

How to Make an Effective Tileable Texture for Games in Photoshop

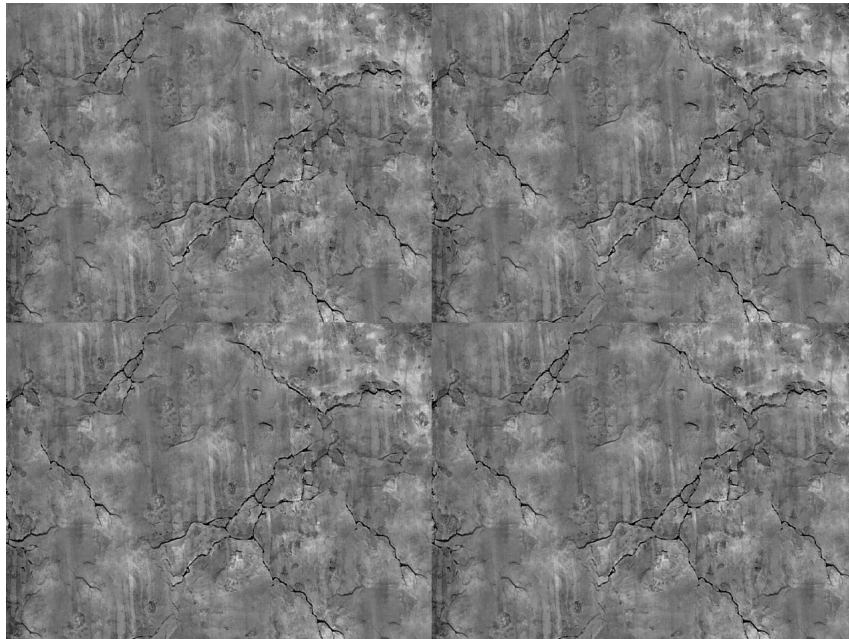
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Introduction

While texture can add so much to the feel of a level, a texture that doesn't look realistic will be noticed by the player and will ruin his experience. Making a texture tileable fools the