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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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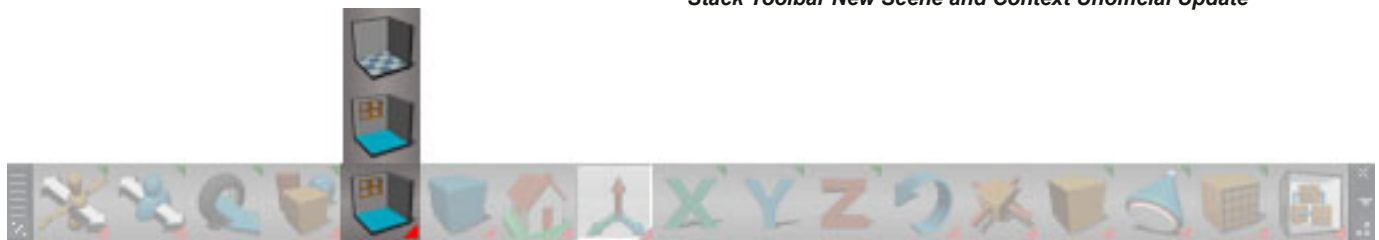
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Stack Toolbar New Scene and Context Unofficial Update



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

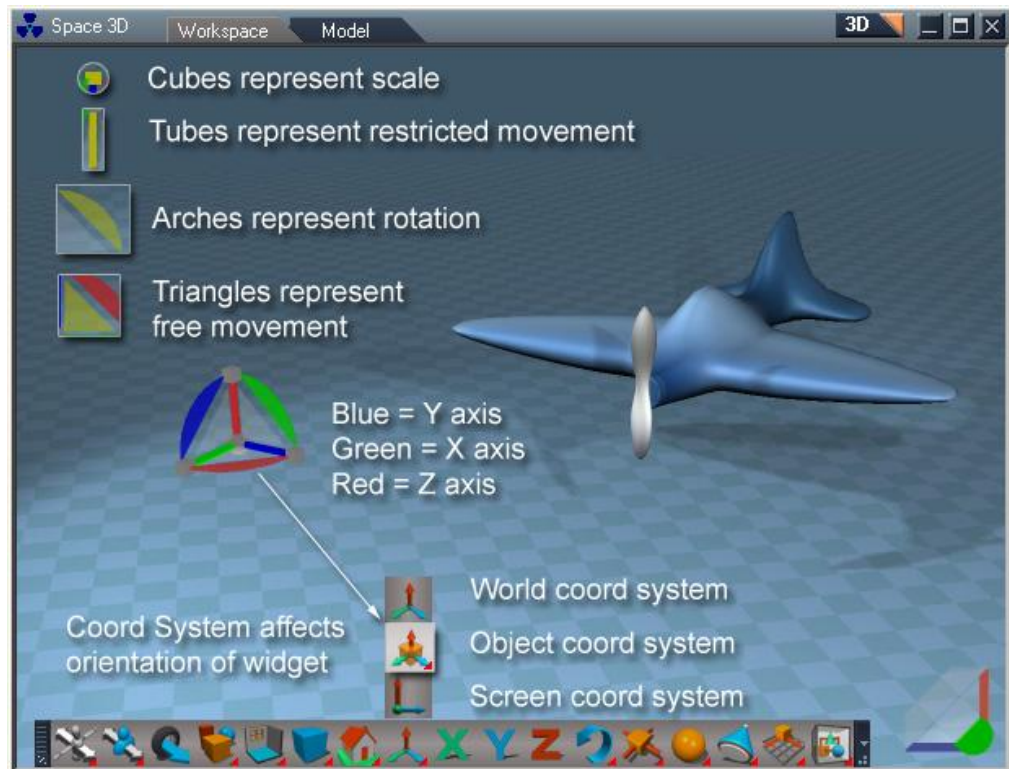
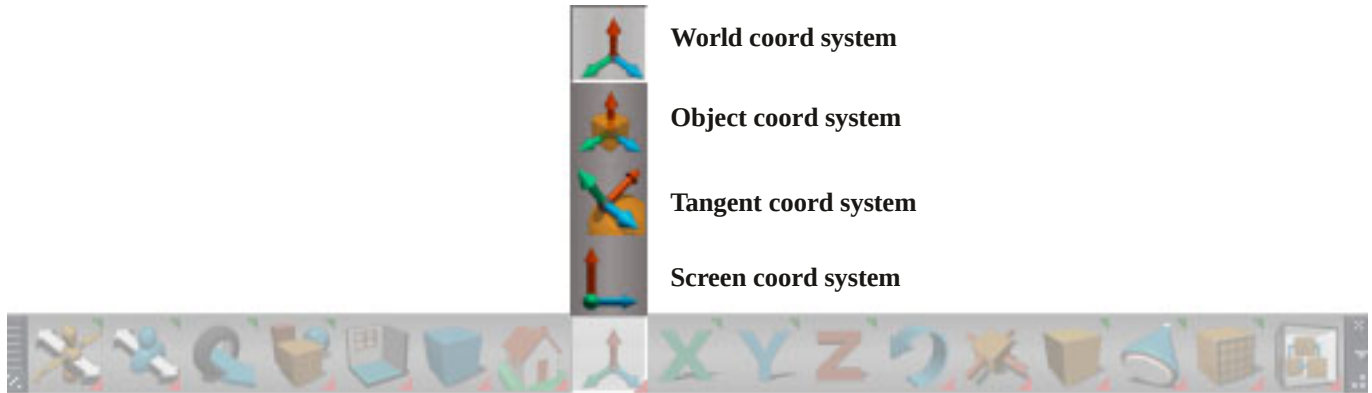
Info panel

Key	Description
CTRL Z	Undo
CTRL SHIFT Z	REDO

Link Editor

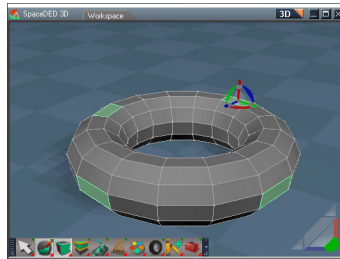
Key	Description
DELETE	Delete selected node
CTRL	Undo
CTRL SHIFT Z	Redo
CTRL Drag	Copy selected object
LEFT	Select Previous object
RIGHT	Select Next object
DOWN	Select first Child
UP	Select Parent
CTRL SHIFT LEFT	Select Previous & Center
CTRL SHIFT RIGHT	Select Next & Center
HOME	Current scene in Link 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

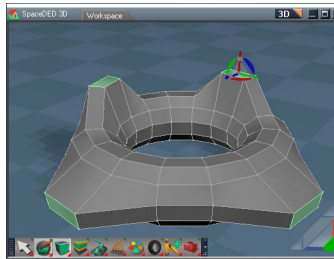




Tangent coordinate system is useful for point edit modeling. The object navigation widget in tangent mode behaves the same as in world coord mode.
The tangent Coordinate system is not documented in the original manual.



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



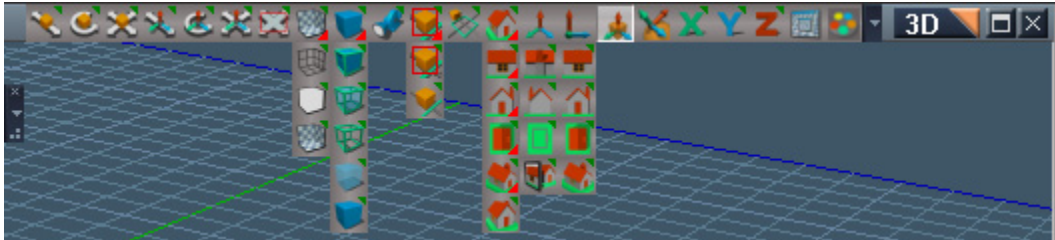
Camera FOV RMB to exit tool



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



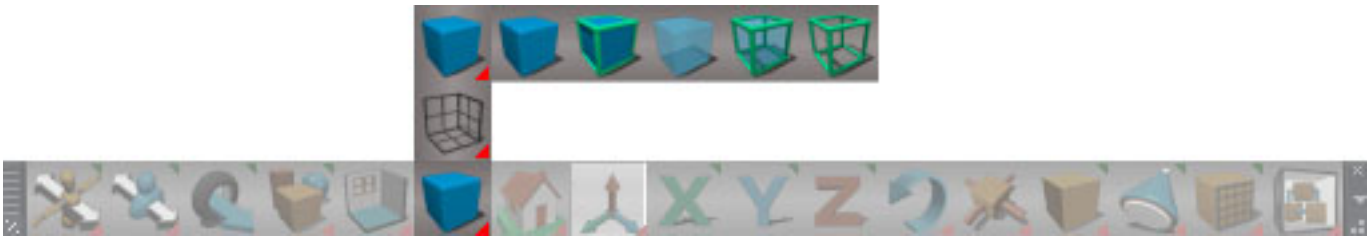
Set Camera RMB switch to perspective view.



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.

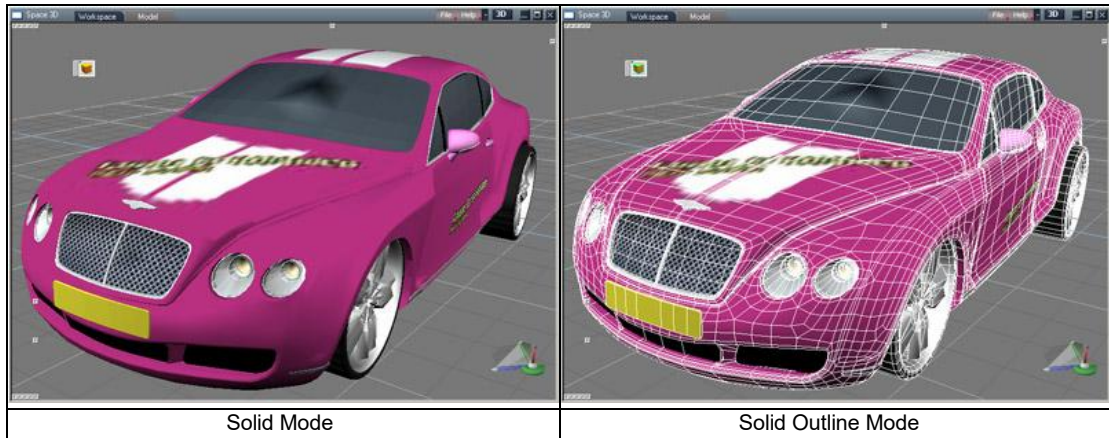
RMB will change all 3D windows.

Draw as Solid

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

Draw as Solid Outline

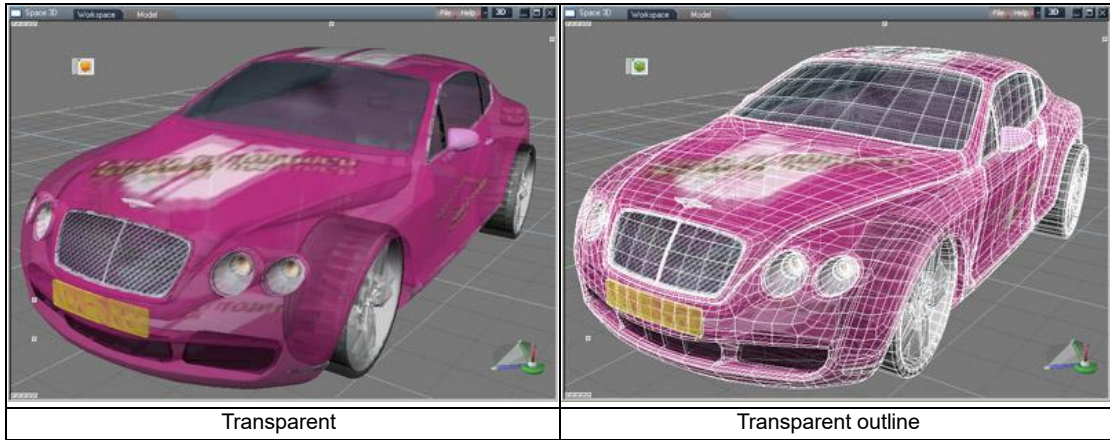
trueSpace will render the objects just as in solid mode and also outline the edges and vertices of the objects.

**Draw as Transparent**

This will allow you to partially see through objects.

Draw Transparent Outline

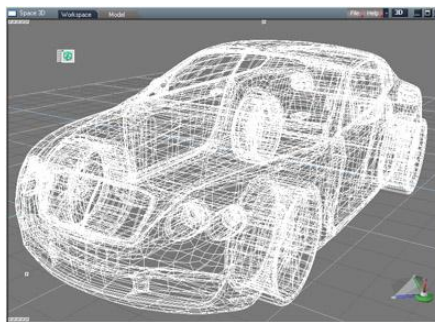
This is similar to Draw as Transparent , with the added function of highlighting all vertices and edges.



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

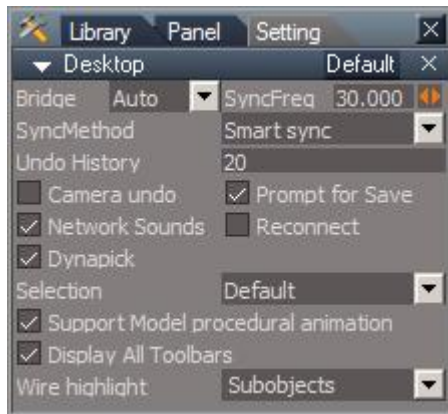


Hide All

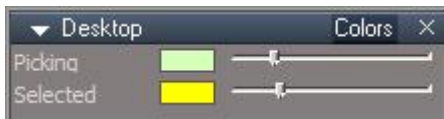
RClick on the buttons opens the object render attributes panel for the first selected object.

To isolate the selected objects Hide All then Show Selected

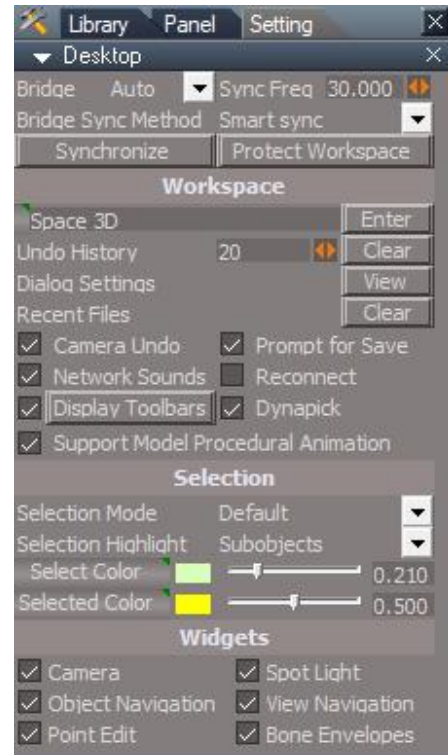
2.7.6 Desktop Preferences



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

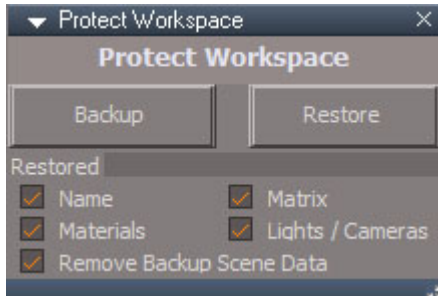
Clear – clear recent files list

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

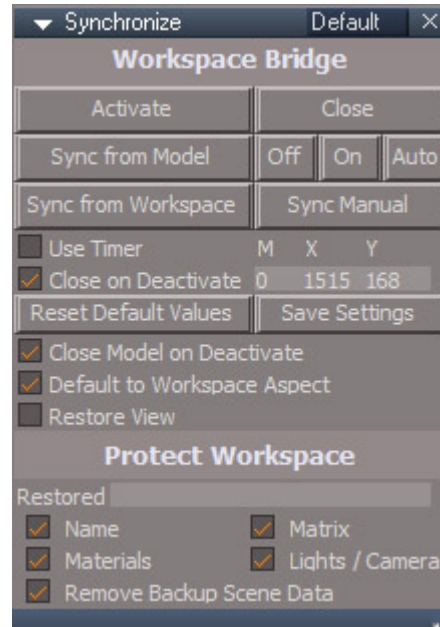
One thing you might want to mention about Synchronize, it is a Camera and it is necessary to be viewing from this camera from within Workspace & Model for synchronization. Adding objects from Workspace after Activating the Synchronize camera will not be Protected.

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

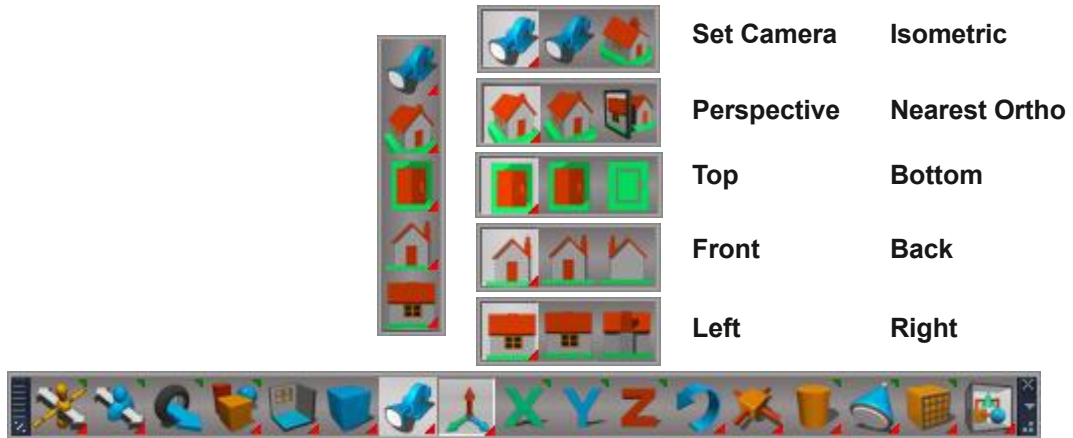
The Undo tool (CTRL+Z keyboard shortcut) reverses the last operation performed on an object. This makes it easy to try things out in trueSpace and quickly undo something that did not work out the way you planned.

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.



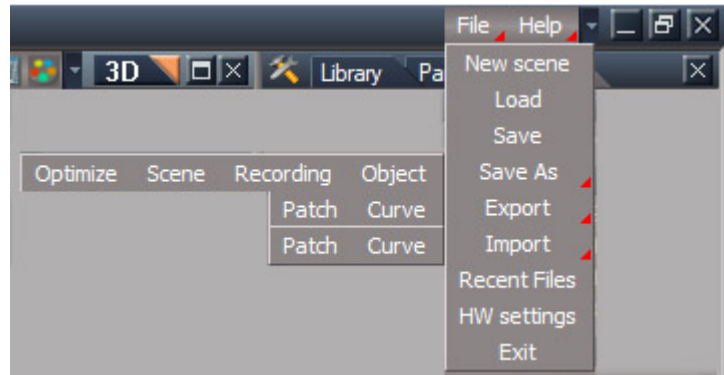
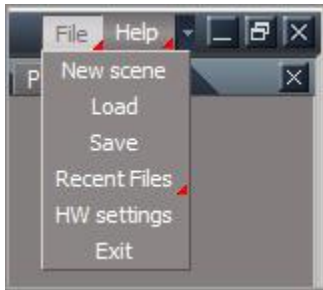
Switching the view to a different type



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.

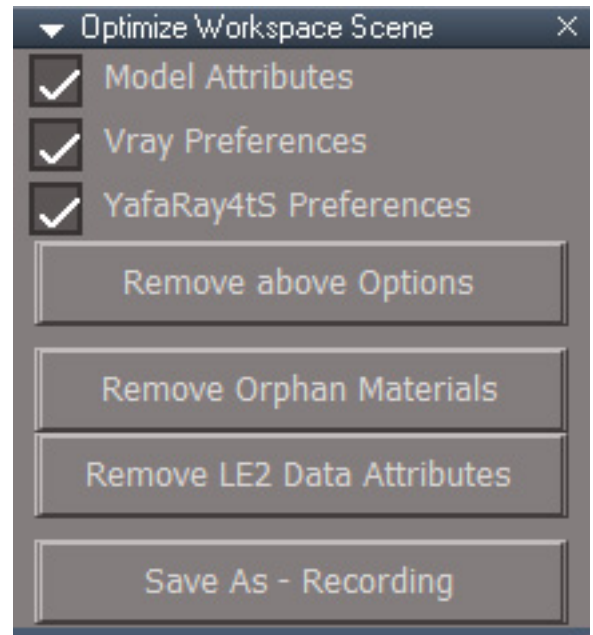
Vray Preferences - setup to remove Vray and PhotoRender nodes from the scene. Safe to use if you did not use Vray rendering for your scene.

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.

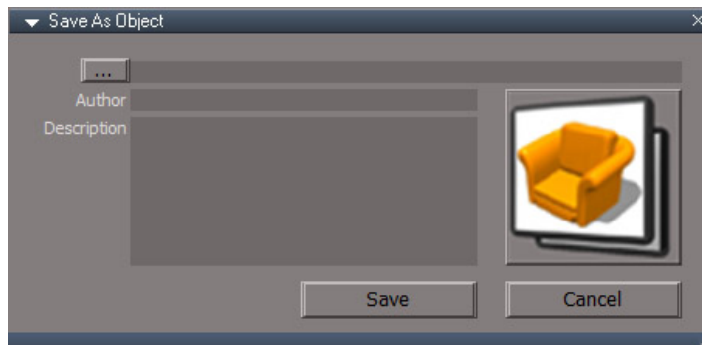
Remove LE2 Data Attributes - some scene items seem to have excessive numbers of LE2 Data connectors.



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.



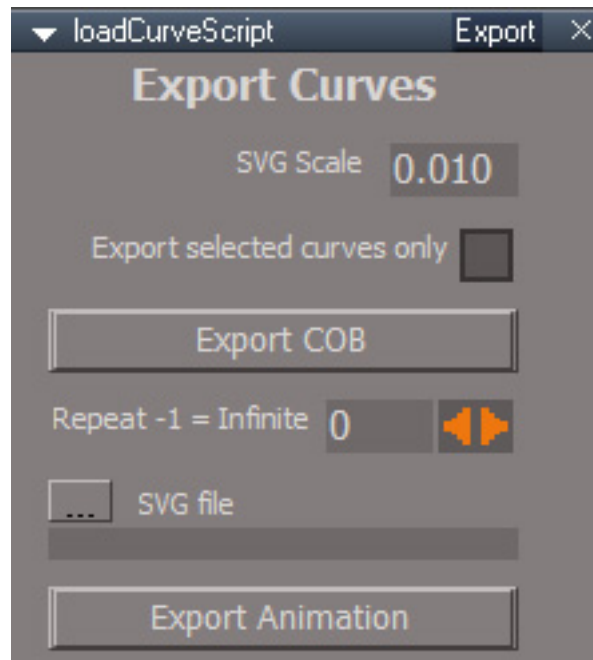
Save As > Object save object file, RsObj, with extra information

... 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

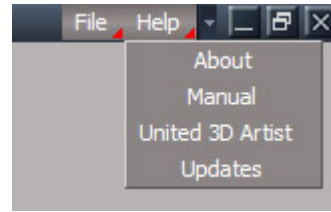
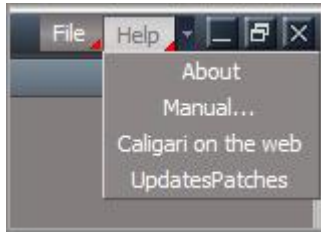
Constant color - use a constant color material for curves imported as polygons

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.

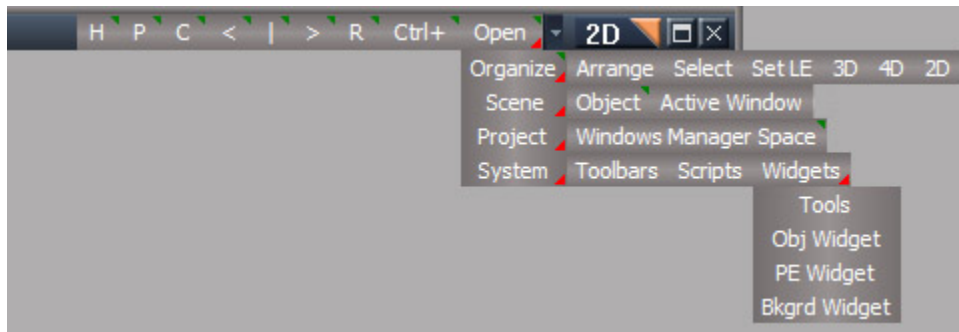
Help: Updates

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

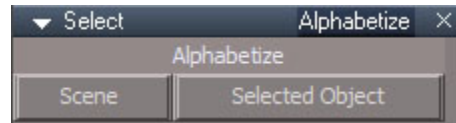
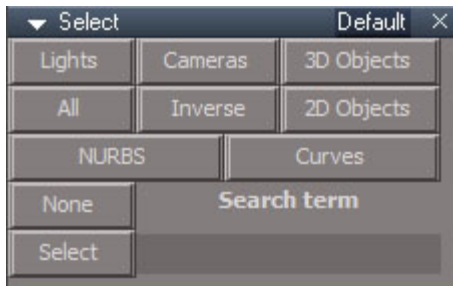
Widgets : open link editor to the active widgets

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.

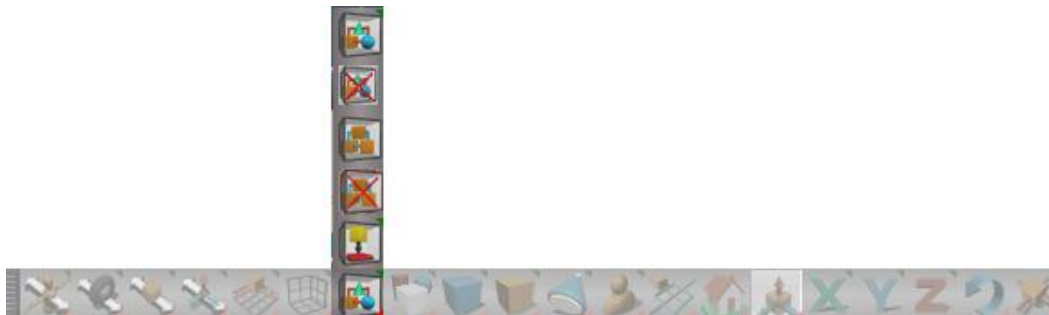
Scene : Alphabetize the scene.

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

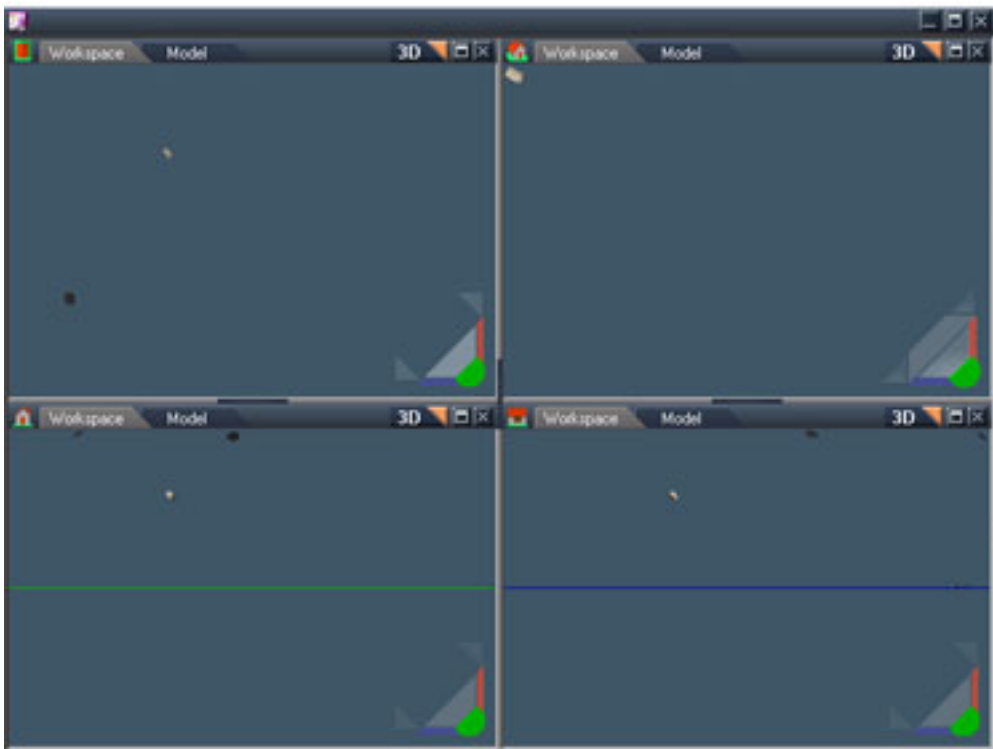


Link Editor

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.

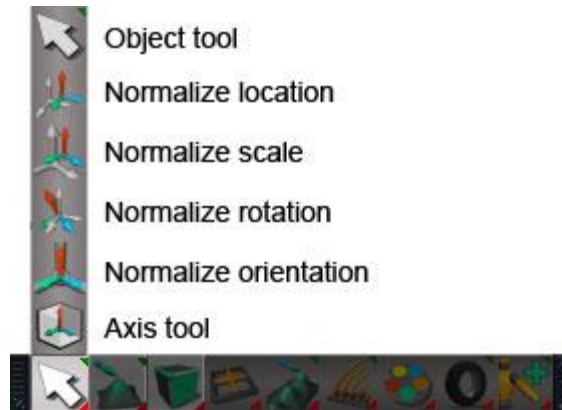


Macro Record - VBScript

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



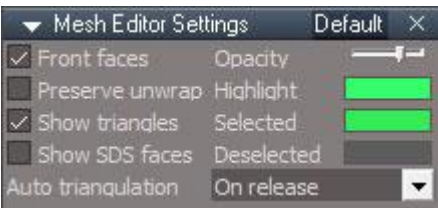
RMB toggles showing the axis in front and in back of the object.

3.2.0 Mesh Editor Settings

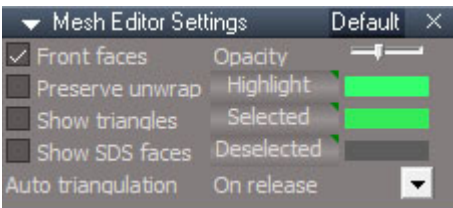
There are many options and settings that will control how Point Edit works, adjusting everything from the colors used in making a selection, to how certain tools work. This section details those options before we get into looking at the tools themselves. Where the options apply to a particular tool,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

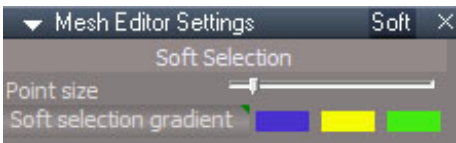
Highlighted, Selected, Deselected – RMB reset buttons.

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.

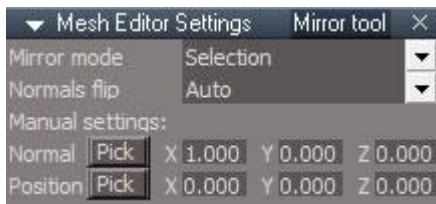


Unofficial Update Soft aspect.

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.

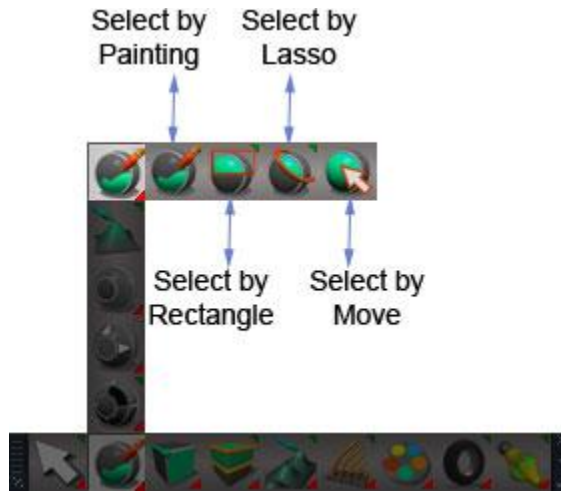


The Mirror Tool aspect of the Mesh Editor Settings panel.



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

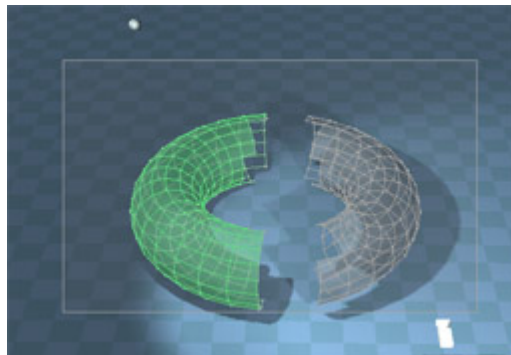


Connected – RMB panel, This checkbox determines if the selection is allowed to select other object's elements or not.

