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Configuring SSH Remote Access on Ubuntu Server

Objective

Set up an Ubuntu Server with SSH (Secure Shell) remote access and connect to it from a host desktop machine using Bridged Network mode.

Operating System Installation

Install Ubuntu Server

1. Start the VM and boot from the Ubuntu Server ISO
2. Follow the installation wizard:
 - Profile setup: Create a user account (e.g., server / server123)
 - Install OpenSSH server: **Check this option** (Important!)
 - Selected software: **None** (Standard Ubuntu Server)
3. Wait for installation to complete and reboot

Network Configuration

Configure Network Mode

For VirtualBox:

1. Power off the VM (if running)
2. Go to **Settings** → **Network**
3. **Adapter 1**: Enable Network Adapter
4. **Attached to**: Select **Bridged Adapter**
5. **Name**: Select your host's physical network adapter (Wi-Fi/Ethernet)
6. Click **OK**

For VMware:

1. Power off the VM
2. Go to **VM Settings** → **Network Adapter**
3. Select **Bridged** mode

4. Click **OK**

Install/Verify SSH Server

Server: Install SSH on the server (if not already installed):

- `sudo systemctl status ssh` – for checking the SSH status.
- `sudo apt update` – updating the your server.
- `sudo apt install openssh-server -y` –installing the SHH.
- `sudo systemctl enable ssh` – enabling the SSH to your unit. (SERVER/DESKTOP)
- `sudo systemctl start ssh` – starting the SHH to your unit. (SERVER/DESKTOP)

Bridged makes the server behave like a separate PC in your LAN.

1. Find the Server's IP

Inside the VM, run:

```
Sample@UBUNTU-DESKTOP:~$ ip a
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 noprefixroute
        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 08:00:27:9b:8c:ca brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.4/24 brd 192.168.1.255 scope global dynamic noprefixroute enp0s3
        valid_lft 83602sec preferred_lft 83602sec
    inet6 2001:4451:b00:2000:d76c:1af2:a10c:f36d/64 scope global temporary dynamic
    inet6 2001:4451:b00:2000:a00:27ff:fe9b:8cca/64 scope global dynamic mngtproto kernel_r
        valid_lft 179068sec preferred_lft 83386sec
    inet6 fe80::a00:27ff:fe9b:8cca/64 scope link proto kernel_ll
        valid_lft forever preferred_lft forever
Sample@UBUNTU-DESKTOP:~$
```

From the desktop, connect to the server: `ssh username@192.168.1.120`

2. Connect from Desktop

From your host desktop:

```
Sample@UBUNTU-DESKTOP:~$ ssh Server@192.168.1.14
Server@192.168.1.14's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-79-generic x86_64)

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

System information as of Mon Sep  8 11:24:38 PM UTC 2025

System load:            0.0
Usage of /:             5.1% of 48.91GB
Memory usage:          5%
Swap usage:            0%
Processes:             139
Users logged in:       1
IPv4 address for enp0s3: 192.168.1.14
IPv6 address for enp0s3: 2001:4451:b00:2000:a00:27ff:fe57:bc4a

Expanded Security Maintenance for Applications is not enabled.

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

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Mon Sep  8 22:52:07 2025 from 192.168.1.4
Server@UBUNTU-SERVER:~$
```

Submission Requirements

1. Screenshots (labeled clearly):

- VM network settings showing Bridged Adapter
- Server IP address (output of `ip a` or `hostname -I`)
- SSH service status (`sudo systemctl status ssh`)
- Successful SSH connection from host
- Verification commands executed inside VM

2. Submission Format:

- Single PDF file
- Include name, student ID, and date
- All screenshots with brief explanation
- Upload to your portfolio website.

UBUNTU SERVER SSH REMOTE ACCESS LAB

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Student ID: 2024301621

Course/Year/Section: BSCS 3

Date Submitted: September 3, 2026

Instructor: Johneros P. Puyo

1 OBJECTIVES (5 POINTS)

Check all that apply:

- ✓ ☐ Create and configure a Virtual Machine with Ubuntu Server
- ✓ ☐ Configure Bridged Network Adapter for network access
- ✓ ☐ Determine and verify the server's IP address
- ✓ ☐ Install OpenSSH Server and enable the service
- ✓ ☐ Establish successful SSH connection from host machine
- ✓ ☐ Execute verification commands to confirm remote access

2 HARDWARE & SOFTWARE REQUIREMENTS (5 POINTS)

Item	Specification
Host Operating System	Ubuntu Server OS
Virtualization Software (VirtualBox/VMware)	Oracle VM Virtualbox
Ubuntu Server Version	ubuntu-26.04-live-server-amd64
VM Name	UBUNTU-SERVER
RAM Allocated	8 GB (8192 MB)
Storage Allocated	100 GB
Network Mode	Bridged Adapter
SSH Client Used	OpenSSH

3 VM CONFIGURATION

Setting	Value
VM Name	UBUNTU-SERVER
OS Type	Ubuntu (64-bit)
Memory	8192 MB

Hard Disk	100 GB
Network Adapter	Bridged

4. NETWORK CONFIGURATION

Commands Executed:

Server IP Address: 192.168.137.57

Network Interface: Physical

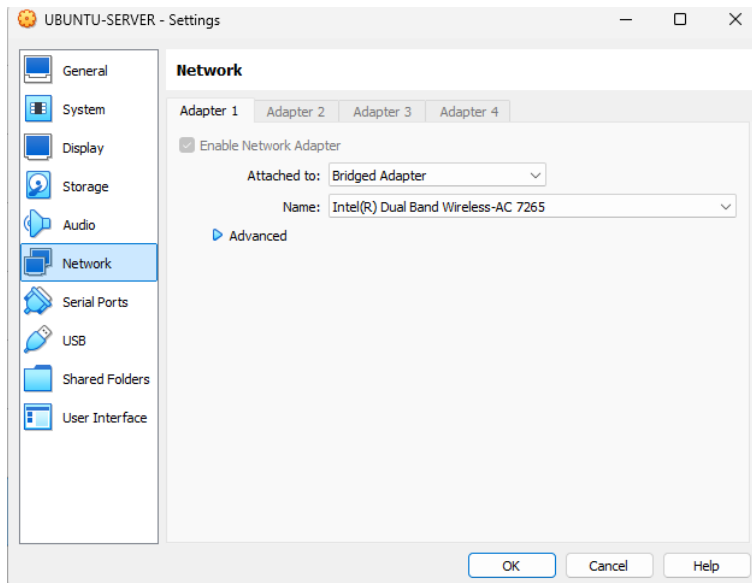
5. REMOTE CONNECTION

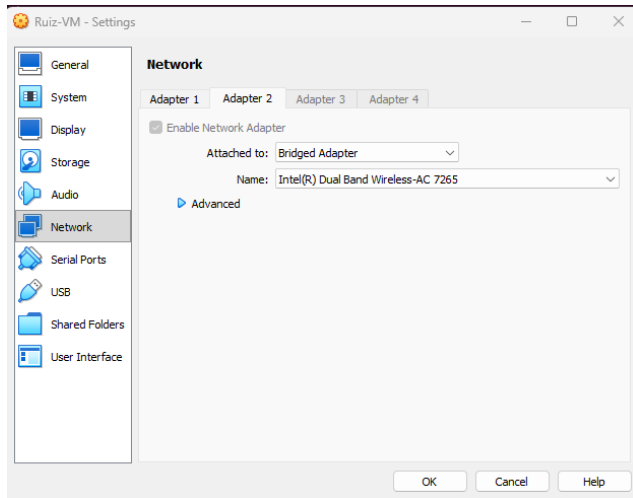
Connection Details:

Parameter	Value
Server IP	192.168.137.57
Username	liz
SSH Port	22

Screenshots:

VM network settings showing Bridged Adapter





Server IP address (output of ip a or hostname -I)

```
liz@server123:~$ ip a
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 noprefixroute
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:f2:98:16 brd ff:ff:ff:ff:ff:ff
    altname enx080027f29816
    inet 192.168.137.57/24 brd 192.168.137.255 scope global dynamic enp0s3
        valid_lft 603782sec preferred_lft 452582sec
    inet6 fe80::a00:27ff:fef2:9816/64 scope link proto kernel_ll
        valid_lft forever preferred_lft forever
```

