



Below are DTG's definitions of some of the terms used in a digital color workflow. These are by no means "dictionary" definitions but descriptions in a language that we hope is easy to understand.

Absolute Colorimetric – One of the four Rendering Intents of the ICC specification. This method leaves colors that fall inside the destination gamut unchanged. Colors that fall outside the gamut are clipped and mapped to the closest possible color on the outside of the gamut. There is the possibility of 2 or more out of gamut colors being mapped to the same color leading to loss of detail or tonality. It doesn't remap the white points across profiles so converted images simulate the white point of the destination profile – good for proofing.

Additive Color – The method by which the 3 primary colors Red, Green, & Blue are combined or added together to create all the colors we see. 100% of each color creates white.

Adobe RGB (1998) - Very popular, standard, and broad color space within the RGB model created by Adobe that is ideal for producing the maximum number of colors on a variety of output devices including thermal (dye sub), inkjet, and digital lab printers.

Black Point – The point that is considered to be the darkest on a device or media.

Black Point Compensation – An option in Adobe applications for color management. Because the black points of profiles can be different, when used, this option compares the black point of the source space to the destination space and maps the dynamic range accordingly. When unchecked, the source dynamic range is simulated. This is a very subjective tool and works for some images while not for others.

Calibration – The process of bringing a device to a known, set condition, so that it can display or print consistently. For example, when monitors are calibrated with a colorimeter (i1 Display II, Spyder, etc.) they are set or "calibrated" to an industry standard, usually 6500K-Gamma 2.2 or 5000K-Gamma 1.8.

Characterization – The process of identifying, defining, and recording (in an ICC Profile) how a device or media sees (camera, scanner), displays (monitor), or prints color. This is done by color management software and hardware including MonacoProfiler, or MonacoProof and X-Rite or Gretag Spectrophotometers.

Clipping – When colors fall outside the gamut of a device or media they are cut off and remapped (changed) to colors within the gamut.

CMYK – Cyan, Magenta, Yellow, and Black. The primary colors used in the subtractive color method. Colors used in the printing process to create all the colors we see.



Colorimeter – A device that measures, calibrates, and profiles (must be combined with software) 3 color (RGB) devices like monitors. Examples of colorimeters are the X-Rite i1 Display II, LaCie BlueEye, & Spyder.

ColorMatch RGB – A color space within the RGB model that was developed and created with a color gamut to closely simulate CMYK press-work.

Color Engine – See “Color Management Module (CMM)”

Color Management Module (CMM) – The software that does the calculations to convert files from one color profile to another. Examples of CMMs are Adobe ACE, Heidelberg CMM, Kodak CMM, Agfa CMM, and others.

Color Management System (CMS) – Usually part of the operating system. It’s the software that communicates with applications, standardizing the way color is translated from one “space” to another. Apple’s Colorsync and Microsoft’s ICM are examples. A CMS is NOT software to create ICC profiles – see “Profile Software”.

Color Model – A method and system by which colors are created, used, and described. Typical models include RGB, CMYK, LAB, HSV, etc.

Color Space – A specific range and gamut of colors within a color model. Popular spaces within the RGB model include sRGB, Colormatch RGB, & Adobe RGB (1998). Popular spaces within the CMYK model include U.S. Coated SWOP v.2, 3M Matchprint, & Newsprint. Color Spaces in their “file” form are ICC Profiles.

Color Temperature – Measured in degrees Kelvin. It is the value of how “Warm” (Yellowish) or “Cool” (blueish) lights or monitors are. A value of 6500K is standard for photographic applications, while 5000k is standard for proofing in North America (6500K is standard for proofing in Europe).

Densitometer – A device that measures reflective or transmissive density. Mainly used to calibrate output devices like printers and film processors. They are not able to create ICC profiles.

Device Independent Color Space – A color model or space that is not dependent on the object of which it is being used. LAB is an example of such a space and is used as the PCS (Profile Connection Space) to translate between 2 ICC profiles.

Destination Profile - The profile or color space that a file is being converted to when changing into a new space.



Embed – The process of tagging and saving a file (image or graphic) with the ICC profile or color space that the file is in. Embedding a profile does NOT convert the data in the file, it just tells other applications what color space that file is in when it is opened.

Embedded Profile – see “Embed”

Gamma – The tonal response or “curve” between the Black point and White point of a device. Affects the brightness/contrast appearance of the device. Typical gammas are 1.8, the Macintosh monitor default, and 2.2 the Windows monitor default. Studies have shown that the human eye has an opposite response to light to the display of a monitor and complements the 1.8 standard very well.

GCR (Gray Component Replacement) – The process by which the graying component (the lesser, 3rd primary in a color) or, equal amounts of CMY equivalent to the graying component, is replaced by black ink to improve ink control on the press.

Gamut – The range or volume of color that a device or media can display or print. All devices and print medias have different gamuts, the RGB spaces being larger than the CMYK spaces.

Hue – A property of the visible spectrum that describes the actual “color” of it, not including saturation or lightness. For example, by describing that an object is Red or Yellow or Green, you are describing its Hue.

