

TRAINING CONTENT

Linux Basics

YOUR NEXT DESTINATION
OF SOFTWARE OUTSOURCING



Linux Basics

Trainer

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A Brief History of Linux



File System



Unix and Linux



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Installation

A Brief History of Linux

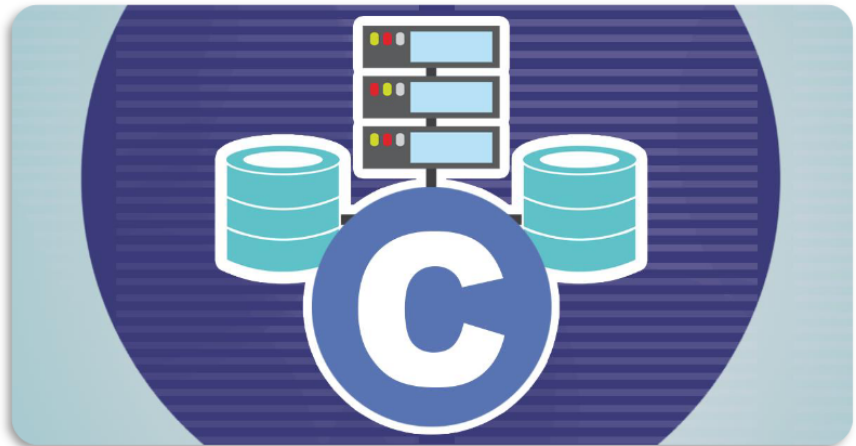
In 1969, a team of developers of Bell Labs started a project to make a common software for all the computers and named it as 'Unix'. It was originally developed as a multitasking system for minicomputers and mainframes.

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.

- 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.





Linux

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.

Unix



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.

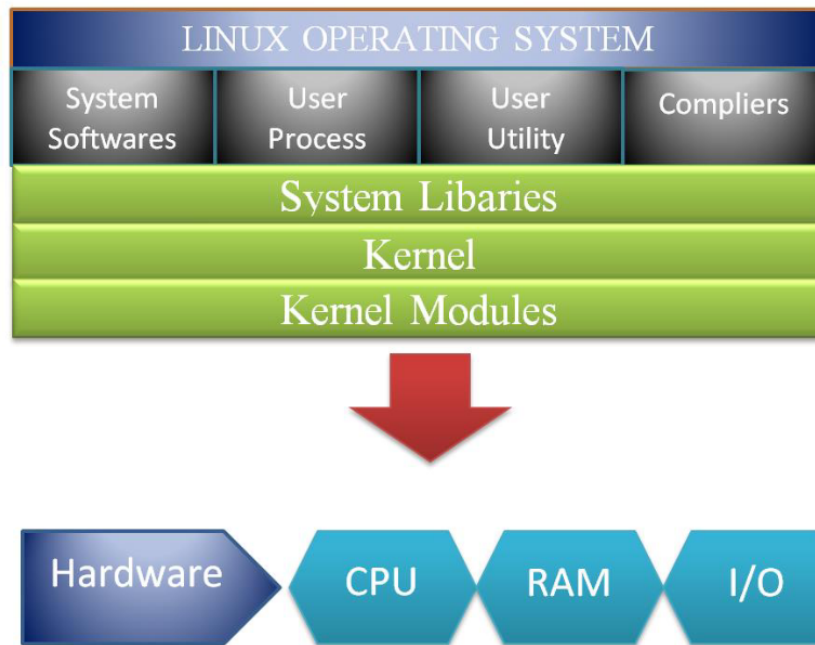
Technically linux is a kernel rather than OS and GNU is a collection of free software.

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.

