

Disk partition

To list all available disks on system.

lsblk

```
hitendra@hitendra-VM: ~$ 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     62M 1 loop /snap/core20/1587
loop2        7:2    0    63.3M 1 loop /snap/core20/1852
loop3        7:3    0     73M 1 loop /snap/core22/607
loop4        7:4    0   163.3M 1 loop /snap/firefox/1635
loop5        7:5    0   400.8M 1 loop /snap/gnome-3-38-2004/112
loop6        7:6    0   460.4M 1 loop /snap/gnome-42-2204/68
loop7        7:7    0    91.7M 1 loop /snap/gtk-common-themes/1535
loop8        7:8    0   349.7M 1 loop /snap/gnome-3-38-2004/137
loop9        7:9    0    45.9M 1 loop /snap/snap-store/638
loop10       7:10   0    49.8M 1 loop /snap/snapd/18596
loop11       7:11   0    45.9M 1 loop /snap/snap-store/582
loop12       7:12   0    284K 1 loop /snap/snapd-desktop-integration/14
loop13       7:13   0    428K 1 loop /snap/snapd-desktop-integration/57
loop14       7:14   0   241.9M 1 loop /snap/firefox/2559
loop15       7:15   0     9.6M 1 loop /snap/htop/3654
sda          8:0    0    32G 0 disk
├─sda1       8:1    0      1M 0 part
├─sda2       8:2    0   513M 0 part /boot/efi
├─sda3       8:3    0   31.5G 0 part /var/snap/firefox/common/host-hunspell
└─sda4       8:4    0  1007.5K 0 part
sr0         11:0    1   126.8M 0 rom  /media/hitendra/CDROM
sr1         11:1    1     3.6G 0 rom  /media/hitendra/Ubuntu 22.04.1 LTS amd64
hitendra@hitendra-VM: ~$
```

sudo fdisk -l

```
hitendra@hitendra-VM: ~$ sudo fdisk -l
Disk /dev/loop0: 4 KiB, 4096 bytes, 8 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: 61.96 MiB, 64970752 bytes, 126896 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
```

```
hitendra@hitendra-VM: ~$ sudo fdisk -l
Disk /dev/sda: 32 GiB, 34359738368 bytes, 67108864 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: gpt
Disk identifier: 2B7A1A7E-B102-4231-99A9-000440F2E64B

Device        Start      End  Sectors  Size Type
/dev/sda1      2048      4095     2048    1M BIOS boot
/dev/sda2      4096   1054719  1050624   513M EFI System
/dev/sda3    1054720 67106815 66052096 31.5G Linux filesystem
```

To create partition in sda disk

```
Activities Terminal Apr 14 14:37 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ sudo fdisk /dev/sda
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.

This disk is currently in use - repartitioning is probably a bad idea.
It's recommended to unmount 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 GPT (IRIX) partition table
o create a new empty DOS partition table
s create a new empty Sun partition table

Command (m for help): n
Partition number (4-128, default 4): 4
First sector (34-67108830, default 67106816):
Last sector, +/-sectors or +/-size[K,M,G,T,P] (67106816-67108830, default 67108830): '+1G'
Last sector, +/-sectors or +/-size[K,M,G,T,P] (67106816-67108830, default 67108830):

Created a new partition 4 of type 'Linux filesystem' and of size 1007.5 KiB.

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

To check list of disk again to see if partition is successful

```
Activities Terminal Apr 14 14:39 hitendra@hitendra-VM: ~
Disk /dev/sda: 32 GiB, 34359738368 bytes, 67108864 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: gpt
Disk identifier: 2B7A1A7E-B102-4231-99A9-000440F2E64B

Device      Start      End      Sectors  Size Type
/dev/sda1    2048      4095      2048      1M BIOS boot
/dev/sda2    4096   1054719   1050624    513M EFI System
/dev/sda3   1054720  67106815  66052096   31.5G Linux filesystem
/dev/sda4   67106816  67108830     2015    1007.5K Linux filesystem
```

To delete partition

1. select partition

```
Activities Terminal Apr 14 14:43 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ sudo fdisk /dev/sda
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.

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

2. note down partitions using 'p' command. Use 'd' command to give delete request select partition number you want to delete by using number.

```
Activities Terminal Apr 14 14:44 hitendra@hitendra-VM: ~
Command (m for help): p
Disk /dev/sda: 32 GiB, 34359738368 bytes, 67108864 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: gpt
Disk identifier: 2B7A1A7E-B102-4231-99A9-000440F2E64B

Device      Start      End  Sectors  Size Type
/dev/sda1    2048      4095    2048     1M BIOS boot
/dev/sda2    4096   1054719  1050624   513M EFI System
/dev/sda3   1054720  67106815 66052096  31.5G Linux filesystem
/dev/sda4   67106816 67108830    2015   1007.5K Linux filesystem

Command (m for help): d
Partition number (1-4, default 4): 4
Partition 4 has been deleted.

Command (m for help): p
Disk /dev/sda: 32 GiB, 34359738368 bytes, 67108864 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: gpt
Disk identifier: 2B7A1A7E-B102-4231-99A9-000440F2E64B

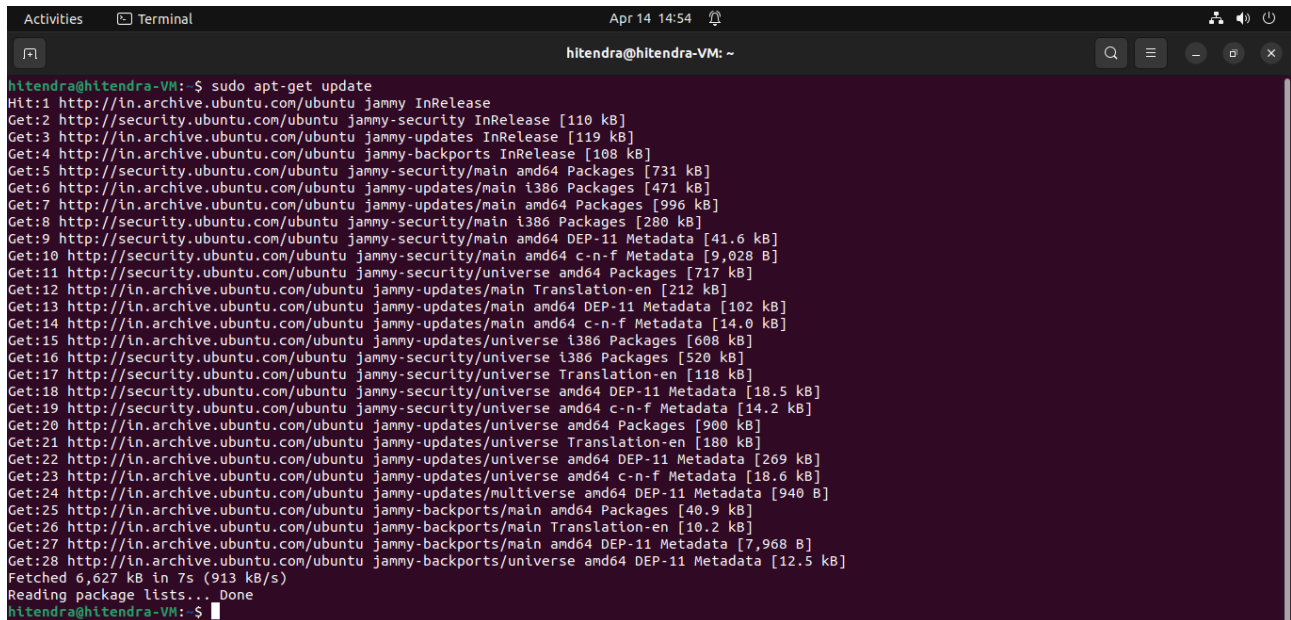
Device      Start      End  Sectors  Size Type
/dev/sda1    2048      4095    2048     1M BIOS boot
/dev/sda2    4096   1054719  1050624   513M EFI System
/dev/sda3   1054720  67106815 66052096  31.5G Linux filesystem

Command (m for help):
```

