

9. Jupyter Lab plugin installation

9. Jupyter Lab plugin installation

1. Install Node.js
2. Enable plugins
3. Install extension packages

Installing plugins can enhance the functionality of Jupyter Lab and provide more tools and features.

1. Install Node.js

- Check the architecture of the Raspberry Pi

```
uname -a
```

```
yahboom@raspberrypi:~$ uname -a
Linux raspberrypi 6.1.0-rpi7-rpi-2712 #1 SMP PREEMPT Debian 1:6.1.63-1+rpt1 (2023-11-24) aarch64 GNU/Linux
```

Select the Node.js version for the ARMv8 architecture for installation




- Download Node.js

```
https://nodejs.org/en/download/
```

Downloads

Latest LTS Version: 20.10.0 (includes npm 10.2.3)

Download the Node.js source code or a pre-built installer for your platform, and start developing today.

| LTS Recommended For Most Users | Current Latest Features |
|---|---|
|  Windows Installer <small>node-v20.10.0-x64.msi</small> |  macOS Installer <small>node-v20.10.0.pkg</small> |
|  Source Code <small>node-v20.10.0.tar.gz</small> | |

Windows Installer (.msi)

Windows Binary (.zip)

macOS Installer (.pkg)

macOS Binary (.tar.gz)

Linux Binaries (x64)

Linux Binaries (ARM)

Source Code

| | | |
|----------------------|--------|-------|
| 32-bit | 64-bit | ARM64 |
| 32-bit | 64-bit | ARM64 |
| 64-bit / ARM64 | | |
| 64-bit | ARM64 | |
| 64-bit | | |
| ARMv7 | ARMv8 | |
| node-v20.10.0.tar.gz | | |

Additional Platforms

Docker Image

Linux on Power LE Systems

Linux on System z

AIX on Power Systems

| | |
|-------------------------------|--------|
| Official Node.js Docker Image | |
| | 64-bit |
| | 64-bit |
| | 64-bit |

- Unzip

Download the latest version of the binary file from the official website, unzip it, and name the folder node folder:

```
cd Downloads/
tar -xjf node-v20.10.0-linux-arm64.tar.xz
mv -i node-v20.10.0-linux-arm64 node
```

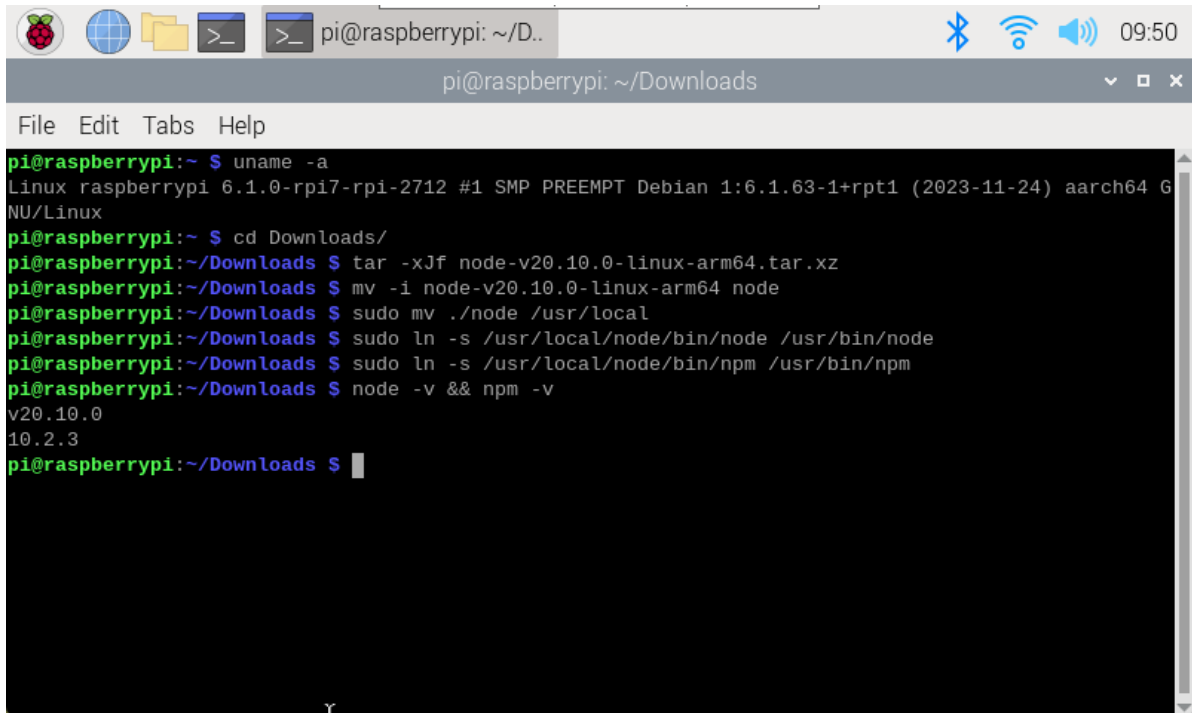
```
yahboom@raspberrypi:~ $ cd Downloads/
yahboom@raspberrypi:~/Downloads $ ls
node-v20.10.0-linux-arm64.tar.xz
yahboom@raspberrypi:~/Downloads $ tar -xjf node-v20.10.0-linux-arm64.tar.xz
yahboom@raspberrypi:~/Downloads $ mv -i node-v20.10.0-linux-arm64 node
yahboom@raspberrypi:~/Downloads $ ls
node node-v20.10.0-linux-arm64.tar.xz
```

