

# Remote connection

## Remote connection

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### 【Note】

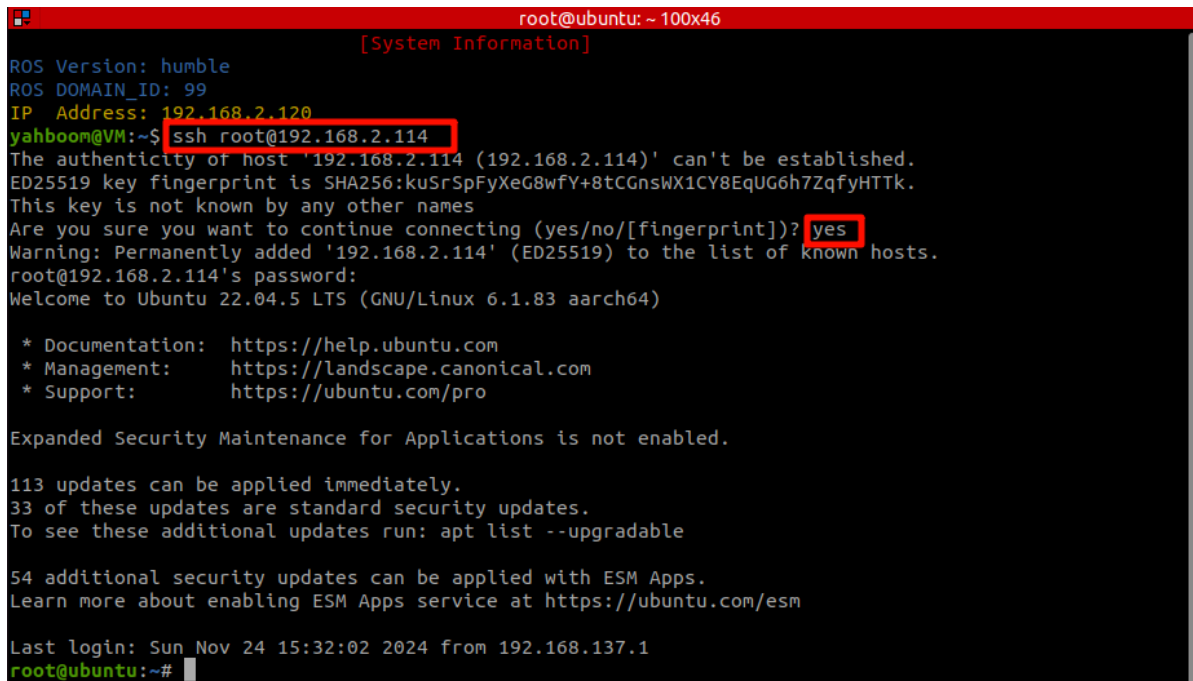
- In order to more conveniently access the directory under the sunrise user, it is recommended to log in as the sunrise user (password: yahboom)
- The robot's IP can be obtained through the OLED display.

## 3.1, Remote login

Turn on the robot power, and the robot IP will be displayed on the OLED screen. For example, my robot IP is 192.168.2.114, so open the terminal in the virtual machine and enter

```
ssh sunrise@192.168.2.114
```

Enter the password [yahboom] and press Enter to remotely connect to the robot.

