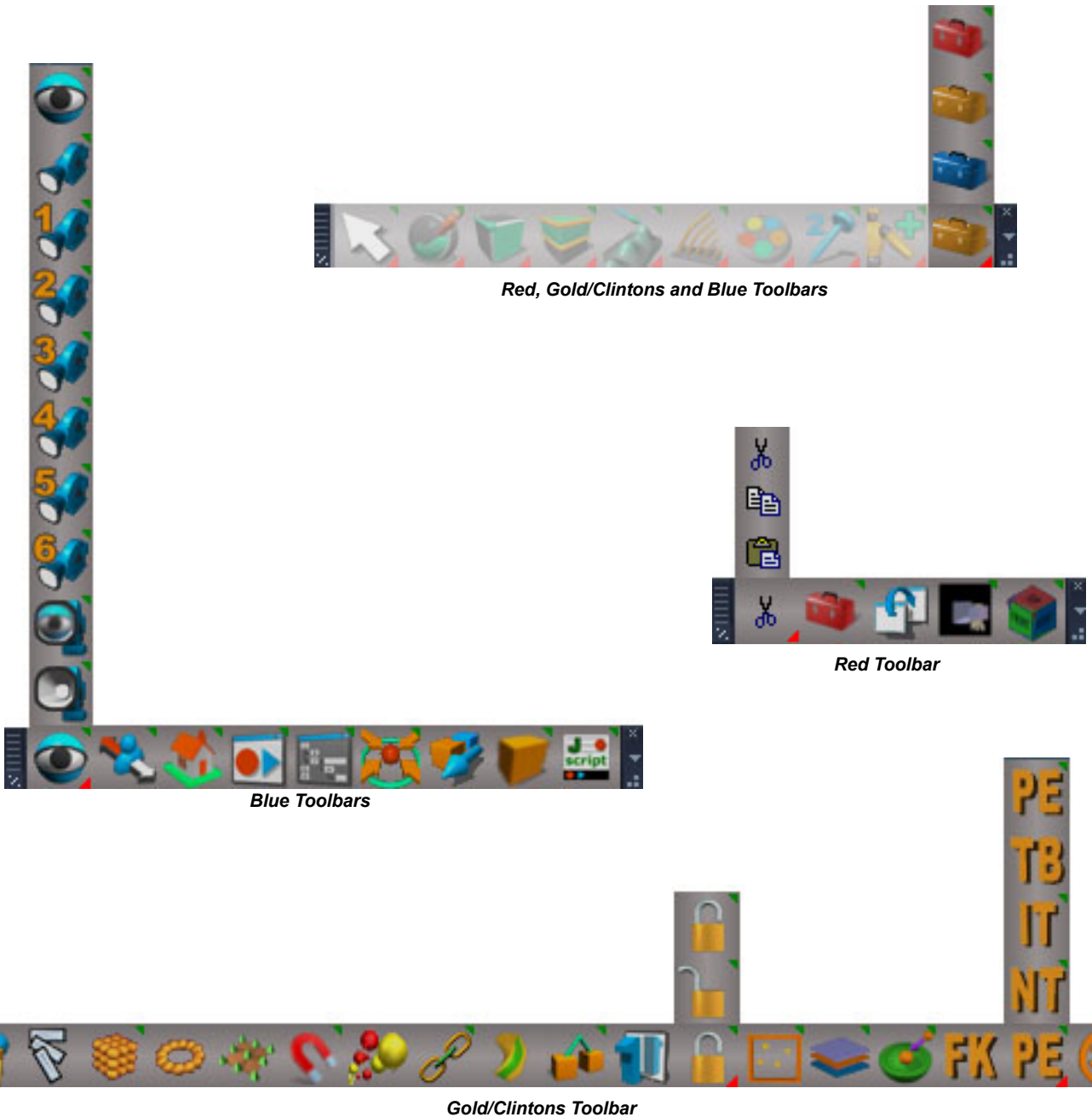


Chapter XX Additions 2

 XX.1 The Toolbars 4

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Chapter XX Additions



Red Toolbar



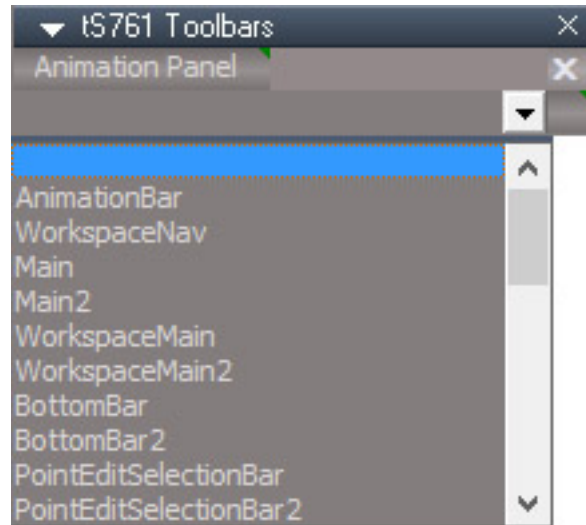
Cut - select an item to use with the Paste. Saves the selected object to a file and then deletes the original.



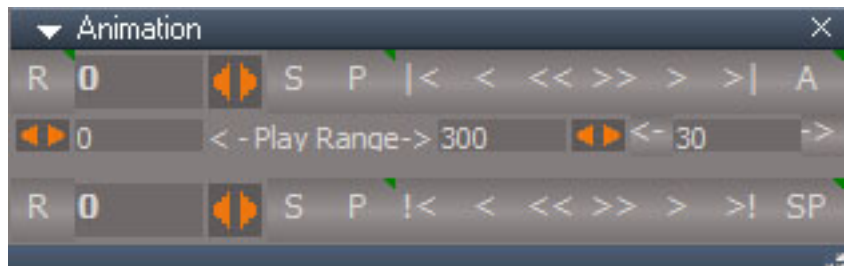
Copy - same as the copy button on the bottom toolbar



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

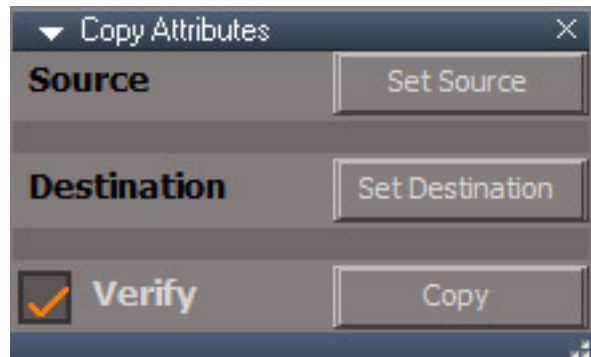


Animation panel link here

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 cameras 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 it's previous state. Works in all layouts in the main 3D view only.

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

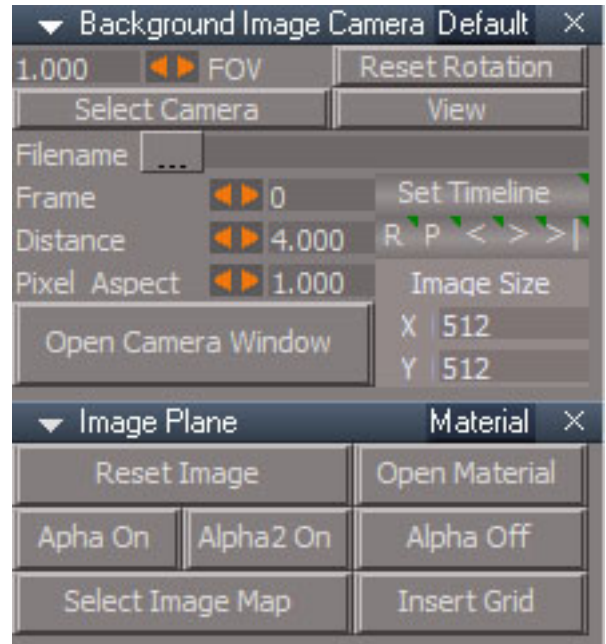
Frame - set the Frame value for the Background Image Camera. The corresponding image from the sequence will load in.

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 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

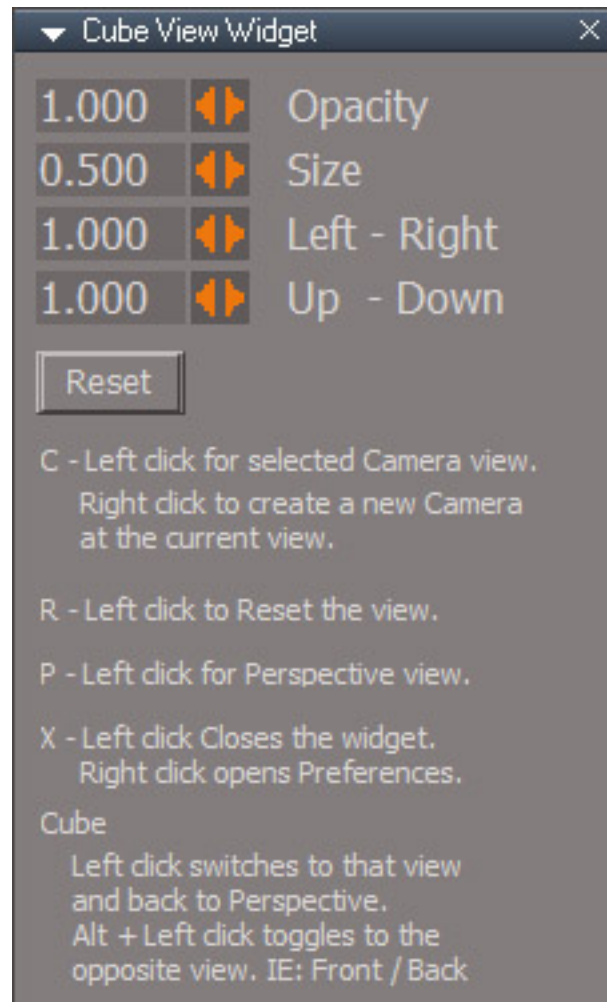
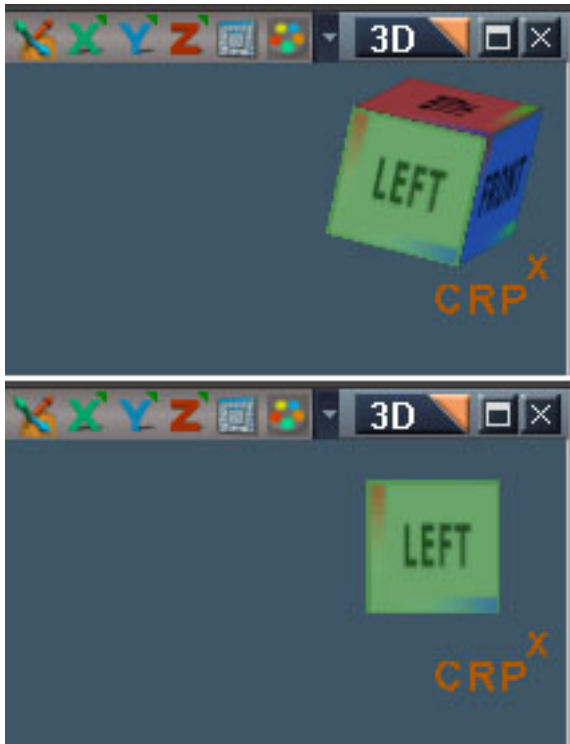
right click the >| button to go to the first frame in the timeline

