Tips

6 Different Ways to List Hard Drives in Linux

This detailed guide will give you enough information to start using Emacs, and enough extra to make you want more.

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There are several ways to list all the hard drives present in a system through Linux command lines.

Keep in mind a hard drive could be physically connected, virtually connected or even emulated (for example: when you use storage devices such as EMC, Sun or IBM).

Here are some different commands which can list the hard drives, keep in mind there are others but these are probably the most commonly used and easy to get the job done.

Listing Hard Drives in Linux

Please note that some of these commands are actually disk partitioning tools and listing disk partition is one of their features.

Let's see what commands you can use to show disk info in Linux.

1. df

The df command in Linux is probably one of the most commonly used. It lists the actual "disk space usage" and it can give you information about what hard disks (or current disk space) is being used in the entire system.

The most common way to use it is with the -h argument which means "human readable" (because we are not machines, right?):

```
user@system:~$ df -h
 Filesystem      Size   Used  Avail  Use%  Mounted on
 udev            7.8G     0   7.8G    0%  /dev
 tmpfs           1.6G   3.5M   1.6G    1%  /run
 /dev/sda2       468G   204G   242G   46%  /
 tmpfs           7.8G   109M   7.7G    2%  /dev/shm
 tmpfs           5.0M   4.0K   5.0M    1%  /run/lock
 tmpfs           7.8G     0   7.8G    0%  /sys/fs/cgroup
 /dev/loop0      7.5M   7.5M     0  100%  /snap/canonical-livepatch/54
 /dev/loop1      90M    90M      0  100%  /snap/core/6034
 /dev/loop2      5.0M   5.0M     0  100%  /snap/canonical-livepatch/50
 /dev/loop4      90M    90M      0  100%  /snap/core/6130
 /dev/loop3      4.8M   4.8M     0  100%  /snap/canonical-livepatch/49
 /dev/loop5      89M    89M      0  100%  /snap/core/5897
 /dev/sda1       511M   6.1M   505M   2%  /boot/efi
 tmpfs           1.6G    16K   1.6G    1%  /run/user/121
 tmpfs           1.6G    44K   1.6G    1%  /run/user/1000
```


available in each for usage (in bytes), the fifth column is how much is used (in %) and the sixth and last column is where is it physically mounted in your Linux system.

2. fdisk

fdisk is another common option among sysops. It currently lists the different partitions (which is related to hard drives as a hard drive can be divided into several partitions) in your system.

```
user@system:~$ fdisk -l
 Disk /dev/loop0: 7.5 MiB, 7811072 bytes, 15256 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

 Disk /dev/loop1: 89.5 MiB, 93818880 bytes, 183240 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

 Disk /dev/loop2: 4.9 MiB, 5148672 bytes, 10056 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

 Disk /dev/loop3: 4.7 MiB, 4919296 bytes, 9608 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

 Disk /dev/loop4: 89.5 MiB, 93835264 bytes, 183272 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

 Disk /dev/loop5: 88.2 MiB, 92483584 bytes, 180632 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

 Disk /dev/sda: 477 GiB, 512110190592 bytes, 1000215216 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: gpt
 Disk identifier: 129F4EE6-2A54-4639-BFCA-2CC09DFC8566
 Device       Start        End   Sectors   Size Type
 /dev/sda1     2048    1050623   1048576   512M EFI System
 /dev/sda2  1050624 1000214527 999163904 476.4G Linux filesystem
```

This will return the entire amount of space (in GB or MB), the entire amount of bytes and the entire amount of sectors per each partition and as a summary, it also gives you the start and end sectors, the amount of disk space (in Bytes) and the type of partition.

Tip: Usually a SATA disk is labelled with sd.

3. lsblk

This one is a little more sophisticated but gets the job done as it lists all block devices. It will give you a very simple list of all devices:

```
user@system:~$ lsblk
 NAME   MAJ:MIN RM   SIZE RO TYPE MOUNTPOINT
 loop0    7:0    0   7.5M  1 loop /snap/canonical-livepatch/54
 loop1    7:1    0  89.5M  1 loop /snap/core/6034
 loop2    7:2    0   4.9M  1 loop /snap/canonical-livepatch/50
 loop3    7:3    0   4.7M  1 loop /snap/canonical-livepatch/49
 loop4    7:4    0  89.5M  1 loop /snap/core/6130
 loop5    7:5    0  88.2M  1 loop /snap/core/5897
 sda      8:0    0   477G  0 disk
 ├─sda1   8:1    0   512M  0 part /boot/efi
 └─sda2   8:2    0 476.4G  0 part /
```

It is probably more visual than the others as it even shows the partitions per each disk in a visual way (like the sda in the example above). It also gives information about the total size per each partition and disk and the physical location for each. This is very commonly used when you need to mount things to be used (like a USB stick or similar) so you can know where is it in order to proceed to mount it.

4. cfdisk

cfdisk is probably the most advanced one in GUI (Graphical User Interface), as it is absolutely visual and interactive. It allows at first to list all disks/partitions in your system but it also allows you to manage them by selecting them and then applying

actions such as “Delete”, “Resize”, “Type” (to change partition Type) and “Write” changes done to partitions.

cfdisk example

It also gives you very friendly information about each partition and disk as it gives you where does each partition cylinders start and ends, amount of sectors used by each one and the full size of each one with its type. It won’t give you for example how much is used or free to use.

5. parted

This one is similar to previous ones mentioned, it lists all partitions and allows to manage them. Its main difference is that it also informs you the brand and model of your hard disks and even the type of connectivity used in it (scsi, sata, etc) and total disk size.

```
user@system:~$ sudo parted -l
Model: ATA LITEON CV1-8B512 (scsi)
Disk /dev/sda: 512GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Disk Flags:
Number Start  End   Size  File system Name                 Flags
 1     1049kB 538MB 537MB fat32       EFI System Partition boot, esp
```

6. sfdisk

This is very similar to fdisk, however **sfdisk** allows you to see both physical and logical volumes and also gives you a "summary" of the actual physical volumes' partitions with the cylinders (start and end), sectors, size and type.

Probably the "s" is for "super", as it is a fdisk with super powers:

```
user@system:~$ sudo sfdisk -l
Disk /dev/loop0: 88.2 MiB, 92483584 bytes, 180632 sectors
Units: sectors of 1 * 512 = 512 bytes
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```

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Units: sectors of 1 * 512 = 512 bytes
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Units: sectors of 1 * 512 = 512 bytes
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I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: 129F4EE6-2A54-4639-BFCA-2CC09DFC8566


Device       Start        End   Sectors   Size Type
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```

These commands should allow you to at least see what logical volumes, partitions and hard drives you have in your system and make use of this information for whatever reason you need it, being this just to know more or manipulate any of these.

Most of these commands also give you managing capabilities to modify and manipulate partitions at your will, so make sure to use them with responsibility.

If you like checking system information, do read the article about getting processor information in Linux command line.

If you have any questions or suggestions, do let me know in the comment section.

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