



## PCB-1.99 Command Reference

© 1998, 1999, 2000, 2001, 2002, 2003, 2004  
Harry Eaton

### NOTE: Consult Authoritative Reference

Consult one of the following to resolve conflicts and which may supercede information in this reference:

**Source.....:** ~/pcb-{release}/src/Pcb.ad.in

**Installed...:** /usr/share/pcb/Pcb

### Connections

[S] f      Reset found connection.  
f          Find connection.  
[S] backspace      Remove connections.

### Copy and Move

drag Btn2      Move object or selection.  
drag [M] Btn2      Copy object.  
drag [S][M] Btn2      Override rubberband and move.  
m              Move to current layer.

### Display

[Escape]      Pan (Hand Cursor) mode.  
c              Center display.  
[C] m          Mark/unmark location.  
r              Clear and redraw output.  
z              Zoom in.  
[S] z          Zoom out.  
v              Zoom Extents.  
cursorkey      Move crosshair 1 grid.  
[S] cursorkey      Move crosshair 10 grid.  
[C] cursorkey      Scroll by one half screen.  
[M][C] cursorkey      Scroll {some amount – same as 2 above?}  
tab              Switch viewing side.  
|              Toggle thin / thick draw.  
1...8          Makes layer 1...8 the active layer.

### Delete / Erase

u              Undo operation.  
[S] r          Redo operation..  
[S][C] u      Clear undo-list.  
backspace      Remove object.  
[S][C] Btn1      Remove object.  
delete          Delete object under cursor.

### Grid

g              Increase grid spacing 5 mil.  
[S] g          Decrease grid spacing 5 mil.  
[C] g          Increase grid spacing 0.05mm.  
[[S][C] g      Decrease grid spacing 0.05mm.

### Ground Plane

**To place ground plane,** Select rectangle mode (F5) and deStoicssired layer and place copper block.

k              Increase keepaway 2 mil.  
[S] k          Decrease keepaway 2 mil.  
  
[C] k          Increase keepaway of selected 2 mil.  
[S][C] k      Decrease keepaway of selected 2 mil.  
  
j              Join/unjoin trace/pad to ground plane.  
[S] j          Join/unjoin trace/pad selection from ground plane.

### Lines and Arcs

F2              Enter line mode.  
F8              Enter arc mode.  
l              Increase initial line size.  
[S] l          Decrease initial line size  
/              Cycle multiline mode.  
[S]              Override multiline mode.

### Object

d              Display pin or pad name.  
[S] d          Open pinout window.  
h              Hide / show element name.  
[S] h          Hide / show elected element names.  
n              Change element name.  
[C] r          Report on element under cursor.  
b              Flip object.  
[S] b          Flip selected objects.

### Pastebuffer

F3              Enter pastebuffer mode.  
[S] F3          Rotate 90 degrees.  
Btn1          Copy to layout.  
[S] 1...5      Select buffer number 1 ... 5.  
x              Copy selected objects to buffer.  
[S] x          Cut selected objects to buffer.

### Pin / Pad

n              Change name.  
q              Toggle square flag.  
[C] o          Toggle octagon flag.

**[S]** = Shift, **[C]** = Control, **[M]** = Modifier1 /Alt on PCs  
(BTNMOD for buttons) , **F<sub>n</sub>** = Function key n and  
**Btn** = mouse button 1,2,or3.

### Polygon

F3              Enter rectangle-mode.  
F6              Enter polygon-mode.  
[S] p          Close path.  
insert          Enter insert point mode.

### Routing / Rats nest

w              Add all rats.  
[S] w          Add rats to selected pins/pads.  
e              Erase all rats.  
[S] e          Erase selected rats.  
o              Optimize all rats.  
[S] o          Optimize selected rats.  
[M] r          Autoroute all rats.  
[C] 1...4      Routing style 1...4.

### Selection

F11 / space      Enter selection (arrow) mode.  
Btn2              Select / deselect object.  
[S] Btn2          Add object to selection.  
drag Btn2          Select only objects in box.  
drag [S] Btn2      Add box to selection.  
m              Move object to current layer.  
[S] m          Move selected to current layer.  
[M] a          Select all.  
[S][M] a          Unselect all.

### Sizing<sup>a</sup>

s              Increase size of TLAPV 5 mil.  
[S] s          Decrease size of TLAPV 5 mil.  
[M] s          Increase drill size of PV 5 mil.  
[S][M] s      Decrease drill size of PV 5 mil.  
k              Increase clearance of LAPV 2 mil.  
[S] k          Decrease cleance of LAPV 2 mil.

<sup>a</sup> TLAPV: T=Text, L=Line, A=Arc, P= Pin, V=Via.

