7.1.9 Editors - 3D Viewport - Header - Mesh - Edit mode - Mesh menu

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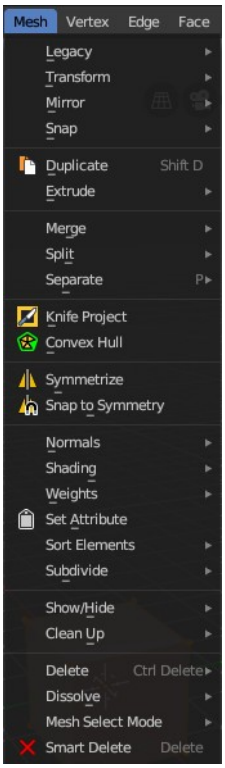
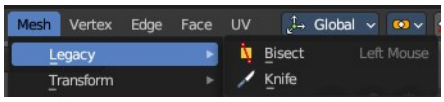
Edit Mode - Mesh Menu



The Mesh Menu in Edit Mode contains the tools to manipulate the mesh geometry in Edit mode. It just exists for Mesh Objects.

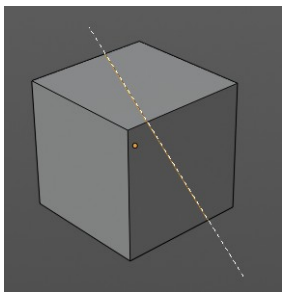
Lots of functionality that could also belong here can also be found in the Tool Shelf. The difference is that the tools in the tool shelf are easier to access. And so it contains the most used tools for the daily work. While the Mesh menu contains the not so often used tools. Or tools where you use the hotkey anyway. Delete for example.

Legacy

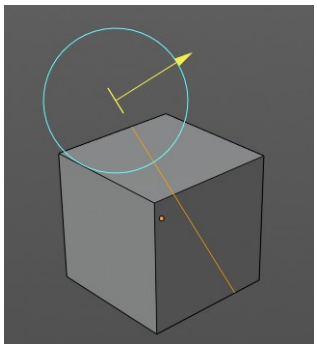


The legacy sub menu contains tools that exists in the tool shelf already. It's the old way to do things. Different to the tools in the tool shelf, these tools are usually modal. And performs once. You have to call them again in case you want to repeat the tool.

Bisect

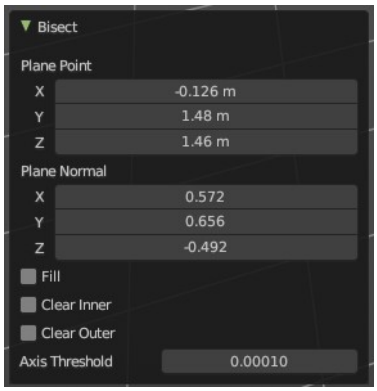


Bisect cuts geometry along a plane. This description is a bit misleading though. You simply cut through the whole geometry by defining a line. And the cut goes through the geometry from the current view.



When you have set your cut and release the mouse then you reveal a widget with which you can move and rotate the cut. Clicking at the arrow and drag moves the cut. Clicking at the circle and drag rotates the cut.

Last Operator Bisect



Plane Point X , Y , Z

Defines the start point of the Bisect cut.

Plane Normal X , Y , Z

The direction in which the bisect points.

Fill

Fills the cut.

Clear Inner

Removes the inner part of the face to cut.

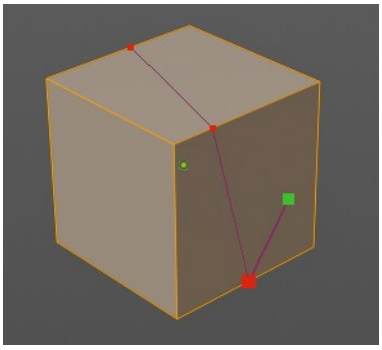
Clear Outer

Removes the outer part of the face to cut.

Axis threshold

Axis threshold.

Knife tool



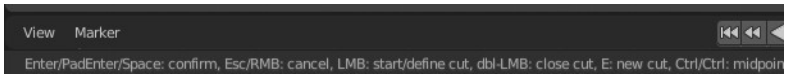
The Knife tool cuts the geometry, and adds edges. When it crosses existing geometry then it adds a vertice at the crossing point.

Usage: activate the tool, left click to define the starting point. This can also be a point in the middle of a face. But ideally you choose an existing vertice or an edge as the start and endpoints. The knife tool tries to snap to them when you get close with the mouse cursor.

When done press Enter or Spacebar to confirm. Right click abandons the operation.

When you create a vertice in the middle of a face, then the knife tool will try to connect this vertice by an existing vertice of this face when you confirm with spacebar.

Hotkey functionality in the footer text



Have a look at the footer when you work with this tool. Here you will find further instructions and hotkeys.

Enter, Pad Enter, Spacebar - confirm

Esc key, RMB - cancel the operation

LMB start the cut

Double LMB - close the cut

E - create new cut

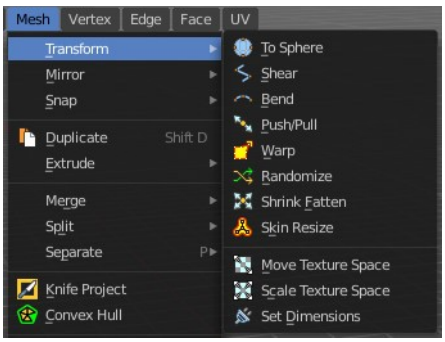
Ctrl or Shift while dragging - Snap to the middle of an edge

Z - cut through the whole geometry, also the backfaces.

MMB - pan the view.

Alt MMB - rotate the view.

Transform



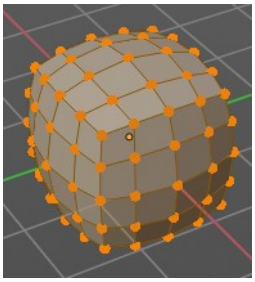
To Sphere

Shapes a selection of objects into the shape of a sphere. The calculation happens with the object origins.

In Object mode this tools requires to have more than one object selected.

Usage

Select the vertices, activate the tool, then drag the mouse in the 3D viewport. In the header you will read the current factor then. Which tells you how close you are towards the sphere shape.

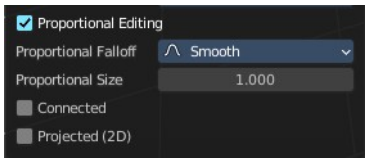


Last Operator To Sphere Panel

Factor

The factor to transform the selection into a shape form.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further

settings.

Proportional Falloff
Adjust the falloff methods.

Proportional Size
See and adjust the falloff radius.

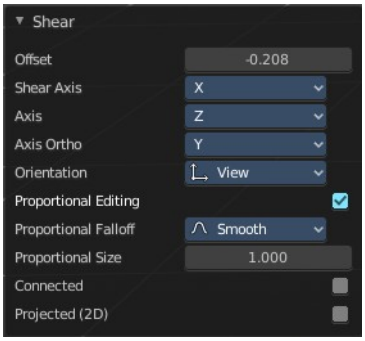
Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Shear

Shear shears the selection.

Last Operator Shear



Offset

Adjust an offset.

Shear Axis

The shear tool works along a imaginary 2d plane. The shear axis controls if the items are sheared along the x or the y axes of this plane. This is the plane along which the transformation happens. You can shear along the x or the y axis of this plane.

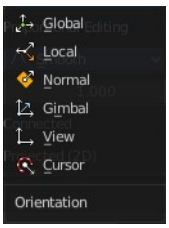
To make things even more complicated, the orientation of this imaginary plane is defined by the Axis and Axis Ortho items below.

Axis

Defines one axis of the imaginary shear axis plane.

Axis Ortho

Defines the other axis of the imaginary shear axis plane.

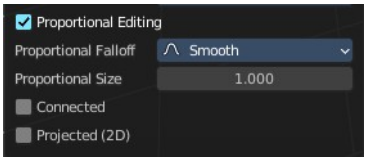


Orientation

Choose the orientation for the shear action.

Proportional editing

Enables proportional editing. Activating proportional editing reveals further



settings.

Proportional Falloff
Adjust the falloff methods.

Proportional Size
See and adjust the falloff radius.

Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Bend

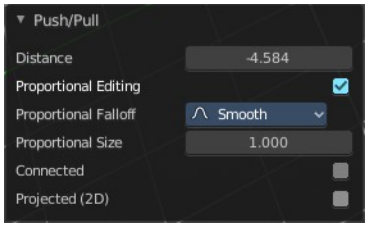
Bends the selection.

Push/Pull

It pushes or pulls the object positions relative to the center of the selection.

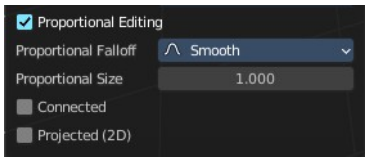
In Object mode this tool requires to have more than one object selected.

