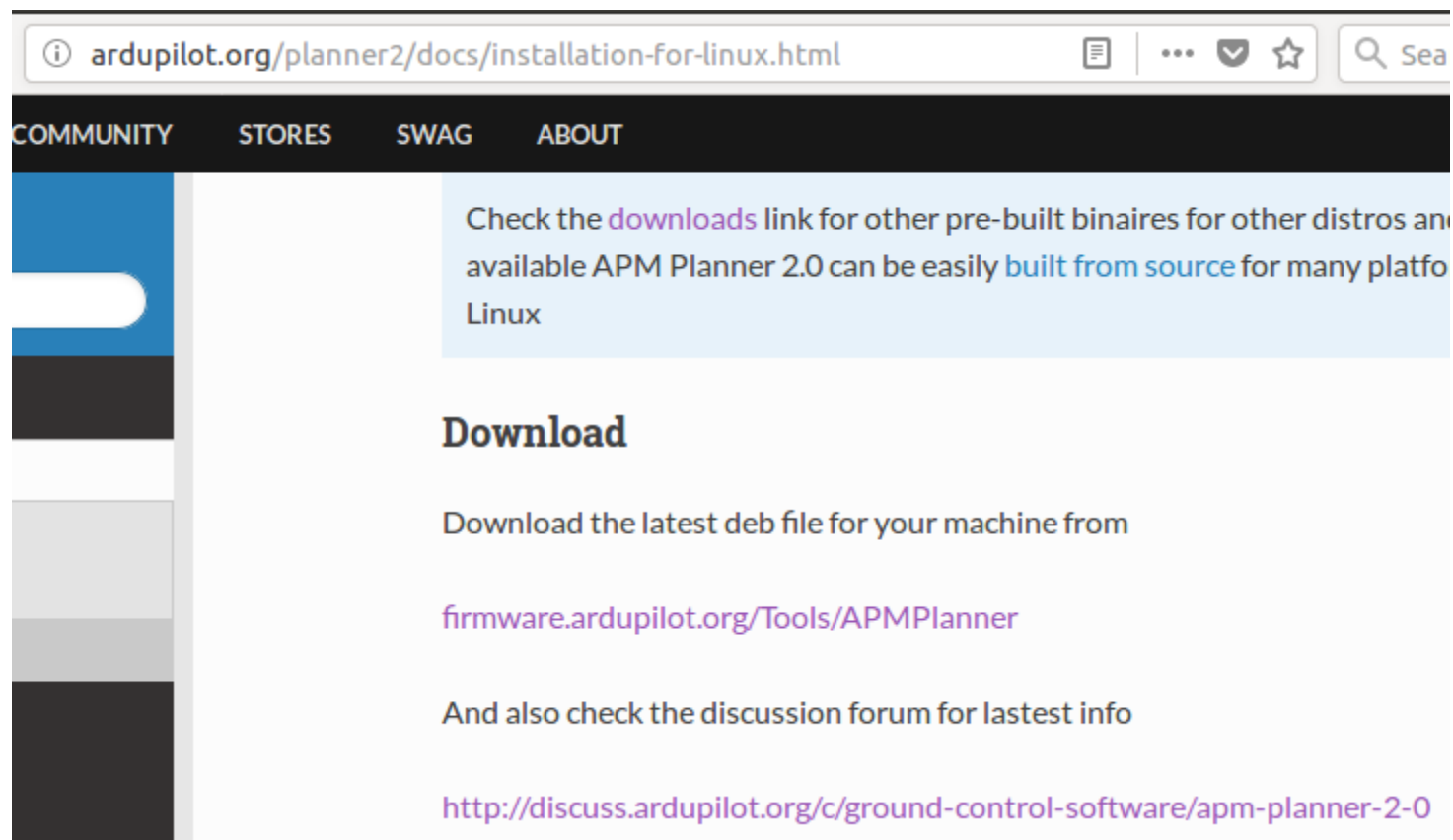


Xilinx Zynq FPGA, TI DSP, MCU 프로그래밍 및 회로 설계 전문가 과정

강사 – Innova Lee(이상훈)
gcccompil3r@gmail.com

Mission Planner on Linux

아래 사이트에 가서 파일을 다운받는다.



