

**AheadX**<sup>TM</sup>  
Dependable Flying Robot

# AheadX Space V3

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User manual



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AheadX Space is specially designed for SAGI, LEO and TAURUS flight control. It supports serial port and internet data communication. The new generation ground station supports the access to SBUS auxiliary joystick(radio control), game pad joystick and customized game pad to control the flight.

With new Google map that can be used worldwide. It also supports real-time offline map. User can easily switch among road network map, topographic map and satellite map. It supports one-key take-off and landing. AheadX space with more intelligent route edition function, it can automatically generate the landing route. It also supports block and strip scanning route.

User can also connect AheadX IDS module to share data and realize real-time parameter adjustment for on site and remote assistance operation.

AheadX Space V3 only supports 2.4 and above version firmware.

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Operation system: windows 7 and above

Processor: Dual-core 2.0GHz or above

RAM: 4GB or above

Remained space: 2GB or above(To save the log and offline map)

Screen resolution: 1366 \* 768 and above, 1920 \* 1080 is recommended

Network : Get the map and remote assistance with internet connected (user can also download offline map)

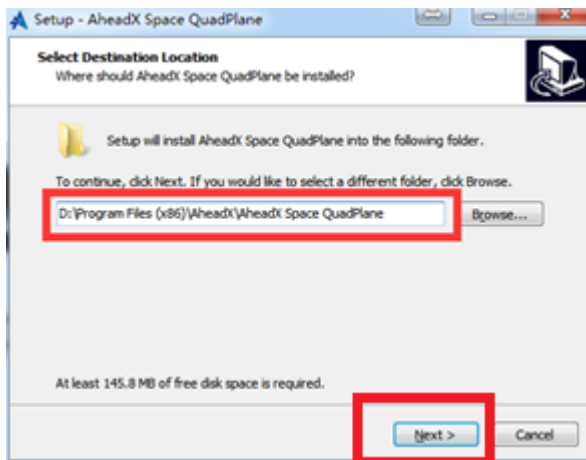
**Don't** install it in system disk.

Flight control firmware 2.4 and above.

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1. Please download the latest version software by contacting AheadX

2. Double-click the software and choose the install location. Please **don't** install it in system disk in case that automatic logging function is limited. Continue clicking "Next" to finish the installation.



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AheadX space V3 supports automatic authorization.

1. After powered up flight control, connect data link ground unit to PC.

2. Double-click the GS software icon after serial port is recognized. Click "ON" button after flight control is recognized.

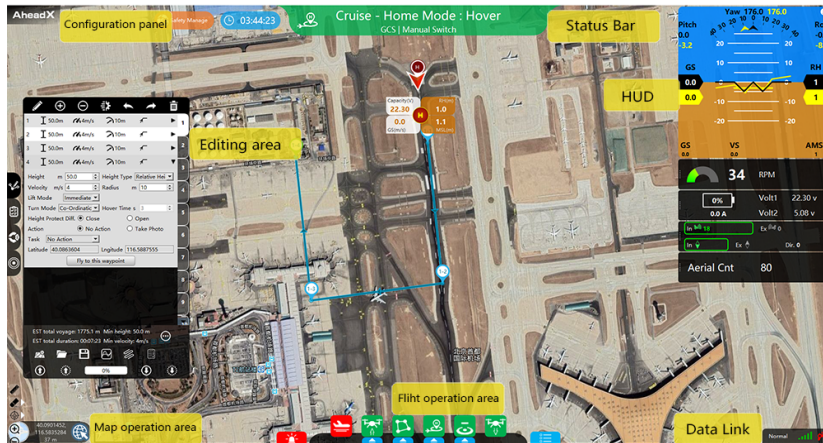
3. The ground station will choose the correct aircraft automatically. Click



to synchronize parameters.

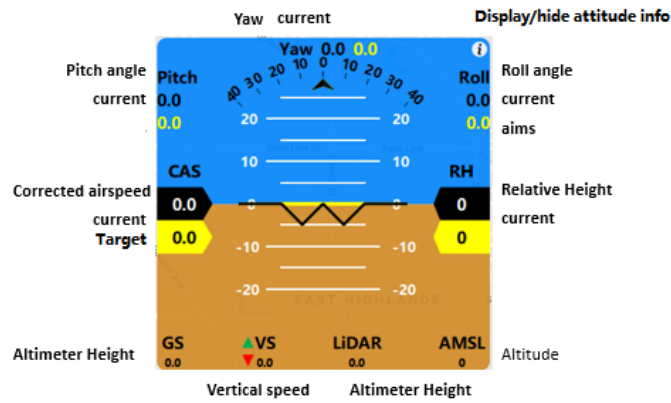


1. Then click and start using the ground station.



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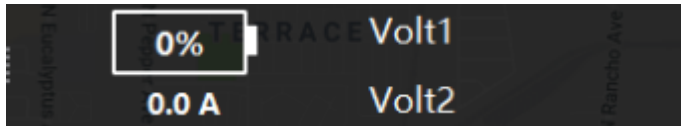
HUD displays the attitude, height, speed and some key parameters which is convenient for pilot to know the real-time status.



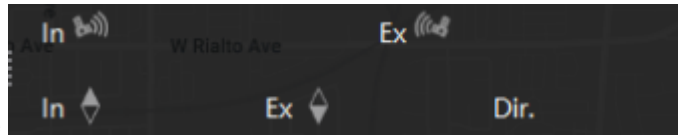
Yaw/Pitch/Roll	Horizontal : roll angle Vertical : pitch angle Unit: °
Speed	Unit: m/s
Height	Unit: m

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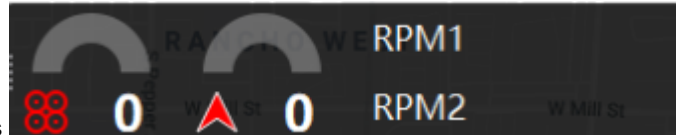




1.Voltage and current of smart battery 2.AD1: voltage of the complete system, AD2: servo



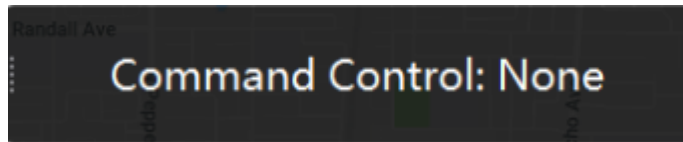
1.GPS signal:Built-in GPS, external GPS 2.Compass: built-in compass, external



Throttle: Display the throttle output of flight control RPM: display the measured



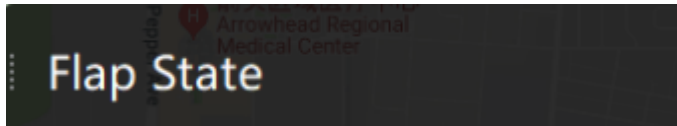
RPM The amount



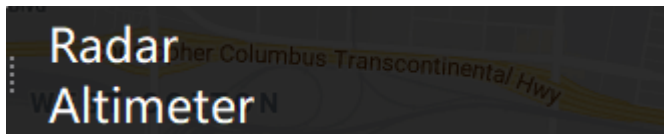
of POS. Display the control mode and engine status



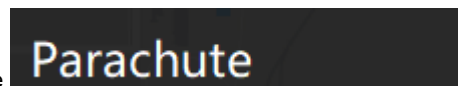
Hgt dev: height deviation; Side Dev: laterodeviation; Circle: circles the aircraft has flown



Display the flap status 1.Off ;2.Take-off; 3.Landing



Display the

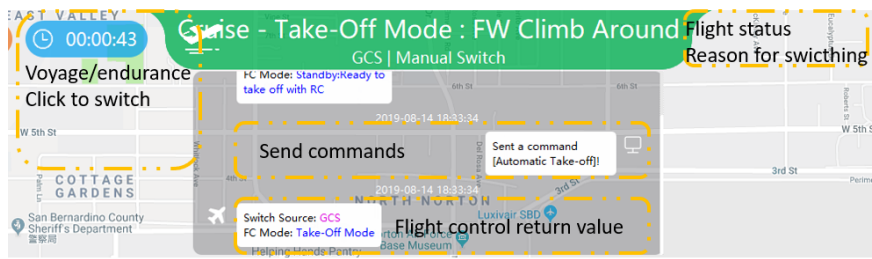


altimeter value Display the status of the parachute

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status	meaning	status1	status2	status3	status4
Number and quality of satellites	Number and positioning quality of GNSS satellites received by flight control	Red	Yellow	Green	Gray
		Not positioned	Low quality positioning	High quality positioning	Device not connected or identified
Magnetic compass status	Whether the magnetic compass data has interference	red	Yellow	Green	Gray
		Magnetic compass is disturbed	Magnetic reference overrun	Magnetic compass is normal	Device not connected or identified

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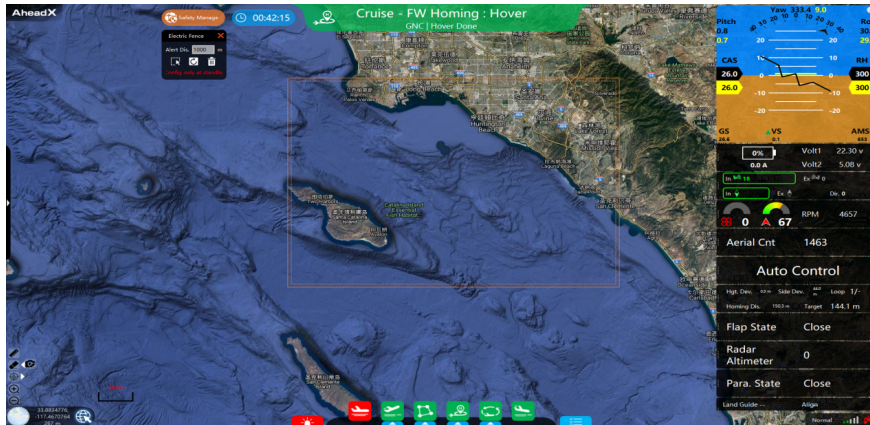
**Voyage/endurance:** display the total flight range and record single flight time.

**Flight status:** display the current status, flight mode and the reason why switch the flight mode.


**Command:** display the command. The command will be displayed in the dialogue box for 5 seconds . User can manually click the box to keep the dialogue box displayed.


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Space V3 comes with electric fence function. The drone will return automatically when it is near to the fence.(electric fence disabled when data link cutoff; the drone will automatically return if it is out of the fence when receives data again)



**Warning distance:** Solid line is the boarder of electric fence, dotted line is warning line. Ground station will send a return command when drone is close to






warning line.  Click this icon and move the mouse to the map. Long press left button and move the cursor to edit the fence. Click right button to save the electric fence.

 Click this icon to refresh the saved electric fence and centre displaying.

 Delete the current electric fence.

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Before flight check combined manual check and automatic check to help user check before flight and improve reliability.

	Unchecked
	Completed
	Abnormal
	Error
	None

**Task Register:** register the task and operator  
Manual Check: manually check all components

**Sensor Status:** automatically judge sensor status

**Compass Status:** One-key calibration  
Joystick Status: Display the status of the radio control

**Actuator:** to check the motor, control surface, parachute.

**Fly Preference:** automatically download the parameter. Only effective for the current flight if didn't save the parameter.

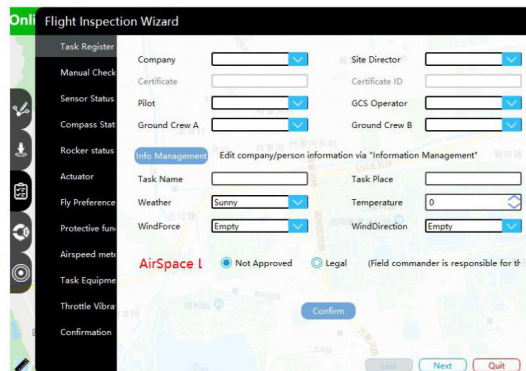
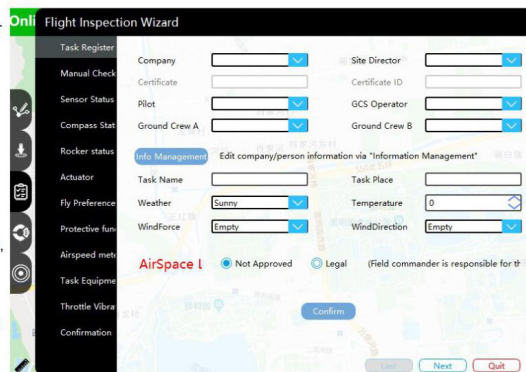
**Protective Function:** automatically refresh the protective parameter. Click OK to complete the check. Please adjust parameter in AheadX master software if there is an error of the parameter.

**Airspeedometer:** check if the value is less than 5m/s in no wind condition. Please continue clicking "Clear" four times if the value is more than 5m/s.

**Task Equipment:** check if the amount of photography is same with the record in flight control. Suggest to clear POS data of last time. Continue clicking "Clear POS" to clear POS data.

**Throttle & Vibration:** For VTOL and fixed wing, click the percentage button in orders, it will collect the vibration value. User should click "Flame out" 4 time to stop the engine.

For hybrid multirotor, user should check the vibration before flight. Click "Collect", it will automatically clect the data.



Switch flight mode, adjust parameter and data connection ect.



**Unavailable:** Button in gray color. Can't switch to this mode

**Dangerous:** Button in red color. It is very dangerous to switch to this mode which may cause collision and other accidents.

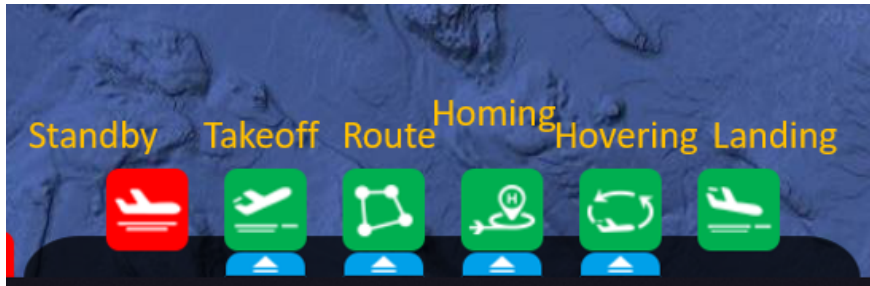
**Attention:** Button in yellow color. Please execute the operation after serious consideration.


**Safe:** Button in green color. It is able to execute the operation according to your requirement.

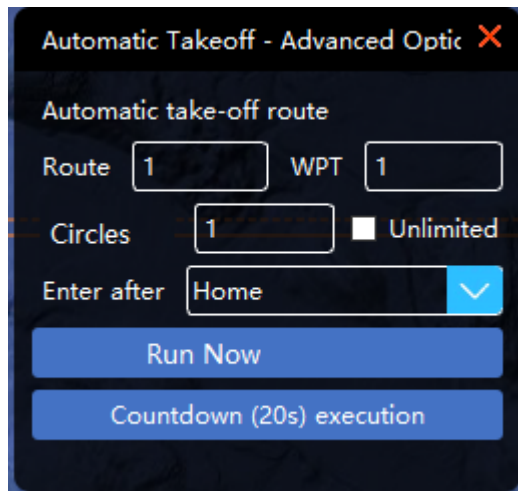
**\***: Carefully consider if you should execute the operation. The command is sent when clicking this button four times within 2 seconds.

**Note:** In addition to\* operation, double click to execute other commands.

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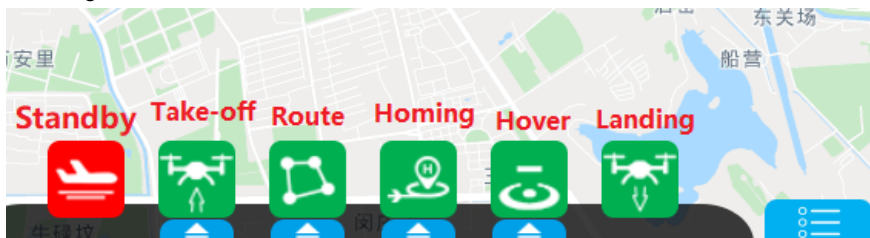


**Standby:** Continuously **clicking four times** to standby mode. In this mode, all control surfaces remain neutral position and the throttle at the idle position (minimum value). **Take-off:** **Double click** the button to take-off. Default setting is home hovering after take-off. Click  to set "automatic take-off




route". **Double click** "run now".

