

OSG202 LAB 02

ASSIGNMENT REPORT

Using Basic Linux Commands

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1. COMMAND LINE IN LINUX

1.1. Su

Syntax: su [OPTIONS]...[-]....[USER [ARG...]]

Description: allows commands to be run with a substitute user and group ID

Example:

```
dangloc@fedora:/home/dangloc

[root@fedora ~]# su -l dangloc
[dangloc@fedora ~]$
[dangloc@fedora ~]$ su -l
Password:
[root@fedora ~]# su
[root@fedora ~]# su -l dangloc
[dangloc@fedora ~]$ su
Password:
[root@fedora dangloc]#
[root@fedora dangloc]#
```

1.2. Env

Syntax: env [OPTION]... [-] [NAME=VALUE... [COMMAND [ARG]...]]

Description: set each NAME to VALUE in the environment and after that run COMMAND

Example:

```
dangloc@fedora:~

[dangloc@fedora ~]$ env
SHELL=/bin/bash
SESSION_MANAGER=local/unix:@/tmp/.ICE-unix/1240,unix/unix:/tmp/.ICE-unix/1240
COLORTERM=truecolor
HISTCONTROL=ignoredups
XDG_MENU_PREFIX=gnome-
HISTSIZE=1000
HOSTNAME=fedora
SSH_AUTH_SOCK=/run/user/1000/keyring/ssh
XMODIFIERS=@im=ibus
DESKTOP_SESSION=gnome
EDITOR=/usr/bin/nano
PWD=/home/dangloc
LOGNAME=dangloc
XDG_SESSION_DESKTOP=gnome
XDG_SESSION_TYPE=wayland
SYSTEMD_EXEC_PID=1264
XAUTHORITY=/run/user/1000/.mutter-Xwaylandauth.2XNA50
GDM_LANG=en_US.UTF-8
HOME=/home/dangloc
USERNAME=dangloc
LANG=en_US.UTF-8
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33:01:cd=40;33:01:or=40;31:01:mi=01;37:41:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31:*.taz=01;31:*.lha=01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ear=01;31:*.sar=01;31:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;31:*.wim=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;35:*.bmp=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:*.png=01;35:*.svg=01;35:*.svgz=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.mkv=01;35:*.webm=01;35:*.webp=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4v=01;35:*.vob=01;35:*.qt=01;35:*.nuv=01;35:*.wmv=01;35:*.asf=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=01;35:*.fli=01;35:*.flv=01;35:*.gl=01;35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.ogv=01;35:*.ogx=01;35:*.aac=01;35:*.au=01;36:*.flac=01;36:*.m4a=01;36:*.mid=01;36:*.midi=01;36:*.mka=01;36:*.m3=01;36:*.mnc=01;36:*.ogg=01;36:*.ra=01;36:*.wav=01;36:*.webp=01;36:

```

Display all the environment variables with the command 'ENV' (no arg)

1.3. mkdir

Syntax: `mkdir [OPTIONS]... DIRECTORY...`

Description: Create the DIRECTORYq(ies), if they do not already exist

Example:

```
root@fedora:/home/dangloc
[dangloc@fedora ~]$ su -l
Password:
[root@fedora ~]# cd /home/dangloc
[root@fedora dangloc]# ls
Desktop Documents Downloads Music Pictures Public run_mc.sh Templates Videos workspace
[root@fedora dangloc]# mkdir lab02DangLoc
[root@fedora dangloc]# ls
Desktop Documents Downloads lab02DangLoc Music Pictures Public run_mc.sh Templates Videos workspace
[root@fedora dangloc]#
```

