


















Highlighted = most useful functions)


(*Functions will also work for Advanced nodes (i.e.. N10, N7, N5))

SKILLCAD Base Functions		
Module	Featured tools	Description
 Edit Via (OA)	Stretch *	Stretch standard Cadence via
	Stretch Enc *	Stretch via enclosure
	Set Params/Variants *	Edit Via params (cutClass, via variants)
	cutPattern *	Edit Via Pattern
 V-Editor	BusAdjust *	Adjust bus/net space/width
	BusGrow *	Add more bits (or shield lines) along the existing bus/net
	V-Stretch *	Stretch by V-Line
	V-Move	Move by V-Line
	BusTap	Create taps on bus by V-Line
	Bus Connect(BusJoint) *	Connect bus by order, net names
	Bridge *	Change layers for part of bus/net
	Distribute Bus	Evenly distribute bus in a range
	Align BusEnd *	Stretch/Align bus end with right path end spacing rule
	Bus continue	Continue connections
	BreakBus	Split bus with right path end spacing rule
	changeLayer	Change Metal layer and meanwhile update connected vias
	Detour	Make turns on bus
	Dent Corner	Convert 90-degree corners to 45 degree corners
	viaChain (* partially)	Create via arrays over multiple pins
	GateCont	Create gate contact by V-Line
	combRouter *	Pin to trunk Router
	Fix MinArea *	Fix minimum Area
	Taper Connect	Direct Pin to pin wedge connection
	Rounder Corner	Round Bus Corner
River Router	Single layer pin to pin compact router	
rAdjustor	Adjust the resistance of a path	
Trim Bus Connect	Any angle bus connector	
SameL Connect	Same Length(Resistance) pin to pin connector	
 StepRouter	Path Router	User guided single Path Router
	Bus Router	User guided Bus Router
 SegJumper	segJumper	New Interactive wire stitcher, allowing different widths, spaces, fan-in, fan-out, different layer, with integrated busContinue, busConnect and distributeBus features
 FreeJumper	Path Jumper	Interactive Path Stitcher
	Bus Jumper	Interactive Bus Stitcher


	Shield Bus	ShieldBus Jumper *	left/right/middle/top/bottom shielding, allow layer jumping
		Via Wall Shield *	left/right/middle/top/bottom shielding, and via MPP shielding
	UniVia	Create Via	Create SKILLCAD UniVia(IC5) or standard via
	MPP/Ring	Draw MPP	Create regular MPP
		Draw Rect Ring	Create Rectangle guard ring
		Draw Polygon Ring	Create Polygon guard ring
		Change Mpps	Modify Mpps
	Fill Via	Grow From Obj/layer	Create Ring By Sizing Selected Obj
		Draw Rect Via	Fill via in a rectangle region
		Draw Polygon Via	Fill via in a polygon region
		Fill selected regions (* Partially)	Fill via in selected regions
		Fill Overlap by Click (* Partially)	Fill via in overlaps of specified two layers
	LayerHandler	Fill overlap of Any two layers By Click (* Partially)	Auto detect overlapping layers and fill proper uniVia
		Fill Overlap of Same VXL net	Drop via on the overlap regions based on VXL net
		QueryLayer *	Get hierarchical Layer info under point/box/cellview
		LayerSet *	Programmable Buttons to save/retrieve layer settings
	Slot Functions	Draw SlotPath	Draw slot path (pcells)
		Convert To Slot Path	Convert select path(s) to slot paths (pcells)
		Copy Slot Holes	Create Slot From the slot on other Layer with offsets
		Create Mesh	Create Mesh Shapes with Paths/Wires
	GetNet	SelectNet	Select metals/vias of the net
		ExtractNet	Hierarchically extract net to a separate cell view
		HilightNet	Hierarchically highlight a net
	Fill Functions	Advanced Fill (* Partially)	Coverage-aware Dummy Pattern Fill
		Simple Fill (* Partially)	Fill Rectangular dummy shapes.
		Check Density *	Check layer(s) density in a local region/window. Includes a new function to check areas created by Boolean operations.
	Pin Functions	Pin Placer/Browser *	Browse pins/labels, auto place pins.
		Align InstPins To Neighbor *	Place Pins in the editing instance with reference to the pins in the neighboring instances
		Align InstPins To Top *	Place Pins in the editing instance with reference to the top level pins
		Quick Label(Pin) *	Create Labels/pins one by one, by line or all in one click, import schematic pin names
		Promote Pins *	Promote lower level pins to top level
		Create Pin From Label *	Create shape pins from labels
		Create Pin From Coord *	Generate pin placement from a text file with pin name, layer and coordinates information.
		Expand Pin To Shape *	Expand Pin Fig to cover entire shape
		Move pin to PAD Center *	Moves all pins within the pad layer to the Pad center
		Align Distribute Pins *	Move/Align/sort pins (to prBoundary). Can also be used for objects.
Placement	Pattern Placer	Change Pin Size/Layer *	Change the size or layer of the selected pins
		Rename Pin/Label *	Change bus pin/label names [] {} <>
		Cover Pins by Metal Drawing *	Cover Pins by corresponding metal drawing
		Pattern Placer	Create pattern placement by clicking on the place holder array in the GUI. Handle dummy/aboutment/guard ring.

 Label Functions	Quick Label(Pin) *	Create Labels/pins
	Rename Pin/Label	Change bus pin/label names [] {} <>
	Create Inst Label *	Create inst./cell name label on instances
	Create Voltage Label	Create voltage info label on pins
	Mask Label(Letter) *	Create Mask ID Physical labels
 Kits	Calculate Area/perimeter *	Hierarchical area/perimeter calculator
	Simple Net R	Calculate resistance for standard bus
	Fix Offgrid *	Fix off grid shapes
	Sky View *	Overall context view for all instances
	Flip Within BBox *	MX/MY/R180 flip within original BBox
	Swap Bit Lines (vias)	Swap vias/connections between two lines
	Toggle Via CutClass	Change (cycle) Via CutClass(size)
	Full Selection	Partial ->full, Full bus selection
	Select Net Objs	Select objects by layer and net names
	nCopy	copy selected objects "n" times
	Manhattan Edge	Convert all edges(ellipse shapes) to Manhattan Shapes
	Create Spiral	Create Spiral Shapes(inductor)
	Formula Plotter	Creating shapes defined by equations
	Fill Holes	Fill holes with certain area/width
	Layer Generation	Create layers from objects, using Boolean functions
	Cut Out Short *	Cut holes to remove short on a big piece(Power) metal
	Cover Fig/Net	Cover shapes or entire net with specify lpp (or color pattern)
	Grow Shapes	Grow shapes from a reference obj
	Edge Grow	Create wires from selected edges of a shape
	Line Distance *	Measure distances between two lines/edges
	Sync Window View *	Zoom to the same layout location of two synchronized windows
	Sync Schematic View *	Zoom to the same schematic location of two synchronized windows
	Replace Part of Layer	
	Copy From Background View	Copy/Move shapes from the background view
	XOR Background View *	XOR a background view with the current view, displaying differences between the two
	Chop Array	Chop Mosaic cells
	Inductor Pin Checker	Check pins on each net (for inductor layout)
	Create Arc Shapes	Create curved shapes (high voltage application)
	Convert Shapes	Convert shapes between path/polygon/wire

MultiColor Functions (Temporarily Covered by SKILLCAD Base license)		
Module	Featured tools	Description
 MultiColor Functions	Quick Color	Change/assign wire Colors by click or line
	nanoJumper	Create Wire and meanwhile assign color

NanoWire		
Module	Featured tools	Description
 Track Functions	NanoTrack Router	Track Pattern based wire Stitcher
	Transition Connector	Track Pattern based Bus Connector
	View Patterns	Interactively view defined track patterns
	Push Bus to Tracks	Push/snap wires to tracks
	Fill Via By Click	Fill via on a metal overlap according to the via Configuration
	Fill Via By Box (same Net)	Fill via on all metal overlaps within a box area according to the via Configuration

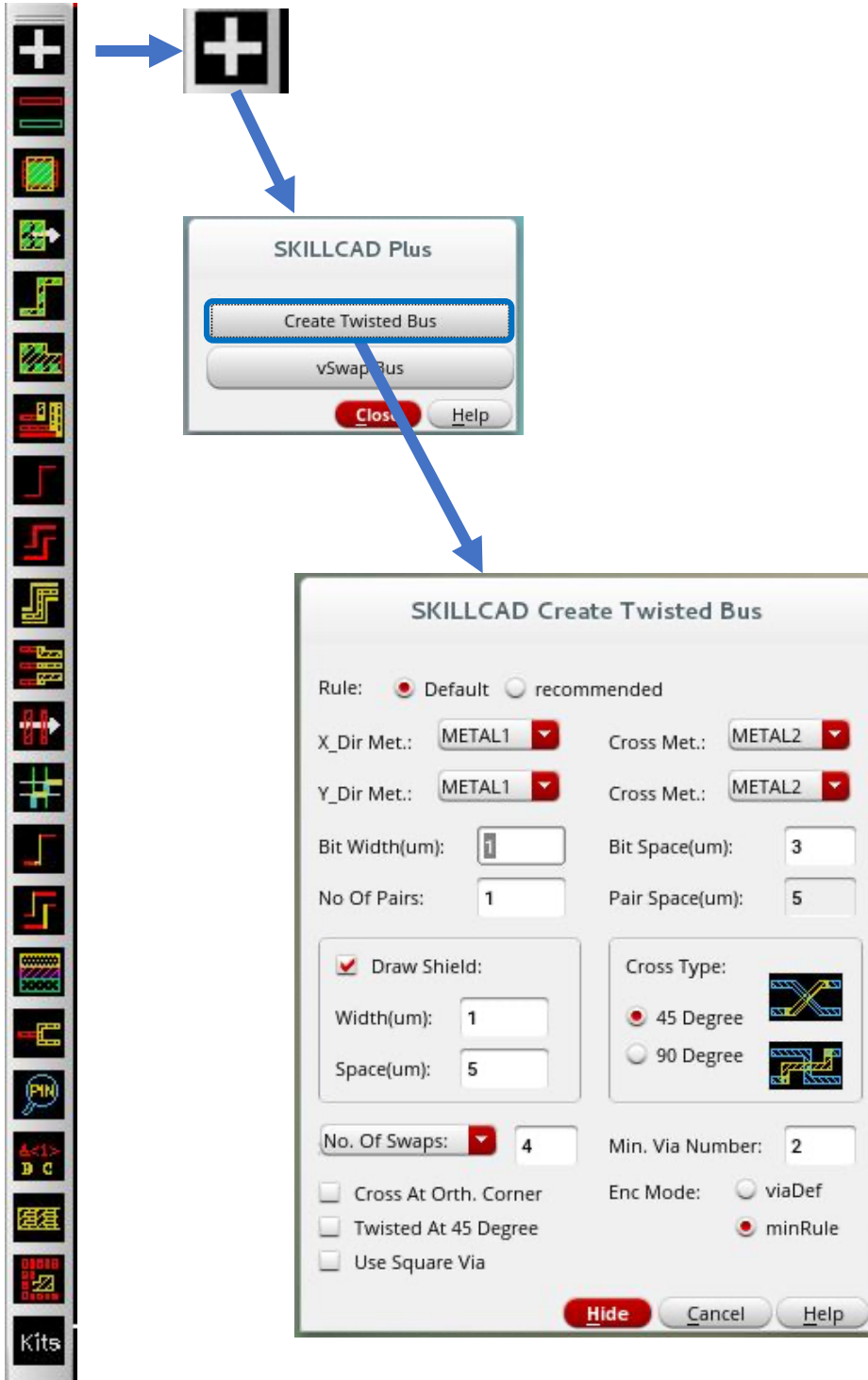
rSolver		
Module	Featured tools	Description
rSolver	rSolver	Point to point resistance extraction.

TwistedBus		
Module	Featured tools	Description
 TwistedBus	Create Twisted Bus	Create Twisted Bus
	vSwap Bus	Create/insert a swap by drawing a line cross two wires

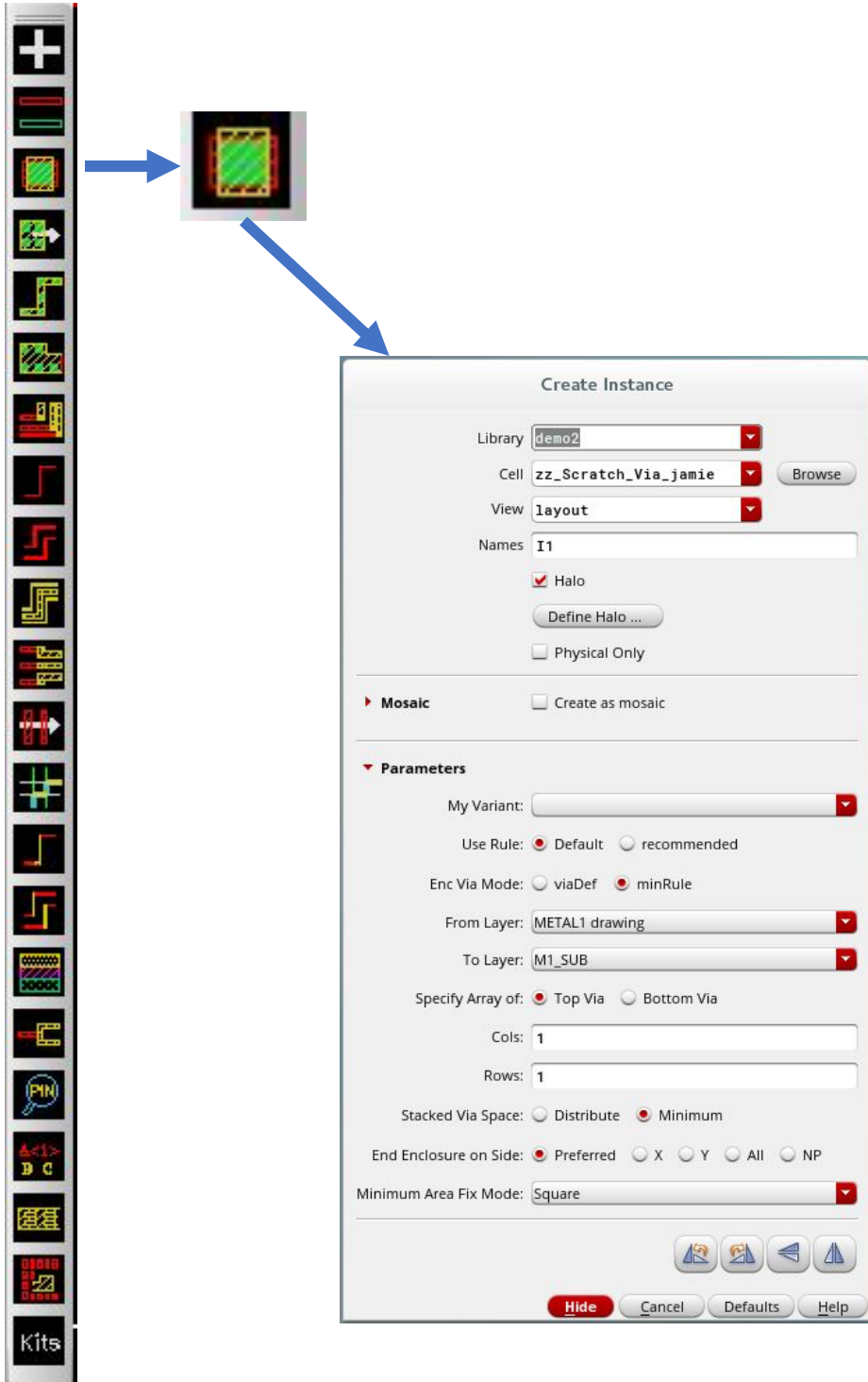
SKILLCAD Setup		
Module	Step	Description
Setup View the Complete Setup (start to finish)	Setup Technology Library	Select the technology library and set the grid and database units.
	Setup Routing Layers	Set up metal layer parameters. These are used in capacitance calculations.
	Setup Special Metals	Set up special metals, such as MIM cap.
	Setup LVS Labels and Pin Layers	Set up the layers for metal and pin labels.
	Setup Base Layers	Set up base layers, such as poly and diffusion.
	Setup Implant Groups	This setup is only needed when using Cadence IC5.
	Setup Equivalent Layers	Set up metal equivalent layers. This is used in the GetNet functions.
	Setup General Metal and Via Rules	Set up general metal rules, such as coupling capacitances, minimum default number of vias, etc.
	Setup Individual Metal Layer Rules	Set up metal rules, such as widths and spacings, and resistances.
	Setup Contact and Via Rules	Set up contact and via rules, and metal enclosure of vias rules. Also set up contact and via resistances. These are used in the rSolver and other resistance calculations.
	Setup Wire Configuration Rules (Nano Router)	Set up wire configuration rules. This is only necessary if you are using a track routing methodology.
	Setup Metal and Via Keepout Regions	Define layers to be used as keep out layers.
	Define Metal Direction and Via Costs	Define cost factors for metals and vias. This sets the preferred metal routing directions and is used by the step routing functions.
	Setup Metal Slotting Parameters	Set up parameters for metal slotting and metal mesh.
Compiling The Setup File	Check and compile the Setup file.	
Customizing The Icon Bar	Select icons to appear on the icon bar.	

User Preference Setup		
Module	Step	Description
Preferences	Setting Up User Preferences	Set pop-up dialog box preferences, template file name, and select where the icon bar will appear in the layout window.

SKILLCAD Plus, Create Twisted Bus



SKILLCAD Create Via



The diagram illustrates the process of creating a via in SKILLCAD. It starts with a vertical toolbar on the left containing various layout tools. A blue arrow points from the 'Create Via' tool (a square with a green grid) to a larger, detailed view of the via symbol. A second blue arrow points from this symbol to the 'Create Instance' dialog box.

Create Instance

Library:

Cell:

View:

Names:

Halo

Physical Only

Mosaic Create as mosaic

Parameters

My Variant:

Use Rule: Default recommended

Enc Via Mode: viaDef minRule

From Layer:

To Layer:

Specify Array of: Top Via Bottom Via

Cols:

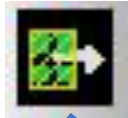
Rows:

Stacked Via Space: Distribute Minimum

End Enclosure on Side: Preferred X Y All NP

Minimum Area Fix Mode:

SKILLCAD Edit Standard Via, Set Params/Variants



SKILLCAD Edit Standard Via

Action: Stretch Array Stretch Enclosure Set Params/Variants cutPattern

Enc Mode: viaDef minRule

My Variant Name: Save Del

Reset Params To:

Via Columns: + 0 Rows: + 0

Via Width(um): + 0 Height: + 0

Via SpaceX(um): + 0 SpaceY: + 0

Symmetrical Enclosure

Layer1 Enc Left: + 0 Right: + 0

Layer1 Enc Top: + 0 Bottom: + 0

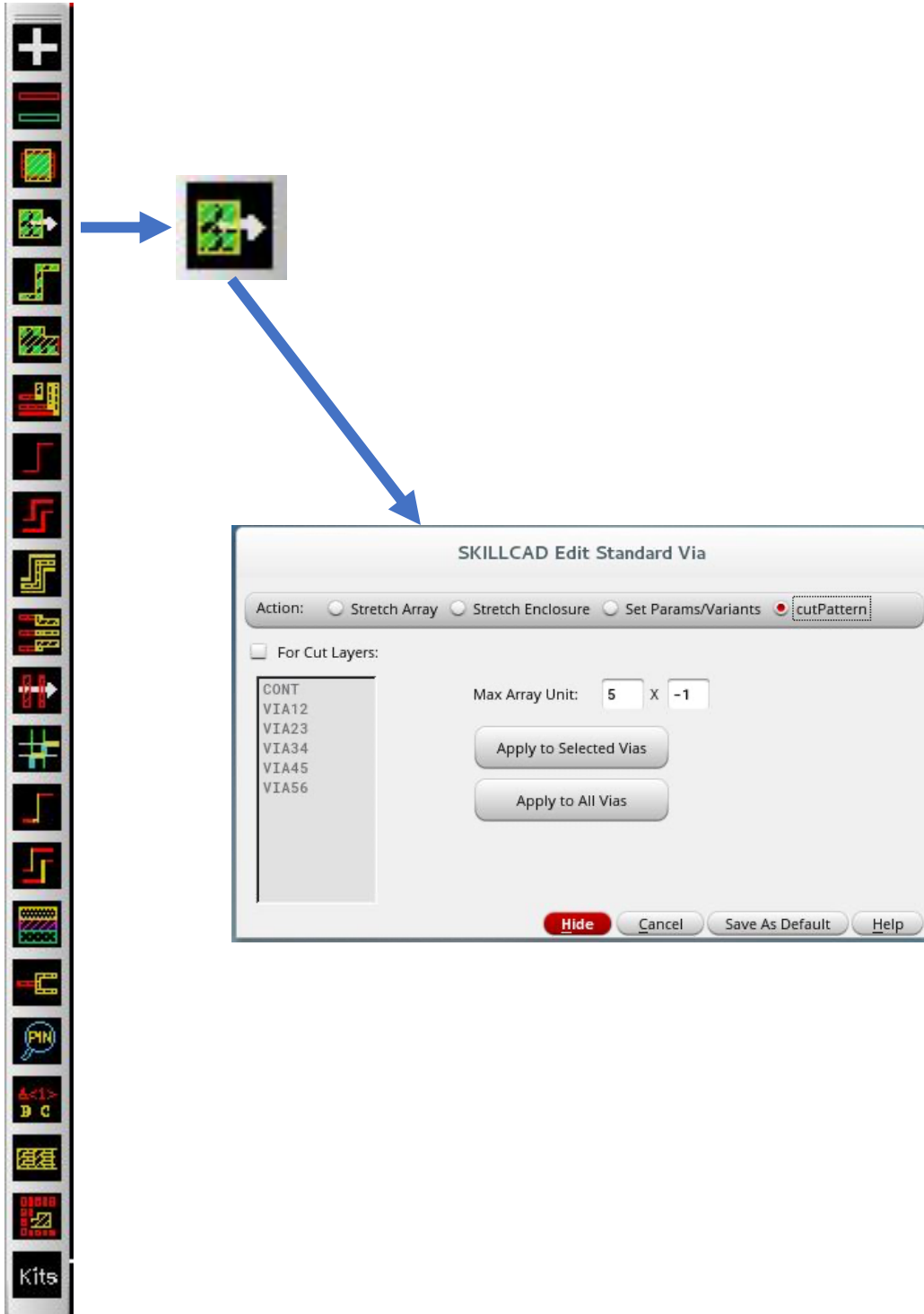
Layer2 Enc Left: + 0 Right: + 0

Layer2 Enc Top: + 0 Bottom: + 0

Imp1 Enc X: + 0 Enc Y: + 0

Imp2 Enc X: + 0 Enc Y: + 0

SKILLCAD Edit Standard Via, Cut Patterns



SKILLCAD Fill Via

The image shows the SKILLCAD Fill Via in Area dialog box with several callouts explaining its features:

- Fill all from and to layers, in a rectangular area.** (Points to the "Fill All 'From' and 'To' layer Overlaps Within a Rect Region" button)
- Fill metal overlaps, by clicking on overlap.** (Points to the "Fill Overlap By Click" button)
- Fill vias in a selected region.** (Points to the "Fill Selected Region(s)" button)
- Fill metal overlaps, by clicking on overlap; auto detect from and to layers.** (Points to the "*** Fill Overlap of Any Two Layers By Click ***" button)
- Fill metal overlaps, on same VXL net, within a rectangular region.** (Points to the "Fill Metal Overlaps of Same VXL Net Within a Rect Region" button)
- Draw a polygonal via array.** (Points to the "Draw Polygon Via" button)
- Draw a rectangular via array.** (Points to the "Draw Rect Via" button)

The dialog box itself contains the following settings and options:

- Use Rule:** Default recommended
- Enc Mode:** viaDef minRule **Space:** Distribute Minimum
- Align Metal Edge Flat Via in Polygon Group Via
- End Enclosure Side:** Preferred X Y All NP
- Fix Min. Area:** Square Ignore Invisible Layers
- Check same VXL net name when filling overlaps
- Outside **Layer:** **By(um):** 0
- Commands Use "From" and "To" Layer Settings:**
 - From:** METAL1 drw **To:** M1_SUB
 - Fill All "From" and "To" layer Overlaps Within a Rect Region
 - Fill Overlap By Click
 - Draw Polygon Via
 - Fill Selected Region(s)
 - Draw Rect Via
- Commands Auto-detect "From" and "To" Layers:**
 - *** Fill Overlap of Any Two Layers By Click ***
 - Fill Metal Overlaps of Same VXL Net Within a Rect Region
- Buttons:** Close, Save As Default, Help

SKILLCAD Create Multi-Part Path (MPP)



SKILLCAD Create MPP

Use Rule: Default recommended

Enc Mode: viaDef minRule

From: METAL1 drw To: M1_SUB

Specify: Bottom Via Bottom Layer Top Via Top Layer

Number of "CONT drawing":

"DIFF" Width(um):

Set Starting Enclosure(um):

Set Ending Enclosure(um): Fix MinWidth

Via Space in Path Dir: Distribute Min Specify:

Via Space in Width Dir: Distribute Min Specify:

Grow/Ring Options:

Grow From: Boundary POLY1 drawing

Reference Edge of the Ring: inner center outer

Grow By(um): Grow To Rectangle

Save MPP as Cell Name(Prefix): Auto

Creating an MPP.

Creating a ring around existing shapes, instances.

Changing selected MPPs.

Creating a ring, guard ring.

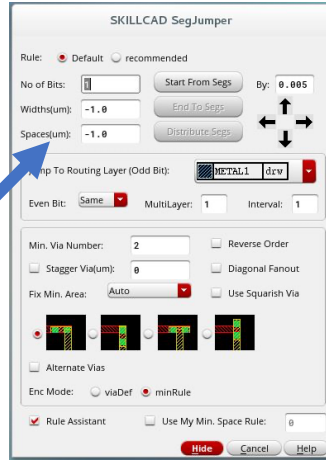
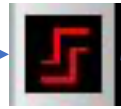
Reshaping an MPP/ring.

[PDF Doc](#)

[PowerPoint Doc](#)

[Video](#)

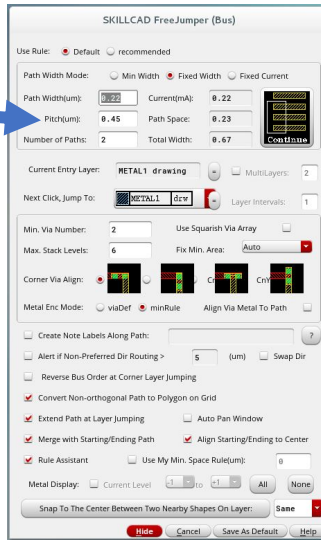
SKILLCAD Creating a Metal Bus, (3 Ways)



[PDF Doc](#)

[PowerPoint Doc](#)

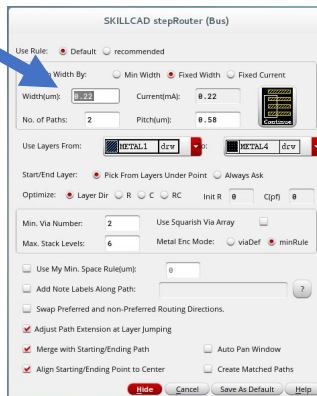
[Video](#)



[PDF Doc](#)

[Word Doc](#)

[Video](#)



[PDF Doc](#)

[Word Doc](#)

[Video](#)

SKILLCAD Continuing a Metal Path/Path Segment

The image shows the SKILLCAD SegJumper dialog box. On the left is a vertical toolbar with various icons. A blue arrow points from the 'Start From Segs' button in the dialog to a small thumbnail image of a PCB layout on the toolbar. The dialog box contains the following settings:

- Rule: Default recommended
- No of Bits: **Start From Segs** By:
- Widths(um): **End To Segs**
- Spaces(um): **Distribute Segs**
- Jump To Routing Layer (Odd Bit):
- Even Bit: MultiLayer: Interval:
- Min. Via Number: Reverse Order
- Stagger Via(um): Diagonal Fanout
- Fix Min. Area: Use Squarish Via
- Alternate Vias:
- Enc Mode: viaDef minRule
- Rule Assistant Use My Min. Space Rule:

Buttons: **Hide** Cancel Help

SKILLCAD SegJumper, Various Functions

The image shows the SKILLCAD SegJumper dialog box with several callouts pointing to specific settings and options. The callouts are as follows:

- Distributing bus metals.** Points to the "Distribute Segs" button.
- Alternating bus metal layers.** Points to the "Jump To Routing Layer (Odd Bit)" dropdown menu.
- Staggering in-line vias.** Points to the "Stagger Via(um)" checkbox.
- Reversing bus routing order at via corners.** Points to the "Reverse Order" checkbox.
- Fan out/in of bus routes.** Points to the "Diagonal Fanout" checkbox.
- Alternating via directions at bus via corners.** Points to the "Alternate Vias" checkbox.

The dialog box itself contains the following settings:

- Rule:** Default recommended
- No of Bits:** 16
- Widths(um):** 0.28
- Spaces(um):** 0.23
- By:** 0.005
- Buttons:** Start From Segs, End To Segs, Distribute Segs
- Jump To Routing Layer (Odd Bit):** METAL2 drw
- Even Bit:** Same
- MultiLayer:** 1
- Interval:** 1
- Min. Via Number:** 2
- Stagger Via(um):** 0
- Fix Min. Area:** Auto
- Reverse Order:**
- Diagonal Fanout:**
- Use Squarish Via:**
- Alternate Vias:**
- Enc Mode:** viaDef minRule
- Rule Assistant:**
- Use My Min. Space Rule:** 0
- Buttons:** Hide, Cancel, Help

SKILLCAD Path/Path Segments, Various Functions

The image shows the SKILLCAD FreeJumper (Path) dialog box with several callouts explaining its functions:

- Creating labels along the path.** Points to the **Create Note Labels Along Path:** checkbox.
- Convert a non-orthogonal path to a polygon, on grid.** Points to the **Convert Non-orthogonal Path to Polygon on Grid** checkbox.
- Align the starting and ending path to the center of the existing metal.** Points to the **Align Starting/Ending to Center** checkbox.
- Snap path/path segment to the center, between two existing shapes.** Points to the **Snap To The Center Between Two Nearby Shapes On Layer:** button.

The dialog box includes the following settings:

- Use Rule:** Default recommended
- Path Width Mode:** Min Width Fixed Width Fixed Current
- As Starting Path:** Width(um): 0.22 Current(mA): 0.22
- Current Entry Layer:** METAL1 drawing MultiLayers: 2
- Next Click, Jump To:** METAL1 drw Layer Intervals: 1
- Min. Via Number:** 2 **Use Squarish Via Array:**
- Max. Stack Levels:** 6 **Fix Min. Area:** Auto
- Corner Via Align:**
- Metal Enc Mode:** viaDef minRule **Align Via Metal To Path:**
- Alert if Non-Preferred Dir Routing >** 5 (um) **Swap Dir**
- Extend Path at Layer Jumping** **Auto Pan Window**
- Merge with Starting/Ending Path** **Align Starting/Ending to Center**
- Probe The Drawing Net**
- Rule Assistant** **Use My Min. Space Rule(um):** 0
- Metal Display:** Current Level -1 to +1 All None
- Snap To The Center Between Two Nearby Shapes On Layer:** Same
- Buttons: Hide Cancel Save As Default Help

SKILLCAD Step Router Path/Path Segments, Various Functions



Creating a path/path segment that automatically vias over/under existing metal layers.

Creating a path/path segment that automatically optimizes for layer direction, R, C, and RC.

Add labels along path/path segment.

Aligning the starting/ending points of the path/path segment to the center of existing metals.



SKILLCAD stepRouter (Path)

Use Rule: Default recommended

Set Path Width By: Min Width Fixed Width Fixed Current

As Starting Path: Width(um): Current(mA):

Use Layers From: to:

Start/End Layer: Pick From Layers Under Point Always Ask

Optimize: Layer Dir R C RC Init R: C(pf):

Min. Via Number: Use Squarish Via Array:

Max. Stack Levels: Metal Enc Mode: viaDef minRule

Use My Min. Space Rule(um):

Add Note Labels Along Path: Use VXL Net Name

Swap Preferred and non-Preferred Routing Directions.

Adjust Path Extension at Layer Jumping Probe The Drawing Net

Merge with Starting/Ending Path Auto Pan Window

Align Starting/Ending Point to Center Create Matched Paths

SKILLCAD Step Router Path/Path Segments, Matched Paths



Creating matched paths/path segments.

SKILLCAD stepRouter (Path)

Use Rule: Default recommended

Set Path Width By: Min Width Fixed Width Fixed Current

As Starting Path Width(um): 0.22 Current(mA): 0.22

Use Layers From: METAL1 drw METAL4 drw

Start/End Layer: Pick From Layers Under Point Always Ask

Optimize: Layer Dir R C RC Init R 0 C(pf) 0

Min. Via Number: 2 Use Squarish Via Array
Max. Stack Levels: 6 Metal Enc Mode: viaDef minRule

Use My Min. Space Rule(um): 0
 Add Note Labels Along Path: Use VXL Net Name
 Swap Preferred and non-Preferred Routing Directions.

Adjust Path Extension at Layer Jumping Probe The Drawing Net
 Merge with Starting/Ending Path Auto Pan Window
 Align Starting/Ending Point to Center Create Matched Paths

R0 matched paths starting points: Sel...
MY matched paths starting points: Sel...
MX matched paths starting points: Sel...
R90 matched paths starting points: Sel...
R180 matched paths starting points: Sel...
R270 matched paths starting points: Sel...
MYR90 matched paths starting points: Sel...
MXR90 matched paths starting points: Sel...

Hide Cancel Save As Default Help

SKILLCAD Step Router Bus, Various Functions

The diagram illustrates the SKILLCAD Step Router Bus interface. On the left is a vertical toolbar with various routing icons. In the center is a small icon of a bus with a square via. To the right is the 'SKILLCAD stepRouter (Bus)' dialog box. Five callout boxes with arrows point to specific features in the dialog:

- Creating a bus that automatically vias over/under existing metal layers.** Points to the 'Use Layers From' section, specifically the 'METAL1' and 'METAL4' dropdowns.
- Creating a bus that automatically optimizes for layer direction, R, C, and RC.** Points to the 'Optimize' section, specifically the 'Layer Dir' radio button.
- Add labels along the bus routes.** Points to the 'Add Note Labels Along Path' checkbox.
- Aligning the starting/ending points of the bus to the center of existing metals.** Points to the 'Align Starting/Ending Point to Center' checkbox.
- Adjust Path Extension at Layer Jumping.** Points to the 'Adjust Path Extension at Layer Jumping' checkbox.

The 'SKILLCAD stepRouter (Bus)' dialog box contains the following settings:

- Use Rule:** Default recommended
- Set Path Width By:** Min Width Fixed Width Fixed Current
- Width(um):** 0.22 **Current(mA):** 0.22
- No. of Paths:** 2 **Pitch(um):** 0.58
- Use Layers From:** METAL1 (drw) to METAL4 (drw)
- Start/End Layer:** Pick From Layers Under Point Always Ask
- Optimize:** Layer Dir R C RC **Init R:** 0 **C(pf):** 0
- Min. Via Number:** 2 **Use Squarish Via Array:**
- Max. Stack Levels:** 6 **Metal Enc Mode:** viaDef minRule
- Use My Min. Space Rule(um): 0
- Add Note Labels Along Path: []
- Swap Preferred and non-Preferred Routing Directions.
- Adjust Path Extension at Layer Jumping
- Merge with Starting/Ending Path Auto Pan Window
- Align Starting/Ending Point to Center Create Matched Paths

SKILLCAD Step Router Bus, Matched Bus




Creating matched bus routes.

SKILLCAD stepRouter (Bus)

Use Rule: Default recommended

Set Path Width By: Min Width Fixed Width Fixed Current

Width(um): 0.22 Current(mA): 0.22 

No. of Paths: 2 Pitch(um): 0.58

Use Layers From: METAL1 drw to METAL4 drw

Start/End Layer: Pick From Layers Under Point Always Ask

Optimize: Layer Dir R C RC Init R: 0 C(pf): 0

Min. Via Number: 2 Use Squarish Via Array:

Max. Stack Levels: 6 Metal Enc Mode: viaDef minRule

Use My Min. Space Rule(um): 0

Add Note Labels Along Path: ?

Swap Preferred and non-Preferred Routing Directions.

Adjust Path Extension at Layer Jumping

Merge with Starting/Ending Path Auto Pan Window

Align Starting/Ending Point to Center Create Matched Paths

R0 matched paths starting points: [] Sel...

MY matched paths starting points: [] Sel...

M matched paths starting points: [] Sel...

R90 matched paths starting points: [] Sel...

R180 matched paths starting points: [] Sel...

R270 matched paths starting points: [] Sel...

MYR90 matched paths starting points: [] Sel...

MXR90 matched paths starting points: [] Sel...

Hide Cancel Save As Default Help

SKILLCAD Advanced Fill

SKILLCAD UniFill Form

Template: [] [Save] [Load]

Fill Dummy shape of Layer: **Select Layer...**

For the Coverage of Layer: **Select Layer...**

Ignore Coverage: Min(%): 20 Max(%): 80

Filling Pattern Defined By: Rectangle Cell

With Fixed: Width Height Width & Height

W(um): 2 Max W: 20 Space X(um): 0

H(um): 2 Max H: 20 Space Y(um): 0

Space to Existing Figs: 0 Exact Space

Keepout Layer/Area: [] [Add] [Del]

[Add Above Run Set] [Del Selected Run Set]

Run Sets: []

Fill Region: [Report Coverage]

Cell Boundary Box Down Size By(um): 0

Box: [] [...]

Under Layer: **Select Layer...**

Selected Regions

Area to Calculate Coverage: Grow Fill-Region by 0

Use Tile Mode Square Tile Size(um): 20

Excluding Layer Purposes: []

Create Exclusion on Layer Purpose: []

Save to Lib: demo2 Cell: []

Create Matched Fill Place At 0:0

[OK] [Cancel] [Defaults] [Apply] [Help]

SKILLCAD Fill Dummy

[Advanced Fill] [Simple Fill] [Check Density] [Close] [Help]

Creating dummy fill.

Creating dummy fill, using a fill cell.

Creating dummy fill run sets.

Creating dummy fill in a defined area.

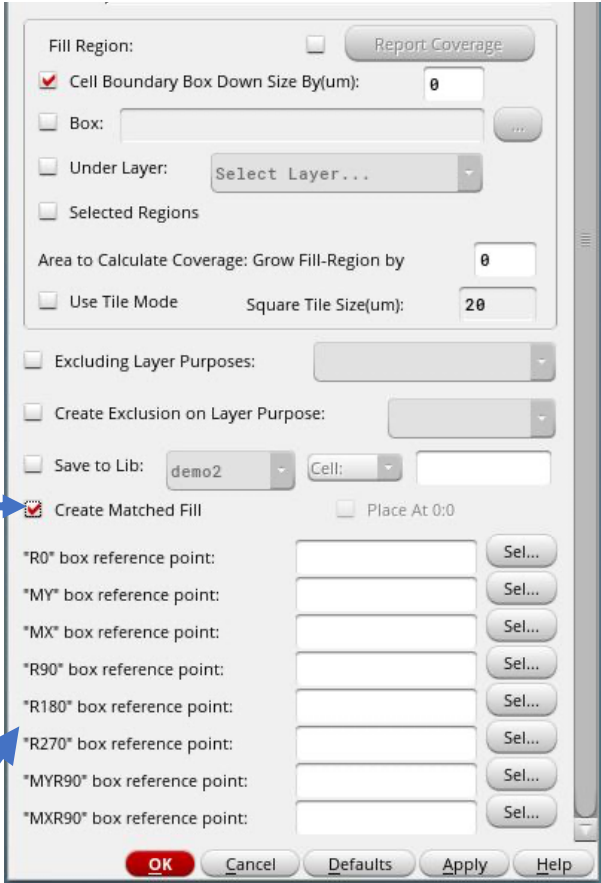
Creating dummy fill under a specified layer.

Creating dummy fill in a selected region.

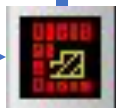
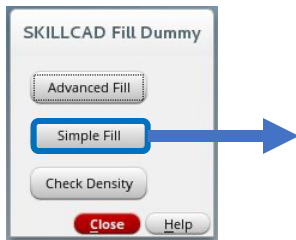
SKILLCAD Advanced Fill, Matched Fill



Creating matched fill.