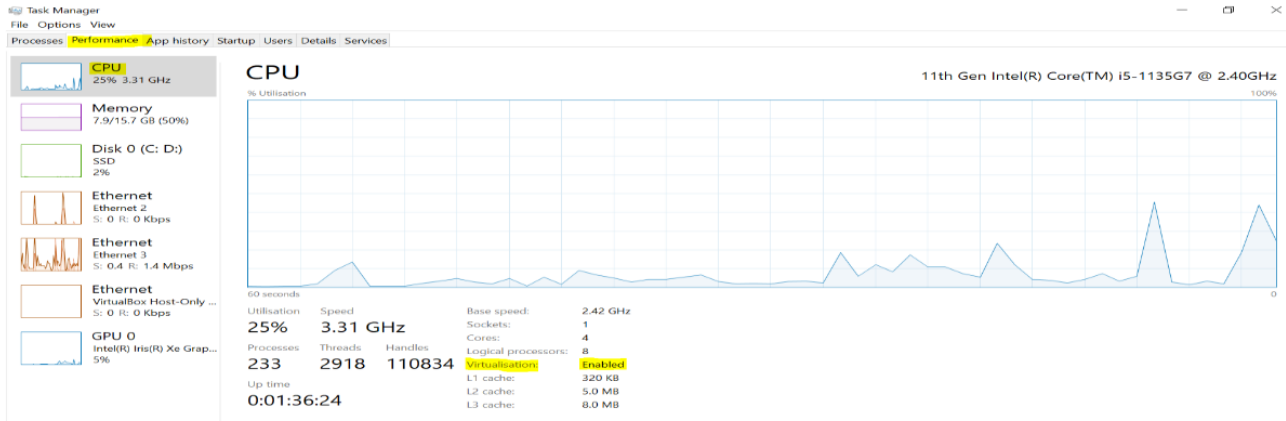
Difference between Linux and Unix



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.



1. Check from Task Manager



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

HyperVRequirementVirtualizationFirmwareEnabled : True

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

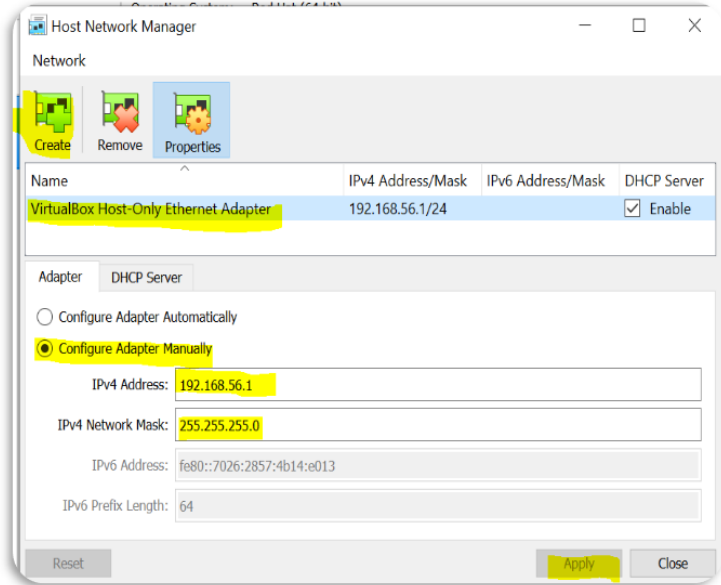
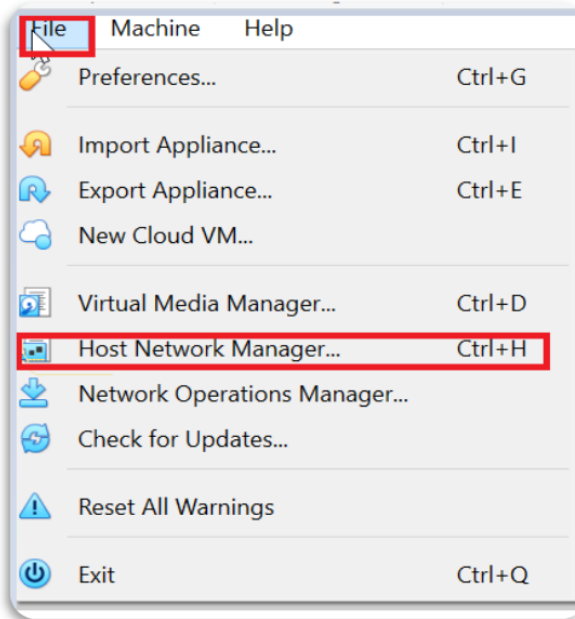
1. Download the Oracle Virtual Box from official or community page and install the VirtualBox (if not already).

