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IDEA have section for error list and not documented in original

jump to original chapter 2
placeholder

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Stack Toolbar New Scene and Context Unofficial Update



Bottom Toolbar New Scene and Context



New Scene

This removes all objects from your Workspace and starts you off with a fresh scene. It will first prompt you to save your work by pressing no and saving it to a library or to continue and clear the scene.

RMB open link editor to the scene



Reset to Default Context

Opens a dialog to confirm the reset to default context. System reset operation.

RMB old behavior resets to default context without any warning or dialog choice.



Save current state same as file menu save using the ctx extension

2.4.5 Preset Shortcuts

trueSpace comes with a set of predefined shortcuts for Workspace, Link Editor, and some that work in every view. The following table shows the list of these predefined shortcuts.

Global Shortcuts

Key	Description
CTRL F1	3D window
CTRL F2	Link Editor
CTRL F3	Command Prompt
CTRL F4	Command History
CTRL F5	Output Console
CTRL F6	Status View
CTRL F7	Animation View
CTRL F8	Package Manager
CTRL F9	Scene View
CTRL F11	Library Browser
CTRL F12	Shared Space
SHIFT CTRL R	Reset to Default Context
SHIFT CTRL N	Generate New Space
LEFT	Select Previous object
RIGHT	Select Next object
DOWN	Select first Child object
UP	Select Parent object
SHIFT CTRL LEFT	Select Previous object & Look At
SHIFT CTRL RIGHT	Select Next object & Look At

Global Shortcuts

Key	Description
Z	Object Move tool
X	Object Rotate tool
C	Object Scale tool
A	Camera Move tool
S	Camera Rotate tool
D	Camera FOV tool
SHIFT X	X lock - On/Off
SHIFT Y	Y lock - On/Off
SHIFT Z	Z lock - On/Off
F1	World Coordinates
F2	Object Coordinates
F3	Screen Coordinates
F4	Tangent Coordinates
F5	X lock - On/Off
F6	Y lock - On/Off
F7	Z lock - On/Off
F8	Reset View

3D Window Shortcuts

Key	Description
DELETE	Delete selected object
CTRL K	Delete selected object
CTRL I	Inspect Material
CTRL R	Render to file
CTRL ~	Set the selected camera as active
CTRL 1	Switch to Perspective Eye view
CTRL 2	Switch to Top orthogonal view
CTRL 3	Switch to Bottom orthogonal view
CTRL 4	Switch to Front orthogonal view
CTRL 5	Switch to Back orthogonal view
CTRL 6	Switch to Left orthogonal view
CTRL 7	Switch to Right orthogonal view
CTRL 8	Switch Nearest Orthogonal view
CTRL 9	Switch to Isometric view
CTRL 0	Reset View
CTRL Z	Undo
CTRL SHIFT Z	Redo
CTRL C	Copy object
4	Object Move Left -X
6	Object Move Right +X
8	Object Move Forward -Y
2	Object Move Reverse +Y
Page Up	Object Move UP +Z
Page Down	Object Move Down -Z
HOME	Object Normalize Location

3D Window Shortcuts

Key	Description
7	Object Rotate Left +Z
9	Object Rotate Right -Z
1	Object Rotate Forward -X
3	Object Rotate Reverse +X
0	Object Rotate Left +Y
.	Object Rotate Right -Y
CTRL 7	Object Rotate Left +Z +45
CTRL 9	Object Rotate Right -Z -45
CTRL 1	Object Rotate Forward -X -45
CTRL 3	Object Rotate Forward +X +45
CTRL 0	Object Rotate Left + Y
CTRL .	Object Rotate Right -Y
END	Object Normalize Rotation
SHIFT LEFT	Previous Key frame
SHIFT RIGHT	Next Key frame
CTRL LEFT	Previous Frame
CTRL RIGHT	Next Frame
SHIFT HOME	Start Frame
SHIFT END	End Frame
CTRL HOME	Play
CTRL END	Pause
ESC	Pause
TAB	Object Navigation Widget - On/Off
SHIFT + L	Workspace Layers

Point Edit Shortcuts

Key	Description
ESC	Object tool/Unselect
DELETE	Delete selected Elements
SHIFT DELETE	Collapse Loop
CTRL K	Delete
CTRL C	Copy selection
CTRL F	Form Face
TAB	Point Edit Widget On/Off
V	Select Vertices
F	Select Faces
E	Select Edges
L	Select Face Loops
T	Select Context
SHIFT I	Invert Selection
SHIFT A	Select Connected
SHIFT C	Convert Selection
SHIFT S	Smooth Selection
SHIFT O	Outline Selection
Q	Quad Divide Selection
SHIFT Q	Smooth Quad Divide
CTRL Q	Quadrify Selected polygons
M	Mirror Selection
CTRL M	Mirror Modeler
SHIFT B	Form Polygonal Bridge
/	Split polygons
SHIFT /	Merge polygons
H	Hide Selected geometry
SHIFT H	Hide Unselected geometry
U	Show All hidden geometry

Point Edit Shortcuts

Key	Description
ADD	Add SDS
SUBTRACT	Remove SDS
CTRL D	Dynamic Sweep
CTRL S	Sweep selected Face
CTRL B	Bevel tool
CTRL T	Tip selected Face
CTRL P	Add Polygons
CTRL E	Add Edges
CTRL V	Add Vertices
CTRL L	Add Loop
CTRL W	Weld geometry together
CTRL H	Heal Vertices
CTRL O	Optimize Triangulation
SPACEBAR	Open Quad toolbars
~	Default selection settings
1	Select by Painting
2	Select by Rectangle
3	Select by Lasso
4	Select by Move
5	Soft Selection
6	Select by Material
7	Select Edge Loops
8	Select Face Loops
9	Select Visible Geometry
0	Select All Geometry
-	Shrink selection
+	Grow selection

Animation Editor

Key	Description
DELETE	Delete object
CTRL C	Copy object
CTRL X	Cut object
CTRL V	Paste object
CTRL A	Select All
CTRL Z	Undo
CTRL SHIFT Z	Redo
SHIFT LEFT	Previous Key frame
SHIFT RIGHT	Next Key frame
K	Set Key frame
CTRL LEFT	Previous Frame
CTRL RIGHT	Next Frame
SHIFT HOME	Start Frame
SHIFT END	End Frame
CTRL HOME	Play
CTRL END	Pause
ESC	Stop & Start Frame

UV Editor

Key	Description
CTRL Z	Undo
CTRL SHIFT Z	REDO

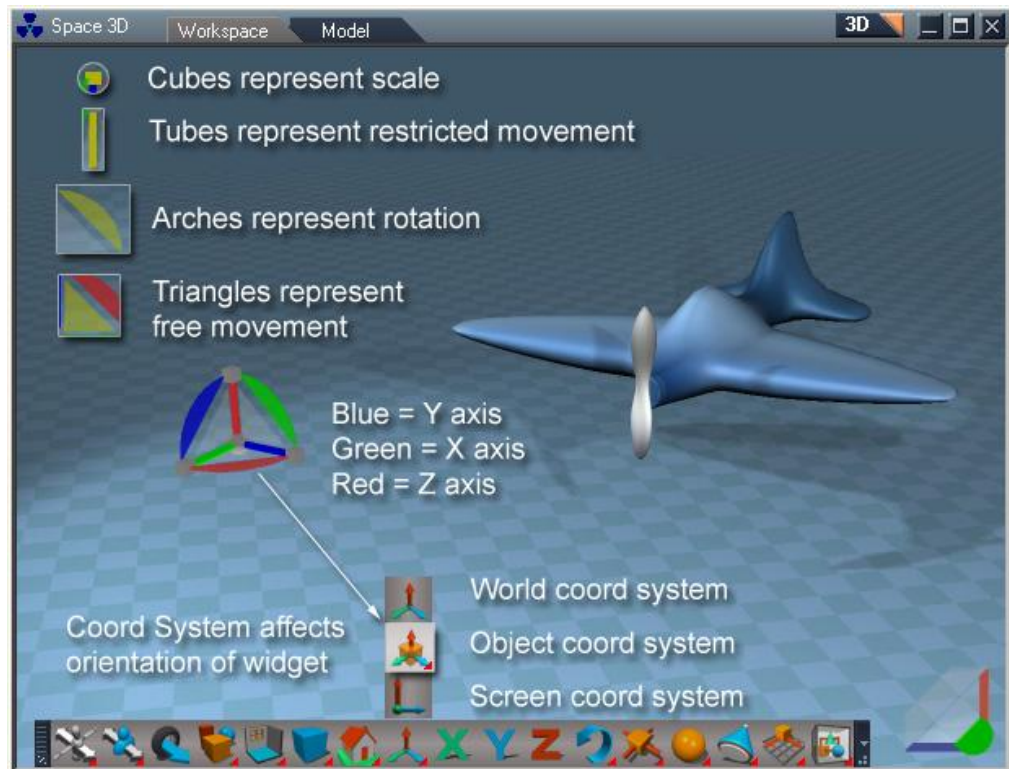
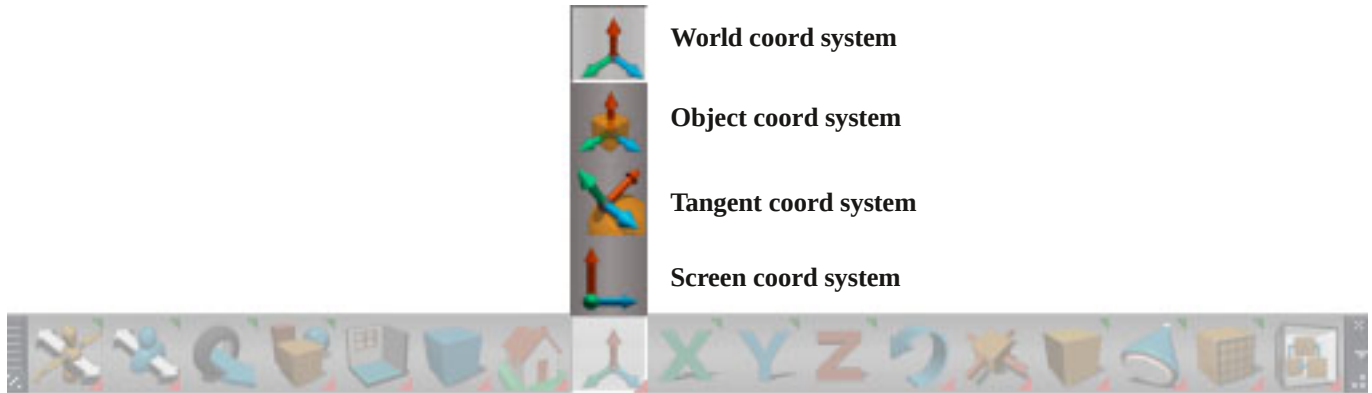
Info panel

Key	Description
CTRL Z	Undo
CTRL SHIFT Z	REDO

Link Editor

Key	Description
DELETE	Delete selected node
CTRL	Undo
CTRL SHIFT Z	Redo
CTRL Drag	Copy selected object
LEFT	Select Previous object
RIGHT	Select Next object
DOWN	Select first Child
UP	Select Parent
CTRL SHIFT LEFT	Select Previous & Center
CTRL SHIFT RIGHT	Select Next & Center
HOME	Current scene in Link Editor
NUM KEYS	
9	Maximize & Arrange All
3	Minimize & Arrange All
5	Center All
1	Zoom All
*	Iconize All
-	Minimize All
+	Maximize All
/	Arrange All
Mouse buttons	
RMB	Zoom ALL/Move to Top Left
RMB + Drag	Zoom In/Out
MMB	Center selection
MMB + Drag	Move
CTRL + MMB	Up one level
MMW	Scroll Up and Down

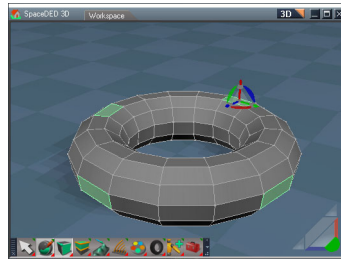
2.5.1 Using Widgets



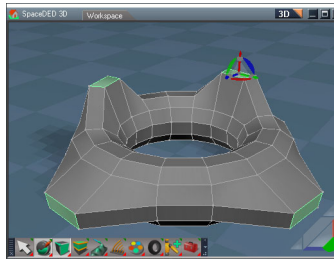


Tangent coordinate system is useful for point edit modeling. The object navigation widget in tangent mode behaves the same as in world coord mode.

