

Tutorial

Painting a Maya model

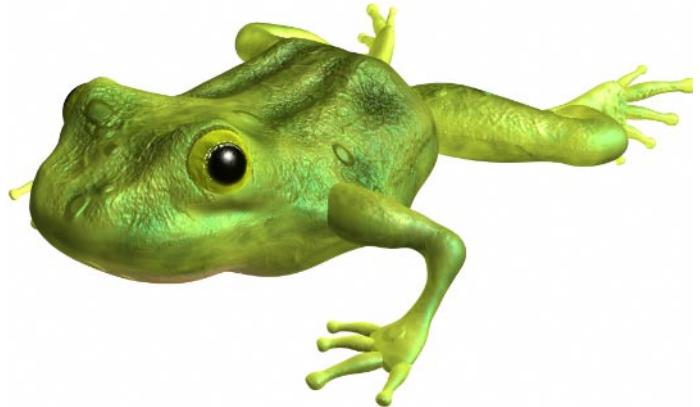
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Introduction

This tutorial teaches you how to use StudioPaint to paint a Maya model. You will learn how to:

- paint a model's color, bump, and specular textures
- create and paint a custom texture channel.



Before beginning this tutorial you should already be familiar with using StudioPaint for painting in 2D (page 37). You should also be familiar with using Maya for creating materials and for rendering.

In order to complete this tutorial you will require the a Maya scene file and a StudioPaint canvas file from the StudioPaint 9.0 CD.

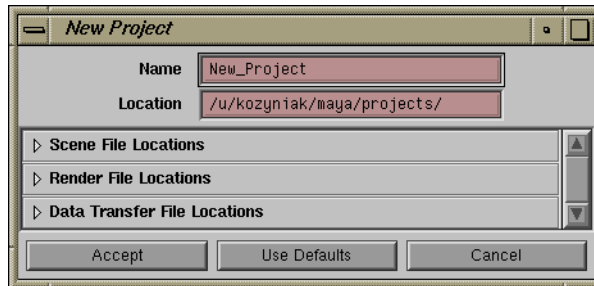
The entire tutorial takes approximately 2.5 hours to complete. However, the tutorial is divided into sections, so you can stop after completing each section, and continue at a later time.

Getting started in Maya

Create a Maya project

- 1 Open Maya.
- 2 Choose File > Project > New.

The New Project window is displayed.



- 3 Type `learningStudioPaint` in the Name field.
- 4 Click Use Defaults to use the Maya default directory structure.
- 5 Click Accept.

The `learningStudioPaint` project is created and automatically becomes the current project.

- 6 Choose Options > Save Preferences.

This updates the preference file with the new current project. (StudioPaint uses this file to determine the current Maya project.)

Load the StudioPaint plug-in for Maya

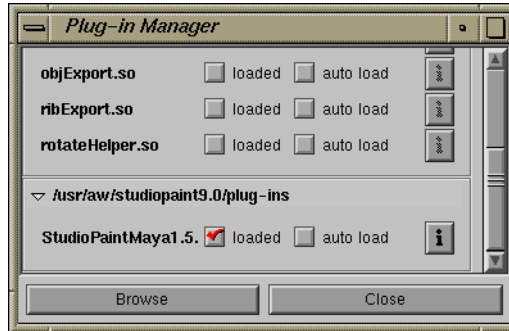
In order to paint a Maya model in StudioPaint, you must load the StudioPaint plug-in for Maya.

- 1 Choose Window > General Editors > Plug-in Manager.

The Plug-in Manager window opens.

If you don't see this plug-in listed, then you need to install it (see *StudioPaint 9.0 Installation and Release Notes* or page 668).

- 2 Scroll to the bottom of the window, and search for the StudioPaintMaya1.5.so plug-in.



- 3 Check the loaded option. If you want the plug-in to automatically load each time you start Maya, check the auto load function.

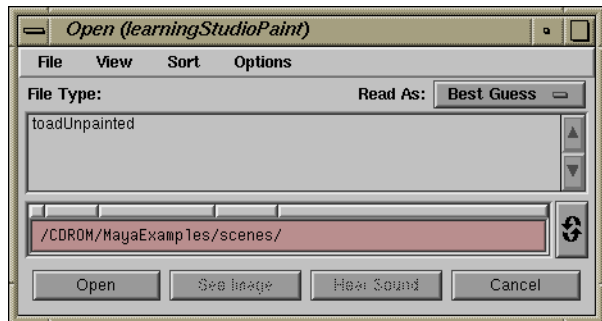
The menu StudioPaint is displayed in the menu bar.



- 4 Click Close to close the Plug-in Manager.

Open the Maya scene

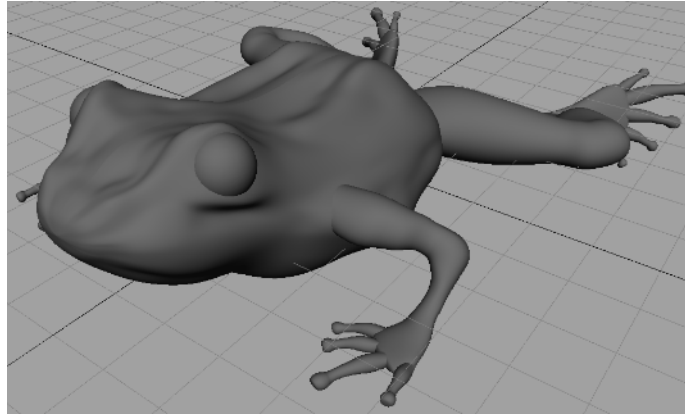
- 1 Choose File > Open Scene.
- 2 The Open window is displayed.



- 3 Insert the StudioPaint 9.0 CD into your CD ROM drive.
- 4 Change the directory to /CDROM/MayaExamples/scenes.
- 5 Select the toadUnpainted scene.

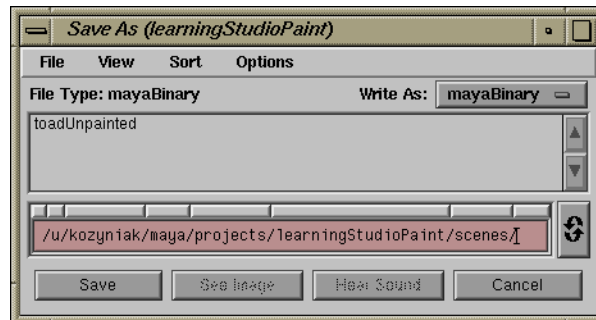
- 6 Click the Open button.

The scene contains a 26 surface NURBS toad that was modeled and animated in Maya.



Save the Maya scene

- 1 Choose File > Save Scene As.
- 2 The Save As window is displayed.

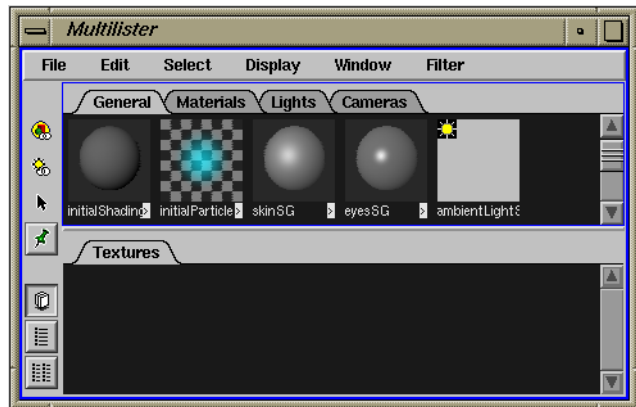


- 3 Choose File > Go to Current Project in the Save As window.
- 4 Double-click the scenes subdirectory in the Save As window.
- 5 Type toadUnpainted in the Save As window.
- 6 Click the Save button.
The scene is saved in the learningStudioPaint project.

Assign shading groups to the Maya model

If you want different materials on different parts of the model, you must assign shading groups to specific surfaces before you export the model to StudioPaint. For this model, you will assign the skinSG shading group to the toad's body, and the eyeSG shading group to the toad's eyes. You will then be able to paint in any of these shading groups' texture channels.

- 1 Select the entire toad model.
- 2 If the Multilister is not currently open, choose Window > Multilister.



The Multilister contains the default shading groups and two additional shading groups: skinSG and eyesSG. The skinSG shading group uses a Blinn surface material, and the eyesSG shading group uses a Phong surface material.

- 3 Choose the skinSG shading group.
- 4 Choose Edit > Assign in the Multilister to assign the skinSG shading group to the entire toad.
- 5 Pick only the toad's eyes by clicking on one eye, and Shift-clicking on the other eye.
- 6 Choose the eyesSG shading group.
- 7 Choose Edit > Assign in the Multilister to assign the eyesSG shading group to the toad's eyes.

Export the Maya model as StudioPaint geometry

In order to load a Maya model into StudioPaint, you must either:

- import the Maya scene directly into StudioPaint
- export the entire scene as a StudioPaint geometry file and then load that file into StudioPaint
- export selected geometry as a StudioPaint geometry file and then load that file into StudioPaint

You can also copy selected geometry in Maya and paste it into StudioPaint.