Package management

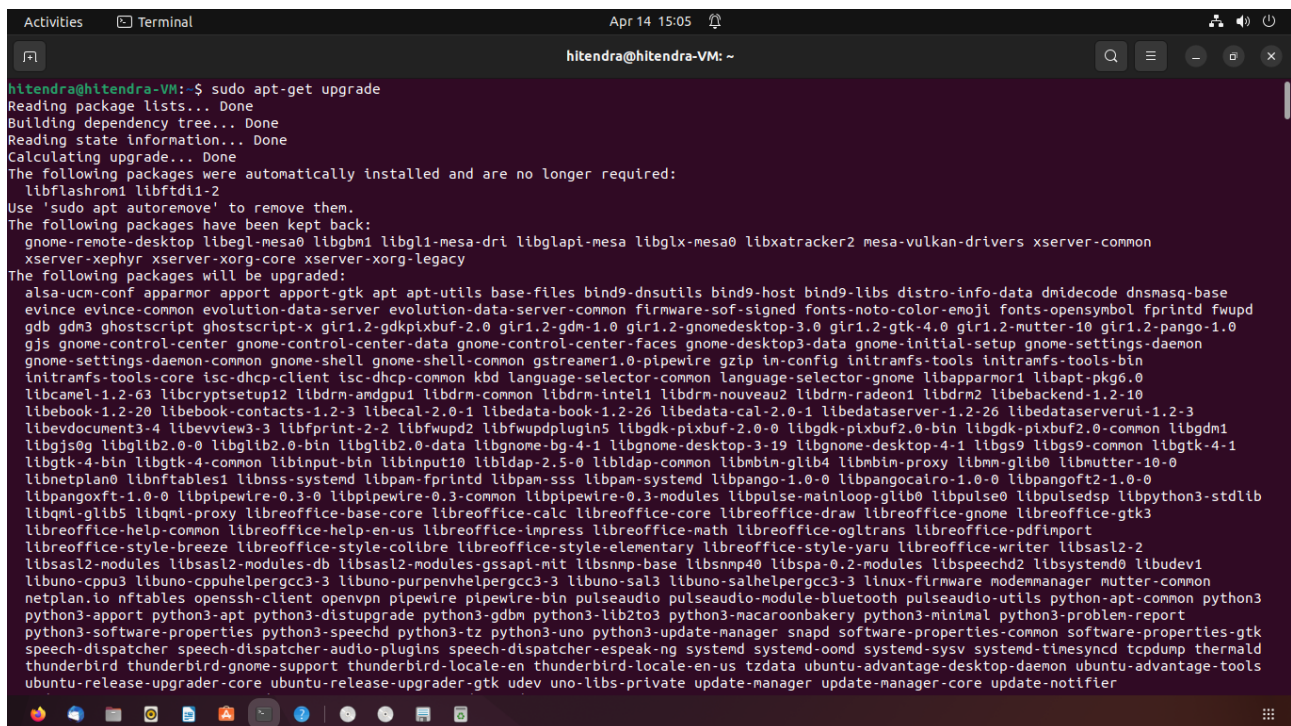
apt-get: This is used to manage packages on Debian-based systems like Ubuntu. For Red Hat-based systems like CentOS ‘yum’ is used. We are having Ubuntu here so will go with apt-get.

1. `sudo apt-get update`: To update package index on your system to ensure you have the latest package information.



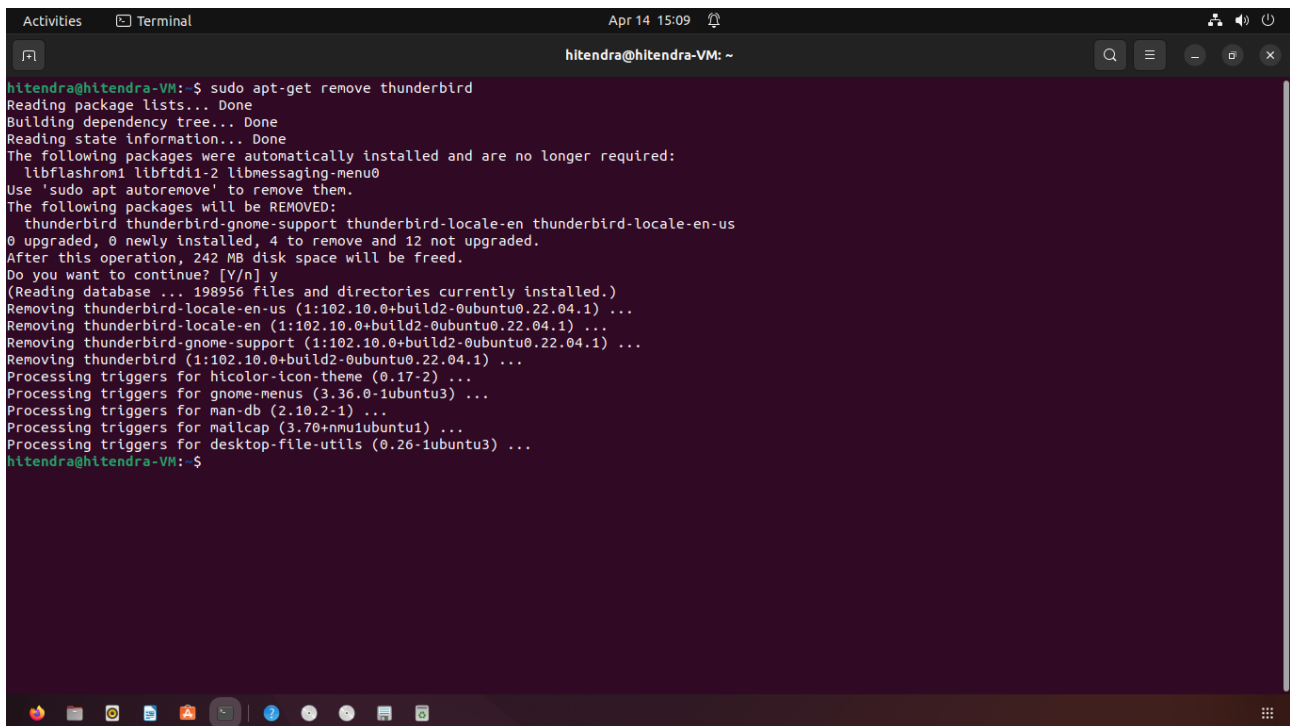
```
hitendra@hitendra-VM: ~  
$ sudo apt-get update  
Hit:1 http://in.archive.ubuntu.com/ubuntu jammy InRelease  
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]  
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]  
Get:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease [108 kB]  
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [731 kB]  
Get:6 http://in.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [471 kB]  
Get:7 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [996 kB]  
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [280 kB]  
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metadata [41.6 kB]  
Get:10 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [9,028 B]  
Get:11 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [717 kB]  
Get:12 http://in.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [212 kB]  
Get:13 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metadata [102 kB]  
Get:14 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [14.0 kB]  
Get:15 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages [608 kB]  
Get:16 http://security.ubuntu.com/ubuntu jammy-security/universe i386 Packages [520 kB]  
Get:17 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [118 kB]  
Get:18 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 Metadata [18.5 kB]  
Get:19 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [14.2 kB]  
Get:20 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [900 kB]  
Get:21 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [180 kB]  
Get:22 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11 Metadata [269 kB]  
Get:23 http://in.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [18.6 kB]  
Get:24 http://in.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-11 Metadata [940 B]  
Get:25 http://in.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [40.9 kB]  
Get:26 http://in.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [10.2 kB]  
Get:27 http://in.archive.ubuntu.com/ubuntu jammy-backports/main amd64 DEP-11 Metadata [7,968 B]  
Get:28 http://in.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-11 Metadata [12.5 kB]  
Fetched 6,627 kB in 7s (913 kB/s)  
Reading package lists... Done  
hitendra@hitendra-VM: $
```