Folder 'lab02DangLoc' was created in /home/dangloc

1.4. cp

Syntax: `cp [OPTION]... [-T] SOURCE DEST`

`cp [OPTION]... SOURCE... DIRECTORY`

`cp [OPTION]... -t DIRECTORY SOURCE...`

Description: Copy SOURCE to DEST, or multiple SOURCE(s) to DIRECTORY

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[dangloc@fedora ~]$ su -l
Password:
[root@fedora ~]# cd /home/dangloc
[root@fedora dangloc]# cd lab02DangLoc
[root@fedora lab02DangLoc]# ls
[root@fedora lab02DangLoc]# cd /home/dangloc
[root@fedora dangloc]# cp run_mc.sh lab02DangLoc
[root@fedora dangloc]# cd lab02DangLoc
[root@fedora lab02DangLoc]# ls
run_mc.sh
[root@fedora lab02DangLoc]#
```

File 'run_mc.sh' was copied from dangloc to its subfolder lab02DangLoc

1.5. mv

Syntax: `mv [OPTION]... [-T] SOURCE DEST`

`mv [OPTION]... SOURCE... DIRECTORY`

`mv [OPTION]... -t DIRECTORY SOURCE`

Description: rename SOURCE to DEST, or move SOURCE(s) to DIRECTORY

Example:



```
root@fedora:/home/dangloc/lab02DangLoc
[dangloc@fedora ~]$ su -l
Password:
[root@fedora ~]# cd /home/dangloc
[root@fedora dangloc]# ls
Desktop  Downloads  Music      Public      Templates  Videos
Documents lab02DangLoc Pictures  run_mc.sh  text.txt   workspace
[root@fedora dangloc]# cd lab02DangLoc
[root@fedora lab02DangLoc]# ls
run_mc.sh  text.txt
[root@fedora lab02DangLoc]# cd /home/dangloc
[root@fedora dangloc]# mv text.txt lab02DangLoc/text2.txt
[root@fedora dangloc]# ls
Desktop Documents Downloads lab02DangLoc Music Pictures Public run_mc.sh Templates Videos workspace
[root@fedora dangloc]# cd lab02DangLoc
[root@fedora lab02DangLoc]# ls
run_mc.sh  text2.txt  text.txt
[root@fedora lab02DangLoc]#
```

There is 2 file has the same name 'text.txt' in both /home/dangloc and /home/dangloc/lab02DangLoc

'mv' command moved the 'text.txt' file from dangloc to lab02DangLoc and renamed it to 'text2.txt'

Now, the folder lab02DangLoc contain 'text.txt' and 'text2.txt' simultaneously

1.6. rmdir

Syntax: `rmmdir [OPTION]... DIRECTORY`

Description: remove the DIRECTORY(ies), if they are empty

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[dangloc@fedora ~]$ su -l
Password:
[root@fedora ~]# cd /home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# mkdir folder1 folder2
[root@fedora lab02DangLoc]# mkdir folder1/sub1
[root@fedora lab02DangLoc]# ls
folder1 folder2 run_mc.sh text2.txt text.txt
[root@fedora lab02DangLoc]# cd folder1
[root@fedora folder1]# ls
sub1
[root@fedora folder1]# cd /home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# rmdir folder1 folder2
rmdir: failed to remove 'folder1': Directory not empty
[root@fedora lab02DangLoc]# ls
folder1 run_mc.sh text2.txt text.txt
[root@fedora lab02DangLoc]# rmdir -p folder1/sub1
[root@fedora lab02DangLoc]# ls
run_mc.sh text2.txt text.txt
[root@fedora lab02DangLoc]#
```

There are 3 subfolders in lab02DangLoc: folder1, folder2, folder3

The folder1 contains ancestors. Hence, if we want to delete the entire folder1, we have to use option **'-p'** – remove directory and its ancestors.

If the command miss the **'-p'**, it will display an error message and the folder won't be removed.

1.7. ln

Syntax:	ln <u>[OPTION]...</u> <u>[-T]</u> <u>TARGET</u> <u>LINK_NAME</u>	1 st form
	ln <u>[OPTION]...</u> <u>TARGET</u>	2 nd form
	ln <u>[OPTION]...</u> <u>TARGET...</u> <u>DIRECTORY</u>	3 rd form
	ln <u>[OPTION]...</u> <u>-t</u> <u>DIRECTORY</u> <u>TARGET...</u>	4 th form

Description:

1st form: create a link to TARGET with the name LINK_NAME.

2nd for:, create a link to TARGET in the current directory.

3rd, 4th forms: create links to each TARGET in DIRECTORY.

