How to Launch our Code

Will use 3 different terminals (powershell for windows, default for Mac)

1. Docker
2. Mavproxy
3. Python

Options

1. Windows terminal, have multiple here
2. **VScode, split terminal or choose between the options on the right**

Run SITL using the docker image

Open Docker Desktop (click the desktop icon)

Then in terminal (or powershell admin for windows)

- docker run -it --rm -p 5760:5760 --name sitl fixed
- (The docker container port is 5760)

Run mavproxy on your computer in a new (powershell) terminal

Mac:
mavproxy.py --master=tcp:localhost:5760 --out=udp:127.0.0.1:14550 --out=udp:127.0.0.1:14560 --streamrate=10

Windows:
mavproxy.exe --master=tcp:localhost:5760 --out=udp:127.0.0.1:14550 --out=udp:127.0.0.1:14560 --streamrate=10

Reference: Changing Telemetry Rates in Ardupilot

- Adjust the --streamrate=10 parameter to get the GPS data at 10 hz in our Python script!

Note: we want mavproxy to run on our laptop, not in the docker container

Run QGroundControl

just open the app, should connect automatically on 14550 port

In the maxproxy terminal that is open

mode GUIDED
arm throttle

Run our script

python main424.py --connect :14560

How to Control our Drone

Wasd keys
'Z' to zero out input commands
Press '[' to move down, and ']' to move up

Initial One-Time Setup

1) Download Dr. Sitchitu's fixed image for docker-sitl

https://drive.google.com/file/d/1-8KM0xNyn-i-k4OqEeS0SLsXrOE52gA9/view?usp=sharing

2) docker load < patched.tar.gz
    a) docker load -i $(Resolve-Path patched.tar.gz)

3) Download mavproxy on your computer
   - https://ardupilot.org/mavproxy/docs/getting_started/download_and_installation.html
   - would recommend using virtual env to install the needed pip modules

4. Download QGroundControl on your computer (this is just a desktop app)
https://docs.qgroundcontrol.com/master/en/getting_started/download_and_install.html

Setting the right starting location in SITL

2/22 SITL Setup for WSL

3.3.10.2

```
WSL:~/ece592$ ls
ardupilot
WSL:~/ece592$ cd ardupilot/Tools/autotest/
WSL:~/ece592/ardupilot/Tools/autotest$ vi locations.txt
```

```
#NAME=latitude,longitude,absolute-altitude,heading
NCSU=35.727312,-78.696101,0,0
```

NCSU=35.727312,-78.696101,0,0
Changing the 4th decimal place is substantial enough to make a difference

Something like
sim_vehicle.py -L NCSU --console --map