Basics of Ubuntu

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1 Ubuntu's File System Structure

Ubuntu uses the Linux file system, which is based on a series of folders in the root directory. These folders contain important system files that cannot be modified unless you are running as the root user or use **sudo**. This restriction exists for both security and safety reasons; computer viruses will not be able to change the core system files, and ordinary users should not be able to accidentally damage anything vital.

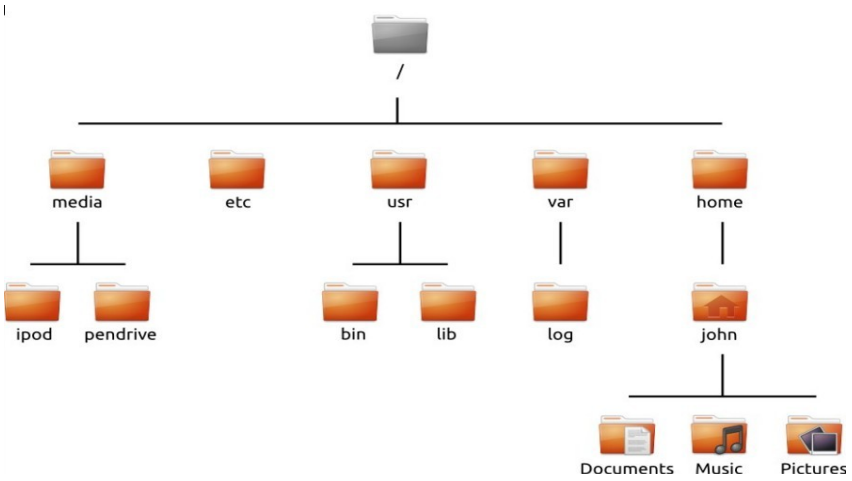

Figure 1: Ubuntu File System

At the top of the hierarchy is the root directory which is denoted by / . The root directory contains all other directories and files on your system. Below the root directory are the following essential directories:

- **/bin** and **/sbin** Many essential system applications (equivalent to **C: Windows**).
- **/etc** System-wide configuration files.
- **/home** Each user will have a subdirectory to store personal files (for example,**/home/usman**) which is equivalent to **C:\Users** or **C:\Documents and Settings** in Microsoft Windows.
- **/lib** Library files, similar to .dll files on Windows.
- **/media** Removable media (cd-roms and usb drives) will be mounted in this directory.

- **/root** This contains the root user's files (not to be confused with the root directory).
- **/usr** Pronounced "user," it contains most program files (not to be confused with each user's home directory). This is equivalent to **C:\Program Files** in Microsoft Windows.
- **/var/log** Contains log files written by many applications.

2 Terminal

In order to fully realize the power of Ubuntu, you will need to learn how to use the terminal. Most operating systems, including Ubuntu, have two types of user interfaces. The first is a GUI. This is the desktop, windows, menus, and toolbars you click to get things done. The second, much older type of interface is the command-line interface (CLI). The terminal is Ubuntu's CLI. It is a method of controlling some aspects of Ubuntu using only commands that you type on the keyboard. You can open a terminal by pressing ALT+CTRL+T.

Why would you want to use the terminal?

You can perform most day-to-day activities without ever needing to open the terminal. However, the terminal is a powerful and invaluable tool that can be used to perform many useful tasks you might not be able to accomplish with a GUI. For example:

- Troubleshooting any difficulties that may arise when using Ubuntu sometimes requires you to use the terminal.
- A command-line interface is sometimes a faster way to accomplish a task. For example, it is often easier to perform operations on many files concurrently using the terminal.
- Learning the command-line interface is the first step towards more advanced troubleshooting, system administration, and software development skills. If you are interested in becoming a developer or an advanced Ubuntu user, knowledge of the command-line is essential.

The terminal gives you access to what is called a shell. When you type a command in the terminal, the shell interprets this command, resulting in the desired action. All commands in the terminal follow the same approach: Type a command, possibly followed by some parameters, and press Enter to perform the specified action. Parameters (also called switches) are extra segments of text, usually added at the end of a command, that change how the command itself is interpreted.

