

Channels

The Grayscale components that an image is made out of when combined in their format of either CYMK, RGB, Grayscale or any combination of "LAB" colors make an image. Most photographic images are composed of either red, green and blue light, or cyan, magenta, yellow and black ink. The Channels palette is where Photoshop keeps track of exactly how data is needed to reproduce a full-color image.

Channels can be used to create masks but Layers can do the same thing more quickly by using the short cut at the bottom of the "layer pallet."

Masks

Masks can be made out of any selection created. It can be made from another image, or using the "Lasso" tool, the type tool, a path you created or imported, an illustrator file or PDF smart object... or any other method you might try as long as a selection of that image is made. A mask literally hides any portion of your image that was not included in your selection.

Dots per inch (dpi)

Determines the size of the dots an output device will use when printing an image. A 300-dpi laser printer uses black dots that are 1/300 of an inch.

Pixels per inch

Information for PPI can be found in photoshop documents in the Menu under the term "Image." In order for an image to have a print ready resolution it must be at least 300ppi (pixels per inch) which translates into 300 dots per inch when it goes to the printer.

PDF

Means Portable document format which has a number of standard outputs created by Adobe for Printing across platforms. Since it is a Multiplatform source — Viewable and printable on any platform — Macintosh, Microsoft® Windows®, UNIX®, and many mobile platforms, it is used for embedding pictures, fonts and resolution information all in one document. Its main purpose was to create a method by which all platforms could view a document over the web, but it has also made it easier for graphic designers to have a standard format for printers to work from.

Smart Objects

A Smart Object is a copy of image data — from one or more layers in a Photoshop document, from an Illustrator image, or from a raw photo, or PDF — that is embedded in the main Photoshop document. This copy can be scaled, warped and rotated multiple times without degrading the original image. It can also serve as a parent object for multiple objects in your main image. That means that changes you make to a Smart Object will ripple through your main document changing all the related child objects.

Placing Objects

Objects can be placed by scrolling down from the "File" menu, locating "place" and then clicking on the object that you wish to "import" into your photoshop document.

Clipping Paths

A clipping path is a vector path which allows part of an image to show while hiding the rest of the image. When a Photoshop document is placed into an InDesign or Illustrator file the clipping path can be used to hide the rest of the image's background that is not enclosed within the path and place it on a new background that you can create in the aforementioned applications which are completely independent of the original photoshop file. It is frequently used in catalogs and Magazine layouts when the designer wishes to isolate a particular image from the background much like a mask might do.