A model will load into StudioPaint significantly faster if you export it as StudioPaint geometry (either the entire scene or selected geometry).

For this model you will export the entire scene as StudioPaint geometry.

If you don't see this menu, then you need to load the plug-in (page 563).

- 1 Choose StudioPaint > Export All as StudioPaint File.

The Create StudioPaint Directories window is displayed.



StudioPaint uses the following directory structure for Maya projects.

```
/usr
  account
    maya
      projects
        learningStudioPaint
          brushes
          canvas
          colors
          imageLayers
          shapes
          spMask
          spPix
          spGeometry
          spTextures
          spTextureScripts
          stencil
          textureLayers
```

The reason why this tutorial had you create a project before loading the StudioPaint plug-in was only to show you how to create StudioPaint directories. You should always make sure you load the plug-in before you create a project in Maya.

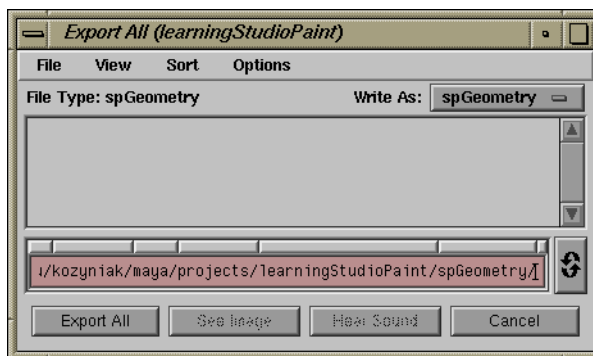
If you want to use StudioPaint with a Maya project that you created before loading the plug-in, you must add StudioPaint directories to the Maya project.

When the StudioPaint plug-in is loaded, any new projects that you create in Maya will automatically have the StudioPaint directories (if you click the Use Defaults button in the New Project window).

Earlier in this tutorial you created the project learningStudioPaint in Maya *before* loading the StudioPaint plug-in, so you must now add StudioPaint directories to this project.

2 Click Create Directories.

The StudioPaint directories are automatically created in the learningStudioPaint directory, and the Export window is displayed.



3 Type toad for the name of the file to export, and click the Export All button.

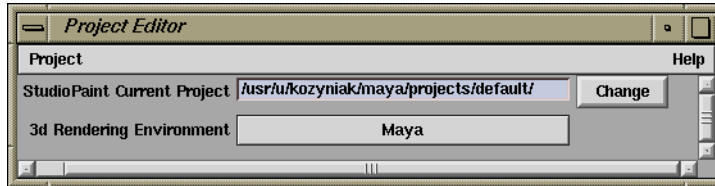
After a moment the model is exported.

Getting started in StudioPaint

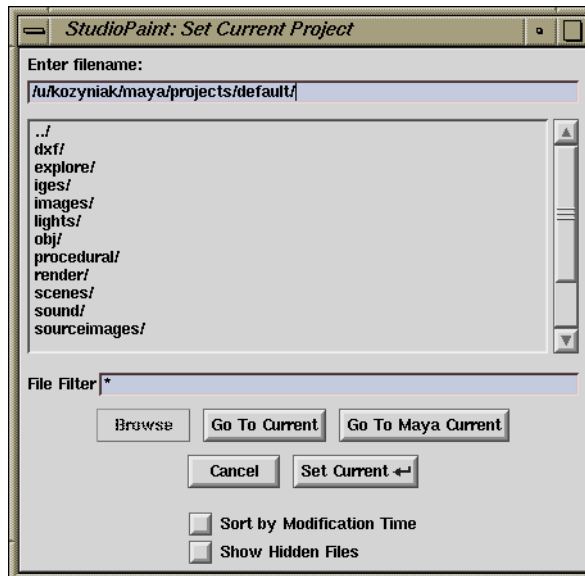
Set the current StudioPaint project

If you don't see this menu, then you need to load the plug-in (page 563).

- 1 Choose StudioPaint > Launch StudioPaint to switch to StudioPaint.
- 2 Choose File > Projects.
The Project Editor is displayed.



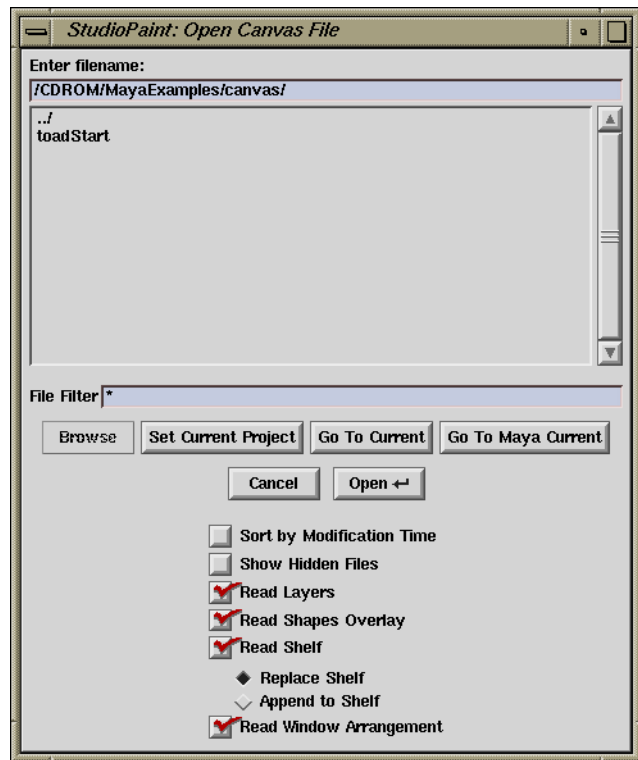
- 3 Set the 3d Rendering Environment to Maya (if it is not set already).
This is the program in which you will render the 3D painting.
- 4 Click the Change button beside the StudioPaint Current Project.
The Set Current Project window is displayed.



- 5 Click the Go To Maya Current button.
- 6 Click the Set Current button.
- 7 Double-click the upper left corner of the Project Editor to close it.

Open a StudioPaint canvas

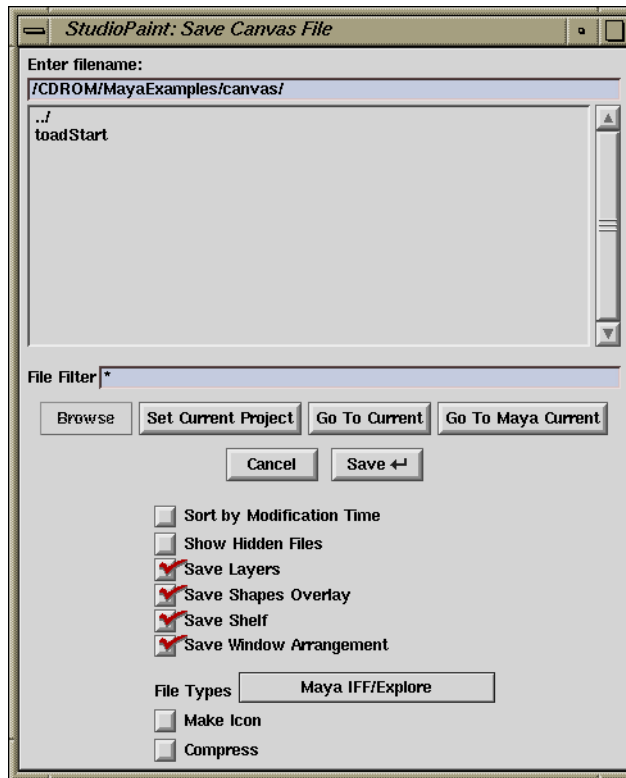
- 1 In StudioPaint, choose File > Open Canvas.
The Open Canvas File window is displayed.



- 2 Type /CDROM/MayaExamples/canvas in the Enter filename: field and press Enter.
- 3 Select the toadStart file and click Open.
This canvas contains a layer with 2D images of frogs and toads. You can use these images as a reference and for picking colors.

Save the canvas

- 1 Choose File > Save Canvas As.
- 2 The Save Canvas File window is displayed.

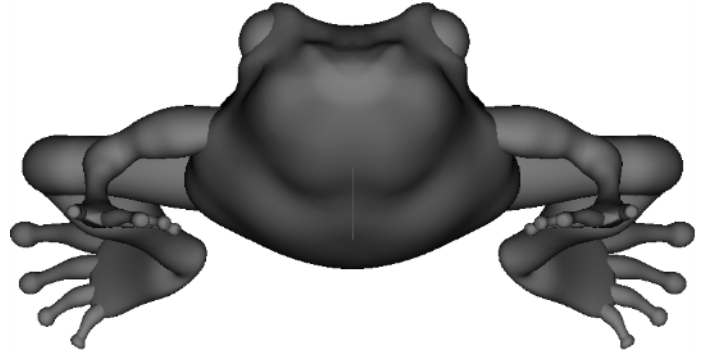


- 3 Click Go To Current.
- 4 Double-click the canvas directory.
- 5 Type toadStart in the Enter filename: field.
- 6 Click Save.
The canvas file is saved in the learningStudioPaint project.
- 7 Remove the StudioPaint 9.0 CD from your CD ROM drive.