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

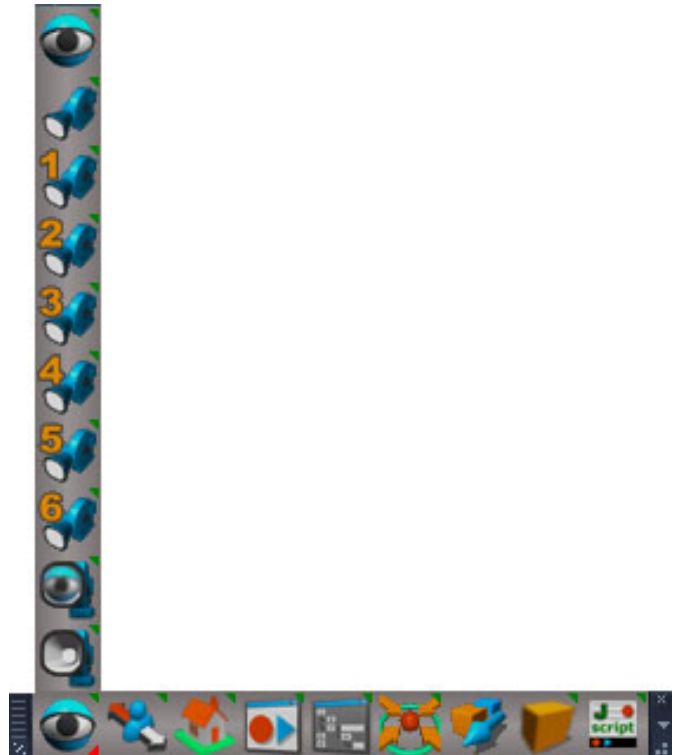


Custom First Person Navigator



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

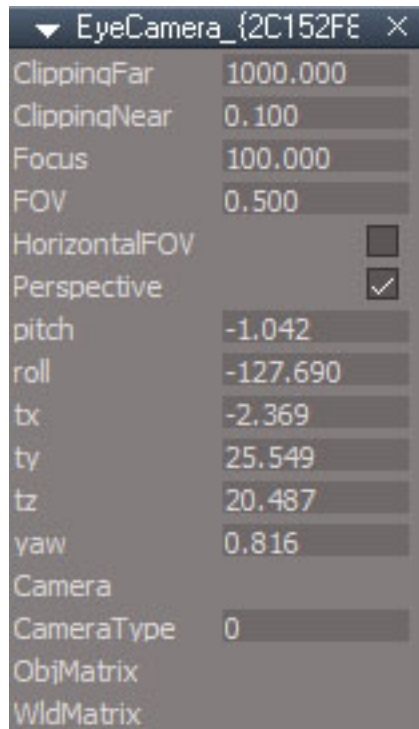


Shear Transform



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.

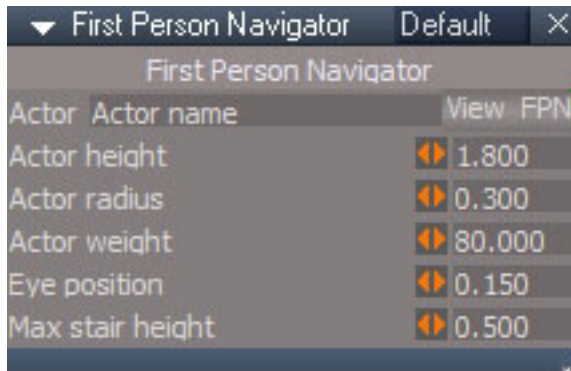


Camera from perspective view - the active 3D view must be a perspective view. Creates a camera and then copies the 3D view attributes to the new camera and sets the camera as the view.

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

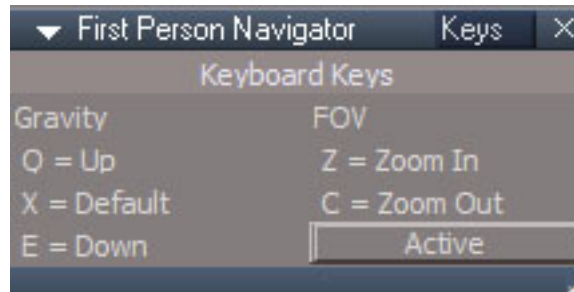
FPN - start FPN navigation. The 3D view must be through the FPN camera first, RMB same as LMB

Benefits:

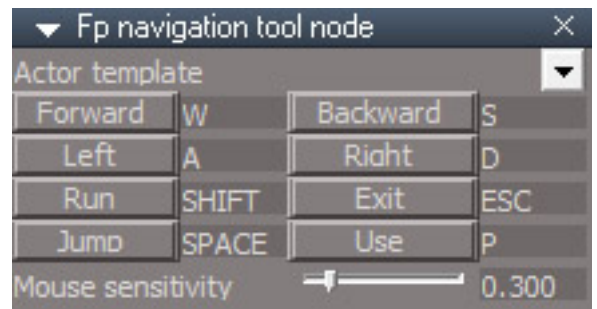
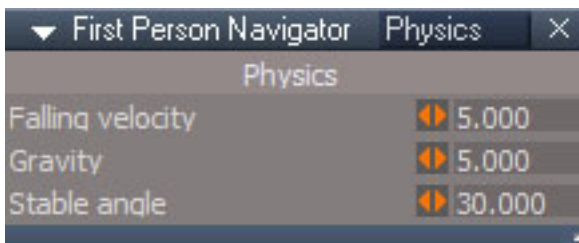
- 1.) You can set your FP properties separate from the Global Fp properties that are shared with everyone in Shared Space.
- 2.) Your FP properties can be saved as defaults.
- 3.) The trigger could be set up to use the Use Key. For instance you could make a FPN crouch key command.

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

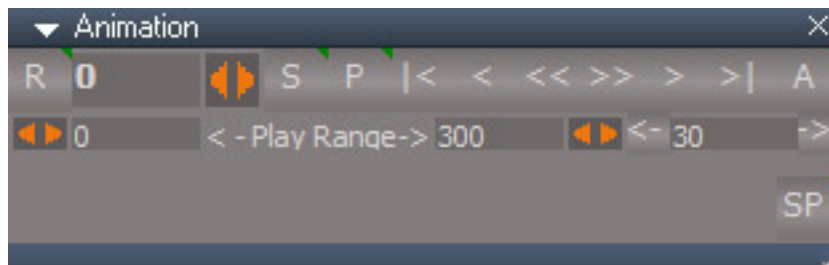


3D View Widget - a graphical representation of the orientation of a 3D view. RMB panel to control the positioning and size of the widget and to close it.

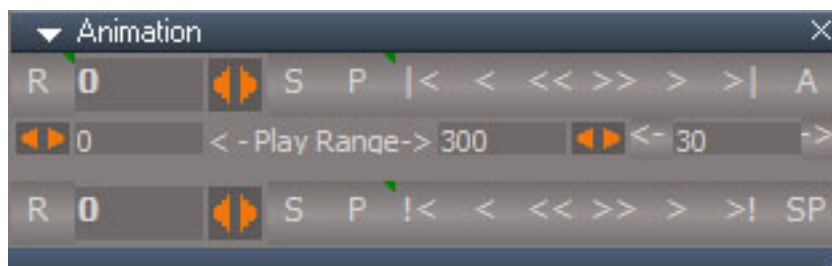


Animation Panel - load animation panel node into the scene if it does not already exist and then opens the panel. Does nothing if the panel already exists. If the panel is closed then you must use RMB to open it again.