player into believing that a texture is unique and realistic while keeping the game frame rate high. In this tutorial, I will show you an effective and efficient way of doing a tileable texture in Photoshop. We will work with a simple texture of a concrete wall:



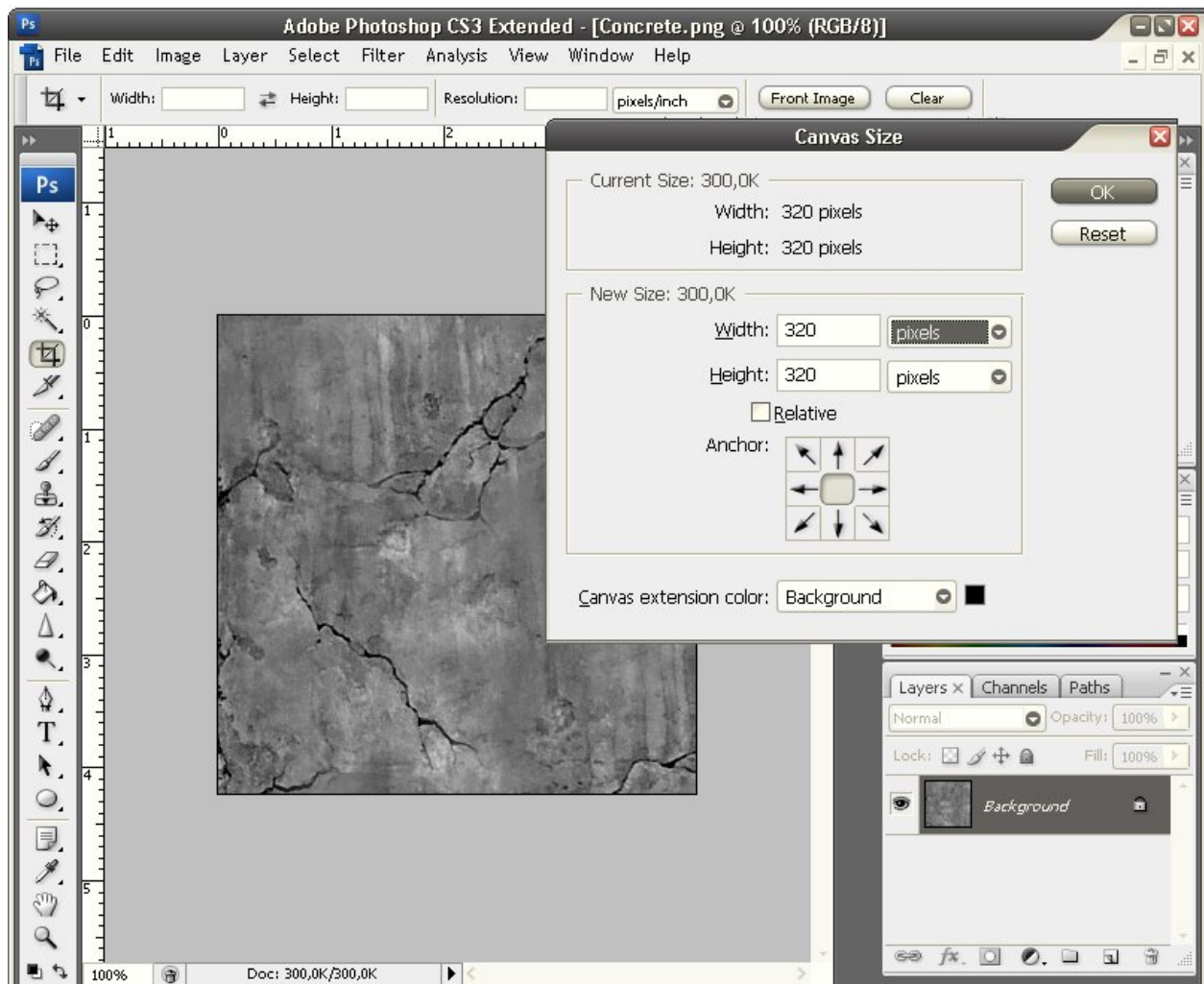
If we were to tile this texture now the result would be:



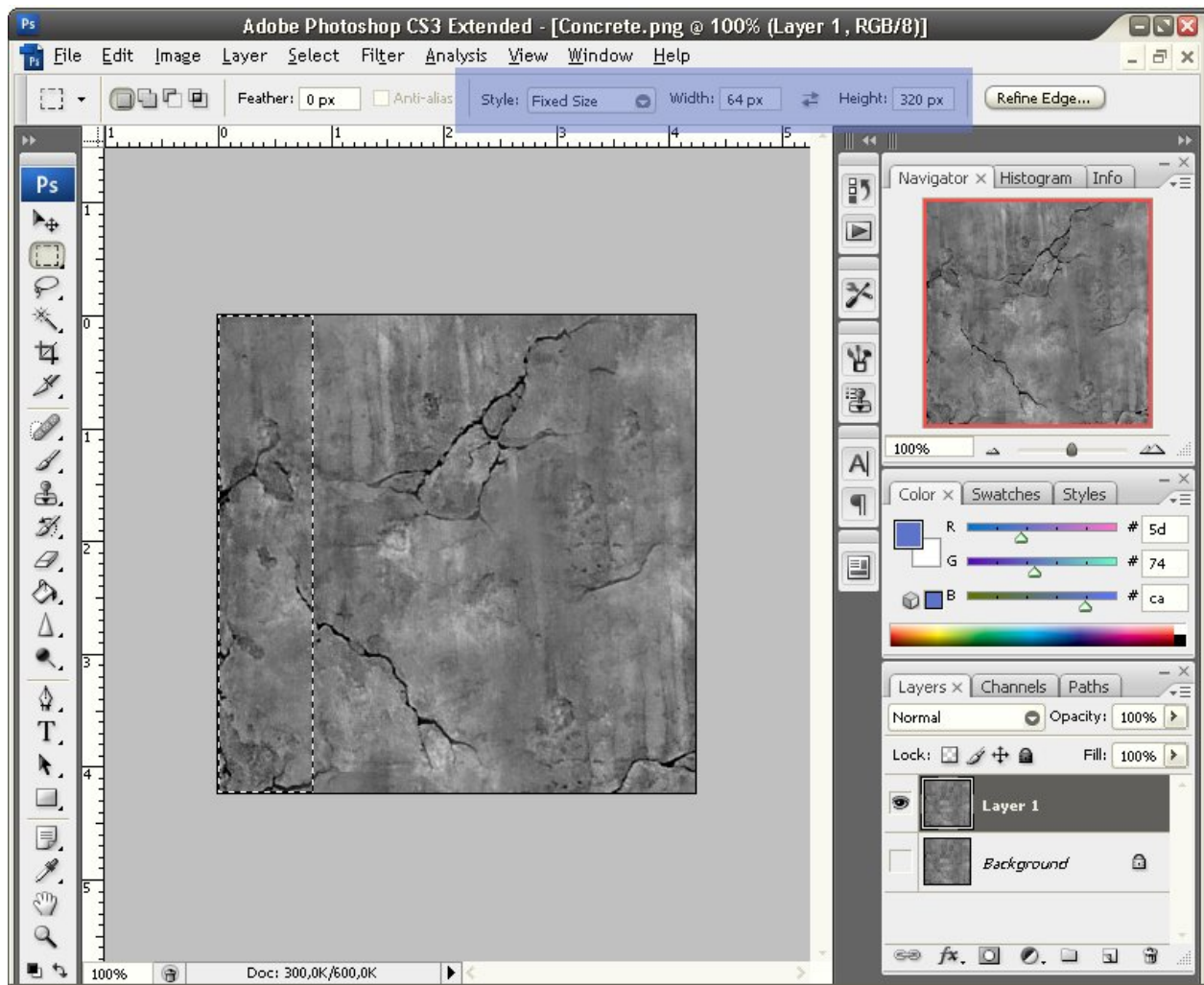
We can see that the texture is made of tiles because there is no smooth transition. Let's begin the process of making it tileable.