The tangent Coordinate system is not documented in the original manual.



Before move



After move

When 2 or more unconnected elements are selected the widget will be centered on one of the elements and each of the elements will move as if they each have an individual widget with the z handle aligned with the normal direction of the element and that moves with the visible widget. The elements will each move, rotate and scale individually instead of from a shared central location.

When 2 or more meshes are in point edit mode together and the selection has elements from two or more of the meshes, the rotation and scale will be centered on the widget and the elements do not move as individuals.

When a single edge or point is selected the tangent coordinate behaves the same as the object coord system. When a single face is selected it behaves almost identically to the object coord. At some angles the widget will be slightly rotated on the z axis.

If 2 adjacent elements are selected the tangent widget is the same as object widget. This includes two points joined by an invisible triangle edge.

The object navigation widget will line up with the first selected object when in object coord mode.

2.6 Info Panel

math expressions can be used in the numeric input fields:

+, -, *, /, sin, cos, arcsin, arcos, ln, log, exp, sqrt, PI

2.7 3D View – Workspace

2.7.1 Object Navigation Tools



Object Move RMB to exit tool.



Object Rotate RMB to exit tool.



Object Scale RMB to exit tool.



Object Look At



Object UnLook At

To use UnLook At, select the object that is to be freed then click the button to remove the Look At constraint.

2.7.2 View Navigation Tools



Unofficial Update Bottom Toolbar



Unofficial Update Stack Toolbar



First Person Navigation

Camera Move

Camera Rotate

Camera FOV

Rectangle Zoom



Look At Selection



Reset View



Camera Move RMB to exit tool



Camera Rotate RMB to exit tool



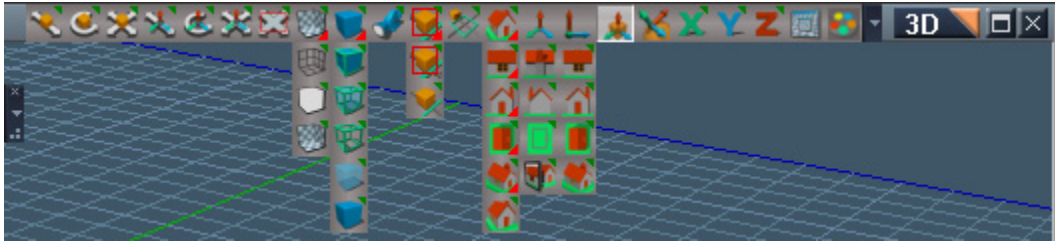
Camera FOV RMB to exit tool



Look At Selection RMB select and look at next object.



Zoom To Selection Left-Click = Zoom to Selection / Right Click = Zoom to next object



Unofficial Update 3D Mini Toolbar



Perspective View



Isometric

Perspective and Isometric include a RMB action to rotate the view in 90 degree increments.



Open New 3D View



Open Material Editor



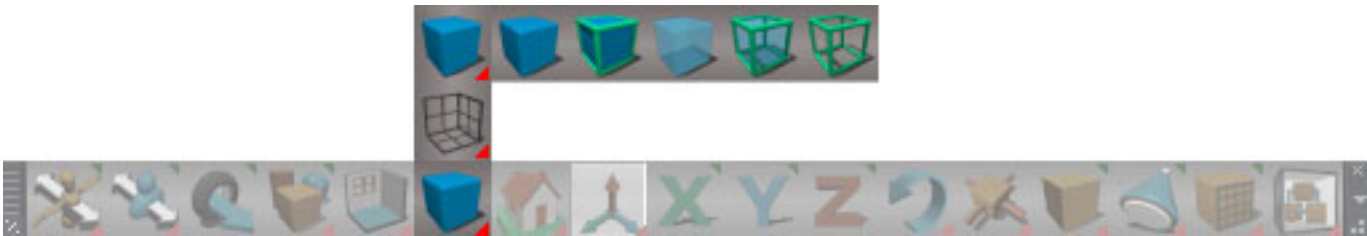
Set Camera RMB switch to perspective view.



Zoom To Selection RMB reset view.

2.7.4 Render Preferences Presets

With this icon group you can set the real-time render modes.



Render Preferences Presets



Unofficial Update Render Preferences Presets

All the buttons in the render preferences and ground display preferences change the active 3D window.

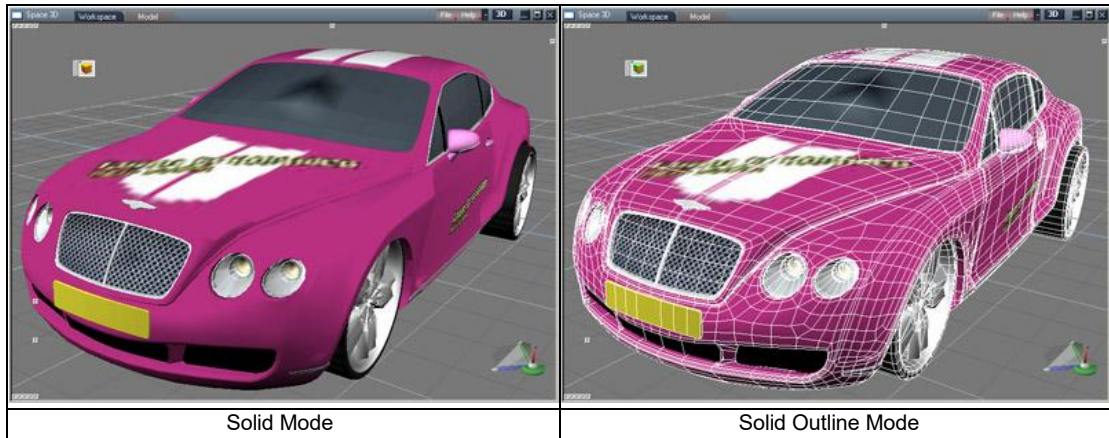
RMB will change all 3D windows.

Draw as Solid

trueSpace will render all objects in your scene as completely opaque, shaded, and preview rendered.

Draw as Solid Outline

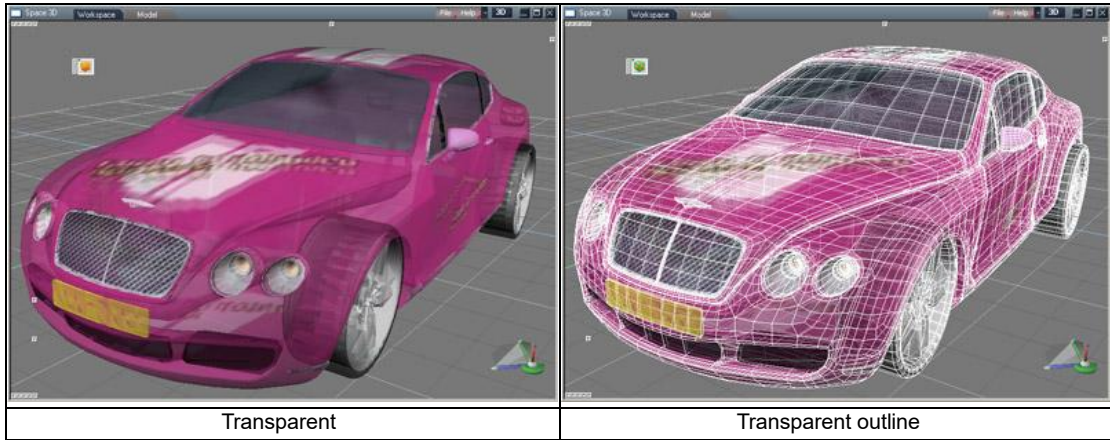
trueSpace will render the objects just as in solid mode and also outline the edges and vertices of the objects.

**Draw as Transparent**

This will allow you to partially see through objects.

Draw Transparent Outline

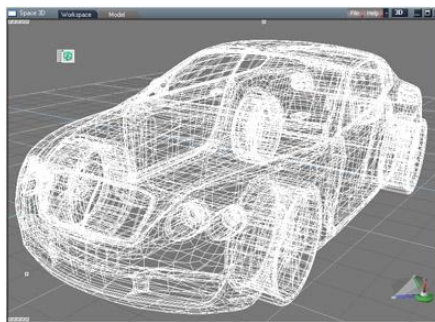
This is similar to Draw as Transparent , with the added function of highlighting all vertices and edges.



Draw as Wireframe



This will not give you a preview render of what your object will look like in the final render, but it will speed up navigation in the interface because there is less information on screen for the video card to update.



Wireframe



Ground Display Mode



Unofficial Update Ground Display Mode



Ground Solid



Ground None



Ground Wire

The Render Preferences Ground settings also has a **TwoSided** ground which is the same as solid but with a visible bottom surface.

All the buttons in the render preferences and ground display preferences change the active 3D window.
RMB will change all 3D windows.



Show and Hide



Show Selected



Hide Selected



Show Cameras and Lights show all cameras and lights



Hide Cameras and Lights hide all cameras and lights



Show All

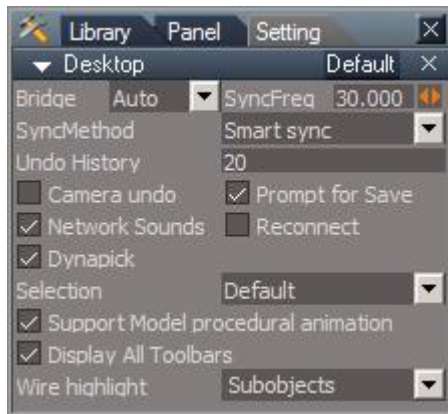


Hide All

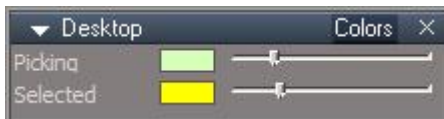
RClick on the buttons opens the object render attributes panel for the first selected object.

To isolate the selected objects Hide All then Show Selected

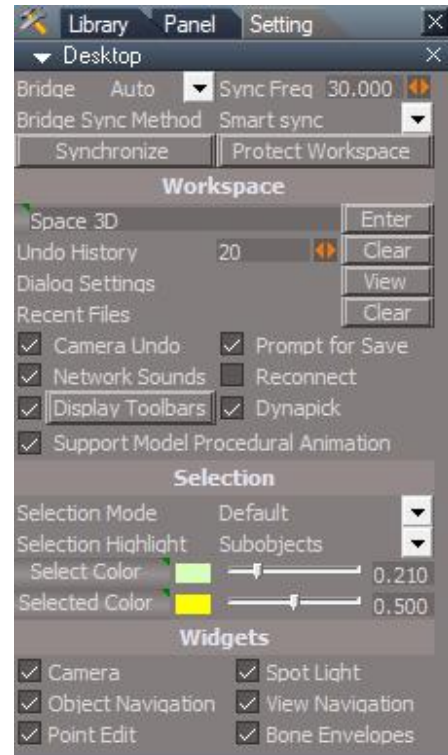
2.7.6 Desktop Preferences



Desktop Default



Colors Aspect.



Unofficial Desktop Combined Default

Synchronize loads the Synchronize script into the scene and opens the panel.

Protect Workspace open the Protect Workspace panel

Scene naming - small button LMB copies the scene name into the text input field, RMB sets the text input field to "Space 3D",

Enter button renames the scene based on the text input field.

Clear – clear undo history

View open the dialog settings panel

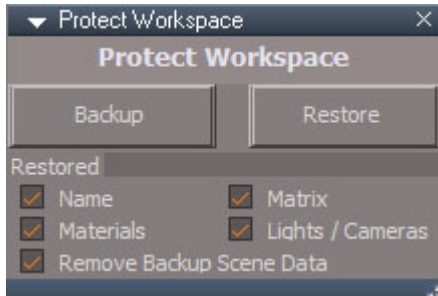
Clear – clear recent files list

Display Toolbars button and checkbox – uncheck to only show the 3D toolbars in the active 3D window. Press the button to restore normal behavior.