3 Commands

A command is a request from a programmer, an operator, or a user to Linux operating system asking that a specific function be performed. For e.g., a request to list all files in your current directory will be the command **ls**

3.1 Syntax of Commands

The general way commands are entered in Linux is as such:

command -option(s)
argument(s)

Here,

- **command:** A command tells the operating system what to do (what action to be performed, copy a file, display a date etc.)
- **option(s):** It tells the way of action to be per- formed. For example, ls command displays directory contents, and -r option tells the way in which the directory should be displayed. Here **-r** displays directory contents in reverse (alphabetically) order.
- **argument(s):** Argument tells that on what objects (file, directory, devices, etc.) the command and its arguments are applied. For example if we need to display all files starting with alphabet a, you will give "**ls a***" and press enter.

4 Basic Commands

Following are some basic commands used in Linux

4.1 ls: list directory

The ls command will show you the list of files in your current directory

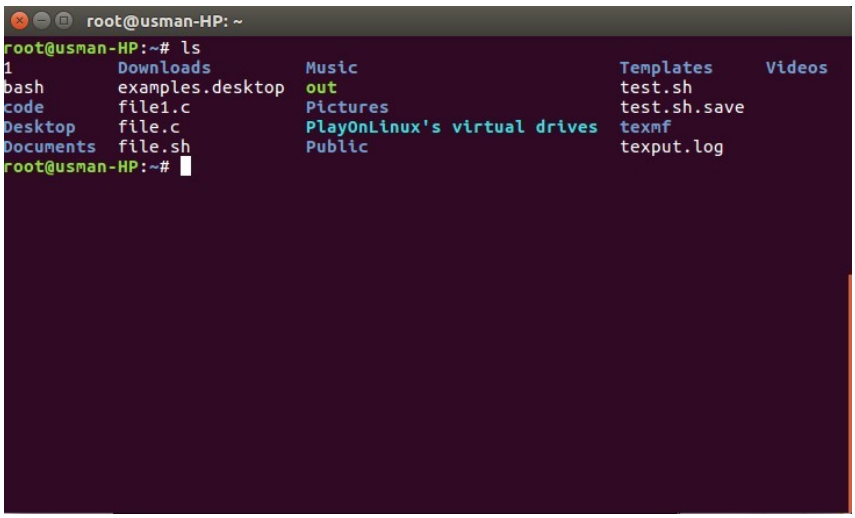

Figure 2: ls command

4.2 cd: change Directory

The cd command will allow you to change directories.