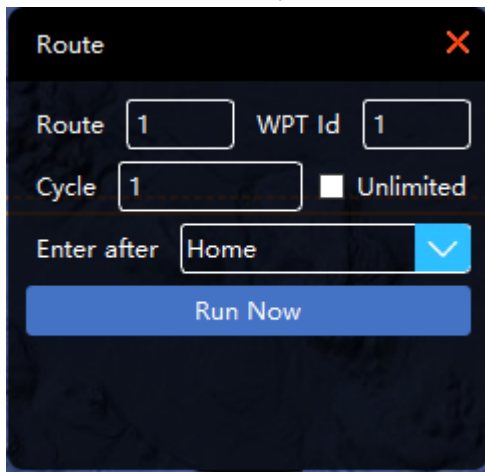
**For multi-rotor**, double click "Take-off" it will climb to the target height and start hovering.



**Note:** Space V3.0.61 adds take-off preparation. Double click take-off button, rotors will unlock and spin 3 seconds. Within 3 seconds, click the button to cancel the preparation and enter into standby mode, then click take-off button to automatic takeoff mode (it will not work if directly click standby button, it will still take-off after 3 seconds). It will take-off if no operation within 3 seconds.



**Route:** Click  to set the route number, waypoint number, circles and operation after flew all waypoint. **Double click**"Run now"




Route ×

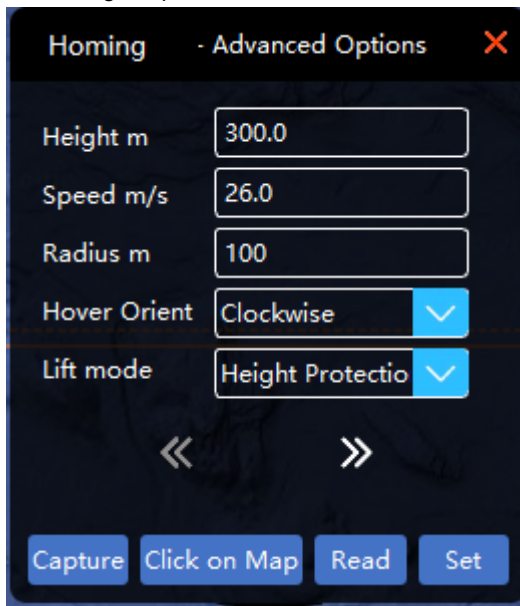
Route  WPT Id

Cycle   Unlimited

Enter after  ▾

Run Now

**Homing:** **Double click**"Homing" button to execute the command. Click  to set height, speed, radius, orientation, lift mode. **Double click** "Set".



Homing - Advanced Options ×

Height m

Speed m/s

Radius m

Hover Orient  ▾

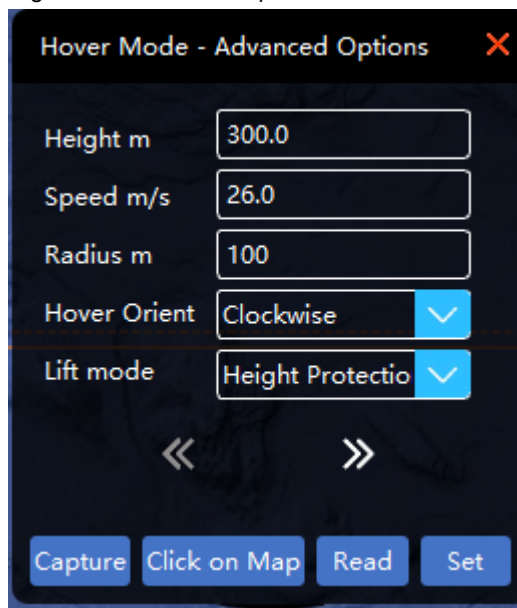
Lift mode  ▾

⏪ ⏩

Capture Click on Map Read Set



**Hovering:** Double click "Hovering". The aircraft will hover around the current position and keep the height. User can set the parameters of the hovering position



and double click "Set".

**Landing:**

**Double click** landing button. Supports normal and dynamic landing. Aircraft will fly to the landing route with the current height if flight height is higher. Then aircraft will hover and descend before reaching the landing route.

**For multi-rotor**, aircraft will climb and fly to the landing point if the flight height is lower. On the contrary, it will keep the height to landing point and land.

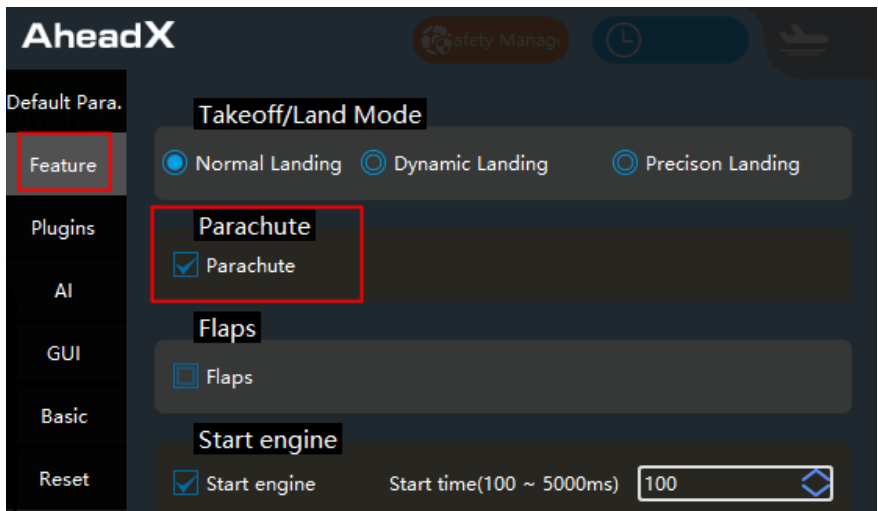
**The navigation point and the hover point data will not be\*\*** saved after the flight control is powered off.\*\*

□□□

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VTOL 1. Click , then click “Feature”. Enable “Parachute”, Then click “Confirm”.

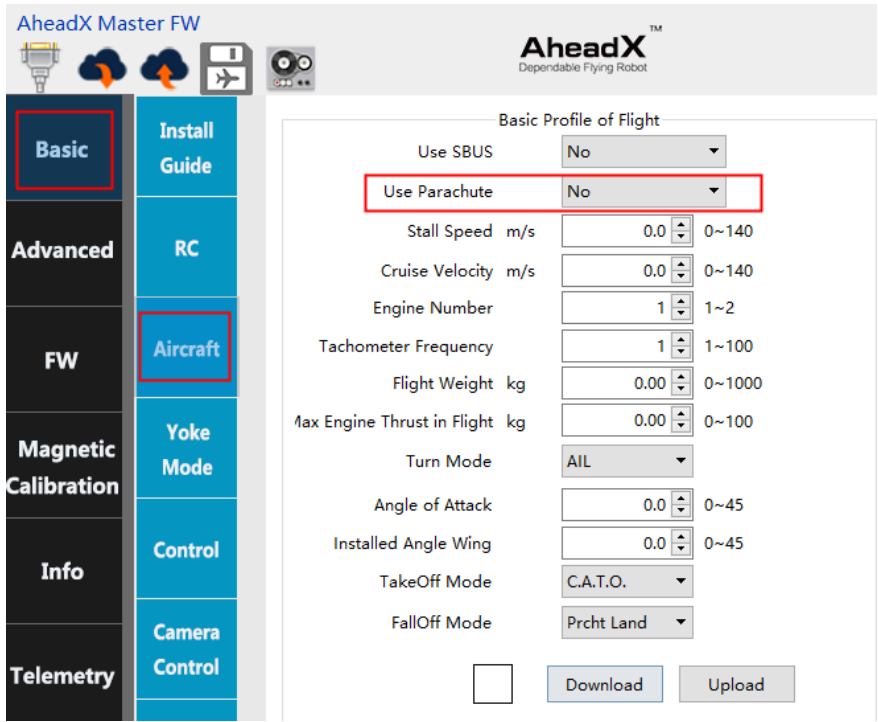


2. Continuously **click** “Emergent parcht” **4 times** to open the parachute. Double click “Close Prcht” to close the parachute 3. Top landing : **Double click** “MR Top landing” to execute the command. Home Landing: aircraft will keep the current flight height to landing point and land. **Double click** “Home landing” to execute



the command.

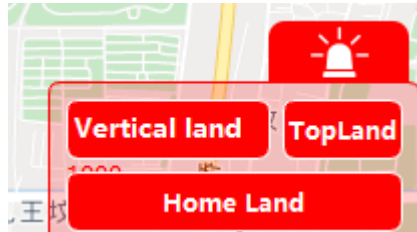
**Fixed wing** Please set in the “AheadX master” if your aircraft equipped with parachute. The setting will be synchronized when you start ground station. It will displayed “emergent parcht” and “close parcht”.



Continuously **click** "emergent prcht" **4 times** to open the parachute; **double click** "close prcht" to execute the command.



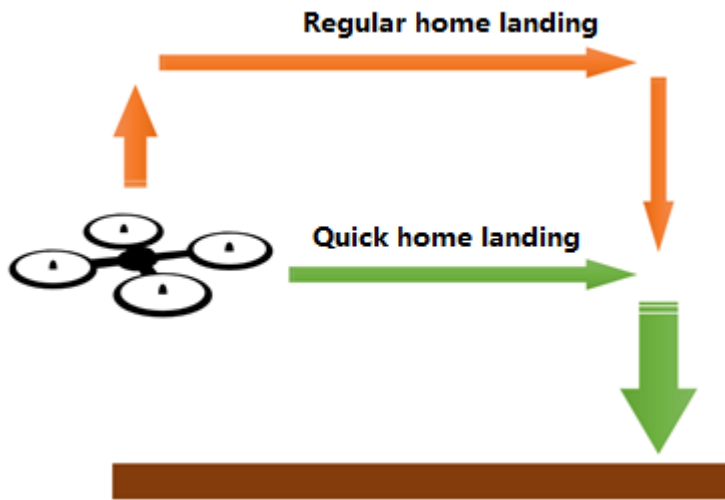
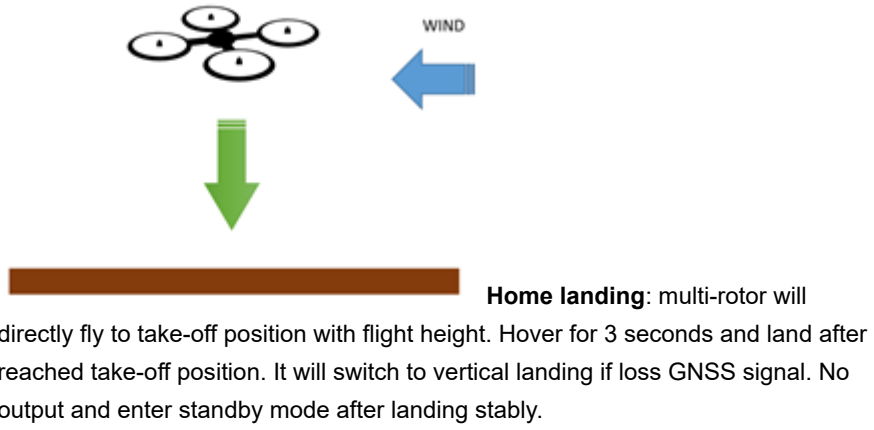
**Multi-rotor** Multi-rotor emergency command: vertical landing, top landing, home



landing. **Vertical landing:** multi-rotor will try to land vertically at the current position. Doesn't need GNSS signal now. There will be a deviation in case of strong wind. No output and enter standby mode after



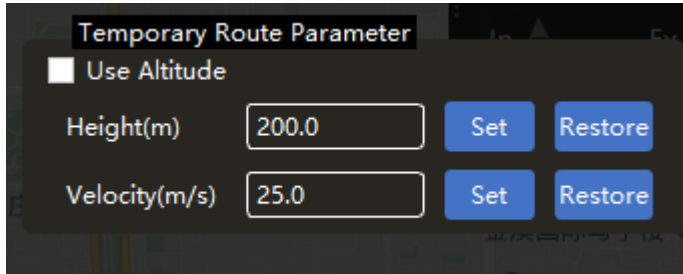
landing stably. **Top landing:** Need GNSS signal. Multi-rotor will lock the current latitude and longitude position and start landing. It will finally land at the exact position. It will correct the position in case of strong wind. It will switch to vertical landing if lose GNSS signal. No output and enter standby mode after landing stably.



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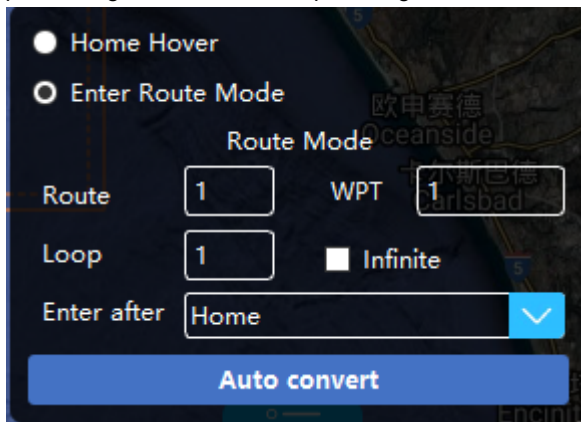


**Temporary Route parameter:** quickly modify height and velocity when flying waypoint. Only available in waypoint mode. Click "command control", you will see following interface.

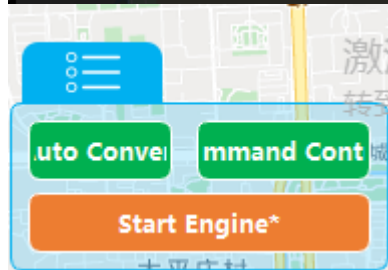
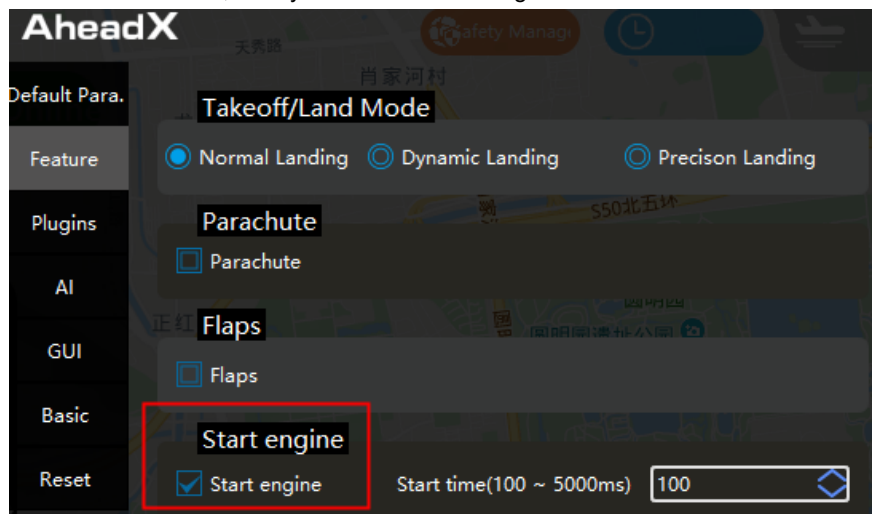


In waypoint mode, write the temporary height and velocity, then click "Set". The height and velocity will be modified according to the setting and keep it until click "Restore". When click "use altitude", the temporary height is the altitude. Please make sure the altitude you set is safe. It will automatically restore the waypoint parameters when start to fly waypoint.

**VTOL(quad plane)Automatic convert:** automatically switch to fixed wing mode when execute the command. This command will be effective in multi-rotor altitude, positioning remote control, top landing and home landing mode.

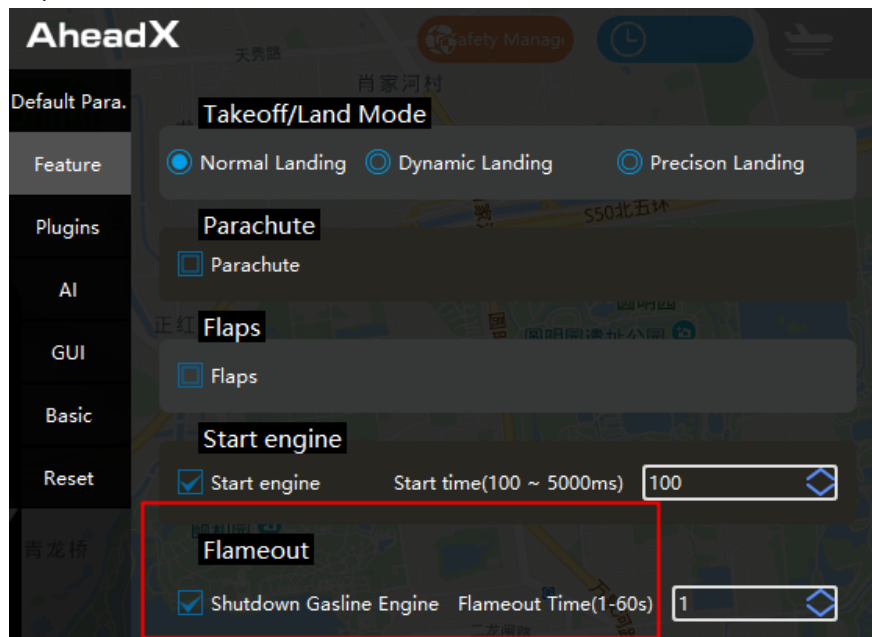


**Start engine(VTOL, fixed wing):** Click “start engine”, then click “confirm”.  
Restart the software, then you can see “start engine ” button.

