

ENZO version 1.0

©2007 Electric Iris
enzo@electriciris.com
<http://www.electriciris.com>

LEGAL NOTICE

Enzo, its concepts and accompanying materials are the sole property of Electric Iris.

Purchase of the “Enzo” software is made on an AS-IS basis and Electric iris makes no guarantee, expressly stated or implied as to its fitness or suitability.

Although Electric Iris makes best efforts to answer user questions and incorporate bug fixes and upgrades, this is by no means an obligation of Electric Iris

Support is provided on a strictly voluntary basis and is not part of the end user license fee.

Electric Iris reserves the right to refuse service or continued license to anyone.

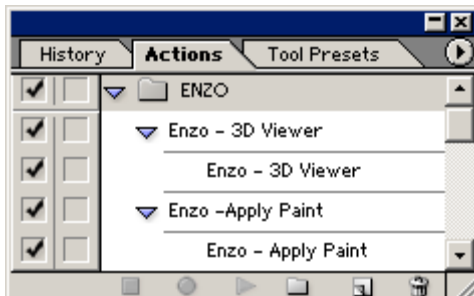
Electric iris shall not be held liable for damage the licensed software may cause to any computer system or individual nor shall Electric Iris be held responsible in any way for any delays in production caused by use of this tool.

Chapter

1

Installation

- The Enzo installer automatically placed all Enzo plugins in the plugins folder of your Photoshop installation. Typically, this is the **C:/Program Files/Adobe/Photoshop */Plug-Ins** directory, and the Enzo plugins are installed in a newly created the **C:/Program Files/Adobe/Photoshop */Plug-Ins/EnzoPlugins** directory. To make sure the installation was successful, start Photoshop and go to the **File→Open** menu, then select the **Files of type** pulldown menu and look for new file types added, such as 3D Studio, Maya, Softimage, etc.
- Open Photoshop, go to **Window→Actions**, click on the right arrow button, and in the popup menu, choose **Load Actions**. In the file browser that pops up, choose: **C:/Program Files/ElectricIris/Enzo1.0/enzo.atn**. You should see the following:



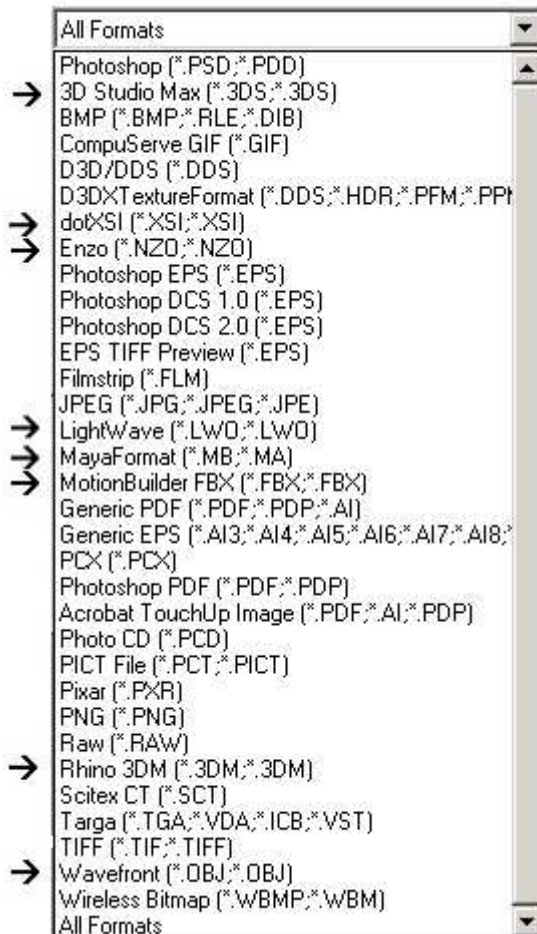
You are done! Your **F3** key is now mapped to Enzo's **3D viewer**, and **F2** is now mapped to Enzo's **ApplyPaint** command.

NOTES:

- If for some reason the plugins were not installed correctly, you can find a copy in the **C:/Program Files/ElectricIris/Enzo1.0/EnzoPlugins** directory. You can manually place a copy of this folder under the Photoshop plugins folder.

LOADING 3D FILES

Once Enzo is properly installed, using Photoshop's **File→Open** command, new file types appear: 3D Studio Max (*.3DS), Enzo (*.NZO), LightWave (*.LWO), Softimage (*.XSI), MayaFormat (*.MB), MotionBuilder (*.FBX), Rhino (*.3DM) and Wavefront (*.OBJ). With the exception of Enzo's own .NZO and Wavefront's .OBJ format, the other 3D formats can only be loaded and not saved at this time. The figure below shows the new **Files of Type** pulldown menu after the Enzo plugins have been installed.



MAYA NOTES:

Maya (any version between 4.5 and 8.5, inclusive) **must** be installed on the same machine running Photoshop/Enzo, in order for Maya files to be able to be loaded. Enzo will **not** be able to load Maya files otherwise.

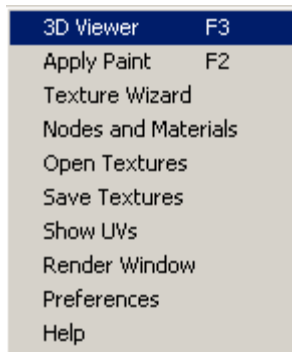
All the 3D files above load directly into Photoshop, with the exception of the Maya file types. Maya files are automatically converted to Enzo format as an intermediate step and the corresponding Enzo file is loaded. This is done via the **C:/ProgramFiles/ElectricIris/Enzo1.0/mb2nzo.exe** utility. As an example, if you use **File→Open** to load the Maya file **test.mb**, Enzo quickly converts it to **test.mb.nzo** and loads the Enzo version of the file. This has been implemented this way mainly because of how the Maya API libraries function, but also to speed up future loading of the same Maya file. Enzo loads .nzo files faster than Maya files. Should the original maya file (**test.mb**) change, Enzo detects that it has a newer file date, and re-converts it to **test.mb.nzo** before loading it. You do **not** have to run the **mb2nzo** program manually, it is done automatically for you.

You will notice there are many versions of the **mb2nzo*.exe** file, such as **mb2nzo45.exe**, **mb2nzo50.exe**, **mb2nzo60.exe**, **mb2nzo70.exe**, **mb2nzo80.exe**, and **mb2nzo85.exe**. These are individual converters for the corresponding version of Maya that you have installed on your machine. The Enzo Installer automatically runs the **setupEnzo.bat** file for you, which tries to detect the version of Maya installed on your machine and copy that version to be the one used by Enzo, named simply **mb2nzo.exe**.

Chapter

3

ENZO → 3D VIEWER



Enter the 3D viewer by pressing the **F3** key, or more by mapping any key to the **Enzo→3D Viewer** menu item. It is **highly** recommended to use a hotkey for entering 3D mode, since you will be entering and exiting frequently.

There are different ways to orbit the camera in the 3D viewer:

Maya Style:

ORBIT: ALT + Left Mouse Button
TRACK: ALT + Middle Mouse Button
ZOOM: ALT + Left + Middle Mouse Button

LightWave Style:

ORBIT: ALT + Left Mouse Button
TRACK: ALT + SHIFT + Left Mouse Button
ZOOM: ALT + CTRL + Left Mouse Button

Softimage|XSI Style:

TRACK: S Key + Left Mouse Button
ZOOM: S Key + Middle Mouse Button
ORBIT: S Key + Left + Middle Mouse Button

Softimage|3D Style:

ORBIT: O Key + Left Mouse Button

ZOOM: P Key + Left Mouse Button

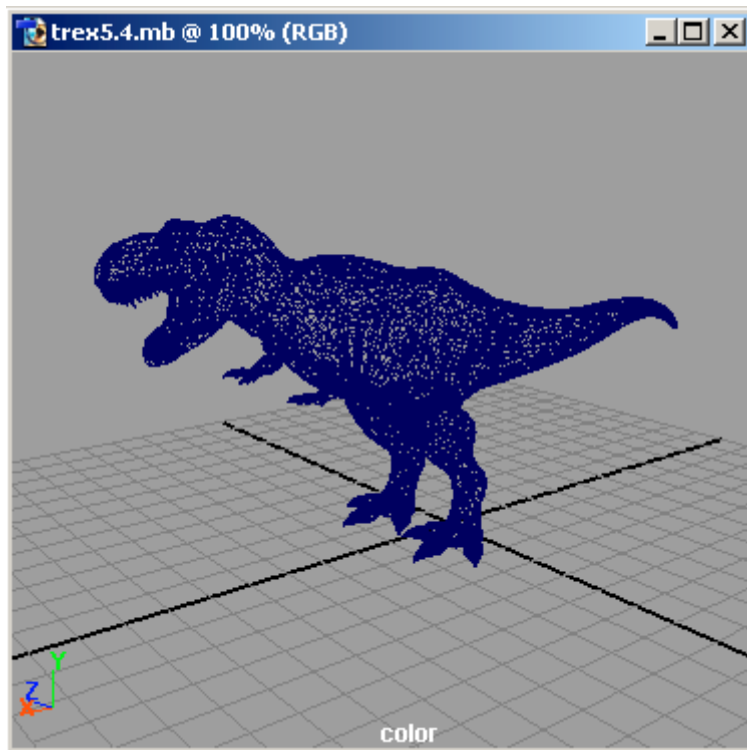
PAN: Z Key + Left Mouse Button

For quick reference to these key bindings, you may refer to the **Enzo→Help** menu.

Note that the Right Mouse Button is not used in the camera controls. This is because Enzo uses the Right Mouse Button click to quickly **exit** out of 3D-viewer mode.

Important: You will be entering and exiting the 3D viewer frequently, so it is **highly** recommended you create a shortcut key, F2 to help save time. Practice going into/out of 3D Viewer mode a few times. **F3**, orbit, RightMouseClicked. **F3**, orbit, RightMouseClicked.

Tip: It is a but subtle to know whether you are in 2D (Photoshop) or 3D (Enzo) mode. The indicator for 3D mode is the Red, Green, and Blue axis in the bottom left corner, as well as the white text in the center bottom.

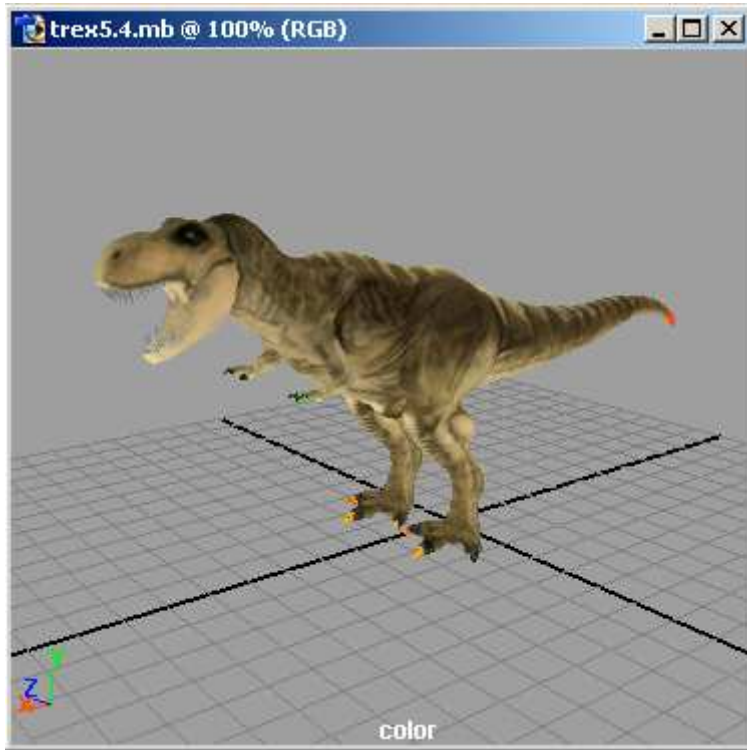


HOTKEY – KEYBOARD BINDINGS

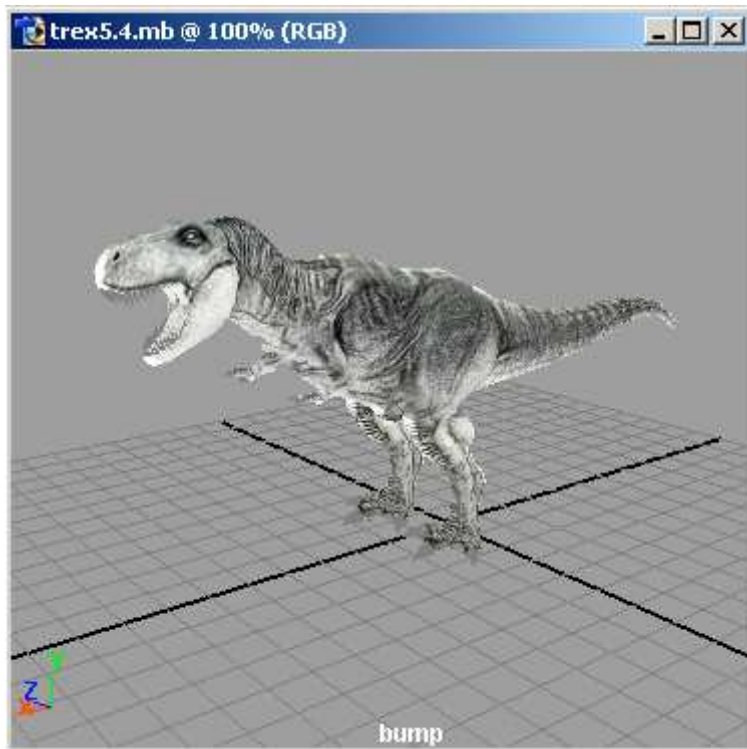
Hotkeys (keyboard shortcuts) are an important part of Enzo. All display modes and camera controls are done via keyboard hotkeys. Below is the complete list:

- **A** – View the model with the **Alpha** channel of its **RGBA** color map applied. This applies only to models that use a **RGBA** texture format for their **Color** map.
- **B** – View the model with its **Bump** map textures applied.
- **C** – View the model with its **Color** map textures applied.
- **E** – View the model with its **Environment** map textures applied.
- **F** – **Frame** the selected model to be in the center of the 3D scene. Sets the camera's interest point to be at the center of the selected model.
- **G** – Toggle the visibility of the 3D **Grid**.
- **H** – **Hide** the selected object(s).
- **L** – Toggle the **Lights** in the scene. Used to turn on / off the lights. This is a very **important** feature of Enzo, as it shows the combined effects of all the textures: **Color**, **Bump**, **Normal**, **Environment**, **Specular**, and even **Displacement**
- **M** – Toggle through the different render types, i.e., through the different texture map types (color, bump, normal, environment, specular).
- **N** – View the model with its **Normal** map textures applied.
- **O** – Used to orbit the camera, along with the left mouse button, in the Softimage|3D style.
- **P** – Used to pan the camera, along with the left mouse button, in the Softimage|3D style.
- **S** – Used to Orbit/Track/Zoom the camera in Softimage|XSI style.
- **T** – Used to open the 2D texture of the selected model(s), or if no model is selected, to open the textures for all the models in the scene. Only the textures in the current mode (e.g. color, bump, spec, etc) are opened. To open all the **Bump** maps, for example, press **F3** to enter the 3D viewer, then **B** to enter **Bump** map mode, then **T** to open all **Bump** map textures.
- **W** – View the model in **Wireframe** mode.
- **X** – View the model with its **Specular** map textures applied.
- **4** – View the model in **Wireframe** mode. Same as the **W** key.
- **5** – View the model in shaded mode, without any texture maps applied.
- **6** - View the model with its **Color** map textures applied. Same as the **C** key.
- **↑** - **UP Arrow** – Set the light position to be above the model.
- **↓** - **DOWN Arrow** – Set the light position to be below the model.
- **←** - **LEFT Arrow** – Set the light position to be to the left of the model.
- **→** - **RIGHT Arrow** – Set the light position to be to the right of the model.
- **ESC** - Exit 3D-Viewer mode, same as the Right Mouse Button.

Below are a few examples of the use of hotkeys.
Press the **C** key to see the **color** map. You can press the **W** key to go back to wireframe.

