

# Exercise 12: Managing Files - Part 2 - 2

## I. Prepare the environment

## II. Create and change hard link and soft link

1. Login to the CentOS server with user student
2. Create an empty file in your home directory, name it mydata
3. Create a directory named hl\_dir and create a hard link of mydata file inside the hl\_dir, name the link hl\_mydata. Add some content to mydata file. Show the content of hl\_mydata, does it have the same data with mydata file?
4. Create a directory named sl\_dir and create a soft link of mydata file inside the sl\_dir, name the link sl\_mydata. Show the content of sl\_mydata. Does it have the same data with mydata file?
5. Remove the mydata file and display access the data of hl\_mydata and sl\_mydata. Do they have the same data? Why?
6. Restore the mydata file.

## III. Locating files

7. Display the absolute path of the passwd command.
8. Locate the hl\_data that you created in step 3.
9. Create a new file named newfile. Could you use the locate command to locate newfile? Why?
10. Update the mlocate database and re-use the locate command to locate newfile.
11. Find all files that owned by user student.
12. Find all files inside your home directory that have 2 hard links.
13. Find all files inside your home directory whose name contain the "file" string.
14. Find all files inside your home directory that have been set the SUID permission.

# Exercise Instructions

- I. Prepare the environment
- II. Manage file permission and ownership

1. Login to the CentOS server with the provided username and password:  
**student/lpic1@123**

2. Create an empty file in your home directory, name it mydata  
**\$ touch mydata**

3. Create a directory named hl\_dir and create a hard link of mydata file inside the hl\_dir, name the link hl\_mydata. Add some content to mydata file. Show the content of hl\_mydata, does it have the same data with mydata file?

**\$ mkdir hl\_dir**

**\$ ln mydata hl\_dir/hl\_mydata**

**\$ vi hl\_dir/hl\_mydata**

*<Add some content and save it>*

**\$ cat hl\_mydata**

*Compare the content of hl\_mydata with the content you've just put in mydata*

4. Create a directory named sl\_dir and create a soft link of mydata file inside the sl\_dir, name the link sl\_mydata. Show the content of sl\_mydata. Does it have the same data with mydata file?

**\$ mkdir sl\_dir**

**\$ ln -s mydata sl\_dir/sl\_mydata**

**\$ cat sl\_dir/sl\_mydata**

*Compare the content of sl\_mydata with the content of mydata*

5. Remove the mydata file and display access the data of hl\_mydata and sl\_mydata. Do they have the same data? Why?

**\$ rm mydata**

**\$ cat hl\_dir/hl\_mydata**

*You can see the previous data because it is a hard link*

**\$ cat sl\_dir/sl\_mydata**

*You will get an error and cannot see the previous data because the source file is deleted.*

6. Restore the mydata file. Could you access the sl\_mydata now?

**\$ ln hl\_dir/hl\_mydata mydata**

**\$ cat sl\_dir/sl\_mydata**

*You can see the data because the source file is restored.*

## IV. Locating files

7. Display the absolute path of the passwd command.

**\$ which passwd**

Or

**\$ whereis passwd**

8. Locate the mydir directory that you created in the Exercise 11.

**\$ locate mydir**

9. Create a new file named new\_file. Could you use the locate command to locate newfile? Why?

**\$ touch new\_file**

**\$ locate new\_file**

*You could not locate new\_file because the mlocate database is not updated.*

10. Update the mlocate database and re-use the locate command to locate newfile.

**\$ sudo updatedb**

**\$ locate new\_file**

*You could locate new\_file now, after the mlocate database updated.*

11. Find all files that owned by user student.

**\$ find /home/student -user student**

12. Find all files inside your home directory that have 2 hard links.

**\$ find /home/student -links 2**

13. Find all files inside your home directory whose name contain the "file" string.

**\$ find /home/student -name "\*\*file\*\*"**

14. Find all files inside your home directory that have been set the SUID permission.

**\$ find /home/student -perm -u=s**

Or

**\$ find /home/student -perm -4000**