Student Name	**Samarth Abhay Kadam**
SRN No	202200739
Roll No	12
Program	AI & DS
Year	Third Year
Division	A
Subject	Computer Network Laboratory (BTECCE21506)
Assignment No	2

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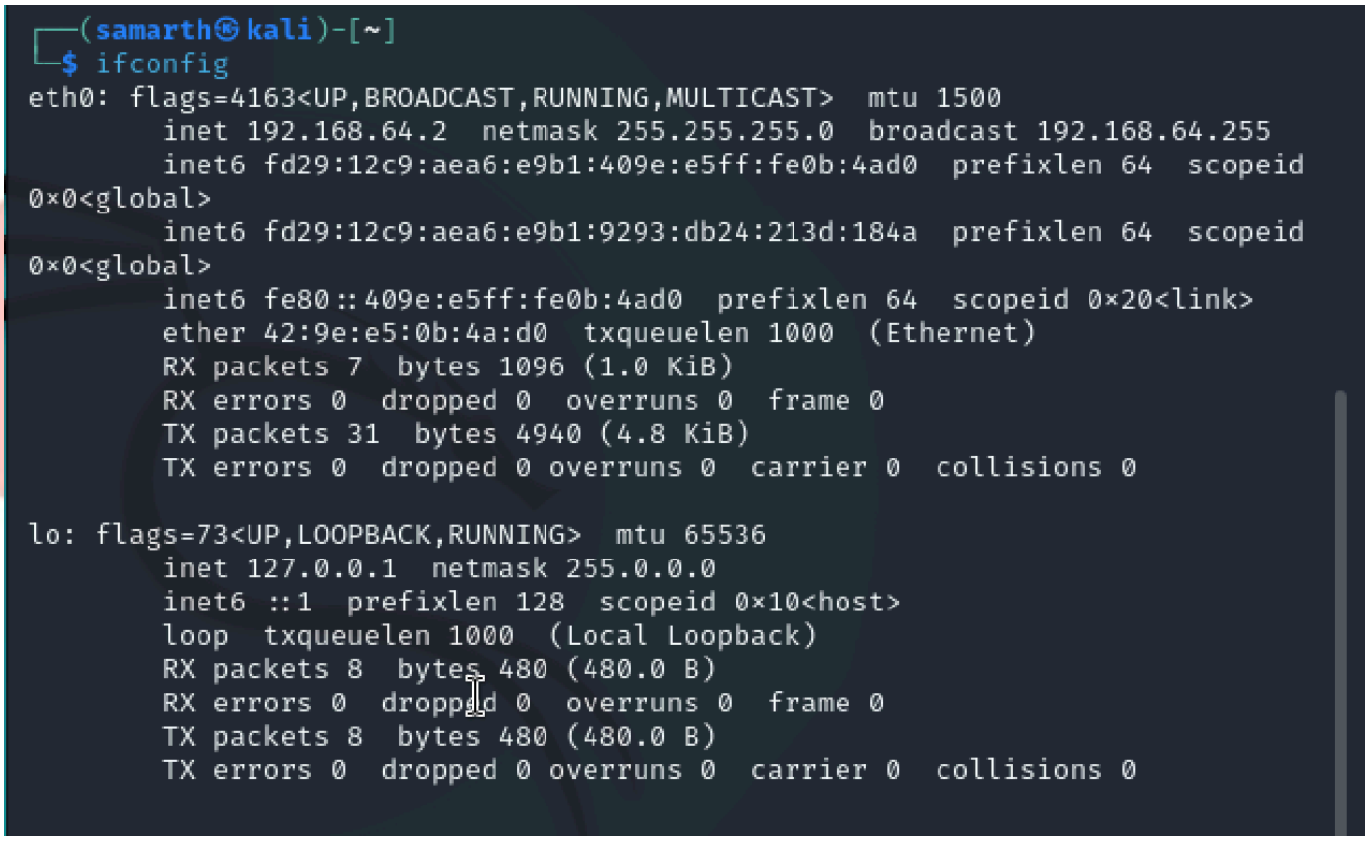
Assignment Number - 02

Title : Study of Linux and Windows Network commands

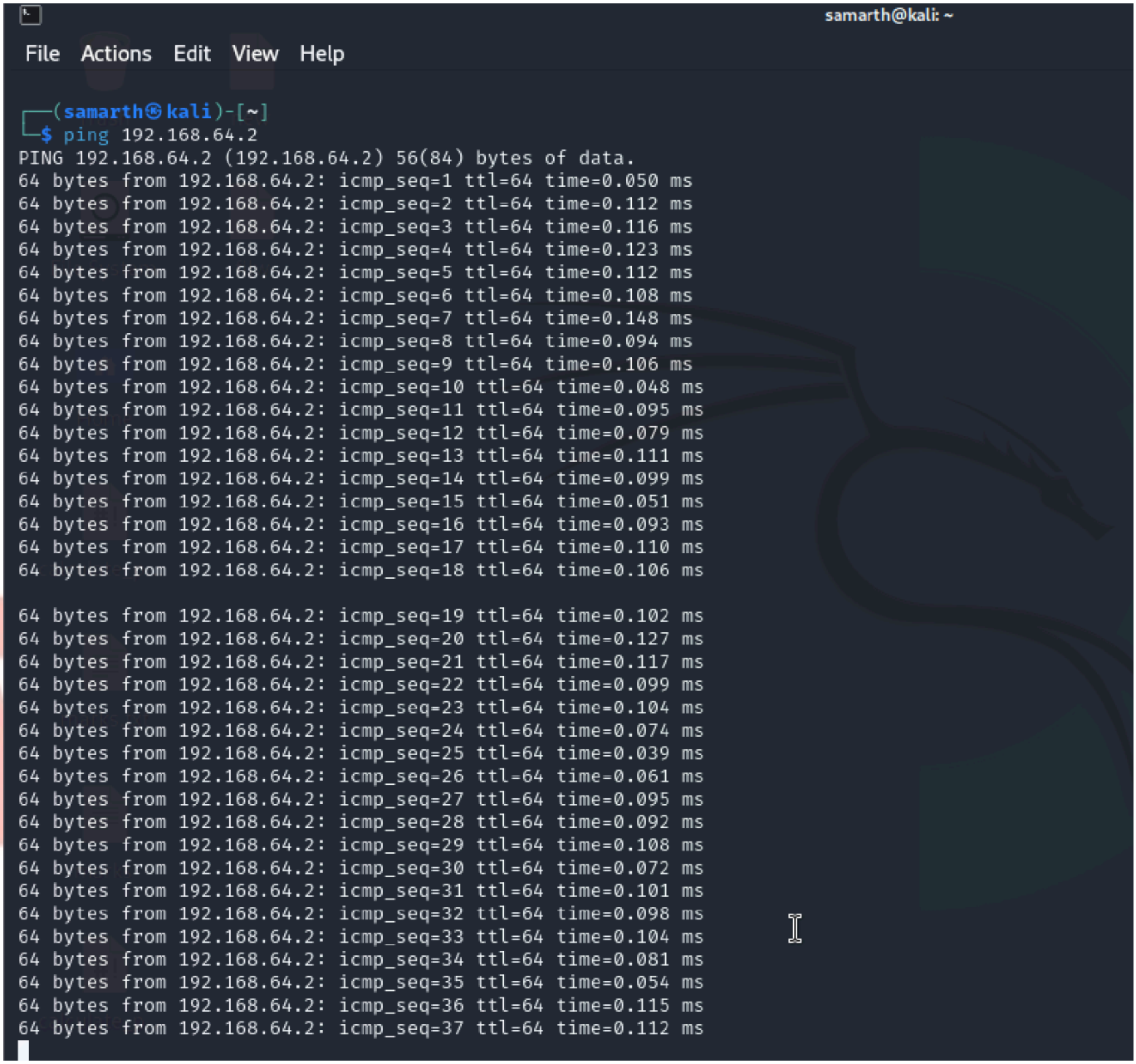
Problem Statement Studying Linux and Windows network commands. [ping, pathping, ipconfig/ ifconfig, arp, netstat, nbtstat, nslookup, route, traceroute/tracert, nmap, etc]

