

9 File Delivery – Digital image files may be delivered on a variety of removable media, including hard drives, CD-Rs or DVD-Rs. Do not use adhesive labels on optical media, since they may separate and damage an optical drive. Printing directly on inkjet-writable or LightScribe media CD-Rs or DVD-Rs is a good way to provide information such as your copyright, usage license, file lists and disclaimers. For speed and convenience, electronic delivery by FTP or e-mail may be used. All image files should have embedded metadata. (In the case of proprietary RAW files, the safest route is to have the metadata included in a sidecar file.) Image file delivery should include ReadMe* files.

**It is important to provide a ReadMe file in PDF, HTML, or TXT format with all files that you deliver for output. Such files should specify image size(s), color space(s), the copyright owner's contact information, any licenses granted and, if certain rights are being withheld, the words "other uses, reproduction or distribution are specifically prohibited." The ReadMe file should also include disclaimers noting that recipients are responsible for following an ICC-based color management workflow.*

Discussion and further details at
www.updig.org/guidelines/delivery.php

10 Guide Prints and Proofs – Guide prints and proofs can serve as a valuable reference point for digital files, especially if the recipient is unknown or the output profile is generic. Creating guide prints and proofs that accurately represent offset CMYK printing requires knowledge of printer profiles and color management. The method in which the guide print was produced should be clearly conveyed.

Discussion and further details at
www.updig.org/guidelines/proofs.php

11 Archiving – It is important to address the issue of who will archive digital image files. Basic decisions include what kinds of files will be archived and how the archives will be protected from format obsolescence and media failure.

Discussion and further details at
www.updig.org/guidelines/archiving.php

12 Digital Image Workflow – No single workflow suits all photographers or all clients. A good digital workflow is the most efficient and automated way to get the job done. It should satisfy the clients' needs, embed necessary information (metadata), embed color profiles, and automate the archiving and backup of files. A good workflow saves time and protects against both loss of images and loss of work done to the images. There are many software options to choose from when you are constructing a digital workflow. New programs that aim to be all-in-one solutions are constantly being introduced. You will need to test to see which programs, or combination of programs, give you the right combination of efficiency, speed, and quality.

Discussion and further details at
www.updig.org/guidelines/workflow.php

This document, prepared by the UPDIG working group, represents the industry consensus as of October 2007. Because digital production standards and best practices continue to evolve, we recommend checking the UPDIG web site, www.UPDIG.org, for updates and supplements.

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Thanks to ASMP leadership for providing staff time to create the HTML and PDF versions.

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UPDIG

UNIVERSAL PHOTOGRAPHIC
DIGITAL IMAGING GUIDELINES

QUICK GUIDE

Version 3.0



1 ICC Color Management – ICC profile-based color management defines color information in standard terms necessary for proper reproduction of images. Devices such as monitors, printers, scanners and, ideally, cameras should be profiled. Working and output spaces, such as Adobe RGB, sRGB, SWOP CMYK, (etc.), should be embedded and preserved when opening files.

Discussion and further details at www.updig.org/guidelines/color_mgt.php

2 Monitor Calibration – Monitors should be calibrated and profiled with a hardware device. Visual calibration is not adequate for professional image editing. An accurate visual representation of the image is extremely important to the imaging process. Calibration standards range from:

- ◆ Gamma: 1.8 to 2.2
- ◆ White point: 5000K to 6500K
- ◆ Brightness levels: 80 cd/m² to 140 cd/m²

As a general calibration guideline, use gamma 2.2 and 6500K for both Windows and Mac. A white point of 5000–5500K is a common recommendation for offset printing. Brightness levels are set in relation to the room's ambient lighting.

A calibrated and profiled monitor, in conjunction with good print profiles, will allow you to "soft-proof" the intended output. A daylight (5000K/D50) light source at correct brightness is necessary to visually match monitor to print.

