

CSI2007

NETWORKING AND COMMUNICATIONS

## LAB ASSESSMENT

## 1. IPCONFIG

## COMMANDS:

ipconfig

```
ipconfig /all
```

```
ipconfig /renew "Local Area Connection"
```

```
ipconfig /flushdns
```

```
ipconfig /displaydns
```

```
ipconfig /registerdns
```

```
ipconfig /showclassid Local
```

```
ipconfig /setclassid "Local Area Connection" TEST
```

*ipconfig*

[illegible]

*Ipconfig /all*

```
Command Prompt
C:\Users\THARUN>ipconfig /all

Windows IP Configuration

Host Name . . . . . : LAPTOP-GE8IC6VU
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter VirtualBox Host-Only Network:

Connection-specific DNS Suffix . :
Description . . . . . : VirtualBox Host-Only Ethernet Adapter
Physical Address. . . . . : 0A-00-27-00-00-08
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::84a7:9d0:1556:17a6%8(Preferrd)
Autoconfiguration IPv4 Address. . . : 169.254.23.166(Preferrd)
Subnet Mask . . . . . : 255.255.0.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 554303527
DHCPv6 Client DUID. . . . . : 00-01-00-01-26-9F-0D-FF-E8-D0-FC-F0-21-C3
DNS Servers . . . . . : fec0:0:0:ffff::1%1
                        fec0:0:0:ffff::2%1
                        fec0:0:0:ffff::3%1
NetBIOS over Tcpip. . . . . : Enabled

Wireless LAN adapter Local Area Connection* 3:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #7
Physical Address. . . . . : EA-D0-FC-F0-21-C3
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 16:

Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #8
```

```
Command Prompt

Wireless LAN adapter Local Area Connection* 16:

Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #8
Physical Address. . . . . : FA-D0-FC-F0-21-C3
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::acbc:c557:6c91:d71%25(Preferrd)
IPv4 Address. . . . . : 192.168.137.1(Preferrd)
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
DHCPv6 IAID . . . . . : 955961596
DHCPv6 Client DUID. . . . . : 00-01-00-01-26-9F-0D-FF-E8-D0-FC-F0-21-C3
DNS Servers . . . . . : fec0:0:0:ffff::1%1
                        fec0:0:0:ffff::2%1
                        fec0:0:0:ffff::3%1
NetBIOS over Tcpip. . . . . : Enabled

Wireless LAN adapter Wi-Fi:

Connection-specific DNS Suffix . :
Description . . . . . : Qualcomm Atheros QCA9377 Wireless Network Adapter
Physical Address. . . . . : E8-D0-FC-F0-21-C3
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2409:4072:6c92:96e9:4905:8c07:c2ac:3af8(Preferrd)
Temporary IPv6 Address. . . . . : 2409:4072:6c92:96e9:9d40:c9fa:a92c:74d7(Preferrd)
Link-local IPv6 Address . . . . . : fe80::4905:8c07:c2ac:3af8%16(Preferrd)
IPv4 Address. . . . . : 192.168.43.155(Preferrd)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : 04 February 2021 15:56:52
Lease Expires . . . . . : 04 February 2021 17:53:19
Default Gateway . . . . . : fec0:a25:25ff:fe22:3a75%16
                        192.168.43.1
DHCP Server . . . . . : 192.168.43.1
DHCPv6 IAID . . . . . : 518574332
DHCPv6 Client DUID. . . . . : 00-01-00-01-26-9F-0D-FF-E8-D0-FC-F0-21-C3
DNS Servers . . . . . : 192.168.43.1
NetBIOS over Tcpip. . . . . : Enabled
```

*Ipconfig /setclassid*

```
C:\Users\THARUN>ipconfig /setclassid "Wi-Fi" TEST
The requested operation requires elevation.
```

*Ipconfig /renew*

```
C:\Users\THARUN>ipconfig /renew "Local Area Connection* 16"

Windows IP Configuration

Adapter Local Area Connection* 16 is not enabled for DHCP.

C:\Users\THARUN>ipconfig /renew "Wireless LAN adapter Local Area Connection* 16"

Windows IP Configuration

The operation failed as no adapter is in the state permissible for
this operation.
```

