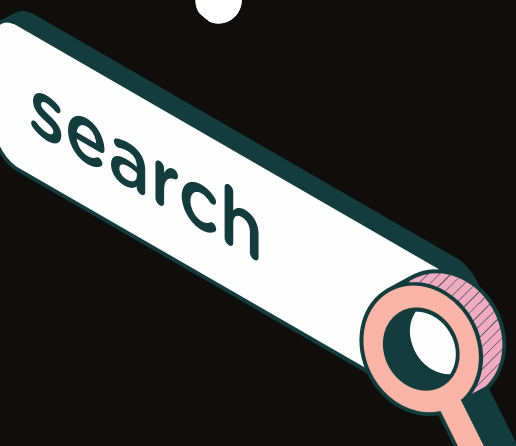
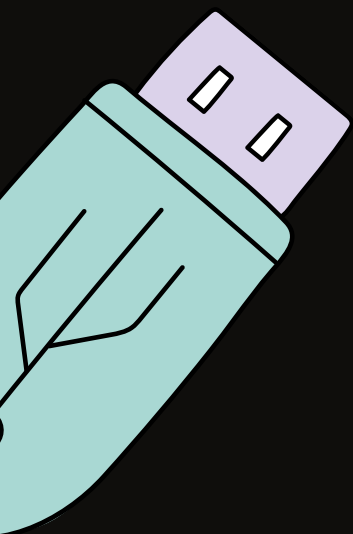


WAP

LEARNING LINUX



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WAP present's LINUX ONLINE

Restart with new binary image: 
15 MiPS

```
[ 1.260000] 9p: Installing v9fs 9p2000 file system support
[ 1.360000] io scheduler noop registered
[ 1.380000] io scheduler cfq registered (default)
[ 1.380000] io scheduler mq-deadline registered
[ 2.360000] Serial: 8250/16550 driver, 4 ports, IRQ sharing disabled
[ 2.380000] console [ttyS0] disabled
[ 2.380000] 3000000.serial: ttyS0 at MMIO 0x30000000 (irq = 2, base_baud = 125
0000) is a 16550
[ 2.400000] console [ttyS0] enabled
[ 2.460000] loop: module loaded
[ 2.500000] NET: Registered protocol family 17
[ 2.500000] 9pnet: Installing 9P2000 support
[ 2.500000] ALSA device list:
[ 2.500000]   #0: Dummy 1
[ 2.520000] VFS: Mounted root (9p filesystem) readonly on device 0:11.
[ 2.520000] devtmpfs: mounted
[ 2.520000] Freeing unused kernel memory: 88K
[ 2.520000] This architecture does not have kernel memory protection.
[ 2.960000] random: fast init done
chmod: /dev/zb0: No such file or directory
~ $ udhcpd: started, v1.26.2
Setting IP address 0.0.0.0 on eth0
udhcpd: sending discover
```

Style: **background**

☐ Dark Mode

What is Linux

Linux is recognised as one of the best operating system in the world because of its simplicity, its ability to run on different machines, open standard design. If we compare Linux with Windows, Linux is more reliable, secure and cheap.

Files

What is Linux

INTRODUCTION

Linux is a reliable, multiuser and secure operating system. Linux implemented the concept of cross platform standardisation, due to which you can find Linux on massive mainframes, on distributed clusters, on PCs, on Apples, on tablets, on smartphones, on wristwatches, in automobiles etc.

Linux continues to dominate web and application hosting landscape.

While Linux is adored by academicians, Linux has a great commercial domination. Linux is open source unlike other UNIX clones.

