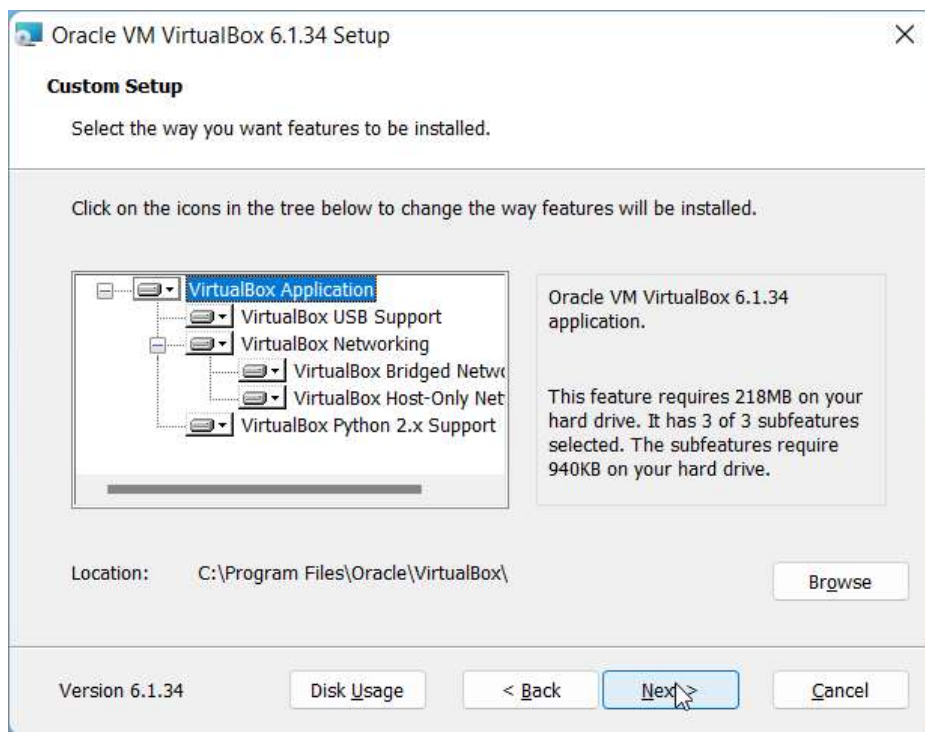


Software yang diperlukan:

1. VirtualBox 6.1.34 <https://download.virtualbox.org/virtualbox/6.1.34/VirtualBox-6.1.34a-150636-Win.exe>
2. Multipass Windows <https://github.com/canonical/multipass/releases/download/v1.9.2/multipass-1.9.2+win-win64.exe>
3. Windows Terminal

