Write EMMC system

This product has been burned with the purchased USB flash drive/TF/EMMC system at the factory, and can be used directly after receiving the product. This tutorial only demonstrates how to use the official SDK to burn the emmc system.

1.Open NVIDIA's Jetpack download website (the virtual machine provided in the appendix has SDK Manager 2.2.0 installed. You can jump directly to the usage steps by using this virtual machine):

(https://developer.nvidia.com/sdk-manager)

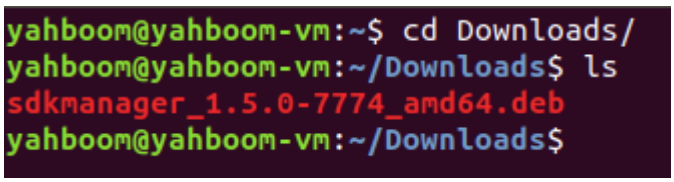
Use the virtual machine **Ubuntu18.04** system, click to download SDK Manager, please register/log in to your NVIDIA account before use.

Note: The Ubuntu system version is too high and may not support burning the jetpack 4.6 series. Please pay attention to the Ubuntu system version

2.Install SDK Manager.

First enter the path of the .deb file just downloaded, for example, download to the Downloads directory here.

```
cd Downloads/
```



Enter the following command in the terminal to install SDK Manager. (Take 1.5.0 as an example, modify the SDK version in the command according to different versions)

```
sudo dpkg -i sdkmanager_1.5.0-7774_amd64.deb
```

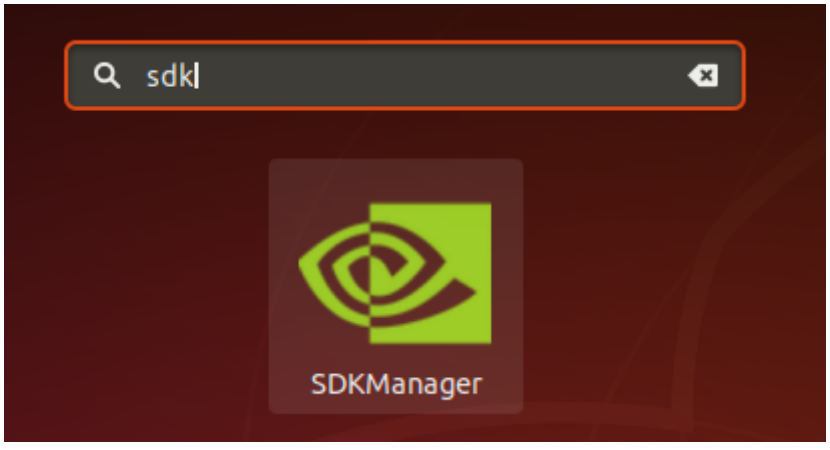
```
yahboom@yahboom-vm:~/Downloads$ sudo dpkg -i sdkmanager_1.5.0-7774_amd64.deb
[sudo] password for yahboom:
Selecting previously unselected package sdkmanager.
(Reading database ... 114535 files and directories currently installed.)
Preparing to unpack sdkmanager_1.5.0-7774_amd64.deb ...
Unpacking sdkmanager (1.5.0-7774) ...
dpkg: dependency problems prevent configuration of sdkmanager:
 sdkmanager depends on libgconf-2-4; however:
  Package libgconf-2-4 is not installed.
 sdkmanager depends on libcanberra-gtk-module; however:
  Package libcanberra-gtk-module is not installed.

dpkg: error processing package sdkmanager (--install):
 dependency problems - leaving unconfigured
Processing triggers for gnome-menus (3.13.3-11ubuntu1.1) ...
Processing triggers for desktop-file-utils (0.23-1ubuntu3.18.04.2) ...
Processing triggers for mime-support (3.60ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Errors were encountered while processing:
 sdkmanager
```

At this time, the system may report an error that the dependency file cannot be found. Enter the following command to solve this problem.

