

Linux Commands

File Commands

- 1) The following Linux Command take you to the '/' home' directory
cd /home
- 2) This command go back one level
cd ..
- 3) This command takes you two folders back.
cd ../..
- 4) This command take you to home directory
Cd
- 5) This command takes you to the user's home directory
cd ~user
- 6) This command takes you to the previous directory
cd -

"COPY" Commands in Linux

- 7) This command helps you copy one file to another
cp file1 file2
- 8) Copy all files of a directory within the current work directory
cp dir/* .
- 9) Copy a directory within the current work directory
cp -a /tmp/dir1 .
- 10) Copy a directory
cp -a dir1 dir2
- 11) Outputs the mime type of the file as text
cp file file1

Linux Commands about Symlink

- 12) Linux Command to create a symbolic link to file or directory
ln -s file1 lnk1
- 13) Create a physical link to file or directory
ln file1 lnk1
- 14) View files of directory
Ls
- 15) View files of directory
ls -F
- 16) Show details of files and directory
ls -l
- 17) Show hidden files
ls -a
- 18) Show files and directory containing numbers
ls *[0-9]*
- 19) Show files and directories in a tree starting from root
Lstree
- 20) Create a directory called 'dir1'
mkdir dir1

- 21) Create two directories simultaneously
`mkdir dir1 dir2`
- 22) Create a directory tree
`mkdir -p /tmp/dir1/dir2`
- 23) Move a file or directory
`mv dir/file /new_path`
- 24) Show the path of work directory
`Pwd`
- 25) Delete file called 'file1'
`rm -f file1`
- 26) Remove a directory called 'dir1' and contents recursively
`rm -rf dir1`
- 27) Remove two directories and their contents recursively
`rm -rf dir1 dir2`
- 28) Delete directory called 'dir1'
`rmdir dir1`
- 29) Modify timestamp of a file or directory - (YYMMDDhhmm)
`touch -t 0712250000 file1`
- 30) Show files and directories in a tree starting from root(1)
`tree`

Linux Commands for Process Management

- 31) The top command gives you information on the processes that currently exist.
`Top`
- 32) The htop command is like top, but prettier and smarter.
`Htop`
- 33) Use the ps command to list running processes (top and htop list all processes whether active or inactive).
`Ps`
- 34) A step up from the simple ps command, pstree is used to display a tree diagram of processes that also shows relationships that exist between them.
`Pstree`
- 35) The who command will display a list of all the users currently logged into your Linux system.
`Who`
- 36) As its name suggests, kill can be used to terminate a process with extreme prejudice.
`Kill`
- 37) The pkill and killall commands can kill a process, given its name.
`pkill & killall`
- 38) pgrep returns the process IDs that match it.
`Pgrep`
- 39) With the help of nice command, users can set or change the priorities of processes in Linux.
`Nice`
- 40) It is similar to nice command. Use this command to change the priority of an already running process.
`Renice`

- 41) Gives the Process ID (PID) of a process
Pidof
- 42) Gives free hard disk space on your system
Df
- 43) Gives free RAM on your system
free

File Permissions

- 44) **chmod** the command for changing permissions

Syntax: chmod permission dir/file

chmod 755 Linux_Directory

chmod 644 Linux_File

Different File Permissions

rwX rwX rwX = 111 111 111

rw- rw- rw- = 110 110 110

rwX ----- = 111 000 000

rwX = 111 in binary = 7

rw- = 110 in binary = 6

r-x = 101 in binary = 5

r-- = 100 in binary = 4

7 = 4+2+1 (read/write/execute)

6 = 4+2 (read/write)

5 = 4+1 (read /execute)

4=4(read)

3=2+1(write/ execute)

2=2 (write)

1=1(execute)

Briefing about Permissions in Linux

There is a huge importance with Linux Commands when we discuss about Permissions. No restrictions on permissions. Anybody may do anything. Generally not a desirable setting.

777 (rwxrwxrwx)

The file's owner may read, write, and execute the file. All others may read and execute the file. This setting is common for programs that are used by all users.

755 (rwxr-xr-x)

The file's owner may read, write, and execute the file. Nobody else has any rights. This setting is useful for programs that only the owner may use and must be kept private from others.

700 (rwx-----)

All users may read and write the file.

666 (rw-rw-rw-)

The owner may read and write a file, while all others may only read the file. A common setting for data files that everybody may read, but only the owner may change.

644 (rw-r--r--)

The owner may read and write a file. All others have no rights. A common setting for data files that the owner wants to keep private.

600 (rw -----)

How to use "Find Command"

The below Linux Commands gives you better Idea on find commands.

