

# STUDY OF BASIC NETWORK COMMANDS

## Aim:

Introduction to basic network commands

## 1. Ip configuration

Use:

Displays all current TCP/IP network configuration values and refreshes Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings. Used without parameters, **ipconfig** displays the IP address, subnet mask, and default gateway for all adapters.

```
C:\Users\Hemalatha>ipconfig /all

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . . . : 
    Description . . . . . : D-Link ADSL USB Router
    Physical Address. . . . . : FC-75-16-4D-2B-AB
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::dca1:9cf8:3bbb:1dc8%13<Preferred>
    IPv4 Address. . . . . : 192.168.1.2<Preferred>
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : 24 August 2013 20:26:07
    Lease Expires . . . . . : 25 August 2013 20:26:07
    Default Gateway . . . . . : 192.168.1.1
    DHCP Server . . . . . : 192.168.1.1
    DHCPv6 IAID . . . . . : 368866582
    DHCPv6 Client DUID. . . . . : 00-01-00-01-17-D3-ED-0B-FC-75-16-4D-2B-AB

    DNS Servers . . . . . : 192.168.1.1
    NetBIOS over Tcpip. . . . . : Enabled

Tunnel adapter isatap.{00BF9F4B-A1E7-4C0A-82A2-63DAFBE4C488}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . . . : 
    Description . . . . . : Microsoft ISATAP Adapter #2
    Physical Address. . . . . : 00-00-00-00-00-00-E0
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix . . . : 
    Description . . . . . : Teredo Tunneling Pseudo-Interface
    Physical Address. . . . . : 00-00-00-00-00-00-E0
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    IPv6 Address. . . . . : 2001:0:5ef5:79fd:306e:3645:8a26:3545<Preferred>
    Link-local IPv6 Address . . . . . : fe80::306e:3645:8a26:3545%14<Preferred>
    Default Gateway . . . . . : 
    NetBIOS over Tcpip. . . . . : Disabled

C:\Users\Hemalatha>
```

## 2. Ping command

Use:

If you are having connectivity problems, you can use the **ping** command to check the destination IP address you want to reach and record the results. The **ping** command displays whether the destination responded and how long it took to receive a reply. If there is an error in the delivery to the destination, the **ping** command displays an error message.

```
C:\Users\Admin>ping 192.168.100.1

Pinging 192.168.100.1 with 32 bytes of data:
Reply from 192.168.100.1: bytes=32 time=316ms TTL=255
Reply from 192.168.100.1: bytes=32 time=82ms TTL=255
Reply from 192.168.100.1: bytes=32 time=306ms TTL=255
Reply from 192.168.100.1: bytes=32 time=7ms TTL=255

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 316ms, Average = 177ms
```

## 3. Trace route command

Use:

If you are having connectivity problems, you can use the **ping** command to check the destination IP address you want to reach and record the results. The **ping** command displays whether the destination responded and how long it took to receive a reply. If there is an error in the delivery to the destination, the **ping** command displays an error message.