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

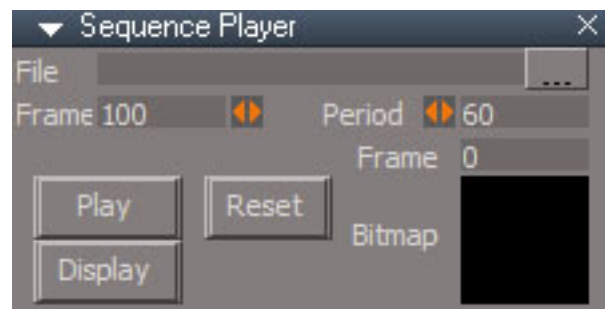
Frame - current image frame

Play - play the sequence

Reset - set current image to the first frame

Display - re-open the playback window

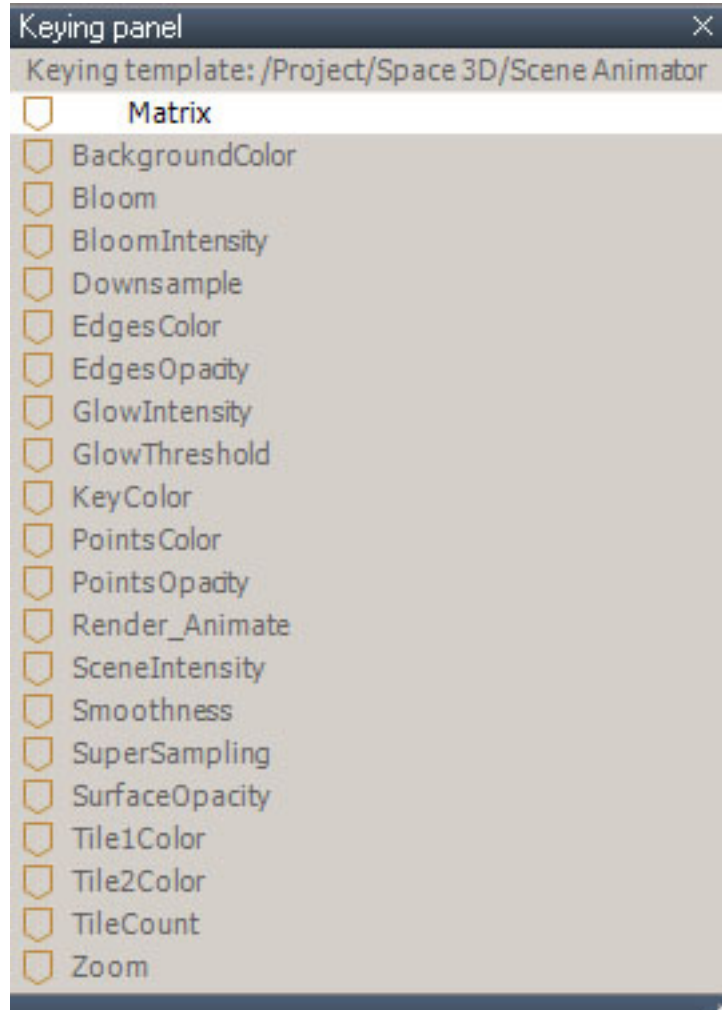
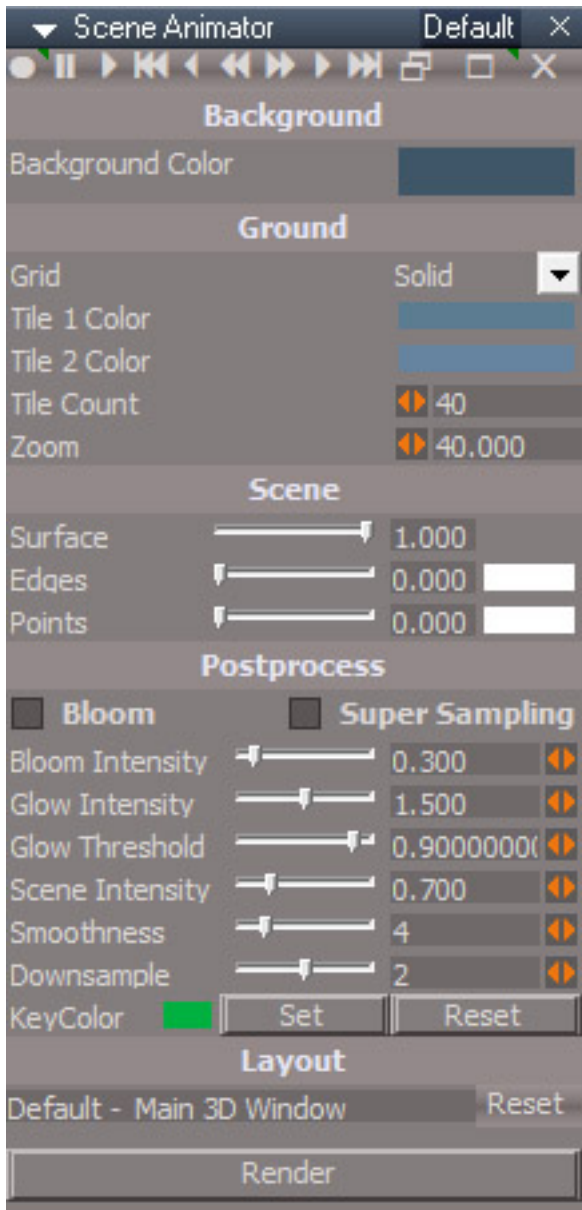
Bitmap - tiny display of the sequence





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

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

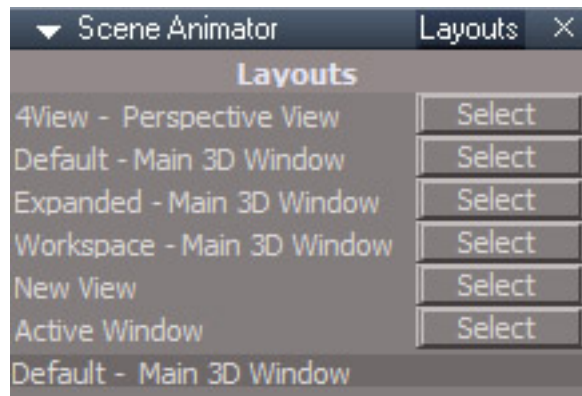
Scene Intensity to 200 to get alpha values as gray color

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.

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



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

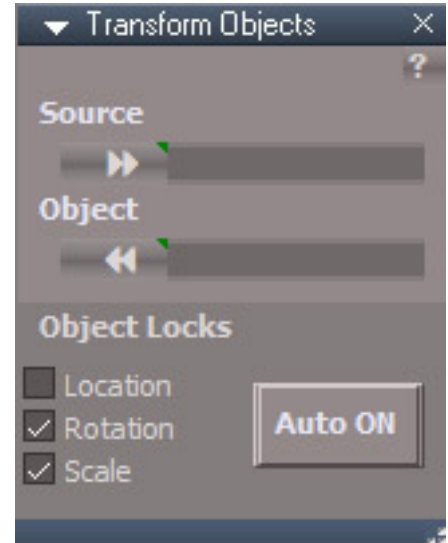
Auto ON - used to interactively transform the selected object based on the source object. Press again to stop.

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.

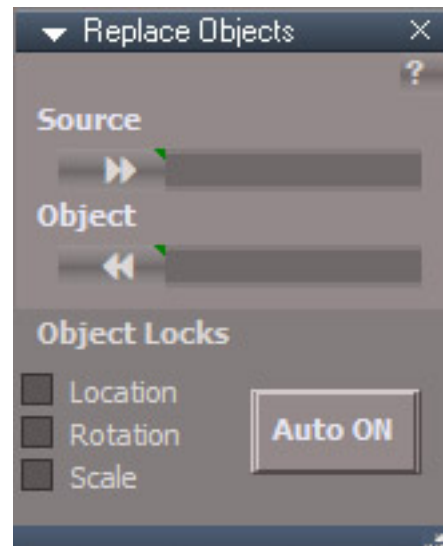
Location, Rotation and Scale do the opposite of when they are selected.

Check Location to not copy the source location.

Check Rotation to not copy the source rotation.

Check Scale to not copy the source scale.

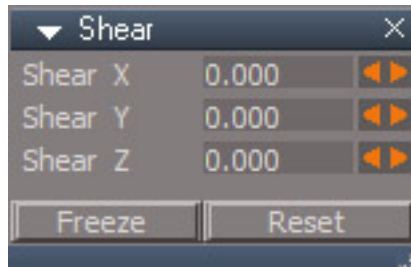
Does not retain the original object name.





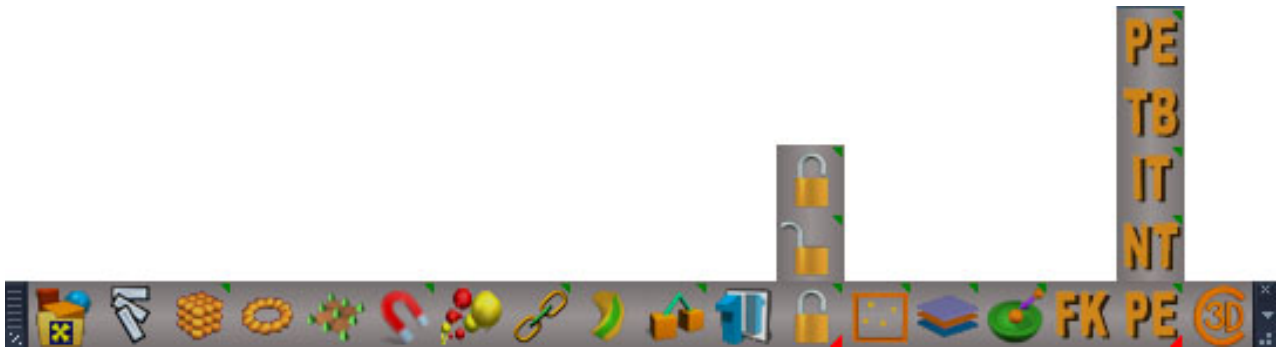
Shear - open the Shear panel
RMB freeze the shear value of the object

