# UART setup on Raspberry Pi 3B+

## Enabling UART on Raspberry Pi for serial device ttyS0: (swarm-dongle)

* cd /dev
* /dev ls -l
  + Lists devices
  + Here we see ttyAMA0 only we need ttyS0 - need to enable this.
* Sudo nano /boot/config.txt
* Scroll to end of file and add: *enable\_uart=1*
* Save and exit
* Reboot: sudo reboot
* Cd /dev
* /dev ls -l
  + Should see ttyS0 (serial0) now
* To test commands install picocom: sudo apt-get install picocom
* picocom --baud 9600 /dev/ttyS0
* Once terminal ready: AT
  + Should get OK feedback

## Enabling UART on Raspberry Pi for serial device ttyAMA0: (gimbal)

TODO

## PuTTY Console and UART Device Setup:

Open PuTTY session using COM3 as serial line (or whatever device name UART device comes up as) and leave speed to default (9600) for testing swarm-dongle UART communication. (Testing for gimbal communication has not yet been added and may require a different speed set – 115200).

A computer screen shot of a computer

Description automatically generated

**For serial port ttyS0 (swarm-dongle) wiring:**

* Using UART device connect ground to ground pin on Raspberry Pi (pin 6).
* Connect RX pin on UART device to UART0\_TXD on Raspberry Pi (pin 8).
* Connect TX pin on UART device to UART0\_RXD on Raspberry Pi (pin 10).

**For serial port ttyAMA0 (gimbal) wiring: TODO**

A diagram of a circuit board

Description automatically generated

## Disabling / Re-enabling getty when testing UART:

When testing UART commands on the Raspberry Pi the serial port ttyS0 is being used by getty a service that allows you to login via SSH. Without disabling this service you will see garbage throughout the output of your PuTTY console.

COMMANDS TO DISABLE:

* sudo systemctl stop serial-getty@ttyS0.service
* sudo systemctl disable serial-getty@ttyS0.service

COMMANDS TO RE-ENABLE:

* sudo systemctl enable serial-getty@ttyS0.service
* sudo systemctl start serial-getty@ttyS0.service

## Swarm-Dongle UART commands:

The following list of commands describes the communication between the Raspberry Pi Tracking System and the Swarm-Dongle.

|  |  |
| --- | --- |
| **Command** | **Action** |
| *track-start* | Initiate tracking. |
| *update-loc* <coordinates> | Send coordinates for drone to update its location to. |
| *track-end* | End tracking. |