

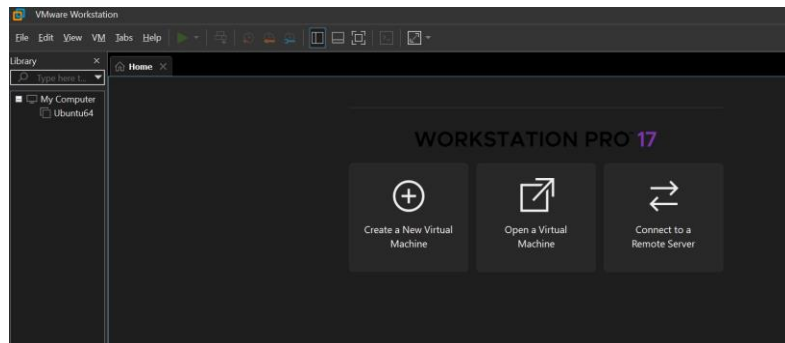
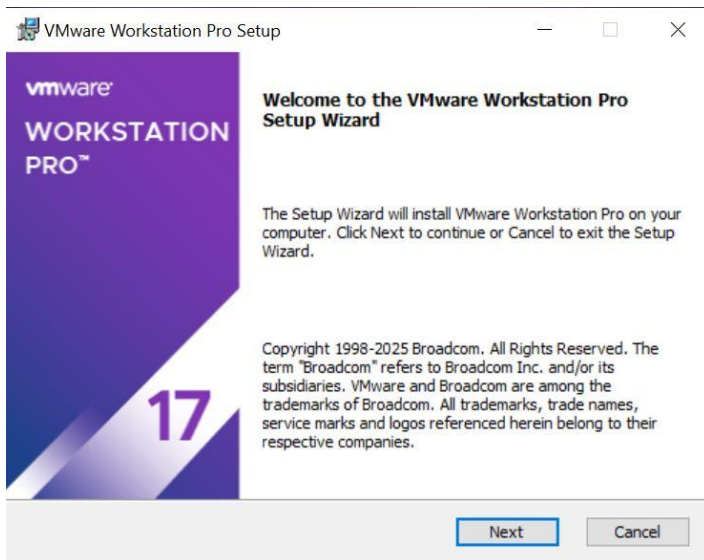
Name: Maira Malik

Reg.no: 2023-BSE-040

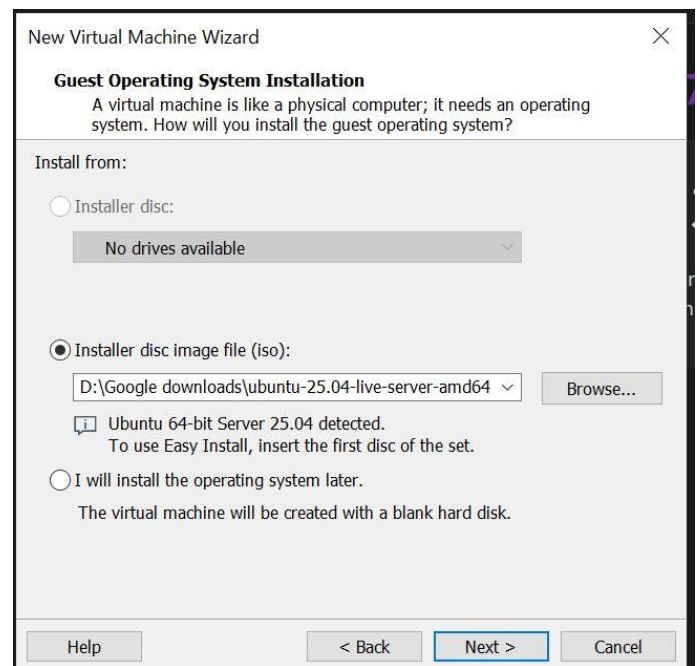
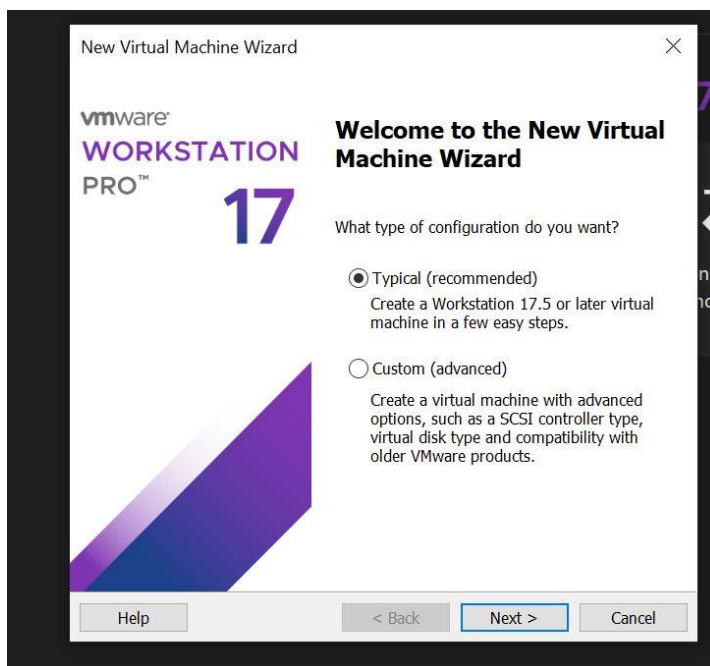
Subject: Cloud Computing

