

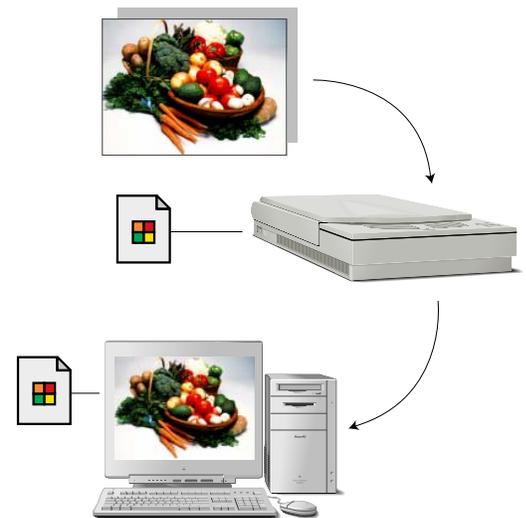
Want Better Color?

Getting accurate color quickly has always been difficult. The extra steps required in color correction and proofing can cost thousands of dollars in time, equipment and consumables. With ColorSync™ 2.0, Apple® has made the process of color matching and color separation easier. ColorSync 2.0 is an extension to the Mac™ OS that offers comprehensive color management functionality.

The biggest source of frustration in working with color devices is when the colors don't match. This problem is caused by the fact that different devices have different gamuts, or ranges of colors that can be reproduced. ColorSync 2.0 attempts to compensate for these and other differences.

One of the key components of ColorSync 2.0 is the device profile. A profile is a file that contains the color characteristics of a device. These profiles provide ColorSync the device specific information needed to perform color matching between devices. Therefore, each device needs its own profile. ColorSync 2.0 profiles conform to standards set by the International Color Consortium (ICC), a group of leading hardware and software manufacturers. This ensures compatibility among color management systems, peripheral devices, and software applications on Macintosh®, PC, or UNIX platforms that support ICC profiles.

Apple provides profiles for its color peripherals, as do other device manufacturers. However, ColorSync can only do so much with a *generic* ICC profile—or a profile that comes with a device. These profiles are a good start, however because every device is different, they do not compensate for the particular characteristics of the printer on your desk, or in your service bureau. By providing ColorSync with information about *your* device—the one on your desk—you can get much better results. By creating a profile for *your* printer, scanner or printing process, you're telling ColorSync specific details about your device, not just the factory example that a default profile is used for. The more variables you can compensate for, such as ink types, paper, and toner, the better your results will be. Creating your own device profiles is not as difficult as you might think.



Measurement devices explained

Densitometer
An instrument that measures the density of images or colors

Colorimeter
An instrument designed for the direct measurement of color

Spectrophotometer
An instrument that measures light at many points on the visual spectrum which results in a curve

Here's How



The process of creating a profile depends largely upon the type of device. Scanners, displays, printers, and printing processes all differ significantly, and require different processes. Today's profile creation packages typically include tools for all types of devices. Here are some examples of common methods.

Scanners

Creating accurate profiles for scanners is relatively easy. You start by scanning a target on your scanner. This can be either a reflective (print) or transmission (slide) scanner. The target, such as an IT8 or Q60 target (these are industry standard targets), contain numerous patches. The profile generation software reads in your scanned target, and does a comparison between your scan and known values for that target. The result is a profile that represents the state of your scanner. The whole process takes about five minutes.

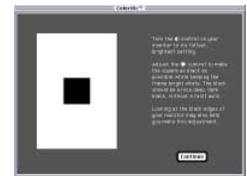


Monitors

There are three popular methods for calibrating monitors today. The first and most common method of calibrating monitors utilizes a hardware measurement device. These calibrators typically use *colorimetric* type devices, along with the appropriate software. The software controls the measurements taken by the hardware. These measurements are then used by the software to create a profile. Certain products offer controls over the ambient light, or the room lighting, which can have an effect on your monitors color.



A second, less expensive method is visual display calibration which doesn't require any additional hardware. However, the accuracy is more dependent on the user, whereas hardware calibrators would have less variability. The calibration software typically asks the user to make adjustments on the monitor, using the Brightness and Contrast controls, until certain color patches match each other. Again, the result is a profile, and takes about five minutes.



Thirdly, there is a new category for calibrating displays. Apple has again set the standard for color consistency with the new AppleVision 1710AV display. This display uses revolutionary new DigitalColor technology to actually calibrate itself—without any additional hardware. It even compensates for the ambient lighting conditions, as well as the age of the display.

Output devices

Creating custom printer profiles is the most important step in order to get better color. There are a few simple steps to creating output device profiles, regardless of what type of printer or printing process you are currently using.

First, you need to tell the software some details about your printing device or process. For example, how many colors the printer uses, what imaging model it uses, etc. Once this is complete, the software generates a file which it be printed on the target device.



Once this file is printed, the color patches need to be measured with either a spectrophotometer or colorimeter (see measurement devices explained side bar). Once they are measured, the software generates a profile. Some packages allow the profile data to be manipulated. You can create a profile for different paper stocks, inks, or any other special conditions.



Where to Look for More Information

By taking the time to complete these steps, you can achieve higher quality color matching results.

