Open Source Tools for Drone Data Management
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Introduction
Modern photogrammetry software has dramatically improved the quality and speed of generating 2D and 3D data products from drone imagery, however a significant amount of data management remains before and after the stitching process. To address the increasing demands of managing data for a busy drone program within a team environment, we developed a series of tools using open source software.

IGIS Pix4D Controller
Intended to be installed on a server, the IGIS Pix4D Processing Controller software ingests newly added drone data from a specified directory given a processing flag and instructs an instance of Pix4D (it is assumed a working copy of Pix4D is installed on the same machine) to automatically process project data. A data structure in the form given by the IGIS Drive Monitor allows the software to automatically find all the images belonging to flight block and a build in customizable sensor library relays which processing template Pix4D should use for processing. In addition, if human interaction is necessary during the processing (i.e., applying Ground Control Points), the software will place these data sets into a “Pending Directory” and wait until instructed to continue through processing.

IGIS Drive Monitor
The IGIS Drive Monitor is designed for field use. It copies drone data from SD cards to a backup location in an autonomous way. It will search for drives with a user specified label and automatically find all images, consolidate, copy and rename them according to a block naming scheme.

IGIS Drone Data Management Logbook
The IGIS Drone Data Management Logbook, written in C++, is an interactive data manager that aids a drone pilot and field crew in syncing data from SD cards, creating standardized data structures, visualizing image positions and mission footprints and automatically create processing instructions (i.e., .pix4d). The data structure allows for larger projects that are made up of multiple missions to follow an ideal workflow of partial processing of individual missions and then combining them for a larger result.

R-package: uavimg
The uavimg package for R contains functions to:
• create HTML catalogs for a folder of images
• estimate actual overlap, GSD, & mission area
• compute and export image centroids, footprints, and the mission MCP
• move images into folders by flight
• launch functions from the context menu in Windows Explorer