MODERN COMPUTER NETWORKS LAB EXPERIMENTs

PING Command :
pinging AITD intranet (using IP)

```
C:\Users\hayst>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:
Reply from 192.168.1.10: bytes=32 time=205ms TTL=64
Reply from 192.168.1.10: bytes=32 time=31ms TTL=64
Reply from 192.168.1.10: bytes=32 time=70ms TTL=64
Reply from 192.168.1.10: bytes=32 time=11ms TTL=64

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 11ms, Maximum = 205ms, Average = 79ms
```

pinging google (using domain name)

```
C:\Users\hayst>ping www.google.com

Pinging www.google.com [142.250.192.4] with 32 bytes of data:
Reply from 142.250.192.4: bytes=32 time=61ms TTL=60
Reply from 142.250.192.4: bytes=32 time=58ms TTL=60
Reply from 142.250.192.4: bytes=32 time=58ms TTL=60
Reply from 142.250.192.4: bytes=32 time=303ms TTL=60

Ping statistics for 142.250.192.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 58ms, Maximum = 303ms, Average = 120ms
```

pinging amazon (using IP)

```
C:\Users\hayst>ping 108.157.247.185

Pinging 108.157.247.185 with 32 bytes of data:
Reply from 108.157.247.185: bytes=32 time=3680ms TTL=248
Reply from 108.157.247.185: bytes=32 time=728ms TTL=248
Reply from 108.157.247.185: bytes=32 time=195ms TTL=248
Reply from 108.157.247.185: bytes=32 time=167ms TTL=248

Ping statistics for 108.157.247.185:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 167ms, Maximum = 3680ms, Average = 1192ms
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

ping /?

```
C:\Users\hayst>ping /?

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]
            [-r count] [-s count] [[-j host-list] | [-k host-list]]
            [-w timeout] [-R] [-S srcaddr] [-c compartment] [-p]
            [-4] [-6] target_name

Options:
    -t             Ping the specified host until stopped.
                   To see statistics and continue - type Control-Break;
                   To stop - type Control-C.
    -a             Resolve addresses to hostnames.
    -n count       Number of echo requests to send.
    -l size        Send buffer size.
    -f             Set Don't Fragment flag in packet (IPv4-only).
    -i TTL         Time To Live.
    -v TOS         Type Of Service (IPv4-only. This setting has been depreca
ted
                   and has no effect on the type of service field in the IP
                   Header).
    -r count       Record route for count hops (IPv4-only).
    -s count       Timestamp for count hops (IPv4-only).
    -j host-list   Loose source route along host-list (IPv4-only).
    -k host-list   Strict source route along host-list (IPv4-only).
    -w timeout     Timeout in milliseconds to wait for each reply.
    -R             Use routing header to test reverse route also (IPv6-only)
.
                   Per RFC 5095 the use of this routing header has been
                   deprecated. Some systems may drop echo requests if
                   this header is used.
    -S srcaddr     Source address to use.
    -c compartment Routing compartment identifier.
    -p             Ping a Hyper-V Network Virtualization provider address.
    -4             Force using IPv4.
    -6             Force using IPv6.
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

IPCONFIG Command :

```
C:\Users\hayst>ipconfig

Windows IP Configuration


Wireless LAN adapter Local Area Connection* 9:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter WiFi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::33db:4580:8af8:48ef%18
   IPv4 Address. . . . . . . . . . . : 10.1.14.114
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . : 10.1.0.1

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

GETMAC Command :

```
C:\Users\hayst>getmac

Physical Address    Transport Name
=================== =====================================================
4C-D5-77-91-69-FF   \Device\Tcpip_{D580B9B6-02CD-4B8D-B51B-AA46A8B79455}
4C-D5-77-91-6A-00   Media disconnected
```

HOSTNAME Command :

```
C:\Users\hayst>hostname
HAYDC24
```

NSLOOKUP Command :

```
C:\Users\hayst>nslookup
Default Server:  dns.google
Address:  8.8.8.8
```

```
C:\Users\hayst>nslookup 108.157.247.185
Server:  dns.google
Address:  8.8.8.8

Name:     server-108-157-247-185.hyd57.r.cloudfront.net
Address:  108.157.247.185
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

```
C:\Users\hayst>nslookup www.aitdgoa.edu.in
Server:  dns.google
Address:  8.8.8.8

Non-authoritative answer:
Name:     www.aitdgoa.edu.in
Addresses:  2606:4700:3033::6815:2676
          2606:4700:3037::ac43:de95
          104.21.38.118
          172.67.222.149
```

