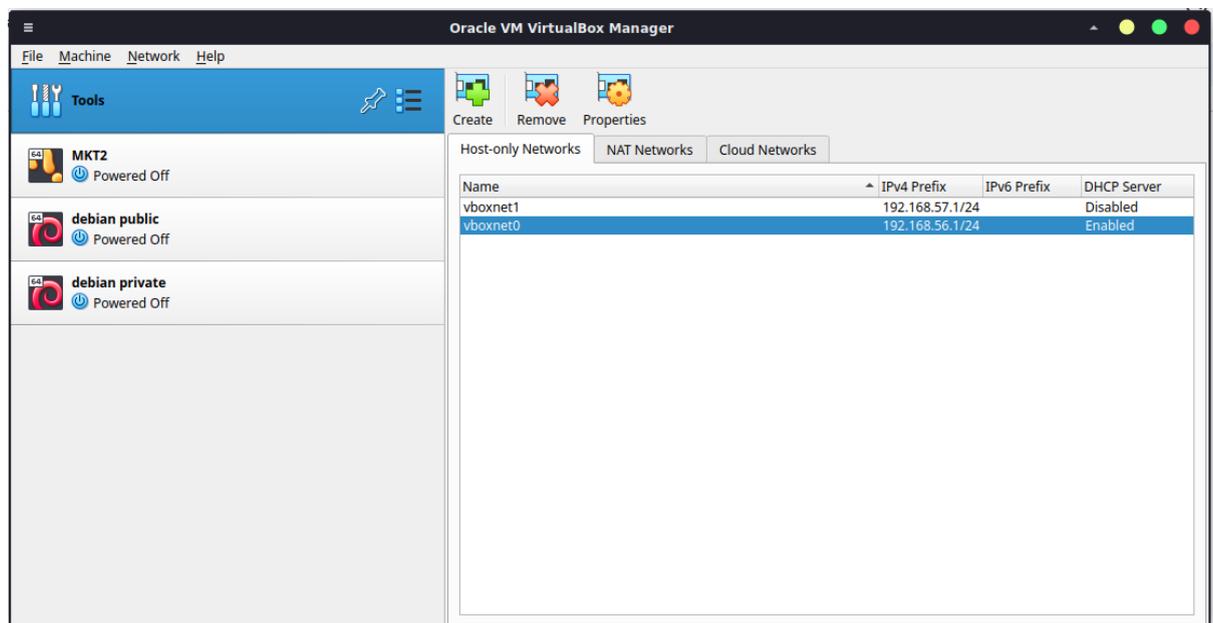
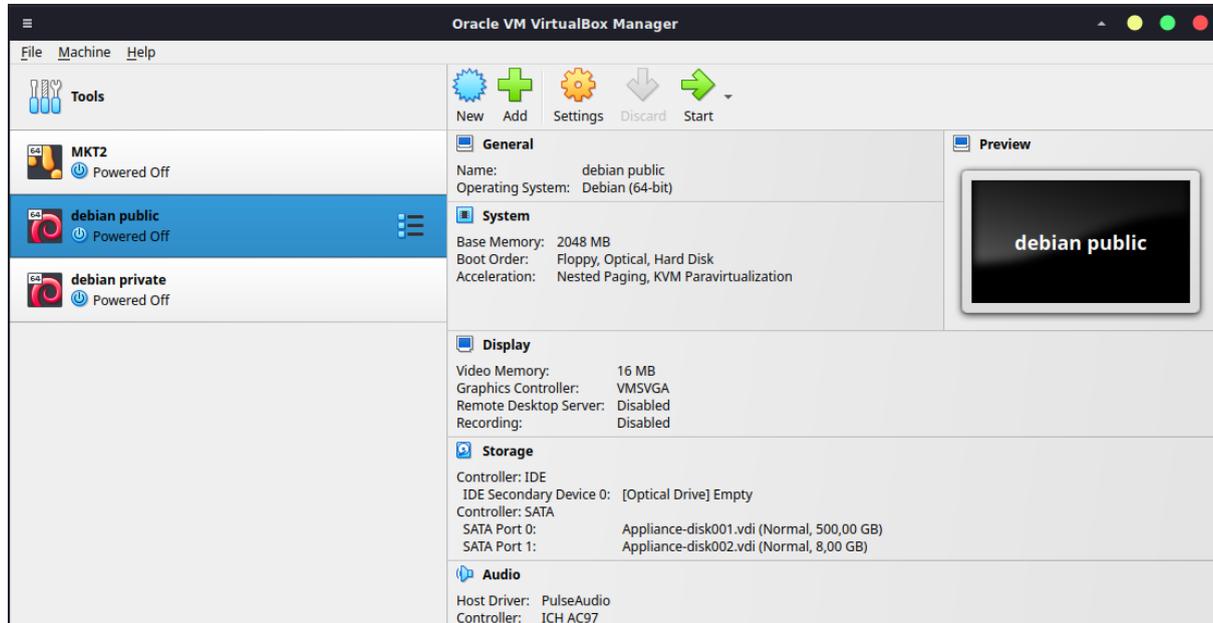


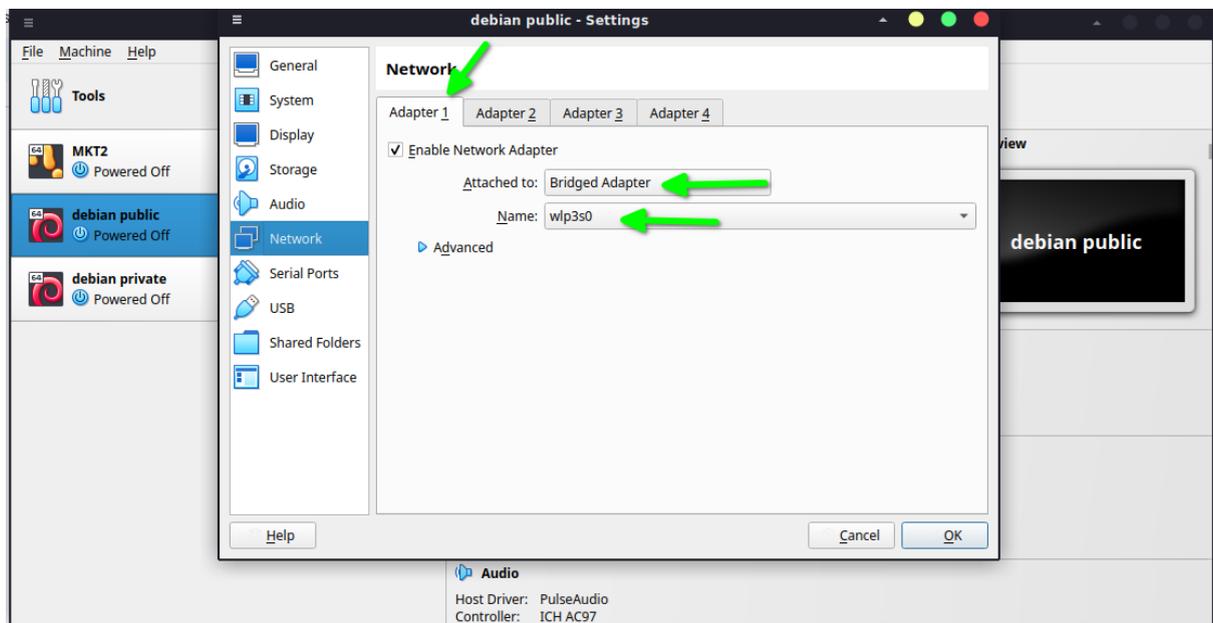
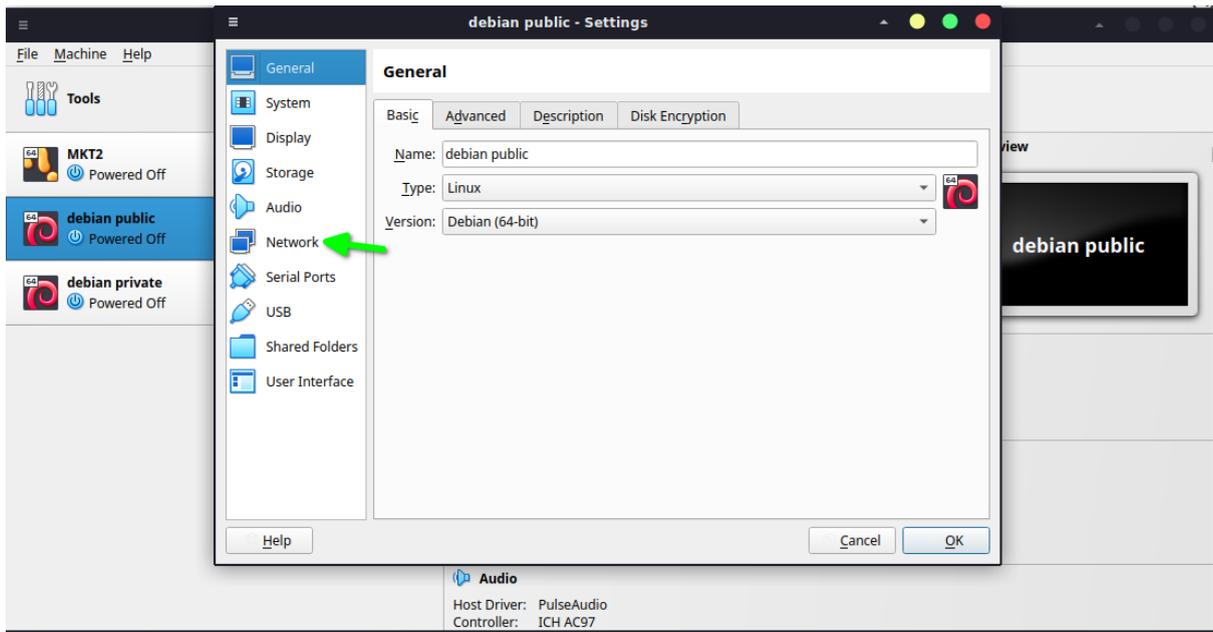
# Entrega clase 1 lab en clase

