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Channels

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In this lesson, we're going to cover Channels in Photoshop. Channels are the most fundamental piece of your document. Everything you do to your image that changes its appearance must use channels. Channels separate your document into the various colors that make up your image and the color mode your image is using will determine what shows up in the Channels panel. The Channels panel is usually hidden behind the Layers panel. If you don't see it in your interface, you can open it by going to the main menu and choosing Window > Channels. If your image is in RGB mode, the Channels panel will show the Red, Green, Blue and combined RGB channels. If your image is in CMYK mode, the Channels panel will show Cyan, Magenta, Yellow, Black and the combined CMYK channels.

The Channels panel is shown in the two screen shots at left. If the color mode is set to RGB, the image will be made up of the Red, Green and Blue channels. If the mode is set to CMYK, then the image will be made of the Cyan, Magenta, Yellow and Black channels.

The Channel menu in the Levels dialog

So many of the adjustments that we apply to our images incorporate channels. For example, if you make a Levels or Curves adjustment, you'll find a Channel dropdown menu within the settings for that adjustment. This menu will allow you to work on one of the channels individually. If the menu is set to RGB (or CMYK), all of the channels will be affected together.

Channels and Levels When making a Levels adjustment, the Channel menu will appear at the top of the dialog (or Properties panel). If this menu is set to RGB, the adjustments you make will affect the overall brightness of the image. There

will be no shifting of colors. If, however, I change the menu to work on the Red channel, I will change the amount of red light that is being added to the image. It's also important to remember that every color has an opposite, and moving

**The Color Balance dialog shows you the colors and their opposites.**

the color slider to remove one color will increase that color's opposite. For example, If I move the center slider to the left, it will make the image more red. If I move it to the right, it will make the image more cyan, because cyan is red's opposite. The opposite of green is magenta and the opposite of blue is yellow.

Setting Channels up for a Press Sometimes, I change between various modes because I need my picture to be made out of different colors. For example, If I'm going to be printing something on a printing press, I will use CMYK mode, because those are the colors used by a press. When printing on a press, you can save money by using fewer colors of ink. In the example image here, I want the press to use only black and red ink, so I need to set up the Channels panel so that it's only made up of those two colors. To do that, I will create a spot color channel. I will first need to isolate the red areas of the image and I'll do that by going to the main menu and choosing Select > Color Range. With the Color Range dialog open, I'll move my mouse on top of the picture and click on a pure red in the

The Color Range command is being used to select all of the red in the image.

image. Then I'll adjust the Fuzziness slider, which determines how much the selection can vary from that color I clicked on. I will drag the slider up until the preview matches what I want. (In the preview, anything that is white will be selected.) To see a preview within my image window, I will change the Selection Preview menu at the bottom of the dialog to Black Matte. When I click OK, I'll have a selection of all the red areas in the image.

I would now like to create a new channel and have the selected areas full of black within that channel. (Black indicates where the press will use ink.) I'll click the New Channel icon at the bottom of the Channels panel and I will get a new channel that is full of black. I want to invert the channel in the selected area so I'll select Image > Adjustments > Invert. Now the selected area will be white, but this is the opposite of what I want. I will choose Select > Deselect from the main menu and then choose Image > Adjustments > Invert and because there was no selection active this time, the entire image will become inverted.
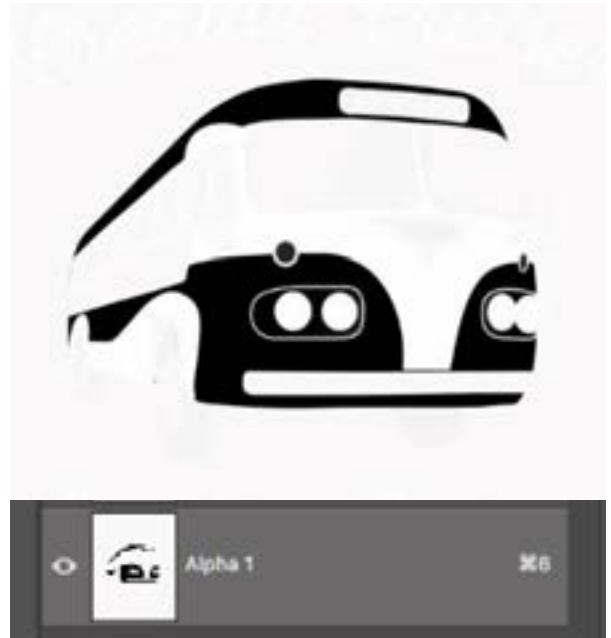
This new channel contains only the red areas of the image.