A terminal window titled 'root@ubuntu: ~ 100x46' with a red header bar. The terminal shows system information for ROS Version: humble, ROS DOMAIN\_ID: 99, and IP Address: 192.168.2.120. The user 'yahboom@VM' enters the command 'ssh root@192.168.2.114'. The terminal displays a warning about the authenticity of the host '192.168.2.114' and asks for confirmation to continue connecting. The user responds with 'yes'. The terminal then shows the password prompt and the user logs in as 'root@192.168.2.114'. The terminal displays the Ubuntu 22.04.5 LTS welcome message and system updates information. The user's last login is shown as 'Sun Nov 24 15:32:02 2024 from 192.168.137.1'. The terminal prompt is 'root@ubuntu:~#'.

```
root@ubuntu: ~ 100x46
[System Information]
ROS Version: humble
ROS DOMAIN_ID: 99
IP Address: 192.168.2.120
yahboom@VM:~$ ssh root@192.168.2.114
The authenticity of host '192.168.2.114 (192.168.2.114)' can't be established.
ED25519 key fingerprint is SHA256:kuSrSpFyXeG8wFY+8tCGnsWX1CY8EqUG6h7ZqfyHTTk.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.2.114' (ED25519) to the list of known hosts.
root@192.168.2.114's password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 6.1.83 aarch64)

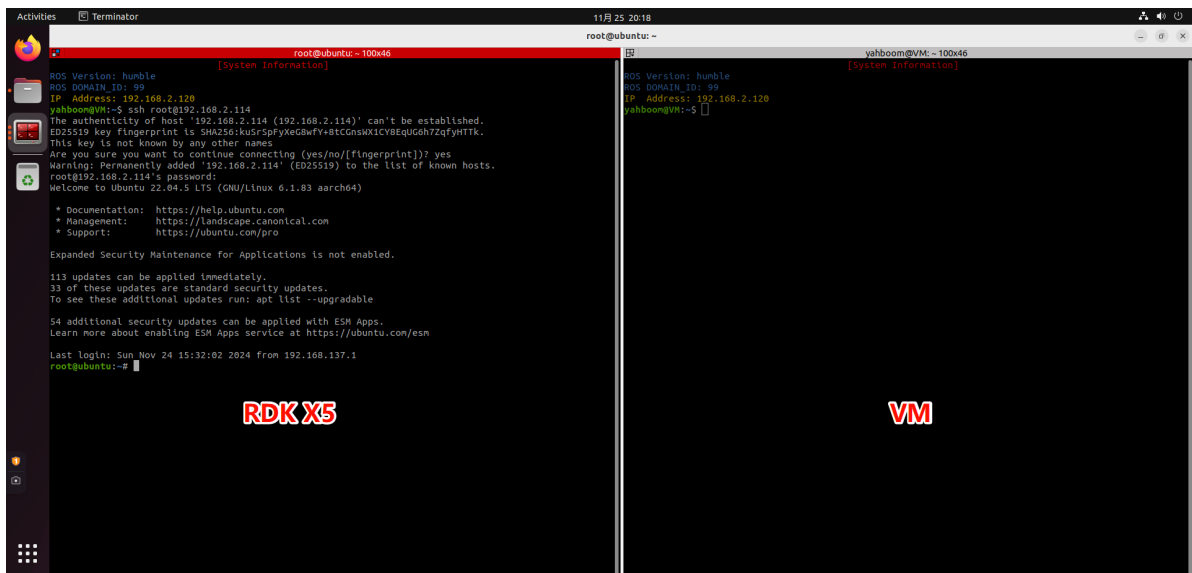
 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

Expanded Security Maintenance for Applications is not enabled.

113 updates can be applied immediately.
33 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

54 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

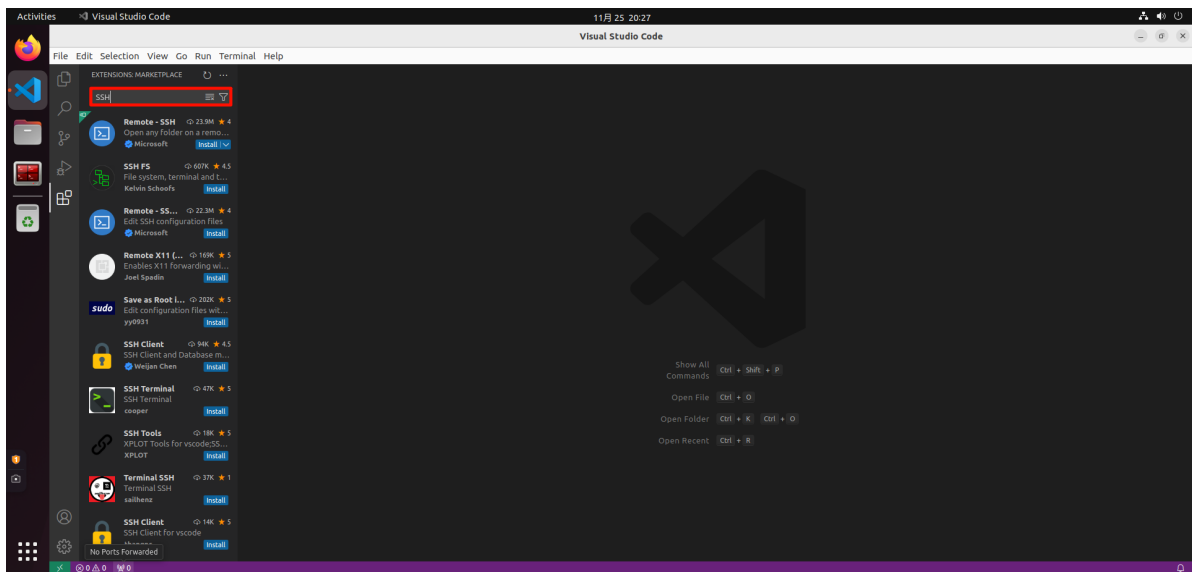
Last login: Sun Nov 24 15:32:02 2024 from 192.168.137.1
root@ubuntu:~#
```



## 3.2, VSCode

The above operation realizes SSH remote connection to the car for development. Next, build a visual development environment on the PC.