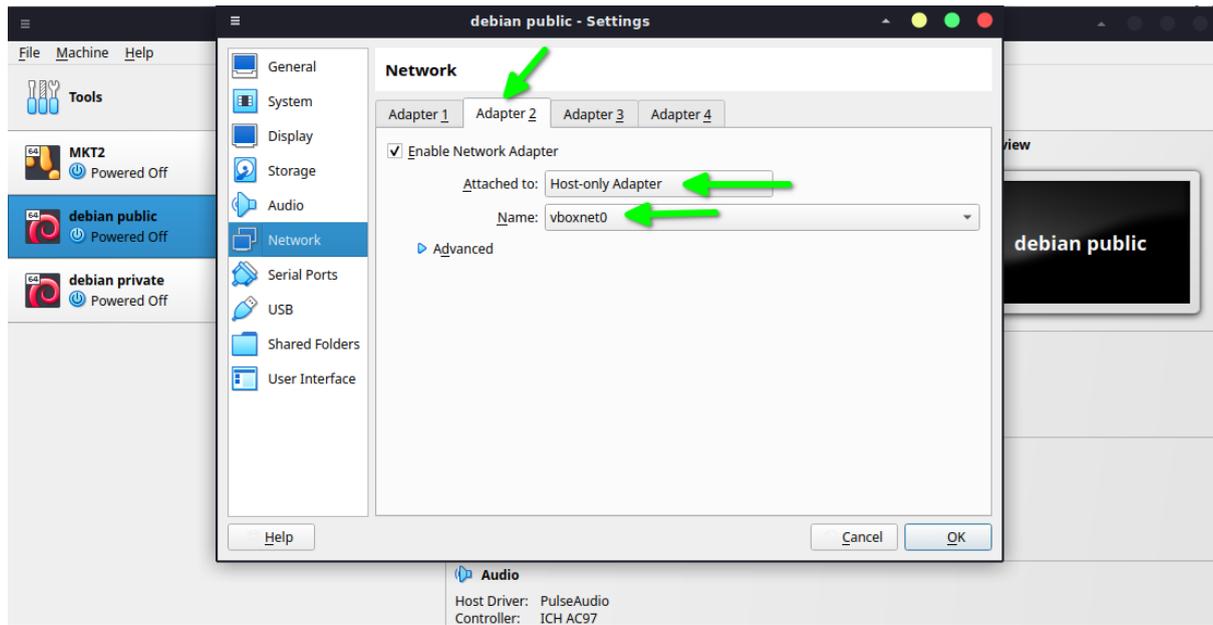
## Parte 1: Explorar sistemas de archivos en Linux

