

How to make a material from scratch

by Jon

OK, so here's how to make a material from scratch.

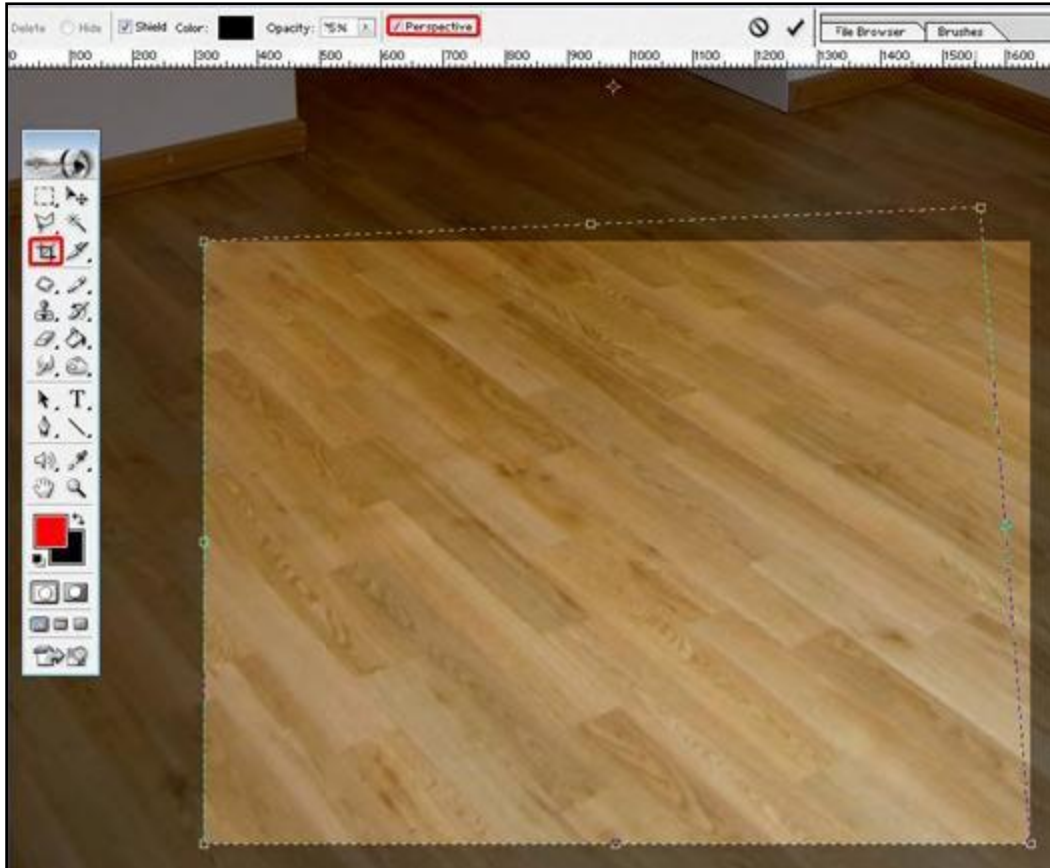
If you take a picture yourself, try to line it up as best you can. DO NOT use the flash -- we want the texture to be illuminated using a fake light, not a picture of a real one. Try to be at a good distance when taking the picture. You don't want a brick wall texture with only one brick, because the tiling would be noticeable, but you also don't want a texture with fifty-million bricks in it because no camera is that high quality. Lastly, do not use the zoom. Zooming in will cause distortion which will be harder to get rid of in Photoshop.

If you see a picture on the internet that has a material you REALLY want but is not lined up, that's OK.

I took a picture from the internet of a room with a wood floor that I want.

