FATIMA JINNAH WOMEN UNIVERSITY

Department of Software Engineering

LAB #01

SUBJECT: CLOUD COMPUTING

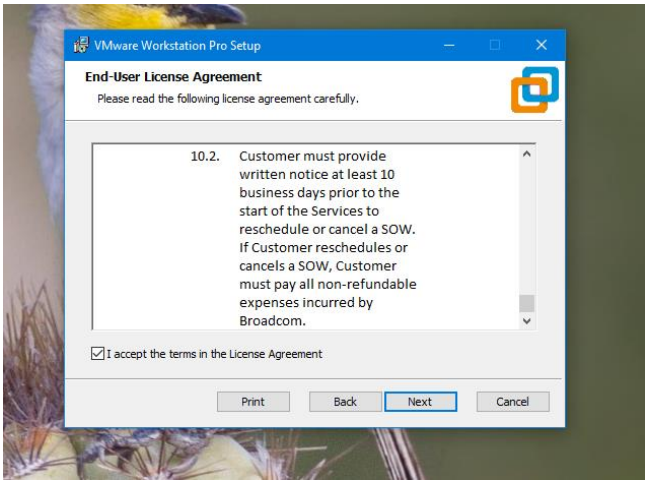
SUBMITTED TO: SIR MUHAMMAD SHOAIB

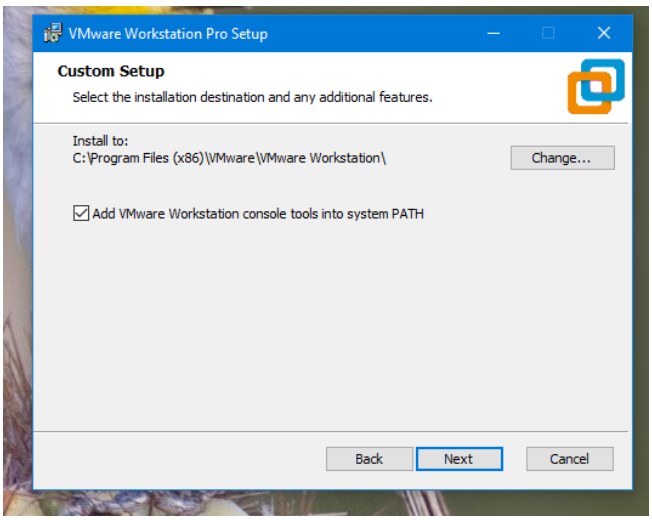
SUBMITTED BY: UMBER QASIM

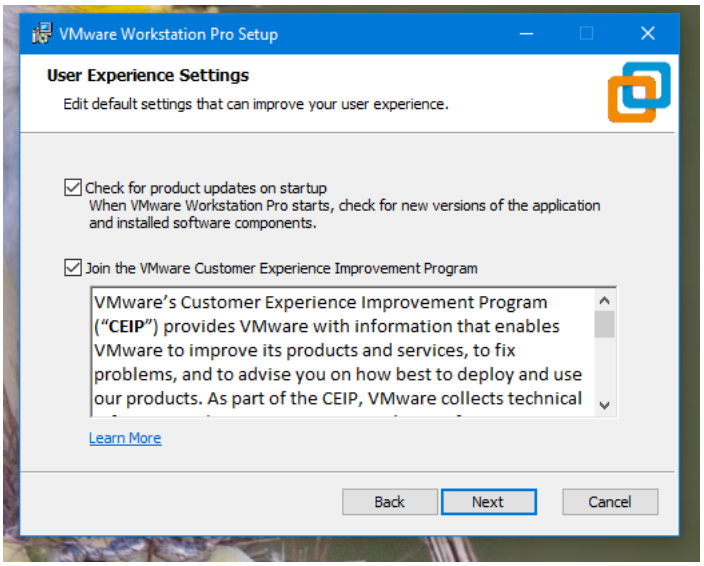
REGISTRATION NO: 2023-BSE-066

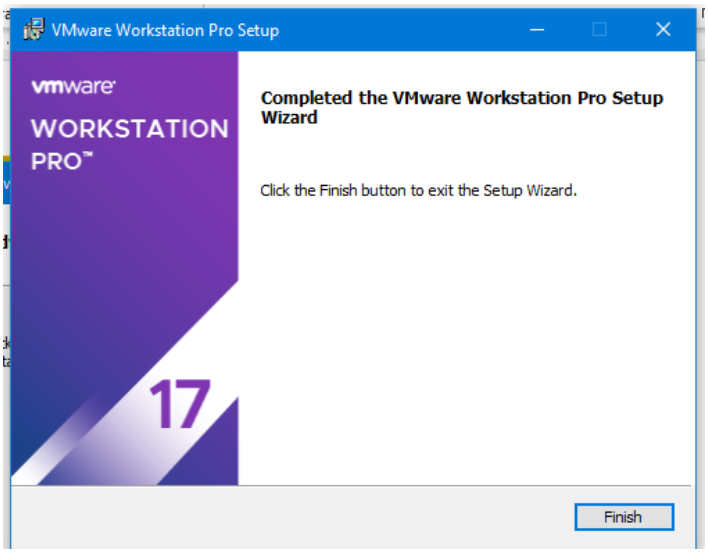
CLASS: BSSE V-B

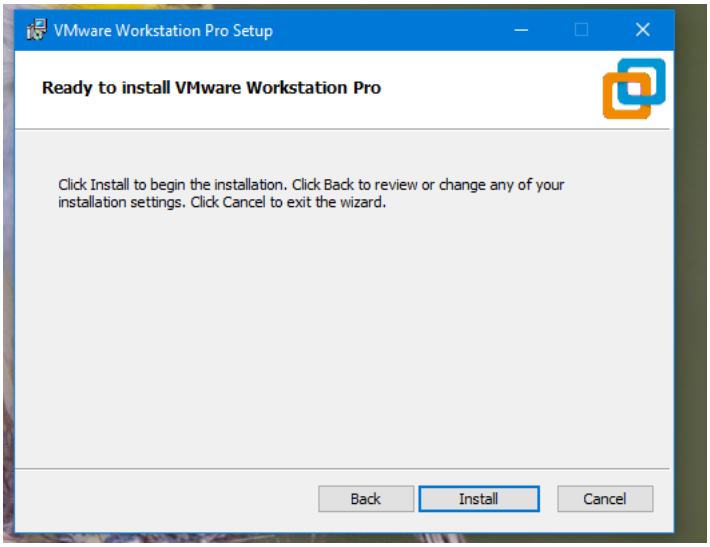
Installation of Linux Server:

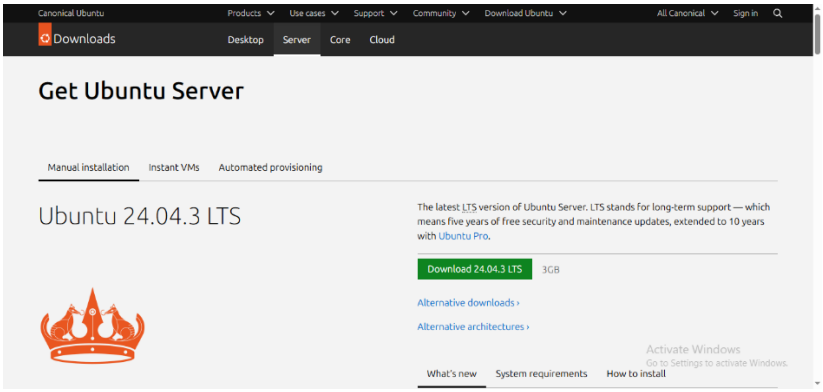


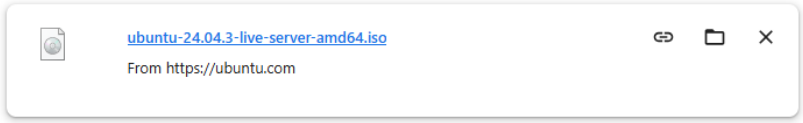


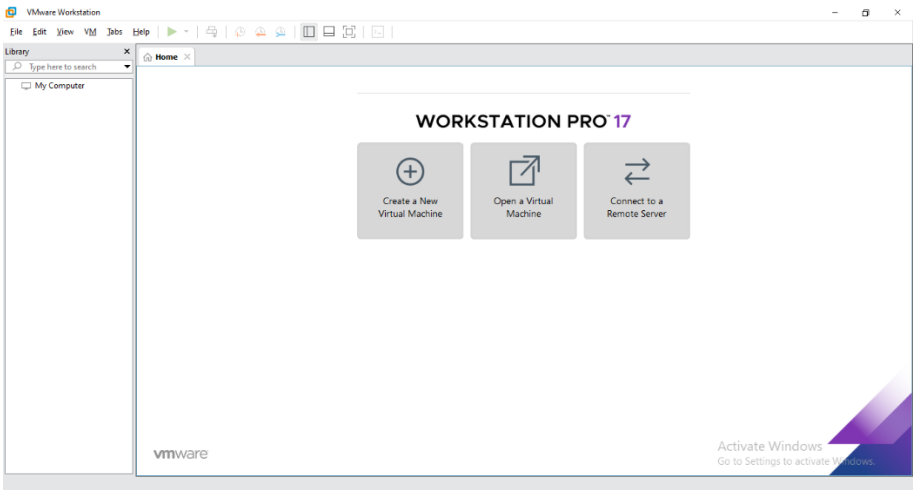

VMware Workstation Pro Setup
User Experience Settings
Edit default settings that can improve your user experience.
Check for product updates on startup
When VMware Workstation Pro starts, check for new versions of the application and installed software components.
Join the VMware Customer Experience Improvement Program
VMware's Customer Experience Improvement Program ("CEIP") provides VMware with information that enables VMware to improve its products and services, to fix problems, and to advise you on how best to deploy and use our products. As part of the CEIP, VMware collects technical
Learn More
Back
Next
Cancel


VMware Workstation Pro Setup
vmware
WORKSTATION PRO™
17
Completed the VMware Workstation Pro Setup Wizard
Click the Finish button to exit the Setup Wizard.
Finish

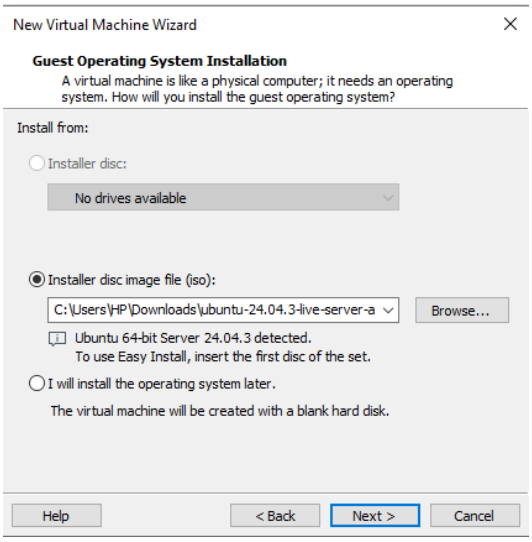

VMware Workstation Pro Setup
Ready to install VMware Workstation Pro
Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Back
Install
Cancel

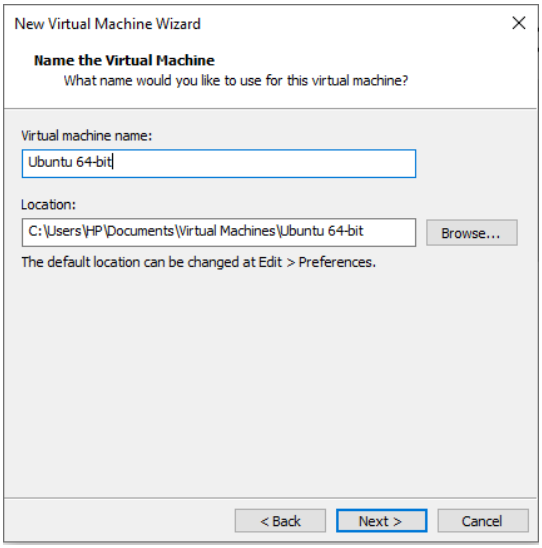

Canonical Ubuntu
Products
Use cases
Support
Community
Download Ubuntu
All Canonical
Sign in
Downloads
Desktop
Server
Core
Cloud
Get Ubuntu Server
Manual installation
Instant VMs
Automated provisioning
Ubuntu 24.04.3 LTS
The latest LTS version of Ubuntu Server. LTS stands for long-term support — which means five years of free security and maintenance updates, extended to 10 years with Ubuntu Pro.
Download 24.04.3 LTS
3GB
Alternative downloads ›
Alternative architectures ›
Activate Windows
Go to Settings to activate Windows.
What's new
System requirements
How to install

