# CYSE 270: Linux System for Cybersecurity

## Lab 7 – Manage Local Storage

**CYSE 270: Linux System for Cybersecurity Part I– Check your file system (30 points).**

Submit the screenshot for All the three steps.

**Step 1.** Execute the **ls /dev/sd*** command to see the current hard disk devices. [use sudo ]

```
┌──(kevin1㉿Kali)-[~]
└─$ sudo ls /dev/sd*
[sudo] password for kevin1:
/dev/sda  /dev/sda1  /dev/sda2  /dev/sda5

┌──(kevin1㉿Kali)-[~]
└─$
```

The command "ls /dev/sd*" lists the current hard disk devices.

**Step 2.** Execute the **fdisk -l** command to list the current hard disk partitions. [use sudo ]

```
┌──(kevin1㉿Kali)-[~]
└─$ sudo fdisk -l
Disk /dev/sda: 126.72 GiB, 136061452288 bytes, 265745024 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x21541f5c

Device     Boot     Start       End   Sectors   Size Id Type
/dev/sda1  *         2048 252184575 252182528 120.3G 83 Linux
/dev/sda2       252186622 265744383  13557762   6.5G  f W95 Ext'd (LBA)
/dev/sda5       252186624 265744383  13557760   6.5G 82 Linux swap / Solaris

┌──(kevin1㉿Kali)-[~]
└─$
```

As root user, the command "fdisk -l" lists hard disk partitions.

**Step 3.** Execute the **parted -l** command to list the current hard disk partition table. [use  sudo ]

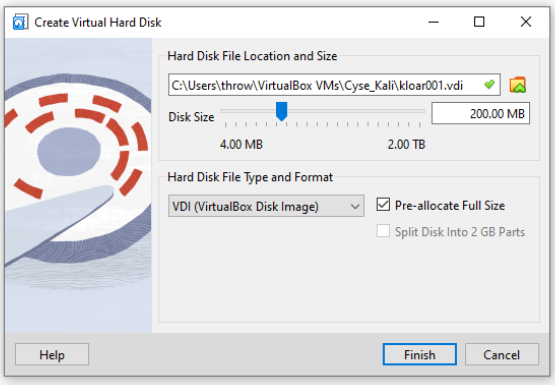
```
┌──(kevin1㉿Kali)-[~]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 136GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End     Size    Type      File system     Flags
 1      1049kB  129GB   129GB   primary   ext4            boot
 2      129GB   136GB   6942MB  extended                  lba
 5      129GB   136GB   6942MB  logical   linux-swap(v1)  swap



┌──(kevin1㉿Kali)-[~]
└─$
```

As root user, the command "parted -l" lists the current hard disk partition table.

**Part II– Create a new virtual disk (30 points)**

Submit the screenshot for All the three steps.

**Step 1.** In the VM setting, attach a new virtual hard disk with the size of 200 MB to our current Linux VM. Name it as “your_midas.vdi” [ **HINT:** Please refer to the slides and discussion during the class for week 7]




In the VM settings, I added the virtual hard disk of 200 MB to my current Linux VM.

**Step 2.** Load this virtual hard disk to your virtual machine.


**Step 3.** **Repeat** the steps in Part I and **highlight the differences** after adding the new virtual hard disk.

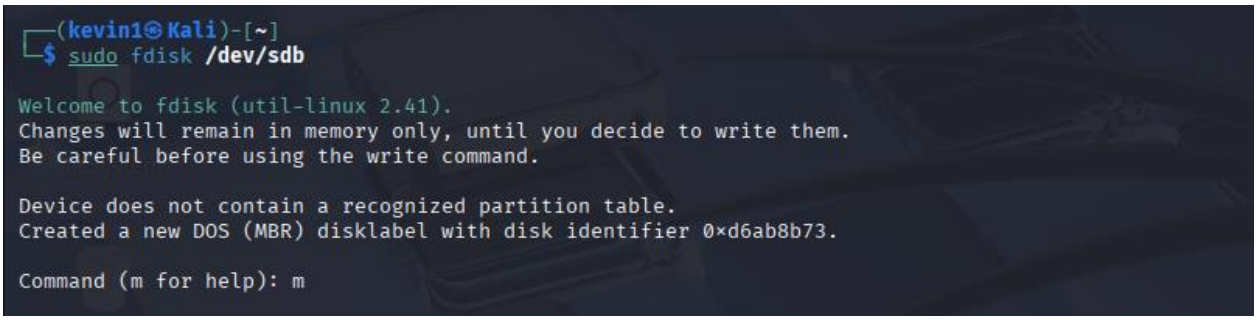
```
┌──(kevin1㉿Kali)-[~]
└─$ sudo ls /dev/sd*
[sudo] password for kevin1:
/dev/sda  /dev/sda1  /dev/sda2  /dev/sda5  /dev/sdb

┌──(kevin1㉿Kali)-[~]
└─$ sudo fdisk -l
Disk /dev/sda: 126.72 GiB, 136061452288 bytes, 265745024 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x21541f5c

Device     Boot     Start       End   Sectors   Size Id Type
/dev/sda1  *         2048 252184575 252182528 120.3G 83 Linux
/dev/sda2       252186622 265744383  13557762   6.5G  f W95 Ext'd (LBA)
/dev/sda5       252186624 265744383  13557760   6.5G 82 Linux swap / Solaris


Disk /dev/sdb: 200 MiB, 209715200 bytes, 409600 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

┌──(kevin1㉿Kali)-[~]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 136GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End     Size    Type      File system     Flags
 1      1049kB  129GB   129GB   primary   ext4            boot
 2      129GB   136GB   6942MB  extended                  lba
 5      129GB   136GB   6942MB  logical   linux-swap(v1)  swap


Error: /dev/sdb: unrecognised disk label
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sdb: 210MB
Sector size (logical/physical): 512B/512B
Partition Table: unknown
Disk Flags:
```