SSH service status (sudo systemctl status ssh)

```
liz@server123:~$ sudo systemctl status ssh
[sudo: authenticate] Password:
• ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
   Active: active (running) since Thu 2026-09-03 04:24:01 UTC; 39min ago
   Invocation: 757d023ea09942b88bb9eaa732832ec6
   TriggeredBy: • ssh.socket
   Docs: man:sshd(8)
        man:sshd_config(5)
   Process: 1335 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1344 (sshd)
     Tasks: 1 (limit: 6192)
    Memory: 5.2M (peak: 7.4M)
       CPU: 68ms
    CGroup: /system.slice/ssh.service
           └─1344 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Sep 03 04:24:00 server123 systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Sep 03 04:24:01 server123 sshd[1344]: Server listening on 0.0.0.0 port 22.
Sep 03 04:24:01 server123 sshd[1344]: Server listening on :: port 22.
Sep 03 04:24:01 server123 systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
Sep 03 04:29:04 server123 sshd[1344]: Timeout before authentication for connection from 172.16.18.20 to 169.254.162.141, pid = 1601
Sep 03 04:43:54 server123 sshd-session[1840]: Accepted password for liz from 192.168.137.92 port 47256 ssh2
Sep 03 04:43:54 server123 sshd-session[1840]: pam_unix(sshd:session): session opened for user liz(uid=1000) by liz(uid=0)
```

Successful SSH connection from host/Verification commands executed inside VM

```
liz@liz-VirtualBox:~$ ssh liz@192.168.137.57
The authenticity of host '192.168.137.57 (192.168.137.57)' can't be established.
ED25519 key fingerprint is: SHA256:Mh2TBZKGFV07ILm6GUii5fboi3U5UFrdZbFiNsnq6WY
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.137.57' (ED25519) to the list of known hosts.
liz@192.168.137.57's password:
Welcome to Ubuntu 26.04 LTS (GNU/Linux 7.0.0-30-generic x86_64)

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

System information as of Thu Sep  3 04:43:54 AM UTC 2026

System load:  0.02               Processes:            152
Usage of /:   15.1% of 47.93GB   Users logged in:     0
Memory usage: 3%                IPv4 address for enp0s3: 192.168.137.57
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

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

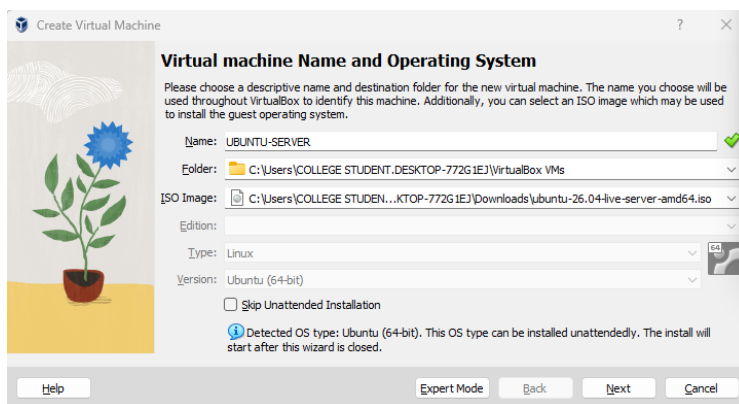
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
```

Step-by-step Screenshot:

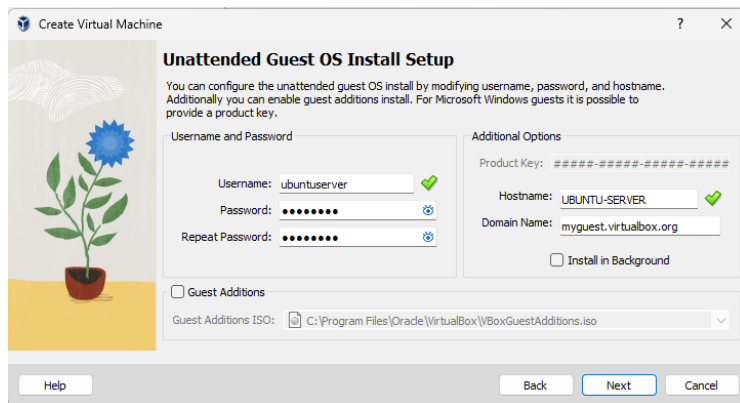
Step 1: Open Oracle VM Virtualbox

Step 2: Click “New”

Step 3: Enter VM name and click the dropdown of the ISO Image and choose the one named “ubuntu-26.04-live-server-amd64”



Step 4: Create username and password



The screenshot shows the 'Unattended Guest OS Install Setup' window. On the left is a decorative illustration of a potted plant with a blue flower. The main area contains two sections: 'Username and Password' and 'Additional Options'. In the 'Username and Password' section, the 'Username' field is set to 'ubuntuuser' with a green checkmark, the 'Password' and 'Repeat Password' fields are masked with dots and have a blue eye icon, and the 'Guest Additions' checkbox is unchecked. In the 'Additional Options' section, the 'Product Key' is masked with asterisks, the 'Hostname' is 'UBUNTU-SERVER' with a green checkmark, the 'Domain Name' is 'myguest.virtualbox.org', and the 'Install in Background' checkbox is unchecked. At the bottom, there is a 'Guest Additions ISO' dropdown menu showing 'C:\Program Files\Oracle\VirtualBox\BoxGuestAdditions.iso' and navigation buttons: 'Help', 'Back', 'Next', and 'Cancel'.

Create Virtual Machine

Unattended Guest OS Install Setup

You can configure the unattended guest OS install by modifying username, password, and hostname. Additionally you can enable guest additions install. For Microsoft Windows guests it is possible to provide a product key.

Username and Password

Username: ubuntuuser ✓

Password: •••••••• ⓘ

Repeat Password: •••••••• ⓘ

☐ Guest Additions

Guest Additions ISO: C:\Program Files\Oracle\VirtualBox\BoxGuestAdditions.iso

Additional Options

Product Key: #####-#####-#####

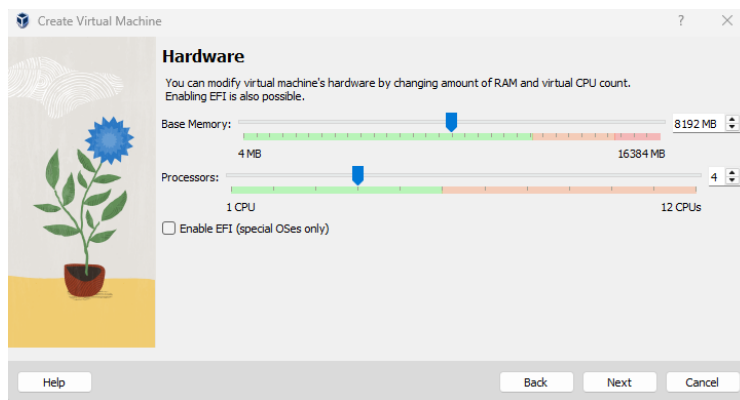
Hostname: UBUNTU-SERVER ✓

Domain Name: myguest.virtualbox.org

☐ Install in Background

Help Back Next Cancel

Step 5: Allocate 8192MB Ram and 4 CPU cores



The screenshot shows the 'Hardware' tab of the 'Create Virtual Machine' window. It features the same decorative plant illustration on the left. The main area has a title 'Hardware' and a description: 'You can modify virtual machine's hardware by changing amount of RAM and virtual CPU count. Enabling EFI is also possible.' There are two sliders: 'Base Memory' is set to 8192 MB (range 4 MB to 16384 MB) and 'Processors' is set to 4 (range 1 CPU to 12 CPUs). An 'Enable EFI (special OSes only)' checkbox is unchecked. At the bottom are 'Help', 'Back', 'Next', and 'Cancel' buttons.

Create Virtual Machine

Hardware

You can modify virtual machine's hardware by changing amount of RAM and virtual CPU count. Enabling EFI is also possible.