- Bit depth** Designates how many colors an image has. The greater the bit depth the greater the overall size of the document. For instance (10 bits of red + 10 bits of green + 10 bits of blue = 30 bits total). So 10 bits per channel (RGB) is the same as 30 bits total. $10 \text{ bits} = 2 \text{ to the tenth power} = 1,024$. So a 30-bit scanner can capture 1.1 billion colors ($1,024 \times 1,024 \times 1,024 = 1.1 \text{ billion}$), whereas a 24-bit scanner can capture only 16.7 million colors. Obviously the larger the bit depth the more accurate the color, but one sacrifices efficiency and the ability to manipulate the image effectively if the bit depth is too great. Photoshop will only allow you to use all of your filters on images that have (2^8) or 8 bits per channel maximum, so logically the typical bit depth for most documents is 8 bits/channel. When scanning in grayscale, a 24-bit scanner captures 256 grays and a 30-bit scanner captures 1,024 grays.
- Alpha channel** Alpha channels are basically saved selections. They do not affect how your image will be printed, but they will make your overall document size larger. So I don't see much use for them.
- Anti-aliasing** Smoothing the edge of an otherwise hard-edged object by adding partially transparent pixels. These pixels help to blend the edge of the object into the surrounding image, making it harder to see the edge of the pixels and therefore avoiding a jaggy edge. You will see this option used when using the "Type" tool in Photoshop.
- Big data** Any area of a layer that extends outside the physical dimensions of the document making your document sometimes much larger than it needs to be which can lead to a document or application "crash." "Crop" your document accordingly to prevent this from occurring by selecting the area you wish to keep in a document and deleting anything hidden beyond its boundaries.
- Bitmap** A confusing term, because Photoshop uses it in an unusual way. Technically "bitmap" means a grid of pixels. That means that any image you ever see in Photoshop that contains pixels is technically a bitmap image. That's why the native format for transporting pixel-based images on the Windows platform is called a BMP file. That stands for Windows Bitmap. Adobe has decided to reserve the term to describe images that contain only pure black and pure white (no grays or color). The reason can be attributed to Apple. The Macintosh was one of the first personal computers that were designed to deal with pixel-based images, and in its first incarnation it contained a black-and-white screen (no grays). "Bitmap" got associated with any pixel-based image on that first Mac model, and that's how the dual meaning came about.
- Vector** Images can be Raster, Vector, or a combination of both. Raster images are made out of a grid of pixels which are generally square in appearance, which makes them inherently jaggy when viewed up close and causes them to appear blurry or jaggier when enlarged. Vector images on the other hand are made out of smooth curves and straight lines (known as paths or bezier paths) which can be scaled to any size without degrading the quality of the image. The most common program used for creating vector images is Adobe Illustrator.
- EPS (.eps)** Encapsulated PostScript (EPS) is a file format used to transfer PostScript-language page documents between programs and output devices. EPS files should be used only with PostScript-aware printers; otherwise, the resulting images will appear with a low-resolution "jaggy" appearance because they only print the onscreen preview.
- Feather** The process of converting a hard-edged selection into one that blends into the underlying image as your eye moves closer to its edge.
- Tiff (.tif)** Tag(ged) Image File Format. It is one of the most popular and flexible of the current public domain raster file formats. etc
- Gridlines** Creating grid lines first is essential to insuring that no important data such as copy lies outside the safe zone for printing which is generally $\frac{3}{8}$ of an inch from any edge off your document but consult your printer for safety. To create gridlines in any program, you must first be able to "show your rulers by clicking "Apple R". From your rulers, drag a line by clicking you mouse on the ruler and then dragging it to the desired location on your document. Typically a line appears blue on your document but will not print.

Style Sheets	A collection of character formatting attributes that can be applied to text in a single step used more often in InDesign than any other program.
Gamut	The range of colors that are reproducible on a particular device. You can see whether your device is out of gamut by looking for the little caution sign with the exclamation point in it. If in Photoshop you select a color that is out of gamut then chances are that it will not print out accurately. This occurs most frequently in RGB situations.
Color Correction	The ability to enhance the values of color. Most documents start out as RGB but must be converted to CMYK to print. Once shifted unintended color shifts may occur that need to be color corrected because of out of gamut errors.
ICC Color Profiles	A group instituted to standardize color profiles. You can output different profiles but they need to be consistent across applications so that you may see the image on screen as in the application program. Consistent color is a HUGE problem that needs to be overcome and can only be done so by diligent attention to detail.
Channels	Monitor gamut sometimes needs to be adjusted to account for discrepancies between devices. The grayscale components that an image is made out of when combined in their format of either CMYK , RGB, Grayscale or any combination of "LAB" colors make an image. Most photographic images are composed of either red, green and blue light, or cyan, magenta, yellow and black ink. The Channels palette is where Photoshop keeps track of exactly how data is needed to reproduce a full-color image.
DPI	Determines the size of the dots an output device will use when printing an image. A 300-dpi laser printer uses black dots that are 1/300 of an inch.
Clipping Path	When a Photoshop document is placed into an InDesign or Illustrator file the clipping path can be used to hide the rest of the image's background that is not enclosed within the path and place it on a new background that you can create in the aforementioned applications which are completely independent of the original photoshop file. It is frequently used in catalogs and Magazine layouts when the designer wishes to isolate a particular image from the background much like a mask might do.
Mask	Masks can be made out of any selection created. It can be made from another image, or using the "Lasso" tool , the type tool, a path you created or imported, an illustrator file or PDF smart object... or any other method you might try as long as <u>a selection of that image is made</u> . A mask literally hides any portion of your image that was not included in your selection.
PDF	portable document format. A commonly cross platform document creator that includes embeds document data, images and fonts in a variety of sizes.
Smart Objects	A Smart Object is a copy of image data — from one or more layers in a Photoshop document, from an Illustrator image, or from a raw photo, or PDF — that is embedded in the main Photoshop document. This copy can be scaled, warped and rotated multiple times without degrading the original image. It can also serve as a parent object for multiple objects in your main image. That means that changes you make to a Smart Object will ripple through your main document changing all the related child object

Metamerism:

The quality of some colors that causes them to appear differently under different light sources. For example, two color samples might appear the same in natural light, but not in artificial light. Fluorescent light is cooler (more blue) in most cases than in incandescent light (more warm). Printed as well as ambient color can shift under different conditions and different light sources.

