

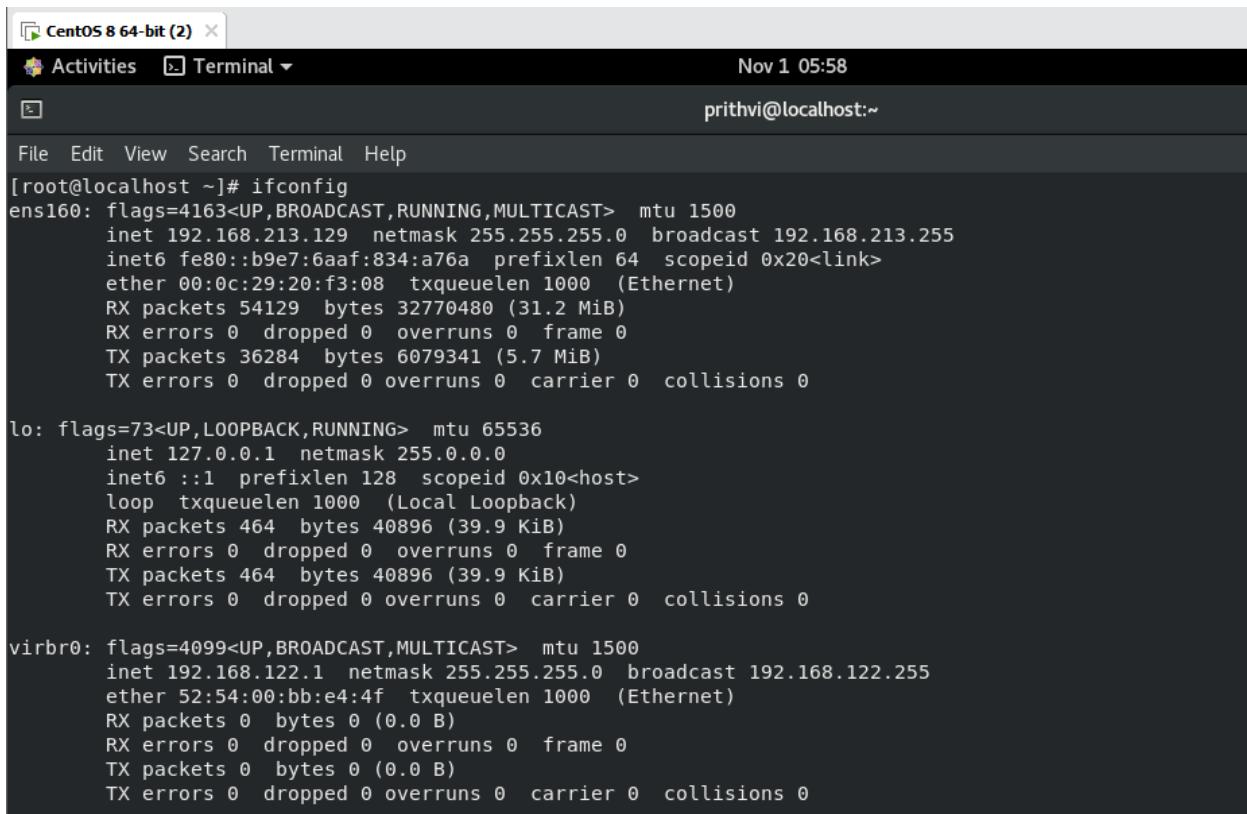
Module:-COSA(Concept Of Operating System And Administration)

Date:- 31/10/2022

Assignment :- 05

Name:- Prauthviraj Nikam

16.ifconfig :- Ifconfig is used to configure the kernel-resident network interfaces. It is used at boot time to set up interfaces as necessary. After that, it is usually only needed when debugging or when system tuning is needed. If no arguments are given, ifconfig displays the status of the currently active interfaces. If a single interface argument is given, it displays the status of the given interface only; if a single -a argument is given, it displays the status of all interfaces, even those that are down. Otherwise, it configures an interface.



The screenshot shows a terminal window titled "CentOS 8 64-bit (2)" running on a desktop environment. The terminal window has a dark theme with white text. At the top, there's a header bar with icons for Activities and Terminal, and the date and time "Nov 1 05:58". Below the header, the terminal prompt is "prithvi@localhost:~". The main area of the terminal shows the output of the "ifconfig" command:

```
[root@localhost ~]# ifconfig
ens160: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.213.129 netmask 255.255.255.0 broadcast 192.168.213.255
        inet6 fe80::b9e7:6aaf:834:a76a prefixlen 64 scopeid 0x20<link>
            ether 00:0c:29:20:f3:08 txqueuelen 1000 (Ethernet)
            RX packets 54129 bytes 32770480 (31.2 MiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 36284 bytes 6079341 (5.7 MiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
        inet6 ::1 prefixlen 128 scopeid 0x10<host>
            loop txqueuelen 1000 (Local Loopback)
            RX packets 464 bytes 40896 (39.9 KiB)
            RX errors 0 dropped 0 overruns 0 frame 0
            TX packets 464 bytes 40896 (39.9 KiB)
            TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
        ether 52:54:00:bb:e4:4f txqueuelen 1000 (Ethernet)
        RX packets 0 bytes 0 (0.0 B)
        RX errors 0 dropped 0 overruns 0 frame 0
        TX packets 0 bytes 0 (0.0 B)
        TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

17.pqos:-

```
[root@localhost ~]# pqos
bash: pqos: command not found...
Install package 'intel-cmt-cat' to provide command 'pqos'? [N/y] y