<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.





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.

← Create Virtual Machine

Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name:

Machine Folder:

Type:

Version:

← Create Virtual Machine

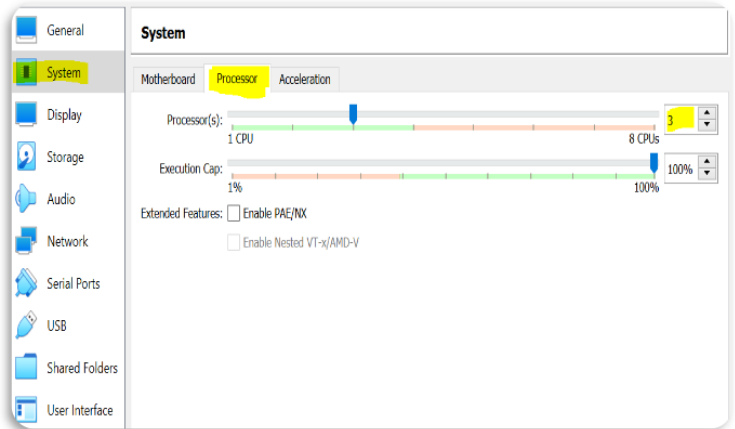
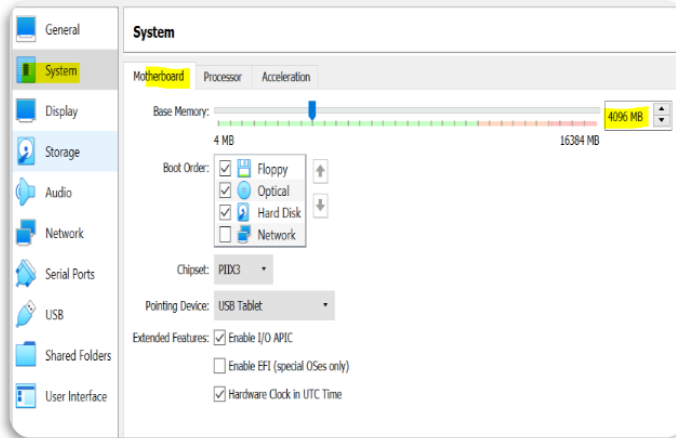
Memory size

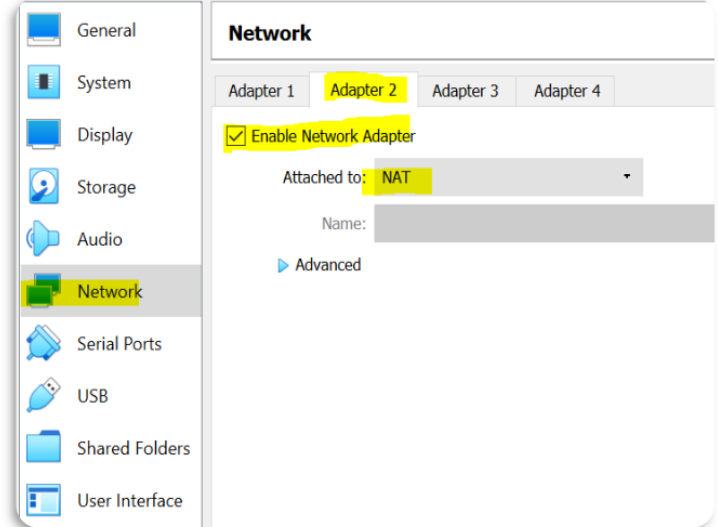
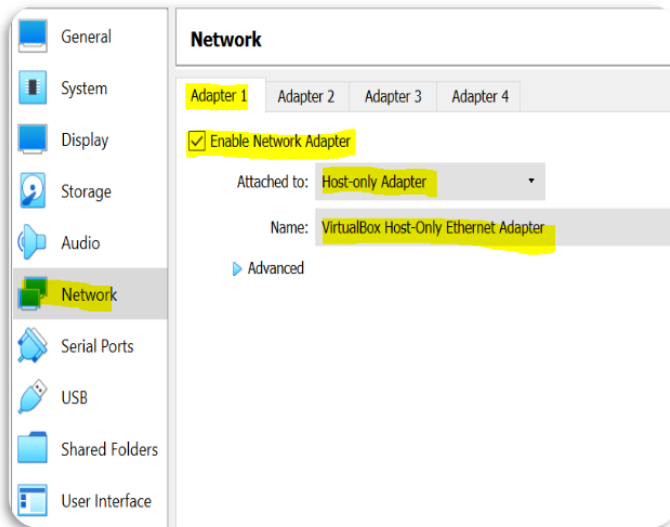
Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

