

3. Remote control

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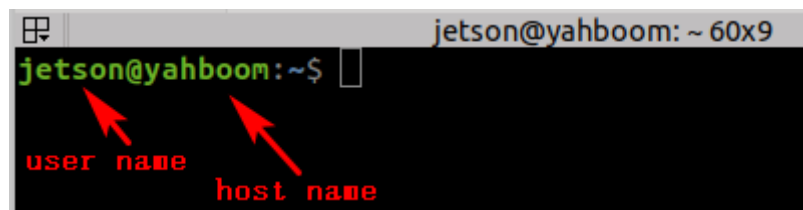
putty: <https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>

VNC: <https://www.realvnc.com/en/connect/download/viewer/>

WinSCP: <https://winscp.net/eng/download.php>

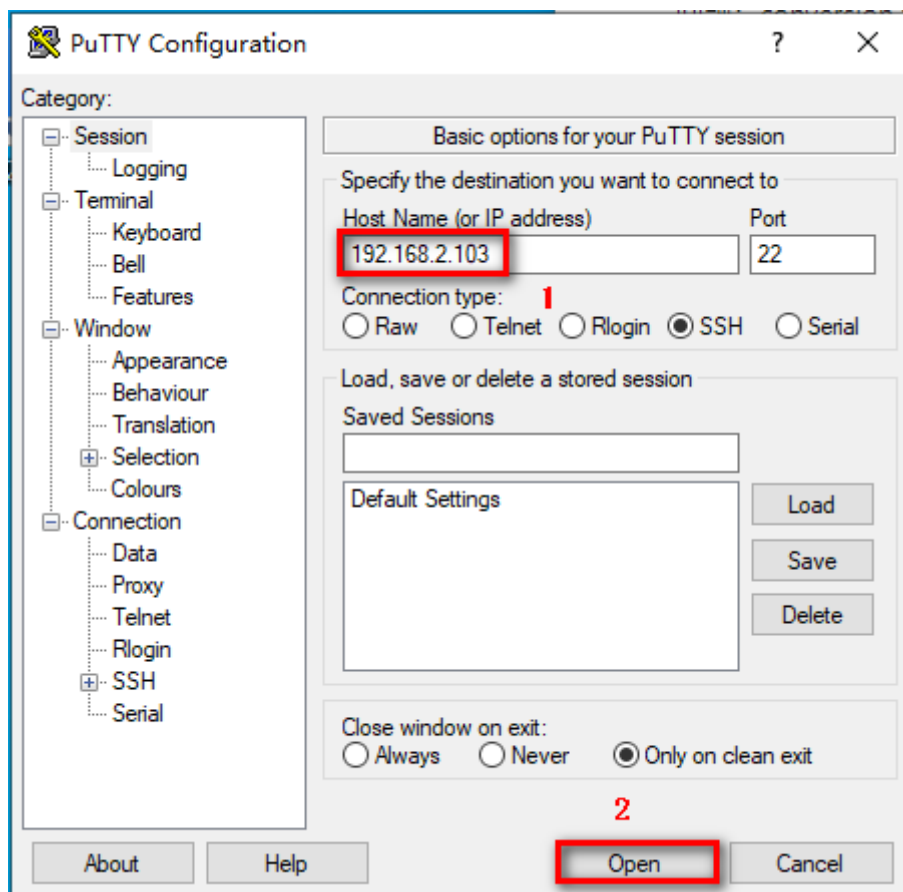
Note: Before logging in remotely, you must know the IP of the robot, which can be displayed on an external monitor or OLED.

For example, the following figure: Username [jetson], hostname [yahboom].

