

Install Linux server on the virtual box and Install SSH

Aim

To install a Linux server on Oracle VM VirtualBox and then install SSH on it.

Introduction

Ubuntu Server stands out as a robust and user-friendly Linux distribution tailored for diverse server applications. Favored for its stability and security, Ubuntu Server seamlessly integrates with Secure Shell (SSH), a crucial protocol for remote system access.

SSH ensures secure communication, allowing administrators to manage the server remotely through encrypted connections, execute commands, and perform system tasks efficiently. Together, Ubuntu Server and SSH provide a solid foundation for secure and scalable server environments, catering to the needs of both individuals and enterprises in the digital realm.

Procedure

1. Visit the official Ubuntu Server website Download page: <https://ubuntu.com/download/server>. Click on Download. The server .iso file will be downloaded.

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Option 1: Manual server installation


USB or DVD image based physical install

- ✓ OS security guaranteed until April 2027
- ✓ Expanded security maintenance until April 2032
- ✓ Commercial support for enterprise customers

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[Read the Ubuntu Server 22.04 LTS release notes ▸](#)

<https://ubuntu.com/download/server#community-content>



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Thank you!

Your download of Ubuntu Server 22.04.3 should start in the background.

If your download doesn't start automatically, [download now](#).

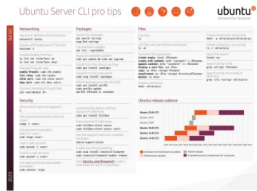
You can [verify your download](#), or get [help on installing](#).

EXPLORE:

 multipass  MAAS

<https://ubuntu.com/download/server#community-content>

Ubuntu Server CLI pro tips

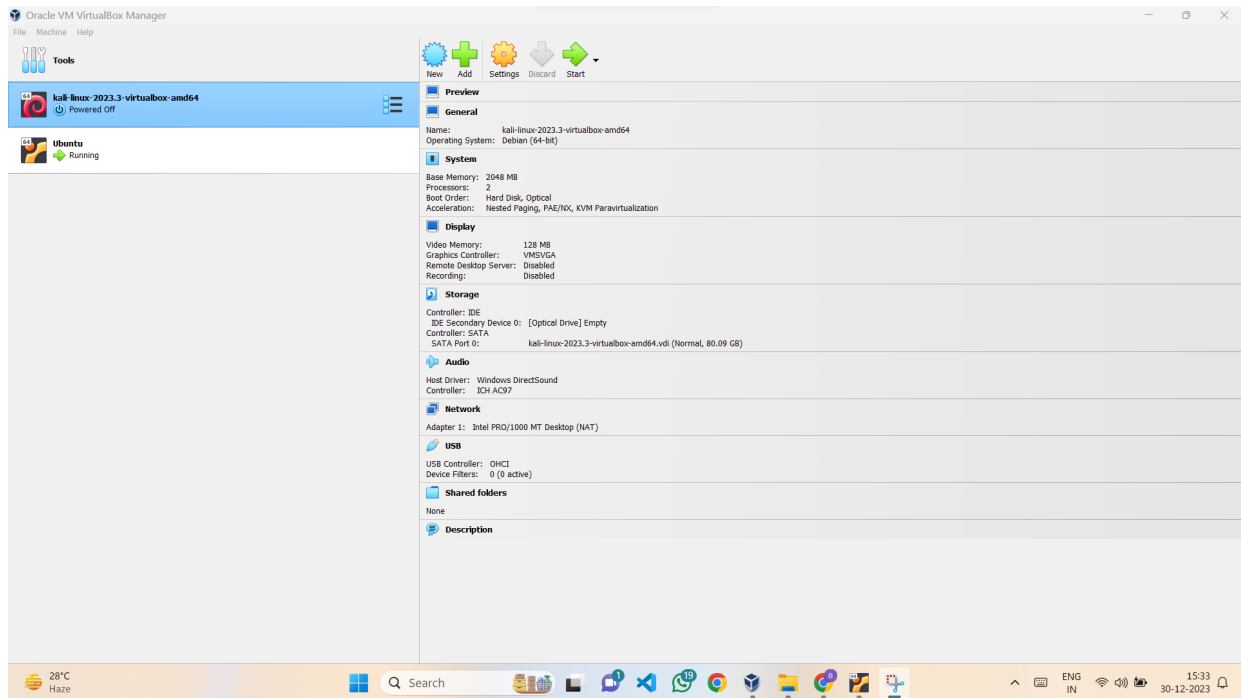


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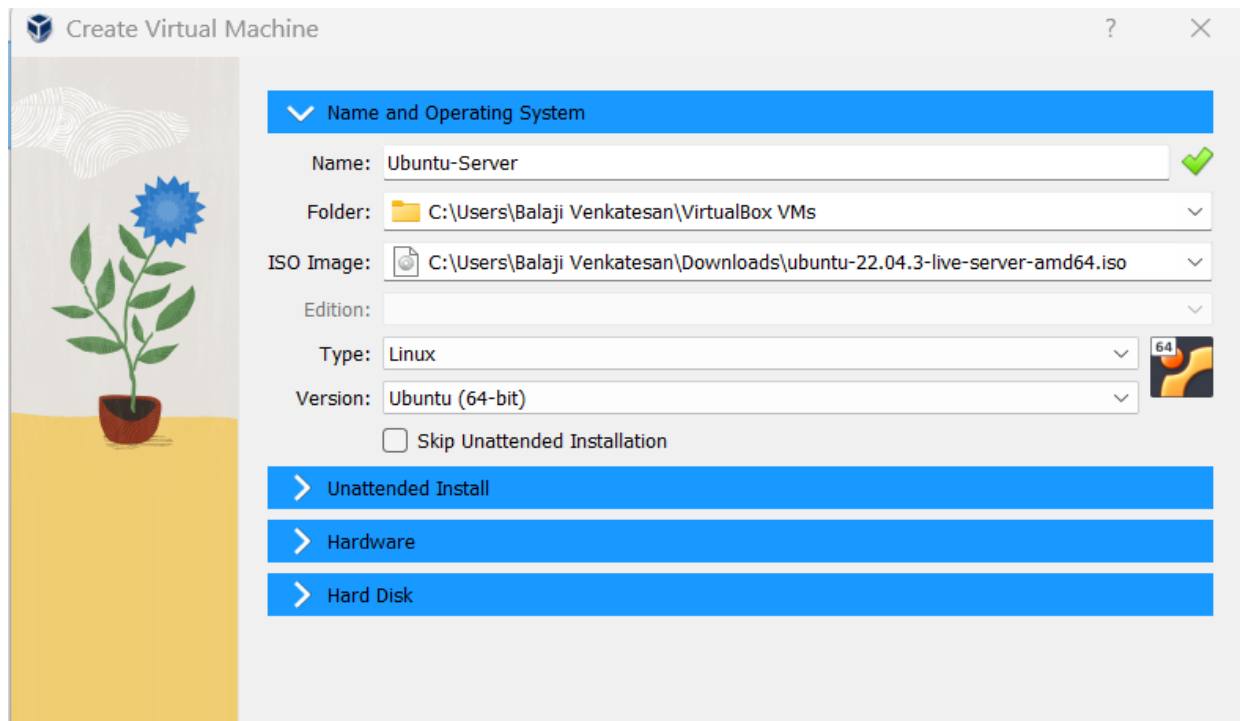
Get the "Ubuntu Server CLI pro tips 2020" and learn how to use the command line efficiently and get started with DevOps — from basic file management to deploying Kubernetes and OpenStack.