Open VSCode in the virtual machine, click the "Extension" plug-in on the left, search for "ssh", and install the "Remote - SSH" plug-in.

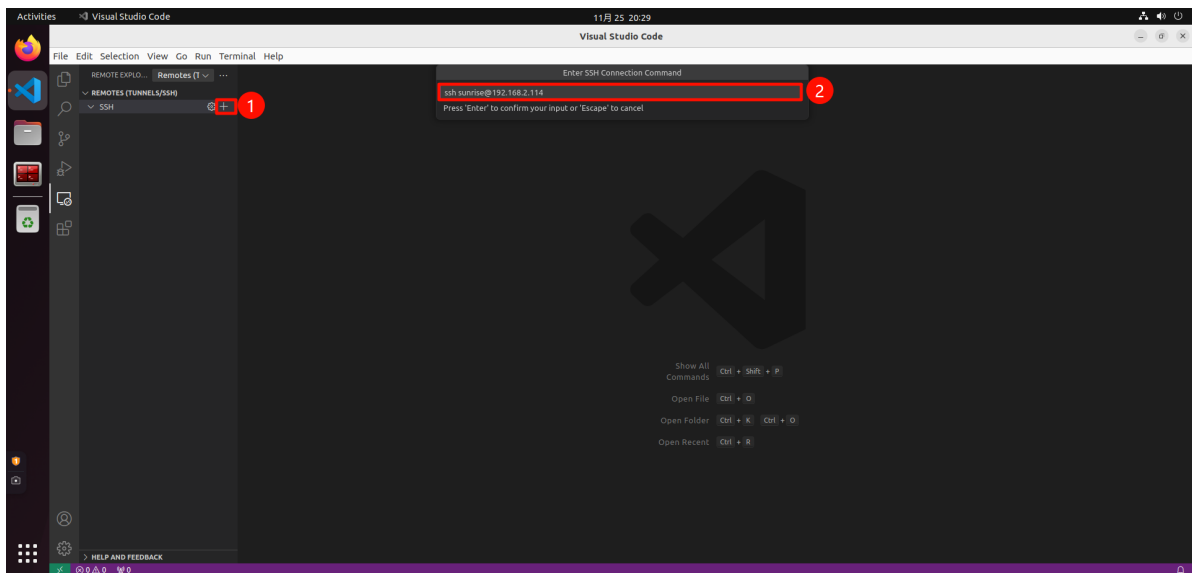


After installation, a "Remote Resource Manager" appears on the left.

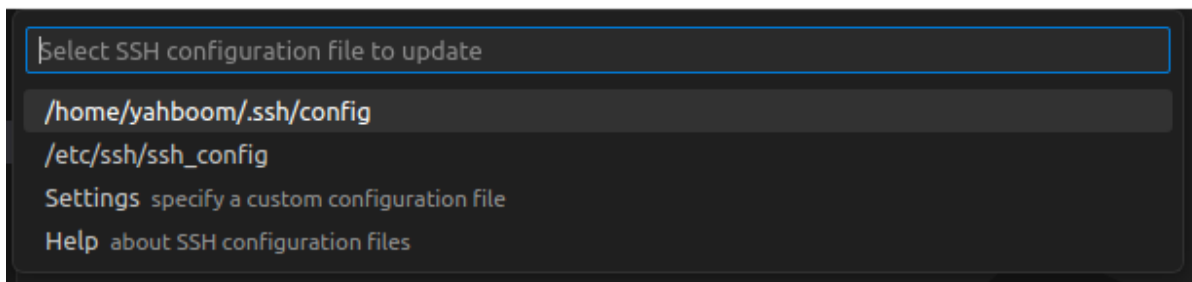
Click the "+" add button on the right side of SSH and enter

```
ssh sunrise@192.168.2.114
```

