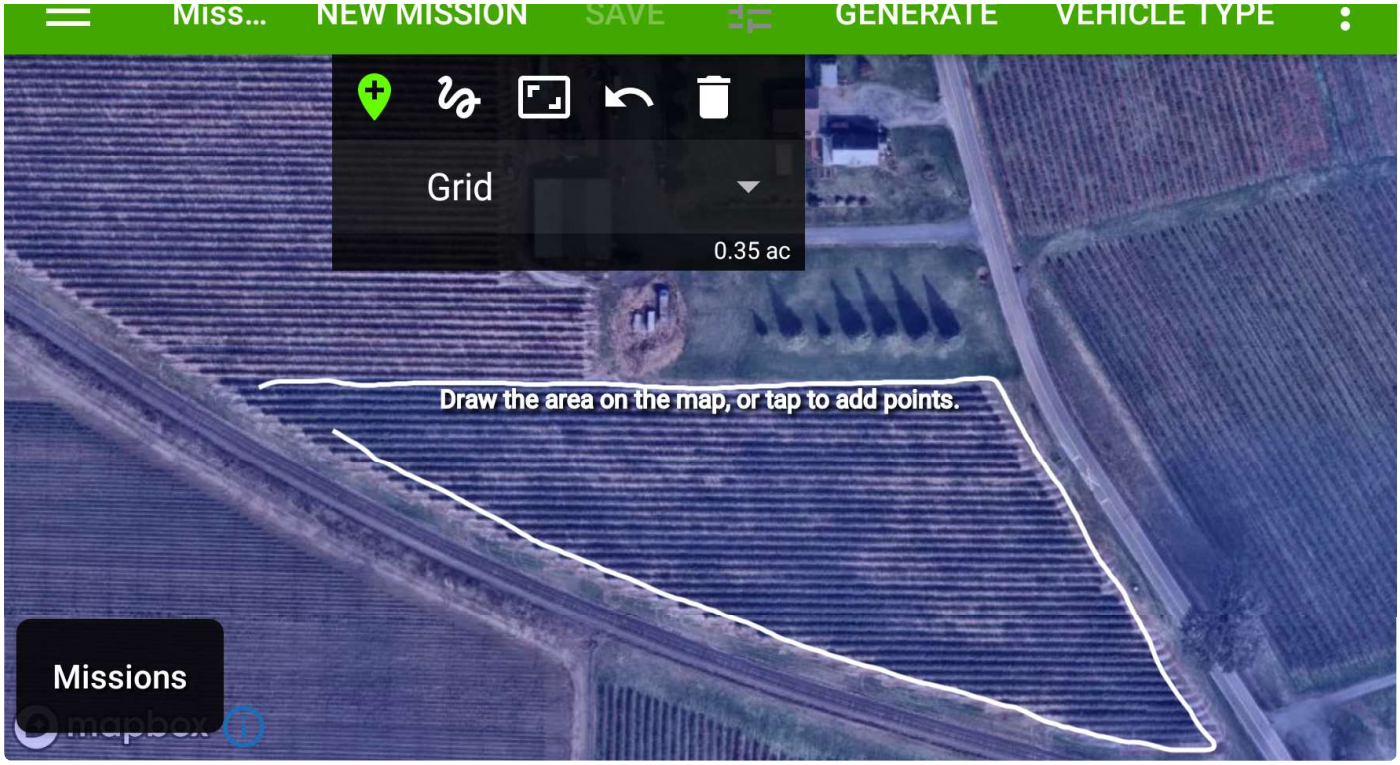
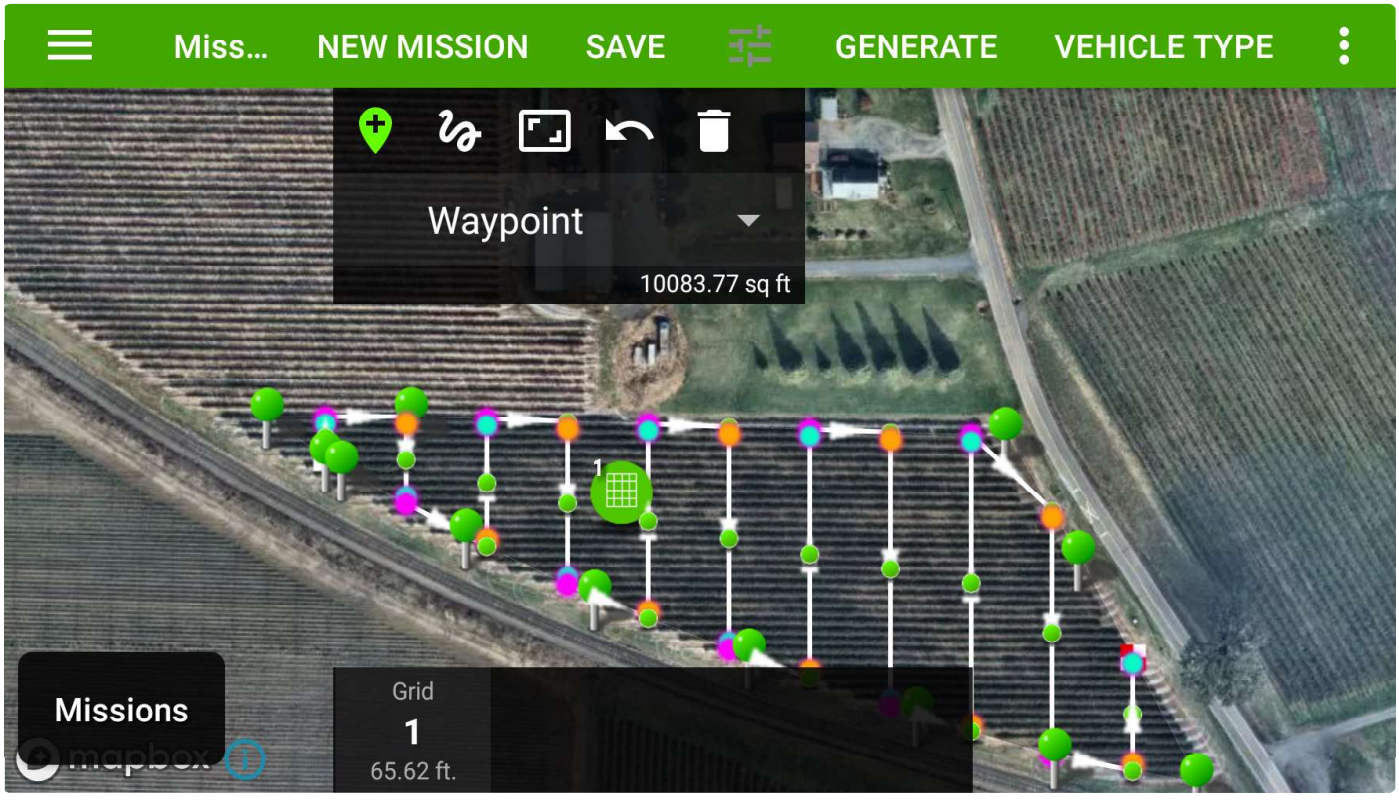
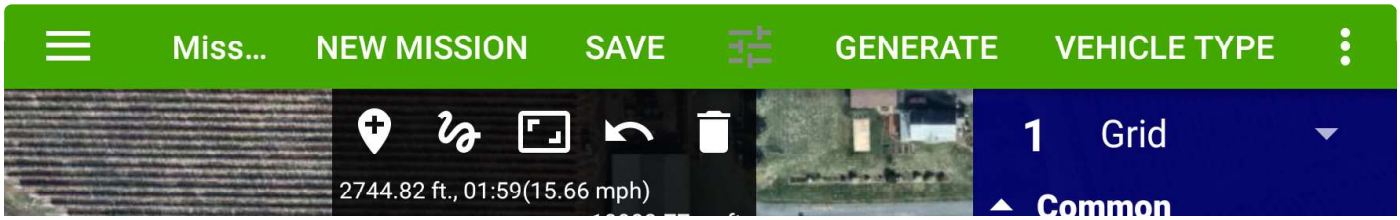



Upon lifting your finger from drawing, a grid will automatically be placed within the area you outlined.