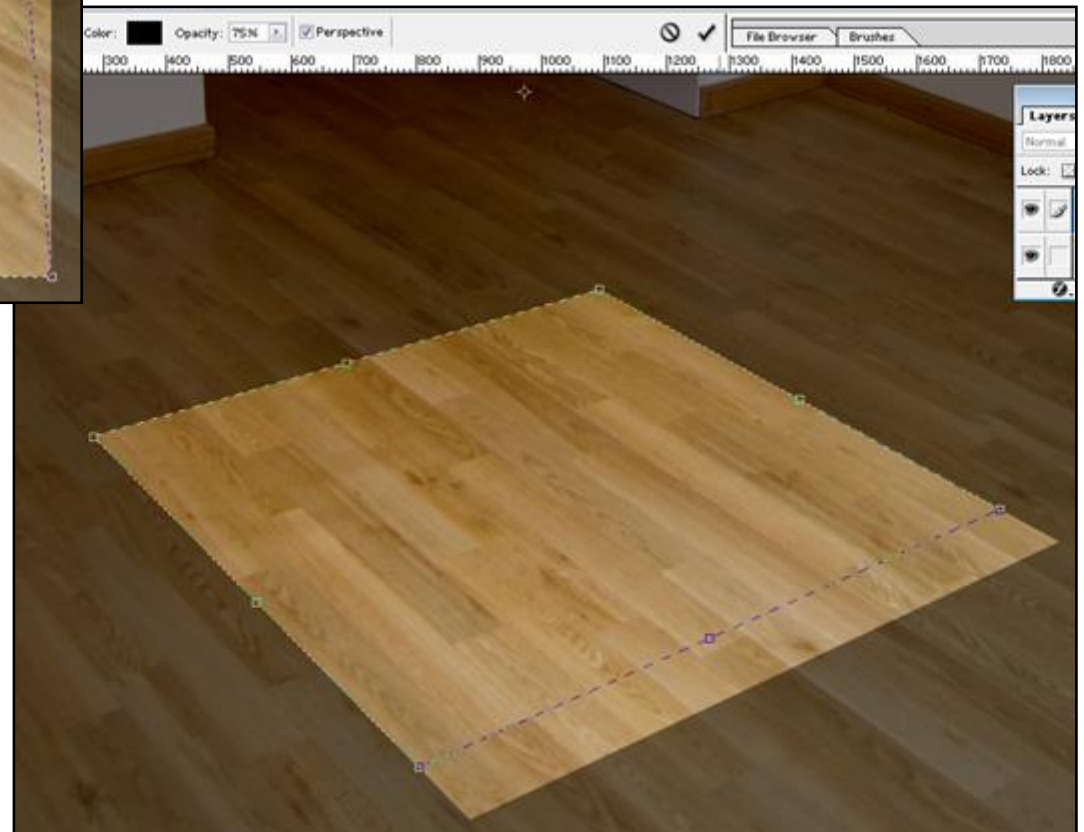


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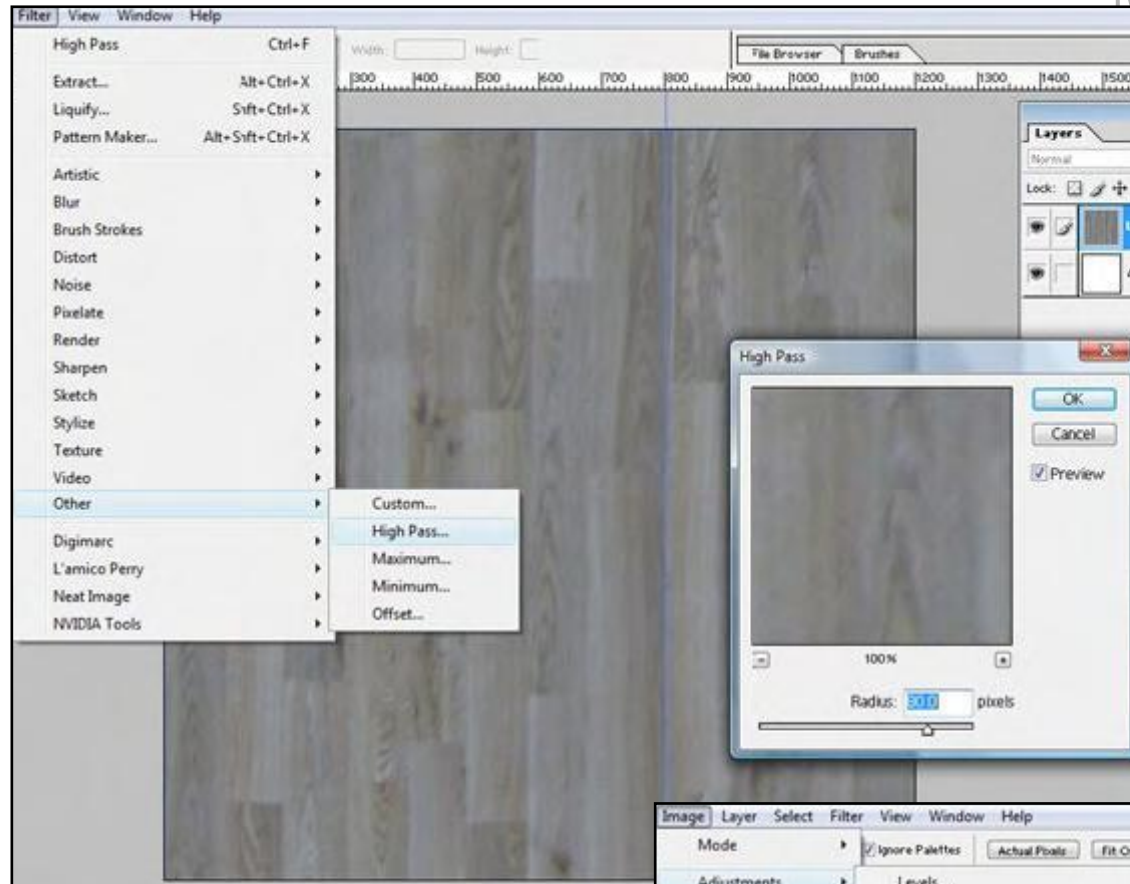
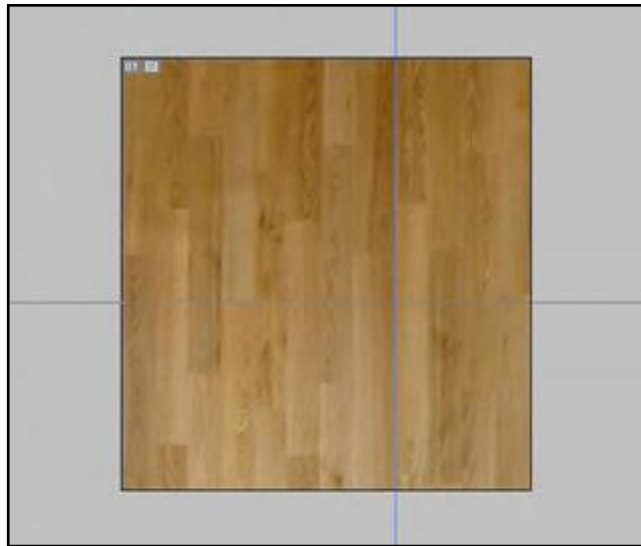
The first thing to do is to isolate the wood. To do this, we use the crop tool marked in red. Make sure the perspective is checked, also marked in red.

Position the... umm.. cropping square? ...so that the dotted lines line up with the direction of the wood. It doesn't have to be perfect, but do your best.