* Waiting in queue...
The following packages have to be installed:
 intel-cmt-cat-4.0.0-0.el8.x86_64      Provides command line interface to CMT, MBM, CA
T, CDP and MBA technologies
Proceed with changes? [N/y] y

* Waiting in queue...
* Waiting for authentication...
* Waiting in queue...
* Downloading packages...
* Requesting data...
* Testing changes...
* Installing packages...
NOTE: Mixed use of MSR and kernel interfaces to manage
      CAT or CMT & MBM may lead to unexpected behavior.
WARN: CPUID.0x7.0: Monitoring capability not supported!
WARN: Cache allocation not supported on model name 'Intel(R) Core(TM) i7-8700 CPU @ 3.2
GHz'!
ERROR: RDMSR failed for reg[0xc94] on lcore 0
Monitoring capability not detected!
```

```
[root@localhost ~]# pqos
NOTE: Mixed use of MSR and kernel interfaces to manage
      CAT or CMT & MBM may lead to unexpected behavior.
WARN: CPUID.0x7.0: Monitoring capability not supported!
WARN: Cache allocation not supported on model name 'Intel(R) Core(TM) i7-8700 CPU @ 3.2
GHz'!
ERROR: RDMSR failed for reg[0xc94] on lcore 0
Monitoring capability not detected!
```

18. tune:- tuned is a dynamic adaptive system tuning daemon that tunes system settings dynamically depending on usage.

```
[root@localhost ~]# tuned
2022-11-01 06:15:29,534 INFO      tuned.daemon.application: dynamic tuning is globally disabled
2022-11-01 06:15:29,558 INFO      tuned.daemon.daemon: using sleep interval of 1 second(s)
2022-11-01 06:15:29,563 INFO      tuned.daemon.daemon: Running in automatic mode, checking what profile is recommended for your
configuration.
2022-11-01 06:15:32,609 INFO      tuned.daemon.daemon: Using 'virtual-guest' profile
2022-11-01 06:15:32,616 INFO      tuned.profiles.loader: loading profile: virtual-guest
2022-11-01 06:15:32,717 INFO      tuned.daemon.controller: starting controller
2022-11-01 06:15:32,718 INFO      tuned.daemon.daemon: starting tuning
2022-11-01 06:15:32,864 INFO      tuned.plugins.base: instance cpu: assigning devices cpu0
2022-11-01 06:15:32,900 INFO      tuned.plugins.plugin_cpu: We are running on an x86 GenuineIntel platform
2022-11-01 06:15:32,957 WARNING    tuned.plugins.plugin_cpu: your CPU doesn't support MSR_IA32_ENERGY_PERF_BIAS, ignoring CPU ene
rgy performance bias
2022-11-01 06:15:33,034 INFO      tuned.plugins.base: instance disk: assigning devices dm-0
2022-11-01 06:15:33,111 INFO      tuned.plugins.plugin_sysctl: reapplying system sysctl
2022-11-01 06:15:33,123 INFO      tuned.daemon.daemon: static tuning from profile 'virtual-guest' applied
```

19. /proc/net/snmp:-

```
[root@localhost ~]# cat /proc/net/snmp
Ip: Forwarding DefaultTTL InReceives InHdrErrors InAddrErrors FwdmDatagrams InUnknownProtos InDiscards InDelivers OutRequests 0
utDiscards OutNoRoutes ReasmTimeout ReasmReqds ReasmOKs ReasmFails FragOKs FragFails FragCreates
Ip: 1 64 40121 0 1 0 0 0 38463 37113 127 247 0 0 0 0 0 0
Icmp: InMsgs InErrors InCsumErrors InDestUnreachs InTimeExcds InParmProbs InSrcQuenches InRedirects InEchos InEchoReps InTimestamps
InTimestampReps InAddrMasks InAddrMaskReps OutMsgs OutErrors OutDestUnreachs OutTimeExcds OutParmProbs OutSrcQuenches OutRed
irects OutEchos OutEchoReps OutTimestamps OutTimestampReps OutAddrMasks OutAddrMaskReps
Icmp: 2946 132 0 2946 0 0 0 0 0 0 0 0 265 0 265 0 0 0 0 0 0 0 0 0 0
IcmpMsg: InType3 OutType3
IcmpMsg: 2946 265
Tcp: RtoAlgorithm RtoMin RtoMax MaxConn ActiveOpens PassiveOpens AttemptFails EstabResets CurrEstab InSegs OutSegs RetransSegs
InErrs OutRsts InCsumErrors
Tcp: 1 200 120000 -1 624 0 13 10 5 31233 26875 26 0 77 0
Udp: InDatagrams NoPorts InErrors OutDatagrams RcvbufErrors SndbufErrors InCsumErrors IgnoredMulti
Udp: 3688 454 0 10991 0 0 0
UdpLite: InDatagrams NoPorts InErrors OutDatagrams RcvbufErrors SndbufErrors InCsumErrors IgnoredMulti
UdpLite: 0 0 0 0 0 0 0
```

20.watch:-watch runs command repeatedly, displaying its output and errors (the first screenfull). This allows you to watch the program output change over time. By default, command is run every 2 seconds and watch will run until inter - rupted.

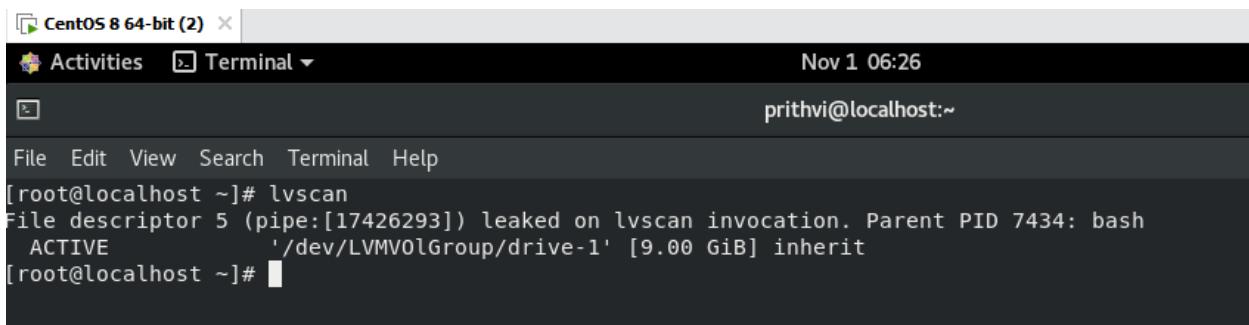
```
[root@localhost ~]# watch
Usage:
watch [options] command

