

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "This is just an example of how to use partitions  
. Your homework tasks might be different than these parameters"
```

```
This is just an example of how to use partitions. Your homework tasks might be  
different than these parameters
```

```
joe@ubuntu-partitioned:~$ echo "Read all requirements carefully"
```

```
Read all requirements carefully
```

```
joe@ubuntu-partitioned:~$ █
```

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "the mount command will show us what partitions are mounted, what fs type they are, and where they are mounted"
```

```
the mount command will show us what partitions are mounted, what fs type they are, and where they are mounted
```

```
joe@ubuntu-partitioned:~$ █
```

joe@ubuntu-partitioned: ~

joe@ubuntu-partitioned:~\$ mount

/dev/sda1 on / type ext4 (rw,errors=remount-ro)

proc on /proc type proc (rw,noexec,nosuid,nodev)

sysfs on /sys type sysfs (rw,noexec,nosuid,nodev)

none on /sys/fs/cgroup type tmpfs (rw)

none on /sys/fs/fuse/connections type fusectl (rw)

none on /sys/kernel/debug type debugfs (rw)

none on /sys/kernel/security type securityfs (rw)

udev on /dev type devtmpfs (rw,mode=0755)

devpts on /dev/pts type devpts (rw,noexec,nosuid,gid=5,mode=0620)

tmpfs on /run type tmpfs (rw,noexec,nosuid,size=10%,mode=0755)

none on /run/lock type tmpfs (rw,noexec,nosuid,nodev,size=5242880)

none on /run/shm type tmpfs (rw,nosuid,nodev)

none on /run/user type tmpfs (rw,noexec,nosuid,nodev,size=104857600,mode=0755)

none on /sys/fs/pstore type pstore (rw)

/dev/sda5 on /home/cituser/joesfiles type ext4 (rw)

/dev/sda2 on /var type ext4 (rw)

rpc\_pipefs on /run/rpc\_pipefs type rpc\_pipefs (rw)

systemd on /sys/fs/cgroup/systemd type cgroup (rw,noexec,nosuid,nodev,none,name=systemd)

joe@ubuntu-partitioned:~\$ █

```
joe@ubuntu-partitioned:~$ ls -l /dev/sd*
```

```
brw-rw---- 1 root disk 8, 0 Sep 30 09:46 /dev/sda  
brw-rw---- 1 root disk 8, 1 Sep 30 08:37 /dev/sda1  
brw-rw---- 1 root disk 8, 2 Sep 30 08:37 /dev/sda2  
brw-rw---- 1 root disk 8, 3 Sep 30 08:37 /dev/sda3  
brw-rw---- 1 root disk 8, 4 Sep 30 08:37 /dev/sda4  
brw-rw---- 1 root disk 8, 5 Sep 30 08:37 /dev/sda5  
brw-rw---- 1 root disk 8, 6 Sep 30 08:37 /dev/sda6  
brw-rw---- 1 root disk 8, 7 Sep 30 08:37 /dev/sda7
```

```
joe@ubuntu-partitioned:~$
```

joe@ubuntu-partitioned: ~

joe@ubuntu-partitioned:~\$ sudo fdisk -l /dev/sda

Disk /dev/sda: 17.2 GB, 17179869184 bytes  
255 heads, 63 sectors/track, 2088 cylinders, total 33554432 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 identifier: 0x0006f6c5

| Device    | Boot | Start    | End      | Blocks   | Id | System               |
|-----------|------|----------|----------|----------|----|----------------------|
| /dev/sda1 | *    | 2048     | 7813119  | 3905536  | 83 | Linux                |
| /dev/sda2 |      | 7813120  | 11718655 | 1952768  | 83 | Linux                |
| /dev/sda3 |      | 11718656 | 13672447 | 976896   | 82 | Linux swap / Solaris |
| /dev/sda4 |      | 13672448 | 29303692 | 7815622+ | 5  | Extended             |
| /dev/sda5 |      | 13672511 | 19536172 | 2931831  | 83 | Linux                |
| /dev/sda6 |      | 19536236 | 23439967 | 1951866  | 83 | Linux                |
| /dev/sda7 |      | 23440031 | 29303692 | 2931831  | 83 | Linux                |

joe@ubuntu-partitioned:~\$

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "I already have a few partitions on this system"
```