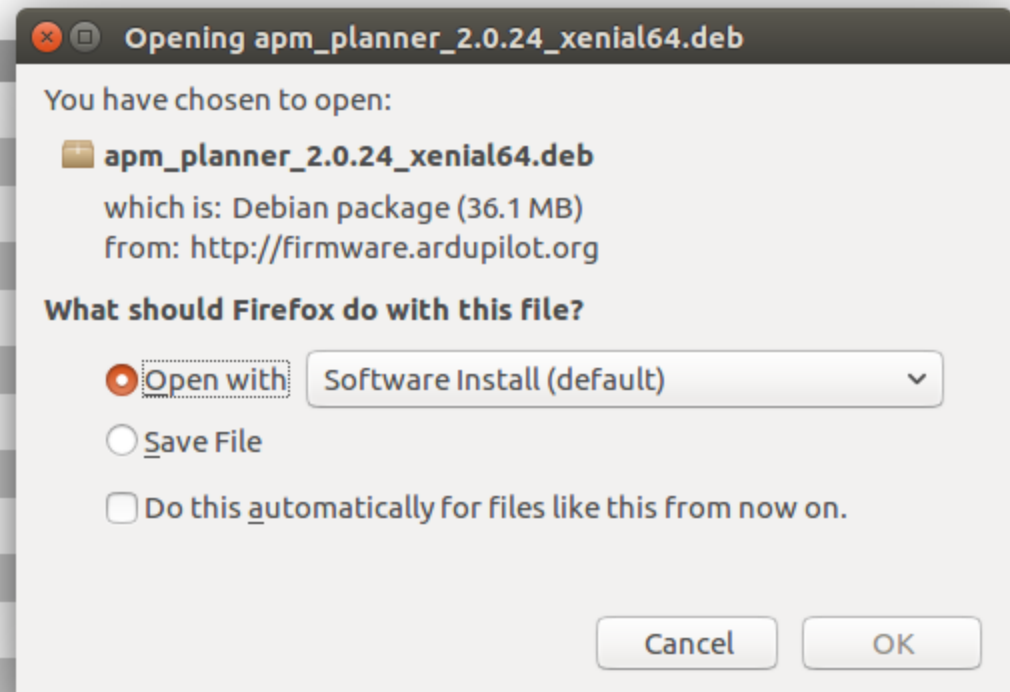


Firmware site, path: /Tools/APMPlanner

Related Ardupilot sites: [Home](#) | [Discuss](#) | [Blog](#) | [Shop](#) | [Wiki](#) | [Autotest](#) | [Firmware](#)

Folder contents:

Type	Filename
🔙	Parent Directory
📄	apm_planner_2.0.23_debian_stretch.deb
📄	apm_planner_2.0.24_osx.dmg
📄	apm_planner_2.0.24_win.exe
📄	apm_planner_2.0.24_xenial64.deb
📄	apm_planner_2.0.24_xenial_armhf.deb
📄	apm_planner_2.0.25_osx.dmg
📄	apm_planner_2.0.26_osx.dmg
📄	apm_planner_version.json
📁	archive
📁	beta
📁	daily
📁	latest
📁	support_files



```
Terminal File Edit View Search Terminal Help
white_lane.mp4
Xilinx.lic
Xilinx_Vivado_SDK_2015.4_1118_2.tar.gz
sdr@sdr-Samsung-DeskTop-System:~/Downloads$ sudo dpkg -i apm_planner_2.0.24_xeni
al64.deb
[sudo] password for sdr:
Selecting previously unselected package apmplanner2.
(Reading database ... 423707 files and directories currently installed.)
Preparing to unpack apm_planner_2.0.24_xenial64.deb ...
Unpacking apmplanner2 (2.0.24) ...
dpkg: dependency problems prevent configuration of apmplanner2:
  apmplanner2 depends on libqt5serialport5 (>= 5.1.0); however:
    Package libqt5serialport5 is not installed.
  apmplanner2 depends on libsdl2-2.0-0 (>= 2.0.4); however:
    Package libsdl2-2.0-0 is not installed.

dpkg: error processing package apmplanner2 (--install):
  dependency problems - leaving unconfigured
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for bamfdaemon (0.5.3~b2r0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for mime-support (3.59ubuntu1) ...
```

```
sdr@sdr-Samsung-DeskTop-System:~/Downloads$ sudo apt-get -f install
Reading package lists... Done
Building dependency tree
Reading state information... Done
Correcting dependencies... Done
The following packages were automatically installed and are no longer required:
  linux-headers-4.10.0-28 linux-headers-4.10.0-28-generic
  linux-headers-4.13.0-32 linux-headers-4.13.0-32-generic
  linux-headers-4.13.0-36 linux-headers-4.13.0-36-generic
  linux-headers-4.13.0-37 linux-headers-4.13.0-37-generic
  linux-headers-4.13.0-41 linux-headers-4.13.0-41-generic
  linux-image-4.10.0-28-generic linux-image-4.13.0-32-generic
  linux-image-4.13.0-36-generic linux-image-4.13.0-37-generic
  linux-image-4.13.0-41-generic linux-image-extra-4.10.0-28-generic
  linux-image-extra-4.13.0-32-generic linux-image-extra-4.13.0-36-generic
  linux-image-extra-4.13.0-37-generic linux-image-extra-4.13.0-41-generic
  linux-signed-image-4.13.0-32-generic linux-signed-image-4.13.0-36-generic
  linux-signed-image-4.13.0-37-generic linux-signed-image-4.13.0-41-generic
  linux-signed-image-generic-hwe-16.04
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libqt5serialport5 libsdl2-2.0-0 libsndio6.1
Suggested packages:
  sndiod
The following NEW packages will be installed:
  libqt5serialport5 libsdl2-2.0-0 libsndio6.1
0 upgraded, 3 newly installed, 0 to remove and 243 not upgraded.
1 not fully installed or removed.
Need to get 400 kB of archives.
After this operation, 1,354 kB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
Terminal File Edit View Search Terminal Help

sndiod
The following NEW packages will be installed:
  libqt5serialport5 libsdl2-2.0-0 libsndio6.1
0 upgraded, 3 newly installed, 0 to remove and 243 not upgraded.
1 not fully installed or removed.
Need to get 400 kB of archives.
After this operation, 1,354 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://kr.archive.ubuntu.com/ubuntu xenial/universe amd64 libqt5serialport5 amd64 5.5.1-2build1 [33.6 kB]
Get:2 http://kr.archive.ubuntu.com/ubuntu xenial/universe amd64 libsndio6.1 amd64 1.1.0-2 [23.2 kB]
Get:3 http://kr.archive.ubuntu.com/ubuntu xenial/universe amd64 libsdl2-2.0-0 amd64 2.0.4+dfsg1-2ubuntu2 [343 kB]
Fetched 400 kB in 0s (1,863 kB/s)
Selecting previously unselected package libqt5serialport5:amd64.
(Reading database ... 424558 files and directories currently installed.)
Preparing to unpack .../libqt5serialport5_5.5.1-2build1_amd64.deb ...
Unpacking libqt5serialport5:amd64 (5.5.1-2build1) ...
Selecting previously unselected package libsndio6.1:amd64.