Options:
  -b, --beep          beep if command has a non-zero exit
  -c, --color         interpret ANSI color and style sequences
  -d, --differences[=<permanent>]
                      highlight changes between updates
  -e, --errexit       exit if command has a non-zero exit
  -g, --chgexit       exit when output from command changes
  -n, --interval <secs> seconds to wait between updates
  -p, --precise       attempt run command in precise intervals
  -t, --no-title      turn off header
  -x, --exec          pass command to exec instead of "sh -c"

  -h, --help          display this help and exit
  -v, --version        output version information and exit

For more details see watch(1).
```

21.lvscan:-lvscan scans all VGs or all supported LVM block devices in the system for LVs. The output consists of one line for each LV indicating whether or not it is active, a snapshot or origin, the size of the device and its allocation policy. Use lvs(8) or lvdisplay(8) to obtain more comprehensive information about LVs.

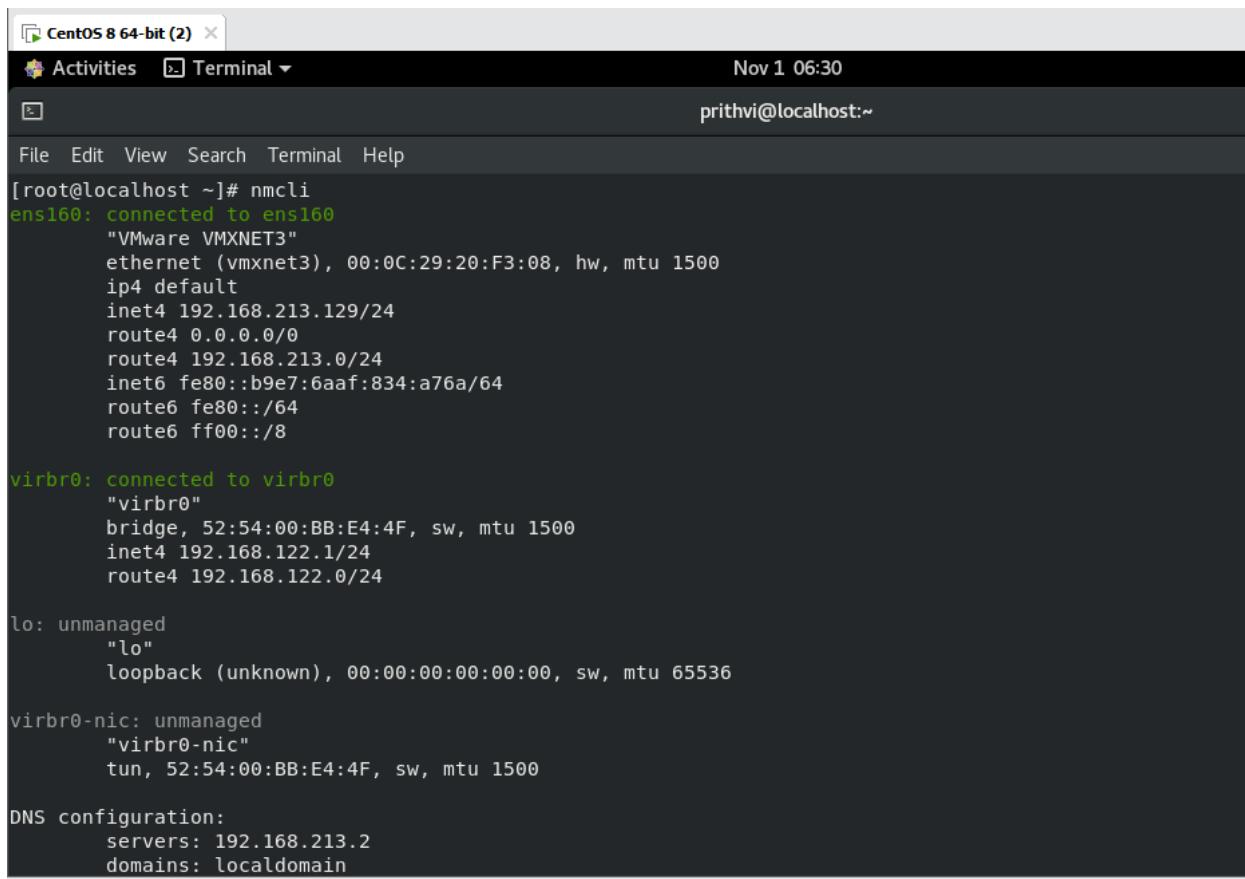


