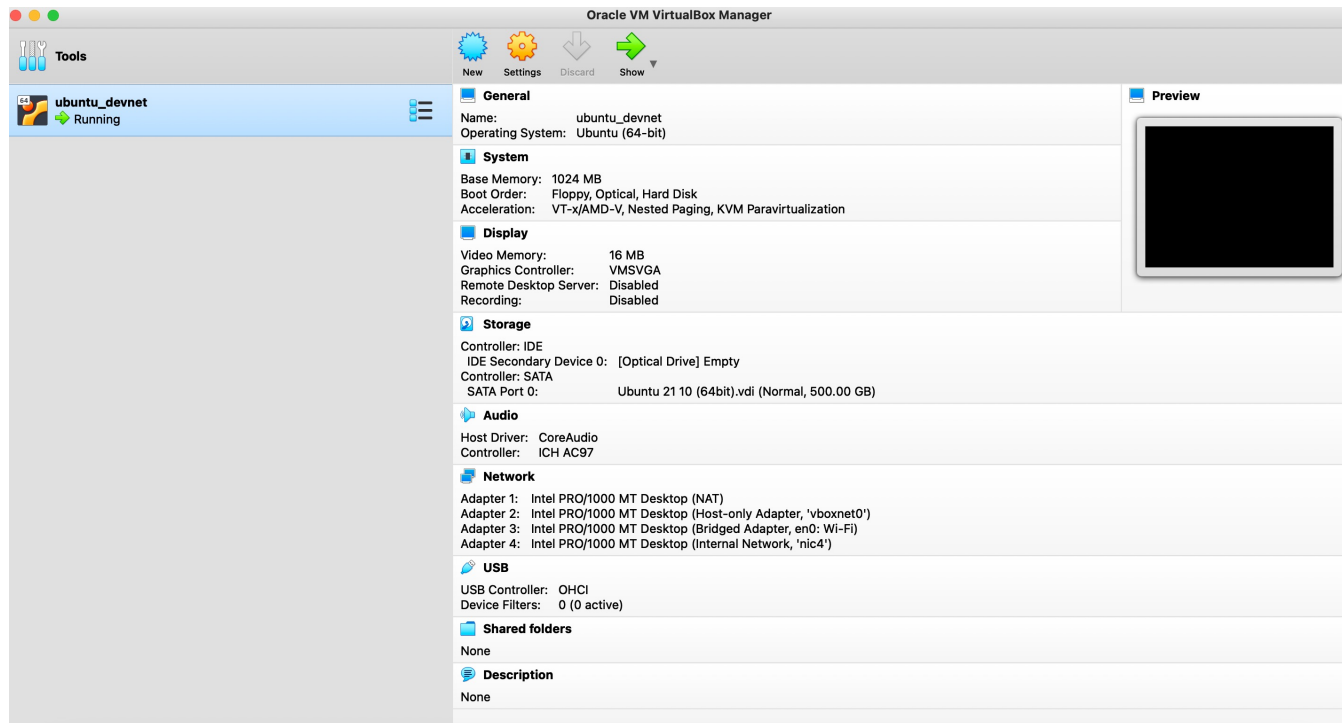




## SETUP YOUR OWN COMPUTER AS A DEVELOPMENT ENVIRONMENT

# Installing virtual box

<https://www.virtualbox.org/wiki/Downloads>



# Installing virtualbox

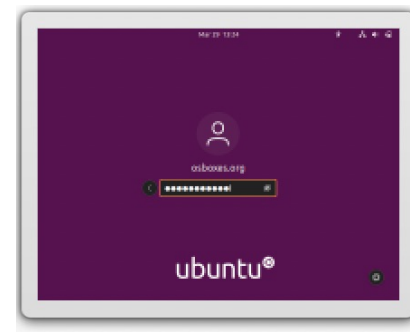
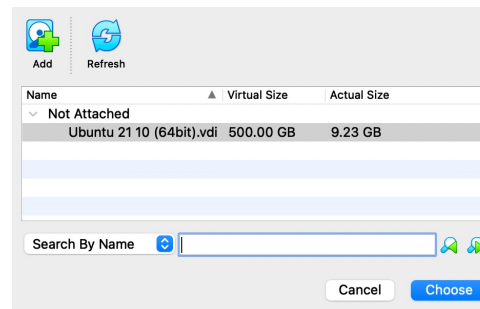
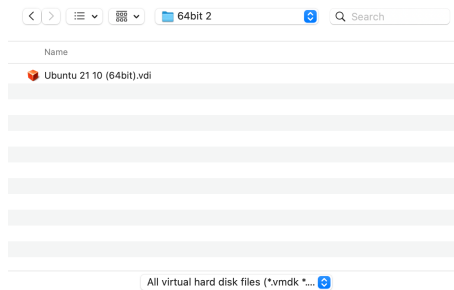
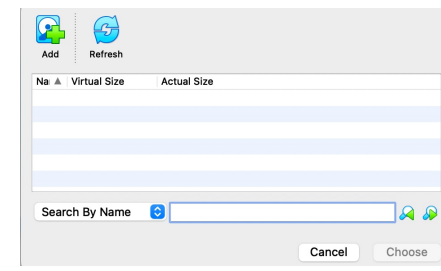
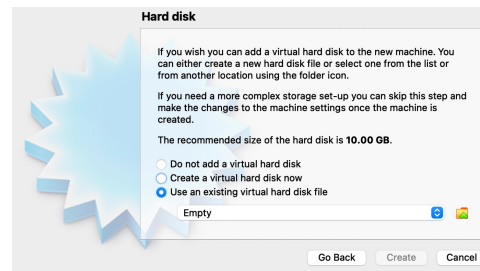
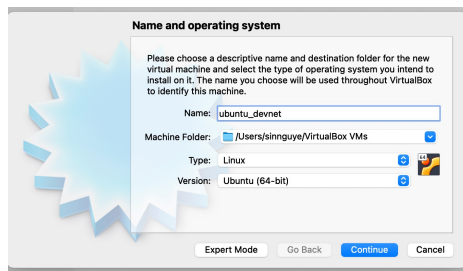
- Note: Enabling virtualization technology in bios

Phoenix TrustedCore(tm) Setup Utility		
Advanced		
Advanced Processor Configuration		Item Specific Help
CPU Mismatch Detection:	[Enabled]	When enabled, a VMM (Virtual Machine Monitor) can utilize the additional hardware capabilities provided by Vanderpool Technology.
Core Multi-Processing:	[Enabled]	
Processor Power Management:	[Disabled]	
Intel(R) Virtualization Technology	[Enabled]	
Execute Disable Bit:	[Enabled]	
Adjacent Cache Line Prefetch:	[Disabled]	If this option is changed, a Power Off-On sequence will be applied on the next boot.
Hardware Prefetch:	[Disabled]	
Direct Cache Access	[Disabled]	
Set Max Ext CPUID = 3	[Disabled]	
F1 Info ↑↓ Select Item -/+ Change Values F9 Setup Defaults		
Esc Exit + Select Menu Enter Select ► Sub-Menu F10 Save and Exit		

# Installing Ubuntu

Link download: <https://www.osboxes.org/ubuntu>

Username/password: osboxes/osboxes.org



# Changing user password

VirtualBox

VMware

Info

**Username:** osboxes

**Password:** osboxes.org

**Gust Tools:** Installed

**Keyboard Layout:** US (Qwerty)

**VMware Compatibility:** Version 10+

```