45) To find a file by name

```
find -name "File1"
```

46) To find a file by name, but ignore the case of the "File1"

```
find -iname "File1"
```

47) To search all files that end in ".conf"

```
find /path -type f -name "*.conf"
```

48) To find all files that are exactly 50 bytes

```
find /path -size 50c
```

49) To find all files less than 50 bytes

```
find /path -size -50c
```

50) To Find all files more than 700 Megabytes

```
find / -size +700M
```

51) To find files that have a modification time of a day ago

```
find / -mtime 1
```

52) To find files that were accessed in less than a day ago

```
find / -atime -1
```

53) To find files that last had their meta information changed more than 3 days ago

```
find / -ctime +3
```

54) To find files that were accessed in less than a minute ago

```
find / -mmin -1
```

55) If we want to match an exact set of permissions

```
find / -perm 644
```

56) If we want to specify anything with at least those permissions

```
find / -perm -644
```

Linux Commands to check Word Count

57) Prints the number of lines in a file.

```
wc -l file_name OR cat file_name | wc -l
```

58) Prints the number of words in a file.

```
wc -w
```

59) Displays the count of bytes in a file.

```
wc -c
```

60) Prints the count of characters from a file.

```
wc -m
```

61) Prints only the length of the longest line in a file.

```
wc -L
```

Compression Commands (tar, tar.gz, tar.bz2 and zip)

Options to use the above Linux Commands

c - create a archive _le.

x - extract a archive _le.

v - show the progress of archive _le.

f - _lename of archive _le.

t - viewing content of archive _le.

j - _lter archive through bzip2.

z - _lter archive through gzip.

r - append or update _les/directories to existing archive _le.

w - verify a archive _le.

About TAR Command

- 62) To Create tar Archive File
tar -cvf compress.tar /path/directory
- 63) To List Content of tar Archive File
tar -tvf compress.tar
- 64) To Untar tar Archive File
tar -xvf compress.tar
- 65) To Untar tar Archive File in a speci_c directory
tar -xvf compress.tar -C /path/to directory
- 66) Untar Single file from tar File
tar -xvf compress.tar file1.txt
- 67) Untar Multiple files from tar
tar -xvf compress.tar "file 1" "file 2"
- 68) Extract Group of Files using Wildcard from tar Archive
tar -xvf compress.tar --wildcards '*.txt'
- 69) To Add Files or Directories to tar Archive File
tar -rvf compress.tar file/dir

About TAR.GZ

- 70) To Create tar.gz Archive File
tar -cvzf compress.tar.gz /path/directory
- 71) To List Content tar.gz Archive File
tar -tvf compress.tar.gz
- 72) To Untar tar.gz Archive File
tar -zxvf compress.tar.gz
- 73) To Untar tar.gz Archive File in a speci_c directory
tar -zxvf compress.tar.gz -C /path/to diretory
- 74) Untar Single file from tar.gz File
tar -zxvf compress.tar.gz file1.txt
- 75) Untar Multiple files from tar.gz
tar -zxvf compress.tar.gz "file 1" "file 2"
- 76) Extract Group of Files using Wildcard from tar.gz Archive
tar -zxvf compress.tar.gz --wildcards '*.tzt'
- 77) To Add Files or Directories to tar.gz
tar -rvf compress.tar.gz file/dir

About TAR.BZ2

- 78) To Create tar.bz2 Archive File
tar -cvfj compress.tar.bz2 /path/directory
- 79) To List Content tar.bz2 Archive File
tar -tvf compress.tar.bz2
- 80) To Uncompress tar.bz2 Archive File
tar -xvf compress.tar.bz2
- 81) Untar Single file from tar.bz2 File
tar -jxvf compress.tar.bz2 file1.txt
- 82) Untar Multiple files from tar.bz2

```
tar -jxvf compress.tar.bz2 "file 1" "file 2"
```

83) Extract Group of Files using Wildcard from tar.bz2 Archive

```
tar -jxvf compress.tar.bz2 --wildcards '*.tzt'
```

84) To Add Files or Directories to tar.bz2

```
tar -rvf compress.tar.bz2 file/dir
```

85) To Verify tar, tar.gz and tar.bz2 Archive File

```
tar -tvfW cpress.tar
```

Linux Commands for ZIP

ZIP (The extension .zip is not mandatory and this is useful only to identify the file zip file)

86) To zipping a file or folder.

```
zip compress.zip file1 file2 folder1
```

87) To Zip individual files to a zip archive

```
zip compress.zip file1 file2 file3
```

Zippping a folder is a tricky thing as by default zip will not zip entire folder content such as sub folders and files

88) To zip _rst level of folder content use * as shown below

```
zip compress.zip Folder/*
```

89) If there are sub folders and files in 1 folder, in order to zip all content of a folder use -r option

```
zip -r compress.zip Folder
```

90) To list all the files stored in a zip file. Any of the below commands can be used and they give the same results.

```
unzip -l compress.zip
```

```
less compress.zip
```

```
zipinfo -1 compress.zip
```

91) To delete a file in an archive without extracting entire zip file.

```
zip -d compress.zip path/to/file
```

