Cyber Physical Systems Security
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1. Step 1: **To save a parameter file**, first run your simulation (you do not need to load the CMAC-toff.txt path to do this), then save the default parameters:

   - cd $\sim$ /ardupilot/ArduPlane/
   - sim_vehicle.py - -map - --console
     To show the parameters:
   - param show
     To save the parameters to a file called default.parm:
   - param save /home/<user>/default.parm
     For me, I use the command below, but you will have your own user name for your computer:
   - param save /home/colletti/default.parm

   To change the appropriate values to 0, choose an editor of your choice and change RLL_RATE_I, RLL_RATE_D, PTCH_RATE_I, and PTCH_RATE_D to 0. Below is a demonstration for vim:

   - cd $\sim$ /
   - vim default.parm Press the escape button on your keyboard, then type ":w"
   - :w
   - Scroll down to PTCH_RATE_D and change it to 0
   - Scroll down to PTCH_RATE_I and change it to 0
   - Scroll down to RLL_RATE_D and change it to 0ls
   - Scroll down to RLL_RATE_I and change it to 0 Press the escape button on your keyboard, then type:
   - : saveas noid.parm

2. Step 2: **To run a flight with noid.parm parameters**

   - cd $\sim$ /ardupilot/ArduPlane/
     The following command will save the flight in a folder called "noid_flight"
   - sim_vehicle.py - -out=udp:10.103.44.96:14550 - -aircraft "noid_flight" - -map - -console
     While the sim is setting up, use the following command to load the parameter file
   - param load /home/colletti/noid.parm
   - wp load ../Tools/autotest/Generic_Missions/CMAC-toff-loop.txt
   - arm throttle
   - mode auto

To convert the flight.tlog to csv

- python /pymavlink/tools/mavlogdump.py –format=csv –types=ATTITUDE, SERVO_OUTPUT_RAW, NAV_CONTROLLER_OUTPUT
  /ardupilot/ArduPlane/noid_flight/logs/2021-10-13/flight1/flight.tlog >∼ /noid.csv

- python /pymavlink/tools/mavlogdump.py –format=csv
  –types=ATTITUDE,SERVO_OUTPUT_RAW,NAV_CONTROLLER_OUTPUT
  /ardupilot/ArduPlane/changed_flight/logs/2021-10-14/flight1/flight.tlog
  >∼ /changed_flight.csv