

# ASSIGNMENT

**NETWORKING&SYSTEM ADMINISTRATION LAB**

Submitted by:

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1. Try out these network commands in Windows as well as in Linux and perform at least 4 options with each command: ping route traceroute, nslookup, Ip Config, NetStat

### Ipconfig

```
Command Prompt - NetStat
C:\Users\micromedia02>IPConfig

Windows IP Configuration

Ethernet adapter Ethernet:

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

Ethernet adapter VirtualBox Host-Only Network:

   Connection-specific DNS Suffix . . :
   Link-local IPv6 Address . . . . . : fe80::916d:54ef:c3d6:57b3%13
   IPv4 Address. . . . . : 192.168.56.1
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . . :

Wireless LAN adapter Local Area Connection* 1:

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

Wireless LAN adapter Local Area Connection* 2:

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

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix . . :
   IPv6 Address. . . . . : 2409:4073:4e09:8072:a83c:cd31:7f17:8b0c
   Temporary IPv6 Address . . . . . : 2409:4073:4e09:8072:5464:c3eb:9f04:edfb
   Link-local IPv6 Address . . . . . : fe80::a83c:cd31:7f17:8b0c%17
   IPv4 Address. . . . . : 192.168.43.220
   Subnet Mask . . . . . : 255.255.255.0
   Default Gateway . . . . . : fe80::84a6:bfff:fe2e:3ce7%17
   . . . . . : 192.168.43.1

Ethernet adapter Bluetooth Network Connection:

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

C:\Users\micromedia02>NetStat

Active Connections
```

### ifconfig

```
jisha@jisha-VirtualBox:~$ sudo ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::f7c3:6a7a:9d6b:876a prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:3b:54:e4 txqueuelen 1000 (Ethernet)
    RX packets 206 bytes 211656 (211.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 214 bytes 20590 (20.5 KB)
    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 679 bytes 51978 (51.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 679 bytes 51978 (51.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

jisha@jisha-VirtualBox:~$
```

### Netstat

```

Command Prompt
Connection-specific DNS Suffix  . : 
C:\Users\micromedia02>NetStat

Active Connections

Proto Local Address           Foreign Address         State
TCP    192.168.43.220:49585      197:https               TIME_WAIT
TCP    192.168.43.220:49552      20.197.71.89:https      ESTABLISHED
TCP    192.168.43.220:49663      ec2-52-202-128-45:https TIME_WAIT
TCP    192.168.43.220:49723      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:49899      76:https               TIME_WAIT
TCP    192.168.43.220:50259      ma005z1-in-f4:https    TIME_WAIT
TCP    192.168.43.220:50328      40.119.205.193:https   TIME_WAIT
TCP    192.168.43.220:50444      ec2-52-202-128-45:https TIME_WAIT
TCP    192.168.43.220:50584      a97adde81b00f2ca4:https TIME_WAIT
TCP    192.168.43.220:51178      ec2-52-221-144-69:https TIME_WAIT
TCP    192.168.43.220:51271      90:https               TIME_WAIT
TCP    192.168.43.220:52050      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:52345      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:52727      204.79.197.222:https   ESTABLISHED
TCP    192.168.43.220:52729      20.38.0.3:https        ESTABLISHED
TCP    192.168.43.220:52730      117.18.237.29:http    ESTABLISHED
TCP    192.168.43.220:52731      13.107.6.254:https     ESTABLISHED
TCP    192.168.43.220:52966      ec2-34-235-197-155:https TIME_WAIT
TCP    192.168.43.220:53793      ma005z19-in-f6:https  TIME_WAIT
TCP    192.168.43.220:54843      111:https              TIME_WAIT
TCP    192.168.43.220:55949      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:56201      121:https              TIME_WAIT
TCP    192.168.43.220:56495      server-13-225-255-71:https TIME_WAIT
TCP    192.168.43.220:56839      server-13-225-255-71:https TIME_WAIT
TCP    192.168.43.220:57288      51.104.167.255:https   TIME_WAIT
TCP    192.168.43.220:57289      20.198.162.76:https    ESTABLISHED
TCP    192.168.43.220:58705      ec2-3-222-213-29:https TIME_WAIT
TCP    192.168.43.220:58953      ma005z1-in-f4:https    TIME_WAIT
TCP    192.168.43.220:59313      ec2-34-235-197-155:https TIME_WAIT
TCP    192.168.43.220:60049      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:60111      ma003k43-in-f2:https   TIME_WAIT
TCP    192.168.43.220:60251      ec2-3-222-213-29:https TIME_WAIT
TCP    192.168.43.220:60465      ec2-3-222-213-29:https TIME_WAIT
TCP    192.168.43.220:60969      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:61126      ma003k43-in-f2:https   TIME_WAIT
TCP    192.168.43.220:61570      ec2-3-215-64-185:https TIME_WAIT
TCP    192.168.43.220:61658      ec2-34-235-197-155:https TIME_WAIT
TCP    192.168.43.220:62024      121:https              TIME_WAIT
TCP    192.168.43.220:62800      ec2-3-222-213-29:https TIME_WAIT
TCP    192.168.43.220:62801      20.44.10.123:https     ESTABLISHED
TCP    192.168.43.220:62803      ec2-52-45-61-27:https  TIME_WAIT
TCP    192.168.43.220:63358      ec2-3-222-213-29:https ESTABLISHED
TCP    192.168.43.220:63634      40.79.197.35:https     ESTABLISHED