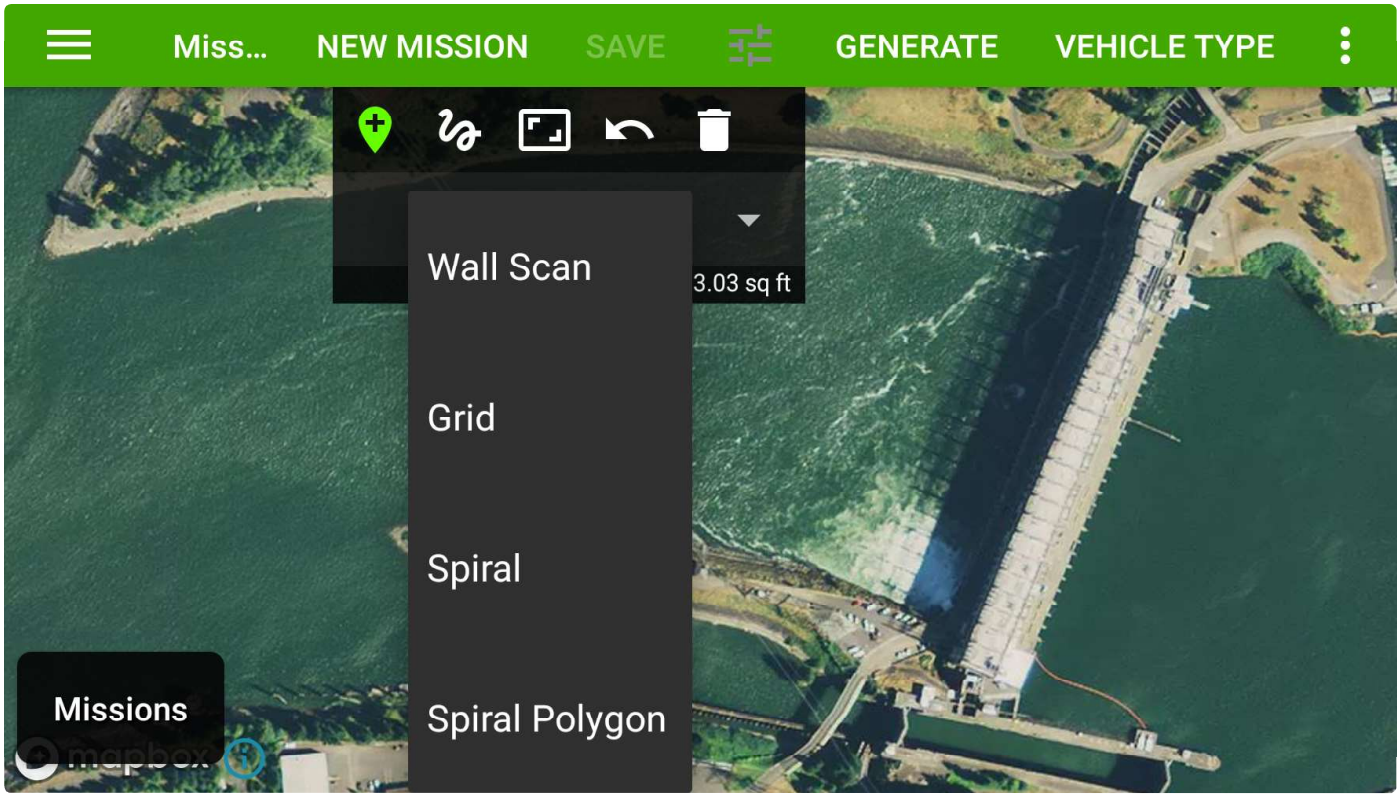


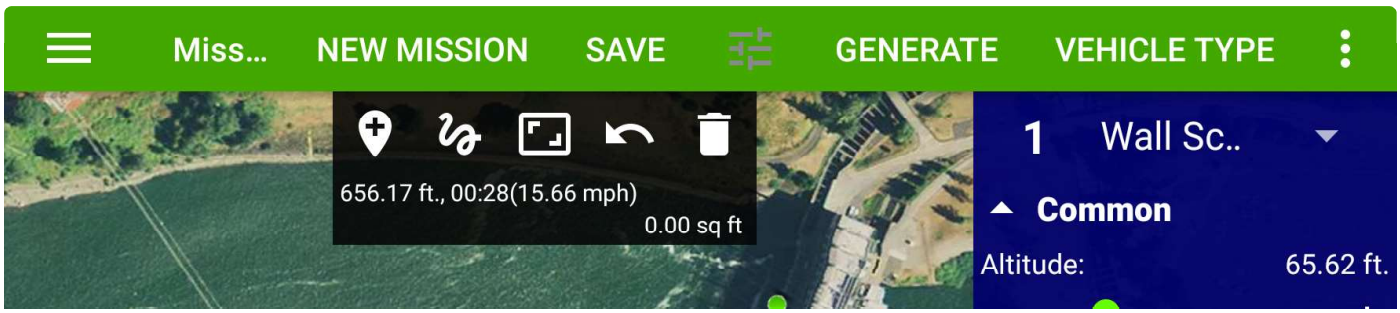

Clicking the green circle grid icon, located in the grid, will bring up the side option panel for the grid, which allows you to control the grid attributes.




### Wall Scan Missions

Wall Scan is a mission item type useful for doing linear scans of straight areas from the side.



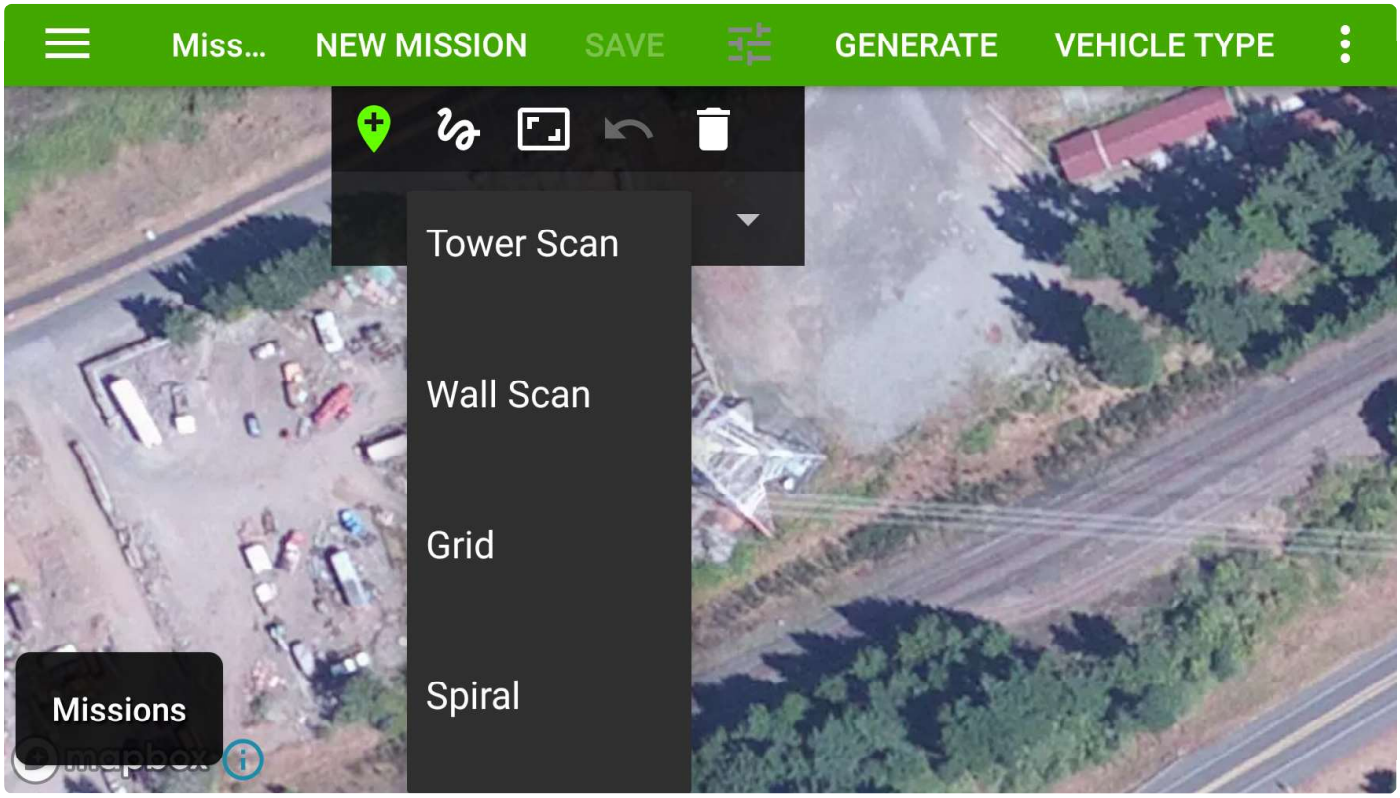

To use it, drop a Wall Scan item on the location you want to scan. Set the Wall Length setting to the length of the scan, and it will expand on either side of the dropped location. Use the At Distance setting to control how close to the location the vehicle will fly. Use Scan Angle to control which direction the scan will go. Scan Angle is expressed in degrees relative to the dropped point, with the scan direction being 90 degrees to that. So for example if you drop the point on a location and leave Scan Angle at 0 (North), the vehicle will fly on the North side of the object from East to West (or vice versa, depending on whether you have Reverse checked in the Wall Scan options). To fly North/South on the East side of the object, set the Scan Angle setting to 90 (East). Options are as follows:

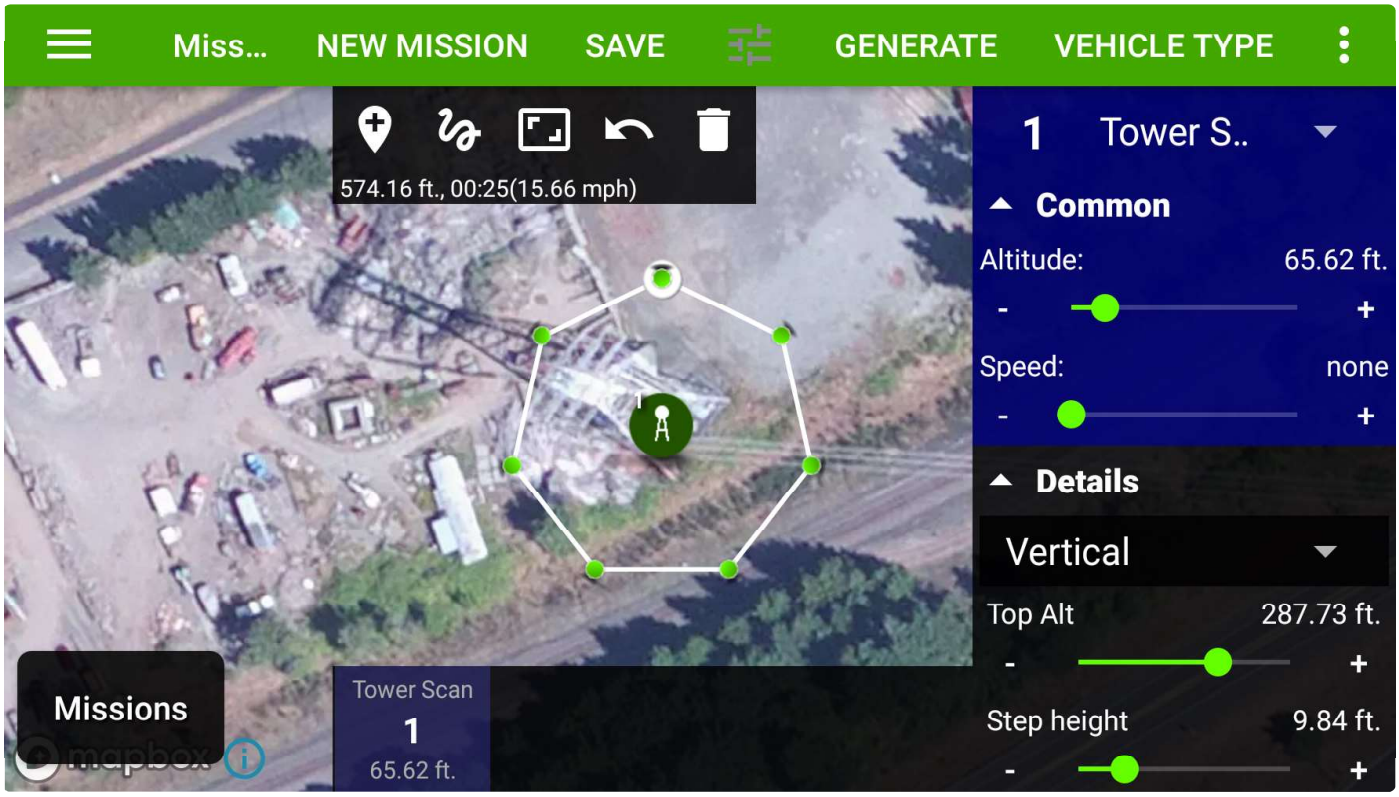
| Feature | Specification |
| --- | --- |
| Wall Length: | Length of the wall you're scanning. |
| At Distance: | Distance you want to fly from the wall. |
| Scan Angle: | Angle relative to the wall. 0 is North, 90 is East, ar so on. Rows: Specifies how many rows to scan. A value of 1 will go from one end of the wall to the other. Each additional row will cause the vehicle t rise by the Step Height (below) and double back the other way. |
| Step Height: | How much to increase altitude for each additional horizontal run. |
| Horz. Points: | Specifies how many points are in a horizontal run |
| Take Pictures at points: | Turn this on to take a picture at each point specifie in "Horz. Points". If you want to record video of the scan instead, don't check this box. If you want to take pictures based on flight distance rather than points, add a "Camera Trigger" action to this waypoint with the desired distance. |
| Aim at Center: | If this is turned on, the camera will pan to point at the main marker for this item. If turned off, the |

vehicle will point straight ahead and fly back and

### Tower Scan Missions

Tower Scan is a type of mission item that allows for scanning things like wind turbines, radio towers, water towers, etc. It's meant to fly around a target at a specified radius, taking pictures (or recording video) as it goes.



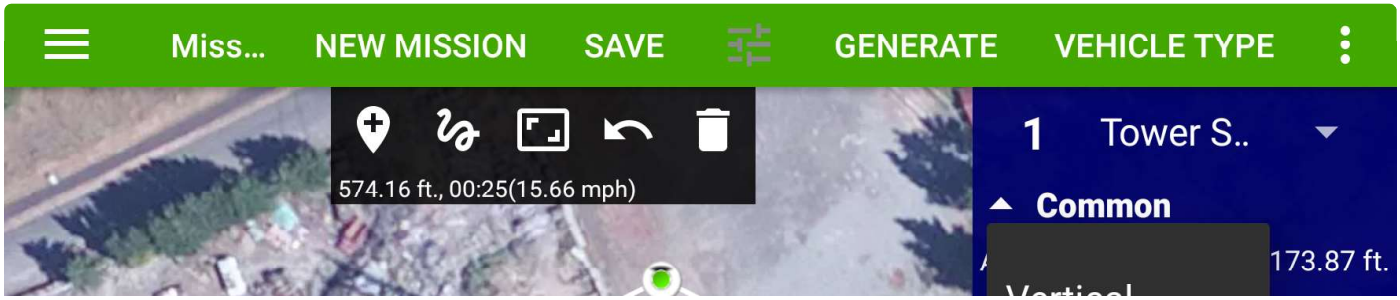
A Tower Scan can be assigned the following attributes:

| Feature | Specification |
|---|---|
| Base Altitude | The value of the "Altitude" attribute in the “commo section |
| Top alt | Highest Altitude used in scan |
| Step Height | Altitude increase between scan runs |
| Radius | Distance from the target |
| Start Angle | The angle relative to the target where the scan starts. |
| Scan Angle | How far the scan encircles the target. 360 is a complete circle, 180 is a half circle, and so on. |
| Leg Count | How many “legs” to appear in the scan |
| Take Pictures | For Vertical Scans, set a picture distance interval for taking pictures as the vehicle rises and falls. F Horizontal scans, take a picture at each stopping point. |
| Reverse | Reverse the scan path so it starts at the opposite end. For example, for a scan starting on the East side of a target, start on the West side and go Eas |
| Type | Horizontal or Vertical tower scan (see more below |

The minimum number of legs is 3. In this case, the vehicle will fly to one side and point at the target, fly half-way between that point and the other side, and finally to the other side. The number of legs you select influences the number of generated waypoints, the number of pictures taken, and the time required to fly the scan.

**Horizontal vs Vertical**

There are two types of Tower scan: Horizontal and Vertical.




A Vertical scan starts at the base altitude of a scan leg and flies straight up to the top of the leg. Once there, it moves over to the next leg, and flies straight down to the base altitude. It continues this pattern until the end of the scan. If you have "Take Picture" turned on, it stops at intervals on the way up or down and takes a picture.

A Horizontal scan starts at the base altitude and flies horizontally, stopping for 2 seconds at each leg (and optionally taking a picture). Once it completes a row, it rises by the Step Height altitude value and flies back the other direction through each leg, stopping at each point and taking a picture.

