

EXPERIMENT 2

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ROLL NO: 19C016

SUBJECT: Computer Network (CN)

YEAR: TECO

AIM:

Use basic networking commands in Linux (ping, traceroute, nslookup, netstat, ARP, RARP, ip, ifconfig, dig, route)

THEORY:

Networking commands

Every computer is connected to some other computer through a network whether internally or externally to exchange some information. This network can be small as some computers connected in your home or office, or can be large or complicated as in large University or the entire Internet.

Command	Description
ping	To check connectivity between two nodes.
traceroute	Network troubleshooting utility.
nslookup	Find DNS related query.
netstat	Display connection information.
arp	View or add contents of the kernel's ARP table.
rarp	To convert ethernet addresses to IP addresses.
ip	It is a replacement of ifconfig command.
ifconfig	Display and manipulate route and network interfaces.
dig	Query DNS related information.
route	Shows and manipulate IP routing table.

Ping

Linux ping command stands for (Packet Internet Groper). It checks connectivity between two nodes to see if a server is available. It sends ICMP ECHO_REQUEST packets to network hosts and displays the data on the remote server's response. It checks if a remote host is up, or that network interfaces can be reached. Further, it is used to check if a network connection is available between two devices. It is also handy tool for checking your network connection and verifying network issues.

Traceroute

Linux traceroute command is a network troubleshooting utility that helps us determine the number of hops and packets traveling path required to reach a destination. It is used to display how the data transmitted from a local machine to a remote machine. Loading a web page is one of the common examples of the traceroute. A web page loading transfers data through a network and routers. The traceroute can display the routes, IP addresses, and hostnames of routers over a network. It can be useful for diagnosing network issues.

Nslookup

This command is also used to find DNS related query.

Netstat

Linux netstat command stands for Network statistics. It displays information about different interface statistics, including open sockets, routing tables, and connection information. Further, it can be used to displays all the socket connections (including TCP, UDP). Apart from connected sockets, it also displays the sockets that are pending for connections. It is a handy tool for network and system administrators.

Arp

The command arp stands for Address Resolution Protocol. It allows us to view or add content into kernel's ARP table.

Rarp

RARP provides the opposite service to ARP in that it is used when only the ethernet address is known and the IP address is needed.

Ip

Linux IP command is the newer version of the ifconfig command. It is a handy tool for configuring the network interfaces for Linux administrators. It can be used to assign and remove addresses, take the interfaces up or down, and much more useful tasks.

Ifconfig

The command ifconfig stands for interface configurator. This command enables us to initialize an interface, assign IP address, enable or disable an interface. It displays route and network interface.

Dig

Linux dig command stands for Domain Information Groper. This command is used for tasks related to DNS lookup to query DNS name servers. It mainly deals with troubleshooting DNS related problems. It is a flexible utility for examining the DNS (Domain Name Servers). It is used to perform the DNS lookups and returns the queried answers from the name server. Usually, it is used by most DNS administrators to troubleshoot the DNS problems. It is a straightforward tool and provides a clear output. It is more functional than other lookups tools.