```

## Netstat in linux

```

jisha@jisha-VirtualBox:~$ sudo netstat
[sudo] password for jisha:
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
udp        0      0 0 jisha-VirtualBox:bootpc _gateway:bootpc        ESTABLISHED

Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags   Type       State         I-Node  Path
unix    2      [ ]   DGRAM          25065      /run/user/1000/systemd/notify
unix    2      [ ]   DGRAM          15163      /run/systemd/journal/syslog
unix   16      [ ]   DGRAM          15173      /run/systemd/journal/dev-log
unix    8      [ ]   DGRAM          15177      /run/systemd/journal/socket
unix    3      [ ]   DGRAM          15149      /run/systemd/notify
unix    3      [ ]   STREAM         CONNECTED    31986
unix    3      [ ]   STREAM         CONNECTED    28502      /run/user/1000/bus
unix    3      [ ]   STREAM         CONNECTED    30760
unix    3      [ ]   STREAM         CONNECTED    32000
unix    3      [ ]   STREAM         CONNECTED    29165
unix    3      [ ]   STREAM         CONNECTED    25890      /run/systemd/journal/stdout
unix    3      [ ]   STREAM         CONNECTED    31917
unix    3      [ ]   STREAM         CONNECTED    25837
unix    3      [ ]   STREAM         CONNECTED    30547
unix    3      [ ]   STREAM         CONNECTED    29168      /run/dbus/system_bus_socket
unix    3      [ ]   STREAM         CONNECTED    28905      /run/systemd/journal/stdout
unix    3      [ ]   STREAM         CONNECTED    31987      /run/systemd/journal/stdout
unix    2      [ ]   DGRAM          25832
unix    3      [ ]   STREAM         CONNECTED    30736      /run/dbus/system_bus_socket
unix    3      [ ]   STREAM         CONNECTED    31697      /run/user/1000/bus
unix    3      [ ]   STREAM         CONNECTED    28904      /run/systemd/journal/stdout
unix    3      [ ]   STREAM         CONNECTED    18638
unix    3      [ ]   STREAM         CONNECTED    31010      /run/systemd/journal/stdout