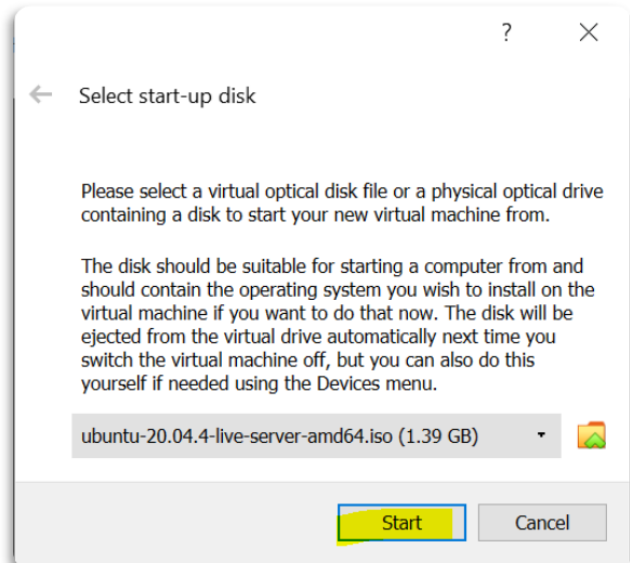
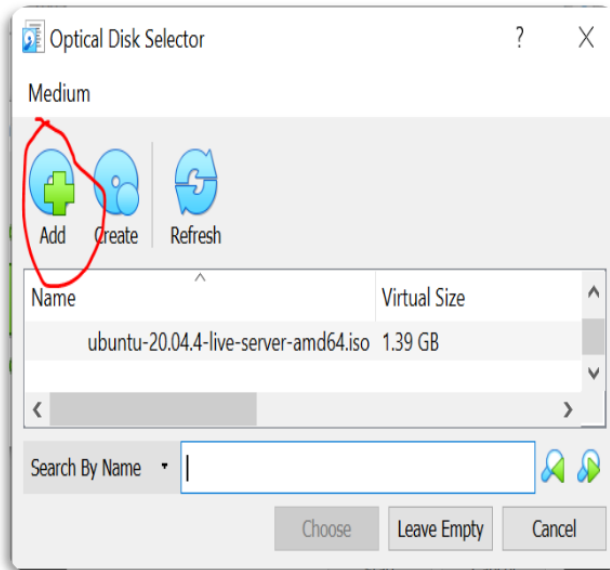
The recommended memory size is **1024 MB**.

