

File Formats: WIA digital imaging courses 2010/11

The common standard

The principal file format used in this course for saving images is .jpg

Joint Photographic Experts Group files (.jpg)

This format is the default that digital cameras use to save pictures, and every photo editing or viewing program can read it. Because you're able to adjust JPEG's compression level, you can make your files smaller, trading off image quality for portability. If you're a casual photographer who shoots, prints, and shares without much serious editing in between, stick with JPEGs. Set your camera to capture pictures at the highest image quality (lowest compression). You can always reduce the quality later to reduce file size, but you can't bring the lost data back.

REMEMBER: Every time you make a change to a .jpg photo file and save it, you reduce the quality of the image. The .jpg format is a compressed file and contains the image information as a single layer. The individual picture elements cannot be easily modified or moved. The format provides small and compact files suitable for use with email or web pages and is commonly accepted by many applications. It is very suitable for containing images with large number of colours up to TruColor (16 million colours).

Many image editor programs have their own RAW file (NATIVE) format including layers and all imaging data. Many digital camera makers and image editor programs also have their own special formats. If you want to share your images with other Windows computer users (or other applications) they must be saved in a common single layer format such as .jpg (compressed), .gif or .tiff (uncompressed). If it's a Mac computer it may use .png files... see later. Check carefully; there is a huge number of different file formats.

Be careful when you save a jpeg. You can change compression levels...so you may take too much information out of your image. **Once information is removed it cannot be recovered.** If in doubt always save as best quality.

HOWEVER

If you have really important images, family heirlooms class, you should also save a copy as a .tiff file. This is a large image saved without compression which means that it does not deteriorate each time you open and save it.

REMEMBER no system is perfect and keep backup copies on compact disc, DVD, high capacity USB sticks or hard disc if images are really valuable. If you have large numbers of images, consider buying a USB external hard drive 60 GB or above.

Photoshop files and Paintshop Pro files

There are a number of file formats used by image editor programs. The most common ones; Corel Paintshop Pro (.psp file) and Adobe Photoshop file (.psd) formats contain a series of layers. In some image editors layers are referred to as sprites. The layer can be an image, a shape or a special complex element such as text. The layers can also be used to manage colours, contrast and other image characteristics.

Layers are a way of arranging image information on a series of sheets, which can be transparent or opaque or any degree of transparency between the two extremes. Each layer can be moved, forward or backward, up or down. .psp and .psd files store all the information which can be accessed and modified. These .psd and .psp files are relatively large and take large amounts of memory to manage.

Tiff files maintain quality: The TIFF image-compression format is lossless--no information is lost during the compression (as opposed to JPEG's "lossy" compression). TIFF files are larger than comparable JPEGs, but give absolute quality.

For best quality, you can often configure your camera to save shots as TIFF files, but this is costly in terms of cards and computer space. You can save pictures on your camera at the best JPEG quality and then, after you edit them on your PC, choose *File, Save As* and select *TIFF*. You might lose a small amount with the first JPEG save, but once the file is a TIFF, the quality is locked in.

REMEMBER : TIFF files are much larger than JPEGs, and the TIFF format is not as universal as JPEG. You'll still need to save a copy of the TIFF image as a JPEG if you want to share it via e-mail or to place it on the Web

The highest quality - RAW: The very highest quality results often come from RAW files. RAW is lossless, and it offers more color depth--12 bits of color per pixel, compared with 8 bits per pixel for JPEG and TIFF. This lets you extract more detail from your photos in such editing programs as Adobe Photoshop and Photoshop Elements. Your camera saves RAW files before any white balance, sharpening, or other effects are applied. **Unfortunately, every camera maker has its own variant of RAW**, and sometimes even different camera models vary in their handling of RAW. For example, Nikon calls its RAW files 'NEF', while Canon uses both 'CRW' and 'CR2', and Pentax/Samsung goes for PEF!

RAW files also require more work. This includes ap-

plying white balance, adjusting the colors, and maybe sharpening. REMEMBER; usually you can't save changes to RAW files, you will have to store your photos twice—as the original RAW version and the edited JPEG or TIFF file.

Graphic Interchange Format (.gif)

(Another compressed format, which is useful, is .gif (Graphic Interchange Format) but this format is designed for images that have a restricted colour range; 256 colours or less. This is suitable for drawings and illustrations but often leads to visible loss of information in a photograph.) The small file sizes and ability to specify transparency make these files popular for use on the internet.

Got a Mac? : PNG is now the default image-file format for screens captured by Macs, and nearly all browsers can open them. In addition, every photo editing program offers its own proprietary format. Photoshop's PSD, for instance, is lossless, and it preserves layers, so you can return to an editing project right where you left off. However, such proprietary formats usually can't be opened outside of the program that created them, so you'll eventually need to save the files as JPEGs to share them.

Store important images securely

Do ensure that you store your images off your card before bringing them to the courses. Today you can also store your images somewhere on the internet, but make sure you can always retrieve them!!

If you bring originals on your camera card make sure that any transfer work is safe and does not alter the contents of your camera card.. **IF IN DOUBT ASK**

DON'T FORGET.** Buy a substantial good quality USB stick— at least 4Gb and use it for your course work and image transfer needs. If you are using an image editor, **save your working file after completing each major task.

Save your important working files during image editing workshop sessions as a Photoshop (.psd) or Paintshop Pro (.psp) with layers or as a .tiff (normally without layers) for maximum quality and for archiving to the desktop or a designated workspace folder.

If you wish to save finished work to use in other applications, save the final version as .tiff on a USB stick or as a maximum qual-

ity .jpg. But remember that these files do not normally contain layer information or camera information and that each time you save a .jpg there is a very small decline in quality.

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Check out formats at

[http://en.wikipedia.org/wiki/List\\_of\\_file\\_formats#Color\\_palettes](http://en.wikipedia.org/wiki/List_of_file_formats#Color_palettes)

[www.adobe.com](http://www.adobe.com)

[www.corel.com](http://www.corel.com)

[www.nikon.com](http://www.nikon.com)

[www.pentax.com](http://www.pentax.com)

[www.sony.com](http://www.sony.com)

[www.samsung.com](http://www.samsung.com)