

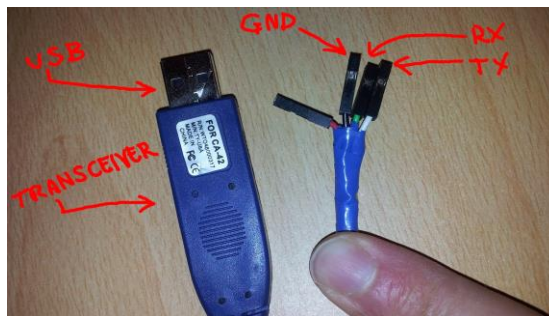
How to activate Matrice 100 Drone with Intel NUC as onboard computer

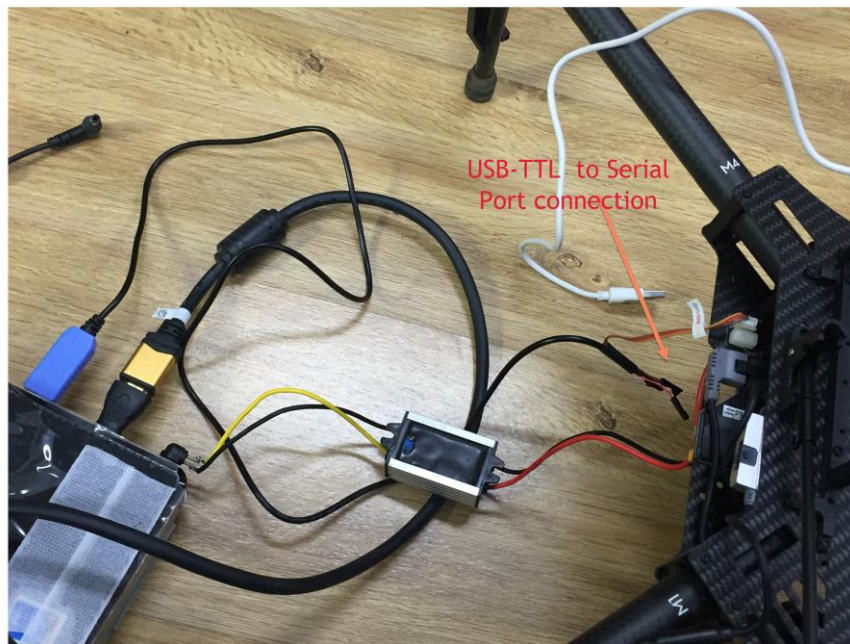
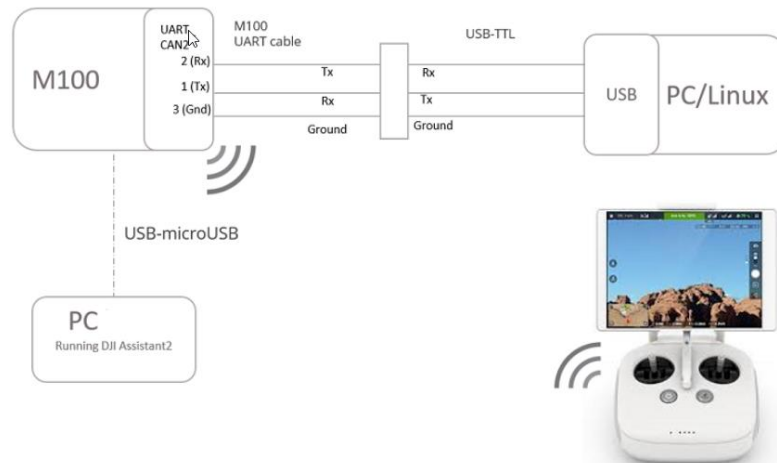
In this article I have written what and all required to set-up to work with DJI onboard SDK.

