Creating Repeating Textures

This tutorial is designed to walk you through the steps of creating a repeating texture in photoshop.

Repeating textures are a staple in 3d graphics. They allow us to easily change the resolution of a surface as well as reuse textures simply by altering the number of times they repeat in a given material.

In this exercise we will be working with a poorly photographed section of corrugated steal. This material is in essence already repeating. The cross latticed diamond shape extruded from its surface occurs at almost perfectly repeating intervals. However, because the surface was poorly photographed this image will not successfully repeat. Our goal will be to edit this image such that it repeat without noticeable signs of tiling.

The following 6 images should serve as a quick summary of the techniques and process explored within this tutorial. Advanced students may be able to skip most of this document and proceed directly to a finished result.

You may download the original source image at:

http://www.persistentvisions.com/tutorials_Main/repeating/steelSource.zip
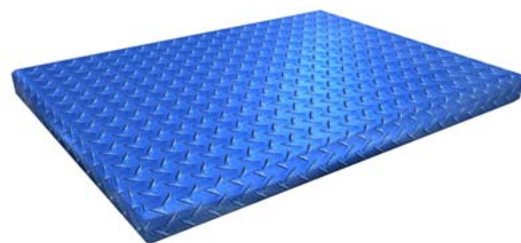
Good Luck!

Source image

Source image repeated

Selection cropped to square and resized to 256x256

Use the offset filter to blend the image's edge pixels

Final image texture rendered in Maya.

STEP 1

First,

- Open up the image file:*steelSource.tga*

- Make a marquee selection similar to that of *figure 3*

- Copy this selection <CTRL+C>

- Create a new document <CTRL+N>

- Save and name the new document steelTile.tga

- Paste the selection into steelTile.tga <CTRL+V>

tip: When you copy a selected area of a document the extents of that selection size will used as the new document's image size.

Then,

- **Resize the image to 256x256.**

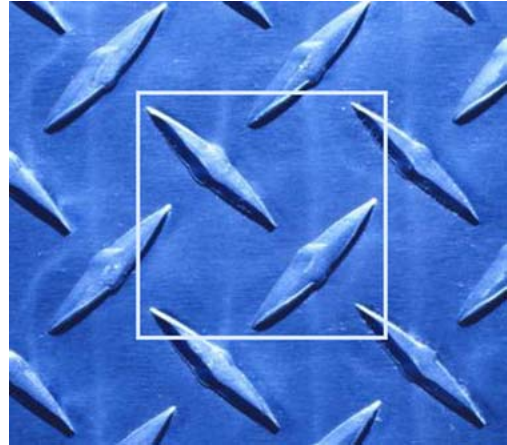   you can do this by going to image>image size.

- **Save your progress.**

figure 3

Obviously the material in the source image is already a repeating texture. Instead of color correcting the entire image, lets just work with a small part of the original.

STEP 2

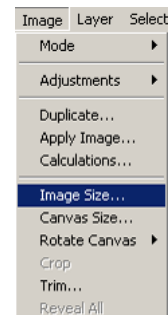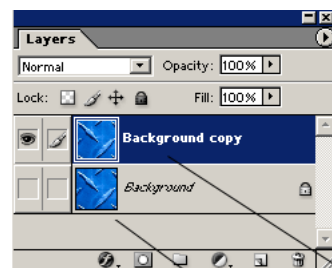figure 4

The core of this texture is placed into a new document.

Notice the new 1:1 (square) dimensions of the image.

Lets test how well this image is repeating at this point. steelTile.tga has only one layer and it is a Background layer so it has an opaque background. Lets make it have transparency

- Duplicate the *Background layer*: Layer>Duplicate layer

- Make sure your layers palette is open window>Layers

- Name the layer Background Copy to *Tile1* and delete "*Background*" (fig. 4b)

Rename Tile1

Delete "*Background*"

figure 4b

STEP 3

Make your canvas 4 times larger. (fig 4b)
• Image>canvas size

• set the canvas size to 512x512 pixels
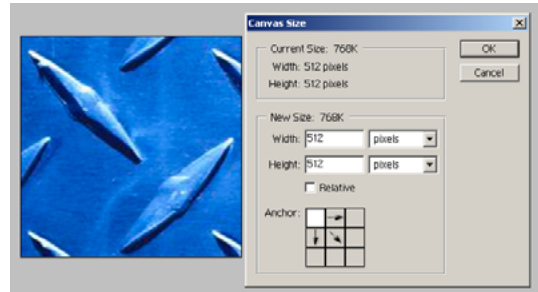
• change the image quadrant placement to Upper-Left

figure 4a

• Make 3 duplicates of the layer "Tile1"

• Name themTile 2, Tile 3, and Tile 4

• move Tile 2 to the upper right corner of the image space.

