

# Backup SSD system

## Backup SSD system

1. Hardware connection
2. Compress the SSD
  - 2.1. Install Gparted
  - 2.2. Use GParted
    - 2.2.1. Select the SSD
    - 2.2.2. Unmount the partition
    - 2.2.3. Perform disk compression
  3. Back up the SSD
    - 3.1. Check disk information
    - 3.2. Start disk backup

During the development process, users may need to back up the system to prevent subsequent development from affecting the current system environment.

The image file demonstrated in the tutorial is not the actual factory image, it is only for tutorial demonstration

## 1. Hardware connection

Users need to prepare the SSD box in advance, install the SSD into the SSD box and connect it to the computer or virtual machine: the computer and virtual machine systems need to be Ubuntu systems.

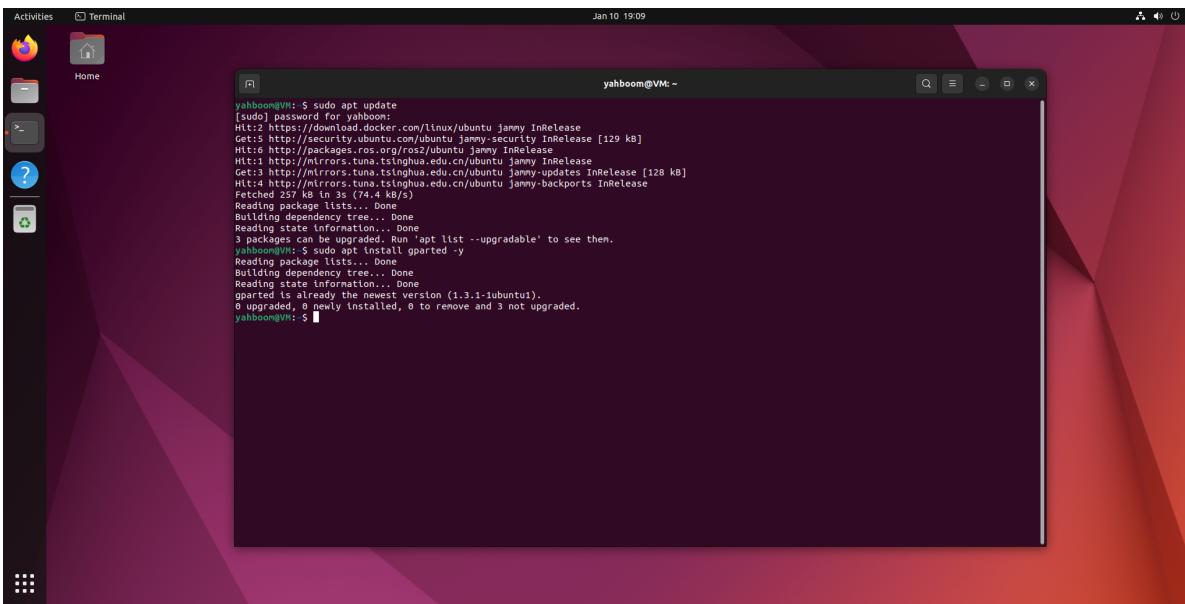


## 2. Compress the SSD

Since the SSD capacity of the Jetson Orin series motherboard is relatively large, we need to compress it to an appropriate space for system backup to save time for backup and burning the system.

