

DEFGEN Help - Table of Contents

Help Topics

[Button Bar](#)

[File Menu](#)

[File Menu](#)

[Entities Menu](#)

[Setup Menu](#)

File Menu

The file menu has functions that are common to most all Windows programs. The functions within the menu are similar in nature to other programs. Detailed explanations of them will not be performed in this documentation. See the Windows Users Manual for more information on these commands.

New File (Clear Memory)

The New selection under the File Menu is used to clear the contents of memory so that a new layout can be began. **It is important that work be saved before this command is used.**

Opening an Existing File

The Open command under the File Menu is used to load previous work into PC-Trace. The Open Dialog Box is used the same way as other Open boxes in other Windows applications. The four most recent files are stored in a section of the File Menu by name. Selecting one of these files from the menu will automatically select it and open it. The default file type for PC-Trace windows files is .CWT.

Save Current File

The Save command is used to save the current data in memory. If a filename already has been given to the current data, it will be saved immediately without delay or prompting for a name. It is a quick way to save all data in memory to protect the work in progress.

Save Current File With a Different Name

To save the current file under a new name, or the to save a file the first time, a name must be given to the current work. Save As under the File Menu is used to do a save that prompts for a new name. Backup copies of PCB layouts can be created this way.

Exit

Selecting Exit from the File Menu will exit PC-Trace. Be sure to save all work before exiting.

View Menu

Toggling the Toolbar On and Off

The Toolbar that appears at the top of the window, under the menu bar, can be toggled on and off by selecting Toolbar from the View Menu.

Toggling the Status Bar On and Off

The Status Bar that appears at the bottom of the window can be toggled on and off by selecting Status Bar from the View Menu.

Regenerating the Drawing

After editing the pad layout for some period of time, it will become necessary to clean up graphic movements such as drawing, moving, and deleting. Selecting Regen from the View Menu will clear the window and redraw all items within it.

Entities Menu

Adding Pads

To add Pads to the component layout. Select Add Pad from the Entities Menu, or pressing the pad button on the toolbar. Once this function is active, move the mouse pointer to the desired location and click the left button. A pad will appear at that location. The pad has a default diameter of 0.05 inches and appears on whatever layers are currently active. The layer selection buttons are a good way to check and see what layers are active. Pads are numbered in the order in which they are placed on the screen. The first pad placed is number 1, the second number 2, and so on. To keep track of pad numbers, see the section on Show Pad Numbers in the Setup Menu section. It may be necessary to change the default type of pad before placing a pad. See the section on Set Next Pad Shape in the Setup Menu section.

Keyboard Pad Entry

Another option for placing a pad is to use the keyboard to enter the coordinates. Once this function has been activated using the button bar or pull down menu, pressing the F3 key will open a dialog box that request the coordinates of the new pad. Enter the coordinates into the dialog box. The pad will be placed at they entered coordinates with the current pad type.

Trace Drawing

To draw a trace, select the Trace command by pressing the Tr button on the button bar, or selecting the Draw Trace command from the Entities Menu. Once the trace drawing function is active, the mouse is used to select the segments of the trace. To start the trace select the starting point of the trace by holding down the left mouse button. The trace will rubber band around on the screen as the mouse is moved. Select the end point of the trace by releasing the left button.

It is important that a snap grid be used whenever possible. This enables traces to be lined up perfectly. It is also important to realize that a trace defined within a definition file is not recognized by PC-Trace when it checks for completed connections. If the traces are to be part of the pad layout, the connection point for all outside components should be a pad.

Keyboard Trace Entry

Once the trace function has been activated with the button bar or pull down menu, pressing the F3 key will open a dialog box that requests the starting and ending coordinates as well as the trace width. The default trace width is placed in the box to begin with. Once the starting and ending coordinates are entered and OK is pressed, the trace will be drawn.

Drawing Text

Text can be placed on any of the three layers of the board. The Silkscreen Layer generally contains some automatic text such as the component designation and part outlines. Use the Layer Selection buttons to select which layer the new text will be placed on. Press the Tx button to turn on text entry, or select Draw Text from the Entities Menu. Once Draw Text is

active, select the location for the text by left clicking the mouse on that point. A dialog box opens prompting for the text string to place, the orientation, and the justification to be used. Some experimentation might be necessary to get the desired placement.

A special text string named DESIG should be included within all component definitions. PC-Trace will search for this string within a definition and replace it with the component designation given during component entry. The location of DESIG during definition file creation governs the location of the designation on the board layout. The designation is not movable from within the board layout program, PC-Trace.

Deleting Items

To delete items, select Delete from the Entities Menu, or the red circle with the line diagonally through it on the button bar. When active, selecting an item on the definition layout with the left mouse button will delete the selected object. Most objects are deleted one at a time. If a Pad is deleted, the rest of the pads will be renumbered eliminating the hole in the numbering scheme. To keep track of pad numbers, see the section on Show Pad Numbers in the Setup Menu section.

Setup Menu

Set Magnification

The Set Magnification option is the first menu choice in the Setup Menu. Selecting this will open a dialog box asking for the new magnification. The default is 2. Any value from 0.1 to 10 is allowed. The bigger the number, the smaller the area of the board layout displayed in the active window.

Setting the Trace Size

It is possible to set a default trace size before routing it. The Set Trace Width choice in the Setup Menu is for this. Selecting Set Trace Width opens a dialog box prompting for the default trace size. The program begins operation at 0.01 inches wide.

Setting the Snap Grid Spacing

To set the spacing used on the Snap Grid, select the Set Snap option in the Setup Menu. A dialog box will appear asking for the new snap value. This is a floating point value. Usually something like 0.05 or 0.025 is used. If the value entered is too small for the current magnification, no grid will be displayed and a message will appear in the Status Bar saying the snap grid is too dense to display.

Setting Visible Layers

The Setup Menu contains a choice called Set Visible Layers. When selected, this menu choice brings up a dialog box that has three check boxes. Placing an X in a box will make the layer visible, while removing the X from the box hides it.

Toggling the Snap Grid On and Off

The Snap Grid should be on for nearly all operations to assure proper alignment. A button appears on the button bar that will toggle the snap grid on and off. Toggle Snap can also be selected from the Setup Menu.

Changing Pad Types

The type of pad defined within the .DEF file will be the default pad type when the component is placed on the board. Changing this is a two step process. Under the Setup Menu, select Change Pad To. A dialog box will open with the available pad shape. The first five options are intended as through hole parts. Select one of these by clicking on it associated radio button. The size will need to be entered for one of these pads. The size box for the top five pad types is the upper of the three entry boxes. If selecting the lower item, which is used

for surface mount, two boxes will have to have numbers entered. The sixth pad can be any rectangular shape by changing the two numbers. Once the pad shape is set, all subsequent pads that are placed on the board with the Add Pad command in the Entities Menu, will have the defined shape.

Show Pad Numbers

Show Pad Numbers under the Setup Menu toggles on the pad numbers display on and off. If On, the number of each pad placed will be displayed to the right of the pad. This is useful for keeping trace of pad numbers on complex definition files.

Layer Selection

The layer that the next entity will be drawn on is controlled by the So(lder), Co(mponent), and Si(lkscreen) buttons on the button bar, or by checking and unchecking the corresponding menu items in the Setup Menu. Whichever of these buttons is in the down position is the layer that the next entity will be drawn on. It is possible to place entities on multiple levels at one time. Through hole pads should be on both component and solder layers. Text and Traces generally are only on one layer at a time.

Button Bar

The Button Bar is used as a shortcut for the menu commands. The meanings of each button are shown in the graphic below.



