

LAB REPORT

Submitted By,

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S4 CSE

No: 29

Experiment : 1

Date : 8/2/2019

Aim : Linux basic commands for directory operations, display in directory structure in tree format etc.

Commands

- **ls**

Purpose : The command is used to show all of the major directories filled under a given file system.

Usage: ls

Sample I/O : u0_a514@1606:/\$ ls

apps cache d data music pictures

- **mkdir**

Purpose: To make a new directory.

Usage: cd<directory>

Sample I/O: u0_a514@1606:\$ mkdir first

apps cache d data first music pictures

Directory first created.

- **cd**

Purpose: To change the current working directory

Usage: cd<directory>

Sample I/O: u0_a514@1606:\$ cd first

First is the working directory

- **mv**

Purpose: To move files.

Usage: mv<destination>

Sample I/O:

U0_a514@1606:\$ mv/home/first/second/home/first/new/

U0_a514@1606:\$ cd/first/new

U0_a514@1606:~/first/new\$ ls

Second

- **man**

Purpose: To show the manual of the inputted command

Usage: man <command>

Sample I/O:

U0_a514@1606:~\$ man cat

NAME

Cat – concatenate files and print on the standard output

SYNOPSIS

Cat [OPTION]... [FILE]...

DESCRIPTION

Concatenate FILE(s) to standard output.

-A, --show-all

Equivalent to -vET

-b, --number-nonblank

Number nonempty output lines, overrides -a

-e equivalent to -vE

.....

.....

.....

EXAMPLES

cat f -g

Output f's contents, then standard input, then g's contents.

cat Copy standard input to standard output

AUTHOR

Written by Torbjorn Granlund and Richard N. Stallman

REPORTING BUGS

GNU coreutils online help: <http://www.gnu.org/software/coreutils/>

Report cat translation bugs to <http://translationproject.org/team/>

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<http://gnu.org/licenses/gpl.html>.

SEE ALSO

`tac(1)`

full documentation at: <http://www.gnu.org/software/coreutils/cat>

- **rm**

Purpose: To delete a file

Usage :rm <file>

Sample I/O:

```
U0_a514@1606:~/foss/one$ ls
```

```
file test two
```

```
U0_a514@1606:~/foss/one$ rm two
```

```
U0_a514@1606:~/foss/one$ ls
```

```
file test
```

- **tree**

Purpose: To display directories in tree structure.

Usage: tree

Sample I/O: U0_a514@1606:~/foss\$ tree

- **locate**

Purpose:The locate -a.k.a. find the file within the Linux OS . An example, Locate-i*red*house**city* The started command will locate an file with the a file name containing “red”, “house” and “city”.

Usage: locate <string>

Sample I/O: U0_a514@1606:~/foss/one\$ locate Welcome

```
/usr/share/checkbox-converged/components/WelcomePage.qml
```

```
/usr/share/system-config-printer/troubleshoot/Welcome.py
```

- **clear**

Purpose: The clear command clear the screen the wipes the board clean.

- **head**

Purpose: To display ggiven number of lines from the beginning of the file

Usage: head <file name>-n<number>

Sample I/O:

```
U0-a154@1606:/ first/new$ cat second
```

1

2

3

4

5

6

```
U0_a154@1606:/first/new/$ head second -n 2
```

1

2

- **tail**

Purpose: To display given number of lines from the end of a line

Usage: tail<file name>-n<number>

```
Sample I/O: U0_a514@1606:/first/new$ tail second -n 2
```

5

6

Experiment :2

Date :8/2/2019

Aim: To familiarize with Linux commands for operations such as redirection, pipes, filters, job control, change in ownerships/permissions of files /links/directory.

Redirection

- >

Purpose: To input Linux commands result to file. File is already present it will be overwritten. Else a new file is created.

Usage: <Linux-command>><file name>

Sample I/O: U0_a514@1606:first\$ ls >file U0_a514@1606:first\$ cat file
file

- >>

Purpose: To input Linux-commands result to END file.

Usage: <Linux command> >> <file name>

Sample I/O:

U0_a514@1606:~/foss\$ date >> f1

U0_a514@1606:~/foss\$ cat f1

Welcome

Sat Feb 9 04:45:04 IST 2019

- <

Purpose : To take input to Linux command from file instead of keyboard

Usage: < Linux command ><<file name >

Sample I/O:

U0_a514@1606:~/foss\$ cat < f1

Welcome

Sat Feb 9 04:45:04 IST 2019

Pipelining

- |

Purpose : Connects a string of commands via pipe.