Picking Select and Selected Color reset buttons – RMB to reset, LMB no effect

Picking Select: Double click to Set the selected object wire color.

Selected: Double click to Set selected object wire color.



The Protect Workspace script saves and restores workspace attributes to protect them against modelspace changes. It protects materials, object names, matrix transforms, camera fov and spotlight angle.

Backup - save data and materials nodes to temporary stores in the scene

Restore - restore the data and material nodes

Protection Options

Name - stop renaming of nodes

Materials - stop conversion of workspace materials to lightworks materials

Matrix - stop transformation value changes

Lights/Camera - stop changes in spotlight angle and camera fov

Remove Backup Scene Data - optionally delete backup data when the restore is run

Usage:

Push the Backup button to backup the nodes and values

Open modelspace and do modelspace work

Close the modelspace window

Push the Restore button to retrieve the previous workspace state



Protecting materials will destroy modelspace standalone deformations

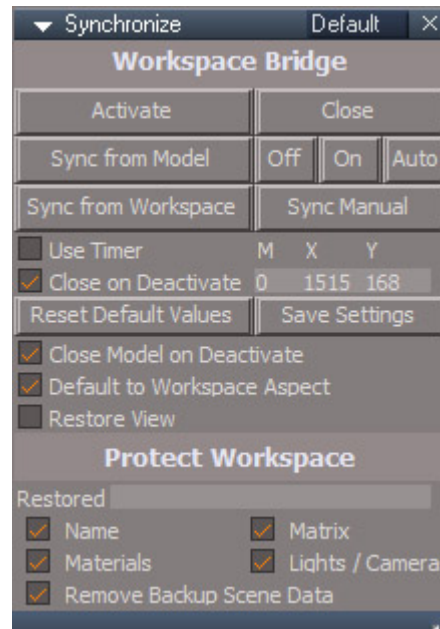
One thing you might want to mention about Synchronize, it is a Camera and it is necessary to be viewing from this camera from within Workspace & Model for synchronization. Adding objects from Workspace after Activating the Synchronize camera will not be Protected.

New Synchronize2 ?

wait before final update of these pages



Workspace aspect(default)



Default aspect(not default)

Changes in the workspace view are not reflected in the modelspace view. You can move an object in modelspace and the same object will follow in workspace, but if you move the same object in workspace, modelspace will not follow. The Synchronize script makes modelspace follow the workspace changes. With synchronize active it is possible to render a workspace animation from inside modelspace and to combine workspace and modelspace animations into one render.

 *When the Deactivate is run undo history will be erased.*

 Rendering with synchronization in a floating model view may destabilize trueSpace. It is recommended to render with the main docked 3D view as the model view.

Workspace aspect

Activate will link workspace changes to modelspace. If a Model view is not open, Activate will open a new Model view. A 3D workspace view must be open before activating the synchronization.

Deactivate or **Cancel** will stop the synchronization, close the modelspace view and close the synchronize panel.

Workspace is the true default mode and runs in 100% automatic mode. Pressing any button in the Workspace Aspect will change the run time values to Workspace aspect default values. If you make changes in the Default aspect do not press any buttons in the Workspace aspect or you will lose your changes.

Default aspect

To set the Default aspect as the default behavior mode takes the following steps:

- 1.Switch to the Default aspect
- 2.Uncheck Default to Workspace
- 3.Press the Save Settings button to make the change permanent

To make workspace the default check Default to Workspace and press Save Settings to make permanent.

Activate will open a new 3D view or use an existing 3D view, convert it to a modelspace view and modelspace will become aware of workspace changes.

Deactivate will stop the synchronization, close the modelspace view and close the synchronize panel.

Close will close the synchronize panel.

Sync from Model is the same as turning the bridge Off then to Auto and automatically pressing the Content synchronization dialog button labelled "Sync from Model".

Sync from Workspace is the same as turning the bridge Off then to Auto and automatically pressing the Content synchronization dialog button labelled "Sync from Workspace".

Off, On, Auto sets bridge switch value using buttons instead of the desktop panel dropdown .

Sync Manual is the same as setting the bridge switch value to Off and then Auto .

Use Timer is for synchronizing workspace physics and procedural animations.

Close on Deactivate when checked will close the panel after the Deactivate button is pressed. The tool can be run more than once if this option is turned off.

Reset Default Values sets all controls to the Workspace aspect(default) automatic run values. It also resets it's internal camera parameters. ⓘ *This will clear the undo history.*

Save Settings saves the settings used in the default aspect.

Close Model on Deactivate when checked will close the modelspace view after the Deactivate button is pressed. The tool will not close an open modelspace view if this option is turned off.

Default to Workspace Aspect when checked will make the workspace panel the default.

Restore View when checked will restore the workspace 3D view to the state it had before synchronization.

Workspace copy, erase, undo and redo are missing from the workspace portion of the original manual.



2.7.6a Copy and Erase



Copy LMB creates a copy of the selected object(s) and arrange the new nodes in the link editor.
RMB old behavior of only copy the first selected item

① *LMB will clear the undo history.*



Erase LMB will erase the currently selected object(s) and compensates for NURBS objects. It also formally deselects to fix a ghost selection bug (tS thinks the objects still exist).
RMB old behavior, no compensation for NURBS objects or ghost selection fix

2.7.6b Undo and Redo



Undo



Redo

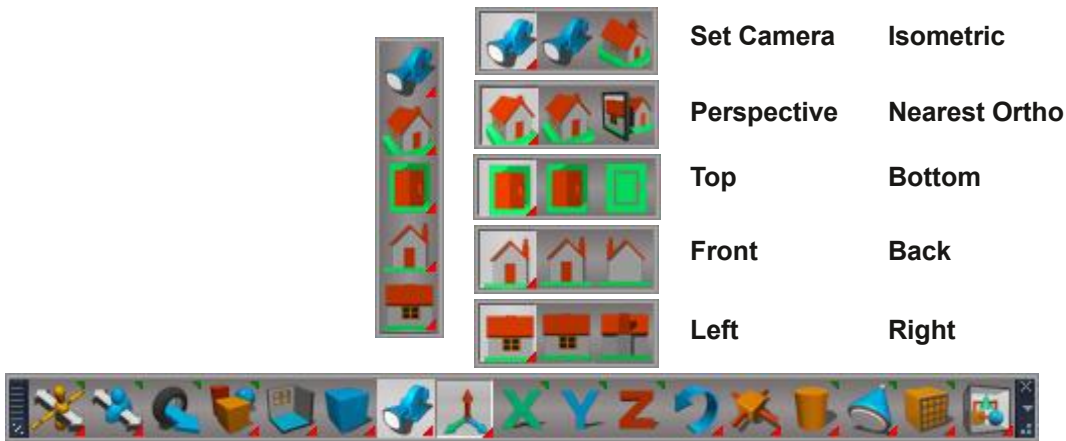
The Undo tool (CTRL+Z keyboard shortcut) reverses the last operation performed on an object. This makes it easy to try things out in trueSpace and quickly undo something that did not work out the way you planned.

If you Undo something and then change your mind, you can use the Redo icon.

Each of these tools can store multiple levels of actions. If you wish to undo the last 4 actions you performed on your object, selecting Undo 4 times will bring you back to where you were prior to those actions. If you wish to redo the changes you just made, 4 clicks on the Redo icon will restore all the changes.

2.7.7 Perspective and Orthogonal Views

You can switch the view type from perspective projection to special orthogonal projections like top-view and front-view by clicking on the appropriate icons on the Workspace tool bar.



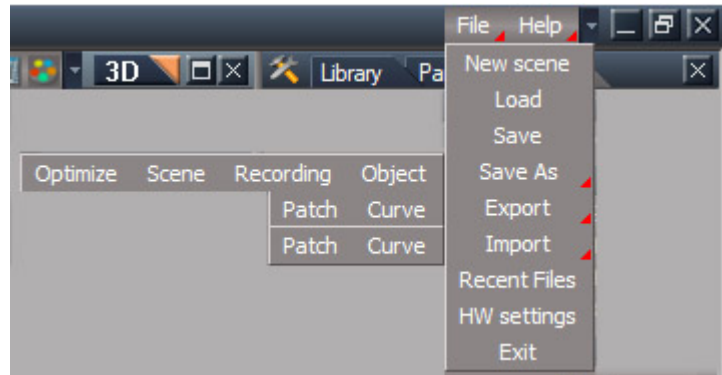
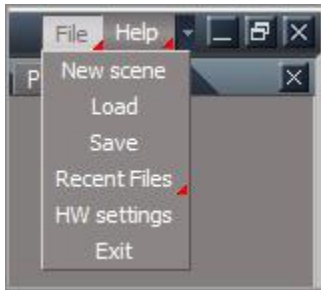
Switching the view to a different type



Unofficial Update Bottom Toolbar

In the Unofficial Update the camera view is separate from the other views.

2.7.9 Workspace File and Help Menu



Unofficial Update File Menu

Save As > Optimize

Opens the Optimize Wokspace Scene panel used to clean the scene before saving as a recording file.

Model Attributes - setup to remove connectors added to the scene and scene objects from modelspace, also setup to remove Layer Info and PhotoRender nodes from the scene.

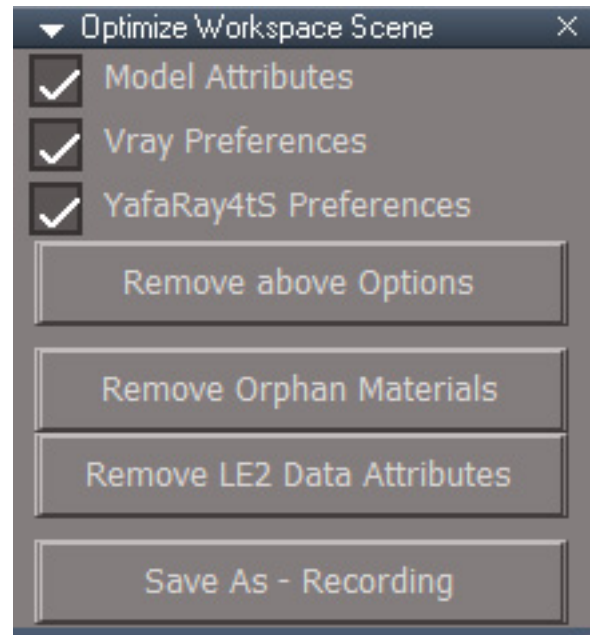
Vray Preferences - setup to remove Vray and PhotoRender nodes from the scene. Safe to use if you did not use Vray rendering for your scene.

YafaRay4tS Preferences - setup to remove the YafaRay4tS node from the scene. Safe to use if you did not use YafaRay rendering for your scene.

Remove above Options - executes the removal setup in the previous checkboxes

Remove Orphan Materials - If a mesh has multiple materials applied to it and the Separate Selection tool is used all the materials are copied which can result in orphan material nodes and connections.

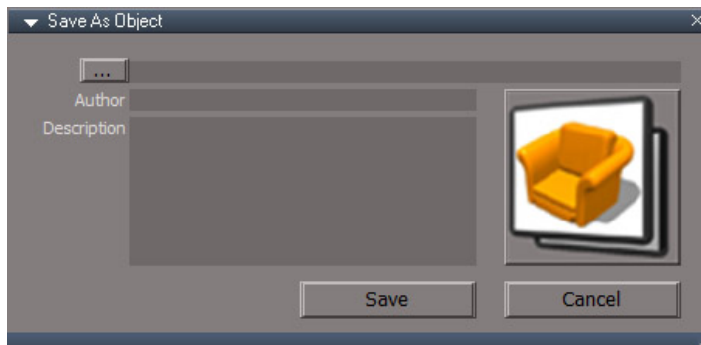
Remove LE2 Data Attributes - some scene items seem to have excessive numbers of LE2 Data connectors.



Save As - Recording - save the scene as an RsRcd file type. This has all the same information as a scene file but takes up much less file space

Save As > Scene file save as dialog with RsScn file extension as the only choice. More direct and convenient than using Save.

Save As > Recording save the scene as an RsRcd file. This format has a smaller file size than the default RsScn file format without any apparent lose of data.



