

# Insightus Line of Sight

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Software User Manual  
v1.0



## Disclaimer of warranties and limitations of liabilities

### SOFTWARE DESCRIPTION

Remote pilot application for performing microwave line of sight surveys for telecommunications infrastructure. Use Insightus Line of Sight to check that there are no obstacles between microwave transceivers and to determine the most appropriate height for new equipment.

#### Features

- Specialised pilot app for auto navigation control of height and correct bearing
- UAV augmented reality to instantly see distant sites easily
- Automatic in-flight UAV rotation to 'fix' exactly on distant remote B-end site location
- Intelligent 3D midpoint manoeuvring; used for achieving end-to-end line of sight via a calculated midpoint and checking both directions
- Automatic real time telemetry stamping (height, bearing, site ID)
- Photos automatically send and are securely stored in the cloud
- Pay as you go licensing and automatic free software updates

# Contents

<b>Disclaimer of warranties and limitations of liabilities .....</b>	<b>ii</b>
<b>Benefits and Value .....</b>	<b>1</b>
<b>Platform Requirements.....</b>	<b>1</b>
<b>Important Icons .....</b>	<b>1</b>
<b>Installing the software .....</b>	<b>2</b>
<b>Account Setup .....</b>	<b>2</b>
<b>Installing the software on your Android device.....</b>	<b>4</b>
<b>Creating a Job .....</b>	<b>5</b>
<b>Desktop for later use on mobile app.....</b>	<b>5</b>
<b>Mobile app.....</b>	<b>6</b>
<b>Completing the Flight.....</b>	<b>7</b>
<b>From a job previously created (on desktop or mobile) .....</b>	<b>7</b>
<b>Connection to the drone .....</b>	<b>8</b>
<b>Creating a Midpoint .....</b>	<b>10</b>
<b>On mobile app .....</b>	<b>10</b>
<b>Completing a Midpoint flight.....</b>	<b>11</b>

## Benefits and Value

Insightus Line of Sight is an easy to use and cost-effective way for telecom carriers, service providers, and pilots to complete line of sight surveys. Easily plan and assign jobs, review the photos to check a clear line of sight, and produce reports to share with decision makers.

## Platform Requirements

Insightus Line of Sight can be used on

- Tablets running Android version 6.0 or greater
- PC via the Insightus webpage

Supports use with DJI UAV/drone models:

- Phantom 3 Advanced/Professional
  - Phantom 4 series
  - Inspire Series
  - Matrice 100/200/600
  - Mavic
- 
- Supports all DJI cameras
  - Supports focus and zoom controls.

## Important Icons



New Job



Job Processing



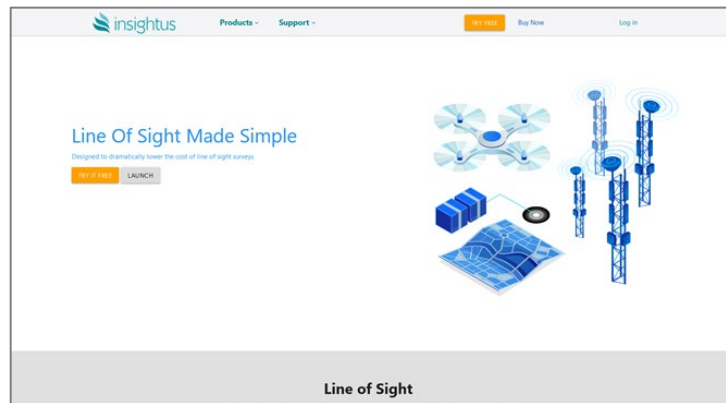
Job Finished

# Installing the software

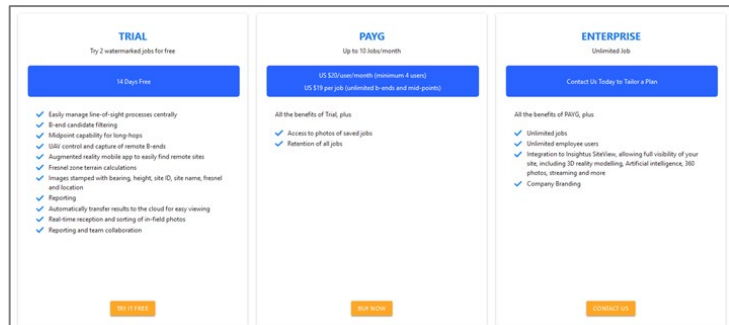
## Account Setup

Setting up your account is most easily achieved on a computer.