- Move the binary file and add a soft link

```
sudo mv ./node /usr/local
sudo ln -s /usr/local/node/bin/node /usr/bin/node
sudo ln -s /usr/local/node/bin/npm /usr/bin/npm
```

- Check if node and npm are installed successfully

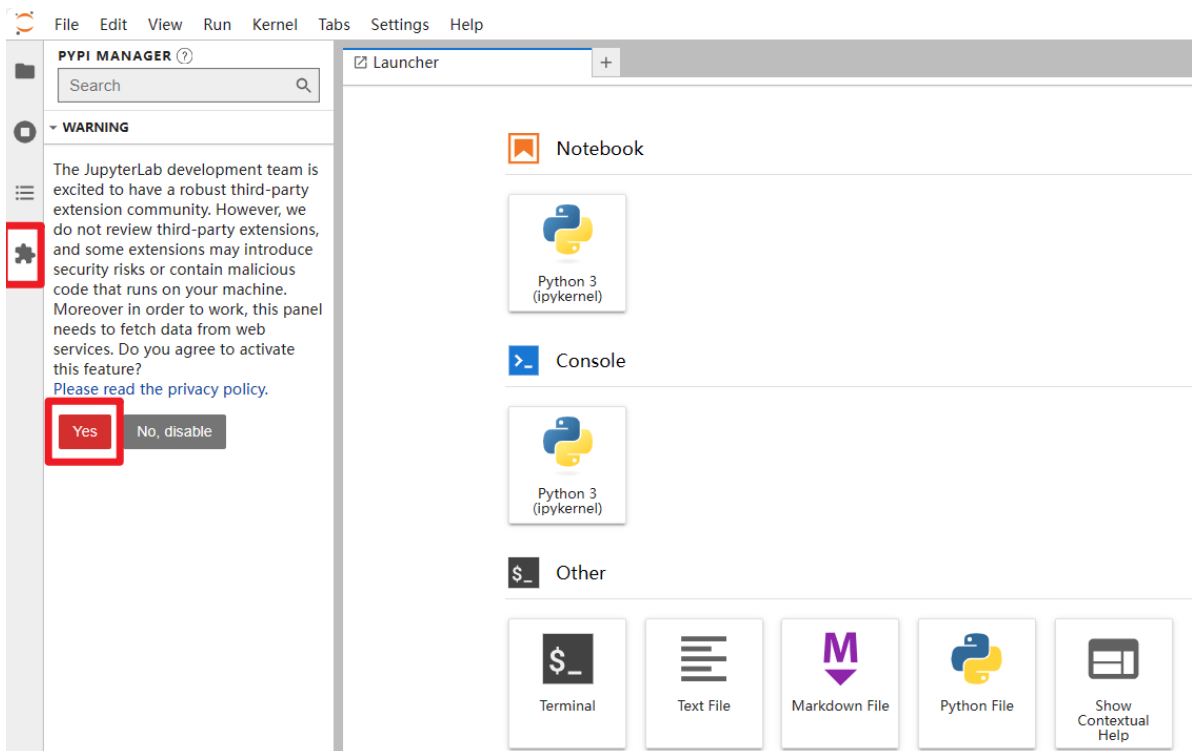
```
node -v && npm -v
```

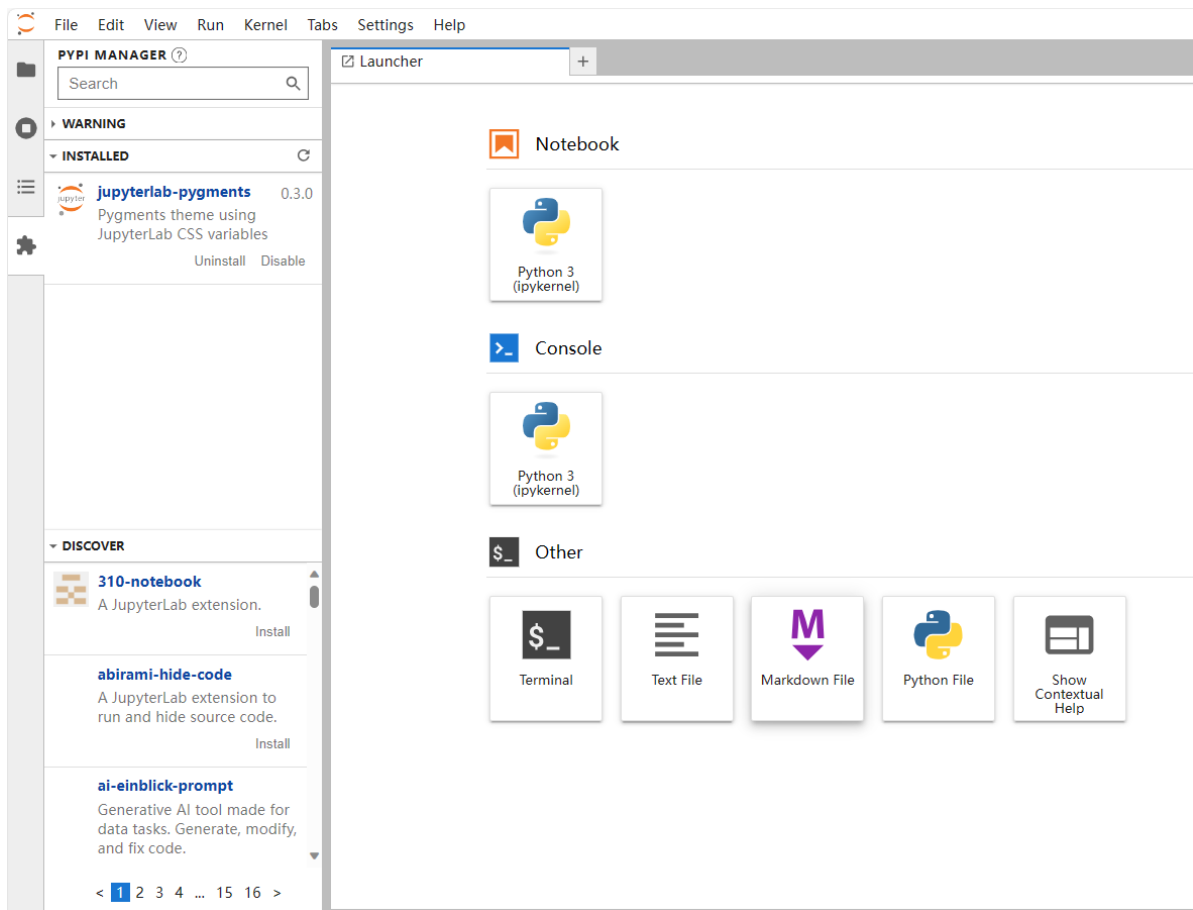


```
pi@raspberrypi: ~/Downloads
File Edit Tabs Help
pi@raspberrypi:~$ uname -a
Linux raspberrypi 6.1.0-rpi7-rpi-2712 #1 SMP PREEMPT Debian 1:6.1.63-1+rpt1 (2023-11-24) aarch64 GNU/Linux
pi@raspberrypi:~$ cd Downloads/
pi@raspberrypi:~/Downloads$ tar -xJf node-v20.10.0-linux-arm64.tar.xz
pi@raspberrypi:~/Downloads$ mv -i node-v20.10.0-linux-arm64 node
pi@raspberrypi:~/Downloads$ sudo mv ./node /usr/local
pi@raspberrypi:~/Downloads$ sudo ln -s /usr/local/node/bin/node /usr/bin/node
pi@raspberrypi:~/Downloads$ sudo ln -s /usr/local/node/bin/npm /usr/bin/npm
pi@raspberrypi:~/Downloads$ node -v && npm -v
v20.10.0
10.2.3
pi@raspberrypi:~/Downloads$
```

2. Enable plugins

Turn on third-party extension support in Jupyter Lab.