Last Operator Push/Pull



Factor
Adjust the strength of influence of the tool.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff
Adjust the falloff methods.

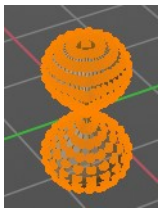
Proportional Size
See and adjust the falloff radius.

Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)

The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Warp



Warps a mesh selection between two defined points.

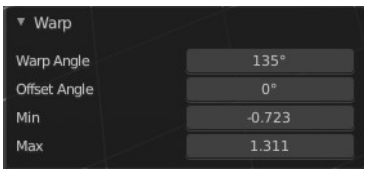
Last operator Warp

Warp Angle

The strength of the warp effect

Offset Angle

An offset angle to bend side wards.



Min

The start point.

Max

The end point.

Randomize Transform

This tool allows randomizes the positions of the selected vertices.

Last Operator Randomize Transform

Amount

Adjust the amount.

Uniform

The uniform offset distance.

Normal

Align the offset direction to the normals.

Random Seed

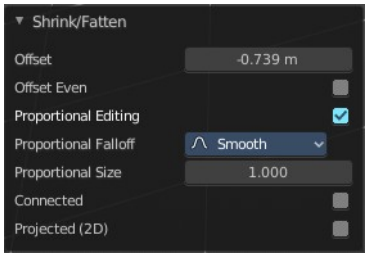
The seed value for randomization.

Shrink/Fatten

Shrink/Fatten scales the selected geometry along its normals. Transform orientation and Pivot point gets ignored.

A positive value pushes the vertices outwards. A negative value pushes the vertices inwards.

Last Operator Shrink/Fatten



The Last Operator Shrink/Fatten panel gives you tools to adjust the Shrink/Fatten operation. Here you have numeric input for the strength and a few more options.

Offset

Offset is the strength of the offset for Shrink/Fatten.

Offset Even

Offset Even scales the selection to give more thickness in even areas.

Proportional editing

Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

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Projected(2D)

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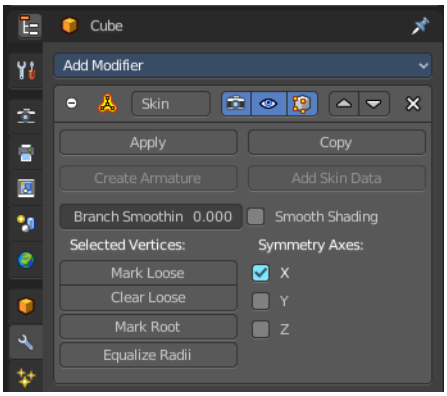
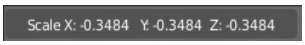
Skin Resize

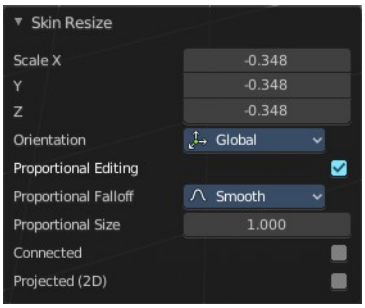


This tool requires to have a skin modifier at the mesh. It scales the thickness of the skin.

While the operation you will see in the header the strength value for the skin.



Last Operator Skin Resize



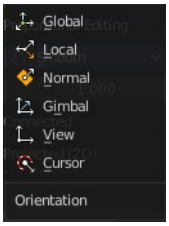
Vector

Adjust the position values for the three values.

Scale X, Y, Z

Limit the position relative to the source object.

Orientation



Orientation is a drop-down box choose the type of orientation for the mirroring action.

Proportional editing

Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

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Projected(2D)

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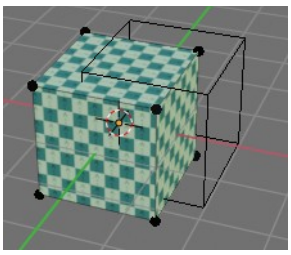
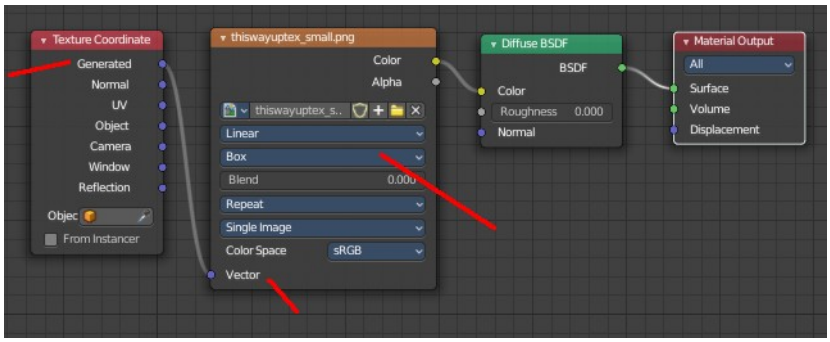
Move Texture Space



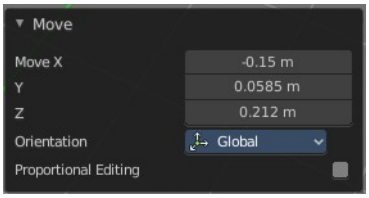
This tool relies at the move tool. With the difference that it moves the texture space instead of the object. It has also a very special use case, and just works with a material with a Texture Coordinate / Generated node. And requires to have the shading at Material or Rendered to see a result in the viewport.

In the viewport you will see the UV cage in black color. In the header you will see the values for the current position of the UV cage.

Note that once done and applied, there is no way to reset the UV cage back to zero. When you repeat the operation, then the values will start at 0 again. Even when the UV cage is already offset.



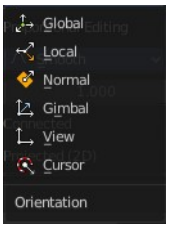
Last Operator Translate



Move X, Y Z

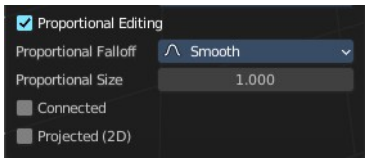
Limit the position relative to the source object.

Orientation



Orientation is a drop-down box choose the type of orientation for the mirroring action.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

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Projected(2D)

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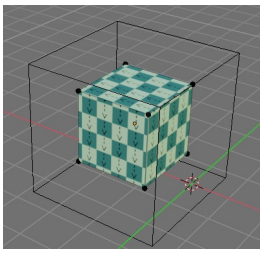
Scale Texture Space



This tool relies at the scale tool. With the difference that it scales the texture space instead of the object. It has also a very special use case, and just works with a material with a Texture Coordinate / Generated node. And requires to have the shading at Material or Rendered to see a result in the viewport. 

In the viewport you will see the UV cage in black color. In the header you will see the values for the current position of the UV cage.

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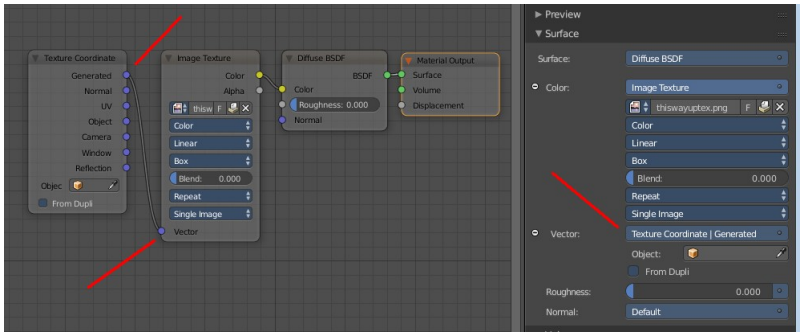
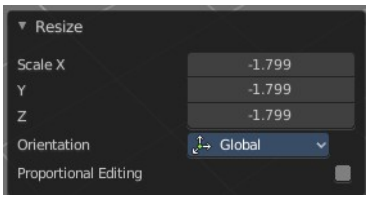


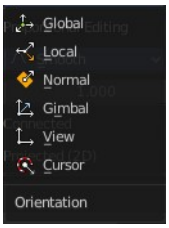
Last Operator Resize Texture



Move X, Y Z

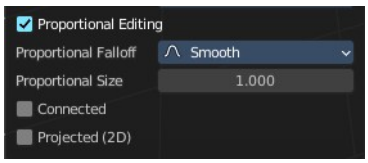
Limit the position relative to the source object.

Orientation



Orientation is a drop-down box choose the type of orientation for the mirroring action.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

The proportional falloff gets calculated for connected parts only.

Projected(2D)

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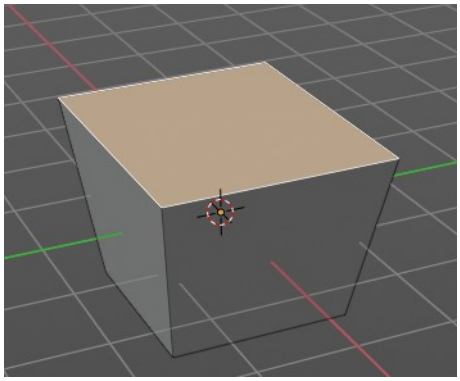
Set Dimensions



Edit Mode Only!