### 2.1. Install Gparted

```
sudo apt update  
sudo apt install gparted -y
```

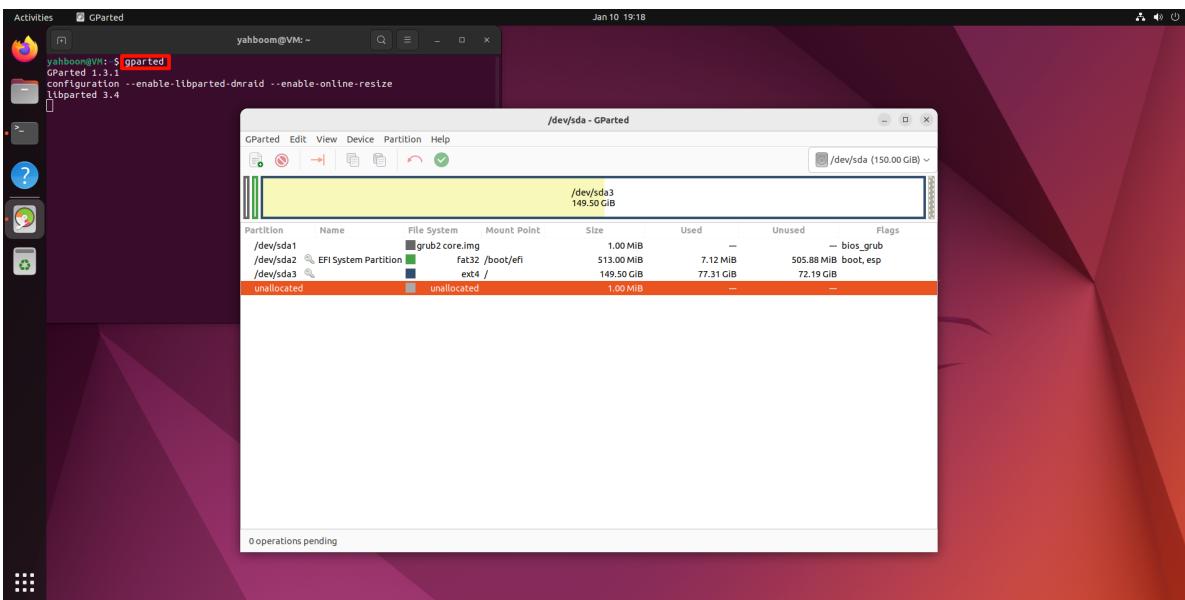


```
Activities Terminal Jan 10 19:09
[yahboom@VM: ~] Home
[yahboom@VM: ~] apt update
[sudo] password for yahboom:
Hit:1 https://download.docker.com/linux/ubuntu jammy InRelease
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:3 http://packages.ros.org/ros2/ubuntu jammy InRelease
Hit:4 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy-updates InRelease [128 kB]
Hit:5 http://mirrors.tuna.tsinghua.edu.cn/ubuntu jammy-backports InRelease
Fetched 257 kB in 3s (74.4 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
3 packages can be upgraded. Run "apt list --upgradable" to see them.
[yahboom@VM: ~] sudo apt install gparted -y
Reading package lists... Done
Building dependency tree... Done
Resolving dependencies... Done
gparted is already the newest version (1.3.1-1ubuntu1).
0 upgraded, 0 newly installed, 0 to remove and 3 not upgraded.
[yahboom@VM: ~]
```

## 2.2. Use GParted

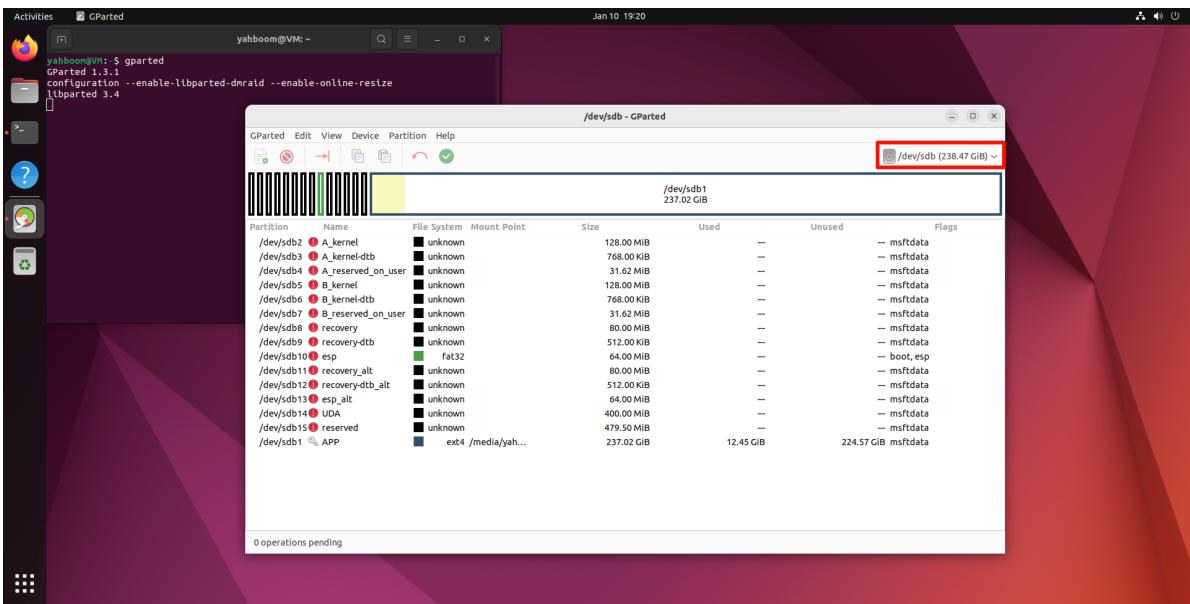
Find the `GParted` application icon in the system application menu bar to open it or enter the following command in the terminal to start it:

```
gparted
```