## LAB#01

### Installation of VMWare:



### Installation of Ubuntu Server on VMWare:



New Virtual Machine Wizard

**Name the Virtual Machine**  
What name would you like to use for this virtual machine?

Virtual machine name:

Location:

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):

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

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:	Ubuntu64
Location:	D:\Ubuntu
Version:	Workstation 17.5 or later
Operating System:	Ubuntu 64-bit
Hard Disk:	25 GB, Split
Memory:	4096 MB
Network Adapter:	NAT
Other Devices:	8 CPU cores, CD/DVD, USB Controller, Sound Card

☐ Power on this virtual machine after creation

< Back   Finish   Cancel

Ubuntu64 - VMware Workstation

File Edit View VM Tabs Help

Library

My Computer

Ubuntu64

Power on this virtual machine  
Edit virtual machine settings

**Devices**

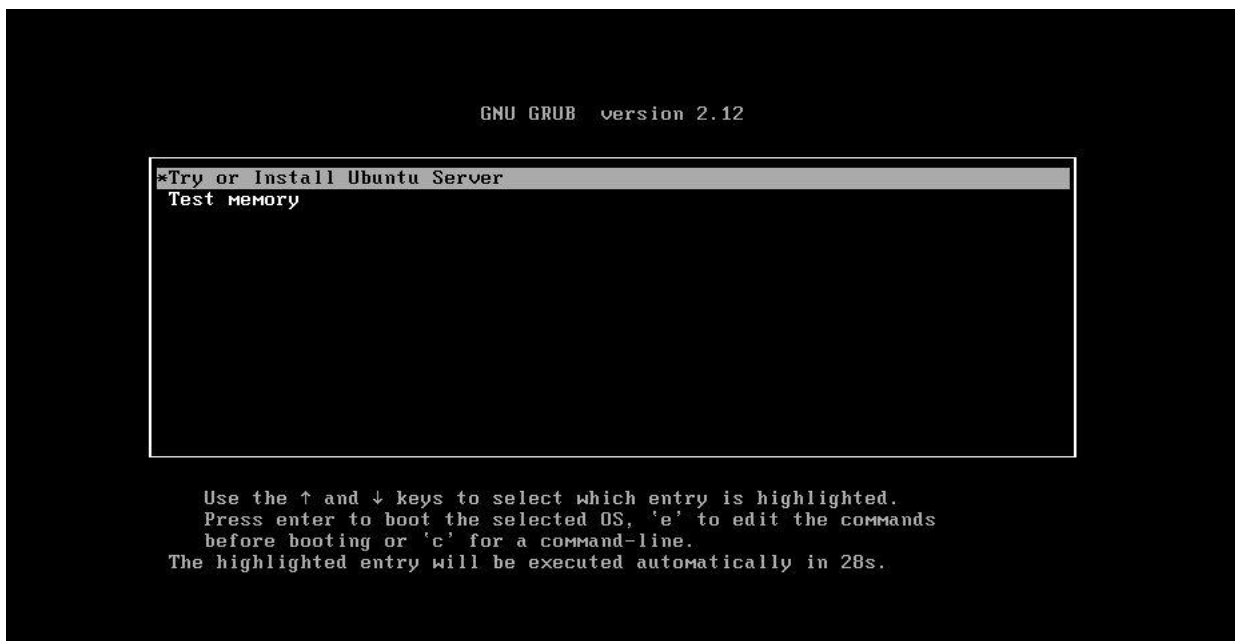
Memory	4 GB
Processors	8
Hard Disk (SCSI)	25 GB
CD/DVD (SATA)	Using file D:\Goo...
Network Adapter	NAT
USB Controller	Present
Sound Card	Auto detect
Display	Auto detect

