TRAINING CONTENT

Linux Basics

YOUR NEXT DESTINATION
OF SOFTWARE OUTSOURCING

Linux Basics

Trainer
Md. Shafiqul Islam
Senior DevOps Engineer

Assistant
Azizur Rahman
Software Engineer

Outline

- A Brief History of Linux
- Unix and Linux
- Linux Working Principles
- VM Configuration
- Installation
- File System

A Brief History of Linux

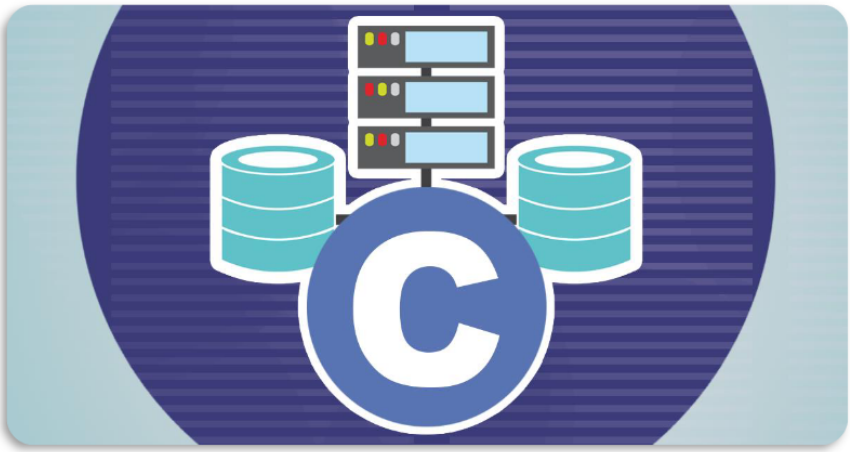
In 1969, a team of developers of Bell Labs started a project to make a common software for all the computers and named it as 'Unix'. It was originally developed as a multitasking system for minicomputers and mainframes.

The history of Linux starts with **Linus Torvalds**, who began work on the code in 1991 while a student at the University of Helsinki, Finland.

Linus wanted to create a better alternative to MINIX, a UNIX-based operating system developed for use in the educational field. The problem with MINIX was that users could not modify or freely distribute the code.

A Brief History of Linux

- Using almost exclusively the C programming language, Linus developed the Linux kernel using the foundation laid by Richard Stallman's work on the GNU project.
- Linux was released on September 17, 1991. And made it open source.



Unix and Linux

Unix

Unix is **an operating system**. It supports multitasking and multi-user functionality.

Unix is most widely used in all forms of computing systems such as desktop, laptop, and servers.

On Unix, there is a Graphical user interface like windows that support easy navigation and support environment.

Linux

Linux is a Unix-like, open source and community-developed operating system (OS) for computers, servers, mainframes, mobile devices and embedded devices. It is supported on almost every major computer platform.

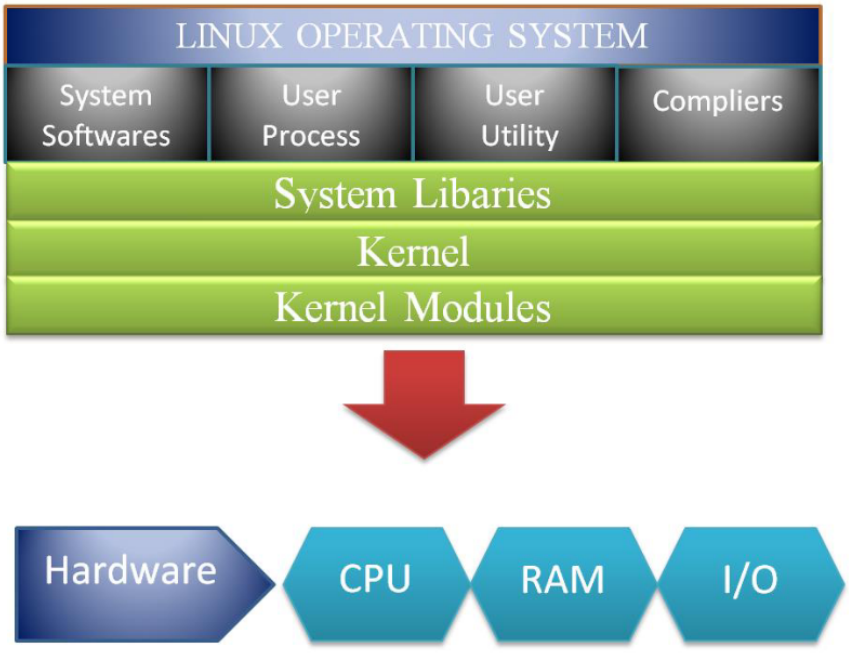
Technically linux is a kernal rather than OS and GNU is a collection of free software.