Try to execute following commands on linux terminal or Windows command prompt.

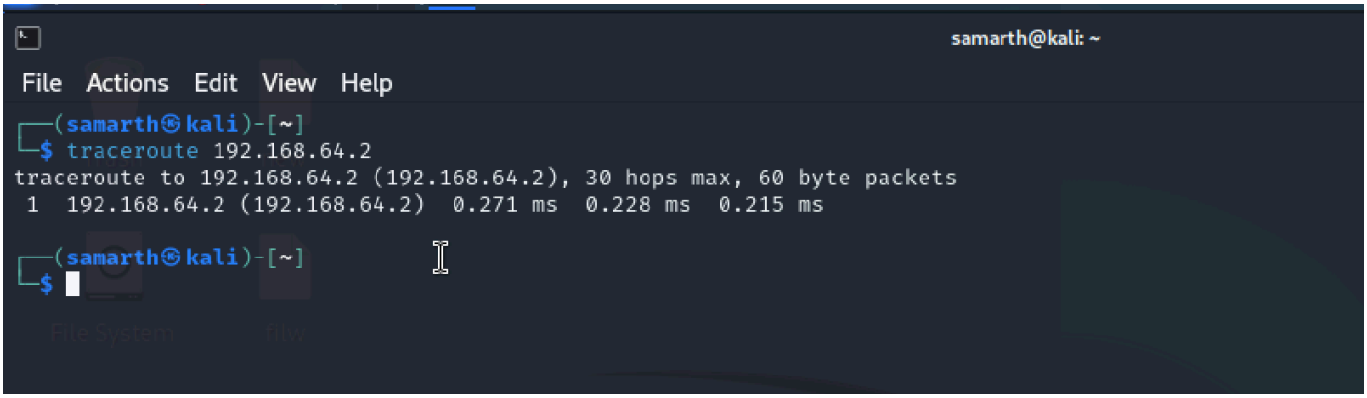
- **ipconfig / ifconfig**



- **ping**

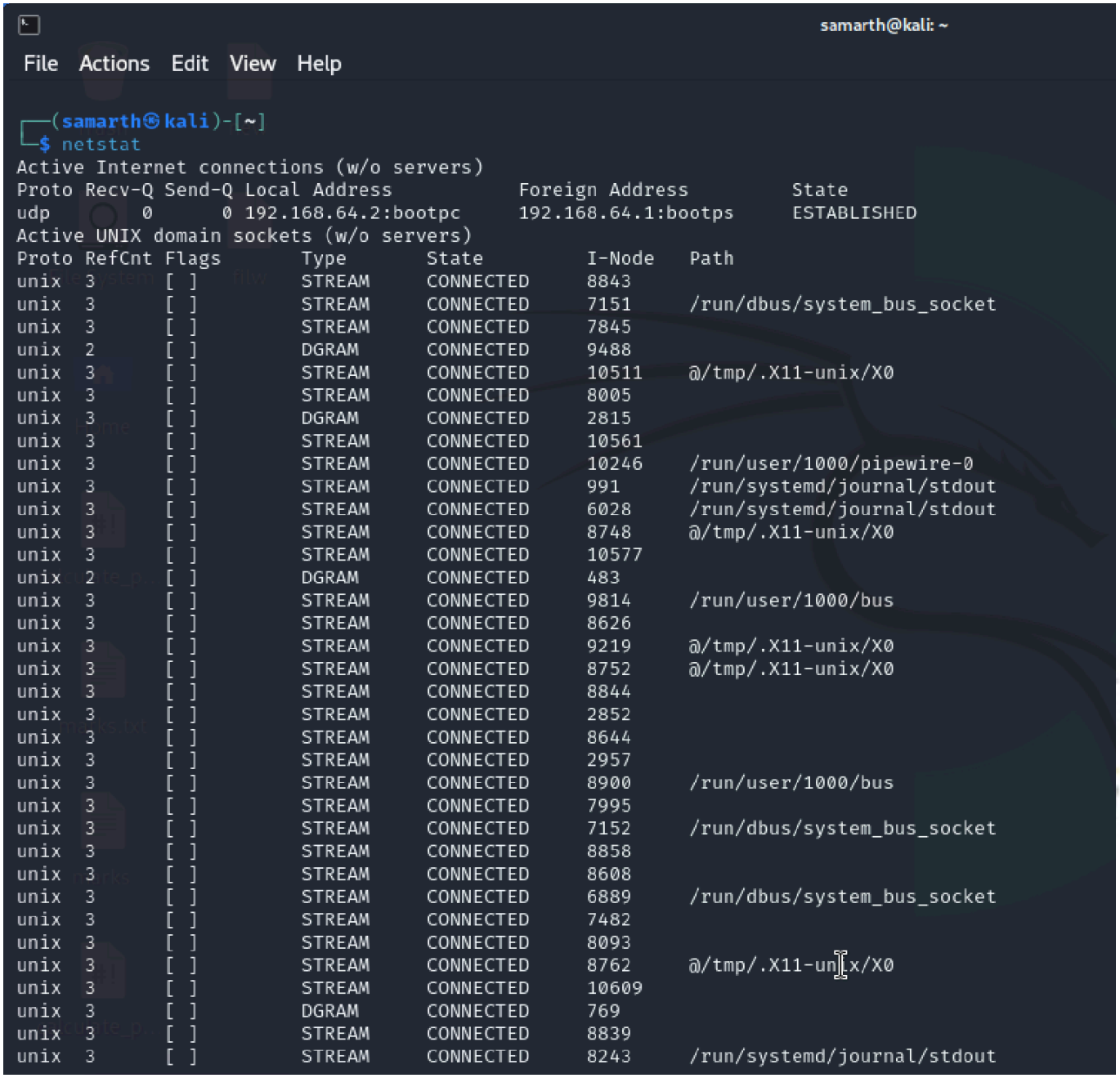

samarth@kali: ~
File Actions Edit View Help
(samarth㉿kali)-[~]
$ ping 192.168.64.2
PING 192.168.64.2 (192.168.64.2) 56(84) bytes of data.
64 bytes from 192.168.64.2: icmp_seq=1 ttl=64 time=0.050 ms
64 bytes from 192.168.64.2: icmp_seq=2 ttl=64 time=0.112 ms
64 bytes from 192.168.64.2: icmp_seq=3 ttl=64 time=0.116 ms
64 bytes from 192.168.64.2: icmp_seq=4 ttl=64 time=0.123 ms
64 bytes from 192.168.64.2: icmp_seq=5 ttl=64 time=0.112 ms
64 bytes from 192.168.64.2: icmp_seq=6 ttl=64 time=0.108 ms
64 bytes from 192.168.64.2: icmp_seq=7 ttl=64 time=0.148 ms
64 bytes from 192.168.64.2: icmp_seq=8 ttl=64 time=0.094 ms
64 bytes from 192.168.64.2: icmp_seq=9 ttl=64 time=0.106 ms
64 bytes from 192.168.64.2: icmp_seq=10 ttl=64 time=0.048 ms
64 bytes from 192.168.64.2: icmp_seq=11 ttl=64 time=0.095 ms
64 bytes from 192.168.64.2: icmp_seq=12 ttl=64 time=0.079 ms
64 bytes from 192.168.64.2: icmp_seq=13 ttl=64 time=0.111 ms
64 bytes from 192.168.64.2: icmp_seq=14 ttl=64 time=0.099 ms
64 bytes from 192.168.64.2: icmp_seq=15 ttl=64 time=0.051 ms
64 bytes from 192.168.64.2: icmp_seq=16 ttl=64 time=0.093 ms
64 bytes from 192.168.64.2: icmp_seq=17 ttl=64 time=0.110 ms
64 bytes from 192.168.64.2: icmp_seq=18 ttl=64 time=0.106 ms
64 bytes from 192.168.64.2: icmp_seq=19 ttl=64 time=0.102 ms
64 bytes from 192.168.64.2: icmp_seq=20 ttl=64 time=0.127 ms
64 bytes from 192.168.64.2: icmp_seq=21 ttl=64 time=0.117 ms
64 bytes from 192.168.64.2: icmp_seq=22 ttl=64 time=0.099 ms
64 bytes from 192.168.64.2: icmp_seq=23 ttl=64 time=0.104 ms
64 bytes from 192.168.64.2: icmp_seq=24 ttl=64 time=0.074 ms
64 bytes from 192.168.64.2: icmp_seq=25 ttl=64 time=0.039 ms
64 bytes from 192.168.64.2: icmp_seq=26 ttl=64 time=0.061 ms
64 bytes from 192.168.64.2: icmp_seq=27 ttl=64 time=0.095 ms
64 bytes from 192.168.64.2: icmp_seq=28 ttl=64 time=0.092 ms
64 bytes from 192.168.64.2: icmp_seq=29 ttl=64 time=0.108 ms
64 bytes from 192.168.64.2: icmp_seq=30 ttl=64 time=0.072 ms
64 bytes from 192.168.64.2: icmp_seq=31 ttl=64 time=0.101 ms
64 bytes from 192.168.64.2: icmp_seq=32 ttl=64 time=0.098 ms
64 bytes from 192.168.64.2: icmp_seq=33 ttl=64 time=0.104 ms
64 bytes from 192.168.64.2: icmp_seq=34 ttl=64 time=0.081 ms
64 bytes from 192.168.64.2: icmp_seq=35 ttl=64 time=0.054 ms
64 bytes from 192.168.64.2: icmp_seq=36 ttl=64 time=0.115 ms
64 bytes from 192.168.64.2: icmp_seq=37 ttl=64 time=0.112 ms