[Download the pro tips](#)

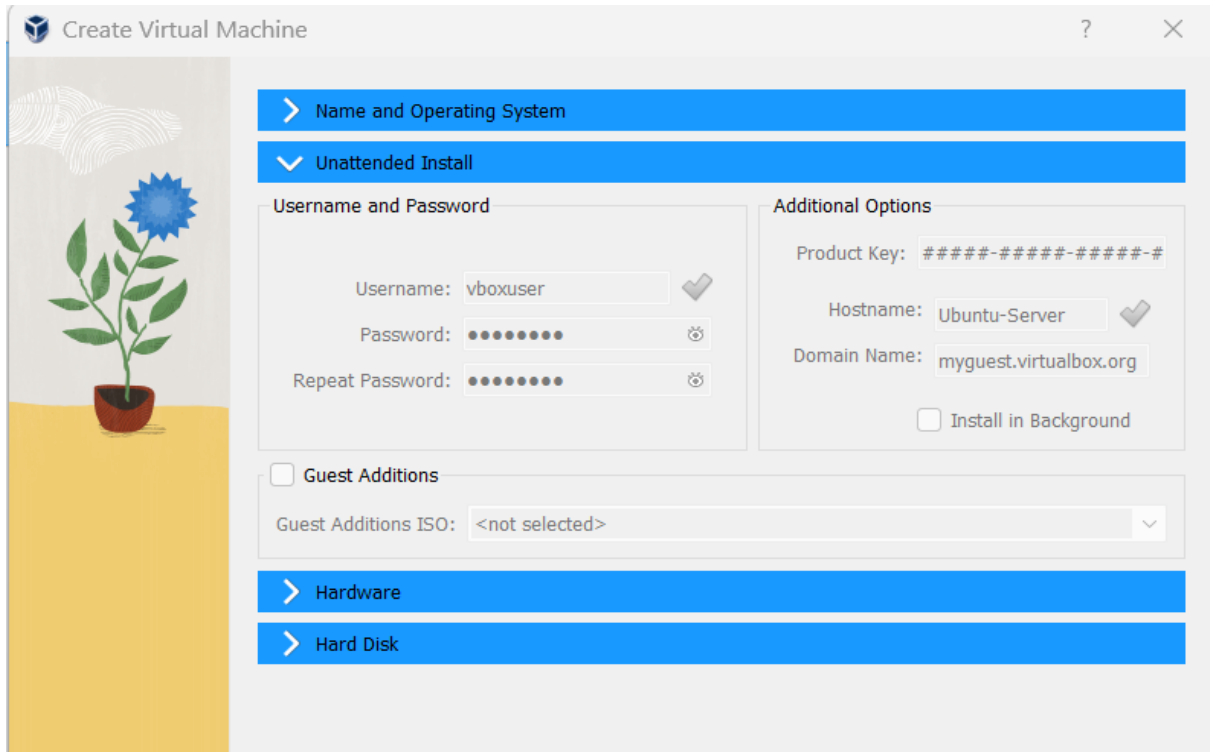
2. Open Oracle VM VirtualBox and click on “New” to create a new virtual machine.



Name your virtual machine, choose "Linux" as the type, and select Ubuntu (64-bit) as the version.



Choose the downloaded ISO image, allocate an appropriate amount of RAM, and create a virtual hard disk.



The screenshot shows the 'Create Virtual Machine' window with the 'Unattended Install' step selected. The left sidebar features a decorative illustration of a potted plant with a blue flower. The main content area is divided into sections for configuration. The 'Username and Password' section includes fields for Username (vboxuser), Password (masked with dots), and Repeat Password (masked with dots), each with a confirmation icon. The 'Additional Options' section contains fields for Product Key (masked with hashes), Hostname (Ubuntu-Server), and Domain Name (myguest.virtualbox.org), along with an 'Install in Background' checkbox. Below these is a 'Guest Additions' section with a checkbox and a dropdown menu for 'Guest Additions ISO' (currently set to '<not selected>'). At the bottom, there are three blue navigation buttons: 'Name and Operating System', 'Unattended Install' (which is active), and 'Hardware'.

Create Virtual Machine

> Name and Operating System

✓ Unattended Install

Username and Password

Username: vboxuser ✓

Password: ●●●●●● ●

Repeat Password: ●●●●●● ●

Additional Options

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

Hostname: Ubuntu-Server ✓

Domain Name: myguest.virtualbox.org

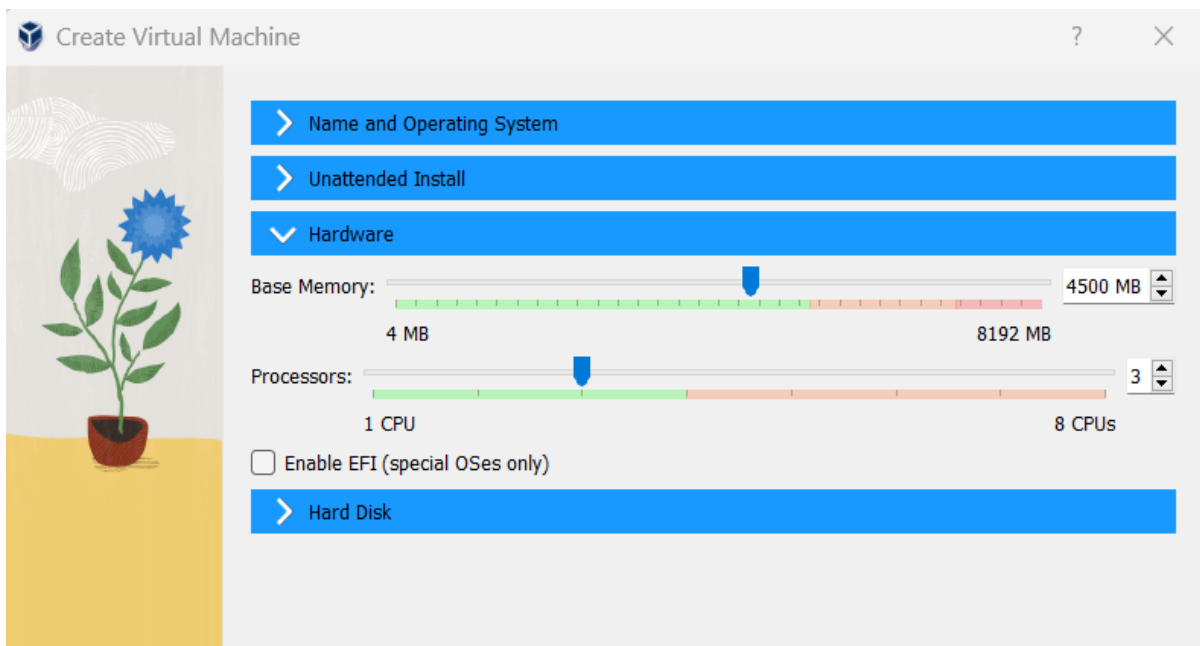
☐ Install in Background

☐ Guest Additions

Guest Additions ISO: <not selected>

> Hardware

> Hard Disk



The screenshot shows the 'Create Virtual Machine' window with the 'Hardware' step selected. The left sidebar remains the same. The main content area shows configuration for hardware. The 'Base Memory' section has a slider ranging from 4 MB to 8192 MB, with a value of 4500 MB selected. The 'Processors' section has a slider ranging from 1 CPU to 8 CPUs, with a value of 3 selected. Below these is an 'Enable EFI (special OSes only)' checkbox. At the bottom, there is a blue navigation button for 'Hard Disk'. The top navigation buttons are 'Name and Operating System', 'Unattended Install', and 'Hardware' (which is active).