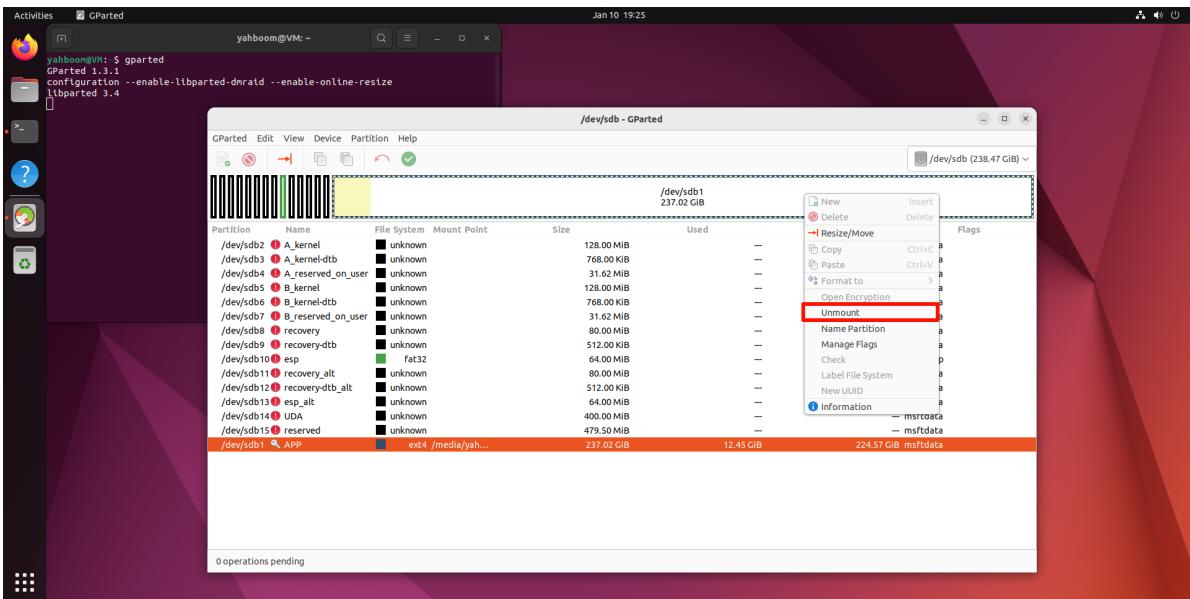
### 2.2.1. Select the SSD

Select the newly added disk symbol: You can confirm again whether it is the SSD you mounted based on the disk capacity



