

Introduction to Unix/Linux OS:-

Linux is clone of Unix OS:-

It is CUI based OS. Linux is the clone of Unix OS. It was offered by Sun Microsystems and free of cost downloaded from website of Sun microsystem. It was very popular in the late 1980. Linux may run on Intel 386 microprocessors.

Feature:-

- ❖ Linux is Fast.
- ❖ Linux is stable.
- ❖ It is open Source S/w.

Drawbacks of Linux:-

- ❖ Security
- ❖ Lack of Support:-It support and documentation for Linux can be spotty and best. A customer who downloads Linux from a server may receive only electronic manuals and access to online help pages.
- ❖ Limited S/w selection choice:-It choice StarOffice rather than MS Office.
- ❖ Limited H/W support:-It needed driver for related H/W such as printer, MODEM, Speaker etc.
- ❖ Complexity:-Commands used in linux is same as to unix. It is predecessor of Linux. Commands are case sensitive.

Components of Linux:-

- ❖ **Memory management subsystem:-It includes**
 - Large Address spaces
 - Protection
 - Memory mapping
 - Fair physical memory allocation
 - Shared virtual memory
- ❖ **Linux Process and Thread management:-**Processors carry out tasks within the OS. A running state of program is called process. A program is a set of machine codes instructions and data stored in an executable image on disk. Linux is multiprocessing OS which support many processes running in parallel. Functional area of process
 - State
 - Running
 - Waiting
 - Stopped
 - Zombine:-It is halted process.
 - Scheduling information:-The scheduler needs to select next job for process
 - Identifiers:-Every process in the system has process identifier.
 - Links:-Every process in Linux must be associated with pointer.
 - File System:-Processes can open and close files as they includes pointers to any files opened by this process
 - Virtual memory:-This memory needed for allocating large program into small size of memory for processing
- ❖ **File management Subsystem:-**Linux must manage of files of LINUX OS.
- ❖ **Device drivers:-**It is the major part of the Linux kernel. (It provides interface between shell and H/W).

Commands Used In Linux:-

login : <login_name>
password: <password_name>

who:-

This command displays all logins users.

who am i:-

This command displays information about us.

cal:- This command display calendar.

```
$cal 2012
```

```
$cal 3 2012
```

date:-

This command display date of system

```
$date
```

time:-

This command display time of system

```
$time
```

touch:-

This command is used for creating empty files

```
$touch <file_names>
```

```
$touch file1 file2 file3 file4
```

cat:-it is used for adding contents into file and reading existing file.

```
$cat > file1
```

```
.....
```

```
.....
```

```
.....
```

```
ctrl+d
```

note:-ctrl+d is used for save.

```
$cat file1
```

To see the contents of file.

cat:-It is also used for concatenating two or more files.

```
$cat file1 file2 file3>file4
```

ls:-This command is used for displaying list of files and commands.

```
$ls
```

```
$ls-a It is used for display only hidden files.
```

ls command using wild card:-

* Remaining all characters

? Only one character

```
$ls a* It display list of only those files which must begin with character 'a'
```

```
$ls ?a* It display list of only those files which first character begin with any character and second must be character 'a' and remaining are any characters.
```

```
$ls a*d It display list of all those files which begin with character 'a' and ended with character 'd'.
```

```
$ls [aeiou]* It display list of all those files which must begin with vowel character
```

`$ls [!aeiou]*` It display list of all those files which must not begin with vowel character.

`$ls [a-f][a-m][c-k]*` It display list of all those files which first character begin any one from 'a' to 'f', second character begin any one from 'a' to 'm', third character begin any one from 'c' to 'k' and remaining are any characters.

`$ls-l` This command display all the details about the files and directories under a particular directory.

chmod command:-

This command is used for setting attributes of files and folders. There are three types of attributes.

r	read	4
w	write	2
x	execute	1

owner member

group member

other member

Example1:-

```
$chmod 741 /home/office/file1
```

or

```
$chmod rwxr__ __x /home/office/file1
```

Example2:-

```
$chmod 777 /home/office/file1
```

or

```
$chmod rwx rwx rwx /home/office/file1
```

passwd command:-

This command is used for changing password.

```
$passwd
```

```
Enter Old password *****
```

```
Enter New password *****
```

```
Retype password *****
```

cp command:-

This command is used for copy file and files from one location to another location. It is also used for renaming file

```
$cp <source_file> <target_file>
```