2. `sudo apt-get upgrade`: To upgrades all installed packages to the latest version.



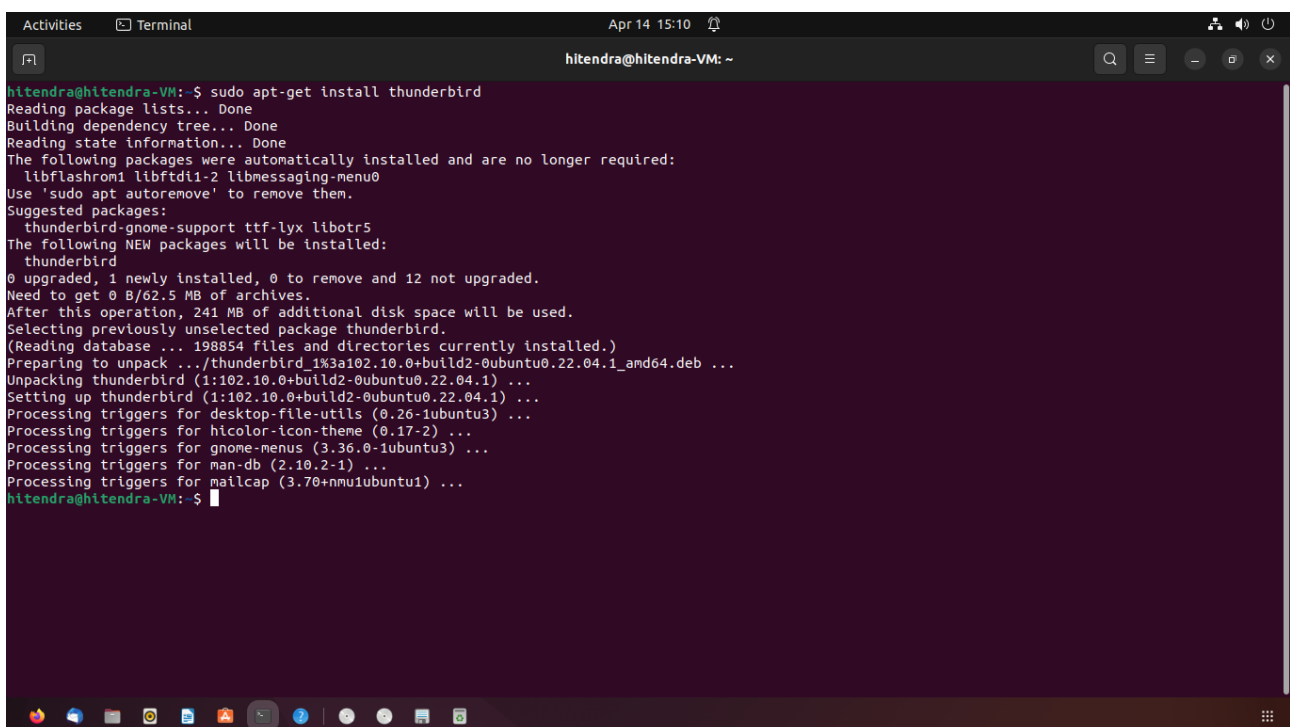
```
hitendra@hitendra-VM: ~  
$ sudo apt-get upgrade  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
Calculating upgrade... Done  
The following packages were automatically installed and are no longer required:  
  libflashrom1 libbfd11.2  
Use 'sudo apt autoremove' to remove them.  
The following packages have been kept back:  
  gnome-remote-desktop libegl-mesa0 libgbm1 libgl1-mesa-dri libglapi-mesa libglx-mesa0 libxatracker2 mesa-vulkan-drivers xserver-common  
  xserver-xephyr xserver-xorg-core xserver-xorg-legacy  
The following packages will be upgraded:  
  alsa-ucm-conf apparmor apport apport-gtk apt apt-utils base-files bind9-dnswriter bind9-host bind9-libs distro-info-data dmidecode dnsmasq-base  
  evince evince-common evolution-data-server evolution-data-server-common firmware-sof-signed fonts-noto-color-emoji fonts-opensymbol fprintd fwupd  
  gdb gdm3 ghostscript ghostscript-x gir1.2-gdkpixbuf-2.0 gir1.2-gdm-1.0 gir1.2-gnome-desktop-3.0 gir1.2-gtk-4.0 gir1.2-mutter-10 gir1.2-pango-1.0  
  gjs gnome-control-center gnome-control-center-data gnome-control-center-faces gnome-desktop3-data gnome-initial-setup gnome-settings-daemon  
  gnome-settings-daemon-common gnome-shell gnome-shell-common gstreamer1.0-pipewire gzip in-config iniframfs-tools iniframfs-tools-bin  
  iniframfs-tools-core isc-dhcp-client isc-dhcp-common kbd language-selector-common language-selector-gnome libapparmor1 libapt-pkg6.0  
  libcamel-1.2-63 libcryptsetup12 libdrm-amdgpu1 libdrm-common libdrm-intel1 libdrm-nouveau2 libdrm-radeon1 libdrm2 libebc1.2-10  
  libebook-1.2-20 libebook-contacts-1.2-3 libecal-2.0-1 libedata-book-1.2-26 libedata-cal-2.0-1 libedataserver-1.2-26 libedataserverui-1.2-3  
  libevdocument3-4 libevview3-3 libfprint-2-2 libfwupd2 libfwupdplugin5 libgdk-pixbuf-2.0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgdm1  
  libgjs0g libgl1.2-0 libgl1.2-0-bin libgl1.2-0-data libgnome-bg-4-1 libgnome-desktop-3-19 libgnome-desktop-4-1 libgs9 libgs9-common libgtk-4-1  
  libgtk-4-bin libgtk-4-common libinput-bin libinput10 libldap-2.5-0 libldap-common libmbim-glib4 libmbim-proxy libmm-glib0 libmutter-10-0  
  libnetplan0 libnftables1 libnss-systemd libpam-fprintd libpam-sssd libpam-systemd libpango-1.0-0 libpangocairo-1.0-0 libpangoft2-1.0-0  
  libpangoxft-1.0-0 libpipewire-0.3-0 libpipewire-0.3-common libpipewire-0.3-modules libpulse-mainloop-glib0 libpulse0 libpulsedsp libpython3-stdlib  
  libqmi-glib5 libqmi-proxy libreoffice-base-core libreoffice-calc libreoffice-core libreoffice-draw libreoffice-gnome libreoffice-gtk3  
  libreoffice-help-common libreoffice-help-en-us libreoffice-impress libreoffice-math libreoffice-ogltrans libreoffice-pdfimport  
  libreoffice-style-breeze libreoffice-style-colibre libreoffice-style-elementary libreoffice-style-yaru libreoffice-writer libras2-2  
  libras2-modules libras2-modules-db libras2-modules-gssapi-mit libras2-modules-libsnp40 libraspa-0.2-modules librspeechd2 libsystemd0 libudev1  
  libuno-cppu3 libuno-cppuhelpergcc3-3 libuno-purpnhelpergcc3-3 libuno-sal3 libuno-salhelpergcc3-3 linux-firmware modemmanager mutter-common  
  netplan.io nftables openssh-client openvpn pipewire pipewire-bin pulseaudio pulseaudio-module-bluetooth pulseaudio-utils python-apt-common python3  
  python3-appport python3-apt python3-distupgrad python3-gdm python3-lib2to3 python3-macaronbakery python3-minimal python3-problem-report  
  python3-software-properties python3-speechd python3-tz python3-uno python3-update-manager snapd software-properties-common software-properties-gtk  
  speech-dispatcher speech-dispatcher-audio-plugins speech-dispatcher-espeak-ng systemd systemd-oom systemd-sysv systemd-timesyncd tcpdump thermald  
  thunderbird thunderbird-gnome-support thunderbird-locale-en thunderbird-locale-en-us tzdata ubuntu-advantage-desktop-daemon ubuntu-advantage-tools  
  ubuntu-release-upgrader-core ubuntu-release-upgrader-gtk udev uno-libs-private update-manager update-manager-core update-notifier  
hitendra@hitendra-VM: ~
```