```

## Traceroute

```

C:\Users\micromedia02>tracert
Usage: tracert [-d] [-h maximum_hops] [-j host-list] [-w timeout]
              [-R] [-S srcaddr] [-4] [-6] target_name

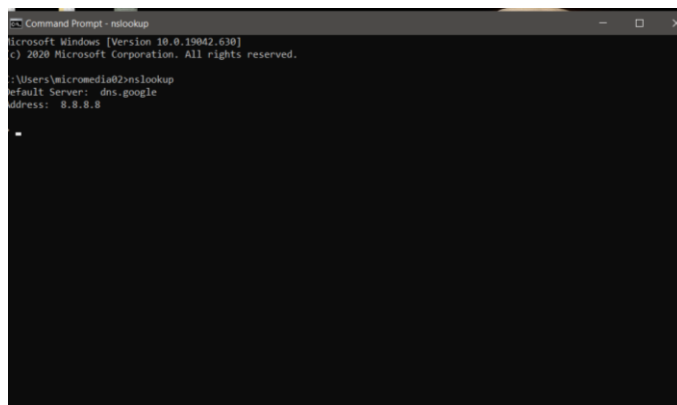
Options:
  -d          Do not resolve addresses to hostnames.
  -h maximum_hops  Maximum number of hops to search for target.
  -j host-list  Loose source route along host-list (IPv4-only).
  -w timeout    Wait timeout milliseconds for each reply.
  -R          Trace round-trip path (IPv6-only).
  -S srcaddr    Source address to use (IPv6-only).
  -4          Force using IPv4.

```

## Traceroute in linux

```
jisha@jisha-VirtualBox:~$ traceroute www.google.com
traceroute to www.google.com (142.250.182.4), 30 hops max, 60 byte packets
 1  _gateway (10.0.2.2)  1.613 ms  1.635 ms  1.620 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
```

## Nslookup



```
Command Prompt - nslookup
Microsoft Windows [Version 10.0.19042.630]
(c) 2020 Microsoft Corporation. All rights reserved.

c:\Users\micromedia2>nslookup
Default Server:  dns.google
Address:  8.8.8.8

*
```

## Nslookup in linux

```
jisha@jisha-VirtualBox:~$ nslookup google.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.196.14
Name:   google.com
Address: 2404:6800:4007:823::200e

jisha@jisha-VirtualBox:~$
```

## Route

```
Command Prompt
C:\Users\micromedia02>route

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] 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. Ignored for all other commands,
            which always affect the appropriate persistent routes.

-4          Force using IPv4.

-6          Force using IPv6.

command     One of these:
            PRINT      Prints a route
            ADD        Adds a route
            DELETE     Deletes a route
            CHANGE     Modifies an existing route
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.
gateway      Specifies gateway.
interface    the interface number for the specified route.
METRIC       specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database
file NETWORKS. The symbolic names for gateway are looked up in the host name
database file HOSTS.

If the command is PRINT or DELETE, Destination or gateway can be a wildcard,
(wildcard is specified as a star '*'), or the gateway argument may be omitted.

If Dest contains a * or ?, it is treated as a shell pattern, and only
matching destination routes are printed. The '*' matches any string,
and '?' matches any one char. Examples: 157.*.1, 157.*, 127.*, *224*.

Pattern match is only allowed in PRINT command.

Diagnostic Notes:
  Invalid MASK generates an error, that is when (DEST & MASK) != DEST.
  Example> route ADD 157.0.0.0 MASK 155.0.0.0 157.55.00.1 IF 1
  The route addition failed: The specified mask parameter is invalid. (Destination & Mask) != Destination.
```

## Route in linux

```
jitsha@jitsha-VirtualBox:~$ sudo route
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
default _gateway 0.0.0.0 UG 100 0 0 enp0s3
10.0.2.0 0.0.0.0 255.255.255.0 U 100 0 0 enp0s3
link-local 0.0.0.0 255.255.0.0 U 1000 0 0 enp0s3
jitsha@jitsha-VirtualBox:~$
```

## Ping

```
> route delete 010.0.0.0
C:\Users\micromedia02>ping

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-w 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 deprecated
            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 5092 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.
```