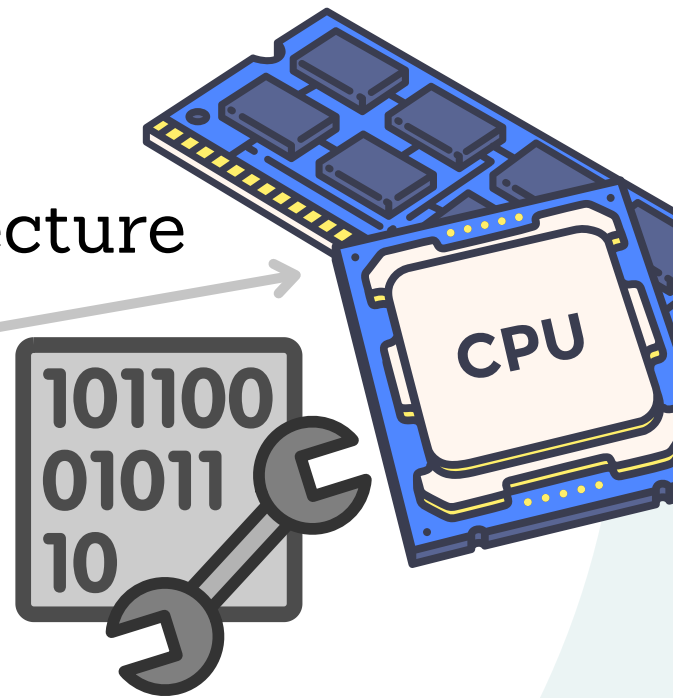
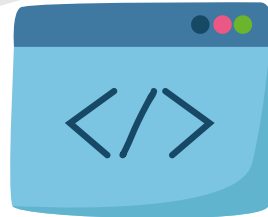
Linux is recognised as one of the best operating system in the world because of its simplicity, its ability to run on different machines, open standard design. If we compare Linux with Windows, Linux is more reliable, secure and cheap.



BASIC STRUCTURE OF LINUX

Linux System Architecture

1. Hardware layer
2. Kernel
3. Shell
4. Utilities



Hardware layer

This layer is not part of UNIX operating system. This layer consists of all peripheral devices like RAM, hard disk, CPU.

KERNEL

Kernel is the core component of Operating System where actual code and functionality of operating system lies. The kernel interacts with the hardware layer and provides services to user. If a user program/ application needs to access the hardware, it ask's kernel, which performs the job on user behalf. The user programs access the kernel through a set of functions called system calls.

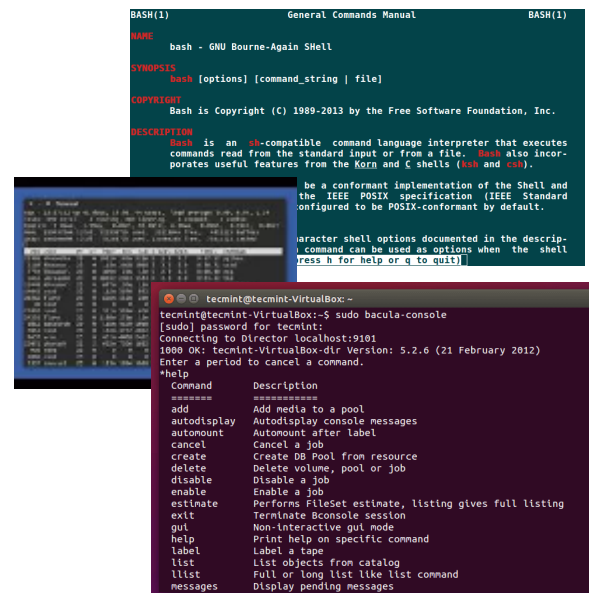
kernel handles the following operations

- Scheduling running of user and other processes.
- Allocating memory.
- Managing the swapping between memory and disk.
- Moving data to and from the peripherals.

It receives service requests from the processes and honours them. All these services are provided by the kernel through a call to a system utility(command shells as we will see later).

Shell

An interface for the user through which he can interact with the operating system. A shell environment allows you to run commands, programs, and shell scripts.



