

Linux

Introduction

Linux is a family of **open source Unix-**like operating systems based on the Linux kernel.

Open source: software and source code available to all.

All modern operating systems have their roots in 1969 when **Dennis Ritchie** and **Ken Thompson** developed the C language and the **Unix** operating system at AT&T Bell Labs.

Linux Distributions



And More...

Linux Features

- Simplified updates for all installed software
- Free Software Licensing
- Access source code
- Multiple distributions
- Better malware protection

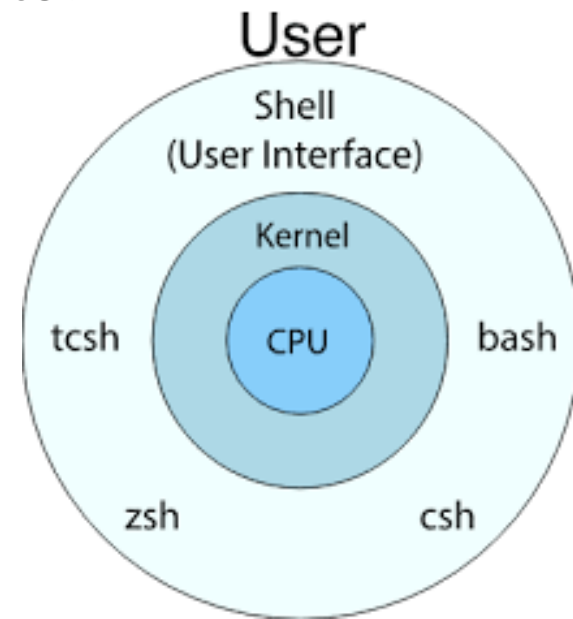
Unix/Linux Shell

What is Shell?

- A **Shell** provides you with an interface to the Unix/Linux system. It gathers input from you and executes programs based on that input. When a program finishes executing, it displays that program's output.
- Shell is an environment in which we can run our commands, programs, and shell scripts.

Shell Prompt

The prompt, \$, which is called the **command prompt**, is issued by the shell. While the prompt is displayed, you can type a command.



Shell Types

In Unix, there are two major types of shells –

- **Bourne shell** – If you are using a Bourne-type shell, the \$ character is the default prompt.
- **C shell** – If you are using a C-type shell, the % character is the default prompt.

The Bourne Shell has the following subcategories –

- Bourne shell (sh)
- Korn shell (ksh)
- Bourne Again shell (bash)
- POSIX shell (sh)

The different C-type shells follow –

- C shell (csh)
- TENEX/TOPS C shell (tcsh)

What's A Terminal?

- It's a program called a *terminal emulator*. This is a program that opens a window and lets you interact with the shell.
- There are a bunch of different terminal emulators you can use.
- Most Linux distributions supply several, such as:
gnome-terminal, konsole, xterm, rxvt,kvt, nxterm, and eterm.

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Basic Commands

Sources to learn commands??

Primary – man(manual) pages.

man <command> shows all information about the command

<command> help shows the available options for that command

whatis - Displays short descriptions of commands, Uses a database that is updated nightly , Often not available immediately after install

info <command> - Similar to **man**, but often more in-depth , Run info without args to list all page , info pages are structured like a web site

Secondary – Books and Internet

Basic commands

Command	Description
date	Today's Date
cal	Calendar
pwd	Displays the current working directory of the terminal
/	Root directory
echo	Writes it argument to standard output
clear	Clear the terminal screen. Contents will not be deleted, but scrolled down

File Handling commands -

ls and cd command

ls	List all the contents of the present working directory
ls path	List all the contents of the specified path
ls -l	List the all the contents with more details like permissions, owner, size, date and time of creation etc.
ls -a	List the all the contents including hidden contents
ls -S	Sort and list all the contents by size
ls *.txt	List only the contents of a particular format

Syntax : cd [option] [directory]

cd	Change the directory to home directory
cd ~	Change the directory to home directory
cd /	Change the directory to root directory
cd ..	Change the directory to its parent directory
cd dir1/dir2	Change the directory to the specified directory

File Handling commands - mkdir and rmdir command

mkdir	creates new directories.
Syntax: mkdir [option] directory_name(s)	
mkdir dir1 dir2	Create two directories within the current directory
mkdir dir1/dir3	Create <i>dir3</i> directory within <i>dir1</i> directory

rmdir	Deletes/removes the specified <u>Empty</u> directories.
Syntax : rmdir [option] directory_names	
rmdir dir2	remove two empty directory named <i>dir2</i> from the current directory
rmdir -p dir1/dir3	remove the directories including parent directory

File Handling commands – cp, mv, rm

cp	copies files and directories
Syntax: cp [options] name new_name	
cp file1 /home/user1/file1	Copy the file with the same name into another directory
cp -i file2 file3 file4 dir1	Interactive mode, copy the files named <i>file2</i> , <i>file3</i> and <i>file4</i> into a directory <i>dir1</i>
cp -u file1 file2	Update <i>file2</i> only when the source file is newer than the destination file.
cp -r dir2 dir3	Copy of an existing directory <i>dir2</i> , inclusive of all its contents called <i>dir3</i>
cp dir6/* dir7	Copy all of the files in a directory <i>dir6</i> into another existing directory <i>dir7</i>
cp *.html dir8	Copy all of the files of a particular format to another directory <i>dir8</i>

mv	renames and moves files and directories.
Syntax : mv [options] source target	
mv file1 file2	Rename a file called <i>file1</i> to <i>file2</i>
mv file3 dir1/file3	Move a file named <i>file3</i> with the same name to another directory
mv * /home/user1/new/	Move all the contents of the current directory to the specified directory

File Handling commands – rm

rm	deletes the specified files and directories
Syntax: rm [options] [-r directories] filenames	
rm f1 f2 f3	Remove the files <i>f1</i> , <i>f2</i> and <i>f3</i> from the current directory
rm -ir dir1	Remove even non-empty directory <i>dir1</i> in an interactive mode
rm -f dir1	remove the specified directory, whether write-protected or not, without prompting the user

Some Useful commands

history	Prints recently used commands
less	used to view files instead of opening the file.
df	reports the amount of space used and available on currently mounted filesystems
du	shows the sizes of directories and files.
free	provides information about unused and used memory and swap space.
touch	change file timestamps, but if the file doesn't exist, then creates it.
cat f1.txt	Display the contents of f1.txt
cat f1.txt f2.txt f3.txt > m1.txt	Merge the contents of multiple files