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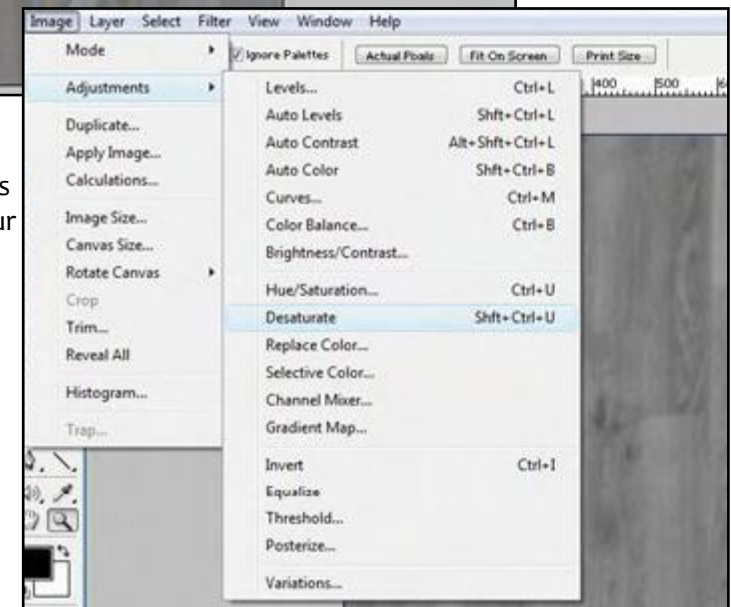
Double click to confirm the cropping and you should be left with a texture. Make sure the texture is all straight and lined up. You can do this by clicking and dragging the rulers (at the side and top of the page) to various points in the texture. Just keep cropping the image until you're satisfied. Turn on the grid (view > show > grid) to make sure.



