

**NETWORKING & SYSTEM ADMINISTRATION LAB****Experiment No.: 25****Aim**

Familiarization of basic network commands in windows

Name: Swetha Prakash

Roll No: 46

Batch: MCA B

Date: 02-06-2022

**Procedure****1. ipconfig**

This commands in windows allows you to see a summarized information of your network such as ip address, subnet mask , server address etc.

**Syntax :-** ipconfig

**Output :-**

```
C:\Users\Student>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet 4:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::142f:9783:684f:a27d%7
    IPv4 Address. . . . . : 192.168.6.46
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.6.100

Ethernet adapter VirtualBox Host-Only Network:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::60c6:9871:f4d0:b304%3
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    IPv6 Address. . . . . : 2001:0:2851:fc0:d3:14b6:8a3e:b01e
    Link-local IPv6 Address . . . . . : fe80::d3:14b6:8a3e:b01e%12
    Default Gateway . . . . . : ::
```

## 2. ipconfig/all

To see the the network information in detail. It is an extension of ipconfig command

**Syntax :-** ipconfig/all

**Output :-**

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

Windows IP Configuration

    Host Name . . . . . : S46
    Primary Dns Suffix . . . . . : mca.com
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No
    DNS Suffix Search List. . . . . : mca.com

Ethernet adapter Ethernet 4:

    Connection-specific DNS Suffix . : 
    Description . . . . . : Realtek PCIe GBE Family Controller #2
    Physical Address. . . . . : 78-24-AF-BA-C2-13
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::142f:9783:684f:a27d%7(Preferred)
    IPv4 Address. . . . . : 192.168.6.46(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.6.100
    DHCPv6 IAID . . . . . : 410526895
    DHCPv6 Client DUID. . . . . : 00-01-00-01-22-BD-FA-08-F0-79-59-8F-00-CC
    DNS Servers . . . . . : 192.168.6.254
                           8.8.8.8
    NetBIOS over Tcpip. . . . . : Enabled

Ethernet adapter VirtualBox Host-Only Network:

    Connection-specific DNS Suffix . : 
    Description . . . . . : VirtualBox Host-Only Ethernet Adapter
    Physical Address. . . . . : 0A-00-27-00-00-03
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::60c6:9871:f4d0:b304%3(Preferred)
    IPv4 Address. . . . . : 192.168.56.1(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 
    DHCPv6 IAID . . . . . : 470417447
    DHCPv6 Client DUID. . . . . : 00-01-00-01-22-BD-FA-08-F0-79-59-8F-00-CC
    DNS Servers . . . . . : fec0:0:0:ffff::1%1
                           fec0:0:0:ffff::2%1
                           fec0:0:0:ffff::3%1
```

```

NetBIOS over Tcpip. . . . . : Enabled

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : Microsoft Teredo Tunneling Adapter
    Physical Address. . . . . : 00-00-00-00-00-00-E0
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    IPv6 Address. . . . . : 2001:0:2851:fc0:d3:14b6:8a3e:b01e(Preferred)
    Link-local IPv6 Address . . . . : fe80::d3:14b6:8a3e:b01e%12(Preferred)
    Default Gateway . . . . . : ::
    DHCPv6 IAID . . . . . : 167772160
    DHCPv6 Client DUID. . . . . : 00-01-00-01-22-BD-FA-08-F0-79-59-8F-00-CC
    NetBIOS over Tcpip. . . . . : Disabled

```

### 3. nslookup

To show the server to which the system is connected by default. If we want to find the ip address of a particular domain name, we can also use nslookup

**Syntax :-** nslookup

**Output :-**

```

C:\Users\Student>nslookup
Default Server:  UnKnown
Address:  192.168.6.254

> www.google.com
Server:  UnKnown
Address:  192.168.6.254

Non-authoritative answer:
Name:    www.google.com
Addresses:  2404:6800:4007:826::2004
           142.250.195.164

> www.amazon.com
Server:  UnKnown
Address:  192.168.6.254

Non-authoritative answer:
Name:    d3ag4hukkh62yn.cloudfront.net
Address:  52.84.12.185
Aliases:  www.amazon.com
           tp.47cf2c8c9-frontier.amazon.com

```

### 4. ping

The command used to check the availability of a host. The response shows the URL you are pinging, the ip address associated with the URL and the size of packets being sent on the first line . The next four lines shows the replies from each individual packets including the time(in milliseconds) for the response and the time to live(TTL) of the packet, that is the amount of time that must pass before the packet discarded.

**Syntax :-** ping <IP\_address>

**Output :-**