Create Virtual Machine

> Name and Operating System

> Unattended Install

✓ Hardware

Base Memory: 4500 MB

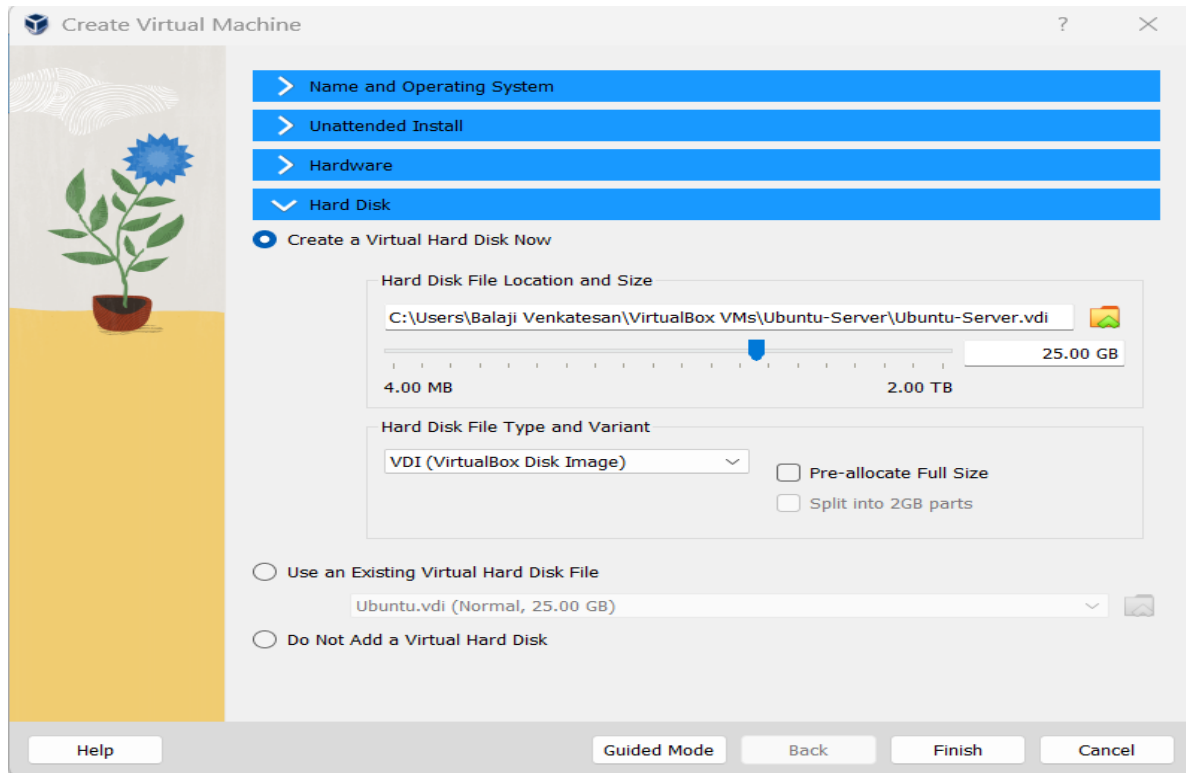
4 MB 8192 MB

Processors: 3

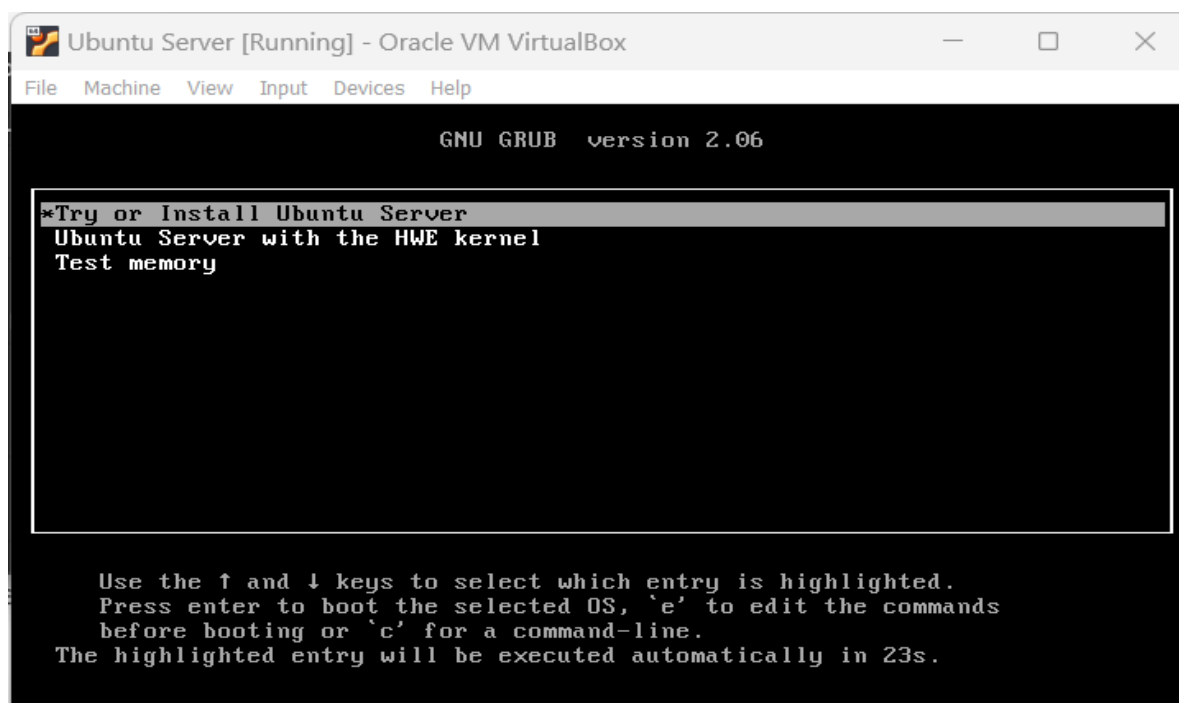
1 CPU 8 CPUs

☐ Enable EFI (special OSes only)

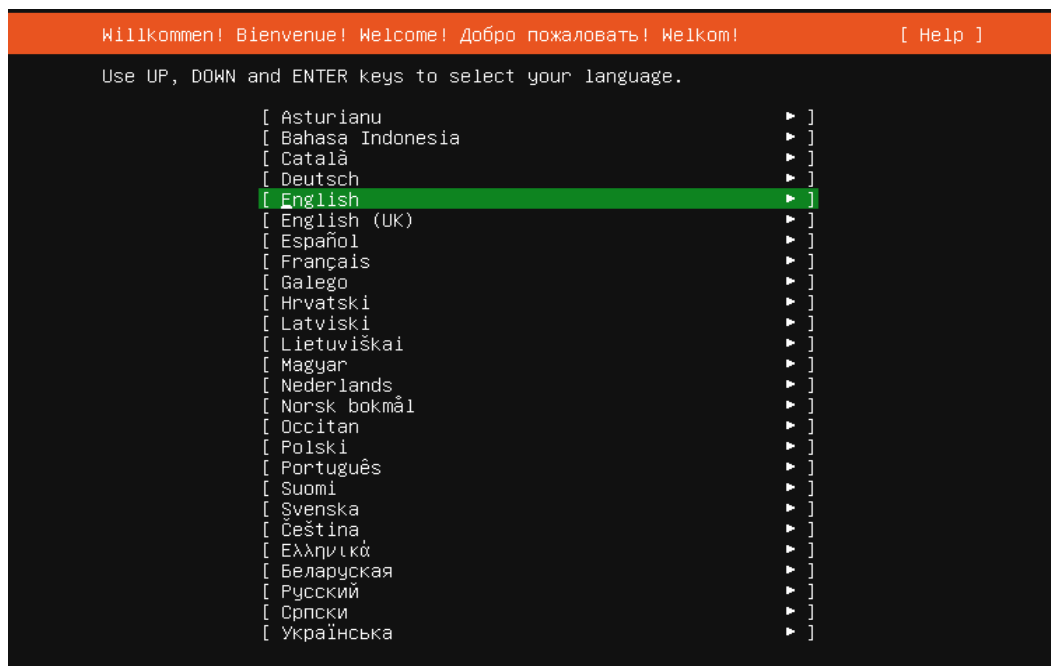
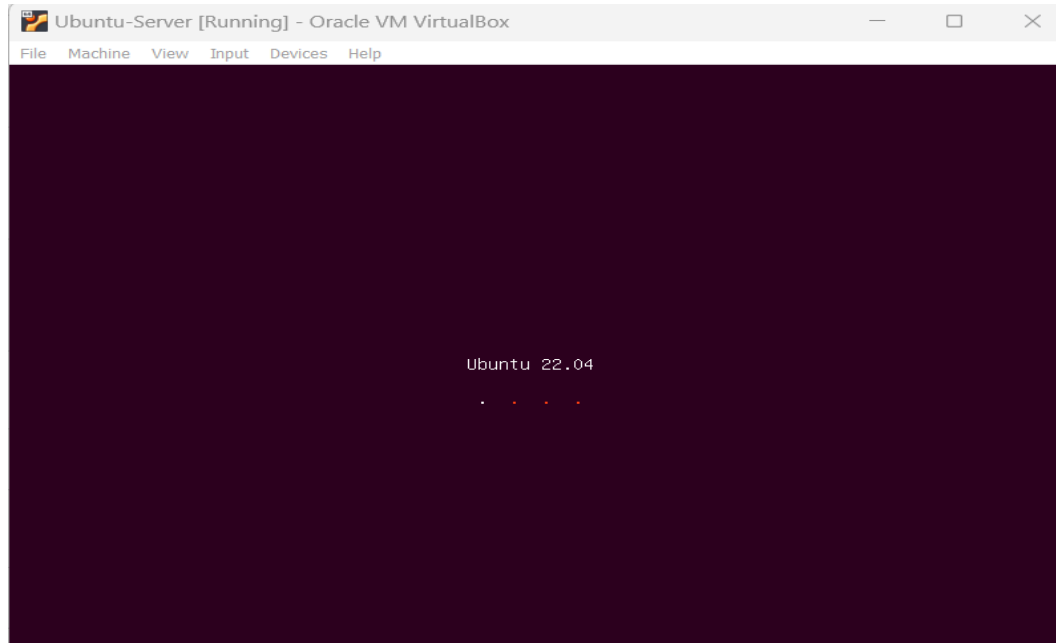
> Hard Disk