### Entorno



Configurar la red, debe realizarse en ambas máquinas virtuales

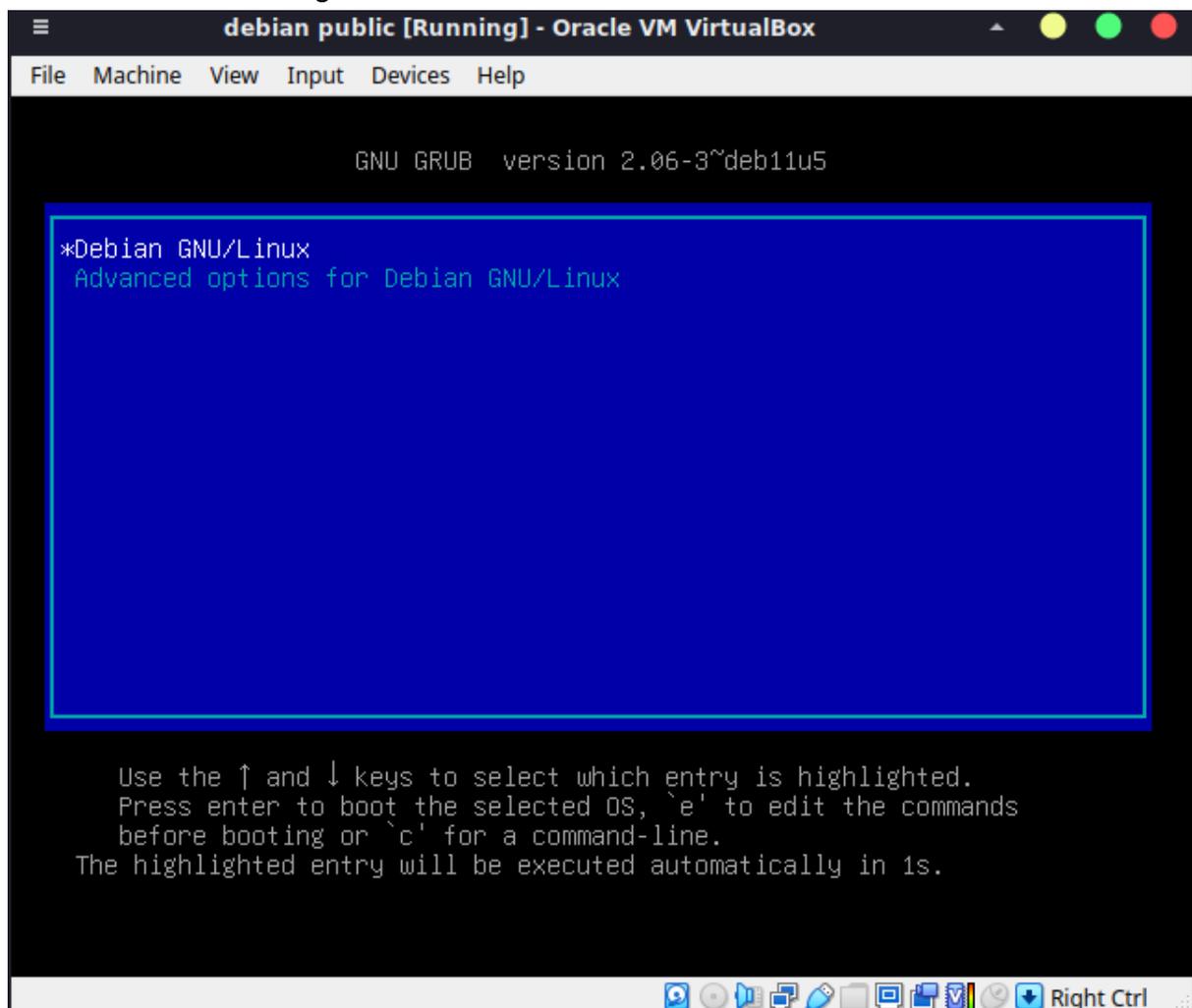


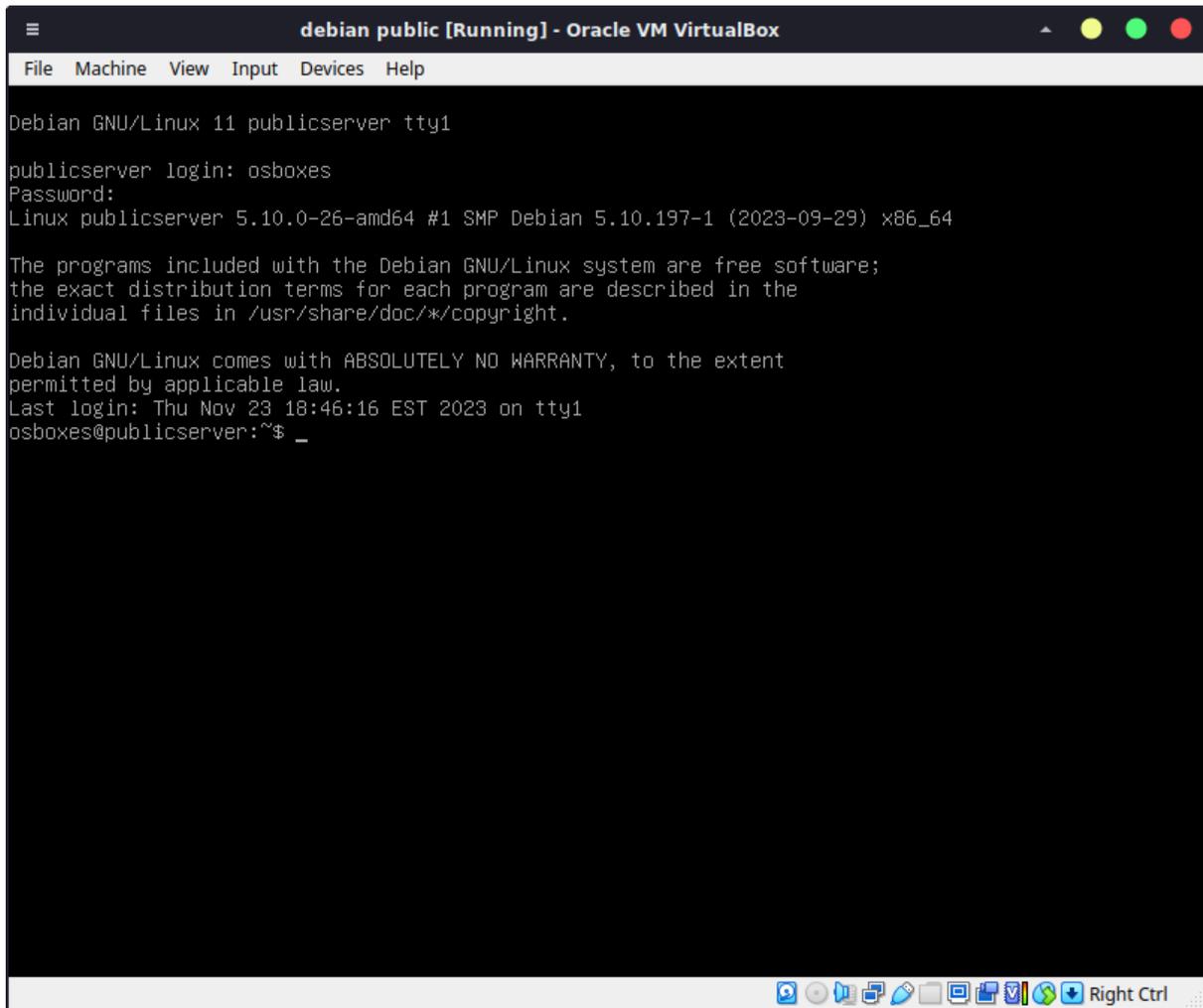


Ingresamos a la maquina virtual debian public

User: osboxes

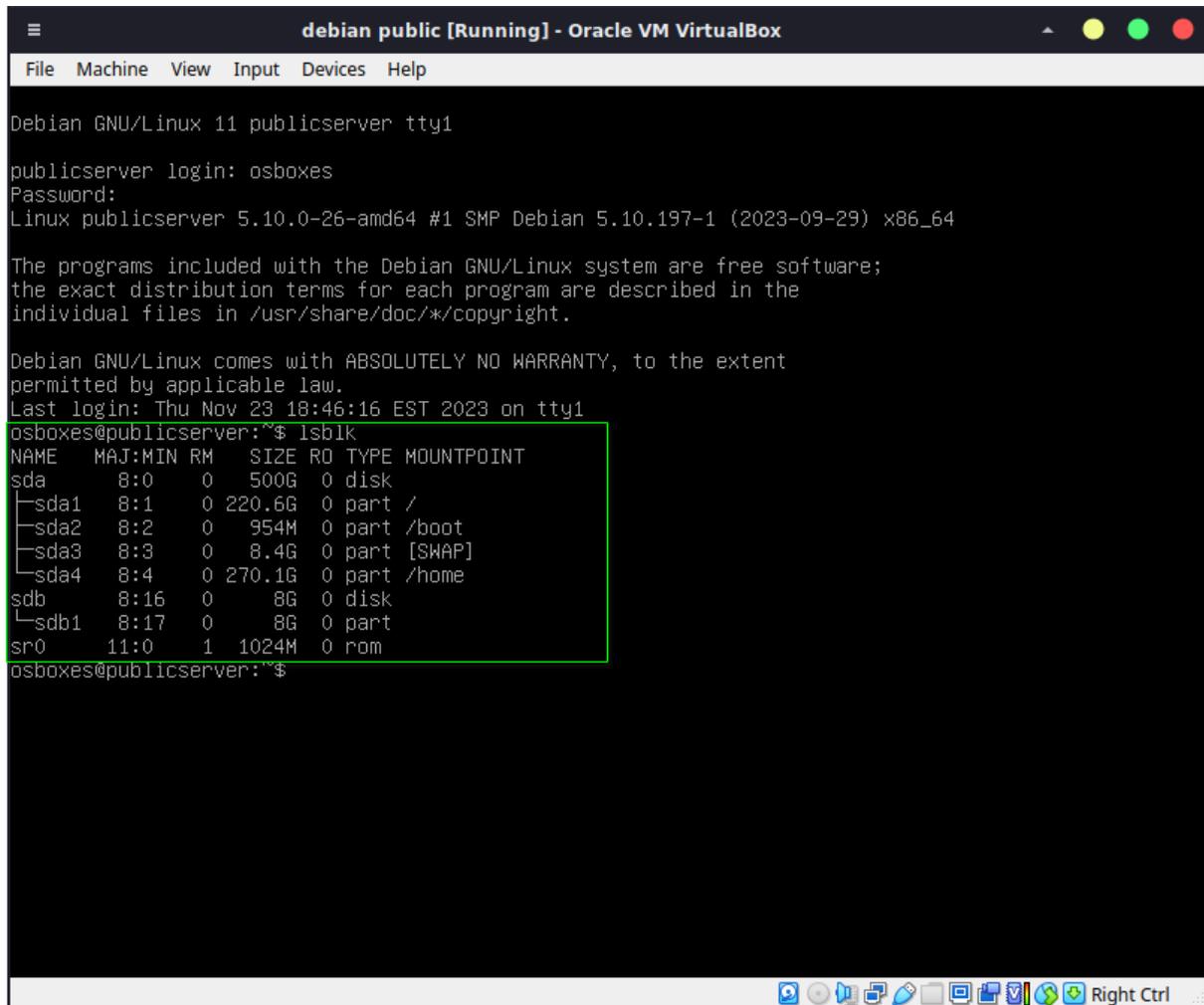
Password: osboxes.org





## Paso 2

2a



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

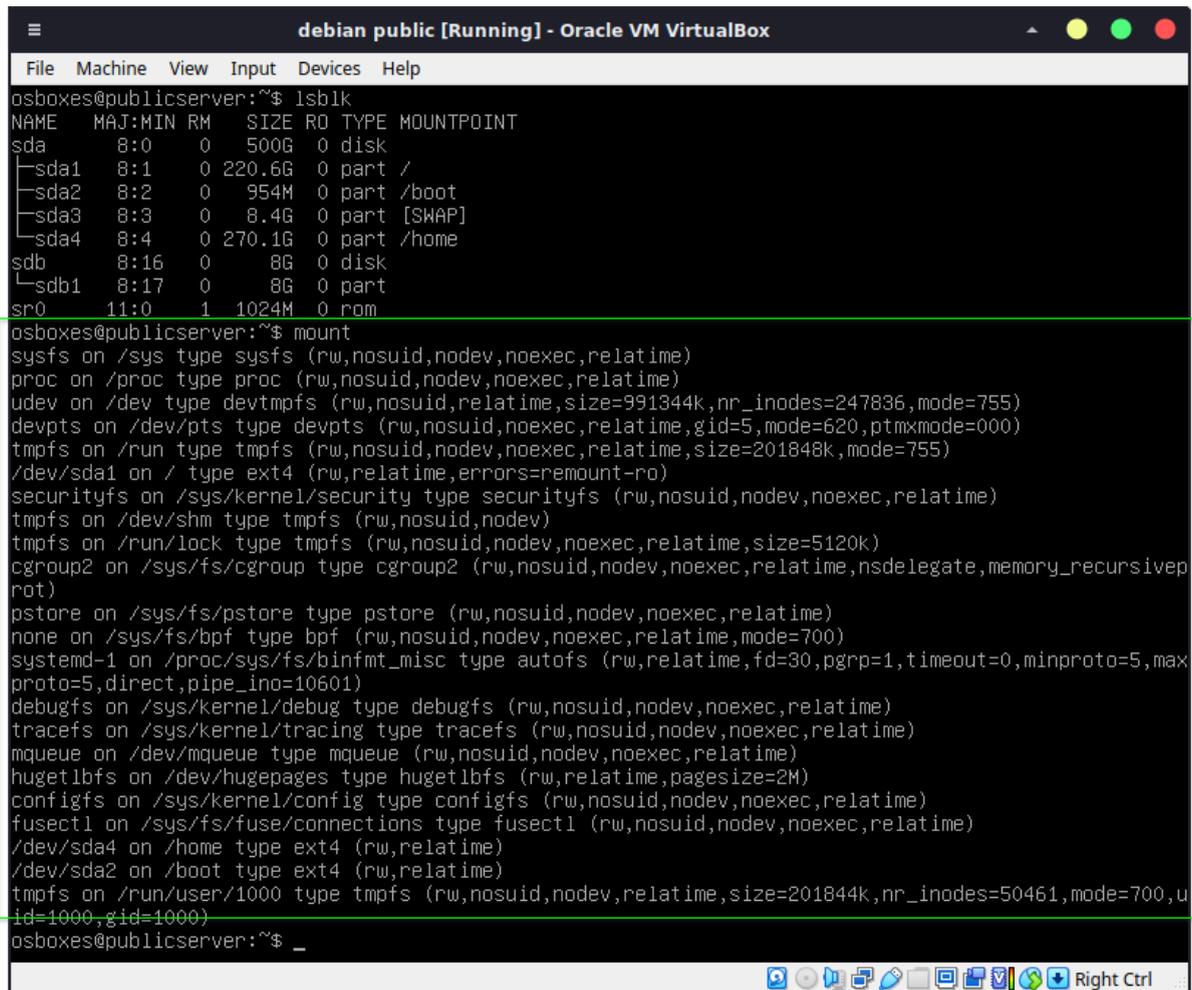
Debian GNU/Linux 11 publicserver tty1

publicserver login: osboxes
Password:
Linux publicserver 5.10.0-26-amd64 #1 SMP Debian 5.10.197-1 (2023-09-29) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