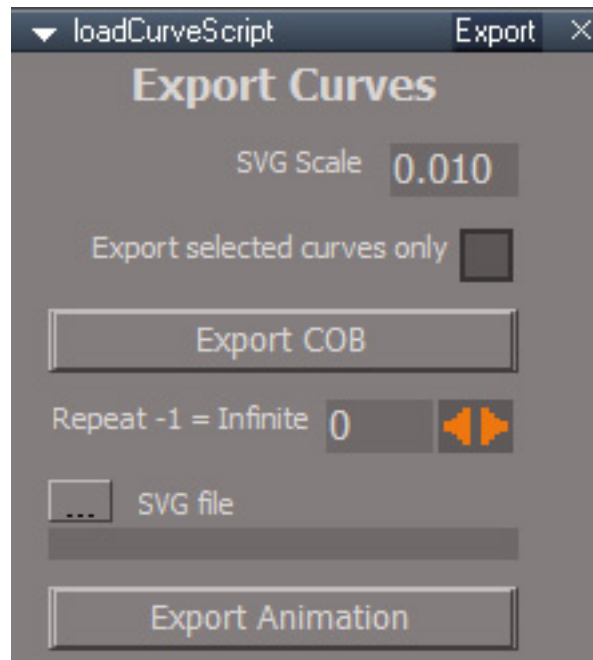
Save As > Object save object file, RsObj, with extra information

... button to choose a file name

Author and **Description** optional information to add to the file

Object icon button will reset but does not seem to do anything. Is this for decoration?

Save button to write the file to disc



Export > Curve

SVG Scale - default of 0.01 corresponds to 1cm in trueSpace translates to 1pixel in the svg file

Export selected curves only - don't export a curve unless it is part of the selection. All curves in the scene will export when unchecked.

Export COB - save in truespace modelside compatible ascii format(COB). Only curves will be exported.

Repeat - how many times to play the animation in the html file. A value of -1 means infinite repeats.

SVG file - input file to use when generating the sample html file

Export Animation - save html and CSS animation files to be used with the SVG file. Saves translation, rotation, scale and opacity(transparency) animations. Only animated items will export.

Open the html file to see the animation in a browser. The html file will have the same name as the css file created.

Import > Curve

Load curves from trueSpace scn and cob files generated from the modelside or earlier truespace versions. It also reads bezier curves from turbocad dxf files and svg format files. Most of the import options are for svg format files.

SVG Scale - default of 0.01 corresponds to 1cm in trueSpace translates to 1pixel in the svg file

Z Offset - each curve will be offset in the z direction by this amount

Import svg ellipse as polygon - imports ellipses or circles and converts them polygon meshes

Import svg line as polygon - lines and polylines imported as triangles each with only 1 edge visible

Import svg path as polygon - import curves and convert them to polygon meshes

Import svg rectangle as polygon - import rectangles as curves and convert them to polygon meshes

Close curve with a line - add a line from the end to the beginning of closed curves - option is only valid with non-polygon import

Seperate svg sub-paths - splits compound paths into distinct curves

Preserve svg groups - if unchecked will ignore groups that have no transform values

Show polygon edges - items converted to polygon meshes will have edge visibility turned on

Flip path - reverses the direction of the curve resulting in a flipped normal for the polygons. not very useful since curves can go either way

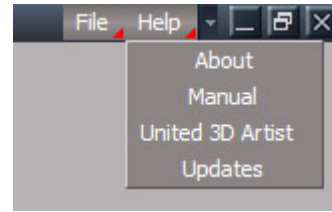
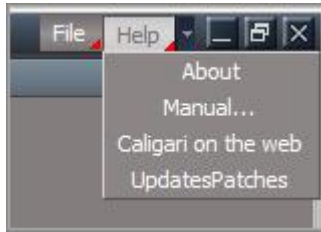
Constant color - use a constant color material for curves imported as polygons

Import - press to load a curve file.



Export > Patch save a NURBS patch as an ascii format cob file, the first selected object will export.

Import > Patch load a trueSpace cob ascii format file that contains NURBS patches



Unofficial Update Help Menu

Help: About

This displays the trueSpace splash screen with the programming credits, the version information, and the display mode in which trueSpace is running. The Unofficial Update version first shows a popup dialog with version information.

Help: Manual

This will take you to the contents page of the PDF version of the manual you are reading now.

Help: United 3D Artist

Open a web browser to the United3DArtists forum.

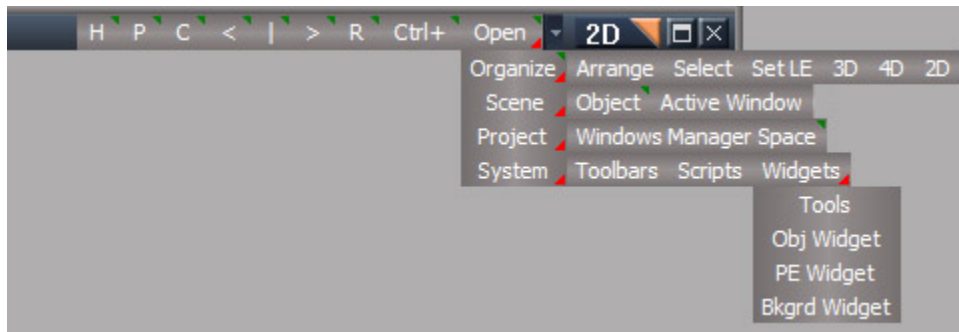
Help: Updates

Open a web browser to the United3DArtists trueSpace Unofficial Updates sub forum.

2.8 2D View – Link Editor

2.8.1 Link Editor Description

To edit any object in trueSpace requires that you must first enter it. This is true whether you are viewing an object in 1D, 2D, or 3D aspect. Here in the Link Editor, which is the 2D area of trueSpace, you will eventually enter and work with objects. The Link Editor provides you with a toolset to browse, assemble, analyze and modify the structure of objects.



Unofficial Update Link Editor Mini Toolbar

Mini Toolbar

H : (3D View) LMB hide unselected, RMB show all

P : LMB select parent(owner) node, RMB open selected node in the link editor

C : LMB select first renderable child node, RMB open selected node in the link editor

< : LMB select previous renderable sibling node, RMB open selected node in the link editor

| : LMB center the selected node in the view, RMB select next renderable sibling node in the link editor and center it

> : LMB select next renderable sibling node, RMB open selected node in the link editor

R : (3D View) LMB start rectangle select tool, RMB open options panel

Ctrl+ : LMB simulate ctrl button press and hold, LMB again to end ctrl button behavior, RMB deselect

Open : RMB open the link editor to the scene

Organize : LMB minimize nodes and arrange, RMB maximize nodes and arrange

Arrange :

Select : open the Select and Alphabetize panel (see next page)

Set LE : set the currently active link editor window as the window to receive link editor commands

3D : switch active window to a 3D aspect

4D : switch active window to a 4D animation aspect

2D : switch active window to a 2D link editor aspect

Scene : open link editor to the scene

Object : open link editor to the selected object

Active Window : open link editor to the active window

Project : open link editor to the project

Windows Manager Space : open link editor to the windows manager space

System : open link editor to the top level root

Toolbars : open link editor to the toolbar prototypes encapsulator

Scripts : open link editor to the scripts

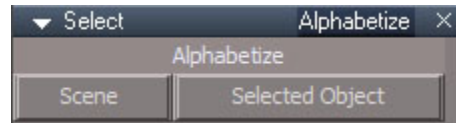
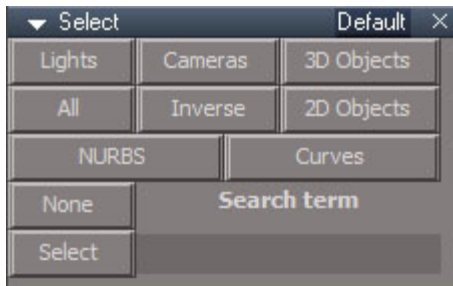
Widgets : open link editor to the active widgets

Tools : open link editor to the widgets tools

Obj Widget : open link editor to the object navigation widget

PE Widget : open link editor to the point edit navigation widget

Bkgrd Widget : open link editor to the background widget



Select Default Select items based on their common characteristics.

By object type : Lights, Cameras, 3D Objects, 2D Objects, NURBS Patches and Curves.

Modify selection: All, None, Inverse.

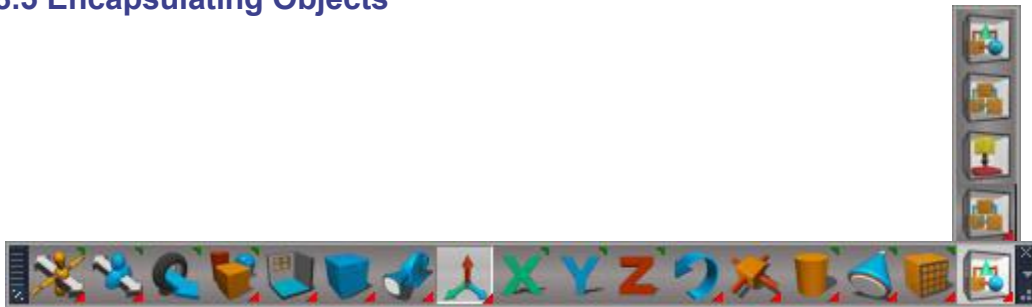
Name matching: Enter a search term in the text input field and press the Select button.

Select Alphabetize Order the objects in alphabetical order by a delete and restore process.

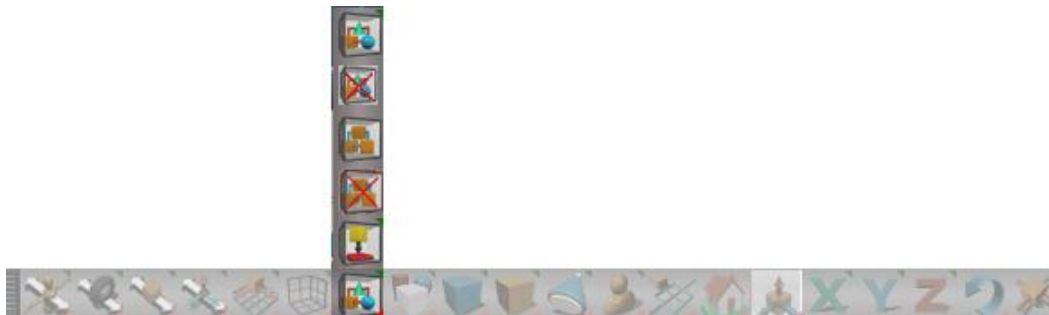
Scene : Alphabetize the scene.

Selected Object : Alphabetize the nodes inside the selected object.

2.8.5 Encapsulating Objects



Bottom Toolbar



Unofficial Update Bottom Toolbar



Encapsulate Objects



Unencapsulate Objects

The Unencapsulate tool, breaks a group apart.



Encapsulate in 3D



Unencapsulate in 3D

The UnEncapsulate In 3D tool breaks a group apart and cleans up extra nodes that were used by the 3D group.

2.12 Other Views



Stack Toolbar



Make copy of Window



3D Window



Link Editor



Command Prompt



Command History



Output Console



Status View



Stack View



Anim View



Package Manager



Scene View



Unofficial Update Stack Toolbar



Stack View - (bug) will close the stack view, not open it. The stack view can be reopened by layout change or reset default context.
This button has been removed from the Unofficial Updates.