*Ipconfig /displaydns*

```
C:\Users\THARUN>ipconfig /displaydns

Windows IP Configuration

r4---sn-gwpa-pmhl.googlevideo.com
-----
Record Name . . . . . : r4---sn-gwpa-pmhl.googlevideo.com
Record Type . . . . . : 5
Time To Live . . . . . : 505
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : r4.sn-gwpa-pmhl.googlevideo.com

Record Name . . . . . : r4.sn-gwpa-pmhl.googlevideo.com
Record Type . . . . . : 28
Time To Live . . . . . : 505
Data Length . . . . . : 16
Section . . . . . : Answer
AAAA Record . . . . . : 2405:200:1630:ff12::f

r1---sn-gwpa-h55y.googlevideo.com
-----
Record Name . . . . . : r1---sn-gwpa-h55y.googlevideo.com
Record Type . . . . . : 5
Time To Live . . . . . : 686
Data Length . . . . . : 8
Section . . . . . : Answer
CNAME Record . . . . . : r1.sn-gwpa-h55y.googlevideo.com

Record Name . . . . . : r1.sn-gwpa-h55y.googlevideo.com
Record Type . . . . . : 1
Time To Live . . . . . : 686
Data Length . . . . . : 4
Section . . . . . : Answer
```

.  
. .  
. .  
. .  
. .  
. .

```
Record Name . . . . . : nos.ns1.ff.avast.com
Record Type . . . . . : 1
Time To Live . . . . . : 100
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 5.62.54.63
```

```
Record Name . . . . . : nos.ns1.ff.avast.com
Record Type . . . . . : 1
Time To Live . . . . . : 100
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 5.62.54.89
```

```
Record Name . . . . . : nos.ns1.ff.avast.com
Record Type . . . . . : 1
Time To Live . . . . . : 100
Data Length . . . . . : 4
Section . . . . . : Answer
A (Host) Record . . . : 5.62.53.53
```

114.137.168.192.in-addr.arpa

```
-----
Record Name . . . . . : 114.137.168.192.in-addr.arpa.
Record Type . . . . . : 12
Time To Live . . . . . : 517752
Data Length . . . . . : 8
Section . . . . . : Answer
PTR Record . . . . . : RedmiNote5Pro-Redmi.mshome.net
```

C:\Users\THARUN>

*Ipconfig /registerdns*

```
C:\Users\THARUN>ipconfig /registerdns
The requested operation requires elevation.
```

*Ipconfig /flushdns*

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

Windows IP Configuration

Successfully flushed the DNS Resolver Cache.
```

*Ipconfig /showclassid*

```
C:\Users\THARUN>ipconfig /showclassid Wireless

Windows IP Configuration

The operation failed as no adapter is in the state permissible for
this operation.
```

## 2. PING

```
C:\Users\THARUN>echo "pinging the loopback address"
"pinging the loopback address"

C:\Users\THARUN>ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\THARUN>echo "pinging the ip address of the computer"
"pinging the ip address of the computer"

C:\Users\THARUN>ping 192.168.43.155

Pinging 192.168.43.155 with 32 bytes of data:
Reply from 192.168.43.155: bytes=32 time<1ms TTL=128
Reply from 192.168.43.155: bytes=32 time<1ms TTL=128
Reply from 192.168.43.155: bytes=32 time<1ms TTL=128
Reply from 192.168.43.155: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.43.155:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\Users\THARUN>echo "pinging the default gateway"
"pinging the default gateway"

C:\Users\THARUN>ping 192.168.43.1

Pinging 192.168.43.1 with 32 bytes of data:
Reply from 192.168.43.1: bytes=32 time=58ms TTL=64
Reply from 192.168.43.1: bytes=32 time=5ms TTL=64
Reply from 192.168.43.1: bytes=32 time=5ms TTL=64
Reply from 192.168.43.1: bytes=32 time=5ms TTL=64

Ping statistics for 192.168.43.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 58ms, Average = 18ms

C:\Users\THARUN>echo "pinging the DNS server"
"pinging the DNS server"

C:\Users\THARUN>ping 192.168.43.1

Pinging 192.168.43.1 with 32 bytes of data:
Reply from 192.168.43.1: bytes=32 time=6ms TTL=64
Reply from 192.168.43.1: bytes=32 time=18ms TTL=64
Reply from 192.168.43.1: bytes=32 time=23ms TTL=64
Reply from 192.168.43.1: bytes=32 time=29ms TTL=64

Ping statistics for 192.168.43.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 29ms, Average = 19ms
```

### 3. ARP

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

```
Interface: 169.254.23.166 --- 0x8
```

Internet Address	Physical Address	Type
169.254.255.255	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