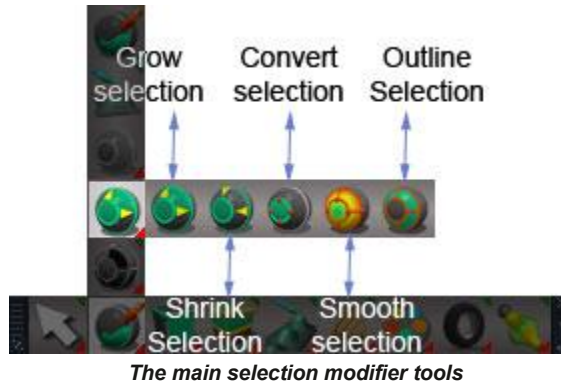
3.2.3 Select By Lasso



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 Also link to the normals selection tool.

3.2.17 Hide Unselected Geometry

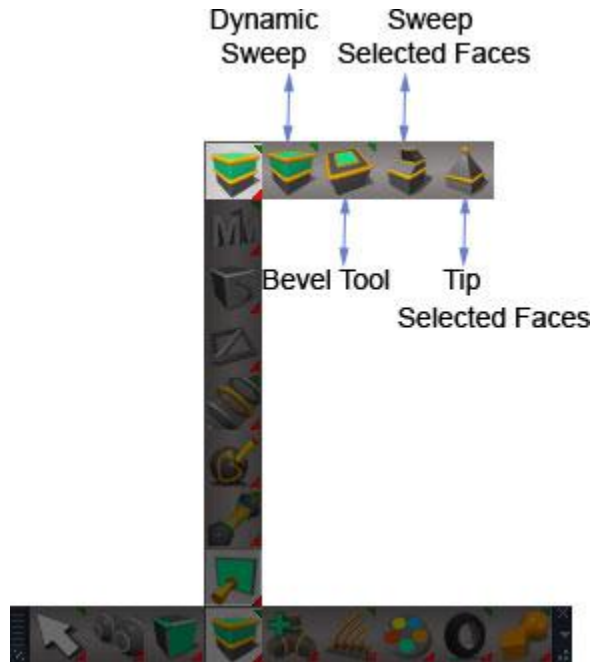


This hides the unselected elements, so that the selected elements are the only ones that remain visible, and are the only ones that can be selected and edited. This is useful for focusing work on a particular area of an object, without the distraction of other elements being visible in the scene.

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.



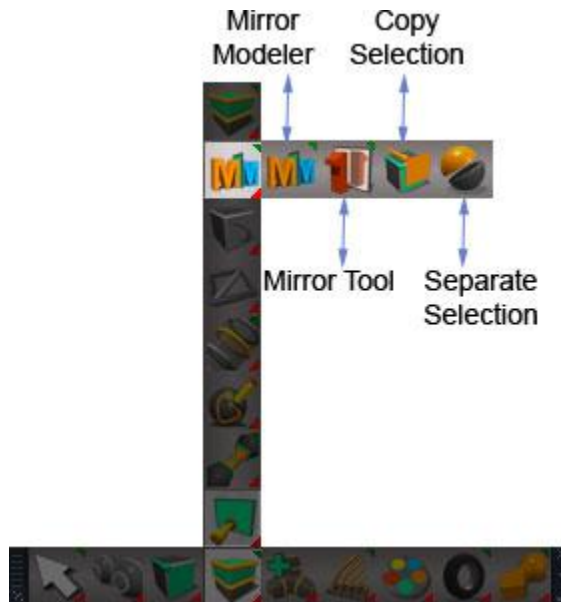
[TODO link to lathe](#)



[TODO link to static sweep](#)



[Link to true bevel](#)



3.4.5 Mirror Modeler

[Link to object mirror tool](#)

3.4.6 Mirror Tool

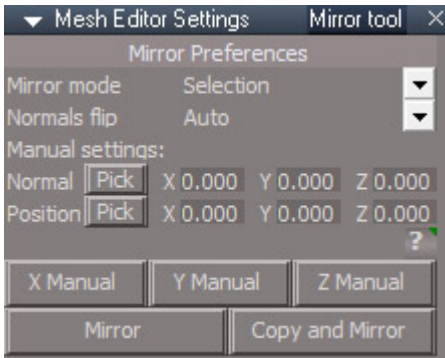


The Mirror Tool allows you to make a selection of elements on an object and Mirror that selection. If no selection of elements is made, the entire object is mirrored across the x-axis.

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

add link near quadrify to quadrify by normals tool

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

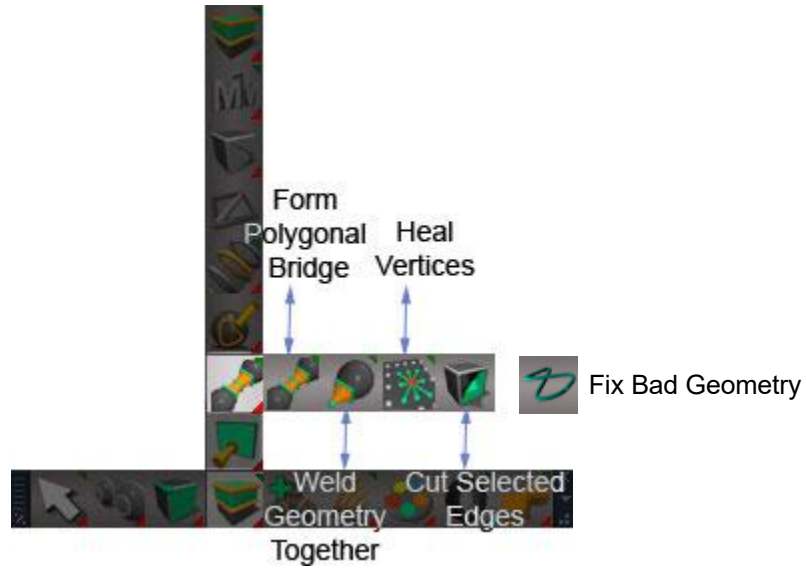
To modify the position of a previous drawn vertex simply drag it to the desired location.

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

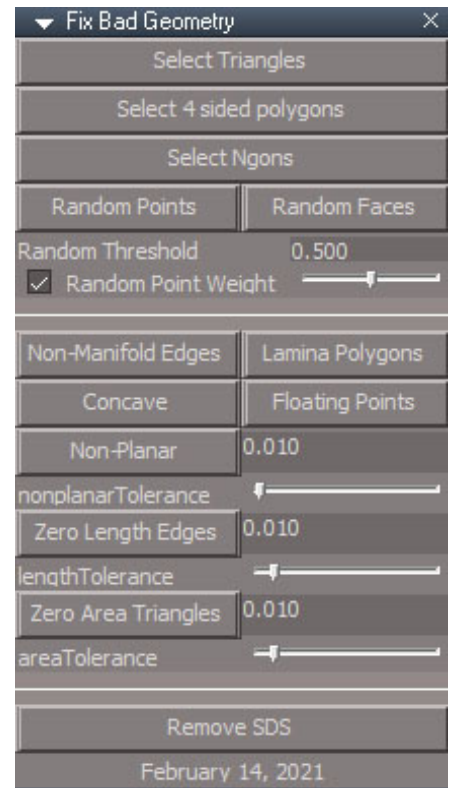
Floating Points - delete points that have no edge connections

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

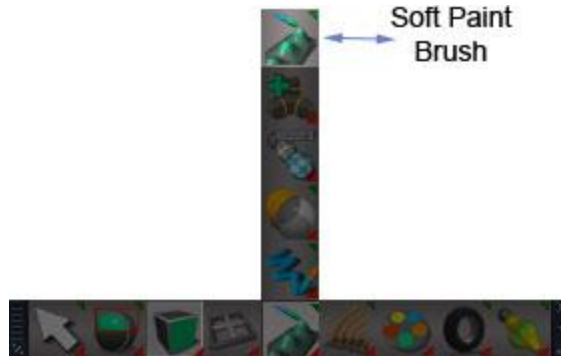
Zero Length Edges - select triangles that have a zero length side with the zero being defined by the **lengthTolerance**

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

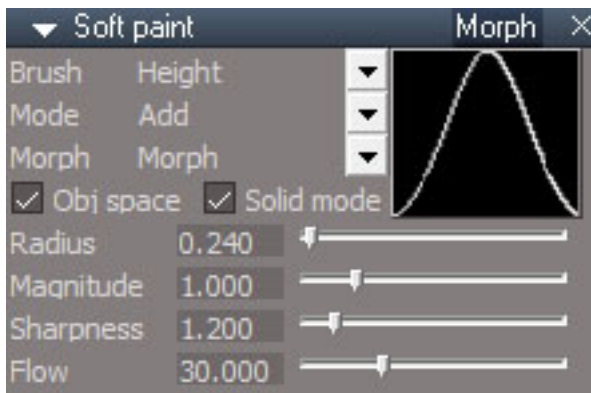
Remove SDS - removes a bad SDS from a mesh so it can be reapplied



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

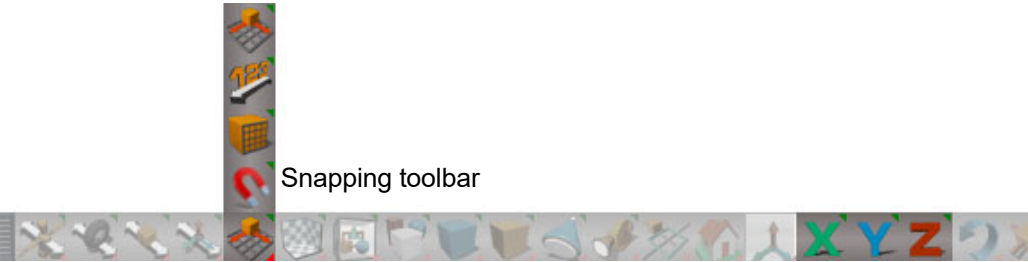


RMB flattens history and removes UV connectors

3.12 Snapping and Distance Tools



The location of the snapping tools

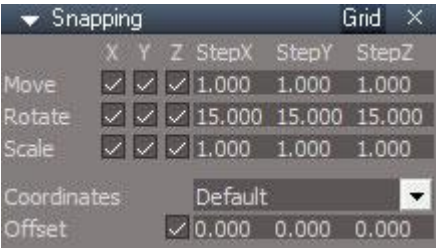


Unofficial Update location of the snapping tools

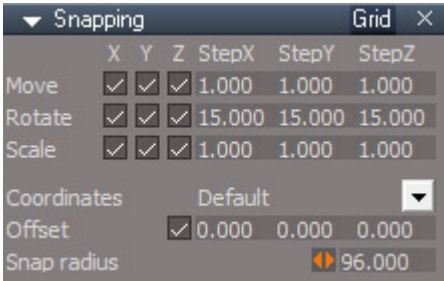
3.12.1 Grid Snapping



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.



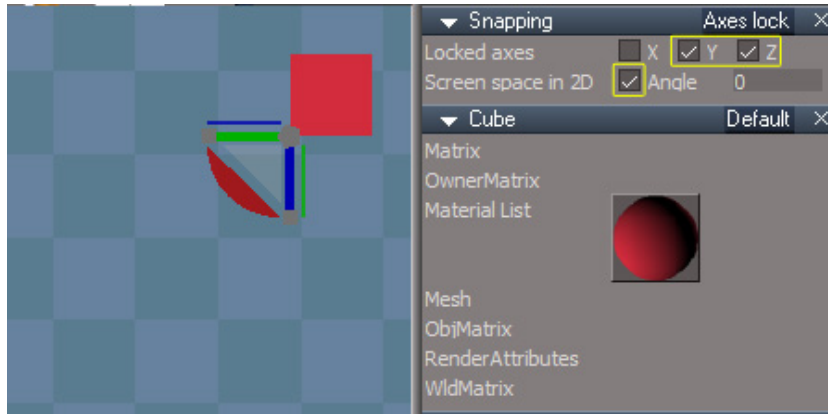
The Axes Lock aspect of the Snapping options panel.

- **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.

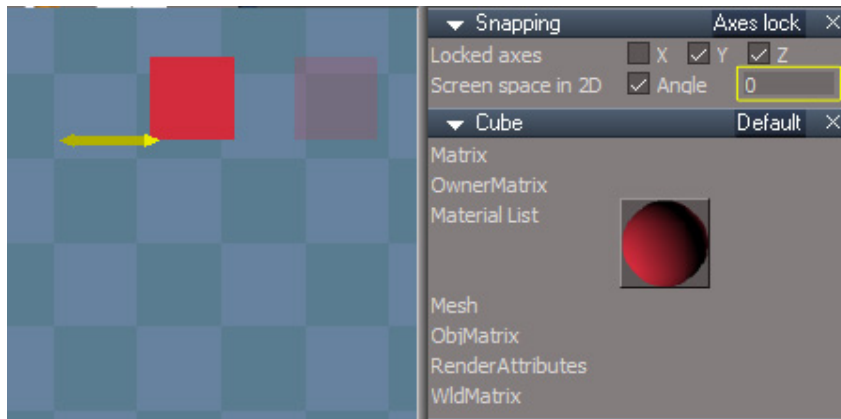


RMB open the Snapping Panel

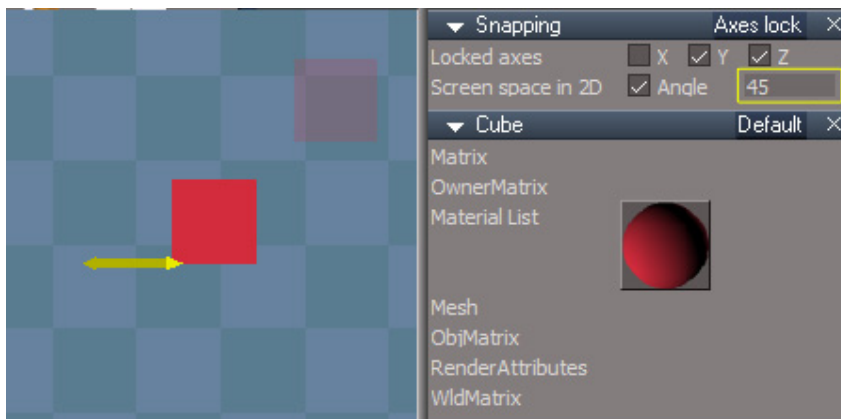
- **Screen Space in 2D** – This has an effect in the orthogonal views (top, front, side) only. When unchecked, the X and Y constraints apply to the world X and Y, meaning you may not be able to move the object in the X direction on screen from the angle you are looking at even if the constraint for X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



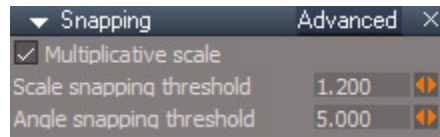
By setting the Angle to 45, clicking on the X movement axis of the widget this time moves the object along a line rotated 45 degrees.

Advanced Aspect

This aspect lets you control snapping with the Scale tool.



The Advanced aspect of the Snapping options panel.



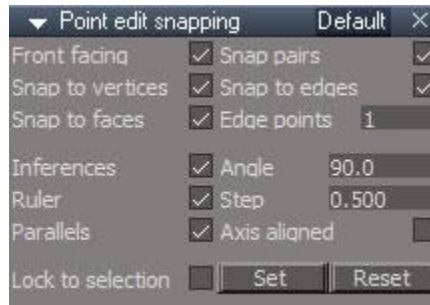
Unofficial Update Advanced aspect of the Snapping options panel.

- **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



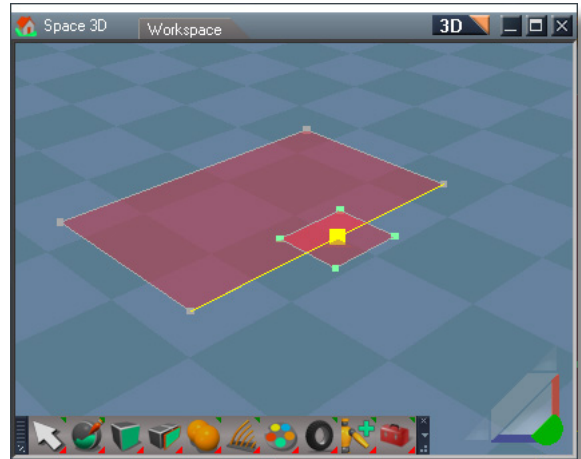
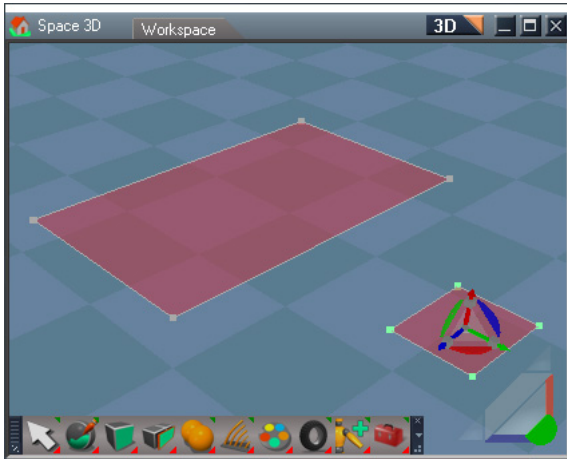
Point Edit Snapping works when in Point Edit mode, and allows snapping when you are moving vertices, adding edges and loops, etc.



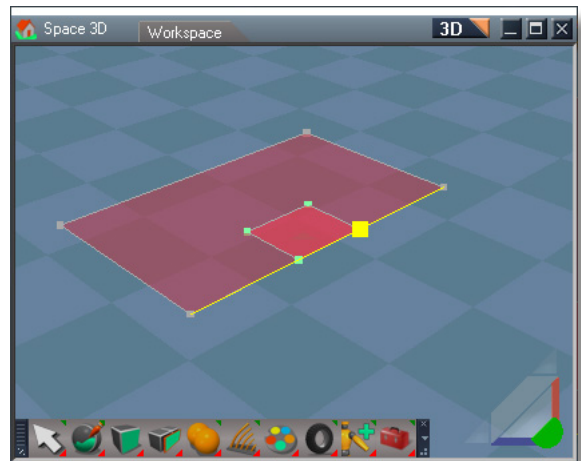
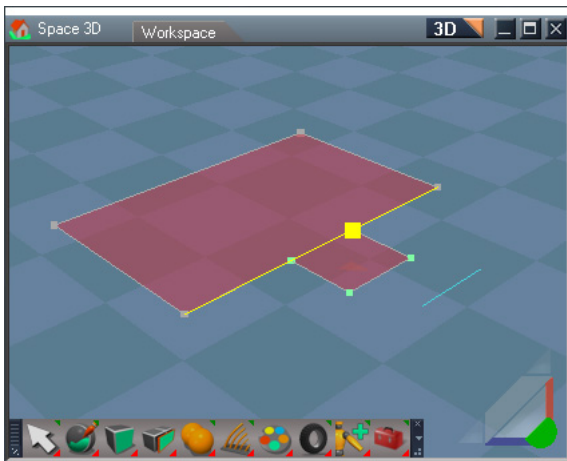
The Default aspect of the Point Edit Snapping options panel.

- **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



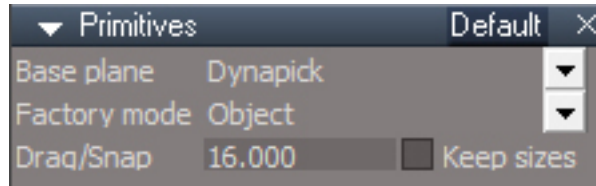
Primitives in the bottom toolbar



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. *This is a bug, it 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, screen 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.

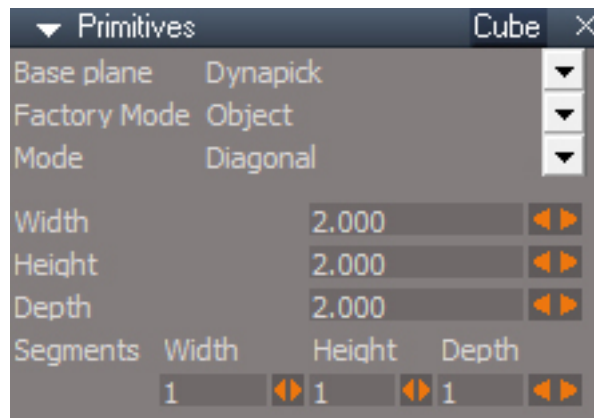
"Primitive employs extensive snapping."

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

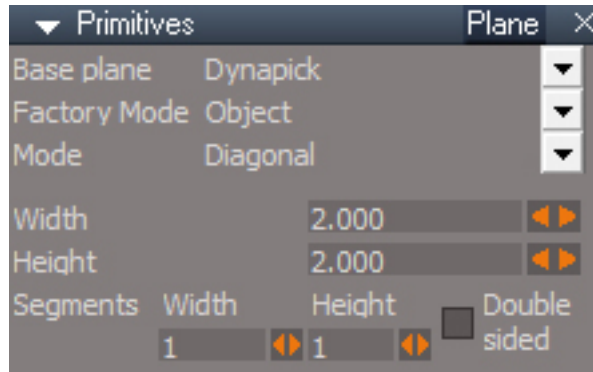
Width Segments - number of edges in the X direction

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

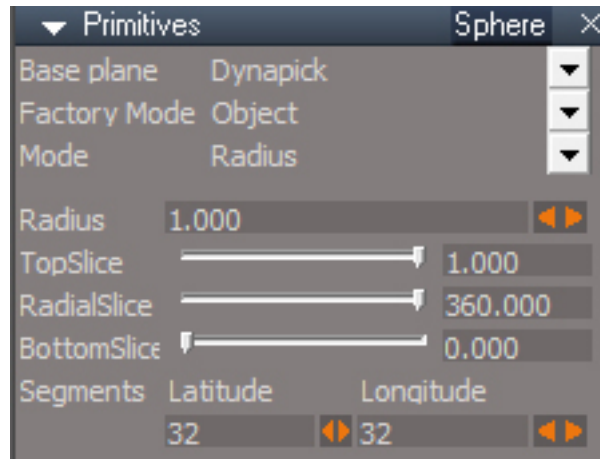
Width Segments - number of edges in the X direction

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



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 -

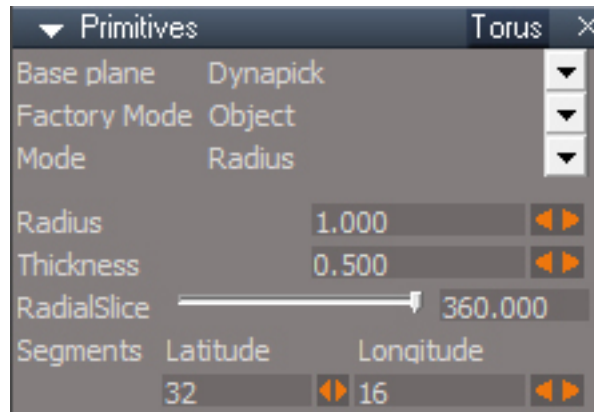
Thickness - shell thickness

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

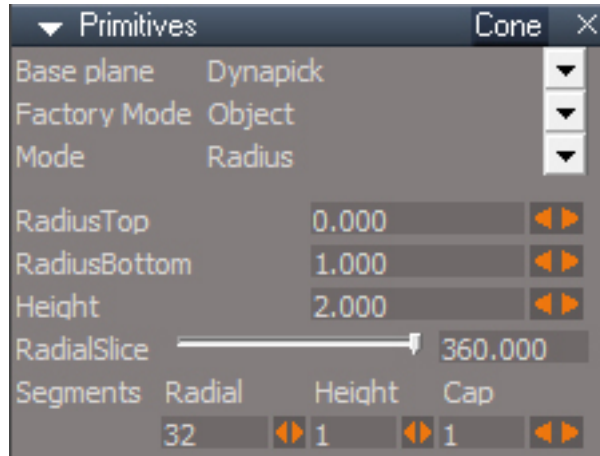
RadialSlice - number of degrees in the axial direction

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

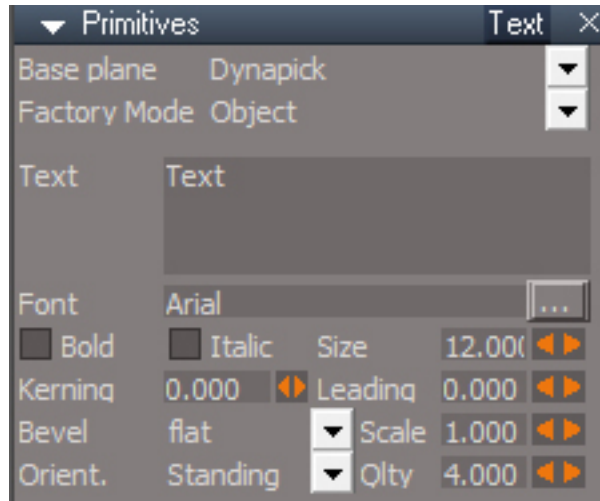
Radial Segments - number of edges in the radial direction

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

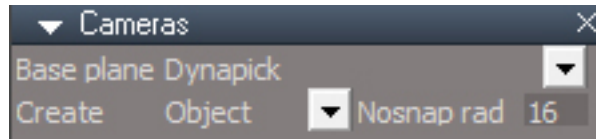
Scale - bevel scale, positive values effect the bevel and negative values effect the base(more or less)

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

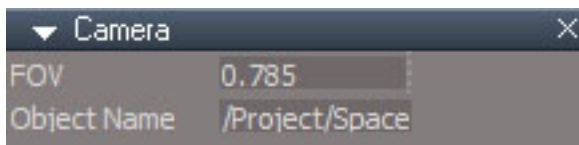
Qlty - controls the number of vertices used to create the text

The thickness of the text depends on the bevel type.

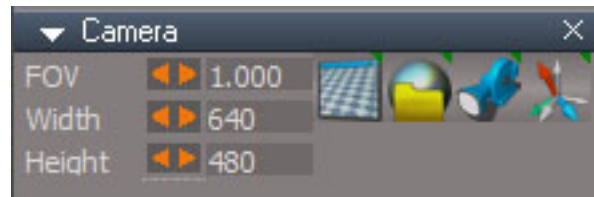
Large values for Qlty will reduce the characters smoothing. Values of the form "X.1" like 4.1, 5.1, 6.1 seem to work best in producing the shape defined by the chosen font.



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



Camera - 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.



Camera Window - 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.



Camera Render to File - Same as the Camera Window 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.

Same icon as Render to File



View - 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



Normalize Rotation 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



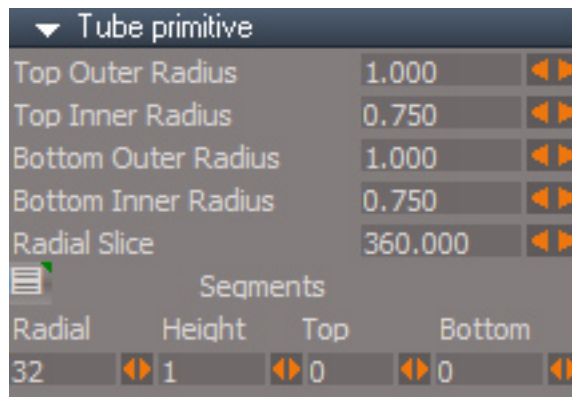
Entry point is the same as a camera except it has no Object name connector and the FOV is set to 0.5 by default.

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 Inner Radius - top inner radius

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

Bottom Inner Radius - bottom inner radius

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



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 3 UU, but not sure if they will go here or in the Additions chapter

see orphan pages at the back of this document

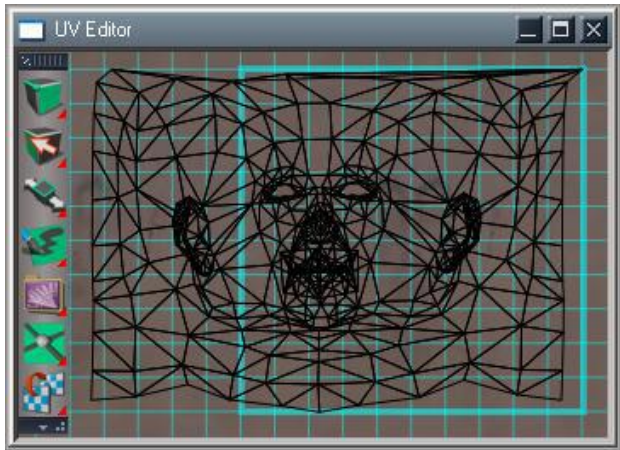
Chapter 5 SURFACING - Workspace

5.1 UV Projections

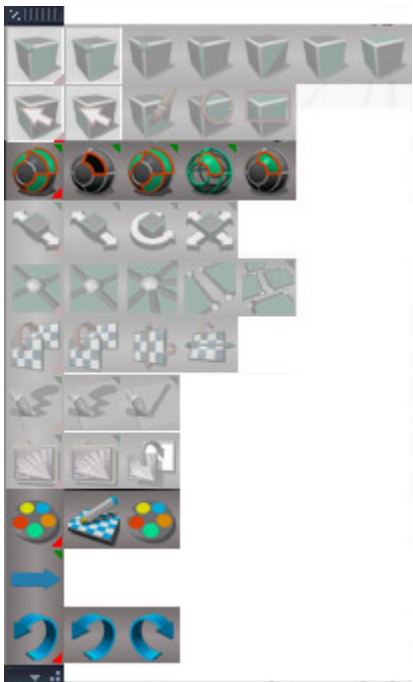
5.2.1 UV Mapping Editor Tools



UV Mapping Editor



UV Mapping Editor



Unofficial Update UV Mapping Toolbar



Hide selected geometry.



Select by material



Hide unselected geometry.



Show all hidden geometry



Material editor



UV Editor preferences



LMB Next Material, RMB Previous Material

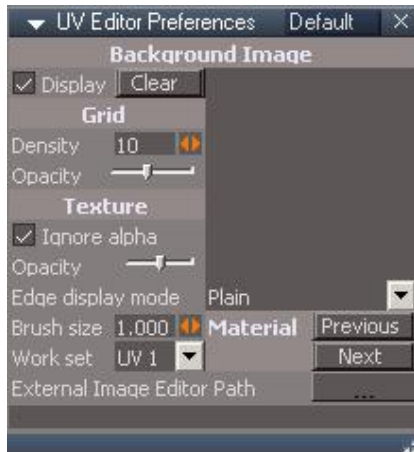


Undo

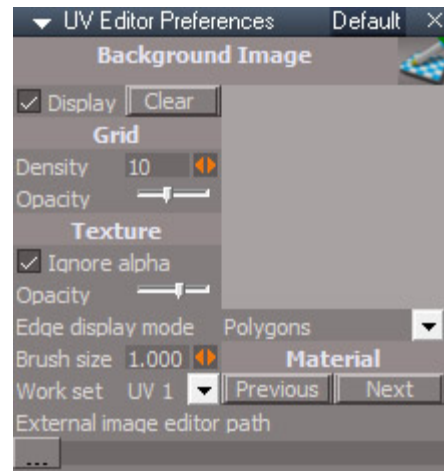


Redo

5.2.5 UV Mapping Editor Options



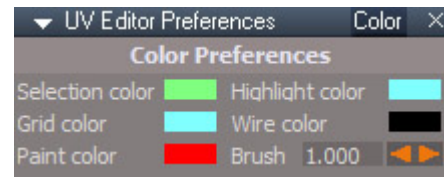
Default Aspect



Unofficial Update Default Aspect



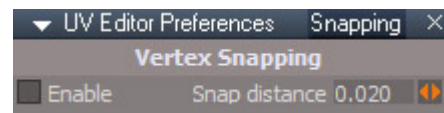
Color Aspect



Unofficial Update Color Aspect



Export Aspect



Snapping Aspect



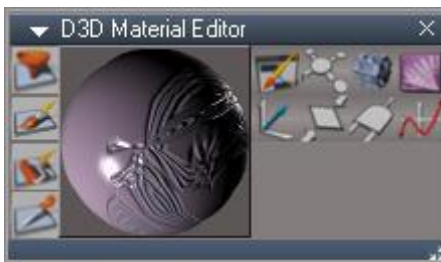
LMB open the uv editor, RMB open preferences in a floating window

Vertex Snapping – when Enabled moving any element will snap it's vertices to other points in the UV map.

