SETTING UP A VIRTUAL CYBERSECURITY HOME LAB.

Introduction: This documentation details the step-by-step process of setting up a virtual cybersecurity home lab using VirtualBox. The lab includes multiple operating systems: Windows Server, Windows 8, Kali Linux, Ubuntu, and Parrot Security OS. This environment is ideal for practicing cybersecurity skills, ethical hacking, system administration, and network configuration.

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1. Prerequisites: Before starting the setup, ensure you have the following:

- A host computer with at least 16GB RAM, 100GB free space on your SSD disk storage, and a multi-core processor.
- Internet connection.

Required Software Downloads:

- **VirtualBox** (virtualization platform)
- **Operating Systems (in ZIP format):**
  - Windows Server ISO or VHD (ZIP format)
  - Windows 8 ISO or VHD (ZIP format)
  - Kali Linux ISO or VHD (ZIP format)
  - Ubuntu ISO or VHD (ZIP format)
  - Parrot Security OS ISO or VHD (ZIP format)


ORACLE
VirtualBox
VirtualBox


Windows
Server

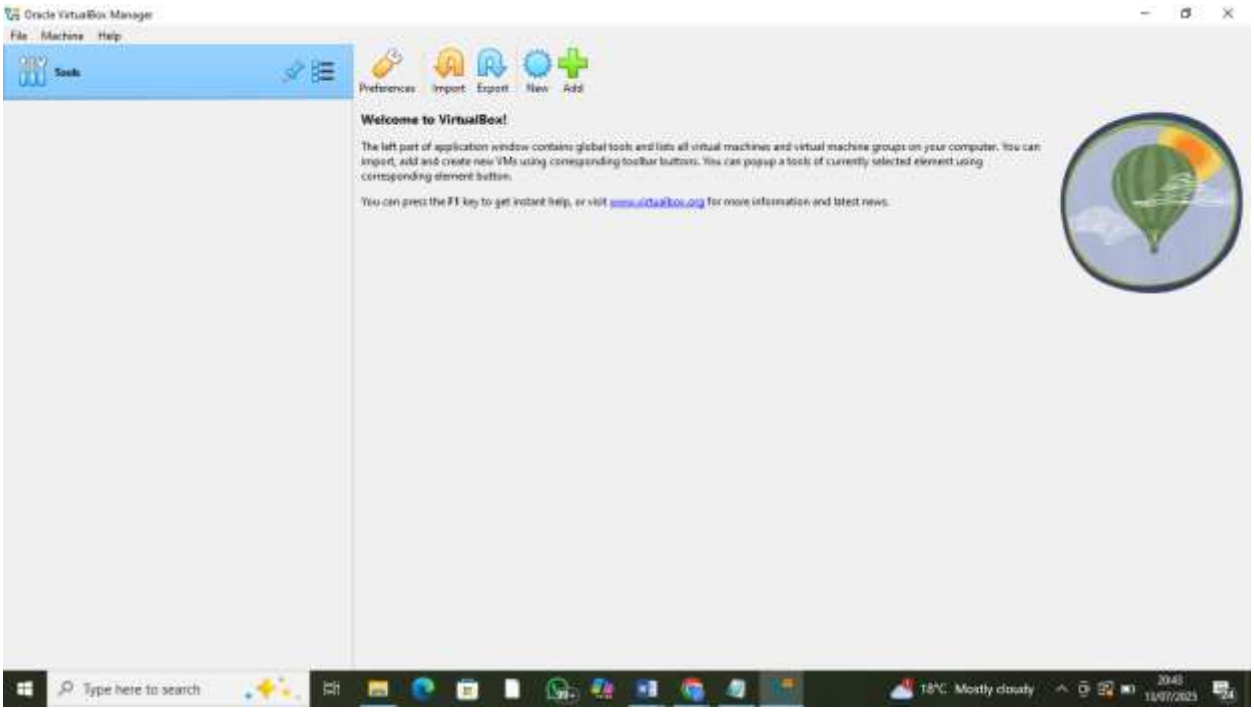

Windows 8


KALI

2. Installing VirtualBox:

- Download Oracle VirtualBox from the official website.
- Run the installer and follow the installation prompts.
- Once installed, launch VirtualBox.

Image: Installed VirtualBox Screen



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3. Extracting the OS Files:

- Locate the downloaded ZIP files for each operating system.
- Right-click on each ZIP file and choose "Extract All."
- Ensure the extracted files are saved in a known directory.

Image: Example of extracted OS files

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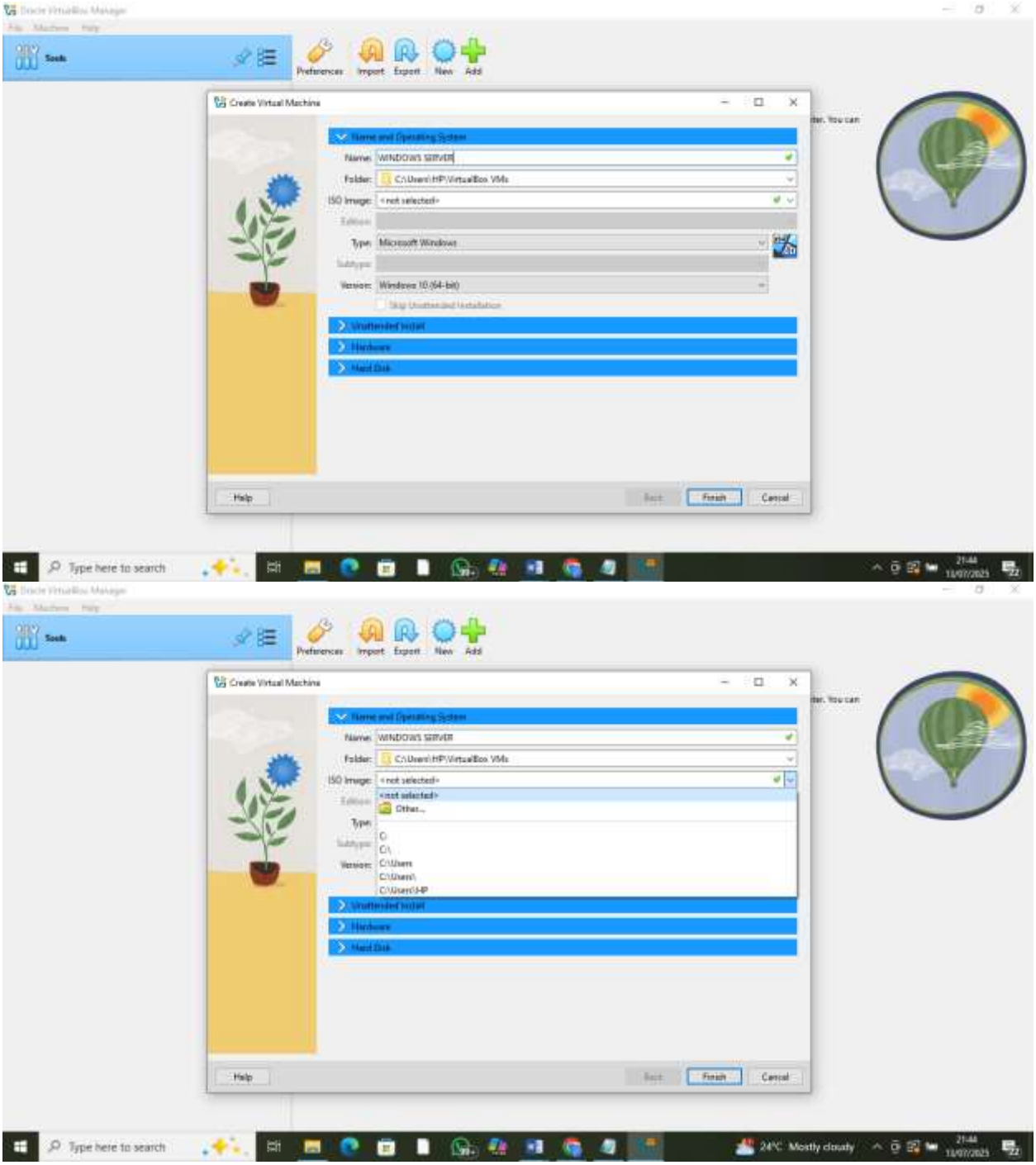
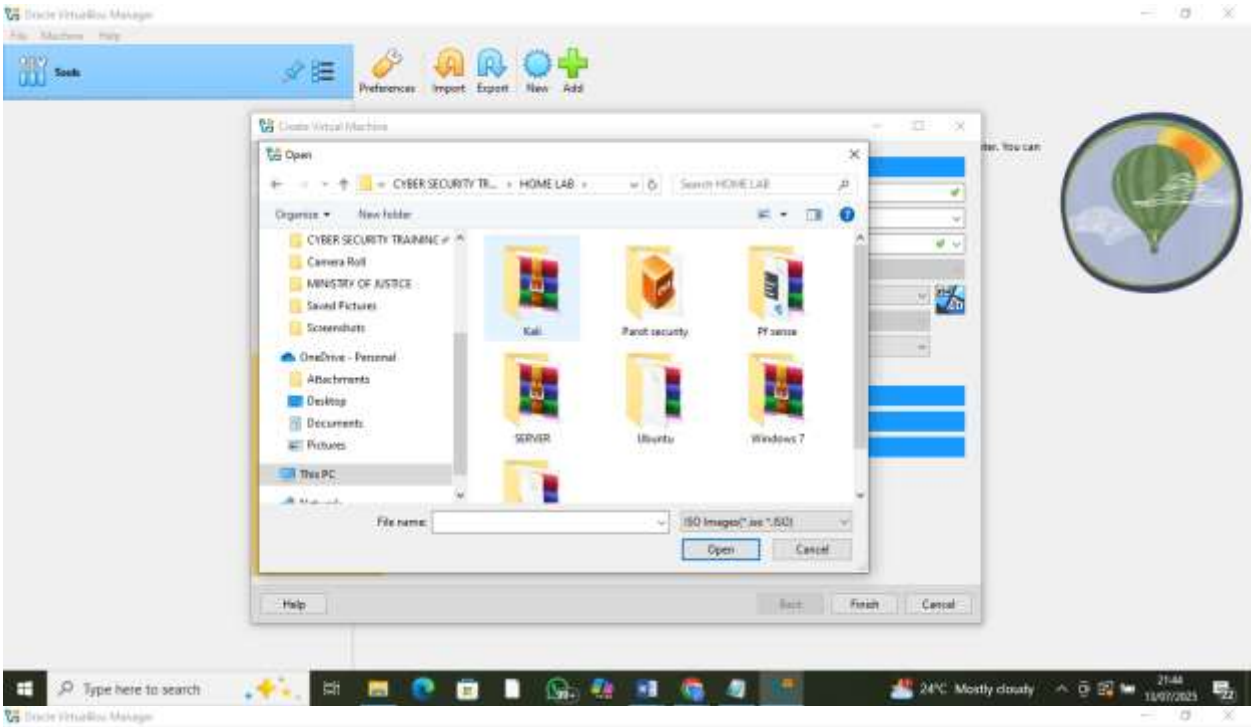
4. Creating and Mounting Virtual Machines (VMs) in VirtualBox:

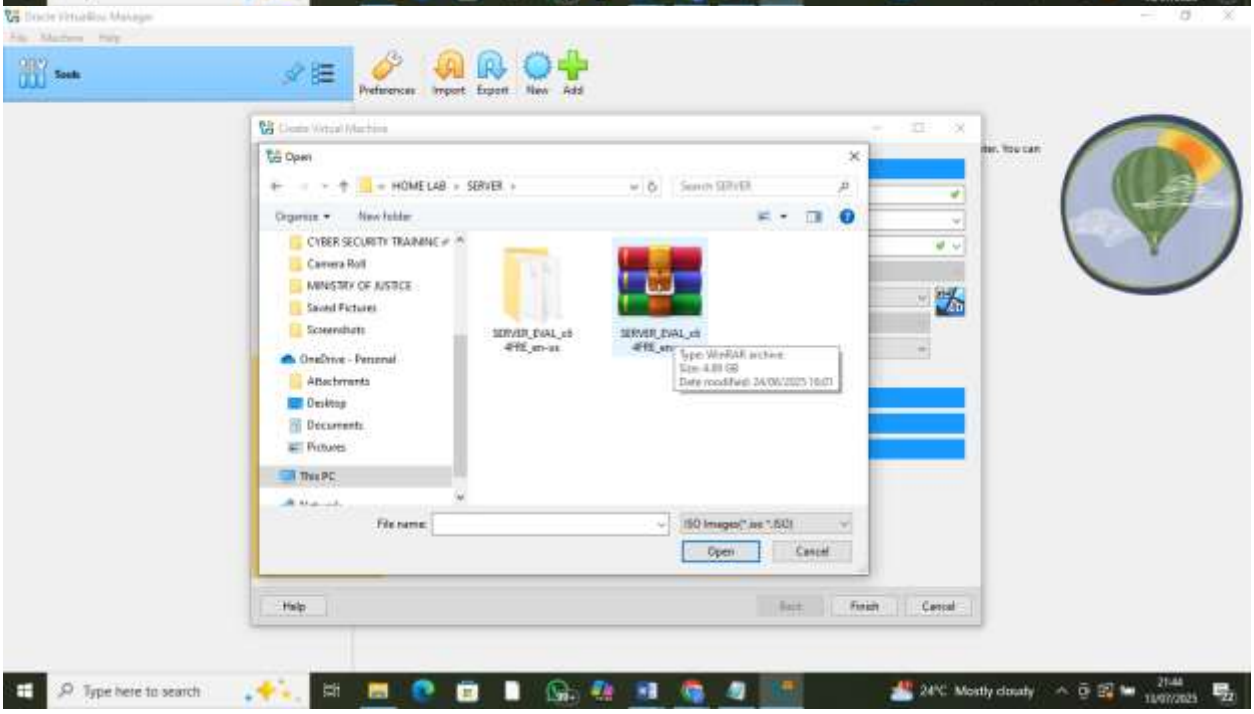
- Open VirtualBox and click "New."
- Name the VM (e.g., Windows Server), choose the OS type and version.
- Allocate memory (RAM) based on system requirements (e.g., 2GB for Ubuntu, 4GB+ for Windows Server).
- Choose "Use an existing virtual hard disk file" if using a VHD, or load the ISO file if installing from scratch.

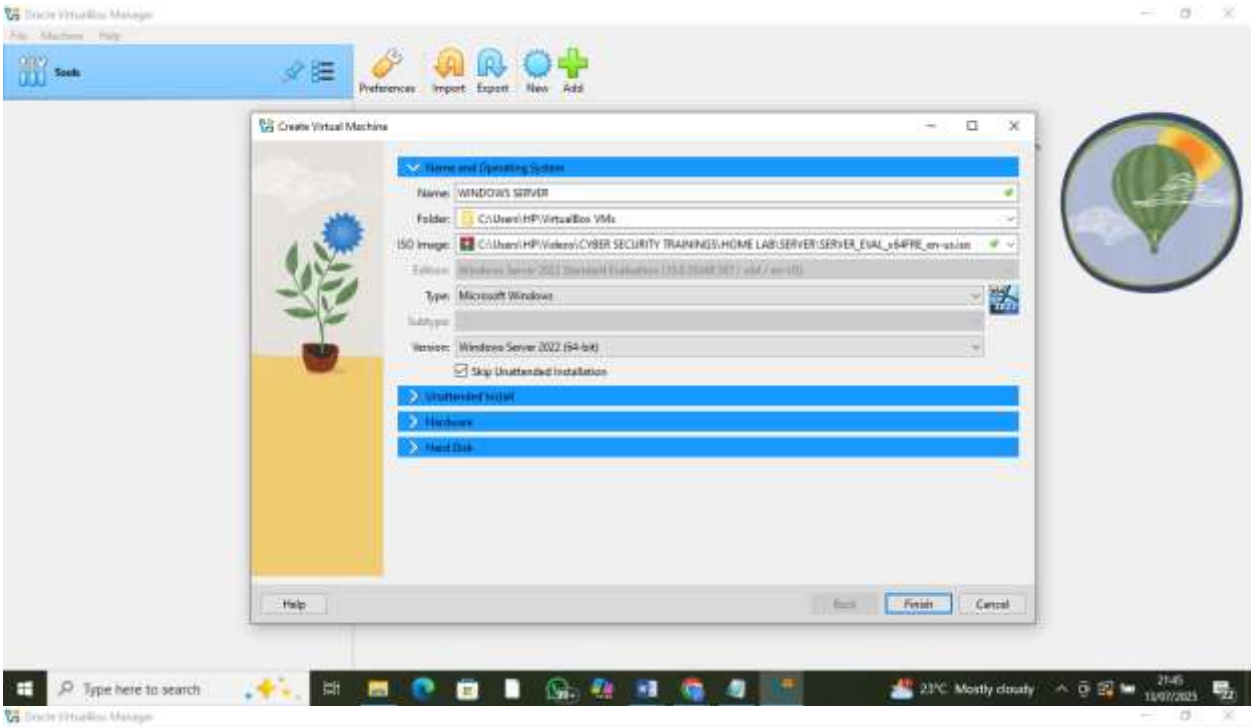
- Repeat this process for each operating system.