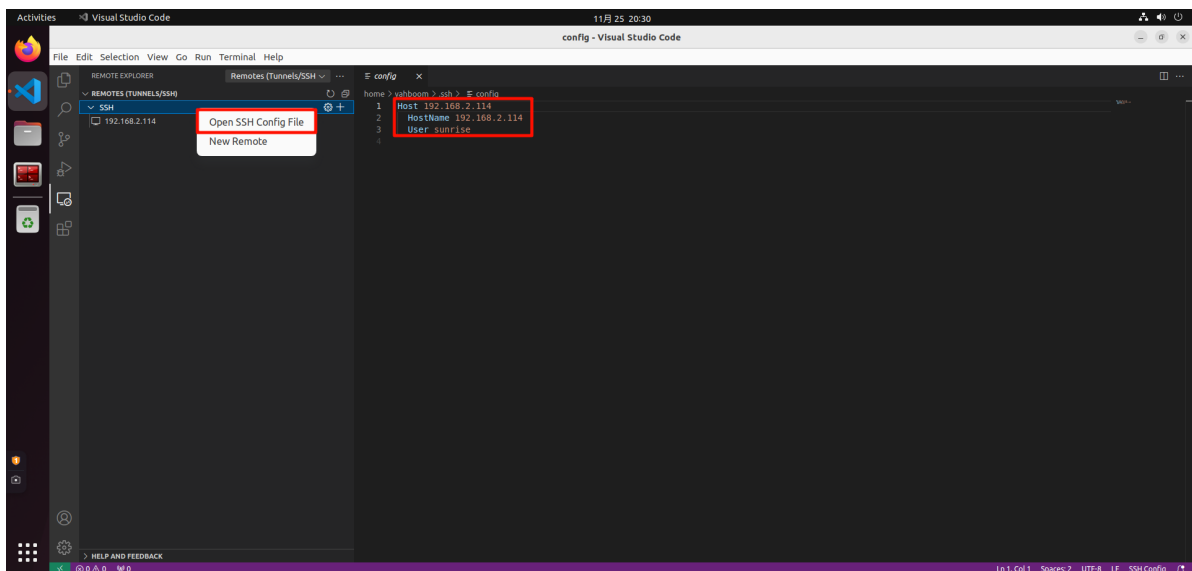
Note: Both sunrise and sunrise users can log in to the system!



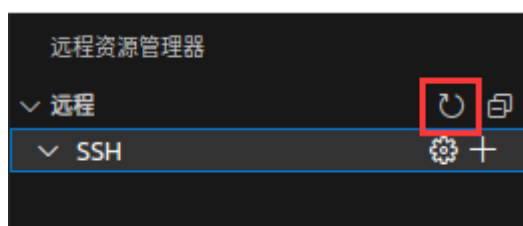
Then select the first default configuration file,



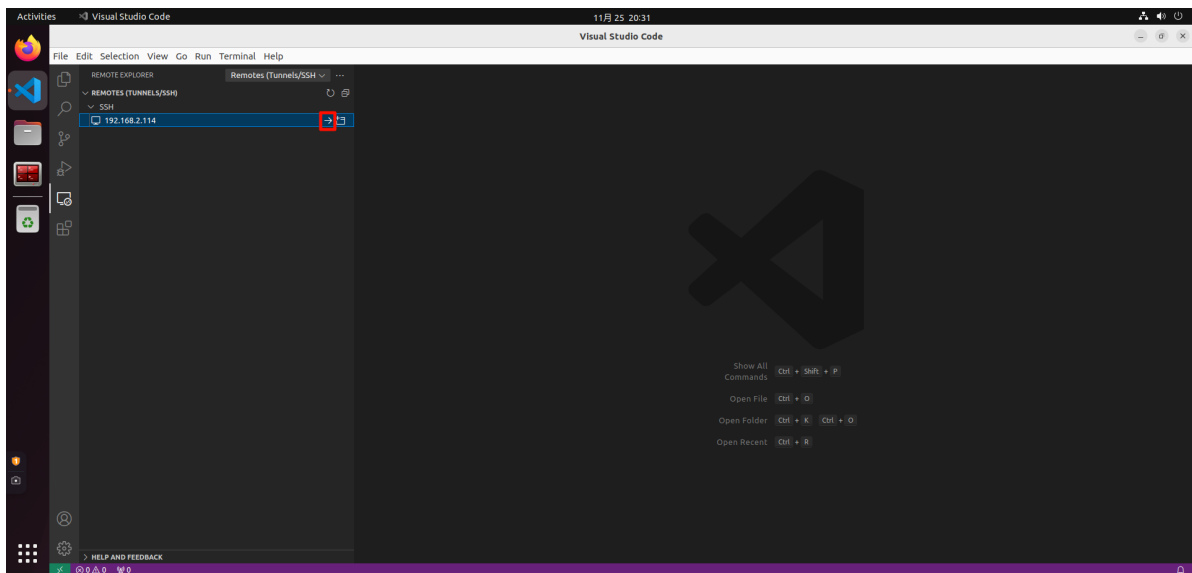
The ssh command information just entered will be saved, and you don't need to fill in the information the next time you log in remotely. At the same time, the newly added remote target IP address will appear in the list on the left.