Now I have the correct content in my new channel, but I still see some faded "residue" from the rest of the image, so I will make a Levels adjustment to get rid of this. In the Levels dialog, the slider on the right side of the bar chart will force more areas to white, so I will drag that slider until I see all of that residue disappear and then click OK.

A specific ink color is being chosen from the Color Libraries dialog (accessed from the Color Picker.

Now I need to let Photoshop know what color of ink this channel should use. In the Channels panel, I will double-click on the new channel's thumbnail. From the "Color Indicates" options, I will select Spot Channel and then click the color swatch to bring up the color picker. Because I want to use a specific type of ink, I'll click on the Color Libraries button (within the color picker) to bring up the list of Pantone colors, choose the specific ink color I want and click OK. Now, the channel will have the name of that ink and Photoshop will be able to communicate that color to the press.

Now that we have a channel for the red parts of the image, I need to create another one for the rest of the image, meaning all of the areas that are not red. To get back to the main image, I'll click on the top-most RGB channel. I will then click through the various channels that make up the picture, ignoring the red areas, to see which channel looks the best. They all look similar to me, so I'll randomly select one of them and drag it to the new channel icon at the bottom of the panel in order to duplicate that channel. With the new channel active, I just want to delete the areas that contain red so we will not be covering those red areas up with black ink.

Because I just made a selection of the red areas, I'll go back to the main menu and choose Select > Reselect. This will make that last selection active again. Then I'll hit the Delete and choose White from the Fill dialog that pops up.

A new channel was created for the rest of the image (the parts that aren't red) and the red areas were filled with white so that Photoshop knows that no ink should be placed there.

Now, I need to tell Photoshop what color of ink to use for this channel so I will double-click on the thumbnail for the channel to bring up the Channel Options. I'll again choose Spot Color, click on the Color swatch to bring up the Color Picker and hit the Color Libraries button. I'll type in "Black," it will select the Pantone Black and I'll click OK.

Finally, we need to make it so the picture is only made of those two new channels we created, so I'll simply drag the other channels to the trash can icon at the bottom of the Channels panel. Now, when I click on the eyeball icons to the left of our two channels, I will see what the final image will look like.


In the end result, we have two channels, one for each color of ink that will be used by the press: Red and Black.

Alpha Channels When viewing a selection as "marching ants," it can be difficult to see what you have selected because you can't tell how soft the edges are. We can use a different type of channel, known as an Alpha Channel, to create a saved selection and to better visualize the selection. With a selection active, go to the main menu and choose Select > Save Selection. When the Save Selection dialog appears, give the selection a name, set the Channel menu to New and click OK. You will see the new channel appear at the bottom of the Channels panel.

Above: When viewing a selection as "marching ants," it can be difficult to tell what is selected. Right: A selection is being turned into an alpha channel.
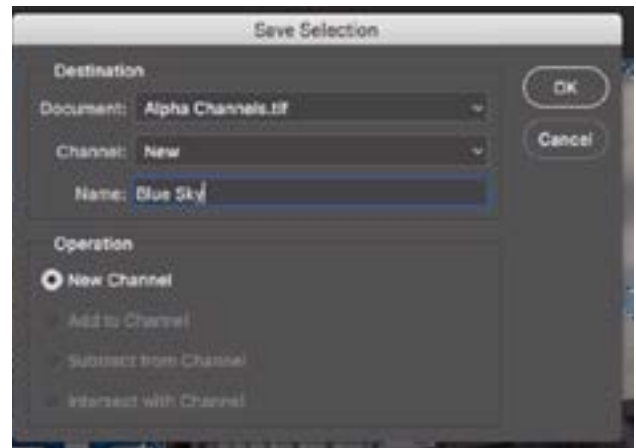
When you click on the name of the channel, it will hide all of the other channels that used to be visible and show you just the new alpha channel. An alpha channel is essentially a saved selection, where areas that are solid white are fully selected, areas that are solid black are not selected at all and gray areas are partially-selected. When viewing the channel, you can modify the selection by adding black or white "paint" to the channel. For example, if you see gray areas that you don't want selected at all, you can use the Brush Tool to paint with black over those areas. You can also paint with white to make sure an area is selected.


Here, we are painting in an alpha channel to modify the selection. Areas that are white will be selected and areas that are black will not be selected. Gray areas will be partially selected.