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



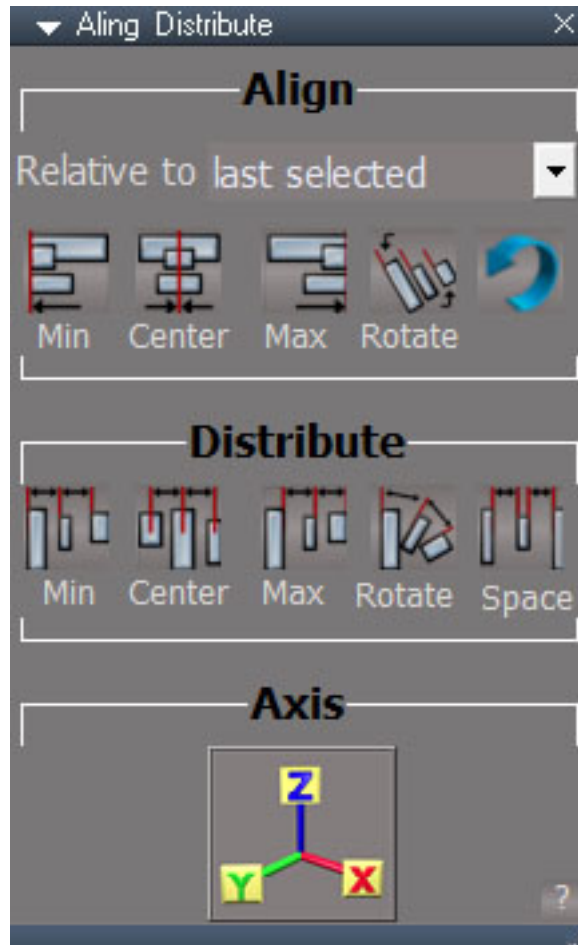
Restore Custom Scripts



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

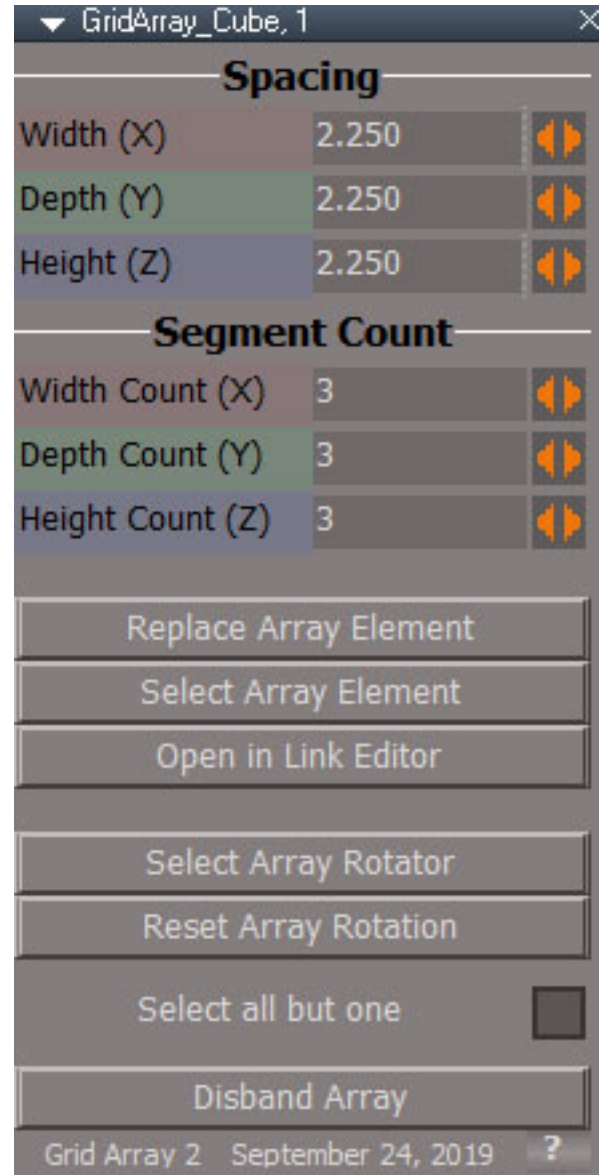
press the Disband Array button

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

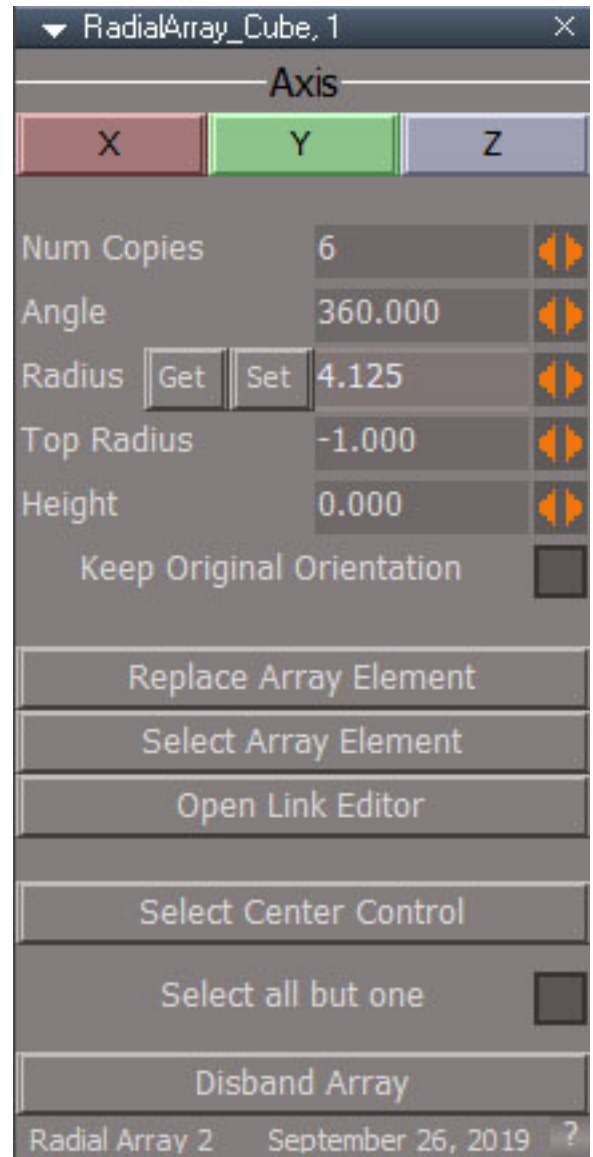
the array will be converted to a simple group object and all the array elements will be selected except for one

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



pointCloneTemplate Default x

orient 1 ▼ 1

☐ to target
 ☒ maintain source
 ☐ source relative
 ☐ point normal

Random Scale

Min 1.000 Max 1.000

Min X 1.000 Max X 1.000

Min Y 1.000 Max Y 1.000

Min Z 1.000 Max Z 1.000

☒ **Uniform Scale**

Random Rotation

0.000 0.000 0.000

MinRoll 0.000 MaxRoll 0.000

MinPitch 0.000 MaxPitch 0.000

MinYaw 0.000 MaxYaw 0.000

Random Translation

0.000 0.000 0.000

MinX 0.000 MaxX 0.000

MinY 0.000 MaxY 0.000

MinZ 0.000 MaxZ 0.000

Start Clone Set Default Values

Point Clone May 2, 2019 ?

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

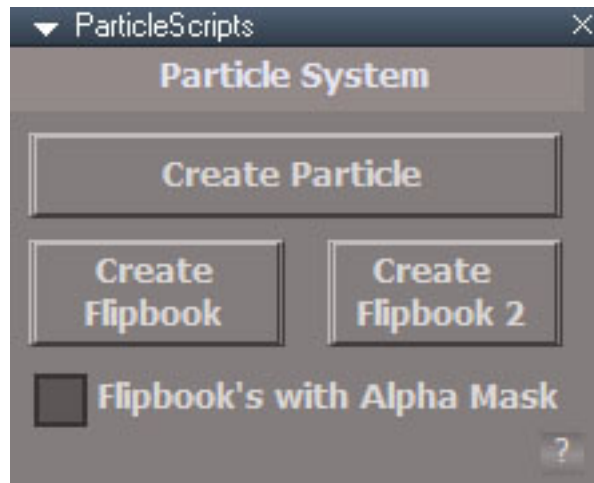
Set Default Values - reset the controls



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

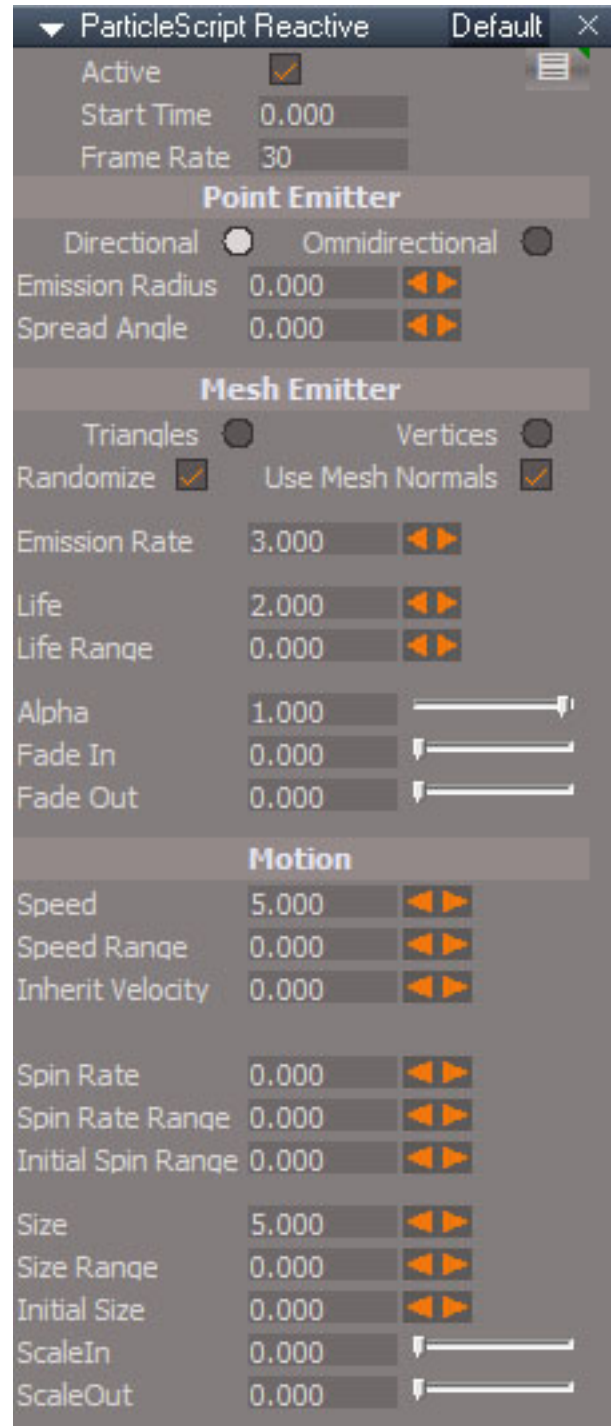
Frame Rate - set to match the scene frame rate

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

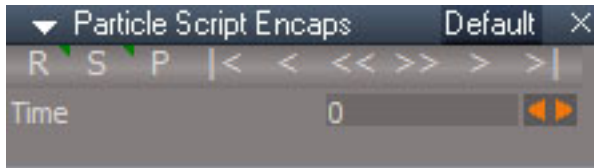
Initial Spin Range - random variation in spin value of the particle at birth

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

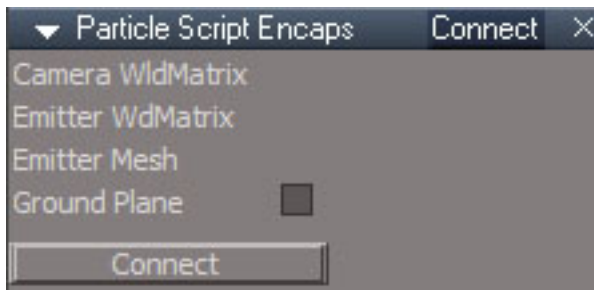
<< - set current frame to the previous keyframe