Route

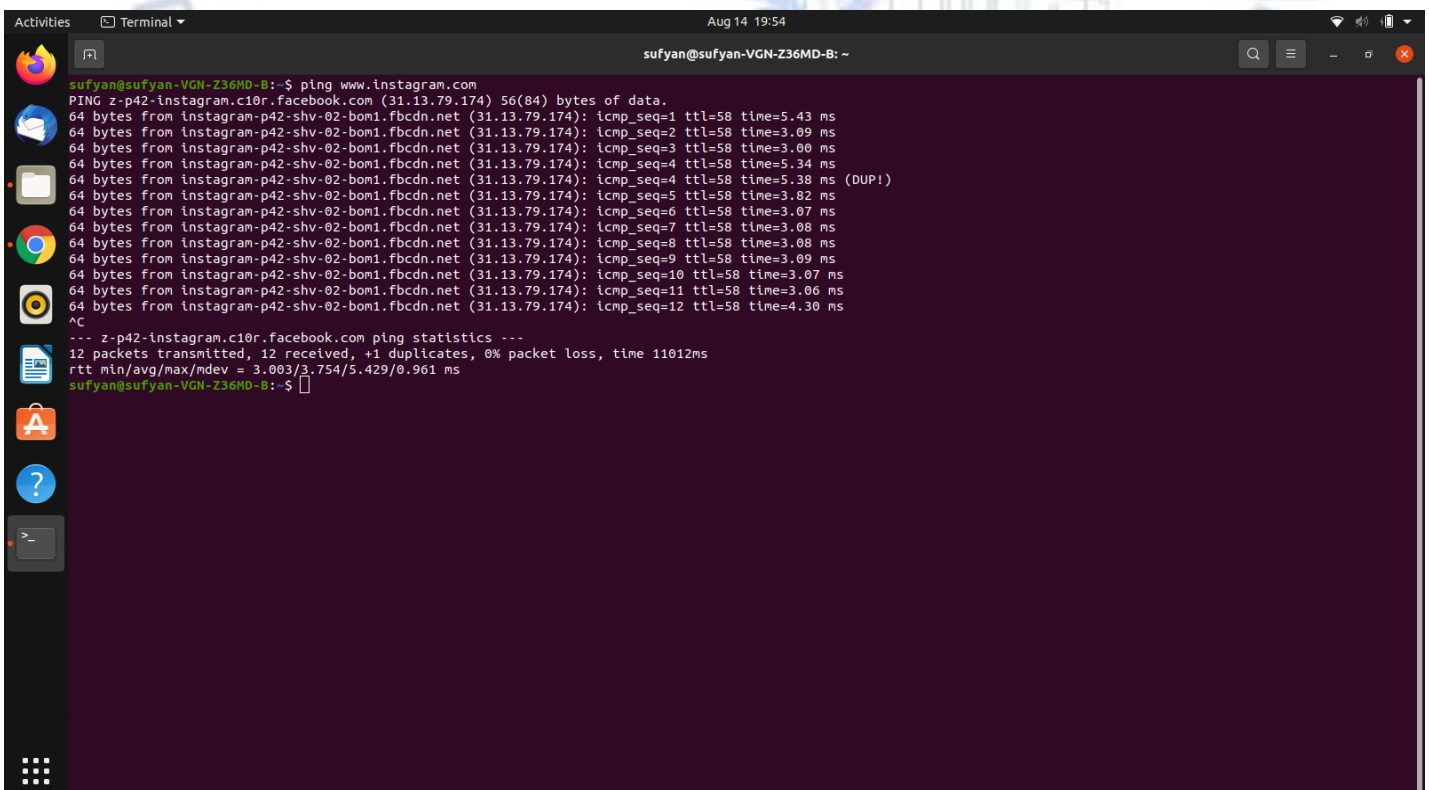
The route command displays and manipulate IP routing table for your system.

SYNTAX

1. Ping: ping <domain name>
2. Traceroute: traceroute <domain name>
3. Nslookup: nslookup <domain name>
4. Netstat: netstat -a
5. Arp: arp -a
6. Rarp: rarp -a
7. Ip: ip -a
8. Ifconfig: ifconfig -a
9. Dig: dig <domain name>
10. Route: route

APPLICATION

1. Ping



```
Activities Terminal Aug 14 19:54
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ ping www.instagram.com
PING z-p42-instagram.c10r.facebook.com (31.13.79.174) 56(84) bytes of data:
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=1 ttl=58 time=5.43 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=2 ttl=58 time=3.09 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=3 ttl=58 time=3.00 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=4 ttl=58 time=5.34 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=4 ttl=58 time=5.38 ms (DUP!)
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=5 ttl=58 time=3.82 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=6 ttl=58 time=3.07 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=7 ttl=58 time=3.08 