

Week 2 – Computer Systems Assignment

Installation Process

Installing Hypervisor

I installed **Oracle VirtualBox** on my Windows 11 laptop as the hypervisor for creating and managing virtual machines. VirtualBox was selected because it is lightweight, open source, and supports multiple guest operating systems. Before installation, I ensured that virtualization was enabled in BIOS/UEFI. I confirmed this by checking Task Manager → Performance tab, which showed Virtualization: Enabled.

Creating Ubuntu Linux VM

For the first virtual machine, I created an **Ubuntu 24.04 LTS** VM.

- **CPU Allocation:** 2 cores
Reason: Ubuntu is a lightweight OS. Assigning 2 cores provides smooth multitasking without overloading the host system.
- **RAM Allocation:** 4 GB (4096 MB)
Reason: Ubuntu desktop runs comfortably with 4 GB, allowing me to run applications and updates while keeping enough memory available for the host machine.
- **Disk Allocation:** 20 GB (dynamically allocated)
Reason: The base installation requires around 8–10 GB. I allocated 20 GB to allow room for system updates and additional software.

Creating Windows Server VM

For the second virtual machine, I created a **Windows Server 2022 (Trial Edition)** VM.

- **CPU Allocation:** 2 cores
Reason: Windows Server needs more processing power than Ubuntu. Allocating 2 cores provides stable performance for administrative tasks.
- **RAM Allocation:** 8 GB (8192 MB)
Reason: The minimum requirement is 4 GB, but Windows Server with Desktop Experience runs much more smoothly with 8 GB, especially when using Server Manager and other built-in tools.
- **Disk Allocation:** 50 GB (dynamically allocated)
Reason: Windows Server requires ~20 GB for installation. I allocated 50 GB to ensure enough room for roles, updates, and log files.

- **Post-Installation**

- **Ubuntu Desktop**

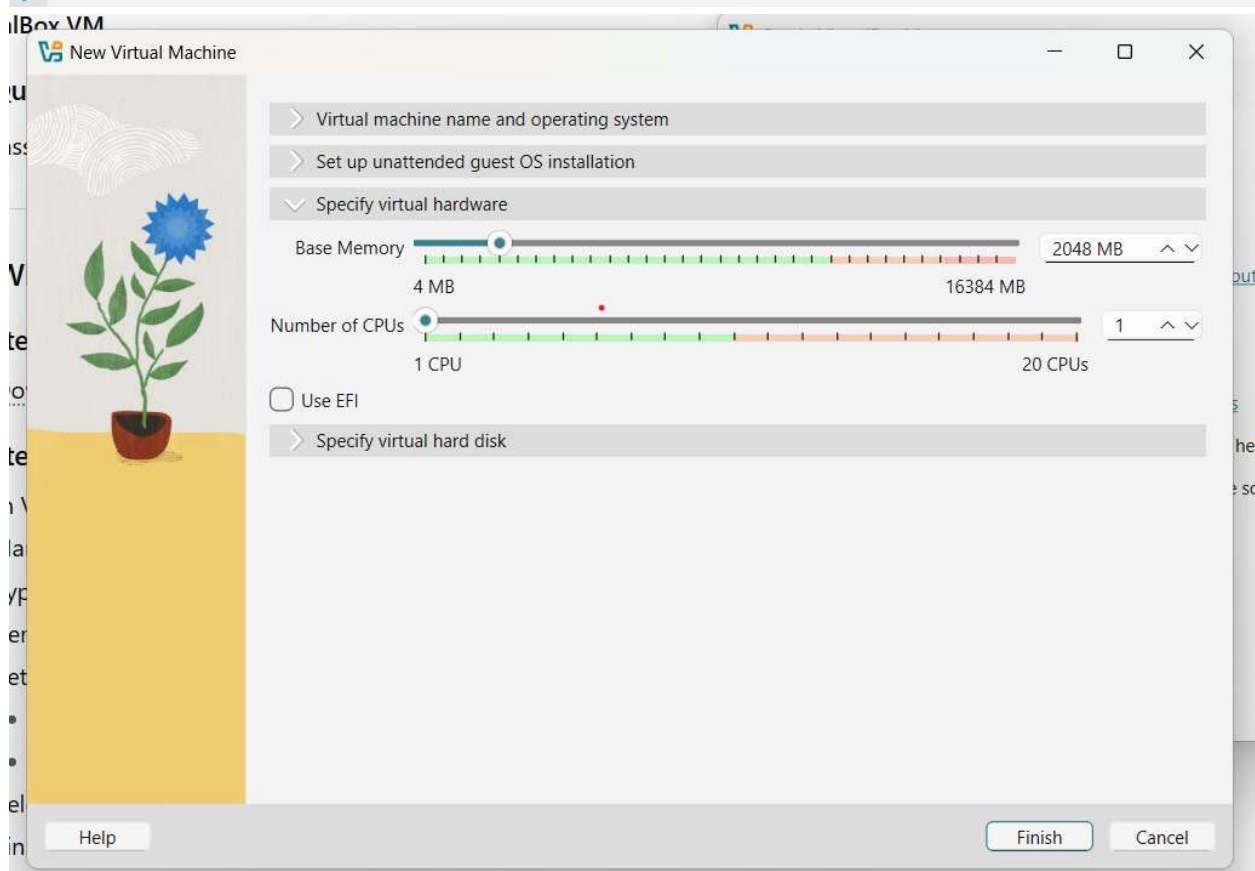
The Ubuntu VM booted successfully, and I was able to log in to the desktop environment. With 2 cores and 4 GB RAM, the system performed smoothly.

