Chapter 0

1. **la -ls**(there is no **la** command in Linux), **more -q file1**(there is no **-q** option to the more command), **lsblk-a**(there has to be a space between the **lsblk** command and its option **-a**).

2. There has to be a space character separating those components.

3. There are special characters, usually redirection procedures signified by the **>** or **|** characters, interposed between the parts of a multiple command.

4. Before you execute the command, you should know exactly what it’s supposed to accomplish, and then after execution, you can examine the results to see if they match what you expected to happen. Sometimes that’s very difficult, or impossible, to determine.

5. No answer required.

6. The general form is- **cat file1 file2 > output\_file**

7. No answer required.

8. No answer required.

9. No answer required.

10. No answer required.

11. No answer required.

12. On a Raspberry Pi 400 running the latest OS at the time of the writing of this book-

Of course bash is available, and is the default shell.

bob@raspberrypi:~ $ **whereis ksh**

ksh: /usr/bin/ksh /usr/share/man/man1/ksh.1.gz

bob@raspberrypi:~ $ **whereis sh**

sh: /usr/bin/sh /usr/share/man/man1/sh.1posix.gz /usr/share/man/man1/sh.1.gz

bob@raspberrypi:~ $ **whereis csh**

csh: /usr/bin/csh /usr/share/man/man1/csh.1.gz

bob@raspberrypi:~ $ **whereis zsh**

zsh: /usr/share/zsh

13. On our Raspberry Pi 400-

bob@raspberrypi:~ $ **who --all**

system boot 1969-12-31 16:00

bob + tty7 2023-10-04 14:53 old 774 (:0)

run-level 5 2023-10-04 14:53

bob - tty1 2023-10-04 14:53 old 1818

pts/0 2023-10-05 11:08 4781 id=ts/0 term=0 exit=0

14. On our Raspberry Pi 400-

bob@raspberrypi:~ $ **hostname -I**

192.168.1.2

bob@raspberrypi:~ $ **ip addr**

1: lo: <LOOPBACK,UP,LOWER\_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000

link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00

inet 127.0.0.1/8 scope host lo

valid\_lft forever preferred\_lft forever

inet6 ::1/128 scope host

valid\_lft forever preferred\_lft forever

2: eth0: <BROADCAST,MULTICAST,UP,LOWER\_UP> mtu 1500 qdisc mq state UP group default qlen 1000

link/ether dc:a6:32:ee:c6:6b brd ff:ff:ff:ff:ff:ff

inet 192.168.1.2/24 brd 192.168.1.255 scope global dynamic noprefixroute eth0

valid\_lft 49347sec preferred\_lft 38547sec

inet6 fe80::78d9:c72e:75e2:82c/64 scope link

valid\_lft forever preferred\_lft forever

3: wlan0: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen 1000

link/ether dc:a6:32:ee:c6:6c brd ff:ff:ff:ff:ff:ff

Chapter 1

1. It was automounted, and the **findmnt** command listed it as /media/bob/7CF8-00D8 /dev/sdb1. No answer required for the remainder of this In-Chapter Exercise.

2. Edit /*etc/*fstab and add it there.

3. Yes.

4. **sudo lpadmin -x HP\_Laserjet\_P1006**

5. deb (or deb-src), which refers to where the apt command will find binary packages (deb) or source packages (deb-src),

the actual URL, which apt will use in order to “pull” from the repository,

the codename of the release; in this case, bullseye , and

the Component named main, which references whether or not the repository contains software that is free and open source, and is supported officially.

6. No.

7. Default implies inheritance, which is what sub-directories get from their parent directories. A file doesn’t inherit anything after a copy procedure, not in the sense that a sub-directory does when it’s created.

8. a. SE\_UID:

* + The SE\_UID qualifier, which specifies a user ID, is undefined in POSIX.1e ACL entries.

b. SE\_GID:

* + The SE\_GID qualifier, which specifies a group ID, is also undefined in POSIX.1e ACL entries.

9. a. Initial Permissions:

Owning group (Group): "r--" (Read-only for the group)

Other users: "---" (No permissions for others)

User "manny": No specific ACL entry yet

b. ACL Entries:

Owning group ACL entry: "group::r--" (Initial group permissions)

Other users ACL entry: "other::---" (Initial permissions for others)

User "manny" ACL entry: "user:manny:rw-" (Granting read and write permissions)

c. Effective Permissions with the Mask:

Owning group permissions: "r--" (Initial group permissions)

Mask (calculated based on the most restrictive entry for the user "manny"): "r--" (Calculated as the most restrictive between "rw-" and the initial group permissions "r--")

Effective permissions: "r--" (Calculated as the bitwise AND of the mask and the group permissions)

10. **chmod g+w acltest**

11. No answer required.

12. To see, and hopefully prevent, a cracker from penetrating that machine’s ufw defenses.

13. When you decrypt files from an encrypted directory using GnuPG (GPG), the decrypted files are typically placed in the current working directory or in the directory specified using the **--output**(or **-o**) option.

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15. No answer required.

16. No answer required.

Chapter 2

1. **/lib/systemd/system/** directory or **/etc/systemd/system/** directory.

Examples:

**/lib/systemd/system/nginx.service**

**/etc/systemd/system/nginx.service**

2. On our Pi 400, in /*etc/*systemd/system, **getty@tty1.service.d**

3. No answer required.

4. No answer required.

5. **journalctl app\_name**, where **app\_name** is the misbehaving app.

6. The main difference lies in their focus and the type of hierarchy they present.

**systemd-cgls**:

systemd-cgls is specific to systems using systemd. It’s used to display the hierarchy of control groups (cgroups) managed by systemd. It shows the systemd unit hierarchy and control group relationships, allowing you to visualize how systemd organizes and manages processes in cgroups.

**pstree**:

pstree is a more general-purpose command that displays the process hierarchy of the entire system.

It provides a hierarchical view of processes, showing their parent-child relationships, starting from the init process (usually PID 1). It displays a tree-like structure of processes, making it easier to understand the parent-child relationships and the overall process tree.

7. No answer required.

8. No answer required.

9. The first one showed when the system was first booted, the second one the current boot time(if you scroll down far enough.)

10. Shows journal entries since the last boot.

11. This is a repeat of In-Chapter Exercise 5. **journalctl app\_name**, where **app\_name** is the misbehaving app. **journalctl -r**

12. No answer required.

13. Create the [Timer} section in the service unit file to do that.

14. a. **sudo systemctl stop** the myscript service unit file.

b. **sudo systemctl enable myscript.timer**

15. Runs the script file based on a calendar event, like Monday through Friday, not a clock-based interval.

16. a. No answer required.

b. Either customize ufw filters to do this on the server, or the computer you’re running simp.service on, or on the modem/router(if that’s possible on your LAN) to safely allow access to your system.

17. After **<Ctrl> + C**, use the **kill -9** command on its PID number.

18. No answer required.