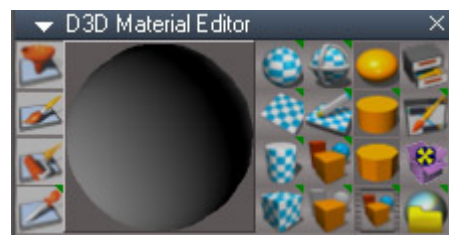
5.3 Workspace Material Editor

D3D Material Editor

Basic Painting Tools:



Material Editor



Unofficial Update Material Editor



Spherical UV Projection



Planar UV Projection



Cylindrical UV Projection



Cubic UV Projection



Shrink Wrap UV Projection



UV Editor



Render Scene



Render Object



Smooth Normals



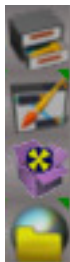
Autofacet Normals



Facet Normals



Render Animation



Update Library Places



Edit DX Material in Link Editor



Convert Direct3D Materials

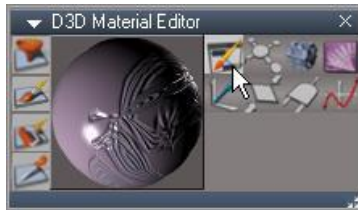


Render to File

-  **Inspect:** Right-click Edit DX Material in the link editor.
Right click same as the left click Edit DX Material in Link Editor button above.

Advanced Editing Tools:

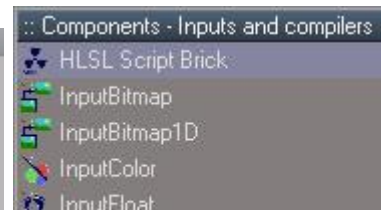
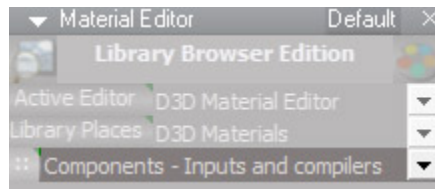
- DX Edit.



Edit DX Materials in the Link Editor

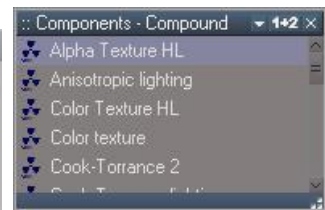
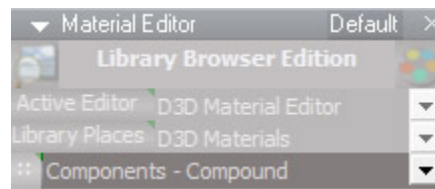
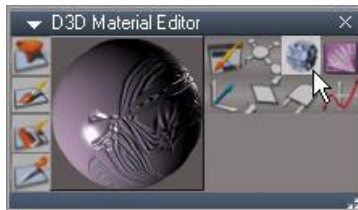


- DX Components Inputs and Compilers.



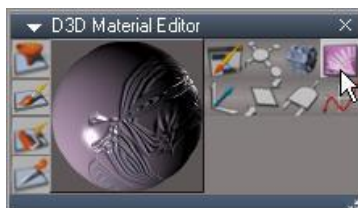
Opens DX Components Inputs and Compilers bricks library

- DX Components Compound.



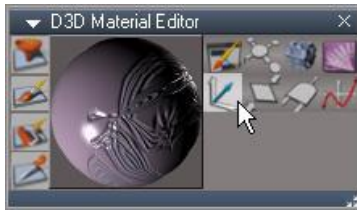
Opens DX Components Compound bricks library

- DX Components Texturing.



Opens DX Components Texturing bricks library

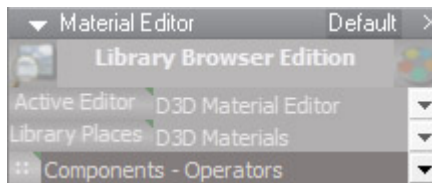
- DX Components Vectors.



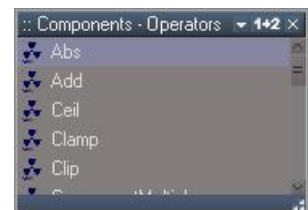
Opens DX Components Vectors bricks library



- DX Components Operators.



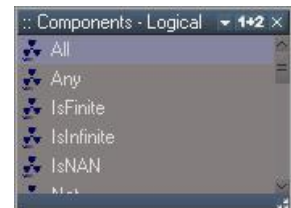
Opens DX Components Operators bricks library



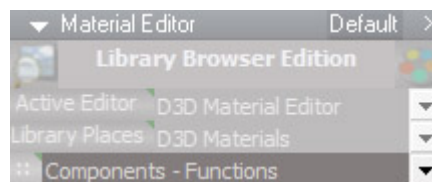
- DX Components Logic.



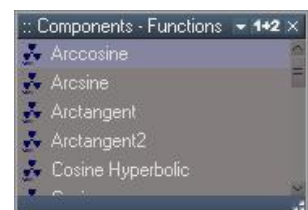
Opens DX Components Logic bricks library



- DX Components Functions.



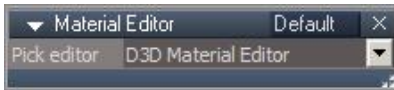
Opens DX Components Functions bricks library



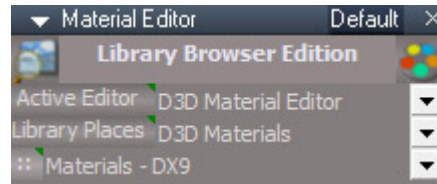
Material Editor Settings:

- Default Aspect:

Shows available pick methods , the choices will depend on if there are other offline renderers installed , e.g. V-Ray



Default Aspect



Unofficial Update Default Aspect

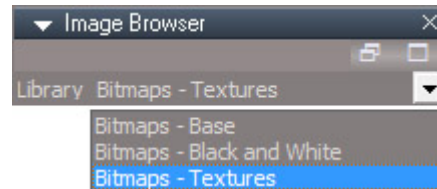


Image Browser – open image browser. Open a library by selecting one of the options in the dropdown.



Material Editor – re opens the D3D Material Editor which disappears when opening other preference panels in the Stack/Panel

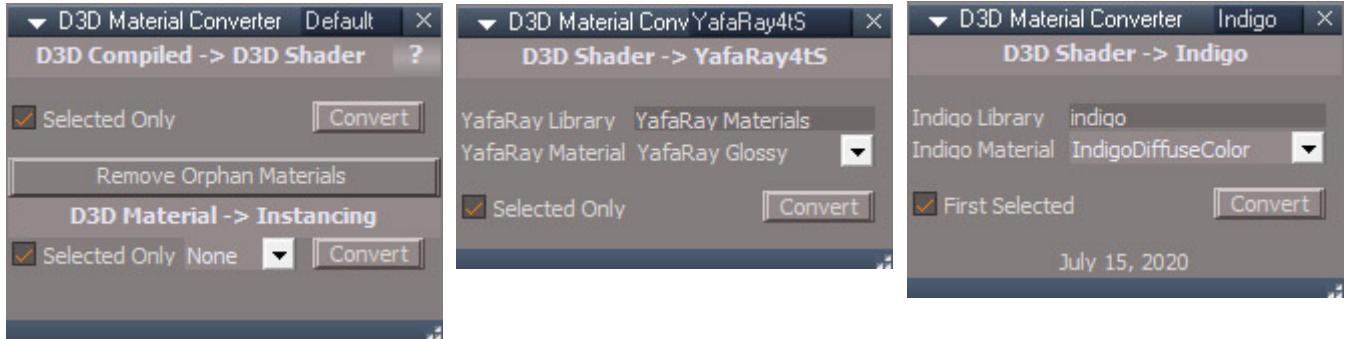
Active Editor button – RClick reset(what is reset?) guess is that it resets to D3D Material Editor when more than 1 editor available - test this). LClick - nothing

Library Places button – RClick loads a preset list of libraries into the Library Selection list and places "D3D materials" plus all defined library places into the Library Places selection list. LClick - nothing

Library Places Selection – the contents of the chosen library place will be used to populate the Library Selection list. "D3D materials" is a special item that will populate the library list with bitmap, component, material and shader libraries.

Blank Button – LMB libraries open as 2D aspect, RMB libraries open as 1D+2D aspect.

Library Selection – drop down list of libraries, click to select and load a library.



D3D Material Converter:

D3D Compiled → D3D Shader –converts materials from a closed compiled format to an open shader node based style. This is useful as a first step in converting compiled or lightworks materials from modelside to Yafaray or Indigo materials.

D3D Material Instancing → Converts to the 3 styles of workspace material instancing: None, Object and Scene.

D3D Shader → YafaRay4tS – converts a shader style material to a Yafaray material. Choose the type of Yafaray material from the drop down list. "YafaRay Library" is the name of the folder that contains the Yafaray materials within the Main Library Place, Rs Main Libraries.

D3D Shader → Indigo – converts a shader style material to an Indigo material. Choose the type of Indigo material from the drop down list. "Indigo Library" is the name of the folder that contains the Indigo materials within the Main Library Place, Rs Main Libraries. Indigo materials use scene instancing and this script will not convert "object" or "none" type instanced materials.

Selected Only option is to convert selected objects only, otherwise all objects in the scene are converted. Indigo conversion only works with a single selected item.

To convert a scene instanced compiled material to D3D, Yafaray or Indigo for a selected object:

- 1.Set the material editor to edit picked materials
- 2.Pick the material on the object and edit it in the link editor
- 3.Select the material node
- 4.Run the conversion

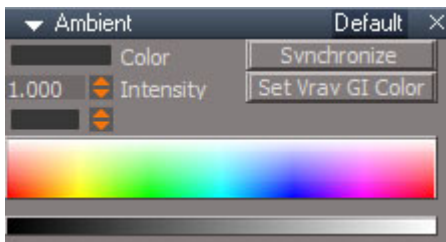
Remove Orphan Materials -If a mesh has multiple materials applied to it and the Separate Selection tool is used all the materials are copied which can result in orphan material nodes and connections. Run this tool to remove all the orphans in a scene

7.1.1 Real-time Light Types

The new color pickers have interactive update, so the color of the light in the scene changes as the picker is manipulated.



Ambient light Ambient light provides equal lighting conditions for every pixel of the scene.



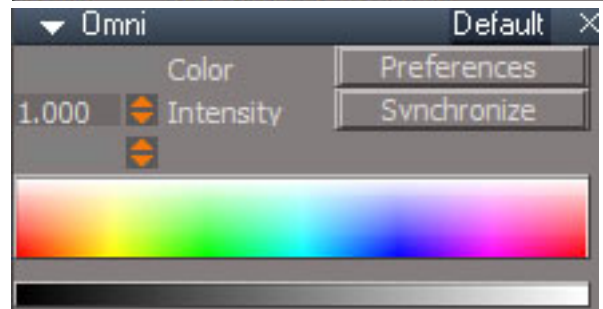
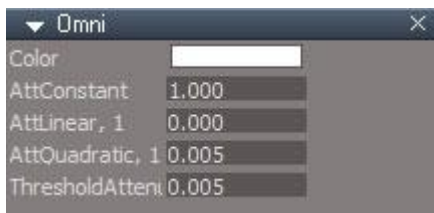
Unofficial Update Ambient Light

- **Color** – Controls the color (and intensity) of the light.

Set Vray GI Color – copy the color of the light to the vray environment color and activate the global illumination



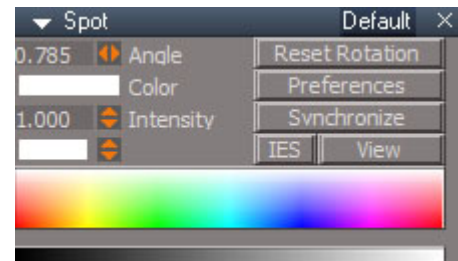
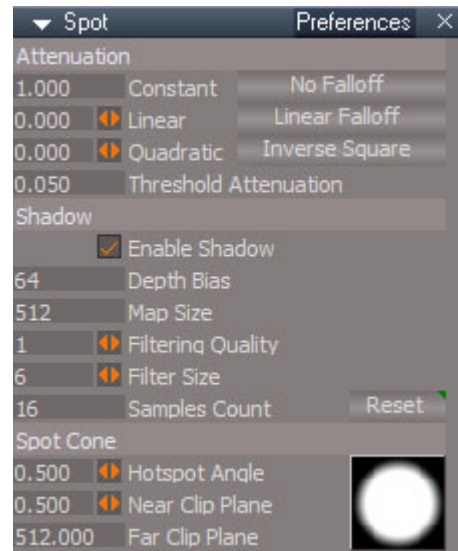
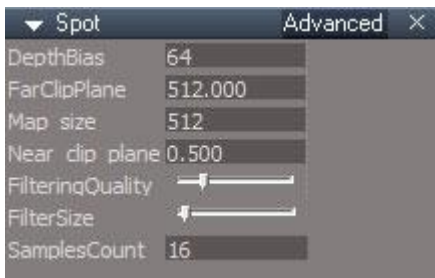
Omnidirectional light



Unofficial Update Omni Light



Spotlight



Unofficial Update Spot Light

Reset - resets Attenuation and Shadow values. RClick resets the values under the Spot Cone section

Reset Rotation – sets the X rotation to -180 degrees and Y and Z to 0 degrees, light is facing downward with the top of the image in the negative X direction.

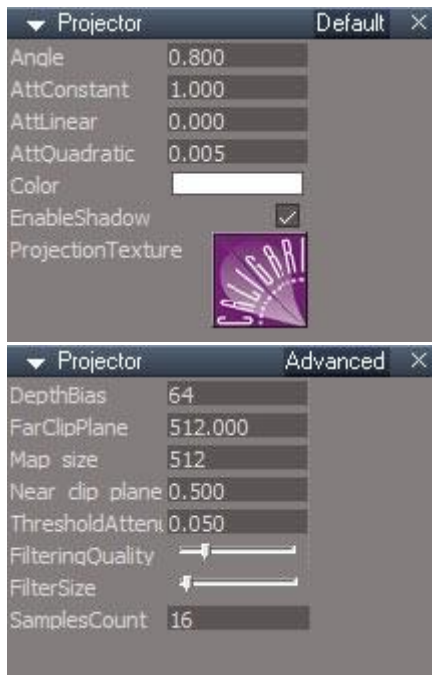
Synchronize – responds to extra information unique to the light type in addition to the standard color and matrix changes.

IES – opens the Convert Spot to IES panel, TODO link to IES page

View – the light has a camera inside of it. This button will set the default main 3D window to a camera view using this camera. Click again to switch back to the previous view.



Projector light



Reset - resets Attenuation and Shadow values. RClick resets the values under the Spot Cone section

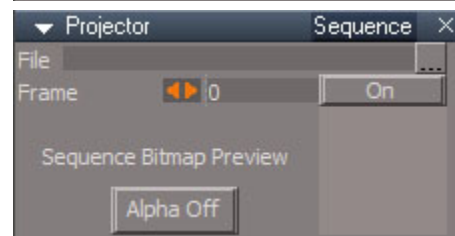
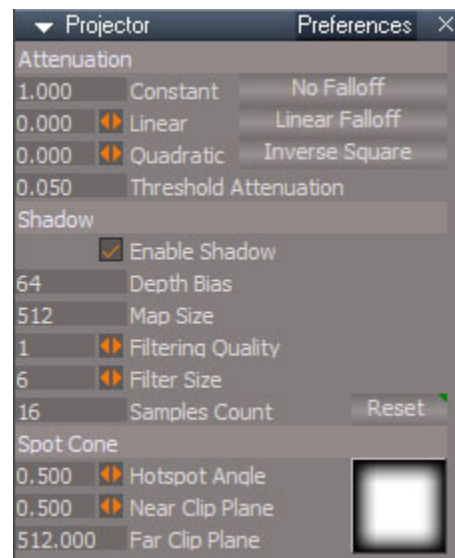
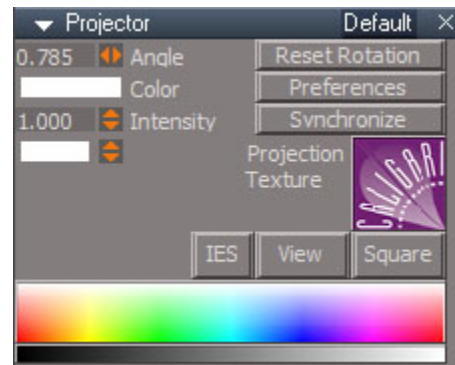
Reset Rotation – sets the X rotation to -180 degrees and Y and Z to 0 degrees, light is facing downward with the top of the image in the negative X direction.

Synchronize – responds to extra information unique to the light type in addition to the standard color and matrix changes.

IES – opens the Convert Spot to IES panel, TODO link to IES page

View – the light has a camera inside of it. This button will set the default main 3D window to a camera view using this camera. Click again to switch back to the previous view.

Square – switch the projection between a square and circular shape.



Unofficial Update Projector Light

File – choose a set of image files to be played back by selecting 1 image in the sequence.

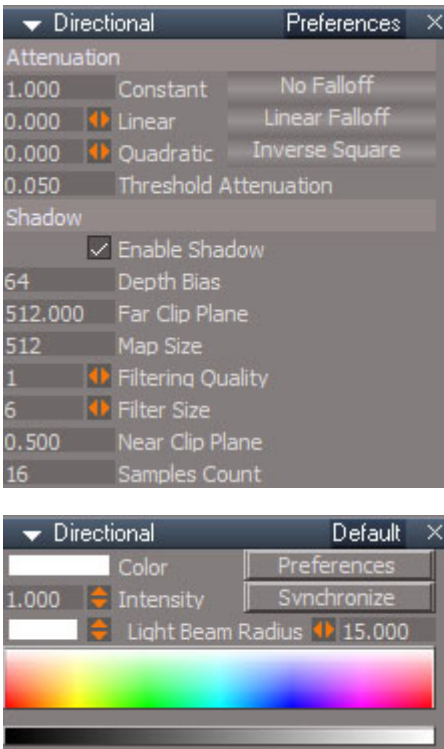
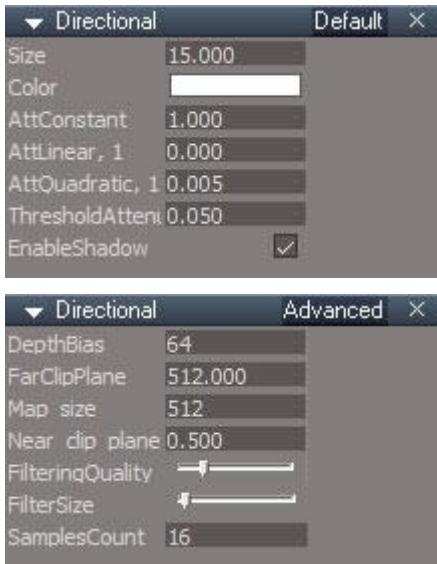
Frame – current frame number for the image sequence. The Frame value can be animated in the timeline.

On – activates the image sequence

Alpha On/Off – does not do anything



Directional light



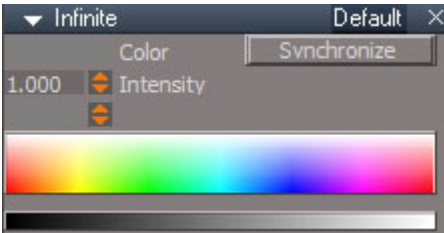
Unofficial Update Directional Light

Synchronize – responds to extra information unique to the light type in addition to the standard color and matrix changes.

Light Beam Radius – renamed from “Size” in the original light. **It is actually the diameter of the beam.**



Infinite light

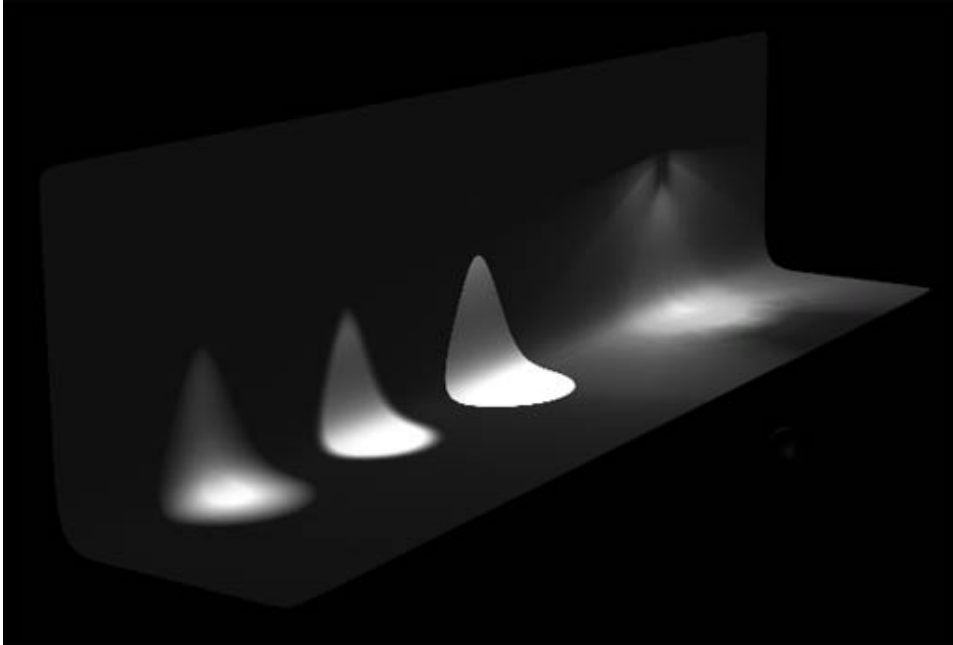


Unofficial Update Infinite Light



IES Profile / Spot Cone

Alter spot and projector lights in workspace to give the appearance of a light defined by an IES file. RMB set general falloff for default spotlights so the hotspot angle will have an effect in the 3D viewport.



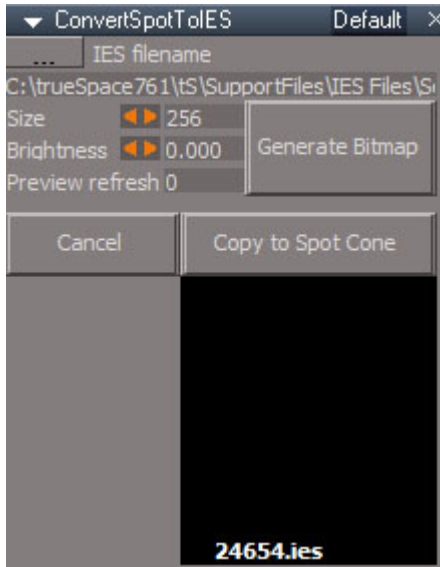
from left to right - soft/small hotspot, truespace default, hard/large hotspot, ies profile light

Both the IES Profile and Spot Cone alter the mask used by a spotlight that gives the light its circular shape. The Spot Cone alters the mask so that the spotlight angle and hotspot angle are used to generate the mask. This mask only effects how the spotlight looks in a D3D viewport.

The IES Profile works the same way in that it takes the lighting data defined by a real world light and applies it to the spotlight mask. The limitation is that the IES file defines how bright the light is and the mask just applies a 256 level image to the mask, so it replicates the general look but not the actual brightness of the light definition and results in a dimmer looking light. The IES file is read directly by the YafaRay renderer to generate IES lights for the render. It does not use the mask so there is no loss of brightness data.

IES files generally come in 2 flavors, 180 and 360 degrees. The 180 fills light in a hemisphere shape and the 360 fills light in a full sphere shape. The preview generated is compatible with 180 degree type of file. The angle for the spotlight is maxed out to match the 180 degree file defined by the IES light.

 truespace bug: in the 3D viewport wide angle spot lights shine in 2 directions instead of 1 when the cone angle is very large, a workaround is to turn off hardware shadow filtering



Select a spotlight or projector light in the scene and press the IES button to open the panel.

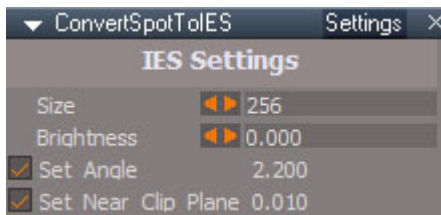
Push the "..." button to choose an IES file

Set value for the **Size** of one side of the square image mask in pixels

Brightness increase the brightness of the image (1 = twice as bright)

Press the **Generate Bitmap** button to create the mask image

Select one or more spotlights and press **Copy to Spot Cone** to apply the mask profile to the selected spotlight(s)



Size - same as Default aspect

Brightness - same as Default aspect

Set Angle – when checked the spotlight angle will be set to 180 degrees to match the IES light definition.

When unchecked the profile will be compressed compared to the real world light.

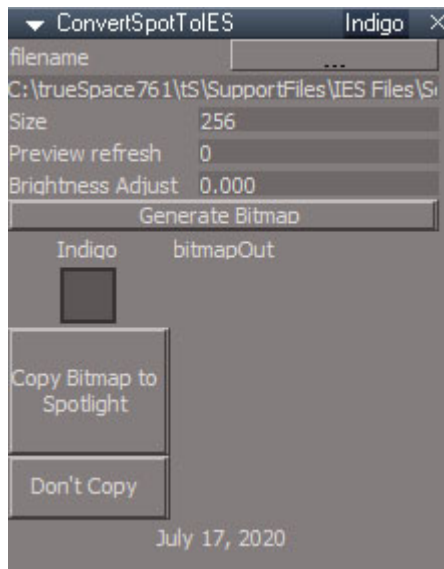
Set Near Clip Plane – small value results in better lighting of nearby surfaces parallel to the light orientation



Size - of the square image mask in pixels

Falloff Exponent – control how quickly the brightness changes between the cone angle and the hotspot

Generate Spot Cone Falloff – create and apply to the selected light(s)



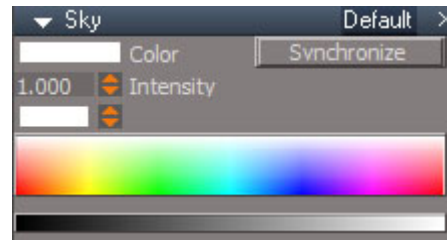
Indigo compatible IES generator panel

The Indigo panel will generate the IES profile and add an IES data node to the light that is read by the Indigo renderer.

Area light and sky light are not documented in the original documentation



Sky

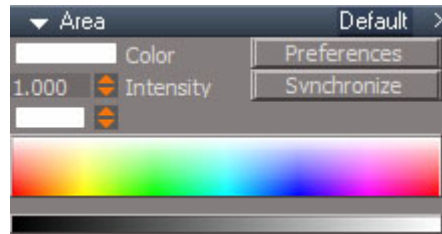
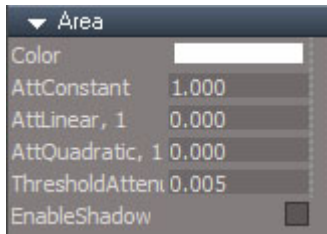


The Sky light is identical to the infinite light type in its lighting behavior. The mesh has a different appearance.

? any vray indigo yafaray differences ?

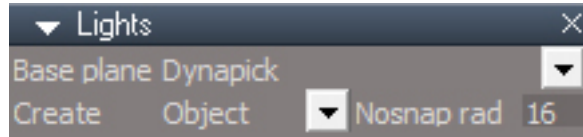


Area



Area Samples – ? used by YafaRay renderer ?

Lights RMB creation options - information not in the original documentation



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.

Create mode

Object - create a new stand alone primitive object

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

Light Color Pickers



Luminosity - Color Picker (HSL) – Hue horizontal, saturation vertical, luminance slider

Saturation - Color Picker (HSB) – Hue horizontal, brightness vertical, saturation slider

Kelvin - Color Picker (Kelvin) – color temperature scale horizontal, vertical has no meaning, brightness slider.

true Color - Color Picker (Random) – random color picker.

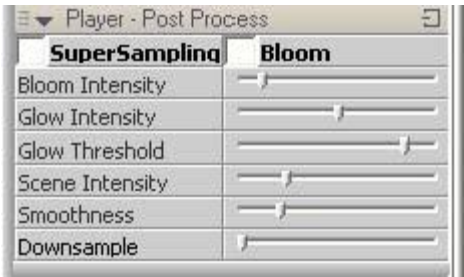
Enter – press to set the color based on manual RGB color entry.

Intensity – left scrubber for values greater than 1.0, right scrubber for values less than 1.0.

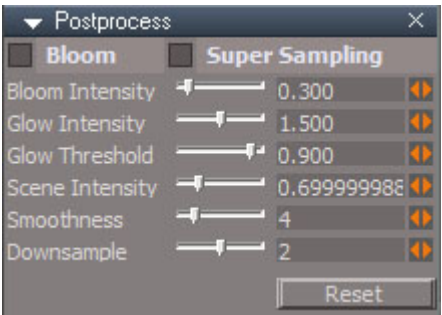
Lum, Sat, Kelvin, Color – press switch between the different color pickers

7.1.5 Real-time Post Processing

Workspace supports real-time post-processing of rendered images to achieve better and more atmospheric images. The post-processing settings panel can be displayed by switching to the Preferences aspect of the Stack View while the workspace window is active. The following image shows the post-processing settings panel in its default state.

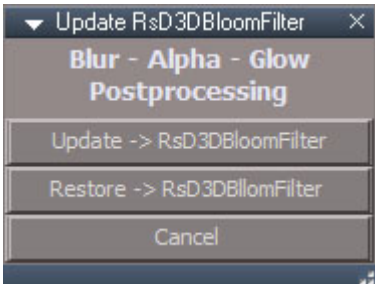


Post-processing panel in the default state.



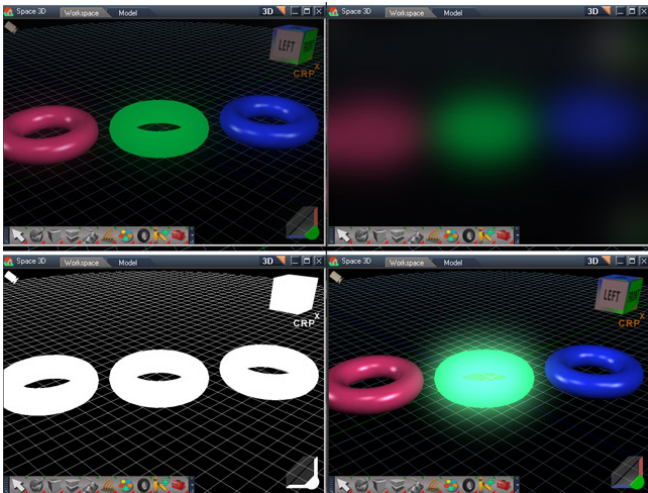
Post-processing panel in the default state.

Reset – global reset of all postprocess values



The postprocess library has a script for adding blur, alpha and glow post process effects.

Scene Intensity value below 100 will behave the same as before
Scene Intensity 100 to 199 to get only the bloom, which is really a blur
Scene Intensity = 200 to get alpha values as gray color
Scene Intensity = 300 to get a color key based glow
Scene Intensity = 301 to get a color key based glow plus scene



top left - default post process
top right - blur
bottom left - alpha
bottom right - glow based on color key

The alpha option, Scene intensity=200, needs a mesh background with an alpha material

A large inside out sphere centered in the scene works well for the background mesh

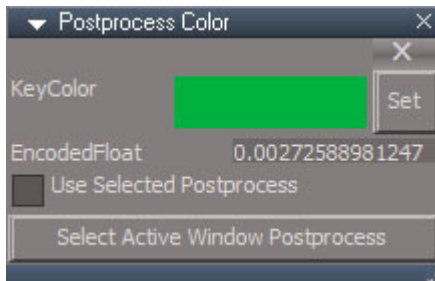
assign a blank d3d material with a Constant Color shader

constant alpha = 0

alpha test set to opaque

alpha test value = 0

The postprocess library has a script to help set values for the glow color key.



KeyColor - color for the matching process

Set - turn on glow for the active 3d window using the KeyColor.

Use Selected Postprocess - option for the Set button where the postprocess node is manually selected and used instead of using the post process on the active 3d window

Select Active Window Postprocess - *does not select the active windows post process node*, it opens the Postprocess Color panel in the stack view and deselects everything - **reason for this button is unknown.**



Undo history will be erased when using the Select Active Window Postprocess button. This is caused by a tS bug.

The Set button will copy the EncodedFloat value, the color key, into the post process Glow Threshold and set the Scene Intensity to 301 to get the glow and the original scene together and then turn on Bloom to show the final effect.

