

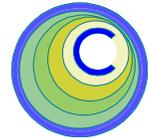
The CEDRA Corporation's COMMAND OF THE MONTH

A monthly information bulletin

March 2011

FEATURED COMMAND

Change Selected
Feature(s)



Application Description

In the field of parcel mapping it is sometimes desired to have the ability to change the shapes of multiple parcels in a single operation.

For example, many municipalities have parcel databases which were digitized or scanned. These databases provide a good pictorial representation of the parcels, but they are not mathematically precise. When funding becomes available, some municipalities will go through the process of “cogo-ing” the parcels. That is, the parcels are geometrically defined in terms of their metes and bounds.

At this point, the municipality will have one parcel layer that is not precise and one parcel layer that is. The problem is, the digitized or scanned parcels have pertinent attribute information associated with them.

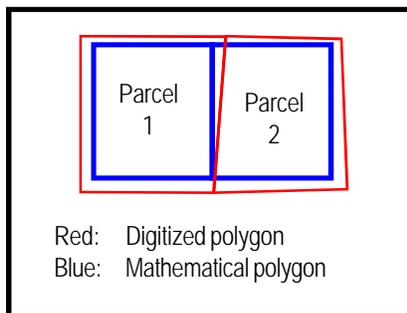


Figure 1
Digitized versus Cogo'ed Parcels

Shown in Figure 1 is an example of such a case. The red polygons denote the parcels which were digitized, while the



Figure 2
CEDRA-Polygon-Tools-2 Toolbar

blue polygons denote the parcels which were “cogo-ed”. What is desired is to change the shape of the red polygons to their corresponding blue shape maintaining the attributes of the red polygons.

The question becomes, how does the user accomplish this task quickly and easily..

Command Of The Month bulletin

This month's issue discusses how to change the shapes or geometries of one or more selected features in a single operation.

The CEDRA Solution

To address the application described above, the CEDRA-Polygon-Tools-2 toolbar, see Figure 2, can be employed. As can be seen from the figure, the toolbar offers six tools providing various types of functionality.

The third tool from the left in the toolbar, **Change Selected Feature(s)** tool,  can be employed. This tool enables the user to alter the shape of selected features based upon a couple of methods.

Change Selected Feature(s) Overview

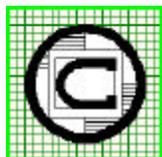
With the  Change Selected Feature(s) tool the user is able to change the shape of one or more selected features (current shape) to the shape of features residing in a user specified layer (new shape), based upon one of two methods.

The **first** method involves matching features using a *common attribute value*. The **second** method involves matching features using a *spatial match* as defined in terms of centroid location and geometry (length for polyline features, area for polygon features).

The selected features, if more than one, may reside in different layers, however, they must be of the same feature type. That is, they must be all points, all lines or all polygons. If the selected features contain a mixture of feature types, the user will be asked to identify the feature type to be processed.

When processing features based upon a *common attribute value*, the program extracts a value, from a user specified attribute, for the current feature being processed, and searches the new shape layer for the feature containing the same attribute value. If a match is made the current feature's shape is replaced with that of the matching feature. If no match is made, the current feature is left unaltered.

When processing features based upon a *spatial match*, the program determines which new shape features are within the



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user specified proximity tolerance of the feature being processed. The program will then use the new shape that is closest to the current shape in terms of centroid location and geometry. For polyline features geometry refers to length, while for polygon features it refers to area.

Once the command has processed all of the selected features, a report as to the number of features processed and the number of features whose shape has been changed is displayed in the status bar area.

It is **important** for the user to note that:

1. This subject tool is intended for selected features that have a one to one attribute correspondence with the features whose shape they are to assume, not a one to many relationship.
2. If two or more selected features (current shape) have the same attribute value with that of a feature in the user specified layer (new shape), the shape of each of said current shapes will be changed to the same new shape.
3. If a selected feature (current shape) has the same attribute value with that of two or more features in the user specified layer (new shape), the current shape will change to the shape of the last feature with which a match has been made.
4. The selected features (current shape) can not be from the user specified layer (new shape). That is to say, no feature in the new shape layer should be selected for processing.
5. In addition to changing the shape of the selected features, the user is provided with the option to copy the attribute values of the new shape into the current shape for all common attributes between the features.