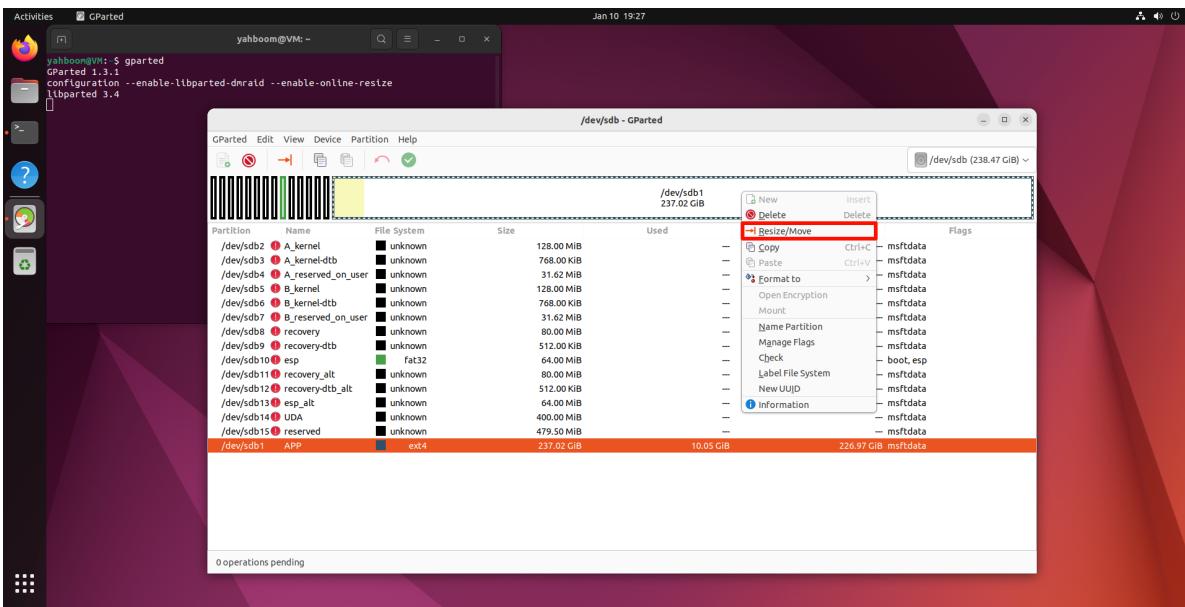
## 2.2.2. Unmount the partition

Before operating the disk, you need to unmount the disk: select the **APP** partition (largest partition) in the disk, and click **Unmount** to unmount the partition

