UNIT 3:INSTALLATION OF LINUX OPERATING SYSTEM

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3.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- learn the hardware and software requirements for installing Linux operating system
- know about hard disk partitions
- describe logical partitioning
- install Linux system on a computer
- install software in Linux Operating System

3.2 INTRODUCTION

In the previous unit, we have learnt about the Linux Operating System. In this unit, step-by-step installation of Linux OS will be discussed.

The Linux OS is a freely distributable; cross-platform operating system based on Unix and can be installed on PCs, laptops, mobile and tablet devices, video game consoles, servers, supercomputers and more. Certain hardware requirements are to be met before installing Linux Operating System on a computer. Once this is met, the hard drive requires to be partitioned for installing the operating system. The installation steps for Ubuntu 20.04 LTS will also be discussed.

3.3 INSTALLATION REQUIREMENTS FOR RED HAT ENTERPRISE LINUX

Both of the Red Hat Enterprise Linux versions for 32-bit and 64-bit platforms have the same system requirements as listed below (Table 3.1).

Criteria	**Requirements**
Operating System	Red Hat Enterprise Linux 4 or 5 with the latest patches and upgrades
CPU Type	Pentium 4 or higher; 2 GHz or higher
Memory/RAM	1-2 GB minimum
Hard Disk	4 to 5 GB minimum

3.4 PARTITIONING THE HARD DRIVE IN LINUX

3.4.1 Partitions

A hard disk can be divided into several segments called partitions. Each partition operates as if it were a separate hard disk. The idea behind this is that if we want to install two operating systems in one hard disk, we can divide the disk into two partitions. Each operating system uses its own partition area without interfering the other ones. In this way, the two operating systems can co-exist on the same hard disk. The information about how a hard disk has been partitioned is stored in its first sector (that is, the first sector of the first track on the first disk surface). The first sector is called the master boot record (MBR) of the disk. BIOS reads in MBR and

starts when the machine is first booted. The MBR contains a small program that reads the partition table, and checks which partition is active or bootable, and then reads the first boot sector of that partition (the MBR is also a boot sector, but it has a special status and therefore a special name). This boot sector contains another small program that reads the first part of the operating system stored on that partition, and then it starts it.

There are three types of partitions available namely primary partition, extended partition and logical partition.

Primary partition is a partition which is used to save and boot an operating system. Usually, the operating system is installed in a primary partition which can be set "active" so that the computer can locate the operating system that needs starting. If there are more than one primary partition on the hard disk, only one of them can be visible and active at a time. This active partition is the partition from which the operating system is booted when computer starts. There are at most four primary partitions or three primary partitions and an extended partition on a hard disk.

The partitioning scheme is not built into the hardware, or even into the BIOS. It is only a convention that many operating systems use. Some operating systems support partitions, but they occupy one partition on the hard disk, and use their internal partitioning method within that partition. The latter type like Linux exists with other operating systems and does not require any special measures. An operating system that doesn't support partitions cannot co-exist on the same disk with any other operating system.

3.4.2 Extended and Logical Partitions

Extended partition: Extended partition is a kind of special primary partition which can be subdivided into logical partitions. It can be seen as a container for logical partitions. A hard disk can contain only one extended partition and it is not formatted or assigned a

drive letter, for it is used to create logical partitions.

Logical partition: Logical partitions are partitions created in extended partition. Logical partitions are similar to primary partitions. However, the number of logical partitions that can exist on a hard disk is unlimited.

An extended partition does not directly hold data and logical partitions are mainly used for storing data. Once created, logical partitions must be formatted, and each may be assigned a drive letter. It is a good idea to have several partitions for one operating system. For example, swap space is usually best put in its own partition for Linux instead of in the main Linux partition for reasons of speed. To overcome this design problem, extended partitions were invented. This trick allows partitioning a primary partition into sub partitions. The primary partition thus subdivided is the extended partition; the sub-partitions are logical partitions. They behave like primary partitions but are created differently.

A sample partitioned structure of a hard disk might look like that in Figure 3.1. The disk is divided into three primary partitions, the second of which is divided into two logical partitions. Part of the disk is not partitioned at all. The disk as a whole and each primary partition has a boot sector.

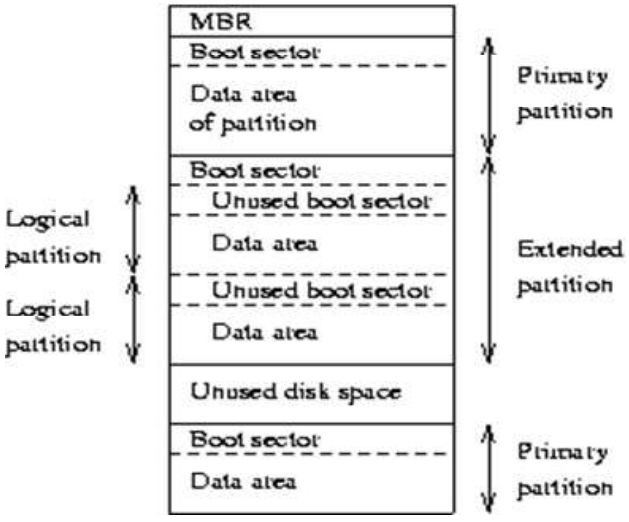


Fig. 3.1: A sample hard disk partitioning.

3.4.3 Partitioning the Hard Drive in Linux

Partitioning disks (Hard Drive) is generally the first step before installing Linux operating system. Before we can create any files, a filesystem must exist. Similarly, we can't make a file system unless there is a partition on the disk.

Partitions are used to divide raw storage space into chunks (slices). This provides the means for organization and hosting of filesystems. Besides that, partitions also help to isolate the filesystem faults.