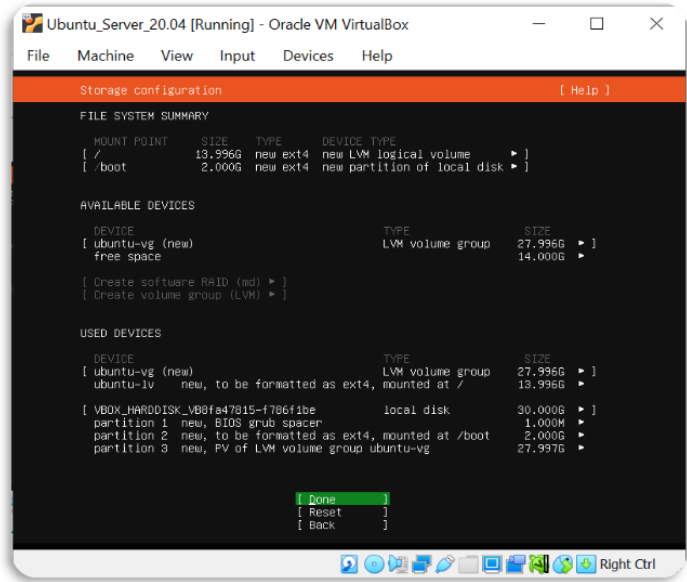
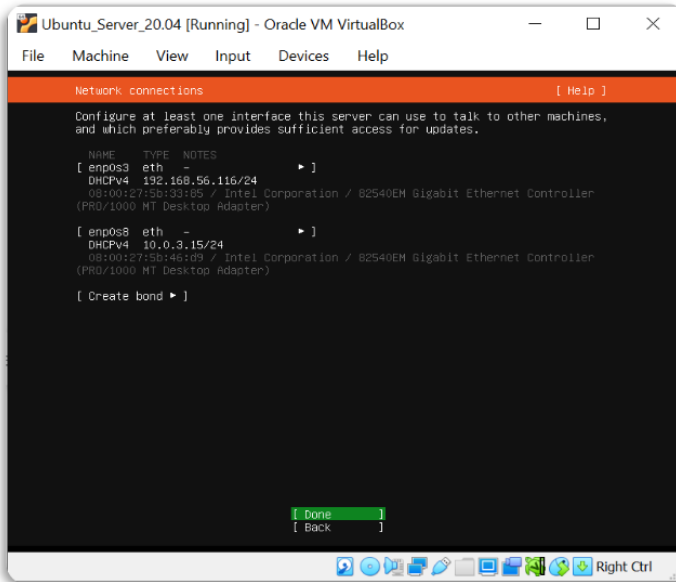
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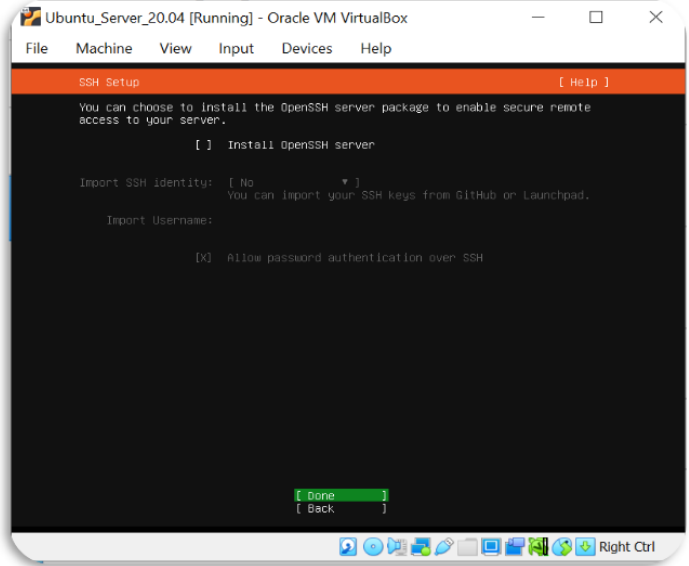
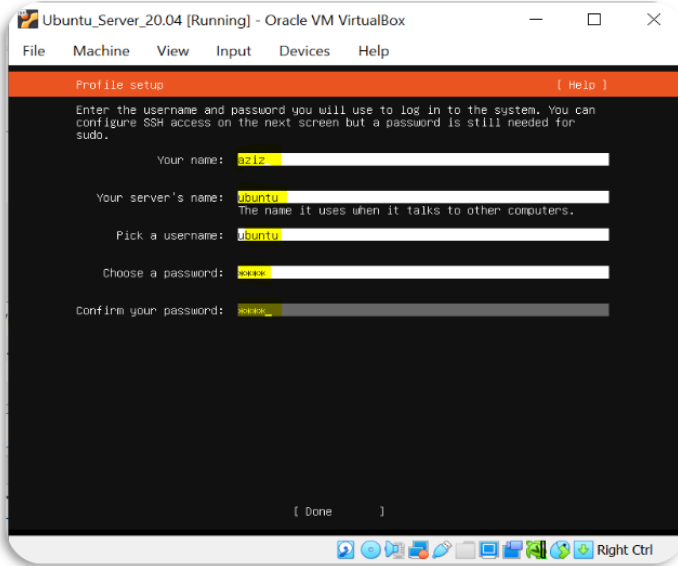
4 MB 16384 MB











```

Ubuntu_Server_20.04 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Install completed! [ Help ]

running 'curtin curthooks'
curtin command curthooks
  configuring apt
  configuring apt
  installing missing packages
  configuring lscsi service
  configuring raid (mdadm) service
  installing kernel
  setting up swap
  apply networking config
  writing etc/fstab
  configuring multipath
  updating packages on target system
  configuring pollinate user-agent on target
  updating initramfs configuration
  configuring target system bootloader
  installing grub to target devices
finalizing installation
  running 'curtin hook'
  curtin command hook
  executing late commands
final system configuration
  configuring cloud-init
  calculating extra packages to install
  downloading and installing security updates
  curtin command in-target
  restoring apt configuration
  curtin command in-target
subiquity/late/run

[ View full log ]
[ Reboot Now ]
  