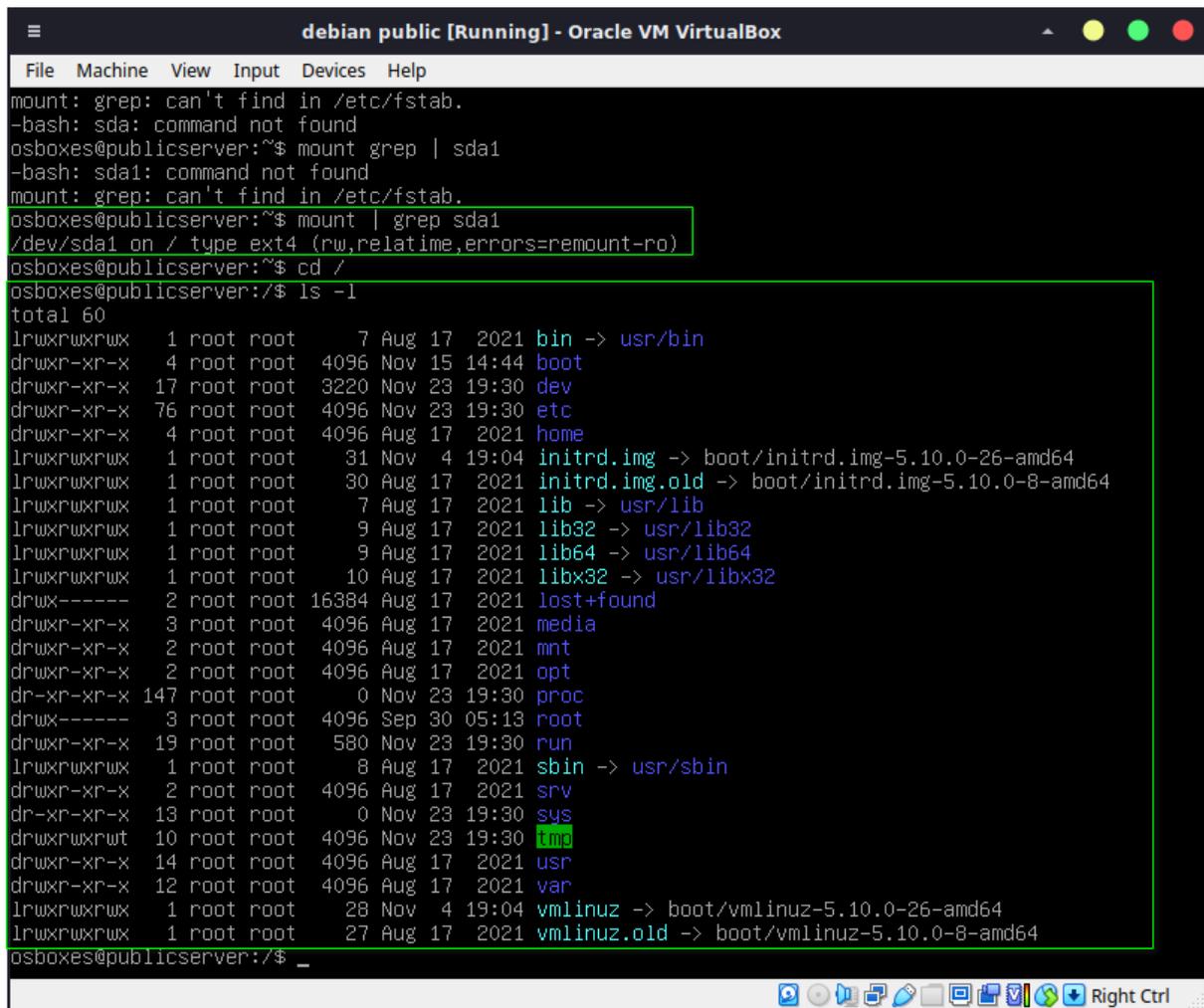
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Nov 23 18:46:16 EST 2023 on tty1
osboxes@publicserver:~$ lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
sda          8:0    0  500G  0 disk
├─sda1       8:1    0 220.6G  0 part /
├─sda2       8:2    0   954M  0 part /boot
├─sda3       8:3    0    8.4G  0 part [SWAP]
├─sda4       8:4    0 270.1G  0 part /home
sdb          8:16   0     8G   0 disk
├─sdb1       8:17   0     8G   0 part
sr0         11:0    1  1024M  0 rom
osboxes@publicserver:~$
```

2b



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
sda   8:0    0  500G  0 disk
├─sda1 8:1    0 220.6G  0 part /
├─sda2 8:2    0   954M  0 part /boot
├─sda3 8:3    0    8.4G  0 part [SWAP]
└─sda4 8:4    0 270.1G  0 part /home
sdb   8:16   0    8G   0 disk
└─sdb1 8:17   0    8G   0 part
sr0   11:0   1 1024M  0 rom
osboxes@publicserver:~$ mount
sysfs on /sys type sysfs (rw,nosuid,nodev,noexec,relatime)
proc on /proc type proc (rw,nosuid,nodev,noexec,relatime)
udev on /dev type devtmpfs (rw,nosuid,relatime,size=991344k,nr_inodes=247836,mode=755)
devpts on /dev/pts type devpts (rw,nosuid,noexec,relatime,gid=5,mode=620,ptmxmode=000)
tmpfs on /run type tmpfs (rw,nosuid,nodev,noexec,relatime,size=201848k,mode=755)
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro)
securityfs on /sys/kernel/security type securityfs (rw,nosuid,nodev,noexec,relatime)
tmpfs on /dev/shm type tmpfs (rw,nosuid,nodev)
tmpfs on /run/lock type tmpfs (rw,nosuid,nodev,noexec,relatime,size=5120k)
cgroup2 on /sys/fs/cgroup type cgroup2 (rw,nosuid,nodev,noexec,relatime,nsdelegate,memory_recursivep
rot)
pstore on /sys/fs/pstore type pstore (rw,nosuid,nodev,noexec,relatime)
none on /sys/fs/bpf type bpf (rw,nosuid,nodev,noexec,relatime,mode=700)
systemd-1 on /proc/sys/fs/binfmt_misc type autofs (rw,relatime,fd=30,pgrp=1,timeout=0,minproto=5,max
proto=5,direct,pipe_ino=10601)
debugfs on /sys/kernel/debug type debugfs (rw,nosuid,nodev,noexec,relatime)
tracefs on /sys/kernel/tracing type tracefs (rw,nosuid,nodev,noexec,relatime)
mqueue on /dev/mqueue type mqueue (rw,nosuid,nodev,noexec,relatime)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime,pagesize=2M)
configfs on /sys/kernel/config type configfs (rw,nosuid,nodev,noexec,relatime)
fusectl on /sys/fs/fuse/connections type fusectl (rw,nosuid,nodev,noexec,relatime)
/dev/sda4 on /home type ext4 (rw,relatime)
/dev/sda2 on /boot type ext4 (rw,relatime)
tmpfs on /run/user/1000 type tmpfs (rw,nosuid,nodev,relatime,size=201844k,nr_inodes=50461,mode=700,u
id=1000,gid=1000)
osboxes@publicserver:~$ _
```

## 2c y 2d



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
mount: grep: can't find in /etc/fstab.
-bash: sda: command not found
osboxes@publicserver:~$ mount grep | sda1
-bash: sda1: command not found
mount: grep: can't find in /etc/fstab.
osboxes@publicserver:~$ mount | grep sda1
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro)
osboxes@publicserver:~$ cd /
osboxes@publicserver:/$ ls -l
total 60
lrwxrwxrwx 1 root root 7 Aug 17 2021 bin -> usr/bin
drwxr-xr-x 4 root root 4096 Nov 15 14:44 boot
drwxr-xr-x 17 root root 3220 Nov 23 19:30 dev
drwxr-xr-x 76 root root 4096 Nov 23 19:30 etc
drwxr-xr-x 4 root root 4096 Aug 17 2021 home
lrwxrwxrwx 1 root root 31 Nov 4 19:04 initrd.img -> boot/initrd.img-5.10.0-26-amd64
lrwxrwxrwx 1 root root 30 Aug 17 2021 initrd.img.old -> boot/initrd.img-5.10.0-8-amd64
lrwxrwxrwx 1 root root 7 Aug 17 2021 lib -> usr/lib
lrwxrwxrwx 1 root root 9 Aug 17 2021 lib32 -> usr/lib32
lrwxrwxrwx 1 root root 9 Aug 17 2021 lib64 -> usr/lib64
lrwxrwxrwx 1 root root 10 Aug 17 2021 libx32 -> usr/libx32
drwx----- 2 root root 16384 Aug 17 2021 lost+found
drwxr-xr-x 3 root root 4096 Aug 17 2021 media
drwxr-xr-x 2 root root 4096 Aug 17 2021 mnt
drwxr-xr-x 2 root root 4096 Aug 17 2021 opt
dr-xr-xr-x 147 root root 0 Nov 23 19:30 proc
drwx----- 3 root root 4096 Sep 30 05:13 root
drwxr-xr-x 19 root root 580 Nov 23 19:30 run
lrwxrwxrwx 1 root root 8 Aug 17 2021/sbin -> usr/sbin
drwxr-xr-x 2 root root 4096 Aug 17 2021 srv
dr-xr-xr-x 13 root root 0 Nov 23 19:30 sys
drwxrwxrwt 10 root root 4096 Nov 23 19:30 tmp
drwxr-xr-x 14 root root 4096 Aug 17 2021 usr
drwxr-xr-x 12 root root 4096 Aug 17 2021 var
lrwxrwxrwx 1 root root 28 Nov 4 19:04 vmlinuz -> boot/vmlinuz-5.10.0-26-amd64
lrwxrwxrwx 1 root root 27 Aug 17 2021 vmlinuz.old -> boot/vmlinuz-5.10.0-8-amd64
osboxes@publicserver:/$ _
```

2d ¿Cuál es el significado de la salida? ¿Dónde se almacenan físicamente los archivos de la lista?

2d. ¿Por qué no se muestra /dev/sdb1 en la salida de arriba?

sdb1 no aparece porque no está montado.

### Paso 3

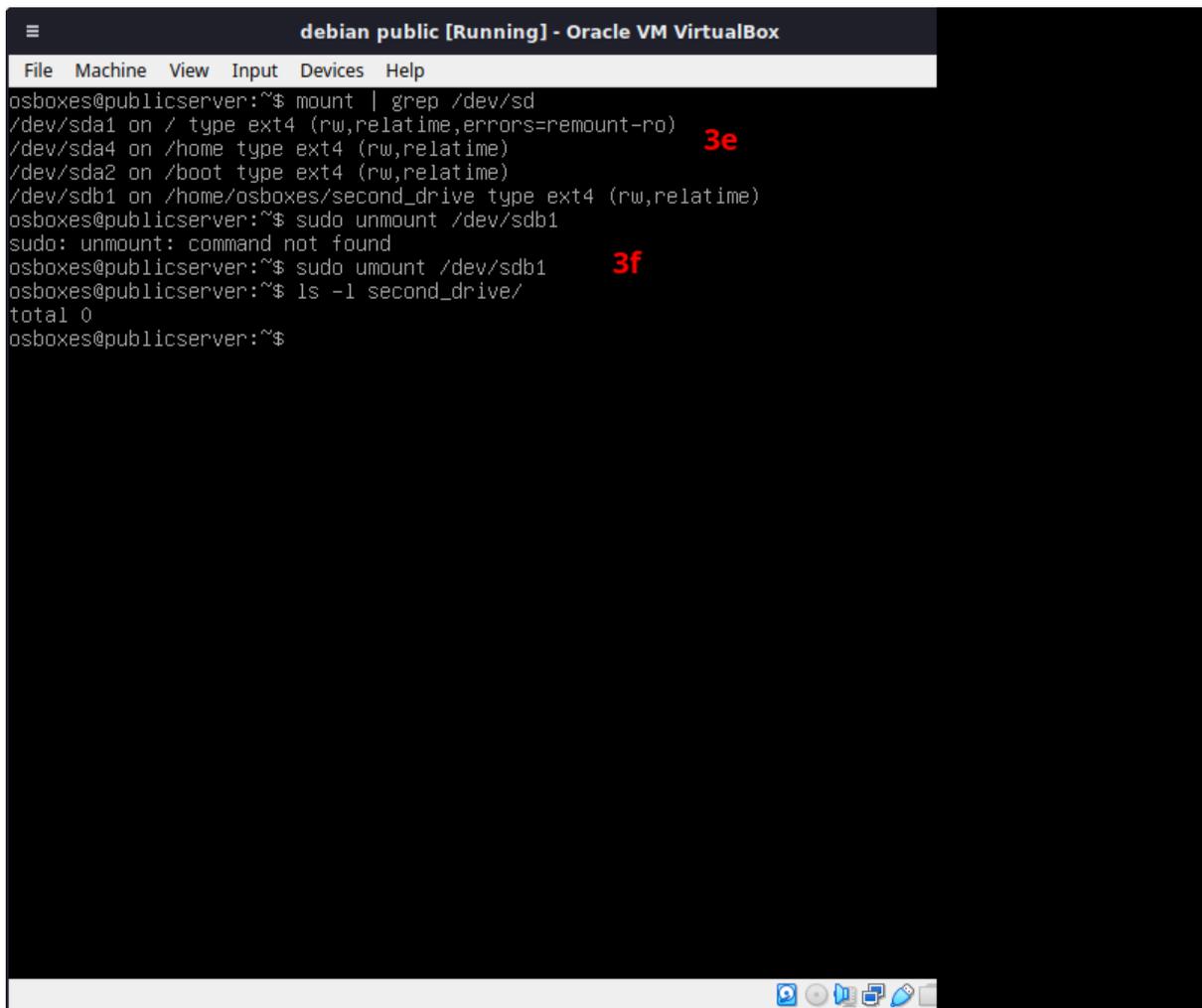
3a, 3b, 3c y 3d