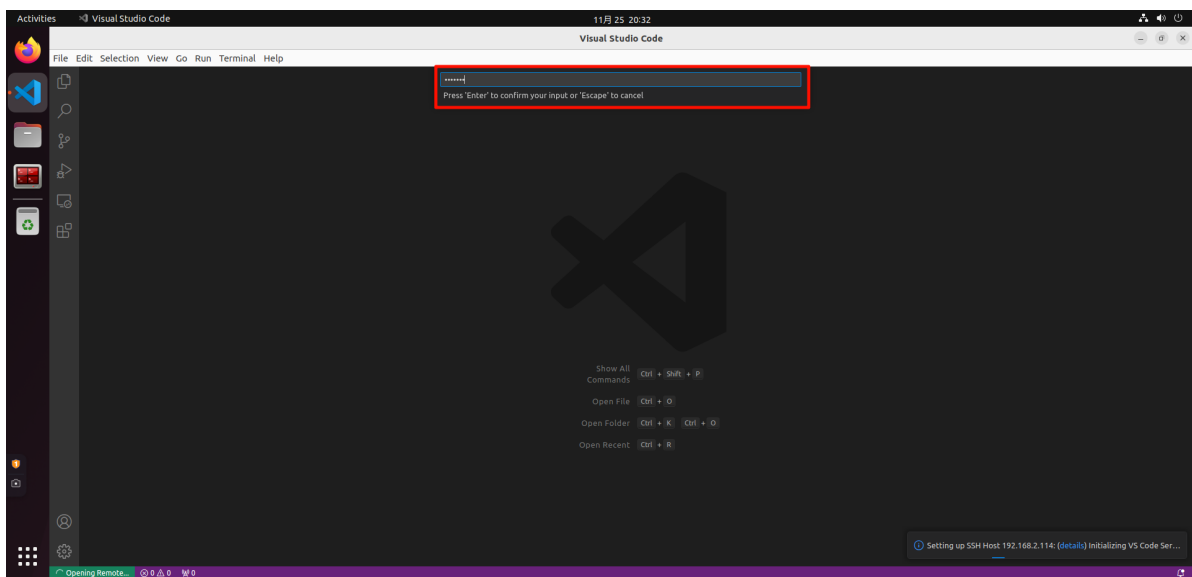
If it does not appear, you can click Refresh.



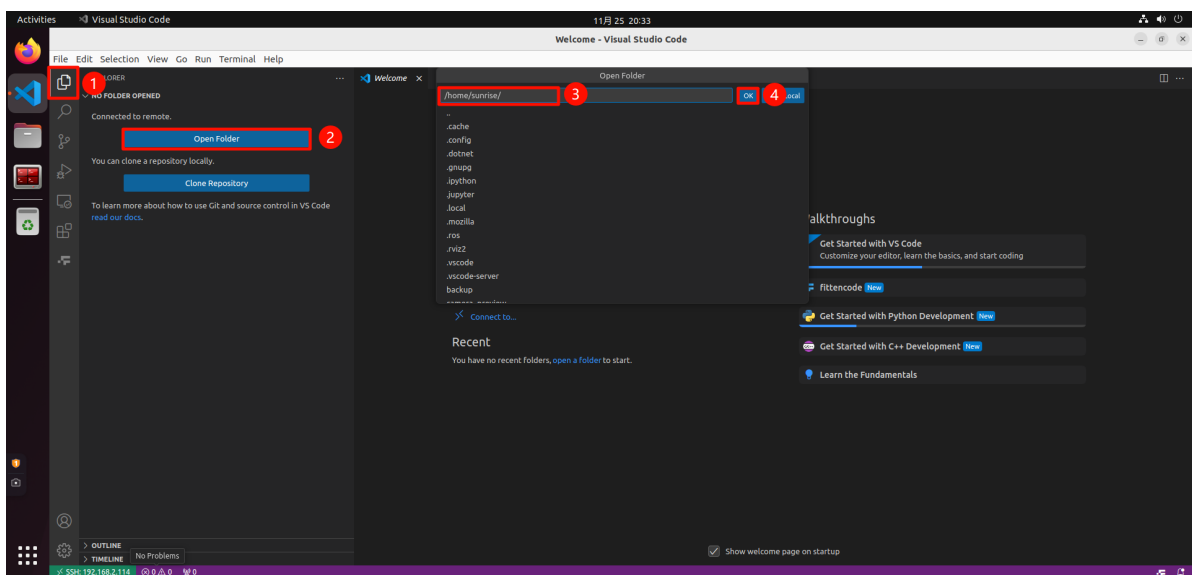
Click the arrow button to connect to the RDK mainboard in the current window.