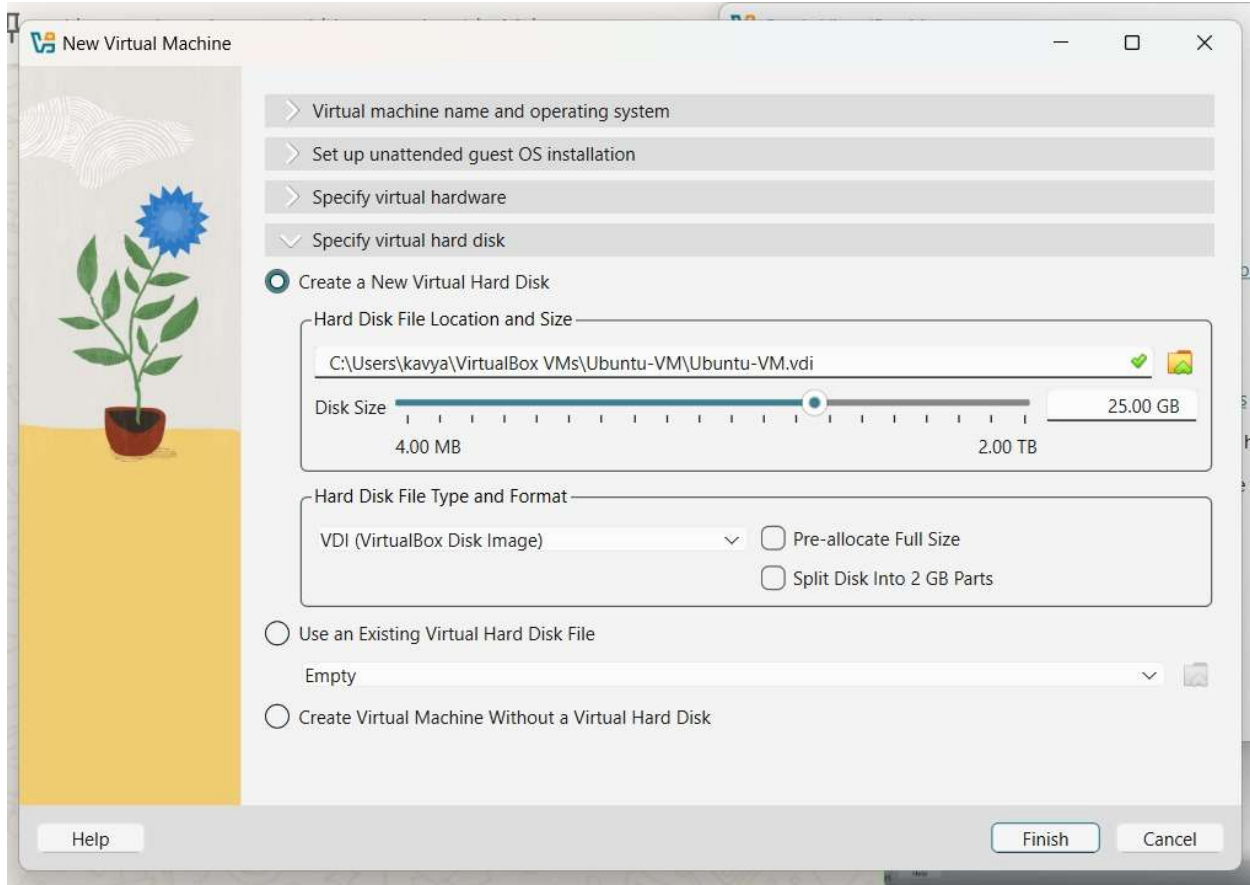
- **Windows Server Desktop**

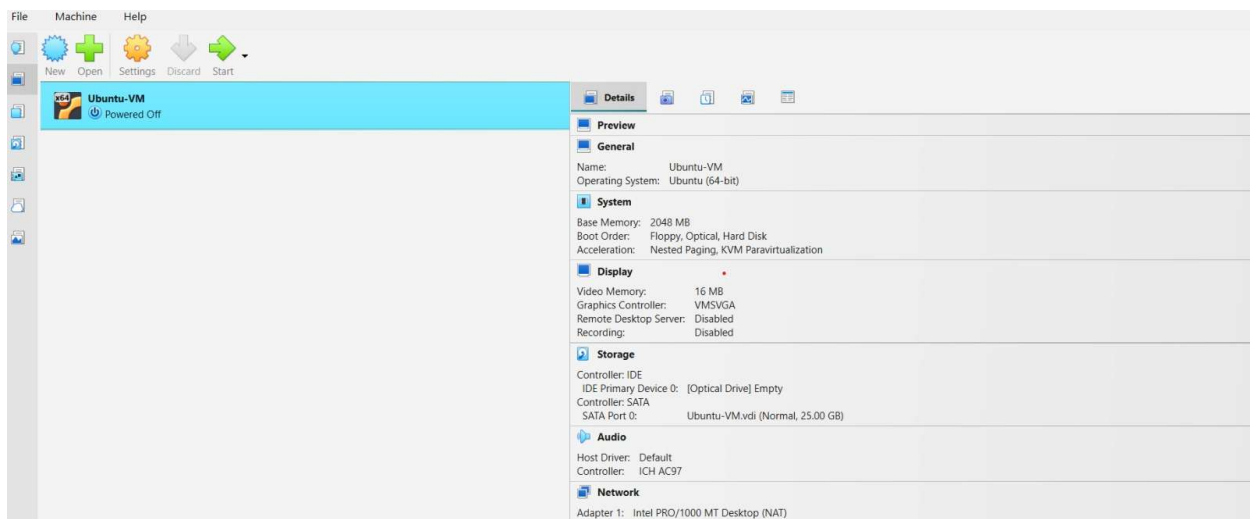
