Experiment No. - 1.2

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Branch: 20BCC1 **Section/Group: A**
Semester: 5th **Date of Performance: 24/08/2022**
Subject Name: COMPUTER NETWORKS LAB
Subject Code: 20CSP-342

1. Aim:

Study the basic network command and Network configuration commands like ping, variations of ip config, tracert, nslookup, netstat, arp, hostname, pathping and basic networking commands.

2. Task to be done:

Study the basic network command and Network configuration commands like ping, variations of ip config, tracert, nslookup, netstat, arp, hostname, pathping and basic networking commands.

3. Requirements:

- PC.
- Command Prompt running as administrator.

4. Theory:

1. **Ping:** It is used to testing a network host capacity to interact with another host.
   Syntax: ping<target host's name/IP Address>
   - target: This is the destination IP address or a hostname user want to ping.
   - -a: This resolves the hostname of an IP address target.
   - -t: This ping command option will ping the target until you stop it by pressing Ctrl-C.

- -n count: This is used to set the number of ICMP Echo Requests to send, from 1 to 4294967295. If -n is not specified, the ping command will return 4 by default.
- -l size: This is used to set the size, in bytes, of the echo-request packet from 32 to 65,527. If the -l option is not specified, the ping command will send a 32-byte echo request.

2. **NetStat:** It is a Common TCP – IP networking command-line method present in most Windows, Linux, UNIX, and other operating systems.

   - -a: This will display all connection and ports
   - -b: Shows the executable involved in each connection or hearing port
   - -e: This protocol will combine with the -sand display the ethernet statistics
   - -n: This will display the address and the port number in the form of numerical
   - -o: It will display the ID of each connection for the ownership process.
   - -r: It will display the routing table
   - -v: When used in combination with -b, the link or hearing port sequence for every executable is shown.

3. **Ip Config:** The command IP config will display basic details about the device's IP address configuration.
4. **Hostname:** To communicate with each and other, the computer needs a unique address. A hostname can be alphabetic or alphanumeric and contain specific symbols.

   - hostname -s: The output will be localhost
   - hostname -i: Output the IP address for the hostname
   - hostname -d: find domain system of hostname
   - hostname -a: used to obtain aliases for computer

   Aliases: They are used to replace long names or keep real name private.

5. **Tracert:** It is a command which is used to get the network packet being sent and received and the number of hops required for that packet to reach to target. This command can also be referred to as a traceroute.
   Syntax: tracert [-d] [-h MaxHops] [-w TimeOut] target

- target: This is the destination, either an IP address or hostname.
- –d: This prevents Tracert from resolving IP addresses to hostnames to get faster results.
- -h MaxHops: This Tracert option specifies the maximum number of hops in the search for the target. If the MaxHops option is not specified the target has not been found by 30 hops, then the tracert command will stop looking.
- -w timeout: A timeout value must be specified while executing this ping command. It adjusts the amount of time in milliseconds.

6. **Nslookup:** The Nslookup, which stands for name server lookup command, provides name server information for the DNS i.e. the default DNS server's name and IP Address.

   Syntax: Nslookup or Nslookup [domain_name]

7. **Route:** In IP networks, routing tables are used to direct packets from one subnet to another. The Route command provides the device's routing tables. To get this result, just type route print.
8. **ARP:** The ARP command provides information like Address, Flags, Mask, IFace, Hardware Type, Hardware Address, etc.

   the packet delivery depends ultimately on the media access control (MAC). This is where the protocol for address resolution comes into effect. You can add the remote host IP address, which is an **arp -a** command, in case you have issues to communicate with a given host.

9. **Path Ping:** The pathping command which provides a combination of the best aspects of Tracert and Ping. This command takes 300 seconds to gather statistics.

   Syntax: path ping [-n] [-h] [-g <Hostlist>] [-p <Period>] [-q <NumQueries> [-w <timeout>] [-i <IPaddress>] [-4 <IPv4>] [-6 <IPv6>][<TargetName>]

   - n: Prevents path ping functioning from attempting to resolve routers' IP addresses to their names.
   - -h MaxHops: This tracert option specifies the maximum number of hops in the search for the target. If the MaxHops option is not specified the target has not been found by 30 hops then the tracert command will stop looking.

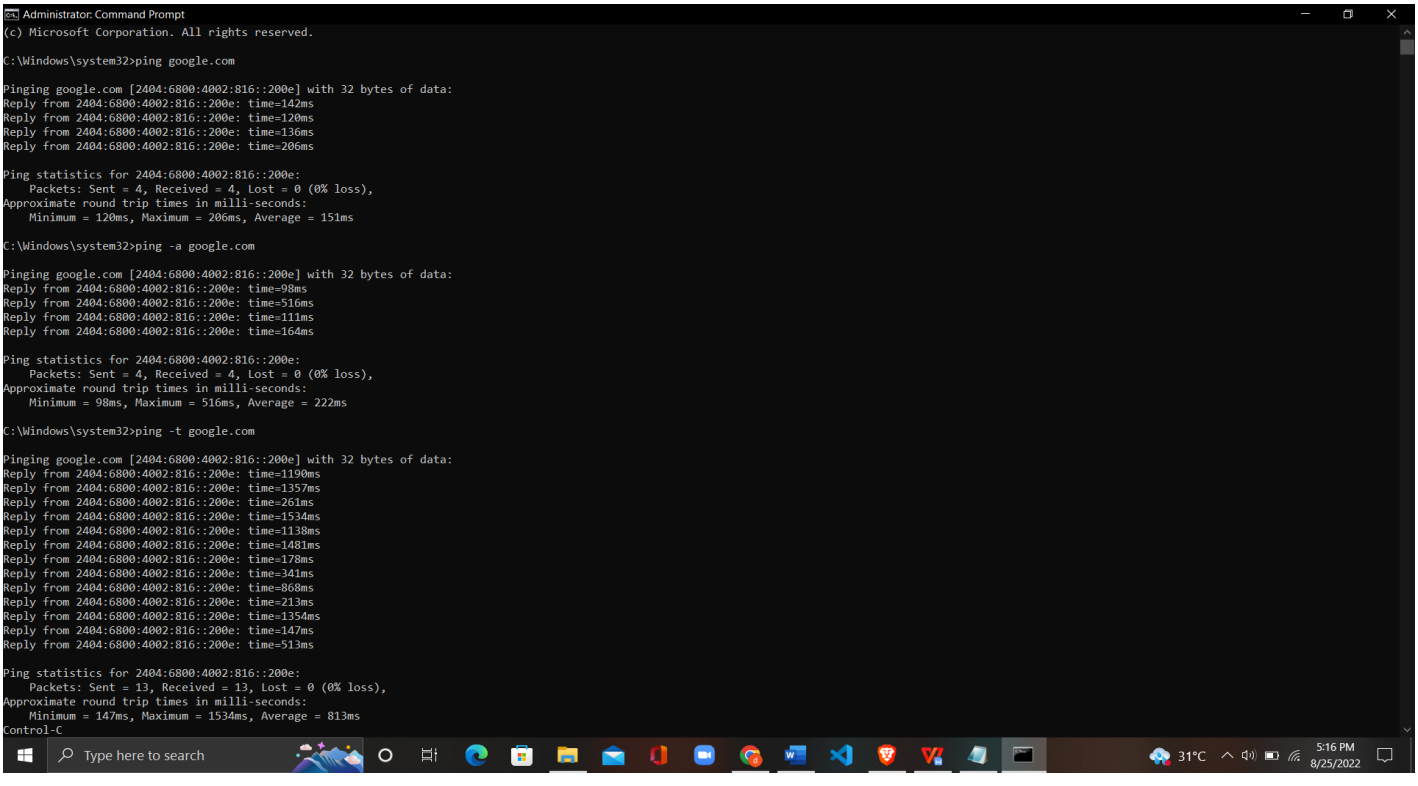
- -w timeout: A timeout value must be specified while executing this ping command. It adjusts the amount of time in milliseconds.
- -ip <IPaddress>: Indicates the source address.
- target: This is the destination IP address or a hostname user want to ping.

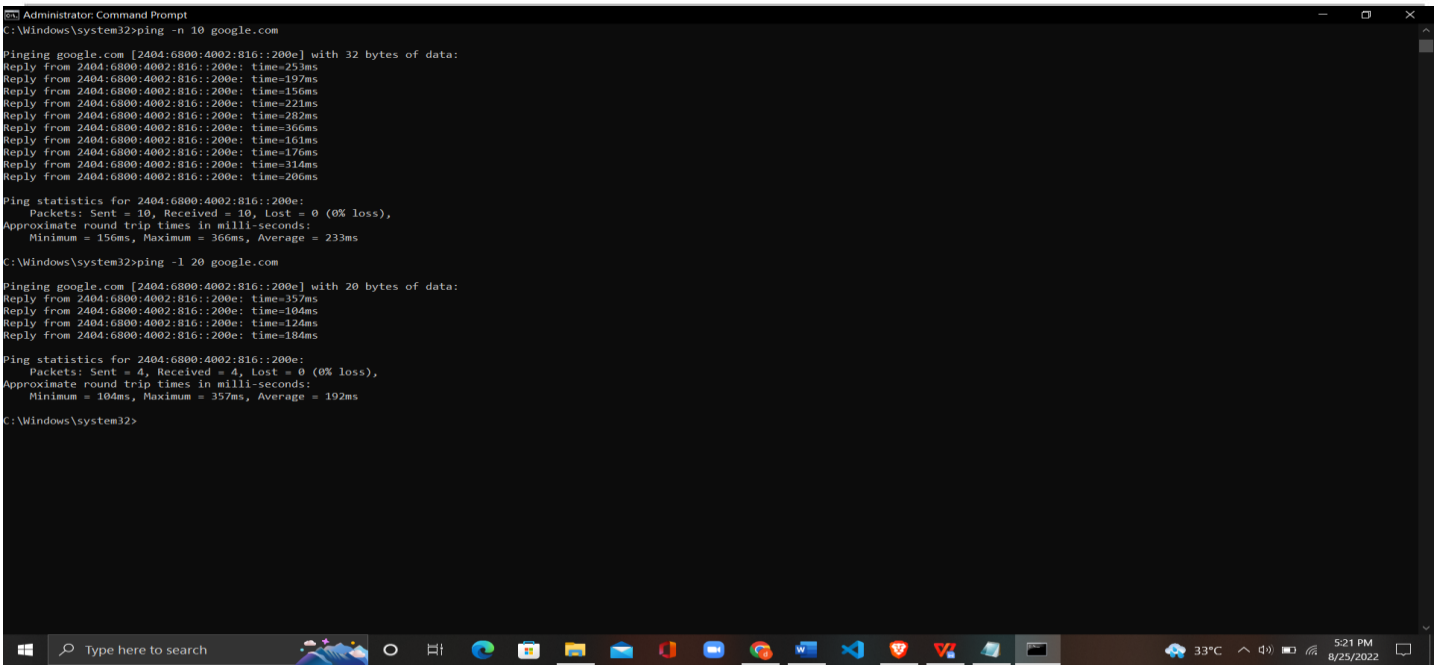
5. Steps for experiment/practical:

1. Open PC and search Command Prompt in the search box.
2. Click on "Run as administrator" while selecting command prompt.
3. Fire all the commands on the command prompt according to the given syntax in the manual.