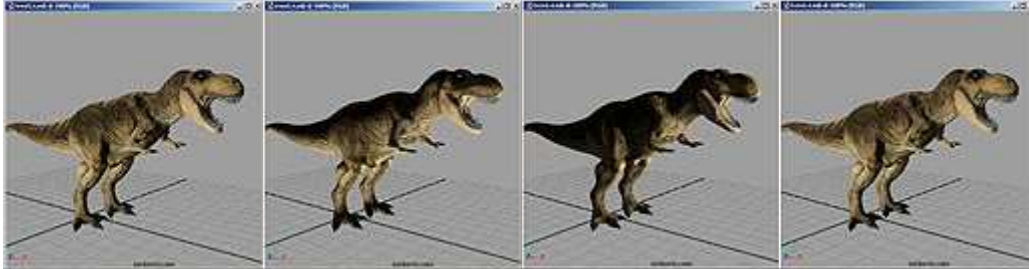


Press the **B** key to see the **bump** map. You can press the **W** key to go back to wireframe.



LIGHTING

While in 3D Viewer mode, the model can be viewed with or without lighting effects. Press **F3** to enter the 3D Viewer, then press **L** to turn on lighting, then use the four arrow keys (**up/down/left/right**) to change the direction of the lights.



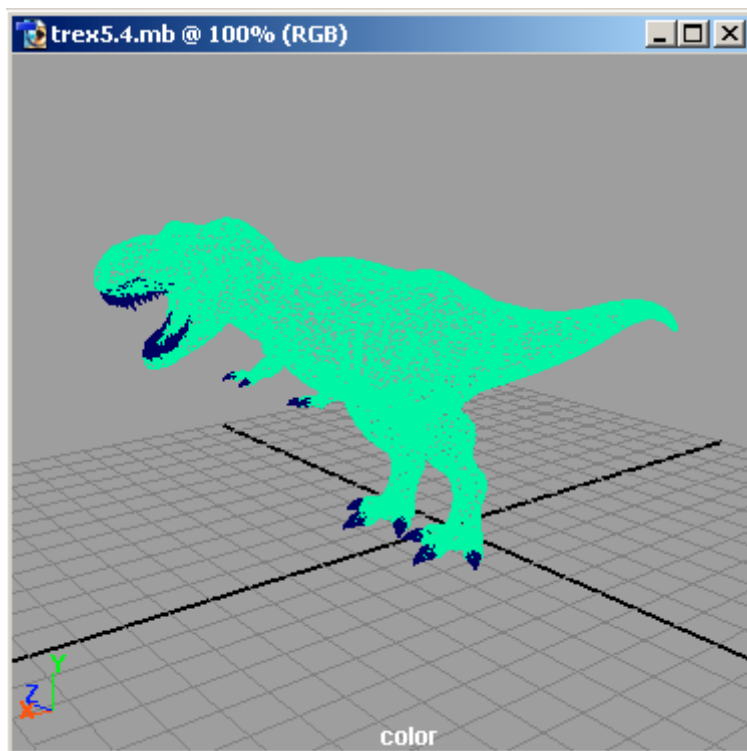
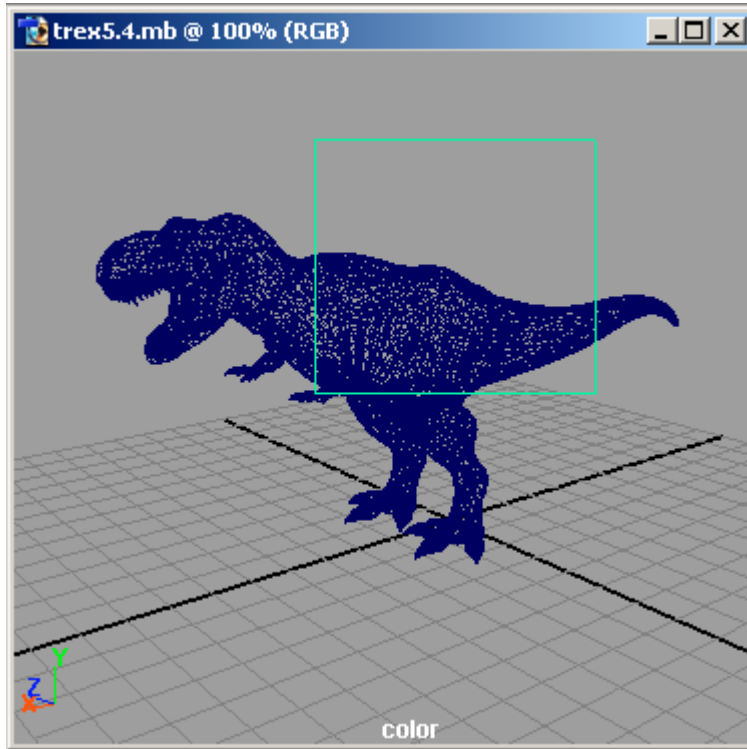
There are many properties to control how the model is rendered, controlling its brightness, ambient, specular, bump amount, displacement map, transparency, and reflectivity. These are explained in more detail in Chapter 6, **Enzo Nodes and Materials**.

NOTE: Painting on the model always occurs with lighting effects turned off. This is so that the shadows and shading do not affect the choice of color and color blending. For example, a soft brush with semi-transparent edges that is painting over an area of the same color should blend evenly to produce the same color as before. If painting in shadowed areas were allowed, then that would cause the blended brush areas to come out too dark.

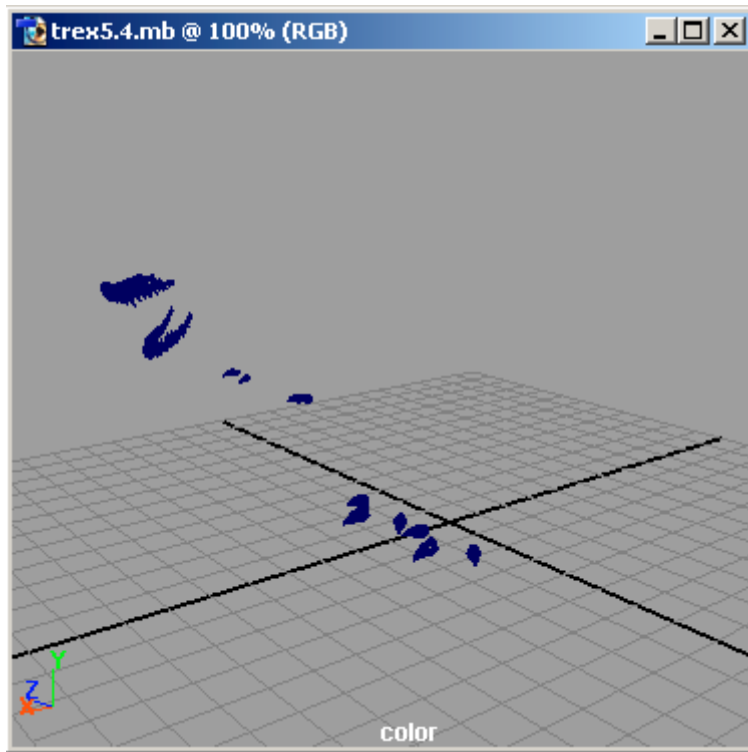
The other advantage of not allowing painting on a shaded model is to produce better results with Photoshop's Clone Stamp Tool.

OBJECT SELECTION:

The Enzo viewer lets you select and hide 3D objects in the scene. Simply enter 3D mode (**F3**), use the left mouse button to click-drag select an object. The object will change color on release.



You can hide the object(s) selected by pressing the **H** key to hide the object. The object that was hidden is still considered selected, so you can the **H** key again to make it reappear.

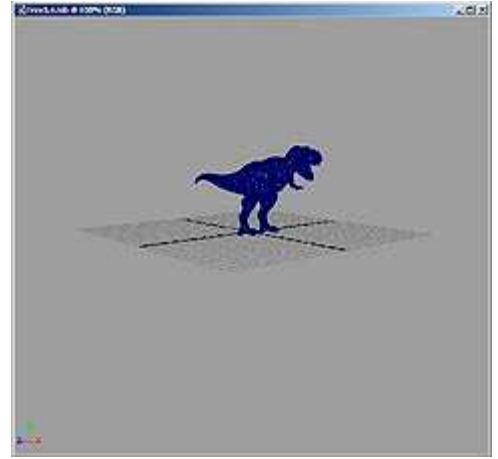
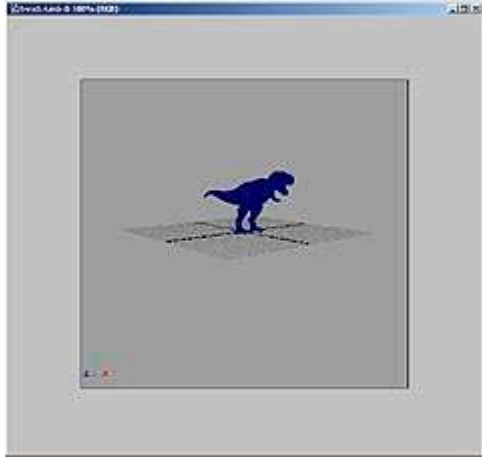


VIEWER RESIZING

When a 3D scene file is first loaded, the size of the 3D Viewer window created is 512 x 512. You may wish to make the window larger. There are two ways to accomplish this:

- Using the usual Photoshop way, with the **Image→Image Size...** menu.
- Use the mouse to resize the document window by click and dragging the 3D window's border. At first only the window will be resized, and the 3D Viewer itself will stay the same size. But then press the **F3** key to enter the 3D Viewer, and the viewer size will automatically be adjusted to fit the window. Right Mouse Button to exit the 3D Viewer. See the figure below:

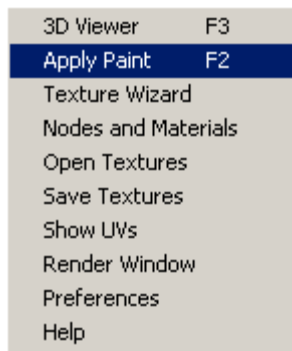
PRESS F3 →



Chapter

4

ENZO → APPLY PAINT



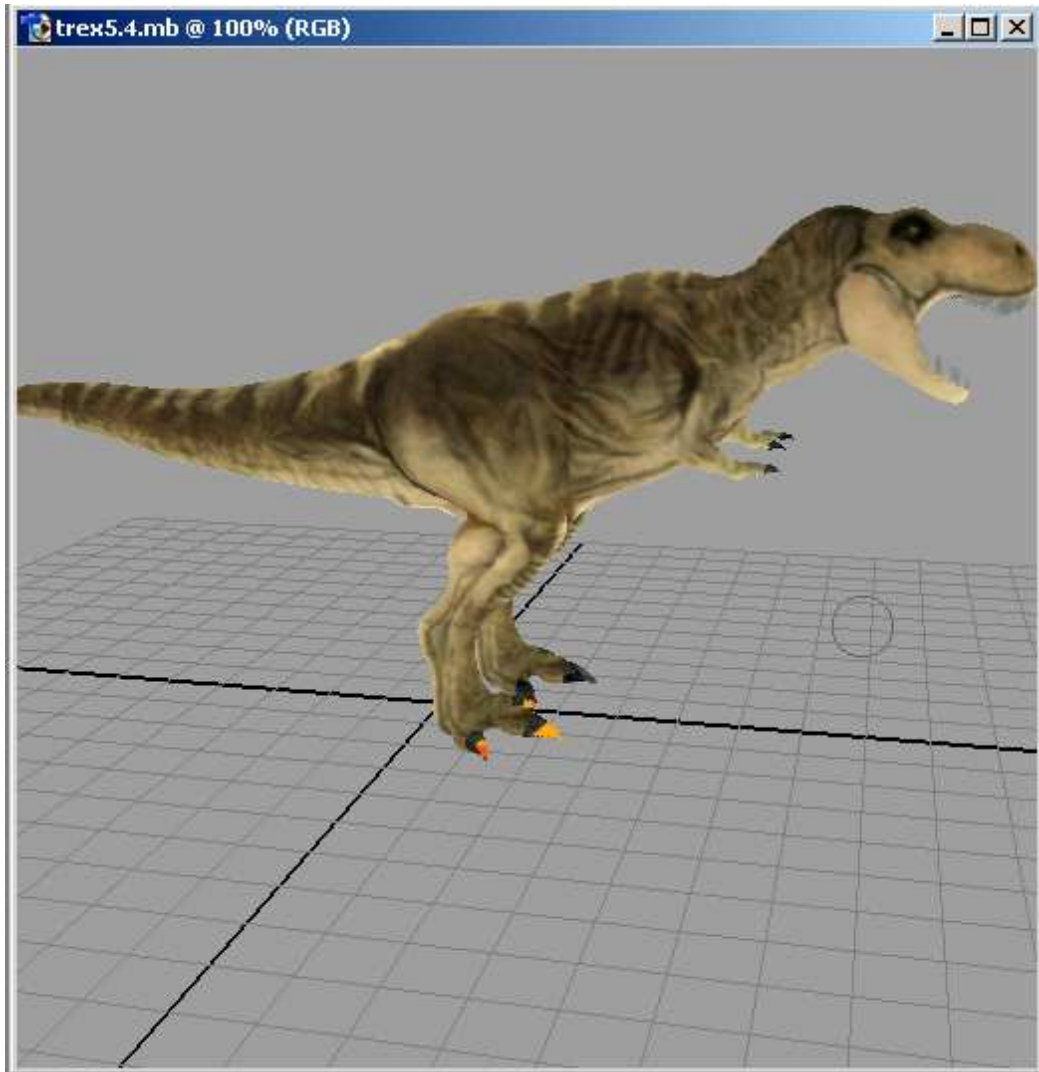
One of the most powerful tools in Enzo is the **Apply Paint** tool, which performs the actual mapping of the painted brushstrokes. The **Apply** tool takes the paint changes made using Photoshop, and applies them to the 3D model. Enzo's **Apply** function allows:

- Painting **directly** on the 3D model, which then updates the 2D textures.
- Painting on the 2D texture and update the 3D model to view the results.
- **Painting on Layers** – Whether it's a **2D layer** or a **3D layer**, Enzo works very closely with Photoshop's own layering system to allow isolating different features into different layer.
- The **Apply** function works for any type of texture map – color, bump, specular, environment, etc.

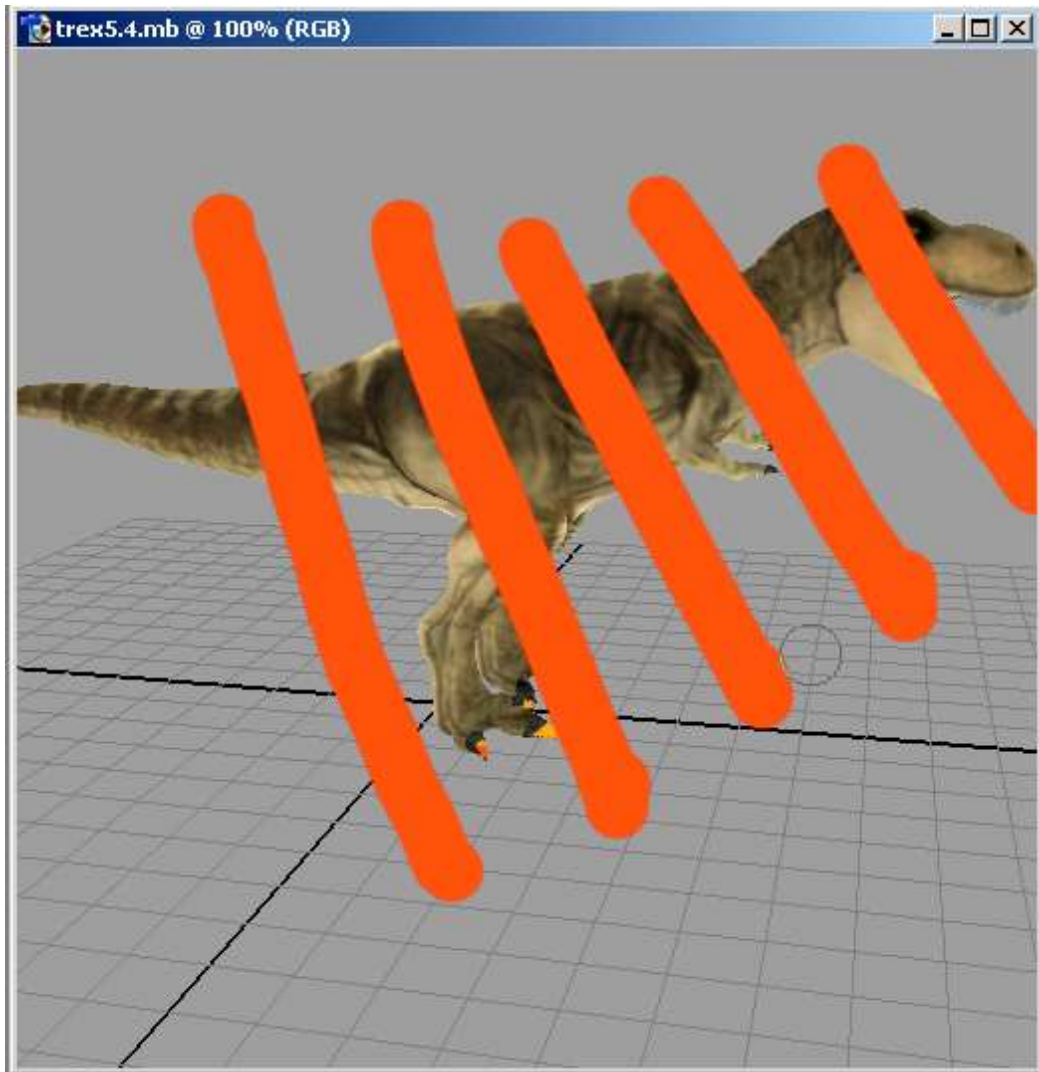
Using the **Apply** function is very simple. First, use any Photoshop brush or tool to modify the 2D or 3D image. Second, press the **F2** key, which will invoke the **Apply** command. To better illustrate, let's do some examples:

PAINTING ON 3D MODEL

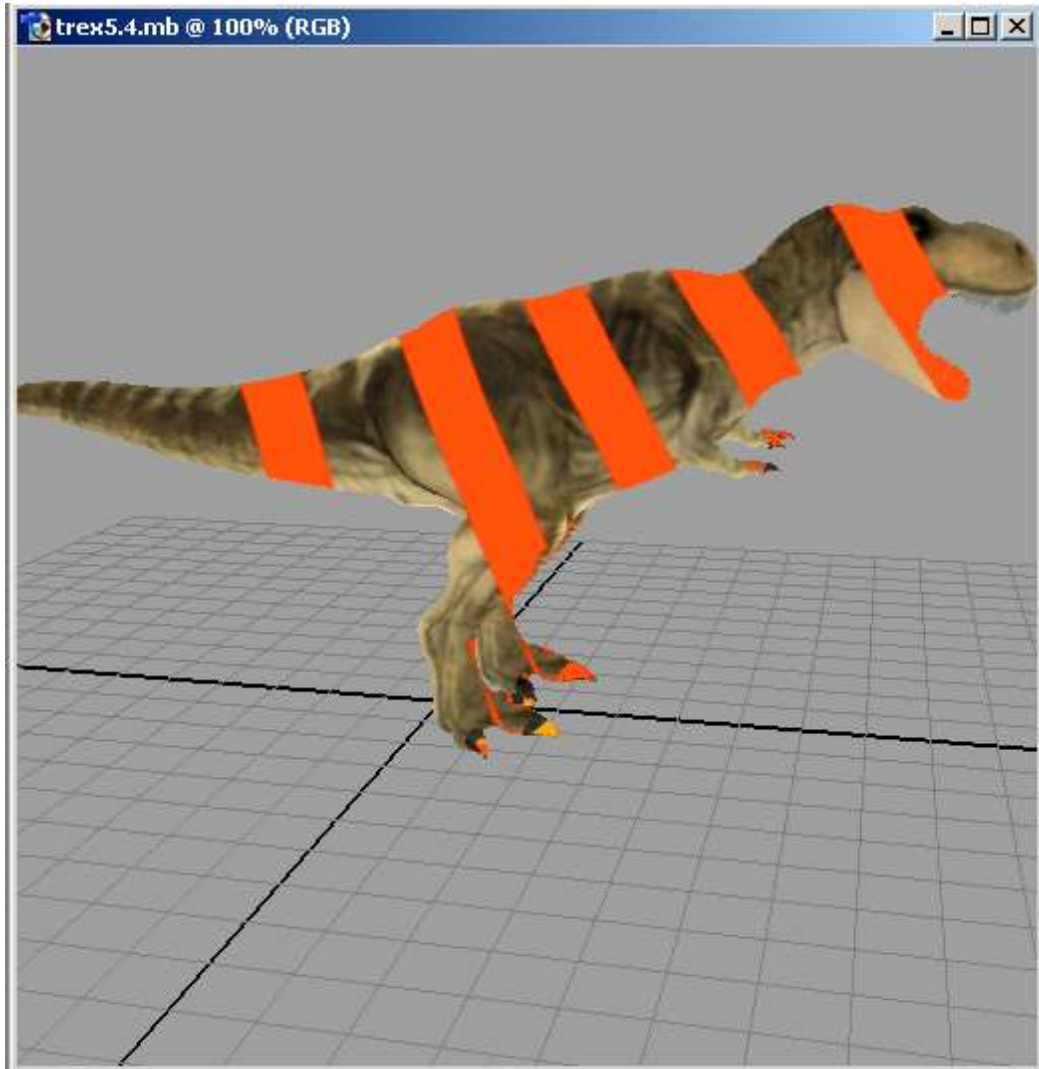
Step 1: Load your 3D model and orient it using the Enzo 3D viewer (**F3 key**), and exit the viewer with a Right mouse button click.



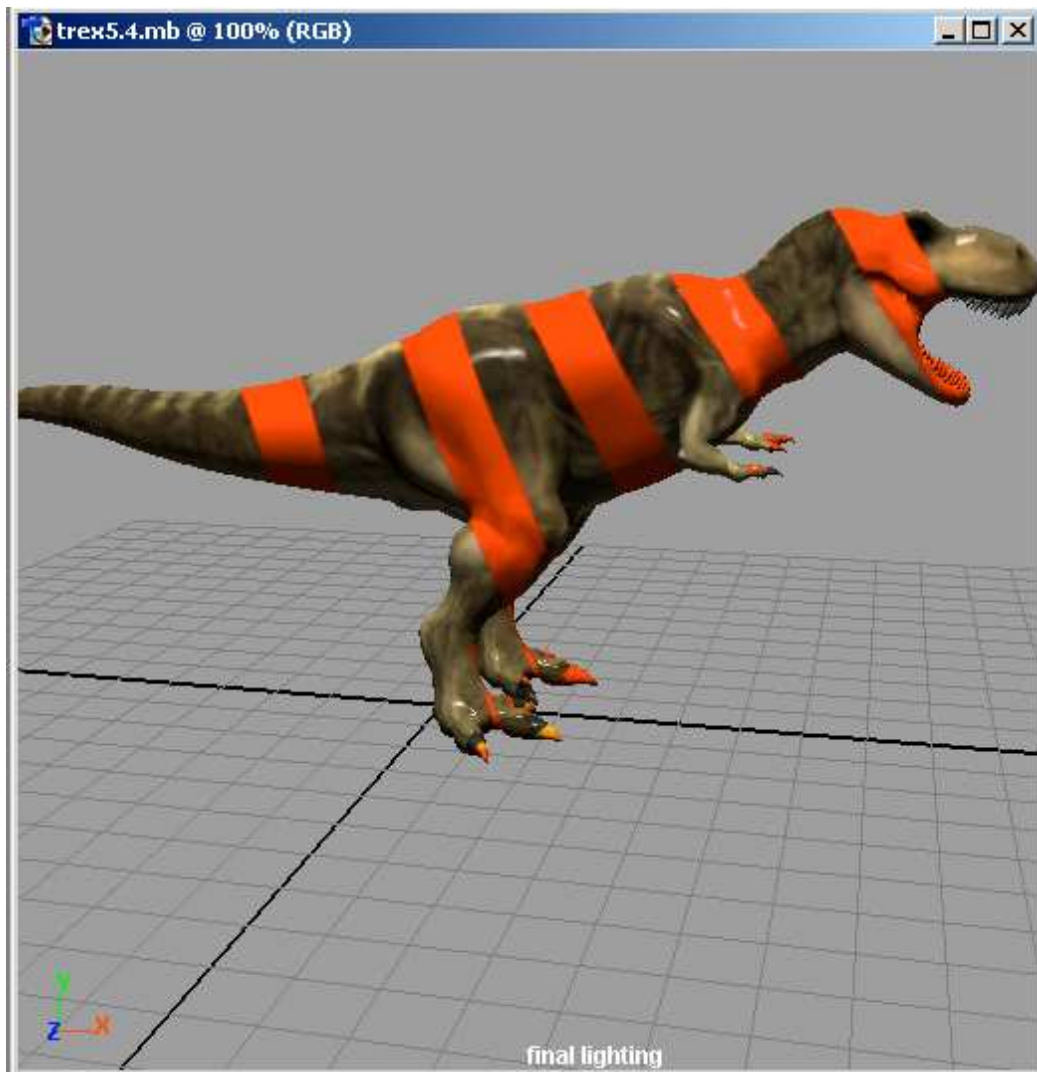
Step 2: Paint on top of the 3D model using any of the Photoshop tools. Here we just use the Brush Tool with a hard edge



Step 3: Press the **F2** key to run the **Enzo→Apply Paint** command. See the paint changes applied to the 3d model.



Step 4: The final result of the paint change can be viewed, with lighting, by entering the 3D viewer again (**F3** key, or **Enzo→3D viewer**), and while in 3D mode, pressing the **L** key to see the light effect. Pressing the L key again can toggle off the lighting effects.



Step 5: If you have the 2D texture of the model open, you will see it automatically update:



And the texture map for the teeth and nails:

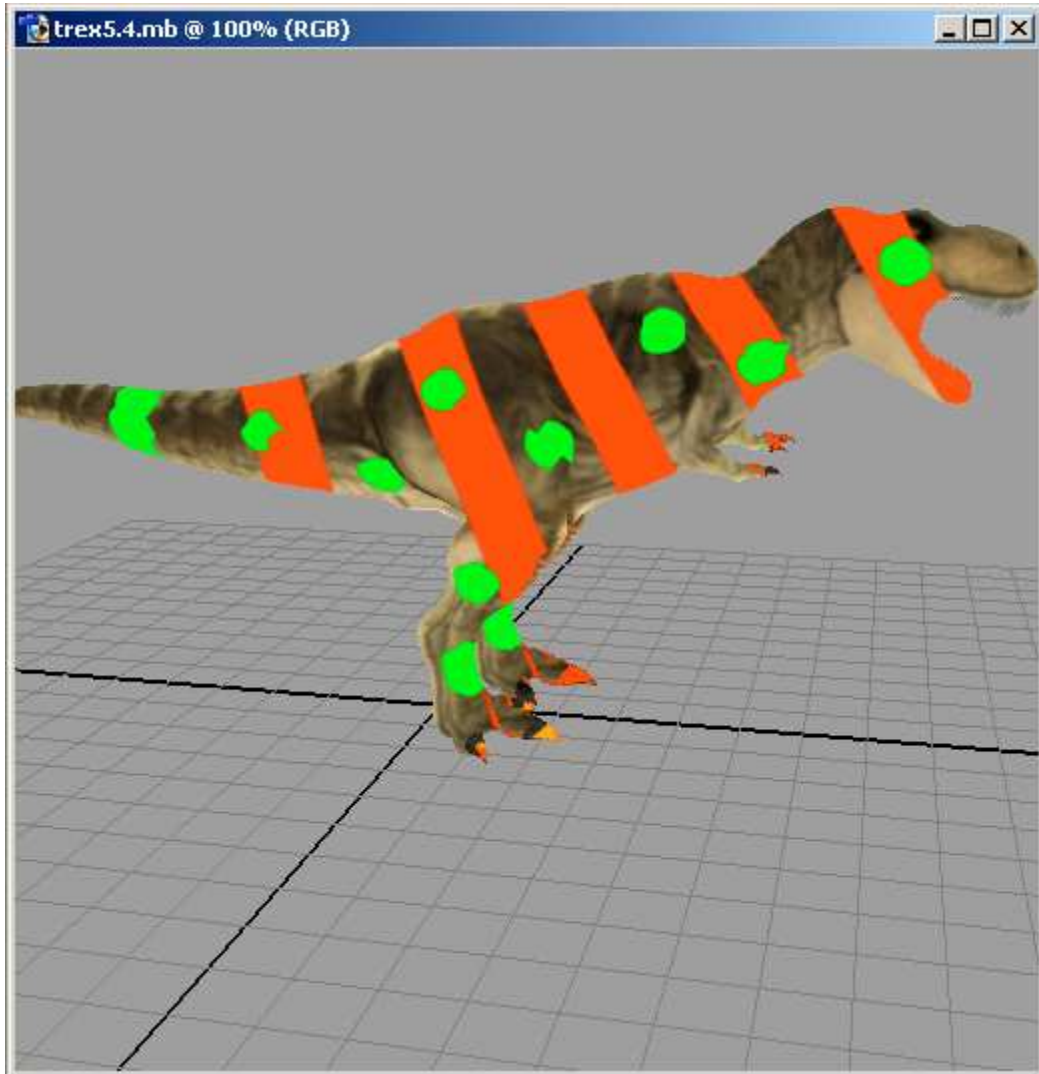


PAINING ON 2D TEXTURE:

Step 1: Select the 2D texture as the current document in Photoshop. Paint on the texture using any of the Photoshop tools. Here we've added the green colored spots and line to the texture.



Step 2: Activate the **Enzo→Apply Paint** command by pressing the **F2** key. The Photoshop document with the 3D model will automatically update. See figure below.



Step 4: The final result of the paint change can be viewed, with lighting, by entering the 3D viewer again (**F3** key, or **Enzo→3D viewer**), and while in 3D mode, pressing the **L** key to see the light effect. Pressing the L key again can toggle off the lighting effects.



To summarize:

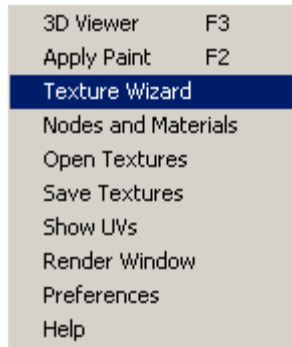
- The **current** Photoshop document is assumed to be where the newest paint changes have been made. So make sure to press the **F2** from the window you just painted in.
- If the current document window is the 3D Viewer, the paint changes are applied and any other windows that are open are automatically updated to reflect the changes. This includes all windows that are the 2D textures of any of the geometry nodes in the scene.
- If the current document window is a 2D Texture window, then the changes made are updated in the 3D Viewer window.
- Photoshop windows that are neither a 2D texture nor the 3D Viewer window are left unchanged.
- On 2D Texture documents, layers are fully supported. New layers may be created, painted on, made visible or turned off. Layer folders are also supported.
- Photoshop **TEXT** layers may also be used in a layer in a 2D Texture document.

See Chapter 13, **PAINTING ON LAYERS** for more details on painting on layers in general.

