CYSE 270: Linux System for Cybersecurity

Lab 7 – Manage Local Storage

July 6, 2025

Goal

The goal of this lab is to familiarize students with the fundamental tasks of managing user and group accounts in Linux. By completing this lab, students will gain practical experience in creating, modifying, and deleting accounts, as well as managing group memberships and permissions, which are essential skills in system administration and cybersecurity.

Submission Instructions

- Complete all tasks on your chosen Ubuntu/Kali VM.
- Take screenshots for each numbered step as evidence of successful command execution.
- Save all your screenshots and results in a single PDF or Word document.
- Ensure that all commands are executed correctly and include detailed explanations for each step taken.

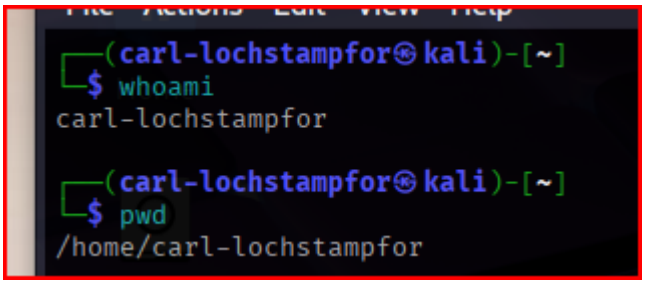
Part I– Check your file system (30 points).

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]

Command >>

- Verify the current user and directory I am working in.
  - **a. whoami; pwd**



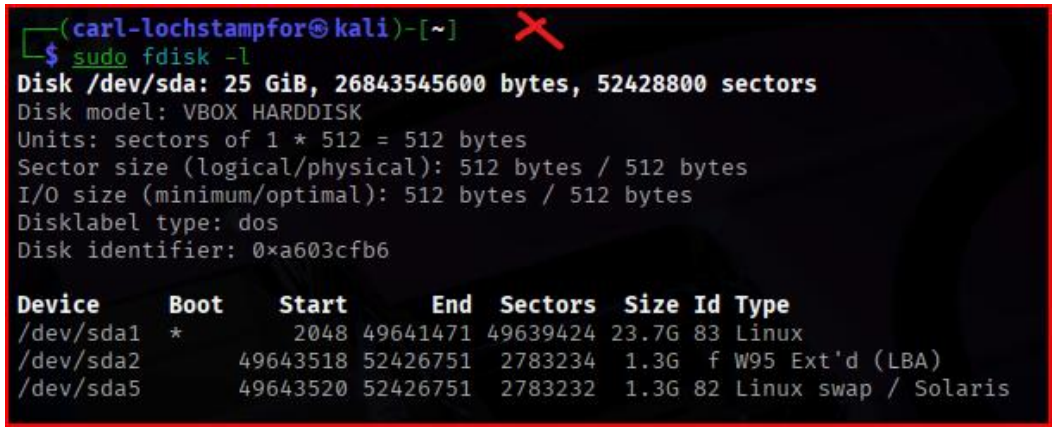
Command >>

- Show the current hard disk devices
  - **a. sudo ls /dev/sd***

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

Command >>

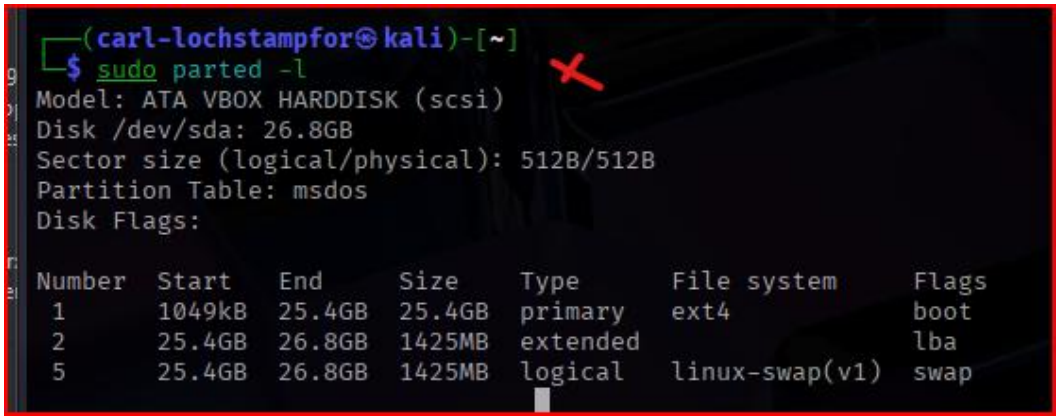
- List the current hard disk partitions
  - **a. sudo fdisk -l**