SKILLCAD Simple Fill



SKILLCAD Fill Area

Template: ... Save Load

Pre-set Layer Purpose: **drawing** Save As Cell

<input type="checkbox"/> <input type="checkbox"/> Fill Layers	Width(um)	Height	SpaceX	SpaceY	Distribute
<input type="checkbox"/> CONT drawing	0.22	<input type="checkbox"/> 0.22	0.25	<input type="checkbox"/> 0.25	<input type="checkbox"/>
<input type="checkbox"/> VIA12 drawing	0.26	<input type="checkbox"/> 0.26	0.26	<input type="checkbox"/> 0.26	<input type="checkbox"/>
<input type="checkbox"/> VIA23 drawing	0.26	<input type="checkbox"/> 0.26	0.26	<input type="checkbox"/> 0.26	<input type="checkbox"/>
<input type="checkbox"/> VIA34 drawing	0.26	<input type="checkbox"/> 0.26	0.26	<input type="checkbox"/> 0.26	<input type="checkbox"/>
<input type="checkbox"/> VIA45 drawing	0.26	<input type="checkbox"/> 0.26	0.26	<input type="checkbox"/> 0.26	<input type="checkbox"/>
<input type="checkbox"/> VIA56 drawing	0.36	<input type="checkbox"/> 0.36	0.35	<input type="checkbox"/> 0.35	<input type="checkbox"/>
<input type="checkbox"/> DIFF drawing	1	<input type="checkbox"/> 1	0.6	<input type="checkbox"/> 0.6	<input type="checkbox"/>
<input type="checkbox"/> POLY1 drawing	0.18	<input type="checkbox"/> 0.18	0.25	<input type="checkbox"/> 0.25	<input type="checkbox"/>
<input type="checkbox"/> METAL1 drawing	0.22	<input type="checkbox"/> 0.22	0.23	<input type="checkbox"/> 0.23	<input type="checkbox"/>
<input type="checkbox"/> METAL2 drawing	0.22	<input type="checkbox"/> 0.22	0.23	<input type="checkbox"/> 0.23	<input type="checkbox"/>
<input type="checkbox"/> METAL3 drawing	0.28	<input type="checkbox"/> 0.28	0.28	<input type="checkbox"/> 0.28	<input type="checkbox"/>
<input type="checkbox"/> METAL4 drawing	0.28	<input type="checkbox"/> 0.28	0.28	<input type="checkbox"/> 0.28	<input type="checkbox"/>
<input type="checkbox"/> METAL5 drawing	0.28	<input type="checkbox"/> 0.28	0.28	<input type="checkbox"/> 0.28	<input type="checkbox"/>
<input type="checkbox"/> METAL6 drawing	0.28	<input type="checkbox"/> 0.28	0.28	<input type="checkbox"/> 0.28	<input type="checkbox"/>

Fill in Selected Objects Fill in a Rect Region Fill in a Polygon Region

Close Help

SKILLCAD Layer Density Check

The image shows the SKILLCAD Layer Density Check dialog box. On the left is a vertical toolbar with various layout tools. The dialog box has the following elements:

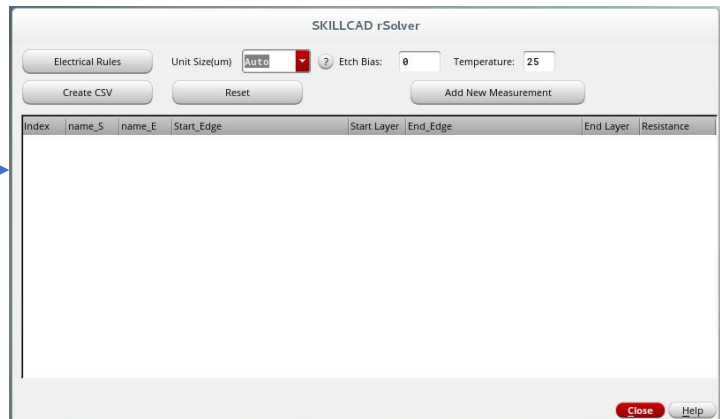
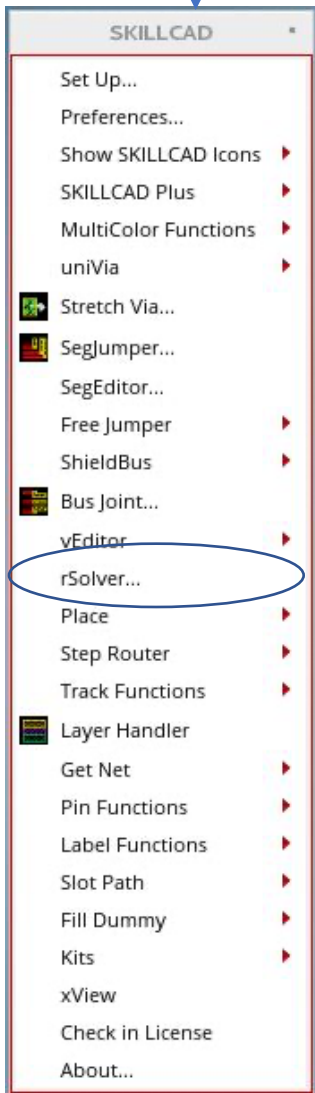
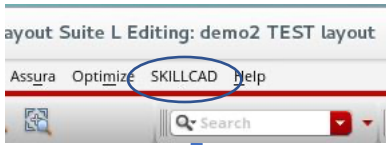
- For:** Layer (selected), LPP
- Layers For Density Check:** A list box containing 1TDMY, BC1, BC2, BJTDUMMY, BLBRC2, BPI, BPLY, BTC, C1, and a scroll bar. To the right are 'Add' and 'Del' buttons.
- Window Size(um):** 100
- Step:** Same As Tile
- Region Selection Buttons:** Rectangle Region, Polygon Region, Selected Region, and Coord Region.
- Input Field:** x1:y1 x2:y2... with a text cursor.
- Buttons:** Clear Report, Close, and Help.

Callouts from text boxes point to specific features:

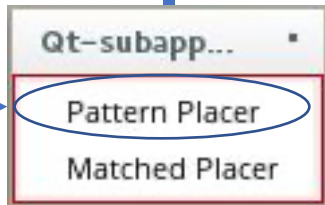
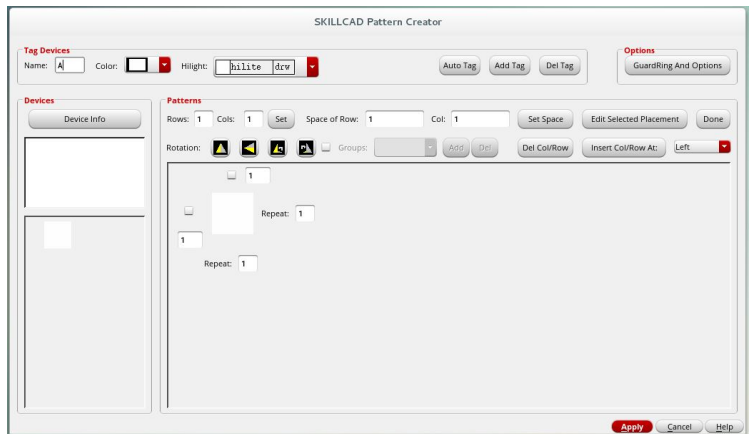
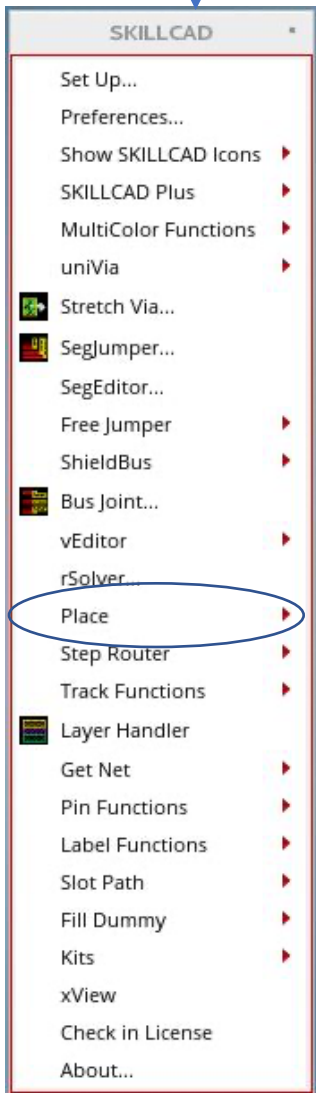
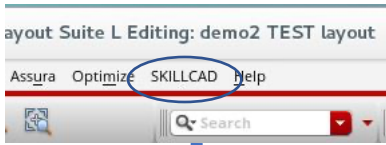
- Density checking in a polygonal region.** Points to the Polygon Region button.
- Density checking in a rectangular region.** Points to the Rectangle Region button.
- Density checking in a region defined by coordinates.** Points to the Coord Region button.
- Density checking in a selected region.** Points to the Selected Region button.

Below the dialog box is the SKILLCAD Fill Dummy dialog box, which has buttons for Advanced Fill, Simple Fill, Check Density, Close, and Help. A blue arrow points from the 'Check Density' button to the main dialog box. Another blue arrow points from the 'Kits' button in the toolbar to the 'Check Density' button.

SKILLCAD rSolver



SKILLCAD Pattern Placer



SKILLCAD Quick Label

Re-Create labels for selected pins.

SKILLCAD Label Functions

- Quick Label(Pin)
- Rename Pin/Label
- Create Inst Label
- Create Voltage Label
- Mask Label(Letter)
- Close Help

SKILLCAD quickLabel

netNames Note

Height: -1 Font: stick Orientation: Auto

Layer: Auto Justification: Auto

Create Rect Pin Also Float Pin Pin W(um): Auto H: Auto

Align to Metal Shape: Auto as Text Display

Re-Create Labels for All (Selected) Pins (and Keep Pin Shape/Layer/Position)

Pick netNames from Schematic

Lib: demo2 Cell: TEST View: schematic

Pins Only Exclude Defaults

Filter:

Expand all busNames

Mode: Single Line All

No. of labels for a group: 2

Label dx: 0 dy: 0

Group dx: 0 dy: 0

Use VXL Net Name

Input Labels:

Interleaf Bus Labels

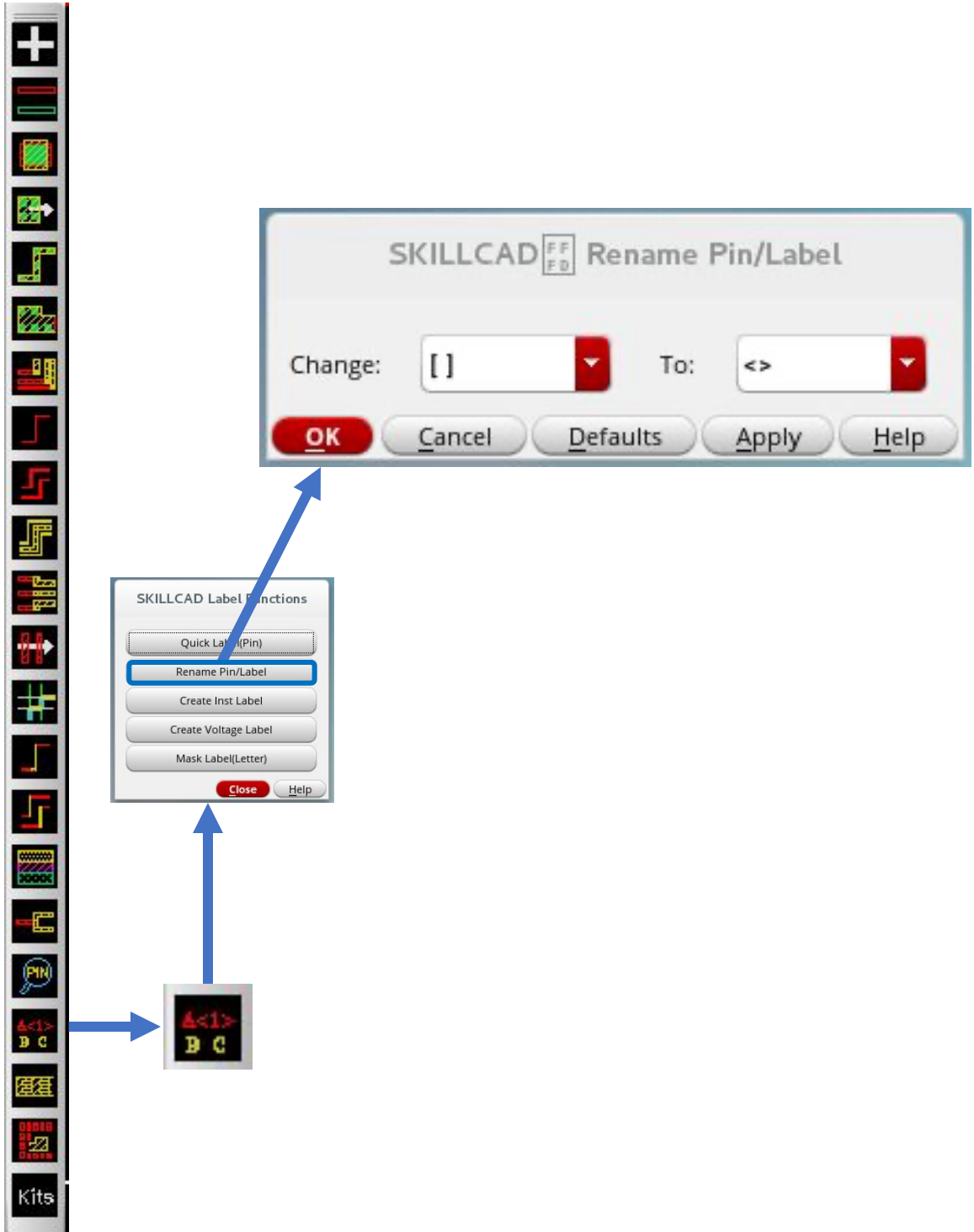
Undo All Undo Once Skip Keep Interleaf Bus Labels

==> <== Reset

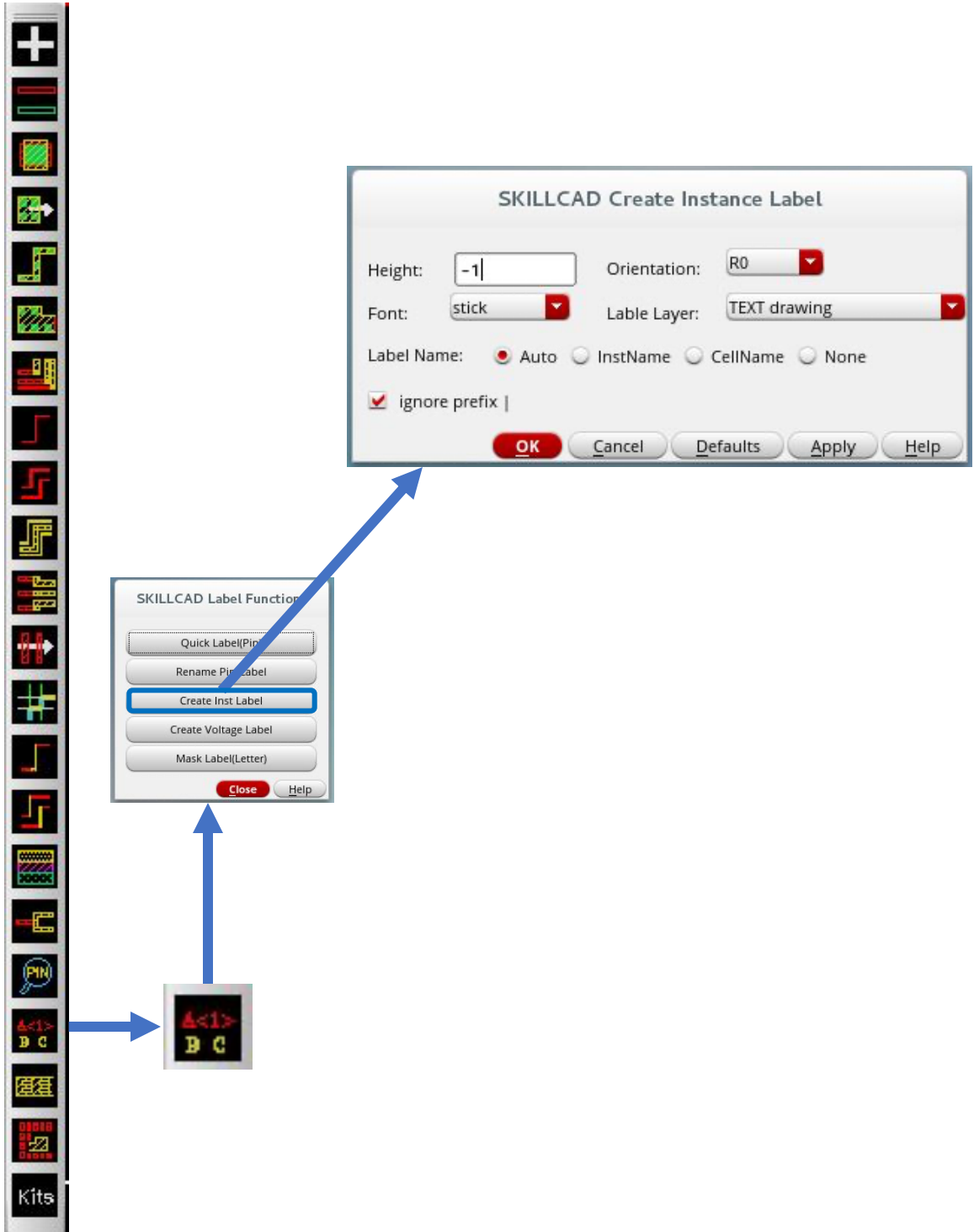
Snap To Boundary: Auto Left Right Top Btm

Hide Cancel Save As Default Help

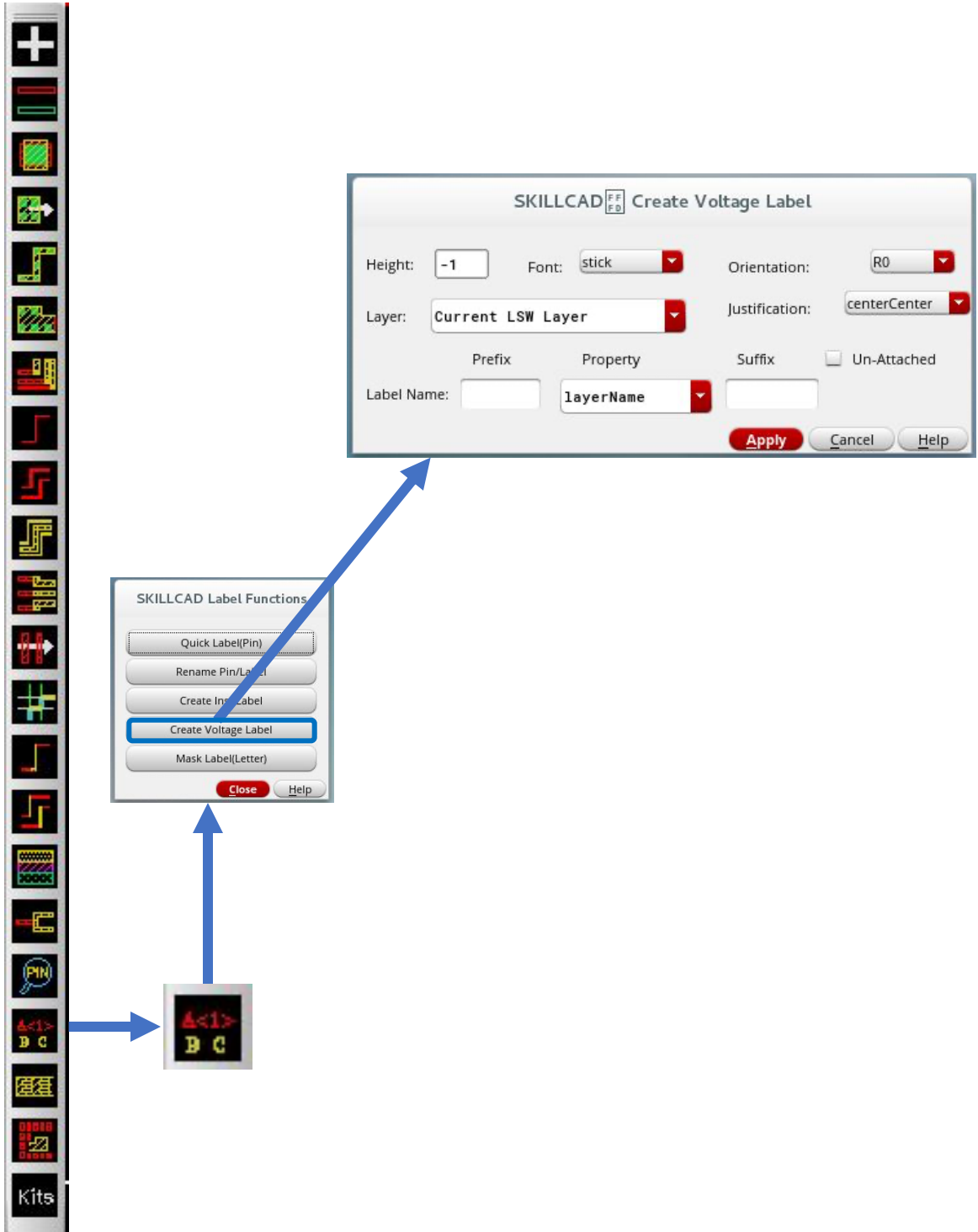
SKILLCAD Rename Pin/Label



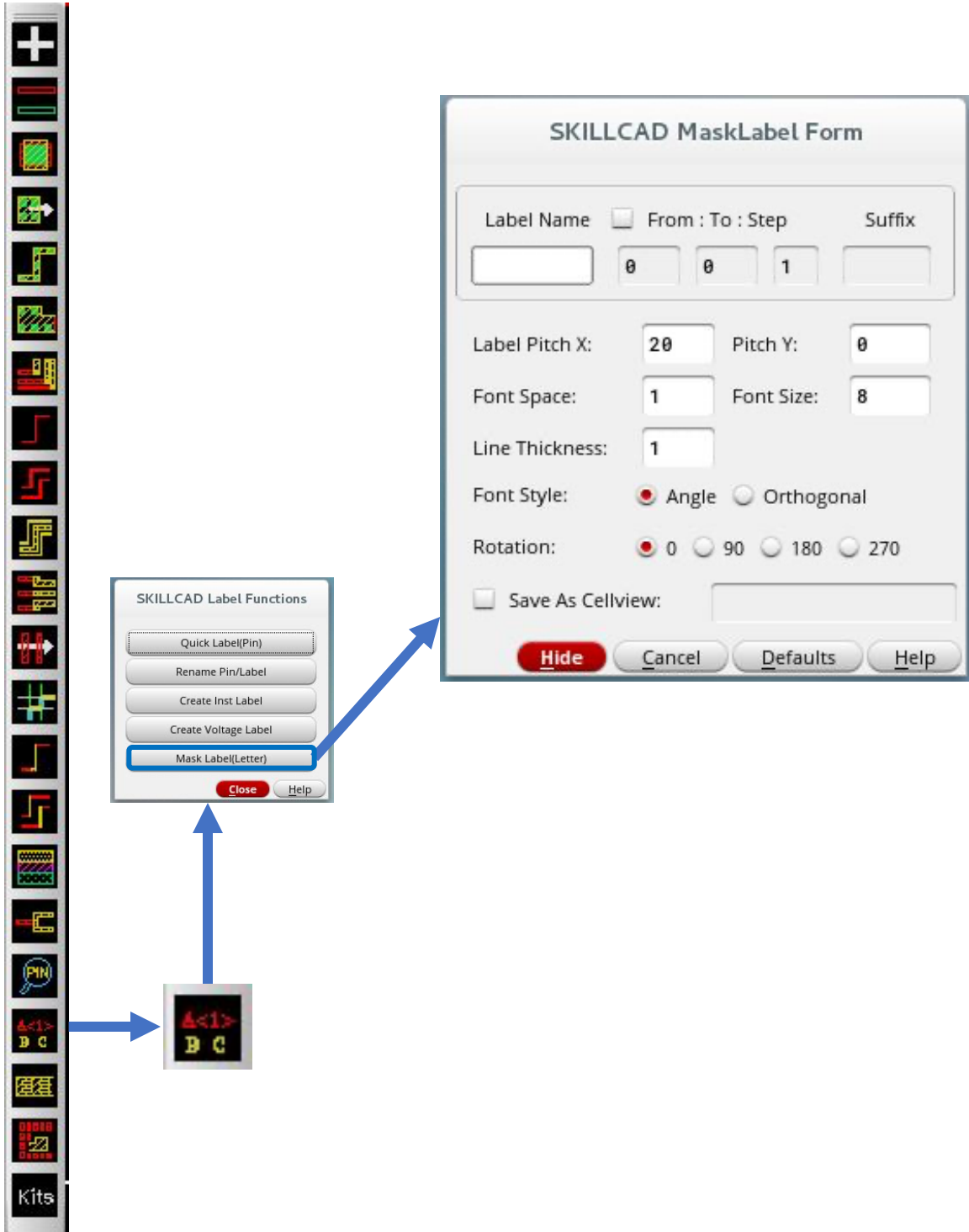
SKILLCAD Create Instance Labels



SKILLCAD Create Voltage Labels



SKILLCAD Create Mask Labels



SKILLCAD Layer Handler

The diagram illustrates the SKILLCAD Layer Handler Form and its integration with the software interface. A vertical toolbar on the left contains various icons. A small preview window shows a grid of colored squares. Blue arrows point from text boxes to specific buttons in the SKILLCAD Layer Handler Form.

SKILLCAD Layer Handler Form

Get Layers Under:

Selected Objs Box

Edit CellView Point

Import LSW Layers ==>

Metals Vias/Cont Base

Show: 5

Save Layer List To Btn: 1

Name: Set

1

2

3

4

5

6

7

8

9

0

Entry Layer: METAL1 drw

Keep Layers:

Keep Purposes:

Sort: as LSW AV NV AS NS

Turn Other Layers: On Off

Close Help

Get/view layers within a rectangular region.

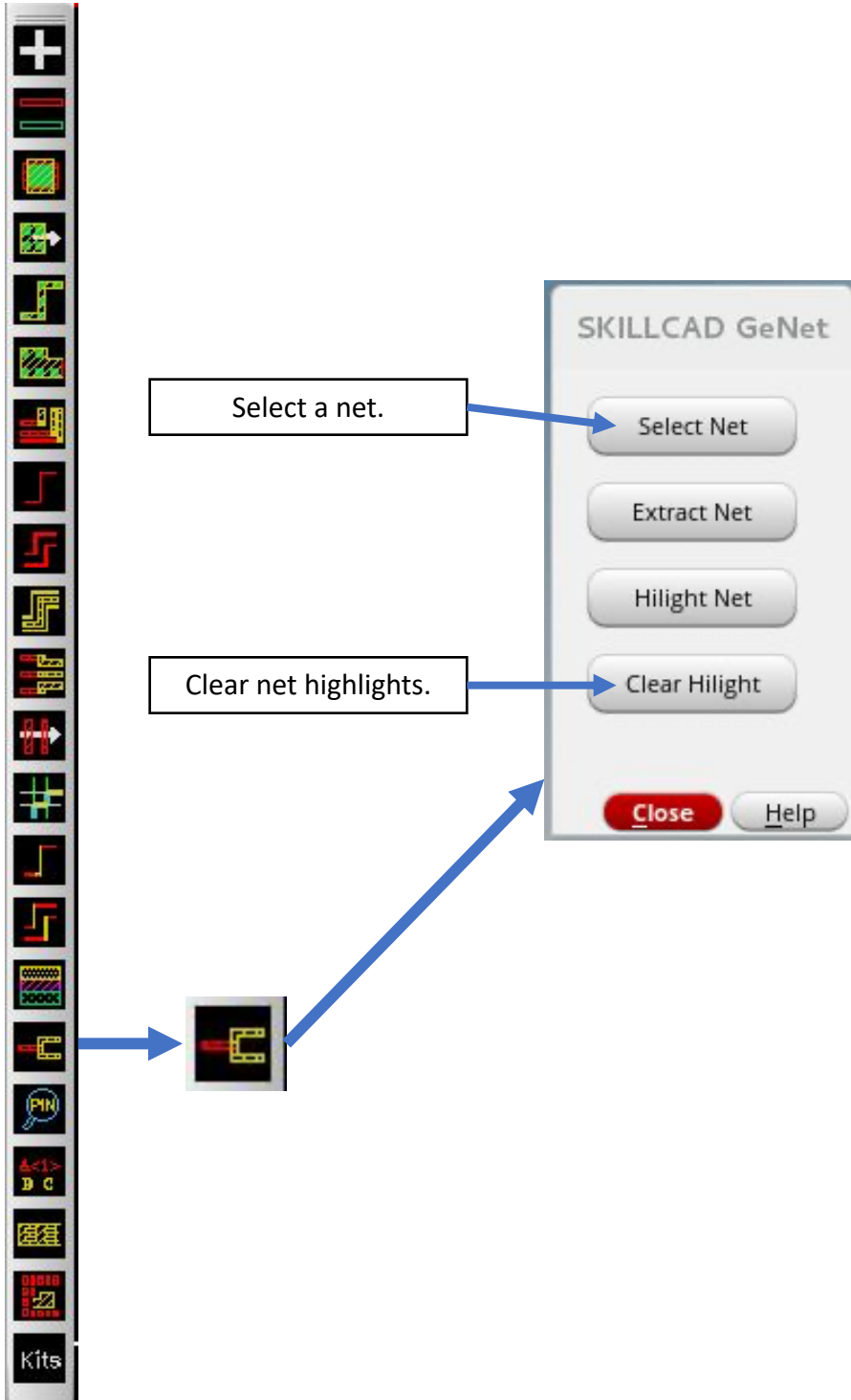
Get/view layers under selected objects.

Get/view layers under cell view.

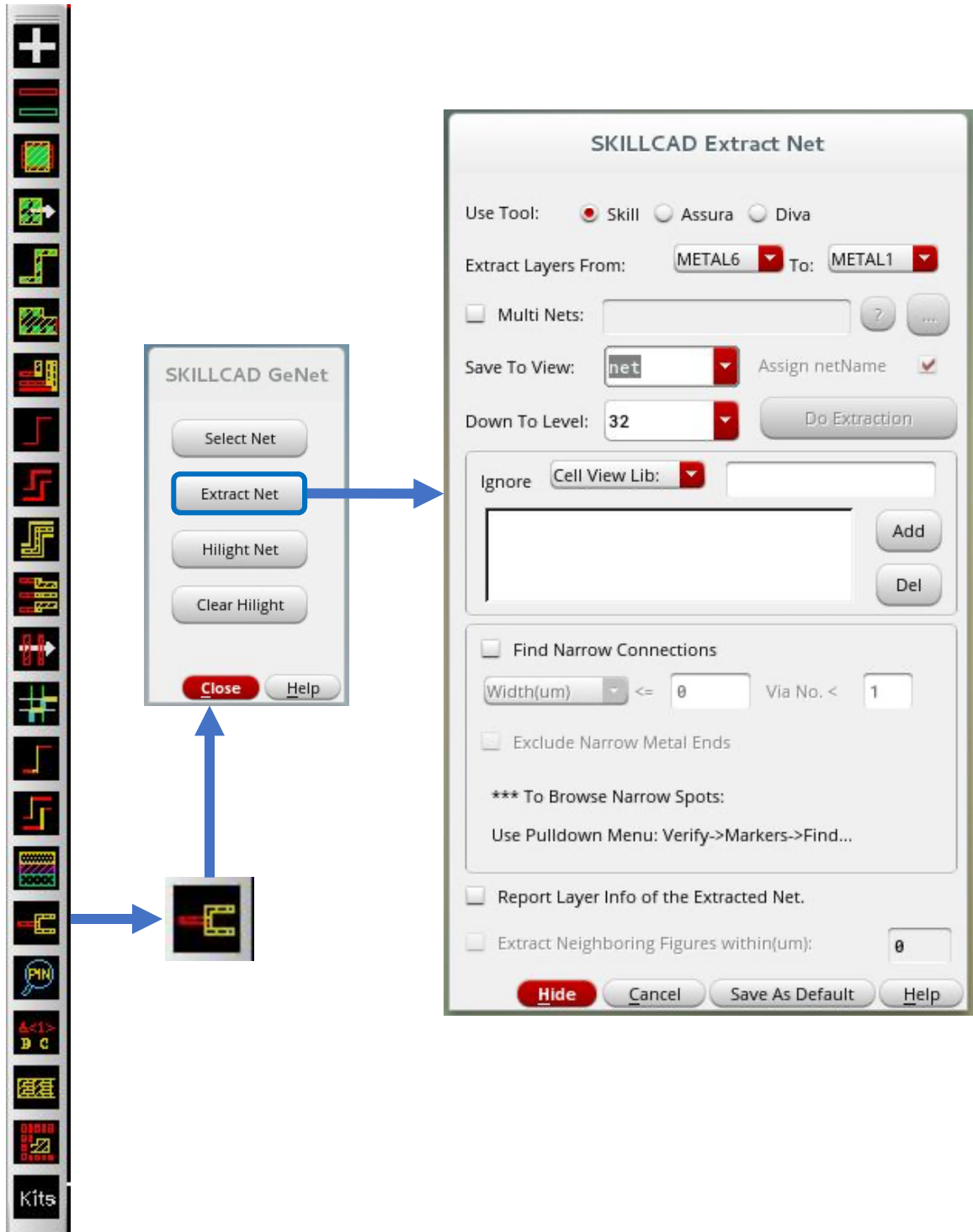
Get/view layers under a point, defined by the cursor.

Create and edit layer lists.

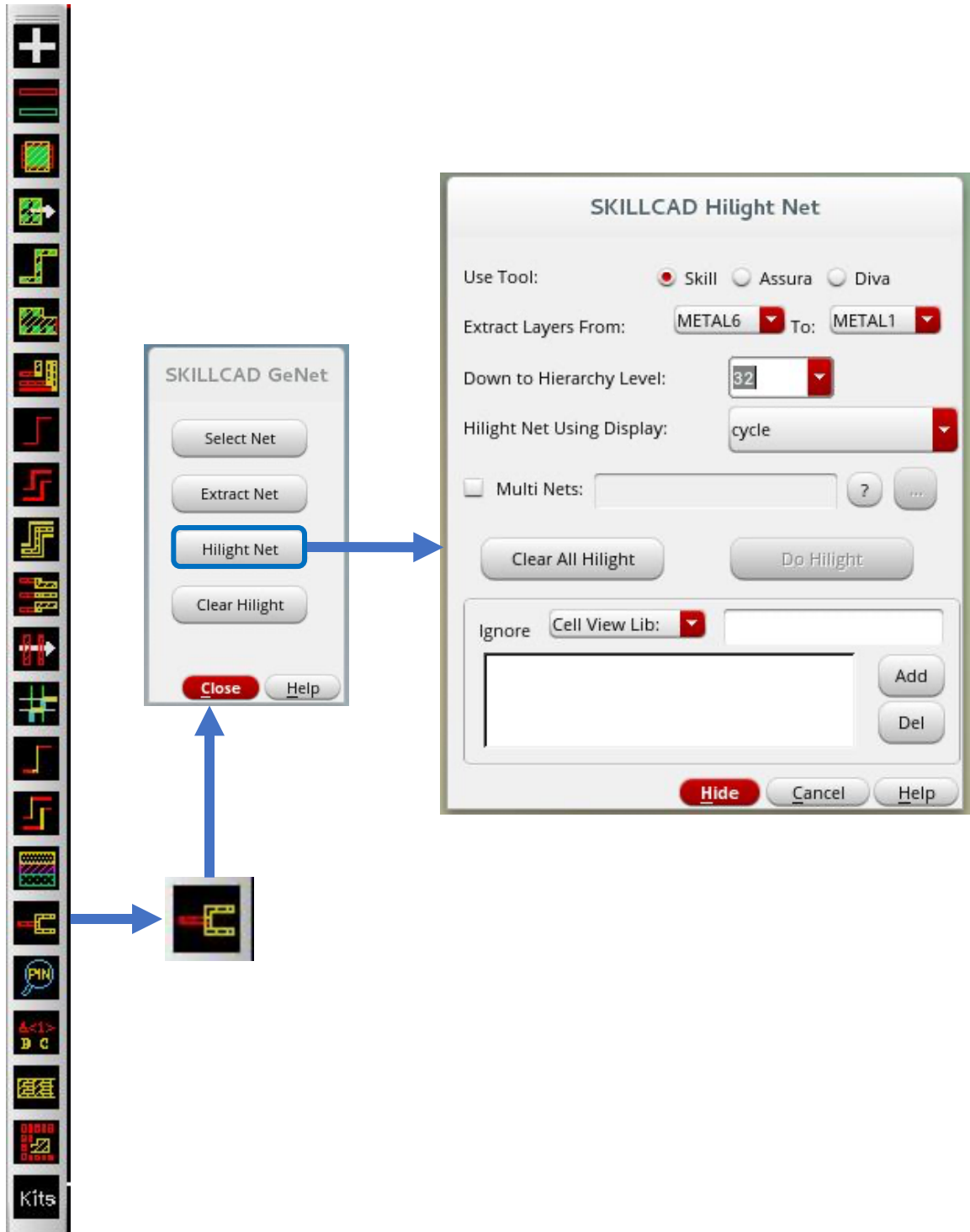
SKILLCAD Select Net, Clear Net Highlight



SKILLCAD Extracting a Net



SKILLCAD Highlighting a Net



SKILLCAD Pin Placer/Browser

The image shows the SKILLCAD Pin Placer/Browser interface. On the left is a vertical toolbar with various icons. A blue arrow points from the 'PIN' icon in the toolbar to a 'SKILLCAD Pin Functions' menu. This menu contains the following options:

- Pin Placer/Browser
- Quick Label(Pin)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

Below the menu are 'Close' and 'Help' buttons. A blue arrow points from the 'Pin Placer/Browser' option to the main SKILLCAD Pin Browser/Placer window.

The main window, titled 'SKILLCAD Pin Browser/Placer', has the following settings:

- Browse: Pins Labels on Layer: any
- Within: Editing Cell View Selected Instance
- Zoom Factor: 5 List Floating Pins/labels Only
- Name:

The central list displays the following pin data:

Bit1	(METAL1 pin)	(276.11 7.41)
Bit1	(METAL1 pin)	(35.44 39.085)
Bit1	(METAL2 pin)	(167.605 43.85)
Bit2	(METAL1 pin)	(276.11 9.41)
Bit2	(METAL1 pin)	(35.44 41.085)
Bit2	(METAL2 pin)	(169.605 43.85)
Bit3	(METAL1 pin)	(276.11 11.41)
Bit3	(METAL1 pin)	(35.44 43.085)
Bit3	(METAL2 pin)	(171.605 43.85)
Bit4	(METAL1 pin)	(276.11 13.41)
Bit4	(METAL1 pin)	(35.44 45.085)
Bit4	(METAL2 pin)	(173.605 43.85)
Bit5	(METAL1 pin)	(276.11 15.41)
Bit5	(METAL1 pin)	(35.44 47.085)
Bit5	(METAL2 pin)	(175.605 43.85)
Bit6	(METAL1 pin)	(276.11 17.41)
Bit6	(METAL1 pin)	(35.44 49.085)
Bit6	(METAL2 pin)	(177.605 43.85)
Bit7	(METAL1 pin)	(276.11 19.41)
Bit7	(METAL1 pin)	(35.44 51.085)
Bit7	(METAL2 pin)	(179.605 43.85)
Bit8	(METAL1 pin)	(276.11 21.41)

Summary: Unique Names: 8 Total Names: 24

Configuration options include:

-
- Pin shape: Square
- Pin Layer: Auto
- Label Rotation: Auto
- At Location: Auto
- Only Relocate Floating Pins
- Create New if No Floating Pins

Buttons at the bottom: Close, Save As Default, Help.

SKILLCAD Pin Label

The diagram illustrates the workflow for pin labeling in SKILLCAD. It features a vertical toolbar on the left with various icons. A callout box points to the 'PIN' icon, which is highlighted with a magnifying glass. A blue arrow points from this icon to the 'SKILLCAD Pin Functions' menu. In this menu, the 'Quick Label(Pin)' option is highlighted with a blue box and an arrow pointing to the 'quickLabel' dialog box. Two callout boxes provide instructions: 'Set the pin label orientation.' points to the 'Orientation' dropdown in the dialog, and 'Re-create labels for selected pins.' points to the 'Re-Create Labels for All (Selected) Pins (and Keep Pin Shape/Layer/Position)' button. The dialog box itself contains various settings for pin labels, including font, height, layer, and justification options.

Set the pin label orientation.

Re-create labels for selected pins.