## Ping in linux

```
jisha@jisha-VirtualBox:~$ ping www.google.com
PING www.google.com (142.250.195.196) 56(84) bytes of data.
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=1 ttl=111 time=193 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=2 ttl=111 time=63.4 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=3 ttl=111 time=108 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=4 ttl=111 time=80.1 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=5 ttl=111 time=77.2 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=6 ttl=111 time=270 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=7 ttl=111 time=91.7 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=8 ttl=111 time=63.1 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=9 ttl=111 time=83.4 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=10 ttl=111 time=95.7 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=11 ttl=111 time=87.9 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=12 ttl=111 time=76.0 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=13 ttl=111 time=84.9 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=14 ttl=111 time=67.8 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=15 ttl=111 time=61.7 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=16 ttl=111 time=58.2 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=17 ttl=111 time=55.4 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=18 ttl=111 time=60.1 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=19 ttl=111 time=66.9 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=20 ttl=111 time=67.7 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=21 ttl=111 time=83.8 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=22 ttl=111 time=53.6 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=23 ttl=111 time=58.7 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=24 ttl=111 time=89.0 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=25 ttl=111 time=64.1 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=26 ttl=111 time=92.1 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=27 ttl=111 time=91.0 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=28 ttl=111 time=102 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=29 ttl=111 time=57.8 ms
64 bytes from maa03s42-in-f4.1e100.net (142.250.195.196): icmp_seq=30 ttl=111 time=81.8 ms
```

1. Identify and perform 5 more network commands and it's working  
**Getmac**

```
C:\Users\micromedia02>getmac

Physical Address      Transport Name
-----
DC-F5-05-F4-B5-11    \Device\NPF{D6C3BFF-0ED4-430D-82F5-FCB3D45A5BE3}
00-E8-2C-8D-21-99    Media disconnected
DC-F5-05-F4-B5-10    Media disconnected
0A-00-27-00-00-00     \Device\NPF{A42D1934-E311-4A22-8455-4E4C696D5120}

C:\Users\micromedia02>
```

## Hostname

```
C:\Users\micromedia02>getmac

Physical Address      Transport Name
-----
DC-F5-05-F4-B5-11    \Device\NPF{D6C3BFF-0ED4-430D-82F5-FCB3D45A5BE3}
00-E8-2C-8D-21-99    Media disconnected
DC-F5-05-F4-B5-10    Media disconnected
0A-00-27-00-00-00     \Device\NPF{A42D1934-E311-4A22-8455-4E4C696D5120}

C:\Users\micromedia02>hostname
LAPTOP-HIRSTOHI

C:\Users\micromedia02>
```

## ARP

```
C:\Users\micromedia02>arp

Displays and modifies the IP-to-Physical address translation tables used by
address resolution protocol (ARP).

ARP -s inet_addr eth_addr [if_addr]
ARP -d inet_addr [if_addr]
ARP -a [inet_addr] [-N if_addr] [-v]

-a          Displays current ARP entries by interrogating the current
            protocol data. If inet_addr is specified, the IP and Physical
            addresses for only the specified computer are displayed. If
            more than one network interface uses ARP, entries for each ARP
            table are displayed.
-g          Same as -a.
-v          Displays current ARP entries in verbose mode. All invalid
            entries and entries on the loop-back interface will be shown.
inet_addr   Specifies an internet address.
-N if_addr  Displays the ARP entries for the network interface specified
            by if_addr.
-d          Deletes the host specified by inet_addr. inet_addr may be
            wildcarded with * to delete all hosts.
-s          Adds the host and associates the Internet address inet_addr
            with the Physical address eth_addr. The Physical address is
            given as 6 hexadecimal bytes separated by hyphens. The entry
            is permanent.
eth_addr    Specifies a physical address.
if_addr     If present, this specifies the Internet address of the
            interface whose address translation table should be modified.
            If not present, the first applicable interface will be used.

Example:
> arp -s 157.55.85.212 00-aa-00-62-c6-09 .... Adds a static entry.
> arp -a .... Displays the arp table.

C:\Users\micromedia02>
```

