

# Lab 2: Using Basic Linux Commands

## A. su

### 1. Description.

-Run a command with substitute user and group ID.

### 2. Syntax.

```
su [options] [-] [user [argument...]]
```

Options:

- **-c, --command**

- Specify a command that will be invoked by the shell. using its -c

- **-, -l, --login**

-Provide an environment similar to what the user would expect had the user logged in directly.

-If you use - -, you must specify it as the last su option. Other formats (-l and --login) are not subject to this restriction.

- **-m, -p, --preserve-environment**

-Preserve the current environment.

### 3. Examples.

```
Fedora 64-bit X
[root@fedora admin]# su -l user2
[user2@fedora ~]$
```

**Ex:**

Using the command sudo -l to access the root commands

```
[user@fedora ~]$ sudo -i

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

#1) Respect the privacy of others.
#2) Think before you type.
#3) With great power comes great responsibility.

For security reasons, the password you type will not be visible.

[sudo] password for user:
[root@fedora ~]# mkdir /hdh
[root@fedora ~]# mkdir /hdh/unix
[root@fedora ~]# mkdir /hdh/unix/linux
[root@fedora ~]# mkdir /hdh/unix/freebsd
[root@fedora ~]# mkdir /hdh/unix/openbsd
[root@fedora ~]# mkdir /hdh/windows
[root@fedora ~]# mkdir /hdh/windows/98
[root@fedora ~]# mkdir /hdh/windows/2000
[root@fedora ~]# mkdir /hdh/windows/2003
```

→ Use the command sudo -i to access root then follow the instructions in the manual

## B. env

## 1. Description.

-Run a program in a modified environment.

## 2. Syntax.

```
env [OPTION]... [-] [NAME=VALUE]... [COMMAND [ARG]...]
```

Options:

- **-i, --ignore-environment**

-Start with an empty environment.

- **-0, --null**

-End each output line with a 0 (null) byte rather than a newline.

- **-u, --unset=NAME**

-Remove variable NAME from the environment.

- **--help**

-Display a help message and exit.

- **--version**

-Display version information and exit.

- **-**

-Same as -i.

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

- To view the hdh directory using command: `ls -l /hdh`

```
[root@fedora ~]# ls -l /hdh
total 0
drwxr-xr-x. 1 root root 38 Jun  1 02:01 unix
drwxr-xr-x. 1 root root 20 Jun  1 02:01 windows
[root@fedora ~]#
```

- View the unix directory using command: `ls -l /hdh/unix`

```
[root@fedora ~]# ls -l /hdh/unix
total 0
drwxr-xr-x. 1 root root 0 Jun  1 02:00 freebsd
drwxr-xr-x. 1 root root 0 Jun  1 02:00 linux
drwxr-xr-x. 1 root root 0 Jun  1 02:01 openbsd
[root@fedora ~]#
```

- View the windows directory using command: `ls -l /hdh/windows`

```
[root@fedora ~]# ls -l /hdh/windows
total 0
drwxr-xr-x. 1 root root 0 Jun  1 02:01 2000
drwxr-xr-x. 1 root root 0 Jun  1 02:01 2003
drwxr-xr-x. 1 root root 0 Jun  1 02:01 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@fedora ~]# 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@fedora ~]# echo "Nghia me nhu nuoc trong nguon chay ra" >> /hdh/windows/98/thoca.txt
```

- Create the empty file:

```
[root@fedora ~]# touch /text1.txt
```

## C. mkdir, cp, mv, rmdir, ln, cat, rm

### I. mkdir

#### 1. Description.

-Creates new directories in a file system.

#### 2. Syntax

```
mkdir [OPTION]... DIRECTORY...
```

Options:

- **-m, --mode=MODE**  
-Set a file mode (permissions, etc.) for the created directories
- **-p, --parents**  
-Create parent directories as necessary. When this option is specified, no error is reported if a directory already exists.
- **-v, --verbose**  
-Verbose output. Print a message for each created directory.
- **--help**  
-Display a help message, and exit.
- **--version**  
-Display version information, and exit.
- **View the file content:** using any command as **cat, more, less, tail,...**
  - View the thoca.txt file using command: cat /hdh/windows/98/thoca.txt

```
[root@fedora ~]# 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 using command: cat /etc/passwd /ect/group