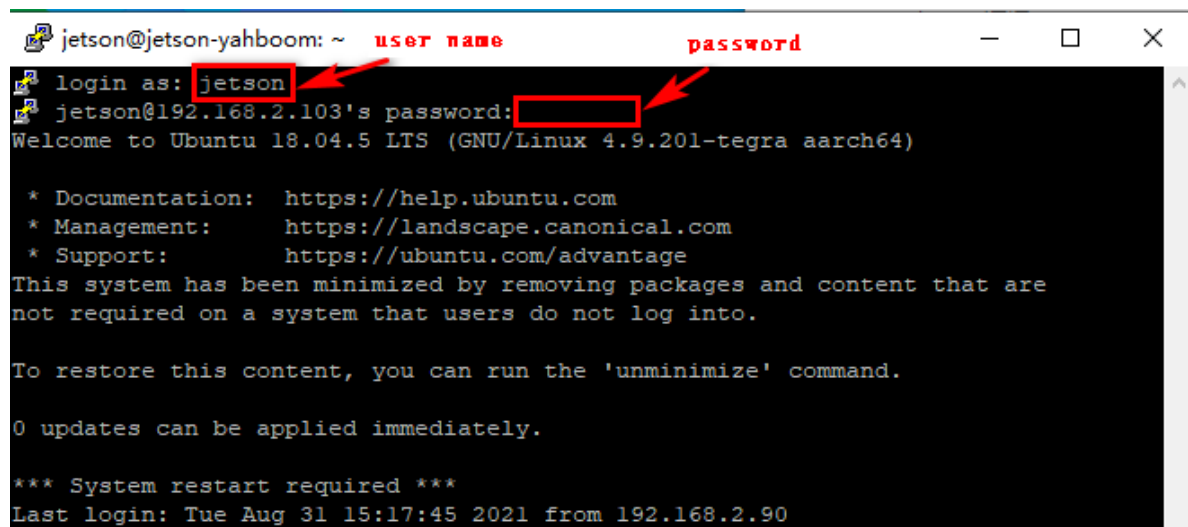


3.1. Login in PuTTY

Enter the relevant link at the top, download the installation file, and double-click the [.exe] file to install.



After entering the IP address of the robot, click [open];



Enter the username [jetson] and password [yahboom], and press Enter to confirm.

The sign of successful login appears as shown below

```
jetson@yahboom:~$
```

3.2. SSH

Note: The interface cannot be displayed.

- Log in

operate under ubuntu system

A terminal window titled 'jetson@jetson-yahboom: ~' shows the process of connecting to a remote host via SSH. The user enters 'ssh jetson@192.168.2.103'. The terminal displays a warning about the host's authenticity and asks for confirmation to continue. The user responds with 'yes'. Then, the user is prompted for a password and enters 'yahboom'. The terminal shows the Ubuntu 18.04.5 LTS login banner, including system information and update status.

```
jetson@jetson-yahboom: ~
jetson@jetson-yahboom: ~ 80x24
yahboom@Yahboom:~$ ssh jetson@192.168.2.103
The authenticity of host '192.168.2.103 (192.168.2.103)' can't be established.
ECDSA key fingerprint is SHA256:9UYkw1sqeLwQDgjTc+dzH//Ey8AtRTa4jgz8sMbXChE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.2.103' (ECDSA) to the list of known hosts.
jetson@192.168.2.103's password: yahboom
Welcome to Ubuntu 18.04.5 LTS (GNU/Linux 4.9.201-tegra aarch64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage
This system has been minimized by removing packages and content that are
not required on a system that users do not log into.

To restore this content, you can run the 'unminimize' command.

0 updates can be applied immediately.

*** System restart required ***
Last login: Tue Aug 31 15:33:40 2021 from 192.168.2.106
```

1) Enter the following command in the terminal

```
ssh jetson@192.168.2.103
```

2) Then enter [yes], 3) Enter the password [yahboom]

- copy file

If jetson's IP is 192.168.2.103, username: jetson; virtual machine username: yahboom

```
scp jetson@192.168.2.103:/home/jetson/xxx.tar.gz /home/yahboom/ # Copy files
from remote to local (file)
scp /home/yahboom/xxx.png jetson@192.168.2.103:/home/jetson/ # from local to
remote (file)
scp -r jetson@192.168.2.103:/home/jetson/test /home/yahboom/ # from remote to
local -r (folder)
scp -r /home/yahboom/test jetson@192.168.2.103:/home/jetson/ # from local to
remote (folder)
```

