

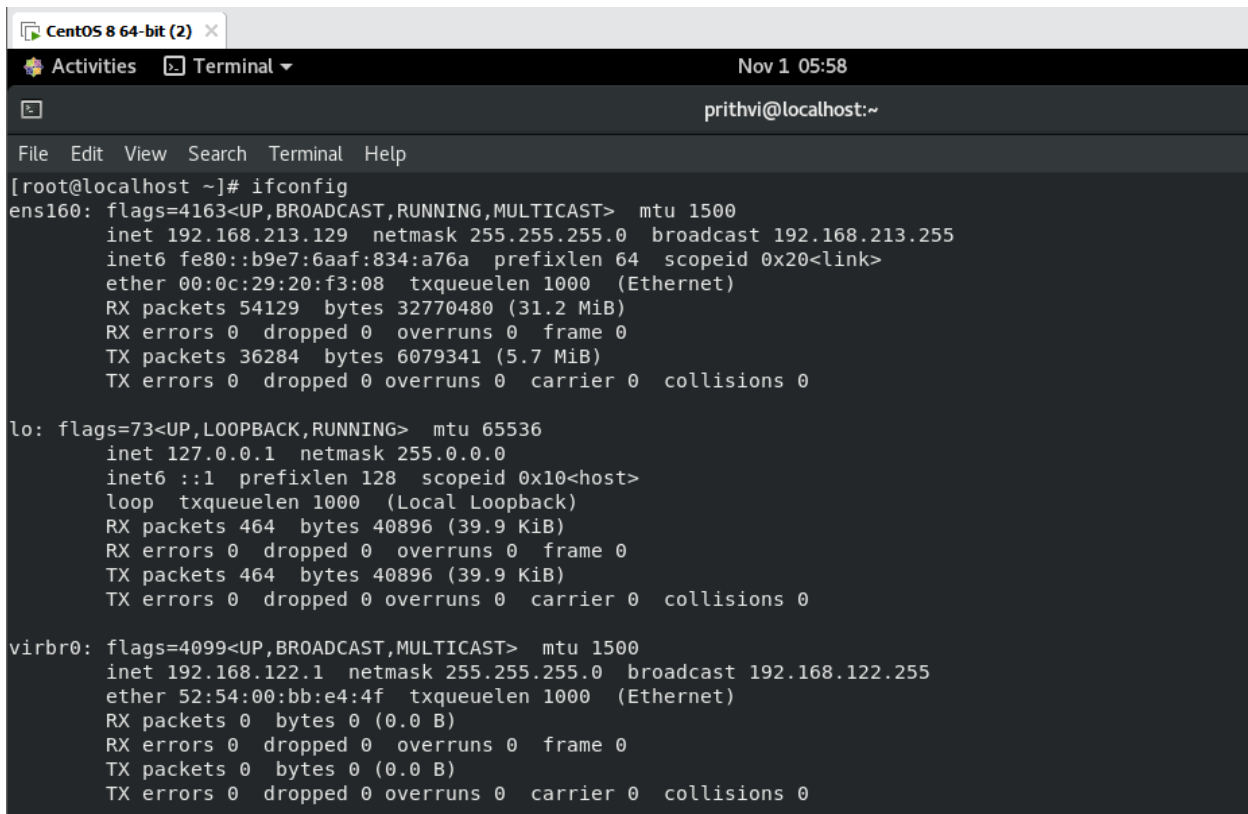
## Module:-COSA(Concept Of Operating System And Administration)