SKILLCAD Pin Functions

- Pin Placer/Browser
- Quick Label(Pin)**
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

Close Help

SKILLCAD quickLabel

netNames Note

Height: -1 Font: stick Orientation: Auto

Layer: Auto Justification: Auto

Create Rect Pin Also Float Pin Pin W(um): Auto H: Auto

Align to Metal Shape: Auto as Text Display

Re-Create Labels for All (Selected) Pins (and Keep Pin Shape/Layer/Position)

Pick netNames from Schematic

Lib: demo2 browse

Cell: TEST update

View: schematic

Pins Only Exclude Defaults

Filter:

Expand all busNames

Mode: Single Line All

No. of labels for a group: 2

Label dx: 0 dy: 0

Group dx: 0 dy: 0

Use VXL Net Name

Input Labels:

Keep Interleaf Bus Labels

Apply

Undo All

Undo Once

Skip

==>

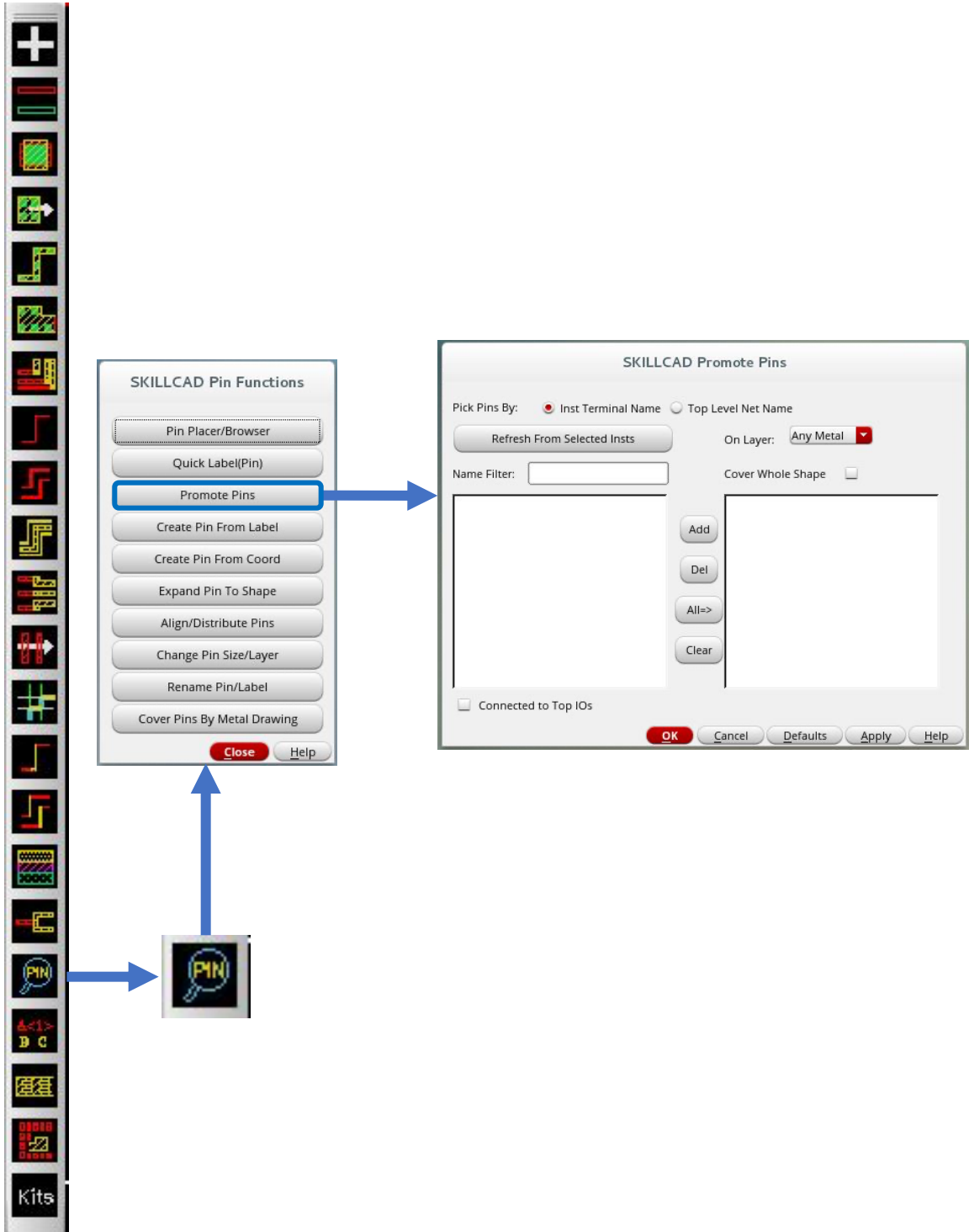
<==

Reset

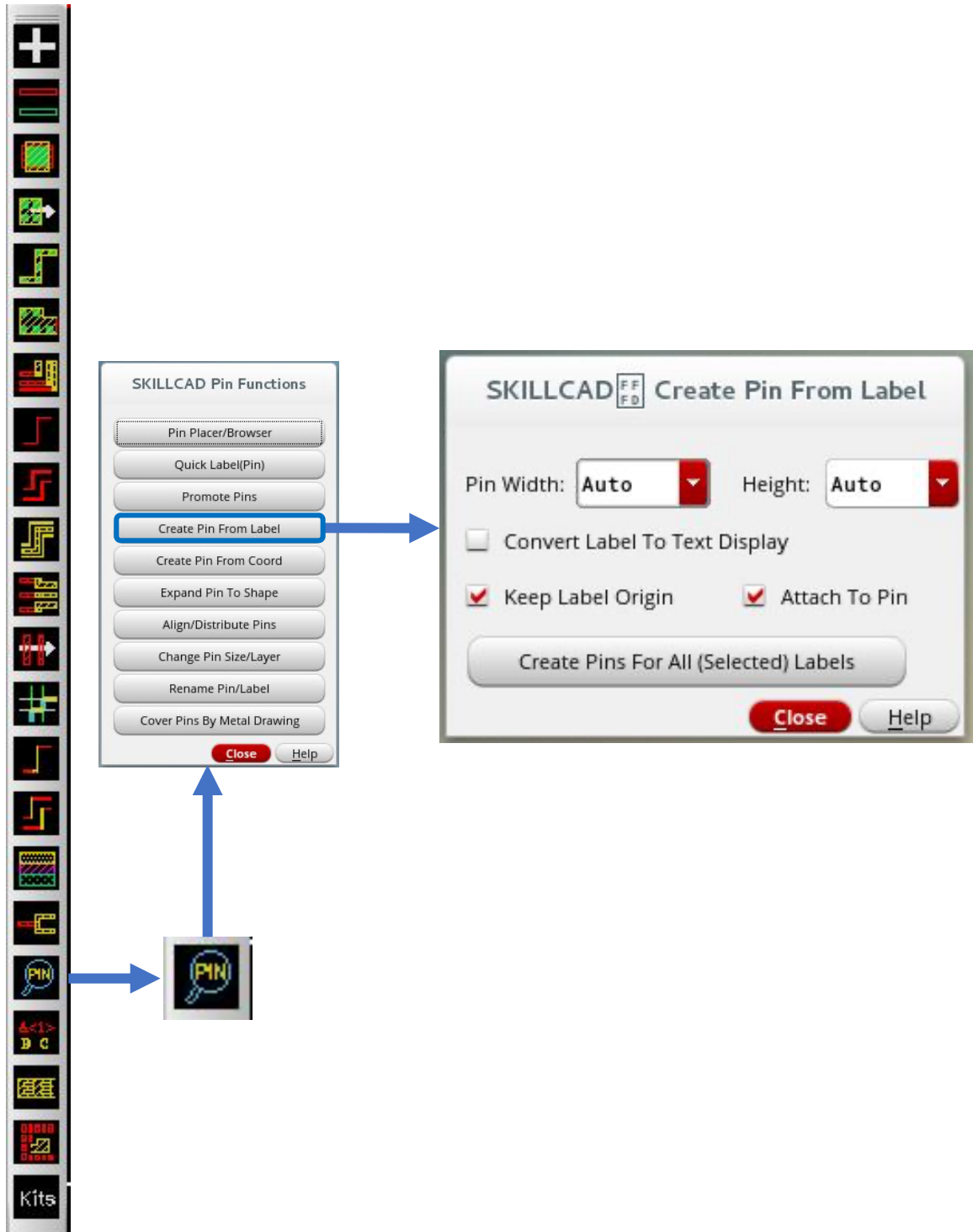
Snap To Boundary: Auto Left Right Top Btm

Hide Cancel Save As Default Help

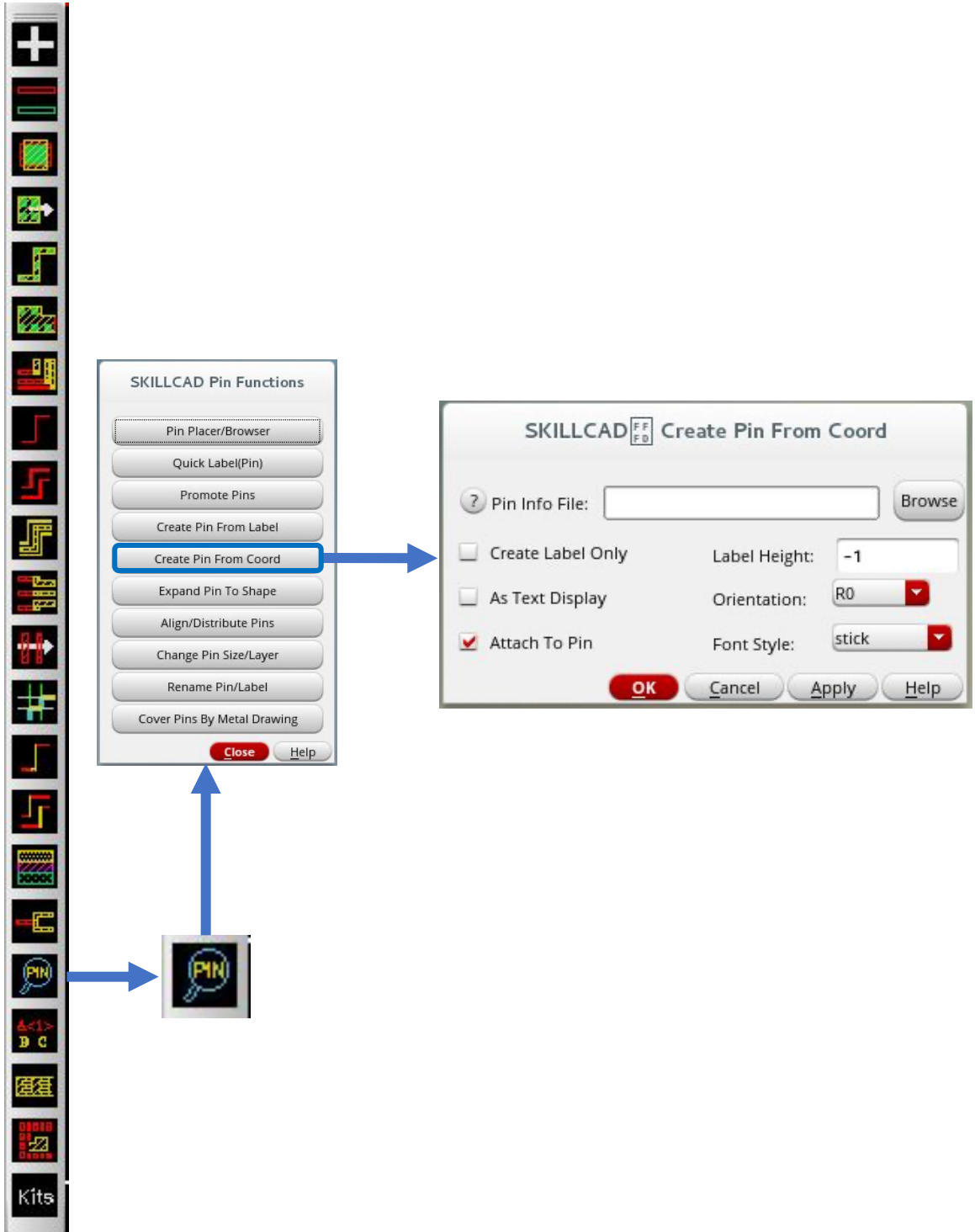
SKILLCAD Promote Pins



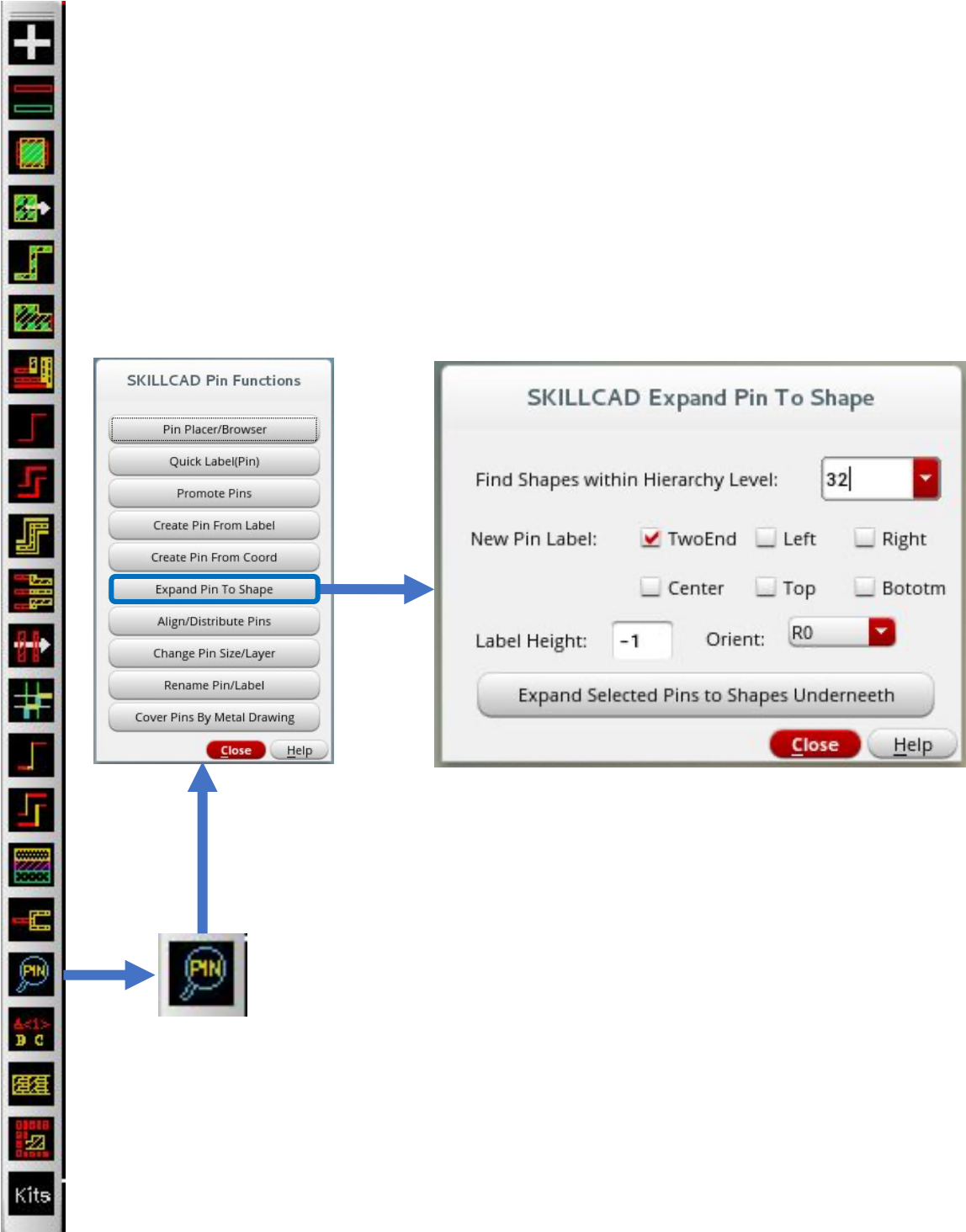
SKILLCAD Create Pin From Label



SKILLCAD Create Pin From Coordinates



SKILLCAD Expand Pin To Shape



SKILLCAD Align/Distribute Pins

Sort pins by net name.

SKILLCAD Pin Functions

- Pin Placer/Browser
- Quick Label(Pin)
- Promote Pins
- Create Pin From Label
- Create Pin From Coord
- Expand Pin To Shape
- Align/Distribute Pins**
- Change Pin Size/Layer
- Rename Pin/Label
- Cover Pins By Metal Drawing

Close Help

SKILLCAD Move/Align Pins

Expand Selection To All Bits of Bus

Deselect Pins(Fig):

Change To Layer: METAL1 pin

Align Selected:

Move By: 0.005

Snap To: prBoundary Shape Edge

Adjust: Pin Label Pin Size

Set Space: sp_x: 0 sp_y: Align

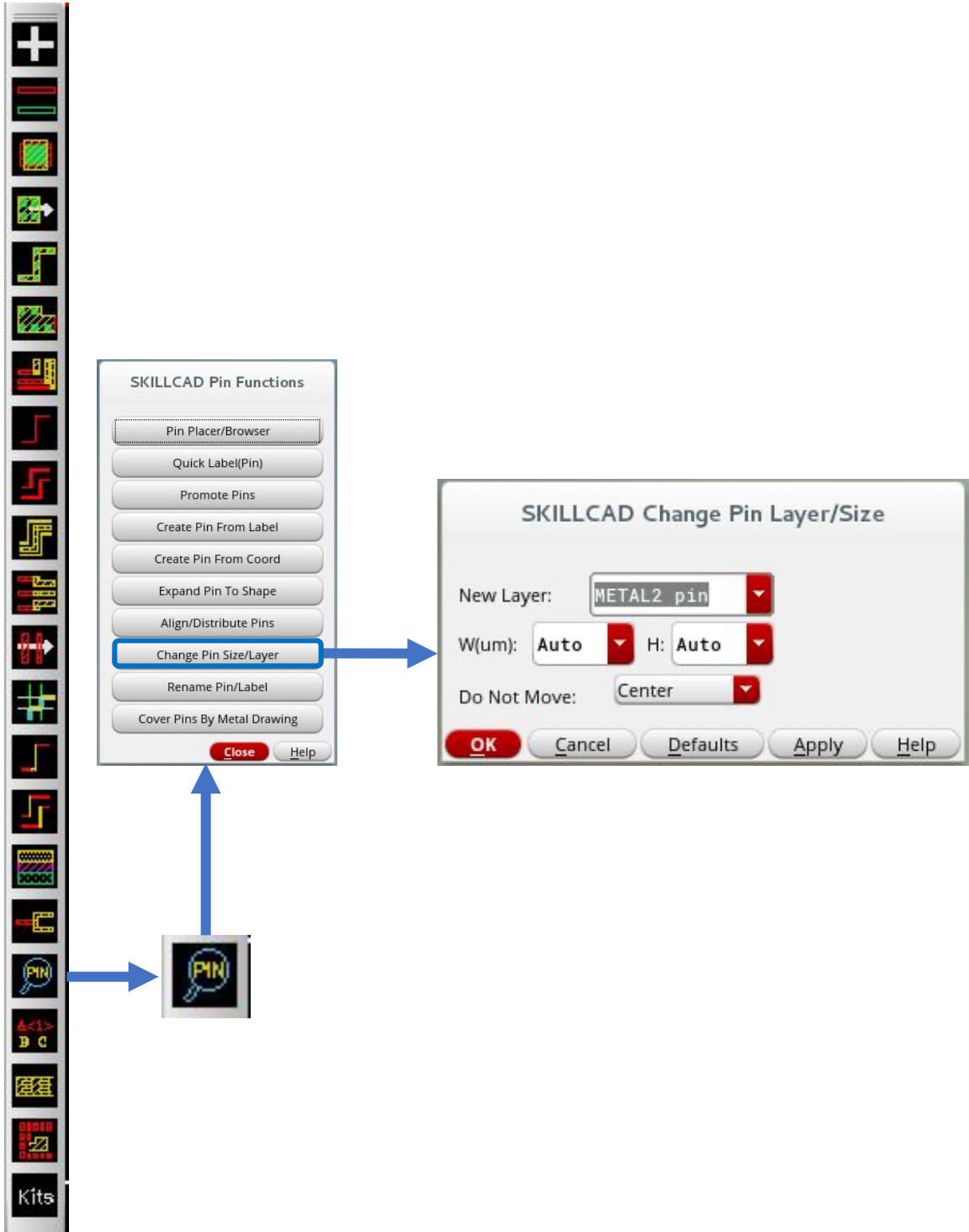
Distribute In:

Align pins to prBoundary.

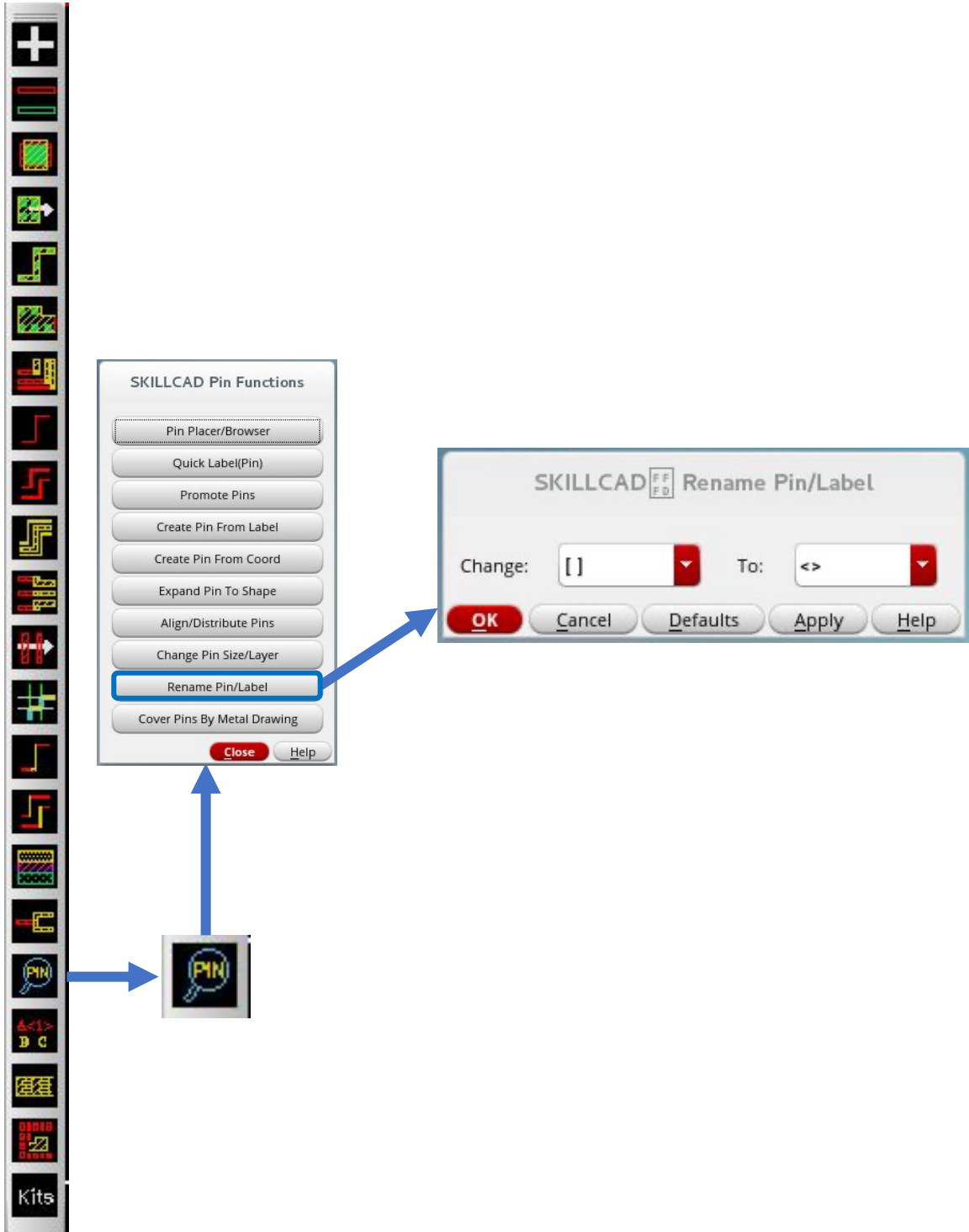
Align pins to shape edge.

Distribute pins within a range.

SKILLCAD Change Pin Size/Layer



SKILLCAD Rename Pin/Label



SKILLCAD Cover Pins With Drawing Purpose



SKILLCAD Creating A Slotted Path

The image shows the SKILLCAD interface with a vertical toolbar on the left. A blue arrow points from the 'SlotPath' icon in the toolbar to a 'SKILLCAD SlotPath' dialog box. This dialog box contains the following options:

- Draw Slot Path
- Convert To Slot Path
- Copy Slot Holes
- Create Mesh
- Close
- Help

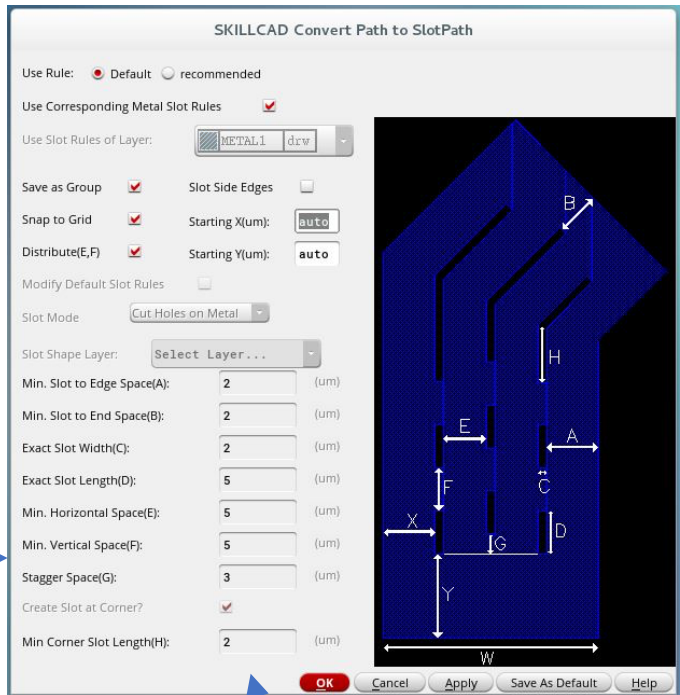
A second blue arrow points from the 'Draw Slot Path' button to the 'SKILLCAD Create SlotPath' configuration dialog. This dialog includes the following settings:

- Use Rule: Default recommended
- Metal Layer: METAL1 | dw
- Specify: Gross Width | Slot No: 1
- Gross W(um): 10 | Effective W: 8
- Current(mA): 8 | Area Ratio(%): 11-20
- Save as Group: | Slot Side Edges:
- Snap To Grid: | Starting X(um): auto
- Distribute(E,F): | Starting Y(um): auto
- Modify Default Slot Rules:
- Slot Mode: Cut Holes on Metal
- Slot Shape Layer: Select Layer...
- Min. Slot to Edge Space(A): 2 (um)
- Min. Slot to End Space(B): 2 (um)
- Exact Slot Width(C): 2 (um)
- Exact Slot Length(D): 5 (um)
- Min. Horizontal Space(E): 5 (um)
- Min. Vertical Space(F): 5 (um)
- Stagger Space(G): 3 (um)
- Create Slot at Corner?:
- Min Corner Slot Length(H): 2 (um)

On the right side of the configuration dialog is a preview window showing a blue slotted path with various dimensions labeled A through H and W. A blue arrow points from a text box below to the 'Min Corner Slot Length(H)' field in the configuration dialog.

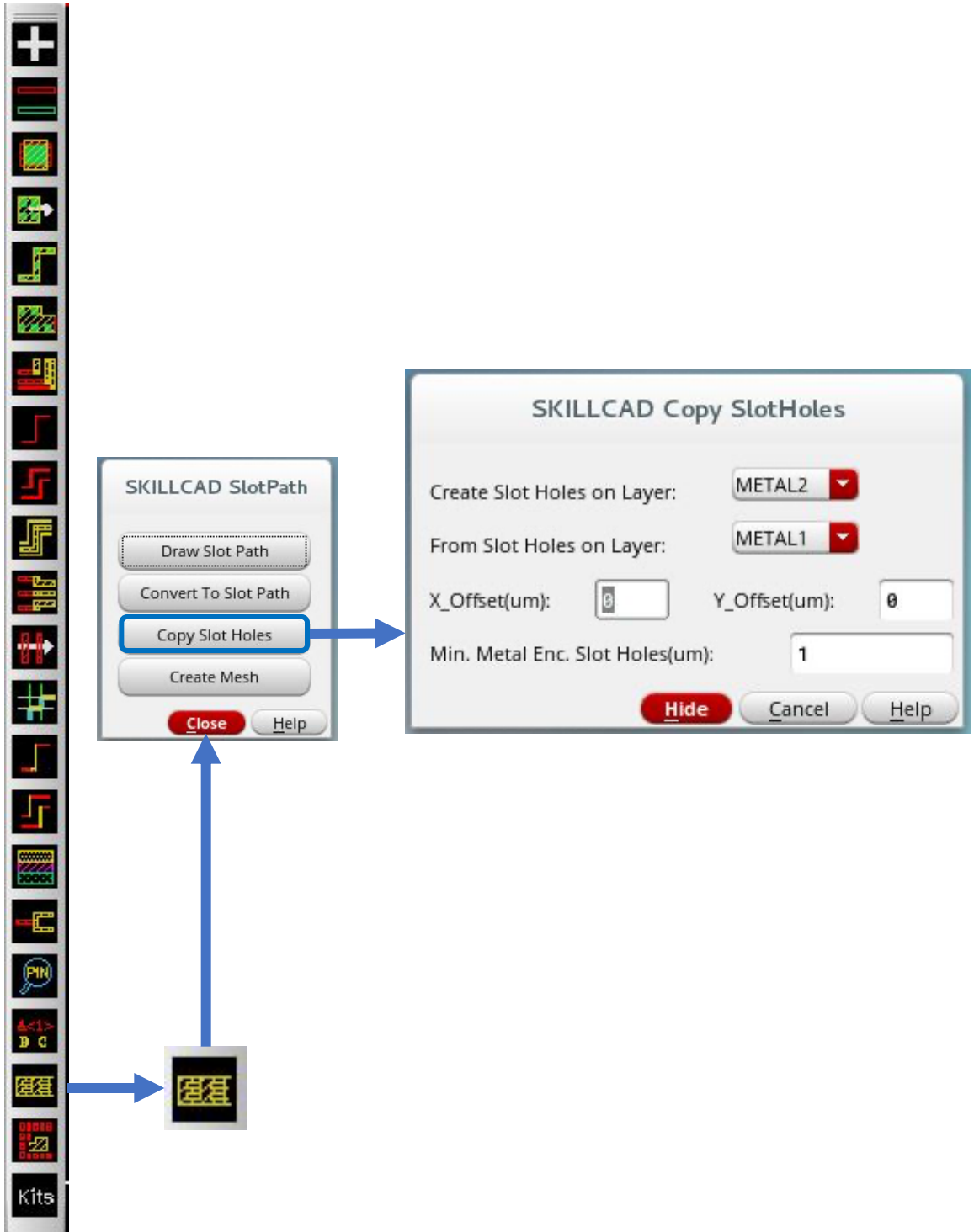
Change the default slot path rules.

SKILLCAD Convert A Path To A Slotted Shape



Change the default slot path rules.

SKILLCAD Copy Slot Holes



SKILLCAD Creating A Metal Mesh

SKILLCAD SlotPath

- Draw Slot Path
- Convert To Slot Path
- Copy Slot Holes
- Create Mesh**
- Close
- Help

SKILLCAD MESHBUS

No. Of Holes: 1 By: 0.005

Width(A): 1 um

Height(B): 1 um

Total Width(C): 3 um

Via Type: Array

Routing Layer: METAL1 drw

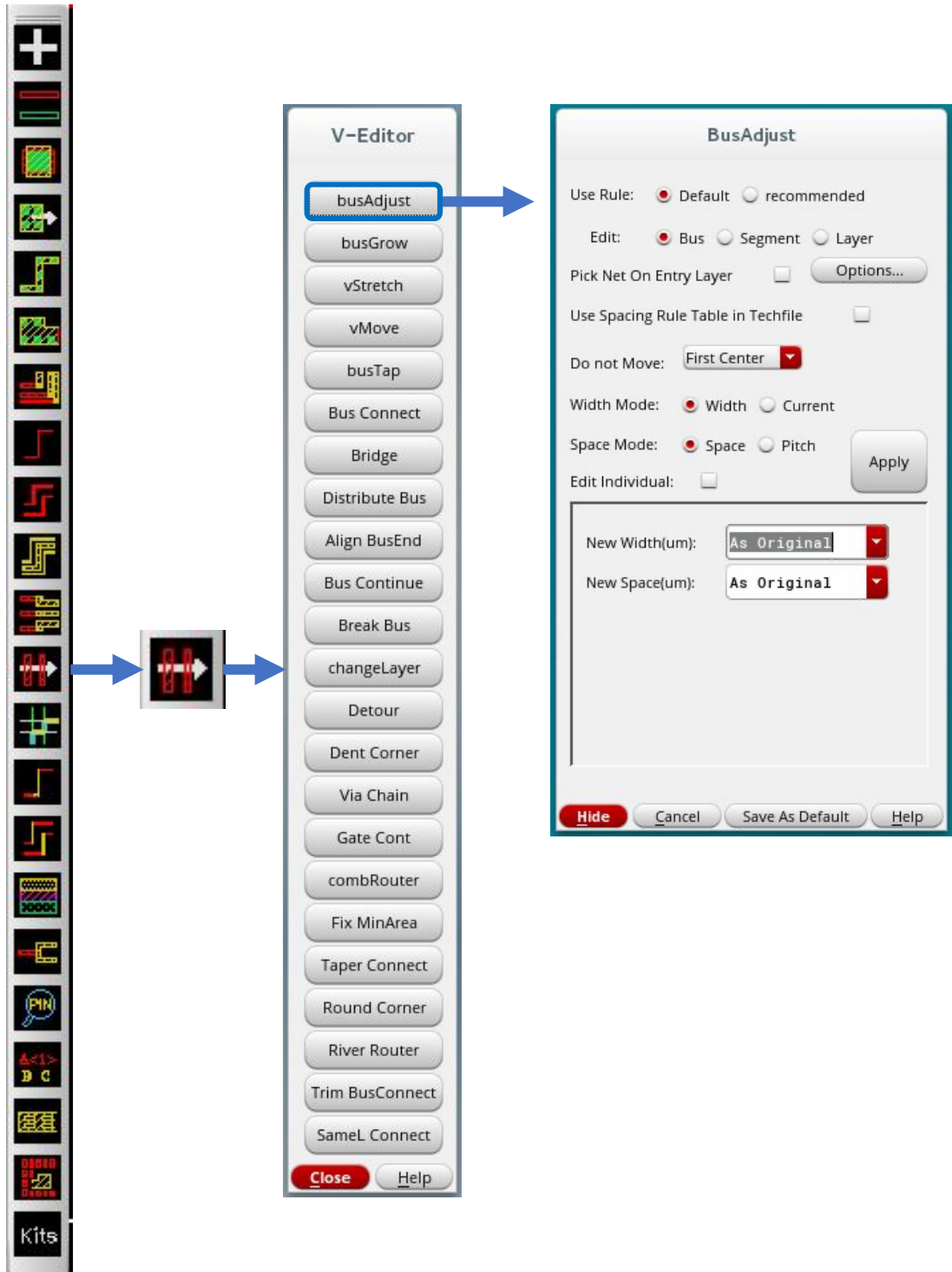
Hole to

- Hole Space(D): 1 um
- Hole Vertical Space(E): 1 um
- Left Edge Space(F): 1 um
- Right Edge Space(G): 1 um
- Begin Edge Space(H): 1 um