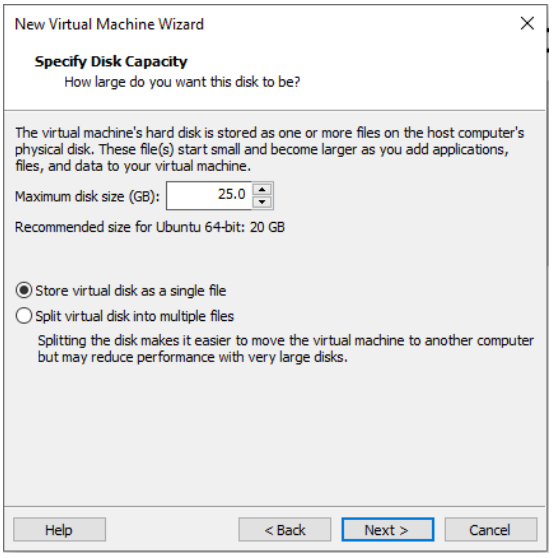

ubuntu-24.04.3-live-server-amd64.iso
From https://ubuntu.com

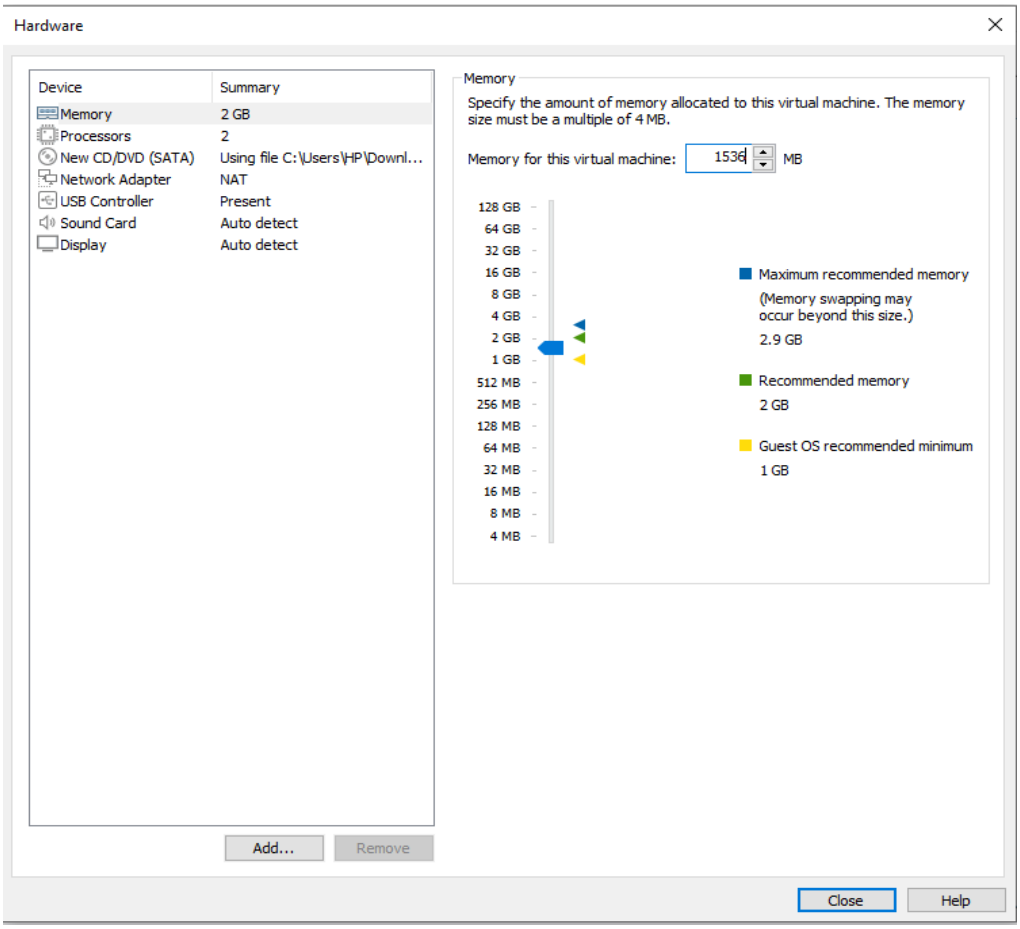

VMware Workstation
File
Edit
View
VM
Tabs
Help
Library
Type here to search
My Computer
Home
WORKSTATION PRO 17
Create a New Virtual Machine
Open a Virtual Machine
Connect to a Remote Server
vmware
Activate Windows
Go to Settings to activate Windows.

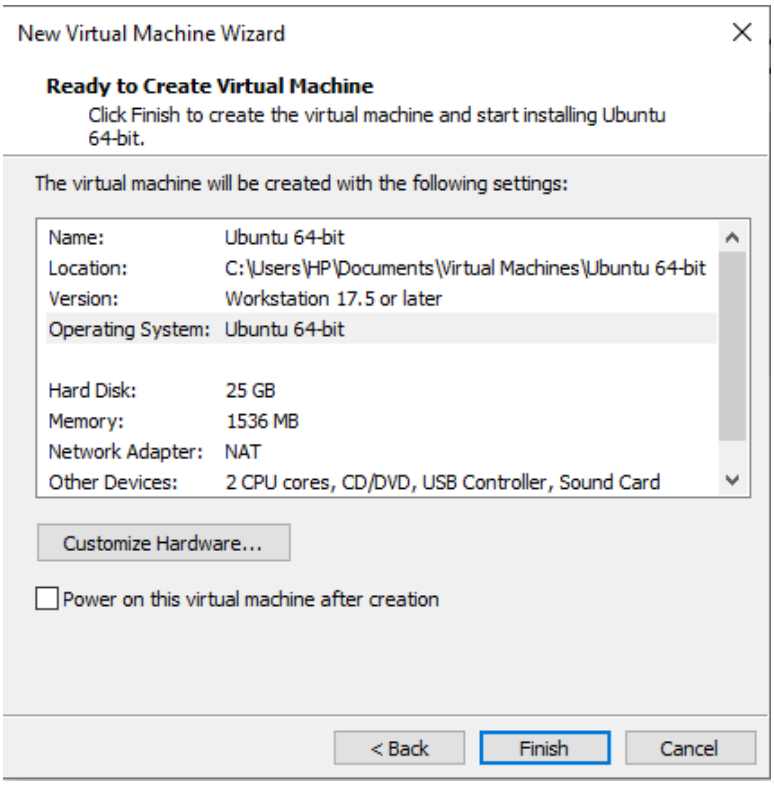
New Virtual Machine Wizard
vmware
WORKSTATION
PRO™
17
Welcome to the New Virtual Machine Wizard
What type of configuration do you want?
Typical (recommended)
Create a Workstation 17.5 or later virtual machine in a few easy steps.
Custom (advanced)
Create a virtual machine with advanced options, such as a SCSI controller type, virtual disk type and compatibility with older VMware products.
Help
< Back
Next >
Cancel

