



Cary Photographic Artists

Raw Versus JPEG

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Framing the question

Many wonderful photographs are captured in and displayed from JPEG format.

Many “Pros” and “serious amateurs” advocate raw format.

What is right for you?

This topic does not have the answer, but will attempt to provide you with information to help you make up your own mind.

Agenda

What is JPEG?

What is Raw?

Other formats to be aware of

Advantages of JPEG

Disadvantages of JPEG

Advantages of Raw

Disadvantages of Raw

Photo processing demo

Definition of JPEG

JPEG is a standard method of compression for photographic images.

It is named after the Joint Photographic Experts Group who created it.

It is probably the most commonly used photographic format.

The compression method is lossy, meaning that some original image information is lost and cannot be restored.

The degree of compression can be adjusted, allowing a selectable tradeoff between storage size and image quality.

JPEG compression is at its best on photographs of realistic scenes with smooth variations of tone and color.

Demonstration of compression

Illustration of quality “jaggies”



100



25



10



1

Images from: <http://en.wikipedia.org/wiki/Jpeg>

Implementation of JPEG

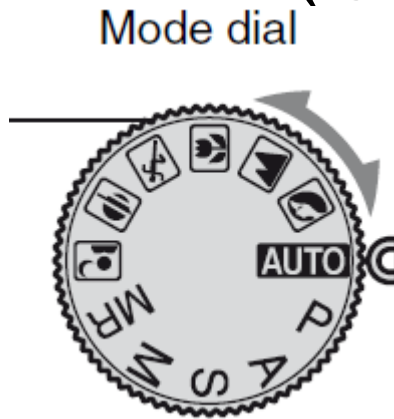
The camera does not just compress the sensor data, it adjusts it:

- White balance (auto or set)
- Saturation (default or set)
- Dynamic range
- Noise reduction and sharpening

Implementation of JPEG

(cont'd)

“Scenes”



Other creative options:

Black & white

Sepia

Artistic effects

These effects are permanently applied to the JPEG file.

Definition of Raw

It is a common misunderstanding that there is a “raw” format.

Each camera’s raw is the manufacturer's implementation of minimally processed data from the image sensor of the camera along with the conditions surrounding the capturing of the image.

A raw file is not directly usable as an image, but has all of the information needed to create an image.

Implementation of Raw

Each model of each manufacturer has a slightly unique raw file format.

Some manufacturers apply noise reduction or other adjustments to their raw.

When a new model is announced, the manufacturer makes available a raw processor.

Photo processing software developers are provided with the specifications or reverse engineer the new format to update their raw products.

Implementation of Raw (Cont'd)

Processing a raw file takes an extra step or more to apply adjustments similar to those that are automatically applied to the JPEG.

This might be a controversial assertion!

Other formats to be aware of

TIFF – Tagged Information File Format; all pixels preserved, some lossless compression possible, a few camera will save images in TIFF.

DNG – Digital Negative; Adobe owned open specification offered as a standard, all pixels preserved, a few cameras will save images in DNG. (Based on TIFF). Hoped for replacement of Raw.

PSD – Adobe Photoshop proprietary format; best used to save “work in progress” that might require future adjustments.

Other formats to be aware of (Cont'd)

GIF – bitmapped format, useful for web graphics, not much used otherwise.

BMP – Bitmapped format, primarily used in computer graphics.

Advantages of JPEG

Less card space/faster card write.

Less upload time.

Less disk space.

Less processing (if you like what the camera did).

Directly printable on some printers and at kiosks.

Disadvantages of JPEG

Less recovery from blown highlights.

Less recovery from blocked shadows.

More work or impossible to recover from in-camera adjustments.

“Jaggies” can appear in big enlargements, or tight crops.

More artifacts in HDR, panorama and highly processed photos.

Advantages of Raw

All sensor pixel data preserved for greatest detail & fidelity.

- More recovery of highlights and shadows often possible.

No in-camera adjustments to undo.

Fewer artifacts for HDR & Panorama.

Better for big enlargements and tighter crops.

Disadvantages of Raw

More card space, slower write.

Longer upload to computer.

More disk space and image management.

More processing probably required.

Do you need to shoot raw?

No, IF:

The JPEGs produced by your camera match your style.

You rely on the “Scene” or “Style” functions of your camera.

You don’t want to “mess with the computer.”

HDR, panoramas and heavy processing are a minimal part of your work.

Blown highlights and blocked shadows are not an issue with you.

Additional option: Raw + JPEG

Some cameras will save an image in both Raw and JPEG formats.

This increases card, upload and disk space.

More image management – 2 copies.

You can process the raw images only in “special” situations.

Additional option: Situational format choice

You don't have to settle on one way to shoot.

You might shoot your little league games and birthday parties in JPEG and your landscapes in raw.

You might shoot your “movie sequence” shots in JPEG.

The choice is yours!

Credits

Heavy use of Wikipedia in addition to the directly quoted articles

Digital Camera Review at

<http://www.dpreview.com/> especially the Learn/Glossary sections on Raw and JPG

CameraDojo at

<http://cameradojo.com/2009/01/20/raw-vs-jpeg-%E2%80%93-deciding-which-is-best-for-you/>

Digital SLR Guide at

<http://www.digital-slr-guide.com/raw-vs-jpg.html>

Photoshop Tutorials at

<http://photoshoptutorials.ws/photography-tutorials/workflow/raw-vs-jpeg.html>

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