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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 **No longer true?**.

3.1.6 Axis Tool



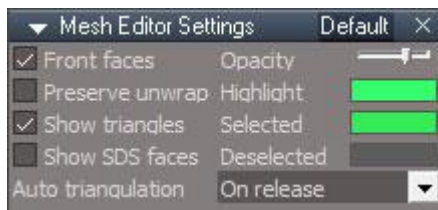
RMB toggles showing the axis in front and in back of the object.

3.2.0 Mesh Editor Settings

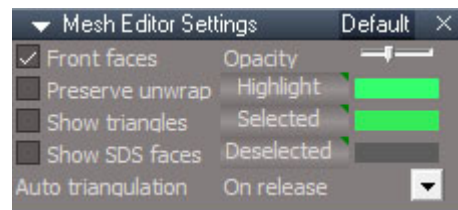
There are many options and settings that will control how Point Edit works, adjusting everything from the colors used in making a selection, to how certain tools work. This section details those options before we get into looking at the tools themselves. Where the options apply to a particular tool,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

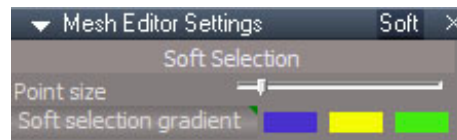
Highlighted, Selected, Deselected – RMB reset buttons.

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.

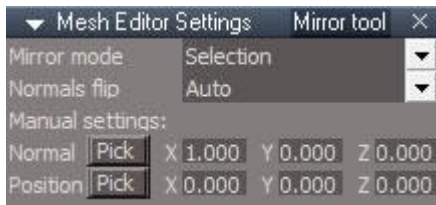


Unofficial Update Soft aspect.

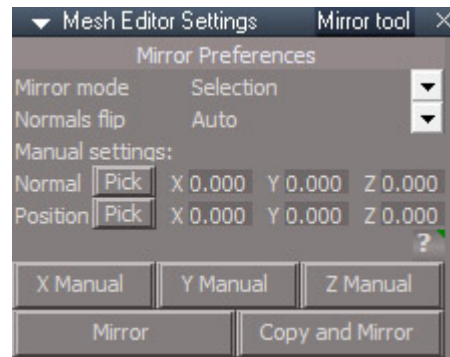
Soft Selection Gradient – RMB reset gradient colors

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.

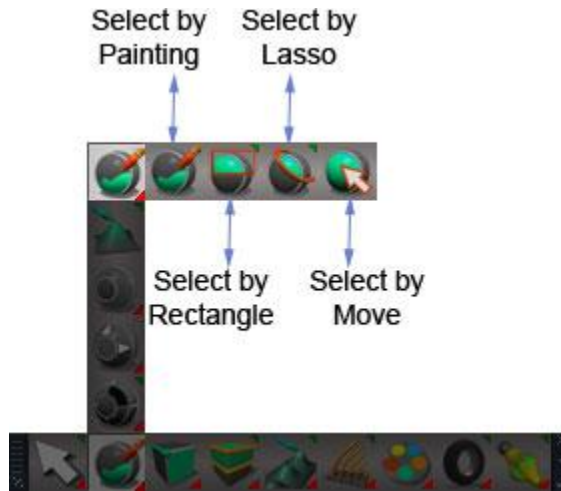


The Mirror Tool aspect of the Mesh Editor Settings panel.



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 basic selection tools for Point Editing.

3.2.1 Select By Painting



RMB sets to context mode and front faces.

3.2.2 Select By Rectangle

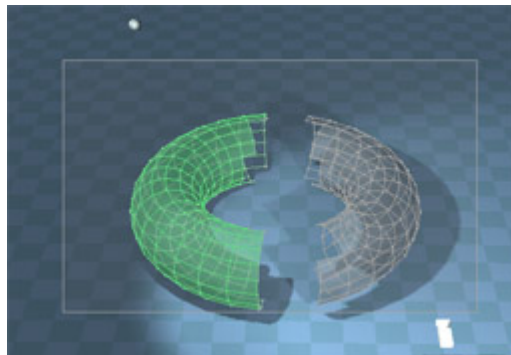


Connected – RMB panel, This checkbox determines if the selection is allowed to select other object's elements or not.