Chapter

5

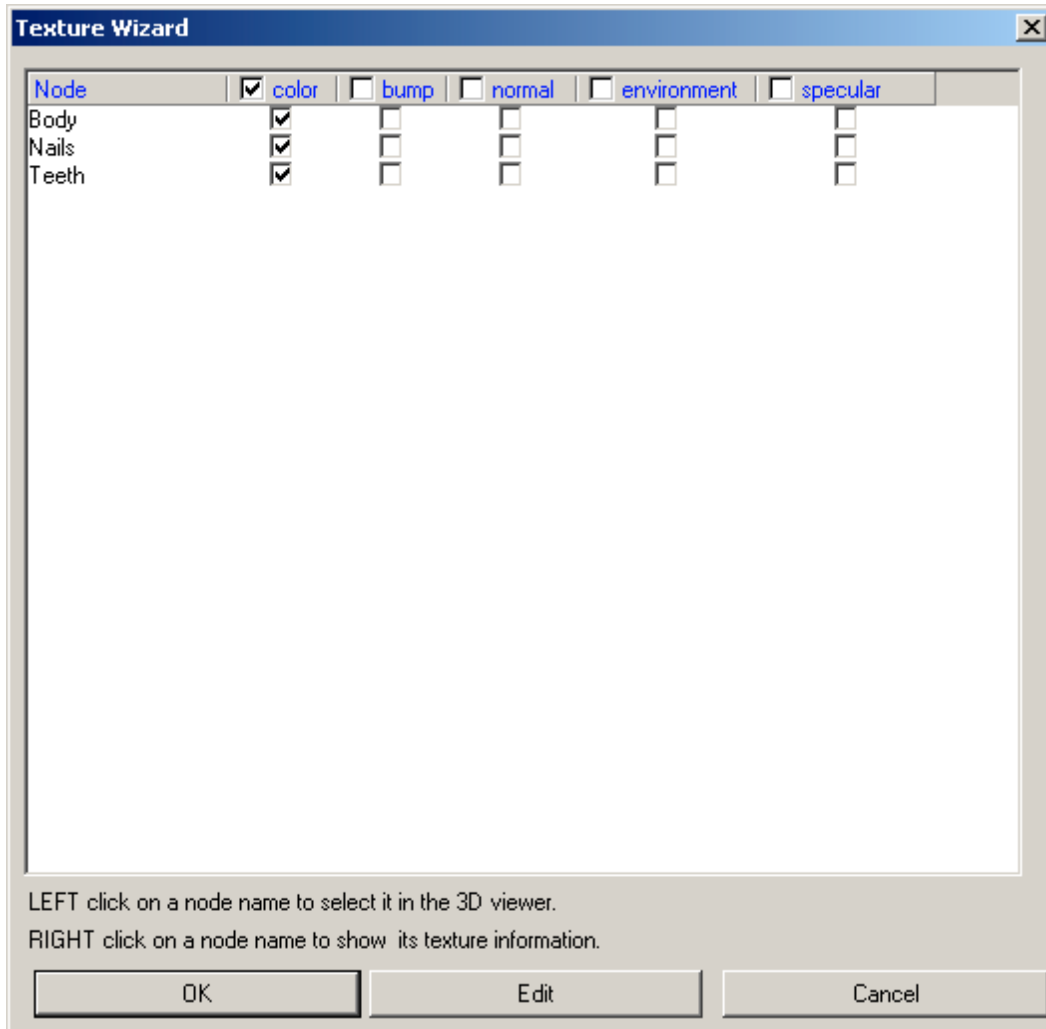
ENZO→TEXTURE WIZARD



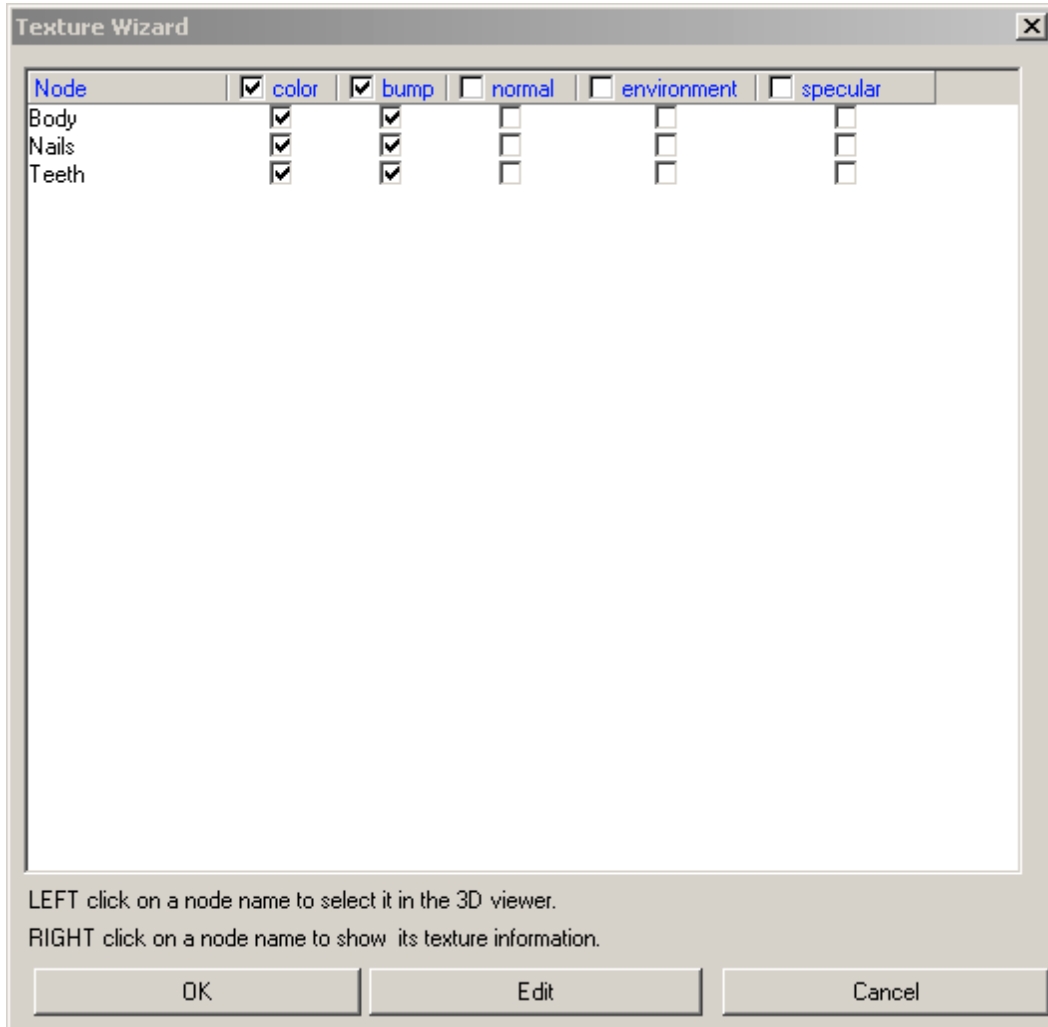
Texture Wizard: Select the **Enzo→Texture Wizard** menu to display the Texture Wizard (see figure below).

CREATING NEW TEXTURES

Each row in the list represents a geometry node, (polygonal mesh or NURBS surface), and each column represents the texture map type for that geometry. Checkboxes that are checked represent existing textures. Blank checkboxes signify that no texture exists. Subdivision model surfaces are not supported at this time.

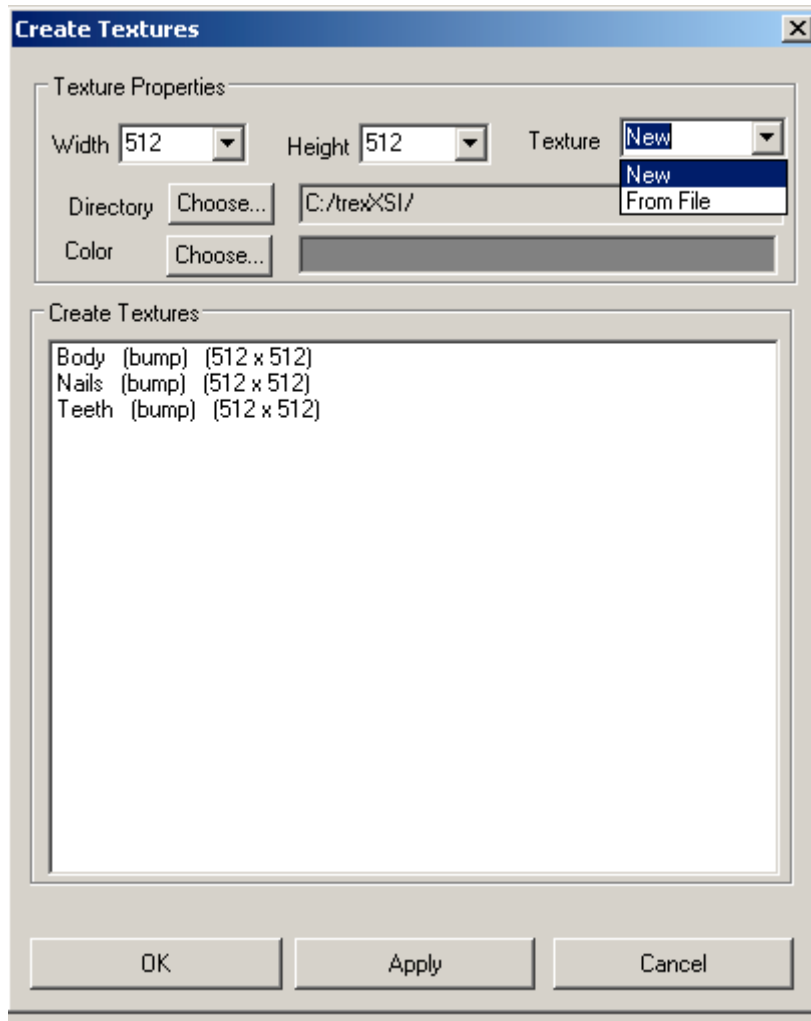


To create and assign a new texture to a geometry node, check on the appropriate entr(ies) and click on the **OK** button. If we wanted to create bump maps for the different parts of our model, we would click the checkboxes in the **bump** column. See figure below.



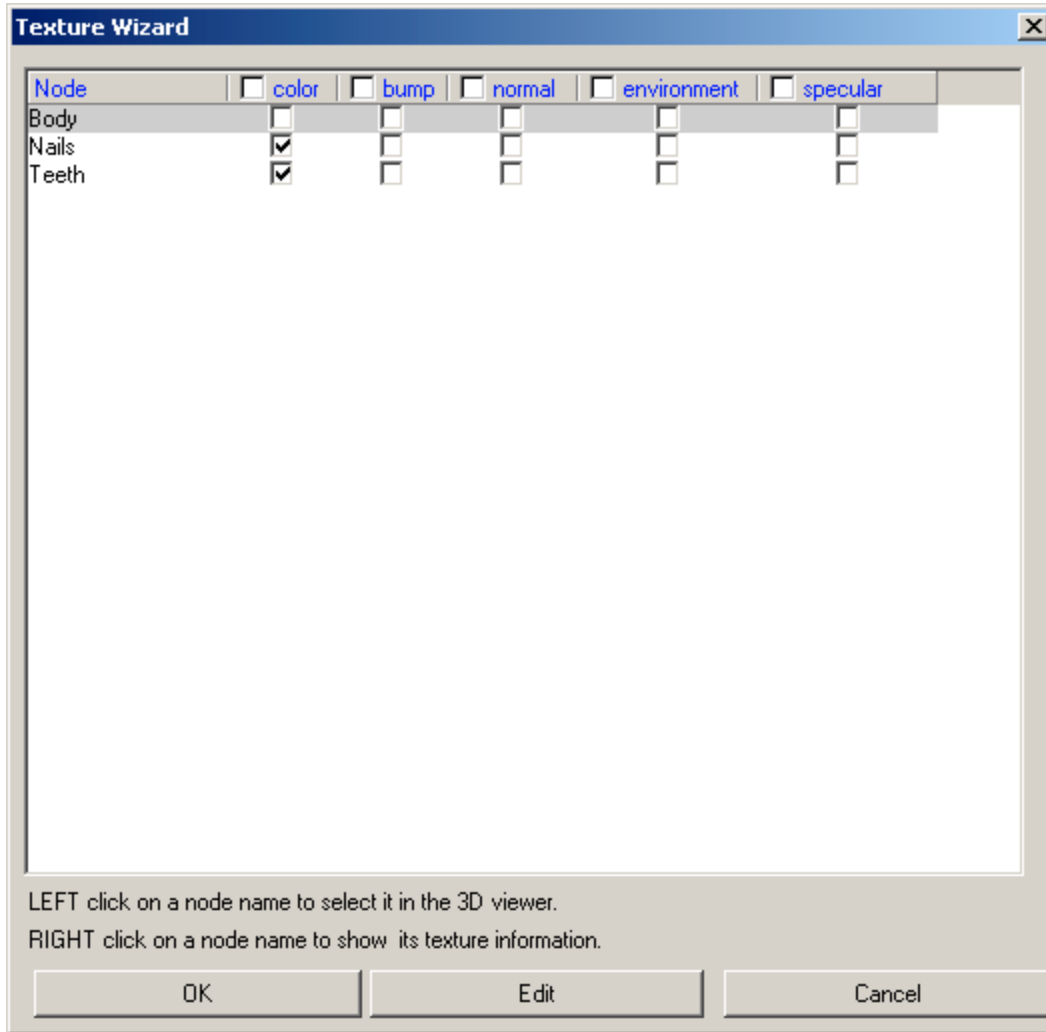
After clicking the **OK** button the **Create Textures** window will appear. You may :

- **Create New Texture(s)** – Choose the **New** item in the **Texture** pulldown field. Then select one or more textures to be created in the list below, and choose the Width and Height and initial color of the texture map to be created. Choose **OK** when ready.
- **Use an Existing Texture** – Choose the **From File** item in the **Texture** pulldown field. Then select one or more textures to be created in the list below, and click the **Choose...** button to choose the image file to be used.

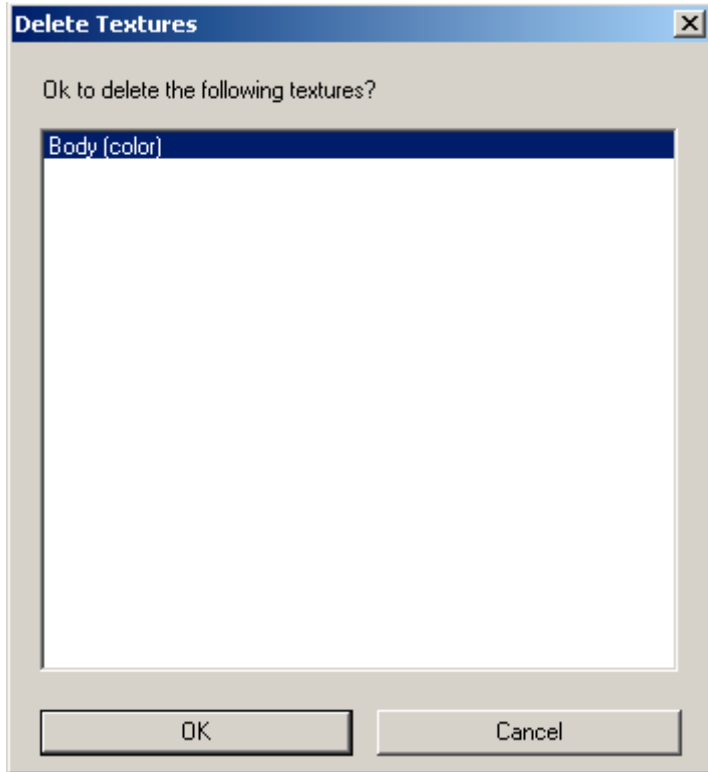


DELETING TEXTURES

The Texture Wizard may be used to unassign and remove textures from geometry node(s) as well. Simply **Uncheck** the appropriate checkbox in the Texture Wizard and click **OK**. In the figure below we set the Body model's texture for removal.

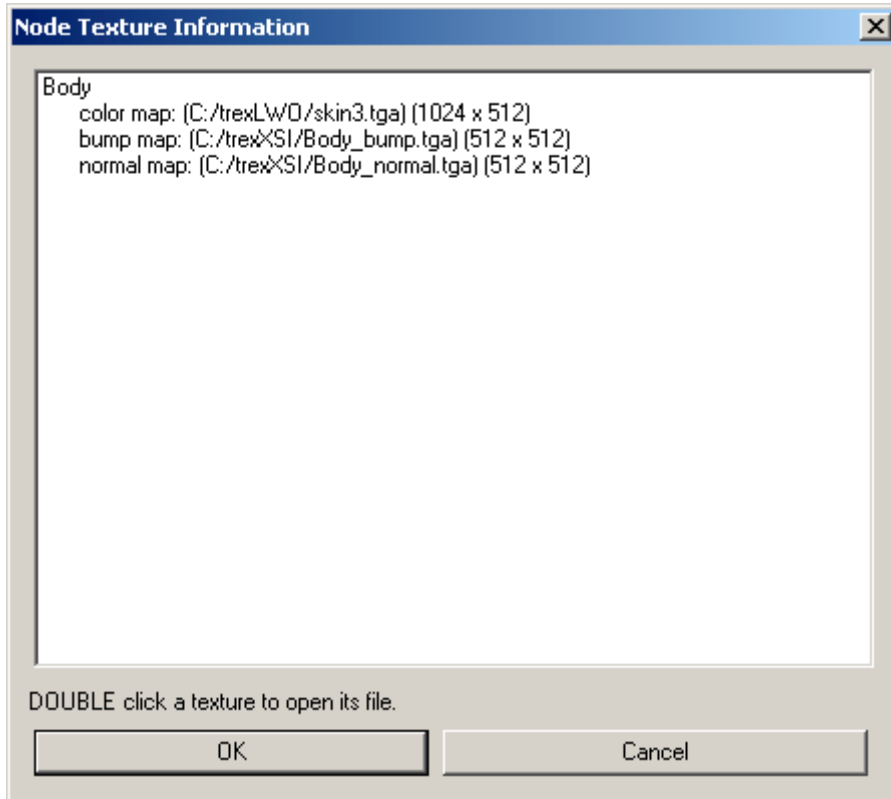


A message box appears to confirm the texture removal request:



TEXTURE INFORMATION

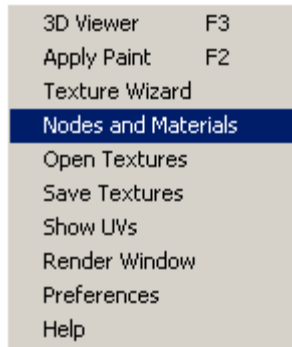
Right Clicking on the name of a geometry node in the Texture Wizard will display the Node Texture Information window for that node. See below.