6. Result/Output

1. Ping:




Administrator: Command Prompt
C:\Windows\system32>ping -n 10 google.com
Pinging google.com [2404:6800:4002:816::200e] with 32 bytes of data:
Reply from 2404:6800:4002:816::200e: time=253ms
Reply from 2404:6800:4002:816::200e: time=197ms
Reply from 2404:6800:4002:816::200e: time=156ms
Reply from 2404:6800:4002:816::200e: time=221ms
Reply from 2404:6800:4002:816::200e: time=282ms
Reply from 2404:6800:4002:816::200e: time=366ms
Reply from 2404:6800:4002:816::200e: time=161ms
Reply from 2404:6800:4002:816::200e: time=176ms
Reply from 2404:6800:4002:816::200e: time=314ms
Reply from 2404:6800:4002:816::200e: time=206ms
Ping statistics for 2404:6800:4002:816::200e:
Packets: Sent = 10, Received = 10, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 156ms, Maximum = 366ms, Average = 233ms
C:\Windows\system32>ping -l 20 google.com
Pinging google.com [2404:6800:4002:816::200e] with 20 bytes of data:
Reply from 2404:6800:4002:816::200e: time=357ms
Reply from 2404:6800:4002:816::200e: time=104ms
Reply from 2404:6800:4002:816::200e: time=124ms
Reply from 2404:6800:4002:816::200e: time=184ms
Ping statistics for 2404:6800:4002:816::200e:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 104ms, Maximum = 357ms, Average = 192ms
C:\Windows\system32>
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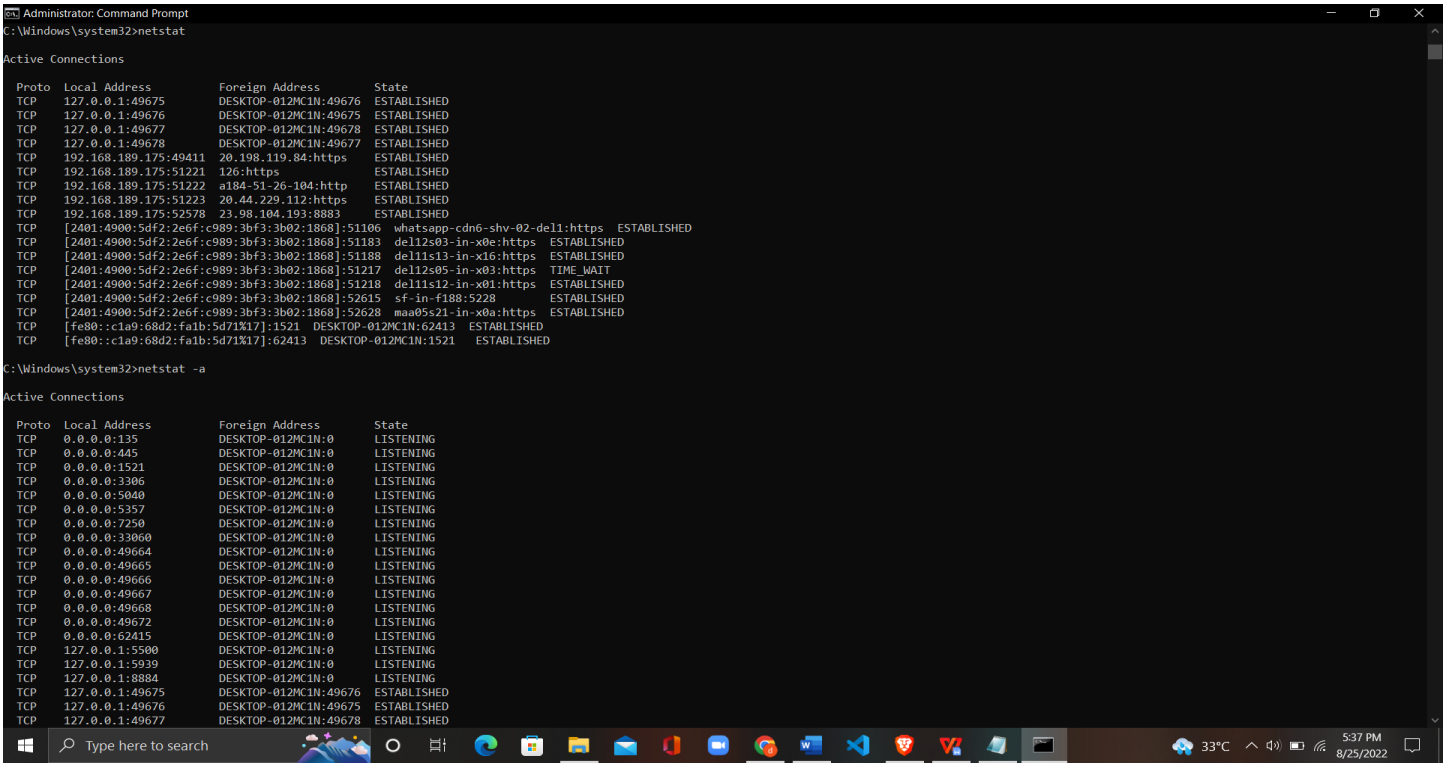
2. Netstat:


