

Assignment 1

COL334

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Part 1. Networking Tools

(a) Command : **ipconfig getifaddr en0**

IP address with Jio (Connected to wifi) : 192.168.147.215 (local)

IP address with Airtel (Connected to wifi) : 192.168.1.100 (local)

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % ipconfig getifaddr en0
192.168.147.215
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % ipconfig getifaddr en0
192.168.1.100
```

(b) Command : nslookup <Domain name>

Current DNS Server : 192.168.147.35 (default gateway)

IP address of www.google.com : 172.217.166.36

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.google.com
Server:          192.168.147.35
Address:         192.168.147.35#53

Non-authoritative answer:
Name:   www.google.com
Address: 172.217.166.36
```

IP address of www.facebook.com : 31.13.79.35

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.facebook.com
Server:          192.168.147.35
Address:         192.168.147.35#53

Non-authoritative answer:
www.facebook.com canonical name = star-mini.c10r.facebook.com.
Name:   star-mini.c10r.facebook.com
Address: 31.13.79.35
```

Current DNS Server : 208.67.222.222 / 208.67.220.220

IP address of www.google.com : 172.217.160.196

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.google.com
Server:          208.67.222.222
Address:         208.67.222.222#53

Non-authoritative answer:
Name:   www.google.com
Address: 172.217.160.196
```

IP address of www.facebook.com : 157.240.16.35

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.facebook.com
Server:          208.67.222.222
Address:         208.67.222.222#53

Non-authoritative answer:
www.facebook.com canonical name = star-mini.c10r.facebook.com.
Name:   star-mini.c10r.facebook.com
Address: 157.240.16.35
```

Current DNS Server : 8.8.8.8 / 8.8.4.4

IP address of www.google.com : 142.250.183.100

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.google.com
Server:          8.8.8.8
Address:         8.8.8.8#53

Non-authoritative answer:
Name:   www.google.com
Address: 142.250.183.100
```

IP address of www.facebook.com : 157.240.16.35

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % nslookup www.facebook.com
Server:          8.8.8.8
Address:         8.8.8.8#53

Non-authoritative answer:
www.facebook.com canonical name = star-mini.c10r.facebook.com.
Name:   star-mini.c10r.facebook.com
Address: 157.240.16.35
```

(c) Command : ping www.iitd.ac.in -c 2 -m 21 -s [packet size]

Maximum packet size : 1472 bytes

Request timeouts for packet size > 1472 for any domain.

```
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % ping www.iitd.ac.in -c 2 -m 21 -s 1472
PING www.iitd.ac.in (103.27.9.24): 1472 data bytes
1480 bytes from 103.27.9.24: icmp_seq=0 ttl=47 time=107.110 ms
1480 bytes from 103.27.9.24: icmp_seq=1 ttl=47 time=1545.923 ms

--- www.iitd.ac.in ping statistics ---
2 packets transmitted, 2 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 107.110/826.516/1545.923/719.407 ms
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % ping www.iitd.ac.in -c 2 -m 21 -s 1473
PING www.iitd.ac.in (103.27.9.24): 1473 data bytes
Request timeout for icmp_seq 0

--- www.iitd.ac.in ping statistics ---
2 packets transmitted, 0 packets received, 100.0% packet loss
manaskopparicloud.com@Manass-MacBook-Pro Assignment1 % ping www.iitd.ac.in -c 2 -m 21 -s 1474
PING www.iitd.ac.in (103.27.9.24): 1474 data bytes
Request timeout for icmp_seq 0