$ sudo passwd osboxes
```

# Connecting to Linux virtual machine over the network

## Installing openSSH server on Ubuntu

```
$ sudo apt update  
$ sudo apt install openssh-server  
$ sudo service ssh start (optional)  
$ sudo systemctl status ssh (optional)
```

# Connecting to Linux virtual machine over the network



```
sudo apt install net-tools
```

SSH to VM virtual box to check IP address

```
$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::6fe1:39df:f212:19d1 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:df:c9:a3 txqueuelen 1000 (Ethernet)
    RX packets 5414 bytes 1998395 (1.9 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 3774 bytes 423148 (423.1 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

Enable port forwarding

Idm	Protocol	Host IP	Host Port	Guest IP	Guest Port
...	TCP	127.0.0.1	2222	10.0.2.15	22

Cancel OK

ubuntu\_devnet - Network

General System Display Storage Audio Network Ports Shared Folders User Interface

Adapter 2 Adapter 3 Adapter 4

☒ Enable Network Adapter

Attached to: NAT

Name:

Advanced

Adapter Type: Intel PRO/1000 MT Desktop (82540EM)

Promiscuous Mode: Deny


MAC Address: 080027DFC9A3

☒ Cable Connected

Port Forwarding

Cancel OK

# Connecting to Linux virtual machine over the network

 Virtualbox Ubuntu 2 →

Address \*

127.0.0.1

Parent group


Devnet

Root group

Add a Tag...

Backspace as Ctrl+H

☐

 SHARE THIS HOST

SSH ☒

Port


2222

Username

osboxes

Identities

Password

••• 

Keys