- **Tracert/Traceroute/Tracepath**

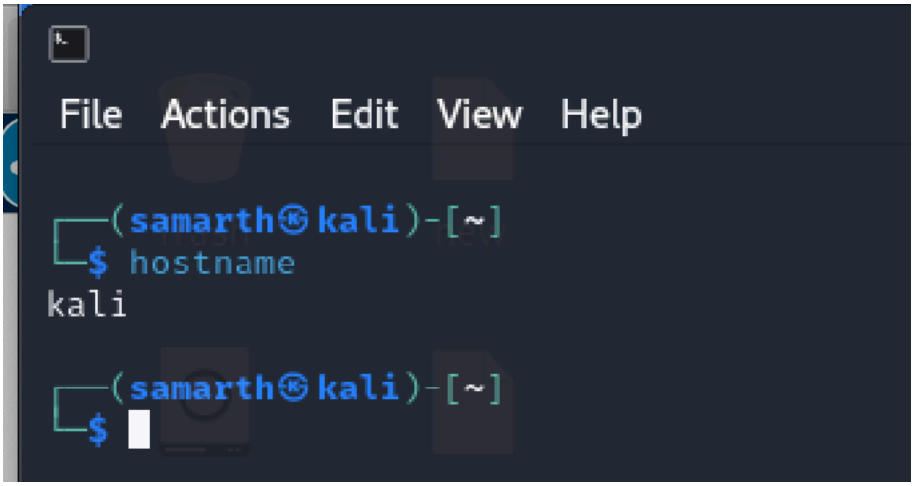


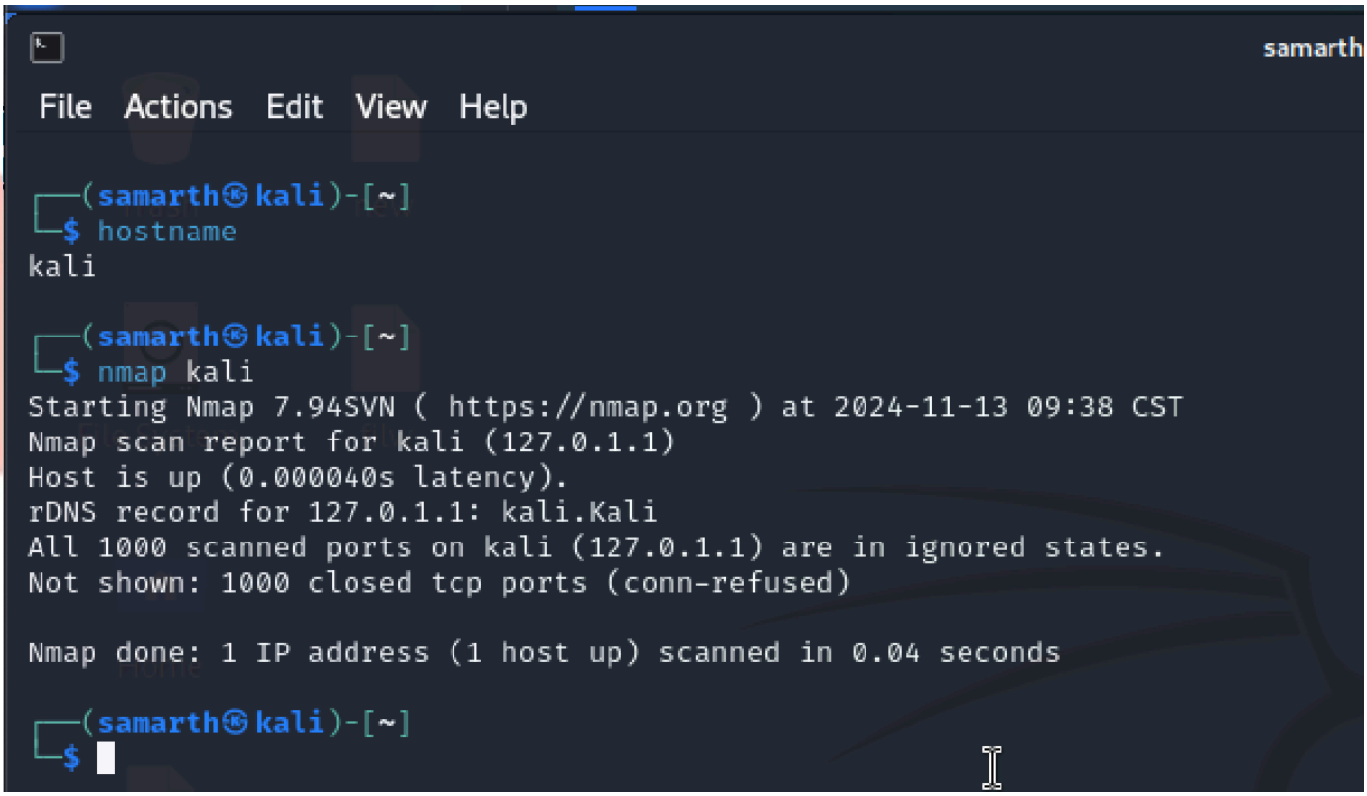
- **NSlookup**

- **Netstat**

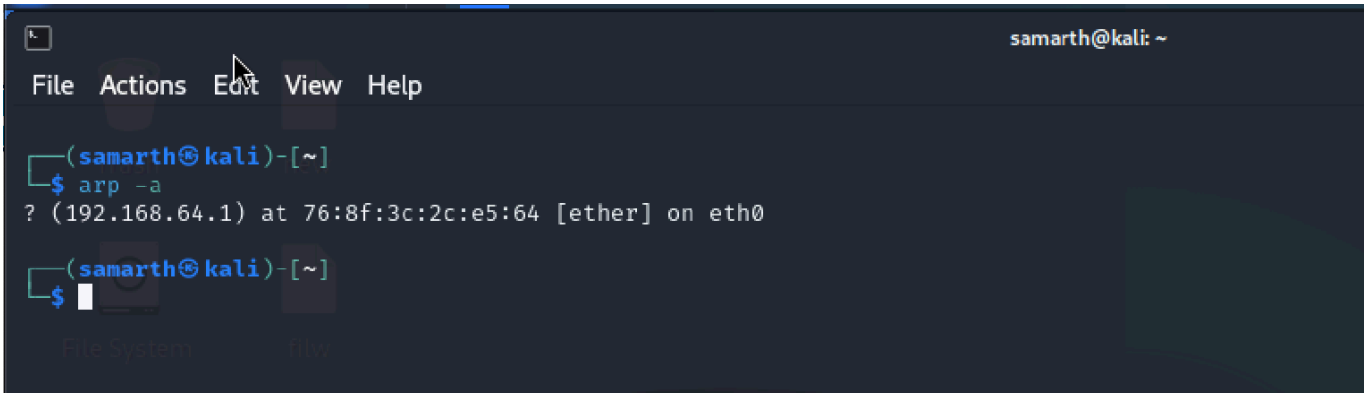

samarth@kali: ~
File Actions Edit View Help
(samarth㉿kali)-[~]
$ netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address Foreign Address State
udp 0 0 192.168.64.2:bootpc 192.168.64.1:bootps ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags Type State I-Node Path
unix 3 [ ] STREAM CONNECTED 8843
unix 3 [ ] STREAM CONNECTED 7151 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 7845
unix 2 [ ] DGRAM CONNECTED 9488
unix 3 [ ] STREAM CONNECTED 10511 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 8005
unix 3 [ ] DGRAM CONNECTED 2815
unix 3 [ ] STREAM CONNECTED 10561
unix 3 [ ] STREAM CONNECTED 10246 /run/user/1000/pipewire-0
unix 3 [ ] STREAM CONNECTED 991 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 6028 /run/systemd/journal/stdout
unix 3 [ ] STREAM CONNECTED 8748 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 10577
unix 2 [ ] DGRAM CONNECTED 483
unix 3 [ ] STREAM CONNECTED 9814 /run/user/1000/bus
unix 3 [ ] STREAM CONNECTED 8626
unix 3 [ ] STREAM CONNECTED 9219 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 8752 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 8844
unix 3 [ ] STREAM CONNECTED 2852
unix 3 [ ] STREAM CONNECTED 8644
unix 3 [ ] STREAM CONNECTED 2957
unix 3 [ ] STREAM CONNECTED 8900 /run/user/1000/bus
unix 3 [ ] STREAM CONNECTED 7995
unix 3 [ ] STREAM CONNECTED 7152 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 8858
unix 3 [ ] STREAM CONNECTED 8608
unix 3 [ ] STREAM CONNECTED 6889 /run/dbus/system_bus_socket
unix 3 [ ] STREAM CONNECTED 7482
unix 3 [ ] STREAM CONNECTED 8093
unix 3 [ ] STREAM CONNECTED 8762 @/tmp/.X11-unix/X0
unix 3 [ ] STREAM CONNECTED 10609
unix 3 [ ] DGRAM CONNECTED 769
unix 3 [ ] STREAM CONNECTED 8839
unix 3 [ ] STREAM CONNECTED 8243 /run/systemd/journal/stdout