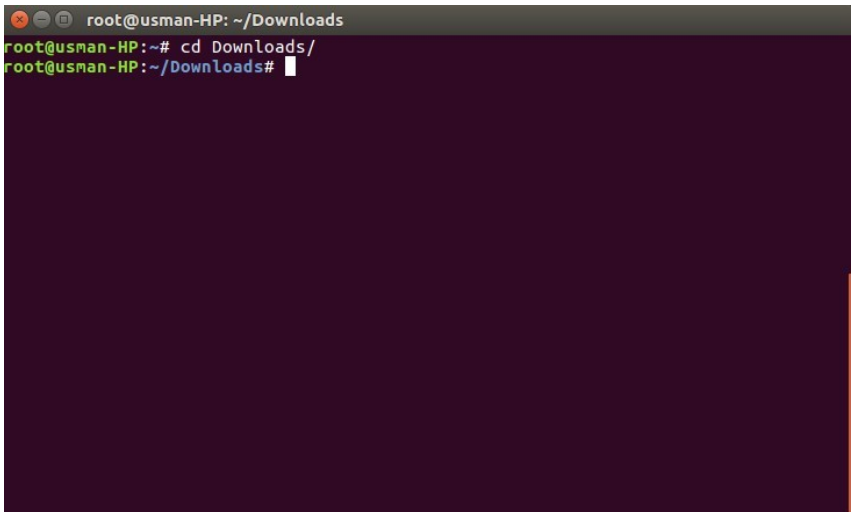

Figure 3: cd command

4.3 cd .. : previous Directory

The cd .. command will let you to go back to previous directory

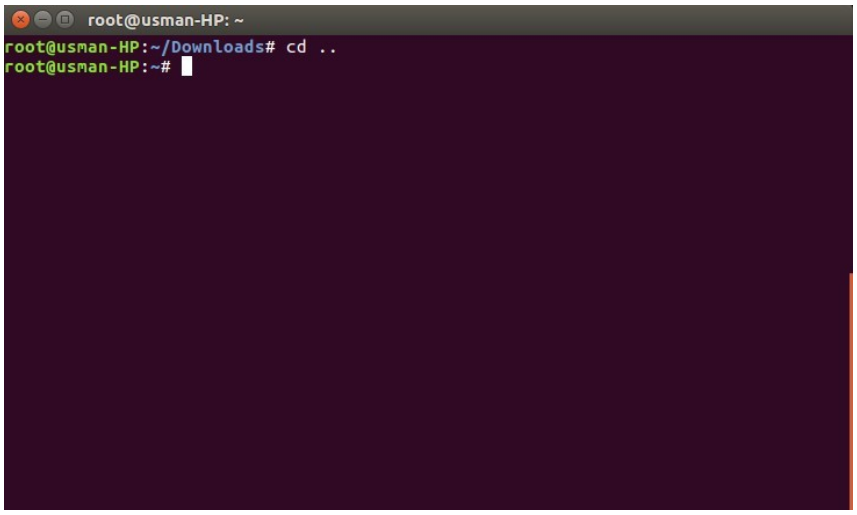

Figure 4: cd .. command

4.4 pwd: print the current/working directory

The **pwd** command will allow you to know in which directory you are currently working