To view your image normally again, click on the name of the top channel (the composite channel) to make all of the color channels active. To load a selection created via an alpha channel, go to the main menu and choose Select > Load Selection. A dialog will appear and you can use the Channel menu to choose the alpha channel you created, choose New Selection and click OK. You will then see the "marching ants" of the selection.
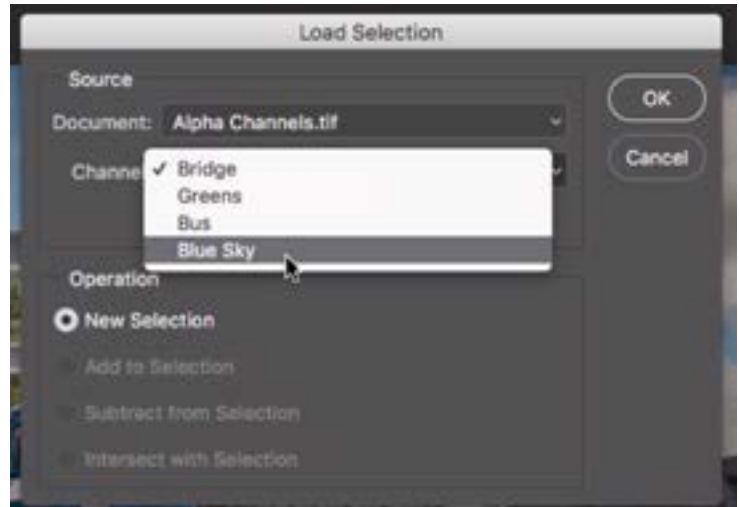
A selected is being loaded from an alpha channel. You can do this by going to the main menu and choosing Select > Load Selection.

"Stealing" from a color channel to create an alpha channel There are many ways of creating selections in Photoshop. Let's look at how we can use one of the image's color channels to help us create an accurate selection. With the Channels panel open, we will click through each of the different color channels and determine which one makes the subject separate from the background the most. In the example here, it looks like the blue channel does the best job of that.
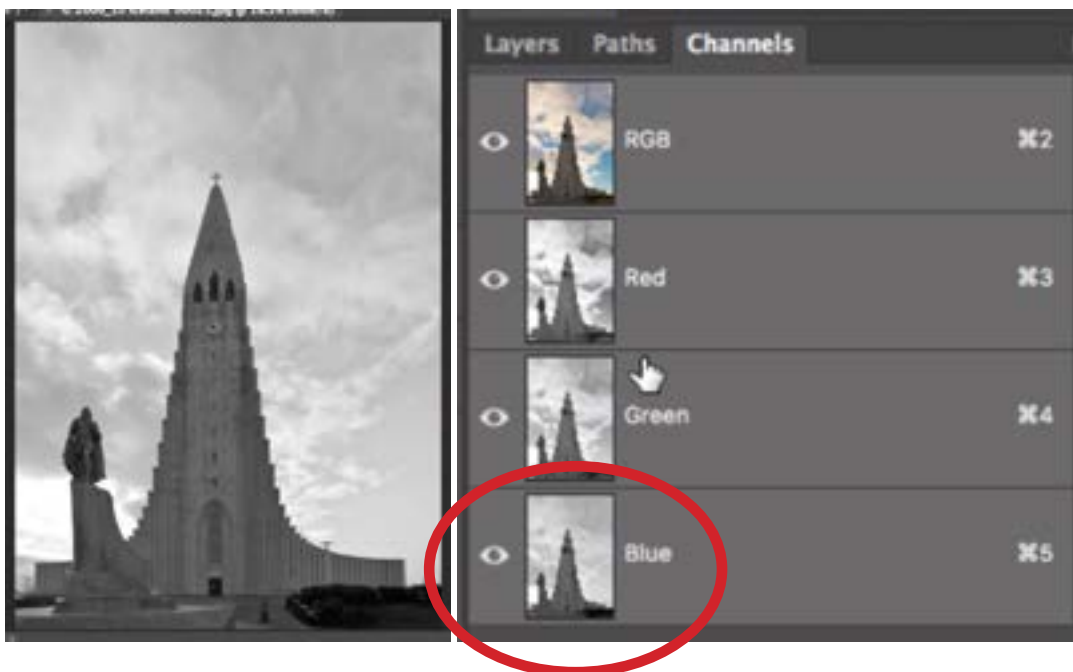
Looking through the channels, the Blue channel showed the most separation between the subject and the background, so we duplicated this channel to create a new alpha channel.

We will duplicate that channel by dragging it to the New Channel icon at the bottom of the Channels panel. The new channel will be created as an alpha channel and it will appear at the bottom of the channel list. We want to take this channel and adjust it such that it becomes completely black and white. This will create an even separation between what we want selected (the building) and the background (the sky). To do this, we'll create a Levels adjustment (Image > Adjustments > Levels). In the Levels dialog, the slider under the right side of the chart forces areas to white so we'll drag that to the left until the sky becomes almost white. The slider under the left side of the chart forces areas to black, so we'll drag that to the right until the building is nearly black. We can also adjust the middle slider to adjust what's in between and try to clean the selection up as much as possible. Then we'll click OK.