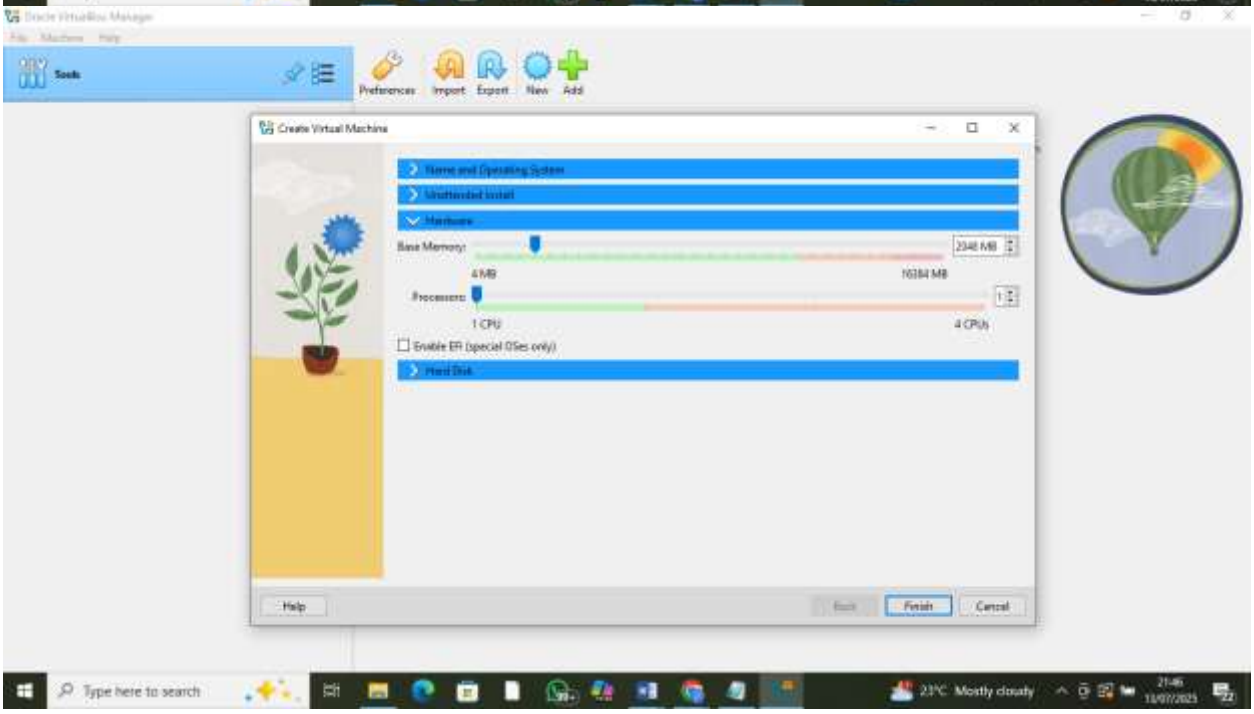
Image: Creating a new VM (Windows Server) in VirtualBox

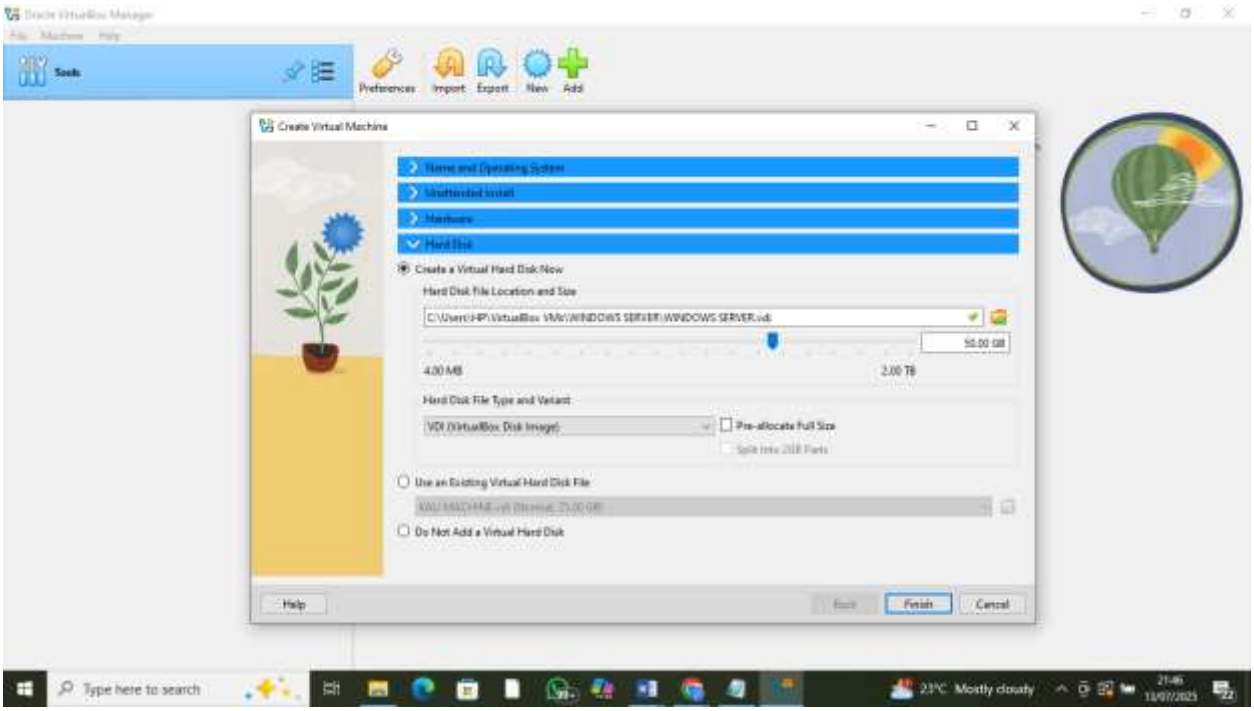



Preferences
Import
Export
New
Add
Open
CYBER SECURITY TR... › HOME LAB ›
Search HOME LAB
Organize
New folder
CYBER SECURITY TRAINING
Camera Roll
MINISTRY OF JUSTICE
Saved Pictures
Screenshots
OneDrive - Personal
Attachments
Desktop
Documents
Pictures
This PC
Kali
Parrot security
PF sense
SERVER
Ubuntu
Windows 7
File name:
ISO Images(*.iso *.ISO)
Open
Cancel
Help
Back
Finish
Cancel
Type here to search
24°C Mostly cloudy


Preferences
Import
Export
New
Add
Open
HOME LAB › SERVER ›
Search SERVER
Organize
New folder
CYBER SECURITY TRAINING
Camera Roll
MINISTRY OF JUSTICE
Saved Pictures
Screenshots
OneDrive - Personal
Attachments
Desktop
Documents
Pictures
This PC
SERVER_EVAL_x64
4FRE_en-us
SERVER_EVAL_x64
4FRE_en-us
Type: WinRAR archive
Size: 4.89 GB
Date modified: 24/06/2025 16:01
File name:
ISO Images(*.iso *.ISO)
Open
Cancel
Help
Back
Finish
Cancel
Type here to search
24°C Mostly cloudy


Preferences
Import
Export
New
Add
Create Virtual Machine
Name and Operating System
Name: WINDOWS SERVER
Folder: C:\Users\HP\VirtualBox VMs
Type: Microsoft Windows
Version: Windows Server 2022 (64-bit)
Skip Unattended Installation
Unattended Install
Hardware
Hard Disk
Help
Finish
Cancel
Type here to search
23°C Mostly cloudy


Preferences
Import
Export
New
Add
Create Virtual Machine
Name and Operating System
Unattended Install
Hardware
Base Memory:
4 MB
16384 MB
Processors:
1 CPU
4 CPUs
Enable EFI (special OSes only)
Hard Disk
Help
Finish
Cancel
Type here to search
23°C Mostly cloudy