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

Command >>

- List the current hard disk partition table.
  - **a. sudo parted -l**

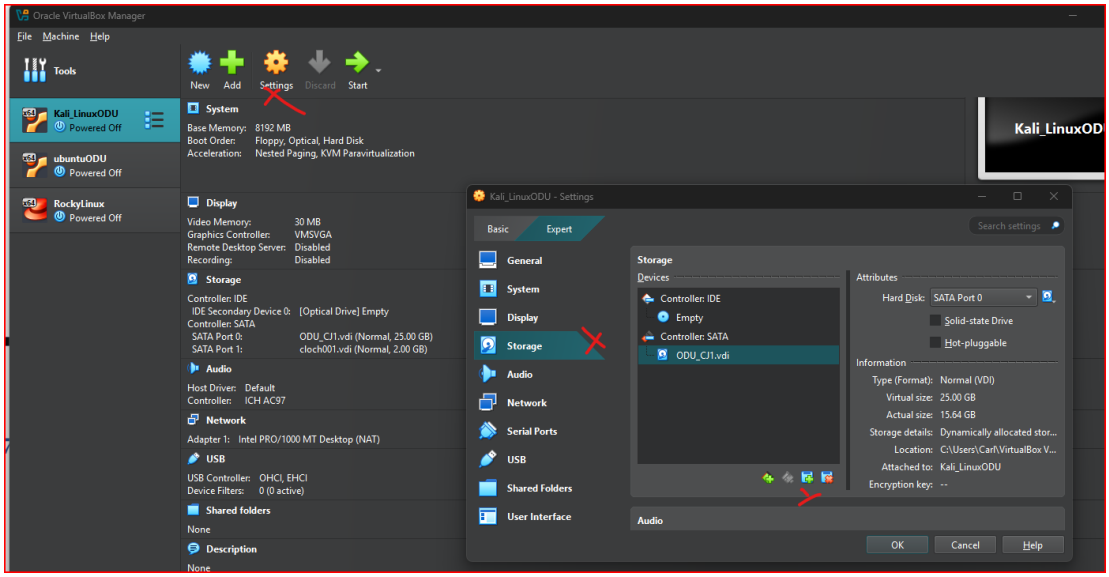


Part II– Create a new virtual disk (30 points)

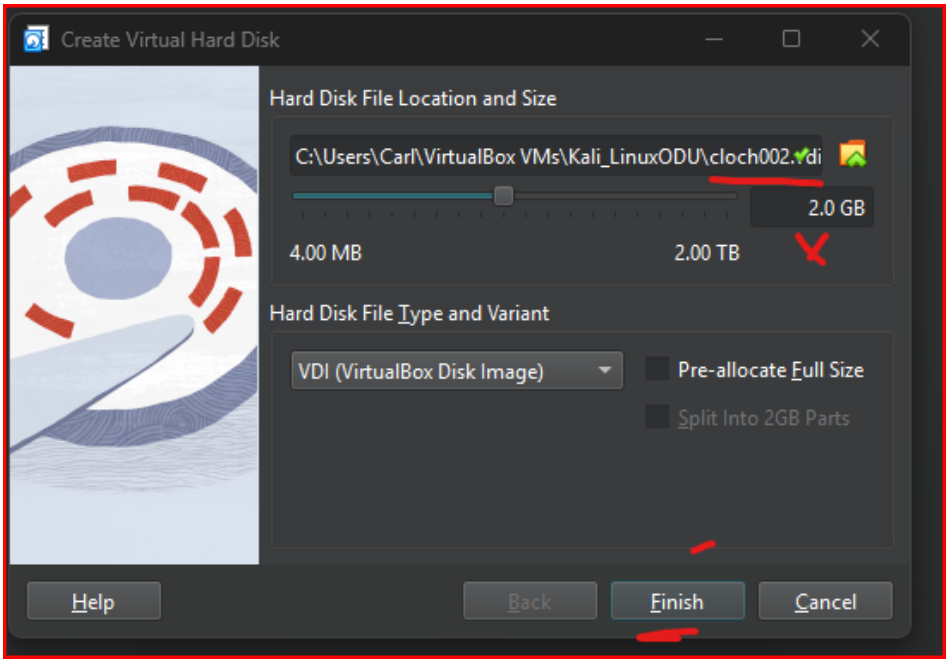
Submit the screenshot for All the three steps.

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]

