

## Texture Mapping

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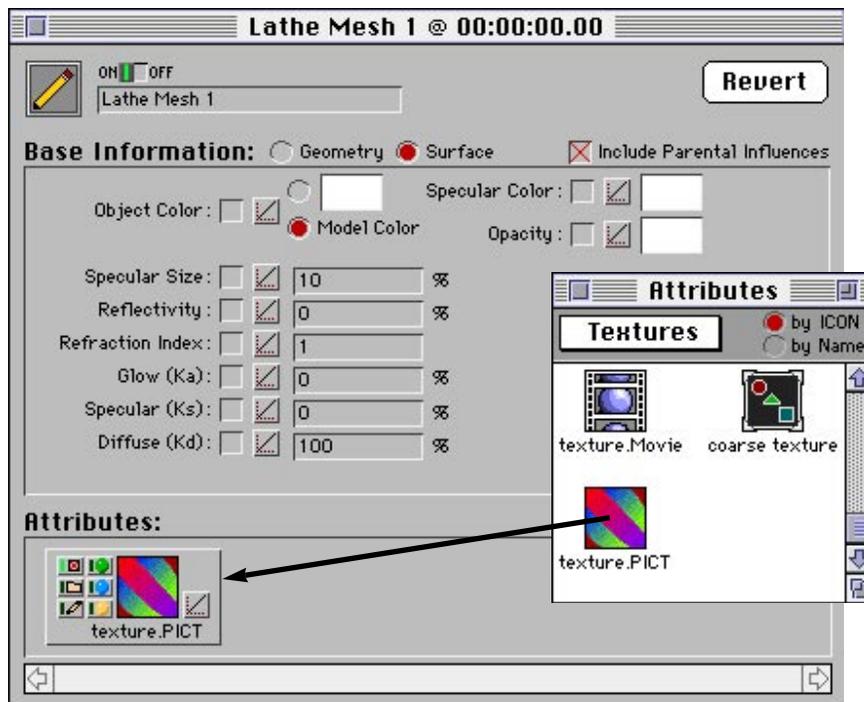
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## General Information

### To apply a Texture attribute to an object(s):

- 1) Select an item (object, or folder containing multiple objects). Access the item Info dialog box (double-click on the object in one of the three view windows, or on its name in the Script List).
- 2) Open the Attributes window (⌘-2). Select Textures from the pull-down menu.
- \* 3) Choose a texture from those displayed in the Attributes window, and drag its icon to the Attributes bin at the bottom of the item Info dialog box.
- 4) Double-click on the expanded icon in the Attributes bin to position the texture map on the object, and to fine-tune the texture mapping parameters.



## General Information

### Texture types

Any PICT file, or QuickTime movie may be mapped to an object. PICT files and QuickTime movies will be referred to as "image files" in this discussion.

### Adding image files to the Textures list

Only image files in the Textures list (Attributes window) may be mapped to an item. On your hard drive, relocate image files to the Textures folder in the Presenter Plug-ins folder to include those image files in the Textures list.

### Image size

An image size of 512 x 512 pixels will generate the most favorable mapping results. In general, images of equal width and height will work best.

### Applying multiple image files to an object

To apply more than one image file to an object, drag each of the image files from the Attributes (Textures) window to the Attributes bin for the object. The raytrace rendering engine supports an unlimited number of image files per object, and the RenderMan rendering engine supports a maximum of three (3).