## 4. Pathping command

The **pathping** command is a route tracing tool that combines features of the **ping** and **tracert** commands with additional information that neither of those tools provides. The **pathping** command sends packets to each router on the way to a final destination over a period of time, and then computes results based on the packets returned from each hop. Since the command shows the degree of packet loss at any given router or link, it is easy to determine which routers or links might be causing network problems.

```

C:\Users\Hemalatha>pathping www.google.com

Tracing route to www.google.com [173.194.36.50]
over a maximum of 30 hops:
 0  Hemalatha-Lap [192.168.1.2]
 1  192.168.1.1
 2  117.217.192.1
 3  218.248.161.234
 4  218.248.255.82
 5  * 115.114.130.49.STATIC-Chennai.vsnl.net.in [115.114.130.49]
 6  121.240.1.46
 7  72.14.232.110
 8  66.249.94.38
 9  209.85.241.189
10  bom04s02-in-f18.1e100.net [173.194.36.50]

Computing statistics for 250 seconds...
Hop  RTT      Source to Here   This Node/Link   Address
      Lost/Sent = Pct  Lost/Sent = Pct
 0      0/ 100 = 0%      0/ 100 = 0%      Hemalatha-Lap [192.168.1.2]
 1    2ms      0/ 100 = 0%      0/ 100 = 0%      192.168.1.1
 2   29ms      0/ 100 = 0%      0/ 100 = 0%      117.217.192.1
 3   29ms      0/ 100 = 0%      0/ 100 = 0%      218.248.161.234
 4  149ms      1/ 100 = 1%      1/ 100 = 1%      218.248.255.82
 5  219ms      0/ 100 = 0%      0/ 100 = 0%      115.114.130.49.STATIC-Chennai.vsnl
.net.in [115.114.130.49]
 6   98ms      0/ 100 = 0%      0/ 100 = 0%      121.240.1.46
 7  102ms      0/ 100 = 0%      0/ 100 = 0%      72.14.232.110
 8  ---      100/ 100 =100%    100/ 100 =100%    66.249.94.38
 9  ---      100/ 100 =100%    100/ 100 =100%    209.85.241.189
10 116ms      0/ 100 = 0%      0/ 100 = 0%      bom04s02-in-f18.1e100.net [173.194
.36.50]

Trace complete.

C:\Users\Hemalatha>

```

## 5. arp command

The address resolution protocol (arp) is a protocol used by the [Internet Protocol \(IP\)](#), specifically IPv4, to map [IP network addresses](#) to the hardware addresses used by a data link protocol. The protocol operates below the network layer as a part of the interface between the OSI network and OSI link layer. It is used when [IPv4 is used over Ethernet](#).

The term address resolution refers to the process of finding an address of a computer in a network. The address is "resolved" using a protocol in which a piece of information is sent by a client process executing on the local computer to a server process executing on a remote computer. The information received by the server allows the server to uniquely identify the network system for which the

address was required and therefore to provide the required address. The address resolution procedure is completed when the client receives a response from the server containing the required address.

```
C:\Users\Admin>arp -a

Interface: 192.168.101.64 --- 0xa
Internet Address      Physical Address      Type
192.168.101.1         00-20-9c-69-8c-00    dynamic
192.168.101.47        00-50-c2-c5-1b-30    dynamic
192.168.101.54        00-24-8c-40-b3-c3    dynamic
192.168.101.55        d0-27-88-38-02-9e    dynamic
192.168.101.66        10-bf-48-08-ac-85    dynamic
192.168.101.73        28-92-4a-4c-b2-06    dynamic
192.168.101.75        ec-a8-6b-23-ff-1b    dynamic
192.168.101.77        28-92-4a-4d-b8-2e    dynamic
192.168.101.82        d0-27-88-38-02-02    dynamic
192.168.101.84        00-25-64-e9-2e-33    dynamic
192.168.101.87        d0-27-88-3d-a2-a4    dynamic
192.168.101.90        54-53-ed-2d-41-43    dynamic
192.168.101.96        00-16-e6-9d-d9-c6    dynamic
192.168.101.101       00-26-9e-d5-06-dc    dynamic
192.168.101.255       ff-ff-ff-ff-ff-ff    static
224.0.0.22            01-00-5e-00-00-16    static
224.0.0.252           01-00-5e-00-00-fc    static
239.255.255.250       01-00-5e-7f-ff-fa    static
255.255.255.255       ff-ff-ff-ff-ff-ff    static

C:\Users\Admin>_
```

## 6. hostname command

Display the hostname of the machine the command is being run on. Additional information about the term hostname can be found on our [hostname dictionary definition](#).

```
C:\Users\Admin>hostname
Sowmiya-PC
```

## 7. netstat command

The netstat command is used to display the [TCP/IP](#) network protocol statistics and information.

NETSTAT [-a] [-e] [-n] [-s] [-p proto] [-r] [interval]

-a	Displays all connections and listening ports.
-e	Displays Ethernet statistics. This may be combined with the -s option.