Now, We'll use the Brush Tool to clean up the selection further, painting with black and/or white to ensure there are no gray areas.
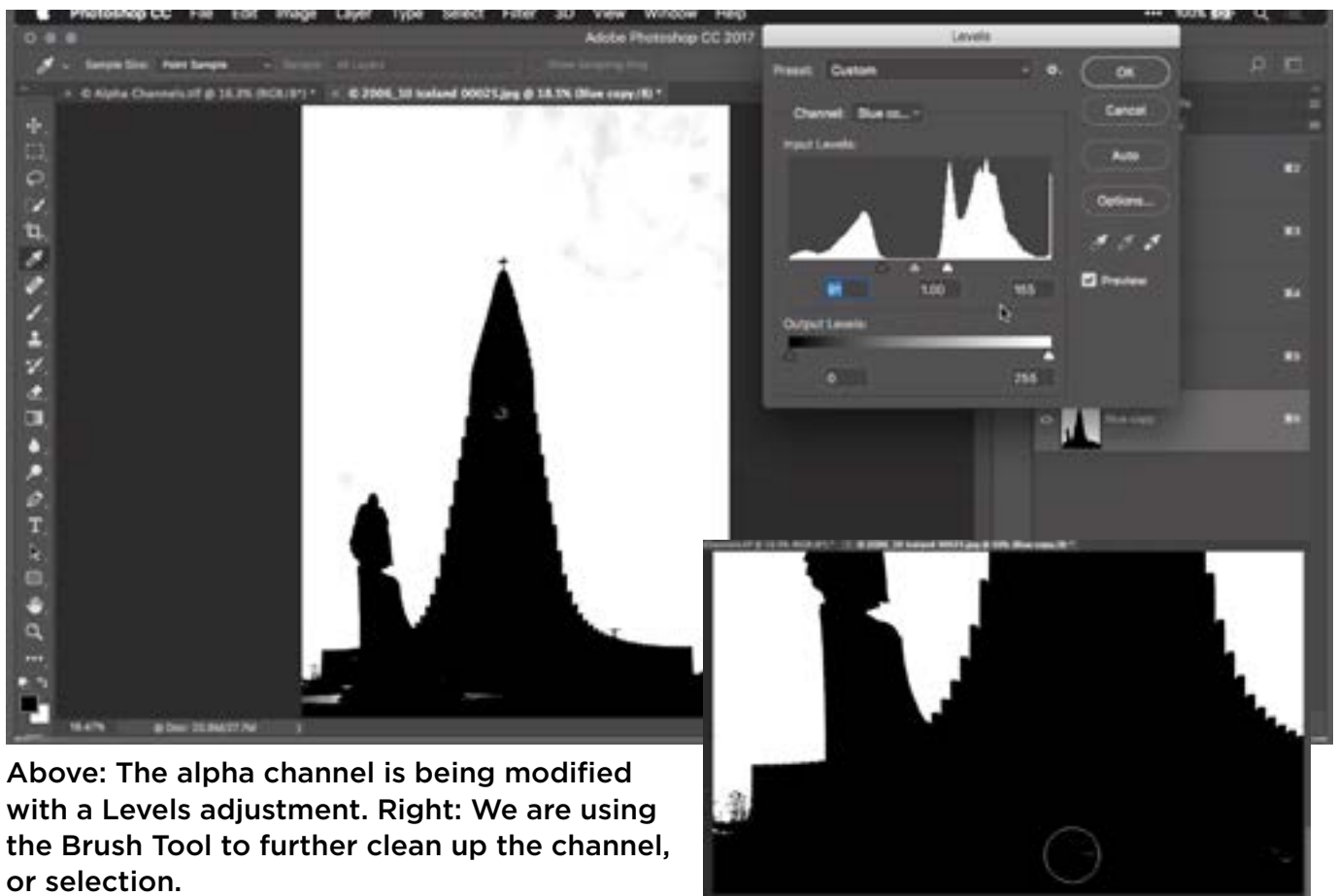

Above: The alpha channel is being modified with a Levels adjustment. Right: We are using the Brush Tool to further clean up the channel, or selection.