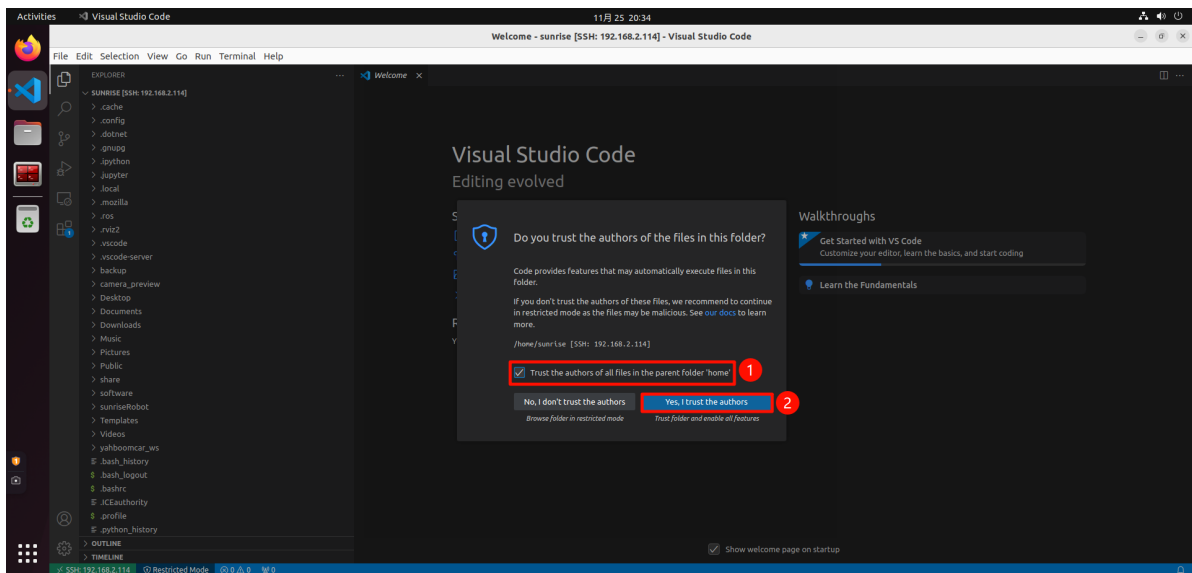


Enter the password [yahboom] and press Enter.

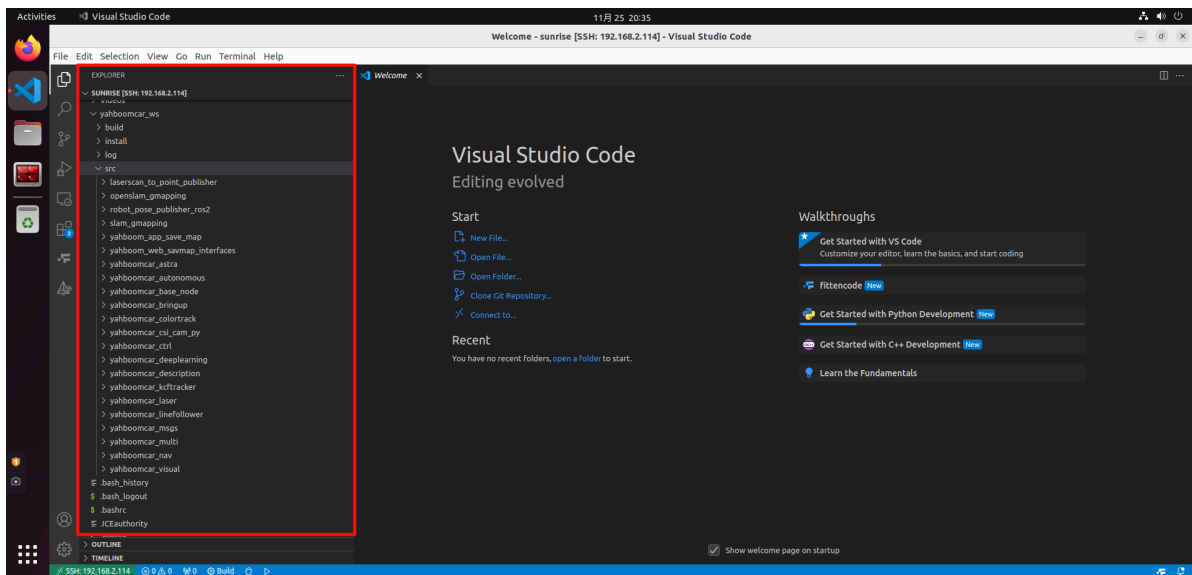


Shows that it has been connected to the remote. Click [Open Folder], enter the folder of the car, and click [OK]