6. When the selected features assume the new shape, the new shape features are not altered. That is to say, the features in the new shape layer are not altered.

Change Selected Feature(s) Operation

To use this tool, the user should:

- 1 Use conventional *ArcMap* functionality, or the  *Select Features from Active Layers* tool to select the feature or features, the shape of which is to be modified (current shapes).
- 2 Click at the  Change Selected Feature(s) tool to display:
 - (a) The query list dialog box of Figure 3, if the selected features are comprised of more than one feature type, in which case continue with **Step 3**, or
 - (b) The query list dialog box of Figure 4 or Figure 5, if the selected features belong to a single feature type, in which case branch to **Step 5**.
- 3 Scroll down at the Item List: choice list data field and select the feature type to be processed.
- 4 Click at the **OK** button in Figure

3 to display the list dialog box of Figure 4 or Figure 5 or
click at the **Cancel** button to abort the command.

Regarding Figure 4 and Figure 5, note the following:

- In the dialog box of Figure 4 there are only two layer names displayed. By referring to the last two characters in the label of each of these two layers, the user should note that one of them is a polygon layer (L_OPG), and the other is a text layer (L_YTX). This is so because the selected feature is a polygon feature. By selecting a polygon, the program displays only layers whose geometry type is that of polygon.

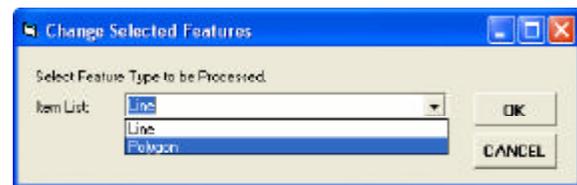


Figure 3
Selection of Feature Type to be Processed

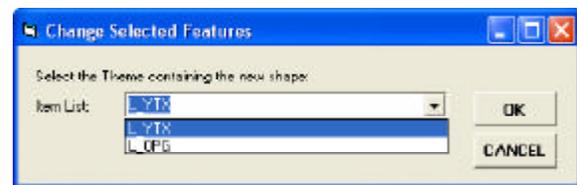


Figure 4
Selection of the Layer that Contains the New Polygon Shape

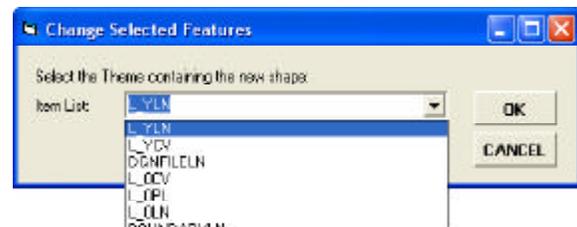


Figure 5
Selection of the Layer that Contains the New Line Shapes

This provides the user the ability to change text strings, if the selected feature is a text string. However, in reality this tool is not really intended for processing text strings.

- In the dialog box of Figure 5 there are seven layer names displayed. By referring to the last two characters in the label of each of these layers, the user should note that they represent two point-line features (*LN), polyline features (*PL) and curve features (*CV). This is so because the selected feature is either a two-point line feature, a polyline feature or a curve feature. This enables the user to change a line to a curve and vice versa. More about this later on in this section.
- In both of the above dialog boxes, the displayed choice list includes all pertinent layers in the ArcMap table of contents, excepting the layer or layers of the selected feature or features.

- **5 Scroll** down in the choice list, and **select** the appropriate **layer** name that contains the features of the new shapes that the selected feature or features are to assume.
- **6 Click** at the **OK** button to display the choice list dialog box of Figure 6 for ArcView GIS users, Figure 8 for ArcGIS users, or **click** at the **Cancel** button to abort the command.

