

Quick Start Guide - Garmin and GPS PhotoLink

Alaska Regional Office - GIS Team Cheatsheet

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Purpose

Use this quick start guide to geotag your digital field photos with a Garmin tracklog or Garmin waypoints. All geotagging occurs after the field with GPS Photolink.

GPS: Purchase a Garmin GPS. Applies to most modern Garmin handhelds.

Digital Camera: Any modern camera.

GPS PhotoLink software: One of several software available. \$239 software purchased from <http://www.geospatialexperts.com>. You may qualify for a free version. Contact Joel Cusick.

Cables: Cables required to communicate between GPS and Camera and PC

Software Guide: Use this guide for detailed steps in GPS PhotoLink process.

[http://165.83.62.205/rgr/akgis/documents/GPS/Photo/Photo Linking with Garmin and GPS PhotoLink Facilities Management Application.ppt](http://165.83.62.205/rgr/akgis/documents/GPS/Photo/Photo%20Linking%20with%20Garmin%20and%20GPS%20PhotoLink%20Facilities%20Management%20Application.ppt)

Steps: Here are the bare minimum setups to accomplish the task

GPS: Set up as follows:

- Turn on GPS outside. Initialize - Let stand for 20 minutes to collect almanac if GPS is cold.
- Set Garmin time to local time – watch out for the switch to daylight savings time!
- Set Interface to Garmin Protocol.
- Clear all active tracks and waypoints. Prefer backing up to MapSource beforehand.
- Decide on linking to Tracklogs or Waypoints before hand – See Section on Waypoints or Tracklogs?
- Tracklog Setup: Set Tracklog to recording **Stop When Full**, Record Method to **Time** and Interval to **5 seconds**. Set to 1 second if flying. Most modern GPS store 10,000 trackpoints leaving 13 hours or 5 hours of collection depending on time interval.
- Waypoint Setup: Ensure waypoints are cleared.
- Turn GPS to the page where you can see the time and date.

Digital Camera: Set up as follows:

- Remove all old photos.
- Ensure date/ time is set to GPS time. Roll over to the exact minute on camera when the GPS rolls over. Given a little practice, you should be able to calibrate camera to GPS within 1 or 2 seconds.
- Turn date/time watermark **Off** so date is not watermarked onto photo in camera.
- Check batteries.
- Turn on camera and set resolution settings on camera as appropriate for job.

In the Field: General Settings

When GPS is sufficiently warmed up, take photo of GPS screen showing time. This is the most critical photo, so ensure you can clearly see time to nearest second. Hold GPS at arms length, and hold camera at face. Put sun at back and tilt screen away from you. Flash off. Turn backlight on in dull light conditions. Remain stationary. Do not use MACRO mode. Use cameras review mode. You DO not need to be collecting a tracklog or waypoint during this process.

- **TrackLog Collection Method**
- Ensure Tracklogs are being collected.
- Place GPS antenna on top of photo subject you want a location of. This works best with 2-person teams.
- Stand back and take photo of subject. Track must be collecting when collecting pictures. You can turn GPS off or camera off between collections, but the GPS must be collecting tracks when collecting photos.
- When done for the day, turn off GPS Tracklog before returning to inside. **DO NOT SAVE ACTIVE TRACK**, but turn off track.
- **Waypoint Collection Method** Remember this mantra: POINT BEFORE PHOTO.
- Place GPS antenna on top of photo subject you want a location of.
- Press and hold Mark. Average location until error is under 20 feet. Save waypoint.
- Stand back and take photo of subject.
- Repeat on all photo subjects. Take point, then take Photo.
- Some Garmins store waypoints to nearest minute, so ensure photos are collected at least 60 seconds apart.

Back in the Office NEVER ALTER PHOTOS – YOU RISK SCRAMBLING CAMERA TIME.

Software: Start GPS PhotoLink and Follow the Wizard

- Transfer Digital Images from Camera to PC – note where you put the images

- Connect GPS to PC with Cable. Select Data Source as Garmin Tracklog
- Make sure the time is set properly. Ensure "Auto Adjust for Daylight Savings" is active.
- Make sure you use the DATUM Tab and switch to NAD83 Worldwide and Lat/Long coordinate system.
- Time Sync step: Use photo of the GPS Receiver for time sync method. For Tracklogs use "Match to closest GPS Point". If in aircraft use "Interpolate Method". When using waypoints, use " Match to closest point BEFORE photo"
- Follow next steps entering the time correctly on the photo of the GPS receiver, then entering title/comments.
- Ensure Watermarks (include lat/long, date, time, datum, title, comment).On last step, be sure to select Create ESRI shapefiles and web output.

TIPS: Shapes generated will be GCS_North_American_83. Always manage all your photos with a database – NPS recommends ThumbsPlus.

There are two methods of GPS data collection on a Garmin when linking with camera – Waypoints or Tracklogs. This section helps you decide which method to use.

TrackLogs (The No-Brainer Choice)

Advantages:

- 1) Easy. Hard to screw up. Turn on and with 5 second interval you have 13 hours of data collection. You only need to keep GPS alive and tracklog running.
- 2) Thee method to use when photographing while moving. This allows Track course to be collected and picked up in GPS Photolink to determine look direction.

Disadvantages:

- 1) Multiple photos on same location will be associated with multiple coordinates. Though the coordinates may only be meters apart, the precision of the GPS will determine spread of data
- 2) You forget and leave the GPS running with antenna blocked, you may associate a very poor coordinate to a photo.

Applications:

Aircraft aerial obliques. This allows you to automate look direction in GPS PhotoLink.

Have too much things going on and a photo would be nice addition, but not a major driver of project.

Waypoints (The Point before Photo Choice)

Advantages:

- 1) A more accurate point will be constructed due to averaging, standing still and concentrating.
- 2) One waypoint can be associated with multiple photos using the same position.

Disadvantages:

- 1) Easy to forget to take point, then photo. If you screw this up, then association with wrong waypoints will occur. This method requires consistent, no screw up methods.

Applications:

Collect one waypoint at a building entrance. Then associate photos from inside building to that one point.

When photos are extremely important to the GPS mission. Taking time to collect with waypoints pay off in accuracy and consistency.

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2/7/05	Formatting, datum switch	j. cusick
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