Usage:

1. Choose a key color
2. Select the border of the desired 3D window
3. Press the Set button

7.1.7 Real-time Render To File



RMB opens an explorer window to the render file path

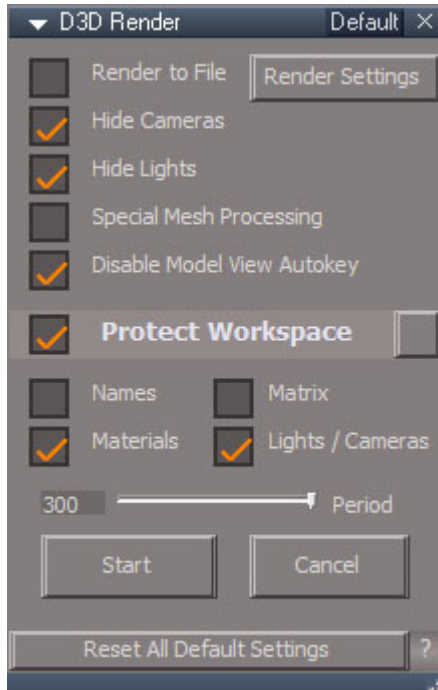
Place rendering stuff here or move it into additions with links from here

skip to the next chapter and decide later

pages here, not in orphan pages at the end of this document

D3D Render Scripts

Combines modelspace and workspace animations into one D3D workspace render sequence. Can also be used to bake workspace animations to modelspace animation via the autokey setting in modelspace and for rendering command script based animations.



Preview

uncheck the Render to File
check Disable Model View Autokey
press the Start button

Bake Model view keyframes

turn on AutoRecord in Model view
uncheck the Render to File
uncheck Disable Model View Autokey
press the Start button

Render a sequence to files

Check the Render to File
Press the Render Settings button and
uncheck "Save animation from frame"
check "Save sequence starting with"
enter a starting frame number
set the file name
press the "Save settings" button and close the
dialog
check Disable Model View Autokey
Press the Start button

set animation playback range in workspace

have both model and workspace 3d views open - use the main view for model

disable modelspace autokey setting, unless specifically transferring workspace animations to modelspace

protect workspace to prevent model view from changing values in workspace

Options:

Render to File - render an animation sequence to files

Render settings - open the D3D Render to File dialog

Hide Cameras - hide cameras during the render

Hide Lights - hide lights during the render

Special Mesh Processing - get NURBS, deformation and metaball shape animations from modelspace

Start - start the render/preview

Cancel - stop the render/preview

Place rendering stuff here or move it into additions with links from here

skip to the next chapter and decide later

Protect Scene from Modelspace

activate the checkbox to turn on protection

press the button to open the Protect Workspace panel

Name - stop renaming of nodes

Materials - stop conversion of workspace materials to lightworks materials

Matrix - stop transformation value changes

Light/Camera - stop change of spot light angle and camera fov

Period - delay value to use with workspace protection

The Matrix option will interfere with workspace transform animations. A keyframe can be used to protect workspace matrix values from modelspace changes. A keyframe can also be used to protect workspace light angle and camera fov values from modelspace changes.

Offline Render Engines

TODO Mention getting started with yafaray and vray render engines

YafaRay Information January 31, 2021

<https://github.com/YafaRay/libYafaRay>

Is the where new development for YafaRay can be found

<https://github.com/YafaRay/Core/releases>

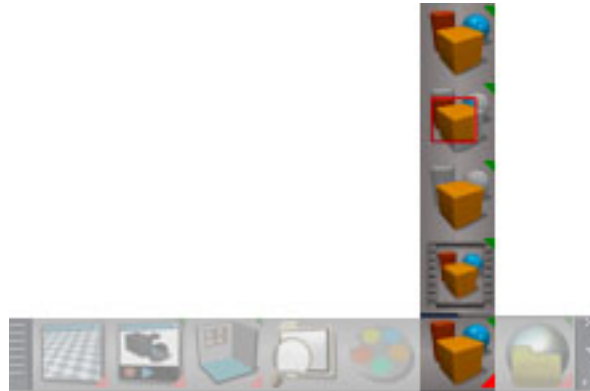
Is where the final release, v3.5.1, can be found

Place rendering stuff here or move it into additions with links from here

skip to the next chapter and decide later



Bottom Toolbar Rendering



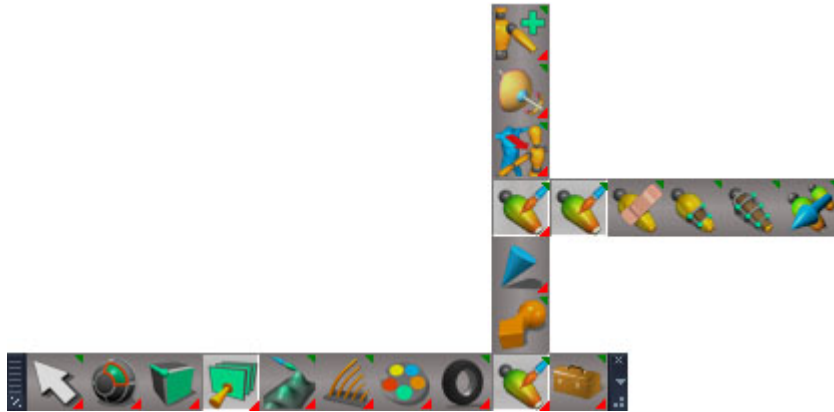
Unofficial Update Stack Toolbar Rendering

Place rendering stuff here or move it into additions with links from here

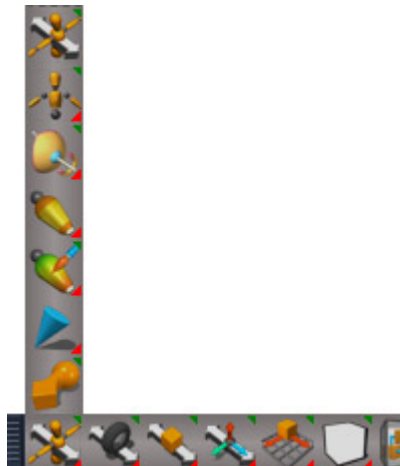
skip to the next chapter and decide later

Chapter 8 - Character Editing

8.1 Character Editing Introduction



Morph not covered in this chapter, where is it?
In animation last section



Unofficial Update Second Location for Character Tools

8.2 The Tools

8.2.3 Controlling How the Skin Reacts

Convert Soft Selection to Skin Weights



Original manual shows the wrong button icon.

Transfer Skinning Weights

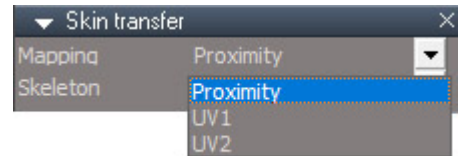


Transfer skin tool – structure, names, distances skeleton matching algorithms; uv1,uv2; proximity skin transfer algorithms

Mapping – match points between characters

Proximity – match points by their positions in 3D space

UV1, UV2 – match points by their positions in 2D UV space

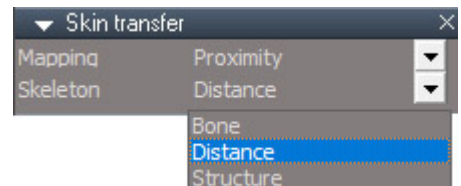


Skeleton – match bones between characters

Bone – match bones by their names

Distance – match bones by their distance in 3D space

Structure – match bones by their positions in their hierarchy



move character fk controls to
additions
maybe not even link from here
see orphan pages at end of this doc

[link to the beta video here](#)

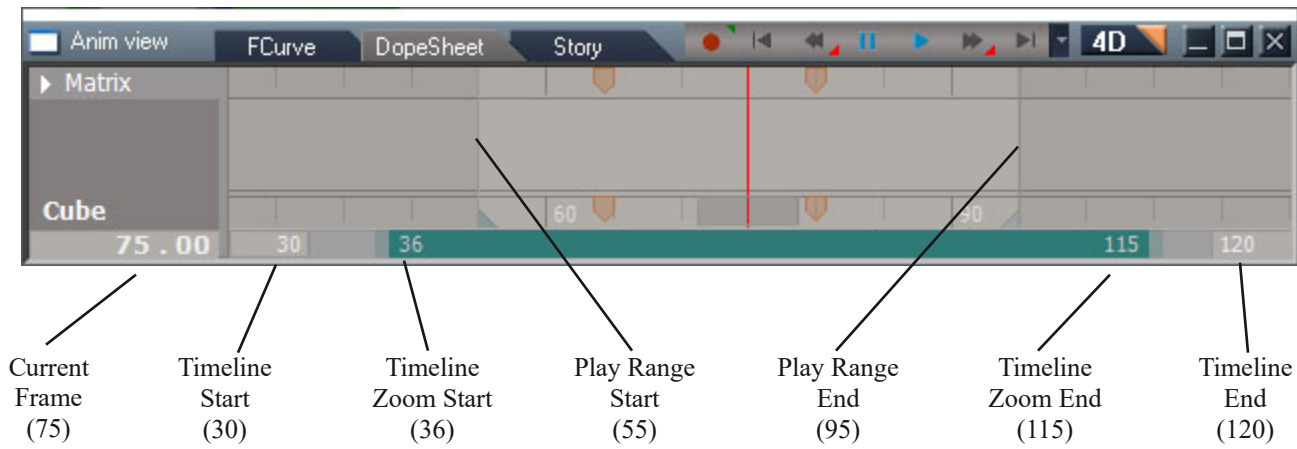
Chapter 9 – Animation

9.1 Animation Introduction

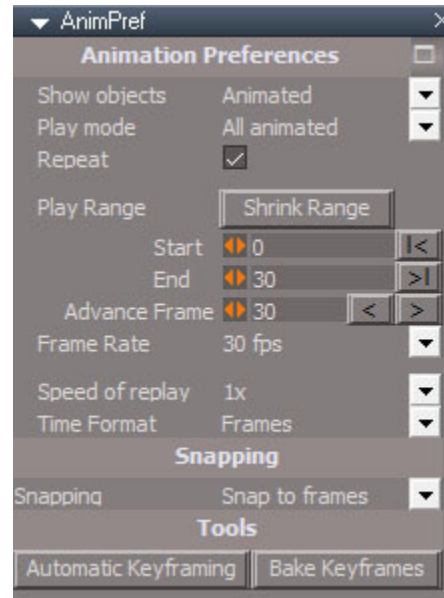
This chapter documents the new animation tools found in the Workspace (it does not cover the animation tools such as the KFE and similar that are found in the Model side). The Workspace features a powerful range of tools for creating animation which will let you work with physics simulation, skeletons, keyframed animation, and imported motion capture via BVH. You can in fact flexibly combine all of these different types of animation, giving you many different ways to achieve exactly what you are looking for.

The chapter begins with a look through each of the tools associated with this process, and then moves on to some introductory tutorials that take you through some ways of creating animation in trueSpace.

9.2 The Animation Editor in detail



9.2.7 Animation Preferences Panel



Chapter 9.2.7 Error

"Play Range Start and End – This defines the start and end of the animation. Note that this is the same as setting the start and end points using the numeric fields at the bottom of the Animation Editor window. Updating those fields in the Animation Editor window will update the fields here on this panel. Note however that updating the fields on this panel will not redraw the Animation Editor window."

It is not the same as setting the start and end points using the numeric fields at the bottom of the Animation Editor window. It is the same as dragging on the play range handles and it does redraw in the Animation Editor window when updating the fields.

Note that the Play Range is limited to values within the min and max values of the animation range start and end.

By default the Animation Range are the set of frames that get rendered. Play Range is for previews.

The small button upper right next to the title will open the Animation Preferences in a floating window.

Shrink Range : set the timeline start and end to match the current preview play range

|< : set timeline start to 0, does not effect the play range

>| : set timeline end to 300, does not effect the play range

Advance Frame : number of frames to move the current time with each press of the arrow buttons



Automatic Keyframing : open the Automatic Keyframing panel

Move, rotate or scale an object or dynapose an actor to get automatic keyframe generation.

IK handles don't create a key, but the act of just selecting a joint after adjusting a handle is enough to make it reevaluate causing a small motion in the joint and create a key for the skeleton.

If a joint is already selected just touching the transform widget is enough to get a key.

Bake Keyframes : open the Bake keyframes panel

Set the animation play range to determine what keys get baked

Adjust the Period value to give scripts time to run before a key is set

Select the item to bake and push the Bake Selected Object button

Alternative workflow:

Uncheck Use timeline play range

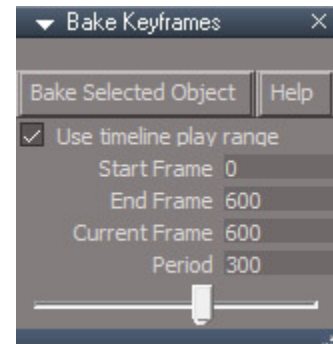
Start Frame – set first frame to key

End Frame – set last frame to key

Current Frame -

Period – delay between keyframe times

Select the item to bake and push the Bake Selected Object button



A keyframe will be created at every time frame for the object.

If the object is controlled by a script, remove the command script before rendering. Command scripts do not render. Baking the keys makes it possible to render an animation created by command scripts.

9.4 Morphs

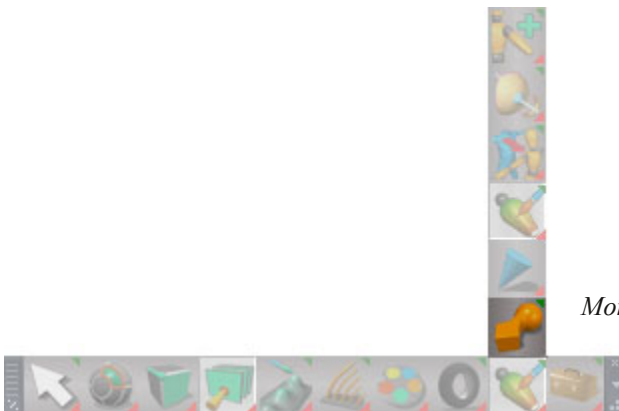
Morphs give you the ability to store and blend between different states of a model. These different states are created using the regular Point Editing tools - for example, you could use point editing to create a smile on a character, storing it as a morph. Then you create a new morph, point editing to make a frown. Then you can blend between those two expressions (and many more of course), either creating the perfect expression for your character in a still image, or recording your results in an animation.

9.4.1 The Morph Panel



To begin working with morphs, you will need to create the first morph for an object. To do this, click on the Add Morph icon in the character editor tools, and this will open the morph panel, create a new morph for the object, and take you into edit mode on that morph.

Once you have at least one morph added to an object, then the morph panel will open automatically when you click on that object, without the need to click on the Add Morph icon again.



Morph icon is wrong in the original manual

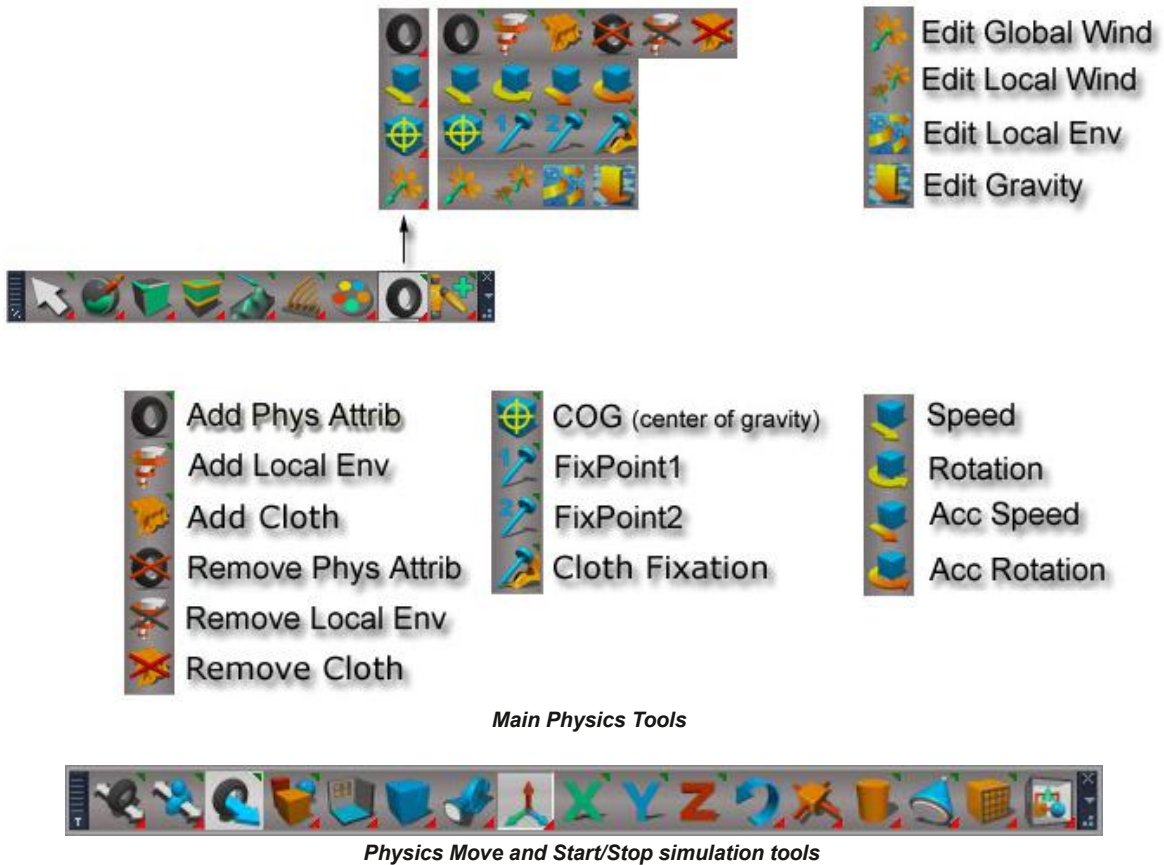
link to soft paint morph mode

move keyframe interpolation to the additions chapter
 add link to it
 see orphan pages at end of doc

Chapter 10 – Physics

10.1.1 Physics: Space and Engine

10.2 Physics Toolbar



The unofficial update main physics tools can also be found on the bottom toolbar in the same area as the physics move and start/stop simulation tools.

10.2.7 Centre of Gravity and Fixation



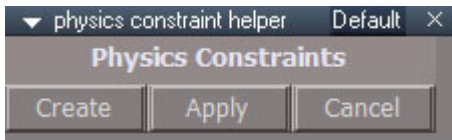
Center Of Gravity:



Fixation point 1:



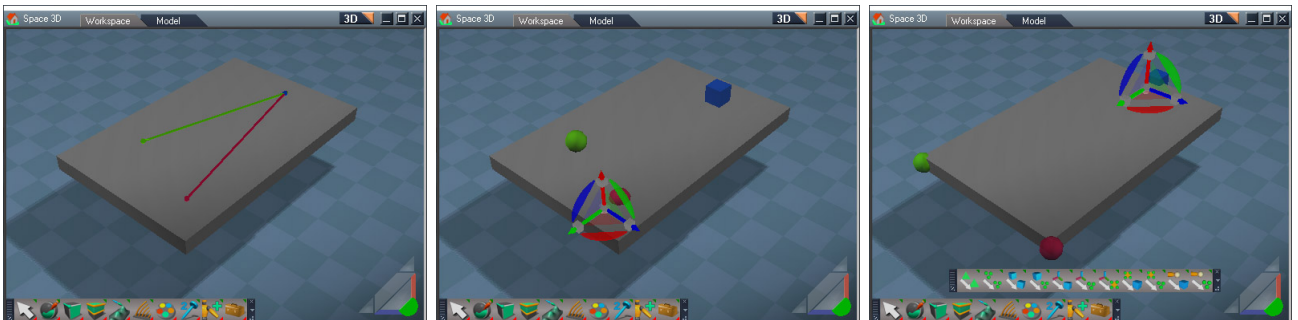
Fixation point 2:



Physics Constraint Helper: creates helper objects in the scene for positioning the center of gravity and fixation points

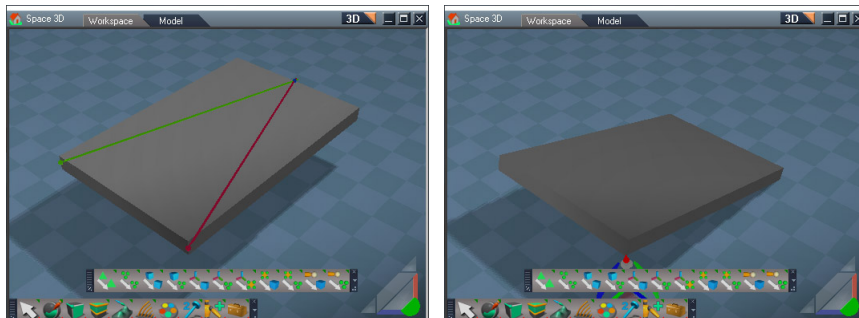
Create: create helpers for the object center of gravity and fixation points

Apply: copy the helper transform values to the object center of gravity and fixation points



Fixation point 1 is green, fixation point 2 is red and the center of gravity is blue.

Sequence of images shows 2 fixation points on the object, next the helpers are created, then snapping tools are used to precisely position the physics points.

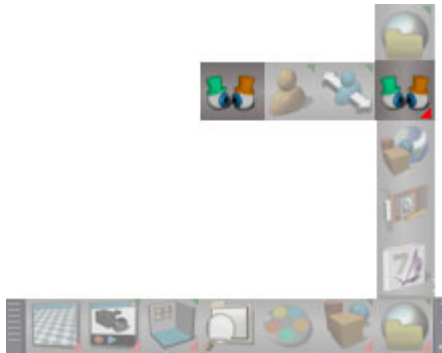


Next the positions of the helpers are applied to the physics points and the final image shows the result of a physics simulation.

Chapter 12 Collaboration



Toolbar with SharedSpace icon



Unofficial Update Toolbar with SharedSpace icon

12.1.6 Basics of Navigation



First Person Navigation



FPN Tool



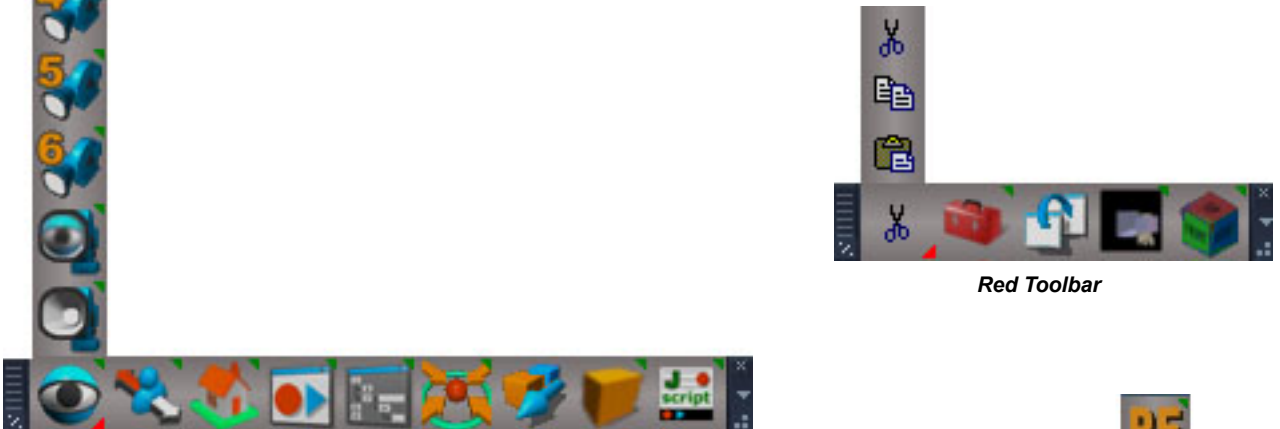
Unofficial Update FPN Tool

First Person Navigation is found in the stack toolbar.

Chapter 40 Unofficial Update Additions



Red, Gold/Clintons and Blue Toolbars



Red Toolbar



Blue Toolbars

**Gold/Clintons Toolbar**

Red Toolbar



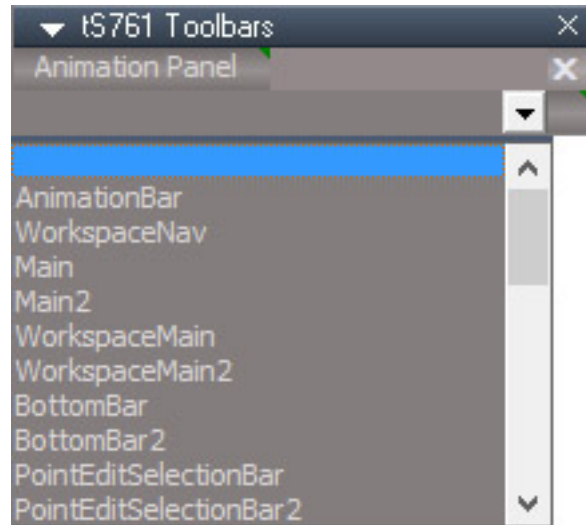
Cut - select an item to use with the Paste. Saves the selected object to a file and then deletes the original.



Copy - same as the copy button on the bottom toolbar

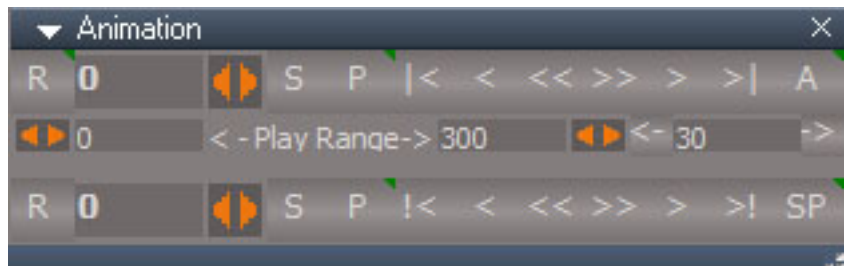


Paste - move the item selected by Cut into the link editor location. Loads the file saved by the Cut into the active link editor.



Truespace Toolbars - use the dropdown list to select a toolbar then use the small button to the right of the dropdown to load the toolbar.
 Right Click on the small button to open another toolbar after selecting it from the dropdown list.
 RMB close all toolbars

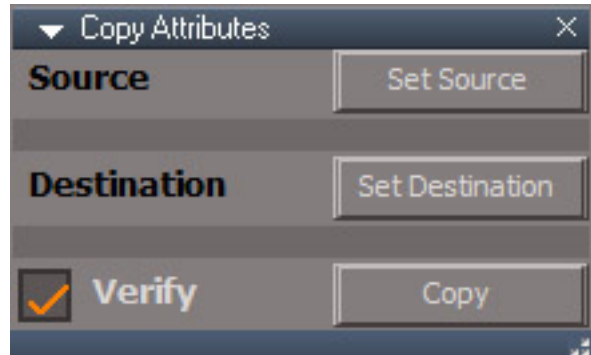
Animation panel link here



Animation Panel - opens the Animation Panel, Right Click closes the Animation panel

upper X - closes the panel

lower X - Deletes the tS761 Toolbars.RsObj from the scene



Copy Attributes - copy the common attributes from the source node to the destination node. Verify will ask before copying each connector value.



Background Image Camera - a camera with a projection plane attached that displays an image or image sequence that fills the camera's field of view.

Reset Rotation - rotate the camera to point in the negative Y direction.

Select Camera - select the camera inside the Background Image Camera group

View - switch the main 3D view to view from the camera. Press again to restore the view to its previous state. Works in all layouts in the main 3D view only.

Filename ... - choose an image or any image from a sequence of images

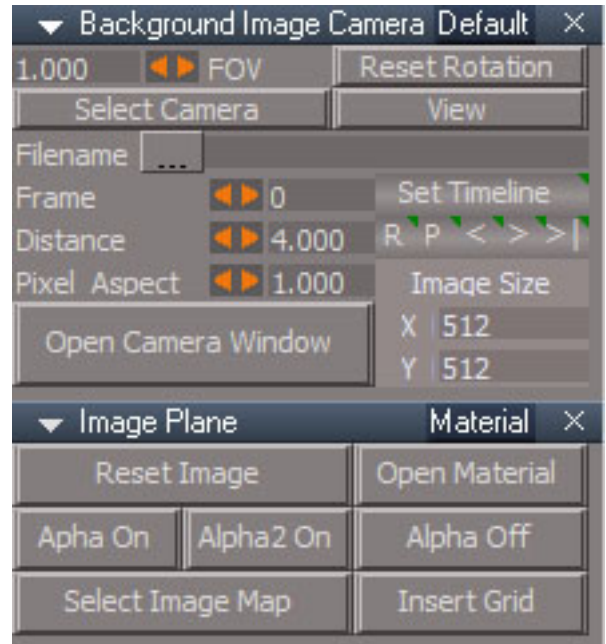
Frame - set the Frame value for the Background Image Camera. The corresponding image from the sequence will load in.

Distance - set the distance from the projection plane to the camera.

Pixel Aspect - pixel aspect ratio.

Open Camera Window - Opens a new window using the Image Size XY values to set the dimensions of the window and the projection plane.

Image Size XY - shows the original image size



Set Timeline - set animation time to the **Frame** value. Right click opens the Attribute Browser so the "Frame" attribute can be selected for animation.

R - Set keyframe/Open keying panel - same as the animation view record button

P - play animation, Right Click to stop playback

< - previous frame, Right Click previous keyframe

> - next frame, Right Click next keyframe

>| - last frame, Right Click first frame

Reset Image - clears the **Filename...**, resets the projection image and sets **Frame** to 0.

Open Material - open the projection material in the link editor

Alpha On button "Connects the Texture Alpha shader" - **this seems to give a bad alpha mask**

Alpha2 On button "Connects the Texture Alpha2 shader" - use the alpha value of the image as a mask

Alpha Off " Disconnects the Alpha shader" - this turns off the alpha masking

Select Image Map - open the ConstantTextureMap in the stack view "For Animation (Adding attributes to the Keying panel) and or changing the attributes
You can adjust and or Keyframe Ambient Intensity, Ambient Color, Move X,Y, Scale X,Y"

Insert Grid - adds a grid object to the scene

Usage:

load an image from an image sequence

if the Open Camera Window number values don't match the Image Size, copy the values of the Image Size into the number fields next to the Open Camera Window

press the Open Camera Window

set display to no grid or press the Insert Grid button to force an invisible grid for the scene

the image sequence can be scrubbed using the Frame control

set frame to the first numbered image of the sequence

press the Set Timeline button

right click the Set Timeline button and choose "Frame"

press R to create the first keyframe

set frame to the last numbered image of the sequence

press the Set Timeline button

press R to create the last keyframe

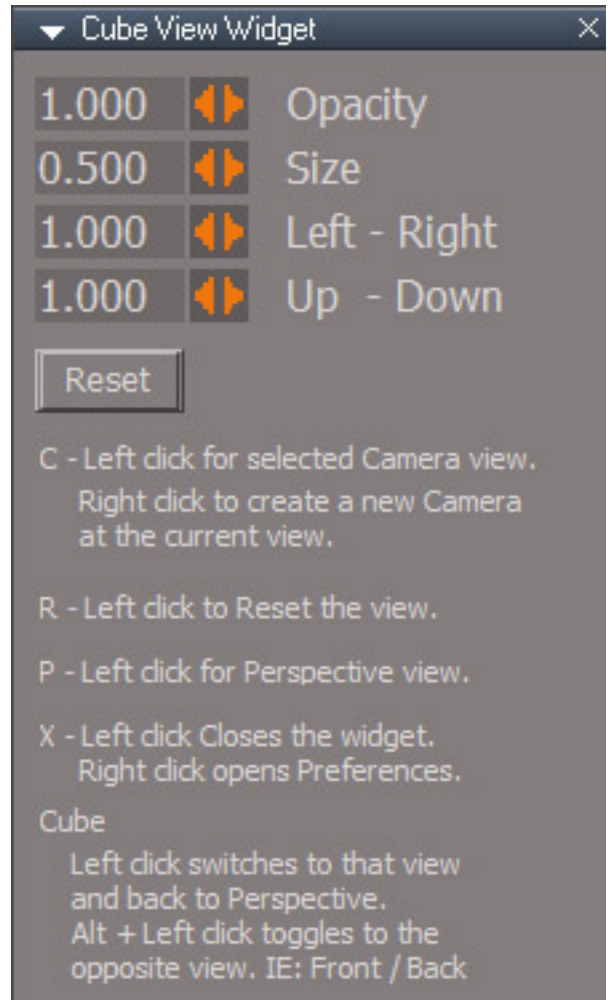
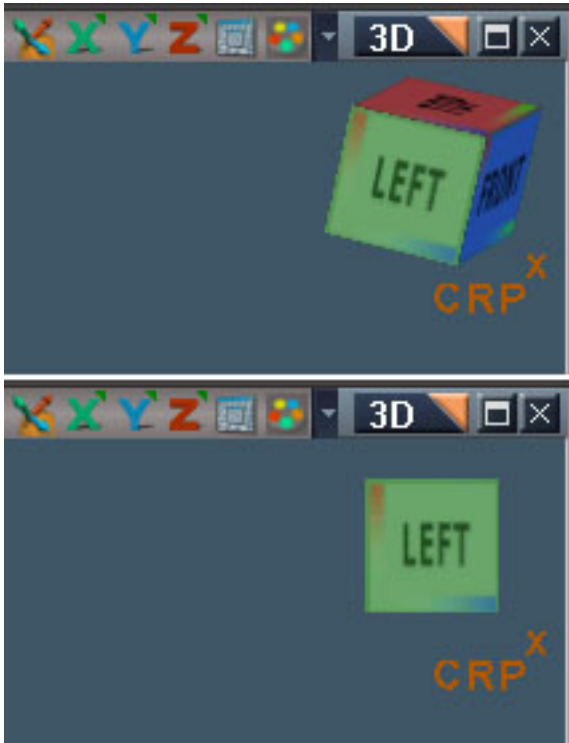
right click the >| button to go to the first frame in the timeline

press P to play, right click P to stop playback

note that it's not required to use the animation controls on the Background Image Camera, the Anim view can be used to set the time and keys and control the animation



Cube View Widget



The Cube View Widget is used to control and visualize the 3D viewport. The colors correspond to the 3 directions:

X - green

Y - blue

Z - red

Saturated colors are in the positive directions and the lighter desaturated colors are in the negative direction.