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=8 ttl=58 time=3.08 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=9 ttl=58 time=3.09 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=10 ttl=58 time=3.07 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=11 ttl=58 time=3.06 ms
64 bytes from instagram-p42-shv-02-bom1.fbcdn.net (31.13.79.174): icmp_seq=12 ttl=58 time=4.30 ms
^C
--- z-p42-instagram.c10r.facebook.com ping statistics ---
12 packets transmitted, 12 received, +1 duplicates, 0% packet loss, time 11012ms
rtt min/avg/max/mdev = 3.003/3.754/5.429/0.961 ms
sufyan@sufyan-VGN-Z36MD-B:~$
```

2 Traceroute

```
Activities Terminal Aug 14 19:54
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ traceroute www.instagram.com
traceroute to z-p42-instagram.c10r.facebook.com (31.13.79.174), 64 hops max
 1  192.168.0.1  3.033ms  3.001ms  2.964ms
 2  *  10.10.201.8  5.544ms  3.047ms
 3  *  *  *
 4  103.87.164.106  4.449ms  5.268ms  3.167ms
 5  *  *  *
 6  157.240.68.32  6.411ms  7.355ms  5.459ms
 7  157.240.53.69  7.885ms  2.996ms  2.983ms
 8  157.240.39.201  3.002ms  2.997ms  2.971ms
 9  31.13.79.174  2.982ms  2.990ms  2.603ms
sufyan@sufyan-VGN-Z36MD-B:~$
```