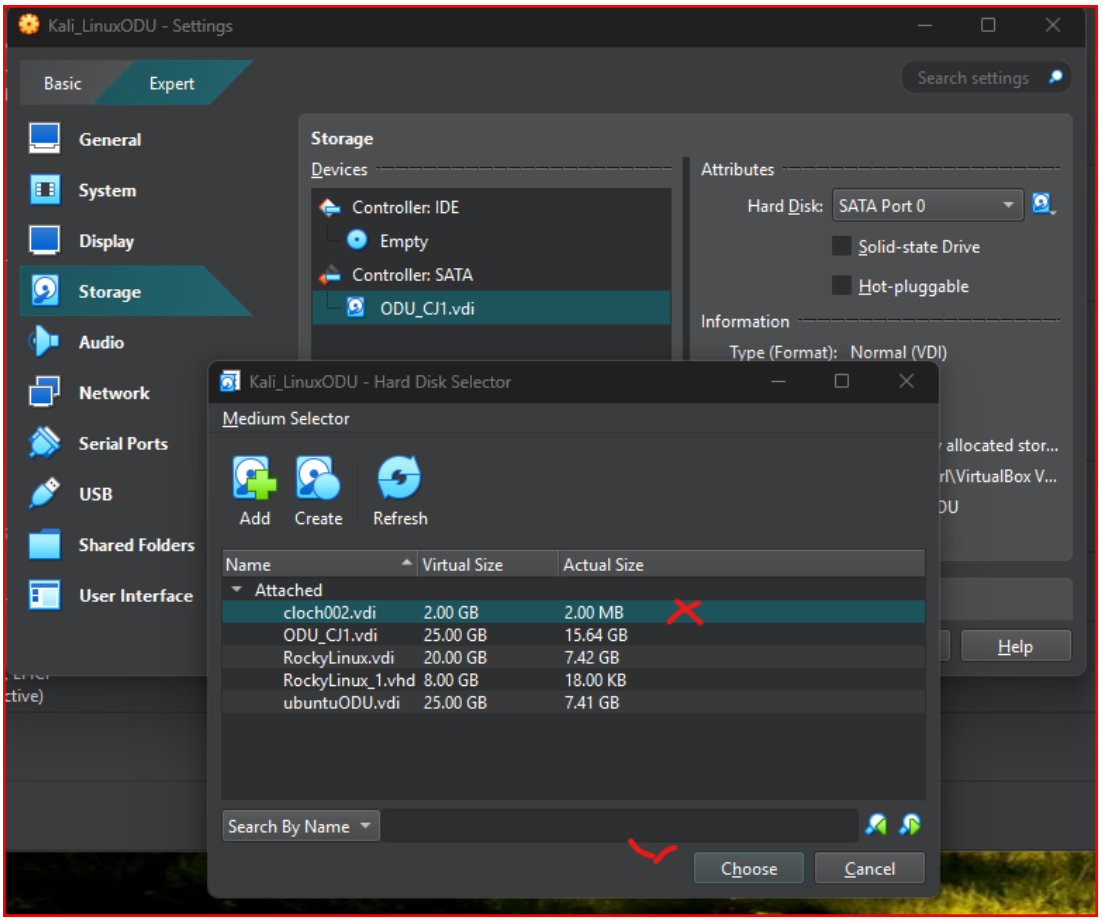
1. In VirtualBox, click the VM/Settings/Storage/Add Attachment/Hard Drive



2. Click Create, choose the amount of storage (i.e., **2 GBs**), change the Virtual Hard Disk Name (e.g., cloch002), then click finish. *(Typo: 2 should be 1)*



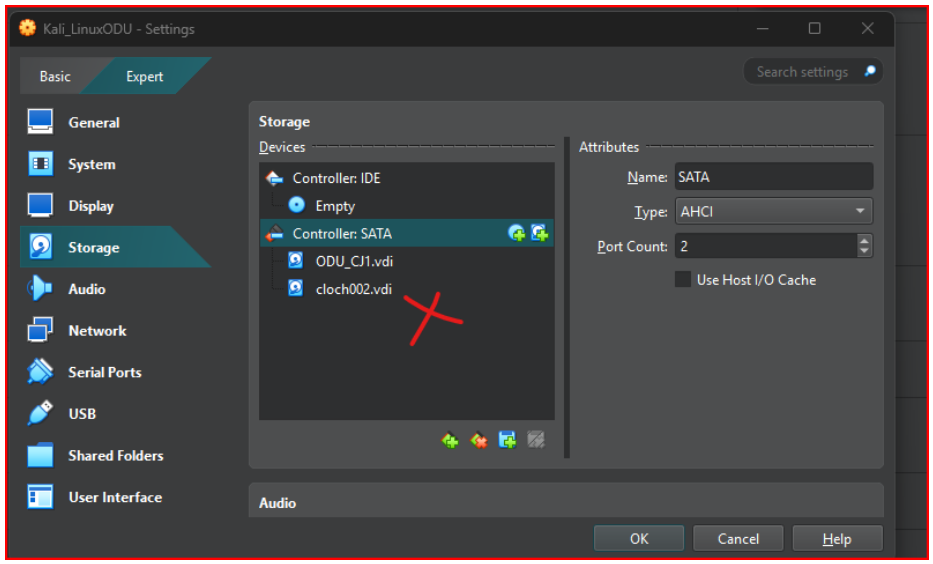
3. Click the newly created Virtual Hard Disk (i.e., cloch002), then Choose at the bottom.



