

# Jetpack old system upgraded to SUPER system

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## 1、ReadMe

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If you purchased a Jetson ORIN NANO/Jetson ORIN NX board, and you want to turn it into a Jetson ORIN NANO SUPER or Jetson ORIN NX SUPER. Please read this tutorials carefully.

## 2、Write SUPER boot file

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The purpose of this tutorial is to write SUPER boot to the Jetson Orin series board (for use with Jetpack 6.2 system).

The process of writing the boot file does not require the install SSD.

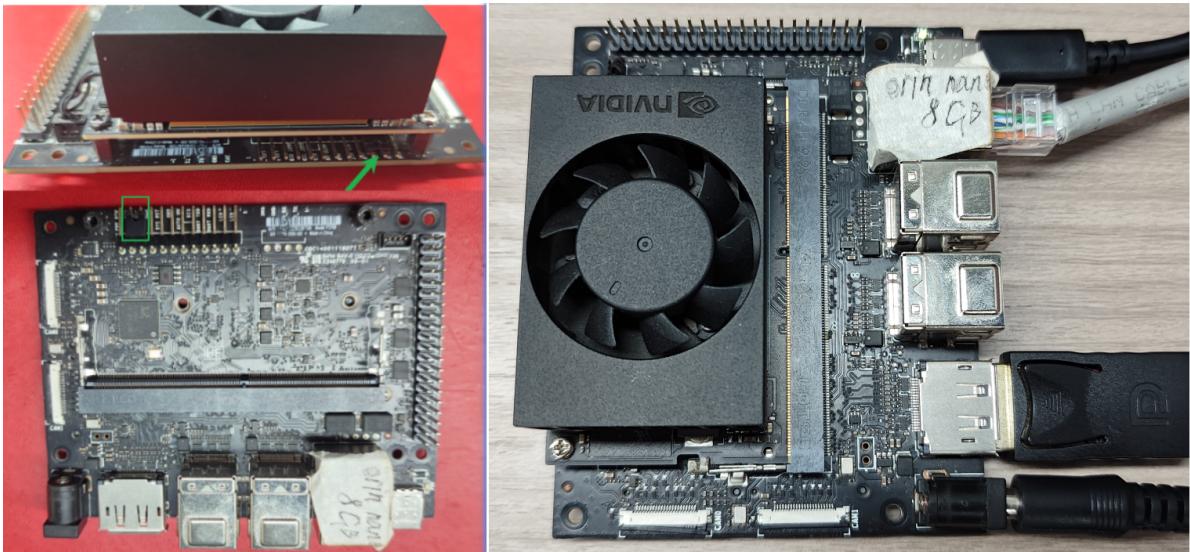
### 2.1、Connect hardware

1.Use a jumper cap to short-circuit the **FC REC** and **GND** pins under the core board. You don't need to remove the core board, the picture is just for a clearer observation

**This diagram takes Jetson Orin official version as an example, and users of other versions can refer to it for use (the hardware interface and functional layout are consistent)**

2.The Jetson Orin board needs to be connected to a DC power adapter, DP data cable, and network cable. And connect it to the computer via a Type C data cable

*Note: You don't need to connect the DP data cable and network cable when writing the boot, but they will be needed when using the motherboard later.*

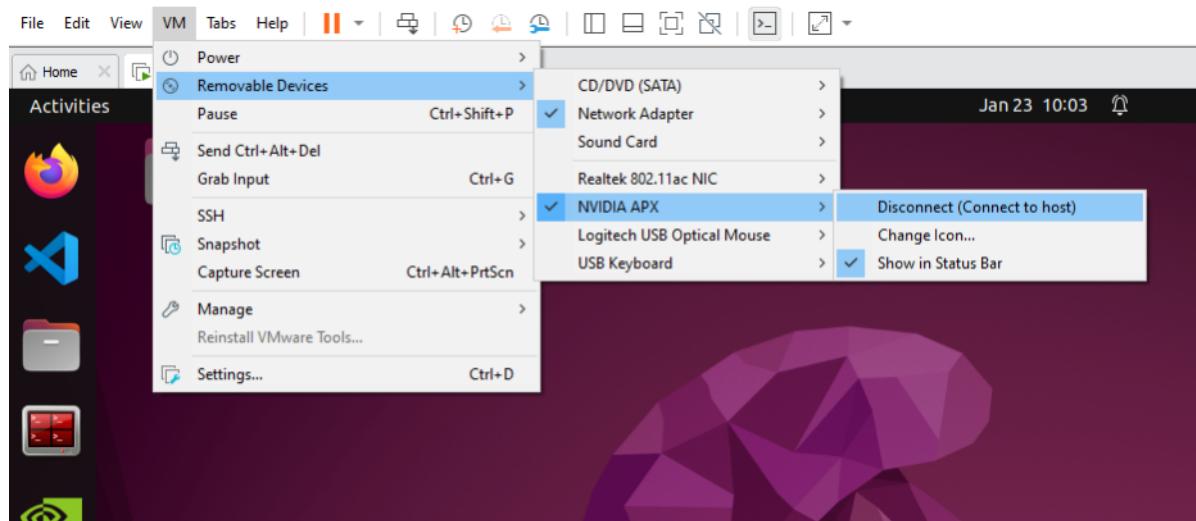


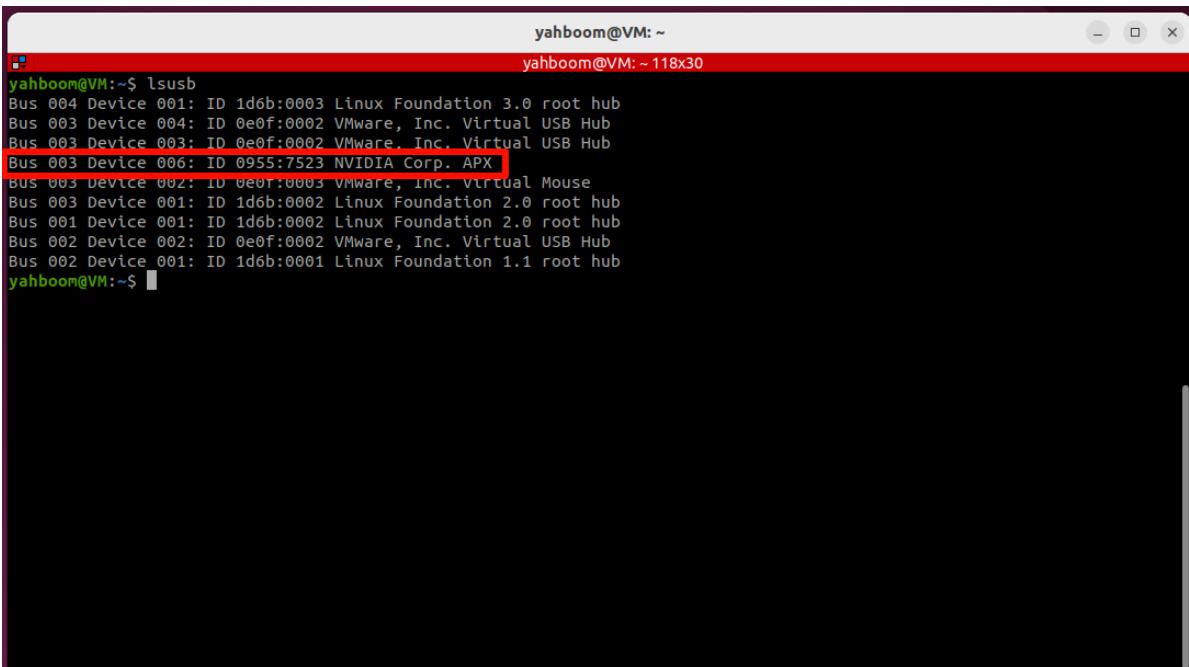
## 2.2. Connect VM software

Users need to use the virtual machine file provided by Yahboom to write the SUPER boot file.

We need to connect the motherboard to the virtual machine so that it can be recognized by the Ubuntu system.

```
User name: yahboom  
Password: yahboom
```





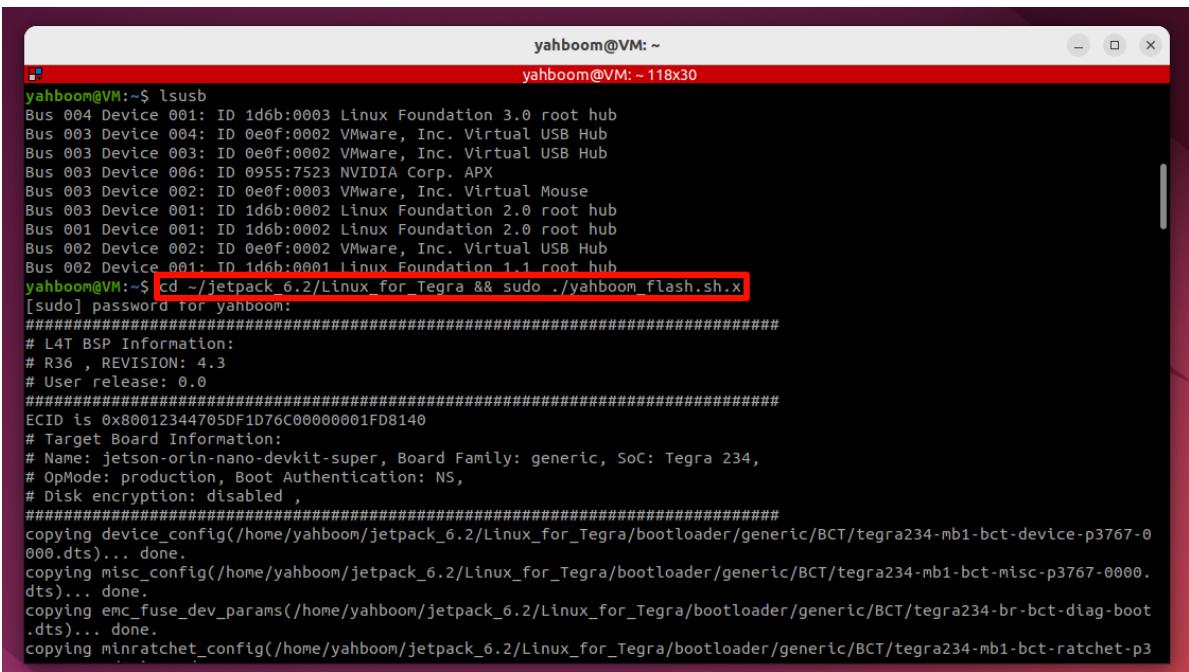
```
yahboom@VM:~$ lsusb
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 004: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 006: ID 0955:7523 NVIDIA Corp. APX
Bus 003 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 002: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
yahboom@VM:~$
```

## 2.3. Write SUPER boot file

Open the terminal, enter the specified folder and run the script.

