What is Texture Magic?

Texture Magic is software that aids users of 3D Graphics Applications in creating photorealistic and special effects textures for their 3D models and animations.   There are two different ways that a user can create textures:

- Export the texture settings to a source file for user with <u>POVRay</u>.
- Render a texture map for use with applications such as Autodesk 3D-Studio™ and Asymetrix 3D F/X™.

Texture Magic is shareware marketed under the shareware concept. This version is for use as a trial basis only. After 30 days of evaluation, you must register Texture Magic in order to continue using it.   Please see <u>Registering Texture Magic</u> for more information!

Overview of Texture Magic

- **Texture Catalog**
  A *catalog* is where you group together textures of similar types   so that they can be easily located and worked with.   For example, you might create a catalog containing metals, stones, or woods. From a catalog you can create new textures, modify existing textures, and export textures as <u>POVRay</u> source code or as a texture map in Windows™ BMP format.

- **Texture Editor**
  The *Texture Editor* is where you create new textures or modify existing ones.   The heart of the *Texture Editor* is composed of easy to use dialog boxes and property sheets that allow you to modify the three components of a texture: <u>pigment</u>, <u>finish</u>, and <u>normal</u>

- **Texture Map Viewer**
  This is a window which allows you to view and alter texture maps that you rendered from a catalog. You can process the texture map to make it <u>seamless</u> and save it as a Windows™ BMP file.

The *pigment* defines what kind of general appearance a texture will have. For example, you might create a texture with a brown wood pigment or a green marble pigment.

The *finish* defines how the light is reflected off of a texture. For example, you might create a shiny metal texture or a dull plastic texture.

The *normal* defines how "bumpy" a texture is.   For example, you might create a texture that is rough like concrete or a texture that has ripples like water.   Adding *normal* values to your texture can be very powerful because it gives objects an added look of detail without extra modeling.

When normal texture maps are tiled, the edges of the original texture map can be seen. You cannot see the edges on a *seamless* texture map.

Setting up the preferences for Texture Magic

Texture Magic uses POVRay which is a freeware raytracer. You must download and install POVRay in order to use Texture Magic effectively. You can always find a version of POVRay at **ftp.povray.org**.

Documentation Files	**ftp://ftp.povray.org/povray/Official/Dos/povdoc-2.2.zip**
Official Binaries	**ftp://ftp.povray.org/povray/Official/Dos/povibm-2.2.zip**

Important Information
These binaries are built for DOS machines. To use Texture Magic you ***MUST*** use the either unofficial Win32 binaries or POV 3.0 for DOS (this version works where POV 2.2 for DOS does not).

Win32 Binaries   **ftp://ftp.povray.org/povray/unofficial/compiles/povnt.zip**
note: This version will work under both Win95 and WinNT.

POV-Ray 3.0
note: Since Texture Magic currently does not support the extended features of POV-Ray 3.0, it is recommended that the Win32 version of POV 2.2 be used since it has a faster loading time. At this time POV-Ray 3.0 is still in BETA and can be found on ftp.povray.org. Please do not use POV-Ray 3.0 for Windows.

To use POV-Ray 3.0 for DOS with Texture Magic under Win95, you must change a setting for the POV Ray executable:

- In Win95, use the folders to locate the POV-Ray executable (povray.exe).
- Right click the program icon and select properties.
- In the dialog box, change to the "Program" tab.
- Make sure that the checkbox "Close on Exit" is checked.
- Click on OK.

The above files can also be found on Texture Magic's web page:
http://www.eskimo.com/~scott/povtext.html

Please read the documentation files for instructions in using POVRay. If you need ANY help locating or installing POVRay, please send e-mail to **scott@eskimo.com**.

To set the preferences for Texture Magic, click on the **Options** menu and select **Preferences**.

The Preferences dialog will appear:
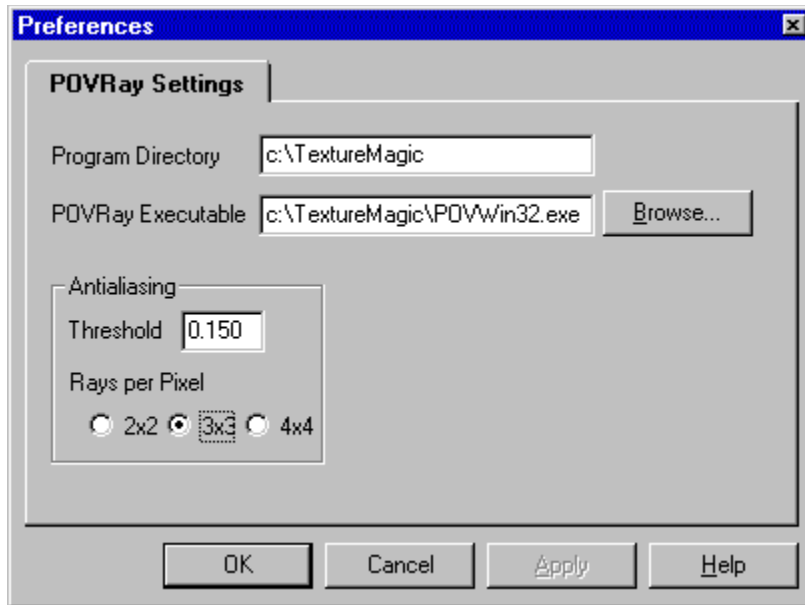
The **Program Directory** is the path in which the Texture Magic software resides and the **POVRay Executable** is the path to the POVRay renderer.

The **Program Directory** will be set automatically when Texture Magic is executed for the first time. You will need to point the **POVRay Executable** to the appropriate location.

The **Antialiasing** section defines antialiasing settings for rendering the textures. These settings are:

Threshold - If a pixel's color is different than the pixels neighboring it by more than the threshold, then the pixel is subdivided and super-sampling takes place. The threshold value ranges from 0.0 (all pixels are subdivided) to 3.0 (no pixels are subdivided). A good value is usually between 0.3 and 1.5.

Rays per Pixel - This value defines how many rays are used when super-sampling a pixel. Its values can be 2x2, 3x3, or 4x4. Since super-sampling is very processor intensive, choosing the value 4x4 will slow down the rendering dramatically.

After settings the values in the dialog box, click on **OK** to save your changes and return to the main application.

POVRay is a fantastic freeware ray tracing program available on the Internet and BBSs across the world.

For information about POVRay, point your WEB software to: http://www.povray.org

Antialaising is the process of smoothing out an image in order to make it of higher quality.

Creating Simple Textures

To create a simple texture, select the menu item **Texture|Create Simple Texture**.   The simple texture editor basically consists of four property pages: <u>General</u>, <u>Pigment</u>, <u>Finish</u>, and <u>Normal</u>. You can navigate between these pages by clicking on the tabs along the top of the property sheet.