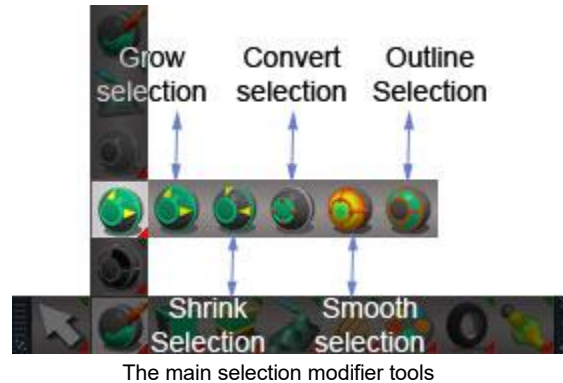
3.2.3 Select By Lasso



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 it 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 section.](#)

3.2.17 Hide Unselected Geometry



This hides the unselected elements, so that the selected elements are the only ones that remain visible, and are the only ones that can be selected and edited. This is useful for focusing work on a particular area of an object, without the distraction of other elements being visible in the scene. The original manual has the wrong button image

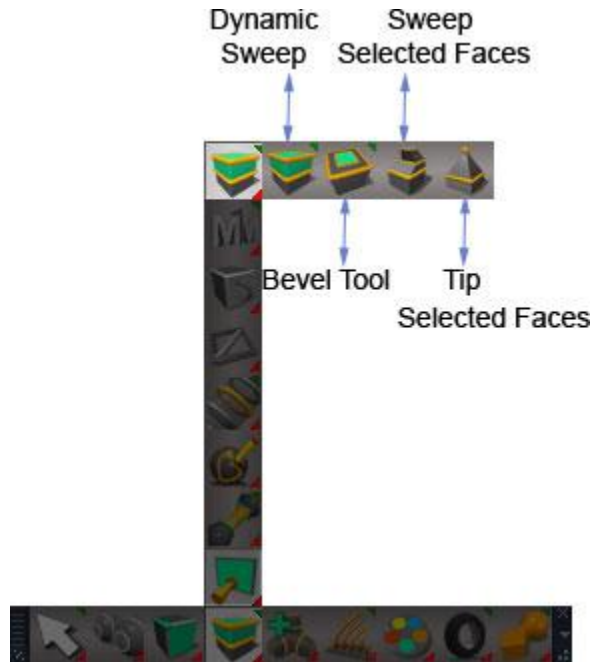
Fix Bad Geometry



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.



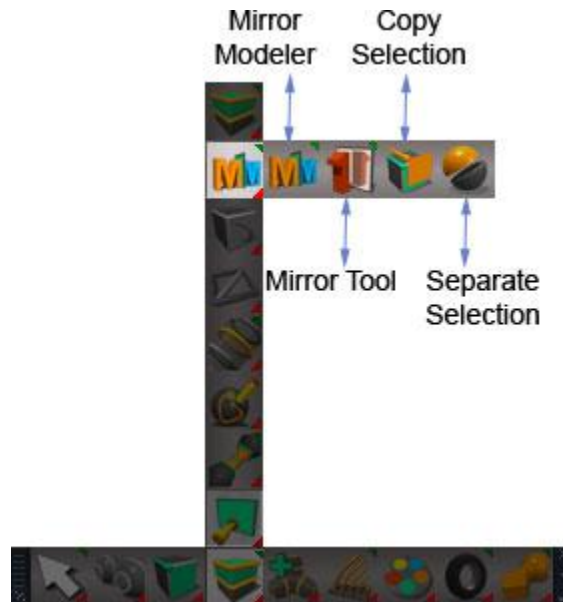
[TODO link to lathe](#)



[TODO link to static sweep](#)



[Link to true bevel](#)



3.4.5 Mirror Modeler

Link to object mirror tool?

3.4.6 Mirror Tool

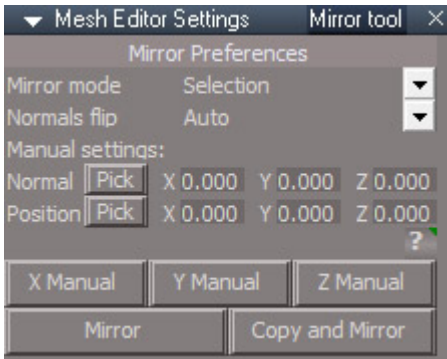


The Mirror Tool allows you to make a selection of elements on an object and Mirror that selection. If no selection of elements is made, the entire object is mirrored across the x-axis.

