Cyber Physical Systems Security
Setup ArduPlane Test Environment.

Gabriella Colletti

1. Commands

   Downloading Ardupilot

   - cd ∼
   - sudo apt-get update
   - sudo apt-get install git
   - sudo apt-get install gitk git-gui
   - git clone https://github.com/ArduPilot/ardupilot.git

   Setting up Ardupilot

   - cd ardupilot
   - git submodule update   - -init   - -recursive
   - Tools/environment_install/install-prereqs-ubuntu.sh -y
   - . ∼/.profile

   Download MAVProxy

   - cd ∼
   - git clone https://github.com/ArduPilot/pymavlink

   Set up ArduPlane Sim: Note that this will take a while the first time this command is run. Additionally, use control+c to exist the sim once its setup is complete.

   - cd ∼/ardupilot/ArduPlane
   - sim_vehicle.py   - -map   - -console

   To run CMAC-toff-loop.txt You can also save the flight.tlog via the MAV Console pop-up window by clicking the button "Mission" and then "Save".

   - cd ∼/ardupilot/ArduPlane
   - sim_vehicle.py   - -out=udp:10.103.44.96:14550 - -mavproxy-args="- -aircraft test"
   - *After the sim is set up, type the following into your terminal (not in the pop up windows but in your command line)*
   - wp load ../Tools/autotest/Generic_Missions/CMAC-toff-loop.txt
   - arm throttle
   - mode auto

Now that the sim is running, we wait 10-15 mins to collect data in the flight log. Once 15 minutes has past, use Control +c to exit the sim.

Where is my flight log? To find the flight log go to:

- cd ∼/ardupilot/ArduPlane/test/logs/

You should see a folder with the current date on it like:

$$\sim /ardupilot/ArduPlane/test/logs/2021-10-02$$

Inside that folder will be a folder with the flight number like:

$$\sim /ardupilot/ArduPlane/test/logs/2021-10-02/flight1$$

This is where the flight log file is: flight.tlog

Where is mavlogdump.py?

- cd ∼/pymavlink/tools

---

2. Step 2: To run mavlogdump.py on the flight log (Get output.txt)

   - cd ∼
   - python ∼ PATH TO MAVLOGDUMP.PY ∼PATH TO FLIGHT LOG > ∼/output.txt where the PATH TO MAVLOGDUMP.PY is ∼/pymavlink/tools and the PATH TO FLIGHT LOG is ∼/ardupilot/ArduPlane/test/logs/2021-10-02/flight1/flight.tlog

   Thus, the command is: python ∼/pymavlink/tools   ∼/ardupilot/ArduPlane/test/logs/2021-10-02/flight1/flight.tlog > ∼/output.txt

3. Step 3: To run mavlogdump.py on the flight log (Get output.csv)

   python ∼/pymavlink/tools   - - format=csv   - - types=
   ATTITUDE, SERVO_OUTPUT_RAW, NAV_CONTROLLER_OUTPUT
   ∼/ardupilot/ArduPlane/test/logs/2021-10-02/flight1/flight.tlog > ∼/output.csv