• move Tile 3 to the lower left

• move Tile 4 to the lower right

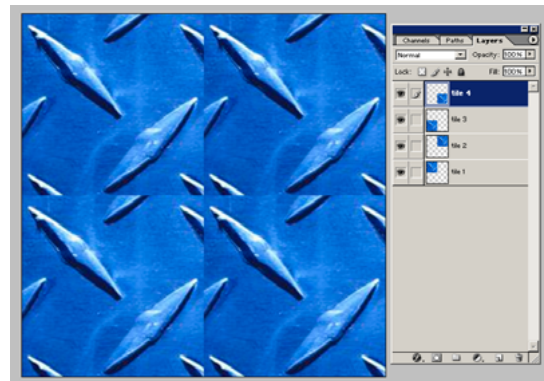**Obviously the original tile section is too wide and too tall**

figure 4c

STEP 4

Nudge Tile 2 over to the left until it neatly overlaps Tile 1.

• Select Tile 2.

• Set its layer opacity to about 70%
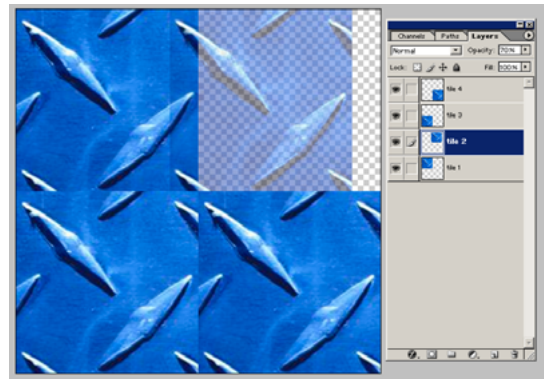
• Nudge it over approx. 48 pixels

figure 4d

Now nudge Tile 3 up until it overlaps tile 1(refer to fig. 4e)

This will give you an indication of how much you should now crop out of the original image.
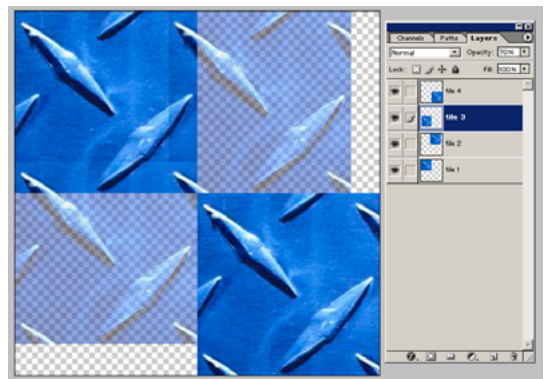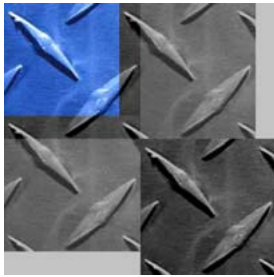
Continue on to the next step to crop this image.

figure 4e

STEP 5

Use the crop tool

To get this image

Lets test how well the image tiles at this point.

Follow the steps below to create a repeating texture within photoshop.

- Select>All <CTRL+A>
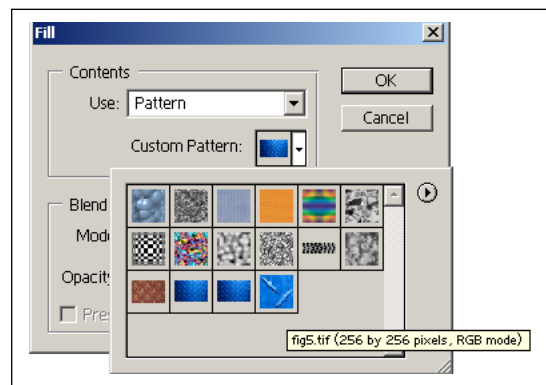- Edit>Define pattern
- click **OK**

Pattern Name

Name: fig5.tif

OK

Cancel

STEP 6

1. Create a new document

- Set the pixel dimension to approximately 10 times***** the size of the original document.

- Edit>Fill>Pattern>*select the last pattern from the list* (see fig 1).

* Users with less than 512mb may have difficulty working at higher resolutions. Try restricting your image sizes to less than 3000x3000.

Fill

Contents

Use: Pattern

OK

Cancel

Custom Pattern:

Blend

Mod

Opacit

Pre

fig5.tif (256 by 256 pixels, RGB mode)

Fill Pallet in Pattern mode

You'll notice that the color value across this repeating texture is already much more consistent than our original source image. However, the tiling effect is quite obvious.

Next we will go back to our source image and continue to edit it for better results.