```
CentOS 8 64-bit (2) x
Activities Terminal Nov 1 06:26
prithvi@localhost:~ File Edit View Search Terminal Help
[root@localhost ~]# lvscan
File descriptor 5 (pipe:[17426293]) leaked on lvscan invocation. Parent PID 7434: bash
  ACTIVE '/dev/LVMVolGroup/drive-1' [9.00 GiB] inherit
[root@localhost ~]#
```

22.nmcli:- nmcli is a command-line tool for controlling NetworkManager and reporting network status. It can be utilized as a replacement for nm-applet or other graphical clients. nmcli is used to create, display, edit, delete, activate, and deactivate network connections, as well as control and display network device status.

Typical uses include:

- Scripts: Utilize NetworkManager via nmcli instead of managing network connections manually. nmcli supports a terse output format which is better suited for script processing. Note that NetworkManager can also execute scripts, called "dispatcher scripts", in response to network events.
- Servers, headless machines, and terminals: nmcli can be used to control NetworkManager without a GUI, including creating, editing, starting and stopping network connections and viewing network status.



The screenshot shows a terminal window titled "CentOS 8 64-bit (2)". The window title bar includes the name of the session and the number of windows. The terminal interface has a dark theme with a light-colored menu bar at the top. The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The status bar at the bottom right shows the date and time ("Nov 1 06:30") and the user's login information ("prithvi@localhost:~"). The main terminal area displays the output of the "nmcli" command. The output shows the status of various network interfaces:

```
[root@localhost ~]# nmcli
ens160: connected to ens160
    "VMware VMXNET3"
    ethernet (vmxnet3), 00:0C:29:20:F3:08, hw, mtu 1500
    ip4 default
    inet4 192.168.213.129/24
    route4 0.0.0.0/0
    route4 192.168.213.0/24
    inet6 fe80::b9e7:6aaf:834:a76a/64
    route6 fe80::/64
    route6 ff00::/8

virbr0: connected to virbr0
    "virbr0"
    bridge, 52:54:00:BB:E4:4F, sw, mtu 1500
    inet4 192.168.122.1/24
    route4 192.168.122.0/24

lo: unmanaged
    "lo"
    loopback (unknown), 00:00:00:00:00:00, sw, mtu 65536

virbr0-nic: unmanaged
    "virbr0-nic"
    tun, 52:54:00:BB:E4:4F, sw, mtu 1500

DNS configuration:
    servers: 192.168.213.2
    domains: localdomain
```

23.du:- Summarize disk usage of the set of FILES, recursively for directories.

```
prithvi@localhost:~
```

```
File Edit View Search Terminal Help
```

```
[root@localhost ~]# du
```

```
0      ./cache/libgweather
0      ./cache/evolution/addressbook/trash
0      ./cache/evolution/addressbook
0      ./cache/evolution/calendar/trash
0      ./cache/evolution/calendar
0      ./cache/evolution/mail/trash
0      ./cache/evolution/mail
0      ./cache/evolution/memos/trash
0      ./cache/evolution/memos
0      ./cache/evolution/sources/trash
0      ./cache/evolution/sources
0      ./cache/evolution/tasks/trash
0      ./cache/evolution/tasks
0      ./cache/evolution
0      ./cache/gnome-shell
7616   ./cache/tracker
0      ./cache/abrt
716    ./cache/gnome-software/fwupd/remotes.d/lvfs
716    ./cache/gnome-software/fwupd/remotes.d
716    ./cache/gnome-software/fwupd
0      ./cache/gnome-software/shell-extensions
0      ./cache/gnome-software/odrs
716    ./cache/gnome-software
552    ./cache/gstremer-1.0
0      ./cache/yelp/WebKitCache/Version 14/Blobs
4      ./cache/yelp/WebKitCache/Version 14
4      ./cache/yelp/WebKitCache
```

24.lspci:- lspci is a utility for displaying information about PCI buses in the system and devices connected to them. By default, it shows a brief list of devices. Use the options described below to request either a more verbose output or output intended for parsing by other programs.

```
prithvi@localhost:~
```

```
File Edit View Search Terminal Help
```

```
[root@localhost ~]# lspci
```

```
00:00.0 Host bridge: Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX Host bridge (rev 01)
00:01.0 PCI bridge: Intel Corporation 440BX/ZX/DX - 82443BX/ZX/DX AGP bridge (rev 01)
00:07.0 ISA bridge: Intel Corporation 82371AB/EB/MB PIIX4 ISA (rev 08)
00:07.1 IDE interface: Intel Corporation 82371AB/EB/MB PIIX4 IDE (rev 01)
00:07.3 Bridge: Intel Corporation 82371AB/EB/MB PIIX4 ACPI (rev 08)
00:07.7 System peripheral: VMware Virtual Machine Communication Interface (rev 10)
00:0f.0 VGA compatible controller: VMware SVGA II Adapter
00:11.0 PCI bridge: VMware PCI bridge (rev 02)
00:15.0 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.1 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.2 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.3 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.4 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.5 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.6 PCI bridge: VMware PCI Express Root Port (rev 01)
00:15.7 PCI bridge: VMware PCI Express Root Port (rev 01)
00:16.0 PCI bridge: VMware PCI Express Root Port (rev 01)
00:16.1 PCI bridge: VMware PCI Express Root Port (rev 01)
00:16.2 PCI bridge: VMware PCI Express Root Port (rev 01)
00:16.3 PCI bridge: VMware PCI Express Root Port (rev 01)
00:16.4 PCI bridge: VMware PCI Express Root Port (rev 01)
```

25.findmnt:-

findmnt will list all mounted filesystems or search for a filesystem. The findmnt command is able to search in /etc/fstab, /etc/mtab or /proc/self/mountinfo. If device or mountpoint is not given, all filesystems are shown. The device may be specified by device name, major:minor

numbers, filesystem label or UUID, or partition label or UUID. The command prints all mounted filesystems in the tree-like format by default.

