

TMM Tutorial

The Texture Material Mapper associates materials with texture image pixels.

There are five basic steps:

Find your texture

Invoke TMM

Load a supported texture format (rgb, rgba, int, inta)

Map the materials to the texture

Run SensorVision.

The association process involves using the following mouse buttons and keyboard controls with the described effects:

Mouse and Keyboard Control(s) and Described Effects

Left Mouse button

Controls material associations and size (via point, click and slide) of association rectangle.

Right Mouse button

Controls texture image pixel (via point and click) to be centered in image display.

Middle Mouse button

Adds defining points when defining a subregion polygon (via point and click).

Shift + Middle Mouse

Internally defines subregion polygon and draws subregion outline on texture image. 3 or more points are required to define a subregion.

Control+ Middle Mouse

Deletes last defined subregion.

Keyboard delete

Deletes a highlighted material from association list.

Step one: Identify your textures and copy them to a working directory.

Create the following directory : /usr/people/guest/TMMTutorial

Copy /usr/local/PSI/sample/e2c.rgb into the /usr/people/guest/TMMTutorial directory.

cd into the /usr/people/guest/TMMTutorial. TMM will write its output in the directory where it is invoked.

Step two: Invoke TMM

On the command line type 'tmm' and the Texture Material Mapper Tool dialog box will be displayed.

Step three: Load a texture

From the TMM 'File' pulldown menu select 'Load Texture'

The texture to load is e2c.rgb in our current directory.

The widget labeled 'Texture Map' should display the e2c.rgb texture.

The widget labeled 'Material Map' should be black.

Step four: Map materials to the textures

In the widget labeled 'Material Categories' Select 'PAINT_ON_METAL'

Select the appropriate paint color that best matches the metal of the e2c aircraft. Note you may make several paint on metal mappings to duplicate the e2c texture. In the Association Information window the upper box is the texture triplet and color and the lower box is the material triplet and color. Differences in these colors will manifest themselves in the resultant material triplet image. The differences are constrained by the available materials, but sometimes a close match can be achieved.

Select File and Run tmm Your association is processed by tmm and the Material Map is displayed in the 'Material Map' widget.

As you add more materials and select 'Run' from the file menus, your 'material map' image should update.

The TMM file information will be written in the directory where TMM was invoked, in this case in /usr/people/guest/TMMTutorial.

That concludes the official TMM process. Other things you can do is look at the material mapping using different wavelengths.

To examine the material using different wavelengths:

Select "Render" and choose, in sequence,

- *Reflectance*

Enter any wavelength from the visible through the infrared and a reflectance image will be displayed at the chosen wavelength. Choose several (e.g., 0.4, 0.5, 0.6, 1.0, 3., 5., 10.) and observe how the reflectance images change.

- *Emittance*

Repeat above wavelength selections

- *Radiance*

Click on compute. In a few seconds a radiance image will be displayed with the SAO-

image tool. Pan the image with the cursor and note the change in radiance from texel to texel. Click on "view" in the radiance dialog window. Note the atmospheric database header (used in a mat execution) has two states and six bands. Select different states, bands, times of day, etc., and recompute the radiance images. The process will show you how your radiance texture will look in SensorVision.

- *RGB Values/Material Triplet and RGB Values/Texture Triplet*
The material triplet option uses the R, G, B triplets for the materials chosen and should be a good indication of the quality of the result.