The following gets added: /dev/sdb, displays information of /dev/sdb (model, units,sector size,etc), and then shows the error at the bottom.

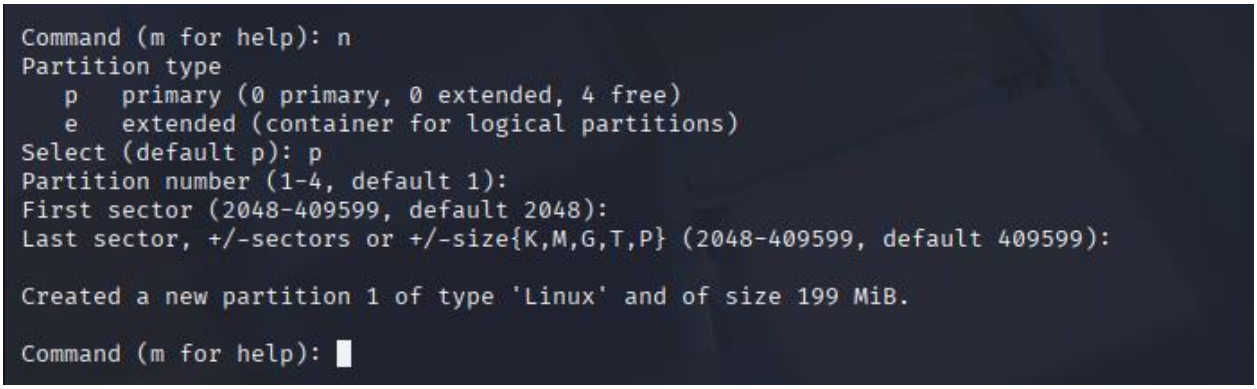
## Part III– Creating Partitions and Filesystems (60 points)

Submit the screenshot for All the three eight steps.

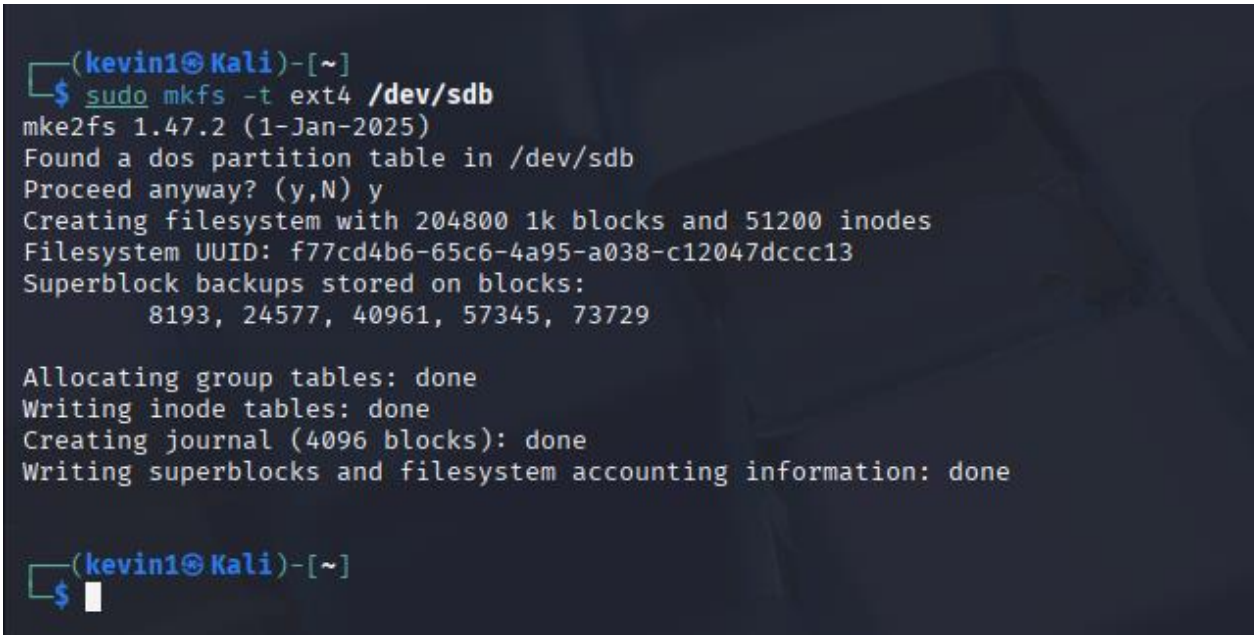
**Step 1.** Use the **fdisk** command to create a new primary partition on the new virtual hard disk attached in Part II.




