Building a Multi-VM Cybersecurity Lab

Multi-Subnet Architecture: Design, Implementation, and Cybersecurity Analysis

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Executive Summary

This report details the technical architecture of a virtualized Security Operations Center (SOC). Utilizing **VirtualBox** for virtualization and **pfSense** for robust perimeter and internal security, the environment is engineered to simulate real-world corporate segmentation.

The lab features a dual-subnet design—**Operations** and **IT**—supporting critical business services (Active Directory, DNS, Web) alongside offensive security platforms (Kali Linux, Parrot OS). This setup provides a safe, isolated sandbox for testing firewall policies, identity management, and incident response workflows.

Environment At-A-Glance

Component	Technology Stack
Virtualization	Oracle VM VirtualBox
Firewall/Routing	pfSense (Netgate)
Identity Management	Windows Server (Active Directory / DNS / DHCP)
Operating Systems	Windows 8, Ubuntu Server/Desktop
Security Toolkits	Kali Linux, Parrot OS
Network Segments	Operations (Internal) & IT (Security/Testing)

From Hardware to Virtualization: Building My Free Cybersecurity Lab at Home

1.0 Overview

In the early 2000s, creating an IT lab meant investing in costly servers or repurposing old hardware. It was hands-on and rewarding—but far from quick or affordable. Today, things have changed. With open-source tools and virtualisation, anyone can build a fully functional IT lab on a single computer. And that's exactly what I did.

I set up a completely free virtual IT lab on my home machine using open-source software. It's fast, flexible, and perfect for gaining practical IT and cybersecurity skills—without a stack of hardware. In simple terms, virtualisation is the process of emulating a computer system. Instead of relying on multiple physical machines, you can create several virtual machines (VMs) that run as software on your main computer.

Think of your main computer as the host—it provides the resources. On this host, you can run one or more guest virtual machines, each acting like its own independent computer with its own operating system and settings.

It's like running a complete computer inside your existing one—opening a new world right on your desktop!

1.1 Objectives

- Gain practical experience with virtualization
- Build and manage virtual machines (VMs)
- Configure virtual networks
- Install and administer Windows and Linux systems
- Create a foundation for cybersecurity and SOC-focused labs

1.2 Core Components

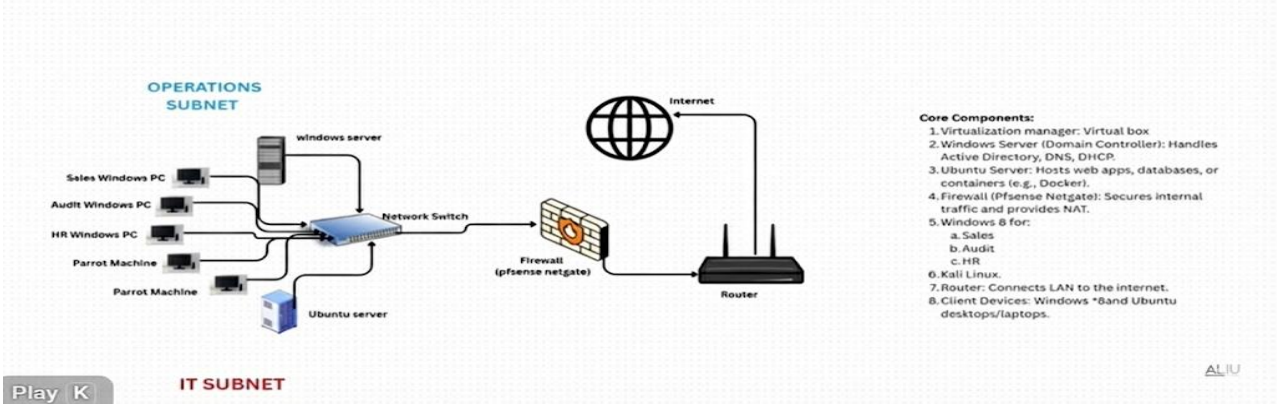
- **Virtualization Platform:** VirtualBox
- **Firewall:** pfSense (Netgate)
- **Router:** Virtual router for subnet segmentation
- **Servers:**
    - Windows Server (Active Directory, DNS, DHCP)
    - Ubuntu Server (Web services)
- **Client Devices:**
    - Windows 8 (Sales, Audit, HR)
    - Ubuntu Desktop
- **Security Tools:**
    - Kali Linux
    - Parrot OS

1.3 Laboratory Overview and Network Topology

- **Operations Network (Subnet):**
    - Windows 8 (Sales, Audit, HR)
    - Windows Server
    - Ubuntu Server
- **IT Network (Subnet):**
    - Kali Linux
    - Parrot OS
    - Ubuntu Client
- **Shared Services:** Windows Server & Ubuntu Server accessible across both subnets
- **Firewall:** pfSense controls traffic between subnets
- **Router:** Connects Operations and IT networks

The lab architecture is a professional environment where multiple devices connect to a central network switch, which is protected by a firewall and connected to the internet through a router. The environment is divided into two primary subnets:

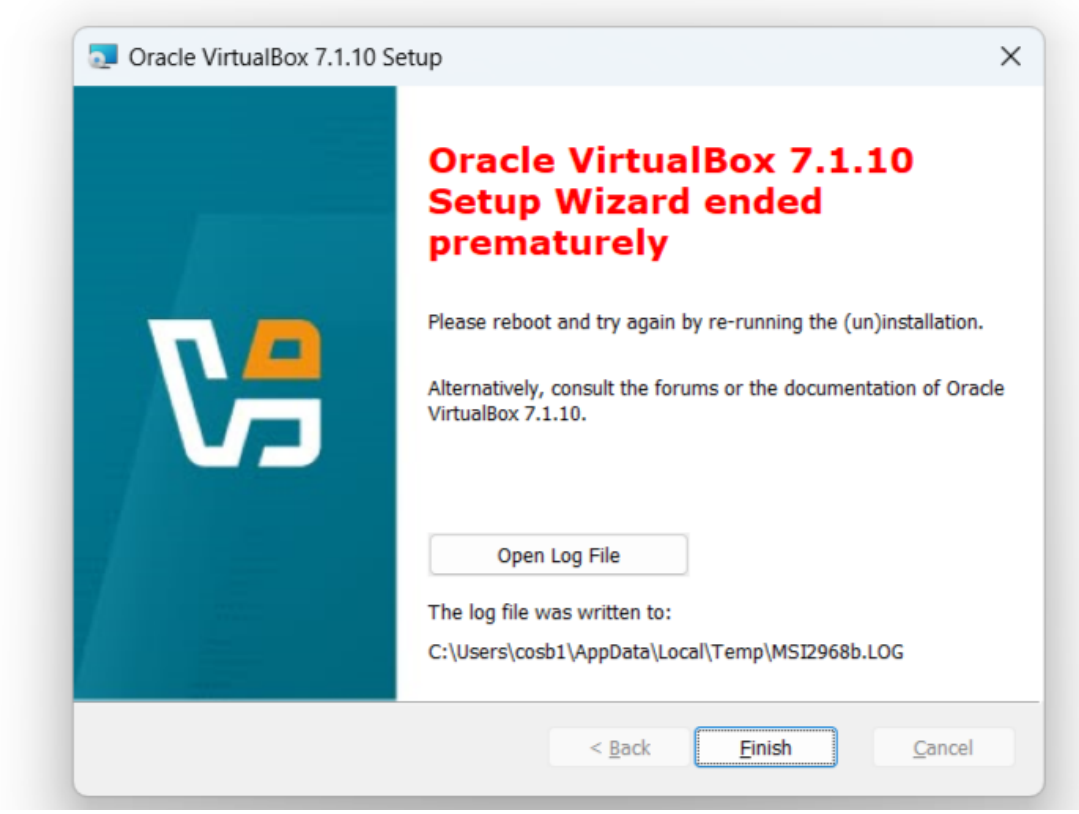
- **Operations Subnet:** Contains the infrastructure and corporate machines, including a Windows Server (Domain Controller) and three Windows 8 client PCs for the Sales, Audit, and HR departments
- **IT Subnet:** Dedicated to security and servers, housing a Kali Linux machine, a Parrot OS machine, and an Ubuntu Server.



2.0 Downloading and Installing VirtualBox

Oracle VM VirtualBox was downloaded from https://www.virtualbox.org/wiki/Downloads. After the download finished, I launched the installer and proceeded with the setup using the **default options** throughout.

Whenever prompted with a confirmation dialog or a **Yes/No question**, simply select **"Yes"** to continue the installation.



Click Finish to launch VirtualBox.

2.1 Setting Up the Virtual Environment

The initial setup involves installing VirtualBox and creating the virtual machine (VM) containers:

- VM Creation: Each OS is mounted as a new VM. For the Windows clients, the same ISO was used multiple times with distinct names (e.g., Sales PC, HR PC)
- Resource Allocation: 1GB of RAM to each machine to prevent installation errors or system lagging
- Grouping: For better organization, VMs were grouped into their respective "Operations" and "IT" categories within the VirtualBox interface.

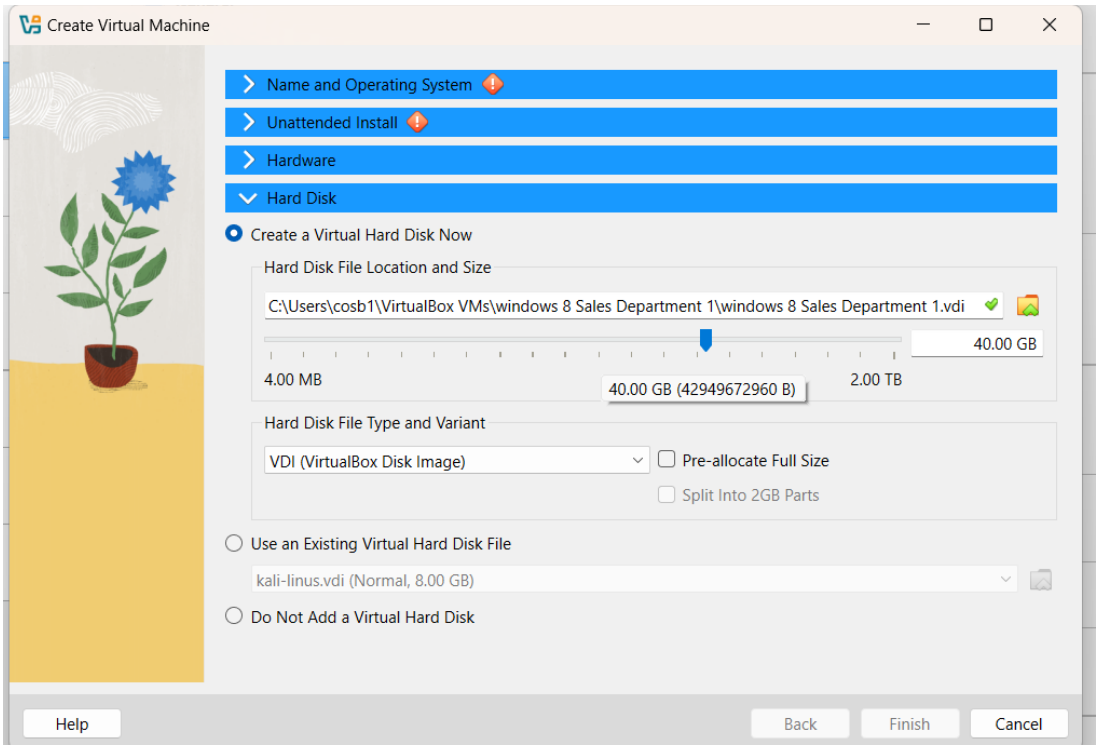
Since this hard disk drive (HDD) is set to be *dynamically allocated* (see the option on the middle-right of the screenshot below), the HDD file will only take up as much space as the data stored on it—up to a maximum of **40GB**.

