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CYSE 270: Linux System for Cybersecurity

Lab 7 – Manage Local Storage

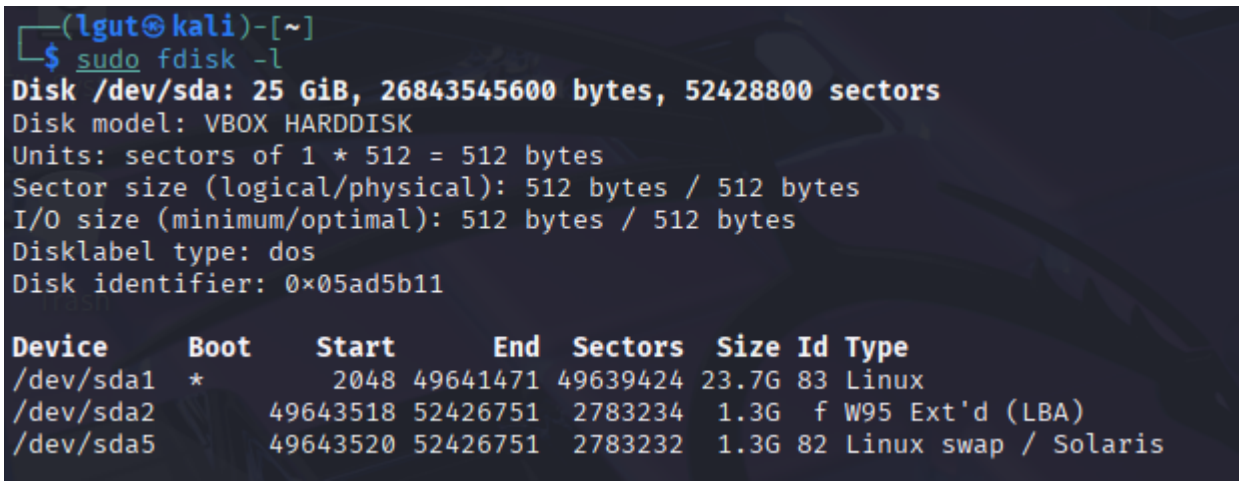
CYSE 270: Linux System for Cybersecurity

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]

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



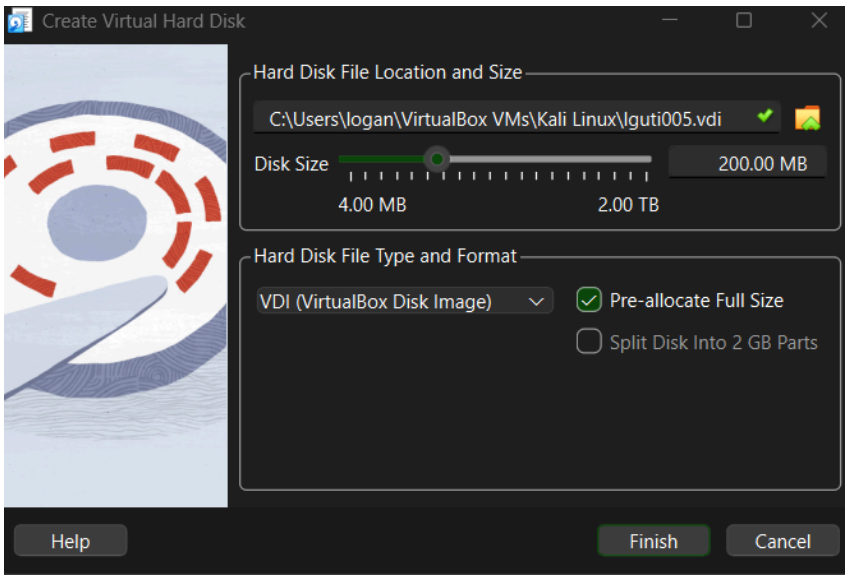
Step 3. Execute the **parted -l** command to list the current hard disk partition table. [use sudo]

```
┌──(lgut㉿kali)-[~]
└─$ sudo parted -l
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
Disk Flags:

Number  Start   End     Size    Type      File system     Flags
 1      1049kB  25.4GB  25.4GB  primary   ext4            boot
 2      25.4GB  26.8GB  1425MB  extended                  lba
 5      25.4GB  26.8GB  1425MB  logical   linux-swap(v1)  swap
```

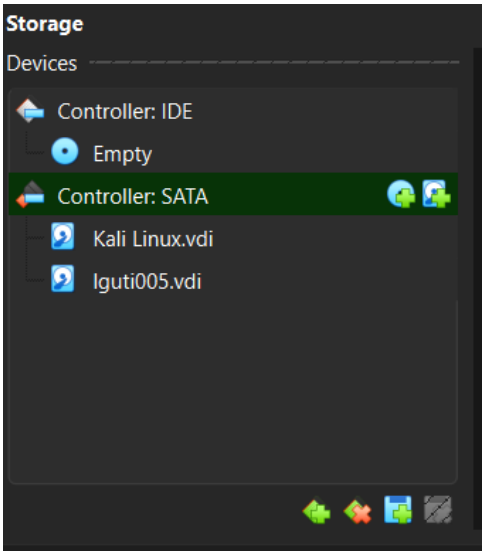
Part II– Create a new virtual disk (30 points)

Submit the screenshot for All the three steps.