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



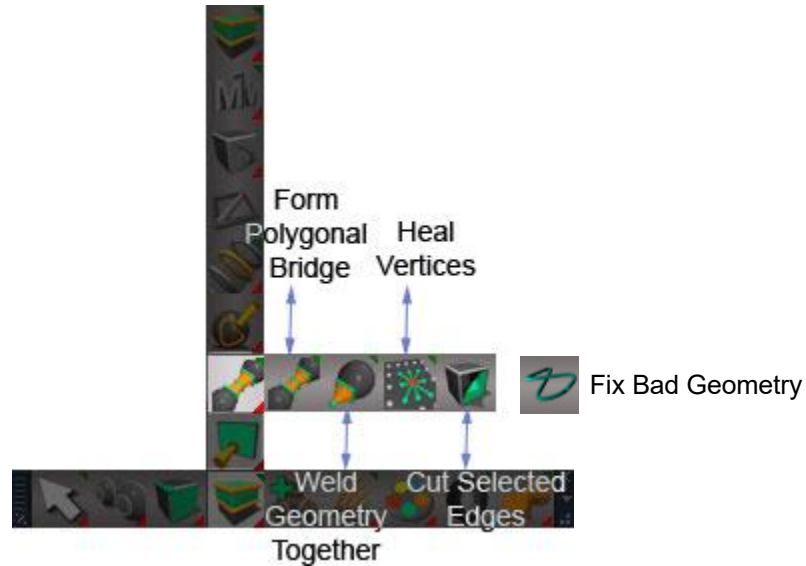
- * You add vertices connected by edges, by clicking on the mesh faces.
- * To modify vertex position during polygon draw, drag existing vertex.
- * To add new vertex on the edge, click on it.
 - o When hovering above edge, Polydraw tool shows highlight of vertex that will be added.
 - o To remove the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

TODO replace icon

Target Weld



TODO make link.



Fix Bad Geometry



fix bad geometry. Creates a selection based on mesh characteristics such as side count and planarity.and the SDS corruption that can occur inside trueSpace.

TODO write this up.

Select Triangles - select 3 sided polygons

Select 4 sided polygons

Select Ngons - select polygons with more than 4 sides

Non-Manifold Edges - select edges that joins more than 2 polygons

Lamina Polygons - select polygons that share all the same vertices

Concave - select concave polygons

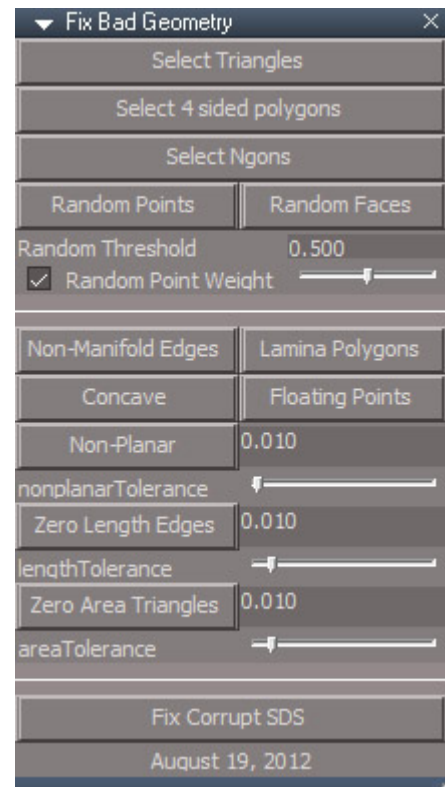
Floating Points - delete points that have no edge connections

Non-Planar - select polygons that are not flat

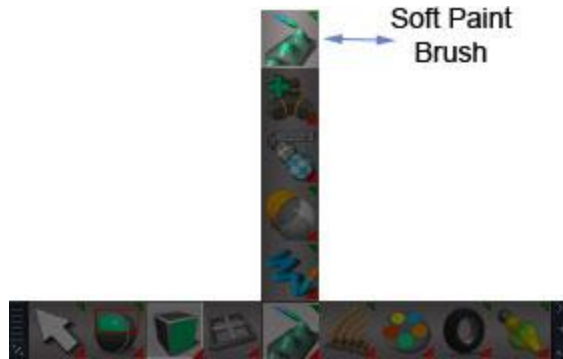
Zero Length Edges - select triangles that have a zero length side