```
[root@fedora ~]# cat /etc/passwd /etc/group
root:x:0:0:Super User:/root:/bin/bash
bin:x:1:1:bin:/bin:/usr/sbin/nologin
daemon:x:2:2:daemon:/sbin:/usr/sbin/nologin
adm:x:3:4:adm:/var/adm:/usr/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/usr/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/usr/sbin/nologin
operator:x:11:0:operator:/root:/usr/sbin/nologin
games:x:12:100:games:/usr/games:/usr/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/usr/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/usr/sbin/nologin
dbus:x:81:81:System Message Bus:/usr/sbin/nologin
apache:x:48:48:Apache:/usr/share/httpd:/sbin/nologin
tss:x:59:59:Account used for TPM access:/usr/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/usr/sbin/nologin
systemd-oom:x:999:999:systemd Userspace OOM Killer:/usr/sbin/nologin
systemd-resolve:x:193:193:systemd Resolver:/usr/sbin/nologin
```

## II. cp

### 1. Description.

- Makes copies of files and directories.

### 2. Syntax.

- **--attributes-only**

- Don't copy the file data, just the attributes

- **--backup[=control]**

- Make a backup of each existing destination file that would otherwise be overwritten or removed. The control parameter specifies what version control method to use; see version control for details.

- As a special case, cp --force --backup makes a backup of source when source and dest are the same, regular file.

- **-f, --force**

- If an existing destination file cannot be opened, remove it and try again (this option is ignored when the -n option is also used)

- **Copy a file/ directory: cp**

- Copy the thoca.txt file to the linux directory using command:

```
[root@fedora ~]# cp /hdh/windows/98/thoca.txt /hdh/unix/linux/
```

- Copy the windows directory to linux directory:

```
[root@fedora ~]# cp -R /hdh/windows /hdh/unix/linux
```

- View the linux directory:

```
[root@fedora ~]# ls -l /hdh/unix/linux
total 4
-rw-r--r--. 1 root root 64 Jun  1 02:25 thoca.txt
drwxr-xr-x. 1 root root 20 Jun  1 02:26 windows
```

Notes: The "?" or "\*" characters can be used as wild characters in copying:

```
[root@fedora ~]# cp /var/log/mail? /maillog/
```

```
[root@fedora ~]# cp /var/log/mail* /maillog/
```

## I. Move objects: mv

### 1. Description.

-Moves ( and renames) files and directories

### 2. Syntax.

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

Options:

- **--backup[=vcm]**  
-Make a backup of each existing destination file, sing the version control method vcm.
- **-b**  
-Like --backup, but does not accept a backup method.
- **-f, --force**  
-Always overwrite existing files without prompting.
- **-i, --interactive**  
-Prompt before overwriting an existing file, regardless of the file's permissions.
- **-n, --no-clobber**  
-Do not overwrite an existing file.

- **-t,--target-directory=destination**  
-Move all SOURCE arguments into DIRECTORY

- **Move objects: *mv***

- Move the thoca.txt file in the linux library to the openbsd library:

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

- Move the windows directory to penbsd directory:

```
[root@fedora ~]# mv /hdh/unix/linux/windows /hdh/unix/openbsd/
```

- **Rename: *mv***

- Rename the windows directory in the openbsd directory to wins:

```
[root@fedora ~]# mv /hdh/unix/openbsd/windows/ /hdh/unix/openbsd/wins
```

- View the openbsd directory:

```
[root@fedora ~]# ls -l /hdh/unix/openbsd/
total 4
-rw-r--r--. 1 root root 64 Jun  1 02:25 thoca.txt
drwxr-xr-x. 1 root root 20 Jun  1 02:26 wins
```

- Copy the thoca.txt directory in the openbsd directory to the freebsd directory and rename to baitho.doc

```
[root@fedora ~]# cp /hdh/unix/openbsd/thoca.txt /hdh/unix/freebsd/baitho.doc
```

- View the baitho.doc file:

```
[root@fedora ~]# more /hdh/unix/freebsd/baitho.doc
Cong cha nhu nui thai son
Nghia me nhu nuoc trong nguon chay ra
```

## II. rm

### 1. Description.

-Remove files or directories

### 2. Syntax.

- **-f, --force**

-Ignore nonexistant files, and never prompt before removing.

- **-i**

-Prompt before every removal.

- **-I**

-Prompt once before removing more than three files, or when removing recursively.

- **--interactive[=WHEN]**

-Prompt according to WHEN: never, once (-I), or always (-i). If WHEN is

not specified, then prompt always.

- **--one-file-system**

-When removing a hierarchy recursively, skip any directory that is on a file system different from that of the corresponding command line argument.

- **--no-preserve-root**

-Do not treat "/" (the root directory) in any special way.

- **--preserve-root**

-Do not remove "/" (the root directory), which is the default behavior.

- **-r, -R, --recursive**

-Remove directories and their contents recursively.

- **-d, --dir**

-Remove empty directories

- **-v, --verbose**

-Explain at all times what is being done

- **Delete a file: *rm***

- Delete the thoca.txt file in openbsd directory:

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

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