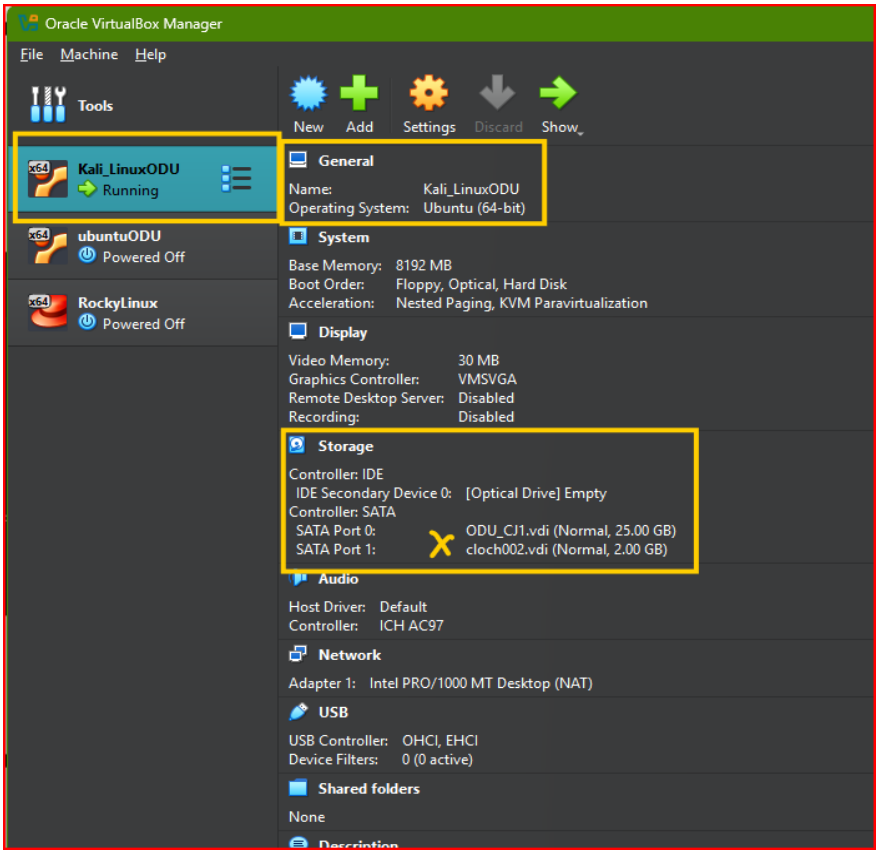
Step 2. Load this virtual hard disk to your virtual machine.

Command >>

1. Verify the VHD was added, then click Okay at the bottom right of the screen.



2. View and Verify the Virtual Hard Disk was loaded to your VM (See 'Storage' section)

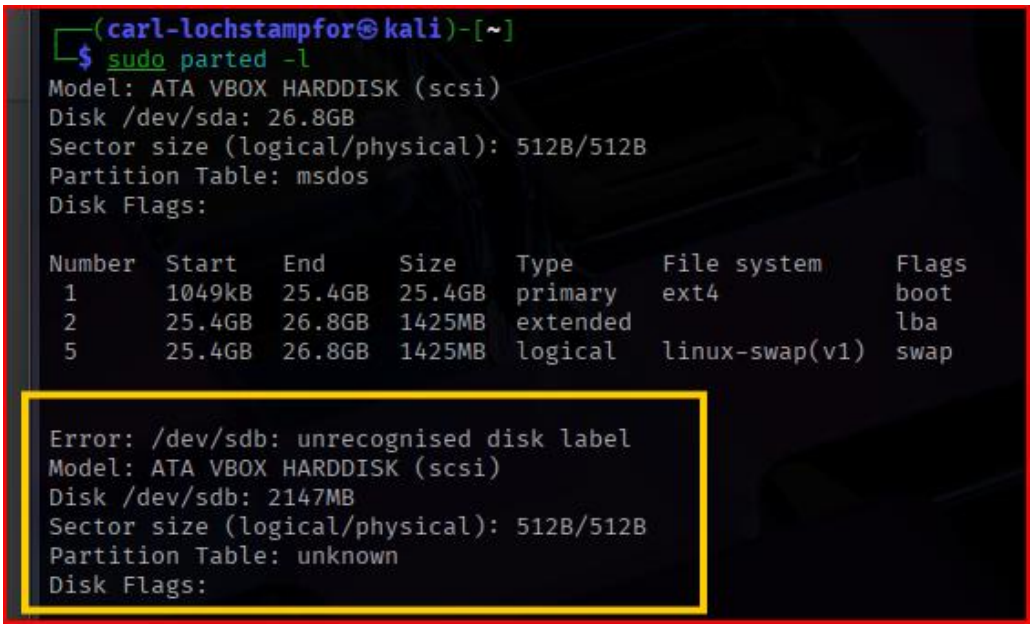


Step 3. **Repeat** the steps in Part I and **highlight the differences** after adding the new virtual hard disk.

