

LAB5

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1. Compress a file by compress, gzip, zip commands and decompress it again. State the differences between compress and gzip commands.

```
gamal@gamal-virtual-machine:~/Desktop$ sudo compress -v file4
sudo: compress: command not found
gamal@gamal-virtual-machine:~/Desktop$
```

```
gamal@gamal-virtual-machine: ~/Desktop
gamal@gamal-virtual-machine:~/Desktop$ gzip -v file5
file5:  0.0% -- replaced with file5.gz
gamal@gamal-virtual-machine:~/Desktop$ gunzip file5.gz
gamal@gamal-virtual-machine:~/Desktop$
```

```
gamal@gamal-virtual-machine:~/Desktop$ gunzip file5.gz
gamal@gamal-virtual-machine:~/Desktop$ zip file.zip file5
adding: file5 (stored 0%)
gamal@gamal-virtual-machine:~/Desktop$ unzip file.zip
Archive:  file.zip
replace file5? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
extracting: file5
gamal@gamal-virtual-machine:~/Desktop$
```

Compress will run faster and use less memory, but gzip will generally reach significantly higher levels of compression.

2. What is the command used to view the content of a compressed file

zcat + filename

gzcat + filename

bzcat + filename

3. Backup /etc directory using tar utility.

```
host.conf          pnm2ppa.conf      zsh_command_not_found
gamal@gamal-virtual-machine:~/Desktop$ tar -cvf myarch.tar /etc
```

```

gamal@gamal-virtual-machine:~/Desktop$ ls
dir1    docs    file127 file3    filename1  myarch.tar  myteam    zena
dir127  fady    file130 file4    filename2  mycv.       newpasswd2 zenda
dir130  file1   file2    file5    myarcho.tar mypasswd    test

```

4. Starting from your home directory, find all files that were modified in the last two day.

```

gamal@gamal-virtual-machine:~/Desktop$ cd
gamal@gamal-virtual-machine:~$ find -mtime 2
.
./.cache/tracker3/files/meta.db
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23Audio.db
./.cache/tracker3/files/locale-for-miner-apps.txt
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23FileSystem.db
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23Software.db
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23Documents.db
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23Pictures.db
./.cache/tracker3/files/http%3A%2F%2Ftracker.api.gnome.org%2Fontology%2Fv3%2Ftracker%23Video.db
./.cache/vmware/drag_and_drop
./.cache/vmware/drag_and_drop/fEShK0
./.local/share
./.local/share/recently-used.xbel
./.local/share/gvfs-metadata/home-c984c99a.log

```

5. Starting from /etc, find files owned by root user.

```

gamal@gamal-virtual-machine:/etc$ sudo find /etc user 1000
/etc
/etc/shadow
/etc/pam.conf
/etc/pulse
/etc/pulse/client.conf
/etc/pulse/system.pa
/etc/pulse/default.pa
/etc/pulse/default.pa.d
/etc/pulse/daemon.conf
/etc/pulse/client.conf.d
/etc/pulse/client.conf.d/01-enable-autospawn.conf
/etc/sudoers.d
/etc/sudoers.d/README
/etc/fprindd.conf
/etc/services
/etc/host.conf

```

6. Find all directories in your home directory.

```
gamal@gamal-virtual-machine:~$ sudo find /home d
/home
/home/user12
/home/user12/.cache
/home/user12/.profile
/home/user12/.bashrc
/home/user12/.bash_logout
/home/user12/.bash_history
/home/Islam-Askar
/home/Islam-Askar/.profile
/home/Islam-Askar/.bashrc
/home/Islam-Askar/.bash_logout
/home/islam
```

7. Write a command to search for all files on the system that, its name is “.profile”.

```
gamal@gamal-virtual-machine:~/Desktop$ sudo find / -name .profile
[sudo] password for gamal:
/root/.profile
/snap/core20/1974/etc/skel/.profile
/snap/core20/1974/root/.profile
/snap/core20/2105/etc/skel/.profile
/snap/core20/2105/root/.profile
/snap/core22/1033/etc/skel/.profile
/snap/core22/1033/root/.profile
/snap/core22/858/etc/skel/.profile
/snap/core22/858/root/.profile
/home/user12/.profile
/home/Islam-Askar/.profile
/home/islam/.profile
/home/gamal/.profile
/home/Islam_Askar/.profile
/home/user2/.profile
/home/user7/.profile
/etc/skel/.profile
find: '/run/user/1000/doc': Permission denied
find: '/run/user/1000/gvfs': Permission denied
gamal@gamal-virtual-machine:~/Desktop$
```