3. Nslookup

```
Activities Terminal Aug 14 19:55
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ nslookup www.instagram.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
www.instagram.com canonical name = z-p42-instagram.c10r.facebook.com.
Name:   z-p42-instagram.c10r.facebook.com
Address: 31.13.79.174
Name:   z-p42-instagram.c10r.facebook.com
Address: 2a03:2880:f22f:1e5:face:b00c:0:4420
sufyan@sufyan-VGN-Z36MD-B:~$
```


4 Netstat

```
Activities Terminal Aug 14 19:59
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ netstat -a
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 localhost:domain        0.0.0.0:*               LISTEN
tcp        0      0 localhost:ipp            0.0.0.0:*              LISTEN
tcp        0      0 0.0.0.0:42726           a23-192-97-17.dep:https ESTABLISHED
tcp        0      0 0.0.0.0:41606           a23-201-47-25.dep:https ESTABLISHED
tcp        0      0 0.0.0.0:36140           a23-192-96-170.de:https ESTABLISHED
tcp        0      0 0.0.0.0:39860           bom12s17-ln-f3.1e:https ESTABLISHED
tcp        0      0 0.0.0.0:41598           a23-201-47-25.dep:https ESTABLISHED
tcp        0      0 0.0.0.0:43856           hkg12s09-ln-f8.1e:https ESTABLISHED
tcp        0      0 0.0.0.0:45708           69.173.158.67:https     TIME_WAIT
tcp        0      0 0.0.0.0:42048           bom12s17-ln-f2.1e:https ESTABLISHED
tcp        0      0 0.0.0.0:53954           bom12s01-ln-f14.1:https TIME_WAIT
tcp        0      0 0.0.0.0:34084           69.173.158.64:https     ESTABLISHED
tcp        0      0 0.0.0.0:50080           ip21.67-202-110.s:https ESTABLISHED
tcp        0      1 0.0.0.0:43146           72.251.249.9:https      LAST_ACK
tcp        0      0 0.0.0.0:38176           bom07s30-ln-f10.1:https ESTABLISHED
tcp        0      0 0.0.0.0:57874           sin03-login-ds.do:https ESTABLISHED
tcp        0      0 0.0.0.0:33758           104.21.192.78:https     ESTABLISHED
tcp        0      0 0.0.0.0:34302           46.bidtellect.com:https ESTABLISHED
tcp        0      0 0.0.0.0:54560           146.60.190.35.bc.:https ESTABLISHED
tcp        0      0 0.0.0.0:42888           a23-192-97-17.dep:https ESTABLISHED
tcp        0      0 0.0.0.0:34980           ec2-18-210-180-23:https ESTABLISHED
tcp        0      0 0.0.0.0:52332           74.125.24.154:https     TIME_WAIT
tcp        0      0 0.0.0.0:35130           pr-bh-ing.pbp.vip:https ESTABLISHED
tcp        0      0 0.0.0.0:48244           server-13-227-138:https ESTABLISHED
tcp        0      0 0.0.0.0:38736           sfo07s13-ln-f3.1e:https ESTABLISHED
tcp        0      1 0.0.0.0:49862           88.214.206.142:https    LAST_ACK
tcp        0      0 0.0.0.0:42920           103.231.98.193:https    ESTABLISHED
tcp        0      0 0.0.0.0:54928           108.64.213.35.bc.:https ESTABLISHED
tcp        0      0 0.0.0.0:34770           151.101.157.44:https    ESTABLISHED
tcp        0      0 0.0.0.0:54952           a23-192-96-56.dep:https ESTABLISHED
tcp        0      0 0.0.0.0:47952           104.16.18.94:https      ESTABLISHED
tcp        0      0 0.0.0.0:39700           104.22.25.87:https      ESTABLISHED
tcp        0      0 0.0.0.0:57864           151.101.154.49:https    ESTABLISHED
tcp        0      0 0.0.0.0:44920           205.180.87.178:https    ESTABLISHED
tcp        0      0 0.0.0.0:48690           103.252.227.35.bc:https ESTABLISHED
tcp        0      0 0.0.0.0:51650           69.173.158.65:https     ESTABLISHED
tcp        0      0 0.0.0.0:57948           193.244.178.107.b:https ESTABLISHED
