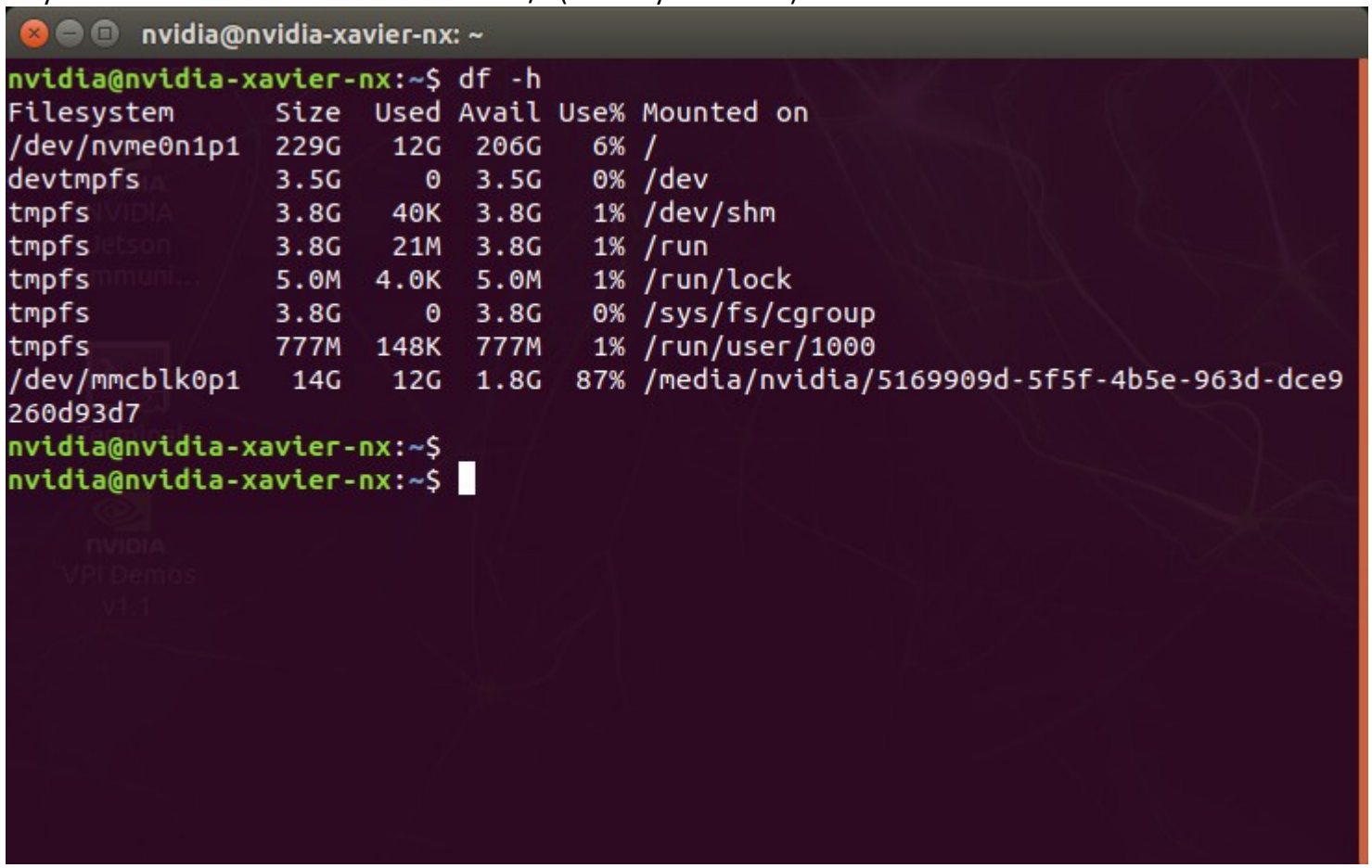
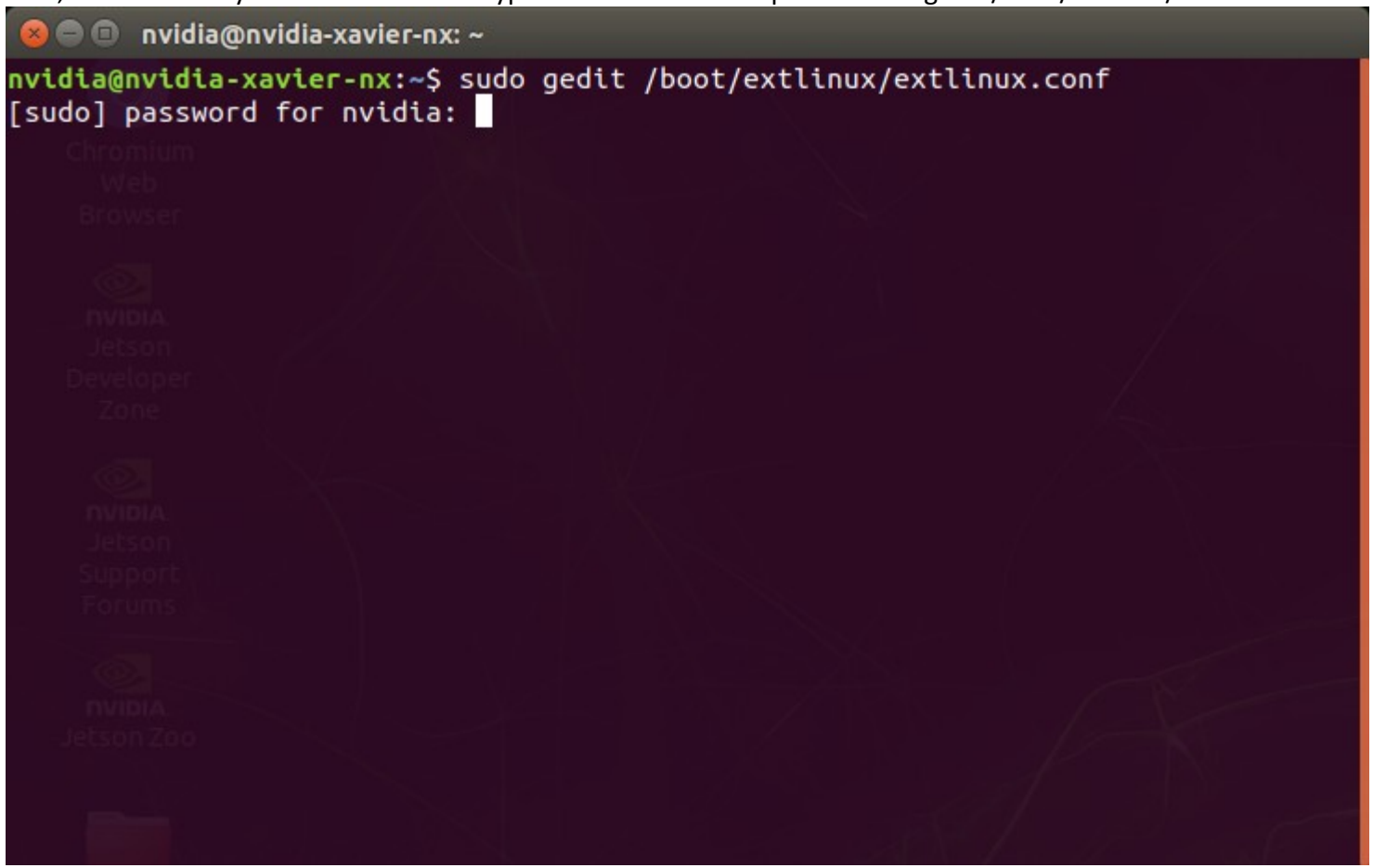
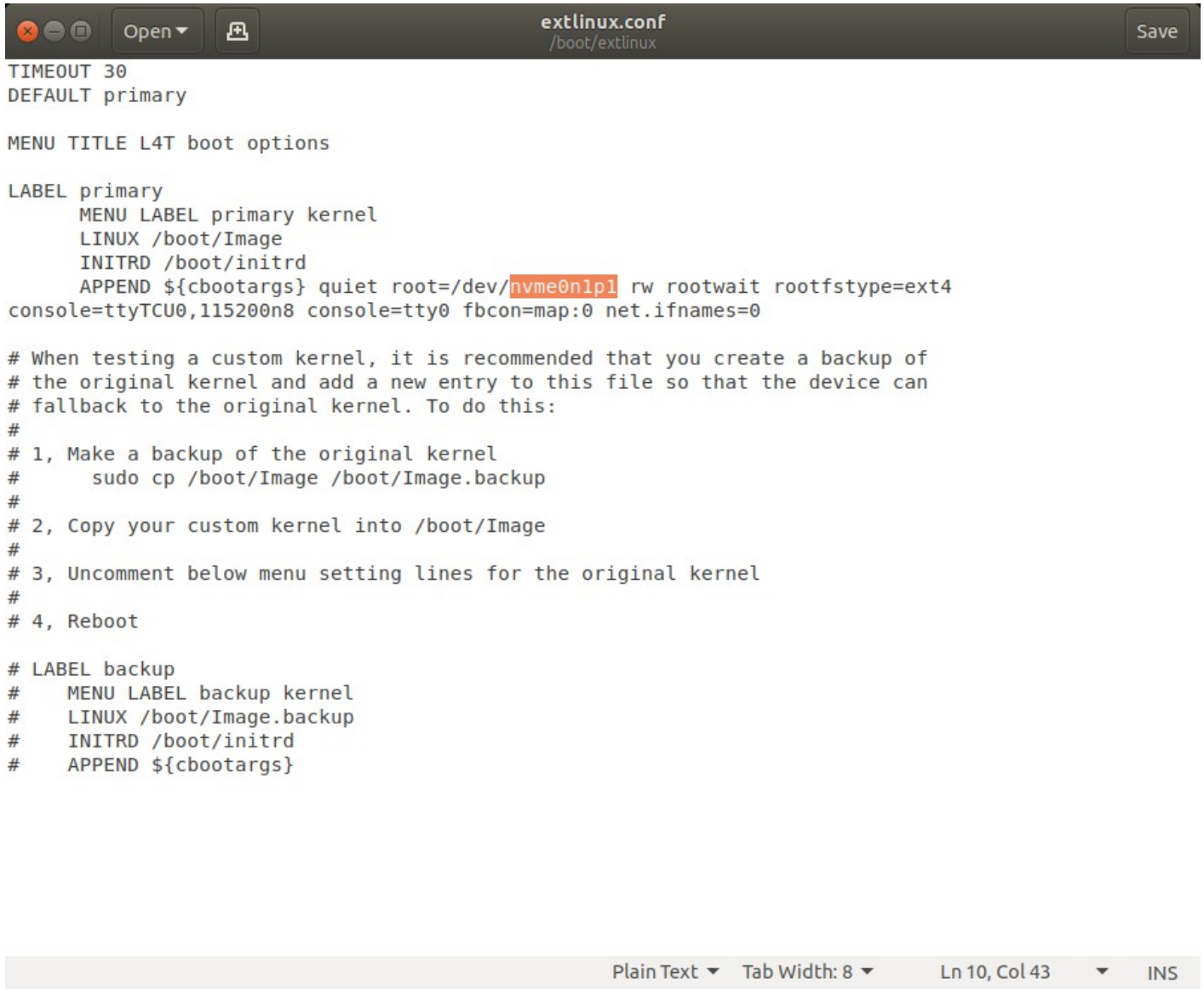
1-) Open a terminal on your Jetson. Then, type "df -h"
As you can see that our SSD connected on "/" (as Filesystem Root)

