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Frequency Separation

Frequency Separation

In this lesson, we're going to practice a retouching technique called frequency separation. When we use this technique, we will be separating our image into two parts: one that contains the fine details (the high frequency information) and another that contains the overall shapes in the image (the low frequency information). This will allow us to work on the details separately from the overall tones and colors of the image. Because this technique always starts with the same steps, we will use actions to partially automate the process. In fact, I have included the necessary actions with this lesson and you can find them in the downloads section of the lesson video page.

Installing Actions

After downloading the actions file, you will need to unzip, or decompress, the file before you do anything else and you can do this by double-clicking on it. The file will look like the screen shot at right and will be called Bens Frequency Separation.atn. To install, simply double-click on the file icon. Photoshop will come to the forefront and, when you look in your Actions panel, you should see an Actions folder for Bens Frequency Separation. Note that if the Actions panel is not already visible on your interface, you can open it by going to the main menu and choosing Window > Actions.



This is what the actions file should look like once unzipped.

If, for some reason, the above process did not work, and you don't see the actions appearing in your Actions panel, there is another install method to try. With the Actions panel open, click on the little menu icon in the top right corner of the panel and choose Load Actions. You'll be prompted to navigate to the file's location on your hard drive and click Open.



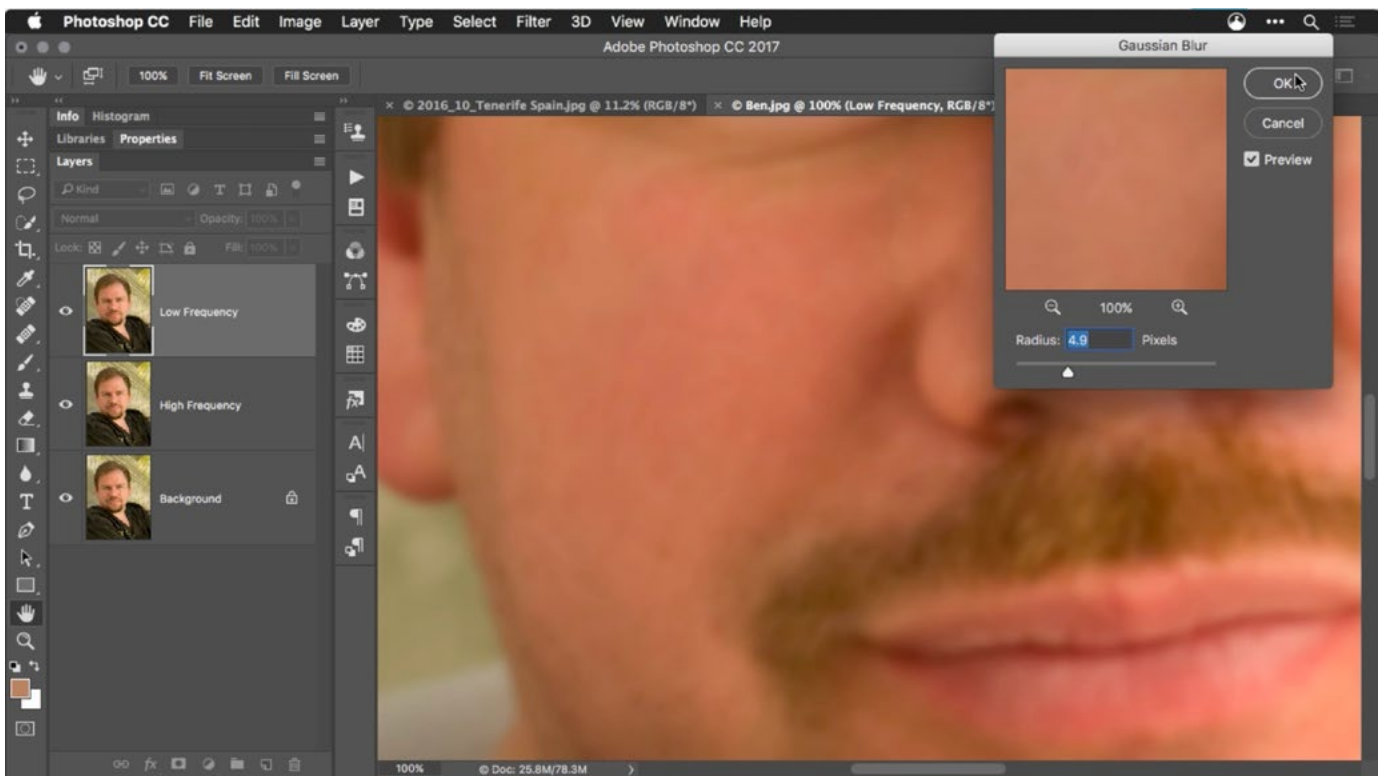
The installed actions

Once the actions are loaded, you can click on the little folder icon within the Actions panel to expand it. Inside, you will find two actions: "Fre-

quency Separation: Choose Low” and “Frequency Separation: Choose High.” The “Choose Low” option is the most commonly-used method and that’s the one that we’re going to start with.

