

Android Auto

Ubuntu 16.04 minimal

Available with the ubuntu64-16.04.3-minimal or higher.
The article is based on the ubuntu64-16.04.3-minimal.
The Android Auto is works well on both **ODROID-C2** and **ODROID-C1+**.

- You can get the ubuntu64-minimal image.
 - [ODROID-C2](#)
 - [ODROID-C1+](#)

Install packages

You can login by root at the First boot.

And before installing the Android Auto, you should install the dependency packages.

```
# apt update && apt upgrade
# apt install -y git-core curl dh-autoreconf libboost-all-dev libusb-1.0.0-
dev libssl-dev cmake libprotobuf-dev protobuf-c-compiler libqt5multimedia5
libqt5multimedia5-plugins libqt5multimediawidgets5 qtmultimedia5-dev
libqt5bluetooth5 libqt5bluetooth5-bin qtconnectivity5-dev pulseaudio
gststreamer1.0-plugins-bad lxde lubuntu-default-session gst123 xfce4-
pulseaudio-plugin
```

Add odroid user

Create the odroid account.

```
# adduser odroid
# usermod -a -G sudo odroid
# reboot
```

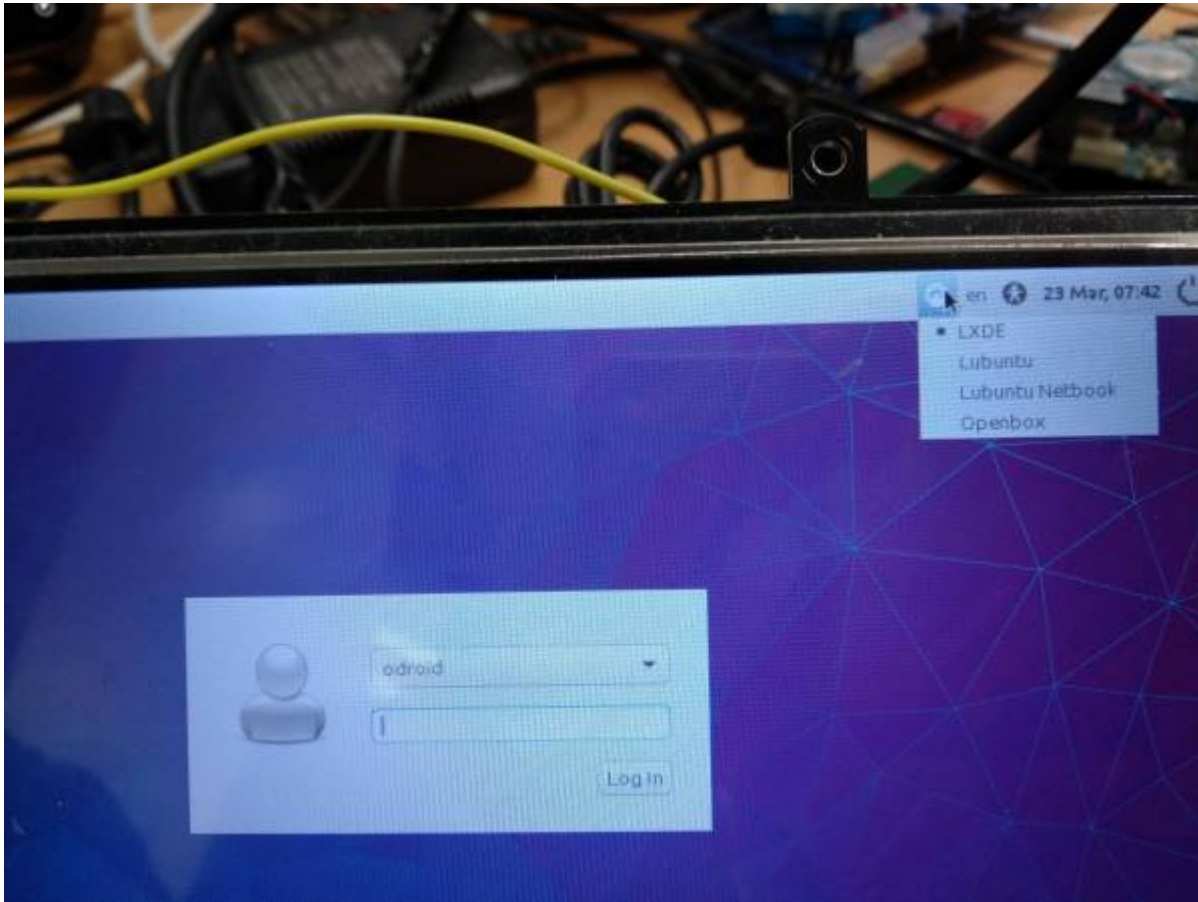
Auto login

```
$ sudo vi /usr/share/lightdm/lightdm.conf.d/60-lightdm-gtk-greeter.conf
[Seat:*]
greeter-session=lightdm-gtk-greeter
```

```
autologin-user=odroid
```

