# Deploying BananaPis-R2

## Preparation

To communicate with a laptop to a BananaPi-R2 the laptop needs an Ethernet port, and a cable needs to be connected between the BananaPi-R2 and the laptop’s Ethernet port.

1. The laptop will need to have the IP address 192.168.2.10 and the BananaPi address is 192.168.2.2 or 192.168.2.1

Graphical user interface

Description automatically generated

1. Connect the Ethernet cable to the First LAN port on the left (not the Wan port). The blue circle.

A picture containing text, electronics

Description automatically generated

1. Use PuTTY to connect to the BananaPi-R2, using SSH 192.168.2.2 port 22.

Graphical user interface, application

Description automatically generated

This is the SD card slot:

A picture containing text, file

Description automatically generated

# Creating a Linux image of the BananaPi-R2 eMMC in a SDcard

1. Get a 32Gbytes micro SDcard (I think 16Gbytes should also do, as any SDcard with higher capacity than 32Gbytes) and place the SDcard in the slot of the BananaPi-R2.

There is a small slot on the right side of the box, the bright pins in the SDcard should face up. It's a spring, insert until it clicks and then just let go. To remove press until clicks and it just comes out.

1. Execute the command:

"**lsblk**"

NAME         MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT

**mmcblk0      179:0    0   30G  0 disk      <<----**

mmcblk1      179:8    0  7.3G  0 disk

├─mmcblk1p1  179:9    0  256M  0 part /boot

└─mmcblk1p2  179:10   0    7G  0 part /

mmcblk1boot0 179:16   0    4M  1 disk

mmcblk1boot1 179:24   0    4M  1 disk

mmcblk1rpmb  179:32   0  512K  0 disk

Identify the SDcard, in this case because it's a 32Gbytes SDcard it's **mmcblk0** since the SIZE is 30G.

**ATTENTION**: selecting the wrong device may destroy the Linux installation in the BananaPi-R2.

1. Format the SDcard by executing

"**mkfs -V /dev/mmcblk0**"

This should take some minutes.

1. Mount the SDcard by executing (if SDcard is in use, use SDcard1 instead)

"**mkdir /mnt/SDcard**"

"**mount /dev/mmcblk0 /mnt/SDcard**".

1. Copy the eMMC to the SDcard by executing

"**dd if=/dev/mmcblk1 bs=4096 | pv | dd of=/mnt/SDcard/eMMC.img bs=4096**"

...

2.54GiB 0:07:28 [5.79MiB/s] [ <=> ]

...

1898548+24440 records in

1898548+24440 records out

7818182656 bytes (7.8 GB, 7.3 GiB) copied, 1293 s, 6.0 MB/s

This should take around 30 minutes.

1. Verify that a file called eMMC.img is now present in the SDcard by executing:

"**ls -al /mnt/SDcard**"

total 7642436

drwxr-xr-x 3 root root       4096 Nov 22 16:28 .

drwxr-xr-x 3 root root       4096 Nov 22 15:55 ..

**-rw-r--r-- 1 root root 7818182656 Nov 22 16:56 eMMC.img     <<----**

drwx------ 2 root root      16384 Nov 22 16:02 lost+found

1. Unmount the SDcard by executing

"**umount /mnt/SDcard**"

"**rmdir /mnt/SDcard**"

1. You can now remove the SDcard from the slot.

The digest of the commands for the SDcard as **mmcblk0**.

**lsblk**

**------------------------------ Check that the SDcard is mmcblk0**

**mkfs -V /dev/mmcblk0**

**mkdir /mnt/SDcard**

**mount /dev/mmcblk0 /mnt/SDcard**

**dd if=/dev/mmcblk1 bs=4096 | pv | dd of=/mnt/SDcard/eMMC.img bs=4096**

**ls -al /mnt/SDcard**

**------------------------------ Check that the eMMC.img file is present**

**umount /mnt/SDcard**

**rmdir /mnt/SDcard**

# Deploying a Linux image from a SDcard to the BananaPi-R2 eMMC

1. Execute the command

"**lsblk**"

NAME         MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT

**mmcblk0      179:0    0   30G  0 disk <<----**

mmcblk1      179:8    0  7.3G  0 disk

├─mmcblk1p1  179:9    0  256M  0 part /boot

└─mmcblk1p2  179:10   0    7G  0 part /

mmcblk1boot0 179:16   0    4M  1 disk

mmcblk1boot1 179:24   0    4M  1 disk

mmcblk1rpmb  179:32   0  512K  0 disk

Identify the SDcard, in this case because it's a 32Gbytes SDcard it's **mmcblk0** since the SIZE is 30G.

**ATTENTION**: selecting the wrong device may destroy the Linux installation in the BananaPi-R2.

1. Mount the SDcard by executing

"**mkdir /mnt/SDcard**"

"**mount /dev/mmcblk0 /mnt/SDcard**".

1. Copy the SDcard to the eMMC by executing

"**dd if=/mnt/SDcard/eMMC.img bs=4096 | pv | dd of=/dev/mmcblk1 bs=4096**"

...

4.66GiB 0:13:57 [3.51MiB/s] [ <=> ]

...

1908736+0 records out

7818182656 bytes (7.8 GB, 7.3 GiB) copied, 1459.14 s, 5.4 MB/s

This should take over 30 minutes.

The digest of the commands for the SDcard as **mmcblk0**.

**mkdir /mnt/SDcard**

**------------------------------ Check that the SDcard is mmcblk0**

**mount /dev/mmcblk0 /mnt/SDcard**

**dd if=/mnt/SDcard/eMMC.img bs=4096 | pv | dd of=/dev/mmcblk1 bs=4096**

**umount /mnt/SDcard**

**rmdir /mnt/SDcard**