If writing fails, you can disconnect the motherboard power supply, reconnect the virtual machine to run the command, and try again

```
cd ~/jetpack_6.2/Linux_for_Tegra && sudo ./yahboom_flash.sh.x
```



```
yahboom@VM:~$ lsusb
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 004: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 003 Device 006: ID 0955:7523 NVIDIA Corp. APX
Bus 003 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 002: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
yahboom@VM:~$ cd ~/jetpack_6.2/Linux_for_Tegra && sudo ./yahboom_flash.sh.x
[sudo] password for yahboom:
#####
# L4T BSP Information:
# R36 , REVISION: 4.3
# User release: 0.0
#####
ECID is 0x80012344705DF1D76C00000001FD8140
# Target Board Information:
# Name: jetson-orin-nano-devkit-super, Board Family: generic, SoC: Tegra 234,
# OpMode: production, Boot Authentication: NS,
# Disk encryption: disabled ,
#####
copying device_config(/home/yahboom/jetpack_6.2/Linux_for_Tegra/bootloader/generic/BCT/tegra234-mb1-bct-device-p3767-000.dts)... done.
copying misc_config(/home/yahboom/jetpack_6.2/Linux_for_Tegra/bootloader/generic/BCT/tegra234-mb1-bct-misc-p3767-0000.dts)... done.
copying emc_fuse_dev_params(/home/yahboom/jetpack_6.2/Linux_for_Tegra/bootloader/generic/BCT/tegra234-br-bct-diag-boot.dts)... done.
copying minratchet_config(/home/yahboom/jetpack_6.2/Linux_for_Tegra/bootloader/generic/BCT/tegra234-mb1-bct-ratchet-p3
```

```
yahboom@VM: ~/jetpack_6.2/Linux_for_Tegra$ yahboom@VM: ~/jetpack_6.2/Linux_for_Tegra 135x35
[ 76.0156 ] Writing partition BCT with br_bct_BR.bct [ 8192 bytes ]
[ 76.0160 ] [.....] 100%
[ 82.6710 ] tegradevflash_v2 --write BCT-boot-chain_backup bct_backup.img
[ 82.6717 ] Bootloader version 01.00.0000
[ 83.0245 ] Writing partition BCT-boot-chain_backup with bct_backup.img [ 32768 bytes ]
[ 83.0248 ] [.....] 100%
[ 83.4461 ] tegradevflash_v2 --write A_MB1_BCT mb1_cold_boot_bct_MB1_sigheader.bct.encrypt
[ 83.4467 ] Bootloader version 01.00.0000
[ 83.7399 ] Writing partition A_MB1_BCT with mb1_cold_boot_bct_MB1_sigheader.bct.encrypt [ 17600 bytes ]
[ 83.7402 ] [.....] 100%
[ 83.9829 ] tegradevflash_v2 --write B_MB1_BCT mb1_cold_boot_bct_MB1_sigheader.bct.encrypt
[ 83.9833 ] Bootloader version 01.00.0000
[ 84.2747 ] Writing partition B_MB1_BCT with mb1_cold_boot_bct_MB1_sigheader.bct.encrypt [ 17600 bytes ]
[ 84.2754 ] [.....] 100%
[ 84.5188 ] tegradevflash_v2 --write A_MEM_BCT mem_coldboot_sigheader.bct.encrypt
[ 84.5192 ] Bootloader version 01.00.0000
[ 84.8233 ] Writing partition A_MEM_BCT with mem_coldboot_sigheader.bct.encrypt [ 243712 bytes ]
[ 84.8236 ] [.....] 100%
[ 87.8096 ] tegradevflash_v2 --write B_MEM_BCT mem_coldboot_sigheader.bct.encrypt
[ 87.8703 ] Bootloader version 01.00.0000
[ 88.1617 ] Writing partition B_MEM_BCT with mem_coldboot_sigheader.bct.encrypt [ 243712 bytes ]
[ 88.1632 ] [.....] 100%
[ 91.2087 ] Flashing completed

[ 91.2088 ] Coldbooting the device
[ 91.2096 ] tegrarm_v2 --chip 0x23 0 --ismb2
[ 91.2101 ] MB2 version 01.00.0000
[ 91.5296 ] Coldbooting the device
[ 91.5301 ] tegrarm_v2 --chip 0x23 0 --reboot coldboot
[ 91.5306 ] MB2 version 01.00.0000
*** The target generic has been flashed successfully. ***
Reset the board to boot from internal eMMC.

Total:132 seconds
yahboom@VM: ~/jetpack_6.2/Linux_for_Tegra$
```

### **3、Write Yahboom robot system file into SSD**

This tutorial allows you to write the system image file of the robot car SUPER (Jetpack6.2) provided by Yahboom to the SSD

Note: Users need to prepare the M.2 SSD Enclosure in advance, install the SSD into the M.2 SSD Enclosure, connect it to the computer, format it and write the new system image file.

### 3.1、Format SSD

Before writing the Yahboom robot car system image file, you need to format the solid-state drive into exFAT format.

### 3.1.1、Download DiskGenius

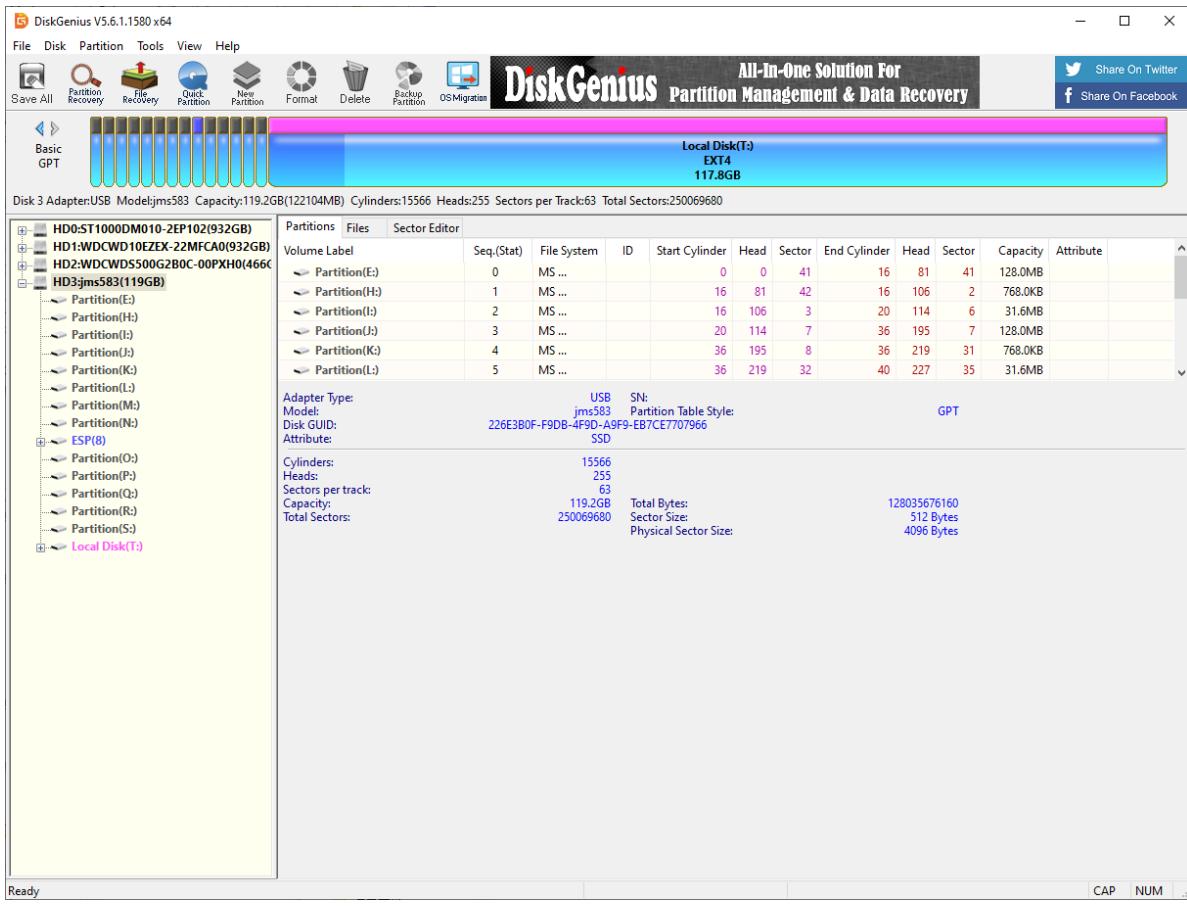
Download link: <https://www.diskgenius.com/>



## What Can DiskGenius Do?



Unzip the downloaded compressed file and open `DiskGenius.exe` to use.

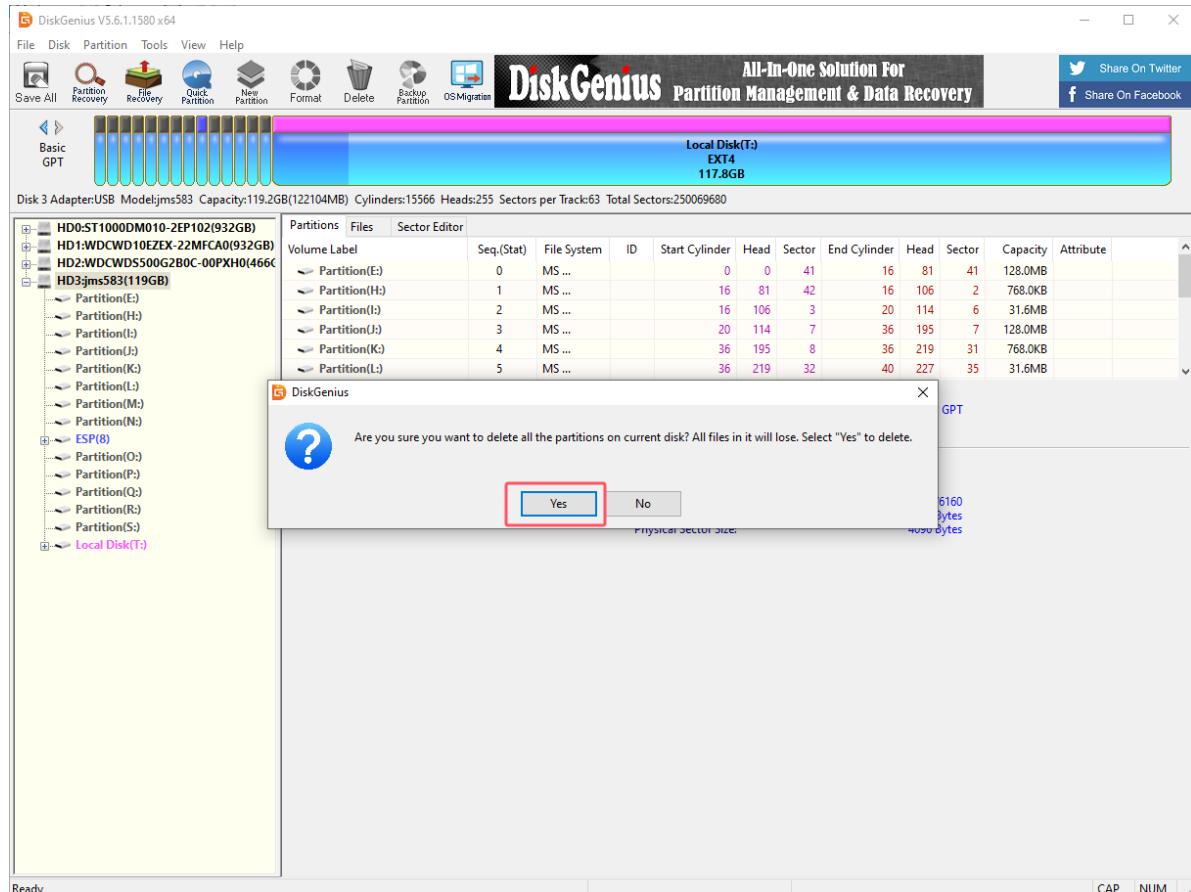
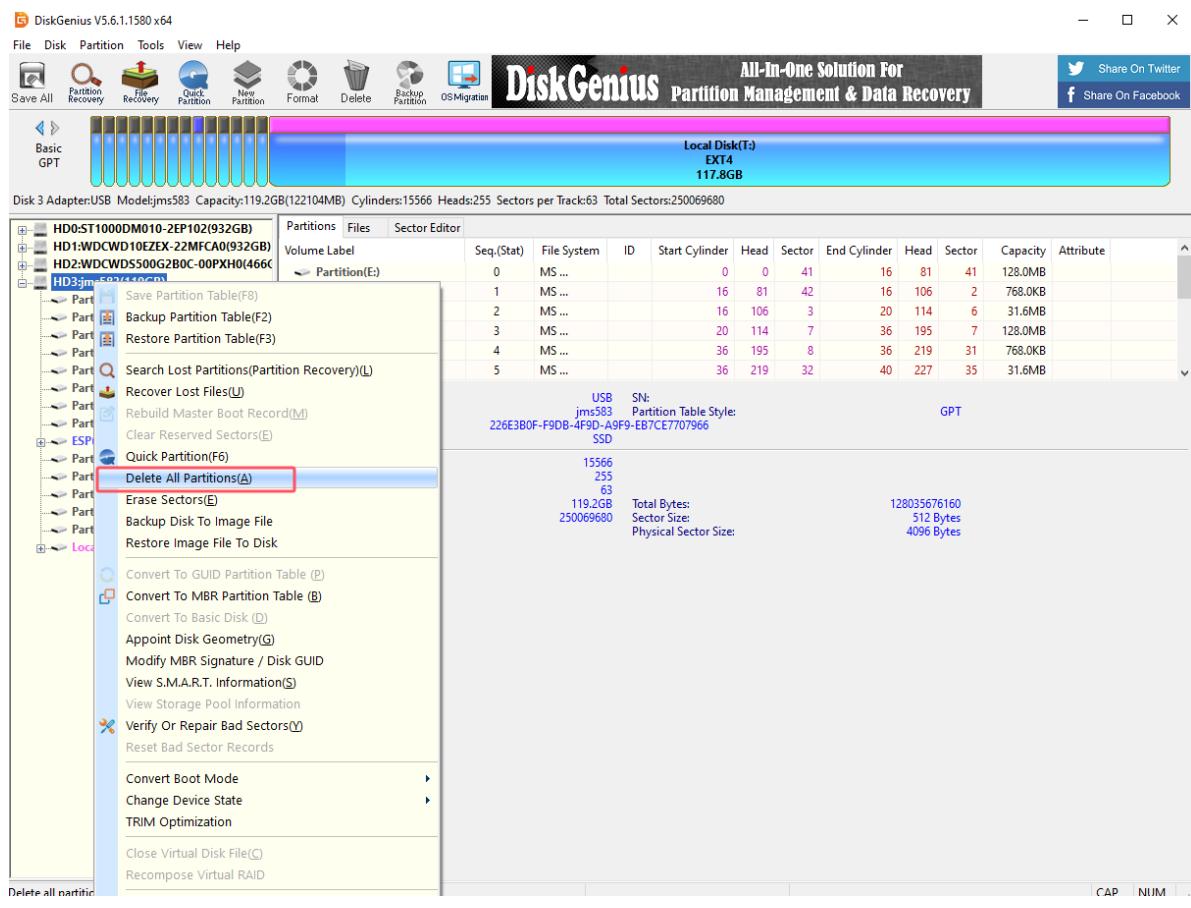