Normally all scale operations in Bforartists are relative to the current selection and dimensions. And you always start with a relative value of 1.

Set dimensions allows to scale mesh selections in absolute world values. No matter how the initial values are. The new values gets set in the Last Operator.

Set dimensions is an add-on. You can turn it off in the add-ons section of the user preferences when you want.

Last Operator Set Dimensions

New Dimensions

When you activate the tool then you will see the world coordinates of the selection. Change the values to other world coordinates.

Mirror

Mirror mirrors the selected geometry along the defined axis.

Interactive Mirror

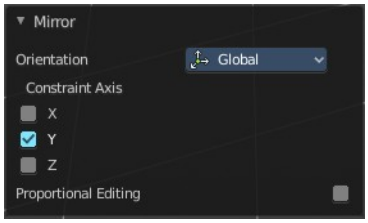
Mirror by hotkeys. You activate the tool, type in x for x global for example, or x x for x local. And the selection gets mirrored

X Global, Y Global etc.

Mirrors the selection around the chosen axis.

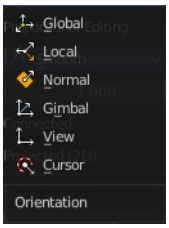
Last Operator Mirror

The Last Operator Mirror panel gives you tools to adjust the mirror action.



Orientation

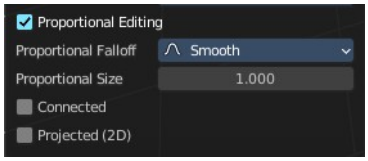
Orientation is a drop-down box choose the type of orientation for the mirroring action.



Constraint Axis

Constraint Axis gives you again the possibility to define the mirror axis. You can choose more than one axis here.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

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Projected(2D)

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Mirror Vertex Group

This tool requires to have a vertex group assigned. It mirrors the selected vertex group.

This tool works only with a perfectly symmetrical mesh along the local X axis. Vertices that have no corresponding vertex on the other side will not be affected.

Last Operator Mirror Vertex Group

Mirror Weights

Mirrors the Weight Painting informations from the symmetrical counterpart. When both are selected it will become a group and weight information exchange. If only one is selected, then the information from the unselected vertice will go to the selected vertice.

Flip Group Names

Flip selected group names. This works with vertex groups with symmetrical name conventions. Like .L , .R, right, left.

All Groups

Pass information to all groups instead of the active one.

Topology Mirror

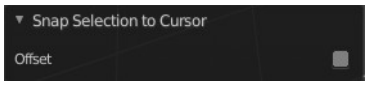
Use topology based mirroring.

Snap

Choose several methods to snap one element to another. The menu items should be self explaining.

Last Operator Snap

Some snap operations shows a last operation panel, some not.

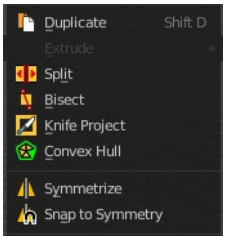


Offset

If the selection should snap as a whole, or if each individual element of the selection should snap.

Single Operators

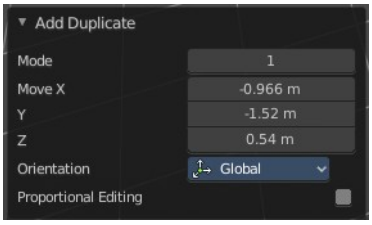
Duplicate



Duplicates the current selection.

When you duplicate a selection, then it sticks to the mouse until you left click. And moves around. A right click repositions the duplicated geometry at its original location.

Last Operator Duplicate



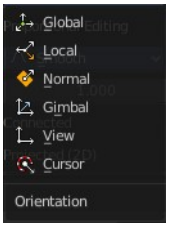
Mode

Not to find out. No tool tip, no entry in the Blender manual. Good Job Blender Developers.

Move X, Y, Z

Adjust the position.

Orientation

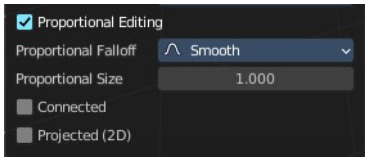


Orientation is a drop-down box choose the type of orientation for the mirroring action.

Constraint Axis

Constraint Axis gives you again the possibility to define the mirror axis. You can choose more than one axis here.

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

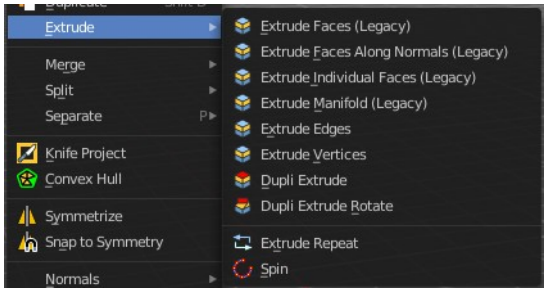
Connected

The proportional falloff gets calculated for connected parts only.

Projected(2D)

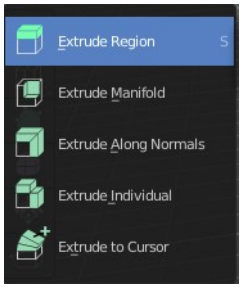
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Extrude



Extrude is a sub menu with several extrude methods. The contend is dependent of the mesh select mode.

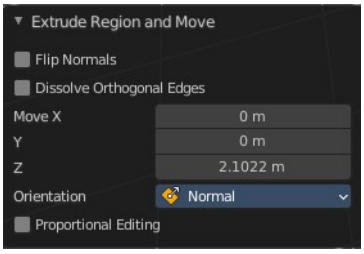
Note that the tool shelf also contains extrude functionality. And a few methods here are a double. These are marked with a (Legacy) in the tool name.



Extrude Faces (Legacy)

Extrude the selected faces along their normals. This functionality is part of the Extrude Region tool in the tool shelf.

Last Operator Extrude Region and Move



Flip Normals

Flips the normals of the extruded faces.

Dissolve Orthogonal Edges

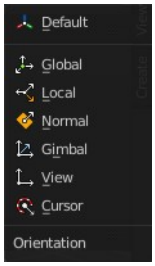
Dissolves orthogonal edges at extrusion.

Move X, Y Z

The position. Attention, the actual world orientation and rotation does not matter here. It always starts with a value of zero, and moves relative to this zero then. For the actual location values have a look in the sidebar in the transform panel.

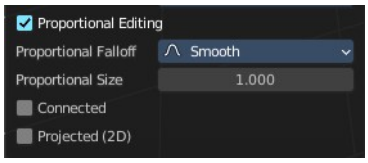
Orientation

The extrusion can have different orientations. The menu items should be self explaining.



Proportional editing

Enables proportional editing. Activating proportional editing reveals further settings.



Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

The proportional falloff gets calculated for connected parts only.

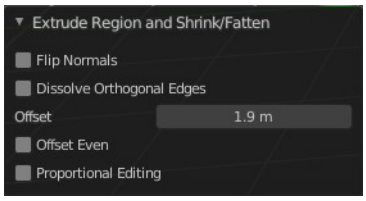
Projected(2D)

The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Extrude Faces along Normals (Legacy)

In the toolshelf it's the Extrude Along Normals tool. Extrudes the selection along local normals. You won't see a widget here. Simply drag.

The method works the same in all Mesh select modes. Vertice, Edge and Face Mode.



Last Operator Extrude Region and Shrink/Fatten

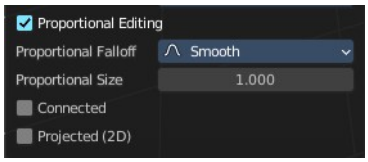
Flip Normals

Flips the normals of the extruded faces.

Dissolve Orthogonal Edges
Dissolves orthogonal edges at extrusion.

Offset
The current extrude amount.

Offset Even
Scales the offset to give more even thickness. Without this checked the farer away faces will have a bigger extrude amount.

Proportional editing


Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff
Adjust the falloff methods.

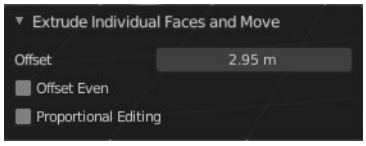
Proportional Size
See and adjust the falloff radius.

Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

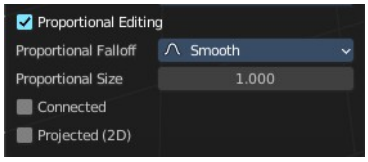
Extrude Individual Faces (Legacy)
In the tool shelf the tool is called Extrude Individual. Extrudes the selection along local normals of each individual face. You won't see a widget here. Simply drag.