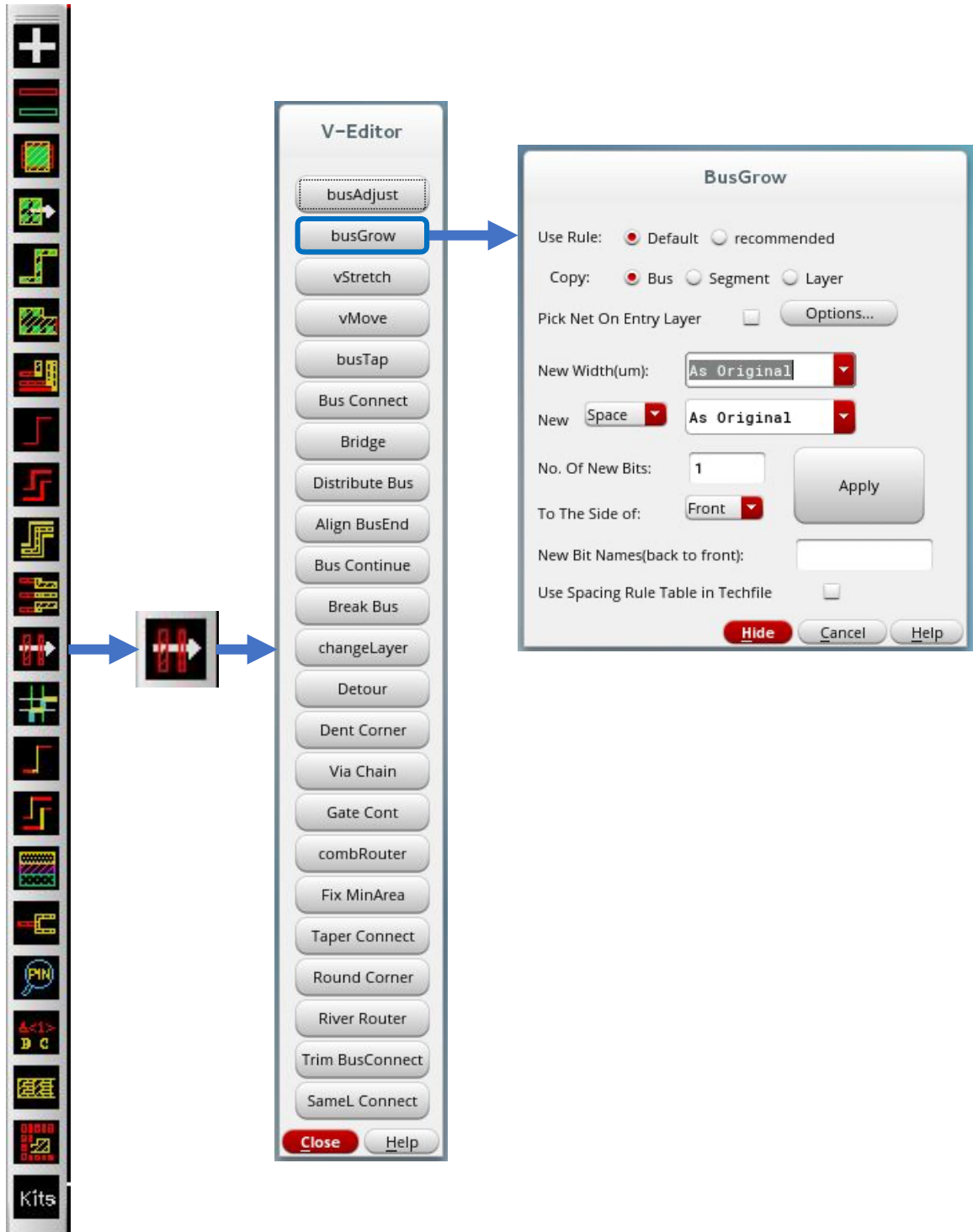
Direction

Hide Cancel Help

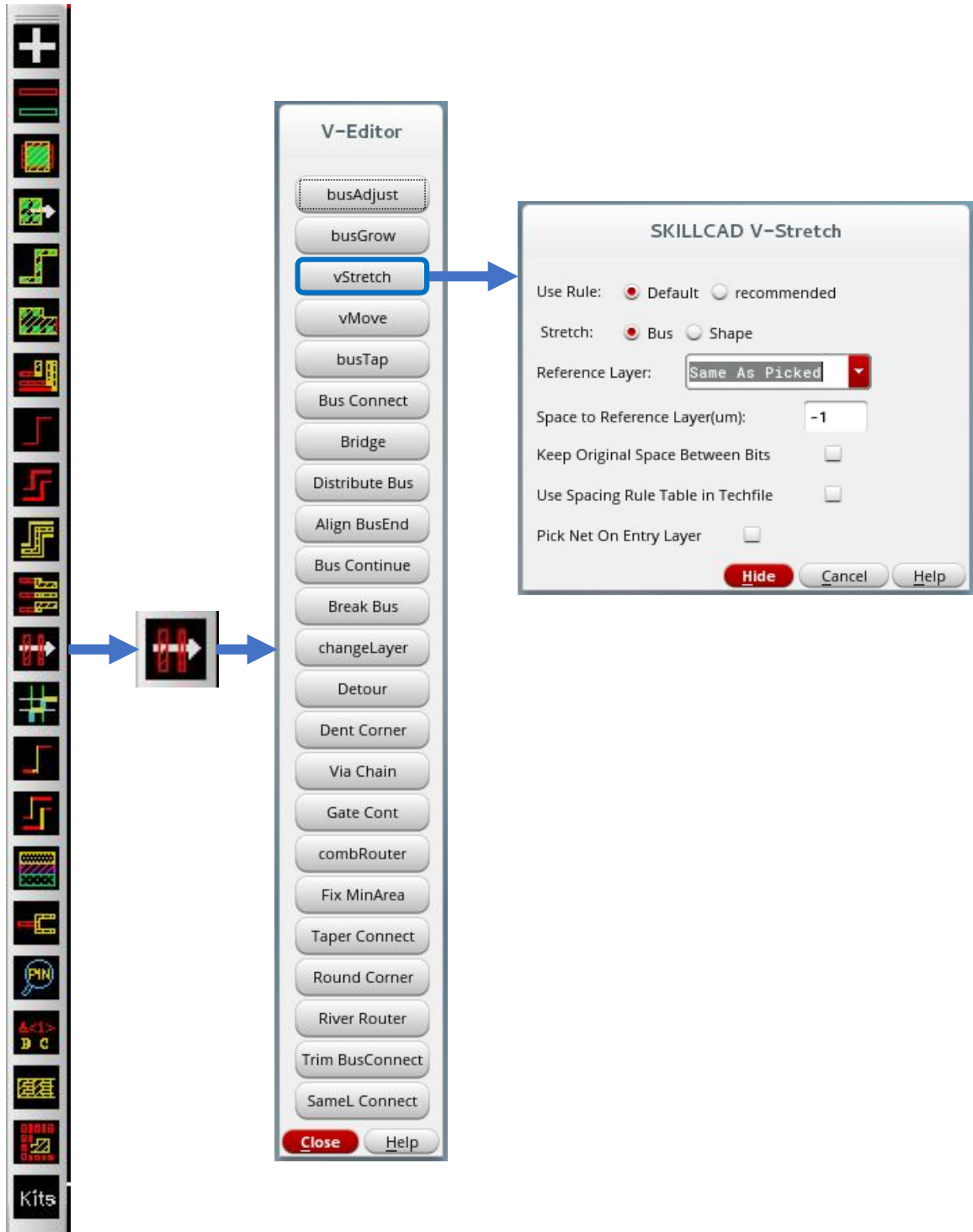
SKILLCAD V-Editor, Bus Adjust



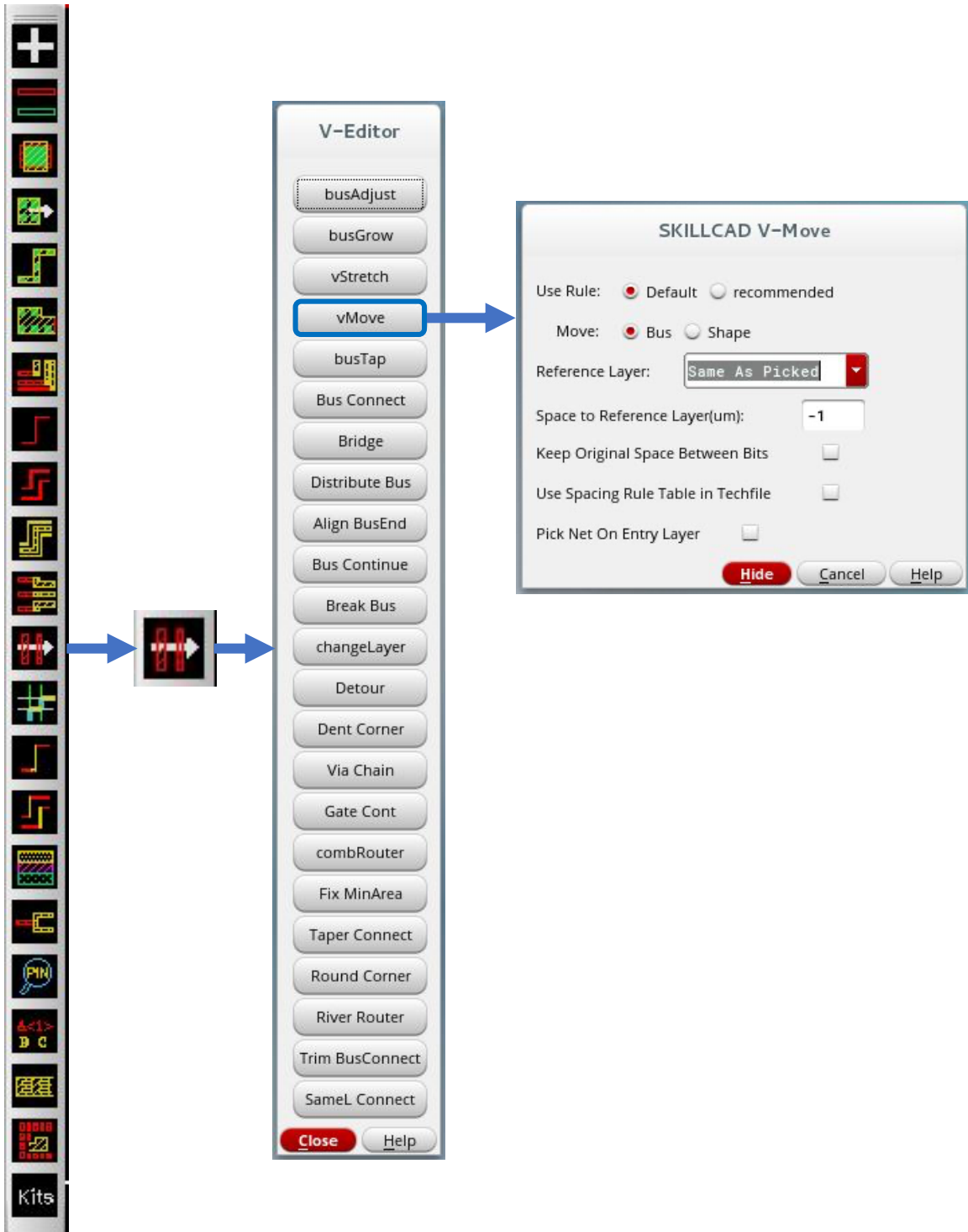
SKILLCAD V-Editor, Bus Grow



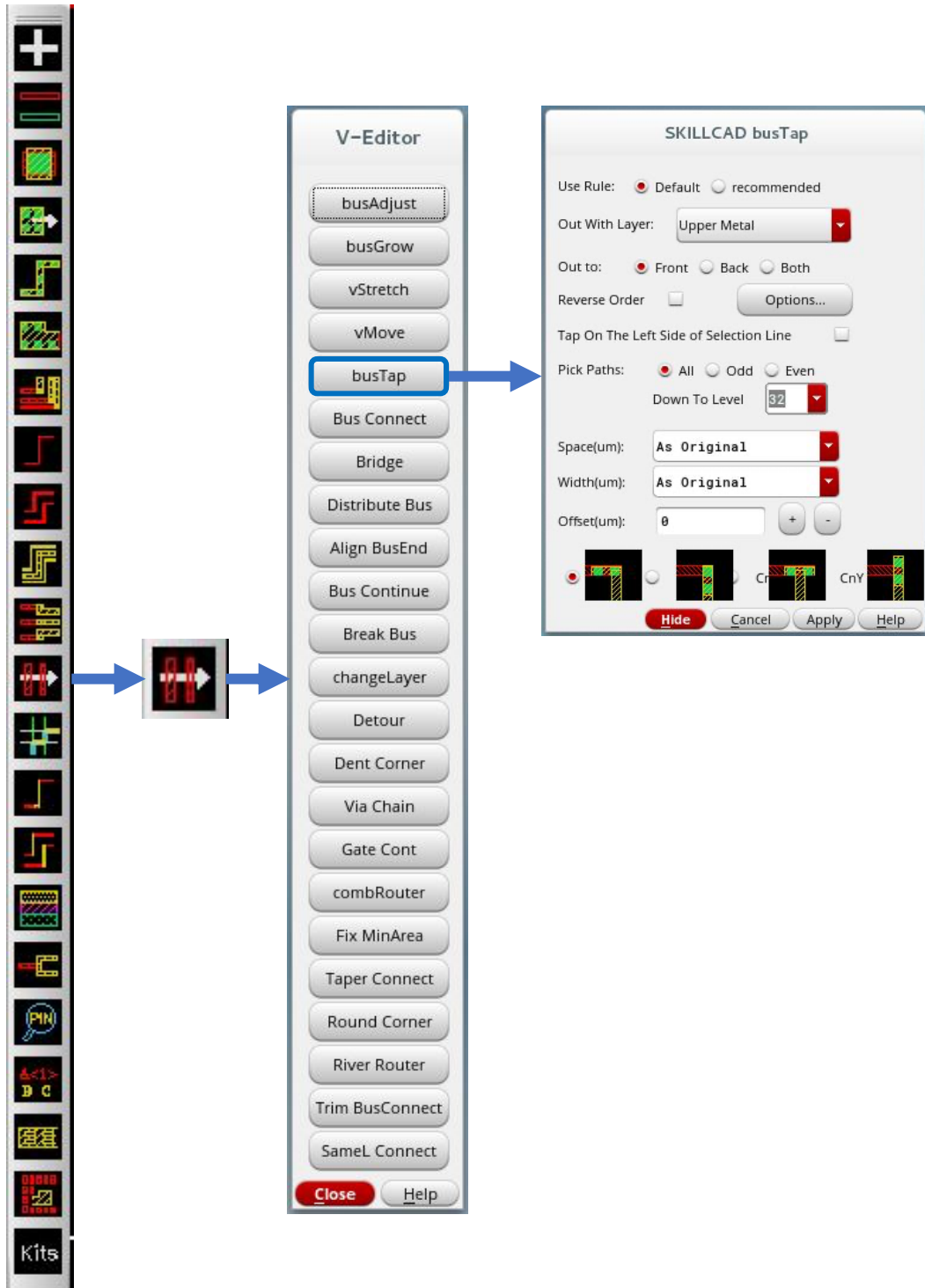
SKILLCAD V-Editor, V-Stretch



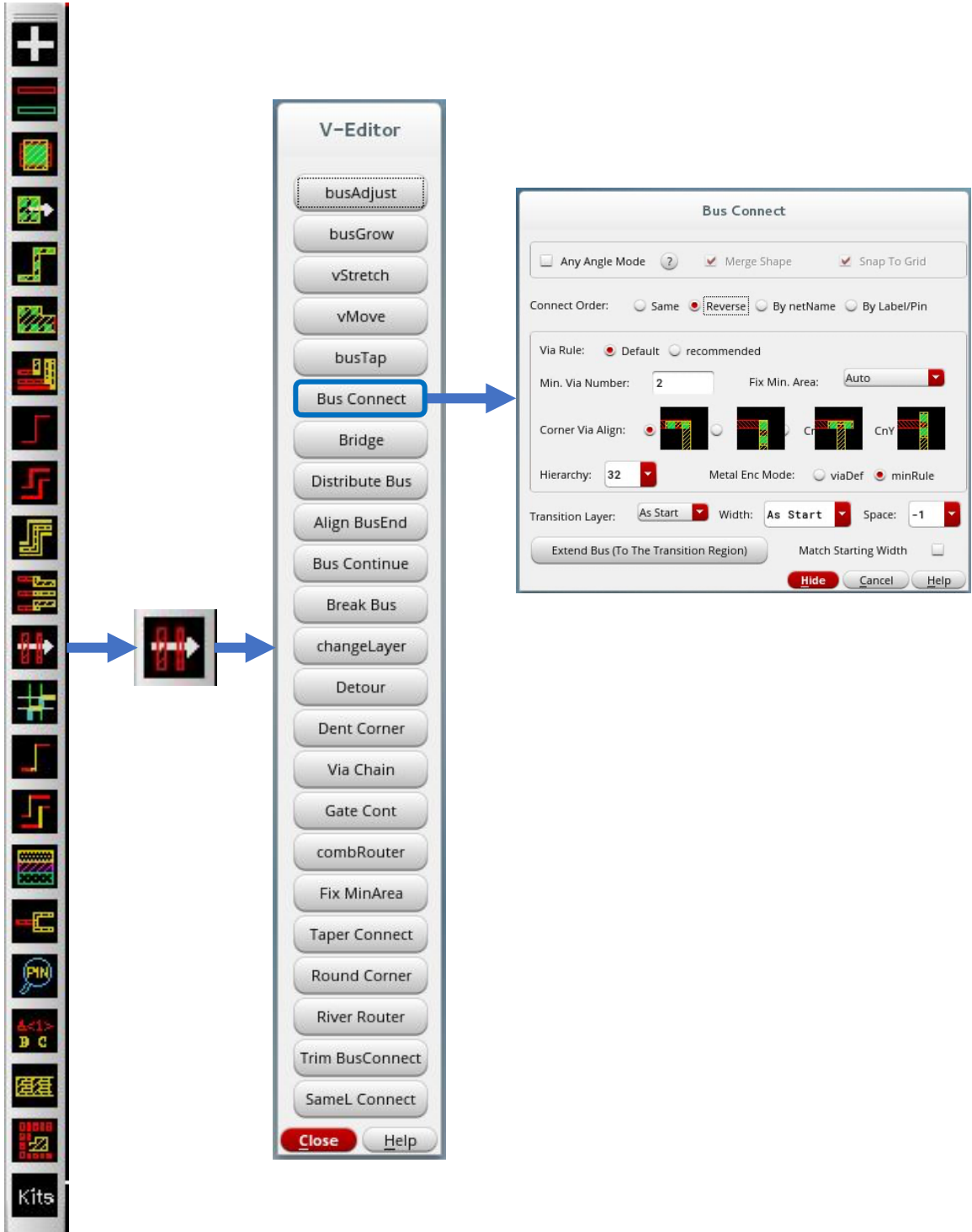
SKILLCAD V-Editor, V-Move



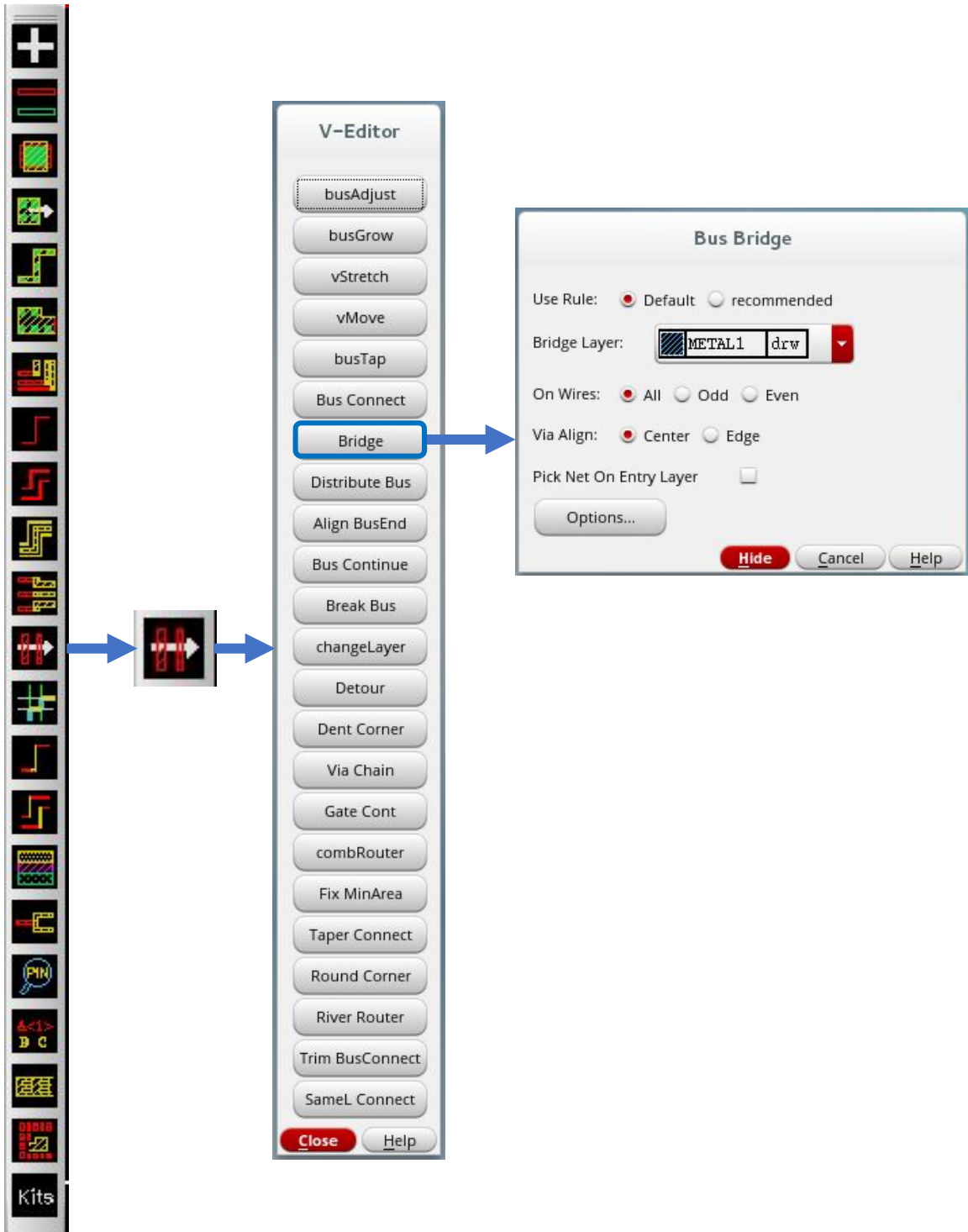
SKILLCAD V-Editor, Bus Tap



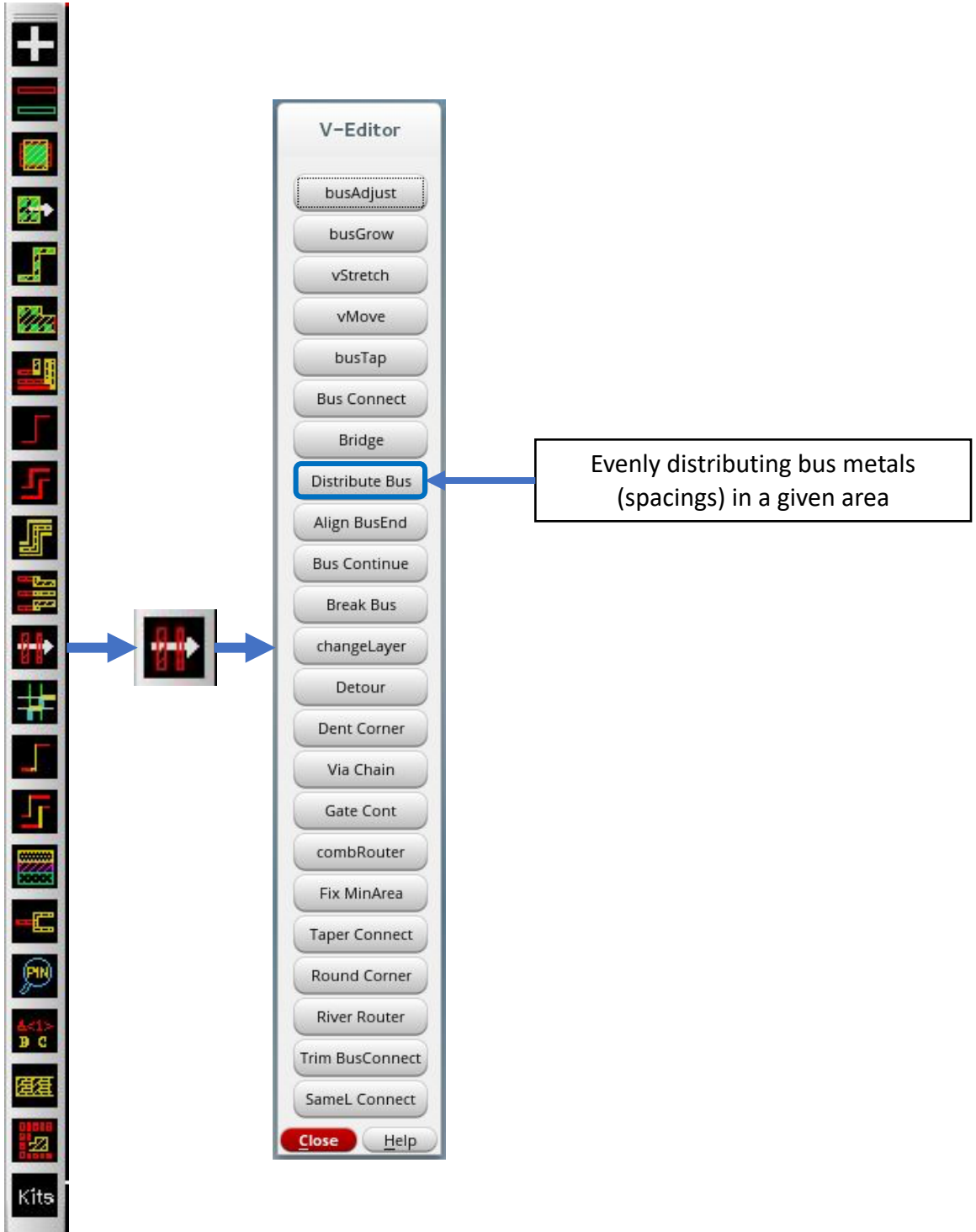
SKILLCAD V-Editor, Bus Connect



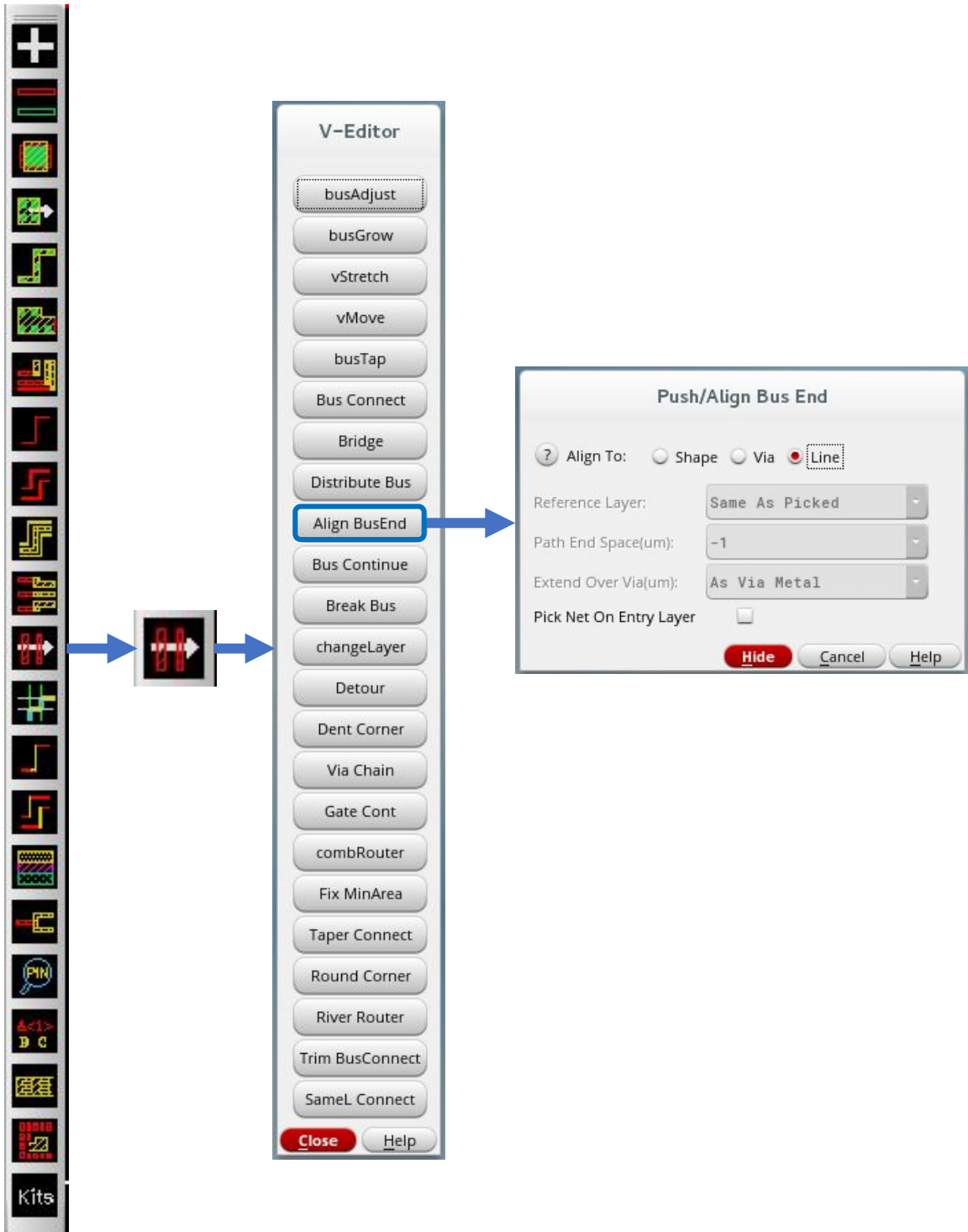
SKILLCAD V-Editor, Bus Bridge



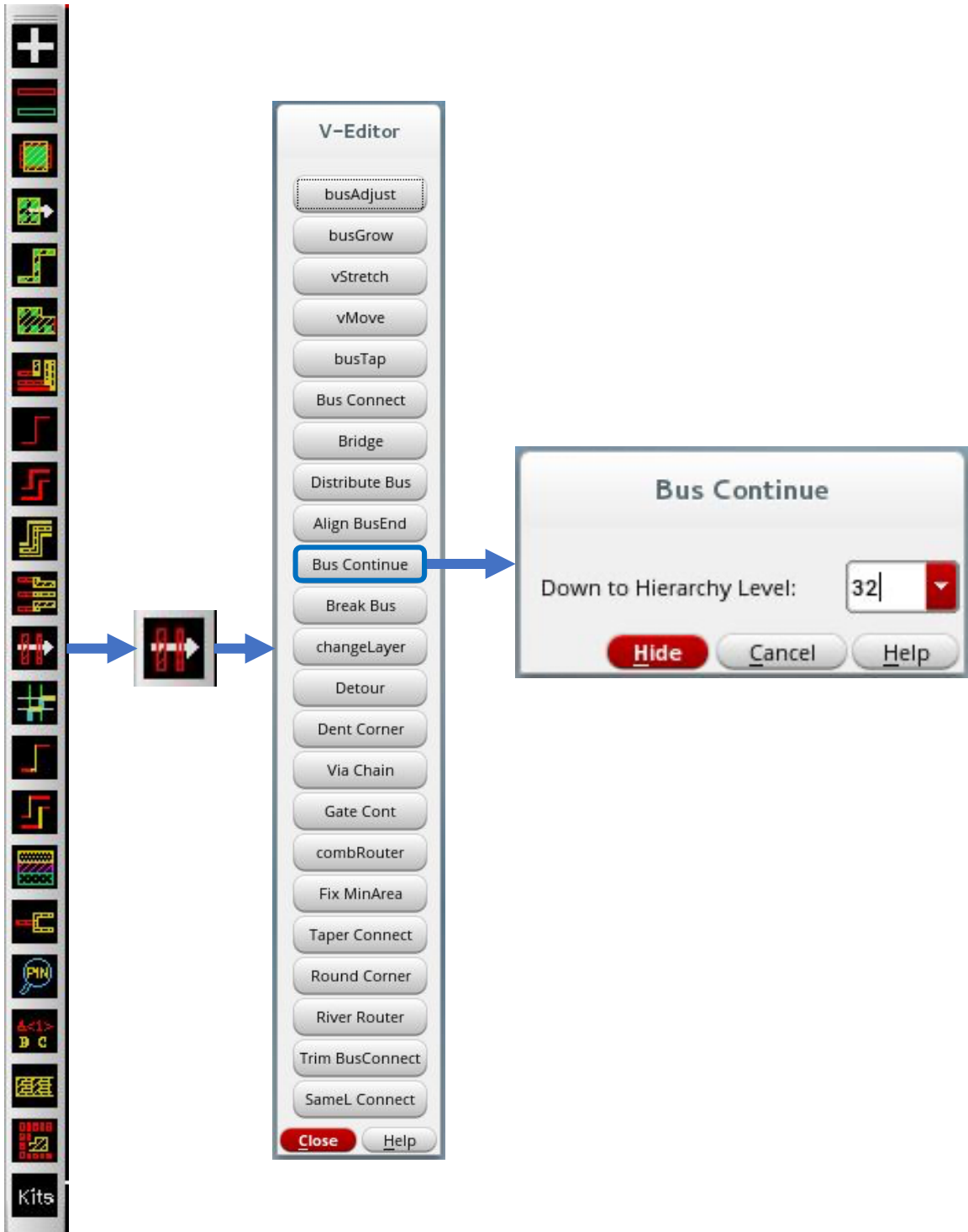
SKILLCAD V-Editor, Distribute Bus



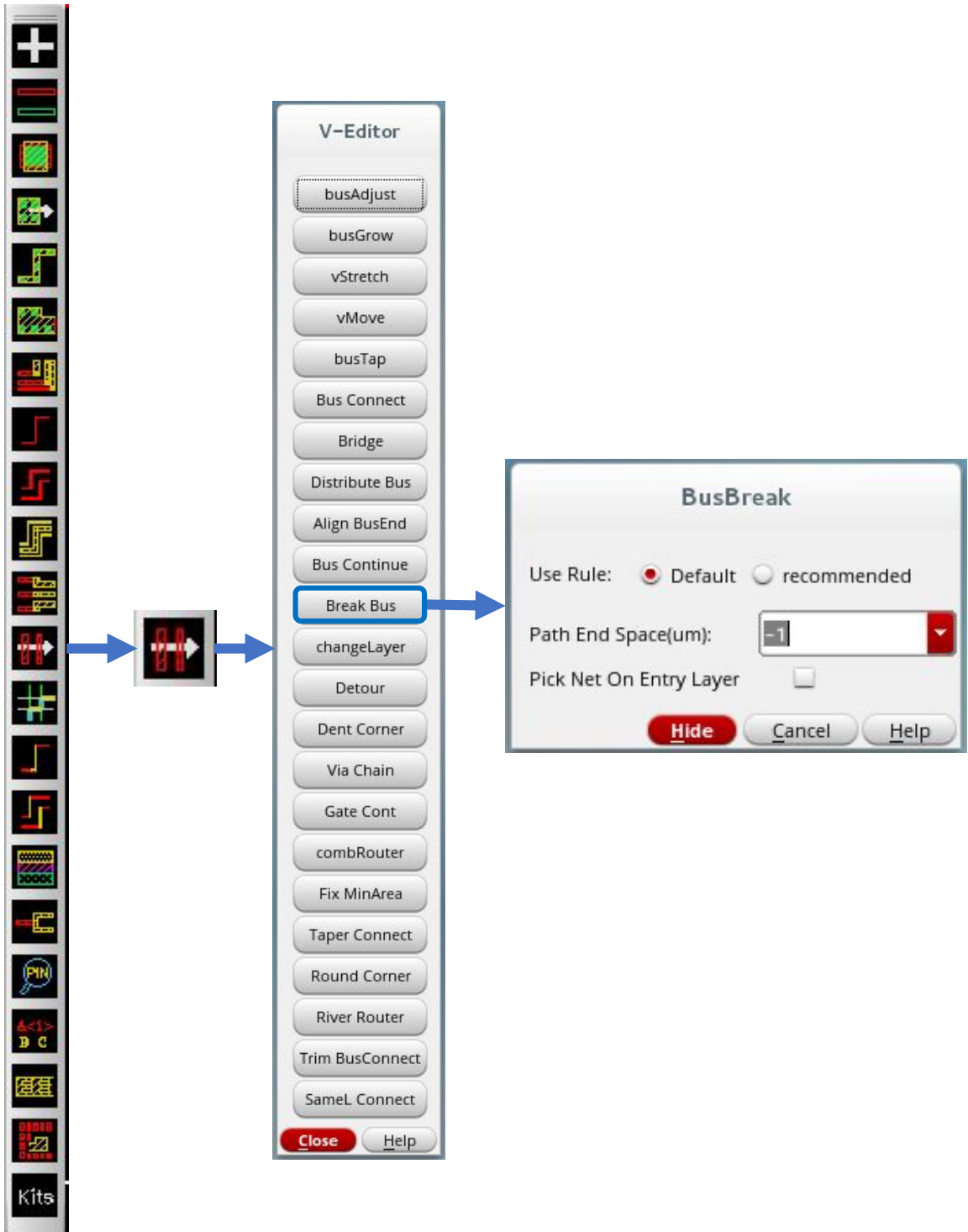
SKILLCAD V-Editor, Align Bus End



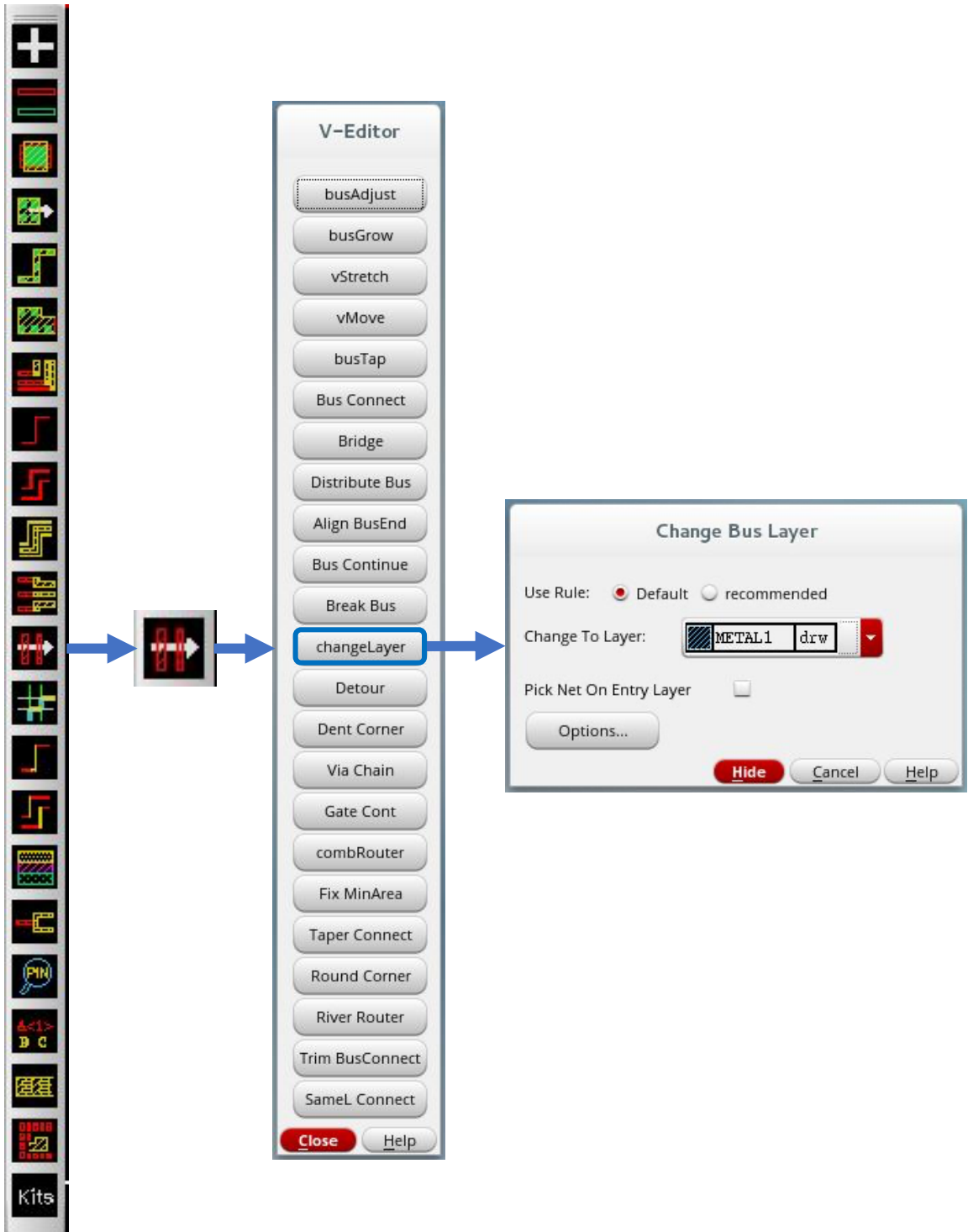
SKILLCAD V-Editor, Bus Continue



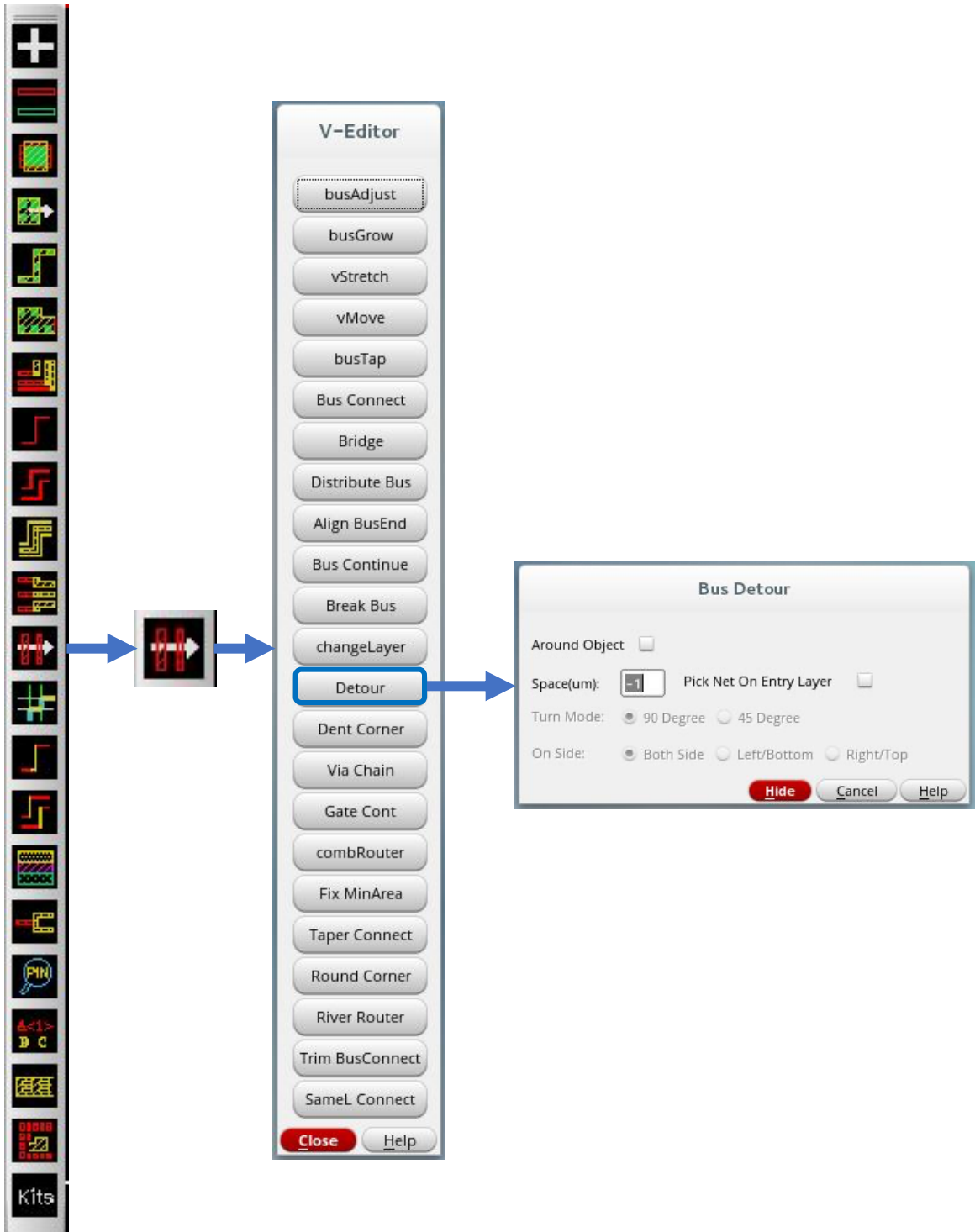
SKILLCAD V-Editor, Break Bus



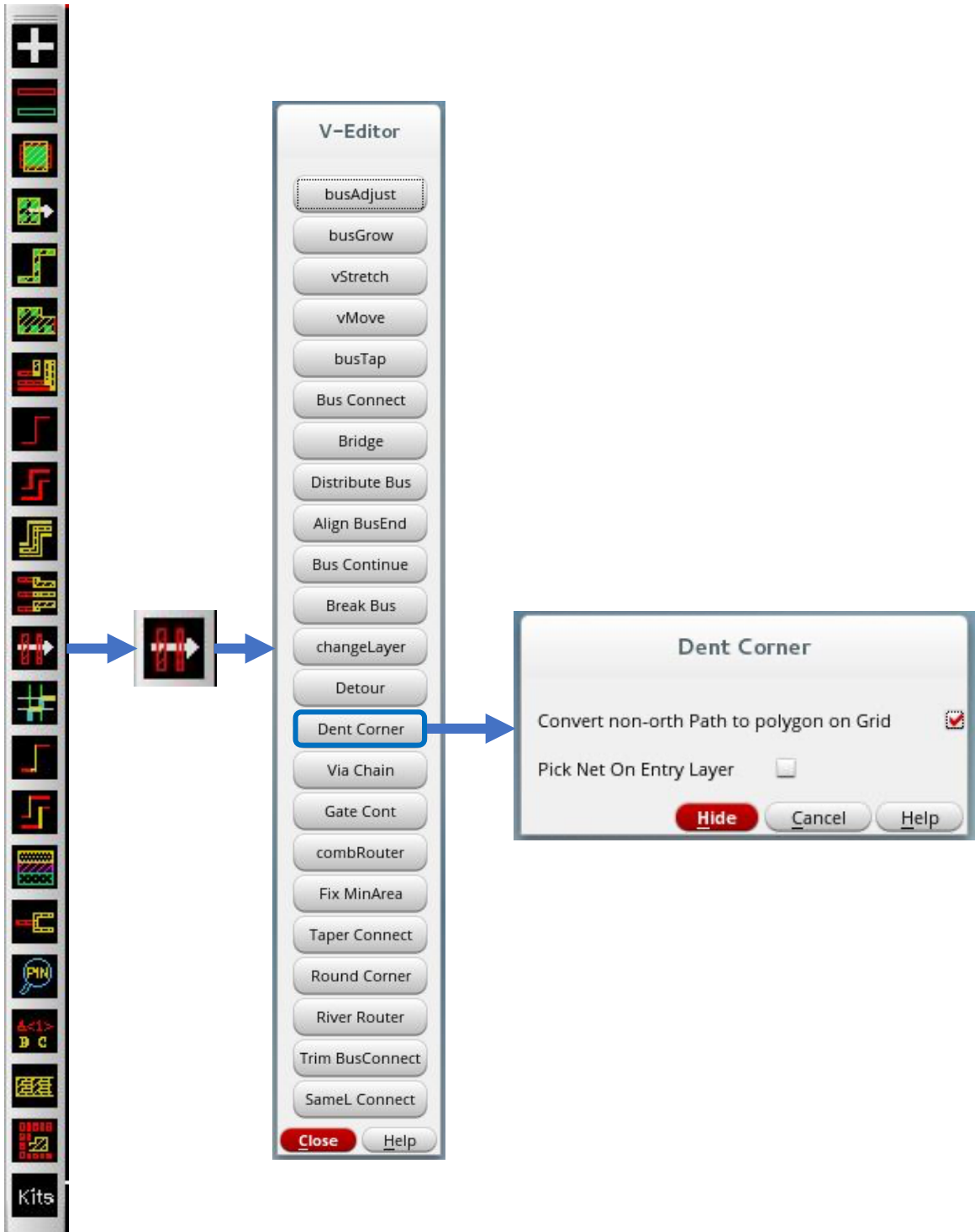
SKILLCAD V-Editor, Change Bus Layer



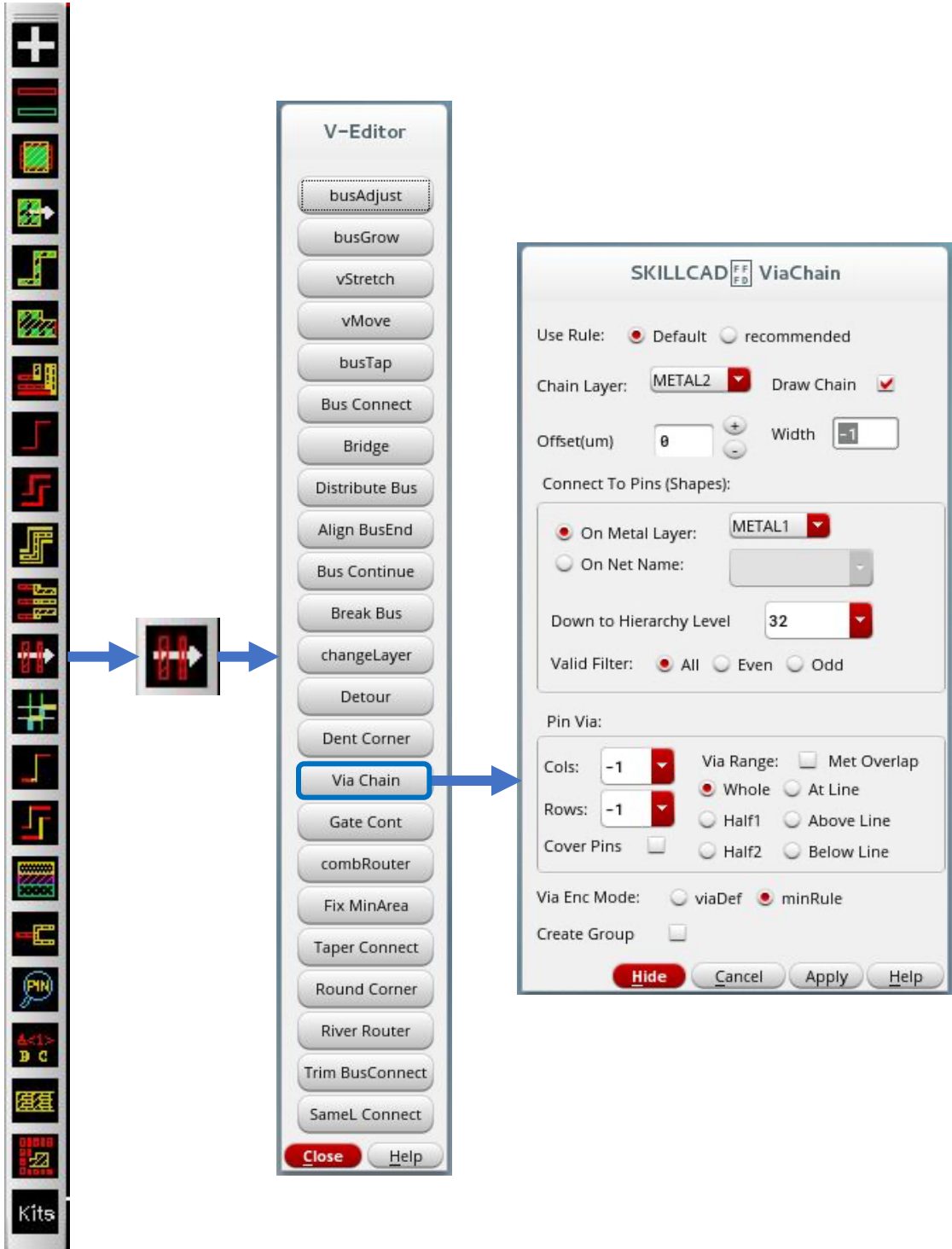
SKILLCAD V-Editor, Bus Detour



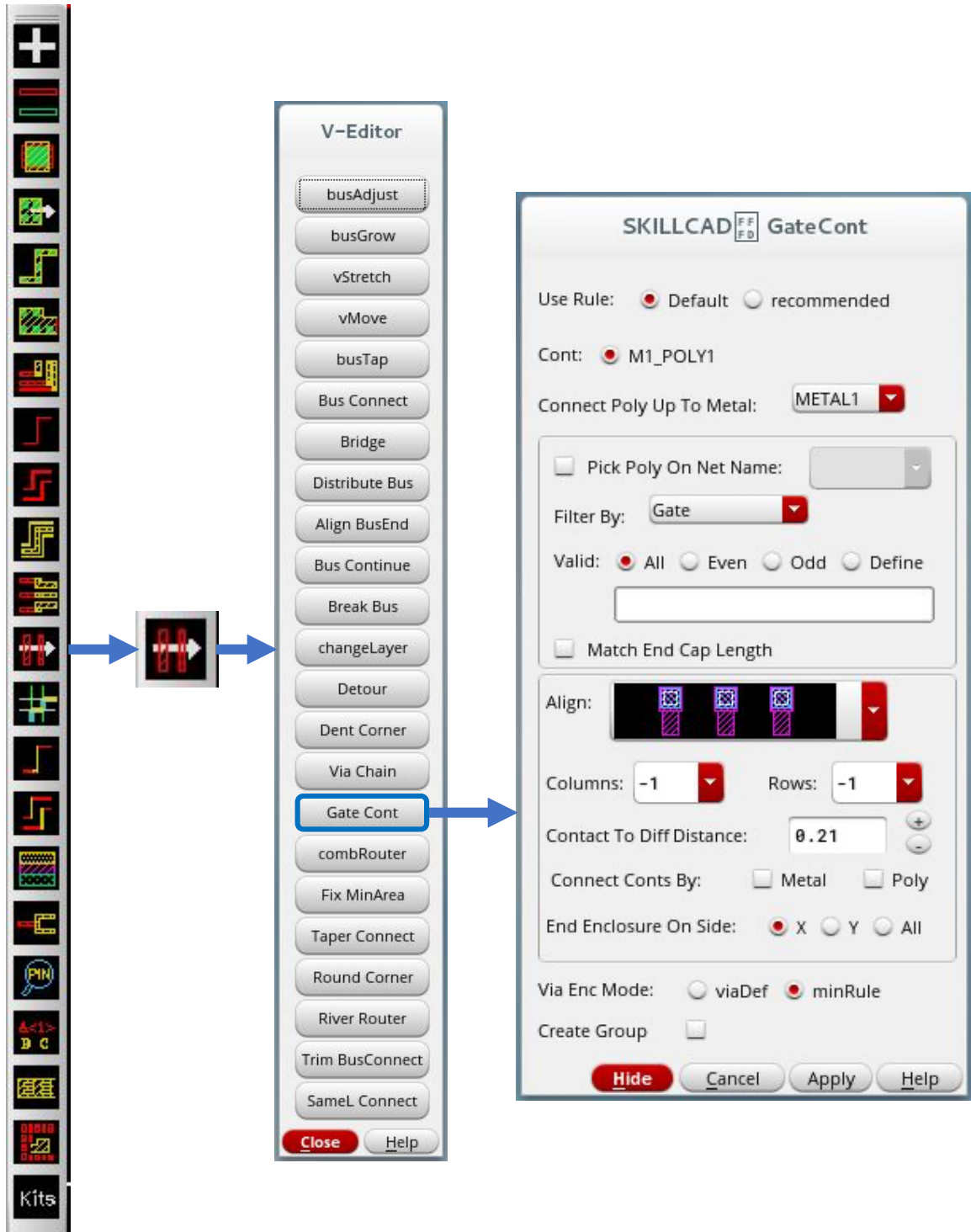
SKILLCAD V-Editor, Dent Corner



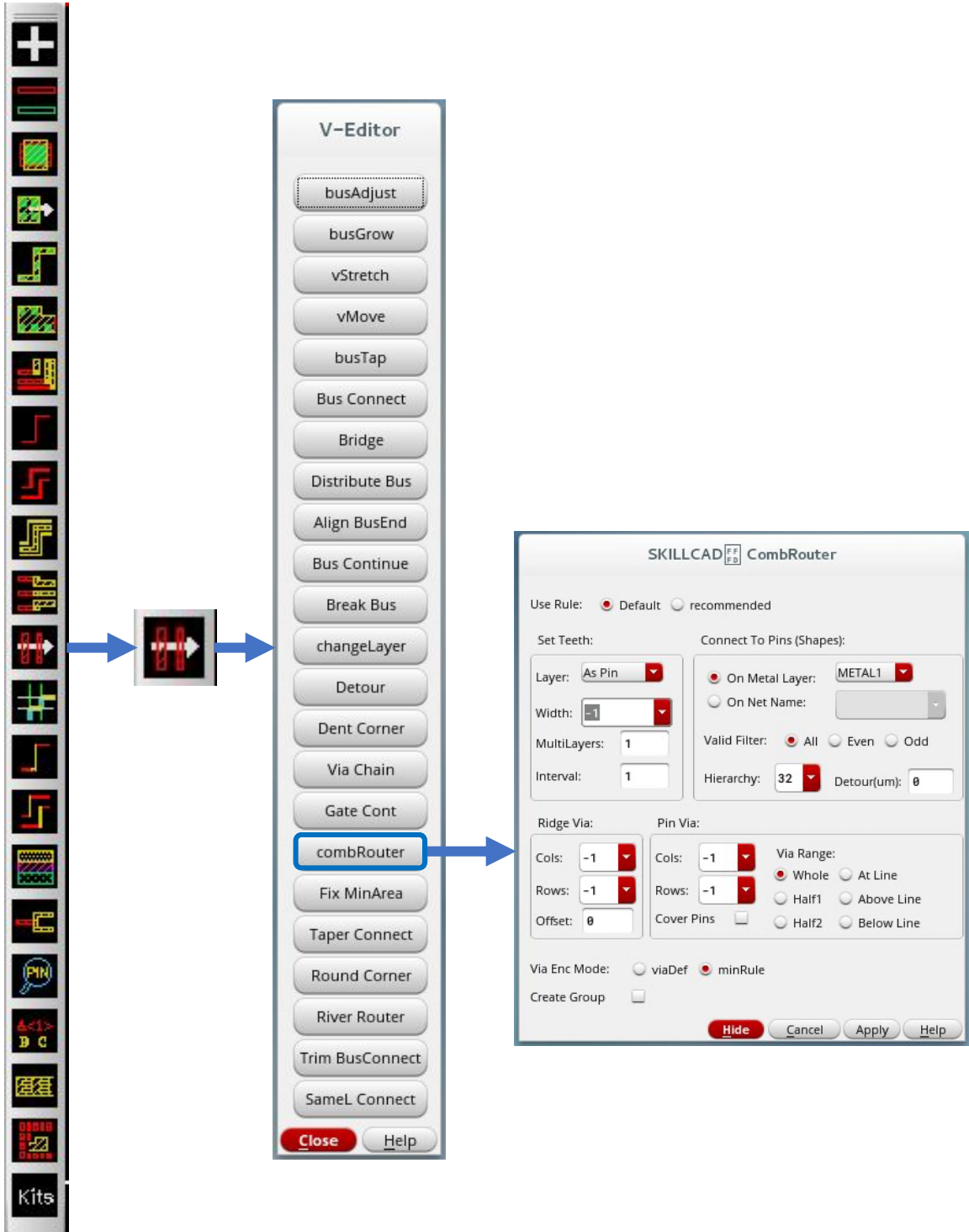
SKILLCAD V-Editor, Via Chain



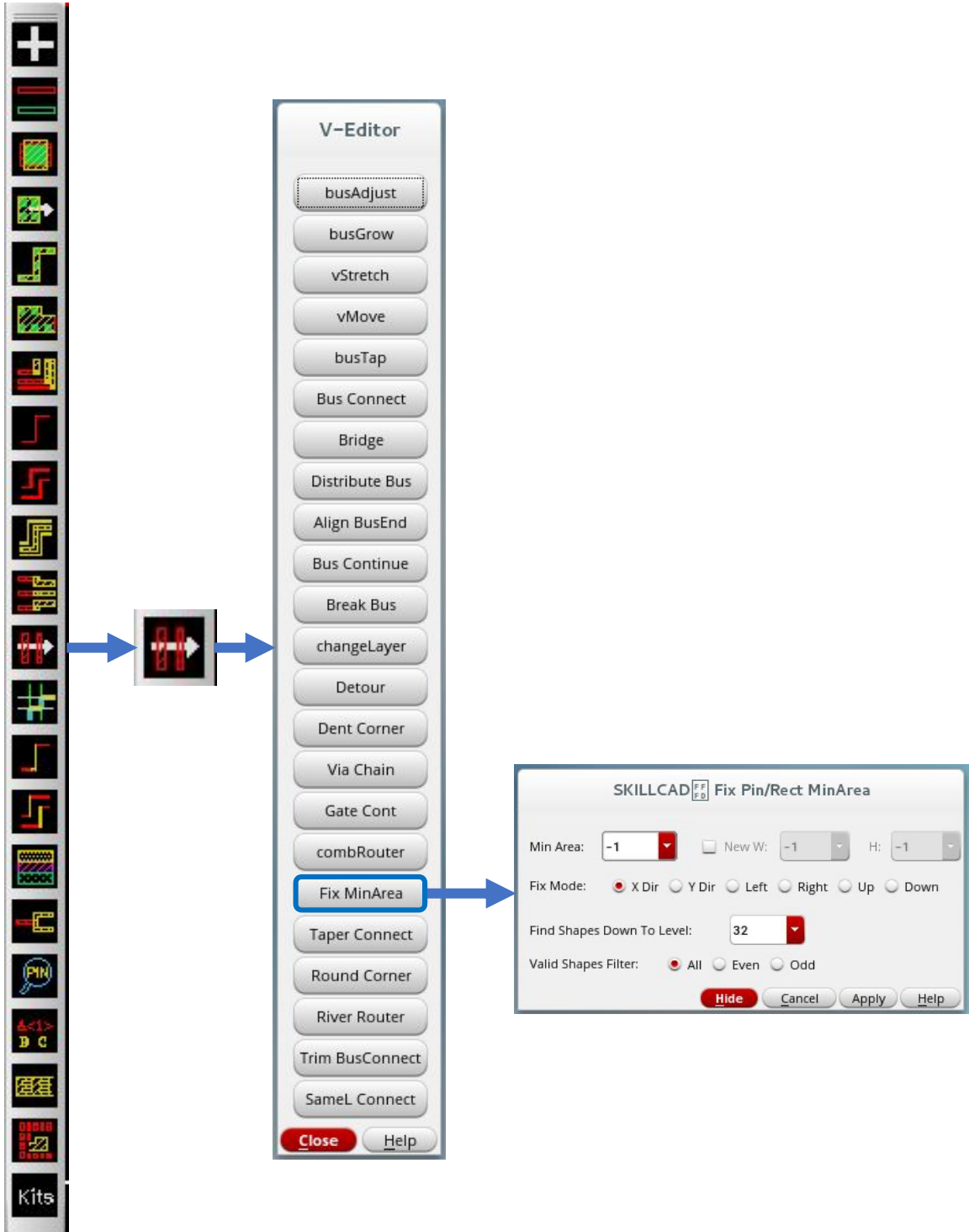
SKILLCAD V-Editor, Gate Contact



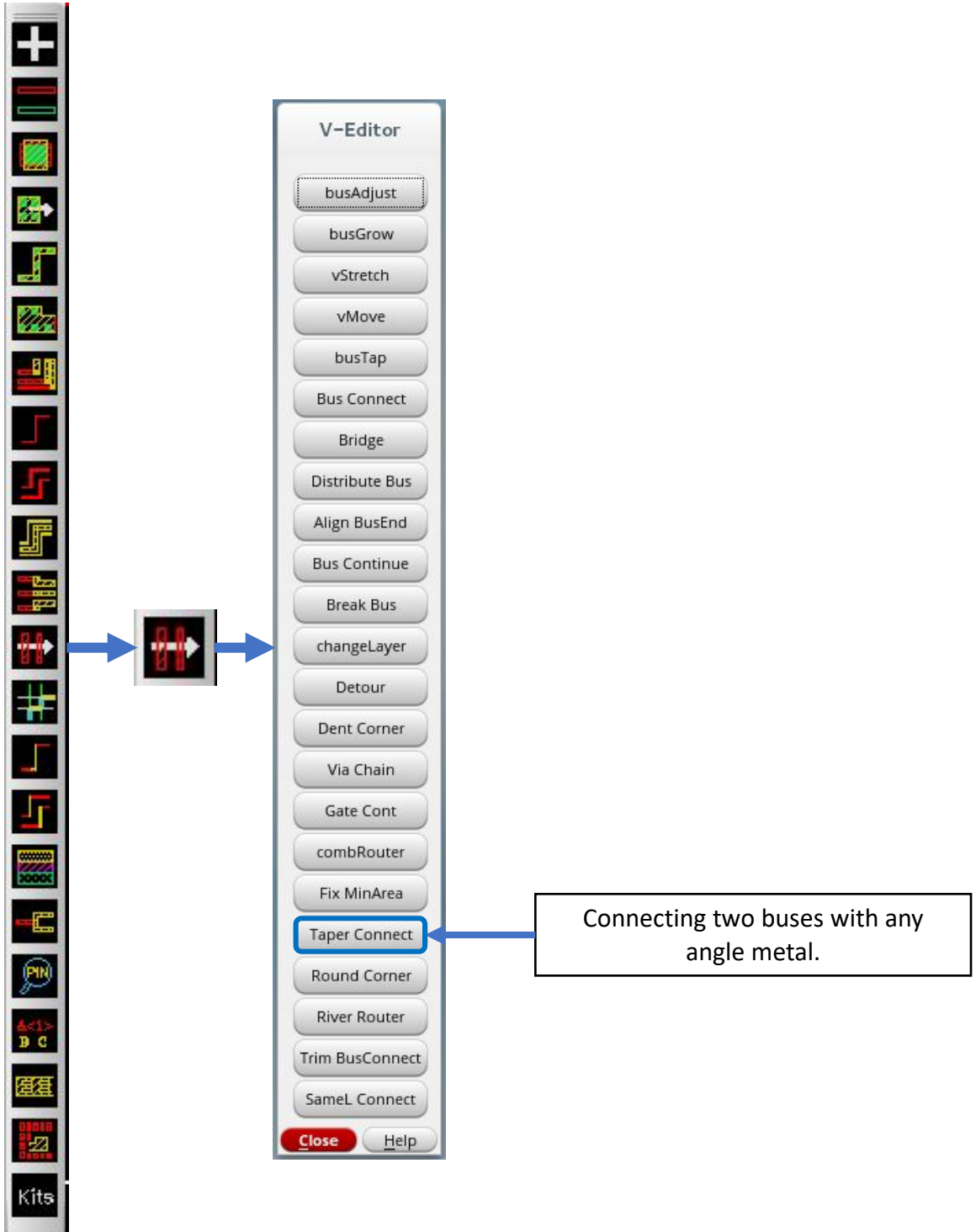
SKILLCAD V-Editor, Comb Router



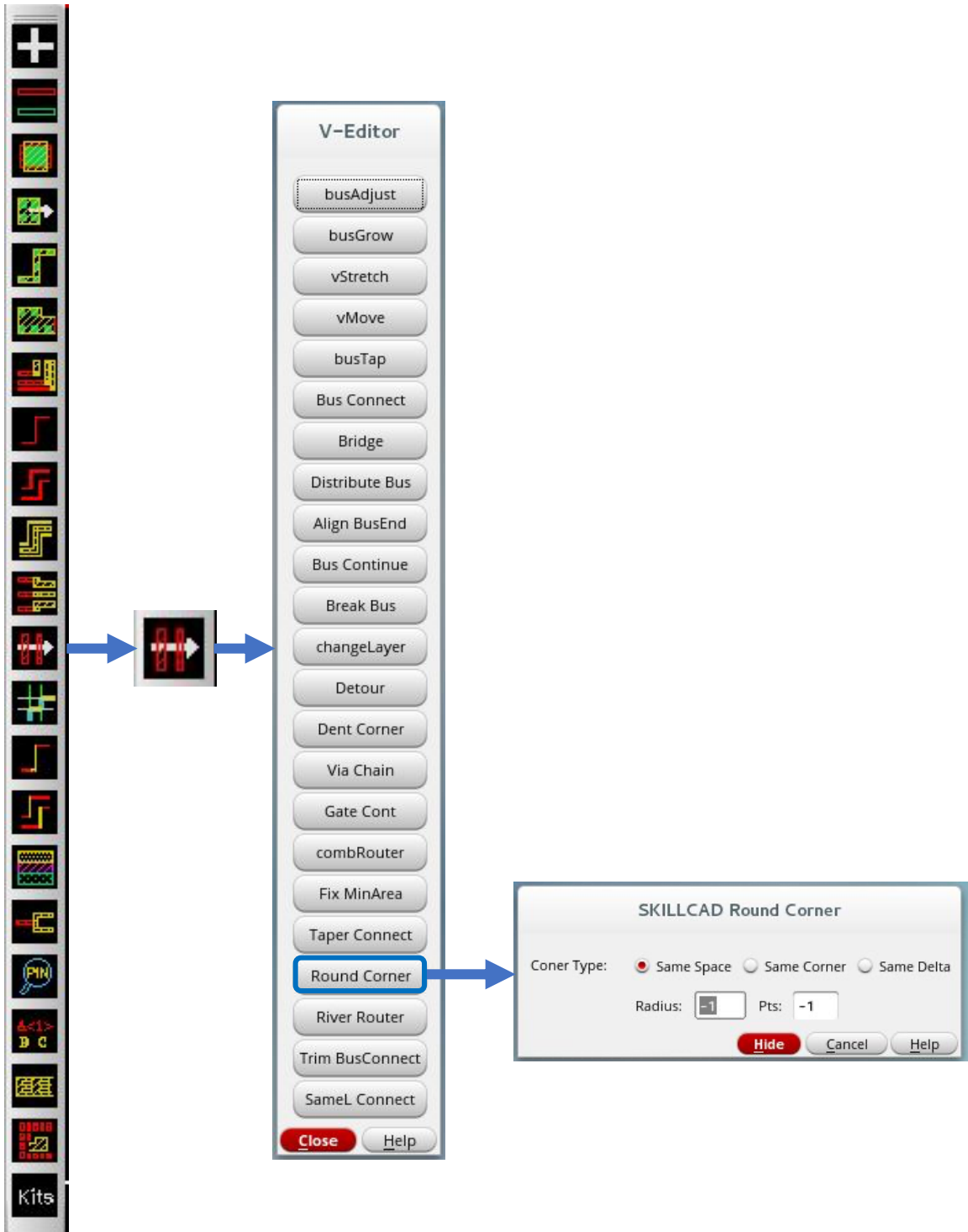
SKILLCAD V-Editor, Fix Minimum Area



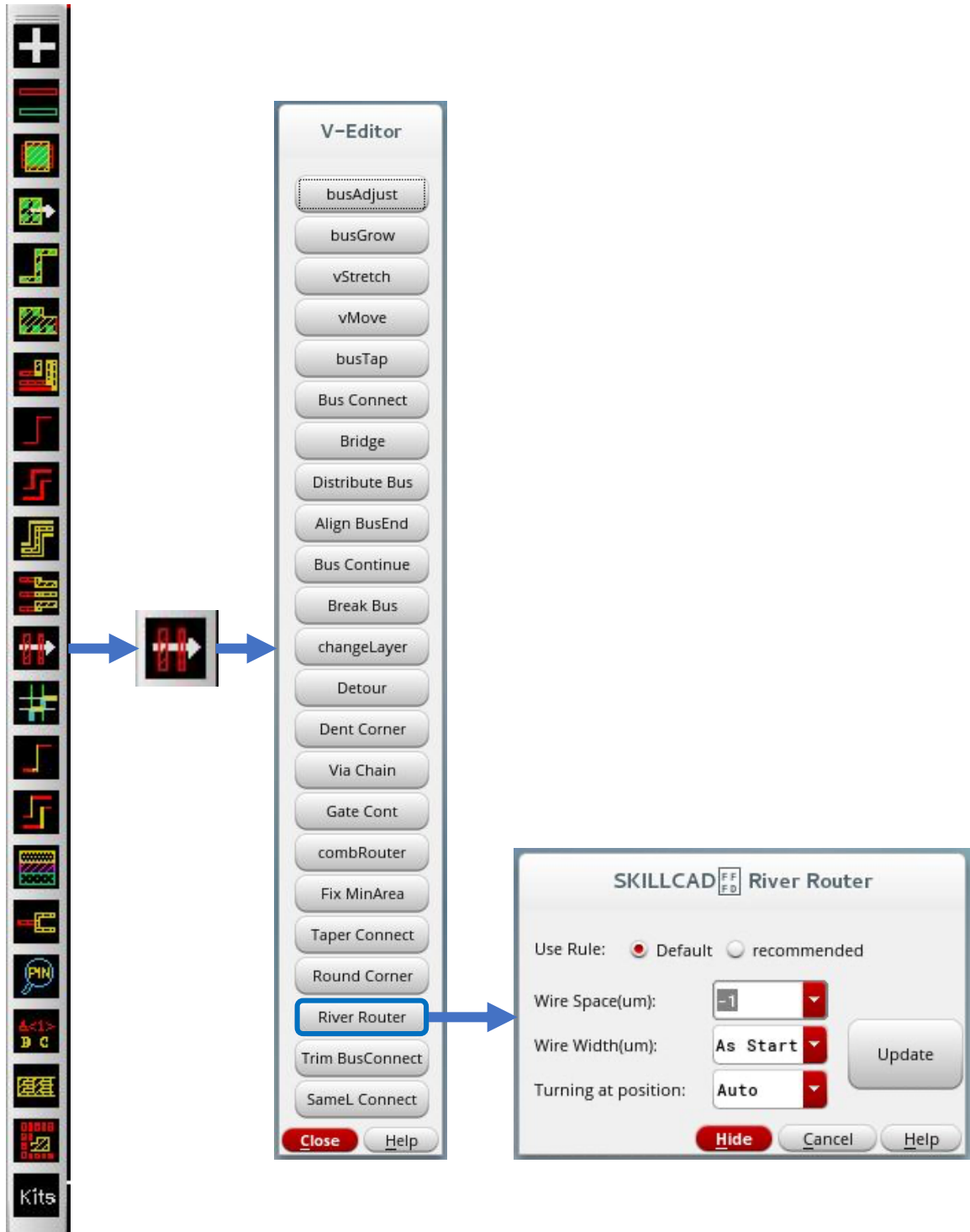
SKILLCAD V-Editor, Taper Connect



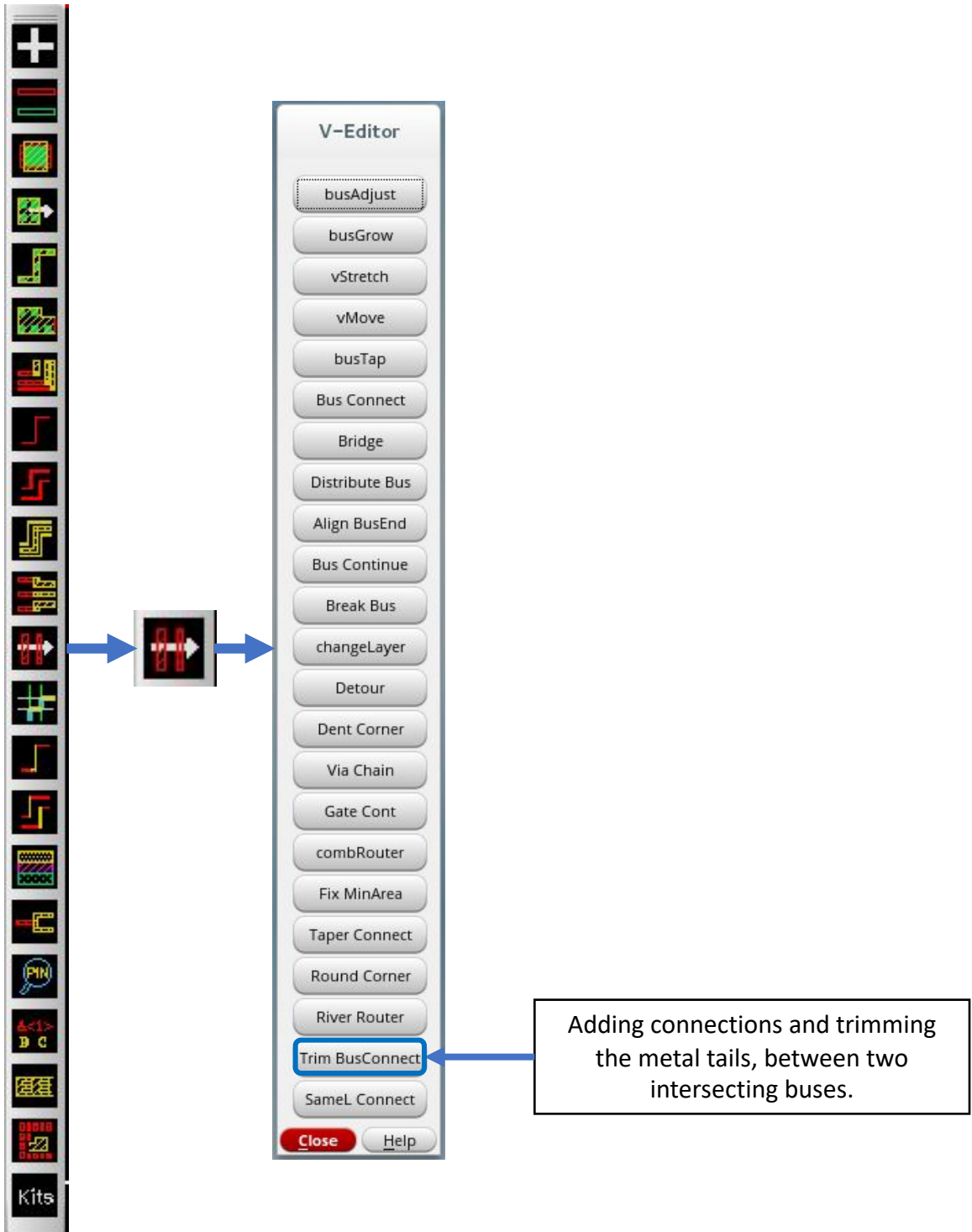
SKILLCAD V-Editor, Round Corner



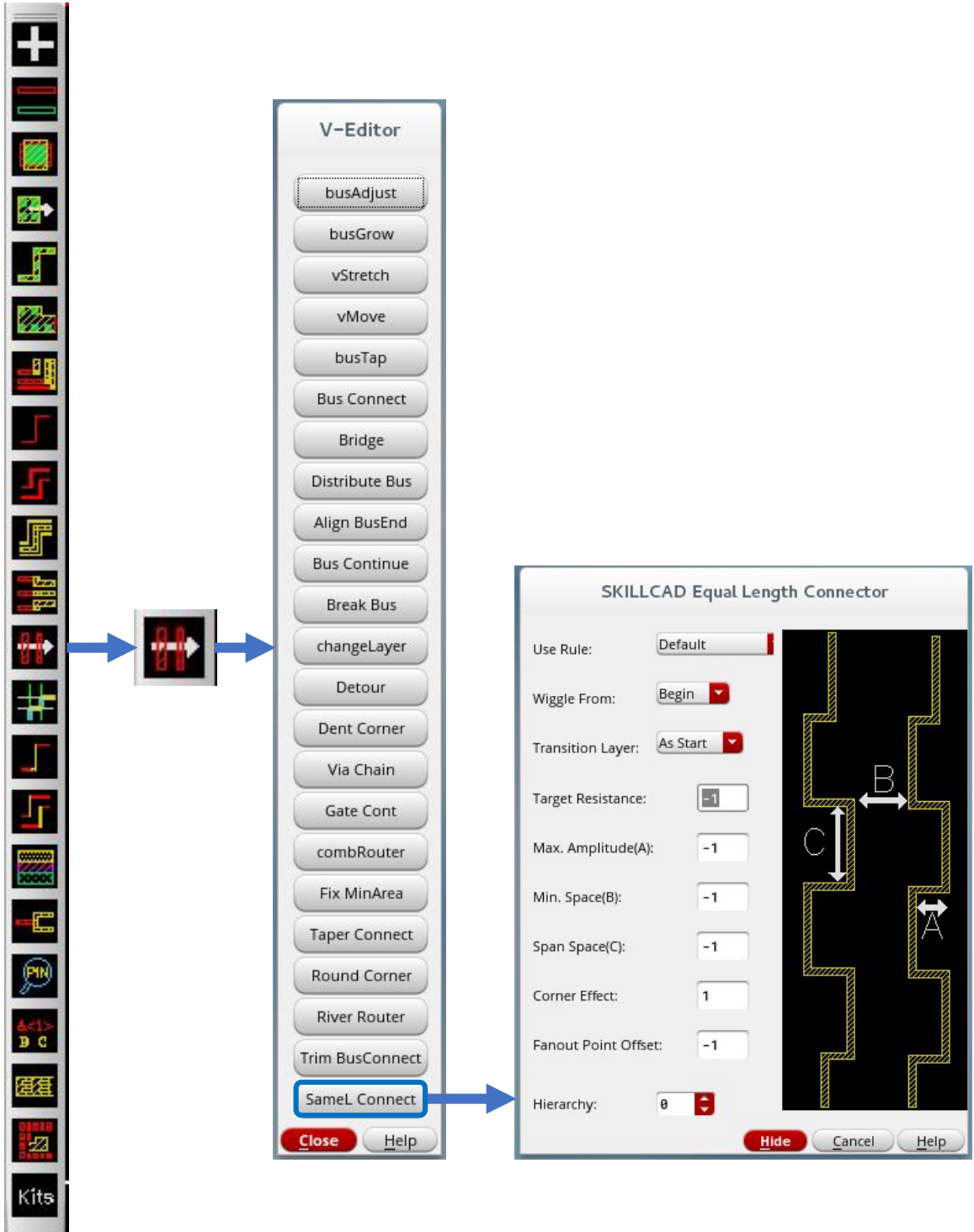
SKILLCAD V-Editor, River Router



SKILLCAD V-Editor, Trim Bus Connect



SKILLCAD V-Editor, Equal Length Connector



SKILLCAD Create A Shielded Bus

The image shows the SKILLCAD interface for creating a shielded bus. On the left is a vertical toolbar with various routing tools. A blue arrow points from the 'ShieldBus Jumper' icon in the toolbar to a 'ShieldBus Functions' dialog box. This dialog box contains two buttons: 'ShieldBus Jumper' (highlighted with a blue border) and 'Via Wall Shield'. A second blue arrow points from the 'ShieldBus Jumper' button to the main configuration dialog.

The main configuration dialog is titled 'SKILLCAD FreeJumper (ShieldBus)'. It contains the following settings:

- Use Rule:** Default recommended
- Path Width Mode:** Min Width Fixed Width Fixed Current
- Signal Path:** Width(um): 0.22, Current(mA): 0.22, Number: 2, Space(um): 0.23
- Shielding Path:** Width(um): 0.22, To Signal Space: 0.23
- Shielding:** Left Right Top Bottom Middle
- Current Entry Layer:** METAL1 drawing, MultiLayers: 2
- Next Click, Jump To:** METAL1 drw, Layer Intervals: 1
- Min. Via Number:** 2, **Use Squarish Via Array:**
- Max. Stack Levels:** 6, **Fix Min. Area:** Auto
- Corner Via Align:** (Left), (Right), (Center), (None)
- Metal Enc Mode:** viaDef minRule, **Align Via Metal To Path:**
- Create Note Labels Along Path:**
- Alert if Non-Preferred Dir Routing >** 5 (um), **Swap Dir:**
- Reverse Bus Order at Corner Layer Jumping:**