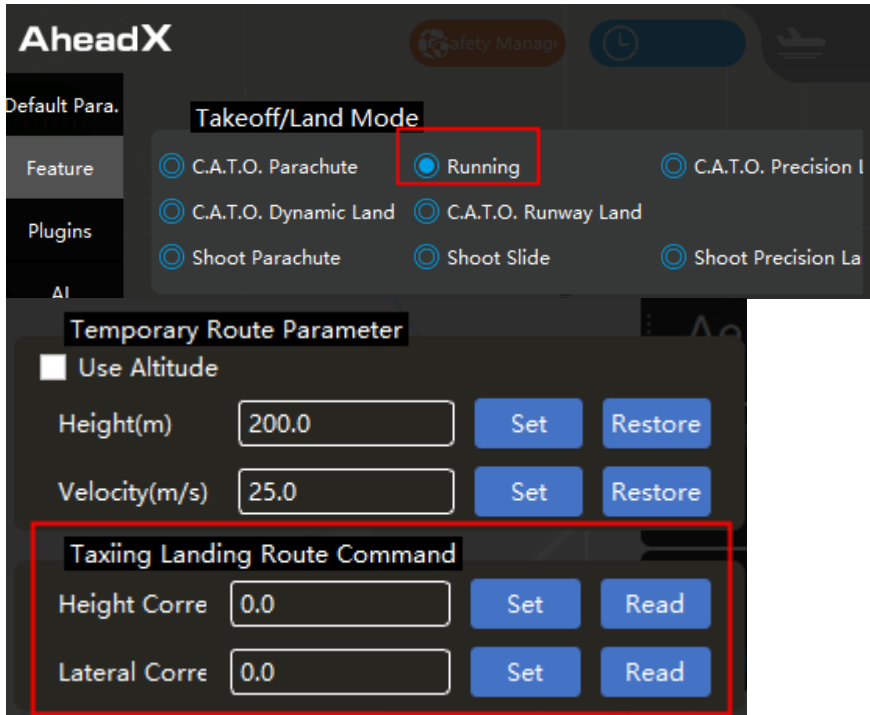


Continuously **click** “start engine” **four times** to start the engine. To use it, your engine should be able to be electric started and connect to PWM10. For more detail, please read AheadX master manual.

**Engine out(VTOL, fixed wing):** click “flame out”, then click “confirm”. Restart the software, you can see the button. Corresponding to PWM channel of throttle output.



**Taxing landing(fixed wing):** Choose “Running” under take-off/land mode. Then click “Confirm”, restart the software. You can see “taxiing landing” when click “Command Control”.

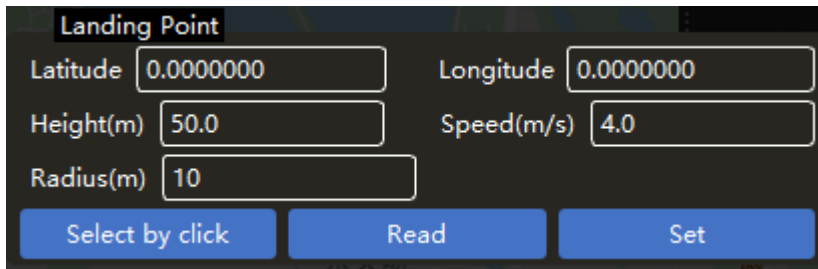


Height deviation correction: positive number : increase this value (only effective when taxiing landing)

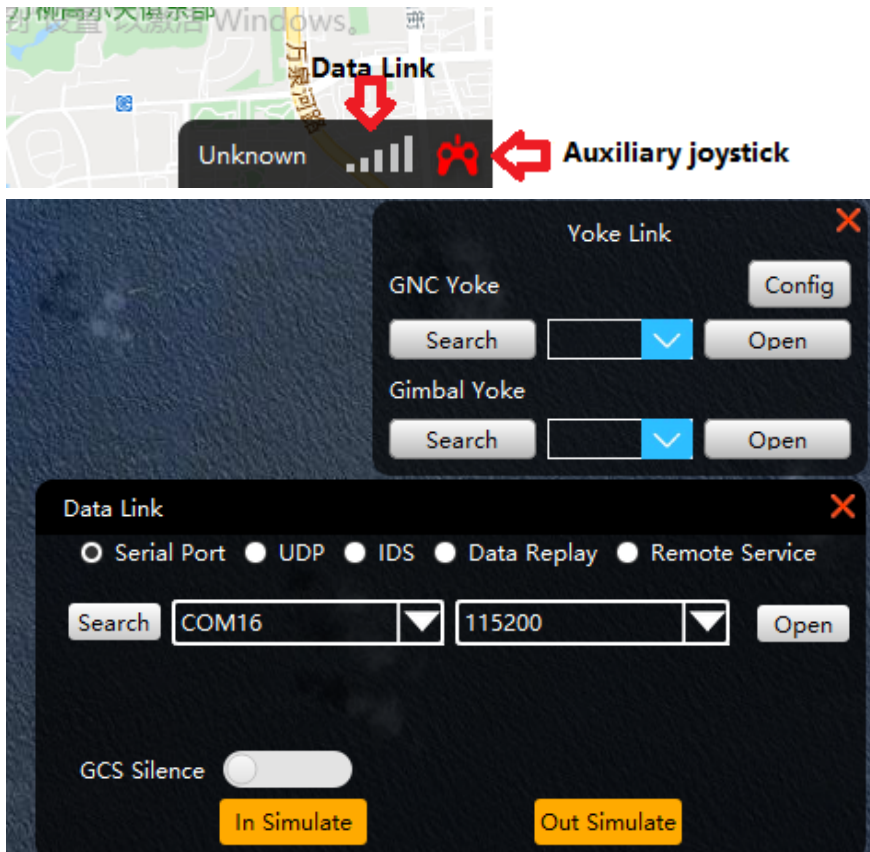
Laterodeviation correction:positive number: right deviation(this value only effective when target point becomes entering point.)

**Landing Point (Multi-rotor):**

Default landing point is the take-off point. User can change the landing point here. Click "Command Control", then you can change the landing point.



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Flight controller data connection		
Connection	Parameter settings	Definition
IDS	None	Work with IDS , connect to the corresponding WiFi
UDP	Input IP and corresponding port	Communicate via UDP
Data playback	None	Work with the log player
Serial port	Select the correct serial port and baud rate	Communicate via a serial port
Auxiliary joystick		
SBUS joystick		
Serial port	None	Only support SBUS to USB module
Game Pad		
Serial port	Need to set corresponding function	Support game pad such as XBOX
Custom game pad		
Serial port	Need to set corresponding function	Support custom game pad

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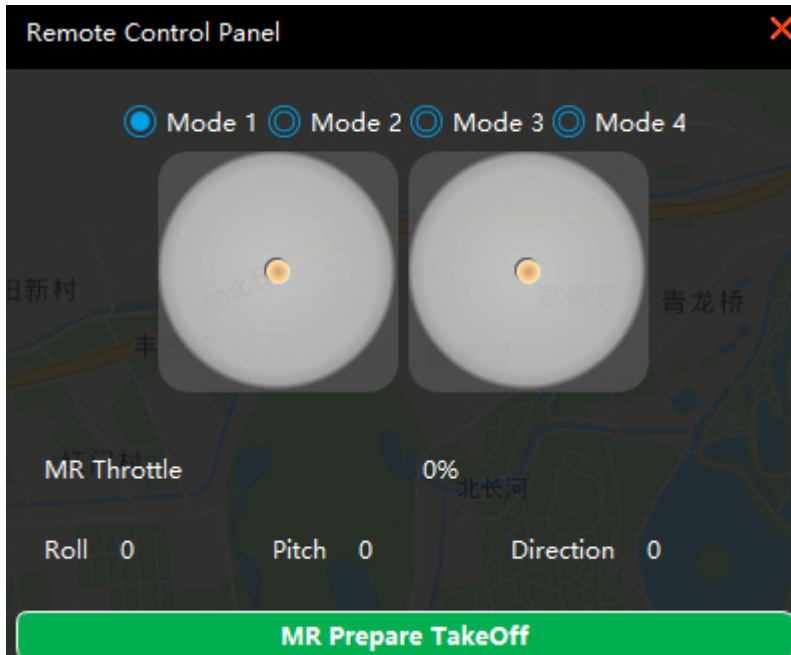


Connect the receiver to PC via SBUS to USB module. Search the corresponding serial port and connect. Joystick icon become green. **Dead Zone Setting**

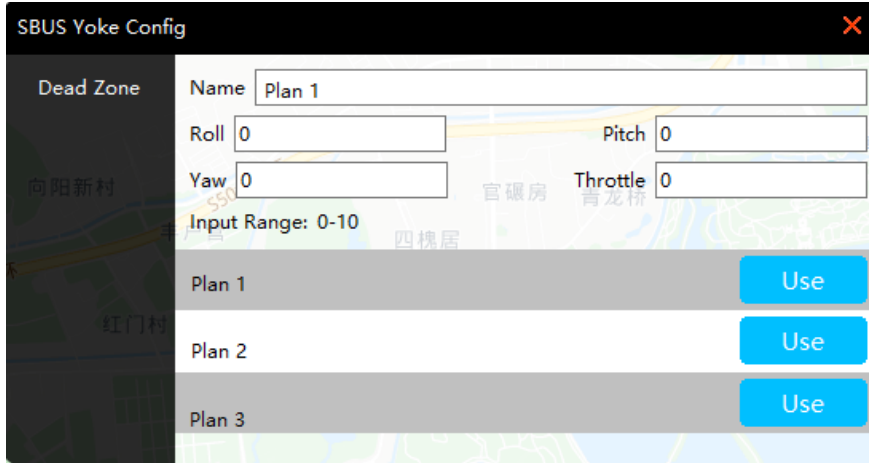
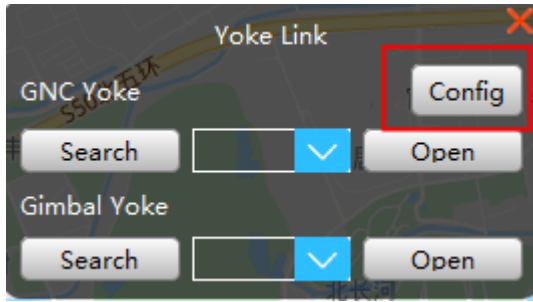
**Application:** There will be excursion of the output after a long-term use, which may cause multi-rotor can not hover at the fixed point in GPS mode.

Make sure auxiliary joystick has been connected and recognized. Centre joysticks corresponding to 1~4 Channels. (Pitch, roll, throttle, yaw)


















Right click and check if the output value of pitch, roll and yaw are 0 and throttle output is 50%. Otherwise, there was excursion existed.

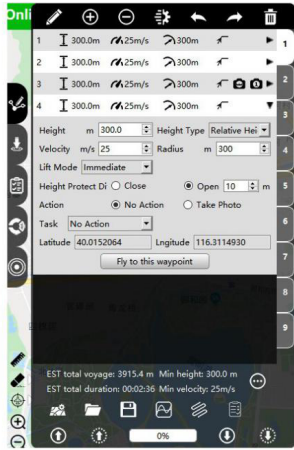







Multiply the Pitch, roll, yaw value by 2 and input the value in following panel. (Current throttle value is -50%) There will be no excursion anymore. Supports to record 3 plans at the same time.

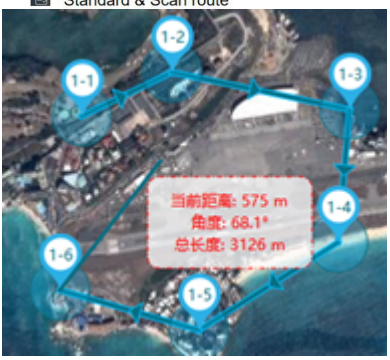



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-  Right click this icon.
-  Edit the route
-  Polygon
-  Rectangle
-  Path
-  Add a waypoint
-  Delete selected waypoint
-  Batch Operation
-  Undo
-  Cancel
-  Delete the route
-  KML, KMZ file
-  Import
-  Save
-  Elevation
-  Scanned route
-  Standard & Scan route



-  Upload the route
-  Download the route
-  Resume upload
-  Resume download
-  Display the information of current route



Click  to edit waypoint on the map.



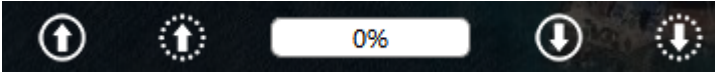
Right click to finish the edit.

**Waypoint adjustment:** Double click any waypoint to move or rotate the route.



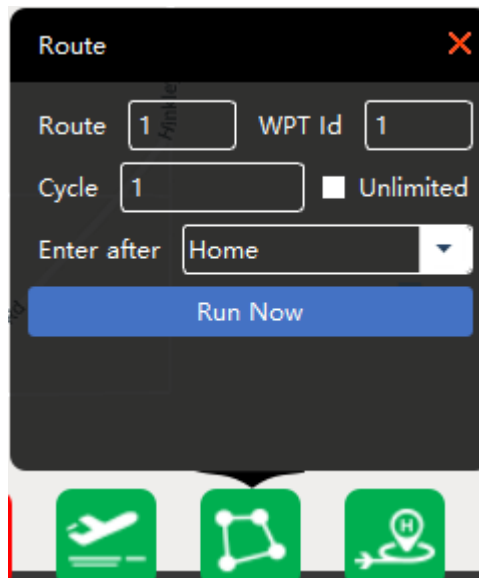
**Area Edition:** Support

rectangle, polygon and path edit. Click  to make the edit.



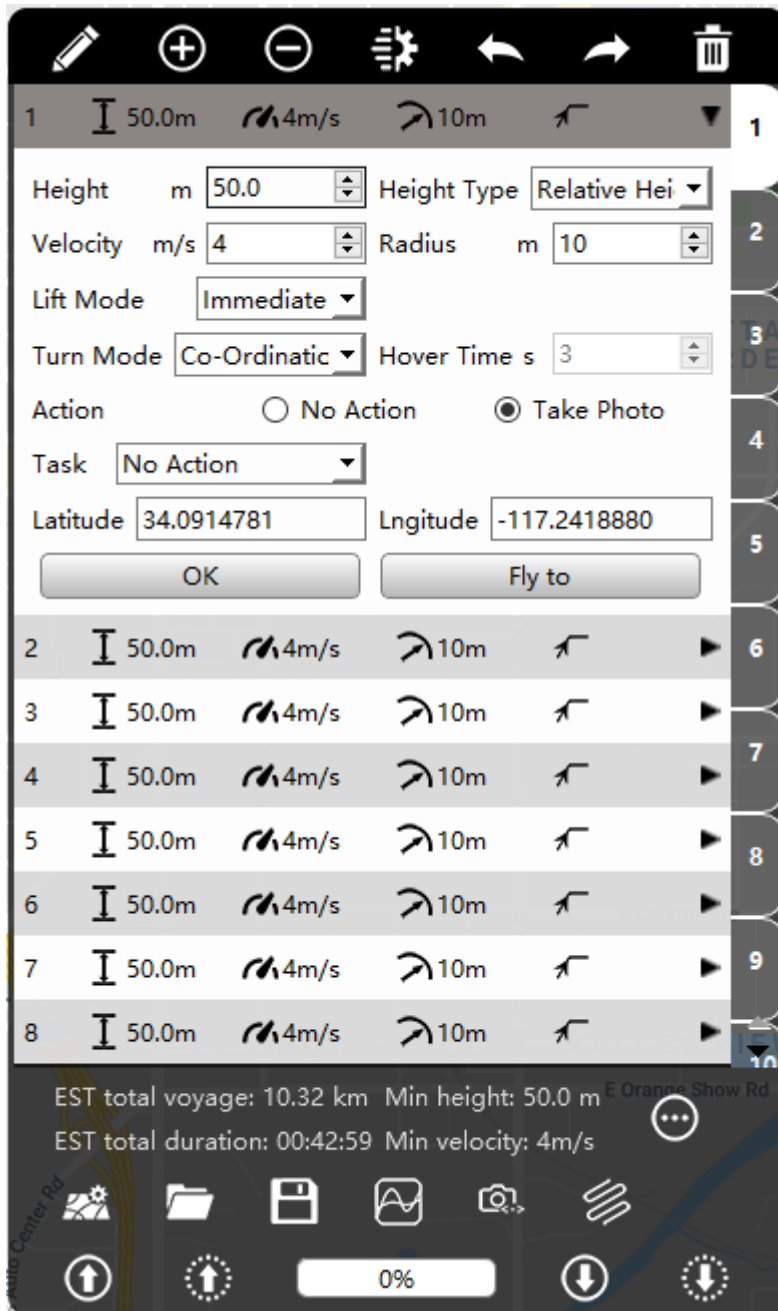
**Upload and download the route:** Upload and download the new route and it will replace the





original route. Flight control will not fly according to the modification immediately when operator is editing the working waypoint. Operator should send a new











command to run the new route.