**Description**

Type here to enter a description of this virtual machine.

**Virtual Machine Details**

State: Powered off  
Configuration file: D:\Ubuntu\Ubuntu64.vmx  
Hardware compatibility: Workstation 17.5 or later virtual  
Primary IP address: Network information is not available



```
Begin: Running /scripts/init-premount ... done.
Begin: Mounting root file system ... Begin: Running /scripts/nfs-top ... done.
[ 5.665754] loop0: detected capacity change from 0 to 2695584
[ 5.715471] loop1: detected capacity change from 0 to 286320
[ 5.762307] loop2: detected capacity change from 0 to 279256
[ 5.813618] loop3: detected capacity change from 0 to 0
[ 5.828059] overlays: null uuid detected in lower fs '/', falling back to xl
no-off, index=off, nfs_export=off.
[ 5.979938] evm: overlay not supported
Begin: Running /scripts/casper-premount ... done.
done.
done.
Begin: Creating debconf-communicate fifo mechanism ... done.
Begin: Running /scripts/casper-bottom ... Begin: Moving mount points... .. done
done.
Begin: Configuring fstab... .. done.
Begin: Setting up locales... .. done.
Begin: Setting up automatic login... .. done.
Begin: Setting hostname... .. done.
Begin: Setting up console keyboard... .. done.
Begin: Applying desktop settings... .. done.
Begin: Regenerating SSL certificate... .. done.
Begin: Loading pressed file... .. done.
Begin: Adding live session user... .. done
```

```
Hi!Kilkommen! Bienvenue! Welcome! Доброго дня! Welkom! ( Help )

Use UP, DOWN and ENTER keys to select your language.

[ Asturian
[ Bahasa Indonesia
[ Catal  
[ Deutsch
[ English
[ English (UK)
[ Espa  ol
[ Fran  ais
[ Galego
[ Hrvatski
[ Latv  i
[ Lietuvi  skai
[ Magyar
[ Nederlands
[ Norsk bokm  l
[ Occitan
[ Polski
[ Portugu  s
[ Suomi
[ Svenska
[   stina
[   Anglika
[   rmenjancan
[ Pycck  j
[ Sloven  
[   painaika
```

```
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 sshd-unix-local.socket - OpenSSH Server Socket (systemd-ssh-generator, AF_UNIX LD
[ OK ] Listening on sshd-vssock.socket - OpenSSH Server Socket (systemd-ssh-generator, AF_VSOCK).
[ OK ] Reached target ssh-access.target - SSH Access Available.
[ OK ] Listening on systemd-hostnamed.socket - Hostname Service Socket.
[ OK ] Listening on uidd.socket - UUID daemon activation socket.
Starting blk-availability.service - Availability of block devices...
[ OK ] Listening on lxd-installer.socket - Helper to install lxd snap on demand.
[ OK ] Listening on snapd.socket - Socket activation for snappy daemon.
[ OK ] Reached target sockets.target - Socket Units.
[ OK ] Reached target basic.target - Basic System.
Starting cloud-config.service - Cloud-init: Config Stage...
Starting dbus.service - D-Bus System Message Bus...
[ OK ] Started dmccg.service - Save Initial kernel messages after boot.
Starting e2scrub_reap.service - Remove Stale Online ext4 Metadata Check Snapshots...
[ OK ] Reached target getty.target - Login Prompts.
Starting nvme-autoconnect.service - Connect NvMe-of subsystems automatically during boot...
Starting polkit.service - Authorization Manager...
Starting pollinate.service - Pollinate to seed the pseudo random number generator...
Starting rsyslog.service - System Logging Service...
[ OK ] Reached target getty-pre.target - Preparation for Logins.
Starting snapd.seeded.service - Wait until snapd is fully seeded...
Starting snapd.service - Snap Daemon...
Starting systat.service - Resets System Activity Logs...
Starting systemd-logind.service - User Login Management...
Starting udisks2.service - Disk Manager...
[ OK ] Finished blk-availability.service - Availability of block devices.
[ OK ] Finished nvme-autoconnect.service - Connect NvMe-of subsystems automatically during boot.
[ OK ] Reached target remote-fs-pre.target - Preparation for Remote File Systems.
[ OK ] Reached target remote-fs.target - Remote File Systems.
Starting apport.service - automatic crash report generation...
[ OK ] Started cron.service - Regular background program processing daemon.
Starting systemd-user-sessions.service - Permit User Sessions...
[ OK ] Finished systat.service - Resets System Activity Logs.
[ OK ] Started systemd-logind.service - User Login Management.
[ OK ] Finished e2scrub_reap.service - Remove Stale Online ext4 Metadata Check Snapshots.
[ 20.947612] sh[2005]: Completed socket interaction for boot stage config
[ OK ] Finished cloud-config.service - Cloud-init: Config Stage.
[ OK ] Started systemd-user-sessions.service - Permit User Sessions.
Starting plymouth-quit-wait.service - Hold until boot process finishes up...
Starting plymouth-quit.service - Terminate Plymouth Boot Screen...
[ OK ] Started unattended-upgrades.service - Unattended Upgrades Shutdown.
[ OK ] Finished plymouth-quit-wait.service - Hold until boot process finishes up.
[ OK ] Finished systemd-user-sessions.service - Permit User Sessions.
Starting setvtrgb.service - Set console scheme...
[ OK ] Finished plymouth-quit.service - Terminate Plymouth Boot Screen.
[ OK ] Finished setvtrgb.service - Set console scheme.
[ OK ] Started rsyslog.service - System Logging Service.
```

```
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 ]
```

```
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.
```