Here is a screen shot of the simple texture editor:
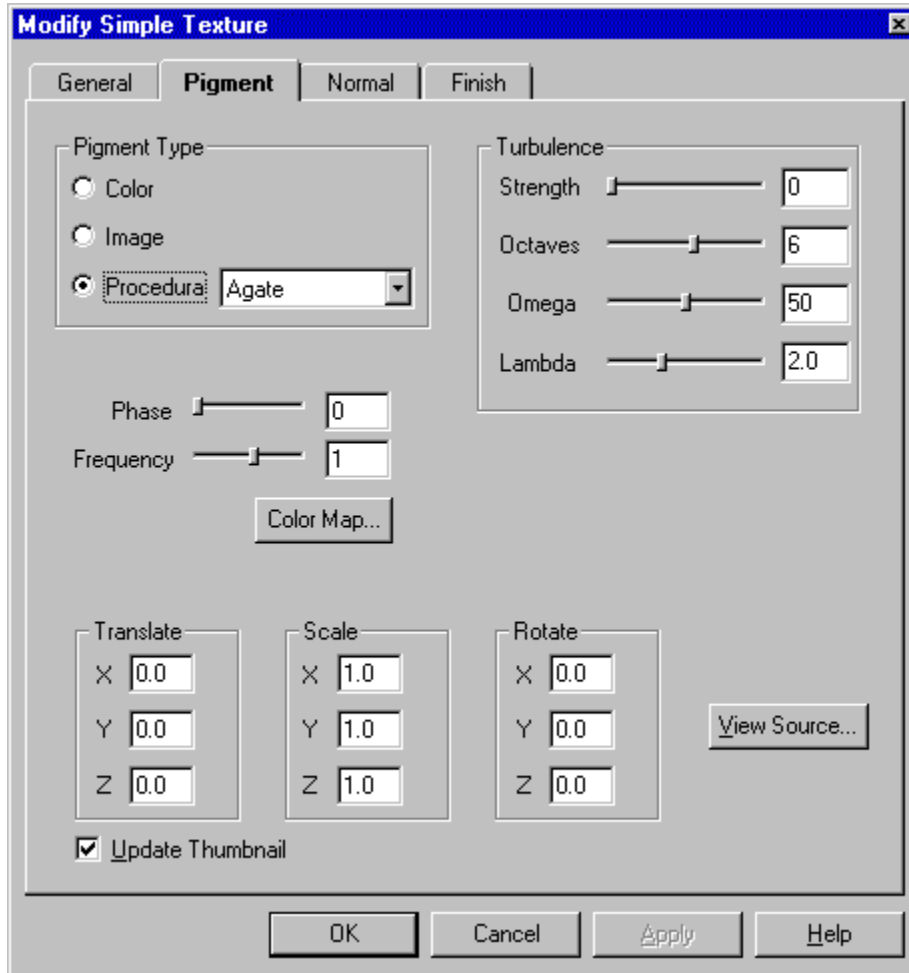
Each page consists of specific controls related to the General, Pigment, Finish, and Normal settings. Each page also has two common controls:

- ***Update Thumbnail* checkbox**
  Check this if you don't want the texture's thumbnail to be updated when you click on the **OK** button. This can save time when doing things such as changing a texture's name, description, etc.

- ***View Source* button**
  Click this button to display a window containing the <u>POVRay</u> source for your texture. You may copy this source to the clipboard by selecting it with the mouse and pressing **CTRL-C**.

Simple Textures-General Settings

The *general settings* for a simple texture define three different things:
- **Name of the texture**
- **Description of the texture**
- **Transformations**
  These values define how a texture is translated (moved), rotated, and scaled along its **x**, **y**, and **z** axis. When you transform a texture under the general settings, the values affect the entire texture as a whole. For example, if you scaled the texture by a factor of two in all 3 axis, both the pigment and the normal would scaled by this value.

This is a screen-shot of the *general settings* property page:
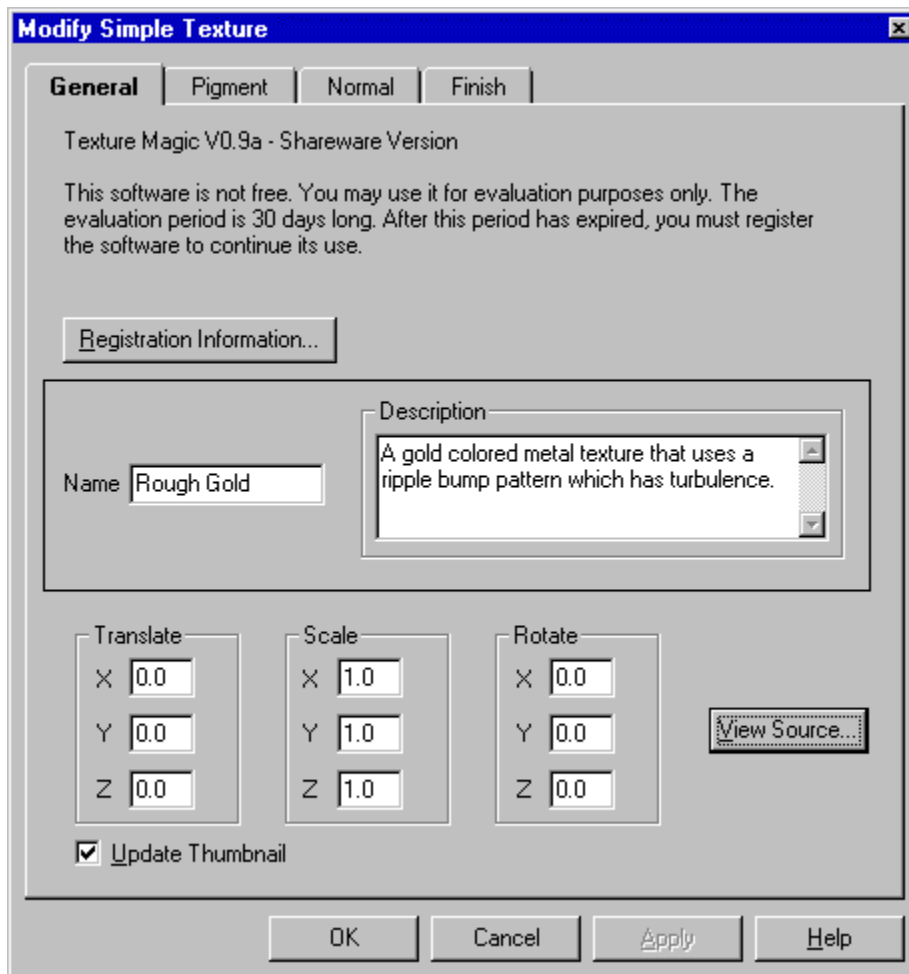
To change name or description or a simple texture, click in the *name* or *description* field and add or modify the text

To modify the transformations for a texture, click in the appropriate text field and enter the new value.

Simple Textures-Pigment Settings

The pigment defines the color and pattern of a texture.

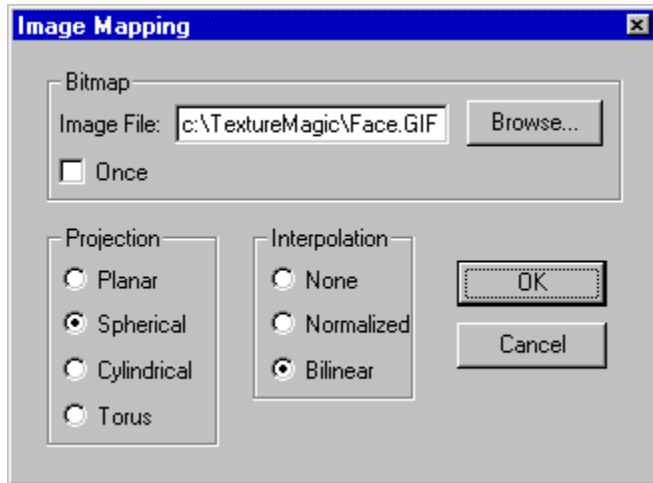This is a screen shot of the *pigment settings* property page:
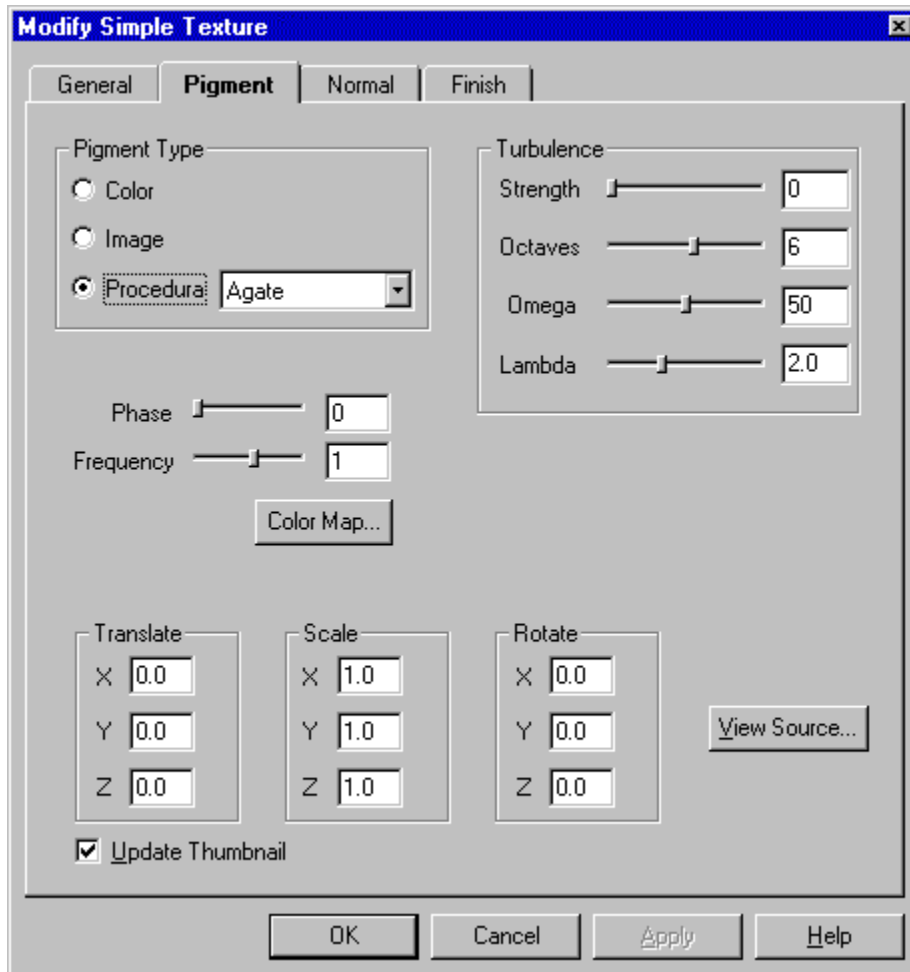
Pigment Types