```
Interface: 192.168.43.155 --- 0x10
```

Internet Address	Physical Address	Type
192.168.43.1	08-25-25-22-3a-75	dynamic
192.168.43.255	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
239.255.102.18	01-00-5e-7f-66-12	static
239.255.255.250	01-00-5e-7f-ff-fa	static
255.255.255.255	ff-ff-ff-ff-ff-ff	static

```
Interface: 192.168.137.1 --- 0x19
```

Internet Address	Physical Address	Type
192.168.137.255	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

```
C:\Users\THARUN>arp -g
```

```
Interface: 169.254.23.166 --- 0x8
```

Internet Address	Physical Address	Type
169.254.255.255	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

```
Interface: 192.168.43.155 --- 0x10
```

Internet Address	Physical Address	Type
192.168.43.1	08-25-25-22-3a-75	dynamic
192.168.43.255	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
239.255.102.18	01-00-5e-7f-66-12	static
239.255.255.250	01-00-5e-7f-ff-fa	static
255.255.255.255	ff-ff-ff-ff-ff-ff	static

```
Interface: 192.168.137.1 --- 0x19
```

Internet Address	Physical Address	Type
192.168.137.255	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

```
C:\Users\THARUN>arp -d
The ARP entry deletion failed: The requested operation requires elevation.

C:\Users\THARUN>arp -d 224.0.0.22
The ARP entry deletion failed: The requested operation requires elevation.

C:\Users\THARUN>arp -d 192.168.137.1
The ARP entry deletion failed: The requested operation requires elevation.
```

```
C:\Users\THARUN>arp -s

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.
```



## 4. NETSTAT

### *netstat -a*

```
Command Prompt
Microsoft Windows [Version 10.0.18363.1316]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\THARUN>netstat -a

Active Connections

Proto Local Address           Foreign Address         State
TCP    0.0.0.0:135             LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:445             LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:808             LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:1309            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:1521            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:3306            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:5040            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:5357            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:5560            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:5580            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:6646            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:7070            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:7250            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:8733            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:9001            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:9007            LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:33060           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49664           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49665           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49666           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49667           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49668           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49675           LAPTOP-GE8IC6VU:0      LISTENING
TCP    0.0.0.0:49787           LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:1521          LAPTOP-GE8IC6VU:49676  ESTABLISHED
TCP    127.0.0.1:12025         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12110         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12119         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12143         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12465         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12563         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12993         LAPTOP-GE8IC6VU:0      LISTENING
TCP    127.0.0.1:12995         LAPTOP-GE8IC6VU:0      LISTENING
```

```
Command Prompt

UDP    0.0.0.0:56224           *: *
UDP    0.0.0.0:61990           *: *
UDP    0.0.0.0:62970           *: *
UDP    127.0.0.1:1900          *: *
UDP    127.0.0.1:52720         *: *
UDP    127.0.0.1:54795         *: *
UDP    127.0.0.1:54796         *: *
UDP    127.0.0.1:54969         *: *
UDP    169.254.23.166:137      *: *
UDP    169.254.23.166:138      *: *
UDP    169.254.23.166:1900     *: *
UDP    169.254.23.166:2177     *: *
UDP    169.254.23.166:54967    *: *
UDP    192.168.137.1:67        *: *
UDP    192.168.137.1:68        *: *
UDP    192.168.137.1:137       *: *
UDP    192.168.137.1:138       *: *
UDP    192.168.137.1:1900      *: *
UDP    192.168.137.1:2177     *: *
UDP    192.168.137.1:54968     *: *
UDP    [::]:500                 *: *
UDP    [::]:3702                *: *
UDP    [::]:3702                *: *
UDP    [::]:4500                *: *
UDP    [::]:5353                *: *
UDP    [::]:5355                *: *
UDP    [::]:53282               *: *
UDP    [::]:56224               *: *
UDP    [::]:61990               *: *
UDP    [::]:62970               *: *
UDP    [::1]:1900               *: *
UDP    [::1]:54966              *: *
UDP    [fe80::84a7:9d0:1556:17a6%8]:546 *: *
UDP    [fe80::84a7:9d0:1556:17a6%8]:1900 *: *
UDP    [fe80::84a7:9d0:1556:17a6%8]:2177 *: *
UDP    [fe80::84a7:9d0:1556:17a6%8]:54964 *: *
UDP    [fe80::acbc:c557:6c91:d71%25]:1900 *: *
UDP    [fe80::acbc:c557:6c91:d71%25]:2177 *: *
UDP    [fe80::acbc:c557:6c91:d71%25]:54965 *: *
```

*netstat -e*