For a proper Linux system installation in a single-user desktop system, three partitions are recommended: swap, root, and home.

swap: This is a partition that will be used as Linux swap space. This space on the hard drive can be used as virtual memory. Virtual memory allows the computer to run large programs and perform complex tasks even if it does not have enough physical RAM to do the job. There are no fixed guidelines for the necessary amount of swap space that is required. To keep it simple, create one swap partition that is 50% to 100% the size of the physical RAM in the system.

root (/): The root file system is represented by a forward slash (/). It is the top of the directory tree and contains Linux and everything that we install with Linux. We must create a partition for the root directory. The size of the root partition will vary depending on what to install or plan to install. It is to check distribution's documentation and reserve enough space for a maximum installation, plus at least 100MB more for temporary space and installation of new software. If we plan to download and try out lots of software, more space is required. If hard drive is in small size, we can trim back on our installed packages to save space. In general, root partition is kept in between 2GB and 8GB.

/home: The third and final partition is created to hold /home directory. This is the place where all the user-specific files are stored. On a multi-user system, each user will have their own directory under /home. Strictly speaking, it is not necessary to create a separate partition for /home. If we do not, it will reside on the root partition like everything else.



CHECK YOUR PROGRESS

Q 1: What is the minimum RAM and Hard disk space required for Red Hat Enterprise Linux installation?

.....

Q 2: What is master boot record (MBR)?

.....

Q 3: Mention the type of partitions recommended for a proper Linux installation in a single-user desktop system?

.....

Q 4: What is the top of the directory tree in Linux?

.....

3.5 INSTALLING THE LINUX SYSTEM (Red Hat Enterprise Linux 6.0)

The steps which are to be followed to install Red Hat Enterprise Linux are as below:

Step 1: Boot Computer Using Red Hat 6 Installation CD/DVD.

Then Select Install or upgrade an existing system option on Grub Menu (Fig. 3.2)



Fig. 3.2

2. Select a language from the language option.



Fig. 3.3

Generally, English option is used in India (Fig. 3.3).

3. Choose a keyboard type (Fig. 3.4).



Fig. 3.4

Note: To change the keyboard layout type after the completion the installation, use the Keyboard Configuration Tool. Type the system-config-keyboard command in a shell prompt to launch the Keyboard Configuration Tool. If the user is not admin, it prompts him for the root password to continue.

4. Choose an installation media from the screen (Fig. 3.5).



Fig. 3.5

5. Skip DVD media test (or select media test, if you want to test installation media before installation) (Fig. 3.6).



Fig. 3.6

6. Red Hat 6 graphical installer starts, select next (Fig. 3.7).



Fig. 3.7

7. Accept Pre-Release Installation (Fig. 3.8).

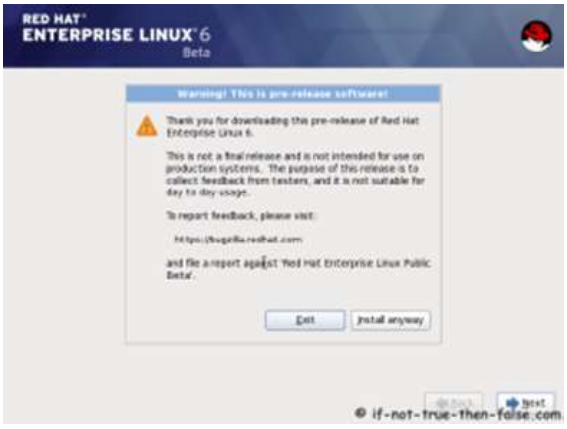


Fig. 3.8

8. Select storage devices.

We can install Red Hat Enterprise Linux on a large variety of storage devices - either basic or specialized storage devices. Basic Storage Devices are hard drives or solid-state drives connected directly to the local system wherein Specialized Storage Devices include Storage area networks (SANs), Direct access storage devices (DASDs), Firmware RAID devices and Multipath devices (Fig. 3.9)



Fig. 3.9

9. Insert computer name (Fig. 3.10).



Fig. 3.10

10. Select time zone (Fig. 3.11).

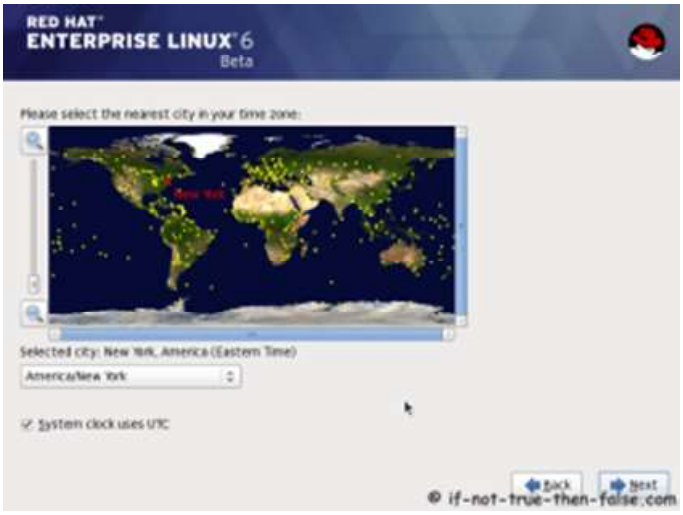


Fig. 3.11

11. Enter a password for root user (Fig. 3.12).



Fig. 3.12

Setting up a root account and password is one of the most important steps during the installation process. The root account is used to install packages, upgrade RPMs, and perform most system maintenance. Logging in as root gives us complete control over the system.

12. Select type of installation (Fig. 3.13).

Read every options info carefully. And select encrypting if needed and option to review and modify partition layout.