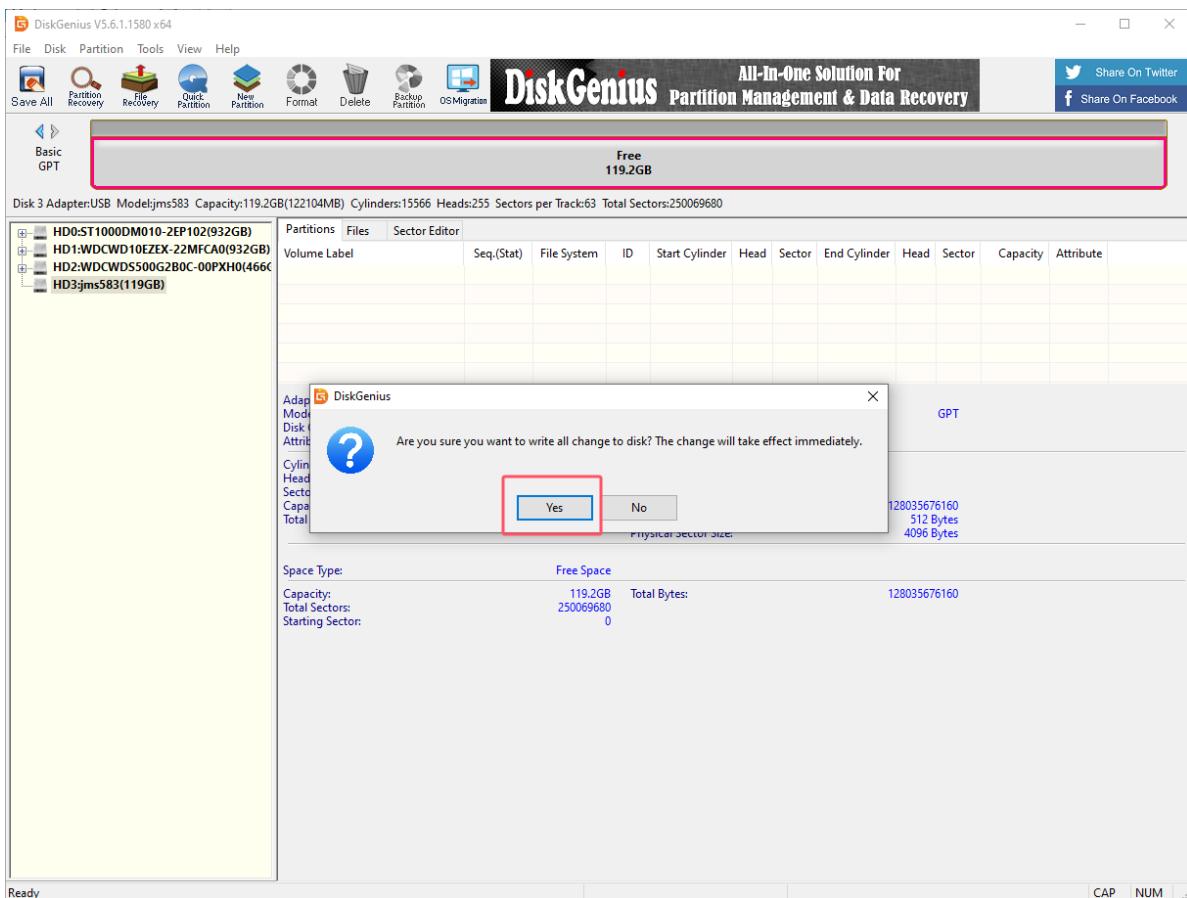
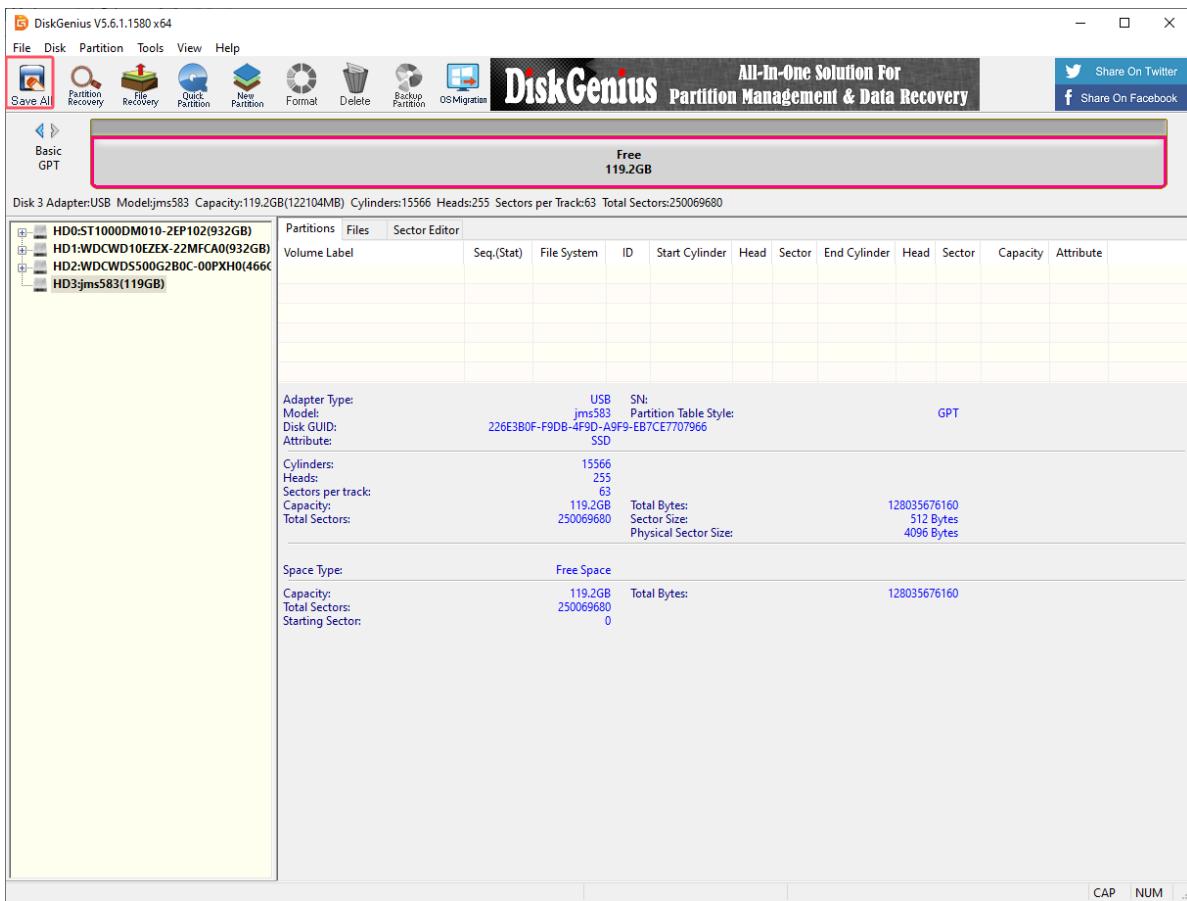
### 3.1.2. Use DiskGenius

#### Delete partition

Deleting a partition will clear the disk data. Please confirm that the drive letter is the disk that needs to be formatted before confirming the operation.

You can judge based on the disk size and the newly added drive letter of the connected disk.

