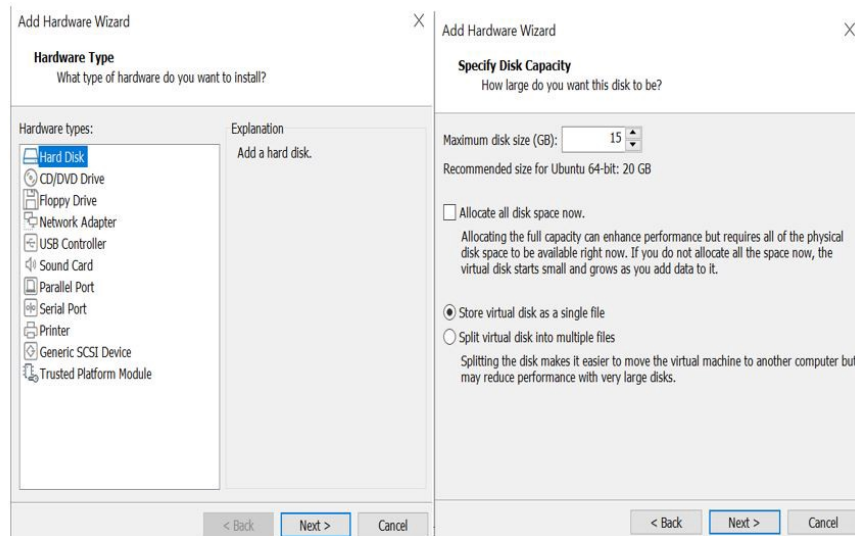


Let's understand Disks and create partitions in the Ubuntu 22.04 LTS server.

1. Connect the new disk to your server. If you are using a virtual machine, you may need to add a new virtual disk to the VM.



2. Once the disk is connected, check that Ubuntu recognizes it by running the command **sudo fdisk -l**. You should see the new disk listed, along with any other disks that are already connected to your server.

Use the **LSBLK** command to list all of the available block devices and their mount points.

```

root@mpn-virtual-machine:~# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
fd0          2:0    1    1.4M  0 disk
loop0        7:0     0     4K   1 loop /snap/bare/5
loop1        7:1     0   63.3M  1 loop /snap/core20/1822
loop2        7:2     0  163.3M  1 loop /snap/firefox/1635
loop3        7:3     0    62M   1 loop /snap/core20/1587
loop4        7:4     0  240.6M  1 loop /snap/firefox/2356
loop5        7:5     0  400.8M  1 loop /snap/gnome-3-38-2004/112
loop6        7:6     0   91.7M  1 loop /snap/gtk-common-themes/1535
loop7        7:7     0  346.3M  1 loop /snap/gnome-3-38-2004/119
loop8        7:8     0   45.9M  1 loop /snap/snap-store/638
loop9        7:9     0   45.9M  1 loop /snap/snap-store/582
loop10       7:10    0   49.8M  1 loop /snap/snapd/18357
loop11       7:11    0    284K  1 loop /snap/snapd-desktop-integration/14
loop12       7:12    0   304K  1 loop /snap/snapd-desktop-integration/49
sda          8:0     0    20G   0 disk
├─sda1       8:1     0     1M   0 part
├─sda2       8:2     0   513M  0 part /boot/efi
└─sda3       8:3     0   19.5G  0 part /var/snap/firefox/common/host-hunspell
sdb          8:16    0    15G   0 disk
sr0         11:0     1  126.8M  0 rom  /media/mpn/CDROM
sr1         11:1     1  1024M   0 rom
root@mpn-virtual-machine:~#

```

3. Use the `fdisk` command to partition the new disk. For example, if your new disk is located at `/dev/sdb`, run the following command:

`sudo fdisk /dev/sdb`

```

root@mpn-virtual-machine:~# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.37.2).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x1512438e.