- Convert Non-orthogonal Path to Polygon on Grid**
- Extend Path at Layer Jumping**, **Auto Pan Window:**
- Merge with Starting/Ending Path**, **Align Starting/Ending to Center**
- Rule Assistant:** **Use My Min. Space Rule(um):** 0
- Metal Display:** Current Level, -1 to +1, All, None
- Snap To The Center Between Two Nearby Shapes On Layer:** Same

At the bottom of the dialog are buttons for 'Hide', 'Cancel', 'Save As Default', and 'Help'.

SKILLCAD Create A Via Wall Shield

The image illustrates the process of creating a via wall shield in SKILLCAD. It shows a vertical toolbar on the left with various layout tools. A 'ShieldBus Functions' dialog box is open, with 'Via Wall Shield' selected. A blue arrow points from this selection to a 'Shield Bus(Via Wall)' configuration dialog. The configuration dialog includes the following settings:

- Use Rule: Default recommended
- On Side: Left Right Middle Start End
- Top : Upper Metal (dropdown), Plate Strip Nil
- Bottom : Lower Metal (dropdown), Plate Strip Nil
- Number of paths: 1
- Layer: METAL1 (dropdown), drw (dropdown)
- Signal Path Widths(um): 1
- Shielding Via Number: 1
- Signal Path Space(um): 1
- Via Space: Minimum (dropdown)
- Shield to Signal Space: 1
- T-Node Offset: Auto (dropdown)
- Flat MPP:
- As Group:
- Enc Mode: viaDef minRule

Buttons at the bottom of the dialog include Hide, Cancel, Apply, and Help.

SKILLCAD Kits, Area/Perimeter Calculator

The image shows the SKILLCAD interface. On the left is a vertical toolbar with various icons. A 'Kits' button at the bottom of the toolbar is highlighted with a blue arrow pointing to a 'Kits' button in a separate window. This window contains a list of tools, with 'Calculate Area Perimeter' highlighted by a blue arrow pointing to the 'SKILLCAD Area Perimeter Calculator' dialog box.

SKILLCAD Kits

- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vias)
- Toggle Via CutClass
- Full Selection
- Select Net Objs
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

SKILLCAD Area Perimeter Calculator

Merge Shapes on Different Purpose

Highlight Merged Region With:

Layers of Interest:

Calculations	Area	Perimeter
[Empty table body]		

Total:

Current Calculation Results:

Area: Perimeter:

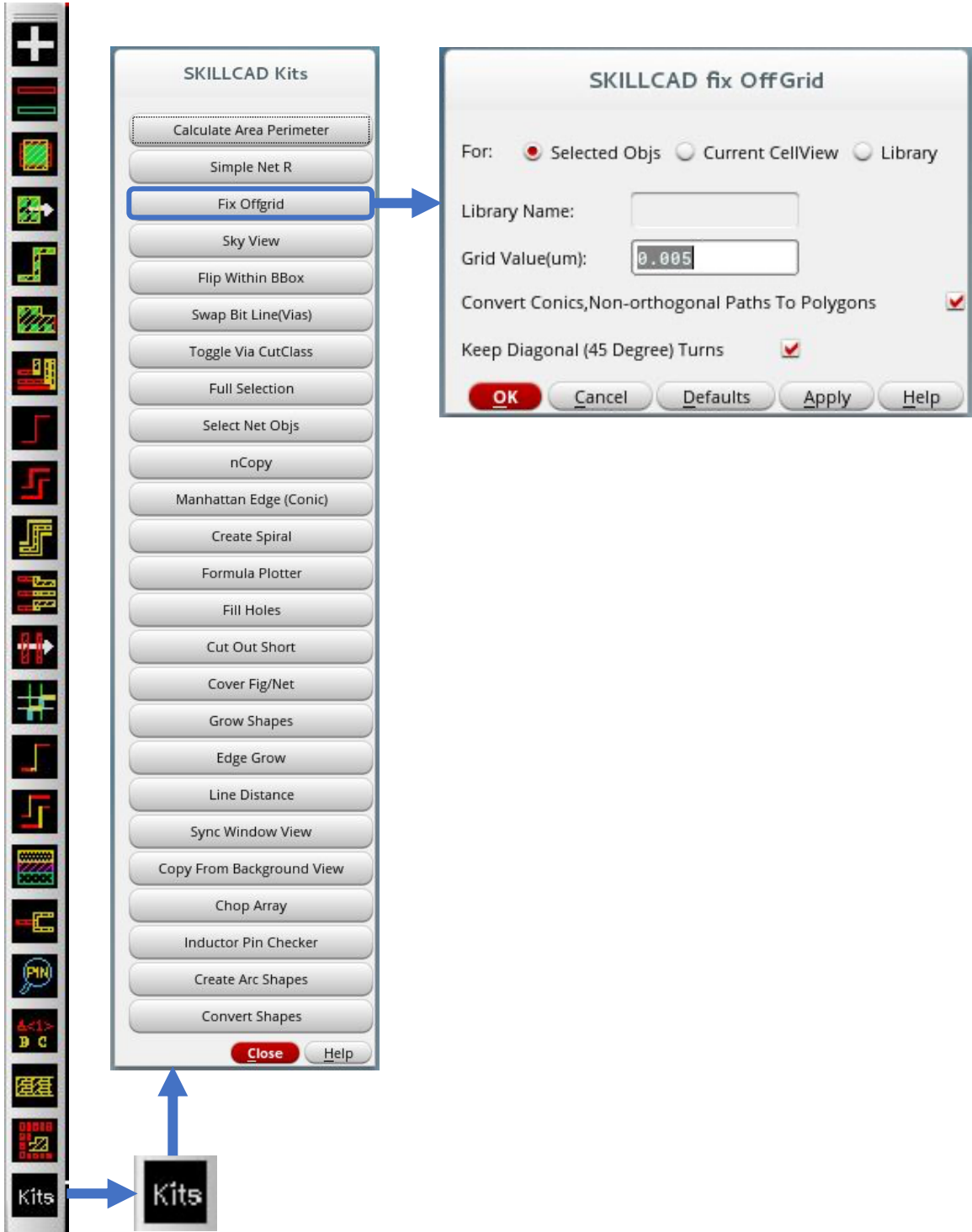
SKILLCAD Kits, Simple Net Resistance

The image shows the SKILLCAD interface. On the left is a vertical toolbar with various icons. A 'Kits' icon at the bottom of the toolbar is highlighted with a blue arrow pointing to a 'Kits' button. This button opens a 'SKILLCAD Kits' menu. In this menu, the 'Simple Net R' option is highlighted with a blue arrow. This option opens the 'SKILLCAD Simple Net R' dialog box.

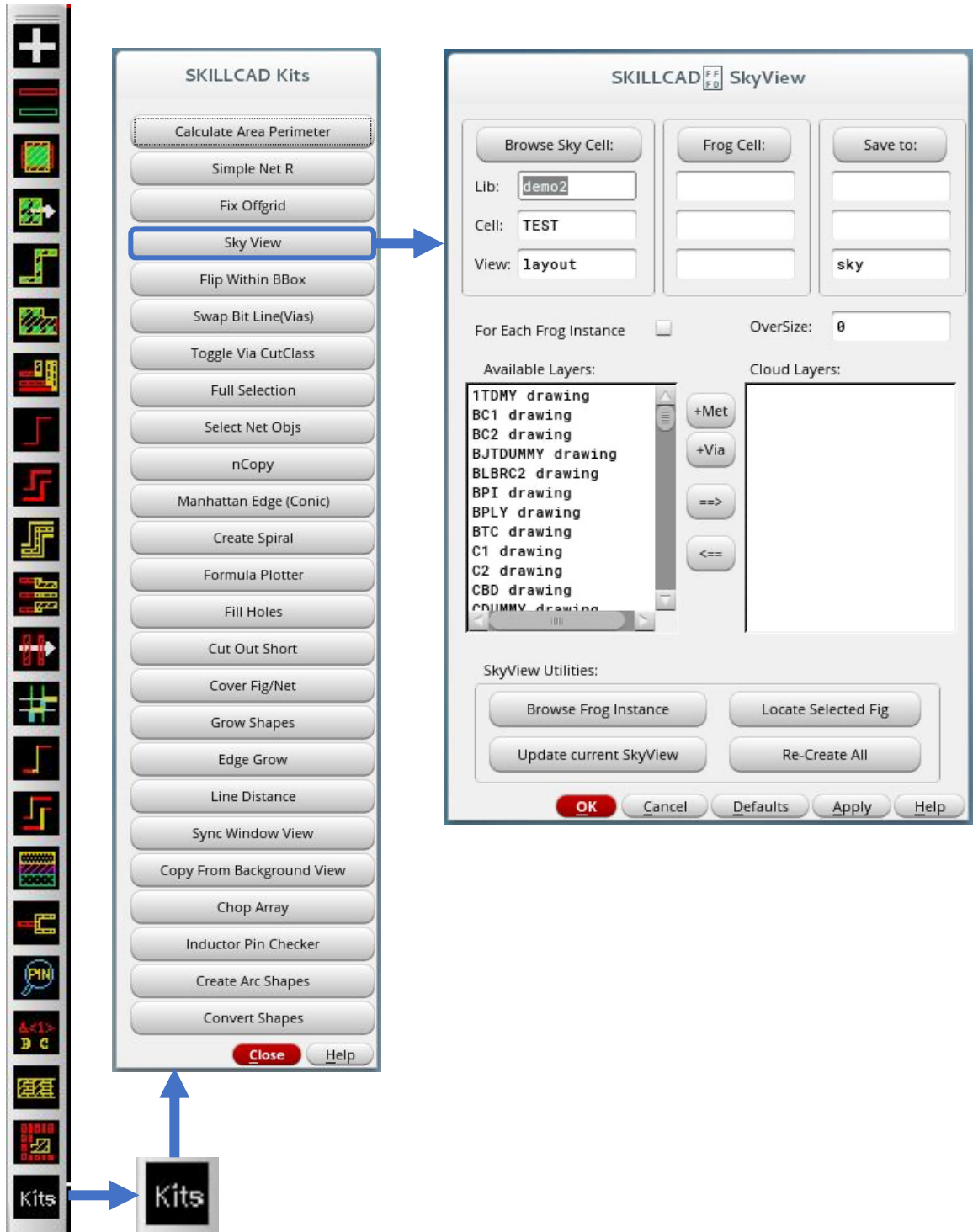
The 'SKILLCAD Simple Net R' dialog box contains the following controls:

- Highlight Net With:** A dropdown menu set to 'Cycle'.
- Down To Level:** A dropdown menu set to '32' and a 'Whole Net' button.
- Buttons:** 'Reset', 'Report Detail', and 'Part of Net'.
- Table:** A table with columns 'Index', 'Net Name', and 'R_Total'. The table is currently empty.
- Bottom Buttons:** 'Close' and 'Help'.