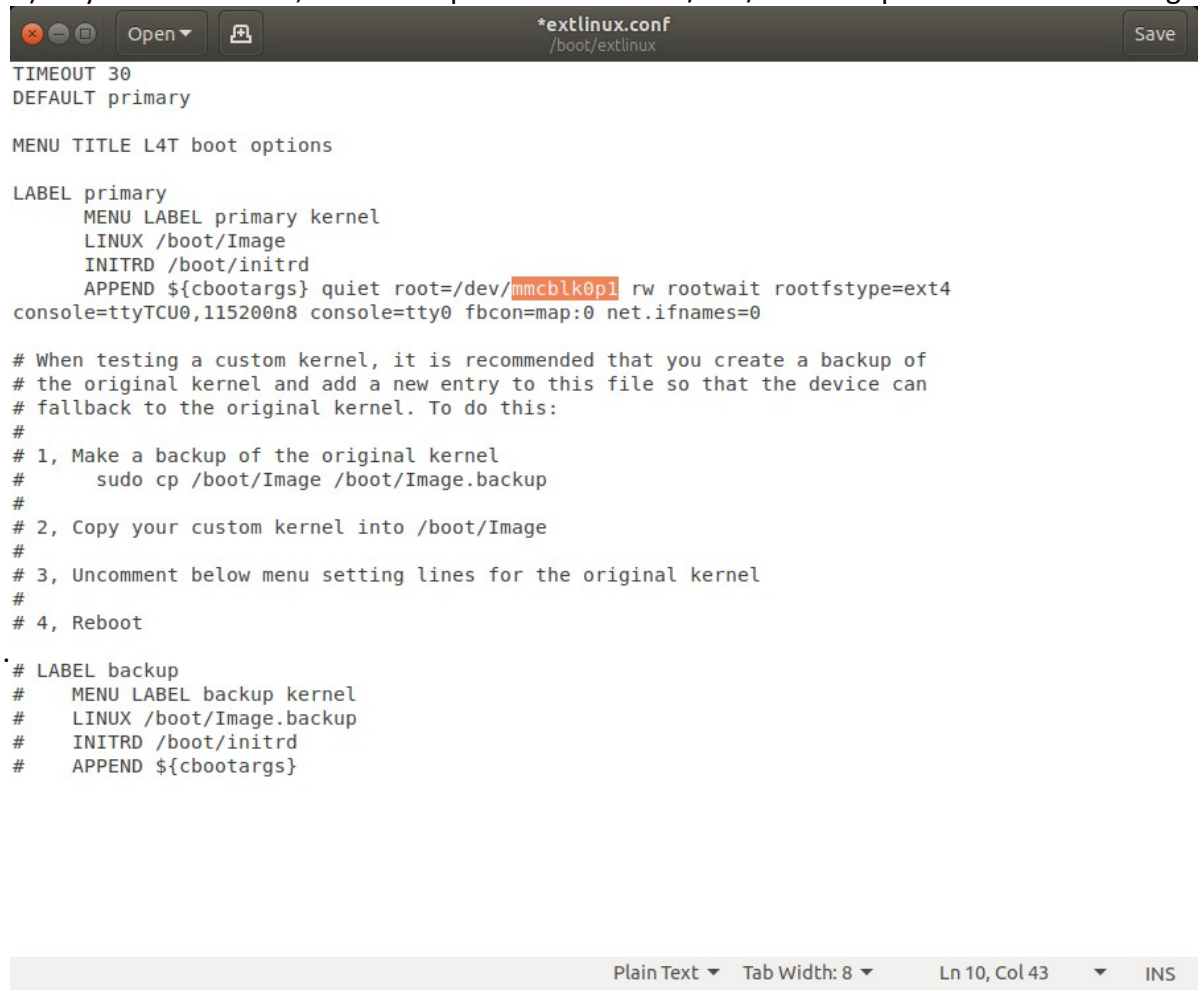


2-) At this point we need to change two extlinux.conf files which located on boot/extlinux folders both eMMC & SSD.
First, we will modify the file at the SSD. Type this command to open it "sudo gedit /boot/extlinux/extlinux.conf"

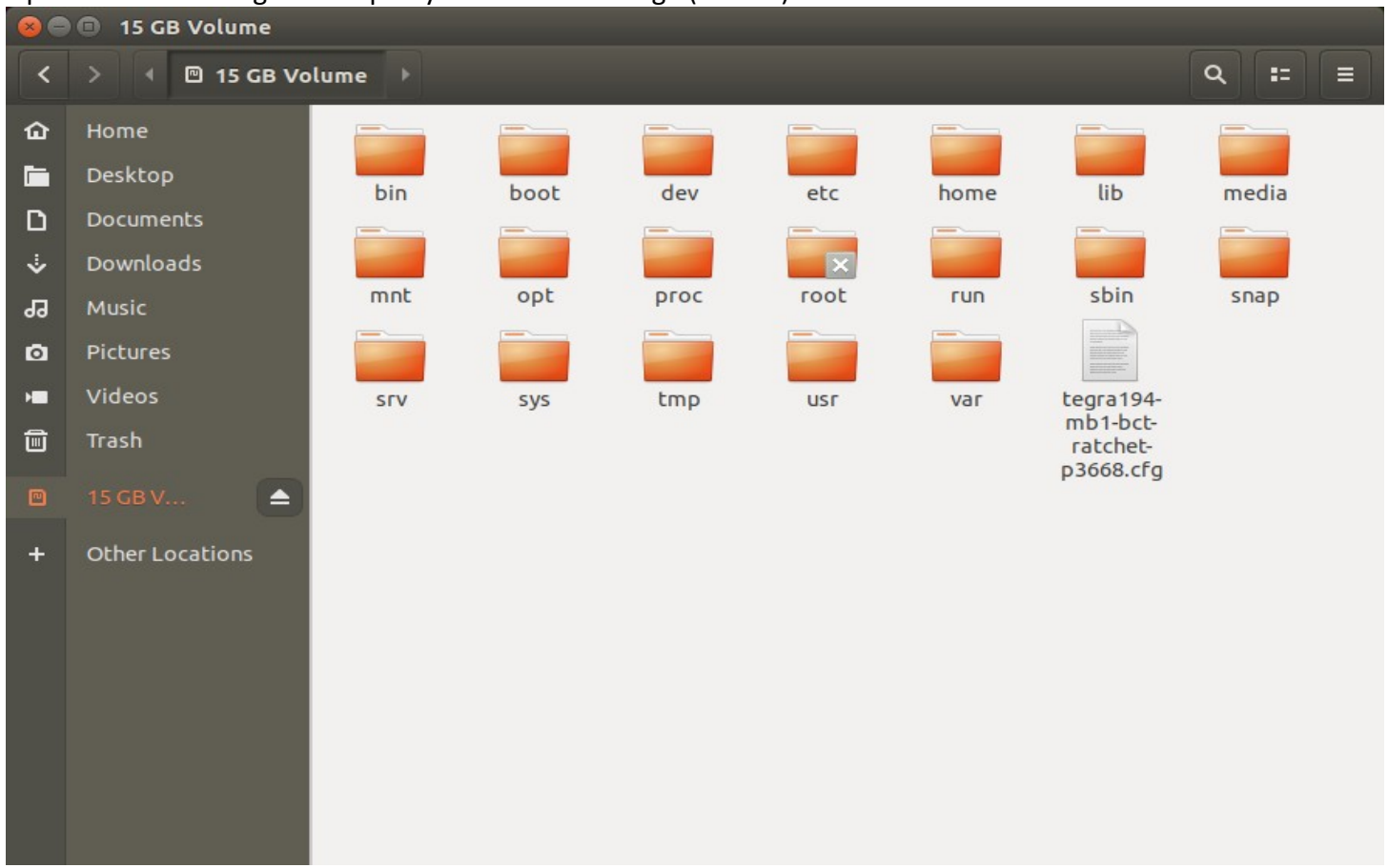



Open
extlinux.conf
/boot/extlinux
Save
TIMEOUT 30
DEFAULT primary
MENU TITLE L4T boot options
LABEL primary
MENU LABEL primary kernel
LINUX /boot/Image
INITRD /boot/initrd
APPEND ${cbootargs} quiet root=/dev/nvme0n1p1 rw rootwait rootfstype=ext4
console=ttyTCU0,115200n8 console=tty0 fbcon=map:0 net.ifnames=0
# When testing a custom kernel, it is recommended that you create a backup of
# the original kernel and add a new entry to this file so that the device can
# fallback to the original kernel. To do this:
#
1, Make a backup of the original kernel
sudo cp /boot/Image /boot/Image.backup
#
2, Copy your custom kernel into /boot/Image
#
3, Uncomment below menu setting lines for the original kernel
#
4, Reboot
LABEL backup
MENU LABEL backup kernel
LINUX /boot/Image.backup
INITRD /boot/initrd
APPEND ${cbootargs}
Plain Text
Tab Width: 8
Ln 10, Col 43
INS

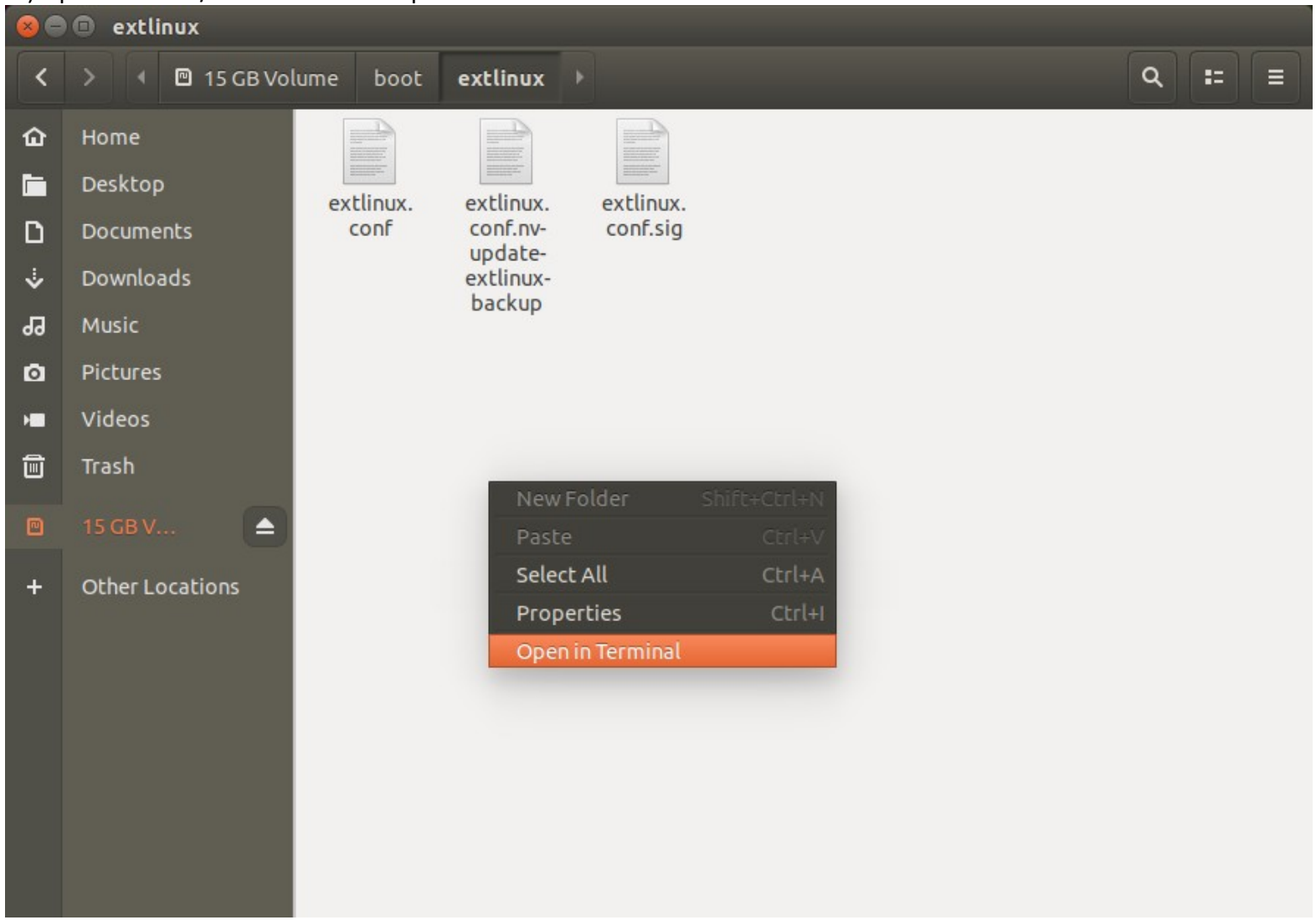
3-) As you can see that, the "root" parameter set as "/dev/nvme0n1p1". You need to change it as "/dev/mmcblk0p1"