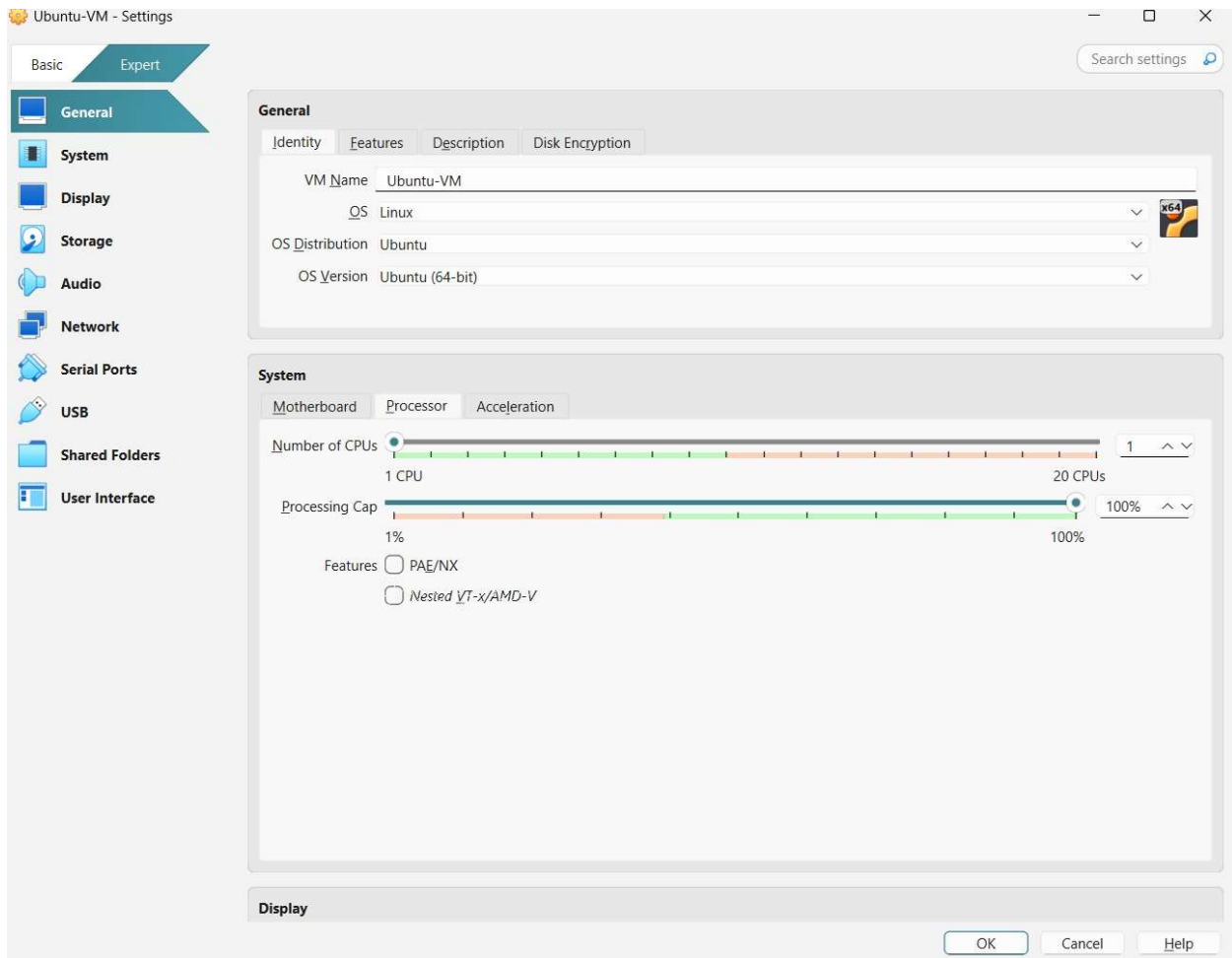
After installation, I logged in with the Administrator account. Server Manager opened by default. With 8 GB RAM, the system was responsive and could handle basic administrative tasks.

