2.Environment setup

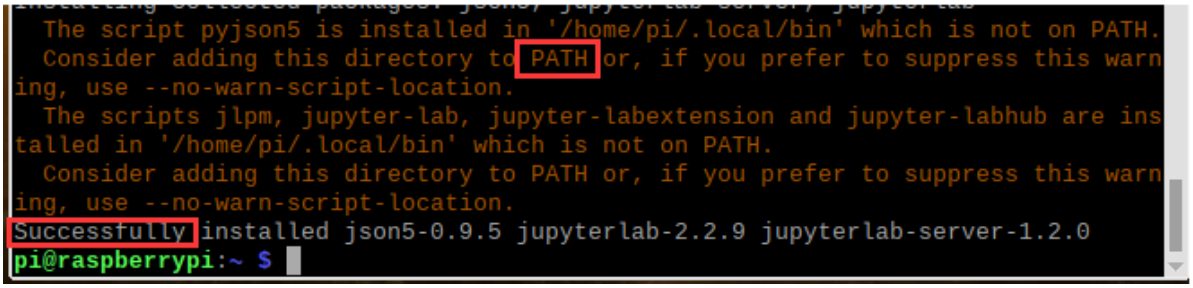
1. Jupyter Lab installation

During the installation, some dependent packages need to be downloaded from the external network. Occasionally, the connection may be disconnected, causing the installation to fail. You can execute the installation instructions again and continue the installation from the breakpoint.

```
pip3 install jupyterlab -i https://pypi.tuna.tsinghua.edu.cn/simple
```

2. Add Jupyter Lab path

When successfully appears, it means that the Jupyter Lab installation is complete, but it should be noted that the above alarm message indicates that the path was not found. If this problem is not resolved, Jupyter Lab cannot be used.

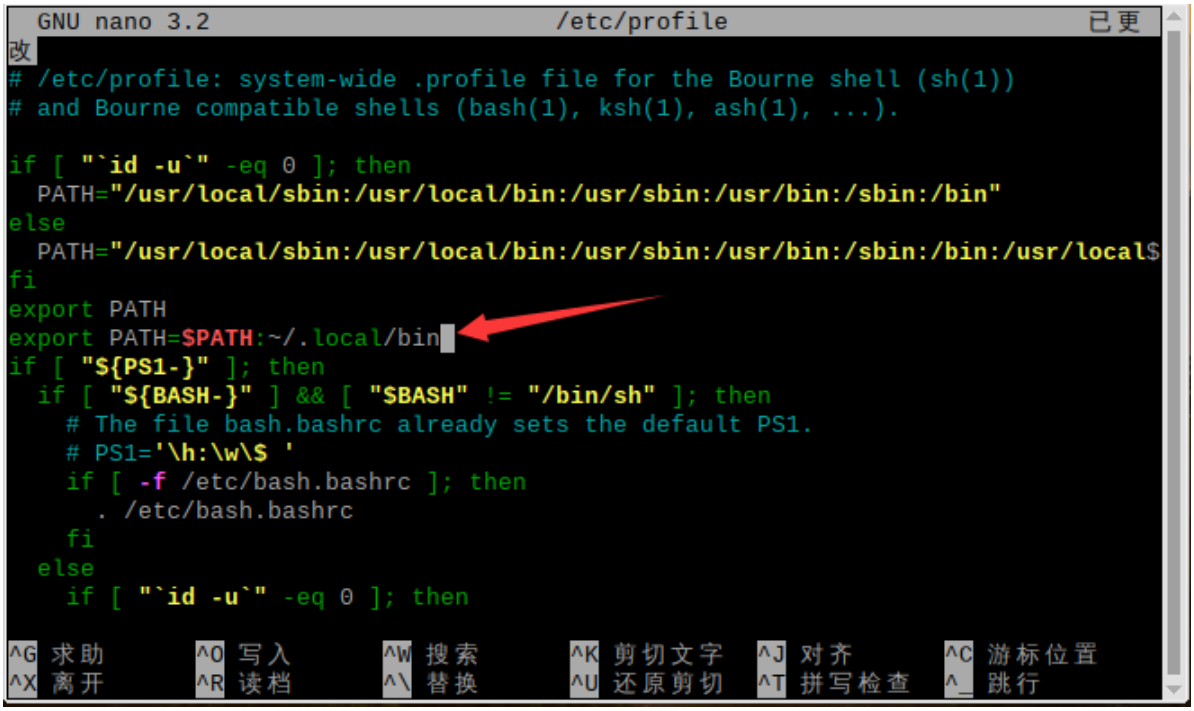


Modify profile configuration file

```
sudo nano /etc/profile
```

Add configuration instructions, as shown in the figure

```
export PATH=$PATH:~/.local/bin
```



After writing, press Ctrl+S to save, and then press Ctrl+X to exit.