>> - set current frame to the next keyframe

> - set current frame to the next frame

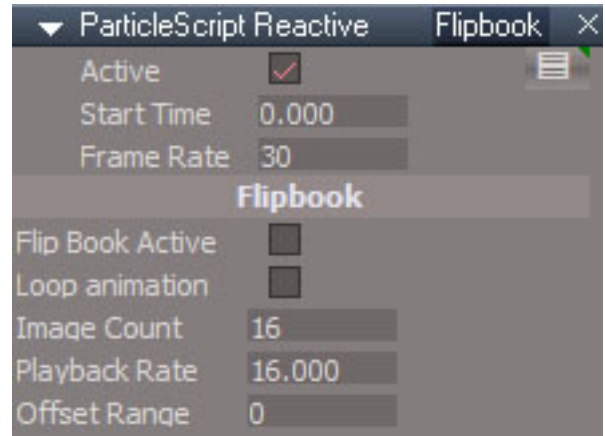
>| - set current frame to the end frame

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

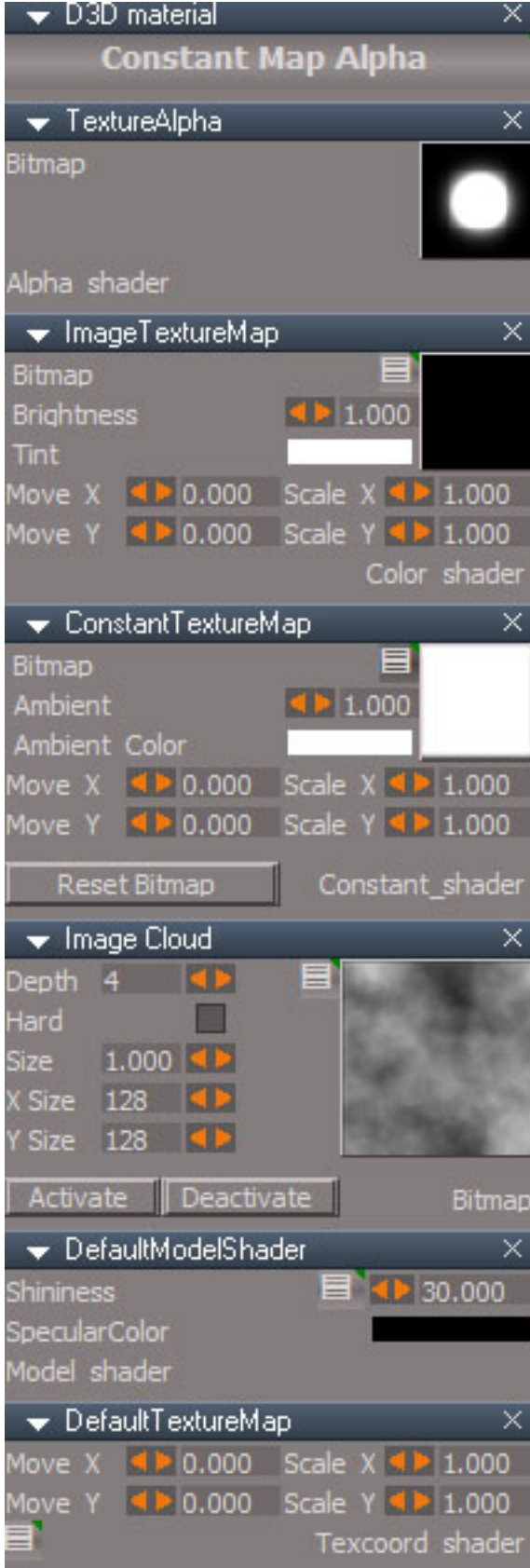
Image Count total number of images in the flip book image

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**.



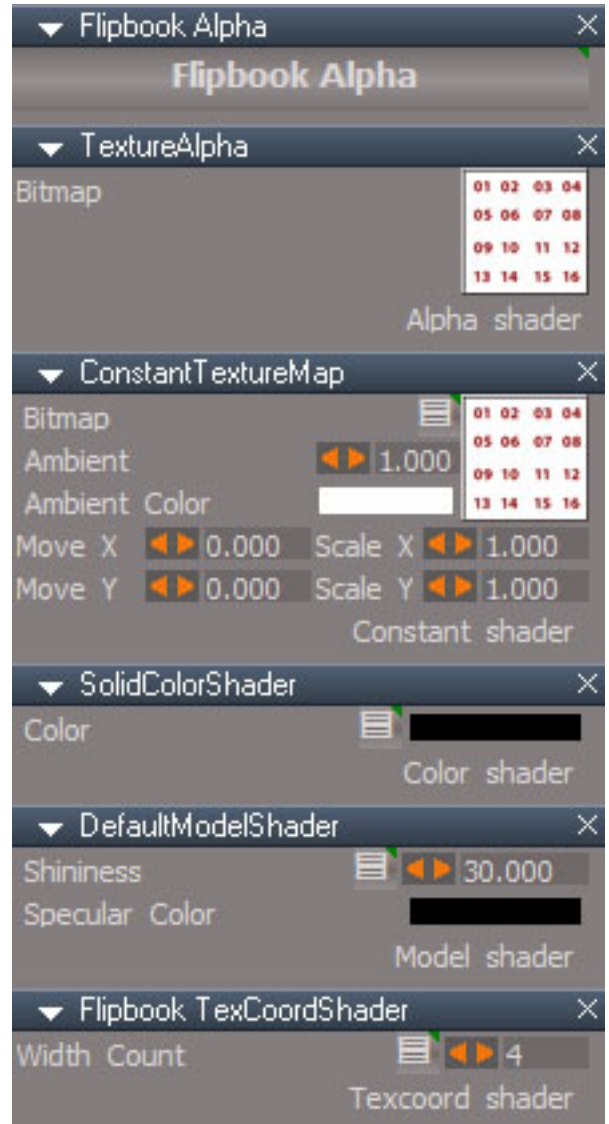
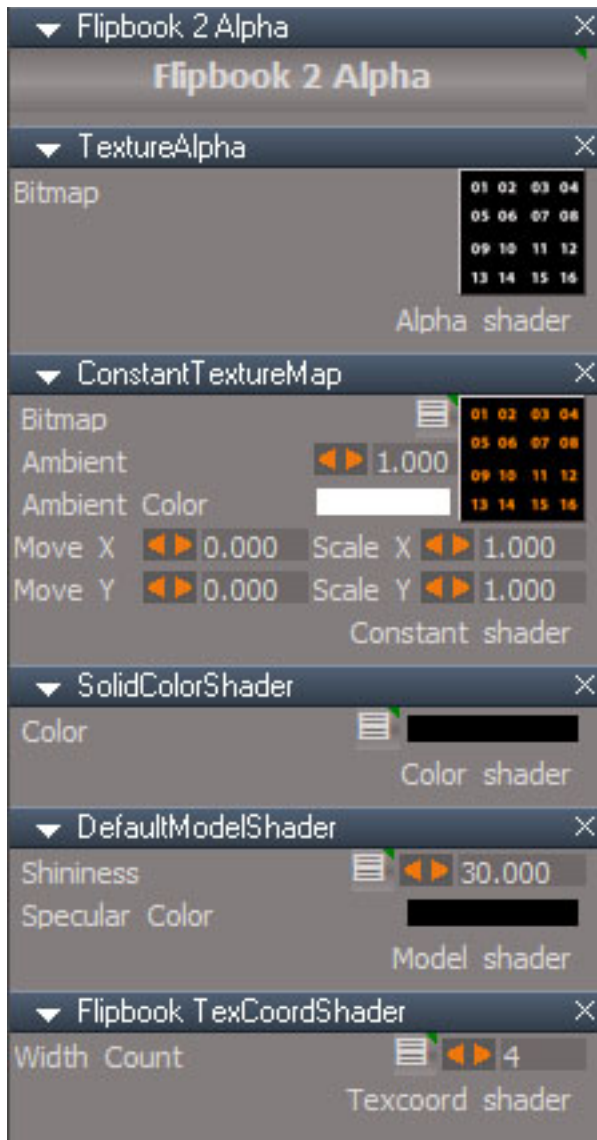
Constant Map Alpha, Flipbook 2 Alpha, Flipbook Alpha material buttons show when selecting the base particle. Press the button to show material settings. The Constant Map Alpha is already displayed so pressing doesn't do anything visible.

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.

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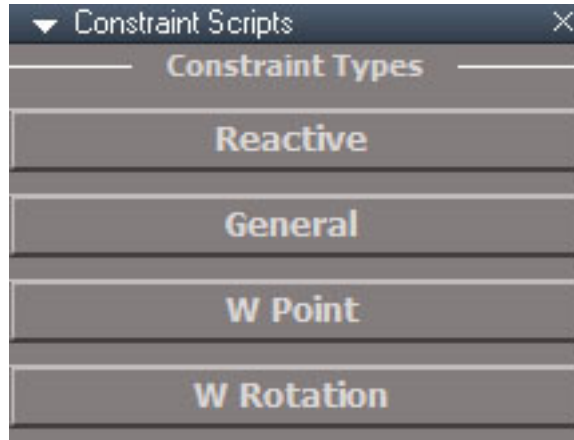
The various and numerous settings do stuff.

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

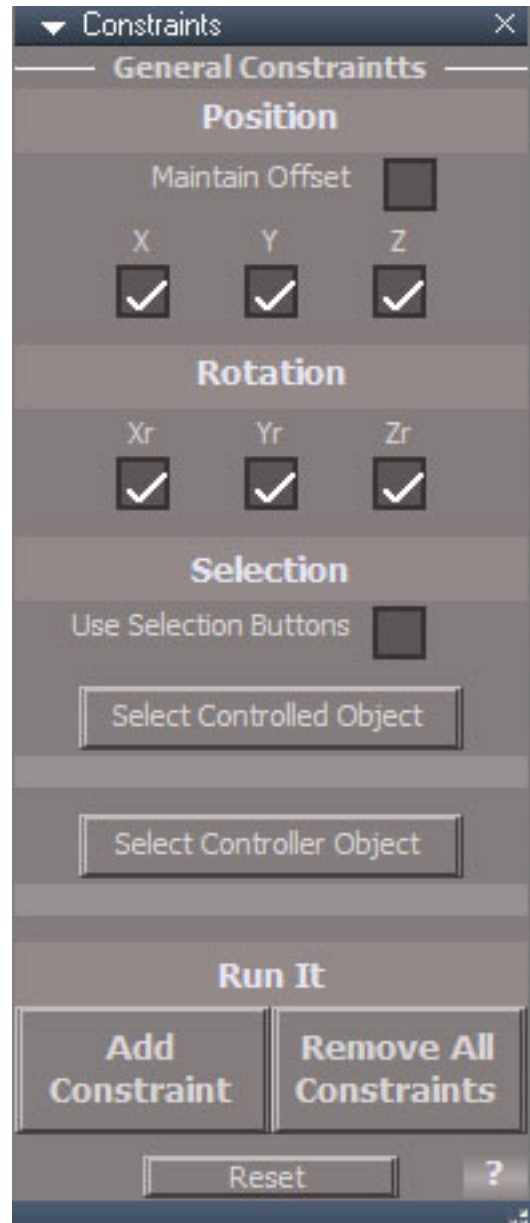
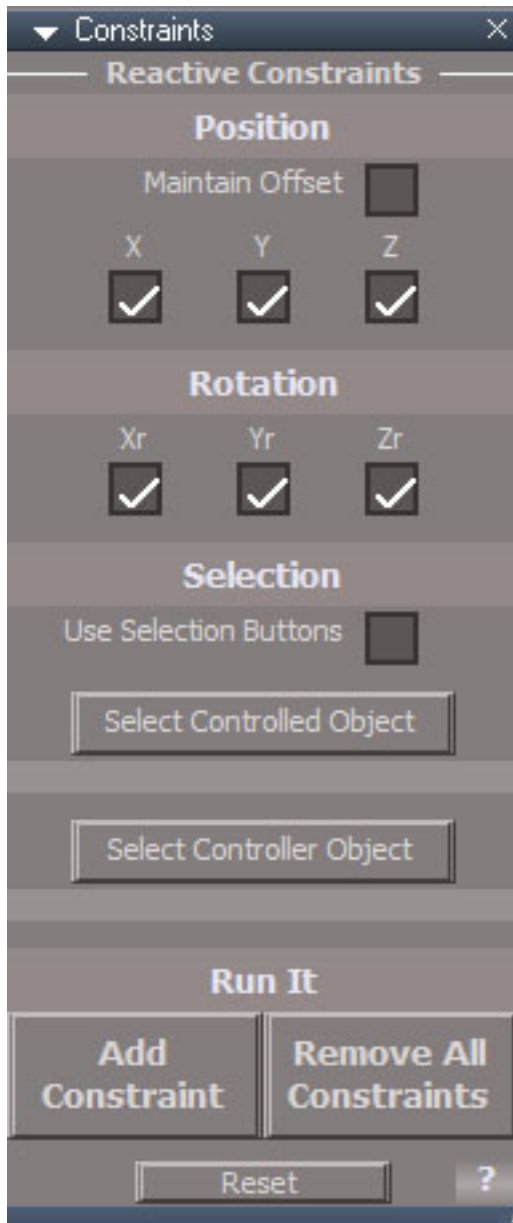
Must bake keyframes before rendering.

