Odroid-N2 Documentation

Cody Roberson - Arizona State University

March 23 2023

Contents

1 Initial Setup

1.1 OS Image

Ubuntu Minimal 20.04 was downladed from the following page. [ODroid OS Installation Guide](#)
    The file was imaged onto a standard 16Gb Micro-SD Card and loaded into the Odroid-N2. The device was connected to a regular mouse, keyboard, ethernet, and moniter.

1.2 Login

The username was

```
root
```

The password was:

```
odroid
```

1.3 Updates

The os offered an update to 22.04 and so the command

```
do-release-upgrade
```

was issued and the system updated to Ubuntu 22.04 Minimal. Old packages were removed. Vim was installed

```
apt-get install vim -y
```

1.4 Networking

A secondary ip address was configured using nmcli enabling a direct pc to odroid network connection.'

```
nmcli con mod "Wired connection 1" +ipv4.addresses "192.168.99.2"/24
reboot
```

The subnetmask is 255.255.255.0
Users can ssh into the odroid using:

```
ssh root@192.168.99.2
```

provided they have configured their own connection correctly.

1.5 Python

The dependencies of Python3 were installed and Python was cloned from github.

```
sudo apt-get install build-essential gdb lcov pkg-config \
  libbz2-dev libffi-dev libgdbm-dev libgdbm-compat-dev liblzma-dev \
  libncurses5-dev libreadline6-dev libsqlite3-dev libssl-dev \
  lzma lzma-dev tk-dev uuid-dev zlib1g-dev

git clone https://github.com/python/cpython.git --depth=1 --branch=v3.11.2
```

Having setup the base, python was built and installed

```
cd python
mkdir build
cd build
../configure --enable-optimizations --enable-shared
make altinstall
cp libpython3.* /usr/lib/aarch64-linux-gnu/
cd
```

1.6 Python Virtual Environment

In the terminal, a command was issued to create a PVE in the root home directory. And the Python Virtual Environment was activated.

```
python3.11 -m venv py3

source py3/bin/activate
```

Pip was then updated

```
pip install --upgrade pip
```

and the basic necessities were installed

```
pip install matplotlib jupyterlab ipython numpy scipy
```

2 Jupyter Lab

Some minor configuration was setup in

```
.jupyter/jupyter_lab_config.py
```

the password was configured to be

```
odroid
```

Jupyter-notebook was then launched.

```
cd
jupyter-lab --allow-root --ip=<network ip goes here> jnotebooks/
```

A hello world notebook was created to test that everything appeared to be in working order and that was indeed the case. $e^{-i\omega t} * e^{i\pi/2}$ was plotted.

3   Board Control

(Now that the OS was configured, a complete SD Card image was taken.)
We referred to the documentation found here: Android N2 Wiki to enable and install the gpio
related hw/sw such as SPI/I2C/UART. However, it seems that these devices are enabled by default
and no additional configuration is needed. The board controls will be facilitated via i2c and as
such, wiring pi was planned for installation.

3.1   wiring pi

Wiring pi was installed according to documentation.

```
add-apt-repository ppa:hardkernel/ppa
apt update
apt install odroid-wiringpi
source py3/bin/activate
pip install odroid-wiringpi
```

At this point it, the odroid is development ready.