```

[prithvi@localhost ~]# findmnt
TARGET           SOURCE      FSTYPE      OPTIONS
/               /dev/nvme0n1p3    xfs         rw,relatime,seclabel,attr2,inode64,noquota
-/sys            sysfs       sysfs       rw,nosuid,nodev,noexec,relatime,seclabel
-/sys/kernel/security securityfs securityfs   rw,nosuid,nodev,noexec,relatime
-/sys/fs/cgroup tmpfs       tmpfs       ro,nosuid,nodev,noexec,seclabel,mode=755
|--/sys/fs/cgroup/systemd cgroup     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,xattr,release_agent=/usr/lib/systemd/systemd
|--/sys/fs/cgroup/memory cgroup     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,memory
|--/sys/fs/cgroup/freezer cgroup     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,freezer
|--/sys/fs/cgroup/cpu cpuacctc cgroup     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,cpu.cpuacct
|--/sys/fs/cgroup/cpuset cpuset     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,cpuset
|--/sys/fs/cgroup/net_cls net_prio cgroup     cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,net cls.net_prio
|--/sys/fs/cgroup/rdma rdma      cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,rdma
|--/sys/fs/cgroup/pids pids      cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,pids
|--/sys/fs/cgroup/perf_event perf_event cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,perf_event
|--/sys/fs/cgroup/hugetlb hugetlb  cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,hugetlb
|--/sys/fs/cgroup/devices devices   cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,devices
|--/sys/fs/cgroup/blkio blkio    cgroup     rw,nosuid,nodev,noexec,relatime,seclabel,blkio
|--/sys/fs/pstore pstore    pstore     rw,nosuid,nodev,noexec,relatime,seclabel
|--/sys/fs/bpf bpf      bpf       rw,nosuid,nodev,noexec,relatime,mode=700
|--/sys/fs/selinux selinuxfs selinuxfs   rw,relatime
|--/sys/kernel/debug debugfs   debugfs   rw,relatime,seclabel
|--/sys/kernel/config configfs  configfs  rw,relatime
|--/sys/fs/fuse/connections fusectl   fusectl   rw,relatime
|/proc             proc      proc      rw,nosuid,nodev,noexec,relatime

```

26.blkid:- The blkid program is the command-line interface to working with the libblkid(3) library. It can determine the type of content (e.g. filesystem or swap) that a block device holds, and also the attributes (tokens, NAME=value pairs) from the content metadata (e.g. LABEL or UUID fields).

```

[prithvi@localhost ~]# blkid
/dev/nvme0n1: PTUUID="83a9e073" PTTYPE="dos"
/dev/nvme0n1p1: UUID="66bc81d8-139d-43e6-abc0-a30ad4fe1f87" TYPE="ext4" PARTUUID="83a9e073-01"
/dev/nvme0n1p2: UUID="948667ea-509d-4592-ac85-085479b515b5" TYPE="swap" PARTUUID="83a9e073-02"
/dev/nvme0n1p3: UUID="5f7d1928-2cbb-4728-86d7-59b005bd1894" TYPE="xfs" PARTUUID="83a9e073-03"
/dev/nvme0n2: UUID="M9xF1z-fnAX-GrrW-9QSR-zqpK-005w-Vf2Pst" TYPE="LVM2_member"
/dev/nvme0n3: UUID="qnfXvf-wfxY-Nxx6-OUfG-i0aW-EP3j-3u64BL" TYPE="LVM2_member"
/dev/sr0: UUID="2020-06-08-22-08-25-00" LABEL="CentOS-8-2-2004-x86_64-dvd" TYPE="iso9660" PTUUID="545ce9a4" PTTYPE="dos"
/dev/mapper/LVMVolGroup-drive--1: UUID="8ad19a75-4cb5-4602-a8ec-6514267e0dbe" TYPE="ext4"
[root@localhost ~]#

```

27.lsblk:- lsblk lists information about all available or the specified block devices. The lsblk command reads the sysfs filesystem and udev db to gather information. If the udev db is not available or lsblk is compiled without udev support than it tries to read LABELs, UUIDs and filesystem types from the block device. In this case root permission are necessary. The command prints all block devices (except RAM disks) in a tree-like format by default.

```
prithvi@localhost:~
```

```
File Edit View Search Terminal Help
[root@localhost ~]# lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0        11:0    1  7.7G  0 rom   /run/media/root/CentOS-8-2-2004-x86_64-dvd
nvme0n1    259:0    0  30G  0 disk
└─nvme0n1p1 259:1    0 300M  0 part /boot
└─nvme0n1p2 259:2    0   2G  0 part [SWAP]
└─nvme0n1p3 259:3    0 27.7G  0 part /
nvme0n2    259:4    0   5G  0 disk
└─LVMVolGroup-drive--1 253:0  0   9G  0 lvm
nvme0n3    259:5    0   5G  0 disk
└─LVMVolGroup-drive--1 253:0  0   9G  0 lvm
[root@localhost ~]#
```

28.lsusb:-lsusb is a utility for displaying information about USB buses in the system and the devices connected to them.