3.3. jupyter lab

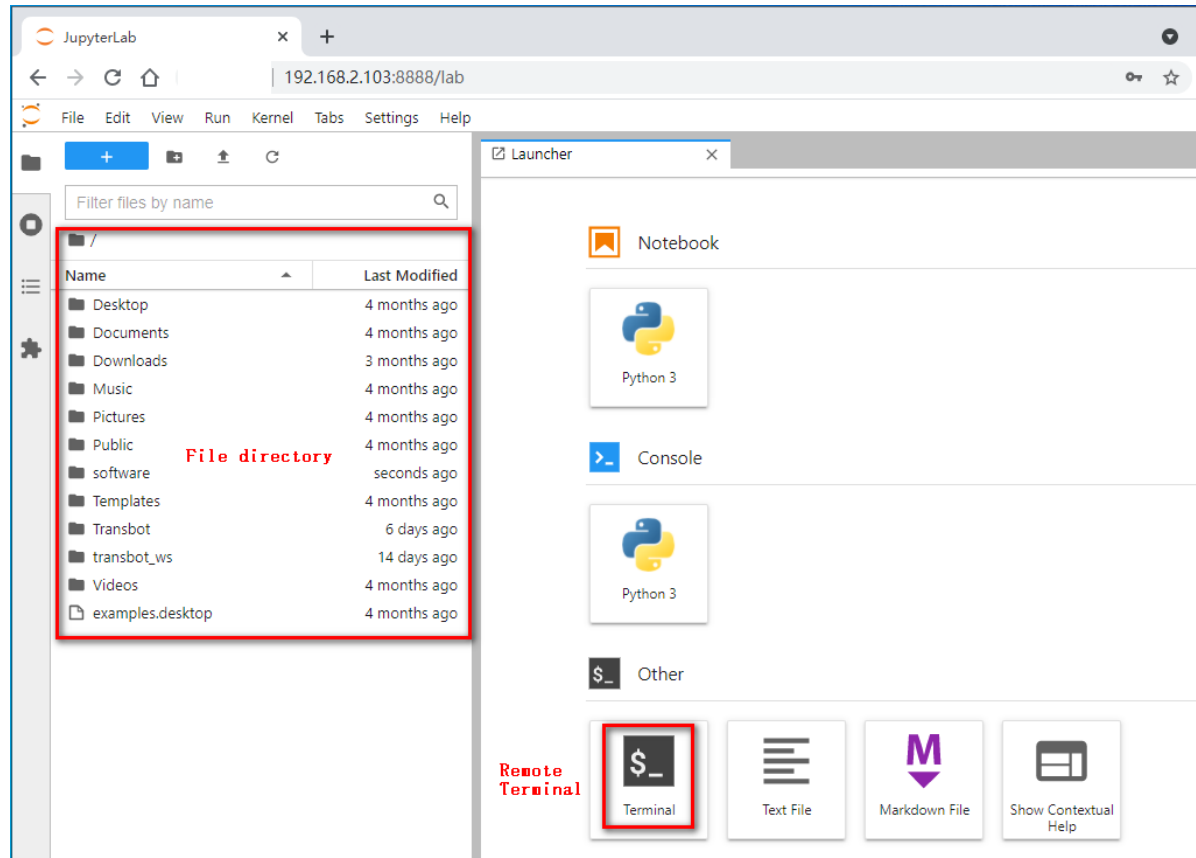
Note: The interface cannot be displayed.

A screenshot of a web browser showing the Jupyter login page. The address bar contains '192.168.2.103:8888/login?next=%2Ftab%3F'. The page has a red heading '1. Enter IP and port'. Below it, there is a 'Password:' label, a text input field containing '.....', and a 'Log in' button. Above the input field is a red label '2. password', and above the button is a red label '3. confirm'.