```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ cd ~
osboxes@publicserver:~$ ls -la
total 44
drwxr-xr-x 6 osboxes osboxes 4096 Nov 23 19:51 .
drwxr-xr-x 4 root root 4096 Aug 17 2021 ..
-rw-r----- 1 osboxes osboxes 625 Nov 15 21:42 .bash_history
-rw-r--r-- 1 osboxes osboxes 220 Aug 17 2021 .bash_logout
-rw-r--r-- 1 osboxes osboxes 3526 Aug 17 2021 .bashrc
drwxr-xr-x 2 osboxes osboxes 4096 Nov 15 21:25 folder
-rwxr-xr-x 1 osboxes osboxes 0 Nov 23 19:09 hola
-rw-r--r-- 1 osboxes osboxes 807 Aug 17 2021 .profile
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:00 second
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:51 second_drive
drwx----- 2 osboxes osboxes 4096 Sep 30 06:00 .ssh
-rw-r----- 1 osboxes osboxes 58 Nov 4 17:52 .Xauthority
osboxes@publicserver:~$ mkdir second_drive
mkdir: cannot create directory 'second_drive': File exists
osboxes@publicserver:~$ ls -l second_drive/
total 0
osboxes@publicserver:~$ sudo mount /dev/sdb1 ~/second_drive/
osboxes@publicserver:~$ ls -l second_drive/
total 16
drwx----- 2 root root 16384 Oct 13 23:13 lost+found
-rw-r--r-- 1 root root 0 Oct 13 23:17 myfile.txt
```

3d. ¿Por qué ya no está vacío el directorio? ¿Dónde se almacenan físicamente los archivos de la lista?

Ya no está vacío porque se montó el disco /dev/sdb1 en el directorio second\_drive

3e y 3f



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ mount | grep /dev/sd
/dev/sda1 on / type ext4 (rw,relatime,errors=remount-ro) 3e
/dev/sda4 on /home type ext4 (rw,relatime)
/dev/sda2 on /boot type ext4 (rw,relatime)
/dev/sdb1 on /home/osboxes/second_drive type ext4 (rw,relatime)
osboxes@publicserver:~$ sudo unmount /dev/sdb1
sudo: unmount: command not found
osboxes@publicserver:~$ sudo umount /dev/sdb1 3f
osboxes@publicserver:~$ ls -l second_drive/
total 0
osboxes@publicserver:~$
```

3g. Investigar: Es posible asignar permisos específicos al montar un sistema de archivos ? ¿Puede dar un ejemplo ?

Si, se puede.

Ejemplo:

```
sudo nano /etc/fstab
```

```
# <file system> <mount point> <type> <options> <dump> <pass>
```

## Parte 2: Permisos de archivo

### Paso 1

#### 1a, 1b y 1c

```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ cd /home/osboxes/
osboxes@publicserver:~$ ls -l
total 12
drwxr-xr-x 2 osboxes osboxes 4096 Nov 15 21:25 folder
-rwxr-xr-x 1 osboxes osboxes  0 Nov 23 19:09 hola
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:00 second
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:51 second_drive
osboxes@publicserver:~$ touch foo
osboxes@publicserver:~$ ls -l
total 12
drwxr-xr-x 2 osboxes osboxes 4096 Nov 15 21:25 folder
-rw-r--r-- 1 osboxes osboxes  0 Nov 23 20:03 foo
-rwxr-xr-x 1 osboxes osboxes  0 Nov 23 19:09 hola
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:00 second
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:51 second_drive
osboxes@publicserver:~$ _
```

1c. Consideren el archivo foo a modo de ejemplo. ¿Quién es el propietario del archivo? ¿Y del grupo?

El owner del archivo es osboxes y el del grupo es osboxes

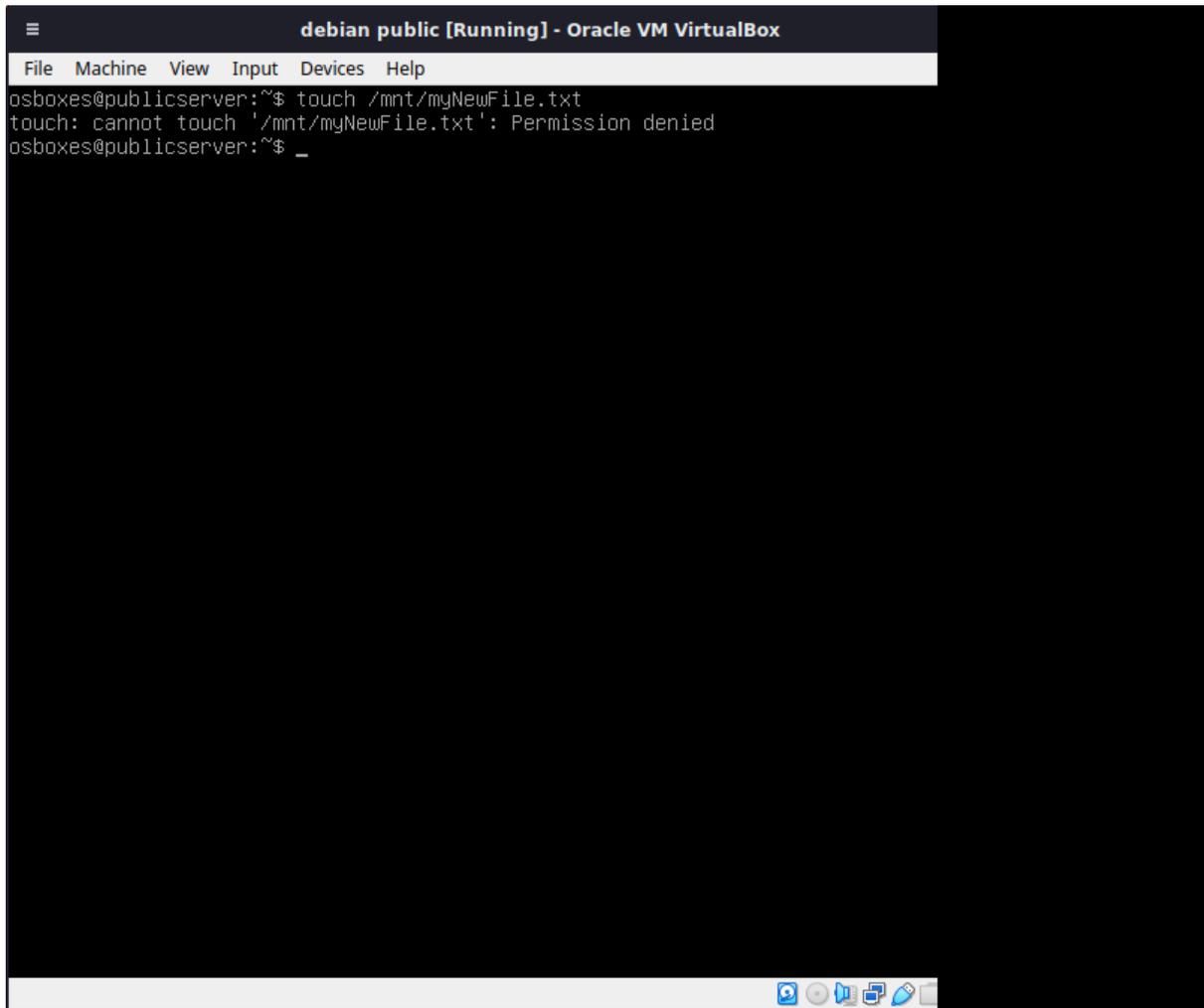
Los permisos para foo son `-rw-r--r--`. ¿Qué significa esto?

| Tipo de archivo | Permisos de usuario (owner) | Permisos de grupo | Permisos de otros |
|-----------------|-----------------------------|-------------------|-------------------|
| -               | rw-                         | r--               | r--               |

|      |                            |            |            |
|------|----------------------------|------------|------------|
| file | r: lectura<br>w: escritura | r: lectura | r: lectura |
|------|----------------------------|------------|------------|