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# ls -i
7703 run_mc.sh  7707 text2.txt  7714 text.txt
[root@fedora lab02DangLoc]# ln text.txt link.txt
[root@fedora lab02DangLoc]# ls -i
7714 link.txt  7703 run_mc.sh  7707 text2.txt  7714 text.txt
[root@fedora lab02DangLoc]# cat text.txt
Lab 02 | Dang Loc
[root@fedora lab02DangLoc]# cat link.txt
Lab 02 | Dang Loc
[root@fedora lab02DangLoc]#
```

A softlink was created between 'text.txt' and 'link.txt'

1.8. cat

Syntax: **cat** [OPTION]... [FILE]...

Description: Concatenate FILE(s), or standard input, to standard output

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# echo "Hello! I'm Dang Loc - SE160199'" > text2.txt
[root@fedora lab02DangLoc]# cat text2.txt
Hello! I'm Dang Loc - SE160199'
[root@fedora lab02DangLoc]#
```

The content inside file 'text2.txt' is displayed

1.9. rm

Syntax: `rm [OPTION]... FILE...`

Description: Remove files or directories (with their contents recursively)

Example:

```
root@fedora:/home/dangloc/lab02DangLoc

[root@fedora lab02DangLoc]# ls
link.txt  run_mc.sh  text2.txt  text.txt
[root@fedora lab02DangLoc]# mkdir data
[root@fedora lab02DangLoc]# mkdir data/sub
[root@fedora lab02DangLoc]# cd data/sub
[root@fedora sub]# echo "Hello" > text3.txt
[root@fedora sub]# ls
text3.txt
[root@fedora sub]# cd -
/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# ls
data  link.txt  run_mc.sh  text2.txt  text.txt
[root@fedora lab02DangLoc]# rm link.txt text2.txt
rm: remove regular file 'link.txt'? y
rm: remove regular file 'text2.txt'? y
[root@fedora lab02DangLoc]# ls
data  run_mc.sh  text.txt
[root@fedora lab02DangLoc]# rm -r data
rm: descend into directory 'data'? y
rm: descend into directory 'data/sub'? y
rm: remove regular file 'data/sub/text3.txt'? y
rm: remove directory 'data/sub'? y
rm: remove directory 'data'? y
[root@fedora lab02DangLoc]# ls
run_mc.sh  text.txt
[root@fedora lab02DangLoc]#
```

Remove file 'link.txt' and 'text2.txt'.

To remove folder 'data' and its contents, I use option '-r' – remove directories and their contents recursively.

Confirm by press 'y'.

1.10. chown

Syntax: `chown [OPTION]...[OWNER] [:[GROUP]] FILE...`
`chown [OPTION]... --reference=RFILE FILE...`

Description: Change files owner and group

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root root  0 Jun 12 21:13 data
drwxr-xr-x. 1 root root  0 Jun 12 21:13 data2
-rw-r--r--. 1 root root 29 Jun 12 17:54 run_mc.sh
-rw-r--r--. 1 root root  9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root root 18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]# chown dangloc text2.txt
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data2
-rw-r--r--. 1 root  root 29 Jun 12 17:54 run_mc.sh
-rw-r--r--. 1 dangloc root  9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root  root 18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]#
```

The owner of file 'text2.txt' was change from 'root' to 'dangloc'.

1.11. chgrp

Syntax: `chgrp [OPTION]... GROUP FILE...`
`chgrp [OPTION]... --reference=RFILE FILE...`

Description: Change the group of each FILE to GROUP. With -reference, change the group of each FILE to that of RFILE.

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data2
-rw-r--r--. 1 root  root 29 Jun 12 17:54 run_mc.sh
-rw-r--r--. 1 dangloc root  9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root  root 18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]# chgrp dangloc text2.txt
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data
drwxr-xr-x. 1 root  root  0 Jun 12 21:13 data2
-rw-r--r--. 1 root  root 29 Jun 12 17:54 run_mc.sh
-rw-r--r--. 1 dangloc dangloc  9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root  root 18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]#
```

The group ownership of 'text2.txt' was change from 'root' to 'dangloc'.