1. Download the DJI PC Assistant 2 software for Windows/Mac.
Download the DJI GO App to your mobile device.
2. Update Aircraft and flight controller to latest firmware versions.
3. You must register with DJI as a developer and create an application ID and Key pair.
(<https://developer.dji.com/register/>)

Hardware setup

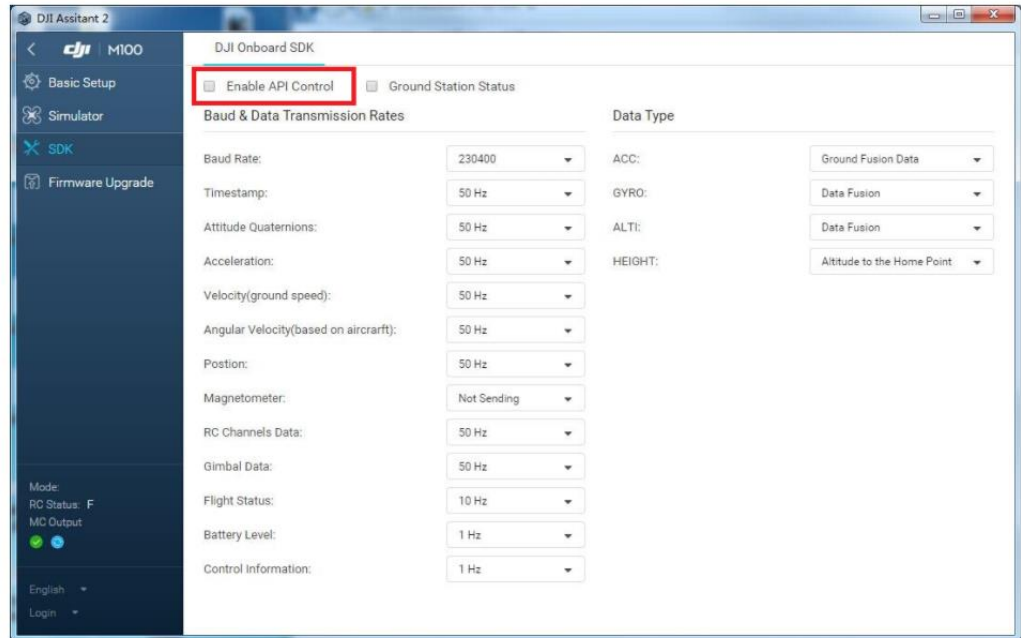
1. DC-DC power supply – to draw power from M100
(<https://www.amazon.com/DROK-Converter-Regulator-1-5-24V-Adjustable/dp/B00KL7I9XC>)
2. USB to TTL cable (https://www.amazon.com/ADAFRUIT-INDUSTRIES-954-SERIAL-RASPBERRY/dp/B00DJUHGHI/ref=sr_1_5?s=electronics&ie=UTF8&qid=1466208644&sr=1-5&keywords=usb+to+t11)
3. Directly wire TTL End of cable to UART cable (UART is provided with drone) and plug it to UART Can2 port in drone (As shown in figures).





Software setup

1. The OSDK API needs to be enabled to allow communication between the onboard computer and the aircraft or flight controller also change to F mode in RC.
2. With your aircraft/flight controller connected to your PC/Mac, launch DJI Assistant 2 and check the box marked Enable API Control on the SDK page.



3. Set baud rate as 230400 it should be same in DJI Assistant 2. (https://askubuntu.com/questions/592386/ubuntu-putty-and-serial-port?utm_medium=organic&utm_source=google_rich_qa&utm_campaign=google_rich_qa)
4. You need to add your user to the dialout group to obtain read/write permissions for the UART communication.
Type `sudo usermod -a -G dialout $USER` in a terminal
5. Mention your appid and key in respective files (File location varies based on the platform of the SDK)

```

ubuntu: ~/Desktop/firstpro/Onboard-SDK-3.6/build/bin
app_id : [REDACTED]
app_key : [REDACTED]
device : /dev/ttyUSB0
baudrate : 230400

"UserConfig.txt" 4L 132C