3. Install extension packages

```
pip3 install ipywidgets
```

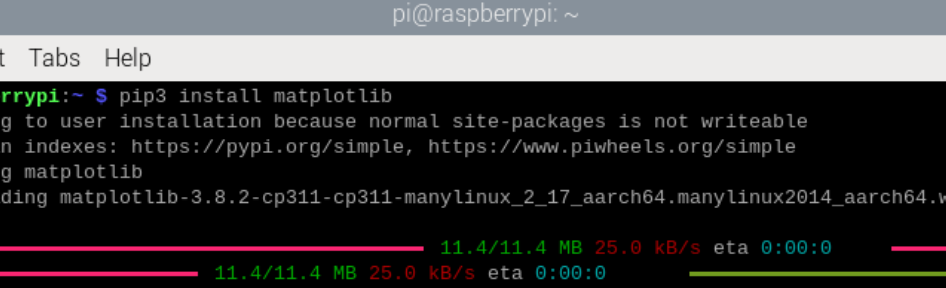
Provides the ability to create interactive widgets in Jupyter Lab.

```

pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~ $ pip3 install ipywidgets
Defaulting to user installation because normal site-packages is not writeable
Looking in indexes: https://pypi.org/simple, https://www.piwheels.org/simple
Collecting ipywidgets
  Downloading https://www.piwheels.org/simple/ipywidgets/ipywidgets-8.1.1-py3-none-any.whl (139 kB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 139.4/139.4 kB 241.6 kB/s eta 0:00:00
Requirement already satisfied: comm>=0.1.3 in /usr/local/lib/python3.11/dist-packages (from ipywidgets) (0.2.0)
Requirement already satisfied: ipython>=6.1.0 in /usr/local/lib/python3.11/dist-packages (from ipywidgets) (8.18.1)
Requirement already satisfied: traitlets>=4.3.1 in /usr/local/lib/python3.11/dist-packages (from ipywidgets) (5.14.0)
Collecting widgetsnbextension~=4.0.9
  Downloading https://www.piwheels.org/simple/widgetsnbextension/widgetsnbextension-4.0.9-py3-none-any.whl (2.3 MB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 2.3/2.3 MB 2.5 MB/s eta 0:00:00
Collecting jupyterlab-widgets~=3.0.9
  Downloading https://www.piwheels.org/simple/jupyterlab-widgets/jupyterlab_widgets-3.0.9-py3-none-any.whl (214 kB)
    ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 214.9/214.9 kB 7.9 MB/s eta 0:00:00
Requirement already satisfied: decorator in /usr/local/lib/python3.11/dist-packages (from ipython>=6.1.0 to ipywidgets) (5.1.1)

```

```
pip3 install matplotlib
```



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi1:~ $ pip3 install matplotlib  
Defaulting to user installation because normal site-packages is not writeable  
Looking in indexes: https://pypi.org/simple, https://www.piwheels.org/simple  
Collecting matplotlib  
  Downloading matplotlib-3.8.2-cp311-cp311-manylinux_2_17_aarch64.whl (11.4 MB)  
    11.4/11.4 MB 25.0 kB/s eta 0:00:00  
Collecting contourpy>=1.0.1  
  Downloading contourpy-1.2.0-cp311-cp311-manylinux_2_17_aarch64.whl (294 kB)  
    294.1/294.1 kB 21.3 kB/s eta 0:00:00  
Collecting cycler>=0.10  
  Downloading https://www.piwheels.org/simple/cycler/cycler-0.12.1-py3-none-any.whl (8.3 kB)  
Collecting fonttools>=4.22.0  
  Downloading fonttools-4.47.0-cp311-cp311-manylinux_2_17_aarch64.whl (4.8 MB)  
    4.8/4.8 MB 20.3 kB/s eta 0:00:00  
Collecting kiwisolver>=1.3.1  
  Downloading kiwisolver-1.4.5-cp311-cp311-manylinux_2_17_aarch64.whl (1.4 MB)  
    1.4/1.4 MB 20.3 kB/s eta 0:00:00
```