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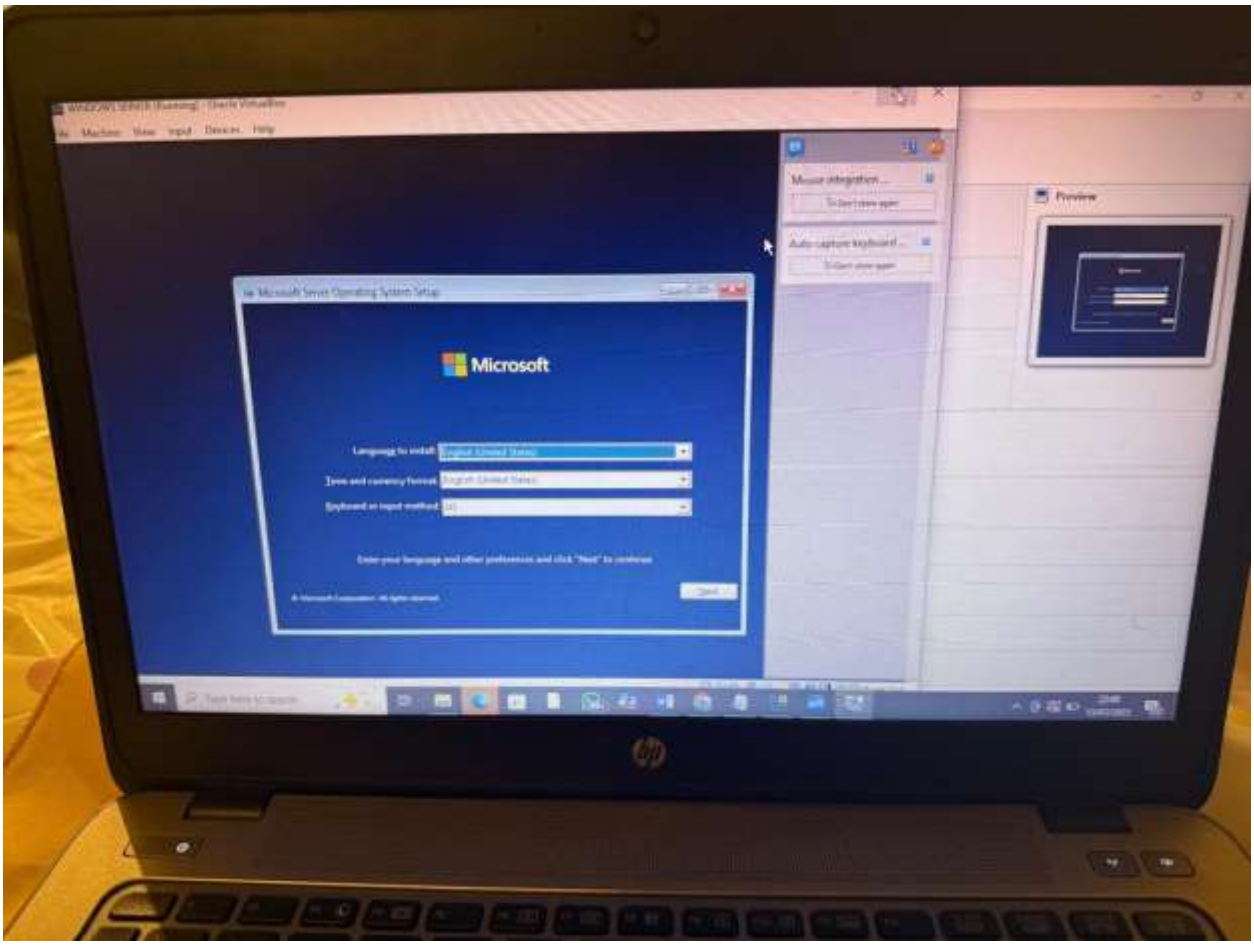
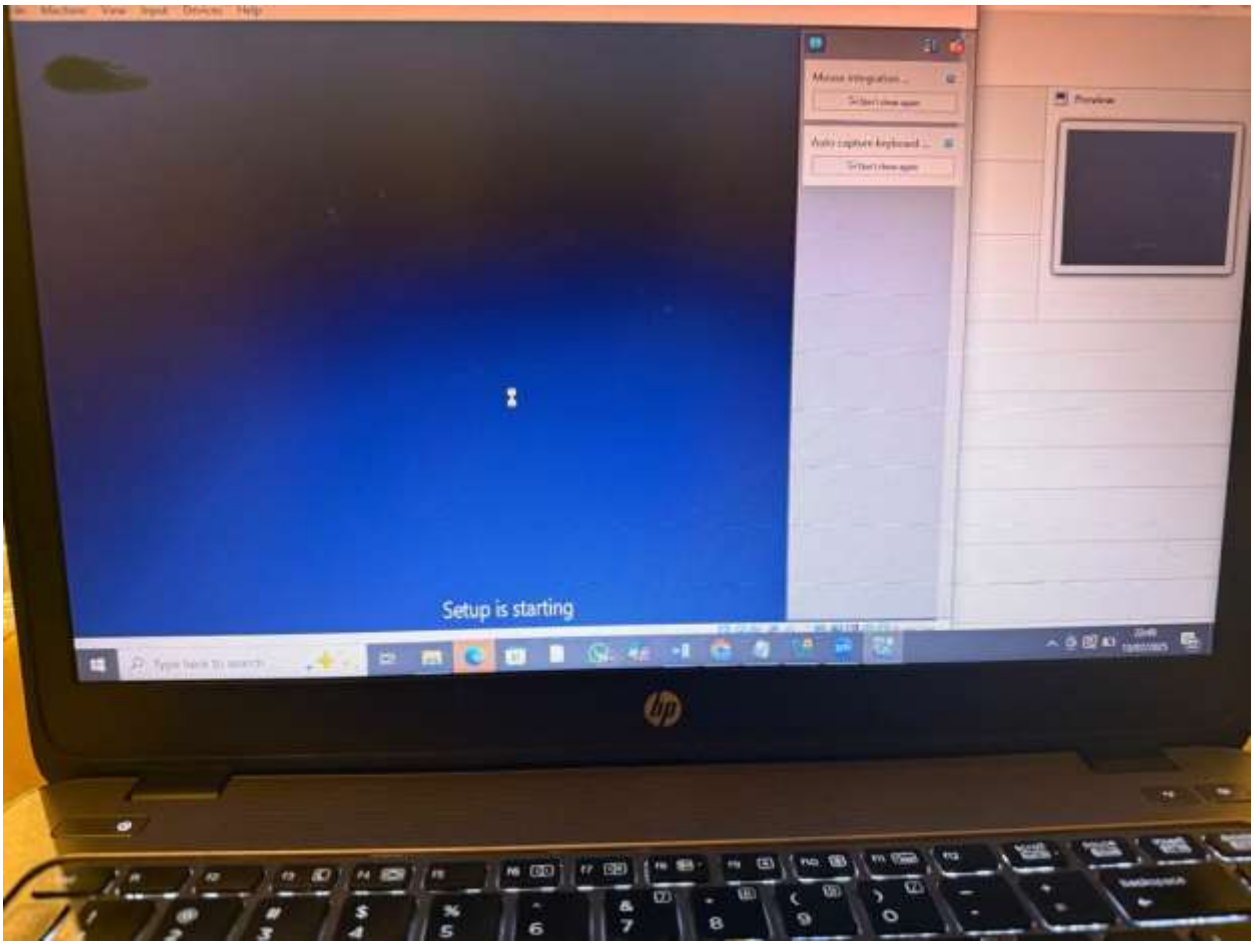
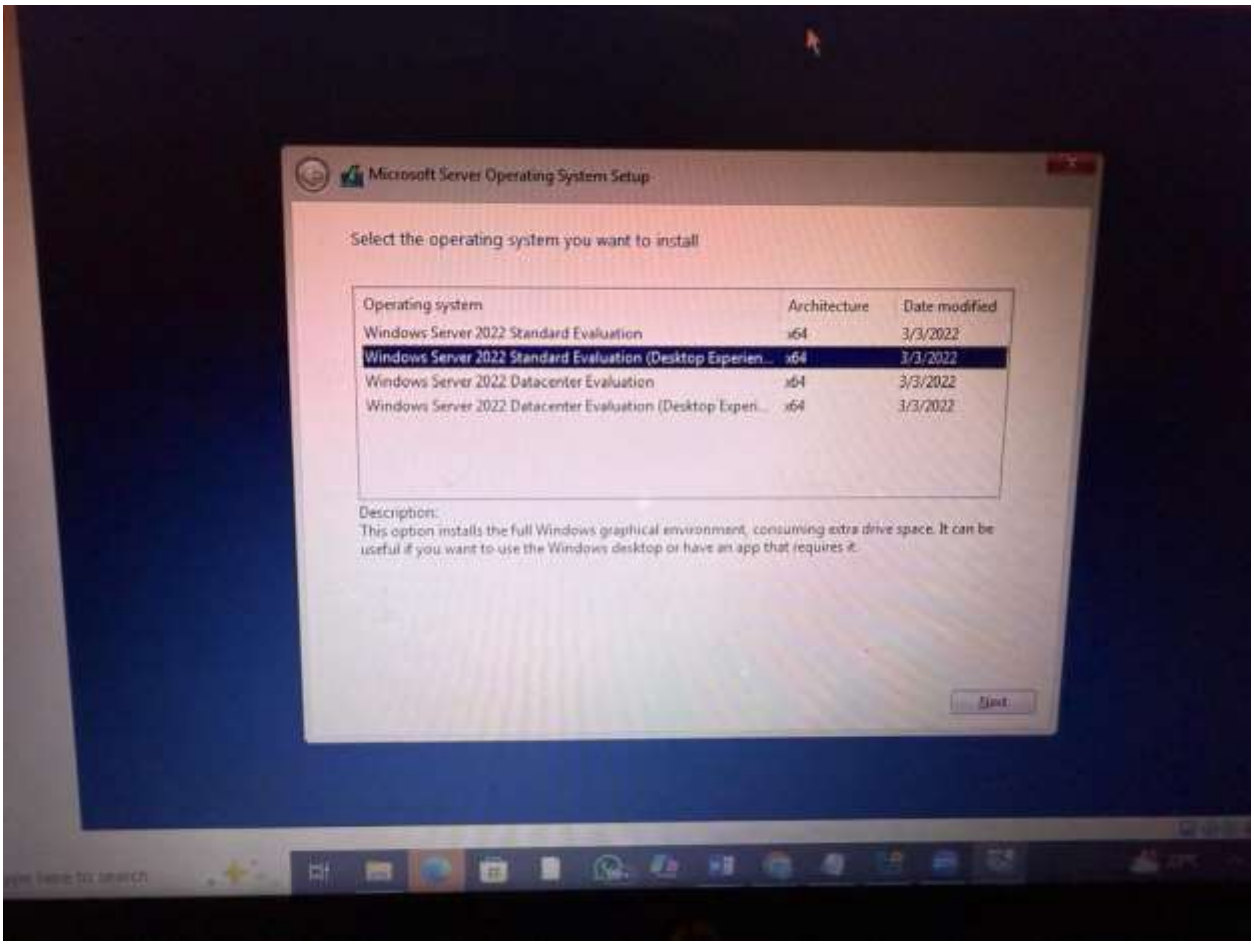
5. Configuring Each Virtual Machine:

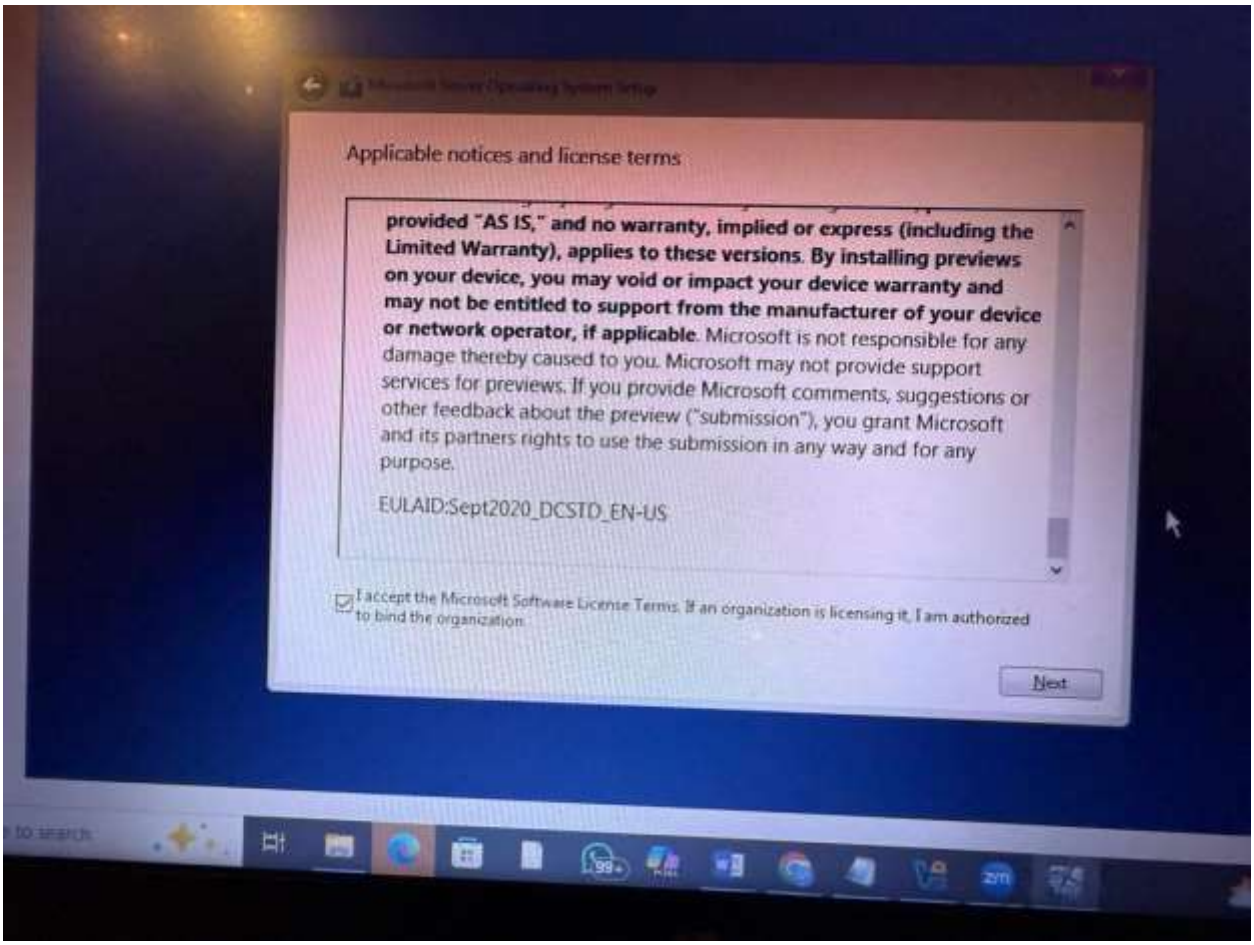
- **Windows Server**:
  - Boot the VM and follow the installation wizard
  - Set administrator password, enable remote desktop if needed
  - Configure network settings
- **Windows 8**:
  - Similar installation as Windows Server
  - Useful for client-side testing
- **Kali Linux**:
  - Select default credentials (kali/kali)
  - Install security tools if missing
- **Ubuntu**:
  - Basic setup for Linux practice
  - Install additional packages for networking and security
- **Parrot Security OS**:
  - Advanced Linux security environment
  - Great for ethical hacking and digital forensics