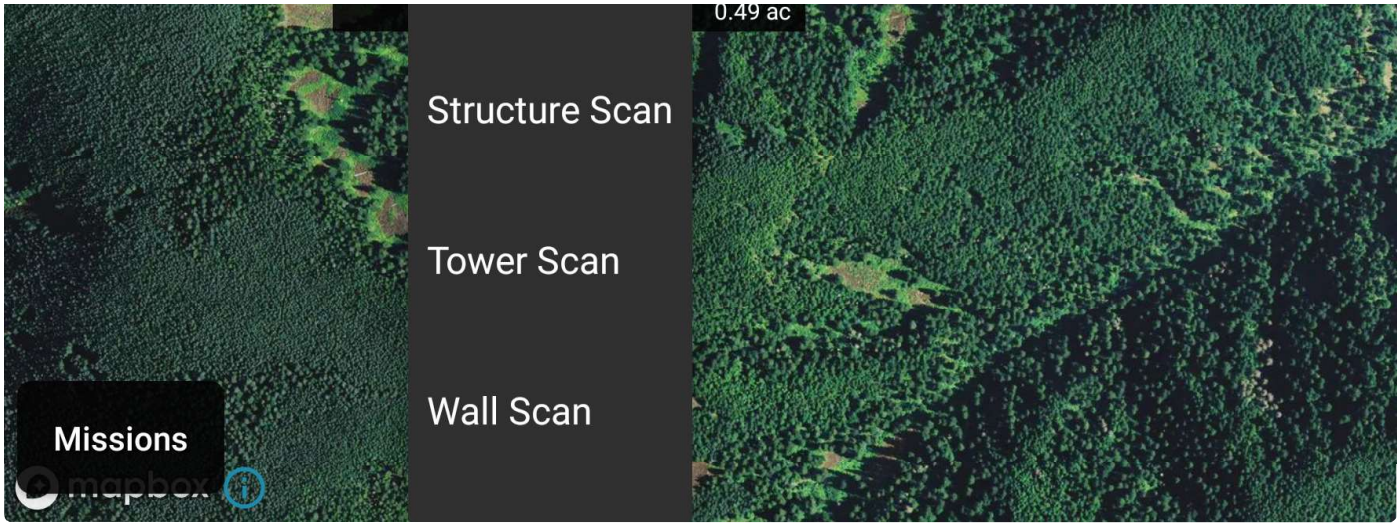
**NOTICE:** When setting up a Tower Scan, pay close attention to the path drawn on the map. The path will show entry into and the exit from the scan, which may not appear on the side of the tower scan you expect it too. This is because the path crosses from left to right and back during the scan, and the exit point (the one which heads to the next waypoint) will be on the side where the scan finishes. The path is clearly shown on the map, so you can avoid crossing over to a waypoint that could cause your vehicle to collide with the object you're scanning. If you want to change the exit side of the scan, you can do so by adjusting the step height or top altitude of the scan.

### Survey Missions

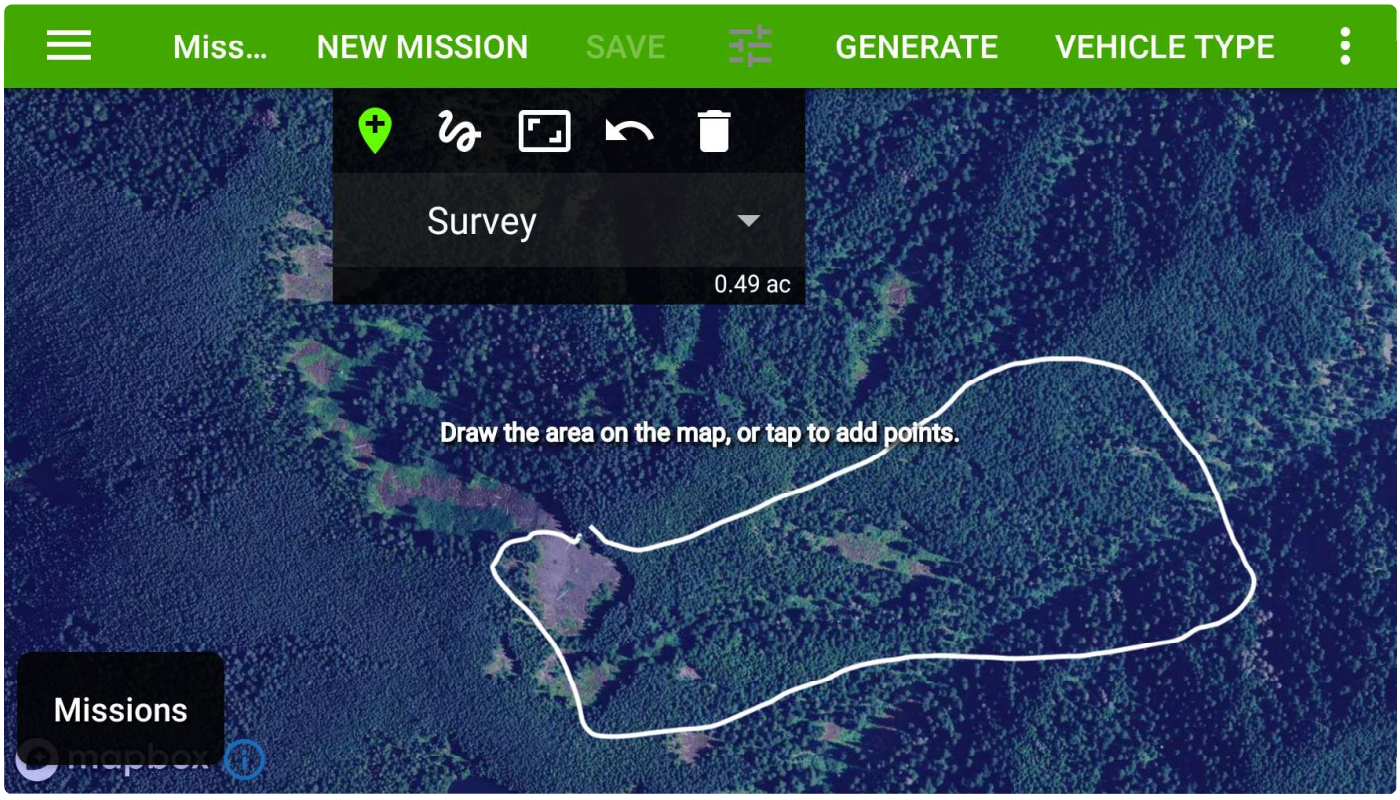
Surveys are kind of their own thing within missions. A Survey is an item in a mission that contains its own waypoints. Your vehicle won't fly straight to the waypoint, but will follow the path determined by the Survey.

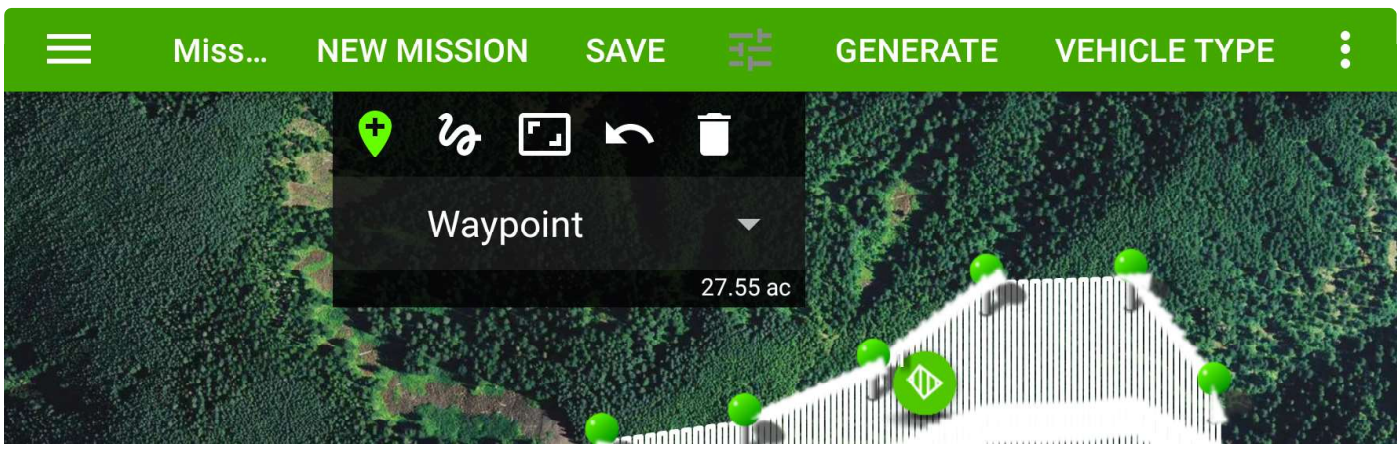
### Creating a Survey

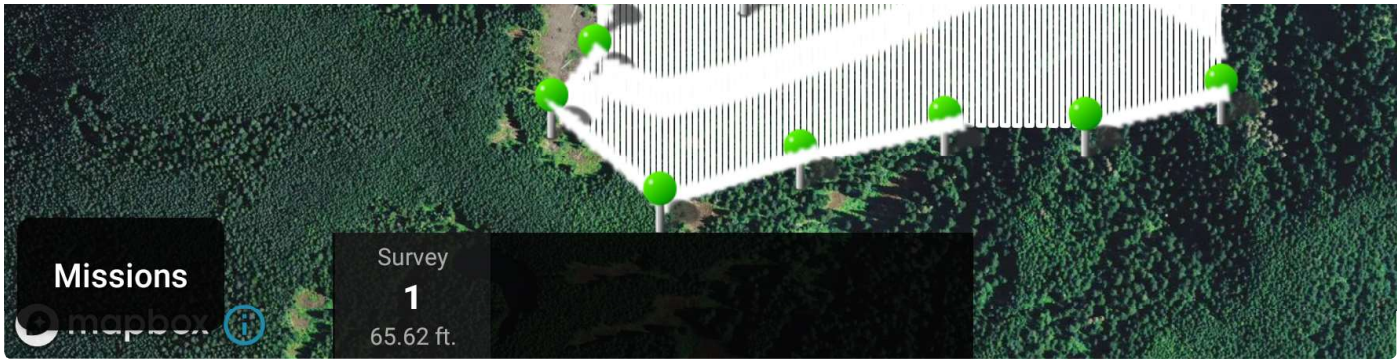
To create a Survey, click the Add button and pick `Survey` from the waypoint type list.