tcp        0      0 0.0.0.0:52186           103.231.98.195:https    ESTABLISHED
tcp        0      0 0.0.0.0:56014           bom12s01-ln-f6.1e:https ESTABLISHED
tcp        0      0 0.0.0.0:55316           70.d3.5177.lp4.st:https ESTABLISHED
tcp        0      0 0.0.0.0:48628           43.255.166.254:http     TIME_WAIT
tcp        0      0 0.0.0.0:45840           server-13-227-136:https ESTABLISHED
tcp        0      0 0.0.0.0:40016           bom12s17-ln-f10.1:https ESTABLISHED
```

```
Activities Terminal Aug 14 19:59
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ netstat -an
Active UNIX domain sockets (servers and established)
Proto RefCnt Flags Type State I-Node Path
unix 2 [ ACC ] STREAM LISTENING 26575 /run/lrqlbalance//lrqlbalance676.sock
unix 2 [ ACC ] STREAM LISTENING 49844 @/tmp/.ICE-unix/7188
unix 2 [ ] DGRAM 46116 /run/user/1000/systemd/notify
unix 2 [ ACC ] STREAM LISTENING 46119 /run/user/1000/systemd/private
unix 2 [ ACC ] STREAM LISTENING 46125 /run/user/1000/bus
unix 2 [ ACC ] STREAM LISTENING 46126 /run/user/1000/gnupg/S.dirmngr
unix 2 [ ACC ] STREAM LISTENING 50014 @/home/sufyan/.cache/ibus/dbus-Eyvac384
unix 2 [ ACC ] STREAM LISTENING 46127 /run/user/1000/gnupg/S.gpg-agent.brower
unix 2 [ ACC ] STREAM LISTENING 46128 /run/user/1000/gnupg/S.gpg-agent.extra
unix 2 [ ACC ] STREAM LISTENING 46129 /run/user/1000/gnupg/S.gpg-agent.ssh
unix 2 [ ACC ] STREAM LISTENING 46130 /run/user/1000/gnupg/S.gpg-agent
unix 2 [ ACC ] STREAM LISTENING 46131 /run/user/1000/pk-debconf-socket
unix 2 [ ACC ] STREAM LISTENING 46132 /run/user/1000/pulse/native
unix 2 [ ACC ] STREAM LISTENING 46133 /run/user/1000/snapd-session-agent.socket
unix 2 [ ACC ] STREAM LISTENING 47938 @/tmp/.X11-unix/X0
unix 2 [ ACC ] STREAM LISTENING 46427 /run/user/1000/keyring/control
unix 2 [ ACC ] STREAM LISTENING 62338 /tmp/.com.google.Chrome.nz9P3m/SingletonSocket
unix 2 [ ACC ] STREAM LISTENING 48628 /run/user/1000/keyring/pkcs11
unix 2 [ ACC ] STREAM LISTENING 49876 /run/user/1000/keyring/ssh
unix 2 [ ACC ] STREAM LISTENING 47939 /tmp/.X11-unix/X0
unix 2 [ ACC ] STREAM LISTENING 49845 /tmp/.ICE-unix/7188
unix 2 [ ACC ] STREAM LISTENING 49582 @/tmp/dbus-YZuC332xIH
unix 2 [ ACC ] STREAM LISTENING 46624 @/tmp/dbus-xNy0ct5j
unix 2 [ ACC ] STREAM LISTENING 55325 /var/lib/fwupd/gnupg/S.gpg-agent.brower
unix 2 [ ACC ] STREAM LISTENING 55326 /var/lib/fwupd/gnupg/S.gpg-agent.ssh
unix 2 [ ] DGRAM 31610 /run/wpa_supplicant/wlp6s0
unix 2 [ ACC ] STREAM LISTENING 55323 /var/lib/fwupd/gnupg/S.gpg-agent
unix 2 [ ACC ] STREAM LISTENING 55324 /var/lib/fwupd/gnupg/S.gpg-agent.extra
unix 2 [ ACC ] STREAM LISTENING 30337 @/tmp/dbus-qjEM1xrE
unix 2 [ ACC ] STREAM LISTENING 49522 /tmp/ssh-QhtK1JLsMyv0/agent.7066
unix 3 [ ] SEQPACKET CONNECTED 62231 @0000e
unix 3 [ ] SEQPACKET CONNECTED 61194 @0000f
unix 4 [ ] DGRAM 15204 /run/systemd/notify
unix 2 [ ACC ] STREAM LISTENING 15207 /run/systemd/private
unix 2 [ ACC ] STREAM LISTENING 46625 @/tmp/dbus-GGC3NLHV
unix 2 [ ACC ] STREAM LISTENING 15209 /run/systemd/userdb/io.systemd.DynamicUser
unix 2 [ ] DGRAM 15218 /run/systemd/journal/syslog
unix 2 [ ACC ] STREAM LISTENING 15220 /run/systemd/fsck.progress
unix 17 [ ] DGRAM 15228 /run/systemd/journal/dev-log
unix 2 [ ACC ] STREAM LISTENING 15230 /run/systemd/journal/stdout
unix 8 [ ] DGRAM 15232 /run/systemd/journal/socket
unix 2 [ ACC ] SEQPACKET LISTENING 15234 /run/udev/control
unix 2 [ ACC ] STREAM LISTENING 17527 /run/systemd/journal/io.systemd.journal
unix 2 [ ACC ] STREAM LISTENING 26370 /run/udev/socket
```