## Network configuration

Configure at least one interface this server can use to talk to other machines, and access for updates.

```
NAME    TYPE    NOTES
[ ens33  eth    - ]
DHCPv4  192.168.238.128/24
00:0c:29:b0:e0:37 / Intel Corporation / 82545EM Gigabit Ethernet Controller (Co

[ Create bond ]
```

## Ubuntu archive mirror configuration

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...
```

## Storage configuration

### FILE SYSTEM SUMMARY

MOUNT POINT	SIZE	TYPE	DEVICE TYPE
/	10.00GB	new ext4	new LVM logical volume
/boot	1.77GB	new ext4	new partition of local disk

### AVAILABLE DEVICES

DEVICE	TYPE	SIZE
[ ubuntu-vg (new) free space	LVM volume group	18.22GB
[ Create software RAID (md) ]		
[ Create volume group (LVM) ]		

### USED DEVICES

DEVICE	TYPE	SIZE
[ ubuntu-vg (new) ubuntu-lv new, to be formatted as ext4, mounted at /	LVM volume group	18.22GB
[ /dev/sda partition 1 new, BIOS grub spacer	local disk	20.00GB
partition 2 new, to be formatted as ext4, mounted at /boot		1.00GB
partition 3 new, PV of LVM volume group ubuntu-vg		1.77GB
		18.22GB

```
Installing system

configuring lvm_voigroup: lvm_voigroup-0
configuring lvm_partition: lvm_partition-0
configuring format: format-1
configuring mount: mount-1
configuring mount: mount-0
executing curtin install extract step
curtin command install
writing install sources to disk
running 'curtin extract'
curtin command extract
acquiring and extracting image from cp:///tmp/tmpbjo9bJku/mount
configuring keyboard
curtin command in-target
executing curtin install curthooks step
curtin command install
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring iWoe over TCP
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
copying metadata from /cdrom
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 -
```