```
C:\Users\THARUN>netstat -e
Interface Statistics
```

	Received	Sent
Bytes	529402534	229225429
Unicast packets	3680705	2080113
Non-unicast packets	2961	116518
Discards	0	0
Errors	0	0
Unknown protocols	0	

*netstat -n*

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

## Active Connections

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:1521	127.0.0.1:49676	ESTABLISHED
TCP	127.0.0.1:49676	127.0.0.1:1521	ESTABLISHED
TCP	127.0.0.1:56337	127.0.0.1:56674	ESTABLISHED
TCP	127.0.0.1:56674	127.0.0.1:56337	ESTABLISHED
TCP	127.0.0.1:60704	127.0.0.1:60705	ESTABLISHED
TCP	127.0.0.1:60705	127.0.0.1:60704	ESTABLISHED
TCP	127.0.0.1:60707	127.0.0.1:60708	ESTABLISHED
TCP	127.0.0.1:60708	127.0.0.1:60707	ESTABLISHED
TCP	192.168.43.155:60837	161.69.226.22:443	ESTABLISHED

*netstat -o*

```
C:\Users\THARUN>netstat -o
```

## Active Connections

Proto	Local Address	Foreign Address	State	PID
TCP	127.0.0.1:1521	LAPTOP-GE8IC6VU:49676	ESTABLISHED	5280
TCP	127.0.0.1:49676	LAPTOP-GE8IC6VU:1521	ESTABLISHED	5380
TCP	127.0.0.1:56337	LAPTOP-GE8IC6VU:56674	ESTABLISHED	17492
TCP	127.0.0.1:56674	LAPTOP-GE8IC6VU:56337	ESTABLISHED	8896
TCP	127.0.0.1:60704	LAPTOP-GE8IC6VU:60705	ESTABLISHED	924
TCP	127.0.0.1:60705	LAPTOP-GE8IC6VU:60704	ESTABLISHED	924
TCP	127.0.0.1:60707	LAPTOP-GE8IC6VU:60708	ESTABLISHED	924
TCP	127.0.0.1:60708	LAPTOP-GE8IC6VU:60707	ESTABLISHED	924

*netstat -p*

```
C:\Users\THARUN>netstat -p
```

## Active Connections

Proto	Local Address	Foreign Address	State
-------	---------------	-----------------	-------

```
C:\Users\THARUN>
```

*netstat -s*

```
Command Prompt
C:\Users\THARUN>netstat -s

IPv4 Statistics

Packets Received           = 5172141
Received Header Errors     = 0
Received Address Errors    = 332
Datagrams Forwarded        = 0
Unknown Protocols Received = 4
Received Packets Discarded  = 30180
Received Packets Delivered  = 5538229
Output Requests            = 2036441
Routing Discards           = 0
Discarded Output Packets   = 17959
Output Packet No Route     = 610
Reassembly Required        = 0
Reassembly Successful      = 0
Reassembly Failures        = 0
Datagrams Successfully Fragmented = 2511
Datagrams Failing Fragmentation = 0
Fragments Created          = 14229

IPv6 Statistics

Packets Received           = 781090
Received Header Errors     = 0
Received Address Errors    = 0
Datagrams Forwarded        = 0
Unknown Protocols Received = 0
Received Packets Discarded  = 3795
Received Packets Delivered  = 919141
Output Requests            = 533433
Routing Discards           = 0
Discarded Output Packets   = 190
Output Packet No Route     = 26
Reassembly Required        = 0
Reassembly Successful      = 0
Reassembly Failures        = 0
Datagrams Successfully Fragmented = 0
Datagrams Failing Fragmentation = 0
Fragments Created          = 0
```

```
Command Prompt

Datagrams Failing Fragmentation = 0
Fragments Created               = 0

ICMPv4 Statistics

          Received      Sent
Messages    18669      17988
Errors       0          0
Destination Unreachable  18586    17903
Time Exceeded  0          0
Parameter Problems  0          0
Source Quenches  0          0
Redirects      0          0
Echo Replies    67         16
Echos         16         69
Timestamps     0          0
Timestamp Replies 0          0
Address Masks   0          0
Address Mask Replies 0          0
Router Solicitations 0          0
Router Advertisements 0          0

ICMPv6 Statistics

          Received      Sent
Messages    4582      5402
Errors       0          0
Destination Unreachable  40         294
Packet Too Big  0          0
Time Exceeded  39          0
Parameter Problems  0          0
Echos         0         44
Echo Replies    7          0
MLD Queries     0          0
MLD Reports     0          0
MLD Dones       0          0
Router Solicitations 0         250
Router Advertisements 182          0
Neighbor Solicitations 2584      2065
Neighbor Advertisements 1682      2749
Redirects       0          0
```

