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Module Code & Module Title

Level 5 – Choose a Module

Assessment Type

Logbook 2

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Table of Contents

Introduction:

Windows server is server operating software that provides users a platform for building an infrastructure of connected applications, networks, and web-based services from workgroup to the data center. Microsoft has been developing server operating system as Windows NT back in 1993 and since many versions of the operating system is released Windows server 2000, Windows server 2019, Windows server 2022. The latest release is Windows Server 2025. (Microsoft, 2022)

Microsoft has designed windows server from command line interface (CLI) and later introduced Graphical User Interface (GUI) with features including Active Directory, DNS server, DHCP server using various protocols for data transmission like TCP/IP, FTP. We are able to run such operating system in our local device with help of VMware to run multiple OS simultaneously. (Windows server 2022, n.d.)

Windows server is one of the widely used server system worldwide as it has got huge technical support compared to its rivals. Microsoft has got ample experience in development of such system software. Windows server 2022 has gained trust with huge businesses for performance, cloud features and security which they are always keeping up against its competitors help local servers to connect to the cloud.

Alternatives, Pros and Cons:

Many alternative systems are available in market for server's services like
- Linux-bases Servers (Ubuntu Server, CentOS etc.)
- Unix-based Servers,
- Cloud based platforms like (AWS, Azure, Google cloud),
- TrueNAS is open-source network attached storge system.

Pros:
- Integration with Microsoft software service:
- Advanced Security Features:
- User Interface:
- Stability

Cons:
- Licensing Cost of software.
- Resource demanding.
- Limited Management options.

Objective

The motive of this lab is to install Microsoft Windows Server on our local device using virtual machine and log the details to report. Virtual Machine will provide run time environment to windows server and let us explore the server management and configuration. Throughout the installation we were able to get understanding of operations performed by server and how the data a server is transmitted, how communications are established and types of server hardware and software system. To install Windows Server 2022 on a virtual machine using VMware Workstation. The lab demonstrates setting up a virtual server environment, essential for learning server management and deployment.

Required Tools and Concept:

- Host computing device: Personal laptop computer.
- Minimum Hardware Requirements:
  CPU: 1.4GHz x86-64 processor
  RAM: 512MB for server core or 2GB for server with Desktop Exp.
  HDD: 32GB
  Display: 1024 x 768 pixels resolution (only required for certain features)

- Software Tools:
  Virtual Machine (VMware, Parallel Desktop, VirtualBox etc.)
  Windows Server in ISO file for installation
  PowerShell

Concept of Virtualization:

Virtualization is a technology that can runs operating system, server, storage, network resources on Virtual Machines, using this technology we can create virtual server, network, and many other computing services without the physical hardware.

Types of Hypervisors:

Type1 hypervisor: It is also known as (BareMetal) hypervisors, it run on direct physical hardware with no operating system support. It allocates the resources as per virtual machine. Ex: Microsoft Hyper V.

Type2 hypervisor: It is also known as (Host) hypervisors, it runs on a host operating system. Operating software runs a virtualization system on a computer so it can run a virtual computer on itself. EX: VMware, Parallel desktop.

History and Evolution of Virtualization:

Back in late 1960s IBM were one of the pioneers in computing technology. Time sharing concept was popular to share the usage of computer resources among large group of users, increasing efficiency of users and expensive computing resources .Founded in 1998, VMware is a market leader in virtualization. Its main products, including as ESXi and VMware Workstation, are frequently used for virtual environment development, testing, and deployment. KVM, Microsoft Hyper-V, and Oracle VirtualBox are substitutes.

The cost of providing computing capability dropped considerably and it became possible for organizations, and even individuals, to use a computer without actually owning one Virtualization improves scalability, lowers hardware costs, and maximizes resource use. Hypervisors are still essential for on-premises and hybrid cloud infrastructure, even in the face of new cloud-native options.

