This is **Lab 3: Managing Files and Directories of the Cisco NetAcad & LPI Linux Essentials learning path**.

By performing this lab, students will learn how to navigate and manage files and directories.

In this lab, I will perform the following tasks:

- Understand how to use globbing
- Creating, moving and deleting files and directories

Understand how to use globbing

In these steps I will use various globbing techniques.

Steps

Use the following echo command to display all filenames in the current directory that match the glob pattern *

The following commands will display all the files in the current directory that start with the letter D, and the letter P.

The asterisk * can be used anywhere in the string. The following command will display all the files in your current directory that end in the letter s

the asterisk can also appear multiple times or in the middle of several characters

Since each question mark matches one unknown character, typing six of them will match six-character filenames

Using the question mark with other characters will limit the matches.

Wildcards or glob characters can be combined together.

```
sysadmin@localhost:~$ echo *
Desktop Documents Downloads Music Pictures Public Templates Videos
sysadmin@localhost:~$ echo D*
Desktop Documents Downloads
sysadmin@localhost:~$ echo P*
Pictures Public
sysadmin@localhost:~$ echo *s
Documents Downloads Pictures Templates Videos
sysadmin@localhost:~$ echo D*n*S
D*n*S
sysadmin@localhost:~$ echo D* n*s
Desktop Documents Downloads n*s
sysadmin@localhost:~$ echo D*n*s
Documents Downloads
sysadmin@localhost:~$ echo ??????
Public Videos
sysadmin@localhost:~$ echo D?????????
D?????????
sysadmin@localhost:~$ echo D????????
Documents Downloads
sysadmin@localhost:~$ echo ?????*s
Documents Downloads Pictures Templates Videos
sysadmin@localhost:~$
```

The next glob is similar to the question mark glob to specify one character.

This glob uses a pair of square brackets [ ] to specify which one character will be allowed. The allowed characters can be specified as a range, a list, or by what is known as a character class.

The allowed characters can also be negated with an exclamation point !.

In the first example, the first character of the file name can be either a D or a P. In the second example, the first character can be any character except a D or P:

```
Desktop Documents Downloads n*s
sysadmin@localhost:~$ echo D*n*s
Documents Downloads
sysadmin@localhost:~$ echo ??????
Public Videos
sysadmin@localhost:~$ echo D?????????
D?????????
sysadmin@localhost:~$ echo D????????
Documents Downloads
sysadmin@localhost:~$ echo ?????*s
Documents Downloads Pictures Templates Videos
sysadmin@localhost:~$ echo [DP] *
[DP] Desktop Documents Downloads Music Pictures Public Templates Videos
sysadmin@localhost:~$ echo [!DP] *
[!DP] Desktop Documents Downloads Music Pictures Public Templates Videos
sysadmin@localhost:~$ echo [! DP] *
[! DP] Desktop Documents Downloads Music Pictures Public Templates Videos
sysadmin@localhost:~$ echo [!DP]*
Music Templates Videos
sysadmin@localhost:~$ echo [D-P]*
Desktop Documents Downloads Music Pictures Public
sysadmin@localhost:~$ echo [!D-P]*
Templates Videos
sysadmin@localhost:~$
```

Copying, Moving and Renaming Files and Directories

In this task, I will copy, move, and remove files and directories.

