

Identify and Mount a Drive

First we need to identify the disk(s):

```
sudo blkid
```

This will list any recognised devices:

```
/dev/mmcblk0p1: LABEL="RECOVERY" UUID="0403-0201" TYPE="vfat" PARTUUID="0006dd3f-01"  
/dev/mmcblk0p5: LABEL="SETTINGS" UUID="705f6e2b-fac6-4f33-8611-d57a9c9f04e1" TYPE="ext4"  
PARTUUID="0006dd3f-05"  
/dev/mmcblk0p6: SEC_TYPE="msdos" LABEL="boot" UUID="1495-189B" TYPE="vfat" PARTUUID="0006dd3f-06"  
/dev/mmcblk0p7: LABEL="root0" UUID="759bca6b-5766-4941-b830-cdbfcd861107" TYPE="ext4"  
PARTUUID="0006dd3f-07"  
/dev/mmcblk0p8: LABEL="boot-rbp2" UUID="200C-EA5B" TYPE="vfat" PARTUUID="0006dd3f-08"  
/dev/mmcblk0p9: LABEL="root-rbp2" UUID="26d10fa3-fe0a-4044-b24a-9b85c2079122" TYPE="ext4"  
PARTUUID="0006dd3f-09"  
/dev/mmcblk0: PTUUID="0006dd3f" PTTYPE="dos"  
/dev/sda: PTUUID="279bf5b4" PTTYPE="dos"
```

In this example, the first 6 items are the SD card that Raspbian booted from **/dev/mmcblk0px**. The last device **/dev/sda** is a USB Hard Disk. This is the disk I want to add to Raspbian.

Now that we know the disk we wish to work on is **/dev/sda** we can use:

```
sudo fdisk /dev/sda
```

```
enter p to display partition information  
Disk /dev/sda: 298.1 GiB, 320072933376 bytes, 625142448 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: 0x279bf5b4
```

We can see the size is 298.1 GB.

```
Use the d command to delete existing partition  
No partition is defined yet!  
Could not delete partition 81165
```

In this case, there are no partitions to delete

To create a new partition, use:

```
n - This creates a new partition  
p - This is for a primary partition  
Enter - To default to partition 1  
Enter - To select first sector  
Enter - To select last sector.
```

You should now have a new partition.

```
p - To display the new partition  
Device      Boot Start      End    Sectors   Size Id Type  
/dev/sda1           2048 625142447 625140400 298.1G 83 Linux
```

The changes need to be written to the partition table:

```
w - To commit changes  
The partition table has been altered.
```

```
Calling ioctl() to re-read partition table.  
Syncing disks.
```

Now run the following command to see your disk, which will now include /dev/sda1

```
sudo fdisk -l
```

There will be a large output, but the important part is at the end:

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/sda1		2048	625142447	625140400	298.1G	83	Linux

/dev/sda1 is the partition we have just created on device /dev/sda

Now we need to create the file system:

```
sudo mkfs /dev/sda1  
mke2fs 1.42.12 (29-Aug-2014)  
/dev/sda1 contains a ntfs file system labelled '300gb'  
Proceed anyway? (y,n) <-----You have to say 'Y' Here.  
Depending on drive size, this will take a minute or two  
Creating filesystem with 78142550 4k blocks and 19537920 inodes  
Filesystem UUID: 6af40af7-759f-4ee5-afea-882e9f58f17e  
Superblock backups stored on blocks:  
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,  
    4096000, 7962624, 11239424, 20480000, 23887872, 71663616  
Allocating group tables: done  
Writing inode tables: done  
Writing superblocks and filesystem accounting information: done
```

After the superblocks are created and you get a command prompt, Now you are ready to mount your disk.

Lets create a mount point and call it NewDisk

```
sudo mkdir /mydisk <-- This creates a mount point (a folder) to mount our disk, the folder is  
called mydisk
```

To Mount the Disk

```
sudo mount /dev/sda1 /NewDisk <--- bear in mind that your disk might not be sda1
```

Use df to verify disk is mounted. If you reboot you will need to remount it (you might want to add it to /etc/fstab)

```
df  
Filesystem      1K-blocks    Used Available Use% Mounted on  
/dev/root        7928236 3577848   3924612  48% /  
devtmpfs         469544      0    469544   0% /dev  
tmpfs            473880      0    473880   0% /dev/shm  
tmpfs            473880    6520    467360   2% /run  
tmpfs             5120        4     5116   1% /run/lock  
tmpfs            473880      0    473880   0% /sys/fs/cgroup  
/dev/mmcblk0p6   64366    20436    43930  32% /boot  
tmpfs            94776      0     94776   0% /run/user/1000  
/dev/sda1       307665360 64344 291972508   1% /NewDisk <---- here is our new disk
```

Try writing a file to the disk to test it:

```
sudo touch /NewDisk/test  
ls /NewDisk  
lost+found  test
```

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