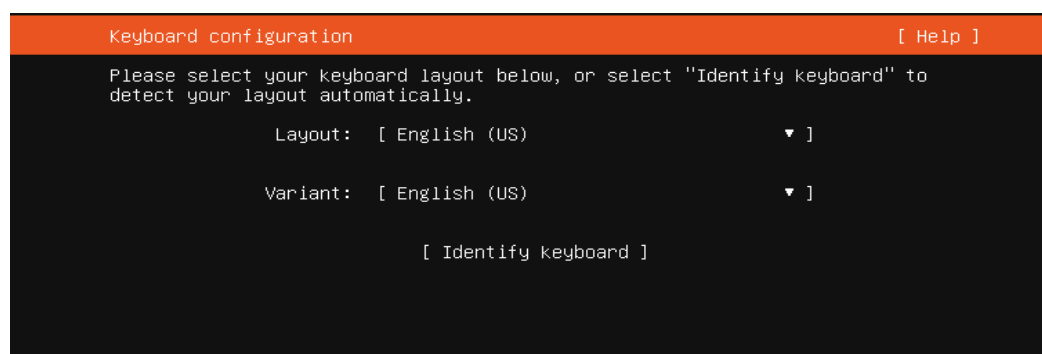
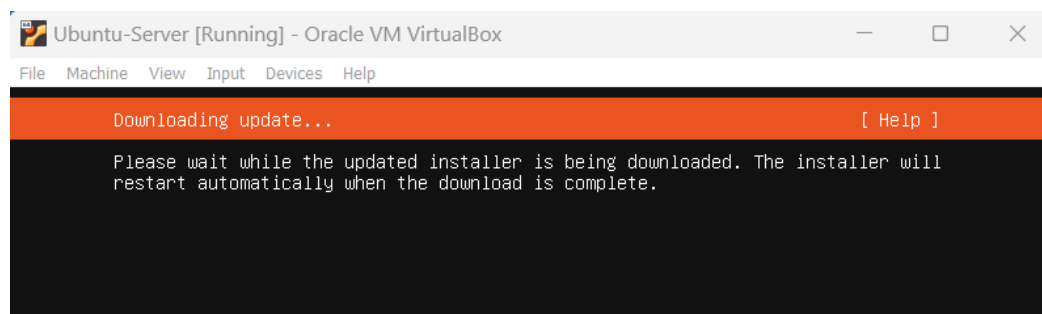
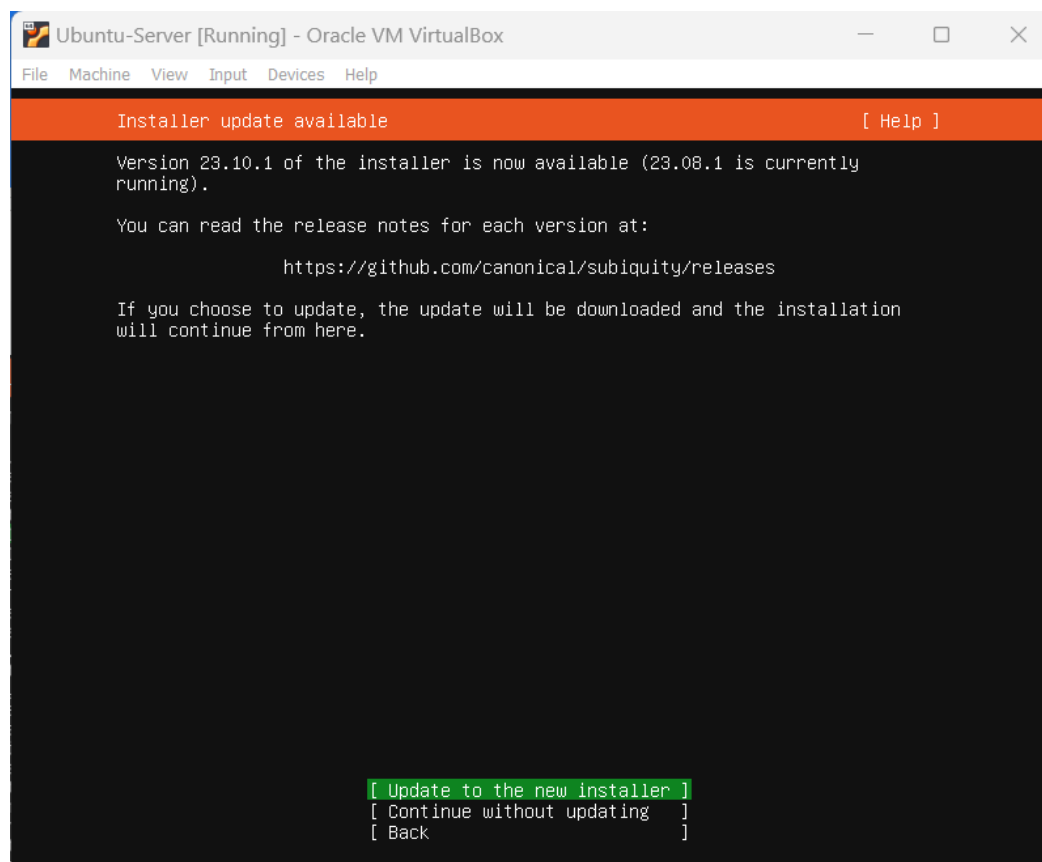