The "sudo fdisk /dev/sdb" command would create a new primary partition on the new virtual hard disk.

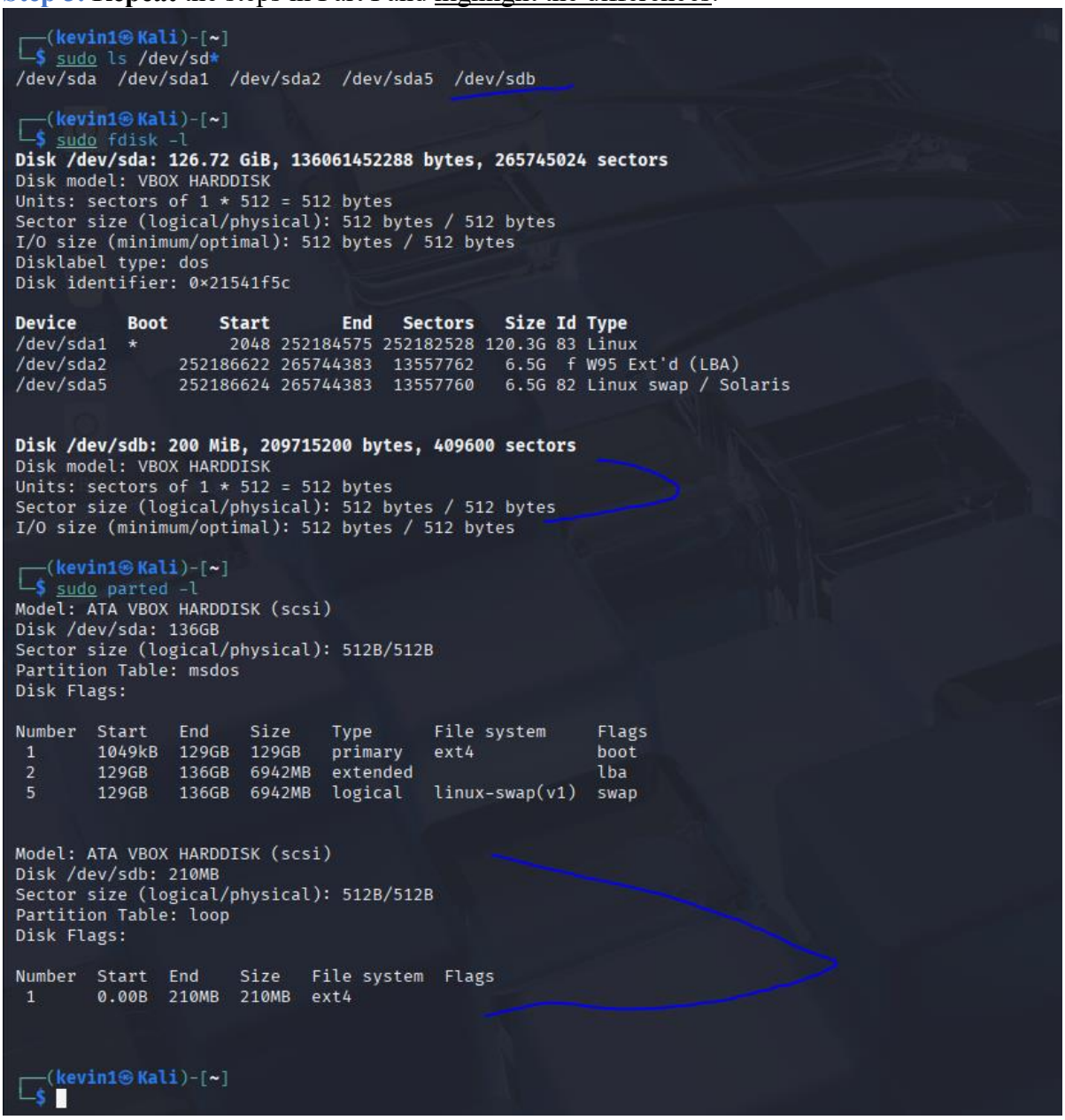



**Step 2.** Use the correct command to **create an ext4 filesystem** on the new partition.




The "sudo mkfs -t ext 4 /dev/sdb" command would create an ext4 filesystem on the new partition.

**Step 3.** **Repeat** the steps in Part I and highlight the differences.

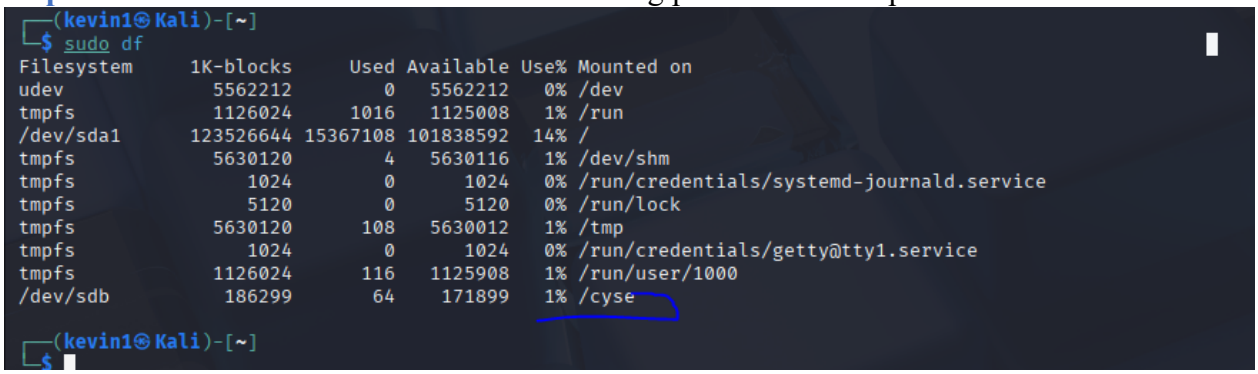



The same differences in step 3 for part 2, but this time it doesn't show the error at the bottom.

