Creating Profiles Manually From Survey Notes

The following instructions will guide you through the process of creating a profile by manually entering the survey data. This can be very useful on small projects when a level is used to survey and hand notes are used to record the topographic data. Carlson modules are displayed as **{Civil Design}**, main menus are displayed as **[Profiles]**, and submenus and menu commands are displayed as **<Input Edit Profile>**.

1) Reduce your survey notes.
2) Input a Profile file: **{Civil Design}** → **[Profiles]** → **<Input-Edit Profile File>.**
3) The "*Specify a Profile file- (pro)*" dialog box opens. Keep the "**New**" tab on since a new profile is being created, the "*Existing*" tab is for opening an existing profile for editing. Save the profile file in your working directory with the rest of your project files, giving it a name you can easily recognize (ex. Smith_WW_CL).
4) The **"Input-Edit Profile"** dialog box opens on the screen. The display area at the top will show the profile. The chart/spreadsheet below the display is where the point data is entered. Check the following options
   a. *Type of Profile*: click on **Generic**
   b. *Profile Name*: **Optional**, for entering a name of the profile
   c. *Hold Next Slopes***:** Leave **unchecked**
   d. *K values*: used for road profiles, leave **unchecked**
   e. *Grid Ticks Only*: **Checked**, this option shows tick marks on axis of the profile display. **Unchecked**, the entire grid is shown on the profile display.
   f. *Check Stations*: Once your profile is complete, you can obtain station elevations by typing in the station number here. **Leave blank** for now.
   g. *Vertical Exag*: Check **Fit**
5) Each point must be entered by hand. Enter the following information:
   a. *Station*: **Horizontal distance** between the points.
   b. *Elevation*: **Elevation** from the reduced survey notes
   c. *Slope (%)*: Not user entered but calculated from the Station and Elevation information.
   d. *Desc*: **Optional**, allows the user to enter a description of the point.
6) When the line is complete hit "**Enter**" to start the next line.

7) Always click "**Save**" after entering several lines. This is especially important when entering a profile with many points.
8) When completed hit "**Save**" and then "**Exit**".
9) All of the data that has just been entered is saved in the profile file (*.pro) in the directory you selected. The profile now has to be drawn using the draw profile command.
10) To draw the profile: **{Civil Design} → [Profiles] → <Draw Profile>**
11) Select the profile file that you created above. You may need to navigate to the file.
12) The "Draw Generic Profile" window appears. Starting in the upper left of the Draw Profile box set your profile options:
    a. *Draw Grid*: **Check** this option. Draws a grid at specified intervals.
    b. *Starting station*: Can be any station but the default is 0.00 (0+00).
    c. *Draw Sheet*: Leave **Unchecked**. Draws profiles into paper space.
    d. *Ending station*: Can be any station but the default is the last station in the profile file.
    e. *Draw Horiz Axis Elev:* This option creates elevation labels along the horizontal axis
    f. *Label Text Scaler*: This sets the size of text used for vertical curve annotation to the horizontal scale times the scaler, when you are working in English units. In metric units the text height would be 0.01*horizontal scale*scaler.
    g. *Draw Horz Label Box*: Leave **Unchecked**. Draws box below the profiles with topographic information in it.
    h. Link to Files: This setting controls the linkage of the plotted profile to the actual profile file (.PRO), determining how changes to the file (.pro) affect the plotted profile on the screen. If set to **Off**, there is no linkage, Prompt will ask whether to update the plotted profile when the file changes, and **Auto** will automatically update the plotted profile when the file changes.
    i. *Match Line Elev:* For high relief profiles that might otherwise extend up and into the plan view portion of the drawing, the Match Line Elevations option can be used to break the profile and redraw the remaining portion with its own vertical scale. Specify the elevation range of the profiles.
    j. *Draw Break Pt Sta*: Typically **Unchecked**. Will label these values along the profile line above each break point in the profile.
    k. *Draw Break Pt Elev*: Typically **Unchecked**. Draws the elevations vertically on the profile at the break points.
    l. *Draw Break Pt Desc*: Typically **Unchecked**. Draws descriptions of the break points.