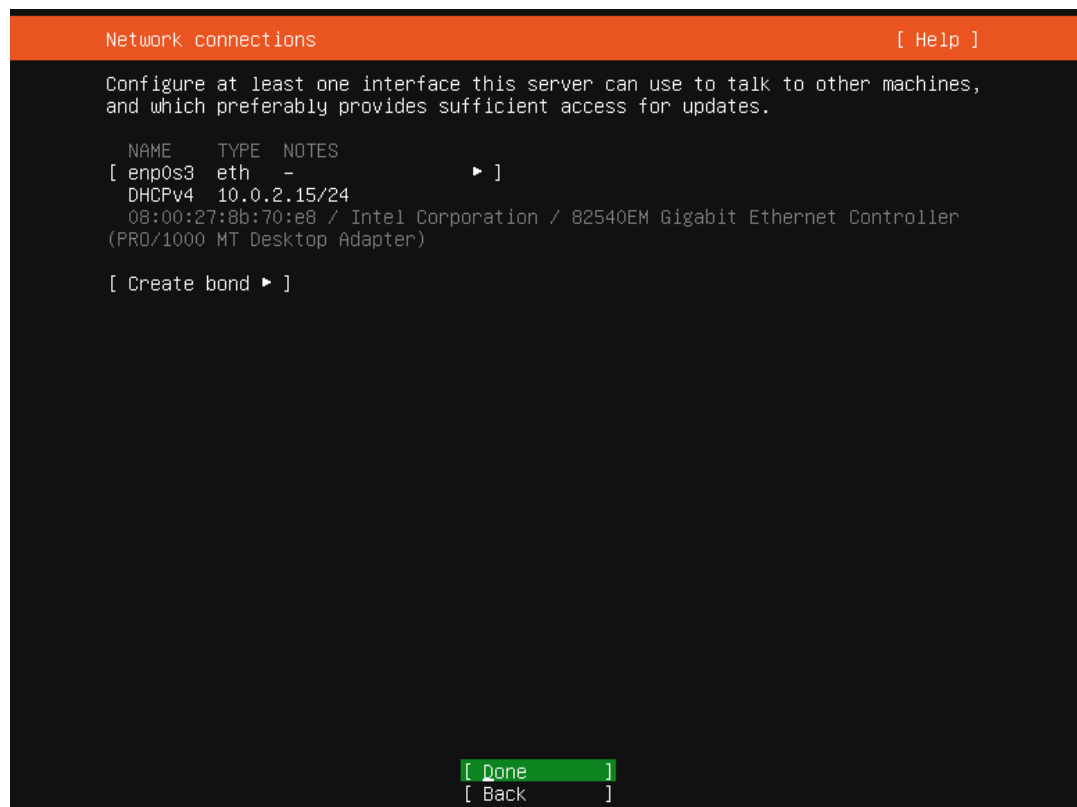
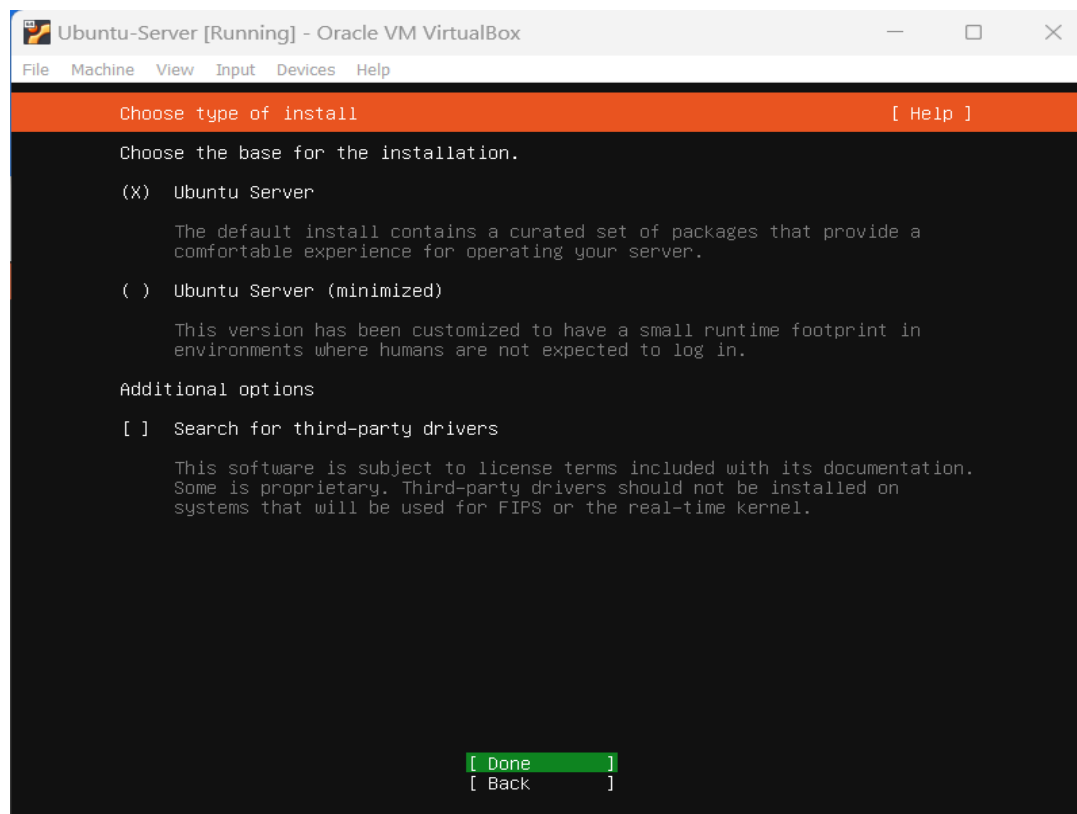
3. Start the Ubuntu Server and select the “Try or Install Ubuntu Server” option.



4. Follow the on-screen instructions to install Ubuntu. Use a combination of Enter and Space buttons to choose the options that suit your needs.








```
Ubuntu Server [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
[ 5.918785] vmwgfx 0000:00:02.0: [drm] FIFO at 0x00000000f0000000 size is 204
8 kiB
[ 5.918797] vmwgfx 0000:00:02.0: [drm] VRAM at 0x00000000e0000000 size is 163
84 kiB
[ 5.918889] vmwgfx 0000:00:02.0: [drm] Running on SVGA version 2.
[ 5.918928] vmwgfx 0000:00:02.0: [drm] DMA map mode: Caching DMA mappings.
[ 5.919483] vmwgfx 0000:00:02.0: [drm] Legacy memory limits: VRAM = 16384 kB,
FIFO = 2048 kB, surface = 507904 kB
[ 5.919487] vmwgfx 0000:00:02.0: [drm] MOB limits: max mob size = 0 kB, max m
ob pages = 0
[ 5.919491] vmwgfx 0000:00:02.0: [drm] Capabilities: rect copy, cursor, curso
r bypass, cursor bypass 2, alpha cursor, extended fifo, pitchlock, irq mask, gmr
, traces, gmr2, screen object 2, command buffers,
[ 5.919495] vmwgfx 0000:00:02.0: [drm] Max GMR ids is 8192
[ 5.919497] vmwgfx 0000:00:02.0: [drm] Max number of GMR pages is 1048576
[ 5.919499] vmwgfx 0000:00:02.0: [drm] Maximum display memory size is 16384 k
iB
[ 5.921101] vmwgfx 0000:00:02.0: [drm] Screen Object display unit initialized
[ 5.921565] vmwgfx 0000:00:02.0: [drm] Fifo max 0x00200000 min 0x00001000 cap
0x000000355
[ 5.921833] vmwgfx 0000:00:02.0: [drm] Using command buffers with DMA pool.
[ 5.921853] vmwgfx 0000:00:02.0: [drm] Available shader model: Legacy.
[ 5.921906] [drm:vmw_host_printf [vmwgfx]] *ERROR* Failed to send host log me
ssage.
[ 5.933365] fbcon: svgadrmfb (fb0) is primary device
[ 5.957561] Console: switching to colour frame buffer device 100x37
[ 5.962596] hid-generic 0003:80EE:0021.0001: input,hidraw0: USB HID v1.10 Mouse [VirtualBox USB T
ablet] on usb-0000:00:06.0-1/input0
[ 5.968696] [drm] Initialized vmwgfx 2.19.0 20210722 for 0000:00:02.0 on minor 0
[ 6.287072] e1000 0000:00:03.0 eth0: (PCI:33MHz:32-bit) 08:00:27:09:00:13
[ 6.287136] e1000 0000:00:03.0 eth0: Intel(R) PRO/1000 Network Connection
[ 6.292163] e1000 0000:00:03.0 enp0s3: renamed from eth0
Begin: Loading essential drivers ... _
```

Configure proxy [Help]

If this system requires a proxy to connect to the internet, enter its details here.

Proxy address:

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

The proxy information should be given in the standard form of "http://[user][:pass]@host[:port]/".

[Done]

[Back]

Configure Ubuntu archive mirror [Help]

If you use an alternative mirror for Ubuntu, enter its details here.

Mirror address:

You may provide an archive mirror that will be used instead of the default.

The mirror location is being tested. -

[Done]

[Back]

Guided storage configuration [Help]

Configure a guided storage layout, or create a custom one:

(X) Use an entire disk

[VBOX_HARDDISK_VBce3d863a-6acd4338 local disk 25.000G ▼]

[X] Set up this disk as an LVM group

[] Encrypt the LVM group with LUKS

Passphrase:

Confirm passphrase:

[] Also create a recovery key
The key will be stored as
~/recovery-key.txt in the live system and
will be copied to /var/log/installer/ in
the target system.

() Custom storage layout

[Done]

[Back]

FILE SYSTEM SUMMARY

| MOUNT POINT | SIZE | TYPE | DEVICE TYPE |
|-------------|---------|----------|---------------------------------|
| [/ | 11.496G | new ext4 | new LVM logical volume ▶] |
| [/boot | 2.000G | new ext4 | new partition of local disk ▶] |

AVAILABLE DEVICES

| DEVICE | TYPE | SIZE |
|-------------------|------------------|-------------|
| [ubuntu-vg (new) | LVM volume group | 22.996G ▶] |
| free space | | 11.500G ▶ |

[Create software RAID (md) ▶]

[Create volume group (LVM) ▶]

USED DEVICES

| DEVICE | TYPE | SIZE |
|-------------------------------------|--|-------------|
| [ubuntu-vg (new) | LVM volume group | 22.996G ▶] |
| ubuntu-lv | new, to be formatted as ext4, mounted at / | 11.496G ▶ |
| [VBOX_HARDDISK_VBce3d863a-6acd4338 | local disk | 25.000G ▶] |
| partition 1 | new, BIOS grub spacer | 1.000M ▶ |
| partition 2 | new, to be formatted as ext4, mounted at /boot | 2.000G ▶ |
| partition 3 | new, PV of LVM volume group ubuntu-vg | 22.997G ▶ |

[Done]

[Reset]

[Back]

Confirm destructive action

Selecting Continue below will begin the installation process and result in the loss of data on the disks selected to be formatted.

You will not be able to return to this or a previous screen once the installation has started.