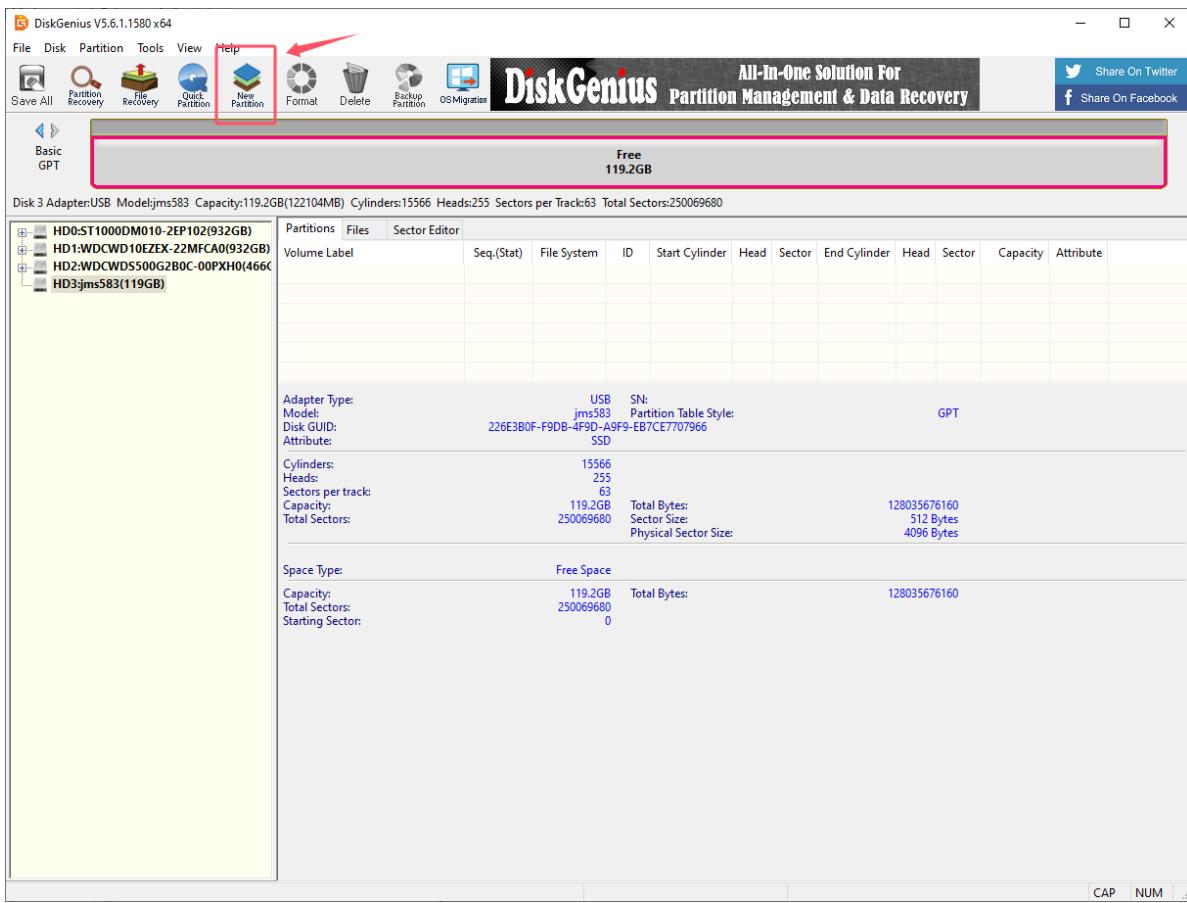




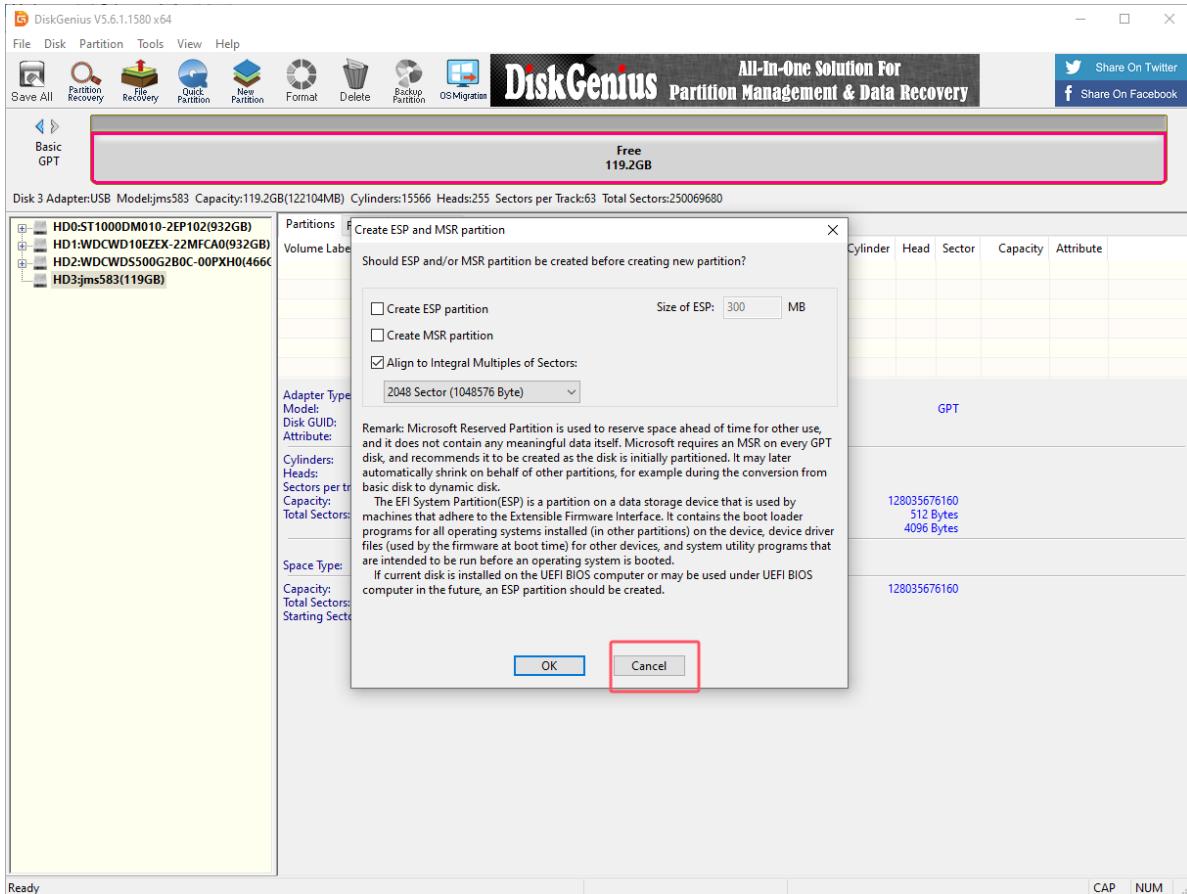
## Create a new partition

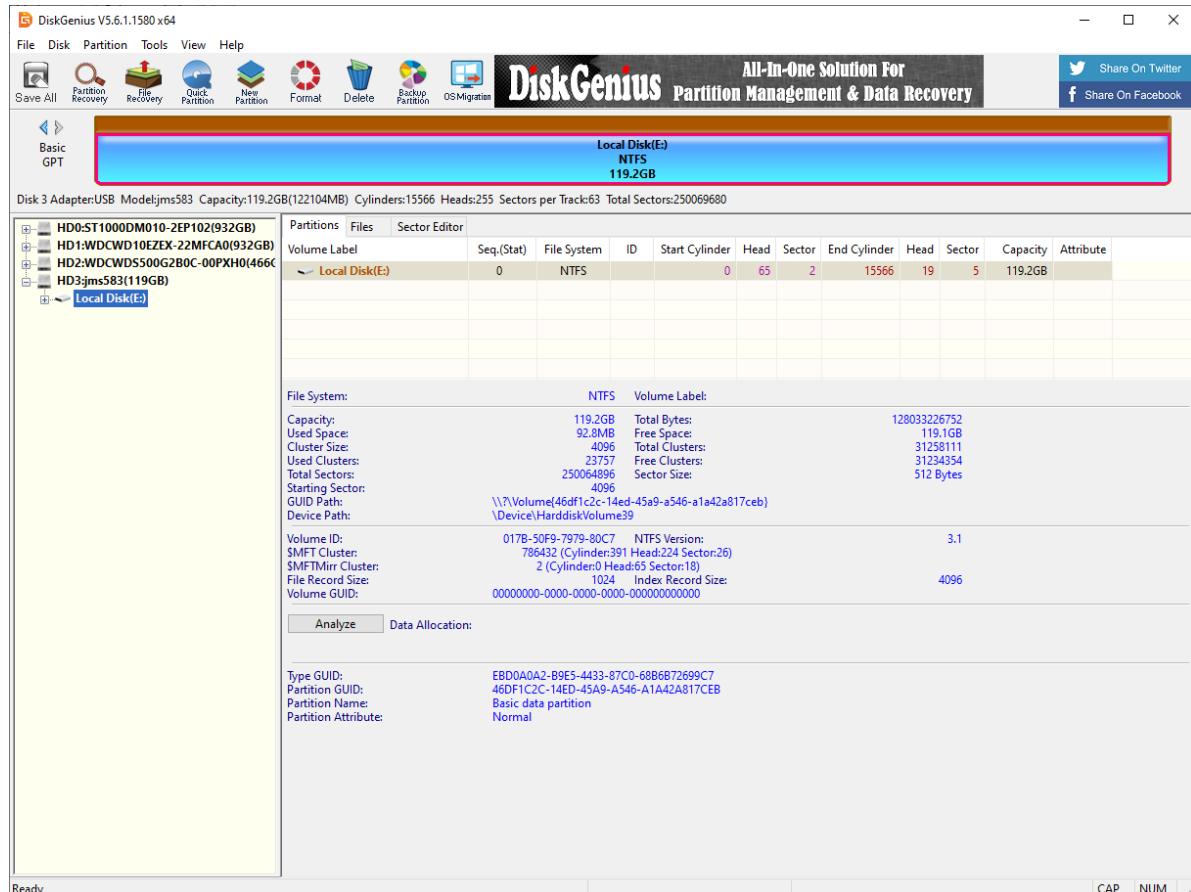
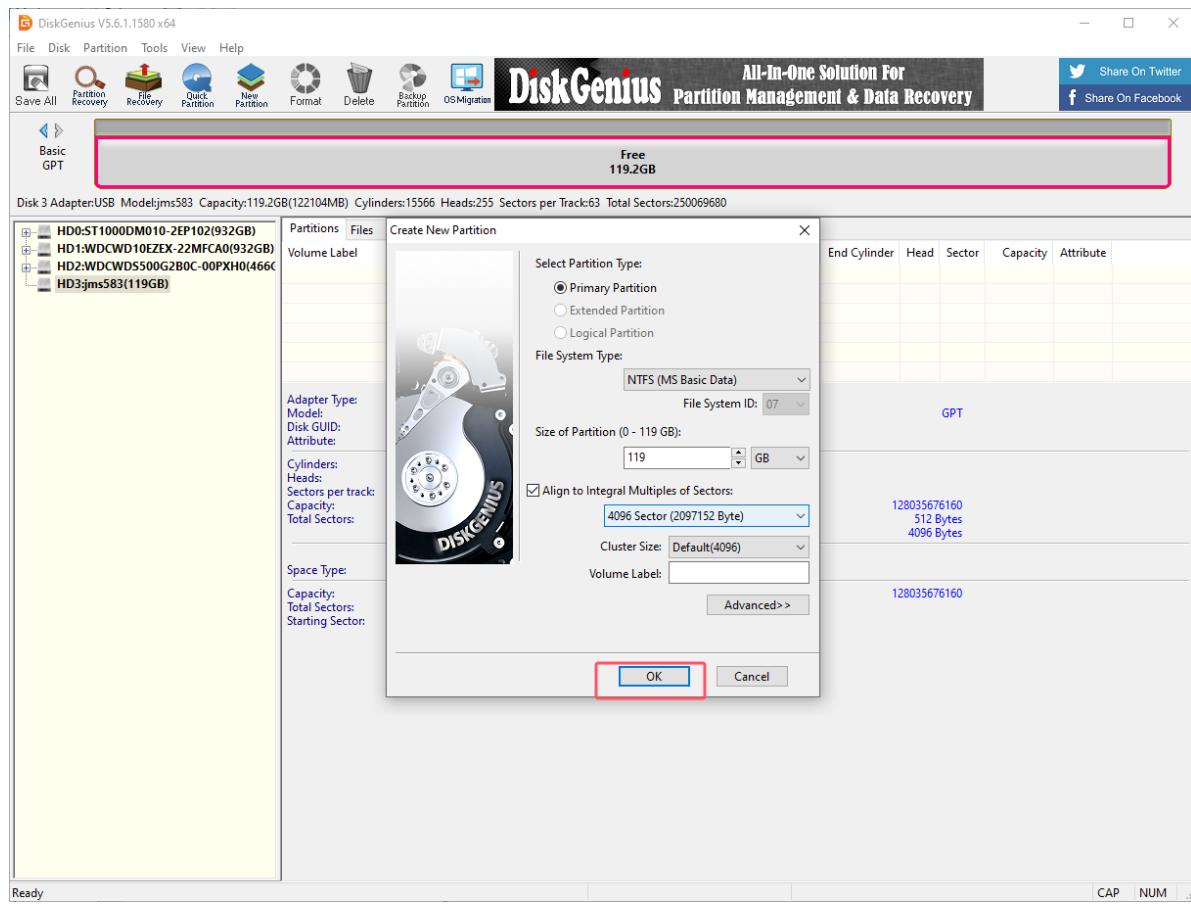
Partition the SSD into exFAT format.

Select the drive letter corresponding to the SSD and click Quick Partition.



Partition options: You can check as shown below





### 3.2、Write Yahboom robot car system file

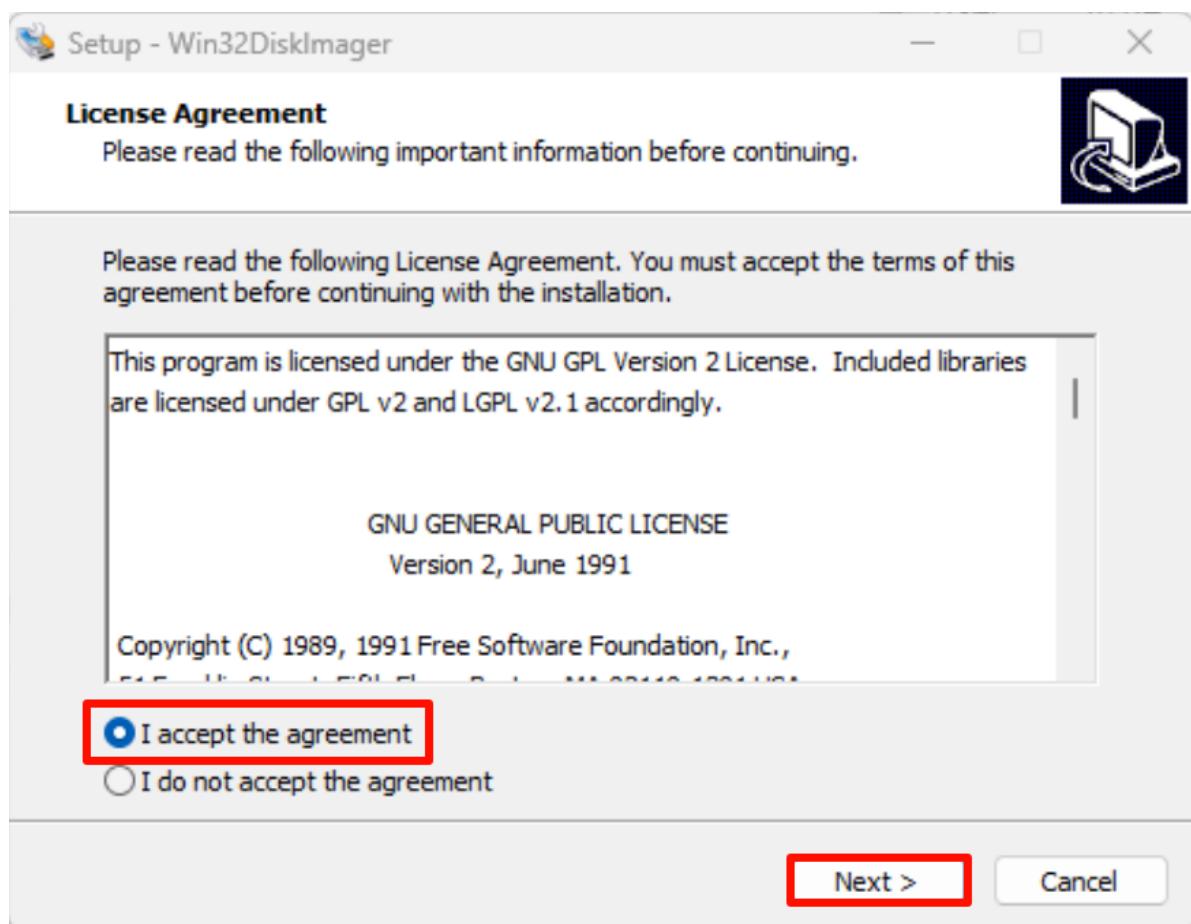
You need to download the image system file in the tutorials in advance and decompress it to get the .img file. Download the system and decompress it locally.