The method works the same in all Mesh select modes. Vertice, Edge and Face Mode.

Last Operator Extrude Individual Faces and Move


Offset
The current extrude amount.

Offset Even
Scales the offset to give more even thickness. Without this checked the farer away faces will have a bigger extrude amount.

Proportional editing


Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff
Adjust the falloff methods.

Proportional Size
See and adjust the falloff radius.

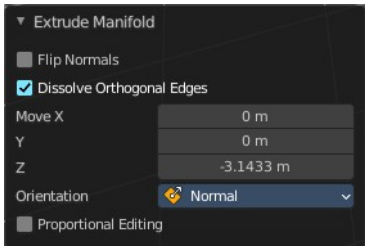
Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Extrude Manifold (Legacy)

The same tool exists in the tool shelf. Extrude, dissolve Edges whose faces form a flat surface, and intersect new edges.

The method works the same in all Mesh select modes. Vertice, Edge and Face Mode.



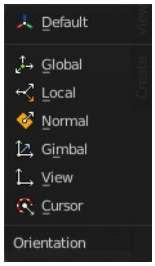
Last Operator Extrude Manifold

Flip Normals
Flips the normals of the extruded faces.

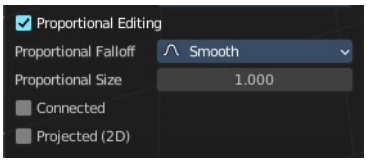
Dissolve Orthogonal Edges
Dissolve edges that are at the same straight surface.

Move X, Y Z
The position. Attention, the actual world orientation and rotation does not matter here. It always starts with a value of zero, and moves relative to this zero then. For the actual location values have a look in the sidebar in the transform panel.

Orientation
The widget can have different orientations. The menu items should be self explaining.



Proportional editing
Enables proportional editing. Activating proportional editing reveals further settings.



Proportional Falloff
Adjust the falloff methods.

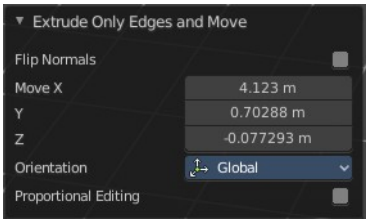
Proportional Size
See and adjust the falloff radius.

Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Extrude Edges
Extrudes out the selected edges by moving the mouse.

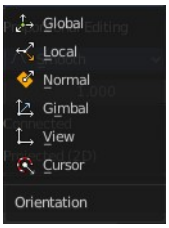
Last Operator Extrude Only Edges and Move



Flip Normals
Flip the normals at the involved faces.

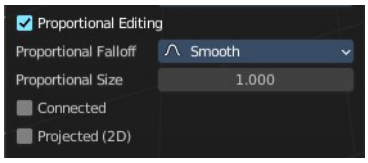
Move X Y Z
The coordinates for the extruded geometry.

Orientation
Choose the type of orientation, in which coordinate system the action should happen.



Constraint Axis

Proportional editing
Enables proportional editing. Activating proportional editing reveals further settings.



Proportional Falloff
Adjust the falloff methods.

Proportional Size
See and adjust the falloff radius.

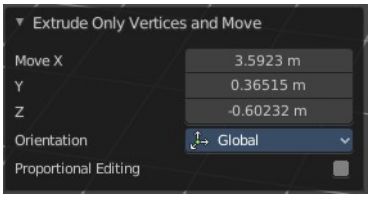
Connected
The proportional falloff gets calculated for connected parts only.

Projected(2D)
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Extrude Vertices

Extrudes out the selected vertices by moving the mouse.

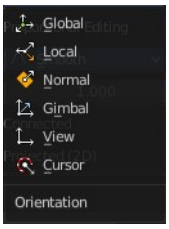
Last Operator Extrude Only Vertices and Move



Move X Y Z

The coordinates for the extruded geometry.

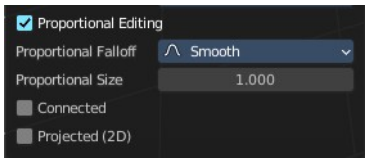
Orientation



Choose the type of orientation, in which coordinate system the action should happen.

Constraint Axis

Proportional editing



Enables proportional editing. Activating proportional editing reveals further settings.

Proportional Falloff

Adjust the falloff methods.

Proportional Size

See and adjust the falloff radius.

Connected

The proportional falloff gets calculated for connected parts only.

Projected(2D)

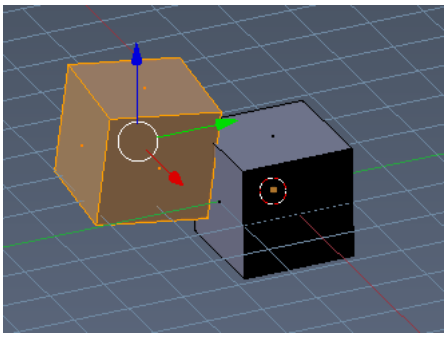
The proportional falloff gets calculated in the screen space. Depth doesn't play a role. When it's in the radius, then it gets calculated.

Dupli Extrude / Dupli Extrude Rotate

Dupli Extrude is a two trick tool. With faces selected it creates a rotated copy of the geometry. With edges or vertices selected it extrudes to the mouse position. That's why it is a good idea to use this tool with a hotkey. But note that we have currently no hotkey assigned to this legacy functionality.

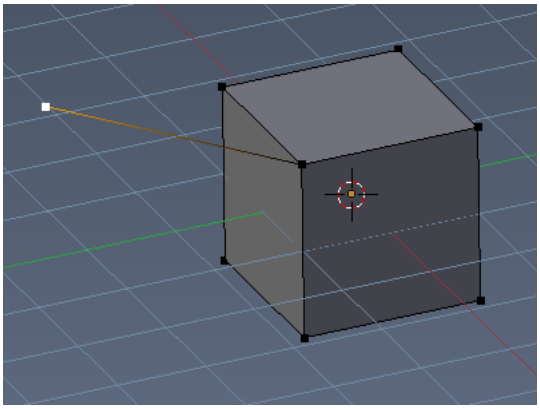
Dupli Extrude Rotate behaves the same than Dupli Extrude, but rotates the source geometry too.

Dupli Extrude - with selected Faces



Dupli Extrude with selected faces creates a copy of the selection and rotates it slightly.

Dupli Extrude - with selected Vertices



Dupli Extrude with selected vertices extrudes the vertice to the mouse position.

Extrude Repeat

All modes. Extrudes into the Z depth of the viewport, and repeats the extrusion by the adjusted amount. You have to adjust the extrusion afterwards.

Last Operator Extrude Repeat

Steps

How much repetitions.

Offset X / Y / Z

The offset in the x y and z direction.

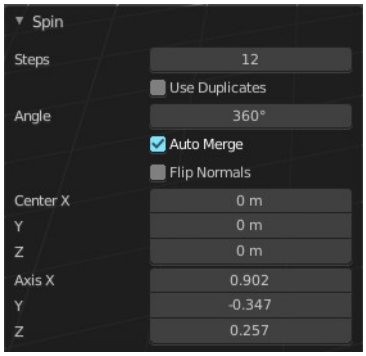
Scale Offset

The scale factor of the extruded element.

Spin

All modes. Extrudes in a curve form.

Last Operator Spin



Steps

How much segments.

Use Duplicates

Creates not connected geometry. In Vertex mode single vertices for example. Auto Merge and Flip Normals will not be available with duplicates.

Angle

The angle to extrude.

Auto Merge

Merge first and last element when the extrude is a full circle.

Flip Normals

Flip the normals of the extruded geometry.

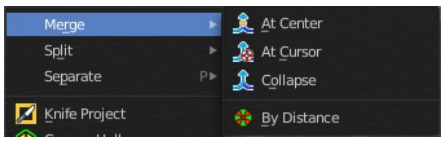
Center X / Y / Z

The center point of the spin circle.

Axis

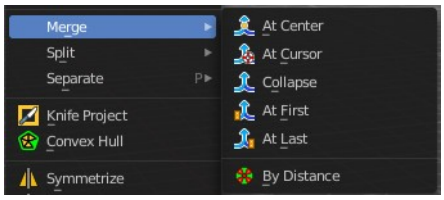
Axis in global View space. The values goes from -1 to 1.

Merge



Merges the geometry.

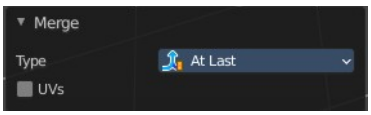
At Center, At Cursor, Collapse, At First, At Last



Merges the geometry with the given methods.

The methods At First and At Last just shows when you have vertices selected, and there is at least one first vertice and one last vertice to merge at. So minimum two. But you can have more than one vertices selected.

Last Operator Merge



Type

Choose the merge method again.

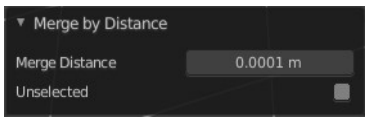
UV's

Move the UV's according to the merge.