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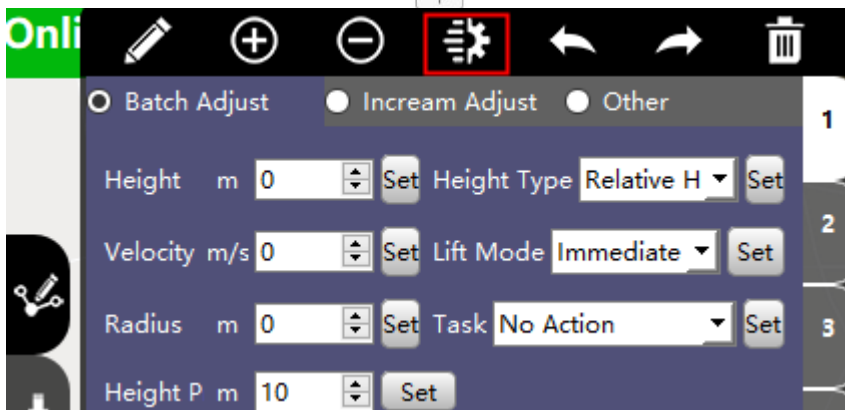


Item	Content and meaning
Lift mode 1	 Immediate lift
Lift mode 2	 Ramp lift
Lift mode 3	 Priority hovering: first climb to the target height and then fly to target waypoint.
Lift mode 4	 Priority target: Go to the target point in immediate lifting mode. Hover to target height if flight height is not corresponding to target height.

Lift mode 5	 Hovering protection: Adjust height in immediate lifting mode when flight height is lower. Start hovering and climbing after reached target waypoint. Start hovering and descending if current height is higher after reached target waypoint.
Action	 Single shoot: It will take photo when aircraft reaches the radius of the waypoint
Task	 Equal distance shoot(interval: meter)
	 Equal time shoot(interval: Second)
	 Stop shooting
Height	 The target height of the waypoint, unit "m"
	Relative height: Relative to the height of the take-off point
	Altitude: Relative to sea level.
Velocity	 Target speed, unit "m/s". The measurement source from differential pressure airspeedometer.
Radius	 Effective radius, unit "m".
Latitude/ Longitude	A geographic coordinate system based on WGS84.

#### Batch operation

Item	Content
Batch adjustment	Directly modify all waypoint parameters for this route. The input value is the modified value.
Incremental adjustment	Incrementally modify all waypoint height, speed, radius, positive number means increasing the value, negative number means decreasing
Other	Reversed order. Route is generated in a reversed order.



#### Import and export the route



Import the route



Save the current route. After finished the edit, user can save the route and apply for the same model aircraft.

文件名(N):

保存类型(T):

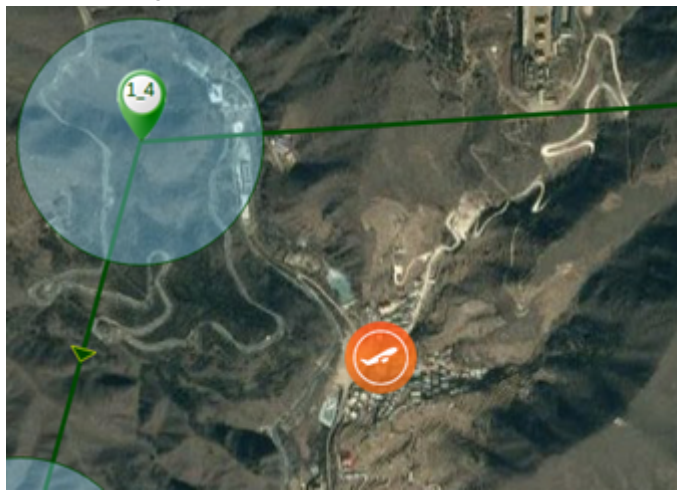
Edit the file name and save as “CSV” file after selecting the directory. User can check or edit it in excel.

	A	B	C	D	E	F	G	H
1	Latitude	Longitude	Height(m)	Velocity(m)	Radius(m)	Parameter		
2	34.10846	-117.259	300	26	167	00-00-00-00-00-01-00-00		
3	34.10818	-117.204	300	26	167	01-00-00-00-00-02-00-00		
4	34.09176	-117.212	300	26	167	21-00-00-00-00-04-00-00		
5	34.08629	-117.232	300	26	167	41-00-00-00-00-06-00-00		
6	34.08238	-117.197	300	26	167	61-00-00-00-00-00-00-00		
7								
8								
9								

**Elevation Checking** In order to avoid crash or collision in some environment, it is



necessary to check the flight height after editing the route. Click .Then click “Select the reference take-off point” on the map to select take-off point after finished editing the route.



Click “Check

elevation” ,it will automatically compare the flight height with altitude of the reference take-off point. All analytical data convert to altitude.



**Aerial survey parameter** Click to set aerial survey parameter.

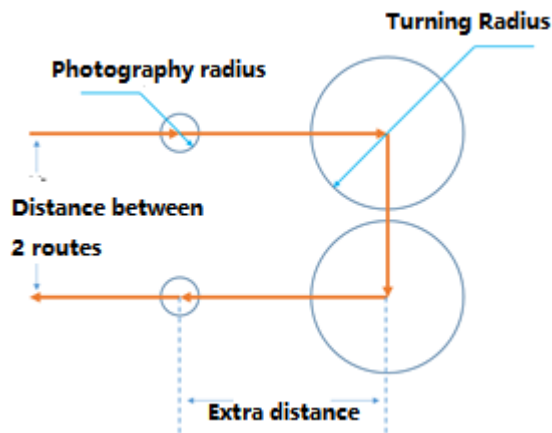
Automatically get flight parameter after connected flight control. User can also click “Get flight parameter”.

**Block aerial survey**

**Angle:** default is north-south scanning.

**Extended route:** turning transition to make sure the aircraft will fly stably and accurately to the next section.

**Enter point:** it will generate the enter point after scanning route is generated.



### **Band aerial survey**

**Enter point:** it will generate the enter point after scanned route is generated.

**Wind resistance:** default value is 1.0. Need to increase this value in strong wind environment

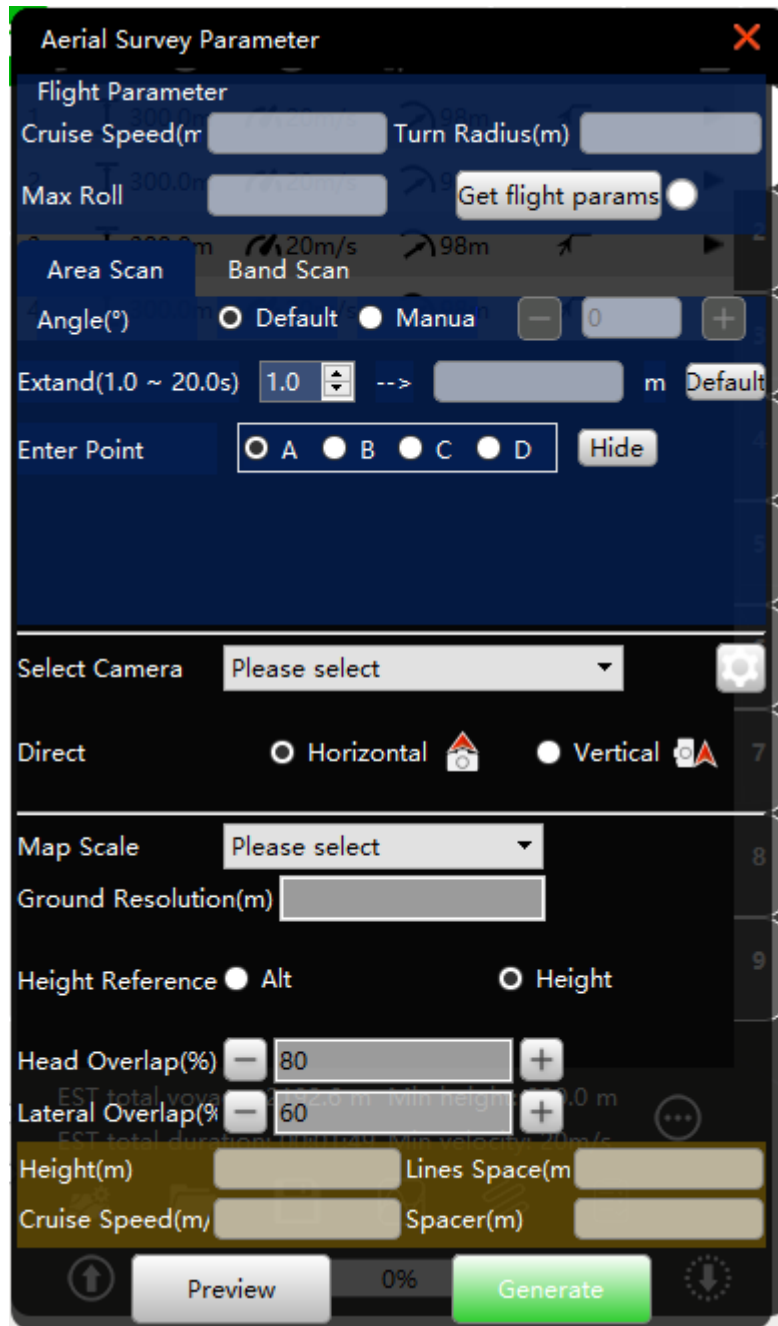
**Assisted Turning point:** It will not generate assisted turning point if the value is 0. Assisted turning point generated when value is 180. Default value is 180°.

**Return:** It will generate a return route along with the scanning area when the scanning routes are odd numbers.



**Camera parameter** Select the camera from the menu or manually add a camera.

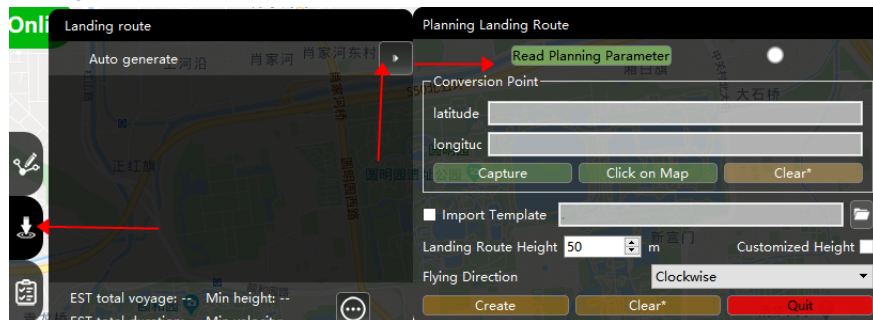
**Orientation:** select installation position, horizontal or vertical.



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Landing route should be composed of 6 waypoint. Landing Route is divided into 4 sections: transition, adjustment, switch and landing. **Adjustment:** Aircraft will make a turn and adjust the direction for entering the switch section. **Switch:** The last landing point is the switch point. It will switch to multi-rotor flight mode. **Landing:** After switching to landing section, aircraft will automatically fly to the landing point and hover for 3 seconds and start landing.(15meter to the ground, descending with 1.5m/s; 5-15m to ground, gradually descending to 0.5m/s; Under 5m, with 0.5m/s. ) After landed, it will stop power output and enter standby mode.

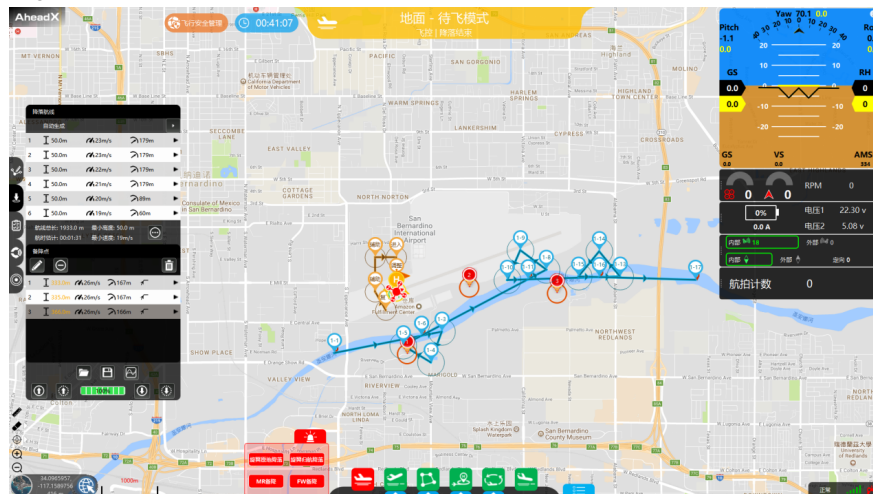
**Automatically Generate the Landing Route** Capture the coordinate of current position, click on map. Make sure the flight direction and height. Upload the landing route.



Waypoint 1 and 2: Go around&Assisted waypoint. Only effective when failed to land. Waypoint 3: Entering point. Waypoint 4: adjustment point. To adjust direction, height and attitude. Waypoint 5: Switch point. Switch to multi-rotor mode.

**Alternate landing point** Alternate landing point for emergent condition. Operator should make sure the landing area is safe before flight. AheadX Space version: V3.0.70 and above







Flight control Firmware version: V2.10.2 and above.



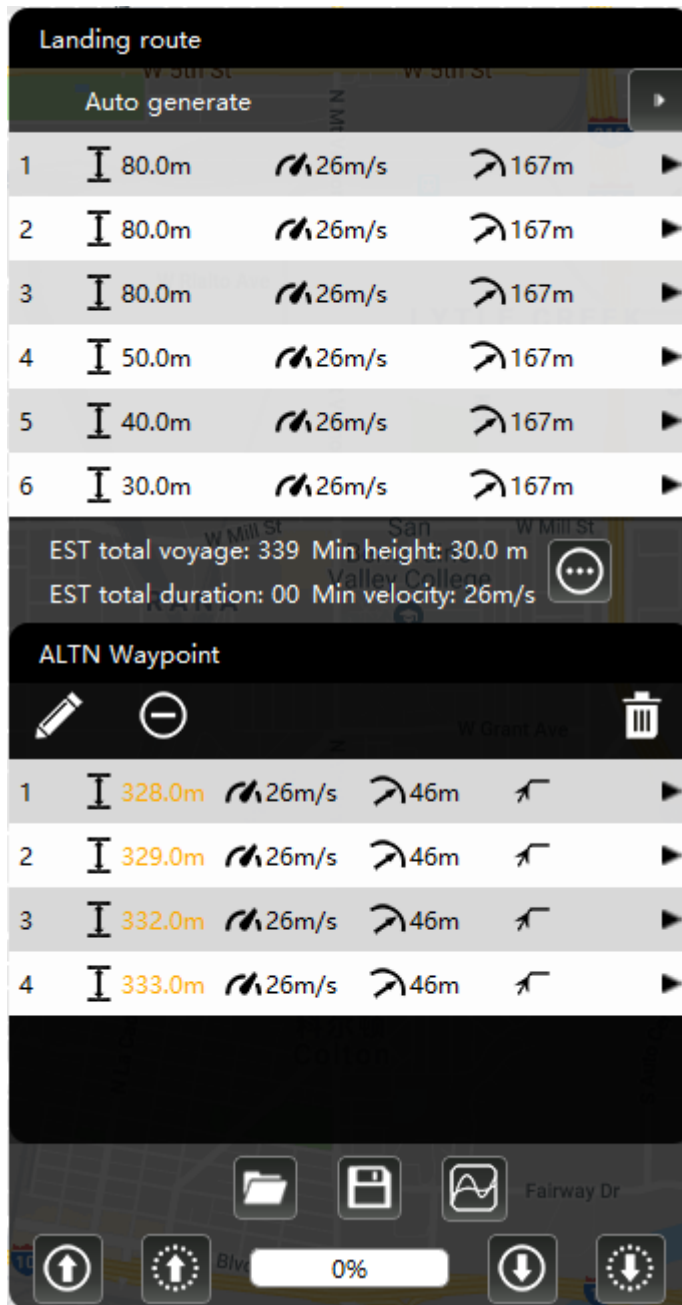
**Edit alternate landing point** After flight control well connected, edit landing route



and then edit alternate landing point. Click  select the alternate landing point on the map. Modify its properties by clicking the waypoint if already collected its

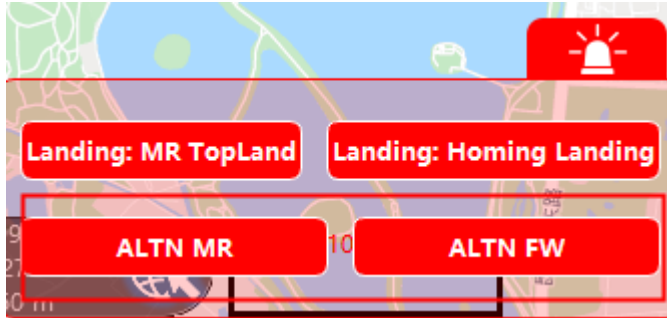
coordinate. Click  to upload the information  Delete the selected point  Delete all point  Load CSV file  Save as CSV file  elevation checking, resolution 9090M \*Default property

**Height:** Default is the altitude where you click when there is altitude data existed. Otherwise, default is the height of the waypoint. **Velocity:** waypoint velocity **Radius:** waypoint radius **Safety height:** Fixed wing converts to multi-rotor.