The image shows three overlapping terminal windows. The top window displays the 'General Commands Manual' for 'bash', including its name, synopsis, copyright, and description. The middle window shows a list of system utilities with their descriptions. The bottom window shows a terminal prompt where the user has entered 'sudo bacula-console' and is seeing the output of the command.

```
BASH(1)                                General Commands Manual                                BASH(1)

NAME
  bash - GNU Bourne-Again Shell

SYNOPSIS
  bash [options] [command_string | file]

COPYRIGHT
  Bash is Copyright (C) 1989-2013 by the Free Software Foundation, Inc.

DESCRIPTION
  Bash is an sh-compatible command language interpreter that executes
  commands read from the standard input or from a file. Bash also incor-
  porates useful features from the Korn and C shells (ksh and csh).

  Bash is a conformant implementation of the Shell and the IEEE POSIX
  specification (IEEE Standard on POSIX-compliant shell options docu-
  mented in the description of the shell options can be used as options when the shell
  is invoked with the -o option. Press h for help or q to quit).
```

```
tecmin@tecmin-VirtualBox:~$ sudo bacula-console
[sudo] password for tecmin:
Connecting to Director localhost:9101
1000 OK: tecmin-VirtualBox-dir Version: 5.2.6 (21 February 2012)
Enter a period to cancel a command.
*help
Command      Description
-----
add           Add media to a pool
autodisplay  Autodisplay console messages
autounmount  Automount after label
cancel       Cancel a job
create       Create DB Pool from resource
delete       Delete volume, pool or job
disable      Disable a job
enable       Enable a job
estimate     Performs Fileset estimate, listing gives full listing
exit         Terminate Bconsole session
gui          Non-interactive gui mode
help         Print help on specific command
label        Label a tape
list         List objects from catalog
llist        Full or long list like list command
messages     Display pending messages
```

Utilities

Utility programs are the commands that perform a single task like printing date and time or searching a file in given directory. Different commands can be combined.



Files

The file structure in Linux is very similar to other operating system called as tree structure

Lets learn about the file structure with some commands.

Follow along the instructions in this lesson

First click on Learn Linux in the Home page and let the page load out
Now for your first command type `<..cd>` twice

Now to too look at file type

Cool right ?!, these are file of the Linux system and you can go and explore them by using the above commands where `..cd` is used to go back, and `ls` is used to display or list the files. you can use `cd` (Enter the filename) to open the files

```
WAP
1 .. cd
```

```
WAP
1 .. cd
```

```
WAP
1 ls
```

```
WAP
1 cd {FileName}
```

Clear

This will clean all the clutter above

```
clear
```

CAT

Refresh the page cuz now we will look how to display files with CAT. The three basic functions of cat are: displaying files, combining copies of them and creating new ones

File Creation

```
cat > filename
```

Displaying Files/Reading Files

```
cat filename
```

Copy Original to copy file

```
cat filecopy >filename
```

Disk Related command

How do I check free disk space in Linux operating system? UNIX offers two commands for checking out free disk space:

(a) df command Report file system disk space usage.

(b) du command: Estimate file space usage.

Vi Editor

To make a txt file

Type the 'vi' command with a file name like its given below and then the vi cmd open's up that let you type what you want. After typing press escape and type the next command ':wq'. Now to check type cat filename.

```
WAP
1 $ Clear
```

```
WAP
1 cat > {filename}
```

```
WAP
1 cat {fileName}
```

```
WAP
1 cat {Original fileName} > {Copy filename}
```

```
WAP
1 df
2 df-h // more details
3 du
4 du-sh // space used
```

```
1 $ vi {filename}
2
3 -----VI-----
4 ~/type some thing her
5 ~/
6 ~/
7 ~/
8 ~/
9 ~/
10 ~/
11 ~/
12 :wq // press Esc and then the CMD to Save and Quit
13 -----VI-----
14 $ ls
15 filename
16
17 $ cat filename
18         type some thing here
19 $
20 $
```



Bonus cmd!

to check web connection

PING (WEBSITE NAME)

PING 1.1.1.1

Example

WANT TO KNOW MORE ABOUT SYSTEM YOU ARE USING

UNAME

COMMAND FOR SYSTEM INFO

uname -s

uname -m

uname -a

Example