


8.16 The Profile from TIN Menu Command

PROFILE FROM TIN MENU COMMAND

The *Profile from TIN* menu command enables the user to select a polyline, which has been superimposed upon an ArcGIS TIN data set, and extract (strip) a profile along said polyline. This polyline may be created by a variety of CEDRA-AVcad tools, described elsewhere in this manual, or it could be an alignment created by the horizontal alignment commands of CEDRA-AVland software. Such an alignment could represent the skeleton of a roadway, canal, swale, levee, or other similar project.

The profile that is extracted along the selected polyline can be stored in: (a) a *.dbf* table or (b) as a polyline feature in a layer which supports PolylineZ entities. The name of the table or layer is specified by the user. Once the table or feature has been created, it may be used by the CEDRA-AVland, CEDRA-AVsand or CEDRA-AVwater in the design of a roadway, wastewater or storm water sewer and/or water distribution system.

To use this menu command, the user should:

- **1** Scroll down in the **table of contents area**, and **select** the **layer** that contains the polyline along which the profile is to be extracted.
- **2** **Select** with the  *Select Features from Active Layers* tool the **polyline** along which the profile is to be extracted.
- **3** **Hold down** the control (Ctrl) keyboard key, **scroll** down in the **table of contents area**, and **select** the **layer** that contains the ArcGIS TIN data set from which the profile is to be stripped.
- **4** **Scroll** down in the {CEDRA-Polygon-Tools} menu combo box, and **select** the [Profile from TIN] menu command (see Figure 8-1) to display the multi-input dialog box of Figure 8-16a.

Note that both, the polyline and the TIN layers must have been selected above, as well as a polyline. If any, or all of these three are not selected, an appropriate warning message is displayed, in which case the user should click at the *OK* button to acknowledge the message to close the message window, and then repeat the command from its very beginning.

- **5** **Enter** in the *Starting Station Value - ft (m)*: data field the **starting station** value of the profile to be created. This value should be entered without the plus (+) sign. For example the entry of 1029.34 denotes a station of 10+29.34.

- **6** Enter in the *Station Increment Value - ft (m)*: data field the **station increment** value of the profile to be created. This value indicates how often elevations are to be interpolated along the polyline alignment. In addition to these interpolated shots, the command will interpolate an elevation at each vertex that comprises the selected polyline feature.

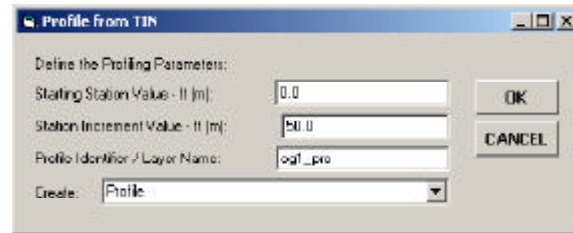


Figure 8-16a
Profile from TIN Multi-Input Dialog Box

Note that if the starting station is not a multiple of the specified increment, the first station after the starting point is assigned a station which is a multiple of the specified increment. Thereafter, elevations are extracted at the specified increment. For example, if the starting station value is 1029.34, the next station would be 1050, and thereafter 1100, 1150 and so on.

- **7** Enter in the *Profile Identifier / Layer Name*: data field the **name of the .dbf table** to be created or the **name of the layer** in which the feature is to be stored in.
- **8** Scroll down in the *Create*: data field, and **select** the:
 - **Profile** option to denote that a profile is to be created.
 - **PolylineZ** option to denote a polyline feature, which is comprised of 3D points, is to be created.
- **9** Click at either the **OK** button to execute the command, and then terminate it, or click at the **Cancel** button to abort the command.

Note that having clicked at the *OK* button:

- If an illegal entry has been made, an error message is displayed identifying the illegal entry. In this case, click at the *OK* button to acknowledge the message and display again the dialog box of Figure 8-16a, make the correction and continue with the work.
- If the Profile option has been selected and if the specified table name exists, a query message is displayed asking the user whether the existing table should be replaced with the new table, or not. A positive response continues with the work replacing the existing table, while a negative response aborts the command.

- Upon completion of the work, a message is displayed informing the user of the number of profile points that have been extracted.

- **10** Click at either the **OK** button to acknowledge the message, and terminate the command.