Chapter

6

ENZO → NODES and MATERIALS



The **Material Editor** provides two features:

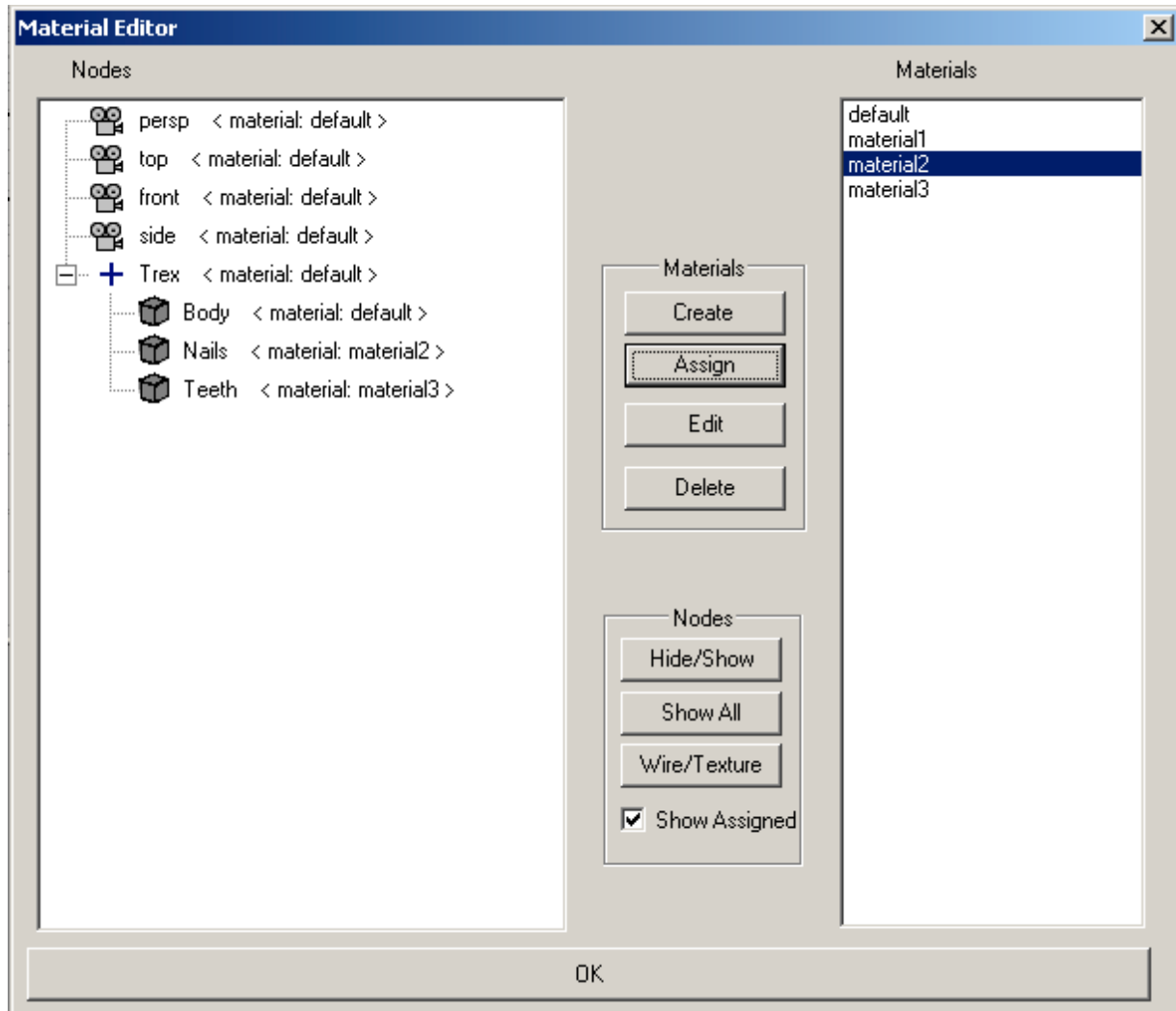
- **Creation and assignment** of new materials to geometry nodes. A **Material** is used to specify the rendering features of a model's geometry.
 1. Specular size
 2. Specular brightness
 3. Diffuse brightness
 4. Ambient brightness
 5. Bump amount
 6. Bump Parallax mode
 7. Displacement amount
 8. Displacement enable/disable
 9. Reflectivity amount
 10. Refraction amount
- **Editing** of the properties of a material.

MATERIAL CREATION & ASSIGNMENT

Using the **Material Editor** should be simple. There is one **default** material (that can not be deleted), and the **Create** button allows creating new materials. Materials can be renamed using the **Edit** button and changing the **Material Name** field.

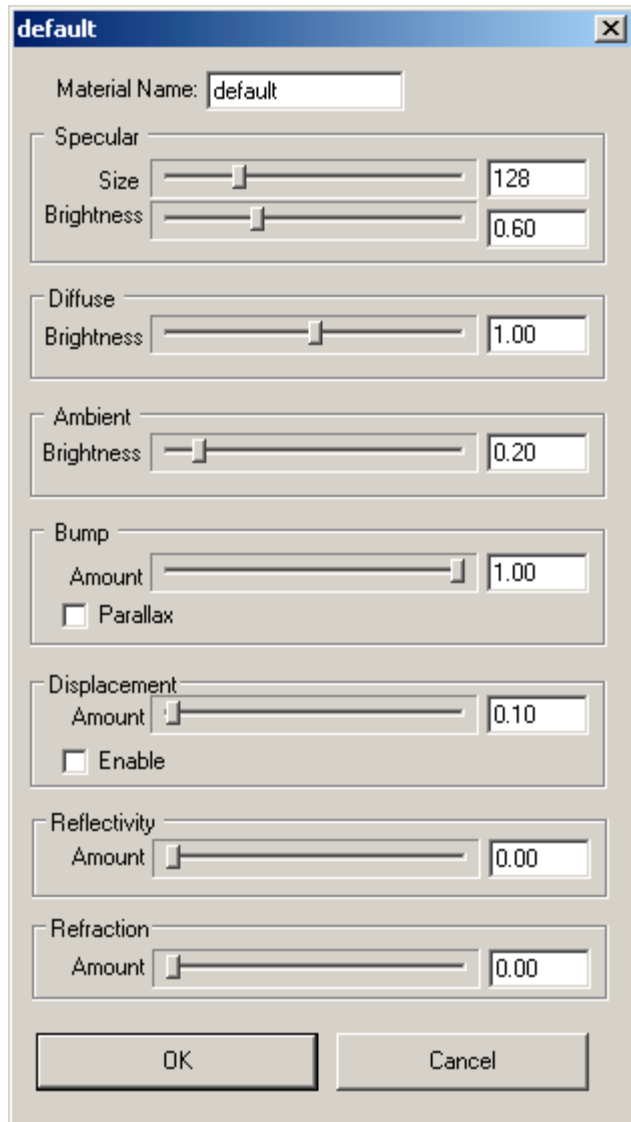
Assigning a Material to a geometry node is done by 1) selecting one or more nodes from the **Nodes** list on the left side of the panel, 2) selecting the desired material from the **Materials** list on the right hand side, and 3) pressing the **Assign** button.

Materials may be deleted by selecting the desired material and pressing the **Delete** button.



EDITING MATERIAL PROPERTIES

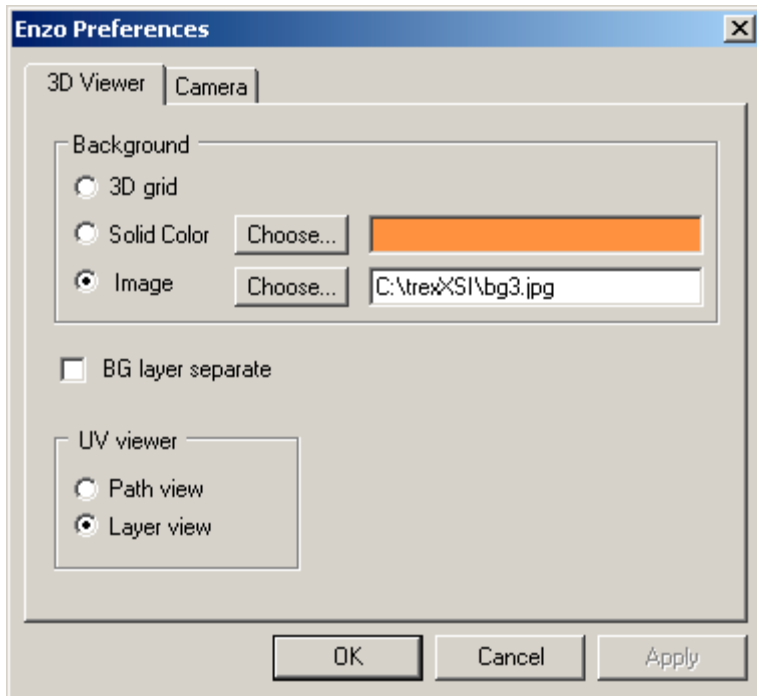
The **Material Properties Editor** can be started by either double clicking on the material name in the **Material Editor** or selecting the material name and pressing the **Edit** button. The properties will be shown (see figure below).



Most of the properties are self-explanatory. A few notes:

- The **Parallax** checkbox is an alternative way to show bump maps, an effect for added depth as the camera moves around the object.
- **Displacement** – The **Bump** map can be simulated as if it were a displacement map. Toggling the **Enable** checkbox to be **on** will activate this feature. The **Displacement Amount** is the distance, in world space, of how much to displace the surface of the model.

- **Reflectivity** – This feature can be used to simulate chrome or wet or shiny, reflective surfaces. You must assign an **Environment Map** texture to the model(s) in order to see any results. The default (no texture) is a gray color used for reflection.
- **Refraction** – This feature can be used to simulate glass or translucent materials. You must assign a background image Enzo, using **Enzo→Preferences→3Dviewer** (see below).

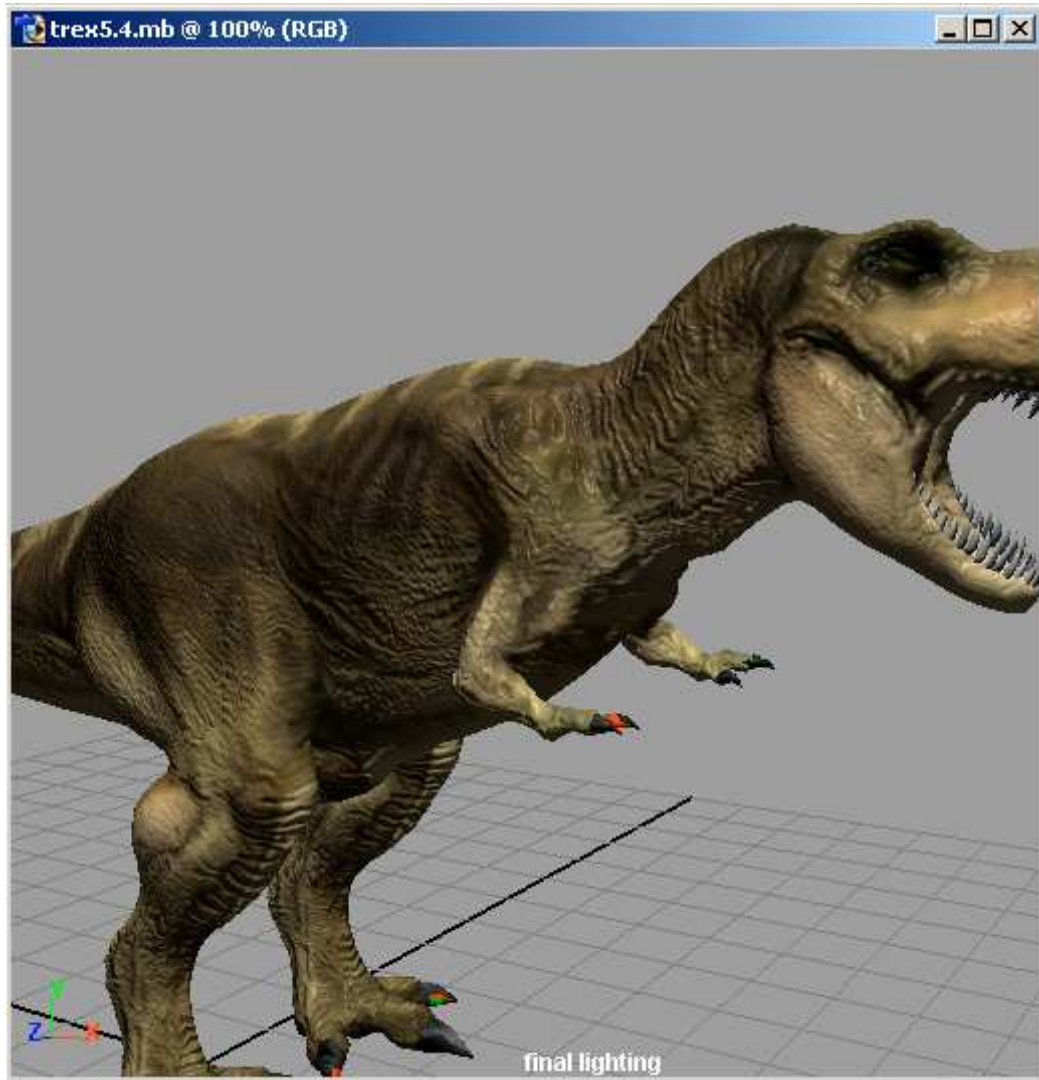


After selecting a background image, the 3D viewer in Photoshop will look like the figure below:

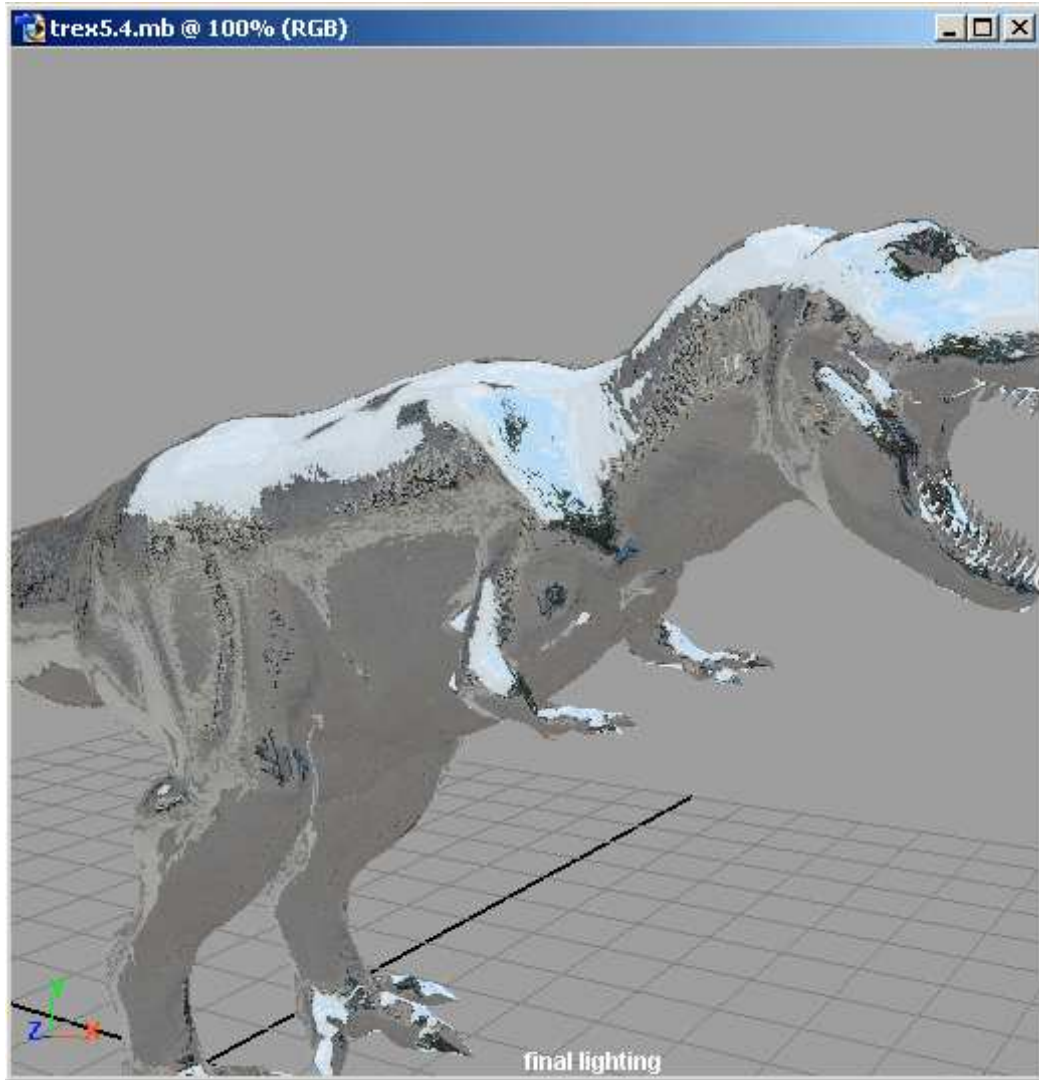


Below are a few images of our model after different material settings for bump, reflectivity, and refraction:

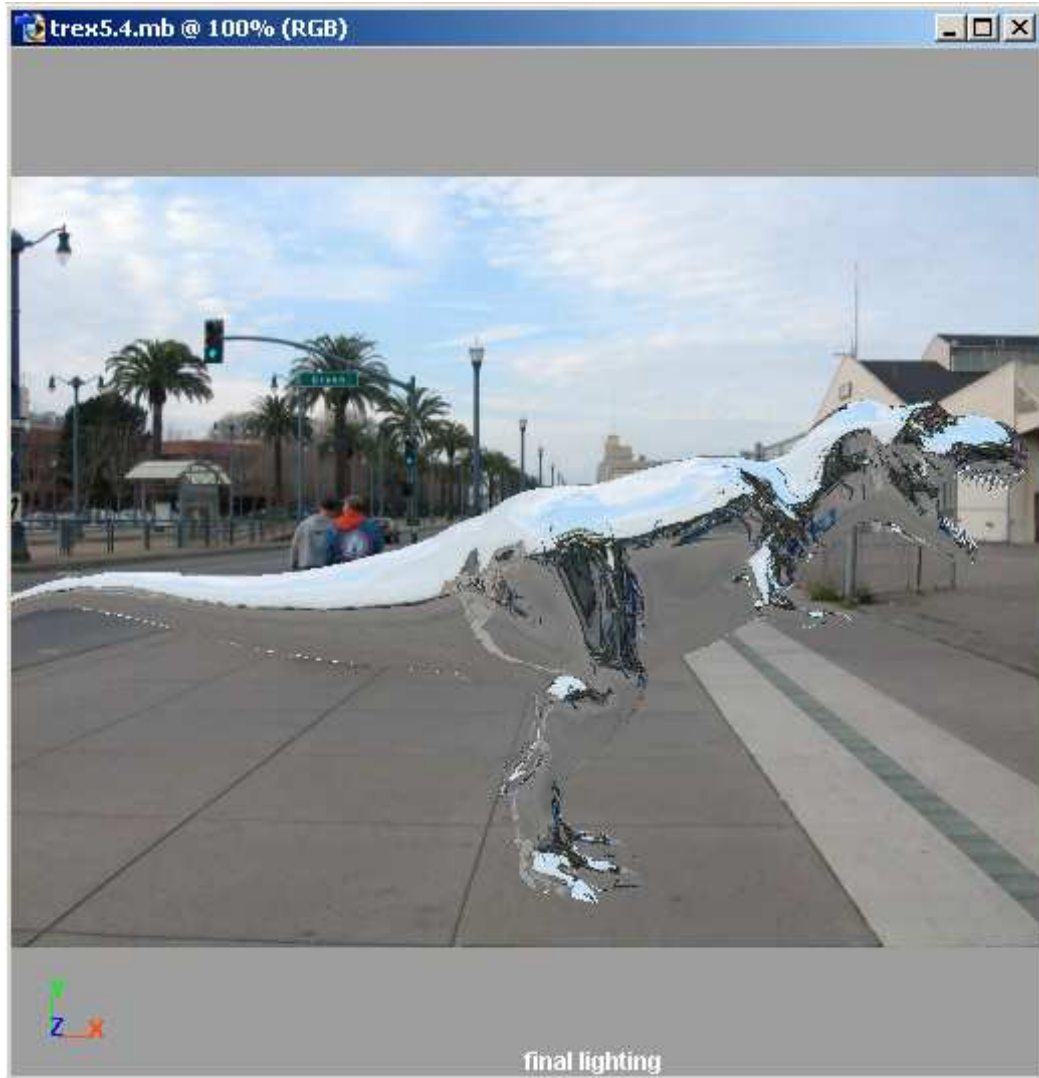
With **bump** map enabled:



With **bump** and **reflection** map enabled:



With no bump, 100% reflectivity, against background image.



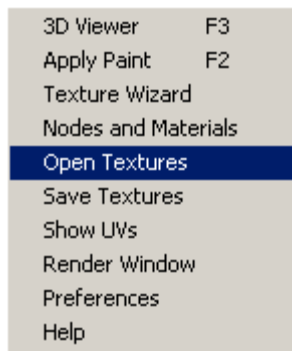
With **Refraction** at 99%, with background enabled:



Chapter

7

ENZO→OPEN TEXTURES



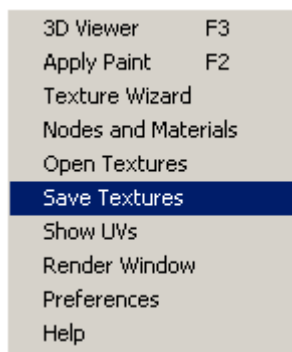
Selecting the **Open Textures** menu will open **all** the textures which belong to the 3D scene, if no 3D models are selected. If a 3d object is selected from the scene, then **Eno→OpenTexutre**, or, alternatively the **T** key while in the 3D viewer will open the selected textures.

Enzo internally is aware of several image file types (.JPEG, .TGA, .TIF, .BMP), and uses Photoshop for loading and saving all other formats. This is a powerful feature, leveraging any **8-bit RGB** format Photoshop supports, any custom image file type (e.g. Pixar), or any future Photoshop Format Plugin releases.

Chapter

8

ENZO→SAVE TEXTURES



All textures may be saved with a single command, **Enzo→SaveTextures**. Or, if the 3D window is the current window, and the 3D file is an Enzo (**.nzo**) format file, Photoshop's own **File→Save** command will save all the textures, after a confirmation prompt.

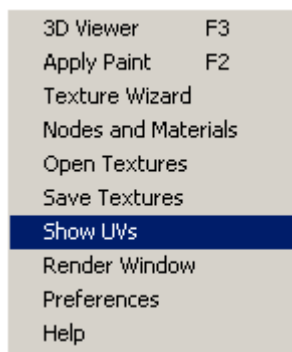
Alternatively, any individual texture may be saved manually, using Photoshop's **File→Save** command.

Changing Texture File Type: It is possible to change the file type of a texture inside Enzo. One such situation would be if the texture is a single layer file format such as Targa or Jpeg, and you wish to change to a multilayer texture format such as **Photoshop .PSD**. Simply use Photoshop's own **File→SaveAs** command to save a texture into Photoshop .PSD, or any other format.

Chapter

9

ENZO → SHOW UVS

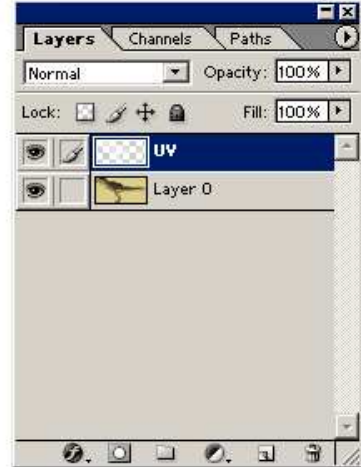
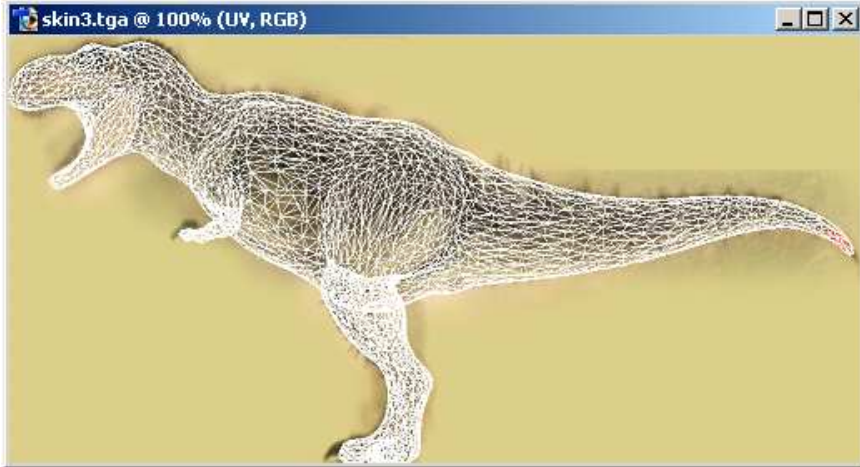


IMPORTANT: Polygonal models must have UV coordinates already assigned to them. NURBS surfaces need not worry, as they have their UVs implicitly assigned. Enzo does not provide any UV creation or editing tools at this time. Maya, Softimage, LightWave, 3DSmax are all very powerful tools that already provide robust UV creation and editing features.

Enzo → ShowUVs opens all 2D texture and displays their UV assignments as a Photoshop layer (see figure below).

Alternatively, if a 2D texture is open and is the current Photoshop document, **Enzo → ShowUVs** will show the UV assignments of only the selected texture.

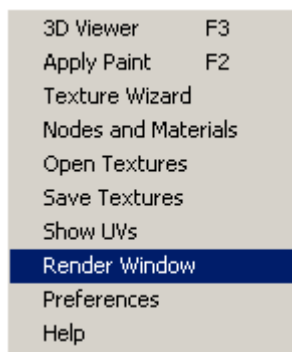
Note: The UV layer will **not** be ignored by Enzo during the **ApplyPaint** step, so make sure it is invisible or deleted when its not needed.



Chapter

10

ENZO → RENDER WINDOW



The 3D scene is usually in non-shaded, no-lighting mode, in order for the Photoshop paint to blend correctly with the existing texture colors. Normally, to see the 3D model in shaded/lit mode, one would have to press the **F3** key to enter 3D Viewer mode, and if lights are not already on by default, to turn them on using the **L** hotkey.

The **Enzo → RenderWindow** command opens a new window in Photoshop that is a preview window that always shows the 3D scene in shaded mode with lighting. It automatically updates whenever the 3D model is changed in the normal 3D Viewer window.

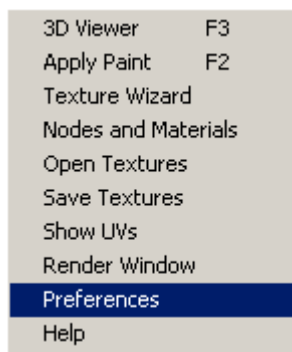
The RenderWindow does **not** allow painting and applying paint directly in the RenderWindow. It is simply a rendered view of the 3D scene. The 3D viewer window is still the main interface to Enzo.



Chapter

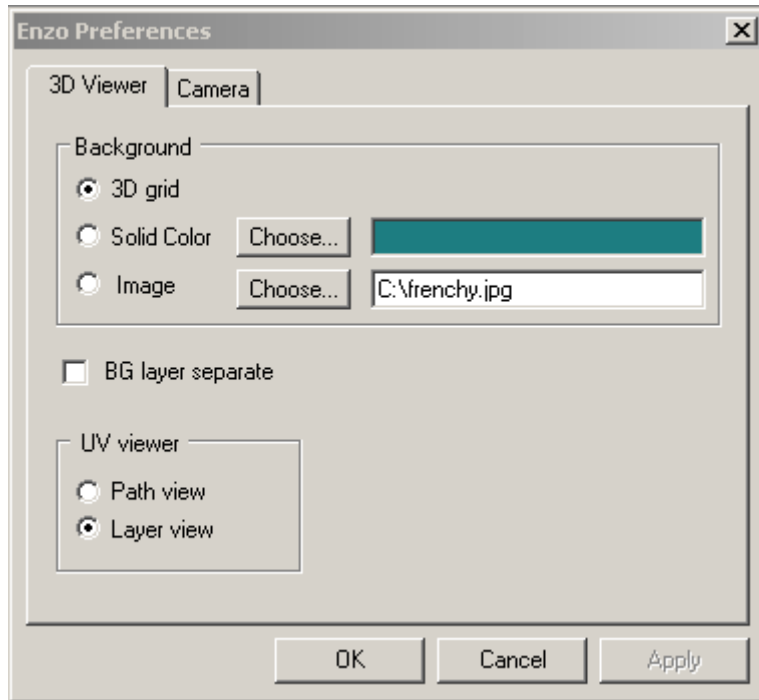
11

ENZO → PREFERENCES



General Notes: The preference settings are stored in a **C:/enzo.nzrc** file. If for any reason this file is deleted, internal Enzo default settings are used and the file is created again. If the Enzo camera behaves in an unusual way, deleting this file is a way to force a reset of the default values.

ENZO→PREFERENCES→3D VIEWER



BACKGROUND

The background in the 3D viewer is customizable to be one of three options:

- **3D Grid** – A standard 3D grid common to most 3D graphics packages.
- **Solid Color** - Alternatively, a solid color may be chosen as the background. Use this selection along with the top **Choose...** button to choose the desired color.
- **Image** - Sometimes it is useful to see the 3D model being painted in context, with a background image, to help with color selection and "blending in" the look. To load a background image into the Model Window, choose the **Image** button, then **Choose...** button to find the background image you like to use.

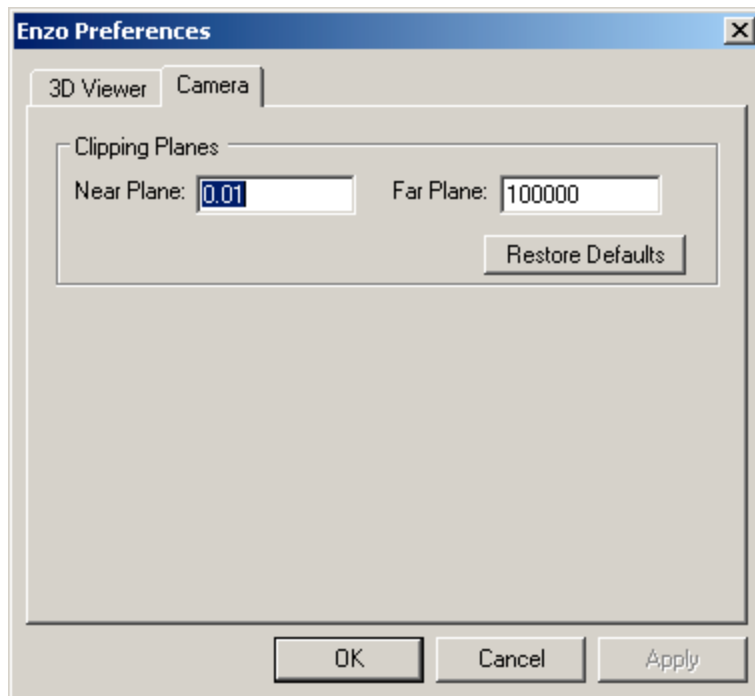
BG LAYER SEPARATE

The **BG Layer Separate** option separates and places the 3D model into a different Photoshop layer than the background. The 3D model will be placed in a layer called **scene**, and the background will remain in the background layer. The reason for doing this would be for "painting" transparency maps. The separate layers allow for erasing parts of the 3D model to see through to the background.

UV VIEWER

This option allows for specifying how the UV wireframe is displayed on the 2D texture. It may be displayed as a separate Photoshop Layer, or as a Photoshop Path. Paths have the advantage of remaining crisp as the image is scaled larger as well as not affecting the mapping if accidentally left on. Layers have the advantage of being more convenient in terms of enabling and disabling visibility.

ENZO→PREFERENCES→CAMERA

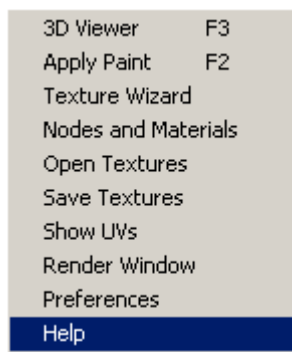


Camera: This menu allows for setting the **Near** and **Far** planes of the camera. If the 3D object is not visible, it is very possible it is too near or too close to the camera. Setting these numbers appropriately will solve the problem. Note that selecting the 3D model in the viewer (if visible) and pressing the **F** key to frame the object, automatically adjusts the near/far viewing planes.