3. sudo dnf remove <package-name>: Removing installed package from system.



```
hitendra@hitendra-VM: ~  
$ sudo apt-get remove thunderbird  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  libflashrom1 libftdi1-2 libmessaging-menu0  
Use 'sudo apt autoremove' to remove them.  
The following packages will be REMOVED:  
  thunderbird thunderbird-gnome-support thunderbird-locale-en thunderbird-locale-en-us  
0 upgraded, 0 newly installed, 4 to remove and 12 not upgraded.  
After this operation, 242 MB disk space will be freed.  
Do you want to continue? [Y/n] y  
(Reading database ... 198956 files and directories currently installed.)  
Removing thunderbird-locale-en-us (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Removing thunderbird-locale-en (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Removing thunderbird-gnome-support (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Removing thunderbird (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...  
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...  
hitendra@hitendra-VM: $
```

4. sudo dnf install <package-name>: Installing package into system



```
hitendra@hitendra-VM: ~  
$ sudo apt-get install thunderbird  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  libflashrom1 libftdi1-2 libmessaging-menu0  
Use 'sudo apt autoremove' to remove them.  
Suggested packages:  
  thunderbird-gnome-support ttf-lyx libotr5  
The following NEW packages will be installed:  
  thunderbird  
0 upgraded, 1 newly installed, 0 to remove and 12 not upgraded.  
Need to get 0 B/62.5 MB of archives.  
After this operation, 241 MB of additional disk space will be used.  
Selecting previously unselected package thunderbird.  
(Reading database ... 198854 files and directories currently installed.)  
Preparing to unpack .../thunderbird_1%3a102.10.0+build2-0ubuntu0.22.04.1_amd64.deb ...  
Unpacking thunderbird (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Setting up thunderbird (1:102.10.0+build2-0ubuntu0.22.04.1) ...  
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...  
hitendra@hitendra-VM: $
```

Networking commands:

1. iconfig

```
Activities Terminal Apr 14 15:29
hitendra@hitendra-VM: ~

hitendra@hitendra-VM:~$ iconfig
Command 'iconfig' not found, but can be installed with:
sudo apt install ipmiutil
hitendra@hitendra-VM:~$ sudo apt install ipmiutil
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 libmessaging-menu0
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  rpcbind
The following NEW packages will be installed:
  ipmiutil rpcbind
0 upgraded, 2 newly installed, 0 to remove and 12 not upgraded.
Need to get 483 kB of archives.
After this operation, 1,384 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 rpcbind amd64 1.2.6-2build1 [46.6 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 ipmiutil amd64 3.1.8-1 [436 kB]
Fetched 483 kB in 2s (245 kB/s)
Selecting previously unselected package rpcbind.
(Reading database ... 198945 files and directories currently installed.)
Preparing to unpack .../rpcbind_1.2.6-2build1_amd64.deb ...
Unpacking rpcbind (1.2.6-2build1) ...
Selecting previously unselected package ipmiutil.
Preparing to unpack .../ipmiutil_3.1.8-1_amd64.deb ...
Unpacking ipmiutil (3.1.8-1) ...
Setting up rpcbind (1.2.6-2build1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/rpcbind.service → /lib/systemd/system/rpcbind.service.
Created symlink /etc/systemd/system/sockets.target.wants/rpcbind.socket → /lib/systemd/system/rpcbind.socket.
Setting up ipmiutil (3.1.8-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ipmiutil_wdt.service → /lib/systemd/system/ipmiutil_wdt.service.
Processing triggers for man-db (2.10.2-1) ...
hitendra@hitendra-VM:~$ iconfig
ipmiutil config ver 3.18
Cannot map memory.
Cannot open an IPMI driver: /dev/inb, /dev/ipmi0, /dev/ipmi0,
or direct driverless.
ipmiutil config, cannot open IPMI driver
hitendra@hitendra-VM:~$
```

