Maya 3D Paint Tutorial

Maya 4.5, 5.0 (versions as early as 3 should work)
Windows 2000
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This tutorial is designed to build familiarity with using Maya's 3D paint tool on 3D geometry. You will learn how to paint on 3D geometry with 2D repeating textures directly within Maya.

If you have not done so already you should download the images referenced in this document at the following address:
http://www.persistentvisions.com/Tutorials_Main/3DPaint

You may optionally substitute in your own repeating (or non-repeating) image files)

STEP 1

Before we begin: Lets create a new project.

- File>Project>New

- In the field called Name, type "PaintFX"

- Click the *use defaults* button at the bottom of the window

- Then click the *Accept* button.

- Now Save your scene as 3Dpaint1.mb

Copy the *daGrass* and *daStream* images to your Maya profile.

- Navigate to:
C:/Documents and Settings/User/My Documents/Maya

- Create a new folder called PaintFX.

- Place the 2 images into this folder

Painting on your geometry with the 3D Paint Tool.

You do not need to make your geometry paintable, as you would do when using Paint FX. You do however need to assign a file texture to whatever shader is attached to your geometry.

1. Create a poly plane. Name it grassyPlane

2. Create a new Blinn Material and name it grassyBlinn.

3. Assign the blinn to the surface.
   a. Select *grassyPlane*
   b. In Hypershade, right click on *grassyBlinn*
   c. From the drop down select "Assign Material to Selected
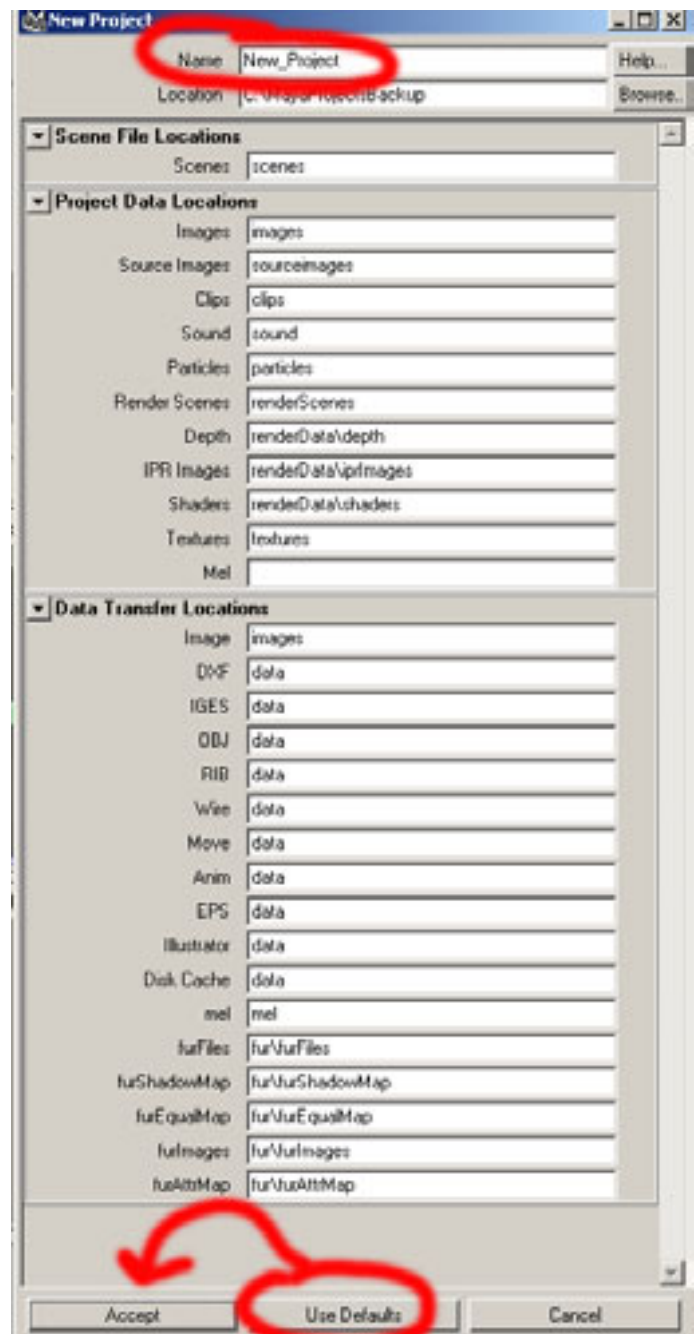
STEP 1 *CONT.*

