5.2.6.5 Modeling - Meshes - Editing - Vertex Tools

Vertex Tools

This page covers many of the tools in the Mesh ‣ Vertices menu. These are tools that work primarily on vertex selections, however, some also work with edge or face selections.

Merging

Merging Vertices

Reference
Mode: *Edit* mode
Menu: Mesh ‣ Vertices ‣ Merge..., Specials ‣ Merge or Vertex Specials ‣ Merge
Hotkey: `Alt-M`

This tool allows you to merge all selected vertices to an unique one, deleting all others. You can choose the location of the surviving vertex in the menu this tool pops up before executing:

At First
    Only available in *Vertex* select mode, it will place the remaining vertex at the location of the first one selected.

At Last
    Only available in *Vertex* select mode, it will place the remaining vertex at the location of the last one selected (the active one).

At Center
    Available in all select modes, it will place the remaining vertex at the center of the selection.

At Cursor
>   Available in all select modes, it will place the remaining vertex at the 3D Cursor.

Collapse
>   This is a special option, as it might let "live" more than one vertex. In fact, you will have as much remaining vertices as you had "islands" of selection (i.e. groups of linked selected vertices). The remaining vertices will be positioned at the center of their respective "islands". It is also available *via* the Mesh ‣ Edges ‣ Collapse menu option...

Merging vertices of course also deletes some edges and faces. But Blender will do everything it can to preserve edges and faces only partly involved in the reunion.

AutoMerge Editing

Reference
Mode: *Edit* mode
Menu: Mesh ‣ AutoMerge Editing

The *Mesh* menu as a related toggle option: *AutoMerge Editing*. When enabled, as soon as a vertex moves closer to another one than the *Limit* setting (*Mesh Tools* panel, see below), they are automatically merged.

Remove Doubles

Reference
Mode: *Edit* mode
Panel: *Editing* context –> *Mesh Tools*
Menu: Mesh ‣ Vertices ‣ Remove Doubles, Specials ‣ Remove Doubles or Vertex Specials ‣ Remove Doubles
Hotkey: [W] ‣ Remove Doubles or Mesh ‣ Vertices ‣ Remove doubles

Remove Doubles is a useful tool to simplify a mesh by merging vertices that are closer than a specified distance to each other. An alternate way to simplify a mesh is to use the *Decimate modifier.*

Merge Distance
>   Sets the distance threshold for merging vertices, in Blender units.

Unselected
>   Allows vertices in selection to be merged with unselected vertices. When disabled, selected vertices will only be merged with other selected ones.
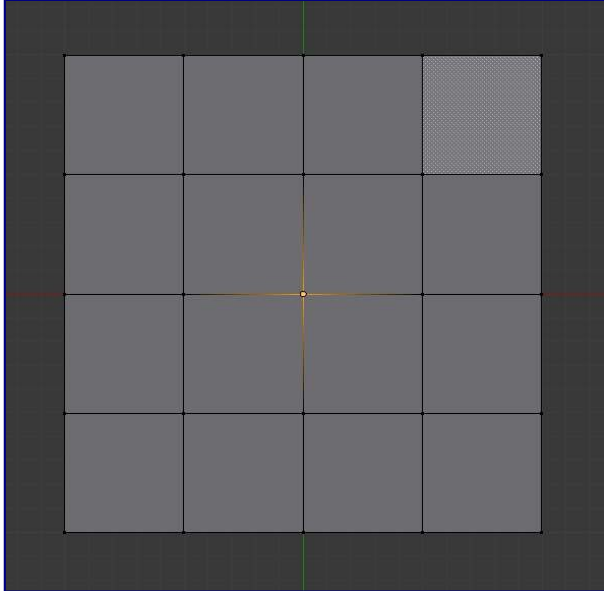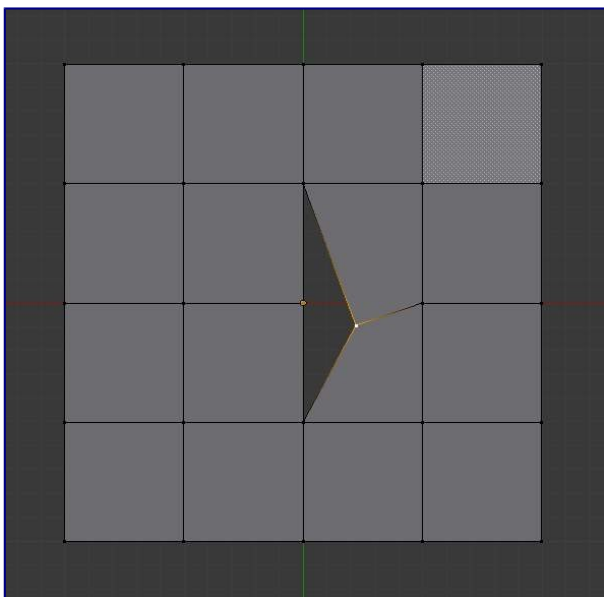
Separating