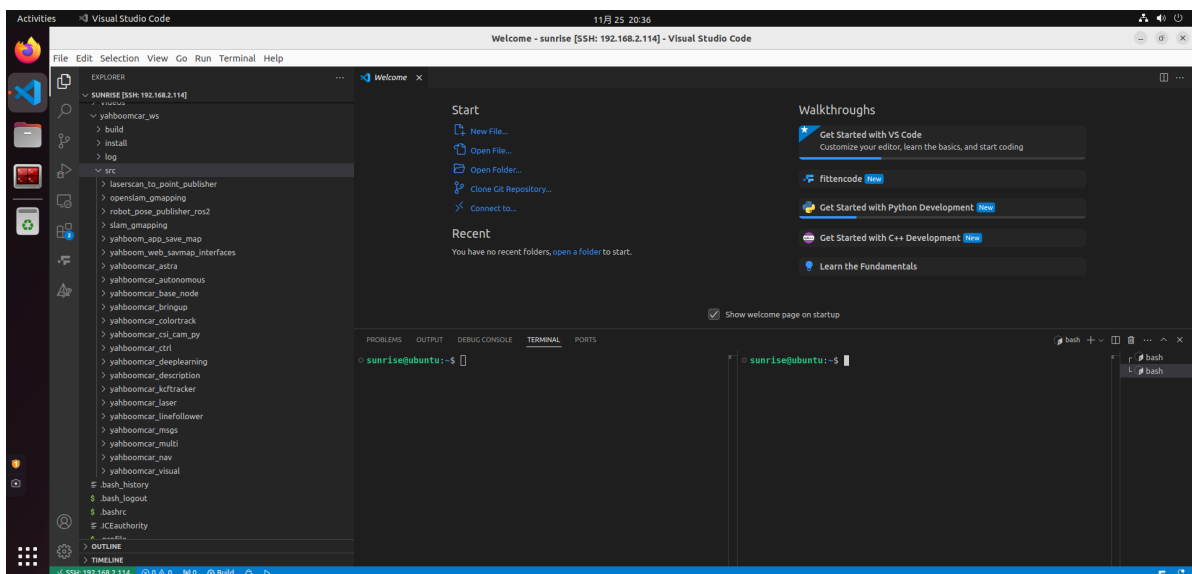




This way you can remotely access the code on the car. After modification, it will be synchronized to the car side, and you can compile and run it yourself.



In addition, you can start multiple terminals in the successfully connected VSCode to run related commands.



## 3.3, Transfer files

### 3.3.1 Virtual machine and RDK motherboard

If the IP of RDK motherboard is [192.168.2.114], the user name is [sunrise], and the password is [yahboom];

The virtual machine user name is [yahboom].

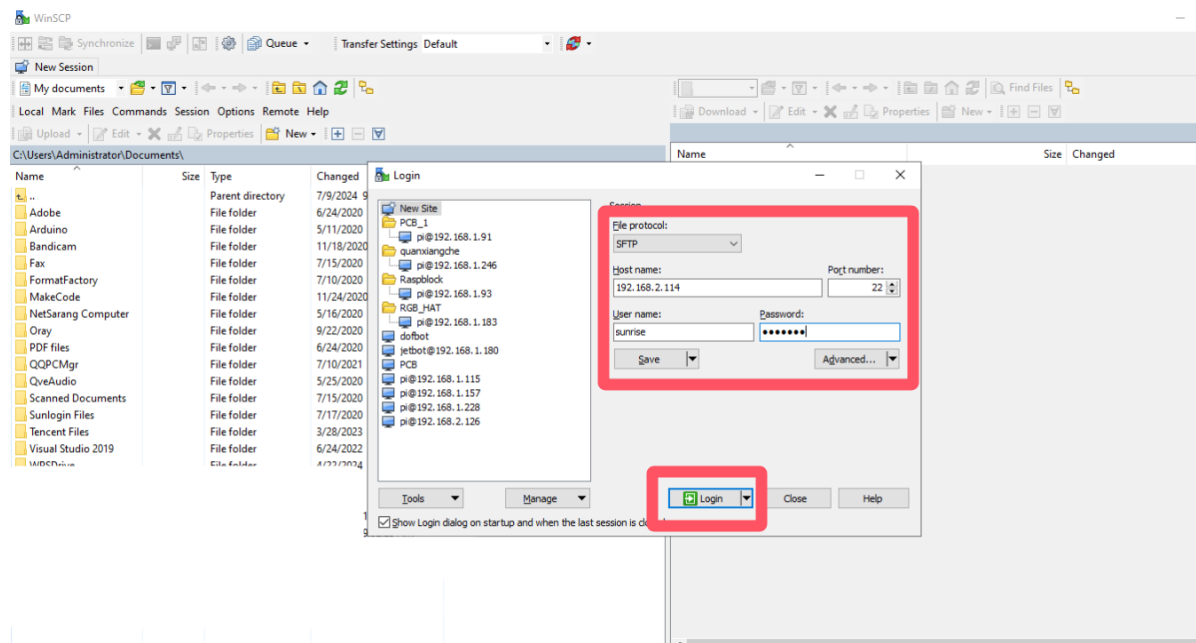
```
scp sunrise@192.168.2.114:/home/sunrise/xx.py /home/yahboom # Copy files from RDK
motherboard to virtual machine
scp /home/yahboom/xx.py sunrise@192.168.2.114:/home/sunrise # Copy files from
virtual machine to RDK motherboard
scp -r sunrise@192.168.2.114:/home/sunrise/test /home/yahboom # Copy folders
from RDK motherboard to virtual machine
scp -r /home/yahboom/test sunrise@192.168.2.114:/home/sunrise # Copy folders
from virtual machine to RDK motherboard
```