```
Welcome to Ubuntu 21.10 (GNU/Linux 5.13.0-39-generic x86_64)
```

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

```
20 updates can be applied immediately.
To see these additional updates run: apt list --upgradable
```

```
New release '22.04 LTS' available.
Run 'do-release-upgrade' to upgrade to it.
```

```
*** System restart required ***
Last login: Tue May  3 04:30:57 2022 from 10.0.2.2
osboxes@osboxes:~$ █
```



- Most of the Linux OS has Python pre-installed To check if your device is pre-installed with Python or not, just go to terminal and run the following command:

```
$ python3 --version
```

```
Python 3.9.7
```

Installing latest version of python (optional)

<https://www.python.org/downloads/>

```
$ sudo apt-get install python3.10
```

```
$ python3.10
```

- Installing PIP

```
$ sudo apt install python3-pip
```

<https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>

```
$ sudo apt install git-all
```

```
$ git --version
```

```
git version 2.32.0
```

<https://docs.docker.com/engine/install/ubuntu/>

```
$ sudo apt-get update
```

```
$ sudo apt-get install ca-certificates curl gnupg lsb-release
```

```
$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo  
gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
```

```
$ echo "deb [arch=$(dpkg --print-architecture) signed-  
by=/usr/share/keyrings/docker-archive-keyring.gpg]  
https://download.docker.com/linux/ubuntu $(lsb_release -cs)  
stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
```

```
$ sudo apt-get update
```

```
$ sudo apt-get install docker-ce docker-ce-cli containerd.io
```

```
$ docker --version
```

```
$ sudo docker run hello-world
```

# Installing ansible



```
$ sudo apt update
$ sudo apt install software-properties-common
$ sudo add-apt-repository --yes --update
ppa:ansible/ansible
$ sudo apt install ansible
```

[https://docs.ansible.com/ansible/latest/installation\\_guide/intro\\_installation.html#installing-ansible-on-specific-operating-systems](https://docs.ansible.com/ansible/latest/installation_guide/intro_installation.html#installing-ansible-on-specific-operating-systems)

<https://learning.postman.com/docs/getting-started/installation-and-updates/>

```
$ sudo snap install postman
```

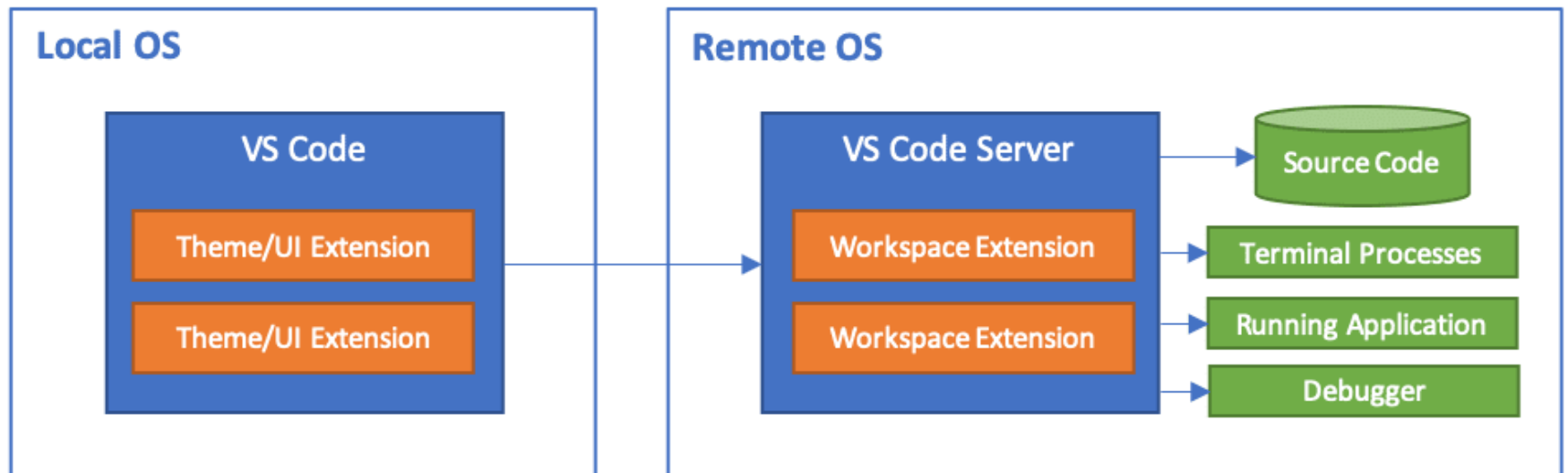
# Installing visual studio code

<https://code.visualstudio.com/download>