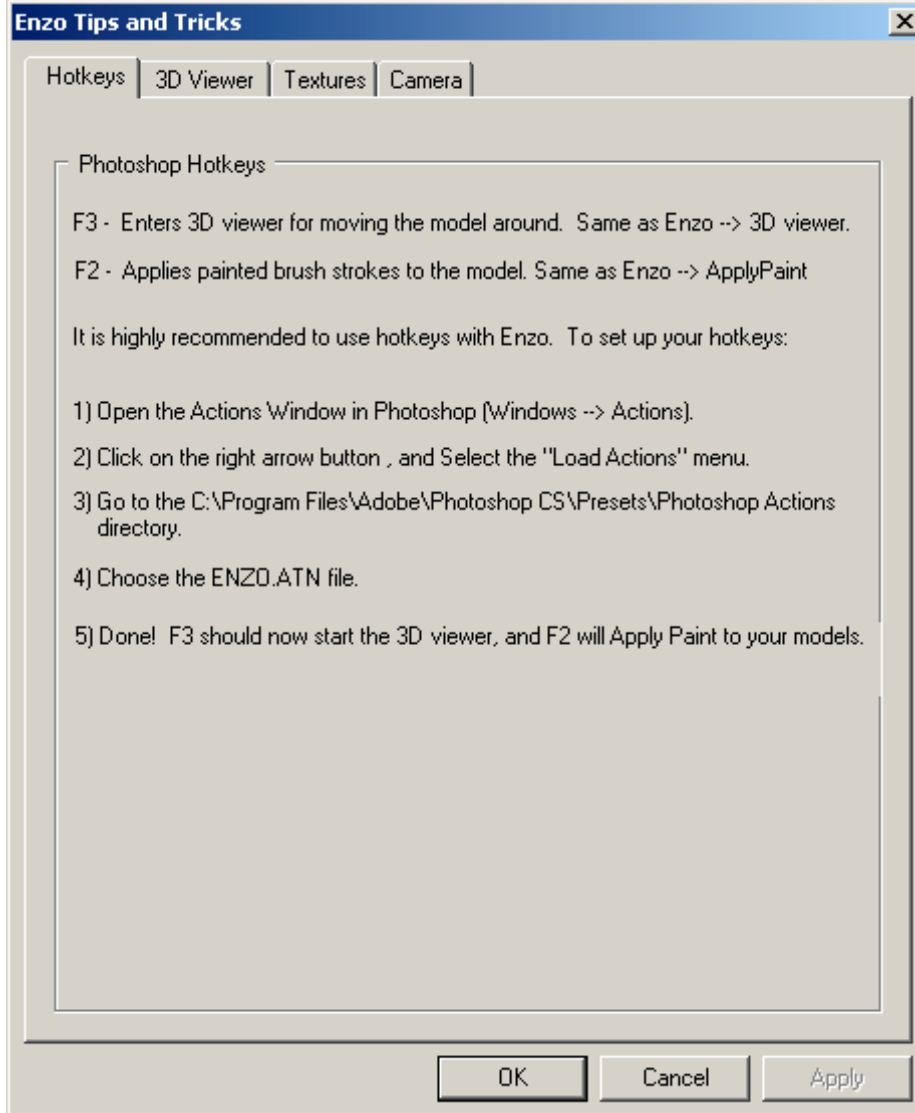
Chapter

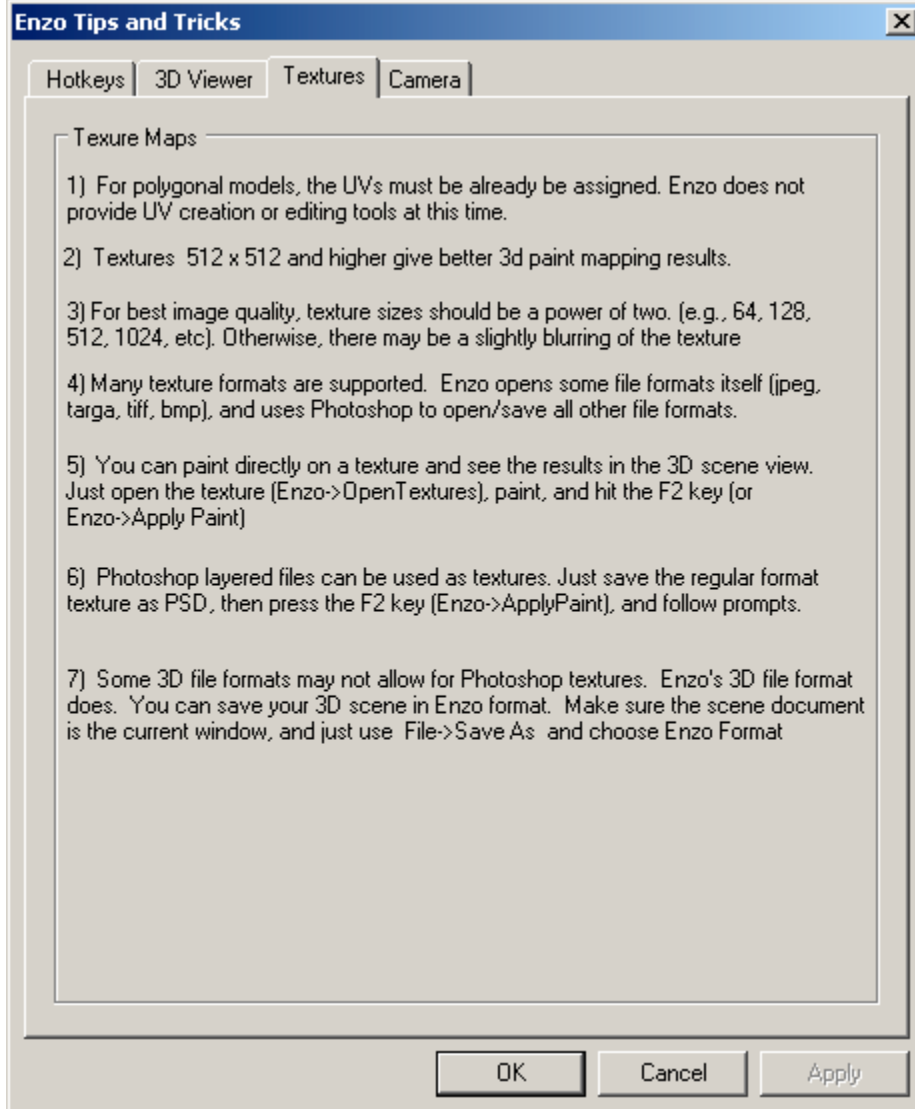
12

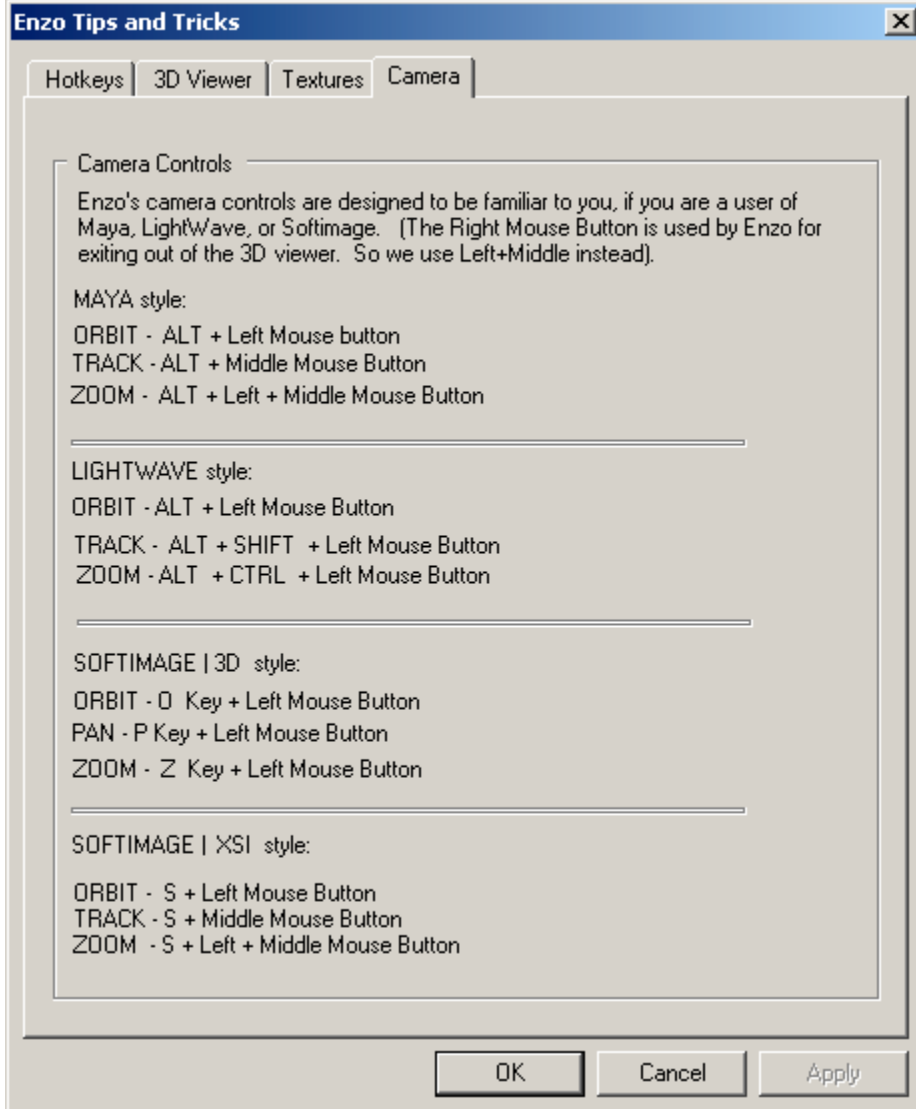
ENZO→HELP



For quick reference, the rules and guidelines to using Enzo effectively are also repeated in the **Enzo→Help** menu. Below are screenshots of the screens.







PAINTING ON LAYERS

PAINTING ON 2D LAYERS

As mentioned earlier, Enzo fully supports multilayered textures, as well as Texture layers, texture folders, etc. Simply select and work on any 2D texture layer, then press **F2** to apply the changes to the scene. You may hide as many layers as you wish, isolating a few layers, paint, apply, and when ready make them visible again, and apply to see the final result.

Even though a texture's initial file format may support only a single layer or background, such as Targa, Jpeg, Bmp, etc. it is ok to create and work with layers. When it comes time to save the texture Enzo will automatically save a version of the flattened image and leave the layers in the Layer window untouched.

If you wish to save the layers to your texture file, then the texture's file format must support it. Enzo allows you to change your mind and convert from any single layer format (TGA, JPG...) to a multilayer format such as Photoshop PSD or .TIFF. Simply select the 2D texture, then save it out as the same name file, but with a different file extension. Then press the **F2** key as if you were applying paint changes. Enzo will prompt you to confirm the texture name/type change. **Note:** Now the 3D scene has changed, since a geometry texture map assignment has changed. You may wish to save the scene out as an Enzo. NZO format, or make the change in your original 3D format (Maya, XSI...etc), otherwise next time the scene is loaded it will still be using your old single layer texture.



PAINTING ON 3D LAYERS

There may be special circumstances where you wish to paint on the 3D model and have the changes isolated to a separate layer in the 2D texture window.

It is possible to paint on a “scratch” layer in the 3D Model Window, and “assign” the destination 2D texture target layer(s) for the painting. We already know that painting on the 3D model in the 3D Viewer window will automatically update the corresponding 2D texture documents. But which layer? By default, Enzo updates the Background layer. However, we allow for any layer in a texture to get the new changes. The “switch” for turning **on** this feature is creating a scratch layer in the 3D Viewer window and making sure it is the currently selected layer. **Note:** Make sure to turn **off** this feature by deleting the scratch 3D layer when it is no longer needed.

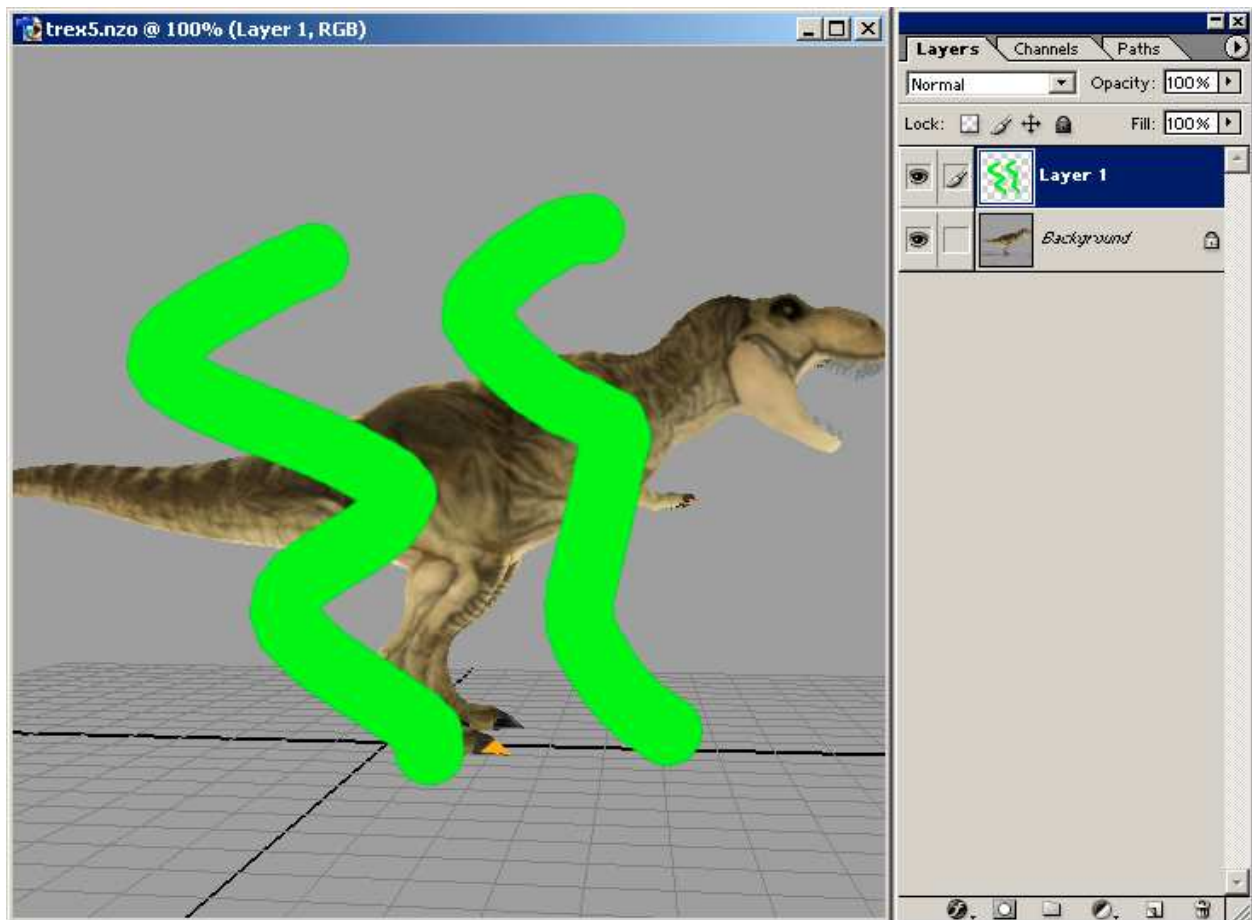
Here are the steps to accomplish this. The figures below also demonstrate the process:

- In a 2D Texture window, create a new layer, and make sure it is the current selected layer.
- In the 3D Model Window, create a new layer. Go ahead and paint a few brushstrokes on it. Press the **F2** key to apply the paint changes and see the results in the scratch layer you created in the 2D Texture window.