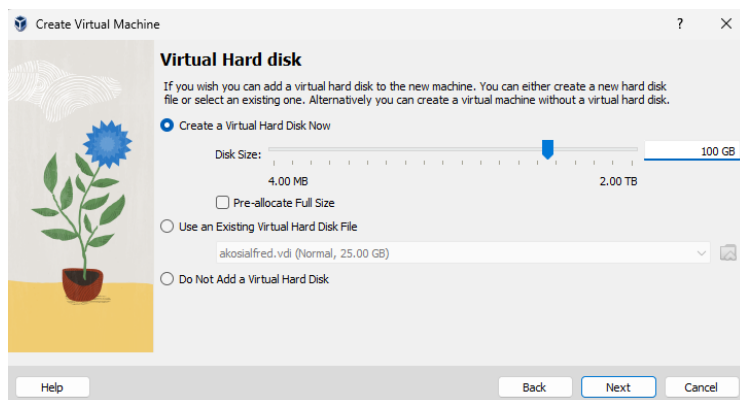
Base Memory: 8192 MB

Processors: 4

☐ Enable EFI (special OSes only)

Help Back Next Cancel

Step 6: Create 100GB Virtual Hard Disk Now



The screenshot shows the 'Virtual Hard disk' tab of the 'Create Virtual Machine' window. It features the same decorative plant illustration on the left. The main area has a title 'Virtual Hard disk' and a description: 'If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select an existing one. Alternatively you can create a virtual machine without a virtual hard disk.' There are three radio buttons: 'Create a Virtual Hard Disk Now' (selected), 'Pre-allocate Full Size', 'Use an Existing Virtual Hard Disk File', and 'Do Not Add a Virtual Hard Disk'. The 'Create a Virtual Hard Disk Now' option has a 'Disk Size' slider set to 100 GB (range 4.00 MB to 2.00 TB). The 'Use an Existing Virtual Hard Disk File' option has a dropdown menu showing 'akosiafred.vdi (Normal, 25.00 GB)'. At the bottom are 'Help', 'Back', 'Next', and 'Cancel' buttons.

Create Virtual Machine

Virtual Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select an existing one. Alternatively you can create a virtual machine without a virtual hard disk.

☒ Create a Virtual Hard Disk Now

Disk Size: 100 GB

☐ Pre-allocate Full Size

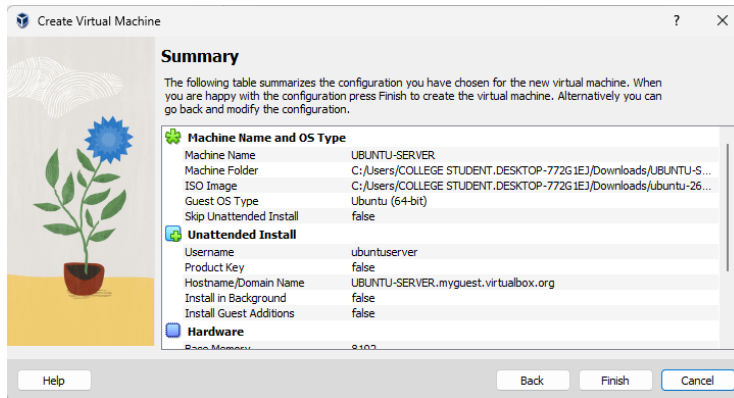
☐ Use an Existing Virtual Hard Disk File

akosiafred.vdi (Normal, 25.00 GB)

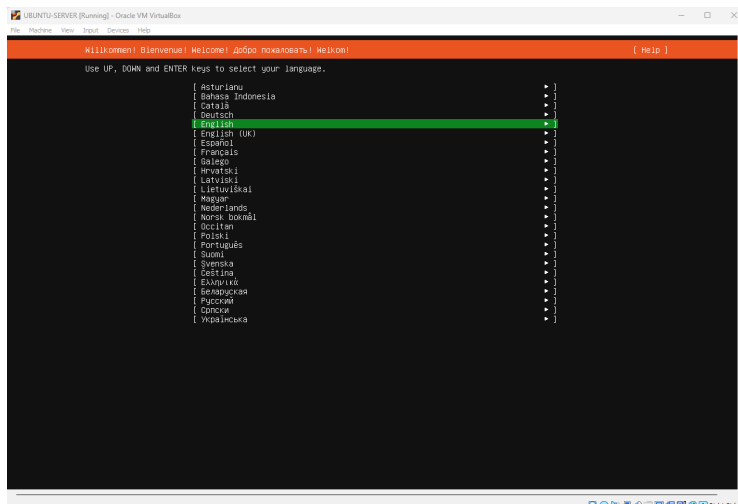
☐ Do Not Add a Virtual Hard Disk

Help Back Next Cancel

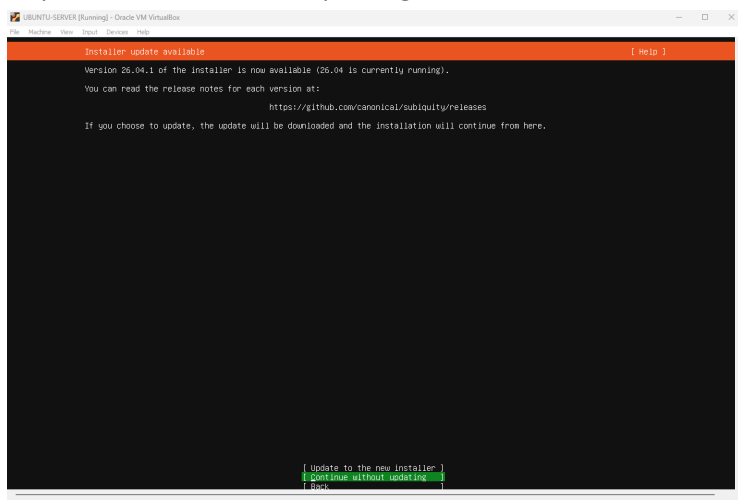
Step 7: Finish create



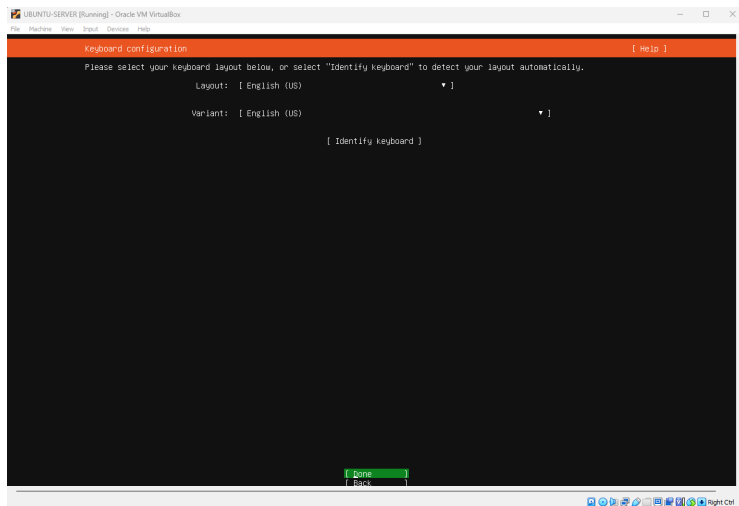
Step 8: Wait for it to load. Once done, this will show (see image below). Select your language