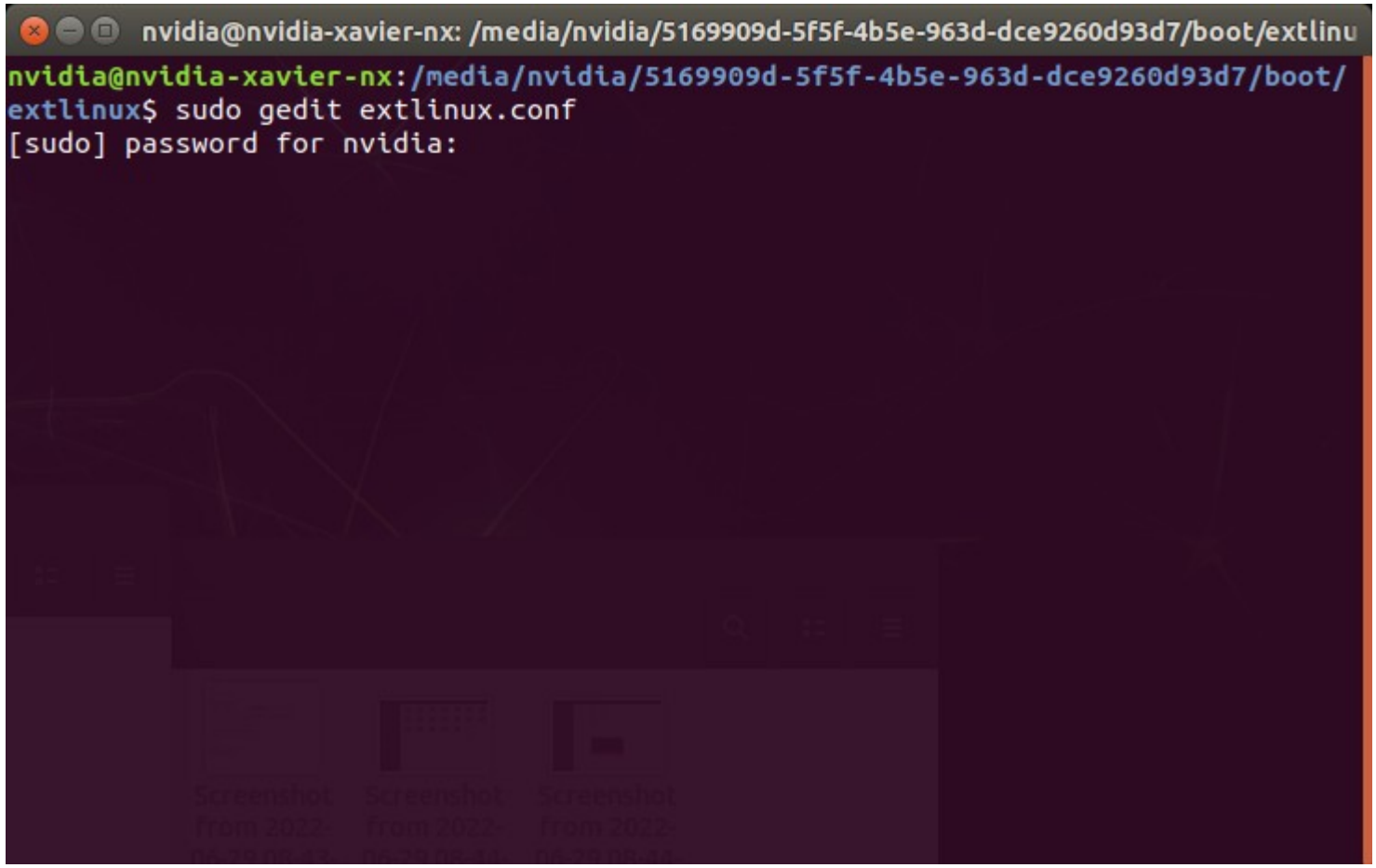
4-)Then, save it and close.
Open the File MAnager and open your internal storage (eMMC).

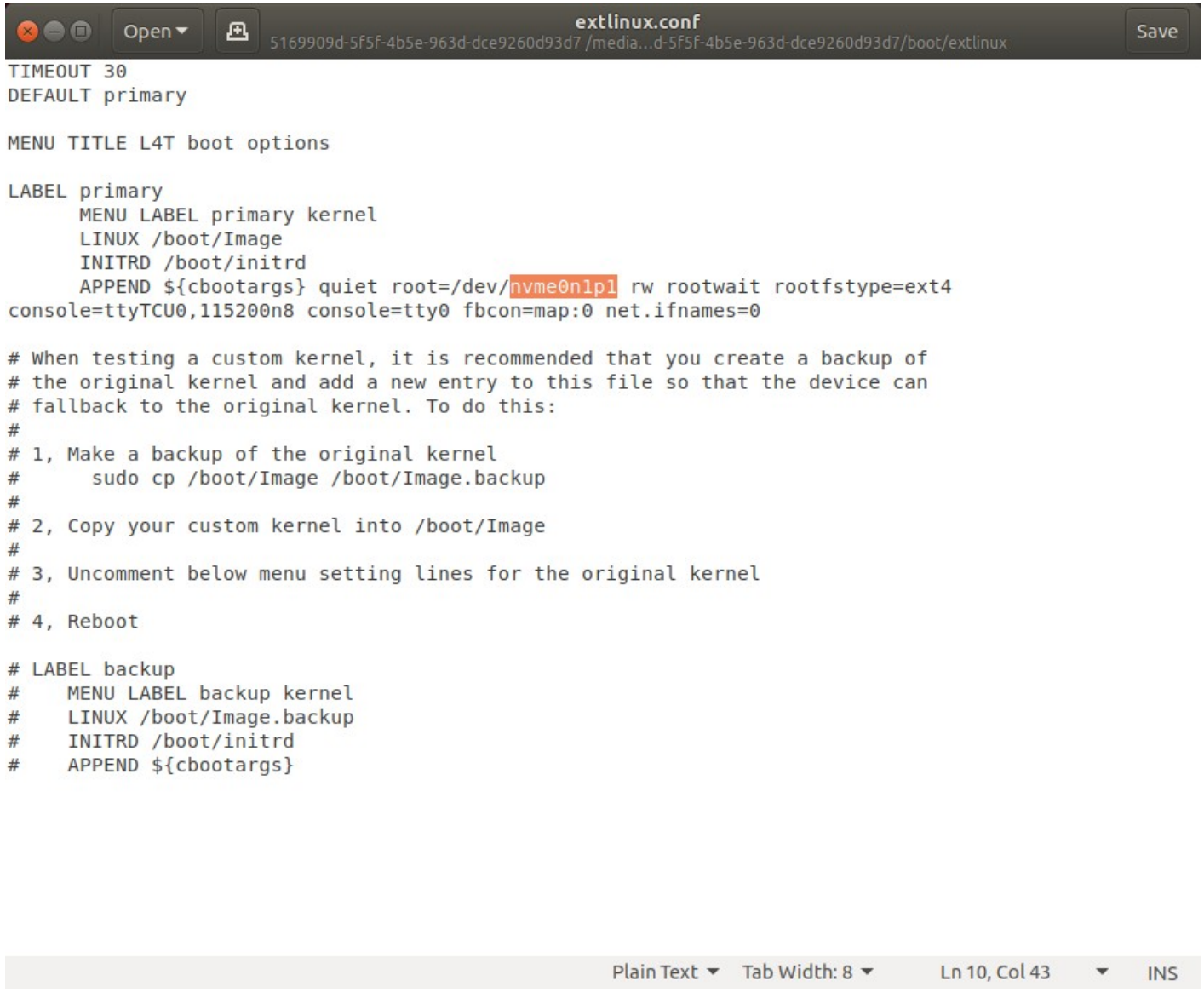


5-) Open the boot/extlinux folder & open a terminal from here.

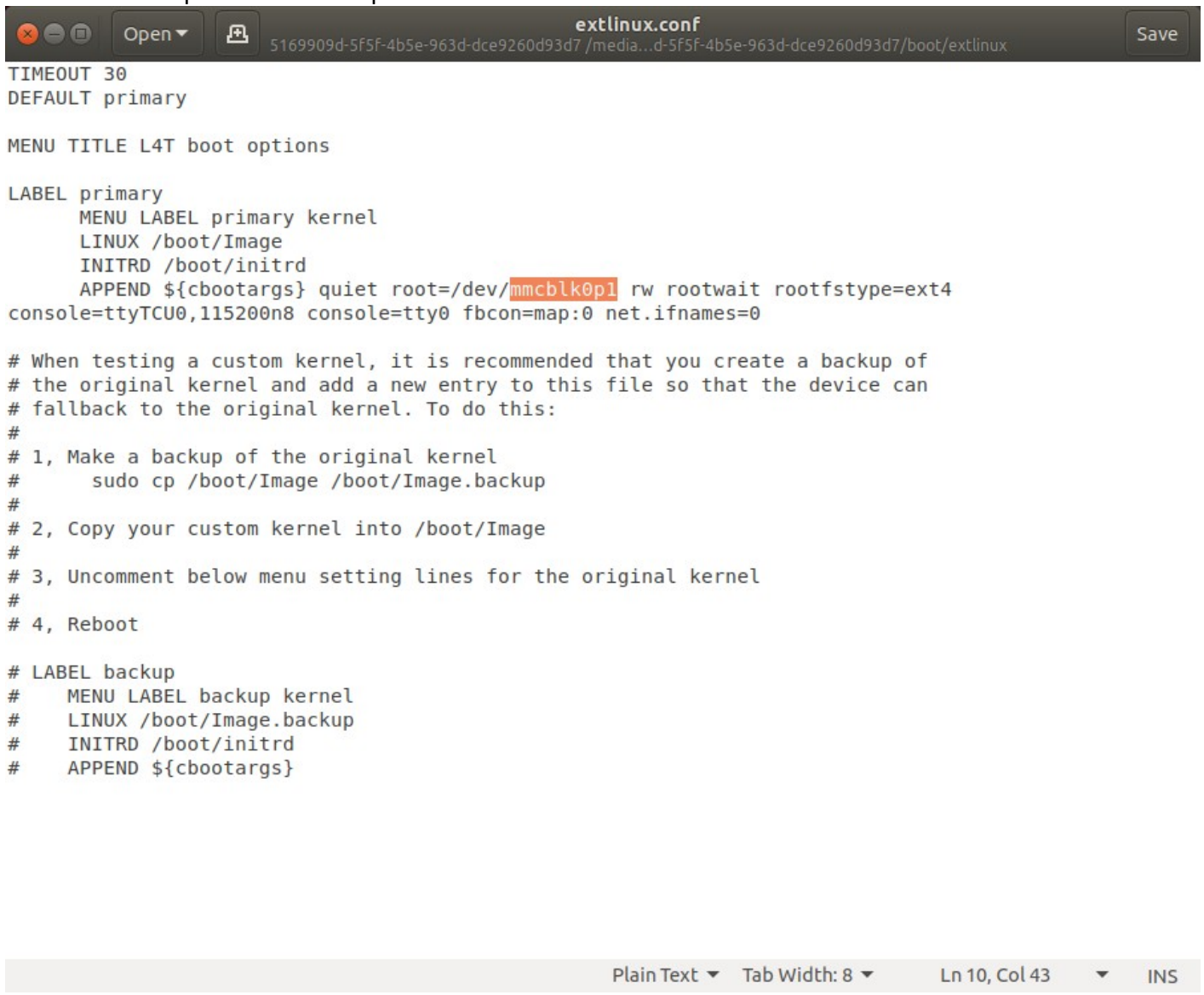


6-) Type this command below to modify the second extlinux.conf file:
"sudo gedit extlinux.conf"

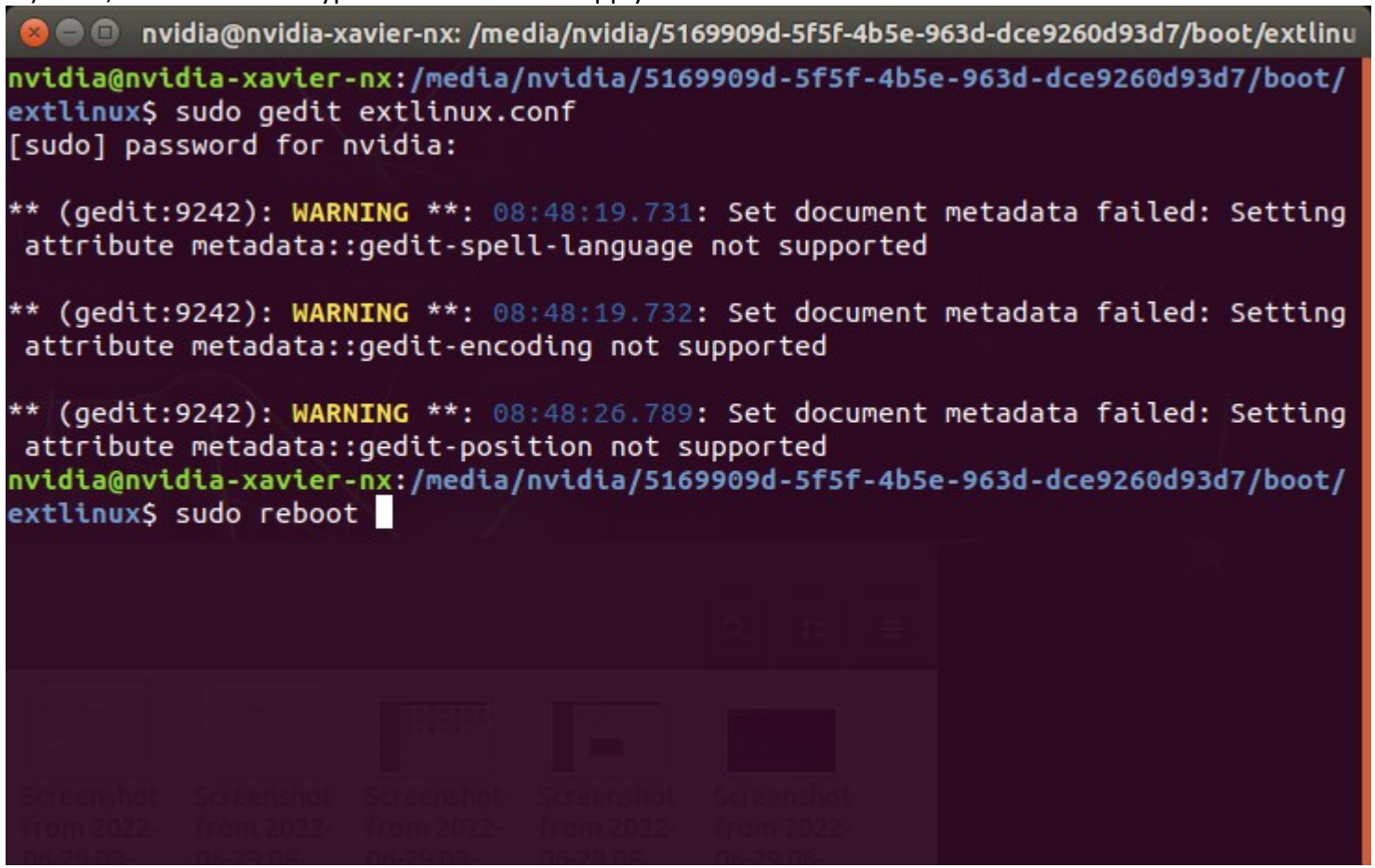

nvidia@nvidia-xavier-nx: /media/nvidia/5169909d-5f5f-4b5e-963d-dce9260d93d7/boot/extlinu
nvidia@nvidia-xavier-nx:/media/nvidia/5169909d-5f5f-4b5e-963d-dce9260d93d7/boot/
extlinux$ sudo gedit extlinux.conf
[sudo] password for nvidia:


Open
extlinux.conf
5169909d-5f5f-4b5e-963d-dce9260d93d7 /media...d-5f5f-4b5e-963d-dce9260d93d7/boot/extlinux
Save
TIMEOUT 30
DEFAULT primary
MENU TITLE L4T boot options
LABEL primary
MENU LABEL primary kernel
LINUX /boot/Image
INITRD /boot/initrd
APPEND ${cbootargs} quiet root=/dev/nvme0n1p1 rw rootwait rootfstype=ext4
console=ttyTCU0,115200n8 console=tty0 fbcon=map:0 net.ifnames=0
# When testing a custom kernel, it is recommended that you create a backup of
# the original kernel and add a new entry to this file so that the device can
# fallback to the original kernel. To do this:
#
1, Make a backup of the original kernel
sudo cp /boot/Image /boot/Image.backup
#
2, Copy your custom kernel into /boot/Image
#
3, Uncomment below menu setting lines for the original kernel
#
4, Reboot
LABEL backup
MENU LABEL backup kernel
LINUX /boot/Image.backup
INITRD /boot/initrd
APPEND ${cbootargs}
Plain Text
Tab Width: 8
Ln 10, Col 43
INS

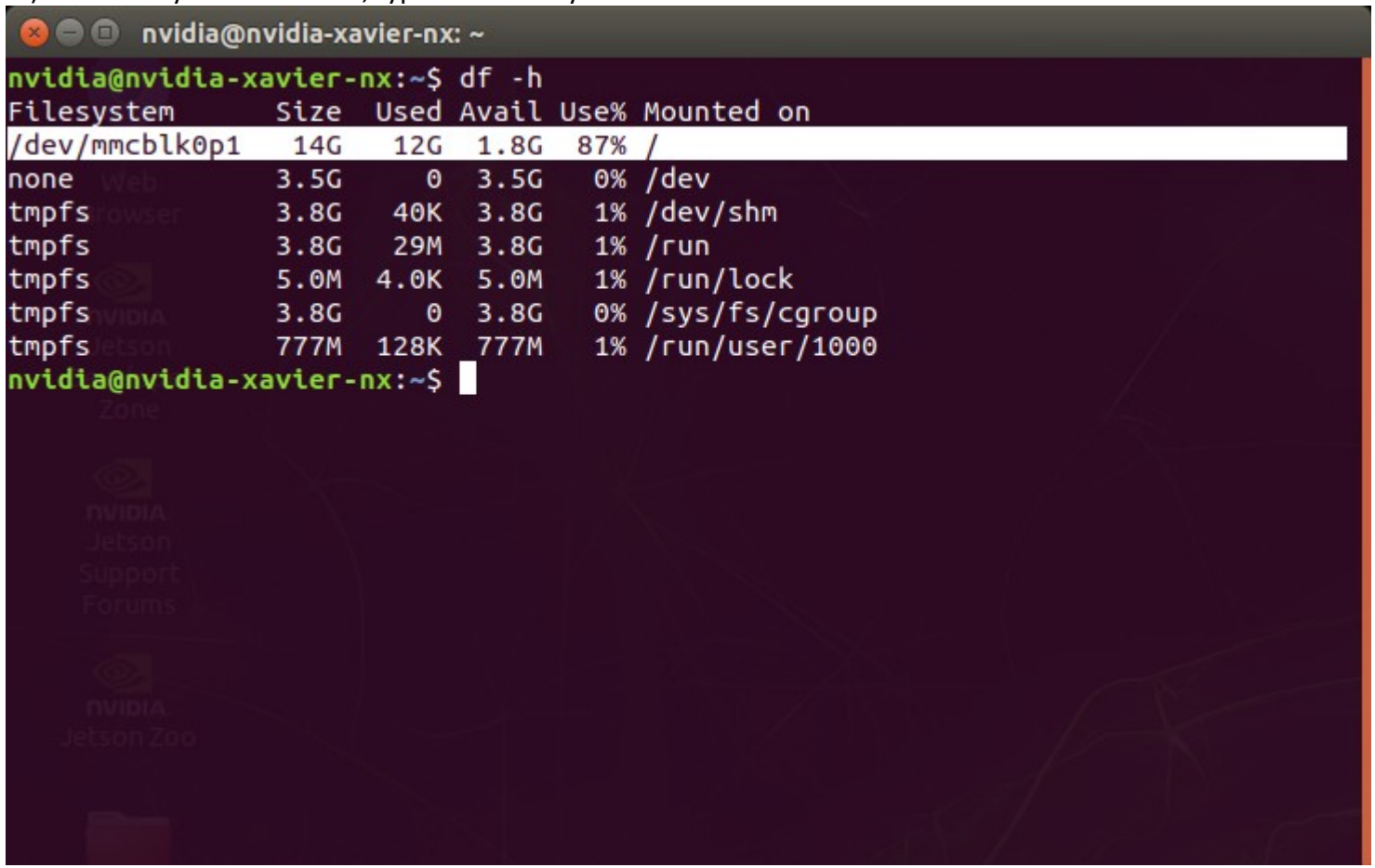
7-) You need to do that the same update on this file as well.
From "nvme0n1p1" to "mmcblk0p1"



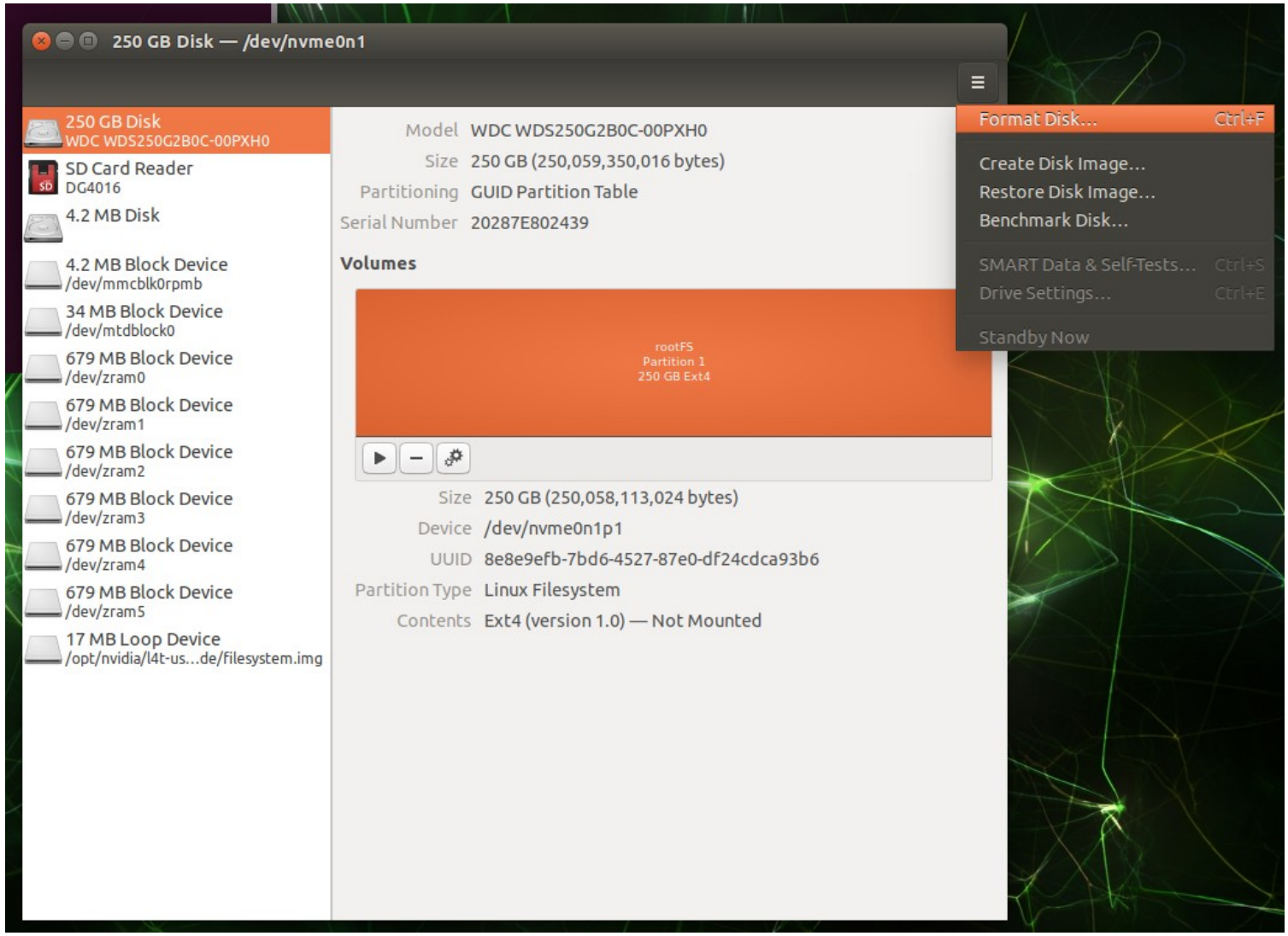
8-) Then, save it & close. Type "sudo reboot" to apply the differences