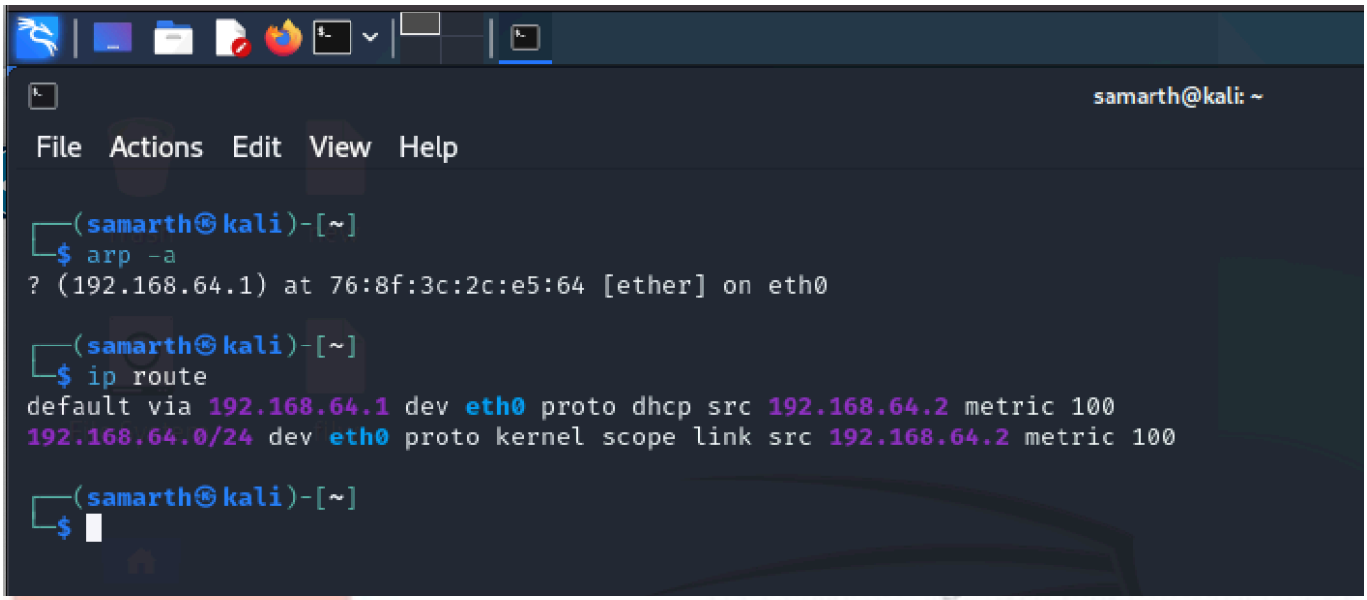
- **Hostname**


File Actions Edit View Help
(samarth㉿kali)-[~]
$ hostname
kali
(samarth㉿kali)-[~]
$


samarth
File Actions Edit View Help
(samarth㉿kali)-[~]
$ hostname
kali
(samarth㉿kali)-[~]
$ nmap kali
Starting Nmap 7.94SVN (https://nmap.org) at 2024-11-13 09:38 CST
Nmap scan report for kali (127.0.1.1)
Host is up (0.000040s latency).
rDNS record for 127.0.1.1: kali.Kali
All 1000 scanned ports on kali (127.0.1.1) are in ignored states.
Not shown: 1000 closed tcp ports (conn-refused)
Nmap done: 1 IP address (1 host up) scanned in 0.04 seconds
(samarth㉿kali)-[~]
$

- **Arp Route**


samarth@kali: ~
File Actions Edit View Help
(samarth㉿kali)-[~]
$ arp -a
? (192.168.64.1) at 76:8f:3c:2c:e5:64 [ether] on eth0
(samarth㉿kali)-[~]
$


samarth@kali: ~
File Actions Edit View Help
(samarth㉿kali)-[~]
$ arp -a
? (192.168.64.1) at 76:8f:3c:2c:e5:64 [ether] on eth0
(samarth㉿kali)-[~]
$ ip route
default via 192.168.64.1 dev eth0 proto dhcp src 192.168.64.2 metric 100
192.168.64.0/24 dev eth0 proto kernel scope link src 192.168.64.2 metric 100
(samarth㉿kali)-[~]
$

- **Whois**

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Theory :