```

C:\Users\THARUN>netstat -r

Neighbor Advertisements 1682 2749
Redirects 0 0
Router Renumberings 0 0
Type 139 139 48

TCP Statistics for IPv4

Active Opens = 20362
Passive Opens = 902
Failed Connection Attempts = 8396
Reset Connections = 4578
Current Connections = 9
Segments Received = 2898402
Segments Sent = 1552978
Segments Retransmitted = 49181

TCP Statistics for IPv6

Active Opens = 5590
Passive Opens = 345
Failed Connection Attempts = 999
Reset Connections = 1263
Current Connections = 0
Segments Received = 801796
Segments Sent = 397220
Segments Retransmitted = 8560

UDP Statistics for IPv4

Datagrams Received = 2565091
No Ports = 13069
Receive Errors = 18184
Datagrams Sent = 408865

UDP Statistics for IPv6

Datagrams Received = 109880
No Ports = 556
Receive Errors = 1872
Datagrams Sent = 114178

```

## netstat -r

```

C:\Users\THARUN>netstat -r

Interface List
8...0a 00 27 00 00 08 .....VirtualBox Host-Only Ethernet Adapter
26...ea d0 fc f0 21 c3 .....Microsoft Wi-Fi Direct Virtual Adapter #7
25...fa d0 fc f0 21 c3 .....Microsoft Wi-Fi Direct Virtual Adapter #8
16...e8 d0 fc f0 21 c3 .....Qualcomm Atheros QCA9377 Wireless Network Adapter
1.....Software Loopback Interface 1

IPv4 Route Table
Active Routes:
Network Destination Netmask Gateway Interface Metric
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
169.254.0.0 255.255.0.0 On-link 169.254.23.166 281
169.254.23.166 255.255.255.255 On-link 169.254.23.166 281
169.254.255.255 255.255.255.255 On-link 169.254.23.166 281
192.168.137.0 255.255.255.0 On-link 192.168.137.1 281
192.168.137.1 255.255.255.255 On-link 192.168.137.1 281
192.168.137.255 255.255.255.255 On-link 192.168.137.1 281
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 169.254.23.166 281
224.0.0.0 240.0.0.0 On-link 192.168.137.1 281
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 169.254.23.166 281
255.255.255.255 255.255.255.255 On-link 192.168.137.1 281

Persistent Routes:
None

IPv6 Route Table
Active Routes:
If Metric Network Destination Gateway
1 331 ::1/128 On-link
8 281 fe80::/64 On-link
25 281 fe80::/64 On-link

Persistent Routes:
None

```

```

C:\Users\THARUN>netstat -r

25 281 fe80::/64 On-link
8 281 fe80::84a7:9d0:1556:17a6/128 On-link
25 281 fe80::acbc:c557:6c91:d71/128 On-link
1 331 ff00::/8 On-link
8 281 ff00::/8 On-link
25 281 ff00::/8 On-link

Persistent Routes:
None

```

*netstat interval*

```
C:\Users\THARUN>netstat interval

Displays protocol statistics and current TCP/IP network connections.

Command Prompt
Displays protocol statistics and current TCP/IP network connections.

NETSTAT [-a] [-b] [-e] [-f] [-n] [-o] [-p proto] [-r] [-s] [-x] [-t] [interval]

-a      Displays all connections and listening ports.
-b      Displays the executable involved in creating each connection or
        listening port. In some cases well-known executables host
        multiple independent components, and in these cases the
        sequence of components involved in creating the connection
        or listening port is displayed. In this case the executable
        name is in [] at the bottom, on top is the component it called,
        and so forth until TCP/IP was reached. Note that this option
        can be time-consuming and will fail unless you have sufficient
        permissions.
-e      Displays Ethernet statistics. This may be combined with the -s
        option.
-f      Displays Fully Qualified Domain Names (FQDN) for foreign
        addresses.
-n      Displays addresses and port numbers in numerical form.
-o      Displays the owning process ID associated with each connection.
-p proto Shows connections for the protocol specified by proto; proto
        may be any of: TCP, UDP, TCPv6, or UDPv6. If used with the -s
        option to display per-protocol statistics, proto may be any of:
        IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, or UDPv6.
-q      Displays all connections, listening ports, and bound
        nonlistening TCP ports. Bound nonlistening ports may or may not
        be associated with an active connection.
-r      Displays the routing table.
-s      Displays per-protocol statistics. By default, statistics are
        shown for IP, IPv6, ICMP, ICMPv6, TCP, TCPv6, UDP, and UDPv6;
        the -p option may be used to specify a subset of the default.
-t      Displays the current connection offload state.
-x      Displays NetworkDirect connections, listeners, and shared
        endpoints.
-y      Displays the TCP connection template for all connections.
        Cannot be combined with the other options.
interval Redisplay 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.
```

## 5. NBTSTAT

*nbtstat*