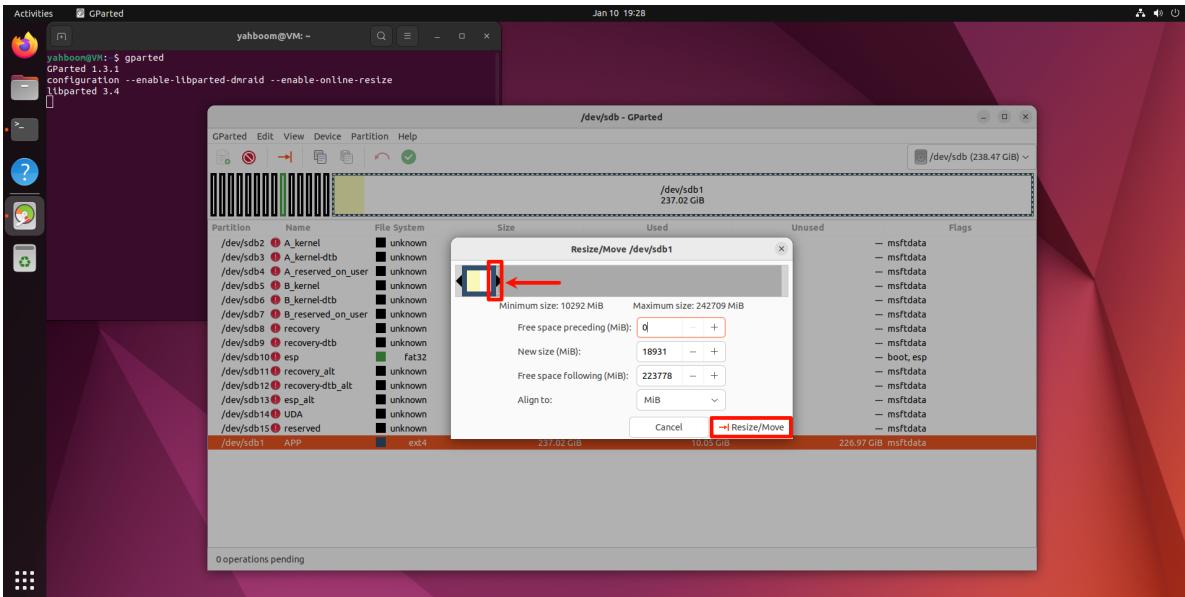


## 2.2.3. Perform disk compression

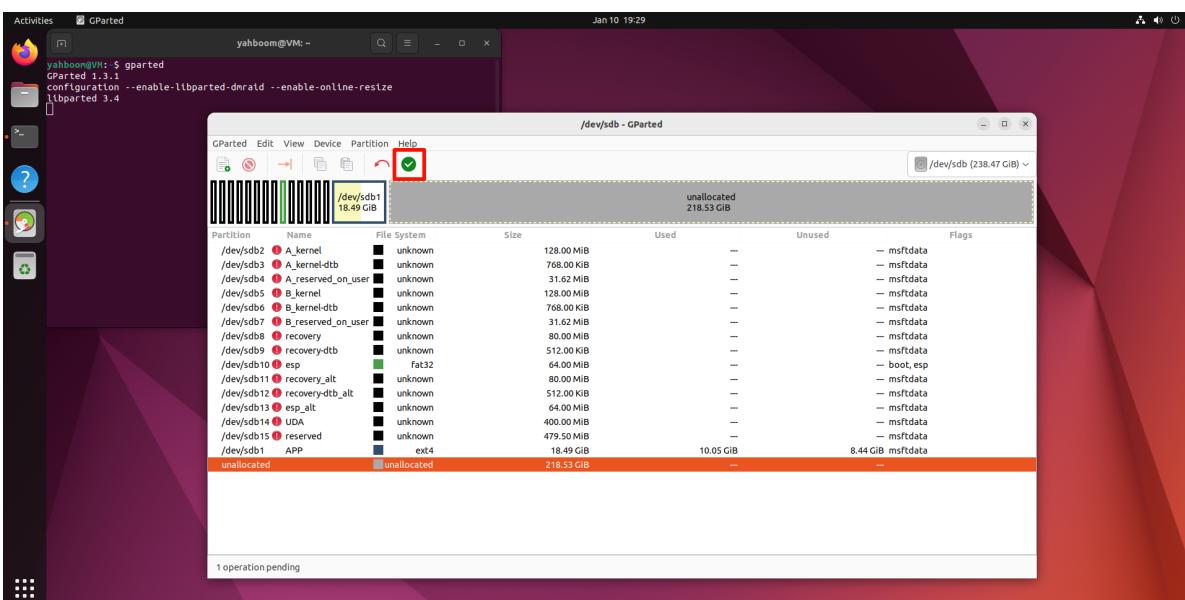
Right-click the uninstalled disk partition and resize the previously uninstalled partition space:

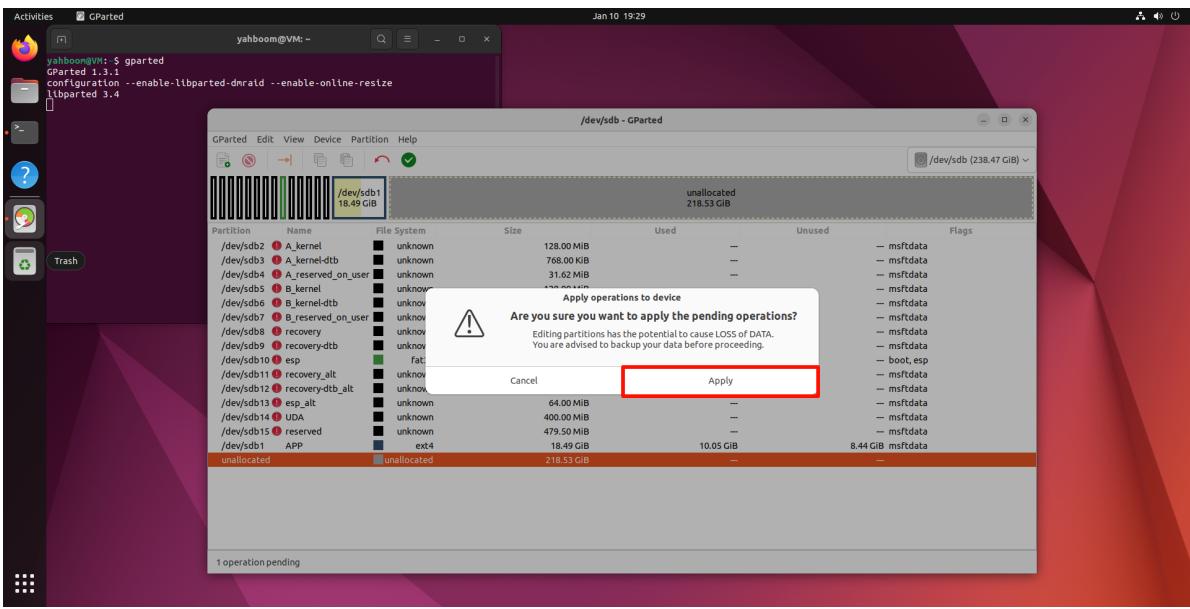


You can adjust the partition size using the slider: yellow is the space used by the partition, white is the unused space, it is recommended to leave about 5-10G of unused space in the partition to avoid the system from failing to start