English input method, enter the following command, press Enter, enter the password [yahboom], and click [Log in].

```
http://192.168.2.103:8888
```

after login



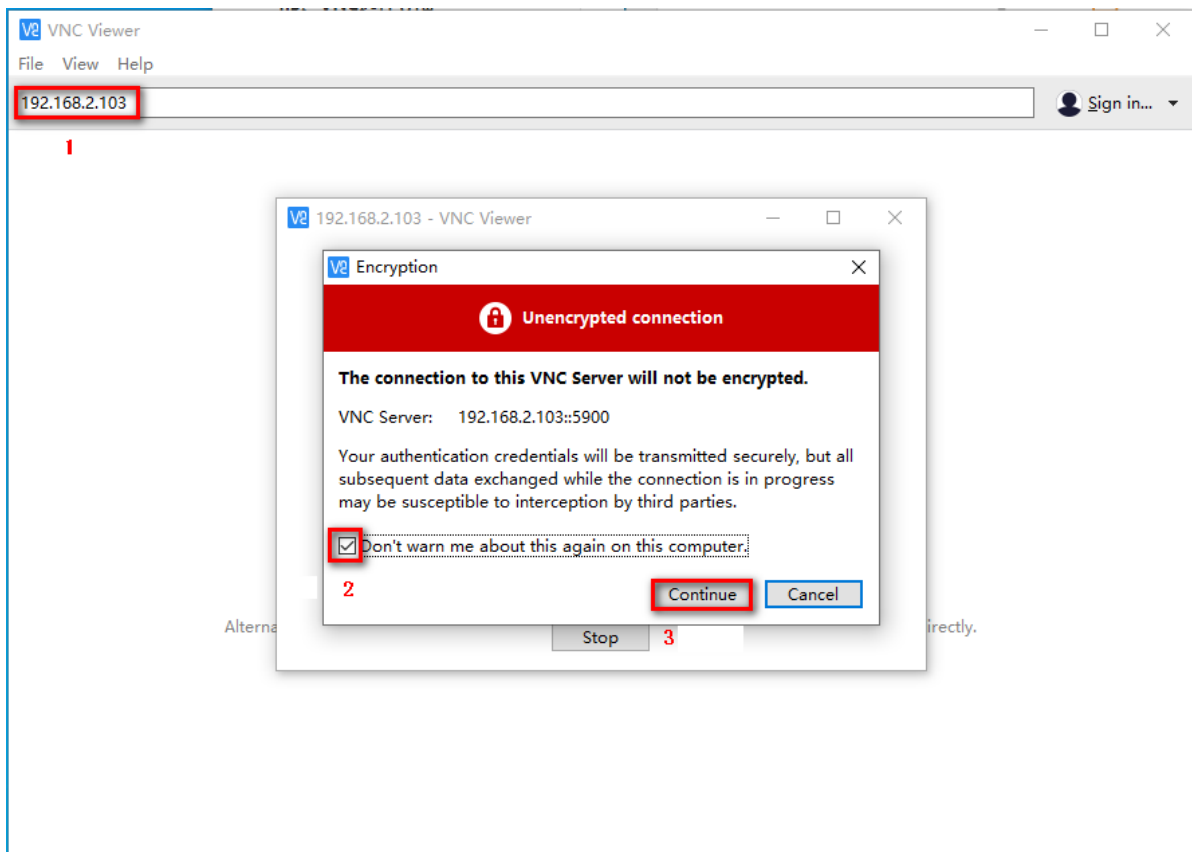
You can enter the folder, modify the contents of the file directly, click [Terminal] under [Other], enter the terminal, and execute the required command.