92) To extract your files from a zip folder.

```
unzip compress.zip
```

Linux Commands to know System Information

93) To know only system name, you can use uname command

```
Uname
```

94) To view your network hostname

```
uname -n
```

95) To get information about kernel-version

```
uname -v
```

96) To get the information about your kernel release

```
uname -r
```

97) To get the information about your kernel release

```
uname -r
```

98) To print your machine hardware name

```
uname -m
```

99) All this information can be printed at once. The below two commands gives same result.

```
uname -a
```

```
cat /proc/version
```

- 100) Find out information about the Linux distribution and version
`cat /etc/*release*`
- 101) To gather information about file system partitions
`fdisk -l`
- 102) To view mounted file systems.
`mount`
- 103) To view information about your CPU architecture such as number of CPU's, cores, CPU family model, CPU caches, threads, etc. Either of the two below commands gives same output.
`Lscpu`
`cat /proc/cpuinfo`
- 104) To view information about block devices
`lsblk`

Extract Information about Hardware Components using "dmidecode"

- 1) To print information about memory. You can get the similar output with all the below commands.
`dmidecode -t memory`
`cat /proc/meminfo`
`free` or `free -mt` or `free -gt`
- 2) To print information about system
`dmidecode -t system`
- 3) To print information about BIOS
`dmidecode -t bios`
- 4) To print information about processor
`dmidecode -t processor`
- 5) To dump all hardware information
`dmidecode | less`

Network Commands

- 1) **PING** (Packet Internet Groper) command sends packet requests to the address you specify to test the connectivity between 2 nodes.
`ping IP/hostname`
- 2) **Ifconfig** utility is used to configure network interface parameters. Mostly we use this command to check the IP address assigned to the system.
`ifconfig -a`
- 3) **traceroute** print the route packets take to network host. Destination host or IP is mandatory parameter to use this utility
`traceroute website.com / IP`
- 4) **route** command is the tool used to display or modify the routing table.
`Route`
- 5) **dig** (Domain Information Groper) is a exible tool for interrogating DNS name servers. It performs DNS lookups and displays the answers that are returned from the name servers.
`dig website.com`
- 6) **Whois** To know the information about domain like
`whois website.com`
- 7) **Host** Command to _nd name to IP or IP to name

host hostname

host 1.2.3.4

- 8) **telnet** connect destination host:port via a telnet protocol if connection establishes means connectivity between two hosts is working _ne.

telnet website.com 80

- 9) **Tracepath** traces the path of the network to the destination you have provided. It attempts to list the series of hosts through which your packets travel on their way to a given destination.

tracepath website.com

- 10) **nslookup** is a program to query Internet domain name servers.

nslookup website.com

- 11) **netstat** command allows you a simple way to review each of your network connections and open sockets. netstat with head output is very helpful while performing web server troubleshooting.

Netstat

- 12) **scp** allows you to secure copy files to and from another host in the network.

scp -r -P 22 (ssh port) user@source_hostname:/path/to/dir/destination/path

- 13) **nmap** is a very powerful command, which checks the opened port on the server.

nmap hostname -p 80

SSH Commands

- 1) Connect to host as user

ssh user@host

- 2) connect to host on port

ssh -p port user@host

KeyBoard Shortcuts

- 1) Halts the current command

Ctrl+C

- 2) Stops the current command, resume with fg in the foreground or bg in the background

Ctrl+Z

- 3) Log out of current session, similar to exit

Ctrl+D

- 4) Erases one word in the current line

Ctrl+W

- 5) Erases the whole line

Ctrl+U

- 6) Type to bring up a recent command. You need to type the _rst letter of the command you are searching for.

Ctrl+R

- 7) Log out of current session

Exit

Head and Tail

\$head ctd.txt

shows the first 10 lines

\$head -n 2 *.pdb

shows the first 2 lines

`$history | tail -n 15`

shows the 15 most recent items in your command history

`$tail -n +2 Thalas*.txt`

shows from the second line to the end

`$head -n -1 Thalas*.txt`

shows from the second line to the 10th line

Cut

`$cut -f 1,3 Thal*.txt`

returns columns 1 and 3 delimited by tabs

`$cut -f 1-3 Thal*.txt`

returns columns 1 to 3 delimited by tabs

`$cut -c 16-20,30 Thal*.txt`

returns characters 16 to 20 and 30 from each line

`$grep ">" FPexamples.fta | cut -c 2-11`

prints out the gene names

`$head ctd.txt | cut -f 5,7 -d ", "`

returns columns 5 and 7. These are delimited by , in the original file and in the output.

Unique

Removes identical lines that are in immediate succession and keeps a single line.

Options

-c

counts the number of occurrence of each unique line and write it before each unique line

`$cut -c 12-21 ctd.txt | uniq -c`

-f 4

ignores the first 4 fields (columns delimited by any number of spaces) in determining uniqueness

-i

ignore case when determining uniqueness