Configuration of mRo radio settings

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1　Update to latest firmware version

1. Open QGroundControl (QGC) and navigate to the firmware section, as shown in figure 1.
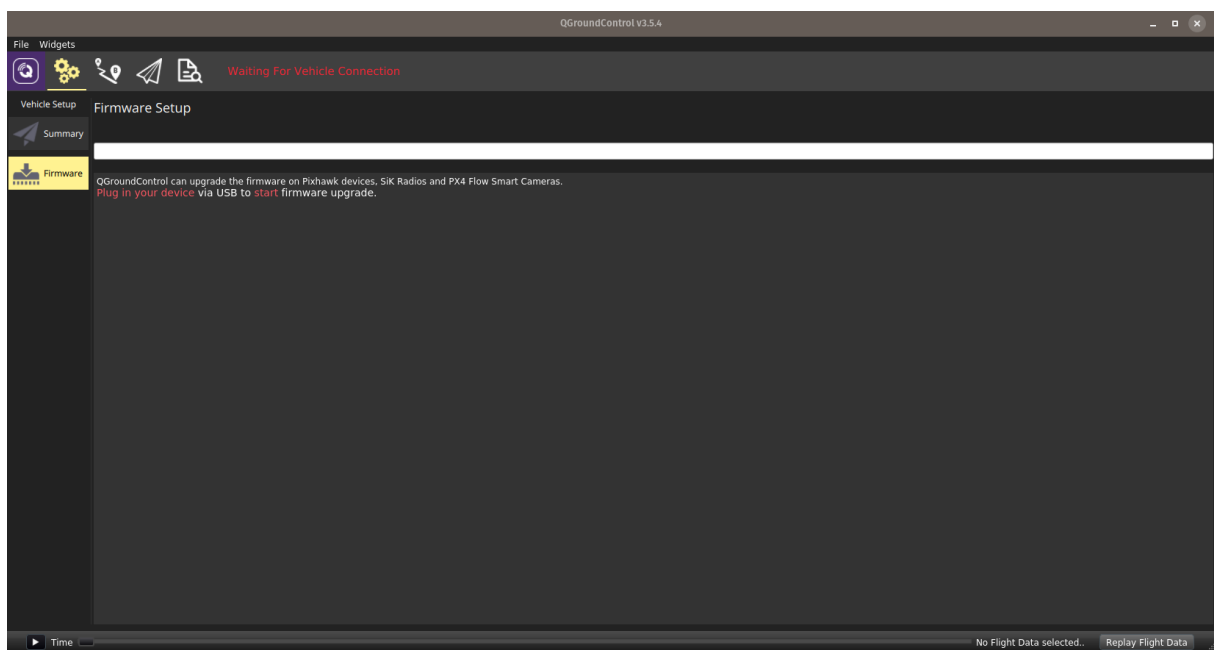

Figure 1: QGC firmware section.

2. Connect the mRo module to the computer by USB and wait for QGC to report the flashing is complete.

Remember to flash both modules to ensure they run the same version.

2　Change settings on the mRo Modules

OBS: Receiving data from the other radio while trying to get into configuration mode, might not work. If that happens ensure the other paired radio is offline and try again.

A video showing an example of changing the parameters using this guide is available at https://youtu.be/grSSGKWVGIg

1. Install screen on your computer with: `sudo apt install screen`

2. Connect the mRo module to the usb port and find what port it uses. Typical it would be `/dev/ttyUSB0`. Port can be found by running `dmesg | grep tty`

3. Connect to the mRo module with screen: `screen /dev/ttyUSB0 57600 8N1` (This tries to open serial device USB0 with 57600 baudrate and 8N1 settings for stopbit etc.

4. Click on your + key three times, so you send three + characters. (**OBS: It doesn't indicate when you send them, only after you have sent all three!**). Then wait for it to respond `OK`. This signals you entered configuration mode. You might have to wait 1 sec from it showing `OK` to you can send commands.

5. Then use the commands shown in table 1 to change settings. The settings and their number are shown in code 1. Settings won't be saved until you write them to the EEPROM with the `AT&W` command.

   For example to change the `NETID` to 250 you would write: `ATS3=250`. Then finish by `AT&W` to save the changes.

Command	Description
ATI	Show radio version
ATI2	Show board type
ATI3	Show board frequency
ATI4	Show board version
ATI5	Show all user settable EEPROM parameters
ATO	Exit AT command mode
ATSn?	Display radio parameter number 'n'
ATSn=X	Set radio parameter number 'n' to 'X'
ATZ	Reboot the radio
AT&W	Write current parameters to EEPROM
AT&F	Reset all parameters to factory by default

Table 1: Radio commands

```
1  S0:FORMAT=26
2  S1:SERIAL_SPEED=57
3  S2:AIR_SPEED=64
4  S3:NETID=25
5  S4:TXPOWER=20
6  S5:ECC=0
7  S6:MAVLINK=1
8  S7:OPPRESEND=0
9  S8:MIN_FREQ=433050
10 S9:MAX_FREQ=434790
11 S10:NUM_CHANNELS=10
12 S11:DUTY_CYCLE=100
13 S12:LBT_RSSI=0
14 S13:MANCHESTER=0
15 S14:RTSCTS=0
16 S15:MAX_WINDOW=131
```

Code 1: The default settings and their numbers

6. `ATI5` shows the current settings, do note that if frequencies are showing 0, you need to reboot the module with `ATZ` and then resend the three + characters. Then the frequencies should show the correct values.

7. When required settings has been changed, then remember to save with `AT&W` command and reboot the module with the `ATZ` command. Do the same to the other radio. Afterwards they should both connect to each other, which is shown as a solid green led on both modules when both are turned on and are in range.

2.1 Screen cheatsheet

Description	Command
Start a new session with session name	`screen -S <session_name>`
List running sessions / screens	`screen -ls`
Attach to a running session	`screen -x`
Attach to a running session with name	`screen -r <session_name>`
Detach a running session	`screen -d <session_name>`
Detach	`Ctrl-a d`
Detach and logout (quick exit)	`Ctrl-a D D`
Exit screen	`Ctrl-a :quit`
Force-exit screen	`Ctrl-a C-\(not recommended)`

Table 2: Screen cheatsheet