Change session to "LXDE" and Login UI shell.

Before change to the LXDE, you have to **logout** user account.



update compiler for libprotobuf

```
$ gcc -v
Using built-in specs.
COLLECT_GCC=gcc
COLLECT_LTO_WRAPPER=/usr/lib/gcc/aarch64-linux-gnu/5/lto-wrapper
Target: aarch64-linux-gnu
Configured with: ../src/configure -v --with-pkgversion='Ubuntu/Linaro
5.4.0-6ubuntu1~16.04.9' --with-
bugurl=file:///usr/share/doc/gcc-5/README.Bugs --enable-
languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --prefix=/usr --program-
suffix=5 --enable-shared --enable-linker-build-id --libexecdir=/usr/lib --
without-included-gettext --enable-threads=posix --libdir=/usr/lib --enable-
nls --with-sysroot=/ --enable-clocale=gnu --enable-libstdcxx-debug --enable-
libstdcxx-time=yes --with-default-libstdcxx-abi=new --enable-gnu-unique-
object --disable-libquadmath --enable-plugin --with-system-zlib --disable-
browser-plugin --enable-java-awt=gtk --enable-gtk-cairo --with-java-
```

```

home=/usr/lib/jvm/java-1.5.0-gcj-5-arm64/jre --enable-java-home --with-jvm-
root-dir=/usr/lib/jvm/java-1.5.0-gcj-5-arm64 --with-jvm-jar-
dir=/usr/lib/jvm-exports/java-1.5.0-gcj-5-arm64 --with-arch-
directory=aarch64 --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --enable-
multiarch --enable-fix-cortex-a53-843419 --disable-werror --enable-
checking=release --build=aarch64-linux-gnu --host=aarch64-linux-gnu --
target=aarch64-linux-gnu
Thread model: posix
gcc version 5.4.0 20160609 (Ubuntu/Linaro 5.4.0-6ubuntu1~16.04.9)

```

Update gcc

```

$ sudo apt update
$ sudo add-apt-repository ppa:ubuntu-toolchain-r/test -y
$ sudo apt update
$ sudo apt install gcc-snapshot -y
$ sudo apt update
$ sudo apt install gcc-6 g++-6 -y
$ sudo update-alternatives --install /usr/bin/gcc gcc /usr/bin/gcc-6 60 --
slave /usr/bin/g++ g++ /usr/bin/g++-6
$ sudo update-alternatives --config gcc

