



Mobiliya

Jetson Flashing Guide.

April, 2018

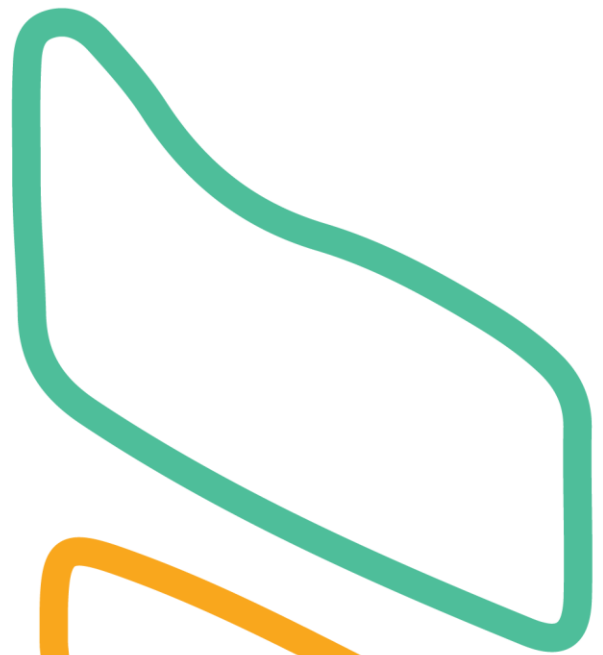


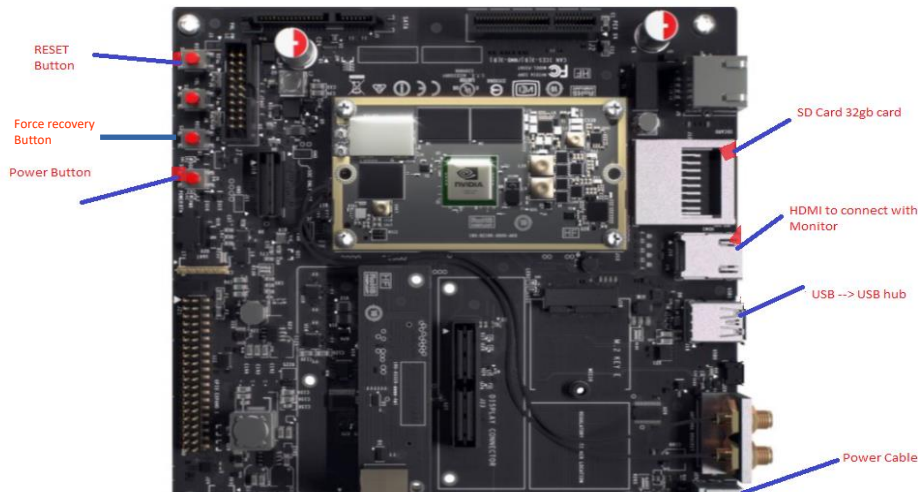
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Introduction

We will flash Nvidia jetson board with Linux based OS.

Please refer following image for Jetson board layout.



Prerequisite

1. Host Ubuntu 16.04 machine with at least 10 GB available disk space
2. Jetson board
3. Micro B USB cable
4. Router
5. 3 LAN cables

Steps

Please follow following steps on host machine.

1. Download Nvidia Jetson **Jetpack** for flashing:

<https://github.com/MobiliyaTechnologies/SecurityAndSurveillance/blob/master/Setup/installation/IetPack-L4T-3.1-linux-x64.run>

2. Create a folder named **jetson_jetpack** for installation of Jetpack libraries in home directory.
3. Place the downloaded JetPack- $\{VERSION\}$.run (Eg: **JetPack-L4T-3.1-linux-x64.run**) file in above folder
4. Open Terminal(Alt+Ctrl^T). Run -

```
cd jetson_jetpack
```