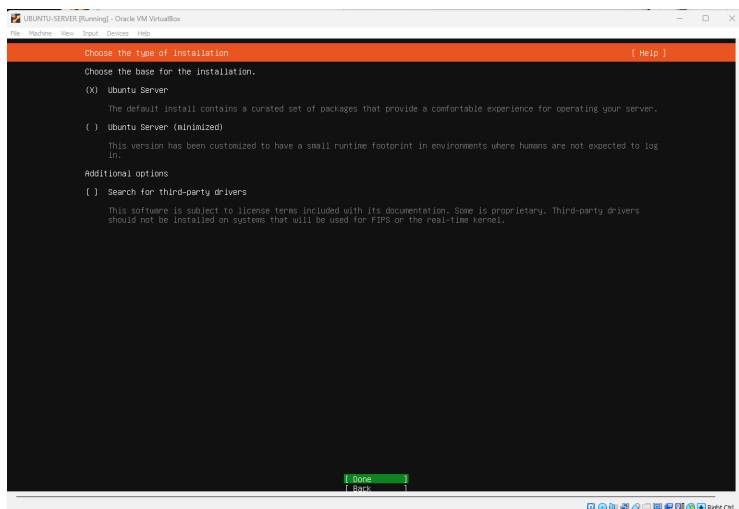
Step 9: Continue without updating



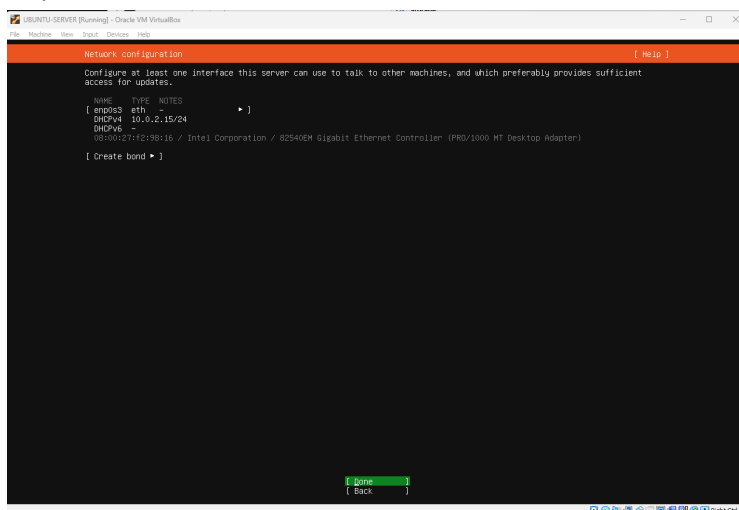
Step 10: Configure your keyboard



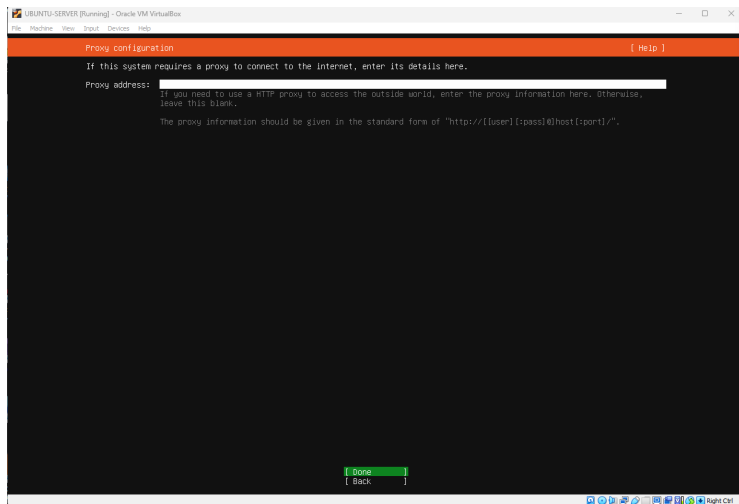
Step 11: Choose “Ubuntu Server”