Before you import the model, you may want to select four colors from the frog and toad images (page 147) and blend them in the **Blend** section of the **Color Editor** (page 143). Then when you paint the model you can easily pick a range of colors.

Import the geometry file into StudioPaint

- 1 Choose File > Import > 3D Geometry or press Alt+g.
The Open Geometry File window is displayed.
- 2 Select the toad file, and click the Open button.
After a moment the model imports into a 3D layer.

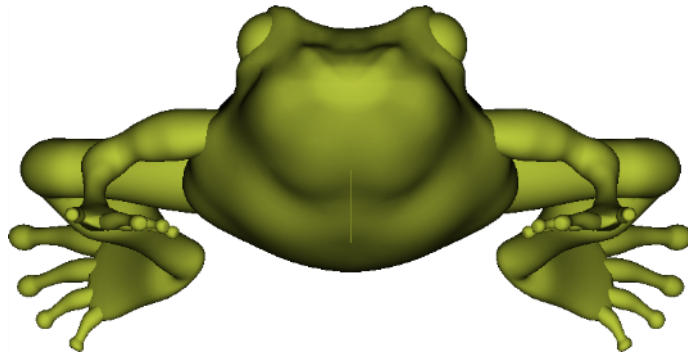


Painting the color texture

You will begin painting the color texture by painting the entire toad a solid color. You will then paint patterns on the top, bottom, and sides of the toad.

Paint the entire toad a solid color

- 1 Pick a color (for example, a light green) from the Color Editor.
- 2 Choose Surfaces > Floodfill Texture.
The entire model is painted with the current color.



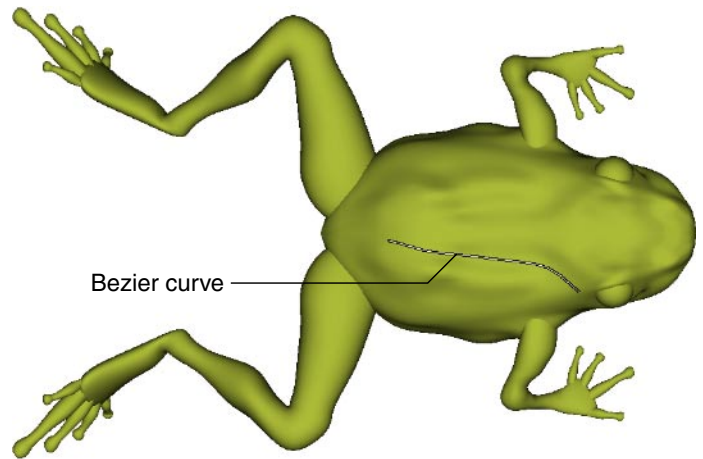
Paint the top of the toad

Next, you will paint the ridges on the toad's back. To do this you will first draw a Bezier curve along one of the ridges, and then paint along this curve. Then you will paint various patterns and colors over the entire top of the toad.

- 1 Choose View > Top.
- 2 Choose the Snap tool from the Bezier Drawer in the Toolbox.
- 3 Click-drag at the end of one of the ridges on the toad's back in the direction of the ridge.
- 4 Click-drag again at another point along the ridge.
- 5 Continue click-dragging until you have drawn a smooth curve along the entire ridge.

See *Working with Bezier shapes* on page 109.

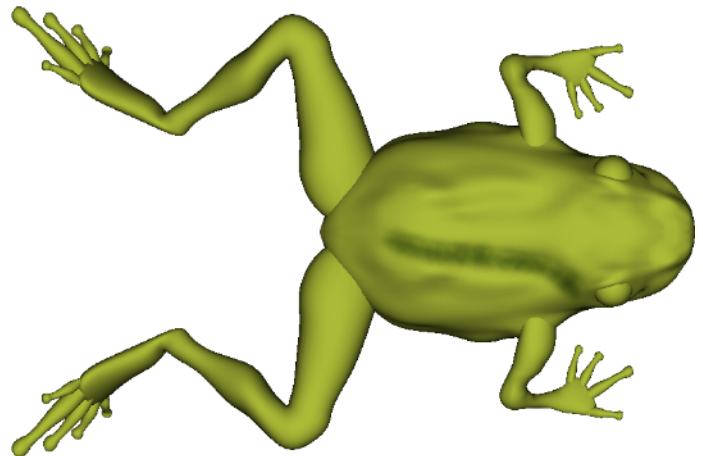




6 Pick a color (for example, a dark green) from the Color Editor.

7 Choose the FrogBump brush from the Shelf.

8 Paint along the line you drew. The brush snaps to the line. Paint along the line until the ridge is well-defined.



9 Choose the Pick Shape tool from the Toolbox, or hold down p, the momentary hotkey.

The Bezier curve that you drew is automatically picked because it is the only shape.



10 Select Shapes > Transform > Flip - Vertical Axis.

11 Drag the transform box surrounding the Bezier curve so that the line lies over the ridge on the other side of the toad.



12 Choose the FrogBump brush from the Shelf.

13 Paint along the line you moved. The brush snaps to the line.

Paint along the line until the ridge is well-defined.



14 Choose the Pick Shape tool from the Toolbox, or hold down p, the momentary hotkey.

The Bezier curve is automatically picked.

15 Press the Backspace key (or the Delete key).



16 Choose the FrogBump brush from the Shelf.

17 Paint over the entire model to make the toad's skin color look uneven or mottled.

Don't worry if you paint over the toad's eyes. You will re-paint them later.

18 Pick a color (for example, a light green) from the Color Editor.



19 Choose the Snakeskin brush from the Shelf.

20 Paint over the model to make the toad's skin look bumpy.

21 Pick a color (for example, a light green) from the Color Editor.



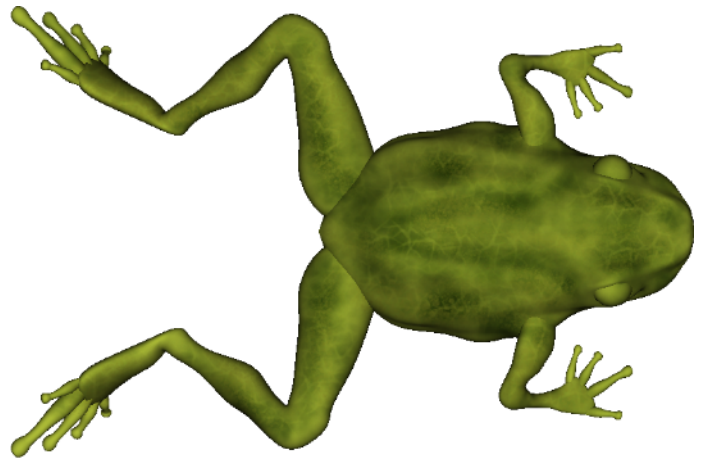
22 Choose the SkinBump brush from the Shelf.

You may want to resize the SkinBump brush. To interactively resize a brush, hold down the Ctrl key and click-drag up or down (page 46).

23 Paint over the model to make the toad's skin look veiny.

24 Choose Surfaces > Project Paint.

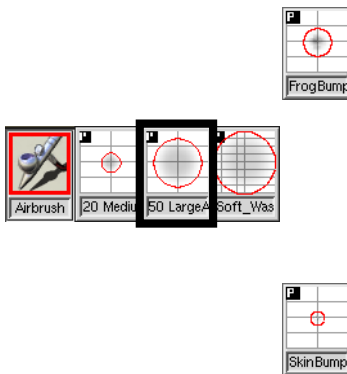
After a moment the paint is projected onto the model.

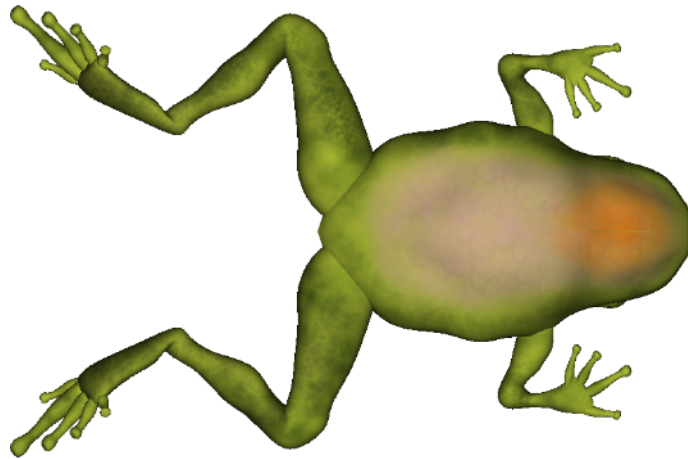


Note You do not always have to choose **Surfaces > Project Paint** to project paint onto a surface. If **Surfaces > Auto Project** is on, the paint will be automatically projected onto the surface when you change the view (or when you select a tool from the 3D Drawer).