-n	Displays addresses and port numbers in numerical form.
-p	proto Shows connections for the protocol specified by proto; proto may be TCP or UDP. If used with the -s option to display per-protocol statistics, proto may be <u>TCP</u> , <u>UDP</u> , or <u>IP</u> .
-r	Displays the routing table.
-s	Displays per-protocol statistics. By default, statistics are shown for TCP, UDP and IP; the -p option may be used to specify a subset of the default.
interval	Redisplays selected statistics, pausing interval seconds between each display. Press CTRL+C to stop redisplaying statistics. If omitted, netstat will print the current configuration information once.

```
C:\Users\Admin>netstat -n
```

#### Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:9666	127.0.0.1:52428	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52429	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52432	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52433	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52439	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52446	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52451	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52474	TIME_WAIT
TCP	127.0.0.1:9666	127.0.0.1:52478	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52479	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52480	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52481	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52482	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52483	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52486	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52487	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52488	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52492	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52493	ESTABLISHED
TCP	127.0.0.1:9666	127.0.0.1:52508	ESTABLISHED
TCP	127.0.0.1:52478	127.0.0.1:9666	ESTABLISHED
TCP	127.0.0.1:52479	127.0.0.1:9666	ESTABLISHED

```
C:\Users\Admin>netstat -s
```

#### IPv4 Statistics

```
Packets Received                = 165194
Received Header Errors          = 2
Received Address Errors         = 2737
Datagrams Forwarded             = 0
Unknown Protocols Received      = 0
Received Packets Discarded      = 11021
Received Packets Delivered      = 151858
Output Requests                 = 115496
Routing Discards                = 0
Discarded Output Packets        = 10
Output Packet No Route          = 3
Reassembly Required             = 0
Reassembly Successful           = 0
Reassembly Failures             = 0
Datagrams Successfully Fragmented = 0
Datagrams Failing Fragmentation = 0
Fragments Created              = 0
```

#### IPv6 Statistics

```
Packets Received                = 26812
Received Header Errors          = 0
Received Address Errors         = 520
Datagrams Forwarded             = 0
Unknown Protocols Received      = 0
Received Packets Discarded      = 4628
Received Packets Delivered      = 21818
Output Requests                 = 627
Routing Discards                = 0
Discarded Output Packets        = 0
Output Packet No Route          = 6
Reassembly Required             = 0
Reassembly Successful           = 0
Reassembly Failures             = 0
```

## 8. route command

Command to manually configure the routes in the routing table.

ROUTE [-f] [-p] [command [destination] [MASK netmask] [gateway]  
[METRIC metric] [IF interface]

-f	Clears the routing tables of all gateway entries. If this is used in conjunction with one of the commands, the tables are cleared prior to running the command.
-p	When used with the ADD command, makes a route persistent across boots of the system. By default, routes are not preserved when the system is restarted. When used with the PRINT command, displays the list of registered persistent routes. Ignored for all other commands, which always affect the appropriate persistent routes. This option is not supported Windows'95. command
command	One of these:

	PRINT Prints a route ADD Adds a route DELETE Deletes a route CHANGE Modifies an existing route destination
destination	Specifies the host.
MASK	Specifies that the next parameter is the 'netmask' value.
netmask	Specifies a subnet mask value for this route entry. If not specified, it defaults to 255.255.255.255.
gateway	Specifies gateway.
interface	the interface number for the specified route.
METRIC	Specifies the metric, ie. cost for the destination.

C:\Users\Admin>route PRINT

```
=====
Interface List
10...d0 27 88 3d 9d 66 .....Realtek PCIe GBE Family Controller
1.....Software Loopback Interface 1
11...00 00 00 00 00 00 00 e0 Microsoft ISATAP Adapter
12...00 00 00 00 00 00 00 e0 Teredo Tunneling Pseudo-Interface
=====
```