1. Navigate to the following URL <http://insightus.com.au/Los>  
This will bring you to the Insightus Line of Sight homepage.



2. Select **TRY IT FREE**
3. Choose the plan that best suits your business.



4. Fill out details and submit.  
Note: a library is the collection where all your site details and jobs are stored.

**Line of Sight Management**

- ✓ Easy to manage line-of-sight processes centrally
- ✓ 3D end candidate filtering
- ✓ Midpoint capability for long-hops
- ✓ UTM control and capture of remote 3D ends
- ✓ Augmented reality mobile app to easily find remote sites
- ✓ Fusion point-to-point calculations
- ✓ Images stamped with bearing, height, site ID, site name, bearing and location
- ✓ Reporting
- ✓ Automatically transfer results to the cloud for easy viewing
- ✓ Real-time reception and sorting of on-field photos
- ✓ Reporting and team collaboration

**Start your subscription with LOS**

Company Name: \_\_\_\_\_ User Name: \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Phone: \_\_\_\_\_ Password: \_\_\_\_\_

Country: \_\_\_\_\_

**Sign Up**

5. Select library name if needed, as completed previously.

- Before you can complete Line of Sight surveys you need to add your existing site data into your library. This is done through the upload of a .CSV file. An example file can be downloaded by clicking the “here” link.

Tell us about your network. Please upload a site CSV in the following format: Site Name, Network Name, Latitude, Longitude, Site Id or download CSV template [here](#)

Below is an example of the spreadsheet.

	A	B	C	D	E	F	G
1	Site Name	Network Name	Latitude	Longitude	Site Id		
2	200025_BroadwayCentre	VHA	-33.8837	151.19387	200025		
3	200027_MLCCentre	VHA	-33.8686	151.2093	200027		
4							
5							

- Save as a .CSV file
- Browse to locate your saved file and click “upload”.  
You will now see the site details on the page.

Upload Network Site-Based CSV for library Test

Tell us about your network. Please upload a site CSV in the following format: Site Name, Network Name, Latitude, Longitude, Site Id or download CSV template [here](#)

.csv

VHA BTS National Sitesv3.csv

UPLOAD

Valid Sites					
Site Name	Network Name	Latitude	Longitude	Site Id	Action
200025 BroadwayCentre	VHA	-33.88372	151.19387	200025	<span style="color: red;">■</span>
200027 MLCCentre	VHA	-33.8686	151.2093	200027	<span style="color: red;">■</span>
200028 AustraliaSquare	VHA	-33.864795	151.207601	200028	<span style="color: red;">■</span>
200030 AMPCentreSydney	VHA	-33.863047	151.21421	200030	<span style="color: red;">■</span>
200031 ChifleyTer	VHA	-33.865759	151.211905	200031	<span style="color: red;">■</span>
200032 GrosvenorPlace	VHA	-33.863255	151.207093	200032	<span style="color: red;">■</span>
200033 Gateway	VHA	-33.862122	151.209819	200033	<span style="color: red;">■</span>
200034 Melcentre	VHA	-33.864787	151.207061	200034	<span style="color: red;">■</span>
200036 WinterGdrPiza	VHA	-33.864376	151.209772	200036	<span style="color: red;">■</span>
200037 GosPhillipTer	VHA	-33.864391	151.210853	200037	<span style="color: red;">■</span>

Previous
Page 1 of 537
10 rows
Next

IMPORT

- Click IMPORT
- Help content will be displayed upon login. These short videos provide an overview of how to use functions within Line of Sight.

Hi and welcome to Line of Sight

- Step 1: Create a job
- Step 2: Field Flying
- Step 3: Review Results
- Step 4: Edit Virtual LOS
- ✓ Finish

We will show you just how easy it is to create a job, fly the mission, and see the results. Watch the video below for an overview.

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Insightus Line Of Sight
Watch later
Share

✓ Show tutorial next time
→

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## Installing the software on your Android device

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The mobile application can be used to set up jobs but, more importantly, is required by the pilot to perform line of sight surveys.