Paint the bottom of the toad

- 1 Choose **View > Bottom**.
- 2 Use the **FrogBump** brush to paint dark green blotches on the toad's legs and around the edges of the toad's chest.
- 3 Use the **50 LargeAir** tool from the **Airbrush Drawer** in the **Toolbox** to paint the toad's chest pink.
- 4 Use the **50 LargeAir** tool from the **Airbrush Drawer** in the **Toolbox** to paint the toad's throat orange.
- 5 Use the **SkinBump** brush to paint dark pink veins on the toad's chest, but do not paint veins on the toad's throat.





Paint over the edges on the sides of the toad

Now that you have painted the top and bottom of the toad, you will paint any areas on the sides of the toad that did not receive any paint.

- 1 Choose View > Left.

There are some sharp edges along the sides of the toad. This is because when you projected the paint from the top and bottom of the toad, the parts of the toad not facing up or down did not receive any paint.



- 2 Use the Airbrush tool and FrogBump brush to paint over the edges on the sides of the toad.





- 3 Choose the Tumble tool from the 3D Drawer in the Toolbox.
- 4 Tumble the view horizontally and continue painting over any edges on the sides of the toad.



Paint the toad's eyes

- 1 Choose View > Front.
- 2 Choose the Pick tool from the 3D Drawer in the Toolbox.
- 3 Click on one of the toad's eyes and Shift-click on the other eye to select them.

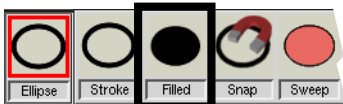


- 4 Pick a color (for example, yellow) from the Color Editor.
- 5 Choose Surfaces > Floodfill Texture.
- 6 Choose View > Left.
- 7 Choose the Orient tool from the 3D Drawer in the Toolbox.
- 8 Click on the center of the toad's eye.

The model tumbles so that the point you picked is facing you.



- 9 Choose View > Fit Selected Geometry.
The toad's eye fills the window.
- 10 Use the FrogBump and SkinBump brushes to paint the eye.
- 11 Pick the color black.
- 12 Choose the Filled tool from the Ellipse Drawer in the Toolbox.
- 13 Ctrl-Shift-click-drag in the center of the toad's eye and draw a circle.



- 14 Press Enter to apply paint to the circle.



- 15 Choose the Pick Shape tool from the Toolbox, or hold down p, the momentary hotkey.

The circle is automatically picked.

- 16 Press the Backspace key (or the Delete key) to delete the circle.

- 17 Re-orient the view and paint the right eye.

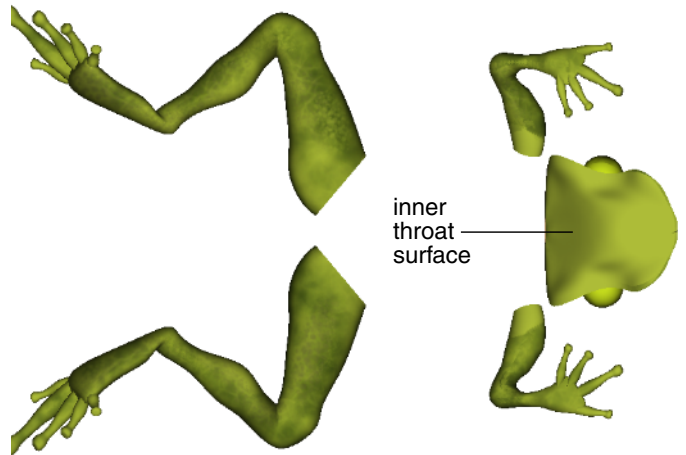
Paint the toad's inner throat

The toad model has a surface located inside its throat. Later in this tutorial, you will make the throat area transparent so that this inner throat surface will become partially visible. If you plan on completing the entire tutorial, then you should paint this inner throat surface. This will make the transparency of the toad's throat sac more realistic.

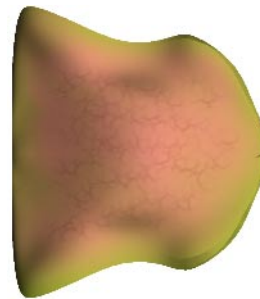
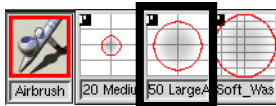
If you do not plan on completing the *Painting a custom texture channel* section of this tutorial, then skip to *Exporting the color texture to Maya* on page 581.



- 1 Choose View > Bottom.
- 2 Choose the Pick tool from the 3D Drawer in the Toolbox.
- 3 Click on the toad's chest.
- 4 Choose Surfaces > Hide Selected. The inner throat surface is now visible.



- 5 Pick the toad's inner throat surface.
- 6 Choose Surfaces > Hide Unselected.
- 7 Choose View > Fit Selected Geometry.
- 8 Use the 50 LargeAir tool from the Airbrush Drawer in the Toolbox to paint the inner throat surface light pink.
- 9 Use the SkinBump brush to paint dark pink veins on the toad's inner throat surface.



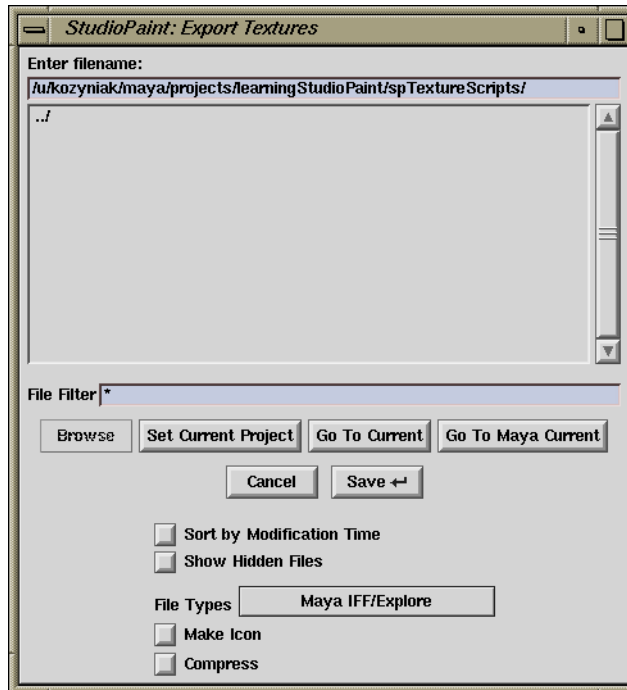
- 10 Choose Surface > Project Paint or press Ctrl+a.
- 11 Choose Surfaces > Show All Surfaces.
- 12 Choose View > Front to see the entire toad again.

Exporting the color texture to Maya

After you have painted the color texture, you can then export the texture as a *texture script*. The texture script references all of the individual textures for each surface that you have painted. Since you have only painted in one texture channel (color), the texture script will reference 26 file textures, one for each of the surfaces on the model. When you import the texture script into Maya, each of these file textures is automatically mapped to the appropriate shading group and surface.

Export the color texture from StudioPaint

- 1 Choose File > Export > Textures or press Alt+t.
The Export Textures window is displayed.



- 2 Type toad in the Enter filename: field and press the Save button.

If this message is not displayed, then you must also import the `load` texture script in Maya by selecting StudioPaint > Import StudioPaint Textures (page 548).

If the textures do not appear, press `6` to turn on hardware texturing.

StudioPaint displays the message:

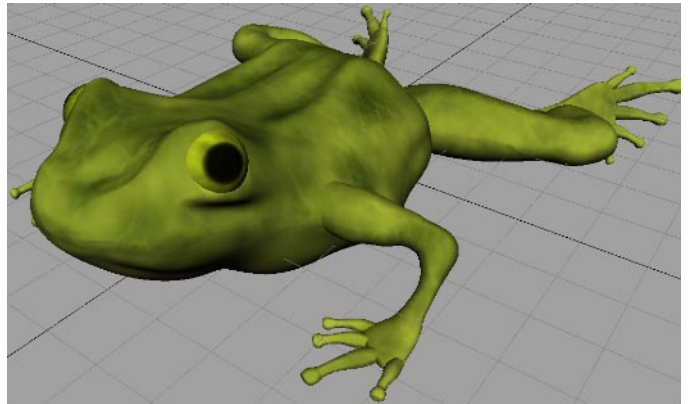
Update textures into current Maya scene?

3 Click Yes.

All of the textures that you have painted (color) are exported and automatically updated in Maya.

4 Choose Windows > Maya to switch to Maya.

The textures that you painted in StudioPaint now appear on the model.



5 Choose Window > Multilister.

The Multilister is displayed.



The Textures section of the Multilister now contains 26 file textures: one for each surface of the model.

- 6 Save the scene as `toadColor`.

