

CN LAB 01

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Use the appropriate networking commands to solve these networking problems.

1. Find the IP address of the computer you are currently using.

Command: **ipconfig**

IP address:

```
Ethernet adapter Ethernet:

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

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::c0ab:14c3:9927:7426%28
    IPv4 Address. . . . . : 172.30.192.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :

Wireless LAN adapter Local Area Connection* 9:

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

Wireless LAN adapter Local Area Connection* 10:

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

Ethernet adapter VMware Network Adapter VMnet1:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::32f:5c3f:aaf2:d31d%16
    IPv4 Address. . . . . : 192.168.217.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Ethernet adapter VMware Network Adapter VMnet8:

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::d970:a556:e8ba:1a5%22
    IPv4 Address. . . . . : 192.168.43.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . : 2406:d00:cccc:8746:342d:a896:4b2e:8537
    Temporary IPv6 Address. . . . . : 2406:d00:cccc:8746:dca0:f50d:791f:731d
    Link-local IPv6 Address . . . . . : fe80::d232:ebce:4a16:e5c5%15
    IPv4 Address. . . . . : 192.168.100.7
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::1%15
                                192.168.100.1
```

2. Find the IP address of the computer you are currently using, plus MAC address, plus whether DHCP is turned on. Yes
Command: ipconfig/all

Answer: physical address 54-E1-AD-D9-C6-C5

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

Windows IP Configuration

    Host Name . . . . . : Aftab-Ahmed-Lenevo
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . . : Intel(R) Ethernet Connection (4) I219-LM
    Physical Address. . . . . : 54-E1-AD-D9-C6-C5
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Ethernet adapter vEthernet (Default Switch):

    Connection-specific DNS Suffix . :
    Description . . . . . : Hyper-V Virtual Ethernet Adapter
    Physical Address. . . . . : 00-15-5D-C9-55-7C
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::c0ab:14c3:9927:7426%28(Preferred)
    IPv4 Address. . . . . : 172.30.192.1(Preferred)
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :
    DHCPv6 IAID . . . . . : 469767517
    DHCPv6 Client DUID. . . . . : 00-01-00-01-28-D7-0F-E2-54-E1-AD-D9-C6-C5
    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* 9:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
    Physical Address. . . . . : E4-70-B8-0B-B3-4C
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection* 10:
```

3. Display the host name of the computer.

Command: ipconfig/all

Hostname: Aftab-Ahmed-lenovo

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

Windows IP Configuration

    Host Name . . . . . : Aftab-Ahmed-Lenevo
    Primary Dns Suffix . . . . . :
```

4. Check for basic IP connectivity between two computers by name and IP address. How can basic IP connectivity be checked? What are the reasons why there is no connectivity?

Command: ping

Reason:hardware or software problems your router and network adaptor in your pc might not work together

5. Show the MAC address of the host.

Command:ipconfig/all

MAC address: Physical Address.....: 00-15-5D-C9-55-7C

6. Show what shared resources are available on the host.

Command:net share

Answer:

```
: \Users\aftab> net share

Share name      Resource                                Remark
-----
$                C:\                                    Default share
$                E:\                                    Default share
$                F:\                                    Default share
PC$              Remote IPC
ADMIN$           C:\WINDOWS                           Remote Admin
WindowsApps     C:\Program Files\WindowsApps
The command completed successfully.

: \Users\aftab>
```

7. Find out which ports on your host are connected to applications. Connect the browser to some external web page before running the appropriate command.

