

The advantages and perils of the jpeg format image

A recent conversation with a friend made me decide to provide this refresher on the jpeg file format, its advantages and perils.

First of all, the jpeg format is a compressed file format. You likely know it already as a format that your camera can produce, and a format that is required for submitting images to our club. The fact that it is compressed is wonderful: it takes less time to transfer through the internet, and it takes less space on your memory cards or disk drives.

However it is probably worth mentioning that all camera sensors capture the image in RAW and in order to produce the jpeg, the image file is run through an algorithm that "throws away" half the information and then massages the image to render the colour balance as chosen by the maker or AWB if that is the chosen option. The algorithm also applies sharpness and other types of manipulation over which the maker has no control to produce the final 8 bit jpeg

But the fact that it is a compressed format is also what makes it dangerous, in a way. If you use it to store intermediate copies of your pictures while you are editing, you may end up degrading the picture quality. That is because each time you convert the image you see on your screen to jpeg format, you stand to lose some of the picture information due to the compression.

The process of saving a picture in jpeg format usually offers you a choice of "quality" settings. The highest quality settings are usually "lossless". That is, they don't damage the picture, but they also produce large files. The lowest setting produces the smallest file, which is its advantage, but it also produces the maximum loss of picture information.

You probably would not notice this loss of information the first time you save your file, because it is slight, even at the lowest quality setting. But like making a paper Xerox copy of a copy of a copy of a copy, if you keep opening a file, then saving intermediate versions as jpeg, then opening the intermediate file, then re-saving as jpeg, you gradually increase the jpeg "artifacts", degrading the image quality.

To overcome that, you can save your intermediate versions in a lossless format, such as psd (Photoshop) or tiff. Only the last step before sending the file to the club should be saved as jpeg.

On a related topic, I'll mention that there are also non-destructive editing techniques that can be used to avoid producing a large number of intermediate files. They allow you to go back and revisit choices made earlier in the editing process without having to re-do all subsequent edits. But that's a topic for another day.

Thank you to Russ Jones & Jonathan Ward for providing this information.