The color gradients on the two edges of each face show the direction to positive direction neighbors of the face.

The LEFT face is desaturated green, so it points in the negative X direction. It has a red gradient pointing to the TOP/positive Z and a blue gradient pointing towards the FRONT/positive Y.

Blue Toolbar



Eye Camera View



Camera View

note: same icon as Set Camera view



Perspective view from camera



Create camera from perspective view



Camera Views 1 - 6

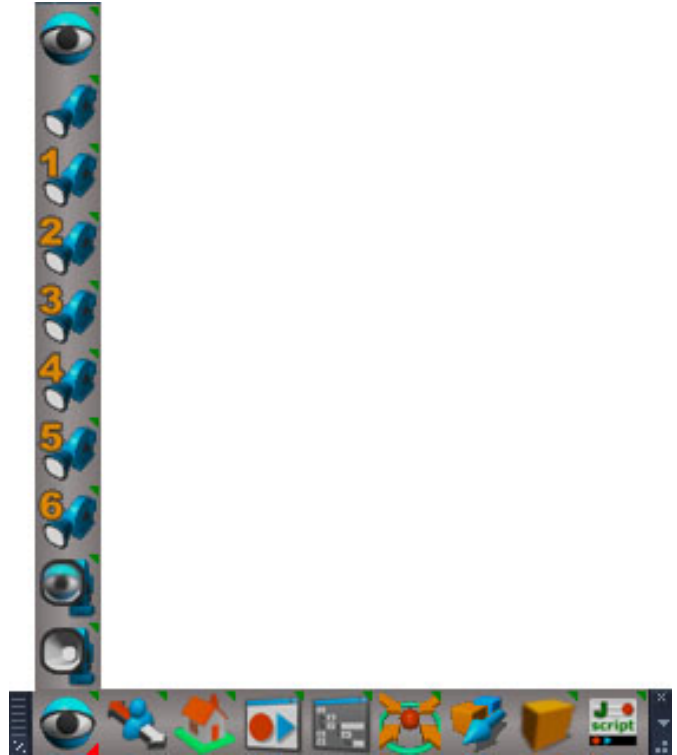


Custom First Person Navigator



3D View Widget

note: same icon as Isometric view



Animation Panel

note: same icon as the Anim View button



Scene Animator FX

note: same icon as Scene View



Transform Object



Replace Objects

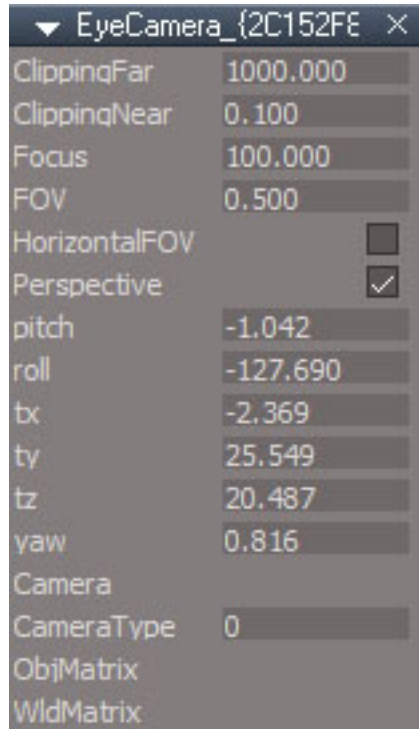


Shear Transform



JScript Create and Autoload

The **EyeCamera** nodes are used inside trueSpace to display 3D views without using a camera. It is used to display Front, Back, Left, Right, Top, Bottom, Isometric, and Perspective views.



Eye Camera View - if the first 3D view is a camera view it will switch to a perspective view, next it will switch all open 3D views to match the first 3D view created. All changes to the first view will effect all the open 3D views. To release a view and make it unique switch it to a camera view, isometric view or one of the ortho views. To leave all other windows linked except for the first 3D view change the first 3D view into a camera view.

RMB - open the EyeCamera node for the first 3D view.



Camera View - will switch the active 3D view to a camera view for the camera in the scene named "Camera".

RMB will show Camera panels for the "Camera". The first Camera panel is similar to the EyeCamera panel

The scene must have a camera named "Camera"



Camera Views 1 - 6 - same as Camera View above except only works with a camera in the scene named

"Camera, 1" or "Camera,1"

"Camera, 2" or "Camera,2"

...

"Camera, 6" or "Camera,6"



Perspective view from camera - the first 3D view must be a perspective view. Select a camera and press the button. The camera transform and FOV values will be copied from the camera to the first 3D view. The camera will be deselected so it does not interfere with the updated view.

This will erase the undo history.

RMB - same as LMB but works with any renderable item, it does not set any FOV values and does not deselect the item. Also does not erase undo history.

One good use is to position and orient a light based on the 3D view.

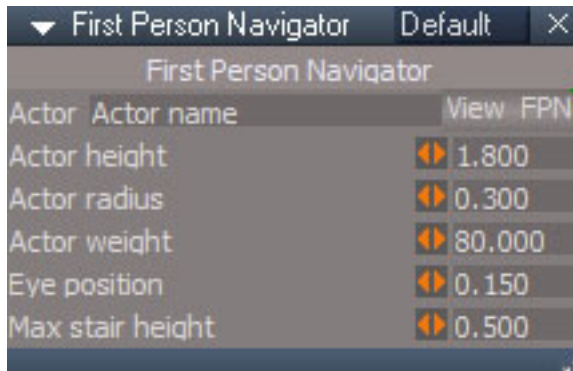


Camera from perspective view - the active 3D view must be a perspective view. Creates a camera and then copies the 3D view attributes to the new camera and sets the camera as the view.

This will erase the undo history.

RMB - same as RMB Perspective view from camera above.

[link to FPN of manual, or reference the chapter and page](#)



First Person Navigator - node is a version of the Default navigation properties node that includes an EyeCamera, FP properties and a Trigger. After pressing the button the node is created in the scene but does not enter FPN navigation automatically.

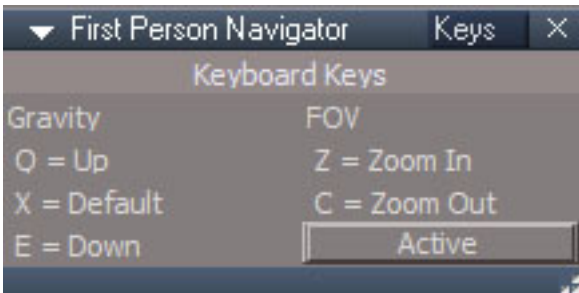
View - set the active 3D view to the FPN camera

FPN - start FPN navigation. The 3D view must be through the FPN camera first, RMB same as LMB

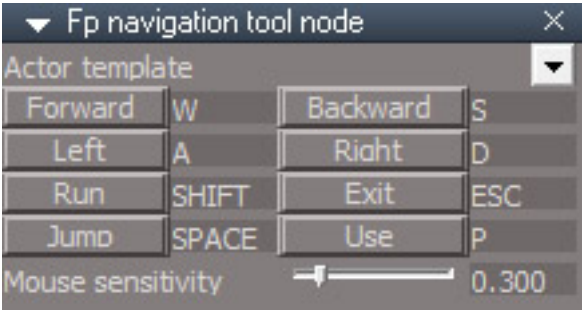
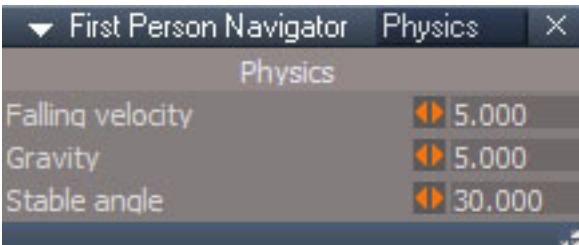
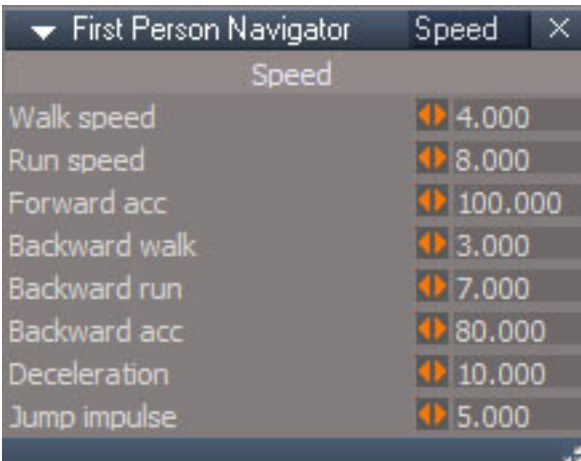
Benefits:

- 1.) You can set your FP properties separate from the Global Fp properties that are shared with everyone in Shared Space.
- 2.) Your FP properties can be saved as defaults.
- 3.) The trigger could be set up to use the Use Key. For instance you could make a FPN crouch key command.

Adding a unique name to the Actor attribute will keep your settings seperate from other users.
In truePlay2 open the Stack to set your First Person Navigator preferences.



You can use your keyboard keys to control Gravity & FOV. Jump does not work like the standard FPN because it is not using the Default Gravity. If you disable the Keys it acts like the standard trueSpace FPN.



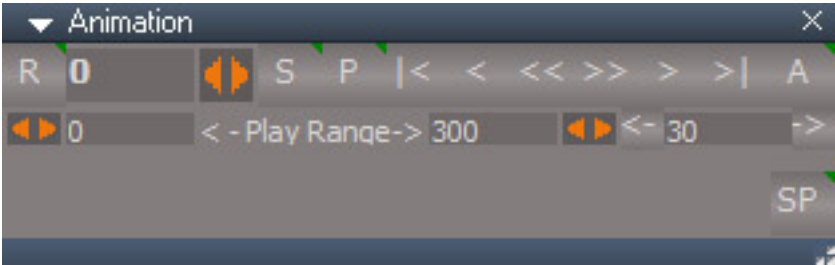
RMB Panel - same as standard



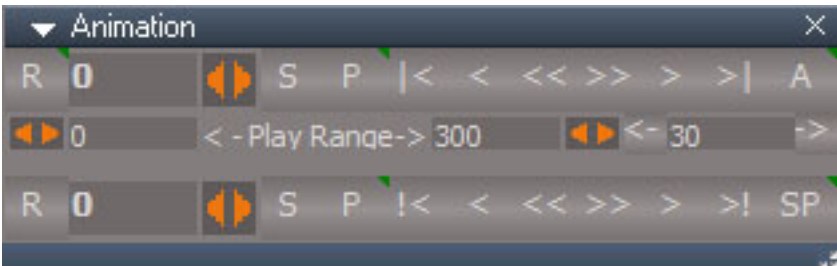
3D View Widget - a graphical representation of the orientation of a 3D view. RMB panel to control the positioning and size of the widget and to close it.



Animation Panel - load animation panel node into the scene if it does not already exist and then opens the panel. Does nothing if the panel already exists. If the panel is closed then you must use RMB to open it again.
RMB open the panel if it exists in the scene.



Workspace Only Animation Panel



Animation Panel Workspace top and Modelspace bottom

Top Row - Workspace left to right

R - set keyframe, Right Click open keying panel

Current frame number and scrubber

S - stop animation

P - play animation, Right Click "shrink play range" which means to copy the play range start and end values into the animation range start and end

|< - set current frame to the beginning start frame

< - set current frame to the previous frame

<< - set current frame to the previous keyframe

>> - set current frame to the next keyframe

> - set current frame to the next frame

>| - set current frame to the end frame

A - open Automatic Keyframing panel, Right Click open Animation Preferences in a floating panel



Start frame scrubber and input

<-Play range-> label, not a button

End frame input and scrubber

<- skip backward, subtract the skip frame step value from the current frame

Skip frame step value

-> skip forward, add the skip frame step value to the current frame

Bottom Row - Modelspace left to right

R - turn on AutoRecord, **does not record a keyframe**

Current frame number and scrubber

S - non functioning button, use ESC key to stop playback

P - play animation, Right Click open animation preferences panel

|< - set current frame to the beginning start frame

< - set current frame to the previous frame

<< - set current frame to the previous keyframe

>> - set current frame to the next keyframe

> - set current frame to the next frame

>| - set current frame to the end frame

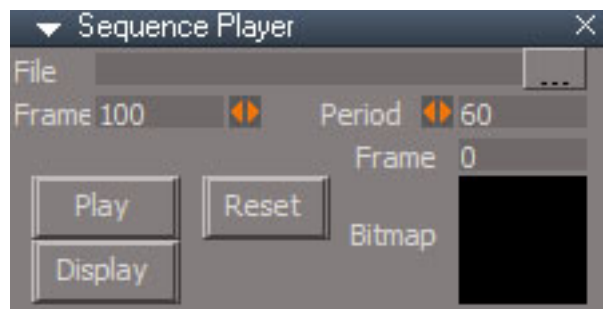
Bottom Row Far Right - Modelspace and Workspace

SP - load the Sequence Player into the scene and open it's panel and display view, Right Click delete the Sequence Player from the scene.

The display has a size of 322 x 268



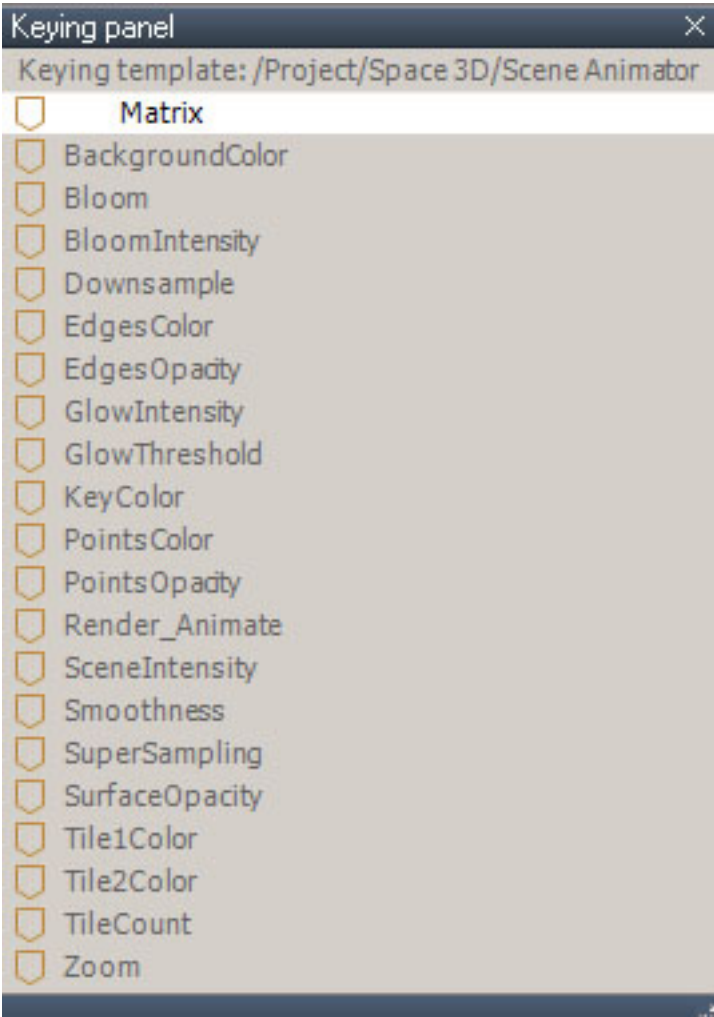
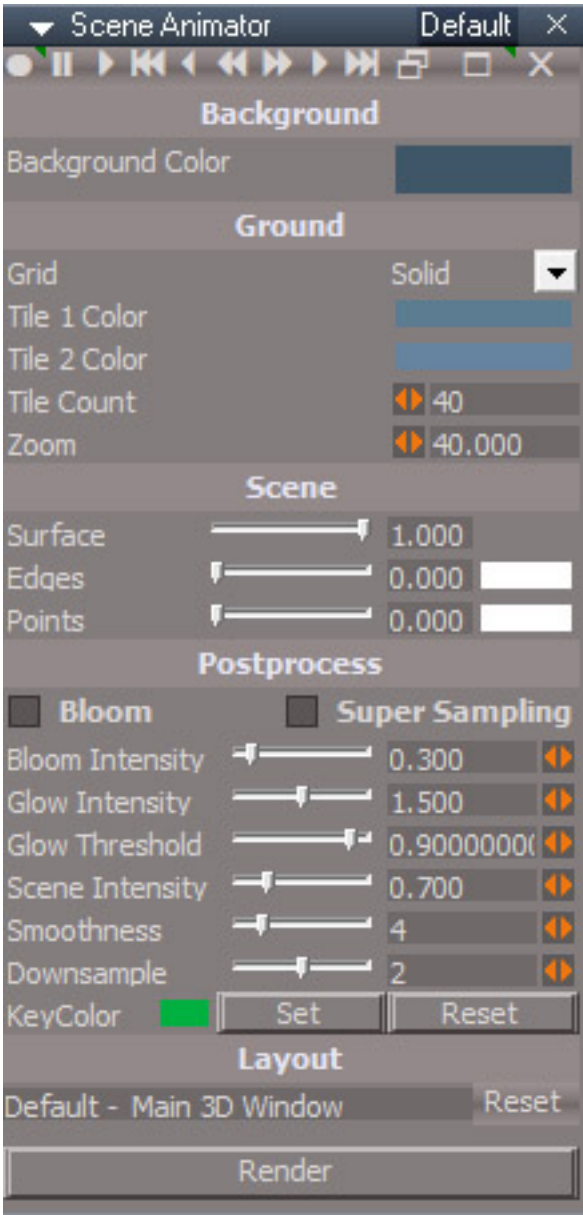
File ... - load an image sequence
 Frame - number of images in the sequence
 Period - delay time in milliseconds between frames
 Frame - current image frame
 Play - play the sequence
 Reset - set current image to the first frame
 Display - re-open the playback window
 Bitmap - tiny display of the sequence





Scene Animator FX - load scene animator into the scene, RMB opens a floating panel for the scene animator that exists in the scene. RMB does nothing if the scene animator is not already in the scene.

The Scene Animator is used to animate various aspects of the 3D view into D3D renders. Scene Animator supports animating Background color, Ground settings, Scene mesh element display and Postprocess effects.



The Record button does not do anything until the desired attributes in the Keying panel have been set to record by Right Click, Add to keying template.

The Scene Animator will not have any effect on the appearance of the display until the Postprocess Bloom or Super Sampling is checked. This seems to "wake up" or "link" the Scene Animator to the Main 3D window of the layout.

Top Row Buttons left to right

Record - set keyframe, RMB open Keying panel

Pause

Play

Start frame

Previous frame

Previous keyframe

Next keyframe

Next frame

End frame

Save panel position

Open in floating panel same as RMB on toolbar button, **Dock closes the panel and what?**

Remove the Scene Animator from the scene

KeyColor - color used to control where post process glow effects are applied to the rendered image when Bloom is checked.

Set - sets up the post process values for glow effects. Scene Intensity is set to 301, 300 for glow + 1 for regular scene intensity. Glow threshold will be set to a value that corresponds to the KeyColor.

Reset - return post process values back to their initial state

Reset - return 3D view appearance to it's default

Render/Deactivate - opens an alert dialog with a long list of instructions, opens the Render to file dialog, check "Save sequence starting with" and set the first frame to render, uncheck Save animation from frame, choose a file name and location or use the default value, press the Save Settings button, close the dialog (do not press the Render button), the D3D Render panel will open, Press the Start button and finally at the end press the Deactivate/Render button on the Scene animator.

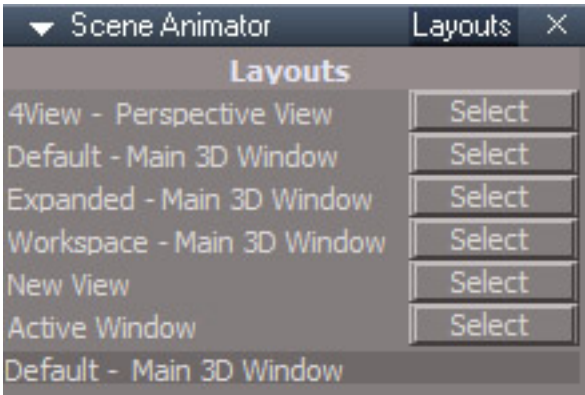
The options are controlled through the post process Scene Intensity value

See Chapter 2.7.4 and 2.7.5 for more information on the Render preferences and Ground preferences.

- Scene Intensity value below 100 will behave the same as before
- Scene Intensity to 100 to get only the bloom, which is really a blur
- Scene Intensity to 200 to get alpha values as gray color
- Scene Intensity to 301 to get a color key based glow

TODO add note for manual about post process

Because the node exists in the scene, any settings will be saved with the scene.



Layouts panel - see end of this document for notes



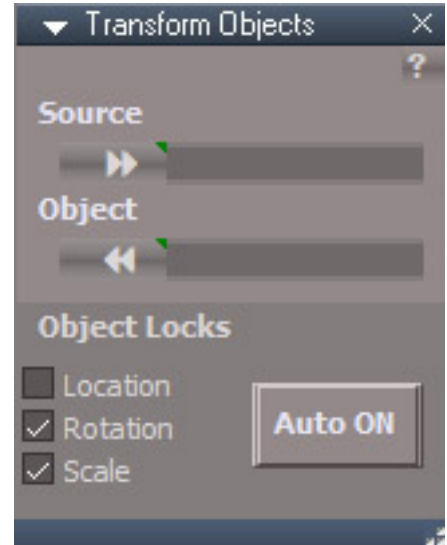
Transform Object - select a source, press the button and select an object.
RMB open the panel

Object will move to the Source.
Default behavior object moves to source with no change to the rotation or scale.

Select the source object and press the Source button
Right Click Source button resets some stuff
Select an object and press the Object button to transform the object
Right Click Object button also resets the same stuff as the Source
Right Click

Auto ON - used to interactively transform the selected object based on the source object. Press again to stop.

Location, Rotation and Scale do the opposite of when they are selected.
Check Location to not copy the source location to the object.
Check Rotation to not copy the source rotation to the object.
Check Scale to not copy the source scale to the object.



Replace Objects -

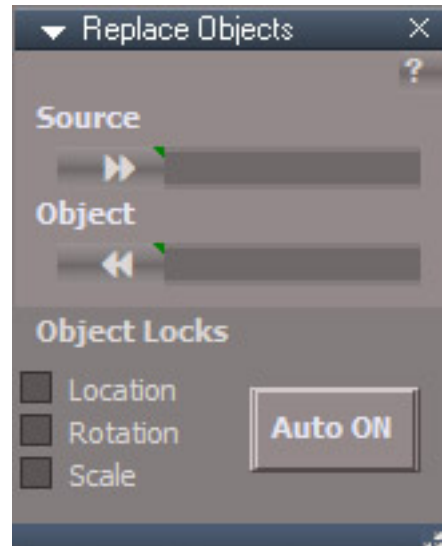
Object gets replaced by Source
Select the source object and press the Source button
Right Click Source button resets some stuff
Select an object and press the Object button to replace the object with the source
Right Click Object button also resets the same stuff as the Source
Right Click

Auto ON - used to interactively replace the selected object with the source object. Press again to stop.

Default behavior is the same as copy the source and delete the object.

Location, Rotation and Scale do the opposite of when they are selected.
Check Location to not copy the source location.
Check Rotation to not copy the source rotation.
Check Scale to not copy the source scale.

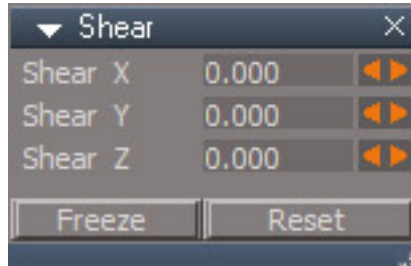
Does not retain the original object name.





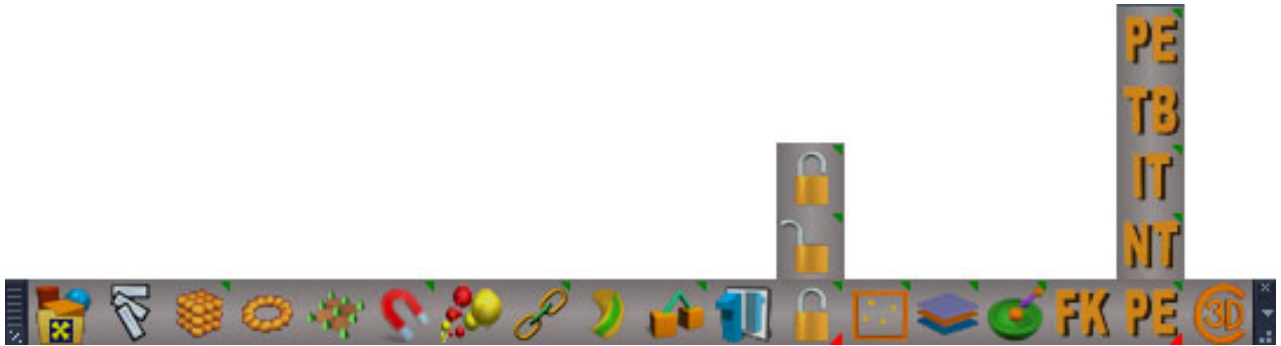
Shear - open the Shear panel
RMB freeze the shear value of the object

Select an object and open the panel. Drag the scrubbers to interactively change the shear value of the transform. Press the Freeze button to bake the shear transformation into the mesh. The transform location, rotation and scale will be unchanged.



Create JScript command node and open it in the script editor
RMB create a JScript object node and open it in the script editor

Gold Toolbar



Gold/Clintons Toolbar



D3D Render - [link to render chapter](#)



Constraints



Mesh Origin



Align



Deformers



Character FK - [link to other chapter?](#)



Grid Array



Parenting
same icon as Glue as Child



Point Edit Toolbar



Radial Array



Mirror Matrix



Toolbar Toolbar



Point Clone



Locking



Interpolation Toolbar



Constraints Toolbar



Rectangle



NURBS Toolbar



Particles



Layers



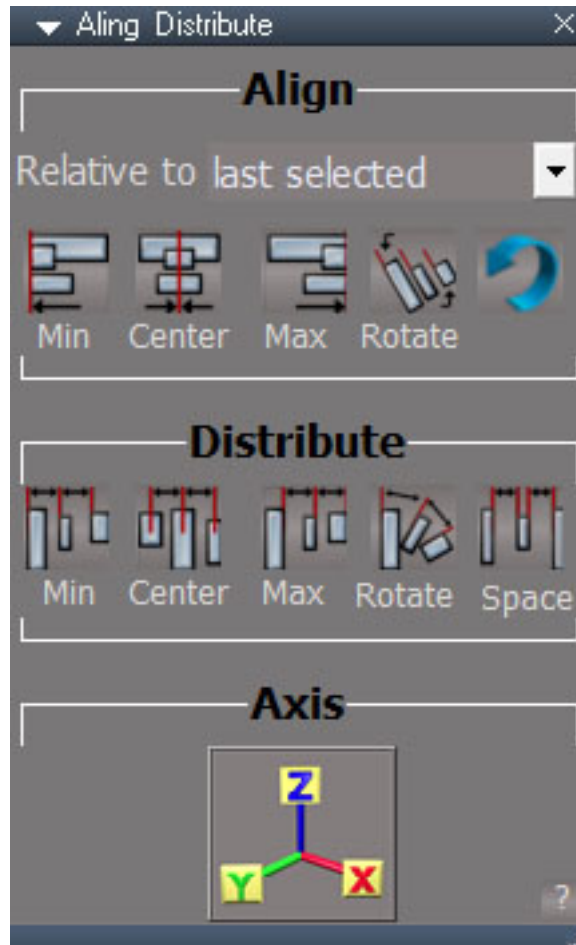
Restore Custom Scripts



Restore Custom Scripts - if the scripts in this toolbar stop working, press to restore them to a working state.



D3D Render - [link to render chapter](#)



Align and Distribute selected objects in 3D space.

Align:

positions the objects relative to some reference point

last selected

first selected

middle of selection

world origin

min - move objects so that their minimum bounding box values are aligned

center - move objects so that their centers are aligned

max - move objects so that their maximum bounding box values are aligned

rotate - rotate objects to match the reference. This option does not work with the middle of selection reference point

Distribute:

positions objects evenly within a selection. the order is determined automatically based on the spread of selected objects in the x,y and z directions and on the active axes

min - move objects so that their minimum bounding box values are evenly spaced

center - move objects so that their centers are evenly spaced

max - move objects so that their maximum bounding box values are evenly spaced

space - move objects so that they have even space between them

rotate - interpolate the rotation values of the objects between the most outer objects by location

Axis:

Control which axes are active for a given action

Click the X, Y or Z buttons to toggle the corresponding axis

Some rotations may require all axes to be active because truespace may express rotation values as combinations of all axis values. This is especially true for the y axis rotations.

Undo:

runs the undo command repeatedly the same number of steps it took to align the selection

only 1 undo

must be run immediately for best results



Grid Array - Distribute copies of an object into a 2 or 3-dimensional block.

Usage:

Select a scene object and press the button to create the array

LMB - create in world coordinates

RMB - create in local coordinates of the object

Use Spacing for Width, Depth and Height to control the size of the array. The value is the space between each array element. These values can go negative to reverse the direction of the array.

Use Segment Counts for Width, Depth and Height to control the number of array elements.

Replace Array Element - copy the selected item in to the array

Select Array Element - select the array element for transformation

Open in Link Editor - open a link editor window for interactive update when rotating the array element and for unsticking controls if needed.

Select Array Rotator - used to select the invisible box that defines the transformation locations for the grid elements. The rotation handles of the widget can be used to change the orientation of the array without altering the orientations of its members.