```
I already have a few partitions on this system
```

```
joe@ubuntu-partitioned:~$ █
```

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "I like to use the cfdisk program to analyze and  
manipulate partitions"
```

```
I like to use the cfdisk program to analyze and manipulate partitions
```

```
joe@ubuntu-partitioned:~$ sudo cfdisk /dev/sda
```

cfdisk (util-linux 2.20.1)

Disk Drive: /dev/sda

Size: 17179869184 bytes, 17.1 GB

Heads: 255 Sectors per Track: 63 Cylinders: 2088

| Name  | Flags | Part Type | FS Type    | [Label] | Size (MB) |
|-------|-------|-----------|------------|---------|-----------|
| ----- |       |           |            |         |           |
|       |       |           | Unusable   |         | 1.05*     |
| sda1  | Boot  | Primary   | ext4       |         | 3999.27*  |
| sda2  |       | Primary   | ext4       |         | 1999.64*  |
| sda3  |       | Primary   | swap       |         | 1000.35*  |
| sda5  |       | Logical   | ext4       |         | 3002.23*  |
| sda6  |       | Logical   | ext3       |         | 1998.75*  |
| sda7  |       | Logical   | ext4       |         | 3002.23*  |
|       |       | Logical   | Free Space |         | 2176.38*  |

[ Help ]

[ Print ]

[ Quit ]

[ Units ]

[ Write ]

Print help screen



|                         |                         |                         |
|-------------------------|-------------------------|-------------------------|
| 16 Hidden FAT16         | 83 Linux                | E4 SpeedStor            |
| 17 Hidden HPFS/NTFS     | 84 OS/2 hidden C: drive | EB BeOS fs              |
| 18 AST SmartSleep       | 85 Linux extended       | EE GPT                  |
| 1B Hidden W95 FAT32     | 86 NTFS volume set      | EF EFI (FAT-12/16/32)   |
| 1C Hidden W95 FAT32 (LB | 87 NTFS volume set      | F0 Linux/PA-RISC boot   |
| 1E Hidden W95 FAT16 (LB | 88 Linux plaintext      | F1 SpeedStor            |
| 24 NEC DOS              | 8E Linux LVM            | F4 SpeedStor            |
| 27 Hidden NTFS WinRE    | 93 Amoeba               | F2 DOS secondary        |
| 39 Plan 9               | 94 Amoeba BBT           | FB VMware VMFS          |
| 3C PartitionMagic recov | 9F BSD/OS               | FC VMware VMKCORE       |
| 40 Venix 80286          | A0 IBM Thinkpad hiberna | FD Linux raid autodetec |
| 41 PPC PReP Boot        | A5 FreeBSD              | FE LANstep              |
| 42 SFS                  | A6 OpenBSD              | FF BBT                  |
| 4D QNX4.x               | A7 NeXTSTEP             |                         |
| 4E QNX4.x 2nd part      | A8 Darwin UFS           |                         |

Enter filesystem type: 83

cfdisk (util-linux 2.20.1)

Disk Drive: /dev/sda  
Size: 17179869184 bytes, 17.1 GB  
Heads: 255 Sectors per Track: 63 Cylinders: 2088

| Name | Flags | Part Type | FS Type    | [Label] | Size (MB) |
|------|-------|-----------|------------|---------|-----------|
|      |       |           | Unusable   |         | 1.05*     |
| sda1 | Boot  | Primary   | ext4       |         | 3999.27*  |
| sda2 |       | Primary   | ext4       |         | 1999.64*  |
| sda3 |       | Primary   | swap       |         | 1000.35*  |
| sda5 |       | Logical   | ext4       |         | 3002.23*  |
| sda6 |       | Logical   | ext3       |         | 1998.75*  |
| sda7 |       | Logical   | ext4       |         | 3002.23*  |
| sda8 |       | Logical   | Linux      |         | 501.75*   |
|      |       | Logical   | Free Space |         | 1674.64*  |

[ Bootable ] [ Delete ] [ Help ] [ Maximize ] [ Print ]  
[ Quit ] [ Type ] [ Units ] [ Write ]

Write partition table to disk (this might destroy data)

cfdisk (util-linux 2.20.1)