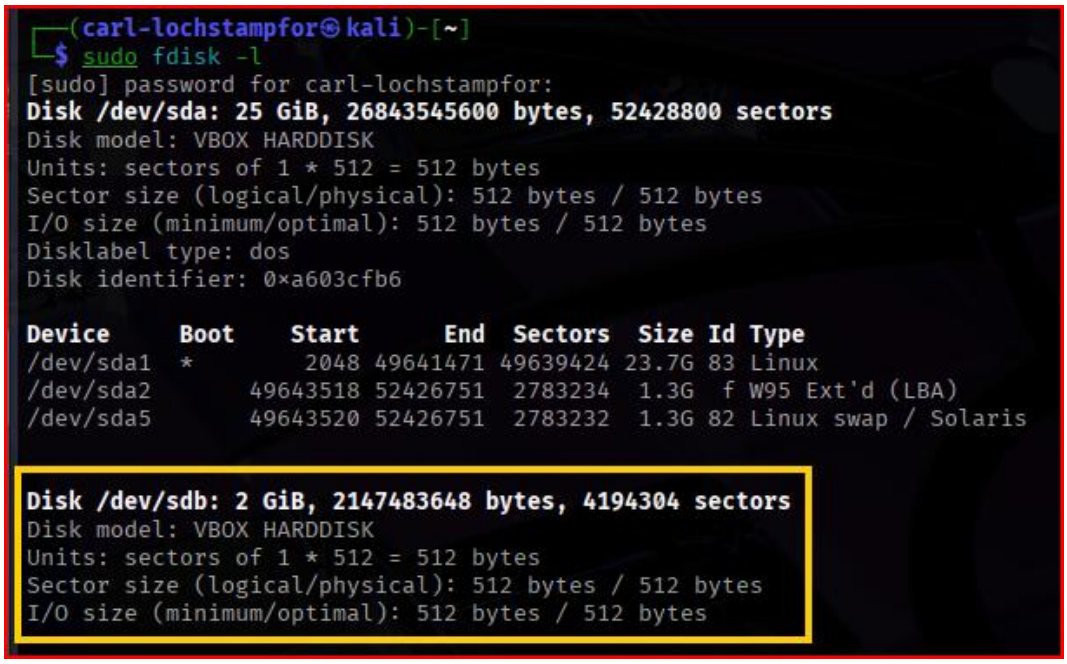
Command >>

1. List the current hard disk partitions
   a. **sudo ls /dev/sd***

2. List the current hard disk partition table.
   a. **sudo parted -l**



3. View and verify the new created Disk/Drive **(i.e., 2 GiB)**
   a. **sudo fdisk -l**



Part III– Creating Partitions and Filesystems (60 points)

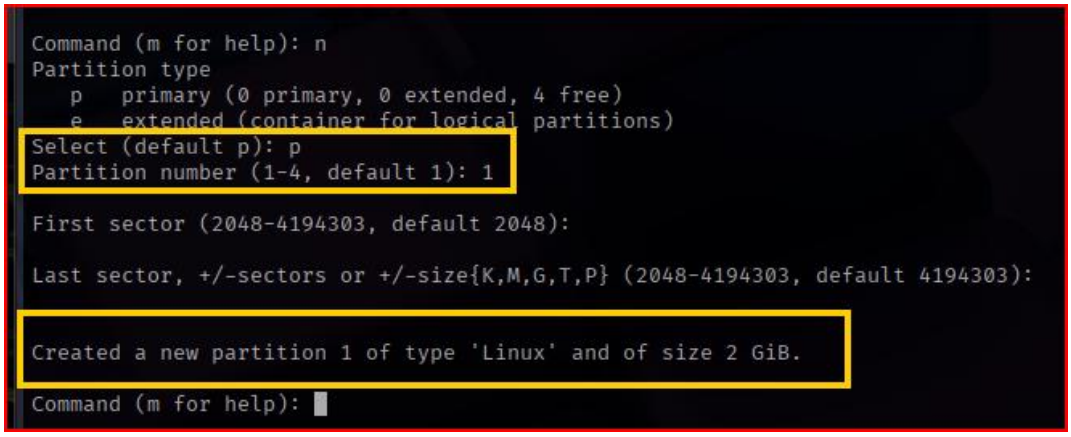
Submit the screenshot for All the three eight steps.