4. With *grassyPlane* still selected:

Open up the option box for the 3D Paint Tool.
- a. <F5> to get to the rendering menu set.
- b. Texturing>3D Paint Tool> ❑.
- c. Click the Assign Textures button. (fig1)*

* In Maya 5 this is the Assign/Edit Textures button.
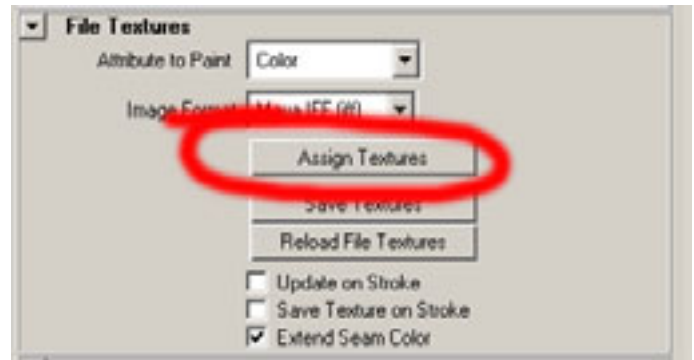

fig 1

5. A new window will popup (fig24). Change the default XY resolution to 512x512.

- Click *Assign Textures.*

fig 2

After assigning this texture you will notice that your materials network now includes a connection to an image file. (fig3)

This is the file you will actually be painting onto. It is stored in the **3dPaintTextures** folder within your current Project.

The file's path might look something like this:

c:\\..mydocs\maya\PaintFX**3dPaintTextures**\3Dpaint 1\file1.iff
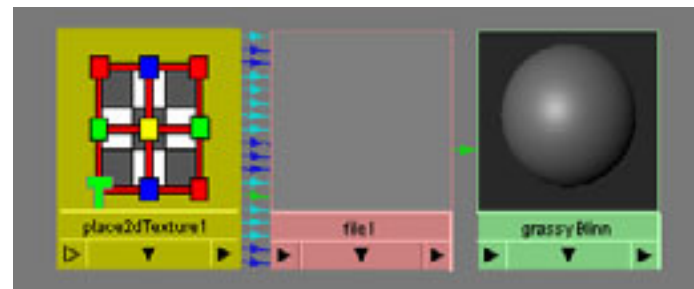

fig 3

STEP 2

Lets set up our first paint FX brush.

- <F5> to get into Rendering Menu set.

First Lets set our template brush back to defaults:

- Paint Effects>Reset Template Brush

Now lets open up the Template Brush menu:

- Paint Effects>Template Brush Settings (fig 4)
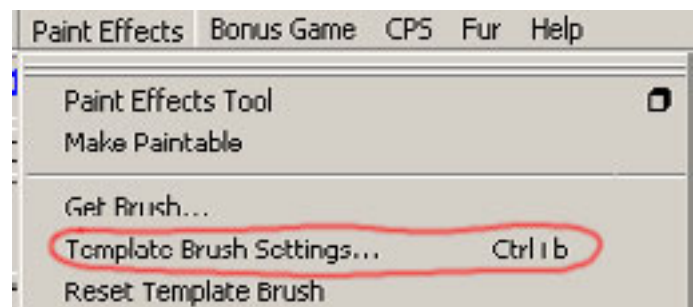
This will open up the Brush Template Menu.

fig 4

STEP 2 *CONT.*

- Expand the Shading tab and then the Texture Tab under it. (fig 5)

- Click the toggle button for "Map Color" in the "Texturing" tab.

