

Activity No. 13	
Working with Files and Directories in Linux	
Course Code: CPE 201A	Program: BSCPE
Course Title: COMPUTER SYSTEM ADMINISTRATION AND TROUBLESHOOTING	Date Performed: 11/11/2025
Section: CPE11S5	Date Submitted: 11/11/2025
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<b>1. Objective/s:</b>	This activity aims to navigate and manage files and directories using command line interface.
<b>2. Intended Learning Outcome/s:</b>	The students should be able to: 2.1 Demonstrate how to navigate home and system directories 2.2 Demonstrate how to list files and directories. 2.3 Demonstrate how to use globbing to manipulate files and directories. 2.4 Demonstrate how to create, move and delete files and directories.
<b>3. Discussion:</b>	<p><b>Files and Directories</b></p> <p>The Linux filesystem is similar to other operating system's filesystems in that it contains <i>files</i> and <i>directories</i>. Files contain data such as human-readable text, executable programs, or binary data that is used by the computer.</p> <p>Directories are used to create organization within the filesystem. Directories can contain files and other directories.</p> <p><b>Directory Structure</b></p> <p>On a Windows system, the <i>top level</i> of the directory structure is called <b>My Computer</b>. The Linux directory structure, called a <b>filesystem</b>, also has a top level called the <b>root directory</b> (symbolized by the <b>slash / character</b>).</p> <pre> graph TD     /     /-- bin/     /-- dev/     /-- etc/     /-- usr/     /-- home/     /-- lib/     /-- sbin/     /-- tmp/     /-- var/     usr/ --&gt; bin2/     usr/ --&gt; man2/     usr/ --&gt; lib2/     usr/ --&gt; local2/     usr/ --&gt; share2/     var/ --&gt; log2/     var/ --&gt; lock2/     var/ --&gt; tmp2/   </pre>
<b>Home Directory</b>	On most Linux distributions there is a directory called <b>home</b> under the root /directory. Under this <b>/home</b> directory there is a directory for each user on the system. When a user opens a shell, they should

automatically be placed in their home directory. The user has the full control to create and delete additional files and directories in their home directory. Most other directories in a Linux filesystem are protected with *file permissions*. The home directory has a special symbol used to represent it, the **tilde ~ character**.

The directory name is the same as the name of the user. So, a user named sysadmin would have a *home directory* called /home/sysadmin:

## File and Directory Names

File and directory names in Linux can contain lower case and upper case letters, numbers, spaces and special characters. However, since many special characters have a special meaning in the Linux shell, it is good practice to not use spaces or special characters when naming files or directories. Spaces, for example, need the *escape character* \ to be entered correctly

## Paths

A path is a list of directories separated by the / character. There are two types of paths: *absolute* and *relative*. For example, /home/sysadmin is a path to the home directory

### A. Absolute Paths

Absolute paths allow the user to specify the exact location of a directory. Absolute paths always starts at the root directory, and therefore it always begins with the / character.

### B. Relative Paths

A relative path gives directions to a file relative to the current location in the filesystem. The user must currently be in a directory that contains objects in the path. Relative paths start with the name of a directory.

### Special Relative Paths

The single period . character always represents the current directory.

Two period .. characters always represents one directory higher relative to the current directory, sometimes referred to as the parent directory.

### 4. Resources:

Personal Computer with installed Virtual Box

Ubuntu Server or Desktop virtual machine

### 5. Procedure:

1. Login using your username and password.
2. Use terminal emulator application (if you are using desktop version)
3. Execute the following commands to navigate files and directories. Copy a screenshot as output after you execute the given command. Create a brief explanation of the command.