1.12. chmod

Syntax: `chmod [OPTION]... MODE[,MODE]... FILE...`
`chmod [OPTION]... OCTAL-MODE FILE...`
`chmod [OPTION]... --reference=RFILE FILE...`

Description: Change file mode bits

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root    root      0 Jun 12 21:13 data
drwxr-xr-x. 1 root    root      0 Jun 12 21:13 data2
-rw-r--r--. 1 root    root     29 Jun 12 17:54 run_mc.sh
-rw-r--r--. 1 dangloc dangloc   9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root    root     18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]# chmod +x text2.txt
[root@fedora lab02DangLoc]# ls -l
total 12
drwxr-xr-x. 1 root    root      0 Jun 12 21:13 data
drwxr-xr-x. 1 root    root      0 Jun 12 21:13 data2
-rw-r--r--. 1 root    root     29 Jun 12 17:54 run_mc.sh
-rwxr-xr-x. 1 dangloc dangloc   9 Jun 12 21:16 text2.txt
-rw-r--r--. 1 root    root     18 Jun 12 20:58 text.txt
[root@fedora lab02DangLoc]#
[root@fedora lab02DangLoc]# man chmod
```

Adding the permission to execute the file 'text2.txt'

1.13. find

Syntax: `find [-H] [-L] [-P] [-D debugopts] [-Olevel] [path...] [expression]`

Description: Search for files in a directory hierarchy

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# find *.txt
text2.txt
text.txt
[root@fedora lab02DangLoc]# find *.sh
run_mc.sh
[root@fedora lab02DangLoc]# find -user root
.
./run_mc.sh
./text.txt
./data
./data2
[root@fedora lab02DangLoc]#
```

Find files: This case, I want to find text file then using format '*.txt'

Find files/folder with user owner of root

1.14. ds

I cannot find such a command.

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# man ds
No manual entry for ds
[root@fedora lab02DangLoc]# ds --help
bash: ds: command not found...
Similar command is: 'dc'
[root@fedora lab02DangLoc]#
```

1.15. df

Syntax: `df [OPTION]... [FILE]...`

Description: Report file system disk space usage

Example:

```
root@fedora:/home/dangloc/lab02DangLoc
[root@fedora lab02DangLoc]# df
Filesystem      1K-blocks    Used Available Use% Mounted on
devtmpfs         977908         0    977908   0% /dev
tmpfs            996060         0    996060   0% /dev/shm
tmpfs            398424      1680    396744   1% /run
/dev/nvme0n1p2  19921920 4032708  15568188 21% /
/dev/nvme0n1p2  19921920 4032708  15568188 21% /home
/dev/nvme0n1p1   999320   215304    715204 24% /boot
tmpfs            996060         60    996000   1% /tmp
tmpfs            199212      124    199088   1% /run/user/1000
/dev/sr0         1960320 1960320         0 100% /run/media/dangloc/Fedora-WS-Live-34-1-2
[root@fedora lab02DangLoc]# df /home
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/nvme0n1p2  19921920 4032708  15568188 21% /home
[root@fedora lab02DangLoc]#
```

1.16. ps

Syntax: ps [OPTION]

Description: Report a snapshot of the current processes.

Example:

```
[dangloc@fedora lab02DangLoc]$ ps -ef
UID          PID    PPID  C  STIME TTY          TIME CMD
root           1         0  0  20:50 ?        00:00:02 /usr/lib/systemd/systemd --switched-root --system --deserial
root           2         0  0  20:50 ?        00:00:00 [kthreadd]
root           3         2  0  20:50 ?        00:00:00 [rcu_gp]
root           4         2  0  20:50 ?        00:00:00 [rcu_par_gp]
root           6         2  0  20:50 ?        00:00:00 [kworker/0:0H-events_highpri]
root           7         2  0  20:50 ?        00:00:00 [kworker/0:1-rcu_par_gp]
root           9         2  0  20:50 ?        00:00:00 [mm_percpu_wq]
root          10         2  0  20:50 ?        00:00:00 [rcu_tasks_kthre]
root          11         2  0  20:50 ?        00:00:00 [rcu_tasks_rude_]
root          12         2  0  20:50 ?        00:00:00 [rcu_tasks_trace]
root          13         2  0  20:50 ?        00:00:00 [ksoftirqd/0]
root          14         2  0  20:50 ?        00:00:00 [rcu_sched]
root          15         2  0  20:50 ?        00:00:00 [migration/0]
root          16         2  0  20:50 ?        00:00:00 [cpuhp/0]
root          17         2  0  20:50 ?        00:00:00 [cpuhp/1]
root          18         2  0  20:50 ?        00:00:00 [migration/1]
root          19         2  0  20:50 ?        00:00:00 [ksoftirqd/1]
root          21         2  0  20:50 ?        00:00:00 [kworker/1:0H-events_highpri]
root          22         2  0  20:50 ?        00:00:00 [cpuhp/2]
root          23         2  0  20:50 ?        00:00:00 [migration/2]
root          24         2  0  20:50 ?        00:00:00 [ksoftirqd/2]
root          26         2  0  20:50 ?        00:00:00 [kworker/2:0H-events_highpri]
root          27         2  0  20:50 ?        00:00:00 [cpuhp/3]
root          28         2  0  20:50 ?        00:00:00 [migration/3]
root          29         2  0  20:50 ?        00:00:00 [ksoftirqd/3]
```

1.17. top

Syntax: top -hv | -abcHimMsS -d delay -n iterations -p pid [, pid ...]

Description: Display Linux tasks.

Example:

Command line: 'top -c'

dangloc@fedora:~/lab02DangLoc — top -c

```
top - 21:37:28 up 47 min, 1 user, load average: 0.02, 0.01, 0.00
Tasks: 328 total, 1 running, 327 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.1 sy, 0.0 ni, 99.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1945.4 total, 150.3 free, 1173.5 used, 621.6 buff/cache
MiB Swap: 1945.0 total, 1930.2 free, 14.8 used. 602.0 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1260	dangloc	20	0	4183324	188292	107600	S	1.3	9.5	0:26.48	/usr/bin/gnome-shell
1923	dangloc	20	0	764948	55164	39376	S	0.7	2.8	0:15.58	/usr/libexec/gnome-terminal-server
755	systemd+	20	0	17868	8760	7824	S	0.3	0.4	0:19.10	/usr/lib/systemd/systemd-oomd
1417	dangloc	20	0	529552	7932	6988	S	0.3	0.4	0:00.40	/usr/libexec/goa-identity-service
2692	dangloc	20	0	236116	5376	4348	R	0.3	0.3	0:00.07	top -c
1	root	20	0	176160	16588	10676	S	0.0	0.8	0:02.58	/usr/lib/systemd/systemd --switched-root+
2	root	20	0	0	0	0	S	0.0	0.0	0:00.03	[kthreadd]
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	[rcu_gp]
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	[rcu_par_gp]
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	[kworker/0:0H-events_highpri]
7	root	20	0	0	0	0	I	0.0	0.0	0:00.07	[kworker/0:1-rcu_par_gp]
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	[mm_percpu_wq]
10	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[rcu_tasks_kthre]
11	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[rcu_tasks_rude_]
12	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[rcu_tasks_trace]
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[ksoftirqd/0]
14	root	20	0	0	0	0	I	0.0	0.0	0:00.97	[rcu_sched]
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.01	[migration/0]
16	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[cpuhp/0]
17	root	20	0	0	0	0	S	0.0	0.0	0:00.00	[cpuhp/1]

Command line: 'top -p 1808'

dangloc@fedora:~/lab02DangLoc — top -p 1808

```
[dangloc@fedora lab02DangLoc]$ top -p 1808
```

```
top - 21:38:51 up 48 min, 1 user, load average: 0.00, 0.00, 0.00
Tasks: 1 total, 0 running, 1 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.1 sy, 0.0 ni, 99.9 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1945.4 total, 148.2 free, 1175.1 used, 622.1 buff/cache
MiB Swap: 1945.0 total, 1930.2 free, 14.8 used. 600.4 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1808	dangloc	20	0	375256	6860	6188	S	0.0	0.3	0:01.55	ibus-engine-sim

1.18. kill

Syntax: kill [-s signal | -p] [--] pid...

kill -l [signal]

Description: Display Linux tasks.

Example:

dangloc@fedora:~/lab02DangLoc — top -c

dangloc@fedora:~/lab02DangLoc — top -c

mc [dangloc@fedora:~/lab02DangLoc