- Now set the "Texture Type" to File.

- Browse for a file in the Image Name line.

- Navigate to the *daGrass.tga* file that came with this tutorial. You saved it to your PaintFX project folder in step 1.

This image may also be found at :
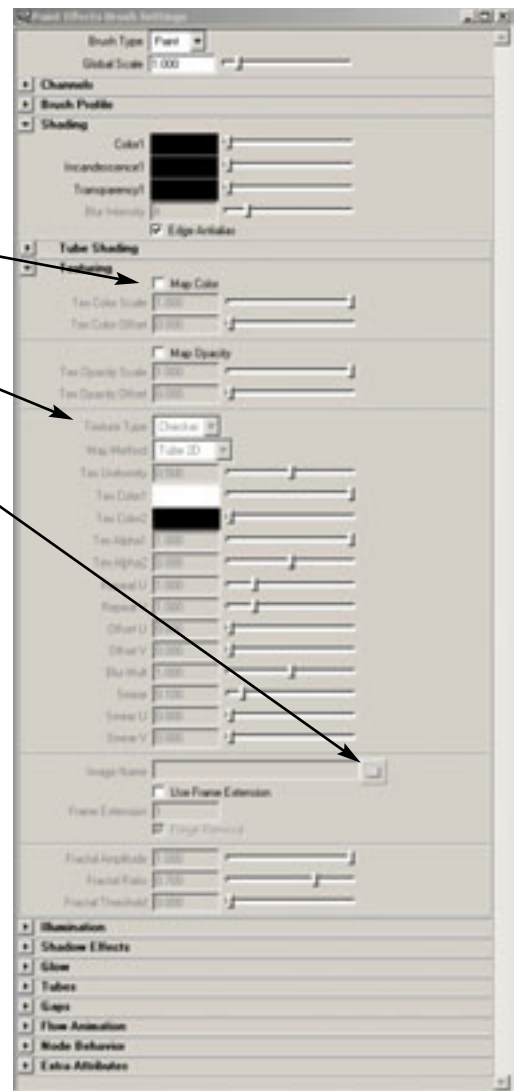*http://www.persistentvisions.com/Tutorials_Main/3Dpaint*

fig 5

Test out your new brush by drawing on your plane.

- Make sure your Plane is selected

- Make sure the 3D paint tool is active

- Draw over the plane

fig 6

STEP 2 *CONT.*

You will notice the scale (as in fig 6) is quite small. You can adjust the scale interactively by:

- Hold down the "b" key and then <MM+drag> left and right to interactively change the size of your brush.

- Alternatively you can increase the "global scale" attribute for the brush in the Brush Template Settings menu.

- Set "Tex Uniformity" to 1. This will draw out your file texture more uniformly. This setting only applies to textures mapped with a 2d tube.

- Set "Map Method" to "Tube 2d".

Note: Current settings will invoke "rotate to stroke". In effect what this does is rotate the texture image to the orientation of the brush (fig 7)

Experiment with changing the "Map Method" from "Tube 2d" to "Full View".

Also try experimenting with increasing the repeat U and V controls.

Ultimately we are looking for a brush that paints tiles, rather than paths, of the image.

Try using these settings:
Map Method = Full View
repeat U = 5
repeat V = 5

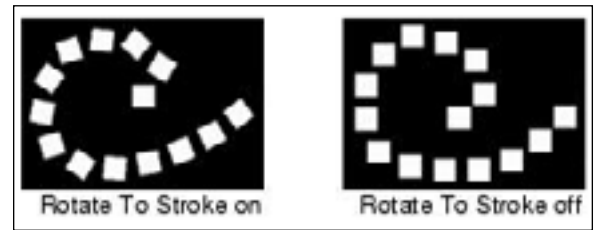Rotate To Stroke on   Rotate To Stroke off

fig 7

Map method = Tube 2D.
U Repeat = 1
V Repeat = 1

Notice how the grain in this texture follows the curve.