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

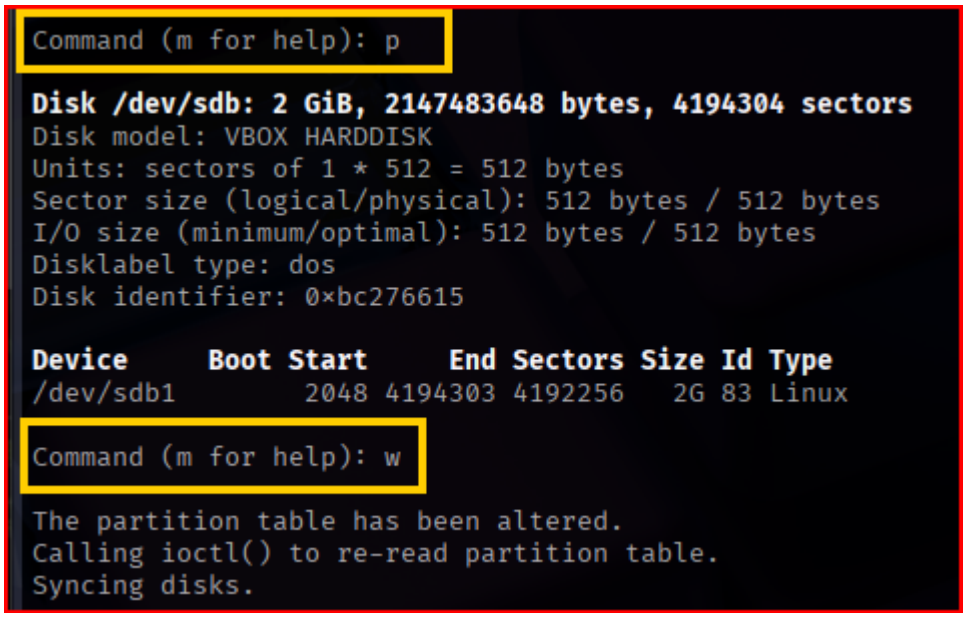
Command >>

1. Start the partitioning process.
    a. **sudo fdisk /dev/sdb**

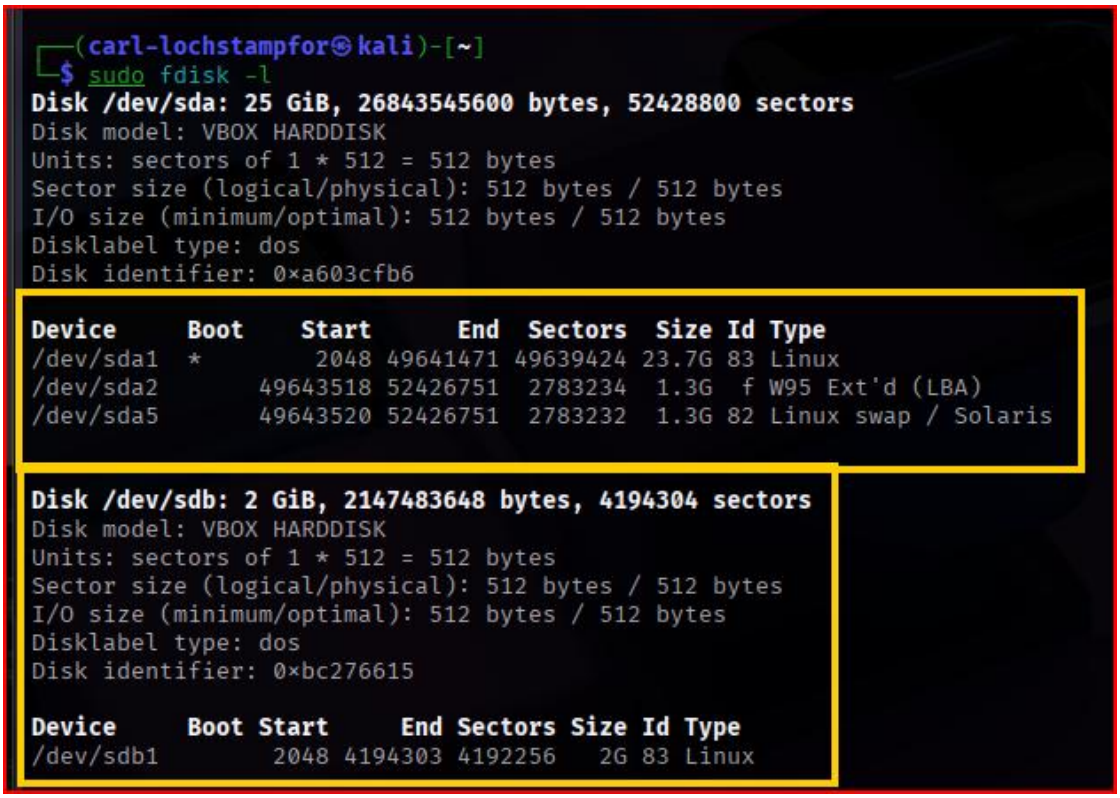
2. Chose the default settings for each line of request
    a. **p for primary; 1 for default; Enter for default; Enter for default**



3. Verified the changes by printing the partition table (input **p**), then writing and saving the changes (input **w**) to the disk, exiting **fdisk**.