Usage: <command> | <command>

Sample I/O:

```
U0_a514@1606:/first$ ls | sort
```

Documents file name

Filter

Purpose : It is a Linux command accept its input data from the standard input and produces its output on standard output.

Usage: command1 | command2

Sample I/O:

```
U0_a514@1606:/first$ sort <file | uniq> pgm
```

```
U0_a514@1606:/first$ nano pgm
```

```
U0_a514@1606:/first$ cat
```

Documents file name

Job Control

- **&**

Purpose: To run the job in back round.

Usage :<command > &

Sample I/O: U0_a514@1606:~/foss\$ find / -ctime -1 > /tmp/changed-file-list.txt &

- **bg**

Purpose : To send an already running foreground job to background.

Usage: ctrl + z bg

Sample I/O:

```
U0_a514@1606:~/foss$ find / -ctime -1 > /tmp/changed-file-list.txt
```

```
find: '/sys/kernel/debug': Permission denied
```

```
find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-systemdresolved.service-Z0FSMP': Permission denied
```

```
find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-iio-sensor-proxy.servicex1rTYt':
```

```
Permission denied
```

```
find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-systemdtimesyncd.service-HqdQXP':
```

```
Permission denied
```

```
find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-fwupd.service-9uPxv3':  
Permission denied
```

find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-rtkit-daemon.serviceXwnkmE': Permission

denied

find: '/tmp/systemd-private-6030b36320044f1f849271db6b255e21-colord.service-PYBJrT': Permission denied

^Z[2] Exit 1

find / -ctime -1 > /tmp/changed-file-list.txt

[3]+ Stopped

find / -ctime -1 > /tmp/changed-file-list.txt

U0_a514@1606:~/foss\$ bg

[3]+ find / -ctime -1 > /tmp/changed-file-list.txt &

U0_a514@1606:~/foss\$ find: '/proc/tty/driver'

- **jobs**

Purpose :To list out the background jobs.

Usage: jobs

Sample I/O: jobs

[1]

Running

[2]- Running

[3]+ Done

bash download-file.sh &

evolution &

nautilus .

- **fg**

Purpose : To take back round job to fore round.

Usage: fg

Sample I/O: U0_a514@1606:~\$ fg

bash: fg: current: no such job

File Ownership

- **ls -l**

Purpose: To list information about the files.

Usage: ls -l <file name>

Sample I/O:

```
U0_a514@1606:~/foss$ ls -l f2
```

```
-rw-r--r-- 1 hp hp 37 Feb 7 22:27 f2
```

- **chown**

Purpose: To change the owner or group of a particular file or directory.

Usage: chown <new owner> <file name>

Sample I/O:

```
U0_a514@1606:~/foss$ ls -l f2
```

```
-rw-r--r-- 1 hp hp 37 Feb 7 22:27 f2
```

```
U0_a514@1606:~/foss$ sudo chown root f2
```

```
[sudo] password for hp:
```

```
U0_a514@1606:~/foss$ ls -l f2
```

```
-rw-r--r-- 1 root hp 37 Feb 7 22:27 f2
```

File Permission

- **chmod**

Purpose : To set the permission on a file

Usage: {a, u, , o} {+-} {r, w, x} <file name>

Sample I/O:

```
U0_a514@1606:~/foss$ ls -l f1
```

```
-rw-rw-r-- 1 ubuntu ubuntu 66 Feb 9 05:20 f1
```

```
U0_a514@1606:~/foss$ sudo chmod +x f1
```

```
[sudo] password for ubuntu:
```

```
U0_a514@1606:~/foss$ ls -l f1
```

```
-rwxrwxr-x 1 ubuntu ubuntu 66 Feb 9 05:20 f1
```

Links

1) Soft link

Purpose: Linux OS recognizes the data part of special file as a reference to another file path. The data in the original file can be accessed through the special file, which is called as Soft Link.

