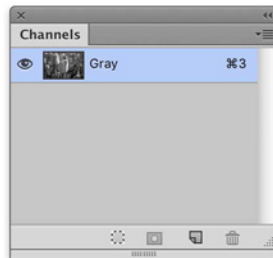


Color Correction with Curves

Channels Overview

- o Photoshop uses Channels to provide access to the different color components of an image.
- o In most cases, an image is composed of one or more 8-bit channels.
- o Channels are essentially **8-bit grayscale images**.
 - Think of digital color images as 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

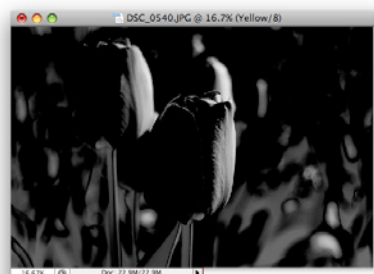
Sample Channels from a CMYK Image



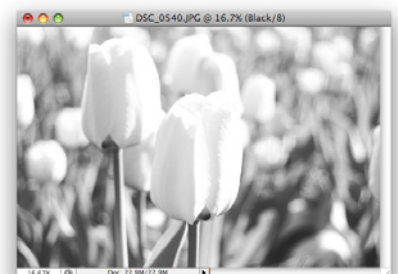
Cyan Channel



Magenta Channel



Yellow Channel



Black Channel

Anatomy of an Image

Highlight

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

Shadow

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

Neutrals

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

Known Colors

- o 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 know to viewers).

Working with Color Numbers

RGB Color Numbers Explained

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

Info Panel

- o Displays numerical data about color.
- o Use of this panel is critical 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)

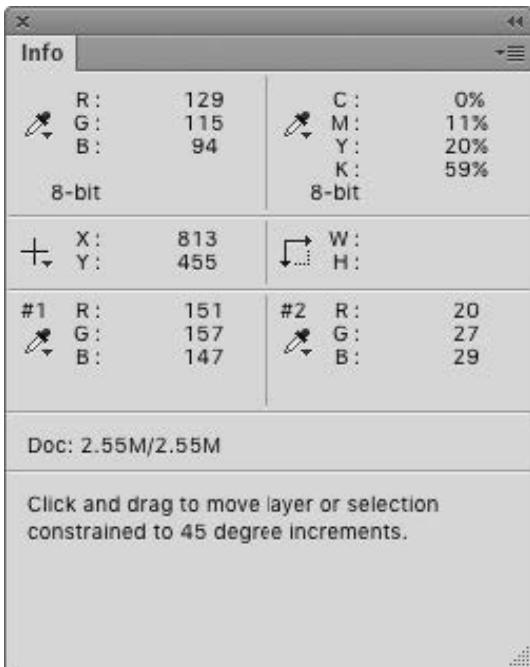
- o Selects a color and makes it the current foreground color.
- o Options:
 - Point Sample (too small of a sample)
 - 3x3 Average (the preferred setting)
 - 5x5 Average (for higher resolution images)

Color Sampler Tool (Shift-I)

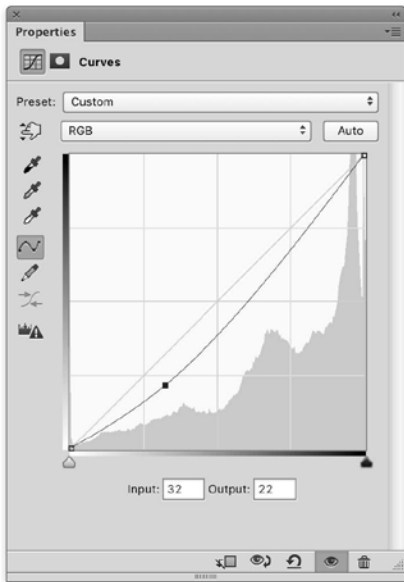
- o Creates static color sample points in your document.
- o The Info panel continuously displays color values of all sample points.
- o Can also be created by Shift-clicking with the Eyedropper tool.
 - They can also be created while in the Curves dialog box.

Threshold Adjustment Layer

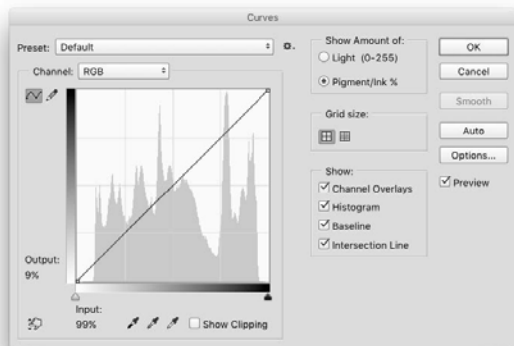
- o Use to identify the highlight and shadow areas on as image.



Curves—Our Primary Color Correction Tool



Using Curves



Overview

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

The Main Benefit

- o 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...

- o Sideways movement along the top and bottom sides act similar to Input Levels from the Levels dialog box.
- o 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...

- o **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.

Curve Display Options

- o *Show Amount Of:* Lets you choose the direction of the Curve handles. The default is Light, though we will use **Pigment/Ink** most of the time.
- o *Grid:* Toggles between displaying a fourquadrant grid or a 10-quadrant grid. The 10-quadrant grid is preferred for most corrections.
- o *Show:* Toggle the display of certain information in the Curves dialog box. All of them checked works for our purposes.

Always Use Adjustment Layers...