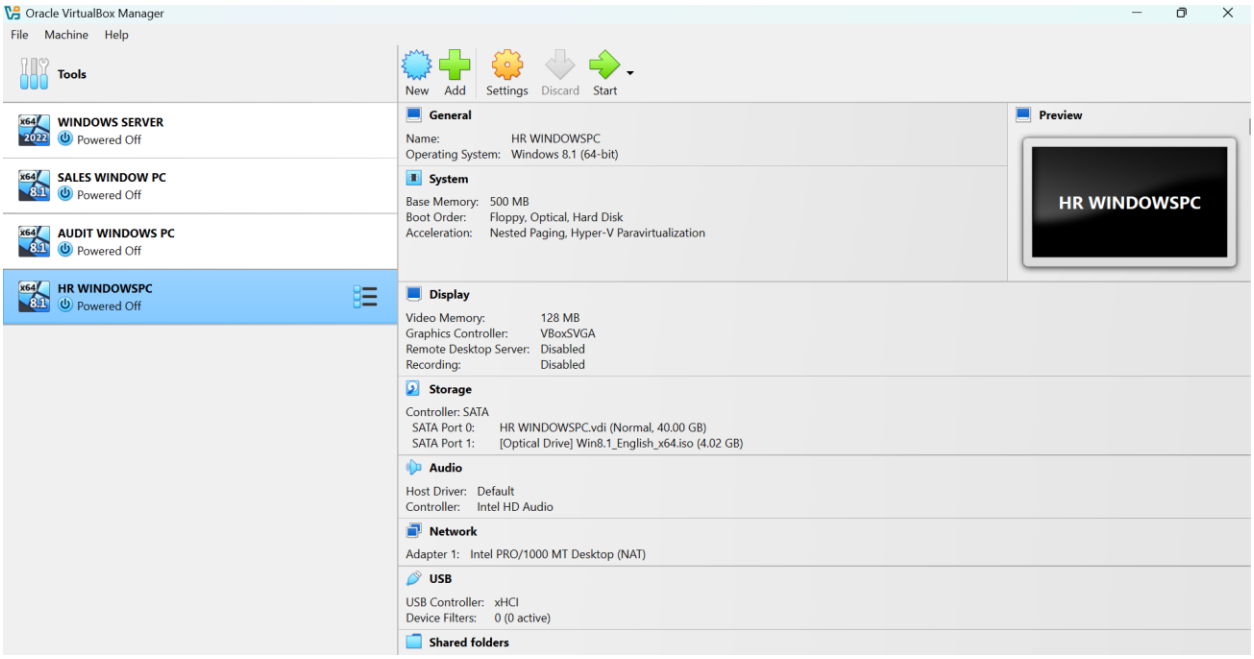
Now, you'll see Windows 8 Sales Department 1 listed on the VirtualBox dashboard. Before starting the virtual machine (VM), you can modify its settings if needed. Typically, you might want to:

- Assign more processors
- Change the networking adapter
- Mount an ISO image

This will launch the new VM window. Click the *Expert Mode* button to proceed. Don't worry, it doesn't make the process harder. It simply streamlines the setup by reducing the number of steps.


Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
WINDOWS SERVER
Powered Off
Create Virtual Machine
Virtual machine Name and Operating System
Please choose a descriptive name and destination folder for the new virtual machine. The name you choose will be used throughout VirtualBox to identify this machine. Additionally, you can select an ISO image which may be used to install the guest operating system.
Name: SALES WINDOW PC
Folder: C:\Users\azeez\VirtualBox VMs
ISO Image: C:\Users\azeez\Downloads\Win8.1_English_x64.iso
Edition: Windows 8.1 Pro (6.3.9600.17415 / x64 / en-US)
Type: Microsoft Windows
Subtype:
Version: Windows 8.1 (64-bit)
Skip Unattended Installation
You have selected to skip unattended guest OS install, the guest OS will need to be installed manually.
Help
Back
Next
Cancel
Go to next wizard page.
Preview
WINDOWS SERVER
Adapter 1: Intel PRO/1000 MT Desktop (NAT)
USB
USB Controller: xHCI
Device Filters: 0 (0 active)
Shared folders
9°C
Mostly cloudy
Search
03:11
23/12/2025


Create Virtual Machine
Name and Operating System
Unattended Install
Hardware
Hard Disk
Create a Virtual Hard Disk Now
Hard Disk File Location and Size
C:\Users\cosb1\VirtualBox VMs\windows 8 Sales Department 1\windows 8 Sales Department 1.vdi
40.00 GB
4.00 MB
40.00 GB (42949672960 B)
2.00 TB
Hard Disk File Type and Variant
VDI (VirtualBox Disk Image)
Pre-allocate Full Size
Split Into 2GB Parts
Use an Existing Virtual Hard Disk File
kali-linus.vdi (Normal, 8.00 GB)
Do Not Add a Virtual Hard Disk
Help
Back
Finish
Cancel



Increasing the number of CPU cores can significantly enhance your virtual machine's (VM) performance. If possible, set the number of CPUs to **2**.

Pro tip: Storing the VM's virtual hard disk on a **solid-state drive (SSD)** can further improve performance, especially when running disk-intensive tasks.

2.2. Creating a Virtual Network with VirtualBox

Virtual networks allow VMs to connect to each other, your host machine, or the internet depending on how you configure them. VirtualBox supports several types of virtual network configurations, and the one you choose will depend on your specific use case.

Note: Some network types can only be configured *after* a VM has been created, as they're managed within the VM's settings.

2.3 Network Types in VirtualBox

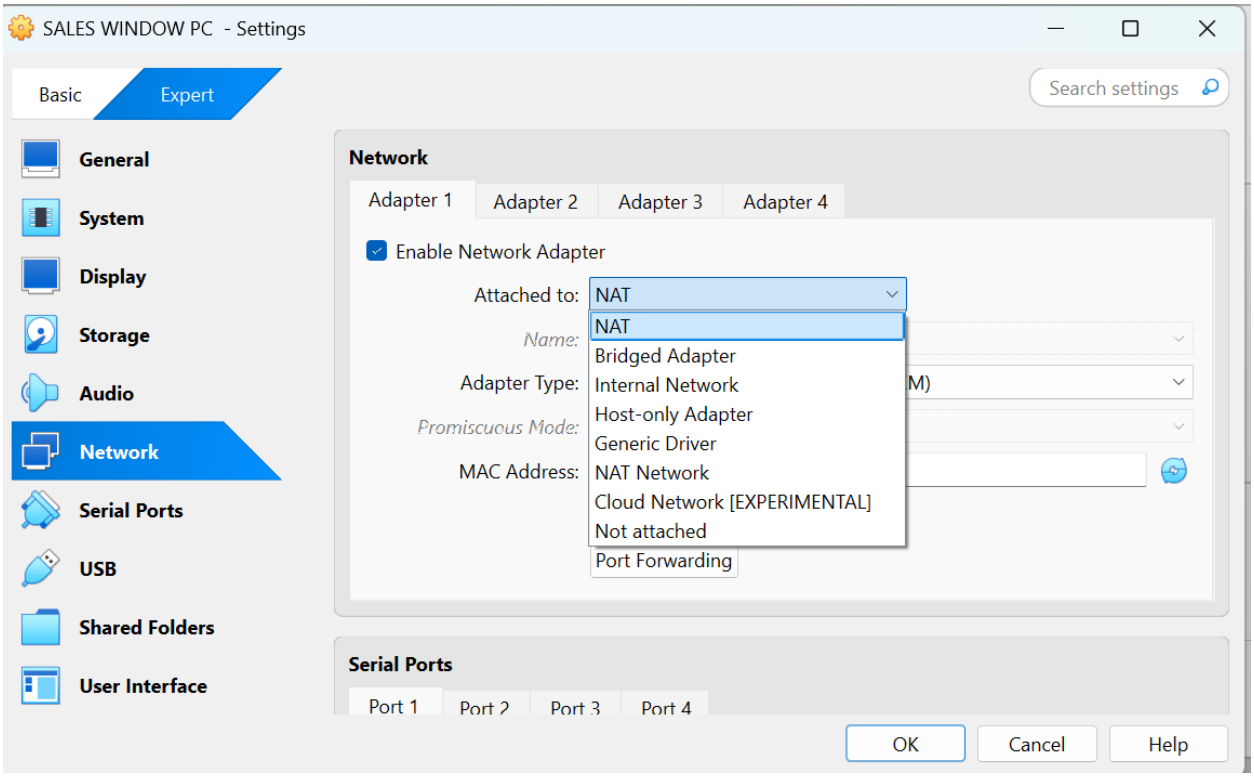
i. NAT (Network Address Translation)

This network type allows your VM to access the internet using the host computer's connection. However, it does not allow communication between the VM and the host or between multiple VMs.

Use this if: Your lab setup only includes one VM and it just needs internet access.