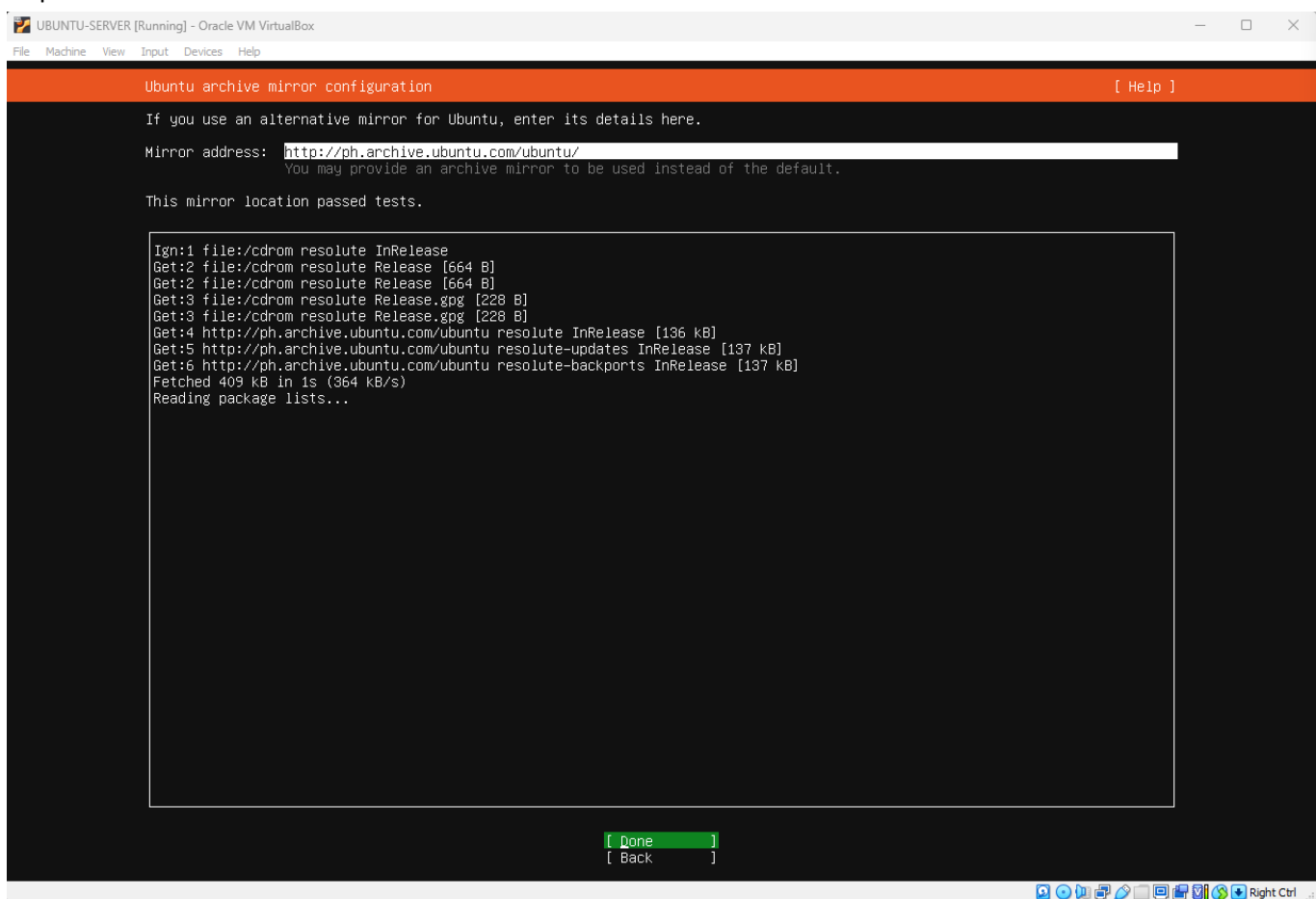
Step 12: Click done



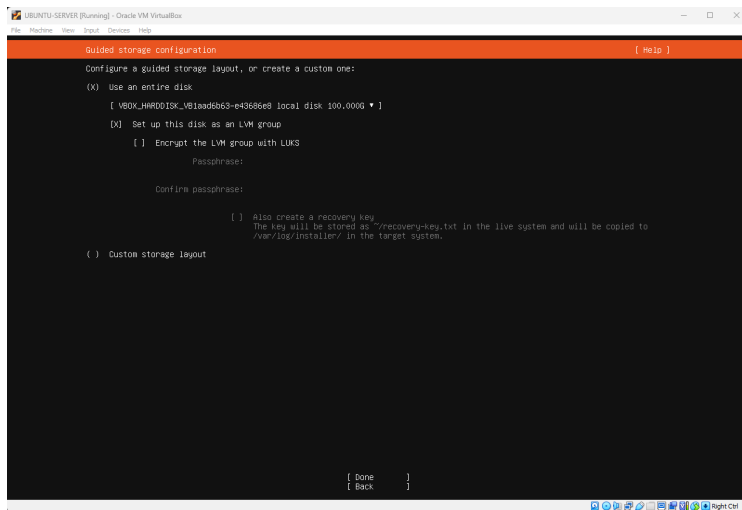
Step 13: Click done



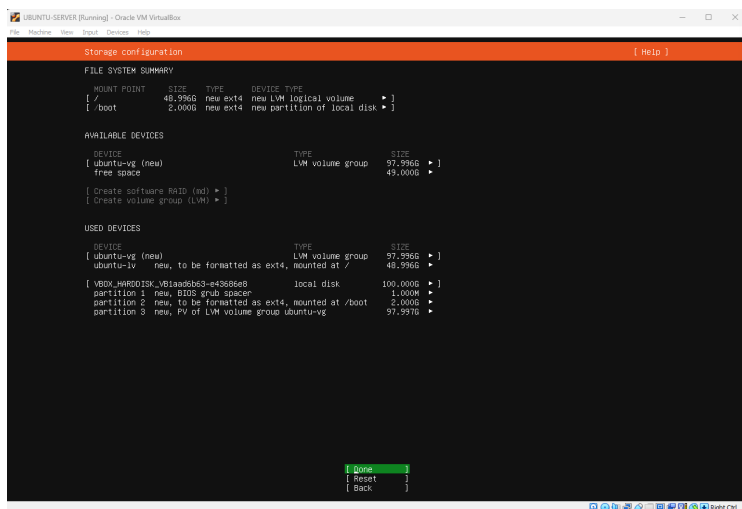
Step 14: Click done



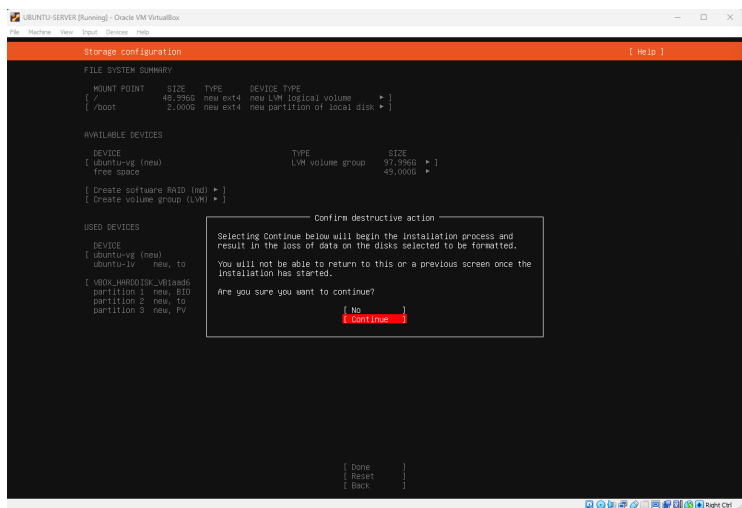
Step 15: Click done



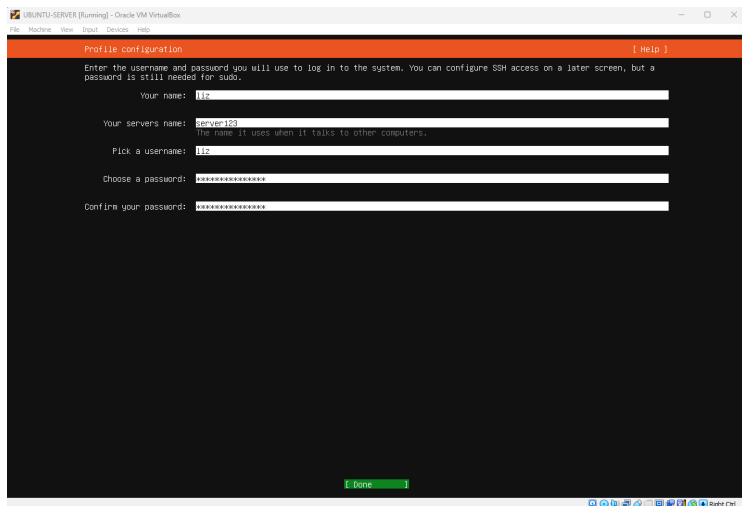
Step 16: Click done



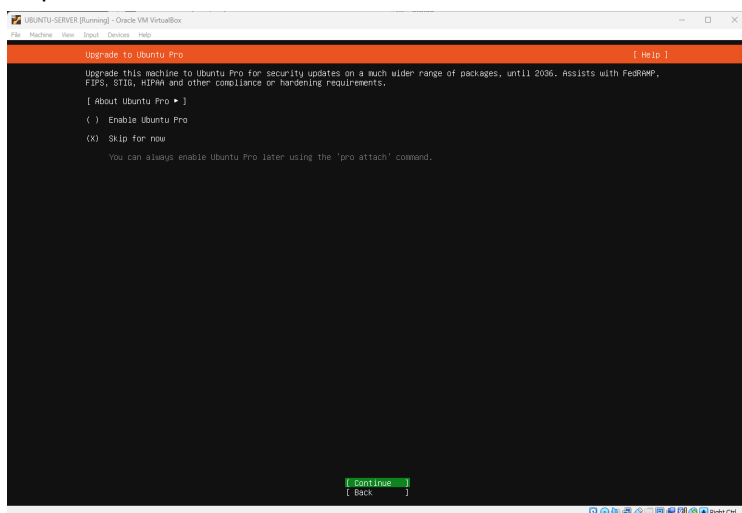
Step 17: Click Continue



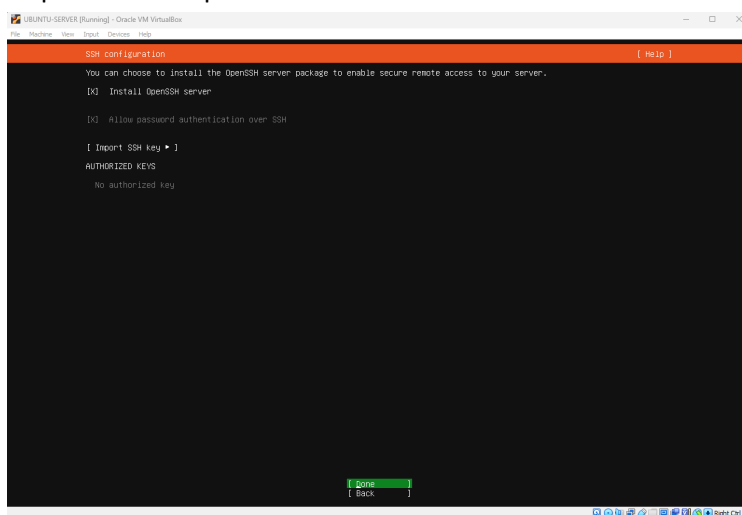
Step 18: Configure profile. Enter name, servers name, username, and password



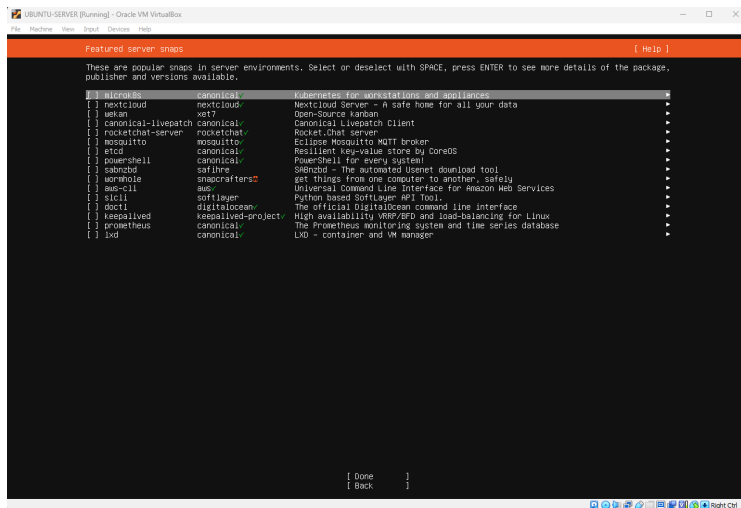
Step 19: Click continue



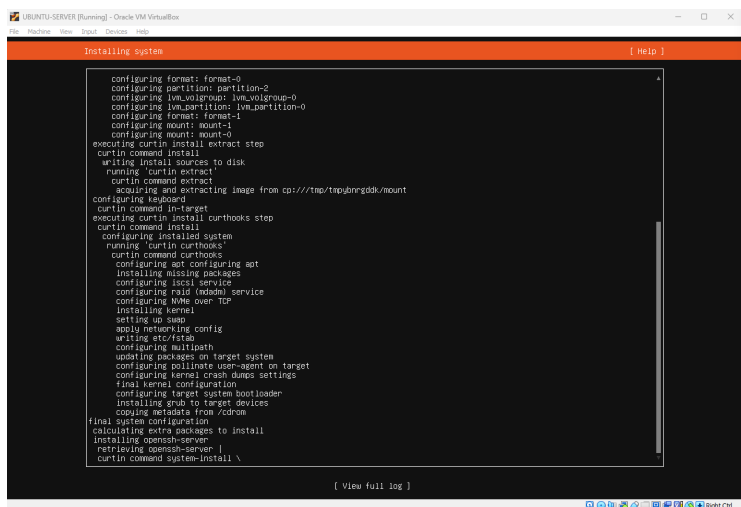
Step 20: Install OpenSSH server then done