13) To adjust the parameters of any of the options above click the setup button to the right of each item.

14) **Setting the Scales**. Paper space available and use will dictate the scales used. Determine horizontal scale based on available paper space. Typical vertical exaggerations are 2:1, 5:1, and 10:1. Vertical scales are calculated by dividing the horizontal scale by the exaggeration factor. 1:1 scales are the easiest to work in but are not always feasible. Many times this can be an iterative process to get the profile to look acceptable.

   a. *Horizontal Scale*. Determine horizontal scale based on available paper space (divide profile length by available paper length, round up). **Enter calculated or desired value**.

   b. *Horiz Grid Interval*: Specify an even grid line spacing on the horizontal axis, typically the **same as Horizontal Scale** or multiple of it.

   c. *Horiz Text Interval*: This specifies the frequency of the text along the horizontal axis. **Set the same as the Horizontal Grid Interval** or a multiple of it.

   d. *Vertical Scale*: Vertical scales are calculated by dividing the horizontal scale by the exaggeration factor (10, 5, 2, 1). **Enter a vertical scale**.

   e. *Vert. Grid Interval*: Specify an even grid line spacing on the vertical axis, typically the **same as the Vertical Scale** or a multiple of it.

   f. *Vert Text Interval*: This specifies the frequency of the text along the vertical axis. **Set the same as the Vertical Grid Interval** or a multiple of it.

   g. *Label Scale*: **Check** this option. This feature is located under the **Setup** button for the Draw Grid option.

   h. *Grid Direction*: The profiles are usually drawn **left to right** so keep that option checked. This feature is located under the **Setup** button for the Draw Grid option.

   i. *Ticks Only*: Tick marks are drawn instead of the grid lines. This feature is located under the **Setup** button for the Draw Grid option.

   j. *Design Box*: Leave **Unchecked**. Displays information about breaks in a separate box.

   k. *Offset Station Text*: Offsets Station text by 6 standard text heights. This feature is located under the **Setup** button for the Draw Grid option.

   l. *Offset Elev Text*: Offsets vertical axis text. Typically **Unchecked**. This feature is located under the **Setup** button for the Draw Grid option.

   m. *Station Text Orientation*: Controls the orientation of the station text. Set based on user preference. This feature is located under the **Setup** button for the Draw Grid option.

   n. *PVI 'I'*: Leave **Unchecked**. Plots an upside down V at the inflection point. This feature is located under the **Setup** button for the Draw Grid option.

o. *Axis Text Scaler*: Set to **0.125.** This feature is located under the **Setup** button for the Draw Grid option.

p. *Profiles to Draw*: Up to 3 profiles can be drawn together on a single grid. Selecting the 1st, 2nd, 3rd buttons will enable you to draw profiles together.

15) Layers option box at the bottom of the screen allows you to set the layers for the profiles, grid and text.

16) Colors option box will let you adjust the color of each layer for the profiles.

17) Text Styles option will allow you to choose the text styles for the grid text and the profile label text.

18) Linetypes option will allow you to choose the linetype of each line in the profile.

19) Load settings option will let you load any previously saved profile defaults.

20) Save settings option will let you save options selected for your profile to become the default value and options. Then save them as a file with an extension of (.pfs).

21) Click "**OK**" when done setting profile options.

22) The "**Profile Grid Elevation Range**" dialog box appears on the screen.
    a. At the top of this window it displays the elevation range that is found in the file.
    b. Enter the Grid Top Elevation:
    c. Enter the Grid Bottom Elevation:

23) Once the values are entered click "**OK**".

24) Use the mouse to click the lower left corner of where the profile is to be drawn in model space (or type in coordinate and then press enter).

25) The profile is drawn. Inspect the profile and redo if necessary.