```
sudo apt \--fix-broken install
```

```
yahboom@yahboom-vm:~/Downloads$ sudo apt --fix-broken install
[sudo] password for yahboom:
Reading package lists... Done
Building dependency tree
Reading state information... Done
Correcting dependencies... Done
The following packages were automatically installed and are no longer required:
  fonts-liberation2 fonts-opensymbol gir1.2-gst-plugins-base-1.0 gir1.2-gstreamer-1.0 gir1.2-gudev-1.0 gir1.2-udisks-2.0 grilo-plugins-0.3-base gstreamer1.0-gtk3
  libboost-date-time1.65.1 libboost-filesystem1.65.1 libboost-iostreams1.65.1 libboost-locale1.65.1 libcdr-0.1-1 libclucene-contribs1v5 libclucene-core1v5 libcmis-0.5-5v5
  libcolamd2 libdazzle-1.0-0 libe-book-0.1-1 libedataserverui-1.2-2 libeot0 libepubgen-0.1-1 libetonyek-0.1-1 libevent-2.1-6 libexiv2-14 libfreerdp-client2-2 libfreerdp2-2
  libgc1c2 libgee-0.8-2 libgexiv2-2 libgom-1.0-0 libgpgmepp6 libgpod-common libgpod4 liblangtag-common liblangtag1 liblirc-client0 liblua5.3-0 libmediaart-2.0-0 libmspub-0.1-1
  libodfgen-0.1-1 libqqwing2v5 libraw16 librevenge-0.0-0 libsgutils2-2 libssh-4 libsuitesparseconfig5 libvncclient1 libwinpr2-2 libxapian30 libxmlsec1 libxmlsec1-nss lp-solve
  media-player-info python3-mako python3-markupsafe syslinux syslinux-common syslinux-legacy usb-creator-common
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  gconf-service gconf-service-backend gconf2-common libcanberra-gtk-module libcanberra-gtk0 libgconf-2-4
The following NEW packages will be installed:
  gconf-service gconf-service-backend gconf2-common libcanberra-gtk-module libcanberra-gtk0 libgconf-2-4
0 upgraded, 6 newly installed, 0 to remove and 295 not upgraded.
1 not fully installed or removed.
Need to get 862 kB of archives.
After this operation, 8,134 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

3. Open the program of the Ubuntu18.04 system, search for SDK, you can find SDKManager, and open the file.

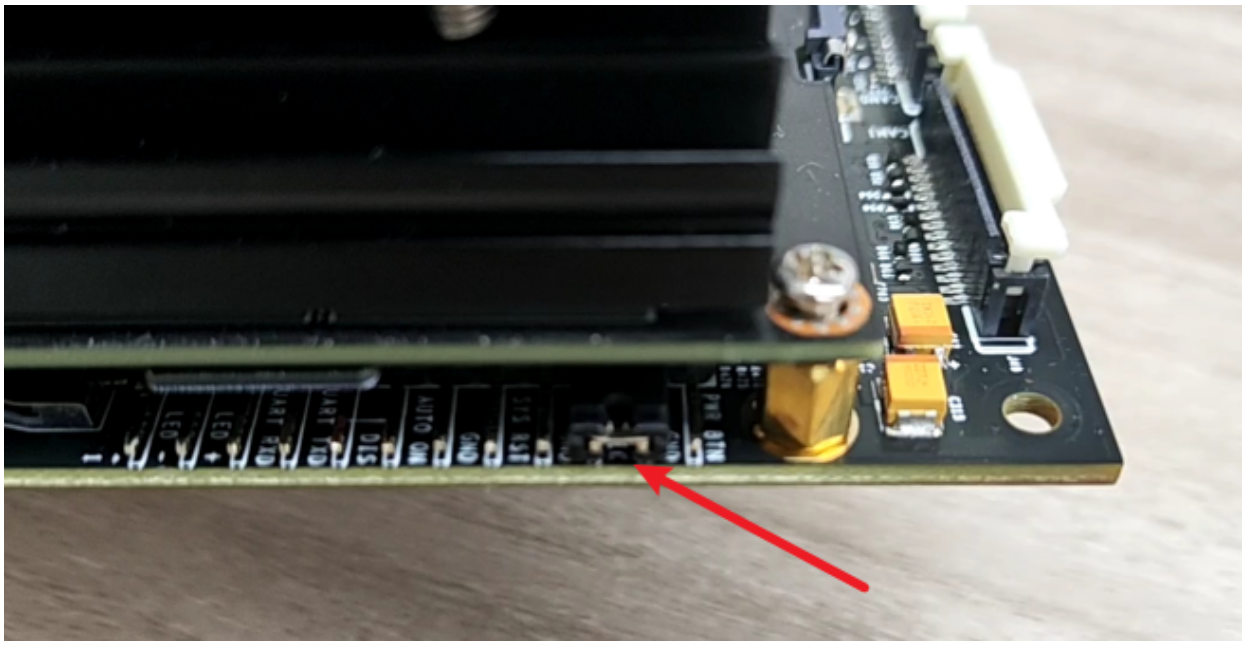


Log in to your NVIDIA account, and a link will pop up in the browser. Enter your username and password to log in.

