

## Lab 2 for Operating Systems

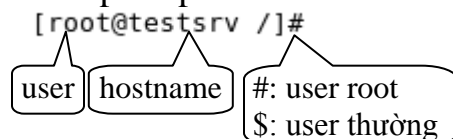
### Learning outcome

Upon successful completion of this lab, you will be able

- How to use command line in Fedora
- To study some useful command in Fedora
- To manage file in Fedora

### Using command line in Linux (shell script)

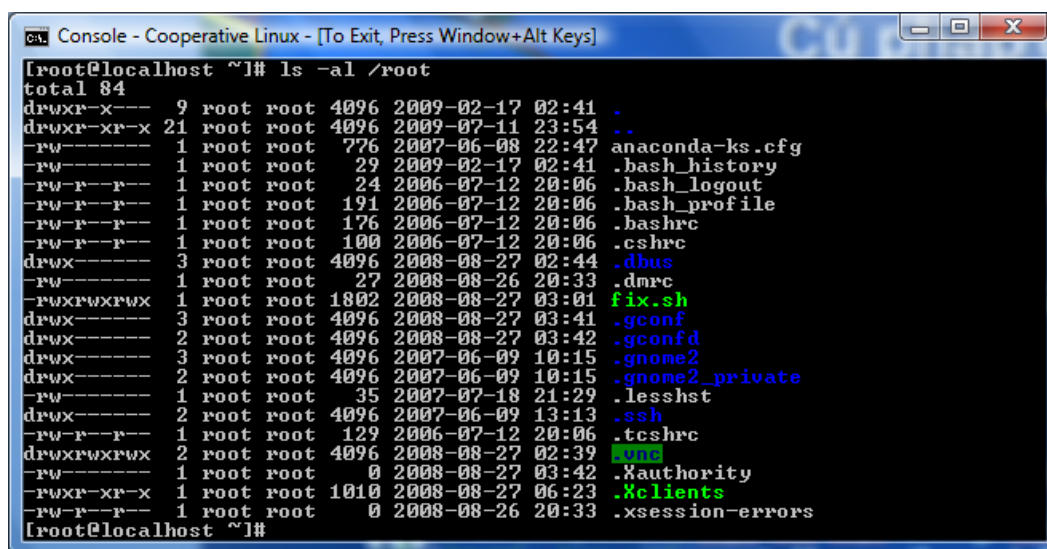
- Command prompt structure



- Command line syntax

*<command> [option] [arguments]*

- command: command calls the system executing required task
- option: specifies the appropriate task
- arguments: the location that the command is executed
- Ex: `ls -al /root`



```

[root@localhost ~]# ls -al /root
total 84
drwxr-x--- 9 root root 4096 2009-02-17 02:41 .
drwxr-xr-x 21 root root 4096 2009-07-11 23:54 ..
-rw-r--r-- 1 root root 776 2007-06-08 22:47 anaconda-ks.cfg
-rw-r--r-- 1 root root 29 2009-02-17 02:41 .bash_history
-rw-r--r-- 1 root root 24 2006-07-12 20:06 .bash_logout
-rw-r--r-- 1 root root 191 2006-07-12 20:06 .bash_profile
-rw-r--r-- 1 root root 176 2006-07-12 20:06 .bashrc
-rw-r--r-- 1 root root 100 2006-07-12 20:06 .cshrc
drwxr-xr-x 3 root root 4096 2008-08-27 02:44 .dbus
-rw-r--r-- 1 root root 27 2008-08-26 20:33 .dmrc
-rwxrwxrwx 1 root root 1802 2008-08-27 03:01 fix.sh
drwxr-xr-x 3 root root 4096 2008-08-27 03:41 .gconf
drwxr-xr-x 2 root root 4096 2008-08-27 03:42 .gconfd
drwxr-xr-x 3 root root 4096 2007-06-09 10:15 .gnome2
drwxr-xr-x 2 root root 4096 2007-06-09 10:15 .gnome2_private
-rw-r--r-- 1 root root 35 2007-07-18 21:29 .lessht
drwxr-xr-x 2 root root 4096 2007-06-09 13:13 .ssh
-rw-r--r-- 1 root root 129 2006-07-12 20:06 .tcshrc
drwxrwxrwx 2 root root 4096 2008-08-27 02:39 .vim
-rw-r--r-- 1 root root 0 2008-08-27 03:42 .Xauthority
-rwxr-xr-x 1 root root 1010 2008-08-27 06:23 .Xclients
-rw-r--r-- 1 root root 0 2008-08-26 20:33 .xsession-errors
[root@localhost ~]#

```

- To learn how to use the any command, the man command is used as **man ls**

- Execute the following script command and write the functional command with their parameters
  - su
  - env
  - mkdir, cp, mv, rmdir, ln, cat, rm
  - chown, chgrp, chmod
  - find
  - ds, df
  - ps, top, kill, jobs

## File management

- Create a directory: mkdir
  - Create the following directory tree:

/ (root directory)