Zero Area Triangles - select triangles that are very small

Fix Corrupt SDS - removes a bad SDS from a mesh so it can be reapplied



3.5 Soft Paint



soft paint has a morph mode to paint one morph into another

3.11 Flatten History



The location of the Flatten History tool

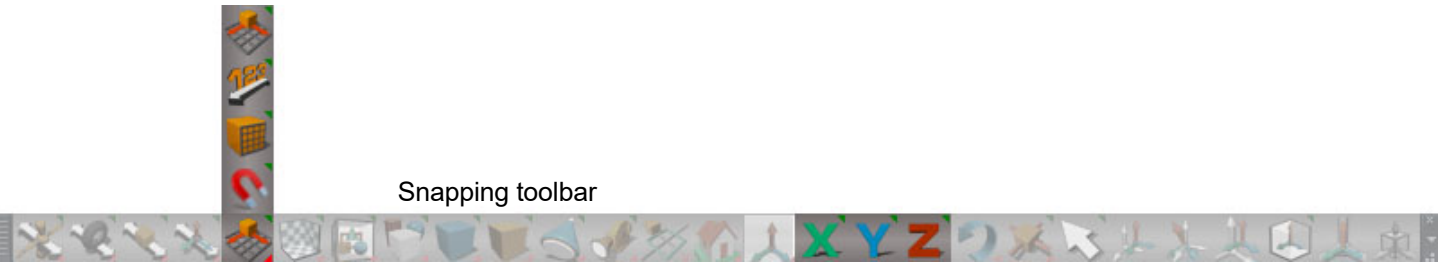


Unofficial Update location of the Flatten History tool

3.12 Snapping and Distance Tools



The location of the snapping tools



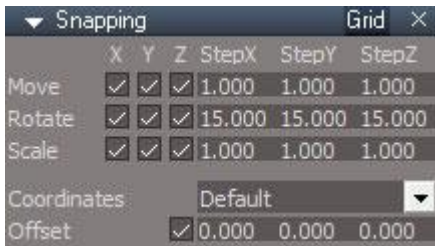
Snapping toolbar

Unofficial Update location of the snapping tools

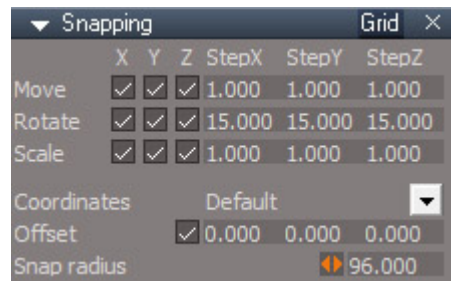
3.12.1 Grid Snapping



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.



The Grid Snapping options panel.

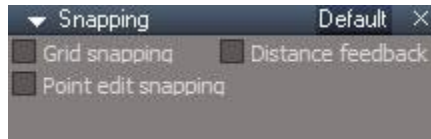


Unofficial Update Grid Snapping options panel.

- 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).



The Default aspect of the Snapping options panel.

- Grid
- Distance Feedback – If checked, Distance Feedback
- PointEdit

Axes Lock Aspect

This lets you lock out movement in certain directions, and control movement in the orthogonal views. Note that these settings affect movement even when Grid Snap is NOT enabled.



The Axes Lock aspect of the Snapping options panel.

- Locked Axes – This locks changes in the X, Y or Z directions, and is the same as activating or deactivating the X, Y and Z locks on the main toolbar. Activating or deactivating these checkboxes will highlight or un-highlight the icon on the main toolbar, and using the icons on the main toolbar will check or un-check these parameters.



RMB open the Snapping Panel

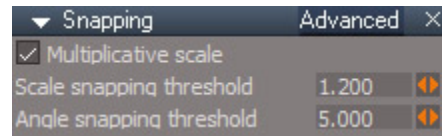
- Screen Space in 2D – This has an effect in the orthogonal views (top, front, side) only. When unchecked, the X and Y constraints apply to the world X and Y, meaning you may not be able to move the object in the X direction on screen from the angle you are looking at even if the constraint for X is not checked. When checked, then the X and Y constraints apply to the on-screen X and Y, irrespective of world X and Y, so that you would be able to move the object in the X direction on screen if it is not locked, even if that is the Y or Z direction in World space.
- Angle – When Screen Space In 2D is checked, this allows you to rotate the axis by an angle so that movement along an axis occurs at that angle.

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.