Tap the map where you want the center of the survey to be, and it will display a message saying to draw the survey region. Draw a shape, and a polygon will be created that approximates what you drew. If you want a square, draw something vaguely square-shaped, and a polygon will appear that's sort of square-shaped. It won't be perfect, but it's OK because you can adjust it.






To adjust a Survey, use the normal editing tools. Move polygon points by dragging them around, and delete them by clicking the Delete button and clicking the points. If you don't like a move or delete you've just done, hit Undo and it will go back to where it was.

You can move an entire Survey around by dragging the center point. The whole collection of points will move along with it.

#### Survey Settings

Make sure you're not in `Delete Mode` in the editor, and click on the center point of a Survey (or click on it in the horizontal list at the bottom). The Details panel will appear with settings for the Survey. You can adjust angle, overlap/sidelap, and whether to start taking pictures automatically when your vehicle enters the survey area. The Lock Orientation option makes your vehicle always face the same direction as it flies the survey.

To make a Spline Survey (a Survey involving spline points, hence the name), click Spline Survey and it will show the spline path the vehicle will take when flying the survey.

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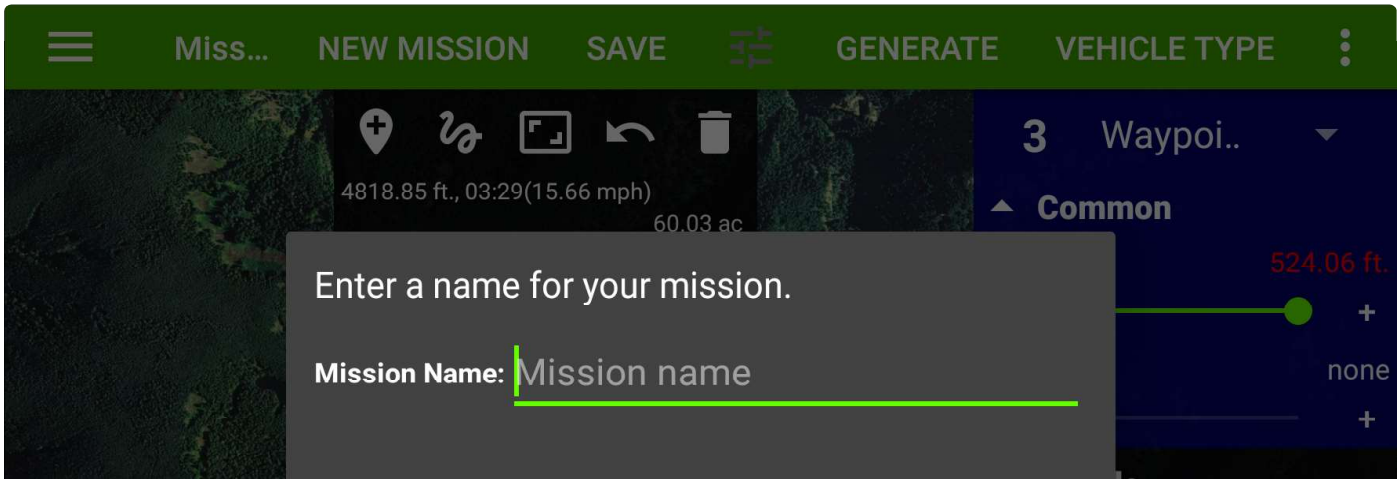
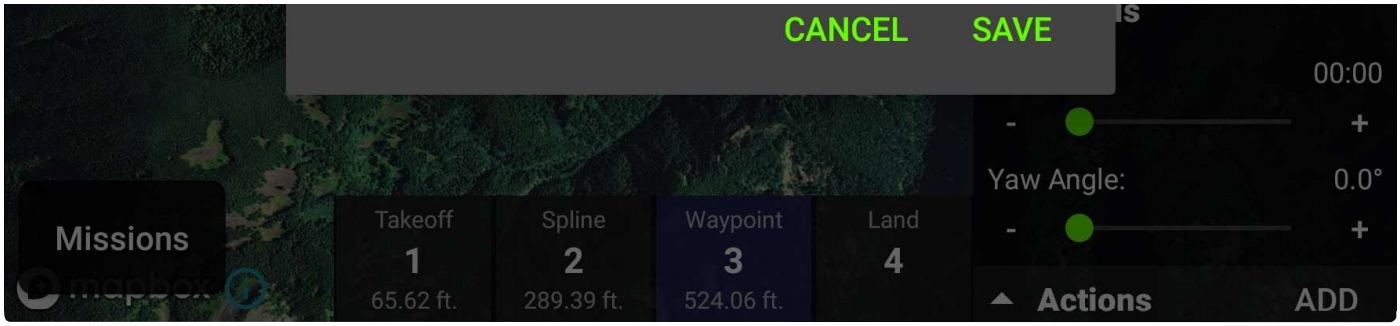
## Save a Mission

To Fly a created mission, you will need to save the mission. Click `SAVE` on the title area, specify a name for your mission, and click `SAVE` again. The mission should appear in the list you see when you select `Missions`.