Continue with the tutorial or stop and continue later

You can now either:

- continue with the remainder of the tutorial (see *Painting the bump texture* on page 585), or
- stop now and complete the remainder of the tutorial later (see *Exit Maya and StudioPaint* below).

Exit Maya and StudioPaint

- 1 In Maya choose File > Quit.
- 2 In StudioPaint choose File > Exit.
StudioPaint displays the message:
Do you want to save "toadStart" ?
- 3 Click the Don't Save button.

Re-starting Maya

When you are ready to continue with the tutorial, re-start Maya.

- 1 Open Maya.
- 2 Load the StudioPaint plug-in (see *Load the StudioPaint plug-in for Maya* on page 563).
- 3 Open the scene `toadColor` from the `learningStudioPaint` project. *Do not* open the scene `toadStart` from the StudioPaint 9.0 CD. (See *Open the Maya scene* on page 564.)
- 4 Export the scene as a StudioPaint geometry file named `toad` (see *Export the Maya model as StudioPaint geometry* on page 567).

Re-starting StudioPaint

- 1 Open StudioPaint.
- 2 Set the current project to learningStudioPaint (see *Set the current StudioPaint project* on page 569).
- 3 Open the canvas toadStart from the learningStudioPaint project, *not* from the StudioPaint 9.0 CD (see *Open a StudioPaint canvas* on page 570).
- 4 Import the StudioPaint geometry file named toad (see *Import the geometry file into StudioPaint* on page 572).
- 5 Continue with the remainder of the tutorial (see *Painting the bump texture* on page 585).

Painting the bump texture

The bump channel defines raised or depressed areas on a surface. Where the bump texture is light, the surface will have a raised area. Where the bump texture is dark, the surface will have a depressed area. Where the bump texture is 50% gray, the surface will have neither raised nor depressed areas.

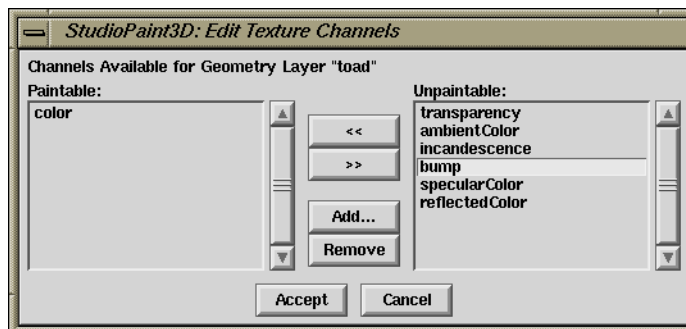
An easy way to create a bump texture is to copy the color texture into the bump channel and convert it to grayscale. You can then paint additional features onto this texture.

Add a bump channel to the Textures menu

The Textures menu in StudioPaint lists all of the texture channels that are available for you to paint. Initially, only the color texture channel is listed. You can, however, paint in *any* renderable channel of a shading group. To paint in other channels, you must add them to the Textures menu using the Edit List. You will now make the bump channel available for painting.

- 1 Choose StudioPaint > Launch StudioPaint to switch to StudioPaint.
- 2 Choose Textures > Edit List.

The Edit List for textures is displayed.



You use the Edit List to select the texture channels that you want to paint in StudioPaint. By default, only the color channel is in the Paintable list. To paint in the bump channel, you must move it from the Unpaintable list to the Paintable list.

- 3 Select the bump texture in the Unpaintable list.

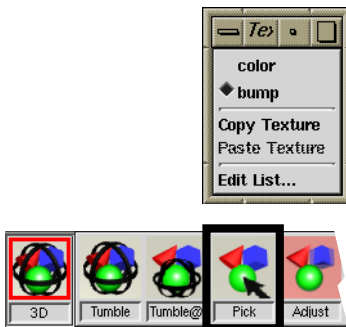
- 4 Click the << button to move it to the Paintable list.
- 5 When you have finished, click the Accept button.
- 6 Choose the Textures menu.
The bump texture channel is displayed in the Textures menu, and is automatically selected because it was the last texture channel that you added.

Since you are now painting in more than one texture channel, you may want to tear off the Textures menu. Then you will always be able to see what texture channel you're painting in.

- 7 Choose the Textures menu and highlight the dashed line just under the menu name.

- 8 Release the mouse button.

The menu separates into its own window which you can position anywhere on the screen.



Copy the color texture into the bump channel

- 1 Choose Surfaces > Select All Surfaces.
- 2 Choose the Pick tool from the 3D Drawer in the Toolbox.
- 3 Shift-click on each of the toad's eyes to unselect them.
- 4 Choose Textures > color to switch to the color channel.
- 5 Choose Textures > Copy Texture to copy the color channel.
- 6 Choose Textures > bump to switch to the bump channel.
- 7 Choose Textures > Paste Texture to paste the color texture into the bump channel.

Convert the bump texture to grayscale

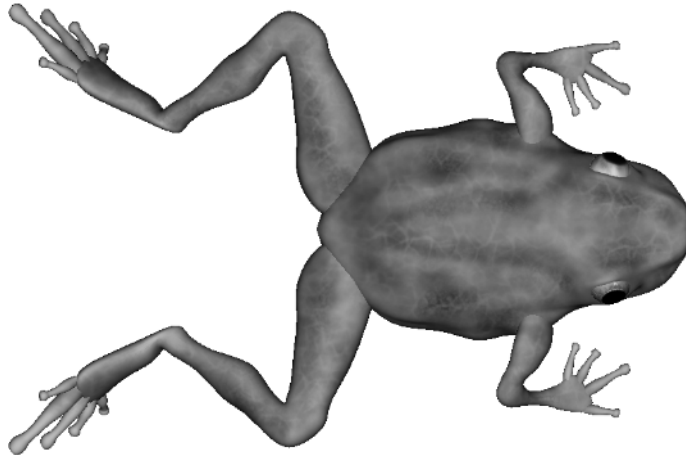
- 1 Choose Surfaces > Extract Textures or press Alt+e.
- 2 In the Layer Editor choose Show > Texture Canvas.
- 3 In the Layer Editor choose Layer > Select All.
- 4 Click the Texture window button in the Button bar.



The Texture window is displayed.



- 5 Choose the B&W tool from the HSV Drawer in the Toolbox.
- 6 Click in the Texture window, and then click the Accept button in the Button bar or press Enter.
- 7 In the Texture window select Layer > Delete All to delete all of the texture layers.
This will delete only the extracted textures in the Texture window. The textures on the model will not be deleted.
StudioPaint displays the message:
Do you wish to delete all layers?
- 8 Click Yes.
- 9 Close the Texture window.



Sharpen the bump texture

To create steeper bumps on the toad's skin, you will sharpen the bump texture. However, the bump texture is already projected onto the model. In order to manipulate paint that is already projected onto a surface, you must take a snapshot of the surface using Snapshot to Unprojected. This copies the projected paint to the unprojected paint plane, where you can manipulate it as you would any 2D layer (for example, using smear, clone, or sharpen). When you are finished, simply re-project the paint onto the surface.

- 1 Choose View > Top.
- 2 Choose Surfaces > Snapshot to Unprojected.

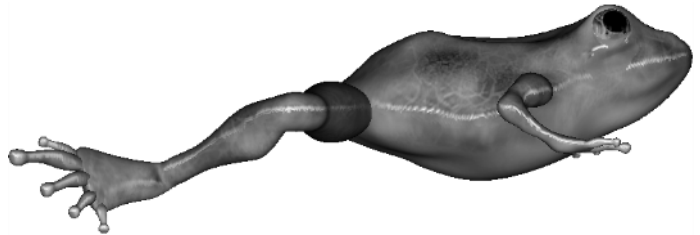


- 3 Choose the Low tool from the Sharpen Drawer in the Toolbox.
- 4 Click in the Canvas window, and then click the Accept button in the Button bar (or press Enter).

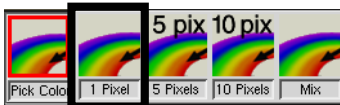
Note If the image preview does not sharpen, click in the canvas window again.

Remove sharp edges from bump texture

- 1 Choose View > Left.

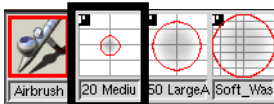


The edges along the side of the toad are very sharp. You can remove these edges by painting over them with the Airbrush tool.



- 2 Select the 1 Pixel tool from Pick Color Drawer in the Toolbox, or press and hold c, the momentary hot key. The cursor changes to an eye dropper.

- 3 Click a gray on the bottom half of the toad. The current color changes to the new color.

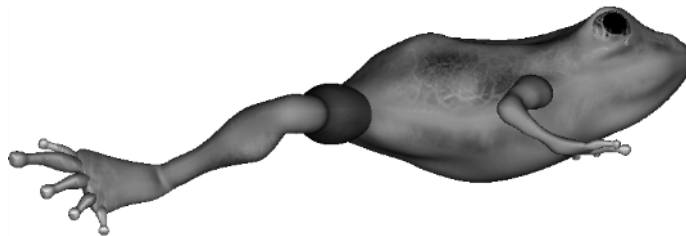


- 4 Choose the 20 MediumAir tool from the Airbrush Drawer in the Toolbox.