Image: screenshots of windows 8 OS running in VirtualBox


Microsoft
Preview


Setup is starting


Microsoft Server Operating System Setup
Select the operating system you want to install
Operating system
Architecture
Date modified
Windows Server 2022 Standard Evaluation
x64
3/3/2022
Windows Server 2022 Standard Evaluation (Desktop Experien...
x64
3/3/2022
Windows Server 2022 Datacenter Evaluation
x64
3/3/2022
Windows Server 2022 Datacenter Evaluation (Desktop Experi...
x64
3/3/2022
Description:
This option installs the full Windows graphical environment, consuming extra drive space. It can be useful if you want to use the Windows desktop or have an app that requires it.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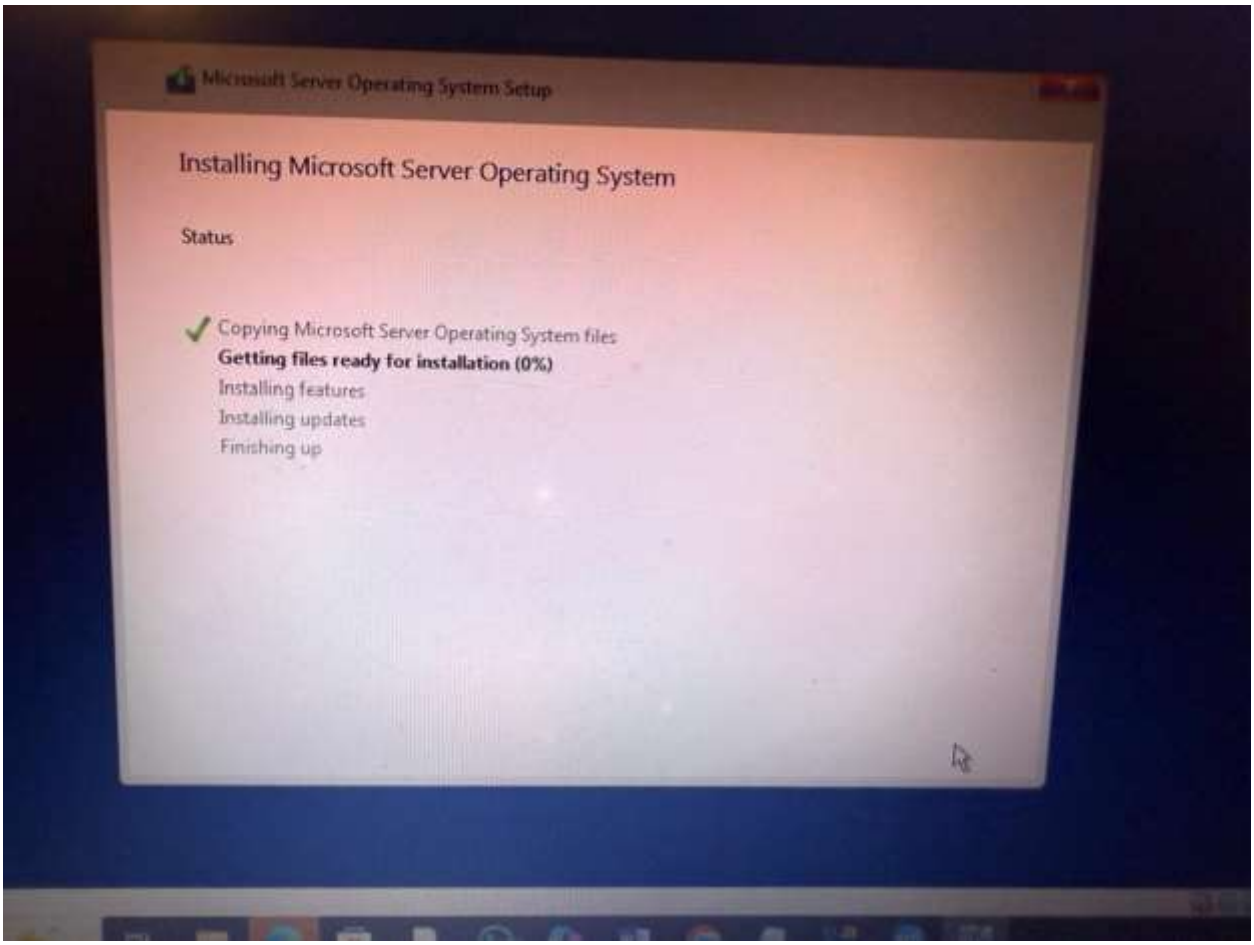
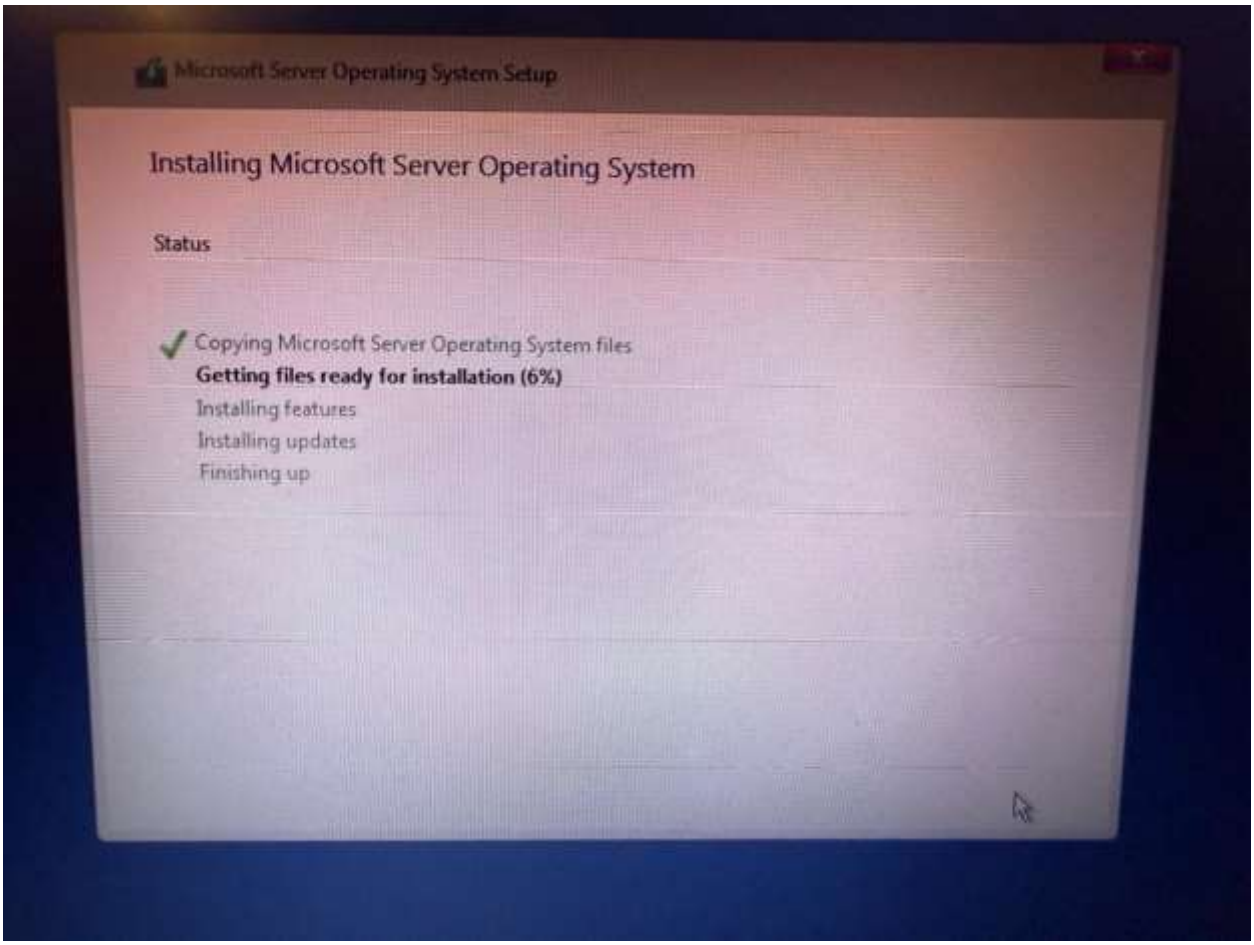
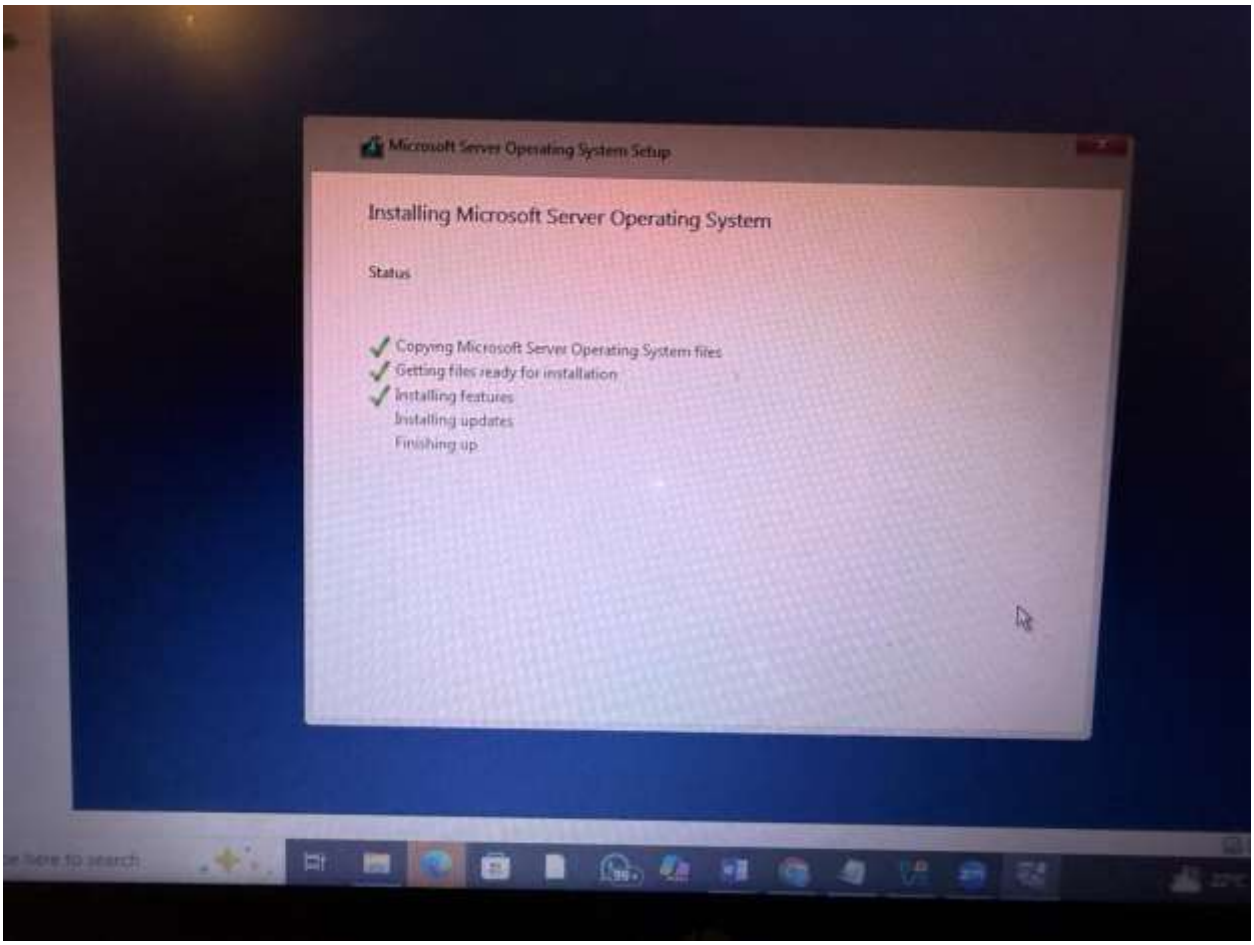
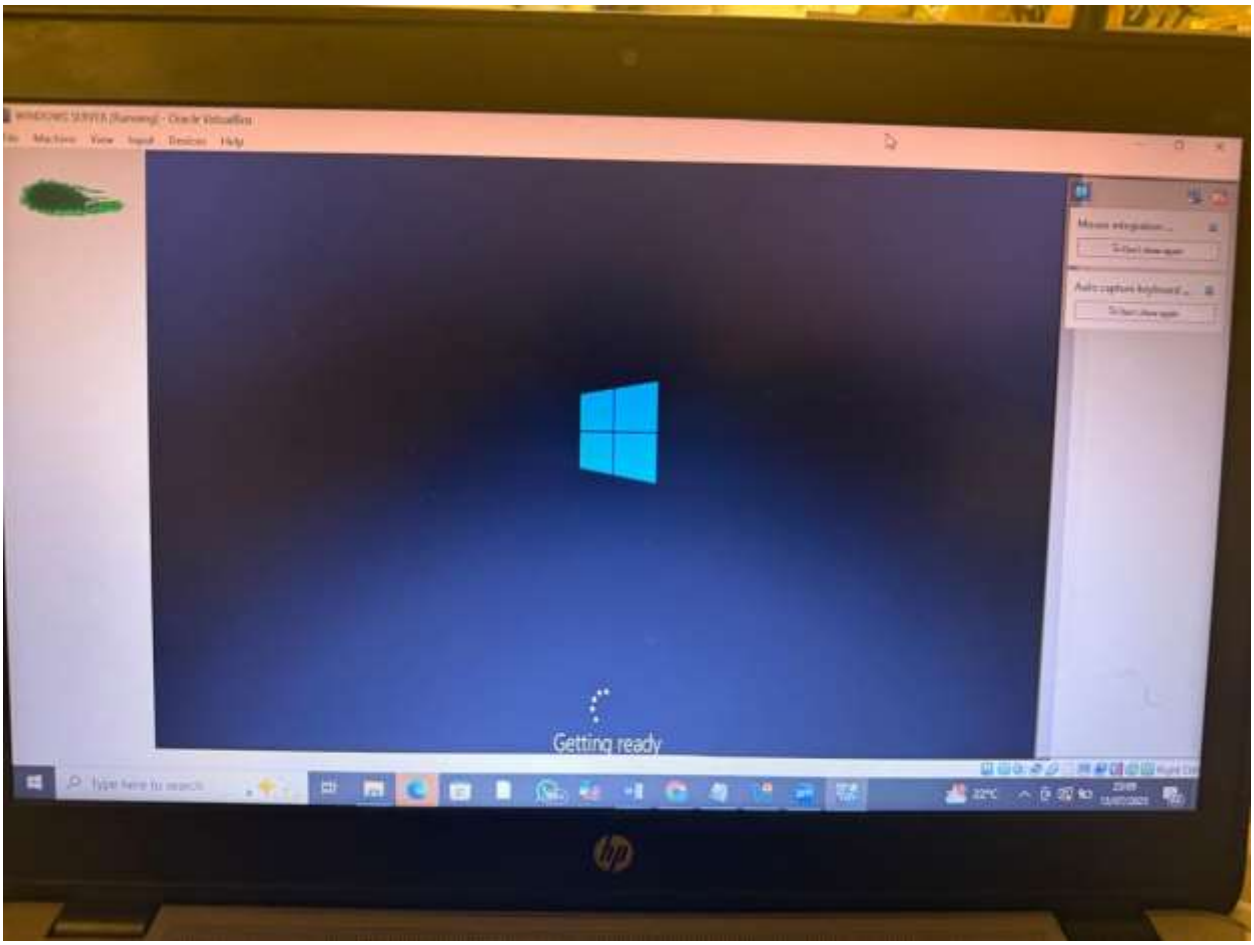
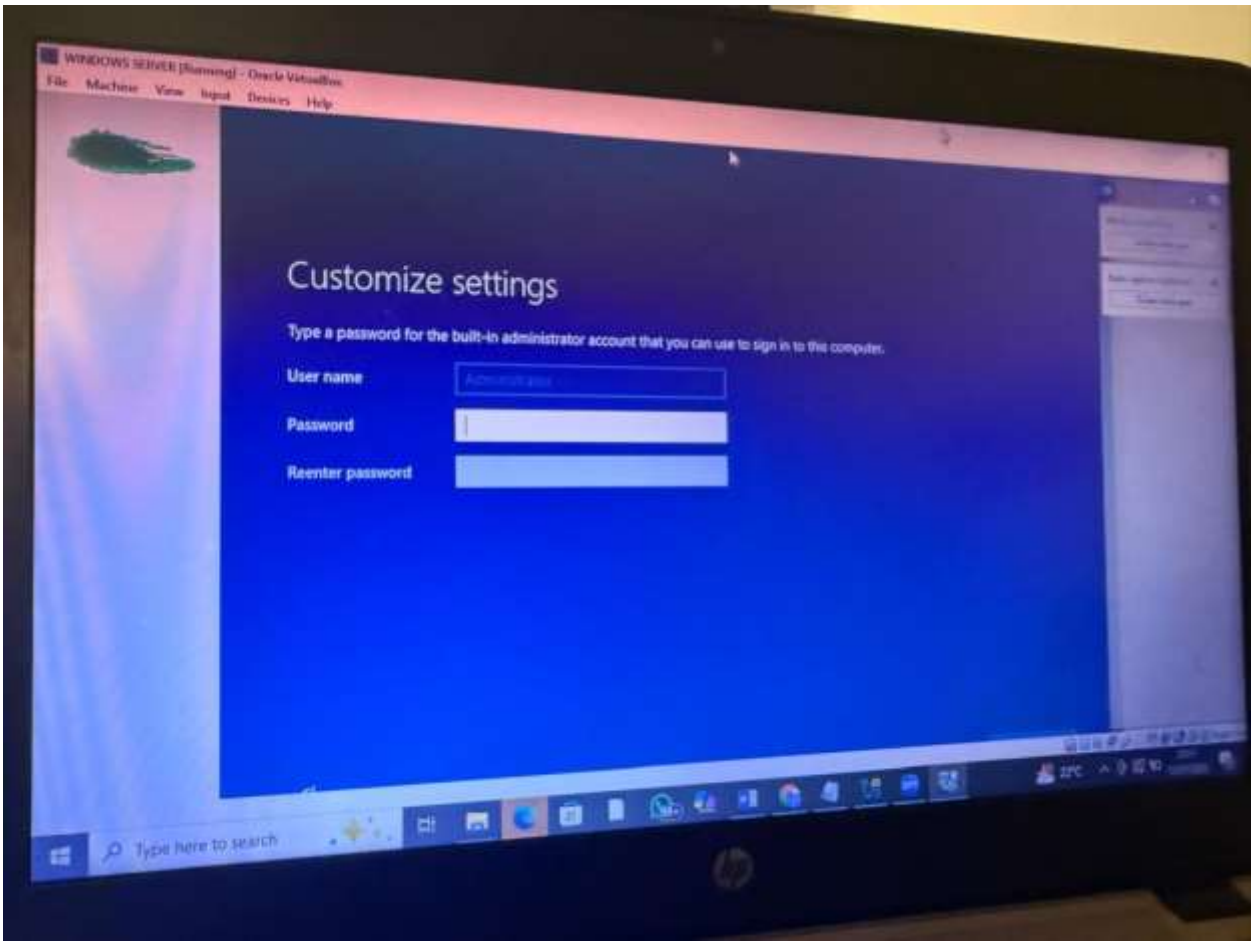
EULAID:Sept2020_DCSTD_EN-US
I accept the Microsoft Software License Terms. If an organization is licensing it, I am authorized to bind the organization.
Next

