

# Day 5 Linux lab

1. List the user commands and redirect the output to /tmp/commands.list

```
abougabal@AbouGabal: ~  
abougabal@AbouGabal: $ ls /usr/bin 2> /tmp/commands.list  
'[  
aa-enabled  
aa-exec  
aa-features-abi  
aconnect  
acpidbg  
add-apt-repository  
addpart  
airscan-discover  
alsabat  
alsaloop  
alsamixer  
alsatplg  
alsaucm  
amidi  
amixer  
apg  
apgbfm  
aplay  
aplaymidi  
nautilus  
nautilus-autorun-software  
nautilus-sendto  
nawk  
nc  
ncal  
nc.openbsd  
neqn  
netaddr  
netcat  
networkctl  
networkd-dispatcher  
newgrp  
ngettext  
nice  
nisdomainname  
nl  
nm-applet  
nmcli  
nm-connection-editor
```

2. Count the number of user commands

```
abougabal@AbouGabal: ~  
mscompress  
msexpand  
mt  
mt-gnu  
mtr  
mtrace  
mtr-packet  
mv  
namei  
nano  
zipsplit  
zjsdecode  
zless  
zmore  
znew  
zstd  
zstdcat  
zstdgrep  
zstdless  
zstdmt  
abougabal@AbouGabal: $ cw /tmp/commands.list  
Command 'cw' not found, but can be installed with:  
sudo apt install cw  
abougabal@AbouGabal: $ wc /tmp/commands.list  
0 0 0 /tmp/commands.list  
abougabal@AbouGabal: $ wc /bin/usr  
wc: /bin/usr: No such file or directory  
abougabal@AbouGabal: $ wc /usr/bin  
wc: /usr/bin: Is a directory  
0 0 0 /usr/bin  
abougabal@AbouGabal: $
```

3. Get all the users names whose first character in their login is 'g'.

```
abougabal@AbouGabal: $ cat /etc/passwd | grep "^g"
games:x:5:60:games:/usr/games:/usr/sbin/nologin
geoclue:x:114:117::/var/lib/geoclue:/usr/sbin/nologin
gnome-initial-setup:x:119:65534::/run/gnome-initial-setup:/bin/false
gdm:x:120:121:Gnome Display Manager:/var/lib/gdm3:/bin/false
gnome-remote-desktop:x:985:985:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/sbin/nologin
```

4. Get the logins name and full names (comment) of logins starts with "gu".

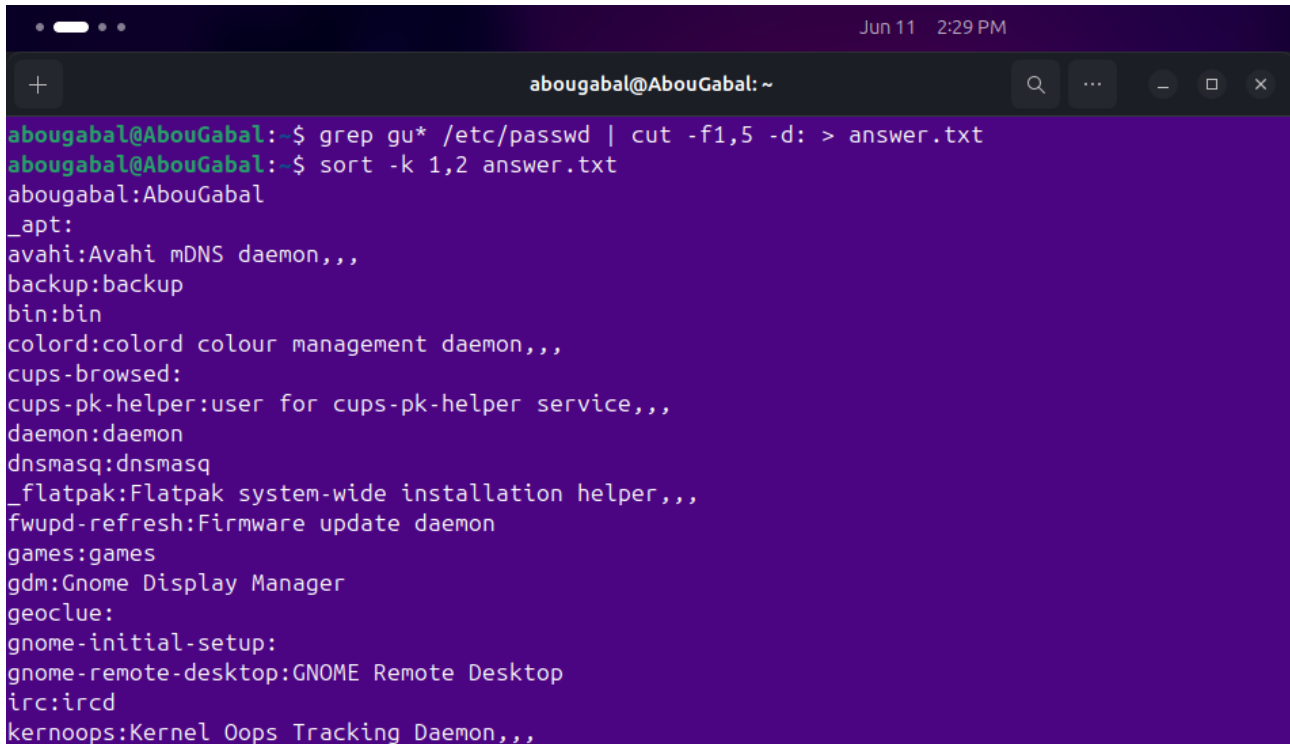
```
abougabal@AbouGabal:~$ grep ^gu /etc/passwd | cut -f1,5 -d:
abougabal@AbouGabal:~$
```