```
top - 21:41:44 up 51 min, 1 user, load average: 0.31, 0.13, 0.05
Tasks: 344 total, 1 running, 343 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.1 us, 0.2 sy, 0.0 ni, 99.6 id, 0.1 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 1945.4 total, 112.1 free, 1399.1 used, 434.2 buff/cache
MiB Swap: 1945.0 total, 1712.7 free, 232.2 used. 361.3 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM    TIME+  COMMAND
 755 systemd+  20   0   17868    6072   5392 S   1.0   0.3   0:20.87 /usr/lib/systemd/systemd-oomd
2950 dangloc   20   0 2789388 141156 111348 S   0.7   7.1   0:00.85 /usr/lib64/firefox/firefox -contentproc+
  14 root       20   0         0         0        0 I   0.3   0.0   0:01.10 [rcu_sched]
 528 root       20   0         0         0        0 S   0.3   0.0   0:00.23 [btrfs-transacti]
 757 systemd+  20   0   43332   11632   6608 S   0.3   0.6   0:00.33 /usr/lib/systemd/systemd-resolved
2841 dangloc   20   0 236124    4192   3340 R   0.3   0.2   0:00.24 top -c
2849 dangloc   20   0 3208080 278036 150752 S   0.3  14.0   0:08.82 /usr/lib64/firefox/firefox
3003 dangloc   20   0 2795684 133844 105072 S   0.3   6.7   0:00.84 /usr/lib64/firefox/firefox -contentproc+
3080 dangloc   20   0 2802884 146048 113568 S   0.3   7.3   0:00.81 /usr/lib64/firefox/firefox -contentproc+
3115 dangloc   20   0 2756012 109368  88580 S   0.3   5.5   0:00.29 /usr/lib64/firefox/firefox -contentproc+
   1 root       20   0   176160   10056   6116 S   0.0   0.5   0:11.76 /usr/lib/systemd/systemd --switched-roo+
   2 root       20   0         0         0        0 S   0.0   0.0   0:00.04 [kthreadd]
   3 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 [rcu_gp]
   4 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 [rcu_par_gp]
   6 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 [kworker/0:0H-events_highpri]
   7 root       20   0         0         0        0 I   0.0   0.0   0:00.07 [kworker/0:1-rcu_par_gp]
   9 root        0 -20         0         0        0 I   0.0   0.0   0:00.00 [mm_percpu_wq]
  10 root       20   0         0         0        0 S   0.0   0.0   0:00.00 [rcu_tasks_kthre]
```

The process ID 2849 of the Firefox is not running.

Kill it by the command line: kill 2849

```
10 root       20   0         0         0        0 S   0.0   0.0   0:00.00 [rcu_tasks_kthre]
11 root       20   0         0         0        0 S   0.0   0.0   0:00.00 [rcu_tasks_rude_]
12 root       20   0         0         0        0 S   0.0   0.0   0:00.00 [rcu_tasks_trace]
13 root       20   0         0         0        0 S   0.0   0.0   0:00.00 [ksoftirqd/0]

[dangloc@fedora lab02DangLoc]$ kill 2849
[dangloc@fedora lab02DangLoc]$
```

1.19. jobs

Syntax: `jobs [-lnprs] [jobspec ...]`

`jobs -x command [args ...]`

Description: List the active jobs.

Example:

A terminal window titled 'root@fedora:~' with search, menu, and close buttons. The terminal shows the command 'jobs' being executed, which outputs '[1]+ Running sleep 100 &'. The prompt returns to '[root@fedora ~]#'.

