



"How to Photograph Art"
a presentation by:

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ASK YOURSELF WHY

What is the purpose of your photograph?

- Documentation and/or Archives
- Entering an art competition -
slide/Transparency, more often now digital image
needed (jpeg or tiff)
- Web or Print advertising
- Creation of book or portfolio
- Giclee print or limited edition prints



FILE FORMATS

Basic Digital Terminology

- JPEG (Joint Photographic Experts Group): Usually pronounced Jay-Peg, this is a popular compression standard that provides relatively little perceptible loss in image viability. JPEG is used a great deal for Web site graphics; it is also useful for emailing photos or other images

- TIFF (Tagged Image File Format): is a very widely used format that handles a wide variety of image types, including monochrome, grayscale, and 24-bit color. TIFF files offer high-quality images, but TIFF files tend to be large (although there are several compression methods available). As a result, while TIFF files are suitable for high-quality photo and other images, but cannot be used for Web sites (and should not be sent via email, if possible).

-PSD – Adobe Photoshop file format (PSD). Reserves all the Photoshop features in your edited image (layers, effects, masks, styles, and so forth). Like most file formats, PSD can support files only up to 2 GB in size.

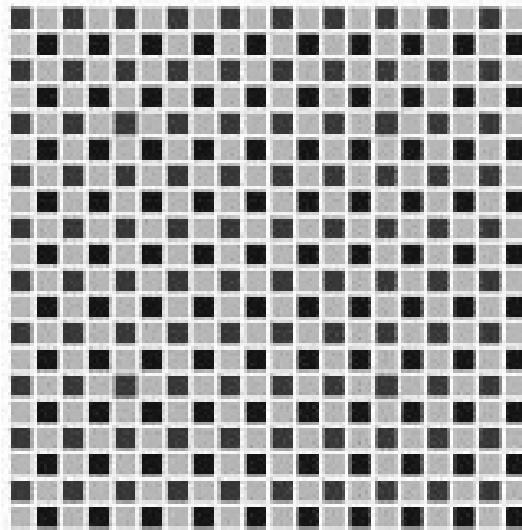
-PDF – Invented by Adobe, Portable Document Format (PDF) is the published specification used by standards bodies around the world for more secure, reliable electronic document distribution and exchange. Adobe PDF files look exactly like original documents and preserve the fonts, images, graphics, and layout of any source file — regardless of the application and platform used to create it.

-Camera Raw – Proprietary format which yields “billions” of colors vs. “millions” of colors that is available in JPEG.



DIGITAL CAMERA BASICS

The digital sensor in the majority of digital cameras is what is known as a BAYER PATTERN sensor. This relates to the arrangement of red, green and blue sensitive areas.





Digital Cameras “See” in: RGB “Red, Green and Blue”

Each pixel in the sensor responds to either red, green or blue light and there are 2 green sensitive pixels for each red and blue pixel. There are more green pixels because the eye is more sensitive to green, so the green channel is the most important. The sensor measures the intensity of light falling on it. The green pixels measure the green light, the red the red and the blue the blue.

Raw files contain two different types of information: the image pixels themselves, and the image metadata. Metadata, which literally means “data about data,” is generated in the camera for each capture. Both raw and JPEG captures, for example, contain EXIF (Exchangeable Image Format) metadata that records shooting data such as the camera model and serial number, the shutter speed and aperture, the focal length, and whether or not the flash fired. Raw files also include some additional metadata that raw converters need in order to process the raw capture into an RGB image. The raw converter then uses this metadata to convert the grayscale raw capture into a color image by interpolating the “missing” color information for each pixel from its neighbor.



RAW vs. JPEG 1

Many professional digital cameras offer the option of storing images in a proprietary raw format. Unlike JPEG and TIFF images, which have been processed by the camera's internal algorithms, the raw formats store the actual information captured by the camera sensor. When you shoot JPEG, a raw converter built into the camera carries out all the tasks listed earlier to turn the raw capture into a color image, then compresses it using JPEG compression.

JPEGs offer fairly limited editing headroom—large moves to tone and color tend to exaggerate the 8-by-8-pixel blocks that form the foundation of JPEG compression—and while JPEG does a decent job of preserving luminance data, it applies heavy compression to the color data, which can lead to issues with skin tones and gentle gradations when you try to edit the JPEG. When you shoot raw, however, you get unparalleled control over the interpretation of the image through all the aforementioned aspects of the conversion. When you shoot raw, the only on-camera settings that have an effect on the captured pixels are the ISO speed, the shutter speed, and the aperture setting. Everything else is under your control when you convert the raw file—you can reinterpret the white balance, the colorimetric rendering, the tonal response, and the detail rendition (sharpening and noise reduction) with a great deal of freedom.



