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 compresstar.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 cmpress.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

Zipping 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) **Ifcon_g** 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 routeing 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