4.Connect the virtual machine Ubuntu18.04 to Jetson Nano B01

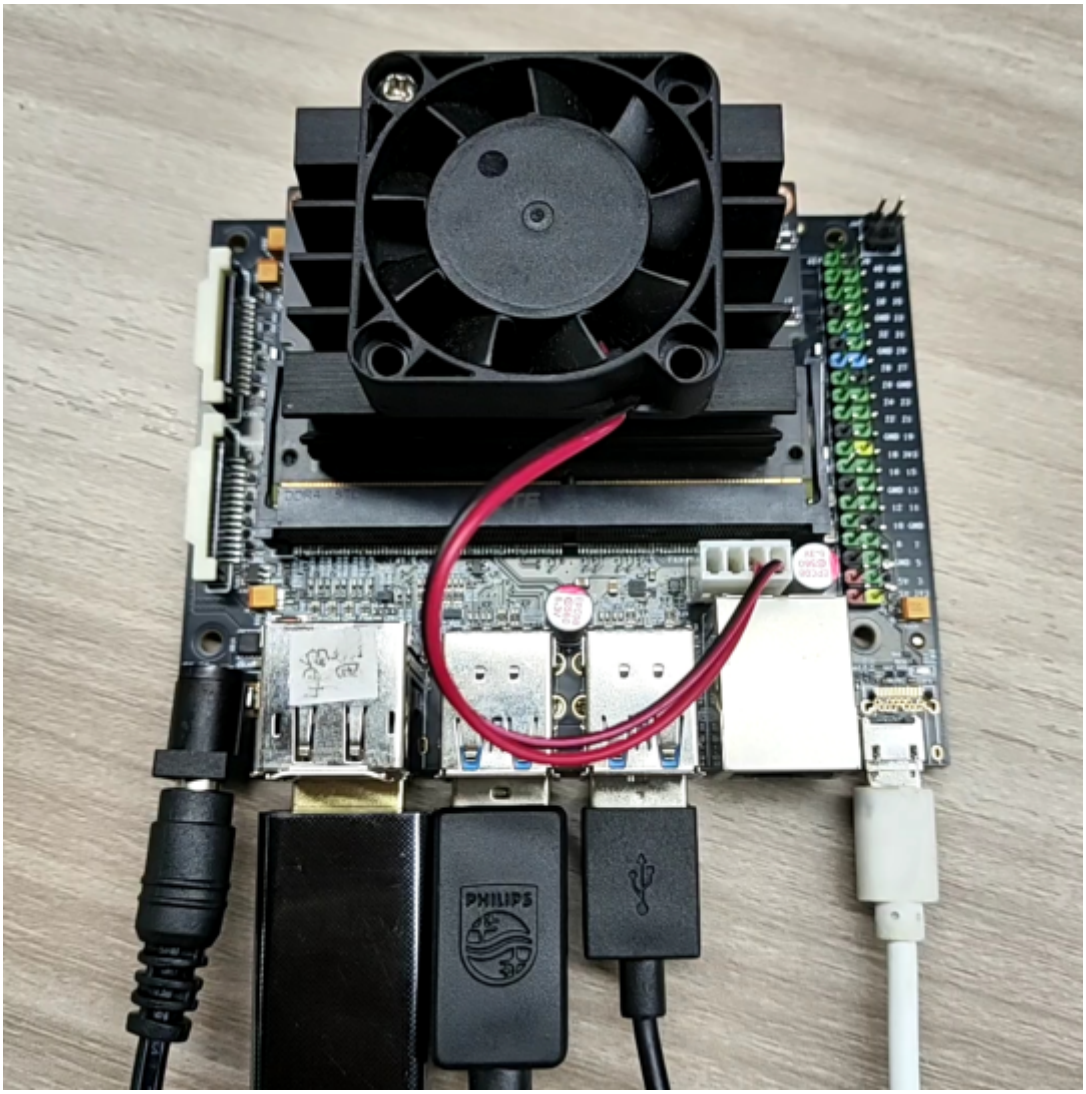
At this time, you need to let Jetson Nano B01 enter the system REC flashing mode.