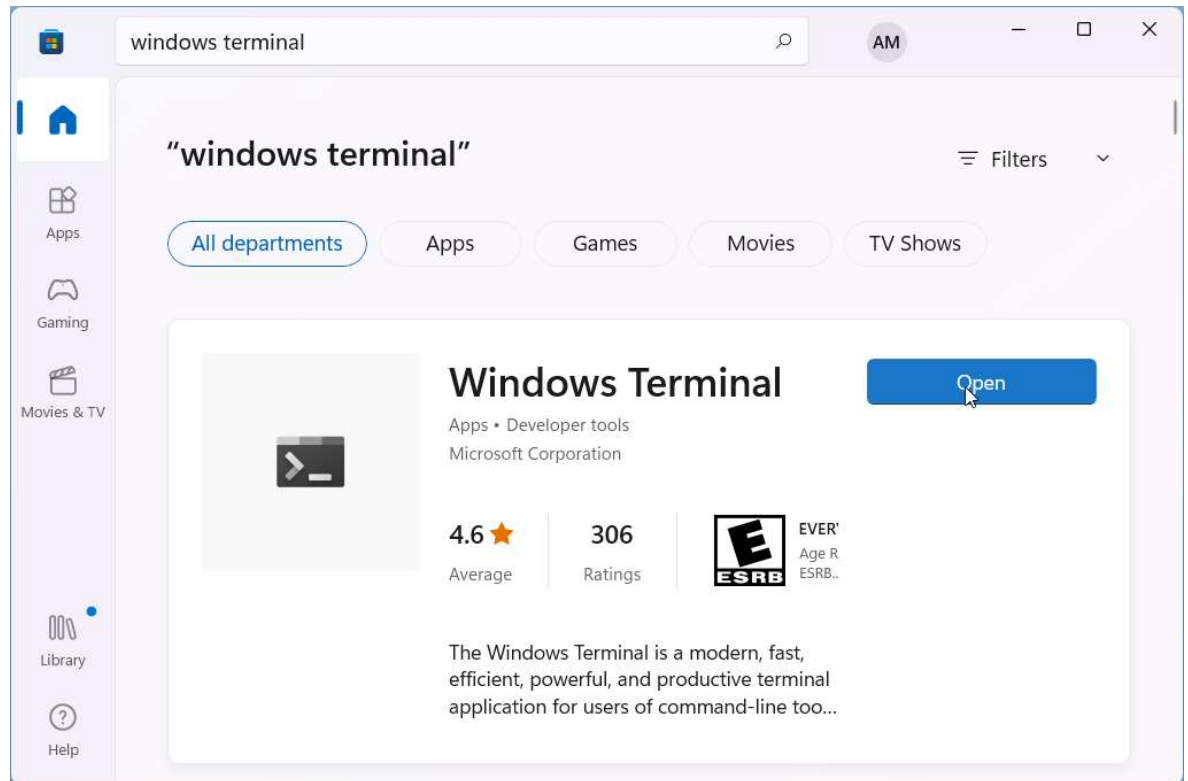
## Virtual Box

Install VirtualBox seperti biasa.



## Windows Terminal