Reset Array Rotation - set the Array Rotator rotation values to 0

select all but one - selects all but one array elements after the Disband Array is run

Disband Array - convert the array to a plain group item

Convert to a single mesh object

select all but one enabled

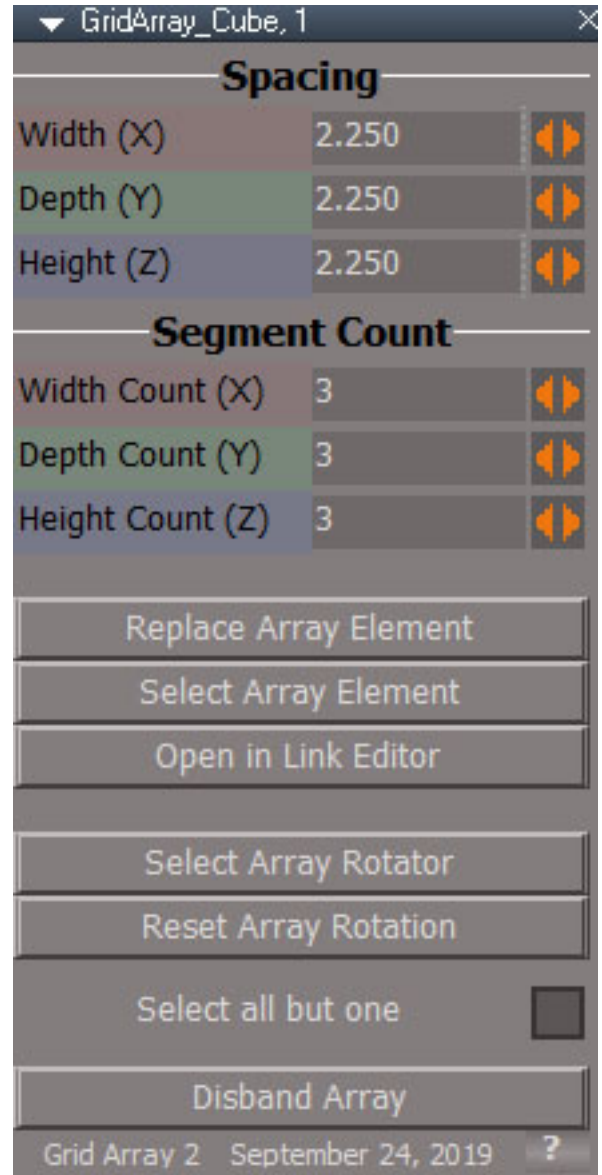
press the Disband Array button

the array will be converted to a simple group object and all the array elements will be selected except for one

activate the boolean Merge geometry tool - Flatten result and do not Keep drill object

select the final array element then exit the tool

3D Unencapsulate - part of the unofficial truespace update

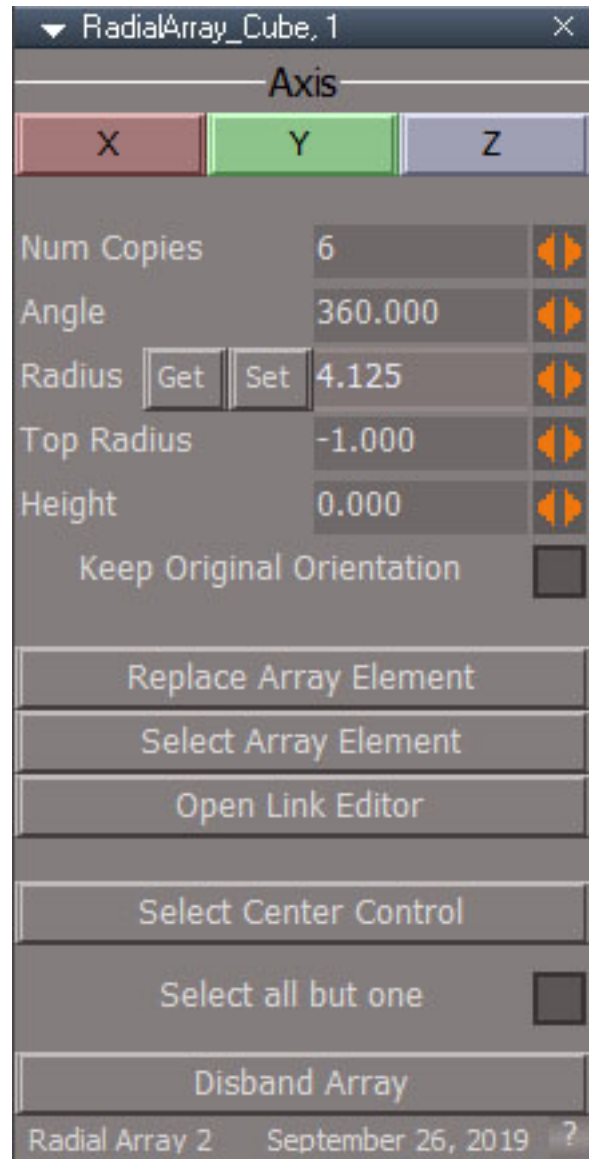


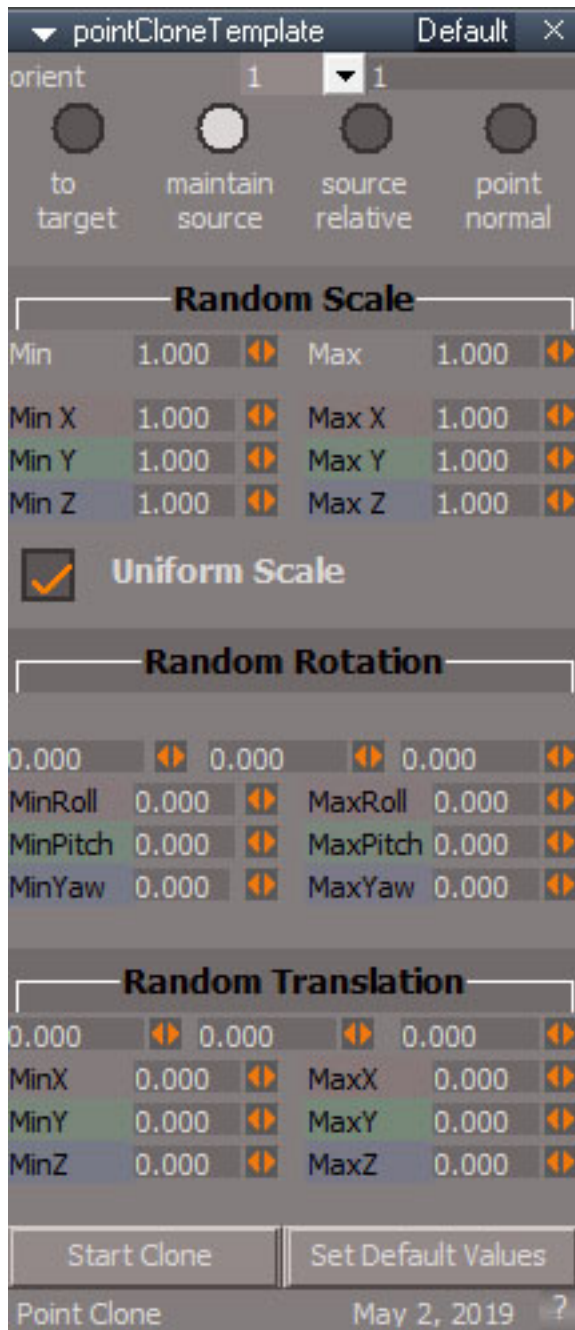


Radial Array - Distribute copies of an object on a circular arc or spiral

Usage:

- Select a scene object and press the button to create the array
 - Keep Original Orientation - copies will have the same rotation values of the original mesh
 - Axis buttons(X, Y, Z) set the initial orientation of the array.
 - Num Copies determines the number of array elements
 - Angle determines the arc angle for the copies.
 - 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 the arc in or out from the center.
 - Height controls the offset from the plane of the array for spiral effects
 - Replace Array Element - copy the selected item in to the array
 - Select Array Element - select the array element for transformation
 - Open in Link Editor - open a link editor window for interactive update when rotating the array element and for unsticking controls if needed.
 - Select Center Control button will select the handle that controls the center and orientation of the array
 - select all but one - selects all but one array elements after the Disband Array is run
 - Disband Array - convert the array to a plain group item
-
- Convert to a single mesh object
 - select all but one enabled
 - press the Disband Array button
 - the array will be converted to a simple group object and all the array elements will be selected except for one
 - activate the boolean Merge geometry tool - Flatten result and do not Keep drill object
 - select the final array element then exit the tool
- 3D Unencapsulate - part of the unofficial truespace update





Push the button to open the panel
 set the desired options
 select one or more items to clone
 click the "Start Clone" button
 select the target item to receive the clones.



Point Clone - copies one or more objects to the vertex locations of a target object. The scale, rotation and location can all be randomized within a specified range.

orient

- to target - rotate clones to the same orientation as the target item z axis.
- maintain source - don't change the source items orientation.
- source relative - add target rotation to the source rotation
- point normal - align the source z axis to the point normals of the target. for curves aligns source down the path

Random Scale

- Min and Max - sets XYZ values together
- Min X, Min Y, Min Z - sets minimum scale values individually
- Max X, Max Y, Max Z - sets maximum scale values individually
- Uniform Scale - calculates Y and Z scale from the X scale values

Random Rotation

- top spinners - sets roll, pitch and yaw values together, min goes negative while max goes positive
- MinRoll, MinPitch, MinYaw - sets minimum rotation values individually
- MaxRoll, MaxPitch, MaxYaw - sets maximum rotation values individually

Random Translation

- top spinners - sets XYZ values together, min goes negative while max goes positive
- MinX, MinY, MinZ - sets minimum translate values individually
- MaxX, MaxY, MaxZ - sets maximum translation values individually

Start Clone - start the clone process using the selected nodes

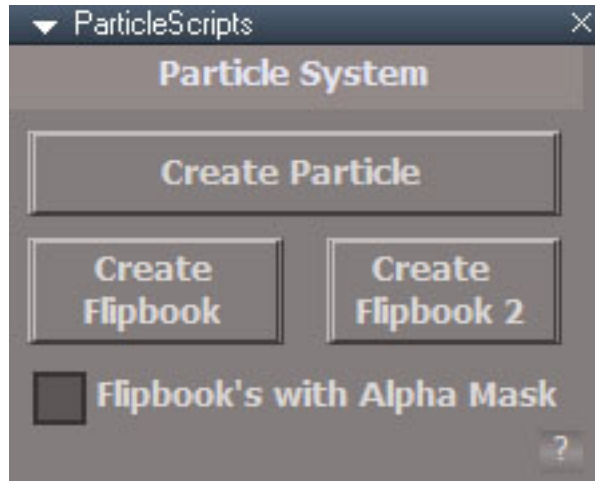
Set Default Values - reset the controls



Constraints Toolbar - link chapt3 stuff here, is in ch 3 because button also in snapping section of original toolbar



Particle System - select a camera and mesh object and press one of the the buttons.



Select a camera and a mesh object

Press Create Particle to create a particle system

or

press Create Flipbook to create a particle system based on an animated material

or

press Create Flipbook 2 to create a particle system based on an animated material

what is the difference between flipbook and flipbook2

Theory: one of them uses a separate image for the mask, but then what's the point of the checkbox? Unknown processes....

If the flipbook texture has an alpha channel check the Flipbook's with Alpha Mask

Switch to a camera view to see and later render the particle system.

"Flipbook2 uses a different Alpha shader"

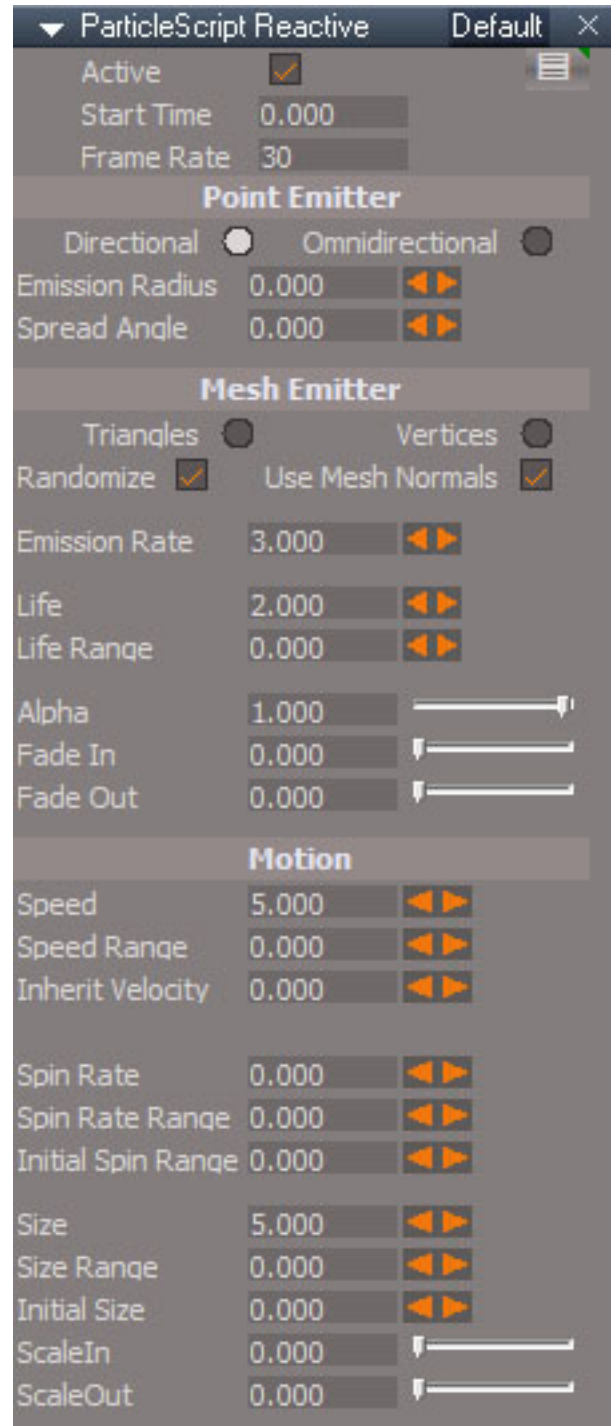
Active - can be used to turn off the particle simulation
 Start Time - begin frame for the simulation
 Frame Rate - set to match the scene frame rate

Small button upper right will close the ?animation? aspect

RMB selects the base particle. Purpose is to show a large button for material settings.

Also a small button will appear in another panel that opens the default aspect settings and the **animation panel**.

Note that the small unlabeled buttons will have different behavior in different panels.



There are 2 main types of emitters, Point and Mesh. The Point emitter creates particles from a single point location or area. The Mesh emitter creates particles at it's triangle centers or vertices. These types are further broken down into subtypes of Directional, Omnidirectional, Triangles and Vertices.

Point Emitter

- Directional - emit from center or centered sphere in local +Z direction
- Omnidirectional - emit from center or centered sphere in all directions
- Emission Radius - size of sphere volume to emit from
- Spread Angle - Directional cone shaped emission pattern

Mesh Emitter

- Triangles - emit from the emitter mesh triangle faces
- Vertices - emit from the emitter mesh vertices
- Randomize - when checked will emit from random vertices/triangles
- Use Mesh Normals - emit along vertex or triangle normals

Emission Rate - number of particles per second

Life - how long a particles exists

Life Range - random variation in life span

Alpha - mature transparency of the particles

Fade In/Out - life percentage to achieve mature alpha value of the particle, Out is reverse

Motion

Speed - meters per second

Speed Range - random variation in speed

Inherit Velocity - match the animated straight line motion of the emitter mesh

Spin Rate - axial/face rotation of the particle

Spin Rate Range - random variation in spin rate of the particle

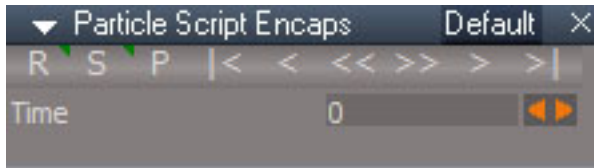
Initial Spin Range - random variation in spin value of the particle at birth

Size - mature size of the particle

Size Range - random variation in the size of the particle at birth

Initial Size - size of the particle at birth

ScaleIn/Out - life percentage to achieve mature size of the particle, Out is reverse



Copied from above, go through and verify / add right click stuff

R - set keyframe, Right Click open keying panel

S - stop animation

P - play animation, Right Click "shrink play range"

|< - set current frame to the beginning start frame

< - set current frame to the previous frame

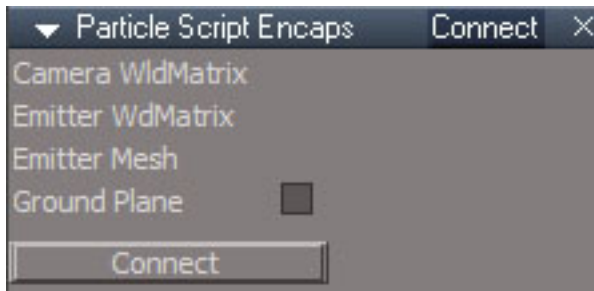
<< - set current frame to the previous keyframe

>> - set current frame to the next keyframe

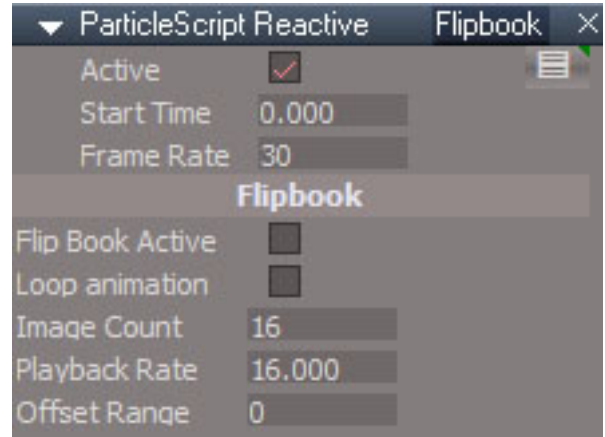
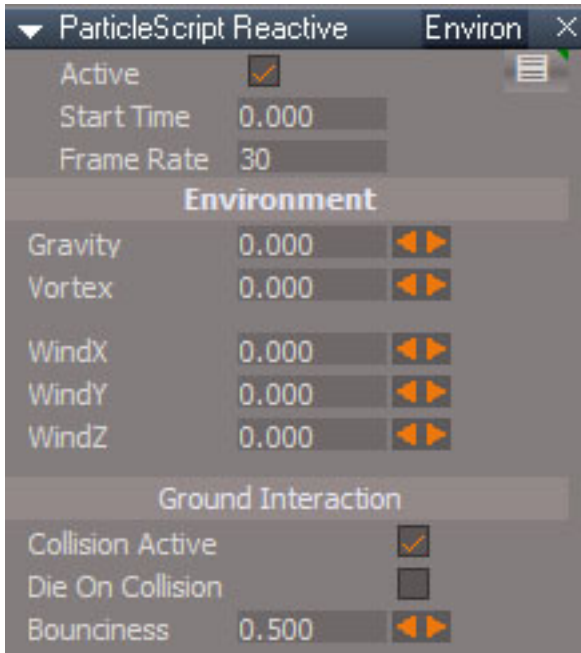
> - set current frame to the next frame

>| - set current frame to the end frame

Current frame number and scrubber



"If Ground Plane is checked, pressing the Connect button will Load a Ground Plane and hook it up.
Must have a Camera & Mesh selected"



Environment Controls

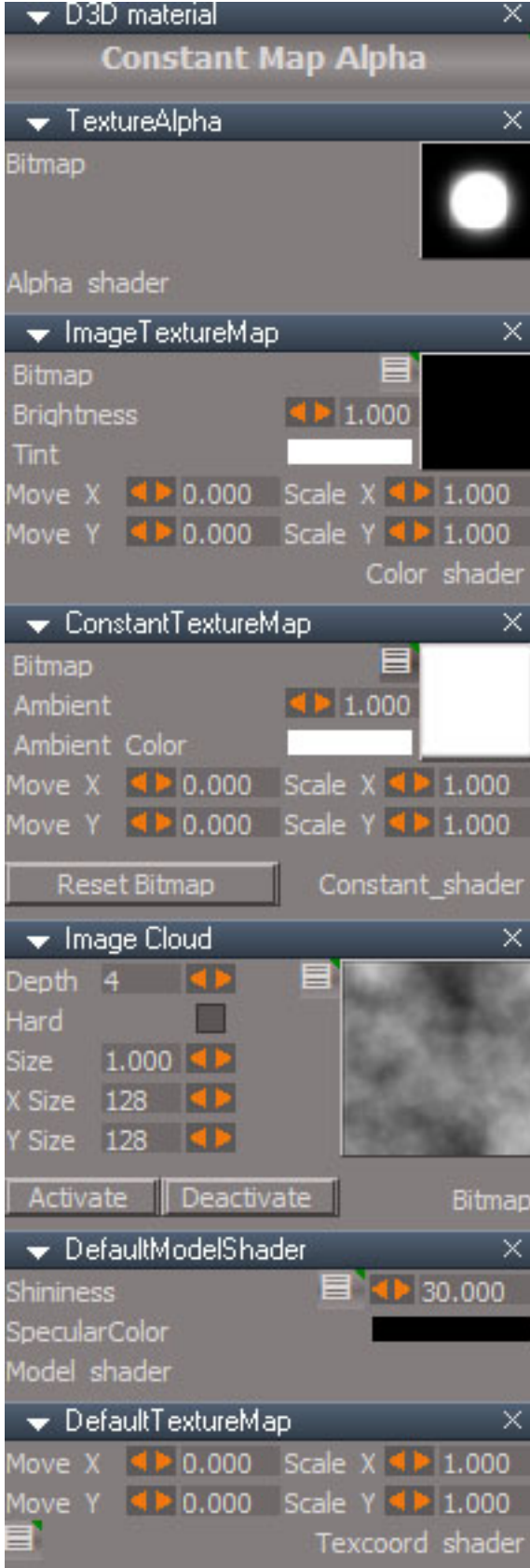
- Gravity m/s^2 acceleration in the world -Z direction
- Vortex spin rate for the particle system about the world Z axis
- WindX/Y/Z wind speed
- Collision Active enable ground interaction
- Die On Collision particles die when touching the ground
- Bounciness how much particle velocity is retained on rebound with the ground

FlipBook Controls

- Flip Book Active enable flipbook
- Loop Animation repeat animation or kill particle when flipbook is complete
- Image Count total number of images in the flip book image
- Playback Rate frames per second rate of flipbook animation
- Offset Range random variation in start frame

Small button upper right will open the default aspect and animation panels.

RMB selects the base particle which will show a large button for material settings and RMB will open the material in the link editor. Also a small button will appear in another panel that opens the default aspect settings and the **animation panel**.



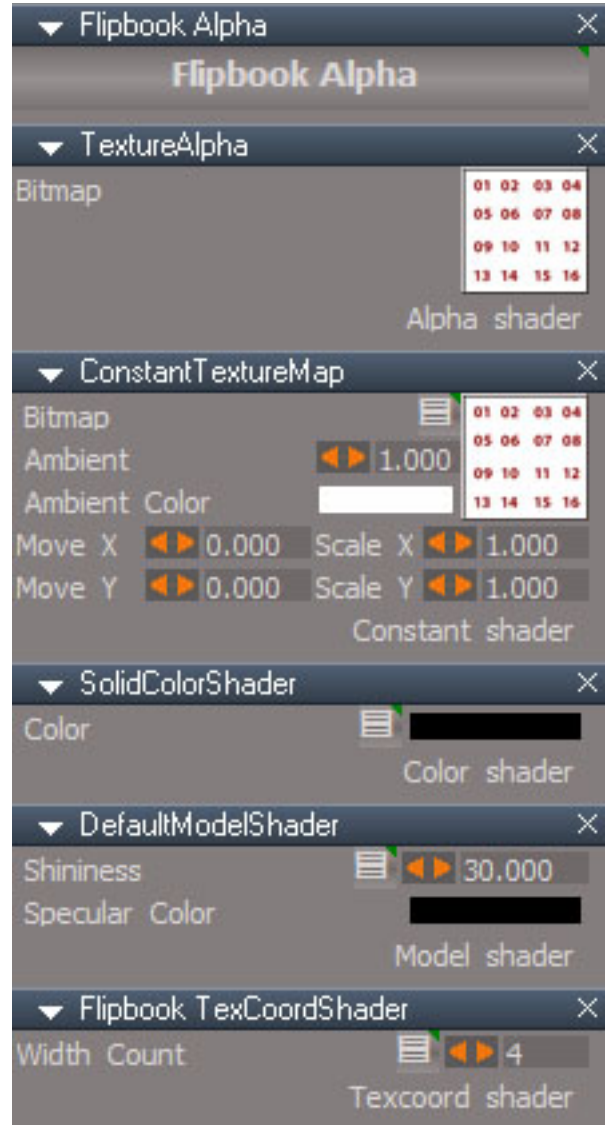
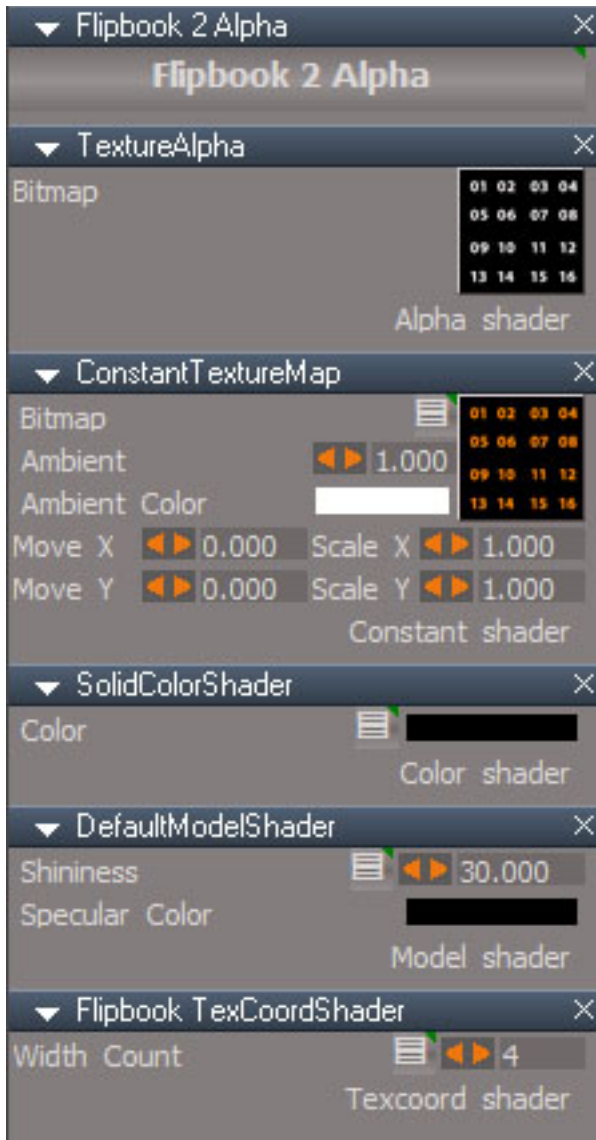
Constant Map Alpha, Flipbook 2 Alpha, Flipbook Alpha material buttons show when selecting the base particle. Press the button to show material settings. The Constant Map Alpha is already displayed so pressing doesn't do anything visible.

RMB will open the material in the link editor

Small buttons will isolate/solo their panel.

Right Click will bring the other panels back into view. Right click while all the panels are open will not make any visible change.

The various and numerous settings do stuff.



Constant Map Alpha, Flipbook 2 Alpha, Flipbook Alpha material buttons show when selecting the base particle. Press the button to show material settings. The Constant Map Alpha is already displayed so pressing doesn't do anything visible. RMB will open the material in the link editor

Small buttons will isolate/solo their panel. Right Click will bring the other panels back into view. Right click while all the panels are open will not make any visible change.

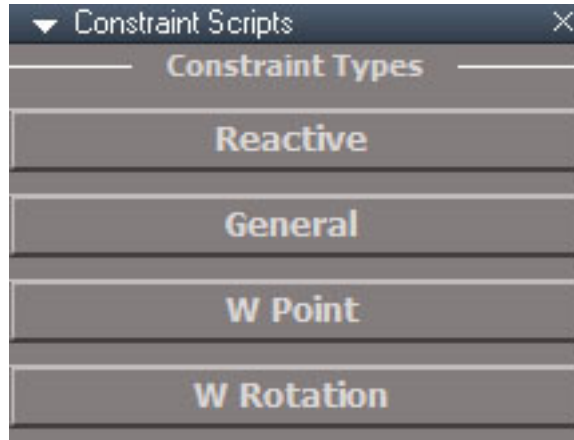
The various and numerous settings do stuff.

TextureAlpha mystery . From the images above guess that Flipbook 2 uses a separate image to control alpha and the Flipbook uses an image with an embedded alpha or maybe it doesn't use the alpha at all?



Constraints - reactive, RMB other options

Constraints are used to control the motion of one object with another object's motion.



Constraint Types

Reactive

Only works with scene level items. Does not work with grouped objects.

Free axes are available for animation keys.

No need to bake animation before rendering

Limited to 8 constraints per object.

General

Works with grouped objects.

Must bake keyframes before rendering.

No limit to the number of constraints.

If key frame animation is applied to the controlled(constrained) object then specific key values will need to be deleted.

Widget Based

Works with grouped objects.

Use with objects where their matrix values cannot be set directly, like IK handles

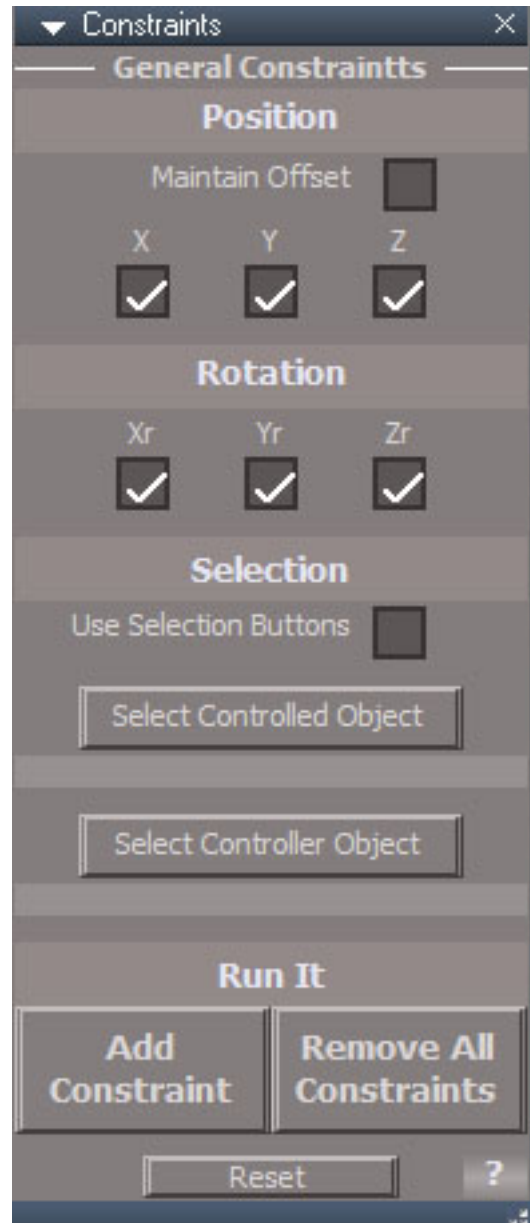
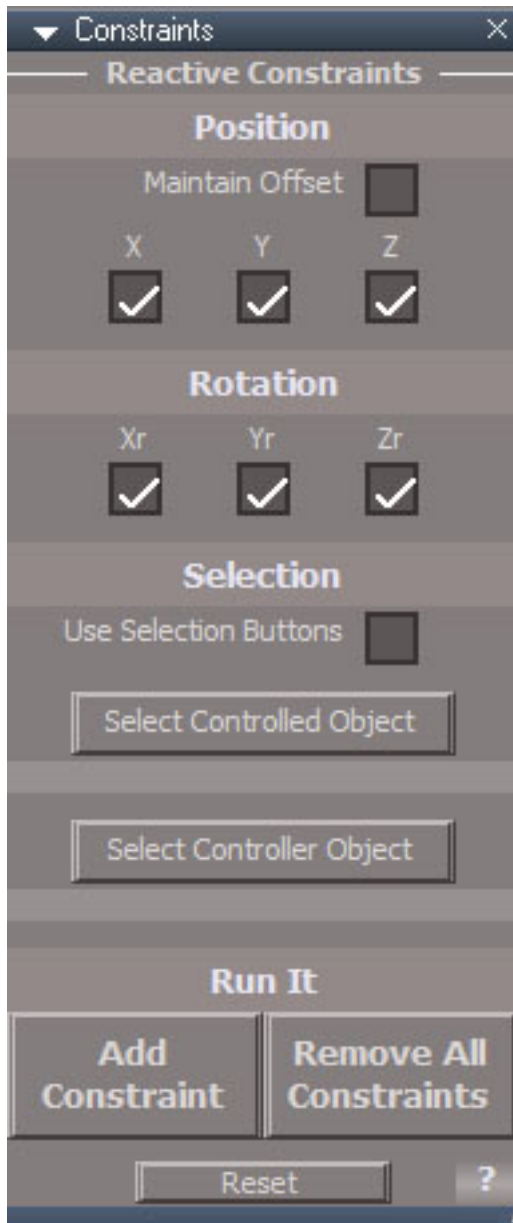
Must bake keyframes before rendering.