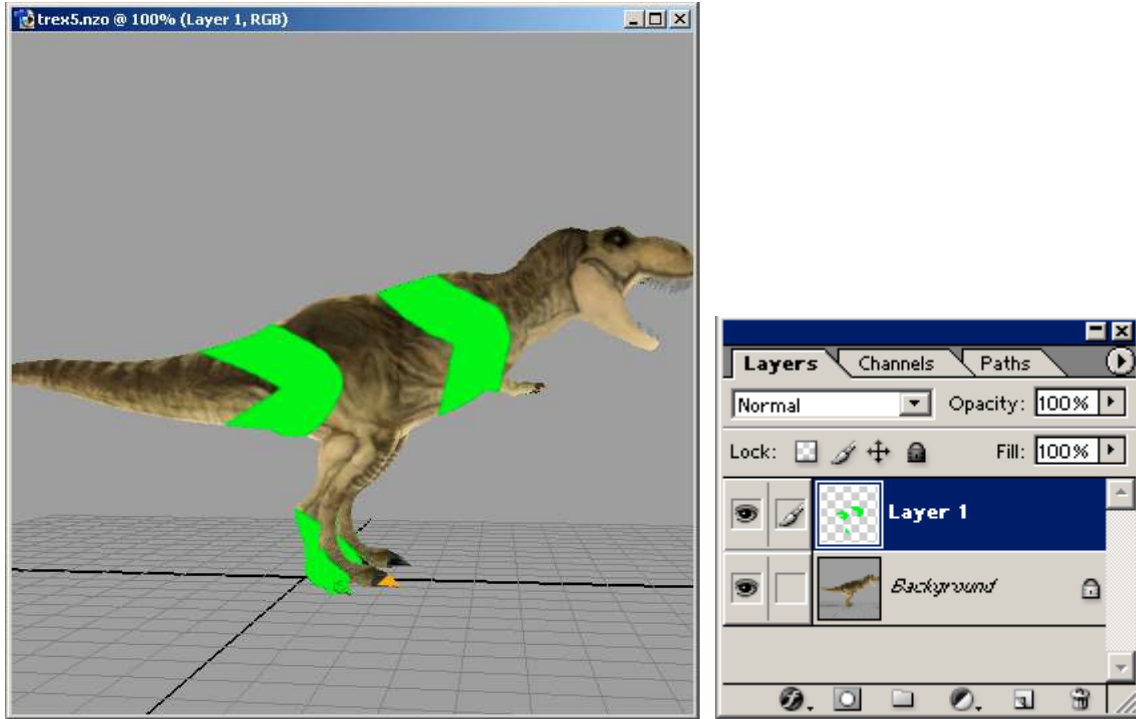
Create a Photoshop layer as the **destination** for the 3D paint changes.



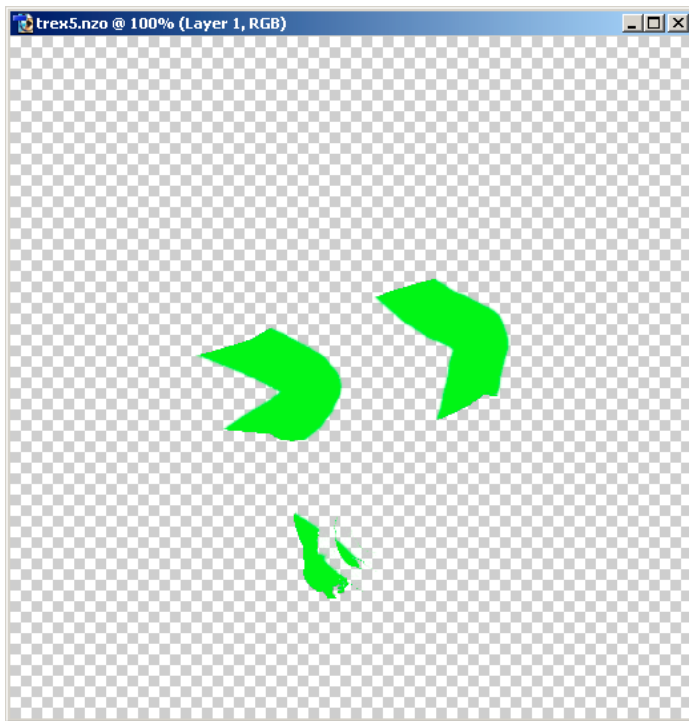
Create a Photoshop layer as the **Source (scratch layer)** of the 3D paint changes. Paint a few stripes....



Press **F2** in the 3D window to apply the paint. It should look like:



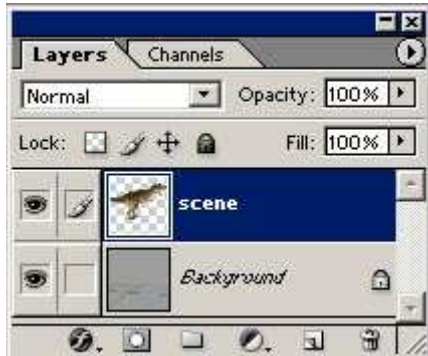
However, you'll notice that 3D paint applies now lies on a separate (**scratch**) layer in the 3D viewer document, and you may hide the background to see the new brushstroke applied.



IMPORTANT NOTE:

The scratch layer on the 3D document is just that – a scratch layer, and has not been “registered” with Enzo as part of the texture, even though it appears as a layer in the 2D texture document. To register the paint change, delete the scratch layer from the 3D document, then go to the 2D texture document, and press **F2**.

PAINTING TRANSPARENCY MAPS



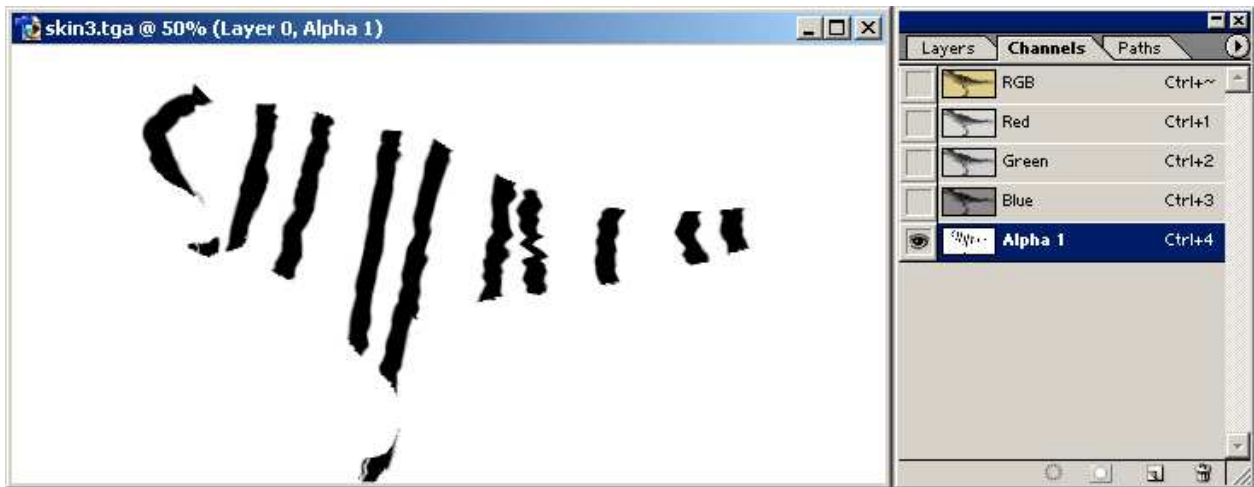
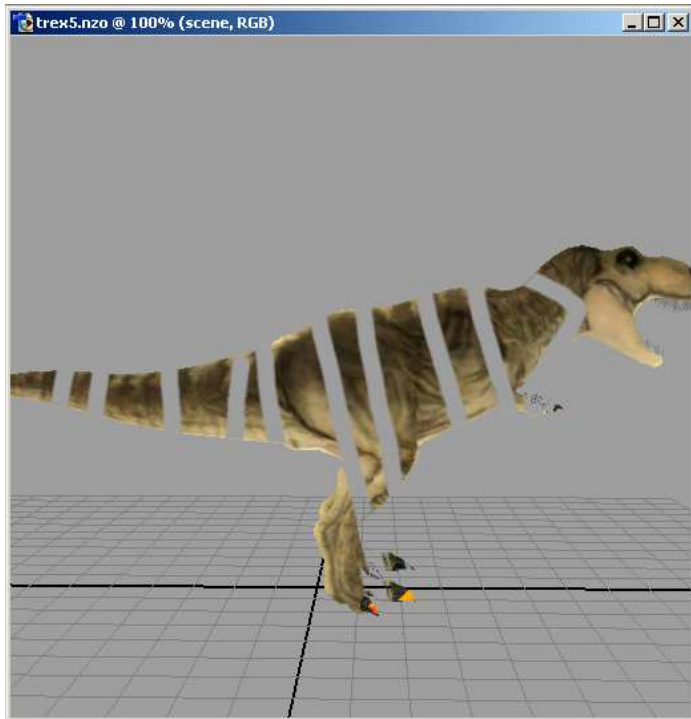
Enzo allows for painting an object's Alpha Channel. This can be done in several ways.

ERASE 3D MODEL

The first method is using Photoshop's Eraser Tool in the 3D Model Window directly. You may have noticed that the 3D Viewer window contains only a background layer, so we need to separate the model from its background in order to be able to erase parts of the model. Select the **Enzo→Preferences** menu, then select the **Viewer** tab, and then toggle on the **BG separate** checkbox. Click the OK button. Notice that in the 3D Viewer window a new layer called **scene** has been created, and the model is now out of the Background layer and in the **scene** layer.

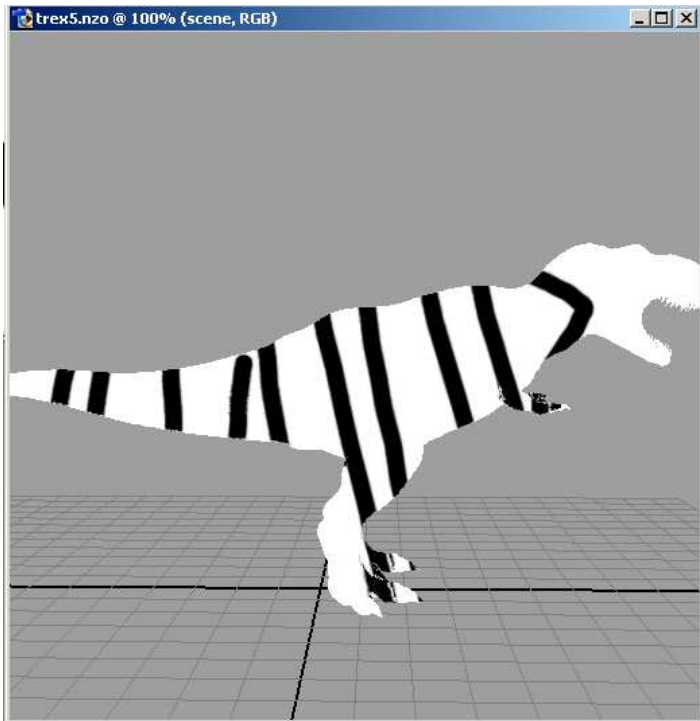
The camera can still be placed around the 3D scene by pressing the **F3** key (Enzo→3D Viewer) and orbiting around. RightMouseClick to exit 3D mode. Notice that both the Background and the scene layer are updated. You are now ready to start painting the transparency channel of the model.

Make sure the **scene** layer is the currently selected layer, then use the Eraser Tool from the Photoshop toolbar to start erasing parts of the model in the scene. You may wish to change the Eraser Tool's opacity by dragging the Opacity slider in the Photoshop Options toolbar. After you have completed erasing, you still need to press the **F2** key (Enzo→ApplyPaint) to apply your Eraser changes to the model's textures. See figures below:



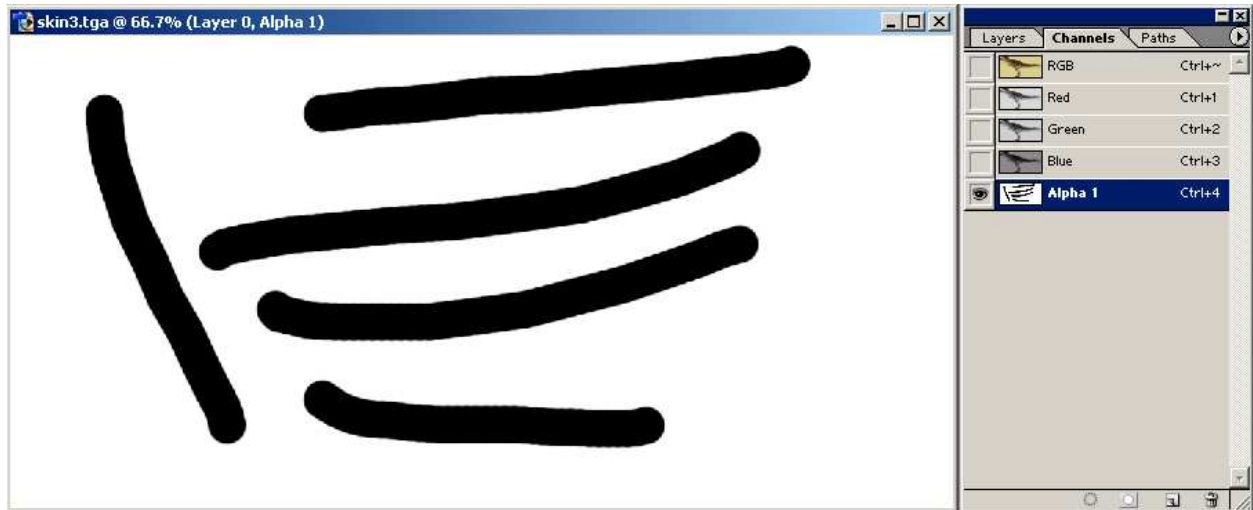
PAINT 3D ALPHA CHANNEL

Another way of painting the transparency channel of the model is by painting a black and white (and shades in between) version of the model. White areas are opaque, black areas are transparent. Enter Transparency Render mode by pressing the **F3** key to enter the 3D Viewer and then press the **A** key to get a black and white **Alpha Channel** render of the 3D scene. Click the RightMouse Button to exit 3D mode. Now you can start painting the black and white version of the transparency. Do not forget to press the **F2** key when you're done with painting so that the paint changes are applied. You may paint either directly in the 3D Viewer window or the 2D Texture window.



PAINT 2D TEXTURE ALPHA LAYER

The final way of painting the transparency channel of the model is to paint the Alpha channel of the 2D texture. Select a 2D Texture window of the texture you wish to paint. Make sure that there is no Background layer, which has no transparency channel, but rather just a "regular" layer, with a transparency channel. (See the **Background vs Layers** section below if this is not clear). To change a Background layer into a regular layer, simply rename it from "Background" to something else. You may now use the Eraser tool to erase parts of the texture as you desire. Don't forget to press the **F2** key (Enzo→ApplyPaint) to see the 3D Model Window update with the new transparency effects.



Pressing the **F2** key in the 2D texture window updates the 3D window:



Chapter

14

RANDOM NOTES

ALPHA vs. TRANSPARENCY

There is a difference between Transparency and Alpha "channels". In the film industry, the terms Transparency Channel and Alpha Channel are synonymous. In Photoshop, they are not: There is a difference between Photoshop Alpha channels and the Alpha Channel in a RGBA file format's Alpha Channel

Alpha Channels: In Photoshop, in the Channels Window, there are the R, G, and B Channels. You may add a channel by clicking the "Create New Channel" button. Photoshop calls these Alpha Channels by default. Many Alpha channels may be created. This in itself may create some confusion, because one frequently thinks of an image as having one Alpha Channel at most: RGBA. Most file formats support only RGBA.

In Photoshop these Alpha channels are not a representation of the Transparency of the image, but rather as a MATTE channel, or as a "scratch" channel to be used for any purpose(s). The Alpha Channel is NOT the Transparency Channel.

Transparency: Photoshop does not give the user direct access to the Transparency channel through its Channel Window. A layer's transparency channel can be modified using the Eraser Tool, or modify with the Brush/Pen/Pencil Tool when new pixels are created over transparent ones. In some file formats such as .PNG, Photoshop's Transparency becomes an Alpha Channel (in file format terminology), when that image is saved as a file that is 32 bits per pixel, RGBA. In some file formats such as TARGA, the Transparency is ignored and only the Alpha Channel that is in the Channel window is used for the file format's RGBA Alpha Channel. It is in fact sometimes confusing and seemingly inconsistent.

BACKGROUND vs. LAYERS

When a **New Document** is created Photoshop allows a choice of either background color, or Transparent. You will notice in the Layer Window, that if you chose a color, the layer created is called "Background", and has a lock on it. This is a Background Layer, and does NOT have a Transparency Channel, and the Eraser tool does not work. The Eraser tool only works on layers that DO have a Transparency Channel.

Any new layer that is created ("Create New Layer" button) **does** have a Transparency channel, and **can** be erased. So, a Photoshop Layer can be thought of as a 32 bit RGBA layer and a Background "Layer" can be thought of as a 24 bit RGB layer. An image can only have one Background layer, but many RGBA layers.

It is possible to convert a RGBA layer into a RGB layer, and convert a RGB layer into a RGBA layer as well:

- **RGB to RGBA:** Simply select the Background layer, double click on the name, and rename it. It is now a RGBA layer with a hidden Transparency Channel.
- **RGBA to RGB:** The only way to convert a RGBA layer into a RGB layer (Background) is by the "Flatten Image" menu. So most probably you would only want a single layer in the document before running "Flatten Image", otherwise the other layers will be included as well.