

Arducopter Software in the loop (SITL) simulation on Ubuntu 12.04.1 LTS

This is my account of getting the Arducopter SITL's autotest running.

Prerequisites:

1. git
 - a. `sudo apt-get install git`
2. Arducopter repository (add ArduCopter)
 - a. `git clone https://code.google.com/p/arducopter/` will create a arducopter folder in the current working directory. Navigate into this folder and open the "WhereIsTheSourceCodeAnyway.txt" and get the current source code address
 - b. `git clone currentSourceCodeAddress`. I used "git clone https://code.google.com/p/ardupilot-mega"
3. g++
 - a. `sudo apt-get install g++`
4. MAVProxy
 - a. `sudo apt-get install python 2.7.X` current version number can be found at <http://www.python.org/download/>. I used "sudo apt-get install python 2.7.3"
 - b. `sudo apt-get install python-matplotlib`
 - c. `sudo apt-get install python-opencv`
 - d. `sudo apt-get install python-serial`
 - e. `sudo apt-get install python-wxgtk2.8`
 - f. `git clone https://github.com/tridge/MAVProxy.git`
5. pymavlink
 - a. `git clone https://github.com/tridge/mavlink.git`
6. GNU awk
 - a. `sudo apt-get install gawk`
7. AVR C library
 - a. `sudo apt-get install avr-libc`
8. Arduino
 - a. `sudo apt-get install arduino`
9. XML Parser
 - a. `sudo apt-get install libexpat1-dev`
10. GPSTBabel
 - a. `sudo apt-get install gpsbabel`
11. Flight Gear
 - a. `sudo apt-get install flightgear`
12. Adding Flight Gear Scenery (only one needed not sure which one)
(<http://www.flightgear.org/download/scenery/>)
 - a. `sudo tar -xvzf e140s40.tgz -C /usr/share/games/flightgear/Scenery/`
 - b. `sudo tar -xvzf e150s40.tgz -C /usr/share/games/flightgear/Scenery/`

Building:

1. copy files and directories in libraries/desktop/
 1. `cd /libraries/desktop/`
 2. `sudo mv support/* /usr/include/`
 3. `sudo mv include/* /usr/include/`
2. change line 59 in GCS_MAVLink.cpp
From:
 `return pgm_read_byte(&mavlink_message_crc_progmem[msgid]);`
To:
 `return pgm_read_byte((const char*)&mavlink_message_crc_progmem[msgid]);`
3. Make the directory “buildlogs” at the same level as ArduCopter-X.X
 - a. `mkdir buildlogs`
The top directory should now look like ArduCopter MAVProxy pymavlink buildlogs
4. `cd ArduCopter-X.X/ArduCopter/` ex: `cd ArduCopter-2.9/ArduCopter/`
5. `cd ArduCopter-X.X/Tools/autotest/pysim`
 - a. `sim_multicopter.py --home -35.362938,149.165085,585,270`
 - b. Wait until the quadcopter is drawn
 - c. `cd ..`
 - d. `python autotest.py --viewerip=127.0.0.1`