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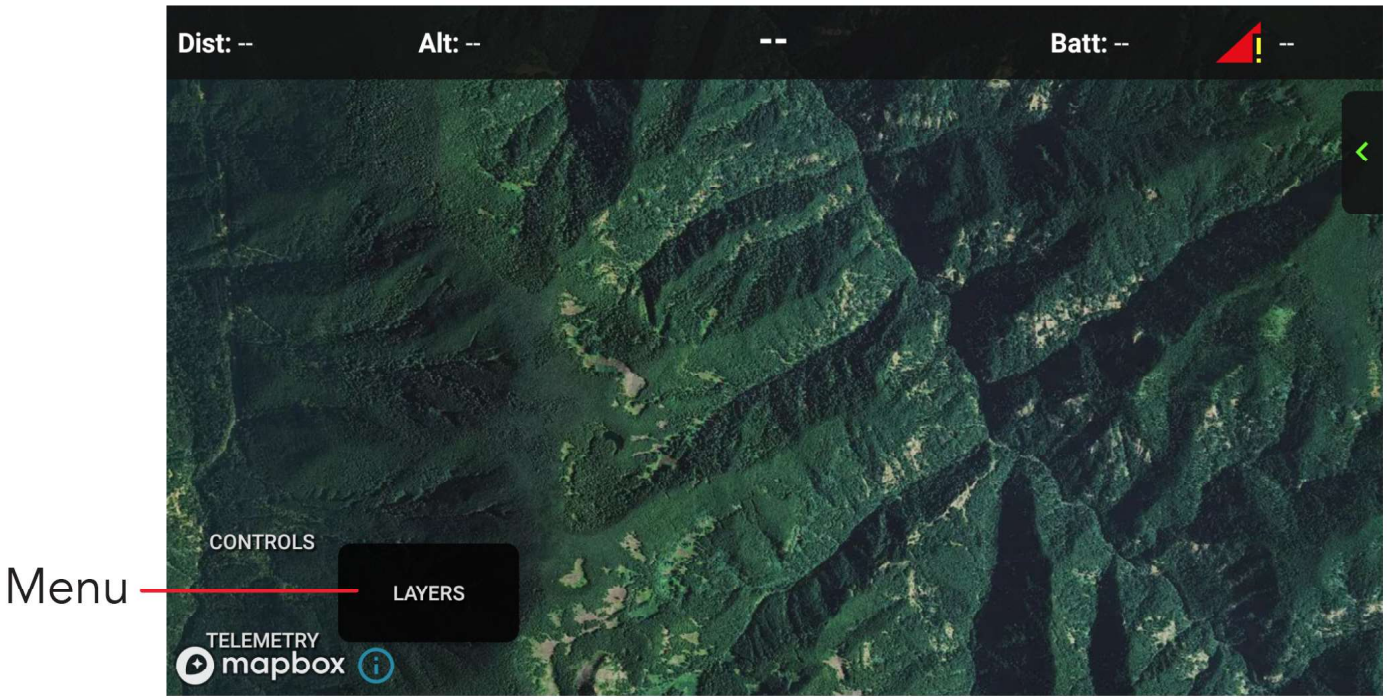
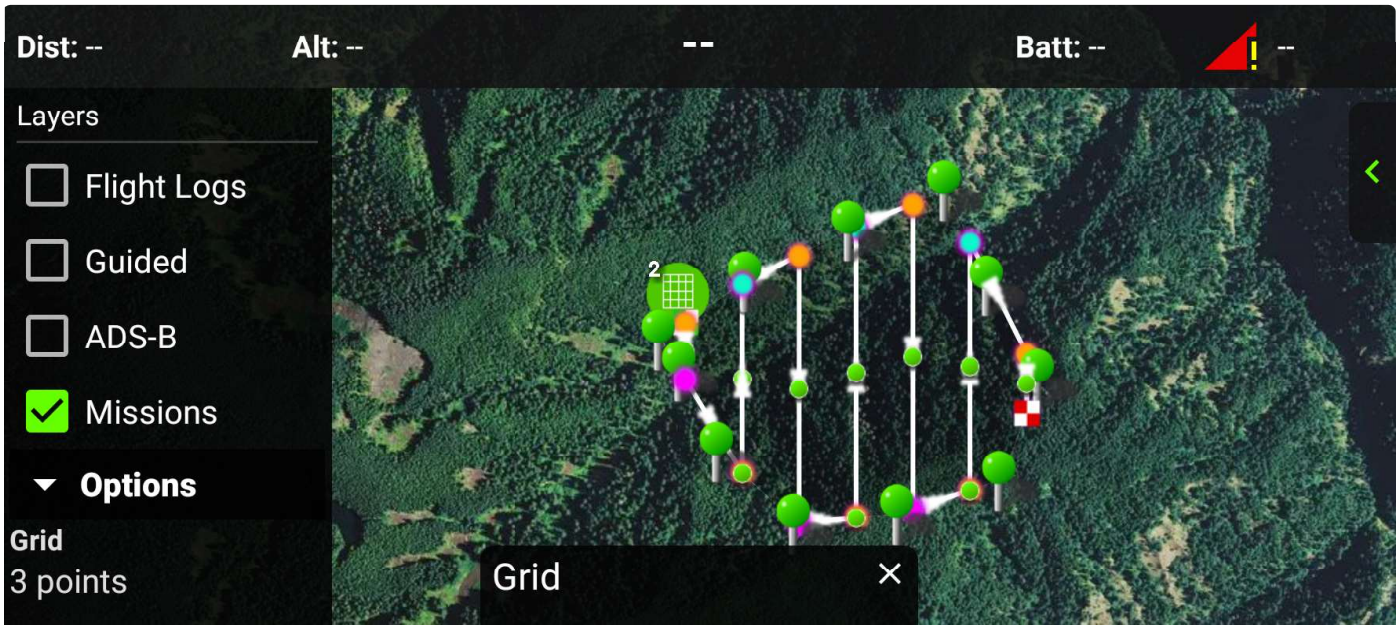
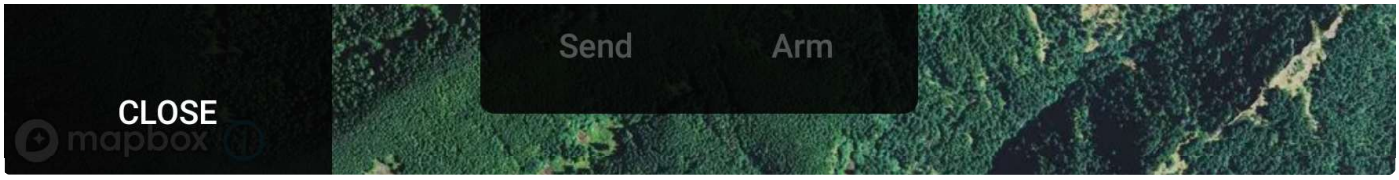
## Fly a Mission

Flying missions are done from the Map view in the flight screen. In the Map view, one of the layers is `Missions`. Click `Missions`, and you'll see a list of missions.






Click one, and a panel containing `Send` and `Arm` buttons will appear. Click `Send` and the mission will be generated and sent to the vehicle. At that point, the Arm button can be used to arm the motors. Once you've done that: If your mission has a Takeoff point, you can click Start and the mission will start on its own. Otherwise, you can click Takeoff, and then Start. Alternatively, you can launch manually, and then click `Start`.

#### Skipping to Items in Mission

Once underway, you can click a waypoint on the solexMap and you'll see a prompt asking if you want to fly to that location in the mission. If you click `Yes`, your vehicle will stop what it's doing, fly directly to that location in the mission, and continue from there.

#### Pausing/Resuming Missions

You can hit `Pause` to freeze the mission. At this point, you can either hit `Resume` to resume the mission, `Home` to RTL, or hit the `FLY` button on your transmitter to take manual control and fly normally. `Land` lands the vehicle right where it is, which you'll most likely only want to do in special cases. In the case of `Resume`, your vehicle will start flying at the last speed it was flying at according to the waypoint speeds in your mission. If no waypoint speeds were set in a mission, then it will resume flying at the overall mission speed.

#### Editing from the Mission Layer

To edit a mission from the Mission layer, click the `Edit` button on the layer list panel. The currently-loaded mission will load into the Mission Editor, and it will appear. Mess around with it, press Save, and press Back. It should appear in the Mission Layer with the updates in place. You'll still need to send it to the vehicle manually.

## Pairing & Calibration

HereLink Blue has a dedicated system settings app for the setup and configuration of the HereLink Blue RC control and radio system.

The HereLink Blue Settings app allows you to:

- Pair The Air Unit
- See Radio & System Status
- Calibrate the RC
- Set RC Mode & Throttle Settings
- Calibrate HW Wheel and Set Channel
- Set Radio Regional Settings
- Configure Sbus Buttons