---hdh

|--- unix

|       |--- linux

|       |--- freebsd

|       |--- openbsd

|

|--- windows

      |--- 98

      |--- 2000

      |--- 2003

```
[root@testsrv /]# mkdir /hdh
[root@testsrv /]# mkdir /hdh/unix
[root@testsrv /]# mkdir /hdh/unix/linux
[root@testsrv /]# mkdir /hdh/unix/freebsd
[root@testsrv /]# mkdir /hdh/unix/openbsd
[root@testsrv /]# mkdir /hdh/windows
[root@testsrv /]# mkdir /hdh/windows/98
[root@testsrv /]# mkdir /hdh/windows/2000
[root@testsrv /]# mkdir /hdh/windows/2003
```

- View the directory or file: ls or ll
  - View the hdh directory:

```
[root@testsrv /]# ls -l /hdh
total 16
drwxr-xr-x 5 root root 4096 Jan 27 08:16 unix
drwxr-xr-x 5 root root 4096 Jan 27 08:16 windows
```
  - View the unix directory:

```
[root@testsrv /]# ls -l /hdh/unix/
total 24
drwxr-xr-x 2 root root 4096 Jan 27 08:16 freebsd
drwxr-xr-x 2 root root 4096 Jan 27 08:15 linux
drwxr-xr-x 2 root root 4096 Jan 27 08:16 openbsd
```

- View the windows directory:
 

```
[root@testsrv /]# ls -l /hdh/windows
total 24
drwxr-xr-x 2 root root 4096 Jan 27 08:16 2000
drwxr-xr-x 2 root root 4096 Jan 27 08:16 2003
drwxr-xr-x 2 root root 4096 Jan 27 08:16 98
```
- Create a file: there are many ways to create a file
  - Create the file with name thoca.txt with contents “Cong cha nhu nui thai son” located at 98 directory:
 

```
[root@testsrv /]# echo "Cong cha nhu nui thai son" > /hdh/windows/98/thoca.txt
```
  - Adding the “Nghia me nhu nuoc trng nguon chay ra” sentence into thoca.txt:
 

```
[root@testsrv /]# echo "Nghia me nhu nuoc trong nguon chay ra" >> /hdh/windows/98/thoca.txt
```
  - Create the empty file:
 

```
[root@testsrv /]# touch /text1.txt
```
- View the file content: using any command as cat, more, less, tail, ...
  - View the thoca.txt file:
 

```
[root@testsrv /]# cat /hdh/windows/98/thoca.txt
Cong cha nhu nui thai son
Nghia me nhu nuoc trong nguon chay ra
```
  - View the /etc/passwd and /etc/group file:
 

```
[root@testsrv /]# cat /etc/passwd /etc/group
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
.....
```
- Copy a file/ directory: cp
  - Copy the thoca.txt file to the linux directory:
 

```
[root@testsrv /]# cp /hdh/windows/98/thoca.txt /hdh/unix/linux/
```
  - Copy the windows directory to linux directory:
 

```
[root@testsrv /]# cp -R /hdh/windows /hdh/unix/linux/
```
  - View the linux directory:
 

```
[root@testsrv /]# ls -l /hdh/unix/linux/
total 16
-rw-r--r-- 1 root root 64 Jan 27 08:42 thoca.txt
drwxr-xr-x 5 root root 4096 Jan 27 08:43 windows
```

*Notes: The “?” or “\*” character can be used to wild character in copying:*

```
[root@testsrv /]# cp /var/log/mail* /maillog/
```
- Move objects: mv
  - Move the thoca.txt file in the linux library to the openbsd library:
 

```
[root@testsrv /]# mv /hdh/unix/linux/thoca.txt /hdh/unix/openbsd/
```

- Move the windows directory to penbsd directory:  

```
[root@testsrv /]# mv /hdh/unix/linux/windows/ /hdh/unix/openbsd/
```
- Rename
  - Rename the windows directory in the openbsd directory to wins:  

```
[root@testsrv /]# mv /hdh/unix/openbsd/windows/ /hdh/unix/openbsd/wins
```
  - View the openbsd directory:  

```
[root@testsrv /]# ls -l /hdh/unix/openbsd/
total 16
-rw-r--r-- 1 root root 64 Jan 27 08:42 thoca.txt
drwxr-xr-x 5 root root 4096 Jan 27 08:43 wins
```
  - Copy the thoca.txt directory in the openbsd directory to the freebsd directory and rename to baitho.doc  

```
[root@testsrv /]# cp /hdh/unix/openbsd/thoca.txt /hdh/unix/freebsd/baitho.doc
```
  - View the baitho.doc file:  

```
[root@testsrv /]# more /hdh/unix/freebsd/baitho.doc
Cong cha nhu nui thai son
Nghia me nhu nuoc trong nguon chay ra
```
- Delete a file: rm
  - Delete the thoca.txt file in openbsd directory:  

```
[root@testsrv /]# rm /hdh/unix/openbsd/thoca.txt
rm: remove regular file `/hdh/unix/openbsd/thoca.txt'? y
```