Command	Screenshot	Explanation
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1. pwd	<pre>qmaiko@salgado:~\$ pwd /home/qmaiko qmaiko@salgado:~\$</pre>	Shows the current directory
2. cd /	<pre>qmaiko@salgado:~\$ cd /</pre>	moves to the root directory
3. pwd	<pre>qmaiko@salgado:/\$ pwd /</pre>	shows current directory to be in root
4. cd	<pre>qmaiko@salgado:/\$ cd qmaiko@salgado:~\$</pre>	moves to the default directory
5. pwd	<pre>qmaiko@salgado:~\$ pwd /home/qmaiko</pre>	shows current directory to be in default directory
6. cd /home	<pre>qmaiko@salgado:~\$ cd /home</pre>	moves the directory to the home directory
7. pwd	<pre>qmaiko@salgado:/home\$ pwd /home</pre>	shows the current directory is the home directory
8. cd ~	<pre>qmaiko@salgado:/home\$ cd ~</pre>	moves the directory to the default directory
9. pwd	<pre>qmaiko@salgado:~\$ pwd /home/qmaiko</pre>	shows the current directory
10. echo ~ ~sysadmin ~root ~mail ~nobody where sysadmin is your username	<pre>qmaiko@salgado:~\$ echo -sysadmin -root -mail -nobody where sysadmin is your username -sysadmin /root /var/mail /nonexistent where sysadmin is your username</pre>	shows the home directory of each of the users
11. cd ~root	<pre>qmaiko@salgado:~\$ cd ~root bash: cd: /root: Permission denied qmaiko@salgado:~\$ bash cd ~root bash: cd: No such file or directory</pre>	This should bring you to the directory for root, but my system does not allow me
12. cd /usr/bin	<pre>qmaiko@salgado:~\$ cd /usr/bin</pre>	brings you to the user bin directory
13. pwd	<pre>qmaiko@salgado:/usr/bin\$ pwd /usr/bin</pre>	shows current directory
14. cd /usr	<pre>qmaiko@salgado:/usr/bin\$ cd /usr</pre>	brings you to the users folder
15. type ls	<pre>qmaiko@salgado:/usr\$ type ls ls is aliased to `ls --color=auto'</pre>	shows what type the ls function is
16. pwd	<pre>qmaiko@salgado:/usr\$ pwd /usr</pre>	shows current directory
17. cd /usr/share/doc	<pre>qmaiko@salgado:/usr\$ cd /usr/share/doc qmaiko@salgado:/usr/share/doc\$ pwd /usr/share/doc</pre>	goes to the shared documents folder
18. pwd	<pre>qmaiko@salgado:/usr\$ cd /usr/share/doc qmaiko@salgado:/usr/share/doc\$ pwd /usr/share/doc</pre>	shows current directory
19. cd bash	<pre>qmaiko@salgado:/usr/share/doc\$ cd bash qmaiko@salgado:/usr/share/doc/bash\$ pwd /usr/share/doc/bash</pre>	goes into the bash directory
20. pwd	<pre>qmaiko@salgado:/usr/share/doc\$ cd bash qmaiko@salgado:/usr/share/doc/bash\$ pwd /usr/share/doc/bash</pre>	shows current directory