Connect the jumper cap to the FC REC and GND pins, that is, to the second and third pins of the carrier board under the core board, as shown in the figure below:

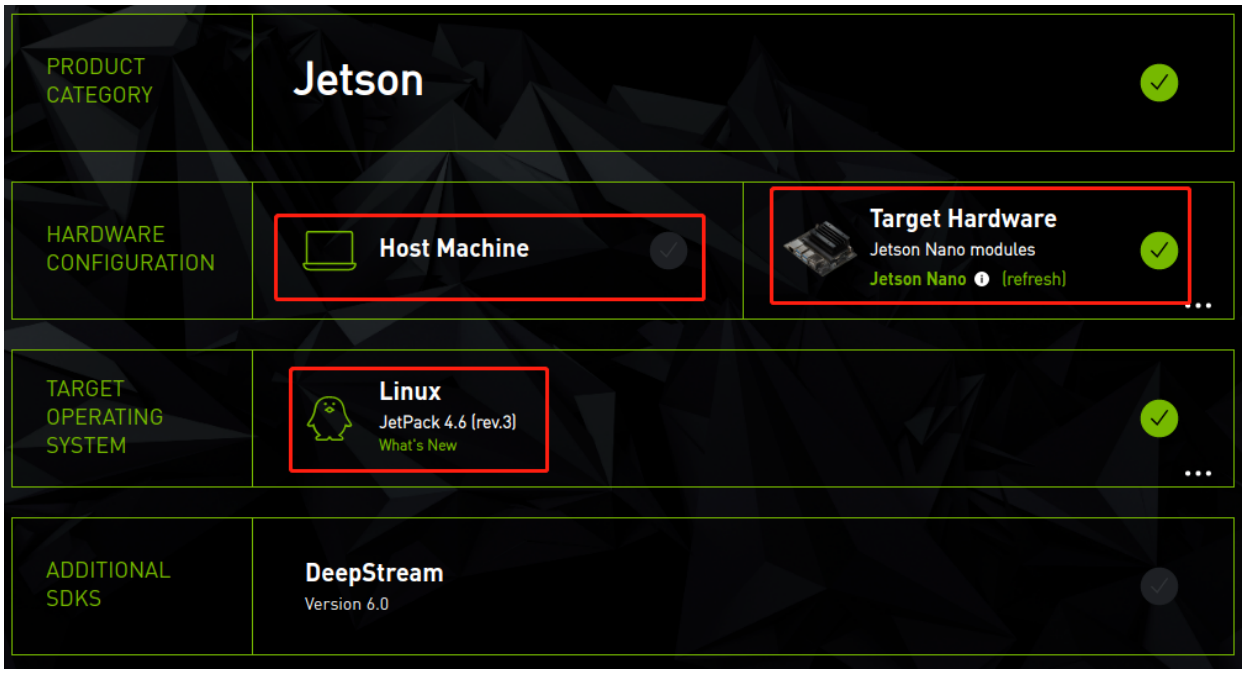


Connect the lines, connect the HDMI display, mouse, keyboard and microUSB data cable to Jetson Nano B01, and finally connect the power supply. Since the jumper cap has been connected to the FC REC and GND pins in the previous step, it will automatically enter the REC flashing mode after powering on.

