

Coordinate a drone operation

Drones make it possible to quickly capture high resolution imagery of important assets and locations. By taking advantage of drone imagery, you can get timely and crucial insights on things like potential structural damage, change detection, or project status. A drone operation needs to run smoothly and efficiently to make the most out of your team's investment and labor when collecting and processing data.

Coordinating a drone operation—with multiple pilots and vehicles, multiple locations, and various time periods—can come with its share of challenges. Who is flying when? Were they approved to fly a requested area? Can we task a team to fly a particular location? These are some of the questions that can be addressed through the interconnectedness of ArcGIS. A team of pilots is a mobile workforce that will need to be assigned tasks and have progress monitored. ArcGIS has effective user-friendly solutions designed for this type of work in the field. All drone operations in the field can then be displayed on a shareable and authoritative dashboard.

Site Scan Flight for ArcGIS and Site Scan Manager for ArcGIS offer robust flight planning and image processing capabilities; however, they can also be supported by other ArcGIS apps like ArcGIS Workforce, ArcGIS Field Maps, ArcGIS Experience Builder, and ArcGIS Dashboards to provide a comprehensive picture of your drone operations. A combination of these apps can serve as a nexus application that allows decision makers, dispatchers, and other key stakeholders to coordinate a drone operation.

Review the following high-level workflow steps to coordinate a drone operation using the robust capabilities across ArcGIS:

1. Start your project in ArcGIS Online—Create authoritative project maps to allow dispatchers to assign tasks to pilots in your ArcGIS organization.
2. Task drone pilots—Create a Workforce project within your ArcGIS Online organization that leverages project maps and data of your area of interest, and assign and dispatch pilots through ArcGIS Workforce. Workforce will allow you to assign specific areas that can be used in the field. Once in the field, ArcGIS Workforce's seamless integration with ArcGIS Field Maps will allow pilots to capture ground control points with high accuracy GNSS devices. This step is crucial if high geographic accuracy is important to your mission.
3. Collect drone imagery—Drone pilots will gather consistent data in the field using Site Scan Flight. Site Scan Flight can leverage existing features like dispatcher-assigned polygons or corridors to create flight plans.
4. Process imagery in Site Scan—Use Site Scan to process the imagery and publish it to other ArcGIS apps like ArcGIS Dashboards or Experience Builder apps.
5. Create a nexus application and dashboard to inform decision makers of tasking progress—Use ArcGIS Experience Builder to help monitor metrics on flight progress and completion. Monitor which pilots are in the field and which flights they have completed. View published and processed imagery from the dashboard.

Explore the following resources to learn more about coordinating drone operations in ArcGIS. (Not sure where to start? Look for the star by Esri's most helpful resources.)

Note:

To use this workflow, you'll need an ArcGIS Online subscription account to sign in and create project maps, which you can use to task pilots and assign specific areas. Alternatively, this can also be performed using ArcGIS Enterprise. To collect, process, and publish drone imagery, you'll need Site Scan for ArcGIS, Site Scan Flight, ArcGIS Experience Builder, ArcGIS Workforce, and ArcGIS Dashboards. ArcGIS Field Maps and ArcGIS Workforce will be required for pilots to collect the drone data in the field.