By Distance

Merge the vertices by their distance to each other. This tool is meant to remove double vertices at the same location.

Last Operator Merge by Distance

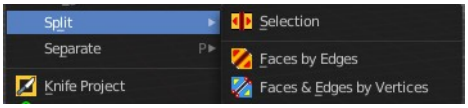


Merge Distance

Adjust the distance below which the vertices gets merged.

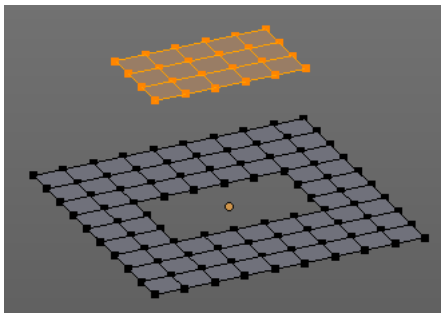
Merge selected vertices to unselected vertices.

Split



Selection

Split splits the edges between the selected vertices. It creates two edges out of one. And splits the edge by that.

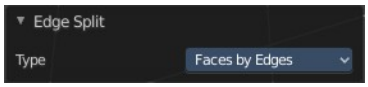


The mode doesn't matter. There will always the edges be splitted.

Faces by Edges / Faces by Edges by Vertices

Splits selected edges so that each neighbor face gets its own copy. You have two methods here.

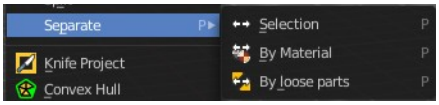
Last Operator Edge Split



Type

Choose the method again.

Separate



Separate separates the selected geometry, and creates a new object. The geometry becomes uneditable, since it is now a new object. You will have to leave the Edit mode, select the new object, and re-enter Edit mode when you want to edit it.

Selection

Selection separates the current selection.

By Material

By Material separates all geometry that has the same material than the current selection.

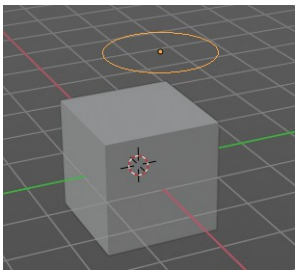
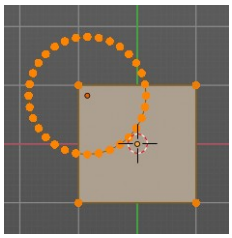
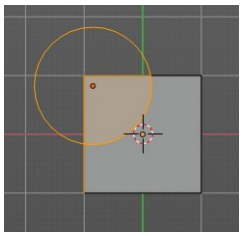
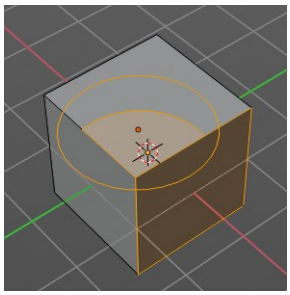
By Loose Parts

By Loose parts separates all geometry that is connected by edges to the current selection.

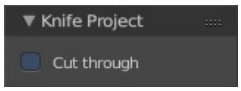
Knife Project

Knife Project uses an object as a knife to cut edges into a mesh.

Usage: Create a cube. Create a circle. Move the circle in front of the cube so that the geometry does not overlap the cube geometry. Enter Edit Mode with the cube. In the outliner hold down SHIFT, and select the circle. Note that you can select the circle in the 3d view with holding down CTRL.
Now that both objects are selected, go into front view, or whatever view you want. Just make sure that in the view the circle covers a part of the cube. Projection of the cut happens from the current view. Click the Knife Project tool.

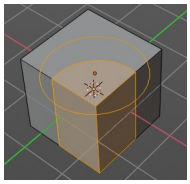





Last Operator Knife Project

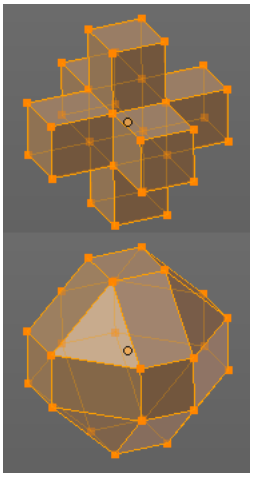


Cut through

The cut goes through the whole object when the Cut through checkbox is ticked.



Convex Hull



Creates a convex hull around the outside of selected vertices. The old faces and inlaying vertices gets removed.

Last Operator Convex Hull

Delete Unused

Removes vertices that are not part of the convex geometry.

Use existing Faces

Use existing input faces that lies on the hull where possible. This option allows to have N-Gons in the convex hull.

Make Holes

Deletes edges and faces in the hull that were part of the input. This allows to delete faces between the existing mesh and the convex hull.

Join Triangles

Joins adjacent triangles into quads.

Max Face Angle

Max Face Angle belongs to the Join Triangles setting. Set the maximum face angle.

Max Shape Angle

Max Face Angle belongs to the Join Triangles setting. Set the maximum shape angle.

Compare UV's

Takes existing UV patches for the calculation into account.

Compare Vcols

Takes existing Vertex colors for the calculation into account.

Compare Seam

Takes existing seams for the calculation into account.

Compare Sharp

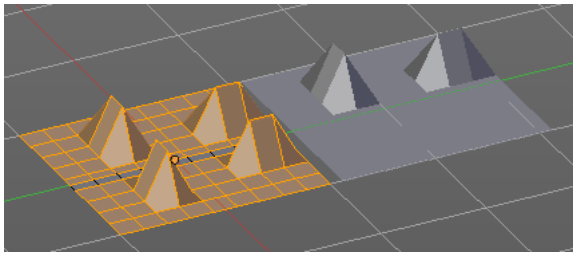
Takes existing sharp edges for the calculation into account.

Compare Materials

Takes existing materials for the calculation into account.

Symmetrize

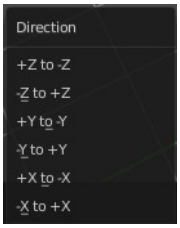
The Symmetrize tool mirrors the selected geometry symmetrical along a world axis.



Last Operator Symmetrize

Direction

Direction is a drop down box define the mirroring direction.



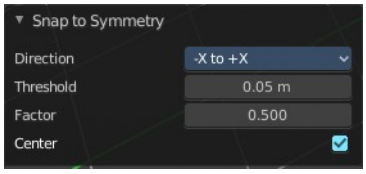
Threshold

Adjust a distance after which the mirroring should happen, relative to the mirror axis. 0 means it mirrors the geometry directly at the axis.

Snap to Symmetry

Tries to snap the selected vertices symmetrical along the chosen world orientation.

Last Operator Snap to Symmetry



Direction

The calculation direction.

Threshold

The threshold defines the radius in which matching vertices gets located. When you get a warning that snapping failed try increasing the threshold value.

Factor

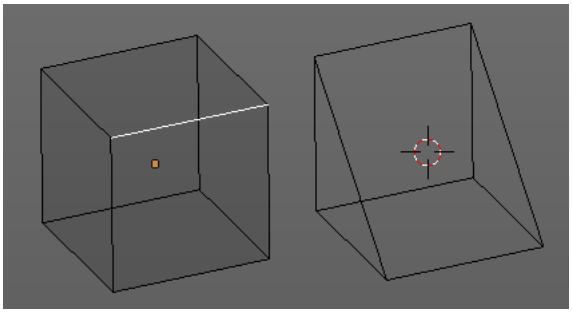
The snapping factor. Blend mirrored locations from one side to the other. 0.5 is blending both sides equal.

Center

Snap vertices in the center axis to zero.

Smart Delete

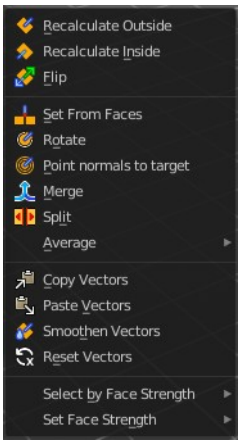
Smart delete deletes what is selected in an intelligent way. When you for example delete an edge then the edge gets deleted. But it also deletes the vertices connected to this edge. It performs a Dissolve operation under the hood.



There is also a Delete and Dissolve menu in the Mesh menu, choose different methods for deleting if required.

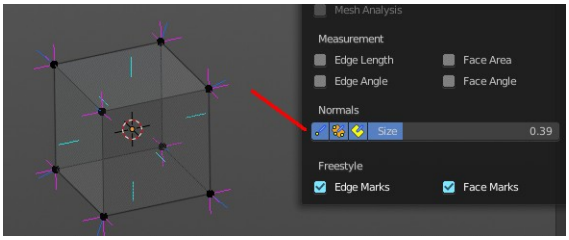
Smart delete is an add-on. And can be deactivated if desired.