--- www.iitd.ac.in ping statistics ---
2 packets transmitted, 0 packets received, 100.0% packet loss
```

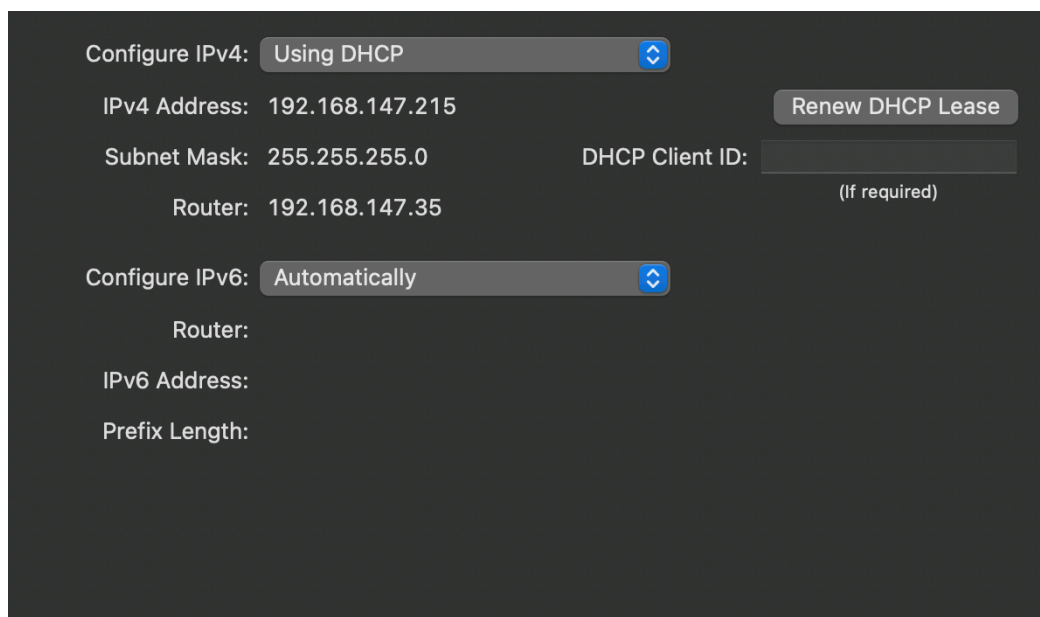
Yes, maximum packet size is same for www.google.com and www.facebook.com. what this means is some of the routers along the path has fixed MTU value Of 1500 (1472 + 28) and they don't support fragmentation of packets. Some of the routers support fragmentation upto a specific value. 65507 bytes is maximum allowed packet size if there is no MTU restriction.

MTU - Maximum Transmission Unit. By default fragmentation is allowed in Mac, to prevent fragmenting the packet (-D -s <packet size>) is used

(d)

```
tracert to www.google.com (172.217.166.164), 64 hops max, 52 byte packets
 1  192.168.147.35 (192.168.147.35)  2.271 ms  1.684 ms  1.546 ms
 2  * * *
 3  10.71.235.66 (10.71.235.66)  69.535 ms  58.403 ms  84.757 ms
 4  192.168.71.29 (192.168.71.29)  60.473 ms
   192.168.71.33 (192.168.71.33)  53.096 ms  61.910 ms
 5  172.26.101.68 (172.26.101.68)  46.960 ms  50.294 ms  61.067 ms
 6  172.26.101.83 (172.26.101.83)  47.276 ms
   172.26.101.82 (172.26.101.82)  52.621 ms  58.108 ms
 7  192.168.65.78 (192.168.65.78)  48.062 ms
   192.168.65.80 (192.168.65.80)  48.989 ms  60.230 ms
 8  192.168.65.83 (192.168.65.83)  55.899 ms
   192.168.65.79 (192.168.65.79)  62.548 ms  48.252 ms
 9  172.31.2.71 (172.31.2.71)  70.447 ms  61.189 ms  67.055 ms
10  209.85.168.26 (209.85.168.26)  71.116 ms  82.587 ms
   74.125.51.166 (74.125.51.166)  81.894 ms
11  * * *
12  108.170.234.208 (108.170.234.208)  207.163 ms
   142.251.69.42 (142.251.69.42)  89.692 ms
   142.250.214.104 (142.250.214.104)  78.259 ms
13  74.125.253.107 (74.125.253.107)  77.826 ms
   108.170.248.171 (108.170.248.171)  342.807 ms
   108.170.248.178 (108.170.248.178)  94.225 ms
14  bom07s20-in-f4.1e100.net (172.217.166.164)  90.658 ms  78.043 ms
   108.170.248.193 (108.170.248.193)  63.375 ms
```

IPv6 not available in the area.
By default Mac has IPv4 setup.



The screenshot shows the 'Configure IPv4' section set to 'Using DHCP'. The IPv4 Address is 192.168.147.215, Subnet Mask is 255.255.255.0, and Router is 192.168.147.35. A 'Renew DHCP Lease' button is visible. The 'Configure IPv6' section is set to 'Automatically' and is currently disabled, with fields for Router, IPv6 Address, and Prefix Length shown as disabled.

Field	Value
Configure IPv4:	Using DHCP
IPv4 Address:	192.168.147.215
Subnet Mask:	255.255.255.0
Router:	192.168.147.35
DHCP Client ID:	(If required)
Configure IPv6:	Automatically
Router:	(Disabled)
IPv6 Address:	(Disabled)
Prefix Length:	(Disabled)

To force to IPv6 use `tracert6 <Domain Name>`