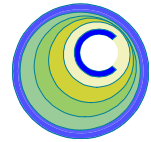The CEDRA Corporation's

COMMAND OF THE MONTH

A monthly information bulletin   **January 2010**

FEATURED COMMAND

Points from
Annotation Features

Application Description

An application recently arose where it was desired to create a point feature at the centroid of a selected feature and assign to the point an attribute that was derived from the text strings which were associated with annotation features that were within proximity to the feature.

As an example, take a floor plan where a room is labeled with a room number, such as Room A, along with an identification of the room, such as Boiler. The room number, Room A, is enclosed by a square. The room identification, Boiler, is slightly offset from the room number text and outside the square. Additionally, the room number text is larger in size in comparison to that of the room identification text.

The application required that a point feature be created at the centroid of the room and the text string Room A - Boiler be assigned to the point as an attribute.

As many ArcGIS users know there are a few ways of creating a point at the centroid of a feature. However, as far as we know, there is no "out-of-the-box" method for concatenating the text of annotation features and assigning the result as an attribute to a point.

The CEDRA Solution

To address this issue, the [Points from Annotation] and [Point from Annotation] commands have been added to the {Skeletonize Tools} menu combo box, which is within the CEDRA-Skeletonization-Tools toolbar shown in Figure 1. Note

that these are new commands that have been added to the combo box within the last month.

Points from Annotation Overview

The [Points from Annotation] menu command enables the user to create point features from selected point, line or polygon features and assign to the newly created point an attribute value that is determined by extracting the text that is associated with the annotation features that are within a user-specified distance.

The operation of this command requires that the user activates in the Table of Contents the annotation and feature layers to be processed. Two and only two layers must be active in the Table of Contents.

> ***Command Of The Month bulletin***
>
> *This month's issue discusses how to create point features and assign an attribute using the text that is assigned to annotation features.*

The command will then process the selected features in the active feature layer (point, line or polygon) and compute the centroid for each of the selected features.

Furthermore, the command searches the active annotation layer for those features that are within a user-specified distance to the coordinates of a centroid. If there are selected annotation features, a new point feature will be
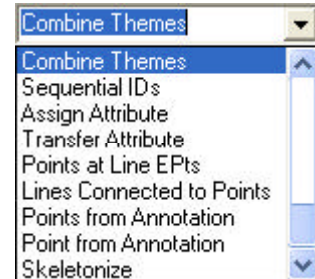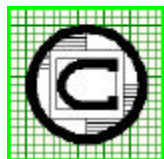

**Figure 1
CEDRA-Skeletonization-Tools Toolbar**

created at the coordinates of the centroid and stored in the current active layer.

Additionally, in the PTDESC attribute (if it exists), a value will be stored that is derived by concatenating the text of the selected annotation features.

Points from Annotation Operation

➤ **1** **Select** the point, line or polygon feature(s) to be processed. Note, only one feature type can be processed in a single operation.

➤ **2** **Activate** the annotation and feature layers to be processed.

➤ **3** **Scroll** down in the {Skeletonize Tools} menu combo box, and **select** the [Points from Annotation] command.

   If there are no active annotation and feature layers at the time the command is activated, or if only one of the two required layer types is active, or if there are no selected features in the active

Figure 2(a)
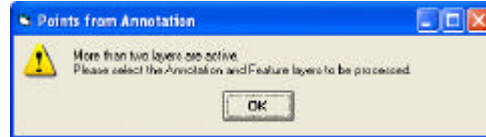No Active Layers Error Message

Figure 2(c)
More than Two Active Layers
Error Message

Figure 2(b)
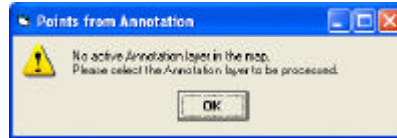Only One Active Layer Error Message

Figure 2(d)
No Active Annotation Layer
Error Message

Figure 2(e)
No Active Feature Layer
Error Message

feature layer, an appropriate error message will be displayed. Shown in Figures 2(a) through 2(f) are some of the error messages that can appear.

At this point, click the OK button, perform the appropriate adjustment(s) and re-select the command.

➤ 4   **Enter** the appropriate information for the various parameters shown in Figure 2(g).

In specifying the information requested by the parameters shown in Figure 2(g), the user should note the following:

• The *Annotation Field Containing Text* parameter enables the user to specify the field in the active annotation layer that contains the text that is associated with an annotation feature.

• The *Annotation Field Containing Size* parameter enables the user to specify the field in the active annotation layer that contains the size of the text that is associated with an annotation feature.

• The *Proximity Tolerance* parameter denotes the distance in world units that an annotation feature is to be considered as being "close" to a feature.