```
C:\Users\Student>ping 192.168.6.254

Pinging 192.168.6.254 with 32 bytes of data:
Reply from 192.168.6.254: bytes=32 time<1ms TTL=128
Reply from 192.168.6.254: bytes=32 time<1ms TTL=128
Reply from 192.168.6.254: bytes=32 time<1ms TTL=128
Reply from 192.168.6.254: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.6.254:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Student>

C:\Users\Student>ping 2404:6800:4007:826::2004

Pinging 2404:6800:4007:826::2004 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 2404:6800:4007:826::2004:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Users\Student>ping 142.250.195.164

Pinging 142.250.195.164 with 32 bytes of data:
Reply from 142.250.195.164: bytes=32 time=20ms TTL=59
Reply from 142.250.195.164: bytes=32 time=20ms TTL=59
Reply from 142.250.195.164: bytes=32 time=20ms TTL=59
Reply from 142.250.195.164: bytes=32 time=20ms TTL=59

Ping statistics for 142.250.195.164:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 20ms, Average = 20ms
```

## 5. tracert

The command used to show the packets that are passed through the router to which our system is connected to.

**Syntax :-** tracert <ip\_address\_of\_system>

**Output :-**

```
C:\Users\Student>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.
    -6                Force using IPv6.

C:\Users\Student>tracert 142.250.195.164

Tracing route to maa03s41-in-f4.1e100.net [142.250.195.164]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms    192.168.6.100
  2     1 ms     1 ms     5 ms    172.24.9.34
  3     *        *        *        Request timed out.
  4     *        *        *        Request timed out.
  5    17 ms    17 ms    17 ms    72.14.218.250
  6    17 ms    19 ms    18 ms    216.239.43.133
  7    16 ms    15 ms    15 ms    142.251.55.91
  8    20 ms    20 ms    20 ms    maa03s41-in-f4.1e100.net [142.250.195.164]

Trace complete.
```

## 6. route print

The command used to display and updates network routing table

**Syntax :-** route print

**Output :-**

```
C:\Users\Student>route print
=====
Interface List
 7...78 24 af ba c2 13 .....Realtek PCIe GBE Family Controller #2
 3...0a 00 27 00 00 03 .....VirtualBox Host-Only Ethernet Adapter
 1.....Software Loopback Interface 1
 12...00 00 00 00 00 00 e0 Microsoft Teredo Tunneling Adapter
=====

IPv4 Route Table
=====
Active Routes:
Network Destination        Netmask          Gateway          Interface        Metric
    0.0.0.0                0.0.0.0        192.168.6.100    192.168.6.46     281
    127.0.0.0              255.0.0.0           On-link         127.0.0.1       331
    127.0.0.1            255.255.255.255     On-link         127.0.0.1       331
 127.255.255.255        255.255.255.255     On-link         127.0.0.1       331
    192.168.6.0            255.255.255.0     On-link         192.168.6.46     281
    192.168.6.46          255.255.255.255     On-link         192.168.6.46     281
    192.168.6.255         255.255.255.255     On-link         192.168.6.46     281
    192.168.56.0            255.255.255.0     On-link         192.168.56.1     281
    192.168.56.1          255.255.255.255     On-link         192.168.56.1     281
    192.168.56.255        255.255.255.255     On-link         192.168.56.1     281
    224.0.0.0              240.0.0.0           On-link         127.0.0.1       331
    224.0.0.0              240.0.0.0           On-link         192.168.56.1     281
    224.0.0.0              240.0.0.0           On-link         192.168.6.46     281
 255.255.255.255        255.255.255.255     On-link         127.0.0.1       331
 255.255.255.255        255.255.255.255     On-link         192.168.56.1     281
 255.255.255.255        255.255.255.255     On-link         192.168.6.46     281
=====
Persistent Routes:
Network Address          Netmask  Gateway Address  Metric
    0.0.0.0                0.0.0.0    192.168.6.100   Default
    0.0.0.0                0.0.0.0    192.168.6.100   Default
=====
```