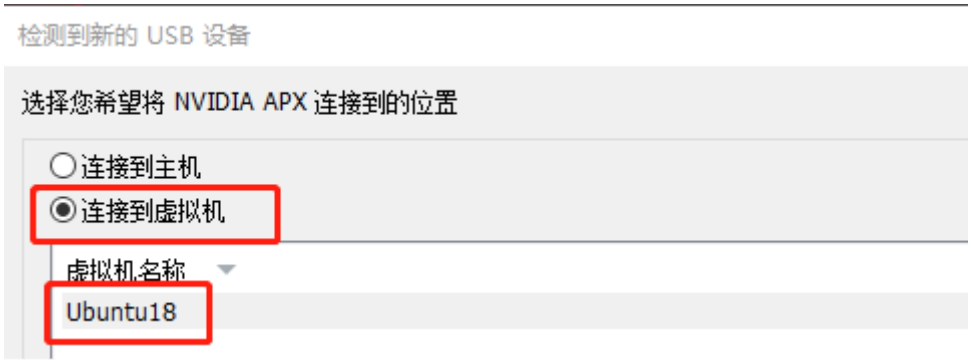
Note: Before flashing, plug in the DC power cord first, then connect the flashing cable. This order can improve the success rate of flashing



5. In the SDKManager software of the virtual machine Ubuntu18.04, select Target Hardware as Jetson Nano modules, JetPack version, here take version 4.6 as an example.



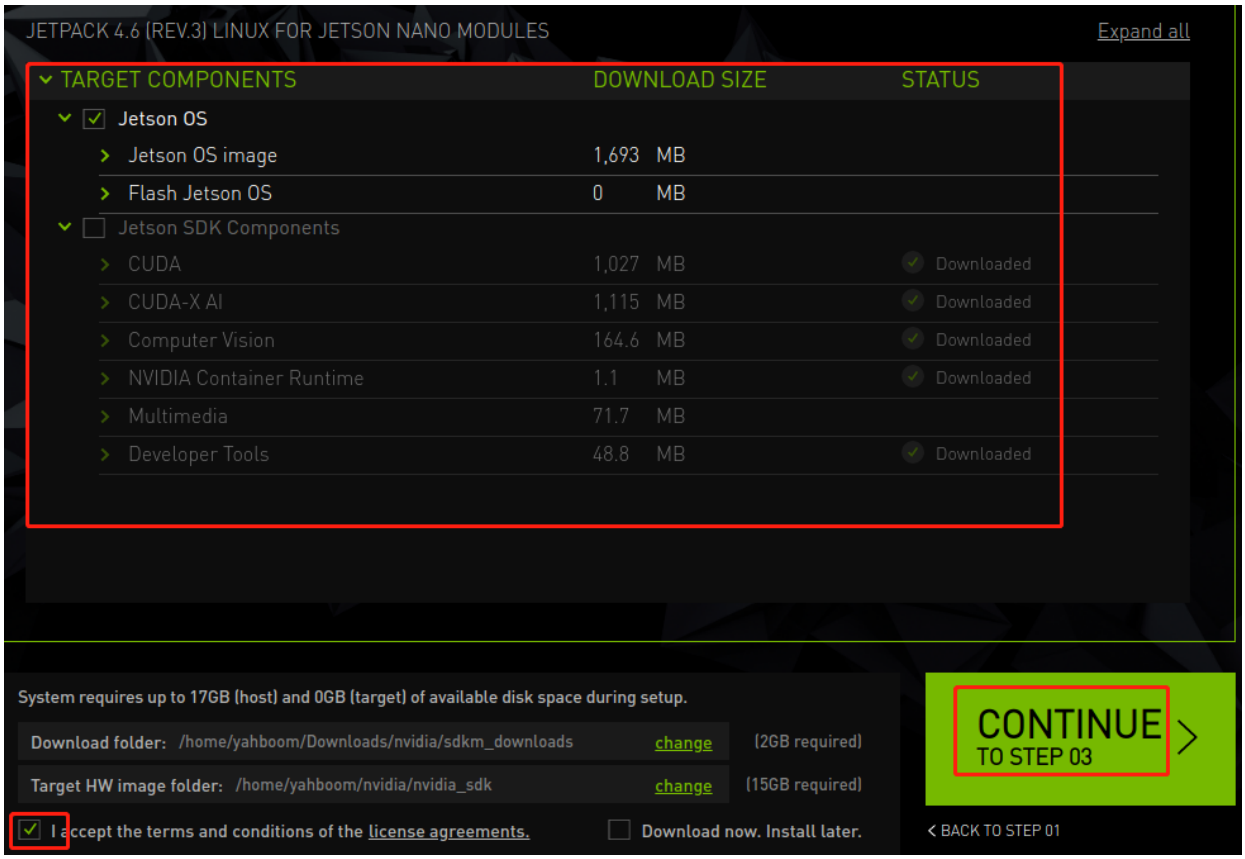
If the Target Hardware shows an unconnected status, please confirm whether the device has entered the REC flashing mode and connected to the virtual machine, and then click refresh to refresh. Please note that when using a virtual machine, you need to set the device to connect to the virtual machine.



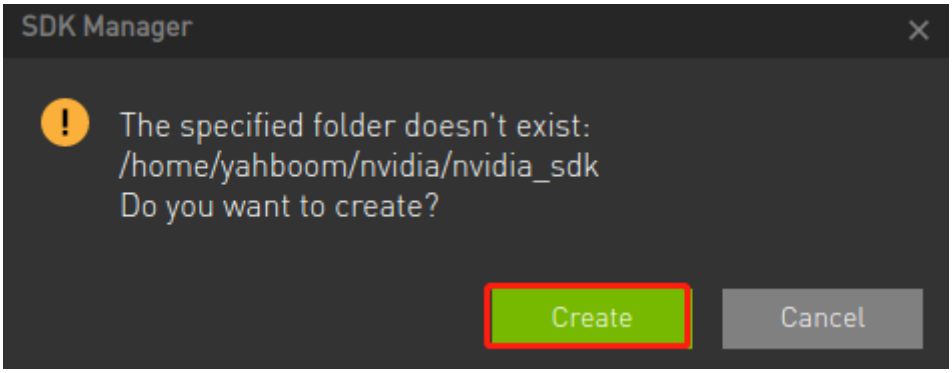