Normals



This menu contains functionality about dealing with normals. Normals influences the shading and the direction of a face. They can point inwards or outwards. And edges can be split. So that two adjacent faces have a sharp edge.

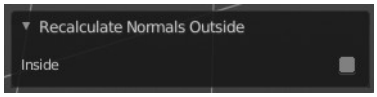
You can activate the display of normals in the Overlays panel in Edit mode.



Recalculate Outside

Recalculates the normals of the selected geometry so that everything points outwards.

Last Operator Recalc Outside



Inside

Inside recalculates the normals of the selected geometry so that everything points inwards.

Recalculate Inside

Recalculates the normals of the selected geometry so that everything points inwards.

Flip

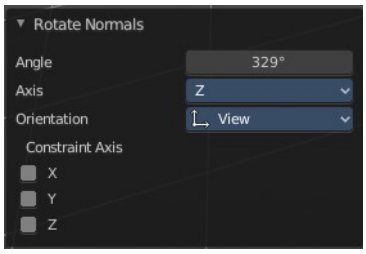
Flips the direction of the normals of the selected geometry.

Set from Faces

Sets the vertex normals from the selected faces. This tool requires to have Auto smooth activated!

Rotate

Rotate the normals of the selected vertices manually.



Last Operator Rotate Normals

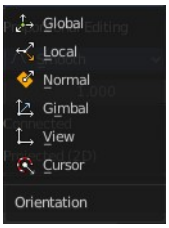
Angle

The angle of the selected normal(s).

Axis

The axis to rotate around.

Orientation



Choose the type of orientation, in which coordinate system the action should happen.

Constraint Axis

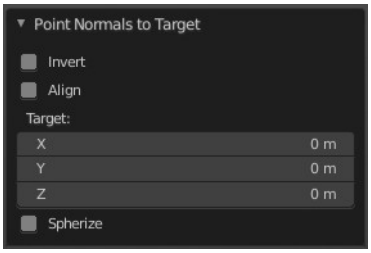
Constraint specific axis.

Point Normals to Target

All vertex normals will point to a specific target. This target can be chosen from hotkeys. They show in the header.

Pressing R for Reset will reset the normals to where they were before the operation.

Last Operator Point Normals to Target



Invert

The normal directions are reversed from what is specified.

Align

All normals will point in the same direction.

Target

The target position.

Spherize

Each normal will be interpolated between its original value and the direction to the target.

Merge

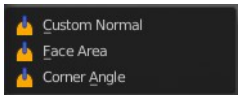
Merge all of the normals at selected vertices, making one average normal for all of the faces.

Split

Split the normals at all selected vertices so that there are separate normals for each face, pointing in the same direction as those faces.

Average

Average all of the normals in each fan of faces between sharp edges at a vertex.



Custom Normal

Take the average of vertices normals.

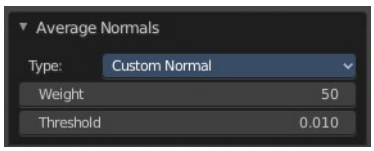
Face Area

Set all vertices normals by face area.

Corner Angle

Set all vertices by corner angle.

Last Operator Average Normals



Type

Choose the average type again.

Weigh

Just for custom normals method. Weight applied by face.

Threshold

Just for custom normals method. Threshold value for different weights to be considered as equal.

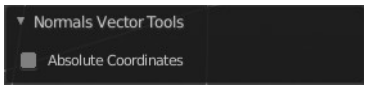
Copy Vectors

Copies the normals of a single selected vertice.

Paste Vectors

Pastes the normals from a formerly copied selected vertice to the currently selected vertice.

Last Operator Normals Vector Tools



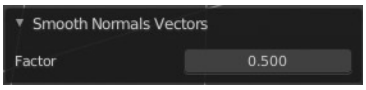
Absolute Coordinates

When you paste normals then they get pasted relative to the current orientation of the selected vertice. With absolute coordinates the normals gets pasted in world coordinates.

Smoothen Vectors

Smooth custom normals towards the adjacent vertex normals.

Last Operator Smooth Normals Vectors



Factor

Adjust how strong the smoothen should be.

Reset Vectors

Resets the normal of the selected element(s).

Select by Face Strength

Face strength gets used by the Weighted Normals modifier. See Face Influence checkbox.

Select faces with either weak or medium or strong face strength.

Set Face Strength

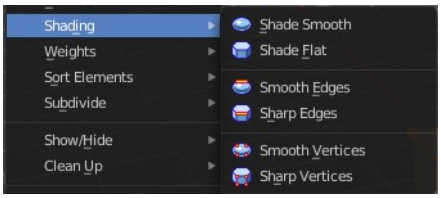
Face strength gets used by the Weighted Normals modifier. See Face Influence checkbox.

Set selected faces to either a weak, a medium or a strong face strength.

Shading

Sets the shading of the selected elements to either smooth or flat.

Shading is under the hood a normals operation.



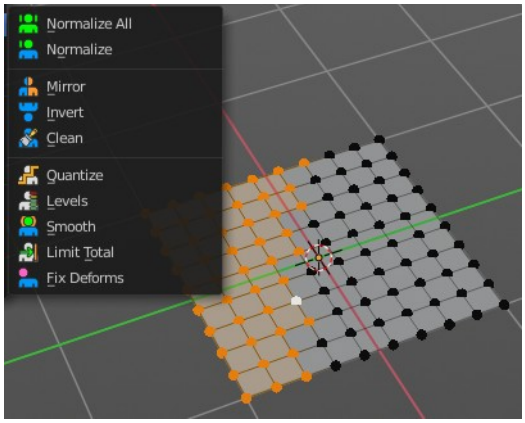
Weights

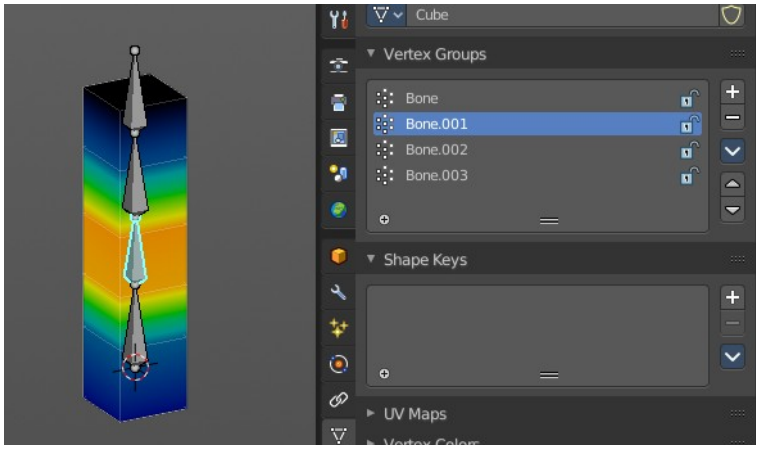
The Weights menu contains Weight tools. Those tools are meant to modify the weight mapping. At characters for example. The Weight Tools requires Vertex Groups to work with. Such Vertex groups gets created when you do weight painting at a character for example. Here is defined what bone is connected to what vertice.

In Edit Mode the weight mapping doesn't show. Here you work with the Vertex Groups.

In Weight paint mode the weight painting shows with colors. Here you usually paint the weighting.

This menu items also exists in Weight Paint mode.

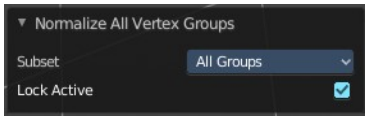




Normalize All

While weight painting it can happen that a vertice gets several weightings assigned. Normalize all normalizes the weight of all Vertex groups so that the values for the single vertices in the sum is 1.

Last Operator Normalize all



Subset

Subset is a drop-down menu choose the Subset method.

Lock Active

Keep the values of the active group while normalizing others.

Normalize

Normalize normalizes the weight of the current selected Vertex group so that the values for the single vertices in the sum is 1. Means when there is influence from other groups, then those values are kept, but the one for the current group gets lowered so that the sum is 1.

The Last Operator Normalize panel has no adjustable settings.

Mirror

Mirror Vertex Group mirrors Vertex Groups and flips weights and/or names. It only edits selected Vertices. It flips when both sides are selected. Otherwise it copies from Unselected.

Last Operator Mirror Vertex Group

Mirror Weights

With Mirror Weights ticked it mirrors the weights.

Flip Group Names

With Flip Group Names ticked it flips the Group names.

All Groups
Mirrors all Vertex Groups

Topology Mirror
Uses topology based mirroring. This requires matching mirrored topology.

Invert
Invert inverts the weight painting for the selected vertex group.

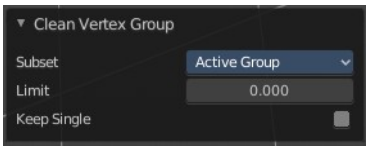
Last Operator Invert Vertex Group

Subset
Subset is a drop-down menu choose the Subset method.