## Systeminfo

```
Command Prompt
C:\Users\micromedia02>systeminfo

Host Name: LAPTOP-HIRSTONI
OS Name: Microsoft Windows 10 Home Single Language
OS Version: 10.0.19042 N/A Build 19042
OS Manufacturer: Microsoft Corporation
OS Configuration: Standalone Workstation
OS Build Type: Multiprocessor Free
Registered Owner: micromedia02
Registered Organization: HP
Product ID: 00327-35142-31596-AA0EM
Original Install Date: 25-05-2021, 15:54:34
System Boot Time: 31-08-2021, 16:27:21
System Manufacturer: HP
System Model: HP Laptop 15-da0xxx
System Type: x64-based PC
Processor(s): 1 Processor(s) Installed.
[01]: Intel(R) Core(TM) i5-10210U CPU @ 1.20GHz ~2300 Mhz
BIOS Version: Insyde F.21, 25-07-2019
Windows Directory: C:\WINDOWS
System Directory: C:\WINDOWS\system32
Root Device: \Device\HarddiskVolume1
System Locale: en-us;English (United States)
Input Locale: 00000409
Time Zone: (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory: 4,097 MB
Available Physical Memory: 714 MB
Virtual Memory: Max Size: 7,847 MB
Virtual Memory: Available: 2,546 MB
Virtual Memory: In Use: 5,301 MB
Page File Location(s): C:\pagefile.sys
Domain: WORKGROUP
Logon Server: \\LAPTOP-HIRSTONI
Hotfix(s): 6 Hotfix(s) Installed.
[01]: KB4578968
[02]: KB4562830
[03]: KB4570334
[04]: KB4580325
[05]: KB4586864
[06]: KB4586701
Network Card(s): 4 NIC(s) Installed.
[01]: Realtek RTL8723DE 802.11b/g/n PCIe Adapter
Connection Name: Wi-Fi
DHCP Enabled: Yes
DHCP Server: 192.168.43.1
IP address(es)
[01]: 192.168.43.220
[02]: fe80::a83c:cd31:7f17:8bdc
[03]: 2489:4073:4e09:8072:5464:c3cb:9f04:e6fb
[04]: 2489:4073:4e09:8072:a83c:cd31:7f17:8bdc
```

## Pathping

```
C:\Users\micromedia02>pathping

Usage: pathping [-g host-list] [-h maximum_hops] [-i address] [-n]
               [-p period] [-q num_queries] [-w timeout]
               [-4] [-6] target_name

Options:
  -g host-list      Loose source route along host-list.
  -h maximum_hops  Maximum number of hops to search for target.
  -i address        Use the specified source address.
  -n               Do not resolve addresses to hostnames.
  -p period         Wait period in milliseconds between pings.
  -q num_queries    Number of queries per hop.
  -w timeout        Wait timeout in milliseconds for each reply.
  -4               Force using IPv4.
  -6               Force using IPv6.

C:\Users\micromedia02>systeminfo

Host Name: LAPTOP-HIRSTONI
OS Name: Microsoft Windows 10 Home Single Language
OS Version: 10.0.19042 N/A Build 19042
OS Manufacturer: Microsoft Corporation
OS Configuration: Standalone Workstation
OS Build Type: Multiprocessor Free
```

## Net

```
Select Command Prompt

Connection Name: VirtualBox Host-Only Network
DHCP Enabled: No
IP address(es)
[01]: 192.168.56.1
[02]: fe80::916d:54ef:c3d6:57b3

Hyper-V Requirements:
  VM Monitor Mode Extensions: Yes
  Virtualization Enabled In Firmware: Yes
  Second Level Address Translation: Yes
  Data Execution Prevention Available: Yes

C:\Users\micromedia02>nbstat
'nbstat' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\micromedia02>net
The syntax of this command is:

NET
[ ACCOUNTS | COMPUTER | CONFIG | CONTINUE | FILE | GROUP | HELP |
  HELPMSG | LOCALGROUP | PAUSE | SESSION | SHARE | START |
  STATISTICS | STOP | TIME | USE | USER | VIEW ]

C:\Users\micromedia02>
```