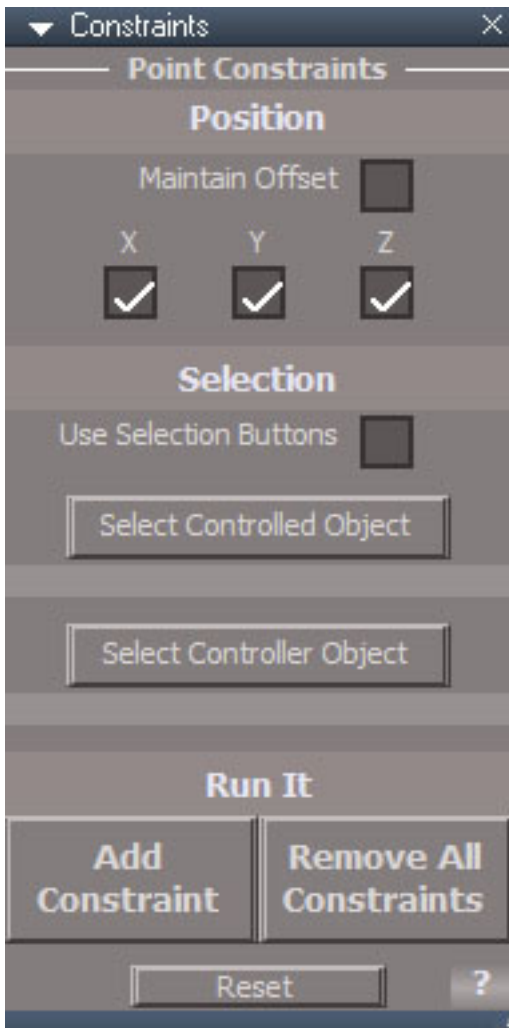
2 subtypes: W Point and W Rotation

W Point can be used with IK handles

If key frame animation is applied to the controlled(constrained) object then specific key values will need to be deleted.

Constraints are driven by widget motion commands instead of setting the matrix directly.





Usage:

select a scene level object to be controlled
 add the controller object from the scene level to the selection
 press the button to open the Reactive Constraint floating panel
 Maintain Offset to keep the relative location of the constrained object
 select axis - X, Y, Z to determine what position aspect will be constrained
 select axis - Xr, Yr, Zr to determine what rotation aspect will be constrained
 press Add Constraint to create a constraint on the controlled object

select an object that is being constrained
 press Remove All Constraints to remove all the constraint relationships assigned to the selected item

Controls:

Maintain Offset - object won't jump the the controlled objects position when the constraint is applied

X, Y, Z - which axis will be position constrained

Xr, Yr, Zr - which axis will be rotation constrained

Use Selection Buttons - instead of pre-selecting objects before, use the buttons below to establish the selections

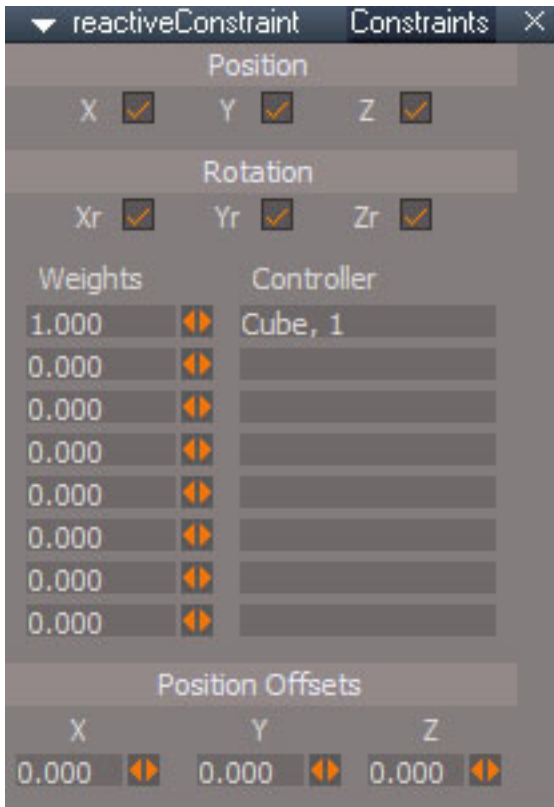
Selection Controlled Object - select the constrained object then press this button

Selection Controller Object - select the object that will do the constraining

Add Constraint - establish a constraint relationship

Remove All Constraints - control minimhe original mesh

Reset - sets the default values for the panel



Reactive Constraint Controls

X, Y, Z - which axis will be position constrained

Xr, Yr, Zr - which axis will be rotation constrained

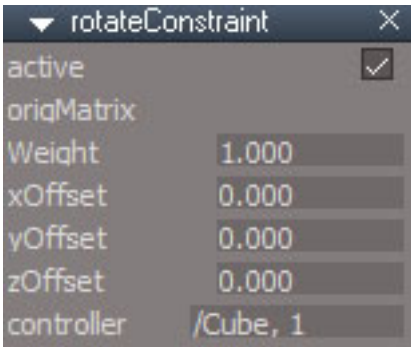
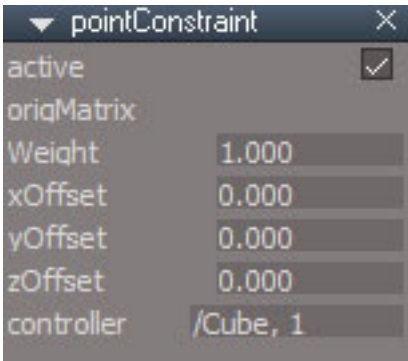
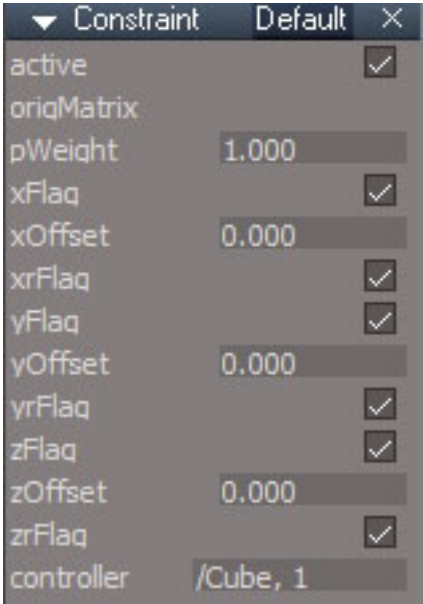
Weights strength value assigned to each controller object

Controller node name for the corresponding weight

Position Offsets position of the constrained object relative to the first controller object attached to it

General Constraint Controls

- active - enables/disables constraint processing.
- Show the same basic controls but without any formatting.
- xFlag, yFlag, zFlag - axis position constrained
- xrFlag, yrFlag, zrFlag - axis rotation constrained
- xOffset, yOffset, zOffset - position offsets
- "pWeight" "pWeight, 1" "pWeight, 2" ... - Weights
- "controller" "controller, 1" "controller, 2" ... - controller node names



Widget based Constraint Controls

- active - enables/disables constraint processing.
- Show the same basic controls but without any formatting.
- xFlag, yFlag, zFlag - not exposed, found inside the "pointConstraint" node
- xrFlag, yrFlag, zrFlag - not exposed, found inside the "rotateConstraint" node
- xOffset, yOffset, zOffset - position offsets
- "Weight" "Weight, 1" "Weight, 2" ... - Weights
- "controller" "controller, 1" "controller, 2" ... - controller node names



Deformers



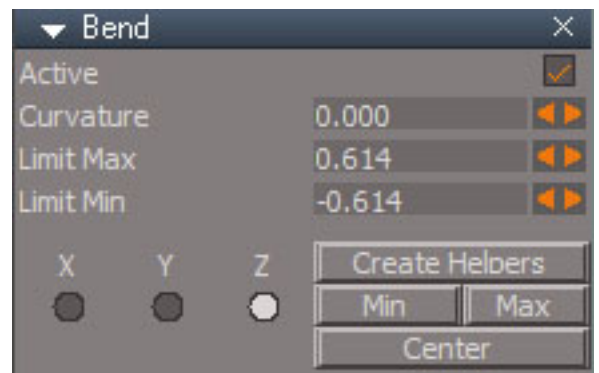
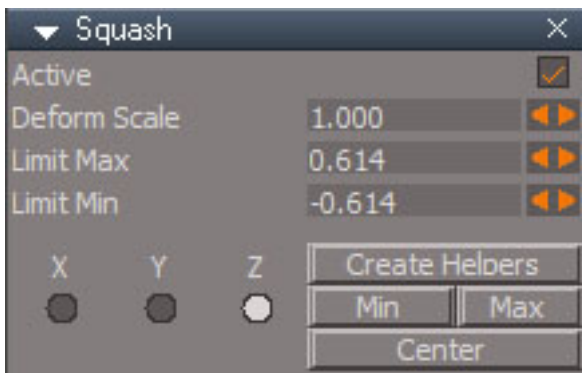
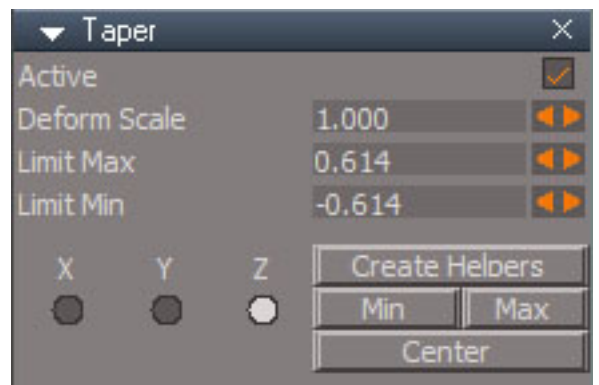
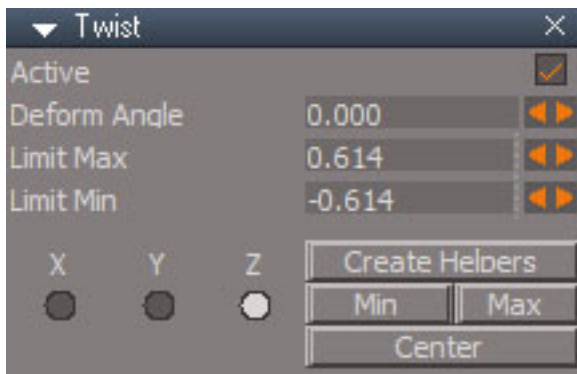
select a well divided mesh

press the button to open the selection panel

choose Bend, Squash, Taper or Twist

select an axis - X, Y or Z

press Add to add the deformer to the mesh object



Node Controls:

active - can be used to turn off the deformation

Bend: Curvature of the bend

Taper: DeformScale - control amount of taper

Squash: DeformScale - control amount of squash and stretch

Twist: DeformAngle - control amount of twisting

Limit Max - control maximum of the region of influence on the original mesh

Limit Min - control minimum of the region of influence on the original mesh

X Y Z - change the axis for the deform

Create Helpers

Min

Max

Center

TODO review old website to get notes on helpers and will this version chain deformers

yes it will chain

no old website info, was never published in pre-release form, so need figure it out from scratch

From forum posts and youtube preview link

When you press the button the AddDeformer panel will open.

Choose a deformer and an axis and press Start.

Select the mesh again to see the deform controls panel.

Set the strength of the deform with the Radius, DeformScale or DeformAngle controls depending on the deformer.

The active region will default to the mesh size. Set the region of influence with the LimitMin and LimitMax controls.

Press the create helpers button to change the center, min and max visually.

Press the back button in the panel to go back to the main deform controls.

Press remove helpers when done.

Do not change the axis while using the helpers. It won't work.

Deformers can be chained together by just adding another deformer.

The Up and Down buttons don't work yet, so the order of the deformers can't be changed.

There is no function to remove Deformers.

<https://youtu.be/wf9a8KdxlP0>



Parenting - creates a parent child relationship between objects.

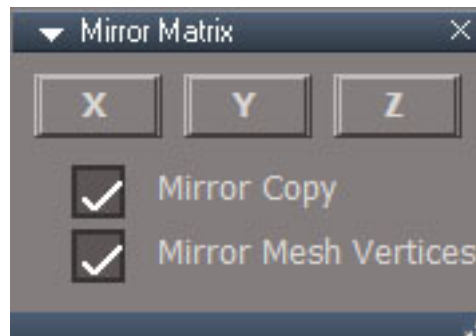
To parent select the children and then the parent in the 3D view then press the button
Choose the children and RMB to unparent them.

Parenting structures do not export to non-trueSpace formats like Collada(dae) and X.



Mirror Matrix

The Mirror Matrix tool effects the object matrix values. It is similar to the built in modeling mirror tool but mirrors the matrix values as well as the vertices of the mesh. This tool is also compatible with cameras and lights.



Select a scene item then choose an axis and press the Mirror button.

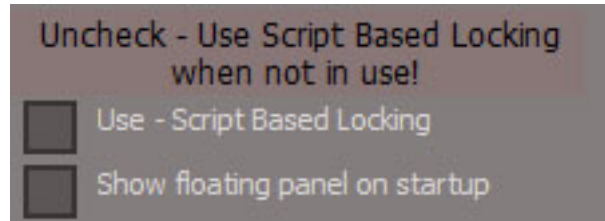
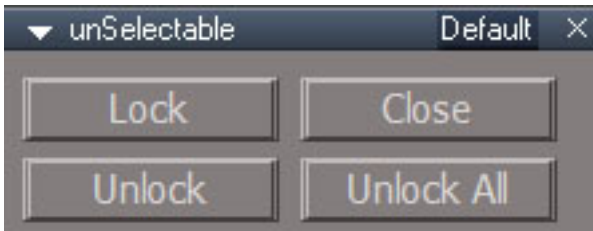
Mirror Copy - make a copy and mirror it

Mirror Mesh Vertices - a mesh requires that the vertices are updated for a full mirror effect. Can be disabled to only mirror the matrix values. This option is ignored for cameras and lights.



Locking

Lock scene items from basic 3D viewport selection.



The unSelectable node will be added to the scene.

If you press the Close button it will be removed from the scene. The only way to get it back is to lock something in the scene which puts the node back into the scene, then select an unlocked item, then it is possible to use RMB to open the panel again.

Do not press the Close button.

The checkbox options are found in the Help aspect of the panel.

The buttons are disabled if nothing is selected, so to get to the RMB panel you must first select something in the scene.

Usage:

Lock - add lock attribute to node and activate it

Unlock - uncheck the lock attribute on the selected node

Unlock All - unlock all locked items

Alt + LMB will temporarily override widget based locking for an item

Use - Script Based Locking uses Undo to deselect locked items. It works to lock things in the link editor as well as the 3d view

Show floating panel on startup - use the floating panel



Rectangle Select - rectangle style object selection via ray tracing
RMB open default aspect of the panel



Rectangle Select Panel Default aspect

Usage:

Left click the button to run with current options

Right click to open the options panel.

drag in the viewport to make a selection - the rectangle will be invisible

Respect Locking - if an object has been marked as unselectable it will not be selected.

Divisions - the number of vertical and horizontal ray traces used to find objects.

Small icon button is the same as the toolbar button except no Right Click to open the panel

Rectangle Zoom - prepare and open the rectangle aspect of the panel

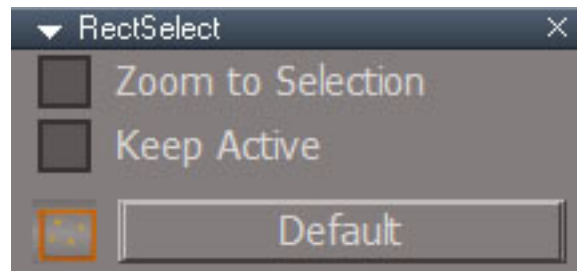
Notes:

The rectangle widget is invisible. :(

small items can be missed - increase the Divisions

high division values may run slowly

Only visible non-occluded objects will be selected.



Rectangle Select Panel Rectangle Zoom aspect

Zoom to Selection - will fill the view with the resulting selection

Keep Active - tool stays valid until RMB click in space.

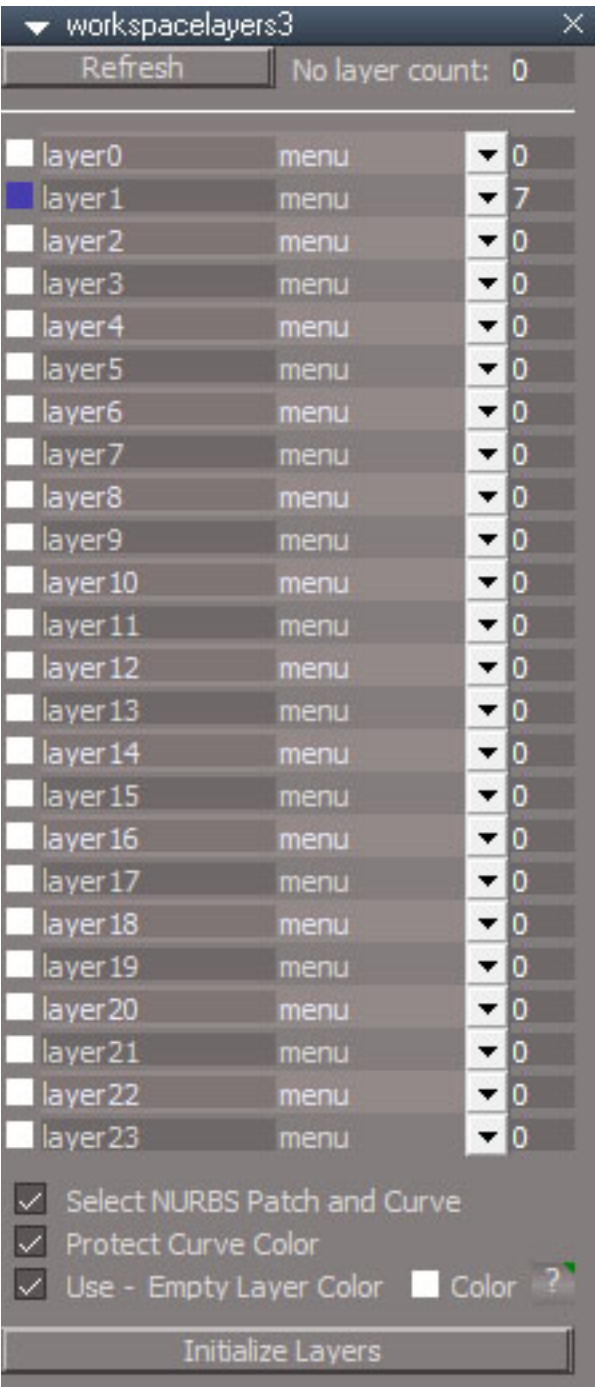
Default - prepare and open the default aspect of the panel



Layers



TB making changes - wait until no more changes then document



raw notes from website

Refresh button is for updating the display after creating or loading new items into the scene. It also randomizes the layer colors for empty layers.

no layer count number of renderable objects that do not belong to any layer. This count includes child nodes of objects that are assigned to a layer.

The color control is for setting the wireframe color of a layer.

The next field is for the layer name.

The menu has options for:

Select - select all the objects in the layer.

Add to layer - add selected objects to the layer.

Empty - remove objects from the layer by removing the render attributes node. Cameras and lights will move to layer 1

Visible, Locked - visibility and selection locking. shows in the menu name as "menu H L" with H=hidden and L=Locked

Global, Solid, Solid Wire, Transp, Transp Wire, Wireframe - layer display modes - object mode off, solid wire, transparent, transparent wireframe, wireframe.

Backfaces, Hidden Lines - additional display options to show back faces and hidden lines in transparent and transparent wire display modes.

The number to the far right of each row is a count of all the objects in a layer.

The Initialize Layers button is the same as the Refresh button with the exception that it also resets the layer names and all layer colors.

Select Control Point Mesh when active will automatically select the control point mesh for NURBS objects.

Protect Curve Color the color of a NURBS curve will not be changed by layer assignment.

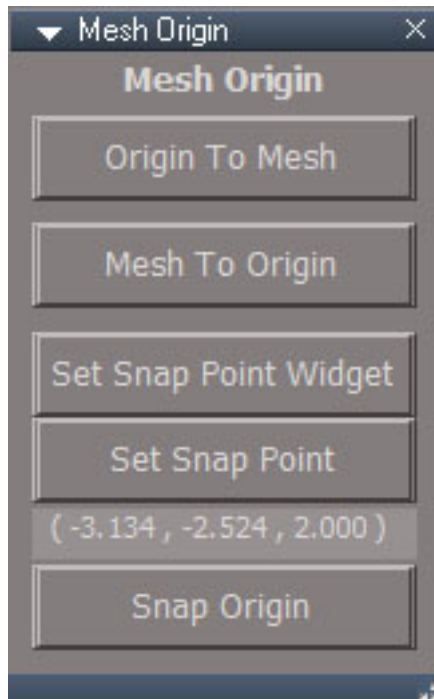
Use Empty Layer Color the color of a NURBS curve will not be changed by layer assignment.

Color default empty layer color

The script will read modelspace layer numbers, but not the wireframe color.



Mesh Origin - Tool for changing the location of the center of a mesh



Usage:

- Origin To Mesh - move the origin to the center of the mesh vertices.
- Mesh To Origin - move the mesh vertices to the origin
- Set Snap Point Widget - use widget to select the point for snapping
- Set Snap Point - save the object location or point edit selection for snapping
- Snap Origin - move the origin to the previously selected point.



Character FK - [link to other chapter?](#)



Point Edit Toolbar



Lathe - link ch2



Static Sweep - link ch2



TrueBevel - link ch2



Plane Loop Select - link ch2



Target Weld - link ch2



Normal Move - link ch2



Toggle Object Coordinate Mode - link ch2



Axis to Selection - link ch2



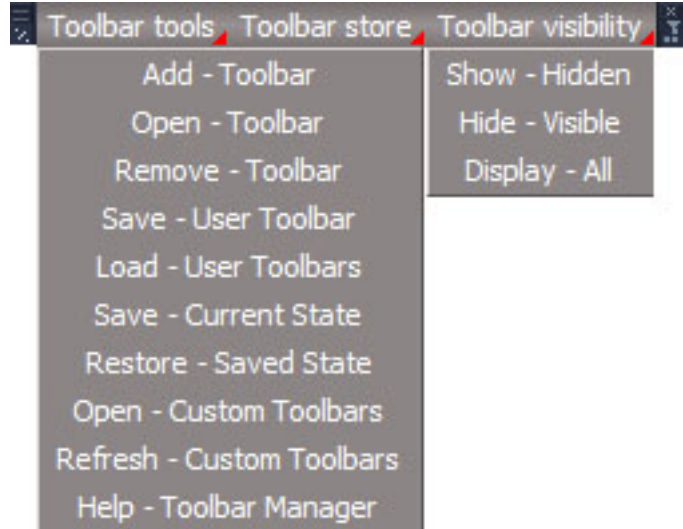
Freeze Transform - link ch2



Quad Toolbar/Quad Menu - link ch2



Toolbar



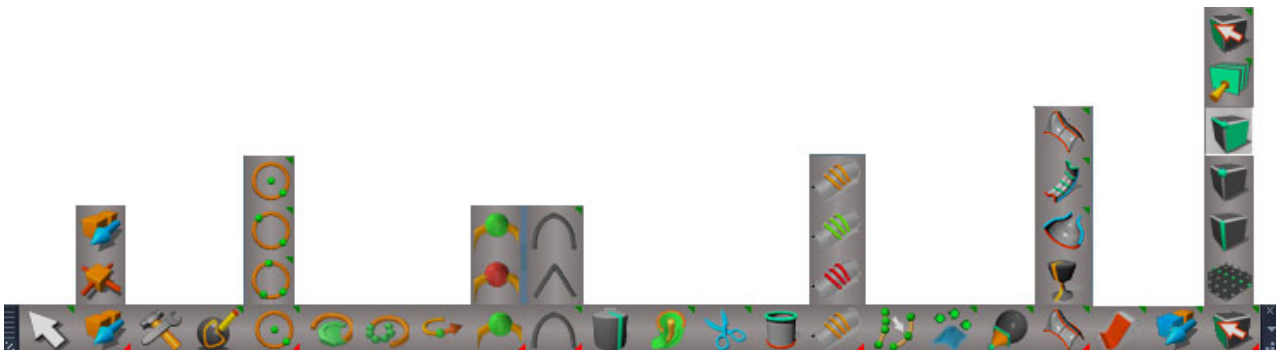
For more information use the **Help - Toolbar Manager** menu option



Interpolation Toolbar - link ch9 or move doc here?

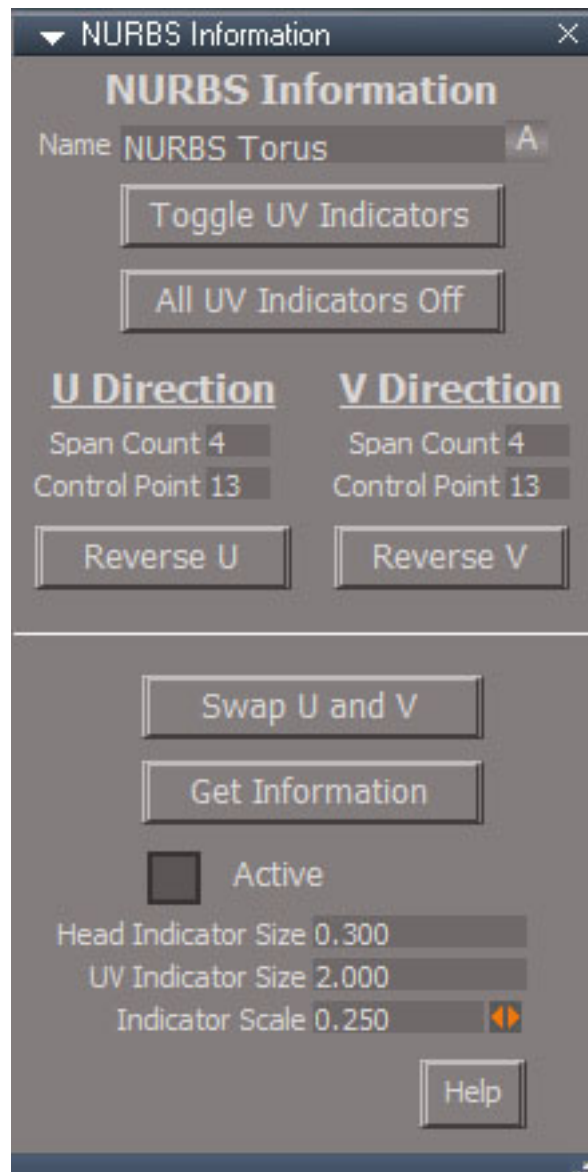


NURBS Toolbar



**Select Control Point Mesh**

RMB Open Information Panel



Information panel displays information about the selected NURBS object and has buttons for changing the direction of the NURBS structure

NURBS Info

Toggle UV Indicators turn on or off the UV indicator for the selected NURBS object. The "Head" or start of the curve or patch is indicated by a yellow wireframe box. The U and V are indicated by a red U and a green V.

All UV Indicators Off

Reverse U reverse the direction of a curve or U direction of a patch

Reverse V reverse the V direction of a patch

Swap U and V swaps the U and V directions of a patch

Get Info read U and V information for the selected NURBS object

Active - will update with selection changes

Head indicator Size - not used

UV Indicator Size - not used

Indicator Scale sets the size of the select NURBS UV indicators



Copy NURBS

Special copy and delete buttons for NURBS. Will copy or delete the entire NURBS object no matter what element of the NURBS is selected.

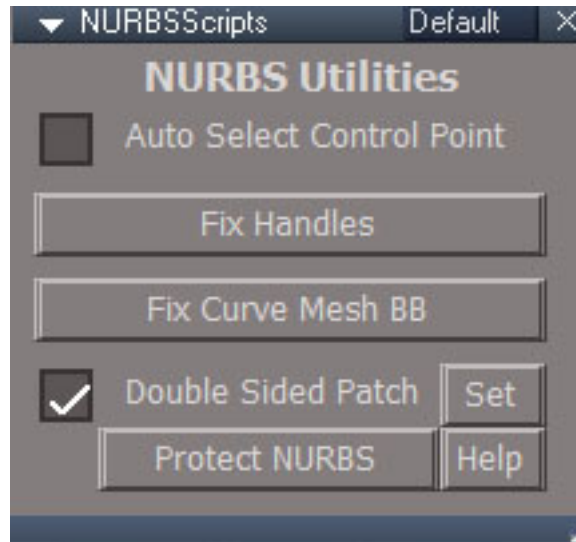


Delete NURBS



NURBS Utilities

same icon as the Stack View button



Default tab

Auto CP Mesh Select - a NURBS selection will automatically change to it's control point mesh selection for editing and transformations. This is only active while the panel is open.

Fix Handles - if a process is exited prematurely or mesh edit triangulation is active during patch editing, the triangle indices of the control point mesh can get messed up. This fixes that problem.

Fix Curve Mesh BB - fix the curve mesh bounding box so that the top and bottom of the base control point mesh cone is centered in the curve.

Double Sided Patch - makes the NURBS display meshes double sided. Set to apply the change to the scene and default patch creation. A single sided patch has a better polygon mesh conversion result and is better for editing. Double sided is better for viewing and selecting a patch in the 3D view.



NURBS Colors

Curve Display NURBS display color

Curve Handle edge color

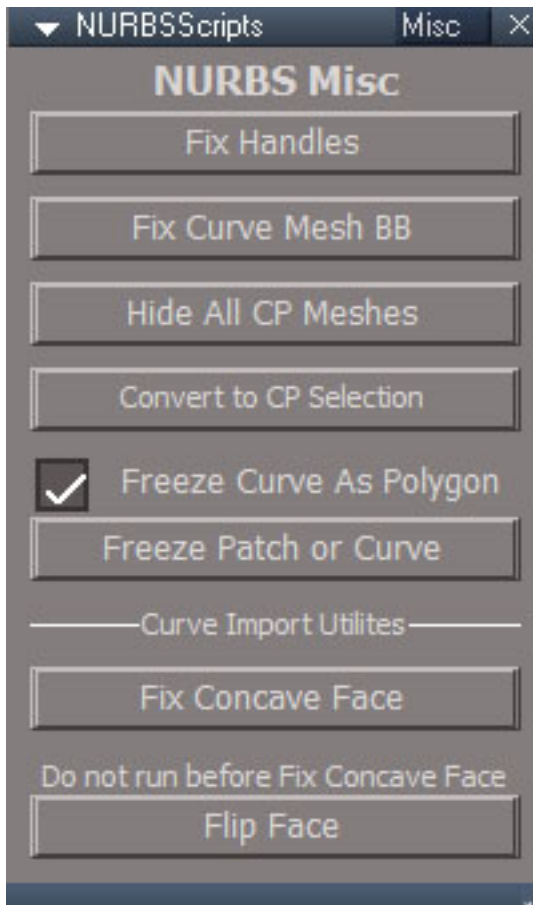
Curve Point

Set Curve Colors apply the curve colors to the default and scene curves

Patch Handle edge color

Patch Point

Set Patch Colors apply the patch colors to the default and scene patches



NURBS Misc

Fix Handles see above

Fix Curve Mesh BB see above

Hide All CP Meshes set all control point meshes in the scene to invisible

Convert to CP Selection convert the current NURBS selection into control point mesh selections, same as LMB press on the button

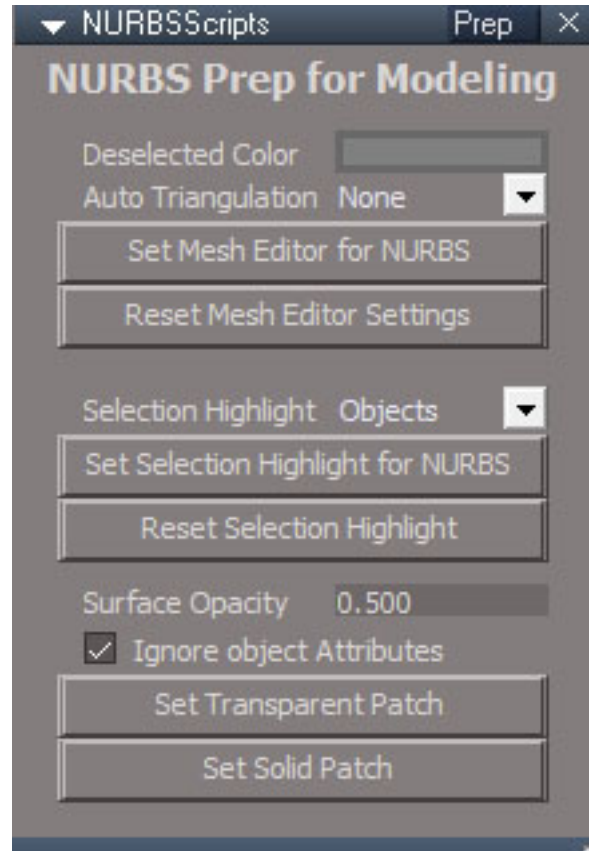
Freeze Curve as Polygon will make a polygon face when freezing curve objects

Freeze NURBS - convert NURBS to polygon meshes. A double sided patch will freeze as a triangulated mesh.

Fix Concave Face, Flip Face: 2 utility buttons for fixing curve based concave polygons and for flipping the normals of mesh faces. The fix polygon is set to work in object mode, not point edit mode. These 2 buttons were added to deal with SVG import problems.