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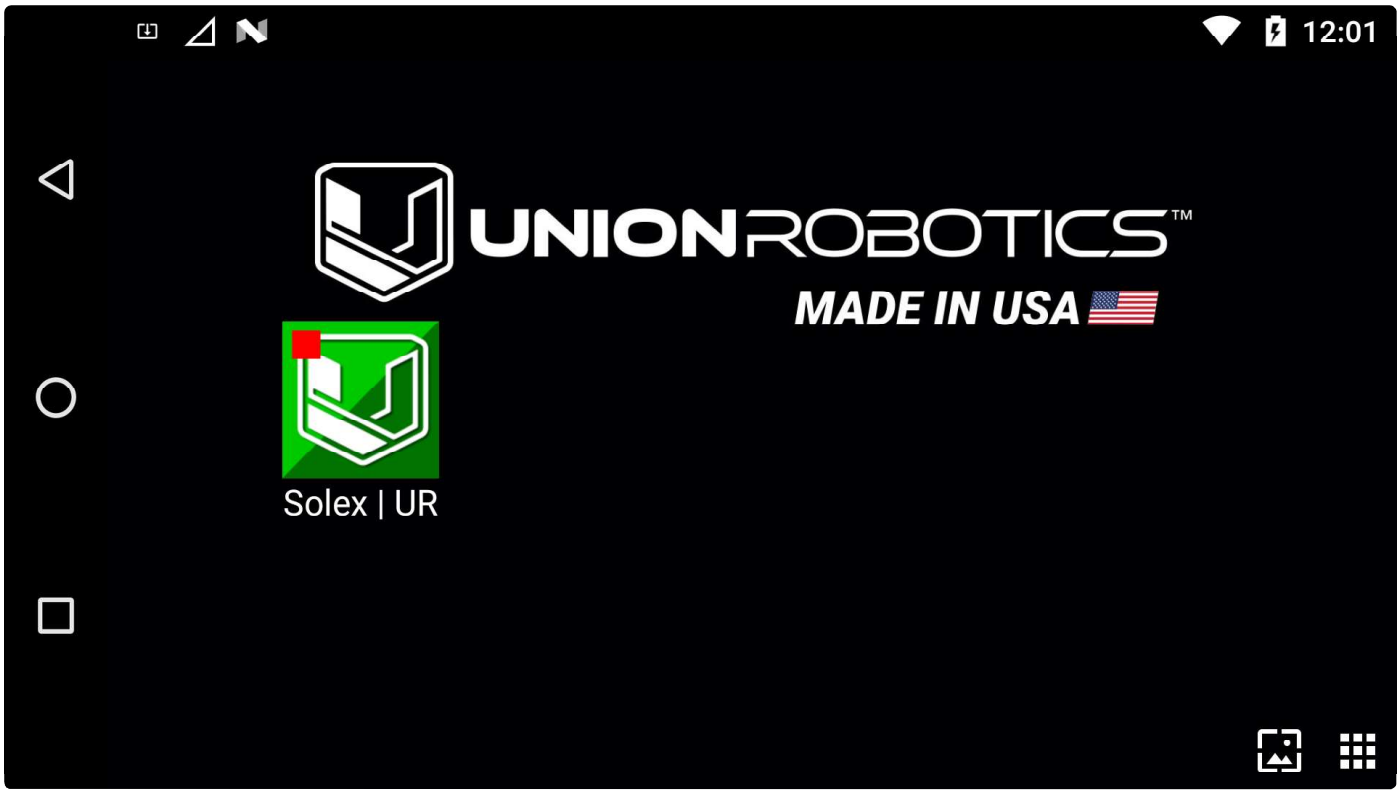
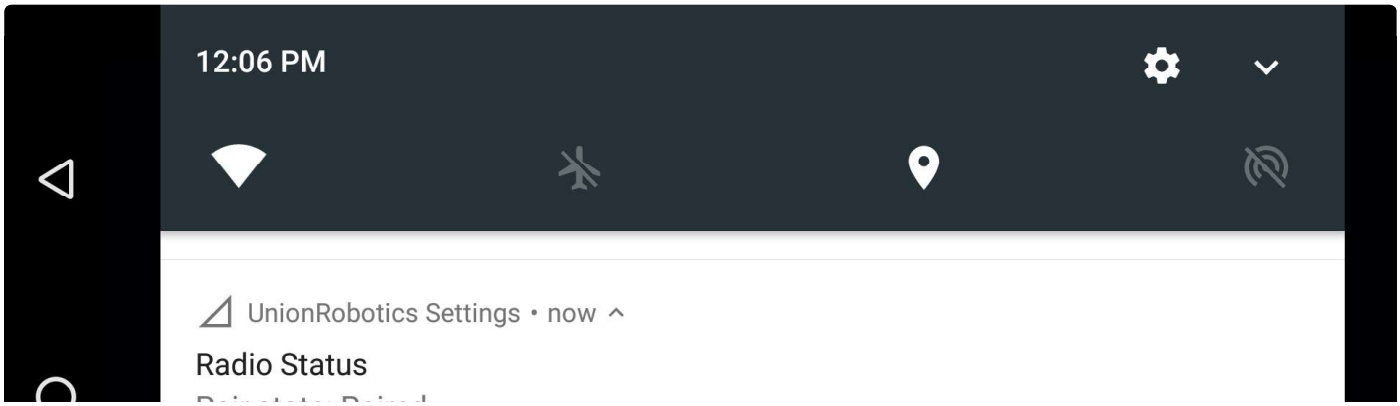
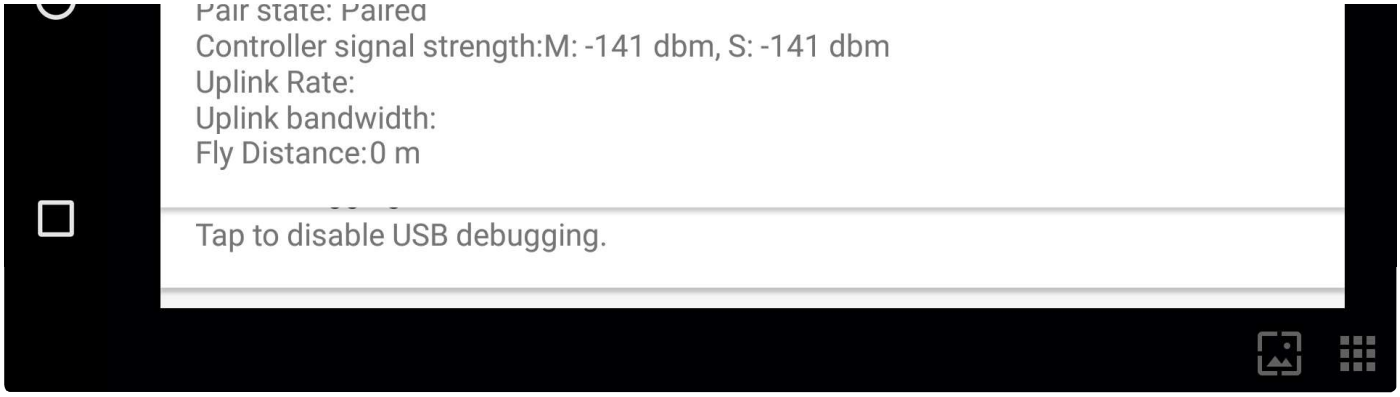
## DataLink Settings App

From the "App Launcher" screen, slide down the notification drawer from the top of the screen

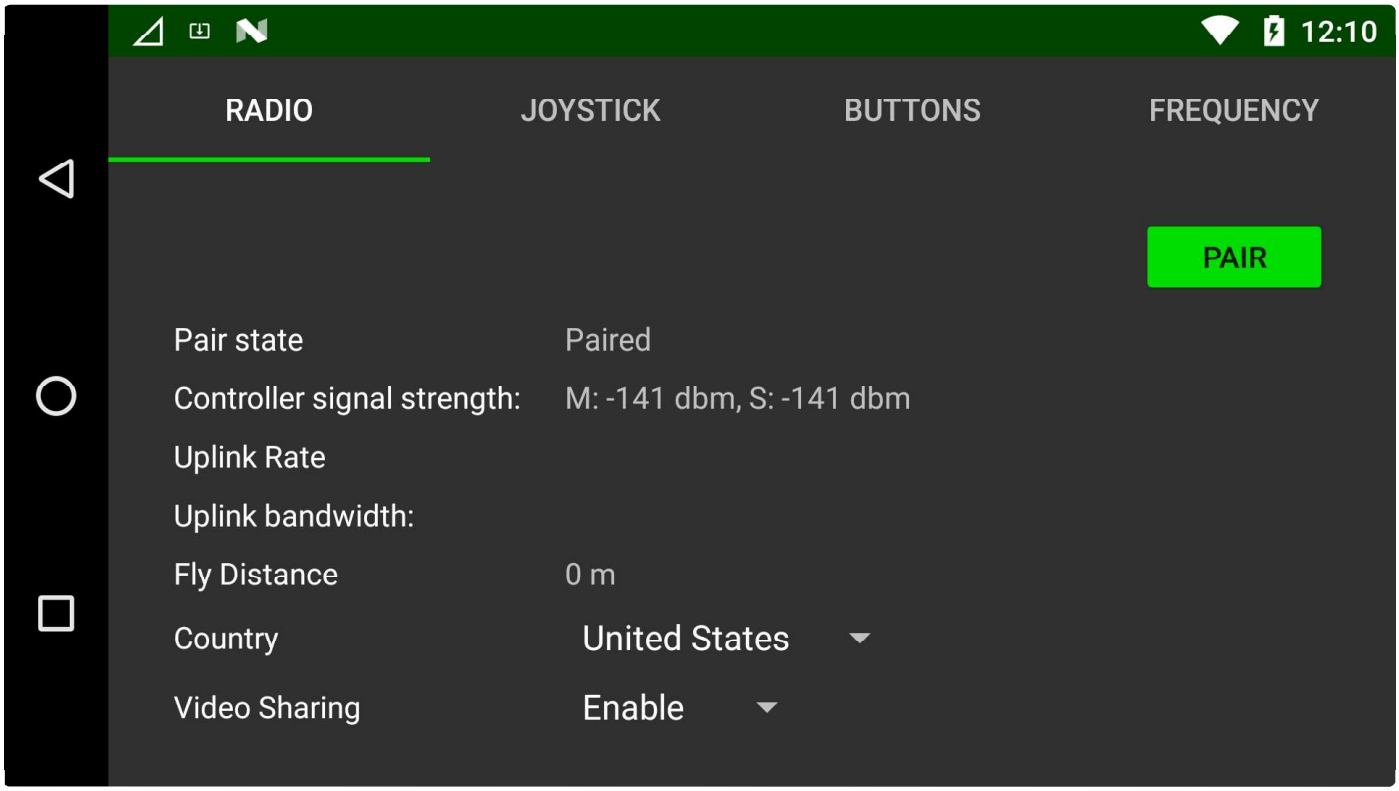



Select the "Union Robotics Settings"






