

SSH into the reach ( I use PuTTY from Windows )

Login as:**root**

root@xxx.xxx.xxx.xxx's password: **emlidreach**

**cd /**

I choose to make a new directory for the files:

root@reach:/#**mkdir imu**

root@reach:/imu#**cd imu**

Install the cmake app

root@reach:/imu#**opkg install cmake**

Now clone the files from git:

root@reach:/imu#**git clone** <https://github.com/richards-tech/RTIMULib2.git>

root@reach:/imu#**cd RTIMULib2/Linux**

root@reach:/imu/RTIMULib2/Linux#**vim cMakelists.txt**

Edit the list to not build GL

(use arrows to move curor, then press 'i' to allow insert edit mode)

OPTION(BUILD\_GL "Build RTIMULibGL" **OFF**)

Press escape

**:wq** to write end quit program

root@reach:/imu/RTIMULib2/Linux#**mkdir build**

root@reach:/imu/RTIMULib2/Linux#**cd build**

root@reach:/imu/RTIMULib2/Linux/build#**cmake ..**

**#make -j4**

**#make install**

I'm confident in the process to this point, after this, what I'm not sure about is the order and which particular directories that you need to go into...so I just start going through the directories and issue the make -j4 and make install command in each! Below is my current guess at the sequence

```
cd ./RTIMULibDrive
make -j4
Make install
```

```
cd ./RTIMULib
make -j4
make install
```

```
cd .. (.../Linux#)
make install
```

```
cd RTIMULibCal
make -j4
make install
```

I don't know the exact order, but I know I'm not there yet when I get this message trying to run RTIMULibCal:

```
RTIMULibCal: error while loading shared libraries:
libRTIMULib.so.8: cannot open shared object file: No such file
or directory
```

I know RTIMULib, RTIMULibCAL, RTIMULibDrive are important.

The goal is to get it installed such that you can go into the RTIMULibCal directory and run RTIMULibCal. When you run the program:

```
...RTIMULibCal#RTIMULibCal
```

**When functioning correctly, the first time it will give a message saying Failed to open SPI bus 0...**

**But it generates an RTIMULib.ini file that you need to edit to set the correct SPI information:**

```
#vim RTIMULib.ini
```

Edit the following in RTIMULib.ini: (Change the defaults to what is listed in BOLD)

```
IMUType=7
```

```
BusISI2C = false
```

```
SPIBus=5
```

```
SPISelect=1
```

I'd recommend sticking with the defaults for everything else at this point.

In the python directory

```
.../python#python setup.py install
```

Then

```
.../python#cd tests
```

Next you need to copy the calibrated RTIMULib.ini file into the directory you will be running the application from

```
.../tests#cp ../RTIMULibCal/RTIMULib.ini ./
```

If all worked well, you can now run the Fusion.py example and get calibrated data out!

```
.../tests#python Fusion.py
```

If you get all zeros, check the RTIMULib.ini file to make sure it's got the SPI bus config and some numbers listed for the cal data.

If all works, you'll start seeing a datastream like this:

```
root@reach:/imu/RTIMULib2/Linux/python/tests# python Fusion.py
Using settings file RTIMULib.ini
IMU Name: MPU-9250
IMU Init Succeeded
Recommended Poll Interval: 4mS

r: -0.525026 p: 0.014026 y: 0.860721
r: -0.521367 p: 0.013974 y: 0.867643
r: -0.518083 p: 0.012159 y: 0.872853
r: -0.512488 p: 0.009825 y: 0.883216
r: -0.508986 p: 0.007692 y: 0.882366
r: -0.505268 p: 0.005765 y: 0.873708
r: -0.504040 p: 0.005359 y: 0.894017
r: -0.502209 p: 0.002562 y: 0.936780
r: -0.502465 p: 0.001464 y: 0.976077
r: -0.503526 p: -0.002085 y: 1.013862
r: -0.500843 p: -0.003436 y: 1.056555
r: -0.498597 p: -0.006025 y: 1.096598
r: -0.497975 p: -0.006231 y: 1.117252
r: -0.496667 p: -0.005261 y: 1.126151
r: -0.494871 p: -0.009393 y: 1.134732
r: -0.493303 p: -0.011040 y: 1.140609
r: -0.491449 p: -0.010841 y: 1.160125
r: -0.488846 p: -0.012032 y: 1.189410
r: -0.489578 p: -0.013321 y: 1.172546
r: -0.487696 p: -0.016390 y: 1.127361
r: -0.486752 p: -0.017212 y: 1.083178
r: -0.485252 p: -0.018220 y: 1.042238
r: -0.485219 p: -0.017808 y: 1.001862
r: -0.483228 p: -0.017817 y: 0.964349
```

Sources (beyond the threads in this board) deserving credit:

<https://github.com/RTIMULib/RTIMULib2/tree/master/Linux>

[http://kingtidesailing.blogspot.com/2016/02/how-to-setup-mpu-9250-on-raspberry-pi\\_25.html](http://kingtidesailing.blogspot.com/2016/02/how-to-setup-mpu-9250-on-raspberry-pi_25.html)