Fig. 3.13

Partitioning allows us to divide the hard drive into isolated sections, where each section behaves as if it is a separate hard drive. Partitioning is particularly useful if multiple operating systems are to be installed. In the above screen we can choose to create the default partition layout using one of four different ways or choose to partition storage devices manually to create a custom layout. The first four options allow us to perform an automated installation without having to partition our storage devices. If we do not feel comfortable with partitioning our system, we can choose one of these options and let the installation program partition the storage devices for us. Depending on the option we select, we can still control what data (if any) is removed from the system.

Type of installation can be chosen from:

Use All Space: Select this option to remove all partitions on our hard drives (this includes partitions created by other operating systems such as Windows VFAT or NTFS partitions).

Replace Existing Linux System(s): Select this option to remove only partitions created by a previous Linux installation. This does not remove other partitions we may have on our hard drives (such

as VFAT or FAT32 partitions).

Shrink Current System: Select this option to resize our current data and partitions manually and install a default Red Hat Enterprise Linux layout in the space that is freed.

Use Free Space: Select this option to retain the current data and partitions and install Red Hat Enterprise Linux in the unused space available on the storage drives. Ensure that there is sufficient space available on the storage drives before we select this option.

Create Custom Layout: Select this option to partition storage devices manually and create customized layouts.

13. Review partition layout (Fig. 3.14).

Modify if needed. Default setup with ext4 and LVM looks good for desktop machine.



Fig. 3.14

14. Accept write changes to disc (Fig. 3.15).



Fig. 3.15

15. Writing changes (creating partitions) to disc (Fig. 3.16).



Fig. 3.16

16. Configure boot loader options (Fig. 3.17).

Select device to install bootloader and check/create boot loader operating system list.



Fig. 3.17

17. Select software to install and enable repositories.

In this case, we have to select Software Development Workstation and enable Red Hat Enterprise Linux 6.0 Beta Repository and select Customize now (Fig. 3.18).

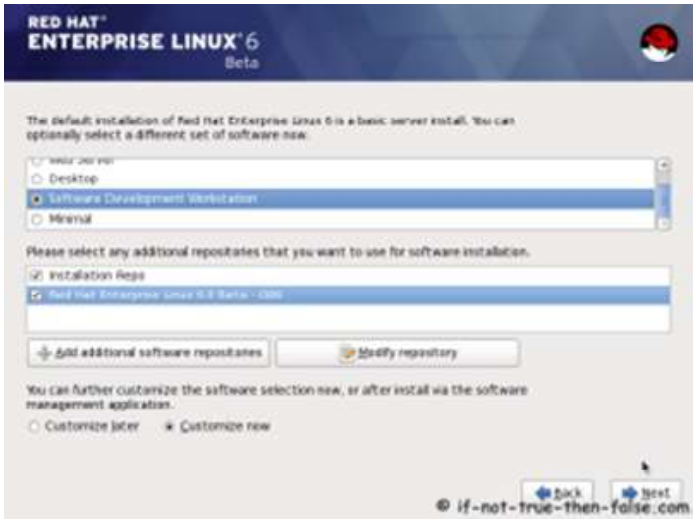


Fig. 3.18

18. Customize package selection.

By default, the Red Hat Enterprise Linux installation process loads a selection of software that is suitable for a system deployed as a basic server. Note that this installation does not include a graphical environment. To include a selection of software suitable for other roles, click the radio button that corresponds to one of the following options:

Basic Server: This option provides a basic installation of Red Hat Enterprise Linux for use on a server.

Database Server: This option provides the MySQL and PostgreSQL databases.

Web Server: This option provides the Apache web server.

Enterprise Identity Server Base: This option provides OpenLDAP and Enterprise Identity Management (IPA) to create an identity and authentication server.

Virtual Host: This option provides the KVM and Virtual Machine Manager tools to create a host for virtual machines.

Desktop: This option provides the OpenOffice.org productivity suite, graphical tools such as the GIMP, and multimedia applications.

Software Development Workstation: This option provides the necessary tools to compile software on your Red Hat Enterprise Linux system.

Minimal: This option provides only the packages essential to run Red Hat Enterprise Linux. A minimal installation provides the basis for a single-purpose server or desktop appliance and maximizes performance and security on such an installation.

Select PHP and Web Server to installation (Fig. 3.19).

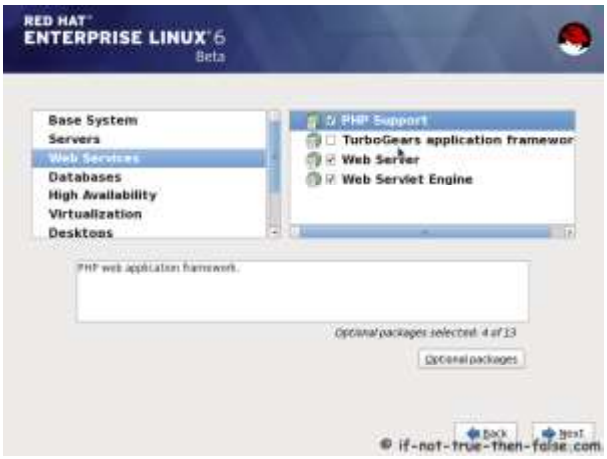


Fig. 3.19

Select MySQL and PostgreSQL Databases (Fig. 3.20).