- **Observations on Performance**

- Ubuntu VM ran efficiently with minimal lag. Its lightweight design allowed me to allocate fewer resources while still maintaining good performance.
- Windows Server VM required higher resources, especially RAM, to perform adequately. With 8 GB RAM and 50 GB disk, it handled installations and configurations smoothly.
- By balancing resource allocation, both VMs could run on the same laptop without exhausting the host system.







Sample Documentation

Storage Configuration for Ubuntu-VM

The VM uses a 25 GB virtual hard disk (Ubuntu-VM.vdi), created in VDI (VirtualBox Disk Image) format.

The disk is configured as dynamically allocated, meaning it will grow as needed up to the 25 GB limit.

This virtual disk is connected via the SATA controller on Port 0.

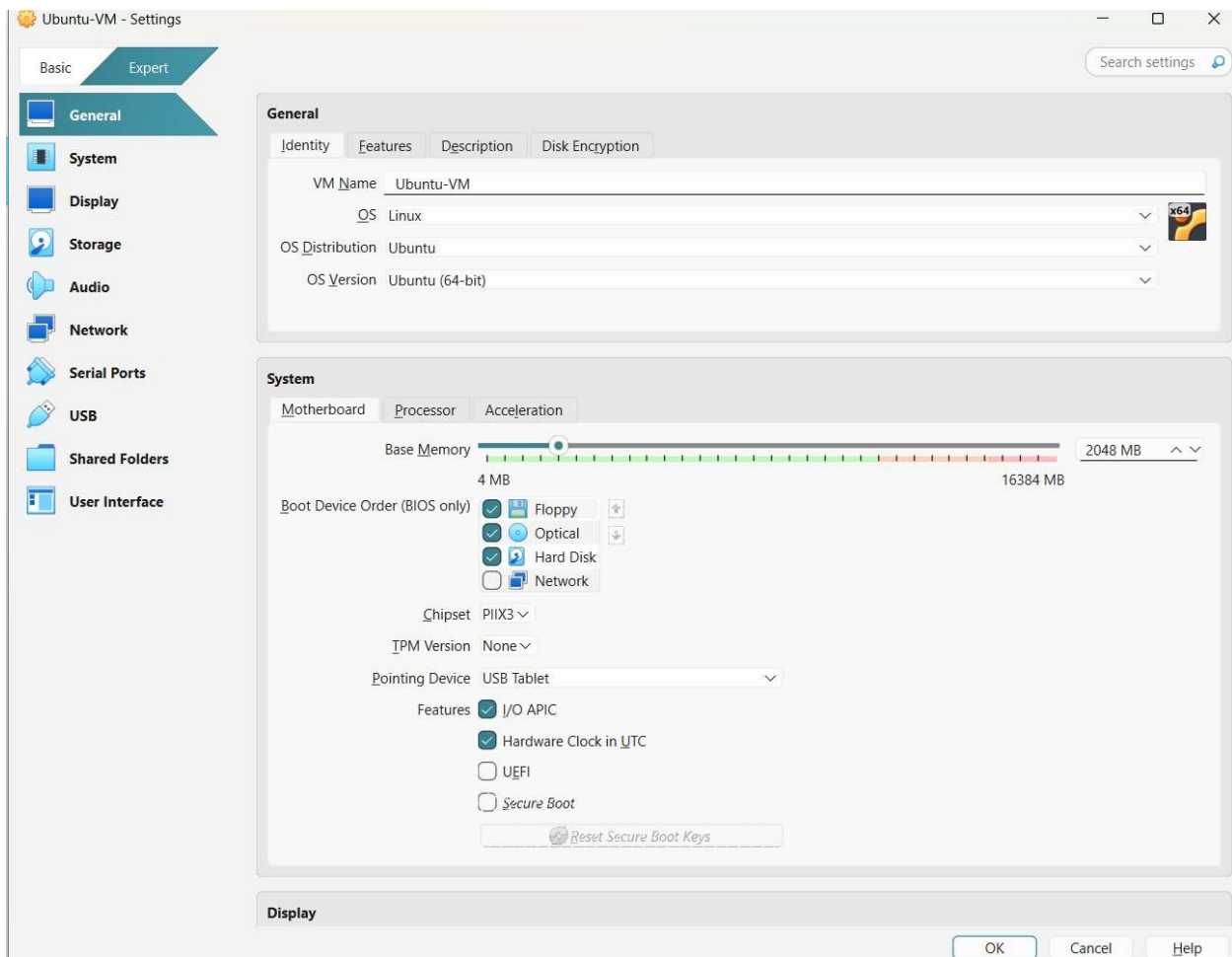
The optical drive (IDE Primary Device 0) is currently empty, which can be used to load ISO images when needed.

