

Ex.No:1a

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Basic Networking Commands in Linux operating system

Aim:

To study and execute basic networking commands in linux operating system.

1. ls

NAME: ls - list directory contents

SYNOPSIS: ls [OPTION]... [FILE]...

DESCRIPTION: List information about the FILES (the current directory by default).

OUTPUT:

```
(JackSparrow@Captain)~$ ls
Desktop Documents Downloads Music Pictures Public Templates Videos
```

- a. **ls -a** : do not ignore entries starting with .

OUTPUT:

```
(JackSparrow@Captain)~$ ls -a
.           .bashrc      .dbus      .face      .java      .profile      Templates      .zshrc
..          .bashrc.original Desktop   .face.icon  .local    Public       Videos
.bash_history .cache      Documents  .gnupg     Music     .ssh        .Xauthority
.bash_logout  .config     Downloads  .ICEauthority Pictures  .sudo_as_admin_successful .zprofile
```

- a. **ls -l** : use a long listing format

OUTPUT:

```
(JackSparrow@Captain)~$ ls -l
total 36
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Desktop
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 29 12:46 Documents
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 18:53 Downloads
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Music
-rw----- 1 JackSparrow JackSparrow 1 Oct 2 12:31 nano.423.save
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Pictures
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Public
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Templates
drwxr-xr-x 2 JackSparrow JackSparrow 4096 Sep 28 06:51 Videos
```

1. echo

NAME: echo - display a line of text

SYNOPSIS: echo [SHORT-OPTION]... [STRING]... echo LONG-OPTION

DESCRIPTION: Echo the STRING(s) to standard output. **OUTPUT:**

```
(JackSparrow@Captain)-[~]
$ echo "hello"
hello
```

1. ps

NAME: ps - report a snapshot of the current processes. **SYNOPSIS:** ps [options]

DESCRIPTION: ps displays information about a selection of the active processes.

OUTPUT:

```
(JackSparrow@Captain)-[~]
$ ps
 PID TTY          TIME CMD
 440 pts/0        00:00:00 bash
 460 pts/0        00:00:00 ps
```

- ps -e:** See all current running processes in the system.

OUTPUT:

```
└─(JackSparrow㉿Captain)-[~]
$ ps -e
 PID TTY          TIME CMD
   1 ?        00:00:00 systemd
   2 ?        00:00:00 init-systemd(ka
   6 ?        00:00:00 init
  47 ?        00:00:00 systemd-journal
  59 ?        00:00:00 systemd-udevd
 242 ?        00:00:00 cron
 247 ?        00:00:00 dbus-daemon
 248 ?        00:00:00 polkitd
 249 ?        00:00:00 systemd-logind
 260 ?        00:00:00 lightdm
 267 hvc0      00:00:00 getty
 269 tty1      00:00:00 getty
 297 ?        00:00:00 login
 307 ?        00:00:00 systemd
 309 ?        00:00:00 (sd-pam)
 342 ?        00:00:00 dbus-daemon
 343 ?        00:00:00 pipewire
 345 ?        00:00:00 pipewire
 348 pts/1    00:00:00 bash
 354 ?        00:00:00 mpris-proxy
 356 ?        00:00:00 wireplumber
 357 ?        00:00:00 rtkit-daemon
 358 ?        00:00:00 pipewire-pulse
 438 ?        00:00:00 SessionLeader
 439 ?        00:00:00 Relay(440)
 440 pts/0    00:00:00 bash
 477 pts/0    00:00:00 ps
```

1. cat

NAME: cat - concatenate files and print on the standard output

SYNOPSIS: cat [OPTION]... [FILE]...

DESCRIPTION: Concatenate FILE(s) to standard output.

OUTPUT:

```
└─(JackSparrow㉿Captain)-[~/Documents]
$ cat test.txt
Hello World!
```

1. free

NAME: free - Display amount of free and used memory in the system

SYNOPSIS: free [options]

DESCRIPTION: free displays the total amount of free and used physical and swap memory in the system, as well as the buffers and caches used by the kernel.

OUTPUT:

```
[JackSparrow@Captain)~]$ free
              total        used        free      shared  buff/cache   available
Mem:    7990484      514864    7202472          5824      431944    7475620
Swap:  2097152          0    2097152
```

1. rm

NAME: rm - remove files or directories

SYNOPSIS: rm [OPTION]... [FILE]...

DESCRIPTION: rm removes each specified file.

OUTPUT:

```
[JackSparrow@Captain]-(~/Documents]
$ ls
test.txt

[JackSparrow@Captain]-(~/Documents]
$ rm test.txt

[JackSparrow@Captain]-(~/Documents]
$ ls

[JackSparrow@Captain]-(~/Documents]
$
```

1. top

NAME: top - display Linux processes

SYNOPSIS: top [options]

DESCRIPTION: The top program provides a dynamic real-time view of a running system.