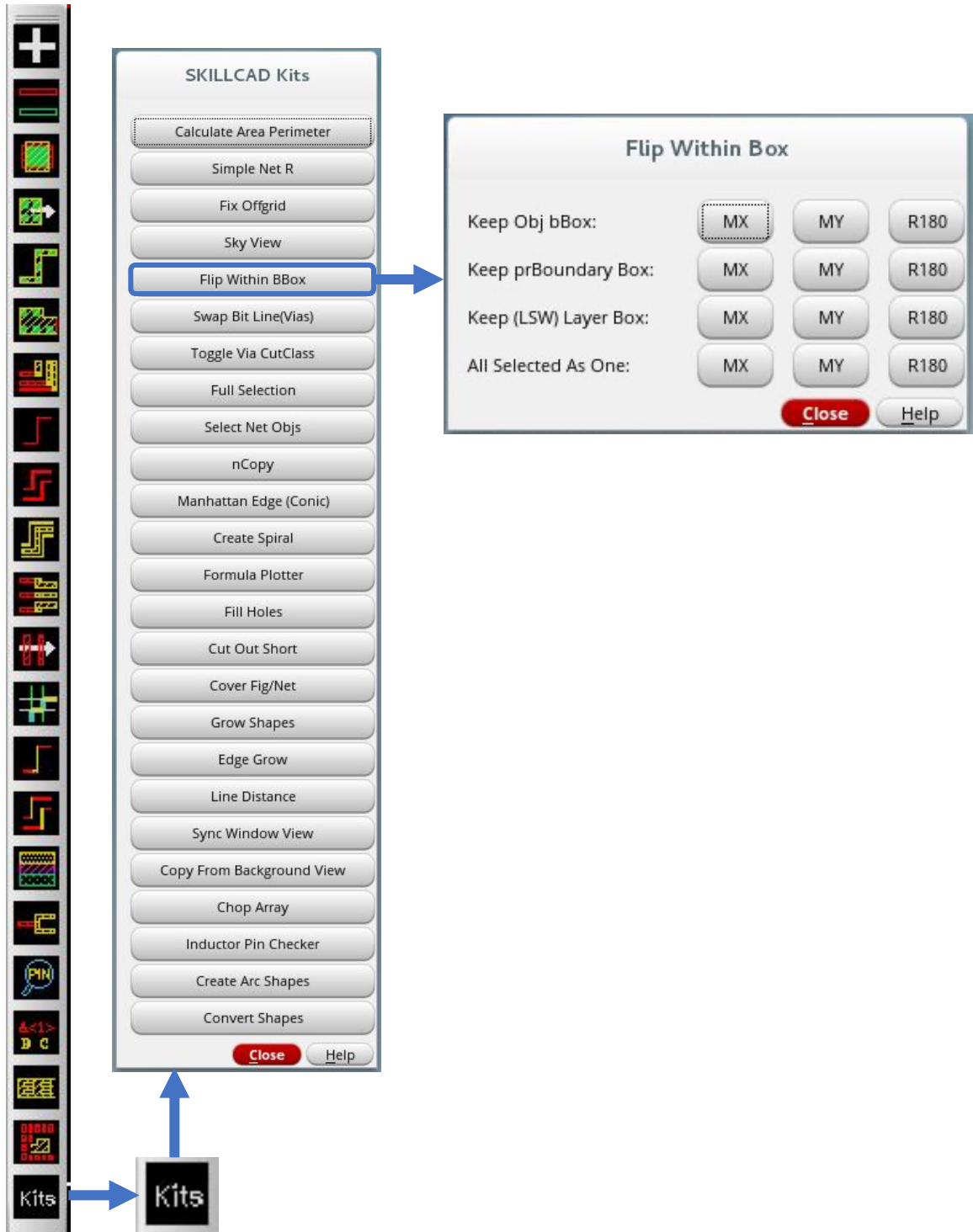
SKILLCAD Kits, Fix Off Grid



SKILLCAD Kits, Sky View



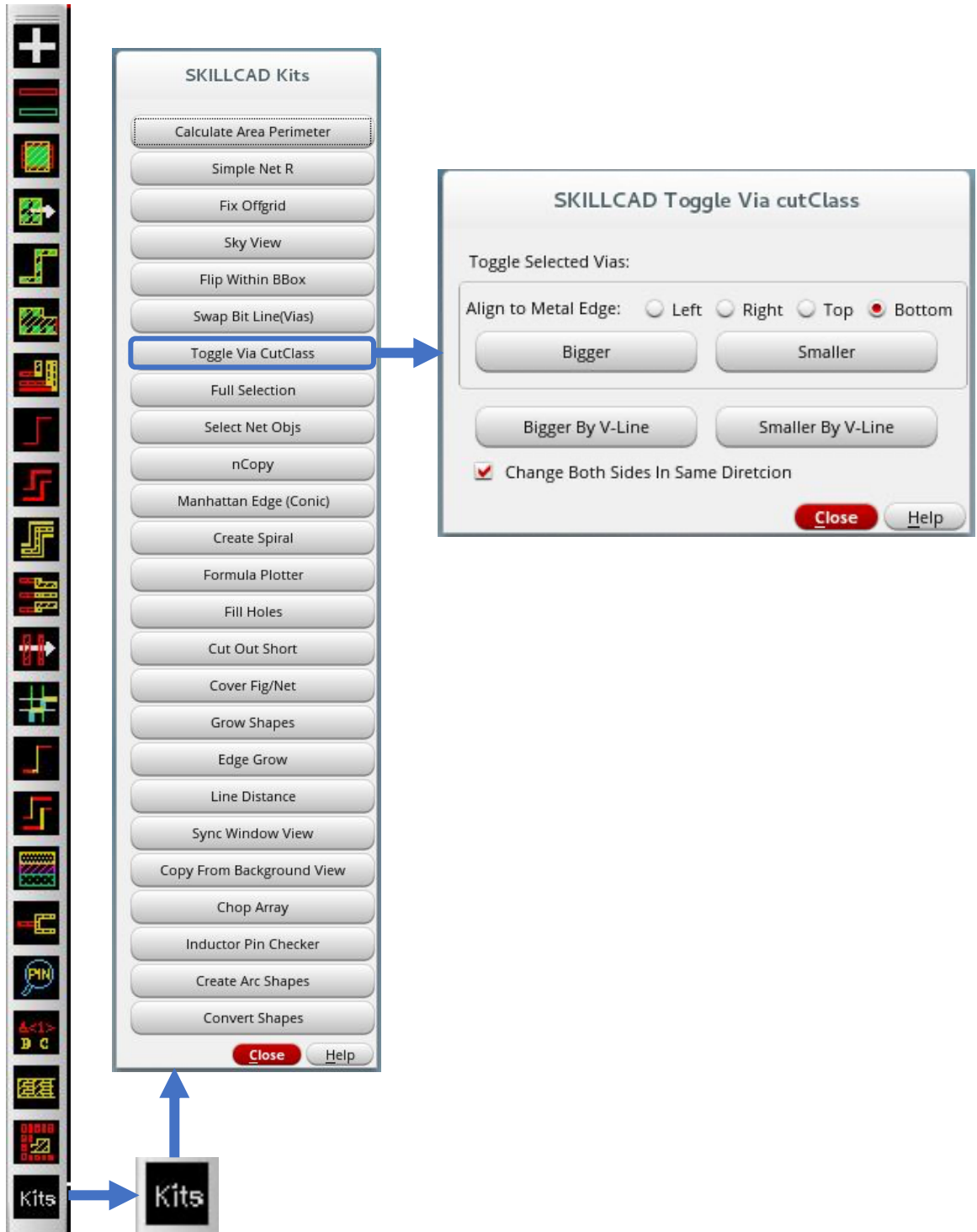
SKILLCAD Kits, Flip Within A Bounding Box



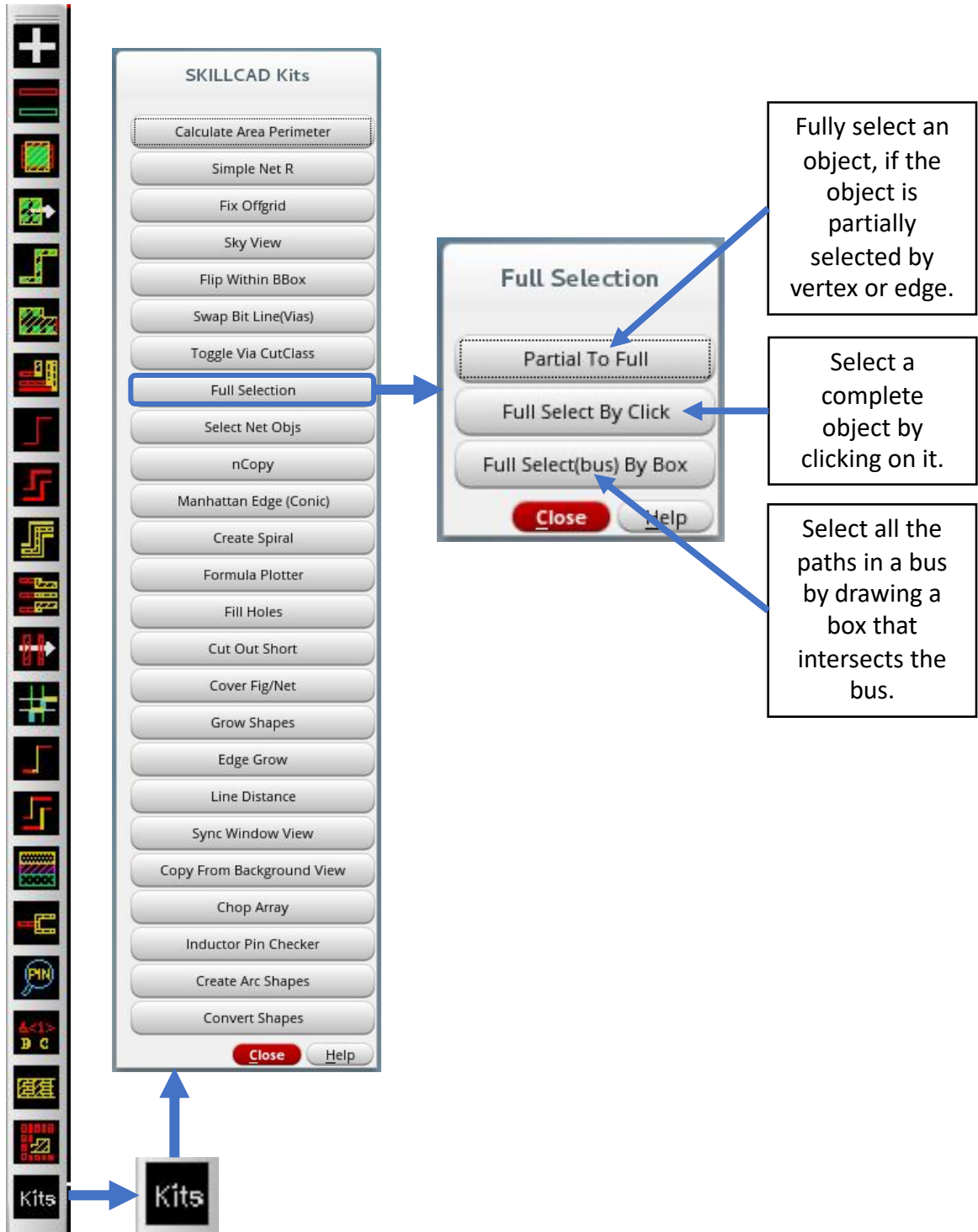
SKILLCAD Kits, Swap Bit Lines

The image shows a vertical toolbar on the left with various icons. The 'Kits' icon at the bottom is highlighted with a blue arrow pointing to a 'Kits' dialog box. The dialog box is titled 'SKILLCAD Kits' and contains a list of tools. The 'Swap Bit Line(Vias)' tool is highlighted with a blue border and a blue arrow pointing to a text box. The text box contains the text: 'Swap the position of two bit lines and the associated vias.' The dialog box also includes buttons for 'Calculate Area Perimeter', 'Simple Net R', 'Fix Offgrid', 'Sky View', 'Flip Within BBox', 'Toggle Via CutClass', 'Full Selection', 'Select Net Objs', 'nCopy', 'Manhattan Edge (Conic)', 'Create Spiral', 'Formula Plotter', 'Fill Holes', 'Cut Out Short', 'Cover Fig/Net', 'Grow Shapes', 'Edge Grow', 'Line Distance', 'Sync Window View', 'Copy From Background View', 'Chop Array', 'Inductor Pin Checker', 'Create Arc Shapes', and 'Convert Shapes'. At the bottom of the dialog box are 'Close' and 'Help' buttons.

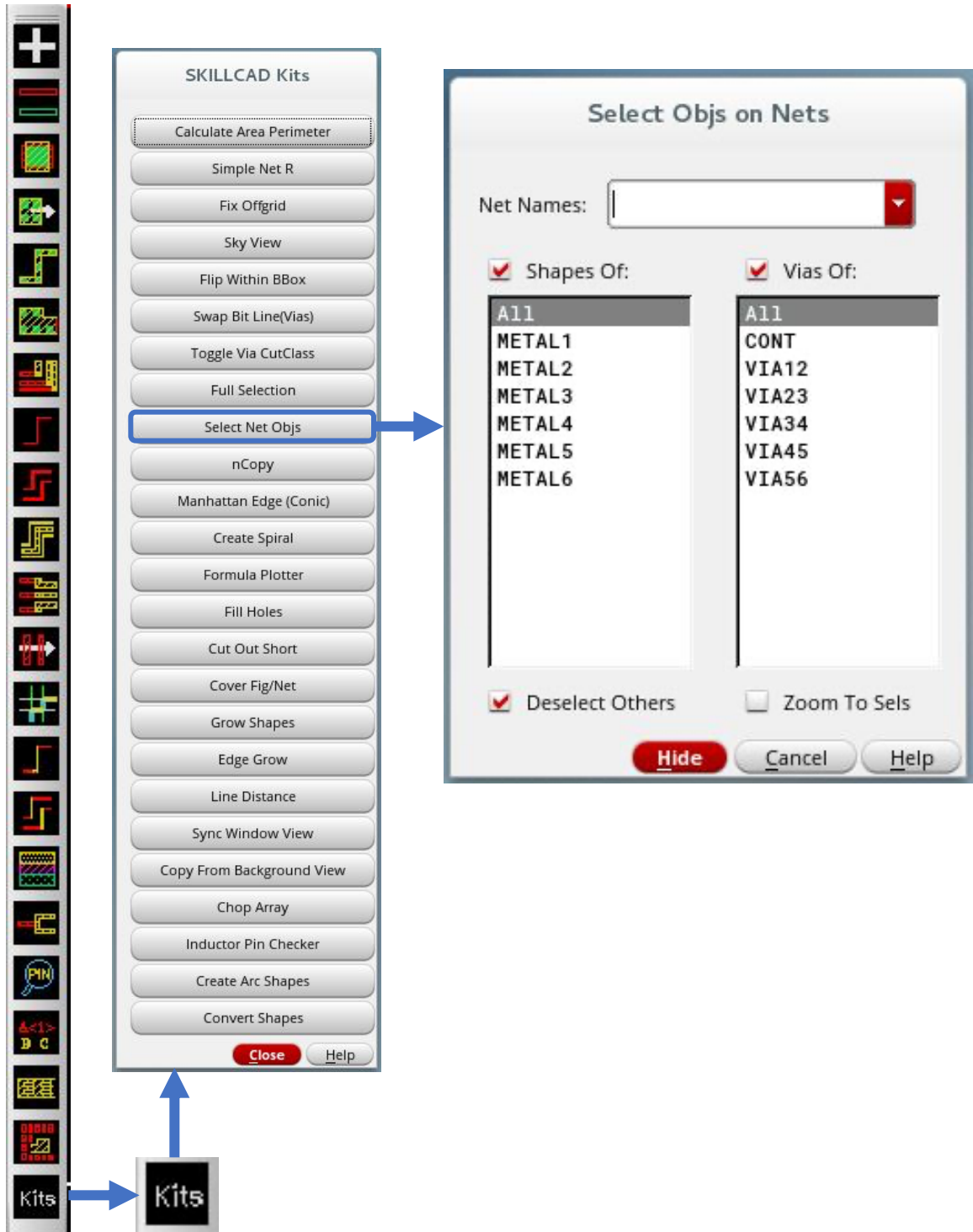
SKILLCAD Kits, Toggle Via Cut Class



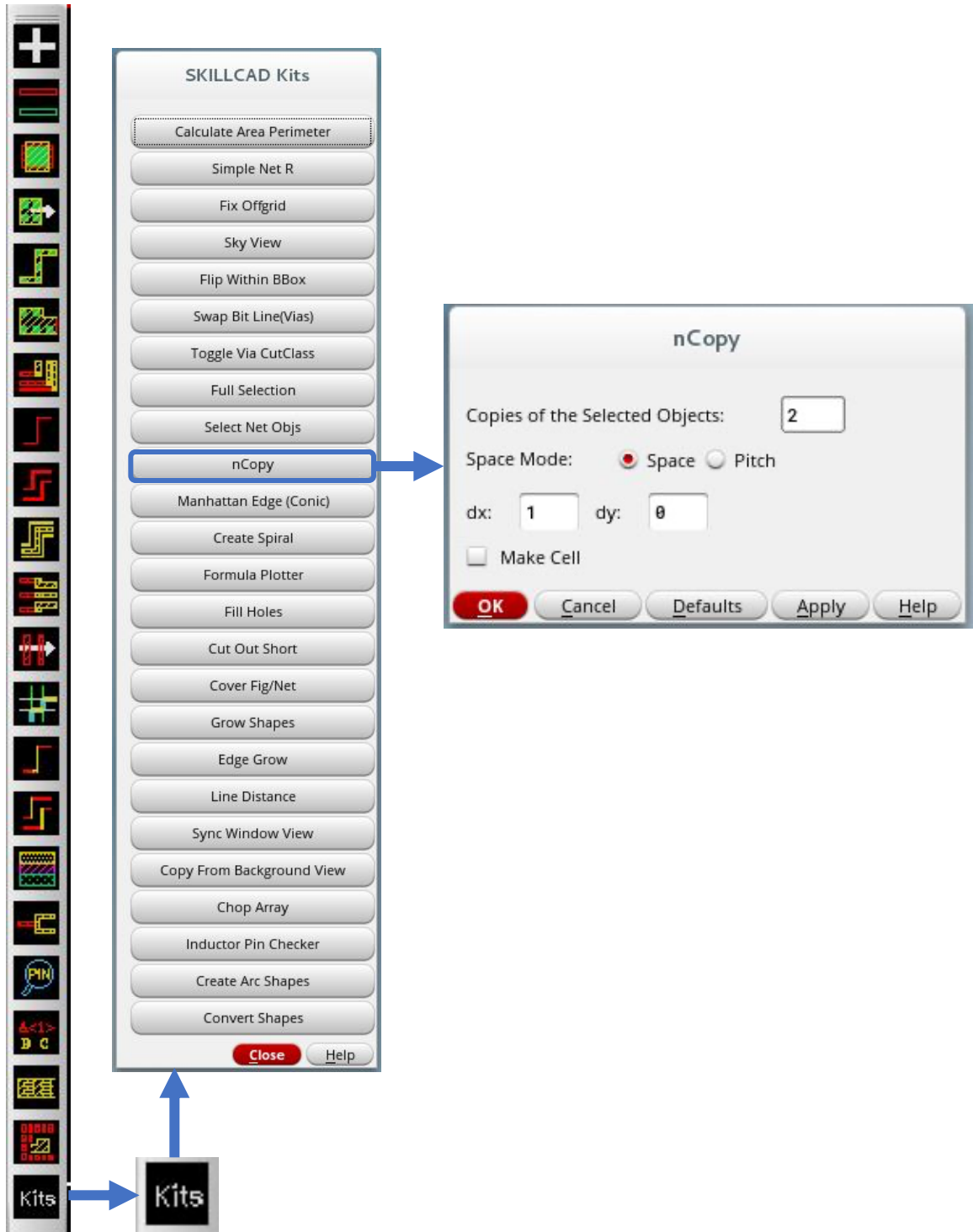
SKILLCAD Kits, Full Selection



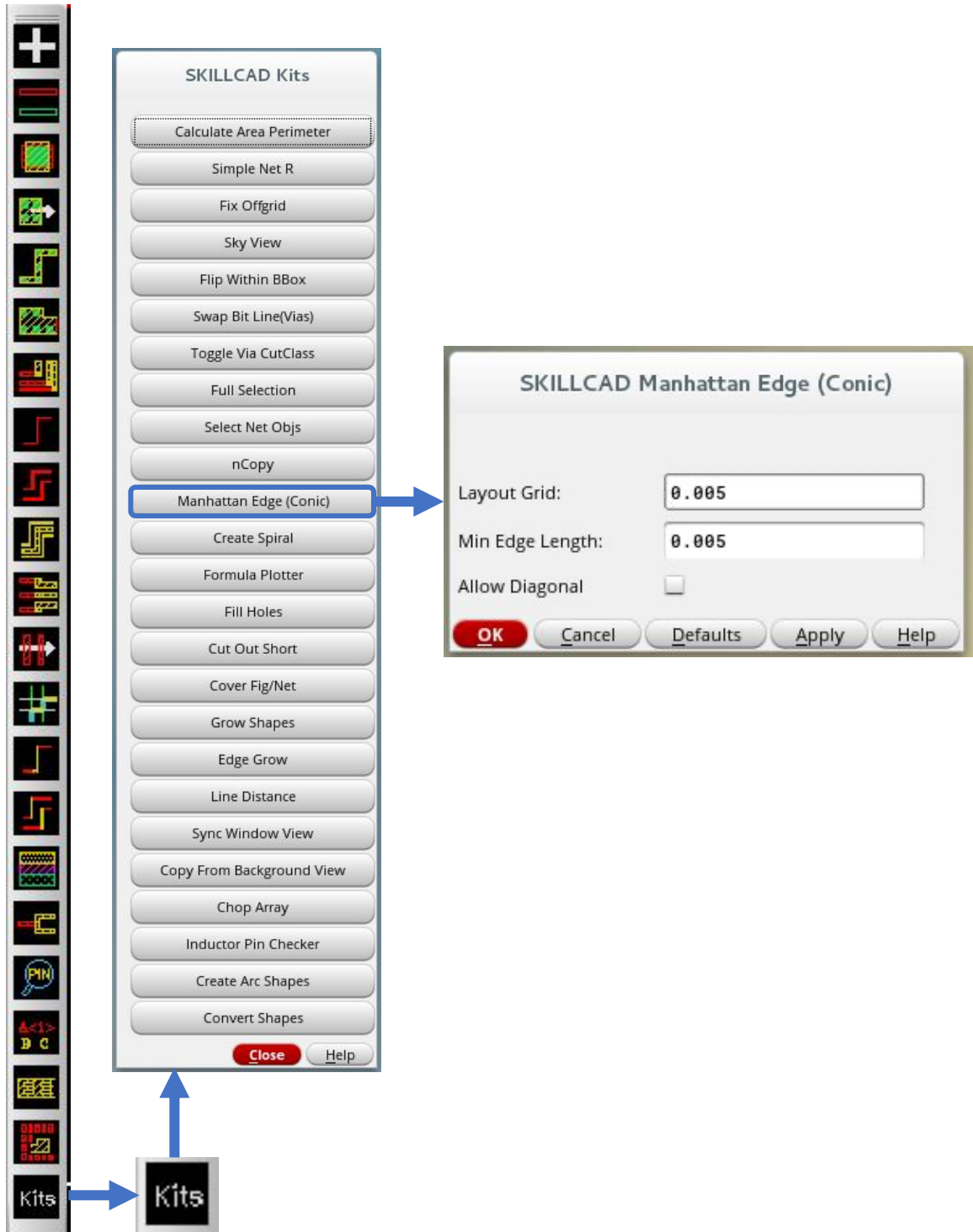
SKILLCAD Kits, Select Objects On Nets



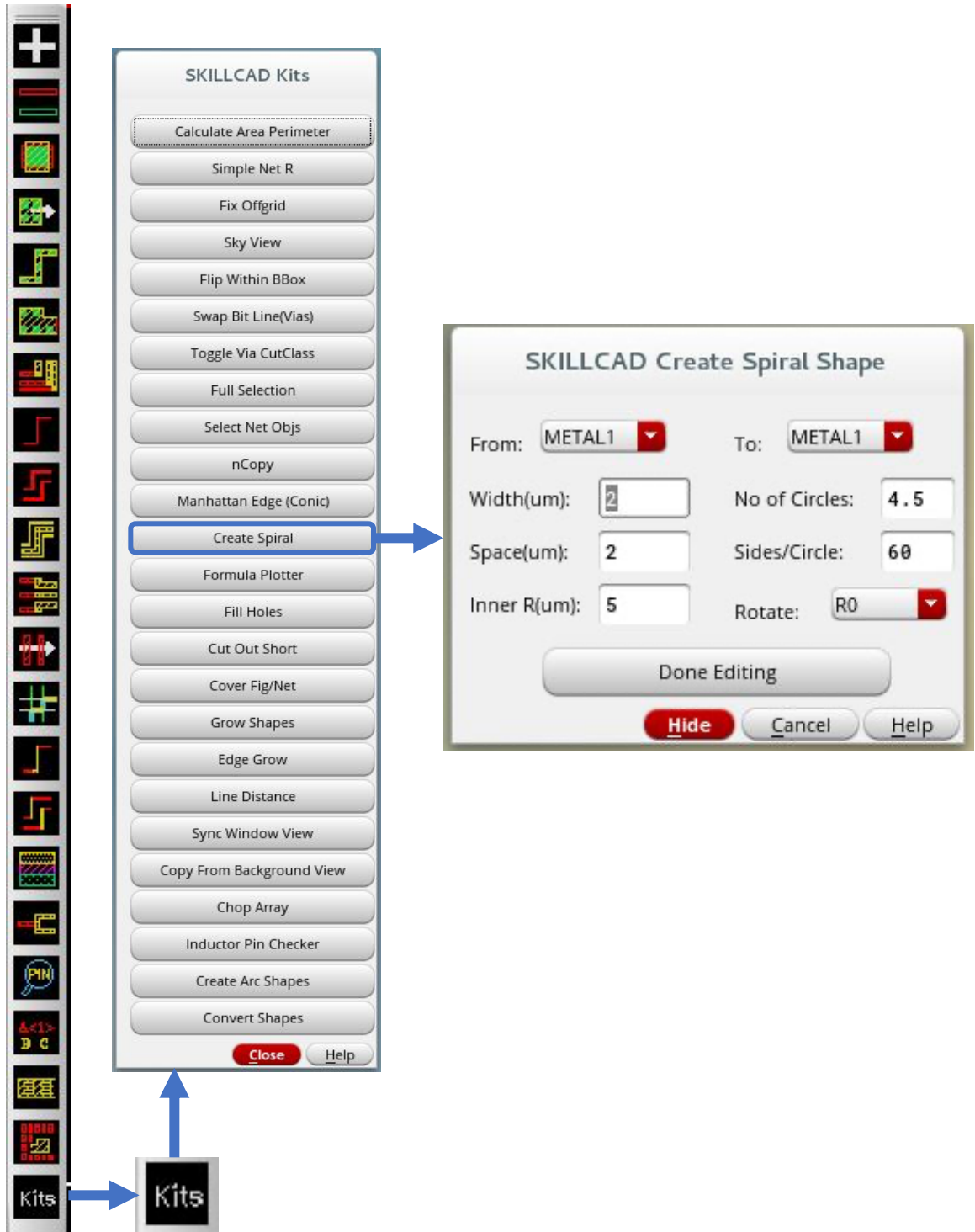
SKILLCAD Kits, Making Multiple Copies



SKILLCAD Kits, Creating A Manhattan Edge Shape



SKILLCAD Kits, Creating A Spiral Shape



SKILLCAD Kits, Creating Shapes By Equations

The image shows the SKILLCAD interface. On the left is a vertical toolbar with various icons. A 'Kits' button at the bottom of the toolbar is highlighted with a blue arrow pointing to a larger 'Kits' button. This larger button opens a 'SKILLCAD Kits' menu. The 'Formula Plotter' option in this menu is highlighted with a blue arrow pointing to the 'SKILLCAD Formula Plotter' dialog box. The dialog box contains the following elements:

- Use Two Formulas
- Width(um):
- 1st f(x)=
- 2nd f(x)=
- x Range: to Step:
-

SKILLCAD Kits, Filling Holes In Shapes

The image shows the SKILLCAD software interface. On the left is a vertical toolbar with various icons. A blue arrow points from the 'Kits' icon at the bottom of the toolbar to a 'Kits' dialog box. This dialog box contains a list of tools. The 'Fill Holes' tool is highlighted with a blue selection bar, and a blue arrow points from it to the 'SKILLCAD Fill Holes' dialog box. The 'SKILLCAD Fill Holes' dialog box has the following settings:

- Fill holes with: Width Area
- From: to:
- Buttons: **OK**, Cancel, Defaults, Apply, Help

SKILLCAD Kits, Cutting Out Overlapping Shapes



SKILLCAD Kits, Cover Mask Shape

The image shows a vertical toolbar on the left with various icons. A blue arrow points from the 'Kits' icon at the bottom of the toolbar to a 'Kits' dialog box. This dialog box contains a list of tools, with 'Cover Fig/Net' highlighted by a blue arrow. A second blue arrow points from 'Cover Fig/Net' to the 'SKILLCAD Cover Mask Shape' dialog box. This dialog box has the following settings:

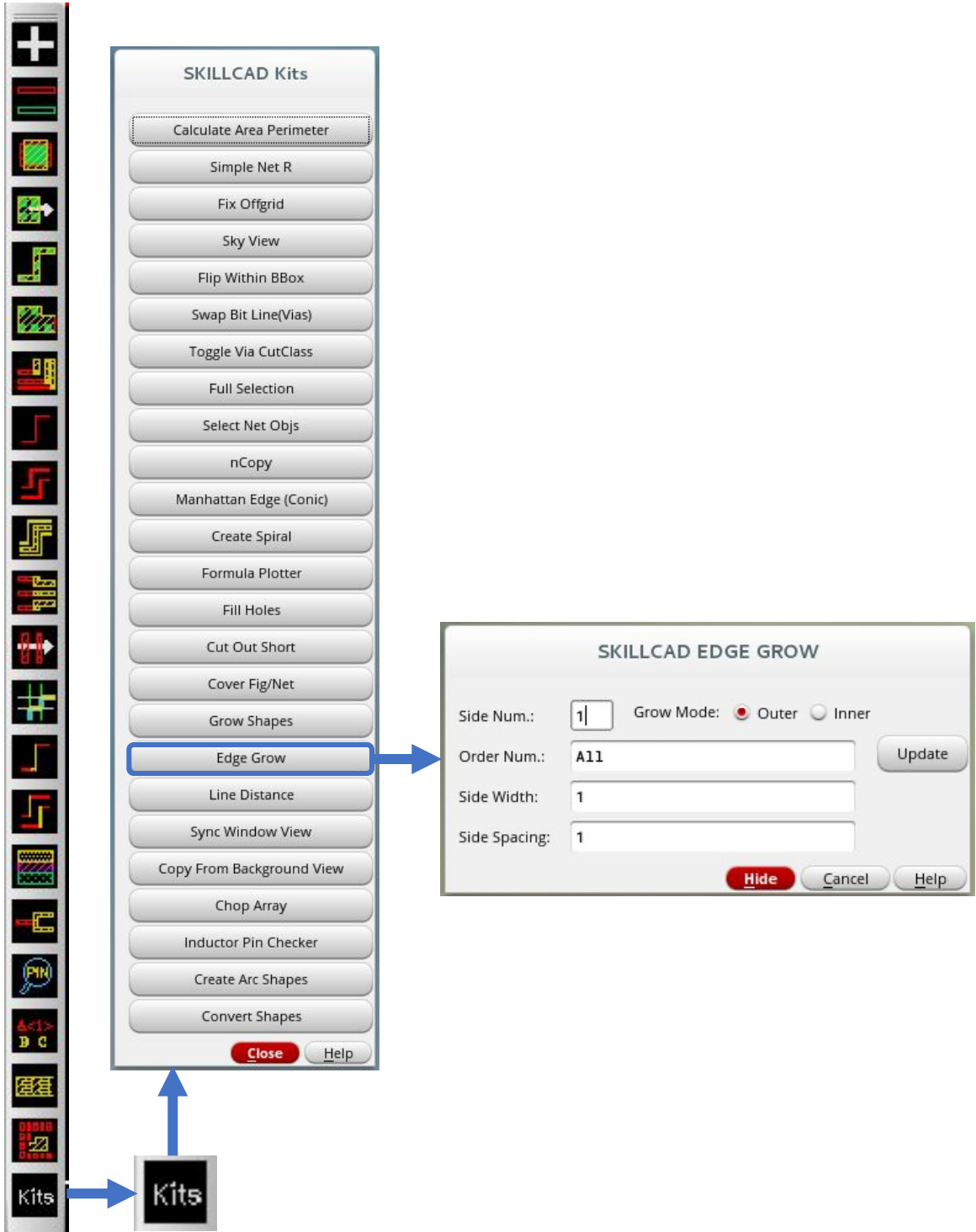
- Cover By Layer Name: Same
- Layer Purpose: Same
- Trace Shape/Net to Level: 32
- Size By: 0
- Buttons: Selected TopLevel Shapes and Instances (No Trace), Trace Clicked Shape, Trace Selected Shapes, Trace Clicked Net, Trace Selected Nets, Close, Help

SKILLCAD Kits, Growing Shapes From Existing Shapes

The image shows the SKILLCAD interface. On the left is a vertical toolbar with various icons. A 'Kits' button at the bottom of the toolbar is highlighted with a blue arrow pointing to a larger 'Kits' dialog box. This dialog box lists various functions, with 'Grow Shapes' highlighted in blue. A blue arrow points from 'Grow Shapes' to the 'SKILLCAD Grow Shapes' dialog box on the right. The 'Grow Shapes' dialog box has the following fields and controls:

- Template: [] [...] [Save] [Load]
- Selected Reference: Shape BBox Layer: []
- Layers To Be Created: [1TDMY drawing, BC1 drawing, BC2 drawing, BJTDUMMY drawing, BLBRC2 drawing, BPI drawing, BPLY drawing, BTC drawing, C1 drawing, C2 drawing, CBD drawing, CDUMMY drawing, CELLBRC1 drawing, CELLIMP drawing, CODEC drawing]
- Dist To Reference: No Hole, Inner(um): 0, Outer(um): 0, [Add =>], [<= Del], [Reset]
- Shape Setting List: []
- Create Group
- [Apply] [Cancel] [Help]

SKILLCAD Kits, Growing Shapes From Existing Edges



SKILLCAD Kits, Measuring Linear Distance

The image shows a vertical toolbar on the left with various icons. A 'Kits' button at the bottom of the toolbar is highlighted with a blue arrow pointing to a 'Kits' dialog box. The dialog box, titled 'SKILLCAD Kits', contains a list of menu items. The 'Line Distance' item is highlighted with a blue border and a blue arrow pointing to a callout box. The callout box contains the text: 'Measure and display the linear distance across an object, or objects.' At the bottom of the dialog box are 'Close' and 'Help' buttons.

SKILLCAD Kits

- Calculate Area Perimeter
- Simple Net R
- Fix Offgrid
- Sky View
- Flip Within BBox
- Swap Bit Line(Vias)
- Toggle Via CutClass
- Full Selection
- Select Net Objs
- nCopy
- Manhattan Edge (Conic)
- Create Spiral
- Formula Plotter
- Fill Holes
- Cut Out Short
- Cover Fig/Net
- Grow Shapes
- Edge Grow
- Line Distance**
- Sync Window View
- Copy From Background View
- Chop Array
- Inductor Pin Checker
- Create Arc Shapes
- Convert Shapes

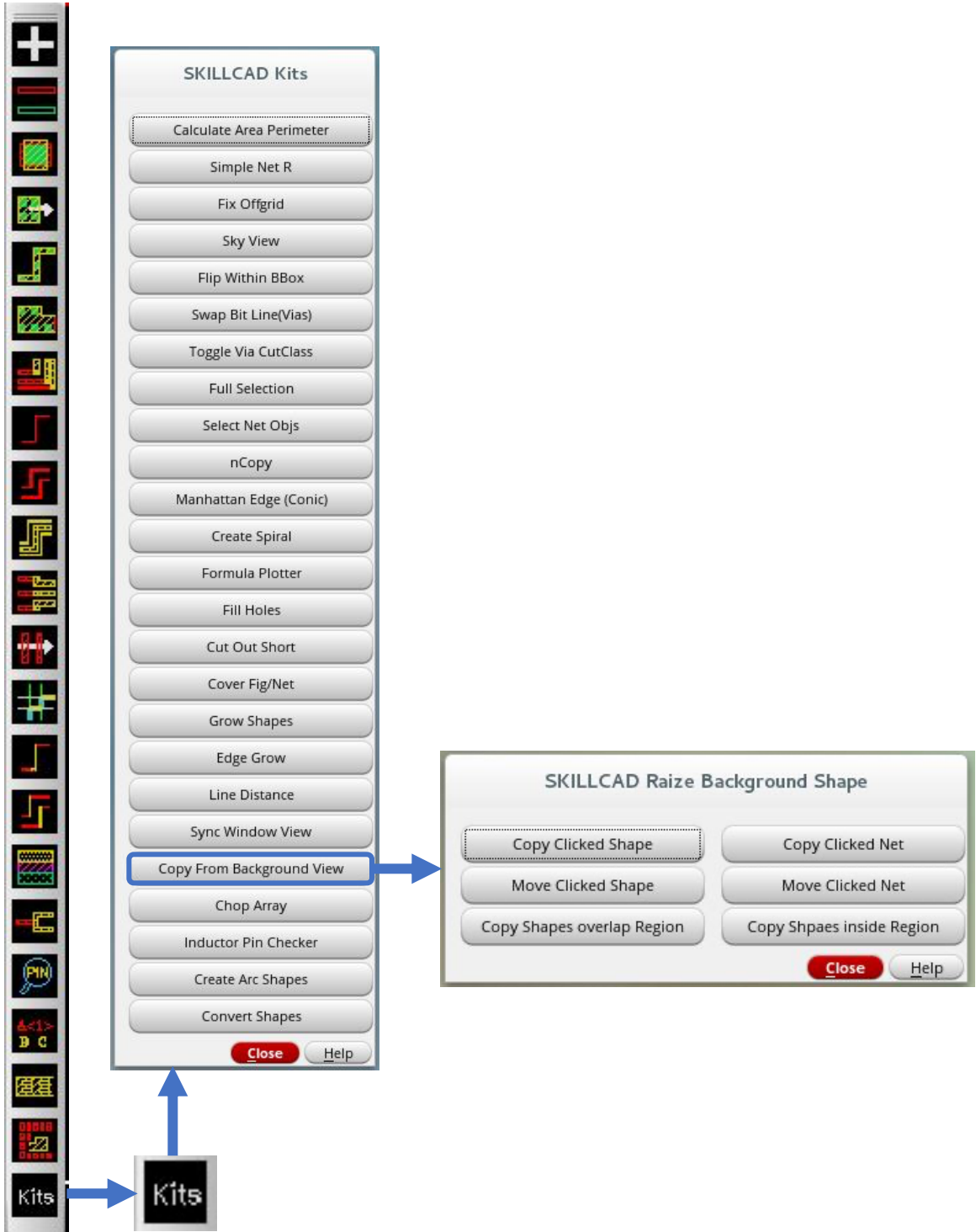
Close Help

Measure and display the linear distance across an object, or objects.

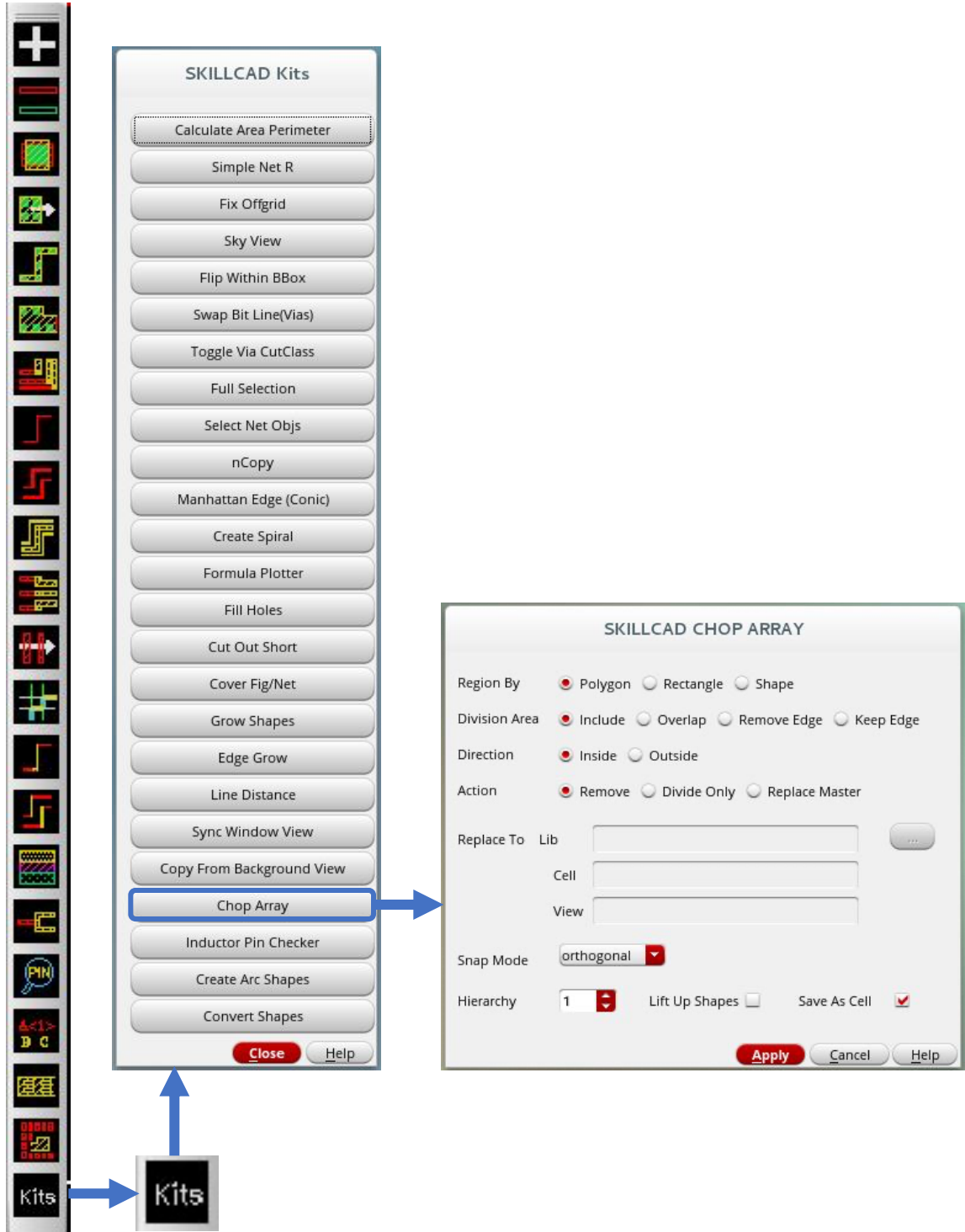
SKILLCAD Kits, Syncing Window Views

The image shows the SKILLCAD Kits menu and the Sync Window View dialog box. The Kits menu is a vertical toolbar on the left with a 'Kits' button at the bottom. The main menu is titled 'SKILLCAD Kits' and contains the following items: Calculate Area Perimeter, Simple Net R, Fix Offgrid, Sky View, Flip Within BBox, Swap Bit Line(Vias), Toggle Via CutClass, Full Selection, Select Net Objs, nCopy, Manhattan Edge (Conic), Create Spiral, Formula Plotter, Fill Holes, Cut Out Short, Cover Fig/Net, Grow Shapes, Edge Grow, Line Distance, Sync Window View (highlighted with a blue box), Copy From Background View, Chop Array, Inductor Pin Checker, Create Arc Shapes, and Convert Shapes. The 'Sync Window View' item is linked by a blue arrow to a dialog box titled 'SKILLCAD Sync Window View'. The dialog box has the following fields and controls: Library: demo2, Cell: TEST, View: layout, Win/Inst: window: 2, Get Win1/Inst1, Library: (empty), Cell: (empty), View: (empty), Win/Inst: (empty), Get Win2/Inst2, Browse, Enabled: , offbetx: 0, offbety: 0, Scale(Window2/window1): 1, Tile Windows, Close, and Help.