2.ping

```
Activities Terminal Apr 14 15:33
hitendra@hitendra-VM: ~

hitendra@hitendra-VM:~$ ping google.com
PING google.com (142.250.192.78) 56(84) bytes of data.
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=1 ttl=128 time=11.6 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=2 ttl=128 time=14.8 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=3 ttl=128 time=11.6 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=4 ttl=128 time=12.1 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=5 ttl=128 time=18.8 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=6 ttl=128 time=13.6 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=7 ttl=128 time=13.7 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=8 ttl=128 time=12.8 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=9 ttl=128 time=12.9 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=10 ttl=128 time=14.0 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=11 ttl=128 time=13.0 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=12 ttl=128 time=14.9 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=13 ttl=128 time=29.1 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=14 ttl=128 time=14.1 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=15 ttl=128 time=13.8 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=16 ttl=128 time=12.4 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=17 ttl=128 time=12.2 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=18 ttl=128 time=13.9 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=19 ttl=128 time=15.8 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=20 ttl=128 time=13.0 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=21 ttl=128 time=15.6 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=22 ttl=128 time=12.1 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=23 ttl=128 time=12.3 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=24 ttl=128 time=13.1 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=25 ttl=128 time=13.4 ms
64 bytes from bom12s16-in-f14.1e100.net (142.250.192.78): icmp_seq=26 ttl=128 time=13.9 ms
^C
--- google.com ping statistics ---
26 packets transmitted, 26 received, 0% packet loss, time 2504ms
rtt min/avg/max/mdev = 11.590/14.170/29.065/3.333 ms
hitendra@hitendra-VM:~$
```


3. whois

```
Activities Terminal Apr 14 15:55
hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ whois yahoo.com
Domain Name: YAHOO.COM
Registry Domain ID: 3643624_DOMAIN_COM-VRSN
Registrar WHOIS Server: whois.markmonitor.com
Registrar URL: http://www.markmonitor.com
Updated Date: 2023-02-03T18:07:10Z
Creation Date: 1995-01-18T05:00:00Z
Registry Expiry Date: 2024-01-19T05:00:00Z
Registrar: MarkMonitor Inc.
Registrar IANA ID: 292
Registrar Abuse Contact Email: abusecomplaints@markmonitor.com
Registrar Abuse Contact Phone: +1.2086851750
Domain Status: clientDeleteProhibited https://icann.org/epp#clientDeleteProhibited
Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited
Domain Status: clientUpdateProhibited https://icann.org/epp#clientUpdateProhibited
Domain Status: serverDeleteProhibited https://icann.org/epp#serverDeleteProhibited
Domain Status: serverTransferProhibited https://icann.org/epp#serverTransferProhibited
Domain Status: serverUpdateProhibited https://icann.org/epp#serverUpdateProhibited
Name Server: NS1.YAHOO.COM
Name Server: NS2.YAHOO.COM
Name Server: NS3.YAHOO.COM
Name Server: NS4.YAHOO.COM
Name Server: NS5.YAHOO.COM
DNSSEC: unsigned
URL of the ICANN Whois Inaccuracy Complaint Form: https://www.icann.org/wicf/
>>> Last update of whois database: 2023-04-14T10:05:00Z <<<

For more information on Whois status codes, please visit https://icann.org/epp

NOTICE: The expiration date displayed in this record is the date the
registrar's sponsorship of the domain name registration in the registry is
currently set to expire. This date does not necessarily reflect the expiration
date of the domain name registrant's agreement with the sponsoring
registrar. Users may consult the sponsoring registrar's Whois database to
view the registrar's reported date of expiration for this registration.
```

htop commands

```
Activities Terminal Apr 14 15:39 hitendra@hitendra-VM: ~  
hitendra@hitendra-VM:~$ htop  
Command 'htop' not found, but can be installed with:  
sudo snap install htop # version 3.2.2, or  
sudo apt install htop # version 3.0.5-7build2  
See 'snap info htop' for additional versions.  
hitendra@hitendra-VM:~$ sudo snap install htop # version 3.2.2  
htop 3.2.2 from MaxMillano Bertacchini (maxiberta) installed  
hitendra@hitendra-VM:~$ htop  
locales-launch: Data of en IN locale not found. generating. please wait...
```

The screenshot shows a Linux terminal window with the title bar "Activities Terminal" and the system clock "Apr 14 15:38". The terminal prompt is "hitendra@hitendra-VM: ~".

At the top, system statistics are displayed:

- 0% CPU usage
- 1% Memory usage
- Mem: 2.47G/3.80G
- Swap: 408M/3.35G
- 3.0% Tasks: 134, 470 thr, 177 kthr; 1 running
- 13.9% Load average: 1.13 0.99 1.00
- Uptime: 03:42:51

Below the statistics, a table of running processes is shown, with columns for PID, USER, PRI, NI, VIRT, RES, SHR, S, CPU%, MEM%, TIME+, and Command.