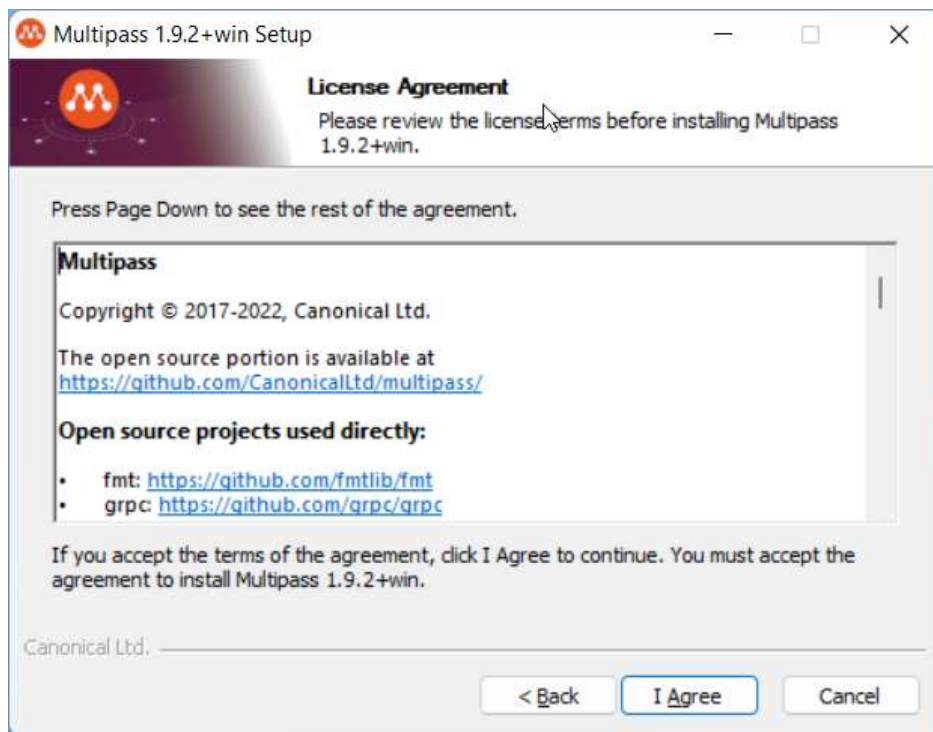
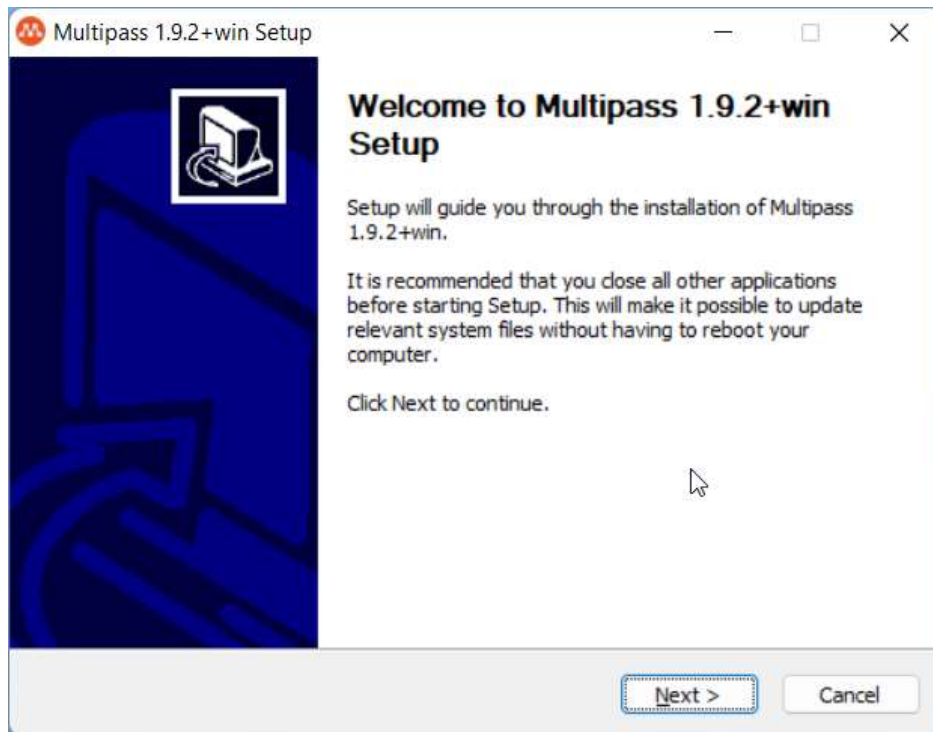
1. Buka Microsoft Store
2. Cari **Windows Terminal**