21. cd ..	<pre>qmaiko@salgado:/usr/share/doc\$ cd .. qmaiko@salgado:/usr/share/doc\$ pwd /usr/share/doc</pre>	goes back one directory
22. pwd	<pre>qmaiko@salgado:/usr/share/doc\$ cd .. qmaiko@salgado:/usr/share/doc\$ pwd /usr/share/doc</pre>	shows current directory
23. cd ../dict	<pre>qmaiko@salgado:/usr/share/doc\$ cd ../dict qmaiko@salgado:/usr/share/dict\$ pwd /usr/share/dict</pre>	goes to the /dict directory
24. pwd	<pre>qmaiko@salgado:/usr/share/doc\$ cd ../dict qmaiko@salgado:/usr/share/dict\$ pwd /usr/share/dict</pre>	shows current directory
25. cd	<pre>qmaiko@salgado:/usr/share/dict\$ cd qmaiko@salgado:~\$</pre>	goes back to default directory
26. ls	<pre>qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	shows all present directories
27. ls -a	<pre>qmaiko@salgado:~\$ ls -a . .bashrc Documents Pictures .ssh .. .cache Downloads .profile Templates .bash_history .config .local Public Videos .bash_logout Desktop Music snap</pre>	shows all present directories, including the ones hidden
28. ls -l /etc/hosts	<pre>qmaiko@salgado:~\$ ls -l /etc/host ls: cannot access '/etc/host': No such file or directory</pre>	this should attempt to get the list of files in /host, but my system does not have such a file.
29. ls -R /etc/udev	<pre>qmaiko@salgado:~\$ ls -R /etc/udev /etc/udev: hwdb.d  iocost.conf  rules.d  udev.conf  /etc/udev/hwdb.d: /etc/udev/rules.d: 70-snap_firstrun.rules          70-snap.snapd.rules 70-snap_firmware-updater.rules  70-snap.snap-store.rules 70-snap_snapd-desktop-integration.rules qmaiko@salgado:~\$</pre>	shows all the files in the directories and subdirectories
30. ls -d /etc/s*	<pre>qmaiko@salgado:~\$ ls -d /etc/s* /etc/sane.d   /etc/skel        /etc/sudo.conf /etc/security /etc/snp        /etc/sudoers /etc/selinux   /etc/speech-dispatcher /etc/suiders.d /etc/sensors3.conf /etc/sasl      /etc/syslog-ngsvr.conf /etc/sensors3.d /etc/sasl      /etc/syslog_ng /etc/services  /etc/sasl      /etc/sysctl.conf /etc/som       /etc/subgid    /etc/sysctl.d /etc/shadow   /etc/subgid    /etc/sysstat /etc/shadow   /etc/subuid    /etc/systemd /etc/shells   /etc/subuid    /etc/subuid</pre>	shows all directories within /etc that has an S
31. ls -d /etc/????	<pre>qmaiko@salgado:~\$ ls -d /etc/????? /etc/alsa  /etc/dpkg  /etc/ldap  /etc/perl  /etc/snmp /etc/cups  /etc/gdm3  /etc/mtab  /etc/sasl  /etc/sssd /etc/dhcp  /etc/init  /etc/newt  /etc/skel  /etc/udev</pre>	shows all directories within /etc with a matching amount of ?s (in this case 4)
32. ls -d /etc/[abcd]*	<pre>qmaiko@salgado:~\$ ls -d /etc/[abcd]* /etc/adduser.conf      /etc/cracklib /etc/alsamixer          /etc/credstore /etc/alternatives       /etc/credstore.encrypted /etc/anacrontab        /etc/cron.d /etc/apg.conf          /etc/cron.daily /etc/apt               /etc/cron.hourly /etc/avahi              /etc/cron.monthly /etc/bash.bashrc        /etc/cron.weekly /etc/bash_completion     /etc/cron_yearly /etc/bindresport.blacklist /etc/cups /etc/btrfsmt.d         /etc/debconf.conf /etc/bnertooth          /etc/debian_version /etc/brapi1.key         /etc/debuginfod /etc/bnltc              /etc/default /etc/bnltc.conf         /etc/deluser.conf /etc/ca-certificates    /etc/depmod.d /etc/ca-certificates.conf /etc/dhcp /etc/chatscripts        /etc/dhcpcd.conf /etc/clockd             /etc/dictionaries-common</pre>	shows all directories with matching starting names as the symbols in the brackets

4. Execute the following commands to manage files and directories. Copy a screenshot as output after you execute the given command. Create a brief explanation of the command.

Command	Screenshot	Explanation
1. echo *	<pre>qmaiko@salgado:~\$ echo * Desktop Documents Downloads Music Pictures Public snap Templates Videos</pre>	prints all available files in the current directory