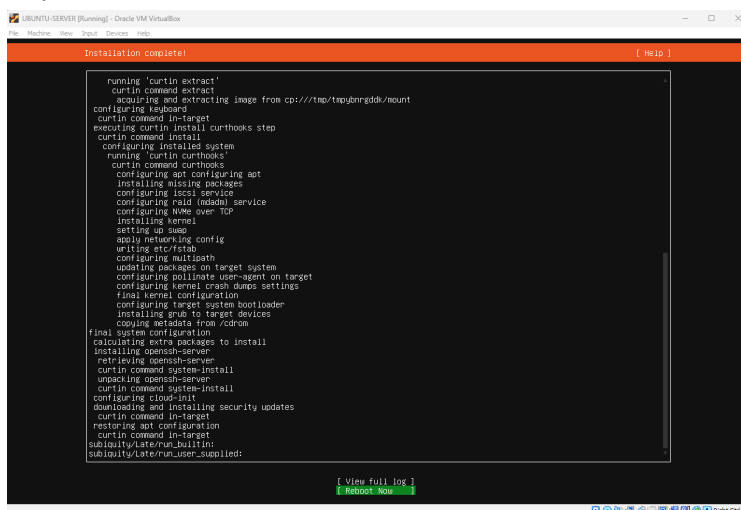
Step 21: Click done



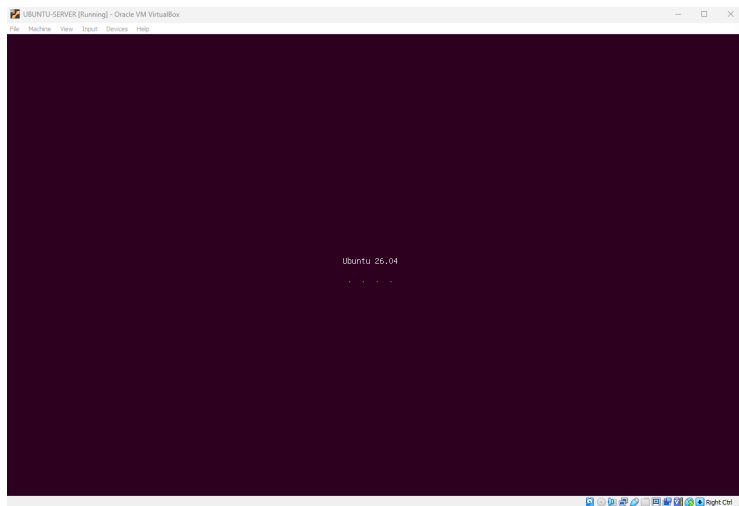
Step 22: Wait for it to finish installing system



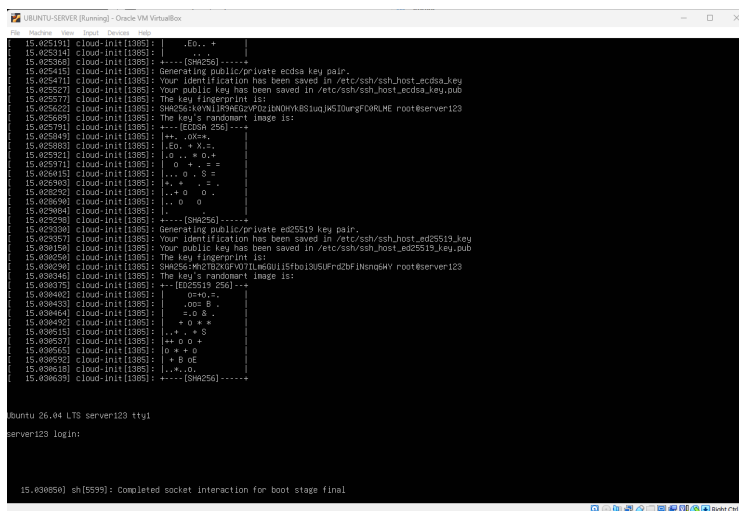
Step 23: Reboot now



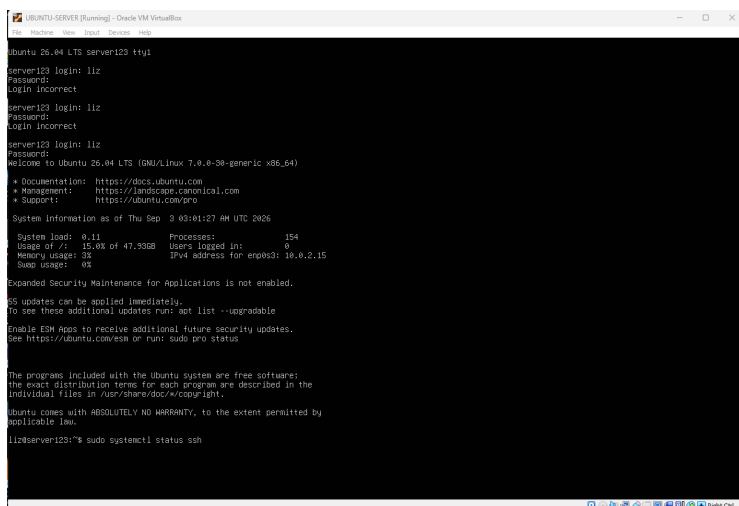
Step 24: Wait to finish rebooting



Step 25: Login your profile account



Step 26: Type “sudo systemctl status ssh”



Step 27: Type “sudo apt update”

```
UBUNTU-SERVER [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Memory usage: 0% IPv4 address for enp0s3: 10.0.2.15
Swap usage: 0%
Expanded Security Maintenance for Applications is not enabled.
PS updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

l1ts@server123:~$ sudo systemctl status ssh
(sudo: authenticate) Password:
* ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: active (running) since Thu 2025-09-03 02:58:45 UTC; 4min 44s ago
   Invocation: 259808eefed46778b44750c2ced13a9
   TriggeredBy: * ssh.socket
   Docs: man:ssh(8)
         man:ssh_config(5)
   Process: 5570 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 5570 (sshd)
   Tasks: 1 (limit: 6192)
   Memory: 1.0M (peak: 2.3M)
   CPU: 0ms
   CGroup: /system.slice/ssh.service
           └─5570 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Sep 03 02:58:45 server123 systemd[1]: Starting ssh.service - OpenSSH Secure Shell server...
Sep 03 02:58:45 server123 sshd[5570]: Server listening on 0.0.0.0 port 22.
Sep 03 02:58:45 server123 sshd[5570]: Server listening on :: port 22.
Sep 03 02:58:45 server123 systemd[1]: Started ssh.service - OpenSSH Secure Shell server.
l1ts@server123:~$ sudo apt update
```