Preparing to unpack .../libsndio6.1_1.1.0-2_amd64.deb ...
Unpacking libsndio6.1:amd64 (1.1.0-2) ...
Selecting previously unselected package libsdl2-2.0-0:amd64.
Preparing to unpack .../libsdl2-2.0-0_2.0.4+dfsg1-2ubuntu2_amd64.deb ...
Unpacking libsdl2-2.0-0:amd64 (2.0.4+dfsg1-2ubuntu2) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
Setting up libqt5serialport5:amd64 (5.5.1-2build1) ...
Setting up libsndio6.1:amd64 (1.1.0-2) ...
Setting up libsdl2-2.0-0:amd64 (2.0.4+dfsg1-2ubuntu2) ...
Setting up apmplaner2 (2.0.24) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
sdr@sdr-Samsung-DeskTop-System:~/Downloads$ sudo dpkg -i apm_planner_2.0.24_xenial64.deb
```

```
sdr@sdr-Samsung-DeskTop-System:~/Downloads$ sudo dpkg -i apm_planner_2.0.24_xenial64.deb
(Reading database ... 424578 files and directories currently installed.)
Preparing to unpack apm_planner_2.0.24_xenial64.deb ...
Unpacking apmplanner2 (2.0.24) over (2.0.24) ...
Setting up apmplanner2 (2.0.24) ...
Processing triggers for gnome-menus (3.13.3-6ubuntu3.1) ...
Processing triggers for desktop-file-utils (0.22-1ubuntu5.1) ...
Processing triggers for bamfdaemon (0.5.3~bZR0+16.04.20160824-0ubuntu1) ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for mime-support (3.59ubuntu1) ...
sdr@sdr-Samsung-DeskTop-System:~/Downloads$
```

```
sdr@sdr-Samsung-DeskTop-System:~$ sudo apt-get update
Hit:1 http://kr.archive.ubuntu.com/ubuntu xenial InRelease
Hit:2 http://kr.archive.ubuntu.com/ubuntu xenial-updates InRelease
Hit:3 http://kr.archive.ubuntu.com/ubuntu xenial-backports InRelease
Hit:4 http://ppa.launchpad.net/maarten-baert/simplescreenrecorder/ubuntu xenial InRelease
Hit:5 http://security.ubuntu.com/ubuntu xenial-security InRelease
Hit:6 http://ppa.launchpad.net/soylent-tv/screenstudio/ubuntu xenial InRelease
Hit:7 http://deb.playonlinux.com precise InRelease
Reading package lists... Done
sdr@sdr-Samsung-DeskTop-System:~$ sudo apt-get install qt5-qmake qt5-default qtscript5-dev
libqt5webkit5-dev libqt5serialport5-dev libqt5svg5-dev qtdeclarative5-qtquick2-plugin lib
qt5serialport5-dev libqt5opengl5-dev qml-module-qtquick-controls
```



```
Setting up mesa-common-dev:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libglapi-mesa:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libglapi-mesa:i386 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libllvm6.0:amd64 (1:6.0-1ubuntu2~16.04.1) ...
Setting up libllvm6.0:i386 (1:6.0-1ubuntu2~16.04.1) ...
Setting up libgl1-mesa-dri:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Installing new version of config file /etc/drirc ...
Setting up libgl1-mesa-dri:i386 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgl1-mesa-glx:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgl1-mesa-glx:i386 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgl1-mesa-dev:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libosmesa6:i386 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libosmesa6:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgbm1:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libegl1-mesa:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libwayland-egl1-mesa:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgles2-mesa:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libwayland-bin (1.12.0-1~ubuntu16.04.3) ...
Setting up libwayland-dev:amd64 (1.12.0-1~ubuntu16.04.3) ...
Setting up libegl1-mesa-dev:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up libgles2-mesa-dev:amd64 (18.0.5-0ubuntu0~16.04.1) ...
Setting up qtbase5-dev:amd64 (5.5.1+dfsg-16ubuntu7.5) ...
Setting up libqt5quickparticles5:amd64 (5.5.1-2ubuntu6) ...
Setting up qtdeclarative5-dev:amd64 (5.5.1-2ubuntu6) ...
Setting up libqt5webkit5-dev:amd64 (5.5.1+dfsg-2ubuntu1) ...
Setting up qtscript5-dev:amd64 (5.5.1+dfsg-2build1) ...
Setting up libqt5opengl5-dev:amd64 (5.5.1+dfsg-16ubuntu7.5) ...
Setting up libqt5serialport5-dev:amd64 (5.5.1-2build1) ...