```
[root@fedora ~]# jobs
[1]+  Running          sleep 100 &
[root@fedora ~]#
```

2. File management

The 'hdh' folder contain 2 subfolders:

- + unix
- + windows

```
root@fedora:hdh
[root@fedora hdh]# ls -al
total 0
drwxr-xr-x. 1 root root 22 Jun 12 22:04 .
dr-xr-xr-x. 1 root root 176 Jun 12 22:03 ..
drwxr-xr-x. 1 root root 38 Jun 12 22:03 unix
drwxr-xr-x. 1 root root 20 Jun 12 22:04 windows
[root@fedora hdh]#
[root@fedora hdh]# ls -l
total 0
drwxr-xr-x. 1 root root 38 Jun 12 22:03 unix
drwxr-xr-x. 1 root root 20 Jun 12 22:04 windows
[root@fedora hdh]#
```

The 'unix' folder contain 3 subfolders inside: **freebsd, linux, openbsd**

The 'windows' folder contain 3 subfolders inside: **98, 2000, 2003**

```
root@fedora:hdh
[root@fedora hdh]# ls -al unix
total 0
drwxr-xr-x. 1 root root 38 Jun 12 22:03 .
drwxr-xr-x. 1 root root 22 Jun 12 22:04 ..
drwxr-xr-x. 1 root root 0 Jun 12 22:03 freebsd
drwxr-xr-x. 1 root root 0 Jun 12 22:03 linux
drwxr-xr-x. 1 root root 0 Jun 12 22:03 openbsd
[root@fedora hdh]# ls -al windows
total 0
drwxr-xr-x. 1 root root 20 Jun 12 22:04 .
drwxr-xr-x. 1 root root 22 Jun 12 22:04 ..
drwxr-xr-x. 1 root root 0 Jun 12 22:04 2000
drwxr-xr-x. 1 root root 0 Jun 12 22:04 2003
drwxr-xr-x. 1 root root 0 Jun 12 22:04 98
[root@fedora hdh]#
```

Create 2 text file in **/hdh/windows/98**:

- + The file 'thoca.txt' has contents inside.
- + The file 'DangLoc.txt' is an empty text file.

```
root@fedora:hdh/windows/98
[root@fedora 98]# echo "Cong cha nhu nui Thai Son" > thoca.txt
[root@fedora 98]# echo "Nghia me nhu nuoc trong nguon chay ra" >> thoca.txt
[root@fedora 98]# touch DangLoc.txt
[root@fedora 98]# ls -al
total 4
drwxr-xr-x. 1 root root 40 Jun 12 22:15 .
drwxr-xr-x. 1 root root 20 Jun 12 22:04 ..
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 64 Jun 12 22:15 thoca.txt
[root@fedora 98]# _
```


View contents in 'thoca.txt' and 'DangLoc.txt'

```
root@fedora:hdh/windows/98
[root@fedora 98]# cat thoca.txt
Cong cha nhu nui Thai Son
Nghia me nhu nuoc trong nguon chay ra
[root@fedora 98]# cat DangLoc.txt
[root@fedora 98]#
```

Copy file and folder to **Linux** folder

```
root@fedora:hdh
[root@fedora 98]# cat thoca.txt
Cong cha nhu nui Thai Son
Nghia me nhu nuoc trong nguon chay ra
[root@fedora 98]# cat DangLoc.txt
[root@fedora 98]#
[root@fedora 98]# cd -
/hdh
[root@fedora hdh]# cp windows/98/thoca.txt unix/linux
[root@fedora hdh]# cd unix/linux
[root@fedora linux]# ls -l
total 4
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
[root@fedora linux]# cd -
/hdh
[root@fedora hdh]# cp -R windows unix/linux
[root@fedora hdh]# ls -l unix/linux
total 4
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
drwxr-xr-x. 1 root root 20 Jun 12 22:23 windows
```

Move the file **thoca.txt** from **linux** to **openbsd**

```
root@fedora:hdh
[root@fedora hdh]# ls -al unix/openbsd
total 0
drwxr-xr-x. 1 root root 0 Jun 12 22:03 .
drwxr-xr-x. 1 root root 38 Jun 12 22:03 ..
[root@fedora hdh]# ls -al unix/linux
total 4
drwxr-xr-x. 1 root root 32 Jun 12 22:23 .
drwxr-xr-x. 1 root root 38 Jun 12 22:03 ..
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
drwxr-xr-x. 1 root root 20 Jun 12 22:23 windows
[root@fedora hdh]# mv unix/linux/thoca.txt unix/openbsd
[root@fedora hdh]# ls -al unix/openbsd
total 4
drwxr-xr-x. 1 root root 18 Jun 17 21:54 .
drwxr-xr-x. 1 root root 38 Jun 12 22:03 ..
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
[root@fedora hdh]#
```

Rename file and directory: **windows** -> **wins**

