



## Turning the System On

1. Plug in Battery on roto-copter
2. Turn on computer and install telemetry to computer
3. Transmitter on
4. Launch Mission Planner → Opens on Flight Data
5. Choose Connect and verify the connection occurs.

## Set up Survey

1. Go to Flight Plan
2. CLEAR Mission.
3. Verify or Add Home point.
4. RC Draw Polygon Points → Add Polygon Points
  - a. Do this 4 times to create the bounding polygon
  - b. Sometimes, a user must grab a created point from the previous point and drag it to the new locations.
5. RC Auto WP → Survey Grid
6. Create a Survey Grid. Verify the grid settings.

## Configuring the Grid for Flight

1. Simple Tab
  - a. Select Advanced Options
  - b. Set up camera flight options. Note flight time parameters.
  - c. Set Altitude maximum  $\leq 400$ ft
  - d. Speed  $\leq 20$ mph
  - e. Use speed for this mission
  - f. Add Takeoff and Land WP's
  - g. Use RTL
  - h. Split into "1" segment, by default. Accept and view waypoints. At bottom of split Screen. Confirm Takeoff and RTL have been added as first and last waypoints before writing mission. Each of the three tabs must be completed before accepting.
2. Grid Options Tab



- a. Uncheck Cross grid for 2D only (use cross grid for 3D)
  - b. Verify Distance between lines
  - c. Set Overshoot and LeadIn
  - d. StartFrom = Away to Top Left Could be any corner, depends on home point
  - e. Check Overlap and Sidelap (75%/75%) Varies depending on sensor
  - f. Verify Corridor Width Corridor is not used in survey missions
  - g. Heading Hold for LiDAR/RaDAR only
  - h. Note flight time parameters.
  - i. Insert Camera Config options here
  - j. Confirm camera focal length is correct when camera is not a fixed focal length lens
  - k. Trigger Method
    - i. Cam\_Trigg\_Dist
    - ii. Breakup Starts
3. Simple Tab
- a. Control S = Save File
  - b. Note all Flight Stats
  - c. Accept

### **Completing the Setup**

1. Review Waypoints and edit. Confirm Takeoff is first waypoint and RTL is last
2. Finalize
3. Write WPs.
4. Read WPs.
5. Return to Flight Plan to fly.

### **Prepare to Fly**

1. Return to Flight Data window.
2. Verify Voltage.
3. Verify Elevation (most likely wrong). Arm and immediately disarm.
4. Confirm HDOP is below 2.0 and Satellite count is 6 or more.



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5. Confirm Home location matches takeoff position

**When completed, CLEAR Mission. If the mission will need to be repeated, save the mission to a file.**



## Setting up Initial Mission Planner

1. Select the CONFIG/TUNING tab in the text menu.
2. Choose the Planner menu
  - a. Enable Speech radio box
    - i. Check the following boxes:
      1. Waypoint (verify Heading to Waypoint {wpn} OK.
      2. Battery Warning (WARNING, Battery at {batv} Volt, {batp} percent OK.
        - a. Make voltage nominal (4S = 14.1v; 3S = 10.6v; 2S = 7v)
        - b. Warn at 30% OK.
      3. Altitude Warning (WARNING, low altitude {alt} OK.
        - a. Make the altitude 40 relative to home OK.
      4. Arm/Disarm
        - a. Armed OK.
        - b. Disarmed OK.
  - b. UI Language = English
  - c. Dist Units = Feet Alt Units = Feet
  - d. Verify where the logs are pathed to: usually users\name\Documents\MissionPlanner\logs
  - e. Theme: change contrast of it is too low.
  - f. Verify the final setup appears as below:



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Mp Mission Planner 1.3.68 build 1.3.7105.26478

FLIGHT DATA FLIGHT PLAN INITIAL SETUP CONFIG/TUNING SIMULATION TERMINAL HELP DONATE

AUTO 115200

CONNECT

**Full Parameter List**  
**Full Parameter Tree**  
**Planner**

Video Device [Dropdown] Start Stop  Enable HUD Overla

Video Format [Dropdown]

OSD Color [Dropdown] ActiveBorder

Speech  Enable Speech  Waypoint  Mode  30s Interval  Battery Warning  Alt Warning  Arm/Disarm  Low Speed

UI Language [Dropdown] English (United States)

Joystick **Joystick Setup**

Dist Units [Dropdown] Feet Alt Units [Dropdown] Feet NOTE: The Configuration Tab will NOT display these units, as those are raw values.

Speed Units [Dropdown] meters\_per\_second

Telemetry Rates Attitude [Dropdown] 4 Positio [Dropdown] 2 Mode/Status [Dropdown] 2 RC [Dropdown] 2 Sensor [Dropdown] 2

Connect Reset  Reset on USB Connect

Track Length [Spinner] 200 Dist to Home  Display in Flightdata

Waypoints  Load Waypoints on connect?

HUD  GDI+ (old type)

Map Follow  Map is rotated to follow the plane

Log Path C:\Users\vaaf103\Documents\Mission Planner\logs **Browse**

Theme [Dropdown] BurntKemit **Custom**

Layout [Dropdown] Advanced

GCS ID [Spinner] 255

**Start/Stop Vario** **AltitudeAngel**  Password Protect Config  Show Airports  ADSB  No Fly

OptOut Anon Stats  Beta Updates  No RC Receiver  TFR's



## Setting up the Camera Configuration

1. Launch Mission Planner
2. Go to Flight Plan → Check Advanced.
3. Select the Camera Config Tab
4. Load Camera Name
5. If camera isn't listed, load photo on Camera Config screen, save and name) and read EFI (EXIF) data (EXIF data is read automatically and transparently)
6. Save the loaded sample under the camera name.

## Download Log Files

1. Connect sUAS from flight controller to USB.
2. Open Mission Planner and Connect
3. Flight Plan tab → Data Flash Logs
4. Download DataFlash Log Via Mavlink
5. Verify the data is downloaded in to the Users/yourname/Documents/MissionPlanner/Logs folder.