### Text

F5              Enter text-mode.  
n              Edit string.  
t              Increase initial text size 10 mil.  
[S] t          Decrease initial text size 10 mil.

### Via

F1              Enter via-mode.  
[C] v          Increase initial size.  
[S] v          Decrease initial size.  
[M] v          Inc. initial drilling hole.  
[S][M] v      Dec. initial drilling hole.  
[C] h          Convert via to mounting hole.

[illegible][illegible]

<b>Function Key Bindings</b>	
F1	Via mode.
F2	Lne mode.
F3	Arc mode.
F4	Text mode.
F5	Rectangle mode.
F6	Polygon mode.
F7	Buffer mode.
F8	Delete mode.
F9	Rotation mode.
F10	Thermal mode.
F11	Select mode.
F12	Unassigned.

<b>Function Key Bindings</b>	
F1	Via mode.
F2	Lne mode.
F3	Arc mode.
F4	Text mode.
F5	Rectangle mode.
F6	Polygon mode.
F7	Buffer mode.
F8	Delete mode.
F9	Rotation mode.
F10	Thermal mode.
F11	Select mode.
F12	Unassigned.

**Clone**

a Clone operation.

For drawing objects (lines, arc, vias, polygons). Suppose you draw a line, and set its width to 12.75 mils, and it's clearance to 8.2 mils. Placing the cursor over this line and hitting "a" will set the thickness for upcoming lines to 12.75 mils, clearance to 8.2mils, make whatever layer that line is on the active layer, then select the line drawing tool.

**Clone**

a Clone operation.

For drawing objects (lines, arc, vias, polygons). Suppose you draw a line, and set its width to 12.75 mils, and it's clearance to 8.2 mils. Placing the cursor over this line and hitting "a" will set the thickness for upcoming lines to 12.75 mils, clearance to 8.2mils, make whatever layer that line is on the active layer, then select the line drawing tool.

**Clone**

a Clone operation.

For drawing objects (lines, arc, vias, polygons). Suppose you draw a line, and set its width to 12.75 mils, and it's clearance to 8.2 mils. Placing the cursor over this line and hitting "a" will set the thickness for upcoming lines to 12.75 mils, clearance to 8.2mils, make whatever layer that line is on the active layer, then select the line drawing tool.

**User ( : ) Commands**

Any command whether bound to a key or not may be exercised using this method.

: (colon) gets you to the PCB user command line.  
 . (period) repeats the previous user command.

AddRats(AllRats|SelectedRats)  
 Atomic(Save|Restore|Block|Close)  
 Bell([ -100..100])  
 ChangeDrillSize(Object, value)  
 ChangeHole(Object|SelectedVias)  
 ChangeName(Object)  
 ChangeOctagon(Object|SelectElements|SelectedPins|SelectedVias|Selected)  
 ChangeSize(Object, value)  
 ChangeSize(SelectedLines|SelectedPins|SelectedVias, value)  
 ChangeSize(SelectedPads|SelectedTexts|SelectedNames, value)  
 ChangeSize(SelectedElements, value)  
 ChangeSquare(Object|SelectedElements|SelectedPins)  
 Command()  
 Connection(Find)  
 Connection(ResetFoundLinesAndRectangles|ResetPinsViasAndPads|Reset)  
 DeleteRats(AllRats|SelectedRats)  
 Display(Description|NameOnPCB|Value)  
 Display(Toggle45Degree|CycleClip)  
 Display(Grid|ToggleGrid)  
 Display(ToggleRubberBandMode)  
 Display(Center|ClearAndRedraw|Redraw)  
 Display(Pinout|PinOrPadName)  
 DRC()  
 EditLayerGroups()  
 Load(ElementToBuffer|Layout|LayoutToBuffer|Nelist)  
 MarkCrosshair()  
 Mode(Copy|InsertPoint|Line|Move|None|PasteBuffer|Polygon|Thermal)  
 Mode(Remove|Rectangle|RubberbandMove|Text|Via)  
 Mode(Cycle)  
 Mode(Notify)  
 Mode(Save|Restore)  
 MovePointer(delta\_x, delta\_y)  
 MoveToCurrentLayer(Object|SelectedObjects)  
 New()  
 PasteBuffer(AddSelected|Clear|1..5)  
 PasteBuffer(Rotate, 1..3)  
 PasteBuffer(Convert)  
 Polygon((Close|PreviousPoint)  
 Print()  
 Quit()  
 Redo()  
 RemoveSelected()  
 Report(Object|DrillReport)  
 RouteStyle(1|2|3|4)  
 Save(Layout|LayoutAs)  
 Save(AllConnections|AllUnusedPins|ElementConnections)  
 Select(All|Block|Connection|ToggleObject)  
 Select(ElementByName|ObjectByName|PadByName|PinByName)  
 Select(TextByName|ViaByName)  
 SetValue(Grid|LineSize|TextScale|ViaDrillingHole|ViaSize|Zoom, value)  
 SwapSides()  
 SwitchDrawingLayer(value)  
 ToggleHideName(Object|SelectedElements)  
 Undo()  
 Undo(ClearList)  
 Unselect(All|Block|Connection)

**User ( : ) Commands**

Any command whether bound to a key or not may be exercised using this method.