Command:netstat -ano -p tcp

Answer:

```
C:\Users\aftab>netstat -ano -p tcp
```

Active Connections

Proto	Local Address	Foreign Address	State	PID
TCP	0.0.0.0:135	0.0.0.0:0	LISTENING	504
TCP	0.0.0.0:445	0.0.0.0:0	LISTENING	4
TCP	0.0.0.0:902	0.0.0.0:0	LISTENING	5620
TCP	0.0.0.0:912	0.0.0.0:0	LISTENING	5620
TCP	0.0.0.0:1025	0.0.0.0:0	LISTENING	812
TCP	0.0.0.0:2179	0.0.0.0:0	LISTENING	2524
TCP	0.0.0.0:5040	0.0.0.0:0	LISTENING	7536
TCP	0.0.0.0:5357	0.0.0.0:0	LISTENING	4
TCP	0.0.0.0:20271	0.0.0.0:0	LISTENING	5164
TCP	0.0.0.0:49664	0.0.0.0:0	LISTENING	844
TCP	0.0.0.0:49665	0.0.0.0:0	LISTENING	740
TCP	0.0.0.0:49666	0.0.0.0:0	LISTENING	1648
TCP	0.0.0.0:49667	0.0.0.0:0	LISTENING	1656
TCP	0.0.0.0:49668	0.0.0.0:0	LISTENING	4632
TCP	127.0.0.1:1001	0.0.0.0:0	LISTENING	4
TCP	127.0.0.1:1161	0.0.0.0:0	LISTENING	3504
TCP	127.0.0.1:1161	127.0.0.1:1260	ESTABLISHED	3504
TCP	127.0.0.1:1260	127.0.0.1:1161	ESTABLISHED	11624
TCP	127.0.0.1:10127	0.0.0.0:0	LISTENING	6052
TCP	172.30.192.1:139	0.0.0.0:0	LISTENING	4
TCP	192.168.43.1:139	0.0.0.0:0	LISTENING	4
TCP	192.168.100.7:139	0.0.0.0:0	LISTENING	4
TCP	192.168.100.7:1242	20.198.119.84:443	ESTABLISHED	5876
TCP	192.168.100.7:1584	20.69.137.228:443	TIME_WAIT	0
TCP	192.168.100.7:1585	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1586	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1587	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1590	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1591	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1592	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1593	23.32.29.104:443	CLOSE_WAIT	8276
TCP	192.168.100.7:1594	23.32.29.104:443	ESTABLISHED	8276
TCP	192.168.100.7:1595	23.32.29.97:443	ESTABLISHED	8276
TCP	192.168.100.7:1596	23.32.29.97:443	CLOSE_WAIT	8276
TCP	192.168.100.7:1597	23.32.29.97:443	CLOSE_WAIT	8276
TCP	192.168.100.7:1601	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1602	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1603	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1604	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1605	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1606	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1616	204.79.197.222:443	ESTABLISHED	8276
TCP	192.168.100.7:1617	20.230.46.154:443	ESTABLISHED	6608
TCP	192.168.100.7:1618	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1619	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.100.7:1620	192.168.100.1:53	TIME_WAIT	0
TCP	192.168.217.1:139	0.0.0.0:0	LISTENING	4

```
C:\Users\aftab>
```

8. Find all other hosts available on the network.

Command:net view

Answer:

```
C:\Users\aftab>net view
system error 6118 has occurred.

The list of servers for this workgroup is not currently available
```

9. Show the address of the gateway.

Command:ipconfig/all

Answer: Default Gateway : fe80::1%15

10. Find the path of routers to www.google.com. What is its IP address? How many hops involved in the path?

Command: tracert www.google.com

Answer:

```
C:\Users\aftab>tracert www.google.com

Tracing route to www.google.com [2a00:1450:4019:80d::2004]
over a maximum of 30 hops:

  1    1 ms    1 ms    1 ms    2406:d00:ccc1:1207:2ca6:4f8e:eed9:e279
  2    23 ms   5 ms    3 ms    2406:d00:1::4
  3    *        *        *        Request timed out.
  4    *        *        4 ms    2404:7000:f002:b::26
  5    20 ms    3 ms    4 ms    2404:7000:f001:1::4:44
  6    4 ms     3 ms    3 ms    2404:7000:f001:1::4:6
  7    24 ms    25 ms   33 ms    2001:4860:1:1::b22
  8    25 ms    25 ms   24 ms    2a00:1450:815f::1
  9    *        45 ms   *        2001:4860:0:1::522
 10   26 ms    *        *        2001:4860:0:1::8374
 11   44 ms    25 ms   25 ms    2001:4860::9:4002:5a75
 12   25 ms    25 ms   26 ms    2001:4860:0:1::7edd
 13   29 ms    30 ms   31 ms    2001:4860:0:1::5303
 14   25 ms    25 ms   24 ms    fjr04s09-in-x04.1e100.net [2a00:1450:4019:80d::2004]

Trace complete.
```

11. A ping to 192.168.0.2 works but a ping to the machine's name "blue machine" fails. What could be wrong?

```
C:\Users\aftab> ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Reason: C:\Users\aftab>

12. Which type of cable will you use to connect in a normal home installation? Give reasons.

Answer: **fiber cable is used because of over copper cables and other benefits is higher bandwidth and transmits speed**

13. Can you connect a Switch to another Switch or a router to a PC using a straight-through cable? Explain your answer.

Answer: **yeah we can use direct cable to computer or pc by ethernet cable which provides direct intrect to pc through router.**

14. Write a brief report on your home network or any organizational network including topology, 1 page max).

Answer:

The topology that is most useful for wireless networking at the moment is the star in which each node connected to the central hub that distributes the data wherever it needs to go the most obvious example of this would be a home network and at our home star topology network is used.

15. Find the path of routers to www.yahoo.com.my. What is its IP address? How many hops involved in the path?

Answer:

Over 30 hops

Ip address 76.6.231.20