3.4. VNC

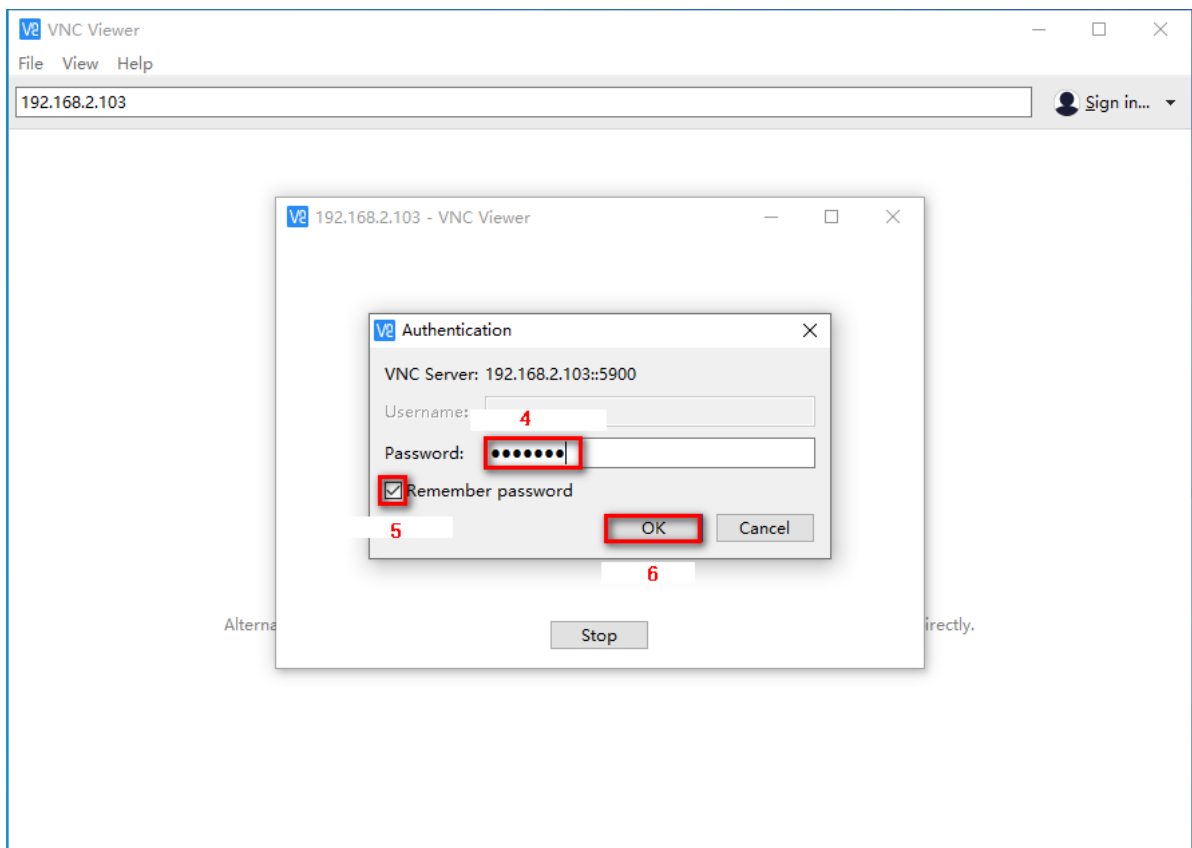
Note: The interface can be displayed.

Enter the relevant link at the top, download the installation file, and double-click the [.exe] file to install.

The login steps are as shown in the picture. To use the vnc viewer software for VNC connection, you first need to query the IP address. What I found here is [192.168.2.103]. After entering the IP address, click [Enter] on the keyboard.



Enter the corresponding VNC user and enter the password [yahboom], select Remember password, and click [OK] to enter the VNC interface. The next time the IP remains unchanged, you do not need to enter the password again.



Adjust resolution

- Jetson nano

Use the command line to adjust as needed, it is only valid for this startup. Open a terminal and enter the following command

```
xrandr --fb 1920x1080
```

- raspberry pie

Modify the [config.txt] file to be permanently valid. Open a terminal and enter the following command

```
sudo vim /boot/firmware/config.txt
```