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
1939	hitendra	20	0	4609M	376M	84580	S	4.2	9.7	19:00.87	/usr/bin/gnome-shell
104988	hitendra	20	0	6316	5172	3248	R	12.1	0.1	0:02.24	/snap/htop/3654/usr/local/bin/htop
1974	hitendra	20	0	4609M	376M	84580	S	1.8	9.7	6:43.02	/usr/bin/gnome-shell
1975	hitendra	20	0	4609M	376M	84580	S	1.8	9.7	6:28.24	/usr/bin/gnome-shell
2863	hitendra	20	0	560M	38128	28220	S	0.6	1.0	0:33.42	/usr/libexec/gnome-terminal-server
2234	hitendra	20	0	368M	26024	15400	S	0.0	0.7	0:28.71	/usr/bin/vmtoolsd -n vmusr --blockFd 3 --uinptFd 4
76386	hitendra	20	0	2581M	118M	53292	S	0.6	3.1	1:30.83	/snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 11 -isForBrowser -
76813	hitendra	20	0	2823M	266M	95964	S	0.6	6.8	0:29.41	/snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 11 -isForBrowser -
76822	hitendra	20	0	2823M	266M	95964	S	0.0	6.8	0:00.42	/snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 13 -isForBrowser -
94496	systemd-oo	20	0	14828	5408	4608	S	0.6	0.1	0:07.03	/lib/systemd/systemd-oomd
1	root	20	0	164M	12424	7348	S	0.0	0.3	0:34.72	/lib/systemd/systemd auto noprompt splash --system --deserialize 25
399	root	20	0	148M	256	24	S	0.0	0.0	0:00.00	vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
400	root	20	0	148M	256	24	S	0.0	0.0	0:00.00	vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
401	root	20	0	148M	256	24	S	0.0	0.0	0:00.00	vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
639	root	20	0	62392	5572	4404	S	0.0	0.1	0:00.08	/usr/bin/VGAuthService
644	root	20	0	318M	5256	4204	S	0.6	0.1	0:34.51	/usr/bin/vmtoolsd
678	root	20	0	2422M	6624	5952	S	0.0	0.2	0:01.23	/usr/libexec/accounts-daemon
679	root	20	0	2812	1132	1048	S	0.0	0.0	0:01.16	/usr/sbin/acpid
683	avahi	20	0	7624	3116	2776	S	0.0	0.1	0:00.48	avahi-daemon: running [hitendra-VM.local]
685	root	20	0	10148	2896	2652	S	0.0	0.1	0:00.06	/usr/sbin/cron -f -P
686	messagebus	20	0	11140	6152	3660	S	0.0	0.2	0:12.84	@dbus-daemon -system --address=systemd: --nofork --nopidfile --systemd-activation
687	root	20	0	736M	11520	8548	S	0.0	0.3	0:04.08	/usr/sbin/NetworkManager --no-daemon
694	root	20	0	82828	3624	3300	S	0.0	0.1	0:02.34	/usr/sbin/lrqlbalance --foreground
697	root	20	0	49684	10148	6592	S	0.0	0.3	0:00.68	/usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
702	root	20	0	247M	14228	6596	S	0.0	0.4	0:14.10	/usr/libexec/polkitd --no-debug
705	root	20	0	242M	5972	5476	S	0.0	0.1	0:00.19	/usr/libexec/power-profiles-daemon
706	syslog	20	0	217M	4192	3700	S	0.0	0.1	0:00.48	/usr/sbin/rsyslogd -n -iNONE

At the bottom, a list of keyboard shortcuts is shown: F1Help, F2Setup, F3Search, F4Filter, F5Tree, F6SortBy, F7Nice, F8Vice, F9Kill, F10Quit.

htop -s PERCENT_CPU

```
Activities Terminal Apr 14 15:43 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ htop -s PERCENT_CPU

0[|||||] 7.2% Tasks: 134, 480 thr, 178 kthr; 1 running
1[|||||] 4.5% Load average: 2.12 1.41 1.14
Mem[|||||] 2.50G/3.80G Uptime: 03:48:11
Swp[|||||] 396M/3.35G

Main I/O
PID USER PRI NI VIRT RES SHR S CPU%-MEM% TIME+ Command
105197 hitendra 20 0 2484M 168M 91264 S 0.8 4.3 0:16.40 /snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 27 -isForBrowser -
105326 hitendra 20 0 6312 5084 3188 R 7.9 0.1 0:01.21 /snap/htop/3654/usr/local/bin/htop -s PERCENT_CPU
1939 hitendra 20 0 4613M 381M 84816 S 3.4 9.8 19:58.35 /usr/bin/gnome-shell
105284 hitendra 20 0 2484M 168M 91264 S 0.0 4.3 0:00.64 /snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 27 -isForBrowser -
1974 hitendra 20 0 4613M 381M 84816 S 0.4 9.8 7:04.47 /usr/bin/gnome-shell
1975 hitendra 20 0 4613M 381M 84816 S 0.4 9.8 6:48.63 /usr/bin/gnome-shell
3051 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 6:11.55 /snap/firefox/2559/usr/lib/firefox/firefox
76813 hitendra 20 0 2825M 273M 95980 S 0.0 7.0 0:31.82 /snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 13 -isForBrowser -
105206 hitendra 20 0 2484M 168M 91264 S 0.0 4.3 0:00.19 /snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 27 -isForBrowser -
105283 hitendra 20 0 2484M 168M 91264 S 0.0 4.3 0:00.65 /snap/firefox/2559/usr/lib/firefox/firefox -contentproc -childID 27 -isForBrowser -
1 root 20 0 164M 12376 7348 S 0.0 0.3 0:34.80 /lib/systemd/systemd auto noprompt splash --system --deserialize 25
399 root 20 0 148M 256 24 S 0.0 0.0 0:00.00 vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
400 root 20 0 148M 256 24 S 0.0 0.0 0:00.00 vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
401 root 20 0 148M 256 24 S 0.0 0.0 0:00.00 vmware-vmblock-fuse /run/vmblock-fuse -o rw,subtype=vmware-vmblock,default_permissi
639 root 20 0 62392 5564 4396 S 0.0 0.1 0:00.08 /usr/bin/VGAuthService
644 root 20 0 318M 5796 4608 S 0.8 0.1 0:35.49 /usr/bin/vmtoolsd
678 root 20 0 242M 6620 5952 S 0.0 0.2 0:01.29 /usr/libexec/accounts-daemon
679 root 20 0 2812 1132 1048 S 0.0 0.0 0:01.19 /usr/sbin/acpid
683 avahi 20 0 7624 3112 2772 S 0.0 0.1 0:00.60 avahi-daemon: running [hitendra-VM.local]
685 root 20 0 18148 2896 2652 S 0.0 0.1 0:00.06 /usr/sbin/cron -f -P
686 messagebus 20 0 11140 6144 3652 S 0.0 0.2 0:13.04 @dbus-daemon --system --address=systemd: --nofork --nopidfile --systemd-activation
687 root 20 0 736M 12528 9480 S 0.0 0.3 0:04.27 /usr/sbin/NetworkManager --no-daemon
694 root 20 0 82828 3624 3300 S 0.0 0.1 0:02.40 /usr/sbin/lrqlbalance --foreground
697 root 20 0 49684 10096 6576 S 0.0 0.3 0:00.68 /usr/bin/python3 /usr/bin/networkd-dispatcher --run-startup-triggers
702 root 20 0 247M 14220 6588 S 0.0 0.4 0:14.11 /usr/libexec/polkitd --no-debug
705 root 20 0 242M 5968 5476 S 0.0 0.1 0:00.19 /usr/libexec/power-profiles-daemon
706 syslog 20 0 217M 4184 3692 S 0.0 0.1 0:00.56 /usr/sbin/rsyslogd -n -iNONE

F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Vice F9Kill F10Quit
```