NURBS Prep for Modeling

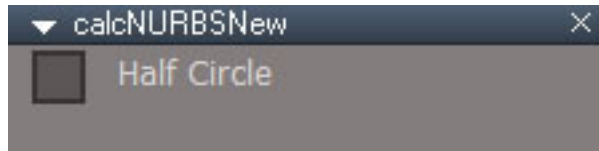
Not Selected Color
 Auto Triangulation - None best for NURBS editing
 Set Mesh Editor for NURBS
 Reset Mesh Editor Settings
 OutlineSelect - Objects best for selection highlighting
 Set Selection Highlight for NURBS
 Reset Selection Highlight
 below is for the currently selected patch
 IgnoreLayerAttributes true
 SurfaceOpacity 0.5
 Set Transparent Patch
 Set Solid Patch





Draw Curve - Use existing scene geometry as a "draw panel" for curve creation.
 RMB panel for PickSelect options
 note: same icon as Add Polygons

Drag for a freehand drawing style



Circle - Create circles by selecting point edit geometry
 RMB panel with option to create circle 180 degrees



Circle by Center Point and Plane

first selection will be the center of the circle
 second selection will be the start of the circle
 third face selection will give the normal orientation for the circle

TODO check UU status line help for all NURBS tools. Found was inaccurate and confusing for circle by center, first step select plane when in truth does not have to be a plane.



Circle by 2 Points and Plane

first selection will be the start of the circle
 second selection will be on the opposite side of the circle from the first selection
 third face selection will give the normal orientation for the circle



Circle by 3 Points

first selection will be the start of the circle
 second selection will be the second point on the circle
 third selection will be the third point on the circle



Polygon to Curve - Select the polygon and push the button to create a curve from the polygon vertices.



Points to Curve - enter a special vertex selection mode. In this mode you select vertices one at a time and they will have a green line in between each selected vertex that represents the final curve. Right click to exit this mode and create the curve.



Extend Curve - Select one of the vertices at the end(or start) of the control point mesh and push this button to extend the length of the curve with a new set of control points.



Insert Control Point - enter a special mode for adding control points to the curves control point mesh. After pressing the button the handles will disappear and the previously invisible line segments between the handles will become visible. Select one of these line segments and a new set of control points will be added to the center of the line segment making a new handle.



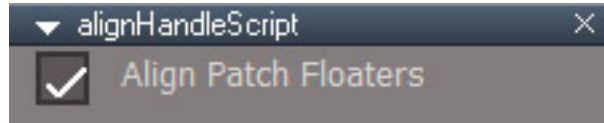
Delete Control Point - Select the vertex on the curve representing the root of a handle and push this button to delete the control point and it's handles.



Smooth



Sharp



Align the handles of a NURBS object to their connected handles or neighbor handles or control points creating a smooth or sharp appearance at the control point.

The tool behaves differently depending on what is selected, the control point or the control point handle.

The vertices that touch the visible curve are the control points and the 1 or 2 points connected to them through edges are the control point handles

Smooth

if a control point is selected then its handles will form a straight line parallel to a line formed by its neighbor control points.

if a control point at the start or end of the NURBS is selected then the handle points will point to their immediate neighbor handles

if a handle is selected then it will rotate to form a straight line with its control points other handle

if a handle at the start or end of a curve is selected it will point towards its closest neighbor handle point

Sharp

if a control point is selected then its handles will point towards the neighboring control point

if a handle is selected then it will point towards the neighboring control point

Usage:

If smooth doesn't give the desired result on a control point, select the control point then press sharp then repeat but press smooth the second time through.

If control and handle points are both selected it will have less predictable results for smoothing.



Extract Curve from Patch - Creates a curve from a patch selection.

Usage

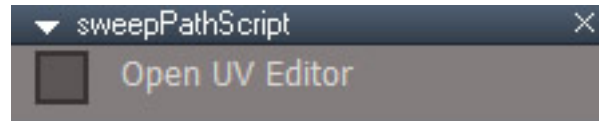
Select 2 vertices or a control edge and press to create a curve from the corresponding isocurve the selection is a part of.

Selection must be part of the control handles. The floating control points cannot be used.

The selected points do not have to be part of the same handle



Sweep Path - create a series of sweeps along a curve path



The mesh must already have uv assigned to set number 1.

The face that will be swept must have other faces connected to it. This is needed so the tool knows how to extend the existing uv into the sweep. A cylindrical uv assigned to the face and it's connected neighbors works best.

Usage:

Line up the face to the head of the curve

Enter point edit mode

push the button

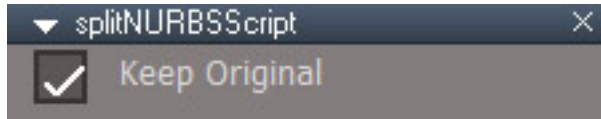
script will now wait for you to select a curve

After the selection the face will be swept once for each curve segment, then a copy of the mesh will be swept to generate uv values.

The number of curve points controls the smoothness of the sweep.



Split NURBS - separates a NURBS object into 2 distinct objects.



Usage

To split a curve select the base control point to split then press the button
 To split a patch choose 2 points or an edge and press the button to split along that selection.

RMB panel, Keep Original



Extrude Patch - Extends a patch by adding an isocurve beyond the selected border

select a border control edge or at least 2 vertices on a border
 run the tool and the geometry will be extruded and selected
 move the new isocurve into position



Add IsoCurve - Add isocurve geometry to the interior of a patch

start the tool - the line appearance will change
select one of the edges and an isocurve will be added perpendicular to it
the isocurve will be selected so it can be adjusted



Select IsoCurve - Selects a line of control points with a soft selection to imitate modelspace manipulation of isocurves

Select a control edge and press the button to select the isocurve.



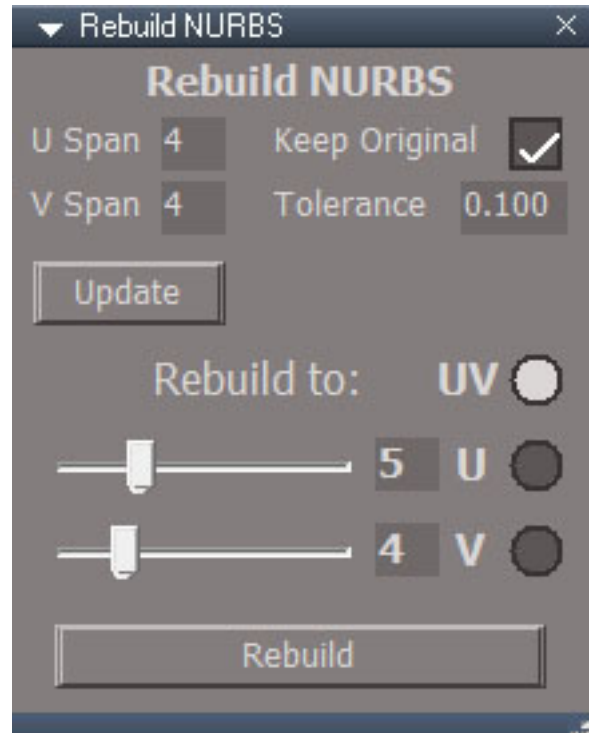
Remove IsoCurve - Remove a isocurve geometry from a NURBS patch

Select vertices or control handle edge of the isocurve and press to delete it



Rebuild - Change the detail or resolution of a NURBS object

The purpose of rebuilding is to reduce unnecessary detail, smooth out a NURBS object, add detail for a future modeling step, match the spans for patch modeling tools.



U Span, V Span, update - refresh display for the current selection

Keep Original keep a copy of the original NURBS object before the rebuild

Tolerance measure of how close a rebuilt control point can be to an existing control point

UV, U, V rebuild in one or both U and V directions

U inputs new span value in U direction

V inputs new span value in V direction

Rebuild rebuild the NURBS object structure

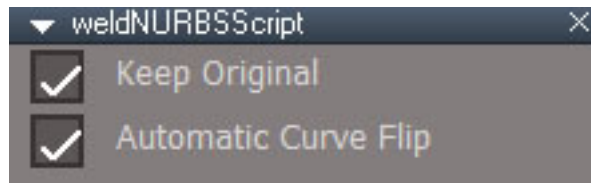


Adjust Floaters - Floaters are what I call the control points that are not part of a control handle. This tool will place them so the result matches the modelspace handle manipulations.

The points are adjusted so that they form a parallelogram with their associated control handles.
Must be in point edit mode to run



Weld - Join 2 NURBS objects together as one.
note: same icon as point edit Weld geometry



RMB panel

Keep Original a copy of the original 2 patches will be kept
Automatic Curve Flip - no need to align the head and tail of the curve

Usage

To weld a curve select 2 curves then press the button

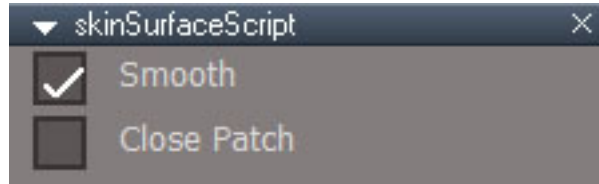
To force a specific weld curve direction disable the Automatic Curve Flip option.

To weld 2 patches first line them up and arrange their structure so the head of the first patch is close to the tail of the second patch. Then make sure both patches U and V are in the same direction and press the button.

In patches the U directions will be parallel and the order will be V then head of the first then V then head of the second patch.



Skin - create a patch from a series of curves



Select a series of curves and press the button to create a patch.

Be mindful of the curve direction to avoid twisting.

RMB panel,

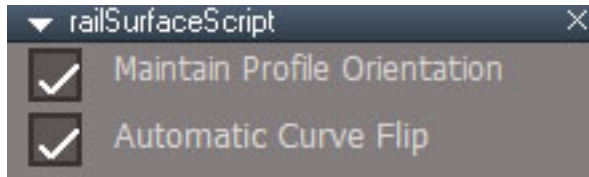
Smooth make a smooth transition between profile curves

Close Patch - repeat the first curve to give the appearance of a closed patch

The curves must all have the same number of spans.



Rail - create a patch from a profile and a rail curve



The profile curve is extruded along the rail curve to create a patch.

RMB panel

Maintain Profile Orientation - profile will not rotate to follow the rail curve

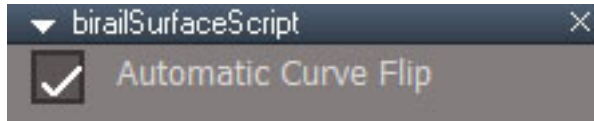
Automatic Curve Flip - will automatically flip the curves so the curve heads are close together

Set the profile curve so it's head is close to the head of the rail curve. Select the profile then the rail and press the button.



BiRail - create a patch from 1 or 2 profile curves and 2 rail curves.

RMB panel, Automatic Curve Flip



Arrange the curves so the head of the first profile is near the head of the first rail. If not then the Automatic Curve Flip isn't guaranteed to work properly.

Select the profile, then optionally select the second profile, then the first and second rail curves, press the button to get a patch.

This button calls one of 2 scripts, BiRail1 or BiRail2. Birail1 uses 1 profile and Birail2 uses 2 profile curves. The Birail2 can be used in cases where the BiRail1 lacks some control caused by rotational flips of the profile as it is swept along the rail path.



Lathe - create a patch from a revolved profile

X,Y,Z local axis direction for the lathe, not world axis

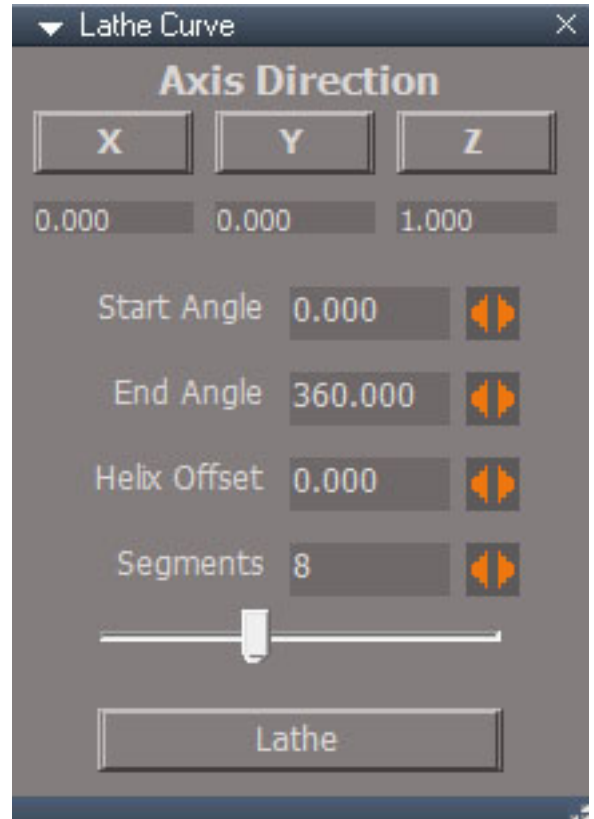
Start Angle

End Angle

Helix Offset to create spiral

Segments number of times the curve will be copied to make the patch

Lathe



Lathe center will be the origin of the curve, (0,0,0) in local space. This is shown in the image above as the orange sphere location of the object navigation widget.

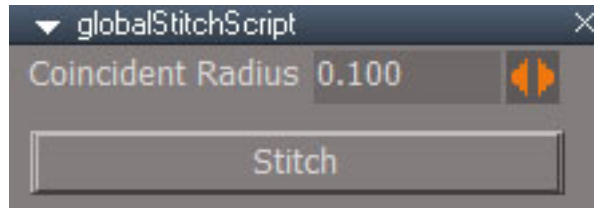
Far right image shows helix result.

The origin of the curve can be set by using the Axis, then Flatten axis tools.

The Mesh Origin script is also helpful for setting the origin of the curve to a precise location.



Stitch - Moves the control points of 2 patches to be coincident



RMB panel, Coincident Radius - how close to make points coincident

Select 2 patches with overlapping control points and run the tool.

if nothing happens RMB and change the radius

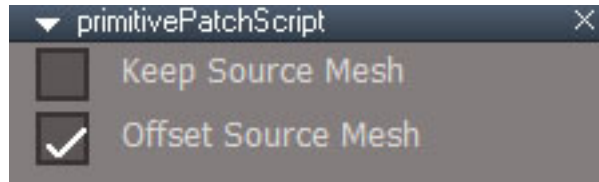
Tool is like the first step of a welding type action, the points are moved together but not joined.

Only control point handles are affected, floaters are ignored.

Can be used to stitch multiple rows to get smooth continuity when patches are butted up against each other.



Convert Primitive - create a patch from a mesh primitive



Primitives.

Cone and Cylinder

Torus

Sphere

Cube

Plane - the detail is defined by the segment counts for width and height

RMB panel

Keep Source Mesh will not delete the polygon source primitive

Offset Source Mesh if Keep Source Mesh is active, this will move the old primitive mesh so it does not overlap the newly created NURBS patch.

The plane segment counts will translate to the nearest multiple of 3. The final NURBS will have 3,6,9, etc segments on a side

Plane height count corresponds to NURBS U span and width will translate to V spans.

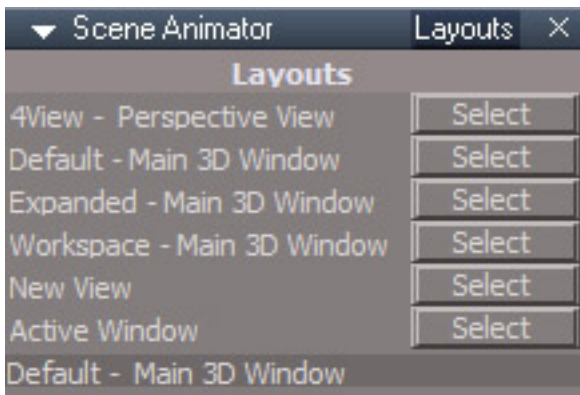
The cylinder is a cone with equal top and bottom radii.



Plane Loop Select - link ch2

TODO review all the buttons on this column, may not be the same as the PE buttons plus there is 1 new button

Scene Animator Layouts panel - random notes



Looks like there are some buttons to work with floating windows?

Guess this is for setting up for different layouts. So if you are in Expanded layout you press the Expanded button...

New View and Active Window buttons must do something...

Note:

This enables you to apply the Set Postprocess Color Key to a New 3D Window. Only one.

When trueSpace opens a new 3D Window, the Postprocess panel does not exist until you select the 3D Window with the Settings tab opened. If you want to have the new 3D Window with Postprocess Color Key and not the scene, here is the steps.

- 1.) Do not apply the Set Postprocess Color Key to the scene!
- 2.) Open a new 3D Window with the Settings tab opened and make sure it has a Postprocess panel.
- 3.) Set the Postprocess Color Key.

If you close the 3D Window, you will have to apply the steps again.

"With regards to the above... In the UUs/Open - 3D Window icon(s) LMB Command The Postprocess panel DOES exist "

Dont know what any of that means

It is fairly simple, except that the Watch Dogs can be unreliable at first... Ugh!
 Once they wake up, it seems to work going forward
 If you want you can put this:

Supported in the Default Layout or
 similar by default
 If you wish to use this in another layout
 you will have to change the path in the
 Layouts tab

If you want to try it, here is an example:
 Switch to the 4View layout
 Load the Scene Animator
 In the Layouts aspect, select the 4View - Perspective Select button
 Switch to the Default aspect
 RMB - Reset the Background attribute "this seems to wake up the Watch Dog"
 Change the Background Color
 Try other attributes to see that is working in the right top window "Perspective" window
 Additionally you can try the Layouts/Active Window in any of the 4View windows that have focus

To see the attributes in the Animation Editor, select this object or in the top menu Open / Dock

Supported in the Default Layout or similar by default.
 If you wish to use this in another layout you will have to change the path in the Layouts tab.

Render to File
 Set the Play Range
 Select the Render button
 Select the D3D Render - Start button

Can't find anymore information on this

Search for missing items and add here for now

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new scene RMB open LE window without LE toolbar - old behavior
reset default context - has confirmation dialog, RMB old behavior

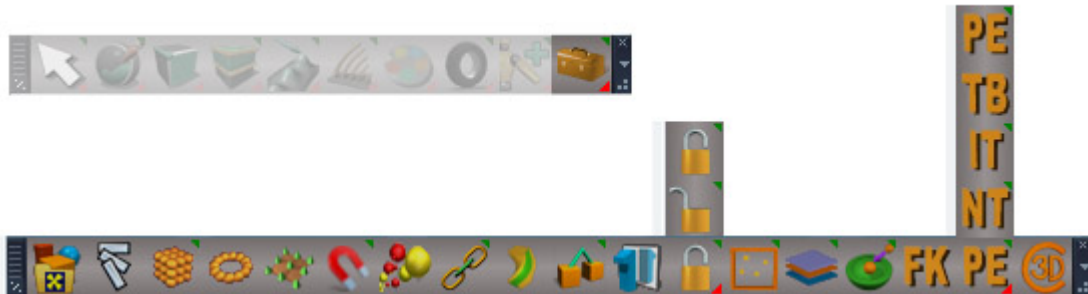
no documentation for tangent coord system, seems most useful for face selections - moves along face normal or average face normal if faces are connected, seems same as world coords in object mode, multiple objects in PE mode different behavior
tangent is weird - todo - experiment

3Dencapsulate works with NURBS, RMB - like an unencaps for 3D objects - cleans the result of extra nodes
Flatten nodes RMB also removes a UvProjection connector - never seen this so no comment - todo experiment

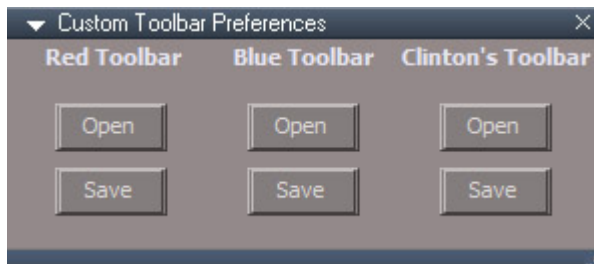
orphan pages after this point



Plane loop selection from Clintons toolbar, Point Edit toolbar.

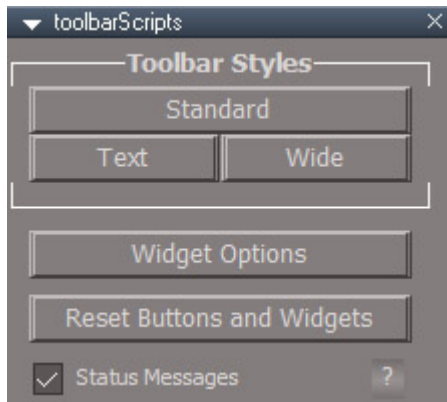


Open Clinton's Toolbar. RMB open custom toolbar preferences.
 TODO writeup Open?, Save?

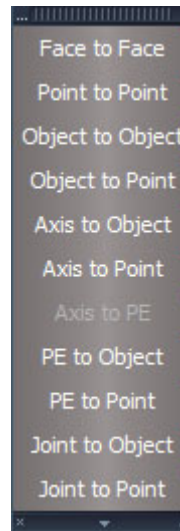




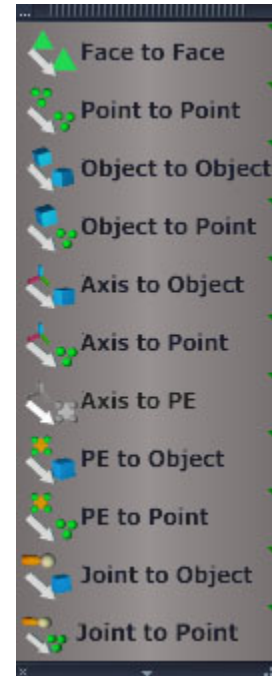
Snapping Toolbar – standard style



Snapping Toolbar Options



Snapping Toolbar – text and wide styles



Open Snapping Toolbar.

Standard - square icon buttons

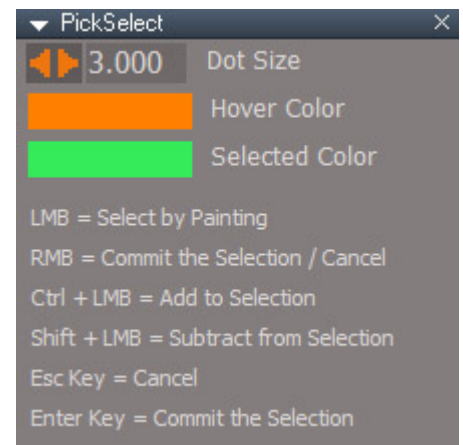
Text - text based buttons

Wide - icon plus text

Widget Options - set hover and selected colors and dot size

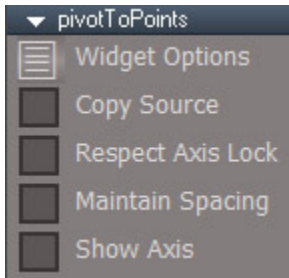
Reset Buttons and Widgets - clean out of sync widgets

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 **witeup**

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.



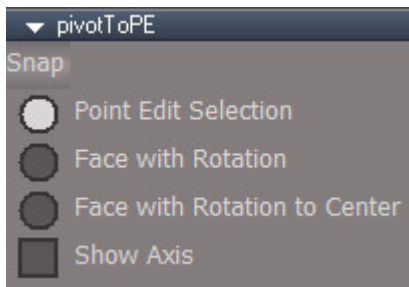
Axis to Object Move the axes of an object selection to the center of a target object selection.



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



Lathe



Static Sweep



True Bevel



Plane Loop Select



Target Weld



Normal Move



Toggle Object Coordinate Mode



Axis to Selection



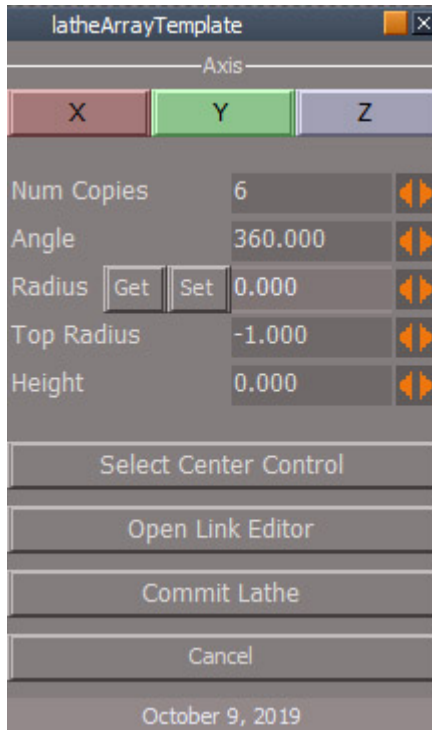
Freeze Transform .



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.

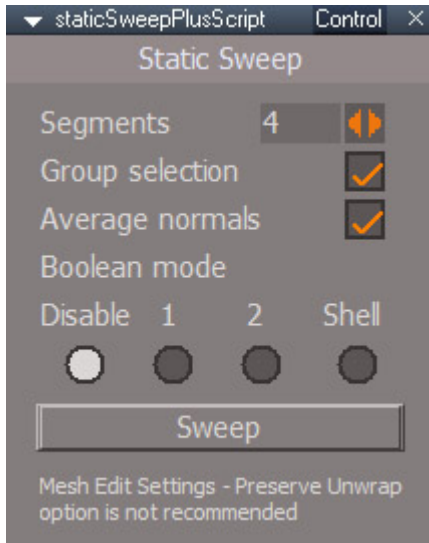
Height controls the offset from the plane of the array for spiral effects

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



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.

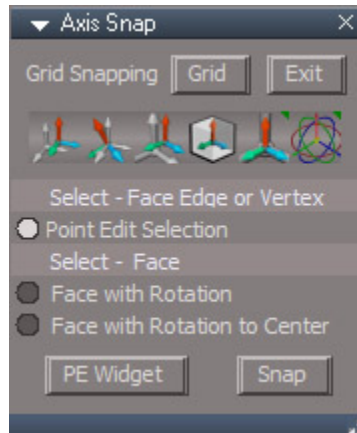


Normal Move will move a vertex selection in the direction of their normals. Left button drag the mouse in the 3D view to increase or decrease the offset value. RMB to exit the tool



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.

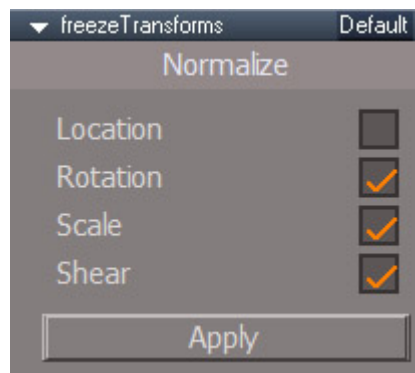
Note that this should be toggled off before using tangent coordinate mode.



Axis to Selection Panel



Axis to Selection **writcup**.



Freeze Transform Panel



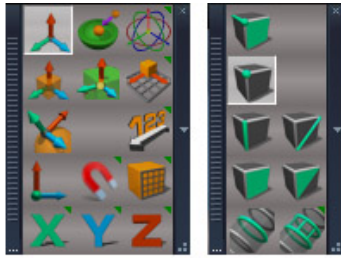
Freeze Transform .Set rotation to (0,0,0), set translation to (0,0,0) and set scale to (1,1,1) and set shear to (0,0,0) without changing the appearance of the object. RMB to open the panel to choose what transform attributes get frozen.

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.

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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

8.2 The Tools

8.2.1 Building the Skeleton

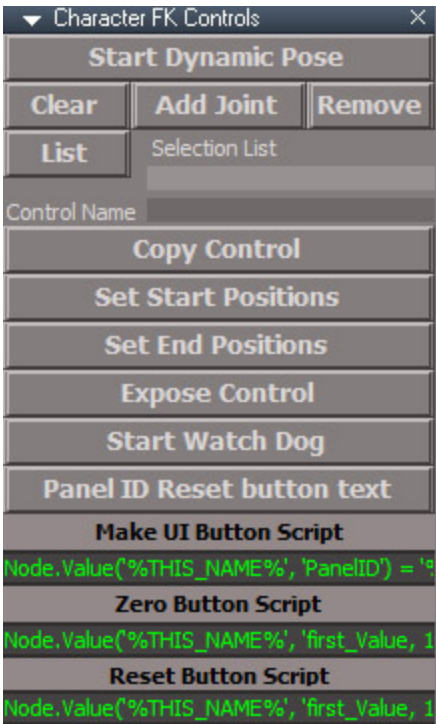
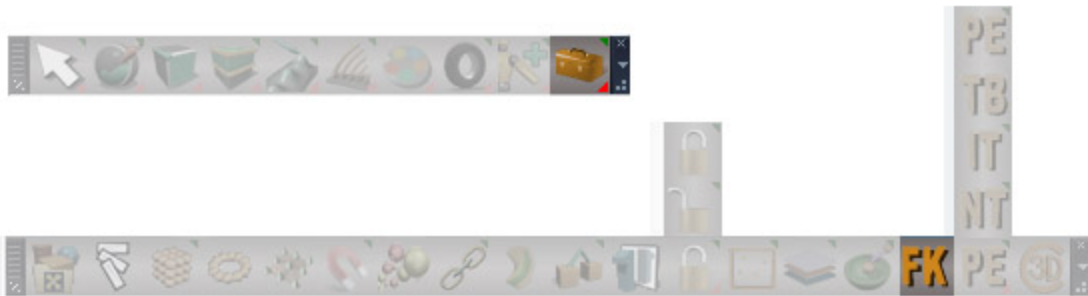
Character FK Controls

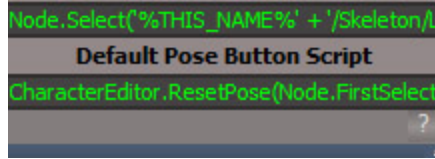


setup forward kinematic controls for

First a list of joints is created and the name assigned to the new control. The control is copied into the character then the joints are posed for the start and end positions. The inputs to the controls are exported to the top level of the actor and activated with the start watchdog button. using the LE create a button on the actor and assign the make ui text to it. Push the button to create the text, input, zero button, reset button and a scrubber. Finally, assign the text of the zero and reset button scripts to their buttons

This





Setup control:

ctrl drag the fk panel out of the stack view and start dynamic pose mode for the actor

Clear - clear the joint list

select joints and press the Add Joint button

use Remove to remove the selected joint from the list

use List to display the selection list in the log view - it opens automatically

ControlName - the name for the fk control

Copy Control - copies the fx control nodes into position in the heirarchy graph

rotate the joints into their start positions and press Set Start Positions

rotate the joints into their end position and press Set End Positions. This will end dynamic pose mode and reset the actors pose.

Expose Control - links up all the nodes and makes the control value available at the top level of the actor

Start Watch Dog does final initializations to make the input value active and sets the text for the ButtonScript

panel id button sets the command text for creating the ui elements of the control

manually create a "panel" button on the actor and copy the text from the Make UI Button to it

press the button to create the text, number, a "zero" button, a "reset" button and a scrubber control The resulting panel must be edited or it will be lost

manually copy the text from the Zero ButtonScript into the zero button

manually copy the text from the Reset ButtonScript into the reset button

The Joint Select/Default Pose Button Text is used to create script text for selecting a specific joint or setting the currently selected joint and it's children back to the default pose independent of the rest of the skeleton. Copy the text to their own buttons on the actor. This is good for imported skeletons that may have overlapping and difficult to select joints or a heirarchy that doesn't work well with trueSpace IK.

To use the controls:

press the zero button - this will zero the control value and will also unstick a stuck control

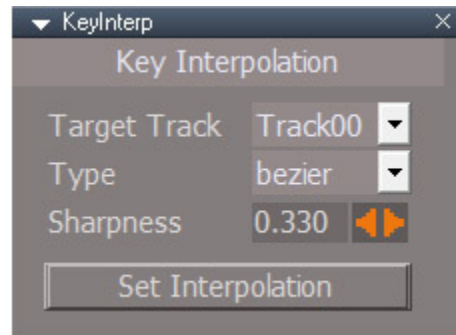
scrub the scrubber to move the joints

repeat

press the reset button to set the current pose as the zero value



Keyframe Interpolation



record - button will create a new keyframe using the chosen interpolation type. right click opens the keying panel
other buttons from left to right are bezier, linear, flat, start and end. . These change the interpolation of selected keys
right click to open the interpolation panel

Target Track - the destination track for new keyframes. Not used when both type is bezier and sharpness is 0.33 (the trueSpace defaults for new keyframes). This setting can also be ignored if the item has only one animation track.

Type - interpolator options match the buttons bezier, linear, flat, start and end
Sharpness - smaller values make a sharper curve - no effect in linear, start and end modes

Set Interpolation - button will set the interpolation type for the selected keyframe(s)