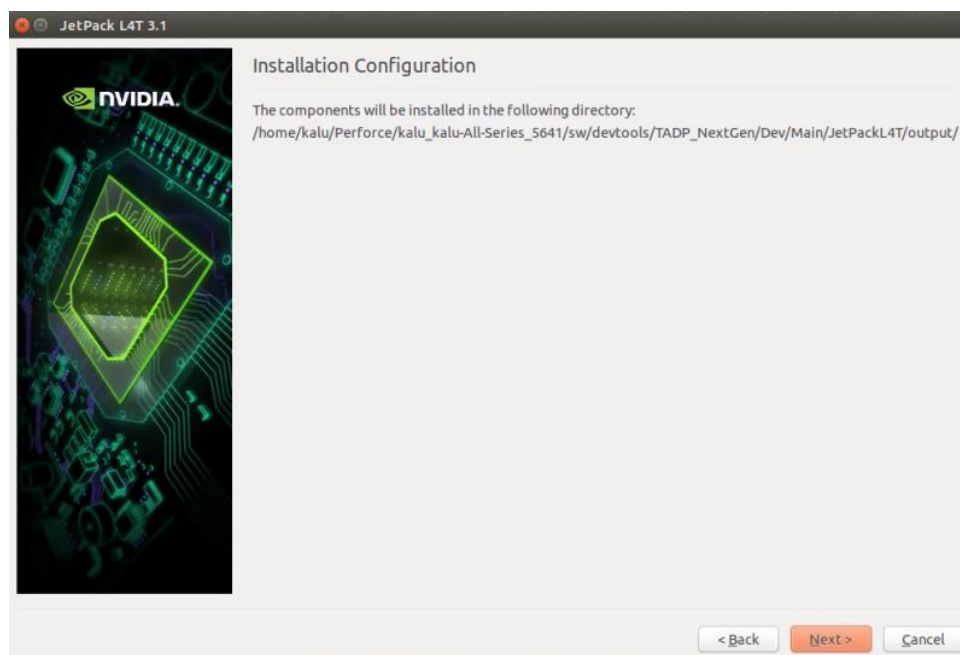
```
chmod +x JetPack-L4T-3.1-linux-x64.run
```

5. Run following command in terminal on your host Ubuntu machine.

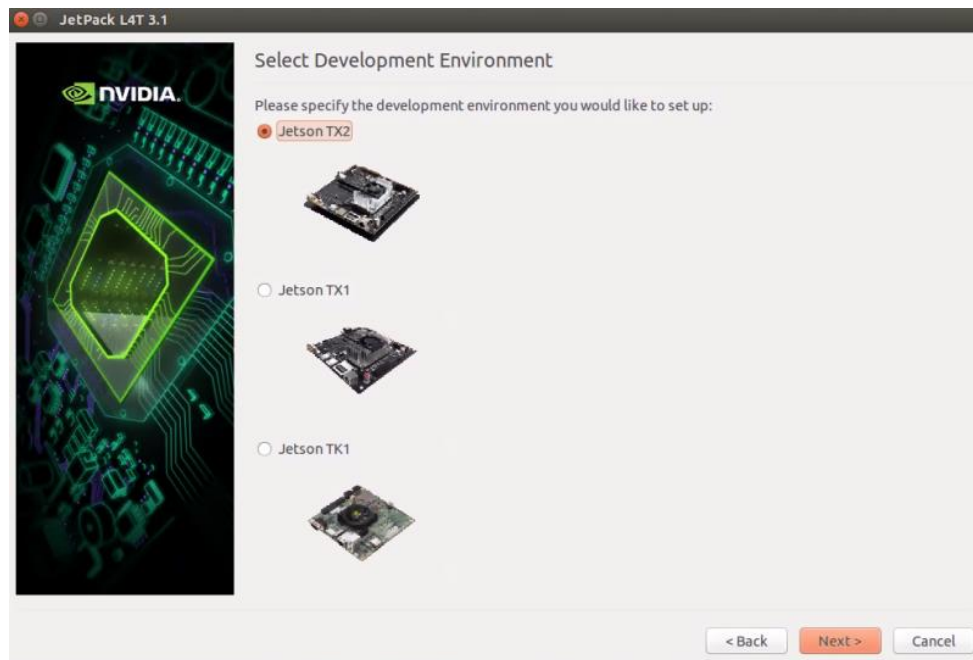
```
./JetPack-L4T-3.1-linux-x64.run
```



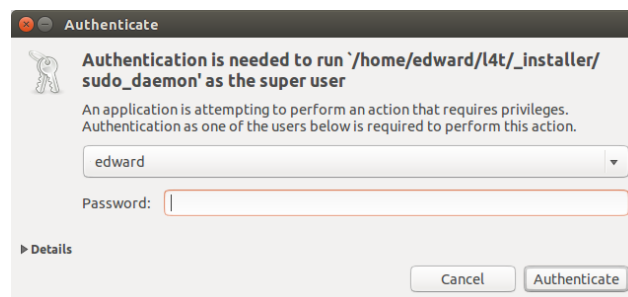
6. Next, the JetPack installer will indicate the installation directory.