Steps of Replication:

Step 1:
Download and Install Virtual Box or any other Virtualization option.
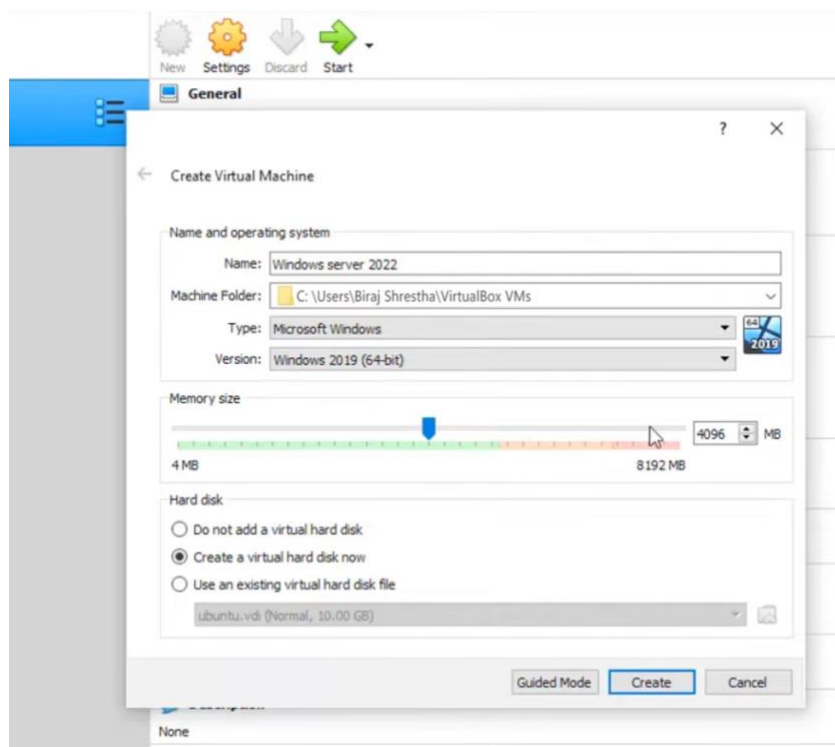
Step 2:
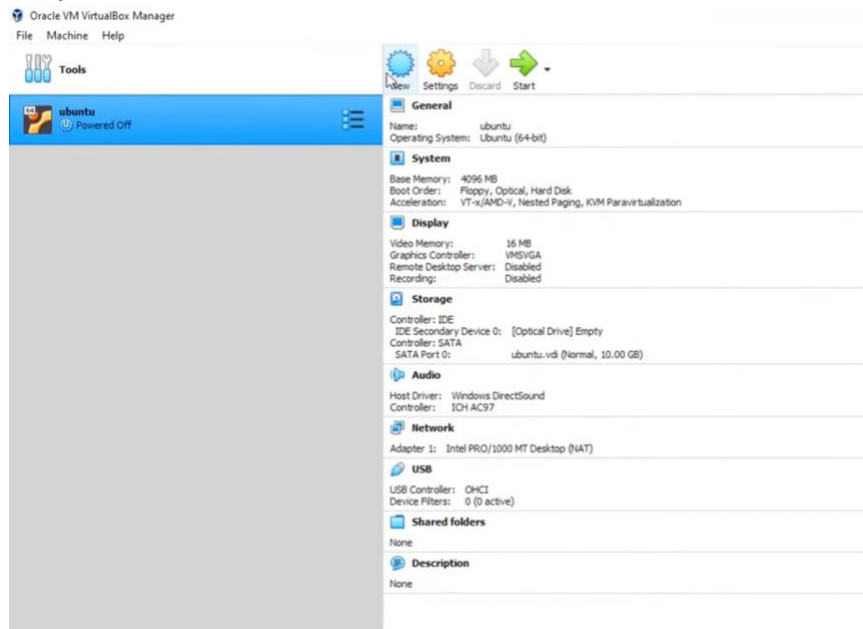
Figure 1: Setting up enviroment

Step 3:

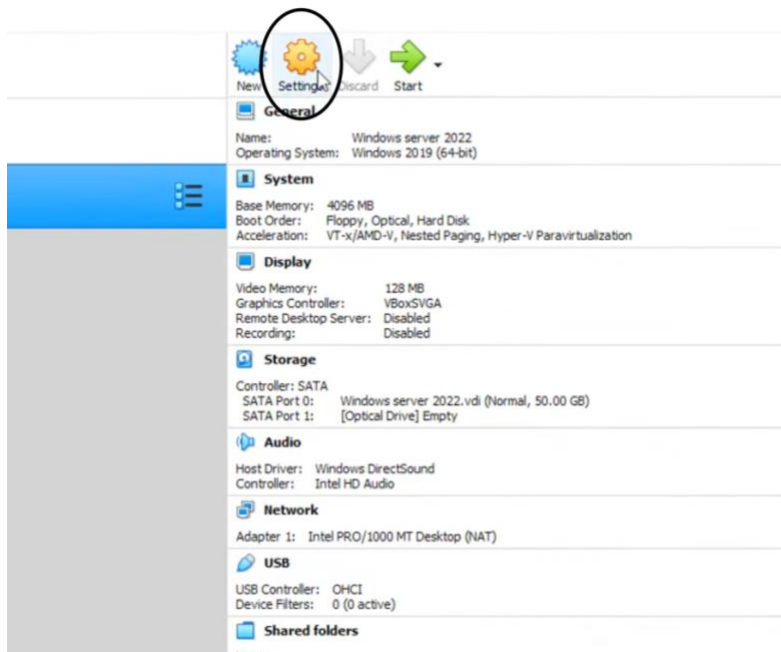*Figure 2: Allocating resources*

Step 4:

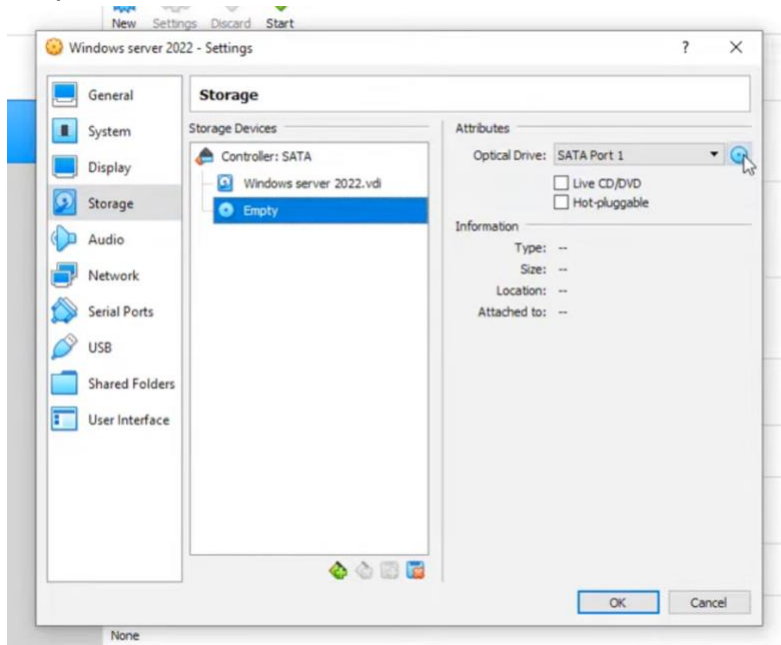*Figure 3: Starting the setup enviroment*