2. echo D*	<pre>qmaiko@salgado:~\$ echo D* Desktop Documents Downloads</pre>	prints only the ones starting with D
3. echo P*	<pre>qmaiko@salgado:~\$ echo P* Pictures Public</pre>	prints only the ones starting with P
4. echo *s	<pre>qmaiko@salgado:~\$ echo s* snap</pre>	prints only the ones starting with s
5. echo D*n*s	<pre>qmaiko@salgado:~\$ echo D*n*s Documents Downloads</pre>	prints only the ones starting with D, contains n, and s
6. echo ??????	<pre>qmaiko@salgado:~\$ echo ?????? Public Videos</pre>	prints out directories with matching amount of ?s
7. echo D?????????	<pre>qmaiko@salgado:~\$ echo D????????? Documents Downloads</pre>	prints out directories that start with a D and contains the matching amount of ?s
8. echo ?????*s	<pre>qmaiko@salgado:~\$ echo ?????*s Documents Downloads Pictures Templates Videos</pre>	prints out directories that have at least 5 characters and ends with an s
9. echo [DP]*	<pre>qmaiko@salgado:~\$ echo [DP]* Desktop Documents Downloads Pictures Public</pre>	prints out directories that have a D or P
10. echo [!DP]*	<pre>qmaiko@salgado:~\$ echo [!DP]* Music snap Templates Videos</pre>	prints out directories that do not have a D or P
11. echo [D-P]*	<pre>qmaiko@salgado:~\$ echo [D-P]* Desktop Documents Downloads Music Pictures Public</pre>	prints out directories that have the letters D to P
12. echo [!D-P]*	<pre>qmaiko@salgado:~\$ echo [!D-P]* snap Templates Videos</pre>	prints out directories that do not contain the letters D to P
13. ls	<pre>qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	lists all directories in active directory
14. cp /etc/hosts hosts	<pre>qmaiko@salgado:~\$ cp /etc/hosts hosts qmaiko@salgado:~\$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	copies files from hosts, and names the copied file hosts
15. ls	<pre>qmaiko@salgado:~\$ cp /etc/hosts hosts qmaiko@salgado:~\$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	lists all directories in active directory
16. rm hosts	<pre>qmaiko@salgado:~\$ rm hosts qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	deletes the file named hosts
17. ls	<pre>qmaiko@salgado:~\$ rm hosts qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	lists all directories in active directory
18. cp -v /etc/hosts hosts	<pre>qmaiko@salgado:~\$ cp -v /etc/hosts hosts '/etc/hosts' -&gt; 'hosts' qmaiko@salgado:~\$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	-v just shows you where the file copied came from and what it was named to
19. ls	<pre>qmaiko@salgado:~\$ cp -v /etc/hosts hosts '/etc/hosts' -&gt; 'hosts' qmaiko@salgado:~\$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	lists all directories in active directory
20. rm hosts	<pre>qmaiko@salgado:~\$ rm hosts qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	deletes the file named hosts
21. ls	<pre>qmaiko@salgado:~\$ rm hosts qmaiko@salgado:~\$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	lists all directories in active directory

22. cp -v /etc/hosts .	<pre>qmaiko@salgado: \$ cp -v /etc/hosts . '/etc/hosts' -&gt; './hosts' qmaiko@salgado: \$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	copies the contents of hosts into the current directory
23. ls	<pre>qmaiko@salgado: \$ cp -v /etc/hosts . '/etc/hosts' -&gt; './hosts' qmaiko@salgado: \$ ls Desktop Downloads Music Public Templates Documents hosts Pictures snap Videos</pre>	lists all directories in active directory
24. rm hosts	<pre>qmaiko@salgado: \$ rm hosts qmaiko@salgado: \$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	deletes the file named hosts
25. ls	<pre>qmaiko@salgado: \$ rm hosts qmaiko@salgado: \$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	lists all directories in active directory
26. cd /etc	<pre>qmaiko@salgado:~\$ cd /etc qmaiko@salgado:/etc\$</pre>	moves into the /etc directory
27. ls -l hosts	<pre>qmaiko@salgado:/etc\$ ls -l hosts -rw-r--r-- 1 root root 273 Feb 4 2025 hosts</pre>	shows information about the specified file
28. cp -p hosts/home/sysadmin	<pre>qmaiko@salgado:/etc\$ cp -p hosts/home/sysadmin cp: missing destination file operand after 'hosts/home/sysadmin' Try 'cp --help' for more information.  qmaiko@salgado:/etc\$ cp -p hosts/home/sysadmin - cp: cannot stat 'hosts/home/sysadmin': Not a directory</pre>	this command is improperly formatted. even when providing the destination directory, hosts/home/sysadmin does not exist on my system.
29. cd	<pre>qmaiko@salgado:/etc\$ cd qmaiko@salgado:~\$</pre>	returns to the default directory
30. ls -l hosts	<pre>qmaiko@salgado: \$ ls -l hosts ls: cannot access 'hosts': No such file or directory</pre>	supposed to show a long list of the hosts directory/file, but that file does not exist on my system
31. rm hosts 32. cp -p /etc/hosts ~ 33. cp hosts newname 34. ls -l hosts newname 35. rm hosts newname	<pre>qmaiko@salgado: \$ cp -p /etc/hosts ~ qmaiko@salgado: \$ cp hosts newname qmaiko@salgado: \$ ls -l hosts newname -rw-r--r-- 1 qmaiko qmaiko 273 Feb 4 2025 hosts -rw-r--r-- 1 qmaiko qmaiko 273 Nov 11 04:15 newname qmaiko@salgado: \$ rm hosts newname</pre>	removes the present hosts file. copies the hosts file to the default directory, copies hosts to new name, gets the information of hosts newname, then deletes it.
36. mkdir Myetc 37. cp -R /etc/udev Myetc 38. ls -l Myetc 39. ls -IR Myetc	<pre>qmaiko@salgado: \$ mkdir Myetc qmaiko@salgado: \$ cp -R /etc/udev Myetc qmaiko@salgado: \$ ls -l Myetc total 4 drwxr-xr-x 4 qmaiko qmaiko 4096 Nov 11 04:17 udev qmaiko@salgado: \$ ls IR Myetc ls: cannot access 'IR': No such file or directory Myetc: udev qmaiko@salgado: \$ ls -IR Myetc udev qmaiko@salgado: \$</pre>	makes a new directory in current directory, copies a file into the new directory, then it lists the files in the directory
40. ls 41. rm -r Myetc 42. ls	<pre>qmaiko@salgado: \$ rm -r Myetc qmaiko@salgado: \$ ls Desktop Downloads Pictures snap Videos Documents Music Public Templates</pre>	just deletes the Myetc directory that we created
43. touch premove 44. ls 45. mv premove postmove 46. ls 47. rm postmove	<pre>qmaiko@salgado: \$ touch premove qmaiko@salgado: \$ ls Desktop Downloads Pictures Public Templates Documents Music premove snap Videos qmaiko@salgado: \$ mv premove postmove qmaiko@salgado: \$ ls Desktop Downloads Pictures Public Templates Documents Music postmove snap Videos qmaiko@salgado: \$ rm postmove qmaiko@salgado: \$</pre>	makes a file, moves the file into a new file, then deletes the new file