Then enter the following command

```
source /etc/profile
```

Start jupyterlab. After starting, the browser will automatically pop up the jupyterlab interface.

```
jupyter lab
```

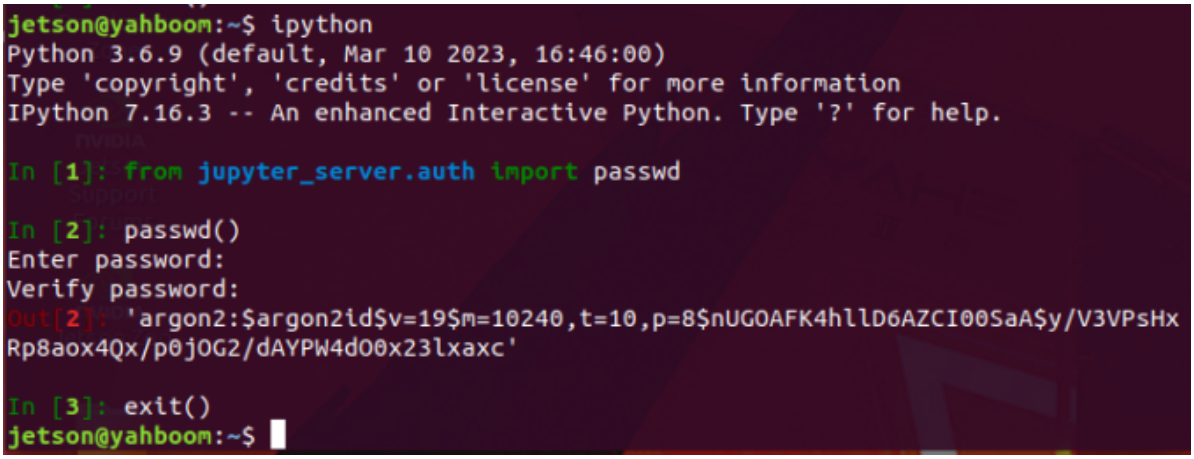
3. Set up the LAN to access Jupyter Lab

If you want to make it run on other devices on the same LAN, you need to follow the following process

1. Generate key

Open the terminal and enter the following contents in sequence, and then enter the password twice as prompted. It is recommended that it be consistent with the user password.

```
ipython
from jupyter_server.auth import passwd
passwd()
```



Once the password is confirmed, a key will be generated. Copy this key and enter the following command to exit.

```
exit()
```

2. Create configuration file

After creation, the detailed location of the file will be output, please remember this location.

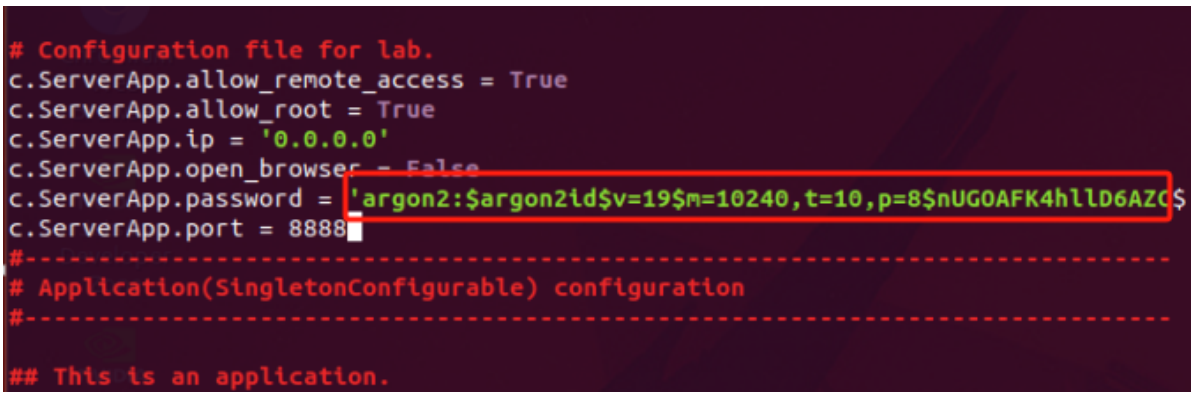
```
jupyter lab --generate-config
```

3.Modify configuration file

```
nano ~/.jupyter/jupyter_lab_config.py
```

Add the following content, where the password item needs to be replaced with the key generated above.

```
c.ServerApp.allow_remote_access = True
c.ServerApp.allow_root = True
c.ServerApp.ip = '0.0.0.0'
c.ServerApp.open_browser = False
c.ServerApp.password =
'argon2:$argon2id$v=19$m=10240,t=10,p=8$nUGOAFK4hllD6AZCI00SaA$y/V3VPsHxRp8aox4Q
x/pOjOG2/dAYPW4dO0x23lxaxc'
c.ServerApp.port = 8888
```



After writing, press Ctrl+S to save, and then press Ctrl+X to exit.