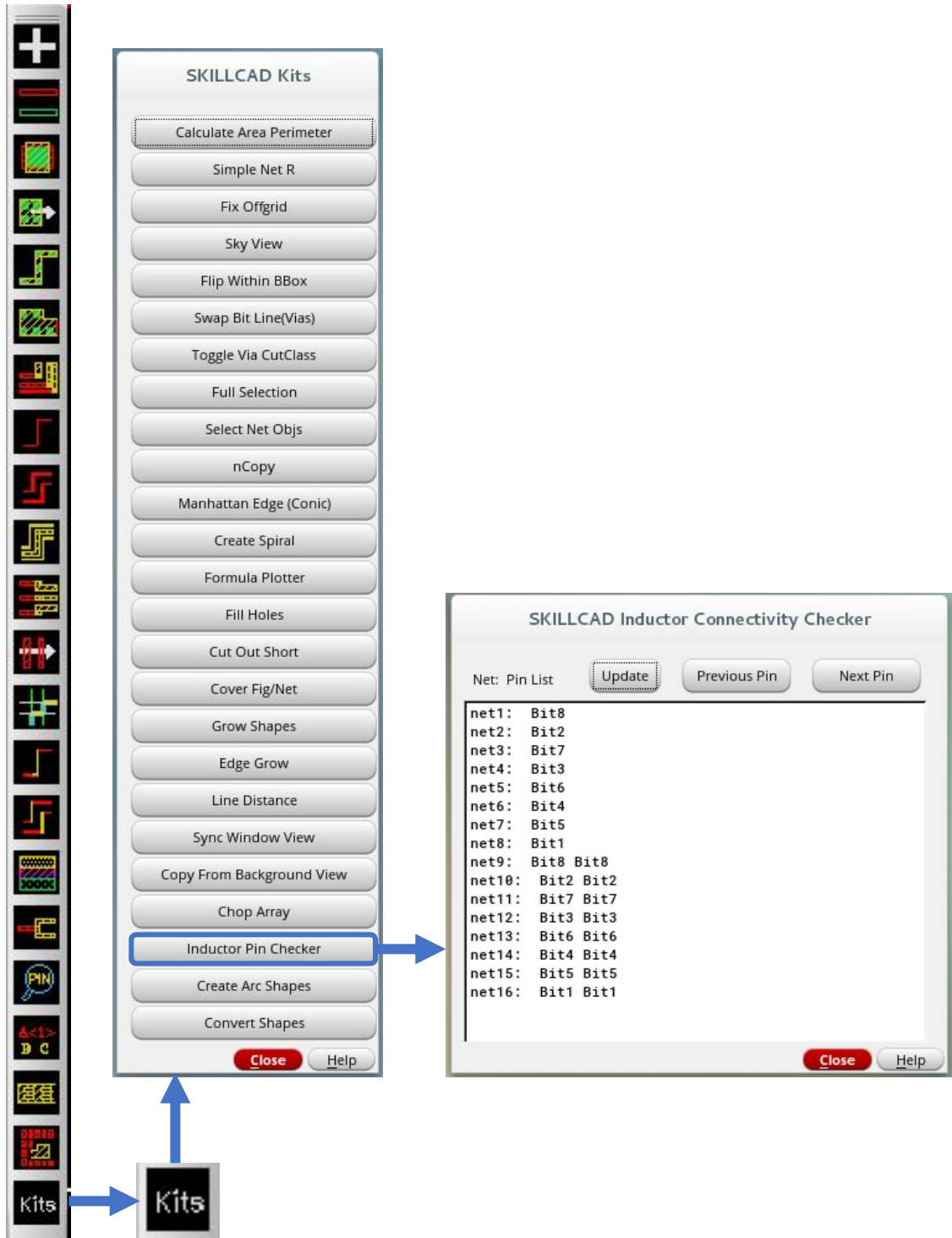
SKILLCAD Kits, Copying From A Background View



SKILLCAD Kits, Chopping An Existing Array



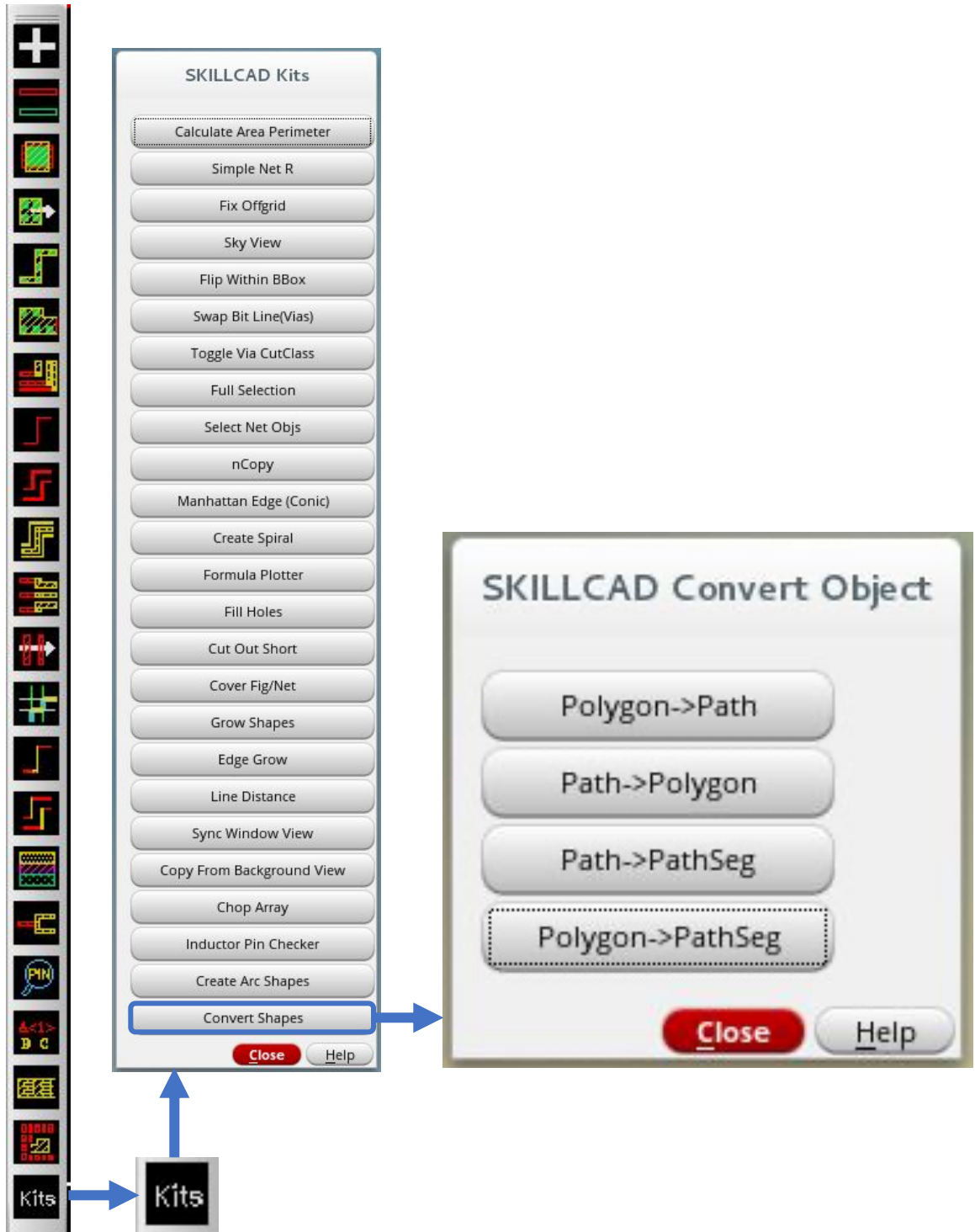
SKILLCAD Kits, Checking Inductor Connectivity



SKILLCAD Kits, Creating Arc Shapes

The image shows the SKILLCAD interface. On the left is a vertical toolbar with various icons. A 'Kits' button at the bottom of the toolbar is highlighted with a blue arrow pointing to a 'Kits' button in a separate box. This 'Kits' button has another blue arrow pointing to the 'Create Arc Shapes' option in the 'SKILLCAD Kits' menu. The 'SKILLCAD Kits' menu is a vertical list of buttons, with 'Create Arc Shapes' highlighted in blue. To the right of the menu is the 'SKILLCAD Arc Shapes' dialog box. The dialog box has a 'Template' field, 'Save' and 'Load' buttons, and a preview window showing a red arc shape with labels 'ext', 'W', 'sp1', 'sp2', 'r', and '*'. Below the preview are fields for 'Layer' (set to 'ref'), 'Shape Type' (set to 'Arc90'), 'Radius(um) (r): 10', 'Space (sp1): 1', 'Space (sp2): 1', 'Width (w): 1', 'No. of Tracks: 1', and 'Extension(ext): 1'. There is also a 'Rotate: R0' dropdown and a 'Create Group' checkbox. At the bottom are 'Hide', 'Cancel', and 'Help' buttons.

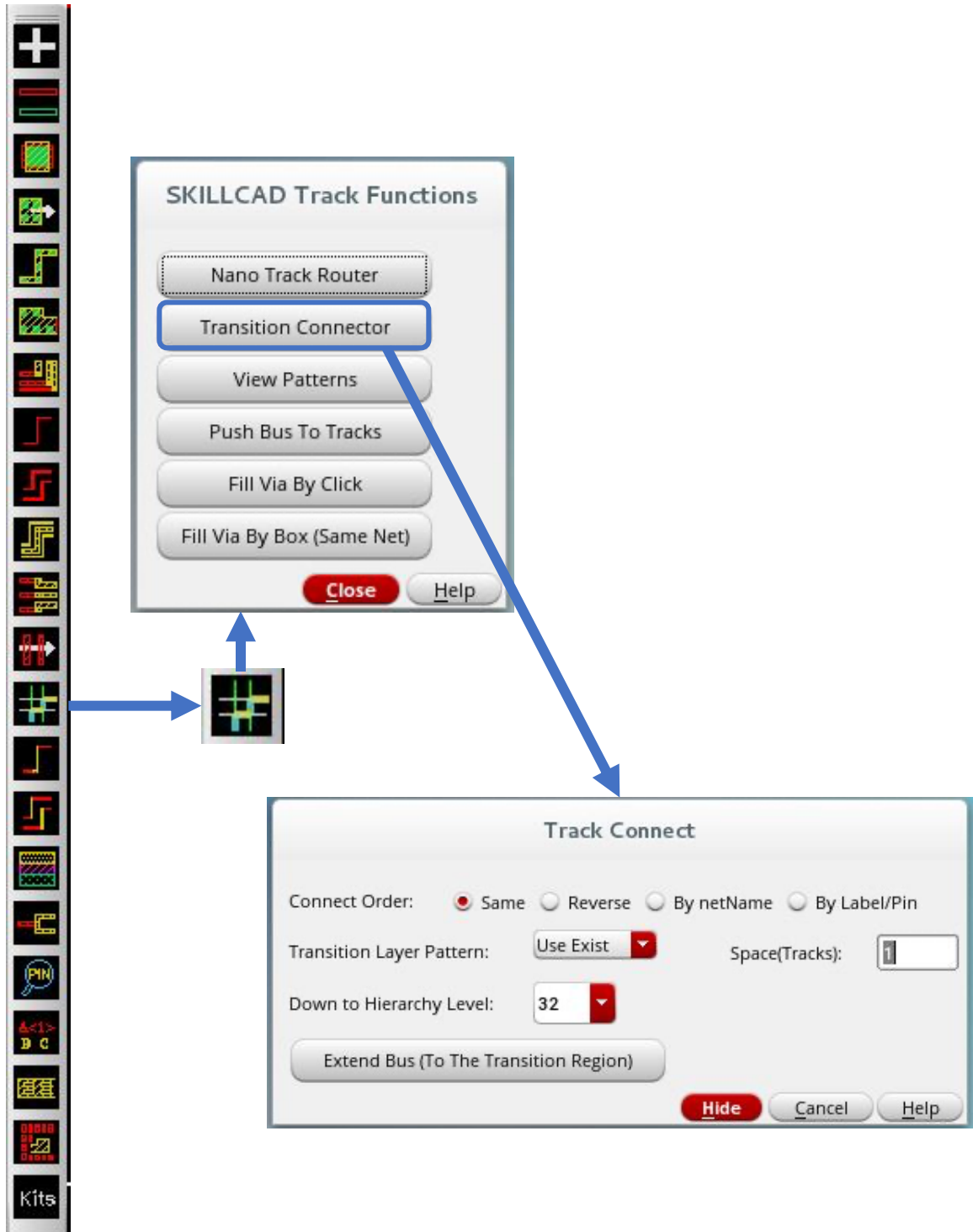
SKILLCAD Kits, Converting Objects



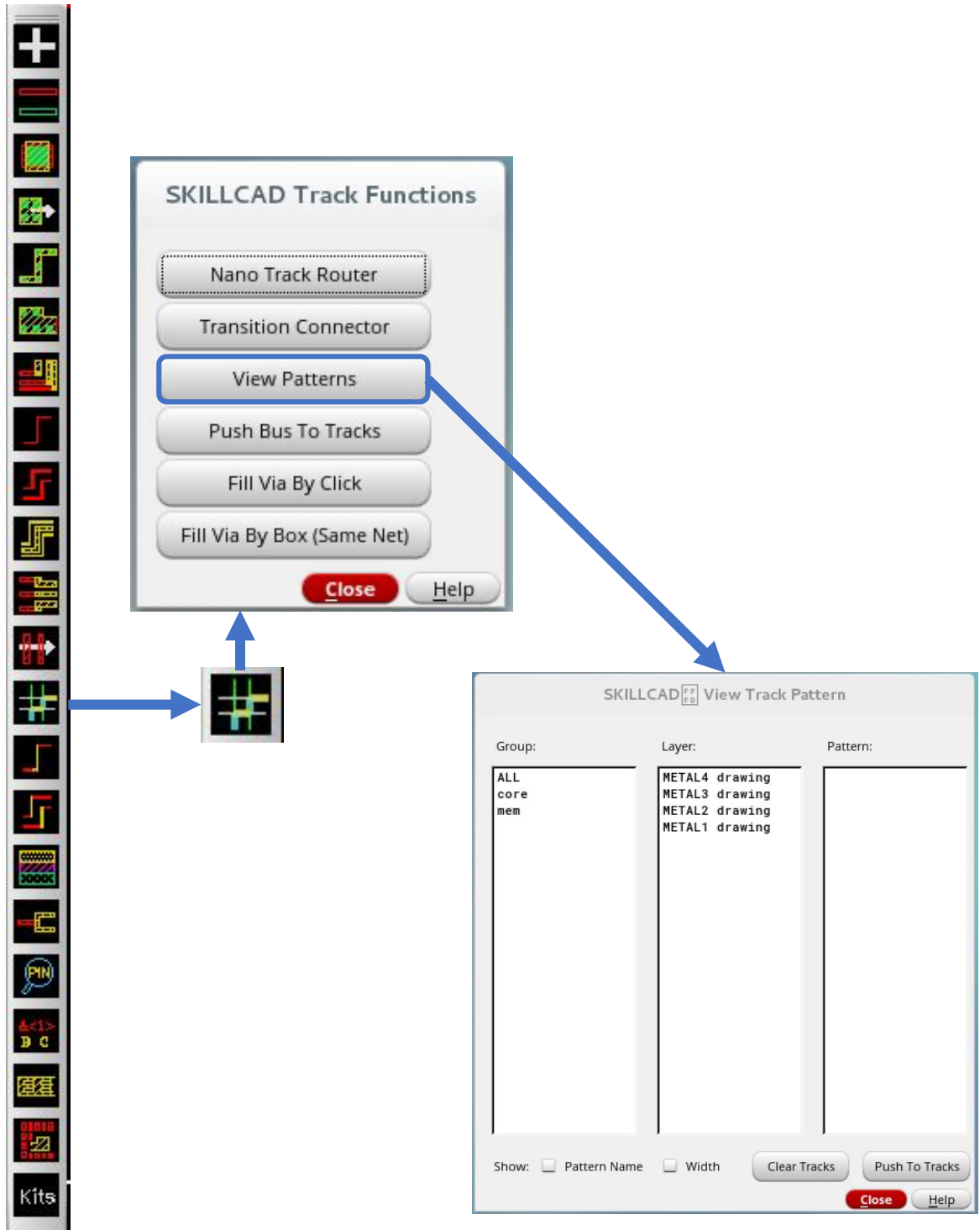
SKILLCAD Track Functions



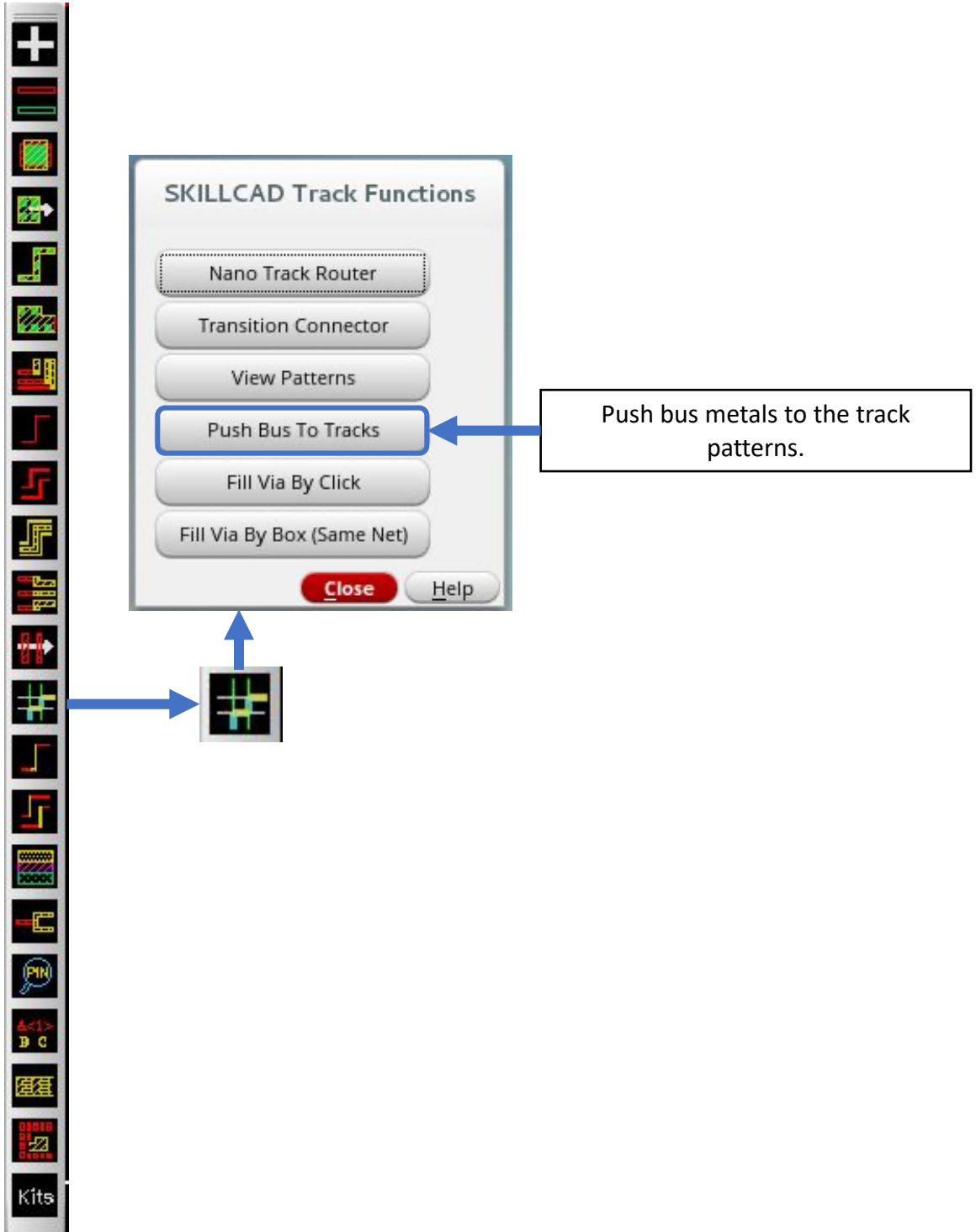
SKILLCAD Track Transition Connector



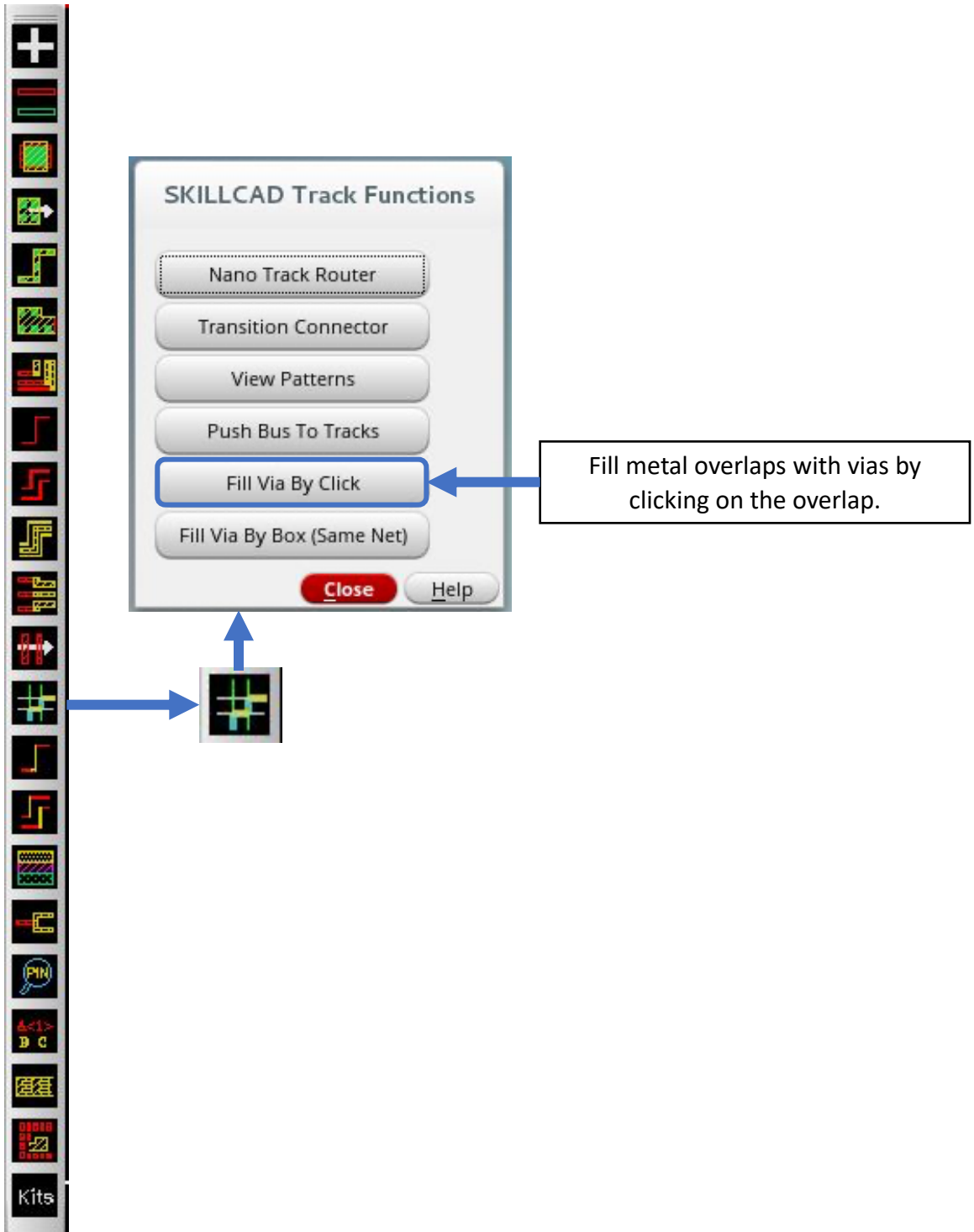
SKILLCAD View Track Patterns



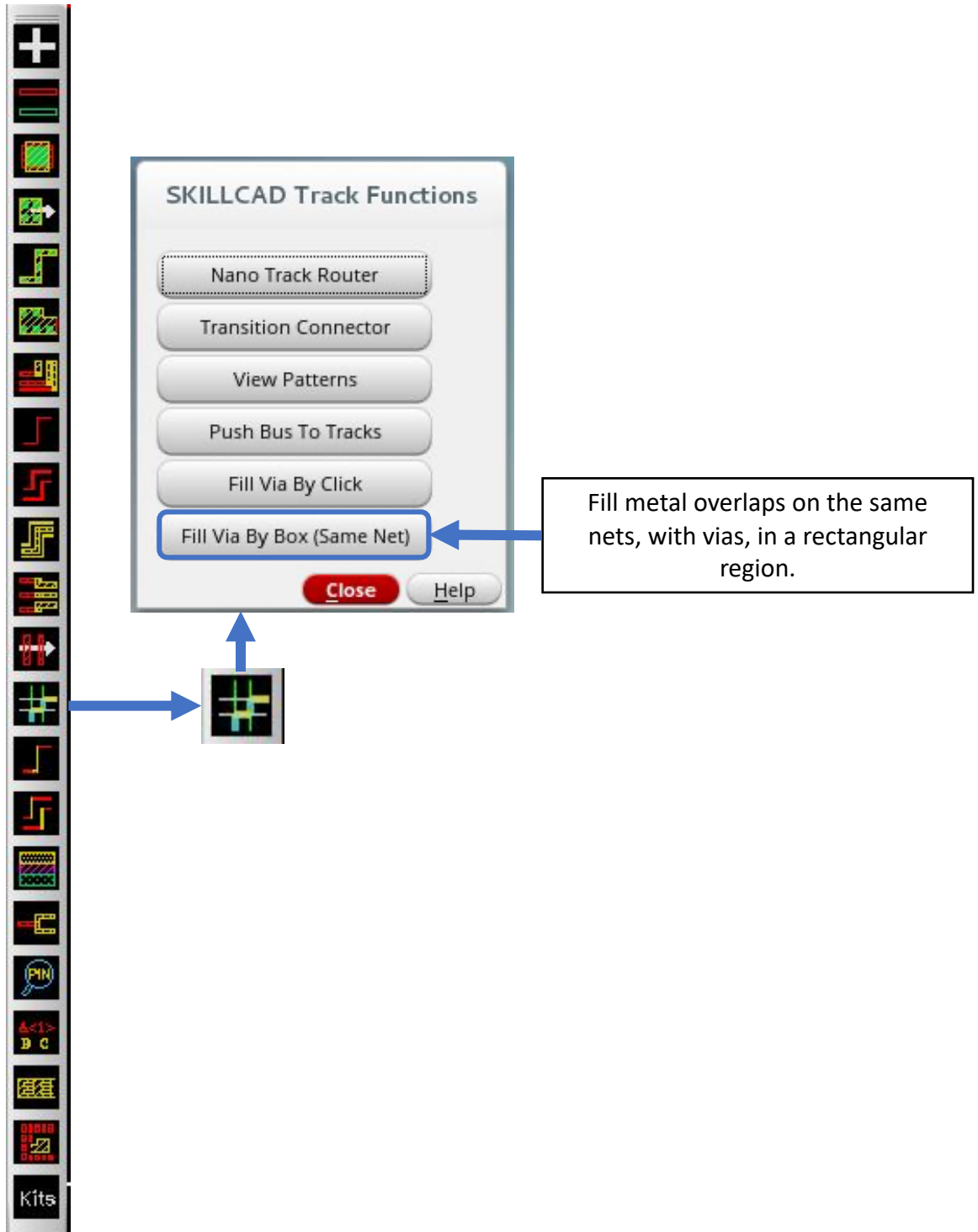
SKILLCAD Pushing Bus Metals To The Track Patterns



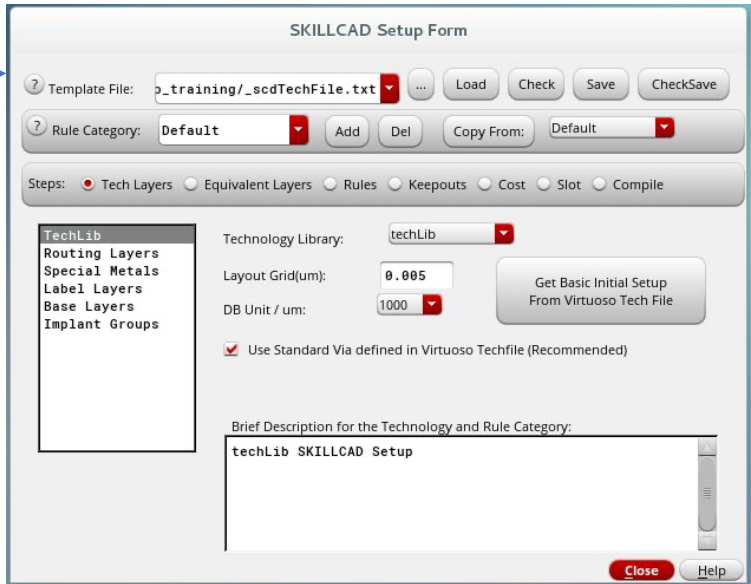
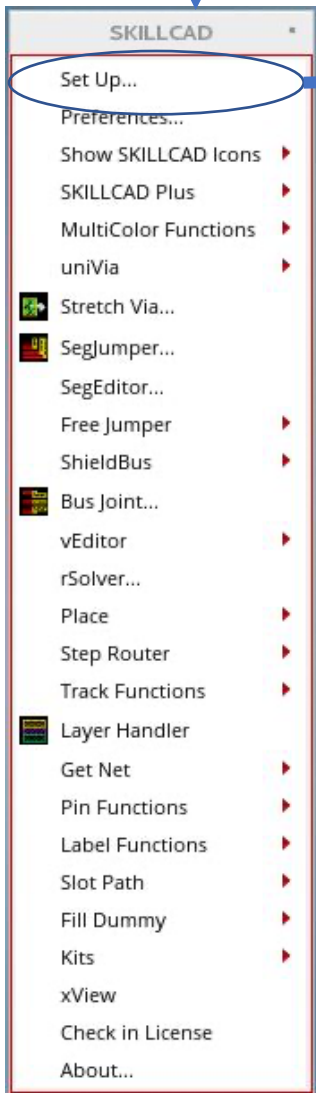
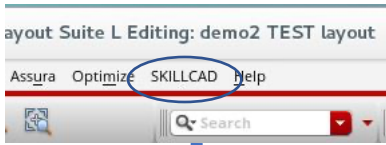
SKILLCAD Click To Fill Metal Overlaps With Vias



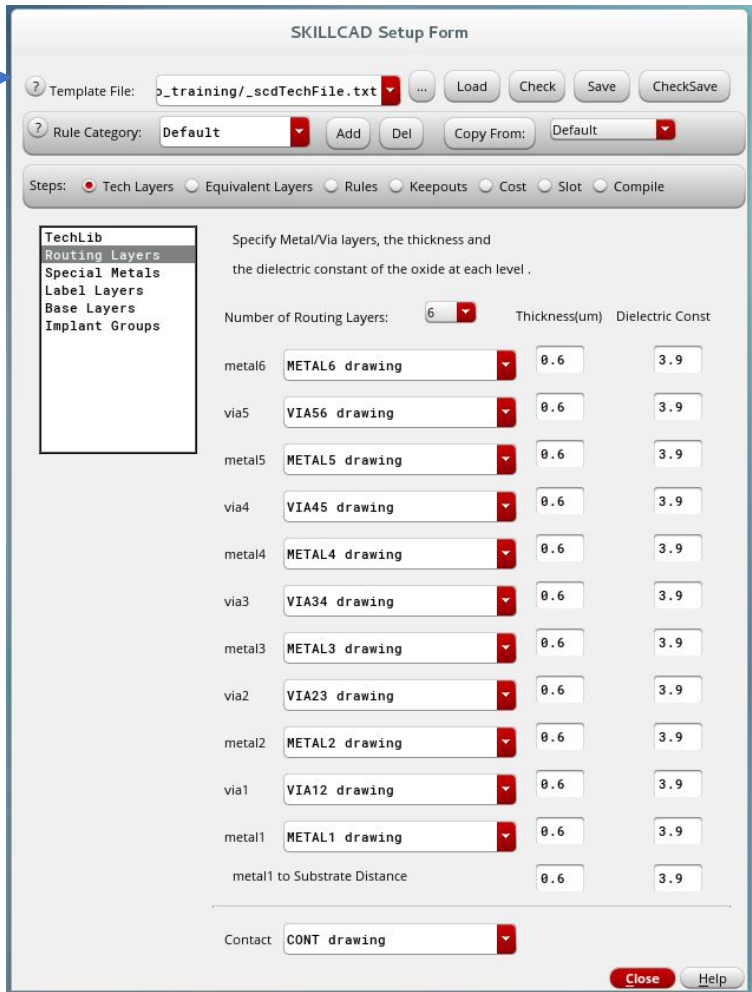
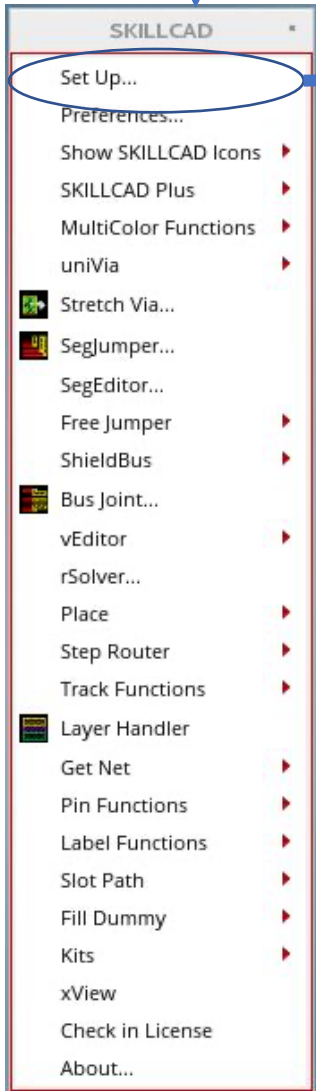
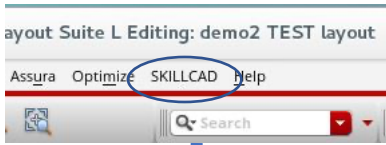
SKILLCAD Fill Metal Overlaps On Same Net, With Vias



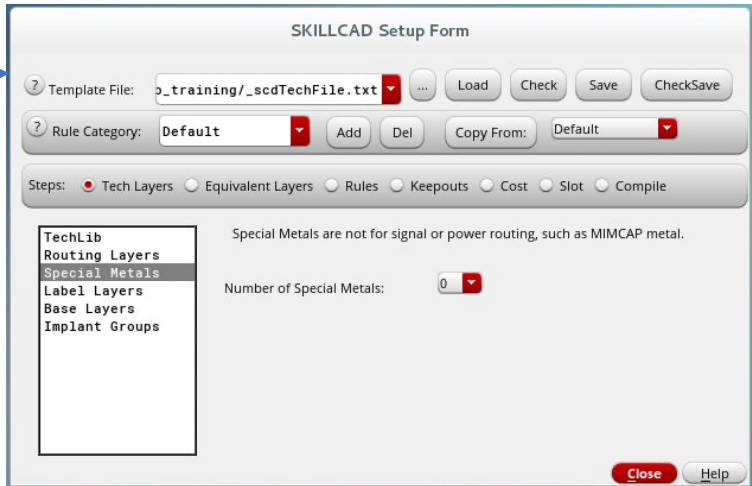
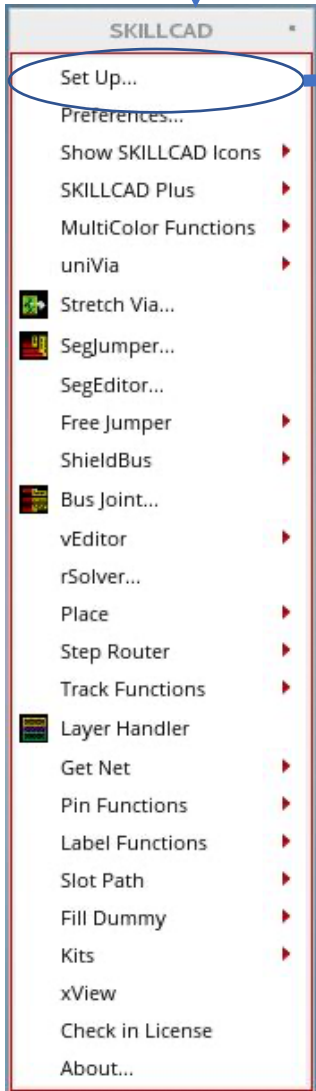
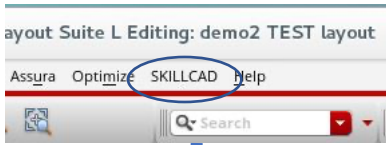
SKILLCAD Setup Technology Library



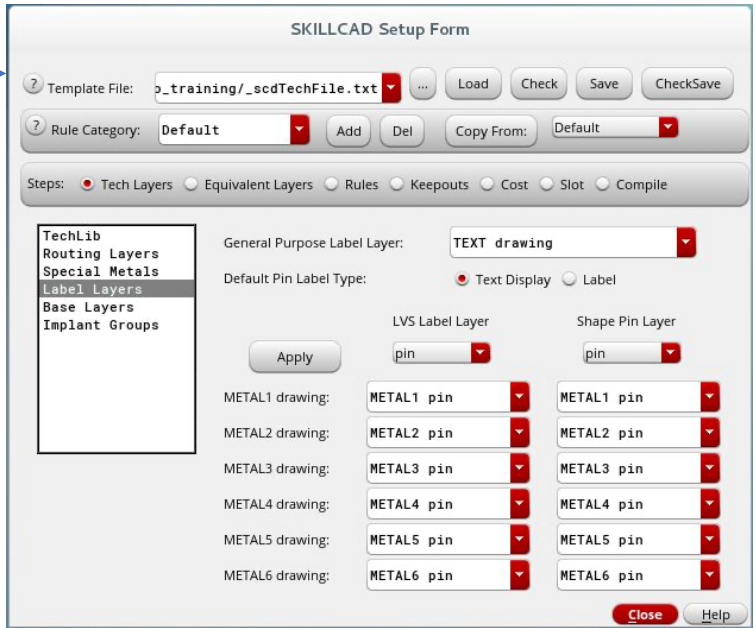
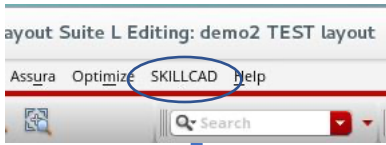
SKILLCAD Setup Routing Layers



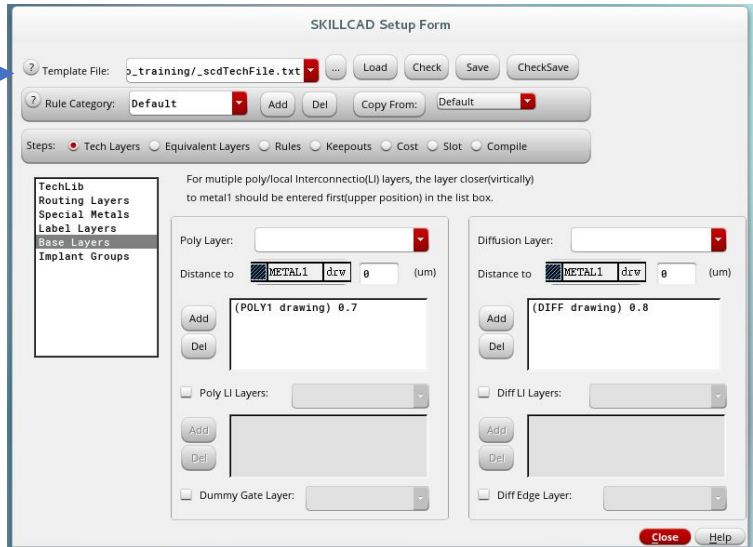
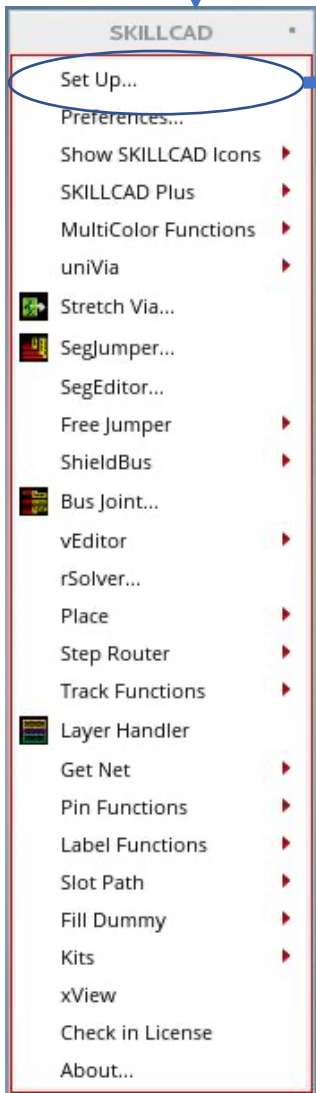
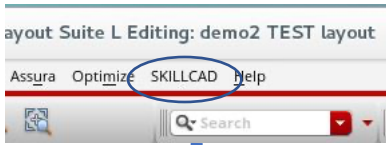
SKILLCAD Setup Special Metals



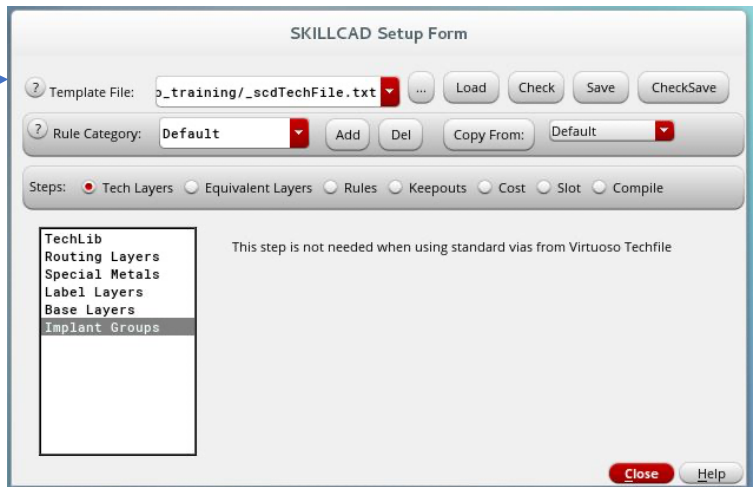
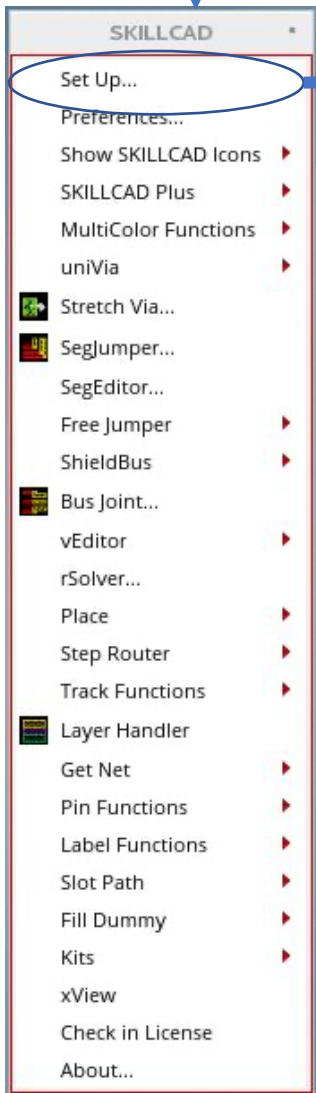
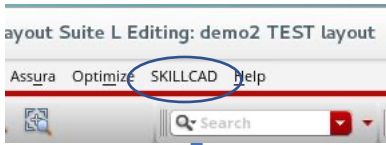
SKILLCAD Setup LVS Labels, Pin Layers