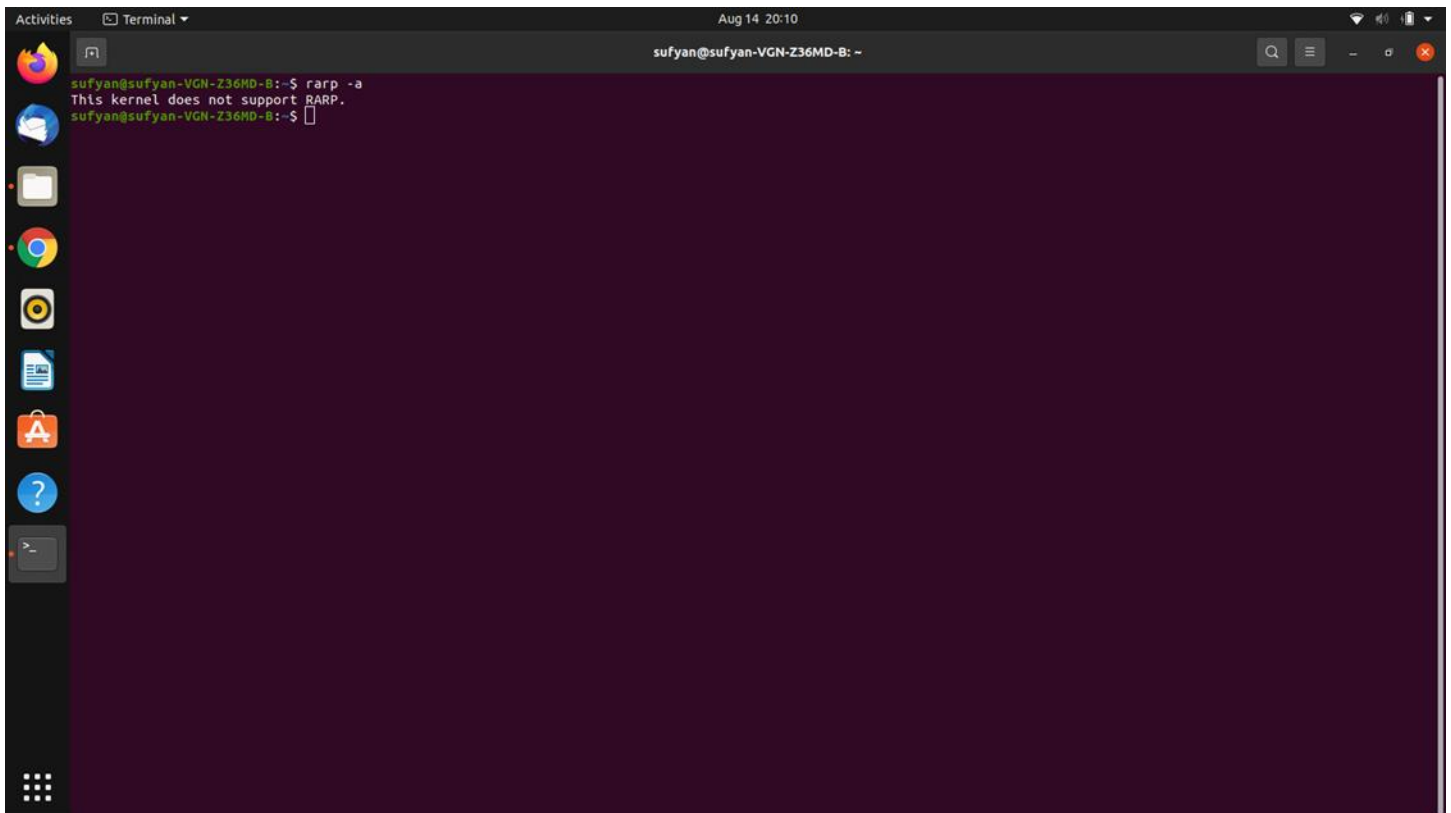
```
Activities Terminal Aug 14 20:00
sufyan@sufyan-VGN-Z36MD-B: ~

unix 3 [ ] STREAM CONNECTED 69549 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 52632 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 33642 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 27936 /run/systemd/journal/stdout
unix 2 [ ] DGRAM 24490 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 83928 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 49651 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 29509 /run/systemd/journal/stdout
unix 2 [ ] DGRAM 17529 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 53007 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 51644 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 50706 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 28037 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 70021 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 65969 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 61397 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 52649 @/tmp/.X11-unix/X0
unix 2 [ ] DGRAM 34362 /run/systemd/journal/stdout
unix 2 [ ] DGRAM 25640 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 85304 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 85035 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 49650 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 29133 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 52829 @/dbus-vfs-daemon/socket-UZ670US8
unix 3 [ ] STREAM CONNECTED 51753 /run/user/1000/bus
unix 3 [ ] STREAM CONNECTED 51366 @/tmp/dbus-YZuC332xIH
unix 3 [ ] STREAM CONNECTED 29146 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 69222 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 62331 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 28005 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 25732 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 85036 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 64791 /run/user/1000/pulse/native
unix 3 [ ] STREAM CONNECTED 26104 /run/user/1000/pulse/native
unix 3 [ ] STREAM CONNECTED 53016 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 51680 /run/user/1000/bus
unix 3 [ ] STREAM CONNECTED 50758 /run/user/1000/bus
unix 3 [ ] STREAM CONNECTED 29022 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 84111 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 61382 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 53025 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 32767 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 28636 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 29134 /run/dbus/system_bus_socket
sufyan@sufyan-VGN-Z36MD-B: ~
```