• The *Separating Text String* parameter enables the user to specify the text string that is to be used to delineate the text that is concatenated. The default is a single blank character, although the user is able to specify whatever string is appropriate. Note that there is no limit to the number of characters that can appear in the separating text string.

➤ 5   **Click** at the **OK** button to begin the processing,
or
click at the **Cancel** button to abort the command.

If the OK button is selected, the command cycles through the selected features in the active feature layer. As a feature is processed, the centroid of the feature is computed, after which, the command determines those annotation features in the active annotation layer that are within the proximity value specified by the user.

If there are annotation features within the proximity value, a new point feature is created and in the PTDESC field, if it exists, a value is stored that is derived by con-
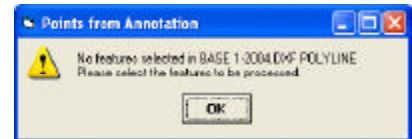

Figure 2(f)
No Selected Features in the
Active Feature Layer Error Message
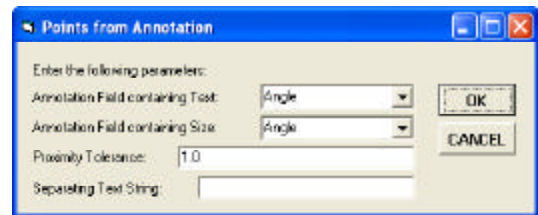
Figure 2(g)
Points from Annotation Parameters

catenating the text of the annotation features.

The order in which the text is concatenated is based upon the size of the text, as indicated by the value in the Annotation Field Containing Size parameter. The text is concatenated in a largest to smallest text size value order, see Figure 2(h). That is to say, the largest text size appears first in the text string, while the smallest text size will appear at the end of the text string.

In the case where text of the same size is encountered, the object ID (FID, OID, OBJECTID, etc.) of the

Room

Room

A-212

A-212

Proximity
Tolerance

The annotation feature **Room** has a text size of 11, while the annotation feature **A-212** has a text size of 8.

Point that is created with a PTDESC value of **Room A212**, when the separating string is a single blank character.
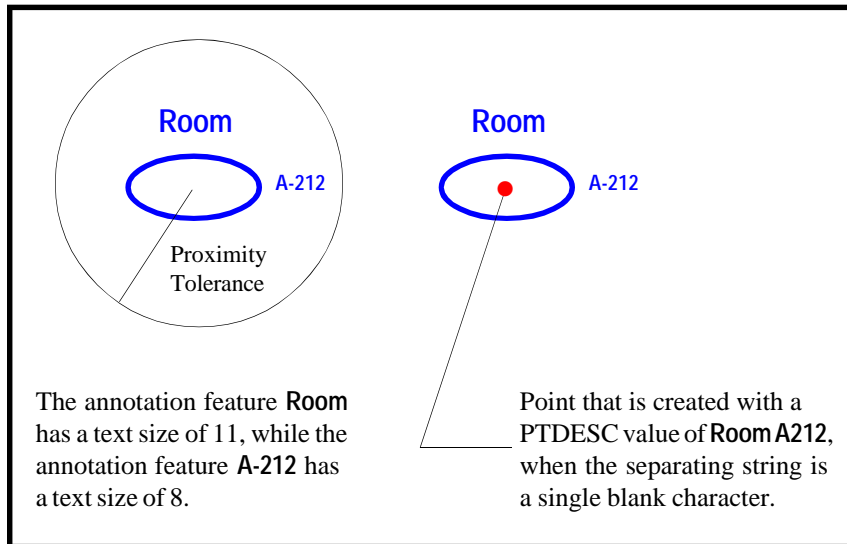
Figure 2(h)
Point created at the centroid of the Ellipse feature

features will govern. That is to say, the text is ordered in an ascending object ID order with the lowest object ID appearing first and the highest object ID last.

Point from Annotation Overview

The [Point from Annotation] menu command enables the user to create a point feature from a selected point, line or polygon feature and assign to the newly created point an attribute value that is determined by extracting the text that is associated with selected annotation features.

The operation of this command requires that the user activates in the Table of Contents the annotation and feature layers to be processed. Two and only two layers must be active in the Table of Contents. Within the active feature layer, one and only one feature needs to be selected.

The command will then process the selected feature in the active feature layer (point, line or polygon) and compute the centroid for the selected feature.

Within the active annotation layer, the user selects those annotation features that are to be processed. Note that there is no limit to the number of annotation features that can be selected.

Using the selected annotation features, the command builds a string that is derived by concatenating the text that is associated with the annotation features. A new point feature is created at the coordinates of the centroid and stored in the current active layer.