Date:- 31/10/2022

Assignment :- 05

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**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.



```
CentOS 8 64-bit (2) x
Activities Terminal Nov 1 05:58
prithvi@localhost:~
File Edit View Search Terminal Help
[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:~  
File Edit View Search Terminal Help  
[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, CAT, 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 @ 3.20GHz'!  
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 @ 3.20GHz'!  
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 energy 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 ForwDatagrams InUnknownProtos InDiscards InDelivers OutRequests OutDiscards 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 0
Icmp: InMsgs InErrors InCsumErrors InDestUnreaches InTimeExcds InParmProbs InSrcQuenchs InRedirects InEchos InEchoReps InTimestamps InTimestampReps InAddrMasks InAddrMaskReps OutMsgs OutErrors OutDestUnreaches OutTimeExcds OutParmProbs OutSrcQuenchs OutRedirects OutEchos OutEchoReps OutTimestamps OutTimestampReps OutAddrMasks OutAddrMaskReps
Icmp: 2946 132 0 2946 0 0 0 0 0 0 0 0 0 265 0 265 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 0
UdpLite: InDatagrams NoPorts InErrors OutDatagrams RcvbufErrors SndbufErrors InCsumErrors IgnoredMulti
UdpLite: 0 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.

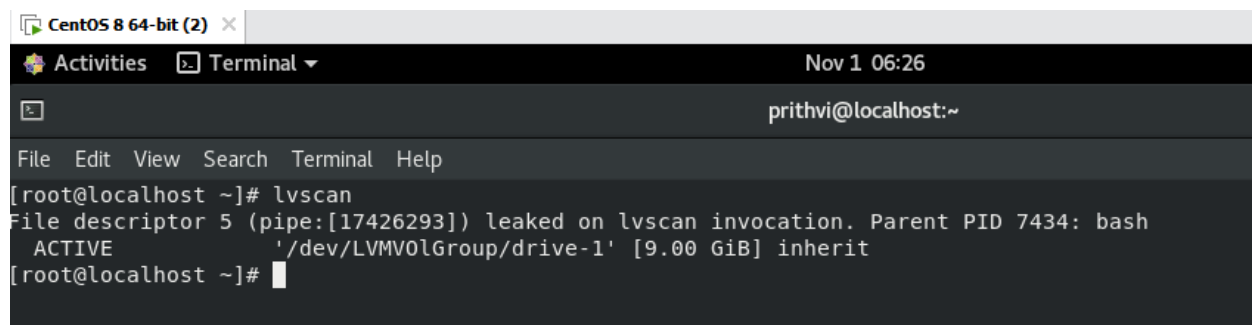
```
[root@localhost ~]# watch
Usage:
  watch [options] command

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.

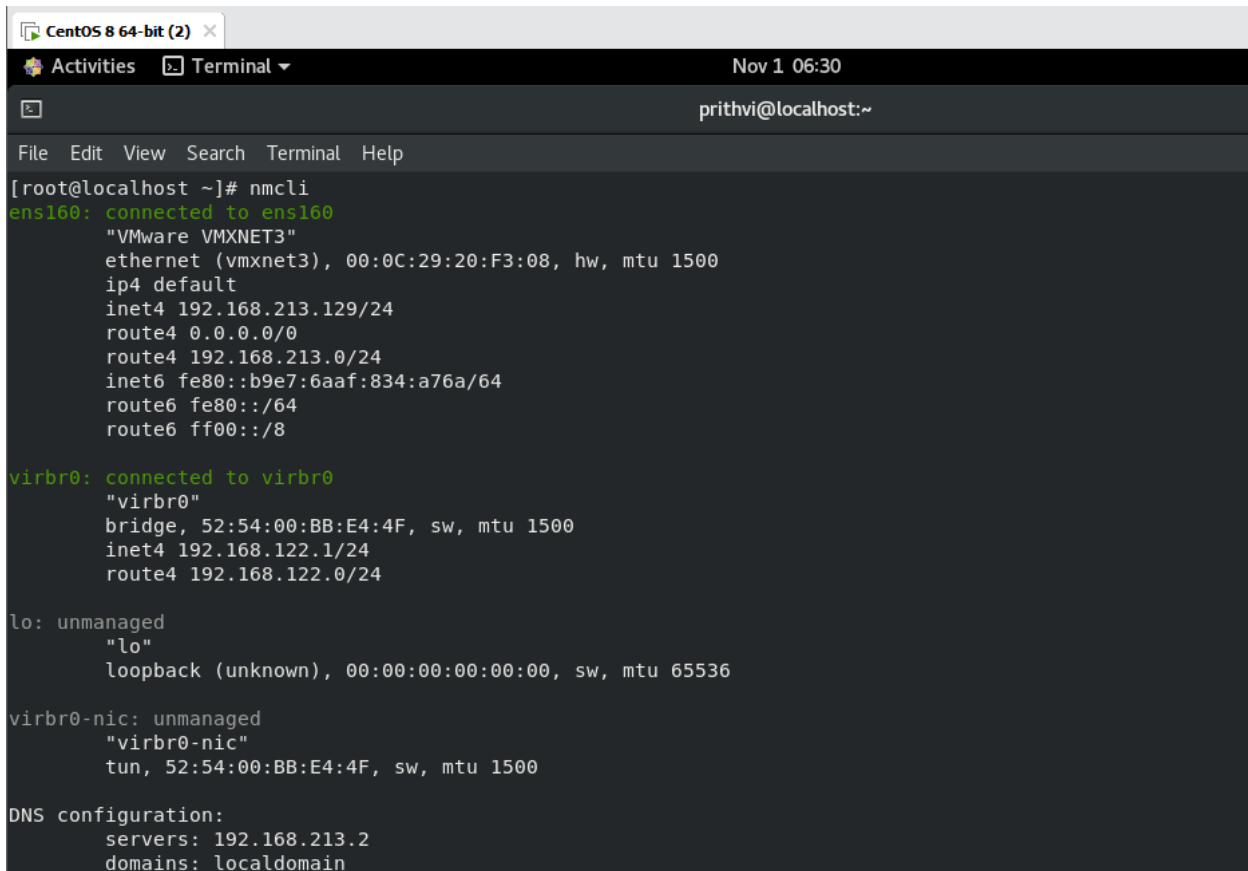


```
CentOS 8 64-bit (2) x
Activities Terminal Nov 1 06:26
prithvi@localhost:~
File Edit View Search Terminal Help
[root@localhost ~]# lvscan
File descriptor 5 (pipe:[17426293]) leaked on lvscan invocation. Parent PID 7434: bash
ACTIVE '/dev/LVMVolGroup/drive-1' [9.00 GiB] inherit
[root@localhost ~]#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

**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.