To enable NAT:

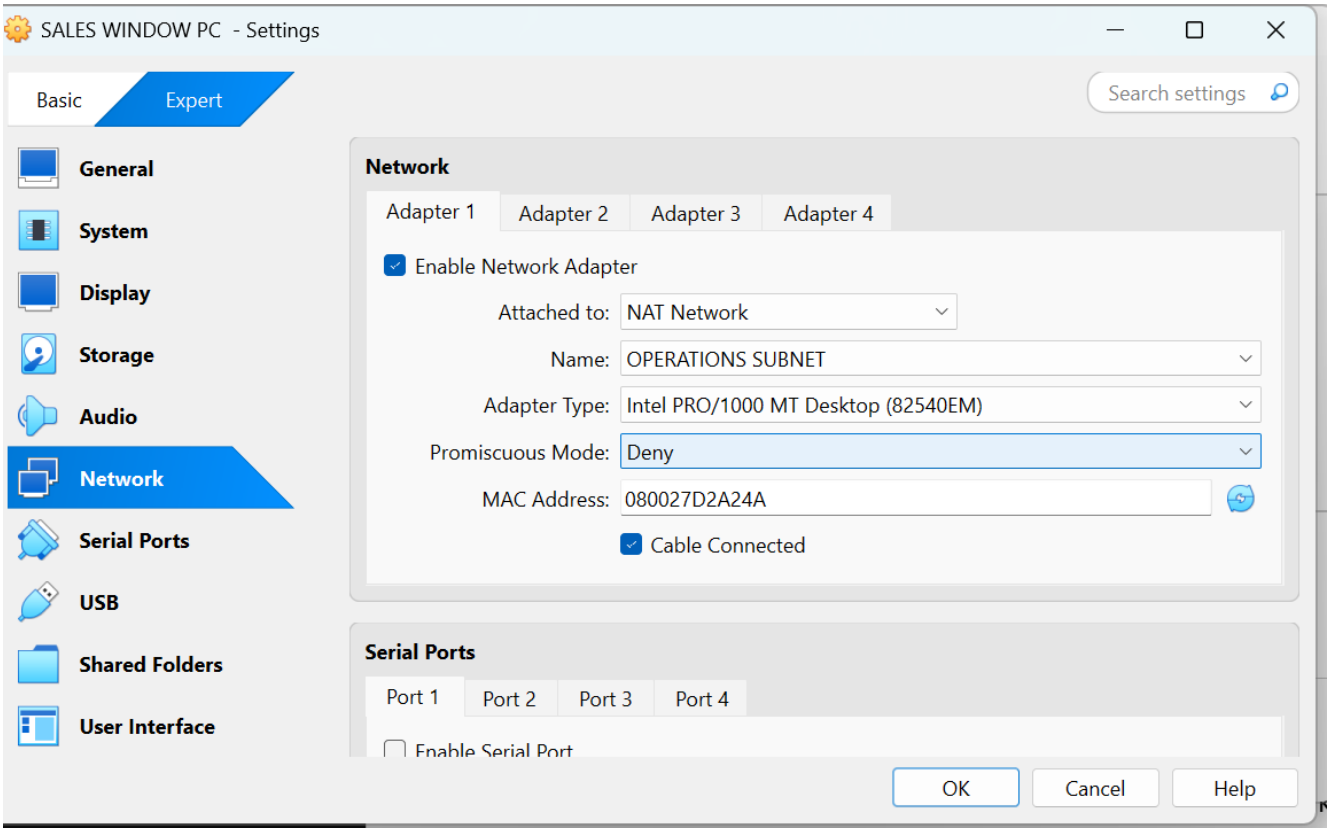
- Right-click your VM
- Select Settings
- Go to the Network tab
- Choose Attached to: NAT (see image above)



2. NAT Network

This option is similar to NAT but also allows VMs connected to the same NAT Network to communicate with each other, while still maintaining internet access.
Use this if: Your lab setup includes multiple VMs that need to talk to each other and access the internet.
To create a NAT Network:

- Go to File > Preferences
- Select the Network tab
- Click the plus (+) button to create a new NAT Network
- Then, in your VM's settings, attach it to the NAT Network you just created



More Network Types in VirtualBox

3. Bridged Adapter

This network type makes your VM appear as a separate physical device on your local network. Your router will assign it an IP address, just like it would with any other device.

Use this if: You need your VM to be accessible from **other devices** on your local network (e.g., your host, other VMs, or even other physical computers).

To enable a Bridged Adapter:

- Right-click your VM
- Select **Settings**
- Go to the **Network** tab
- Choose **Attached to: Bridged Adapter**

4. Internal Network

This creates a completely **isolated** network shared only between VMs attached to the same internal network. There's **no internet access**, and your host computer cannot communicate with these VMs.

Use this if: You want a fully isolated lab environment for testing, malware analysis, or network simulation.

To use an Internal Network:

- Right-click your VM
- Select **Settings**
- Go to the **Network** tab
- Choose **Attached to: Internal Network**

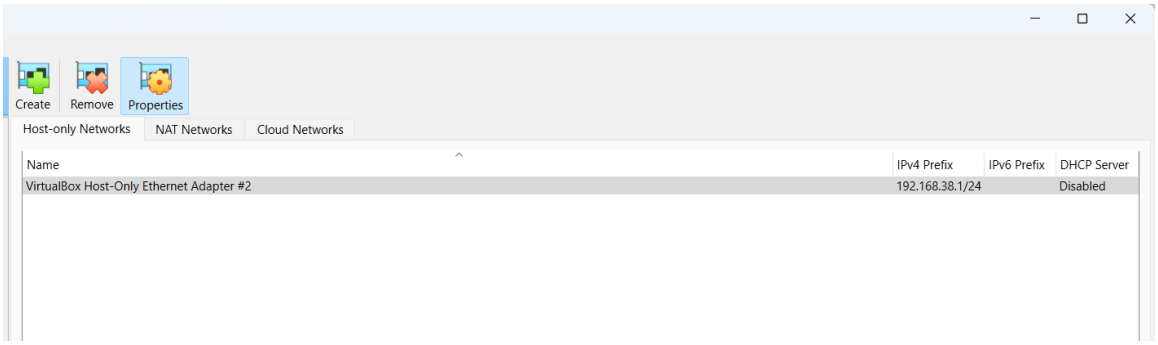
5. Host-only Adapter

This setup is similar to an internal network but also gives the **host computer** a direct IP connection to the VM. The VM still doesn't have internet access unless combined with another adapter (e.g., NAT).

Use this if: You need to access the VM **directly from your host** (e.g., using RDP, SSH, ping, or file transfer). This is ideal for web development labs or local server testing.
To set up a Host-only Adapter:

- Right-click your VM
- Select **Settings**
- Go to the **Network** tab
- Choose **Attached to: Host-only Adapter**

You can create a host-only network by select File > Host Network Manager

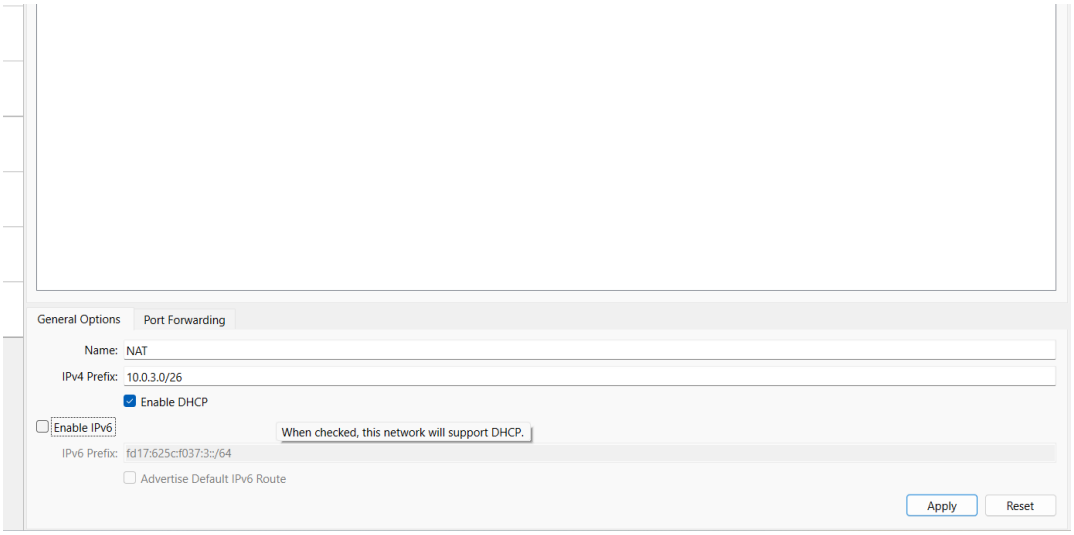


Generic Driver

According to Oracle's documentation:

"The generic driver attachment is special and cannot be considered as an alternative to other attachment types."

In most use cases, the **Generic Driver** is not commonly used and is intended for advanced or specialised networking scenarios. You typically won't need this unless you're working with custom or experimental networking configurations.



All the NAT Network settings are set at their default so that is it! The Virtual Network is now set up and ready to use.

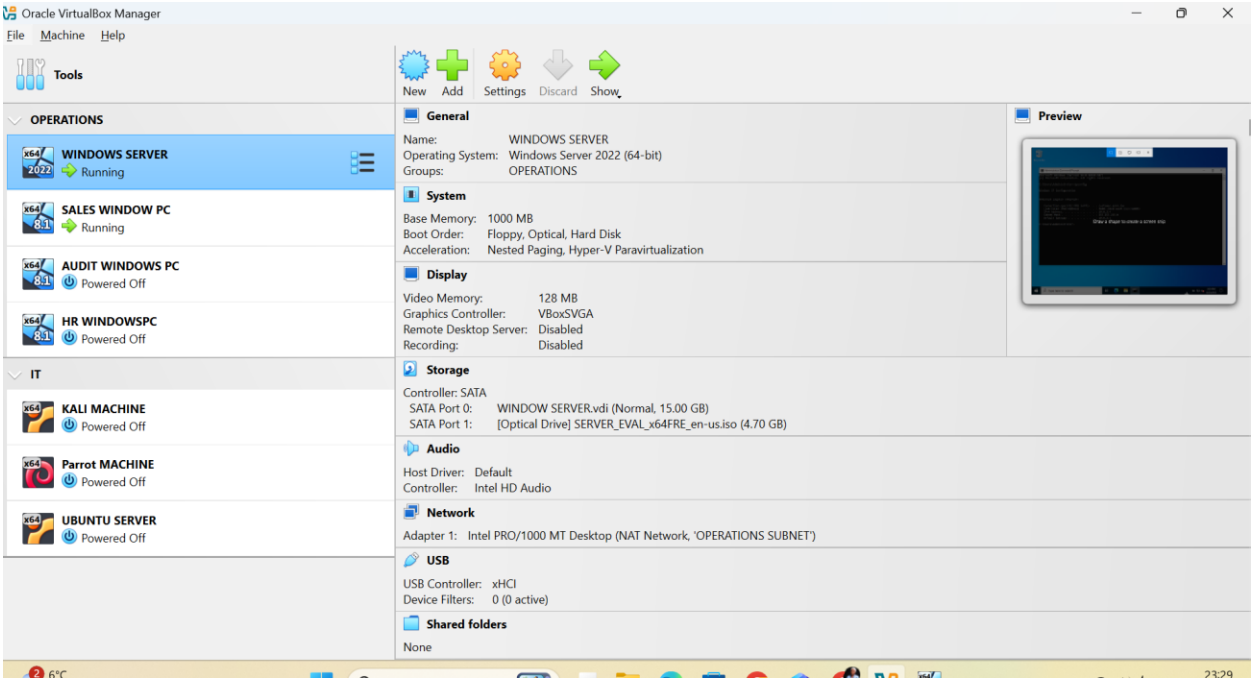
As mentioned earlier, the easiest and most flexible option is to create and use a NAT Network, especially for multi-VM labs that require internet access.

2.4 Subnetting

To isolate the traffic, NAT Networks was configure within VirtualBox:

- Operations Subnet Setup: Named "operations_subnet" with the network range 10.0.2.0/24.
- IT Subnet Setup: Named "it_subnet" with the network range 10.0.3.0/24 .

Each VM's network adapter is manually set to its corresponding NAT Network (e.g., Sales PC to Operations, Kali to IT) .