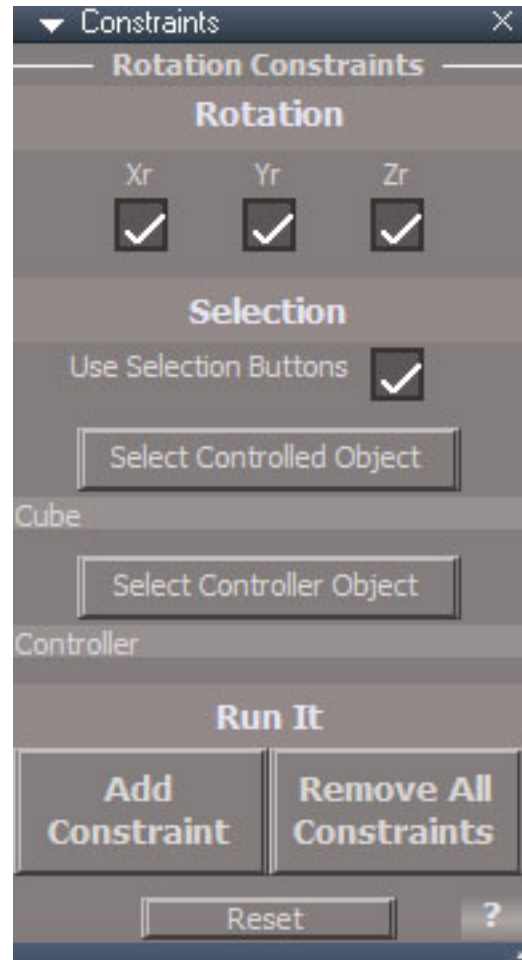
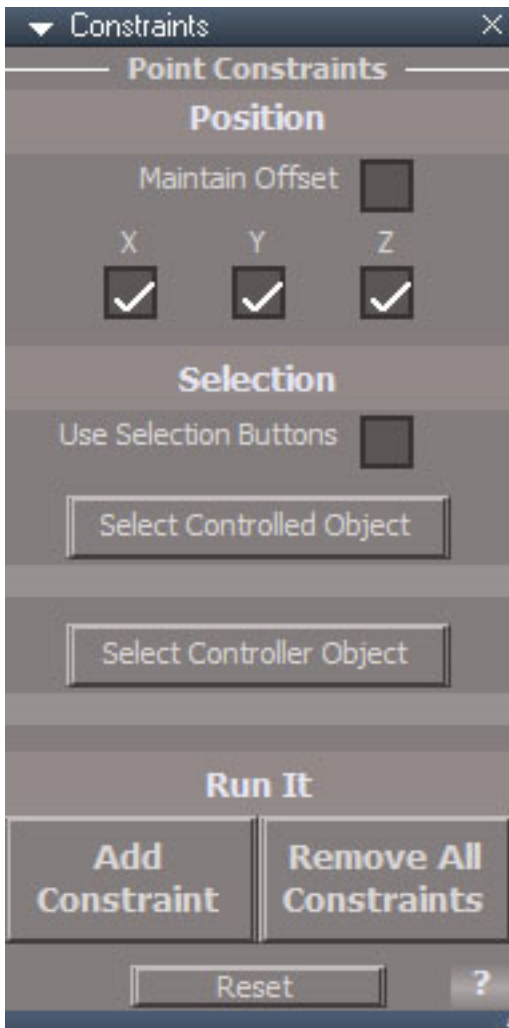
2 subtypes: W Point and W Rotation

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

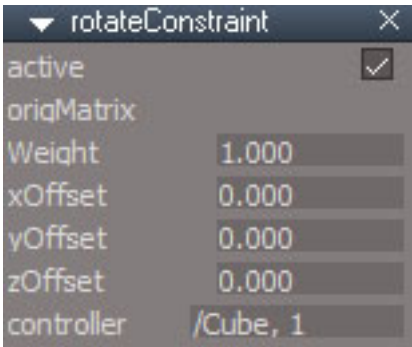
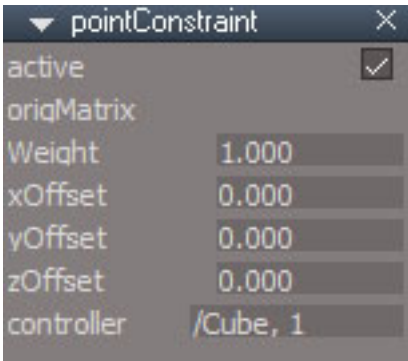
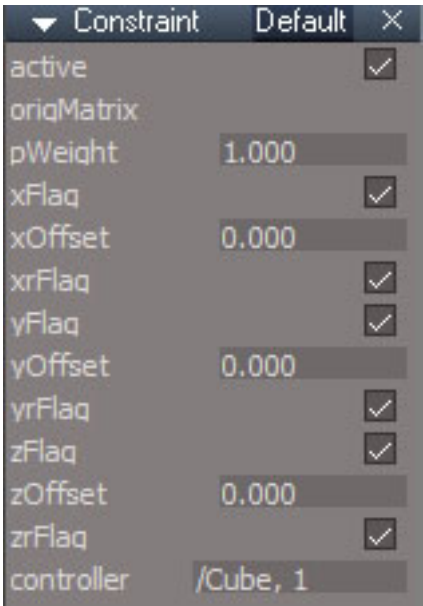


Reactive Constraint Controls

- 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



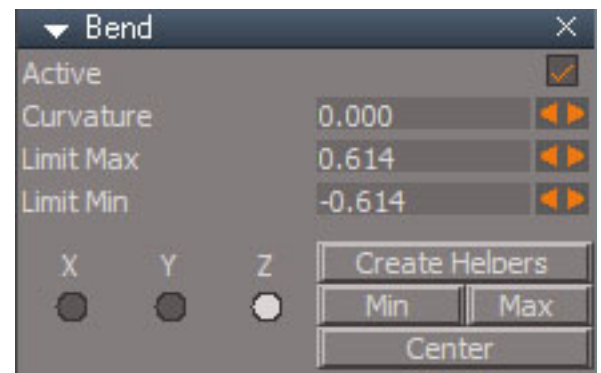
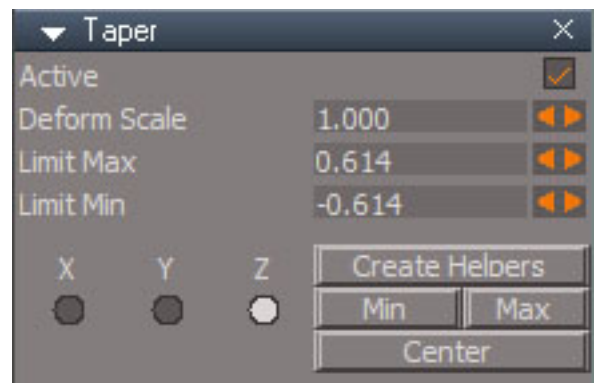
select a well divided mesh

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

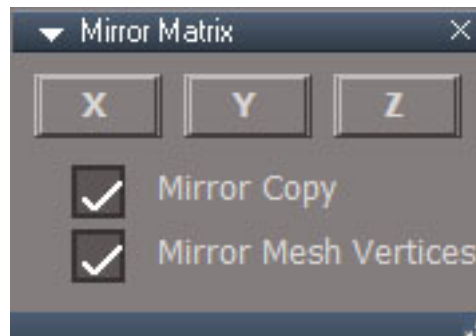
Choose the children and RMB to unparent them.

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.

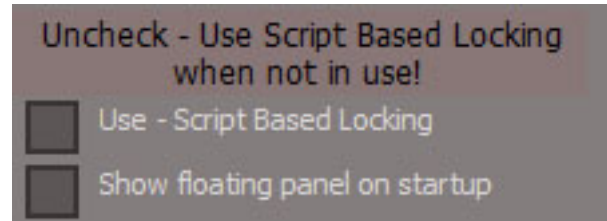
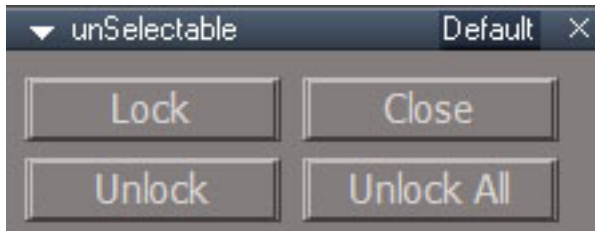
Mirror Copy - make a copy and mirror it

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

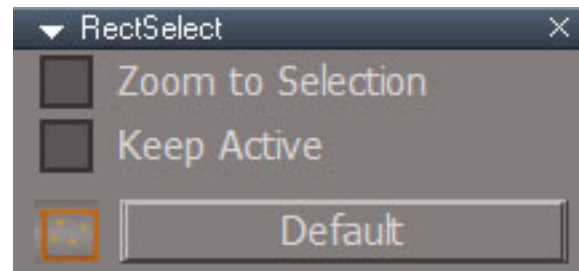
Notes:

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.