Correct term for this complete operating system is Linux distribution or simply Linux distro. Most Popular Distributions. RHEL, Fedora, Debian, Ubuntu, CentOS and Kali etc.

Difference between Linux and Unix

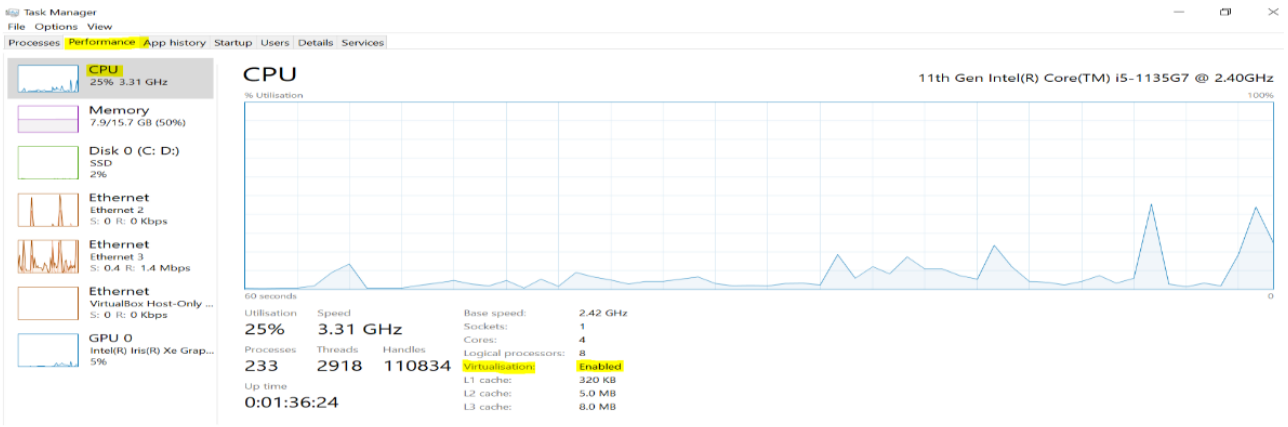
Sr. No.	Key	Linux	Unix
1	Development	Linux is open source and is developed by Linux community of developers.	Unix was developed by AT&T Bell labs and is not open source.
2	Cost	Linux is free to use.	Unix is licensed OS.
3	Supportd File systems	Ext2, Ext3, Ext4, Jfs, ReiserFS, Xfs, Btrfs, FAT, FAT32, NTFS.	fs, gpfs, hfs, hfs+, ufs, xfs, zfs.
4	Usage	Linux is used in wide varieties from desktop, servers, smartphones to mainframes.	Unix is mostly used on servers, workstations, or PCs.
5	Default Shell	Bash (Bourne Again SHell) is default shell for Linux.	Bourne Shell is default shell for Unix.
5	Example	Ubuntu, Debian GNU, Arch Linux, etc.	SunOS, Solaris, SCO UNIX, AIX, HP/UX, ULTRIX etc.

Linux Working Principles



Check Virtualization Option

1. Check from Task Manager



2. By Running Commond on Powershell -> Get-ComputerInfo -property "HyperV*"

HyperVRequirementVirtualizationFirmwareEnabled : True

Note: If Virtualization option not enabled then need to enable it from BIOS.