```

```

$ gcc -v
Using built-in specs.
COLLECT_GCC=gcc
COLLECT_LTO_WRAPPER=/usr/lib/gcc/arm-linux-gnueabi/6/lto-wrapper
Target: arm-linux-gnueabi
Configured with: ../src/configure -v --with-pkgversion='Ubuntu/Linaro
6.3.0-18ub
untu2~16.04' --with-bugurl=file:///usr/share/doc/gcc-6/README.Bugs --enable-
languages=c,ada,c++,java,go,d,fortran,objc,obj-c++ --prefix=/usr --program-
suffix=-6
--program-prefix=arm-linux-gnueabi- --enable-shared --enable-linker-
build-id
--libexecdir=/usr/lib --without-included-gettext --enable-threads=posix --
libdir=/usr/lib --enable-nls --with-sysroot=/ --enable-clocale=gnu --enable-
libstdcxx-debug --enable-libstdcxx-time=yes --with-default-libstdcxx-abi=new
--enable-gnu-unique-object --disable-libitm --disable-libquadmath --enable-
plugin --with-system-zlib --disable-browser-plugin --enable-java-awt=gtk --
enable-gtk-cairo --with-java-home=/usr/lib/jvm/java-1.5.0-gcj-6-armhf/jre --
enable-java-home --with-jvm-root-dir=/usr/lib/jvm/java-1.5.0-gcj-6-armhf --
with-jvm-jar-dir=/usr/lib/jvm-exports/java-1.5.0-gcj-6-armhf --with-arch-
directory=arm --with-ecj-jar=/usr/share/java/eclipse-ecj.jar --with-target-
system-zlib --enable-objc-gc=auto --enable-multiarch --enable-multilib --
disable-sjlj-exceptions --with-arch=armv7-a --with-fpu=vfpv3-d16 --with-
float=hard --with-mode=thumb --disable-werror --enable-multilib --enable-
checking=release --build=arm-linux-gnueabi --host=arm-linux-gnueabi --
target=arm-linux-gnueabi
Thread model: posix

```

```
gcc version 6.3.0 20170519 (Ubuntu/Linaro 6.3.0-18ubuntu2~16.04)
```

build protobuf-compiler(3.0)

get protobuf-compiler source

```
$ wget https://github.com/google/protobuf/archive/v3.0.0.zip
$ unzip v3.0.0.zip
$ cd protobuf-3.0.0
```

fix autogen.sh

Change the Google Mock packages. to google test packages.

```
$ vi autogen.sh
```

```
.
.
. (:32)
if test ! -e gmock; then
  curl $curlopts -L -O
https://github.com/google/googletest/archive/release-1.7.0.zip
  unzip -q release-1.7.0.zip
  rm release-1.7.0.zip
  mkdir -p gmock/gtest
  mv googletest-release-1.7.0 gmock/gtest
fi
.
.
.
```

build

If you used ODROID-C2, you can add option “-j4”.
but on ODROID-C1+, you should avoid this option.

```
$ ./autogen.sh
$ ./configure
$ make [-j4]
$ sudo make install
$ sudo ldconfig
```

Remove libprotobuf 2.x.x

```
$ sudo cp /usr/local/lib/libprotobuf* /usr/lib/arm-linux-gnueabi/hf/
```

```
$ sudo rm -rf /usr/lib/arm-linux-gnueabi/libprotobuf.so.9*
$ sudo rm -rf /usr/lib/arm-linux-gnueabi/libprotobuf-lite.so.9*
```

build aasdk

If you used ODROID-C2, you can add option "-j4". but on ODROID-C1+, you should avoid this option.

```
$ cd
$ git clone -b master https://github.com/flxpl/aasdk.git
$ mkdir aasdk_build
$ cd aasdk_build
$ cmake -DCMAKE_BUILD_TYPE=Release ../aasdk
$ make [-j4]
```

build openauto

Build & install the open auto.