Map method = Full View
Repeat U = 5
Repeat V = 5

In this case the brush acts as if it is revealing part of a larger image.

STEP 3

Now lets save our finished brush to a shelf.

- Create a new shelf for your brushes: window>Settings/Preferences>Shelves...

- Click the "Shelves" tab at the top of this menu

- Click the "New Shelf" button.

- Enter a name for your shelf.

- Click the "Save All Shelves" button.

Note: If maya crashes before you manually exit, any new shelves (or other preferences) created during your session will potentially be lost. If you are setting up lots of shelves or hotkeys you may want to manually save your preferences or before beginning to work on a scene exit and restart maya.
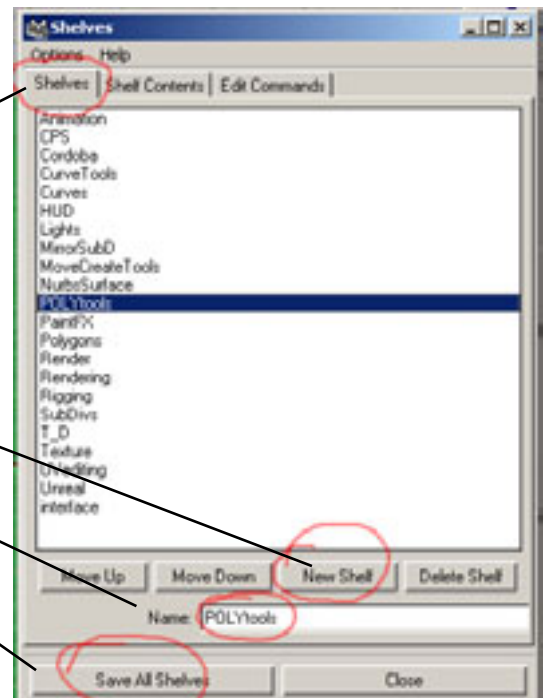

fig 8

Step 3 Cont.

Lets create a shelf button, complete with icon, for our newly created brush.

To create a new brush shelf button:

In the Rendering Menu Subset <F5> select:

- Paint Effects > Save Brush Preset. The Save Brush Preset window opens. (fig 9)

- Type daGrass for the Label

- Type Grass for the Overlay Label

- Select: To Shelf

Select the PaintFX shelf you just created; new brushes are stored in the active shelf.

You can only Grab icons to use as the Paint FX shelf button's icon when in PaintFX mode. The default hotkey to enter PFX is <8> on your keyboard. If for some reason it has been disabled you can enter Paint FX mode within a viewport by navigating to: Panels>Panel>Paint Effects (fig 10)

- Activate a viewport and Hit <8> on your keyboard Your viewport will shift into PFX mode.

On the top of the PFX viewport:

- Select Paint > Paint Scene

- Select Shading (Object Shading in Maya5) >Textured

- Select Shading>Use Default Lighting

In the Save Brush Preset Menu:

- Click "Grab Icon". In the feedback line you will be prompted to "click and drag in the Paint FX window to grab the icon.

- In the Paint FX viewport your tool will change slightly and you will have to actually drag a marquee selection over an area of your painted object. This will then set itself as the icon.

You will see a preview of your icon in the Save Brush Preset Menu.

If you are dissatisfied with the preview of your icon simply click "Grab Icon" again and make a different selection.

