

Network Training Assignment 1&2

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Problem 1:

```
ubuntu@ubuntu1804:~$ cd backup_directory/
ubuntu@ubuntu1804:~/backup_directory$ ls
ubuntu@ubuntu1804:~/backup_directory$ cd ..
ubuntu@ubuntu1804:~$ cd directory1
ubuntu@ubuntu1804:~/directory1$ ls
file1.txt
ubuntu@ubuntu1804:~/directory1$ cd ..
ubuntu@ubuntu1804:~$ cp -r directory1 backup_directory/
ubuntu@ubuntu1804:~$ cd backup_directory/
ubuntu@ubuntu1804:~/backup_directory$ ls
directory1
ubuntu@ubuntu1804:~/backup_directory$ scp -r /home/ubuntu/directory1 21bcs122@172.16.16.200:

*****

Welcome to MEPCOLINUX

*****

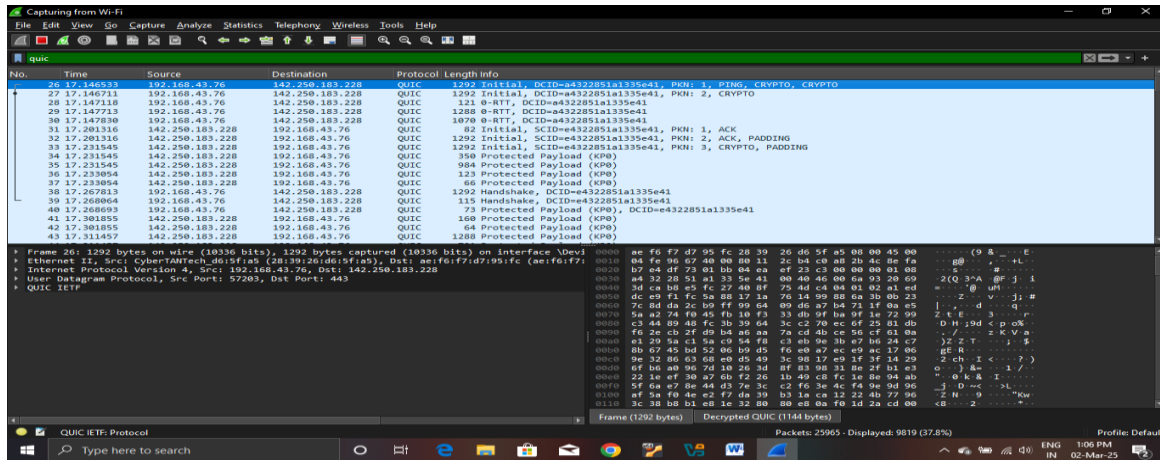
Keep Your Password Secure
*****

21bcs122@172.16.16.200's password:
file1.txt                                100% 17    10.6KB/s   00:00
ubuntu@ubuntu1804:~/backup_directory$
```

Problem 2:

```
root@ubuntu1804:/home/ftp2/ftp# ftp 10.0.2.15
Connected to 10.0.2.15.
220 (vsFTPD 3.0.5)
Name (10.0.2.15:ubuntu): ftp2
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> put file1.txt
local: file1.txt remote: file1.txt
229 Entering Extended Passive Mode (||||17471|)
150 Ok to send data.
100% |*****| 36 346.28 KiB/s 00:00 ETA
226 Transfer complete.
36 bytes sent in 00:00 (42.34 KiB/s)
ftp> get file1.txt
local: file1.txt remote: file1.txt
229 Entering Extended Passive Mode (||||50109|)
150 Opening BINARY mode data connection for file1.txt (36 bytes).
100% |*****| 36 1.32 MiB/s 00:00 ETA
226 Transfer complete.
36 bytes received in 00:00 (57.32 KiB/s)
```

Problem 3:



Problem 4:

```
ubuntu@ubuntu1804:~$ ping -c 7 172.16.16.200
PING 172.16.16.200 (172.16.16.200) 56(84) bytes of data:
64 bytes from 172.16.16.200: icmp_seq=1 ttl=255 time=2.56 ms
64 bytes from 172.16.16.200: icmp_seq=2 ttl=255 time=1.85 ms
64 bytes from 172.16.16.200: icmp_seq=3 ttl=255 time=2.11 ms
64 bytes from 172.16.16.200: icmp_seq=4 ttl=255 time=2.06 ms
64 bytes from 172.16.16.200: icmp_seq=5 ttl=255 time=2.29 ms
64 bytes from 172.16.16.200: icmp_seq=6 ttl=255 time=2.52 ms
64 bytes from 172.16.16.200: icmp_seq=7 ttl=255 time=3.54 ms

--- 172.16.16.200 ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 6011ms
rtt min/avg/max/ndev = 1.852/2.420/3.543/0.517 ms
ubuntu@ubuntu1804:~$ arp -a
_gateway (10.0.2.2) at 52:55:0a:00:02:02 [ether] on enp0s3
? (10.0.2.3) at 52:55:0a:00:02:03 [ether] on enp0s3
ubuntu@ubuntu1804:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd00::a47b:ef2b:3e30:6030 prefixlen 64 scopeid 0x0<global>
    inet6 fe80::4c32:42ef:d617:52c6 prefixlen 64 scopeid 0x20<link>
    inet6 fd00::4571:20cf:7839:c140 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:cb:3a:16 txqueuelen 1000 (Ethernet)
    RX packets 1091883 bytes 1618165083 (1.6 GB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 46299 bytes 3003094 (3.0 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 429 bytes 53612 (53.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 429 bytes 53612 (53.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

ubuntu@ubuntu1804:~$ arp -env
Address HWtype HWaddress Flags Mask Iface
10.0.2.2 ether 52:55:0a:00:02:02 C
10.0.2.3 ether 52:55:0a:00:02:03 C
Entries: 2 Skipped: 0 Found: 2
ubuntu@ubuntu1804:~$
```

Problem 5:

When two devices have same ip, the arp cache will be corrupted with incorrect MAC to IP mapping.

This is because, same ip claimed by different devices leading to packet directed to wrong devices with same ip.

This will cause connectivity issues due to error messages and retransmissions.

Problem 6:

- a) Install AnyDesk on both devices.

Use the AnyDesk address given by the remote computer to request remote connection.

The request must be accepted, or simply set password for access.

- b) Enable remote desktop in settings of remote computer.

Install remote desktop client on your computer.

Using the name of remote computer connect remotely.

Enter username and password of access of remote computer.

Problem 7:

```
ubuntu@ubuntu1804:~$ ip route | grep default
default via 10.0.2.2 dev enp0s3 proto dhcp metric 100
ubuntu@ubuntu1804:~$ ping -c 3 10.0.2.2
PING 10.0.2.2 (10.0.2.2) 56(84) bytes of data.
64 bytes from 10.0.2.2: icmp_seq=1 ttl=255 time=0.536 ms
64 bytes from 10.0.2.2: icmp_seq=2 ttl=255 time=0.860 ms
64 bytes from 10.0.2.2: icmp_seq=3 ttl=255 time=0.540 ms

--- 10.0.2.2 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2021ms
rtt min/avg/max/mdev = 0.536/0.645/0.860/0.153 ms
ubuntu@ubuntu1804:~$
```

Problem 8:

```
ubuntu@ubuntu1804:~$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fd00::a47b:ef2b:3e3e:6030 prefixlen 64 scopeid 0x0<global>
    inet6 fe80::4c32:42ef:d617:52c6 prefixlen 64 scopeid 0x20<link>
    inet6 fd00::4571:20cf:7839:c140 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:cb:3a:16 txqueuelen 1000 (Ethernet)
    RX packets 1094691 bytes 1620833227 (1.6 GB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 47755 bytes 3140668 (3.1 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 508 bytes 64633 (64.6 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 508 bytes 64633 (64.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

ubuntu@ubuntu1804:~$ iwconfig
lo          no wireless extensions.

enp0s3      no wireless extensions.

ubuntu@ubuntu1804:~$
```

Problem 9:

1. Launch a web browser on your device.
2. Enter the router's IP address in the address bar, typically:
3. Log in using the administrator username and password.
4. Navigate to the section labeled "Connected Devices," "Device List," or "LAN Status."
5. Here, you'll find a list of all devices currently linked to your network via Wi-Fi or Ethernet.

Problem 10:

DORA process:

Discovery: The device attempting to join the network sends out a broadcast message to request an IP address.

Offer: A DHCP server responds with an offer, providing an available IP address from its pool.

Request: The device sends a request back to the DHCP server, asking to use the offered IP address.

Acknowledgment: The DHCP server confirms and assigns the IP address to the device for a specified duration

Problem 11:

```
ubuntu@ubuntu1804:~$ ssh 21bcs122@172.16.16.200
*****

Welcome to MEPCOLINUX

*****
Keep Your Password Secure
*****

21bcs122@172.16.16.200's password:
Last login: Sat Mar  1 10:15:41 2025 from 172.16.3.31
[21bcs122@mepcolinux ~]$ls
core.6179          itt               prg1.c   sem3    sem7
directory1         loop.txt         sem1     sem4    server
eur_linux_training nptel.txt       sem2     sem5    yuvan.txt
```