Linux Partitioning and Persistence

1. Create a New Partition with ext3 Filesystem

- Identify an available disk
  fdisk -l

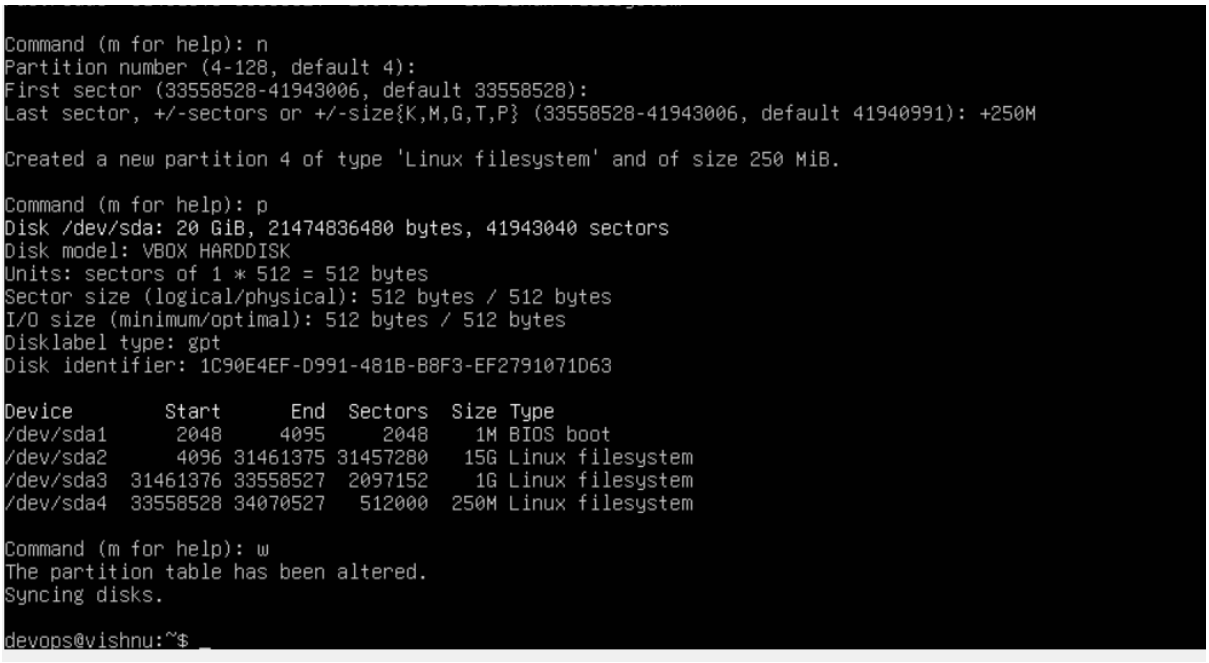
File Machine View Input Devices Help

```
devops@vishnu:~$ sudo fdisk -l
[sudo] password for devops:
Disk /dev/sda: 20 GiB, 21474836480 bytes, 41943040 sectors
Disk model: VBOX HARDDISK
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: 1C90E4EF-D991-481B-B8F3-EF2791071D63

Device        Start      End  Sectors Size Type
/dev/sda1      2048     4095     2048   1M BIOS boot
/dev/sda2      4096 31461375 31457280  15G Linux filesystem
/dev/sda3  31461376 33558527  2097152   1G Linux filesystem
devops@vishnu:~$ _
```