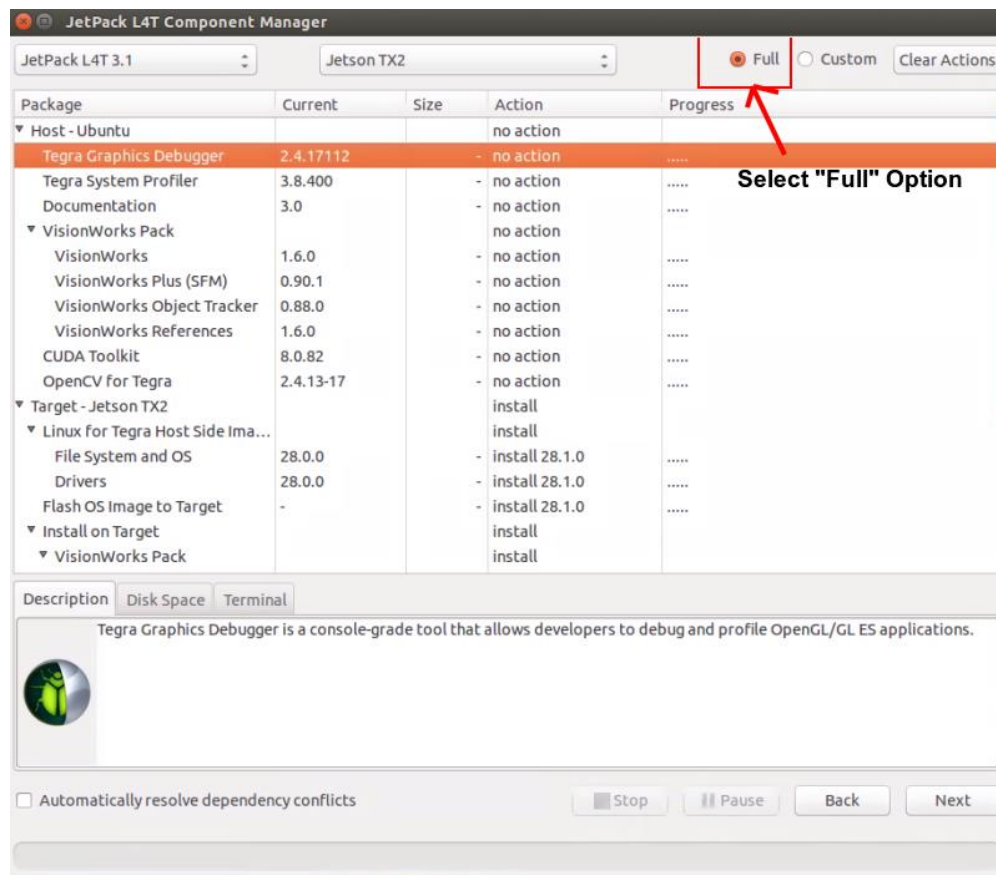
7. Select the development environment to setup.



8. The JetPack installer will pop up a window to ask for permission to use during the installation process; you will need to enter your user password(Host machine's password) here



9. Select the **Full** option for installing all the packages on the jetson. Click 'Next'



10. Accept all Terms and conditions. Click 'Accept'.

11. The Component Manager will proceed with the installation (~ 20 minutes). Once the host installation steps are completed, click the 'Next' button to continue with the installation of target components.