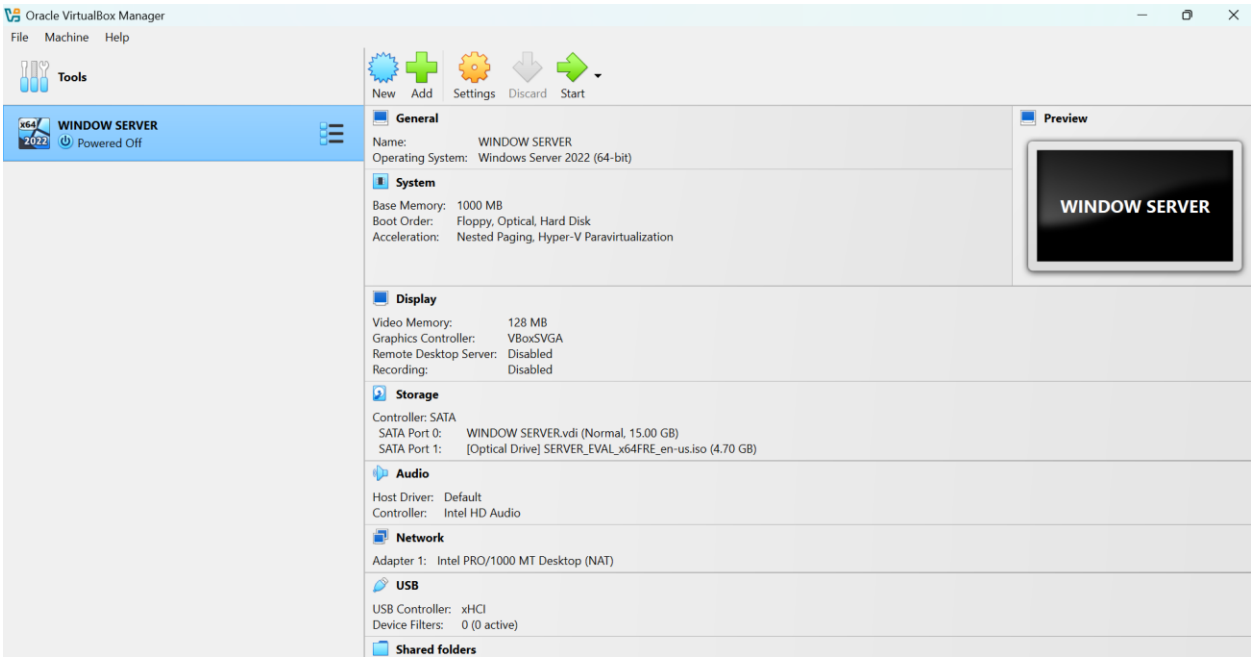


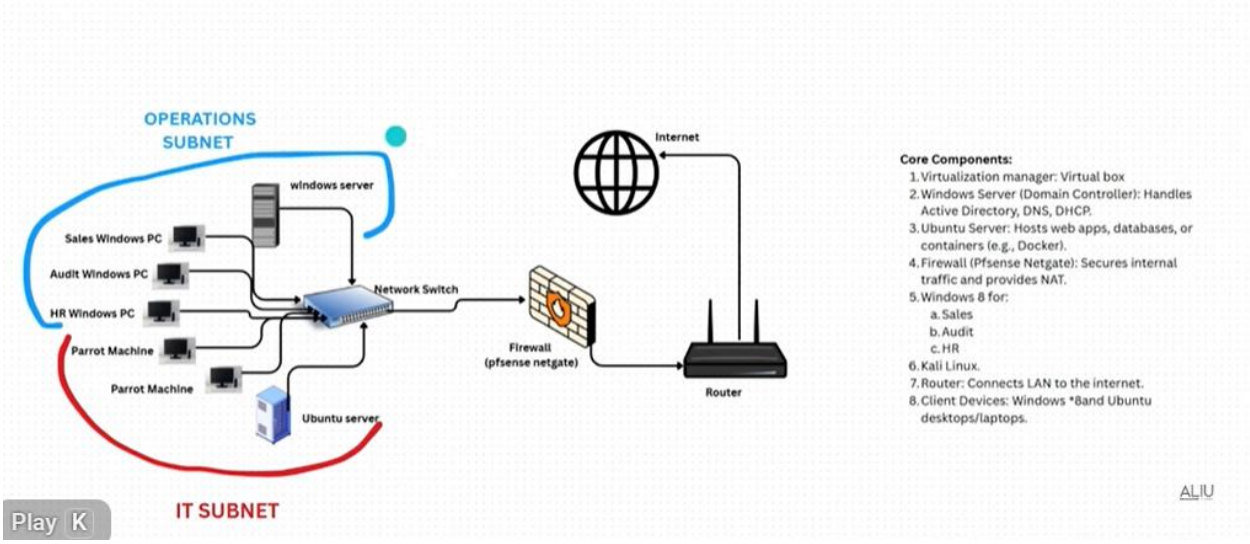
2.5 Downloading Operating System ISO(s)

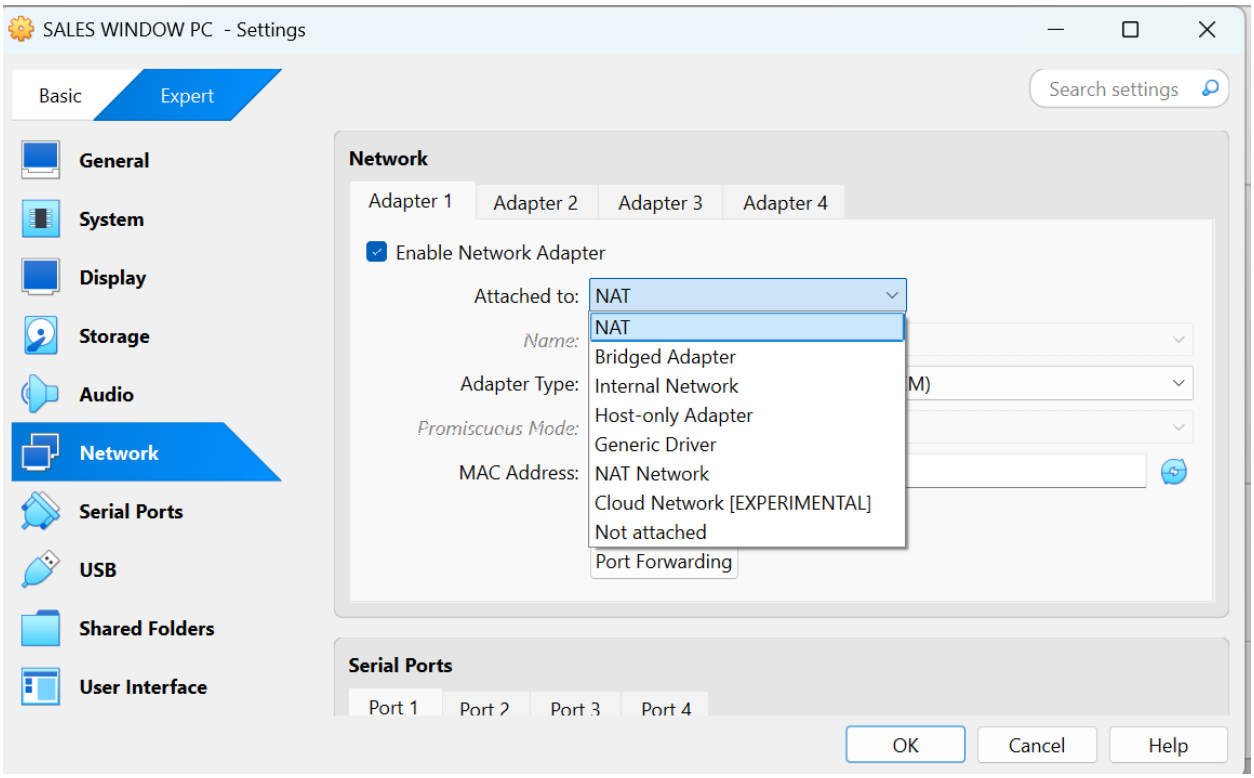
Now that the virtual network is ready, the next step is to download an **operating system (OS)** to install on the virtual machine. While it's technically possible to install from a physical disc, the most common and convenient method is to use an **ISO file** a digital copy of the OS installation media.

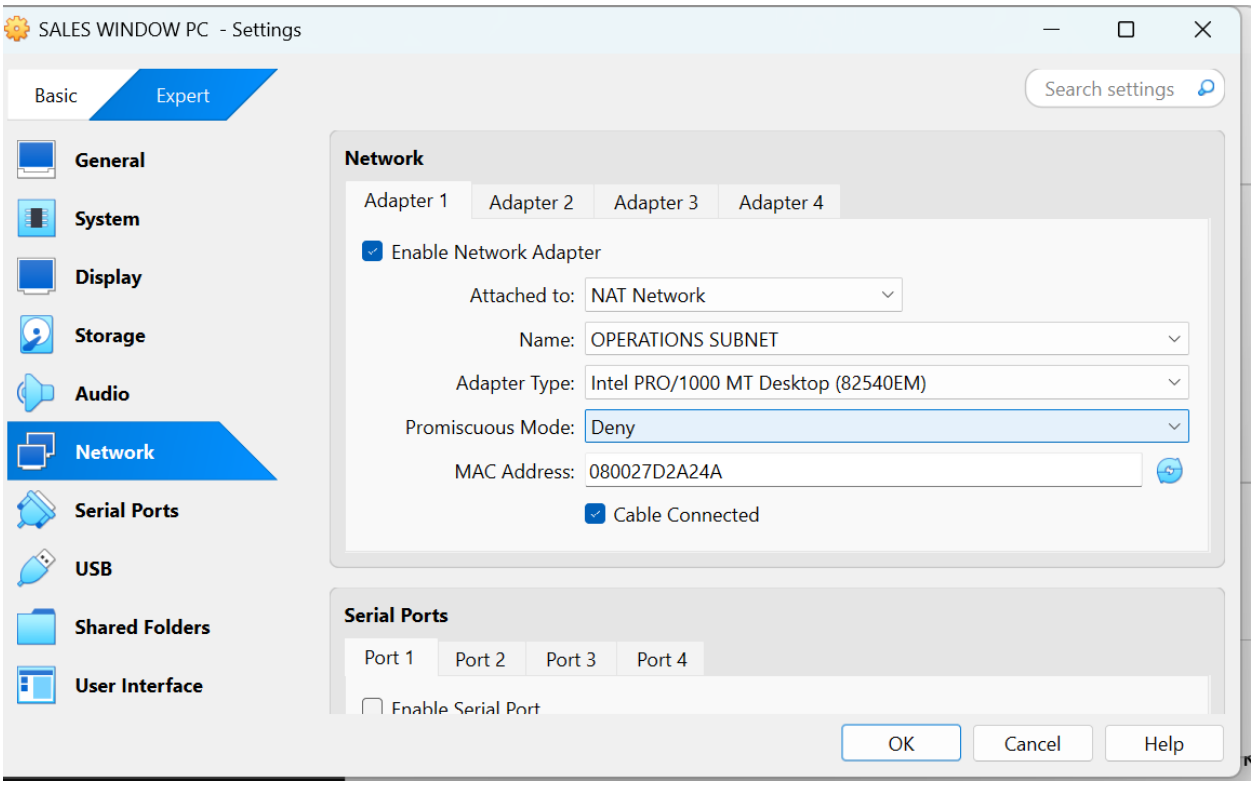
To find an ISO file, the easiest approach is to search online. For example, if you're looking to install **Windows Server**, simply search: **"Windows Server ISO Download".** Make sure to download ISOs from official or trusted sources to avoid corrupted or unsafe files. Some operating systems, like Ubuntu, Fedora, or