- **Color**
  When you use the *color* pigment type, your texture is composed of one solid color. This is most useful for creating plastic, metal, water, and glass.

- **Image Map**
  When you specify an *image map* as your pigment type, you provide a bitmap file (GIF or TGA format) which is projected onto the object that is defined with your texture.

- **Procedural**
  Procedural textures are based on mathematical formulas and they are most useful for creating complex and realistic textures such as wood and granite.

To modify the pigment type for your texture, click on a radio button in the *Pigment Type* group.   After you have made your selection, follow these instructions to set the properties of the type which you selected:

- **Color**
  The **<Select>** button will appear in the *Pigment Type* section. Click on this button and use the Color Picker to choose the color for your texture.

- **Image Map**
  When you click on the *Image* radio button, the *Image Mapping* dialog (shown below) will appear.

Enter the bitmap filename into the *Image File* text field or use the **<Browse>** button to select the bitmap using a dialog box. The filename must be in GIF or TGA format. Check the *Once* box if you only want one copy of your bitmap to be used leaving the rest of the texture as fully transparent

Select the method of projection:
  Planar
  This method acts as if the bitmap image is being shown through a projector onto the object.

  Spherical
  The spherical method acts as if the bitmap image is wrapped around a sphere exactly once.

  Cylindrical
  The spherical method acts as if the bitmap image is wrapped around a cylindar exactly once.

  Torus
  The spherical method acts as if the bitmap image is wrapped around a torus (donut) exactly once.

Interpolation is the process of smoothing out the bitmap resulting in a higher quality texture.   You can choose from **none** (no interpolation), **normalized** (fast, low quality) or **bilinear** (slow, high quality).

- **Procedural**
  Use the Combo Box to select the procedural texture of your choice.   Procedural textures are smooth transitions of many colors defined in a color map.   Each procedural type uses a mathematical formula to change the (x,y,z) coordinates of a point into a position (between 0.0 and 1.0) in the color map.   The default color map is a transition between black and white. You can modify the color map by clicking on the **<Color Map>** button and using the Color Map Editor.

Here is a description of each procedural type:

  Gradient
  The Gradient pattern looks like bands of colors laying next to each other. You can change the direction by

selecting the **x**, **y**, and **z** check boxes that appear in the *Gradient* group. The colors are a transition between 0 to 1, then jumping back to 0.

Marble
The marble pattern resembles the gradient pattern, but it makes a smooth transition between 0 and 1, then reversing back to 0.

Wood
The wood pattern uses the color map to create cylindrical bands of color around the Z axis. These bands of color resemble the growth rings in real wood.

Onion
The onion pattern resemble the layers of an onion. The colors are a smooth transition in the color map between 0 to 1, and then jumping back to 0.

Leopard
The Leopard pattern creates a pigment of circular spots. The colors are a smooth transition in the color map between 0 to 1, and then jumping back to 0.

Granite
The Granite pattern is based on a fractal noise function producing a spectacular pattern used for stones. The colors are a smooth transition in the color map between 0 to 1, and then jumping back to 0.

Bozo
The Bozo pattern is based on a noise function that can create very realistic looking cloud textures. The colors are a smooth transition in the color map between 0 to 1, and then jumping back to 0.

Spotted
The Spotted pattern uses the same function as Bozo but it isn't affected by turbulence values. The colors are a smooth transition in the color map between 0 to 1, and then jumping back to 0.
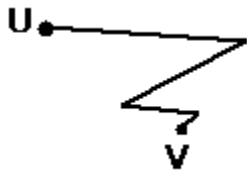
Agate
The Agate pattern is close to marble, but it is very turbulent.

Radial
The Radial pattern is a radial blend that wraps around the +Y axis.

Turbulence Settings

The turbulence value is used to "stir up" a texture's pigment or normal.   The turbulence range is 0 (no turbulence) to 100 (very turbulent).   The turbulence function takes the point U and pushes it around in a few random steps to point V.   The color or normal value of point U is then assigned the value of point V.

The turbulence calculations are effected by these additional values:
- **Octaves**
  The octaves value controls the number of steps in the turbulence calculation. Setting the octaves value above 6 is almost unnoticeable but it increases the rendering time substantially. The above example has an octave value of 4.

- **Omega**
  The omega value specifies the percent in length that an octave is compared the previous octave. For example, an omega value of 50 produces octaves that are progressively shrinking by ½.

- **Lambda**
  The lambda value specifies how random each octave is compared to its previous one. Very low lambda values would straighten out the example above while high values would produce a "swirled" effect.

Transformations

These values define how a texture is translated (moved), rotated, and scaled along its **x**, **y**, and **z** axis. When you transform a texture under the pigment settings, the values affect only the pigment.

Frequency and Phase

The *Frequency* value determines how many times a color map repeats in one cycle. For example, if you set the frequency value to 3, then a color map would repeat 3 times within one cycle of 0.0 to 1.0. This would be the same as setting the scale values to 0.333.

The *Phase* value rotates the color map. For example, if you created a wood texture and you wanted to move the grain a little bit, you could modify the phase value instead of moving all of the values in the color map.

Simple Textures-Finish Settings

The *finish settings* define how light is reflected off the texture's surface, how light behaves as it passes through a texture, and the highlights visible for a texture. For example, you could create a dull plastic finish or a shiny metallic finish.

This is a screen-shot of the *finish settings* property page:
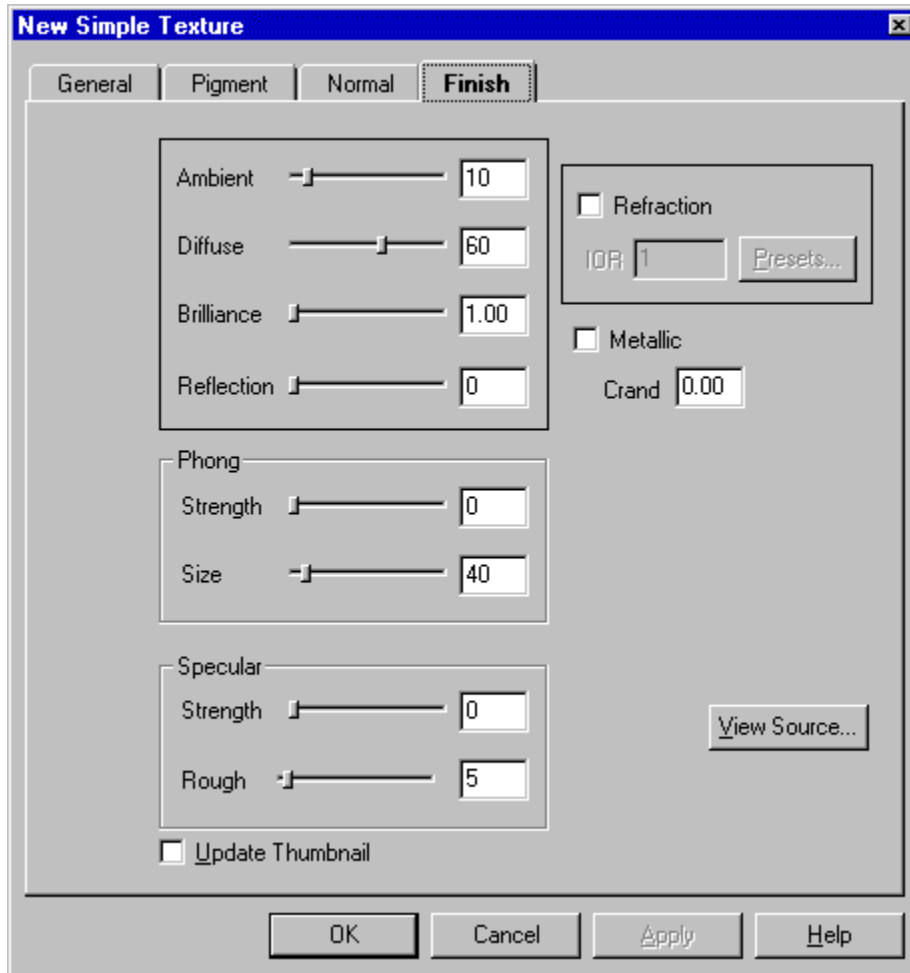