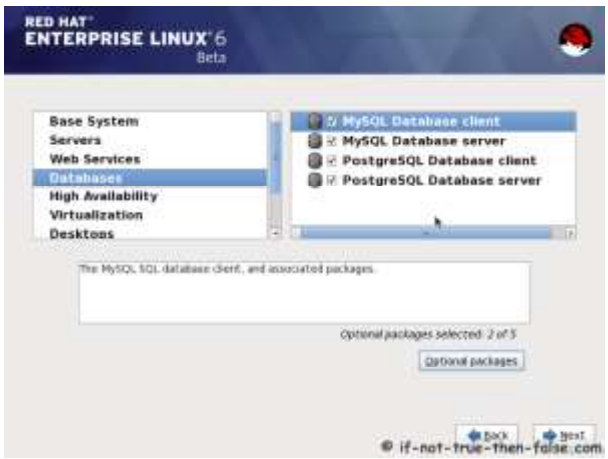


Fig. 3.20

Select set of Development tools like Eclipse IDE (Fig. 3.21).



Fig. 3.21

19. Checking dependencies for installation (Fig. 3.22).

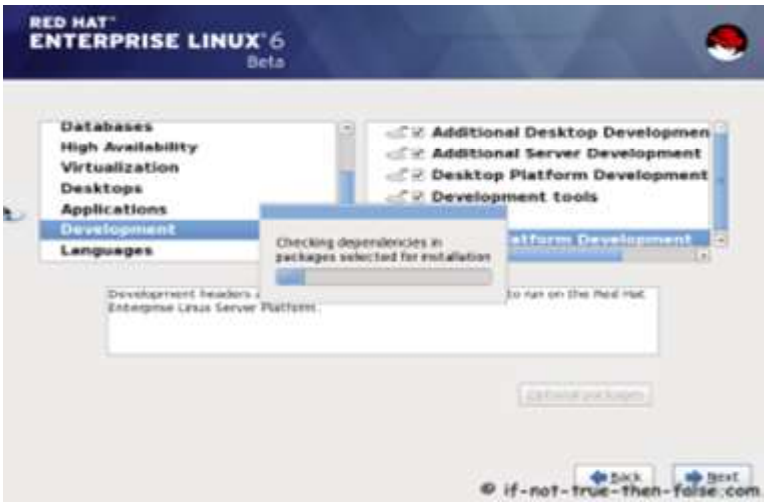


Fig. 3.22

20. Starting installation process (Fig. 3.23).



Fig. 3.23

21. Installing packages (Fig. 3.24 & 3.25).



Fig. 3.24



Fig. 3.25

22. Installation is complete (Fig. 3.26).

Click reboot computer and remove installation media.



Fig. 3.26

3.6 INSTALLING AND CONFIGURING SOFTWARE IN LINUX

The standard Linux package format is called RPM. RPM stands for Red Hat Packet Manager. It is originally developed by Red Hat and widely used in the Linux community Distributions which include Fedora, Mandriva, Red Hat (naturally), and SUSE. An RPM package file normally will be named something like program-version-other.rpm. Another popular package format is DEB, the Debian software package. Debian packages and the Advanced Packaging Tool (APT) have introduced several advanced features such as automatic dependency resolution and signed packages. Debian packages are used by Debian GNU/Linux, and distributions based on it, including Ubuntu, Knoppix, and Mepis. A Debian package file is normally named something like program-version-other.deb. It is to be noted that to install software packages, user needs to become SuperUser.

3.6.1 Debian, Ubuntu: apt

There is an array of tools for working with DEB packages, but the one the commonly used is apt-get, arguably the easiest of Linux package management tools. apt-get is easy to use because it not only keeps track of what packages are installed, but also what other packages are available. We can install software package by the following way.

apt-get install ${packagename}

To remove any software package, we can use the following.

apt-get remove ${packagename}

Although the repositories that contain installable packages might live on the Internet or on a disc somewhere, APT keeps a local database on your hard drive with a list of all available packages and where to find them. This database needs to be explicitly updated which is done in the following way.

apt-get update

Moreover, upgradation of all the packages that have patches or security updates is also required. The following command will do this all at once.

apt-get update

apt-get upgrade

3.6.2 Fedora, Red Hat: yum

Like what apt-get does for Debian packages, yum does for RPM packages. yum can download and install software packages from a configured repository by the following way.

yum install ${packagename}

Software can be removed by using the following command.
yum remove ${packagename}

yum does not keep a local copy of your package database by default, so normally there is no need to update it. To install all available security patches and bug fixes, use the following command:

yum update

We can also explicitly update a single package in the following way:

yum update ${packagename}



CHECK YOUR PROGRESS

Q 5: Linux cannot be installed on Direct access storage devices. (State TRUE or FALSE)

Q 6: Which account gives you total control of the Linux system?

.....

Q 7: Which package group provides MySQL and PostgreSQL databases?

.....

Q 8: Which package group provides OpenOffice.org productivity suite?

.....

Q 9: What needs to be installed to boot the system without boot media?

.....

Q 10: What is the command to install software in Debian?

.....

3.7 INSTALLING THE UBUNTU 20.04

Ubuntu 20.04 was released on April 23, 2020 and it is known as a Long-Term Support (LTS) release, meaning that it can receive support and updates until April 2025. Ubuntu 20.4 offers some new features which include the following.

- **Linux Kernel 5.4 -** This version of the Linux kernel adds support for a wider range of processors. It also includes improvements for boot speed, power-saving, and USB-C, plus several security features.
- **Gnome 3.36 -** Gnome has been updated and improved. System animations should be smoother and have a lower impact on CPU usage.
- **ZFS 0.8.3 file system -** Improved performance and native encryption.
- **Dark theme**
- **Redesigned login screen**
- **Newer versions of popular programming languages -** Supports the languages like Python 3.8, OpenJDK 11, PHP 7.4, Glibc 2.31, GCC 9.3, Ruby 2.7.0, Perl 5.30, Golang 1.13.