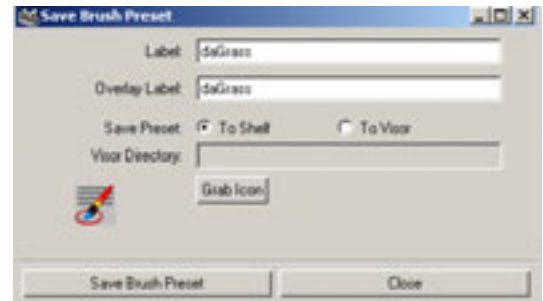Once you are satisfied with your icon:

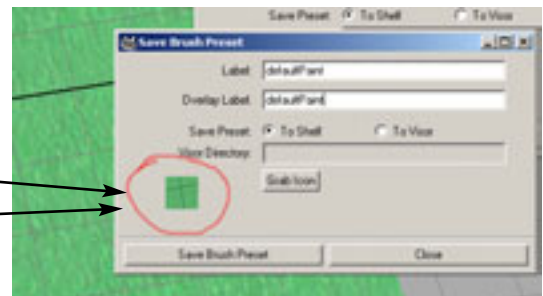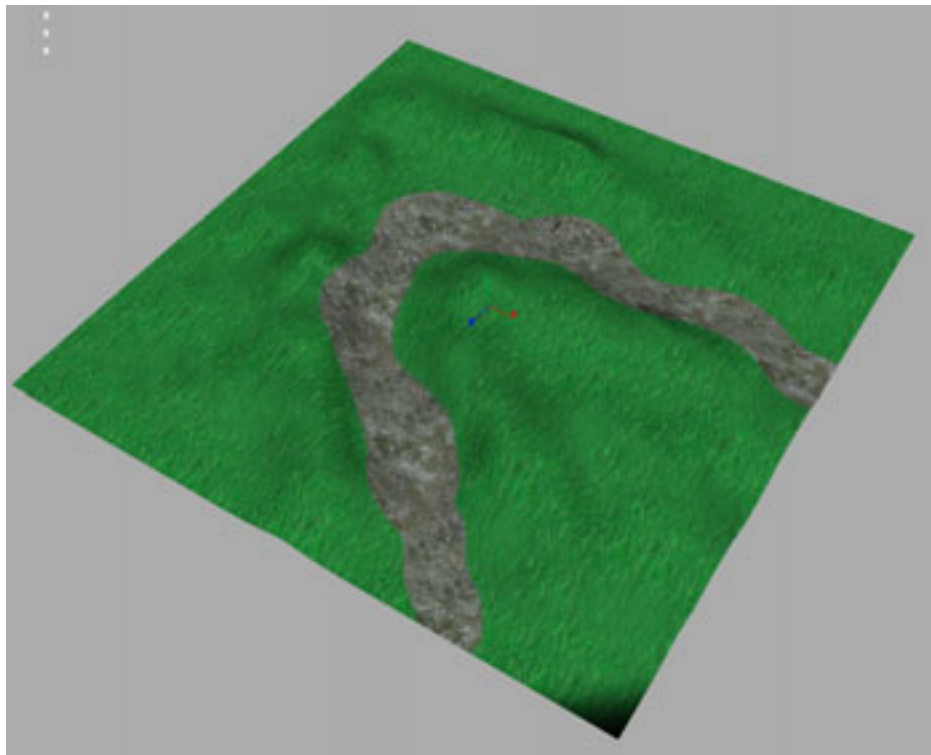- Click *Save Brush Preset.*

fig 9

fig 10

fig 10

STEP 4

Follow the preview steps in this tutorial to create a second brush preset using daStream.tga as the texture image.

- Enter the "Template Brush Settings Menu <CTRL+b>

- Reference daStream.tga as the image file

- Save Brush Preset (paint effects>Save Brush Preset

- Grab the Icon (viewport must be in paint effects mode: Panels>Panel>Paint Effects

Create some geometry below by using the sculpt tool on a tessellated poly plane, or NURBS surface. Or just pull verts into position. Then try painting on it with both of your new brushes to create something similar to the image below.

Note that 3D paint is affected by UV mapping, so surfaces should have good UV mapping before applying 3D paint.

Experiment and have fun!

finished product in openGL