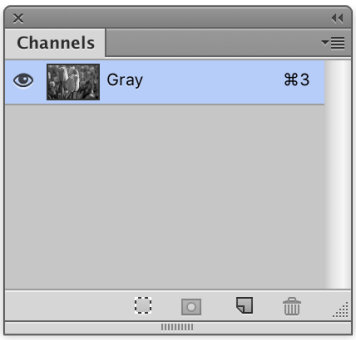
week::eight
Color Correction for Photography

Channels Revisited

Overview

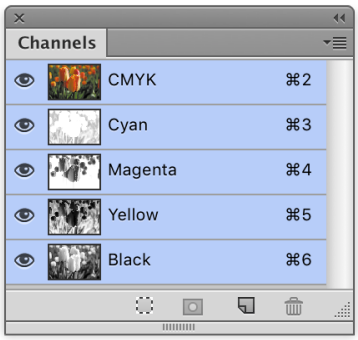
- Photoshop uses Channels to provide access to the different color components of an image.
- In most cases, an image is composed of one or more 8-bit channels.
  - Channels are essentially **8-bit grayscale images**.
    - Think of digital color images are stacked grayscale images.
    - RGB uses three 8-bit channels: One each for Red, Green and Blue.
    - CMYK used four 8-bit channels: One each for Cyan, Magenta, Yellow and Black.
    - Bitmapped, Grayscale, and Index images contain a single channel that is tailored to their color space.

Sample Channels Panels from Photoshop



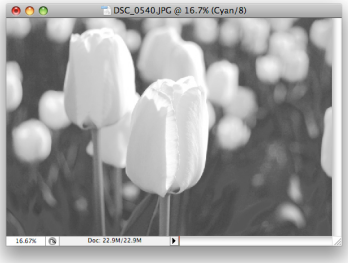
8-bit Grayscale Image
One channel

24-bit RGB Image
Three channels

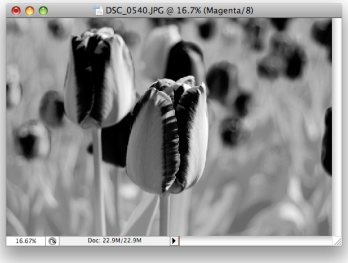


32-bit CMYK Image
Four channels

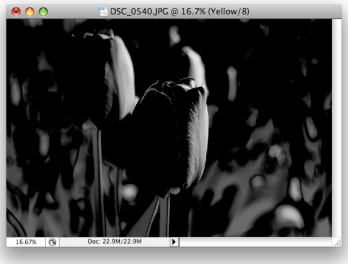
Sample Channels from a CMYK Image



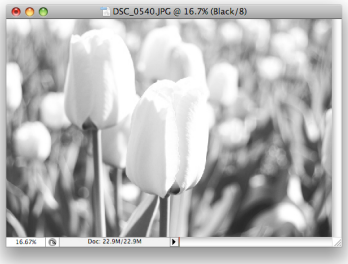
Cyan Channel



Magenta Channel



Yellow Channel



Black Channel

Anatomy of an Image

Highlight

- The lightest area of an image that you know to be white and still has some detail.
- Reflections or light sources are not considered highlight areas because they lack detail.

Shadow

- Darkest significant area of an image that is presumed to be neutral.

Quartertones/Midtones/Three-Quartertones

- The intermediate regions of an image.
- Areas of an image that are positioned roughly 25% / 50% / 75% between the Highlight and the Shadow areas.
- When trying to pinpoint these colors, think in terms of Value (Brightness), not Hue or Saturation (as if the image was Grayscale).

Neutrals

- Areas that are known to the viewer to be neutral in appearance.

Known Colors

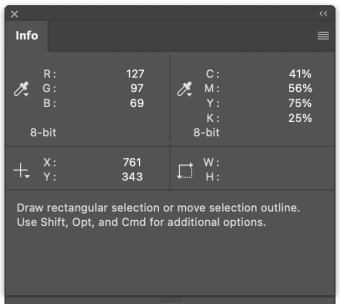
- A color that the viewer has experienced in real life and knows how it should look (e.g.: we know concrete is most often neutral in color; stop lights are red, yellow and green; skin tones are well-known to viewers).

Key Tools for Working with Color Numbers

RGB Color Numbers Explained

- Values are between 0 and 255
- 255, 255, 255 is white; 0, 0, 0 is black
- Color numbers that are the same are neutral colors
  (105, 105, 105)
- 0, 0, 255 is Blue; 255, 255, 0 is Yellow
  (Blue's opposing color)

Info Panel



- Displays numerical data about color.
- Use of this panel is helpful when performing color corrections.
  - When a second set of numbers is displayed (separated by a /), you can see BOTH the original values and new values at the same time.

Eyedropper Tool (I)

- Selects a color and makes it the current foreground color.
- Options:
  - 5x5 Average *or* 9x9 Average (for most images)
  - Point Sample (far too small of a sample)

Color Sampler Tool (Shift-I)

- Creates static color sample points in your document.
- The Info panel continuously displays color values of all sample points.
- Can also be created by Shift-clicking with the Eyedropper tool.