The next thing to do is apply a high pass filter. A radius of about 80 is good for textures because it keeps a lot of the the shading/colors. The high pass filter makes the hightones and the shadows of your picture even out. It also reduces shininess that might have been left over from the picture.

We do this so that (a) the image is easier to make seamless and (b) when it is seamless, the tiling is un-noticeable, which is the flaw with many textures.

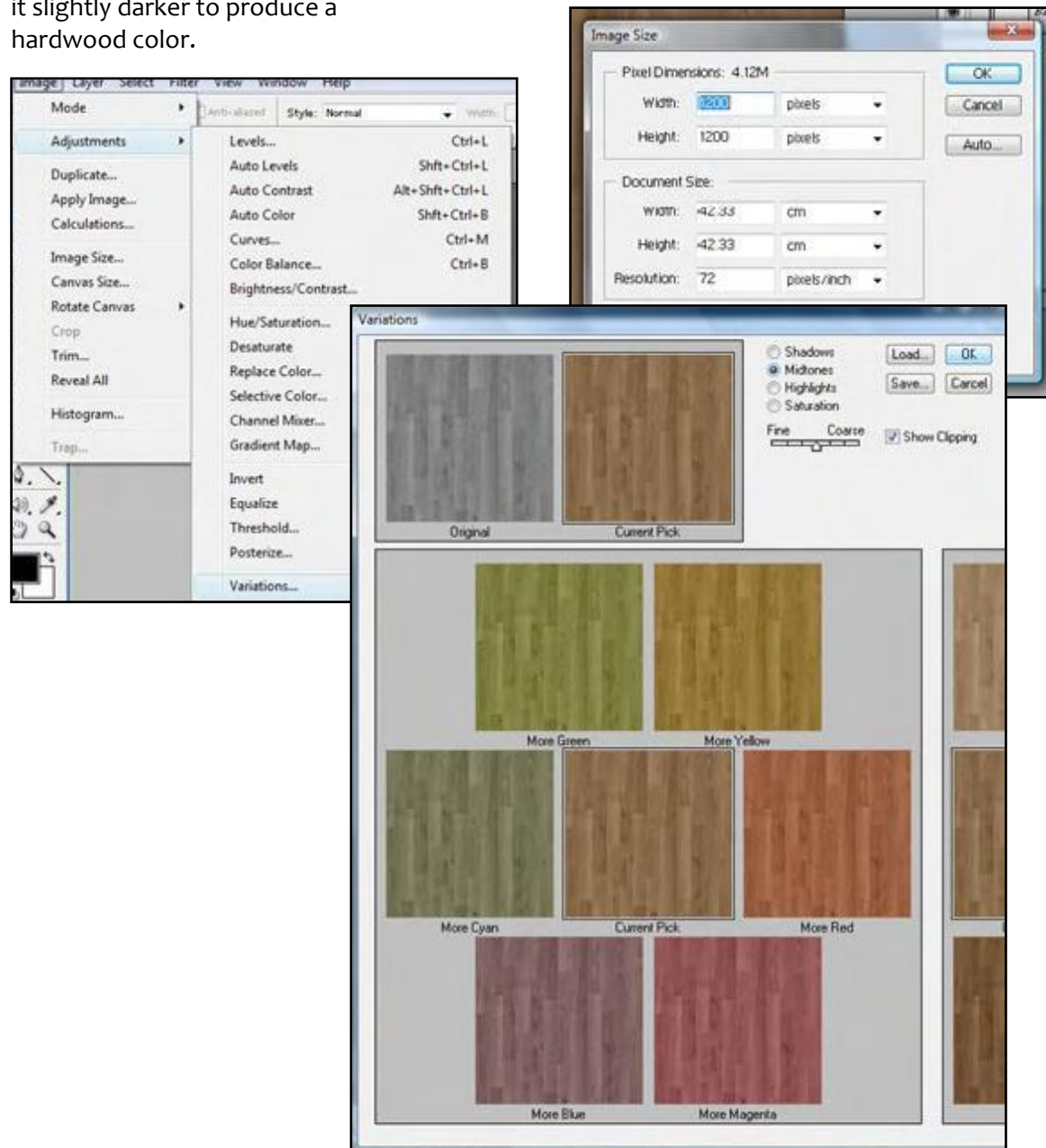
Then desaturate the image so it will look better when we color it.



