



How to Clone eMMC Image of NVIDIA® Jetson™ Nano™ Module?

Jetson Nano

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WHAT YOU WILL LEARN?

- 1- How to check the Jetson device in Recovery Mode
- 2- How to get backup image from Jetson modules
- 3- How to burn image to Jetson modules

ENVIRONMENT

Hardware 1: DSBOX-N2 industrial box PC
Hardware 1: DSBOARD-NX2 industrial carrier board
OS: Jetpack 4.5 (L4T-32.5.0)

Putting Source Device into Recovery Mode



module with flash.sh script file.

First, we will put the source device into Recovery Mode and clone the file system of target module. Next, we will put the target device into Recovery Mode and burn the file system with the backup image.

After putting your source device in recovery mode, open a terminal and type this command:

```
watch lsusb
```

As you can see below, the source module has inserted in Recovery Mode successfully. Now, you can clone the file system. Exit this script (Ctrl+C) and continue to the next step.

```
user@user: ~/nvidia/nvidia_sdk/JetPack_4.5_Linux_JETSON_NANO/Linux_for_Tegra
File Edit View Search Terminal Help
Every 2,0s: lsusb user: Thu Jun 10 09:18:47 2021
Bus 006 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 005 Device 003: ID 03f0:034a Hewlett-Packard Elite Keyboard
Bus 005 Device 002: ID 045e:00cb Microsoft Corp. Basic Optical Mouse v2.0
Bus 005 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 003: ID 05e3:0610 Genesys Logic, Inc. 4-port hub
Bus 001 Device 002: ID 0b05:1939 ASUSTek Computer, Inc.
Bus 001 Device 004: ID 0955:7f21 NVidia Corp.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
```



You should change the current directory to the Jetson SDK folder and backup the module. JetPack version of our source module is 4.5. So that, our working directory is:

```
~/nvidia/nvidia_sdk/JetPack_4.5_Linux_JETSON_NANO/Linux_for_Tegra
```



Jetson SDK Folder

Change the current directory (If you use another version of JetPack, your “cd” command will change.) and create the backup image with these commands below:

```
cd ~/nvidia/nvidia_sdk/JetPack_4.5_Linux_JETSON_NANO/Linux_for_Tegra  
sudo ./flash.sh -r -k APP -G backup.img jetson-nano-emmc mmcblk0p1
```

After typing the clone command into the terminal, the processes look like this:



Beginning of the Cloning



At the end of the clone command, the backup.img.raw file was saved and the “backup.img” file was created.



End of the Cloning Step

Putting Target Device into Recovery Mode

After putting your target device in recovery mode, open a terminal and type this command:

```
watch lsusb
```

As you can see below, the target module has inserted in Recovery Mode successfully. Now, you can restore the file system. Exit this script (Ctrl+C) and continue to the next step.



Jetson Nano in Recovery Mode (0955:7f21)

Restoring The File System



image with these commands.

```
sudo mv bootloader/system.img* .  
sudo mv backup.img.raw bootloader/system.img  
sudo ./flash.sh -r jetson-nano-emmc mmcblk0p1
```

A few seconds later, the writing status looks like this:



A Moment During Restore

This process took more than 7 minutes in our system.



End of Restoring Image

At the end of the image burning process, the target device will reboot.

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