Setting up qt5-default:amd64 (5.5.1+dfsg-16ubuntu7.5) ...
Processing triggers for libc-bin (2.23-0ubuntu10) ...
sdr@sdr-Samsung-DeskTop-System:~$ sudo apt-get install git libsdl1.2-dev libsndfile-dev f
lite1-dev libssl-dev libudev-dev libsdl2-dev python-serial python-pexpect
```

```
Terminal File Edit View Search Terminal Help
sdr@sdr-Samsung-DeskTop-System:~/my_proj$ git clone https://github.com/diydrones/apm_planner
Cloning into 'apm_planner'...
remote: Counting objects: 66177, done.
remote: Compressing objects: 100% (7/7), done.
remote: Total 66177 (delta 1), reused 3 (delta 0), pack-reused 66170
Receiving objects: 100% (66177/66177), 255.80 MiB | 1.38 MiB/s, done.
Resolving deltas: 100% (49300/49300), done.
Checking connectivity... done.
sdr@sdr-Samsung-DeskTop-System:~/my_proj$ cd apm_planner/
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ ls
APMPlanner.plist      Drivers              qgroundcontrol.qrc
apm_planner.pro        drmingw.exe         qgroundcontrol.rc
apm_planner_version.json  exchndl.dll        qml
avrduide              files               README.md
BUILD-EASY.md          Installation instructions.rtf  redhat
common                 libs               release_notes.txt
config.tests           license.txt         scripts
CONTRIBUTING.md       mgwhelp.dll        sik_uploader
data                   packaging          src
debian                 QGCExternalLibs.pri  tools
deploy                 QGCSetup.pri        uploader
doc                    qgcunittest.pro     user_config.pri.dist
docker                 qgcvideo.pro        Vagrantfile
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$
```

```
Terminal File Edit View Search Terminal Help
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ qmake apm_planner.pro
Project MESSAGE: Qt version 5.5.1
Info: creating cache file /home/sdr/my_proj/apm_planner/.qmake.cache
cat: /etc/redhat-release: No such file or directory
Checking for has_flite... yes
Project MESSAGE: Linux build x86_64
Project MESSAGE: Enabling flite audio support
Project MESSAGE: Ubuntu Build
Project MESSAGE: Release flavor
Project MESSAGE: BASEDIR /home/sdr/my_proj/apm_planner DESTDIR /home/sdr/my_proj/apm_planner/release TARGET apmplanner2
Project MESSAGE: Using MAVLink dialect 'ardupilotmega'.
Project MESSAGE: Skipping support for Google Earth
Project MESSAGE: Skipping support for libfreenect
Project MESSAGE: Adding ALGLIB /home/sdr/my_proj/apm_planner/libs/alglib
Project MESSAGE: Skipping support for XBee
Project MESSAGE: Skipping support for Magellan 3DxWare (manual override from command line)
Project MESSAGE: Skipping support for Opal-RT
Project MESSAGE: Skipping support for Google Earth
Project MESSAGE: Skipping support for Camera View
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$
```

```
Terminal File Edit View Search Terminal Help
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ make
/usr/lib/x86_64-linux-gnu/qt5/bin/uic libs/opmapcontrol/src/mapwidget/mapripform.ui -o build-release/ui/ui_mapripform.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/MainWindow.ui -o build-release/ui/ui_MainWindow.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/CommSettings.ui -o build-release/ui/ui_CommSettings.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/SerialSettings.ui -o build-release/ui/ui_SerialSettings.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/UASControl.ui -o build-release/ui/ui_UASControl.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/UASList.ui -o build-release/ui/ui_UASList.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/UASInfo.ui -o build-release/ui/ui_UASInfo.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/UASView.ui -o build-release/ui/ui_UASView.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/ParameterInterface.ui -o build-release/ui/ui_ParameterInterface.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/WaypointList.ui -o build-release/ui/ui_WaypointList.