Example:-1

```
$cp /home/d1/Jitendra /home/d1/d2/Jitendra
```

Example:-2

```
$cp /home/d1/Jitendra /home/d1/d2/Meeta
```

rm command:-

This command is used for removing file

```
$rm <file_name>↵
```

Example:-1

```
$rm /home/d1/Jitendra ↵
```

Example:-2

```
$rm -i /home/d1/Jitendra ↵ (File remove interactively)
```

Example:-3

```
$rm -f /home/d1/Jitendra ↵ (File remove forcibly)
```

mv command:-

This command is used for renaming file and folder

```
$mv <Old_file_name> <new_file_Name>↵
```

Example:-1

```
$mv /home/d1/Jitendra Amrita↵
```

Example:-2

```
$mv /home/d1/ office↵
```

pwd command:-

This command is used for displaying current working directory.

Example:-1

```
$pwd↵
```

```
/home/d1/d2
```

mkdir/md command:-

This command is used for creating directory.

```
$mkdir/md <Directory_name>↵
```

Example:-1

```
$mkdir/md office↵
```

rmdir/md command:-

This command is used for removing directory.

Example:-1

```
$rmdir office↵
```

cd command:-

This command is used for entering existing directory.

```
$cd <Directory_name>↵
```

Example:-1

```
$/home/cd office↵
```

```
$/home/office
```

cd.. command:-

This command is used for exit from directory.

```
$/home/office/cd..↵
```

```
$/home/
```

grep command:- “Globally search a regular expression and print it”

This command is used searching a text or text string.

Example:-1

```
$grep "varanasi" /home/d1/d2/file1
```

Example:-2

```
$grep a* /home/d1/d2/file2
```

Example:-3

```
$grep [Aa]* /home/d1/d2/file3
```

lp command:-

This command is used for printing file.

```
$lp /home/d1/file1
```

man command:-

This command is used for provide help of any linux command

```
$man <command_name>
```

Example:-1

```
$man lp
```

Example:-2

```
$man chmod
```

kill command:-

This command is used for stopping running process.

```
$kill <PID>
```

Example:-1

```
$ps (It display process ID)
```

```
$kill 1240
```

write command:-

This command can be used by any user to write something on someone else's terminal.

Example:-1

```
$write /home/user1
```

How are you.

It is very hot today.

ctrl+d

wall command:-

This command is used by superuser to send any message for all logged user.

Example:-1

```
$/etc/wall
```

System shutting down in 20 minutes.

You are advised to take the required backups

ctrl+d

mail command:-

It is pretty command to send message various users.

```
$mail user1 user2 user3 user4
```

```
.....  
.....  
.....  
.....
```

Ctrl+d

vi command:- most important

It is text editor, which is used for writing program in linux environment. It displays a windows we can enter and edit text.

```
$vi <file_name>↵
```

Example:-1

```
$vi file1↵
```

Modes of Operation:-

a:-Command Mode

In this mode all the keys pressed by the user are interpreted to the editor commands.

b:-Insert Mode

This modes permits insertion of new text, editing of existing text or replacement of existing text.

c:-The ex command mode

This mode permits us to give commands at the command line.

Text edit Commands:-

h	moves the cursor one character to the left
i	moves the cursor one character to the right
j	moves the cursor down one line
k	moves the cursor up one line

How to delete text:-

x	Delete one character
nx	Delete n characters., Where n is number of characters.

How to quit from Linux:-

In ex mode type :wq Quit and save textual informations.

In ex mode type :q! Quit and without save textual informations.

Scrolling in Linux:-

ctrl f Scroll the screen forward a full window.

ctrl b Scroll the screen back a full window.

File system in Linux:-

- ❖ dev Device related files.
- ❖ bin Binary executable files.
- ❖ lib Library functions.
- ❖ etc Binary executable files usually required for system administration.
- ❖ tmp Temporary files created by linux or users.
- ❖ home Home directory of all users.
- ❖ /home/bin Additional binary executable files.

Windows 2000 Networking OS:-

It is network operating system built in support for peer to peer and client server networking. It consists of four separate products.

- ❖ Windows 2000 professionals
- ❖ Windows 2000 server

- ❖ Windows 2000 advanced server
- ❖ Windows 2000 data Center server

Feature of Windows 2000 Network OS:-

- ❖ It has an integrated support for network protocol like TCP/IP and IPX/SPX.
- ❖ It support dialup networking
- ❖ Windows 2000 server incorporates MS internet information Server
- ❖ It support a set of security features

Windows 2000 (W2K)OS Architecture:-

It is made of layers. It works in two modes.

