

```
[root@localhost 221801017Harshini]# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether d4:3d:7e:ad:3c:6e brd ff:ff:ff:ff:ff:ff
[root@localhost 221801017Harshini]# ip link show dev enp2s0
2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether d4:3d:7e:ad:3c:6e brd ff:ff:ff:ff:ff:ff
[root@localhost 221801017Harshini]# ip -s link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    RX: bytes  packets  errors  dropped overrun mcast
       546      14      0      0      0      0
    TX: bytes  packets  errors  dropped carrier collsns
       546      14      0      0      0      0
2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP mode DEFAULT group default qlen 1000
    link/ether d4:3d:7e:ad:3c:6e brd ff:ff:ff:ff:ff:ff
    RX: bytes  packets  errors  dropped overrun mcast
    138755503  254976    0      13      0    75978
    TX: bytes  packets  errors  dropped carrier collsns
    28673892   58855    0      0      0      0
[root@localhost 221801017Harshini]#
```

```
[root@localhost 221801017Harshini]# ip link help
Usage: ip link add [link DEV] [ name ] NAME
        [ txqueuelen PACKETS ]
        [ address LLADDR ]
        [ broadcast LLADDR ]
        [ mtu MTU ] [index IDX ]
        [ numtxqueues QUEUE_COUNT ]
        [ numrxqueues QUEUE_COUNT ]
        type TYPE [ ARGS ]

ip link delete { DEVICE | dev DEVICE | group DEVGROUP } type TYPE [ ARGS ]

ip link set { DEVICE | dev DEVICE | group DEVGROUP }
        [ { up | down } ]
        [ type TYPE ARGS ]
        [ arp { on | off } ]
        [ dynamic { on | off } ]
        [ multicast { on | off } ]
        [ allmulticast { on | off } ]
        [ promisc { on | off } ]
        [ trailers { on | off } ]
        [ carrier { on | off } ]
        [ txqueuelen PACKETS ]
        [ name NEWNAME ]
        [ address LLADDR ]
        [ broadcast LLADDR ]
        [ mtu MTU ]
        [ netns { PID | NAME } ]
        [ link-netnsid ID ]
        [ alias NAME ]
        [ vf NUM [ mac LLADDR ]
            [ vlan VLANID [ qos VLAN-QOS ] [ proto VLAN-PROTO ] ]
            [ rate TXRATE ]
            [ max_tx_rate TXRATE ]
            [ min_tx_rate TXRATE ]
            [ spoofchk { on | off } ]
            [ query_rss { on | off } ]
            [ state { auto | enable | disable } ] ] ]
        [ trust { on | off } ] ]
        [ xdp { off |
            object FILE [ section NAME ] [ verbose ] |
            pinned FILE } ]
        [ master DEVICE ][ vrf NAME ]
```

```
[root@localhost 221801017Harshini]# ip help
Usage: ip [ OPTIONS ] OBJECT { COMMAND | help }
       ip [ -force ] -batch filename
where  OBJECT := { link | address | addrlabel | route | rule | neigh | ntable |
                  tunnel | tuntap | maddress | mroute | mrule | monitor | xfrm |
                  netns | l2tp | fou | macsec | tcp_metrics | token | netconf | ila |
                  vrf }
       OPTIONS := { -V[ersion] | -s[tatistics] | -d[etails] | -r[esolve] |
                   -h[uman-readable] | -i[ec] |
                   -f[amily] { inet | inet6 | ipx | dnet | mpls | bridge | link } |
                   -4 | -6 | -I | -D | -B | -0 |
                   -l[oops] { maximum-addr-flush-attempts } | -br[ief] |
                   -o[neline] | -t[imestamp] | -ts[hort] | -b[atch] [filename] |
                   -rc[vbuf] [size] | -n[etns] name | -a[ll] | -c[olor]}
[root@localhost 221801017Harshini]# ip addr help
Usage: ip address {add|change|replace} IFADDR dev IFNAME [ LIFETIME ]
                               [ CONFFLAG-LIST ]
       ip address del IFADDR dev IFNAME [mngtmpaddr]
       ip address {save|flush} [ dev IFNAME ] [ scope SCOPE-ID ]
                               [ to PREFIX ] [ FLAG-LIST ] [ label LABEL ] [up]
       ip address [ show [ dev IFNAME ] [ scope SCOPE-ID ] [ master DEVICE ]
                     [ type TYPE ] [ to PREFIX ] [ FLAG-LIST ]
                     [ label LABEL ] [up] [ vrf NAME ] ]
       ip address {showdump|restore}
IFADDR := PREFIX | ADDR peer PREFIX
          [ broadcast ADDR ] [ anycast ADDR ]
          [ label IFNAME ] [ scope SCOPE-ID ]
SCOPE-ID := [ host | link | global | NUMBER ]
FLAG-LIST := [ FLAG-LIST ] FLAG
FLAG := [ permanent | dynamic | secondary | primary |
         [-]tentative | [-]deprecated | [-]dadfailed | temporary |
         CONFFLAG-LIST ]
CONFFLAG-LIST := [ CONFFLAG-LIST ] CONFFLAG
CONFFLAG := [ home | nodad | mngtmpaddr | noprefixroute | autojoin ]
LIFETIME := [ valid_lft LFT ] [ preferred_lft LFT ]
LFT := forever | SECONDS
TYPE := { vlan | veth | vcan | dummy | ifb | macvlan | macvtap |
         bridge | bond | ipoib | ip6tnl | ipip | sit | vxlan | lowpan |
         gre | gretap | ip6gre | ip6gretap | vti | nlmon | can |
         bond_slave | ipvlan | geneve | bridge_slave | vrf | hsr | macsec }
[root@localhost 221801017Harshini]#
```

```
[root@localhost 221801017Harshini]# ip route
default via 172.16.8.1 dev enp2s0 proto static metric 20100
172.16.8.0/22 dev enp2s0 proto kernel scope link src 172.16.8.23 metric 100
[root@localhost 221801017Harshini]# ip maddr
1:
    lo
        inet 224.0.0.1
        inet6 ff02::1
        inet6 ff01::1
2:
    enp2s0
        link 01:00:5e:00:00:01
        link 33:33:00:00:00:01
        link 01:00:5e:00:00:fb
        link 33:33:ff:39:20:b6
        link 33:33:00:00:00:fb
        inet 224.0.0.251
        inet 224.0.0.1
        inet6 ff02::fb
        inet6 ff02::1:ff39:20b6
        inet6 ff02::1
        inet6 ff01::1
[root@localhost 221801017Harshini]# ip maddr show dev enp2s0
2:
    enp2s0
        link 01:00:5e:00:00:01
        link 33:33:00:00:00:01
        link 01:00:5e:00:00:fb
        link 33:33:ff:39:20:b6
        link 33:33:00:00:00:fb
        inet 224.0.0.251
        inet 224.0.0.1
        inet6 ff02::fb
        inet6 ff02::1:ff39:20b6
        inet6 ff02::1
        inet6 ff01::1
[root@localhost 221801017Harshini]#
```

```
[root@localhost 221801017Harshini]# ip neigh
172.16.8.1 dev enp2s0 lladdr 7c:5a:1c:cf:be:45 REACHABLE
172.16.11.93 dev enp2s0 lladdr fc:34:97:94:c8:8c STALE
[root@localhost 221801017Harshini]# ip neigh show dev enp2s0
172.16.8.1 lladdr 7c:5a:1c:cf:be:45 REACHABLE
172.16.11.93 lladdr fc:34:97:94:c8:8c STALE
[root@localhost 221801017Harshini]# █
```

```
[root@localhost 221801017Harshini]# ip addr
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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether d4:3d:7e:ad:3c:6e brd ff:ff:ff:ff:ff:ff
    inet 172.16.8.23/22 brd 172.16.11.255 scope global enp2s0
        valid_lft forever preferred_lft forever
    inet6 fe80::750f:76fb:ef39:20b6/64 scope link
        valid_lft forever preferred_lft forever
[root@localhost 221801017Harshini]# ip addr show enp2s0
2: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether d4:3d:7e:ad:3c:6e brd ff:ff:ff:ff:ff:ff
    inet 172.16.8.23/22 brd 172.16.11.255 scope global enp2s0
        valid_lft forever preferred_lft forever
    inet6 fe80::750f:76fb:ef39:20b6/64 scope link
        valid_lft forever preferred_lft forever
[root@localhost 221801017Harshini]# █
```

```
> 221801017Hars
File Edit View Bookmarks Settings Help
[root@localhost 221801017Harshini]# nslookup facebook.com
bash: nslookup: command not found
[root@localhost 221801017Harshini]# nslookup facebook.com
Server:          172.16.8.1
Address:         172.16.8.1#53

Non-authoritative answer:
Name:   facebook.com
Address: 157.240.192.35
Name:   facebook.com
Address: 2a03:2880:f137:182:face:b00c:0:25de

[root@localhost 221801017Harshini]# nslookup google.com
Server:          172.16.8.1
Address:         172.16.8.1#53

Non-authoritative answer:
Name:   google.com
Address: 216.58.200.142
Name:   google.com
Address: 2404:6800:4007:808::200e

[root@localhost 221801017Harshini]# █
```