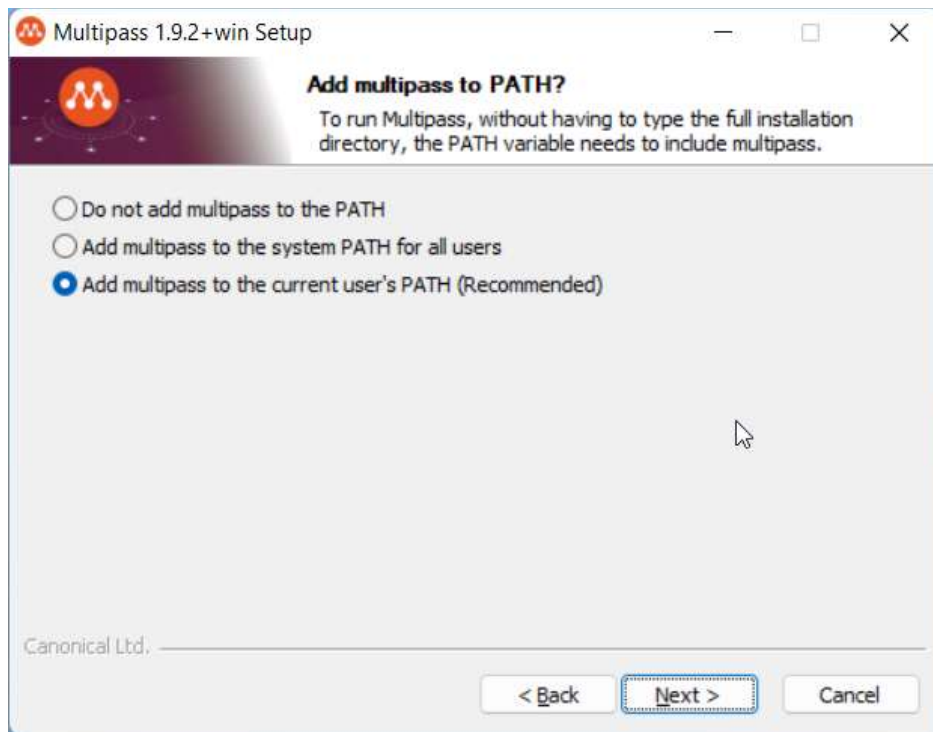
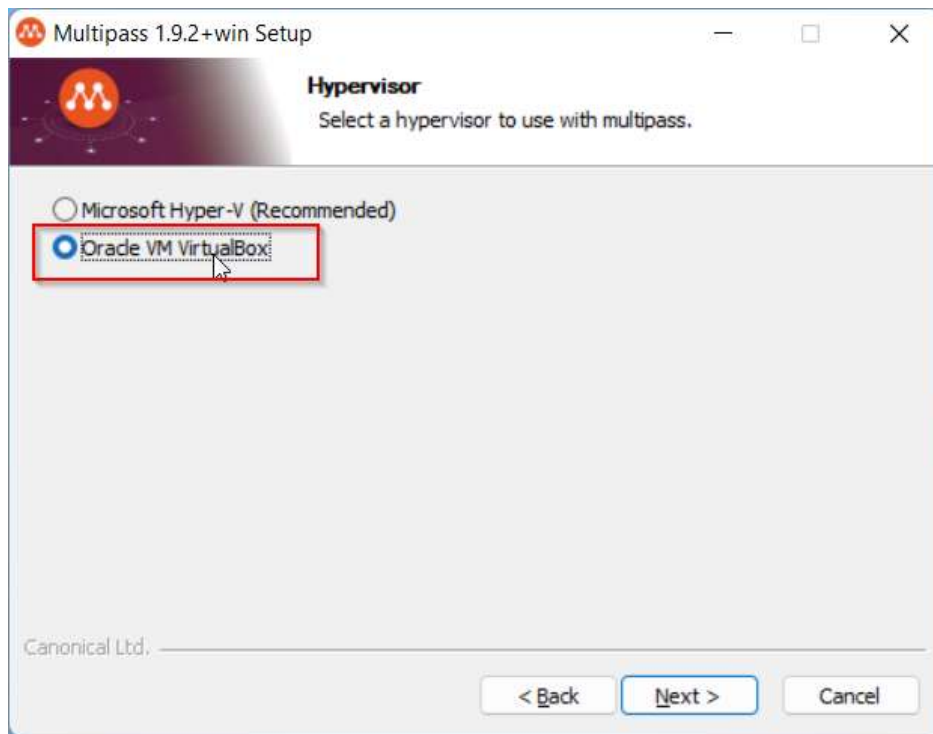