```

6. Give read and write permissions to serial port.

```
sudo chmod 666 /dev/ttyUSB0
```

```
[ 1.734332] input: Power Button as /devices/LNXSYSTM:00/LNXPWRBN:00/input/input0
[ 1.734360] ACPI: Power Button [PWRB]
[ 1.758770] 00:05: ttyS0 at I/O 0x3f8 (irq = 4, base_baud = 115200) is a 16550A
[ 1.814599] evm: HMAC attrs: 0x1
[ 1.821062] rtc_cmos 00:01: setting system clock to 2018-04-27 02:42:34 UTC (1524796954)
[ 2.780760] sd 2:0:0:0: Attached scsi generic sg0 type 0
[ 2.785207] sd 2:0:0:0: [sda] Attached SCSI disk
[ 3.017402] sr 4:0:0:0: Attached scsi CD-ROM sr0
[ 3.017513] sr 4:0:0:0: Attached scsi generic sg1 type 5
[ 157.853257] usb 2-2.1: ch341-uart converter now attached to ttyUSB0
[ 4151.936907] sd 33:0:0:0: Attached scsi generic sg2 type 0
[ 4151.992448] sd 33:0:0:0: [sdb] Attached SCSI removable disk
[16579.991952] ch341-uart ttyUSB0: ch341-uart converter now disconnected from ttyUSB0
[20076.010642] usb 2-2.1: ch341-uart converter now attached to ttyUSB0
luce@ubuntu:~/Desktop/firstpro/onboard-SDK-3.6/build/bin$ dmesg | grep tty*
```

Set up and build samples

<https://developer.dji.com/onboard-sdk/documentation/sample-doc/sample-setup.html#linux-onboard-computer>

```
luce@ubuntu:~/Desktop/firstpro/onboard-SDK-3.6/build/bin
Stopping video...
Check DJI GO App or SD card for a new video.
luce@ubuntu:~/Desktop/firstpro/onboard-SDK-3.6/build/bin$ ./djosdk-cameraginbal-sample UserConfig.txt
Read App ID
User configuration read successfully.

STATUS/1 @ init, L55: Attempting to open device /dev/ttyUSB0 with baudrate 230400...
STATUS/1 @ init, L65: ...Serial started successfully.
STATUS/1 @ parseDroneVersionInfo, L687: Device Serial No. = 0410078589
STATUS/1 @ parseDroneVersionInfo, L689: Hardware = M100
STATUS/1 @ parseDroneVersionInfo, L690: Firmware = 3.1.10.0
STATUS/1 @ parseDroneVersionInfo, L693: Version CRC = 0xA6453AAC
STATUS/1 @ initSubscriber, L738: Telemetry subscription mechanism is not supported on this platform!
STATUS/1 @ initMFIO, L941: MFIO is not supported on this platform!
STATUS/1 @ initHardSync, L1003: Hardware Sync is not supported on this platform!
STATUS/1 @ activate, L1239: version 0x3010A00
STATUS/1 @ activate, L1252: Activation successful
Available commands:
[a] Exercise gimbal and camera control

Please note that the gimbal yaw angle you see in the telemetry is w.r.t absolute North, and the accuracy depends on your magnetometer calibration.
Initial Gimbal rotation angle: [-49.1, 171.2, -43.3]
Setting new Gimbal rotation angle to [0,20,180] using incremental control:
New Gimbal rotation angle is [-53 -169.6 -33.0]

Ensure SD card is present.
Taking picture...
Check DJI GO App or SD card for a new picture.
Setting new Gimbal rotation angle to [0,-50, 0] using absolute control:
New Gimbal rotation angle is [-54.6 -159.3 -28.4]

Ensure SD card is present.
Starting video...
Gimbal Speed Description:
Roll - unit 0.1 degrees/second input rate [-1800, 1800]
Pitch - unit 0.1 degrees/second input rate [-1800, 1800]
Yaw - unit 0.1 degrees/second input rate [-1800, 1800]

Setting Roll rate to 10, Pitch rate to 5, Yaw Rate to -20.
New Gimbal rotation angle is [-54.9 -148 -21.9]
```