at the *OK* button to acknowledge, and abort the command.

If the split line *does* cross or touch the parcel on at least two boundary sides, the program highlights the first of the new parcels and displays the multi-input message box of Figure 12.

Using this dialog box, see Figure 12, the user is able to assign the PIN's of the newly created parcels. The default PIN displayed in the dialog box is the PIN of the parcel being split. Note that the format of the dialog box will vary depending upon the PIN format in use.

Figure 12
New Parcel PIN Dialog Box

- 8b. Enter in the respective data fields the new parcel's PIN.
- 9b. Click at the *OK* button to confirm, or click at the *Cancel* button to abort the command.

The program highlights the next new parcel and repeats the display of Figure 12. This process is repeated for all new parcels that were created.

- 10b. Repeat Steps 8b and 9b for the new parcels.

Having assigned the new PINs, the program displays the query message box of Figure 13 informing the user that new parcels have been created, and asking whether the original parcel should be deleted, or not.

Figure 13
Delete Original Parcel Query

One reason for not deleting the original parcel is in the case of a condominium, in which case, the original parcel could

represent the land parcel of common ownership, and the new parcels could represent the individual ownership of the units.

- 11b. Click at the *Yes* button, or at the *No* button as it may be desired.

The command remains active for processing another parcel if desired.

Splitting Multi-Part Polygons

The [PARCEL SPLIT] command, , can be used to split a multipart polygon, as well as, to extract or remove a polygon part from a multipart polygon.

A multipart polygon is a polygon that is comprised of more than one individual polygon. For example, the state of Hawaii is a multipart polygon. Each of the islands that comprise the state represents a unique polygon. However, all of the islands together form the state. As such, clicking on one of the islands results in all of the islands being selected. Furthermore, a multipart polygon represents a single record in a theme even though many individual polygons comprise the overall shape.

If the user has a multipart polygon and wishes to extract one of the parts in its entirety, be it a polygon or a parcel, the user when asked to identify the split line, as in Step 3 or 6, can simply select a line that *does not* intersect any of the polygon's parts or any one or group of the parcel's sides, respectively. When the command performs a split it checks if any new valid polygons have been created.

In the case when no new valid polygons are created, the command checks if a multipart polygon is being split. If one is and no new valid polygons are created, the command will cycle through the various parts, one at a time highlighting the part in the current selection color, prompting the user if this is the part that is to be removed (split) from the multipart polygon. Figure 14 illustrates the form of the query.

Figure 14
Polygon Part Extraction Query

If the *Cancel* button is selected, the command aborts informing the user that no new polygons or parcels have been created.

If the *No* button is selected, the next part in the polygon is highlighted. This continues until all parts have been highlighted or until a part has been identified. If all parts are highlighted without any part being identified as the part to be split, the command aborts informing the user that no new polygons or parcels have been created.

If the *Yes* button is selected, the command will create two polygons, one representing the identified part and the other, all of the other parts.

In processing a polygon, the new polygons are stored in the same layer as the polygon initially selected. For parcels, the command will create new parcels and prompt the user for new PINs, as described in Steps 8b through 11b.

Note

Attributes of the polygon or parcel being split are assigned to the new features which are created by this command.

Summary

The [PARCEL SPLIT] command provides a straightforward approach to splitting a polygon or a parcel. Readers should feel free to forward any comments they may have regarding the use or operation of this command.

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