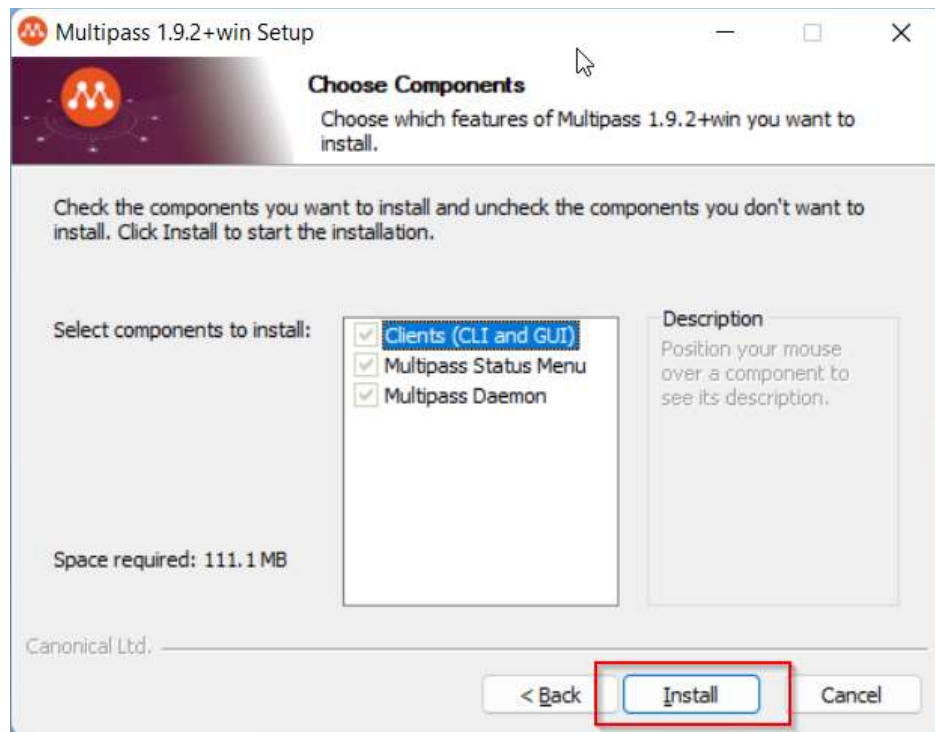
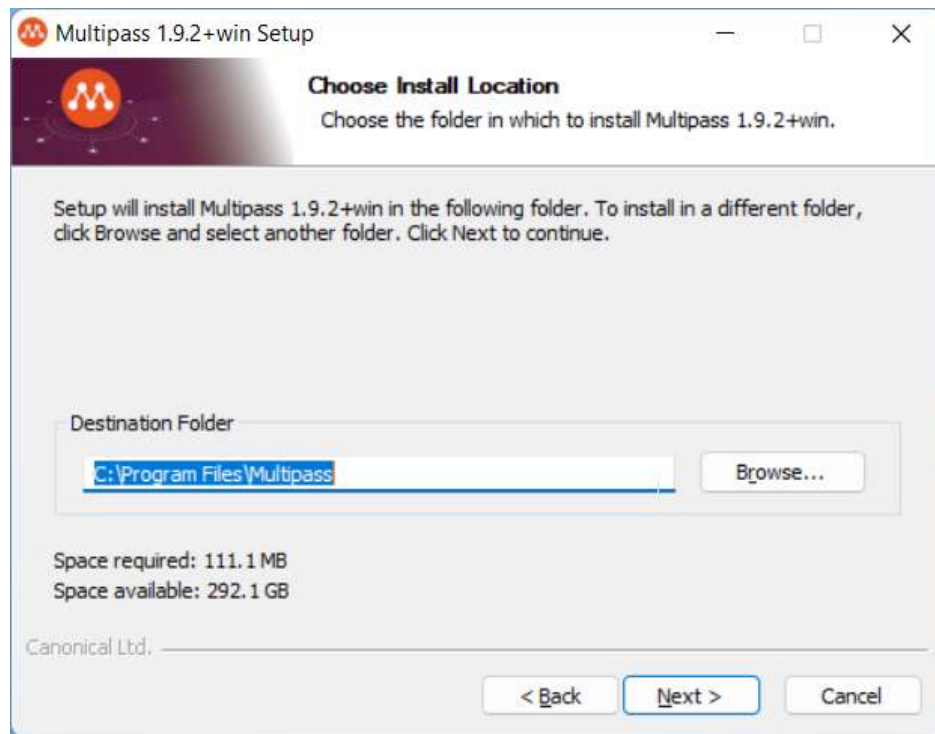
3. Install **Windows Terminal** apabila belum terinstal

