Software

first steps

download Operation System: Google Drive or dev.banana-pi.org.cn

copy Image to SD-Card (Linux):

```
dd if=path/to/image.img of=/dev/sdx bs=1M
```

Debian

first boot (do this using Debug-UART)

login: root **password:** bananapi

System-Update & Clock-Settings

```
apt-get update && apt-get upgrade
echo "bpi-r2">/etc/hostname
dpkg-reconfigure tzdata
```

some changes to environment (to make persistent: echo „...“»~/.bashrc)

```
#fix for nano issues on debug-console
if [[ "$(tty)" =~ "ttyS" ]]; then export TERM=vt100;fi
#prompt with time
export PS1='[\A] \u@\h:\W# '
#easier access to GPIO by $GPIO
export GPIO=/sys/devices/platform/1000b000.pinctrl/mt_gpio
```

Network-Configuration

Network-configuration

temporary

```
#4.4.70:
ifconfig eth0 192.168.0.10/24
route add default gw 192.168.0.5
echo "nameserver 192.168.0.5" > /etc/resolv.conf
```

```
#4.14:
#ifconfig eth0 up
ip link set eth0 up
#ifconfig lan0 192.168.0.10/24
ip addr add 192.168.0.10/24 dev lan0
#ifconfig lan0 up
ip link set lan0 up
#route add default gw 192.168.0.5
ip route add 0.0.0.0/0 via 192.168.0.5
echo "nameserver 192.168.0.5" > /etc/resolv.conf
```

fixed (also after reboot)

4.4.70:

```
nano /etc/network/interfaces
```

```
auto eth0
  iface eth0 inet static
  hwaddress ether 08:00:00:00:00:01
  address 192.168.0.10
  netmask 255.255.255.0
  gateway 192.168.0.5

auto eth1
  iface eth1 inet static
```

4.14:

```
auto eth0
iface eth0 inet manual
  pre-up ip link set $IFACE up
  post-down ip link set $IFACE down

auto lan0
iface lan0 inet static
  hwaddress ether 08:00:00:00:00:00 # if you want to set MAC manually
  address 192.168.0.10
  netmask 255.255.255.0
  gateway 192.168.0.5
  pre-up ip link set $IFACE up
  post-down ip link set $IFACE down

auto lan1
iface lan1 inet static
  hwaddress ether 08:00:00:00:00:01 # if you want to set MAC manually
  address 192.168.1.10
  netmask 255.255.255.0
  pre-up ip link set $IFACE up
```

```
  post-down ip link set $IFACE down

auto lan2
iface lan2 inet static
  hwaddress ether 08:00:00:00:00:02 # if you want to set MAC manually
  #...

auto lan3
iface lan3 inet static
  hwaddress ether 08:00:00:00:00:03 # if you want to set MAC manually
  #...

auto wan
iface wan inet static
  hwaddress ether 09:00:00:00:00:01 # if you want to set MAC manually
  #...
```

in debian 9 hwaddress does not work, here you can set the MAC this way:

```
iface lan0 inet static
  address 192.168.0.10
  netmask 255.255.255.0
  gateway 192.168.0.5
#  pre-up ip link set $IFACE up
  pre-up ip link set $IFACE address 02:01:02:03:04:08 up
  post-down ip link set $IFACE down
```

UDEV-way from here

```
$ cat /etc/udev/rules.d/00-static-mac-address.rules
ACTION=="add", SUBSYSTEM=="net", KERNELS=="1b100000.ethernet",
RUN+="/sbin/ip link set dev %k address ae:fc:de:ad:be:ef"
```

DHCP

```
allow-hotplug lan3
iface lan3 inet dhcp
```

bridge (4.14)

Fix Me! untested !

```
apt-get install bridge-utils
```

```
brctl addbr br0
brctl addif br0 lan1 lan2 lan3 #bridging lan1-lan3 (keep lan0 separately)
```

```
root@bpi-r2:~# brctl show br0
bridge name     bridge id               STP enabled     interfaces
br0             8000.6acba7512bc1       no              lan1
                                                        lan2
                                                        lan3
```

/etc/metwork/interfaces:

```
iface br0 inet static
    address 192.168.40.1
    netmask 255.255.255.0
    bridge_ports lan1 lan2
    bridge_fd 5
    bridge_stp no
```

vlan

4.14:

/etc/metwork/interfaces:

```
auto lan3
iface lan3 inet manual

auto lan3.60
iface lan3.60 inet static
  address 192.168.60.10
  netmask 255.255.255.0
#  gateway 192.168.0.5
  pre-up ip link set $IFACE address 02:01:02:03:04:03 up #setting mac does
not work currently
```

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Last update: **2023/06/08 17:06**