With an alpha channel, white represents a selected area and black represents an area that is not selected, so we will need to invert this channel to make sure the building is selected. We can do this by choosing Image > Adjustments > Invert. Now, this alpha channel can be used to load the selection of the building.
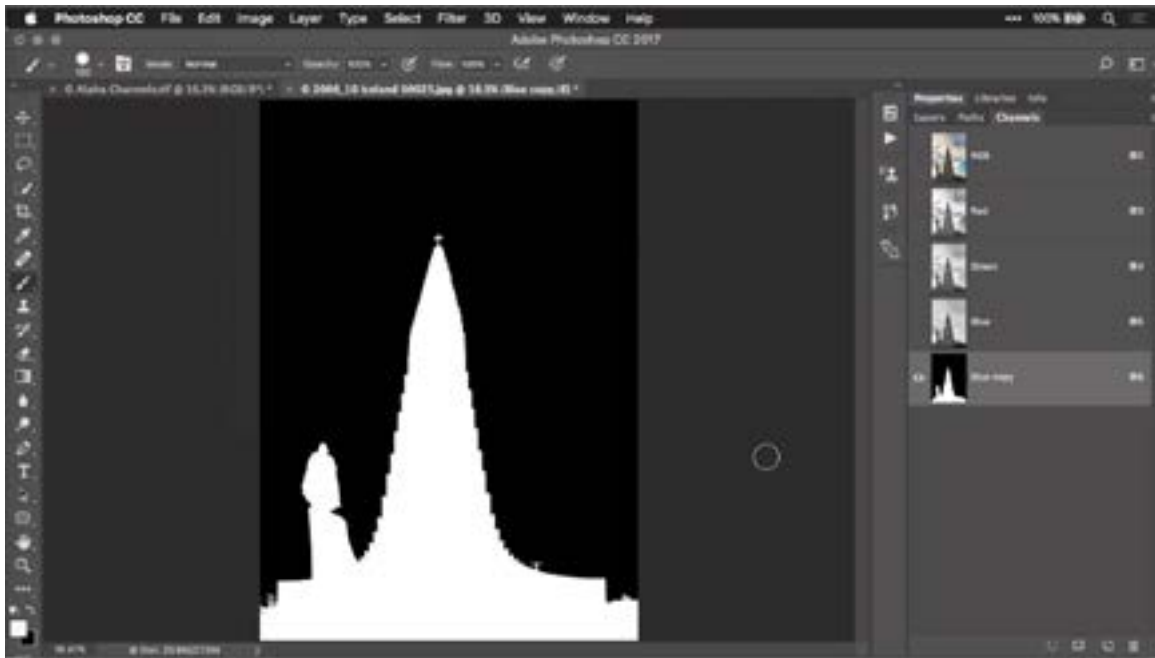

The alpha channel was inverted so that the building is selected and the sky is not selected.

Changing modes to isolate areas Sometimes, you will have a more complicated image, where the areas you want to select can not be isolated by choosing and duplicating one of the R, G or B channels. In an instance like this, it may be useful to switch the mode of your image to one that might create more separation in the area you want to isolate. You can change the mode by going to the main menu and choosing Image > Mode. In an instance like the example here, where the image is more illustrative, the Lab Mode can be more helpful.
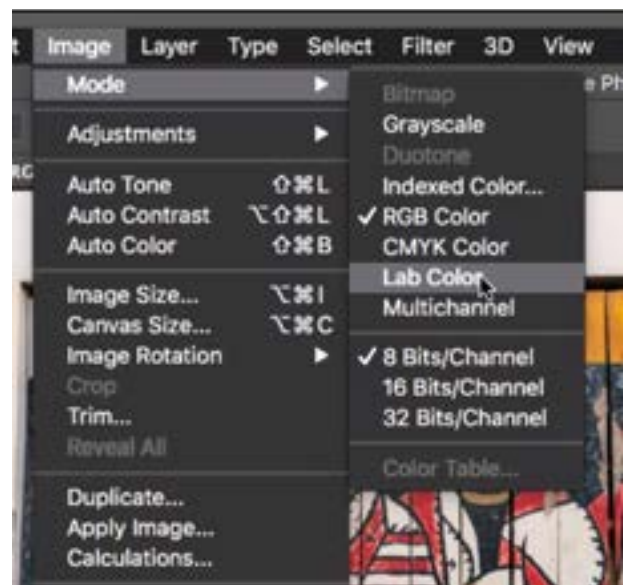
The image is being changed to Lab mode.