1. Navigate to the Google Play store
2. Search for: Insightus Line of Sight
3. Select “Install”



4. Select “Open”



5. Select “Allow” on the following

- a.  Allow **LoS 2018** to take pictures and record video?  
1 of 4 DENY ALLOW
- b.  Allow **LoS 2018** to access this device's location?  
2 of 4 DENY ALLOW
- c.  Allow **LoS 2018** to access photos, media and files on your device?  
3 of 4 DENY ALLOW
- d.  Allow **LoS 2018** to make and manage phone calls?  
4 of 4 DENY ALLOW

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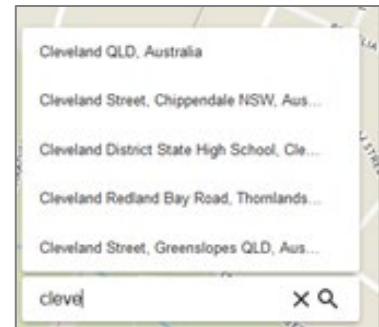
**You have now installed Insightus Line of Sight, created an account, and created your site library.**

## Creating a Job

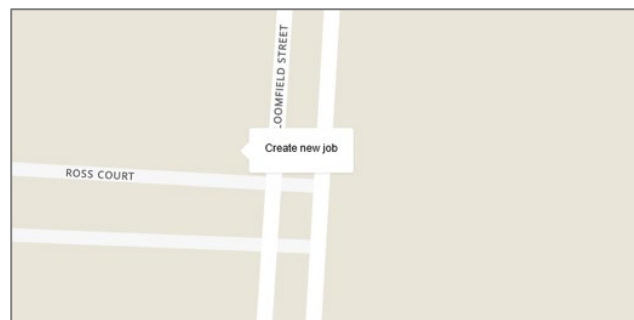
Jobs can be created on both the desktop and mobile applications; however, jobs can only be completed on the mobile application as it is used to control the UAV and take photos.

### Desktop for later use on mobile app

1. Login to <https://los.insightus.com.au> using your previously created email and password
2. Search for required map using search bar at bottom left of map - this can be- full address, suburb (zoom & search).



3. On the map, right click on required location (zoom in on map to get more accuracy), select, "Create New Job".

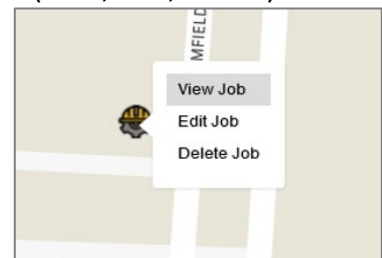


4. Enter a Job Name, and optionally:
  - a. recommended height
  - b. frequency
  - c. engineer name.

5. Select required sites, then click

SAVE

6. A job icon will now appear on the map. Right click for options (view, edit, delete)



**The job is now ready to use onsite.**

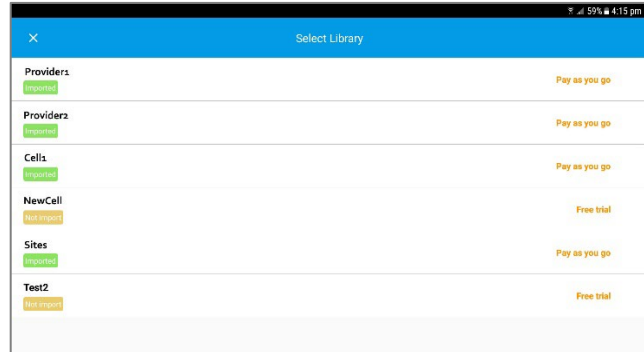



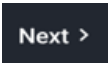
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## Mobile app

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1. Open the LOS app on your mobile device and login.  
This will bring up a "Select Library" screen.



2. Select the library that is relevant to the job.
3. Select 
4. Enter a Job Name, and optionally:
  - a. recommended height
  - b. frequency
  - c. engineer name.
5. Select required sites, then select 

This will confirm the job and ask if you want to connect the drone.