Step 28: Type “sudo apt install openssh-server”

```
UBUNTU-SERVER [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Memory usage: 0% IPv4 address for enp0s3: 10.0.2.15
Swap usage: 0%
Expanded Security Maintenance for Applications is not enabled.
PS updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

l1ts@server123:~$ sudo systemctl status ssh
(sudo: authenticate) Password:
* ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: active (running) since Thu 2025-09-03 02:58:45 UTC; 4min 44s ago
   Invocation: 259808eefed46778b44750c2ced13a9
   TriggeredBy: * ssh.socket
   Docs: man:ssh(8)
         man:ssh_config(5)
   Process: 5570 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 5570 (sshd)
   Tasks: 1 (limit: 6192)
   Memory: 1.0M (peak: 2.3M)
   CPU: 0ms
   CGroup: /system.slice/ssh.service
           └─5570 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Sep 03 02:58:45 server123 systemd[1]: Starting ssh.service - OpenSSH Secure Shell server...
Sep 03 02:58:45 server123 sshd[5570]: Server listening on 0.0.0.0 port 22.
Sep 03 02:58:45 server123 sshd[5570]: Server listening on :: port 22.
Sep 03 02:58:45 server123 systemd[1]: Started ssh.service - OpenSSH Secure Shell server.
l1ts@server123:~$ sudo apt update
Hit1 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit2 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit3 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit4 http://security.ubuntu.com/ubuntu InRelease
50 packages can be upgraded. Run 'apt list --upgradable' to see them.
l1ts@server123:~$ sudo apt install openssh-server
Error: Unable to locate package openssh-server
l1ts@server123:~$ sudo apt install openssh-server
```

Step 29: Type “sudo systemctl enable ssh”

```
UBUNTU-SERVER [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Memory usage: 0% IPv4 address for enp0s3: 10.0.2.15
Swap usage: 0%
Expanded Security Maintenance for Applications is not enabled.
PS updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

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individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

l1ts@server123:~$ sudo systemctl status ssh
(sudo: authenticate) Password:
* ssh.service - OpenSSH Secure Shell server
   Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
   Active: active (running) since Thu 2025-09-03 02:58:45 UTC; 4min 44s ago
   Invocation: 259808eefed46778b44750c2ced13a9
   TriggeredBy: * ssh.socket
   Docs: man:ssh(8)
         man:ssh_config(5)
   Process: 5570 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 5570 (sshd)
   Tasks: 1 (limit: 6192)
   Memory: 1.0M (peak: 2.3M)
   CPU: 0ms
   CGroup: /system.slice/ssh.service
           └─5570 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Sep 03 02:58:45 server123 systemd[1]: Starting ssh.service - OpenSSH Secure Shell server...
Sep 03 02:58:45 server123 sshd[5570]: Server listening on 0.0.0.0 port 22.
Sep 03 02:58:45 server123 sshd[5570]: Server listening on :: port 22.
Sep 03 02:58:45 server123 systemd[1]: Started ssh.service - OpenSSH Secure Shell server.
l1ts@server123:~$ sudo apt update
Hit1 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit2 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit3 http://ph.archive.ubuntu.com/ubuntu InRelease
Hit4 http://security.ubuntu.com/ubuntu InRelease
50 packages can be upgraded. Run 'apt list --upgradable' to see them.
l1ts@server123:~$ sudo apt install openssh-server
Error: Unable to locate package openssh-server
l1ts@server123:~$ sudo apt install openssh-server
openssh-server is already the newest version (1:10.2p1-2ubuntu3.5).
The following packages were automatically installed and are no longer required:
  linux-headers-7.0.0-14          linux-image-unsigned-7.0.0-14-generic  linux-modules-7.0.0-14-generic  linux-tools-7.0.0-14-generic
l1ts@server123:~$ sudo apt autoremove
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 50
l1ts@server123:~$ sudo systemctl enable ssh
```

Step 30: Type “sudo systemctl start ssh”

```
UBUNTU-SERVER (Running) - Oracle VM VirtualBox
File Machine View Input Devices Help

The exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

l1z0server12317% sudo systemctl status ssh
(sudo: authenticate) Password:
ssh.service - OpenSSH Secure Shell server
Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
Active: active (running) since Thu 2023-09-03 02:58:45 UTC; 4min 44s ago
Invocation: 259809e9ffad678b4475b825ed1a3d
TriggeredBy: ● ssh.socket
Docs: man:ssh(8)
       man:sshd_config(5)
Process: 5573 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Main PID: 5573 (sshd)
Tasks: 1 (Limit: 6192)
Memory: 1.6M (peak: 2.3M)
CPU: 21ms
Group: /system.slice/ssh.service
CGroup: /system.slice/ssh.service
         └─5573 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Sep 03 02:58:45 server123 system[1]: Starting ssh.service - OpenSSH Secure Shell server...
Sep 03 02:58:45 server123 sshd[5573]: Server listening on 0.0.0.0 port 22.
Sep 03 02:58:45 server123 sshd[5573]: Server listening on :: port 22.
Sep 03 02:58:45 server123 system[1]: Started ssh.service - OpenSSH Secure Shell server.
l1z0server12317% sudo apt update
Hit:1 http://gh.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://gh.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://gh.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
96 packages can be upgraded. Run 'apt list --upgradable' to see them.
l1z0server12317% sudo apt install openssh-server-y
E: Unable to locate package openssh-server-y
l1z0server12317% sudo apt install openssh-server
openssh-server is already the newest version (1:9.2p1-2ubuntu0.5).
The following packages were automatically installed and are no longer required:
  linux-headers-7.0.0-14          linux-image-unsigned-7.0.0-14-generic  linux-modules-7.0.0-14-generic
  linux-headers-7.0.0-14-generic  linux-modules-7fs-7.0.0-14-generic    linux-tools-7.0.0-14
Use 'sudo apt autoremove' to remove them.

Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 59
l1z0server12317% sudo systemctl enable ssh
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
Created symlink /etc/systemd/system/ssh.service → /usr/lib/systemd/system/ssh.service'.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service → /usr/lib/systemd/system/ssh.service'.
l1z0server12317% sudo systemctl start ssh
l1z0server12317%
```

```
UBUNTU-SERVER (Running) - Oracle VM VirtualBox
File Machine View Input Devices Help

The exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

l1z0server12317% sudo systemctl status ssh
(sudo: authenticate) Password:
ssh.service - OpenSSH Secure Shell server
Loaded: loaded (/usr/lib/systemd/system/ssh.service; disabled; preset: enabled)
Active: active (running) since Thu 2023-09-03 02:58:45 UTC; 4min 44s ago
Invocation: 259809e9ffad678b4475b825ed1a3d
TriggeredBy: ● ssh.socket
Docs: man:ssh(8)
       man:sshd_config(5)
Process: 5573 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Main PID: 5573 (sshd)
Tasks: 1 (Limit: 6192)
Memory: 1.6M (peak: 2.3M)
CPU: 21ms
Group: /system.slice/ssh.service
CGroup: /system.slice/ssh.service
         └─5573 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

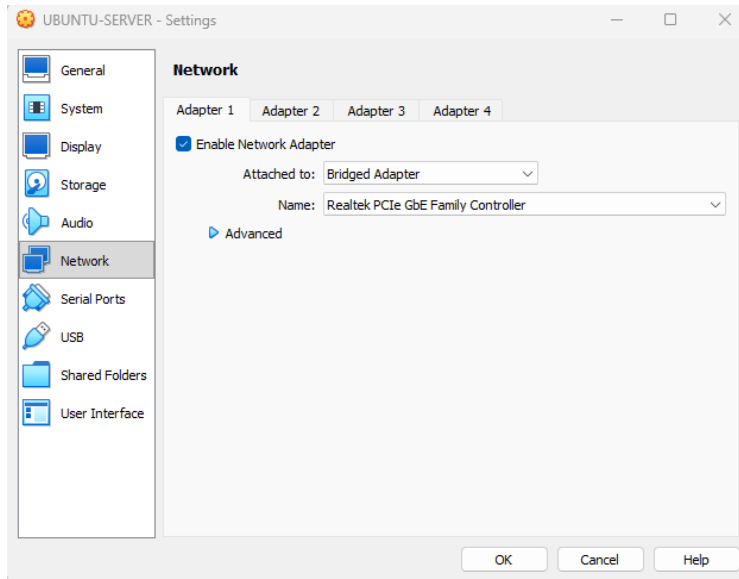
Sep 03 02:58:45 server123 system[1]: Starting ssh.service - OpenSSH Secure Shell server...
Sep 03 02:58:45 server123 sshd[5573]: Server listening on 0.0.0.0 port 22.
Sep 03 02:58:45 server123 sshd[5573]: Server listening on :: port 22.
Sep 03 02:58:45 server123 system[1]: Started ssh.service - OpenSSH Secure Shell server.
l1z0server12317% sudo apt update
Hit:1 http://gh.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://gh.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://gh.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
96 packages can be upgraded. Run 'apt list --upgradable' to see them.
l1z0server12317% sudo apt install openssh-server-y
E: Unable to locate package openssh-server-y
l1z0server12317% sudo apt install openssh-server
openssh-server is already the newest version (1:9.2p1-2ubuntu0.5).
The following packages were automatically installed and are no longer required:
  linux-headers-7.0.0-14          linux-image-unsigned-7.0.0-14-generic  linux-modules-7.0.0-14-generic
  linux-headers-7.0.0-14-generic  linux-modules-7fs-7.0.0-14-generic    linux-tools-7.0.0-14
Use 'sudo apt autoremove' to remove them.

Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 59
l1z0server12317% sudo systemctl enable ssh
Synchronizing state of ssh.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable ssh
Created symlink /etc/systemd/system/ssh.service → /usr/lib/systemd/system/ssh.service'.
Created symlink /etc/systemd/system/multi-user.target.wants/ssh.service → /usr/lib/systemd/system/ssh.service'.
l1z0server12317% sudo systemctl start ssh
l1z0server12317%
```