Administrator: Command Prompt
C:\Windows\system32>netstat
Active Connections
Proto Local Address Foreign Address State
TCP 127.0.0.1:49675 DESKTOP-012MC1N:49676 ESTABLISHED
TCP 127.0.0.1:49676 DESKTOP-012MC1N:49675 ESTABLISHED
TCP 127.0.0.1:49677 DESKTOP-012MC1N:49678 ESTABLISHED
TCP 127.0.0.1:49678 DESKTOP-012MC1N:49677 ESTABLISHED
TCP 192.168.189.175:49411 20.198.119.84:https ESTABLISHED
TCP 192.168.189.175:51221 126:https ESTABLISHED
TCP 192.168.189.175:51222 a184-51-26-104:http ESTABLISHED
TCP 192.168.189.175:51223 20.44.229.112:https ESTABLISHED
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 whatsapp-cdn6-shv-02-del1:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 del12s03-in-x0e:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51188 del11s13-in-x16:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51217 del12s05-in-x03:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51218 del11s12-in-x01:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 sf-in-f188:5228 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 maa05s21-in-x0a:https ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 DESKTOP-012MC1N:62413 ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 DESKTOP-012MC1N:1521 ESTABLISHED
C:\Windows\system32>netstat -a
Active Connections
Proto Local Address Foreign Address State
TCP 0.0.0.0:135 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:445 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:1521 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:3306 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:5040 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:5357 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:7250 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:33060 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49664 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49665 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49666 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49667 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49668 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:49672 DESKTOP-012MC1N:0 LISTENING
TCP 0.0.0.0:62415 DESKTOP-012MC1N:0 LISTENING
TCP 127.0.0.1:5500 DESKTOP-012MC1N:0 LISTENING
TCP 127.0.0.1:5939 DESKTOP-012MC1N:0 LISTENING
TCP 127.0.0.1:8884 DESKTOP-012MC1N:0 LISTENING
TCP 127.0.0.1:49675 DESKTOP-012MC1N:49676 ESTABLISHED
TCP 127.0.0.1:49676 DESKTOP-012MC1N:49675 ESTABLISHED
TCP 127.0.0.1:49677 DESKTOP-012MC1N:49678 ESTABLISHED
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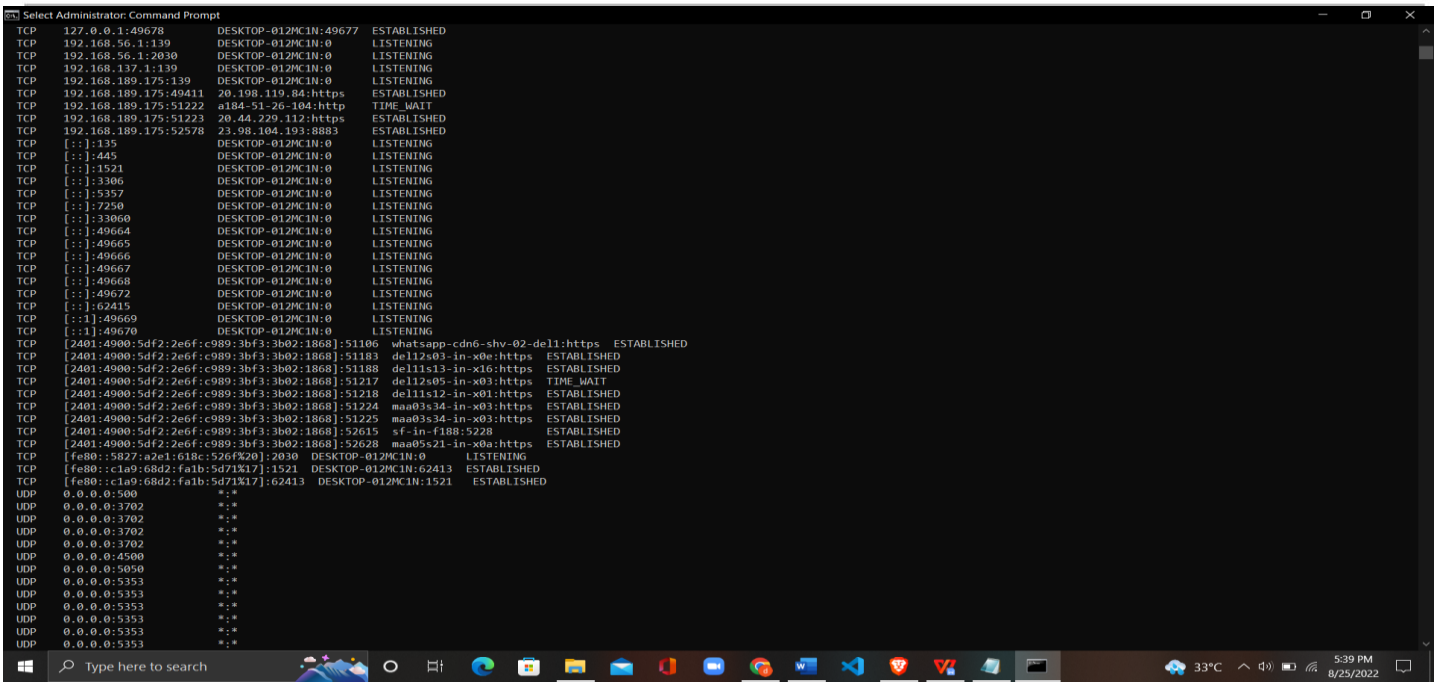
Select Administrator: Command Prompt
TCP 127.0.0.1:49678 DESKTOP-012MC1N:49677 ESTABLISHED
TCP 192.168.56.1:139 DESKTOP-012MC1N:0 LISTENING
TCP 192.168.56.1:2030 DESKTOP-012MC1N:0 LISTENING
TCP 192.168.137.1:139 DESKTOP-012MC1N:0 LISTENING
TCP 192.168.189.175:139 DESKTOP-012MC1N:0 LISTENING
TCP 192.168.189.175:49411 20.198.119.84:https ESTABLISHED
TCP 192.168.189.175:51222 a184-51-26-104:http TIME_WAIT
TCP 192.168.189.175:51223 20.44.229.112:https ESTABLISHED
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED
TCP [::]:135 DESKTOP-012MC1N:0 LISTENING
TCP [::]:445 DESKTOP-012MC1N:0 LISTENING
TCP [::]:1521 DESKTOP-012MC1N:0 LISTENING
TCP [::]:3306 DESKTOP-012MC1N:0 LISTENING
TCP [::]:5357 DESKTOP-012MC1N:0 LISTENING
TCP [::]:7250 DESKTOP-012MC1N:0 LISTENING
TCP [::]:33060 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49664 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49665 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49666 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49667 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49668 DESKTOP-012MC1N:0 LISTENING
TCP [::]:49672 DESKTOP-012MC1N:0 LISTENING
TCP [::]:62415 DESKTOP-012MC1N:0 LISTENING
TCP [::1]:49669 DESKTOP-012MC1N:0 LISTENING
TCP [::1]:49670 DESKTOP-012MC1N:0 LISTENING
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 whatsapp-cdn6-shv-02-del1:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 del12s03-in-x0e:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51188 del11s13-in-x16:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51217 del12s05-in-x03:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51218 del11s12-in-x01:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51224 maa03s34-in-x03:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51225 maa03s34-in-x03:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 sf-in-f188:5228 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 maa05s21-in-x0a:https ESTABLISHED
TCP [fe80::5827:a2e1:618c:526f%20]:2030 DESKTOP-012MC1N:0 LISTENING
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 DESKTOP-012MC1N:62413 ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 DESKTOP-012MC1N:1521 ESTABLISHED
UDP 0.0.0.0:500 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:4500 *:*
UDP 0.0.0.0:5050 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
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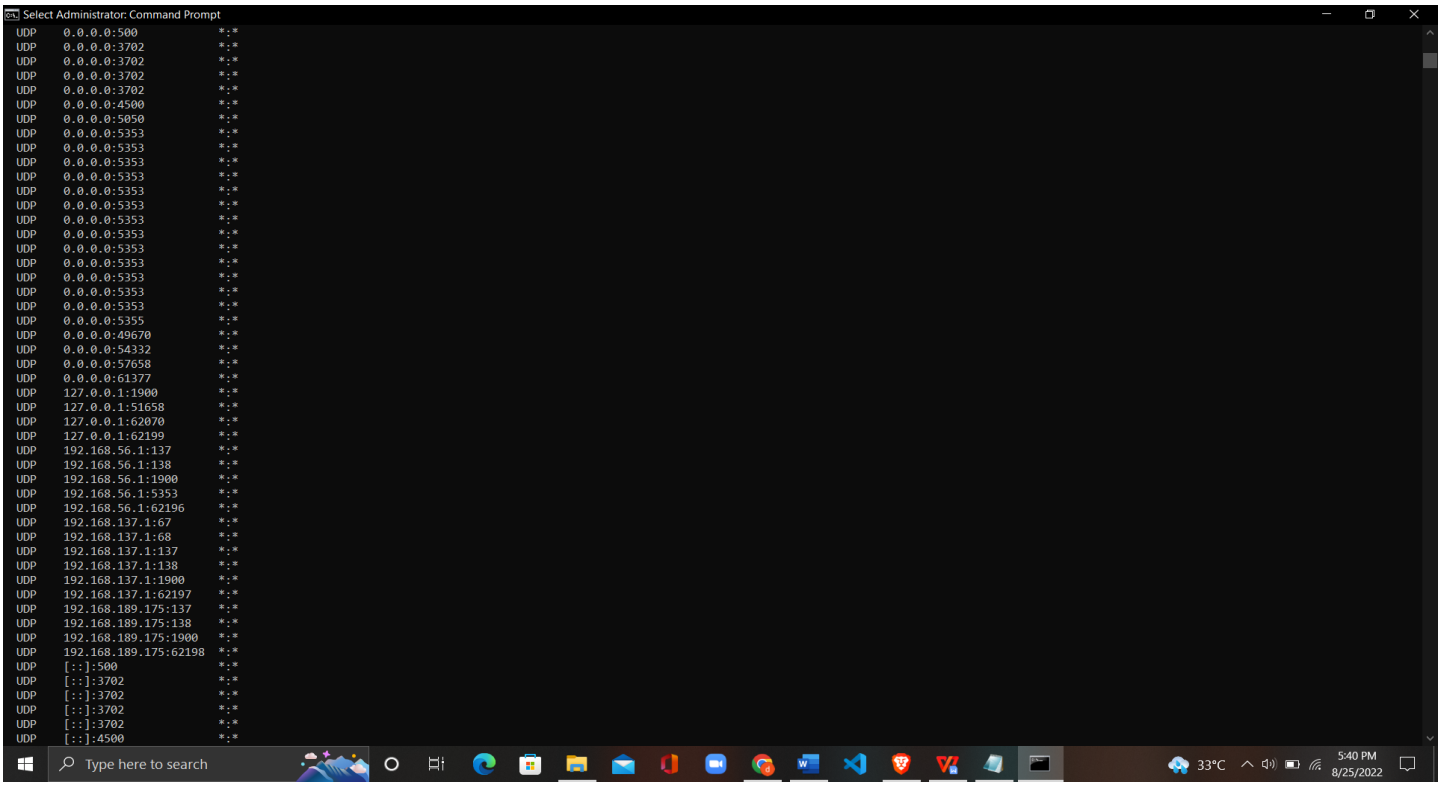
Select Administrator: Command Prompt
UDP 0.0.0.0:500 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:3702 *:*
UDP 0.0.0.0:4500 *:*
UDP 0.0.0.0:5050 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5353 *:*
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UDP 0.0.0.0:5353 *:*
UDP 0.0.0.0:5355 *:*
UDP 0.0.0.0:49670 *:*
UDP 0.0.0.0:54332 *:*
UDP 0.0.0.0:57658 *:*
UDP 0.0.0.0:61377 *:*
UDP 127.0.0.1:1900 *:*
UDP 127.0.0.1:51658 *:*
UDP 127.0.0.1:62070 *:*
UDP 127.0.0.1:62199 *:*
UDP 192.168.56.1:137 *:*
UDP 192.168.56.1:138 *:*
UDP 192.168.56.1:1900 *:*
UDP 192.168.56.1:5353 *:*
UDP 192.168.56.1:62196 *:*
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 192.168.137.1:62197 *:*
UDP 192.168.189.175:137 *:*
UDP 192.168.189.175:138 *:*
UDP 192.168.189.175:1900 *:*
UDP 192.168.189.175:62198 *:*
UDP [::]:500 *:*
UDP [::]:3702 *:*
UDP [::]:3702 *:*
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UDP [::]:3702 *:*
UDP [::]:4500 *:*
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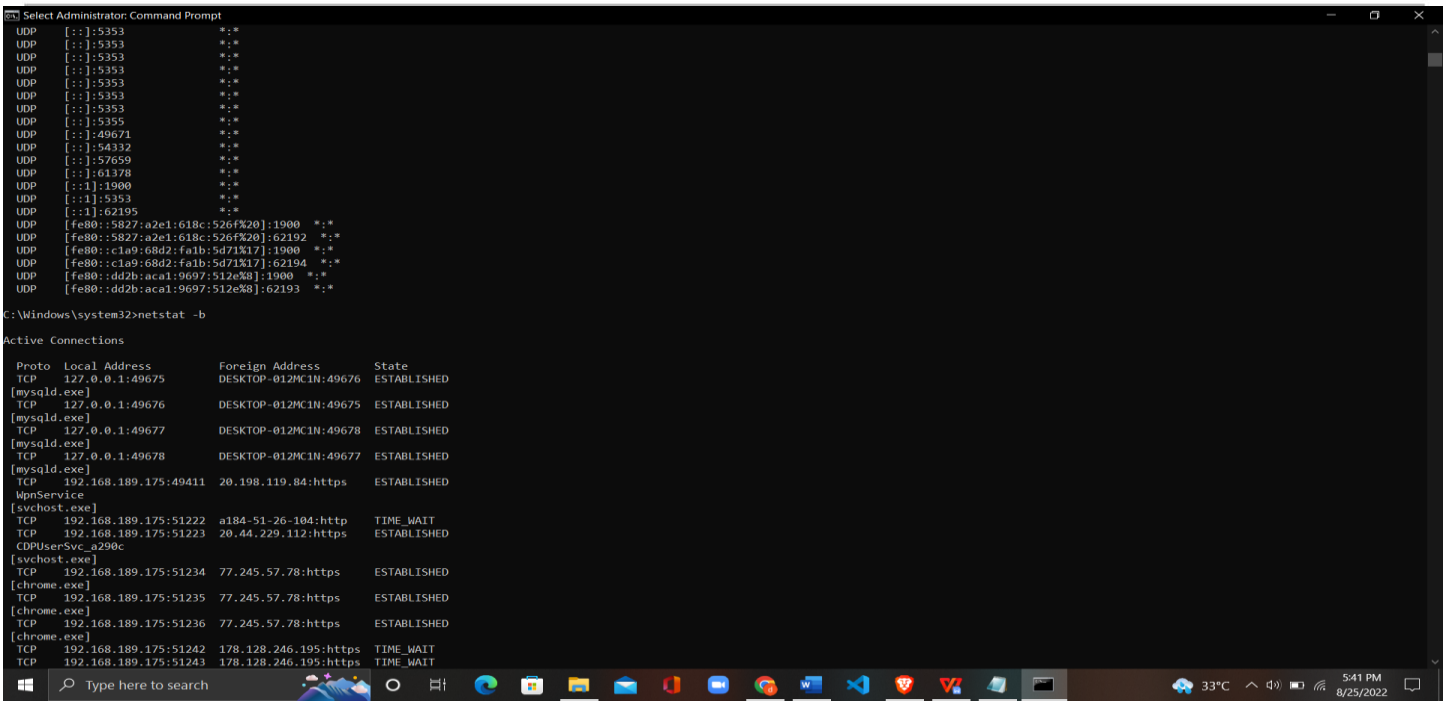
Select Administrator: Command Prompt
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5353 *:*
UDP [::]:5355 *:*
UDP [::]:49671 *:*
UDP [::]:54332 *:*
UDP [::]:57659 *:*
UDP [::]:61378 *:*
UDP [::1]:1900 *:*
UDP [::1]:5353 *:*
UDP [::1]:62195 *:*
UDP [fe80::5827:a2e1:618c:526f%20]:1900 *:*
UDP [fe80::5827:a2e1:618c:526f%20]:62192 *:*
UDP [fe80::c1a9:68d2:fa1b:5d71%17]:1900 *:*
UDP [fe80::c1a9:68d2:fa1b:5d71%17]:62194 *:*
UDP [fe80::dd2b:aca1:9697:512e%8]:1900 *:*
UDP [fe80::dd2b:aca1:9697:512e%8]:62193 *:*
C:\Windows\system32>netstat -b
Active Connections
Proto Local Address Foreign Address State
TCP 127.0.0.1:49675 DESKTOP-012MC1N:49676 ESTABLISHED
[mysqld.exe]
TCP 127.0.0.1:49676 DESKTOP-012MC1N:49675 ESTABLISHED
[mysqld.exe]
TCP 127.0.0.1:49677 DESKTOP-012MC1N:49678 ESTABLISHED
[mysqld.exe]
TCP 127.0.0.1:49678 DESKTOP-012MC1N:49677 ESTABLISHED
[mysqld.exe]
TCP 192.168.189.175:49411 20.198.119.84:https ESTABLISHED
WpnService
[svchost.exe]
TCP 192.168.189.175:51222 a184-51-26-104:http TIME_WAIT
TCP 192.168.189.175:51223 20.44.229.112:https ESTABLISHED
CDPUserSvc_a290c
[svchost.exe]
TCP 192.168.189.175:51234 77.245.57.78:https ESTABLISHED
[chrome.exe]
TCP 192.168.189.175:51235 77.245.57.78:https ESTABLISHED
[chrome.exe]
TCP 192.168.189.175:51236 77.245.57.78:https ESTABLISHED
[chrome.exe]
TCP 192.168.189.175:51242 178.128.246.195:https TIME_WAIT
TCP 192.168.189.175:51243 178.128.246.195:https TIME_WAIT
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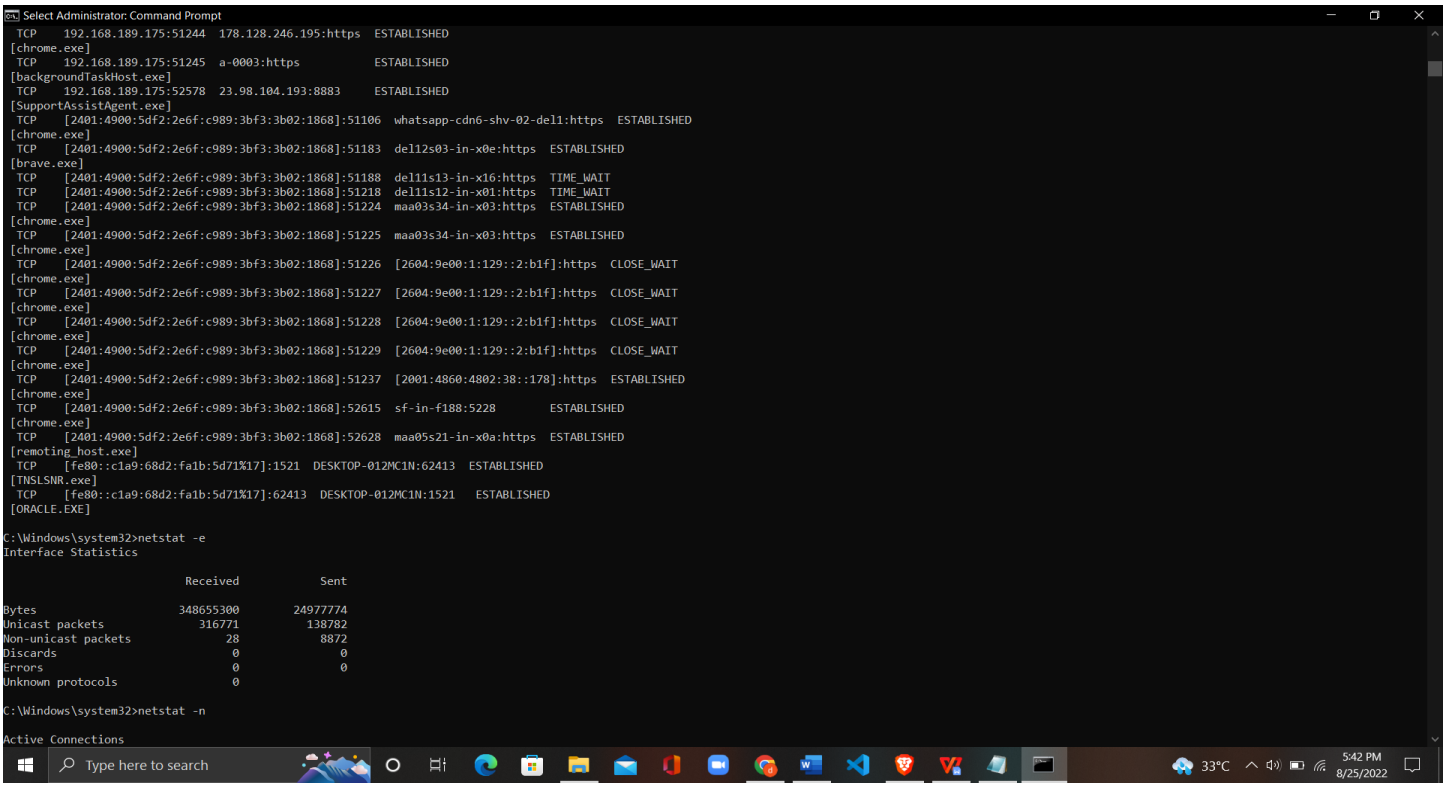
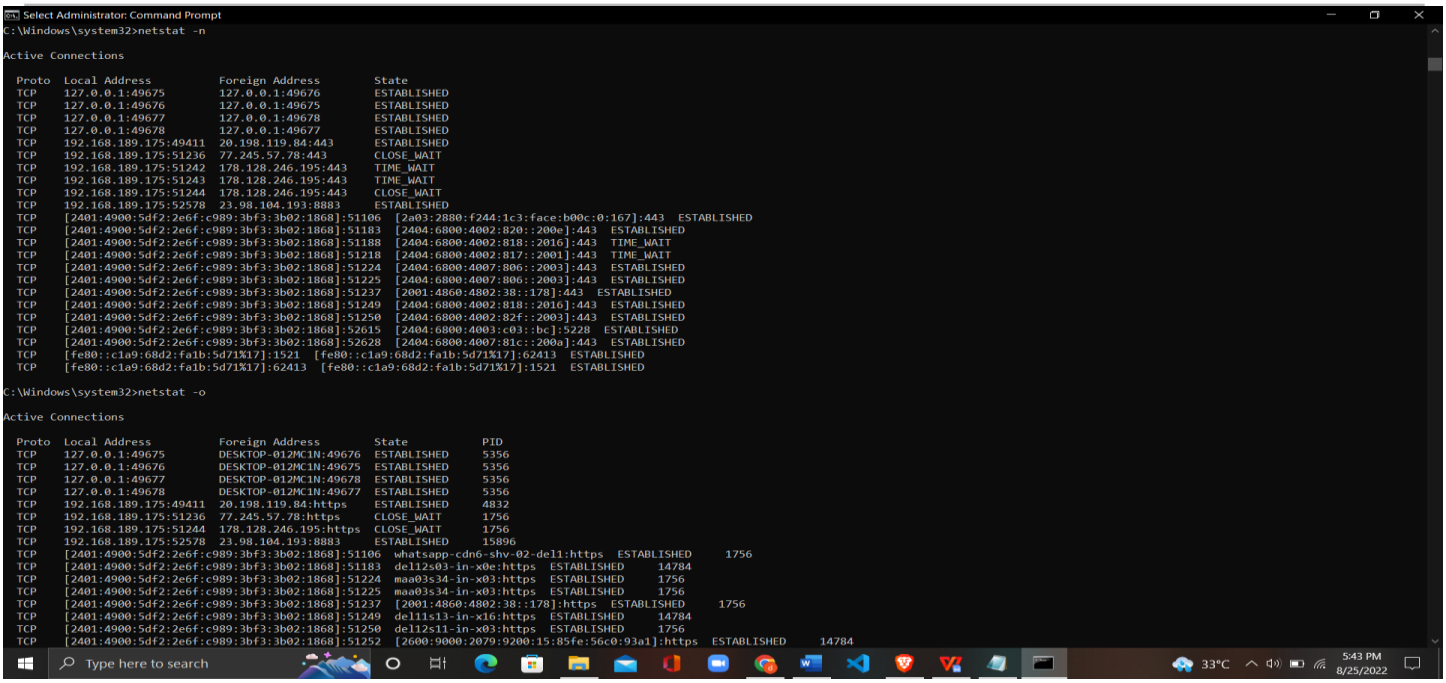
8/25/2022