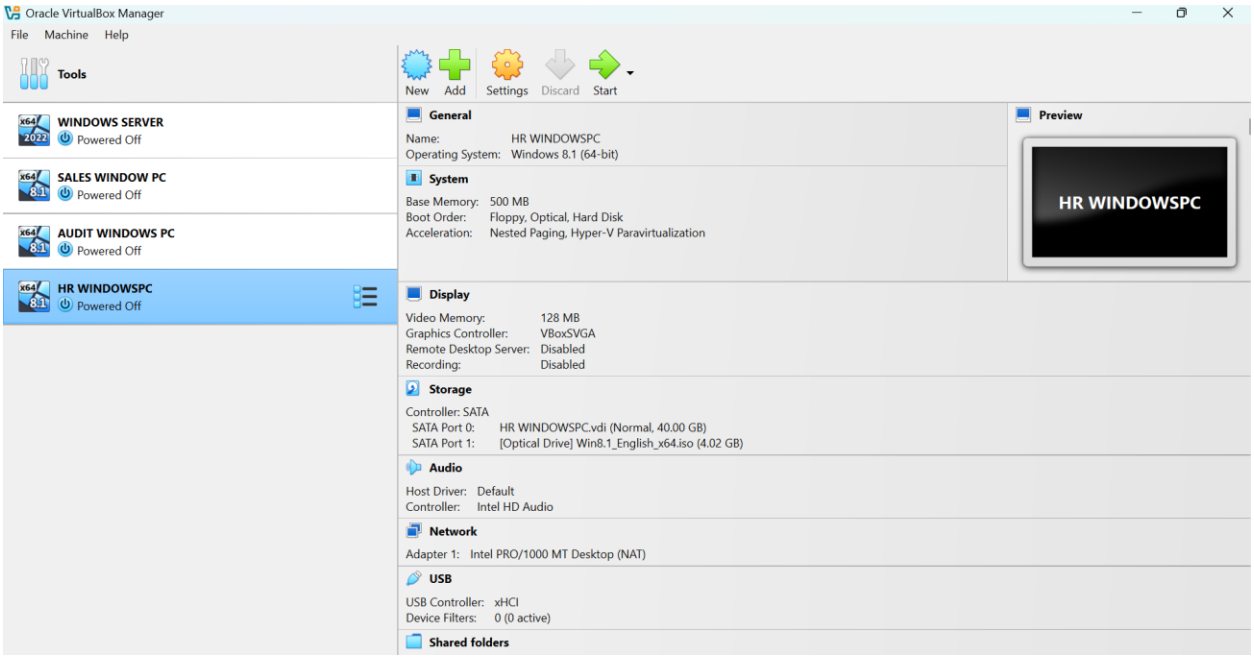
Windows Evaluation Editions, provide free official ISOs on their websites.

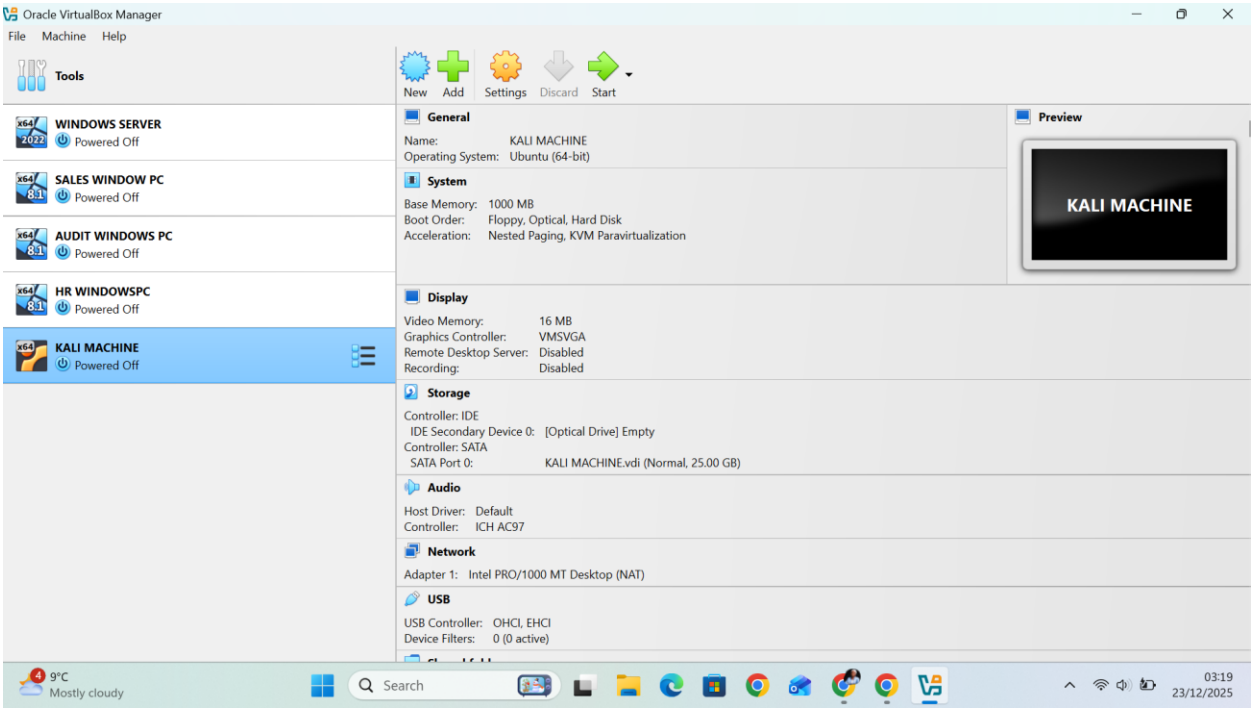


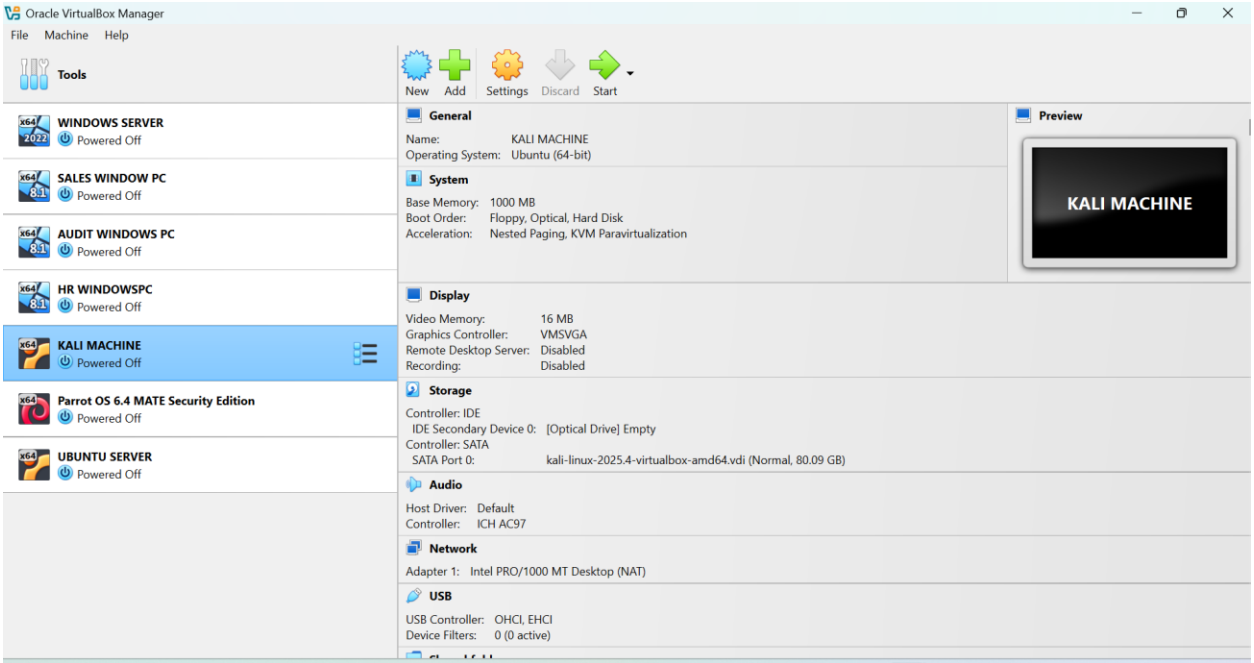

OPERATIONS SUBNET
windows server
Sales Windows PC
Audit Windows PC
HR Windows PC
Parrot Machine
Parrot Machine
Ubuntu server
Network Switch
Firewall (pfsense netgate)
Internet
Router
IT SUBNET
Core Components:
1. Virtualization manager: Virtual box
2. Windows Server (Domain Controller): Handles Active Directory, DNS, DHCP.
3. Ubuntu Server: Hosts web apps, databases, or containers (e.g., Docker).
4. Firewall (Pfsense Netgate): Secures internal traffic and provides NAT.
5. Windows 8 for:
a. Sales
b. Audit
c. HR
6. Kali Linux.
7. Router: Connects LAN to the internet.
8. Client Devices: Windows *8and Ubuntu desktops/laptops.
ALIU

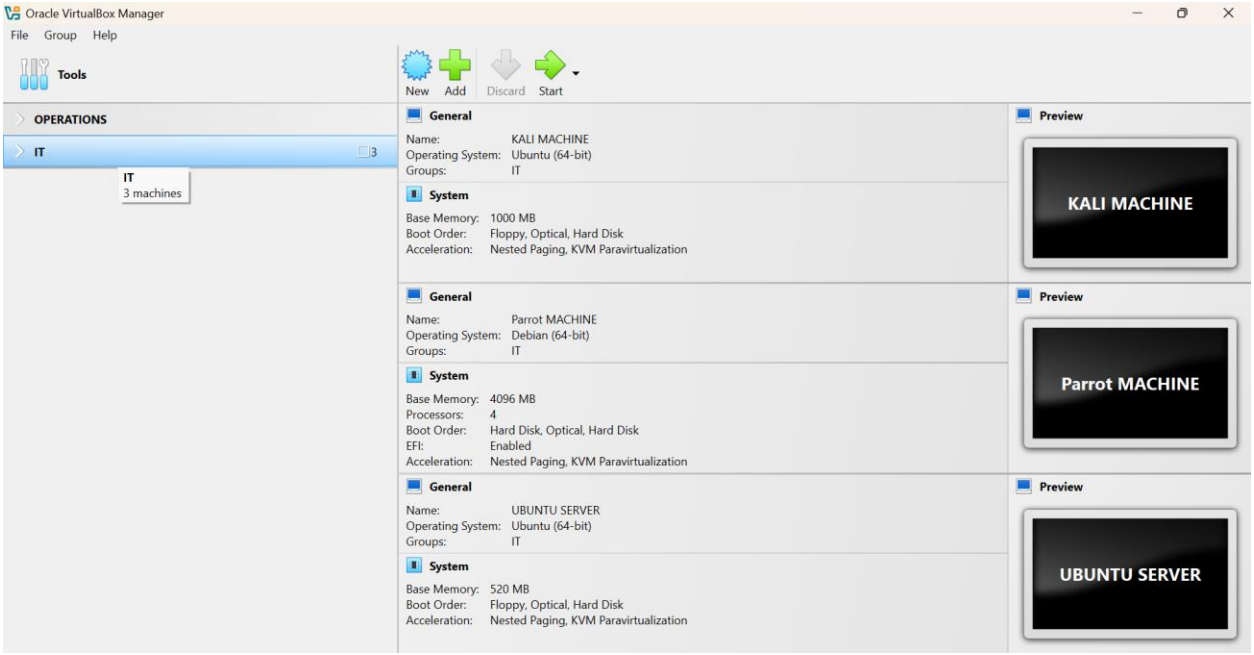

SALES WINDOW PC - Settings
Basic
Expert
Search settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
NAT
Name:
Adapter Type:
Promiscuous Mode:
MAC Address:
NAT
Bridged Adapter
Internal Network
Host-only Adapter
Generic Driver
NAT Network
Cloud Network [EXPERIMENTAL]
Not attached
Port Forwarding
Serial Ports
Port 1
Port 2
Port 3
Port 4
OK
Cancel
Help