```
[root@localhost ~]# lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 003: ID 0e0f:0002 VMware, Inc. Virtual USB Hub
Bus 002 Device 002: ID 0e0f:0003 VMware, Inc. Virtual Mouse
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
[root@localhost ~]#
```

29.lscpu:-lscpu gathers CPU architecture information from sysfs, /proc/cpuinfo and any applicable architecture-specific libraries (e.g. librtas on Powerpc).The command output can be optimized for parsing or for easy readability by humans.The information includes, for example, the number of CPUs, threads, cores, sockets, and Non-Uniform Memory Access (NUMA) nodes.There is also information about the CPU caches and cache sharing, family, model, bogomIPS, byte order, and stepping.

```

prithvi@localhost:~#
File Edit View Search Terminal Help
[root@localhost ~]# lscpu
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                1
On-line CPU(s) list:  0
Thread(s) per core:   1
Core(s) per socket:   1
Socket(s):             1
NUMA node(s):          1
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 69
Model name:            Intel(R) Core(TM) i3-4030U CPU @ 1.90GHz
Stepping:               1
CPU MHz:               1895.615
BogoMIPS:              3791.23
Hypervisor vendor:    VMware
Virtualization type:  full
L1d cache:             32K
L1i cache:             32K
L2 cache:              256K
L3 cache:              3072K
NUMA node0 CPU(s):    0
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ss sysca

```

30.lsof:-Lsof revision 4.91 lists on its standard output file information about files opened by processes for the following

UNIX dialects:

Apple Darwin 9 and Mac OS X 10.[567]

FreeBSD 8.[234], 9.0 and 1[012].0 for AMD64-based systems

Linux 2.1.72 and above for x86-based systems

Solaris 9, 10 and 1

(See the DISTRIBUTION section of this manual page for information on how to obtain the latest lsof revision.)

```

prithvi@localhost:~#
File Edit View Search Terminal Help
e.so.0.1.1
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  1054144  1164562 /usr/lib64/libasound.so.2
.0.0
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  36824   305129 /usr/lib64/libdl-2.28.so
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  472912  334344 /usr/lib64/libpcre.so.1.2
.10
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  1833480  1126819 /usr/lib64/libgnutls.so.3
0.24.0
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  694328   387640 /usr/lib64/libvorbisenc.s
o.2.0.11
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  232392  387638 /usr/lib64/libvorbis.so.0
.4.8
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  29360   387627 /usr/lib64/libogg.so.0.8.
2
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  384072  461362 /usr/lib64/libFLAC.so.8.3
.0
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  56632   704553 /usr/lib64/libgsm.so.1.0.
17
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  21944  1457828 /usr/lib64/libpcaudio.so.
0.0.1
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  4176104  305127 /usr/lib64/libc-2.28.so
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  2714928  305131 /usr/lib64/libm-2.28.so
sd_espeak 5426 5427 sd_espeak          root  mem    REG      259,3  470312  305141 /usr/lib64/libpthread-2.2

```

31.fuser:-fuser displays the PIDs of processes using the specified files or file systems. In the default display mode, each file name is followed by a letter denoting the type of access:

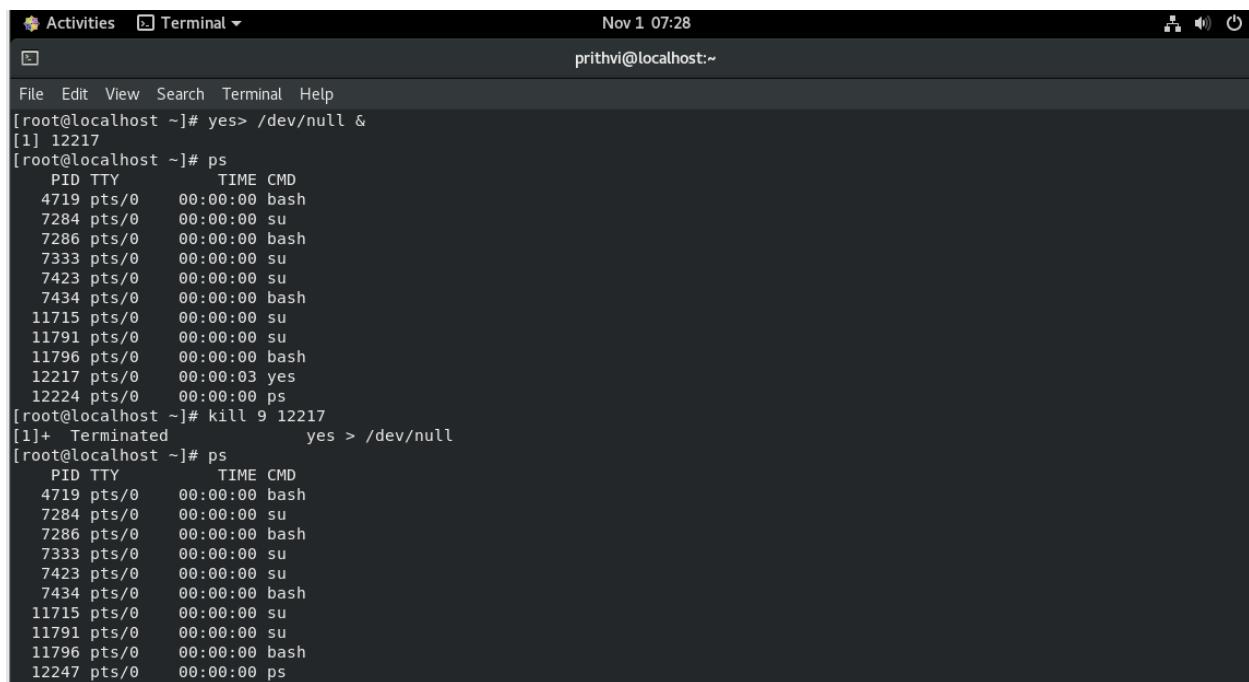
- c current directory.
- e executable being run.
- f open file. f is omitted in default display mode.
- F open file for writing. F is omitted in default display mode.
- r root directory.
- m mmap'ed file or shared library.
- . Placeholder, omitted in default display mode.

fuser returns a non-zero return code if none of the specified files is accessed or in case of a fatal error. If at least one access has been found, fuser returns zero.

32. chroot :- Run COMMAND with root directory set to NEWROOT.

33.kill:- The command kill sends the specified signal to the specified processes or process groups.