: (colon) gets you to the PCB user command line.  
 . (period) repeats the previous user command.

AddRats(AllRats|SelectedRats)  
 Atomic(Save|Restore|Block|Close)  
 Bell([ -100..100])  
 ChangeDrillSize(Object, value)  
 ChangeHole(Object|SelectedVias)  
 ChangeName(Object)  
 ChangeOctagon(Object|SelectElements|SelectedPins|SelectedVias|Selected)  
 ChangeSize(Object, value)  
 ChangeSize(SelectedLines|SelectedPins|SelectedVias, value)  
 ChangeSize(SelectedPads|SelectedTexts|SelectedNames, value)  
 ChangeSize(SelectedElements, value)  
 ChangeSquare(Object|SelectedElements|SelectedPins)  
 Command()  
 Connection(Find)  
 Connection(ResetFoundLinesAndRectangles|ResetPinsViasAndPads|Reset)  
 DeleteRats(AllRats|SelectedRats)  
 Display(Description|NameOnPCB|Value)  
 Display(Toggle45Degree|CycleClip)  
 Display(Grid|ToggleGrid)  
 Display(ToggleRubberBandMode)  
 Display(Center|ClearAndRedraw|Redraw)  
 Display(Pinout|PinOrPadName)  
 DRC()  
 EditLayerGroups()  
 Load(ElementToBuffer|Layout|LayoutToBuffer|Nelist)  
 MarkCrosshair()  
 Mode(Copy|InsertPoint|Line|Move|None|PasteBuffer|Polygon|Thermal)  
 Mode(Remove|Rectangle|RubberbandMove|Text|Via)  
 Mode(Cycle)  
 Mode(Notify)  
 Mode(Save|Restore)  
 MovePointer(delta\_x, delta\_y)  
 MoveToCurrentLayer(Object|SelectedObjects)  
 New()  
 PasteBuffer(AddSelected|Clear|1..5)  
 PasteBuffer(Rotate, 1..3)  
 PasteBuffer(Convert)  
 Polygon((Close|PreviousPoint)  
 Print()  
 Quit()  
 Redo()  
 RemoveSelected()  
 Report(Object|DrillReport)  
 RouteStyle(1|2|3|4)  
 Save(Layout|LayoutAs)  
 Save(AllConnections|AllUnusedPins|ElementConnections)  
 Select(All|Block|Connection|ToggleObject)  
 Select(ElementByName|ObjectByName|PadByName|PinByName)  
 Select(TextByName|ViaByName)  
 SetValue(Grid|LineSize|TextScale|ViaDrillingHole|ViaSize|Zoom, value)  
 SwapSides()  
 SwitchDrawingLayer(value)  
 ToggleHideName(Object|SelectedElements)  
 Undo()  
 Undo(ClearList)  
 Unselect(All|Block|Connection)

**User ( : ) Commands**

Any command whether bound to a key or not may be exercised using this method.

: (colon) gets you to the PCB user command line.  
 . (period) repeats the previous user command.