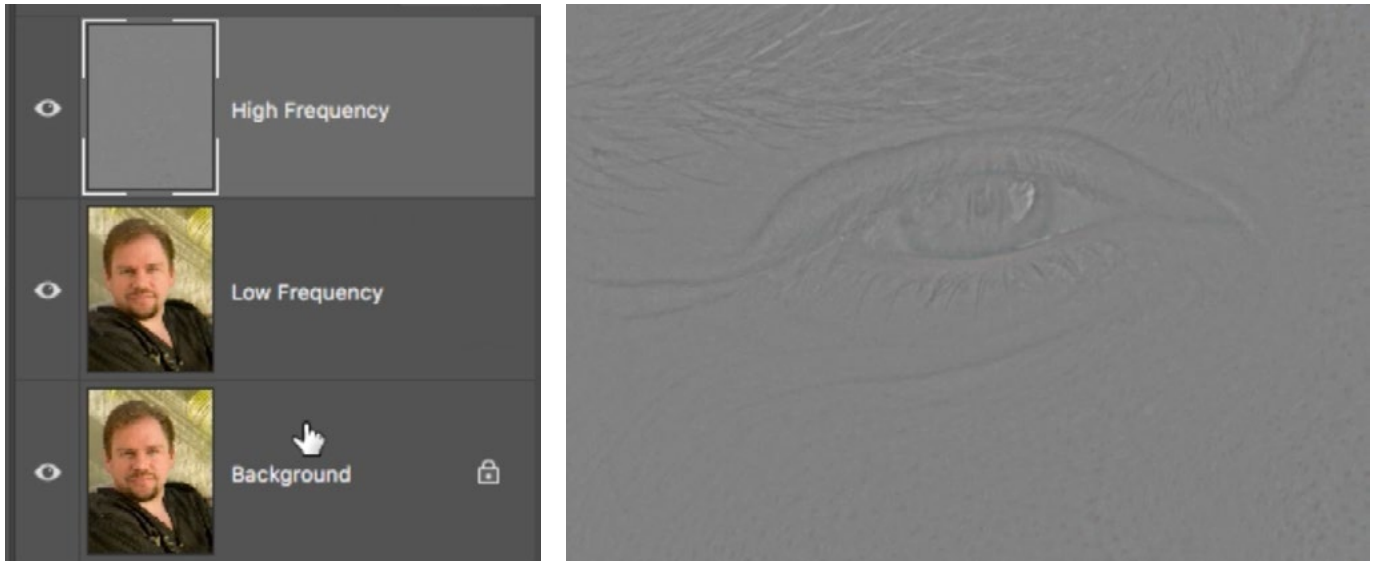
Separate the Image into High and Low Frequency Layers

Open the image you’d like to retouch in Photoshop. In the Actions panel, click the “Frequency Separation: Choose Low” action and then click the Play button at the bottom of the Actions panel. The action will start to run but it will pause when the Gaussian Blur dialog opens. That’s because it’s waiting for you to specify the setting. This will be the low frequency version, which is the one that is mainly shapes and color, but no detail. In the Gaussian Blur dialog, you’ll want to set the Radius slider to the lowest setting that still makes all of the fine detail go away. This setting will be different for each image. In this example, I moved the slider up until I could no longer see the pores on the skin or individual hairs. Once you’ve set this slider, click OK.



The action will pause so that you can set the Radius slider within the Gaussian Blur dialog.

The action will continue and when it's done, you will see a total of three layers in your Layers panel. The bottom layer is the original picture. It's not necessarily needed in the technique, so I will often times click the eyeball icon to hide its visibility. Above that is a Low Frequency layer, which contains the color and tone, and a High Frequency layer, which contains the fine detail.



Left: After the action completes, you will have three layers: the original image, a high frequency layer and a low frequency layer. **Right:** The high frequency layer contains only the fine detail but none of the color or brightness.