## Nbtstat

```
Command Prompt
Type "TASKKILL /?" for usage.

C:\Users\micromedia02>nbtstat

Displays protocol statistics and current TCP/IP connections using NBT
(NetBIOS over TCP/IP).

NBTSTAT [ [-a RemoteName] [-A IP address] [-c [-n]]
          [-r] [-R] [-s] [-S] [interval] ]

-a (adapter status) Lists the remote machine's name table given its
-A (Adapter status) Lists the remote machine's name table given its
                    IP address.
-c (cache)          Lists NBT's cache of remote [machine] names and their IP addresses
-n (names)          Lists local NetBIOS names.
-r (resolved)       Lists names resolved by broadcast and via WINS
-R (Reload)         Purges and reloads the remote cache name table
-S (Sessions)       Lists sessions table with the destination IP addresses
-s (sessions)       Lists sessions table converting destination IP
                    addresses to computer NetBIOS names.
-RR (ReleaseRefresh) Sends Name Release packets to WINS and then, starts Refresh

RemoteName Remote host machine name.
IP address Dotted decimal representation of the IP address.
Interval Redisplay selected statistics, pausing interval seconds
          between each display. Press Ctrl+C to stop redisplaying
          statistics.

C:\Users\micromedia02>
```

## Linux commands

### ls

```
jisha@jisha-VirtualBox:~$ ls
allfiles.txt  appu      books     dai.txt   Documents  ha.pub    hl.txt    minnu     Pictures  Videos
allfolder    appu.txt  BOOKS     Desktop  Downloads  hello     h.txt     Music     Public    wordpress
ammu.txt     archive.tar class.txt  de.txt    ha         hello.txt latest.tar.gz number.txt Templates work
```

```
jisha@jisha-VirtualBox:~$ history
1  ls
2  pwd
3  history
4  man
5  man ls
6  cd
7  cd .
8  cd /
9  ls
10 mkdir jisha
11 mkdir ammu
12 mkdir -p jisha
13 mkdir
14 mkdir -m ammu
15 mkdir jisha
16 cd jisha
17 cd desktop
18 cd --
19 mkdir minnu
20 cd minnu
21 rmdir minnu
22 mkdir minnu
```



```
jisha@jisha-VirtualBox:~$ touch test1.txt
jisha@jisha-VirtualBox:~$ mkdir book
jisha@jisha-VirtualBox:~$ ls
allfiles.txt  appu      book      class.txt  de.txt    ha      hello.txt  latest.tar.gz  number.txt  Templates  wordpress
allfolder    appu.txt  books     dal.txt    Documents ha.pub   hl.txt     minnu         Pictures    test1.txt  work
ammu.txt     archive.tar  BOOKS     Desktop    Downloads hello    h.txt     Music         Public      Videos
jisha@jisha-VirtualBox:~$ pwd
/home/jisha
jisha@jisha-VirtualBox:~$ sudo hostname
jisha-VirtualBox
```

## dig

```
jisha@jisha-VirtualBox:~$ dig google.com

; <<>> DiG 9.16.1-Ubuntu <<>> google.com
;; global options: +cmd
;; Got answer:
;; ->HEADER<- opcode: QUERY, status: NOERROR, id: 38604
;; flags: qr rd ra; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 1

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

;; ANSWER SECTION:
google.com.                224     IN      A      142.250.205.238

;; Query time: 71 msec
;; SERVER: 127.0.0.53#53(127.0.0.53)
;; WHEN: Sun Sep 12 14:41:33 IST 2021
;; MSG SIZE rcvd: 55
```

## arp

```
jisha@jisha-VirtualBox:~$ arp -e
Address          HWtype  HWaddress      Flags Mask            Iface
_gateway         ether    52:54:00:12:35:02  C                    enp0s3
jisha@jisha-VirtualBox:~$
```

## host

```
-o use IPv6 query transport only
jisha@jisha-VirtualBox:~$ host google.com
google.com has address 142.250.205.238
google.com has IPv6 address 2404:6800:4007:808::200e
google.com mail is handled by 10 aspmx.l.google.com.
google.com mail is handled by 20 alt1.aspmx.l.google.com.
google.com mail is handled by 30 alt2.aspmx.l.google.com.
google.com mail is handled by 50 alt4.aspmx.l.google.com.
google.com mail is handled by 40 alt3.aspmx.l.google.com.
jisha@jisha-VirtualBox:~$
```