# **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 <u>All</u> the three steps.

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

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

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

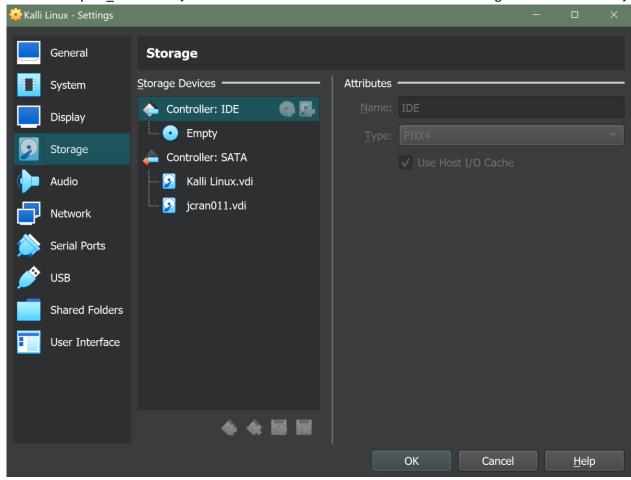
```
jcwilhelm@kali: ~
File Actions Edit View Help
  -(jcwilhelm⊕kali)-[~]
sudo ls /dev/sd*
/dev/sda /dev/sda1
                      /dev/sda2 /dev/sda5
  —(jcwilhelm⊕kali)-[~]
sudo fdisk -l

Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 sectors
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: 0×54f666b8
Device
           Boot
                    Start
                                End Sectors Size Id Type
                                               24G 83 Linux
                    2048 50427903 50425856
/dev/sda1
                50429950 52426751 1996802 975M f W95 Ext'd (L
50429952 52426751 1996800 975M 82 Linux swap /
/dev/sda2
/dev/sda5
  -(jcwilhelm⊕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:
                         Size
                                  Туре
                                             File system
Number Start
                 End
                                                              Flags
        1049kB
                 25.8GB
                         25.8GB primary
                                                              boot
                                             ext4
 2
        25.8GB
                 26.8GB
                         1022MB
                                  extended
                                                              lba
        25.8GB
                 26.8GB
                         1022MB
                                             linux-swap(v1)
                                  logical
                                                             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.

```
jcwilhelm@kali: ~
File Actions Edit View Help
  —(jcwilhelm⊕kali)-[~]
sudo ls /dev/sd*
[sudo] password for jcwilhelm:
/dev/sda /dev/sda1 /dev/sda2 /dev/sda5 /dev/sdb
  —(jcwilhelm⊕kali)-[~]
$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 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: 0×54f666b8
Device
           Boot
                               End Sectors Size Id Type
                   Start
                    2048 50427903 50425856 24G 83 Linux
/dev/sda1 *
/dev/sda2
               50429950 52426751 1996802 975M f W95 Ext'd (L
                50429952 52426751 1996800 975M 82 Linux swap /
/dev/sda5
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
  —(jcwilhelm⊕kali)-[~]
Model: ATA VBOX HARDDISK (scsi)
Disk /dev/sda: 26.8GB
```

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

Submit the screenshot for <u>All</u> 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.

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

```
-(jcwilhelm⊕kali)-[~]
$ sudo fdisk /dev/sdb
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 0×8c57a184.
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):
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): sudo mkfs.ext4 /dev/sdb1
Created a new partition 1 of type 'Linux native' and of size 149 MiB.
Created a new partition 2 of type 'Linux swap' and of size 47.1 MiB.
Created a new partition 3 of type 'Whole disk' and of size 196.1 MiB.
Created a new Sun disklabel.
```

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

```
File Actions Edit View Help
   ___(jcwilhelm⊛kali)-[~]
$ sudo fdisk -l
Disk /dev/sda: 25 GiB, 26843545600 bytes, 52428800 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: 0×54f666b8

        Start
        End
        Sectors
        Size Id Type

        2048
        50427903
        50425856
        24G 83 Linux

        50429950
        52426751
        1996802
        975M f W95 Ext'd (LBA)

        50429952
        52426751
        1996800
        975M 82 Linux swap / Solaris

                                                          Boot Start
Device | bose | dev/sda1 * | /dev/sda2 | dev/sda2 | dev/sda5 | dev
 Device
  /dev/sda5
Disk /dev/sdb: 200 MiB, 209715200 bytes, 409600 sectors
Disk model: VBOX HARDDISK
Geometry: 255 heads, 63 sectors/track, 25 cylinders
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: sun
                                                            Start End Sectors
                                                                                                                                                                                                  Size Id Type
                                                                                                                                                                                                                                                                                                                        Flags
 Device
                                                                      0 305234 305235 149M 83 Linux native
05235 401624 96390 47.1M 82 Linux swap
 /dev/sdb1 0 305234
/dev/sdb2 305235 401624
                                                                                0 401624 401625 196.1M 5 Whole disk
   /dev/sdb3
```

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

```
___(jcwilhelm⊕ kali)-[~]

_$ <u>sudo</u> mkdir /cyse
```

- **Step 5.** Use the **df** command to check the mounting point of the new partition.
- **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.
- **Step 7. Unmount** /cyse directory.

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

```
-(jcwilhelm⊛kali)-[~]
$ sudo mount /dev/sdb1 /cyse
  -(jcwilhelm⊕kali)-[~]
s df -h | grep /cyse
/dev/sdb1
                135M
                     51K
                           124M
                                   1% /cys
  -(jcwilhelm⊕kali)-[~]
$ echo "Jasmyn" | <u>sudo</u> tee /cyse/Jcran011.txt
Jasmyn
 —(jcwilhelm⊛kali)-[~]
sudo unmount /cyse
sudo: unmount: command not found
  —(jcwilhelm⊕kali)-[~]
$ sudo umount /cyse
  -(jcwilhelm⊛kali)-[~]
 -$ ls /cyse
   jcwilhelm® kali)-[~]
```