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/ObjectDetectionView.ui -o build-release/ui/ui_ObjectDetectionView.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/JoystickWidget.ui -o build-release/ui/ui_JoystickWidget.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/HDDisplay.ui -o build-release/ui/ui_HDDisplay.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/MAVLinkSettingsWidget.ui -o build-release/ui/ui_MAVLinkSettingsWidget.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/AudioOutputWidget.ui -o build-release/ui/ui_AudioOutputWidget.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/QGCSettingsWidget.ui -o build-release/ui/ui_QGCSettingsWidget.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/watchdog/WatchdogControl.ui -o build-release/ui/ui_WatchdogControl.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/watchdog/WatchdogProcessView.ui -o build-release/ui/ui_WatchdogProcessView.h
/usr/lib/x86_64-linux-gnu/qt5/bin/uic src/ui/watchdog/WatchdogView.ui -o build-release/ui/ui_Wat
```

```
Terminal File Edit View Search Terminal Help
uild-release/obj/moc_PX4FirmwareUploader.o build-release/obj/moc_ApmPlaneLevel.o build-release/obj/moc_ParamWidget.o build-release/obj/moc_ArduPlanePidConfig.o build-release/obj/moc_AdvParameterList.o build-release/obj/moc_ArduRoverPidConfig.o build-release/obj/moc_Console.o build-release/obj/moc_SerialSettingsDialog.o build-release/obj/moc_TerminalConsole.o build-release/obj/moc_LogConsole.o build-release/obj/moc_ApmHighlighter.o build-release/obj/moc_ApmFirmwareConfig.o build-release/obj/moc_QGCMouseWheelEventFilter.o build-release/obj/moc_DebugOutput.o build-release/obj/moc_APDoubleSpinBox.o build-release/obj/moc_APSpinBox.o build-release/obj/moc_Radio3DRSettings.o build-release/obj/moc_SetupWarningMessage.o build-release/obj/moc_APMShortcutModesDialog.o build-release/obj/moc_DownloadRemoteParamsDialog.o build-release/obj/moc_ParamCompareDialog.o build-release/obj/moc_UASParameter.o build-release/obj/moc_AP2DataPlot2D.o build-release/obj/moc_AP2DataPlotThread.o build-release/obj/moc_dataselectionscreen.o build-release/obj/moc_qcustomplot.o build-release/obj/moc_AboutDialog.o build-release/obj/moc_UASQuickViewTextLabel.o build-release/obj/moc_AP2DataPlotAxisDialog.o build-release/obj/moc_arduinoflash.o build-release/obj/moc_AutoUpdateCheck.o build-release/obj/moc_AutoUpdateDialog.o build-release/obj/moc_LogDownloadDialog.o build-release/obj/moc_TLogReplayLink.o build-release/obj/moc_PrimaryFlightDisplayQML.o build-release/obj/moc_CompassMotorCalibrationDialog.o build-release/obj/moc_MAVLinkDecoder.o build-release/obj/moc_MAVLinkProtocol.o build-release/obj/moc_MissionElevationDisplay.o build-release/obj/moc_GoogleElevationData.o build-release/obj/moc_UASObject.o build-release/obj/moc_VehicleOverview.o build-release/obj/moc_RelPositionOverview.o build-release/obj/moc_AbsPositionOverview.o build-release/obj/moc_MissionOverview.o build-release/obj/moc_PreFlightCalibrationDialog.o build-release/obj/moc_RadioFlashWizard.o build-release/obj/moc_VibrationMonitor.o build-release/obj/moc_EKFMonitor.o build-release/obj/moc_Settings.o build-release/obj/moc_LogdataStorage.o build-release/obj/moc_LogAnalysis.o build-release/obj/moc_PresetManager.o -L/usr/X11R6/lib64 -lsndfile -lasound -lz -lssl -lcrypto -L/usr/lib -L/usr/local/lib64 -L/usr/lib64 -lSDL2 -lflite_cmu_us_kal -lflite_usenglish -lflite_cmulex -lflite -lQt5OpenGL -lQt5Svg -lQt5PrintSupport -lQt5QuickWidgets -lQt5Widgets -lQt5Quick -lQt5Gui -lQt5Qml -lQt5Network -lQt5Xml -lQt5Sql -lQt5SerialPort -lQt5Test -lQt5Core -lpthread -lGL
echo Copying files && cp -f -R /home/sdr/my_proj/apm_planner/qml /home/sdr/my_proj/apm_planner/release && cp -f -R /home/sdr/my_proj/apm_planner/sik_uploader /home/sdr/my_proj/apm_planner/release
Copying files
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ ./release/apmplanner2
```