Rip

Reference
Mode: *Edit* mode
Menu: Mesh ‣ Vertices ‣ Rip
Hotkey: V

Rip creates a "hole" into a mesh by making a copy of selected vertices and edges, still linked to the neighbor non-selected vertices, so that the new edges are borders of the faces on one side, and the old ones, borders of the faces of the other side of the rip.
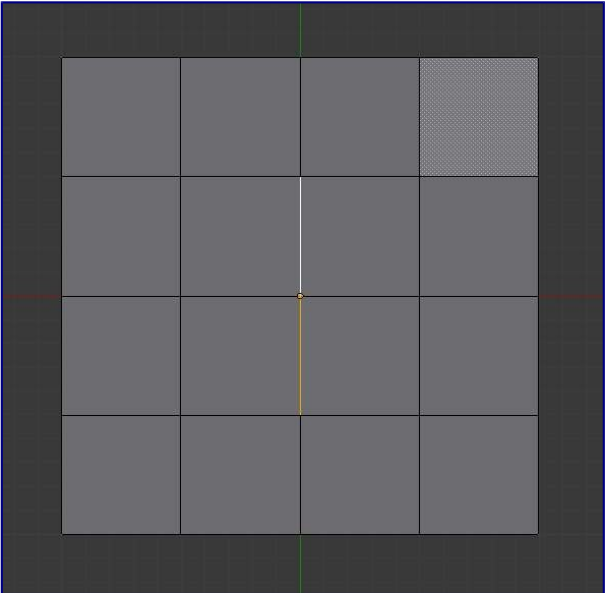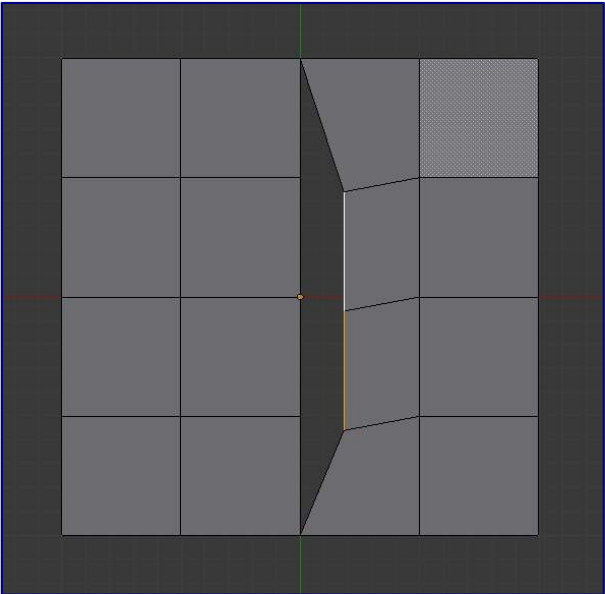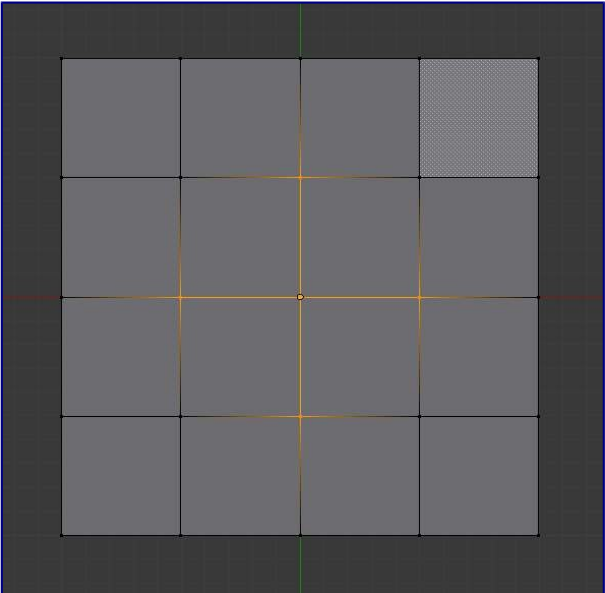
Examples