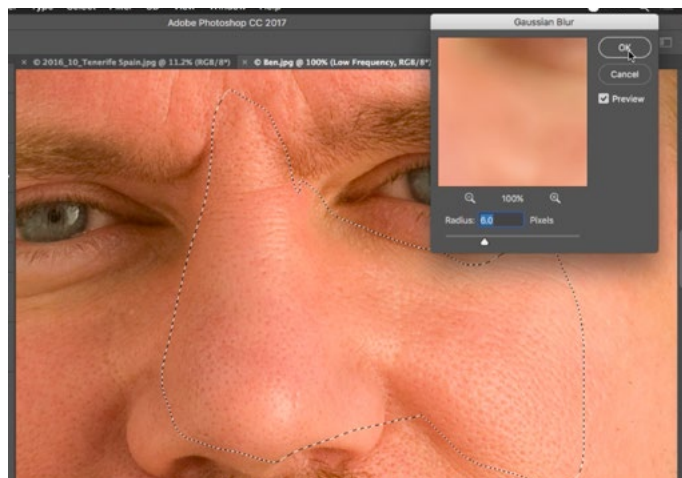
Retouching the Image

Working with color and tone Now that we have the image separated, we can work on the color and tone without affecting the detail and we can work on the detail without affecting the color and tone. In the example image, you'll notice that there are a few bright, shiny spots on the skin. To correct this, we'll work on the Low Frequency layer because that's the one containing the color and tone. I'll first make a selection around the problem area. Then, I will blur that area



In the original image, there are some shiny spots on the skin and we want to lessen the shininess.

in order to lessen the highlights. To do this, I'll go to the main menu and choose Filter > Blur > Gaussian Blur. I'll adjust the Radius slider until the highlight mellows out but is not completely gone. Then I'll click OK. This blurring technique can be very useful when retouching very blotchy skin because it will allow you to even out the color and tone without affecting the pores and other details.



A selection was made around the area and we are blurring the Low Frequency layer.

Working with fine details When you want to work on the details in the image (facial hair, small wrinkles, etc.), you will work on High Frequency layer. In this example, I want to remove some of the stubble (facial hair). I will make sure that I'm working on the High Frequency layer and I will activate the Clone Stamp Tool, which I'll use to do the retouching.



The Clone Stamp Tool is being used (with the Lighten blending mode) on the High Frequency layer in order to remove the stubble.

To retouch with the Clone Stamp Tool, I will first set the tool's blending mode to Lighten, which will make it so it's only able to brighten things. This is what will allow me to remove the hairs. You can change the blending mode of a brush tool by using the menu in the Options Bar at the top of the image window. I'll then Option+click (Alt+click on Win) in an area of skin and then paint over the skin area containing the stubble. Because it's set to the Lighten blending mode, the tool can not clone any of the stubble. It can only clone the lighter skin area.

Retouching something other than skin

The frequency separation technique is commonly used for retouching skin, but it can also be used for other applications. In the next example image, I want to smooth out the surface of the building without affecting the texture created by the tiles. To do this, we'll use frequency separation to separate the texture from the overall shading that's on the wall.

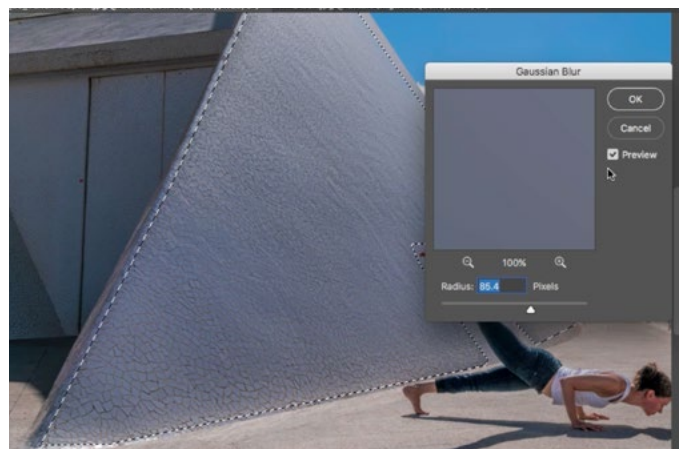
I will open the Actions panel, choose the "Frequency Separation: Choose Low" option and then hit the Play button at the bottom of the panel. When the Gaussian Blur dialog appears, I'll move the Radius slider up, just until I can no longer see the individual tiles on the wall, and then click OK. Then, I will make a selection around the area I want to smooth out. With the Low Frequency layer active, I will go to the main menu and choose Filter > Blur > Gaussian Blur. I will move the Radius slider up until the undulation in the wall goes away and then click OK. This smoothed out the wall, but all of the texture created by the tiles remained perfectly intact.



