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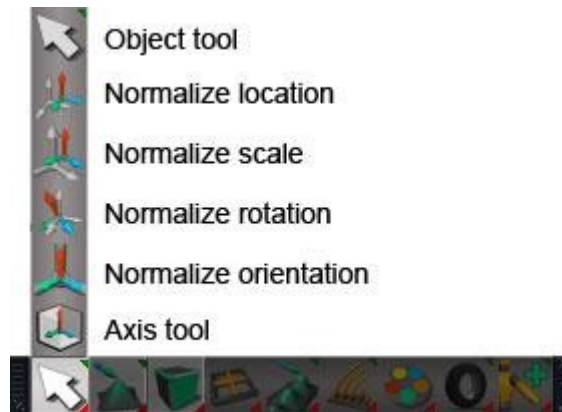
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Chapter 3 MODELING - Workspace

3.1 Object Tools



The object tools allow for basic manipulation of the object itself. The tools to do this are found under the first fly out on the main modeling toolbar, as seen in the image on the left.

Below you will find a description of each individual tool on this fly out.

3.1.1 Object



The Object tool is used to select an object. Once an object has been selected, the remaining object tools can be used. Choose the Object tool and left click on an object in the Workspace to select it. **All selected objects will be deselected when running this tool.**

3.1.6 Axis Tool



The Axis Tool will display the axis for the currently selected object. As shown in the illustration below, the Axis Controller will then be shown at the location of the axis for the object. RMB toggles showing the axis in front and in back of the object.

3.2.0 Mesh Editor Settings

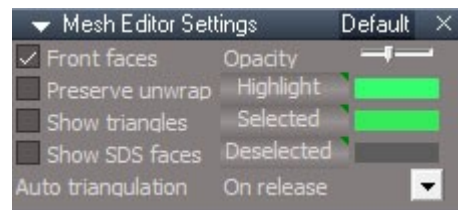
There are many options and settings that will control how Point Edit works, adjusting everything from the colors used in making a selection, to how certain tools work. This section details those options before we get into looking at the tools themselves. Where the options apply to a particular tool, you will find them repeated under that tool's description.

The Default aspect

This aspect is shown on activating Point Edit mode.



The Default aspect of the Mesh Editor Settings panel.



Unofficial Update Default aspect

Highlighted, Selected, Deselected – RMB reset buttons.

The Soft aspect

This aspect must be selected manually. This section is repeated under the Soft Selection tool write up.



The Soft aspect of the Mesh Editor Settings panel.

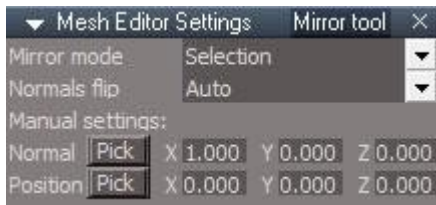


Unofficial Update Soft aspect.

Soft Selection Gradient – RMB reset gradient colors

The Mirror Tool aspect

This aspect can be selected manually, or opened with a right click on the Mirror Tool. This section is repeated under the Mirror Tool write up. Note that these settings apply solely to the Mirror Tool, and not the Mirror Modeler.



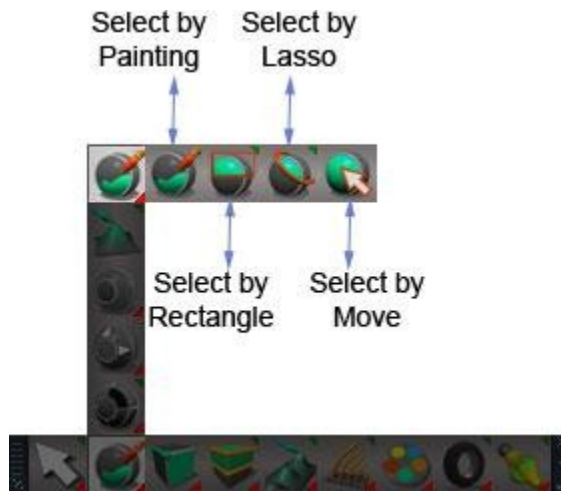
The Mirror Tool aspect of the Mesh Editor Settings panel.



Unofficial Update Mirror Tool aspect.