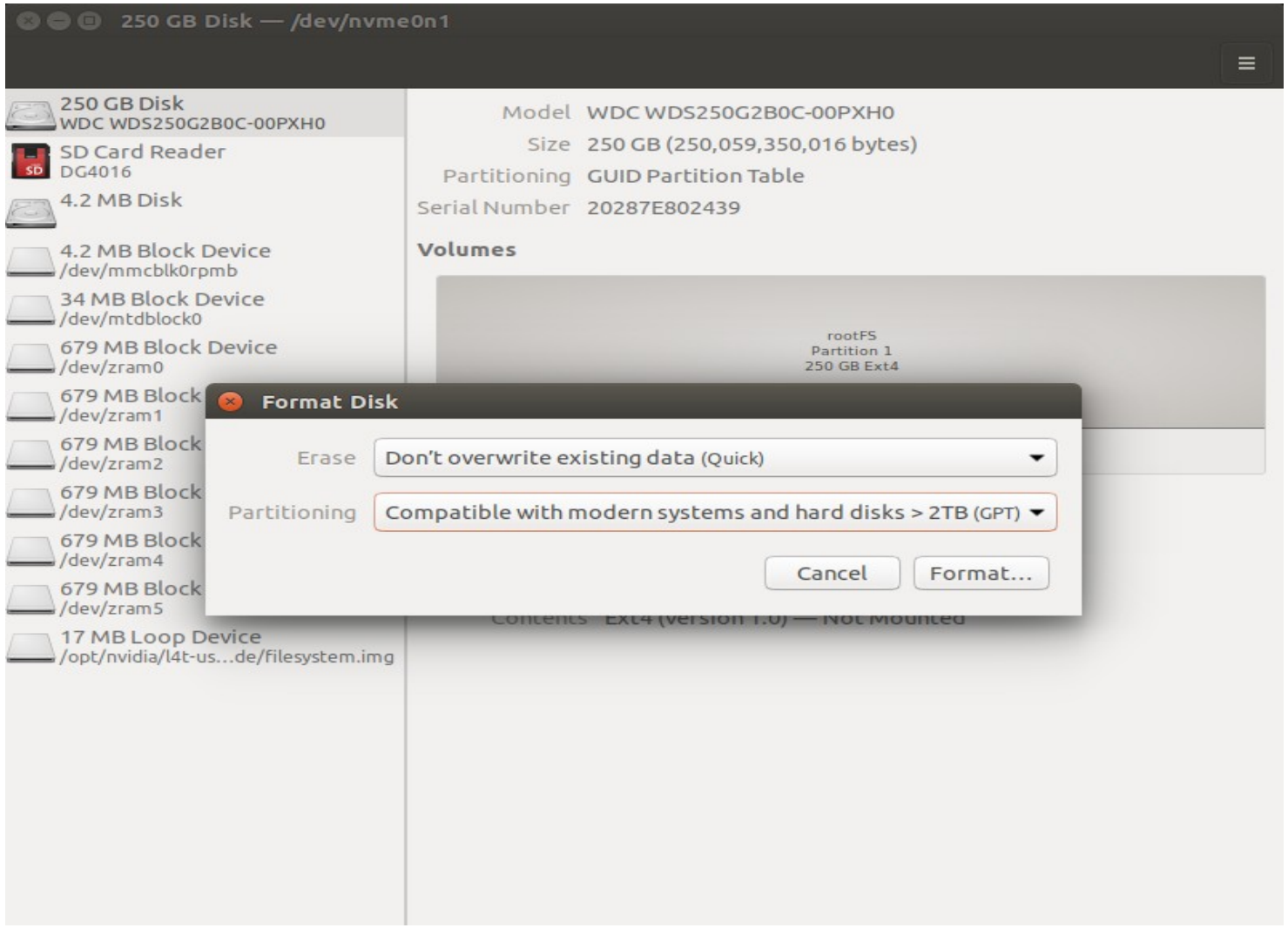


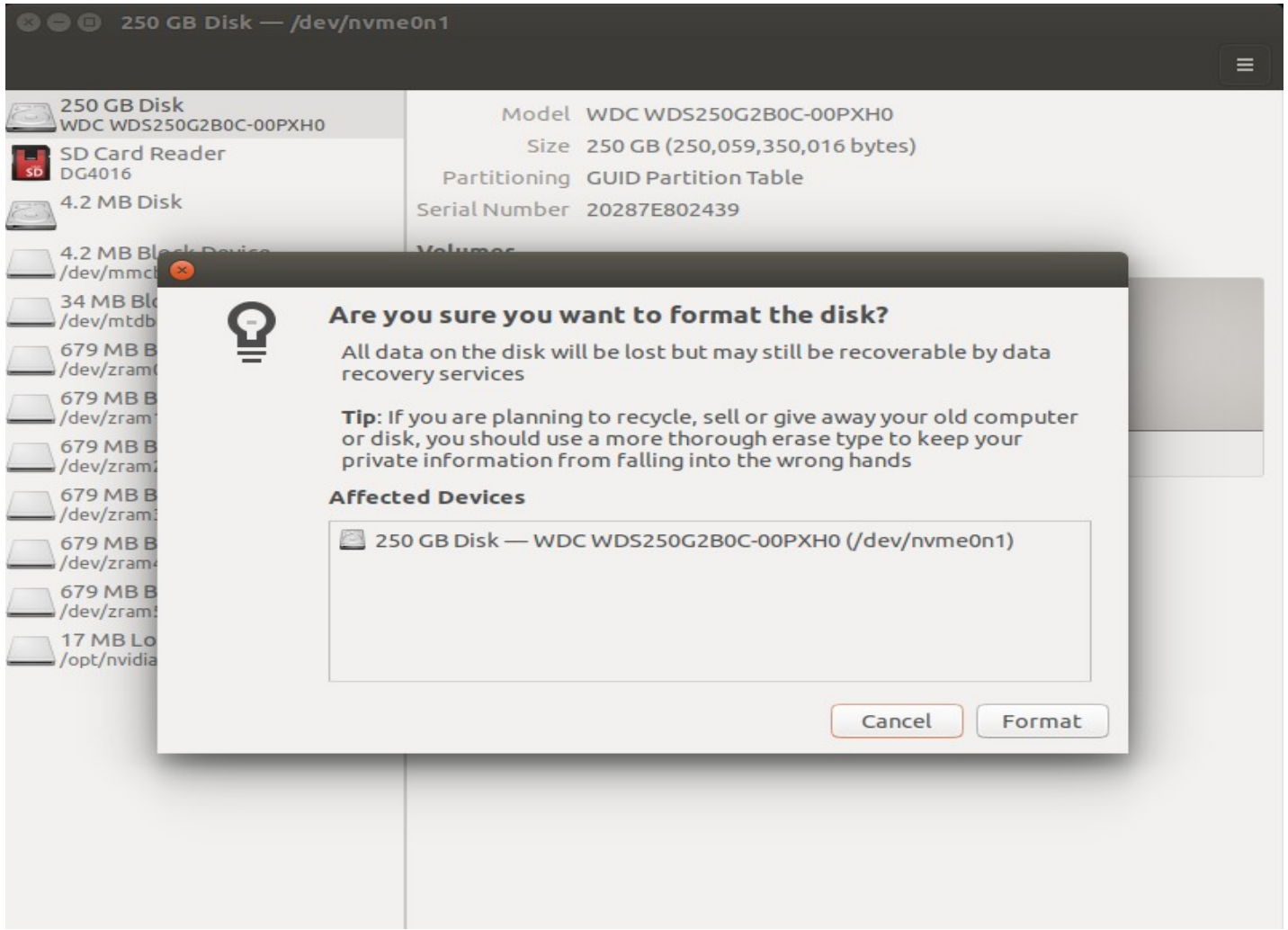
9-) After the system rebooted, type "df -h". As you can see the eMMC connected on root.

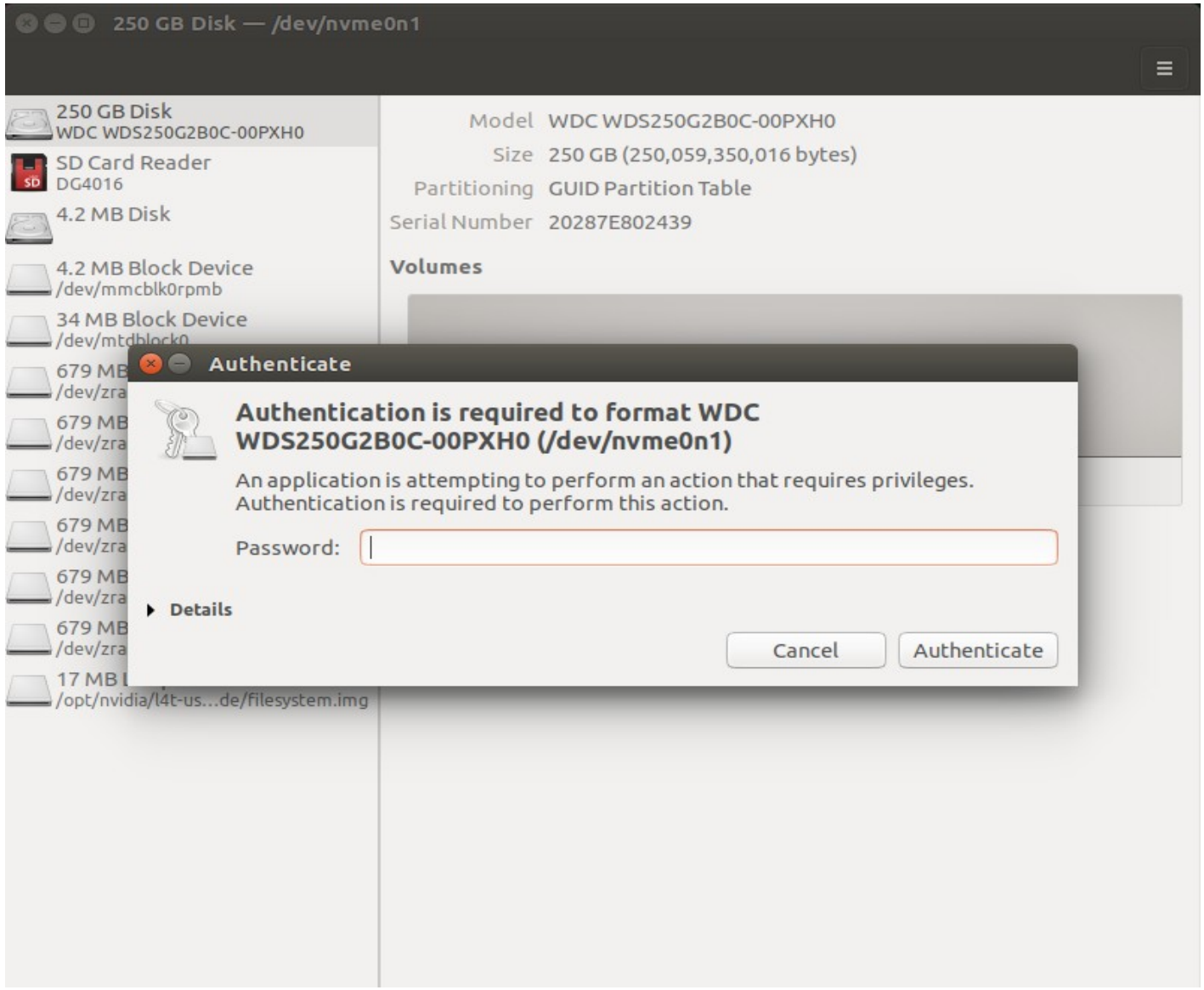


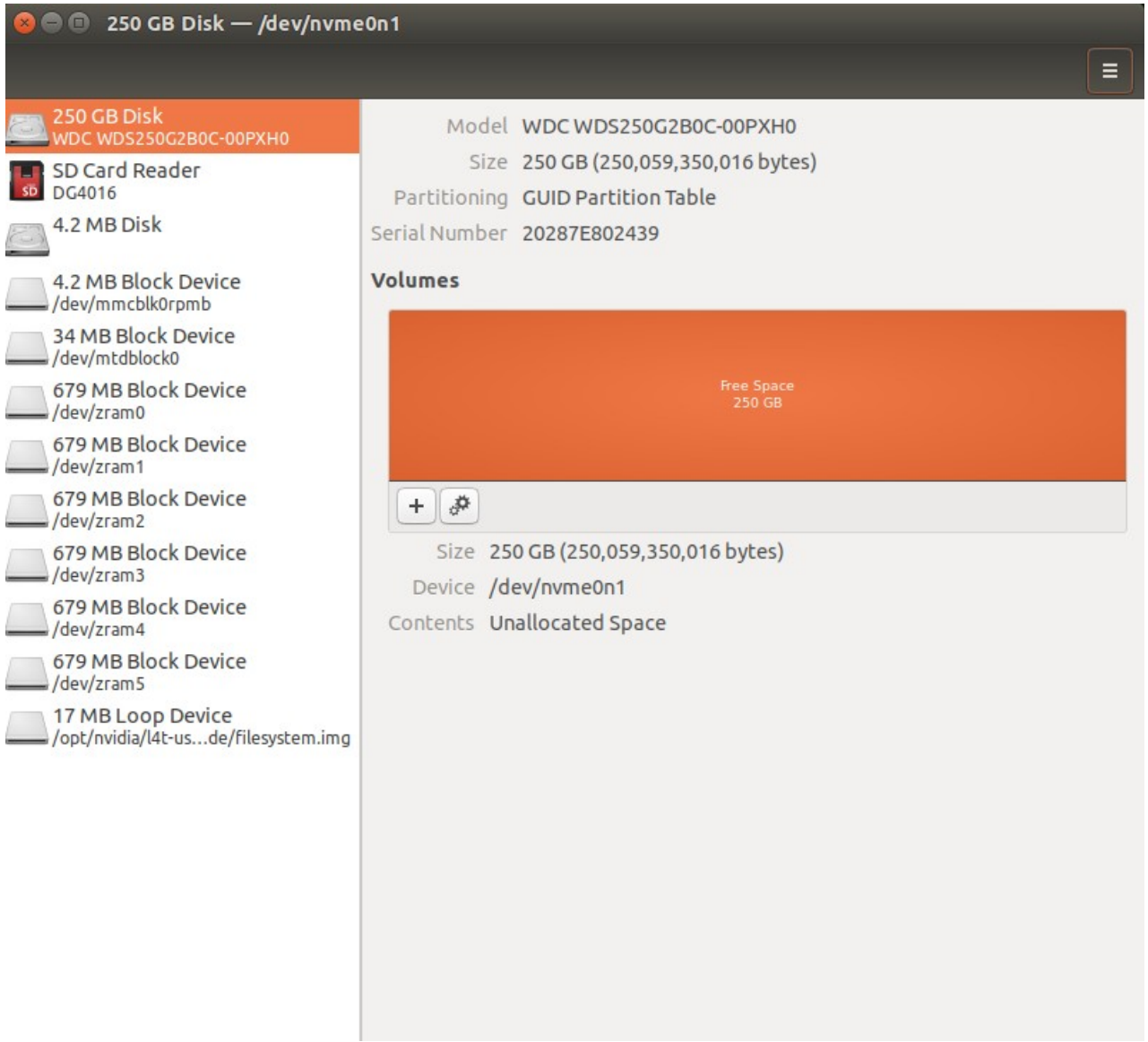
10-) Open the "Disks" application (or type "gnome-disks" from terminal).
Select the SSD drive & format it



