Geotagging Photos with a Smartphone and Lightroom
by Greg Henton, May 15, 2017

What is Geotagging?

- Geotagging is the process of assigning Global Positioning System (GPS) coordinates in the form of latitude and longitude to the metadata of your photograph.

Why Geotag Your Photographs?

- If you know where a photo was taken, you can answer many questions you might have about a photo without any other information, particularly if there are no identifying features visible in the photo.
- If you catalog your photos with a programs such as Lightroom, you can search for an image based on the location it was taken as opposed to keywords, filenames or folders.

How Does Geotagging Work?

- Geotagging works by writing the GPS latitude and longitude coordinates into the "Exposure Information" (EXIF) metadata of an image file, if that image file format support EXIF metadata. Most standard (jpeg, tiff) and common proprietary RAW file formats support EXIF metadata.

How Do You Geotag Your Photographs?

- Geotagging, or assigning the GPS data to your photographs is either done at the time of capture, or it is added later using cataloging (such as Lightroom) or other types of software.
  - **At the Time of Capture.**
    - Geotagging at the time of image capture either requires a camera with a built in GPS system or with provisions for the attachment of a GPS device which can communicate with the camera.
    - Advantages of these types of systems are that the job is done at the time of capture, and further input usually isn't necessary.
    - Disadvantages include:
      - the cost of the GPS device if it is an add-on which can average about $200
      - the inconvenience of having additional devices hanging off your camera, again in the case of add on devices
      - battery drain with built in devices
      - latency problems where the GPS coordinates are not properly updated before the data is written to the files metadata.
  - **After the Time of Capture**
    - Geotagging after the time of capture is usually done using image cataloging software like Lightroom by dragging a representation of your image to a spot on a map.
      - Advantages of this system is that it cheap, doesn't require any specialized equipment and is as accurate as the photographers memory and mapping skills.
      - Disadvantages include
        - It is time consuming
        - the photographer may not have know exactly where he was when he took the pictures

- it is as accurate as the photographers memory and mapping skills

An Alternative Method for Determining Location, Track Files.

- Track files are a legacy of the days of hand held GPS units that were common with back packers and the like a couple of decades ago. The track files are simply a computer file that contains of a list of times and locations recorded by the GPS unit as its user walked or hiked.
- Because some photographers used these handheld GPS units to record where they were when they took photographs, Lightroom built into its mapping module the ability to read standard GPS tracking files (with the extension .gpx).
- Lightroom can not only read and display the route recorded in the track file on the map module page, it can compare the image capture time of the photos with the GPS locations and times in the track file and automatically assign a GPS location to an image based on the closest time recorded in the track file.

Today's Smartphone, the Successor to the Hand Held GPS Unit.

- One of the most popular feature of today's smartphones is "Google Maps" or its Apple equivalent. For this application to work, the phone need to "know" where it is, so GPS units are built into most smartphones.
- So all that is needed for geotagging photos with a smartphone is an app which can create standard .gpx track files.
- "Geotag Photos Pro" (www.geotaghphotos.net) for both Apple and Android smartphones is one such app and is the subject of this demonstrations.

Using "Geotag Photos Pro" with Your Camera

- Install the "Geotag Photos Pro" app on your smartphone (it can be found at the Apple App Store and Google Play and costs about $4)
- Sync you camera's clock to your phone's clock
- Create a .gpx file and start recording
- Walk about and take pictures
- Stop recording to the .gpx file after you are done
- Email the .gpx file to yourself

Using "Geotag Photos Pro" with Lightroom

- Import your photos into Lightroom
- Retrieve your .gpx file from your email and put it in a convenient directory
- Open the mapping module
- Click on the little zig-zag icon near the scaling bar at the lower left of the map
- Chose "Load Tracklog" and open your .gpx file. The map module will now display the appropriate map with your route indicated in blue
- Highlight the images you wish to geotag (displayed in a row under the map)
- Click on the zig-zag icon and choose "Auto Tag Selected Photos" and yellow flags will appear on the map where each photo was taken.

Using "Geotag Photos Pro" without Lightroom

- Go to http://www.geotagphotos.net/ and download and install the free "Desktop App"
- Run it in the off line mode
- Open the .gpx file and the directory where the images are
- Press the green arrow at top that says "Start Geotagging"
- According to the web site, it will work with jpeg files and "the majority of RAW file formats"

Final Thoughts on Using "Geotag Photos Pro"

- It's relative cheap and effective
- It's very fast
- It saves a lot of drudge work and guessing
- It is only as good as its GPS signal, so id does not work as well in areas where GPS signals are poor like forests
- It does NOT require that the smartphone have cell service to be used