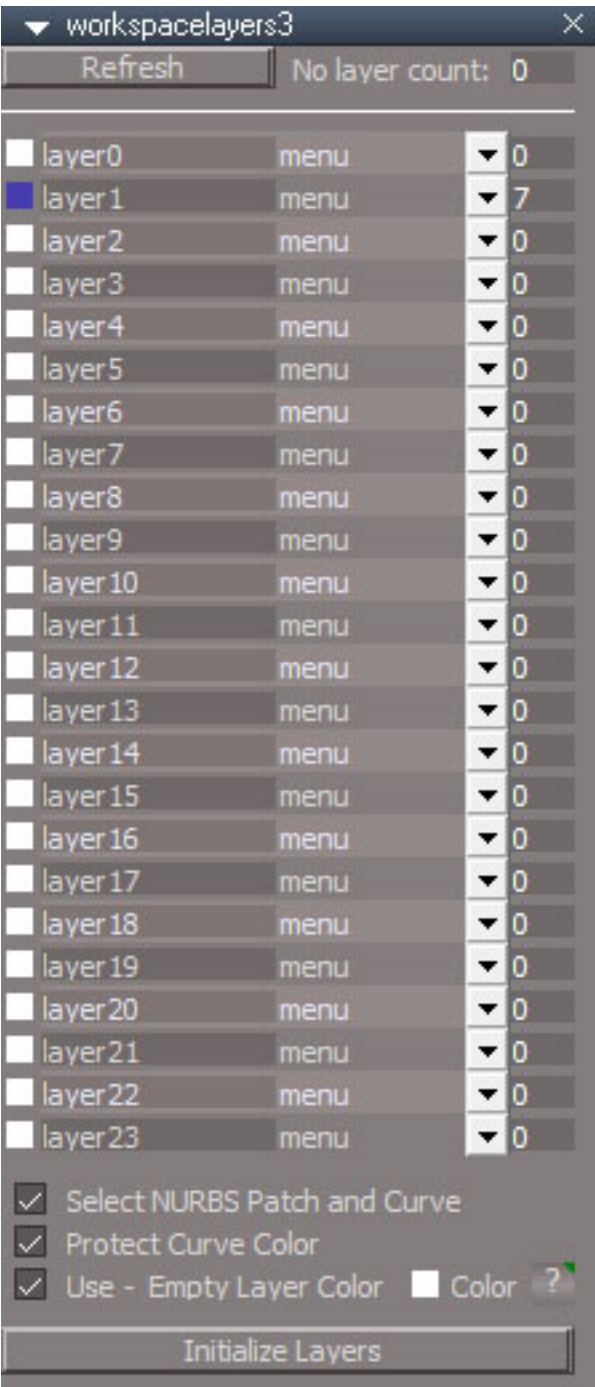
Default - prepare and open the default aspect of the panel



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.

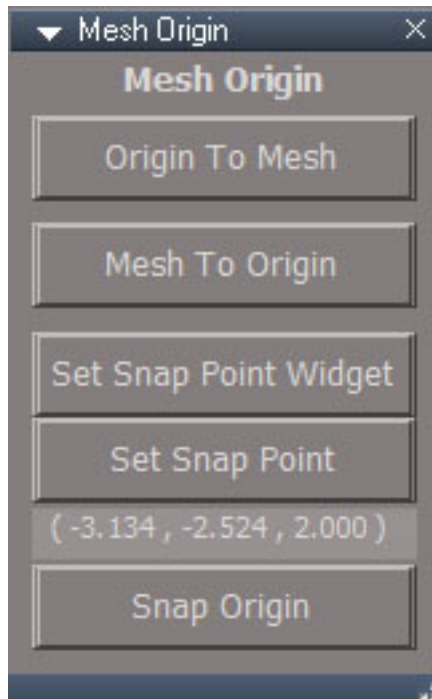
Use Empty Layer Color the color of a NURBS curve will not be changed by layer assignment.

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](#)



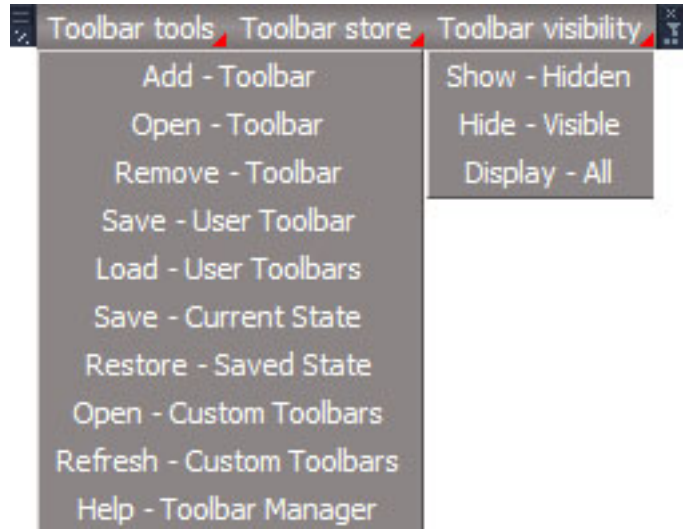
Freeze Transform - [link ch2](#)



Quad Toolbar/Quad Menu - [link ch2](#)



Toolbar



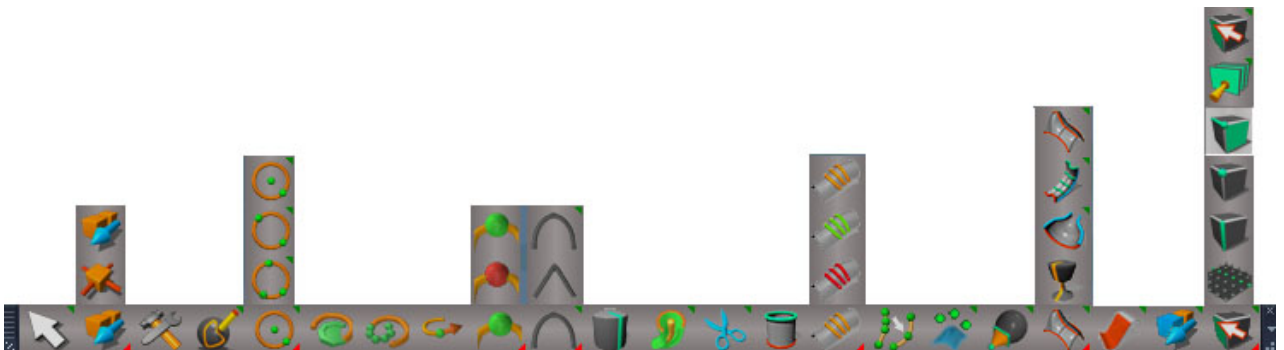
For more information use the **Help - Toolbar Manager** menu option



Interpolation Toolbar - link ch9 or move doc here?