Additionally, in the PTDESC attribute, the command stores the string that is the result of concatenating the text of the selected annotation features.

Point from Annotation Operation

➤ **1**   **Select** the point, line or polygon feature to be processed. Note, only one feature type and only one feature can be processed in a single operation.

➤ **2**   **Select** the annotation feature(s) to be processed.

➤ **3**   **Activate** the annotation and feature layers to be processed.

➤ **4**   **Scroll** down in the {Skeletonize Tools} menu combo box, and **select** the [Point from Annotation] command.

If there are no active annotation and feature layers at the time the command is activated, or if only one of the two required layer types is active, or if there are no selected features or more than one selected feature in the active feature layer, an appropriate error message will be displayed. Shown in Figures 2(a) through 2(f) are some of the error messages that can appear.

At this point, click the OK button, activate the appropriate layer(s) and re-select the command.

➤ **5**   **Enter** the appropriate information for the various parameters

Figure 3
Point from Annotation Parameters

shown in Figure 3. In specifying the information requested by the parameters shown in Figure 3, the user should note the following:

• The *Annotation Field Containing Text* parameter enables the user to specify the field in the active annotation layer that contains the text that is associated with an annotation feature.

• The *Annotation Field Containing Size* parameter enables the user to specify the field in the active annotation layer that contains the size of the text that is associated with an annotation feature.

• The *Separating Text String* parameter enables the user to specify the text string that is to be used to delineate the text that is concatenated. The default is a single blank character, although the user is able to specify whatever
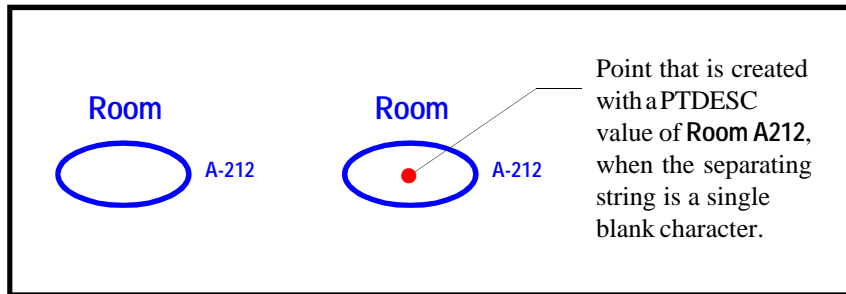
Figure 4
Point created at the centroid of the Ellipse feature

string is appropriate. Note that there is no limit to the number of characters that can appear in the separating text string.

➤ **6** **Click** at the **OK** button to begin the processing,
or
click at the **Cancel** button to abort the command.

If the OK button is selected, the command computes the centroid of the selected feature in the active feature layer, after which, the command determines the selected annotation features in the active annotation layer.

A new point feature is created at the coordinates of the centroid and in the PTDESC field, if it exists, a value is stored that is derived by concatenating the text of the annotation features.

The order in which the text is concatenated is based upon the size of the text, as indicated by the value in the field as specified by the Annotation Field Containing Size parameter. The text is concatenated in a largest to smallest text size value order, see Figure 4. That is to say, the largest text size appears first in the text string, while the smallest text size will appear at the end of the text string.

Notes

a. The centroid location for a polygon feature is computed using the ArcObjects Centroid property.

b. The centroid location for a polyline feature is the middle vertex of the polyline feature.

c. The centroid location for a point feature is the point itself. That is to say, a new point feature is created at the same location of the selected point.

d. The PTDESC field is created by CEDRA menu commands and tools that create points. Should the user wish to:
　i.　add the PTDESC field to a point featureclass that was not established by CEDRA menu commands or tools, or
　ii.　increase the width of the PTDESC field,
the user can use ArcCatalog or any other available means to do so. The PTDESC field is a field of STRING type and can be whatever width that the user deems appropriate.

e. In processing the annotation features, the commands assume that the text which is associated with the annotation feature is stored as an attribute value. That is to say, the text is not extracted from the graphic element that is associated with the annotation feature, but rather, extracted from a field which is associated with the feature.

f. In processing the annotation features, the commands assume that the text size which is associated with the annotation feature is stored as an attribute value. That is to say, the text size is not extracted from the graphic element that is associated with the annotation feature, but rather, extracted from a field which is associated with the feature.

Summary

In dealing with the application described at the beginning of this publication, the [Points from Annotation] command was used to handle the cases where the annotation features were in close proximity to the room number text, while the [Point from Annotation] command was used to handle those cases where the annotation features were further apart from the room number text. By using both commands, we were able to handle the application efficiently. The [Points from Annotation] command allowed us to process a large number of the cases, while the [Point from Annotation] command allowed us to process what was left over.

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 file format.

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.