Virtual Box Installation

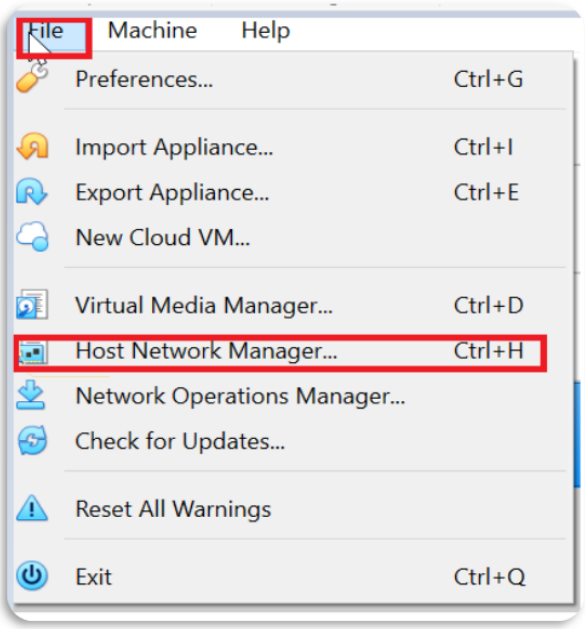
1. Download the Oracle Virtual Box from official or community page and install the VirtualBox (if not already).

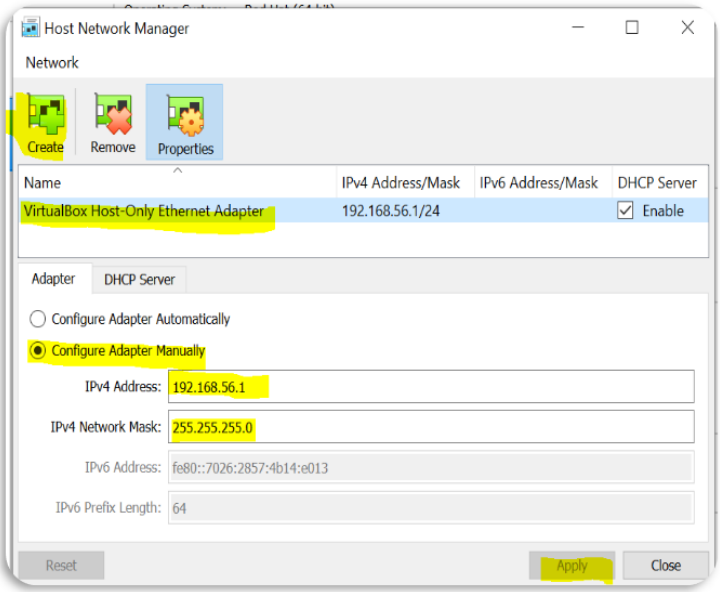
   https://www.virtualbox.org/wiki/Downloads

   https://www.oracle.com/id/virtualization/technologies/vm/downloads/virtualbox-downloads.html