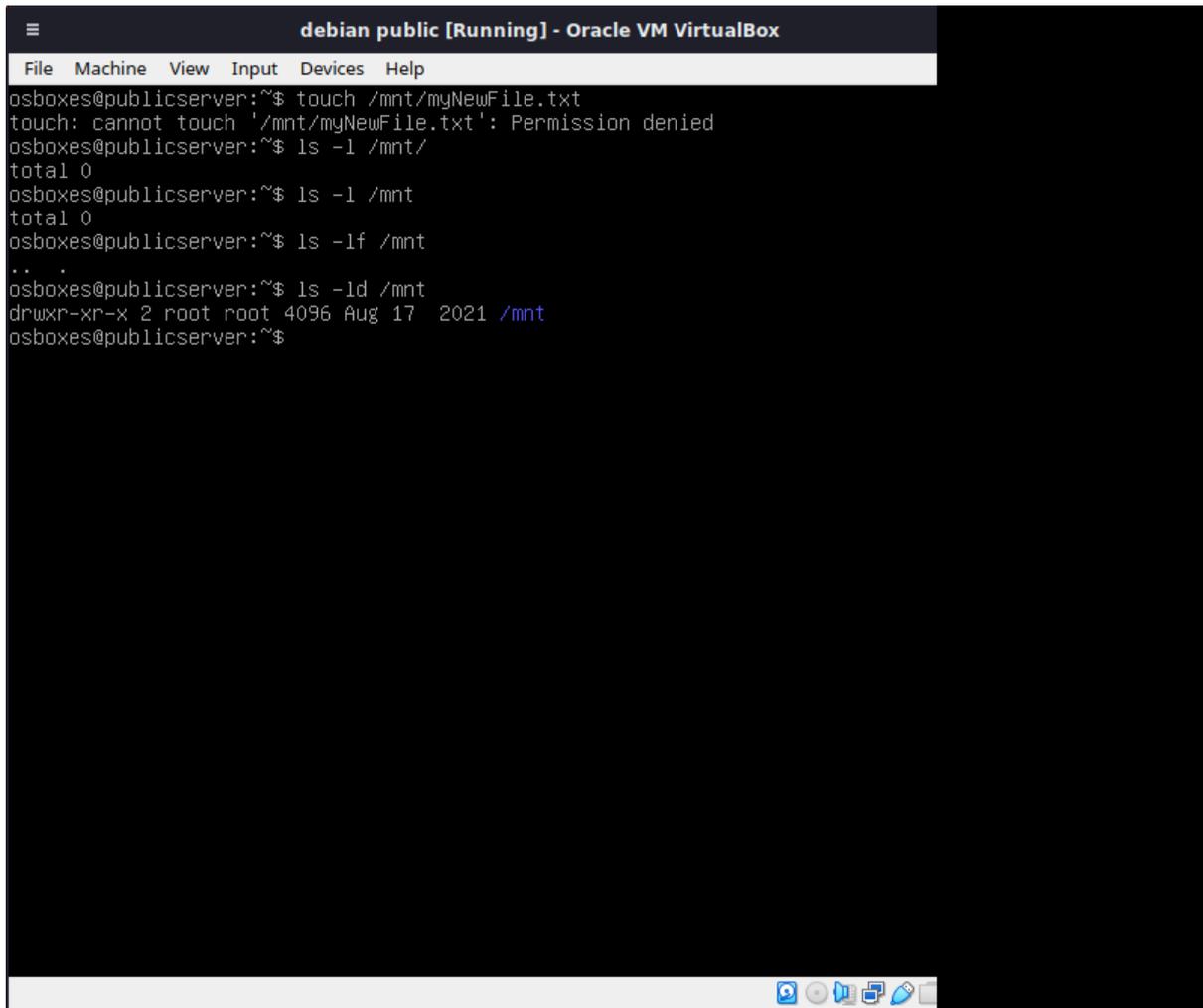
1d



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ touch /mnt/myNewFile.txt
touch: cannot touch '/mnt/myNewFile.txt': Permission denied
osboxes@publicserver:~$ _
```

1d. ¿Por qué no se creó el archivo?

Genere una lista con los permisos, la propiedad y el contenido del directorio /mnt y explique qué sucedió. Cuando se agrega la opción -d, muestra el permiso del directorio principal. Registren las respuestas en las siguientes líneas.



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ touch /mnt/myNewFile.txt
touch: cannot touch '/mnt/myNewFile.txt': Permission denied
osboxes@publicserver:~$ ls -l /mnt/
total 0
osboxes@publicserver:~$ ls -l /mnt
total 0
osboxes@publicserver:~$ ls -lf /mnt
..
osboxes@publicserver:~$ ls -ld /mnt
drwxr-xr-x 2 root root 4096 Aug 17 2021 /mnt
osboxes@publicserver:~$
```

```
[osboxes@publicserver ~]$ ls -ld /mnt
drwxr-xr-x 2 root root 4096 Jan 5 2018 /mnt
```

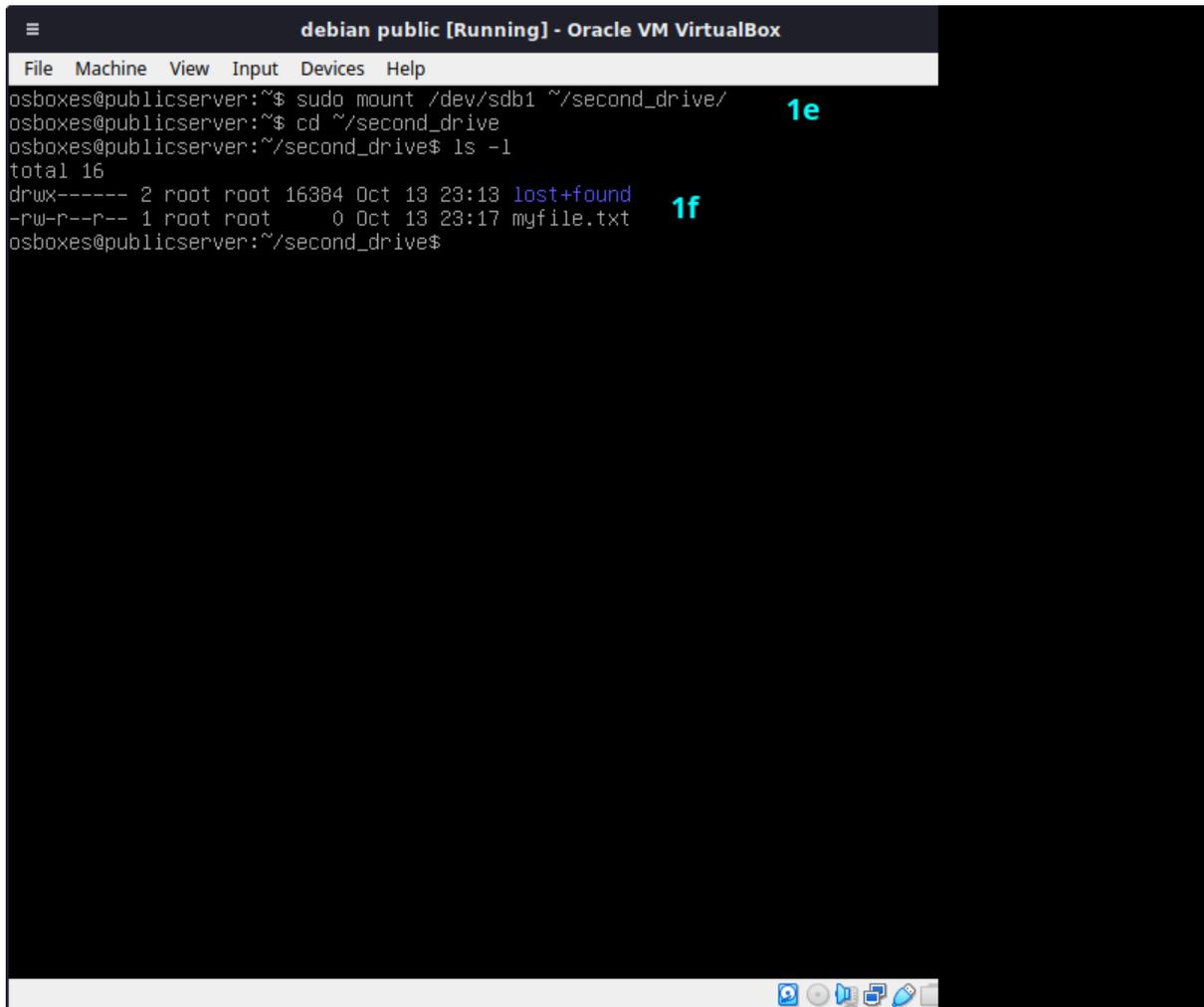
¿Qué se puede hacer para que el comando touch que se muestra arriba tenga éxito?

Utilizar **sudo**.

Cambiar el owner.

Agregar permisos al archivo para que pueda ejecutar.

## 1e y 1f



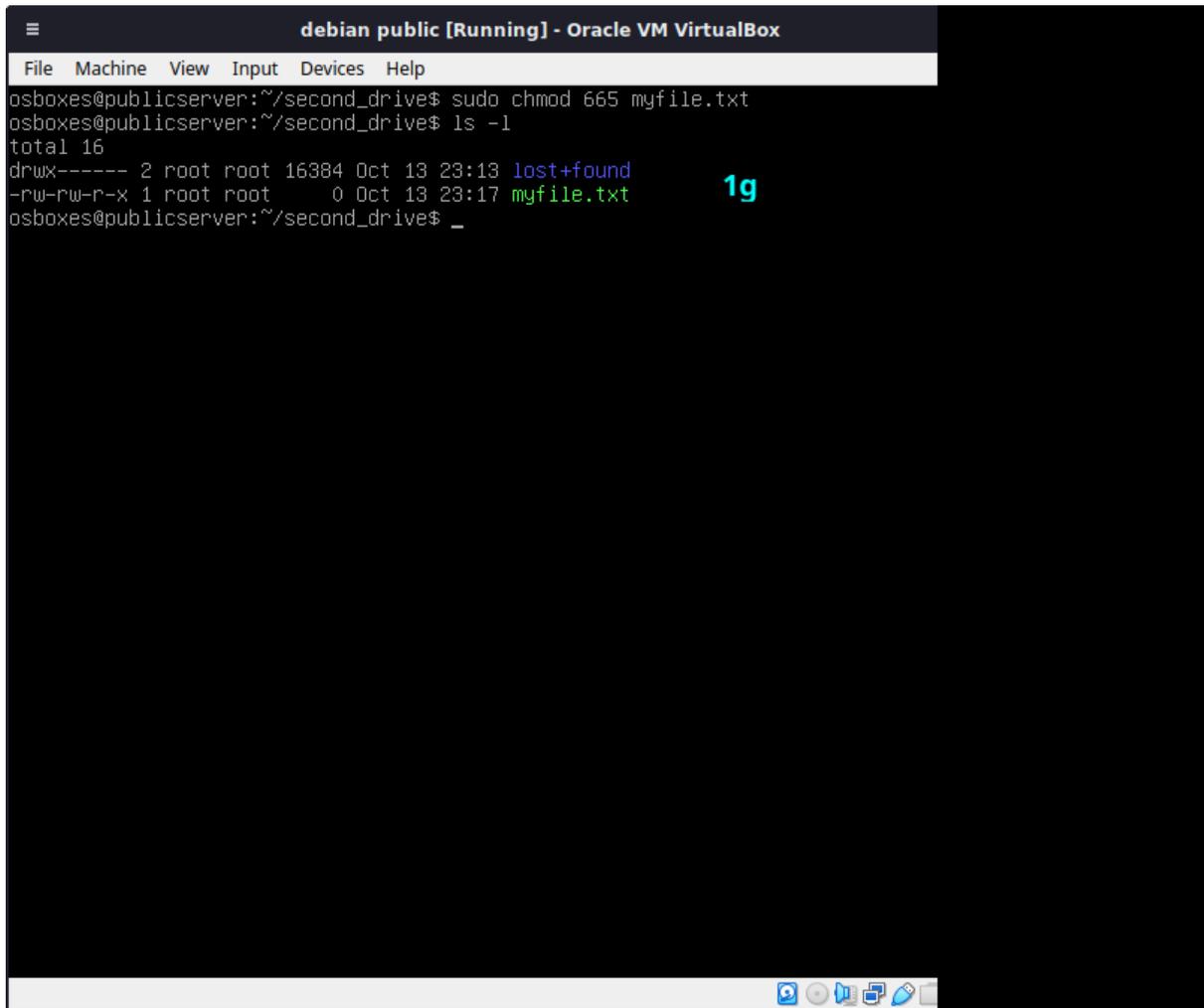
```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ sudo mount /dev/sdb1 ~/second_drive/ 1e
osboxes@publicserver:~$ cd ~/second_drive
osboxes@publicserver:~/second_drive$ ls -l
total 16
drwx----- 2 root root 16384 Oct 13 23:13 lost+found 1f
-rw-r--r-- 1 root root    0 Oct 13 23:17 myfile.txt
osboxes@publicserver:~/second_drive$
```

¿Cuáles son los permisos del archivo myFile.txt? Aquí.

```
[osboxes@publicserver ~]$ cd ~/second_drive
[osboxes@publicserver second_drive]$ ls -l
total 20
drwx----- 2 root root 16384 Mar 3 10:59 lost+found
-rw-r--r-- 1 root root 183 Mar 3 15:42 myFile.txt
```

| Tipo de archivo | Permisos de usuario (owner) | Permisos de grupo | Permisos de otros |
|-----------------|-----------------------------|-------------------|-------------------|
| -               | rw-                         | r - -             | r - -             |
| file            | r: lectura<br>w: escritura  | r: lectura        | r: lectura        |

1g



1g ¿Cambiaron los permisos? ¿Cuáles son los permisos de myFile.txt?