Default 50m.

### Manually\* Landing: Mutirotor and fixed wing



**Command 1:** MR

: double click"ALTN MR", the drone will fly to the nearest alternate and land in multi-rotor mode. FW : double click"ALTN FW", the drone will fly to the nearest alternate in fixed wing mode and automatically convert to multi-rotor after reaching the alternate point. **Command 2:** Right click the alternate waypoint. MR: Select" ALT MR" and confirm. The drone will fly to the selected alternate in multi-rotor mode.

FW: Select" ALT FW" and confirm. The drone will fly to the selected alternate in

ALTN Waypoint					
1	I 328.0m	26m/s	46m	↗	▶
2	I 329.0m	26m/s	46m	↗	▶
3	I 332.0m	26m/s	46m	↗	▶
4	I 333.0m	26m/s	46m	↗	▶

fixed wing mode.

**Command 3:** Double click"Run to the alternate", it will fly to the selected alternate in fixed wing mode. When arrives at alternate landing point, it will convert to multi-rotor. **Protection:** It will trigger the protective function in low voltage protection, engine-out protection and crash protection mode. The aircraft will fly to the nearest alternate and land automatically. User should trigger this function in AheadX master software, "Advanced"--"Alternate".

### Height adjustment

1.Aircraft will climb immediately if the flight height is lower than the sum of height of alternate point and safety height when diverting. On the contrary, aircraft will keep the current height and fly to alternate point.

2.Pay close attention if there is any risk when there is a big difference between the height of alternate point and take-off point, or meet a complicated landing condition.

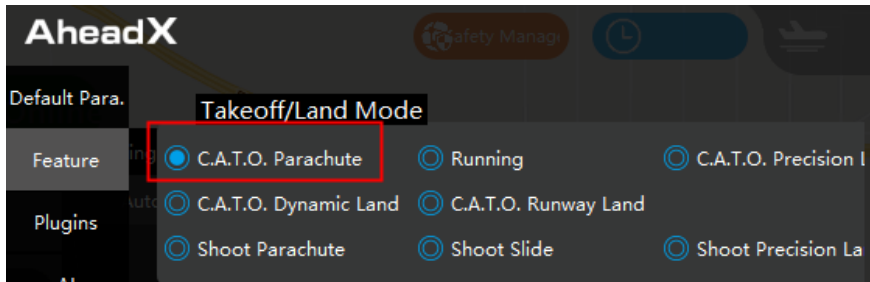
3.Aircraft will not climb in order to keep the attitude and velocity when engine-out. It will fly to landing point in multi-rotor mode if flight height is lower than the sum of the height of alternate point and safety height.

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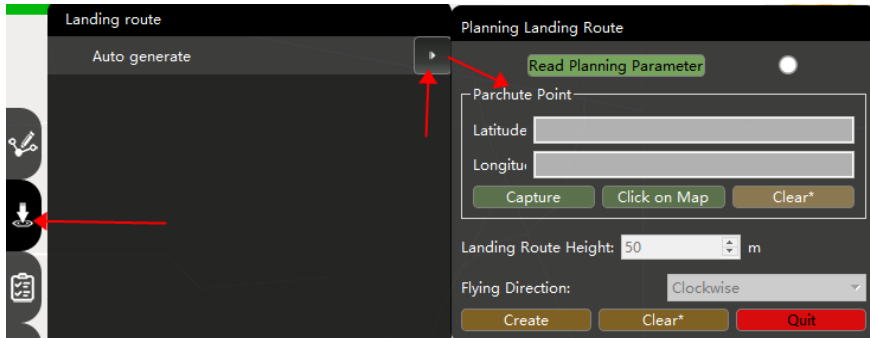
It supports Runway, catapult parachute, and catapult runway landing. It is able to extend hand-launched and stall landing via adjusting parameters.

**Transition waypoint:** Aircraft directly fly to the entering point if the flight height is same with the height of landing route when executing parachute or runway landing. If flight height is higher, aircraft will fly to transition point and hover to descend. If flight height is lower, aircraft will climb when flying to transition waypoint. It will directly fly to landing route and enter the entering point if the flight height reached the landing height when arrived at transition point.

**Automatic generation** 1. Select "C.A.T.O Parachute" or "Running" according to your requirement. Then confirm

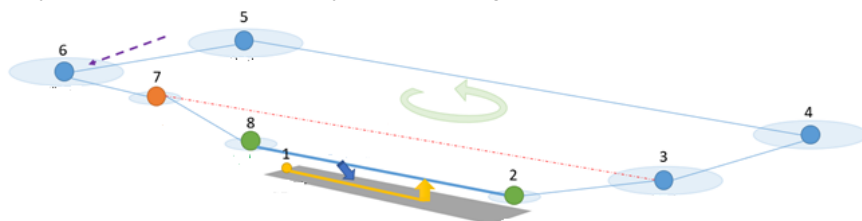


2. Capture the coordinate of current position, click on map. Make sure the orientation and height. Upload the landing route.



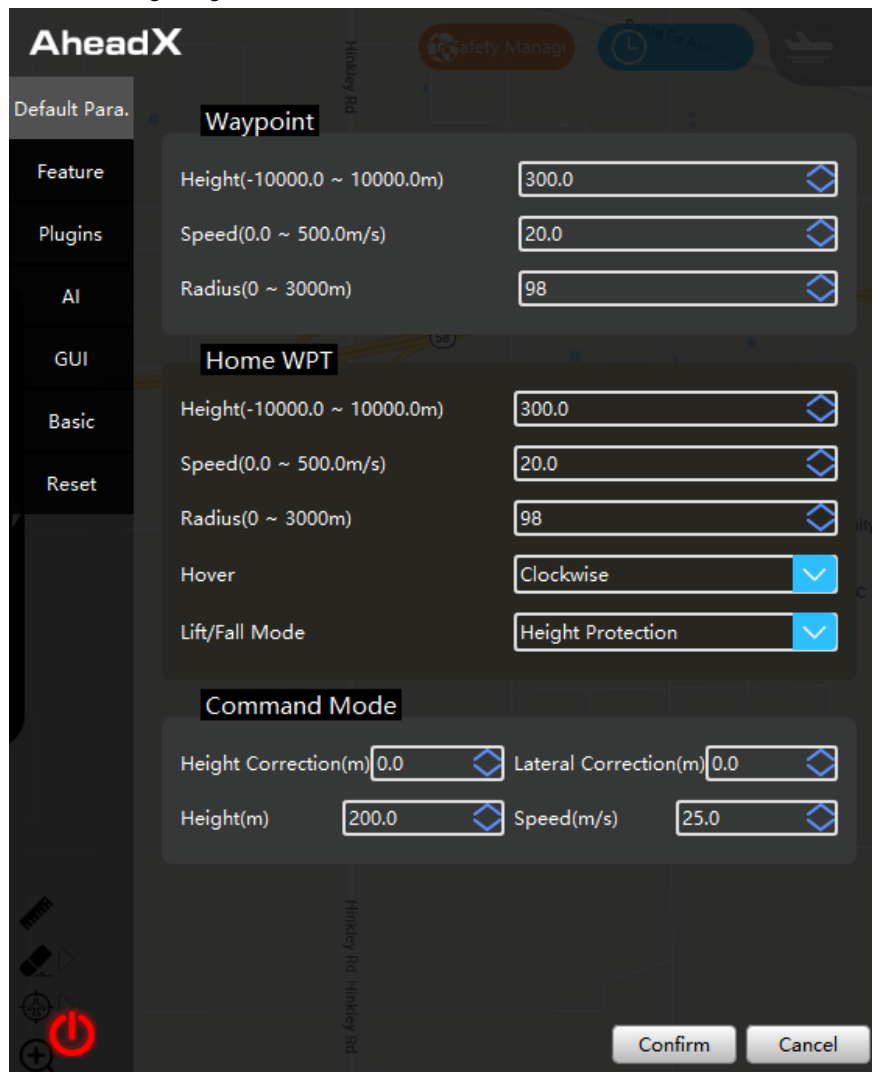
**C.A.T.O parachute landing waypoint instruction:** The 10th route is landing route when set parachute landing. There must be 5 waypoint. waypoint 1 and 2 : Assistant waypoint. Only effective when failed to land. waypoint 3: Entering point. Waypoint 4: adjustment point. To adjust direction, height and attitude. Waypoint 5: Open parachute. It will open the parachute when aircraft reached the radius of this waypoint.

**Running landing waypoint instruction:** After selecting "Running take-off/landing", this route will be both take-off route and landing route. There must be 8 waypoint. Waypoint 1: Starting point Waypoint 2: Destination. Waypoint 3: Go around point. Waypoint 4 and 5: assisted point. Waypoint 6: entering point Waypoint 7: decision point. Waypoint 8: Gliding point.



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It will load the default parameters of waypoint, home waypoint and command mode when start the AheadX space. The radius and velocity of the waypoint and home waypoint will be updated if user synchronizes flight control parameters before starting the ground station software.

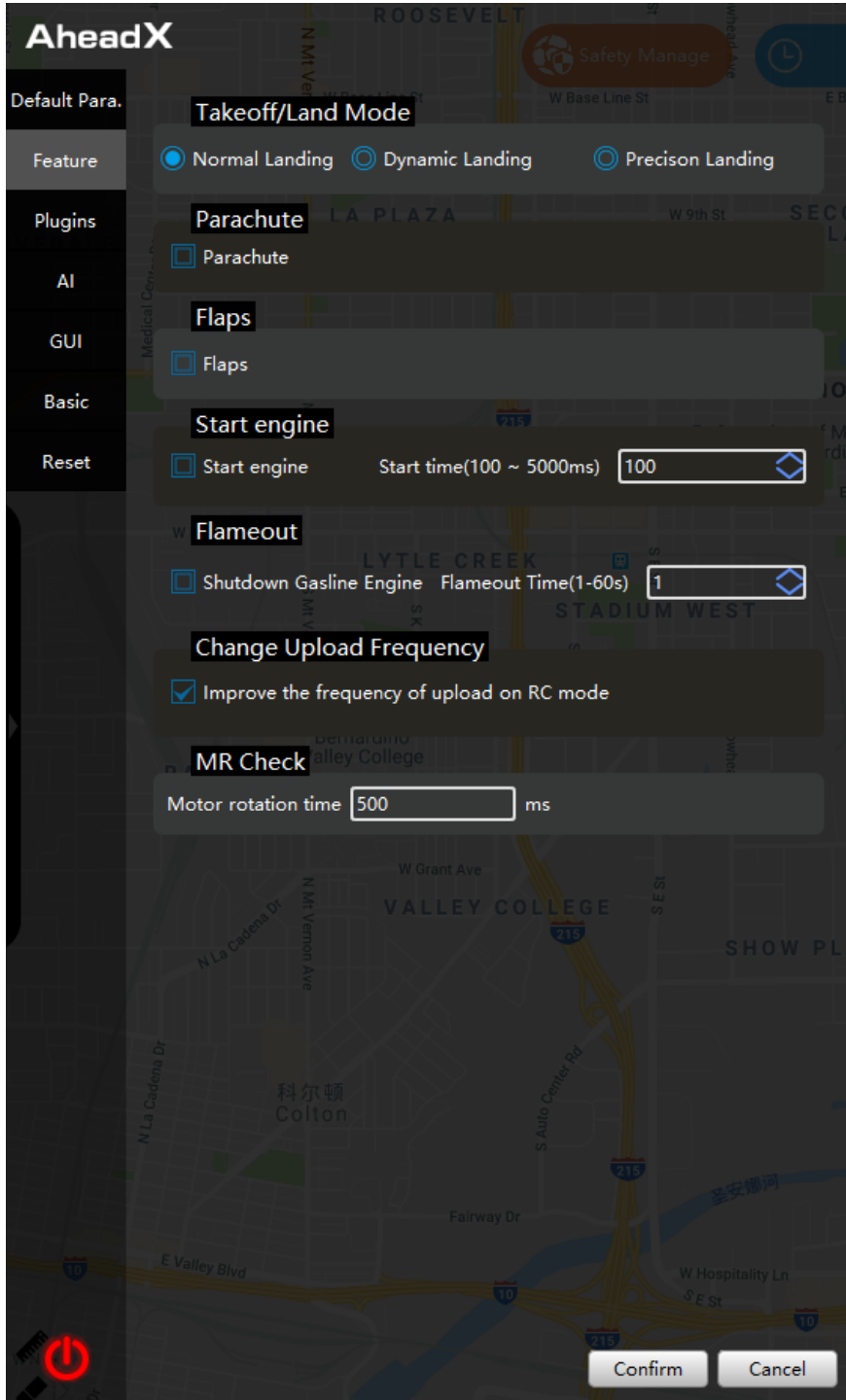


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Take-off/Landing mode, parachute and engine settings will updated to FC if user synchronize parameters before starting the software.

