

Use NetworkManager to configure network settings

From FriendlyELEC WiKi

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1 Introduction to NetworkManager

The NetworkManager is a utility to check network status and manage network connectivity. It can be used to manage both wireless and wired network.

The NetworkManager has a commandline utility nmcli, a commandline based GUI nmtui, and an X-Windows based GUI nm-connection-editor.

2 Images with NetworkManager

All the image files of Linux variants(Debian and Ubuntu) developed by FriendlyElec have this utility. This utility works with the following FriendlyElec boards:

2.1 Board Model

S5P4418 Based Boards:

NanoPi2 / NanoPC-T2 / NanoPi-S2 / Smart4418 / NanoPi2-Fire / NanoPi-M2 / NanoPi-M2A

S5P6818 Based Boards:

NanoPC-T3 / NanoPC-T3T / NanoPi-M3

Allwinner SoC Based Boards:

NanoPi-M1 / NanoPi-NEO / NanoPi-NEO-Air / NanoPi-M1-Plus / NanoPi-NEO2 / NanoPi-M1-Plus2 / NanoPi-NEO-Plus2 / NanoPi-NEO-Core / NanoPi-Duo

2.2 Applicable OS

Debian 8.x jessie (for S5P4418 and S5P6818 only)
Ubuntu core xenial 16.04.x (for all FriendlyElec's nano boards)
These OS images include those based on armhf and aarch64.

3 Setup WiFi Connection with NetworkManager

3.1 Commandline Utility (nmcli)

Command to Check WiFi:

- Check Device List

```
$ sudo nmcli dev
```

Note: if a device's status is unmanaged it means this device is not accessed by the NetworkManager and you need to clear the settings under /etc/network/interfaces and reboot.

- Start WiFi

```
$ sudo nmcli r wifi on
```

- Scan Surrounding WiFi Hotspots

```
$ sudo nmcli dev wifi
```

- Connect to WiFi Hotspot

```
$ sudo nmcli dev wifi connect "SSID" password "PASSWORD"
```

The "SSID" and "Password" need to be replaced with your actual WiFi's SSID and password.

If a connection is successfully established your board will be automatically connected to your specified WiFi on system reboot.

- Disconnect WiFi

```
$ sudo nmcli dev disconnect wlan0
```

- If there are multiple active WiFi devices you can specify your expected WiFi device by using the ifname option in the following command. For example if you want to operate wlan1 you can do it this way:

```
$ sudo nmcli device wifi connect "ssid" password "password" ifname wlan1
```

3.2 Commandline Based GUI(nmtui)

nmtui is a curses based GUI. You can start it by running the following command:

```
$ sudo nmtui
```

For more details refer to "man nmtui".

3.3 Operations with Windows Utility

Under Debian there are two options to start a Windows utility:

Option 1: you can click on the network icon on the bottom right of the task bar. After you click on it a NetworkManger menu will pop up and all the available networks will be listed. If there is an active wireless network you will see something similar to the following screenshot:



You can click on a WiFi AP and connect your board to it.

Option 2: you can go to Preferences -> Network Connections and enter the following window:



4 Setup Static IP

4.1 1: Setup Static IP Manually

You can setup a static IP manually without using the NetworkManager:

```
sudo vi /etc/NetworkManager/NetworkManager.conf
```

Edit NetworkManger.conf and set the value of "managed" under "ifupdown" to false:

```
[ifupdown]
managed=false
```

Add network setting to /etc/network/interfaces:

```
$ sudo vi /etc/network/interfaces
```

Here is sample of /etc/network/interfaces:

```
# The Loopback network interface
auto lo
iface lo inet loopback

# network interface not managed by Network Manager
allow-hotplug eth0
iface eth0 inet static
    address 192.168.2.199
    netmask 255.255.255.0
    gateway 192.168.2.1
    dns-nameservers 192.168.2.1
```

4.2 2: Setup Static IP with NetworkManager

Here is an example demonstrating how to setup a static IP with NetworkManager in a wired network

Check netwrk connection:

```
pi@Smart4418SDK:~$ sudo nmcli connection show
NAME           UUID                                  TYPE      DEVICE
Wired connection 1  cffa785e-0425-3777-b670-092c79328a1f  802-3-ethernet  eth0
```

The above messages show that there is a wired connection named "Wired connection 1". You can set a static IP for "Wired connection 1" by running the following commands:

```
sudo nmcli connection modify 'Wired connection 1' connection.autoconnect yes ipv4.method manual ipv4.address 192.168.2.199/24 ipv4.gate
sudo reboot
```

If this is successful the connection will be assigned a static IP with IP address to be 192.168.2.199 and both gateway and DNS to be 192.168.2.1

5 Uninstall NetworkManager

If you still prefer to use a traditional utility such as wpa_supplicant you can uninstall your NetworkManager by running the following commands

Create a script named rmnm.sh:

```
$vi rmnm.sh
```

Here is a sample:

```
#!/bin/bash

apt-get --yes --force-yes remove --auto-remove --purge network-manager
apt autoremove -y

cat >/etc/network/interfaces <<INTERFACEOL
source-directory /etc/network/interfaces.d

auto lo
iface lo inet Loopback
```

```

allow-hotplug wlan0
iface wlan0 inet dhcp
    wpa-conf /etc/wpa_supplicant/wpa_supplicant.conf
INTERFACEEOL

cat >/etc/network/interfaces.d/eth0 <<ETH0EOLB
auto eth0
    iface eth0 inet dhcp
    hwaddress 76:92:d4:85:f3:0f
ETH0EOLB

```

Run this script:

```

$chmod 755 rmm.sh
$ sudo ./rmm.sh

```

Reboot your board.

6 Disable WLan if Wired/Cable Network is available

Please refre to: <https://superuser.com/questions/233448/disable-wlan-if-wired-cable-network-is-available>

7 Resources

For more details refer to: NetworkManager ([https://wiki.archlinux.org/index.php?title=NetworkManager_\(%E7%AE%80%E4%BD%93%E4%B8%AD%E6%96%87\)&mobileaction=toggle_view_desktop](https://wiki.archlinux.org/index.php?title=NetworkManager_(%E7%AE%80%E4%BD%93%E4%B8%AD%E6%96%87)&mobileaction=toggle_view_desktop))
 configure-wifi-connections (<https://ubuntu.com/core/docs/networkmanager/configure-wifi-connections>)

8 Update Log

8.1 June-18-2017

- Released English Version

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