3D Window

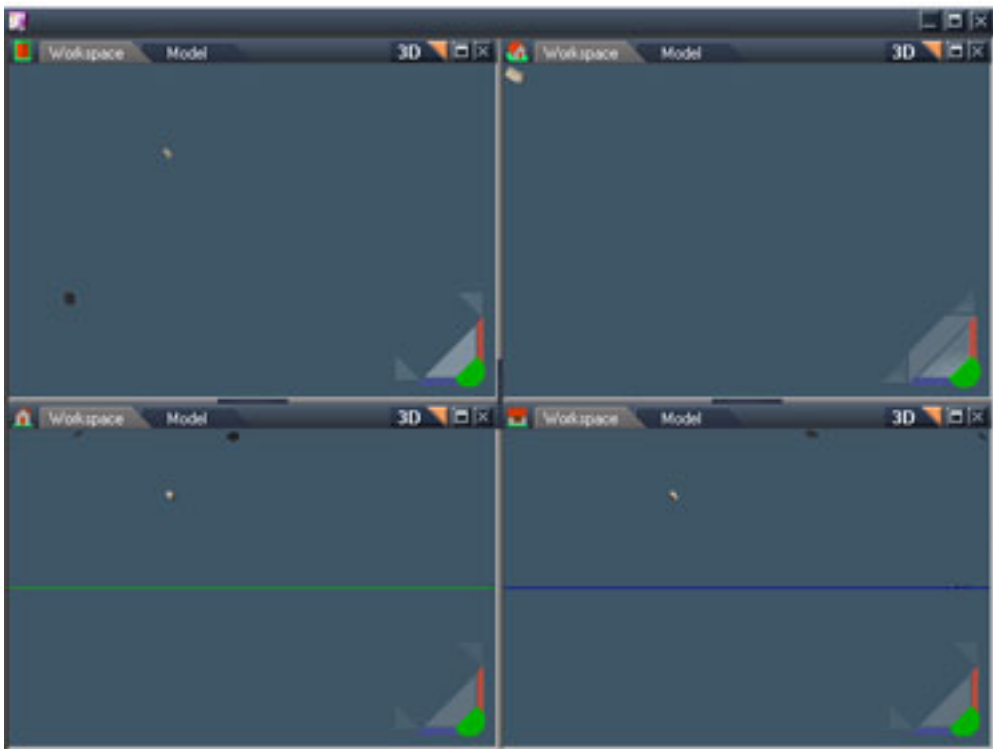


Link Editor

below warning may be obsolete soon?



3D Window and Link Editor buttons will erase undo history.



Quad Window

Opens a viewport composed of 4 3D windows in a 2 by 2 arrangement. RMB Saves Quad Window user modifications

2.13 Macro Recording and 3D Recording

2.13.1 Macro Record



Macro Record – jScript.

RMB create a blank jscript command node in the scene.

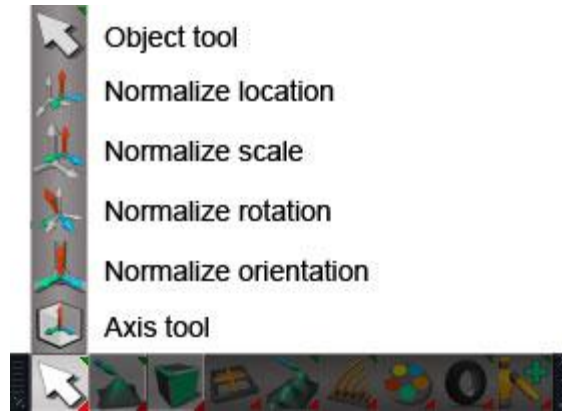


Macro Record - VBScript

RMB create a blank vbscript command node in the scene.

Chapter 3 MODELING - Workspace

3.1 Object Tools



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.

If a subobject at any level of a scene object is currently selected, the top most scene level object will be selected.

3.1.6 Axis Tool



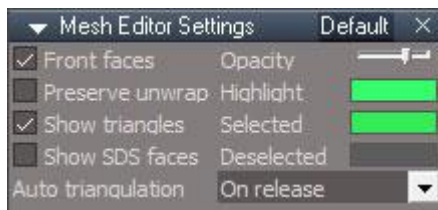
RMB toggles showing the axis in front and in back of the object.

3.2.0 Mesh Editor Settings

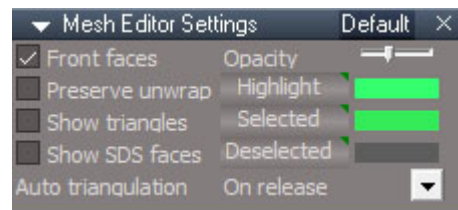
There are many options and settings that will control how Point Edit works, adjusting everything from the colors used in making a selection, to how certain tools work. This section details those options before we get into looking at the tools themselves. Where the options apply to a particular tool,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

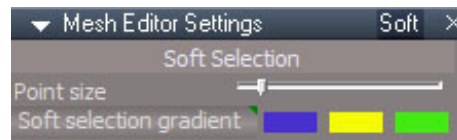
Highlighted, Selected, Deselected – RMB reset buttons.

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.

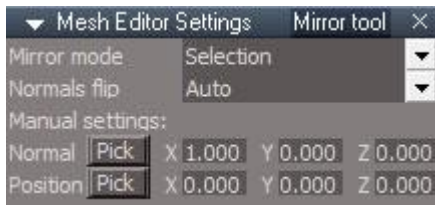


Unofficial Update Soft aspect.

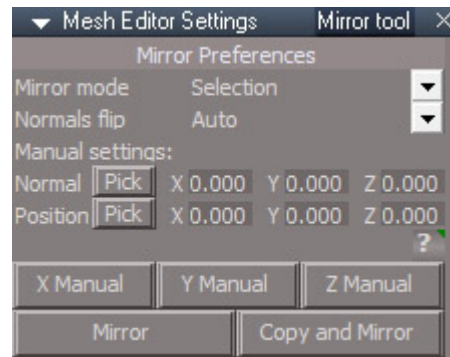
Soft Selection Gradient – RMB reset gradient colors

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.

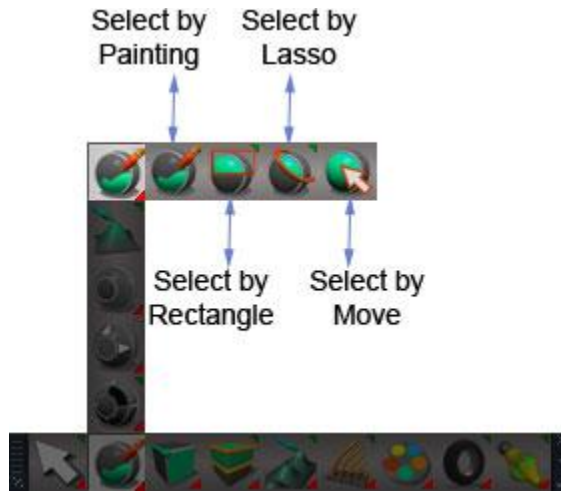


The Mirror Tool aspect of the Mesh Editor Settings panel.



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

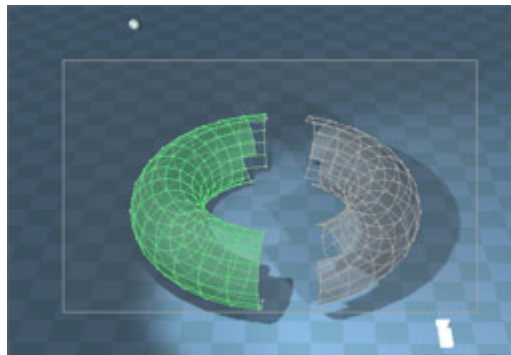


Connected – RMB panel, This checkbox determines if the selection is allowed to select other object's elements or not.

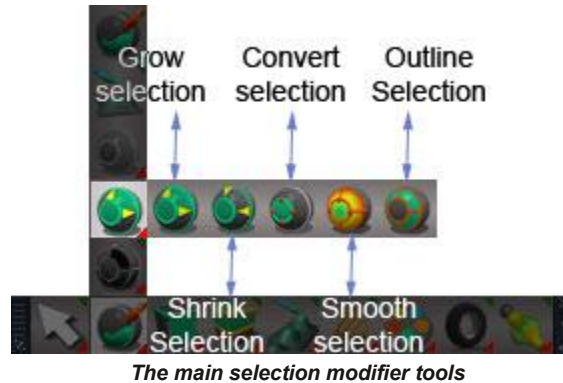
3.2.3 Select By Lasso



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 the selection to include surrounding neighbor vertices and finally converts the selection to use the current point edit selection mode.

The original version of the tool did not convert the vertex selection back to the 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.

The original version of the tool did not convert the vertex selection back to the 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

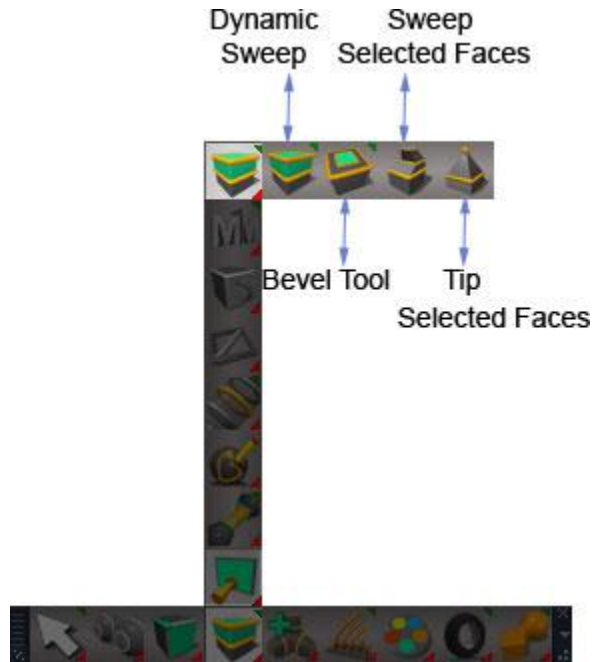


This hides the unselected elements, so that the selected elements are the only ones that remain visible, and are the only ones that can be selected and edited. This is useful for focusing work on a particular area of an object, without the distraction of other elements being visible in the scene.

The original manual has the wrong button image

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.



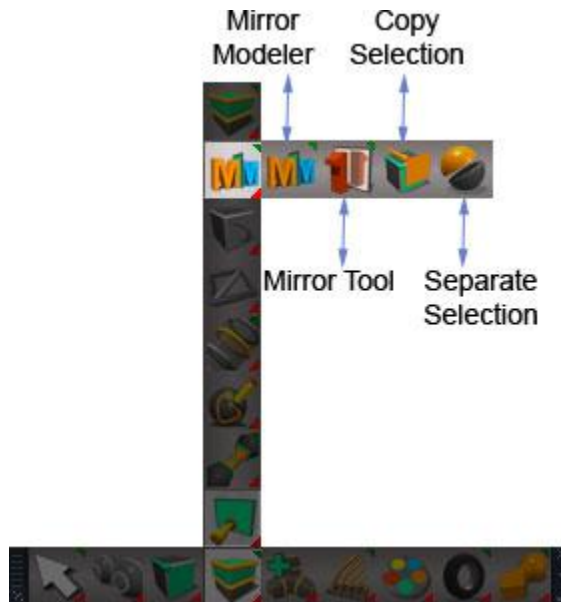
[TODO link to lathe](#)



[TODO link to static sweep](#)



[Link to true bevel](#)



3.4.5 Mirror Modeler

[Link to object mirror tool](#)

3.4.6 Mirror Tool

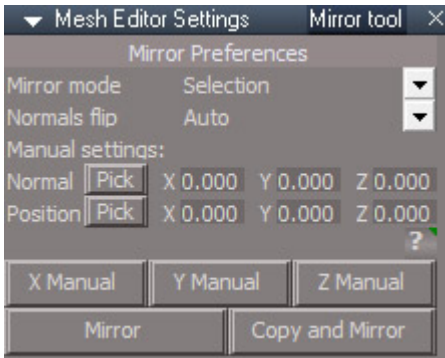


The Mirror Tool allows you to make a selection of elements on an object and Mirror that selection. If no selection of elements is made, the entire object is mirrored across the x-axis.

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.

jump to Mirror Tool panel

3.4.21 Add Polygons



The Add Polygons tool allows you to create a polygon on existing geometry. You can begin on an existing edge or vertex, or start in the middle of an existing face.