```
C:\Users\THARUN>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] [-RR] [-s] [-S] [interval] ]

-a (adapter status) Lists the remote machine's name table given its name
-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.
```

*nbtstat -c*

```
C:\Users\THARUN>nbtstat -c

VirtualBox Host-Only Network:
Node IpAddress: [169.254.23.166] Scope Id: []

    No names in cache

Wi-Fi:
Node IpAddress: [192.168.43.155] Scope Id: []

    No names in cache

Local Area Connection* 3:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

Local Area Connection* 16:
Node IpAddress: [192.168.137.1] Scope Id: []

    No names in cache
```

*nbtstat -n*

```
Command Prompt
C:\Users\THARUN>nbtstat -n

VirtualBox Host-Only Network:
Node IpAddress: [169.254.23.166] Scope Id: []

    NetBIOS Local Name Table

    Name                Type             Status
    -----
    WORKGROUP             <00>             GROUP           Registered
    LAPTOP-GE8IC6VU<20>   UNIQUE           Registered
    LAPTOP-GE8IC6VU<00>   UNIQUE           Registered

Wi-Fi:
Node IpAddress: [192.168.43.155] Scope Id: []

    NetBIOS Local Name Table

    Name                Type             Status
    -----
    WORKGROUP             <00>             GROUP           Registered
    LAPTOP-GE8IC6VU<20>   UNIQUE           Registered
    LAPTOP-GE8IC6VU<00>   UNIQUE           Registered

Local Area Connection* 3:
Node IpAddress: [0.0.0.0] Scope Id: []

    No names in cache

Local Area Connection* 16:
Node IpAddress: [192.168.137.1] Scope Id: []

    NetBIOS Local Name Table

    Name                Type             Status
    -----
    WORKGROUP             <00>             GROUP           Registered
    LAPTOP-GE8IC6VU<20>   UNIQUE           Registered
    LAPTOP-GE8IC6VU<00>   UNIQUE           Registered

C:\Users\THARUN>
```

*nbtstat -r*

```
C:\Users\THARUN>nbtstat -r

NetBIOS Names Resolution and Registration Statistics
-----

Resolved By Broadcast      = 0
Resolved By Name Server    = 0

Registered By Broadcast    = 42
Registered By Name Server  = 0
```

*nbtstat -R*

```
C:\Users\THARUN>nbtstat -R
Failed to Purge the NBT Remote Cache Table.
Failed to Purge the NBT Remote Cache Table.
Failed to Purge the NBT Remote Cache Table.
Failed to Purge the NBT Remote Cache Table.
```

*nbtstat -RR*

```
C:\Users\THARUN>nbtstat -RR
Failed Release and Refresh of Registered names
Access is denied
Failed Release and Refresh of Registered names
Access is denied
Failed Release and Refresh of Registered names
Access is denied
Failed Release and Refresh of Registered names
Access is denied
```

*nbtstat -s*

```
C:\Users\THARUN>nbtstat -s

VirtualBox Host-Only Network:
Node IpAddress: [169.254.23.166] Scope Id: []

    No Connections

Wi-Fi:
Node IpAddress: [192.168.43.155] Scope Id: []

    No Connections

Local Area Connection* 3:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

Local Area Connection* 16:
Node IpAddress: [192.168.137.1] Scope Id: []

    No Connections
```

*nbtstat -S*

```
C:\Users\THARUN>nbtstat -S

VirtualBox Host-Only Network:
Node IpAddress: [169.254.23.166] Scope Id: []

    No Connections

Wi-Fi:
Node IpAddress: [192.168.43.155] Scope Id: []

    No Connections

Local Area Connection* 3:
Node IpAddress: [0.0.0.0] Scope Id: []

    No Connections

Local Area Connection* 16:
Node IpAddress: [192.168.137.1] Scope Id: []

    No Connections
```

## 6. TRACERT

```
C:\Users\THARUN>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.
```