1. **Ipconfig – try to run with ipconfig-all**

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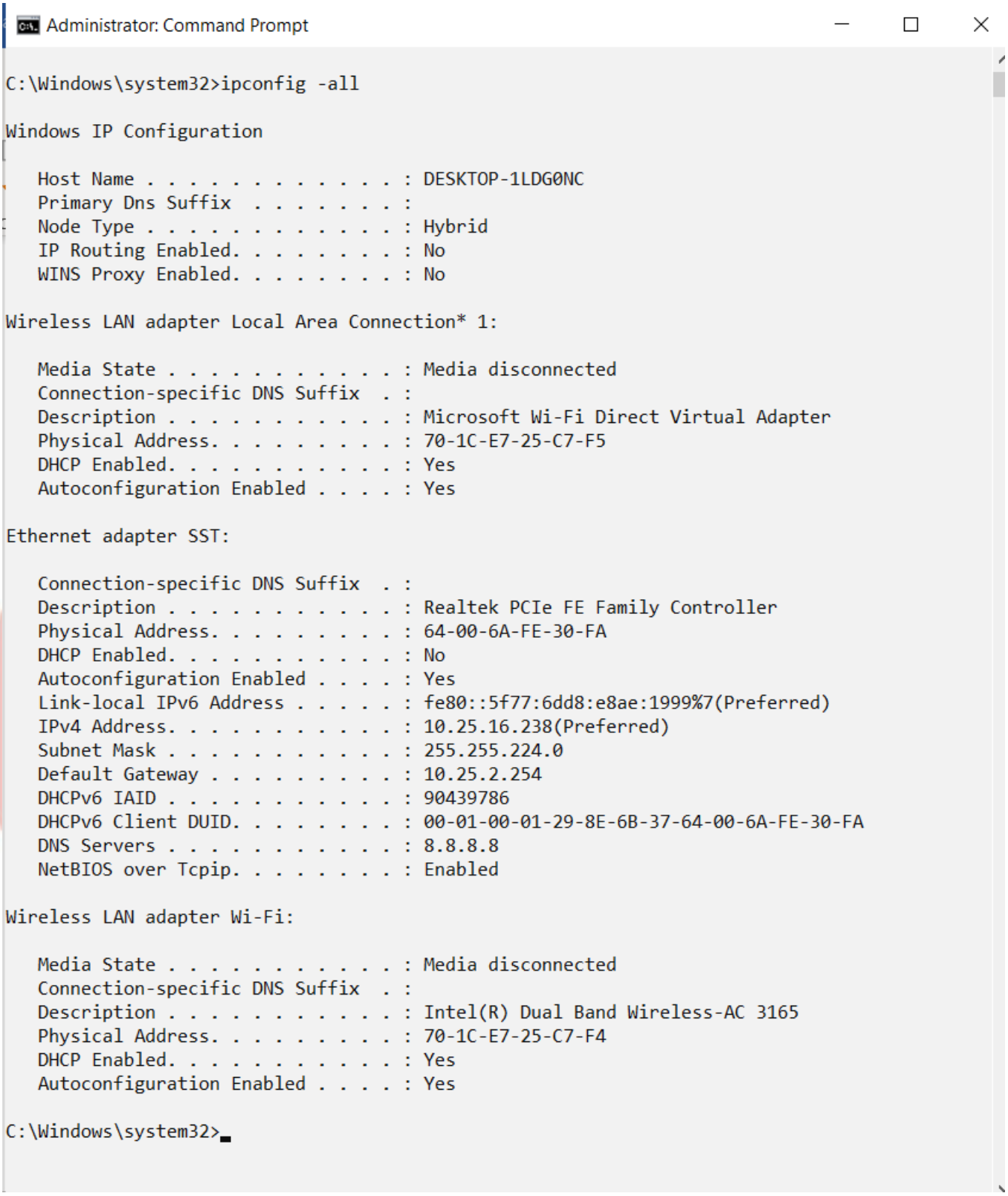
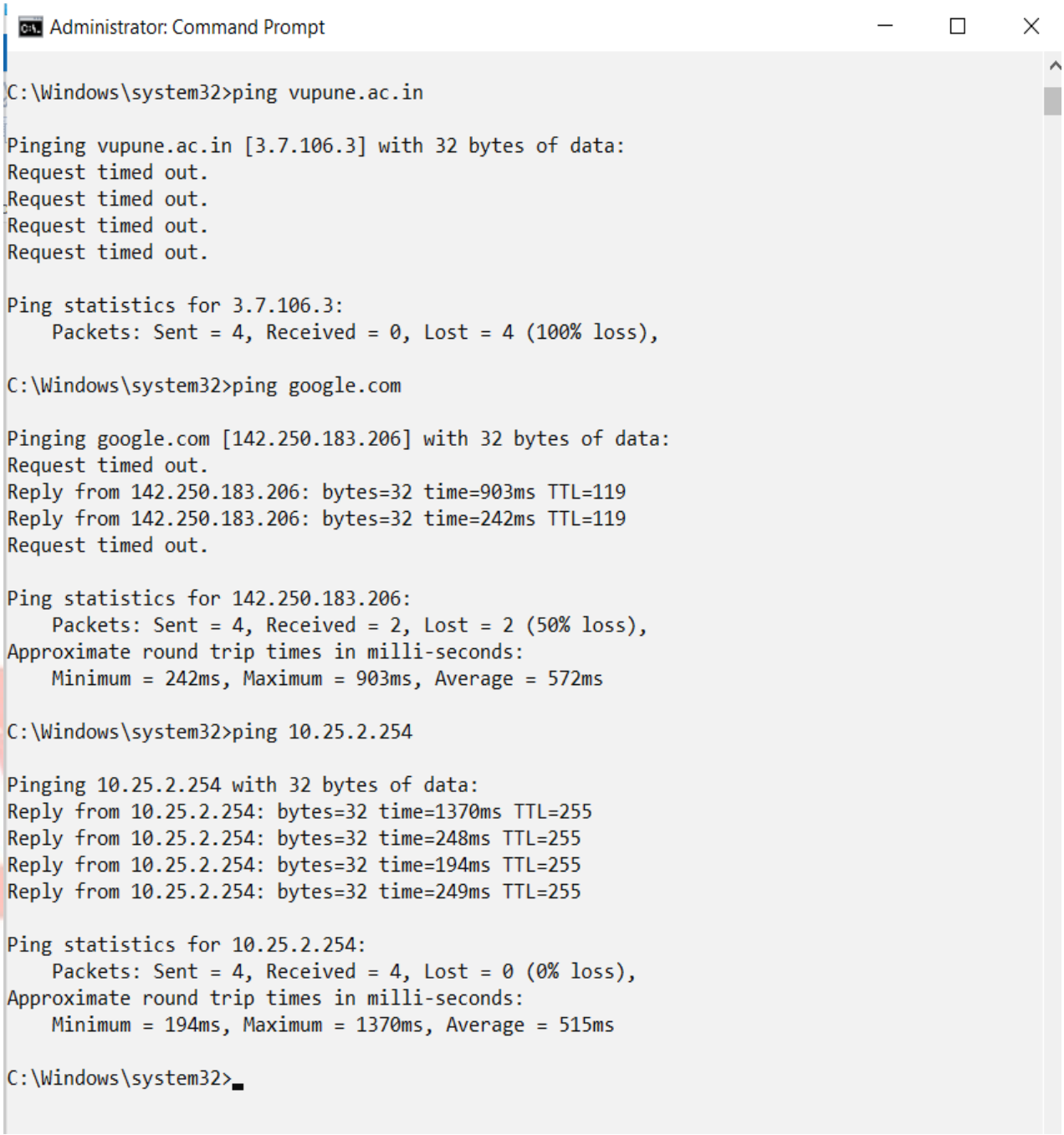
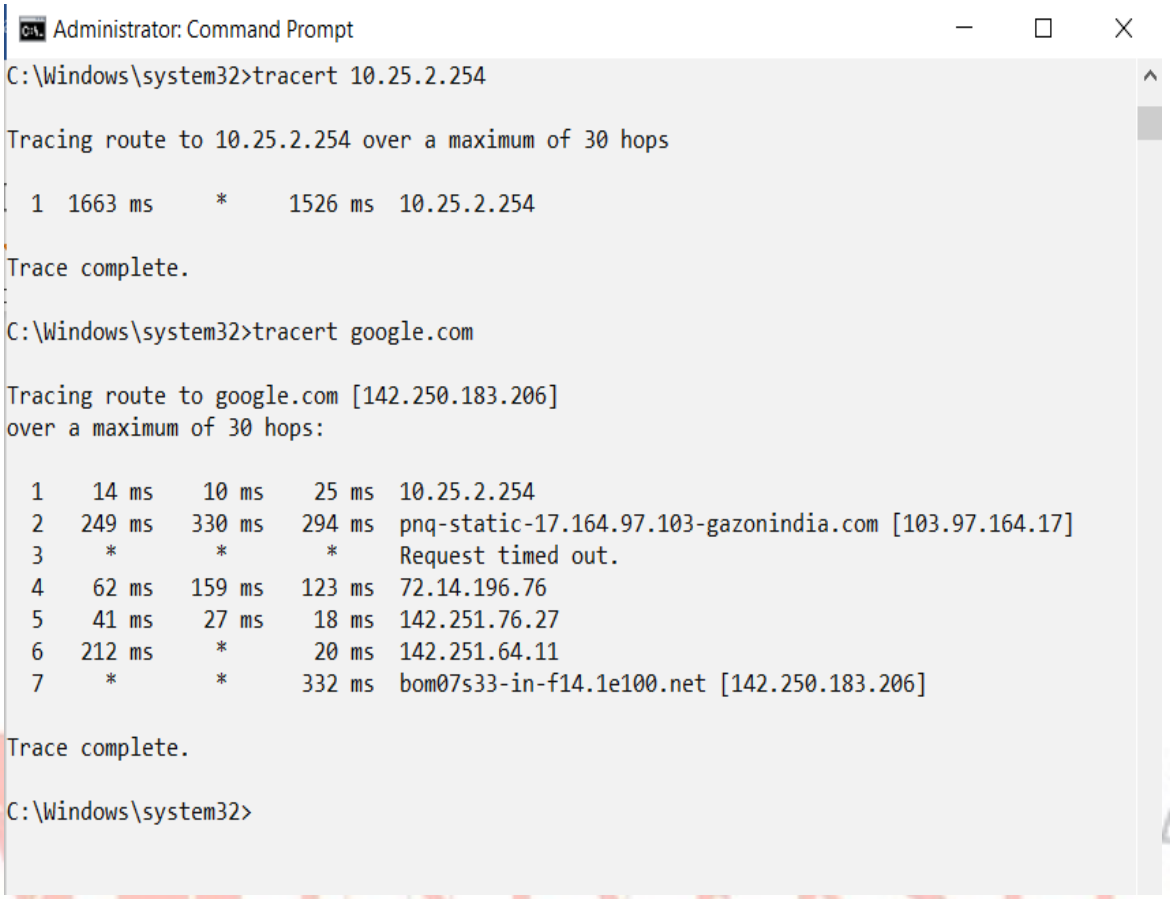