htop -s PERCENT_MEM

```
Activities Terminal Apr 14 15:46 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ htop -s PERCENT_MEM

0[|||||] 1.8% Tasks: 134, 474 thr, 176 kthr; 2 running
1[|||||] 8.1% Load average: 1.21 1.15 1.08
Mem[|||||] 2.47G/3.80G Uptime: 03:50:51
Swp[|||||] 396M/3.35G

Main I/O
PID USER PRI NI VIRT RES SHR S CPU% MEM%- TIME+ Command
1939 hitendra 20 0 4625M 393M 84856 S 2.2 10.1 20:40.16 /usr/bin/gnome-shell
1949 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.64 /usr/bin/gnome-shell
1951 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:09.37 /usr/bin/gnome-shell
1952 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.11 /usr/bin/gnome-shell
1974 hitendra 20 0 4625M 393M 84856 S 0.4 10.1 7:20.01 /usr/bin/gnome-shell
1975 hitendra 20 0 4625M 393M 84856 S 0.4 10.1 7:03.73 /usr/bin/gnome-shell
1976 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.00 /usr/bin/gnome-shell
1977 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.00 /usr/bin/gnome-shell
1978 hitendra 39 19 4625M 393M 84856 S 0.0 10.1 0:00.00 /usr/bin/gnome-shell
1986 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:17.47 /usr/bin/gnome-shell
1991 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.96 /usr/bin/gnome-shell
1992 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.96 /usr/bin/gnome-shell
2428 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.00 /usr/bin/gnome-shell
24311 hitendra 20 0 4625M 393M 84856 S 0.0 10.1 0:00.25 /usr/bin/gnome-shell
76503 hitendra 20 0 1276M 293M 86836 S 0.0 7.5 5:16.00 /usr/lib/libreoffice/program/soffice.bin --writer
76506 hitendra 20 0 1276M 293M 86836 S 0.0 7.5 0:00.00 /usr/lib/libreoffice/program/soffice.bin --writer
76507 hitendra 20 0 1276M 293M 86836 S 0.0 7.5 0:00.00 /usr/lib/libreoffice/program/soffice.bin --writer
76509 hitendra 20 0 1276M 293M 86836 S 0.0 7.5 0:00.00 /usr/lib/libreoffice/program/soffice.bin --writer
76510 hitendra 20 0 1276M 293M 86836 S 0.0 7.5 0:00.02 /usr/lib/libreoffice/program/soffice.bin --writer
3051 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 6:13.11 /snap/firefox/2559/usr/lib/firefox/firefox
3210 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:13.57 /snap/firefox/2559/usr/lib/firefox/firefox
3211 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:14.49 /snap/firefox/2559/usr/lib/firefox/firefox
3212 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:03.31 /snap/firefox/2559/usr/lib/firefox/firefox
3213 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:00.11 /snap/firefox/2559/usr/lib/firefox/firefox
3214 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:14.83 /snap/firefox/2559/usr/lib/firefox/firefox
3215 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:11.05 /snap/firefox/2559/usr/lib/firefox/firefox
3217 hitendra 20 0 11.9G 285M 109M S 0.0 7.3 0:00.00 /snap/firefox/2559/usr/lib/firefox/firefox

F1Help F2Setup F3Search F4Filter F5Tree F6SortBy F7Nice F8Vice F9Kill F10Quit
```


iostat commands

iostat

```
hitendra@hitendra-VM: ~$ iostat
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
            9.09    5.14    7.66    0.10    0.00   78.01

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
fd0                0.00         0.00         0.00         0.00         32         0
loop0              0.00         0.00         0.00         0.00         21         0
loop1              0.00         0.02         0.00         0.00         358         0
loop10             0.13         4.66         0.00         0.00        67883         0
loop11             0.01         0.05         0.00         0.00         685         0
loop12             0.00         0.00         0.00         0.00         61         0
loop13             0.00         0.03         0.00         0.00         377         0
loop14             0.20        10.19         0.00         0.00       148484         0
loop15             0.01         0.12         0.00         0.00         1763         0
loop2              0.04         0.74         0.00         0.00       10770         0
loop3              0.03         0.46         0.00         0.00         6735         0
loop4              0.00         0.08         0.00         0.00         1128         0
loop5              0.00         0.07         0.00         0.00         1079         0
loop6              0.09         1.18         0.00         0.00       17170         0
loop7              0.15         0.70         0.00         0.00       10193         0
loop8              0.29         4.69         0.00         0.00       68322         0
loop9              0.00         0.03         0.00         0.00         376         0
sda               20.20       363.33      1205.34         0.00    5296729    17571633
sr0                0.01         0.33         0.00         0.00         4756         0
sr1                0.01         0.23         0.00         0.00         3396         0

hitendra@hitendra-VM: ~$
```

iostat -x

```
hitendra@hitendra-VM: ~$ iostat -x
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
            9.14    5.10    7.64    0.10    0.00   78.01

Device            d_await dareq-sz    r/s    rkB/s    rrrqm/s    %rrqm    r_await rareq-sz    w/s    kB/s    wrqm/s    %wrqm    w_await wareq-sz    d/s    kB/s    drqm/s    %drqm
fd0                0.00      0.00    0.00    0.00    0.00    0.00    56.50     4.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop0              0.00      0.00    0.00    0.00    0.00    0.00    0.20     1.40    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop1              0.00      0.00    0.00    0.02    0.00    0.00    1.98     7.62    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop10             0.00      0.00    0.00    0.00    0.00    0.00    0.67    36.30    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop11             0.00      0.01    0.05    0.05    0.00    0.00    0.70     8.90    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop12             0.00      0.00    0.00    0.00    0.00    0.00    0.45     2.77    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop13             0.00      0.00    0.03    0.03    0.00    0.00    0.70     8.20    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop14             0.00      0.20    10.11    0.00    0.00    0.00    0.72    50.78    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop15             0.00      0.01    0.12    0.00    0.00    0.00    0.14    17.46    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop2              0.00      0.04    0.73    0.00    0.00    0.00    1.21    17.04    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop3              0.00      0.03    0.46    0.00    0.00    0.00    1.59    14.77    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop4              0.00      0.00    0.08    0.00    0.00    0.00    1.89    17.09    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop5              0.00      0.00    0.07    0.00    0.00    0.00    3.67    18.60    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop6              0.00      0.09    1.17    0.00    0.00    0.00    0.73    13.27    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
```

iostat -c and iostat-d

```
Activities Terminal Apr 14 16:00
hitendra@hitendra-VM: ~

hitendra@hitendra-VM:~$ iostat -c
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

avg-cpu:  %user   %nice %system %iwait  %steal   %idle
           9.15    5.09    7.63    0.10    0.00   78.02

hitendra@hitendra-VM:~$ iostat -d
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
rd0                0.00         0.00         0.00         0.00         32         0         0
loop0              0.00         0.00         0.00         0.00         21         0         0
loop1              0.00         0.02         0.00         0.00         358         0         0
loop10             0.13         4.61         0.00         0.00        67883         0         0
loop11             0.01         0.05         0.00         0.00         685         0         0
loop12             0.00         0.00         0.00         0.00         61         0         0
loop13             0.00         0.03         0.00         0.00         377         0         0
loop14             0.20        10.08         0.00         0.00       148484         0         0
loop15             0.01         0.12         0.00         0.00        1763         0         0
loop2              0.04         0.73         0.00         0.00       10770         0         0
loop3              0.03         0.46         0.00         0.00        6735         0         0
loop4              0.00         0.08         0.00         0.00        1128         0         0
loop5              0.00         0.07         0.00         0.00        1079         0         0
loop6              0.09         1.17         0.00         0.00       17170         0         0
loop7              0.15         0.69         0.00         0.00       10193         0         0
loop8              0.29         4.64         0.00         0.00       68322         0         0
loop9              0.00         0.03         0.00         0.00         376         0         0
sda               20.07        360.34       1193.93         0.00     5306209     17581249         0
sr0               0.01         0.32         0.00         0.00         4756         0         0
sr1               0.01         0.23         0.00         0.00         3404         0         0

hitendra@hitendra-VM:~$
```