Information missing from the original manual

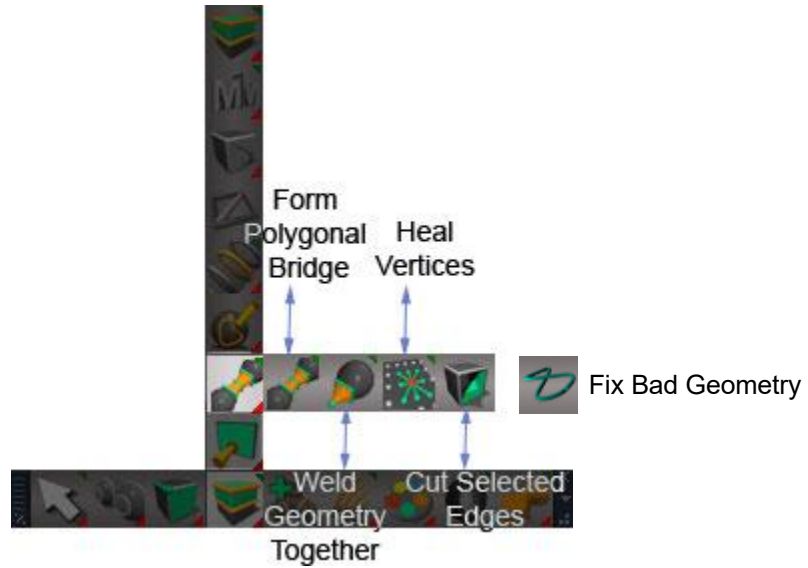
To modify the position of a previous drawn vertex simply drag it to the desired location.

To remove a vertex while drawing, move it to another vertex. This looks slightly cleaner when the other vertex does not share a line segment with the point being removed.

The tool will snap to edges and vertices even when snapping is disabled.

The regular snapping and constraint tools can be used with the add polygon/edge/point tools.

The snapping can be locked to an edge by holding the shift key. To lock movement perpendicular to the current snap location on the edge hold the shift and ctrl keys.



Target Weld



TODO make link.

3.4.27.a Fix Bad Geometry



This is a collection of tools to help fix bad geometry. It can be used for example to create a selection based on mesh characteristics such as side count, planarity and whether it has non-manifold edges. The only direct fixing tool is used to remove corrupt SDS geometry that can occur inside trueSpace. It also includes some random selection tools that can be used for artistic purposes.

Select Triangles - select 3 sided polygons

Select 4 sided polygons

Select Ngons - select polygons with more than 4 sides

Random Points - select random points

Random Faces - select random faces

Random Threshold - percentage of elements to select, 0.5 would be 50%, 0.9 would be 90%, note that the slider goes with the Random Threshold value, not the Random Point Weight

Random Point Weight - selected points will have a random weight value

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

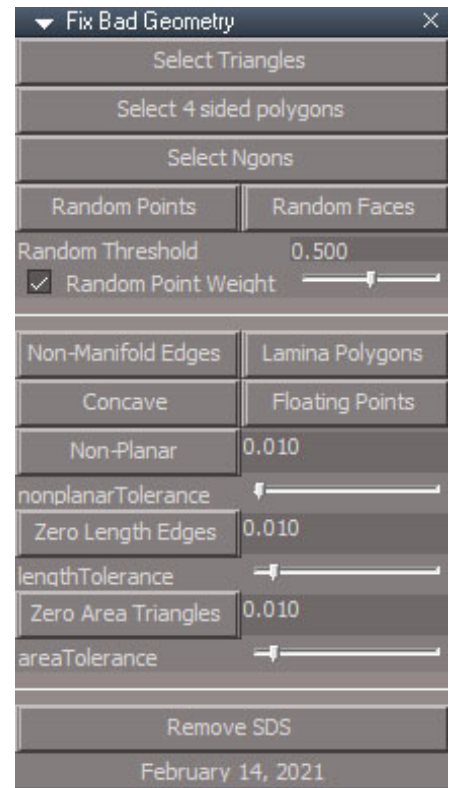
Floating Points - delete points that have no edge connections

Non-Planar - select polygons that are not flat using the **nonplanar Tolerance** to determine maximum polygon bending

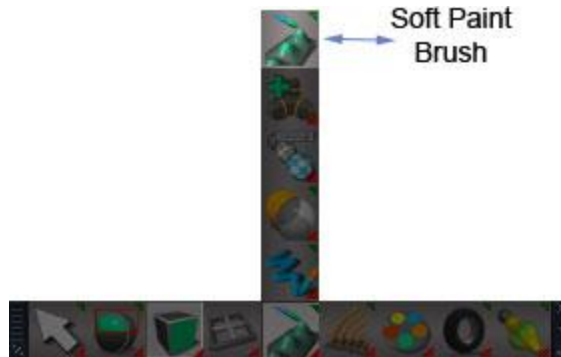
Zero Length Edges - select triangles that have a zero length side with the zero being defined by the **lengthTolerance**

Zero Area Triangles - select triangles that are very small with small defined by the **areaTolerance** value

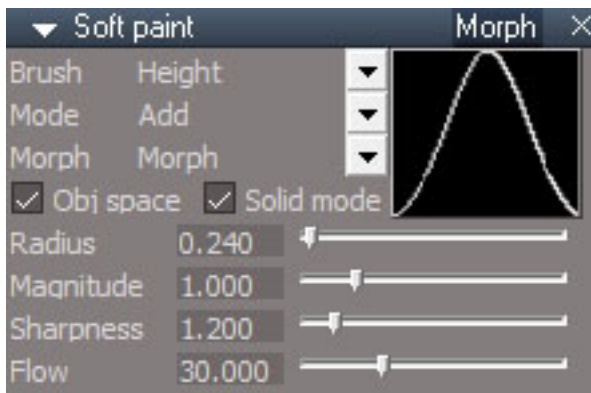
Remove SDS - removes a bad SDS from a mesh so it can be reapplied



3.5 Soft Paint



Information missing from the original manual



Soft paint has a morph mode to paint one morph into another. Once the morphs for the mesh are created, activate a morph, then start the soft paint and choose Morph aspect of the panel. Choose the source morph in the Morph dropdown list and start painting. The source shape will be used to alter the current morph.

3.11 Flatten History



The location of the Flatten History tool



Unofficial Update location of the Flatten History tool

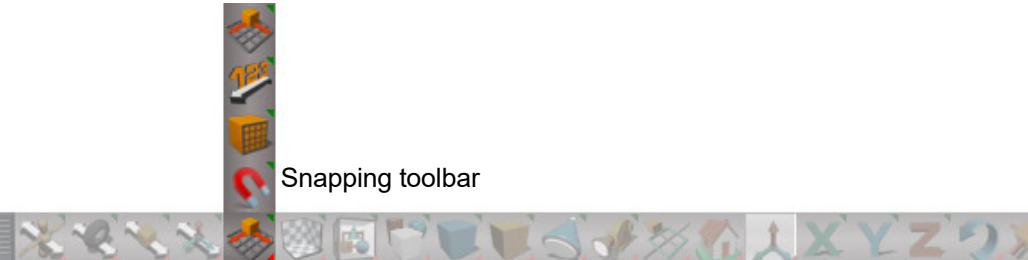


RMB flattens history and removes UV connectors

3.12 Snapping and Distance Tools



The location of the snapping tools

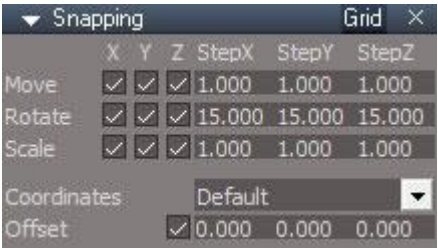


Unofficial Update location of the snapping tools

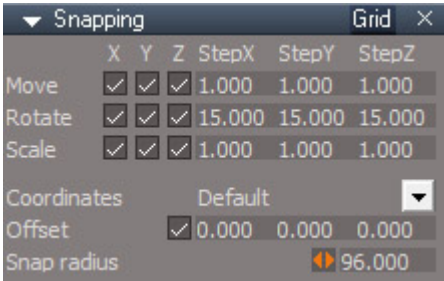
3.12.1 Grid Snapping



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 – This value controls how close to a snapping grid location you need to move before snapping will take place

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).

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.



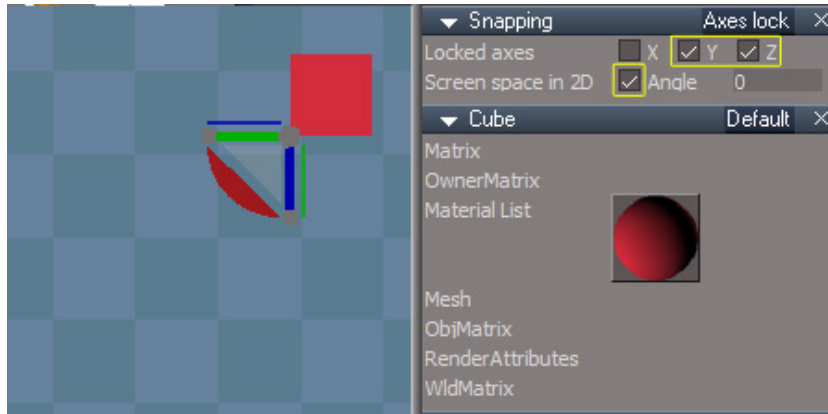
The Axes Lock aspect of the Snapping options panel.

- **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.

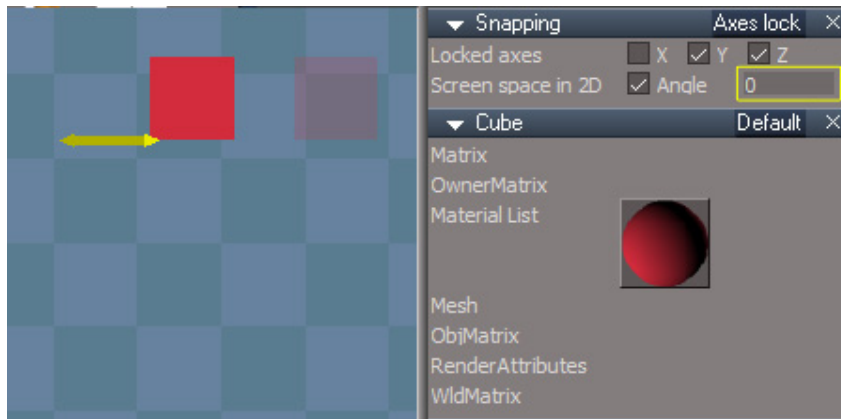


RMB open the Snapping Panel

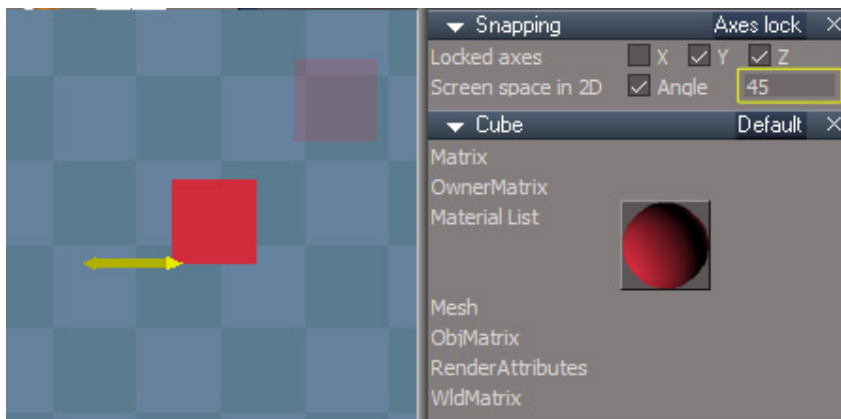
- **Screen Space in 2D** – This has an effect in the orthogonal views (top, front, side) only. When unchecked, the X and Y constraints apply to the world X and Y, meaning you may not be able to move the object in the X direction on screen from the angle you are looking at even if the constraint for X 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.



A cube viewed from the Top view, ready to move. Screen Space In 2D is checked, and all movement is constrained except along the X axis.



With an Angle of 0, movement occurs directly along the screen X axis, irrespective of what direction this might be in the World axis.



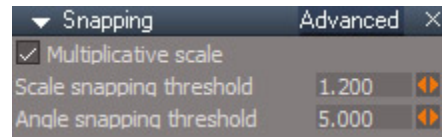
By setting the Angle to 45, clicking on the X movement axis of the widget this time moves the object along a line rotated 45 degrees.

Advanced Aspect

This aspect lets you control snapping with the Scale tool.



The Advanced aspect of the Snapping options panel.