```
4 var server = express();
5 server.use(bodyParser.json);
6
7 server.g
8   get (property) Application.get: ((name: string)...
9   getMaxListeners
10  arguments
11  engine
12  length
13  merge
14  purge
15  settings
16  toString
17  defaultConfiguration
18
```


```
12
13
14
15
16 server.use(function (req, res, next) {
17   res.setHeader('Access-Control-Allow-Origin', 'http://localhost:8080');
18   res.setHeader('Access-Control-Allow-Methods', 'GET, POST, DELETE');
19   res.setHeader('Access-Control-Allow-Headers', 'X-Requested-With,content-
20   res.setHeader('Access-Control-Allow-Credentials', true);
21   next();
22 });
23
24
25
26
```

# VS Code Remote Development



<https://code.visualstudio.com/docs/remote/ssh-tutorial>

# VS Code Remote Development

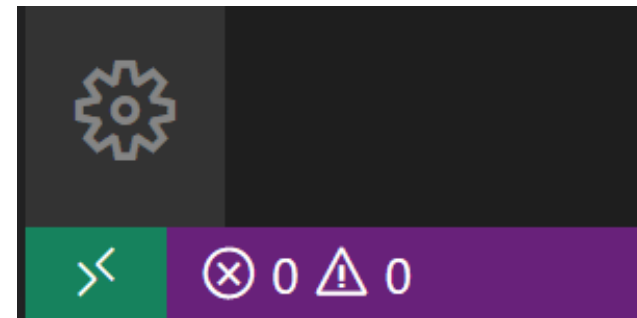


**Remote - SSH** ms-vscode-remote.remote-ssh Preview

Microsoft | 1,689,704 | ★★★★★ | Repository | License | v0.51.0

Open any folder on a remote machine using SSH and take advantage of VS Code's full feature set.

[Install](#)



Extension: Remote - SSH

**Connect to Host...** Remote-SSH

- Connect Current Window to Host...
- Open SSH Configuration File...
- Getting Started with SSH
- Install Additional Remote Extensions...

Enter SSH Connection Command