- **X Manual** – Sets mode to Manual, sets Normal to 1,0,0, sets Position to 0,0,0
- **Y Manual** – Sets mode to Manual, sets Normal to 0,1,0, sets Position to 0,0,0
- **Z Manual** – Sets mode to Manual, sets Normal to 0,0,1, sets Position to 0,0,0
- **Mirror** – run the mirror on the selection
- **Copy and Mirror** – copy the selection and then mirror

The following tools can be used to make your Point Edit selection:



The basic selection tools for Point Editing.

3.2.1 Select By Painting



This selection tool allows you to pick (but not instantly move) one or several of the selected elements. Holding the left mouse button will let you paint over the surface to select all the elements you move across.
RMB sets to context mode and front faces.

3.2.2 Select By Rectangle



This tool allows you to draw a rectangle around elements to select them. Any elements within the rectangle become selected.

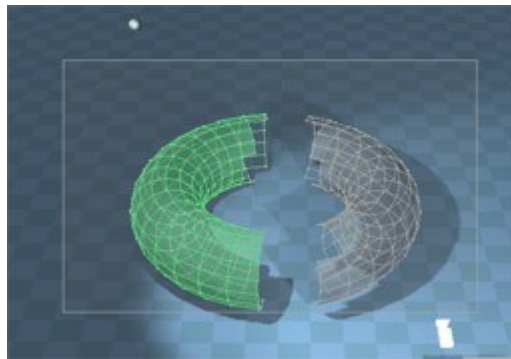
Connected – RMB panel, This checkbox determines if the selection is allowed to select other object's elements or not.

3.2.3 Select By Lasso

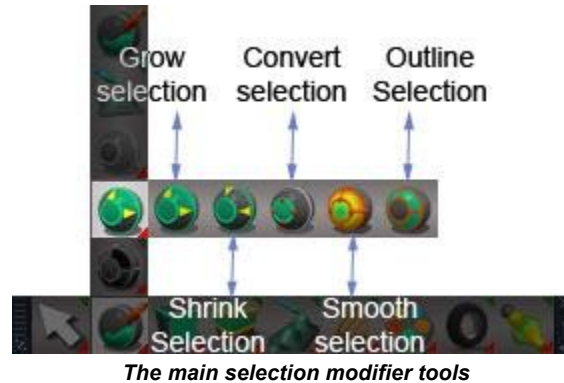


Select By Lasso allows you to left-click-drag your mouse pointer around elements, creating a lasso. Any elements within the lasso become selected.

Connected – RMB panel, This checkbox determines if the selection is allowed to select other object's elements or not.



Connected active only 1 part can be selected at a time.



3.2.11 Grow Selection



The Grow Selection tool first converts the current selection to vertices, and then expands its selection to include surrounding neighbor vertices and finally converts the selection to use the current point edit selection mode.

3.2.12 Shrink Selection



The Shrink Selection tool first converts the current selection to vertices, and then shrinks that selection by removing the outer vertices and finally converts the selection to use the current point edit selection mode.

Select Plane Loop



Select a single edge or 2 neighboring vertices to build a loop type selection. [Todo make this a link to the UU additions](#)

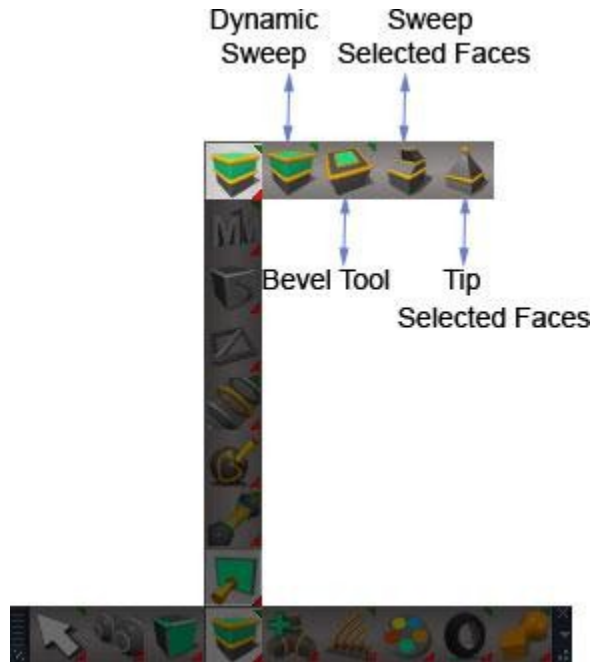
Fix Bad Geometry



Tool for making various selections plus a couple of fixing tools.
[Todo make this a link to the UU additions section and change icon image.](#)

3.4 Sweep, Draw, Topology Tools

The Point Edit tools allow you to perform tasks on your mesh to change the geometry. These tools are used in conjunction with the Select and Context Point Edit tools to provide you with essential mesh-editing tools. The Point Edit Operations tools are as follows:



The sweep, bevel and tip tools, are explained below.