2. Run the VirtualBox and Click on the New icon on the top VirtualBox menu.

Virtual Host Configuration on Virtualbox

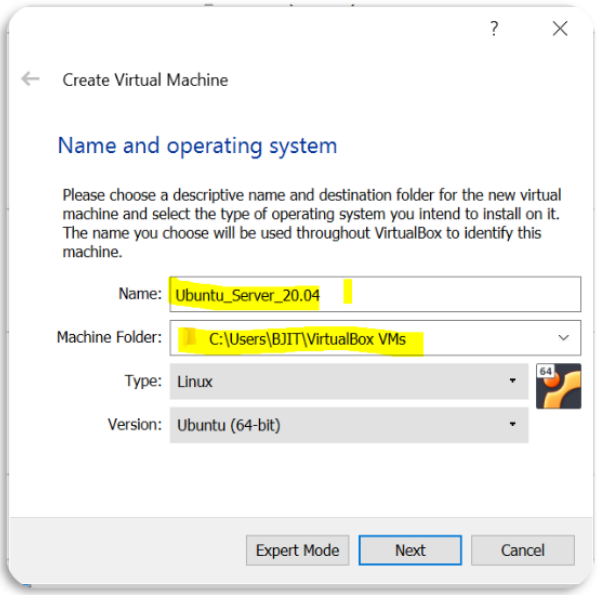


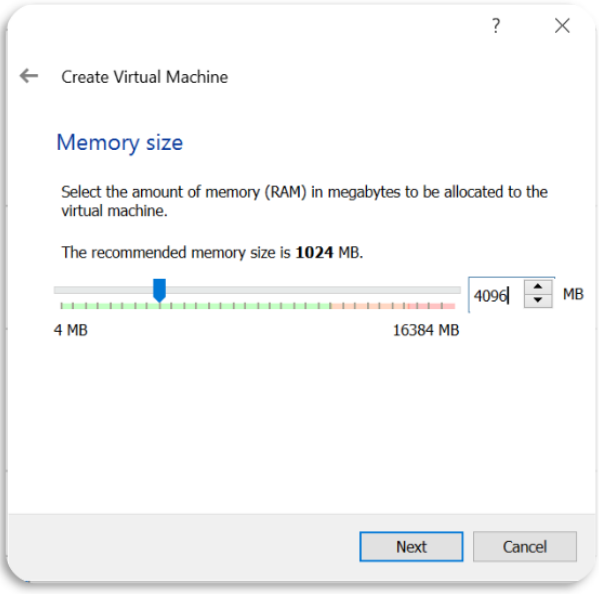


Linux Installation & Configuration Steps

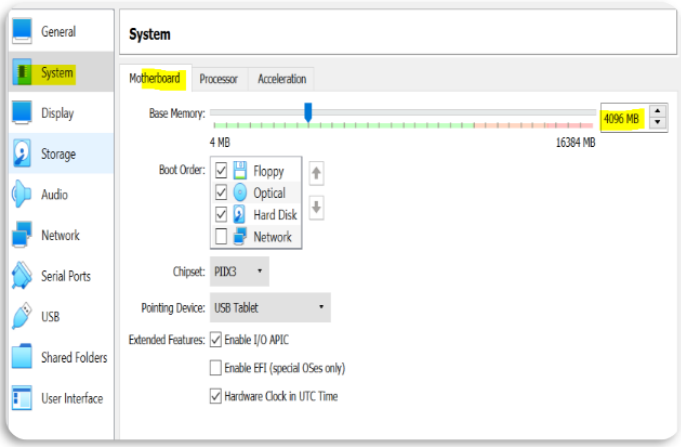
1. Download the Ubuntu Server from official or community page and install Ubuntu Server (Preferred version 20.04 LTS) : https://ubuntu.com/download/server/
2. Run the VirtualBox and Click on the New icon on the top VirtualBox menu.
3. Named your Oracle VirtualMachine.
4. Select the Type Linux and 64-bit or 32bit version.
5. Assign the RAM and Virtual Hard disk
6. Select Storage option from Setting and Click on Empty CD icon.
7. Assign the Ubuntu ISO image and press OK button then installation process will start
8. Accept License and your Ubuntu server will be ready to use.
9. After completing Ping google.com for checking network connectivity.