Are you sure you want to continue?

[No]

[Continue]

5. Enter the username, password, and server details as per your preference.

Profile setup

[Help]

Enter the username and password you will use to log in to the system. You can configure SSH access on the next screen but a password is still needed for sudo.

Your name:

Your servers name:
The name it uses when it talks to other computers.

Pick a username:

Choose a password:

Confirm your password:

[Done]

Upgrade to Ubuntu Pro

[Help]

Upgrade this machine to Ubuntu Pro for security updates on a much wider range of packages, until 2032. Assists with FedRAMP, FIPS, STIG, HIPAA and other compliance or hardening requirements.

[About Ubuntu Pro ►]

() Enable Ubuntu Pro

(X) Skip for now

You can always enable Ubuntu Pro later via the 'pro attach' command.

[Continue]

[Back]

6. Select the option to install the OpenSSH server and click "Done."
Choose additional packages to install in further screens.

SSH Setup [Help]

You can choose to install the OpenSSH server package to enable secure remote access to your server.

[X] Install OpenSSH server

Import SSH identity: [No ▼]
You can import your SSH keys from GitHub or Launchpad.

Import Username:

[X] Allow password authentication over SSH

[Done]
[Back]

Featured Server Snaps [Help]

These are popular snaps in server environments. Select or deselect with SPACE, press ENTER to see more details of the package, publisher and versions available.

| | | |
|-------------------------|---|---|
| [] microk8s | Kubernetes for workstations and appliances | ▶ |
| [] nextcloud | Nextcloud Server - A safe home for all your data | ▶ |
| [] wekan | Open-Source kanban | ▶ |
| [] kata-containers | Build lightweight VMs that seamlessly plug into the c | ▶ |
| [] docker | Docker container runtime | ▶ |
| [] canonical-livepatch | Canonical Livepatch Client | ▶ |
| [] rocketchat-server | Rocket.Chat server | ▶ |
| [] mosquitto | Eclipse Mosquitto MQTT broker | ▶ |
| [] etcd | Resilient key-value store by CoreOS | ▶ |
| [] powershell | PowerShell for every system! | ▶ |
| [] sabnzbd | SABnzbd | ▶ |
| [] wormhole | get things from one computer to another, safely | ▶ |
| [] aws-cli | Universal Command Line Interface for Amazon Web Servi | ▶ |
| [] google-cloud-sdk | Google Cloud SDK | ▶ |
| [] slcli | Python based SoftLayer API Tool. | ▶ |
| [] doctl | The official DigitalOcean command line interface | ▶ |
| [] conjure-up | Package runtime for conjure-up spells | ▶ |
| [] postgresql10 | PostgreSQL is a powerful, open source object-relation | ▶ |
| [] heroku | CLI client for Heroku | ▶ |
| [] keepalived | High availability VRRP/BFD and load-balancing for Lin | ▶ |
| [] prometheus | The Prometheus monitoring system and time series data | ▶ |
| [] juju | Juju - a model-driven operator lifecycle manager for | ▶ |

[Done]
[Back]

- Wait for the server to be installed, then select 'Reboot Now.' Afterward, enter the username and password in further screens.

```
Install complete! [ Help ]

configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
installing kernel
setting up swap
apply networking config
writing etc/fstab
configuring multipath
updating packages on target system
configuring pollinate user-agent on target
updating initramfs configuration
configuring target system bootloader
installing grub to target devices

final system configuration
calculating extra packages to install
installing openssh-server
retrieving openssh-server
curtin command system-install
unpacking openssh-server
curtin command system-install
configuring cloud-init
downloading and installing security updates
curtin command in-target
restoring apt configuration
curtin command in-target
subiquity/late/run

49] watchdog: BUG: soft lockup - CPU#1 stuck for 23s! [unattended-upgr:18286]
[ 818.007247] watchdog: BUG: soft lockup - CPU#0 stuck for 23s! [swapper/0:0]
[ View full log ]
[ Reboot Now ]
```

```
Ubuntu-Server [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

[ OK ] Finished Record Runlevel Change in UTMP.
[ 62.156712] cloud-init[1384]: Cloud-init v. 23.2.1-0ubuntu0~22.04.1 running 'modules:final' at Sat, 30 Dec 2023 12:06:36 +0000. Up 62.07 seconds.
ci-info: no authorized SSH keys fingerprints found for user balaji.
<14>Dec 30 12:06:37 cloud-init: #####
<14>Dec 30 12:06:37 cloud-init: -----BEGIN SSH HOST KEY FINGERPRINTS-----
<14>Dec 30 12:06:37 cloud-init: 1024 SHA256:EfRbCnGFASSNm+PU/63sj3Ir0xWCp8PWEh0vRvaoSCQ root@balaji-server (DSA)
<14>Dec 30 12:06:37 cloud-init: 256 SHA256:vh0Ft6GmMTjweQHGYu0p7YgWx/fuYkvZp2ZsQKKAcWw root@balaji-server (ECDSA)
<14>Dec 30 12:06:37 cloud-init: 256 SHA256:NPfzBR0X2Hrxccl2NAF/HiTX82yGP7xKBVvT831GsA root@balaji-server (ED25519)
<14>Dec 30 12:06:37 cloud-init: 3072 SHA256:QlB1PqIQXSd901nTvzxsVtbushHPXKN45qKTd49Ujy0I root@balaji-server (RSA)
<14>Dec 30 12:06:37 cloud-init: -----END SSH HOST KEY FINGERPRINTS-----
<14>Dec 30 12:06:37 cloud-init: #####
-----BEGIN SSH HOST KEY KEYS-----
ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTItbmlzdHAyNTYAAAAIbmlzdHAyNTYAAABBBdkfguCWds.jiK61HjbIbfZxt7zcgUMpeKkDkHXVasT4bFj9aRtiqMMvAftLmyxIRoIC+/xzXJpA/2yDYts2PMVE= root@balaji-server
ssh-ed25519 AAAAC3NzaC1l2DIINTE5AAAAIAifvAvsM+fUVE5MDXX2xqzUvWg95+AtBBhcuX12YSKn root@balaji-server
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQBSQsHo91PWC/+ovgQHOCReqd/CgpmCKF//eIX8nQ5rKpah7oUEirTyv4JXA3E3t3sKg14dFk9VfeIJWePQXpBAKIUOLDknGNEg5tGpyaj/+Usr+sd+d+HhVL5/HG7QjdxTjzjC+Egumjq5KofzJDMVs6C/S3Ra9pNb1b3LSlcm74sw9ukVjuxLYTYqkGteiu93cLQrbwJc0/kwH/6jG1eKypSQDL0uCPVg34uk9t8zE1em6zDCVw5RT0vBo0Dsc0x7m+9M26HKJz13m09QsCd7N8/qOK7Qy3CKWMLFz22gbnVQ9Y6Kpr1/2G9EZthYBr4H9C/HBe+ZGTRBPYvP9ah0hW83d970JwLWQaDF5inQGiL+XJTYkBXGIAB12o1fPMcDRptist2HhStkRYX3eHQB67PDevHegcRdH+TapD92RfENQLq+mHhgATPELcia6RgFNG9vfpZgg0NLjh03o8JDFSkAXb5qYumzgUckb0u015eHAU11j22pbcm2D4PII7Yc= root@balaji-server
-----END SSH HOST KEY KEYS-----
[ 62.956793] cloud-init[1384]: Cloud-init v. 23.2.1-0ubuntu0~22.04.1 finished at Sat, 30 Dec 2023 12:06:37 +0000. Datasource DataSourceNone. Up 62.90 seconds
[ 62.965435] cloud-init[1384]: 2023-12-30 12:06:37,869 - cc_final_message.py[WARNING]: Used fallback datasource
[ OK ] Finished Execute cloud user/final scripts.
[ OK ] Reached target Cloud-init target.

balaji-server login:
balaji-server login: balaji
Password: _
```