```

4) This will open the `fdisk` tool. From here, you can create partitions by following the on-screen instructions. When you're finished, save your changes and exit `fdisk`.

```

Command (m for help): n
Partition type
  p   primary (0 primary, 0 extended, 4 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-31457279, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-31457279, default 31457279): +5G

Created a new partition 1 of type 'Linux' and of size 5 GiB.

Command (m for help): n
Partition type
  p   primary (1 primary, 0 extended, 3 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (2-4, default 2): 2
First sector (10487808-31457279, default 10487808):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (10487808-31457279, default 31457279): +5G

Created a new partition 2 of type 'Linux' and of size 5 GiB.

Command (m for help): n
Partition type
  p   primary (2 primary, 0 extended, 2 free)
  e   extended (container for logical partitions)
Select (default p): p
Partition number (3,4, default 3): 3
First sector (20973568-31457279, default 20973568):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (20973568-31457279, default 31457279): +5000MB

```

Created a new partition 3 of type 'Linux' and of size 4.7 GiB.

```

Command (m for help): p
Disk /dev/sdb: 15 GiB, 16106127360 bytes, 31457280 sectors
Disk model: VMware Virtual S
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: 0x56193b27

```

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/sdb1		2048	10487807	10485760	5G	83	Linux
/dev/sdb2		10487808	20973567	10485760	5G	83	Linux
/dev/sdb3		20973568	30738431	9764864	4.7G	83	Linux

```

Command (m for help): w
The partition table has been altered.
Syncing disks.

```

5) Format the new partition with a file system of your choice. For example, if you want to use the Ext4 file system, run the following command:

```
sudo mkfs.ext4 /dev/sdb1
```

```
sudo mkfs.ext4 /dev/sdb2
```

```
sudo mkfs.ext4 /dev/sdb3
```

```

mpn@mpn-virtual-machine:~$ sudo mkfs.ext4 /dev/sdb1
[sudo] password for mpn:
Sorry, try again.
[sudo] password for mpn:
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1310720 4k blocks and 327680 inodes
Filesystem UUID: 0ab2ab7a-b4fd-480f-85fe-ed51a59c6ba0
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

mpn@mpn-virtual-machine:~$ sudo mkfs.ext4 /dev/sdb2
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1310720 4k blocks and 327680 inodes
Filesystem UUID: 7fa8f094-a4cd-488c-8ed4-c0de96bf8418
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

mpn@mpn-virtual-machine:~$ sudo mkfs.ext4 /dev/sdb3
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 1220608 4k blocks and 305216 inodes
Filesystem UUID: 65afc0bc-0c47-45c7-9478-2c86793eb838

```

- 6) This will create an Ext4 file system on the first partition of your new disk.
- 7) Create a mount point for the new partition. For example, if you want to mount the new partition at **/mnt/newdisk**, run the following command: **sudo mkdir /mnt/newdisk**
- 8) Mount the new partition to the mount point you just created. For example, to mount the first partition of the new disk to **/mnt/newdisk**, run the following command.


```

root@mpn-virtual-machine:~# lsblk
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
fd0          2:0    1     4K  0 disk
loop0        7:0    0     4K  1 loop /snap/bare/5
loop1        7:1    0    62M  1 loop /snap/core20/1587
loop2        7:2    0   63.3M  1 loop /snap/core20/1822
loop3        7:3    0  163.3M  1 loop /snap/firefox/1635
loop4        7:4    0  240.6M  1 loop /snap/firefox/2356
loop5        7:5    0   91.7M  1 loop /snap/gtk-common-themes/1535
loop6        7:6    0   45.9M  1 loop /snap/snap-store/582
loop7        7:7    0   45.9M  1 loop /snap/snap-store/638
loop8        7:8    0  400.8M  1 loop /snap/gnome-3-38-2004/112
loop9        7:9    0   49.8M  1 loop /snap/snapd/18357
loop10       7:10   0  346.3M  1 loop /snap/gnome-3-38-2004/119
loop11       7:11   0   284K  1 loop /snap/snapd-desktop-integration/14
loop12       7:12   0   304K  1 loop /snap/snapd-desktop-integration/49
sda          8:0    0    20G  0 disk
├─sda1       8:1    0     1M  0 part
├─sda2       8:2    0   513M  0 part /boot/efi
└─sda3       8:3    0  19.5G  0 part /var/snap/firefox/common/host-hunspell/
sdb          8:16   0   15G  0 disk
├─sdb1       8:17   0     5G  0 part
├─sdb2       8:18   0     5G  0 part
└─sdb3       8:19   0   4.7G  0 part
sr0         11:0    1  126.8M  0 rom  /media/mpn/CDROM
sr1         11:1    1  1024M  0 rom
root@mpn-virtual-machine:~# sudo mount /dev/sdb1 /mnt/newdisk
root@mpn-virtual-machine:~# sudo mount /dev/sdb2 /mnt/newdisk
root@mpn-virtual-machine:~# sudo mount /dev/sdb3 /mnt/newdisk

