

CHANNELS

PHOTOSHOP CC 2019

Photoshop uses channels to store color information about an image or to store selections. Photoshop creates color information channels automatically and all Photoshop images contain at least one channel.

Bitmap-mode, grayscale, duotone, and indexed-color images are each single-channel modes. An indexed-color image has one channel containing up to 256 levels of density.

Color Modes

Modes are found under the Image menu and the corresponding channels reflect the make up of the image.

The default is 8 bits per channel. Only in RGB mode is 16 bits per channel available.

RGB

An RGB image contains three channels made up of red, green, and blue color information. The main purpose of the RGB color model is for the sensing, representation, and display of colors in electronic. RGB is the visible spectrum of light. Monitors, cell phones and computers display RGB colors. Cameras and scanners record RGB color. RGB can create over 16 million colors.

RGB is the default working mode for anything in color.

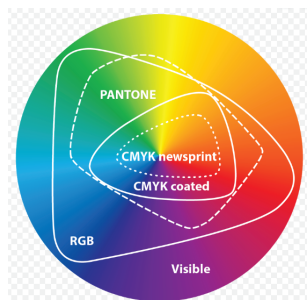
CMYK Color Mode

CMYK is designed to convert well into the printer's environment with its four-color plates of cyan, magenta, yellow, and black. CMYK contains 1 more channel than RGB but it has a smaller color gamut due to its limits on reproducing RGB color.

Its color gamut is designed to meet the narrower color range needs of the four-color printing process.

Indexed Color

Index color is broken down from RGB into 256 colors. This ensures predictable color on the Web or the Intranet. Index color images only have 1 channel. Index colors can be present in GIF and PNG files.



Grayscale

Single color images, typically Grayscale, contain only 1 channel of information.

Bit Depth

Photoshop supports 8 bit, 16 bit, and 32 bit colors modes.

8-bit

8-bit images give us 256 shades each of red, green and blue. 8 bit expressed mathematically is 2 to the 8th power or 2^8 , which equals 256. Each red channel has 256 colors times the green channel of 256 colors, times the blue channel of 256 colors which amount to 16.8 million colors.

16-bit

16-bit images give us 65,536 shades each of red, green and blue. This amounts to a HUGE amount of colors.

32-bit

32-bit images give us a crazy large amount of shades each of red, green and blue. This amounts to an incomprehensible amount of colors. This is what is used in HDR (High Dynamic Range) images.

Most photographers shoot in 16-bit more for more colors to be able to work with in editing. Some functions and features in Photoshop do not work in 16-bit mode. 8-bit mode is all we can print, so most work is down sampled to 8 bit.

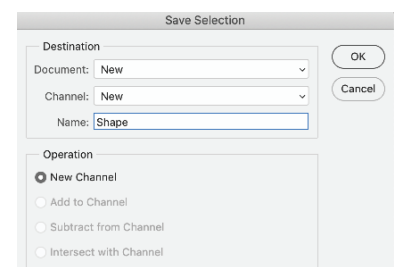
RGB and Grayscale modes support all bit depths, CMYK supports 8- and 16-bit modes. Index color only supports 8-bit.

Creating Channels

Saving Selections

A main function of channels is to save a selection. Any selection created in a Photoshop document can be saved for later use.

With an active selection, choose Select > Save Selection. All selections get saved as an Alpha channel.



Saved channels, called Alpha Channels appear at the end of the channels list in the Channels panel.

Alpha channels are quite simple. White shows the area selected, black is the unselected area.

24 Channels max

Except for the Bitmap-mode image, all images in Photoshop can have up to 24 channels. I have never come close to this limit.

Editing Channels

Duplicate a channel

To duplicate a channel, select the channel, right-click on it and choose Duplicate Channel. The duplicate will appear at the bottom of the channels list. Never edit a composition channel (R, G, or B) as it will edit the image; always create a duplicate of the channel before editing.

Edit a channel

A channel, in simple terms, is a black and white image. Editing the channel is down using adjustments such as a level and curves. Painting with a brush or erasing can be done directly on the duplicate channel. Selections can be made on a channel to isolate and area of editing. Those areas can be filled with black, white or shades of gray.

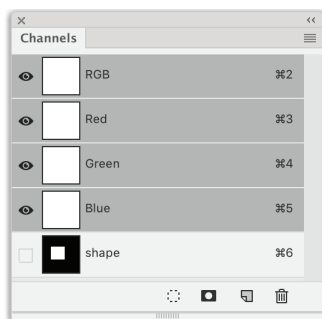
Filters, such a Blur can be applied to a channel to soften the selection where a hard edge had been.

Split channels

Splitting a channel is taking a flattened image (sorry, no layers) and splitting it into each composition channel. If your image is RGB, you will get three separate files, each with the R, G, and B information based on the original composition.

Delete a channel

Select the channel and click on the trash icon to delete a channel.



Load Channels

Loading a channel means activating a selection that the channel represents.

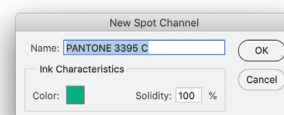
To load a channel, select the channel and click on the dotted circle icon at the bottom of the Channels panel. You can also Command + click on the selected channel thumbnail to activate the selection.

From the menu, choose Select > Load Selection and choose from the list of channels to activate a saved selection.

Spot channels

Spot channels are for adding a spot color to an image. Since there is no Spot color mode, this has to be done with Channels.

To add a spot channel, create a selection of where you want the spot color to appear. Click on the Channel panel dropdown menu and choose Spot Channel. Select the spot color from the list of colors, set the opacity of that spot color and click OK. A new channel will be added in that spot color based on your selection. To edit the color or to change the opacity, double-click on the Spot channel.



Saving a file with Channels

When a file has additional channels, called Alpha Channels, saving the image file requires saving it a .PSD format. Any other format will not include the additional channels and they will be deleted from the file.