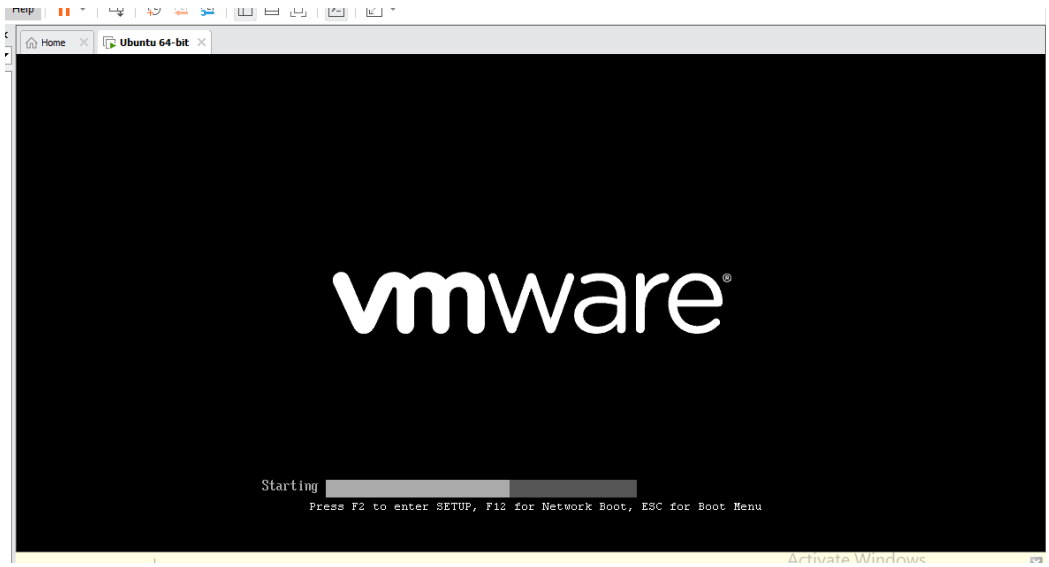

New Virtual Machine Wizard
Guest Operating System Installation
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?
Install from:
Installer disc:
No drives available
Installer disc image file (iso):
C:\Users\HP\Downloads\ubuntu-24.04.3-live-server-a
Browse...
Ubuntu 64-bit Server 24.04.3 detected.
To use Easy Install, insert the first disc of the set.
I will install the operating system later.
The virtual machine will be created with a blank hard disk.
Help
< Back
Next >
Cancel

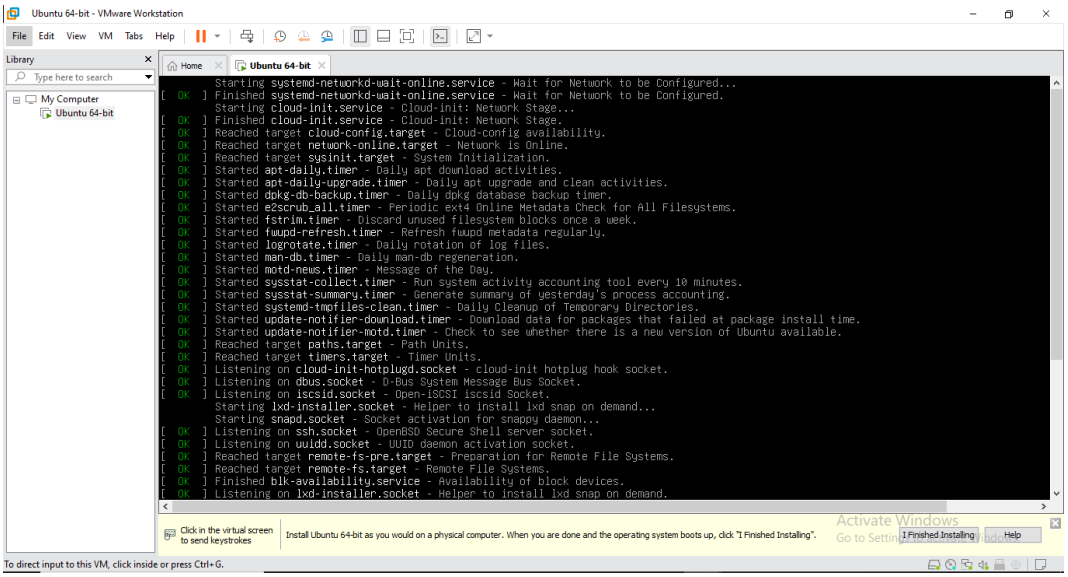

New Virtual Machine Wizard
Name the Virtual Machine
What name would you like to use for this virtual machine?
Virtual machine name:
Ubuntu 64-bit
Location:
C:\Users\HP\Documents\Virtual Machines\Ubuntu 64-bit
Browse...
The default location can be changed at Edit > Preferences.
< Back
Next >
Cancel

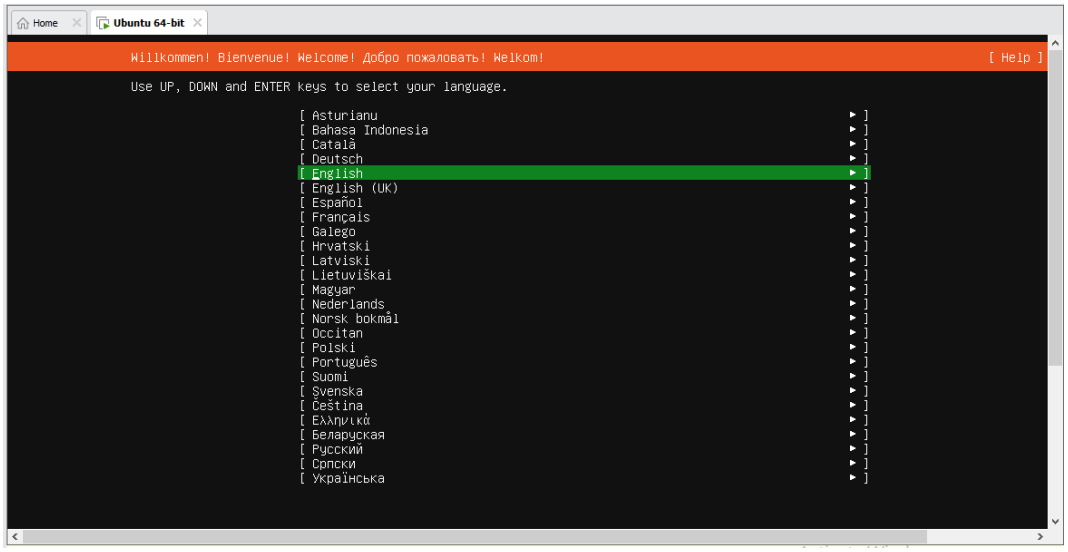

New Virtual Machine Wizard
Specify Disk Capacity
How large do you want this disk to be?
The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.
Maximum disk size (GB):
25.0
Recommended size for Ubuntu 64-bit: 20 GB
Store virtual disk as a single file
Split virtual disk into multiple files
Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.
Help
< Back
Next >
Cancel