## Multipass Windows

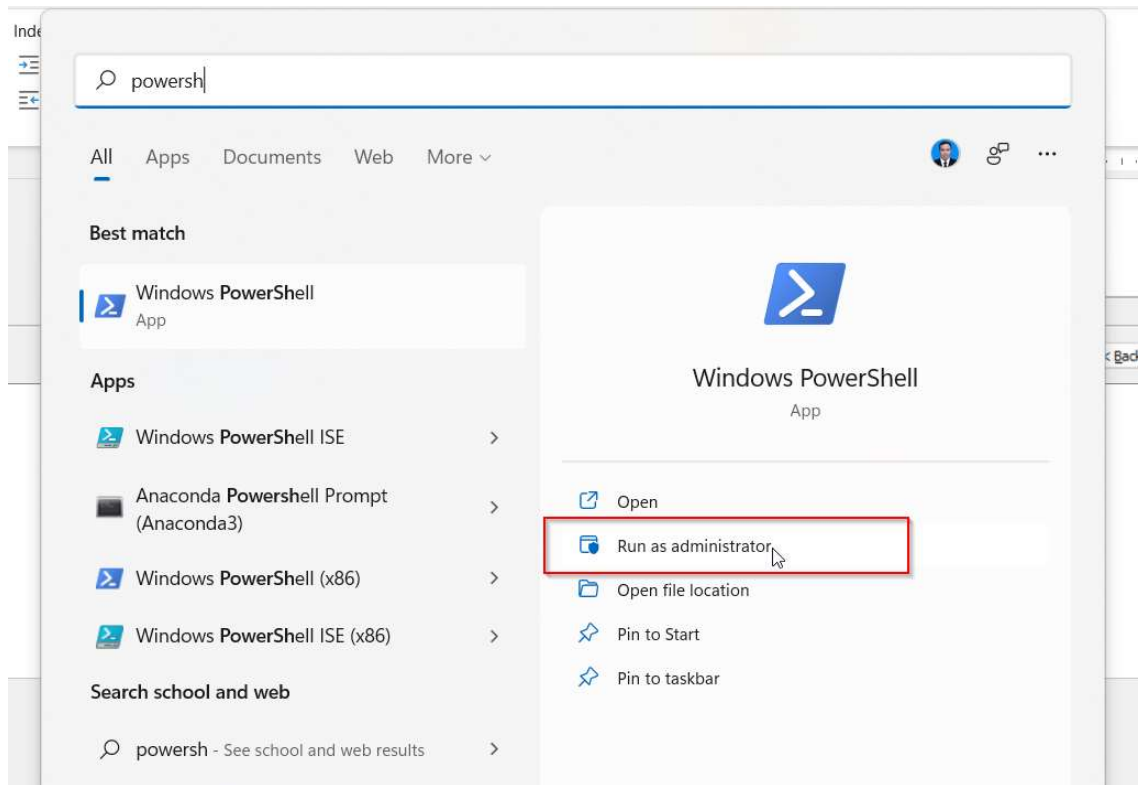
1. Install Multipass seperti berikut.





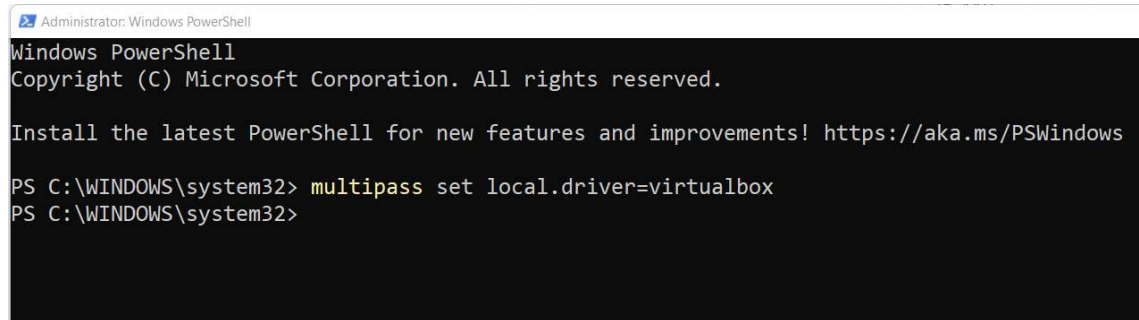


2. Buka Powershell sebagai administrator



3. Jalankan perintah berikut

```
multipass set local.driver=virtualbox
```



4. Restart komputer
5. Buka **Windows Terminal**.
6. Jalankan perintah berikut untuk mengecek network card yang dapat dipakai oleh virtual machine.

```
multipass networks
```

```
Windows PowerShell
Windows Terminal can be set as the default terminal application in your settings. Open Settings

PS C:\Users\abdul> multipass networks
Name      Type      Description
Ethernet  ethernet  Realtek PCIe GbE Family Controller
Wi-Fi     wifi      Intel(R) Wi-Fi 6 AX201 160MHz
PS C:\Users\abdul> |
```

Di sini kita akan menggunakan network bernama “Wi-Fi”.