- 5 Choose Surfaces > Project Paint On Visible Surfaces Only so that it is off.

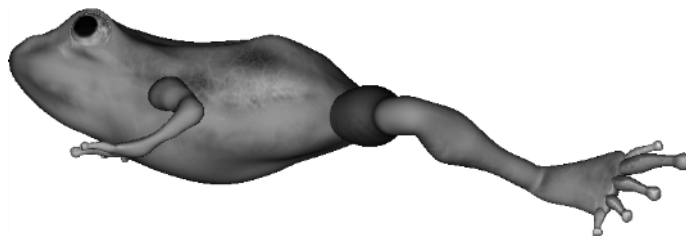
This will allow you to simultaneously paint onto surfaces that face you and surfaces on the opposite side of the model.

- 6 Paint along the sharp edge of the toad until the transition is smooth.



- 7 Choose View > Right.

The paint was projected through the model to the other side.



- 8 Choose Surfaces > Project Paint On Visible Surfaces Only again so that it is on.

Now paint will project only to the surfaces facing you.

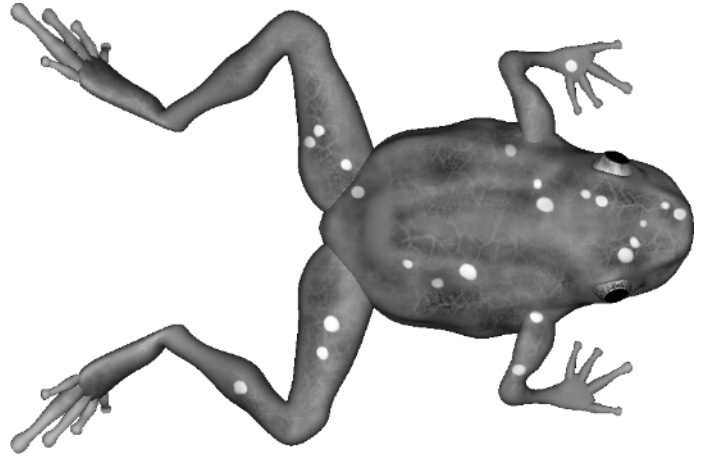
Paint warts in bump texture

- 1 Choose View > Top.
- 2 Choose the Small Solid tool from the Brush Drawer in the Toolbox.
- 3 Choose the color white from the Shelf.



In the bump texture, white makes bumps and black makes dents.

- 4 Paint some white blotches on the toad's back and sides to simulate warts.



- 5 Choose Surfaces > Project Paint or press Ctrl+a.

Painting the specularColor texture

The specularColor channel defines the color of shiny highlights on a surface. Where the specular texture is light, the surface will appear shiny. Where the specular texture is darker, the surface will appear less shiny. The specular texture can also affect the hue of shiny highlights on the surface.

An easy way to create a specular texture is to copy the color texture into the specular channel, and invert and adjust the colors using the Color Curves tool. You can then paint additional features onto this texture.

Add a specularColor channel to the Textures menu



- Add a specularColor channel to the Texture menu the same way you added a bump channel (page 585).

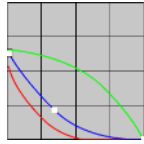
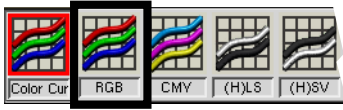
Copy the color texture into the specularColor channel

- Copy the color texture into the specularColor channel the same way you copied the color texture into the bump channel (page 586).

Invert and adjust the colors of the specularColor texture

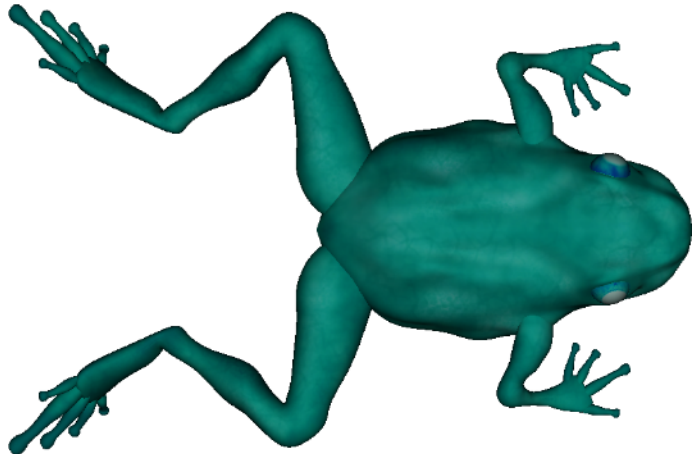
To make the specularColor texture have a blue-green hue, you will first invert the texture and then adjust individual color components using the RGB tool in the Color Curve Drawer.

- 1 Choose Textures > specularColor to select the specularColor channel.
- 2 Choose Surfaces > Select All Surfaces.
- 3 Choose Surfaces > Extract Textures or press Alt+e.
- 4 In the Layer Editor choose Show > Texture Canvas.
- 5 In the Layer Editor choose Layer > Select All.
- 6  Click the Texture window button in the Button bar. The Texture window is displayed.
- 7  Click the - button in the Button bar of the Texture window to zoom out (until you can see all the textures).



You can re-extract these textures if you need them later.

- 8 Choose the RGB tool from the Color Curves drawer of the Toolbox.
- 9 Open the Tool Editor.
- 10 Manipulate the RGB curves to invert the colors and give a dark, blue-green hue. (The color curves should look approximately like the curves shown in the left margin.)
- 11 Click in the Texture window, and then click the Accept button in the Button bar or press Enter.
- 12 In the Texture window select Layer > Delete All to delete all of the texture layers.
StudioPaint displays the message:
Do you wish to delete all layers?
- 13 Click Yes.
- 14 Close the Texture window.

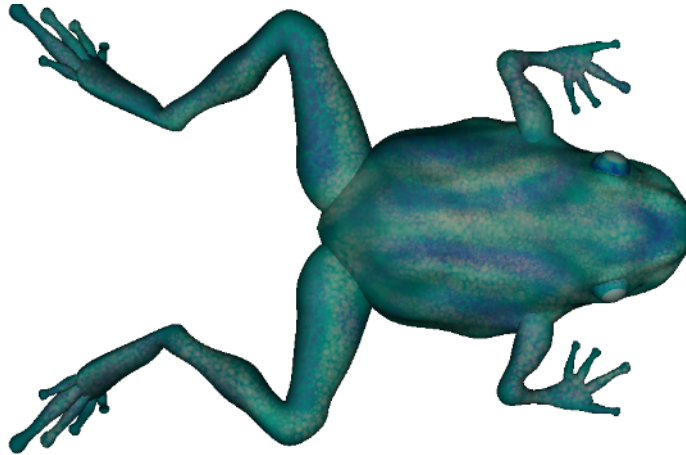


Paint the specularColor texture

You will now paint the specularColor texture, adding dark colors where you want the toad's skin to be less shiny, and light colors where you want the toad's skin to be shinier.



- 1 Choose a dark blue or black color from the Color Editor.
- 2 Choose the Snakeskin or Skinbump brush from the Shelf.
- 3 Paint areas of the surface that you want to be *less* shiny.
- 4 Choose a cream or light blue color from the Color Editor.
- 5 Paint areas of the surface that you want to be *more* shiny.



Paint the eyes of the specularColor texture

To make the center of the toad's eyes very shiny, you will flood fill them with white, working directly on the extracted texture maps.



- 1 Choose the Pick tool from the 3D Drawer in the Toolbox.
- 2 Click on one of the toad's eyes and Shift-click on the other eye to select them.
- 3 Choose Surfaces > Extract Textures or press Alt+e.
- 4 Click the Texture window button in the Button bar.
The Texture window is displayed.
- 5 Select the Fill Opaque tool from the Flood Fill Drawer in the Toolbox.
- 6 Open the Tool Editor.
- 7 Select Blur Edge so that it is on. This will make the flood fill have soft edges.

The circle in the highlighted texture will be light gray if you adjusted the RGB curves as shown on page 592. If you adjusted the RGB curves differently, then the circle will have a different color.

- 8 Close the Tool Editor.
- 9 Pick the color white.
- 10 In the Layer Editor, select the EyeL layer.
The texture that is mapped to the left eye becomes highlighted in the Texture window.
- 11 Click in the circle of the highlighted texture.
The circle becomes white.
- 12 In the Layer Editor, select the EyeR layer.
The texture that is mapped to the right eye becomes highlighted in the Texture window.
- 13 Click in the circle of the highlighted texture.
The circle becomes white.
- 14 In the Texture window select Layer > Delete All to delete all of the texture layers.
StudioPaint displays the message:
Do you wish to delete all layers?
- 15 Click Yes.
- 16 Close the Texture window.

