

Using Metadata in Your Workflow

Whenever you take a picture with a camera, or scan an image, the firmware of your camera or your scanner captures not just the actual image itself, but also additional data that describes the environment in which the image was taken. This data is called metadata and its understanding and utilization can be an invaluable aid in your workflow.

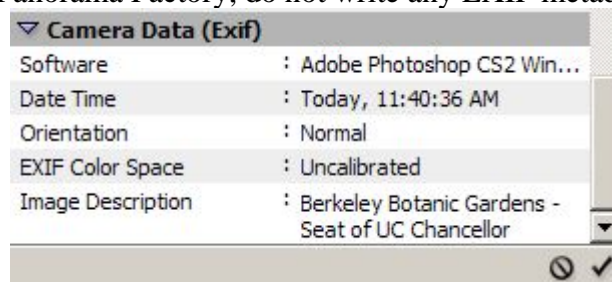
Part 3 of this series looks at altering read-only metadata and why you might want to consider it for your workflow.

Altering Metadata

There are many ways to alter metadata – one of the easiest ways is to use Adobe Bridge, which comes with Adobe Photoshop CS2. But most programs severely limit the kind of metadata fields that can be changed. In most cases, it is limited to IPTC metadata. But what, if you want to change some other, typically read-only data, such as EXIF data?

A good question would also be why you would even want to alter EXIF metadata. After all, there is a reason why certain types of metadata are read-only. Although there might be many reasons for altering such metadata, two come immediately to mind:

1. If you scan a slide, the scan does not produce any camera and image related metadata. If you still have the aperture or ISO settings of a particular image that was scanned from a slide, you would want the ability to enter these and write them to the EXIF metadata.
2. If you stitch a panorama from multiple images, all of the metadata resides in the originals, but most stitching programs do not transfer even parts of that metadata to the newly stitched image. The following screenshot exemplifies that none of the original images' metadata shows up in a new image that was stitched with Photoshop's Photomerge, although Photomerge writes at least some metadata. Others, like Panorama Factory, do not write any EXIF metadata at all!



EXIF metadata of an image stitched with Adobe Photoshop's Photomerge

How can you (over)write read-only metadata? While there are some programs, such as Exifer, that can alter certain parts of EXIF data, I finally found one tool set that can alter all the metadata that I need to, plus more: many different formats, including EXIF, IPTC, XMP, GPS, maker data and more, are supported. The name of the tool set: Exiftool!

Note: Maybe the creator of Exiftool should think about renaming it to reflect that you can alter more than just EXIF metadata with this tool.

Installing ExifTool

When checking out Exiftool, which is freeware, I realized immediately that installation would not be easy compared with other graphics programs. Since Exiftool is actually a set of PERL scripts and not an executable, you will also have to install PERL (which comes pre-loaded on Linux/Unix systems, but not on Windows or on Mac OS).

Fortunately, Exiftool points you to the ActivePerl site where you can download a free version of PERL, which I did. While I have not tried, I would assume that Exiftool would also run with any other PERL implementations that you can find on the Net.

Following are the steps you need to take to get Exiftool up and running:

1. Download a free copy of ActivePerl from <http://www.activeperl.com/Products/ActivePerl/>. They have versions for both Windows and the Mac. Since the Windows version is a Microsoft Installer (.msi) file, just double-click and install it with all the default options.
2. Download Exiftool from <http://www.sno.phy.queensu.ca/~phil/exiftool/> and you receive a .gz file, which can be decompressed with any ZIP file program such as WinZIP or pkzip. Since it does not contain an installer, you have to manually copy it wherever you want it. Since I installed ActivePerl in c:\perl, I just copied exiftool to c:\perl\exiftool
3. Don't forget to open the Exiftool documentation at the same time and, if you want to, save it to your hard drive, so you can access it whenever you are offline.

Using ExifTool

Since Exiftool is a set of scripts, you cannot run them from Windows Explorer or any other File Manager. You have to open a command window (Click Start -> Run, then enter "cmd" and press Enter), navigate to the folder where your pictures are stored and run the commands from there (a nice short-cut, which I use, is to install the CmdHere powertoy from Microsoft, so you can right-click on a folder in Windows Explorer and then select "Open Command Window Here")

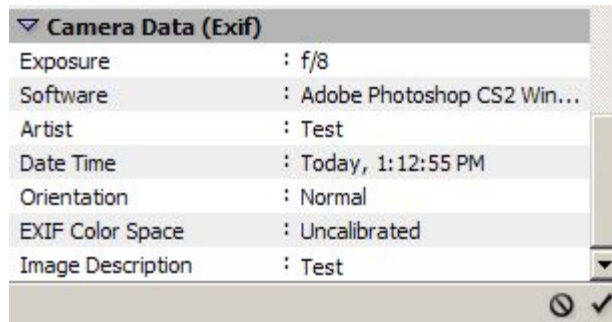
Note: While Exiftool can read Photoshop PSD files, it cannot write to them. You might have to convert them to TIFF before you can write metadata to them.

Exiftool can read and write metadata. Two examples:

Writing a metadata entry to an image:

```
c:\perl\bin\perl c:\perl\exiftool\exiftool -ApertureValue=8 test.tif
```

This command calls perl and runs the script called exiftool. It tells Exiftool to write an aperture of 8 to the EXIF field ApertureValue in the file test.tif.