```
root@fedora:hdh
[root@fedora hdh]# ls -l unix/openbsd
total 4
drwxr-xr-x. 1 root root  0 Jun 17 22:00 DangLoc
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
drwxr-xr-x. 1 root root  0 Jun 17 22:01 windows
[root@fedora hdh]# mv unix/openbsd/windows unix/openbsd/wins
[root@fedora hdh]# ls -l unix/openbsd
total 4
drwxr-xr-x. 1 root root  0 Jun 17 22:00 DangLoc
-rw-r--r--. 1 root root 64 Jun 12 22:22 thoca.txt
drwxr-xr-x. 1 root root  0 Jun 17 22:01 wins
[root@fedora hdh]# mv unix/openbsd/thoca.txt unix/openbsd/thoca.doc
[root@fedora hdh]# more unix/openbsd/thoca.doc
Cong cha nhu nui Thai Son
Nghia me nhu nuoc trong nguon chay ra
[root@fedora hdh]#
```

Delete file **thoca.doc** in **openbsd** directory

```
root@fedora:hdh
[root@fedora hdh]# rm -f unix/openbsd/thoca.doc
[root@fedora hdh]# ls -l unix/openbsd
total 0
drwxr-xr-x. 1 root root 0 Jun 17 22:00 DangLoc
drwxr-xr-x. 1 root root 0 Jun 17 22:01 wins
[root@fedora hdh]#
```

Move the file **thoca.txt** from **linux** to **openbsd**

```
root@fedora:hdh/unix/linux
[root@fedora ~]# cd /hdh
[root@fedora hdh]# pwd
/hdh
[root@fedora hdh]# cd unix
[root@fedora unix]# pwd
/hdh/unix
[root@fedora unix]# cd linux
[root@fedora linux]# pwd
/hdh/unix/linux
[root@fedora linux]#
```

Sereaching find thoca.txt and "Cong cha nhu nui" in the text file

```
root@fedora:~
[root@fedora ~]# find /hdh -name thoca.*
/hdh/unix/linux/windows/98/thoca.txt
/hdh/windows/98/thoca.txt
[root@fedora ~]# grep "Cong cha nhu nui" /hdh/windows/98/thoca.txt
Cong cha nhu nui Thai Son
[root@fedora ~]#
```

Zip the file **thoca.txt** using **gzip**, then **unzip** by **gunzi**

```
root@fedora:~# cd /hdh/windows/98
root@fedora 98# ls -l
total 4
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 64 Jun 12 22:15 thoca.txt
root@fedora 98# gzip thoca.txt
root@fedora 98# ls -l
total 4
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 85 Jun 12 22:15 thoca.txt.gz
root@fedora 98# gunzip thoca.txt.gz
root@fedora 98# ls -l
total 4
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 64 Jun 12 22:15 thoca.txt
```

Zip the file **thoca.txt** using **tar**

```
root@fedora 98# ls -l
total 4
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 64 Jun 12 22:15 thoca.txt
root@fedora 98# tar -cvf DangLoc.tar DangLoc.txt
DangLoc.txt
root@fedora 98# ls -l
total 16
-rw-r--r--. 1 root root 10240 Jun 17 22:22 DangLoc.tar
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
-rw-r--r--. 1 root root 64 Jun 12 22:15 thoca.txt
root@fedora 98#
```

```
root@fedora 98# ls
backup DangLoc.tar DangLoc.tar.gz DangLoc.txt thoca.txt
root@fedora 98# tar -xvf DangLoc.tar -C /hdh/windows/98/backup/
DangLoc.txt
root@fedora 98# cd backup
root@fedora backup# ls -l
total 4
-rw-r--r--. 1 root root 1 Jun 17 22:30 baitho.doc
-rw-r--r--. 1 root root 0 Jun 12 22:15 DangLoc.txt
root@fedora backup#
```

Thank you!