SYSTEMINFO Command:

```
C:\Users\hayst>systeminfo

Host Name:                 HAYDC24
OS Name:                   Microsoft Windows 11 Home
OS Version:                10.0.22621 N/A Build 22621
OS Manufacturer:           Microsoft Corporation
OS Configuration:          Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:          haystend@gmail.com
Registered Organization:   HP
Product ID:                00342-20765-41305-AAOEM
Original Install Date:     08-01-2023, 20:27:03
System Boot Time:          26-01-2024, 12:58:47
System Manufacturer:       HP
System Model:              HP Laptop 15s-eq2xxx
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: AMD64 Family 23 Model 104 Stepping 1 AuthenticAMD ~2100 Mhz
```

```
BIOS Version:              AMI F.31, 02-08-2023
Windows Directory:         C:\WINDOWS
System Directory:          C:\WINDOWS\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:             en-gb;English (United Kingdom)
Input Locale:              00004009
Time Zone:                 (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:     7,502 MB
Available Physical Memory: 679 MB
Virtual Memory: Max Size:  15,577 MB
Virtual Memory: Available: 5,608 MB
Virtual Memory: In Use:    9,969 MB
Page File Location(s):     C:\pagefile.sys
Domain:                    WORKGROUP
Logon Server:              \\HAYDC24
Hotfix(s):                 4 Hotfix(s) Installed.
                           [01]: KB5033920
                           [02]: KB5012170
                           [03]: KB5032190
                           [04]: KB5032393
Network Card(s):           1 NIC(s) Installed.
                           [01]: Realtek RTL8822CE 802.11ac PCIe Adapter
                                 Connection Name: WiFi
                                 Status:         Media disconnected
Hyper-V Requirements:      A hypervisor has been detected. Features required
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

TRACERT Command :

```
C:\Users\hayst>tracert google.com

Tracing route to google.com [2404:6800:4009:831::200e]
over a maximum of 30 hops:

  1      3 ms     84 ms      3 ms   2409:4081:2c86:4106::1d
  2      *         *          *     Request timed out.
  3    143 ms    203 ms    305 ms   2405:200:382:eeee:20::1284
  4    311 ms    100 ms    102 ms   2405:200:801:1d00::229
  5      *         *          *     Request timed out.
  6      *         *          *     Request timed out.
  7    166 ms    101 ms    123 ms   2001:4860:1:1::167a
  8    238 ms    100 ms    100 ms   2001:4860:1:1::167a
  9    230 ms     85 ms    235 ms   2404:6800:811c::1
 10    114 ms    101 ms    100 ms   2001:4860:0:1::3128
 11      *       542 ms    611 ms   2001:4860:0:1::5c05
 12    557 ms    572 ms    209 ms   bom12s21-in-x0e.1e100.net [2404:6800:

Trace complete.
```

```
C:\Users\Student>tracert 192.168.1.10

Tracing route to 192.168.1.10 over a maximum of 30 hops

  1     <1 ms     <1 ms     <1 ms   192.168.1.10

Trace complete.
```

```
C:\Users\Student>tracert 8.8.4.4

Tracing route to dns.google [8.8.4.4]
over a maximum of 30 hops:

  1     10 ms     15 ms     11 ms   115.244.172.169
  2      *         *          *     Request timed out.
  3     54 ms     51 ms     50 ms   172.16.4.115
  4     48 ms     52 ms     54 ms   172.16.2.48
  5     61 ms     62 ms     66 ms   142.251.225.29
  6     48 ms     51 ms     50 ms   72.14.237.11
  7     57 ms     59 ms     54 ms   dns.google [8.8.4.4]

Trace complete.
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

NETSTAT COmmand :

```
C:\Users\hayst>netstat

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    127.0.0.1:64890        HAYDC24:64893          ESTABLISHED
  TCP    127.0.0.1:64891        HAYDC24:64892          ESTABLISHED
  TCP    127.0.0.1:64892        HAYDC24:64891          ESTABLISHED
  TCP    127.0.0.1:64893        HAYDC24:64890          ESTABLISHED
  TCP    127.0.0.1:64894        HAYDC24:64896          ESTABLISHED
  TCP    127.0.0.1:64896        HAYDC24:64894          ESTABLISHED
  TCP    [::1]:1521             HAYDC24:49677          ESTABLISHED
  TCP    [::1]:49677            HAYDC24:1521           ESTABLISHED
  TCP    [2409:4081:2c86:4106:35fc:1877:e706:5d72]:65188  [2600:140f:1e00
```

```
C:\Users\Student>netstat 192.168.1.10

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    10.1.1.95:1521         COMPRT19:49167         ESTABLISHED
  TCP    10.1.1.95:8194         COMPRT19:49311         ESTABLISHED
  TCP    10.1.1.95:49167        COMPRT19:1521          ESTABLISHED
  TCP    10.1.1.95:49311        COMPRT19:8194          ESTABLISHED
  TCP    10.1.1.95:49349        bom07s28-in-f5:https   ESTABLISHED
  TCP    10.1.1.95:49385        sd-in-f188:https       ESTABLISHED
  TCP    10.1.1.95:49882        a104-85-150-244:https  CLOSE_WAIT
  TCP    10.1.1.95:49892        a104-85-150-244:https  CLOSE_WAIT
  TCP    10.1.1.95:51452        192.168.1.3:8192       SYN_SENT
  TCP    10.1.1.95:51506        104.208.16.93:http     SYN_SENT
  TCP    127.0.0.1:49294        COMPRT19:49295         ESTABLISHED
  TCP    127.0.0.1:49295        COMPRT19:49294         ESTABLISHED
  TCP    127.0.0.1:49300        COMPRT19:49301         ESTABLISHED
  TCP    127.0.0.1:49301        COMPRT19:49300         ESTABLISHED
  TCP    127.0.0.1:49313        COMPRT19:49314         ESTABLISHED
  TCP    127.0.0.1:49314        COMPRT19:49313         ESTABLISHED
  TCP    127.0.0.1:51399        COMPRT19:51400         TIME_WAIT
  TCP    127.0.0.1:51402        COMPRT19:51403         TIME_WAIT
  TCP    127.0.0.1:51405        COMPRT19:51406         TIME_WAIT
  TCP    127.0.0.1:51478        COMPRT19:51479         TIME_WAIT
  TCP    127.0.0.1:51481        COMPRT19:51482         TIME_WAIT
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

