Microsoft Windows [Version 10.0.21996.1]

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C:\Users\Lenovo>arp -a

Interface: 172.16.75.62 --- 0x19

Internet Address Physical Address Type

172.16.72.1 7c-5a-1c-cf-be-41 dynamic

172.16.72.133 4c-ae-a3-65-97-f3 dynamic

172.16.72.195 4c-ae-a3-64-fc-50 dynamic

172.16.73.97 2a-3c-13-0a-cc-17 dynamic

172.16.75.7 4c-82-a9-77-ff-de dynamic

172.16.75.16 4c-82-a9-77-ff-f5 dynamic

172.16.75.51 4c-82-a9-78-8b-49 dynamic

172.16.79.255 ff-ff-ff-ff-ff-ff static

224.0.0.2 01-00-5e-00-00-02 static

224.0.0.22 01-00-5e-00-00-16 static

224.0.0.113 01-00-5e-00-00-71 static

224.0.0.251 01-00-5e-00-00-fb static

224.0.0.252 01-00-5e-00-00-fc static

224.0.1.187 01-00-5e-00-01-bb static

224.2.2.2 01-00-5e-02-02-02 static

228.8.8.8 01-00-5e-08-08-08 static

239.0.0.8 01-00-5e-00-00-08 static

239.192.152.143 01-00-5e-40-98-8f static

239.255.102.18 01-00-5e-7f-66-12 static

239.255.255.250 01-00-5e-7f-ff-fa static

239.255.255.251 01-00-5e-7f-ff-fb static

C:\Users\Lenovo>hostname

DESKTOP-C01BH7D

C:\Users\Lenovo>ipconfig /all

Windows IP Configuration

Host Name . . . . . . . . . . . . : DESKTOP-C01BH7D

Primary Dns Suffix . . . . . . . :

Node Type . . . . . . . . . . . . : Hybrid

IP Routing Enabled. . . . . . . . : No

WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Ethernet 3:

Media State . . . . . . . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Description . . . . . . . . . . . : Intel(R) Ethernet Connection (17) I219-LM

Physical Address. . . . . . . . . : 20-88-10-86-BC-DA

DHCP Enabled. . . . . . . . . . . : Yes

Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection\* 13:

Media State . . . . . . . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #5

Physical Address. . . . . . . . . : 4E-82-A9-78-79-DB

DHCP Enabled. . . . . . . . . . . : Yes

Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Local Area Connection\* 14:

Media State . . . . . . . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Description . . . . . . . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #6

Physical Address. . . . . . . . . : 42-82-A9-78-79-DB

DHCP Enabled. . . . . . . . . . . : Yes

Autoconfiguration Enabled . . . . : Yes

Wireless LAN adapter Wi-Fi 3:

Connection-specific DNS Suffix . :

Description . . . . . . . . . . . : Realtek RTL8852BE WiFi 6 802.11ax PCIe Adapter

Physical Address. . . . . . . . . : 4C-82-A9-78-79-DB

DHCP Enabled. . . . . . . . . . . : No

Autoconfiguration Enabled . . . . : Yes

Link-local IPv6 Address . . . . . : fe80::1854:6c11:4448:175e%25(Preferred)

IPv4 Address. . . . . . . . . . . : 172.16.75.62(Preferred)

Subnet Mask . . . . . . . . . . . : 255.255.248.0

Default Gateway . . . . . . . . . : 172.16.72.1

DHCPv6 IAID . . . . . . . . . . . : 374112937

DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2D-61-C9-B9-74-5D-22-E8-59-3D

DNS Servers . . . . . . . . . . . : 172.16.72.1

NetBIOS over Tcpip. . . . . . . . : Enabled

Ethernet adapter Bluetooth Network Connection 2:

Media State . . . . . . . . . . . : Media disconnected

Connection-specific DNS Suffix . :

Description . . . . . . . . . . . : Bluetooth Device (Personal Area Network) #2

Physical Address. . . . . . . . . : 4C-82-A9-78-79-DC

DHCP Enabled. . . . . . . . . . . : Yes

Autoconfiguration Enabled . . . . : Yes

C:\Users\Lenovo>nbtstat -a

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 Redisplays selected statistics, pausing interval seconds

between each display. Press Ctrl+C to stop redisplaying

statistics.

C:\Users\Lenovo>nbtstat -c

Ethernet 3:

Node IpAddress: [0.0.0.0] Scope Id: []

No names in cache

Bluetooth Network Connection 2:

Node IpAddress: [0.0.0.0] Scope Id: []

No names in cache

Wi-Fi 3:

Node IpAddress: [172.16.75.62] Scope Id: []

No names in cache

Local Area Connection\* 13:

Node IpAddress: [0.0.0.0] Scope Id: []

No names in cache

Local Area Connection\* 14:

Node IpAddress: [0.0.0.0] Scope Id: []

No names in cache

C:\Users\Lenovo>nslookup

Default Server: UnKnown

Address: 172.16.72.1

>

C:\Users\Lenovo>pathping

Usage: pathping [-g host-list] [-h maximum\_hops] [-i address] [-n]

[-p period] [-q num\_queries] [-w timeout]

[-4] [-6] target\_name

Options:

-g host-list Loose source route along host-list.

-h maximum\_hops Maximum number of hops to search for target.

-i address Use the specified source address.

-n Do not resolve addresses to hostnames.

-p period Wait period milliseconds between pings.

-q num\_queries Number of queries per hop.

-w timeout Wait timeout milliseconds for each reply.

-4 Force using IPv4.

-6 Force using IPv6.