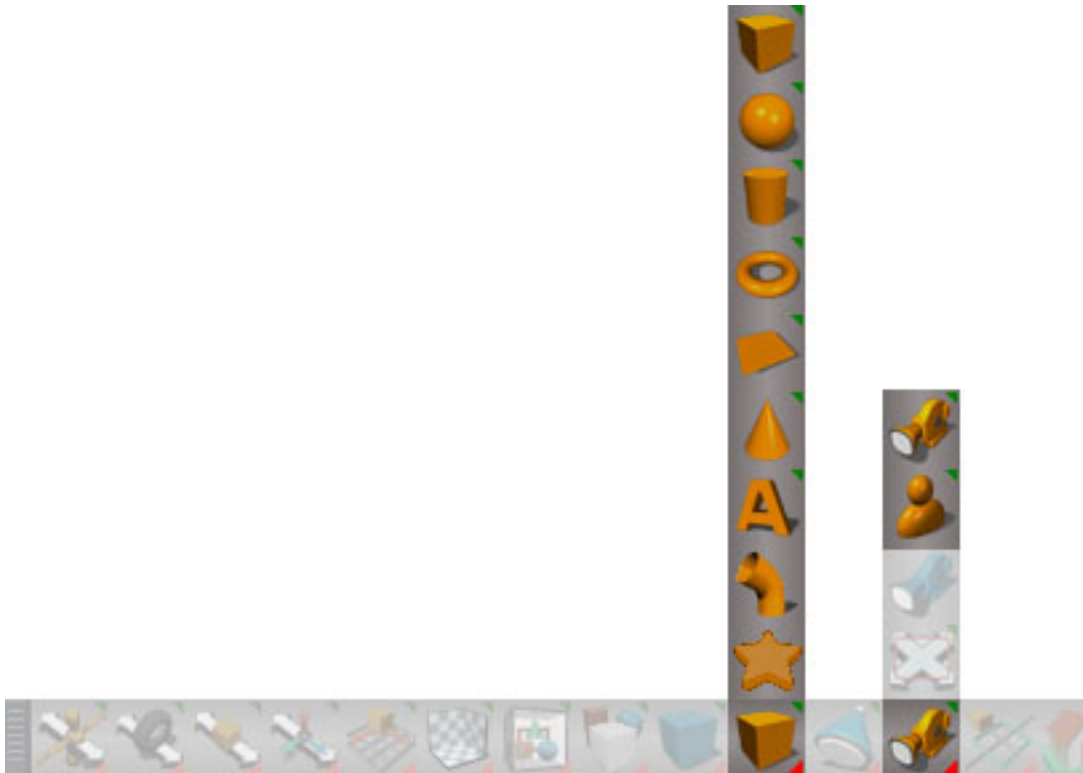
? Snapping to face and pressing shift will constraint to 2D plane. Not so sure about that ? Seems to constrain to 1D line on the place

Text tool missing from original manual

Primitives missing from original manual

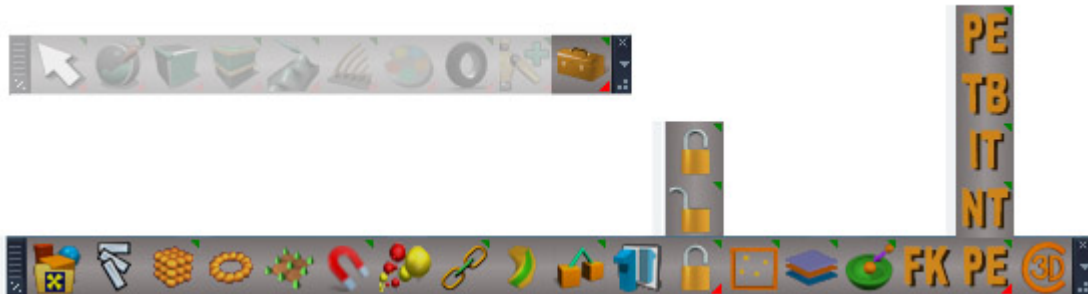
- * Adding a cube. There are 3 modes how to add a cube.
 - o Diagonal – this is Modeler way. LClick to define first corner, drag and rclick to define second corner.
 - o Edges – define cube by defining two edges. First click & drag defines bottom X edge. Second click&drag defines Z edge.
 - o Corners – 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, rdrag defines height.
- o Radius - define center + radius for base, by ldrag, rdrag 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.