8. Identify the file types of the following: /etc/passwd, /dev/pts/0, /etc, /dev/sda

```
gamal@gamal-virtual-machine:~/Desktop$ file -v /etc/passwd
file-5.41
magic file from /etc/magic:/usr/share/misc/magic
gamal@gamal-virtual-machine:~/Desktop$
```

```
gamal@gamal-virtual-machine:~/Desktop$ file -v /dev/pts/0
file-5.41
magic file from /etc/magic:/usr/share/misc/magic
gamal@gamal-virtual-machine:~/Desktop$
```

```

gamal@gamal-virtual-machine:~/Desktop$ file -v /etc
file-5.41
magic file from /etc/magic:/usr/share/misc/magic
gamal@gamal-virtual-machine:~/Desktop$ 
magic file from /etc/magic:/usr/share/misc/magic
gamal@gamal-virtual-machine:~/Desktop$ file -v /dev/sda
file-5.41
magic file from /etc/magic:/usr/share/misc/magic
gamal@gamal-virtual-machine:~/Desktop$

```

9. List the inode numbers of /, /etc, /etc/hosts.

```

gamal@gamal-virtual-machine:/$ ls -il
total 1356280
 13 lrwxrwxrwx   1 root root      7 15:34 9   سب   bin -> usr/bin
   2 drwxr-xr-x   4 root root 4096 10:28 23  سب   boot
788607 drwxrwxr-x   2 root root 4096 15:36 9   سب   cdrom
   1 drwxr-xr-x  19 root root 4220 09:38 26  سب   dev
784897 drwxr-xr-x 129 root root 12288 10:28 23  سب   etc
   2 drwxr-xr-x  10 root root 4096 04:26 17  سب   home
  14 lrwxrwxrwx   1 root root      7 15:34 9   سب   lib -> usr/lib
  15 lrwxrwxrwx   1 root root      9 15:34 9   سب   lib32 -> usr/lib32
  16 lrwxrwxrwx   1 root root      9 15:34 9   سب   lib64 -> usr/lib64
  17 lrwxrwxrwx   1 root root     10 15:34 9   سب   libx32 -> usr/libx32

```

```

gamal@gamal-virtual-machine:/$ cd /etc
gamal@gamal-virtual-machine:/etc$ ls -il
total 1112
784905 drwxr-xr-x   3 root root 4096 01:55 8   لئس  acpi
785035 -rw-r--r--   1 root root 3028 01:52 8   لئس  adduser.conf
784906 drwxr-xr-x   3 root root 4096 01:53 8   لئس  alsa
784907 drwxr-xr-x   2 root root 4096 15:38 9   سب   alternatives
785036 -rw-r--r--   1 root root 335 2022 23  مار  anacrontab
785037 -rw-r--r--   1 root root 433 2022 23  مار  apg.conf
784908 drwxr-xr-x   5 root root 4096 01:53 8   لئس  apm
784909 drwxr-xr-x   3 root root 4096 01:53 8   لئس  apparmor
784910 drwxr-xr-x   7 root root 4096 05:08 11  سب   apparmor.d
784911 drwxr-xr-x   3 root root 4096 15:39 9   سب   appport
785038 -rw-r--r--   1 root root 760 2022 23  مار  appstream.conf

```

```

gamal@gamal-virtual-machine:/etc$ ls -il hosts
785062 -rw-r--r--   1 root root 236 15:36 9   سب   hosts
gamal@gamal-virtual-machine:/etc$

```

10. Copy /etc/passwd to your home directory, use the commands diff and cmp, and Edit in the file you copied, and then use these commands again, and check the output.

```
gamal@gamal-virtual-machine:~/Desktop$ cp -i /etc/passwd /home/gamal/Desktop/mynewpasswd2
gamal@gamal-virtual-machine:~/Desktop$ diff /etc/passwd /home/gamal/Desktop/mynewpasswd2
gamal@gamal-virtual-machine:~/Desktop$
```

```
gamal@gamal-virtual-machine:~/Desktop$ gzip -v mynewpasswd2
mynewpasswd2: 64.6% -- replaced with mynewpasswd2.gz
```

```
gamal@gamal-virtual-machine:~/Desktop$ gunzip mynewpasswd2.gz
gamal@gamal-virtual-machine:~/Desktop$ diff /etc/passwd /home/gamal/Desktop/mynewpasswd2
1c1
< root:x:0:0:root:/root:/bin/bash
---
> 123root:x:0:0:root:/root:/bin/bash
gamal@gamal-virtual-machine:~/Desktop$
```

11. Create a symbolic link of /etc/passwd in /boot.

```
gamal@gamal-virtual-machine:~/Desktop$ sudo ln -s /etc/passwd /boot/passwd-soft
[sudo] password for gamal:
gamal@gamal-virtual-machine:~/Desktop$
```

12. Create a hard link of /etc/passwd in /boot. Could you? Why?

```
gamal@gamal-virtual-machine:~/Desktop$ sudo ln /etc/passwd /boot/passwd-hard
[sudo] password for gamal:
ln: failed to create hard link '/boot/passwd-hard' => '/etc/passwd': Invalid cross-device link
gamal@gamal-virtual-machine:~/Desktop$
```

it shows invalid cross-device link as it's not in the same partition