ArcView GIS users:

- **7 Scroll** down in the choice list and select the name of the field that is to act as the common attribute in making a match between the current and new shapes.
- **8 Click** at the **OK** button to confirm the attribute name selection, or **click** at the **Cancel** button to abort the command.

Once the common attribute has been specified, the user is asked whether or not common attributes are to be updated, see Figure 7. By clicking at the *Yes* button, the attribute values of the selected feature will be updated to reflect the values of the new shape for all attributes which are common to both features.

- **9 Click** at the **Yes** button to replace the values of all common attributes for all selected features with those of the new shape features, or

click at the **No** button to change the **shape only**, or **click** at the **Cancel** button to abort the command.

If the Yes button is selected, the tool begins its processing displaying a progress bar in the status bar area. Upon completion, the tool displays, in the status bar area, the number of features processed and the number of features whose shapes were altered.

ArcGIS users:

- **7 Scroll** down in the top choice list and select: (a) the name of the field that is to act as the common attribute or (b) the spatial match option which is enclosed with the < and > characters. The spatial match option will always be the first item in the choice list. Depending upon the feature type, the name of the spatial match option will be different. For Point features the spatial match option will be <Centroid>, for Line features it will appear as <Centroid and Length>, while for polygon features it will be <Centroid and Area>.
- **8 Enter** in the *Proximity Tolerance - ft (m)*: data field the maximum distance value to be used in determining a match of centroids between features.
- **9 Scroll** down in the bottom choice list, and **select** the appropriate **option** denoting whether or not the common attributes in the current shapes are to be updated



Figure 6
Selection of the Common Attribute

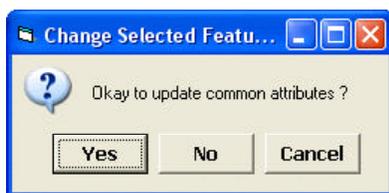


Figure 7
Permission to Copy Common Attributes

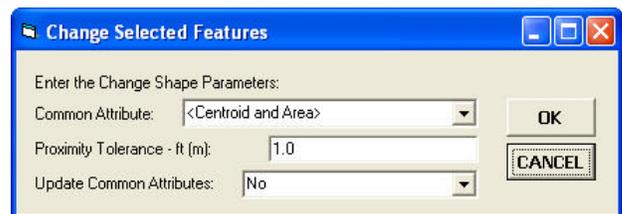


Figure 8
Selection of the Common Attribute

with the attributes of the new shapes. Selecting the No option denotes change the shape only.

- e. The spatial match option is not available for ArcView GIS users as of this version of the software.

- **10 Click** at the **OK** button to confirm the parameter settings, or **click** at the **Cancel** button to abort the command.

If the OK button is selected, the tool begins its processing displaying a progress bar in the status bar area. Upon completion, the tool displays, in the status bar area, the number of features processed and the number of features whose shapes were altered.

The command may now be repeated from Step 1.

Notes

- a. If a two-point line, polyline or curve feature is changed to the shape of either of the other two type of layers, the shape is changed but any special attributes, such as the value of the curve radius is not changed. Thus, if a two point line is changed to a curve, it does not acquire a radius value and cannot be treated as a curve by any other curve type tool, and likewise a curve does not lose its radius if it is changed into a line.
- b. This tool is primarily intended for the application of updating features (shape and attributes) using features in another layer that was created or edited outside of the current ArcMap session.
- c. Upon completion of the command, the user is informed in the status bar of the number of features that have been processed, and the number of features whose shape has been changed.
- d. The proximity tolerance value is only used when the spatial match option is selected.

Summary

The Change Selected Feature(s) tool is an extremely useful tool in updating the shape of a group of features, when the updated shapes reside in a separate layer. An example of the application of this tool is where a consultant or some third party will “cogo” a subdivision or for that matter of fact an entire section. The layer containing the “cogo” parcels can be overlaid upon the existing parcel database, after which, this tool can be used to update the existing parcels in one operation.

The implementation of the Spatial Match option is a recent enhancement to the Change Selected Feature(s) tool.

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.