selected vertex
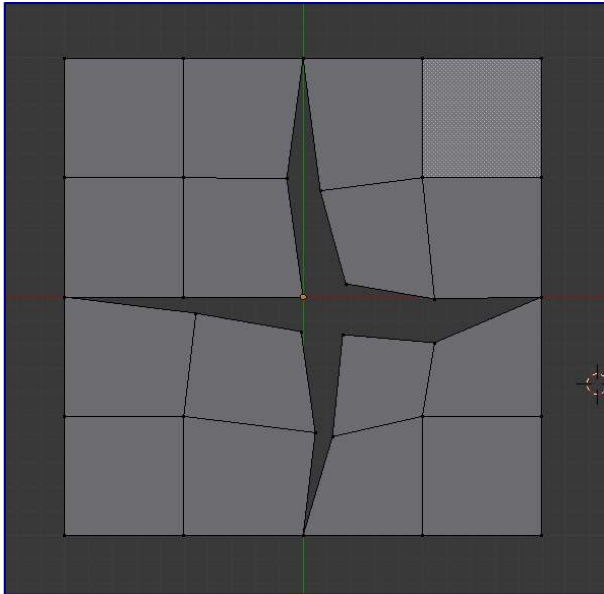

Hole created after using rip on vertex

Edges selected

Result of rip with edge selection

A complex selection of vertices


Result of rip operation

Limitations

Rip will only work when edges and/or vertices are selected. Using the tool when a face is selected (explicitly or implicitly), will return an error message *"Can't perform ripping with faces selected this way"* If your selection includes some edges or vertices that are not "between" two faces (manifold), it will also fail with message *"No proper selection or faces include"*.
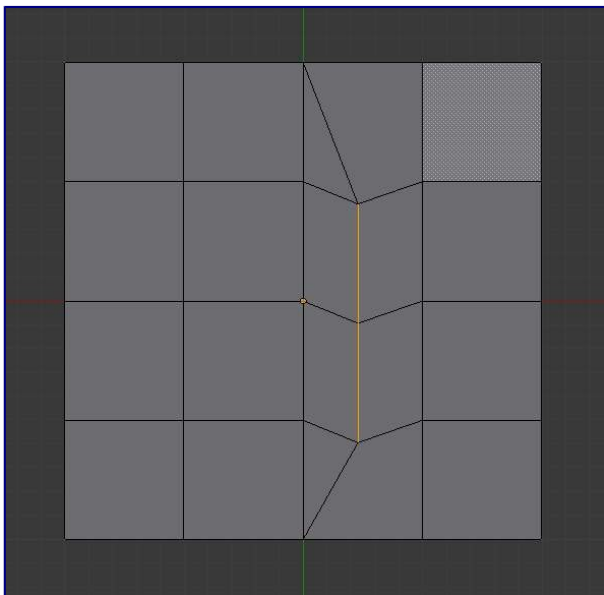
Rip Fill

Reference
Mode: *Edit* mode
Menu: Mesh ‣ Vertices ‣ Rip Fill
Hotkey: Alt-V

Rip fill works the same as the Rip tool above, but instead of leaving a hole, it fills in the gap with geometry.
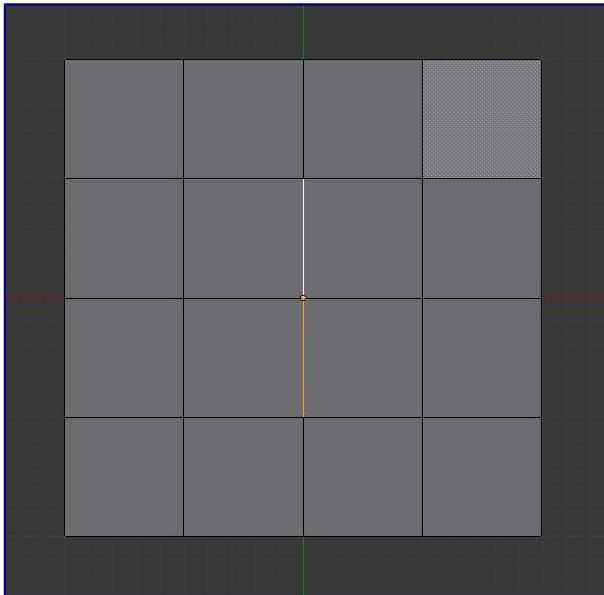
Edges selected

Result of rip fill

Split

Reference
Mode: *Edit* mode Menu: Mesh ‣ Vertices ‣ Split Hotkey: Y

A quite specific tool, it makes a sort of copy of the selection, removing the original data *if it is not used by any non-selected element*. This means that if you split an edge from a mesh, the original edge will still remain unless it is not linked to anything else. If you split a face, the original face itself will be deleted, but its edges and vertices remain unchanged. And so on.

Note that the "copy" is left exactly at the same position as the original, so you must move it (G) to see it

clearly...

Separate

Reference
Mode: *Edit* mode Menu: Mesh ‣ Vertices ‣ Separate Hotkey: P

This will separate the selection in another mesh object, as described *here*.

Connect Vertex Path

Reference
Mode: *Edit* mode Menu: Mesh ‣ Vertices ‣ Connect Vertex Path Hotkey: J

This tool connects vertices in the order they're selected, splitting the faces between them.

Runnign a second time will connect the first/last endpoints.