If wanting to delete without asking before, the option (-f) is used

```
[root@testsrv /]# rm -f /hdh/unix/freebsd/baitho.doc
```
  - To delete the directory, the option (-rf) is used  

```
[root@testsrv /]# rm -rf /hdh/unix/openbsd/wins/
```
- Delete the empty directory: rmdir
  - Delete the 2000 directory:  

```
[root@testsrv /]# rmdir /hdh/windows/2000/
```
- Change to the directory: cd
  - Change the current directory to the 2003 directory:  

```
[root@testsrv /]# cd /hdh/windows/2003/
[root@testsrv 2003]#
```
  - Change the current directory to sub directory: cd ..  

```
[root@testsrv 2003]# cd ..
[root@testsrv windows]#
```
  - Change to the root directory: cd /  

```
[root@testsrv windows]# cd /
[root@testsrv /]#
```

- View the current directory: pwd

```
[root@testsrv /]# pwd
/
[root@testsrv /]# cd /hdh/windows/2003/
[root@testsrv 2003]# pwd
/hdh/windows/2003
-
```

- Searching

- Search the thoca.txt file:

```
[root@testsrv 2003]# find /hdh -name thoca.txt
/hdh/windows/98/thoca.txt
```

Using the wild character

```
[root@testsrv 2003]# find /hdh -name thoca.*
/hdh/windows/98/thoca.txt
```

The other options can be used as: -type, -user, -atime, -amin, -newer,...

- Search the “Cong cha nhu nui thai son” sentences in the thoca.txt file

```
[root@testsrv 2003]# grep "Cong cha nhu nui thai son" /hdh/windows/98/thoca.txt
Cong cha nhu nui thai son
```

- Search the location, source and man page of the grep command:

```
[root@testsrv 2003]# whereis grep
grep: /bin/grep /usr/share/man/man1/grep.1.gz /usr/share/man/man1p/grep.1p.gz
```

- Search the directory that contain the ls command:

```
[root@testsrv 2003]# which ls
alias ls='ls --color=tty'
/bin/ls
```

- Zip or unzip:

- Using gzip/gunzip:

- Zip the thoca.txt file:

```
[root@testsrv 2003]# gzip /hdh/windows/98/thoca.txt
[root@testsrv 2003]# ls -l /hdh/windows/98/
total 8
-rw-r--r-- 1 root root 85 Jan 27 08:34 thoca.txt.gz
```

- Unzip:

```
[root@testsrv 2003]# gunzip /hdh/windows/98/thoca.txt.gz
[root@testsrv 2003]# ls -l /hdh/windows/98/
total 8
-rw-r--r-- 1 root root 64 Jan 27 08:34 thoca.txt
```

- Using tar

- Zip the thoca.txt file to the .tar extension:

```
[root@testsrv 98]# tar -cvf thoca.tar thoca.txt
thoca.txt
```

#### Checking

```
[root@testsrv 98]# ls -l
total 32
drwxr-xr-x 2 root root 4096 Jan 27 09:49 backup
-rw-r--r-- 1 root root 10240 Jan 27 09:50 thoca.tar
-rw-r--r-- 1 root root 64 Jan 27 08:34 thoca.txt
```

- Zip the thoca.txt file to the .tar.gz extension:

```
[root@testsrv 98]# tar -zcvf thoca.tar.gz thoca.txt
thoca.txt
```

#### Checking

```
[root@testsrv 98]# ls -l
total 40
drwxr-xr-x 2 root root 4096 Jan 27 09:49 backup
-rw-r--r-- 1 root root 10240 Jan 27 09:50 thoca.tar
-rw-r--r-- 1 root root 167 Jan 27 09:50 thoca.tar.gz
-rw-r--r-- 1 root root 64 Jan 27 08:34 thoca.txt
```

- Unzip .tar

```
[root@testsrv 98]# tar -xvf thoca.tar -C /hdh/windows/98/backup/
thoca.txt
```

#### Checking

```
[root@testsrv 98]# ls -l /hdh/windows/98/backup/
total 8
-rw-r--r-- 1 root root 64 Jan 27 08:34 thoca.txt
```

- Unzip .tar.gz

```
[root@testsrv 98]# tar -zxvf thoca.tar.gz -C /hdh/windows/98/backup/
thoca.txt
```

### Submission

Upload the word or pdf file to cms describes some questions as

- Present the content of manipulating of some command (**including syntax, what does it for?, capture two of examples for each command**) as
  - man
  - bg, fg
  - who
  - chown, chgrp, chmod
  - date
  - su, top, kill, jobs
- Capture the terminal screen using the “**grep “nhu nui” thoca.txt**” and give your explanation the result. (**Notes: thoca.txt is the file in above tutorial**)
- Submit the C/C++ files and objects files as the below content then capture the result of the program and explanation your result that you get

```
#include<stdio.h>

int main() {
    int ret;

    ret = system("man ls");
    return ret;
}
```

### Requirement

All the capture must be combination with full the windows **including your accounts on the windows and the Linux OS (if it is not, you will be taken 0 mark)**. Should be use the capture in windows with jpg format to reduce the file size with your submitting

**END**