OUTPUT:

```
(JackSparrow@Captain)-[~]
$ top
top - 12:34:01 up 4 min,  1 user,  load average: 0.00, 0.00, 0.00
Tasks: 27 total,  1 running, 26 sleeping,  0 stopped,  0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni,100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7803.2 total, 7043.6 free,   492.9 used,   421.8 buff/cache
MiB Swap: 2048.0 total, 2048.0 free,     0.0 used. 7310.3 avail Mem

      PID USER      PR  NI    VIRT    RES    SHR S %CPU %MEM TIME+ COMMAND
        1 root      20   0  23560 13392 10320 S  0.0  0.2  0:00.68 systemd
        2 root      20   0   3072  1664  1664 S  0.0  0.0  0:00.00 init-systemd(ka
       6 root      20   0   3104  2008  1920 S  0.0  0.0  0:00.01 init
      47 root      20   0  42708 15240 14216 S  0.0  0.2  0:00.19 systemd-journal
      59 root      20   0  34604 10880  8064 S  0.0  0.1  0:00.30 systemd-udevd
     242 root      20   0   4300  2560  2432 S  0.0  0.0  0:00.00 cron
    247 message+  20   0   8280  4096  3584 S  0.0  0.1  0:00.06 dbus-daemon
    248 polkitd   20   0  381480  8812  6868 S  0.0  0.1  0:00.11 polkitd
    249 root      20   0  18676  8576  7552 S  0.0  0.1  0:00.06 systemd-logind
    260 root      20   0  380880  6380  5996 S  0.0  0.1  0:00.03 lightdm
    267 root      20   0   5212  2560  2432 S  0.0  0.0  0:00.00 agetty
    269 root      20   0   5168  2432  2384 S  0.0  0.0  0:00.01 agetty
    297 root      20   0   7352  4096  3584 S  0.0  0.1  0:00.01 login
   307 JackSpa+  20   0  22744 12544  9984 S  0.0  0.2  0:00.17 systemd
   309 JackSpa+  20   0  22448  3376  1792 S  0.0  0.0  0:00.00 (sd-pam)
   342 JackSpa+  20   0   7816  3840  3584 S  0.0  0.0  0:00.03 dbus-daemon
   343 JackSpa+  20   0  94292  7680  6272 S  0.0  0.1  0:00.03 pipewire
   345 JackSpa+  20   0  82156  4864  4352 S  0.0  0.1  0:00.01 pipewire
   348 JackSpa+  20   0   5996  4992  2816 S  0.0  0.1  0:00.04 bash
   354 JackSpa+  20   0   7232  3456  3200 S  0.0  0.0  0:00.00 mpris-proxy
   356 JackSpa+  20   0  396652 13184 10624 S  0.0  0.2  0:00.09 wireplumber
   357 rtkit      21   1  21472  3072  2944 S  0.0  0.0  0:00.03 rtkit-daemon
   358 JackSpa+  20   0  96168  8064  7168 S  0.0  0.1  0:00.02 pipewire-pulse
   438 root      20   0   3076  1028   896 S  0.0  0.0  0:00.00 SessionLeader
   439 root      20   0   3092  1160  1024 S  0.0  0.0  0:00.01 Relay(440)
   440 JackSpa+  20   0   9108  5888  3456 S  0.0  0.1  0:00.04 bash
   461 JackSpa+  20   0  10408  5760  3584 R  0.0  0.1  0:00.02 top
```

1. vmstat

NAME: vmstat - Report virtual memory statistics

SYNOPSIS: vmstat [options] [delay [count]]

DESCRIPTION: vmstat reports information about processes, memory, paging, block IO, traps, disks and cpu activity

```
(JackSparrow@Captain)-[~]
$ vmstat
procs -----memory----- ---swap-- -----io---- -system-- -----cpu-----
 r b  swpd   free   buff  cache   si   so    bi    bo   in   cs us sy id wa st gu
 0 0      0 7201868  64120 367904    0    0   670    31   328    0  0  0 100  0  0  0
```

OUTPUT:

1. ping

NAME: ping - send ICMP ECHO_REQUEST to network hosts

SYNOPSIS: ping [-aAbBdCDfhHLnOqrRUvV346] [-c count] [-e identifier] [-F flowlabel] [-i interval]

[-I interface] [-l preload] [-m mark]

[-M pmtudisc_option] [-N nodeinfo_option]

[-w deadline] [-W timeout] [-p pattern] [-Q tos] [-s packetsize] [-S sndbuf] [-t ttl]

[-T timestamp option] [hop...] {destination}

DESCRIPTION: ping uses the ICMP protocol's mandatory ECHO_REQUEST datagram to elicit an ICMP ECHO_RESPONSE from a host or gateway.

OUTPUT:

```
[~] (JackSparrow@Captain)-[~]
$ ping www.google.com
PING www.google.com (142.250.182.164) 56(84) bytes of data.
64 bytes from del11s10-in-f4.1e100.net (142.250.182.164): icmp_seq=1 ttl=118 time=117 ms
64 bytes from del11s10-in-f4.1e100.net (142.250.182.164): icmp_seq=2 ttl=118 time=141 ms
64 bytes from del11s10-in-f4.1e100.net (142.250.182.164): icmp_seq=3 ttl=118 time=162 ms
64 bytes from del11s10-in-f4.1e100.net (142.250.182.164): icmp_seq=4 ttl=118 time=82.1 ms
64 bytes from del11s10-in-f4.1e100.net (142.250.182.164): icmp_seq=5 ttl=118 time=104 ms
^C
--- www.google.com ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4008ms
rtt min/avg/max/mdev = 82.117/121.295/162.443/27.972 ms
```

1. ifconfig

NAME: ifconfig - configure a network interface

SYNOPSIS: ifconfig [-v] [-a] [-s] [interface]

ifconfig [-v] interface [aftype] options | address ...

DESCRIPTION: Ifconfig is used to configure the kernel-resident network interfaces.

OUTPUT:

```
[JackSparrow@Captain)-[~]
$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1492
    inet 172.24.234.127 netmask 255.255.240.0 broadcast 172.24.239.255
        inet6 fe80::215:5dff:fe94:5568 prefixlen 64 scopeid 0x20<link>
            ether 00:15:5d:94:55:68 txqueuelen 1000 (Ethernet)
                RX packets 43 bytes 3878 (3.7 KiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 61 bytes 5238 (5.1 KiB)
                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 16 bytes 1526 (1.4 KiB)
                RX errors 0 dropped 0 overruns 0 frame 0
                TX packets 16 bytes 1526 (1.4 KiB)
                TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

Result:

Thus the above linux commands were executed.