## Install Ubuntu 22.04

## Install Dependencies (common for PX4 & ArduPilot)

**Open terminal and enter ctrl+alt+t ( Copy and paste in terminal command enter in italic format)**

1. *sudo apt update*
2. *sudo apt install -y git python3 python3-pip python3-venv \*

*python3-numpy python3-opencv python3-yaml \*

*build-essential cmake ninja-build genromfs \*

*libeigen3-dev libxml2-utils \*

*protobuf-compiler libprotobuf-dev \*

*libusb-1.0-0-dev libqt5gui5 libqt5core5a libqt5widgets5 \*

*qtbase5-dev qtdeclarative5-dev libqt5serialport5-dev \*

*libgazebo11-dev gazebo11*

**Install Mavproxy and dronekit**

*pip install pymavlink mavproxy dronekit*

## Install QGroundControl (QGC)

Ubuntu Linux 22.04

Please refer to the link- <https://docs.qgroundcontrol.com/master/en/qgc-user-guide/getting_started/download_and_install.html>

**Supported versions: Ubuntu 22.04, 24.04:**

Ubuntu comes with a serial modem manager that interferes with any robotics related use of a serial port (or USB serial). Before installing *QGroundControl* you should remove the modem manager and grant yourself permissions to access the serial port. You also need to install *GStreamer* in order to support video streaming.

1. On the command prompt, enter:
2. *sudo apt install gstreamer1.0-plugins-bad gstreamer1.0-libav gstreamer1.0-gl -y*
3. *sudo apt install libfuse2 -y*
4. *sudo apt install libxcb-xinerama0 libxkbcommon-x11-0 libxcb-cursor-dev -y*

**To install *QGroundControl*:**

1. Download [QGroundControl-x86\_64.AppImage](https://d176tv9ibo4jno.cloudfront.net/latest/QGroundControl-x86_64.AppImage).
2. Make the AppImage executable

chmod +x QGroundControl-<arch>.AppImage

1. Run QGroundControl Either double-click the AppImage in your file manager or launch it from a terminal:

*./QGroundControl-<arch>.AppImage*

## Install PX4 Autopilot (SITL)

Clone and set up PX4:

1. cd ~
2. git clone https://github.com/PX4/PX4-Autopilot.git --recursive
3. cd PX4-Autopilot
4. bash Tools/setup/[ubuntu.sh](http://ubuntu.sh)

Build SITL + Gazebo (optional visual sim)

*make px4\_sitl\_default gazebo*

## Install ArduPilot SITL

*cd ~*

*git clone https://github.com/ArduPilot/ardupilot.git*

*cd ardupilot*

*git submodule update --init --recursive*

*Tools/environment\_install/install-prereqs-ubuntu.sh -y*

Then reload your environment:

. *~/.profile*

**Run ArduCopter SITL:**

cd ~/ardupilot/ArduCopter

sim\_vehicle.py -v ArduCopter -f gazebo-iris --console --map