Change the uplink frequency: The frequency will increase to 20HZ

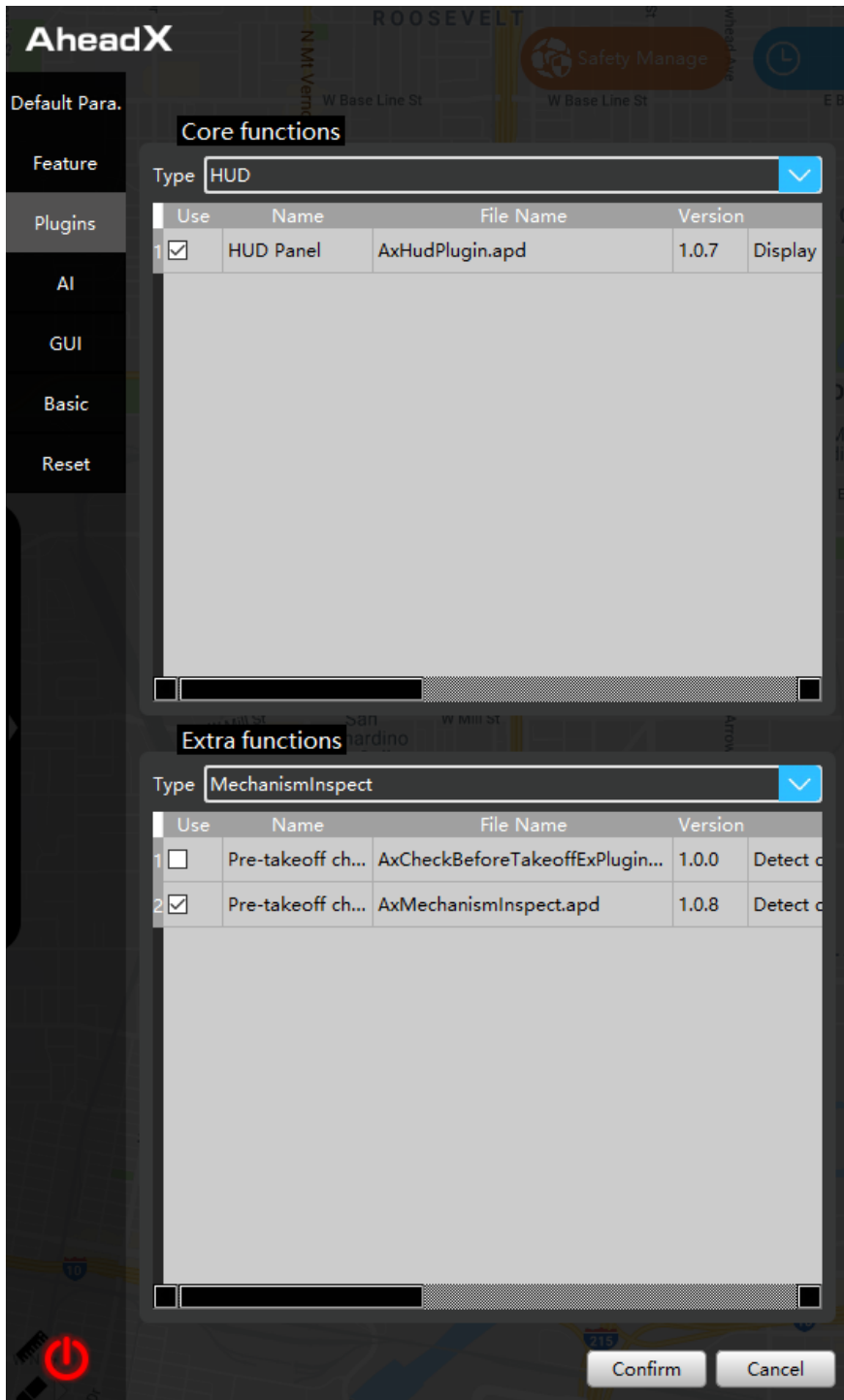
Multi-rotor checking: check the rotation time.



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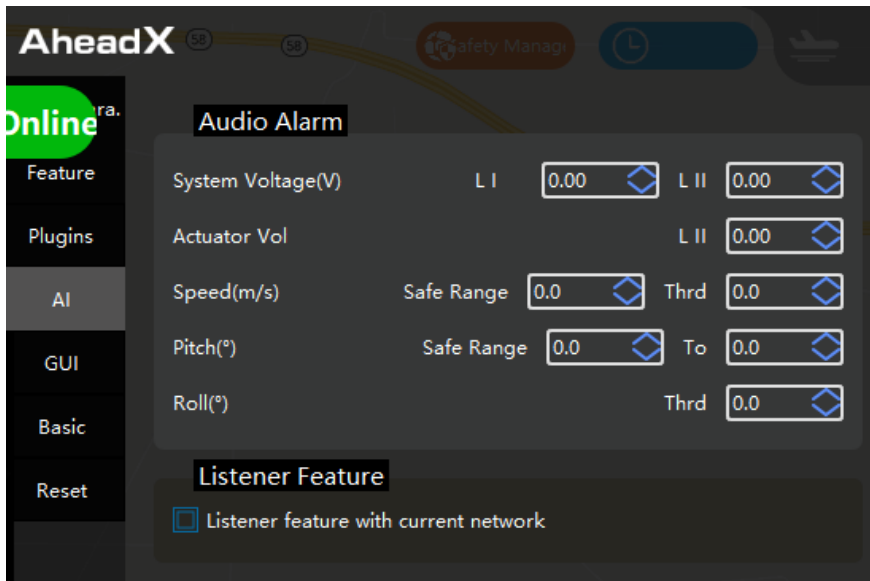


User can freely choose to enable the plugin. Custom service is available according to user's requirement. User needs to restart the software after enabling or disabling the plugin



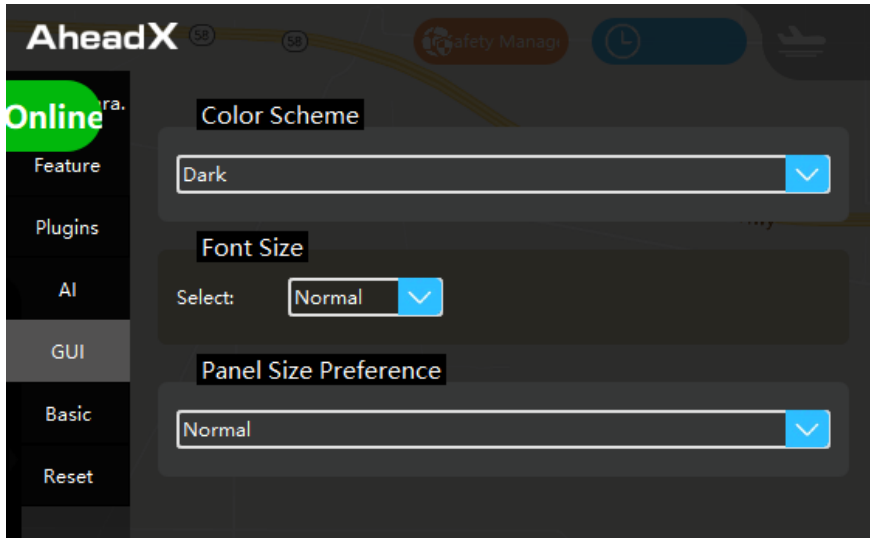
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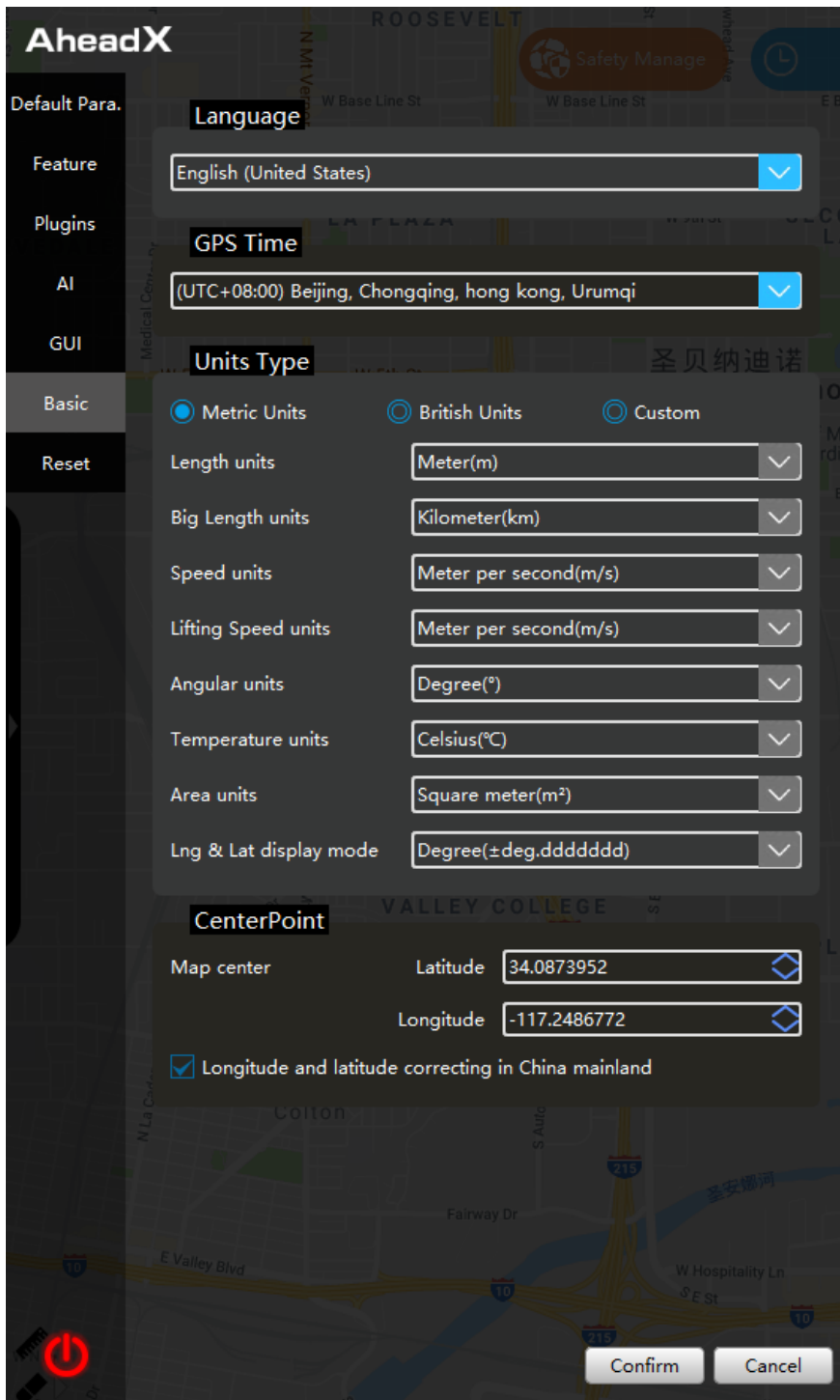
Audio Alarm Aircraft voltage(AD1): Level 2--serious warning Servo voltage(AD2): minimum value warning Air speed: safe range. Invalid when value is 0 Pitch: Pitch angle (negative value), climb angle(Positive angle).Invalid when value is 0 Roll: Invalid when value is 0 **Listener**: select Listener to connect AheadX Listener.



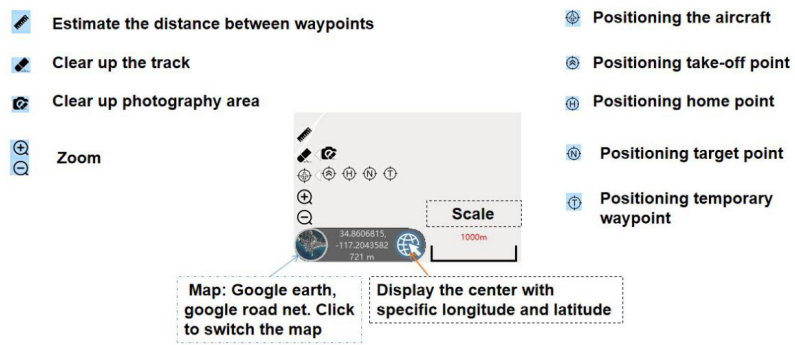
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To change the font, color, language, time zone, unit and map





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**Right click on the map to find these functions**

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**Video windows:** Support standard rtsp input. **Estimated wind speed:** Calculate actual wind speed and direction. theoretical value only for reference.

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Display the key parameters, assist for data analysis.

Pitch output: Joystick--arrow points upward means push the joystick.

Multi-rotor and fixed wing: arrow points upward means head down

Throttle output: For VTOL, the throttle value on the left is for fixed wing

Content in white color: current measured value.

Content in yellow color: target value



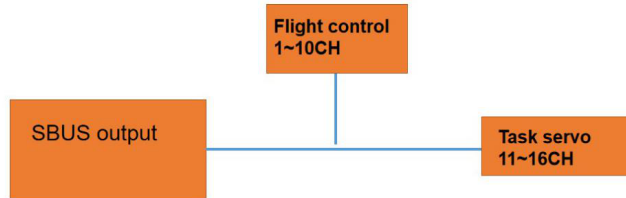


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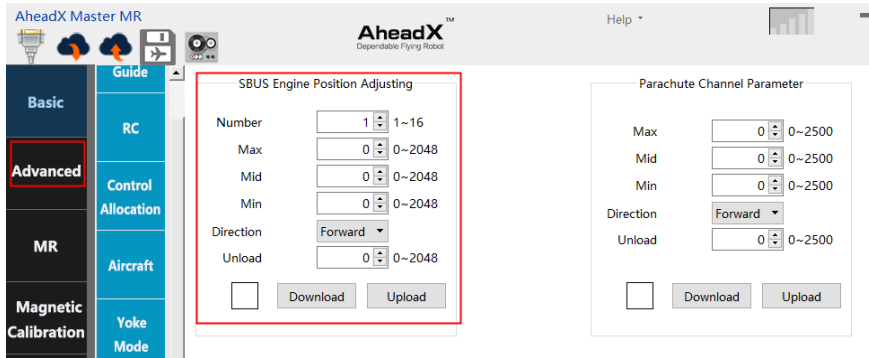
User can control the equipment which supports PWM/SBUS signal(such as gimbal camera) via data link.

**VTOL&Fixed Wing** : Sbus output: 11~16CH. User needs to programme to 9-16CH if using a SBUS to PWM converter.

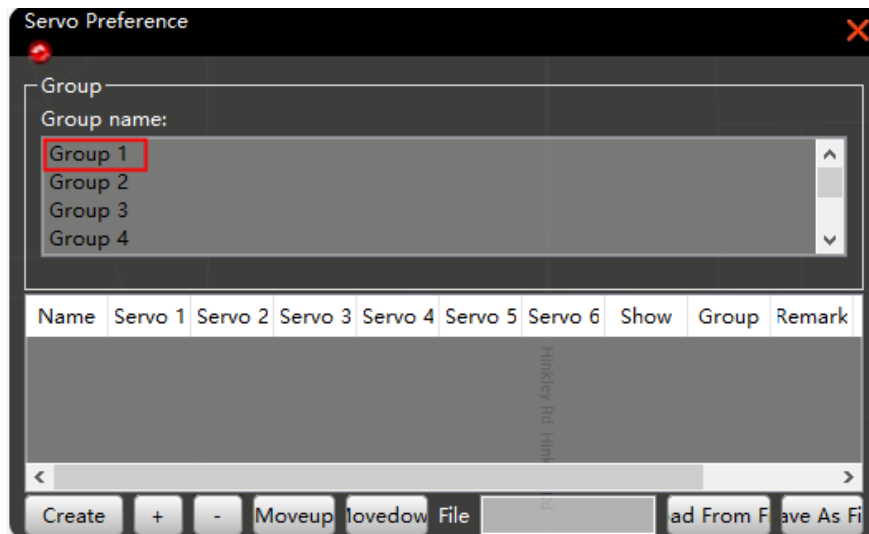
**MR flight control**: Sbus output: 1~16CH.



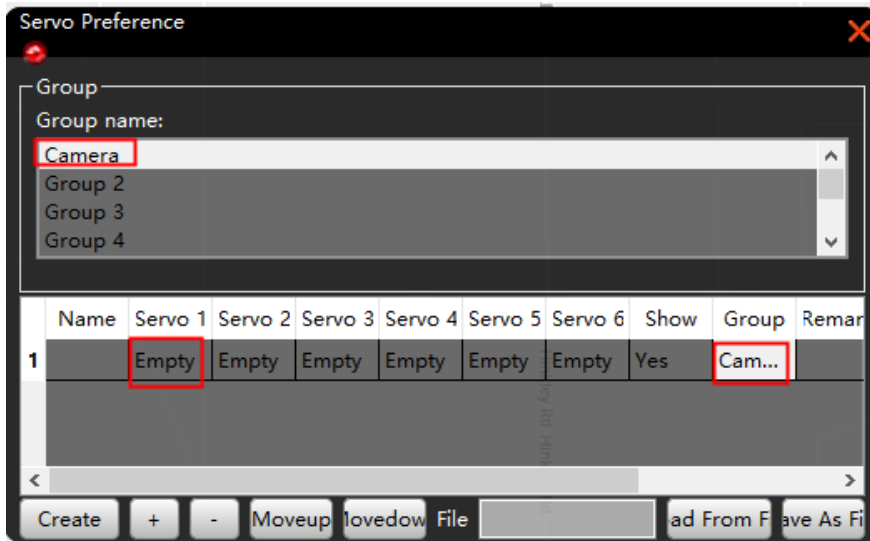
User can set the travel in AheadX Master



**Task servo configuration** Right click on the map, find application servo preference. Double click “Group 1” to change the name, for example change to Camera. Click “+” to add a task servo.