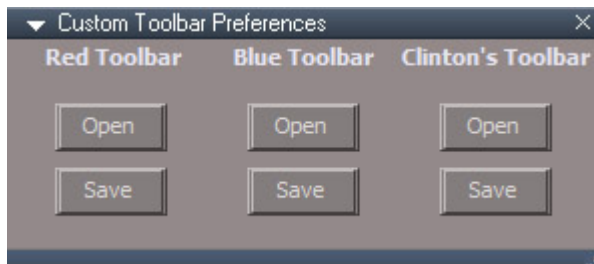




Plane loop selection from Clintons toolbar, Point Edit toolbar.

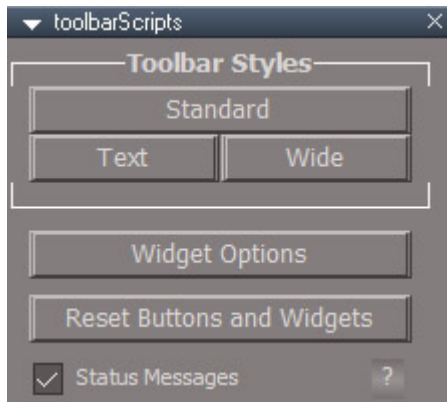


Open Clinton's Toolbar. RMB open custom toolbar preferences.
 TODO writeup Open?, Save?

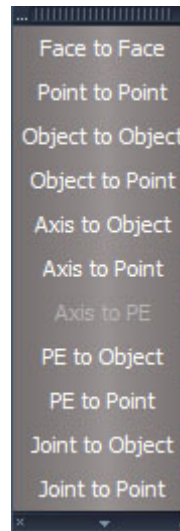




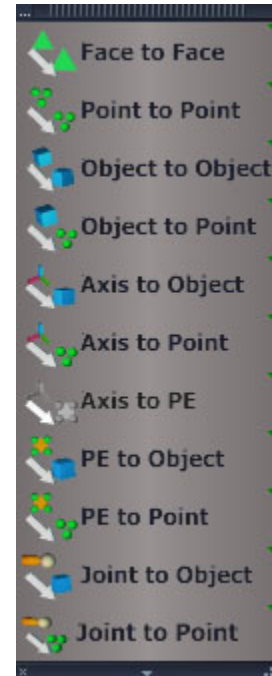
Snapping Toolbar – standard style



Snapping Toolbar Options



Snapping Toolbar – text and wide styles



Open Snapping Toolbar.

Standard - square icon buttons

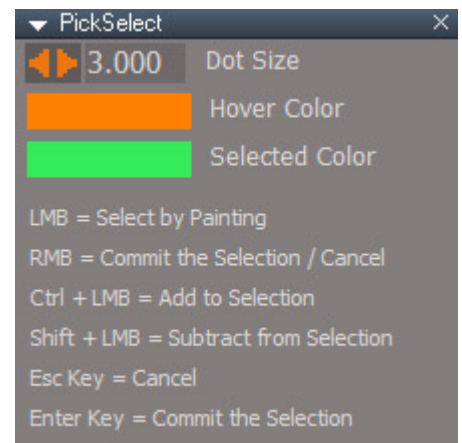
Text - text based buttons

Wide - icon plus text

Widget Options - set hover and selected colors and dot size

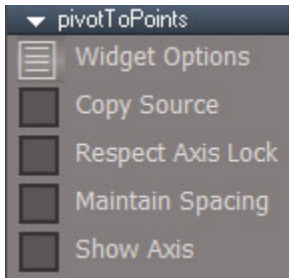
Reset Buttons and Widgets - clean out of sync widgets

Status Messages - **writeup**



Widget Options

The Reset Buttons and Widgets is used as a safety net to clean the user interface. It will deactivate any picking widget, clear the button highlighting, clear mesh highlighting effects and clear the status line.



Snapping Tools Options



Snapping Toolbar – standard style

Widget Options is the same thing as the Pick Widget Options of the toolbar button.

Copy Source makes a copy and snaps it to the target selection and the widget stays active to continue copying to new target selections.

Respect Axis Lock uses the state of axis locking to restrict the movement of the snapped selection.

Maintain Spacing will snap the selected items as a fixed group instead of individually snapping each to the target selection

Show Axis **wakeup**

General Usage:

Select the objects/elements to be snapped

Press one of the snapping buttons

Select the destination objects/elements

RMB to commit the selection and move the original selection to the center of the target selection

The Face to Face and Point to Point snap tools do not use the current selection and start by deselecting everything.