The Lab mode contains three channels: Lightness, A and B. The Lightness channel is basically a black and white version of your picture. The A and B channels will appear as duller versions of the black and white image, but in this case, the A channel creates separation from the red areas we want to select and the rest of the image. We'll duplicate that A channel to create a new alpha channel and then use a Levels adjustment to isolate the areas we want.
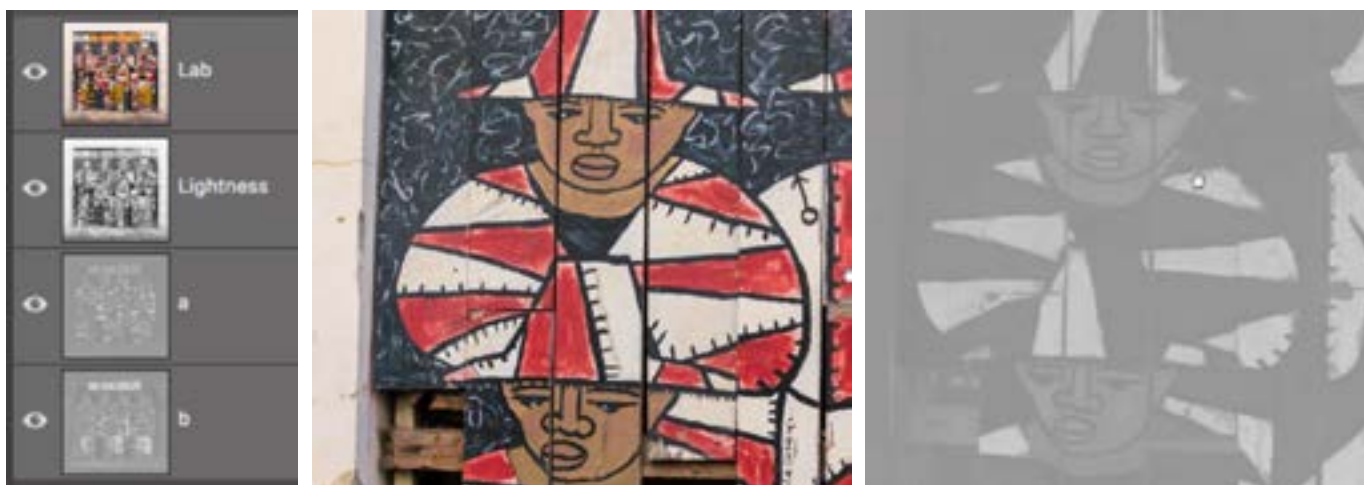

The Channels panel is displaying the image in Lab mode at left. The A channel is shown in screen shot on the right and it creates the most separation for the red areas in the image.

Instead of using the sliders below the Levels chart, we can instead use the Eyedropper tools on the right side of the Levels dialog. When you activate the white eyedropper and click somewhere in your image, it will force those areas (containing the same shade) to solid white. When you activate the black eyedropper and click somewhere within your image, it will force those areas to solid black. Knowing this, We'll use the white eyedropper to click in that [formerly] red area to make


The black and white eyedroppers within the Levels adjustment can be used to force areas to black and white.

it white (because that's what we want selected) and we'll use the black eyedropper to click in the surrounding areas, forcing them to black. We can then fine-tune the sliders, if necessary, and click OK. We can always refine the alpha channel by adding black to areas that shouldn't be selected and adding white to areas that should be selected.
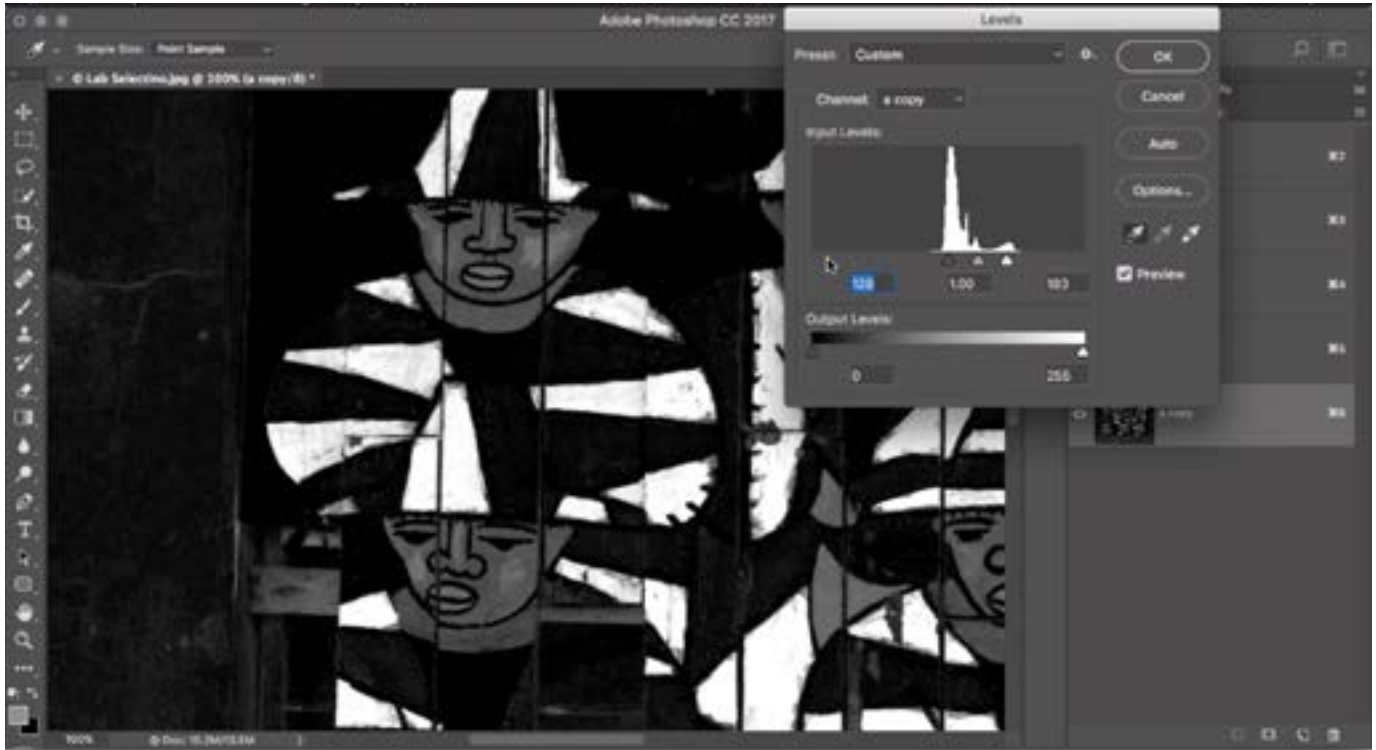
The white eyedropper was used to click on the area we want selected and the black eye-dropper was used to click on the areas we don't want selected.