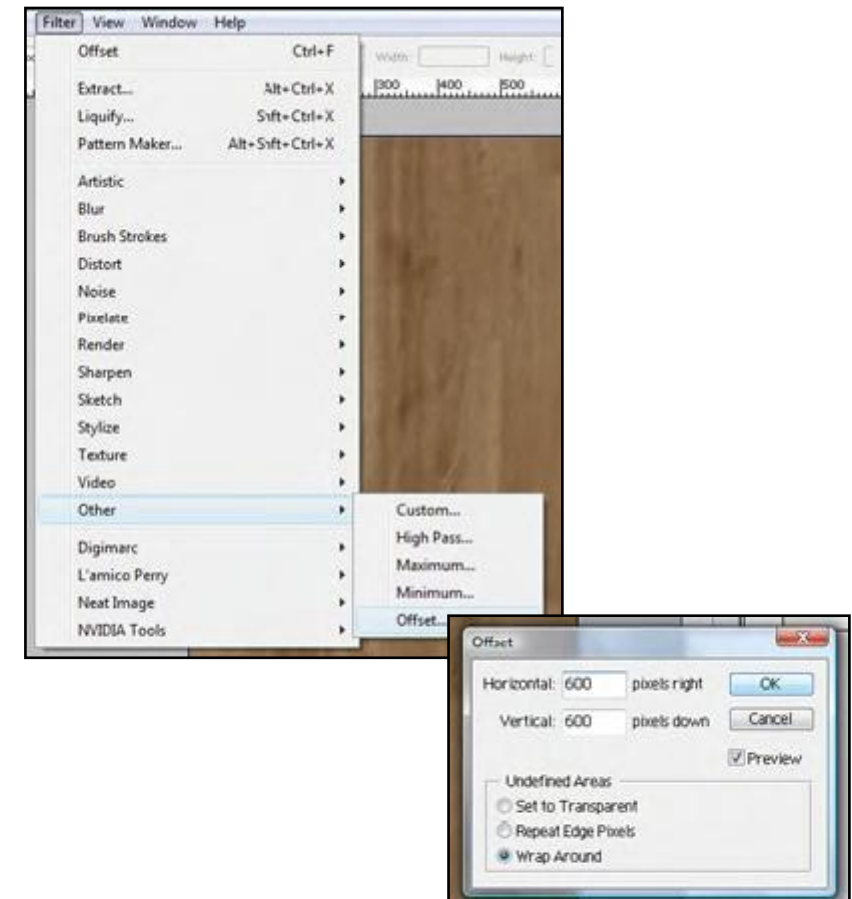
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Now we color it. You can choose any variation of colors that you want. I chose one yellow, two reds, and made it slightly darker to produce a hardwood color.

Check out the size of your image. Remember the width and height for the next step.



Now it's time to make the texture seamless. Offset the image, making the width and height exactly half of the width and height of your image. This makes the left side of your image appear in the center, followed by the right side, and vice-versa with the top.