### 3.2.1、Install Win32DiskImager

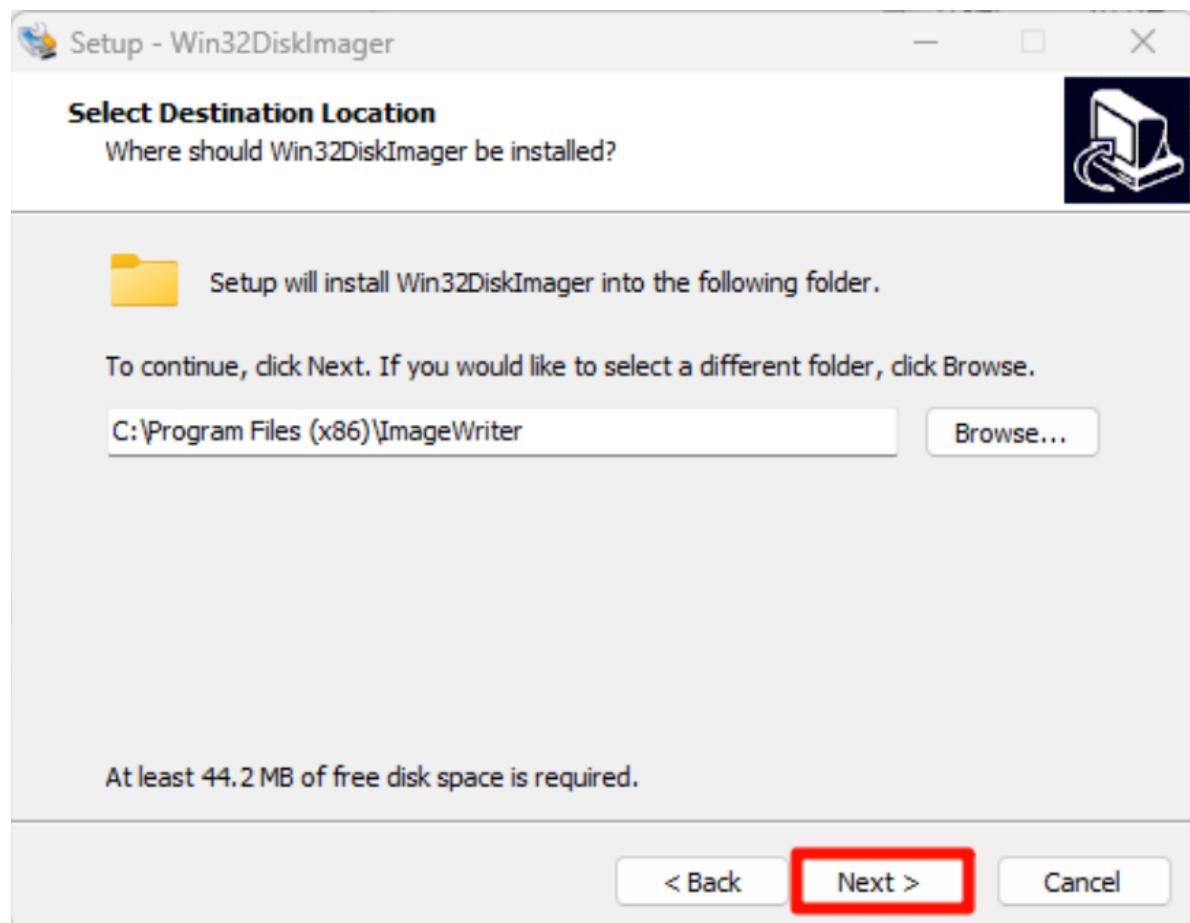
Download link: <https://sourceforge.net/projects/win32diskimager/>

The screenshot shows the SourceForge project page for Win32 Disk Imager. At the top, there's a navigation bar with links for Business Software, Open Source Software, SourceForge Podcast, and Resources. A search bar is also present. Below the header, the project title "Win32 Disk Imager" is displayed with a subtitle: "A Windows tool for writing images to USB sticks or SD/CF cards". It's brought to you by "gruemaster, tuxinator-2009". The page shows a rating of 4.5 stars from 126 reviews, 20,634 downloads this week, and was last updated on 2024-12-02. There are buttons for "Download", "Get Updates", and "Share This". A sidebar on the right lists "Recommended Projects" such as Annoy, UNetbootin, and XBian.

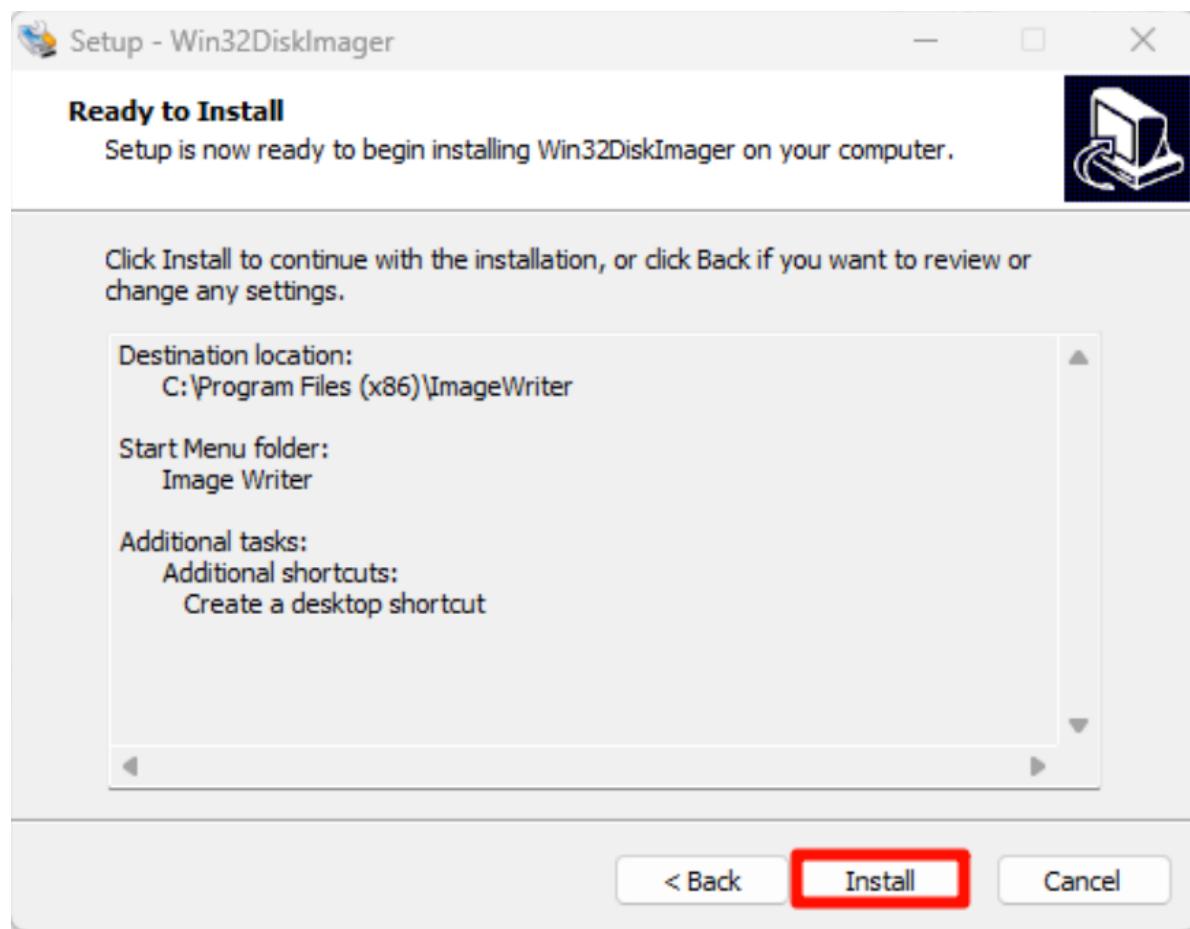
Open the `win32diskimager-1.0.0-install.exe` installation package as an administrator and accept the agreement.

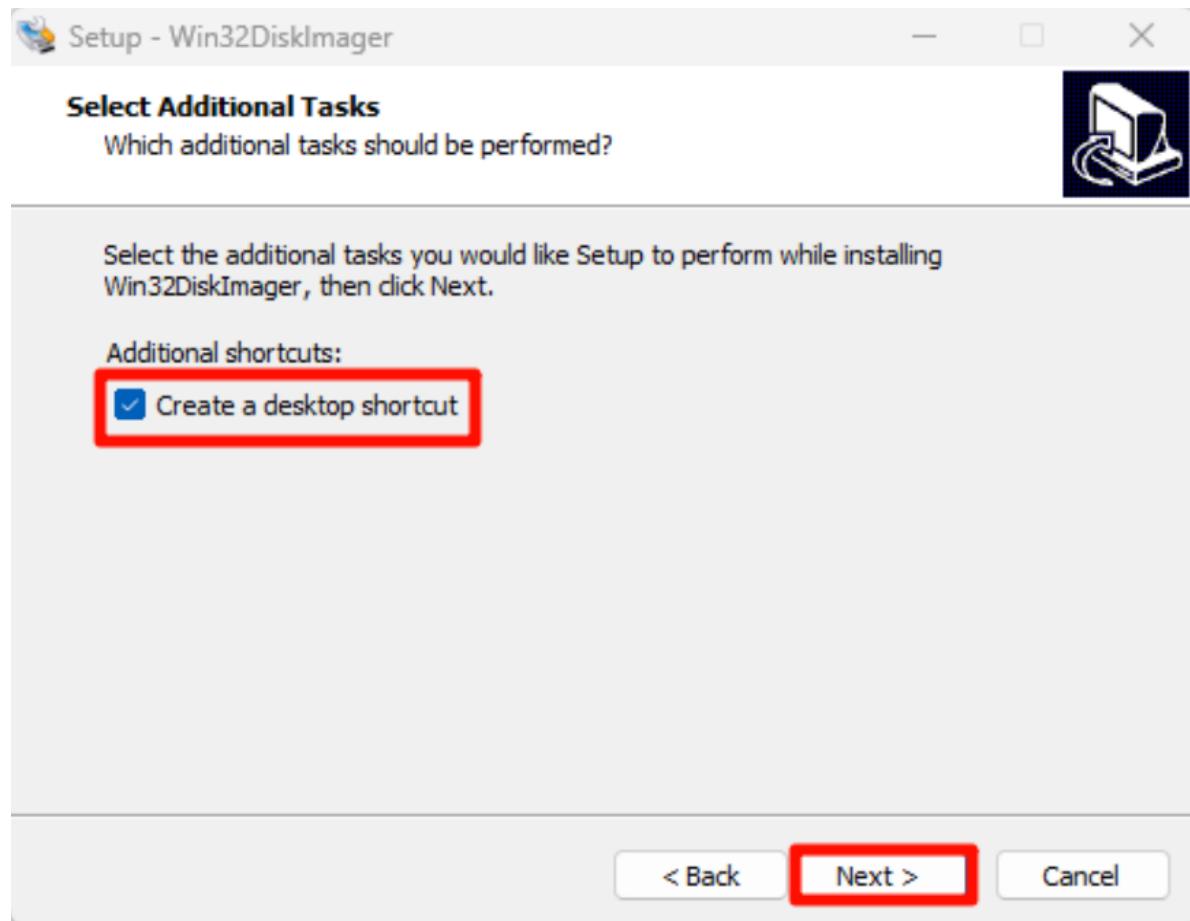


Installation location: Default location is recommended.