## Understanding /etc/passwd file fields

The /etc/passwd contains one entry per line for each user (user account) of the system. All fields are separated by a colon ( `:` ) symbol. Total of seven fields as follows. Generally, /etc/passwd file entry looks as follows:

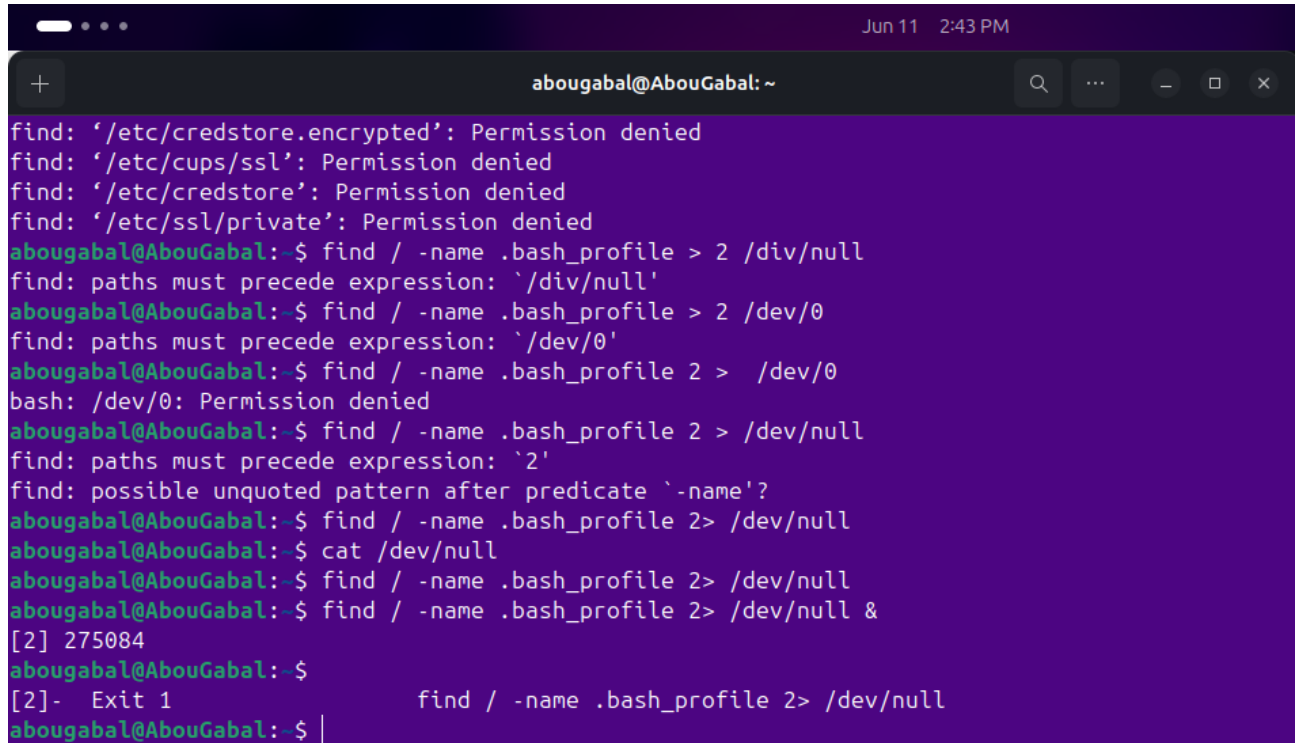
oracle	:	x	:	1021	:	1020	:	Oracle user	:	/data/network/oracle	:	/bin/bash
↓		↓		↓		↓		↓		↓		↓
1		2		3		4		5		6		7