Add Weights
Add Vertices from Groups that have zero Weighting before inverting.

Remove Weights
Remove Vertices from Groups that have zero weight after inverting.

Clean
Removes Vertex group assignments that are not required from the active vertex group.



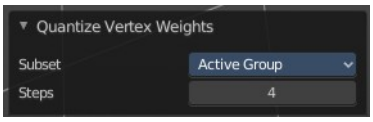
Last Operator Clean Vertex Group

Subset
Subset is a drop-down menu choose the Subset method.

Limit
Remove weights that are below or equal to the limit value.

Keep Single
Keep Vertices assigned to at least one vertex group when cleaning.

Quantize
Quantize quantizes the weight paint values. It starts with 4 steps. With a step of 1 you have a single vertex color, no matter how you have painted it before.



Last Operator Quantize

Subset
Subset is a drop-down menu choose the Subset method.

Steps
Here you adjust in how many steps the weight paint colors should be divided.

Levels

Adds some offset to the Weight paint, and multiplys it with some gain.

Last Operator Vertex Group Levels

Subset

Subset is a drop-down menu choose the Subset method.

Offset

Here you adjust the offset.

Gain

Here you adjust the gain.

Smooth

Smooths the weight for selected vertices.

Last Operator Smooth Vertex Weights

Subset

Subset is a drop-down menu choose the Subset method.

Factor

Here you adjust the factor.

Iterations

Here you adjust how many iterations you use.

Expand/Contract

Expand or contract the weights.

Limit Total

Limit number of Weights per vertex. The lowest weights gets removed.

This is of interest when you have for example five bones associated with a vertice. But your game engine just allows four ...

Last Operator Limit Number of Weights per Vertex

Subset

Subset is a drop-down menu choose the Subset method.

Limit

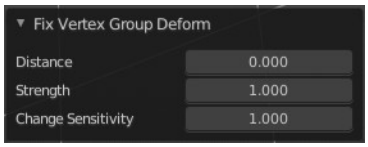
Here you adjust how many weights are allowed.

Fix Deforms

Modify the position of selected vertices by changing only their respective group weights.

This tool may operate slow at too many vertices.

Last Operator Fix Deforms



Distance
Adjust the distance.

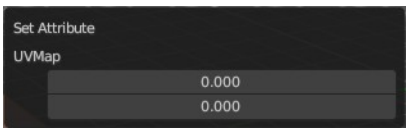
Strength
Adjust the strength.

Change Sensitivity
Adjust the sensitivity.

Set Attribute

Set values of the active attribute for the selected element.

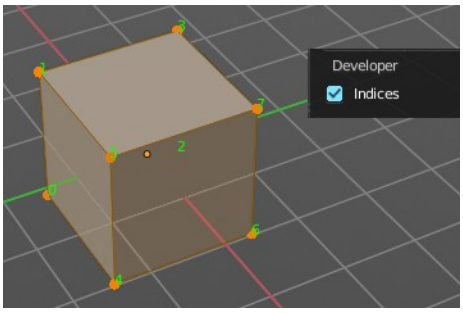
The operator calls a popup where you can for now adjust UV mapping values.



Sort Elements

Sort Elements is a menu with different sorting methods. It allows you to reorder the mesh indices of the selected mesh elements by various methods.

The indices can be turned on in the Overlays menu in the Developer section.



View Z Axis

Sorts along the active view's Z axis, from farthest to nearest. You can use Reverse if you want it the other way.

View Y Axis

Sorts along the active view's Y axis, from farthest to nearest. You can use Reverse if you want it the other way.

Cursor Distance

Sorts from nearest to farthest away from the 3D cursor position.

Material

Faces only! Sorts faces by their lowest material index up to highest material index. Order of faces inside each of those material groups remains unchanged.

Note that the Reverse option only reverses the order of the materials. And the order of the faces inside them.

Selected

Moves all selected elements to the beginning without affecting their relative orders. Attention, this option will also affect unselected element indices!

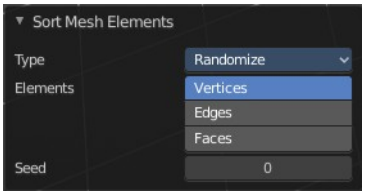
Randomize

Randomizes the indices of selected elements. This option does not affect the unselected elements.

Reverse

Reverses the order of the selected elements.

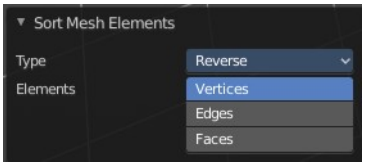
Last Operator Sort Mesh Elements



Sort Elements always brings up the same last operator. But with a small difference for Randomize and Reverse. Reverse has no checkbox. And Randomize has a Seed checkbox.

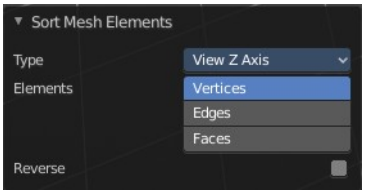
Type

This is a drop-down box choose the sort method again.



Vertices, Edges or Faces

Adjust if the sort will affect the vertices, edges or faces.



Reverse Checkbox

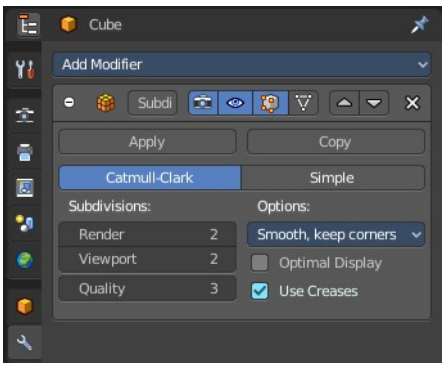
Reverses the sorting.

Seed Edit box (Randomize only)

The seed option allows you to get another randomization – the same seed over the same mesh/set of selected elements will always give the same result!

Subdivide

Subdivide is a menu where you can quickly add and change a subdivision surface modifier with a predefined resolution in a quick way. Especially when you use the hotkey for it. The subdivision surface modifier panel can then as usual be found in the Properties editor in the Modifier tab.



Last Operator Subdivision Set

Level

Set the level of subdivisions

Relative

Applies the sub surf level as an offset to the already existing sub surf level.

Show / Hide

The Show/Hide menu is available for all object types and in all modes. It is usually in the object related menu to find. In Object mode it's the Object menu, for a curve object in edit mode it is the Curve menu. It always contains three menu items. Show Hidden, Hide Selected and Hide Unselected.

Show Hidden

Makes all hidden elements in the scene visible again.

Hide Selected

Hides the selected elements.

Hide Unselected

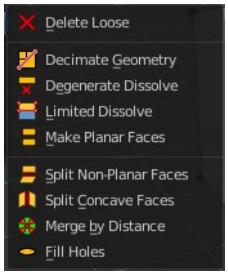
Hides the not selected elements. The selected elements stays visible.

Last Operator Reveal Hidden / Hide Selected

Select

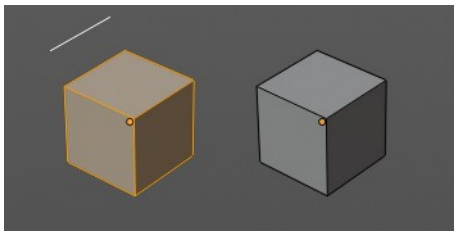
Define if the selected or the unselected elements gets hidden or revealed.

Cleanup



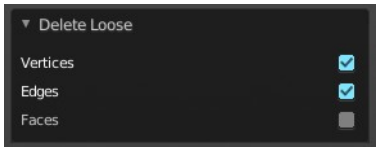
In the Cleanup menu you will find tools to clean up the current geometry.

Delete Loose



Delete loose deletes not connected geometry. Vertices, Edges, and Faces. The tool starts with deleting Vertices and Edges. But you can tick Faces in the Last Operator too, and then it also removes not connected Faces.

Last Operator Delete Loose



Vertices

Delete Vertices.

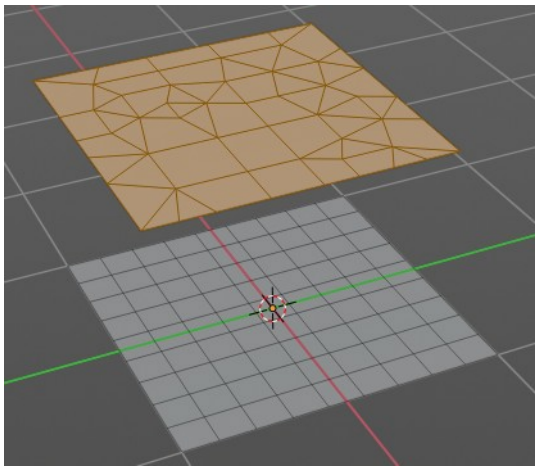
Edges

Delete Edges.