7. Jalankan perintah berikut untuk membuat virtual machine yang baru.

```
multipass launch focal -c 2 -d 10G -m 4G --network "Wi-Fi" -n vm1
```

```
Windows PowerShell
PS C:\Users\abdul> multipass networks
Name      Type      Description
Ethernet  ethernet  Realtek PCIe GbE Family Controller
Wi-Fi     wifi      Intel(R) Wi-Fi 6 AX201 160MHz
PS C:\Users\abdul> multipass launch focal -c 2 -d 10G -m 4G --network "Wi-Fi" -n vm1
Starting vm1 ||
```

Keterangan:

- `multipass launch focal` : membuat VM baru dengan Ubuntu 20.04 (focal)
- `-c 2` : jumlah core atau CPU sebanyak 2
- `-d 10G` : virtual disk 10 GB
- `-m 4G` : virtual RAM 4 GB
- `--network "Wi-Fi"` : menggunakan network “Wi-Fi”
- `-n vm1` : nama VM adalah “vm1”

8. Cek daftar VM yang berhasil dibuat dengan menggunakan perintah **multipass list**.

```
multipass list
```

```
Windows PowerShell
PS C:\Users\abdul> multipass launch focal -c 2 -d 10G -m 4G --network "Wi-Fi" -n vm1
Launched: vm1
PS C:\Users\abdul> multipass list
Name                State      IPv4      Image
vm1                 Running   N/A       Ubuntu 20.04 LTS
PS C:\Users\abdul> |
```

9. Tes masuk ke virtual machine menggunakan **multipass shell <nama VM>**.

```
multipass shell vm1
```

```
PS C:\Users\abdul> multipass shell vm1
Welcome to Ubuntu 20.04.4 LTS (GNU/Linux 5.4.0-120-generic x86_64)

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

System information as of Fri Jun 24 12:49:14 +07 2022

System load:  0.1               Processes:            128
Usage of /:   14.3% of 9.52GB   Users logged in:     0
Memory usage: 5%               IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%

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

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@vm1:~$
```

#### Catatan

```
ubuntu@vm1: ~
Launched: vm1
PS C:\Users\abdul> multipass list
Name                State      IPv4      Image
vm1                 Running   N/A       Ubuntu 20.04 LTS
```

Jika VM tidak mendapatkan IPv4 secara otomatis/DHCP, lakukan langkah-langkah berikut untuk mengeset IP statis.

1. Masuk ke dalam shell VM



multipass shell vm1

2. Cek nama interface yang akan diberi IPv4 statis.

ip addr

```
ubuntu@vm1:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 52:54:00:50:33:f5 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 86394sec preferred_lft 86394sec
    inet6 fe80::5054:ff:fe50:33f5/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 52:54:00:46:35:4d brd ff:ff:ff:ff:ff:ff
    inet6 fe80::5054:ff:fe46:354d/64 scope link
        valid_lft forever preferred_lft forever
```