- **Ambient**
  The *Ambient* value specifies how much of an object is illuminated when there is no direct light on the object's surface. Since the simulation of light bouncing off of other objects and illuminated each other would be tremendously processor intensive, this method is used to simulate that effect.

- **Diffuse**
  The *Diffuse* value specifies how much direct light is reflected off the texture's surface. For example, if a lamp was shining on an object with a diffuse value of 60, then 60% of the lamp light would be reflected from the object.

- **Brilliance**
  The *Brilliance* value modifies how the light falls off of an object. Higher values can be used for metals to tighten the amount of diffused light.

- **Reflection**

The *Reflection* value determines how reflective an object is. If the value is set to 100, then the object will reflect all of its surroundings and act like a mirror. Lower values will result in less reflection.

- **Refraction and IOR**
  Check the *Refraction* box if you would like the light to bend as it passes through your object. The IOR (Index of Refraction) specifies how much the light will bend. The greater the index, the more the light will bend. Water has a value of 1.33 and diamond has a value of 2.47.

  If you press the **Presets** button, you will be presented with the dialog below:
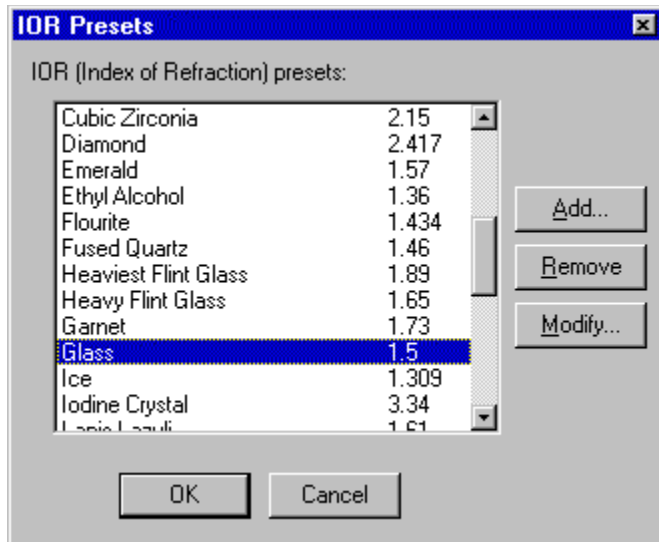
  This dialog allows you to add, modify, and remove IOR preset values. There are 40 predefined values in Texture Magic.

- **Metallic**
  Normal textures reflect the color of the light source back to the eye. When the metallic option is checked, the color of the texture is reflected back to the eye instead.

- **Crand**
  The *crand* value adds a simulated roughness to a texture for effects such as sand, concrete, etc. Typical values range from 0.01 to 0.5, and the roughness is rendered on a pixel by pixel basis so it will look the same close up and far away.

- **Phong-Strength**
  The *Phong Strength* value specifies the amount of phong highlighting on an object. It causes the shiny spots that are the color of the light source being reflected (unless the metallic option is selected).

- **Phong-Size**
  The *Phong Size* value specifies the size of the phong highlight. Typical values range between 40 (dull plastic) to 250 (highly polished metal).

- **Specular-Strength**
  The *Specular Strength* value specifies the amount of specular highlighting on an object. The specular highlights resemble phong highlights but it uses a more accurate model.

- **Specular-Rough**
  The *Specular Rough* value specifies the size of the specular highlight. Typical values range between 0.05 (plastic) to 0.001 (polished metal).

Simple Textures-Normal Settings

The normal defines the "bumpiness" of a texture. You can add a lot of detail such as waves, ripples, dents, etc. without too much effort.

Here is a screen-shot of the *normal settings* property page:
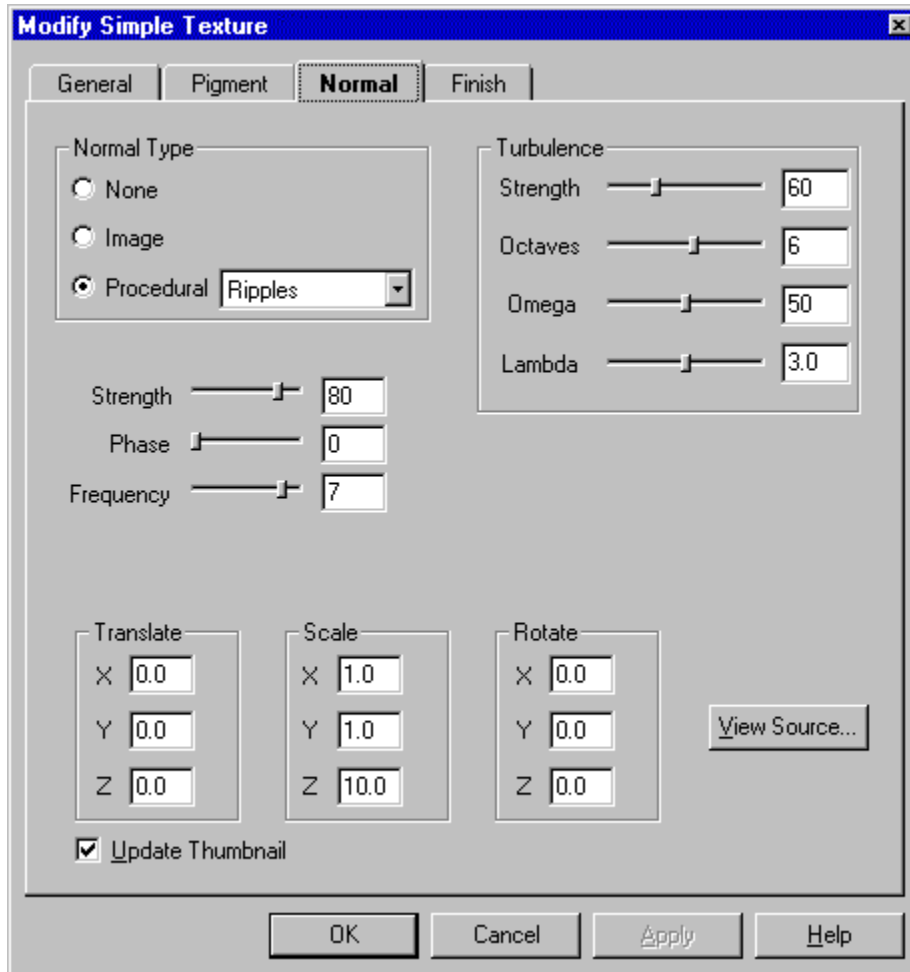
Normal Types

- **None**
  This specifies that the texture is to be perfectly smooth.

- **Image Map**
  When you specify an *image map* as your normal type, you provide a bitmap file (GIF or TGA format) which is projected onto the object. The brightness of each pixel in the bitmap is used to calculate the various bumps of a texture.

- **Procedural**
  Procedural textures are based on mathematical formulas that produce textures that are bumpy, wavy, have dents, etc.