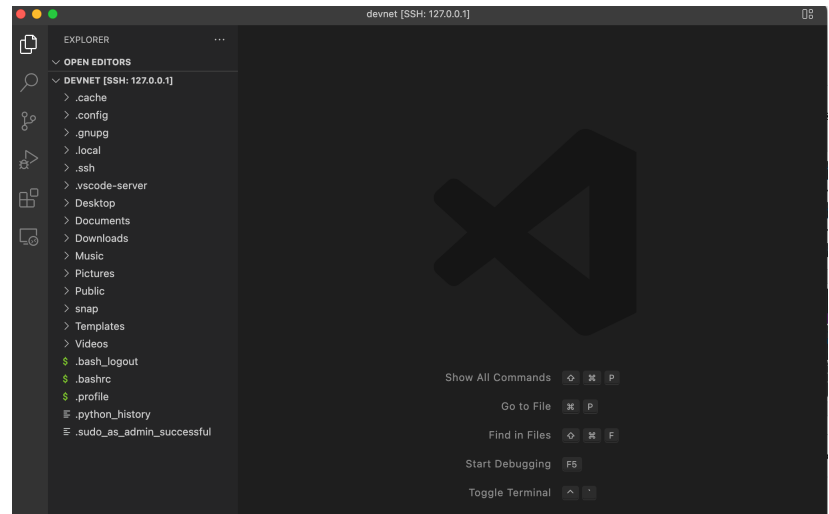
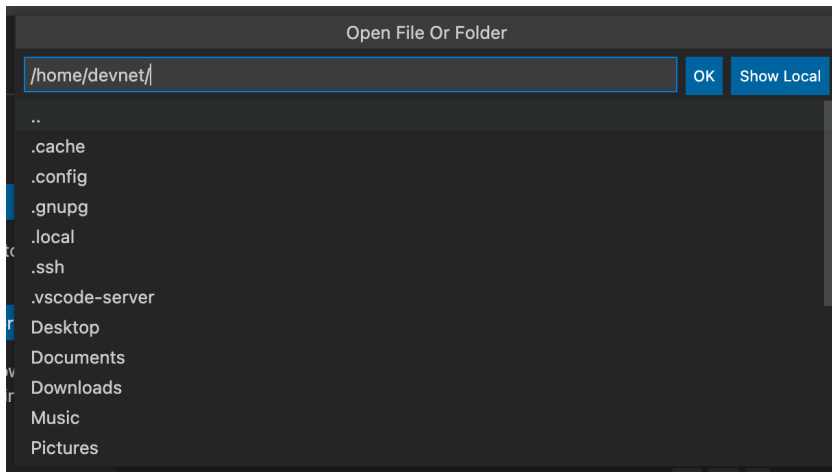
Press 'Enter' to confirm your input or 'Escape' to cancel

Select configured SSH host or enter user@host

- 10.138.157.59
- 10.138.157.39
- + Add New SSH Host...
- Configure SSH Hosts...







# VS Code Remote Development







# Installing Jupyter notebook and Python extensions




SSH: 127.0.0.1 - INSTALLED 5

**Jupyter**  
Jupyter notebook support, interactive programming and computing that supports Intellisense...  
Microsoft 

**Jupyter Notebook Renderers**  
Renderers for Jupyter Notebooks (with plotly, vega, gif, png, svg, jpeg and other such outp...  
Microsoft 

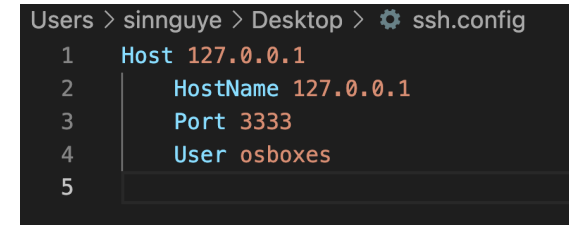
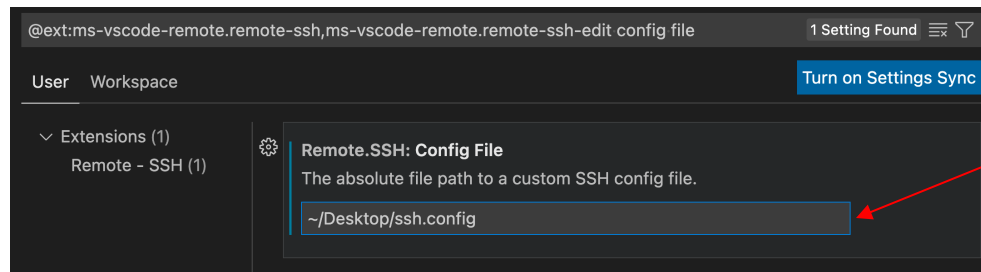
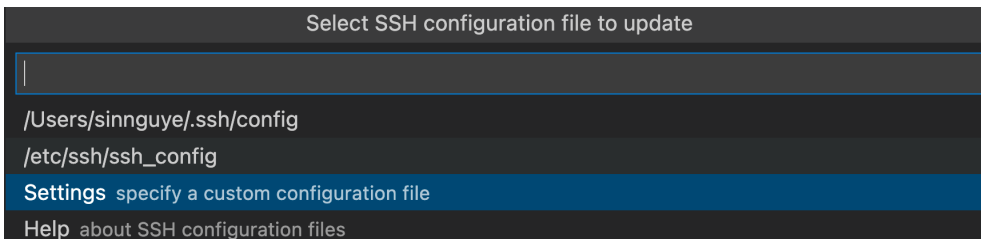
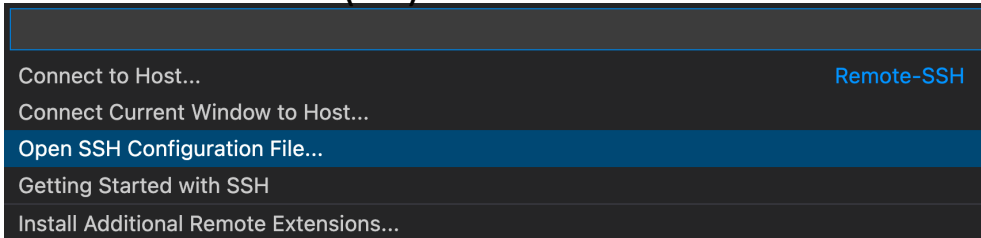
**Pylance**  
A performant, feature-rich language server for Python in VS Code  
Microsoft 

**Python**  
IntelliSense (Pylance), Linting, Debugging (multi-threaded, remote), Jupyter Notebooks, c...  
Microsoft 

**Jupyter Keymap**  
Jupyter keymaps for notebooks  
Microsoft  

# SSH permission deny issue

## On client (PC)



Create a new SSH config file and add the absolute file path

## On Server (ubuntu)

```
$ chmod 700 ~/.ssh  
$ chmod 600 ~/.ssh/authorized_keys
```