For example, add it at the bottom (set the resolution to 1920x1080)

```
hdmi_force_hotplug = 1
config_hdmi_boost = 4
hdmi_group = 2
hdmi_mode = 82
hdmi_drive = 2
hdmi_ignore_edid = 0xa5000080
disable_overscan = 1
```

```
device_tree_address=0x03000000
# The following settings are "defaults" expected to be overridden by the
# included configuration. The only reason they are included is, again, to
# support old firmwares which don't understand the "include" command.

enable_uart=1
cmdline=nobtcmd.txt

include syscfg.txt
include usercfg.txt

hdmi_force_hotplug=1
config_hdmi_boost=4
hdmi_group=2
hdmi_mode=82
hdmi_drive=2
hdmi_ignore_edid=0xa5000080
disable_overscan=1
```

For the introduction of configuration parameters, please refer to the blog:

<https://blog.csdn.net/coolwriter/article/details/77719003>

3.5. WinSCP

Go to the top related link, download the installation file, and double-click the [.exe] file to install. Double-click the icon below to open the WinSCP software



This time the robot IP [192.168.2.93], username [jetson], password [yahboom].

If the login dialog box does not pop up, click [New Session] in the upper left part, enter the host name (H), user name, and password in turn, and click Login.

An example of a successful login is as follows

C:\Users\Administrator\Desktop\				/home/jetson/			
名字	大小	类型	已改变	名字	大小	已改变	权限
..		上级目录	2022/2/11 14:51:46	..		2021/12/11 10:38:34	rwxxr-xr-x
3研发部 (yahboomr...	2 KB	快捷方式	2021/2/27 6:25:09	Desktop		2021/12/11 10:40:17	rwxxr-xr-x
360安全卫士.lnk	2 KB	快捷方式	2021/2/25 14:20:40	Documents		2021/12/11 10:40:16	rwxxr-xr-x
360软件管家.lnk	3 KB	快捷方式	2022/2/11 19:08:50	Downloads		2021/12/11 10:40:16	rwxxr-xr-x
advanced_ip_scann...	2 KB	快捷方式	2021/2/26 14:15:58	Music		2021/12/11 10:40:16	rwxxr-xr-x
balenaEtcher.lnk	3 KB	快捷方式	2021/12/3 15:24:27	Pictures		2021/12/11 10:40:16	rwxxr-xr-x
Beyond Compare 2...	1 KB	快捷方式	2021/9/6 17:02:16	Public		2021/12/11 10:40:16	rwxxr-xr-x
Delta-3A.exe.lnk	1 KB	快捷方式	2021/12/17 9:28:29	Rosmaster		2021/12/24 19:01:58	rwxxrwxxr-x
DiskGenius.exe.lnk	2 KB	快捷方式	2021/3/1 15:43:36	software		2022/2/14 18:33:26	rwxxrwxxr-x
FlyMcu.exe.lnk	1 KB	快捷方式	2021/2/26 4:09:11	Templates		2021/12/11 10:40:16	rwxxr-xr-x
frame_grabber.exe...	1 KB	快捷方式	2021/12/17 9:28:11	Videos		2021/12/11 10:40:16	rwxxr-xr-x
FSCapture.exe.lnk	1 KB	快捷方式	2021/8/31 15:42:23	yahboomcar_ws		2022/2/10 17:54:35	rwxxrwxxr-x
Google Chrome.lnk	3 KB	快捷方式	2022/2/10 9:29:26	examples.desktop	9 KB	2021/12/11 10:38:34	rw-r--r--
Keil uVision5.LNK	1 KB	快捷方式	2021/3/30 10:03:28				
putty.exe.lnk	2 KB	快捷方式	2021/6/2 18:51:28				
QQ浏览器.lnk	2 KB	快捷方式	2021/2/26 2:43:04				
rpi-imager.exe.lnk	2 KB	快捷方式	2021/11/16 18:11:35				
SDFormatter.exe.lnk	2 KB	快捷方式	2021/7/14 9:02:17				

- Transfer files from computer to robot [jetson nano]

Just select the file (folder) that needs to be transferred and drag it to the right, then the column of [/home/jetson/],

- Robot 【jetson nano】 transfer files to computer

Just select the file (folder) that needs to be transferred and drag it to the left, the column of [C:], or drag it directly to the desktop.