To modify the pigment type for your texture, click on a radio button in the *Pigment Type* group.   After you have

made your selection, follow these instructions to set the properties of the type which you selected:

- **None**
  Selecting this option disables the normal settings producing a texture that is perfectly smooth.

- **Image Map**
  When you click on the *Image* radio button, the *Image Mapping* dialog (shown below) will appear.

Enter the bitmap filename into the *Image File* text field or use the **<Browse>** button to select the bitmap using a dialog box. The filename must be in GIF or TGA format. Check the *Once* box if you only want one copy of your bitmap to be used leaving the rest of the texture as fully transparent

Select the method of projection:
> **Planar**
> This method acts as if the bitmap image is being shown through a projector.
>
> **Spherical**
> The spherical method acts as if the bitmap image is wrapped around a sphere exactly once.
>
> **Cylindrical**
> The spherical method acts as if the bitmap image is wrapped around a cylindar exactly once.
>
> **Torus**
> The spherical method acts as if the bitmap image is wrapped around a torus (donut) exactly once.

Interpolation is the process of smoothing out the bitmap resulting in a higher quality texture. You can choose from **none** (no interpolation), **normalized** (fast, low quality) or **bilinear** (slow, high quality).

The *bump size* specifies the "strength" of an image map. Experiment with this value to obtain the correct results for your situation.

- **Procedural**
  To create a procedural normal for your texture, you must specify the pattern that you wish to use and the *strength* of that pattern. The strength is controlled by the scrollbar or by editing the text field.

  Here is a description of each procedural type:

  Bumps
  The *Bumps* procedure produces a smooth pattern of bumps resembling an orange.

Dents
The *Dents* procedure makes textures (especially metallic ones) look as though they have been pounded by a blunt object.

Ripples
The *Ripples* pattern simulates ripples of water generated from 10 random points.   Modify the scaling values if you want to space the ripples farther apart or closer together.
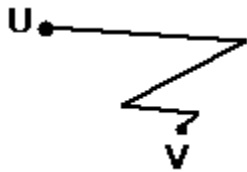
Waves
The *Waves* pattern is like the ripples pattern, but it generates waves of different frequencies and they closer resemble deep ocean waves.

Wrinkles
The *Wrinkles* pattern makes the texture look as though it is like wrinkles paper or cellophane.

Turbulence Settings

The turbulence value is used to "stir up" a texture's pigment or normal.   The turbulence range is 0 (no turbulence) to 100 (very turbulent).   The turbulence function takes the point U and pushes it around in a few random steps to point V.   The color or normal value of point U is then assigned the value of point V.

The turbulence calculations are effected by these additional values:
- **Octaves**
  The octaves value controls the number of steps in the turbulence calculation. Setting the octaves value above 6 is almost unnoticeable but it increases the rendering time substantially. The above example has an octave value of 4.

- **Omega**
  The omega value specifies the percent in length that an octave is compared the previous octave.   For example, an omega value of 50 produces octaves that are progressively shrinking by ½.

- **Lambda**
  The lambda value specifies how random each octave is compared to its previous one. Very low lambda values would straighten out the example above while high values would produce a "swirled" effect.

Transformations

These values define how a texture is translated (moved), rotated, and scaled along its **x**, **y**, and **z** axis.   When you transform a texture under the normal settings, the values affect only the normal

Frequency and Phase

The *Frequency* value specifies how many times that bumps, dents, ripples, and waves repeat in one cycle.   The *Phase* value rotates the procedural pattern. If you were to gradually increment the *phase* value in an animation, you could create effects such as flowing water.

Introduction to Textures

Texture magic can be used to create a variety of different textures. Some examples of these textures are metal, wood, marble, and glass.

There are two types of textures that can be made using Texture Magic:

- **Simple Texture**
  This is the foundation point in creating realistic and spectacular textures.   A simple texture consists of one layer of a certain texture type.   For example, you might have a simple texture that represents wood, marble, or granite.

- **Layered Texture**
  When simple textures are layered on top of each other, the resulting texture is called a *layered texture*.   For example, you might compose one simple texture that looks like granite with another texture that looks like thin cracks. The result would look like a piece of granite with cracks in it.
  Note: In order to compose simple textures into a layered texture, they must have <u>filter values</u> so the underlying texture is visible.

When the colors for a texture are defined, you can assign *filter values* to these colors. These values specify the transparency for that color.

Using the Catalog

The catalog is the place that you store your textures for later use. Each texture is represented by a thumbnail. You can do many things in the catalog including modifying textures, creating texture maps, etc.

This is a screen shot of a typical catalog:

Selecting textures in the catalog

- Click the thumbnail of the texture that you want to select.   You can select multiple textures by holding down the **CTRL** key as you click on the thumbnails.   If you hold down the **SHIFT** key, you can select a range of textures.

Creating textures in the catalog

Please see the section <u>Creating Simple Textures</u> and <u>Creating Layered Textures</u>.

Modifying textures in the catalog

- Select the texture that you want to modify.
- Select the menu item **Texture|Modify.**
- *See the section* <u>Creating Simple Textures</u> or <u>Creating Layered Textures</u> depending on the type of the texture that you selected.

Note: You can also double click on the thumbnail to modify the texture.

Removing textures from the catalog

- Select the textures that you want to remove
- Select the menu item **Texture|Remove**.

Viewing the <u>POVRay</u> source of textures in the catalog

- Select the textures that you want to view the source for.
- Select the menu item **Texture|View Source**

Exporting the <u>POVRay</u> **source of textures in the catalog to a file**
Please see the section <u>Exporting POVRay source</u>.

Clearing the thumbnails of textures in the catalog
Clearing a texture's thumbnail dramatically decreases the amount of space required by the texture. This makes it easier to transfer catalogs over networks and the Internet

- Select the textures that you want to clear the thumbnails for.
- Select the menu item **Texture|Clear Thumbnail(s)**.
- When the verification dialog appears, click on the **OK** button to proceed.

Rendering the thumbnails for the textures in the catalog
- Select the textures that you want to render the thumbnails for.
- Select the menu item **Texture|Render Thumbnail(s).**
- When the verification dialog appears, click on the **OK** button to proceed.

**Cutting, Copying, and Pasting textures to and from the catalog**
- Select the textures that you want to cut or copy.
- Select the menu item **Edit|Cut** or **Edit|Copy.**
- Click on the catalog that you want to paste the textures into.
- Select the menu item **Edit|Paste**.

Exporting the POVRay source for a texture

You can export the textures in your catalog to <u>POVRay</u> source files.   Follow these steps to complete this task:

- If you do not want to export the source for every texture in the catalog, then select the individual textures that you would like to export the source for.
- Select the menu item **Texture|Export Source**

The Export Texture(s) dialog box will appear:
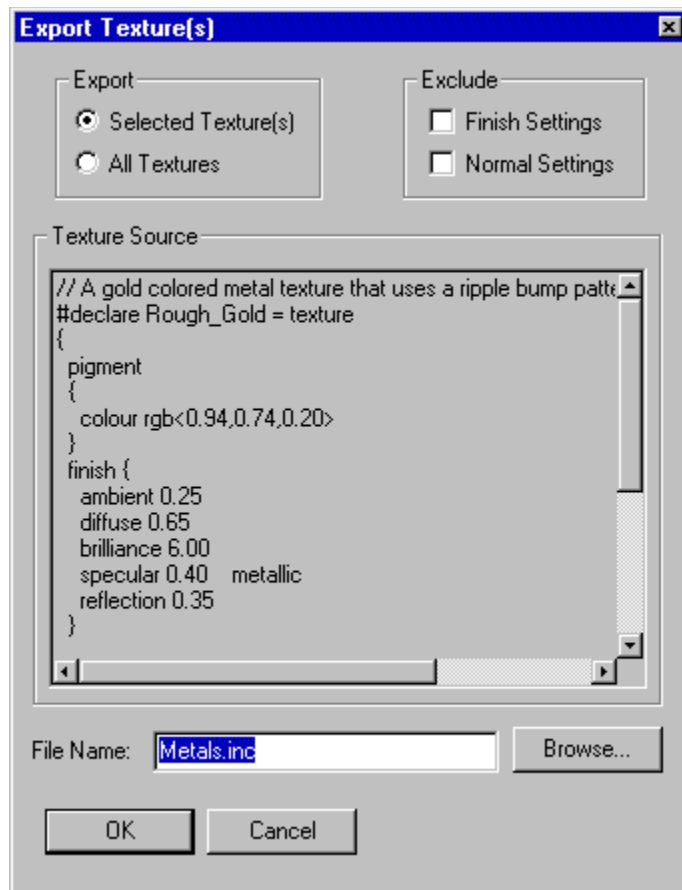
- Set the following controls in the dialog box

    Export
    If you only want to export the source for the selected textures in the catalog, then check the *Selected Texture(s)* radio button.   If you want to export the source for all of the textures in the catalog, then select the *All Textures* radio button.