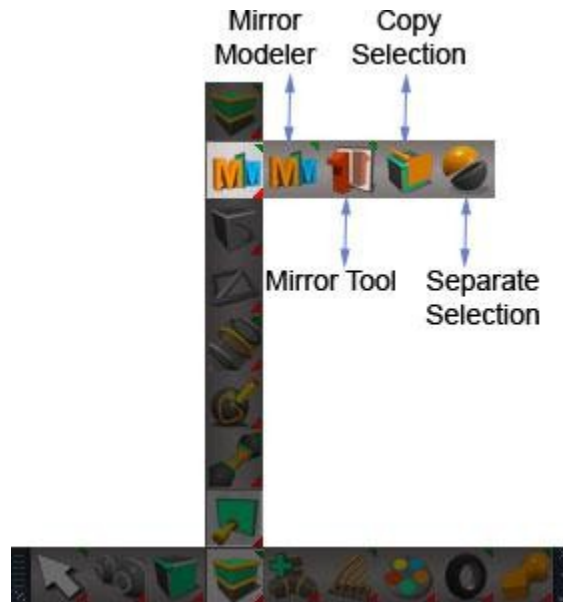
TODO link to lathe



TODO link to static sweep



Link to true bevel



3.4.5 Mirror Modeler

3.4.6 Mirror Tool

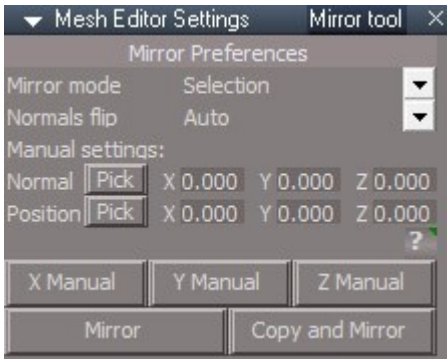


The Mirror Tool allows you to make a selection of elements on an object and Mirror that selection. If no selection of elements is made, the entire object is mirrored across the x-axis.

The Mirror Tool has some options associated with it. These can be selected manually in the Mirror Tool aspect of the Mesh Editor Settings option panel in the stack, or opened with a right click on the Mirror Tool.



The Mirror Tool aspect of the Mesh Editor Settings panel.



Unofficial Update Mirror Tool aspect.

TODO link to page.

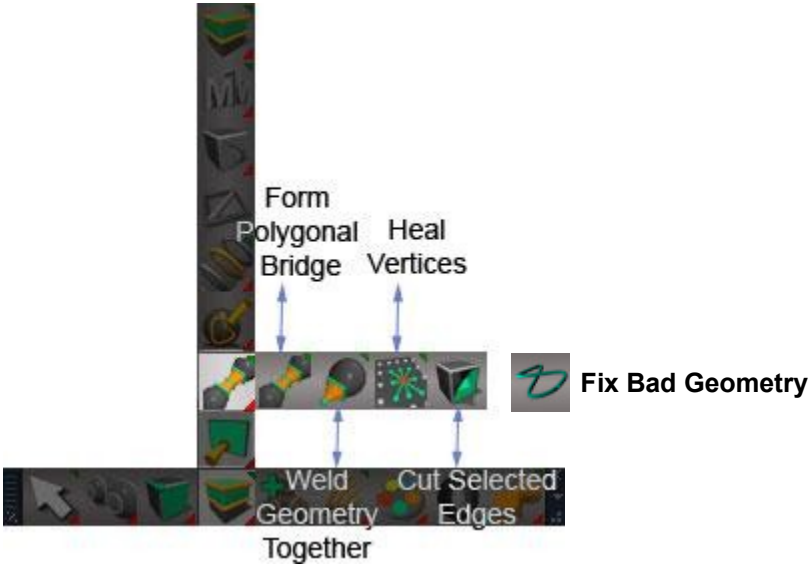
3.4.21 Add Polygons

Missing from original manual



- * You add vertices connected by edges, by clicking on the mesh faces.
- * To modify vertex position during polygon draw, drag existing vertex.
- * To add new vertex on the edge, click on it.
 - o When hovering above edge, Polydraw tool shows highlight of vertex that will be added.
 - o To remove the vertex, move the vertex you want to delete to another vertex.