iostat -xd

```
Activities Terminal Apr 14 16:02
hitendra@hitendra-VM: ~

hitendra@hitendra-VM:~$ iostat -xd
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

Device            r/s    rKB/s    rrrqm/s    %rrqm    r_await    rareq-sz    w/s    wKB/s    wrqm/s    %wrqm    w_await    wareq-sz    d/s    dKB/s    drqm/s    %drqm
d_await dareq-sz
rd0              0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop0            0.00    0.00    0.00    0.00    0.00    0.00    0.20    1.40    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop1            0.00    0.00    0.02    0.00    0.00    0.00    1.98    7.62    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop10           0.13    4.59    0.00    0.00    0.00    0.00    0.67    36.30    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop11           0.01    0.05    0.00    0.00    0.00    0.00    0.70    8.90    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop12           0.00    0.00    0.00    0.00    0.00    0.00    0.45    2.77    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop13           0.00    0.03    0.00    0.00    0.00    0.00    0.70    8.20    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop14           0.20    10.03    0.00    0.00    0.00    0.00    0.72    50.78    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop15           0.01    0.12    0.00    0.00    0.00    0.00    0.14    17.46    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop2            0.04    0.73    0.00    0.00    0.00    0.00    1.21    17.04    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop3            0.03    0.45    0.00    0.00    0.00    0.00    1.59    14.77    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop4            0.00    0.08    0.00    0.00    0.00    0.00    1.89    17.09    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop5            0.00    0.07    0.00    0.00    0.00    0.00    3.67    18.60    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop6            0.09    1.16    0.00    0.00    0.00    0.00    0.73    13.27    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop7            0.15    0.69    0.00    0.00    0.00    0.00    0.17    4.69    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
  0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
loop8            0.29    4.62    0.00    0.00    0.00    0.00    0.62    15.98    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
```

iostat -k

```
Activities Terminal Apr 14 16:03 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ iostat -k
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           9.19    5.03    7.59    0.10    0.00   78.08

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
fd0                0.00         0.00         0.00         0.00         32         0         0
loop0              0.00         0.00         0.00         0.00         21         0         0
loop1              0.00         0.02         0.00         0.00         358         0         0
loop10             0.13         4.56         0.00         0.00       67883         0         0
loop11             0.01         0.05         0.00         0.00         685         0         0
loop12             0.00         0.00         0.00         0.00         61         0         0
loop13             0.00         0.03         0.00         0.00         377         0         0
loop14             0.20         9.97         0.00         0.00     148484         0         0
loop15             0.01         0.12         0.00         0.00         1763         0         0
loop2              0.04         0.72         0.00         0.00     10770         0         0
loop3              0.03         0.45         0.00         0.00         6735         0         0
loop4              0.00         0.08         0.00         0.00         1128         0         0
loop5              0.00         0.07         0.00         0.00         1079         0         0
loop6              0.09         1.15         0.00         0.00         17170         0         0
loop7              0.15         0.68         0.00         0.00         10193         0         0
loop8              0.29         4.59         0.00         0.00         68322         0         0
loop9              0.00         0.03         0.00         0.00         376         0         0
sda                19.90       356.41     1181.25         0.00    5307493    17590681         0
sr0                0.01         0.32         0.00         0.00         4756         0         0
sr1                0.01         0.23         0.00         0.00         3404         0         0

hitendra@hitendra-VM:~$
```

iostat -p

```
Activities Terminal Apr 14 16:11 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ iostat -p
Linux 5.19.0-38-generic (hitendra-VM) 14/04/23 _x86_64_ (2 CPU)

avg-cpu:  %user   %nice %system %iowait  %steal   %idle
           9.40    4.87    7.49    0.10    0.00   78.14

Device            tps    kB_read/s    kB_wrtn/s    kB_dscd/s    kB_read    kB_wrtn    kB_dscd
loop0              0.00         0.00         0.00         0.00         21         0         0
loop1              0.00         0.02         0.00         0.00         358         0         0
loop2              0.04         0.70         0.00         0.00     10770         0         0
loop3              0.03         0.44         0.00         0.00         6735         0         0
loop4              0.00         0.07         0.00         0.00         1128         0         0
loop5              0.00         0.07         0.00         0.00         1079         0         0
loop6              0.08         1.12         0.00         0.00         17170         0         0
loop7              0.14         0.66         0.00         0.00         10193         0         0
fd0                0.00         0.00         0.00         0.00         32         0         0
sda                19.50       345.31     1147.42         0.00    5313045    17654497         0
sda1               0.01         0.02         0.00         0.00         364         0         0
sda2               0.01         0.44         0.00         0.00         6800         1         0
sda3               19.46       344.59     1147.42         0.00    5301977    17654444         0
sda4               0.00         0.01         0.00         0.00         144         0         0
sr0                0.01         0.31         0.00         0.00         4756         0         0
sr1                0.01         0.22         0.00         0.00         3404         0         0
loop8              0.28         4.44         0.00         0.00         68322         0         0
loop9              0.00         0.02         0.00         0.00         376         0         0
loop10             0.12         4.41         0.00         0.00       67883         0         0
loop12             0.00         0.00         0.00         0.00         61         0         0
loop11             0.01         0.04         0.00         0.00         685         0         0
loop13             0.00         0.02         0.00         0.00         377         0         0
loop14             0.19         9.65         0.00         0.00     148484         0         0
loop15             0.01         0.11         0.00         0.00         1763         0         0

hitendra@hitendra-VM:~$
```

iostat -n

```
Activities Terminal Apr 14 16:12 hitendra@hitendra-VM: ~
hitendra@hitendra-VM:~$ iostat -n
Usage: iostat [ options ] [ <interval> [ <count> ] ]
Options are:
[ -c ] [ -d ] [ -h ] [ -k ] [ -m ] [ -N ] [ -s ] [ -t ] [ -V ] [ -x ] [ -y ] [ -z ]
[ { -f | +f } <directory> ] [ -j { ID | LABEL | PATH | UUID | ... } ]
[ --dec={ 0 | 1 | 2 } ] [ --human ] [ --pretty ] [ -o JSON ]
[ [ -H ] -g <group_name> ] [ -p [ <device> [,...] | ALL ] ]
[ <device> [...] | ALL ]
hitendra@hitendra-VM:~$
```