5. Arp

```
Activities Terminal Aug 14 20:04
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ arp -a
_gateway at e4:c3:2a:59:c1:88 [ether] on wlp6s0
sufyan@sufyan-VGN-Z36MD-B:~$
```

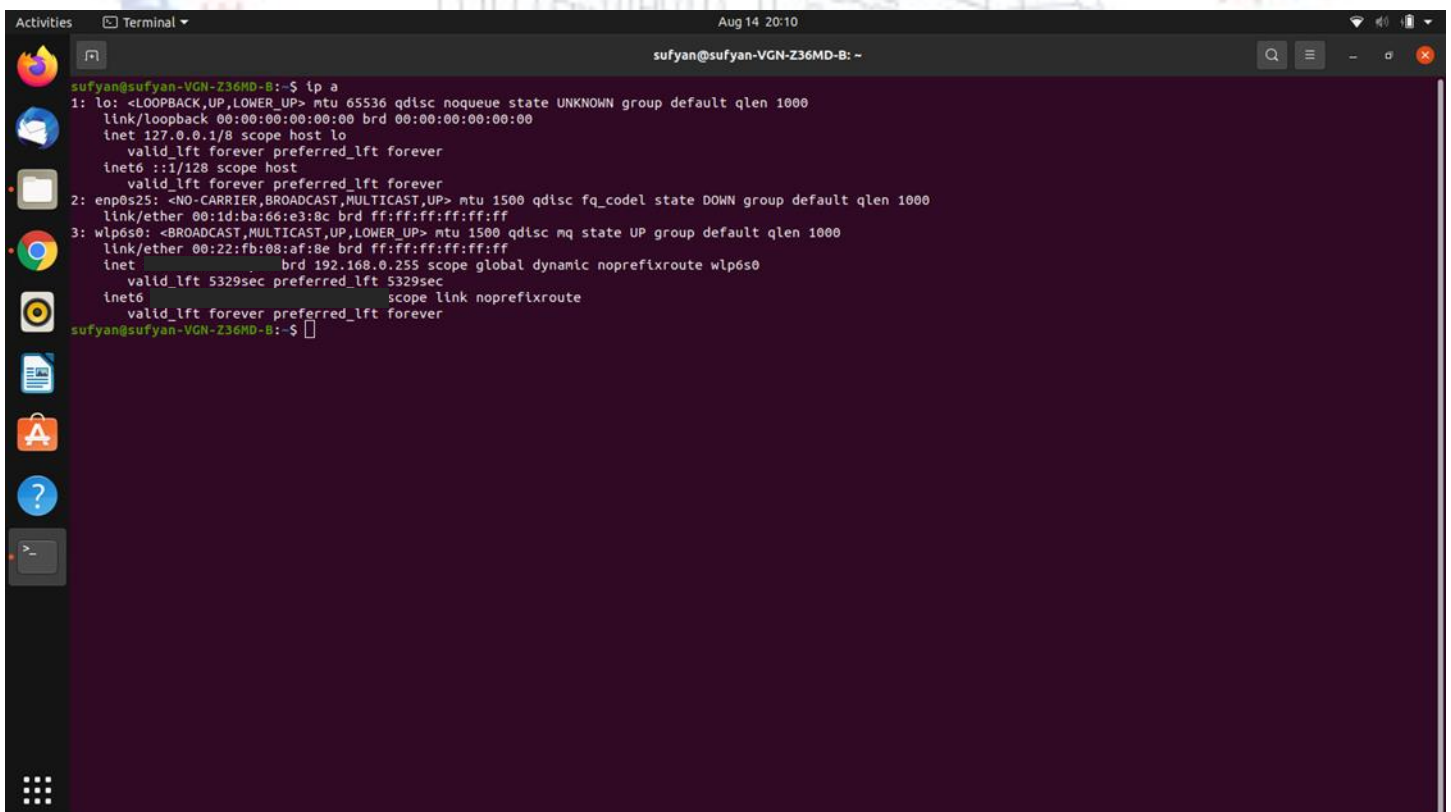
6. Rarp



A terminal window titled 'Terminal' with a search icon and a menu icon. The window shows the command 'rarp -a' being executed. The output is 'This kernel does not support RARP.'.

```
sufyan@sufyan-VGN-Z36MD-B:~$ rarp -a
This kernel does not support RARP.
sufyan@sufyan-VGN-Z36MD-B:~$
```

7. Ip



A terminal window titled 'Terminal' with a search icon and a menu icon. The window shows the command 'ip a' being executed. The output displays network interface details for 'lo', 'enp0s25', and 'wlp6s0'.

```
sufyan@sufyan-VGN-Z36MD-B:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s25: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc fq_codel state DOWN group default qlen 1000
    link/ether 00:1d:ba:66:e3:8c brd ff:ff:ff:ff:ff:ff
3: wlp6s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:22:fb:08:af:8e brd ff:ff:ff:ff:ff:ff
    inet 192.168.0.255 scope global dynamic noprefixroute wlp6s0
        valid_lft 5329sec preferred_lft 5329sec
    inet6 scope link noprefixroute
        valid_lft forever preferred_lft forever
sufyan@sufyan-VGN-Z36MD-B:~$
```


8. Ifconfig

```
Activities Terminal Aug 14 20:10
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ ifconfig -a
enp0s25: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    ether 00:1d:ba:66:e3:8c 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
    device interrupt 18 memory 0xee900000-ee920000

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 3275 bytes 354981 (354.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 3275 bytes 354981 (354.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp6s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.255 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 2001::: prefixlen 64 scopeid 0x20<link>
    ether 00:22:fb:08:af:8e txqueuelen 1000 (Ethernet)
    RX packets 156531 bytes 187958500 (187.9 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 96005 bytes 17133345 (17.1 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

sufyan@sufyan-VGN-Z36MD-B:~$
```