12. Please refer following setup for flashing jetson.

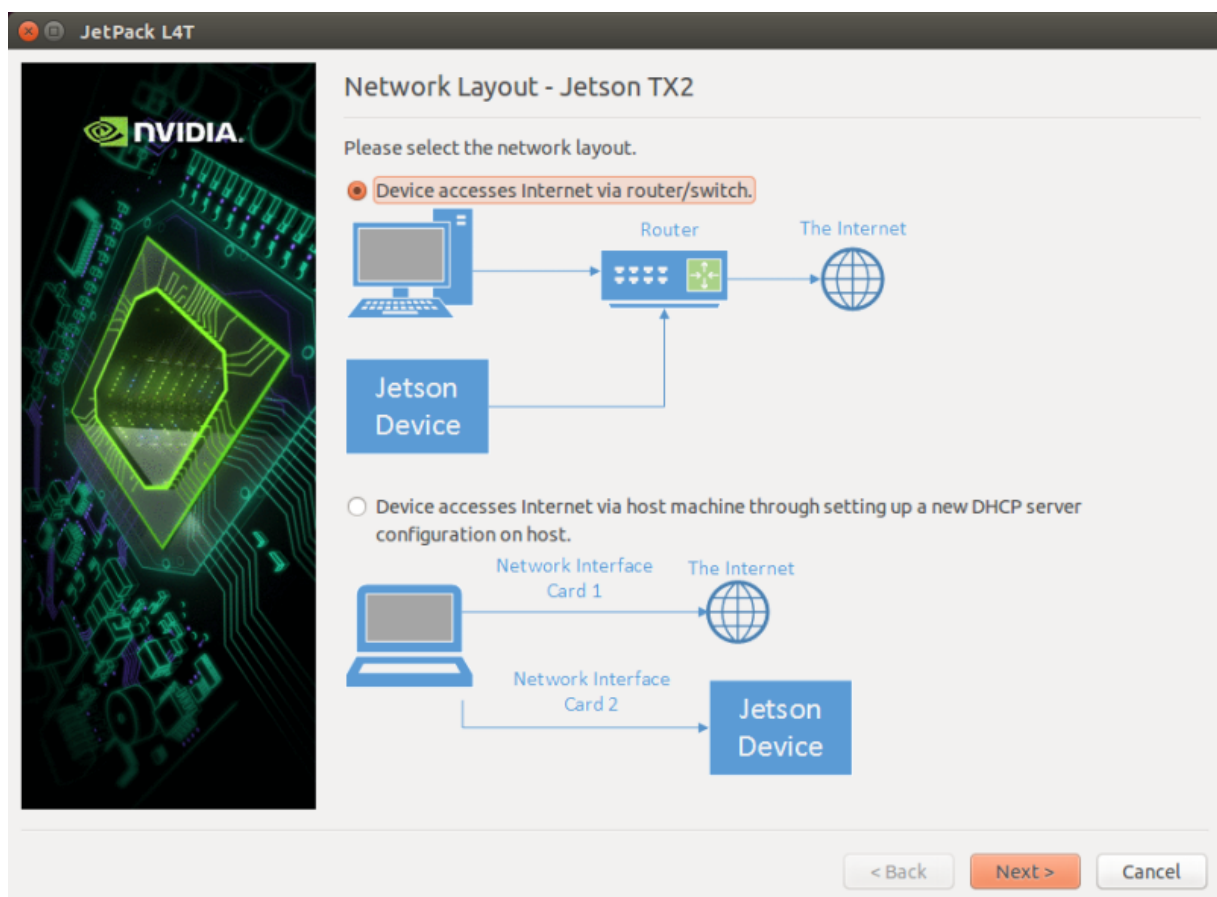
You need a router connected to internet.

Connect Host machine to router via ethernet.

Jetson to the same router via ethernet.