Select Administrator: Command Prompt
TCP 192.168.189.175:51244 178.128.246.195:https ESTABLISHED
[chrome.exe]
TCP 192.168.189.175:51245 a-0003:https ESTABLISHED
[backgroundTaskHost.exe]
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED
[SupportAssistAgent.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 whatsapp-cdn6-shv-02-del1:https ESTABLISHED
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 del12s03-in-x0e:https ESTABLISHED
[brave.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51188 del11s13-in-x16:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51218 del11s12-in-x01:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51224 maa03s34-in-x03:https ESTABLISHED
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51225 maa03s34-in-x03:https ESTABLISHED
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51226 [2604:9e00:1:129::2:b1f]:https CLOSE_WAIT
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51227 [2604:9e00:1:129::2:b1f]:https CLOSE_WAIT
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51228 [2604:9e00:1:129::2:b1f]:https CLOSE_WAIT
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51229 [2604:9e00:1:129::2:b1f]:https CLOSE_WAIT
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51237 [2001:4860:4802:38::178]:https ESTABLISHED
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 sf-in-f188:5228 ESTABLISHED
[chrome.exe]
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 maa05s21-in-x0a:https ESTABLISHED
[remoting_host.exe]
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 DESKTOP-012MC1N:62413 ESTABLISHED
[TNSLSNR.exe]
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 DESKTOP-012MC1N:1521 ESTABLISHED
[ORACLE.EXE]
C:\Windows\system32>netstat -e
Interface Statistics
Received Sent
Bytes 348655300 24977774
Unicast packets 316771 138782
Non-unicast packets 28 8872
Discards 0 0
Errors 0 0
Unknown protocols 0
C:\Windows\system32>netstat -n
Active Connections
Type here to search
33°C
5:42 PM
8/25/2022


