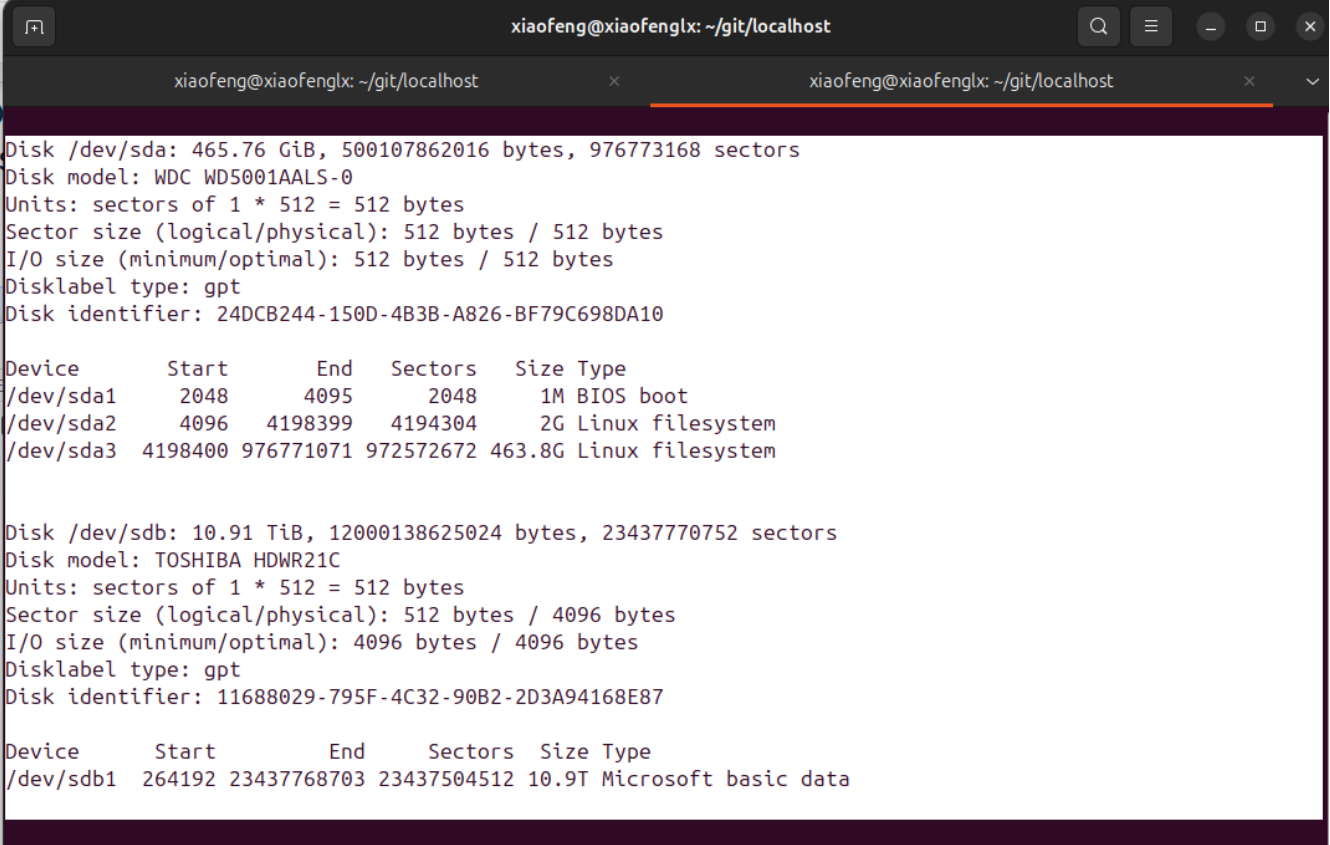


# In-class Lab

## Mounting NTFS in Linux Lab Notes

Abstract: how to mount a windows machine disk into Linux server

First I use `sudo fdisk -l` to view all the partitions and hard drive on my linux system.



```
xiaofeng@xiaofenglx: ~/git/localhost
xiaofeng@xiaofenglx: ~/git/localhost
Disk /dev/sda: 465.76 GiB, 500107862016 bytes, 976773168 sectors
Disk model: WDC WD5001AALS-0
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: gpt
Disk identifier: 24DCB244-150D-4B3B-A826-BF79C698DA10

Device            Start          End      Sectors   Size Type
/dev/sda1         2048           4095       2048      1M BIOS boot
/dev/sda2          4096        4198399   4194304    2G Linux filesystem
/dev/sda3     4198400   976771071  972572672  463.8G Linux filesystem

Disk /dev/sdb: 10.91 TiB, 12000138625024 bytes, 23437770752 sectors
Disk model: TOSHIBA HDWR21C
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disklabel type: gpt
Disk identifier: 11688029-795F-4C32-90B2-2D3A94168E87

Device            Start          End      Sectors   Size Type
/dev/sdb1     264192   23437768703  23437504512  10.9T Microsoft basic data
```

In order to mount my NTFS hard drive taken from an old windows server, I need to mount the disk/partition into my linux machine using `/etc/fstab`. However, we might need to take the partition or disk's UUID, and we need another command,

The other command I use is the `blkid`, and it allows me to see all the UUID of the system.