To install Ubuntu 20.04 in a computer system, the following requirements are essential:

- 2 GHz dual-core processor
- 4 GB memory
- 25 GB available disk space for storage
- DVD drive or USB port
- At least a 4GB USB drive

Steps involved to install Ubuntu 20.04 are as follows.

Step 1: Download the Installation Media

1. In a web browser, visit the Ubuntu download page and pick the Ubuntu version suitable for your machine. The most popular versions

include:

- Ubuntu Desktop
- Ubuntu Server
- Ubuntu Derivatives

2. Once you find the version you need, click the green Download button (Fig. 3.27). It will take back to a thank-you page, and download will start. The downloaded file will be an ".iso" file. You can use it to create a bootable USB drive.

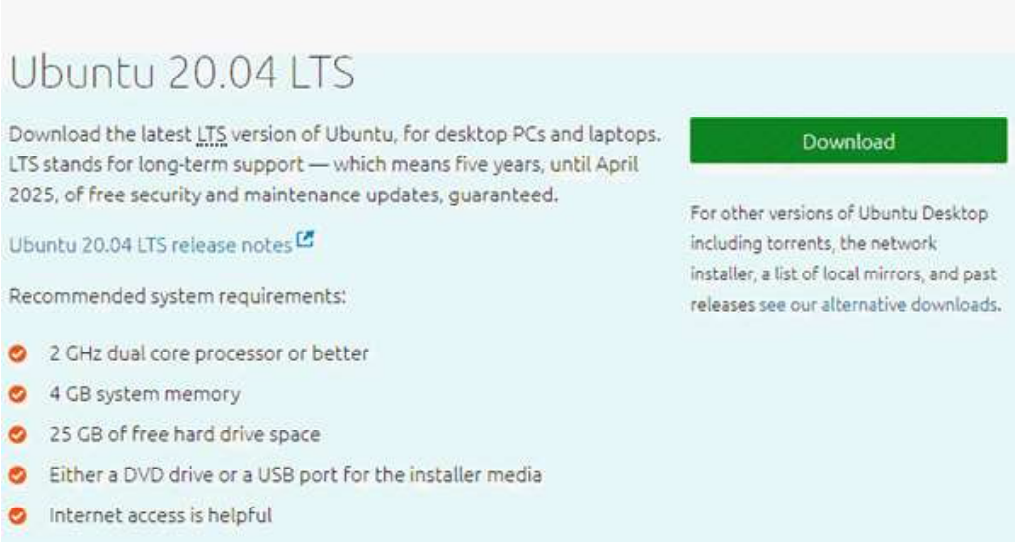


Fig. 3.27

3. Save the file to a location of your choice.

Step 2: Create Bootable USB

You will need a USB drive with 4GB or more. This process will delete all data on the USB drive. Make sure to backup any existing data on the USB drive.

Option 1: Create a Bootable USB Drive on Ubuntu

Use the Create Start-up disk tool:

- Open a search dialog, and type create startup.
- If it's not installed, the Software Center will offer the option to install it - choose the option for USB drive, then open the utility.
- In the top pane, click Other, then browse and select the Ubuntu 20.04 .iso file you downloaded.
- In the bottom pane, select your USB drive.

- Click Make startup disk.

Option 2: Create Bootable USB Drive on Windows

You'll need to install a third-party utility called Rufus to create a USB bootable drive.

1. Download the Rufus utility. Scroll down to the download section and click the link to download the latest version of Rufus (Fig. 3.28).



Fig. 3.28

2. Run the file once downloaded.

3. A pop-up dialog opens. You will be prompted whether you want to check for online updates. Select No. See fig. 3.29.

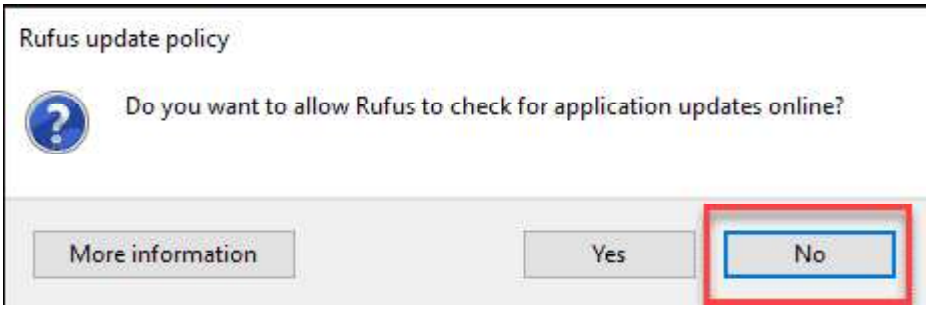


Fig. 3.29

4. The Rufus utility launches. Plug in the USB drive - you should see the drive pop up in the device field (Fig. 3.30).

- Set the USB as the device you wish to write to.
- In the Boot Selection drop-down, click Disk or ISO Image.

- Click the Select button to the right.
- Browse and select the .iso Ubuntu file you downloaded earlier.