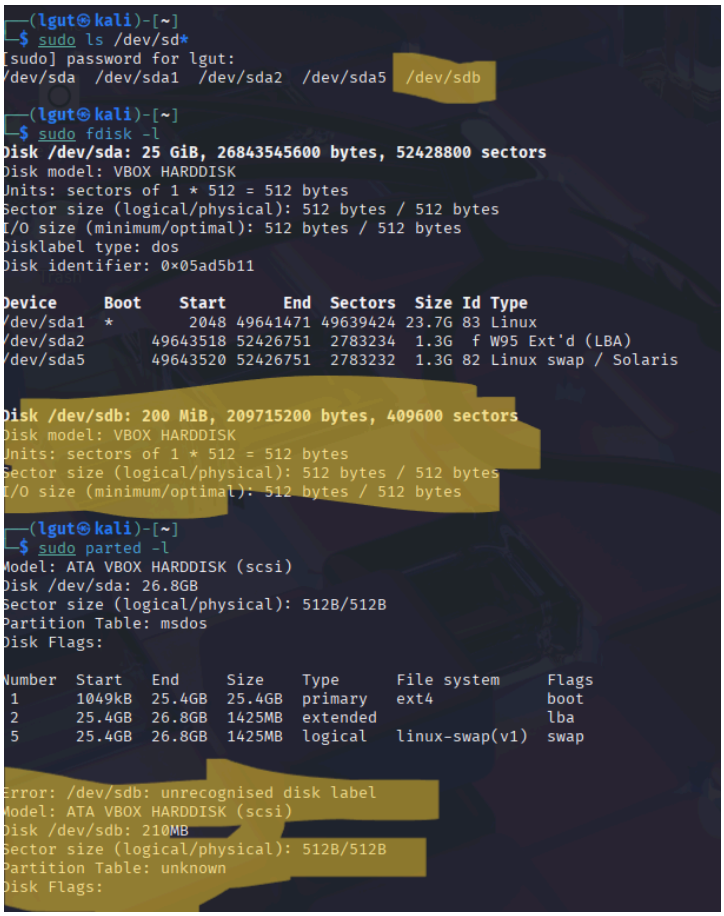
Step 1. In the VM setting, attach a new virtual hard disk with the size of 200 MB to our current Linux VM. Name it as “your_midas.vdi” [**HINT:** Please refer to the slides and discussion during the class for week 7]



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.



Part III– Creating Partitions and Filesystems (60 points)

Submit the screenshot for All the three eight steps.

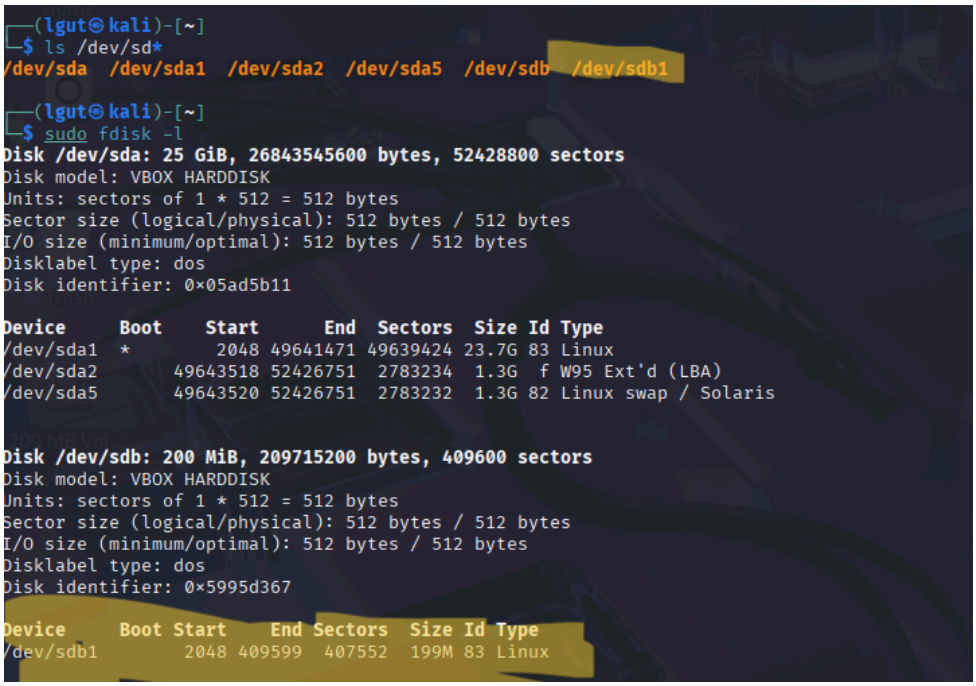
Step 1. Use the **fdisk** command to create a new primary partition on the new virtual hard disk attached in Part II.