#### IPv4 Route Table

```
=====
Active Routes:
Network Destination        Netmask          Gateway          Interface        Metric
0.0.0.0                    0.0.0.0          192.168.101.1    192.168.101.64    20
127.0.0.0                  255.0.0.0        On-link          127.0.0.1         306
127.0.0.1                  255.255.255.255 On-link          127.0.0.1         306
127.255.255.255           255.255.255.255 On-link          127.0.0.1         306
192.168.101.0              255.255.255.0    On-link          192.168.101.64    276
192.168.101.64            255.255.255.255 On-link          192.168.101.64    276
192.168.101.255           255.255.255.255 On-link          192.168.101.64    276
224.0.0.0                  240.0.0.0        On-link          127.0.0.1         306
224.0.0.0                  240.0.0.0        On-link          192.168.101.64    276
255.255.255.255           255.255.255.255 On-link          127.0.0.1         306
255.255.255.255           255.255.255.255 On-link          192.168.101.64    276
=====
```

Persistent Routes:  
None

#### IPv6 Route Table

```
=====
Active Routes:
If Metric Network Destination      Gateway
12      58  ::/0                On-link
1       306  ::1/128             On-link
12      58  2001::/32           On-link
12      306  2001:0:5ef5:79fd:2083:2bce:3f57:9abf/128
                                On-link
10      276  fe80::/64           On-link
12      306  fe80::/64           On-link
12      306  fe80::2083:2bce:3f57:9abf/128
                                On-link
10      276  fe80::7574:2df1:19bb:2d02/128
                                On-link
1       306  ff00::/8            On-link
12      306  ff00::/8            On-link
10      276  ff00::/8            On-link
=====
```

Persistent Routes:  
None

C:\Users\Admin>

## 9. nslookup command

MS-DOS utility that enables a user to look up an IP address of a domain or host on a network.

```
C:\Users\Admin>nslookup
120.1.168.192.in-addr.arpa
    primary name server = localhost
    responsible mail addr = nobody.invalid
    serial = 1
    refresh = 600 (10 mins)
    retry = 1200 (20 mins)
    expire = 604800 (7 days)
    default TTL = 10800 (3 hours)
Default Server: UnKnown
Address: 192.168.1.120

> www.google.com
Server: UnKnown
Address: 192.168.1.120

Non-authoritative answer:
Name: www.google.com
Addresses: 2404:6800:4009:803::1014
           173.194.36.52
           173.194.36.48
           173.194.36.49
           173.194.36.50
           173.194.36.51

> www.facebook.com
Server: UnKnown
Address: 192.168.1.120
```

## 10.nbtstat command

Displays NetBIOS over TCP/IP (NetBT) protocol statistics, NetBIOS name tables for both the local computer and remote computers, and the NetBIOS name cache. Nbtstat allows a refresh of the NetBIOS name cache and the names registered with Windows Internet Name Service (WINS).

```
C:\Users\Admin>nbtstat -n

Local Area Connection:
Node IpAddress: [192.168.101.64] Scope Id: []

    NetBIOS Local Name Table

    Name                Type             Status
    ----                -
    SOWMIYA-PC          <00> UNIQUE         Registered
    WORKGROUP           <00> GROUP         Registered
    SOWMIYA-PC          <20> UNIQUE         Registered
    WORKGROUP           <1E> GROUP         Registered
```



## BASIC NETWORKING COMMANDS

### 1). netstat

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ netstat  
Active Internet connections (w/o servers)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State  
Active UNIX domain sockets (w/o servers)  
Proto RefCnt Flags   Type       State          I-Node  Path  
ubuntu@Laptop-abi13:~$
```

### 2) ifconfig

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ ifconfig  
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 1500  
    inet 127.0.0.1 netmask 255.0.0.0  
    inet6 ::1 prefixlen 128 scopeid 0xfe<compat,link,site,host>  
    loop (Local Loopback)  
    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  
  
wifio: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.225.96 netmask 255.255.255.0 broadcast 192.168.225.255  
    inet6 2409:4072:6d00:1407:d02d:91e8:5a45:808a prefixlen 64 scopeid 0x0<global>  
    inet6 2409:4072:6d00:1407:e2:b0d0:cb66:b65a prefixlen 128 scopeid 0x0<global>  
    inet6 fe80::d02d:91e8:5a45:808a prefixlen 64 scopeid 0xfd<compat,link,site,host>  
    ether 80:91:33:17:5b:8f (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  
  
ubuntu@Laptop-abi13:~$
```