### Previewing PICTs or QuickTime movies

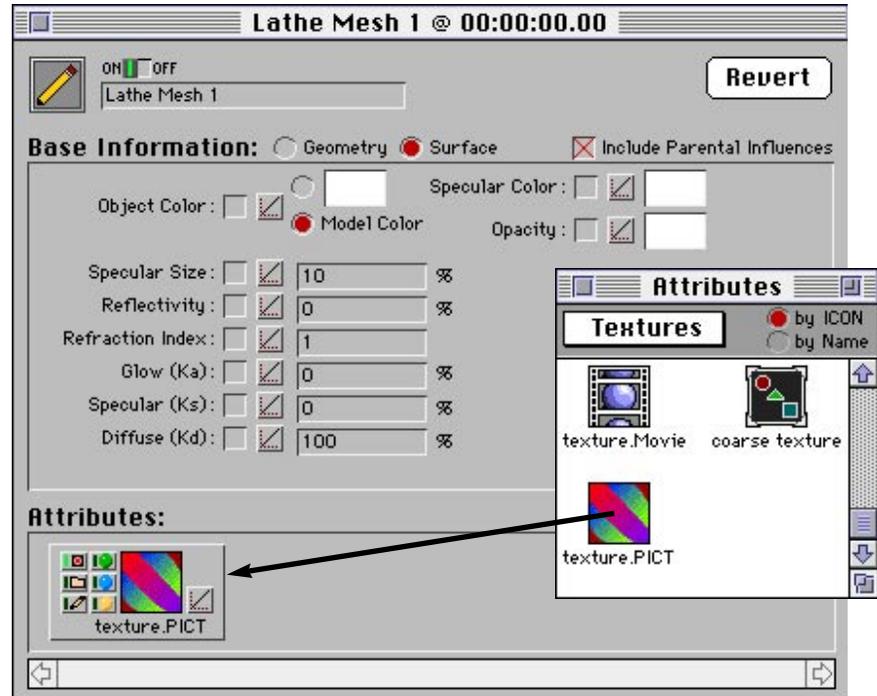
Any of the image files in the texture list may be previewed by double-clicking its icon in the Attributes window.

## Mapping a PICT to an object

### Using the **Wrap** mapping method

#### To apply a Texture attribute to an object(s):

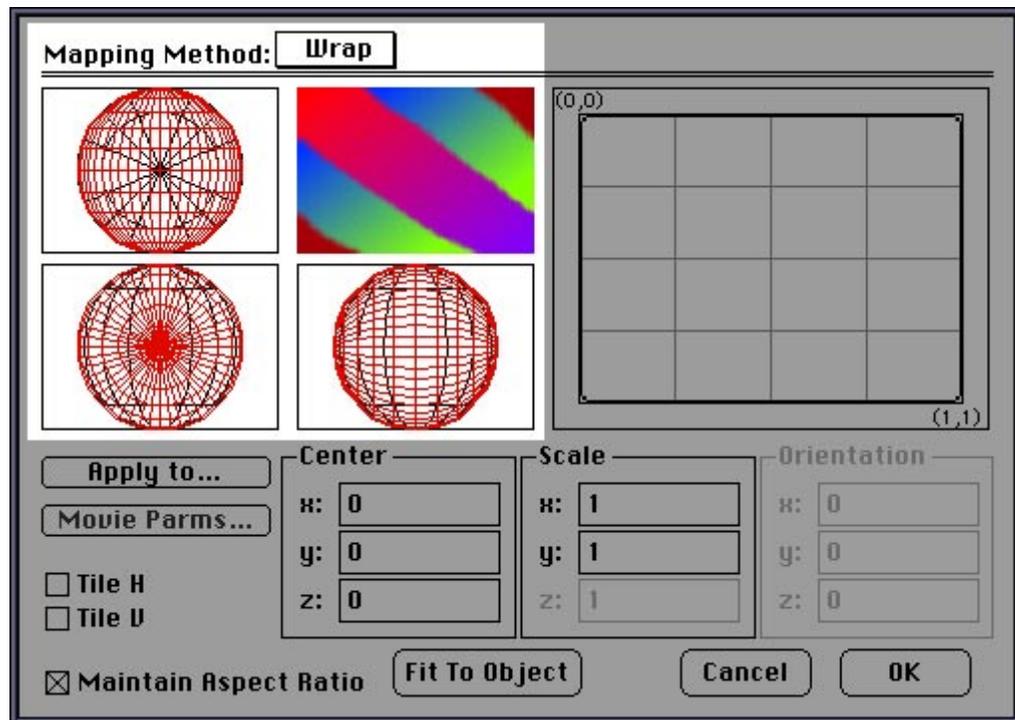
- 1) Select an item. Access the item Info dialog box.
- 2) Open the Attributes window. Select Textures from the pull-down menu.
- 3) Choose a texture from those displayed in the Attributes window, and drag its icon to the Attributes bin at the bottom of the item Info dialog box.
- 4) Double-click on the expanded icon in the Attributes bin to position the texture map on the object, and to fine-tune the texture mapping parameters.



