The Wayback Machine - https://web.archive.org/web/20100322220447/http://dpbestflow.org:80/metadata/gps

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GPS

Peter Krogh

GPS data offers a way to create precise and unambiguous location information that is not language-specific, and can remain accurate even as names change. It will play an increasing role in the organization and use of image collections.

GPS: An overview
Using GPS information
GPX and EXIF
Geotagging your photos
Privacy issues

GPS: An overview

GPS technology was first developed for the US military for use in determining precise locations. A GPS receiver uses a series of geostationary orbiting satellites to compute its location by triangulation. GPS data can include latitude and longitude, as well as altitude, speed, direction, and more. Since we're mostly concerned with information about the instant the shutter was snapped, we'll mostly be interested in the latitude and longitude data and sometimes the altitude. This information can be used to determine the precise location of the camera when a photo was taken. (Although there is a lot of other information that can be saved in GPS metadata, it's harder to mash-up most of it usefully with the photo. The direction information, for instance, refers to the direction of travel, not the direction the camera is pointed.)

In the not-too-distant future, many digital cameras will have GPS receivers, the capability to use cell phone towers for tagging location, or the capability to grab GPS coordinates from Bluetooth devices that are nearby. (Some cameras have this already, but mostly they are point-and-shoots or cell phone cameras). At the moment, however, photographers need to do some work to attach the GPS data to their DSLR files. This page explores several methods for doing that.

Precise, enduring location data

Unlike the IPTC location fields, which provide incomplete and sometimes subjective information about where a photo was shot, GPS data can provide an objectively precise position. The IPTC fields may only be able to say, for example, that you took a photo in the Tasmanian State Forest, Tasmania, Australia, but GPS data can pinpoint a location of –41° 13' 58.10", +147° 59' 12.26", which is a precise spot within the state forest (Figure 1).

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Figure 1 shows an image in Expression Media, along with a screenshot tagging that image on Google Maps. This is the kind of place that can't easily be described with traditional location notation, but can easily be pinpointed with GPS.

Not only does GPS data enable more precision, it can stand the test of time. Place names change: countries rise and fall, people buy and sell property, earth is turned to street, and buildings are built and torn down. With map coordinates and a timestamp, you'll never have to doubt where a photo was made.

Moreover, some databases can translate the GPS coordinates to location place names automatically, saving you the trouble of writing location names into your bulk metadata. In the near future, GPS data, along with a timestamp, will enable some good guessing about the nature and subject matter of the pictures. For instance, it will be possible to automatically tag photos shot at the time and place of the Super Bowl with the keyword "Super Bowl."

Using GPS information

Browsers, catalog software, web-based photo sites, and other utilities are starting to let you view GPS information attached to photos. Lightroom has a little arrow in the Metadata panel that pops a Google Maps window in your web browser with the image location shown (Figure 2). Expression Media 2 can launch a Virtual Earth window with the same kind of pin. The online service Flickr has a large geotagging community sharing information, and Google has a tool called Panoramio that enables your geotagged images to show up in Google Earth.

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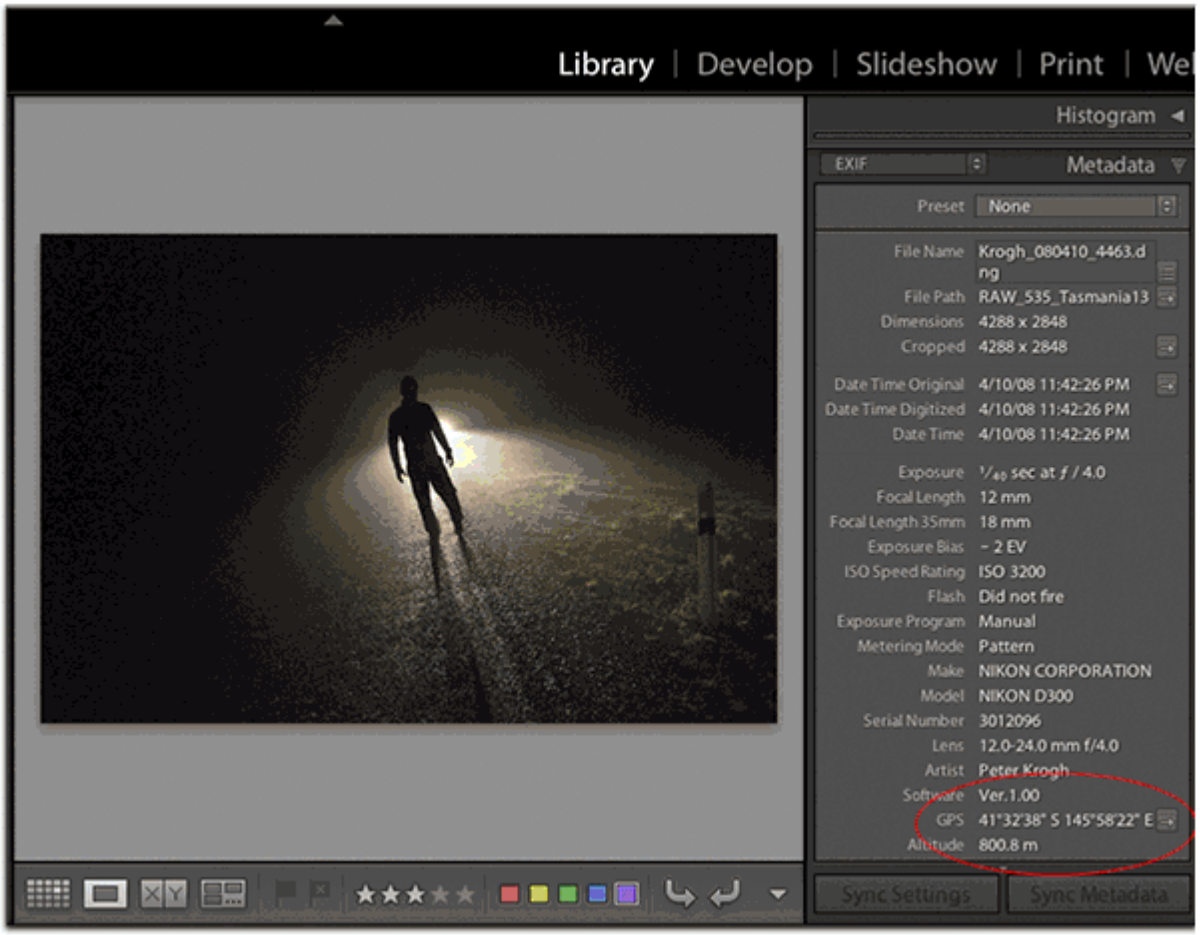

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