The Tiling Process

1. Choose the size of the resulting texture. Game engine usually like texture with a power of 4 in size. In this case, we will make its size 256×256. Always make the texture as big as possible, in case you need a bigger resolution texture later.
2. Add $\frac{1}{4}$ to that size. In this case $256 + (256/4) = 320$. The new size is 320×320.
3. Resize the texture in Photoshop to the new size. You have two options: reduce the size of the image (Menu Bar→Image→Image Size), or rescale the canvas (Menu Bar→Image→Canvas Size). You can also combine both methods. If you resize the image you will lose pixel resolution but will keep all of the pixels. If you resize the canvas, you will keep the pixel resolution but will lose some pixel on the edges. Choose the method that is best for your texture. In this case, I'll rescale the canvas.

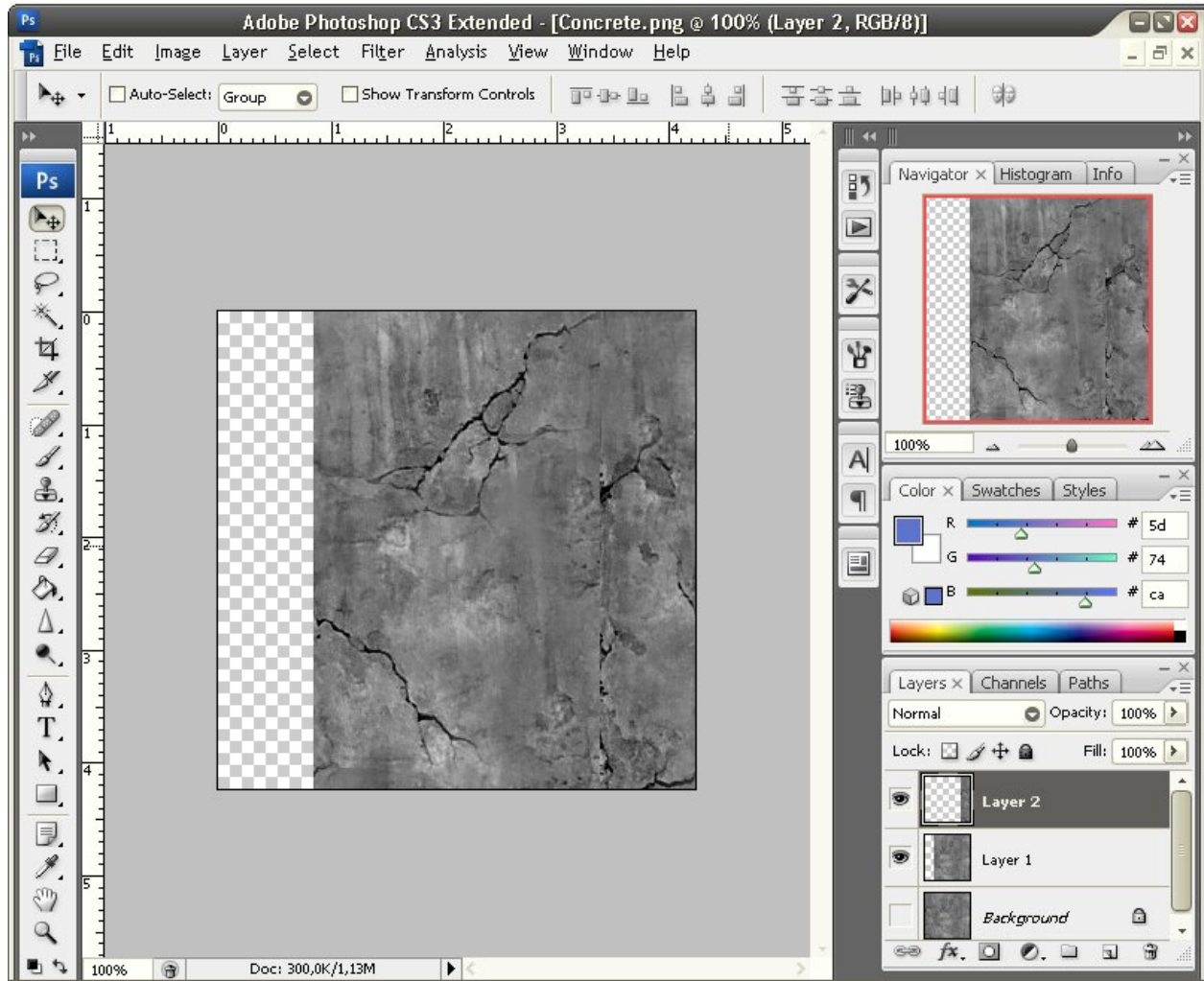


4. Select the Rectangular Marquee Tool in the Tool Palette. Then select all (Ctrl + A) and make a layer via copy (Right Click→Layer via Copy).
5. Hide the Background layer (the layer at the bottom) by clicking on the Eye Ball Icon in the Layers Palette. This Background will be used as a backup if you need to redo something later or if you make a mistake.
6. With the Rectangular Marquee Tool, make a Fixed Size selection of $\frac{1}{4}$ of the width × the height size (64×320 in this case). Then put the selection on the extreme left.



