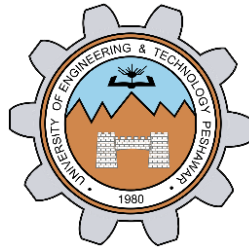


**INVESTIGATE THE NETWORK  
USING PING AND TRACERT**

**LAB #2**



**Spring 2021**

**CSE303L Data Communication and Networks Lab**

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Class Section: **B**

“On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work.”

Student Signature: \_\_\_\_\_

Submitted to:

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Wednesday, May 5<sup>th</sup>, 2021

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## OBJECTIVES OF THE LAB

Following topics will be covered in this lab

- Learn to use the TCP/IP Packet Internet Groper (ping) command.
- Learn to use the Trace Route (tracert) command.

### Task #1:

- a) Ping the IP address of the Default Gateway and DNS Servers. Was the result successful?

Yes, the result was successful.

```
C:\Users\Shah Raza>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=6ms TTL=64
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64
Reply from 192.168.1.1: bytes=32 time=3ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 6ms, Average = 3ms
```

- b) Ping the computer's loop-back address. Type the following command: >> **ping 127.0.0.1**

```
C:\Users\Shah Raza>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) What is the IP Address of [www.yahoo.com](http://www.yahoo.com): 87.248.100.216

How much time did our ping took to reach [www.yahoo.com](http://www.yahoo.com):  
It took an Average time of 270ms.

```
C:\Users\Shah Raza>ping www.yahoo.com

Pinging new-fp-shed.wg1.b.yahoo.com [87.248.100.216] with 32 bytes of data:
Reply from 87.248.100.216: bytes=32 time=265ms TTL=49
Reply from 87.248.100.216: bytes=32 time=272ms TTL=50
Reply from 87.248.100.216: bytes=32 time=289ms TTL=50
Reply from 87.248.100.216: bytes=32 time=255ms TTL=50

Ping statistics for 87.248.100.216:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 255ms, Maximum = 289ms, Average = 270ms
```

- d) Ping the hostname of another computer. Try to ping the hostname of the computer that was recorded in the previous lab.

```
C:\Users\Shah Raza>ping -a 192.168.1.23

Pinging realme-5 [192.168.1.23] with 32 bytes of data:
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.

Ping statistics for 192.168.1.23:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

- e) Ping the hostname of another computer using -t. Try to ping repetitively, the hostname of the computer.

```
C:\Users\Shah Raza>ping -t 192.168.1.23

Pinging 192.168.1.23 with 32 bytes of data:
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.
Reply from 192.168.1.29: Destination host unreachable.

Ping statistics for 192.168.1.23:
    Packets: Sent = 5, Received = 5, Lost = 0 (0% loss),
Control-C
^C
```

f) How can we stop the ping?

We can stop the ping by pressing Ctrl+C.

g) ping the IP address of a DHCP or DNS server.

```
C:\Users\Shah Raza>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time=76ms TTL=64
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64
Reply from 192.168.1.1: bytes=32 time=68ms TTL=64
Reply from 192.168.1.1: bytes=32 time=141ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 141ms, Average = 71ms
```

## Task #2:

a) Trace the route to GOOGLE PAKISTAN website b typing:

>>tracert [www.google.com.pk](http://www.google.com.pk)

```
C:\Users\Shah Raza>tracert www.google.com.pk

Tracing route to www.google.com.pk [216.58.209.131]
over a maximum of 30 hops:

  0  5 ms  1 ms  1 ms  Broadcom.Home [192.168.1.1]
  1  57 ms  85 ms  *  119.159.144.1
  2  24 ms  30 ms  28 ms  10.253.20.69
  3  36 ms  36 ms  34 ms  182.184.1.145
  4  73 ms  79 ms  *  10.253.4.26
  5  73 ms  92 ms  152 ms  74.125.118.170
  6  *  74 ms  93 ms  172.253.51.55
  7  389 ms  *  148 ms  108.170.247.7
  8  125 ms  *  108 ms  108.170.231.187
  9  202 ms  89 ms  86 ms  142.250.238.22
 10  94 ms  87 ms  93 ms  108.170.240.49
 11  112 ms  82 ms  82 ms  108.170.233.243
 12  155 ms  112 ms  158 ms  arn09s05-in-f131.1e100.net [216.58.209.131]

Trace complete.
```

- b) Trace the route to the UET website using options listed in option description table.

```
C:\Users\Shah Raza>tracert -d -h 20 -w 1 www.uetpeshawar.edu.pk

Tracing route to uetpeshawar.edu.pk [121.52.147.74]
over a maximum of 20 hops:

  1    1 ms    1 ms    1 ms  192.168.1.1
  2    *      24 ms   24 ms  119.159.144.1
  3   25 ms   24 ms   23 ms  10.253.20.65
  4   35 ms   51 ms   58 ms  182.184.1.145
  5   47 ms   36 ms   46 ms  172.31.240.105
  6   40 ms   37 ms   40 ms  172.31.240.5
  7   38 ms   40 ms   *      172.31.252.106
  8   34 ms   33 ms   34 ms  121.52.147.74

Trace complete.
```

- c) What is the difference between the following commands?

Tracert [www.yahoo.com](http://www.yahoo.com)

Tracert -h 20 [www.yahoo.com](http://www.yahoo.com)

The first command will trace maximum 30 hops, if the hops are greater than that then it won't trace it whereas in the second Command we are changing the number of maximum hops with the help of -h option to 20. Now it will trace maximum 20 hops.

<b>Demonstration of Concepts</b>	<b>Poor (Does not meet expectation (1))</b>  The student failed to demonstrate a clear understanding of the assignment concepts	<b>Fair (Meet Expectation (2-3))</b>  The student demonstrated a clear understanding of some of the assignment concepts	<b>Good (Exceeds Expectation (4-5))</b>  The student demonstrated a clear understanding of the assignment concepts	<b>Score</b>  <b>30%</b>
<b>Accuracy</b>	The student mis-configured enough network settings that the lab computer couldn't function properly on the network	The student configured enough network settings that the lab computer partially functioned on the network	The student configured the network settings that the lab computer fully functioned on the network	<b>30%</b>
<b>Following Directions</b>	The student clearly failed to follow the verbal and written instructions to successfully complete the lab	The student failed to follow the some of the verbal and written instructions to successfully complete all requirements of the lab	The student followed the verbal and written instructions to successfully complete requirements of the lab	<b>20%</b>
<b>Time Utilization</b>	The student failed to complete even part of the lab in the allotted amount of time	The student failed to complete the entire lab in the allotted amount of time	The student completed the lab in its entirety in the al	<b>20%</b>