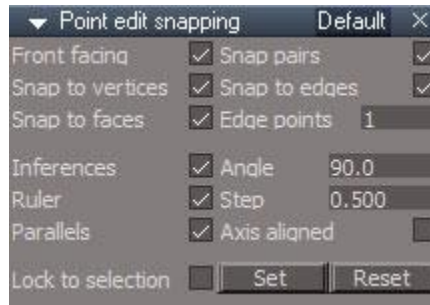
Unofficial Update Advanced aspect of the Snapping options panel.

- **Scale snapping threshold** – This value controls how much you must move before snapping will take place for scaling.
- **Angle snapping threshold** – This value controls how close to a snapping angle you need to be before snapping will take place

3.12.4 Point Edit Snapping



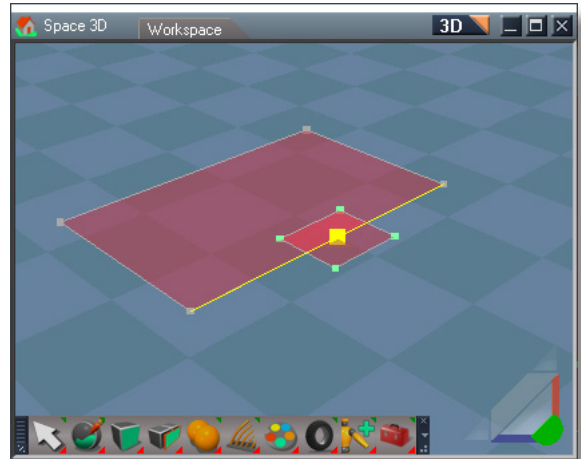
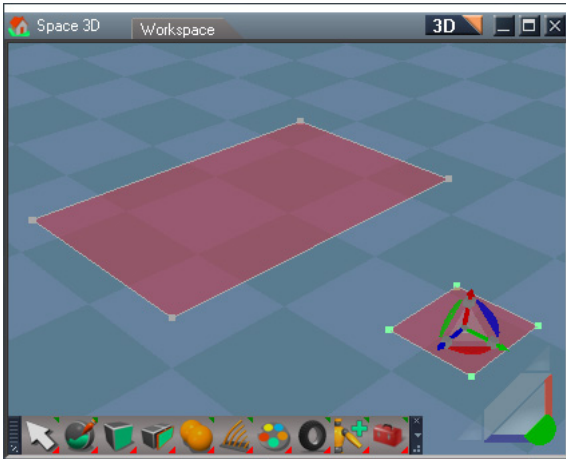
Point Edit Snapping works when in Point Edit mode, and allows snapping when you are moving vertices, adding edges and loops, etc.



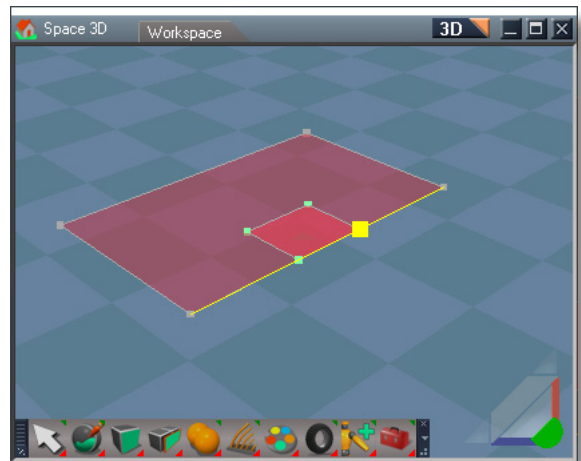
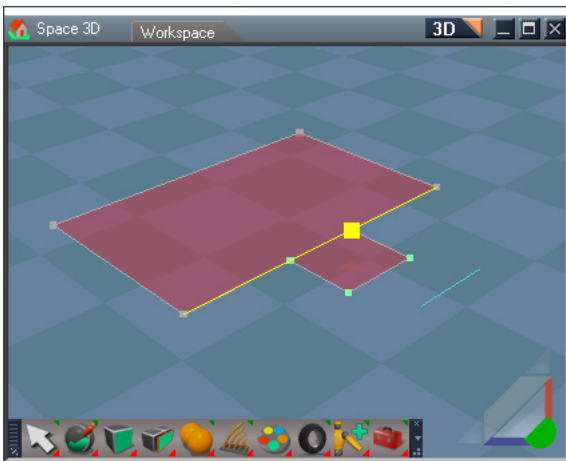
The Default aspect of the Point Edit Snapping options panel.

- **Front Facing** – Controls whether snapping is only done to front facing edges and faces (note that Snap To Vertices will be unaffected by this setting). When checked, snapping will only be to front facing elements, limiting snapping to visible elements facing the camera. When un-checked, snapping will work on elements that are not facing the current view, allowing snapping to faces and edges to apply to back faces on an object, etc.
- **Snap Pairs** – This parameter takes effect when you are working with selections of more than one element. If this is checked, then snapping occurs when any of the vertices in that selection gets close to a snapping point. If this is unchecked, then snapping only occurs when the widget for the selection gets close to a snapping point.

An example is shown below. The snapping point shows as the yellow spot which snaps to the edge which is also yellow when snapped to.



The initial set up has four vertices selected for moving (left). With Snap Pairs disabled, only the widget will snap, as can be seen clearly when we cross over the existing edge – the first two vertices do not cause a snap, only when the widget nears the snapping point does snapping take place (right).



When Snap Pairs is enabled, the vertices themselves snap to the edge, resulting in two different snaps. The first occurs when the first set of vertices near the snapping point (left), and then the selection snaps again when the other vertices near the snapping point (right).

Lock to Selection –This option lets you constrain editing in Point Editing to particular directions. For example, if you set a lock based on a polygon, then you will only be able to move points in the plane defined by that polygon (ie, in 2 directions), or if you set a lock based on an edge, you would only be able to move points in the direction defined by that edge.

Once you have checked this option, you will need to make a selection on your object, and then use the Set button to define the lock (or you can use the Set button first, and then check this box).

Lock to selection - extra information

To use the tool, in point edit mode select a face, two faces or an edge.

- o When selecting a face, movement will be constrained to a direction parallel to that face. This will be visualized by showing 2 arrows from the face center.
- o When selecting two faces, movement will be constrained to the edge defined by the intersection of the two planes. If the 2 planes are parallel then 1 plane will be ignored for the locking.

Vertex Aspect

Error from the original manual

2D Snap – When checked, snapping will only occur to snapping points on the current face beneath the mouse pointer. When unchecked, snapping can occur to any snapping points beneath the mouse pointer, even those on a back face, so long as it is within the Snap Distance. This parameter is checked by default.

2D Snap means that the 3D arrangement of the elements are ignored for snapping and only their distance in screen space is used. Unchecked and items have to be near each other in 3D space to snap.

Missing from the original manual

The snapping can be locked to an edge by holding the shift key. This also displays a guide line. When the guideline is active you can lock movement perpendicular to the current snap location on the edge by holding the shift and ctrl keys. This perpendicular locking only works when moving along an edge connected to the vertex that is moving. If you have enabled edge points and you snap to edge, snapping positions will also be evaluated outside that edges end points.

If you snap to a face not connected to the selected element and hold the shift key the snapping will lock to the face. This can be most easily be seen when using the Select by Move tool instead using of the point edit widget. When using the point edit widget it will constrain to a line on the plane. Shift and control together do not move perpendicular to the face.

Inferences only work on perfectly flat faces.

Inferences are useful when used with the drawing tools for polygons and lines and also may be useful for moving some elements around on a flat surface like after a bevel insert.

3.13 Primitives

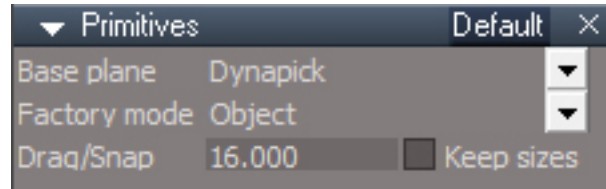
Primitives information missing from original manual



Primitives in the bottom toolbar



Unofficial Update Primitives in the bottom toolbar



RMB panels

Default Aspect - primitive tool preferences panel

Base plane

Dynapick - will create primitives aligned to and touching the face of a preexisting object, if no object is below the cursor it will behave the same as Ground

Ground - create primitive on the ground plane, isometric view create on the perpendicular plane of the view

Screen - will create primitives aligned with the view and located behind the view mirrored relative to the object location under the cursor. *Looks like a bug, should be centered on the object, not behind the view.* Move object in local space along it's z axis to reposition. If no object is under the cursor behaves the same as Ground.

To work around the screen space bug, use vertex snapping with 2D snap enabled.

Factory mode

Add - boolean add to the selected item

Cut - boolean cut the selected item, lines need to be visible to see the result

Intersect - boolean intersection

Merge - boolean merge

Object - create a new stand alone primitive object

Sibling - create a grouped relationship with the selected item as children of the same group object

Subtract - boolean subtraction

Union - boolean union

Cameras and lights only have Object and Sibling modes.

For the boolean modes, add, cut, intersect, merge, subtract and union set the primitive preferences before drawing or clicking to create the next instance.

Boolean modes are applied with a flatten mode of operation. Other modes are not supported.

Boolean modes may be unstable - got some crashes

Text primitive with cut can be slow and unstable.

Wireframe solid draw mode is needed to see the cut boolean properly.

Plane primitive will not boolean cut the face that it is drawn on.

TODO: Link to the boolean tools.

Drag/Snap - sets a radius where snapping cannot occur when creating primitives with snapping enabled.

To override and force snapping press the ALT key.

Keep sizes - will remember and for single click creation will use the last size that a primitive is created while the tool is active. Dropping the tool will reset to the default size. When unchecked will use the size parameters from the individual primitive preferences panels.

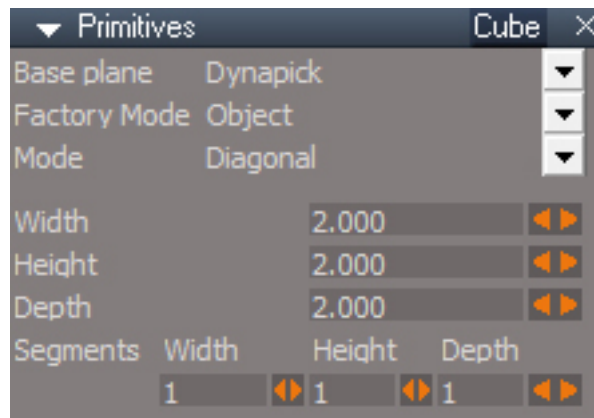
"Primitive employs extensive snapping."

Can set the height by snapping to other objects in the scene when RMB dragging during creation of the primitive. Snapping can also be done during the LMB phase of primitive creation.

RMB - primitive preferences panels



Cube Primitive



Mode

Diagonal - define base plane by LDrag, RDrag to define the height

Edges - define first edge by LDrag, release the button and move mouse to finish defining the base then RDrag to define the height or LClick to use the current height

Points - LClick define first point of the edge, LClick to define the last point of the edge, LClick to define the base, LClick to define the height

Width - size in the local X direction

Height - size in the local Z direction

Depth - size in the local Y direction

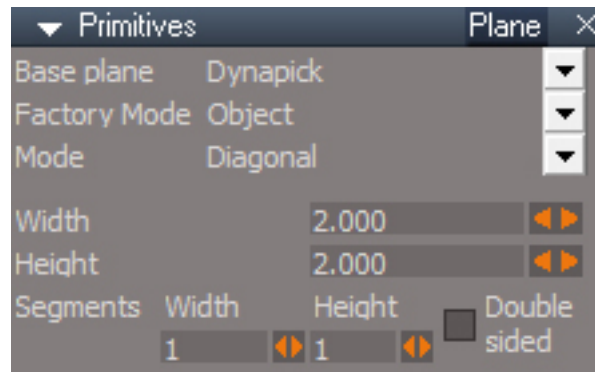
Width Segments - number of edges in the X direction

Height Segments - number of edges in the Z direction

Depth Segments - number of edges in the Y direction



Plane Primitive



Mode

Diagonal – LDrag to define first corner and the opposing corner of the plane.