Si, cambiaron los permisos del archivo myfile.txt. Los permisos son:

| Tipo de archivo | Permisos de usuario (owner) | Permisos de grupo | Permisos de otros |
|-----------------|-----------------------------|-------------------|-------------------|
| -               | rw-                         | r - -             | r - -             |
| file            | r: lectura<br>w: escritura  | r: lectura        | r: lectura        |

El comando **chmod** toma permisos en formato octal. De esa manera, el desglose del 665 es el siguiente:

6 en octal es 110 en binario. Suponiendo que cada posición de los permisos de un archivo puede ser 1 o 0, 110 significa rw- (leer=1, escribir=1 y ejecutar=0).

Por lo tanto, el comando **chmod 665 myFile.txt** cambia los permisos a:

**Owner:** rw- (6 in octal or 110 in binary)

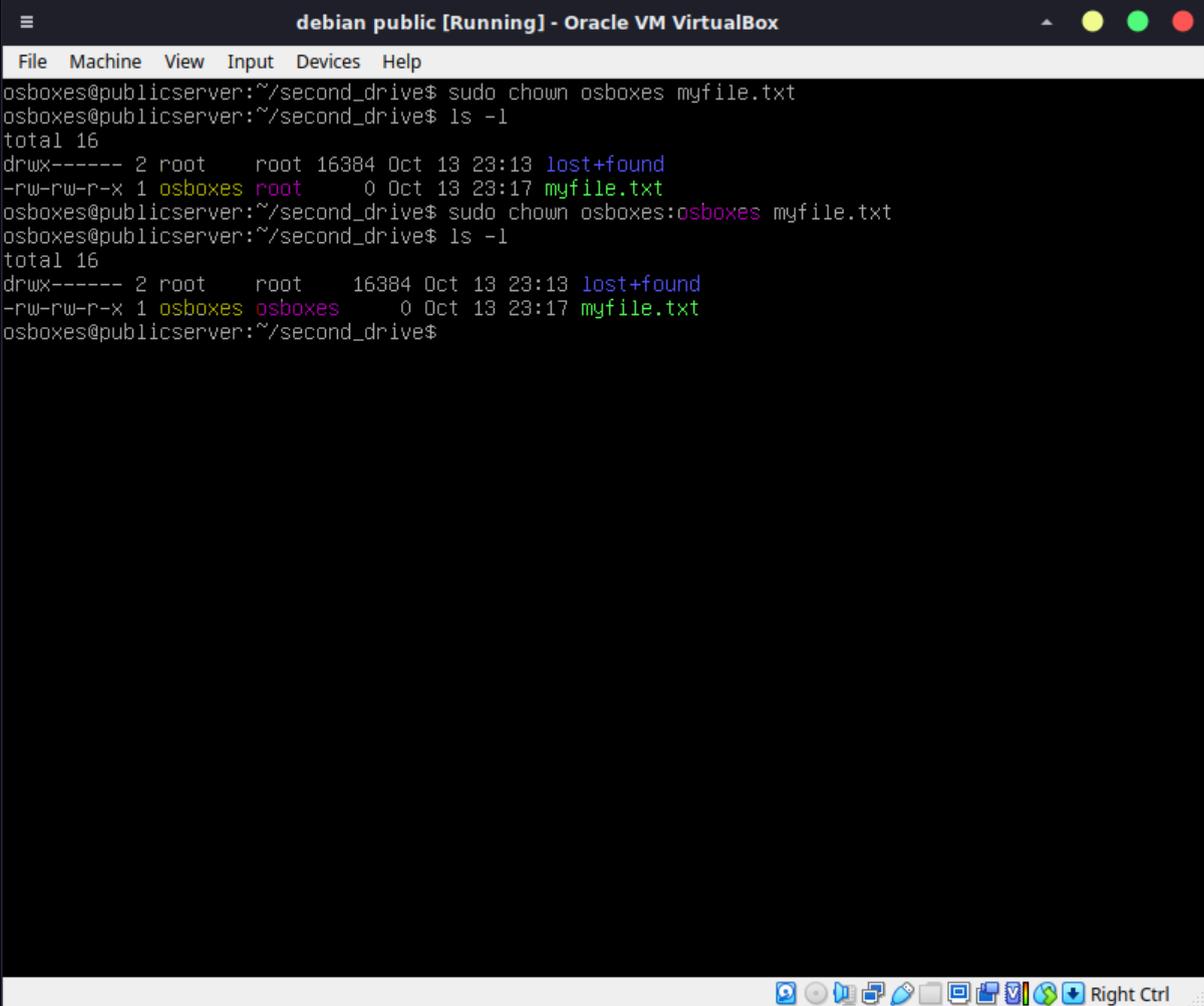
**Group:** rw- (6 in octal or 110 in binary)

**Other:** r-x (5 in octal or 101 in binary)

¿Qué comando cambiaría los permisos de myFile.txt a rwxrwxrwx, con lo que se otorgaría acceso total al archivo a cualquier usuario del sistema?