If the above prompt does not pop up, you can manually connect in the lower right corner of the virtual machine: find NVIDIA APX and click Connect to Virtual Machine. The color is bright, indicating that it is connected to the virtual machine.

Click CONTINUE after confirmation.

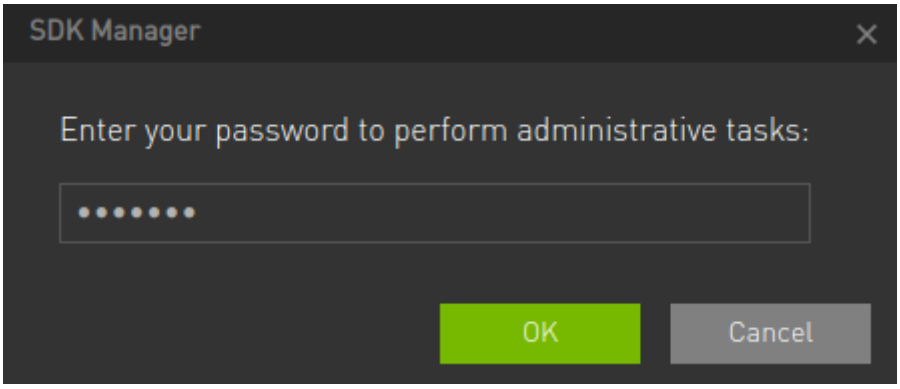
6. Jetson OS and Jetson SDK Components will be checked by default, indicating that the system and SDK are flashed. You can select the system OS or software SDK separately, but before flashing the software SDK separately, you need to ensure that the system OS has been flashed. Since the EMMC capacity of Jetson Nano B01 is only 16G, the SDK cannot be installed, and you can only choose to flash the OS system.