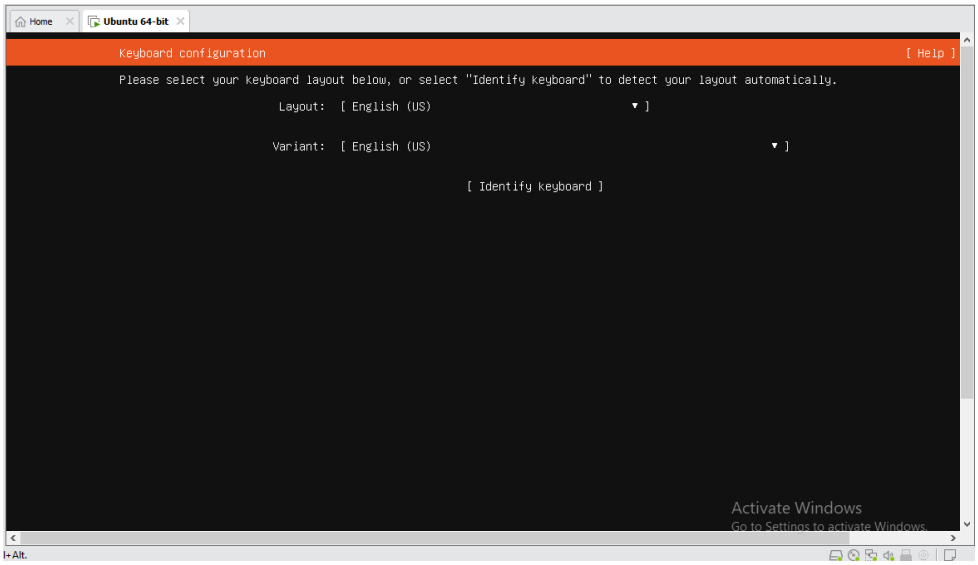

Hardware
Device
Summary
Memory
2 GB
Processors
2
New CD/DVD (SATA)
Using file C:\Users\HP\Downl...
Network Adapter
NAT
USB Controller
Present
Sound Card
Auto detect
Display
Auto detect
Add...
Remove
Memory
Specify the amount of memory allocated to this virtual machine. The memory size must be a multiple of 4 MB.
Memory for this virtual machine:
1536
MB
128 GB
64 GB
32 GB
16 GB
8 GB
4 GB
2 GB
1 GB
512 MB
256 MB
128 MB
64 MB
32 MB
16 MB
8 MB
4 MB
Maximum recommended memory
(Memory swapping may occur beyond this size.)
2.9 GB
Recommended memory
2 GB
Guest OS recommended minimum
1 GB
Close
Help

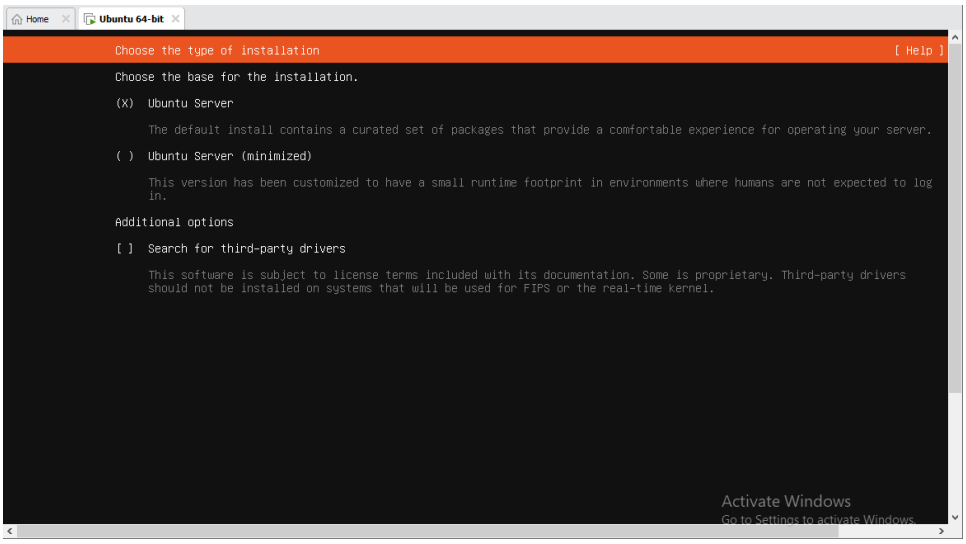

New Virtual Machine Wizard
Ready to Create Virtual Machine
Click Finish to create the virtual machine and start installing Ubuntu 64-bit.
The virtual machine will be created with the following settings:
Name:
Ubuntu 64-bit
Location:
C:\Users\HP\Documents\Virtual Machines\Ubuntu 64-bit
Version:
Workstation 17.5 or later
Operating System:
Ubuntu 64-bit
Hard Disk:
25 GB
Memory:
1536 MB
Network Adapter:
NAT
Other Devices:
2 CPU cores, CD/DVD, USB Controller, Sound Card
Customize Hardware...
Power on this virtual machine after creation
< Back
Finish
Cancel

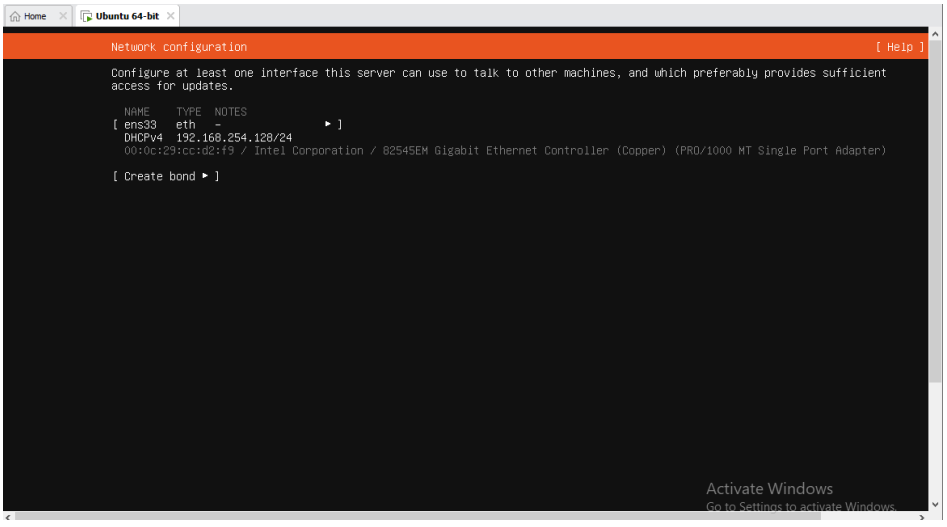

Home
Ubuntu 64-bit
vmware
Starting
Press F2 to enter SETUP, F12 for Network Boot, ESC for Boot Menu