```
IPv6 Route Table
=====
Active Routes:
If Metric Network Destination      Gateway
 12    331  ::/0                On-link
 1     331  ::1/128             On-link
 12    331  2001::/32           On-link
 12    331  2001:0:2851:fc0:d3:14b6:8a3e:b01e/128
                                On-link
 3     281  fe80::/64           On-link
 7     281  fe80::/64           On-link
 12    331  fe80::/64           On-link
 12    331  fe80::d3:14b6:8a3e:b01e/128
                                On-link
 7     281  fe80::142f:9783:684f:a27d/128
                                On-link
 3     281  fe80::60c6:9871:f4d0:b304/128
                                On-link
 1     331  ff00::/8            On-link
 3     281  ff00::/8            On-link
 7     281  ff00::/8            On-link
 12    331  ff00::/8            On-link
=====
Persistent Routes:
None
```



## 7. netstat

The network statistics or netstat command is a networking tool used for troubleshooting and configuration that can also serve a monitoring tool for the connections over the network.

**Syntax :-** netstat

**Output :-**

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

Active Connections

Proto	Local Address	Foreign Address	State
TCP	192.168.6.46:2754	20.198.162.76:https	ESTABLISHED
TCP	192.168.6.46:2795	a104-104-60-83:https	CLOSE_WAIT
TCP	192.168.6.46:2829	117.18.237.29:http	CLOSE_WAIT
TCP	192.168.6.46:2941	maa03s37-in-f3:https	TIME_WAIT
TCP	192.168.6.46:2942	maa05s20-in-f5:https	TIME_WAIT
TCP	192.168.6.46:2943	maa05s15-in-f10:https	TIME_WAIT
TCP	192.168.6.46:2944	maa03s47-in-f14:https	TIME_WAIT
TCP	192.168.6.46:2945	maa03s34-in-f1:https	TIME_WAIT
TCP	192.168.6.46:2946	maa03s45-in-f3:https	TIME_WAIT
TCP	192.168.6.46:2947	maa03s43-in-f10:https	TIME_WAIT
TCP	192.168.6.46:2948	maa03s38-in-f14:https	TIME_WAIT
TCP	192.168.6.46:2949	maa05s22-in-f14:https	TIME_WAIT
TCP	192.168.6.46:2950	maa03s47-in-f14:https	TIME_WAIT
TCP	192.168.6.46:2951	maa03s34-in-f1:https	TIME_WAIT
TCP	192.168.6.46:2952	maa03s47-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2953	maa03s34-in-f1:https	ESTABLISHED
TCP	192.168.6.46:2954	maa05s24-in-f13:https	ESTABLISHED
TCP	192.168.6.46:2955	123:http	ESTABLISHED
TCP	192.168.6.46:2956	maa05s19-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2957	maa05s19-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2960	maa05s16-in-f10:https	ESTABLISHED
TCP	192.168.6.46:2961	maa05s20-in-f5:https	ESTABLISHED
TCP	192.168.6.46:2962	maa03s40-in-f11:https	ESTABLISHED
TCP	192.168.6.46:2963	maa05s10-in-f10:https	ESTABLISHED
TCP	192.168.6.46:2964	maa03s41-in-f4:https	ESTABLISHED
TCP	192.168.6.46:2965	si-in-f188:5228	ESTABLISHED
TCP	192.168.6.46:2966	maa03s37-in-f3:https	ESTABLISHED
TCP	192.168.6.46:2967	sf-in-f139:https	ESTABLISHED
TCP	192.168.6.46:2968	maa05s12-in-f10:https	ESTABLISHED
TCP	192.168.6.46:2969	maa05s22-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2973	maa05s24-in-f3:https	ESTABLISHED
TCP	192.168.6.46:2977	maa03s38-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2978	maa03s46-in-f10:https	ESTABLISHED
TCP	192.168.6.46:2982	maa05s10-in-f3:https	ESTABLISHED
TCP	192.168.6.46:2986	maa05s19-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2987	maa05s21-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2988	maa05s12-in-f14:https	ESTABLISHED
TCP	192.168.6.46:2989	maa05s12-in-f14:https	ESTABLISHED