Step 5:
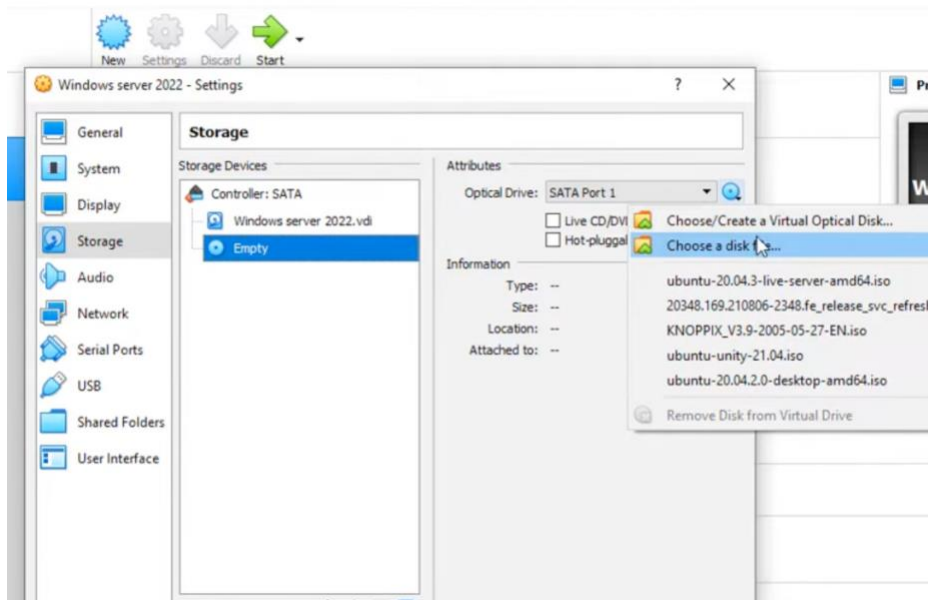

Figure 4: Selecting the ISO file

Step 6:

Figure 5: Selecting the ISO file from local directory

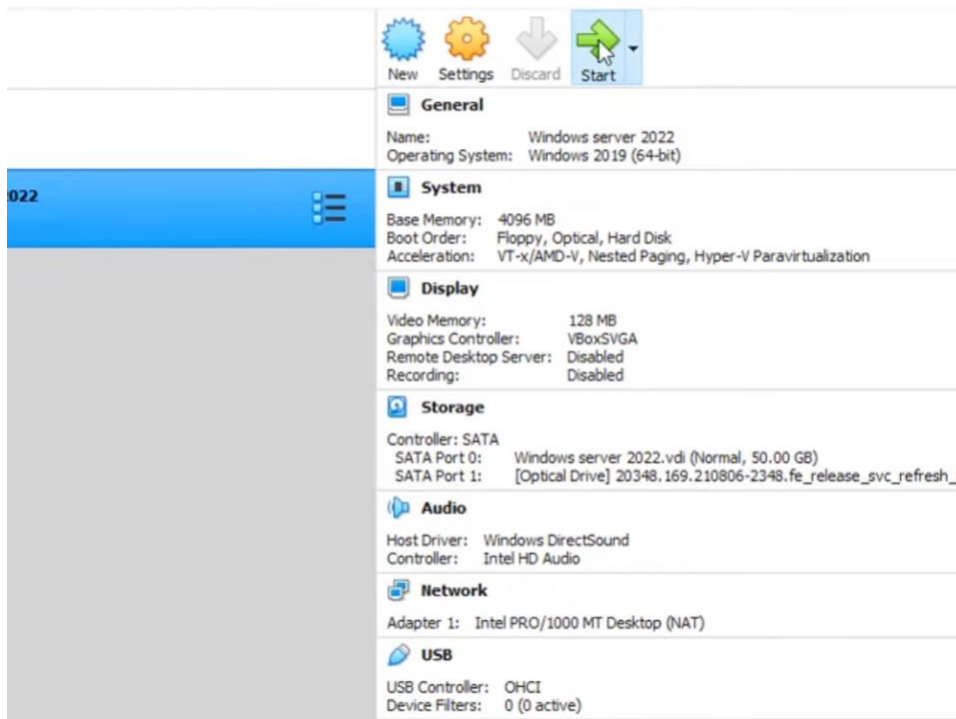Step 7:

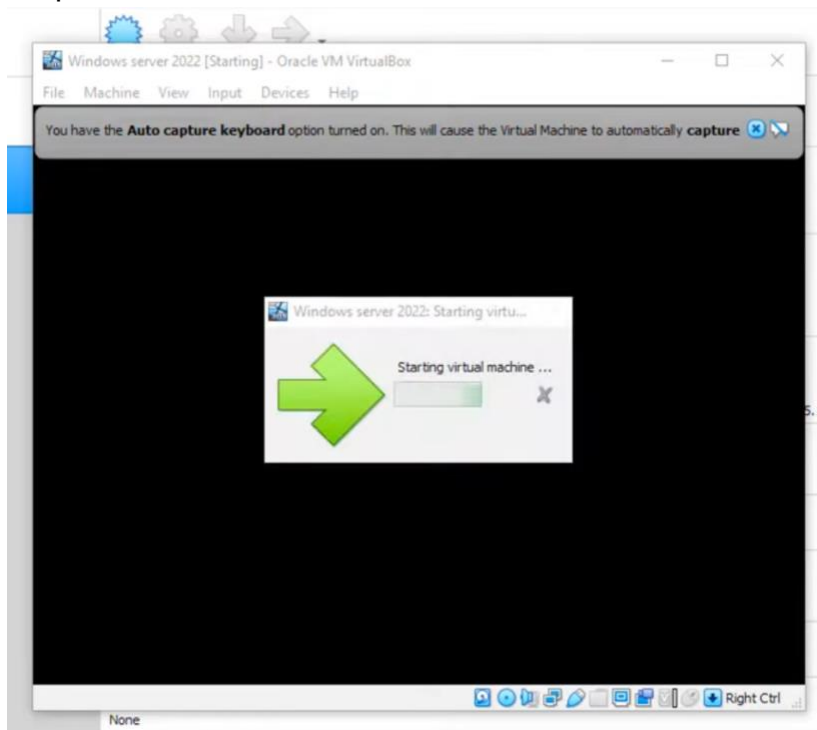
Figure 6: Initiate the setup

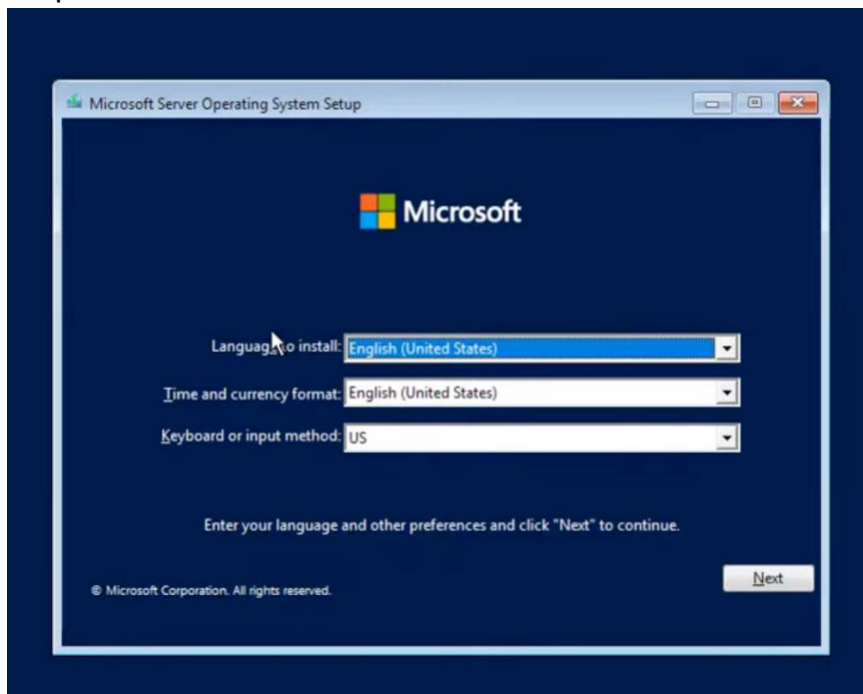Step 8:

Figure 7: Virtual box starts the setup
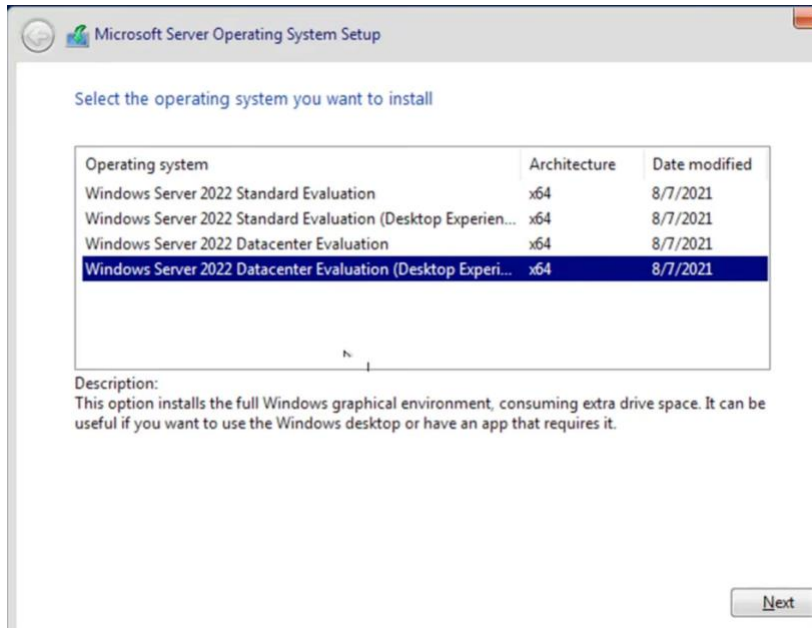
Step 9:

Figure 8: Software setup 1

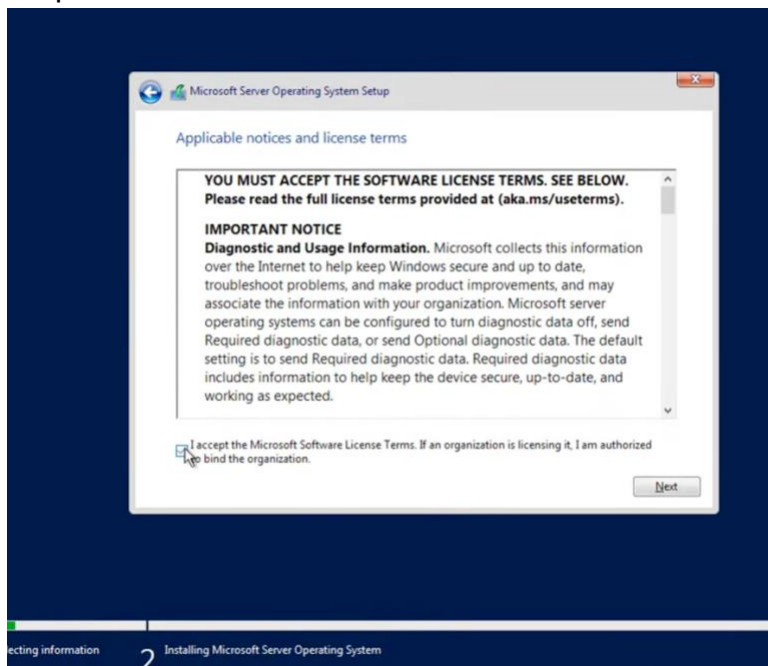Step 10:

Figure 9: Selecting the OS type/edition

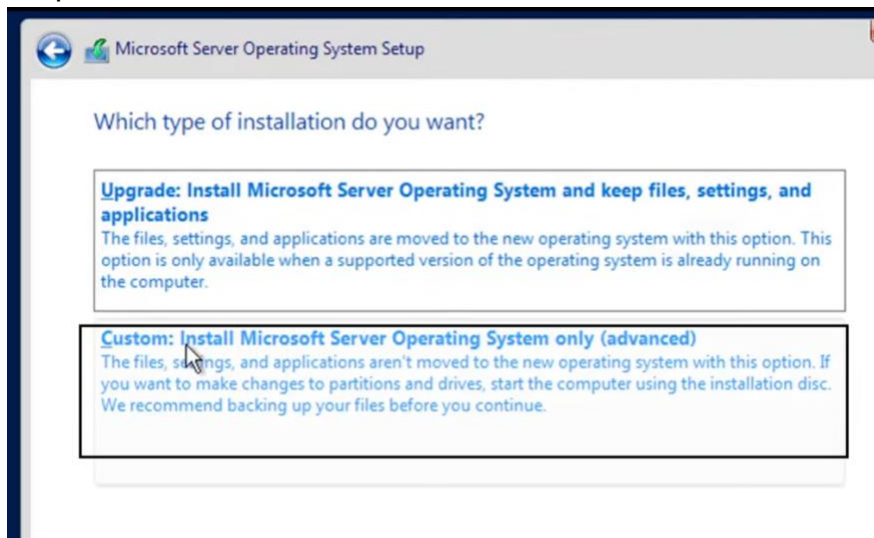Step 11:

Figure 10: Software license Agreement

Step 12:

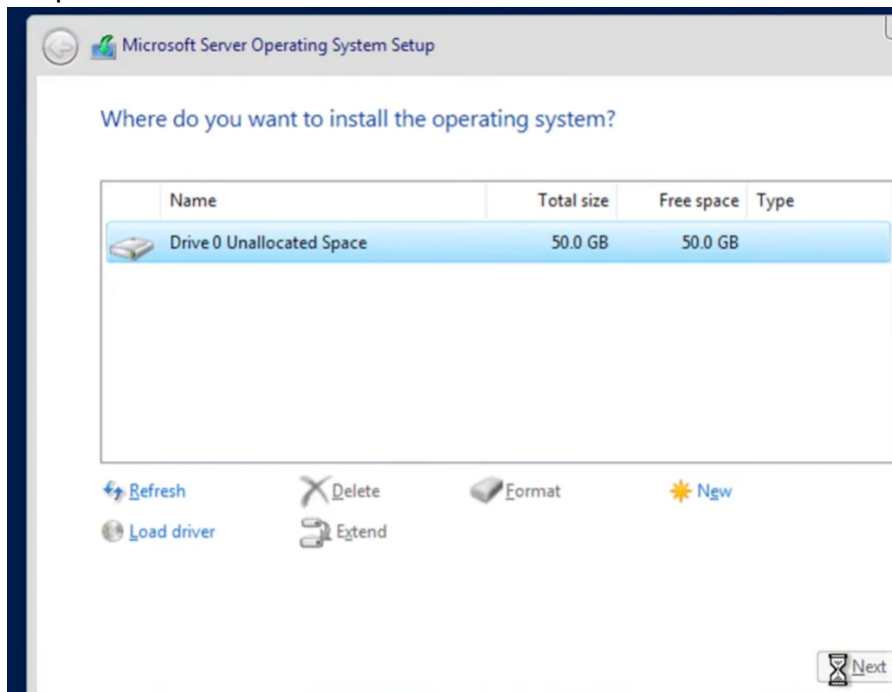*Figure 11: Clean and Custom Installation on drive*

Step 13:

Figure 12: Allocating Storage for OS

Step 14:

Figure 13: Setting up admin account

Step 15:

Figure 14: Into Management system

Conclusion

In this lab work Windows Server 2022 was successfully installed on VirtualBox demonstrating the use of virtualization for server deployment into our local system. This environment provides a platform for further exploration of server management, networking, and system administration for us. After the lab concepts of virtualization is well understood as different operating system were able to run simultaneously and how virtual machine allocates its resources to various system software.

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