CMYK

The four channels of color that make up the typical printing process which converts areas of color. The Channels palette is where Photoshop keeps track of exactly how data is needed to reproduce a full-color image. CMYK is a subtractive method of color as it reflecting back the light waves in a range that you can see while it absorbs the color range that it does not require and therefore SUBTRACTING them.

Subtractive processes are more susceptible to changes in ambient light because they rely on this light to produce their colors. Printed colors often require a specific type of lighting in order to accurately reproduce the color shown. Out of gamut icons in the Photoshop color palette are represented by a yellow triangle with an exclamation point within it, to warn the designer that the color that they see on their monitor will not print in CMYK and requires adjustment.

RGB

The three channels that photoshop uses to recreate an image which is an additive process. Beams of light are combined (added...additive) and projected outward into visible wavelengths of color.

Photoshop Shortcuts

command c=copy

command v=paste

command d=deselect

command a=select all

command m=curves palette to adjust color

command p=print

command t=transform the object

command s= save

command/shift/option=save as

Hand Tool (toggle) =space bar

command/plus sign(+)=Zoom In

command/minus sign(-)=Zoom out

command/shift/greater than sign (>)=increase text size

command/shift/less than sign (<)=decrease text size

Illustrator Shortcuts

command c=copy

command v=paste

command a= select all

command p=print

command t=transform the object

command s= save

command/shift/option=save as

Hand Tool (toggle) =space bar

command/plus sign(+)=Zoom In

command/minus sign(-)=Zoom out

command/shift/greater than sign (>)=increase text size

command/shift/less than sign (<)=decrease text size

Resolution in Bitmapped Images

LPI v PPI (aka DPI) Typical Resolution but contact printers for verification

Print Method	1.5 x LPI	or	2x LPI	
	PPI	File Size/CMYK Letter 8.5x11 inches-flattened	PPI	File Size/CMYK Letter 8.5x11 inches-flattened
Newsprint-100 LPI	150	6.9	200	12.2
Magazine-133 LPI	225	12.2	266	21.6
Magazine-150 LPI	225	15.4	300	27.5
Magazine-175 LPI	263	21.1	350	37.5
Brochure-175 LPI	263	21.1	350	37.5
Brochure-200 LPI	300	37.5	400	48.8
Inkjet-1400 DPI	100-150	5.2	200	48.8

Resolution is THE most important factor for bitmap failure.
Resolution low < output BAD

In a black only job many printers require resolution to be 1200 dpi for Black only TIFF.

Bit Depth is determined by designates how many colors an image has. The color is determined by how many shades of gray there are in a channel. For instance in a typical RGB image there are 16 million shades of gray (256X256X256).

8 bits per channel is actually $8^3=256$

10 bits per channel = $2^{10}=1024$

An RGB document at 30 bits = (1,024 x 1,024 x 1,024 = 1.1 billion) making it impossible to do any other operation (currently) than color correction.

24-bit scanner = 16.7 million colors

The greater the bit depth the greater the overall size of the document. For instance (10 bits of red + 10 bits of green + 10 bits of blue = 30 bits total). So 10 bits per channel (RGB) is the same as 30 bits total. 10 bits = 2 to the tenth power, which equals 1,024. So. Obviously the larger the bit depth the more accurate the color, but one sacrifices efficiency and the ability to manipulate the image effectively if the bit depth is too great. Photoshop will only allow you to use all of your filters on images that have 8 bits per channel maximum, so logically the typical bit depth for most documents is 8. When scanning in grayscale, a 24-bit scanner captures 256 grays and a 30-bit scanner captures 1,024 grays.

Vector images=object images=Illustrator created images are resolution independent and can be scaled upwards or downwards without destruction of quality.
Bitmap digital images are resolution dependent and should never be scaled larger than 120% of their original size. You can scale then down but NEVER up.

Video and web graphics require 72 dpi.