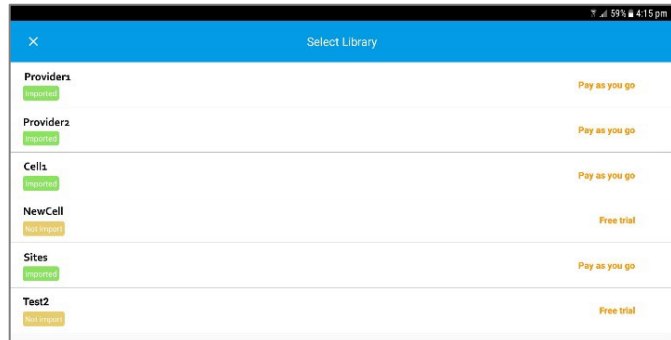
**The job is now ready to use onsite. Click yes if ready to fly.**


- If you will complete your flight straight away, refer to instructions on page 8 - "Connection to the drone"
- If you will be returning to the app later to complete the job, refer to instructions on page 7 - "From a job previously created"

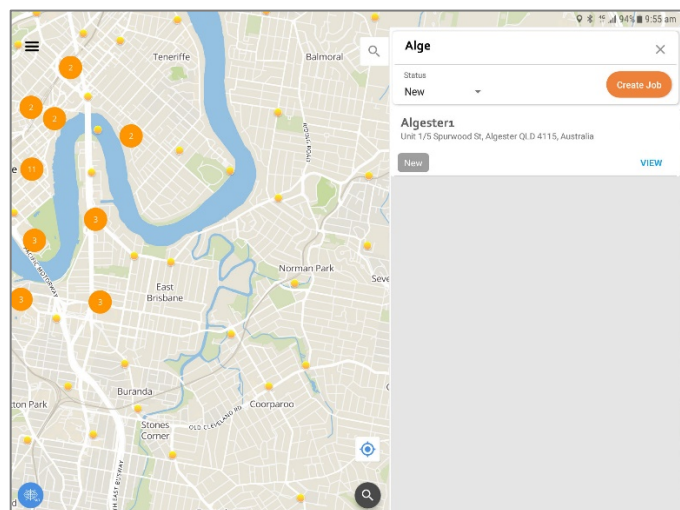
## Completing the Flight


### From a job previously created (on desktop or mobile)

1. Open the LOS app on your mobile device and login  
This will bring up a "Select Library" screen
6. Select the library that is relevant to the job.



2. Select the Magnifying Glass icon  to bring up created jobs, or type job name at top.



3. Select required job using "View" and confirm details.
4. Select aeroplane icon  at the top right of the screen. Please continue to the next section "Connection to the drone" on page 8.

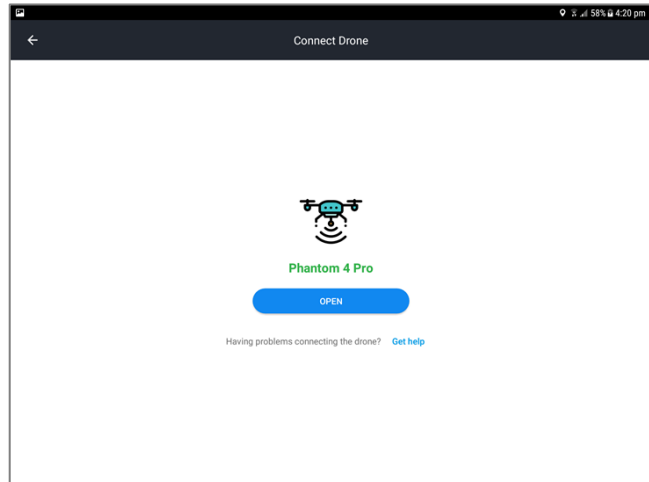
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## Connection to the drone

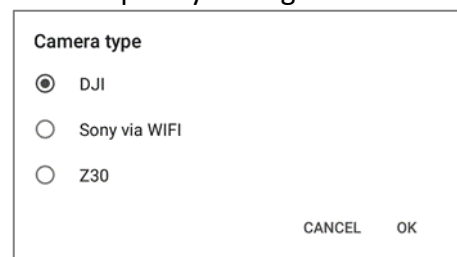
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The Connect Drone screen will show the drone that you operate.