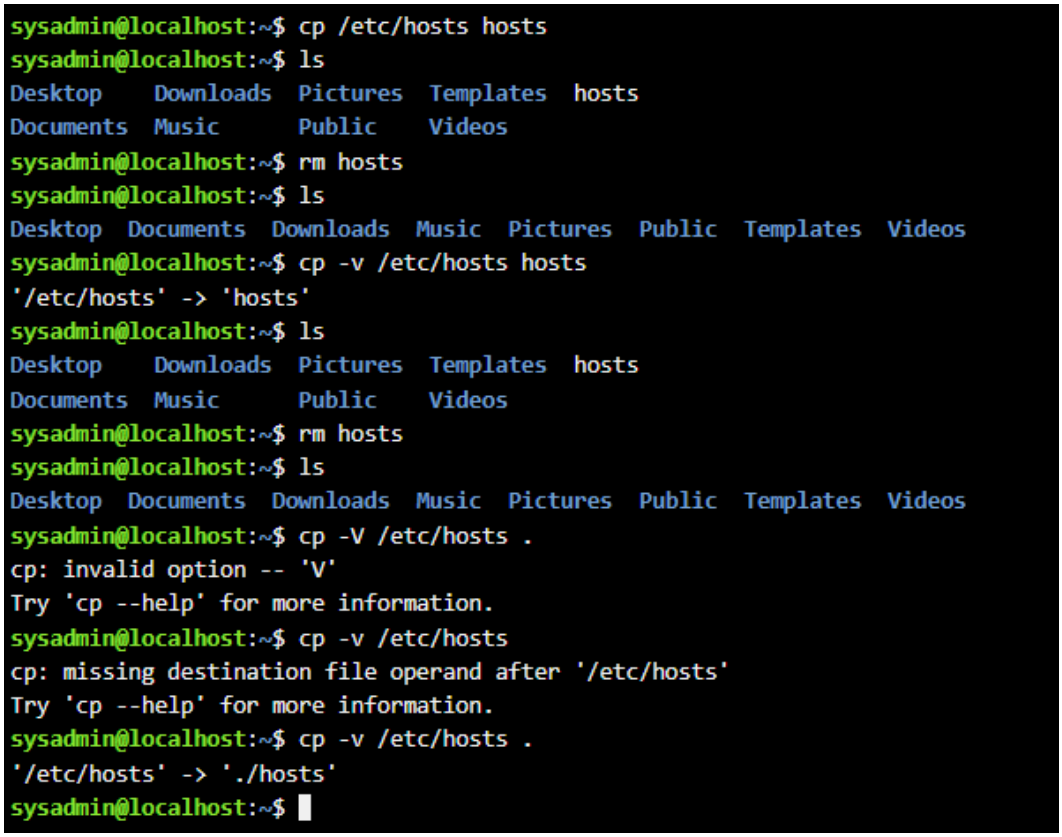
Make a copy of the /etc/hosts file and place it in the current directory. Then, list the contents of the current directory before and after the copy.

Next, you will remove the file, then copy it again, but have the system tell you what is being done. This can be achieved using the -v or --verbose option. Enter the following commands.

Note that the -v switch displays the source and target when the cp command is executed.

Enter the following commands to copy the /etc/hosts file, using the period . character to indicate the current directory as the target.

The period . character is a handy way to say "the current directory". It can be used with all Linux commands, not just the cp command



Enter the following commands to copy from the source directory and preserve file attributes by using the -p option:

rm hosts

ls

cd /etc

ls -l hosts

cp –p hosts /home/sysadmin

cd

ls –l hosts

Notice that the date and permission modes were preserved. Note that the timestamp in the output above is the same for both the original and the copy

Type the following commands to copy using a different target name:

rm hosts

cp -p /etc/hosts ~

cp hosts newname

ls –l hosts newname

rm hosts newname

The first copy with the -p option preserved the original timestamp. Recall that the tilde ~ represents your home directory (/home/sysadmin).

The second copy specified a different filename (newname) as the target. Because it was issued without the -p option, the system used the current date and time for the target; thus, it did not preserve the original timestamp found in the source file /etc/hosts.