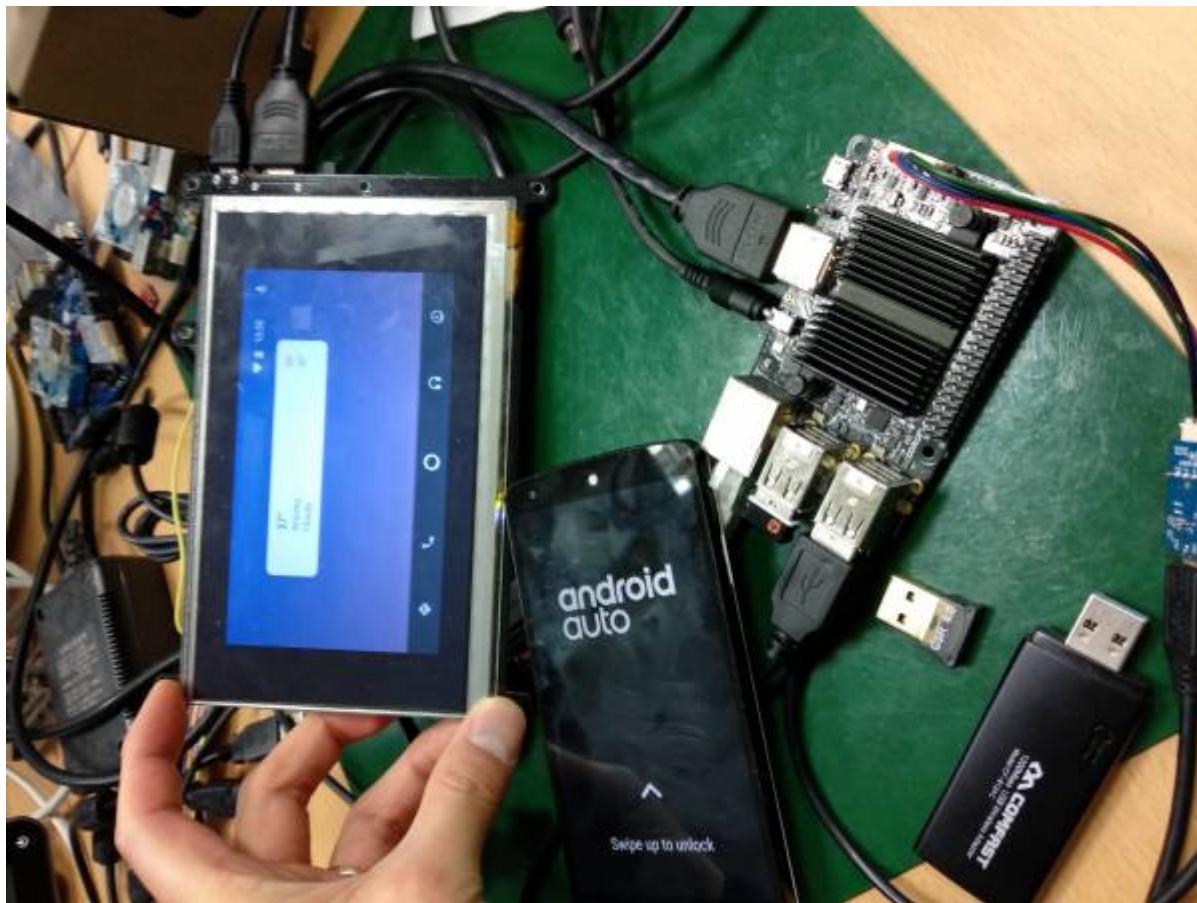
```
$ cd
$ git clone -b master https://github.com/flxpl/openauto.git
$ mkdir openauto_build
$ cd openauto_build
$ cmake -DCMAKE_BUILD_TYPE=Release -DRPI3_BUILD=FALSE -
DAASDK_INCLUDE_DIRS="/home/odroid/aasdk/include" -
DAASDK_LIBRARIES="/home/odroid/aasdk/lib/libaasdk.so" -
DAASDK_PROTO_INCLUDE_DIRS="/home/odroid/aasdk_build" -
DAASDK_PROTO_LIBRARIES="/home/odroid/aasdk/lib/libaasdk_proto.so"
../openauto
$ make [-j4]
```

Make autostart!

Make it auto start. and configure the permission.

```
$ cd
$ echo "/home/odroid/openauto/bin/autoapp" >>
/home/odroid/.config/lxsession/LXDE/autostart
```

```
$ sudo vi /etc/group
root:x::odroid
```



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Permanent link: http://wiki.odroid.com/odroid-c2/application_note/software/android_auto

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