Disk Drive: /dev/sda

Size: 17179869184 bytes, 17.1 GB

Heads: 255 Sectors per Track: 63 Cylinders: 2088

| Name | Flags | Part Type | FS Type    | [Label] | Size (MB) |
|------|-------|-----------|------------|---------|-----------|
|      |       |           | Unusable   |         | 1.05*     |
| sda1 | Boot  | Primary   | ext4       |         | 3999.27*  |
| sda2 |       | Primary   | ext4       |         | 1999.64*  |
| sda3 |       | Primary   | swap       |         | 1000.35*  |
| sda5 |       | Logical   | ext4       |         | 3002.23*  |
| sda6 |       | Logical   | ext3       |         | 1998.75*  |
| sda7 |       | Logical   | ext4       |         | 3002.23*  |
| sda8 |       | Logical   | Linux      |         | 501.75*   |
|      |       | Logical   | Free Space |         | 1674.64*  |

Are you sure you want to write the partition table to disk? (yes or no): ye

Warning!! This may destroy data on your disk!

cfdisk (util-linux 2.20.1)

Disk Drive: /dev/sda

Size: 17179869184 bytes, 17.1 GB

Heads: 255 Sectors per Track: 63 Cylinders: 2088

| Name | Flags | Part Type | FS Type    | [Label] | Size (MB) |
|------|-------|-----------|------------|---------|-----------|
|      |       |           | Unusable   |         | 1.05*     |
| sda1 | Boot  | Primary   | ext4       |         | 3999.27*  |
| sda2 |       | Primary   | ext4       |         | 1999.64*  |
| sda3 |       | Primary   | swap       |         | 1000.35*  |
| sda5 |       | Logical   | ext4       |         | 3002.23*  |
| sda6 |       | Logical   | ext3       |         | 1998.75*  |
| sda7 |       | Logical   | ext4       |         | 3002.23*  |
| sda8 |       | Logical   | Linux      |         | 501.75*   |
|      |       | Logical   | Free Space |         | 1674.64*  |

[ Bootable ] [ Delete ] [ Help ] [ Maximize ] [ Print ]  
[ Quit ] [ Type ] [ Units ] [ Write ]

Quit program without writing partition table

joe@ubuntu-partitioned: ~

joe@ubuntu-partitioned:~\$ echo "Let's see what fdisk displays now"

Let's see what fdisk displays now

joe@ubuntu-partitioned:~\$ sudo fdisk -l /dev/sda

Disk /dev/sda: 17.2 GB, 17179869184 bytes

255 heads, 63 sectors/track, 2088 cylinders, total 33554432 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 identifier: 0x0006f6c5

| Device    | Boot | Start    | End      | Blocks  | Id | System               |
|-----------|------|----------|----------|---------|----|----------------------|
| /dev/sda1 | *    | 2048     | 7813119  | 3905536 | 83 | Linux                |
| /dev/sda2 |      | 7813120  | 11718655 | 1952768 | 83 | Linux                |
| /dev/sda3 |      | 11718656 | 13672447 | 976896  | 82 | Linux swap / Solaris |
| /dev/sda4 |      | 13672448 | 30283657 | 8305605 | 5  | Extended             |
| /dev/sda5 |      | 13672511 | 19536172 | 2931831 | 83 | Linux                |
| /dev/sda6 |      | 19536236 | 23439967 | 1951866 | 83 | Linux                |
| /dev/sda7 |      | 23440031 | 29303692 | 2931831 | 83 | Linux                |
| /dev/sda8 |      | 29303756 | 30283657 | 489951  | 83 | Linux                |

joe@ubuntu-partitioned:~\$

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "Now that we have the partition, we have to put a  
filesystem on it to use it"
```

```
Now that we have the partition, we have to put a filesystem on it to use it
```

```
joe@ubuntu-partitioned:~$ █
```

joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "What fs type to choose?"
```

What fs type to choose?

```
joe@ubuntu-partitioned:~$ mkfs.
```

mkfs.bfs           mkfs.ext3           mkfs.fat           mkfs.ntfs

mkfs.cramfs       mkfs.ext4           mkfs.minix         mkfs.vfat

mkfs.ext2         mkfs.ext4dev       mkfs.msdos

```
joe@ubuntu-partitioned:~$ mkfs.█
```

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ sudo mkfs.ext4 /dev/sda8
```



⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ sudo mkfs.ext4 /dev/sda8
```

```
mke2fs 1.42.9 (4-Feb-2014)
```

```
Could not stat /dev/sda8 --- No such file or directory
```