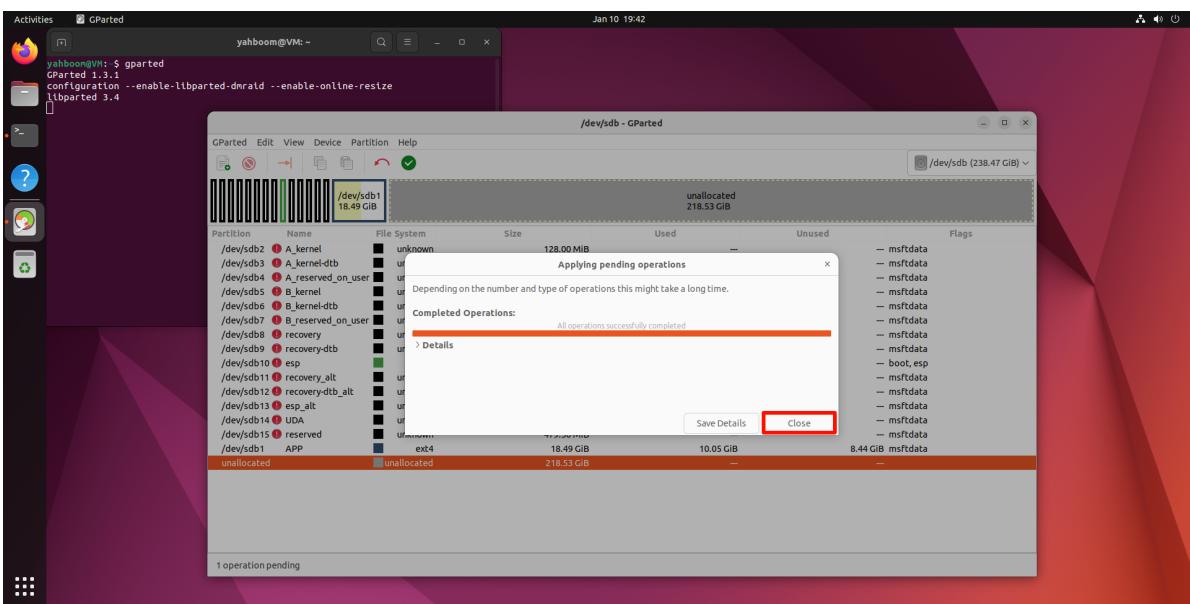
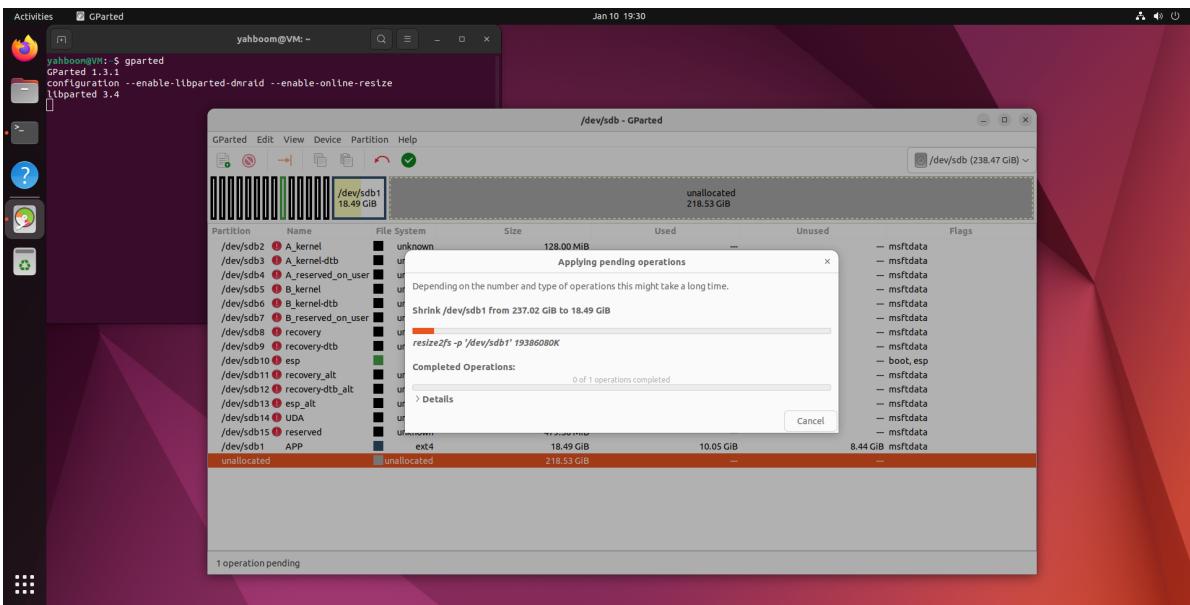


Confirm the disk operation:





Wait for the operation to complete:



After completing the above operations, close GParted!