File Edit View Bookmarks Settings Help

```
[root@localhost 221801017Harshini]# ifconfig
enp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.16.8.23 netmask 255.255.252.0 broadcast 172.16.11.255
    inet6 fe80::750f:76fb:ef39:20b6 prefixlen 64 scopeid 0x20<link>
    ether d4:3d:7e:ad:3c:6e txqueuelen 1000 (Ethernet)
    RX packets 239873 bytes 136856300 (130.5 MiB)
    RX errors 0 dropped 13 overruns 0 frame 0
    TX packets 54790 bytes 25580326 (24.3 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 14 bytes 546 (546.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 14 bytes 546 (546.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[root@localhost 221801017Harshini]# ping google.com
PING google.com (216.58.200.142) 56(84) bytes of data.
64 bytes from maa05s10-in-f14.1e100.net (216.58.200.142): icmp_seq=1 ttl=120 time=3.51 ms
64 bytes from maa05s10-in-f14.1e100.net (216.58.200.142): icmp_seq=2 ttl=120 time=3.33 ms
^C
--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 3.336/3.427/3.519/0.108 ms
[root@localhost 221801017Harshini]# ^C
[root@localhost 221801017Harshini]# ping 216.58.200.142
PING 216.58.200.142 (216.58.200.142) 56(84) bytes of data.
64 bytes from 216.58.200.142: icmp_seq=1 ttl=120 time=3.29 ms
64 bytes from 216.58.200.142: icmp_seq=2 ttl=120 time=3.28 ms
^C
--- 216.58.200.142 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 3.289/3.291/3.293/0.002 ms
[root@localhost 221801017Harshini]#
```

```
localhost.localdomain
[root@localhost 221801017Harshini]# netstat
Active Internet connections (w/o servers)