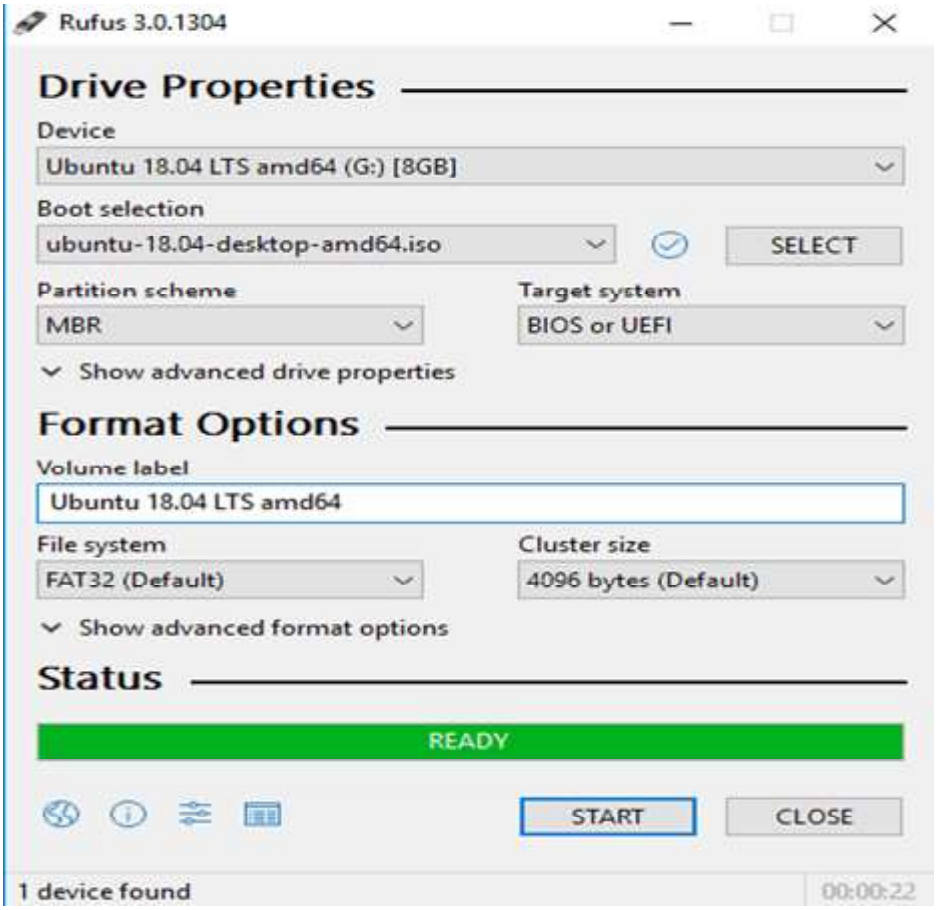


Fig. 3.30

5. Click Start.

Step 3: Boot up Ubuntu from USB

1. Turn off your system. Make sure you remove all other USB devices, such as printers, memory cards, etc.

2. Insert the Ubuntu USB drive into the system and turn on your machine.

There are two possible scenarios:

- The computer boots the USB drive automatically.
- You need to manually configure USB booting in the Boot Menu or BIOS/ UEFI.

3. To manually configure the boot order, tap the boot menu key about once or twice per second as soon as the computer powers on.

The boot menu key may be different depending on your computer manufacturer. Below is a list of common boot keys associated to a brand (Table 3.2):

Asus	F8 or Esc
Acer	F12, F9 or Esc
Compaq	F9 or Esc
Dell	F12
Fujitsu	F12
HP	F9 or Esc
Lenovo	F8, F10 or F12
Samsung	F2, F12 or Esc
Toshiba	F12

4. Once you see your boot menu, use the arrows to pick the Ubuntu media to boot from. For a DVD, the entry will usually have DVD or Optical in the name. USB is usually labelled USB.

Your system should start loading the Ubuntu live disc menu.

Step 4: Run Ubuntu

You can test Ubuntu 20.04 before you commit to installing it. The .iso includes a live mode that only runs in memory.

Launch this mode by clicking Try Ubuntu. See fig. 3.31.

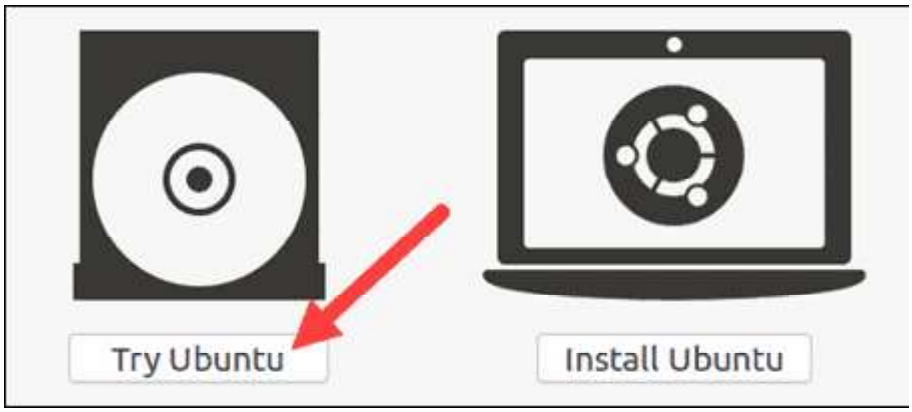


Fig. 3.31

Step 5: Install Ubuntu 20.04 LTS Desktop

To begin the installation, click Install Ubuntu (Fig. 3.32).

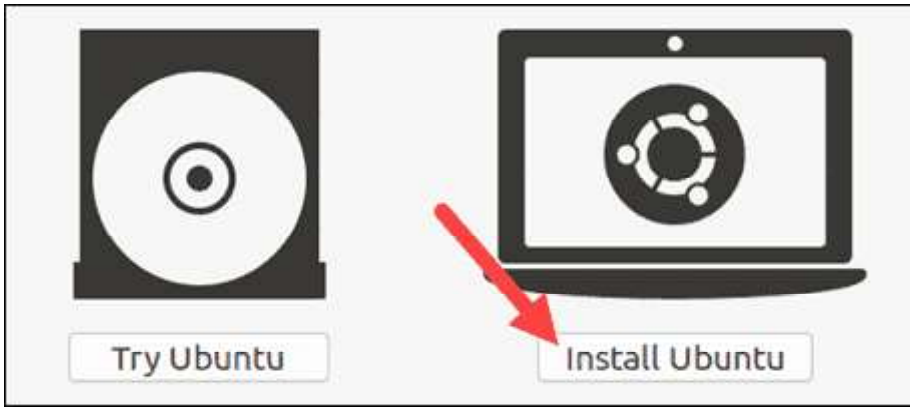


Fig. 3.32

Choose Keyboard Layout

By default, the system will select English (US).