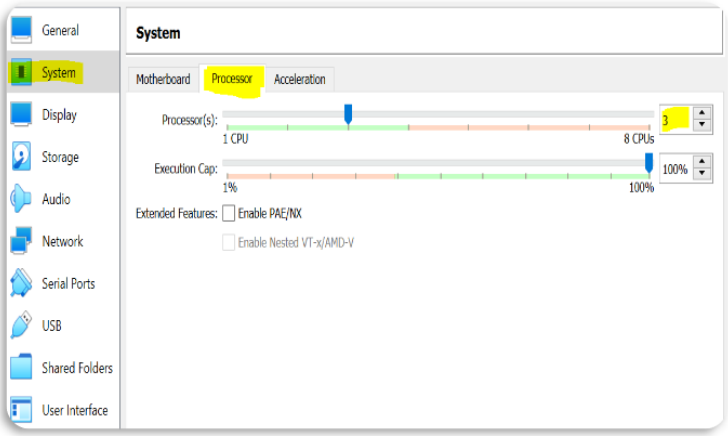
VM Configuration



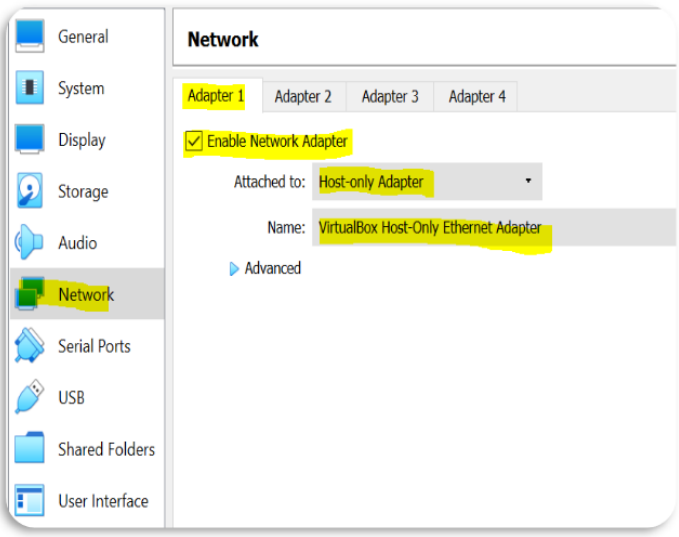


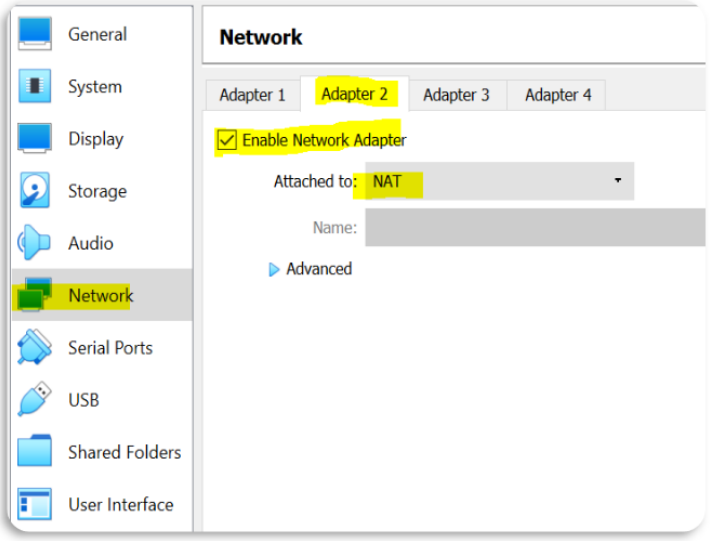
System settings



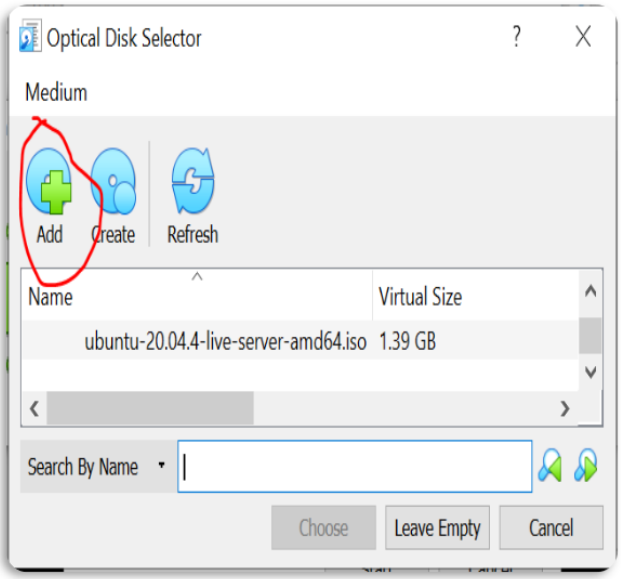


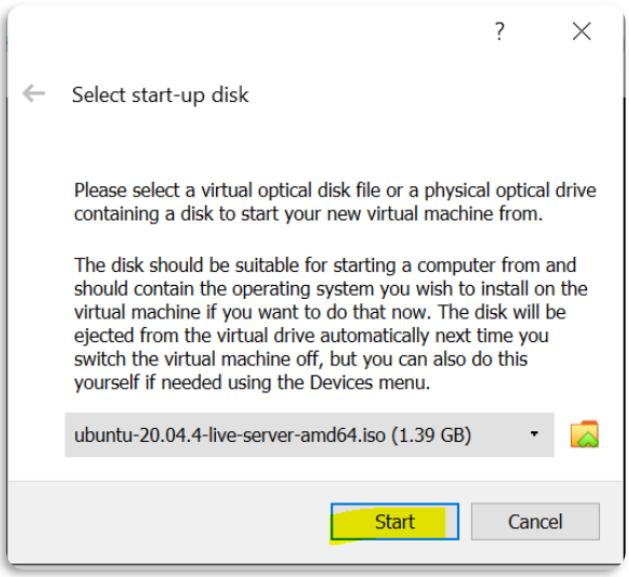
Network settings



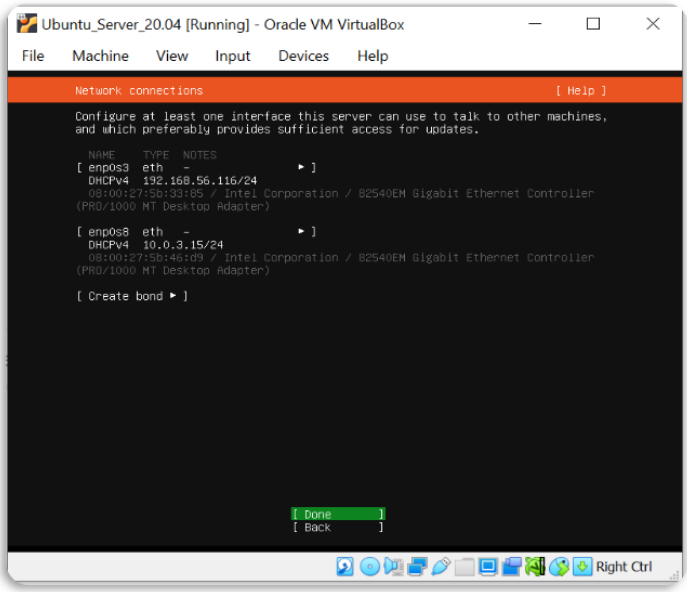


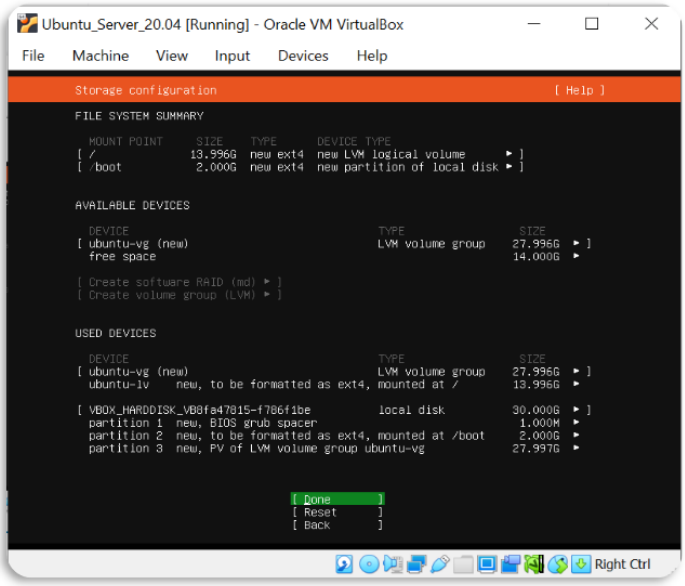
ISO Setup



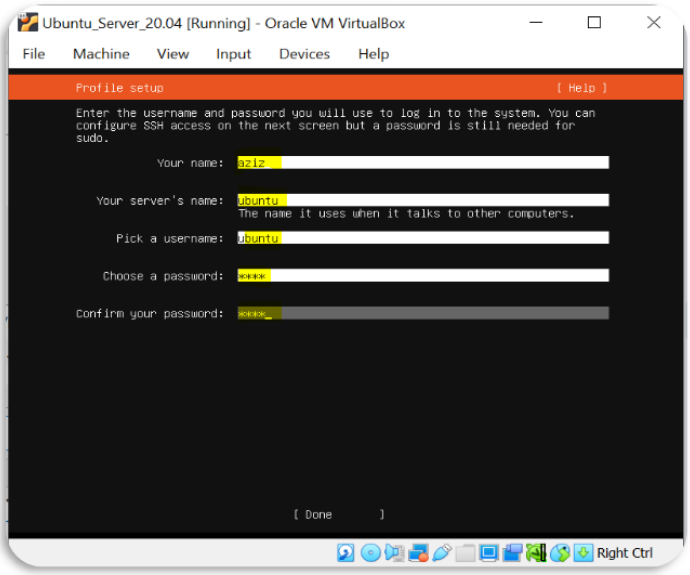


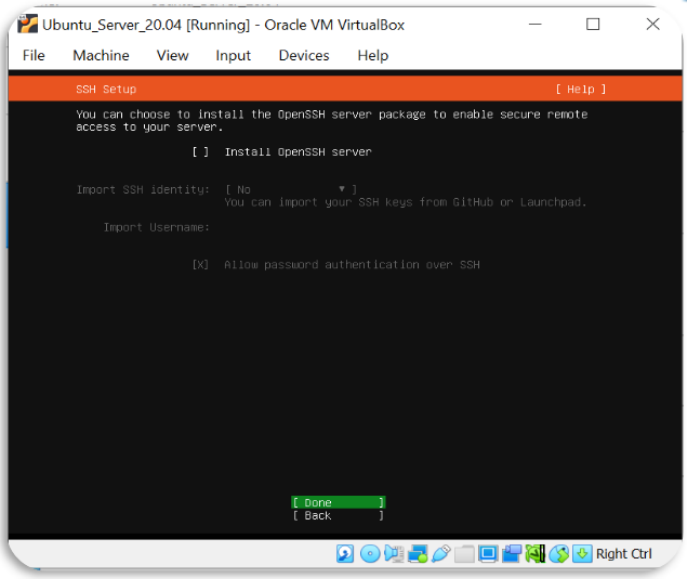
Server Configuration



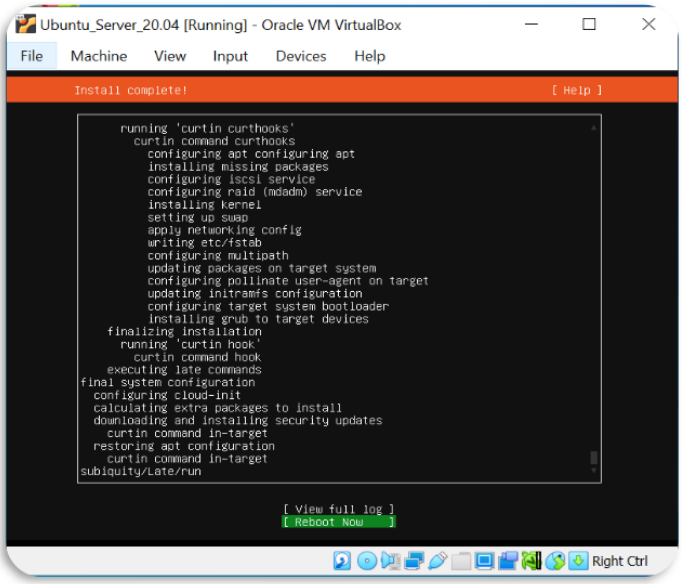


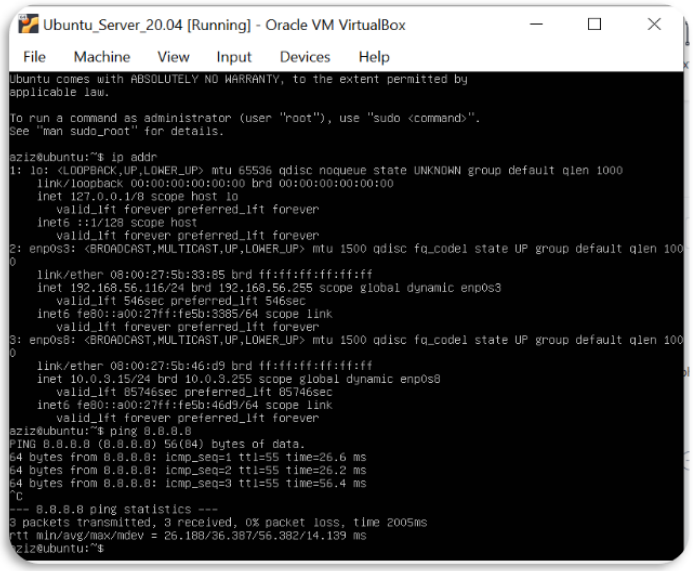