9. Dig

```
Activities Terminal Aug 14 20:11
sufyan@sufyan-VGN-Z36MD-B: ~
sufyan@sufyan-VGN-Z36MD-B:~$ dig www.instagram.com

; <<>> DIG 9.16.1-Ubuntu <<>> www.instagram.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<<- opcode: QUERY, status: NOERROR, id: 42654
;; flags: qr rd ra; QUERY: 1, ANSWER: 2, AUTHORITY: 0, ADDITIONAL: 1

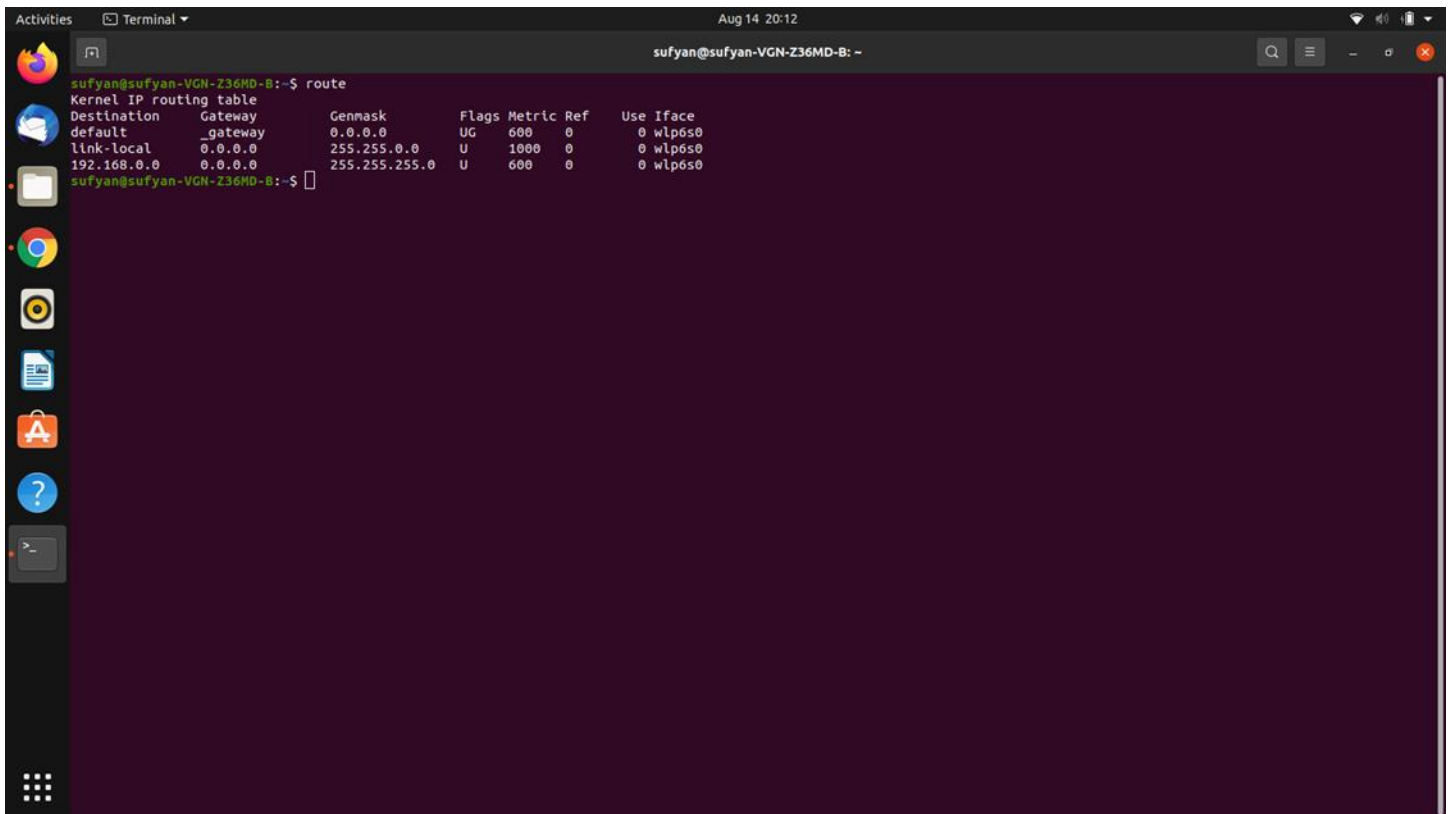
;; OPT PSEUDOSECTION:
;; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
;www.instagram.com.                IN      A

;; ANSWER SECTION:
www.instagram.com.                 3380    IN      CNAME   z-p42-instagram.c10r.facebook.com.
z-p42-instagram.c10r.facebook.com. 59      IN      A       31.13.79.174

;; Query time: 8 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sat Aug 14 20:11:33 IST 2021
;; MSG SIZE rcvd: 106

sufyan@sufyan-VGN-Z36MD-B:~$
```

10. Route



```
sufyan@sufyan-VGN-Z36MD-B:~$ route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default _gateway 0.0.0.0 UG 600 0 0 wlpos0
link-local 0.0.0.0 255.255.0.0 U 1000 0 0 wlpos0
192.168.0.0 0.0.0.0 255.255.255.0 U 600 0 0 wlpos0
sufyan@sufyan-VGN-Z36MD-B:~$
```

CONCLUSION

Thus, we have studied the basic networking commands of Linux and successfully implemented it.