### 3) ping

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ ping 100.2.30.100  
PING 100.2.30.100 (100.2.30.100) 56(84) bytes of data.  
64 bytes from 100.2.30.100: icmp_seq=1 ttl=42 time=7525 ms  
64 bytes from 100.2.30.100: icmp_seq=2 ttl=42 time=6523 ms  
64 bytes from 100.2.30.100: icmp_seq=3 ttl=42 time=5522 ms  
64 bytes from 100.2.30.100: icmp_seq=4 ttl=42 time=4521 ms  
64 bytes from 100.2.30.100: icmp_seq=5 ttl=42 time=3519 ms  
64 bytes from 100.2.30.100: icmp_seq=6 ttl=42 time=2517 ms  
64 bytes from 100.2.30.100: icmp_seq=7 ttl=42 time=1516 ms  
64 bytes from 100.2.30.100: icmp_seq=8 ttl=42 time=514 ms  
64 bytes from 100.2.30.100: icmp_seq=9 ttl=42 time=342 ms  
64 bytes from 100.2.30.100: icmp_seq=10 ttl=42 time=382 ms  
64 bytes from 100.2.30.100: icmp_seq=11 ttl=42 time=478 ms  
64 bytes from 100.2.30.100: icmp_seq=12 ttl=42 time=437 ms  
64 bytes from 100.2.30.100: icmp_seq=13 ttl=42 time=396 ms  
64 bytes from 100.2.30.100: icmp_seq=14 ttl=42 time=353 ms  
64 bytes from 100.2.30.100: icmp_seq=15 ttl=42 time=635 ms  
^C  
--- 100.2.30.100 ping statistics ---  
15 packets transmitted, 15 received, 0% packet loss, time 14018ms  
rtt min/avg/max/mdev = 342.482/2345.381/7525.130/2452.971 ms, pipe 8  
ubuntu@Laptop-abi13:~$
```

#### 4) telnet

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ telnet 127.0.0.1  
Trying 127.0.0.1...  
telnet: Unable to connect to remote host: Connection refused  
ubuntu@Laptop-abi13:~$
```

## 5) traceroute

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ traceroute csmit.tech  
traceroute to csmit.tech (142.93.219.87), 64 hops max  
 1  * * *  
 2  * * *  
 3  * * *  
 4  * * *  
 5  * * *  
 6  * * *  
 7  * * *  
 8  * * *  
 9  * * *  
10  * * *  
11  * * *  
12  * * *  
13  * * *  
14  * * *  
15  * * *
```

## 6) hostname

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ hostname  
Laptop-abi13  
ubuntu@Laptop-abi13:~$
```

## 7) df

```

ubuntu@Laptop-abi13: ~
ubuntu@Laptop-abi13:~$ df

```

Filesystem	1K-blocks	Used	Available	Use%	Mounted on
rootfs	314863612	96274568	218589044	31%	/
none	314863612	96274568	218589044	31%	/dev
none	314863612	96274568	218589044	31%	/run
none	314863612	96274568	218589044	31%	/run/lock
none	314863612	96274568	218589044	31%	/run/shm
none	314863612	96274568	218589044	31%	/run/user
tmpfs	314863612	96274568	218589044	31%	/sys/fs/cgroup
C:\	314863612	96274568	218589044	31%	/mnt/c
D:\	330300412	648564	329651848	1%	/mnt/d
E:\	330300412	671176	329629236	1%	/mnt/e

```

ubuntu@Laptop-abi13:~$