3. Edit file /etc/netplan/50-cloud-init.yaml

sudo nano /etc/netplan/50-cloud-init.yaml

4. Tambahkan IPv4 statis sesuai dengan spesifikasi jaringan.

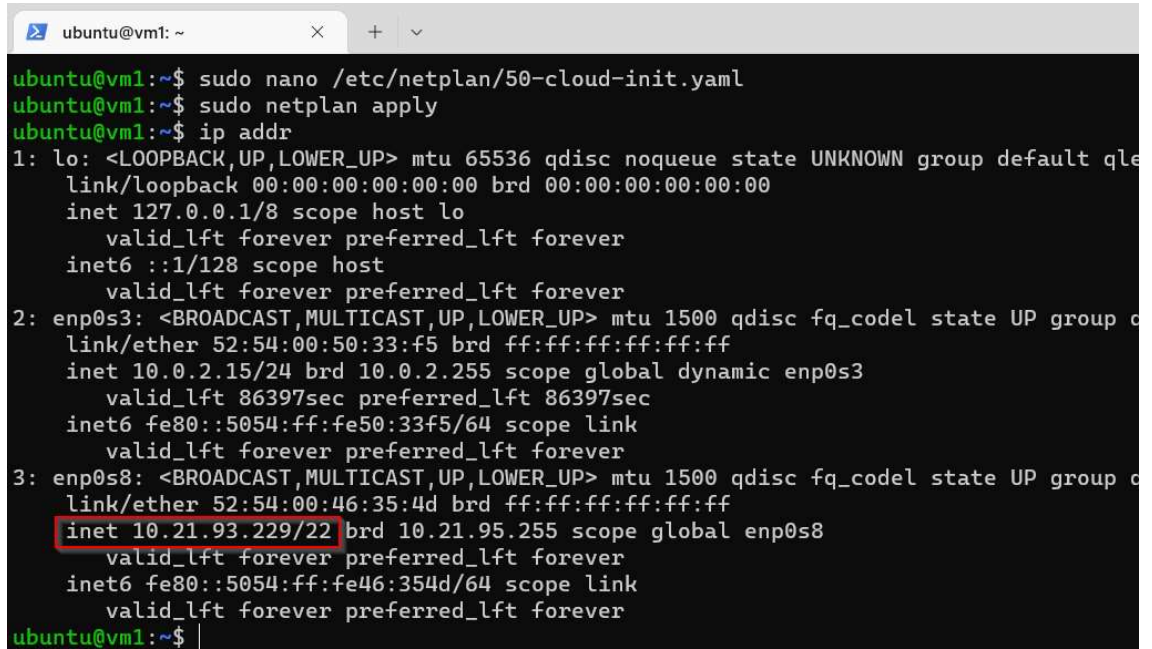
```
ubuntu@vm1: ~
GNU nano 4.8 /etc/netplan/50-cloud-init.yaml
# This file is generated from information provided by the datasource.  Changes
# to it will not persist across an instance reboot.  To disable cloud-init's
# network configuration capabilities, write a file
# /etc/cloud/cloud.cfg.d/99-disable-network-config.cfg with the following:
# network: {config: disabled}
network:
  ethernets:
    default:
      dhcp4: true
      match:
        macaddress: 52:54:00:50:33:f5
    extra0:
      dhcp4: true
      dhcp4-overrides:
        route-metric: 200
      match:
        macaddress: 52:54:00:46:35:4d
      optional: true
    enp0s8:
      dhcp4: false
      addresses:
        - 10.21.93.229/22
      gateway4: 10.21.92.1
      nameservers:
        addresses: [202.46.129.2, 202.46.129.3]
version: 2
```

5. Jalankan perintah berikut untuk mereset network

```
sudo netplan apply
```

6. Cek IPv4 yang berhasil ditambahkan

```
ip addr
```

A terminal window titled 'ubuntu@vm1: ~' showing the execution of netplan commands. The user runs 'sudo nano /etc/netplan/50-cloud-init.yaml', 'sudo netplan apply', and 'ip addr'. The 'ip addr' command output shows three network interfaces: 'lo' (loopback), 'enp0s3' (ethernet), and 'enp0s8' (ethernet). The 'inet' line for 'enp0s8' is highlighted with a red box, showing the assigned IP address '10.21.93.229/22'.

```
ubuntu@vm1:~$ sudo nano /etc/netplan/50-cloud-init.yaml
ubuntu@vm1:~$ sudo netplan apply
ubuntu@vm1:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 52:54:00:50:33:f5 brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic enp0s3
        valid_lft 86397sec preferred_lft 86397sec
    inet6 fe80::5054:ff:fe50:33f5/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 52:54:00:46:35:4d brd ff:ff:ff:ff:ff:ff
    inet 10.21.93.229/22 brd 10.21.95.255 scope global enp0s8
        valid_lft forever preferred_lft forever
    inet6 fe80::5054:ff:fe46:354d/64 scope link
        valid_lft forever preferred_lft forever
ubuntu@vm1:~$
```