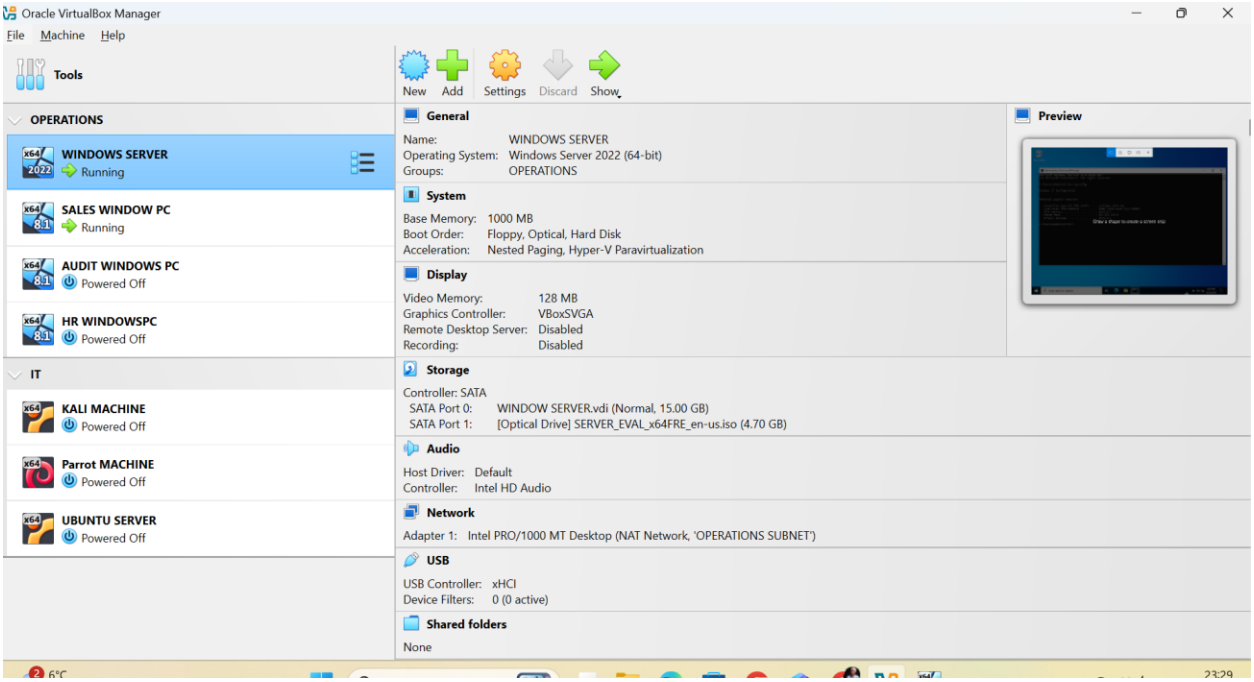

SALES WINDOW PC - Settings
Basic
Expert
Search settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to:
NAT Network
Name:
OPERATIONS SUBNET
Adapter Type:
Intel PRO/1000 MT Desktop (82540EM)
Promiscuous Mode:
Deny
MAC Address:
080027D2A24A
Cable Connected
Serial Ports
Port 1
Port 2
Port 3
Port 4
Enable Serial Port
OK
Cancel
Help

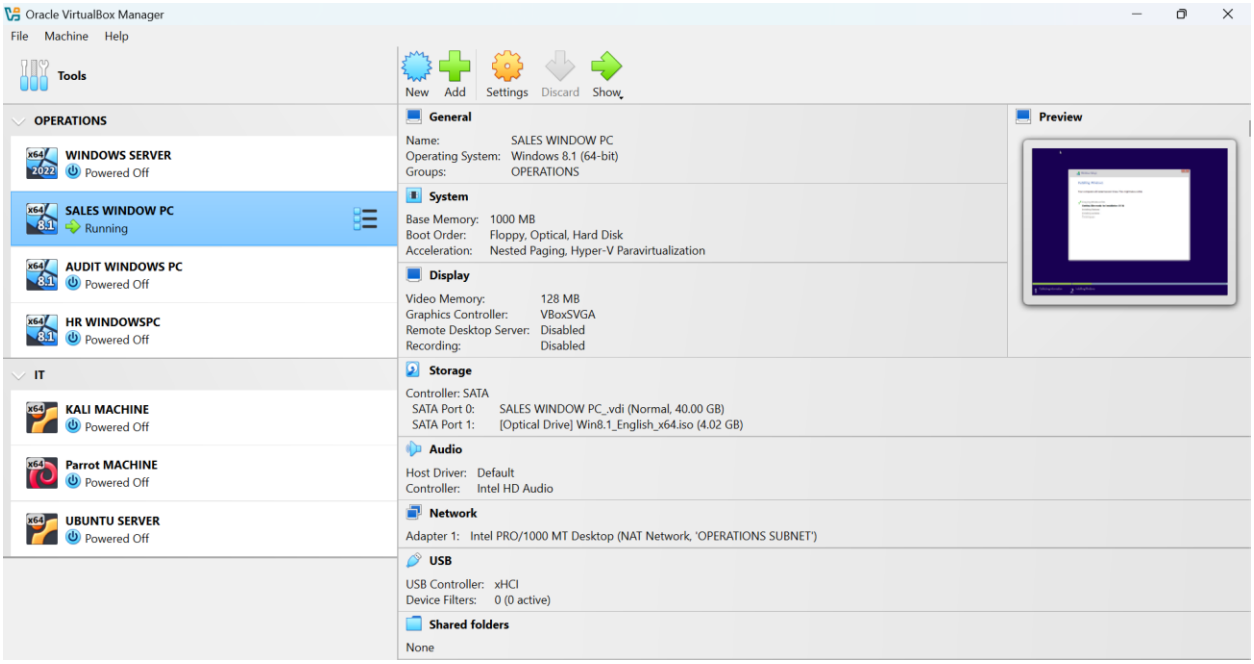

Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
WINDOWS SERVER
Powered Off
SALES WINDOW PC
Powered Off
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
General
Name: HR WINDOWSPC
Operating System: Windows 8.1 (64-bit)
System
Base Memory: 500 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Preview
HR WINDOWSPC
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: HR WINDOWSPC.vdi (Normal, 40.00 GB)
SATA Port 1: [Optical Drive] Win8.1_English_x64.iso (4.02 GB)
Audio
Host Driver: Default
Controller: Intel HD Audio
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT)
USB
USB Controller: xHCI
Device Filters: 0 (0 active)
Shared folders

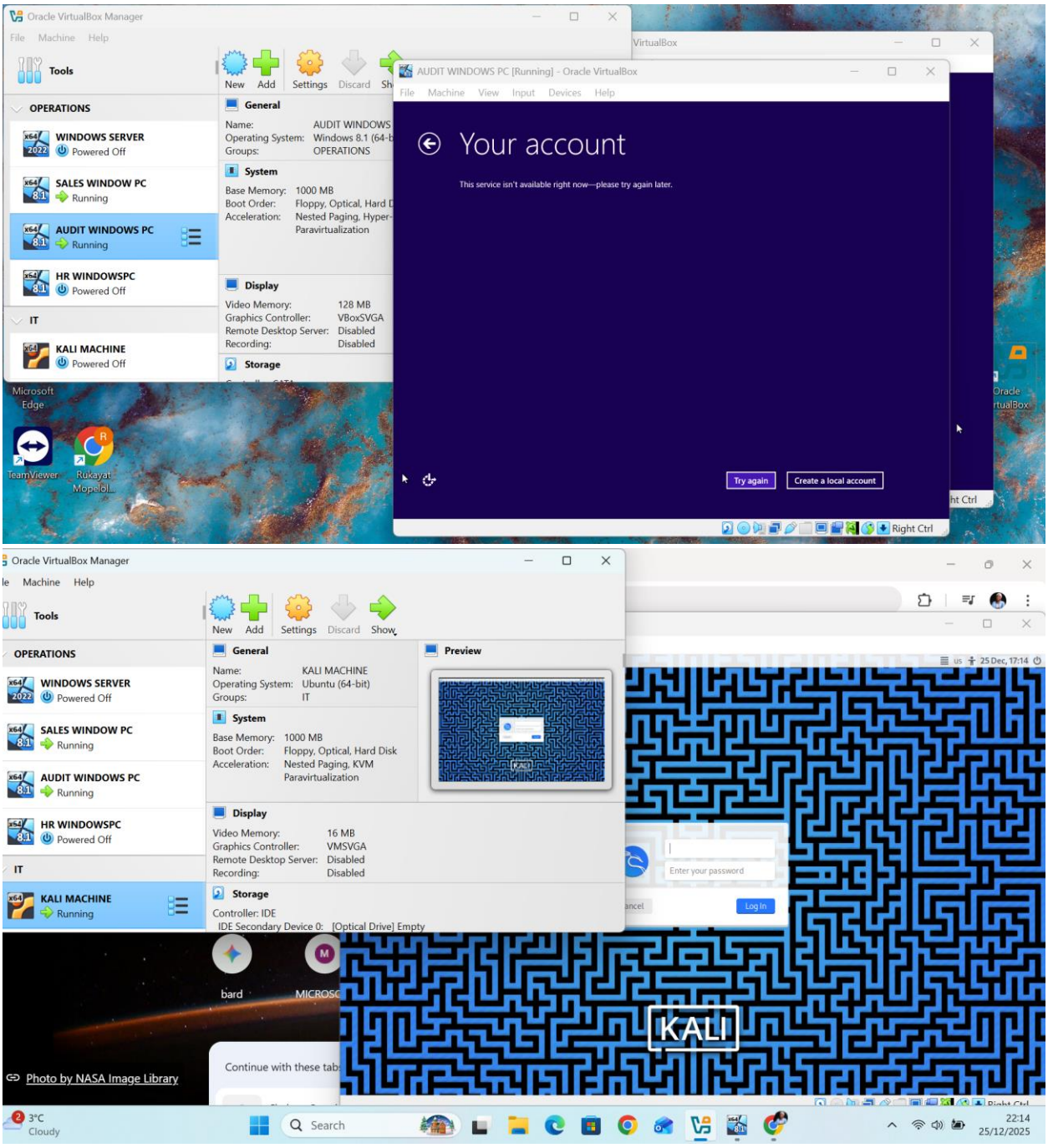

Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
WINDOWS SERVER
Powered Off
SALES WINDOW PC
Powered Off
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
KALI MACHINE
Powered Off
General
Name: KALI MACHINE
Operating System: Ubuntu (64-bit)
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, KVM Paravirtualization
Preview
KALI MACHINE
Display
Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: IDE
IDE Secondary Device 0: [Optical Drive] Empty
Controller: SATA
SATA Port 0: KALI MACHINE.vdi (Normal, 25.00 GB)
Audio
Host Driver: Default
Controller: ICH AC97
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT)
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
9°C
Mostly cloudy
Search
03:19
23/12/2025


Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Start
WINDOWS SERVER
Powered Off
SALES WINDOW PC
Powered Off
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
KALI MACHINE
Powered Off
Parrot OS 6.4 MATE Security Edition
Powered Off
UBUNTU SERVER
Powered Off
General
Name: KALI MACHINE
Operating System: Ubuntu (64-bit)
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, KVM Paravirtualization
Preview
KALI MACHINE
Display
Video Memory: 16 MB
Graphics Controller: VMSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: IDE
IDE Secondary Device 0: [Optical Drive] Empty
Controller: SATA
SATA Port 0: kali-linux-2025.4-virtualbox-amd64.vdi (Normal, 80.09 GB)
Audio
Host Driver: Default
Controller: ICH AC97
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT)
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)


Oracle VirtualBox Manager
File Group Help
Tools
New Add Discard Start
OPERATIONS
IT 3
IT
3 machines
General
Name: KALI MACHINE
Operating System: Ubuntu (64-bit)
Groups: IT
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, KVM Paravirtualization
Preview
KALI MACHINE
General
Name: Parrot MACHINE
Operating System: Debian (64-bit)
Groups: IT
System
Base Memory: 4096 MB
Processors: 4
Boot Order: Hard Disk, Optical, Hard Disk
EFI: Enabled
Acceleration: Nested Paging, KVM Paravirtualization
Preview
Parrot MACHINE
General
Name: UBUNTU SERVER
Operating System: Ubuntu (64-bit)
Groups: IT
System
Base Memory: 520 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, KVM Paravirtualization
Preview
UBUNTU SERVER


Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Show
OPERATIONS
WINDOWS SERVER
Running
SALES WINDOW PC
Running
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
IT
KALI MACHINE
Powered Off
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
Name: WINDOWS SERVER
Operating System: Windows Server 2022 (64-bit)
Groups: OPERATIONS
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Preview
Storage
Controller: SATA
SATA Port 0: WINDOW SERVER.vdi (Normal, 15.00 GB)
SATA Port 1: [Optical Drive] SERVER_EVAL_x64FRE_en-us.iso (4.70 GB)
Audio
Host Driver: Default
Controller: Intel HD Audio
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT Network, 'OPERATIONS SUBNET')
USB
USB Controller: xHCI
Device Filters: 0 (0 active)
Shared folders
None


Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Show
OPERATIONS
WINDOWS SERVER
Powered Off
SALES WINDOW PC
Running
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
IT
KALI MACHINE
Powered Off
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
Name: SALES WINDOW PC
Operating System: Windows 8.1 (64-bit)
Groups: OPERATIONS
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Preview
Storage
Controller: SATA
SATA Port 0: SALES WINDOW PC_.vdi (Normal, 40.00 GB)
SATA Port 1: [Optical Drive] Win8.1_English_x64.iso (4.02 GB)
Audio
Host Driver: Default
Controller: Intel HD Audio
Network
Adapter 1: Intel PRO/1000 MT Desktop (NAT Network, 'OPERATIONS SUBNET')
USB
USB Controller: xHCI
Device Filters: 0 (0 active)
Shared folders
None

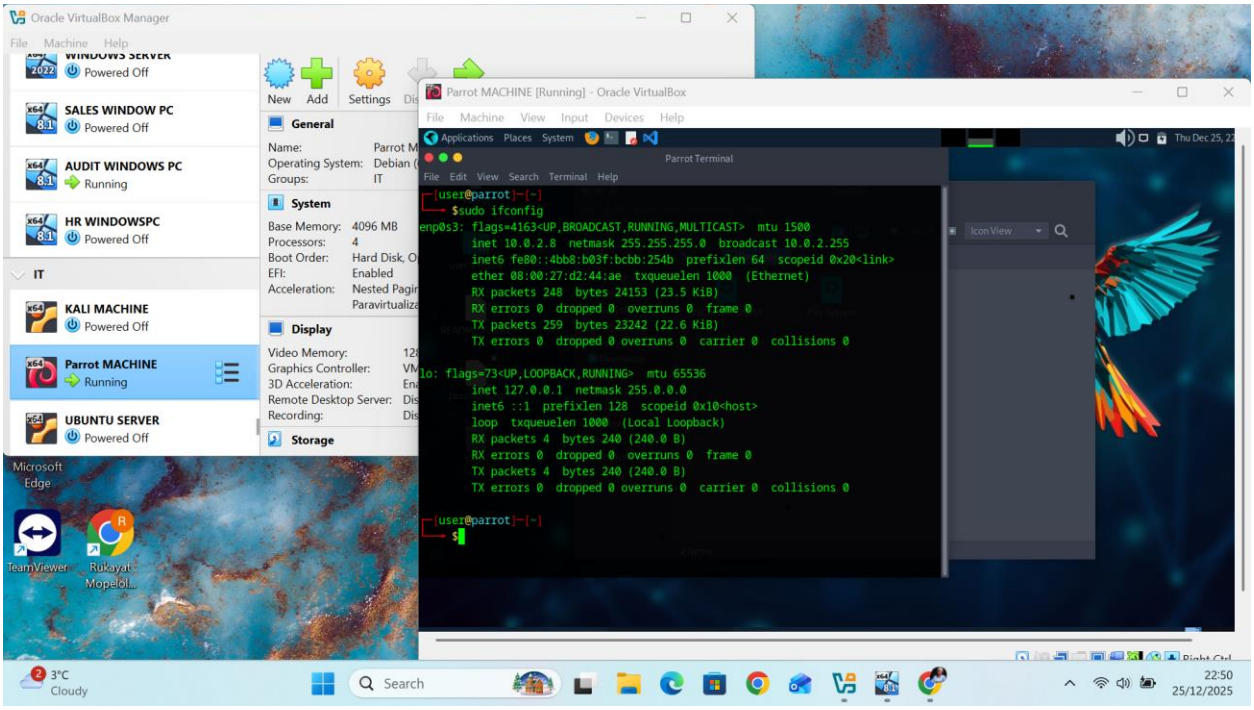


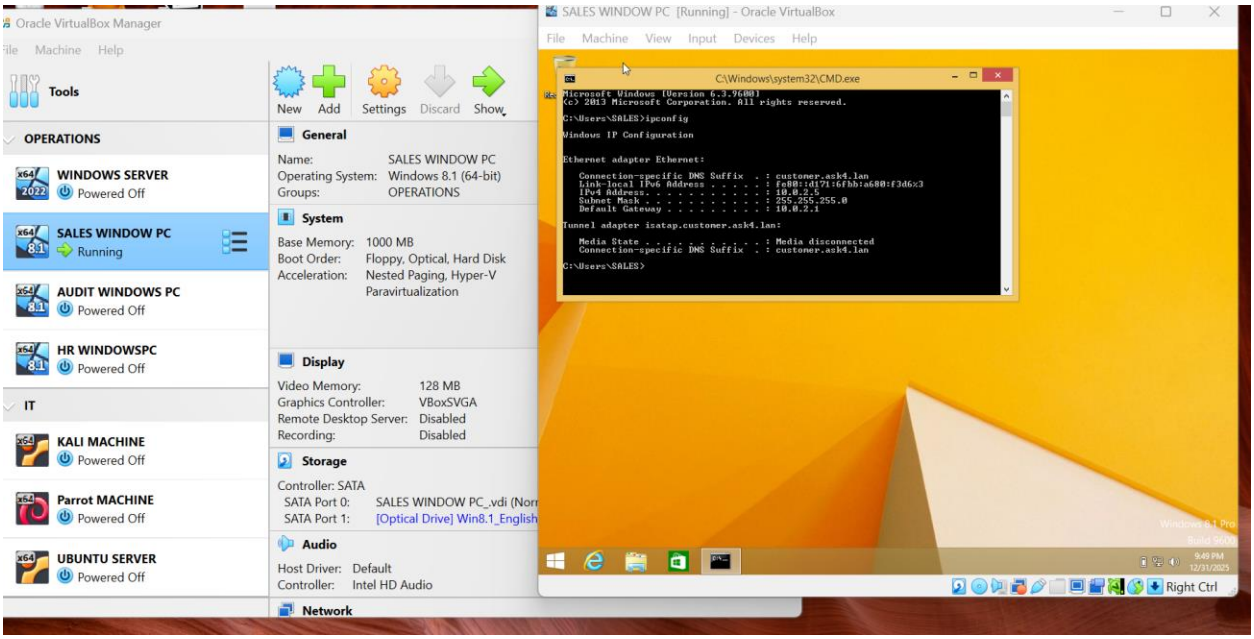
5. Operating System Installation and Verification

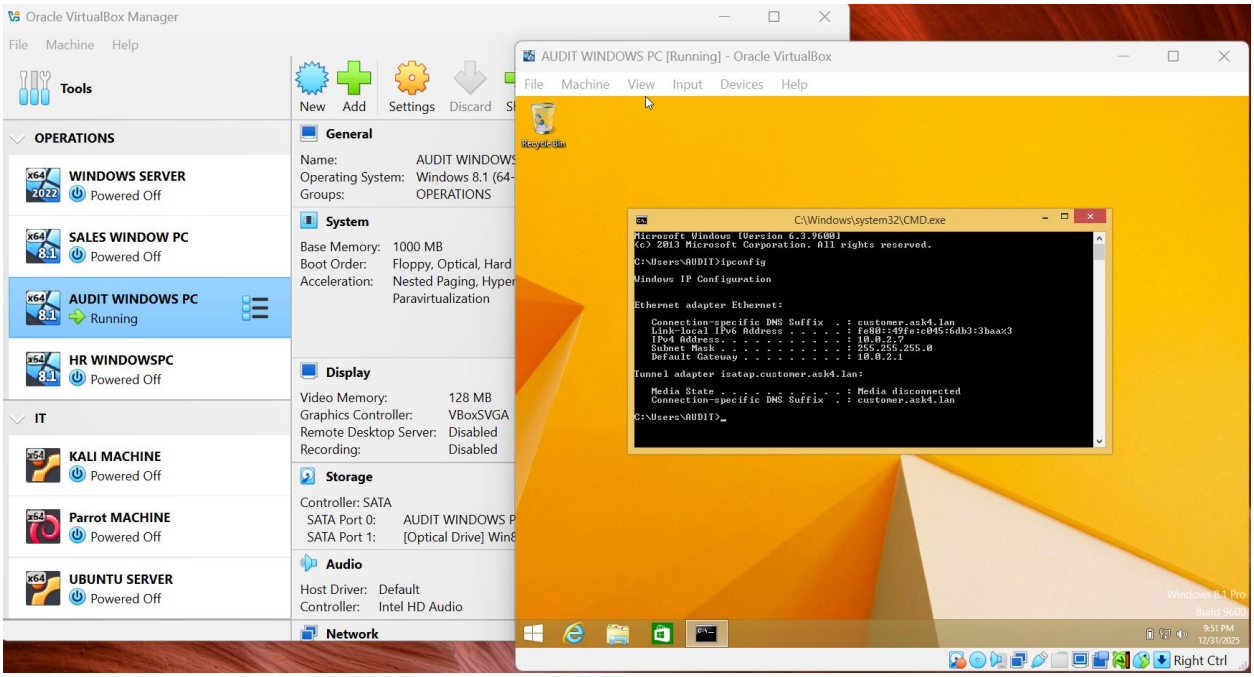
The final phase is the manual installation of each OS once the VMs are powered on:

- Windows Server: After installation, the administrator password must be set following standard security policies.