8. Ubuntu Server and SSH have been successfully installed in VirtualBox.

```
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)

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

System information as of Sat Dec 30 12:08:03 PM UTC 2023

System load:  0.333984375      Processes:            125
Usage of /:   44.5% of 11.21GB Users logged in:           0
Memory usage: 5%              IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

44 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

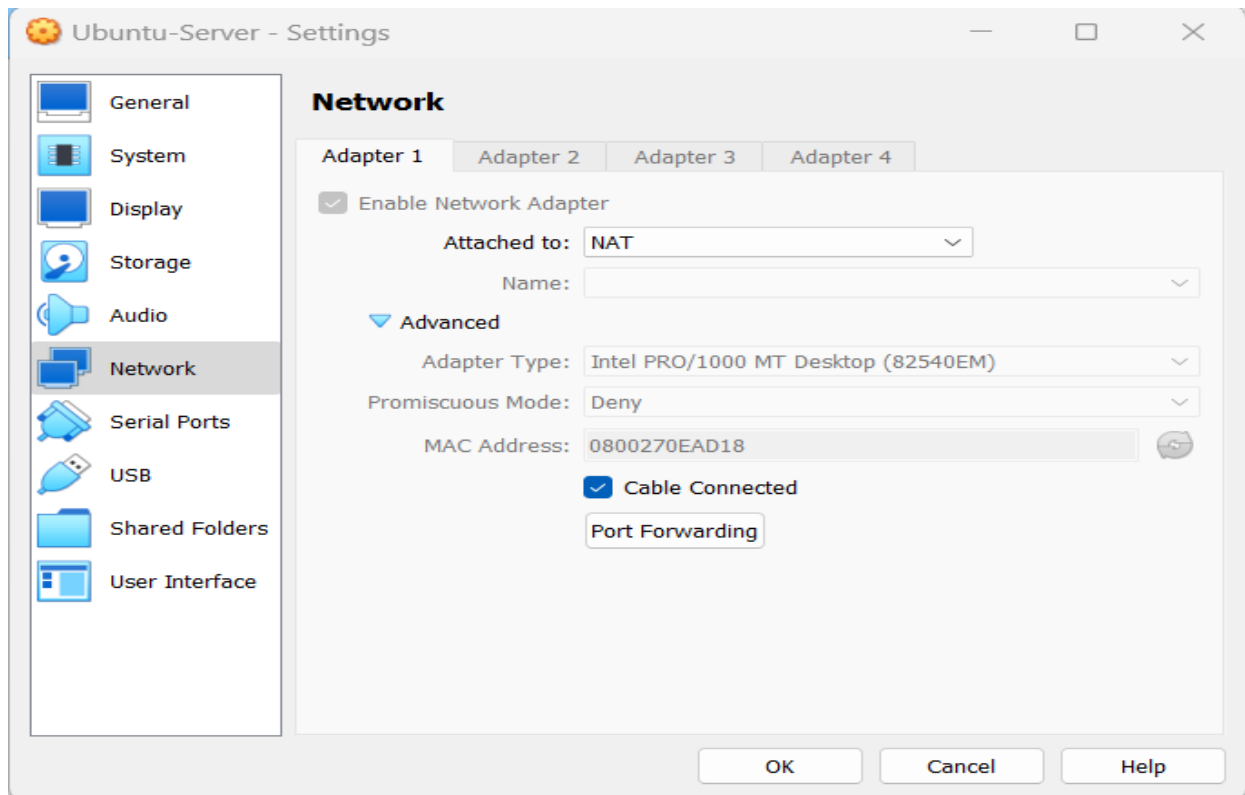
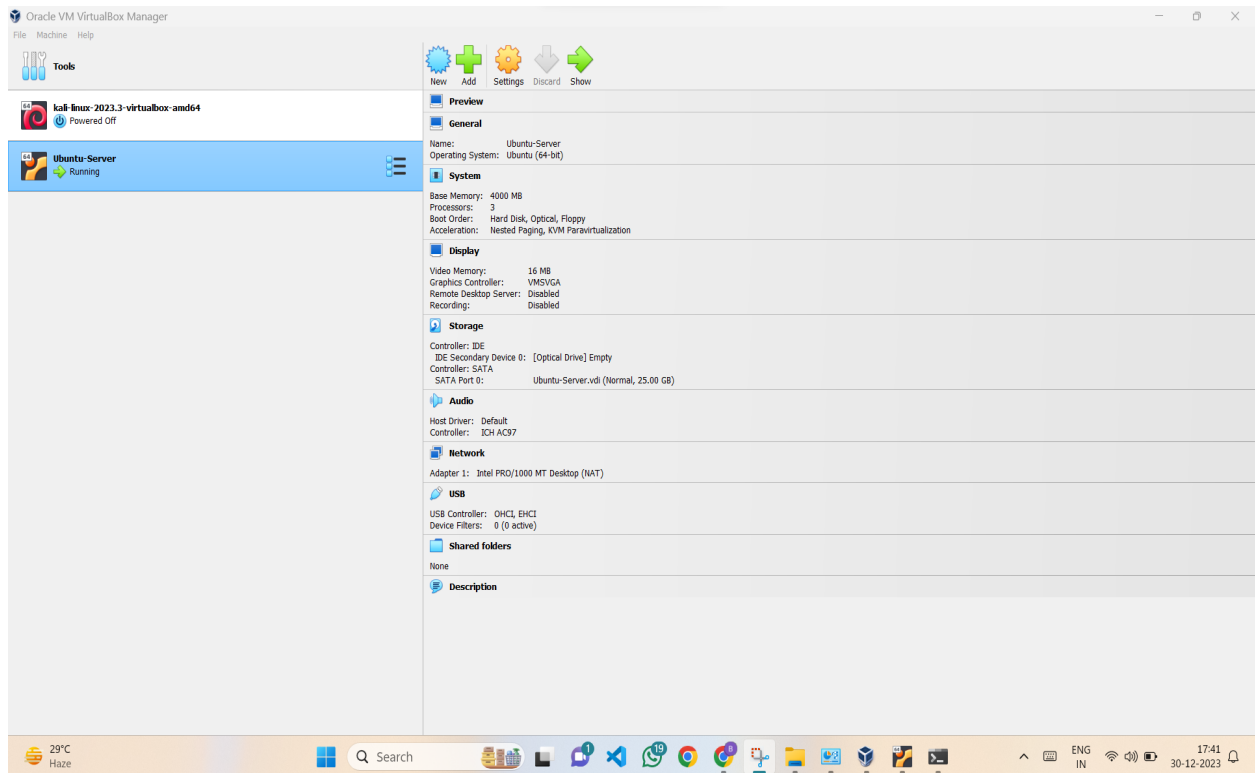
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

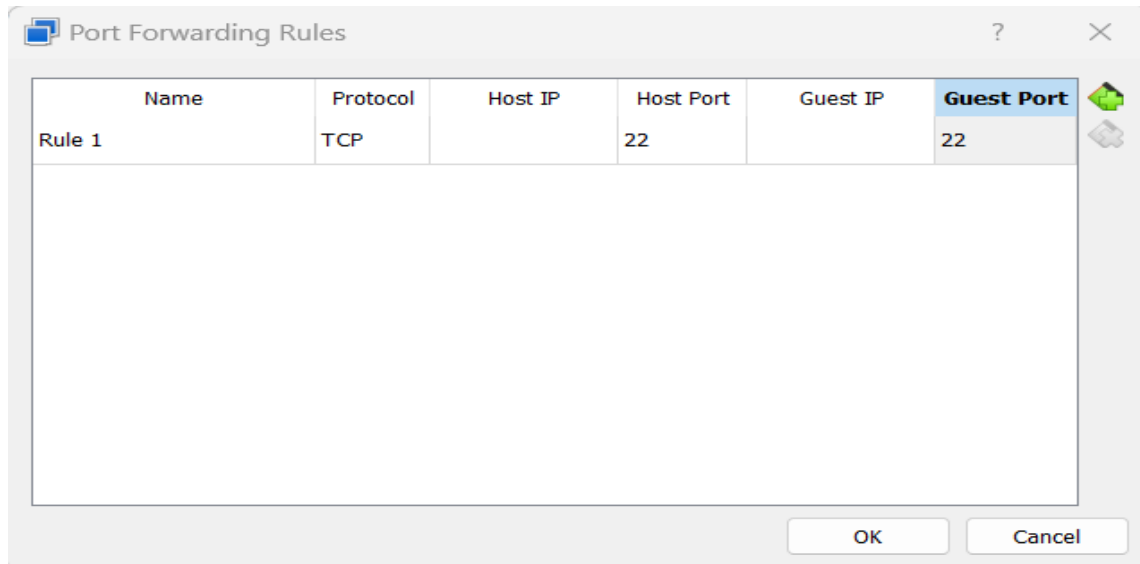
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

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

balaji@balaji-server:~$ _
```

9. With SSH installed and running, connect to your VirtualBox VM from another machine (e.g., Windows Command Prompt). Go to Ubuntu Server Settings, select the Network area, and click on Port Forwarding. Enter the Host port and Guest Port as 22 in further screens and select Ok.