If you have a non-standard keyboard, you can select it in the list. Alternately, click Detect Keyboard Layout and the system will automatically choose your keyboard. If you need to test your keyboard, use the labelled field.

When you're ready, click Continue. See fig. 3.33.

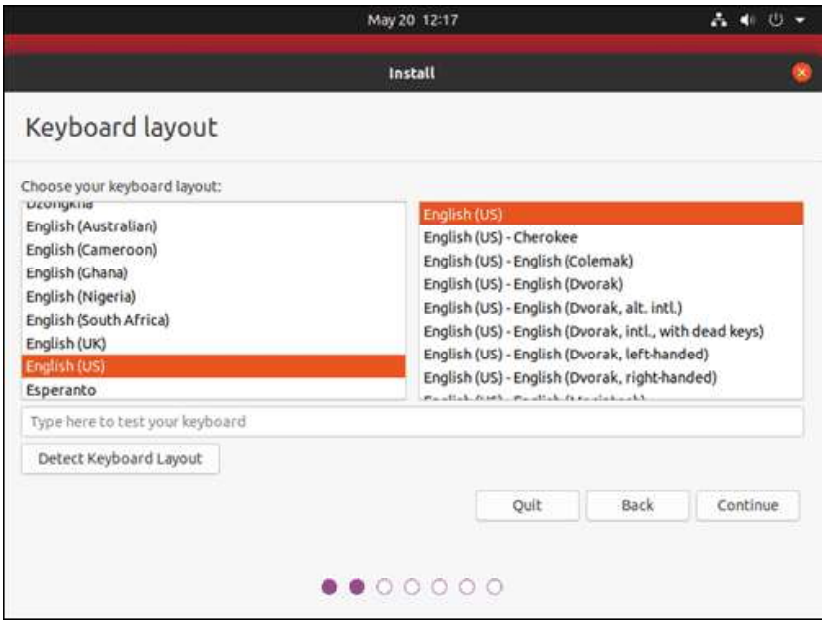


Fig. 3.33

Choose Starting Applications

- **Normal Installation -** This is the full Ubuntu Desktop experience, with office software, games, and media players.

- **Minimal Installation -** Choose this to save disk space, especially if you won't be using media players or productivity software.
  You will also be asked to confirm other options:
- **Download updates while installing Ubuntu -** This does the work of downloading large package files during the installation. Once the installation finishes, the packages will be ready to apply as updates.
- **Install third-party software for graphics and Wi-Fi hardware and additional media formats -** Some hardware, like graphics cards and wi-fi cards, do not have open-source driver support. Also, some media formats, such as ".wmv", do not fall under the GPL license. If you need support for these, you'll need to agree to additional terms of use.

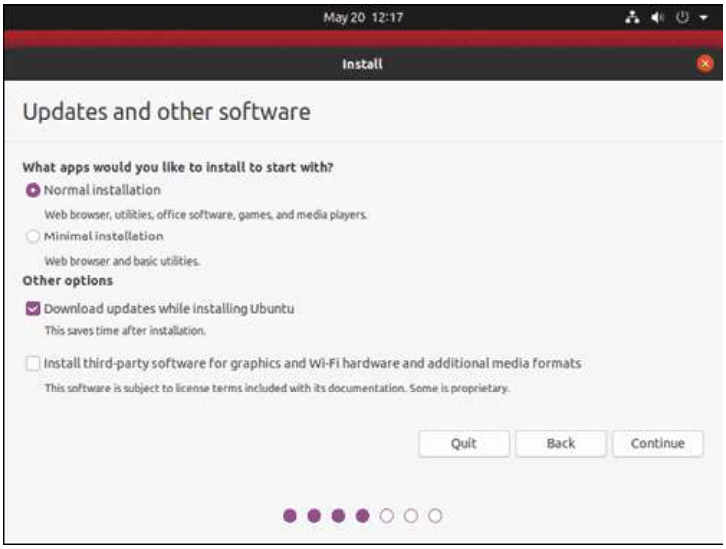


Fig. 3.34

Disk Partitioning

Next, an Installation Type dialog will appear. You can wipe the hard drive clean prior to installing Ubuntu by clicking Erase disk and install Ubuntu. If you go way, skip ahead to the next step.

Advanced users may want to edit Advanced Features. Use this to specify your own disk partitions or set other advanced options:

- **Use LVM with the new Ubuntu installation:** LVM stands for Logical Volume Management. This is a tool for dynamically managing different virtual drives on your system. It's much like an enhanced version of the gparted tool.

- **Encrypt the new Ubuntu installation for security:** This will encrypt the drive's contents. You'll choose a security key, which will be required to decrypt and use the drive.
- **Experimental: Erase disk and use ZFS:** ZFS refers to Zettabyte File System, but it has grown into a hybrid file system and volume manager. Since it's still being tested, avoid this setting on mission-critical production systems.

If you'd rather create your own hard drive partitions, click Something Else.

The next screen will allow you to create your own partition table and logical drives. This lets you divide a physical hard drive into different partitions. The operating system sees partitions as individual drives.

Note: Some users create their /home directory on a separate partition. If the operating system needs to be reinstalled, the partition with the /home directory is unaffected.