```
[root@fedora ~]# rm -f /hdh/unix/freebsd/baitho.doc
```

- To delete the directory, the option (-rf) is used

```
[root@fedora ~]# rm -rf /hdh/unix/openbsd/wins/
```

## I. *rmdir*

### 1. Description.

-Removes empty directories from a filesystem.

### 2. Syntax.

```
rmdir [OPTION]... DIRECTORY...
```

Options:

- **-p**

-remove DIRECTORY and its ancestors

- **-v, --verbose**

-Display verbose information for every directory processed.

- **--ignore-fail-on-non-empty**

-Do not report a failure which occurs solely because a directory is non-empty

- **Delete the empty directory: *rmdir***

- Delete the 2000 directory:

```
[root@fedora ~]# rmdir /hdh/windows/2000
```

- **Change to the directory: *cd***

- Change the current directory to the 2003 directory:

```
[root@fedora ~]# cd /hdh/windows/2003/  
[root@fedora 2003]#
```

- Change the current directory to sub directory: *cd ..*

```
[root@fedora 2003]# cd ..  
[root@fedora windows]#
```



- Change to the root directory: *cd /*

```
[root@fedora windows]# cd
[root@fedora ~]#
```

- View the current directory: *pwd*

```
[root@fedora ~]# pwd
/root
[root@fedora ~]# cd /hdh/windows/2003
[root@fedora 2003]# pwd
/hdh/windows/2003
```

- Searching: *find, grep, whereis, which*

- Search the thoca.txt file:

```
[root@fedora ~]# find /hdh -name thoca.txt
/hdh/unix/openbsd/thoca.txt
/hdh/windows/98/thoca.txt
```

Using the wild character

```
[root@fedora ~]# find /hdh -name thoca.*
/hdh/unix/openbsd/thoca.txt
/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@fedora ~]# 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@fedora ~]# whereis grep
grep: /usr/bin/grep /usr/share/man/man1/grep.1.gz /usr/share/info/grep.info.gz
[root@fedora ~]#
```

- Search the directory that contain the ls command:

```
[root@fedora ~]# which ls
alias ls='ls --color=auto'
/usr/bin/ls
```

- Zip or unzip: *gzip/gunzip, zip/unzip, tar*

- Using *gzip/gunzip*:
  - Zip the thoca.txt file:

```
[root@fedora ~]# gzip /hdh/windows/98/thoca.txt
[root@fedora ~]# ls -l /hdh/windows/98/
total 4
-rw-r--r--. 1 root root 85 Jun  1 02:18 thoca.txt.gz
```

- Unzip:

```
[root@fedora ~]# gunzip /hdh/windows/98/thoca.txt.gz
[root@fedora ~]# ls -l /hdh/windows/98/
total 4
-rw-r--r--. 1 root root 64 Jun  1 02:18 thoca.txt
```

- Using **tar**

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

```
[root@fedora ~]# cd /hdh/windows/98
[root@fedora 98]# tar cvf thoca.tar thoca.txt
thoca.txt
```

### Checking

```
[root@fedora 98]# ls -l
total 16
-rw-r--r--. 1 root root 10240 Jun  1 04:06 thoca.tar
-rw-r--r--. 1 root root   64 Jun  1 02:18 thoca.txt
```

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

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

### Checking

```
[root@fedora 98]# ls -l
total 20
-rw-r--r--. 1 root root 10240 Jun  1 04:06 thoca.tar
-rw-r--r--. 1 root root   166 Jun  1 04:07 thoca.tar.gz
-rw-r--r--. 1 root root   64 Jun  1 02:18 thoca.txt
```

- Unzip .tar

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

### Checking

```
[root@fedora 98]# ls -l /hdh/windows/98
total 20
-rw-r--r--. 1 root root 10240 Jun  1 04:06 thoca.tar
-rw-r--r--. 1 root root   166 Jun  1 04:07 thoca.tar.gz
-rw-r--r--. 1 root root   64 Jun  1 02:18 thoca.txt
```

- Unzip .tar.gz
- Checking

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

**END**