1. Select "OPEN" to connect. Ensure that a USB cable is plugged into your phone and the controller, and that you choose "LoS" in the "Choose an app for the USB device" screen. If you are unable to connect select "Get Help".

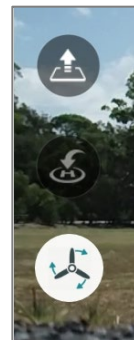


2. Select the camera type you have connected, then "OK" - this opens your flight screen.



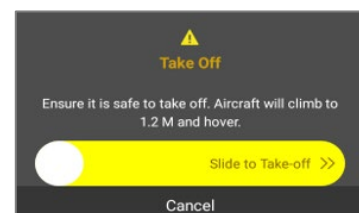
3. You will have 3 selections on the left-hand side of the flight screen
  - Top – take off (drone will hover at 1.2 m)
  - Middle – Land drone
  - Bottom – Set height (A box opens with the previously entered line of sight height, which can be modified)
    - If already in flight, once you select "Start" the drone will automatically fly to the set height.

Note: Drone can continue to be controlled by the hand controller for safety.



4. Select  to take off.




5. Use the slide to confirm take off and the drone will hover at 1.2m.



If you used the "Set height" icon, a box opens with previously entered height. Select "Start", or manually fly to the desired height.

6. Once you are at required height, tap "Select Site" to get dropdown list of target sites.



7. Select first site - drone will auto rotate to correct bearing (showing tower icon at bottom of screen). Once drone has located site, tap camera icon once to take photo.
8. Tap "Select Site" again to go to next target. Take photo. Continue with all candidates.
9. Use middle icon  to Auto land to the pre-programed location or  to land at the current location (You still have manual control if required)
10. Select Home button  - top left of screen.

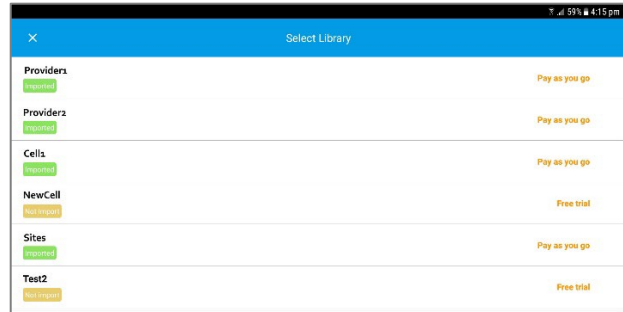
You will now get a message asking if you would like to download and process the photos. Select yes. The photos will auto-download to your device and can be found in the "B-Ends" section of the current job.


