

i. ipconfig, ipconfig /all

```
C:\Users\STUDENT>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::a51d:d3ed:883f:2dc8%12
    IPv4 Address. . . . . : 192.168.2.117
    Subnet Mask . . . . . : 255.255.248.0
    Default Gateway . . . . . : 192.168.7.254

C:\Users\STUDENT>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : DESKTOP-PC2HMJM
    Primary Dns Suffix . . . . . : 
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : Realtek PCIe GbE Family Controller
    Physical Address. . . . . : 1C-66-6D-8F-25-DB
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::a51d:d3ed:883f:2dc8%12(Preferred)
    IPv4 Address. . . . . : 192.168.2.117(Preferred)
    Subnet Mask . . . . . : 255.255.248.0
    Lease Obtained. . . . . : Friday, March 15, 2024 3:10:39 PM
    Lease Expires . . . . . : Saturday, March 16, 2024 3:10:39 PM
    Default Gateway . . . . . : 192.168.7.254
    DHCP Server . . . . . : 192.168.7.254
    DHCPv6 IAID . . . . . : 102524525
    DHCPv6 Client DUID. . . . . : 00-01-00-01-2A-BF-11-C2-1C-66-6D-8F-25-DB
    DNS Servers . . . . . : 192.168.7.254
    Primary WINS Server . . . . . : 192.168.0.104
    NetBIOS over Tcpip. . . . . : Enabled
```

ii. ipconfig /release, ipconfig /renew

```
C:\Users\STUDENT>ipconfig /release

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::a51d:d3ed:883f:2dc8%12
    Default Gateway . . . . . : 

C:\Users\STUDENT>ipconfig /renew

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::a51d:d3ed:883f:2dc8%12
    IPv4 Address. . . . . : 192.168.2.117
    Subnet Mask . . . . . : 255.255.248.0
    Default Gateway . . . . . : 192.168.7.254
```

iii. ipconfig /flushdns

Command Prompt

```
C:\Users\STUDENT>ipconfig /flushdns

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.

C:\Users\STUDENT>
```

iv. arp -a

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

Interface: 192.168.2.117 --- 0xc
    Internet Address      Physical Address      Type
    192.168.0.104          e4-54-e8-bd-b5-5a     dynamic
    192.168.0.120          c4-71-54-30-cb-14     dynamic
    192.168.0.124          8c-89-a5-d7-16-41     dynamic
    192.168.1.24           b0-7b-25-25-ad-57     dynamic
    192.168.2.57           3c-e9-f7-d1-e5-0c     dynamic
    192.168.3.80           54-77-87-b6-b5-e4     dynamic
    192.168.3.200          00-01-6c-d7-53-50     dynamic
    192.168.4.168          d8-cb-8a-46-09-06     dynamic
    192.168.5.214          10-62-e5-10-b4-c6     dynamic
    192.168.6.225          bc-0f-f3-cd-26-e3     dynamic
    192.168.7.39           c4-65-16-13-b3-bc     dynamic
    192.168.7.56           d0-8e-79-05-f4-9b     dynamic
    192.168.7.65           d8-cb-8a-27-a2-bb     dynamic
    192.168.7.254          7c-5a-1c-c8-66-82     dynamic
    192.168.7.255          ff-ff-ff-ff-ff-ff     static
    224.0.0.2              01-00-5e-00-00-02     static
    224.0.0.22             01-00-5e-00-00-16     static
    224.0.0.251            01-00-5e-00-00-fb     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
```

v. systeminfo

[illegible]

vi. ping (Try -c, -s, -t options)

```
C:\Users\STUDENT>ping google.com

Pinging google.com [142.250.199.174] with 32 bytes of data:
Reply from 142.250.199.174: bytes=32 time=2ms TTL=118
Reply from 142.250.199.174: bytes=32 time=2ms TTL=118
Reply from 142.250.199.174: bytes=32 time=2ms TTL=118
Reply from 142.250.199.174: bytes=32 time=2ms TTL=118

Ping statistics for 142.250.199.174:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 2ms, Average = 2ms
```

```
C:\Users\STUDENT>ping -s 1 google.com

Pinging google.com [142.250.71.110] with 32 bytes of data:
Reply from 142.250.71.110: bytes=32 time=62ms TTL=118
Reply from 142.250.71.110: bytes=32 time=131ms TTL=118
Reply from 142.250.71.110: bytes=32 time=76ms TTL=118
Reply from 142.250.71.110: bytes=32 time=28ms TTL=118

Ping statistics for 142.250.71.110:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 28ms, Maximum = 131ms, Average = 74ms
```

```
C:\Users\STUDENT>ping -s 2 google.com

Pinging google.com [142.250.71.110] with 32 bytes of data:
Reply from 142.250.71.110: bytes=32 time=10ms TTL=118
Reply from 142.250.71.110: bytes=32 time=19ms TTL=118
Reply from 142.250.71.110: bytes=32 time=17ms TTL=118
Reply from 142.250.71.110: bytes=32 time=34ms TTL=118