```
[root@localhost ~]# ps
  PID TTY      TIME CMD
 2684 pts/0    00:00:00 bash
 5979 pts/0    00:00:00 ps
[root@localhost ~]# kill -L
 1) SIGHUP      2) SIGINT      3) SIGQUIT      4) SIGILL      5) SIGTRAP
 6) SIGABRT     7) SIGBUS      8) SIGFPE       9) SIGKILL     10) SIGUSR1
11) SIGSEGV     12) SIGUSR2     13) SIGPIPE     14) SIGALRM     15) SIGTERM
16) SIGSTKFLT   17) SIGCHLD     18) SIGCONT     19) SIGSTOP     20) SIGTSTP
21) SIGTTIN     22) SIGTTOU     23) SIGURG      24) SIGXCPU     25) SIGXFSZ
26) SIGVTALRM   27) SIGPROF     28) SIGWINCH    29) SIGIO       30) SIGPWR
31) SIGSYS      34) SIGRTMIN    35) SIGRTMIN+1  36) SIGRTMIN+2  37) SIGRTMIN+3
38) SIGRTMIN+4  39) SIGRTMIN+5  40) SIGRTMIN+6  41) SIGRTMIN+7  42) SIGRTMIN+8
43) SIGRTMIN+9  44) SIGRTMIN+10 45) SIGRTMIN+11 46) SIGRTMIN+12 47) SIGRTMIN+13
48) SIGRTMIN+14 49) SIGRTMIN+15 50) SIGRTMAX-14 51) SIGRTMAX-13 52) SIGRTMAX-12
53) SIGRTMAX-11 54) SIGRTMAX-10 55) SIGRTMAX-9  56) SIGRTMAX-8  57) SIGRTMAX-7
58) SIGRTMAX-6  59) SIGRTMAX-5  60) SIGRTMAX-4  61) SIGRTMAX-3  62) SIGRTMAX-2
63) SIGRTMAX-1  64) SIGRTMAX
[root@localhost ~]#
```



A screenshot of a Linux terminal window titled "Activities Terminal". The window shows a terminal session with the following commands and output:

```
Nov 1 07:28
prithvi@localhost:~>

File Edit View Search Terminal Help
[root@localhost ~]# yes > /dev/null &
[1] 12217
[root@localhost ~]# ps
  PID TTY      TIME CMD
 4719 pts/0    00:00:00 bash
 7284 pts/0    00:00:00 su
 7286 pts/0    00:00:00 bash
 7333 pts/0    00:00:00 su
 7423 pts/0    00:00:00 su
 7434 pts/0    00:00:00 bash
 11715 pts/0    00:00:00 su
 11791 pts/0    00:00:00 su
 11796 pts/0    00:00:00 bash
12217 pts/0    00:00:03 yes
 12224 pts/0    00:00:00 ps
[root@localhost ~]# kill 9 12217
[1]+  Terminated                  yes > /dev/null
[root@localhost ~]# ps
  PID TTY      TIME CMD
 4719 pts/0    00:00:00 bash
 7284 pts/0    00:00:00 su
 7286 pts/0    00:00:00 bash
 7333 pts/0    00:00:00 su
 7423 pts/0    00:00:00 su
 7434 pts/0    00:00:00 bash
 11715 pts/0    00:00:00 su
 11791 pts/0    00:00:00 su
 11796 pts/0    00:00:00 bash
12247 pts/0    00:00:00 ps
```

34.df :-This manual page documents the GNU version of df. df displays the amount of disk space available on the file system containing each file name argument. If no file name is given, the space available on all currently mounted file systems is shown. Disk space is shown in 1K blocks by default, unless the environment variable `POSIXLY_CORRECT` is set, in which case 512-byte blocks are used.

Centos [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Oct 31 08:24 root@localhost:~