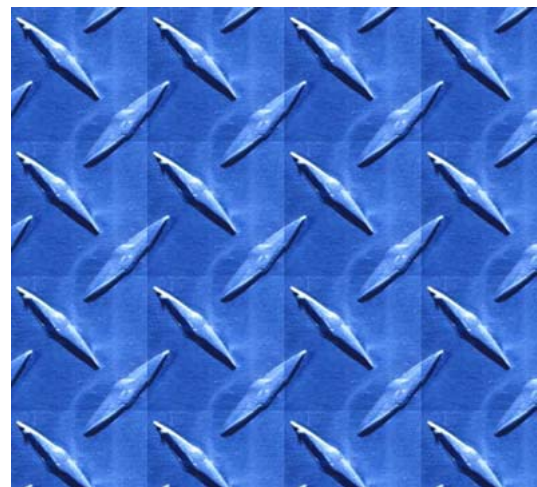## STEP 7

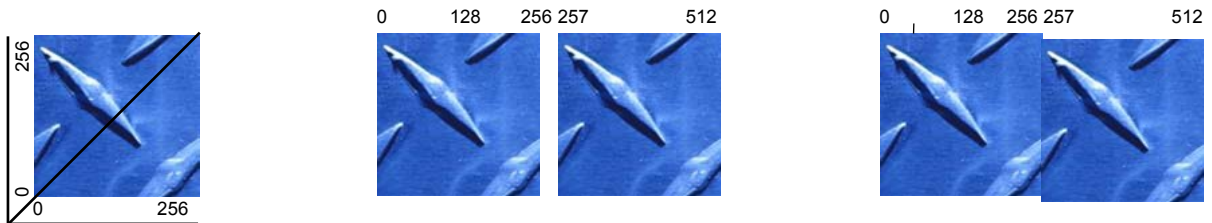You may close this new document.

figure 6

STEP 8

Think about our steelTile.tga file in terms of pixel space. The top left pixel in the document is 0,0 (x,y). The top right pixel is 256,0 (x,y). we can also consider the top left corner of our image 257,0.

We need to be able to see pixel 256 and 257 next to each other in the same image so we can make them look similar.

Use the offset tool to roll your image so that edge pixels are in the middle.

- Open or switch to steelTile.tga
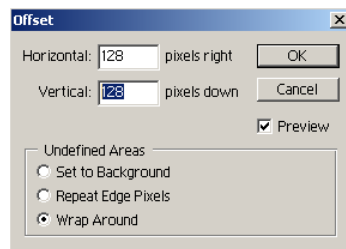
- Go to: Filter>Other Offset

figure 7

Image after applying offset with 128 in the X and Y axis

STEP 9

The edge pixels in fig. 7 were adjacent in the original image. We know those pixels look good next to each other and we don't want to disturb them.

By selecting everything but those pixels we can assure they remain untouched while we continue to edit this image.

- make a marquee selection as in figure 8.

- use the Clone tool   and Healing Brush

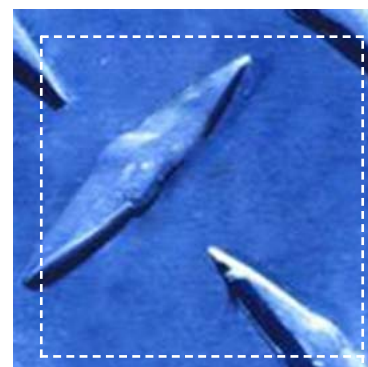to start blending away the noticeable seam in this tile.

figure 8

STEP 10

Now roll the image back to its original starting point and fix the pixels that you left untouched in Step 7.

- **Filter>other>offset**

- **Keep the settings the same (128/128)**

- **Hit enter**
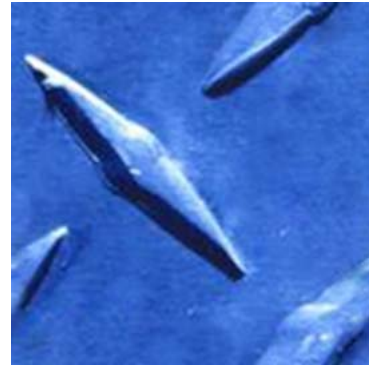
- **Correct those pixels not selected in step 7.**

figure 9

STEP 11

As in steps 5-7 create a new document to paste your pattern into.

- Select>All <CTRL+A>

- Edit>Define pattern (click ok at the popup pallet)

- Create a new document

- Set the pixel dimension to approximately 10 times the size of the original document.

- Edit>Fill>Pattern>*select the last pattern from the list*

Conclusion:

Continue to edit the steelTile.tga file until you are satisfied with the way it repeats. It may take several iterations of image editing the original, smaller, swatch and pasting it into a new, larger, document as a pattern before you are successful. Good Luck!