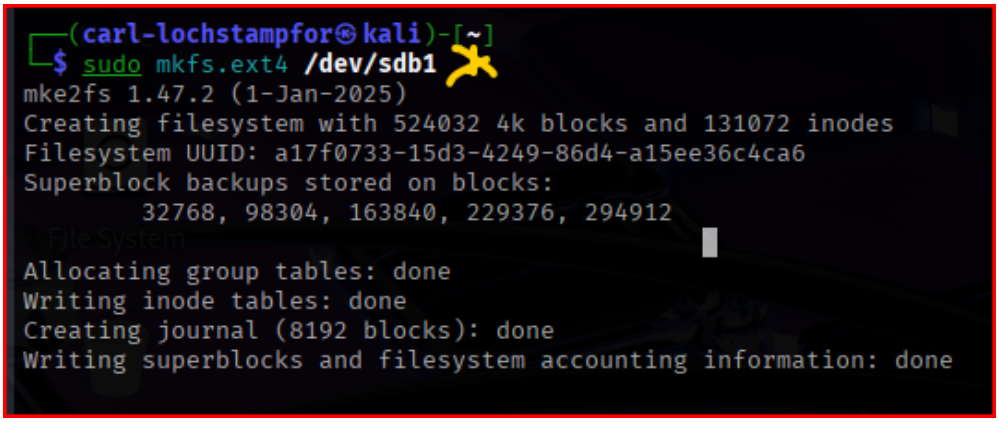
4. View and verify the new changes using the command, **sudo fdisk -l**



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

Command >>

1. Creating an ext4 filesystem on the new partition.
   a. **sudo mkfs.ext 3 /dev/sdb1**

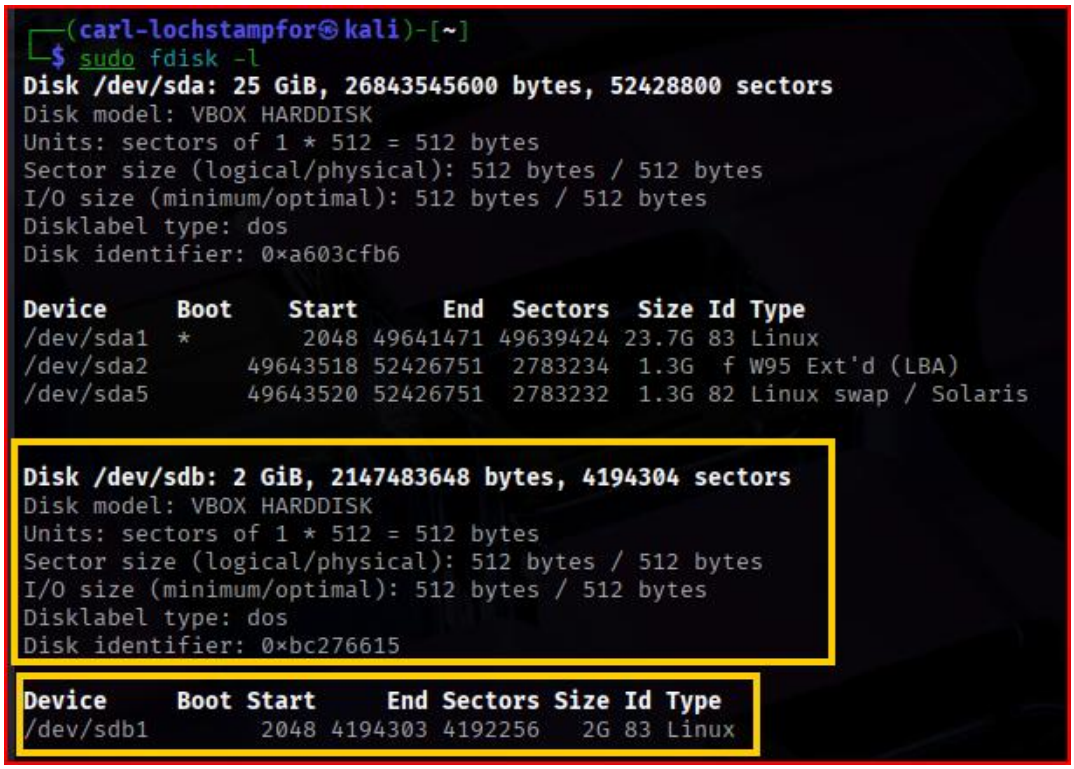


Step 3. **Repeat** the steps in Part I and highlight the differences.