### 3. Back up the SSD

### 3.1. Check disk information

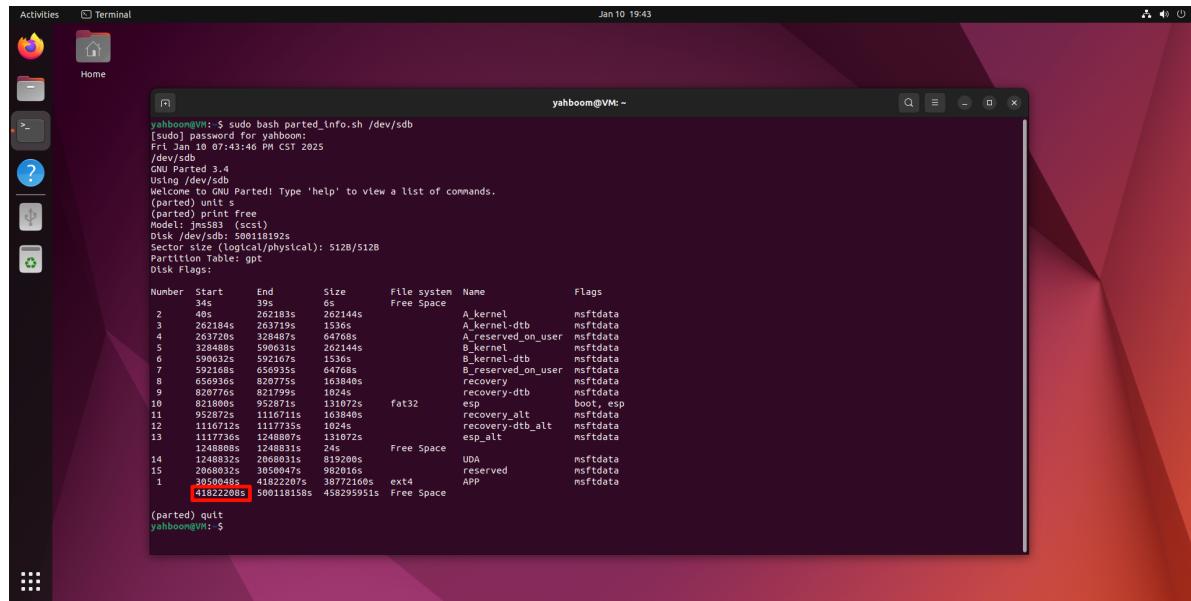
Open the terminal and use the script to view the current disk information: the drive letter needs to correspond to the drive letter of the SSD you backed up

```
sudo bash parted_info.sh /dev/sdb
```

#### parted\_info.sh script content

```
#!/bin/bash
date
echo $1
sudo parted $1 <<EOF
unit s
print free
quit
EOF
```

Record the data in the figure: 41822208s



### 3.2. Start disk backup

Use the `dd` command to back up the SSD to the `.img` file. Enter the following in the terminal:

```
sudo dd if=/dev/sdb of=Jetson_Orin_Nano_8G.img bs=512 count=41822208
```

`/dev/sdb`: SSD drive letter

`Jetson_Orin_Nano_8G.img`: Image name

`bs=512`: Set block size to 512 bytes

`56393728`: Data queried by the script

```

Activities Terminal Jan 10 19:45
yahboom@VM:~$ sudo bash parted_info.sh /dev/sdb
[sudo] password for yahboom:
Fri Jan 10 07:46 PM CST 2025
/dev/sdb
Disk /dev/sdb: 5.12 TiB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number Start End Size File system Name Flags
1 345 395 56 Free Space
2 405 2621835 2621445
3 2621845 2637195 1536s A_kernel msftdata
4 2637195 3094315 466120s A_kernel_dtb msftdata
5 3284885 5906315 2621445
6 5906325 5921675 1536s B_kernel msftdata
7 5921685 6569355 64768s B_kernel_dtb msftdata
8 6569365 8207755 163840s recovery msftdata
9 8207755 8218005 1024s recovery-dtb msftdata
10 8218005 9528715 131072s fat32 esp boot, esp
11 9528715 11167115 103840s recovery_alt msftdata
12 11167125 1117735s 1024s recovery-dtb_alt msftdata
13 1117736s 12488875 131072s esp_alt msftdata
12488885 12488985 128s Free Space
14 12488985 20688315 819200s 819200s UDA
15 20688325 30500475 982016s reserved msftdata
1 30500485 418222075 38772160s ext4 APP msftdata
418222085 500118158s 458295951s Free Space

(parted) quit
yahboom@VM:~$ sudo dd if=/dev/sdb of=Jetson_Orin_Nano_8G.img bs=512 count=41822208