- ❖ User Mode :-It is responsible for providing insulation of end users from kernel mode.
- ❖ Kernel Mode :-The aim of kernel is to make the the rest of the OS machine independent, hiding all the low-level details. It support two internal objects 1:-contrl object,2:-dispatcher object
 - It consist of following objects
 - Object manager.(It create,manages and delete W2K executable objects)
 - I/O Manager.
 - Process manager.
 - Memory Manager.
 - Security manager.
 - Cache Manager.(Improve performance of CPU)
 - Windows/Graphics Manager.
 - Local procedure Call manager.(It enforces a C/S relationship within a subsystem in a manner similar to remote procedure call(RPC) facility used for distributed application.

Network Protocols:-

It support following protocols

- ❖ TCP/IP
- ❖ IPX/SPX
- ❖ NETBEUI(Net bios Enhanced User Interface)
- ❖ Data Link Control(DLC)
- ❖ ATM(Asynchronous Transfer Mode)
- ❖ Infrared Data Association(IrDA)

Booting Process/Starting up system:-

It is the process of loading operating system in to main memory of computer.

During booting session, OS checks following components.

- a) Memory Checking.
- b) I/O system Checking.
- c) CPU checking.
- d) Files System checking.

Types of Booting:-

Cold Booting (Initial Starting of Computer System).

Warm Booting (Alt+Ctrl+Del/Direct Restart)/Press Reset Button.

1) Cold Booting:-

When the System Starts from the Starting or from initial State Means when we Starts our System this is called as cold Booting. In the cold Booting the System will be started from its beginning State means first of all, the user will press the Power Button, then this will read all the instructions from the ROM and the Operating System will be automatically gets loaded into the System.

2) Warm Booting:-

The Warm Booting is that in which System Automatically Starts when we are Running the System, For Example due to Light Fluctuation the system will Automatically Restarts So that in this Chances Damaging of system are More. And the System will no be start from its initial State So May Some Files will be Damaged because they are not Properly Stored into the System.

Windows 2000 Server:-

- It is robust network OS It is better than Windows 95 or 98.It includes following advantages
- ❖ Sharing of files among member computers
 - ❖ Sharing of printers and other resources
 - ❖ Centralised control and administration of resources
 - ❖ All computers can be backed up more easily

Services of Windows 2000 Server:-

- ❖ Virtually unlimited numbers of users simultaneously.
- ❖ Effective network management.
- ❖ Web based management services.
- ❖ Network wide security management.
- ❖ Remote network access.
- ❖ Network printer management.

Windows 2000 Server Resources:-

- ❖ Desktop
- ❖ My document
- ❖ Recycle Bin
- ❖ Internet Explorer
- ❖ My network Places
- ❖ My Computer

Advanced Windows 2000 Networking:-

It provides an efficient networking environment.The domains workgroups and trusted relationships describe the logical structure of windows 2000.The group policies refines the user management in windows 2000.

Concept of Domains:-

It is collection of network computers that share a centralized directory database referred to as active directory service.It provides the following advantages.

- ❖ It provides centralized control of all user information.
- ❖ It provides extensibility features to existing networks.

Logical Structure of domain:-

- ❖ Objects:-A distinct named network resource can be referred to as an object.
- ❖ Organisation units:-It is an containsr object.That are residing within other objects.
- ❖ Trees:-In order to support global shairing of resources trees are required
- ❖ Forests:-One or more trees can be grouped into a forest.
- ❖ Domains:-The basic unit of active directory service is a domain.

Windows XP Networking:-

It is a network OS.Some of standard protocols supported by windows XP

- ❖ TCP/IP
- ❖ IPX/SPX/NetBIOS
- ❖ Virtual Private Networks(VPN) and remote Networking

Sharing network resources in Windows XP:-

- ❖ Sharing Files in a Windows XP
- ❖ Shairing folders in Windows XP
- ❖ Shairing drives in windows XP

Windows XP in file system:-

File systems manage the way in which system resources are shared. All network file shairing are based on it.NTFS is the file system for fixed storage in Windows XP.

Computer security:-

Technology and managerial procedures applied to computer system to ensure the availability, integrity and confidentiality of the data managed by the computer.

Network security:-

Protection of networks and their services from unauthorized modification, destruction or disclosure and provision of assurance that the network performs its critical functions correctly and no harmful side effects.

Goal of Computer Security:-

There are following goals are computer security.

- ❖ Integrity:-It deals with the knowledge that data has been modified.
- ❖ confidentiality:-it means preventing unauthorized access.
- ❖ availability:-the system should be accessible to authorized persons at appropriate time.