After writing an Aperture Value of 8 to an image

Copying Metadata from another image

This is what I really want to do: I want to copy all or select metadata from one of my original images to the newly stitched panorama. This can be done the following way:

```
c:\perl\bin\perl c:\perl\exiftool\exiftool -tagsfromfile original.tif -exif:all test.tif
```

Again, this command calls perl and runs the script called exiftool. It tells Exiftool to read all the tags from the original image called original.tif. It copies all the EXIF data but none of the other data to my stitched image called test.tif.

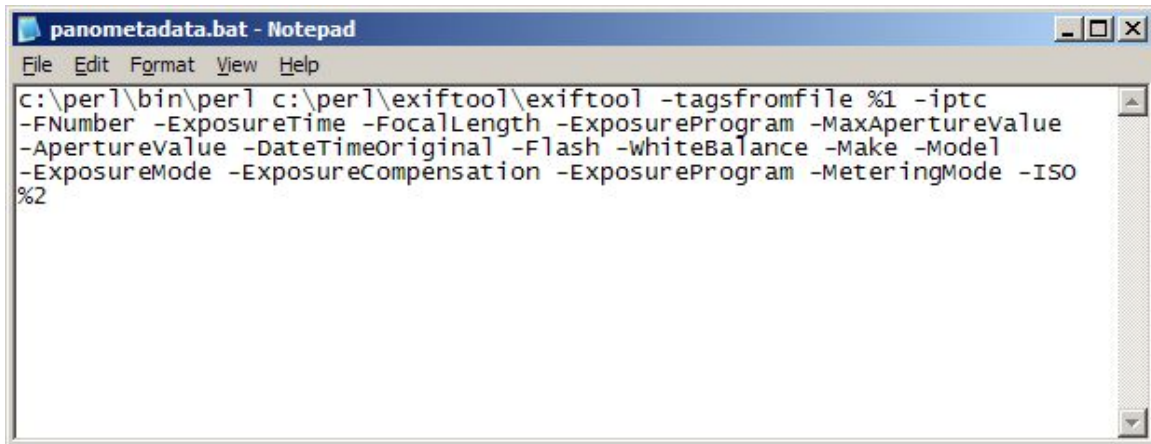
Using ExifTool in my workflow

Since I only need to alter metadata in stitched panoramas, I only use the option to copy metadata from one image to another. For my workflow, I decided to not copy all the EXIF information from the original, but to only copy select EXIF metadata. I will always copy all the IPTC metadata.

To further simplify my workflow, I created a batch file (named panometadata.bat, which can be downloaded at <http://www.irtenkauf.com/articles/panometadata.bat>), so I do not have to type long commands, which is a very error-prone task. Since I will always transfer the same metadata from the original file to the stitched panorama, I can easily code the Exiftool metadata flags into the batch file.

The batch file will be executed in the command window by typing:
panometadata.bat original.tif test.tif

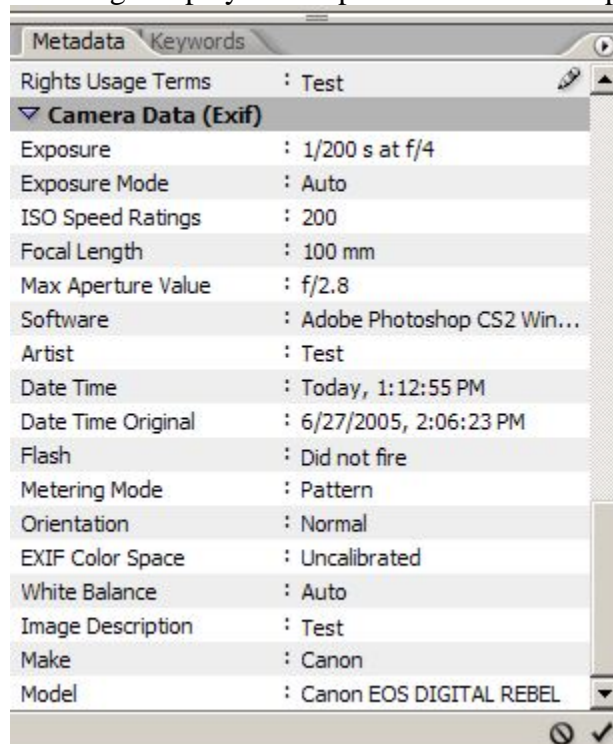
The script itself copies, among others, IPTC data plus exposure, focal length, ISO settings, white balance info, the original time when the image was taken as well as camera make and model. The script looks like this:



```
c:\perl\bin\perl c:\perl\exiftool\exiftool -tagsfromfile %1 -iptc
-FNumber -ExposureTime -FocalLength -ExposureProgram -MaxApertureValue
-ApertureValue -DateTimeOriginal -Flash -whiteBalance -Make -Model
-ExposureMode -ExposureCompensation -ExposureProgram -MeteringMode -ISO
%2
```

Exiftool script called Panometadata.bat

After running it, Adobe Bridge displays the copied metadata in the panorama image:



Select EXIF metadata was copied from the original image

Conclusion

You might never have the need to alter any read-only metadata, but it is a very powerful way to preserve metadata rather than not being able to carry it forward through your workflow process. Exiftool is a tool that can help you with it and it is definitely worth a try.

Part 4 of this series will cover XMP in your workflow.