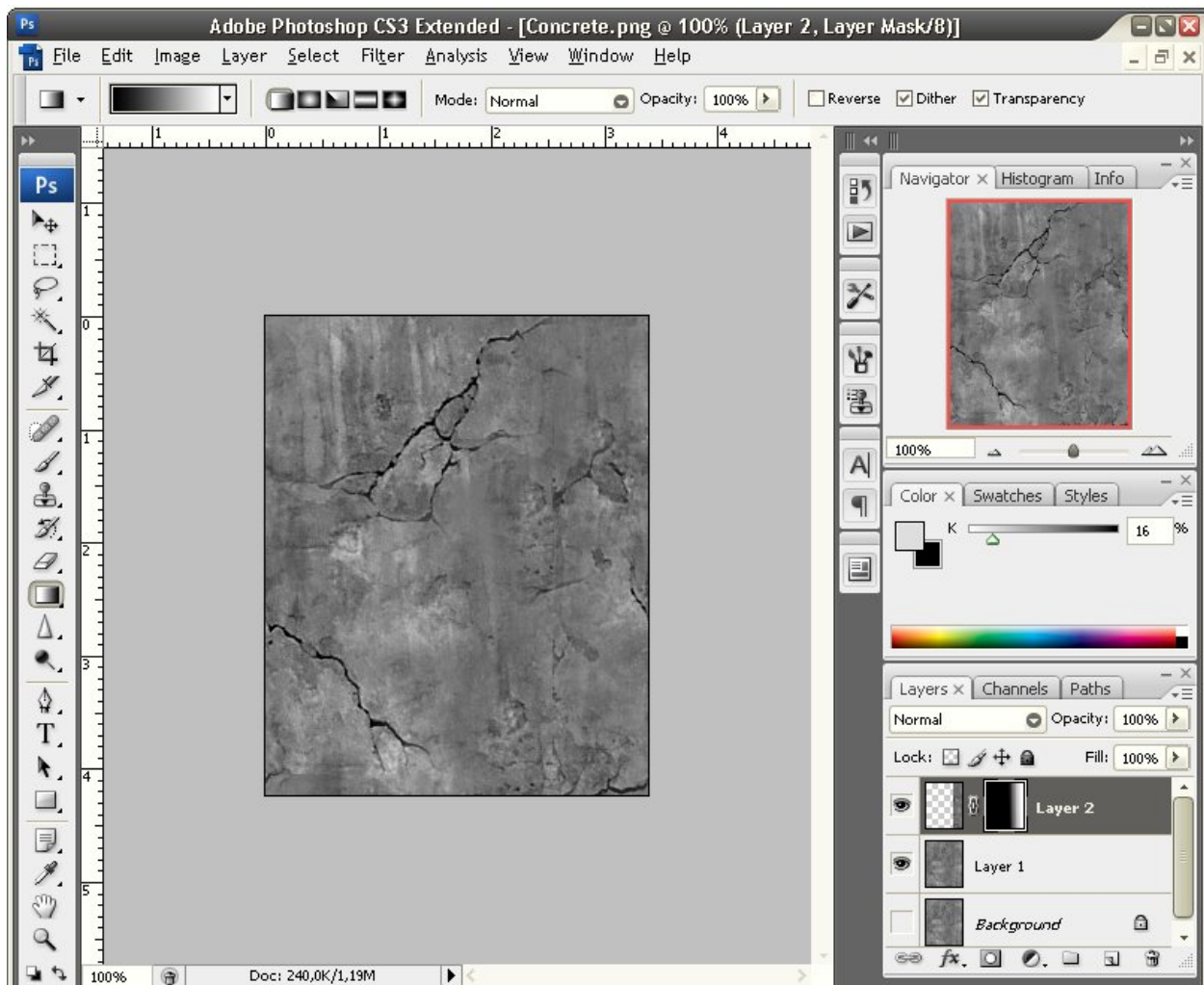
7. Make a layer via cut (Right Click→Layer via Cut).

8. Move that new layer to the extreme right using the Move Tool so that there is a blank space on the left. Photoshop should snap that new layer into position.



9. Rescale the canvas to hide that blank spot. The width should now be 256. MAKE SURE THAT YOU RESCALE FROM THE LEFT.

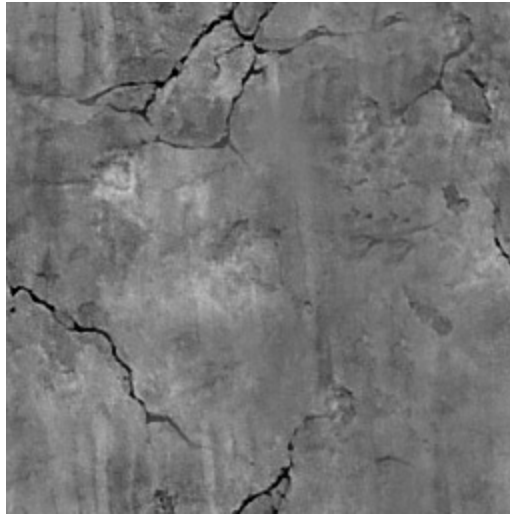
10. Use the tools available to blend the two layers together and create a smooth transition. In this case I added a Layer Mask to the top layer (Layers Palette→Add Layer Mask), and then I used the Gradient Tool from left to right adding black to white to progressively hide the layer underneath. You could also use the Clone Stamp Tool, the Healing Brush Tool or play with the opacity of the top layer. You can use the Burn Tool and the Dodge Tool to remove the variation in luminosity.