**Do not turn off drone until download of photos is completed.  
Photos will be processed and uploaded to the web.**

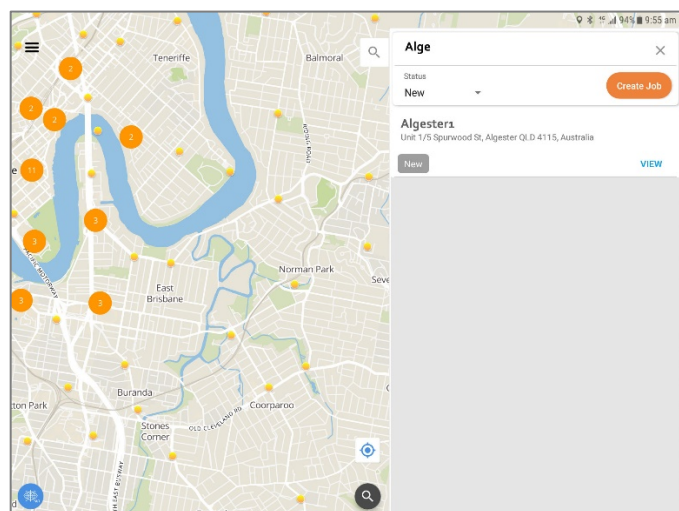
## Creating a Midpoint

### On mobile app

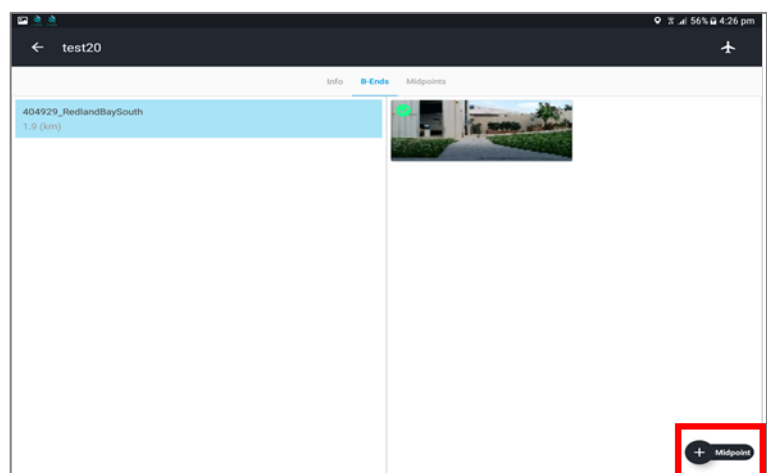
1. Open the LOS app on your mobile device and login  
This will bring up a "Select Library" screen



2. Select the library that is relevant to the job.
3. Select the Magnifying Glass icon  to bring up created jobs or type job name at top.

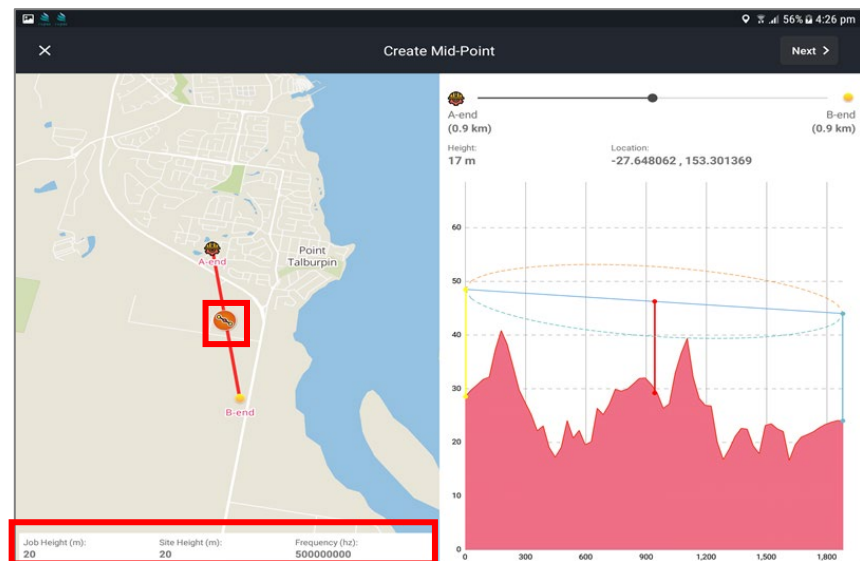


4. "View" the job and select "B-Ends" – then select "+ Midpoint"



5. Move the drone icon along the Line of sight path to the required site

Note: the map can be zoomed for better accuracy.

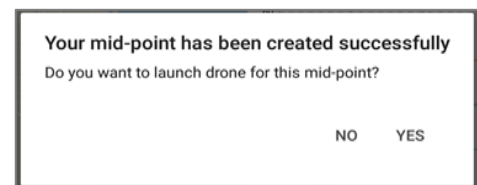


You have option to change - job height - site height – frequency

Virtual LOS on right will show: location - height - distance - Fresnel zones, overlaid on terrain map – shown above.

6. Click Next **Next >**

Your screen will provide a confirmation message and the ability to launch the drone to complete the flight.



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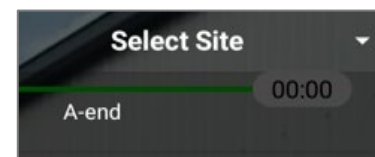
## Completing a Midpoint flight

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When completing your flight, follow the steps outlined in the “Completing the Flight” section of this guide, on page 7.

At step 6, on page 9, you will be able to take photos in both directions.

1. Use the “Select Site” dropdown to select the A end.



The drone will auto-rotate to correct bearing (showing tower icon at bottom of screen).

2. Tap on the map screen and fly drone to align with Midpoint marker. (Check bearing)
  3. Tap camera icon once to take photo
  4. Continue to follow “Completing the Flight” from step 8
-