RAW vs. JPEG 2

Almost all cameras that shoot raw capture at least 12 bits, or 4096 shades, of tonal information per pixel. The JPEG format, however, is limited to 8 bits per channel per pixel, so when you shoot JPEG, you're trusting the camera's built-in raw converter to throw away a large amount of the captured data in a way that will hopefully do the image justice.

In some ways, it's tempting to draw the analogy that shooting JPEG is like shooting transparency film while shooting raw is more like shooting negative film. With JPEG, as with transparency film, you need to get everything right in the camera, because there's very little you can do to change it later. Shooting raw provides considerable latitude in determining the tonal rendition, like negatives, and also offers great freedom in interpreting the color balance and saturation. The fact that raw also lets you control detail rendition—noise reduction and sharpening—breaks the analogy but offers a further advantage.



RAW Take Advantage of Technological Advancements

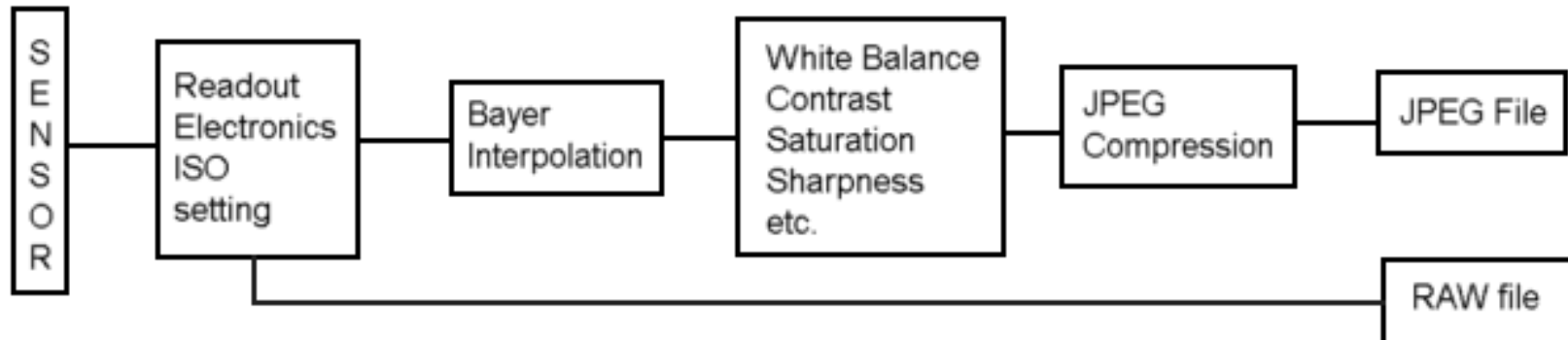
Raw offers one more potential advantage that may be hard to demonstrate but is, I believe, real nevertheless. If you shoot raw, you'll be able to take advantage of future improvements in raw converters.

Digital photography may no longer be in its infancy, but it hasn't yet reached adolescence, let alone maturity, and anyone who has spent more than a couple of years working with digital imaging knows that digital imaging software improves with each iteration.

JPEGs are relatively inflexible files—we may see improvements in their handling, but any such improvements are likely to be modest. Raw converters, however, have undergone radical improvements in the 10 years or so that color filter array cameras have been around, and there's little reason to think that the next 10 years won't see similar improvements. Shooting raw will allow you to exploit these improvements as and when they happen.