```

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State
tcp	0	124	localhost.localdo:41028	142.250.205.229:https	FIN_WAIT1
tcp	0	124	localhost.localdo:59398	142.250.193.138:https	FIN_WAIT1
tcp	0	124	localhost.localdo:59390	142.250.195.174:https	FIN_WAIT1
tcp	0	475	localhost.localdo:46078	142.250.196.74:https	ESTABLISHED
tcp	0	84	localhost.localdo:46074	142.250.196.74:https	ESTABLISHED
tcp	0	350	localhost.localdo:40598	maa05s23-in-f4.1e:https	ESTABLISHED
tcp	0	613	localhost.localdo:36508	maa03s44-in-f3.1e:https	ESTABLISHED
tcp	0	0	localhost.localdo:38444	maa05s19-in-f14.1:https	ESTABLISHED
tcp	0	124	localhost.localdo:59388	142.250.195.174:https	FIN_WAIT1
tcp	0	2796	localhost.localdo:41064	142.250.205.229:https	ESTABLISHED
tcp	0	906	localhost.localdo:59428	142.250.193.138:https	ESTABLISHED
tcp	0	9553	localhost.localdo:52528	maa05s28-in-f14.1:https	ESTABLISHED
tcp	0	27023	localhost.localdo:59396	142.250.195.174:https	ESTABLISHED
tcp	0	124	localhost.localdo:59400	142.250.193.138:https	FIN_WAIT1
udp	0	0	localhost.localdo:46247	gateway:domain	ESTABLISHED
udp	0	0	localhost.localdo:47959	gateway:domain	ESTABLISHED

```
Active UNIX domain sockets (w/o servers)