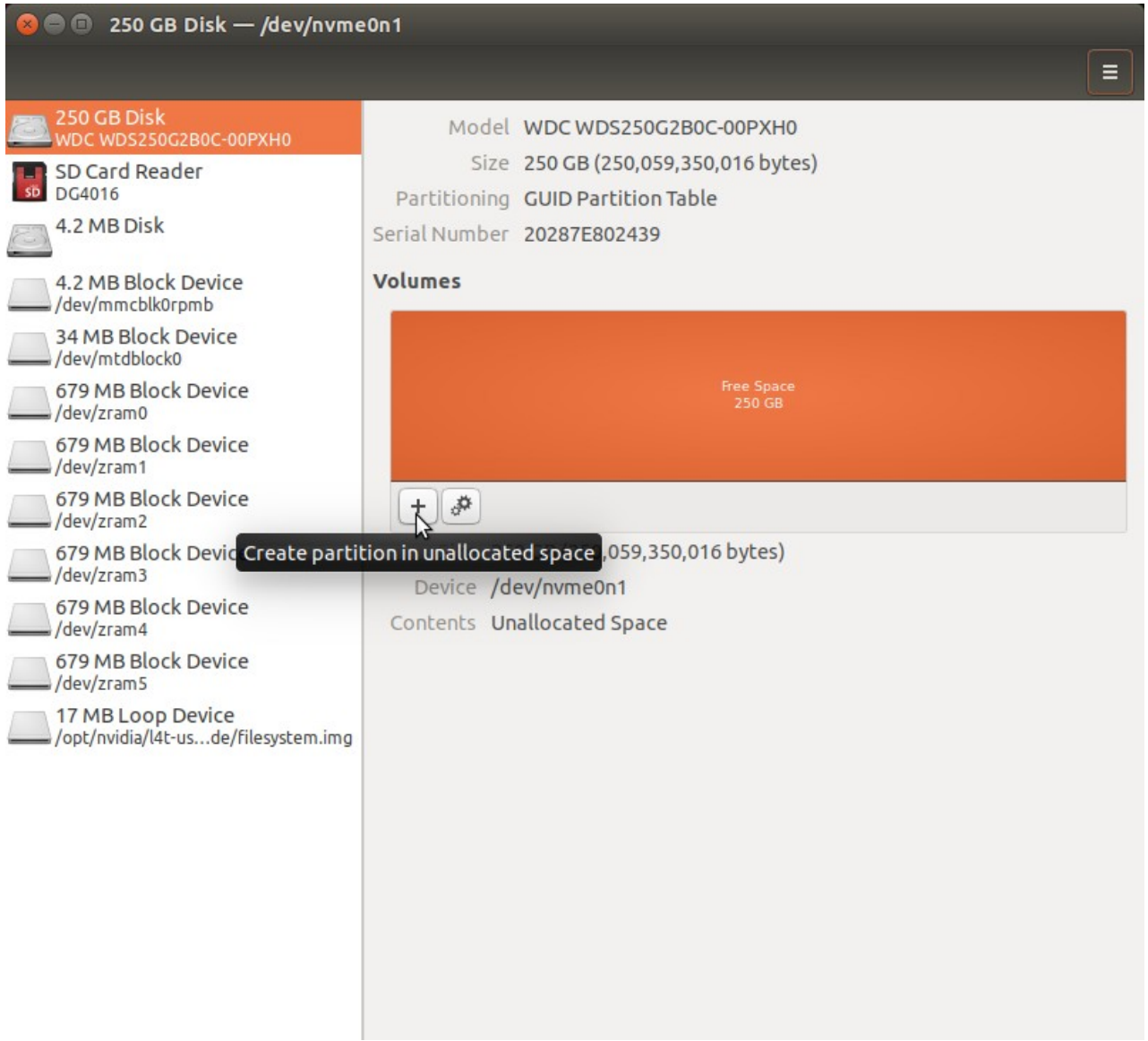

250 GB Disk — /dev/nvme0n1
250 GB Disk
WDC WDS250G2B0C-00PXH0
SD Card Reader
DG4016
4.2 MB Disk
4.2 MB Block Device
/dev/mmcblk0rpmb
34 MB Block Device
/dev/mtdblock0
679 MB Block Device
/dev/zram0
679 MB Block
/dev/zram1
679 MB Block
/dev/zram2
679 MB Block
/dev/zram3
679 MB Block
/dev/zram4
679 MB Block
/dev/zram5
17 MB Loop Device
/opt/nvidia/l4t-us...de/filesystem.img
Model WDC WDS250G2B0C-00PXH0
Size 250 GB (250,059,350,016 bytes)
Partitioning GUID Partition Table
Serial Number 20287E802439
Volumes
rootFS
Partition 1
250 GB Ext4
Format Disk
Erase
Don't overwrite existing data (Quick)
Partitioning
Compatible with modern systems and hard disks > 2TB (GPT)
Cancel
Format...

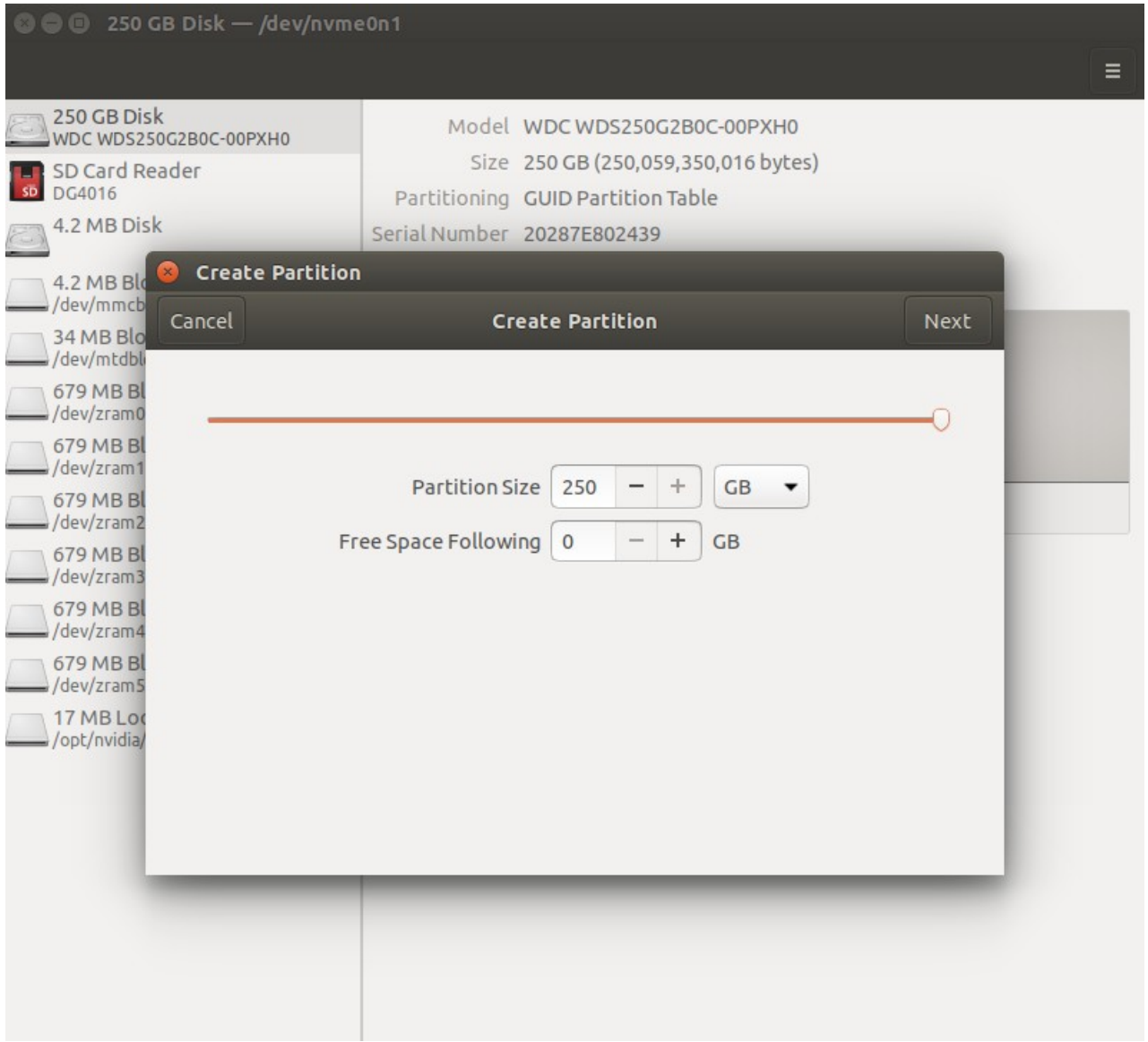

250 GB Disk — /dev/nvme0n1
250 GB Disk
WDC WDS250G2B0C-00PXH0
SD Card Reader
DG4016
4.2 MB Disk
Model WDC WDS250G2B0C-00PXH0
Size 250 GB (250,059,350,016 bytes)
Partitioning GUID Partition Table
Serial Number 20287E802439
Are you sure you want to format the disk?
All data on the disk will be lost but may still be recoverable by data recovery services
Tip: If you are planning to recycle, sell or give away your old computer or disk, you should use a more thorough erase type to keep your private information from falling into the wrong hands
Affected Devices
250 GB Disk — WDC WDS250G2B0C-00PXH0 (/dev/nvme0n1)
Cancel
Format

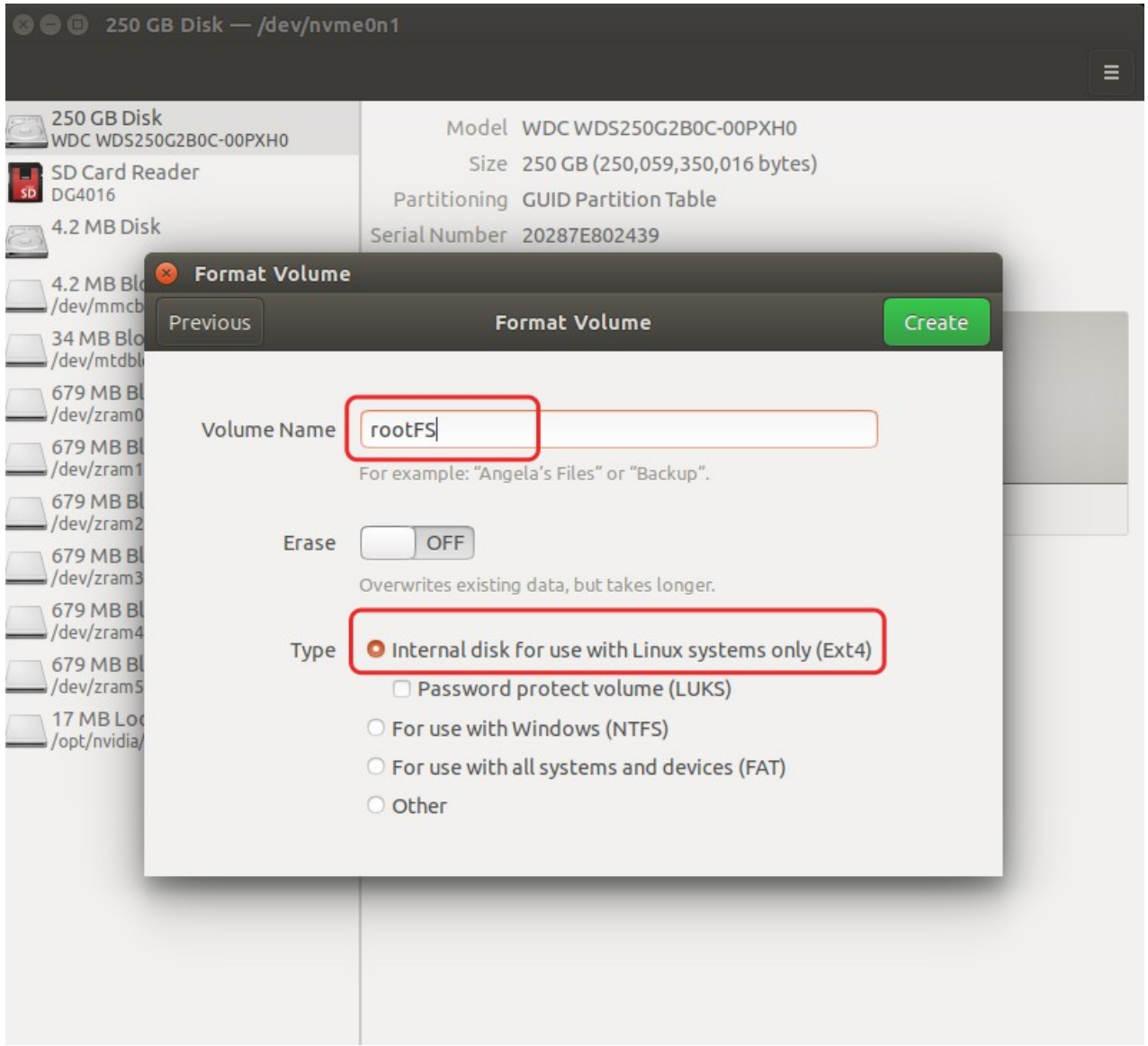

250 GB Disk — /dev/nvme0n1
250 GB Disk
WDC WDS250G2B0C-00PXH0
SD Card Reader
DG4016
4.2 MB Disk
4.2 MB Block Device
/dev/mmcblk0rpmb
34 MB Block Device
/dev/mtdblock0
679 MB
/dev/zra
679 MB
/dev/zra
679 MB
/dev/zra
679 MB
/dev/zra
679 MB
/dev/zra
679 MB
/dev/zra
17 MB
/opt/nvidia/l4t-us...de/filesystem.img
Model WDC WDS250G2B0C-00PXH0
Size 250 GB (250,059,350,016 bytes)
Partitioning GUID Partition Table
Serial Number 20287E802439
Volumes
Authenticate
Authentication is required to format WDC WDS250G2B0C-00PXH0 (/dev/nvme0n1)
An application is attempting to perform an action that requires privileges.
Authentication is required to perform this action.
Password:
Details
Cancel
Authenticate