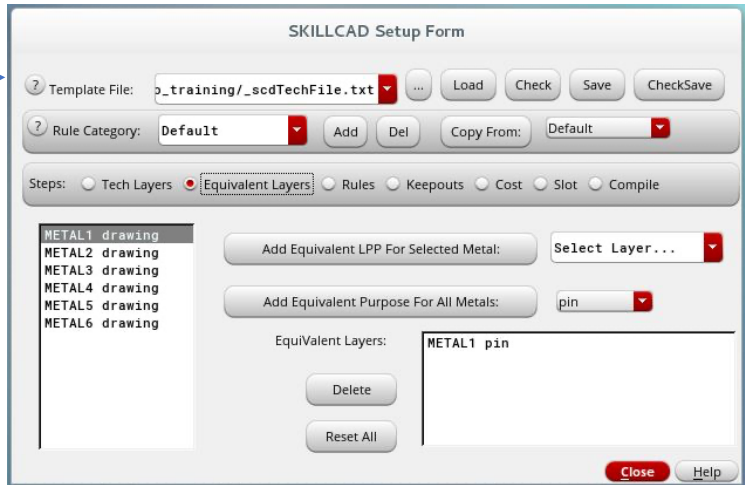
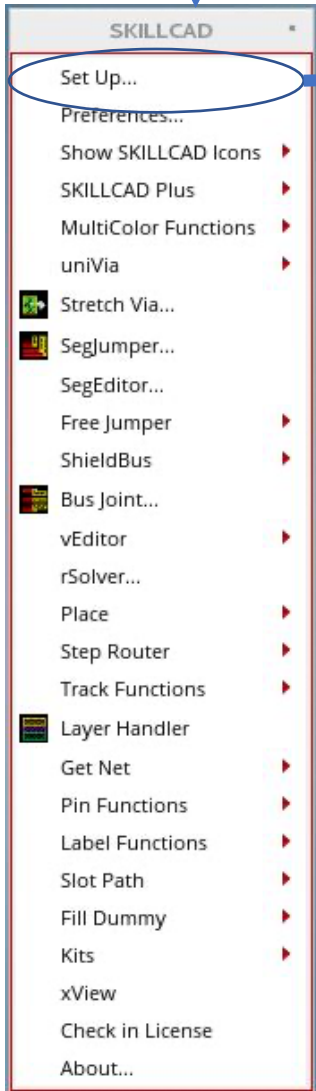
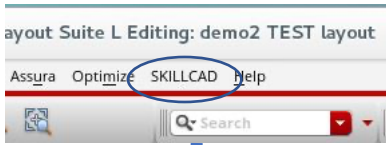
SKILLCAD Setup Base Layers



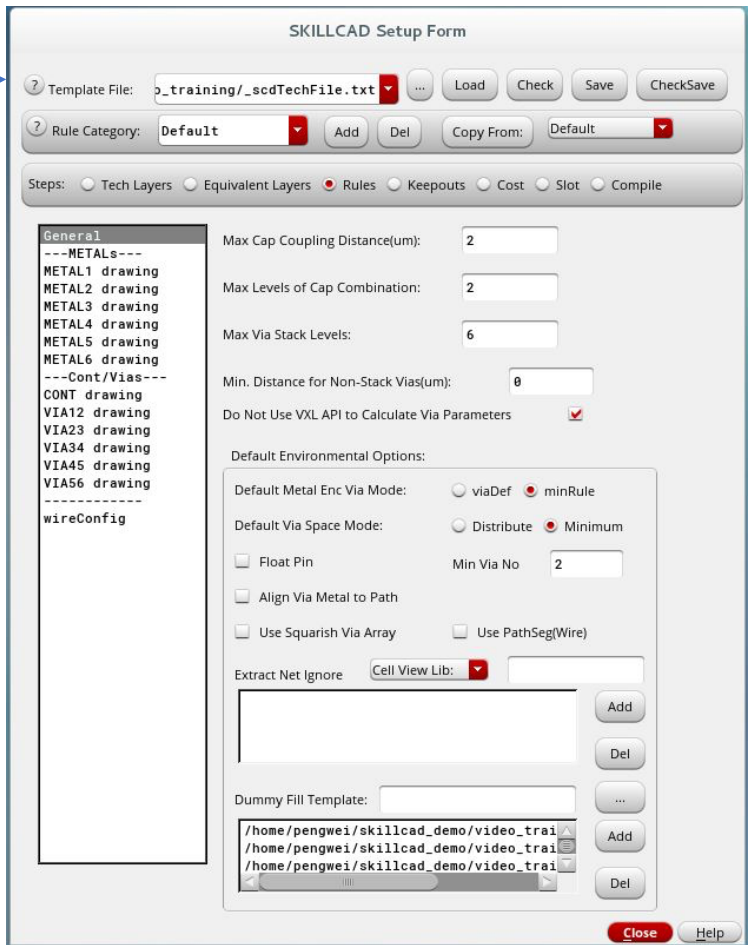
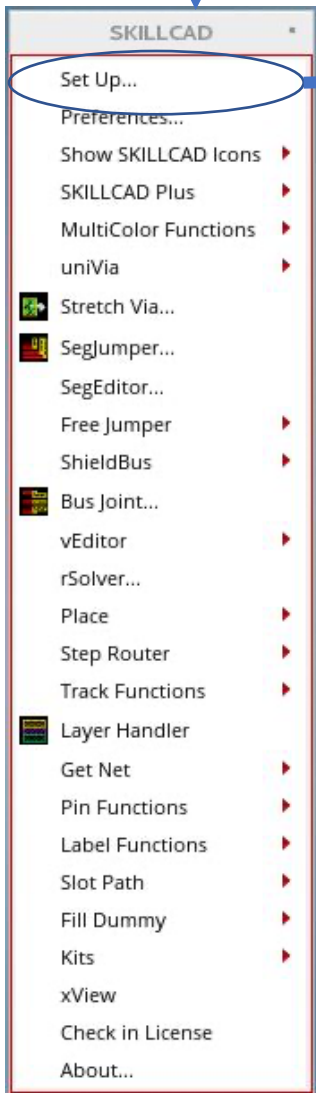
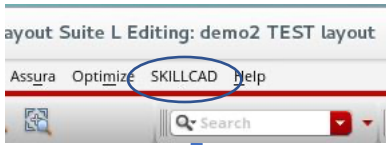
SKILLCAD Setup Implant Groups



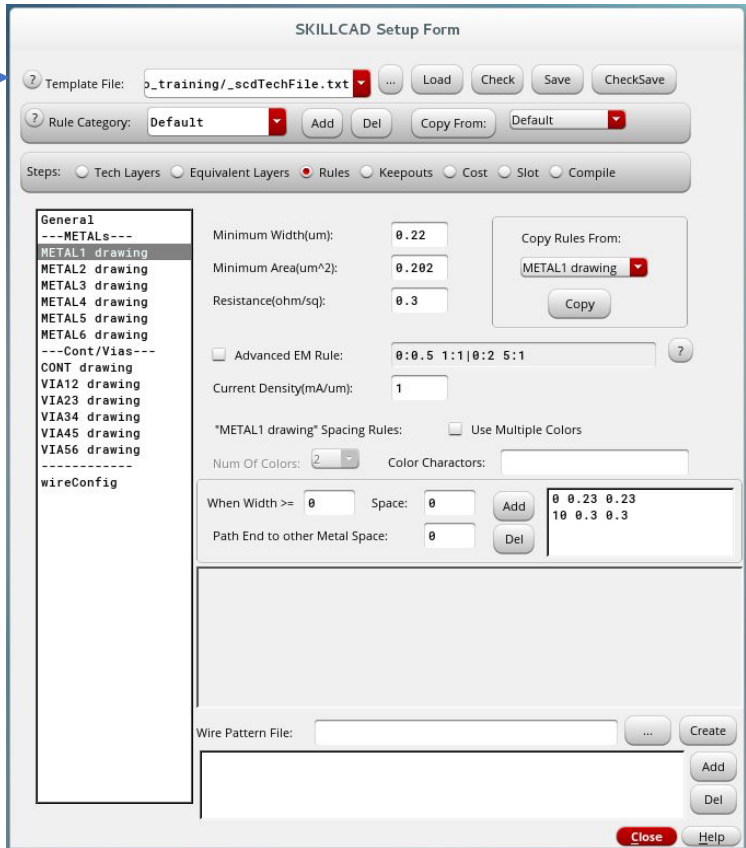
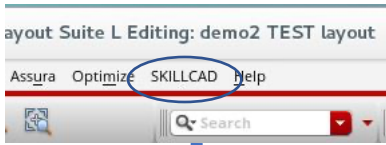
SKILLCAD Setup Equivalent Layers



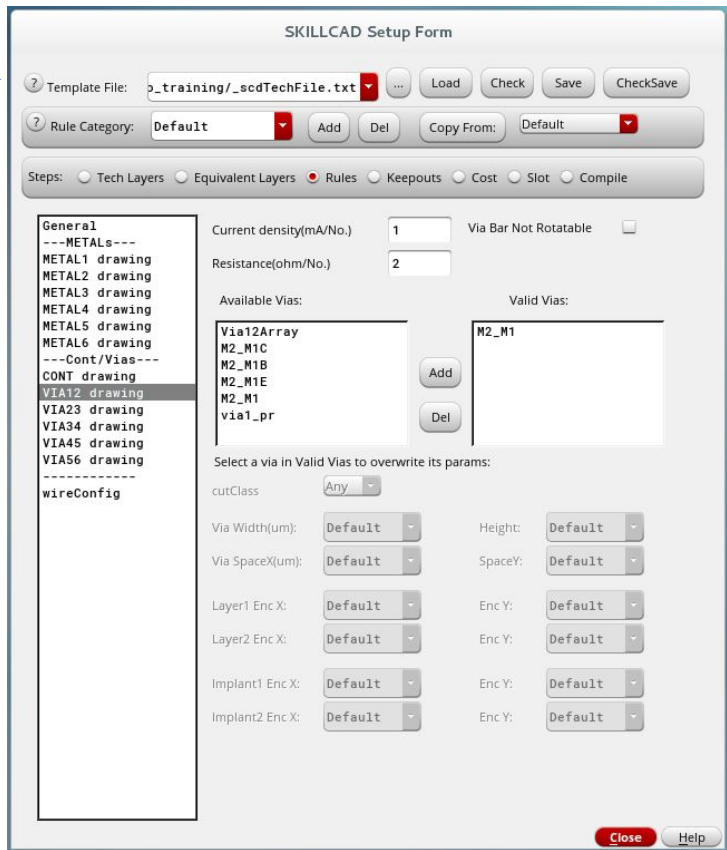
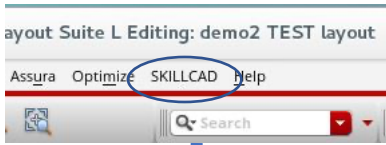
SKILLCAD Setup General Metal/Via Rules



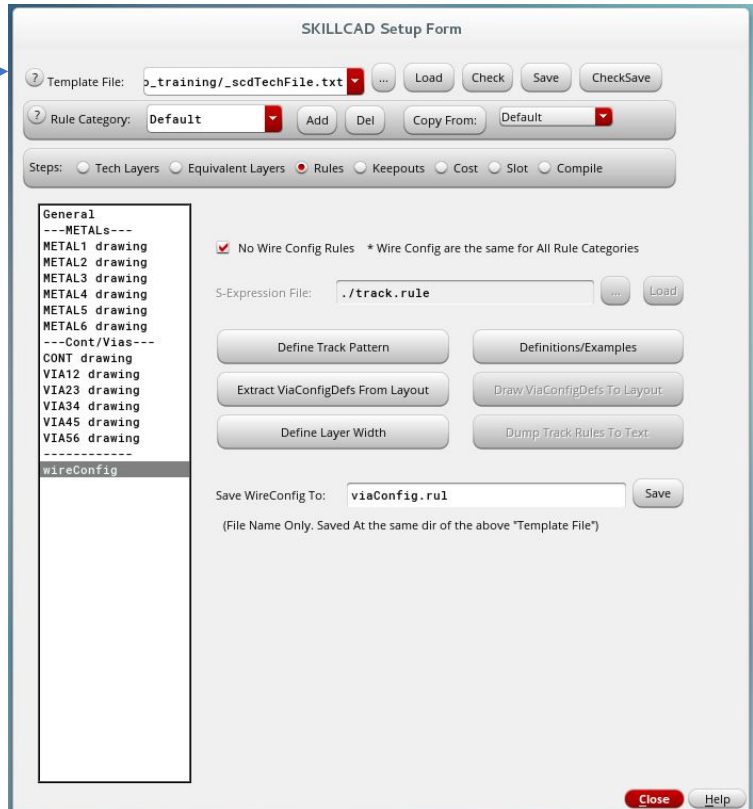
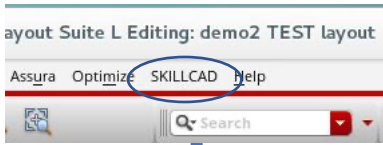
SKILLCAD Setup Individual Metal Layer Rules



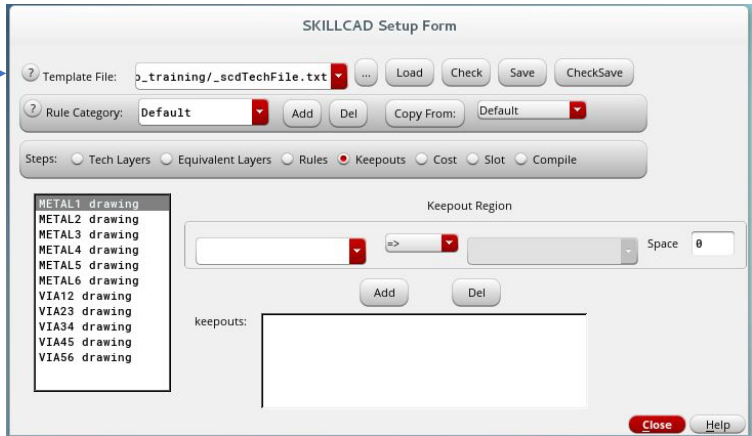
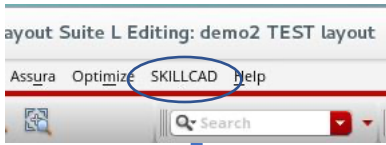
SKILLCAD Setup Contact And Via Rules



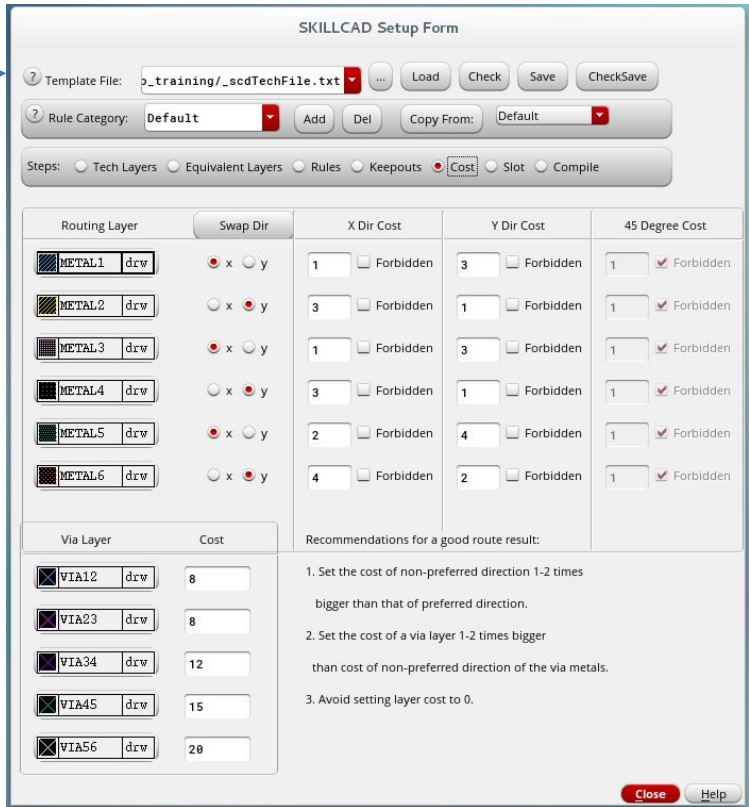
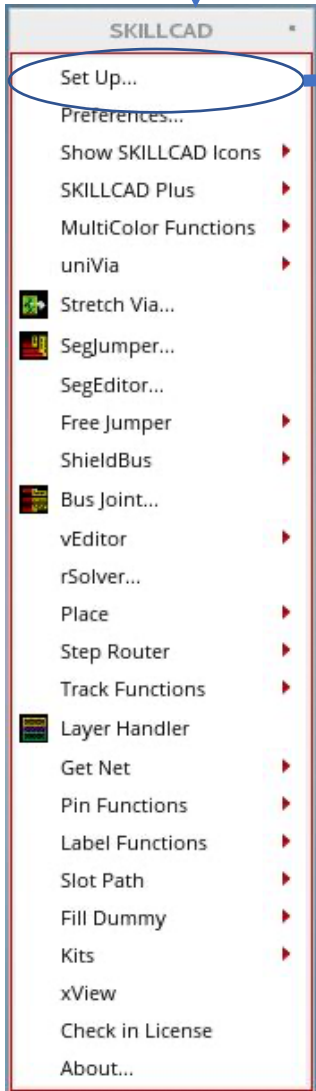
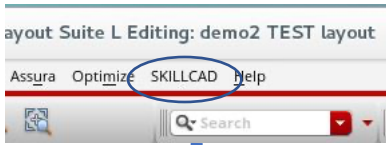
SKILLCAD Setup Wire Configuration Rules (Nano Router)



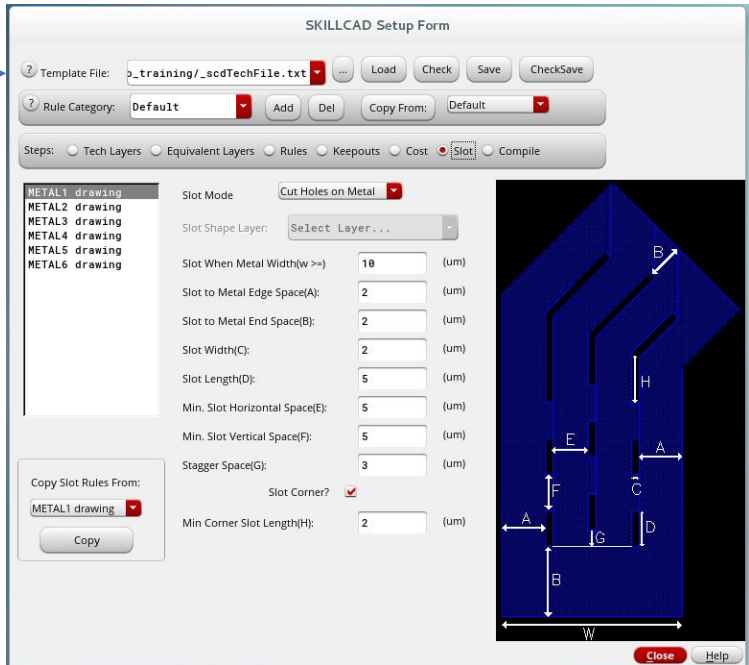
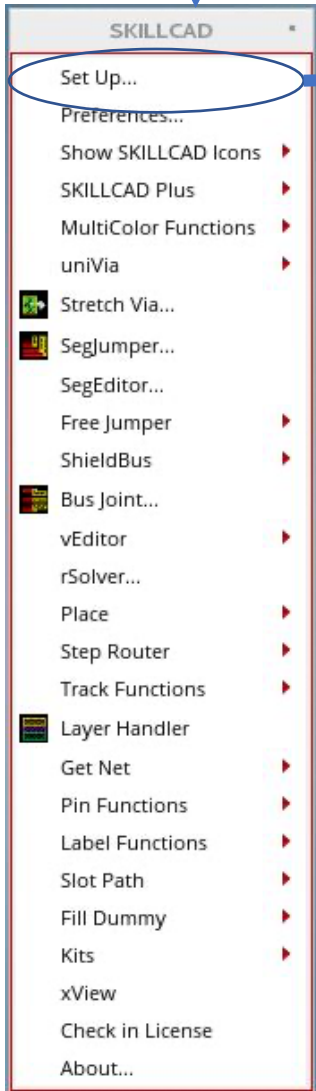
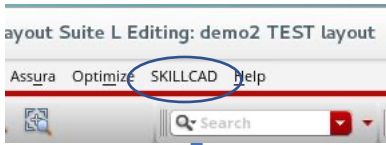
SKILLCAD Setup Metal And Via Keepout Regions



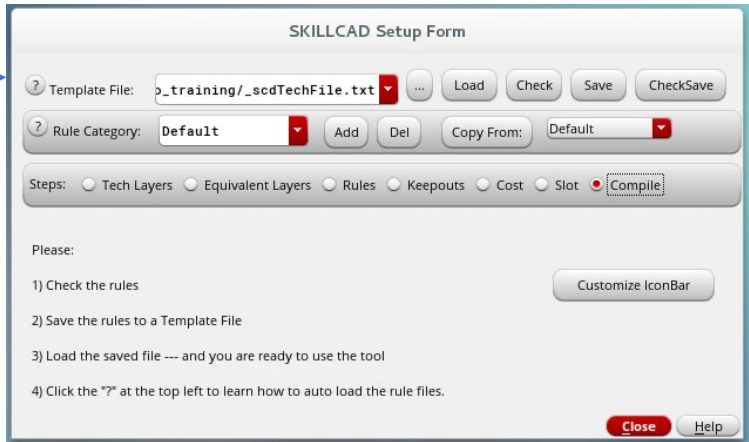
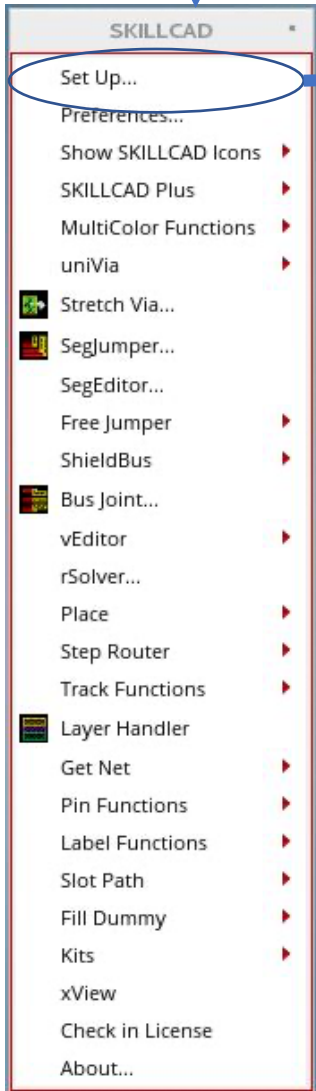
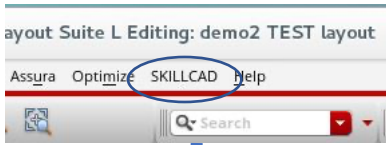
SKILLCAD Define Metal Direction And Via Costs



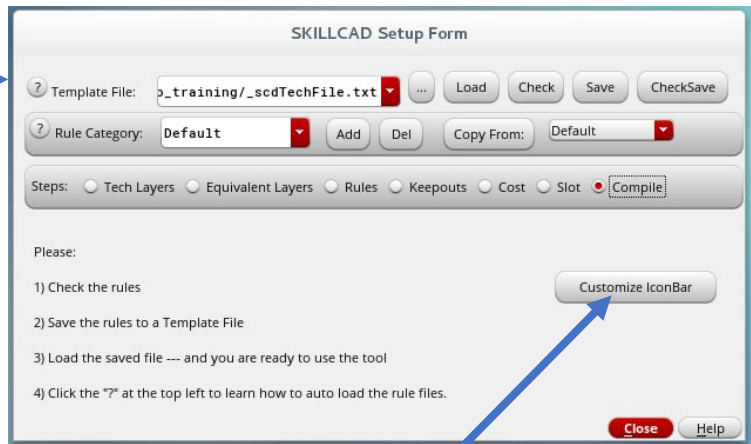
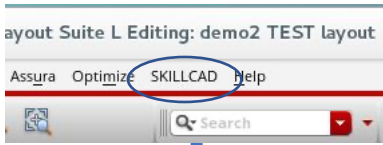
SKILLCAD Setup Metal Slotting Parameters



SKILLCAD Compiling The Setup File

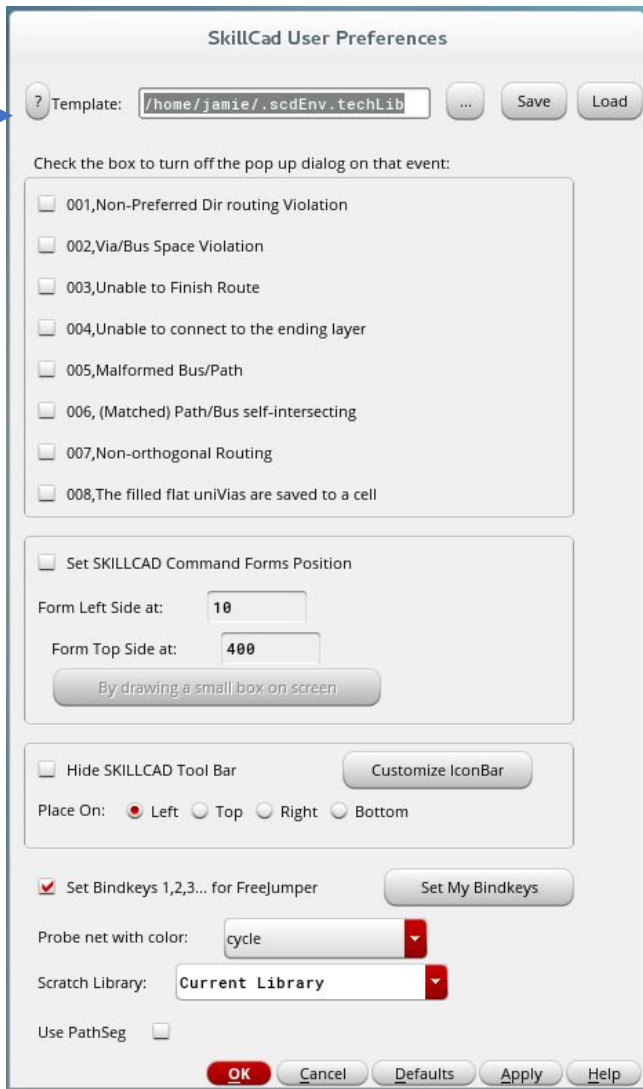
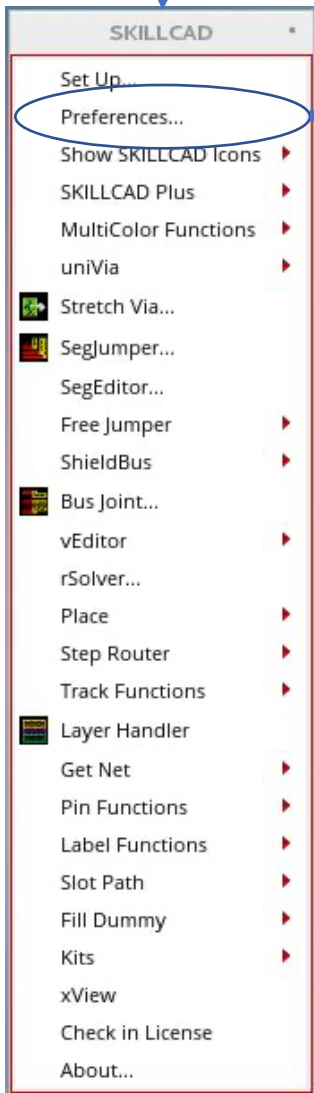
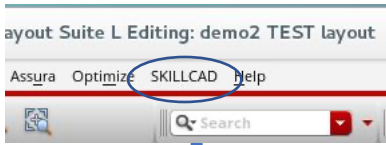


SKILLCAD Customizing The Icon Bar

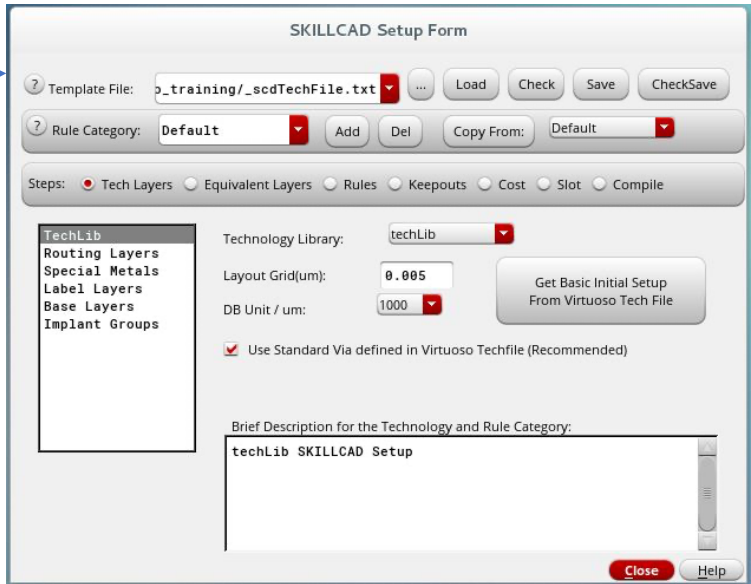
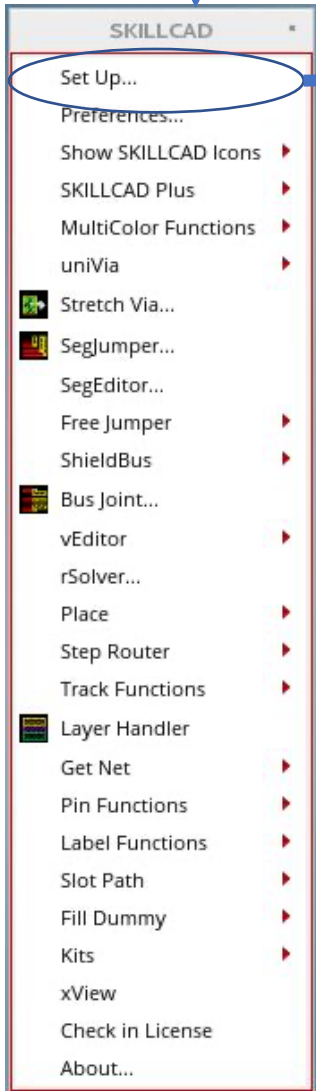
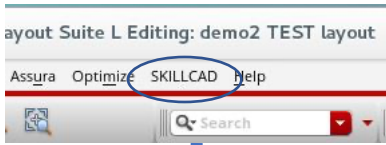


Customize the functions that appear on the icon bar.

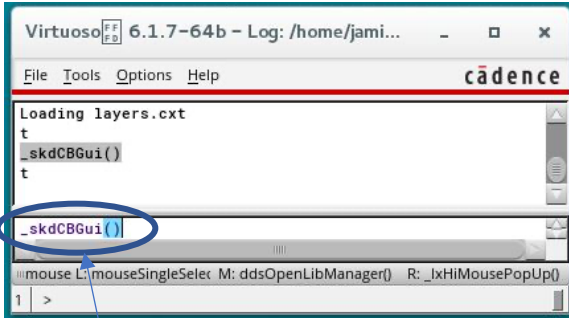
SKILLCAD Setting Up User Preferences



SKILLCAD Complete Setup

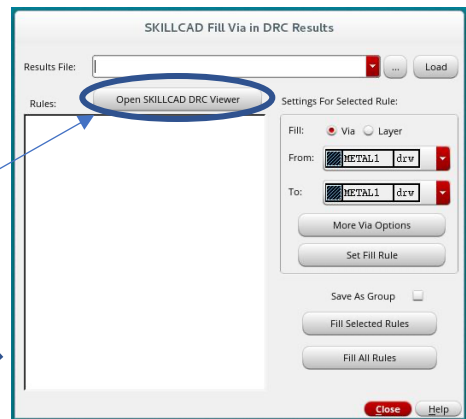


SKILLCAD DRC Viewer

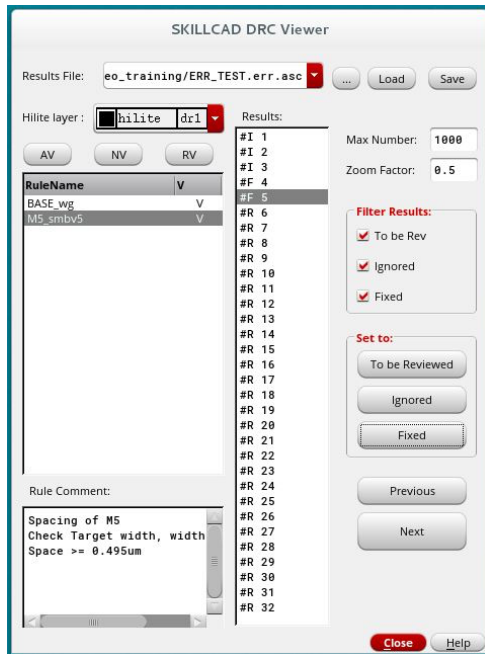


Type `_skdCBGui()` on the command line in the CIW.

This brings up the SKILLCAD Fill Via in DRC Results form.

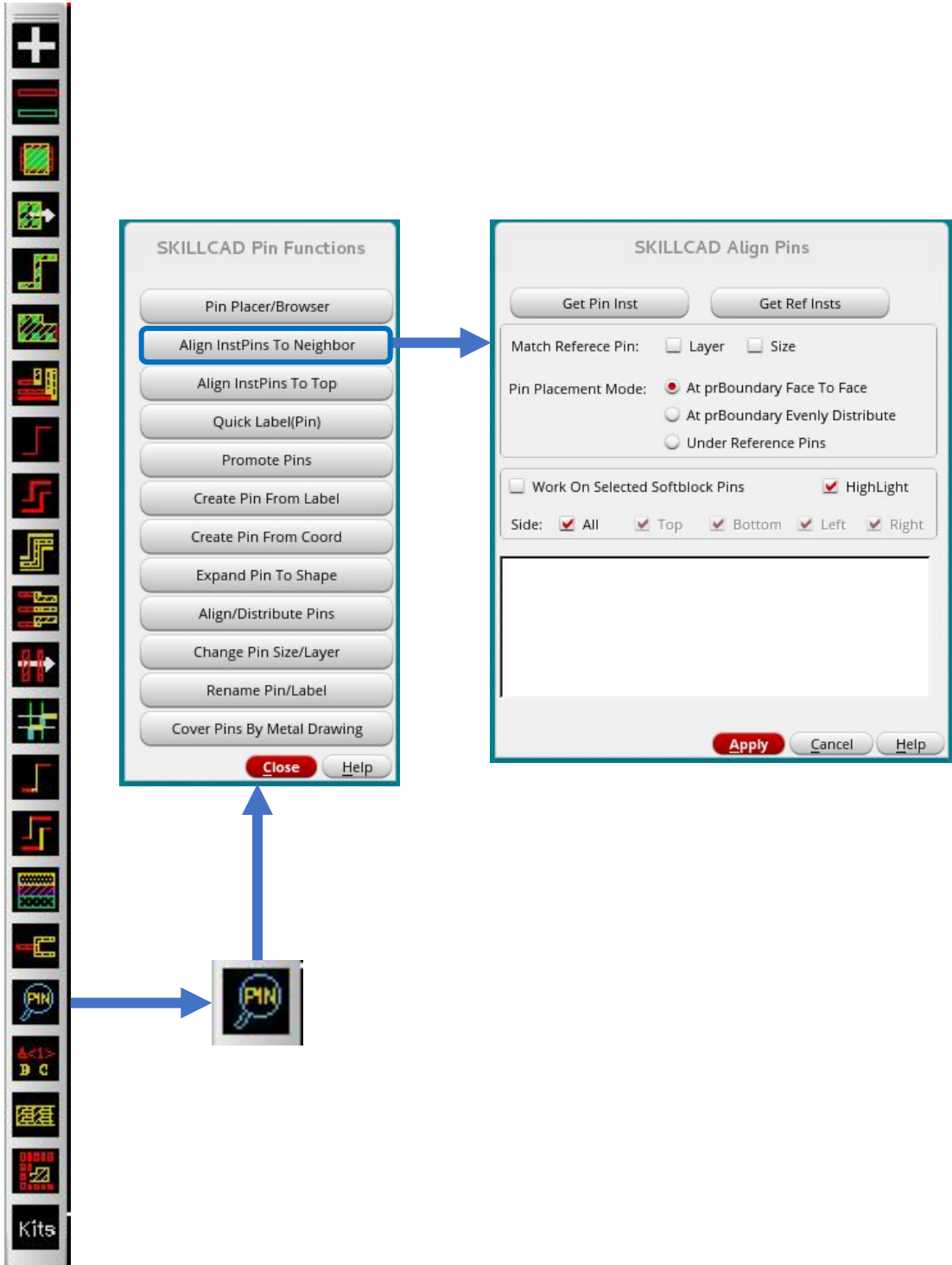


Click on Open SKILLCAD DRC Viewer.

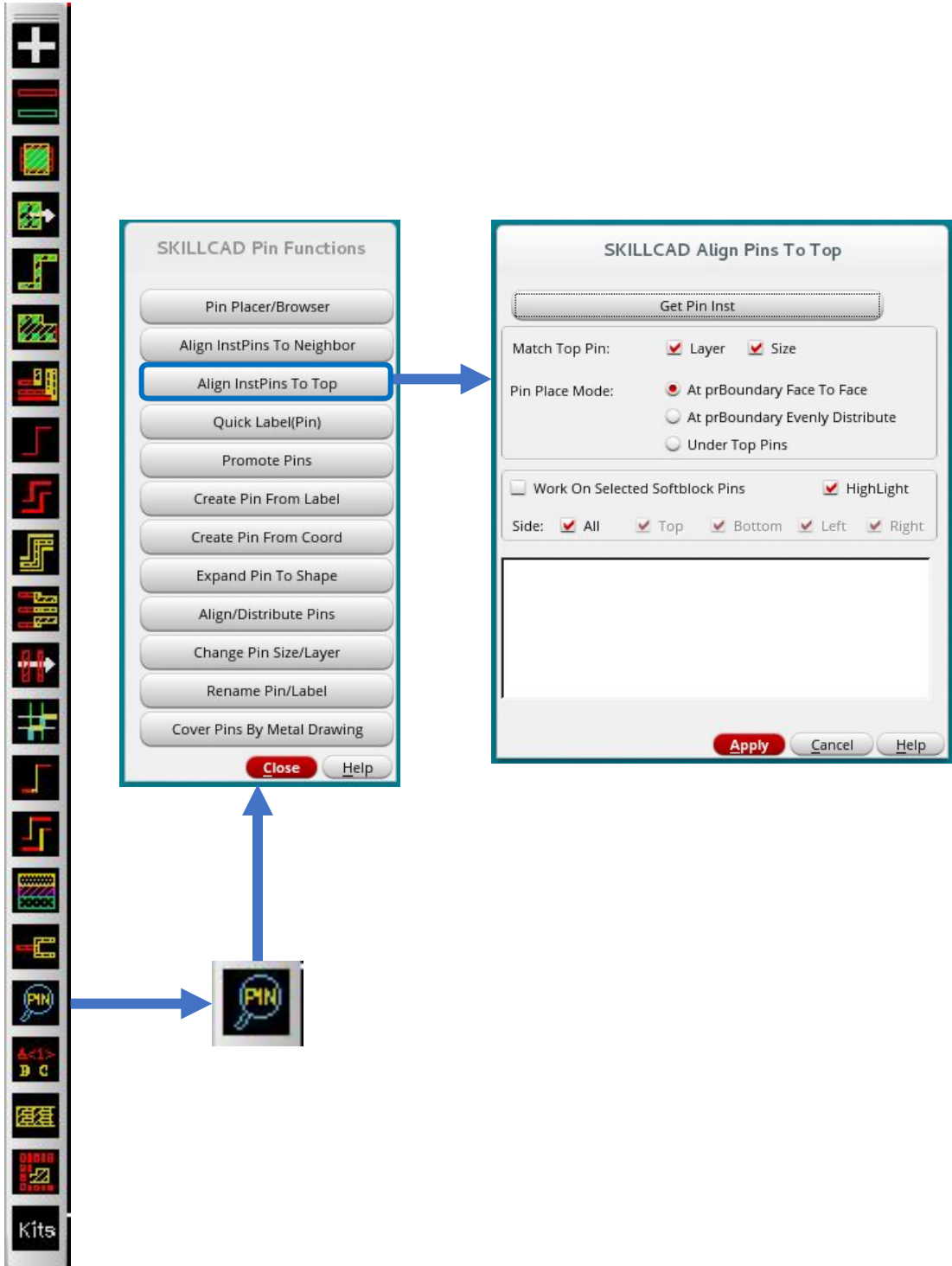


This brings up the SKILLCAD DRC Viewer form.

SKILLCAD Align Instance Pins to Neighbor



SKILLCAD Align Instance Pins to Top



How To Use The SKILLCAD Index Guide

The SKILLCAD Index Guide was developed to help designers to know what SKILLCAD Commands are available and where to find the commands on the SKILLCAD tool bar or menu. It also contains a brief description of the commands, indicates which commands are most often used by layout designers, and which commands should work completely or partially in advanced nodes (N10, N7, N5, etc.). The most useful commands are highlighted in yellow, and the commands that can be used in advanced nodes are designated with an Asterisk (*). Each indexed and linked command also calls a page containing links for all the available training materials for that command (PDF, Word Document or PowerPoint Presentation, and video). These are the same training materials available from the SKILLCAD Topical Guide. A link on the first page of the Index Guide will call the Topical Guide. Both guides are available to help a designer know how to use the SKILLCAD functions.

To use the Index Guide, just click on the SKILLCAD command in the index pages. The command link will call the page showing where the command is found on the SKILLCAD tool bar or menu, and what the next level menu or form contains. This page also contains links to the training materials and video. In a few cases, a command will be listed in the index pages, but is not yet linked to another page. This is usually a new command that does not yet have training materials. The index section on SKILLCAD Setup contains training materials for setting up the technology file, used by the SKILLCAD tools.

Example: Select Bus Connect(BusJoint) in the guide. This will take you to the page showing how to access the command, as well as links to the training materials.

 V-Editor	BusTap	Create taps on bus by V-Line
	Bus Connect(BusJoint) *	Connect bus by order, net names
	Bridge *	Change layers for part of bus/net
	Distribute Bus	Evenly distribute bus in a range
	Align BusEnd *	Stretch/Align bus end with right path end spacing rule
	Bus continue	Continue connections
	BreakBus	Split bus with right path end spacing rule
	changeLayer	Change Metal layer and meanwhile update connected vias
	Detour	Make turns on bus