Now we have an alpha channel that is isolating all of the red areas in the image. I also want to isolate all of the yellow/brownish areas so I will create a separate alpha channel to accomplish that. Looking through the Lightness, A and B channels, it looks like the B channel shows the most separation for the color I want to isolate. I will duplicate that B channel and make a Levels adjustment to that new alpha channel, using the eyedroppers to force areas to white and black as we did previously.
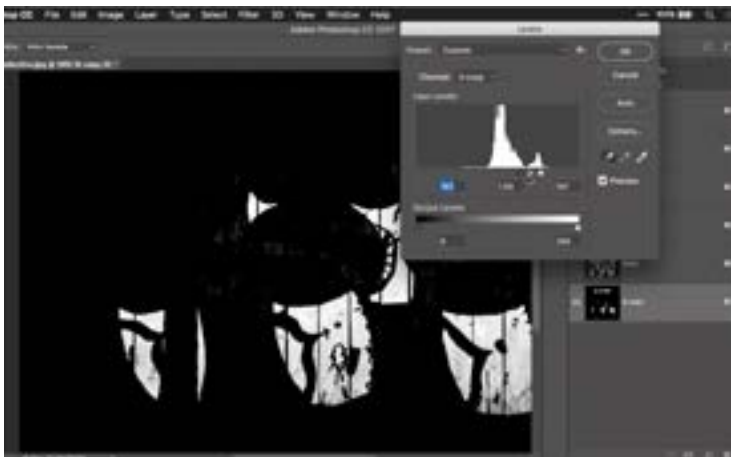
A separate alpha channel was created to isolate the yellow/brown hues in the image. A Levels adjustment is being applied to fine-tune this channel.

We can then load one of the channels as a selection and use that selection to fine-tune the other channel. For example, I will load the channel created to isolate the yellows as a selection, activate the other channel (the one created to isolate the reds) and then fill that selected area with black.

After the alpha channels have been created and adjusted, we can change the mode of the image back to RGB.
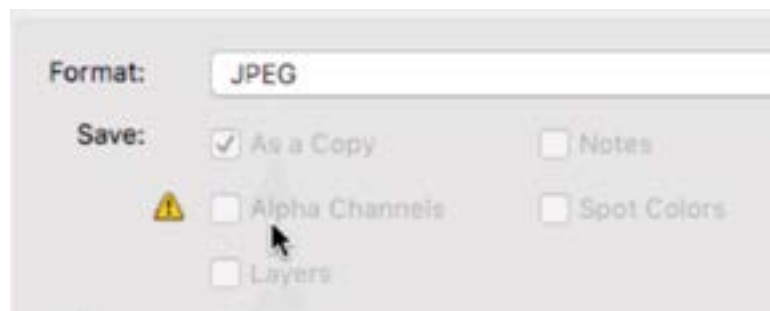
Not all file formats support alpha channels. Here, you can see that the JPEG format does not. I usually save in Tiff or Photoshop file formats, as both of these support things like alpha channels, layers, etc.