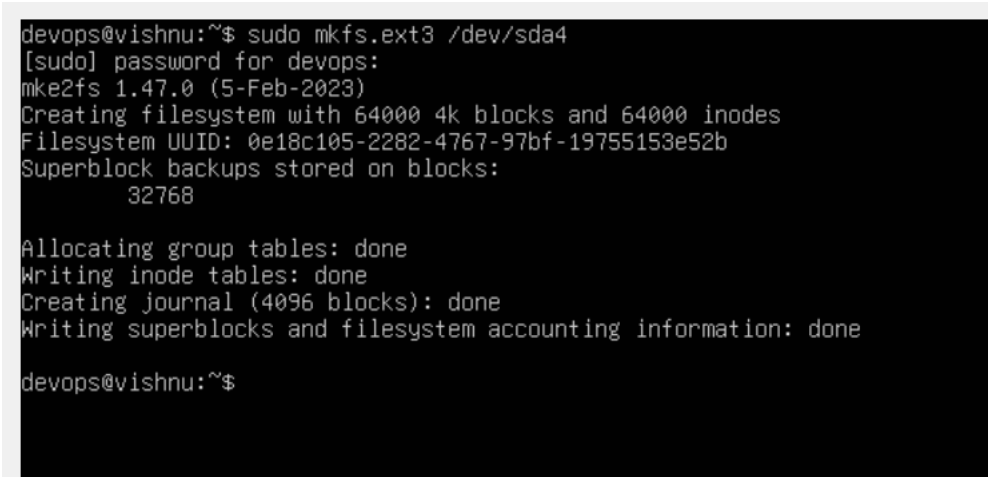
- Create a new partition
  fdisk /dev/sda

```
devops@vishnu:~$ sudo fdisk /dev/sda

Welcome to fdisk (util-linux 2.39.3).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

This disk is currently in use - repartitioning is probably a bad idea.
It's recommended to umount all file systems, and swapoff all swap
partitions on this disk.


Command (m for help): m

Help:

  GPT
   M   enter protective/hybrid MBR

  Generic
   d   delete a partition
   F   list free unpartitioned space
   l   list known partition types
   n   add a new partition
   p   print the partition table
   t   change a partition type
   v   verify the partition table
   i   print information about a partition

  Misc
   m   print this menu
   x   extra functionality (experts only)

  Script
   I   load disk layout from sfdisk script file
   O   dump disk layout to sfdisk script file

  Save & Exit
   w   write table to disk and exit
   q   quit without saving changes

  Create a new label
   g   create a new empty GPT partition table
   G   create a new empty SGI (IRIX) partition table
   o   create a new empty MBR (DOS) partition table
   s   create a new empty Sun partition table


Command (m for help):
```

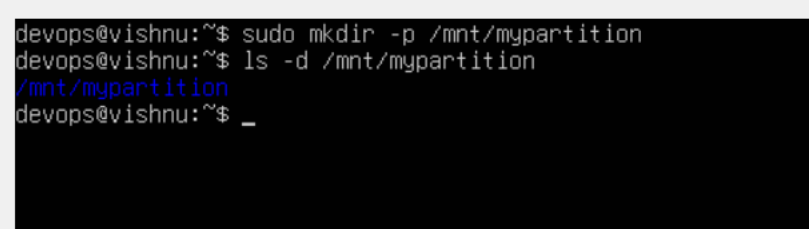
Press “n” (to add a new partition) and give partition number, first and last sector. New partition will create with partition size.



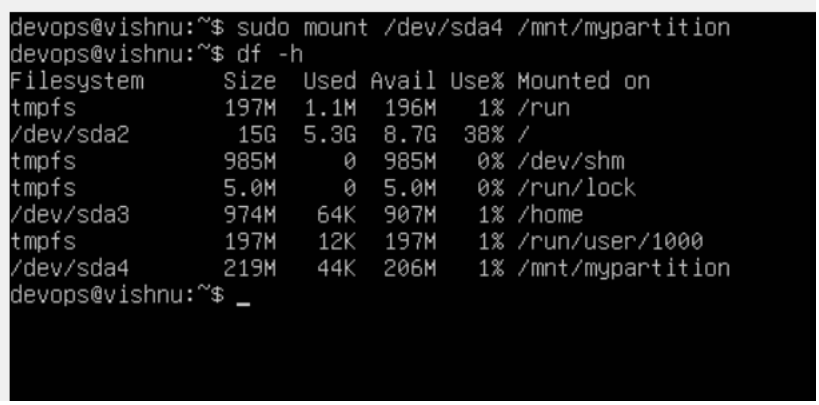
- Format the new partition with the ext3 filesystem mkfs.ext3 /dev/sda4