Ping statistics for 142.250.71.110:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 34ms, Average = 20ms
```

```
C:\Users\STUDENT>ping -s 3 google.com

Pinging google.com [142.250.71.110] with 32 bytes of data:
Reply from 142.250.71.110: bytes=32 time=8ms TTL=118
Reply from 142.250.71.110: bytes=32 time=12ms TTL=118
Reply from 142.250.71.110: bytes=32 time=8ms TTL=118
Reply from 142.250.71.110: bytes=32 time=9ms TTL=118

Ping statistics for 142.250.71.110:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 12ms, Average = 9ms

C:\Users\STUDENT>ping -s 4 google.com

Pinging google.com [142.250.71.110] with 32 bytes of data:
Reply from 142.250.71.110: bytes=32 time=9ms TTL=118
Reply from 142.250.71.110: bytes=32 time=52ms TTL=118
Reply from 142.250.71.110: bytes=32 time=15ms TTL=118
Reply from 142.250.71.110: bytes=32 time=32ms TTL=118

Ping statistics for 142.250.71.110:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 9ms, Maximum = 52ms, Average = 27ms

C:\Users\STUDENT>ping -t google.com

Pinging google.com [142.250.71.110] with 32 bytes of data:
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=5ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=3ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118
Reply from 142.250.71.110: bytes=32 time=2ms TTL=118

Ping statistics for 142.250.71.110:
    Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 5ms, Average = 2ms
Control-C
^C
C:\Users\STUDENT>
```

vii. nslookup

```
C:\Users\STUDENT>nslookup
Default Server:  sophos.sfit.co.in
Address:  192.168.7.254

> www.google.com
Server:  sophos.sfit.co.in
Address:  192.168.7.254

Non-authoritative answer:
Name:      www.google.com
Addresses:  2404:6800:4009:832::2004
            142.250.192.4
```

viii.tracert

```
C:\Users\STUDENT>tracert www.meta.com

Tracing route to star.c10r.facebook.com [163.70.143.15]
over a maximum of 30 hops:

  1  <1 ms    <1 ms    <1 ms    sophos.sfit.co.in [192.168.7.254]
  2   1 ms     1 ms     1 ms     static-133.173.107.27-tataidc.co.in [27.107.173.133]
  3   *        2 ms     *        10.129.10.226
  4  11 ms     3 ms     2 ms     115.113.165.21.static-mumbai.vsnl.net.in [115.113.165.21]
  5  30 ms     30 ms    30 ms    172.31.167.58
  6  24 ms     23 ms    23 ms    14.141.123.226.static-Chennai.vsnl.net.in [14.141.123.226]
  7   *        *        *        Request timed out.
  8  31 ms     34 ms    29 ms    if-ae-7-2.tcore1.mlv-mumbai.as6453.net [180.87.36.33]
  9  33 ms     38 ms    29 ms    ae31.pr02.bom1.tfbnw.net [157.240.81.208]
 10  38 ms     45 ms    39 ms    po106.psw02.bom2.tfbnw.net [129.134.33.201]
 11  32 ms     33 ms    31 ms    173.252.67.91
 12  28 ms     29 ms    28 ms    edge-star-shv-01-bom2.facebook.com [163.70.143.15]

Trace complete.
```

ix. netstat

```
C:\Users\STUDENT>netstat
```

Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:49679	DESKTOP-PC2HMJM:49680	ESTABLISHED
TCP	127.0.0.1:49680	DESKTOP-PC2HMJM:49679	ESTABLISHED
TCP	127.0.0.1:49681	DESKTOP-PC2HMJM:49682	ESTABLISHED
TCP	127.0.0.1:49682	DESKTOP-PC2HMJM:49681	ESTABLISHED
TCP	192.168.2.117:7680	192.168.2.141:56815	TIME_WAIT
TCP	192.168.2.117:7680	192.168.5.214:56388	TIME_WAIT
TCP	192.168.2.117:58040	20.198.118.190:https	ESTABLISHED
TCP	192.168.2.117:58055	sl-in-f188:5228	ESTABLISHED
TCP	192.168.2.117:58100	20.198.119.84:https	ESTABLISHED
TCP	192.168.2.117:58101	sg-in-f102:https	ESTABLISHED
TCP	192.168.2.117:58103	123:http	TIME_WAIT
TCP	192.168.2.117:58105	20.219.9.219:https	TIME_WAIT
TCP	192.168.2.117:58106	a23-54-83-209:https	ESTABLISHED
TCP	192.168.2.117:58107	a23-54-83-209:https	CLOSE_WAIT
TCP	192.168.2.117:58110	20.141.12.34:https	ESTABLISHED
TCP	192.168.2.117:58112	204.79.197.254:https	ESTABLISHED
TCP	192.168.2.117:58113	52.140.48.131:https	ESTABLISHED
TCP	192.168.2.117:58114	204.79.197.222:https	ESTABLISHED
TCP	192.168.2.117:58115	123:http	ESTABLISHED

x. route