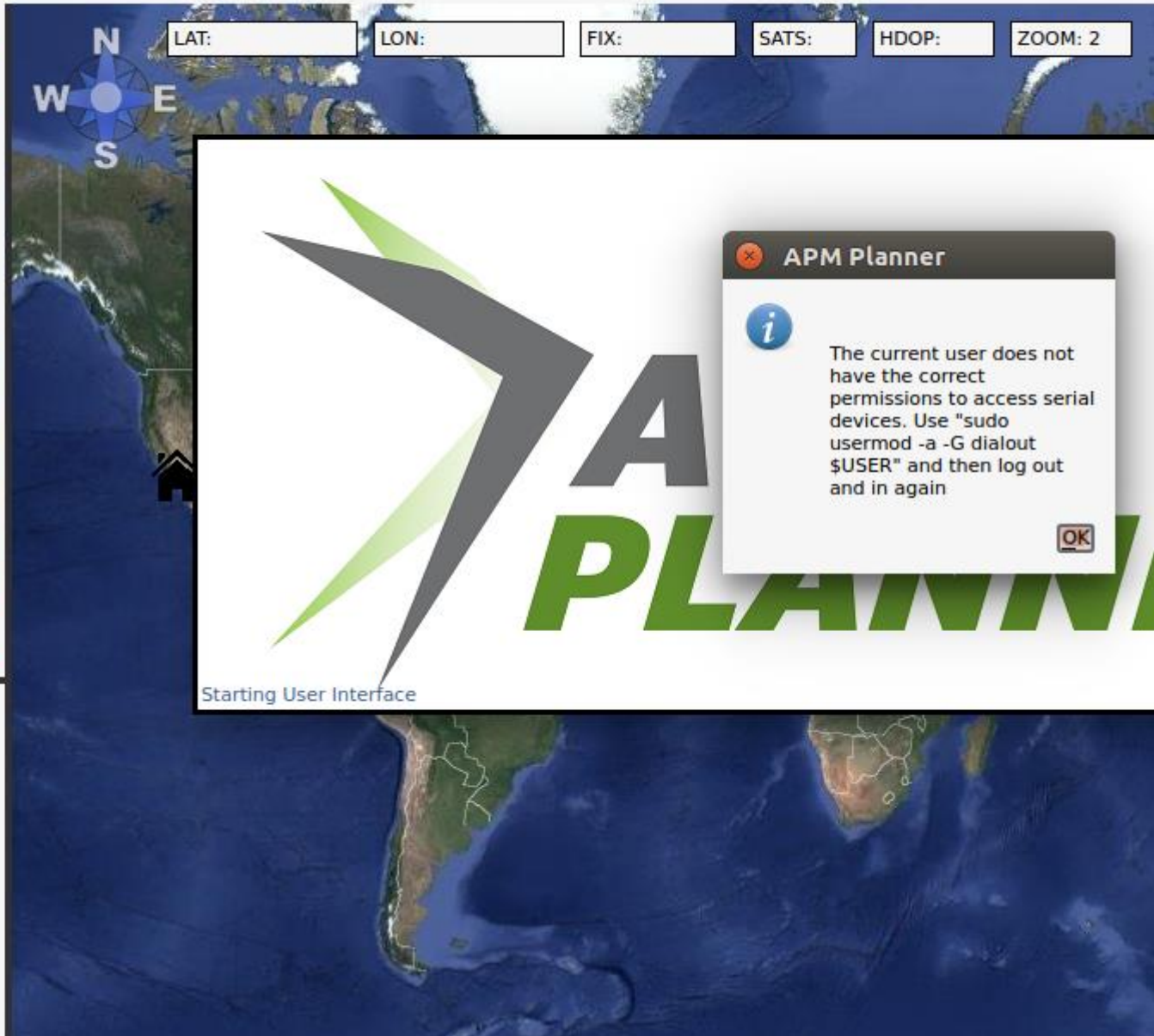


Primary Flight Display



View

Quick	Actions	Status	Messages
Alt MSL (m)		Alt REL (m)	
0.00		0.00	
Roll (deg)		Pitch (deg)	
0.00		0.00	
Yaw (deg)		Climb (m/s)	
0.00		0.00	



```
Terminal File Edit View Search Terminal Help
PetaLinux environment set to '/home/sdr/petalinux_zynq/petalinux-v2015.4-final'
INFO: Checking free disk space
INFO: Checking installed tools
INFO: Checking installed development libraries
INFO: Checking network and other services
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ sudo usermod -a -G dialout
$USER
[sudo] password for sdr:
sdr@sdr-Samsung-DeskTop-System:~/my_proj/apm_planner$ ./release/apmplanner2
```


Primary Flight Display



to View

Quick	Actions	Status	Messages
GPS Fix (i)		GPS HDOP (i)	
0.00		0.00	
GPS Sats (n)		Alt MSL (m)	
0.00		0.00	
Alt REL (m)		Battery (%)	
0.00		0.00	
Climb (m/s)		Current (A)	
0.00		0.00	