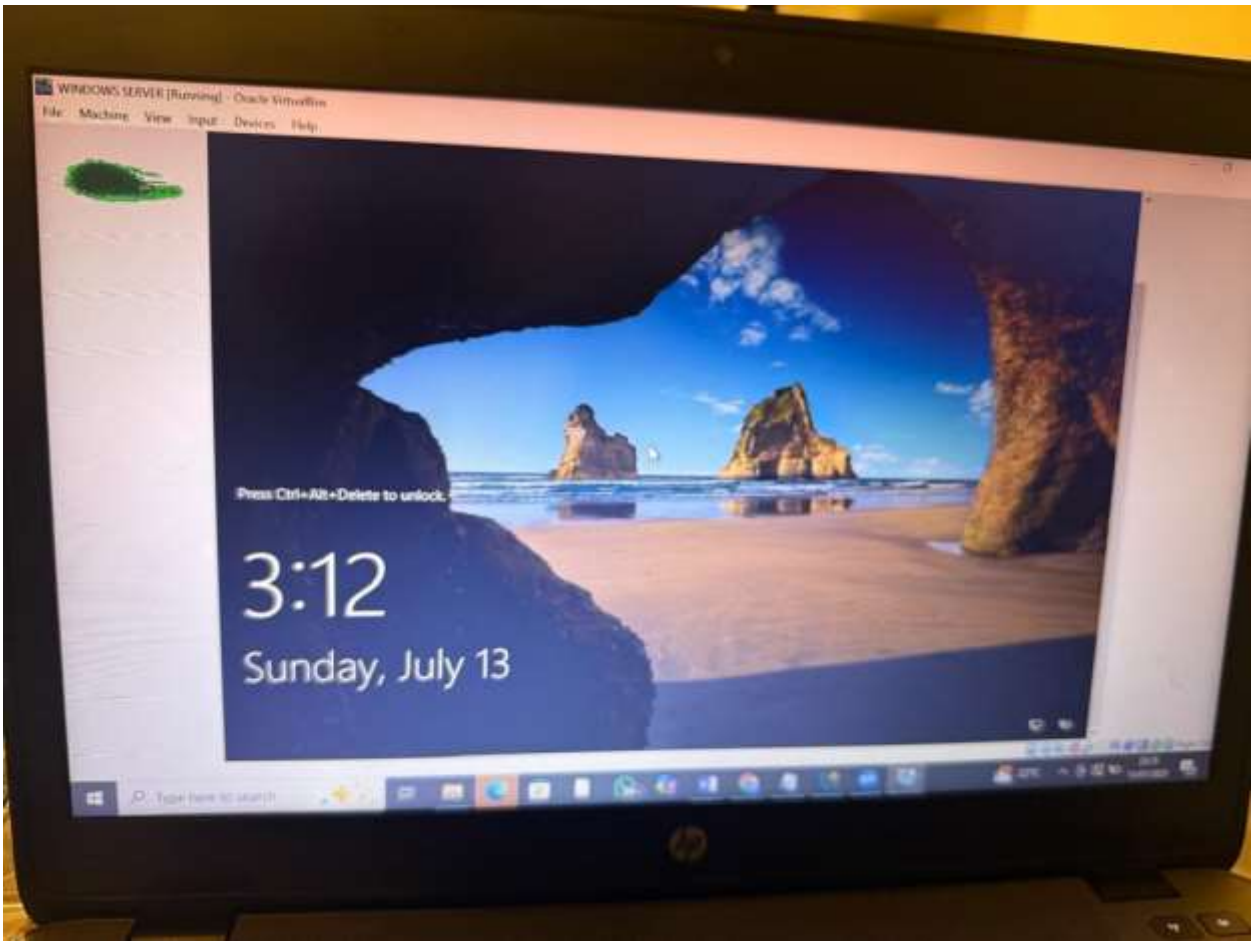

Microsoft Server Operating System Setup
Installing Microsoft Server Operating System
Status
Copying Microsoft Server Operating System files
Getting files ready for installation (0%)
Installing features
Installing updates
Finishing up