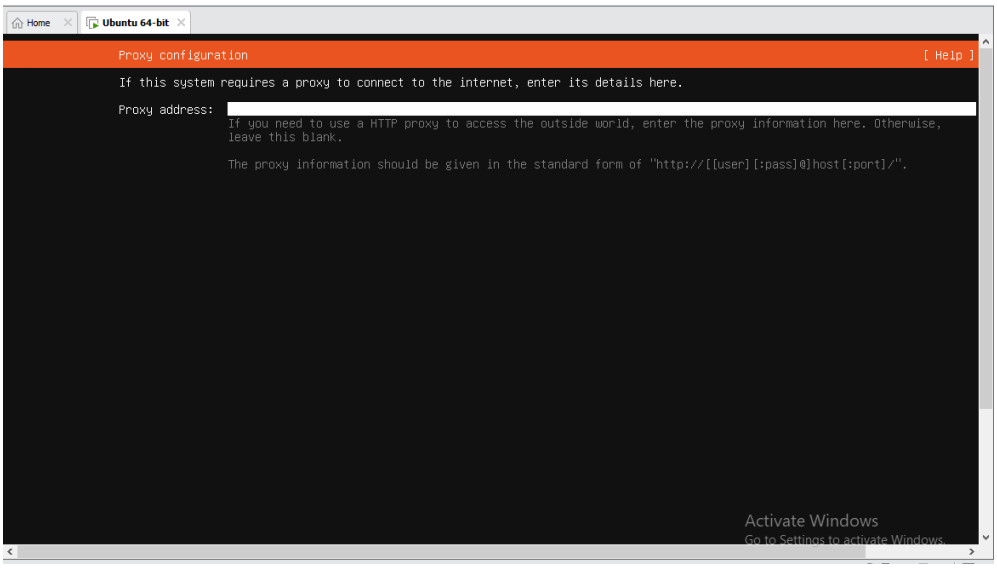

Ubuntu 64-bit - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu 64-bit
Home
Ubuntu 64-bit
Starting systemd-networkd-wait-online.service - Wait for Network to be Configured...
[OK] Finished systemd-networkd-wait-online.service - Wait for Network to be Configured.
Starting cloud-init.service - Cloud-init: Network Stage...
[OK] Finished cloud-init.service - Cloud-init: Network Stage.
[OK] Reached target cloud-config.target - Cloud-config availability.
[OK] Reached target network-online.target - Network is Online.
[OK] Reached target sysinit.target - System Initialization.
[OK] Started apt-daily.timer - Daily apt download activities.
[OK] Started apt-daily-upgrade.timer - Daily apt upgrade and clean activities.
[OK] Started dpkg-db-backup.timer - Daily dpkg database backup timer.
[OK] Started e2scrub_all.timer - Periodic ext4 Online Metadata Check for All Filesystems.
[OK] Started fstrim.timer - Discard unused filesystem blocks once a week.
[OK] Started fwupd-refresh.timer - Refresh fwupd metadata regularly.
[OK] Started logrotate.timer - Daily rotation of log files.
[OK] Started man-db.timer - Daily man-db regeneration.
[OK] Started motd-news.timer - Message of the Day.
[OK] Started sysstat-collect.timer - Run system activity accounting tool every 10 minutes.
[OK] Started sysstat-summary.timer - Generate summary of yesterday's process accounting.
[OK] Started systemd-tmpfiles-clean.timer - Daily Cleanup of Temporary Directories.
[OK] Started update-notifier-download.timer - Download data for packages that failed at package install time.
[OK] Started update-notifier-motd.timer - Check to see whether there is a new version of Ubuntu available.
[OK] Reached target paths.target - Path Units.
[OK] Reached target timers.target - Timer Units.
[OK] Listening on cloud-init-hotplugd.socket - cloud-init hotplug hook socket.
[OK] Listening on dbus.socket - D-Bus System Message Bus Socket.
[OK] Listening on iscsid.socket - Open-iSCSI iscsid Socket.
Starting lxd-installer.socket - Helper to install lxd snap on demand...
Starting snapd.socket - Socket activation for snappy daemon...
[OK] Listening on ssh.socket - OpenBSD Secure Shell server socket.
[OK] Listening on uuidd.socket - UUID daemon activation socket.
[OK] Reached target remote-fs-pre.target - Preparation for Remote File Systems.
[OK] Reached target remote-fs.target - Remote File Systems.
[OK] Finished blk-availability.service - Availability of block devices.
[OK] Listening on lxd-installer.socket - Helper to install lxd snap on demand.
Click in the virtual screen to send keystrokes
Install Ubuntu 64-bit as you would on a physical computer. When you are done and the operating system boots up, click "I Finished Installing".
I Finished Installing
Help
Activate Windows
To direct input to this VM, click inside or press Ctrl+G.

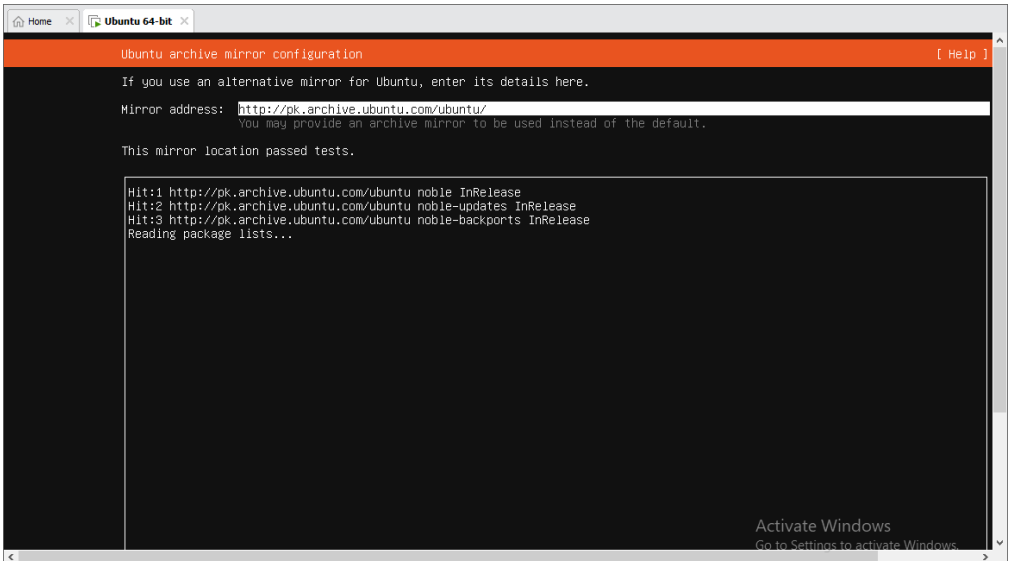

Home
Ubuntu 64-bit
Willkommen! Bienvenue! Welcome! Добро пожаловать! Welkom!
[Help]
Use UP, DOWN and ENTER keys to select your language.
[Asturianu ▸]
[Bahasa Indonesia ▸]
[Català ▸]
[Deutsch ▸]
[English ▸]
[English (UK) ▸]
[Español ▸]
[Français ▸]
[Galego ▸]
[Hrvatski ▸]
[Latviski ▸]
[Lietuviškai ▸]
[Magyar ▸]
[Nederlands ▸]
[Norsk bokmål ▸]
[Occitan ▸]
[Polski ▸]
[Português ▸]
[Suomi ▸]
[Svenska ▸]
[Čeština ▸]
[Ελληνικά ▸]
[Беларуская ▸]
[Русский ▸]
[Српски ▸]
[Українська ▸]