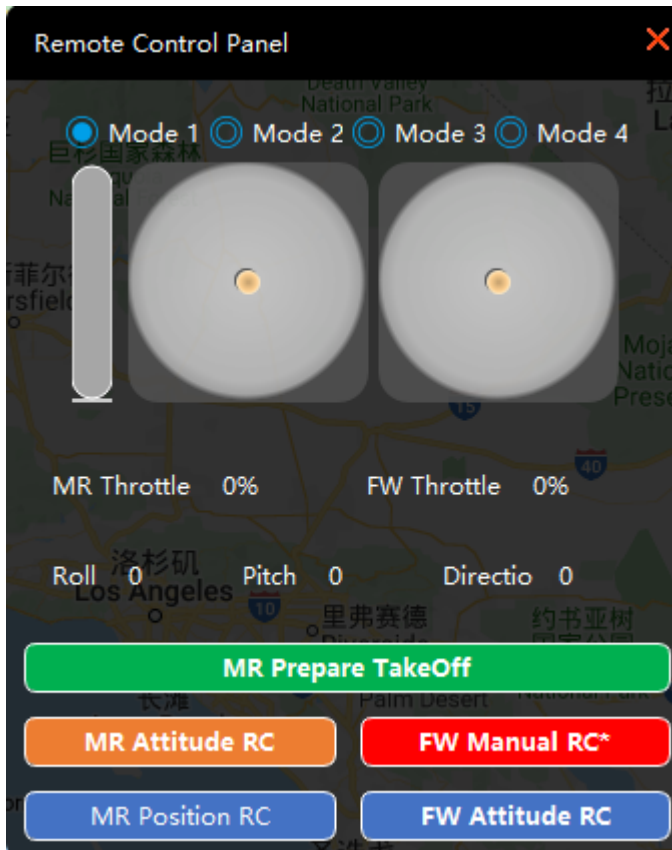


Double click "Empty" to set the value 100 or -100 (according to the direction).  
Select "Camera". Then click "create" to save the configuration.



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Click "FW manual RC" 4 times to execute the command. Double click other buttons to execute commands. **Select mode 1 or mode 2 will not change the real control mode. Will only change the display style.**



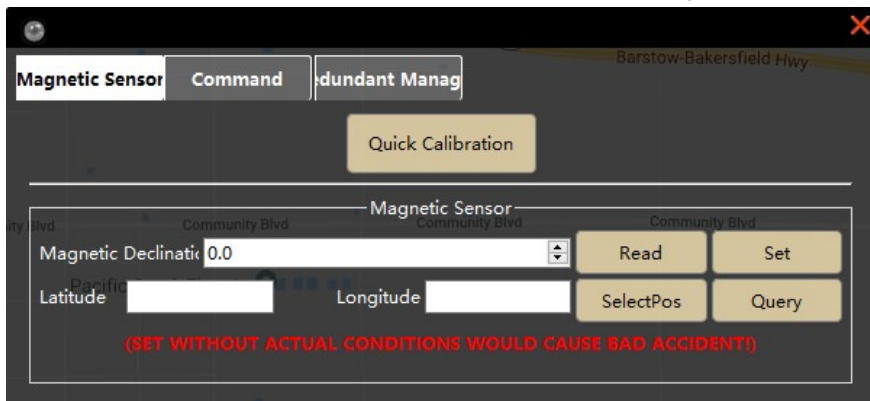
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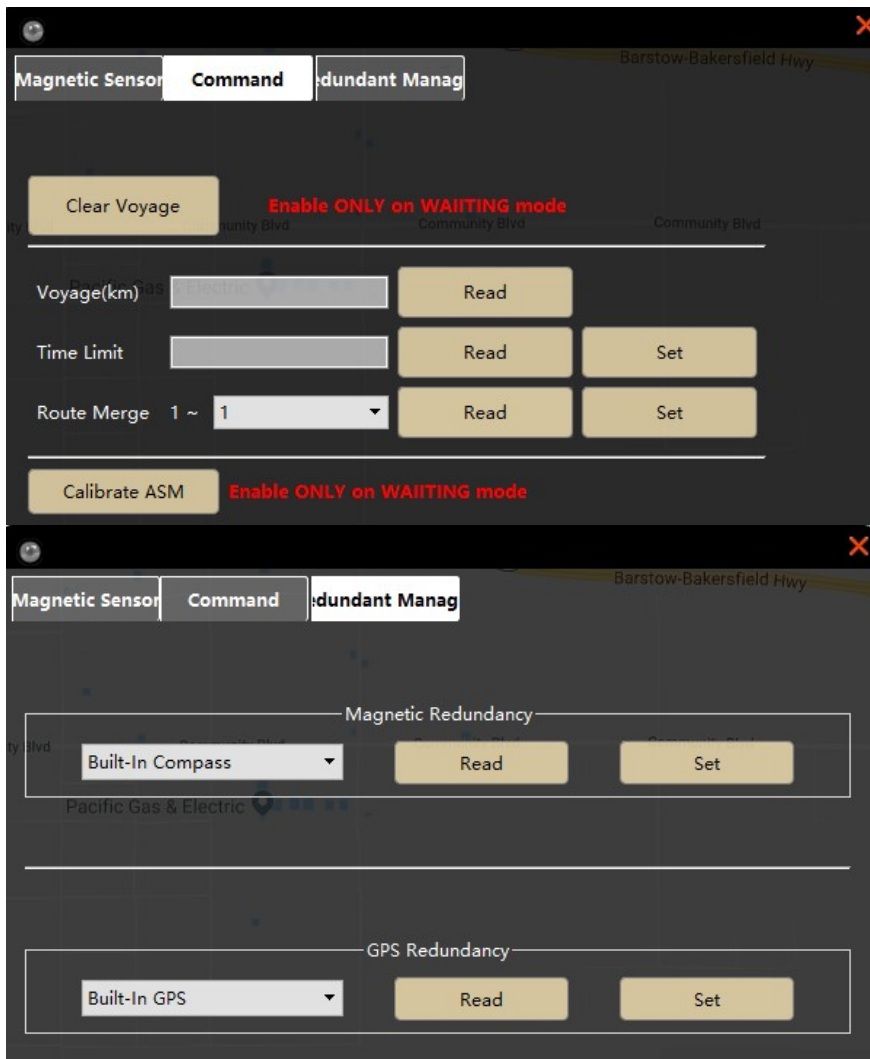
**One-key compass calibration(Quick calibration):** Need to do quick calibration when there are following conditions:

- 1.Current take-off point is far away from last take-off point(usually 100km).We suggest to do this quick calibration before each flight.
- 2.Compass Issues yellow alarm and indicates magnetic reference overrun.

**Declination:** user can click on the map to get the information of the declination. Click"set" to upload it. User can read the current declination information by clicking "Read".

**Declination will not be displayed when connect flight control and aircraft is well positioned. Please do quick calibration if need to modify the declination**



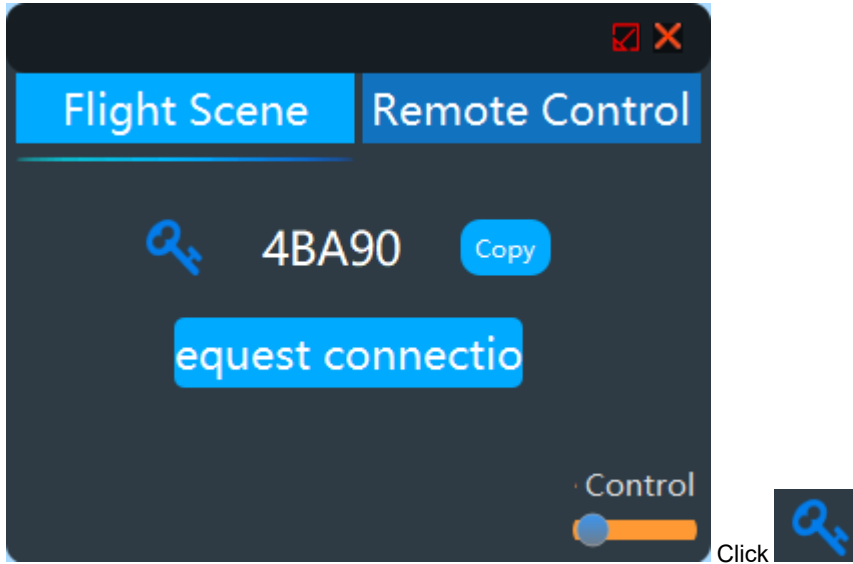


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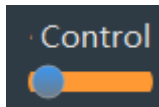
User needs to register and log in AheadX Galaxy system to realize remote monitoring and control.

It will display the register interface when first start the ground station software. User can click the link at the bottom to register or find your password.

After log in, right click on the map, you will see following interface.



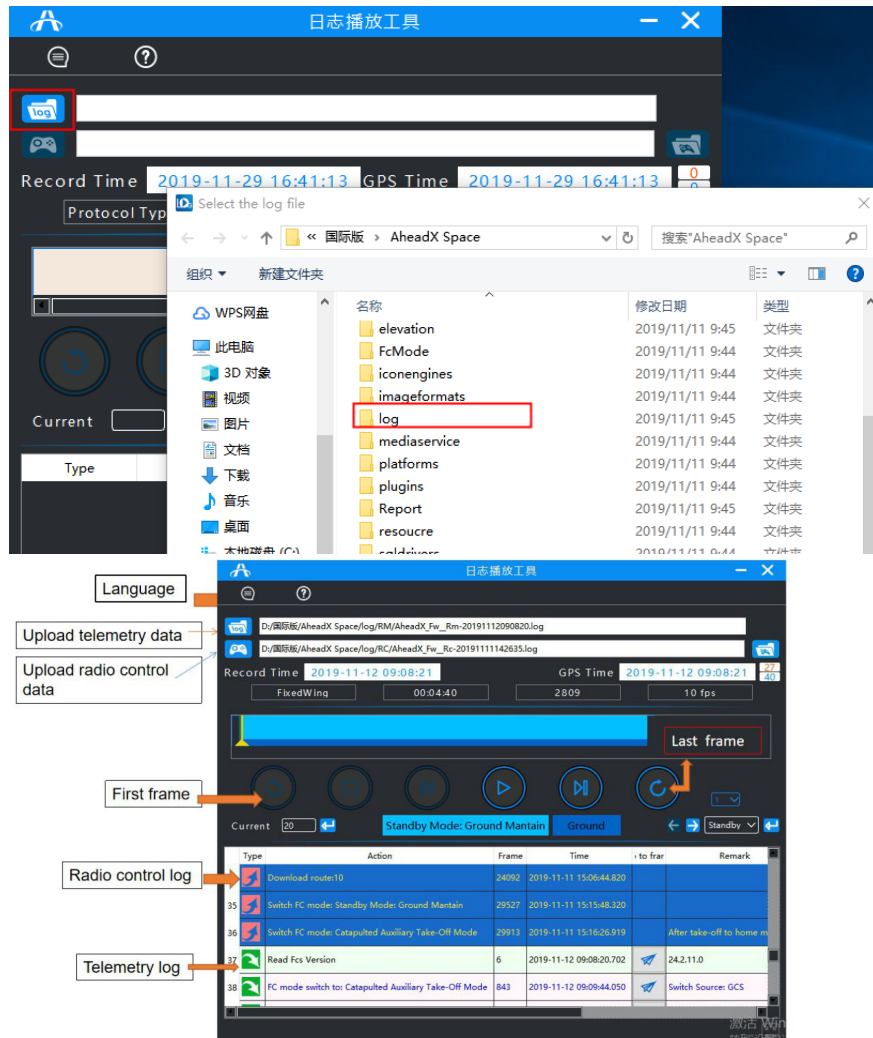
to refresh the key. Tell the key to remote operator , then request connection



Slide to right to allow on-site operator to control the drone..The on-site operator can not send a command via ground station, but radio control data and PPK/RTK data can be uploaded.

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Find ZDLogPlayer.exe under AheadX Space installation directory. Open the log file.

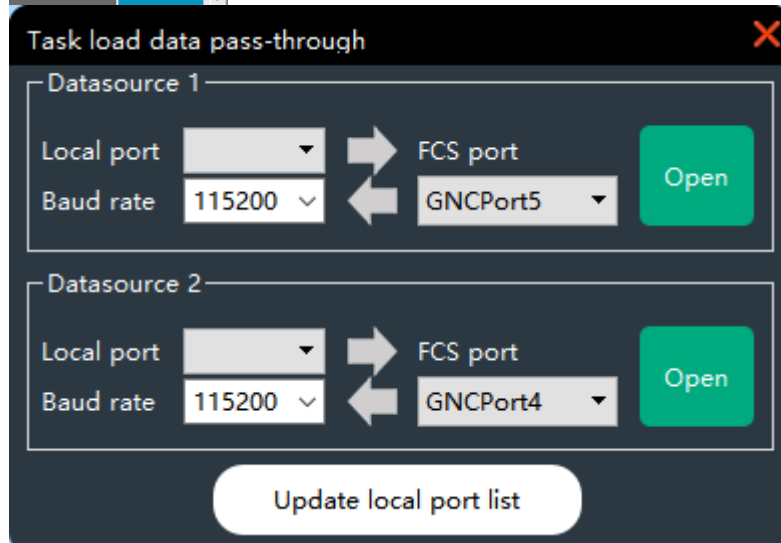
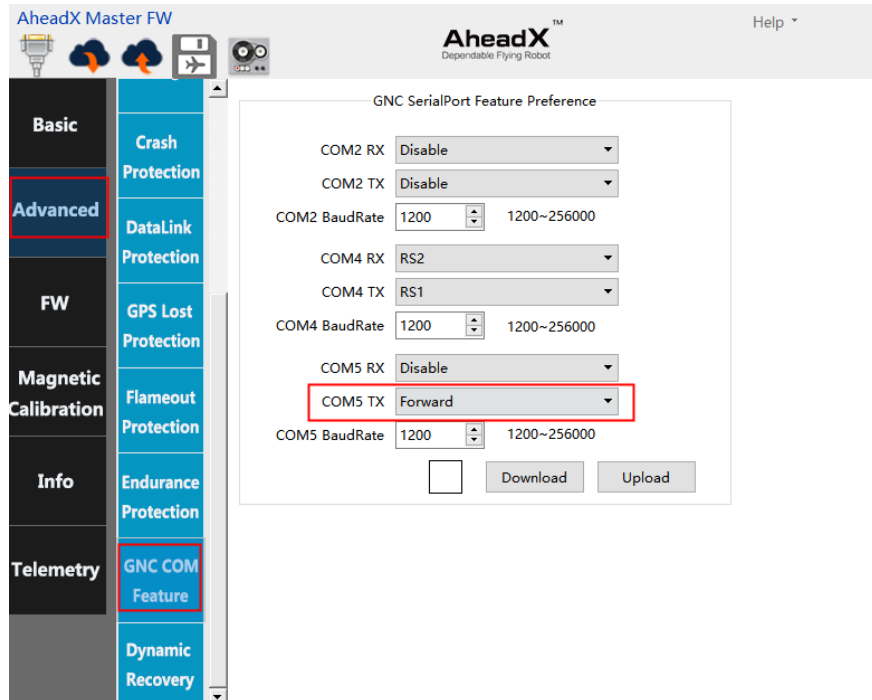


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Right click to find “Data transmit”.