10. Open the Windows Command Prompt (CMD) as Administrator. Enter the command `ssh [username]@[hostname or IP address]`.

```
balaji@balaji-server: ~
Microsoft Windows [Version 10.0.22621.2861]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>ssh balaji@localhost
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ED25519 key fingerprint is SHA256:NPfzBRoOXZhrxcc1ZNAF/HiTX82yGP7xKBYvT831GsA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'localhost' (ED25519) to the list of known hosts.
balaji@localhost's password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-91-generic x86_64)

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

System information as of Sat Dec 30 12:16:39 PM UTC 2023

System load:  0.0          Processes:            120
Usage of /:   44.6% of 11.21GB Users logged in:      1
Memory usage: 6%          IPv4 address for enp0s3: 10.0.2.15
Swap usage:   0%

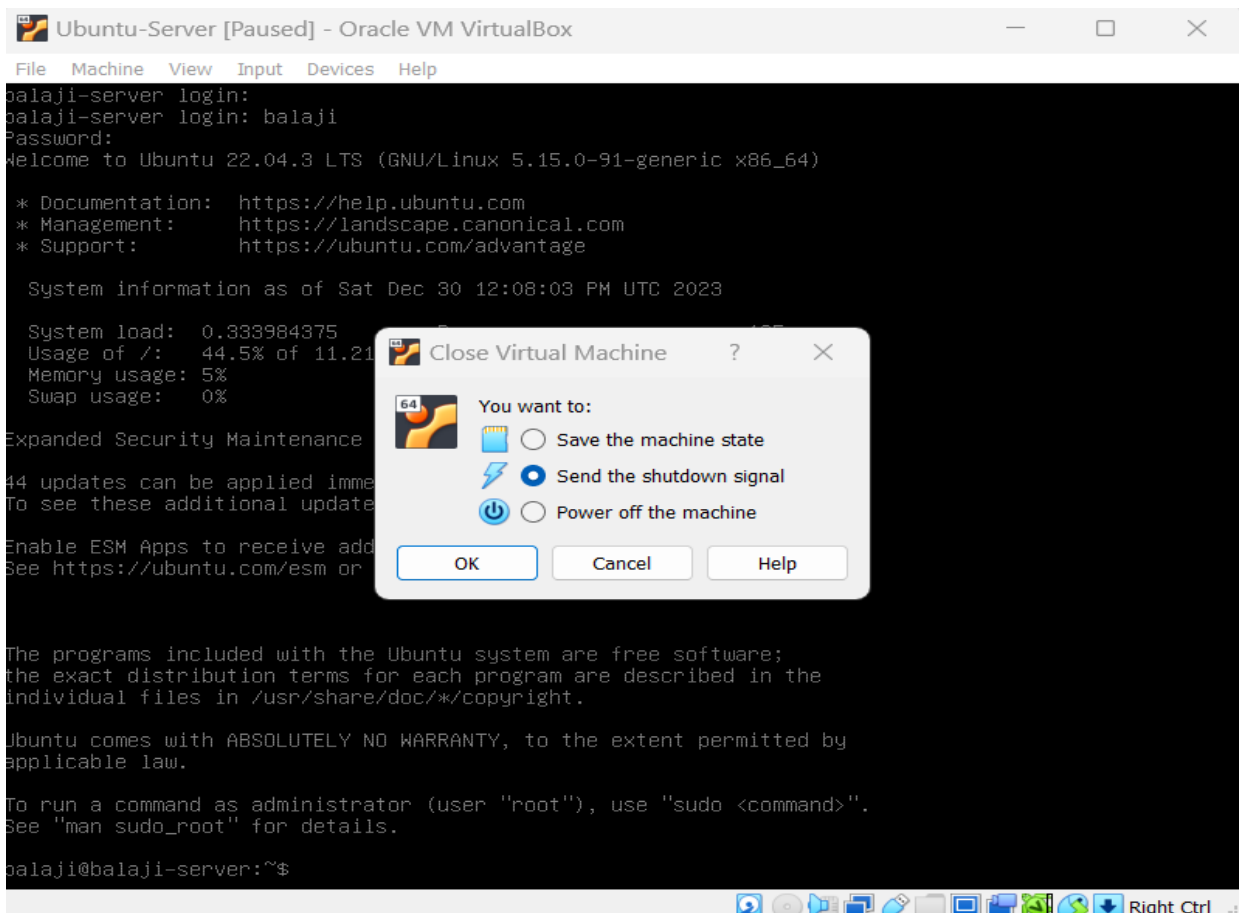
Expanded Security Maintenance for Applications is not enabled.

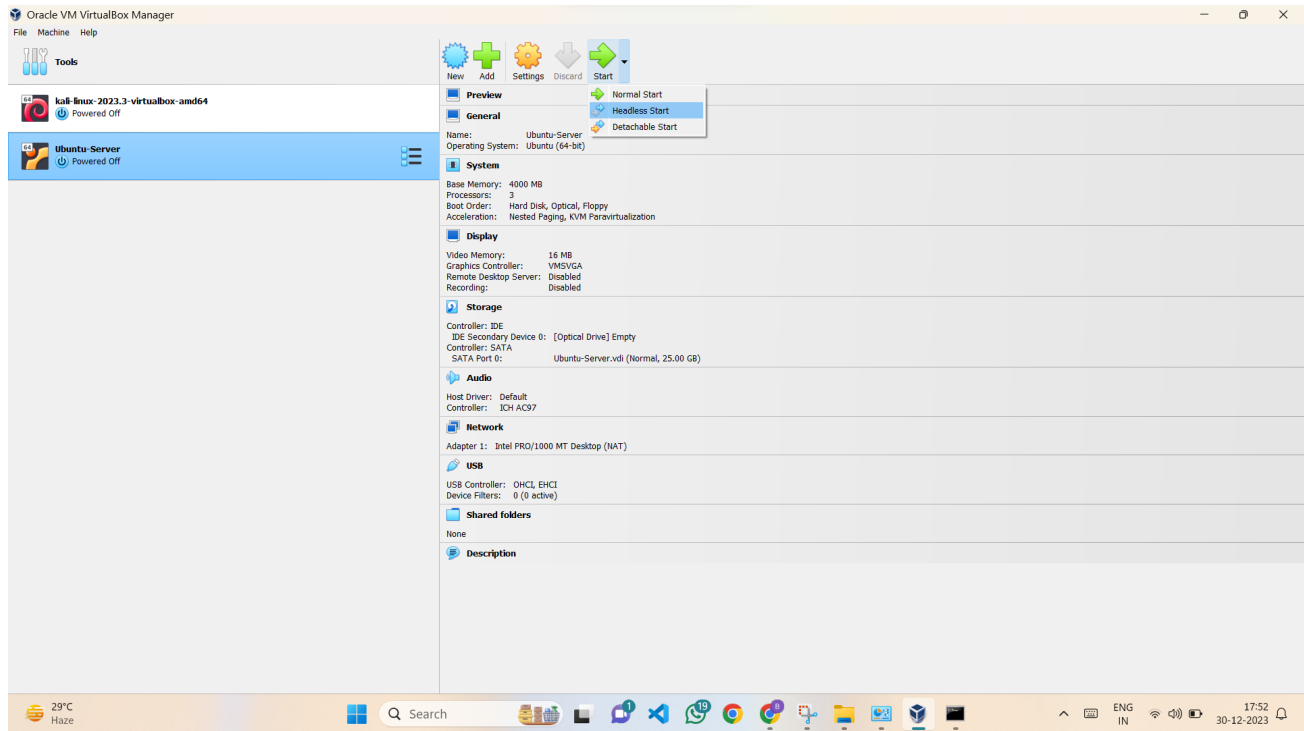
44 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
```

```
balaji@balaji-server: ~  
  
Last login: Sat Dec 30 12:08:07 2023  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
balaji@balaji-server:~$
```

11. To avoid the Terminal Windows Display of the server, close the server and select Headless Start in the next session.





Result

Through this experiment, we've learned to install a Linux server on VirtualBox by selecting a distribution, creating a virtual machine, and completing the installation. Additionally, we've gained insights into setting up secure remote access using SSH by installing the OpenSSH server and configuring it. This knowledge allows us to efficiently manage the VirtualBox Linux server remotely, enhancing our skills in virtualization and server administration.