The settings app will open

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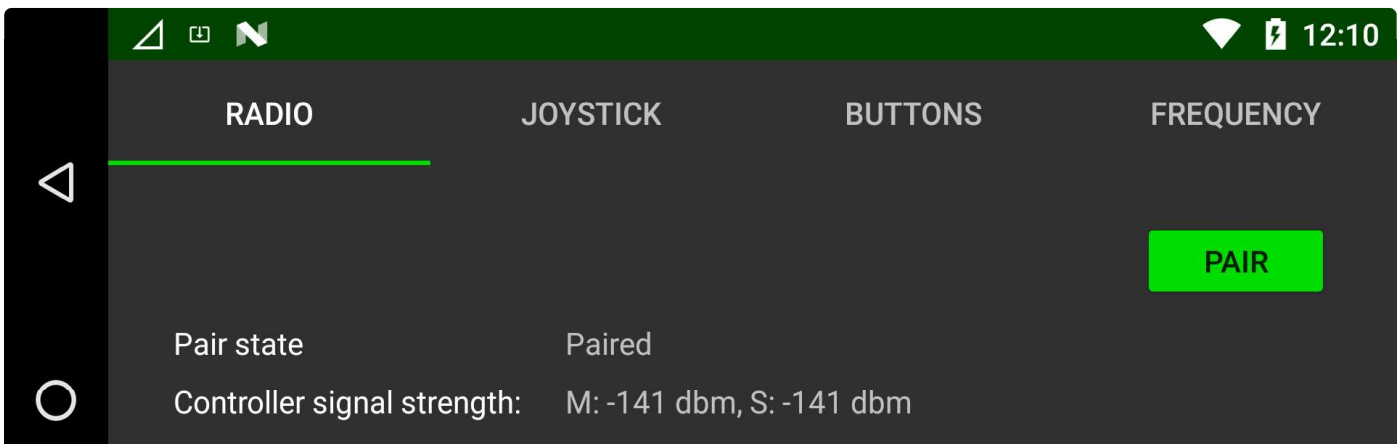
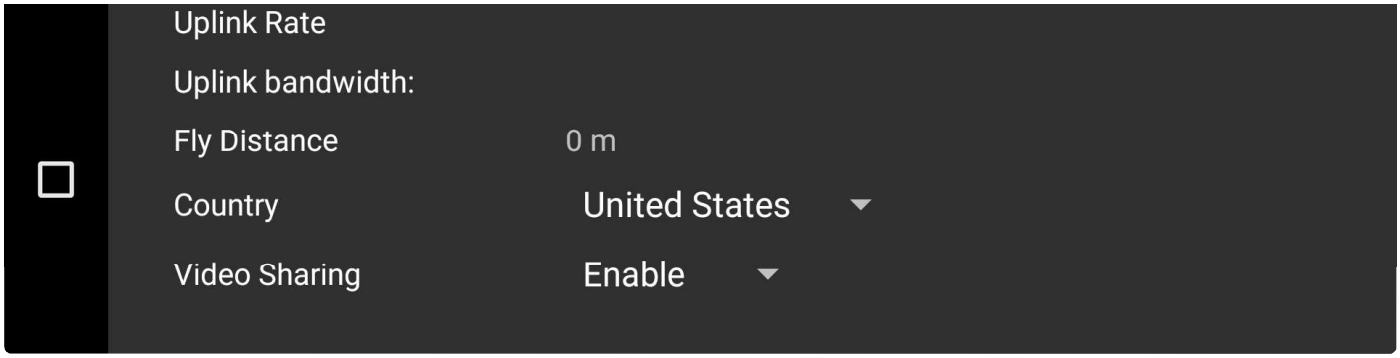
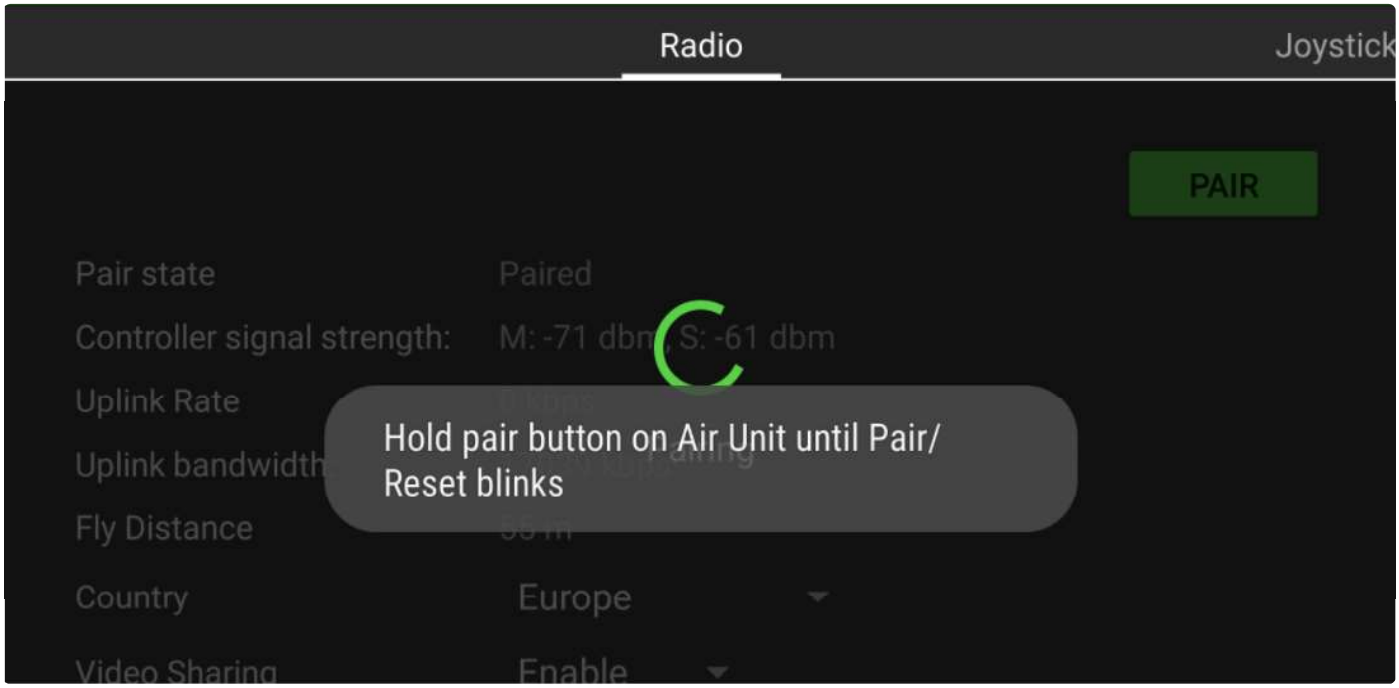
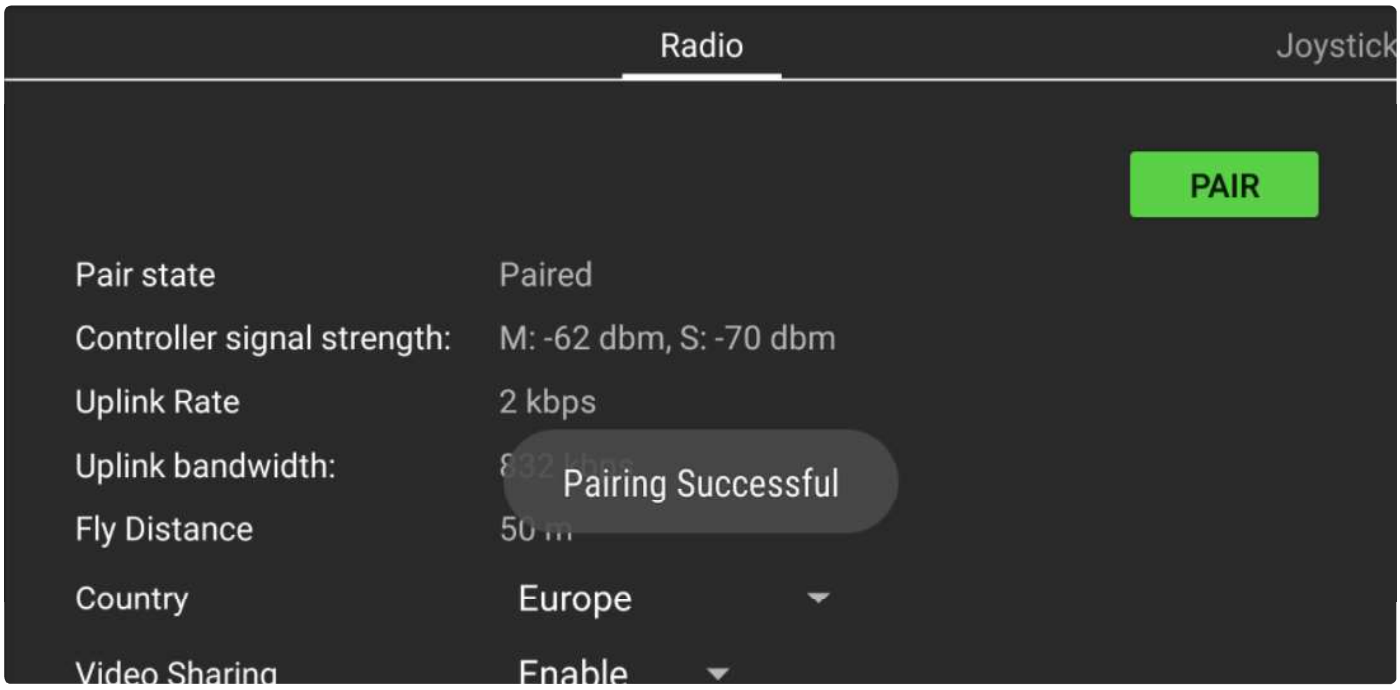
## Pairing the Rover Unit and Ground Station

Tap Pair button and then hold the `Pair/Reset` button on Air Unit until `LED2` blinks.






## Joystick and Wheel Calibration