Se necesitaría el comando: **chmod 777 myFile.txt**

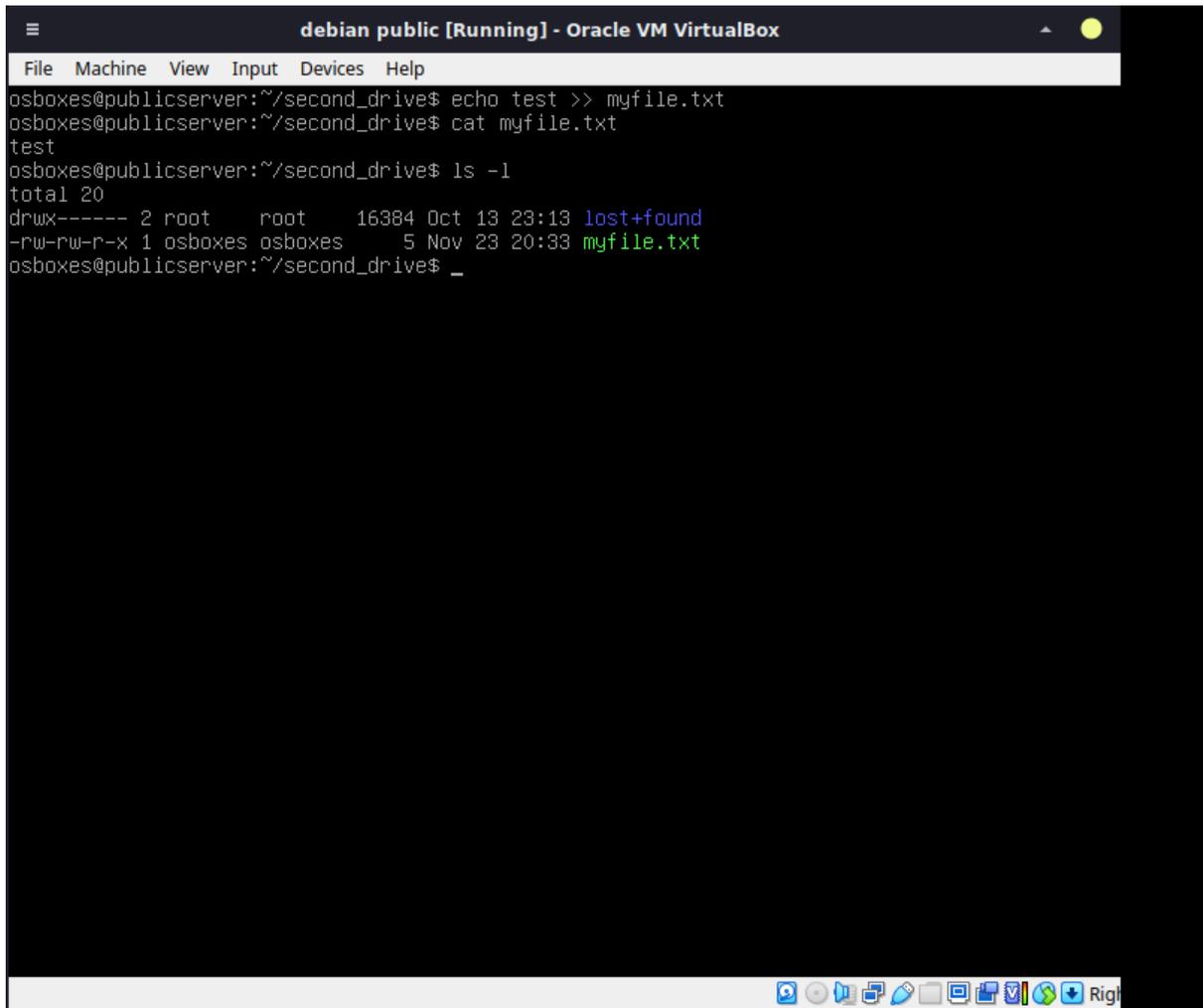
1h



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~/second_drive$ sudo chown osboxes myfile.txt
osboxes@publicserver:~/second_drive$ ls -l
total 16
drwx----- 2 root    root    16384 Oct 13 23:13 lost+found
-rw-rw-r-x  1 osboxes root     0 Oct 13 23:17 myfile.txt
osboxes@publicserver:~/second_drive$ sudo chown osboxes:osboxes myfile.txt
osboxes@publicserver:~/second_drive$ ls -l
total 16
drwx----- 2 root    root    16384 Oct 13 23:13 lost+found
-rw-rw-r-x  1 osboxes osboxes  0 Oct 13 23:17 myfile.txt
osboxes@publicserver:~/second_drive$
```

1i ¿Fue exitosa la operación? Explique.

Si, fue exitosa porque

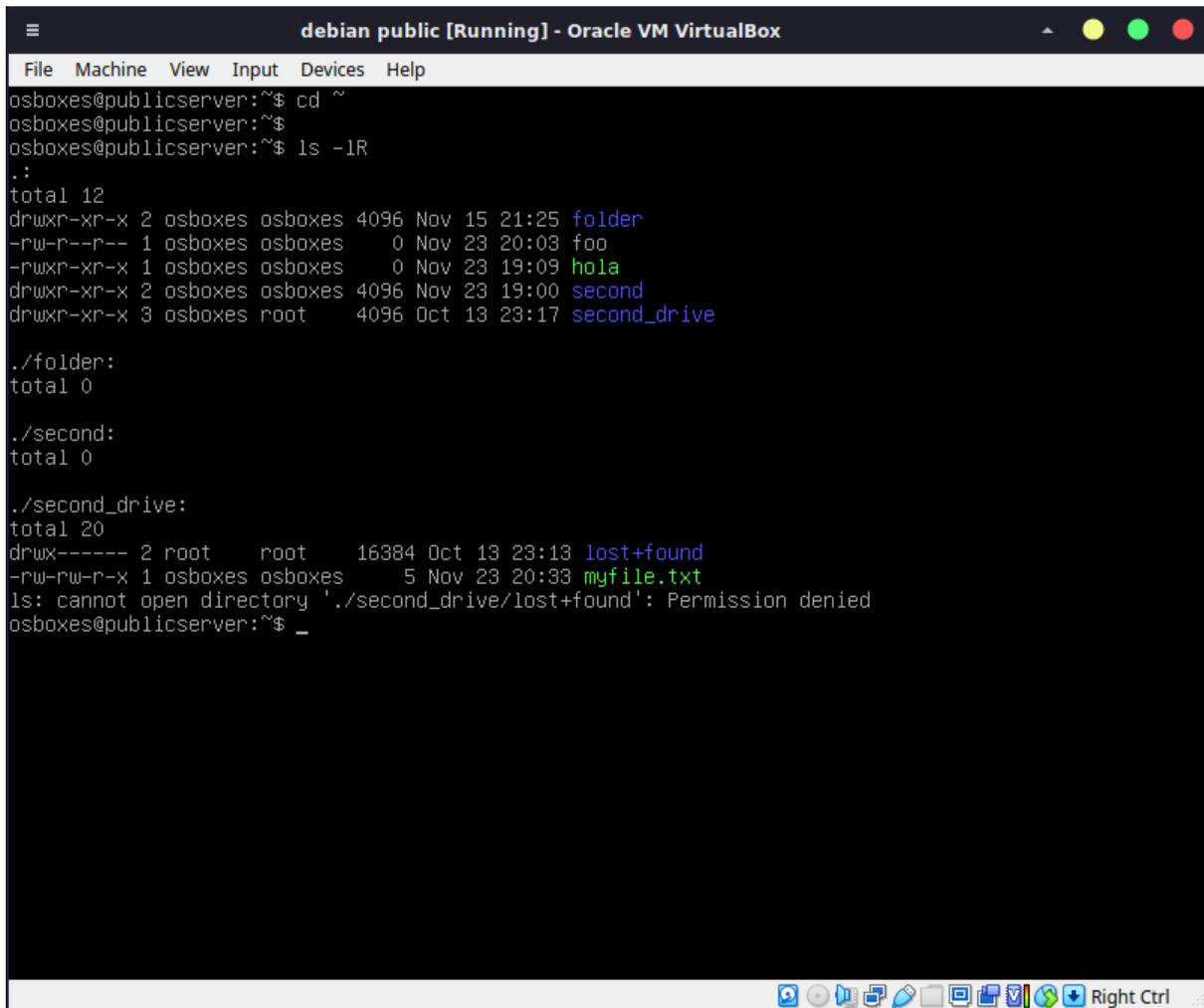


The image shows a terminal window titled "debian public [Running] - Oracle VM VirtualBox". The terminal output is as follows:

```
osboxes@publicserver:~/second_drive$ echo test >> myfile.txt
osboxes@publicserver:~/second_drive$ cat myfile.txt
test
osboxes@publicserver:~/second_drive$ ls -l
total 20
drwx----- 2 root    root    16384 Oct 13 23:13 lost+found
-rw-rw-r-x 1 osboxes osboxes   5 Nov 23 20:33 myfile.txt
osboxes@publicserver:~/second_drive$ _
```

The terminal window includes a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". At the bottom, there is a taskbar with various system icons.

## Paso 2

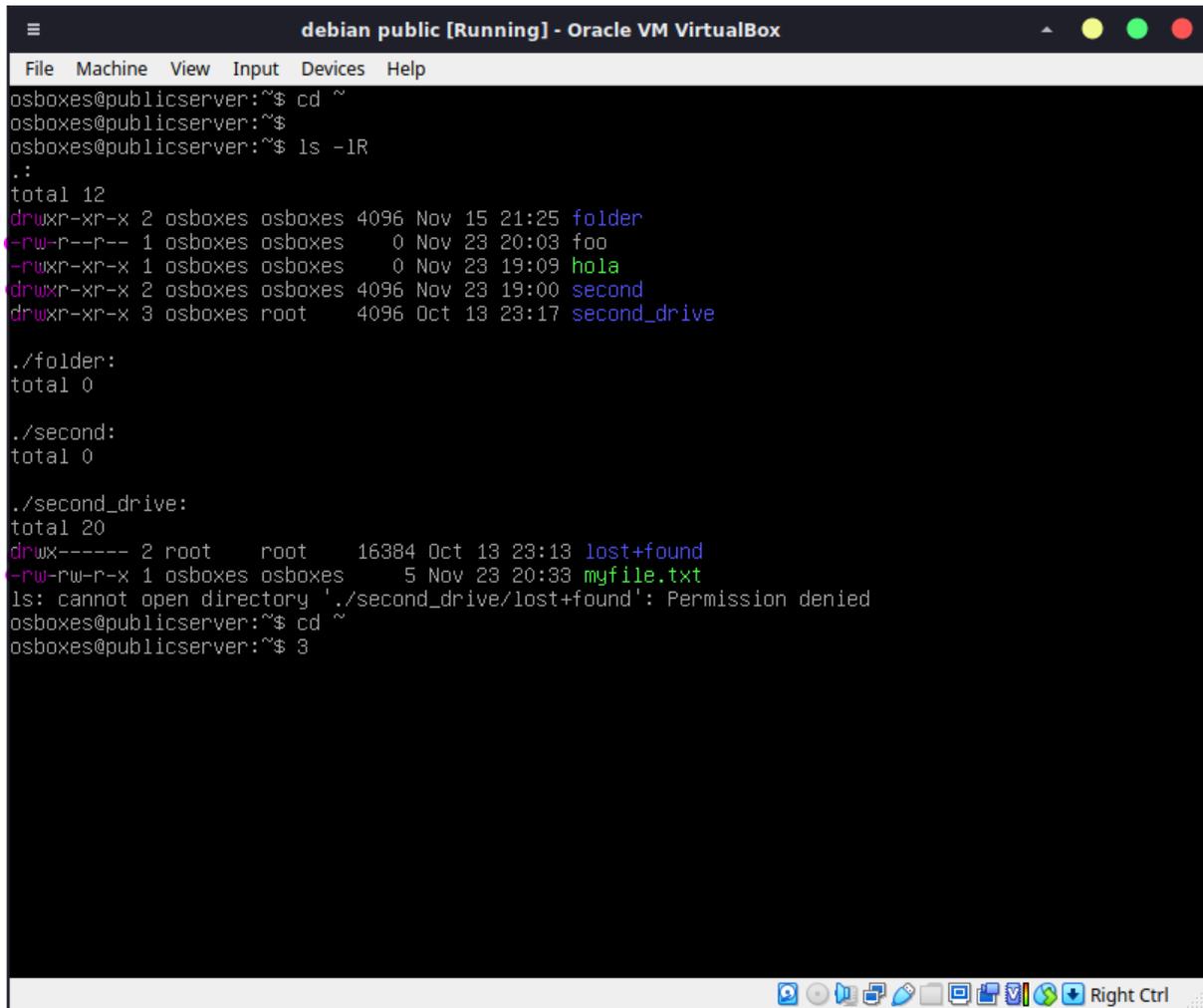


```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ cd ~
osboxes@publicserver:~$
osboxes@publicserver:~$ ls -lR
.:
total 12
drwxr-xr-x 2 osboxes osboxes 4096 Nov 15 21:25 folder
-rw-r--r-- 1 osboxes osboxes  0 Nov 23 20:03 foo
-rwxr-xr-x 1 osboxes osboxes  0 Nov 23 19:09 hola
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:00 second
drwxr-xr-x 3 osboxes root    4096 Oct 13 23:17 second_drive

./folder:
total 0

./second:
total 0

./second_drive:
total 20
drwx----- 2 root    root    16384 Oct 13 23:13 lost+found
-rw-rw-r-x  1 osboxes osboxes  5 Nov 23 20:33 myfile.txt
ls: cannot open directory './second_drive/lost+found': Permission denied
osboxes@publicserver:~$ _
```



```
debian public [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
osboxes@publicserver:~$ cd ~
osboxes@publicserver:~$
osboxes@publicserver:~$ ls -lR
.:
total 12
drwxr-xr-x 2 osboxes osboxes 4096 Nov 15 21:25 folder
-rw-r--r-- 1 osboxes osboxes  0 Nov 23 20:03 foo
-rwxr-xr-x 1 osboxes osboxes  0 Nov 23 19:09 hola
drwxr-xr-x 2 osboxes osboxes 4096 Nov 23 19:00 second
drwxr-xr-x 3 osboxes root   4096 Oct 13 23:17 second_drive

./folder:
total 0

./second:
total 0

./second_drive:
total 20
drwx----- 2 root   root   16384 Oct 13 23:13 lost+found
-rw-rw-r-x 1 osboxes osboxes  5 Nov 23 20:33 myfile.txt
ls: cannot open directory './second_drive/lost+found': Permission denied
osboxes@publicserver:~$ cd ~
osboxes@publicserver:~$ 3
```

Comparen los permisos del directorio con los del archivo. ¿Cuál es la diferencia entre la parte inicial de ambos?

Los directorios siempre empiezan con **d**, mientras que los archivos no.