Edges – define first edge by LDrag, LClick to finish the plane

Points – LClick 3 times to define 3 corners of the plane

Width - size in the local X direction

Height - size in the local Y direction

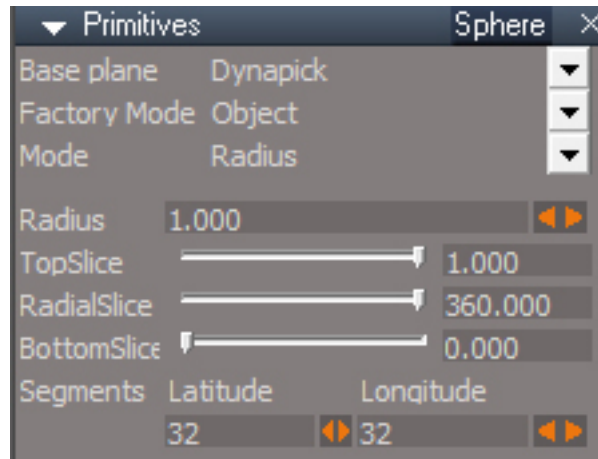
Width Segments - number of edges in the X direction

Height Segments - number of edges in the Y direction

Double sided - number of edges in the Y direction



Sphere Primitive



Mode

Diameter – define diameter for base by LDrag or RDrag defines height.

Radius - define center + radius for base by LDrag or RDrag defines height.

Radius - size of the sphere as measured from its center

TopSlice - percentage of the top portion to keep after slicing 1.0=100%=keep all of the top

RadialSlice - number of degrees in the radial direction

BottomSlice - percentage of the bottom portion be sliced 0=0%=no slice

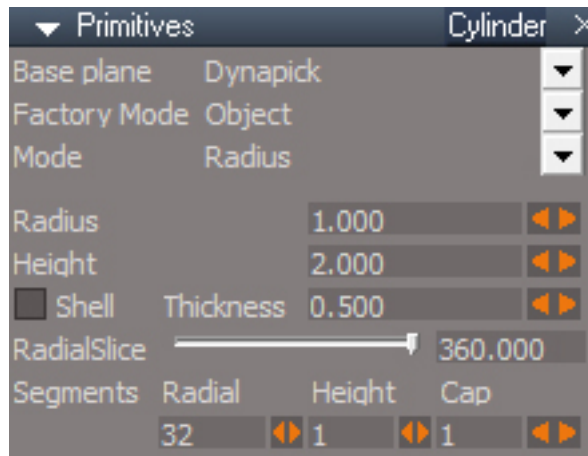
Latitude Segments - number of edges in the radial direction

Longitude Segments - number of edges in the axial direction



Cylinder Primitive

* 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.



Mode

Diameter – define diameter for base by LDrag, RDrag defines height.

Radius - define center + radius for base by LDrag, RDrag defines height.

When switching between LDrag and RDrag do not release the held button until after the switch.

Radius - size of the circle cross section as measured from its center

Height - height

Shell -

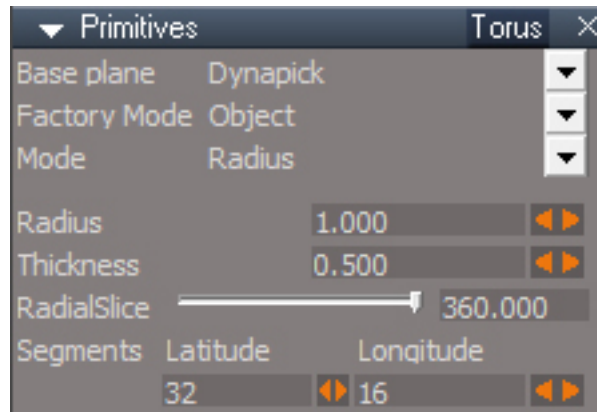
Thickness - shell thickness

RadialSlice - number of degrees in the radial direction

Radial Segments - number of edges in the radial direction

Height Segments - number of edges in the local Z direction

Cap Segments - number of edges at the top and bottom of the mesh, the first edge is invisible

**Torus Primitive**

Mode

Diameter – define diameter for base by LDrag

Radius - define center + radius for base by LDrag

RDrag does not work for the Torus primitive.

Radius - size of the torus as measured from its center, not measured to the center of the cross section

Thickness - diameter of the circular cross section of the torus

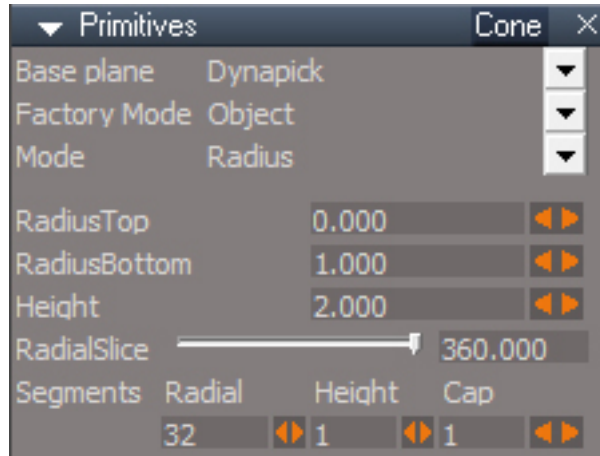
RadialSlice - number of degrees in the axial direction

Latitude Segments - number of edges around the major axis

Longitude Segments - number of edges around the minor axis or cross section



Cone Primitive



Mode

Diameter – define diameter for base by LDrag, RDrag defines height.

Radius - define center + radius for base by LDrag, RDrag defines height.

When switching between LDrag and RDrag do not release the held button until after the switch.

RadiusTop - size of the circle cross section at the top

RadiusBottom - size of the circle cross section at the bottom

Height - height

RadialSlice - number of degrees in the radial direction

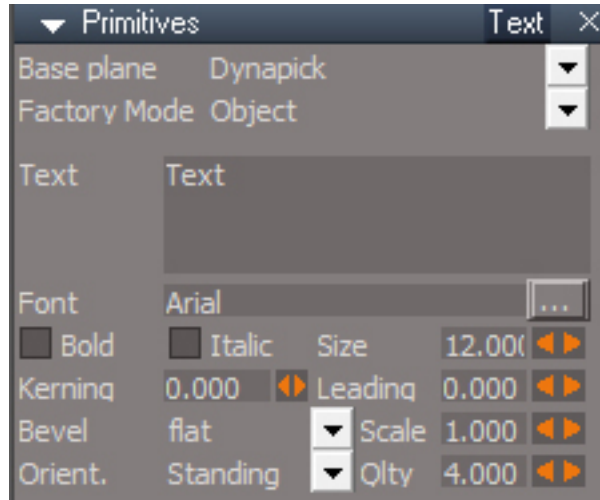
Radial Segments - number of edges in the radial direction

Height Segments - number of edges in the local Z direction

Cap Segments - number of edges at the bottom of the mesh, the first edge is invisible



Text Primitive



LDrag to control orientation about the local Z axis, RDrag to scale along the local Z axis.

Text -

Font -

Bold -

Italic -

Size - width/height of a character where a value of 4 translates to about 1 meter for TrueType fonts

Kerning - adjust spacing between letters

Leading - adjust spacing between lines of text

Bevel - type of bevel, base has no bevel and 2D has zero thickness

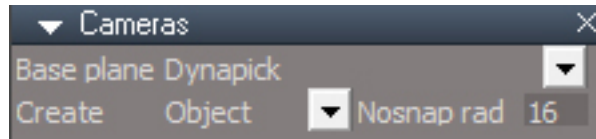
Scale - bevel scale, positive values effect the bevel and negative values effect the base(more or less)

Orient - **Lying** against the base plane or **Standing** up on it

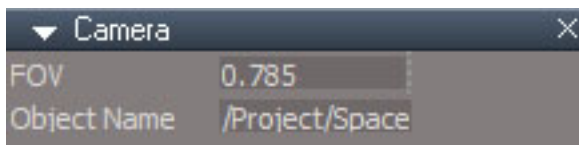
Qlty - controls the number of vertices used to create the text

The thickness of the text depends on the bevel type.

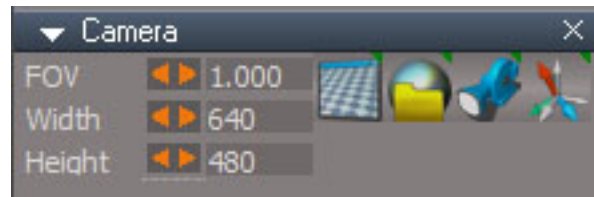
Large values for Qlty will reduce the characters smoothing. Values of the form "X.1" like 4.1, 5.1, 6.1 seem to work best in producing the shape defined by the chosen font.



Nosnap rad - sets a radius where snapping cannot occur when creating primitives with snapping enabled. To override and force snapping press the ALT key. **This setting does not seem to be working.**



Camera panel



Unofficial Update Camera panel



Create a camera in the scene facing in the negative Y direction. The camera has a FOV of 0.785 by default.

The Unofficial Update version of the camera has a default FOV of 1.000, extra buttons and the Object Name is not shown in the panel.

Switch the first floating 3D window or open a new 3D window to the camera view and move it to the upper right of the tS screen with the size of the window taken from the Width and Height parameters.

RClick selects the camera

Same icon as 3D Window

If the first floating 3D window is closed, any other floating 3D windows will not take its place, so a new window will be opened. If all 3D windows are closed then the first becomes eligible for conversion.

The second button LClick is the same as the first button except it also opens the Render to file dialog. Note that the size in the dialog may need to be manually updated to match the Width and Height set on the camera.

RClick opens windows explorer to the render folder set in the Render to file dialog.

The third button switches the main 3D window to the camera view.

RClick restores the previous perspective view of the window. Does not set previous view if the window was an orthogonal view or another camera view. Only switches to previous perspective view.

Same icon as Set camera

The fourth button orients the camera to point in the negative Y direction.

RClick orient and position the camera to values of the default perspective view.

Same icon as Normalize rotation for axes



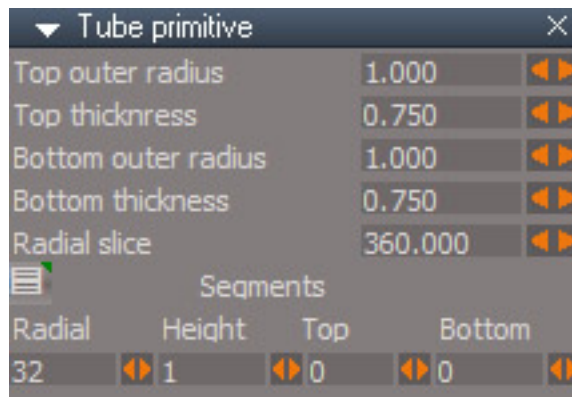
The entry point is the same as a camera except it has no Object name connector and the FOV is set to 0.5 by default.

The entry point camera has the special name "EntryPoint". Any object at the root level of the scene with the name "EntryPoint" will be used as the 3D view point and orientation when loading the scene. The view will also get its FOV from the camera. The view is not tied to the EntryPoint. So if the entry point camera moves the view does not move with it.

New for the Unofficial Updates



Tube Primitive



Top outer radius - size of the circle cross section at the top

Top thickness - top inner radius, not true thickness

Bottom outer radius - size of the circle cross section at the bottom

Bottom thickness - bottom inner radius, not true thickness

Radial slice - number of degrees in the radial direction

Blank Button - LClick open Keying panel and select the internal primitive node, RClick select the full mesh object

Radial Segments - number of edges in the radial direction

Height Segments - number of edges in the local Z direction

Top Segments - number of edges at the top of the mesh

Bottom Segments - number of edges at the bottom of the mesh

If the thickness value is greater than the radius value then the outer radius will be pushed out by the thickness.



Gear Primitive - makes a star shaped mesh



Height - size local Z direction

Inner Radius - size of the central hub

Longitude - number of gear teeth or star points

Outer Radius - length of the teeth

Blank Button - LClick open Keying panel and select the internal primitive node, RClick select the full mesh object

Flatten - flattens the mesh and fixes the normals - do not use if animating the gear attributes

more pages in the Chapter 2 UU, but not sure if they will go here or in the Additions chapter