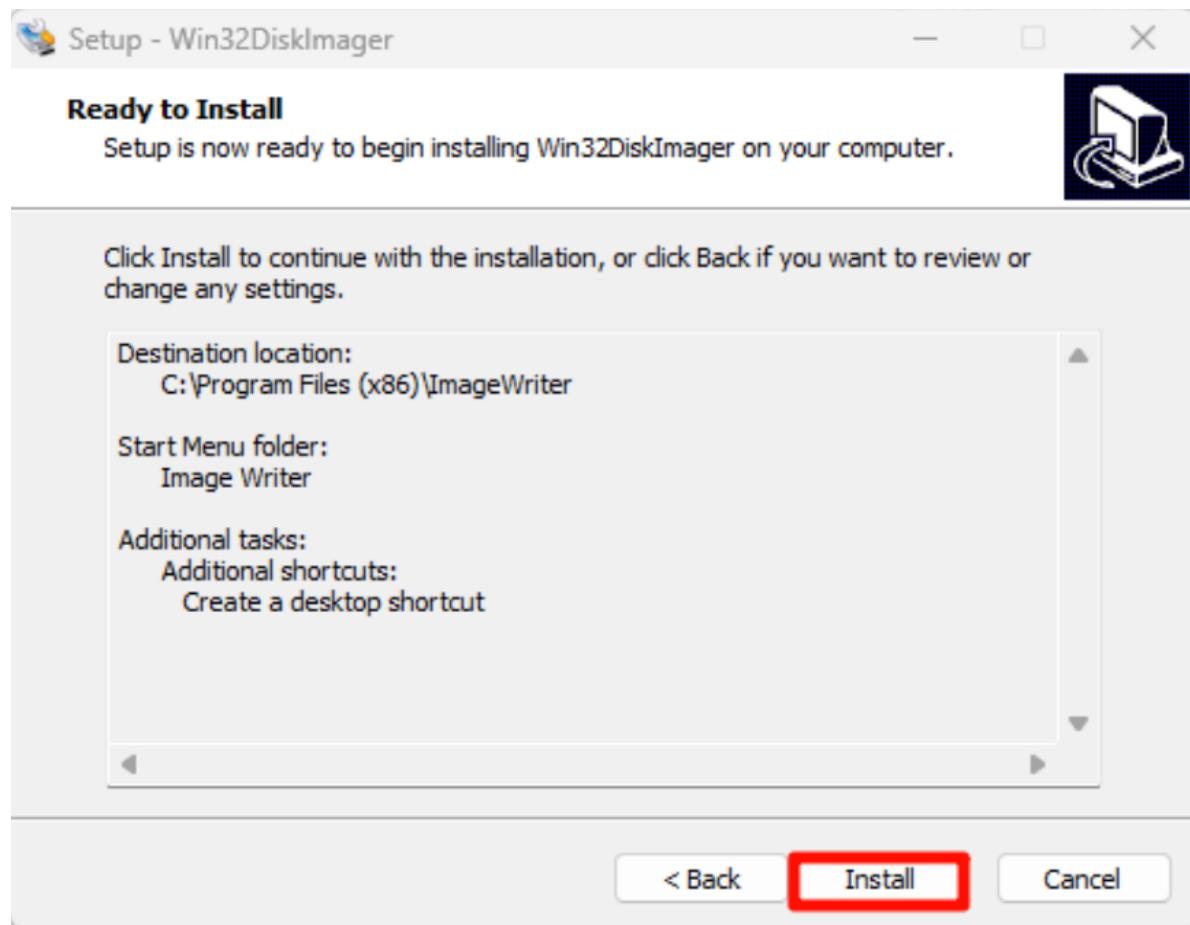


Click "Install"

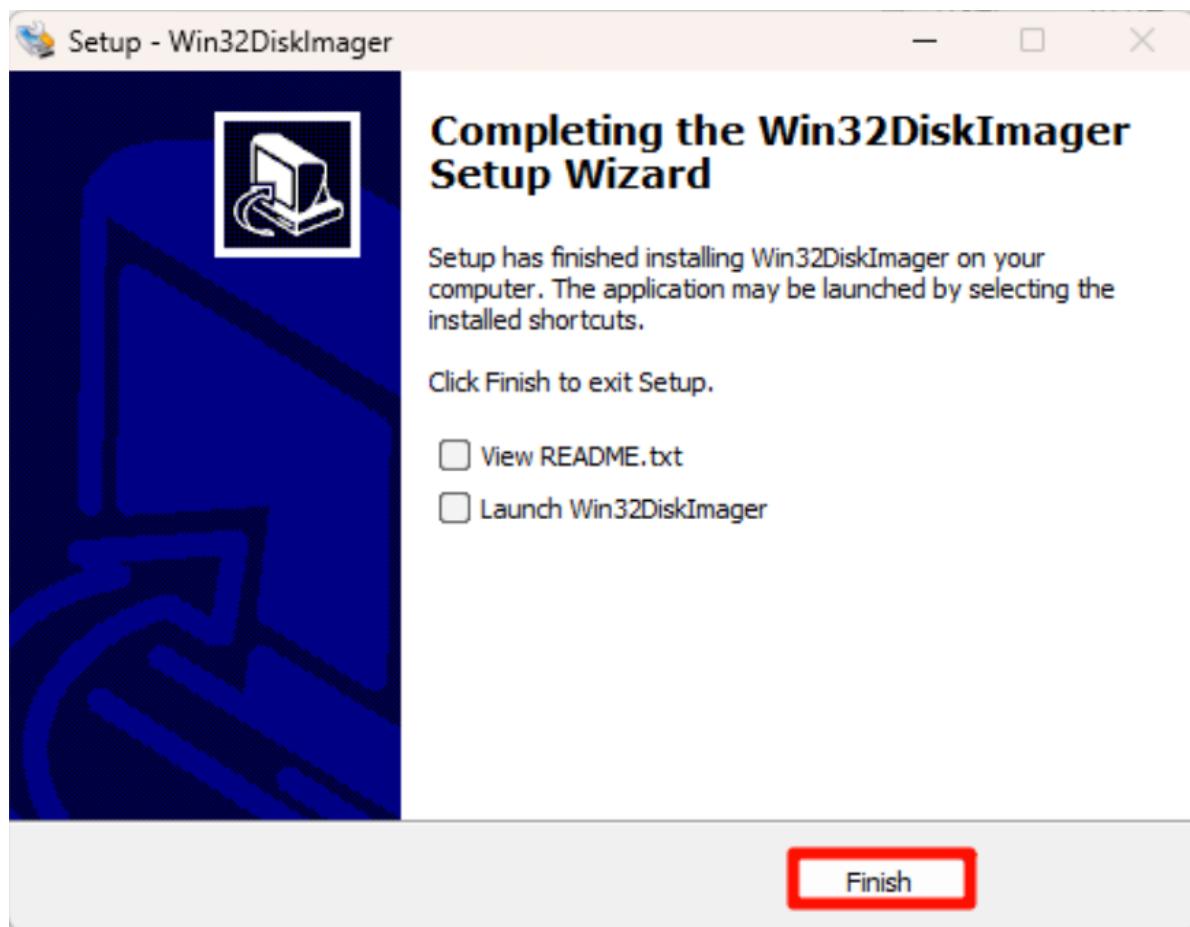




Click "Install"

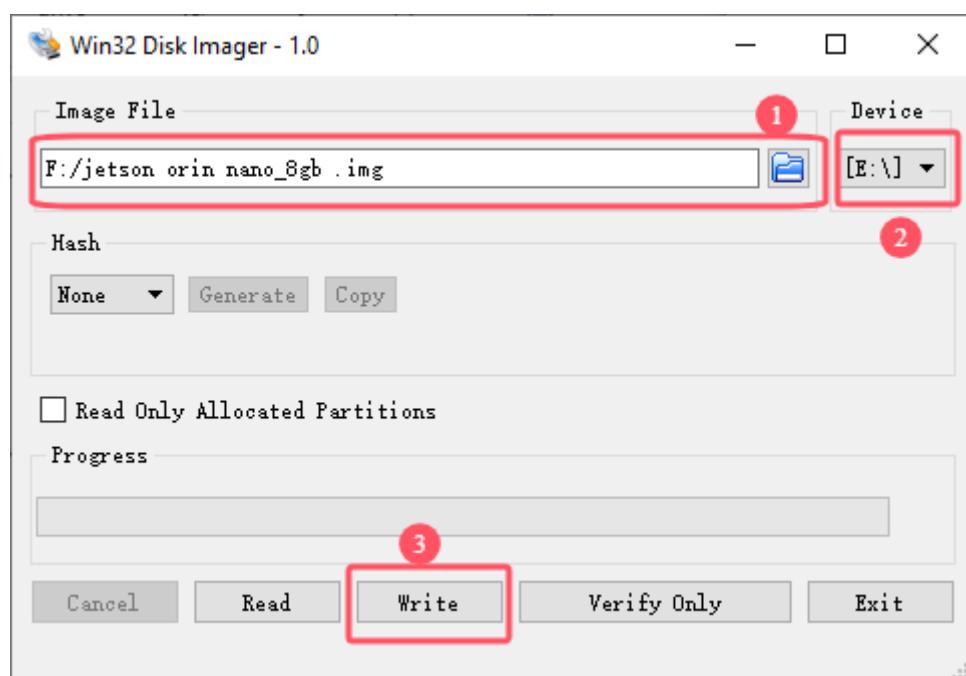


Complete the installation.

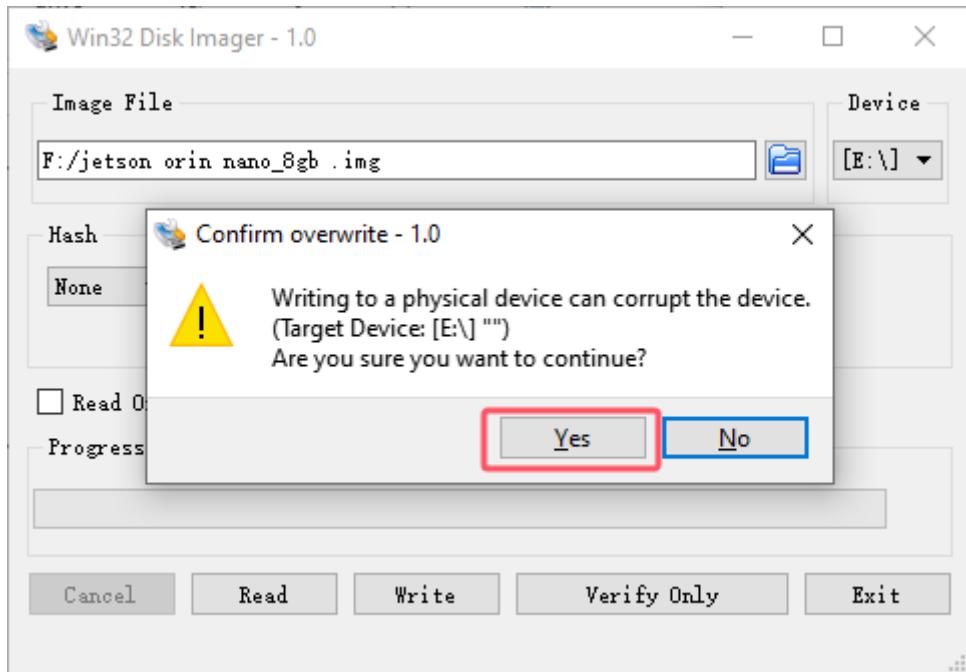


### 3.2.2、Use Win32DiskImager

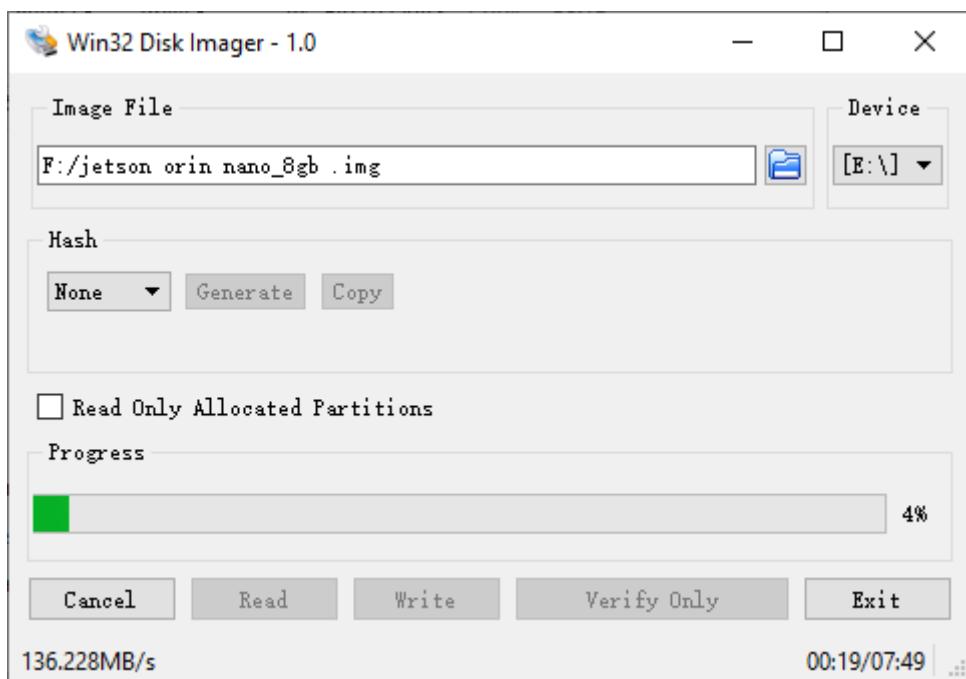
- ①: Select the factory image file (\*.img) in the data
- ②: Select the drive letter corresponding to the SSD
- ③: Write the Yahboom system image to the SSD

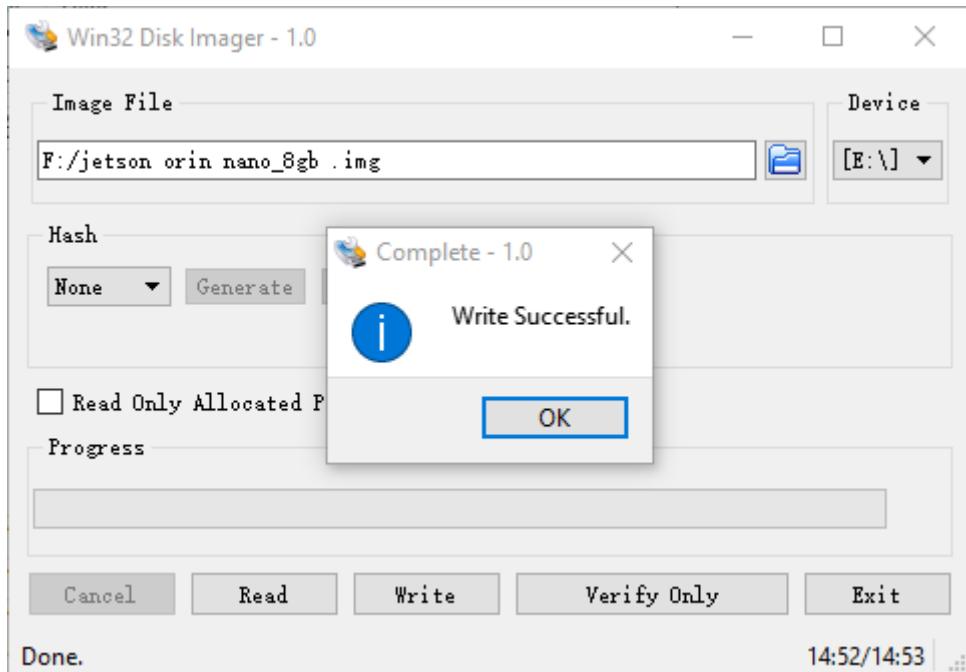


Click "Yes"



wait it





After the system is written, you can close this software.