Click Continue to apply your changes to the drive partitions.

You'll be asked to Write changes to disks? None of the options you've selected are permanent until you click Continue on this screen. Click Continue to proceed.

Select Time Zone

Once the system formats the disk partitions, the installer will ask Where are you?

Type the nearest large city into the box, and the system will set your local time zone.

Click Continue.

Create User Account

Next, you'll need to configure a user account. Fill in the following fields:

- Name: Your actual name.
- Computer name: This is the hostname or network name.
- Username: The user account name you want to use.
- Password: Enter and confirm a strong password - the installer will automatically evaluate your password strength.

- **Log in automatically:** This is not recommended for publicly accessible servers.
- **Require my password to log in:** This is recommended for publicly accessible servers.

Click Continue to install Ubuntu.

Once the installer finishes, remove the Ubuntu installation media. You'll be prompted to Restart Now (Fig. 3.35).

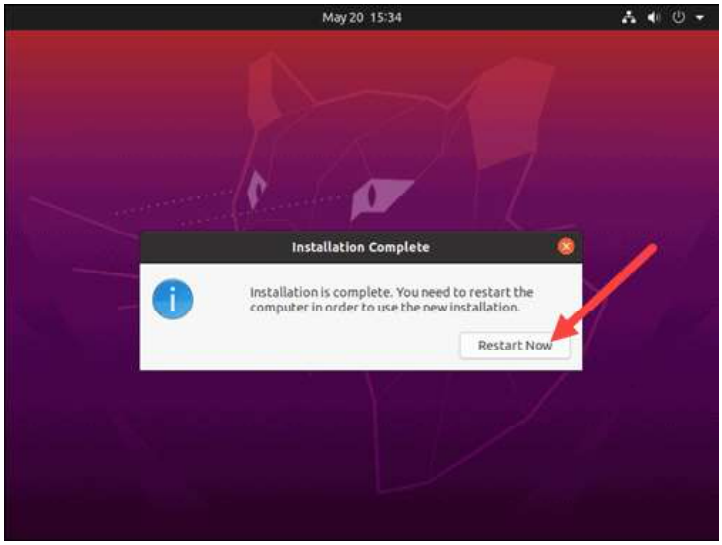


Fig. 3.35

The system should boot into your fresh install of Ubuntu 20.04.



3.8 LET US SUM UP

- Both Red Hat Enterprise Linux versions on both 32-bit and 64-bit platforms need the same system requirements for installation: Pentium 4 or higher CPU of 2Ghz or higher speed, 1 GB minimum RAM and 4 GB minimum hard disk.
- A hard disk can be divided into several partitions. Each partition functions as if it were a separate hard disk.
- The information about how a hard disk is partitioned is stored in its first sector which is named as the master boot record (MBR) of the disk; this is the sector that the BIOS reads in and starts when the machine is first booted.

- For a proper Linux installation in a single-user desktop system, three partitions are recommended: swap, root, and home. The swap partition is the space on the hard drive that can be used as virtual memory. Virtual memory allows the computer to run large programs and perform complex tasks even if it does not have enough physical RAM to do the job.
- The root (/) partition is the top of the directory tree and contains Linux and everything that are installed with Linux.
- The home directory is the place where all the user-specific files are stored. On a multi-user system, each user will have their own directory under/home.
- We can install Red Hat Enterprise Linux on a large variety of storage devices- either basic or specialized storage devices. Basic Storage Devices include hard drives or solid-state drives connected directly to the local system. Specialized Storage Devices include Storage area networks (SANs), Direct access storage devices (DASDs), Firmware RAID devices and Multipath devices.
- The root account is used to install packages, upgrade RPMs, and perform most system maintenance. Logging in as root gives us complete control over your system.
- By default, the Red Hat Enterprise Linux installation process loads a selection of software that is suitable for a system deployed as a basic server.
- To boot the system without boot media, we usually need to install a boot loader. A boot loader is the first software program that runs when a computer starts. It is responsible for loading and transferring control to the operating system kernel software. The kernel, in turn, initializes the rest of the operating system.
- To install packages on Debian and Ubuntu Systems the command apt-get install ${packagename} is used. To remove software, we must use apt-get remove ${packagename}.
- To install packages on Fedora and Red Hat Linux systems, the command yum install ${packagename} is used.



3.9 FURTHER READINGS

1) Das, S. (2012). Your UNIX/Linux: The Ultimate Guide. (Third Edition). (Science/Engineering/Math). McGraw-Hill.
2) Negus, C. (2012). Linux Bible. (Vol. 772). John Wiley & Sons.



3.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: minimum 1 GB RAM and minimum 4 GB hard disk.

Ans to Q No 2: MBR is the sector that the BIOS reads in and starts when the machine is first booted.

Ans to Q No 3: swap, root, and home.

Ans to Q No 4: root

Ans to Q No 5: FALSE

Ans to Q No 6: root

Ans to Q No 7: Database Server

Ans to Q No 8: Desktop

Ans to Q No 9: boot loader

Ans to Q No 10: apt-get install ${packagename}



3.11 MODEL QUESTIONS

Q 1: What are the system requirements for installing Red Hat Enterprise Linux?

Q 2: What are partitions? What are extended and logical partitions?

Q 3: What are the different recommended partitions for a proper Linux installation in a single-user desktop computer?

Q 4: What are the different kinds of storage devices where Linux can be installed?

Q 5: What are the different options available in the Disk Partition Setup of Linux installation?

Q 6: What are the different package groups available during Linux installation?

Q 7: What are the system requirements for installing Ubuntu 20.04?

Q 8: Mention the steps of installing Ubuntu 20.04?

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