```
C:\Users\Student>netstat 8.8.4.4

Active Connections

  Proto  Local Address          Foreign Address        State
  TCP    10.1.1.95:1521         COMPRT19:49167         ESTABLISHED
  TCP    10.1.1.95:8194         COMPRT19:49311         ESTABLISHED
  TCP    10.1.1.95:49167        COMPRT19:1521          ESTABLISHED
  TCP    10.1.1.95:49311        COMPRT19:8194          ESTABLISHED
  TCP    10.1.1.95:49349        bom07s28-in-f5:https   ESTABLISHED
  TCP    10.1.1.95:49385        sd-in-f188:https       ESTABLISHED
  TCP    10.1.1.95:49882        a104-85-150-244:https  CLOSE_WAIT
  TCP    10.1.1.95:49892        a104-85-150-244:https  CLOSE_WAIT
  TCP    10.1.1.95:51417        104.208.16.93:http     SYN_SENT
  TCP    127.0.0.1:49294        COMPRT19:49295         ESTABLISHED
  TCP    127.0.0.1:49295        COMPRT19:49294         ESTABLISHED
  TCP    127.0.0.1:49300        COMPRT19:49301         ESTABLISHED
  TCP    127.0.0.1:49301        COMPRT19:49300         ESTABLISHED
  TCP    127.0.0.1:49313        COMPRT19:49314         ESTABLISHED
  TCP    127.0.0.1:49314        COMPRT19:49313         ESTABLISHED
  TCP    127.0.0.1:51350        COMPRT19:51351         TIME_WAIT
  TCP    127.0.0.1:51353        COMPRT19:51354         TIME_WAIT
  TCP    127.0.0.1:51356        COMPRT19:51357         TIME_WAIT
  TCP    127.0.0.1:51399        COMPRT19:51400         TIME_WAIT
  TCP    127.0.0.1:51402        COMPRT19:51403         TIME_WAIT
  TCP    127.0.0.1:51405        COMPRT19:51406         TIME_WAIT
```

ARP Command :

```
C:\Users\hayst>arp /a

Interface: 192.168.120.145 --- 0x12
  Internet Address      Physical Address      Type
  192.168.120.117       aa-4b-73-fd-de-22     dynamic
  192.168.120.255       ff-ff-ff-ff-ff-ff     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
```

MODERN COMPUTER NETWORKS LAB EXPERIMENTs

PATHPING Command :

```
C:\Users\hayst>pathping google.com

Tracing route to google.com [2404:6800:4009:803::200e]
over a maximum of 30 hops:
  0  HAYDC24 [2409:4081:2c86:4106:35fc:1877:e706:5d72]
  1  2409:4081:2c86:4106::9f
  2     *         *          *
Computing statistics for 25 seconds...
            Source to Here   This Node/Link
Hop  RTT     Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                             HAYDC24 [2409:4081:2c86:4106:35fc:1877:e706:5d72]
                                 0/ 100 =   0%   |
  1   26ms      0/ 100 =  0%    0/ 100 =   0%  2409:4081:2c86:4106::9f

Trace complete.
```

```
C:\Users\hayst>pathping 108.157.247.185

Tracing route to server-108-157-247-185.hyd57.r.cloudfront.net [108.157.247.185]
over a maximum of 30 hops:
  0  HAYDC24 [192.168.120.145]
  1  192.168.120.117
  2     *         *          *
Computing statistics for 25 seconds...
            Source to Here   This Node/Link
Hop  RTT     Lost/Sent = Pct  Lost/Sent = Pct  Address
  0                                             HAYDC24 [192.168.120.145]
                                 0/ 100 =   0%   |
  1   13ms      0/ 100 =  0%    0/ 100 =   0%  192.168.120.117

Trace complete.
```