Select Administrator: Command Prompt
C:\Windows\system32>netstat -n
Active Connections
Proto Local Address Foreign Address State
TCP 127.0.0.1:49675 127.0.0.1:49676 ESTABLISHED
TCP 127.0.0.1:49676 127.0.0.1:49675 ESTABLISHED
TCP 127.0.0.1:49677 127.0.0.1:49678 ESTABLISHED
TCP 127.0.0.1:49678 127.0.0.1:49677 ESTABLISHED
TCP 192.168.189.175:49411 20.198.119.84:443 ESTABLISHED
TCP 192.168.189.175:51236 77.245.57.78:443 CLOSE_WAIT
TCP 192.168.189.175:51242 178.128.246.195:443 TIME_WAIT
TCP 192.168.189.175:51243 178.128.246.195:443 TIME_WAIT
TCP 192.168.189.175:51244 178.128.246.195:443 CLOSE_WAIT
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 [2a03:2880:f244:1c3:face:b00c:0:167]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 [2404:6800:4002:820::200e]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51188 [2404:6800:4002:818::2016]:443 TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51218 [2404:6800:4002:817::2001]:443 TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51224 [2404:6800:4007:806::2003]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51225 [2404:6800:4007:806::2003]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51237 [2001:4860:4802:38::178]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51249 [2404:6800:4002:818::2016]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51250 [2404:6800:4002:82f::2003]:443 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 [2404:6800:4003:c03::bc]:5228 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 [2404:6800:4007:81c::200a]:443 ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 [fe80::c1a9:68d2:fa1b:5d71%17]:62413 ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 [fe80::c1a9:68d2:fa1b:5d71%17]:1521 ESTABLISHED
C:\Windows\system32>netstat -o
Active Connections
Proto Local Address Foreign Address State PID
TCP 127.0.0.1:49675 DESKTOP-012MC1N:49676 ESTABLISHED 5356
TCP 127.0.0.1:49676 DESKTOP-012MC1N:49675 ESTABLISHED 5356
TCP 127.0.0.1:49677 DESKTOP-012MC1N:49678 ESTABLISHED 5356
TCP 127.0.0.1:49678 DESKTOP-012MC1N:49677 ESTABLISHED 5356
TCP 192.168.189.175:49411 20.198.119.84:https ESTABLISHED 4832
TCP 192.168.189.175:51236 77.245.57.78:https CLOSE_WAIT 1756
TCP 192.168.189.175:51244 178.128.246.195:https CLOSE_WAIT 1756
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED 15896
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 whatsapp-cdn6-shv-02-del1:https ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 del12s03-in-x0e:https ESTABLISHED 14784
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51224 maa03s34-in-x03:https ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51225 maa03s34-in-x03:https ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51237 [2001:4860:4802:38::178]:https ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51249 del11s13-in-x16:https ESTABLISHED 14784
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51250 del12s11-in-x03:https ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51252 [2600:9000:2079:9200:15:85fe:56c0:93a1]:https ESTABLISHED 14784
Type here to search
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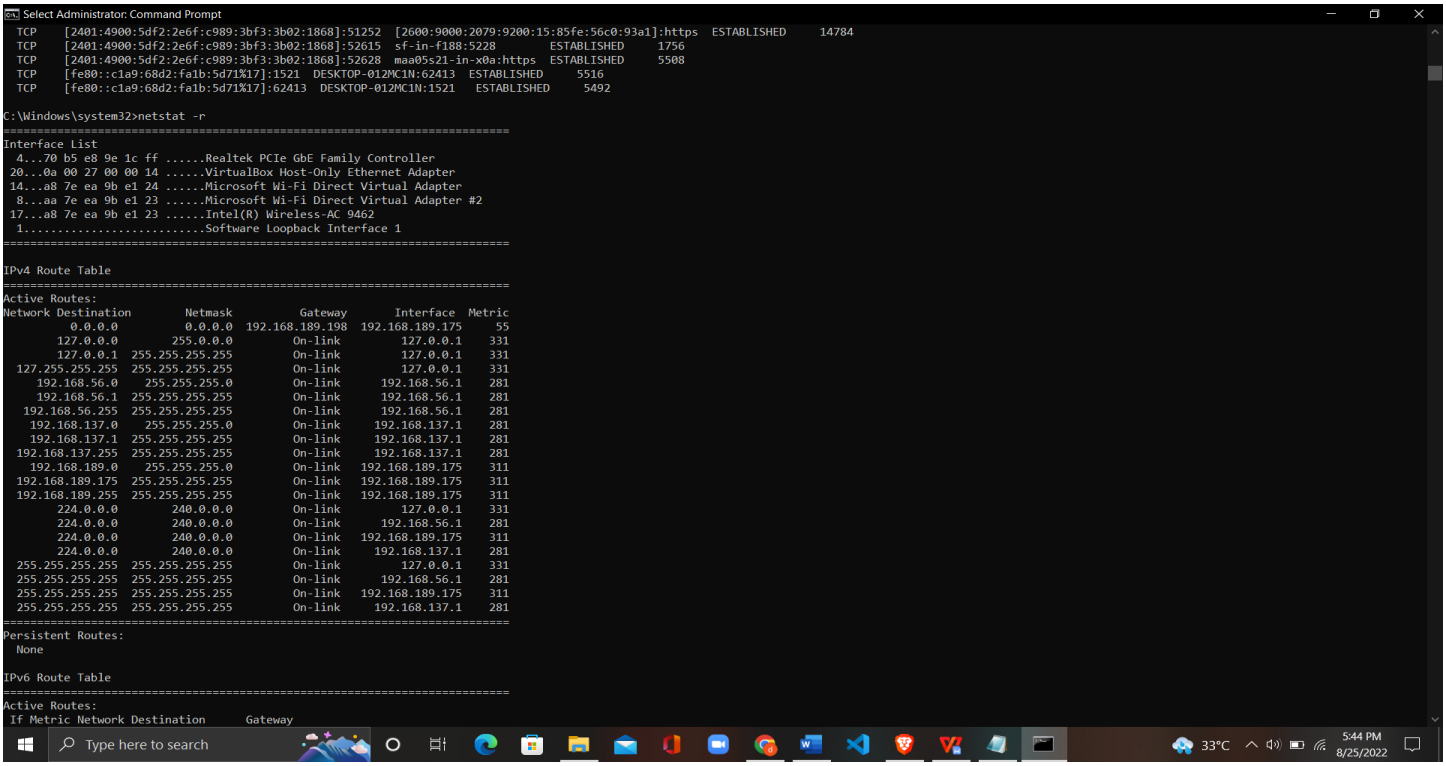
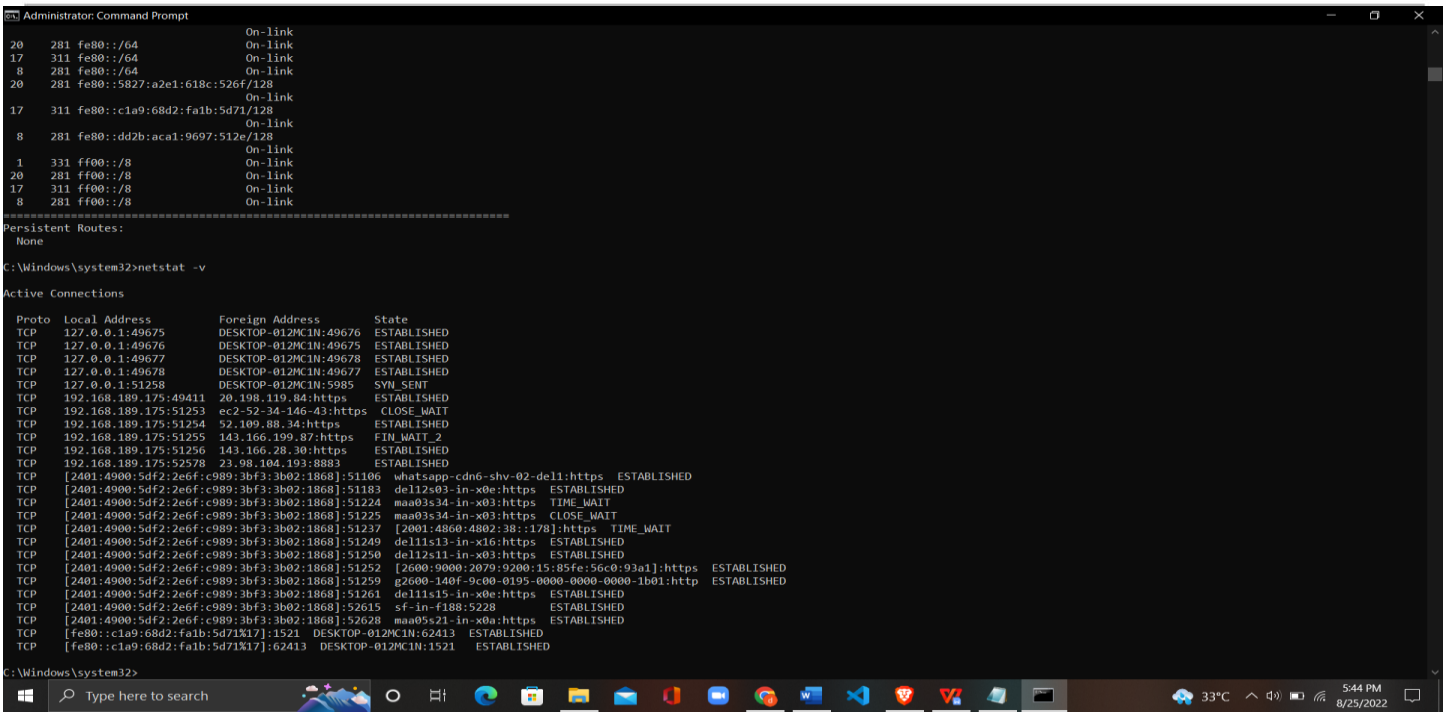
8/25/2022


Select Administrator: Command Prompt
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51252 [2600:9000:2079:9200:15:85fe:56c0:93a1]:https ESTABLISHED 14784
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 sf-in-f188:5228 ESTABLISHED 1756
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 maa05s21-in-x0a:https ESTABLISHED 5508
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 DESKTOP-012MC1N:62413 ESTABLISHED 5516
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 DESKTOP-012MC1N:1521 ESTABLISHED 5492
C:\Windows\system32>netstat -r
Interface List
4...70 b5 e8 9e 1c ff ......Realtek PCIe GbE Family Controller
20...0a 00 27 00 00 14 ......VirtualBox Host-Only Ethernet Adapter
14...a8 7e ea 9b e1 24 ......Microsoft Wi-Fi Direct Virtual Adapter
8...aa 7e ea 9b e1 23 ......Microsoft Wi-Fi Direct Virtual Adapter #2
17...a8 7e ea 9b e1 23 ......Intel(R) Wireless-AC 9462
1...........................Software Loopback Interface 1
IPv4 Route Table
Active Routes:
Network Destination Netmask Gateway Interface Metric
0.0.0.0 0.0.0.0 192.168.189.198 192.168.189.175 55
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
192.168.56.0 255.255.255.0 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
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
192.168.189.0 255.255.255.0 On-link 192.168.189.175 311
192.168.189.175 255.255.255.255 On-link 192.168.189.175 311
192.168.189.255 255.255.255.255 On-link 192.168.189.175 311
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 192.168.189.175 311
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 192.168.56.1 281
255.255.255.255 255.255.255.255 On-link 192.168.189.175 311
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
Type here to search
33°C
5:44 PM
8/25/2022