Keep the default file download path, check the protocol, and click CONTINUE to proceed to the next step.

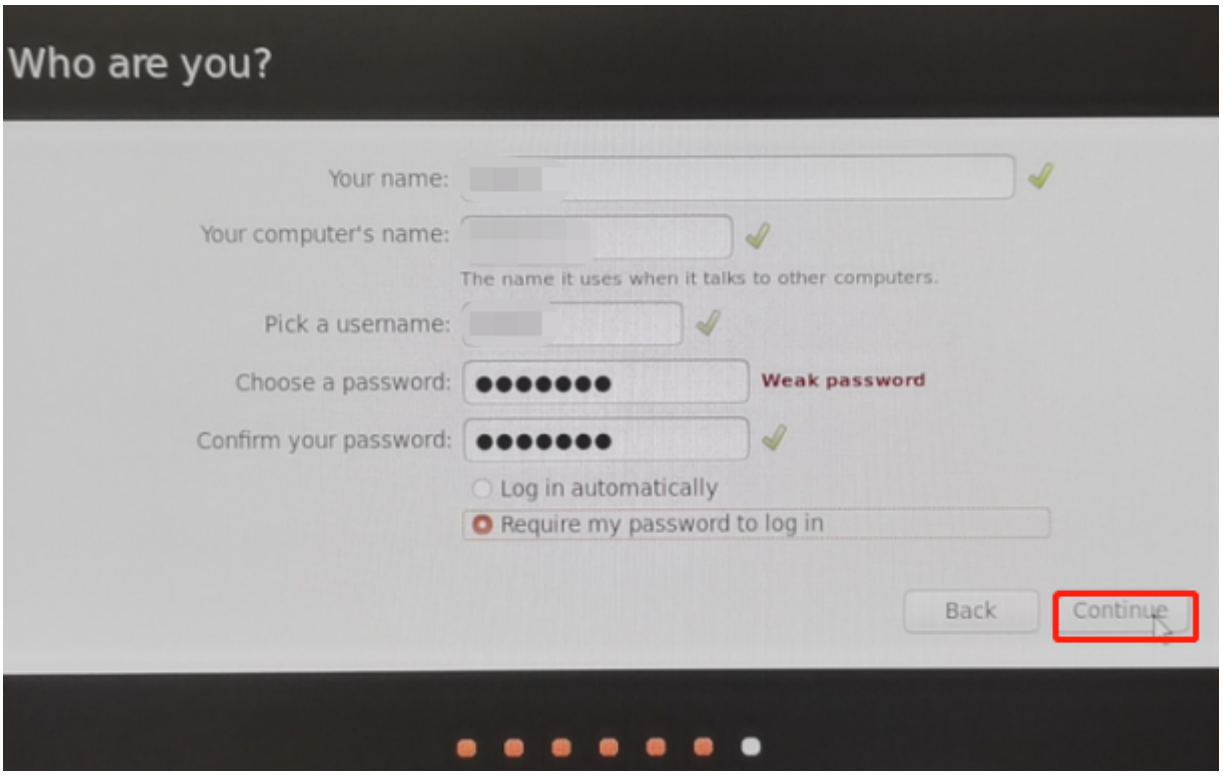


Enter the password of the virtual machine.



At this time, SDKManager will first download the files to be burned, and wait for the burning files to be downloaded before starting to burn the system.

7. After waiting for the system OS to be burned, Jetson Nano B01 will automatically restart and enter the system. At this time, you need to set the basic functions of the system according to the system prompts. The necessary execution includes setting the user name and password, etc. The user name and password must be remembered here, otherwise there will be problems with logging in to the system.



8.Note: After burning the system, please remove the jumper cap between FC REC and GND.

Then reconnect the Jetson board to the display and DC power supply（5V 4A） and it can be turned on.