- Windows Clients: A product key is required for Windows 8 activation . Each machine is given a local account corresponding to its department.
- Kali Linux: The default login credentials for the pre-built image are kali for both the username and password.
- Connectivity Check: Verification is done by using the ipconfig (Windows) or ifconfig (Linux) commands to ensure each machine has received an IP address within its designated subnet.




Oracle VirtualBox Manager
File Machine Help
Tools
New Add Settings Discard Show
OPERATIONS
WINDOWS SERVER
Powered Off
SALES WINDOW PC
Running
AUDIT WINDOWS PC
Powered Off
HR WINDOWSPC
Powered Off
IT
KALI MACHINE
Powered Off
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
Name: SALES WINDOW PC
Operating System: Windows 8.1 (64-bit)
Groups: OPERATIONS
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard Disk
Acceleration: Nested Paging, Hyper-V Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: SALES WINDOW PC_.vdi (Norr
SATA Port 1: [Optical Drive] Win8.1_English
Audio
Host Driver: Default
Controller: Intel HD Audio
Network
SALES WINDOW PC [Running] - Oracle VirtualBox
File Machine View Input Devices Help
C:\Windows\system32\CMD.exe
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\SALES>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . : customer.ask4.lan
Link-local IPv6 Address . . . . . : fe80::d171:6fbb:a680:f3d6x3
IPv4 Address. . . . . : 10.0.2.5
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.0.2.1
Tunnel adapter isatap.customer.ask4.lan:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : customer.ask4.lan
C:\Users\SALES>
Right Ctrl


Oracle VirtualBox Manager
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SALES WINDOW PC
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AUDIT WINDOWS PC
Running
HR WINDOWSPC
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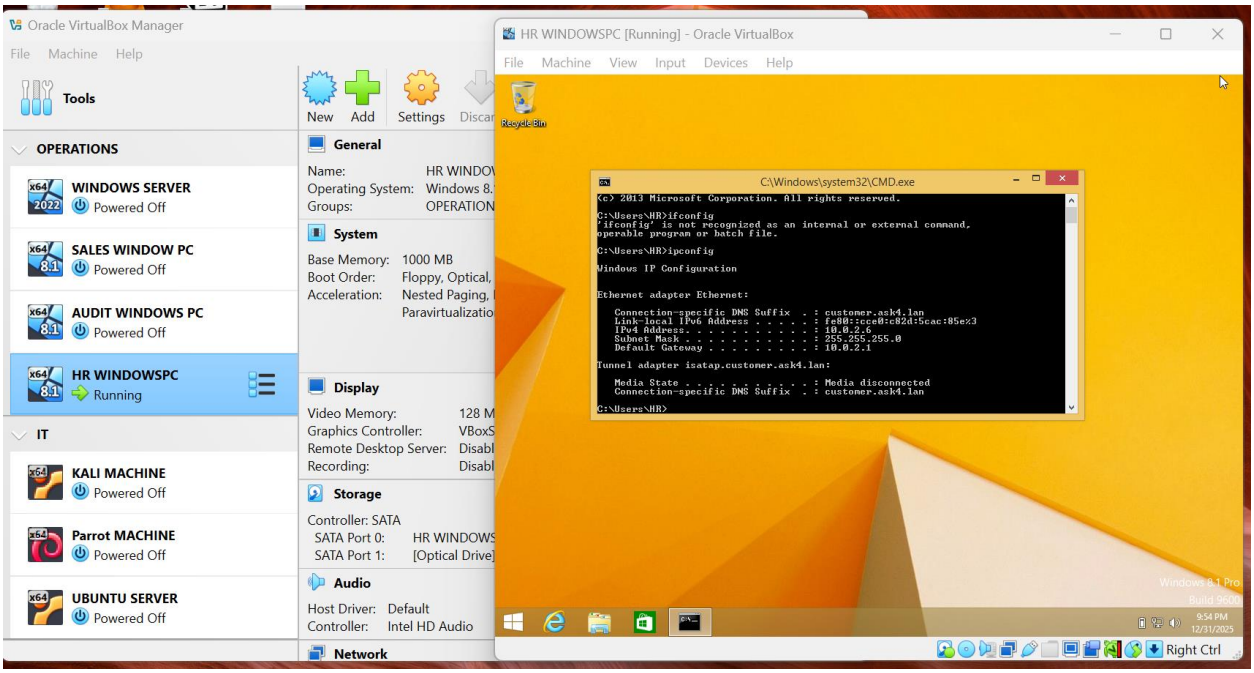
IT
KALI MACHINE
Powered Off
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
Name: AUDIT WINDOWS
Operating System: Windows 8.1 (64-
Groups: OPERATIONS
System
Base Memory: 1000 MB
Boot Order: Floppy, Optical, Hard
Acceleration: Nested Paging, Hyper
Paravirtualization
Display
Video Memory: 128 MB
Graphics Controller: VBoxSVGA
Remote Desktop Server: Disabled
Recording: Disabled
Storage
Controller: SATA
SATA Port 0: AUDIT WINDOWS P
SATA Port 1: [Optical Drive] Win8
Audio
Host Driver: Default
Controller: Intel HD Audio
Network
AUDIT WINDOWS PC [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Recycle Bin
C:\Windows\system32\CMD.exe
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\AUDIT>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . : customer.ask4.lan
Link-local IPv6 Address . . . . . : fe80::49fe:c045:6db3:3baax3
IPv4 Address. . . . . : 10.0.2.7
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.0.2.1
Tunnel adapter isatap.customer.ask4.lan:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : customer.ask4.lan
C:\Users\AUDIT>
Right Ctrl


Oracle VirtualBox Manager
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Powered Off
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Powered Off
AUDIT WINDOWS PC
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HR WINDOWSPC
Running
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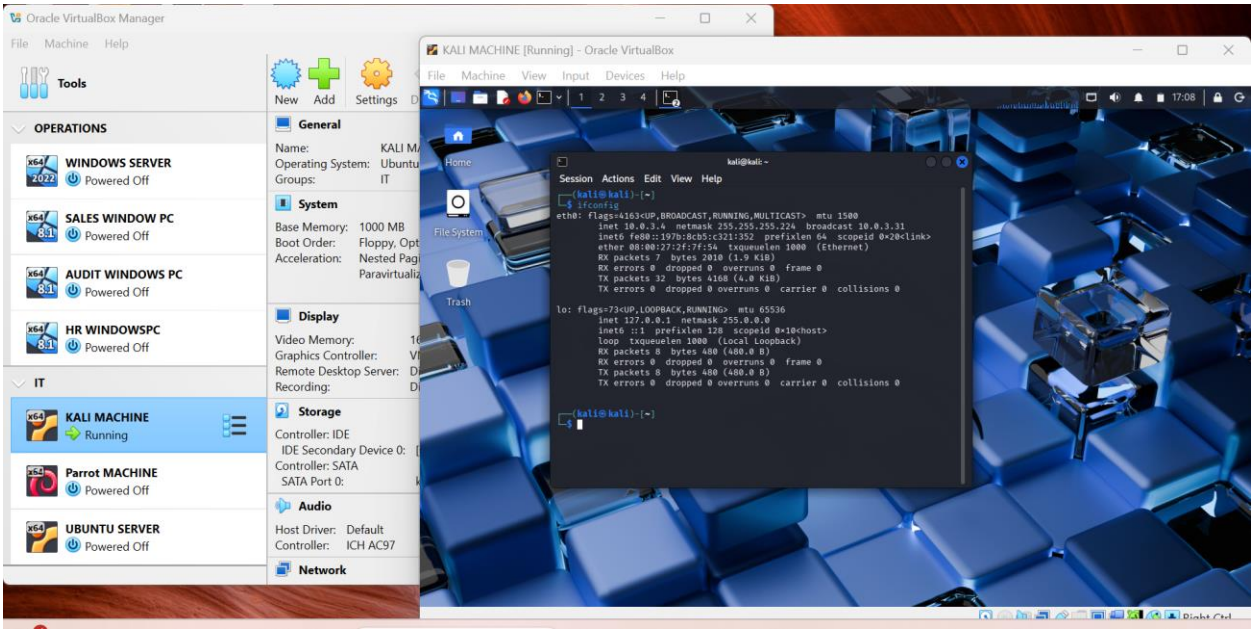
KALI MACHINE
Powered Off
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
System
Display
Storage
Audio
Network
HR WINDOWSPC [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Recycle Bin
C:\Windows\system32\CMD.exe
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\HR>ifconfig
'ifconfig' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\HR>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . : customer.ask4.lan
Link-local IPv6 Address . . . . . : fe80::cce0:c82d:5cac:85e%3
IPv4 Address. . . . . : 10.0.2.6
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.0.2.1
Tunnel adapter isatap.customer.ask4.lan:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : customer.ask4.lan
C:\Users\HR>
Windows 8.1 Pro
Build 9600
9:54 PM
12/31/2025
Right Ctrl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SALES WINDOW PC
Powered Off
AUDIT WINDOWS PC
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IT
KALI MACHINE
Running
Parrot MACHINE
Powered Off
UBUNTU SERVER
Powered Off
General
System
Display
Storage
Audio
Network
KALI MACHINE [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Home
File System
Trash
kali@kali: ~
Session Actions Edit View Help
(kali㉿kali)-[~]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
inet 10.0.3.4 netmask 255.255.255.224 broadcast 10.0.3.31
inet6 fe80::197b:8cb5:c321:352 prefixlen 64 scopeid 0x20<link>
ether 08:00:27:2f:7f:54 txqueuelen 1000 (Ethernet)
RX packets 7 bytes 2010 (1.9 KiB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 32 bytes 4168 (4.0 KiB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 8 bytes 480 (480.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 8 bytes 480 (480.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
(kali㉿kali)-[~]
17:08