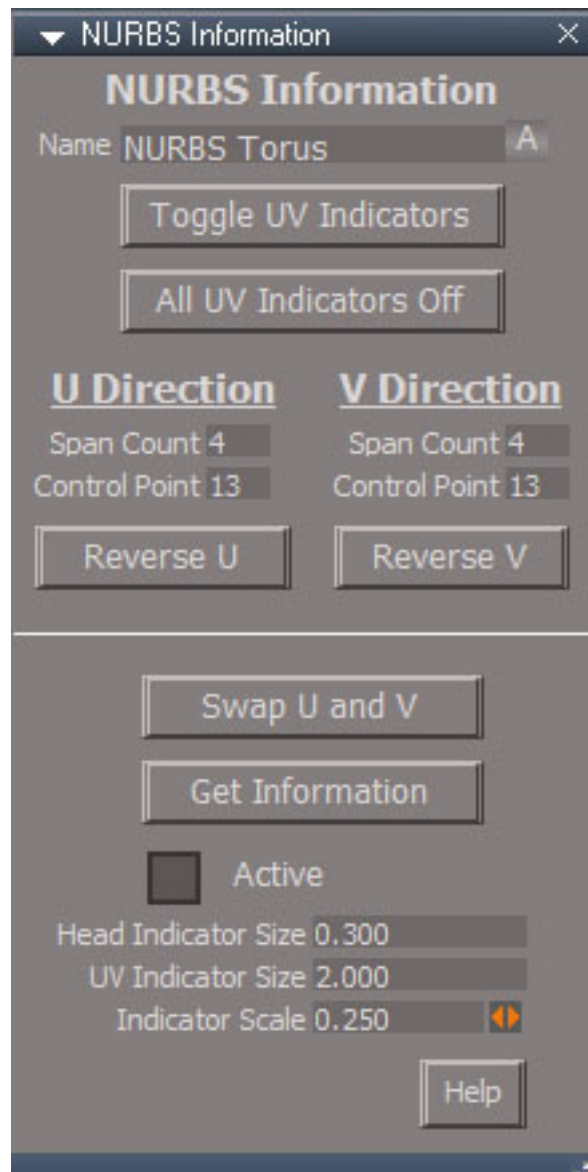


NURBS Toolbar



**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.

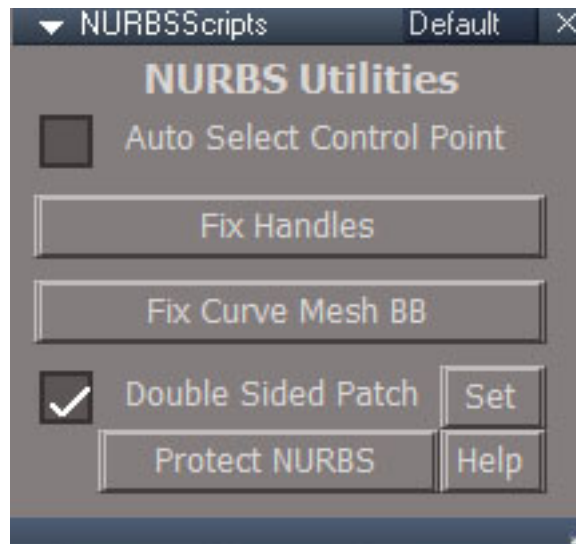


Delete NURBS



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

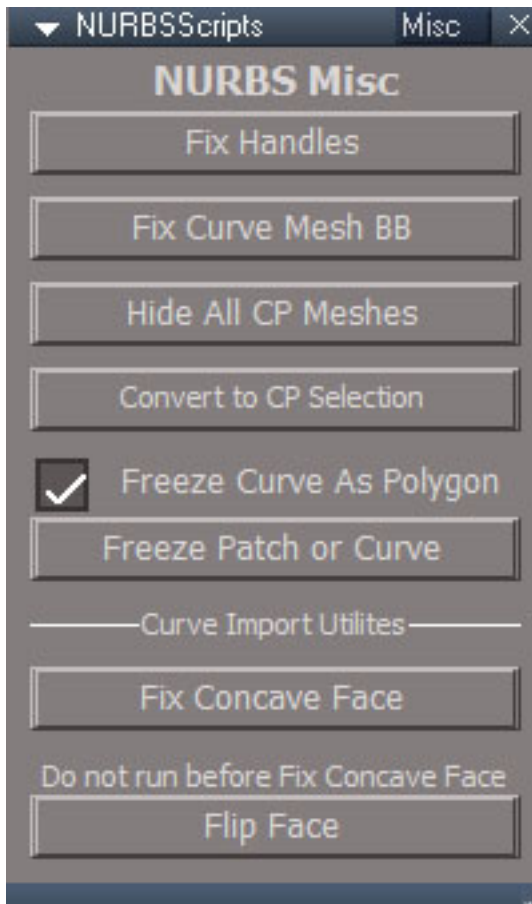
Curve Point

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

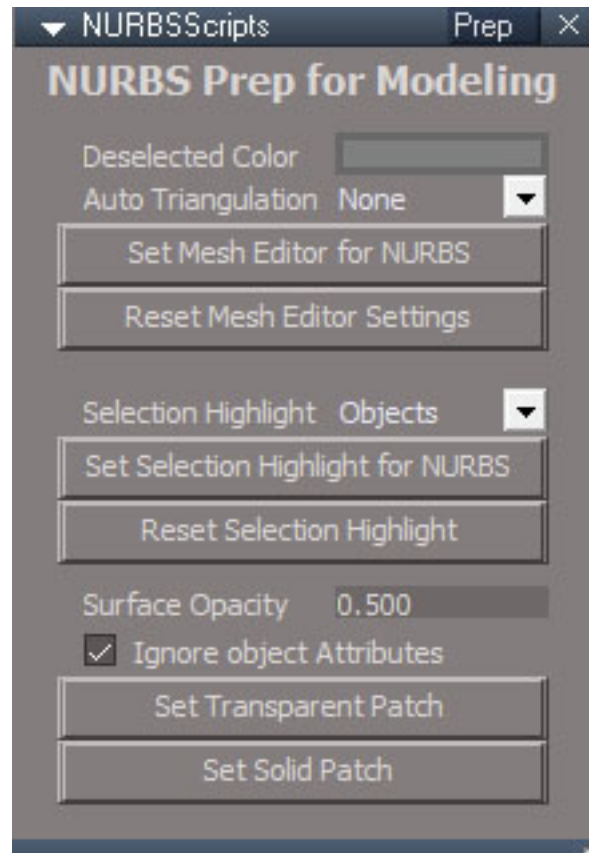
below is for the currently selected patch

IgnoreLayerAttributes true

SurfaceOpacity 0.5

Set Transparent Patch

Set Solid Patch



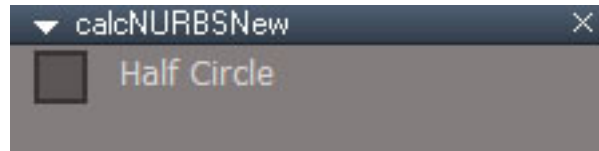


Draw Curve - Use existing scene geometry as a "draw panel" for curve creation.

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.



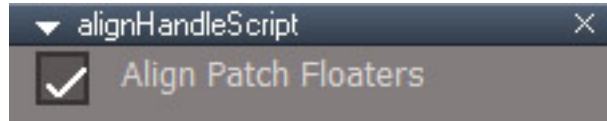
Delete Control Point - Select the vertex on the curve representing the root of a handle and push this button to delete the control point and it's handles.



Smooth



Sharp



Align the handles of a NURBS object to there 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 it's handles will form a straight line parallel to a line formed by it's 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 immeditate neighbor handles

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

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

Sharp

if a control point is selected then it's 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

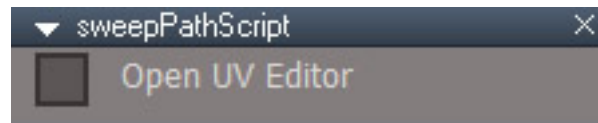
Select 2 vertices or a control edge and press to create a curve from the corresponding isocurve the selection is a part of.

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

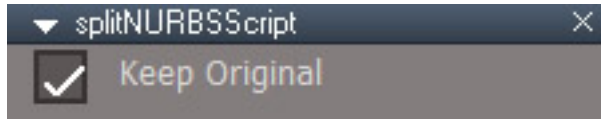
script will now wait for you to select a curve

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.



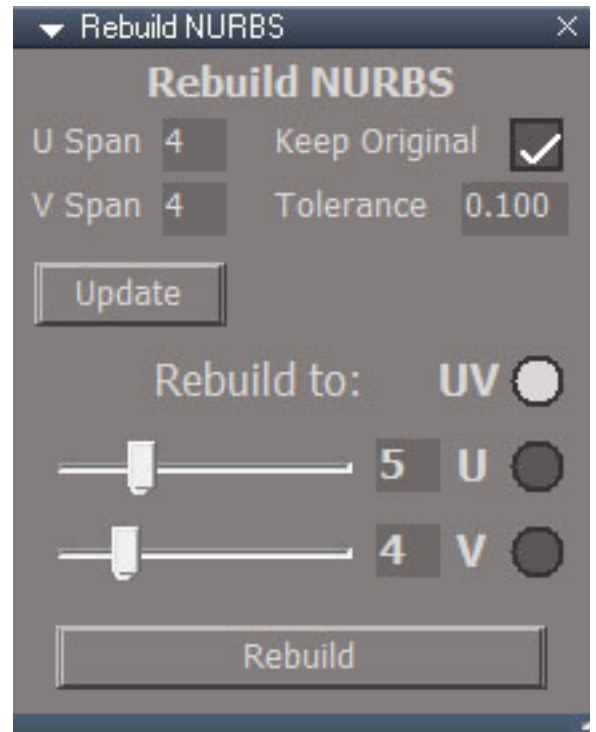
Remove IsoCurve - Remove a isocurve geometry from a NURBS patch

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.

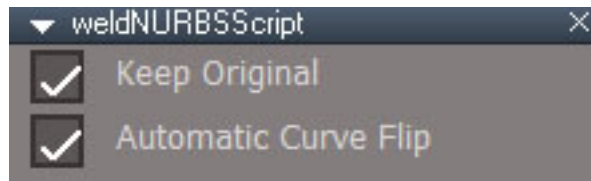
The points are adjusted so that they form a parallelogram with their associated control handles.

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

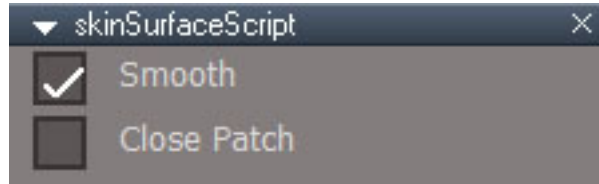
To force a specific weld curve direction disable the Automatic Curve Flip option.

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,

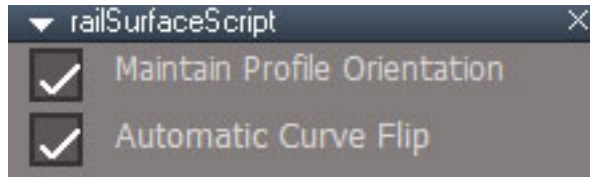
Smooth make a smooth transition between profile curves

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

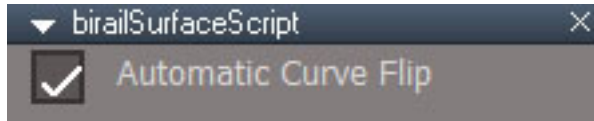
Automatic Curve Flip - will automatically flip the curves so the curve heads are close together

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

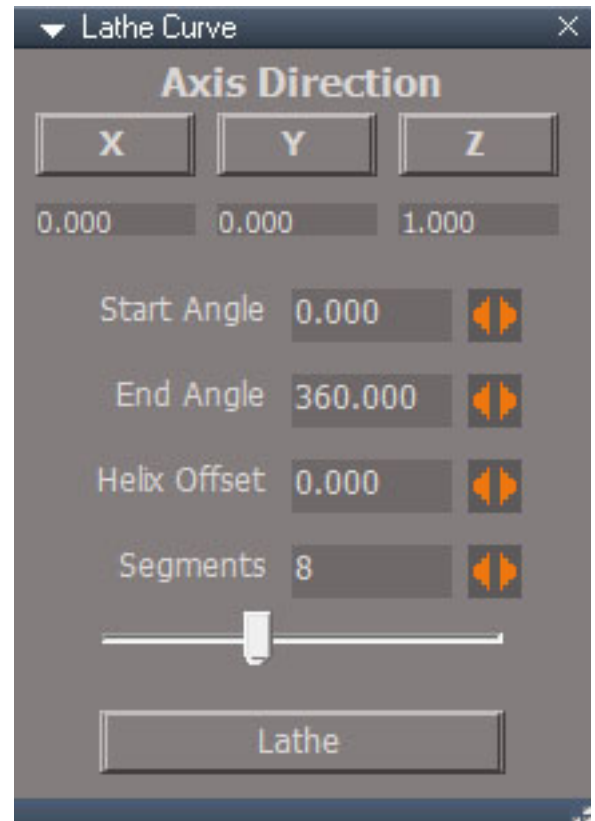
Start Angle

End Angle

Helix Offset to create spiral

Segments number of times the curve will to 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.

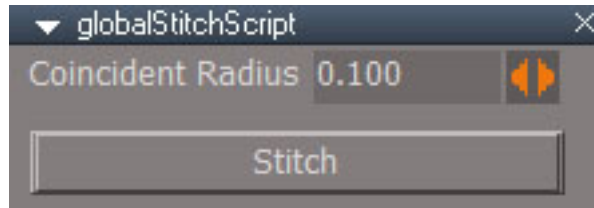
Far right image shows helix result.

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

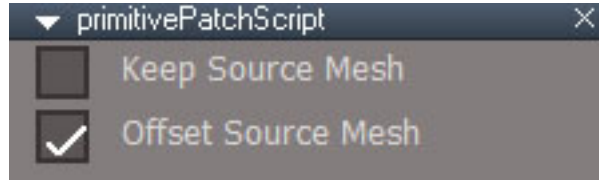
Tool is like the first step of a welding type action, the points are moved together but not joined.

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.

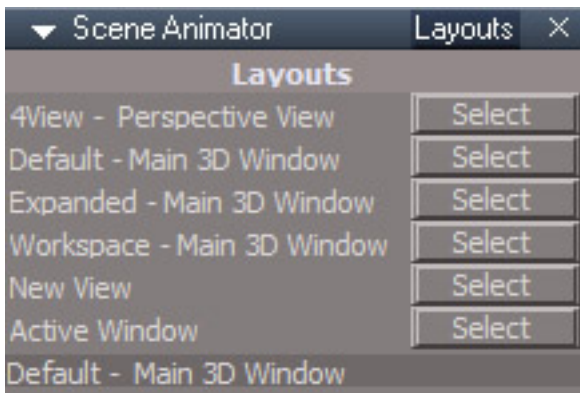
The cylinder is a cone with equal top and bottom radii.



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

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