Latest version of this document:

Description

This is the Alpha2 release of an Armbian image for OrangePi3-LTS, containing preconfigured packages for RF related tasks

Known Issues

Issue: direwolf configuration files are not yet working
Workaround: fix or wait for next release

Issue: soundmodem configuration files are not yet working
Workaround: fix or wait for next release

Changes for alpha2

Added Packages

SDR Packages

- rtl-sdr
- gqrx-sdr

Osmocom Packages

- extrepo

Service Packages

- pulseaudio
- pavucontrol
- soundmodem
- direwolf

QTsoundmodem PAckages

- qtbase5-dev
- libqt5serialport5
- libqt5serialport5-dev
- libfftw3-dev
- libpulse-dev
- libasound2-dev
- libkf5pulseaudioqt-dev

Added Tools

- QtSoundmodem
- emmc_install.sh

Added Services

- emmc_install

Configuration

- Default User: `nomad`
- Default Password: `nomad`

Content

Armbian

The base is an Armbian minimal build with the following configuration:

- BRANCH `current`
- RELEASE `jammy`

Reticulum

Reticulum comes as python packages and is installed in the home of user `nomad`. Two systemd service files are added to the system, that start the rns service and the `nomadnet` commandline app in a screen session for the user `nomad`. Also a GUI application called `sideband` is installed and can be launched from the desktop.

Reticulum Python Packages

- rns
- lxmf
- nomadnet
- requests
- sbapp

Reticulum Service Files

- /etc/systemd/system/rnsd.service

- /etc/systemd/system/nomadnet.service

Other Installed Debian Packages

Requirements for RNS

- libgl1-mesa-dev
- python3-pip
- python3-setuptools
- build-essential
- python3-dev
- libffi-dev
- cargo
- libssl-dev
- python3-wheel
- rust-all
- python3-setuptools-rust
- python3-pil
- python3-pygame

Console Tools

- iw
- tcpdump
- git
- iptables
- nftables
- bridge-utils
- vim
- btrfs-progs
- armbian-config
- screen

Desktop

- wireshark
- libxkbcommon-x11-0
- xsel
- fonts-roboto
- lightdm-gtk-greeter
- lightdm-gtk-greeter-settings
- xfonts-base
- tightvncserver
- x11vnc
- xorg
- lightdm
- xfce4
- tango-icon-theme
- gnome-icon-theme
- dbus-x11

Services

- firewalld
- i2pd

Installation

Linux

1. insert a Micro SD Card into the Computer you have downloaded the image to
2. determine the sd card device

```
lsblk
```

3. write image to sd card

```
sudo dd if=output/images/Armbian_23.08.0-trunk_Orangepi3-lts_jammy_current_6.1
```

4. insert the micro SD Card into the Orange Pi 3 LTS and connect it to power

Basic Usage

Nomadnet

- Connect to running session, run as user nomad:

```
screen -x
```

- Disconnect:
  ```
  CTRL+a+d
  ```

Note: This session is started upon bootup for the user in order to be able to run it without a display connected. If you quit this instance, you can always restart NomadNet by running

```
nomadnet
```

Sideband

TODO

Factory Reset

NOTE A factory reset will remove all changes you made so far to the system!
The image is configured with btrfs and has a snapshot of the state after first boot. In order to reset the device, run

```
factory-reset
```

LoRa Configuration

To change the settings for your connected LoRa device, please run

```
lora_config.sh
```

Install to emmc

Run manually

To install the current image on sd card to the internal emmc of the sbc, run

```
sudo emmc_install.sh
```

Run automatic at boot

To automatically install the image on the sd card on bootup for unattended emmc install, boot the sd card and run

```
sudo sysconfig enable emmc-install@tty1
```

Now reboot the sbc. the output of the emmc installer can be seen on the first virtual terminal
Wait for at least 10 minutes. If you want to check if the installation is still running, run

```
ps ax | grep nand-sata-autoinstall
```

As long as this process is active, the installer is still running.
Once the installer has finished or 10 minutes have passed, power off the sbc, remove the sd card and boot from the internal emmc.