Administrator: Command Prompt
C:\Windows\system32>ipconfig -all
Windows IP Configuration
Host Name . . . . . : DESKTOP-1LDG0NC
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
Wireless LAN adapter Local Area Connection* 1:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
Physical Address. . . . . : 70-1C-E7-25-C7-F5
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Ethernet adapter SST:
Connection-specific DNS Suffix . :
Description . . . . . : Realtek PCIe FE Family Controller
Physical Address. . . . . : 64-00-6A-FE-30-FA
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::5f77:6dd8:e8ae:1999%7(Preferred)
IPv4 Address. . . . . : 10.25.16.238(Preferred)
Subnet Mask . . . . . : 255.255.224.0
Default Gateway . . . . . : 10.25.2.254
DHCPv6 IAID . . . . . : 90439786
DHCPv6 Client DUID. . . . . : 00-01-00-01-29-8E-6B-37-64-00-6A-FE-30-FA
DNS Servers . . . . . : 8.8.8.8
NetBIOS over Tcpip. . . . . : Enabled
Wireless LAN adapter Wi-Fi:
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Intel(R) Dual Band Wireless-AC 3165
Physical Address. . . . . : 70-1C-E7-25-C7-F4
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
C:\Windows\system32>

2. Ping


Administrator: Command Prompt
C:\Windows\system32>ping vupune.ac.in
Pinging vupune.ac.in [3.7.106.3] with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
Ping statistics for 3.7.106.3:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\Windows\system32>ping google.com
Pinging google.com [142.250.183.206] with 32 bytes of data:
Request timed out.
Reply from 142.250.183.206: bytes=32 time=903ms TTL=119
Reply from 142.250.183.206: bytes=32 time=242ms TTL=119
Request timed out.
Ping statistics for 142.250.183.206:
Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
Approximate round trip times in milli-seconds:
Minimum = 242ms, Maximum = 903ms, Average = 572ms
C:\Windows\system32>ping 10.25.2.254
Pinging 10.25.2.254 with 32 bytes of data:
Reply from 10.25.2.254: bytes=32 time=1370ms TTL=255
Reply from 10.25.2.254: bytes=32 time=248ms TTL=255
Reply from 10.25.2.254: bytes=32 time=194ms TTL=255
Reply from 10.25.2.254: bytes=32 time=249ms TTL=255
Ping statistics for 10.25.2.254:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 194ms, Maximum = 1370ms, Average = 515ms
C:\Windows\system32>

