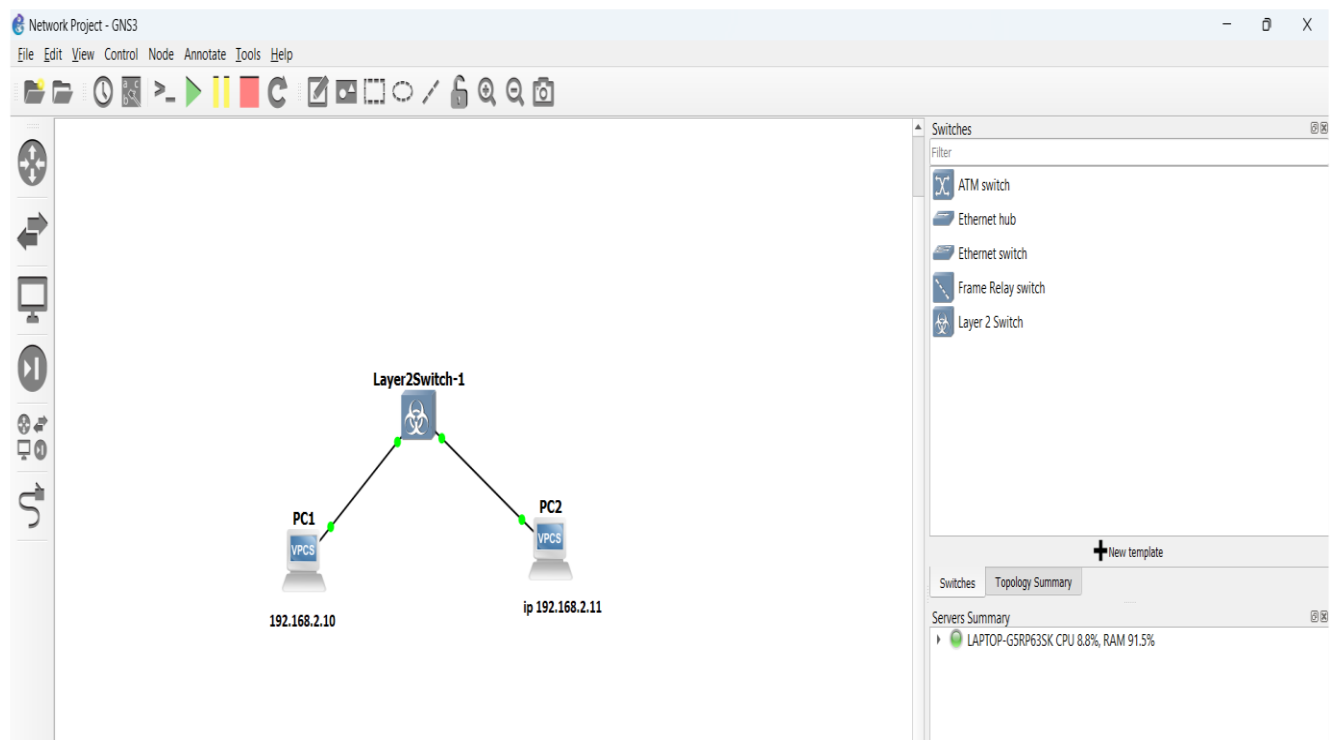


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Registration no. 21BCE0527

Q1. Simulate a small network with switches and multiple devices. Use ping to generate traffic and observe the MAC address table of the switch. Capture packets using Wireshark to analyze Ethernet frames and MAC addressing.

Network Diagram



Assigning IP Address for PC1:

```
PC1> ip 192.168.2.10
```

Checking for duplicate address...

PC1 : 192.168.2.10 255.255.255.0

Assigning IP Address for PC2:

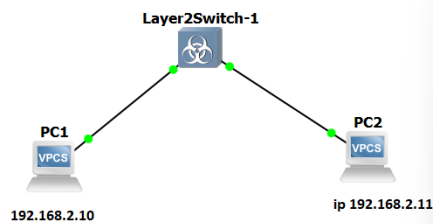
```
PC2> ip 192.168.2.11
```

Checking for duplicate address...