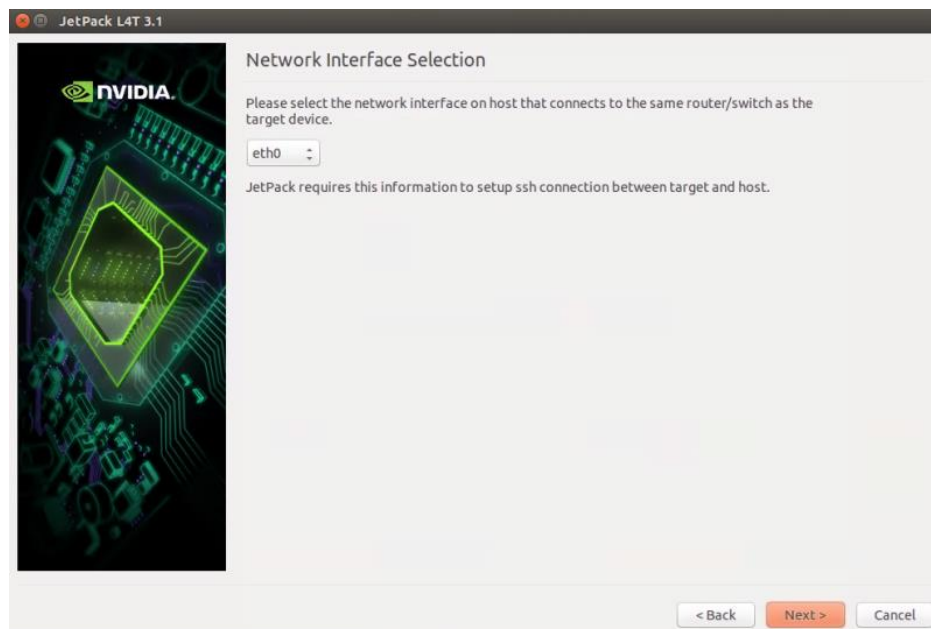
Note: Jetson and Host machine should be in same sub network after this setup and internet connection should be working on host machine(check in browser if needed).

After above setup is done, press <NEXT>



13. If you selected the **Device access Internet via router/switch** layout, you will be asked to select which interface to use for Internet access.

Note: eth0 or ensp0 will be displayed as option.



13. A pop-up window will instruct you to put your device into Force USB Recovery Mode, so you can flash the OS.

Refer Jetson Diagram given at start to know about buttons on Jetson.

Follow the steps from pop up window. Follow following Fix as 4th step.

Fix for 4th step to put device in recovery mode:

Keep pressing FORCE RECOVERY button, press POWER button and release POWER button after a second. Then release FORCE RECOVERY button.


```
Post Installation
Please put your device to Force USB Recovery Mode, when your are ready, press Enter key
To place system in Force USB Recovery Mode:
1. Power down the device. If connected, remove the AC adapter from the device. The device MUST be powered OFF, not in a suspend or sleep state.
2. Connect the Micro-B plug on the USB cable to the Recovery (USB Micro-B) Port on the device and the other end to an available USB port on the host PC.
3. Connect the power adapter to the device.
4. Press and release the POWER button to power on device. Press and hold the FORCE RECOVERY button; while pressing the FORCE RECOVERY button, press and release the RESET button; wait two seconds and release the FORCE RECOVERY button.;
5. When device is in recovery mode, lsusb command on host will list a line of "Nvidia Corp"
```

Note: In 5th step, verify that Device with 'Nvidia Corp' is listed in lsusb output. Open another terminal(Alt+Ctrl+T). Run -

lsusb

```
lspramod@pramodP-PC:~/Desktop/jetson_jetpack$ lsusb
Bus 002 Device 002: ID 8087:8000 Intel Corp.
Bus 002 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 002: ID 8087:8008 Intel Corp.
Bus 001 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 002: ID 045e:0797 Microsoft Corp. Optical Mouse 200
Bus 003 Device 004: ID 0955:7c18 Nvidia Corp.
Bus 003 Device 003: ID 045e:07b9 Microsoft Corp.
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
pramod@pramodP-PC:~/Desktop/jetson_jetpack$
```

Then, press Enter in the pop window.

After this, it will take around 15 minutes.