Administrator: Command Prompt
Persistent Routes:
None
C:\Windows\system32>netstat -v
Active Connections
Proto Local Address Foreign Address State
TCP 127.0.0.1:49675 DESKTOP-012MC1N:49676 ESTABLISHED
TCP 127.0.0.1:49676 DESKTOP-012MC1N:49675 ESTABLISHED
TCP 127.0.0.1:49677 DESKTOP-012MC1N:49678 ESTABLISHED
TCP 127.0.0.1:49678 DESKTOP-012MC1N:49677 ESTABLISHED
TCP 127.0.0.1:51258 DESKTOP-012MC1N:5985 SYN_SENT
TCP 192.168.189.175:49411 20.198.119.84:https ESTABLISHED
TCP 192.168.189.175:51253 ec2-52-34-146-43:https CLOSE_WAIT
TCP 192.168.189.175:51254 52.109.88.34:https ESTABLISHED
TCP 192.168.189.175:51255 143.166.199.87:https FIN_WAIT_2
TCP 192.168.189.175:51256 143.166.28.30:https ESTABLISHED
TCP 192.168.189.175:52578 23.98.104.193:8883 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51106 whatsapp-cdn6-shv-02-del1:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51183 del12s03-in-x0e:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51224 maa03s34-in-x03:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51225 maa03s34-in-x03:https CLOSE_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51237 [2001:4860:4802:38::178]:https TIME_WAIT
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51249 del11s13-in-x16:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51250 del12s11-in-x03:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51252 [2600:9000:2079:9200:15:85fe:56c0:93a1]:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51259 g2600-140f-9c00-0195-0000-0000-0000-1b01:http ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:51261 del11s15-in-x0e:https ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52615 sf-in-f188:5228 ESTABLISHED
TCP [2401:4900:5df2:2e6f:c989:3bf3:3b02:1868]:52628 maa05s21-in-x0a:https ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:1521 DESKTOP-012MC1N:62413 ESTABLISHED
TCP [fe80::c1a9:68d2:fa1b:5d71%17]:62413 DESKTOP-012MC1N:1521 ESTABLISHED
C:\Windows\system32>
Type here to search
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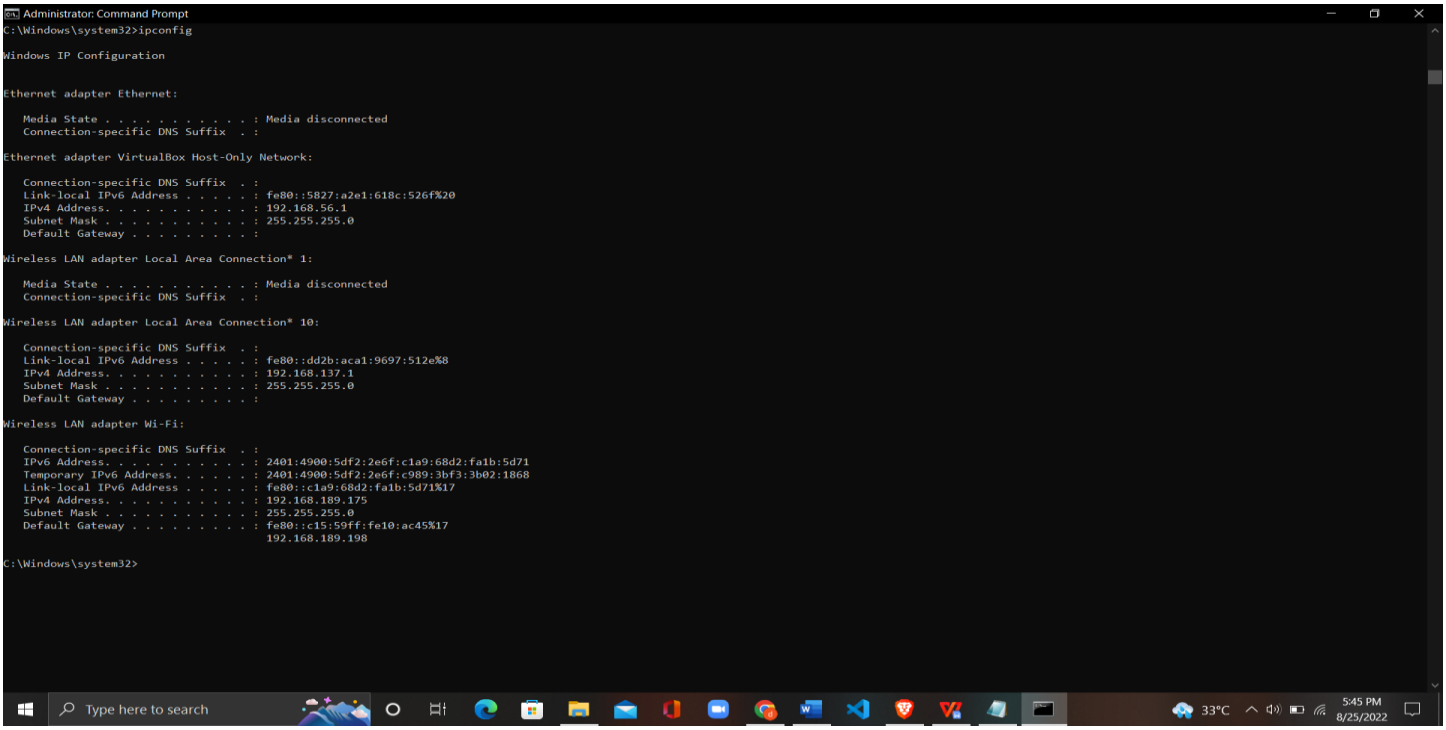
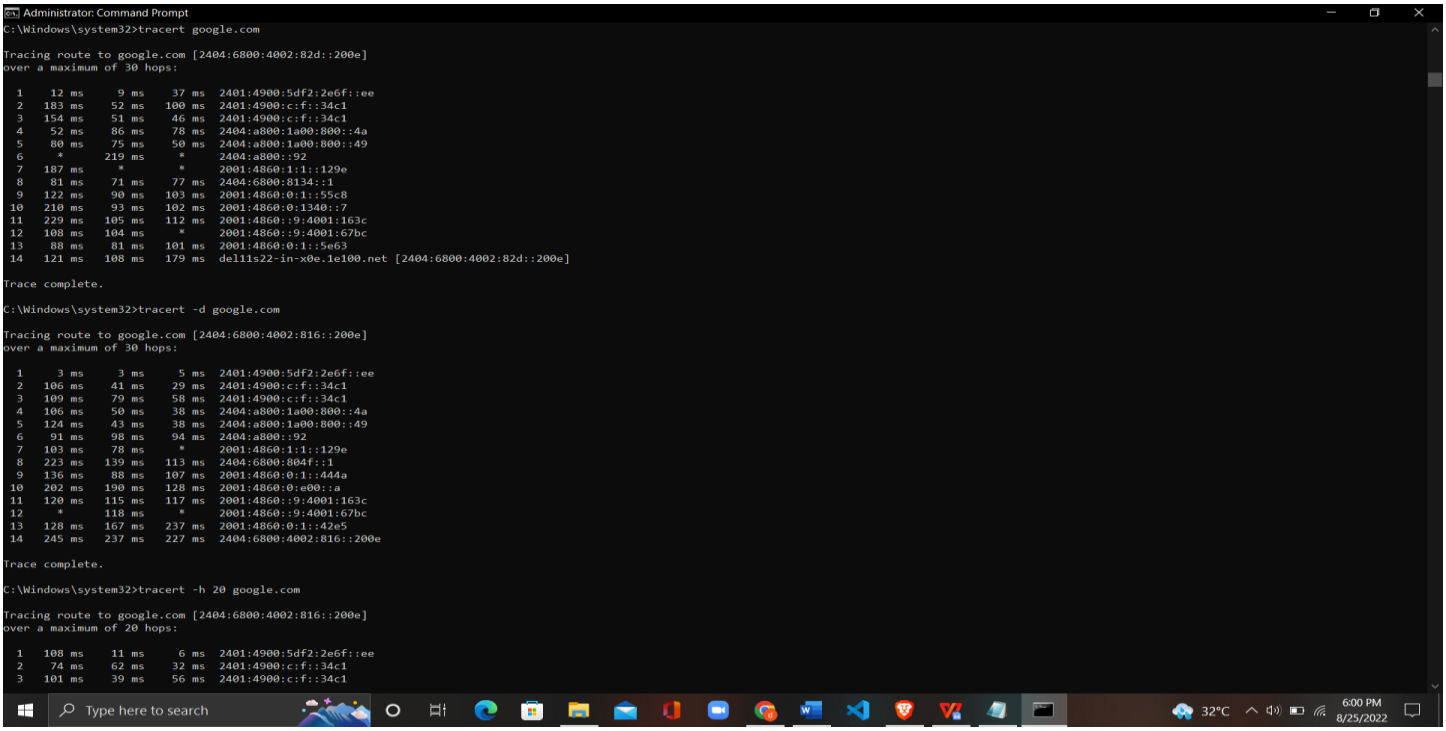
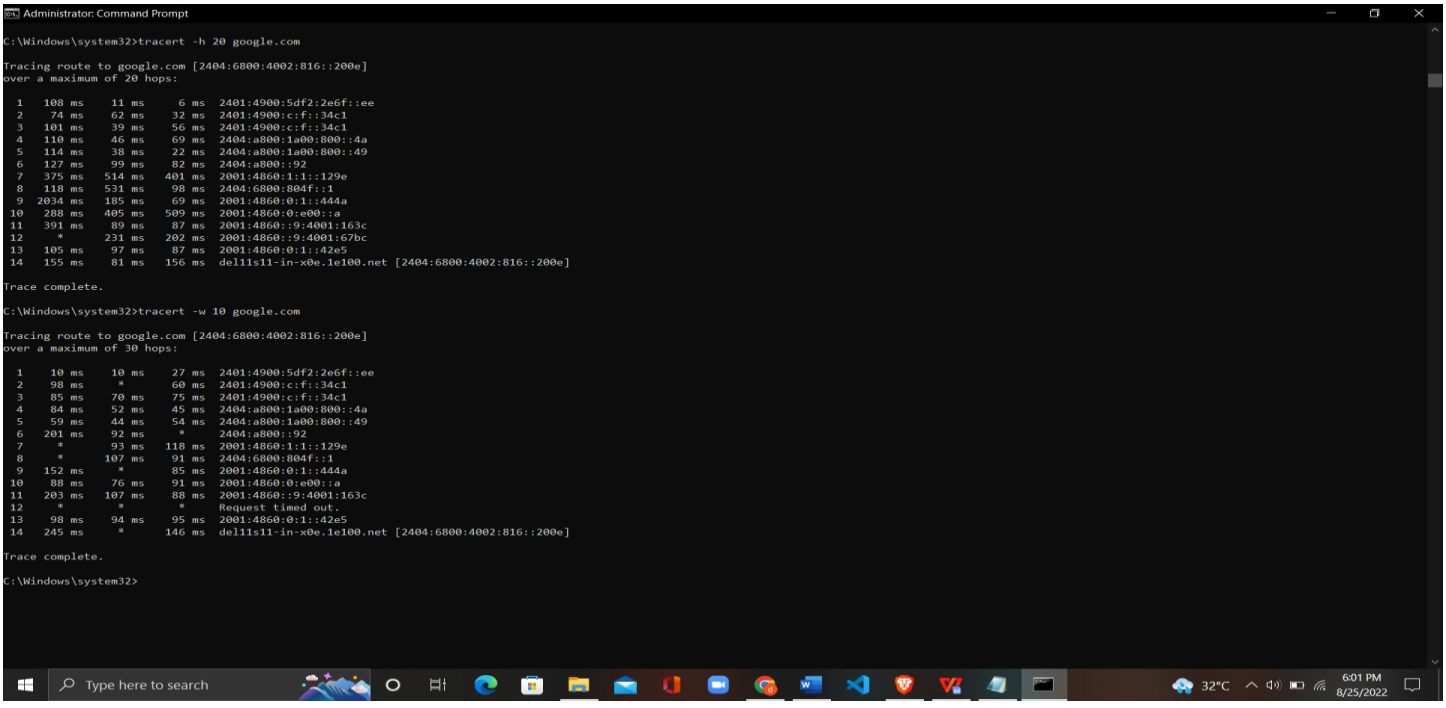
8/25/2022