```
Ubuntu64 x
Ubuntu 24.04.3 LTS ubuntu64 tty1

ubuntu64 login: [ 21.659843] cloud-init[1244]: en_US.UTF-8... done
[ 21.660485] cloud-init[1244]: Generation complete.
[ 22.394080] cloud-init[1315]: Cloud-init v. 25.1.4-0ubuntu0~24.04.1 running 'modules:final' at Fri, 26 Sep 2025 16:32:37 +0000. U
ci-info: no authorized SSH keys fingerprints found for user maira040.
<14>Sep 26 16:32:37 cloud-init: #####
<14>Sep 26 16:32:37 cloud-init: ----BEGIN SSH HOST KEY FINGERPRINTS-----
<14>Sep 26 16:32:37 cloud-init: 256 SHA256:FPKln2gUFR0UkxWtU5J2120a5AyoInqvzdJznR8 root@ubuntu64 (ECDSA)
<14>Sep 26 16:32:37 cloud-init: 256 SHA256:FTSGHw78R3geJpUfJucvPvD5g0LEFqDx1T1q/cUYo4 root@ubuntu64 (ED25519)
<14>Sep 26 16:32:37 cloud-init: 3072 SHA256:f/3W6f5ofpukJT38NuJSU0/1eJ7efcxpbC9w7bq685Y root@ubuntu64 (RSA)
<14>Sep 26 16:32:37 cloud-init: ----END SSH HOST KEY FINGERPRINTS-----
<14>Sep 26 16:32:37 cloud-init: #####
----BEGIN SSH HOST KEY KEYS-----
ecdsa-sha2-nistp256 AAAAE2VjZHNhLXNoYTU1bmlzdhRjNTYAAAIDmlZdHJhNTYAAABBBFDyn1f2V1hT0DyA/rNIQ+CTpG3lRq3J1cJk+XUEB2Xx239K98WRZcnk
root@ubuntu64
ssh-ed25519 AAAAC3NzaC1lZD01INTE5AAAIUyucK3ufcxNEt23Kh8BDYvYfct0KRMS1f+J8a0810a root@ubuntu64
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgdmanh83C+1Q0v/6DSJy07uqESKnNtVzKnuaqkF45xW4cMFsuK1SHkBaskZYrMFDPbqfH4HPx8T0Dgrzof18bbfVr
tMPf/ax6Kx27398eJfdeKwNIR5CP19KJwMTtr3W2K6aDU2378V9uFbIS+XW1VtVfT8A6fmlUghZ8WIm6+IshomR750Uhx8JKp98xPqKJXL+Chc64+d0uuehIsqr
rhwJk5RnqkF78gJLw+4y9W8w0vcd9d7R4SU0V7TicLdWknc1yI5huZu13132zbfuf7507086JdlzJm8Hr2qC68rQ4Ghc4S802Tfcq+DdL8a+pg5J6FHW+HwuxP2
cL2R1p6Dkam6FkUw/Hcp/1o205Xp1y167Kuzk+J86H8rPCTntheH5bVL3ucpKpsze8d1k= root@ubuntu64
----END SSH HOST KEY KEYS-----
[ 22.696454] cloud-init[1315]: Cloud-init v. 25.1.4-0ubuntu0~24.04.1 finished at Fri, 26 Sep 2025 16:32:37 +0000. DataSource DataS
ubuntu64 login: maira040
Password: _
```

```
Password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-71-generic x86_64)

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

System information as of Fri Sep 26 04:33:10 PM UTC 2025

System load: 1.08          Processes:           244
Usage of /:  43.6% of 9.75GB Users logged in:          0
Memory usage: 7%          IPv4 address for ens33: 192.168.238.129
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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.

maira040@ubuntu64:~$ _
```

## Making Ubuntu Shell in Windows:

```
C:\Users\BOSS>ssh maira040@192.168.238.129
The authenticity of host '192.168.238.129 (192.168.238.129)' can't be established.
ED25519 key fingerprint is SHA256:FTSGHw78R3geJpUfJucvPvD5g0LEFqDx1T1q/cUYo4.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.238.129' (ED25519) to the list of known hosts.
maira040@192.168.238.129's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.8.0-71-generic x86_64)

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

System information as of Fri Sep 26 04:43:31 PM UTC 2025

System load:  0.07          Processes:           214
Usage of /:   45.0% of 9.75GB Users logged in:          1
Memory usage: 8%          IPv4 address for ens33: 192.168.238.129
Swap usage:  0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

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

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

maira040@ubuntu64:~$
```