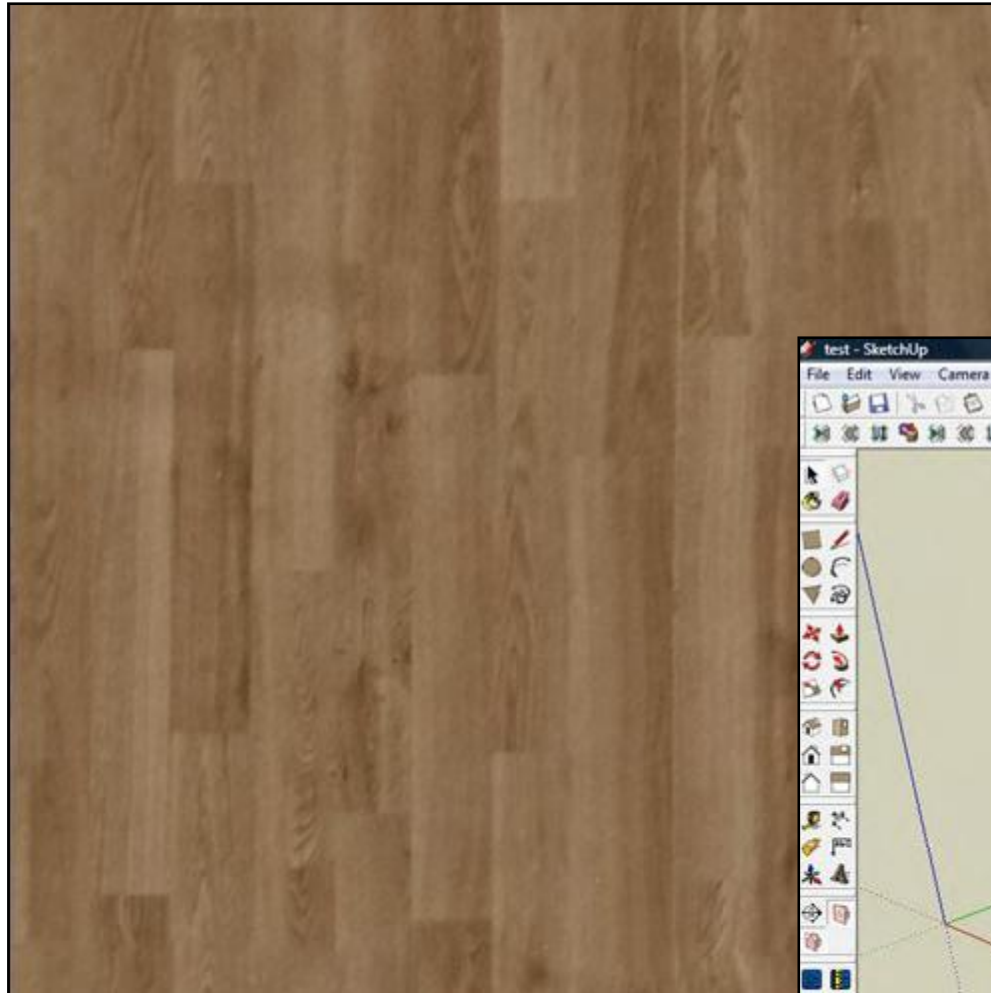


Now, you can use the patch tool or the clone tool to make your image seamless. The clone tool copies a part of an image, but instead of pasting it somewhere else, you can brush it somewhere else. Hold ALT to select a source image (an image that looks almost identical to the part you're going to fix) and simply brush over the part in your image that looks noticeable.