    Exclude
    Checking *Finish Settings* and/or *Normal Settings* will exclude those properties from the source output. This in turn will make your textures render with the default Finish and Normal settings defined by <u>POVRay</u>.

    File Name
    This field defines the name of the file which the source is exported to. You can use the **Browse** button to choose a filename using the standard file dialog box.

- Click on the **OK** button to export the <u>POVRay</u> source code.

Color Map Editor

Please see a description on how to use color maps in the <u>Pigment Types</u> *section of this help file.*

This is a screen shot of the *Color Map Editor*:
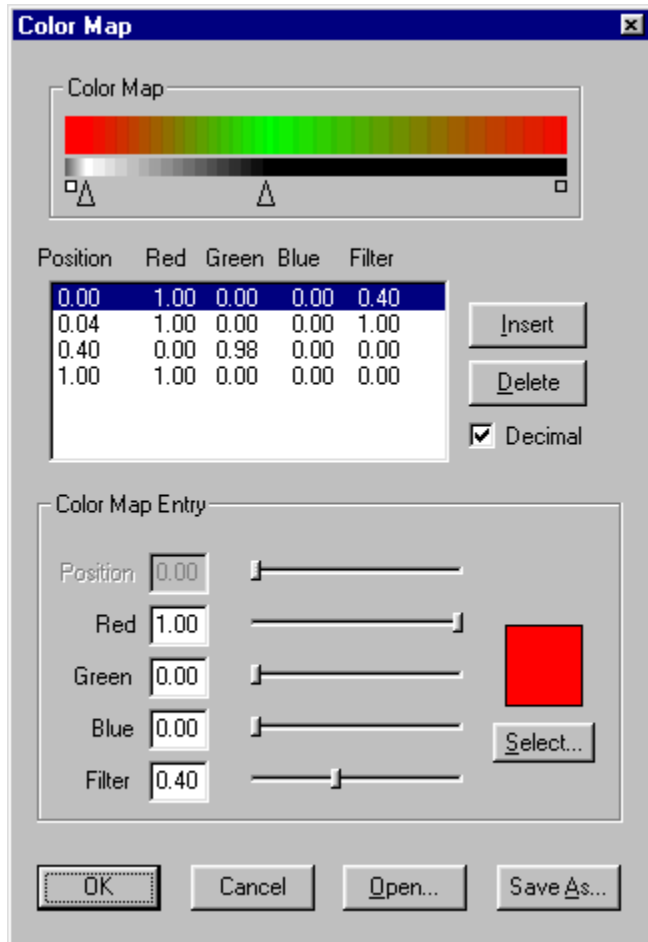
A band of colors displayed in the *Color Map* group. This band represents the transition between the positions of 0.0 and 1.0. The top band is the color values, and the lower band represents the *filter values*.   Arrows point to the positions in the color map where a specific color has been defined.

To modify a value in the Color Map
  • Select the value that you want to change from the listbox.
     Notice that the white arrow pointing to the color band represents the value which you have selected.

  • Use the *position* scrollbar (or enter a value manually into the text field) to change the position of the color map value. As you move the scrollbar, the white arrow pointing the color band will move as well.   This enables you to visually position your color map value.

  • Use the *Red*, *Green*, *Blue*, and *Filter* scrollbars (or enter a value manually into the text field) to change the color of your color map value. Alternatively, you can use the <u>Color Picker</u> to modify the color.

To add or delete values from the Color Map
  • Select the value that you want to change from the listbox
  • Click the **<Insert>** button to add a value, or click the **<Delete>** button to remove a value

To Save a Color Map to a file
- Click on the **<Save As…>** button and enter a filename in the save as dialog box.
  Note: The saved files is to be used only with Texture Magic. It cannot be read by POVRay.

To Open a Color Map from a file
- Click on the **<Open…>** button and pick a filename in the open dialog box.
 *Note: These should only be Texture Magic files (see above).*

If you click on the ***Decimal*** checkbox, the color values will change from a range of 0-255 to 0.0-1.0 enabling you to enter values as a percent of color.

After you are satisfied with your color map, click on the **<OK>** button.

Using the Color Picker

The *Color Picker* is a dialog box that allows you to visually select colors for your texture.

This is a screen shot of the *Color Picker*:
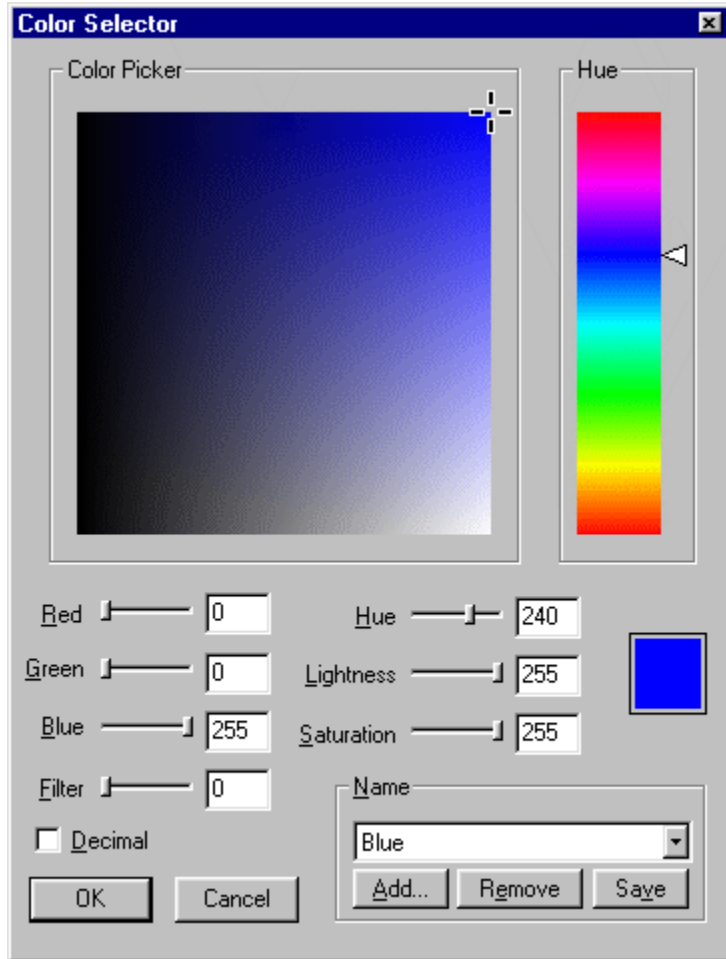
You can specify your color as a **RGB** (Red, Green, Blue) or an **HLS** (Hue, Lightness, Saturation).   There are three ways to select a color:

- **Visually**
  There are two steps in selecting a color visually. First, select the hue value for your color by clicking the left mouse button on the color band in the *Hue* area. Next, pick the desired color by clicking the left mouse button in the *Color Picker* area.

- **Numerically**
  To change an RGB or HLS value for your color, use the slider bars or edit the text in the number fields for the value that you want to change.

- **Named Colors**
  - To select a named color, use the combobox in the *Name* group.

  - If you would like to add a new color, pick a color using the two methods above and click the **<Add…>** button. You will them be prompted to enter a name for your new color.

- To change value of a named color, select the name of the color that you would like to change, pick another color using the methods above, and press the **<Save>** button.

If you click on the ***Decimal*** checkbox, the color values will change from a range of 0-255 to 0.0-1.0 enabling you to enter values as a percent of color.

After you are satisfied with your color, click on the **<OK>** button to accept your choice.