If the Copy Source option is active RMB will snap move then reselect the source and wait for another target selection.



Face to Face Move and rotates one object to another based on triangle face selections.



Point to Point Move one object to another based on point selections.



Object to Object Move an object selection to the center of a target object selection.



Object to Points Move an object selection to a target vertex selection center.



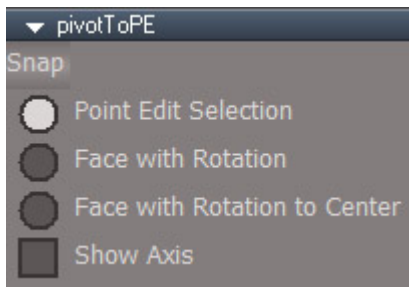
Axis to Object Move the axes of an object selection to the center of a target object selection.



Axis to Points Move the axes of an object selection to a target vertex selection center.



Axis to PE selection Moves the axis of the current point edit object to the center of the point edit selection.



Snap – **writeup**

Point Edit Selection - move the pivot to selection

Face with Rotation - orient the pivot to the face selection then move the pivot to the selection center

Face with Rotation to Center - orient the pivot to the face selection then move the pivot to the geometry center

Show Axis - **writeup**



PE to Object Moves the current point edit selection to the center of a target object selection.



PE to Points Moves the current point edit selection to a target vertex selection center



Joint to Object Move a joint selection to the center of a target object selection



Joint to Points Move a joint selection to a target vertex selection center.



Point Edit toolbar.



Point Edit Toolbar open toolbar, RMB display Clintons toolbar as 2 rows of buttons.



Lathe



Static Sweep



True Bevel



Plane Loop Select



Target Weld



Normal Move



Toggle Object Coordinate Mode **caution – permanent floating toolbar.**



Axis to Selection



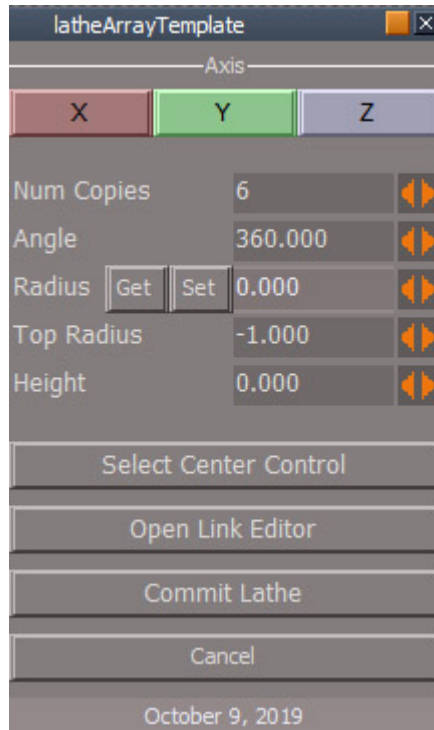
Freeze Transform .



Quad Toolbar .



Quad Menu .



TODO image of working and result



Lathe open toolbar, RMB display Clintons toolbar as 2 rows.

Usage:

Make a polygon selection and push the button to get a preview of the lathe.

Axis buttons(X, Y, Z) set the orientation of the sweep array.

Num Copies determines the number of sweeps

Angle determines the arc angle for the sweeps.

Set radius is a 3 step process

Get - read the current radius value as a starting point
update the Radius value

Set - apply the radius change to the Center Control

Top Radius is used to spiral in or out from the center.

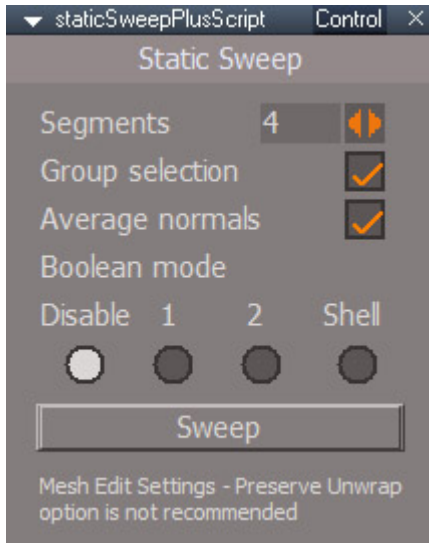
Height controls the offset from the plane of the array for spiral effects

Select Center Control button will select the handle that controls the center location for the array

Open in Link Editor - open a link editor window for unsticking controls if needed.