Step 31: Go back to Oracle VM Virtualbox. Click “UBUNTU-SERVER”

Step 32: Click Settings then Network

Step 33: Check enable network adapter. Change attached to to bridged adapter and name to realtek PCIe GbE Family Controller



Step 34: Type “ip a”

```
UBUNTU-SERVER [Running] - Oracle VM VirtualBox
Updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo apt update

liz@server123:~$ ip a
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 noprefixroute
        valid_lft forever preferred_lft forever
2: emps3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:f2:98:16 brd ff:ff:ff:ff:ff:ff
    altname enx08027f29816
    inet 172.16.0.156/16 metric 100 brd 172.16.255.255 scope global dynamic emps3
        valid_lft 89sec preferred_lft 89sec
    inet6 fe80::a00:27ff:fe3:279a/64 scope link proto kernel_l1
        valid_lft forever preferred_lft forever
liz@server123:~$ sudo ifconfig
sudo: authenticating Password:
ifconfig: IP v.4 starting
dev: loaded udev
ip: 08:00:10:00:01:02:00:00:ff:00:00:27:f2:98:16
emps3: BOND 27:f2:98:16
emps3: soliciting a DHCP lease
emps3: soliciting an IPv6 router
emps3: probing for an IPv4LL address
emps3: using IPv4LL address 169.254.162.141
emps3: adding route to 169.254.0.0/16
emps3: adding default route
    protocol specifier 'ip4v11' from 'emps3.ip4v11'. Using 'emps3' (ifindex=2).
liz@server123:~$ ip a
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 noprefixroute
        valid_lft forever preferred_lft forever
2: emps3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 08:00:27:f2:98:16 brd ff:ff:ff:ff:ff:ff
    altname enx08027f29816
    inet 169.254.162.141/16 brd 169.254.255.255 scope global noprefixroute emps3
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe3:279a/64 scope link proto kernel_l1
        valid_lft forever preferred_lft forever
liz@server123:~$
```

Step 35: Open your VM and go to terminal

Step 36: Type “ssh (your username)@(your ip address) (ex. Ssh liz@192.168.137.57)”

```
Rui-VM [Running] - Oracle VM VirtualBox
Sep 3 11:59

liz@liz-VirtualBox:~$ ssh: connect to host 172.16.0.156 port 22: Connection timed out
liz@liz-VirtualBox:~$
liz@liz-VirtualBox:~$
liz@liz-VirtualBox:~$ ip a
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 noprefixroute
        valid_lft forever preferred_lft forever
2: emps3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:eb:32:79a brd ff:ff:ff:ff:ff:ff
    altname enx080027eb3279a
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute emps3
        valid_lft 7073sec preferred_lft 7073sec
    inet6 fe80::a00:27ff:fe3:279a/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
liz@liz-VirtualBox:~$ ssh liz@172.16.0.156
~[A]~[A2]
[1]+  Stopped                  ssh liz@172.16.0.156
liz@liz-VirtualBox:~$ ssh liz@169.254.162.141
```

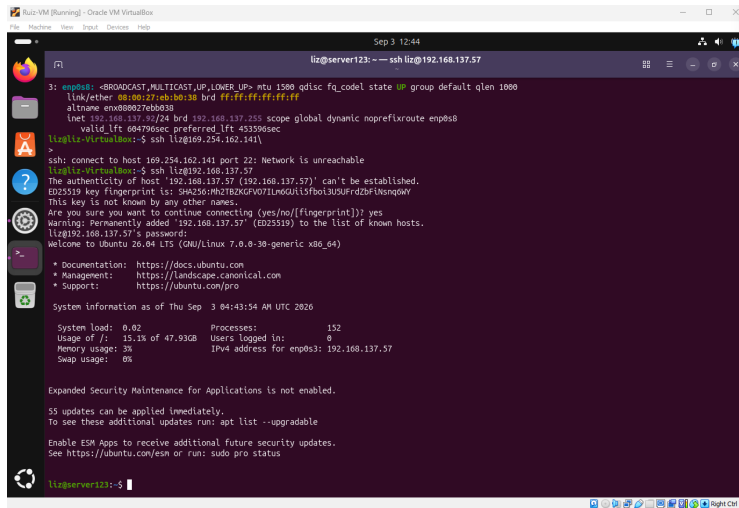
Step 37: Type “yes”

```
Rui-VM [Running] - Oracle VM VirtualBox
Sep 3 12:43

Network

liz@liz-VirtualBox:~$ ssh liz@192.168.137.57
valid_lft forever preferred_lft forever
2: emps3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:eb:32:79a brd ff:ff:ff:ff:ff:ff
    altname enx080027eb3279a
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute emps3
        valid_lft 9039sec preferred_lft 7355sec
    inet6 fe80::2f87:dcfb:f3bd:9d7b/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
3: emps3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:eb:32:79a brd ff:ff:ff:ff:ff:ff
    altname enx080027eb3279a
    inet 192.168.137.57/24 brd 192.168.137.255 scope global dynamic noprefixroute emps3
        valid_lft 604790sec preferred_lft 453390sec
liz@liz-VirtualBox:~$ ssh liz@169.254.162.141
ssh: connect to host 169.254.162.141 port 22: Network is unreachable
liz@liz-VirtualBox:~$ ssh liz@192.168.137.57
The authenticity of host '192.168.137.57 (192.168.137.57)' can't be established.
ED25519 key fingerprint is: SHA256:Wb2T8XGcV071LmGull5fbo13USurfd2BfInoqgw
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])?
```

Step 38: And you're done!



```
luz@server123: ~ -- ssh luz@192.168.137.57
3: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state @ group default qlen 1000
    link/ether 08:00:27:eb:b0:38 brd ff:ff:ff:ff:ff:ff
    altname enx080027ebb038
    link 192.168.137.57/24 brd 192.168.137.255 scope global dynamic noprefixroute enp0s3
        valid_lft 604796sec preferred_lft 453590sec
luz@Li-VirtualBox:~$ ssh luz@192.168.137.57
Warning: Permanently added '192.168.137.57' (ED25519) to the list of known hosts.
luz@192.168.137.57:~$
System information as of Thu Sep  3 04:43:54 AM UTC 2020
System load:  0.02   Processes:            152
Usage of /:   15.1% of 47.9GB   Users logged in:    0
Memory usage: 3%   IPv4 address for enp0s3: 192.168.137.57
Swap usage:   0%
Expanded Security Maintenance for Applications is not enabled.
55 updates can be applied immediately.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
luz@server123:~$
```