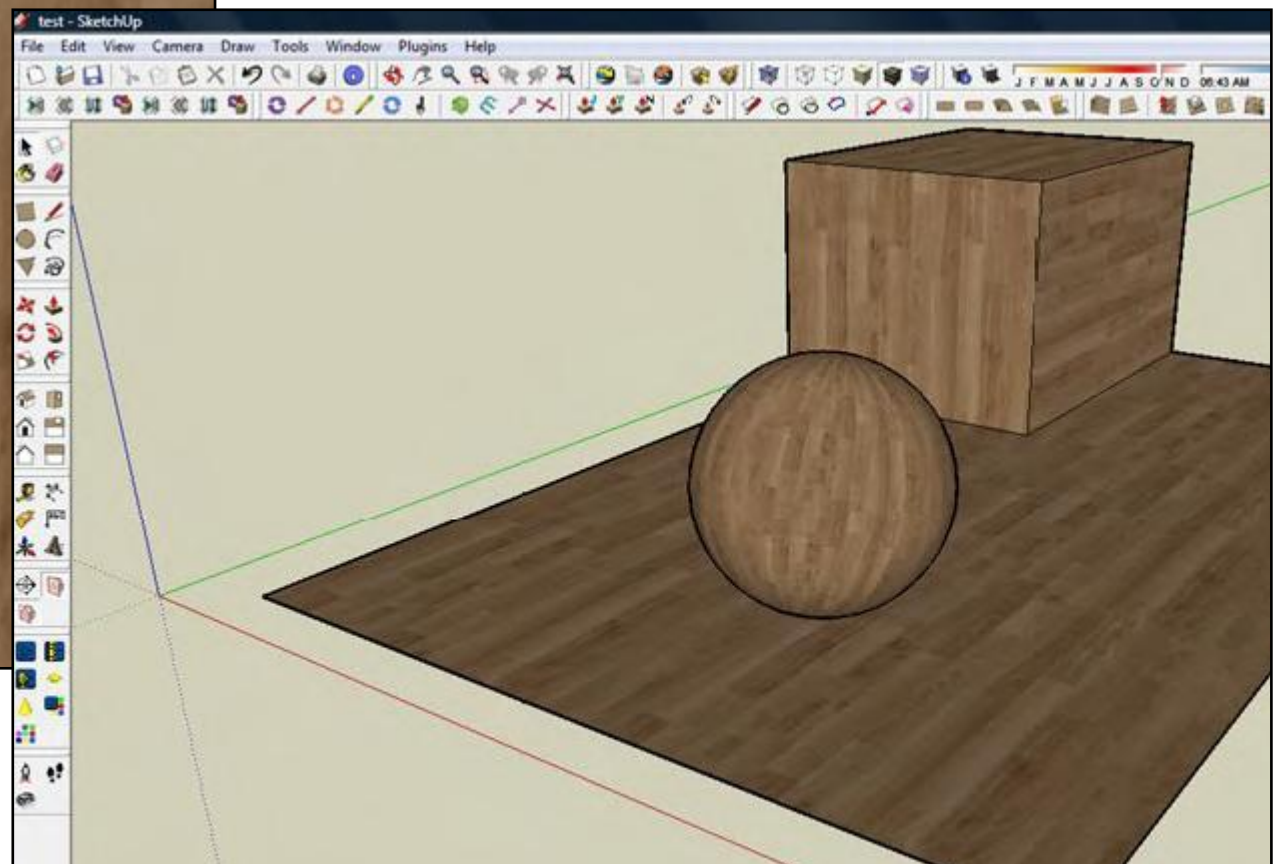
The patch tool works as well. Simply outline the "unseamless" part in your image and click-and-drag it to a seamless part. It will automatically heal the seam. Once seamless, fix any part that is supposed to be lining up.



Offset it one more time so it's back in its original placement. Make sure everything looks natural. Finally, you're done. Your new texture should look something like this:



Let's take a look at it in action, shall we?