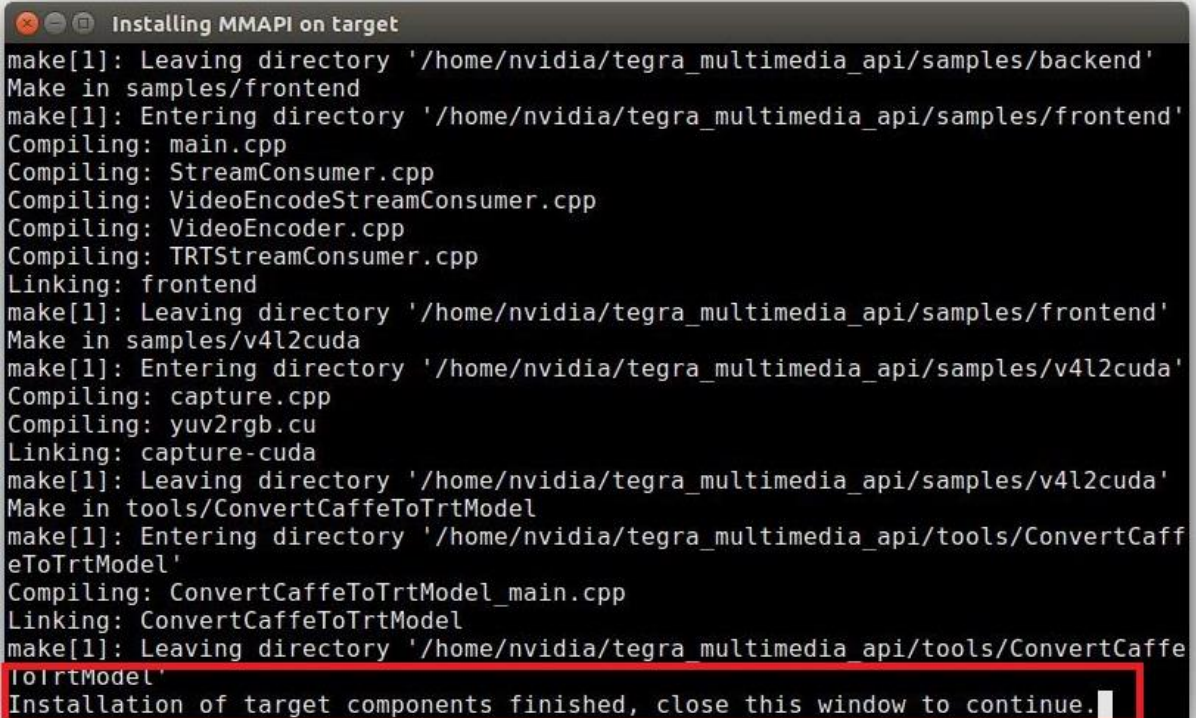
15. After around 15 minutes , the host will try to identify the IP address of Jetson system. If it **gives up**, enter IP manually.

Note: To know IP of Jetson: Open Terminal on Jetson machine->**ifconfig**. Use HDMI cable to connect monitor/display. Credentials to login nvidia:nvidia

16. After obtaining the IP the host PC will install all the libraries on Jetson device. This will take around 15 minutes.

17. After all the processing the host PC will give a 'Done Installation' message. Then Jetson is completely flashed.

18. Please make sure below message is displayed after installation in complete.



```
Installing MMAPi on target
make[1]: Leaving directory '/home/nvidia/tegra_multimedia_api/samples/backend'
Make in samples/frontend
make[1]: Entering directory '/home/nvidia/tegra_multimedia_api/samples/frontend'
Compiling: main.cpp
Compiling: StreamConsumer.cpp
Compiling: VideoEncodeStreamConsumer.cpp
Compiling: VideoEncoder.cpp
Compiling: TRTStreamConsumer.cpp
Linking: frontend
make[1]: Leaving directory '/home/nvidia/tegra_multimedia_api/samples/frontend'
Make in samples/v4l2cuda
make[1]: Entering directory '/home/nvidia/tegra_multimedia_api/samples/v4l2cuda'
Compiling: capture.cpp
Compiling: yuv2rgb.cu
Linking: capture-cuda
make[1]: Leaving directory '/home/nvidia/tegra_multimedia_api/samples/v4l2cuda'
Make in tools/ConvertCaffeToTrtModel
make[1]: Entering directory '/home/nvidia/tegra_multimedia_api/tools/ConvertCaffeToTrtModel'
Compiling: ConvertCaffeToTrtModel_main.cpp
Linking: ConvertCaffeToTrtModel
make[1]: Leaving directory '/home/nvidia/tegra_multimedia_api/tools/ConvertCaffeToTrtModel'
Installation of target components finished, close this window to continue.█
```

19. Connect monitor, keyboard, mouse to jetson for further steps. Login credentials nvidia:nvidia