Discussion and further details at www.updig.org/guidelines/calibration.php

3 Color Space – Camera settings for color space are critical when shooting TIFF or JPEG files. Color space for RAW files does not need to be set in the camera because it can be set in post-production. Choosing a large-gamut space such as Adobe RGB (1998), ECI-RGB, or ProPhoto RGB is better for image editing, while shooting in a narrow-gamut space such as sRGB is convenient if images do not require color correction or editing, or if the images are intended for web or sRGB lab prints. One consideration: A wide-gamut space can always be converted to a narrow space such as sRGB, but a narrow-gamut space converted to a wide space will not recapture the extra gamut.

Offset printing requires the CMYK color space, a very different color space from the RGB color space produced by digital cameras. CMYK conversions are best when done by someone with knowledge of the specific press and

paper type. Simple mode conversions in Photoshop are not recommended.

Photo lab prints usually require the sRGB color space. However, some labs may have a specific color profile either for embedding in the file or for use in soft-proofing.

Discussion and further details at www.updig.org/guidelines/color_space.php

4 File Formats – The best quality comes from shooting and editing in a RAW file format. The advantages of RAW file formats are: choosing color space when the file is processed; greater bit depth; ability to adjust white balance, saturation, exposure (to a degree) and tonal characteristics; adjustable noise reduction; and correction for lens aberrations—all in a non-destructive way. RAW files may be processed in a variety of software, from the camera maker's own to many third-party products, and even by using the built-in RAW processing of Apple and Windows operating systems. Converting RAW files to DNG format is considered by many to be an excellent method for archiving RAW files. DNG is a more universal file format than camera-specific RAW formats like NEF or CR2.

File formats include: lossy compression types such as JPEG; lossless compression types such as LZW, PSD and most RAW file formats; and uncompressed types such as standard TIFFs. For web, use JPEG. For printing, uncompressed TIFF is often preferred, although high-quality JPEGs (Level 10–12) can be visually indistinguishable from TIFFs and some printers prefer their smaller file size.

Discussion and further details at www.updig.org/guidelines/formats.php

5 Naming Files – To avoid problems with files that will be transferred across computing platforms, name files with only the letters of the Latin alphabet (A–Z, a–z), numbers, hyphens and underscores. Do not use punctuation or symbols. Keep the full name to 31 characters or less, including the 3-letter extension. Use file names that will not be duplicated. Multiple files with the same name cause problems for computers and people alike. Including the numeric date and/or the photographer's name is an excellent method for creating unique names.

Discussion and further details at www.updig.org/guidelines/naming.php

6 Resolution – The resolution of digital images is described either by pixel dimensions (width and height) for screen use or by physical size and resolution. Image resolution is expressed as pixels per inch (ppi), pixels per centimeter (ppc), or pixels per millimeter (ppm). Resolution should always be specified in output size. Here are recommendations for common uses:

- ◆ Inkjet prints: 180 to 360 ppi.
- ◆ Continuous-tone printing: 240–400 ppi.
- ◆ Offset: 300 ppi is often specified, but resolutions of 1.3 to 2 times the halftone screen ruling are considered safe. This means 195 ppi–300 ppi for a 150-line screen. Newspapers are usually printed with 85-line screens, so 170 ppi is sufficient.

Discussion and further details at www.updig.org/guidelines/resolution.php

7 Sharpening – Capture sharpening is required to compensate for the loss of detail that occurs during any digital capture process. TIFF and JPEG capture allows for sharpening in-camera or during post-production. RAW files are sharpened in post-production. Images should not be heavily sharpened early in the image-editing process.

Process sharpening counters the loss of detail in the reproduction process. It is done after color- and tone-correction, retouching, image sizing, etc. The goal is an image that is acceptably sharp for viewing at its current size, but never over-sharpened.

Output sharpening is specific to the final output size and the output system (printing device, paper, ink, etc.) and is applied only as a final step before output. It is important to communicate whether output sharpening has been applied when images files are delivered.

Discussion and further details at www.updig.org/guidelines/sharpening.php

8 Metadata – IPTC, IPTC Core Schema, and PLUS are the current standards for embedding metadata in image files. Embedded metadata should include Creator and Copyright information as well as searchable keywords and license information. Including useful and relevant information in metadata adds value to the image.

Discussion and further details at www.updig.org/guidelines/metadata.php