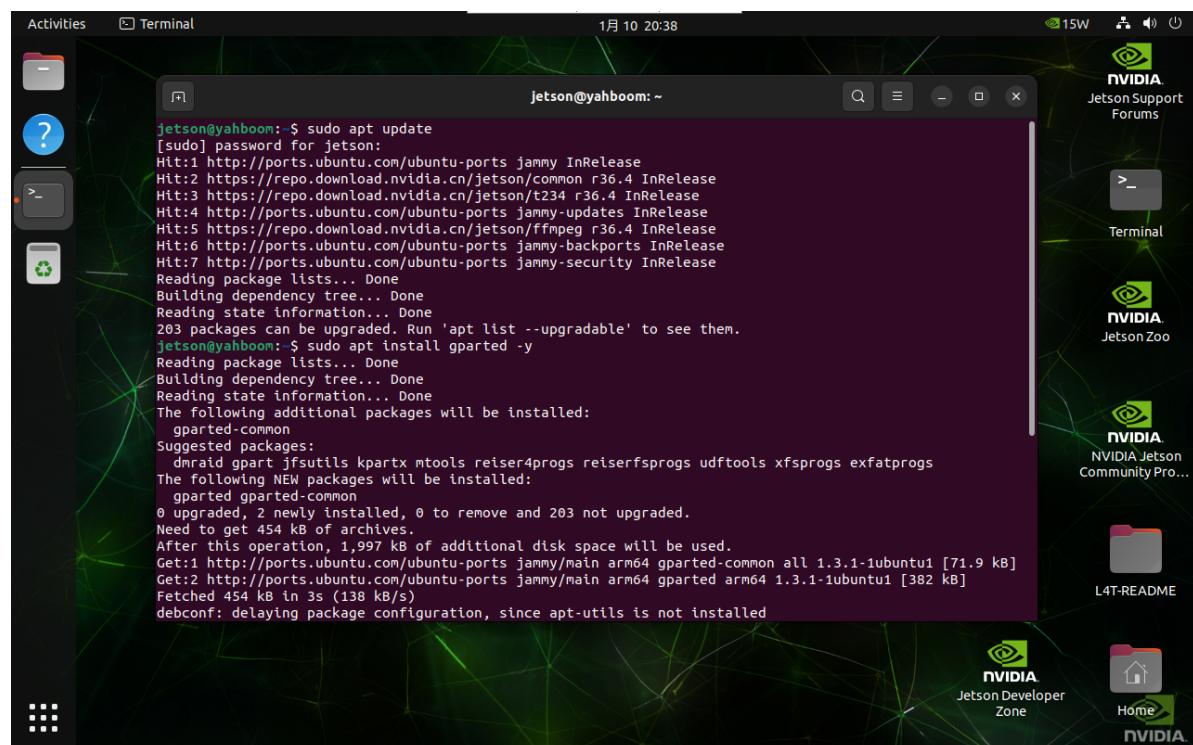
And install the SSD to the Jetson Orin board.

## 4、SSD expansion

This tutorial can be used to allocate the unallocated space of the solid state drive.

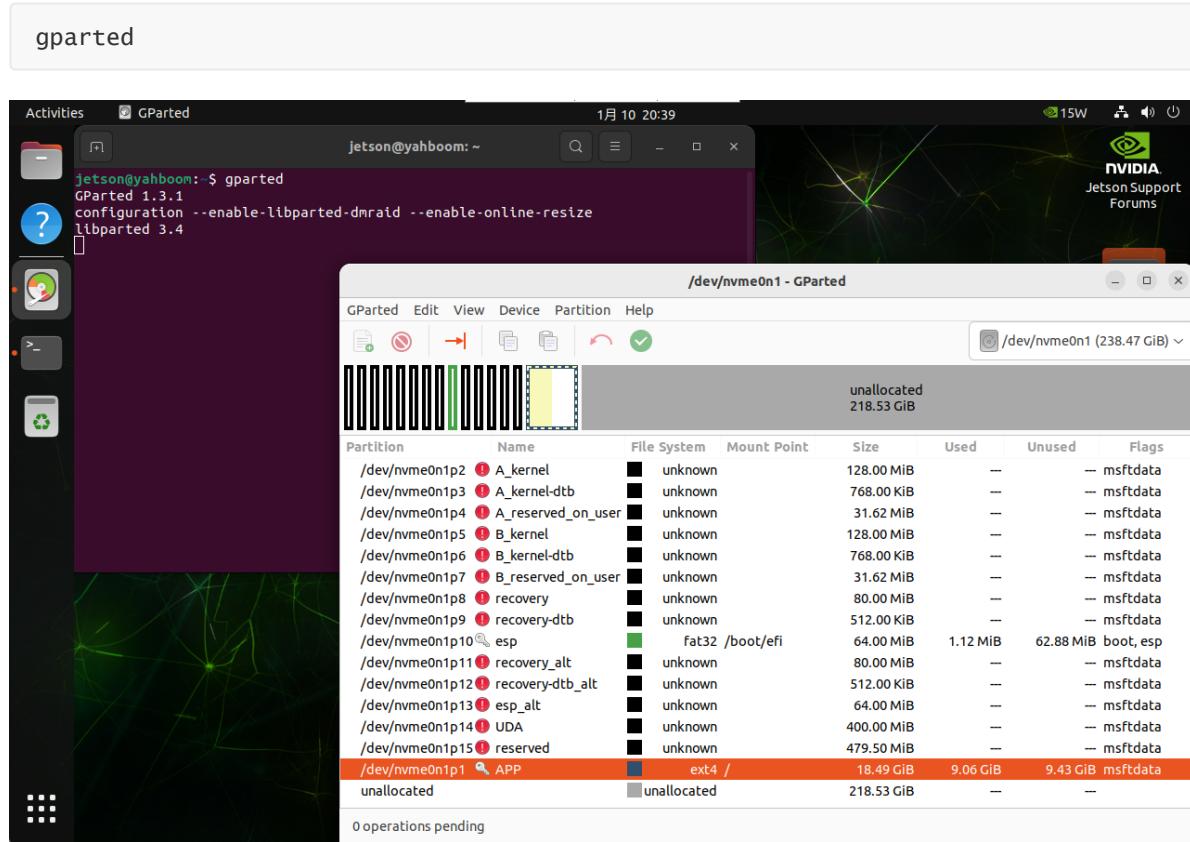
### 4.1、Install GParted

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



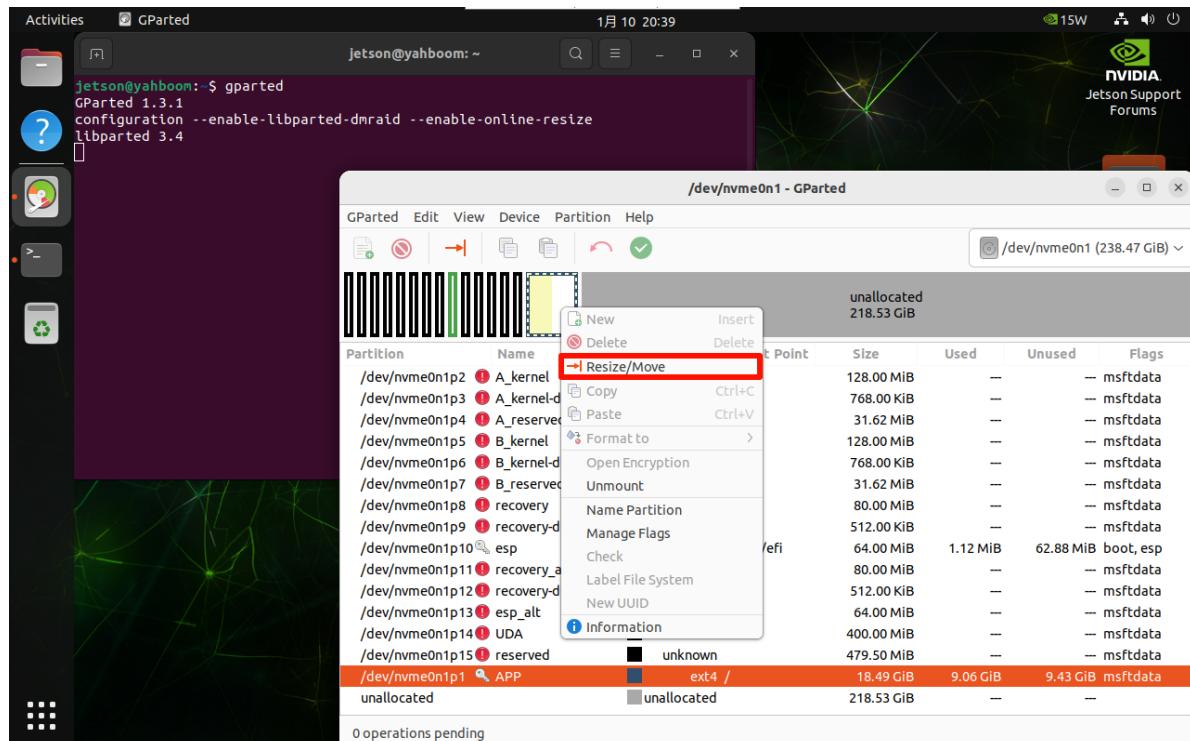
## 4.2、Use GParted

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.