```

File Edit View Search Terminal Help
/dev/sda1      1038336  260160    778176  26% /boot
tmpfs         185628       32    185596   1% /run/user/0
[root@localhost ~]# ps aux
USER        PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root          1  0.0  0.5 176120  9328 ?        Ss   06:30  0:01 /usr/lib/systemd/sys
root          2  0.0  0.0     0     0 ?        S    06:30  0:00 [kthreadd]
root          3  0.0  0.0     0     0 ?        I<  06:30  0:00 [rcu_gp]
root          4  0.0  0.0     0     0 ?        I<  06:30  0:00 [rcu_par_gp]
root          6  0.0  0.0     0     0 ?        I<  06:30  0:00 [kworker/0:0H-events]
root          8  0.0  0.0     0     0 ?        I<  06:30  0:00 [mm_percpu_wq]
root          9  0.0  0.0     0     0 ?        S    06:30  0:00 [rcu_tasks_rude_]
root         10  0.0  0.0     0     0 ?        S    06:30  0:00 [rcu_tasks_trace]
root         11  0.1  0.0     0     0 ?        S    06:30  0:08 [ksoftirqd/0]
root         12  0.0  0.0     0     0 ?        I    06:30  0:00 [rcu_sched]
root         13  0.0  0.0     0     0 ?        S    06:30  0:00 [migration/0]
root         14  0.0  0.0     0     0 ?        S    06:30  0:00 [watchdog/0]
root         15  0.0  0.0     0     0 ?        S    06:30  0:00 [cpuhp/0]
root         17  0.0  0.0     0     0 ?        S    06:30  0:00 [kdevtmpfs]
root         18  0.0  0.0     0     0 ?        I<  06:30  0:00 [netns]
root         19  0.0  0.0     0     0 ?        S    06:30  0:00 [kaudit]
root         20  0.0  0.0     0     0 ?        S    06:30  0:00 [khungtaskd]
root         21  0.0  0.0     0     0 ?        S    06:30  0:00 [oom_reaper]
root         22  0.0  0.0     0     0 ?        I<  06:30  0:00 [writeback]
root         23  0.0  0.0     0     0 ?        S    06:30  0:00 [kcompactd0]
root         24  0.0  0.0     0     0 ?        SN   06:30  0:00 [ksmd]
root         25  0.0  0.0     0     0 ?        SN   06:30  0:00 [khugepaged]
root         26  0.0  0.0     0     0 ?        I<  06:30  0:00 [crypto]
root         27  0.0  0.0     0     0 ?        I<  06:30  0:00 [kintegrityd]
root         28  0.0  0.0     0     0 ?        T    06:30  0:00 [libhugetlbfs-fd0]
[root@localhost ~]# df -l
Filesystem      1K-blocks    Used Available Use% Mounted on
devtmpfs        897860        0   897860  0% /dev
tmpfs          928148        0   928148  0% /dev/shm
tmpfs          928148     9464   918684  2% /run
tmpfs          928148        0   928148  0% /sys/fs/cgroup
/dev/mapper/cs-root 34356848 7010844 27346004 21% /
/dev/mapper/cs-home 16771072 150100 16620972 1% /home
/dev/sda1       1038336  260160    778176  26% /boot
tmpfs         185628       32    185596   1% /run/user/0
[root@localhost ~]#

```

35.cockpit:- Cockpit is a web accessible interactive admin interface for Linux machines. Cockpit can usually be accessed on port 9090 of the machine it's installed on. Cockpit starts on demand. Use your system credentials to log in.

Centos [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Oct 31 08:39

root@localhost:~

```
[root@localhost ~]# dnf install cockpit
Last metadata expiration check: 1:51:43 ago on Mon 31 Oct 2022 06:43:52 AM EDT.
Package cockpit-264.1-1.el8.x86_64 is already installed.
Dependencies resolved.
=====
Package           Architecture      Version       Repository      Size
=====
Upgrading:
cockpit          x86_64          276.1-1.el8   baseos         81 k

Transaction Summary
=====
Upgrade 1 Package

Total download size: 81 k
Is this ok [y/N]: y
Downloading Packages:
cockpit-276.1-1.el8.x86_64.rpm                               102 kB/s | 81 kB     00:00
Total                                         46 kB/s | 81 kB     00:01

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing :                                                 1/1
  Upgrading : cockpit-276.1-1.el8.x86_64                      1/2
  Cleanup   : cockpit-264.1-1.el8.x86_64                      2/2
```

Centos [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Activities Terminal Oct 31 08:40

root@localhost:~

```
File Edit View Search Terminal Help
Running transaction
Preparing           : 1/1
Upgrading          : cockpit-276.1-1.el8.x86_64 1/2
Cleanup            : cockpit-264.1-1.el8.x86_64 2/2
Running scriptlet: cockpit-264.1-1.el8.x86_64 2/2
Verifying          : cockpit-276.1-1.el8.x86_64 1/2
Verifying          : cockpit-264.1-1.el8.x86_64 2/2

Upgraded:
cockpit-276.1-1.el8.x86_64

Complete!
[root@localhost ~]# systemctl start cockpit
[root@localhost ~]# systemctl status cockpit
● cockpit.service - Cockpit Web Service
  Loaded: loaded (/usr/lib/systemd/system/cockpit.service; static; vendor preset: disabled)
  Active: active (running) since Mon 2022-10-31 08:37:48 EDT; 13s ago
    Docs: man:cockpit-ws(8)
  Process: 6695 ExecStartPre=/usr/libexec/cockpit-certificate-ensure --for-cockpit-tls>
 Main PID: 6721 (cockpit-tls)
   Tasks: 1 (limit: 11222)
  Memory: 2.2M
  CGroup: /system.slice/cockpit.service
          └─6721 /usr/libexec/cockpit-tls

Oct 31 08:37:47 localhost.localdomain systemd[1]: Starting Cockpit Web Service...
Oct 31 08:37:48 localhost.localdomain systemd[1]: Started Cockpit Web Service.
lines 1-13/13 (END)
```