AddRats(AllRats|SelectedRats)  
 Atomic(Save|Restore|Block|Close)  
 Bell([ -100..100])  
 ChangeDrillSize(Object, value)  
 ChangeHole(Object|SelectedVias)  
 ChangeName(Object)  
 ChangeOctagon(Object|SelectElements|SelectedPins|SelectedVias|Selected)  
 ChangeSize(Object, value)  
 ChangeSize(SelectedLines|SelectedPins|SelectedVias, value)  
 ChangeSize(SelectedPads|SelectedTexts|SelectedNames, value)  
 ChangeSize(SelectedElements, value)  
 ChangeSquare(Object|SelectedElements|SelectedPins)  
 Command()  
 Connection(Find)  
 Connection(ResetFoundLinesAndRectangles|ResetPinsViasAndPads|Reset)  
 DeleteRats(AllRats|SelectedRats)  
 Display(Description|NameOnPCB|Value)  
 Display(Toggle45Degree|CycleClip)  
 Display(Grid|ToggleGrid)  
 Display(ToggleRubberBandMode)  
 Display(Center|ClearAndRedraw|Redraw)  
 Display(Pinout|PinOrPadName)  
 DRC()  
 EditLayerGroups()  
 Load(ElementToBuffer|Layout|LayoutToBuffer|Nelist)  
 MarkCrosshair()  
 Mode(Copy|InsertPoint|Line|Move|None|PasteBuffer|Polygon|Thermal)  
 Mode(Remove|Rectangle|RubberbandMove|Text|Via)  
 Mode(Cycle)  
 Mode(Notify)  
 Mode(Save|Restore)  
 MovePointer(delta\_x, delta\_y)  
 MoveToCurrentLayer(Object|SelectedObjects)  
 New()  
 PasteBuffer(AddSelected|Clear|1..5)  
 PasteBuffer(Rotate, 1..3)  
 PasteBuffer(Convert)  
 Polygon((Close|PreviousPoint)  
 Print()  
 Quit()  
 Redo()  
 RemoveSelected()  
 Report(Object|DrillReport)  
 RouteStyle(1|2|3|4)  
 Save(Layout|LayoutAs)  
 Save(AllConnections|AllUnusedPins|ElementConnections)  
 Select(All|Block|Connection|ToggleObject)  
 Select(ElementByName|ObjectByName|PadByName|PinByName)  
 Select(TextByName|ViaByName)  
 SetValue(Grid|LineSize|TextScale|ViaDrillingHole|ViaSize|Zoom, value)  
 SwapSides()  
 SwitchDrawingLayer(value)  
 ToggleHideName(Object|SelectedElements)  
 Undo()  
 Undo(ClearList)  
 Unselect(All|Block|Connection)

**User ( : ) Commands**

Any command whether bound to a key or not may be exercised using this method.

: (colon) gets you to the PCB user command line.  
 . (period) repeats the previous user command.

AddRats(AllRats|SelectedRats)  
 Atomic(Save|Restore|Block|Close)  
 Bell([ -100..100])  
 ChangeDrillSize(Object, value)  
 ChangeHole(Object|SelectedVias)  
 ChangeName(Object)  
 ChangeOctagon(Object|SelectElements|SelectedPins|SelectedVias|Selected)  
 ChangeSize(Object, value)  
 ChangeSize(SelectedLines|SelectedPins|SelectedVias, value)  
 ChangeSize(SelectedPads|SelectedTexts|SelectedNames, value)  
 ChangeSize(SelectedElements, value)  
 ChangeSquare(Object|SelectedElements|SelectedPins)  
 Command()  
 Connection(Find)  
 Connection(ResetFoundLinesAndRectangles|ResetPinsViasAndPads|Reset)  
 DeleteRats(AllRats|SelectedRats)  
 Display(Description|NameOnPCB|Value)  
 Display(Toggle45Degree|CycleClip)  
 Display(Grid|ToggleGrid)  
 Display(ToggleRubberBandMode)  
 Display(Center|ClearAndRedraw|Redraw)  
 Display(Pinout|PinOrPadName)  
 DRC()  
 EditLayerGroups()  
 Load(ElementToBuffer|Layout|LayoutToBuffer|Nelist)  
 MarkCrosshair()  
 Mode(Copy|InsertPoint|Line|Move|None|PasteBuffer|Polygon|Thermal)  
 Mode(Remove|Rectangle|RubberbandMove|Text|Via)  
 Mode(Cycle)  
 Mode(Notify)  
 Mode(Save|Restore)  
 MovePointer(delta\_x, delta\_y)  
 MoveToCurrentLayer(Object|SelectedObjects)  
 New()  
 PasteBuffer(AddSelected|Clear|1..5)  
 PasteBuffer(Rotate, 1..3)  
 PasteBuffer(Convert)  
 Polygon((Close|PreviousPoint)  
 Print()  
 Quit()  
 Redo()  
 RemoveSelected()  
 Report(Object|DrillReport)  
 RouteStyle(1|2|3|4)  
 Save(Layout|LayoutAs)  
 Save(AllConnections|AllUnusedPins|ElementConnections)  
 Select(All|Block|Connection|ToggleObject)  
 Select(ElementByName|ObjectByPinName|PadByName|PinByName)  
 Select(TextByName|ViaByName)  
 SetValue(Grid|LineSize|TextScale|ViaDrillingHole|ViaSize|Zoom, value)  
 SwapSides()  
 SwitchDrawingLayer(value)  
 ToggleHideName(Object|SelectedElements)  
 Undo()  
 Undo(ClearList)  
 Unselect(All|Block|Connection)