PC1 : 192.168.2.11 255.255.255.0

Sending packets between PC

PC1



```
PC1 - PuTTY
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC1> ip 192.168.2.10
Checking for duplicate address...
PC1 : 192.168.2.10 255.255.255.0

PC1> ping 192.168.2.11
84 bytes from 192.168.2.11 icmp_seq=1 ttl=64 time=274.048 ms
84 bytes from 192.168.2.11 icmp_seq=2 ttl=64 time=119.817 ms
84 bytes from 192.168.2.11 icmp_seq=3 ttl=64 time=994.951 ms
84 bytes from 192.168.2.11 icmp_seq=4 ttl=64 time=167.395 ms
84 bytes from 192.168.2.11 icmp_seq=5 ttl=64 time=112.242 ms

PC1>
```

PC1> ping 192.168.2.11

84 bytes from 192.168.2.11 icmp_seq=1 ttl=64 time=0.572 ms

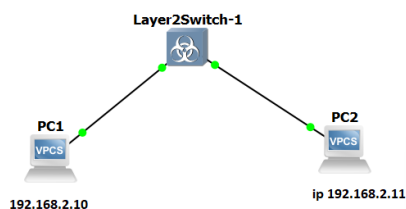
84 bytes from 192.168.2.11 icmp_seq=2 ttl=64 time=2.304 ms

84 bytes from 192.168.2.11 icmp_seq=3 ttl=64 time=2.250 ms

84 bytes from 192.168.2.11 icmp_seq=4 ttl=64 time=2.377 ms

84 bytes from 192.168.2.11 icmp_seq=5 ttl=64 time=2.216 ms

PC2



```
PC2 - PuTTY
Copyright (c) 2007-2014, Paul Meng (mirnshi@gmail.com)
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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.

Press '?' to get help.

Executing the startup file

PC2> ip 192.168.2.11
Checking for duplicate address...
PC1 : 192.168.2.11 255.255.255.0

PC2> ping 192.168.2.10
84 bytes from 192.168.2.10 icmp_seq=1 ttl=64 time=91.760 ms
84 bytes from 192.168.2.10 icmp_seq=2 ttl=64 time=90.656 ms
84 bytes from 192.168.2.10 icmp_seq=3 ttl=64 time=109.608 ms
84 bytes from 192.168.2.10 icmp_seq=4 ttl=64 time=167.530 ms
84 bytes from 192.168.2.10 icmp_seq=5 ttl=64 time=165.760 ms

PC2>
```

```
PC2> ping 192.168.2.10
```

```
84 bytes from 192.168.2.10 icmp_seq=1 ttl=64 time=0.743 ms
```

```
84 bytes from 192.168.2.10 icmp_seq=2 ttl=64 time=1.809 ms
```

```
84 bytes from 192.168.2.10 icmp_seq=3 ttl=64 time=2.075 ms
```

```
84 bytes from 192.168.2.10 icmp_seq=4 ttl=64 time=0.997 ms
```

```
84 bytes from 192.168.2.10 icmp_seq=5 ttl=64 time=1.226 ms
```

Checking MAC Address Table using switch

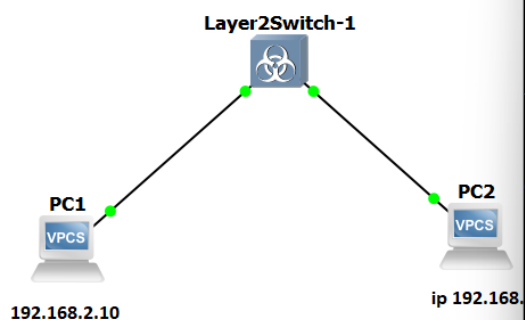
```
Switch#show mac address-table
```

Mac Address Table

```
-----  
Vlan  Mac Address      Type      Ports  
----  -  
1     0050.7966.6800    DYNAMIC   Gi0/0  
1     0050.7966.6801    DYNAMIC   Gi0/1
```

Total Mac Addresses for this criterion: 2

```
Switch#
```



```
Layer2Switch-1 - PuTTY  
Switch#show mac address-table  
Mac Address Table  
-----  
Vlan  Mac Address      Type      Ports  
----  -  
1     0050.7966.6800    DYNAMIC   Gi0/0  
1     0050.7966.6801    DYNAMIC   Gi0/1  
Total Mac Addresses for this criterion: 2  
Switch#
```

Capturing Packet using Wireshark

Capturing from Standard input [Switch1 Ethernet0 to PC1 Ethernet0]