Faces

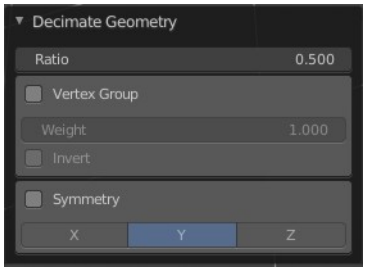
Delete Faces.

Decimate Geometry



Decimate Geometry decimates the currently selected geometry. It starts with a Ratio of 1. Which means no decimation. The lower the ratio the more decimation you will get. The Decimate Modifier works with Tris!

Last Operator Decimate Geometry



Ratio

Adjust the strength of decimation.

Vertex Group

Use active Vertex Group as an influence. You need to have a Vertex Group.

Weight

Adjust the Vertex Group Strength.

Invert

Invert Vertex Group Influence.

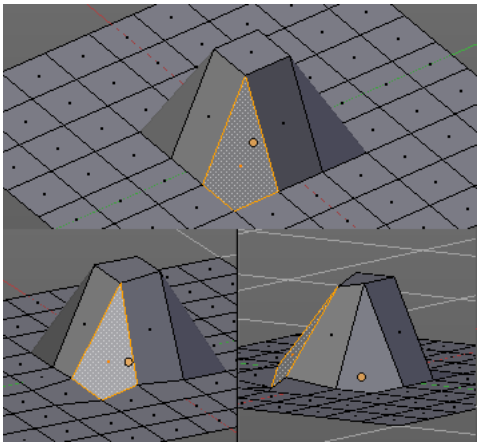
Symmetry

Make the decimation geometry symmetric along a chosen world axis.

Degenerate Dissolve

Removes zero size Faces and Edges.

Make Planar Faces



Make Planar Faces tries to make the selected faces planar. Quads or N-Gons for example can have vertices that are not planar.

Last Operator Make Planar Faces

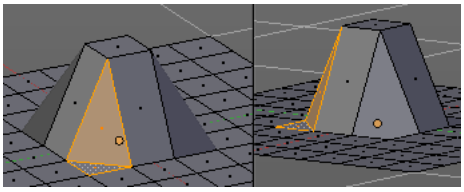
Factor

Here you adjust how strong the influence should be.

Iterations

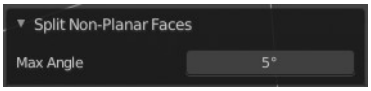
Here you adjust how often it should repeat in the try to find a solution.

Split Non-Planar Faces



Split Non Planar Faces splits up non planar Quads and N-Gons to end in planar faces.

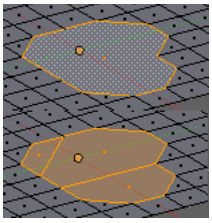
Last Operator Split Non-Planar Faces



Max Angle

Limit the action to a maximum angle.

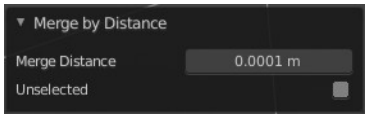
Split Concave Faces



Splits concave faces to make the geometry more stable. This tool is thought for N-Gons.

Merge by Distance

Merges vertices that are very close to each other. The merge happens at the center. When you need more control then you should use the Merge Vertices tool.



Last Operator *Merge by Distance*

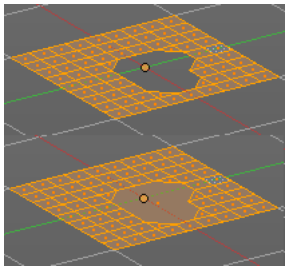
Merge Distance

Adjust the distance in which the vertices gets merged.

Unselected

Merge selected vertices also with other unselected vertices.

Fill Holes



Fill holes closes holes in the mesh geometry.

Fill holes can just calculate one face size at one time. So when you have several holes in the mesh, let's say one is a tri, and one is a quad, then you need to calculate twice.

Last Operator Fill Holes

Sides

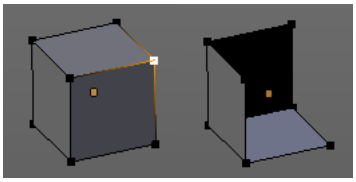
Define what face size will be filled.

Delete

The smart delete add-on. usually does the delete job already fine. It deletes the selected element(s).

There are sometimes some situations where you need more control over what you want to delete. The tools for this can be found in the Delete menu.

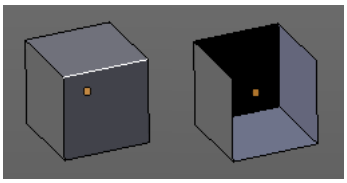
Vertices



Deletes the selected vertices, and all with it connected edges and faces.

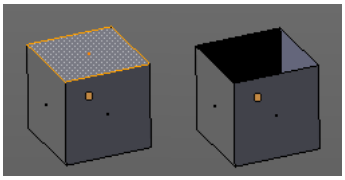
Edges

Deletes the selected edges and the connected faces.



Faces

This one works similar to the smart delete. It deletes the selected faces.



Only Edges and Faces

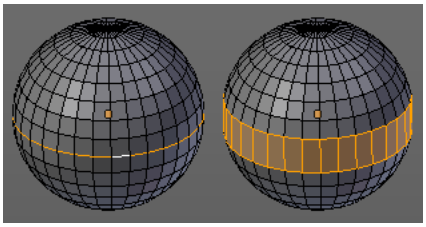
This mode is of interest when you have more than one selection mode activated. It deletes then just the selected edges and faces. And not single vertices.

Only Faces

This mode is of interest when you have more than one selection mode activated. Just selected faces gets deleted. Not single edges or vertices.

Edge Loops

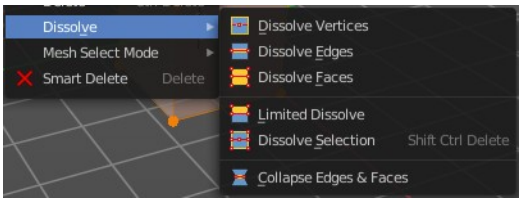
This method works similar to the smart delete tool. It deletes the edge loop. But it selects the faces of the edge ring. And the Last operator offers you the option to split off face corners.



Last Operator Delete Edge Loop

Face Split
Split off face corners to maintain surrounding geometry.

Dissolve



Dissolve operations removes for examples selected vertices, edges and faces. But they are not delete operations. They are union tools.

When you for example choose Delete vertices from the mesh menu, then the involved faces can get deleted too. When you choose Dissolve vertices, then the vertices gets removed, and the faces stays intact. The edges gets unioned.

Dissolve is a union operation.

Dissolve Vertices

Dissolve Vertices dissolves the selected Vertices.

Note that pressing DEL in Vertice select mode calls Dissolve Vertices already. It's the same operator. But you

don't get the Last operator that way.

Last Operator Dissolve Vertices

Face Split

Split off Face corners to maintain surrounding geometry

Tear Boundary

Split off Face corners instead of merging faces.

Dissolve Edges

Dissolve Edges dissolves the selected Edges.

Note that pressing DEL in Edge select mode calls Dissolve Edges already. It's the same operator. But you don't get the Last operator that way.

Last Operator Dissolve Edges

Dissolve Verts

When the dissolve operation leaves vertices behind, then this vertices will be dissolved too.

Face Split

Split off Face corners to maintain surrounding geometry.

Dissolve Faces

Dissolve Faces removes the inlaying edges of the selected faces. This faces becomes one big N-Gon.

Last Operator Dissolve Faces

Dissolve Verts

When the dissolve operation leaves vertices behind, then this vertices will be dissolved too.

Dissolve Selection

Dissolves the selected geometry.

Last Operator Dissolve Selection

Dissolve Verts

When the dissolve operation leaves vertices behind, then this vertices will be

dissolved too.

Face Split

Split off Face corners to maintain surrounding geometry.

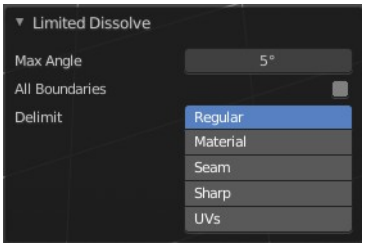
Tear Boundary

Split off face corners instead of merging faces.

Limited Dissolve

Limited Dissolve dissolves the selected Edges and Vertices, limited by the surrounding geometry.

Last Operator Limited Dissolve



Max Angle

The limiting angle.

All Boundaries

All Boundaries dissolves in-between face boundaries.

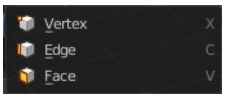
Delimit

You can also delimit by other methods than normals.

Edge Collapse

Edge Collapse collapses the selected edges to a vertice at the center of the selection.

Mesh Select Mode



Mesh Select mode is a sub menu Set the current mesh select mode. Its functionality is equal to the mesh select mode buttons in the header. Just that you can't select more than one mode directly here.

This menu just exists to show and to edit the hotkeys. Not to work with it.