The goal is to smooth out this wall without losing the texture.



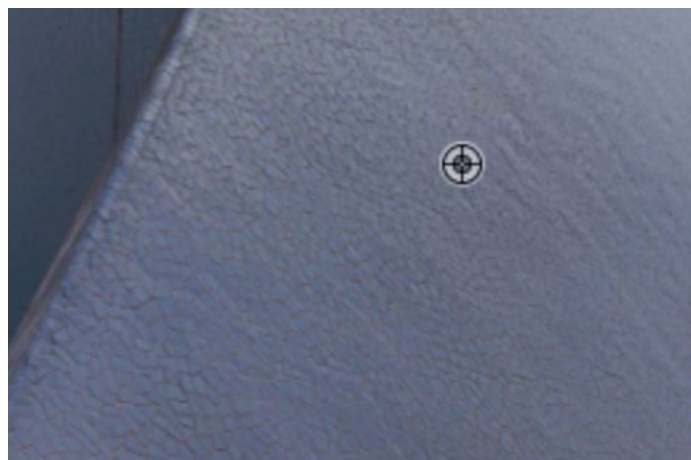
The action is prompting us to set the Radius slider just high enough that the tiles are no longer visible.



Here, we're blurring the area of the Low Frequency layer that we want to smooth out.

Special Effects

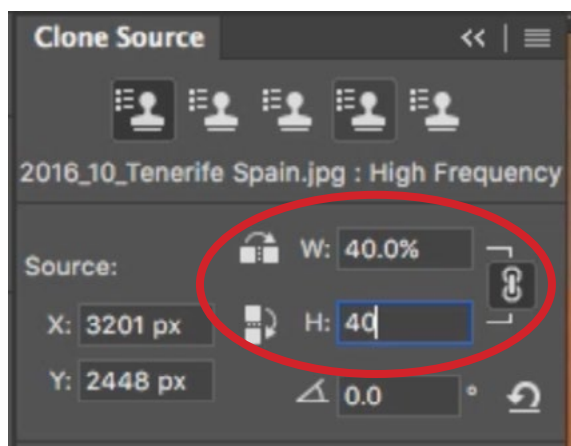
Now that we have two image separated into high and low frequency layers, we can create a special effect by applying the texture of the building in one image to the face in the other image. In the image with the curved building, I will activate the High Frequency layer, since that's the one containing the texture. Then I will activate the Clone Stamp Tool. NOTE: When using the Clone Stamp Tool with the frequency separation technique, the menu in the Options Bar must be set to work on the Current Layer. Then, I will hold down the Option key (Alt on Win) and click to sample a spot from the center of the textured area.



Above: The Clone Stamp Tool is being used to sample an area from the center of the textured surface. Right: The Aligned setting can be found in the Options Bar.



In the Options Bar, I will turn off the Aligned setting, which may appear as a check box and may appear as an icon (see screenshot) depending on your interface. This will ensure that the sample area will reset to the spot you originally sampled when you let go of your mouse button.



The Scale settings within the Clone Source panel.

Now, I will click back to the portrait image and make sure that the High Frequency layer is active. When I hover my brush tip over the face, I can see a preview (within the brush tip) of what the texture from the other image looks like. The texture looks too big to me, so I want to scale it down before applying it. I will open the Clone Source panel by going to the Window menu and choosing Clone Source. The Clone Source panel contains settings for Width and Height, and I will lower those sig-