Usage: `ln -s /full/path/of/original/file /full/path/of/soft/link/file`

Sample I/O: `U0_a514@1606:~/foss/one$ cat test`

Welcome

one

two

hai

five

helli

`U0_a514@1606:~/foss/one$ ln -s /home/ubuntu/foss/one/test /home/ubuntu/foss/new/linked`

`U0_a514@1606:~/foss/one$ cd ~`

`U0_a514@1606:~$ cd foss/new`

`U0_a514@1606:~/foss/new$ ls`

link linked m1 m2 m3

`U0_a514@1606:~/foss/new$ cat linked`

Welcome

one

two

hai

five

helli

2) Hard Link

Purpose: With Hard Link, more than one file name reference the same inode number. Once you create a directory, you would see the hidden directories “.” and “..” . In this, “.” directory is hard linked to the current directory and the “..” is hard linked to the parent directory.

Usage: `ln /full/path/of/original/file /full/path/of/hard/link/file`

Sample I/O:

```
U0_a514@1606:~/foss/new$ ln m1 hard
```

```
U0_a514@1606:~/foss/new$ ls -l
```

```
total 0
```

```
-rw-rw-r-- 2 ubuntu ubuntu 0 Feb 9 05:52 hard
```

```
lrwxrwxrwx 1 ubuntu ubuntu 21 Feb 9 05:56 link -> /home/ubuntu/foss/one
```

```
lrwxrwxrwx 1 ubuntu ubuntu 26 Feb 9 06:02 linked -> /home/ubuntu/foss/one/test
```

```
-rw-rw-r-- 2 ubuntu ubuntu 0 Feb 9 05:52 m1
```

```
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 9 05:52 m2
```

```
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 9 05:52 m3
```

3) Symbolic link

Purpose: Symbolic links, or symlinks, are another type of link, which are different from hard links.

A symbolic link lets you give a file another name, but doesn't link the file by inode.

Usage: `ln -s <filename> <linkfile>`

Sample I/O:

```
U0_a514@1606:~/foss/new$ ln -s m2 symlink
```

```
U0_a514@1606:~/foss/new$ ls -l
```

```
total 0
```

```
-rw-rw-r-- 2 ubuntu ubuntu 0 Feb 9 05:52 hard
```

```
lrwxrwxrwx 1 ubuntu ubuntu 21 Feb 9 05:56 link -> /home/ubuntu/foss/one
```

```
lrwxrwxrwx 1 ubuntu ubuntu 26 Feb 9 06:02 linked -> /home/ubuntu/foss/one/test
```

```
-rw-rw-r-- 2 ubuntu ubuntu 0 Feb 9 05:52 m1
```

```
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 9 05:52 m2
```

-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 9 05:52 m3

lrwxrwxrwx 1 ubuntu ubuntu 2 Feb 9 06:15 symlink -> m2

Conclusion: Familiarised with linux commands for operations such as redirection, pipes, filters, job control, changing ownership/permissions of files/links/directory.

Experiment No: 3

Date: 8/02/2019

Aim: To familiarise with advanced linux commands curl, wget, ftp, ssh, and grep

- **curl**

Purpose: To transfer data from or to a server, using one of the supported protocols.

Usage: curl <URL>

Sample I/O:

```
U0_a514@1606:~$ curl http://example.com
```

```
<!doctype html>
```

```
<html>
```

```
<head>
```

```
<title>Example Domain</title>
```

```
<meta charset="utf-8" />
```

```
<meta http-equiv="Content-type" content="text/html; charset=utf-8" />
```

```
<meta name="viewport" content="width=device-width, initial-scale=1" />
```

```
<style type="text/css">
```

```
body {
```

```
background-color: #f0f0f2;
```

```
margin: 0;
```

```
padding: 0;
```

```
font-family: "Open Sans", "Helvetica Neue", Helvetica, Arial, sans-serif;
```

```
}
```

```
div {
```

```
width: 600px;
```

```
margin: 5em auto;
```

```
padding: 50px;
```

```
background-color: #fff;
```

```
border-radius: 1em;
```

```
}
```

```

a:link, a:visited {
color: #38488f;
text-decoration: none;
}
@media (max-width: 700px) {
body {
background-color: #fff;
}div {
width: auto;
margin: 0 auto;
border-radius: 0;
padding: 1em;
}
}
</style>
</head>
<body>
<div>
<h1>Example Domain</h1>
<p>This domain is established to be used for illustrative examples in documents. You may use
this domain in examples without prior coordination or asking for permission.</p>
<p><a href="http://www.iana.org/domains/example">More information...</a></p>
</div>
</body>
</html>

```

- **wget**

Purpose: Command line utility to download files over a network

Usage: wget <URL>

Sample I/O:

U0_a514@1606:~\$ wget

https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/Mjc5MTA0MDkzODZa/details

--2019-02-08 13:18:46--

https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/Mjc5MTA0MDkzODZa/details

Resolving classroom.google.com (classroom.google.com)... 2404:6800:4007:812::200e, 172.217.26.174

Connecting to classroom.google.com (classroom.google.com)|2404:6800:4007:812::200e|:443... connected.