Finally, note that you can remove more than one file at a time as shown in the last rm command.

```
Try 'cp --help' for more information.
sysadmin@localhost:~$ cp -v /etc/hosts
cp: missing destination file operand after '/etc/hosts'
Try 'cp --help' for more information.
sysadmin@localhost:~$ cp -v /etc/hosts .
'/etc/hosts' -> './hosts'
sysadmin@localhost:~$ rm hosts
sysadmin@localhost:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
sysadmin@localhost:~$ cd /etc
sysadmin@localhost:/etc$ ls -l hosts
-rw-r--r-- 1 root root 172 Oct 17 19:00 hosts
sysadmin@localhost:/etc$ cp -p hosts /home/sysadmin
sysadmin@localhost:/etc$ cd
sysadmin@localhost:~$ ls -l hosts
-rw-r--r-- 1 sysadmin sysadmin 172 Oct 17 19:00 hosts
sysadmin@localhost:~$ rm hosts
sysadmin@localhost:~$ cp -p /etc/hosts ~
sysadmin@localhost:~$ cp hosts newname
sysadmin@localhost:~$ ls -l hosts newname
-rw-r--r-- 1 sysadmin sysadmin 172 Oct 17 19:00 hosts
-rw-r--r-- 1 sysadmin sysadmin 172 Oct 17 19:47 newname
sysadmin@localhost:~$ rm hosts newname
sysadmin@localhost:~$
```

To copy all files in a directory, use the -R option. For this task, we will copy the /etc/udev directory into a new directory and display the contents that were copied there. Naturally, the directory must be created before files can be added to it. In this example we will use the default settings for mkdir to create the “Myetc” directory. Options are available for the mkdir command to set security, permissions and other attributes of a new directory. Once the directory has been copied, the ls command is used to list the contents of the directory with both the long and recursive options.

```
sysadmin@localhost:~$ mkdir Myetc
sysadmin@localhost:~$ cp -R /etc/udev Myetc
sysadmin@localhost:~$ ls -l Myetc
total 0
drwxr-xr-x 4 sysadmin sysadmin 68 Oct 17 19:51 udev
sysadmin@localhost:~$ ls -lR Myetc
Myetc:
total 0
drwxr-xr-x 4 sysadmin sysadmin 68 Oct 17 19:51 udev

Myetc/udev:
total 4
drwxr-xr-x 2 sysadmin sysadmin   6 Oct 17 19:51 hwdb.d
drwxr-xr-x 2 sysadmin sysadmin  62 Oct 17 19:51 rules.d
-rw-r--r-- 1 sysadmin sysadmin 218 Oct 17 19:51 udev.conf

Myetc/udev/hwdb.d:
total 0

Myetc/udev/rules.d:
total 8
-rw-r--r-- 1 sysadmin sysadmin  306 Oct 17 19:51 70-persistent-cd.rules
-rw-r--r-- 1 sysadmin sysadmin 1157 Oct 17 19:51 README
sysadmin@localhost:~$
```

To remove a directory, use the -r option to the rm command.

Note that the rmdir command can also be used to delete directories, but only if the directory is empty (if it contains no files).

Also note the -r option. This option removes directories and their contents recursively.

Moving a file is analogous to a "cut and paste". The file is “cut” (removed) from the original location and “pasted” to the specified destination. Move a file in the local directory by executing the following commands.

touch premove	Creates an empty file called premove
mv premove postmove	This command “cuts” the premove file and “pastes” it to a file called postmove
rm postmove	Removes postmove file

```
Myetc/udev/hwdb.d:
total 0

Myetc/udev/rules.d:
total 8
-rw-r--r-- 1 sysadmin sysadmin  306 Oct 17 19:51 70-persistent-cd.rules
-rw-r--r-- 1 sysadmin sysadmin 1157 Oct 17 19:51 README
sysadmin@localhost:~$ ls
Desktop    Downloads  Myetc     Public     Videos
Documents  Music      Pictures  Templates
sysadmin@localhost:~$ rm -r Myetc
sysadmin@localhost:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
sysadmin@localhost:~$ touch premove
sysadmin@localhost:~$ ls
Desktop    Downloads  Pictures  Templates  premove
Documents  Music      Public    Videos
sysadmin@localhost:~$ mv premove postmove
sysadmin@localhost:~$ ls
Desktop    Downloads  Pictures  Templates  postmove
Documents  Music      Public    Videos
sysadmin@localhost:~$ rm postmove
sysadmin@localhost:~$
```