Using the Preview Window

When you are creating or modifying textures in Texture Magic, there will usually be a preview window which allows you to render different shaped objects with your texture.

Here is a screen shot of the Preview Window:
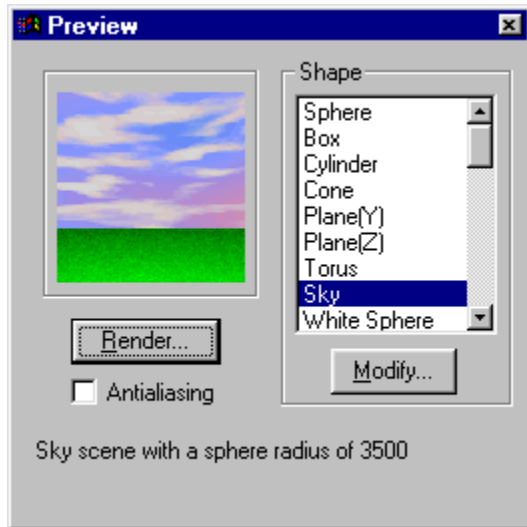

To render a preview, click on the **<Render…>** button. You can set the antialiasing flag by clicking on the antialiasing checkbox.   The shape listbox defines the shapes that you may render.   Select a shape from the listbox, a textual description will be displayed at the bottom of the preview window. See the section below for information on creating your own shapes.

Creating shapes for the Preview Window

If you know how to create scenes using the POVRay scripting language, then you can create custom shapes for use with Texture Magic.   Click on the **<Modify…>** button in the *Preview Window* to bring up the *Modify Custom Shape* dialog.

*This is a screen shot of the Modify Custom Shape dialog:*
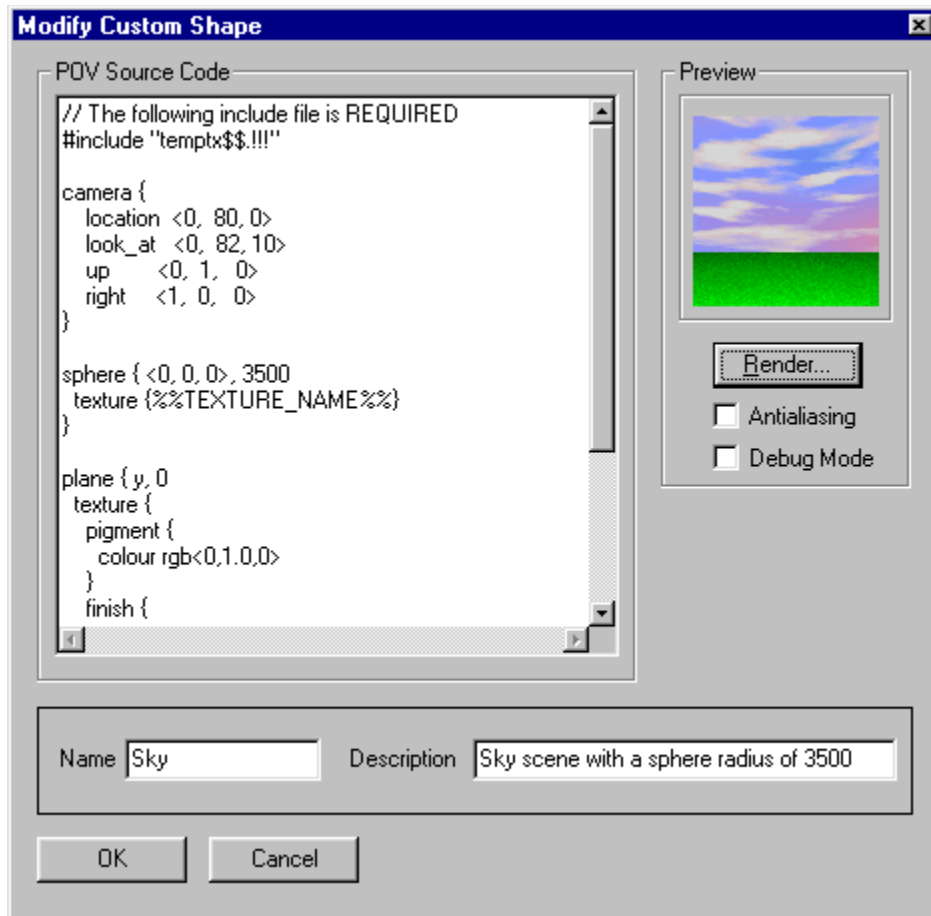
- Enter you <u>POVRay</u> scene code into the *POV Source Code* window. You must include the file "temptx$$.!!!" for your scene to render properly.   When your scene calls for the specific Texture Magic texture, you must use the name %%TEXTURE_NAME%%.

- Edit the *Name* and *Description* text fields. The description text will be displayed at the bottom of the preview window when the shape is selected.

- You can click on the **<Render…>** button to generate a thumbnail using your scene. If you check the *Debug Mode* checkbox, the <u>POVRay</u> rendering window will be visible so you can detect any errors that you might have in your code.   You may toggle the antialiasing by clicking on the *Antialiasing* checkbox.

Creating Layered Textures

Layered textures are textures that consist of several simple textures layered on top of each other. Since you are layering textures, you need to create simple textures that have filter values greater than 0.0 so the underlying textures are visible.   To create a layered texture, select the menu item **Texture|New Layered…**

The New Layered dialog box will appear:
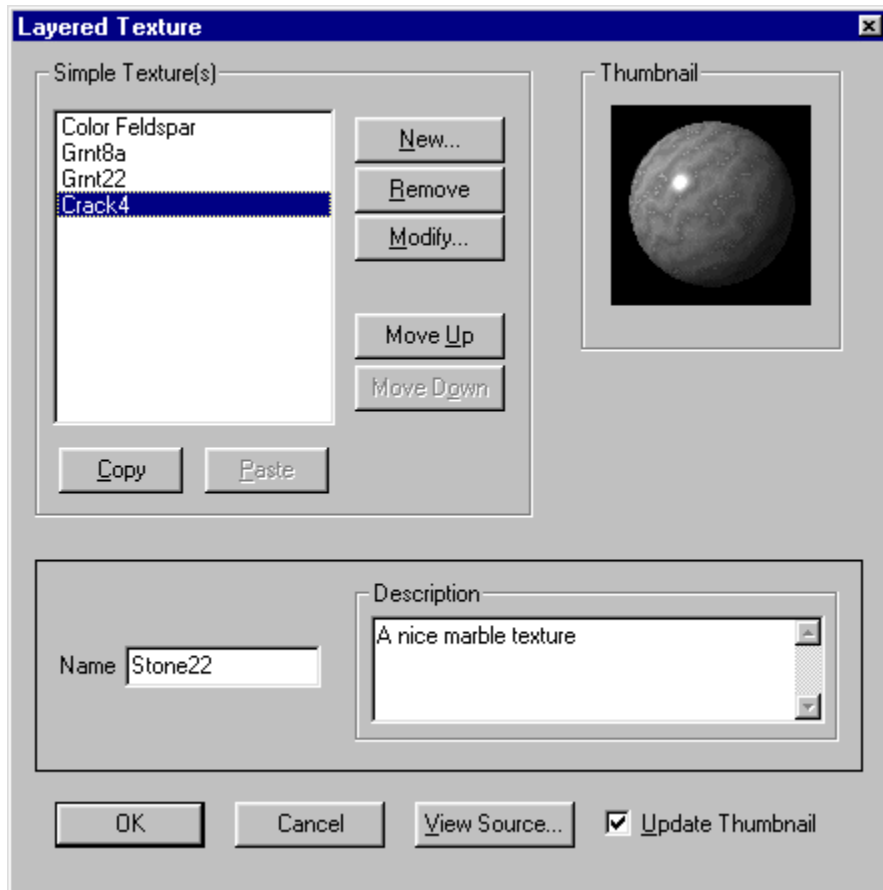
The *New Layered* dialog box contains a list of the simple textures which compose the layered texture.   There is also a thumbnail of the currently selected simple texture.

Changing the name of a layered texture
 • Edit the text in the *Name* field.

Changing the description of a layered texture
 • Edit the text in the *Description* field.