5. Save the output of the last command sorted by their full names in a file.



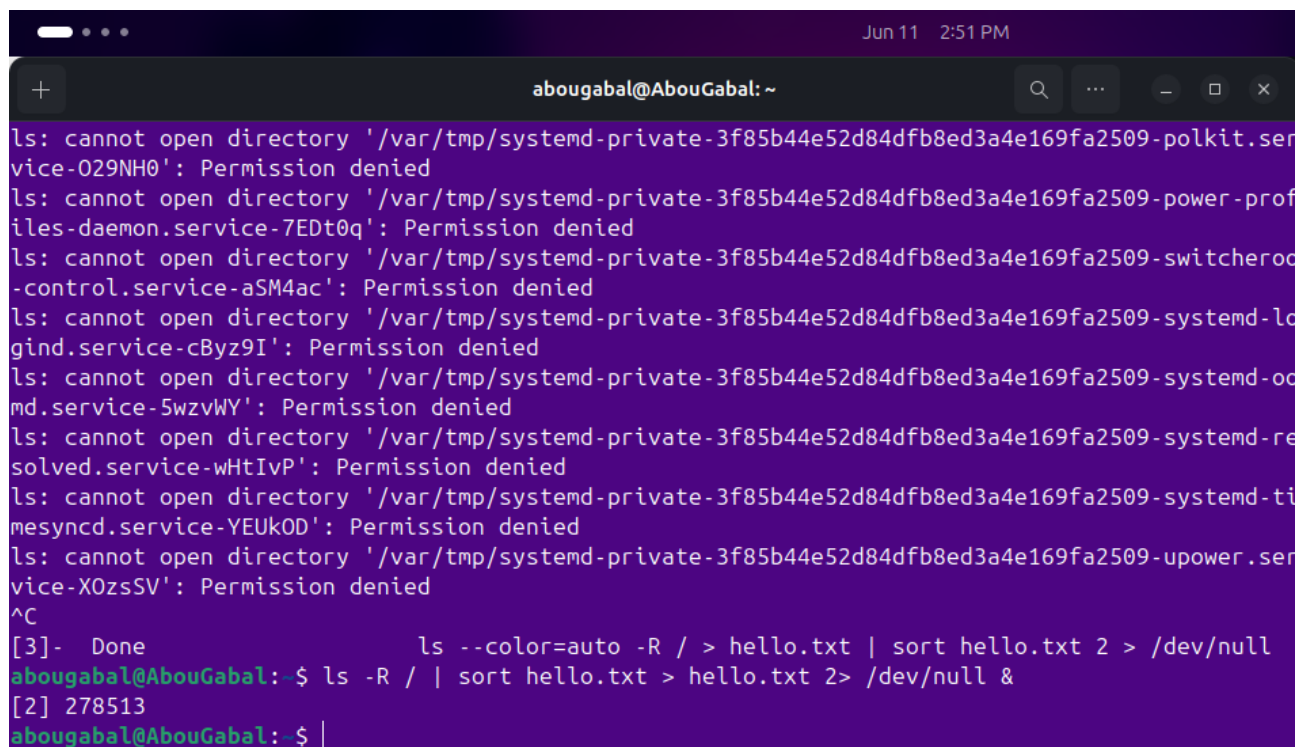
```
abougabal@AbouGabal: ~  
$ grep gu* /etc/passwd | cut -f1,5 -d: > answer.txt  
$ sort -k 1,2 answer.txt  
abougabal:AbouGabal  
_apt:  
avahi:Avahi mDNS daemon,,,  
backup:backup  
bin:bin  
colord:colord colour management daemon,,,  
cups-browsed:  
cups-pk-helper:user for cups-pk-helper service,,,  
daemon:daemon  
dnsmasq:dnsmasq  
_flatpak:Flatpak system-wide installation helper,,,  
fwupd-refresh:Firmware update daemon  
games:games  
gdm:Gnome Display Manager  
geoclue:  
gnome-initial-setup:  
gnome-remote-desktop:GNOME Remote Desktop  
irc:ircd  
kernoops:Kernel Oops Tracking Daemon,,,
```