```

Proto	RefCnt	Flags	Type	State	I-Node	Path
unix	6	[ ]	DGRAM		3330	/run/systemd/journal/socket
unix	18	[ ]	DGRAM		3339	/run/systemd/journal/dev-log
unix	2	[ ]	DGRAM		22583	/var/run/chrony/chronyd.sock
unix	2	[ ]	DGRAM		26176	/run/user/0/systemd/notify
unix	3	[ ]	DGRAM		3310	/run/systemd/notify
unix	3	[ ]	DGRAM		14795	
unix	3	[ ]	STREAM	CONNECTED	30446	@/tmp/.X11-unix/X0
unix	3	[ ]	STREAM	CONNECTED	28961	/run/user/0/bus
unix	3	[ ]	STREAM	CONNECTED	27521	/run/user/0/bus
unix	3	[ ]	STREAM	CONNECTED	26292	
unix	2	[ ]	DGRAM		22720	
unix	3	[ ]	STREAM	CONNECTED	26448	
unix	3	[ ]	STREAM	CONNECTED	28849	/run/dbus/system_bus_socket
unix	3	[ ]	STREAM	CONNECTED	25592	
unix	3	[ ]	STREAM	CONNECTED	28183	
unix	3	[ ]	STREAM	CONNECTED	29527	
unix	3	[ ]	STREAM	CONNECTED	27262	
unix	3	[ ]	STREAM	CONNECTED	25531	/run/user/0/bus
unix	3	[ ]	STREAM	CONNECTED	27572	@/tmp/.X11-unix/X0

```

29 * * *
30 * * *
[root@localhost 221801017Harshini]# traceroute -6 www.facebook.com
www.facebook.com: Name or service not known
Cannot handle "host" cmdline arg 'www.facebook.com' on position 1 (argc 2)
[root@localhost 221801017Harshini]# traceroute -4 www.facebook.com
www.facebook.com: Name or service not known
Cannot handle "host" cmdline arg 'www.facebook.com' on position 1 (argc 2)
[root@localhost 221801017Harshini]# traceroute -4 www.facebook.com
traceroute to www.facebook.com (157.240.192.35), 30 hops max, 60 byte packets
 1 gateway (172.16.8.1) 0.162 ms 0.111 ms 0.105 ms
 2 static-41.229.249.49-tataidc.co.in (49.249.229.41) 2.985 ms 2.710 ms 3.534 ms
 3 ae10.pr01.maa2.tfbnw.net (157.240.83.120) 3.947 ms 3.601 ms 3.550 ms
 4 po101.psw04.maa2.tfbnw.net (129.134.34.181) 3.150 ms po101.psw02.maa2.tfbnw.net (129.134.34.177) 2.552 ms po101.psw03.maa2.tfbnw.net (129.134.34.179) 2.429 ms
 5 157.240.39.127 (157.240.39.127) 5.658 ms 157.240.39.81 (157.240.39.81) 2.603 ms 157.240.36.69 (157.240.36.69) 2.848 ms
 6 * * *
 7 * * *
 8 * * *
 9 * * *
10 * * *
11 * * *
12 * * *
13 * * *
14 * * *
15 * * *
16 * * *
17 * * *
18 * * *
19 * * *
20 * * *
21 * * *
22 * * *
23 * * *
24 * * *
25 * * *
26 * * *
27 * * *
28 * * *
29 * * *
30 * * *
[root@localhost 221801017Harshini]#

```

```

[root@localhost 221801017Harshini]# traceroute www.facebook.com
traceroute to www.facebook.com (157.240.192.35), 30 hops max, 60 byte packets
 1 gateway (172.16.8.1) 0.174 ms 0.144 ms 0.117 ms
 2 static-41.229.249.49-tataidc.co.in (49.249.229.41) 3.003 ms 3.661 ms 3.497 ms
 3 ae10.pr01.maa2.tfbnw.net (157.240.83.120) 2.932 ms 3.629 ms 3.641 ms
 4 po101.psw02.maa2.tfbnw.net (129.134.34.177) 3.424 ms po101.psw03.maa2.tfbnw.net (129.134.34.179) 2.791 ms po101.psw04.maa2.tfbnw.net (129.134.34.179) 2.832 ms
 5 157.240.36.115 (157.240.36.115) 4.816 ms 157.240.39.19 (157.240.39.19) 4.781 ms 157.240.36.23 (157.240.36.23) 3.381 ms
 6 * * *
 7 * * *
 8 * * *
 9 * * *
10 * * *
11 * * *
12 * * *
13 * * *
14 * * *
15 * * *
16 * * *
17 * * *
18 * * *
19 * * *
20 * * *
21 * * *
22 * * *
23 * * *
24 * * *
25 * * *
26 * * *
27 * * *
28 * * *
29 * * *
30 * * *
[root@localhost 221801017Harshini]#

```

```

30
[root@localhost 221801017Harshini]# hostname
localhost.localdomain
[root@localhost 221801017Harshini]#

```

```

[root@localhost 221801017Harshini]# ip neigh help
Usage: ip neigh { add | del | change | replace }
        { ADDR [ lladdr LLADDR ] [ nud STATE ] | proxy ADDR } [ dev DEV ]
        ip neigh { show | flush } [ proxy ] [ to PREFIX ] [ dev DEV ] [ nud STATE ]
        [ vrf NAME ]

STATE := { permanent | noarp | stale | reachable | none |
          incomplete | delay | probe | failed }
[root@localhost 221801017Harshini]#

```