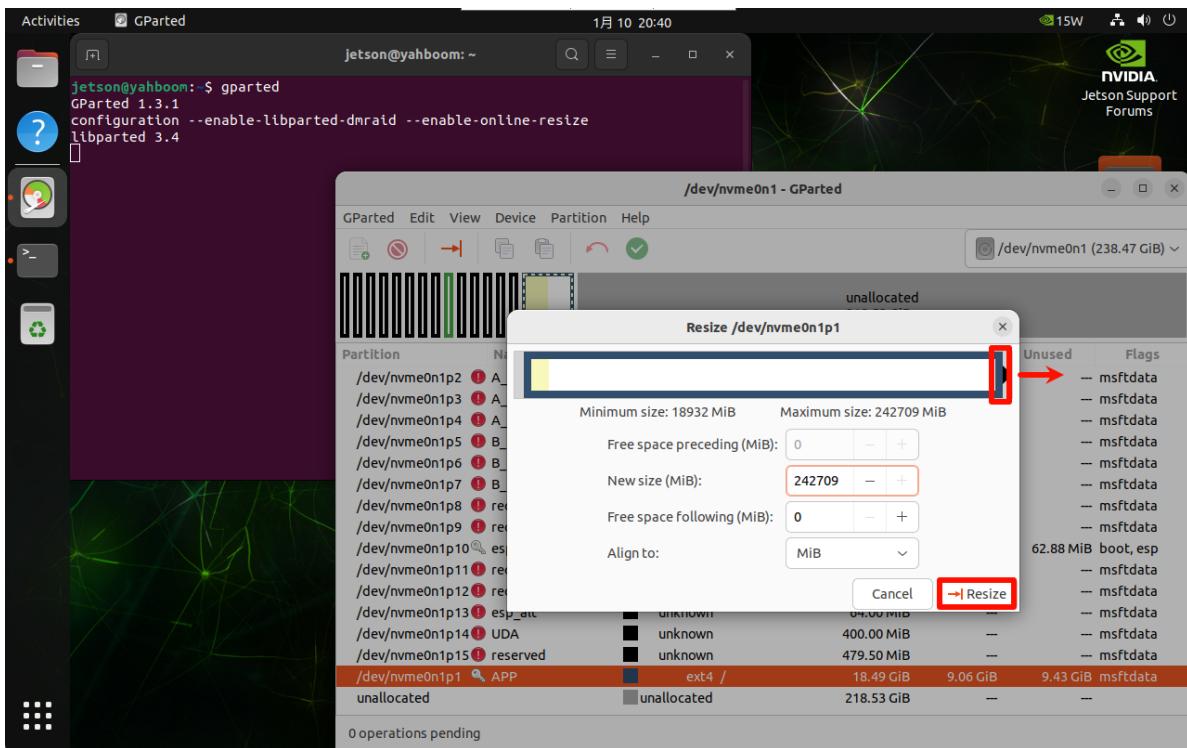


## 4.3. Adjust partitions

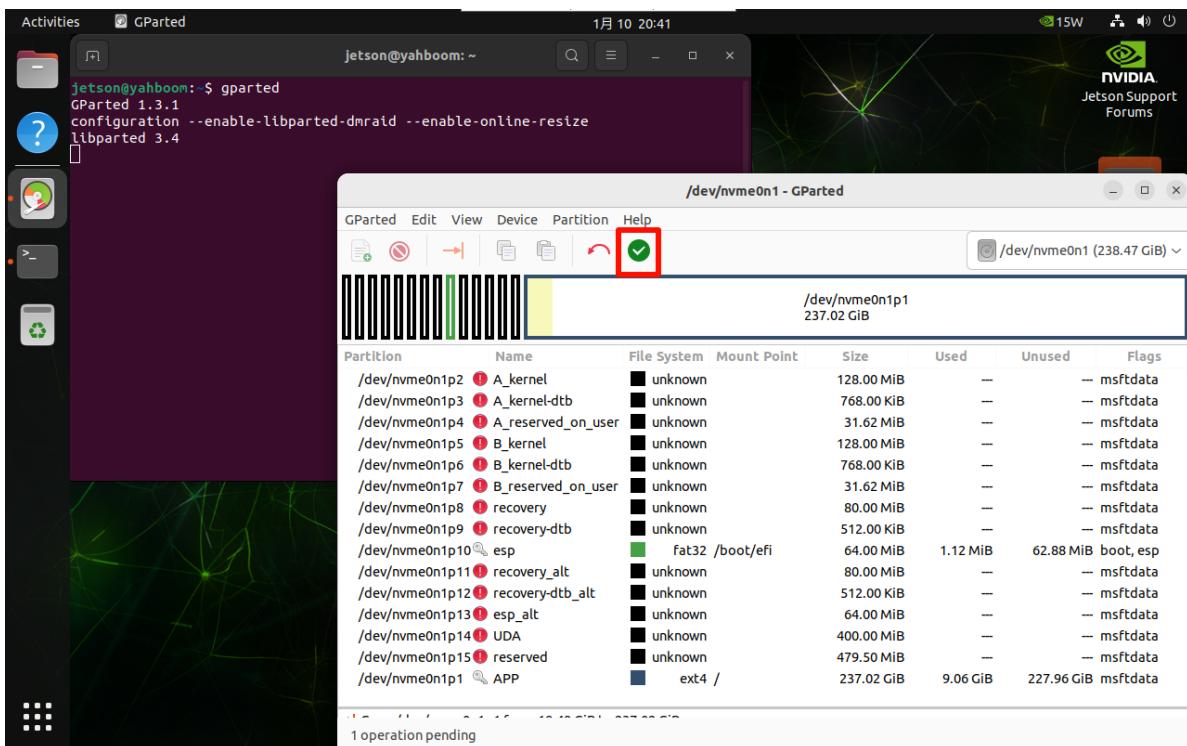
Right-click the disk partition that needs to be expanded: generally select the largest partition on the disk

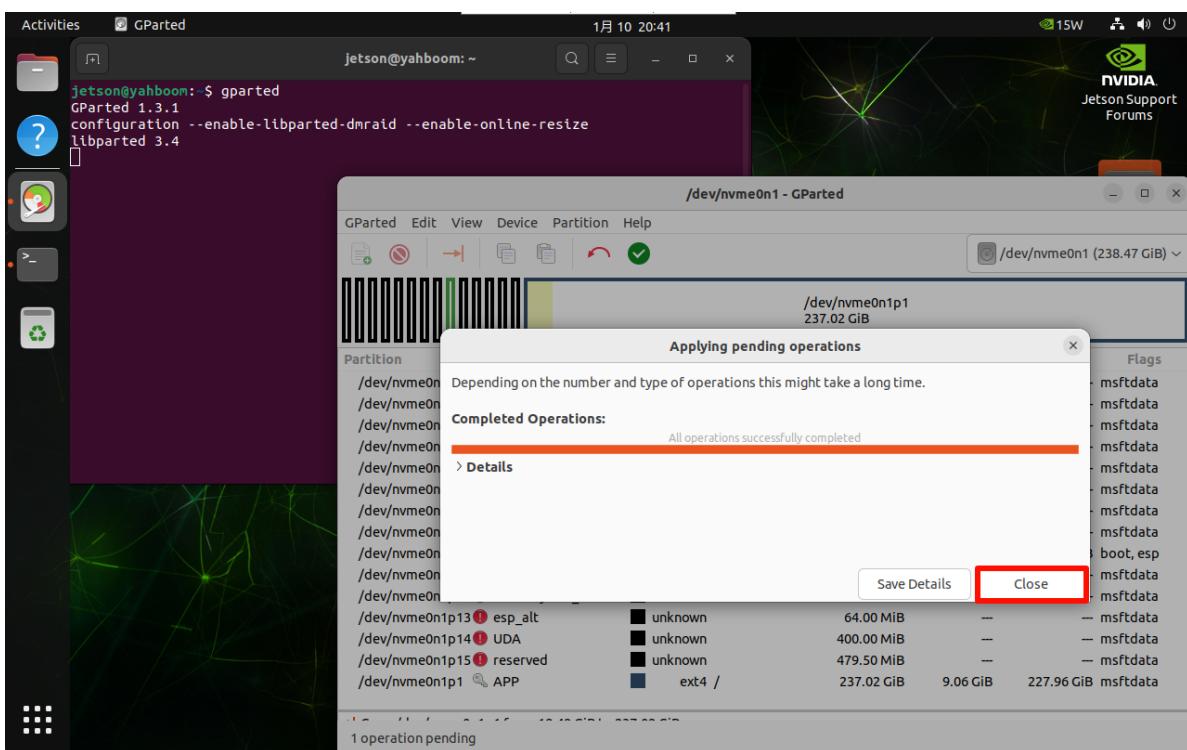
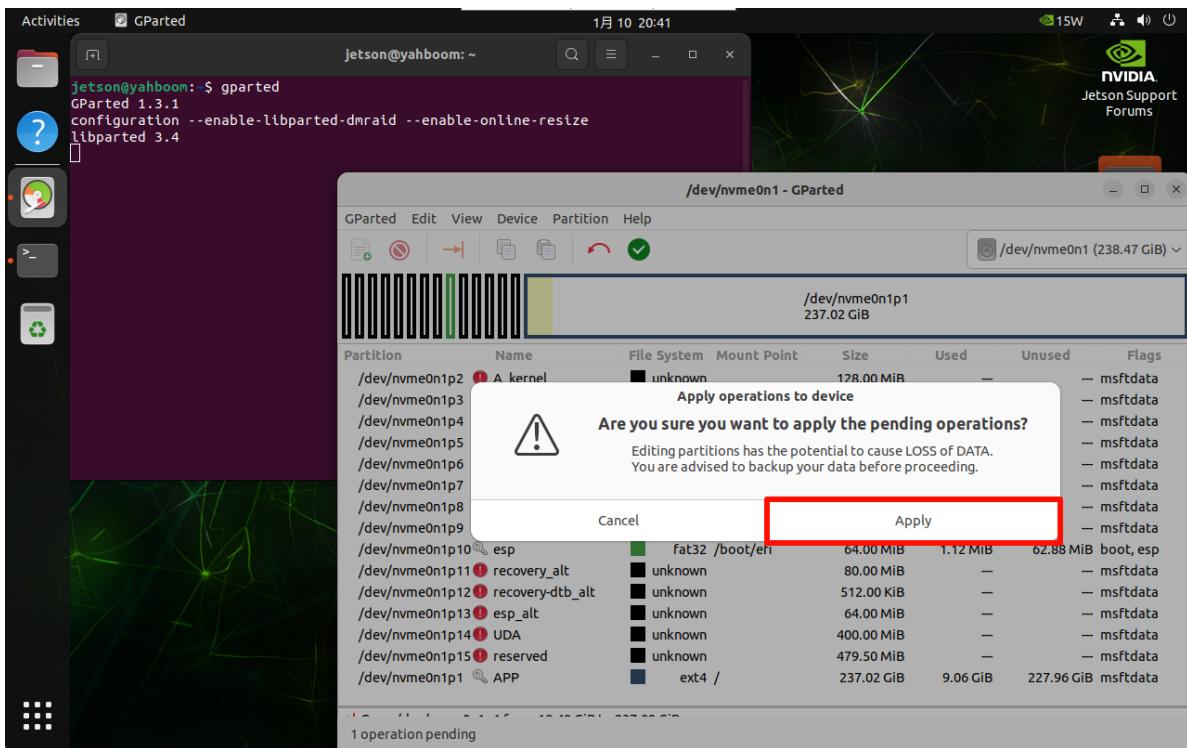


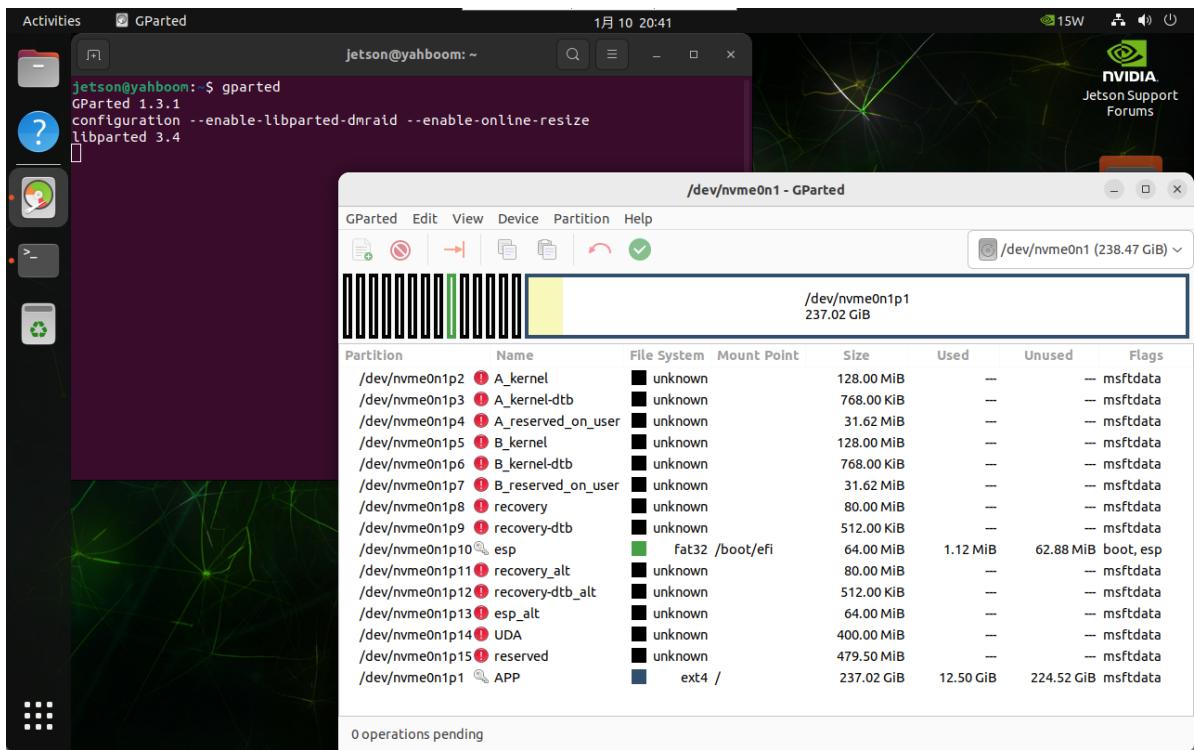
You can adjust the partition size by sliding the slider to the right to maximize the space.



Confirm the partition adjustment operation.







After the partitioning is completed, close the **GParted** software.