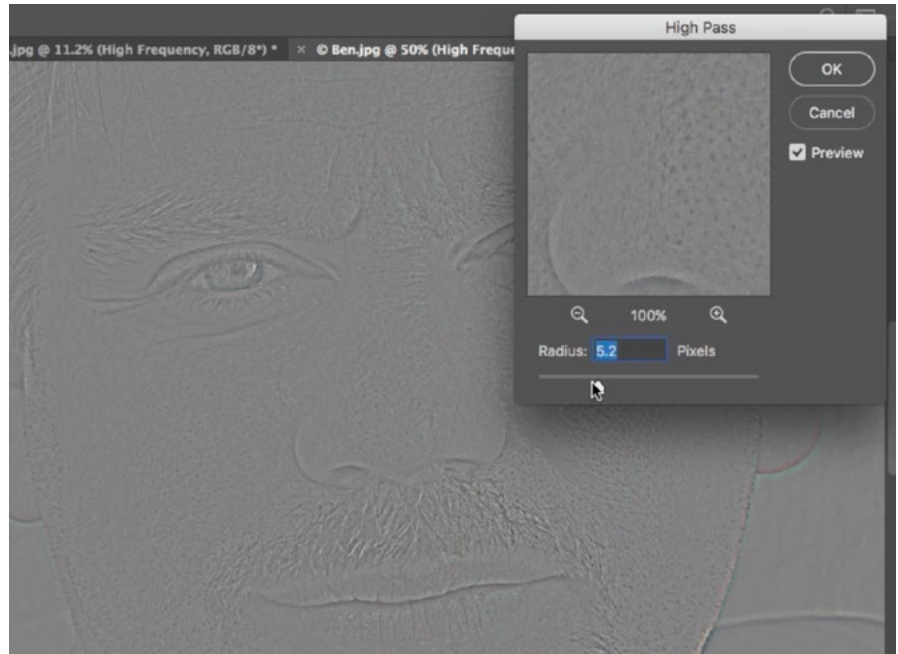
nificantly (to 40%). Then, I will make sure that the blending mode of the Clone Stamp Tool is set back to normal and I will start painting over the skin, applying the texture of the building.



The Clone Stamp Tool is being used to apply the texture from the building in one image to the face in another image.

Frequency Separation: Choose High

The other action that we have not yet worked with is called “Frequency Separation: Choose High.” When we play this action, it will pause at the setting for the High Frequency layer instead of the setting for the Low Frequency layer (the Gaussian Blur setting). When the action pauses, the High Pass dialog will appear and we will need to move the Radius slider up just enough so that we can see all of the fine details in the image.



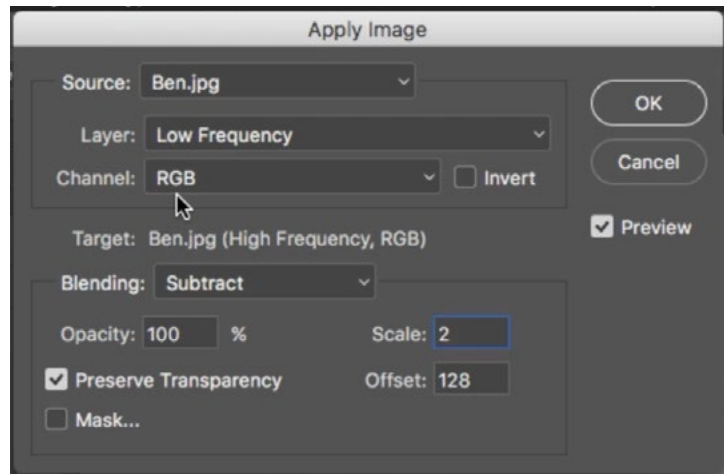
If you use the “Choose High” action instead of the “Choose Low” action, you’ll be prompted to set the Radius slider in the High Pass dialog just high enough that you can see all the fine details in the image.

How to do Frequency Separation without Actions

If you would like to do this technique manually, or if you’d just like to see how it’s done, here are the steps:

1. Open your image and duplicate the Background layer twice. You can do this by using the keyboard shortcut Command+J (Ctrl+J on Win.) You will end up with three copies of your image. Rename the top layer “High Frequency” and rename the middle layer “Low Frequency.” The bottom layer will not be used, so you can hide its visibility if you’d like.
2. Hide the visibility of the top layer (High Frequency) and activate the Low Frequency layer. Go to the main menu and choose Filter > Blur > Gaussian Blur. Move the Radius slider up just enough so that you can no longer see the fine details in the image. Click OK.

3. Activate the High Frequency layer and turn its visibility back on. Go to the main menu and choose Image > Apply Image. In the dialog box that appears, set the Layer menu to the Low Frequency layer and set the Blending menu to Subtract. Then, set the Scale to 2 and the Offset to 128. Click OK.



4. With the High Frequency layer active, change the blending mode of the layer to Linear Light. (The Blending Mode menu can be found at the top of the Layers panel.)

To manually set up your document for frequency separation, the above settings will be used within the Apply Image dialog.

5. Now, the document is set up for frequency separation and you can retouch the image, working on the fine details separately from the color and brightness.