Restart the system

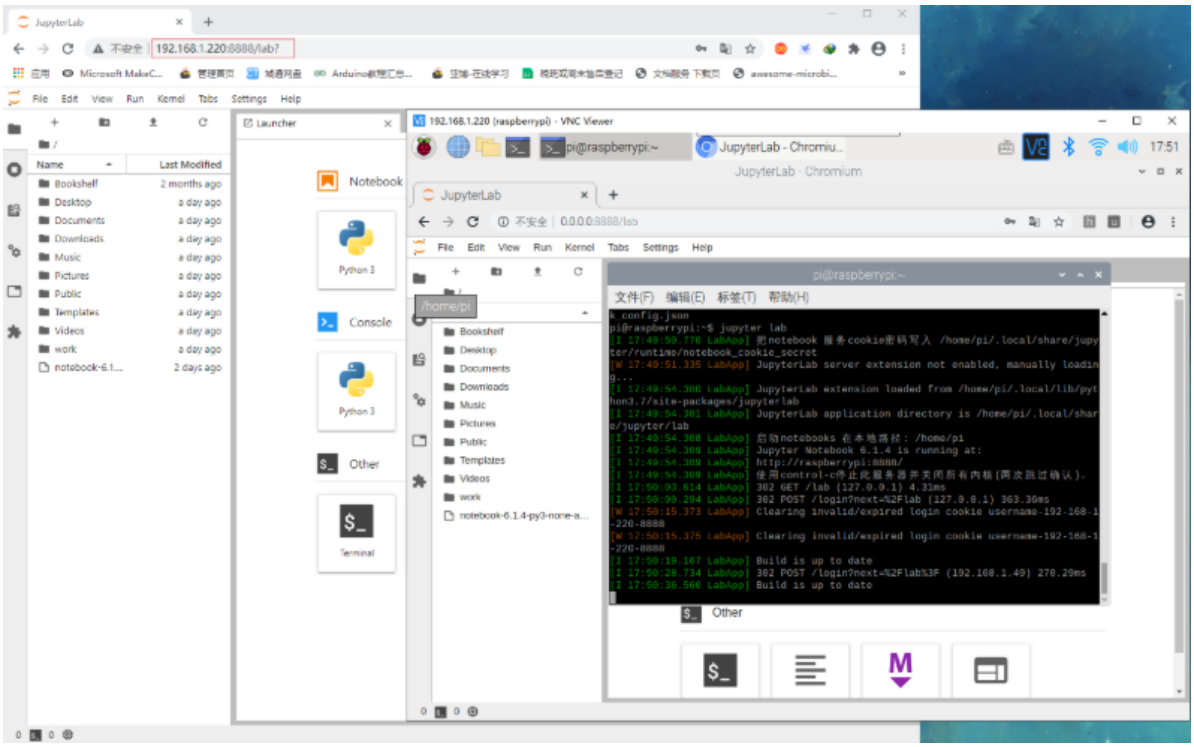
```
sudo reboot
```

5. Run the test

```
jupyter lab
```

You can access http://127.0.0.1:8888 in a local browser or http://< your-ip-address >:8888 on a machine in the LAN, and then enter the password you set to operate on the web page. of robots.

For example: If the robot's address is 192.168.1.220, then the machine in the LAN should access http://192.168.1.220:8888 as shown below:



4. Configure Jupyter Lab to start automatically at boot

After the installation is completed, under normal circumstances, every time you use JupyterLab, you need to enter the command jupyter lab to start. For convenience, we configure the auto-start program at boot. Here's how to do it:

1.Create startup files

```
sudo vim /etc/systemd/system/yahboom_jupyterlab.service
```

1.Copy the code to the file, save and exit

jetson nano system service files

```
[Unit]
Description=Jupyter Lab Service

[Service]
Type=simple
User=jetson
Environment="OPENBLAS_CORETYPE=ARMV8"
ExecStart=/bin/sh -c "jupyter lab --ip=0.0.0.0 --no-browser"
WorkingDirectory=/home/jetson
Restart=always

[Install]
WantedBy=multi-user.target
```

Raspberry Pi system service files

```
[Unit]
Description=Jupyter Lab Service

[Service]
Type=simple
User=pi
Environment="OPENBLAS_CORETYPE=ARMV8"
ExecStart=/bin/sh -c "jupyter lab --ip=0.0.0.0 --no-browser"
WorkingDirectory=/home/pi
Restart=always

[Install]
WantedBy=multi-user.target
```

After writing, press Ctrl+S to save, and then press Ctrl+X to exit.

3. Enable the service to start automatically at boot

```
sudo systemctl daemon-reload
sudo systemctl enable yahboom_jupyterlab.service
sudo systemctl restart yahboom_jupyterlab.service
```

4. Restart the system

```
sudo reboot
```