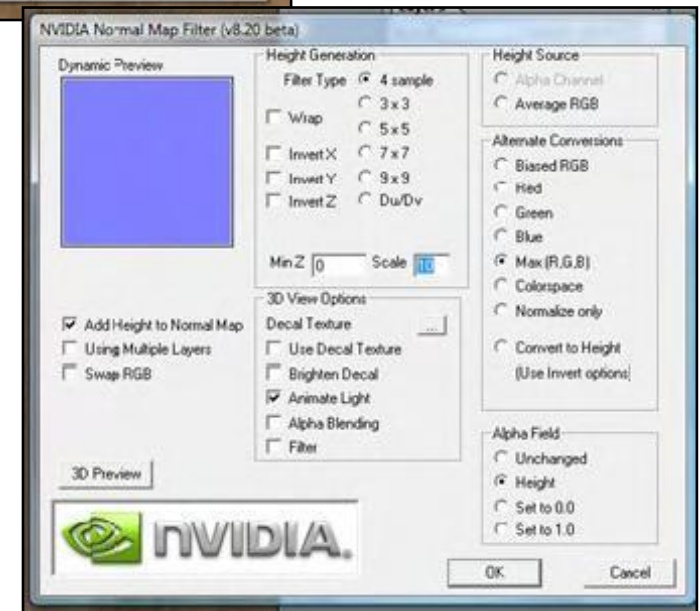
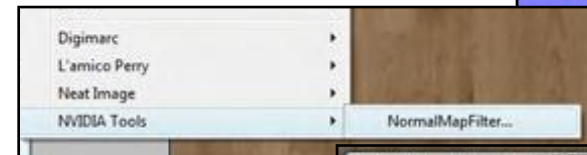
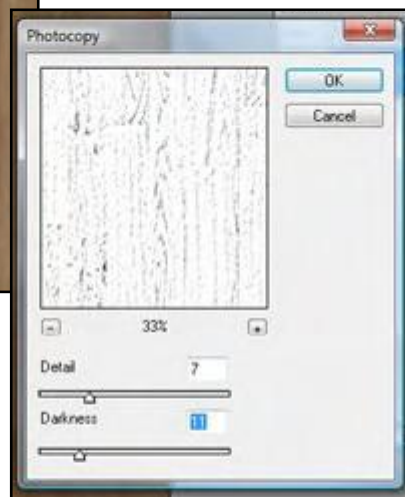
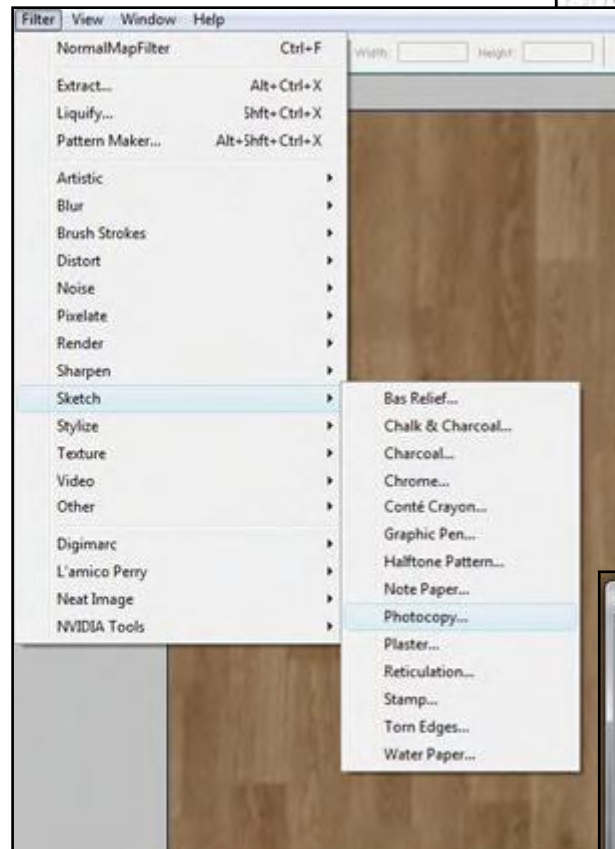
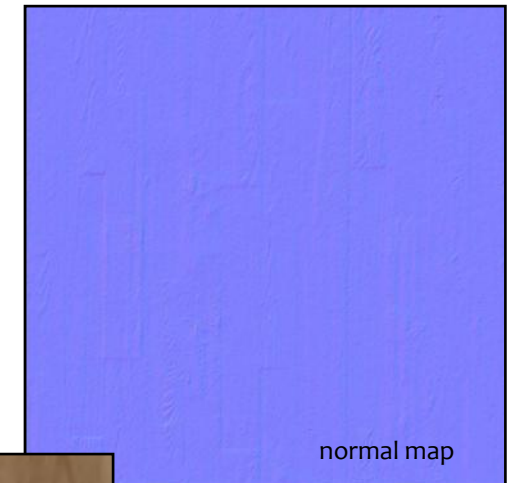
Sweet! Now let's make the bumpmaps. Take your texture and apply the "photocopy" filter. I find that this is the best and fastest way of doing a bump map. If you want a sharper bump, you can apply a threshold filter (I think it's Image > adjustments > threshold) then blur it slightly (filter > blur > Gaussian blur).

It should look like the example below:



You could also use a normal map (which I prefer). I'm using the Nvidia normal map plugin. Set the scale to about 5 or 10. With anything over that, expect jagged, un-anti-aliased looking bumps.

The normal map should look something like the example on the left.



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After you apply the bumps and texture (with some spec.) you get your finished mat:

Voilà!