C:\Users\Lenovo>ping

Usage: ping [-t] [-a] [-n count] [-l size] [-f] [-i TTL] [-v TOS]

[-r count] [-s count] [[-j host-list] | [-k host-list]]

[-w timeout] [-R] [-S srcaddr] [-c compartment] [-p]

[-4] [-6] target\_name

Options:

-t Ping the specified host until stopped.

To see statistics and continue - type Control-Break;

To stop - type Control-C.

-a Resolve addresses to hostnames.

-n count Number of echo requests to send.

-l size Send buffer size.

-f Set Don't Fragment flag in packet (IPv4-only).

-i TTL Time To Live.

-v TOS Type Of Service (IPv4-only. This setting has been deprecated

and has no effect on the type of service field in the IP

Header).

-r count Record route for count hops (IPv4-only).

-s count Timestamp for count hops (IPv4-only).

-j host-list Loose source route along host-list (IPv4-only).

-k host-list Strict source route along host-list (IPv4-only).

-w timeout Timeout in milliseconds to wait for each reply.

-R Use routing header to test reverse route also (IPv6-only).

Per RFC 5095 the use of this routing header has been

deprecated. Some systems may drop echo requests if

this header is used.

-S srcaddr Source address to use.

-c compartment Routing compartment identifier.

-p Ping a Hyper-V Network Virtualization provider address.

-4 Force using IPv4.

-6 Force using IPv6.

C:\Users\Lenovo>Route

Manipulates network routing tables.

ROUTE [-f] [-p] [-4|-6] command [destination]

[MASK netmask] [gateway] [METRIC metric] [IF interface]

-f Clears the routing tables of all gateway entries. If this is

used in conjunction with one of the commands, the tables are

cleared prior to running the command.

-p When used with the ADD command, makes a route persistent across

boots of the system. By default, routes are not preserved

when the system is restarted. Ignored for all other commands,

which always affect the appropriate persistent routes.

-4 Force using IPv4.

-6 Force using IPv6.

command One of these:

PRINT Prints a route

ADD Adds a route

DELETE Deletes a route

CHANGE Modifies an existing route

destination Specifies the host.

MASK Specifies that the next parameter is the 'netmask' value.

netmask Specifies a subnet mask value for this route entry.

If not specified, it defaults to 255.255.255.255.

gateway Specifies gateway.

interface the interface number for the specified route.

METRIC specifies the metric, ie. cost for the destination.

All symbolic names used for destination are looked up in the network database

file NETWORKS. The symbolic names for gateway are looked up in the host name

database file HOSTS.

If the command is PRINT or DELETE. Destination or gateway can be a wildcard,

(wildcard is specified as a star '\*'), or the gateway argument may be omitted.

If Dest contains a \* or ?, it is treated as a shell pattern, and only

matching destination routes are printed. The '\*' matches any string,

and '?' matches any one char. Examples: 157.\*.1, 157.\*, 127.\*, \*224\*.

Pattern match is only allowed in PRINT command.

Diagnostic Notes:

Invalid MASK generates an error, that is when (DEST & MASK) != DEST.

Example> route ADD 157.0.0.0 MASK 155.0.0.0 157.55.80.1 IF 1

The route addition failed: The specified mask parameter is invalid. (Destination & Mask) != Destination.

Examples:

> route PRINT

> route PRINT -4

> route PRINT -6

> route PRINT 157\* .... Only prints those matching 157\*

> route ADD 157.0.0.0 MASK 255.0.0.0 157.55.80.1 METRIC 3 IF 2

destination^ ^mask ^gateway metric^ ^

Interface^

If IF is not given, it tries to find the best interface for a given

gateway.

> route ADD 3ffe::/32 3ffe::1

> route CHANGE 157.0.0.0 MASK 255.0.0.0 157.55.80.5 METRIC 2 IF 2

CHANGE is used to modify gateway and/or metric only.

> route DELETE 157.0.0.0

> route DELETE 3ffe::/32

[root@localhost ~]# ip link  
1: lo: <LOOPBACK,UP,LOWER\_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
2: enp2s0: <BROADCAST,MULTICAST,PROMISC> mtu 1500 qdisc fq\_codel state DOWN mode DEFAULT group default qlen 1000  
    link/ether 50:9a:4c:34:d6:63 brd ff:ff:ff:ff:ff:ff  
3: wlp3s0: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000  
    link/ether 9e:ba:d4:e5:db:95 brd ff:ff:ff:ff:ff:ff  
[root@localhost ~]# ip link set enp2s0 promisc on  
[root@localhost ~]# ip route add default 192.168.1.254 dev enp2s0  
Error: either "to" is duplicate, or "192.168.1.254" is a garbage.  
[root@localhost ~]# ip route add default via 192.168.1.254 dev enp2s0  
RTNETLINK answers: Network is unreachable  
[root@localhost ~]# ip address add [192.168.1.254/24](http://192.168.1.254/24) dev enp2s0  
[root@localhost ~]# ip link set enp2s0 up  
[root@localhost ~]# ip link set enp2s0 promisc on  
[root@localhost ~]# ip route add default via 192.168.1.254 dev enp2s0  
[root@localhost ~]# ip route add [192.168.1.0/24](http://192.168.1.0/24) via 192.168.1.254  
RTNETLINK answers: File exists  
[root@localhost ~]# ip route add [192.168.1.0/24](http://192.168.1.0/24) dev enp2s0  
RTNETLINK answers: File exists  
[root@localhost ~]# ip route get 10.10.1.4  
10.10.1.4 dev enp2s0 src 192.168.1.254 uid 0  
    cache