The device apparently does not exist; did you specify it correctly?

```
joe@ubuntu-partitioned:~$ echo "It doesnt recognize my new partition until after  
a reboot or partprobe command"
```

```
It doesnt recognize my new partition until after a reboot or partprobe command
```

```
joe@ubuntu-partitioned:~$ █
```

joe@ubuntu-partitioned: ~

joe@ubuntu-partitioned:~\$ sudo partprobe

joe@ubuntu-partitioned:~\$ sudo mkfs.ext4 /dev/sda8

mke2fs 1.42.9 (4-Feb-2014)

Discarding device blocks: done

Filesystem label=

OS type: Linux

Block size=1024 (log=0)

Fragment size=1024 (log=0)

Stride=0 blocks, Stripe width=0 blocks

122880 inodes, 489948 blocks

24497 blocks (5.00%) reserved for the super user

First data block=1

Maximum filesystem blocks=67633152

60 block groups

8192 blocks per group, 8192 fragments per group

2048 inodes per group

Superblock backups stored on blocks:

8193, 24577, 40961, 57345, 73729, 204801, 221185, 401409

Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

joe@ubuntu-partitioned:~\$ █

⌵ ⌵ ⌵ joe@ubuntu-partitioned: ~

```
joe@ubuntu-partitioned:~$ echo "Yay, we created it, but we need to mount it to be able to use it"
```

```
Yay, we created it, but we need to mount it to be able to use it
```

```
joe@ubuntu-partitioned:~$ █
```

```
joe@ubuntu-partitioned:~$ df
```

| Filesystem | 1K-blocks | Used   | Available | Use% | Mounted on              |
|------------|-----------|--------|-----------|------|-------------------------|
| /dev/sda1  | 3778616   | 835948 | 2731008   | 24%  | /                       |
| none       | 4         | 0      | 4         | 0%   | /sys/fs/cgroup          |
| udev       | 240128    | 4      | 240124    | 1%   | /dev                    |
| tmpfs      | 50188     | 364    | 49824     | 1%   | /run                    |
| none       | 5120      | 0      | 5120      | 0%   | /run/lock               |
| none       | 250936    | 0      | 250936    | 0%   | /run/shm                |
| none       | 102400    | 0      | 102400    | 0%   | /run/user               |
| /dev/sda5  | 2820244   | 4296   | 2652976   | 1%   | /home/cituser/joesfiles |
| /dev/sda2  | 1889292   | 399336 | 1375936   | 23%  | /var                    |

```
joe@ubuntu-partitioned:~$ █
```

```
joe@ubuntu-partitioned:~$ echo "Create a mount point"
```

```
Create a mount point
```

```
joe@ubuntu-partitioned:~$ sudo mkdir /demo
```

```
[sudo] password for joe:
```

```
joe@ubuntu-partitioned:~$ sudo mkdir /demo/it3100
```

```
joe@ubuntu-partitioned:~$ █
```

joe@ubuntu-partitioned: ~

joe@ubuntu-partitioned: ~

joe@yavin: ~/Pictures

```
joe@ubuntu-partitioned:~$ sudo mount -t ext4 /dev/sda8 /demo/it3100/
```

```
joe@ubuntu-partitioned:~$ df
```

| Filesystem | 1K-blocks | Used   | Available | Use% | Mounted on              |
|------------|-----------|--------|-----------|------|-------------------------|
| /dev/sda1  | 3778616   | 835956 | 2731000   | 24%  | /                       |
| none       | 4         | 0      | 4         | 0%   | /sys/fs/cgroup          |
| udev       | 240128    | 4      | 240124    | 1%   | /dev                    |
| tmpfs      | 50188     | 364    | 49824     | 1%   | /run                    |
| none       | 5120      | 0      | 5120      | 0%   | /run/lock               |
| none       | 250936    | 0      | 250936    | 0%   | /run/shm                |
| none       | 102400    | 0      | 102400    | 0%   | /run/user               |
| /dev/sda5  | 2820244   | 4296   | 2652976   | 1%   | /home/cituser/joesfiles |
| /dev/sda2  | 1889292   | 399336 | 1375936   | 23%  | /var                    |
| /dev/sda8  | 466248    | 2318   | 435337    | 1%   | /demo/it3100            |

```
joe@ubuntu-partitioned:~$
```

```
joe@ubuntu-partitioned:~$ ls -la /demo/it3100/
```

```
total 17
```

```
drwxr-xr-x 3 root root 1024 Sep 30 09:53 .
```

```
drwxr-xr-x 3 root root 4096 Sep 30 13:42 ..
```

```
drwx----- 2 root root 12288 Sep 30 09:53 lost+found
```

```
joe@ubuntu-partitioned:~$ █
```