```
CentOS 8 64-bit (2) x
Activities Terminal Nov 1 06:30
prithvi@localhost:~
File Edit View Search Terminal Help
[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/gstreamer-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 out- put 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:~
File Edit View Search Terminal Help
[root@localhost ~]# findmnt
TARGET SOURCE FSTYPE OPTIONS
/ /dev/nvme0n1p3
-/sys sysfs sysfs rw,relatime,seclabel,attr2,inode64,noquota
-/sys/kernel/security securityfs securityfs rw,nosuid,nodev,noexec,relatime,seclabel
-/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/
-/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,cpuacct cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,cpu,cpuacct
-/sys/fs/cgroup/cpuset cgroup 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 cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,rdma
-/sys/fs/cgroup/pids cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,pids
-/sys/fs/cgroup/perf_event cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,perf_event
-/sys/fs/cgroup/hugetlb cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,hugetlb
-/sys/fs/cgroup/devices cgroup cgroup rw,nosuid,nodev,noexec,relatime,seclabel,devices
-/sys/fs/cgroup/blkio cgroup 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:~
File Edit View Search Terminal Help
[root@localhost ~]# blkid
/dev/nvme0n1: PTUUID="83a9e073" PTTY="dos"
/dev/nvme0n1p1: UUID="66bc81d8-139d-43e6-abc0-a30ad4fe1f87" TYPE="ext4" PARTUUID="83a9e073-01"
/dev/nvme0n1p2: UUID="948667ea-509d-4592-ac85-d85479b515b5" TYPE="swap" PARTUUID="83a9e073-02"
/dev/nvme0n1p3: UUID="5f7d1928-2cbb-4728-86d7-59b005bd1894" TYPE="xfs" PARTUUID="83a9e073-03"
/dev/nvme0n2: UUID="M9xFiz-fnAX-GrrW-9QSR-zqPK-00Sw-Vf2Psf" 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" PTTY="dos"
/dev/mapper/LVMVG01Group-drive--1: UUID="8ad19a75-4cb5-4602-a8ec-6514267e0dbe" TYPE="ext4"
[root@localhost ~]#
```

**27.lsbblk:-** 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 then 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  
└─LVMV0lGroup-drive--1 253:0    0     9G  0  lvm  
nvme0n3                            259:5    0     5G  0  disk  
└─LVMV0lGroup-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:-**scpu 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/libpcres.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  
8.50
```

**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 ~]#
```

```
Activities Terminal 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 [kauditd]
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 [kthreadd]

[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:~
File Edit View Search Terminal Help
[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)
```