Exporting the bump and specularColor textures to Maya

After you have painted the bump and specularColor textures, you can then re-export the texture script. The texture script now references the texture information for the color channel, the bump channel, and the specularColor channel. That is, the texture script references 78 file textures, three for each of the surfaces on the model. When you export the texture script from StudioPaint, each of these file textures is automatically mapped to the appropriate shading group and surface in Maya.

Export all textures from StudioPaint

If this option is dimmed, then choose File > Export > Textures, and save the texture script as toad, replacing the current toad texture script.

If this message is not displayed, then you must also import the toad texture script in Maya by selecting StudioPaint > Import StudioPaint Textures (page 548).

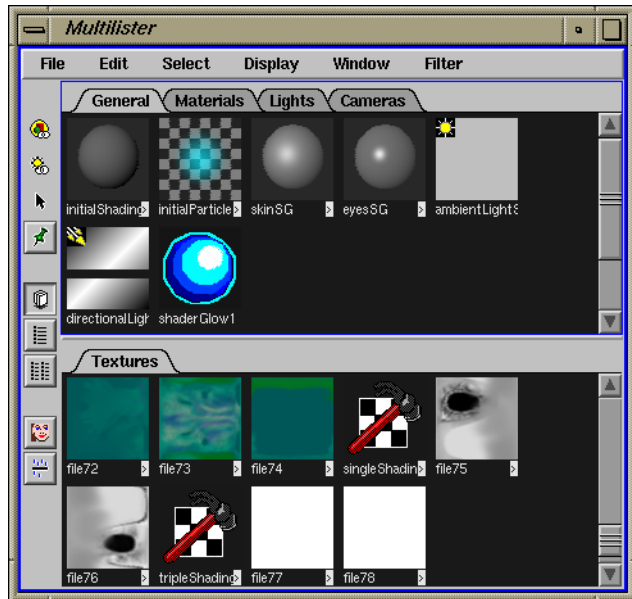
- 1 Choose File > Export > Re-Export Textures to Last Filename.

StudioPaint displays the message:

Update textures into current Maya scene?

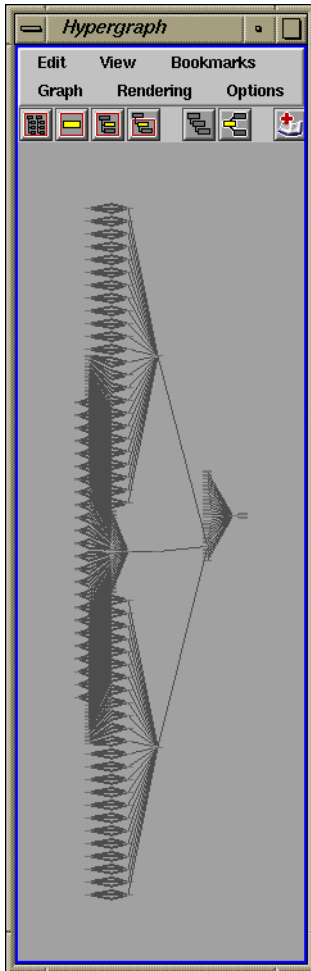
- 2 Click Yes.
All of the textures that you have painted (color, bump, and specularColor) are exported (replacing the toad texture script) and automatically updated in Maya.
- 3 Choose Windows > Maya to switch to Maya.
- 4 Choose Window > Multilister.

The Multilister is displayed.

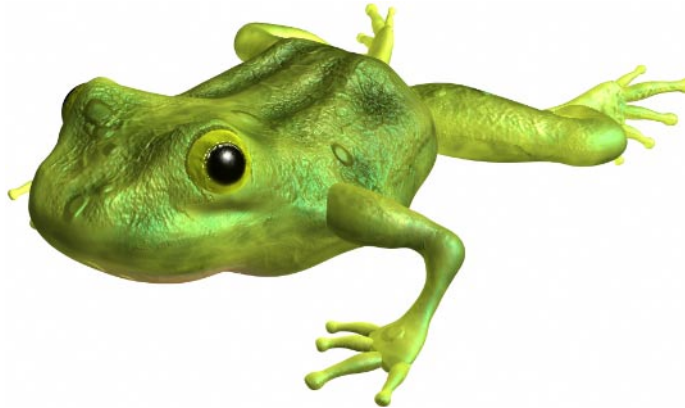


The Textures section of the Multilister now contains 78 file textures: three for each surface on the model.

- 5 In the Multilister select the skinSG shading group.



- 6 In the Multilister choose Window > Hypergraph Highlighted.
The Hypergraph is displayed.
StudioPaint automatically created all of these connections between file textures and surfaces.
- 7 Close the Hypergraph.
- 8 Choose Window > Rendering Editors > Render View.
The Render View window is displayed.
- 9 In the Render View window, choose Render > Render > persp.



- 10 Close the Render View window.
- 11 Save the scene as toadSpecular.

Continue with the tutorial or stop and continue later

You can now either:

- continue with the remainder of the tutorial (see *Painting a custom texture channel* on page 599), or
- stop now and complete the remainder of the tutorial later (see *Exit Maya and StudioPaint* below).

Exit Maya and StudioPaint

- 1 In Maya choose File > Quit.
- 2 In StudioPaint choose File > Exit.
StudioPaint displays the message:

Do you want to save "toadStart" ?

- 3 Click the Don't Save button.

Re-starting Maya

When you are ready to continue with the tutorial, re-start Maya.

- 1 Open Maya.
- 2 Load the StudioPaint plug-in (see *Load the StudioPaint plug-in for Maya* on page 563).
- 3 Open the scene toadSpecular from the learningStudioPaint project. *Do not* open the scene toadStart from the StudioPaint 9.0 CD. (See *Open the Maya scene* on page 564.)

Re-starting StudioPaint

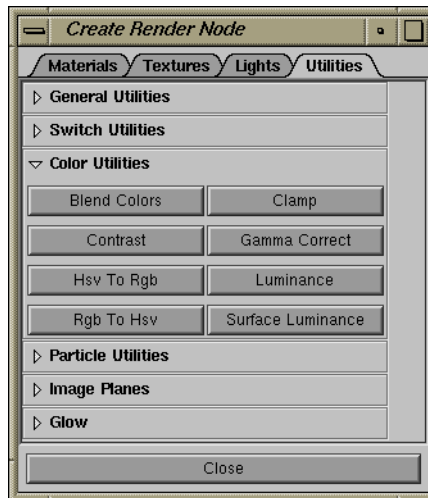
- 1 Open StudioPaint.
- 2 Set the current project to learningStudioPaint (see *Set the current StudioPaint project* on page 569).
- 3 Continue with the remainder of the tutorial (see *Painting a custom texture channel* on page 599).

Painting a custom texture channel

In the Maya animation of the toad, the toad's throat sac expands. Suppose you would like the throat sac to be transparent, but only when it is expanded. If you simply paint the transparency channel, the throat sac will always be transparent. Instead, set up a Blend Colors utility so that you can animate between a state of no transparency, and a state where only the throat area is transparent. You can then make one of the Blend Color utility's color textures paintable.

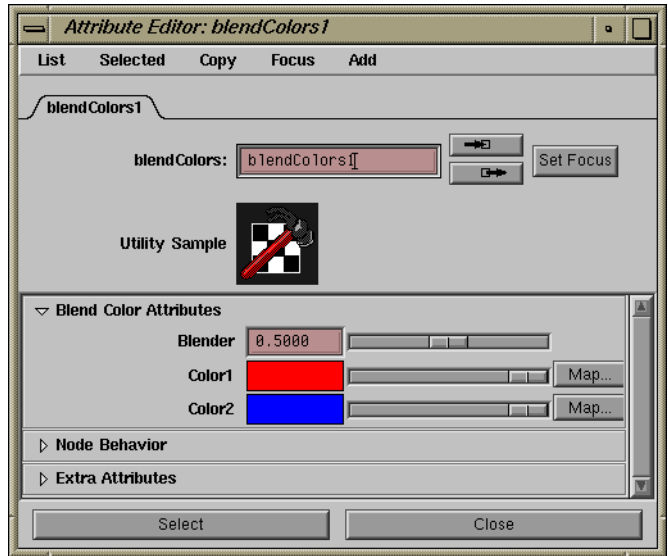
Create a paintable texture channel in Maya

- 1 Drag the Time slider to show the animation, then return the Time slider to 1.
- 2 Choose Windows > Multilister.
The Multilister is displayed.
- 3 In the Multilister, double-click the SkinSG shading group.
The Attribute Editor is displayed.
- 4 Click the Map button beside the Transparency attribute.
The Create Render Node window is displayed.
- 5 Click the Utilities tab.