- o Allow you to perform non-destructive editing of your images.
- o 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.

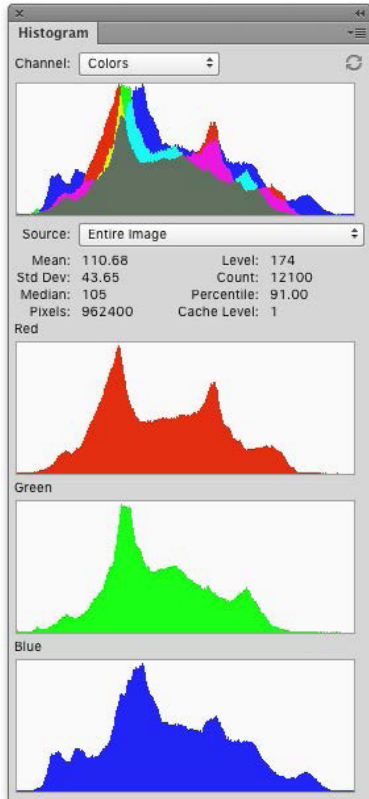
...unless you are making adjustments to JPEGs

- o JPEGs do not allow you to save Layers, which means you must use the destructive version (Image > Adjustments... > Curves; Command-M) to edit these images.

Navigation

- o 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.
- o Use **Option-2**, **Option-3**, **Option-4**, & **Option-5** to navigate through the different image Channels.

Curves—Our Primary Color Correction Tool Continued...



Color Correction by Numbers

Locating an Image Area on the Curve

- o 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.
- o 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.
- o To add a Color Sampler Point while in Curves, Shift-click where you want to place the point.

Nudging Points

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

Lock Points

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

Histogram Panel

- o Use this panel to always have an eye on the distribution of tones across an image.
- o Use the All Channels View to see all channels at the same time.
 - Histogram panel submenu > All Channels View

Input/Output Numbers

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

Overview

- o Using **Curves**, the **Eyedropper** and the **Info** panel, you can make accurate color adjustments to an image.
- o 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.

The Target Values

- o The Highlight area should be **R 250, G 250, B 250**
- o The Shadow area should be approximately **R 15, G 15, B 15**
 - For the Shadow, values slightly above and below 15 can be OK.
- o Neutral areas should all be nearly equal in value.
- o 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 $\frac{1}{3}$ to $\frac{1}{5}$ of the M & Y values.

**Color Correction
by Numbers
Continued...**

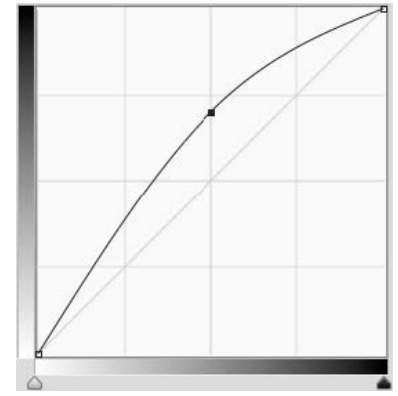
Hints

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

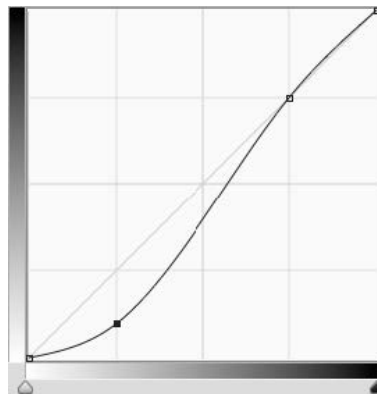
**The Six Basic
Curve Shapes**



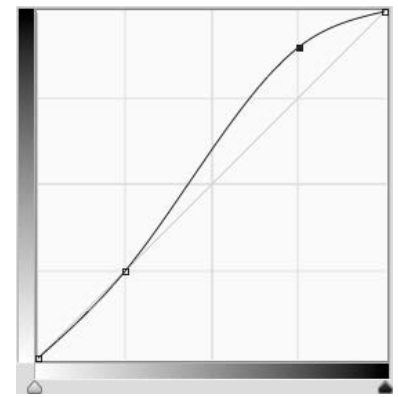
Lighten



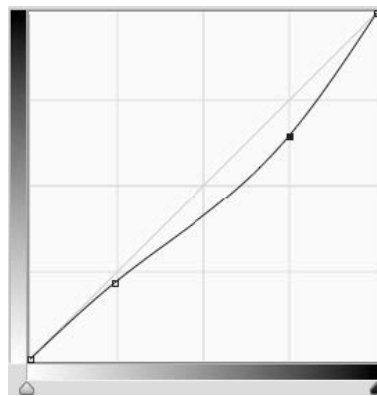
Darken



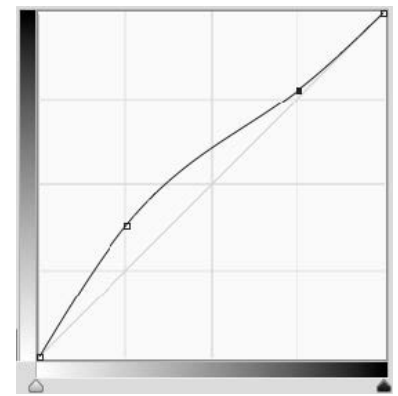
Lighten - More Contrast



Darken - More Contrast



Lighten - Less Contrast



Darken - Less Contrast