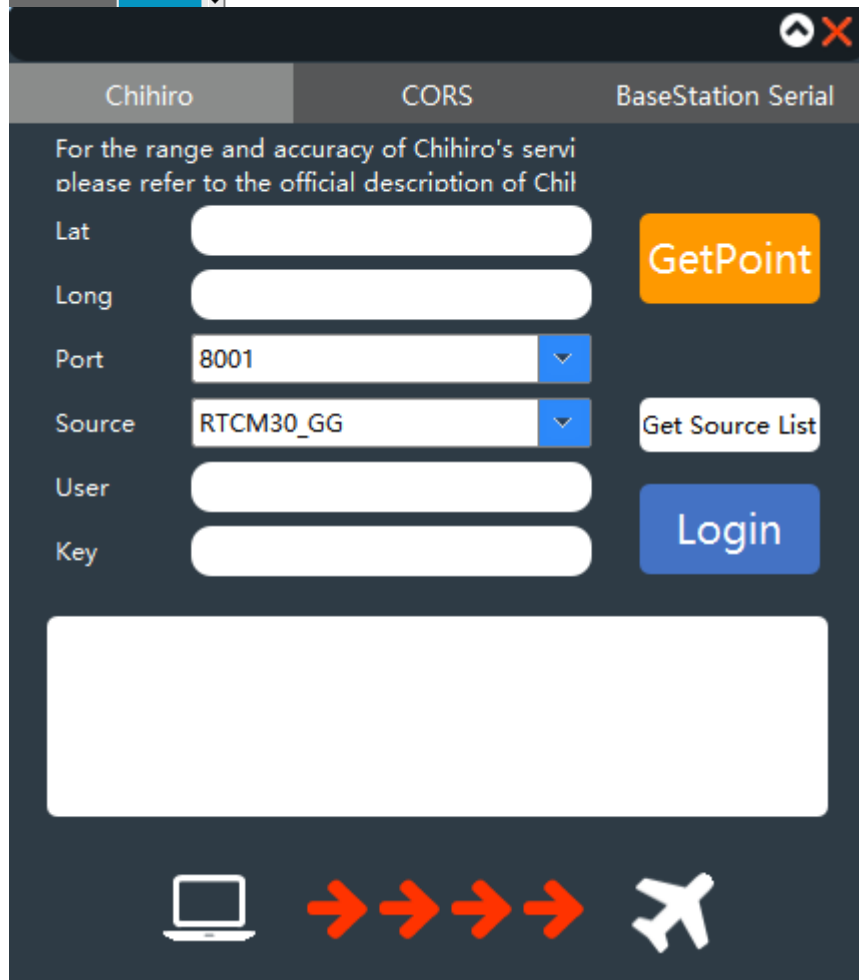
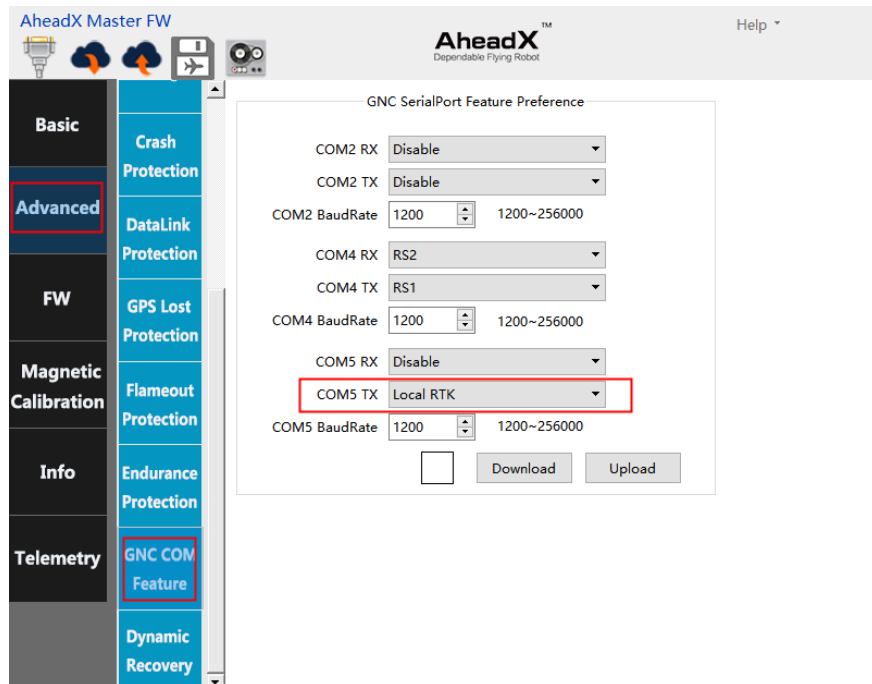
Local port for ground unit. FCs port for flight control. **User should choose “Forward” in AheadX Master first.**



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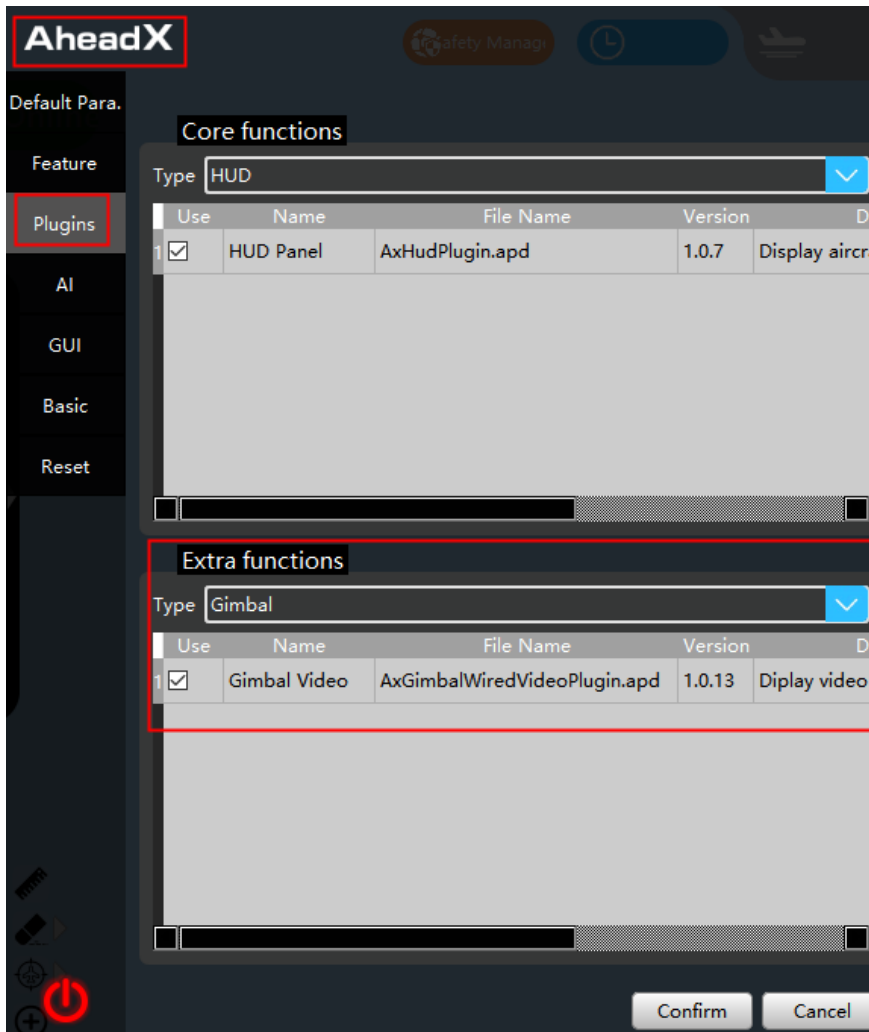
Right click on the map to find RTK data trans plugin.

First, open AheadX master, choose "Local RTK", then restart flight control. DG1 RTK indicator blinked, connect the serial port. The arrow will become green after connected successfully.



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Click "AheadX-- Plugin-- Extra function -- Gimbal video-- Confirm. Restart Space V3.



This plugin can collect the HDMI or SDI video via the acquisition card. AheadX Sirius ingrates various gimbal camera protocol. User can buy it to work with different gimbal cameras.

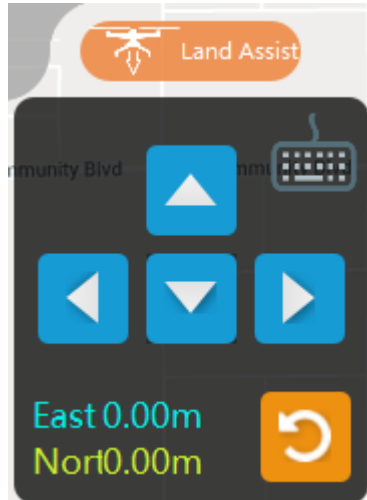
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Flight control firmware version: QP 2.22.1 and above, MR2.10.0 and above.

Effective when automatically landing(eg. Multirotor home landing, top landing)

Click these blue buttons to adjust the position. Click orange button to clear the adjustment.

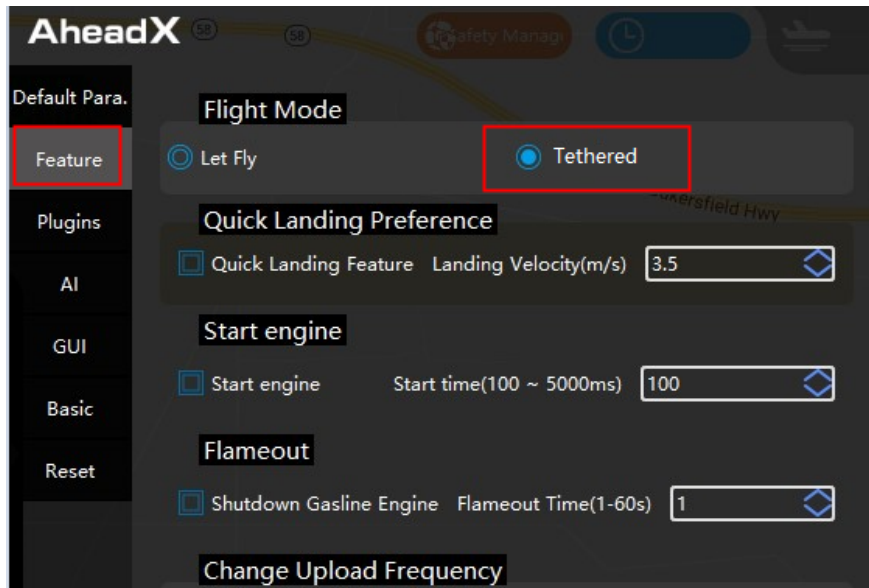
Click keyboard to make the adjustment by keyboard



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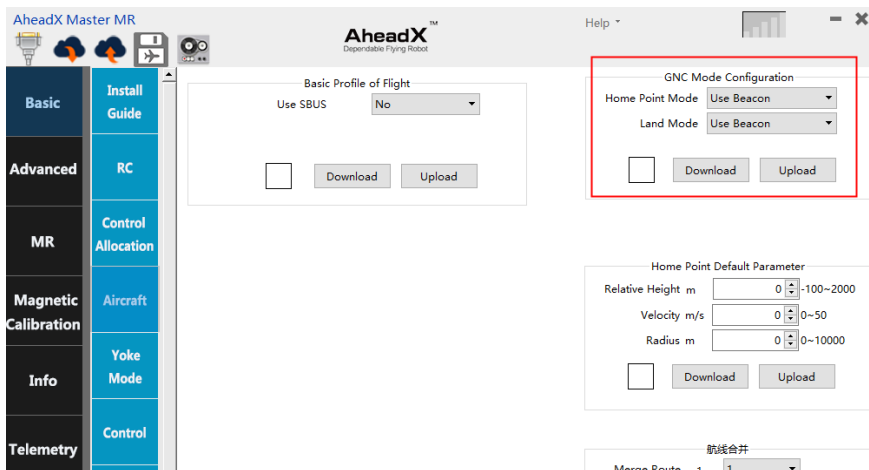
Flight control version: 2.9.3 and above. Download upgrade software to upgrade flight control to the latest version. Ground station software: 3.0.74 and above. Hardware: AheadX MR flight control, Crucis.

Select "Tethered" in ground station software.

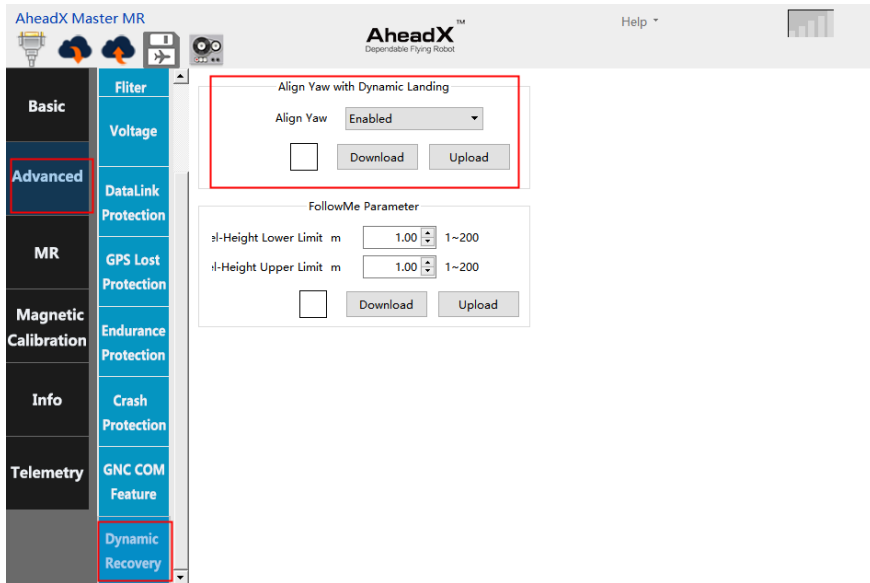


After selected **Tethered** flight mode, the take-off and home command will change to Tethered after restart the ground station software. The aircraft will take-off and follow the mobile platform. User can adjust the flight height and direction with joystick when hovering.

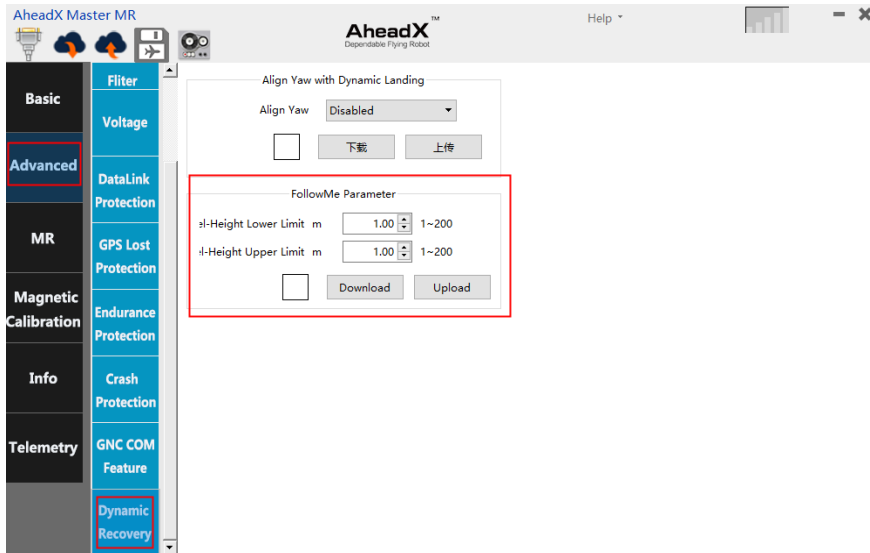
**Settings in AheadX master.** Use beacon, the aircraft will follow the moving platform .



Enable "dynamic landing", the aircraft will fly pointing at the direction of the moving platform when landing

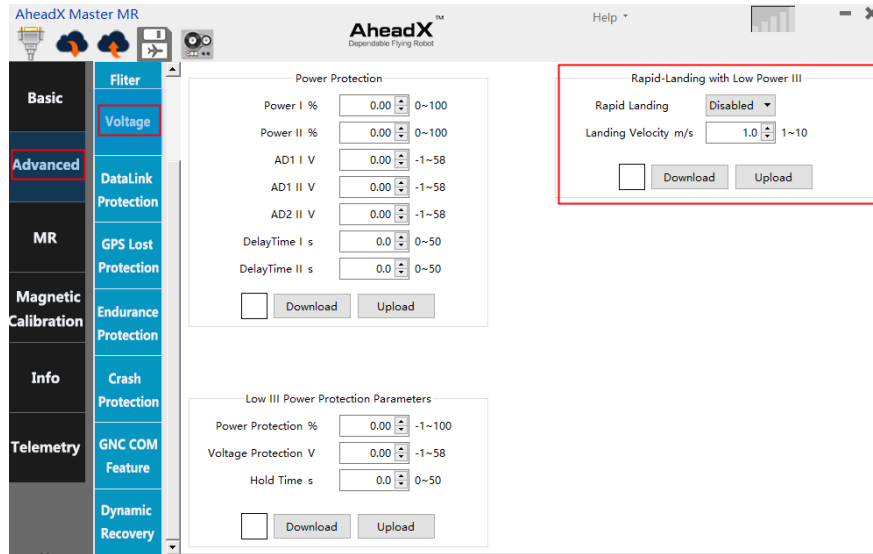


To adjust the flight height with joystick in tethered mode. **Min relative height\*\***: can not descend with joystick when reached this min value. Max relative height\*\* : can not climb with joystick when reached this max value.



**Low voltage protection**

Enable rapid landing, aircraft starts to land with the set landing velocity.



### Initial Test

Upgrade flight control and ground station software to the specific version. Install ground station software, AheadX master and Crucis.

Take-off: The aircraft change its attitude based on the moving platform. The initial test should follow the following steps.

1. Take-off on a stationary platform. The platform starts moving gradually after the drone took off.
2. Try to take-off on a moving platform if the performance is good. Gradually speed up the movement and check the status. Stop the test if there is any abnormal performance.
3. Aircraft will follow the speed and direction of the moving platform after took off. It will adjust the direction when the direction is changing (eg. Make a turn). The aircraft will not follow the platform if switching to Home mode.
4. Suggest landing on a stationary platform and then on a moving platform. The aircraft will point at the platform if user already made the setting in AheadX master.

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