3. Ipconfig:

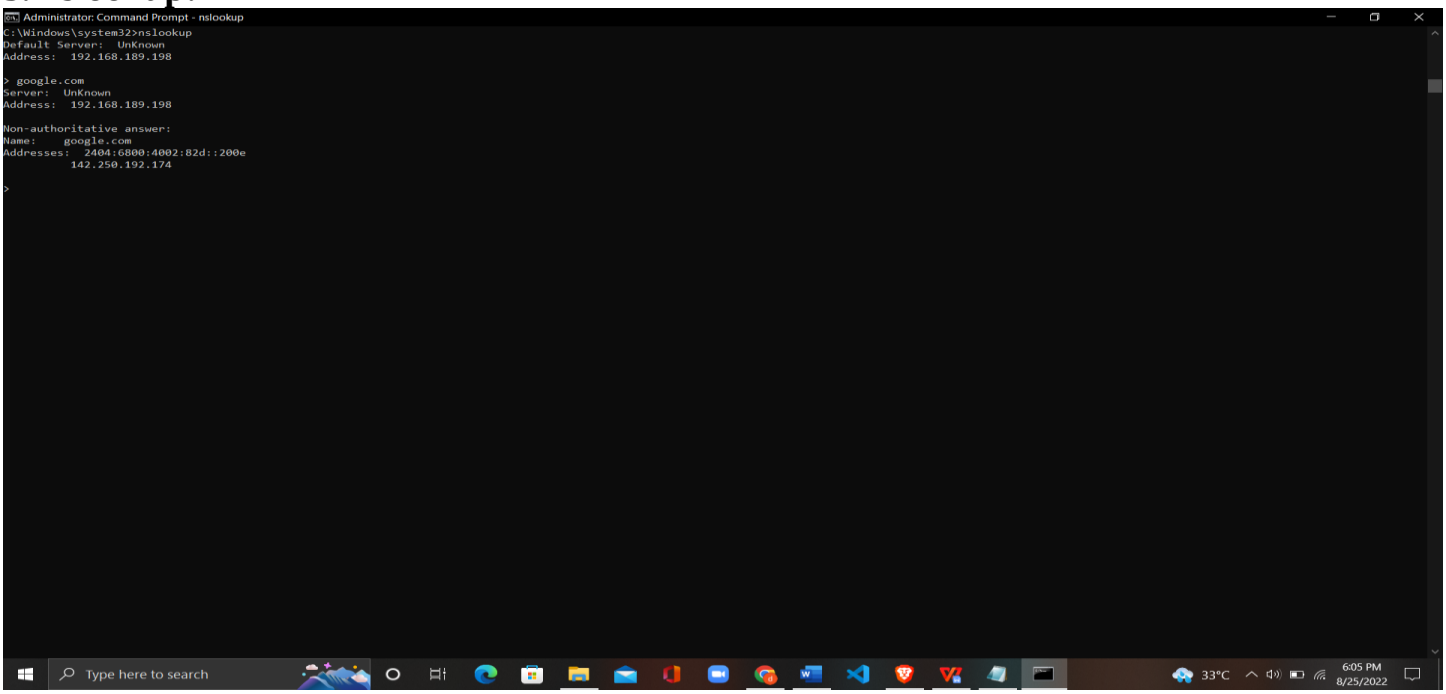

Administrator: Command Prompt
C:\Windows\system32>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Ethernet adapter VirtualBox Host-Only Network:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::5827:a2e1:618c:526f%20
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* 10:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::dd2b:aca1:9697:512e%8
IPv4 Address. . . . . : 192.168.137.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . :
Wireless LAN adapter Wi-Fi:
Connection-specific DNS Suffix . :
IPv6 Address. . . . . : 2401:4900:5df2:2e6f:c1a9:68d2:fa1b:5d71
Temporary IPv6 Address. . . . . : 2401:4900:5df2:2e6f:c989:3bf3:3b02:1868
Link-local IPv6 Address . . . . . : fe80::c1a9:68d2:fa1b:5d71%17
IPv4 Address. . . . . : 192.168.189.175
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::c15:59ff:fe10:ac45%17
192.168.189.198
C:\Windows\system32>
Type here to search
33°C
5:45 PM
8/25/2022

4. Tracert:

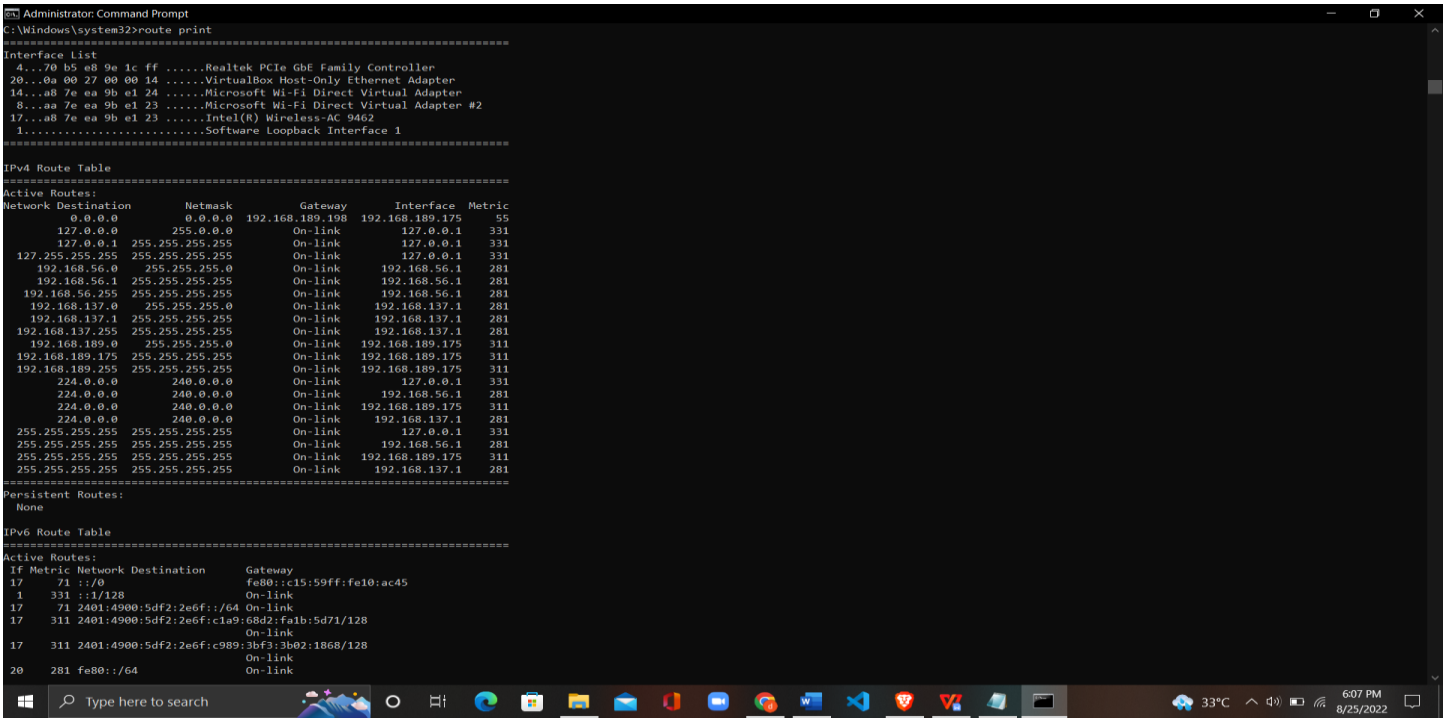

Administrator: Command Prompt
C:\Windows\system32>tracert google.com
Tracing route to google.com [2404:6800:4002:82d::200e]
over a maximum of 30 hops:
1 12 ms 9 ms 37 ms 2401:4900:5df2:2e6f::ee
2 183 ms 52 ms 100 ms 2401:4900:c:f::34c1
3 154 ms 51 ms 46 ms 2401:4900:c:f::34c1
4 52 ms 86 ms 78 ms 2404:a800:1a00:800::4a
5 80 ms 75 ms 50 ms 2404:a800:1a00:800::49
6 * 219 ms * 2404:a800::92
7 187 ms * * 2001:4860:1:1::129e
8 81 ms 71 ms 77 ms 2404:6800:8134::1
9 122 ms 90 ms 103 ms 2001:4860:0:1::55c8
10 210 ms 93 ms 102 ms 2001:4860:0:1340::7
11 229 ms 105 ms 112 ms 2001:4860::9:4001:163c
12 108 ms 104 ms * 2001:4860::9:4001:67bc
13 88 ms 81 ms 101 ms 2001:4860:0:1::5e63
14 121 ms 108 ms 179 ms del11s22-in-x0e.1e100.net [2404:6800:4002:82d::200e]
Trace complete.
C:\Windows\system32>tracert -d google.com
Tracing route to google.com [2404:6800:4002:816::200e]
over a maximum of 30 hops:
1 3 ms 3 ms 5 ms 2401:4900:5df2:2e6f::ee
2 106 ms 41 ms 29 ms 2401:4900:c:f::34c1
3 109 ms 79 ms 58 ms 2401:4900:c:f::34c1
4 106 ms 50 ms 38 ms 2404:a800:1a00:800::4a
5 124 ms 43 ms 38 ms 2404:a800:1a00:800::49
6 91 ms 98 ms 94 ms 2404:a800::92
7 103 ms 78 ms * 2001:4860:1:1::129e
8 223 ms 139 ms 113 ms 2404:6800:804f::1
9 136 ms 88 ms 107 ms 2001:4860:0:1::444a
10 202 ms 190 ms 128 ms 2001:4860:0:e00::a
11 120 ms 115 ms 117 ms 2001:4860::9:4001:163c
12 * 118 ms * 2001:4860::9:4001:67bc
13 128 ms 167 ms 237 ms 2001:4860:0:1::42e5
14 245 ms 237 ms 227 ms 2404:6800:4002:816::200e
Trace complete.
C:\Windows\system32>tracert -h 20 google.com
Tracing route to google.com [2404:6800:4002:816::200e]
over a maximum of 20 hops:
1 108 ms 11 ms 6 ms 2401:4900:5df2:2e6f::ee
2 74 ms 62 ms 32 ms 2401:4900:c:f::34c1
3 101 ms 39 ms 56 ms 2401:4900:c:f::34c1
Type here to search
32°C
6:00 PM
8/25/2022