ICC – Abbreviation for International Color Consortium. It’s the group that got together to establish standards for the communication and translation of color across the digital world.

ICC Profile – A file that describes how a device or media “sees”, displays or reproduces color. This description includes the gamut of the device as well as the LAB values for each of the rendering intents.

Input Profile – Generally considered an ICC profile for an input device like a scanner or digital camera. Can also be considered the “source profile” when converting a file from one color space to another. – See definition of “Source Profile”.

IT8 Target – Photographic hard-copy in either print paper or transparent film that is used by color management profiler software to create ICC profiles of scanners or digital cameras. Each target has several patches of colors and grays that are industry standards and should ship with the actual “digital” measurements of those patches.

JPEG – Abbreviation for Joint Photographic Experts Group. As a file, a JPEG is a way of compressing files



(typically graphics) by averaging pixels. JPEG files use a “lossy” compression method meaning each time the file is saved data is progressively lost.

Kelvin – The measurement unit used to describe the color temperature of a device in digital color applications. Typical Kelvin temperatures are 5000K for proofing/printing in North America, and 6500K for photog tions.

LAB (L*a*b) – The color model developed by the CIE that’s based on how human beings see color. It is device independent and used as the PCS (profile connection space) in ICC profile based color management.

Linearization – The process of correcting the density of inks to produce linear ink coverage at levels ranging from 0 to 100% coverage. This is typically done to each primary color used in a printer (CMYK). By linearizing a printer to a particular paper or media on a regular basis, you keep it printing consistently. Linearization usually requires RIP software and a densitometer or spectrophotometer.

Neutral – Color that has no hue. This would include white, black, and every shade of gray in between.

Output Profile - Generally considered an ICC profile for a printer. Can also be considered the “destination profile” when converting a file from one color space to another. – See definition of “Destination Profile”.

PCS (Profile Connection Space) – A device independent color space used as a “universal” translator to translate colors from one space to another. LAB is the PCS in ICC profiles.

Perceptual – One of the four Rendering Intents of the ICC specification. This method may shift all colors slightly in order to retain the tonal and color relationships throughout the image. May sacrifice absolute color accuracy but good for preserving tonality in an image. Good for photographs.

Primary Colors – The main colors that are mixed together to create all other colors. Red, Green, and Blue are the primary colors for the additive process (transmissive light) and Cyan, Magenta, and Yellow are the primary colors for the subtractive process (reflective light).

Profile – see “ICC Profile”

Profile Software – An application that’s used to create custom ICC profiles for scanners, digital cameras, monitors, or printers, or any combination of those devices. For scanners the software will require an IT8 target to create a profile. For cameras either an IT8 or MacBeth Color Checker is required. To profile monitors a Colorimeter is required, and to profile printers a Spectrophotometer is required. Examples of profiler software are Monaco Proof & Monaco Profiler.



Rendering Intent – A method for translating from one color space into another. Rendering intents are necessary because of the different “gamuts” of devices and medias. There are four main rendering intents in the ICC specification: Absolute Colorimetric Relative Colorimetric, Perceptual, and Saturation. Which one you choose is crucial when gamuts are very different.

Relative Colorimetric – One of the four Rendering Intents of the ICC specification. This method leaves colors that fall inside the destination gamut unchanged. Colors that fall outside the gamut are clipped and mapped to the closest possible color on the outside of the gamut. There is the possibility of 2 or more out of gamut colors being mapped to the same color leading to loss of detail or tonality. It remaps the white points across profiles so all colors are shifted to match the destination profiles white point. Very good intent for vector or “solid” colors and can be used for some images.

RGB – Red, Green, and Blue. The primary colors used in the additive color method. Colors used in the transmissive process (monitors, digital cameras, scanners) to create all the colors we see.

Saturation (Intent) – One of the four Rendering Intents of the ICC specification. This method maps saturated colors in the source space to fully saturated colors in the destination space at the expense of tonality and color accuracy. Only good for “business presentation” type applications where “punchy” color is wanted and color fidelity is not important.

Soft Proof - A preview on your monitor of how an image, photo, or document is going to look on print output. This is achieved by using your calibrated and profiled monitor, combined with ICC profiles of your print media.

Source Profile - The original profile or color space that a file is in when converting a file from one color space to another.

Spectrophotometer – A device that measures the actual spectral wavelength and intensity of a color. The most accurate way to read color and is used in conjunction with profiler software to create custom ICC profiles for output devices. Examples of spectrophotometers are the X-Rite DTP41, DTP70, i1 Pro, and iSis.

Subtractive Color – The method by which the 3 primary colors Cyan, Magenta, and Yellow are combined together to create all the colors we see. Those inks “subtract” light from the color spectrum and reflect the opposite color. 100% of each color creates black.

UCR (Under Color Removal) - The process by which the equal amounts of Cyan, Magenta, and Yellow are removed from neutrals on a page and replaced with black ink thereby lowering the amount of ink used.



White Point – How the color white is produced or defined on a device or media. Has a distinct “brightness” and color temperature.

Working Space – The color space used by applications when new files are created or captured into them. Each color model RGB, CMYK, & Gray has a working space.