There are a number of tools available for profile creation—each unique in the creation process, results and user interface. For further information about ColorSync 2.0, and the latest version of this list, check out ColorSync on the World Wide Web at: <http://www.austin.apple.com/macOS>.

Company

Product

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FotoTune 2.0 : Color Management Software including color profile creation tools and PhotoShop plugins, Quark Xtensions, etc.

Candela, Ltd
1676 East Cliff Road
Burnsville, MN 55337-1300
AppleLink: CANDELA.LTD
ColorSynergy is available exclusively from:
The Color Partnership @ 1-800-554-8688.

ColorSynergy is a complete Color Management System (CMS) for calibrating input, display and output devices, with or without color measurement instruments. ColorSynergy makes ColorSync 2.0 ICC device and device link profiles as well as color rendering dictionaries for Postscript Level 2, Adobe separation tables for Photoshop and Candela ColorCircuits for profile compatibility on other platforms. ColorSynergy interfaces to all of the popular color instruments from X-Rite, Gretag, Light Source and others

Color Savvy Systems Incorporated
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Springboro, Ohio 45066 USA
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Color Savvy manufactures the ColorMouse™ desktop publishing spectrophotometer; a low-cost, high-performance, reliable (no moving parts) color measurement instrument using the patented ColorSensor™. Color Savvy is also the developer of ColorMouseTrap™ color pickup, creative color editing, and device profiling software; ColorMouseTrap™ allows end-users to create profiles for their own scanners, monitors, and printers in industry standard ICC, ColorSync 1.0.x, ColorSync 2.0, PostScript Level 2, and Photoshop formats.

Color Solutions, Inc.
120 Birmingham Drive, Suite 210
Encinitas, Ca 92007
Phone: 619-436-6593
Fax: 619-436-6594
Internet: colorblind@color.com

ColorBlind = 81 System generates the following ICC profiles:
Scanner (RGB, CMYK)
Monitor
Printer (RGB, CMY, CMYK)
ColorBlind = 81 Scan generates the following ICC profiles:
Scanner (RGB, CMYK)

Gretag
Althardstrasse 70
CH-8105 Regensdorf
Zürich, Switzerland
(01) 842 11 11

Gretag manufactures measurement devices for the graphic arts industry.

KODAK Color Management Systems
164 Lexington Road
Billerica, MA 01821-3984
End Users 1800-75COLOR
Developers (508) 670-6670

KODAK Color Management Systems (CMS) is dedicated to providing accurate and predictable color to both Macintosh and Windows users. As a founding member of International Color Consortium (ICC), KODAK Precision color management tools create high-quality, ICC compatible input and output device profiles. KODAK Precision color management tools are available to the end user directly from KODAK CMS and through a growing group of application and device vendors.

Light Source, Inc.
17 East Sir Francis Drake Boulevard
Suite 100
Larkspur, CA 94939
1-800-994-COLOR

Colortron 32-band Digital Color Sensor for the accurate capture and measurement of color, for use with all leading DTP applications.

Linotype-Hell Company
425 Oser Avenue
Hauppauge, NY 11788
516-434-2000
Contact: Frank Kupke

PrintOpen ICC is software to generate output profiles in conjunction with a spectrophotometer. ScanOpen ICC is software to generate scanner profiles in conjunction with a IT8 target or Q60 target. MacCTU for NuBus hardware acceleration card for Macintosh to speed up color transformation processes of ColorSync 2.0 and LinoColor. MacCTU for PCI hardware acceleration card for Macintosh to speed up color transformation processes of ColorSync 2.0 and LinoColor.

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ProfileMaker Professional generates precise ICC scanner, monitor and output profiles. The package includes all tools a professional needs to work with ColorSync 2.0.

ProfileMaker light is a simple tool to generate ICC profiles without measurement equipment.

Pantone, Inc.
590 Commerce Blvd.
Carlstadt, NJ 07072
End Users: 800-222-1149
Software and Hardware Developers: 201-935-5500
AppleLink: Pantone.Mkt
CompuServe: 76666.3070

Pantone provides color control solutions for both end users and developers. PANTONE® ColorDrive™ is a ColorSync-compatible software application that helps end users manage color palettes for use in the leading DTP applications. Pantone also provides technology to software developers to help them manage color as well as offering services to color output device developers for the creation of custom lookup tables and ICC profiles.

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Colorific Color Management for Monitors

Colorific is a monitor characterization utility that leads the user through a simple process of point-and-click to generate an extremely accurate monitor profile. Colorific upgrades end-users' systems to ColorSync 2.0 and the LaserWriter 8.3 (ColorSync 2.0-compatible) printer driver to enable users to immediately attain Apple's highest level of screen-to-printer color matching. According to MacWorld, with Colorific, "Colors are a surprisingly good match...just the thing for overhead transparencies, color copies, and other office work;" and "brings the capabilities of expensive colorimeters and software color management systems to small businesses and home offices," according to Publish magazine.

X-Rite, Inc.
3100 44th St, S.W.
Grandville, MI 49418
616-534-7663

Digital Swatchbook spectrophotometer and color matching package for measuring colors from reflective objects. Monitor Optimizer is a four-band colorimeter and software package for creating ColorSync 2.0 & ICC monitor profiles.



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