## Mapping Windows

When you double-click on the expanded icon, the Texture Map Edit dialog box will appear. The pull-down menu at the upper-left corner of the Map Edit dialog box is labeled "Mapping Method." The default mapping method is "Wrap." To choose a different method, click-hold on the pull-down menu, drag to the desired Mapping Method, then release the mouse button.

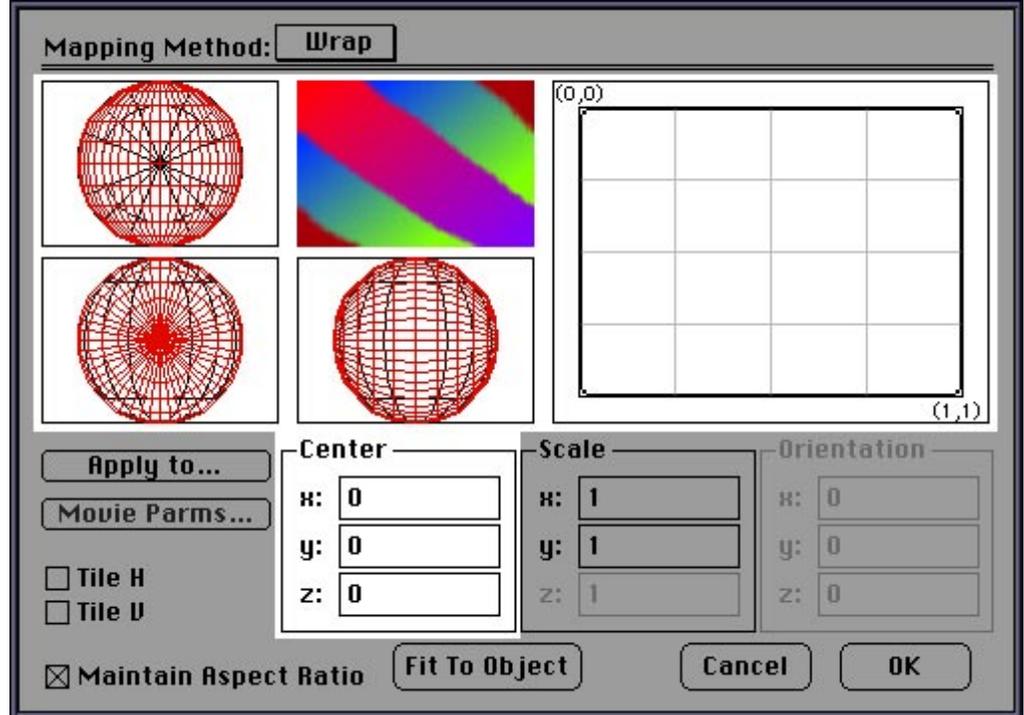
The four windows in the upper-left corner of the Map Edit dialog box display the (counter-clockwise from top-left) Top, Front, Right Side orthogonal wire-frame views of the object, and a preview of the PICT. Each of the orthogonal views has a red mesh "stretched" over the black wire frame. The mesh represents the size and position of the PICT on the object. If the size of the PICT is sufficiently large, the mesh will cover the entire wire frame. Otherwise, the mesh will cover only a portion of the object.