```

```

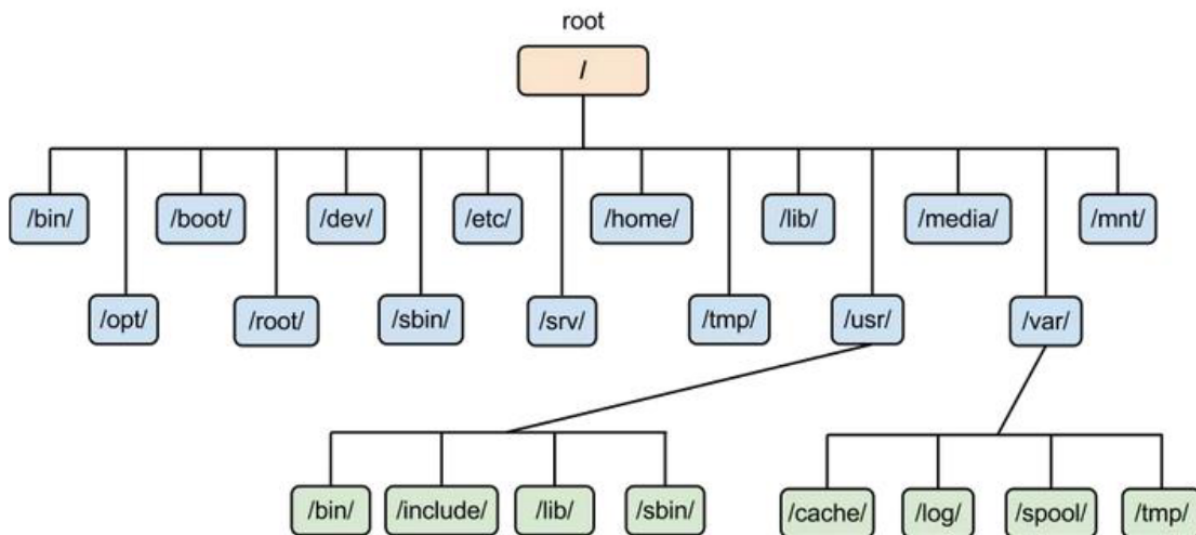
Ubuntu_Server_20.04 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

aziz@ubuntu:~$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:5b:33:85 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.116/24 brd 192.168.56.255 scope global dynamic enp0s3
        valid_lft 546sec preferred_lft 546sec
    inet6 fe80::a00:27ff:fe5b:3385/64 scope link
        valid_lft forever preferred_lft forever
3: enp0s8: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:5b:46:d9 brd ff:ff:ff:ff:ff:ff
    inet 10.0.3.15/24 brd 10.0.3.255 scope global dynamic enp0s8
        valid_lft 85746sec preferred_lft 85746sec
    inet6 fe80::a00:27ff:fe5b:46d9/64 scope link
        valid_lft forever preferred_lft forever

aziz@ubuntu:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(64) bytes of data:
64 bytes from 8.8.8.8: icmp_seq=1 ttl=55 time=26.6 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=55 time=26.2 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=55 time=56.4 ms
^C
--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2005ms
rtt min/avg/max/mdev = 26.188/36.387/56.382/14.139 ms
aziz@ubuntu:~$
  
```



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

<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/>

Two white L-shaped brackets are positioned on either side of the "Thank You" text. One bracket is in the upper left, and the other is in the middle right, both pointing towards the center text.

Thank You

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