Administrator: Command Prompt
C:\Windows\system32>tracert -h 20 google.com
Tracing route to google.com [2404:6800:4002:816::200e]
over a maximum of 20 hops:
1 108 ms 11 ms 6 ms 2401:4900:5df2:2e6f::ee
2 74 ms 62 ms 32 ms 2401:4900:c:f::34c1
3 101 ms 39 ms 56 ms 2401:4900:c:f::34c1
4 110 ms 46 ms 69 ms 2404:a800:1a00:800::4a
5 114 ms 38 ms 22 ms 2404:a800:1a00:800::49
6 127 ms 99 ms 82 ms 2404:a800::92
7 375 ms 514 ms 401 ms 2001:4860:1:1::129e
8 118 ms 531 ms 98 ms 2404:6800:804f::1
9 2034 ms 185 ms 69 ms 2001:4860:0:1::444a
10 288 ms 405 ms 509 ms 2001:4860:0:e00::a
11 391 ms 89 ms 87 ms 2001:4860::9:4001:163c
12 * 231 ms 202 ms 2001:4860::9:4001:67bc
13 105 ms 97 ms 87 ms 2001:4860:0:1::42e5
14 155 ms 81 ms 156 ms del11s11-in-x0e.1e100.net [2404:6800:4002:816::200e]
Trace complete.
C:\Windows\system32>tracert -w 10 google.com
Tracing route to google.com [2404:6800:4002:816::200e]
over a maximum of 30 hops:
1 10 ms 10 ms 27 ms 2401:4900:5df2:2e6f::ee
2 98 ms * 60 ms 2401:4900:c:f::34c1
3 85 ms 70 ms 75 ms 2401:4900:c:f::34c1
4 84 ms 52 ms 45 ms 2404:a800:1a00:800::4a
5 59 ms 44 ms 54 ms 2404:a800:1a00:800::49
6 201 ms 92 ms * 2404:a800::92
7 * 93 ms 118 ms 2001:4860:1:1::129e
8 * 107 ms 91 ms 2404:6800:804f::1
9 152 ms * 85 ms 2001:4860:0:1::444a
10 88 ms 76 ms 91 ms 2001:4860:0:e00::a
11 203 ms 107 ms 88 ms 2001:4860::9:4001:163c
12 * * * Request timed out.
13 98 ms 94 ms 95 ms 2001:4860:0:1::42e5
14 245 ms * 146 ms del11s11-in-x0e.1e100.net [2404:6800:4002:816::200e]
Trace complete.
C:\Windows\system32>
Type here to search
32°C
6:01 PM
8/25/2022

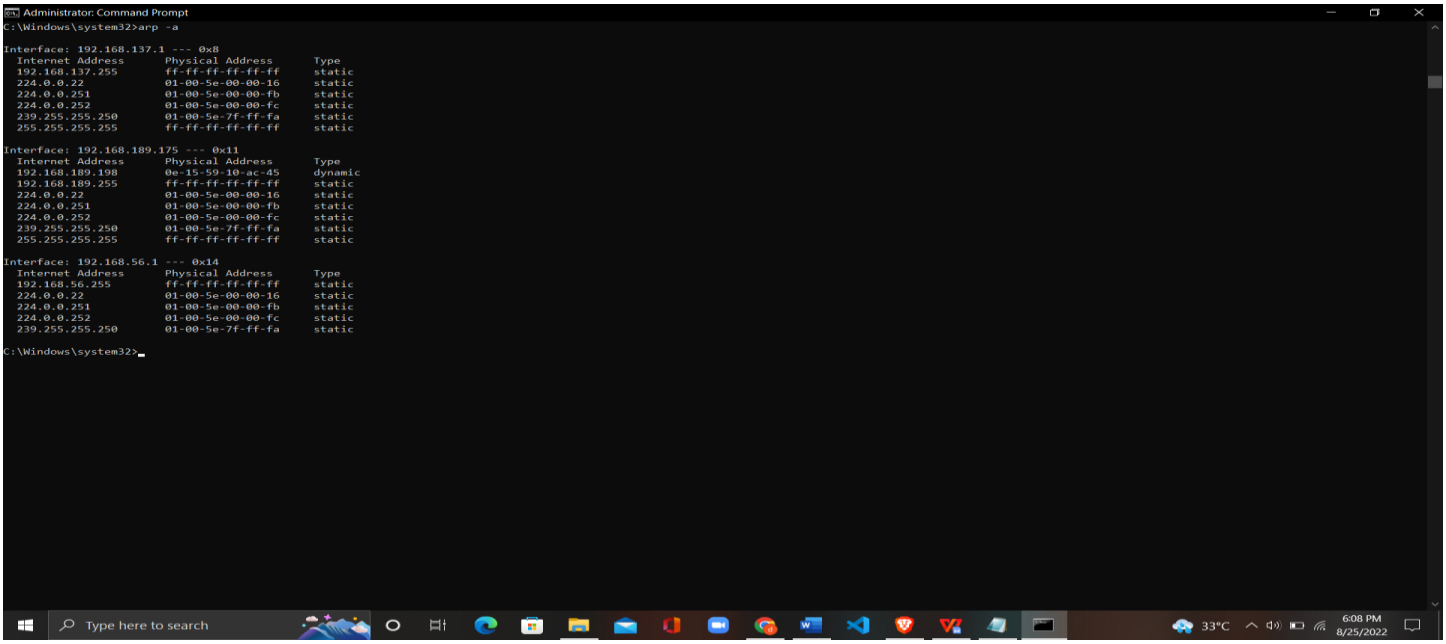
5. nslookup:



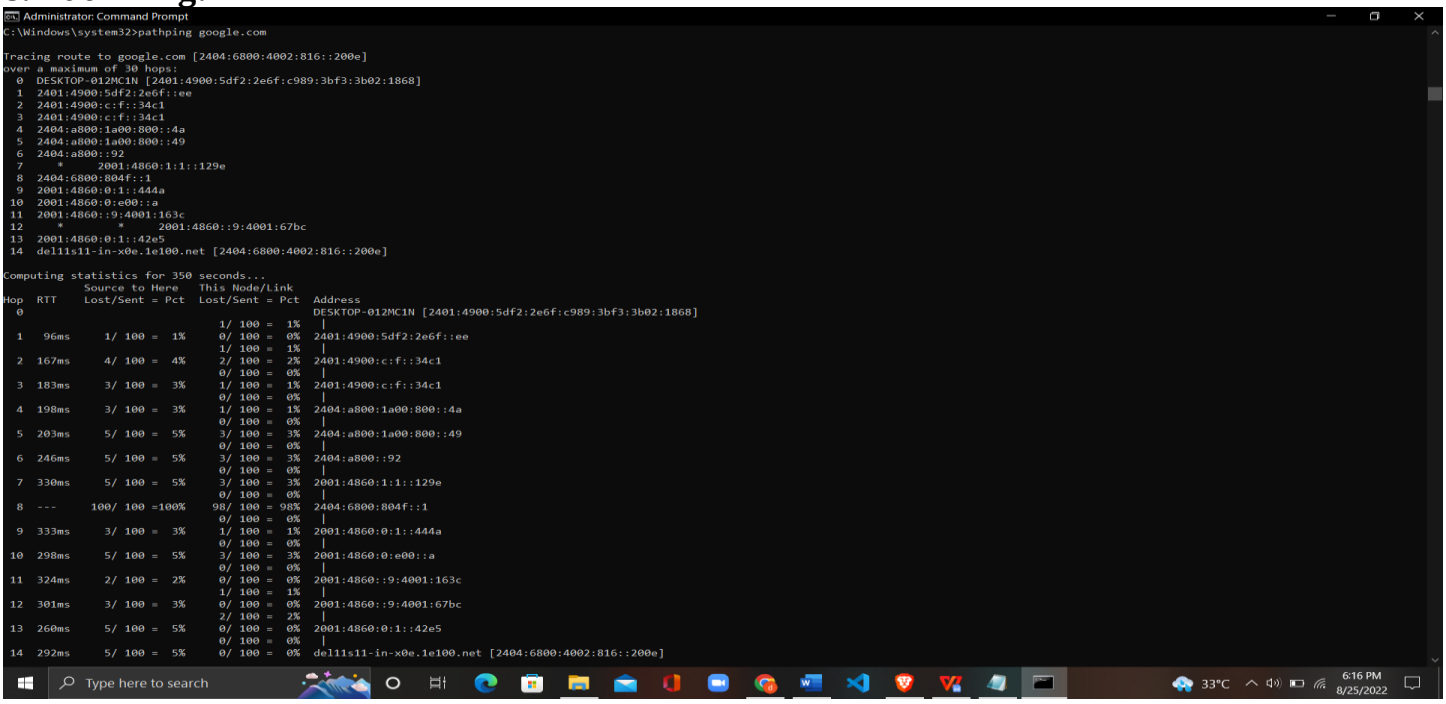
6.Route print:

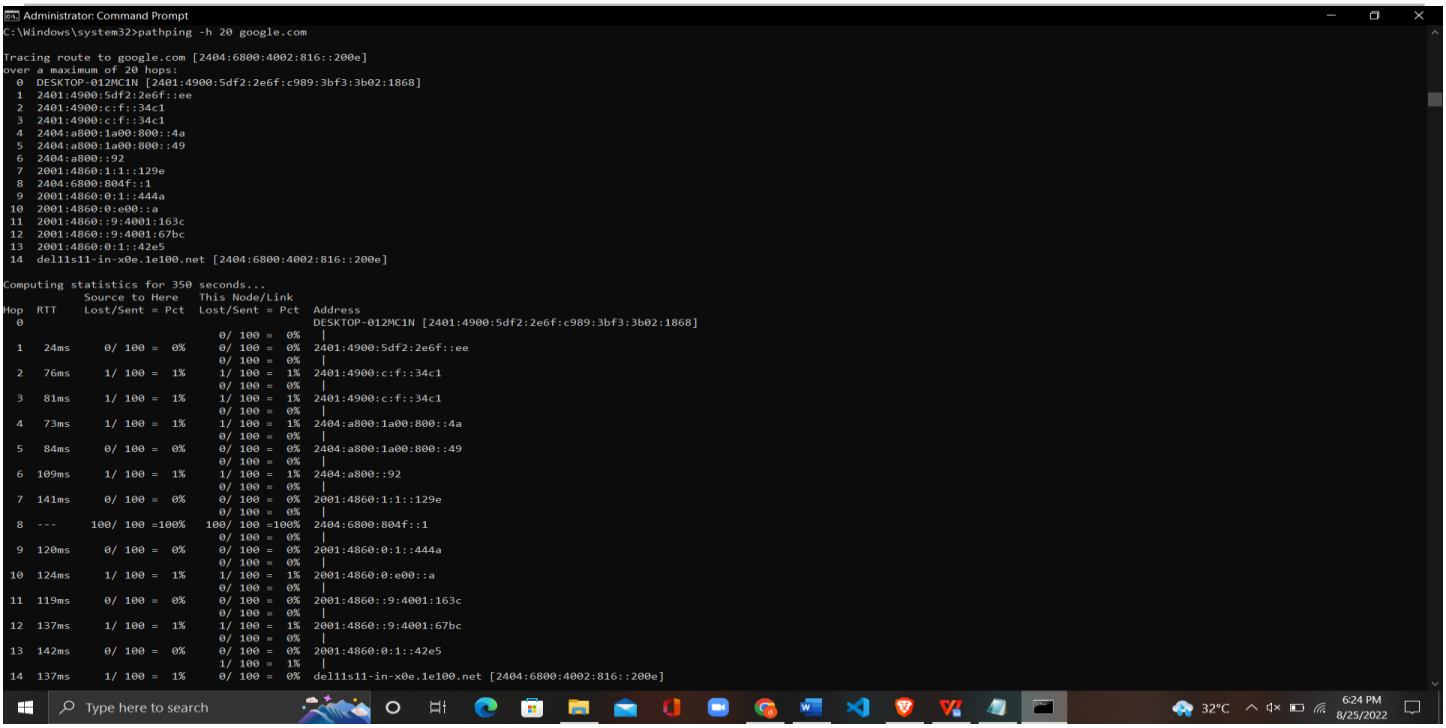


7. Arp -a:



8. Path Ping:





Learning outcomes (What I have learnt):

1. Basic concepts of computer networks

2. Learn about different basic networking commands on command prompt.

3. To learn about different connection establishments techniques.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			