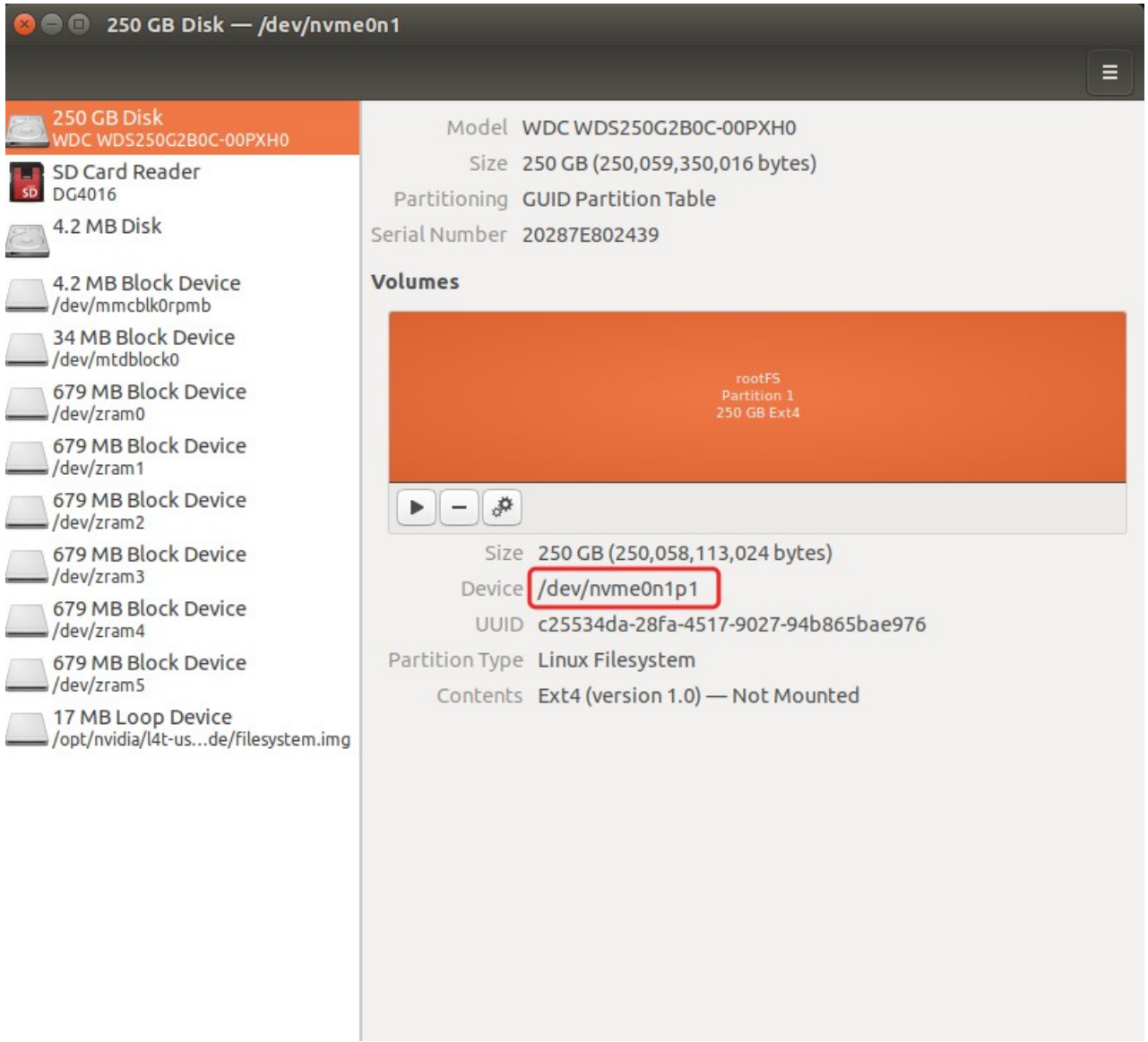
11-) Afterwards, format it as ext4.


250 GB Disk — /dev/nvme0n1
250 GB Disk
WDC WDS250G2B0C-00PXH0
SD Card Reader
DG4016
4.2 MB Disk
4.2 MB Block Device
/dev/mmcblk0rpmb
34 MB Block Device
/dev/mtdblock0
679 MB Block Device
/dev/zram0
679 MB Block Device
/dev/zram1
679 MB Block Device
/dev/zram2
679 MB Block Devic
/dev/zram3
679 MB Block Device
/dev/zram4
679 MB Block Device
/dev/zram5
17 MB Loop Device
/opt/nvidia/l4t-us...de/filesystem.img
Model WDC WDS250G2B0C-00PXH0
Size 250 GB (250,059,350,016 bytes)
Partitioning GUID Partition Table
Serial Number 20287E802439
Volumes
Free Space
250 GB
Create partition in unallocated space
,059,350,016 bytes)
Device /dev/nvme0n1
Contents Unallocated Space

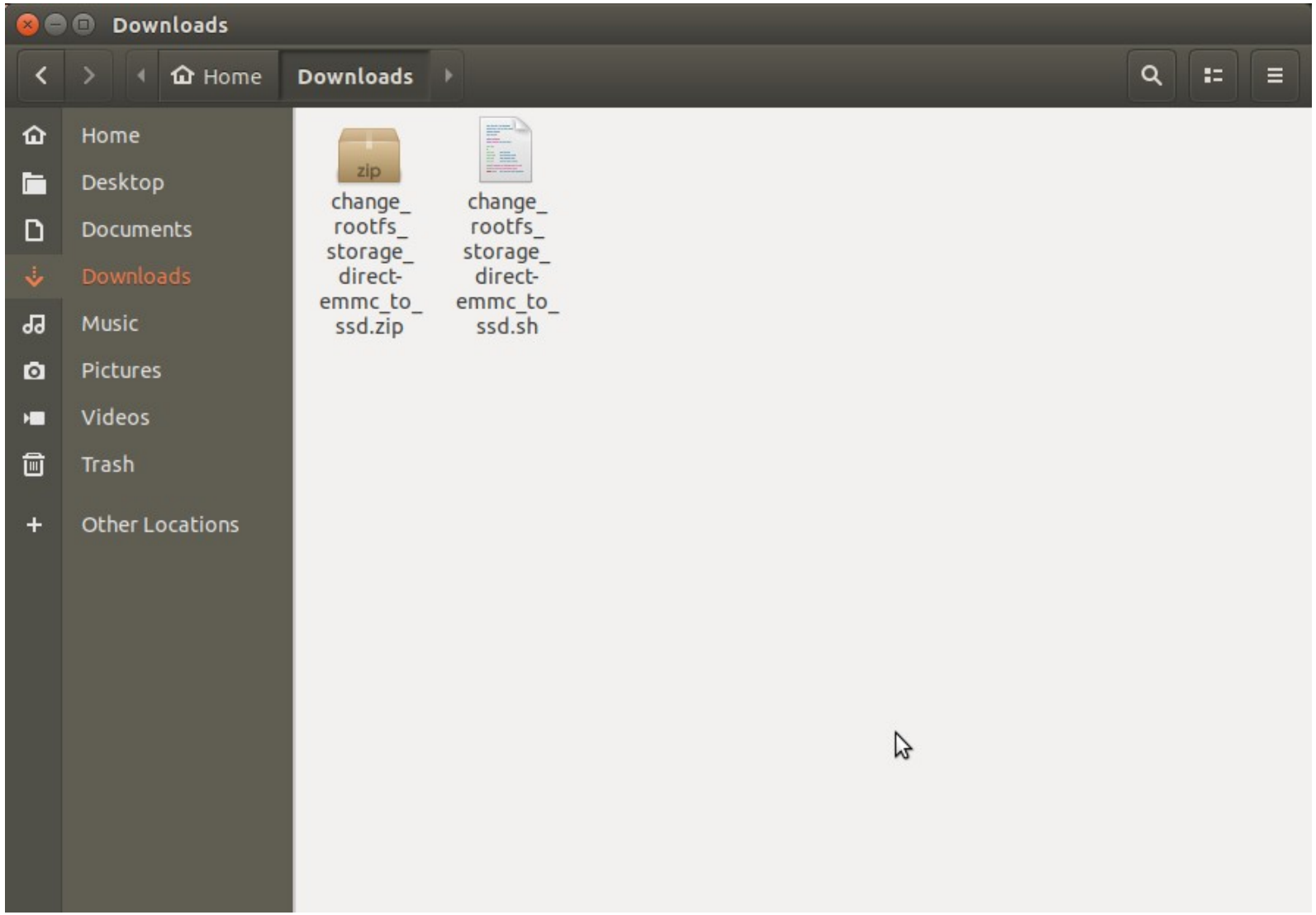

250 GB Disk — /dev/nvme0n1
250 GB Disk
WDC WDS250G2B0C-00PXH0
SD Card Reader
DG4016
4.2 MB Disk
Model WDC WDS250G2B0C-00PXH0
Size 250 GB (250,059,350,016 bytes)
Partitioning GUID Partition Table
Serial Number 20287E802439
Create Partition
Cancel
Create Partition
Next
Partition Size 250 GB
Free Space Following 0 GB



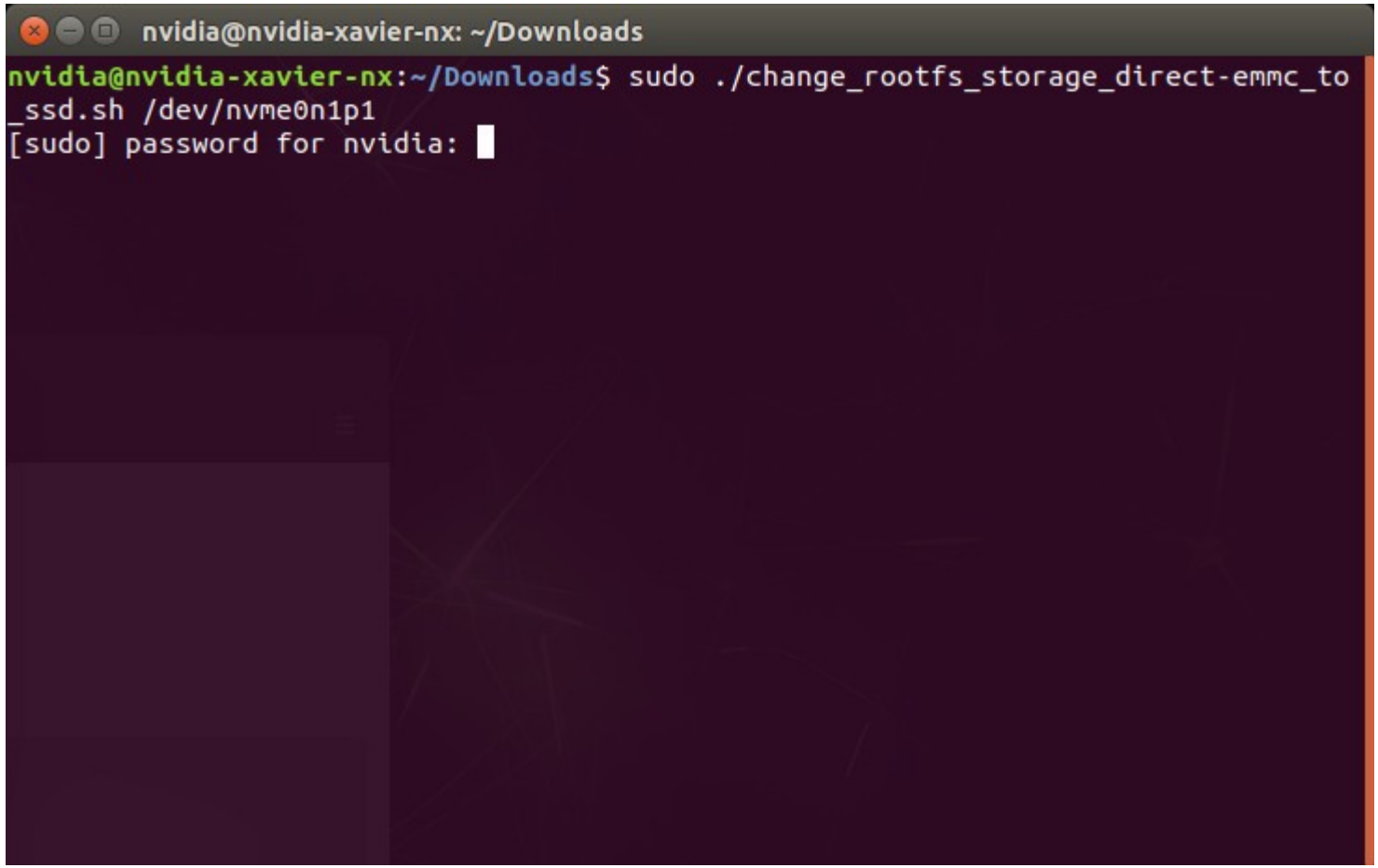
Hint: Note that the SSD Drive's mounting point. We will use it on transferring step.