6. Write two commands: first: to search for all files on the system that named `.bash_profile`.



```
Jun 11 2:43 PM
+ abougabal@AbouGabal: ~
find: '/etc/credstore.encrypted': Permission denied
find: '/etc/cups/ssl': Permission denied
find: '/etc/credstore': Permission denied
find: '/etc/ssl/private': Permission denied
abougabal@AbouGabal: $ find / -name .bash_profile > 2 /dev/null
find: paths must precede expression: `/dev/null'
abougabal@AbouGabal: $ find / -name .bash_profile > 2 /dev/0
find: paths must precede expression: `/dev/0'
abougabal@AbouGabal: $ find / -name .bash_profile 2 > /dev/0
bash: /dev/0: Permission denied
abougabal@AbouGabal: $ find / -name .bash_profile 2 > /dev/null
find: paths must precede expression: `2'
find: possible unquoted pattern after predicate `'-name'?
abougabal@AbouGabal: $ find / -name .bash_profile 2> /dev/null
abougabal@AbouGabal: $ cat /dev/null
abougabal@AbouGabal: $ find / -name .bash_profile 2> /dev/null
abougabal@AbouGabal: $ find / -name .bash_profile 2> /dev/null &
[2] 275084
abougabal@AbouGabal: $
[2]- Exit 1 find / -name .bash_profile 2> /dev/null
abougabal@AbouGabal: $ |
```

Second: sorts the output of ls command on / recursively, Saving their output and error in 2 different files and sending them to the background.

A terminal window with a dark purple background. The title bar shows 'Jun 11 2:51 PM' and the user 'abougabal@AbouGabal: ~'. The terminal displays the output of a recursive 'ls' command, which consists of multiple 'Permission denied' messages for various system directories. After pressing Ctrl-C, the user enters a command to run 'ls' recursively on the root directory, redirecting standard output to 'hello.txt' and standard error to '2> /dev/null', and then presses Enter. The prompt changes to show the command is running in the background.

```
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-polkit.service-029NH0': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-power-profiles-daemon.service-7EDt0q': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-switcheroo-control.service-aSM4ac': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-systemd-logind.service-cByz9I': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-systemd-oomd.service-5wzvWY': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-systemd-resolved.service-wHtIvP': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-systemd-timesyncd.service-YEUKOD': Permission denied
ls: cannot open directory '/var/tmp/systemd-private-3f85b44e52d84dfb8ed3a4e169fa2509-upower.service-X0zsSV': Permission denied
^C
[3]-  Done                  ls --color=auto -R / > hello.txt | sort hello.txt 2 > /dev/null
abougabal@AbouGabal: $ ls -R / | sort hello.txt > hello.txt 2> /dev/null &
[2] 278513
abougabal@AbouGabal: $ |
```

7. Display the number of users who is logged now to the system.

```
abougabal@AbouGabal:~$ who
abougabal seat0      2024-06-10 20:55 (login screen)
abougabal tty2       2024-06-10 20:55 (tty2)
abougabal@AbouGabal:~$ |
```

8. Display lines 7 to line 10 of /etc/passwd file

```
abougabal@AbouGabal:~$ cat -n 7 /etc/passwd | tail -4
cat: 7: No such file or directory
 48  gnome-remote-desktop:x:985:985:GNOME Remote Desktop:/var/lib/gnome-remote-desktop:/usr/
sbin/nologin
 49  abougabal:x:1000:30001:AbouGabal:/home/abougabal:/bin/bash
 50  _flatpak:x:122:124:Flatpak system-wide installation helper,,,:/nonexistent:/usr/sbin/no
login
 51  random:x:1001:30002::/home/random:/bin/sh
abougabal@AbouGabal:~$
```