## **6. Supplementary Activity:**

Copy screen shot(s) of the following tasks:

1. Create a directory CPE231 in the Documents directory.

```
qmaiko@salgado:~/Documents$ mkdir CPE11S5
```

2. Create a directory <lastname> and <firstname> under CPE231 directory.

```
qmaiko@salgado:~/Documents$ mkdir CPE11S5/Salgado || mkdir CPE11S5/Andee
```

3. Create two text files: (1) A.txt and (2) B.txt in the <lastname> directory.

```
qmaiko@salgado:~/Documents/CPE11S5$ touch Salgado/A.txt
```

```
qmaiko@salgado:~/Documents/CPE11S5$ touch Salgado/B.txt
```

4. Copy the content of <lastname> directory to <firstname> directory.

```
qmaiko@salgado:~/Documents/CPE11S5$ cp Salgado/* Andee
```

```
qmaiko@salgado:~/Documents/CPE11S5$ ls /Andee
```

```
ls: cannot access '/Andee': No such file or directory
```

```
qmaiko@salgado:~/Documents/CPE11S5$ ls Andee
```

```
A.txt B.txt
```

```
qmaiko@salgado:~/Documents/CPE11S5$
```

5. Delete the content of <lastname> directory.

```
qmaiko@salgado:~/Documents/CPE11S5$ rm Salgado/*
```

6. Create a directory CPE231\_backup in the Documents directory.

```
qmaiko@salgado:~/Documents$ mkdir CPE11S5_backup
```

7. Copy the content of CPE231 to CPE231\_backup directory.

```
qmaiko@salgado:~/Documents$ cp -r CPE11S5/* CPE11S5_backup
```

8. Remove the CPE231 directory.

```
qmaiko@salgado:~/Documents$ rm -r CPE11S5
```

## **7. Conclusion:**

This would be useful for managing many files at once, but I do somewhat struggle to see how this would beat using the included file manager in Ubuntu. Now if this was Arch linux, I would understand as Arch linux really is just a terminal and nothing else. As for now, I think I will stick to the file manager]

## **8. Assessment (Rubric for Laboratory Performance):**