Commit Lathe convert the array into a series of sweeps. The result is lathed geometry.

Cancel Stop lathe and remove working geometry.



TODO image of working with soft selection



Static Sweep Plus is based on the Dynamic sweep tool except that it is not interactive and will have a soft selection when the number of segments is greater than one.

Sweep - perform sweep

Segments - number of sweep segments

Group selection - sweep selection as a single unit

Boolean mode - disable or shell, 1 and 2 behavior is the same as disable

Average normals - sweep in the average normal direction

Usage:

select faces or edges

push the button and the selection is swept by a tiny amount, too small to be seen. It will use the values previously set in the panel.

use the point edit widget to move the new swept geometry.



True Bevel is an edge bevel tool



make an edge or face selection
press the button to open the panel
continually drag the Offset control to see a preview of the bevel.
the selection can be changed at any time before pressing the Bevel button
Press the Bevel button to commit
cleanup bad geometry created
run autofacet normals to clean the appearance

Note that this version of the tool will not maintain the Offset value. It is reset with each run of the tool so to use the same value later either memorize the value or copy paste.



Plane Loop Select is like a point loop selection tool that works with objects based on Plane primitives. Select 2 adjacent points and press the button to get a loop style selection. This tool was made because the built in loop select tool does not work with plane based meshes.



Target Weld weld one vertex to another by clicking on them one by one. RMB to exit the tool.



Normal Move will move a vertex selection in the direction of their normals. Left button drag the mouse in the 3D view to increase or decrease the offset value. RMB to exit the tool

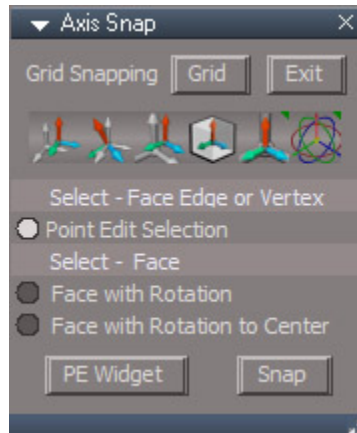


Toggle Object Coordinate Mode between normal point edit selection orientation and object local space orientation. The point edit widget center will turn light blue to indicate object local space orientation mode.

Note that this should be toggled off before using tangent coordinate mode.



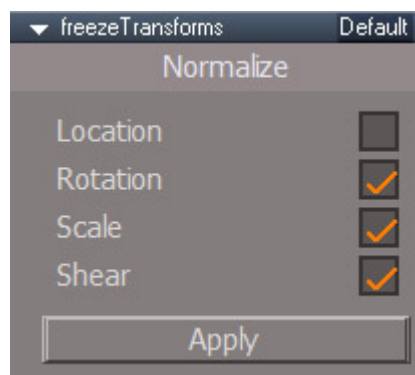
Note that this version of the tool will open a toolbar that cannot be closed or



Axis to Selection Panel



Axis to Selection **writeup**.



Freeze Transform Panel



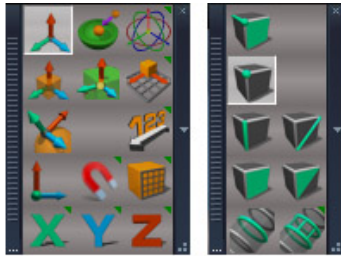
Freeze Transform .Set rotation to (0,0,0), set translation to (0,0,0) and set scale to (1,1,1) and set shear to (0,0,0) without changing the appearance of the object. RMB to open the panel to choose what transform attributes get frozen.

Freezing a group only freezes the group object.

To freeze the elements of a group select them and then run the script.

The Shear option only operates on single mesh objects. Groups, lights and cameras are ignored.

.



Quad Menu



Quad Toolbar



Quad Toolbar .



Quad Menu .

The Quads are used to quickly select modeling tools via a shortcut. After a tool is selected the Quad closes automatically. It can also be closed by clicking on one of the blank buttons.

The Unofficial Update version of the Quad Toolbar and Quad menu are very similar in content. The Quad Toolbar opens centered on the mouse position and the Quad Menu opens to the right of the mouse position. The Quad toolbar has a lathe button. The Quad menu has 2 buttons for ? Help and zoom ?
 TODO check this