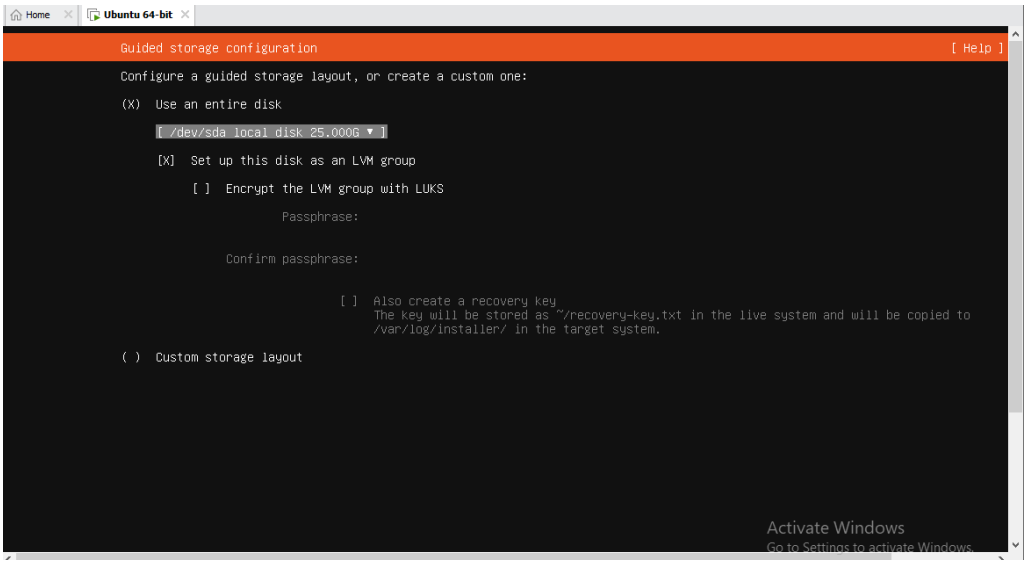

Home
Ubuntu 64-bit
Keyboard configuration
[Help]
Please select your keyboard layout below, or select "Identify keyboard" to detect your layout automatically.
Layout: [English (US) ▾]
Variant: [English (US) ▾]
[Identify keyboard]
Activate Windows
Go to Settings to activate Windows.
l+Alt.

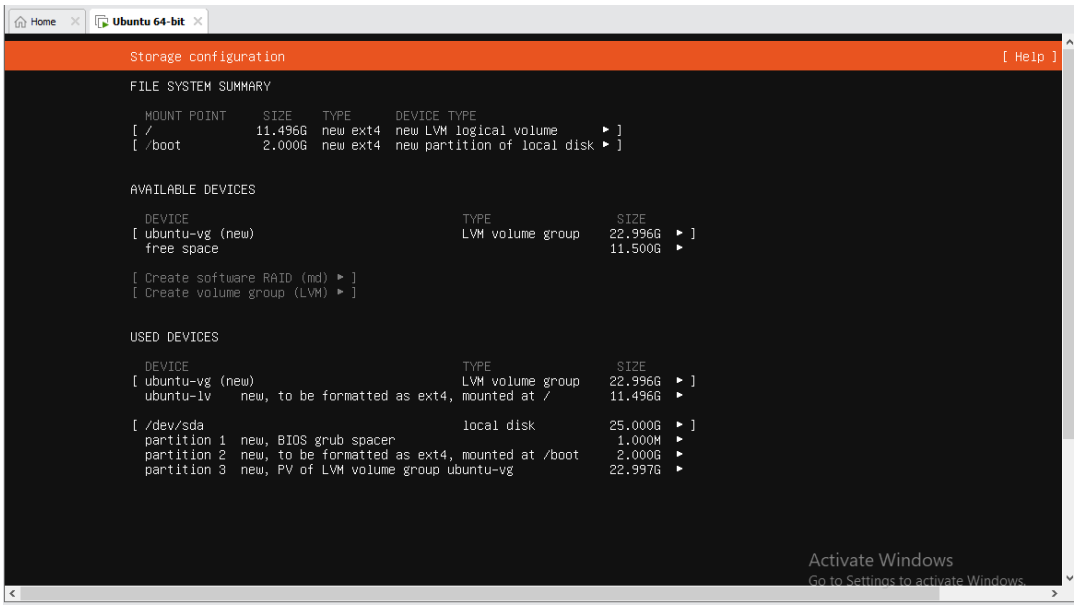

Home
Ubuntu 64-bit
Choose the type of installation
[Help]
Choose the base for the installation.
(X) Ubuntu Server
The default install contains a curated set of packages that provide a comfortable experience for operating your server.
( ) Ubuntu Server (minimized)
This version has been customized to have a small runtime footprint in environments where humans are not expected to log in.
Additional options
[ ] Search for third-party drivers
This software is subject to license terms included with its documentation. Some is proprietary. Third-party drivers should not be installed on systems that will be used for FIPS or the real-time kernel.
Activate Windows
Go to Settings to activate Windows.

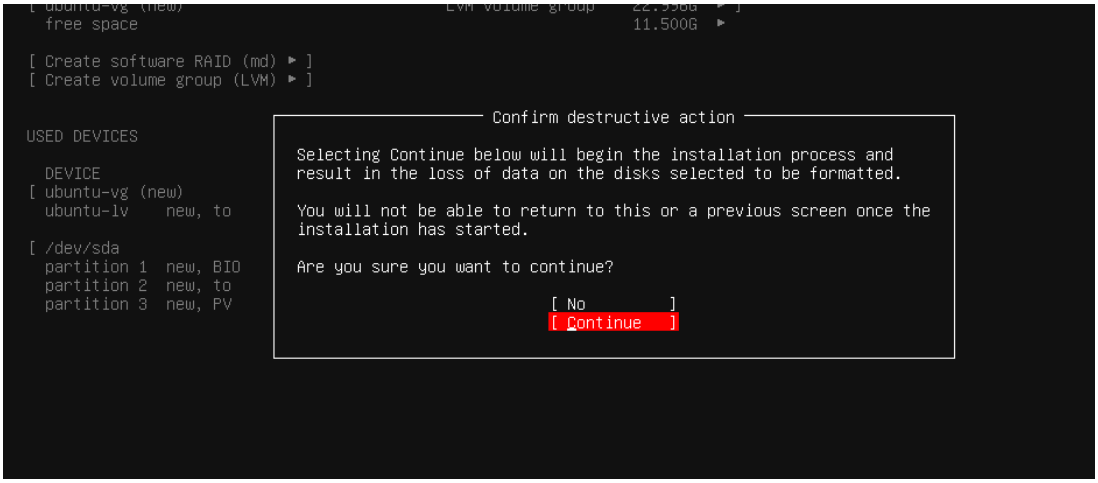

Home
Ubuntu 64-bit
Network configuration
[Help]
Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
NAME TYPE NOTES
[ens33 eth - ▸]
DHCPv4 192.168.254.128/24
00:0c:29:cc:d2:f9 / Intel Corporation / 82545EM Gigabit Ethernet Controller (Copper) (PRO/1000 MT Single Port Adapter)
[Create bond ▸]
Activate Windows
Go to Settings to activate Windows.