HTTP request sent, awaiting response... 302 Moved Temporarily

Location: https://accounts.google.com/ServiceLogin?

service=classroom&passive=1209600&continue=https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/

Mjc5MTA0MDkzODZa/details&followup=https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/Mjc5

MTA0MDkzODZa/details [following]

--2019-02-08 13:18:48-- https://accounts.google.com/ServiceLogin?

service=classroom&passive=1209600&continue=https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/

Mjc5MTA0MDkzODZa/details&followup=https://classroom.google.com/u/1/c/MjcyNDc5NDQyMzBa/a/Mjc5

MTA0MDkzODZa/details

Resolving accounts.google.com (accounts.google.com)... 2404:6800:4007:801::200d, 172.217.163.77

Connecting to accounts.google.com (accounts.google.com)|2404:6800:4007:801::200d|:443... connected.

HTTP request sent, awaiting response... 200 OK

Length: unspecified [text/html]

Saving to: 'details'

details

[

<=>

] 55.20K 51.0KB/s

in 1.1s

2019-02-08 13:18:50 (51.0 KB/s) - 'details' saved [56525]

U0_a514@1606:~\$ ls

a.out examples.desktop linuxfun.pdf

postfix.c.save symlink

Codes

fork.c

mergesort.c

Public

Templates

Desktop fosslab

multiplestacks.c.save quicksort.c tree.c

details graph.c

Music

search.c

Videos

Documents kill.c

myfile

sort.c

wait.c

Downloads linkedlist.c

Pictures

sort.c.save

- **grep**

Purpose: To search input files, selecting lines matching the pattern.

Usage: cat <filename> | grep ^(letter or word)

Sample I/O:

U0_a514@1606:~\$ cat testing

Amrutha

Alpha

anupama

sneha

helan

hema

sruthi

smrithi

U0_a514@1606:~\$ cat testing |grep ^h

helan

hema

- **ssh**

Purpose: To start the ssh client program that enables secure connection to the SSH server on a remote machine to log into the remote machine, transfer files between the two machines, and to execute commands on the remote machine.

Usage: ssh <username(optional)>@<host address>

Sample input and output:

U0_a514@1606:~\$ ssh s1729@192.168.99.5

s1729@192.168.99.5's password:

s1729@linux-server:~\$

- **ftp**

Purpose: To copy files to and from other computers

Usage: ftp <hostname or address>

<commands>

Sample I/O:

ftp nordsieck.cs.colorado.eduConnected to nordsieck.cs.colorado.edu.

220 nordsieck FTP server (Version 5.53 Tue Aug 25 10:46:12 MDT 1992) ready.

Name (nordsieck.cs.colorado.edu:yourlogin): yourlogin

331 Password required for yourlogin.

Password:

230 User yourlogin logged in.

```
ftp> cd HPSC/exercises
250 CWD command successful.

ftp> ls
200 PORT command successful.

150 Opening ASCII mode data connection for file list.
tmul.out
226 Transfer complete.
9 bytes received in 0.0021 seconds (4.3 Kbytes/s)

ftp> mput *
mput Makefile? y
200 PORT command successful.

150 Opening ASCII mode data connection for Makefile.
226 Transfer complete.
local: Makefile remote: Makefile
1020 bytes sent in 0.0062 seconds (1.6e+02 Kbytes/s)
mput tmul.out? n

ftp> quit
221 Goodbye.

% ls
...
Makefile
tmul.out
...200 PORT command successful.

150 Opening ASCII mode data connection for file list.
tmul.out
226 Transfer complete.
9 bytes received in 0.0021 seconds (4.3 Kbytes/s)

ftp> mput *
mput Makefile? y
200 PORT command successful.
```

150 Opening ASCII mode data connection for Makefile.

226 Transfer complete.

local: Makefile remote: Makefile

1020 bytes sent in 0.0062 seconds (1.6e+02 Kbytes/s)

mput tmul.out? n

ftp> quit

221 Goodbye.

% ls

...

Makefile

tmul.out

...

Conclusion: Familiarised with advanced linux commands curl, wget, ftp, ssh, and grep.