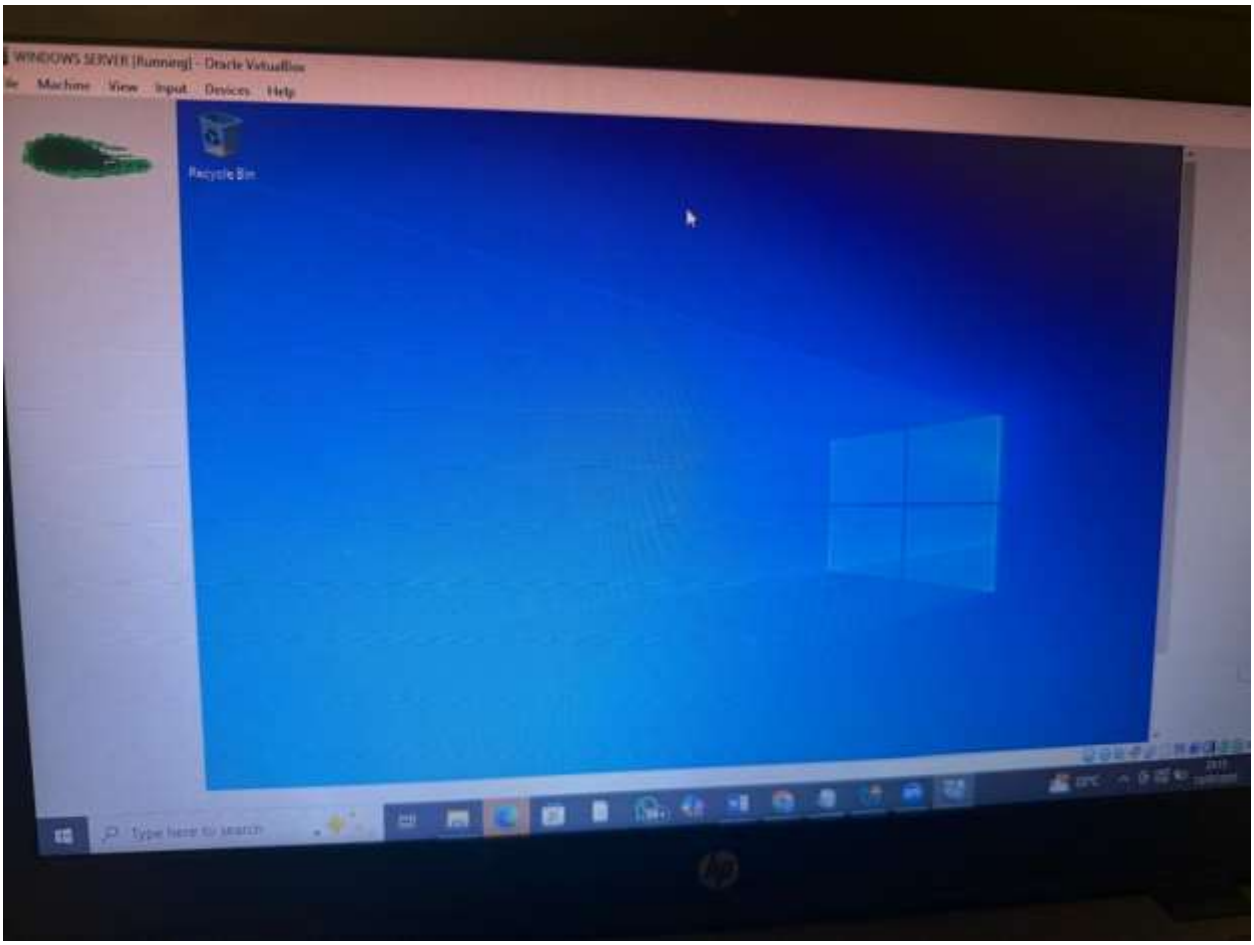

Microsoft Server Operating System Setup
Installing Microsoft Server Operating System
Status
Copying Microsoft Server Operating System files
Getting files ready for installation (6%)
Installing features
Installing updates
Finishing up


Microsoft Server Operating System Setup
Installing Microsoft Server Operating System
Status
Copying Microsoft Server Operating System files
Getting files ready for installation
Installing features
Installing updates
Finishing up


Getting ready


Customize settings
Type a password for the built-in administrator account that you can use to sign in to this computer.
User name
Password
Reenter password
Type here to search


WINDOWS SERVER [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Press Ctrl+Alt+Delete to unlock
3:12
Sunday, July 13



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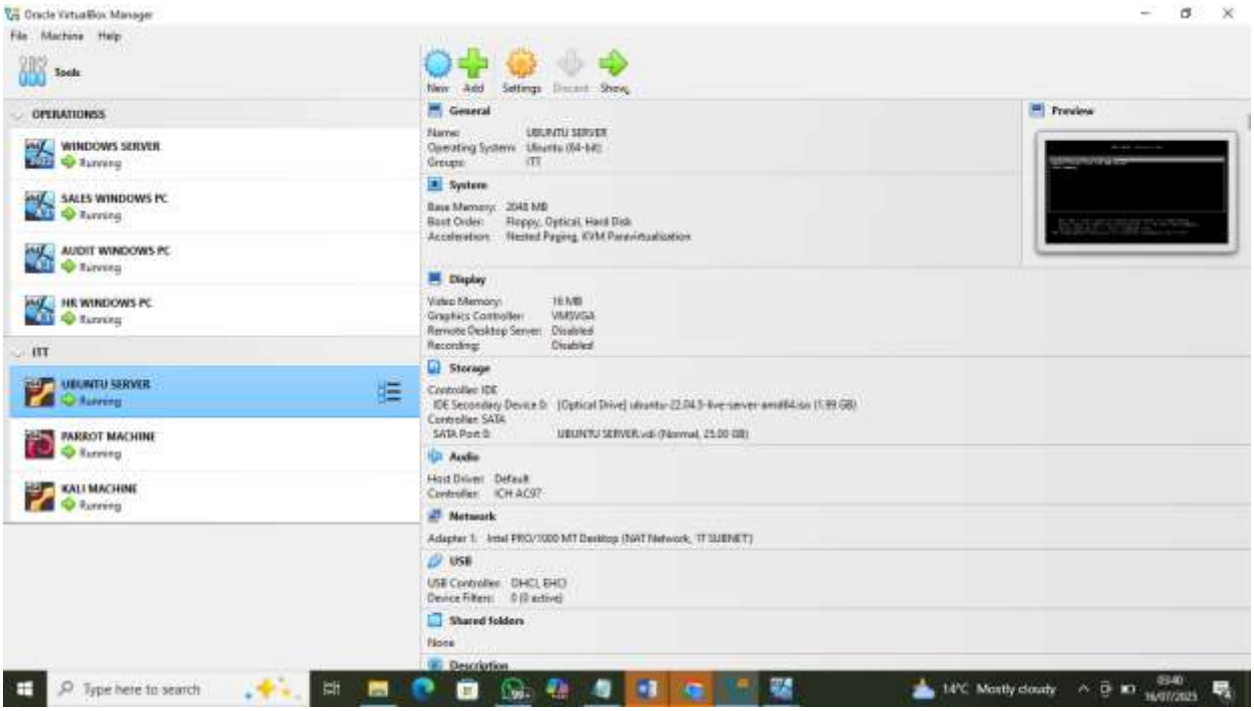
6. Running and Testing the Lab:

- Start each VM from the VirtualBox interface.
- Ensure all systems boot correctly and are responsive.
- Test network connectivity between VMs if needed.
- Create network snapshots or isolated networks for testing.

Image: All VMs running side by side in VirtualBox



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7. Conclusion:

Your virtual cybersecurity lab is now fully operational. This environment allows for a wide range of experiments and practical learning in a safe and isolated setup. Regularly update each system and take snapshots before making major changes.

End of documentation.