## Position

The window in the upper-right corner of the Map Edit dialog box is your means to manipulate the red mesh (PICT image) on the black wire frame (object). The grid in the window is labeled (0,0) at the upper-left corner and (1,1) at the lower-right corner. This grid corresponds to the total surface area of the object (it is not proportional to the surface area).

A box representative of the PICT is “stretched” across the grid. Click-drag the box and observe how the red mesh in the orthogonal views moves over the surface of the object. Note that as you move the PICT about the grid, the data fields in the “Center” portion of the Map Edit dialog box update the information about the upper-left corner of the PICT box on the grid. To precisely position the PICT enter data in the “Center” x, y data fields.

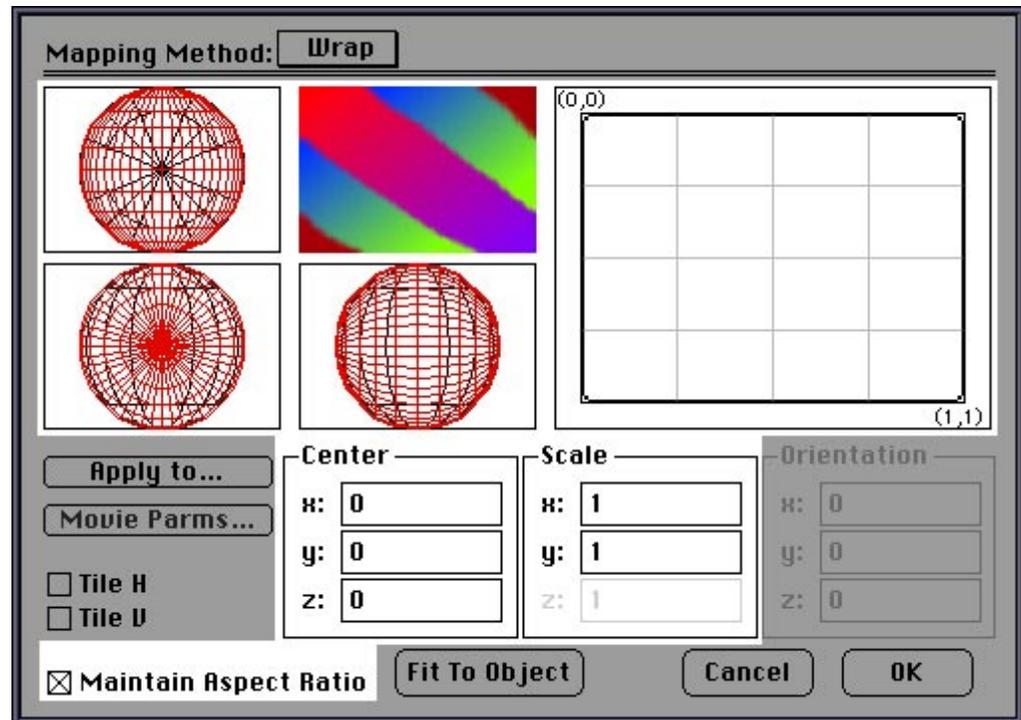


## Scale

The "Scale" portion of the Map Edit dialog box controls the size of the PICT. The x, y data fields correspond to the grid. The "Maintain Aspect Ratio" (MAR) check box (lower-left corner of the Map Edit dialog box) is used to control the "Scale" x, y values. The Scale x value will default to 1, and the PICT box on the grid will stretch (left to right) from  $(0, y_1)$  to  $(1, y_2)$ . If  $y=x$ , then the Scale y value will be 1, and the PICT box will stretch from  $(0,0)$  to  $(1,1)$ ; the y value will be some multiple (if  $y>x$ ) or fraction (if  $y<x$ ) of the x value. If the MAR box is checked, then changing the x value will affect the y value, and vice-versa. If the MAR box is not checked, then the x and y values may be changed independent of one-another.

To precisely size the PICT, enter data in the Scale x and y data fields.