9. What happens if you execute:

a) `cat filename1 | cat filename2` --> will view filename2

b) `ls | rm` -----> error

c) `ls /etc/passwd | wc -l` -----> 1 line

10. Issue the command sleep 100.

```
abougabal@AbouGabal:~$ cat f1 | cat f2
world!
abougabal@AbouGabal:~$ sleep 100
```

11. Stop the last command.

We stop using : Ctrl + z

12. Resume the last command in the background

13. Issue the jobs command and see its output.

```
abougabal@AbouGabal:~$ sleep 100
^Z
[2]+  Stopped                  sleep 100
abougabal@AbouGabal:~$ bg %2
[2]+ sleep 100 &
abougabal@AbouGabal:~$ |
```

14. Send the sleep command to the foreground and send it again to the background.

```
[2]+  Stopped                  sleep 100
abougabal@AbouGabal:~$ bg %2
[2]+ sleep 100 &
abougabal@AbouGabal:~$ fg %2
bash: fg: job has terminated
[2]-  Done                    sleep 100
abougabal@AbouGabal:~$ |
```



## 15.Kill the sleep command.

```
abougabal@AbouGabal:~$ fg %2
bash: fg: job has terminated
[2]-  Done                  sleep 100
abougabal@AbouGabal:~$ kill %2
bash: kill: %2: no such job
abougabal@AbouGabal:~$ jobs
[1]+  Stopped                  grep --color=auto "^gu" | cut -f1,5 -d : /etc/passwd
abougabal@AbouGabal:~$ kill %1
[1]+  Stopped                  grep --color=auto "^gu" | cut -f1,5 -d : /etc/passwd
abougabal@AbouGabal:~$ |
```

## 16.Display your processes only

```
abougabal@AbouGabal:~$ ps -u abougabal
```

PID	TTY	TIME	CMD
1462	?	00:00:07	systemd
1463	?	00:00:00	(sd-pam)
1542	?	00:00:26	pipewire
1544	?	00:00:00	pipewire
1546	?	00:00:07	wireplumber
1550	?	00:00:34	pipewire-pulse
1573	?	00:00:07	dbus-daemon
1621	?	00:00:00	xdg-document-po
1638	?	00:00:00	xdg-permission-
2202	?	00:00:00	gnome-keyring-d
2223	tty2	00:00:00	gdm-wayland-ses
2227	tty2	00:00:00	gnome-session-b
2295	?	00:00:00	gcr-ssh-agent
2296	?	00:00:00	gnome-remote-de
2297	?	00:00:00	gnome-session-c
2318	?	00:00:00	gvfsd
2328	?	00:00:00	gvfsd-fuse
2332	?	00:00:00	gnome-session-b
2363	?	00:00:00	at-spi-bus-laun

## 17.Display all processes except yours

```
abougabal@AbouGabal:~$ ps -A
```

PID	TTY	TIME	CMD
1	?	00:00:07	systemd
2	?	00:00:00	kthreadd
3	?	00:00:00	pool_workqueue_release
4	?	00:00:00	kworker/R-rcu_g
5	?	00:00:00	kworker/R-rcu_p
6	?	00:00:00	kworker/R-slub_
7	?	00:00:00	kworker/R-netns
10	?	00:00:00	kworker/0:0H-events_highpri
12	?	00:00:00	kworker/R-mm_pe
13	?	00:00:00	rcu_tasks_kthread
14	?	00:00:00	rcu_tasks_rude_kthread
15	?	00:00:00	rcu_tasks_trace_kthread
16	?	00:00:40	ksoftirqd/0
17	?	00:00:15	rcu_preempt
18	?	00:00:00	migration/0

18. Use the `pgrep` command to list your processes only

```
abougabal@AbouGabal:~$ pgrep ps
365
1418
2173
2176
2181
7450
abougabal@AbouGabal:~$ pgrep -u abougabal
1462
1463
1542
1544
1546
1550
1573
1621
1638
2202
2223
2227
2295
```

19. Kill your processes only.

`Killall -u $(whoami)`

or

`killall -u username`