```

## 8) mount

```

ubuntu@Laptop-abi13: ~
ubuntu@Laptop-abi13:~$ mount

```

Device	Mount Point	Type	Options
rootfs	/	wsfs	(rw,noatime)
none	/dev	tmpfs	(rw,noatime,mode=755)
sysfs	/sys	sysfs	(rw,nosuid,nodev,noexec,noatime)
proc	/proc	proc	(rw,nosuid,nodev,noexec,noatime)
devpts	/dev/pts	devpts	(rw,nosuid,noexec,noatime,gid=5,mode=620)
none	/run	tmpfs	(rw,nosuid,noexec,noatime,mode=755)
none	/run/lock	tmpfs	(rw,nosuid,nodev,noexec,noatime)
none	/run/shm	tmpfs	(rw,nosuid,nodev,noatime)
none	/run/user	tmpfs	(rw,nosuid,nodev,noexec,noatime,mode=755)
binfmt_misc	/proc/sys/fs/binfmt_misc	binfmt_misc	(rw,relatime)
tmpfs	/sys/fs/cgroup	tmpfs	(rw,nosuid,nodev,noexec,relatime,mode=755)
cgroup	/sys/fs/cgroup/devices	cgroup	(rw,nosuid,nodev,noexec,relatime,devices)
C:\	/mnt/c	drvfs	(rw,noatime,uid=1000,gid=1000,case=off)
D:\	/mnt/d	drvfs	(rw,noatime,uid=1000,gid=1000,case=off)
E:\	/mnt/e	drvfs	(rw,noatime,uid=1000,gid=1000,case=off)

```

ubuntu@Laptop-abi13:~$

```

## 9) free

```

ubuntu@Laptop-abi13: ~
ubuntu@Laptop-abi13:~$ free

```

	total	used	free	shared	buff/cache	available
Mem:	4070820	3276412	565056	17720	229352	660676
Swap:	12582912	1574616	11008296			

```

ubuntu@Laptop-abi13:~$

```

10) ps

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ ps  
  PID TTY          TIME CMD  
    9 tty1      00:00:00 bash  
   810 tty1      00:00:00 ps  
ubuntu@Laptop-abi13:~$ _
```

11) uptime

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ uptime  
17:12:51 up 35 min,  0 users,  load average: 0.52, 0.58, 0.59  
ubuntu@Laptop-abi13:~$ _
```

12) w

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ w  
17:13:31 up 36 min,  0 users,  load average: 0.52, 0.58, 0.59  
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT  
ubuntu@Laptop-abi13:~$
```

### 13) nslookup

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ nslookup csmit.tech  
Server:          192.168.225.1  
Address:         192.168.225.1#53  
  
Non-authoritative answer:  
Name:   csmit.tech  
Address: 142.93.219.87  
  
ubuntu@Laptop-abi13:~$
```

### 14) host

```
ubuntu@Laptop-abi13: ~  
ubuntu@Laptop-abi13:~$ host csmit.tech  
csmit.tech has address 142.93.219.87  
csmit.tech mail is handled by 100 us2.mx2.mailhostbox.com.  
csmit.tech mail is handled by 100 us2.mx1.mailhostbox.com.  
csmit.tech mail is handled by 100 us2.mx3.mailhostbox.com.  
ubuntu@Laptop-abi13:~$
```

## 15) route

```
ubuntu@Laptop-abi13: /proc/net
ubuntu@Laptop-abi13:/proc/net$ route
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
127.0.0.0        0.0.0.0         255.0.0.0       U        256  0      0 lo
127.0.0.1        0.0.0.0         255.255.255.255 U        256  0      0 lo
127.255.255.255  0.0.0.0         255.255.255.255 U        256  0      0 lo
224.0.0.0        0.0.0.0         240.0.0.0       U        256  0      0 lo
255.255.255.255  0.0.0.0         255.255.255.255 U        256  0      0 lo
0.0.0.0          jiofi.local.htm 255.255.255.255 U        0    0      0 wifi0
192.168.225.0    0.0.0.0         255.255.255.0   U        256  0      0 wifi0
192.168.225.96   0.0.0.0         255.255.255.255 U        256  0      0 wifi0
192.168.225.255  0.0.0.0         255.255.255.255 U        256  0      0 wifi0
224.0.0.0        0.0.0.0         240.0.0.0       U        256  0      0 wifi0
255.255.255.255  0.0.0.0         255.255.255.255 U        256  0      0 wifi0
ubuntu@Laptop-abi13:/proc/net$ _
```

## RESULT

Hence basic Unix networking commands are studied.