RAW vs. JPEG FlowChart





WHY – Matched to Format

- Documentation and/or Archives (probably TIFF or RAW)
- Entering an art competition - slide/transparency creation, more often now digital image needed (jpeg or tiff)
- Web (jpeg) or Print advertising (tiff, pdf or psd)
- Creation of book or portfolio (raw to jpeg to pdf)
- Giclee print or limited edition prints (raw to tiff or psd)



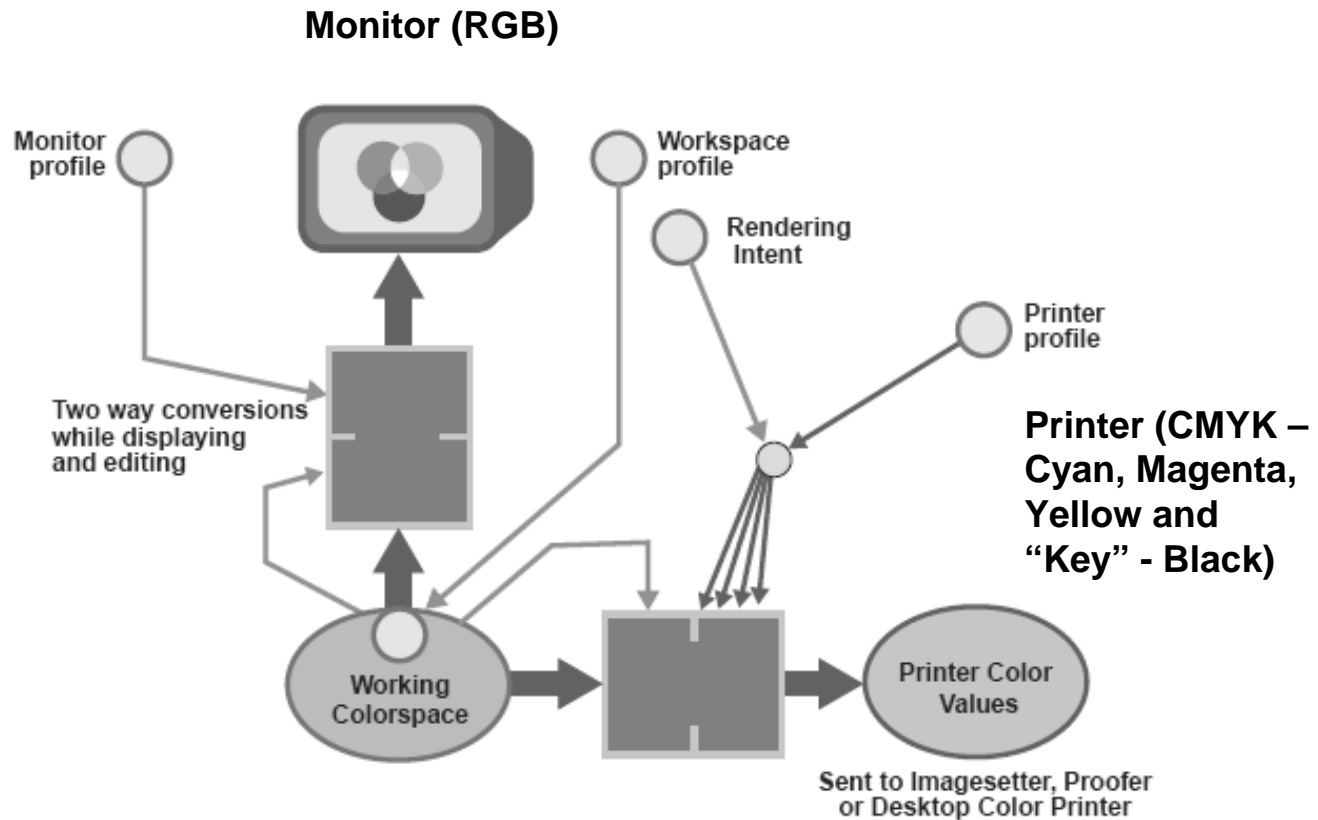
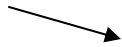
Taking the Picture

- Use Natural Light
- Hang Your Art
- Use a Tripod
- Use a Digital Camera that can take Raw Photos
- Use a Digital Camera with a Wide Angle Lens
- Download to Photoshop to make Color and Alignment Adjustments



Color Management

Camera (RGB)





Consider Outsourcing Especially for Books or Limited Edition Printing

-Many Excellent Local Suppliers and Consultants

-Online Resources Such as Flaar Reports (Digital Imaging Resource Center:
http://www.fineartgicleeprinters.org/pdfs_fine_art_giclee_printers/listofpdf-reports.html

-Get a Copy of this Presentation from <http://www.donaomanoff.com> – click on “Mars Gallery.” The report will be available by Monday, October 10, 2005

-Bruce Fraser Article: Understanding Digital Raw Capture:

-http://www.adobe.com/products/photoshop/pdfs/understanding_digitalrawcapture.pdf