TODO replace icon



Fix Bad Geometry

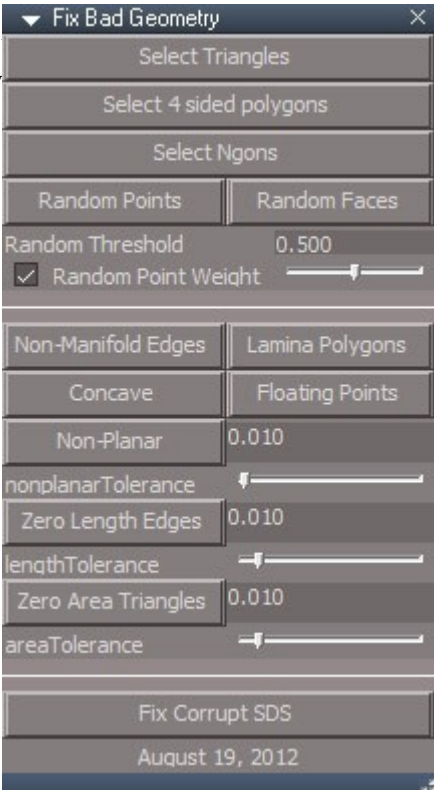


The Form Polygon Bridge tool allows you to create geometry between also be used to attach various mesh parts together. This tool will also w
TODO write this up.

Target Weld



TODO make link.



3.6 Subdivision Surfaces



The trueSpace Subdivision Surfaces (SDS) tools allow you to take a basic mesh that can seem quite boxy and give a model that is much more smooth and organic. You can apply SDS evenly across an entire object, or you can apply it selectively and in different levels to specific selections of faces, edges and vertices.

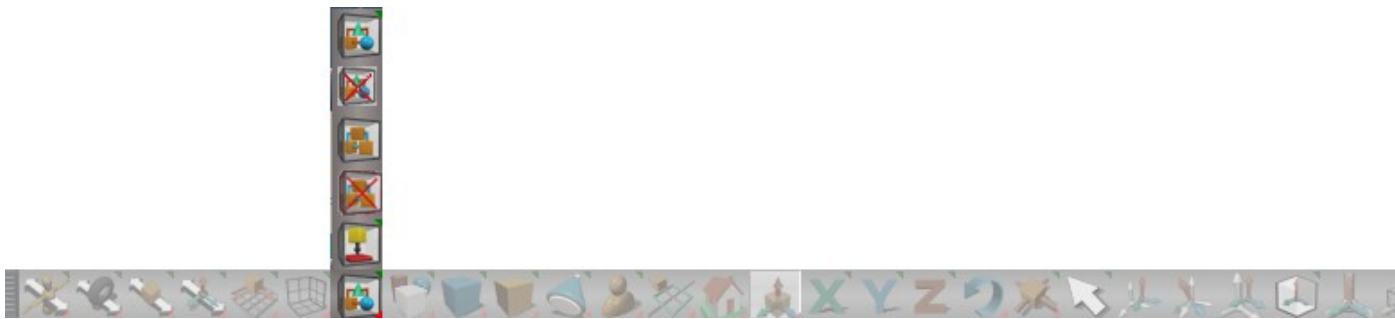


[Add link](#)

3.11 Flatten History



The location of the Flatten History tool



Unofficial Update location of the Flatten History tool

The Flatten History tool is used to remove any construction history and procedural modeling, giving a final polygonal mesh. Note that Undo History remains in place even after using this tool, however it will affect procedural modeling techniques such as those described in the last chapter.