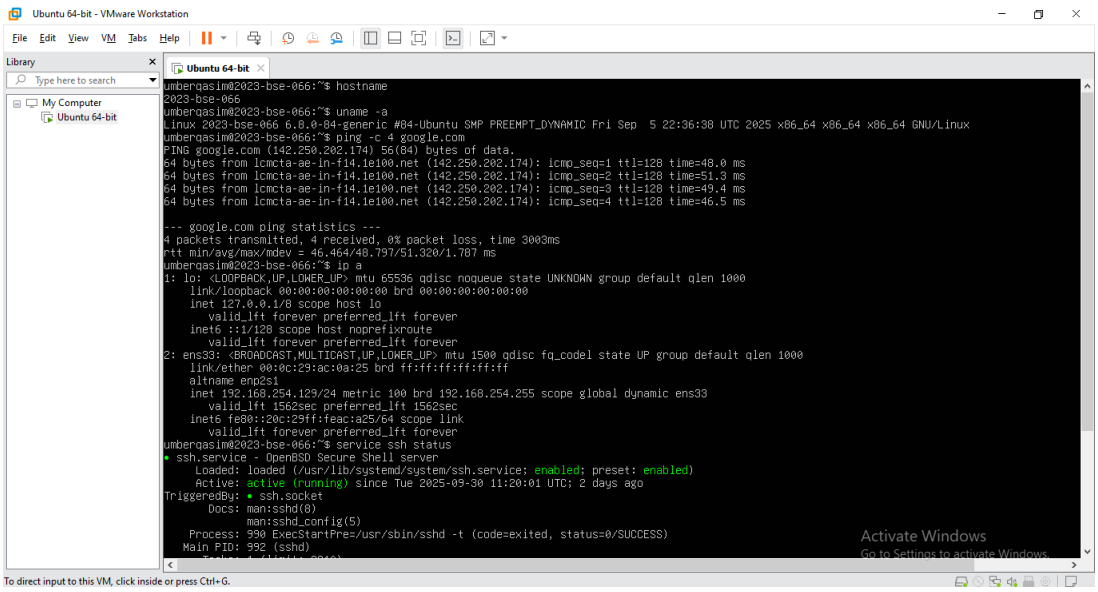

Home
Ubuntu 64-bit
Proxy configuration
[Help]
If this system requires a proxy to connect to the internet, enter its details here.
Proxy address:
If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.
The proxy information should be given in the standard form of "http://[[user][:pass]@]host[:port]/".
Activate Windows
Go to Settings to activate Windows.


Home
Ubuntu 64-bit
Ubuntu archive mirror configuration
[Help]
If you use an alternative mirror for Ubuntu, enter its details here.
Mirror address: http://pk.archive.ubuntu.com/ubuntu/
You may provide an archive mirror to be used instead of the default.
This mirror location passed tests.
Hit:1 http://pk.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://pk.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://pk.archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists...
Activate Windows
Go to Settings to activate Windows.


Home
Ubuntu 64-bit
Guided storage configuration
[Help]
Configure a guided storage layout, or create a custom one:
(X) Use an entire disk
[/dev/sda 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
Activate Windows
Go to Settings to activate Windows.


Home
Ubuntu 64-bit
Storage configuration
[Help]
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 ▸
[/dev/sda 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 ▸
Activate Windows
Go to Settings to activate Windows.


free space 11.500G ▸
[Create software RAID (md) ▸]
[Create volume group (LVM) ▸]
USED DEVICES
DEVICE
[ubuntu-vg (new)
ubuntu-lv new, to
[/dev/sda
partition 1 new, BIO
partition 2 new, to
partition 3 new, PV
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]


Ubuntu 64-bit - VMware Workstation
File Edit View VM Tabs Help
Library
Type here to search
My Computer
Ubuntu 64-bit
umberqasim@2023-bse-066:~$ hostname
2023-bse-066
umberqasim@2023-bse-066:~$ uname -a
Linux 2023-bse-066 6.8.0-84-generic #84-Ubuntu SMP PREEMPT_DYNAMIC Fri Sep 5 22:36:38 UTC 2025 x86_64 x86_64 x86_64 GNU/Linux
umberqasim@2023-bse-066:~$ ping -c 4 google.com
PING google.com (142.250.202.174) 56(84) bytes of data.
64 bytes from lcmcta-ae-in-f14.1e100.net (142.250.202.174): icmp_seq=1 ttl=128 time=48.0 ms
64 bytes from lcmcta-ae-in-f14.1e100.net (142.250.202.174): icmp_seq=2 ttl=128 time=51.3 ms
64 bytes from lcmcta-ae-in-f14.1e100.net (142.250.202.174): icmp_seq=3 ttl=128 time=49.4 ms
64 bytes from lcmcta-ae-in-f14.1e100.net (142.250.202.174): icmp_seq=4 ttl=128 time=46.5 ms
--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3003ms
rtt min/avg/max/mdev = 46.464/48.797/51.320/1.787 ms
umberqasim@2023-bse-066:~$ 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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
link/ether 00:0c:29:ac:0a:25 brd ff:ff:ff:ff:ff:ff
altname enp2s1
inet 192.168.254.129/24 metric 100 brd 192.168.254.255 scope global dynamic ens33
valid_lft 1562sec preferred_lft 1562sec
inet6 fe80::20c:29ff:feac:a25/64 scope link
valid_lft forever preferred_lft forever
umberqasim@2023-bse-066:~$ service ssh status
• ssh.service - OpenBSD Secure Shell server
Loaded: loaded (/usr/lib/systemd/system/ssh.service; enabled; preset: enabled)
Active: active (running) since Tue 2025-09-30 11:20:01 UTC; 2 days ago
TriggeredBy: • ssh.socket
Docs: man:sshd(8)
man:sshd_config(5)
Process: 990 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
Main PID: 992 (sshd)
Activate Windows
Go to Settings to activate Windows.
To direct input to this VM, click inside or press Ctrl+G.