```

9) To make the mount permanent across reboots, add an entry to the /etc/fstab file. For example, add the following line to the /etc/fstab file to mount the new partition at boot time:

`/dev/sdb1 /mnt/newdisk ext4 defaults 0 2`

`/dev/sdb2 /mnt/newdisk ext4 defaults 0 2`

`/dev/sdb3 /mnt/newdisk ext4 defaults 0 2`

```

GNU nano 6.2 /etc/fstab
# /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/sda3 during installation
UUID=d7dbcae-da7f-4e2d-bb15-2b4e7e35fe0d / ext4 errors=remount-ro 0 1
# /boot/efi was on /dev/sda2 during installation
UUID=C93D-225C /boot/efi vfat umask=0077 0 1
swapfile /swapfile swap defaults 0 0
/dev/fd0 /media/floppy0 auto rw,user,noauto,exec,utf8 0 0
/dev/sdb1 /mnt/newdisk ext4 defaults 0 2
/dev/sdb2 /mnt/newdisk ext4 defaults 0 2
/dev/sdb3 /mnt/newdisk ext4 defaults 0 2

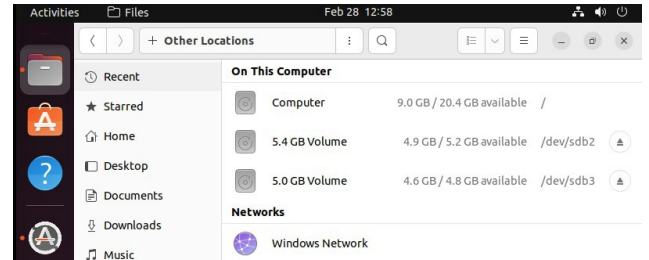
```

10) This will mount the new partition at /mnt/newdisk with the ext4 file system and default options

11) Finally, run the command `df -h` to verify that the new partition is mounted and available for use.

If the mounts not shows reboot the server and check

```
root@mpn-virtual-machine:/home/mpn# df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            382M  2.0M  380M   1% /run
/dev/sda3        20G   9.7G   8.4G  54% /
tmpfs            1.9G   0  1.9G   0% /dev/shm
tmpfs            5.0M  4.0K  5.0M   1% /run/lock
/dev/sdb1        4.9G   24K   4.6G   1% /mnt/newdisk
/dev/sda2        512M   5.3M  507M   2% /boot/efi
tmpfs            382M   96K  382M   1% /run/user/1000
/dev/sr0         127M  127M   0 100% /media/mpn/CDROM
/dev/sdb2        4.9G   24K   4.6G   1% /media/mpn/7fa8f094-a4cd-488c-8ed4-c0de96bf8418
/dev/sdb3        4.6G   24K   4.3G   1% /media/mpn/65afc0bc-0c47-45c7-9478-2c86793eb838
```



That's it! You have successfully added a new disk and created partitions in Ubuntu 22.04 LTS server