

Setup & Getting Started (ArduPilot)

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Use as a Rover (Aircraft) Unit

Ardupilot 4.4.0 stable firmware currently also supports Mosaic GPS, but does not yet support dual-antenna Heading. Dual-antenna heading is supported in 4.5.0 and later.

FW 4.4.0-4.4.4

To set up using GPS1 input, configure these parameters:

“ i Info

Using serial3 as an example

- GPS_INJECT_TO = 0 (send to first GPS)
- GPS1_RATE_MS = 100
- GPS1_TYPE = 10 (SBF)
- SERIAL3_BAUD = 230
- SERIAL3_PROTOCOL = 5 (GPS)

To setup this using GPS2 input (serial4) configure these parameters:

“ i Info

- GPS_INJECT_TO = 1 (send to 2nd GPS)
- GPS2_RATE_MS = 100
- GPS2_TYPE = 10 (SBF)
- SERIAL4_BAUD = 230
- SERIAL4_PROTOCOL = 5 (GPS)

If you want to inject RTCM corrections to both GPS1 and GPS2, then use:

- GPS_INJECT_TO= 127 (send to all)

FW 4.5.0+

In ArduPilot 4.5 (or higher), a single unit with two antennas may also be used for GPS for Yaw. If a single unit with two antennas is used, please set the following parameters:

- GPSx_TYPE = 26 (SBF-DualAntenna)
- GPSx_MB_TYPE = 1 (RelativeToCustomBase)
- GPSx_MB_OFS_X and GPSx_MB_OFS_Y, and GPSx_MB_OFS_Z to match the offset of the main antenna from the second in meters. For example, if the second antenna is 50cm to the right of the main antenna, set GPSx_MB_OFS_Y.
- EK3_SRC1_YAW = 2 (GPS)

Antennas Setup

In addition, both antennas ("Master" and "Slave") must be attached and positioned at least 30cm apart. The location of the vehicle is flexible, but their positions impact several parameters which must be set in order to obtain proper operation. These offset distances in the x/y/z directions must be entered for the following parameters:

- GPS1_MB_TYPE = 1 (GPS1 Moving Baseline master antenna offsets relative to slave antenna, also enables the next parameters to be shown)
- GPS1_MB_OFS_X: offset in meters from the "Slave" to "Master" antenna in the X axis (in direction of 0 deg yaw, positive offsets are if "Master" is in front of the "Slave".
- GPS1_MB_OFS_Y: offset in meters from the "Slave" to "Master" antenna in the Y axis (in direction 90 deg (right) of 0 deg yaw, positive offsets are if "Master" to the right of the "Slave".
- GPS1_MB_OFS_Z:: offset in meters from the "Slave" to "Master" antenna in the Z axis (in direction up and down, positive offsets are if "Master" is below the "Slave".

This figure and photo illustrate these parameters and their settings:

 [Image — to be added]

A complete dual antenna configuration guide can be found in the link below:

<https://ardupilot.org/copter/docs/common-gps-for-yaw.html>

Use as Base Station

⚠ Warning

This section only applies to mosaic-H

ℹ Info

With the latest version of MissionPlanner, manual configuration is not required. Please skip this section to the next section for the base setup guide using MissionPlanner.

1) First, download the configuration file from our website to the local computer according to the base type:

- mosaic-H_Current_moving_base.txt (mobile station)

⏏ [Downloadable file — to be added]

- mosaic-H_Current_Static_base.txt (fixed station)

⏏ [Downloadable file — to be added]

2) Connect the module to the computer through the USB TYPE-C port, open any Web browser, enter 192.168.3.1 in the address bar to open the Mosaic-H configuration page, as shown below

 [Image — to be added]

3) Click Admin->Configurations to enter the configuration page\

“  [Image — to be added]

4) Click the Upload Configuration icon to upload the configuration file

“  [Image — to be added]

6) Click OK first, then click the Save button to save the configuration

“  [Image — to be added]

Click Admin->Reset to enter the reset page, select Soft, and click OK to restart. You can also unplug the USB cable and perform a power-off restart.

“  [Image — to be added]

7) Place the base station in an open area, and click on the GNSS->Satellites and Signals page to view the satellite search status. After the Tracking and Position values are stable (as shown below), the RTCM data can be forwarded through the ground station.

“  [Image — to be added]

Implement RTK through MissionPlanner

⚠ Warning

This section only applies to mosaic-H

Connect the Mosaic-H GPS to the computer via the USB port. After Mosaic-H is connected to the computer, there will be two Virtual USB COM Ports. Virtual USB COM Port 1 corresponds to USB1 in the operation interface, and Virtual USB COM Port 2 corresponds to USB2. Generally, we use USB1 to transmit NMEA/GGA and other data, and then on USB2 output RTCM data. With the MissionPlanner auto configuration feature, both COM ports can be used for the RTK base function.

On the missionPlanner-> SETUP-> Optional Hardware-> RTK/GPS Inject page, make sure Automatically Configure Receiver is enabled, and the Septentrio option is selected. Choose any of the mosaic-H's COM ports and click Connect.

“ [Image — to be added]

When Mosaic-H is used as a Base station, it will automatically select the appropriate positioning accuracy based on signal quality. There is no need to set the accuracy and survey-in time.

When the Base, GPS, Glonass, Beidou, and Galileo icons in the RTCM column all turn green, the ground station begins to send the RTCM data to the flight control through digital transmission.

Click on the MissionPlanner->DATA page, and you can see that the rover side has been RTK-Fixed. (The rover side can use F9P or Mosaic-H)

“ [Image — to be added]

Now return to the Mosaic-H configuration page, click on the NMEA/SBF Out page, and you can see that the USB2 port has started to output the RTCM data stream.