Note that the Scale z value is not used here.



## Tiling

The check boxes, "Tile H" (horizontal) and "Tile V" (vertical), are used to tile (apply multiple copies of) a PICT which has been scaled to less than 1. Tiling a PICT butts successive copies of the PICT over the surface of the object. This may cause the final tile(s) to be "squeezed" in such a fashion that it is proportioned different from the original. A tiled PICT is not reflected as such by the red mesh in the orthogonal views.

Click on the "Fit To Object" button to "stretch" the PICT image over the entire surface of the object. If the "Maintain Aspect Ratio" box is checked and the image file is not square, the long side will stretch around the object, and the short dimension will not stretch around the object; it will remain in proportion

The "Orientation" portion of the Map Edit dialog box is not used, and has no function when you choose the Wrap method.

**Mapping Method:**

**Center**

x:   
 y:   
 z:

**Scale**

x:   
 y:   
 z:

**Orientation**

x:   
 y:   
 z:

**Maintain Aspect Ratio**

## Apply To...

Clicking on the "Apply To..." button will open the dialog box titled "Apply Texture Map Channels To..." (AT dialog box). The AT dialog box is used to apply brightness values and/or color and/or alpha channel values to surface properties (effects) of the object.

There are two columns in the AT dialog box. The left column lists surface properties (scaler values); those found in the Surface Base Information portion of an object Info dialog box, plus Alpha Channel and Bump. The right column lists color properties; those found in the Surface Base Information portion of an object Info dialog box, plus Diffuse Color, Ambient Color, Glow Color, and Reflectivity Color.

Click in one of the boxes next to a list item to toggle the effect "on" and "off." If the box has a check mark in it, the effect is on; if there is no check mark, the effect is off. To create multiple surface effects from a single image file, turn on various effects.

**Apply Texture Map Channels To...**

U	A	Stencil	RGB	Stencil
<input type="checkbox"/>	<input type="checkbox"/>	Alpha Channel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Object Color
<input type="checkbox"/>	<input type="checkbox"/>	Transparency	<input type="checkbox"/>	<input type="checkbox"/> Transparency Color
<input type="checkbox"/>	<input type="checkbox"/>	Diffuse	<input type="checkbox"/>	<input type="checkbox"/> Diffuse Color
<input type="checkbox"/>	<input type="checkbox"/>	Specular	<input type="checkbox"/>	<input type="checkbox"/> Specular Color
<input type="checkbox"/>	<input type="checkbox"/>	Ambient	<input type="checkbox"/>	<input type="checkbox"/> Ambient Color
<input type="checkbox"/>	<input type="checkbox"/>	Glow	<input type="checkbox"/>	<input type="checkbox"/> Glow Color
<input type="checkbox"/>	<input type="checkbox"/>	Reflectivity	<input type="checkbox"/>	<input type="checkbox"/> Reflectivity Color
<input type="checkbox"/>	<input type="checkbox"/>	Bump Scale: <input style="width: 50px;" type="text" value="1"/>		
<input type="checkbox"/>	<input type="checkbox"/>	Specular Size		
<input type="checkbox"/>	<input type="checkbox"/>	Refraction Index		

Invert Alpha       Invert Transparency

There are three (3) ways to apply the texture (image) map to the left-column scaler value items: V (brightness), A (alpha channel), and Stencil.

### V (brightness)

This is the luminance value of the texture color pixels. Presenter internally uses a value for V ranging from 0 to 1 (black to white). Use V or A, not both.