### 3.3.2 Windows and RDK motherboard

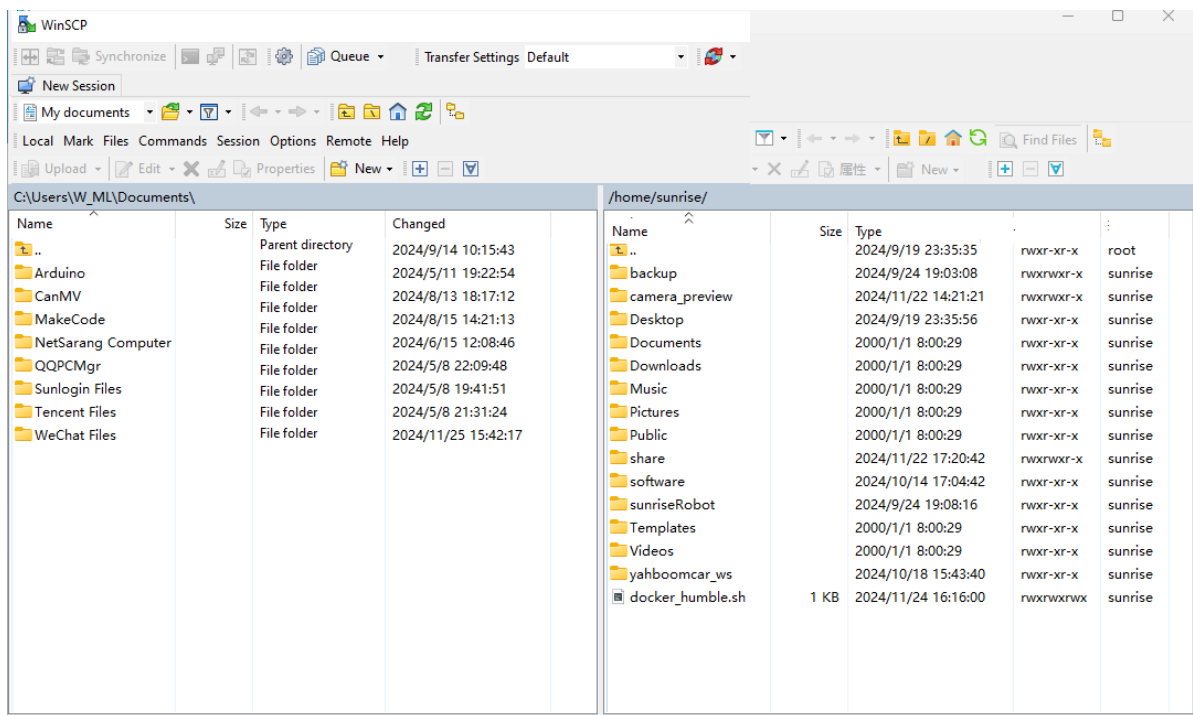
Open the link <https://winscp.net/eng/download.php> in Windows, download WinSCP and double-click the [.exe] file to install. Double-click the icon below to open WinSCP software



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



For example, robot IP [192.168.2.114], user name [sunrise], password [yahboom]. The following is an example of a successful login



- Windows->RDK motherboard: Select the file (folder) to be transferred and click "Upload".
- RDK motherboard->Windows: Select the file (folder) to be transferred and click "Download".