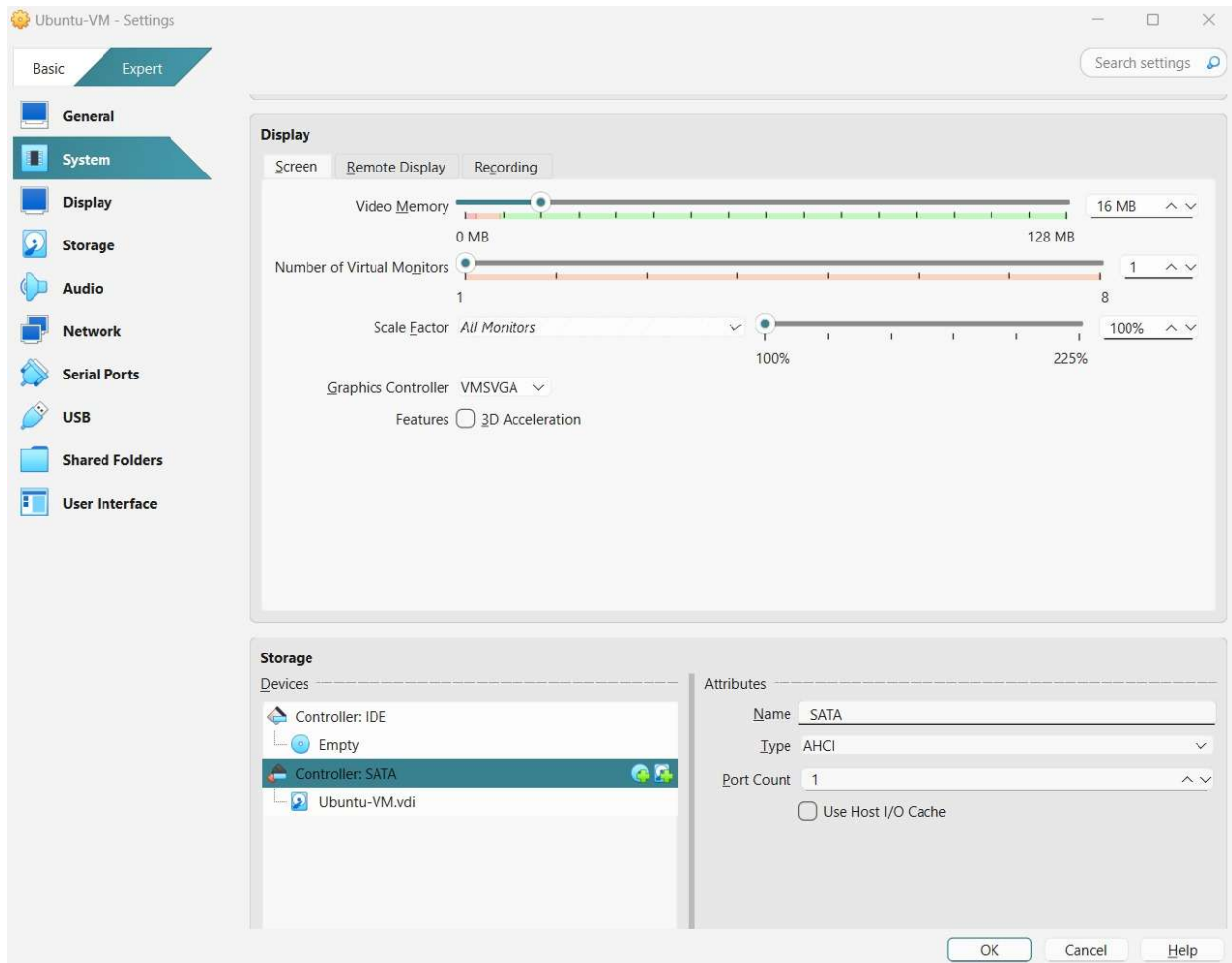
Why 25 GB?

Ubuntu's base installation needs ~8–10 GB.

25 GB allows room for additional software, updates, and files without consuming excessive space on the host machine.

Using dynamic allocation ensures disk space on the host is used efficiently — only real usage consumes actual disk.





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Extract

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Details

Preview

Name: Windows Server

Operating: Windows 2022-(64-bit)

System

Bass Memory: 4096 MB

Boot Order: Hoppy: Optical, Hard Disk

Nexted Paging, XHM Paravekualization; Uzlization

Display

Video Memory: 37 MB

Graphics Controller: VMSSGA

Remote Desktop: Disabled

Storage

Controller: IDE

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SNIA Port 6: WindowsServer v41 (Normal) 50:00 GB)

Audio

Host Driver: Windows DirectSound

Controller: [CH AC87

Network

Adapter 1: Intel PRO/1000 MT Desktop (NAT)

Controller: OHCI, EHC]

Device Filtns: 9 (0-active)

Shared folders