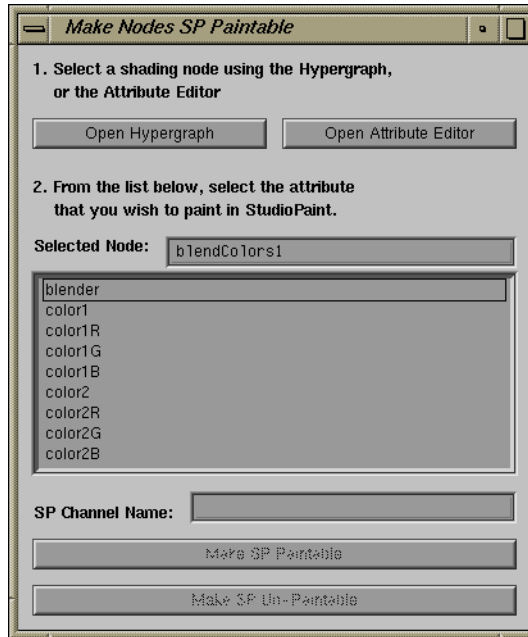
- 6 In the Color Utilities section of the Create Render Node window, click the Blend Colors button.

The Attribute Editor updates to show the blendColors1 attributes.



- 7 In the Blend Color Attributes section, set Color1 to black.
- 8 In the Attribute Editor, click Select.
- 9 Choose StudioPaint > Make Nodes SP Paintable.

The Make Nodes SP Paintable window is displayed.

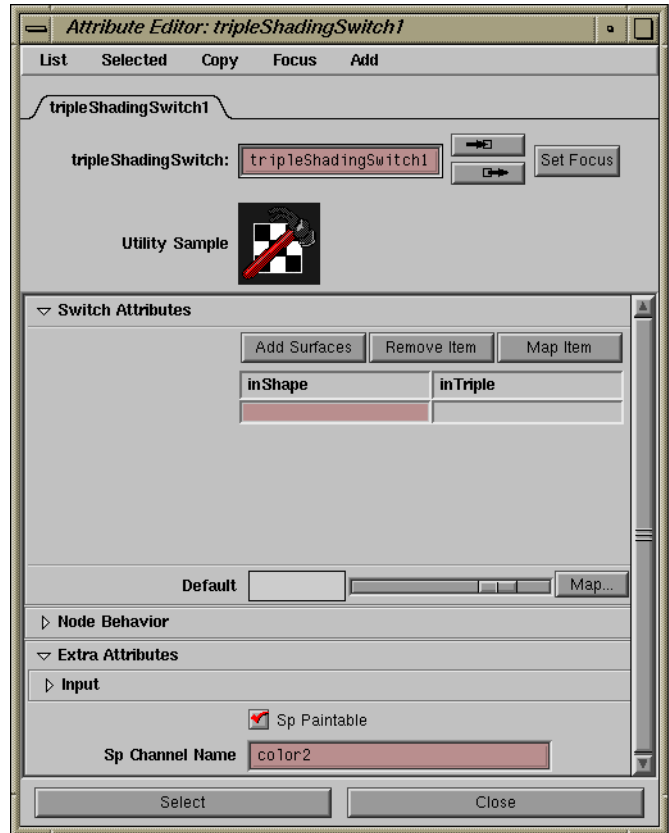


All texture channels for the Blend Colors utility are listed.

- 10 Click on the color2 texture channel.
- 11 Click Make SP Paintable.

A Triple Shading Switch allows you to use a single shading group to map different file textures to different surfaces.

- 12 A Triple Shading Switch is automatically created and selected.



You can change the Sp Channel Name. In this tutorial, however, you will leave the name as color2.

- 13 Open the Extra Attributes section of the Attribute Editor.
Sp Paintable is checked and Sp Channel Name has the name color2.
- 14 Click the Close button.
- 15 Close the Make Nodes SP Paintable window.

Export the Maya model as StudioPaint geometry

- Export the model as a StudioPaint geometry file called toadBlend, the same way you exported the original scene (page 567).

Import the geometry into StudioPaint

When you import geometry into StudioPaint, you automatically import all of the textures associated with that model. If you create a texture in StudioPaint and export it to Maya, you don't have to keep the StudioPaint canvas file. If you want to change a texture, you can simply re-import the model with its textures.

You will now create a new canvas and import the Maya model along with all of its textures.

- 1 Choose StudioPaint > Launch StudioPaint to switch to StudioPaint.

- 2 Choose File > New Canvas.

StudioPaint displays the message:

Do you want to save "toadStart"?

- 3 Click the Don't Save button.

- 4 Choose File > Import > 3D Geometry or press Alt+g.

You should see the toadBlend file that you exported from Maya.

- 5 Select the toadBlend file, and click the Open button.

The model imports into a 3D layer.

If it isn't displaying, ensure that you're in the spGeometry directory of the learningStudioPaint project, and that you've set your current project (page 569).

Add a color2 channel to the Textures menu

- 1 Choose the Textures menu.

The color, bump, and specularColor texture channels are displayed in the Textures menu because they were imported along with the model. The color2 channel was also imported, but you must add it to the Textures menu.

- 2 Add the color2 channel to the Textures menu the same way you added the bump and specularColor channels (page 585).

Paint the color2 texture

The transparency channel defines how "see-through" a surface is. Where the transparency texture is white, the surface

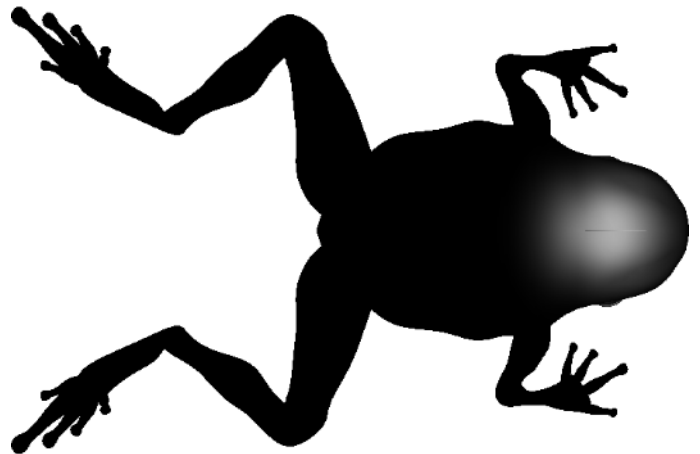
will be entirely transparent. Where the transparency texture is black, the surface will be entirely opaque (non-transparent).

Most of the model will have no transparency, so you will paint it black. Only the throat area needs to be transparent, so you will paint that area white. You will then blur the entire texture to ensure a smooth transition between transparent and non-transparent areas.

If selecting **View > Bottom** doesn't show the bottom of the toad, set **Axis Orientation to Y Up** in the **3D Import Options** section of the **Preference Editor** (page 415).



- 1 Choose **View > Bottom**.
- 2 Choose the color black from the Shelf.
- 3 Choose **Surfaces > Floodfill Texture**.
The entire texture becomes black.
- 4 Choose the color white from the Shelf.
- 5 Use the Airbrush tool to paint a white blotch on the toad's throat.
- 6 Choose the High tool from the Blur Drawer of the Toolbox.
- 7 Click the Accept button in the Button bar or press Enter.
- 8 Choose **Surfaces > Project Paint**.



Exporting the custom texture to Maya

Export the color2 texture

The color, bump, and specularColor textures are already mapped to the appropriate shading groups and surfaces in Maya. You only need to export the color2 texture.

- 1 Choose File > Export > Current Texture Channel.
The Export Textures window is displayed.
- 2 Type `toadBlend` in the Enter filename: field and press the Save button.

StudioPaint displays the message:

Update textures into current Maya scene?

- 3 Click Yes.
Only the color2 texture is exported and automatically updated in Maya.
- 4 Choose Windows > Maya to switch to Maya.
- 5 Choose Window > Attribute Editor.
The Attribute Editor is displayed.
- 6 In the Attribute Editor, choose Focus > `blendColors1`.
- 7 In the Attribute Editor, set Blender to 0.
- 8 Close the Attribute Editor.
- 9 Move the time slider to frame 15, where the throat sac is extended.
- 10 Tumble the view so that the throat is clearly visible, and one of the toad's front legs is hidden behind the throat sac. This will let you see the effect of the throat sac's transparency.

If this message is not displayed, then you must also import the `toadBlend` texture script in Maya by selecting StudioPaint > Import StudioPaint Textures.

11 Render the scene.



12 Save the scene as toadFinal.

This concludes the *Painting a Maya model* tutorial. You can now either:

- exit Maya and StudioPaint (see *Exit Maya and StudioPaint* below), or
- animate the blendColors1 node (see *Animate the custom texture channel* on page 606).

Animate the custom texture channel

You may want to try animating the blendColors1 node using Maya's Set Driven Key feature to automatically animate the Blender value to match the cluster transformation on the throat.

Using Blend Color Utility nodes and other nodes that would not normally be paintable, you can easily create effects like morphing painted textures on multiple surface models. The possibilities are endless!

Exit Maya and StudioPaint

- 1 In Maya choose File > Quit.
- 2 In StudioPaint choose File > Exit.
StudioPaint displays the message:
Do you want to save "toadStart" ?
- 3 Click the Don't Save button.