3.12 Snapping and Distance Tools



The location of the snapping tools



Snapping toolbar



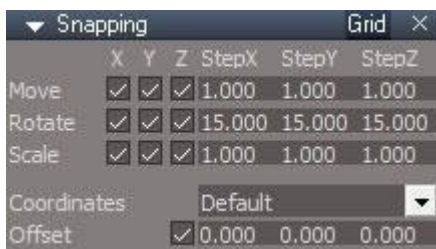
Unofficial Update location of the snapping tools

3.12.1 Grid Snapping

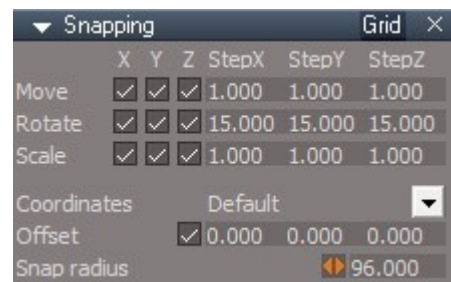


Grid Snapping lets you control whether edits to an object's position, rotation or size happen smoothly, or whether they snap to preset values and amounts.

By default, movement will allow smooth movement through space, but will snap to a value when that value is approached. Rotation and Scale however will not allow smooth movement between snap values, and instead will simply jump from one snap value to another when the mouse is moved far enough.



The Grid Snapping options panel.



Unofficial Update Grid Snapping options panel.

- Snap radius – . TODO writeup

3.12.2 Other Snapping Options

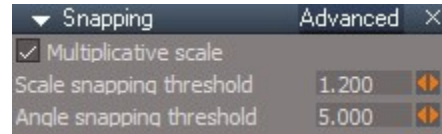
The Snapping panel has other aspects that let you control other options for snapping. These are listed below (except Dimensions, which is listed under the Distance Feedback Display section).

Advanced Aspect

This aspect lets you control snapping with the Scale tool.



The Advanced aspect of the Snapping options panel.



Unofficial Update Advanced aspect of the Snapping options panel.

- **Multiplicative Scaling** – When checked, a scale value of 1 will double the size of the object when scaling up, or halve the size of the object when scaling down. So an object with size 1 will scale in jumps to size 2, 4, 8, etc, or 0.5, 0.25, 0.125, etc. A scale value of 2 will make the object treble in size if scaling up, or become one third the size on scaling down, so an object with size 1 will scale in jumps to size 3, 9, 27, etc, or 0.333, 0.111, 0.037, etc. Similarly a scale value of 3 makes the object jump in steps four times the size, or one quarter the size, and so on.
- **Scale snapping threshold** – ? Todo write up
- **Angle snapping threshold** – ? Todo write up

3.12.4 Point Edit Snapping

Missing from manual

If you snap any vertex to edge or triangle and hold shift, tool will show guide line and movement will get constrained to that edge or plane.

When guideline is showed, you can use Ctrl to specify perpendicular direction constraint. With Ctrl pressed, your movement will be constrained to perpendicular motion to edge or face. (Ctrl + Shift)

o

If you have enabled edge points and you snap to edge, snapping positions will be evaluated also outside that edge.

? Snapping to face and pressing shift will constraint to 2D plane. Not so sure about that ? Seems to constrain to 1D line on the place

Text tool missing from original manual

Primitives missing from original manual

- * Adding a cube. There are 3 modes how to add a cube.
 - o Diagonal – this is Modeler way. LClick to define first corner, drag and rclick do define second corner.
 - o Edges – define cube by defining two edges. First click & drag defines bottom X edge. Second click&drag defines Z edge.
 - o Corners – cube is created after adding 4 points. (you can either click or drag to use xy or z movements).
- * For adding torus, sphere, cylinder, cone there are 2 modes.
 - o Diameter – define diameter for base, by ldrag, rdgar defines height.
 - o Radius - define center + radius for base, by ldrag, rdgar defines height.
- * Adding text has only one mode; ldrag + rdrag defines orientation of text XY plane rotation.
- * Primitive employs extensive snapping.
- * You can specify height directly by snapping to other objects during rdrag. Primitive base can be precisely aligned by constraining movement to 1D and aligning with other objects like in rdrag mode. Constraining can be done either by locking axes or locking to edges / faces.
- * You can specify edge endpoint (diagonal, radius...) in plane mode directly by snapping to other objects by holding ALT key.
- * ALT key can be used to force snapping even if cursor is in nosnap range defined by added primitive and nosnap radius found in tool preferences panel.
- * To finish primitive tool, rclick in player view.
- * To access primitive preferences panel, rclick on appropriate tool button. To access primitive tool preferences panel, rclick on any primitive tool and change preferences panel aspect to default.



Plane loop selection from Clintons toolbar, Point Edit toolbar.



Add new stuff here starting with the snapping toolbar.



Plane loop selection from Clintons toolbar, Point Edit toolbar.