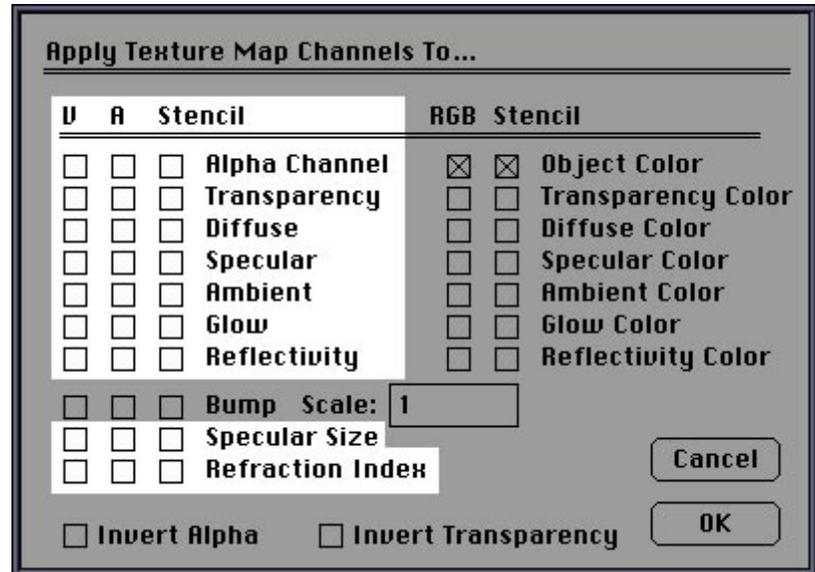
### A (alpha channel)

This is the value of alpha channel pixels (if any) of the image. Presenter internally uses a value for A ranging from 0 to 1 ((black to white).

### Stencil

This makes a value which is the average of the alpha channel pixel values and the object surface effect values.

For the left-column list, refer to the Presenter reference manual for more detailed descriptions of [Transparency](#), [Diffuse](#), [Specular](#), [Glow](#), [Reflectivity](#), [Specular Size](#), and [Refraction Index](#). [Alpha Channel](#) refers to the alpha channel of the final rendered image(s). [Ambient](#) refers to the brightness of the object in the absence of external lighting.



There are two (2) ways to apply the texture (image) map to the right-column color value items: RGB and Stencil.

## RGB

This represents the pixel colors of the texture (image).

## Stencil

This makes a value which is the average of the alpha channel pixel values and the object color value.

For the right-column list, **Object Color** and **Specular Color** refer to the colors set in the Surface Base Information in the object Info dialog box. **Transparency Color** refers to the color of light which can pass through the object (i.e. color filter). Refer to the Presenter reference manual for more detailed descriptions of Diffuse, Specular, Glow, and Reflectivity.



**Diffuse Color** is set to object color. **Ambient Color** is set to the ambient light source color (Environment Settings). **Glow Color** is set to the ambient light source color. **Reflectivity Color** is set to the object color.

**Apply Texture Map Channels To...**

U	A	Stencil		RGB	Stencil	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Alpha Channel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Object Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Transparency	<input type="checkbox"/>	<input type="checkbox"/>	Transparency Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Diffuse	<input type="checkbox"/>	<input type="checkbox"/>	Diffuse Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specular	<input type="checkbox"/>	<input type="checkbox"/>	Specular Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ambient	<input type="checkbox"/>	<input type="checkbox"/>	Ambient Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Glow	<input type="checkbox"/>	<input type="checkbox"/>	Glow Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Reflectivity	<input type="checkbox"/>	<input type="checkbox"/>	Reflectivity Color
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bump Scale:	<input type="text" value="1"/>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specular Size			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refraction Index			
<input type="checkbox"/> Invert Alpha		<input type="checkbox"/> Invert Transparency				

Cancel OK

## How to “Apply Texture Map Channels”

This will be explained by way of three examples:

- 1) To change the Transparency of the object based upon the brightness of the image (texture map): Turn on the V check box to the left of Transparency.
- 2) To map the alpha channel of the image to the Alpha Channel on final rendering: Turn on the A check box to the left of Alpha Channel.
- 3) To apply a non-rectangular image to an object as a label: Turn on the RGB and Stencil check boxes next to Object Color. RGB changes the color to that of the image, and Stencil makes white parts (of the image alpha channel) transparent.