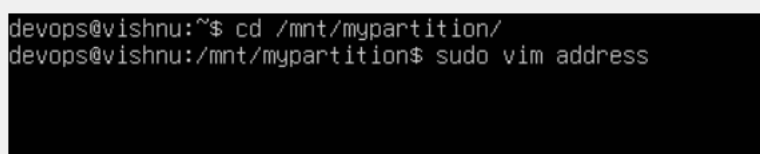
2. **Mount the Partition to /mnt/mypartition**
    - Create the mount point directory
      mkdir -p /mnt/mypartition



    - Mount the partition to /mnt/mypartition
      mount /dev/sda4 /mnt/mypartition



3. **Create a File with a Fake Address**
    - Within /mnt/mypartition, create a file named address
      cd /mnt/mypartition
      vim address



- Write a fake address into the address file

  Change to insert mode press ”i” and type the address and to write the address press “esc” key and “:wq” to save the address

  cat address(ti view the address)

```
devops@vishnu:/mnt/mypartition$ cat address
2nd street,south road
Kerala,India
Pin:123456
devops@vishnu:/mnt/mypartition$ ls
address  lost+found
devops@vishnu:/mnt/mypartition$
```

4. **Ensure Persistence After Reboot**
   - Edit the /etc/fstab file to add an entry for the new partition
     vim /etc/fstab

     after that add <file system> <mount point> <type> <options> <dump><pass>. Write and quit the file

```
# /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/sda2 during curtin installation
/dev/disk/by-uuid/cd08b871-3f6f-4296-8811-4a3eaed3a0a2 / ext4 defaults 0 1
# /home was on /dev/sda3 during curtin installation
/dev/disk/by-uuid/e2478f41-4cbe-4652-85bd-12bf8655dc43 /home ext4 defaults 0 1
/swap.img       none    swap    sw      0       0
/dev/sda4       /mnt/mypartition        ext3    defaults        0       0
~
~
~
~
```

Reboot the system and verify that:

- The partition is mounted automatically

  Mount -a

- The address file still exists in /mnt/mypartition
  ls /mnt/mypartition/
  cat /mnt/mypartition/address

```
root@vishnu:/mnt/mypartition# mount -a
root@vishnu:/mnt/mypartition# df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           197M  1.1M  196M   1% /run
/dev/sda2        15G  5.4G  8.6G  39% /
tmpfs           985M     0  985M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
/dev/sda3       974M   72K  907M   1% /home
tmpfs           197M   12K  197M   1% /run/user/1000
/dev/sda4       219M   48K  206M   1% /mnt/mypartition
root@vishnu:/mnt/mypartition# cd
root@vishnu:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           197M  1.1M  196M   1% /run
/dev/sda2        15G  5.4G  8.6G  39% /
tmpfs           985M     0  985M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
/dev/sda3       974M   72K  907M   1% /home
tmpfs           197M   12K  197M   1% /run/user/1000
/dev/sda4       219M   48K  206M   1% /mnt/mypartition
root@vishnu:~# ls /mnt/mypartition/
address  lost+found
root@vishnu:~# cat /mnt/mypartition/address
2nd street,south road
Kerala,India
Pin:23456
root@vishnu:~# _
```

After reboot the partition is still exists

```
root@vishnu:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           197M  1.1M  196M   1% /run
/dev/sda2        15G  5.4G  8.6G  39% /
tmpfs           985M     0  985M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
/dev/sda4       219M   48K  206M   1% /mnt/mypartition
/dev/sda3       974M   72K  907M   1% /home
tmpfs           197M   12K  197M   1% /run/user/1000
root@vishnu:~#
```