Vertices not connected to any faces will create edges, so this can be used as a way to quickly connect isolated vertices too.
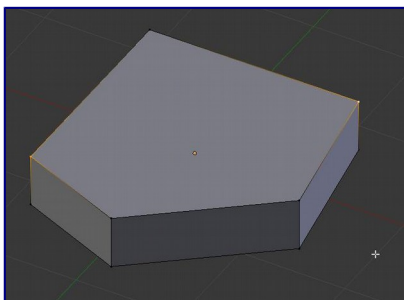
Connect Vertices
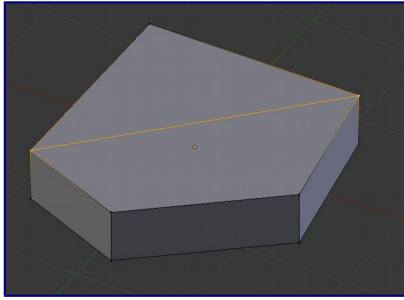
Reference
Mode: *Edit* mode Menu: Mesh ‣ Vertices ‣ Connect Vertices

This tool connects selected vertices by creating edges between them and splitting the face.
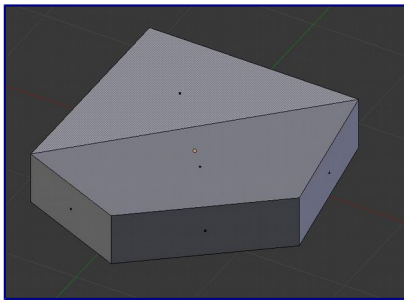
This tool can be used on many faces at once.

Selected vertices before connecting

After connecting vertices

Two faces created from vertex connect operation

Vertex Slide

Reference
Mode: *Edit* mode
Panel: *Editing* context –> *Mesh Tools*
Menu: Mesh ‣ Vertices ‣ Vertex Slide
Hotkey: `Shift-V`

Vertex Slide will transform a vertex along one of its adjacent edges. Use `Shift-V` to enter tool. Highlight the desired edge by moving the mouse, then confirm with `LMB`. Drag the cursor to specify the position along the line formed by the edge, then `LMB` again to move the vertex.

Shift
    Higher precision control.
Ctrl
    Snap to value (useful to combine with auto merge)
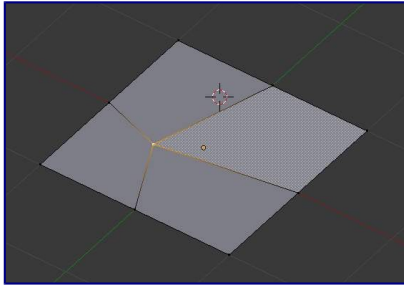**LMB**
    confirms the tool
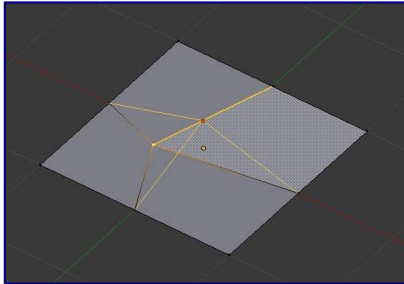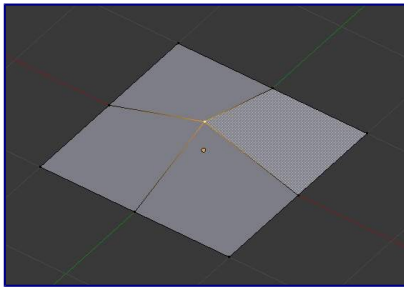**RMB or Esc**
    Cancels.
Alt or C
    Toggle clamping the slide within the edge extents.

Selected vertex

Positioning vertex interactively

Repositioned vertex

Smooth

Reference
Mode: *Edit* mode
Panel: *Editing* context –> *Mesh Tools*
Menu: Mesh ‣ Vertices ‣ Smooth, Specials ‣ Smooth or Vertex Specials ‣ Smooth
Hotkey: Mesh ‣ Vertices ‣ Smooth vertex

This will apply once the *Smooth Tool*.

Make Vertex Parent

Reference
Mode: *Edit* mode
Menu: Mesh ‣ Vertices ‣ Make Vertex Parent
Hotkey: Ctrl-P

This will parent the other selected object(s) to the vertices/edges/faces selected, as described *here*.

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Add Hook

Reference
Mode: *Edit* mode Menu: Mesh ‣ Vertices ‣ Add Hook Hotkey: `Ctrl-H`

Adds a *Hook Modifier* (using either a new empty, or the current selected object) linked to the selection. Note that even if it appears in the history menu, this action cannot be undone in *Edit* mode - probably because it involves other objects...

Blend From Shape, Propagate Shapes

Reference
Mode: *Edit* mode Menu: (Vertex) Specials ‣ Blend From Shape and Mesh ‣ Vertices ‣ Shape Propagate

These are options regarding *shape keys*.