## Bump

Presenter internally uses a gray-scale version of the image (texture map) to “deform” (emboss) the surface of the object. White (lightest color) represents areas of the image which will cause the greatest effect; Black (darkest color) represents areas of the image which will cause the least effect. Enter data in the “Scale” data field to fine-tune the general effect.

**Apply Texture Map Channels To...**

U	A	Stencil	RGB	Stencil
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		<b>Alpha Channel</b>		<b>Object Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Transparency</b>		<b>Transparency Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Diffuse</b>		<b>Diffuse Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Specular</b>		<b>Specular Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Ambient</b>		<b>Ambient Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Glow</b>		<b>Glow Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<b>Reflectivity</b>		<b>Reflectivity Color</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bump Scale: <input style="width: 50px;" type="text" value="1"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specular Size	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Refraction Index	

Invert Alpha       Invert Transparency

## Invert Alpha

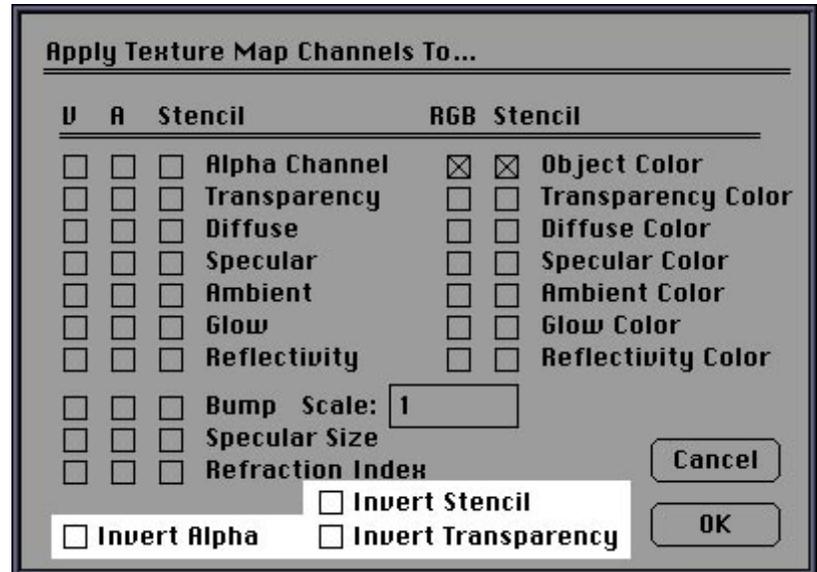
Reverses values of the image alpha channel; changes value of the image alpha channel to range from 1 to 0 (black to white).

## Invert Transparency

Reverses values transparency (treats transparency as opacity).

## Invert Stencil

Reverses values of the image alpha channel for the Stencil; changes value of the image alpha channel to range from 1 to 0 (black to white).