With the continuous update of NVIDIA hardware, if you still cannot boot after burning the latest version of Jetpack, it may be because the official hardware has been upgraded and the latest version of Jetpack is incompatible. At this time, we need to manually add the patch to the SDK Manager to enable it to boot smoothly after burning.

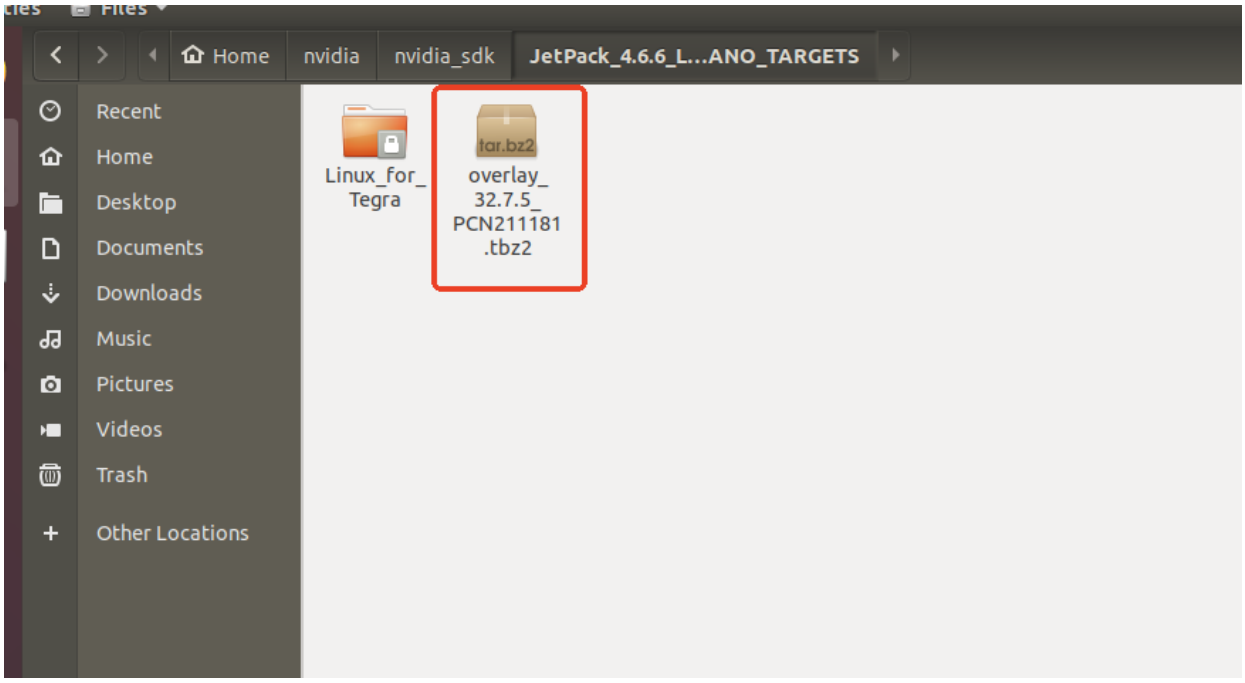
9.Add patch file

Patch package download address: https://developer.nvidia.com/embedded/linux-tegra-r3275

Additional Files

File	Supported hardware	Supported Software	Description
Overlay_PCN211181_r32.7.5.tbz2	Jetson Nano 4GB	JetPack 4.6.5 / Jetson Linux 32.7.5	This overlay supports new memory from PCN211181.

Open the file generated by SDK Manager - nvidia-nvidia_sdk-Jetpack (this article takes 4.6.6 as an example, choose different Jetpacks according to the version you downloaded) and put overlay_32.7.5_PCN211181.tbz2 at the same level as Linux_for_Tegra.



Run command:

```
tar xvf overlay_32.7.5_PCN211181.tbz2
```

At this time, the patch package will automatically decompress the generated files and save them in the corresponding path

10. **Reconnect to SDK Manager and flash the device**

    Follow steps 1 to 8 to re-flash the device（Because the corresponding path will exist only after flashing the machine）

Then use SDK Manager to burn this version of Jetpack and the machine can be started normally.