```

To view the `dd` process information, open another terminal and enter the following command:

```
sudo watch -n 3 pkill -USR1 ^dd$
```

```

Activities Terminal Jan 10 19:46
yahboom@VM:~$ Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:

Number Start End Size File system Name Flags
1 345 395 56 Free Space
2 405 2621835 2621445
3 2621845 2637195 1536s A_kernel msftdata
4 2637195 3094315 466120s A_kernel_dtb msftdata
5 3284885 5906315 2621445
6 5906325 5921675 1536s B_kernel msftdata
7 5921685 6569355 64768s B_kernel_dtb msftdata
8 6569365 8207755 163840s recovery msftdata
9 8207755 8218005 1024s recovery-dtb msftdata
10 8218005 9528715 131072s fat32 esp boot, esp
11 9528715 11167115 103840s recovery_alt msftdata
12 11167125 1117735s 1024s recovery-dtb_alt msftdata
13 1117736s 12488875 131072s esp_alt msftdata
12488885 12488985 128s Free Space
14 12488985 20688315 819200s 819200s UDA
15 20688325 30500475 982016s reserved msftdata
1 30500485 418222075 38772160s ext4 APP msftdata
418222085 500118158s 458295951s Free Space

(parted) quit
yahboom@VM:~$ sudo dd if=/dev/sdb of=Jetson_Orin_Nano_8G.img bs=512 count=41822208
22953940 records out
259953940 records out
1339693968 bytes (1.3 GB, 1.2 GB) copied, 48.6151 s, 27.4 MB/s
27652819+0 records in
27652819+0 records out
1339693968 bytes (1.3 GB, 1.2 GB) copied, 51.6351 s, 27.4 MB/s
292895740 records in
292895740 records out
149918515 bytes (1.5 GB, 1.4 GB) copied, 54.6737 s, 27.4 MB/s
308937749 records in
308937749 records out
1581760532 bytes (1.6 GB, 1.5 GB) copied, 57.0898 s, 27.4 MB/s

Every 3.0s: pkill -USR1 ^dd$ VM: Fri Jan 10 19:46:01 2025

```

Wait for the backup to complete:

```

Activities Terminal Jan 10 19:58
yahboom@VM:~$ 398258460 records out
39398833152 bytes (26 GB, 19 GB) copied, 754.53 s, 27.0 MB/s
399887054+0 records in
399887054+0 records out
40174216448 records (26 GB, 19 GB) copied, 757.551 s, 27.0 MB/s
401533134+0 records out
401533134+0 records out
20558495744 bytes (21 GB, 19 GB) copied, 760.573 s, 27.0 MB/s
401533134+0 records out
401533134+0 records out
20644085760 bytes (21 GB, 19 GB) copied, 763.588 s, 27.0 MB/s
404928014 records in
404928004+0 records out
404928004+0 records out
2072740800 bytes (21 GB, 19 GB) copied, 766.635 s, 27.0 MB/s
40658401+0 records in
40658400+0 records out
20817100800 bytes (21 GB, 19 GB) copied, 769.654 s, 27.0 MB/s
408271054+0 records in
408271054+0 records out
20993477248 bytes (21 GB, 19 GB) copied, 772.67 s, 27.1 MB/s
409966654+0 records in
409966654+0 records out
20999984768 bytes (21 GB, 20 GB) copied, 775.688 s, 27.1 MB/s
411619524+0 records in
411619524+0 records out
21074919424 bytes (21 GB, 20 GB) copied, 778.704 s, 27.1 MB/s
413297374+0 records in
413297374+0 records out
211498121+0 records in
41498121+0 records out
21247037952 bytes (21 GB, 20 GB) copied, 784.738 s, 27.1 MB/s
416579784+0 records in
416579784+0 records out
21328884736 bytes (21 GB, 20 GB) copied, 787.754 s, 27.1 MB/s
418222084+0 records in
418222084+0 records out
21412970496 bytes (21 GB, 20 GB) copied, 791.197 s, 27.1 MB/s
yahboom@VM:~$ 
```

```

Activities Terminal Jan 10 19:58:41 2025
yahboom@VM:~$ Every 3.0s: pkill -USR1 ^dd$ VM: Fri Jan 10 19:58:41 2025

```

After the system backup is complete, move the backup file (Jetson\_Orin\_Nano\_8G.img) to the Windows system for use.