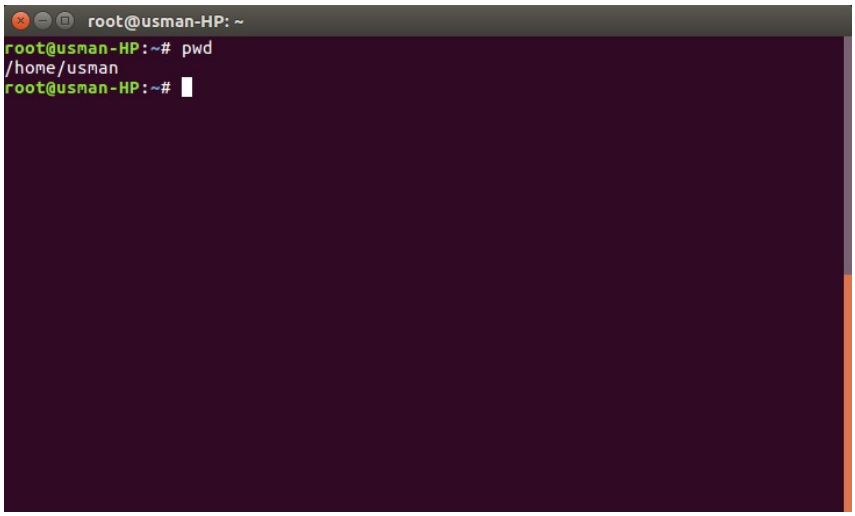

Figure 5: pwd command

4.5 sudo -s: login as a super user

This commands lets you to login as a superuser, i.e., root

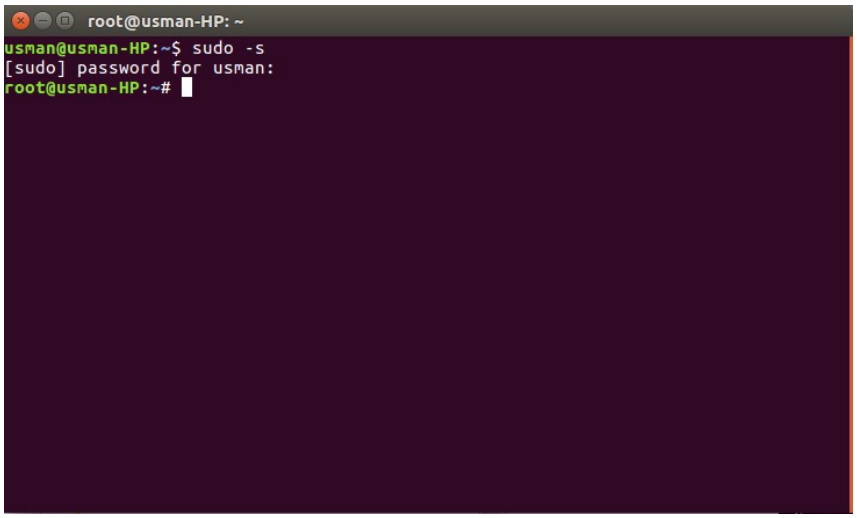

Figure 6: sudo -s command

4.6 adduser: Addition of new user

adduser command will add a new user to the linux user accounts

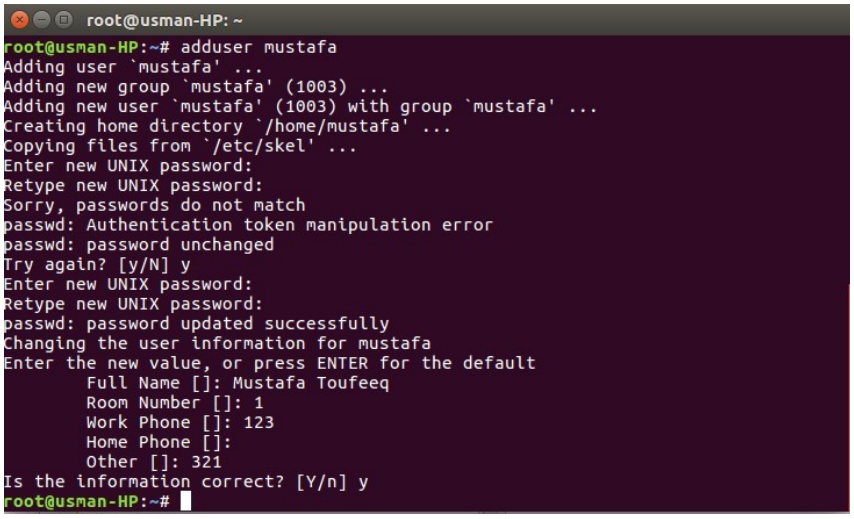

Figure 7: adduser command

4.7 passwd : Change password for user

This command will change the password for a particular user

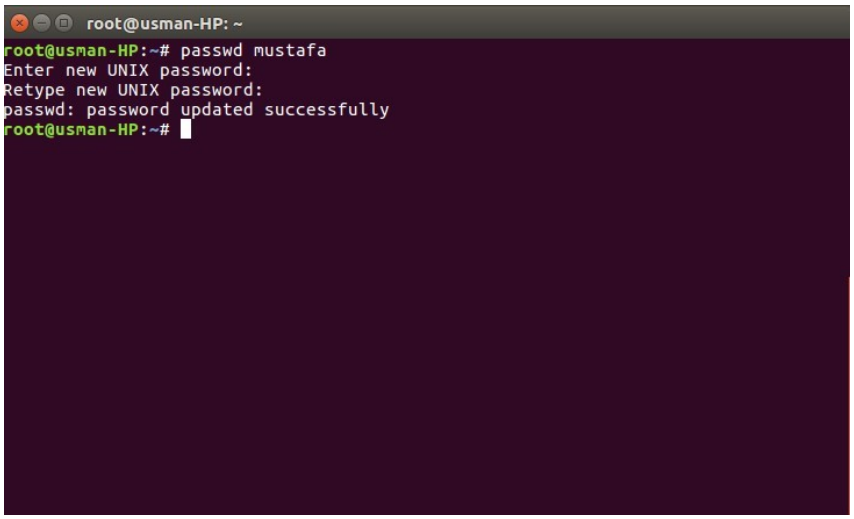

Figure 8: passwd command

4.8 userdel: to delete a user

deluser will delete a user from the linux user accounts

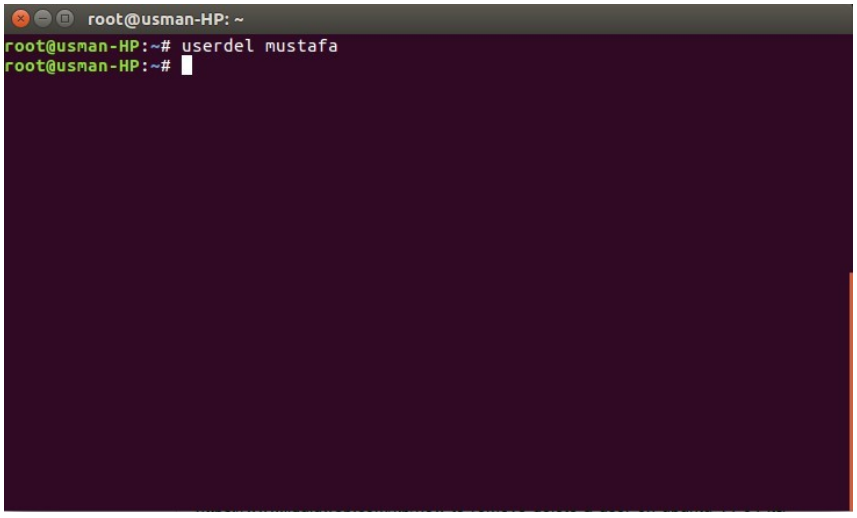

Figure 9: deluser command

4.9 sudo: command

To execute commands with root privileges

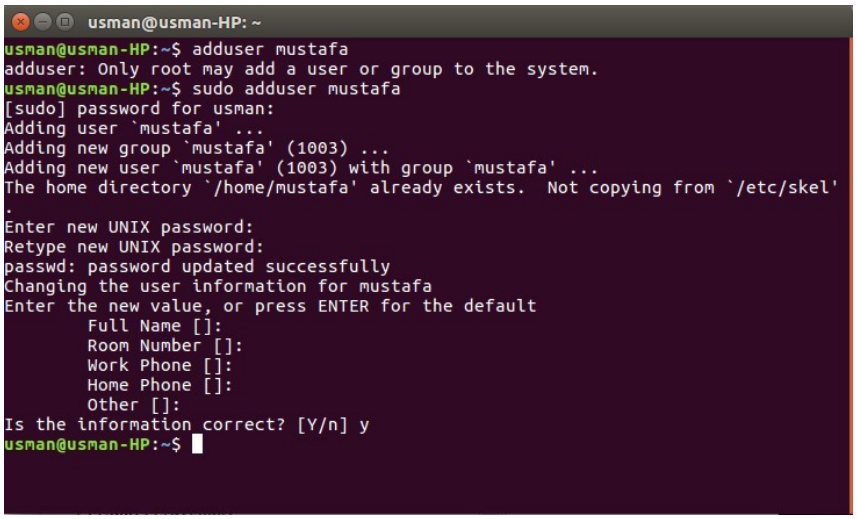

Figure 10: sudo command

4.10 ifconfig – show network information

4.11 iwconfig – show wireless information

5 Your Shell

sh (Bourne shell) is a shell command-line interpreter, for Unix/Unix-like operating systems. The default shell that users get to use when they install linux is the bash. To use, simply specify shell. Bash can be accessed using a number of ways; both locally and remotely.

There are 7 graphical terminals that you can use to interact with your operating system. Imagine these 7 terminals as 7 monitors in front of you. Pressing CTRL+ALT+F1 will take you to the 1st monitor, CTRL+ALT+F2 will take you to the 2nd monitor, and so on and so forth. Each monitor will ask you to enter a user name and password. So in essence you have to login to use each monitor. Of these 7 terminals, 6 are command-line based terminals, whereas the 7th one is GUI based (provided it is installed). Practice working with these terminals.