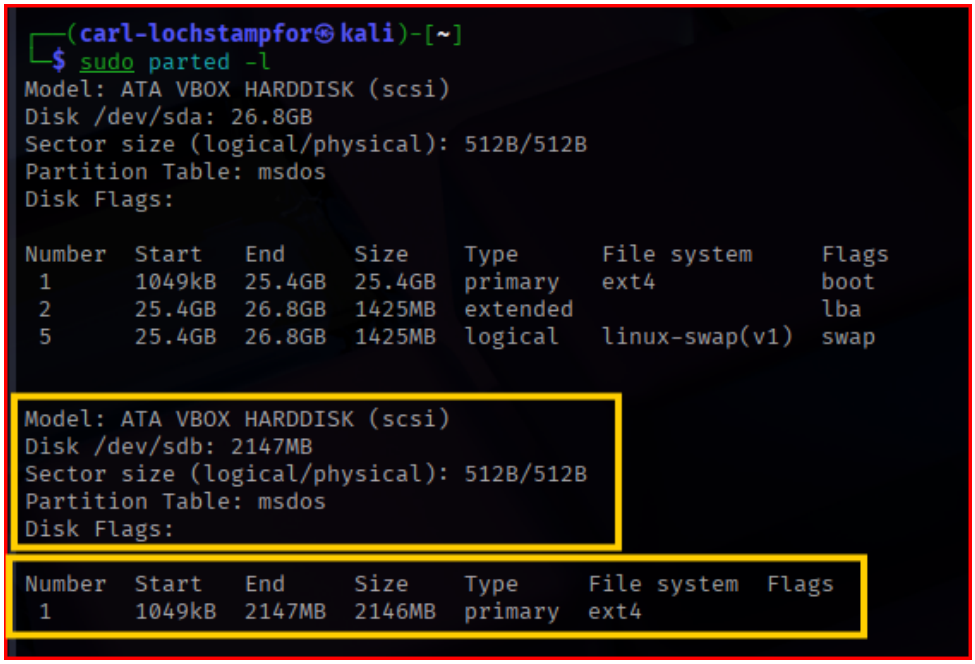
Command >>

1. Show the current hard disk devices
   a. **sudo ls /dev/sd***

2. List the current hard disk partitions
   a. **sudo fdisk -l**



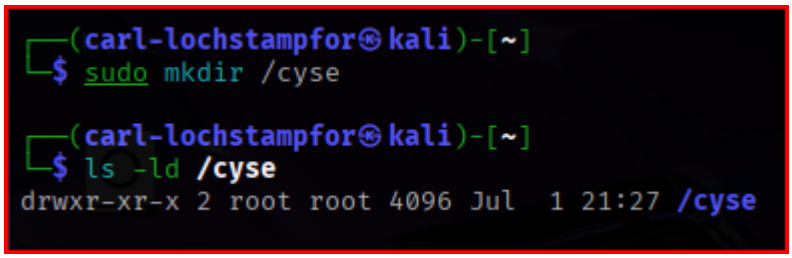
3. List the current hard disk partition table.
   a. **sudo parted -l**



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

Command >>

1. Making the new directory, then verifying the results.
   a. **sudo mkdir /cyse; ls -ld /cyse**

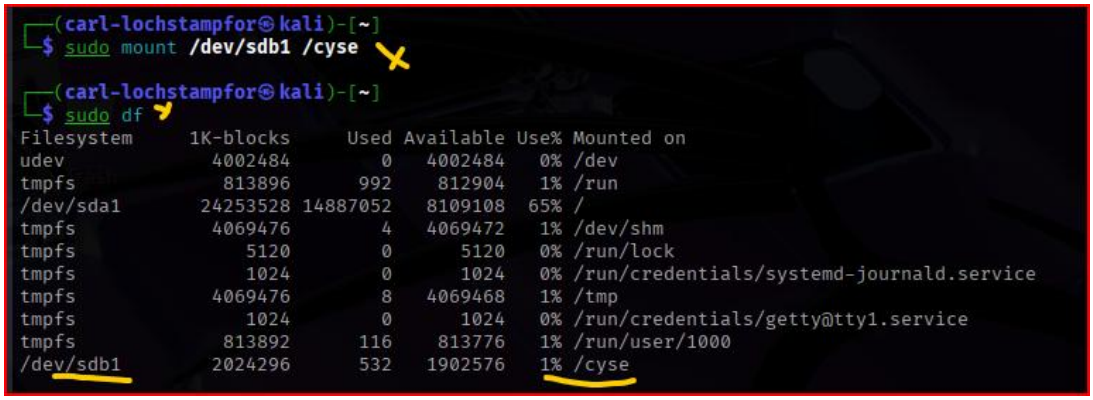


2. Mounting the new partition *UNDER* this new directory (/cyse).
   a. **sudo mount /dev/sdb1 /cyse**

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

Command >>

- Mounting the new partition *UNDER* this new directory (/cyse), then verifying the results.
  a. **sudo df** or **df -h**



Step 6. Create a new file named for **YourMIDAS.txt** (replace YourMIDAS with *cloch001*) in the directory /cyse and put your name in that file.

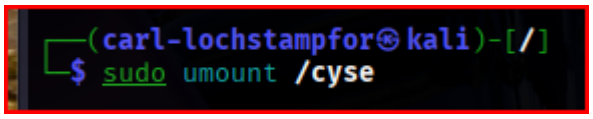
Command >>

1. Print my name into /cyse/cloch001.txt.
    a. **echo "Carl Lochstampfor" | sudo tee /cyse/cloch001.txt**
2. Verify the file content.
    a. **cat /cyse/cloch001.txt**

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

Command >>

1. **sudo umount /cyse**



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

Command >>

1. There are no contents within the directory because the mount point directory returns to its prior state *before* anything was mounted there (i.e., when the directory was created, there were no files at the start). The contents remain or reside on the /dev/sdb1 partition.
    a. In other words, the partition still exists, but since it's not mounted anymore the contents are not visible or reachable through that mount point from the (root unless I remount the partition).
    b. ls -l /cyse; ls -la /cyse