Adding simple textures to a layered texture
 • Click on the **New…** button and the simple texture editor will be displayed.
 • Create your texture as described in the section Creating Simple Textures.

Removing simple textures from a layered texture
 • Select the texture that you want to remove from the Simple Texture list box.
 • Click on the **Remove** button and click on **OK** in the Remove Texture dialog box.

Modifying a simple texture in a layered texture
- Select the texture that you want to modify.
- Click on the **Modify…** button and the simple texture editor will be displayed.
- Modify your texture as described in the section <u>Creating Simple Textures</u>.

Changing the order of the simple textures in a layered texture
- Select the texture that you want to move within the order.
- Click on the **Move Up** button to move a texture up in the list, and click on the **Move Down** button to move the texture down in the list.

Copying textures to the clipboard
- Select the texture that you want to copy to the clipboard
- Click on the **Copy** button.

Pasting textures from the clipboard to the layered material
- Click on the **Paste** button to paste the texture into the layered texture.
  The texture will be put at the bottom of the list. If you are pasting a layered texture into the listbox, then each layer is pasted as an individual texture.

Viewing the POVRay source of a layered texture
- Click on the **View Source** button.
- When you are finished viewing the source in the *View Source* window, click on the **OK** button.

Using a texture in the catalog to create a texture map

You can use a texture in the catalog to create a texture map. A texture map is a flat bitmap that can be wrapped around objects in software such Asymetrix 3D F/X™ and Autodesk 3D Studio™.   To create a texture map, select a texture from the catalog and choose the **Texture|Create Texture Map…** menu option.

The Create Texture Map dialog will appear
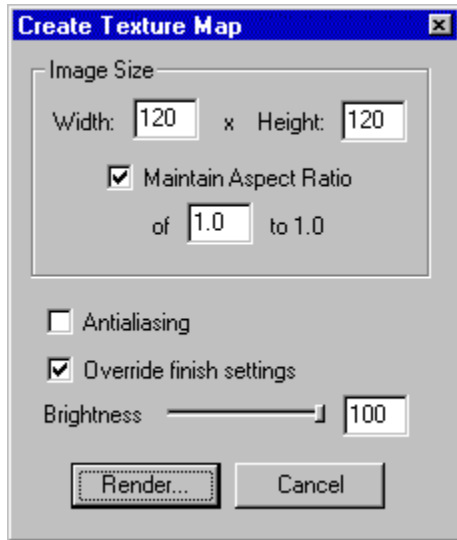
- Enter the width and height of the texture map in the *Width* and *Height* text fields.
  If the *Maintain Aspect Ratio* button is checked, the width and height will always have the same ratio as the number in the *Maintain Aspect Ratio* text field.
- If you would like to perform antialiasing on the texture map, then check the *Antialiasing* check box.
- Since most 3D rendering packages perform shading and highlight calculations, it is best if the texture map does not have any shading or highlights.   Check the *Override finish settings* checkbox if you would like Texture Magic to override the finish settings for you so that there is not any shading, reflection, highlights, etc.   Modify the number in the *Brightness* text field to adjust the overall brightness of your texture map.
- Click on the **Render…** button to render the texture map.

Once the texture map is rendered, it will be displayed in a window. Here you can save the texture to a Windows BMP file and perform image processing so the texture will be tileable.

To save a texture map to a Window BMP file
- Choose the menu option **File|Save** and complete the file dialog box to save your texture map.

To view your texture map as a tiled texture map
- Choose the menu option **Image Tiling|Show Tiling** and the texture map will be tiled to fit the entire window. Choose this menu option again if you don't want the texture map to be tiled.

To perform image processing on your texture to help make it tileable
- Select the **Image Tiling|Tile Method** menu option and pick one of the following choices:

  None
  This method performs no image tiling operations.

  Edge Fade
  This method gradually fades the edges of the texture map into each other. If this operation gives good results for your specific texture, then choose it over the **Mirror** option.

Mirror
This method mirrors the texture in both the horizontal and vertical directions.   The resulting texture map will be 100% tileable. However, its dimensions will be doubled.   Since the resulting texture map will take much more disk space and memory, use this option only if the **Edge Fade** option does not create acceptable results.

Texture maps are tiled, their edges usually do not match up and they become visible in the rendered image. You can help remove these edges using image processing, thus making the texture *tileable*.

Tips for creating fantastic texture maps

This section of the documentation will be completed in Texture Magic version 1.0. If you need help creating texture maps, please write to this e-mail address: scott@eskimo.com

Texture Magic Registration Form

Please print and complete the form bellow and mail it to the following address. Include payment in the form of cash (U.S. Dollars), check, or U.S. money order to Scott H. Pultz.

Scott H. Pultz
114-168th Ave. NE
Bellevue, Wa 98008
USA

Texture Magic V0.93   _____   copies @ $20 each   =   _____ dollars

Name   _____   Date   _____

Company   _____

Address   _____

City, State, Zip   _____

Country   _____

E-Mail   _____

The registration code will sent to you via your mailing address or through e-mail. This code will enable you to unlock the time limit on the shareware version of Texture Magic. Please specify which delivery method that you would prefer:

E-Mail   _____   Mailing Address   _____

License Agreement

The registered version of Texture Magic is not shareware. The registered version may be installed on multiple computers if it is only used by one person, or installed on one machine and used non-simultaneously by multiple people. The registration code is not to be shared with anybody.

Warranty and Disclaimer
THIS SOFTWARE AND ITS FILES ARE SOLD "AS IS" AND WITHOUT ANY WARRANTIES AS TO THE PERFORMANCE OF MERCHANTIBILITY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS SOFTWARE.

Thank you very much! Your registration code will be sent to you immediately!

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Texture Magic is not "free" software.   You may use it for a 60 day evaluation period.   To continue its use, you must register the software after this period has expired.   The registered version may be installed on multiple computers if it is only used by one person, or installed on one machine and used non-simultaneously by multiple people. You may not do both.   If several workstations access *Texture Magic* over a network, you must have a registration for each workstation.

The registration fee for Texture Magic is 20 U.S. dollars.

Users will receive the following benefits:
- The use of Texture Magic after the 60 day evaluation period.
- Incremental releases of Texture Magic.
- Notification of new texture catalogs posted to the *Texture Magic Collection* (coming soon) on the World Wide Web.

Registration Information
To register *Texture Magic* you must pay the registration fee.   There are currently three methods to register Texture Magic:

Registering through the mail
> Please print and fill out the <u>Registration Form</u> and send it with payment to the indicated address. You will then receive a registration code that can be used unlock Texture Magic from the 60 day evaluation period.

Registering through CompuServe™
> You can register Texture Magic through CompuServe™ and the payment will be added to you monthly CompuServe™ charges. Go to **"SWREG"** and select **"Register Shareware"**. Then enter **10048** as the *Registration ID number*.   Your registration code will then be sent to you via e-mail.

Registering with your credit card through Kagi Shareware
1. Included with the Texture Magic archive is a file called "**register.exe**". If you do not have this file for some reason, please follow steps 2-4. Otherwise, skip to step 5.

2. Download the registration file from the following URL or Texture Magic's web page:
   Registration file - http://www.eskimo.com/~scott/txmagreg.zip
   Texture Magic web page - http://www.eskimo.com/~scott/povtext.html

3. Copy the file to a temporary directory.

4. Unzip the file to expand its contents.

5. Run the program "register"

6. Follow the onscreen instructions!

> You will be presented with a dialog box which you must enter information such as name, address, etc. After completing the dialog box, send the information to Kagi Shareware (the registration service) which will process the order. You can send it through e-mail, fax, or postal mail. The credit card numbers are encrypted to make transactions safer.

Discounts on multiple registrations and site licenses of *Texture Magic* are available. Please e-mail scott@eskimo.com for more information.

Warranty and Disclaimer
THIS SOFTWARE AND ITS FILES ARE SOLD "AS IS" AND WITHOUT ANY WARRANTIES AS TO THE

Contacting the Author

You may contact the author of *Texture Magic* the follow ways:

E-mail
Send and e-mail message to scott@eskimo.com or scottp@kagi.com

World Wide Web
Please point your WEB browser to:
http://www.eskimo.com/~scott/povtext.html