A

```
xiaofeng@xiaofenglx:~/git/localhost$ sudo fdisk -l | less
xiaofeng@xiaofenglx:~/git/localhost$ sudo blkid
/dev/sdb1: LABEL="New Volume" BLOCK_SIZE="512" UUID="1074F6E274F6CA0C" TYPE="ntfs" PARTLABEL="Basic data p
artition" PARTUUID="fb7c74c5-3854-483c-b91d-21a3f24965a7"
/dev/mapper/ubuntu--vg-ubuntu--lv: UUID="771a76a6-ab79-4d78-b6c0-7a8cc783b5b7" BLOCK_SIZE="4096" TYPE="ext
4"
/dev/sda2: UUID="24f08bc8-4c8a-4edf-9753-0b3575d12ab3" BLOCK_SIZE="4096" TYPE="ext4" PARTUUID="13db038f-c2
fa-47d9-a343-ffb6f144aeb2"
/dev/sda3: UUID="3Hzmq5-9F30-3T7p-nPMA-lAdI-DzC3-2VHp0v" TYPE="LVM2_member" PARTUUID="d1d45052-9e81-4845-a
85f-09d3a756a3a0"
/dev/loop19: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop17: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop8: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop15: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop6: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop13: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop4: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop11: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop2: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop0: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop18: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop9: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop16: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop7: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/sda1: PARTUUID="fd2357c2-a542-41a1-918f-c6c8b072d2a4"
/dev/loop14: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop5: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop12: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop3: BLOCK_SIZE="131072" TYPE="squashfs"
/dev/loop10: BLOCK_SIZE="131072" TYPE="squashfs"
xiaofeng@xiaofenglx:~/git/localhost$
```

Now I am getting the UUID of that partition of /dev/sdb1,

```
/dev/sdb1: LABEL="New Volume" BLOCK_SIZE="512" UUID="1074F6E274F6CA0C"
TYPE="ntfs" PARTLABEL="Basic data partition" PARTUUID="fb7c74c5-3854-483c-b91d-
21a3f24965a7"
```

## Step 2 Create a mounting directory

And we want to make sure that, we did create a folder before we reboot or let this fstab file to take effect.

```
`sudo mkdir /mnt/ntfs`
```

## Step 3 Mounting the disk to a directory

To permanently mount the partition into the linux machine, so next time, when we boot up the machine, the drive is always good for use.

We will use the `mount` command to add a line of instruction into `/etc/fstab` and we need to use `sudo` which is a root permission to modify this file and save it.

So here I use the `vim` editor to add this line,

```
xiaofeng@xiaofenglx: ~/git/localhost$ vi /etc/fstab
```

You can learn VIM editor commands in latter of the class, but when you first time to modify the /etc/fstab, I would recommend you to backup this file before you modify it, You can use `sudo` and `mv` to make another copy.

```
xiaofeng@xiaofenglx: ~/git/localhost$ sudo cp /etc/fstab /etc/fstab.bk
```

### Solution 1:

Once we open the /etc/fstab, we will add the last line there [you see the UUID],

```
xiaofeng@xiaofenglx: ~/git/localhost xiaofeng@xiaofenglx: ~/git/localhost
# /etc/fstab: static file system information.
#
# Use 'blkid' to print the universally unique identifier for a
# device; this may be used with UUID= as a more robust way to name devices
# that works even if disks are added and removed. See fstab(5).
#
# <file system> <mount point> <type> <options> <dump> <pass>
# / was on /dev/ubuntu-vg/ubuntu-lv during curtin installation
/dev/disk/by-id/dm-uuid-LVM-E44Yv6J5h6dWilca6NPTr4S6U44rxAoPS9PXuPaFKowb9NCXGgElin0iFYVh20En / ext4 defaults 0 1
# /boot was on /dev/sda2 during curtin installation
/dev/disk/by-uuid/24f08bc8-4c8a-4edf-9753-0b3575d12ab3 /boot ext4 defaults 0 1
/swap.img none swap sw 0 0
UUID="1074F6E274F6CA0C" /mnt/ntfs ntfs-3g defaults 0 0
```

### Solution 2:

Or you can run the following command to simplify the process so that you might not need to grab the UUID of the partition.

```
sudo mount -t ntfs-3g /dev/sdb1 /mnt/ntfs
```

Side-notes:

As you can see in the /etc/fstab, there is a ntfs-3g, this is a unity that we might need to install, the command is like the follow, but in most cases, you might have had it already.

```
sudo apt install ntfs-3g
```