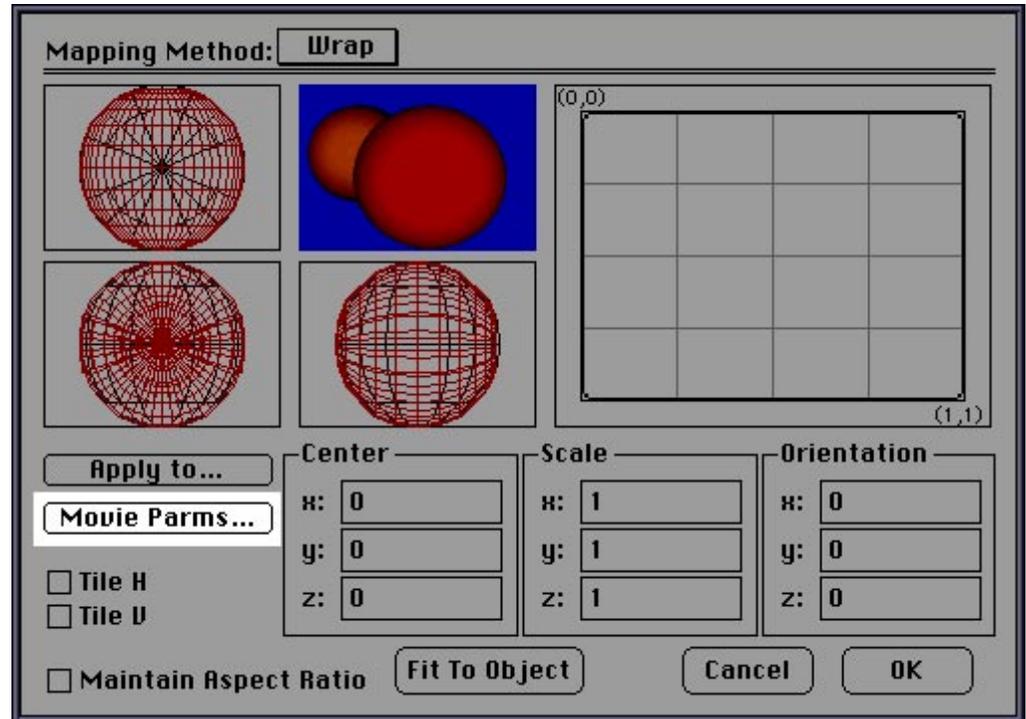
## Mapping a MOVIE to an object

### Using the **Wrap** mapping method

Mapping a QuickTime (QT) movie to an object is the same as mapping a PICT to an object with one addition: you can access the “Movie Control...” dialog box. All of the settings you make in the Texture Map Edit dialog box apply to QT movies the same as to PICTs.

The preview window shows the current frame of the QT movie.

Click on the “Movie Params...” button to access the Movie Control... dialog box.



## Movie Control... dialog box

All references here to frames and frame numbers refer to the frame of the QT movie being mapped to the object, not the frame of your animation.

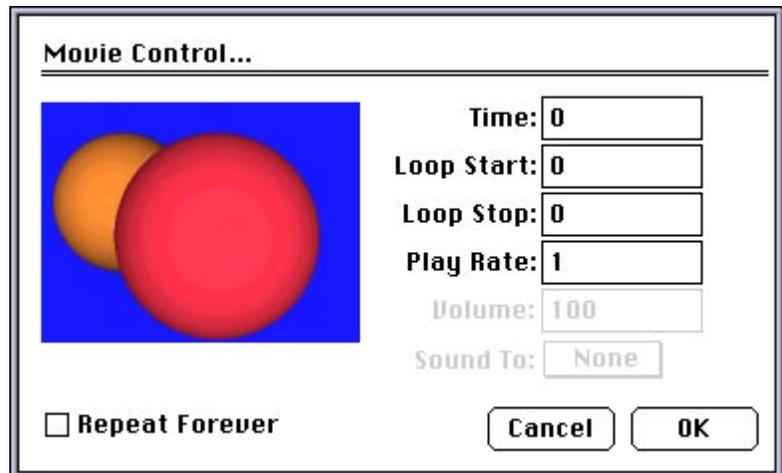
The **Time** data field shows which frame of the movie is displayed in the window on the left side of the dialog box. Enter a frame number in the data field to display that frame.

The **Loop Start** data field shows at which frame the movie will begin to map onto the object. The **Loop Stop** data field shows at which frame the movie will discontinue mapping on the object. If both Loop Start and Loop Stop are set to 0, then all frames of the movie will map onto the object in sequence.

The **Play Rate** is a ratio of the QT movie play rate to your animation play rate. For example: if your animation play rate is 10 fps, and the QT movie play rate is 10 fps, and you set Play Rate to 2, then each frame of the QT movie will map onto the object 2 times (on successive animation frames); if you set the Play Rate to 0.5, then every other QT movie frame will map onto the object (on successive animation frames).

The **Repeat Forever** check box causes the "loop" to repeat mapping; restarting from the Loop Start frame.

Sound features not yet functional.



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