**Step 4.** Make a new directory named **/cyse**. And **mount** the new partition under this directory.

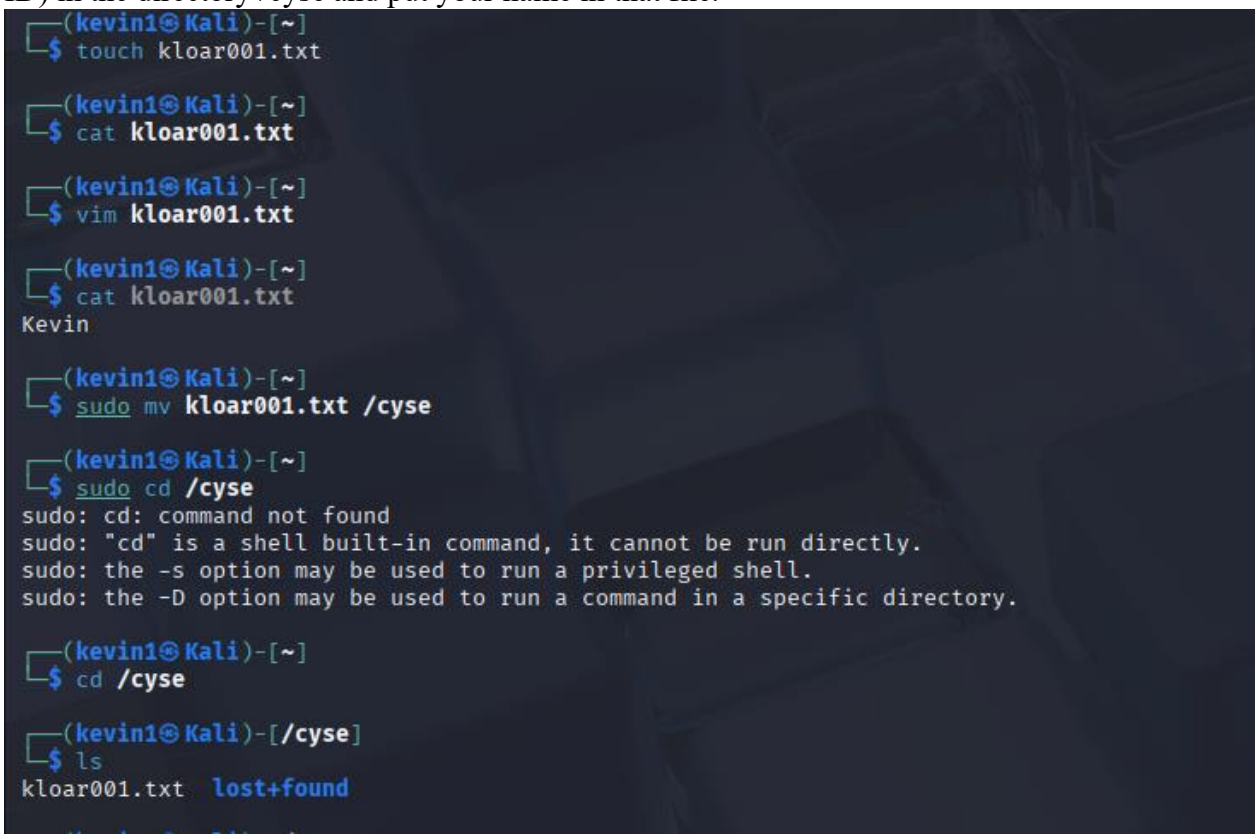

The command mkdir would create the directory /cyse and the mount command would put /dev/sdb to /cyse.

**Step 5.** Use the **df** command to check the mounting point of the new partition.



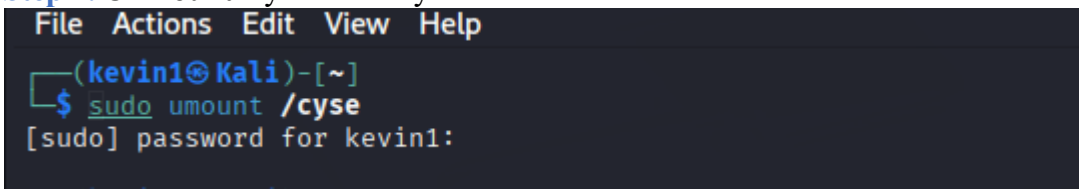

The df commands display the mounting point of the new partition at the bottom.

**Step 6.** Create a new file named for **YourMIDAS.txt** (replace YourMIDAS with your MIDAS ID) in the directory /cyse and put your name in that file.



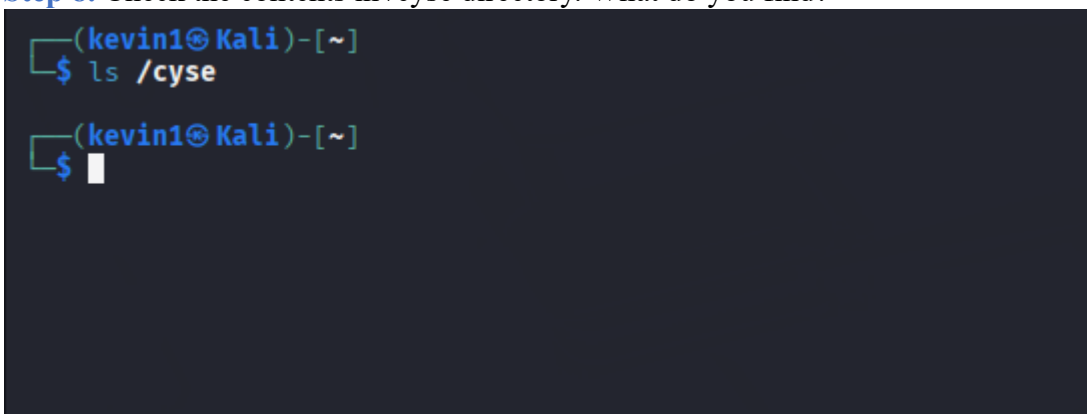

First, I used the touch command to create the file, used vim to edit my name in, then used mv to move the file into the cyse directory. To check, I moved into the directory and used ls to see if the file is there.

**Step 7.** **Unmount** /cyse directory.




The command unmounts the directory.

**Step 8.** Check the contents in /cyse directory. What do you find?




Nothing shows up anymore because of the command that was used in step 7.

# Reflection

In this lab, I was changing the settings in the virtual machine to practice how to change the virtual disk drive and add more storage. This is useful to do as I would be able to mount more virtual storage in case I begin to lose storage. Overall, there were no challenges present in this lab.