When saving an image that contains alpha channels that you may want to use later, it's important to know that not all file formats support alpha channels. For example, if you save the document as a jpg, those alpha channels will be lost because the jpg format does not support them. I usually use the Photoshop or Tiff file format, as both of these formats will preserve those alpha channels so that you will be able to access them and use them later.

Channels & Layer Masks Let's say I want to isolate one of the colors from this image so that it's the only thing that appears in the document. We'll isolate the yellow color, starting by loading the yellow alpha channel as a selection. Then, we'll go to the Layers panel and click the New Layer Mask icon at the bottom of the panel. Because we have a selection active, that selection will automatically be applied to the mask. In a layer mask, areas that are white cause the layer to show up and areas that are black cause the layer to be hidden.


The yellow alpha channel was loaded as a selection and when we created a layer mask, the selection was automatically applied to the mask.

It's important to understand that a layer mask is a channel attached to a layer. If you create a layer mask and then look in your Channels panel, you will see that mask listed as one of the channels. The mask will only show up within the channels panel when that particular layer is active. This makes it a temporary channel. You can view the mask in your main image window by going to the Channels panel and turning on the eyeball icon to the left of the mask channel. When you do this, you'll get a red overlay, which represents the black areas of the mask. You toggle this red overlay on and off by hitting the backslash key (\ ) when the layer is active. (Note that when the mask is attached to a Smart Filter or something similar, the backslash key will not toggle the overlay. You will instead need to click on the eyeball for the mask within the Channels panel.)

The layer mask attached to the Mural layer automatically becomes a temporary channel, which can be viewed in the Channels panel when the layer is active.
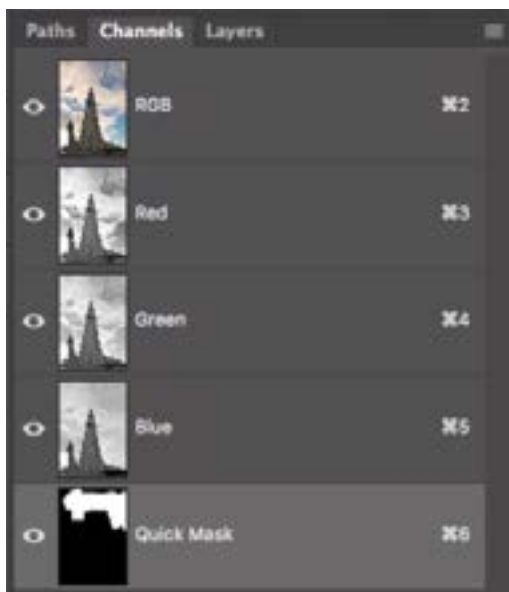
When working with a selection in Quick Mask Mode, that Quick Mask becomes a temporary channel and will be shown within the Channels panel.

Quick Mask Mode Quick Mask Mode is a temporary channel. After making a selection, hit the Q key to enter Quick Mask Mode, which will give you a red overlay in the areas that are not selected. You can then adjust the selection while in Quick Mask Mode by adding black or white "paint" to remove or add areas to the selection. When you hit Q again to exit Quick Mask Mode, the areas that don't have the red overlay will be selected. (Note that you can also toggle Quick Mask Mode by clicking the icon below the color swatches in your Tool Bar.) If you look at the Channels panel while in Quick Mask Mode, you will see the temporary channel at the bottom of the list.

Quick Tips

Quickly load a mask or channel A channel can be quickly loaded as a selection using keyboard shortcuts. Hover your cursor over thumbnail for the channel, hold down the Command key (Ctrl on Win) and click on the thumbnail. This will create a "marching ants" selection. This works the same for layer masks or the masks associated with Smart Filters.

Hidden channel for transparency Any time you have a layer that has transparency, there is a hidden channel involved, which defines what is transparent and what is not. If you hold down the Command key (Ctrl on Win) and click on the thumbnail for a layer that has some transparency in it, you will get a selection of everything that is not transparent in the layer.

Previewing channels Earlier in the lesson, we mentioned that you can view a channel or mask as a red overlay by hitting the backslash key or by going to the Channels panel and turning on the eyeball for the channel. By default, this overlay is always red. If you would like to change what color this overlay is, double-click on the thumbnail for a mask within the Channels panel and a Layer Mask Display Options dialog will open, inside of which you can choose a different overlay color. You can also adjust the Opacity setting to determine how much you'll be able to see through the overlay.

You can change what color the preview overlay for a mask or channel will be by double-clicking on the thumbnail for the mask within the Channels panel.