If the **Profile** option has been selected and the contents of the table are to be displayed, the user should do the following:

- **11a** Click at the **Source** tag at the bottom of the ArcMap table of contents to display the various layers and tables therein, **scroll** down in the table of contents list, **right-click** on top of the label of the **name** of the table that was entered in the *Profile Identifier*: data field of Figure 8-16a, and **select** the **Open** command to display the contents of the table.
- **12a** Peruse the **table** and when done close its window.

Note that the polyline and the two layers in the table of contents remain highlighted. If the command is reactivated, the previously entered data are shown as the default values. Shown on the left side of Figure 8-16b is an ArcGIS TIN with a polyline

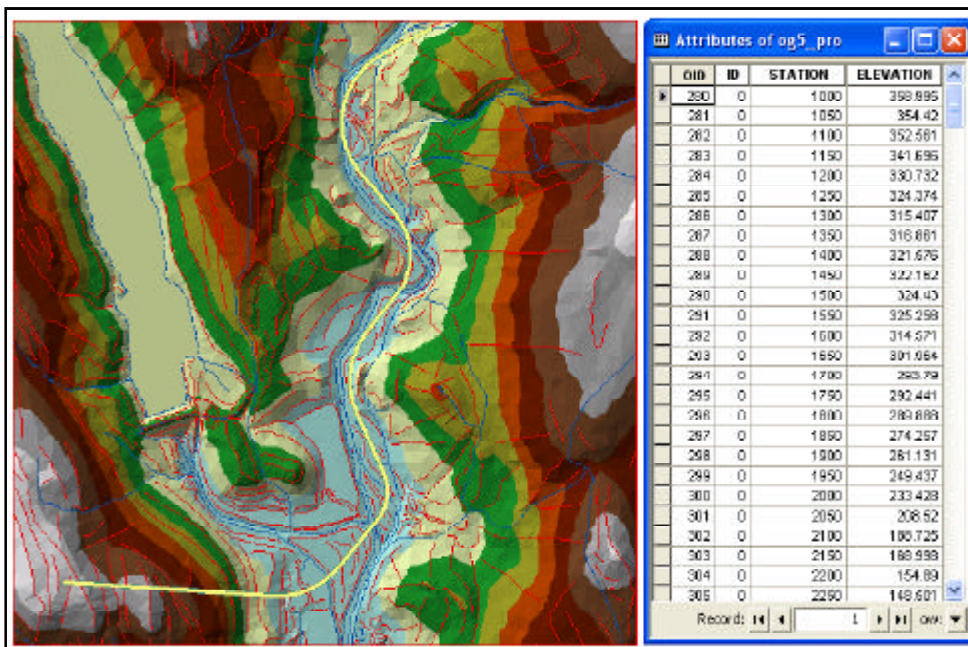


Figure 8-16b
Profile Extracted Along a Polyline

highlighted in yellow along which a profile has been stripped. On the right side of said figure is the display of the resultant *.dbf* table.

If the **PolylineZ** option has been selected and the contents of the layer's attribute table are to be displayed, the user should do the following:

- **11b Right-click** on the name of the layer in the Table of Contents and select the **Open Attribute Table menu** item to display the layer's attribute table. Shown in Figure 8-16c is an example attribute table for a layer that is created by this command. Note the attributes MIN_Z, MAX_Z, DIFF_Z, DIST_2D, DIST_3D, SX, SY, SZ, EX, EY, EZ shown in the table. If these attributes are not present in the layer, the command will add them to the layer automatically. These attributes contain the following information:
- minimum elevation (MIN_Z).
 - maximum elevation (MAX_Z).
 - difference in elevation (DIFF_Z).
 - 2D length of the line (DIST_2D).
 - 3D length of the line (DIST_3D).
 - X coordinate of the first point comprising the line (SX).
 - Y coordinate of the first point comprising the line (SY).
 - Z coordinate of the first point comprising the line (SZ).
 - X coordinate of the last point comprising the line (EX).
 - Y coordinate of the last point comprising the line (EY).
 - Z coordinate of the last point comprising the line (EZ).

ID	Shape	ID	MIN_Z	MAX_Z	DIFF_Z	DIST_2D	DIST_3D	SX	SY	SZ	EX	EY	EZ
1	Polyline ZM	0	157.916	215.241	117.325	1070.305337	1081.550404	80166.225463	862718.493375	217.222	67025.570161	680027.380386	157.916
2	Polyline ZM	0	124.320	299.700	175.462	2953.946590	3011.127660	85702.063660	856862.924911	355.699	68372.050589	682126.078478	299.700

Figure 8-16c
Attribute Table for a Layer created by the Profile from TIN command