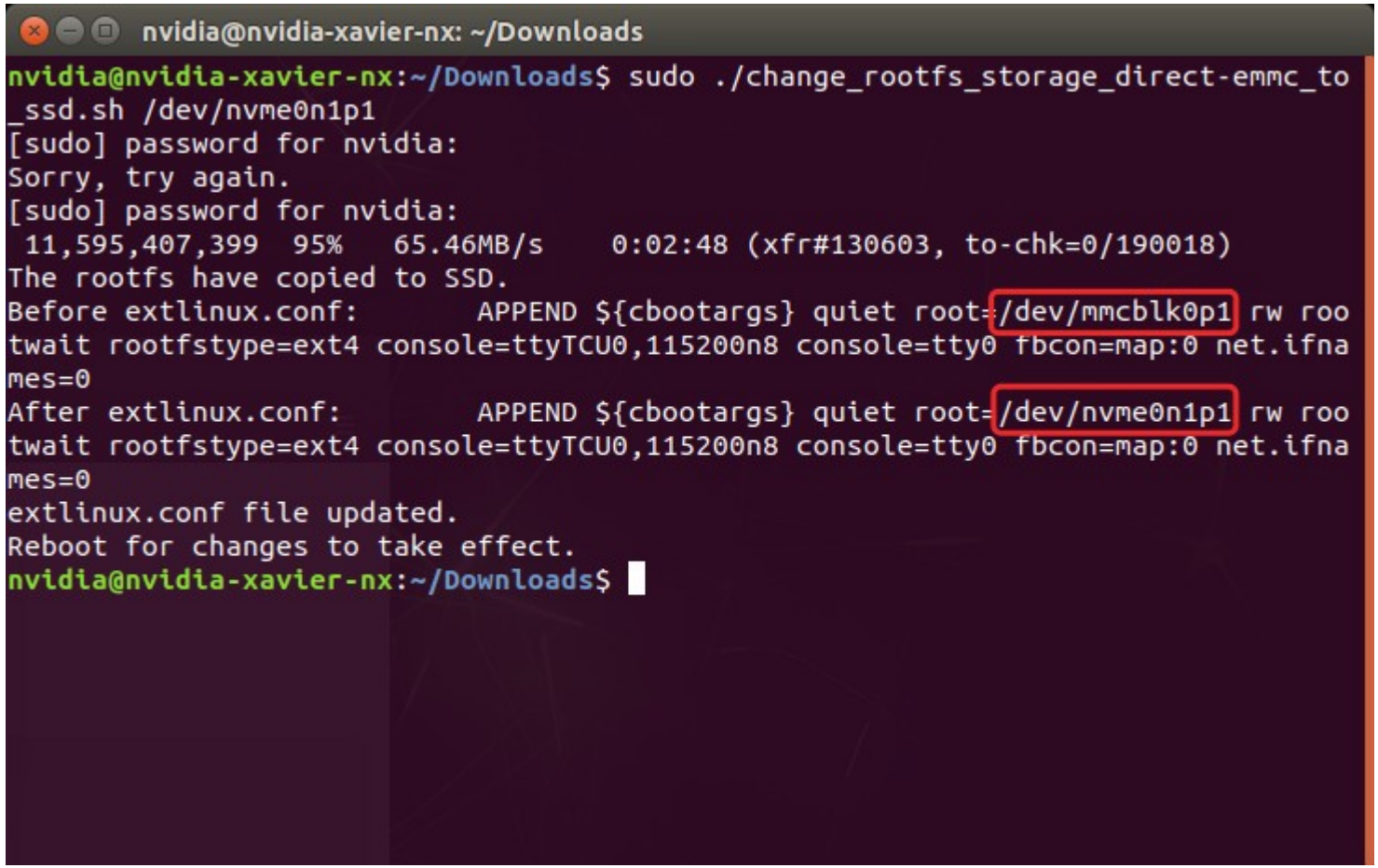
12-) Download the root file-system transferring script file from here & extract it:
https://github.com/mistelektronik/forecr_blog_files/raw/master/change_rootfs_storage_direct-emmc_to_ssd.zip



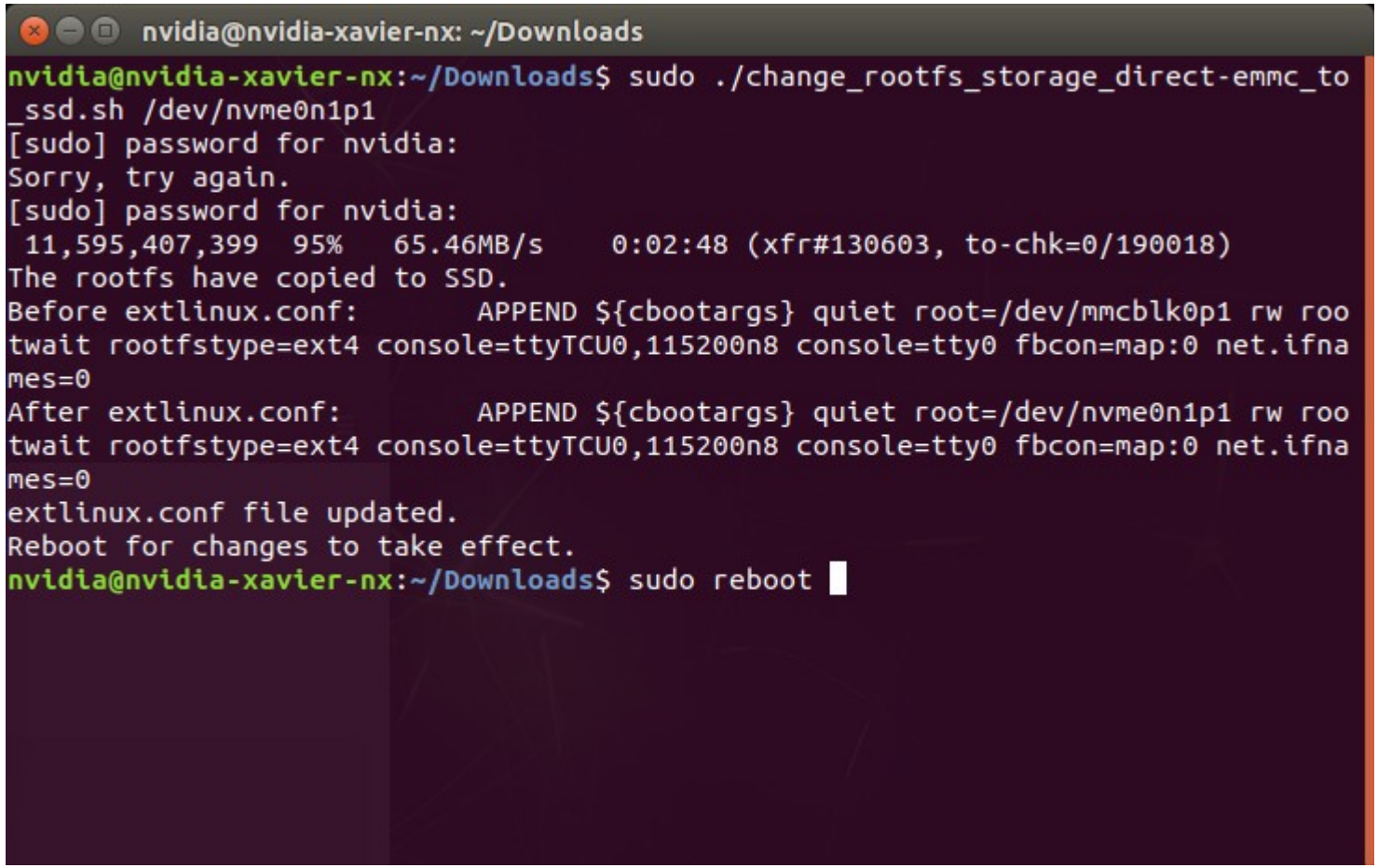
13-) Open a terminal from this folder and type this command below (our SSD mounted on /dev/nvme0n1p1)
"sudo ./change_rootfs_storage_direct-emmc_to_ssd.sh /dev/nvme0n1p1"



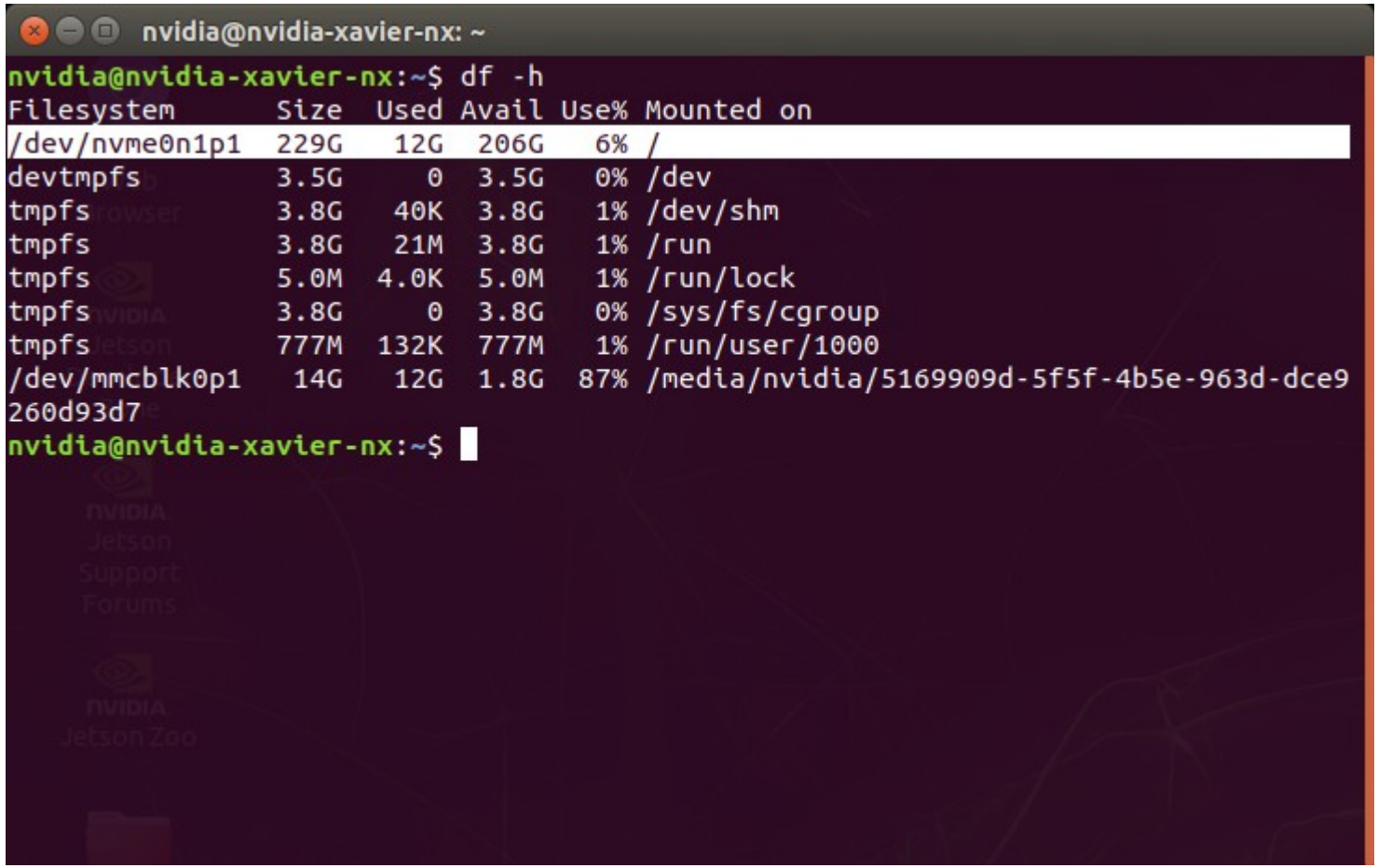
14-) After a few minutes later, it completed the steps.



15-) Then, type "sudo reboot"



16-) Afteer the JEtson opened successfully, type "df -h" again to check the SSD mounted as root file-system


nvidia@nvidia-xavier-nx: ~
nvidia@nvidia-xavier-nx:~$ df -h
Filesystem Size Used Avail Use% Mounted on
/dev/nvme0n1p1 229G 12G 206G 6% /
devtmpfs 3.5G 0 3.5G 0% /dev
tmpfs 3.8G 40K 3.8G 1% /dev/shm
tmpfs 3.8G 21M 3.8G 1% /run
tmpfs 5.0M 4.0K 5.0M 1% /run/lock
tmpfs 3.8G 0 3.8G 0% /sys/fs/cgroup
tmpfs 777M 132K 777M 1% /run/user/1000
/dev/mmcblk0p1 14G 12G 1.8G 87% /media/nvidia/5169909d-5f5f-4b5e-963d-dce9
260d93d7
nvidia@nvidia-xavier-nx:~$