3. Tracert /traceroute



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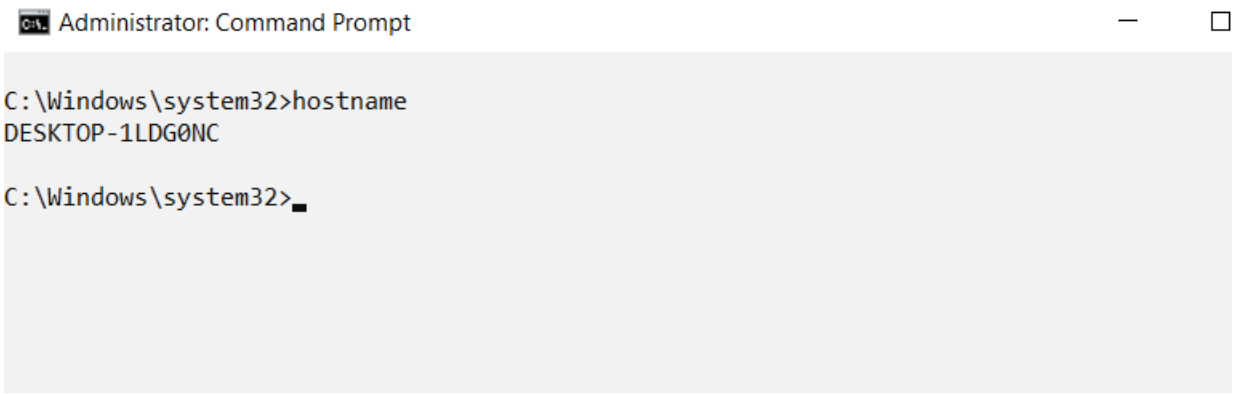
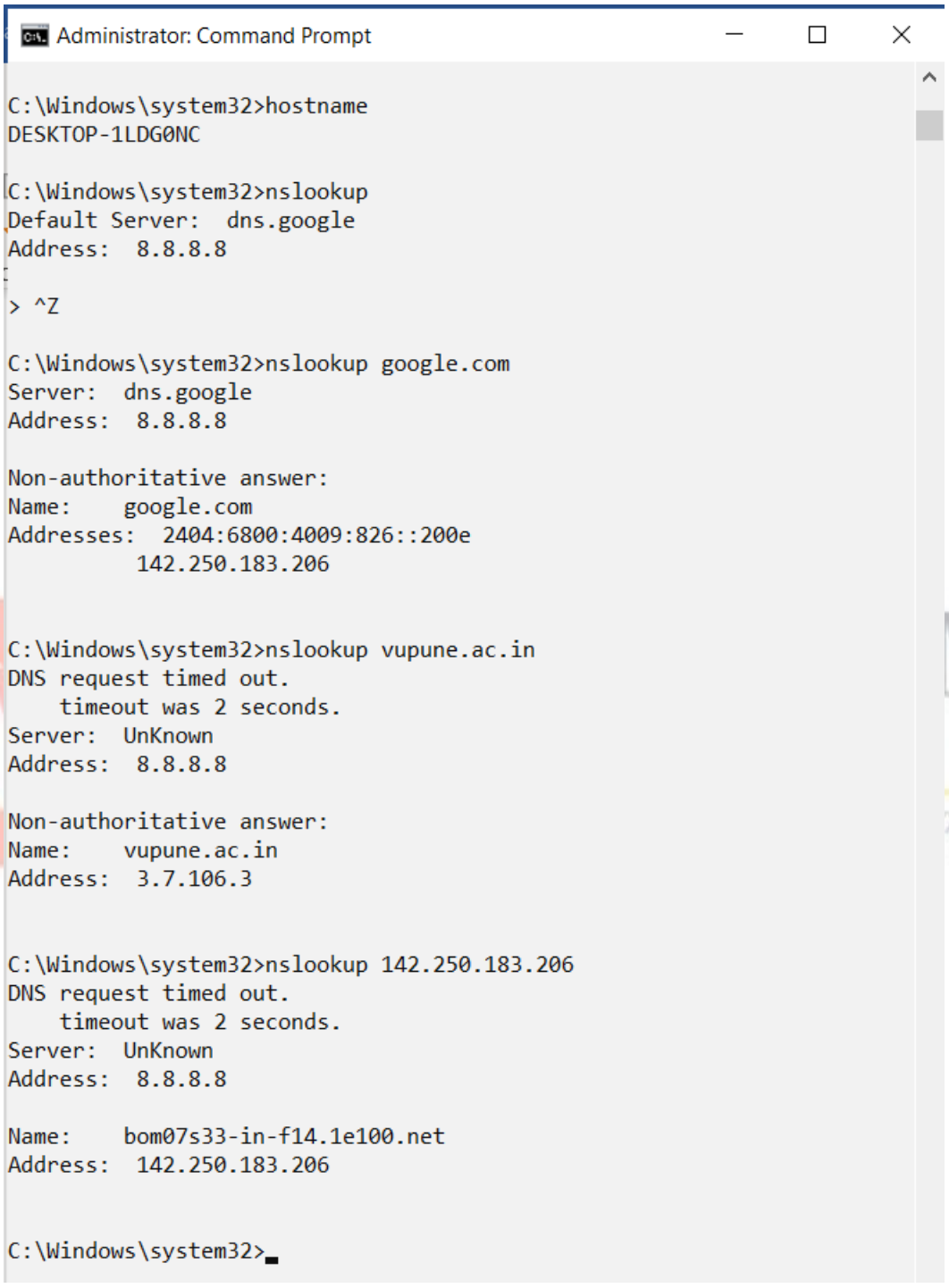
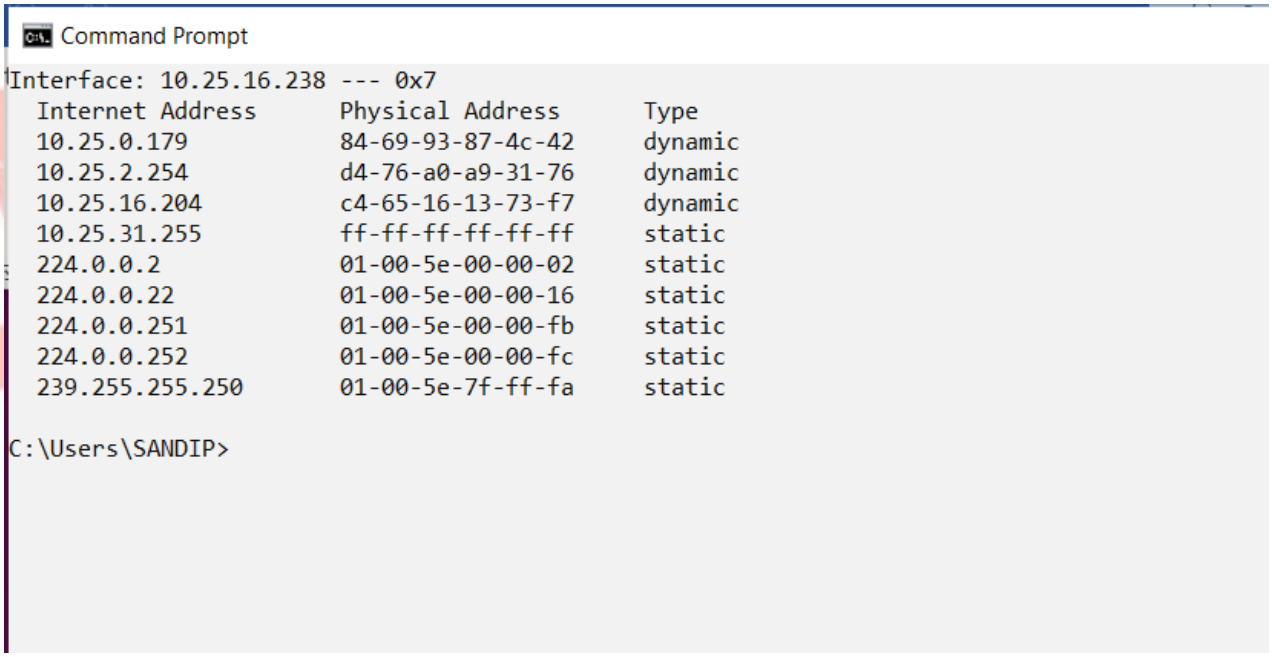
4. Hostname



5. Nslookup


Administrator: Command Prompt
C:\Windows\system32>hostname
DESKTOP-1LDG0NC
C:\Windows\system32>nslookup
Default Server: dns.google
Address: 8.8.8.8
> ^Z
C:\Windows\system32>nslookup google.com
Server: dns.google
Address: 8.8.8.8
Non-authoritative answer:
Name: google.com
Addresses: 2404:6800:4009:826::200e
142.250.183.206
C:\Windows\system32>nslookup vupune.ac.in
DNS request timed out.
timeout was 2 seconds.
Server: UnKnown
Address: 8.8.8.8
Non-authoritative answer:
Name: vupune.ac.in
Address: 3.7.106.3
C:\Windows\system32>nslookup 142.250.183.206
DNS request timed out.
timeout was 2 seconds.
Server: UnKnown
Address: 8.8.8.8
Name: bom07s33-in-f14.1e100.net
Address: 142.250.183.206
C:\Windows\system32>

6. **Arp**



Conclusion : <<Write Conclusion in your own words. Write about what you learn from assignment>>