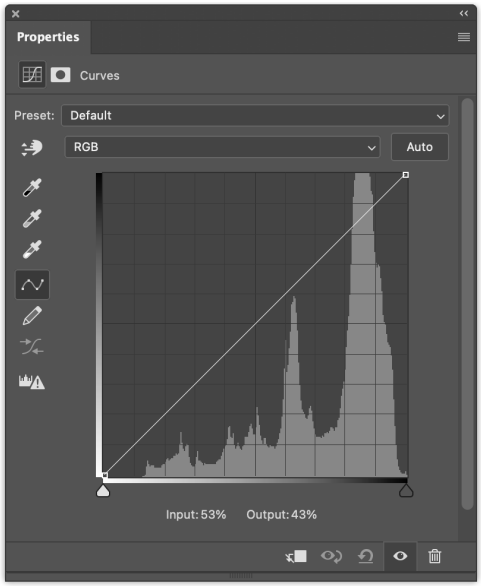
Histogram Panel

- A critical tool for evaluating the tonal range of an image.
- Use this panel to always have an eye on the distribution of tones across an image.
- Use the All Channels View to see all channels at the same time.
  - Histogram panel submenu > All Channels View

Curves—A Powerful Color Correction Tool

Overview

- Curves are an important color correction tool in Photoshop.
- Can control all channels simultaneously (RGB composite) *and* each channel individually (R, G, B).



The Main Benefit

- Curves allow for **multiple points of adjustment** per channel, including quartertones and three-quartertones.
  - Levels allows for only three points.

Curves are Sometimes Like Levels...

- Sideways movement along the top and bottom sides act similar to Input Levels from the Levels dialog box.
- Up and down movement along the left and right sides act in the same manner as Output Levels from the Levels control box.

Our Curves Mantra...

- **The steeper the curve, the more contrast an image will have**.
  - Making a curve steep in an area of interest brings out the detail in that area.

Using Curves

Curve Display Options

- *Show Amount Of:* Lets you choose the direction of the Curve handles. The default is Light, though we will sometimes use the **Pigment/Ink** option as it most-closely correlates to CMYK color mode.
- *Grid:* Toggles between displaying a four-quadrant grid or a 10-quadrant grid. The 10-quadrant grid is preferred for most corrections.
- *Show:* Toggle the display of certain information in the Curves dialog box. All of them checked works for our purposes.

Always Use Adjustment Layers...

- Allow you to perform **non-destructive editing** of your images.
- You can edit your Curves at a later time, or remove it completely.
  - Also allows for the use of Layer and Vector Masks, and Blending Modes.

Navigation

- Panning and zooming around an image is available while the Curves dialog box is open.
  - To zoom, use Command-+ and Command-–.
  - To pan, press the spacebar, then click in the window.
- Use **Option-2, Option-3, Option-4, & Option-5** to navigate through the different image Channels.

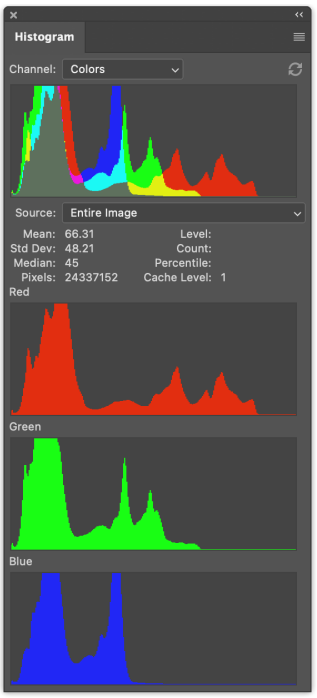
Nudging Points

- Use the arrow keys to nudge a selected point.
- Use Shift-*arrow key* to move a point 10 tone points.

Lock Points

- To fix an area of the image at a specific spot on the curve, simple create a point on the curve. It will not move unless you move it.

Utilize the Histogram



- The background Histogram is essential for making informed corrections using Curves.
- It is especially helpful for correcting the highlight and shadow areas of an image.

Locating an Image Area on the Curve

- In the Adjustments panel, use the **Targeted Adjustment** Tool to locate where an area of an image falls on a curve. A small dot will jog up and down the curve as you move the mouse.
  - Click to establish a point on the curve.
  - Click-and-drag directly on the image to adjust the curve in that specific area.
- In the Curves dialog box, simply click-and-drag in the image window.
  - Hold down the Command key, then click on an area of the image to establish a point.
- To add a Color Sampler Point while in Curves, Shift-click where you want to place the point.

Threshold Adjustment Layer

- Use to identify the highlight and shadow areas on as image.

Input/Output Numbers

- You can numerically adjust curve points by adjusting the Input and Output numbers.
- Don't rely too much on the actual Input/Output numbers—just focus on how they affect the image.

Color Correction by Numbers

Overview

- Using **Curves**, the **Eyedropper** and the **Info** panel, you can make accurate color adjustments to an image.
- It's best to first make color changes globally, if possible.
  - A color error in one part of the image often indicates problems with other parts.

Target Values in RGB

Highlight Area	Shadow Area	Neutrals
R 250 / G 250 / B 250	**R 15 / G 15 / B 15** For the Shadow, values slightly above or below 15 can be OK.	**Neutral areas should all be nearly equal in value.**

- In general, skin tones should push towards warmer hues (reds, yellows), not cooler ones (blues, cyan).
  - For example, in CMYK for Caucasian skin, Magenta and Yellow should be about equal, and Cyan ⅓ to ⅕ of the M & Y values.

Hints

- *The steeper the curve, the more the contrast*
- Use the full range of available tones every time, and don't give viewers any colors that they will know better than to believe.
- One set of Curves is generally all that is needed per image

Adobe Camera Raw Filter (ACR)

Overview

- The **Camera Raw filter** is another option within Photoshop for color correction.
- More closely-aligns with how many photographers edit images.
- Same tools and technology as Lightroom, Lightroom Classic, and the stand-alone Adobe Camera Raw editor.
- When applied as a Smart Filter, allows for non-destructive editing.

Steps

- For maximum flexibility, first prepare the image layer for filters by selecting Filter > Convert for Smart Filters...
- Filter > Camera Raw... (Command-Shift-A)
- Recommended: Start by selecting the “Auto” button near the top-right of the interface. This often is a great starting point for your edits.