Server Configuration



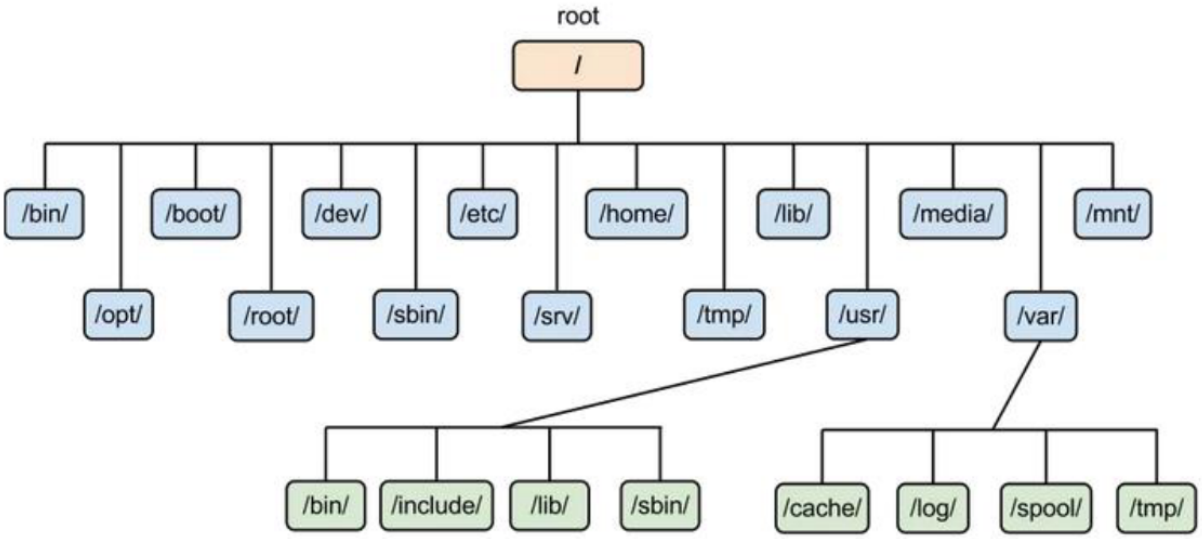


Reboot & Check Internet Connectivity





Linux File system structure



Linux File system structure details

Directory	Details
/bin	Essential software typically needed to get the system running
/boot	Files related to the boot menu/loader
/dev	Virtual files representing hardware devices
/etc	System configuration files
/home	User's personal folders
/lib	Support or library files required by software or applications
/media	Contains subfolders where storage devices can be mounted
/proc	Virtual folder containing files representing stats and settings
/root	Personal folder for the root user
/sbin	Essential software for system maintenance, used only for the root user
/tmp	Temporary files/folders
/usr	Essentially, subdirectories containing most software used on the system, including system libraries and documentation
/var	Data that is vital to the running of the system and that is constantly being updated

References

https://www.how2shout.com/how-to/oracle-linux-installation-on-virtualbox-step-by-step.html

https://ostechnix.com/explaining-soft-link-and-hard-link-in-linux-with-examples/

https://www.educba.com/linux-filter-commands/

https://www.rootusers.com/how-to-install-an-rpm-file-in-linux/

https://www.guru99.com/file-permissions.html

https://www.digitalocean.com/community/tutorials/how-to-install-mysql-on-centos-7

https://www.cyberciti.biz/faq/howto-linux-unix-creating-database-and-table/

https://pcx3.com/linux/linux-directory-structure-linux-file-system-hierarchy/

Thank You

Get in touch with us:

www.bjitgroup.com