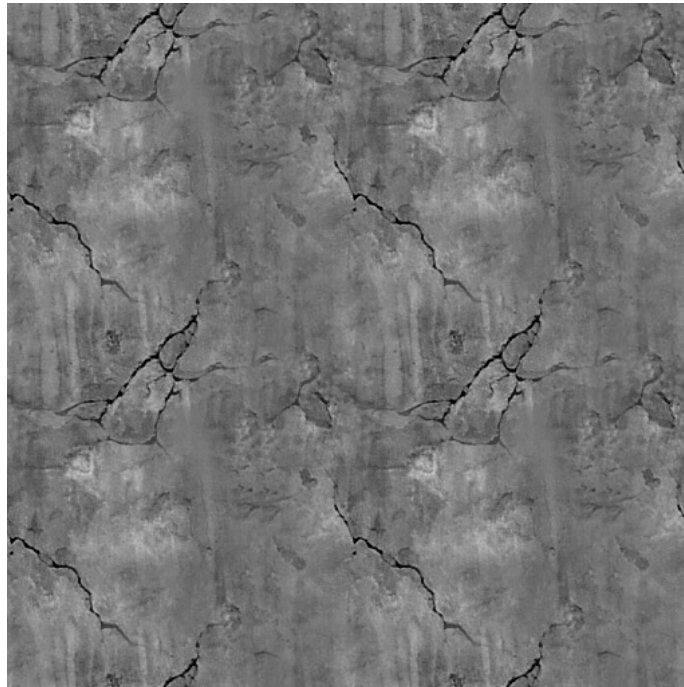
11. Merge the two layers together (Select both of them in the Layers Palette→ Right Click→ Merge Layers). We have successfully made the texture tileable horizontally. Now we need to do the same vertically.
12. With the Rectangular Marquee Tool, make a Fixed Size selection of the width size $\times \frac{1}{4}$ of the height (256×64 in this case). Then put the selection on the extreme top.
13. Make a layer via cut (Right Click→Layer via Cut).
14. Move that new layer to the extreme bottom using the Move Tool so that there is a blank space on the top. Photoshop should snap that new layer into position.
15. Rescale the canvas to hide that blank spot. The height should now be 256. MAKE SURE THAT YOU RESCALE FROM THE BOTTOM.
16. Use the tools available to blend the two layers together and create a smooth transition.
17. Merge the two layers together (Select both of them in the Layers Palette→ Right Click→ Merge Layers).

Conclusion

And we are done! If you had followed along with me, you should have the following texture of size 256×256:

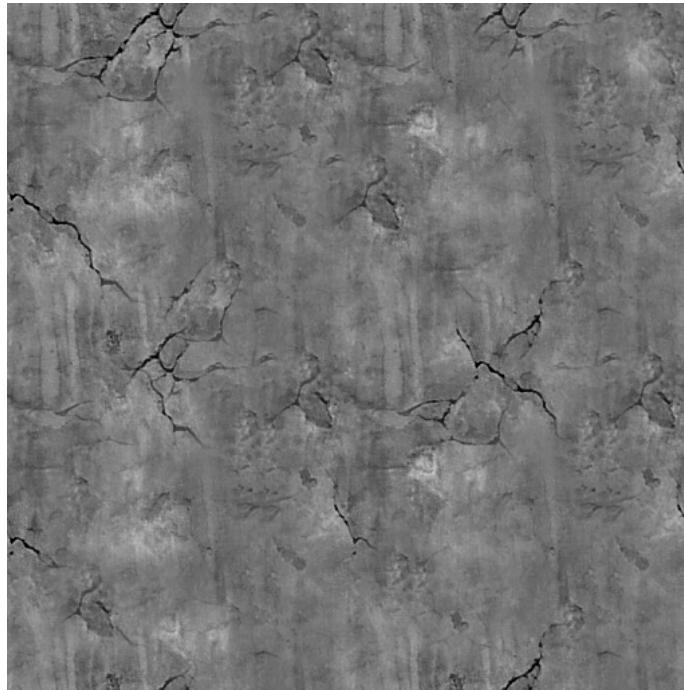


Now let's test it in a game engine. The result should be the following:



We can see that we successfully created a nice transition between the tiles! However, the player might still notice that the texture is a tile because of the patterns inside the texture that repeat themselves. If that is the case for your texture, I have two solutions for you. The first is to make a bigger tile by linking 4 of the one you have and then using the available tools to change some patterns inside the texture. The second solution would be to make various variation of the same tile and then to link them together inside the game engine.

In this case I made a new texture of 512×512 by linking 4 of our existing texture together and using some tools such as the Clone Stamp Tool to refine the details. The result is a truly unique texture that can fool the player into believing that it is not a tile:



I hope this tutorial helped you become a better texture artist!

Salim