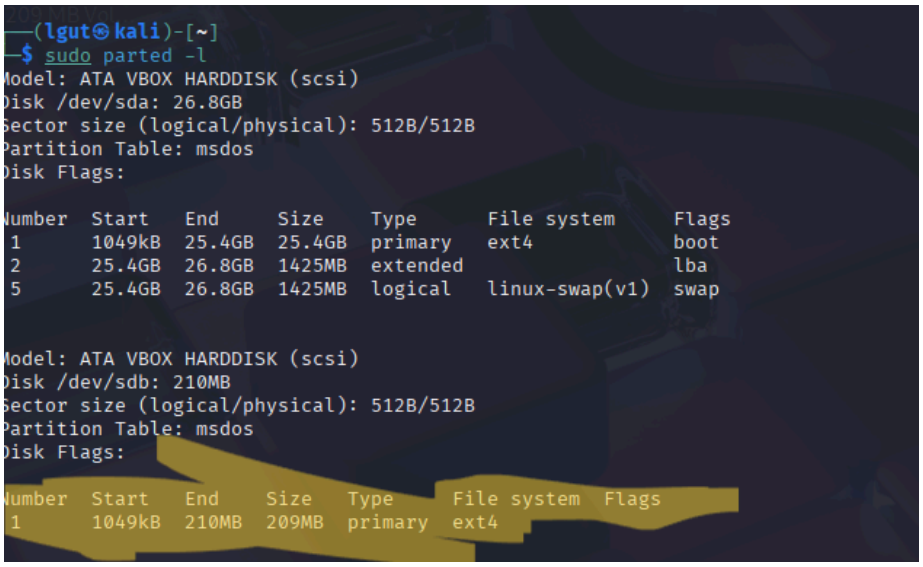
```
┌──(lgut㉿kali)-[~]
└─$ sudo fdisk /dev/sdb

Welcome to fdisk (util-linux 2.41).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS (MBR) disklabel with disk identifier 0x5995d367.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-409599, default 2048): w
Value out of range.
First sector (2048-409599, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-409599, default 409599):

Created a new partition 1 of type 'Linux' and of size 199 MiB.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.
```

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

```
┌──(lgut㉿kali)-[~]
└─$ sudo mkfs -t ext4 /dev/sdb1
mke2fs 1.47.2 (1-Jan-2025)
Creating filesystem with 203776 1k blocks and 51000 inodes
Filesystem UUID: b056bc0a-9473-43f5-9eef-17deacd507e9
Superblock backups stored on blocks:
        8193, 24577, 40961, 57345, 73729

Allocating group tables: done
Writing inode tables: done
Creating journal (4096 blocks): done
Writing superblocks and filesystem accounting information: done
```

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





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

```
┌──(lgut㉿kali)-[~]
└─$ sudo mkdir /cyse

┌──(lgut㉿kali)-[~]
└─$ ls /cyse

┌──(lgut㉿kali)-[~]
└─$ sudo mount /dev/sdb1 /cyse
```

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

```
┌──(lgut㉿kali)-[~]
└─$ sudo df
Filesystem     1K-blocks     Used Available Use% Mounted on
udev             4001568        0   4001568   0% /dev
tmpfs             813896     1000    812896   1% /run
/dev/sda1       24253528 14988720   8007440  66% /
tmpfs            4069472        4   4069468   1% /dev/shm
tmpfs               5120        0      5120   0% /run/lock
tmpfs               1024        0      1024   0% /run/credentials/systemd-journald.service
tmpfs            4069476        8   4069468   1% /tmp
tmpfs               1024        0      1024   0% /run/credentials/getty@tty1.service
tmpfs             813892      116    813776   1% /run/user/1000
/dev/sdb1         185325       63    170999   1% /cyse
```

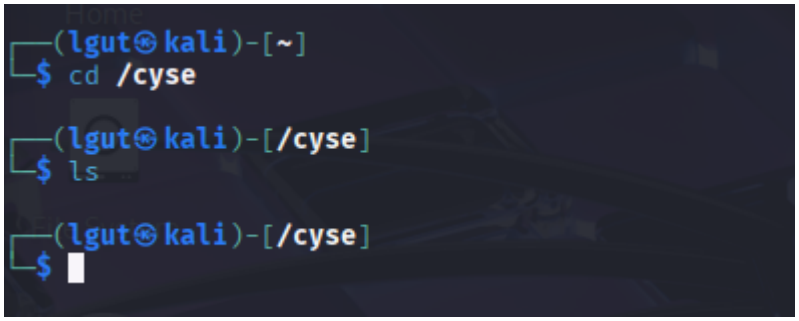
Step 6. Create a new file named for **YourMIDAS.txt** (replace YourMIDAS with your MIDAS ID) in the directory /cyse and put your name in that file.

```
┌──(lgut㉿kali)-[/cyse]
└─$ sudo nano lguti005.txt

┌──(lgut㉿kali)-[/cyse]
└─$ cat lguti005.txt
Logan

┌──(lgut㉿kali)-[/cyse]
└─$ ls
lguti005.txt  lost+found
```

I wanted to try out nano as my vi editor did not want to work.

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

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



There is nothing within the directory.