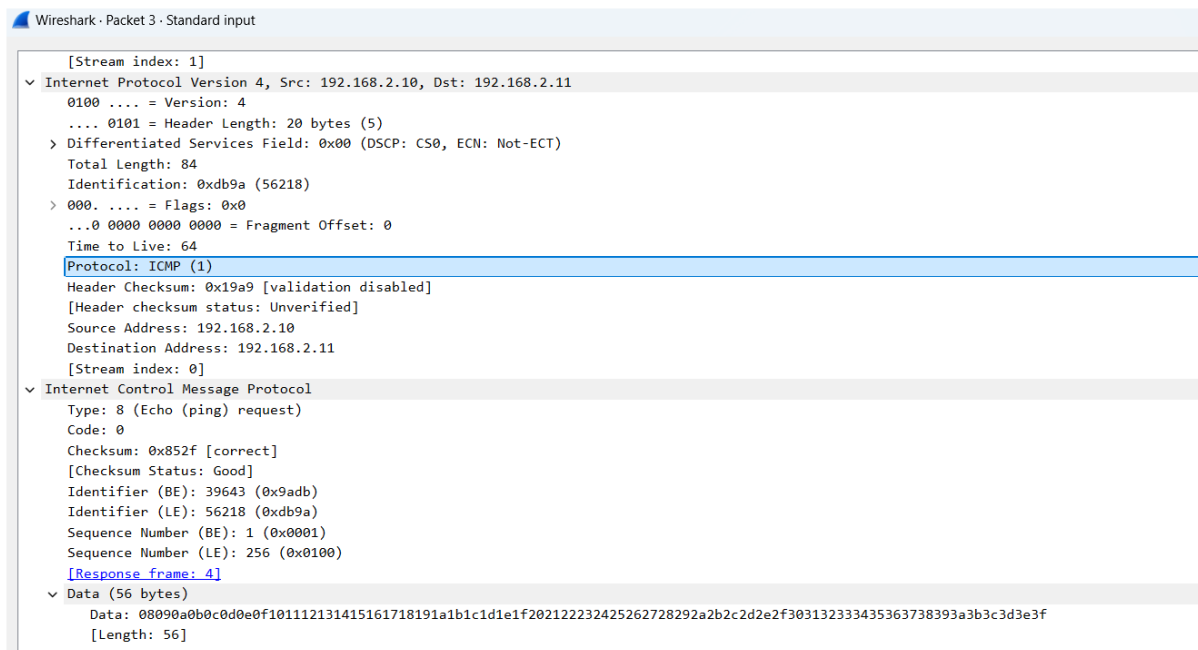
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter ... <Ctrl-/>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	Private_66:68:00	Broadcast	ARP	64	Who has 192.168.2.11? Tell 192.168.2.10
2	0.001857	Private_66:68:01	Private_66:68:00	ARP	64	192.168.2.11 is at 00:50:79:66:68:01
3	0.010866	192.168.2.10	192.168.2.11	ICMP	98	Echo (ping) request id=0x9adb, seq=1/256, ttl=64 (reply in 4)
4	0.010866	192.168.2.11	192.168.2.10	ICMP	98	Echo (ping) reply id=0x9adb, seq=1/256, ttl=64 (request in 3)
5	1.030422	192.168.2.10	192.168.2.11	ICMP	98	Echo (ping) request id=0x9bdb, seq=2/512, ttl=64 (reply in 6)
6	1.031434	192.168.2.11	192.168.2.10	ICMP	98	Echo (ping) reply id=0x9bdb, seq=2/512, ttl=64 (request in 5)
7	2.052507	192.168.2.10	192.168.2.11	ICMP	98	Echo (ping) request id=0x9cdb, seq=3/768, ttl=64 (reply in 8)
8	2.052507	192.168.2.11	192.168.2.10	ICMP	98	Echo (ping) reply id=0x9cdb, seq=3/768, ttl=64 (request in 7)
9	3.074872	192.168.2.10	192.168.2.11	ICMP	98	Echo (ping) request id=0x9ddb, seq=4/1024, ttl=64 (reply in 10)
10	3.075847	192.168.2.11	192.168.2.10	ICMP	98	Echo (ping) reply id=0x9ddb, seq=4/1024, ttl=64 (request in 9)
11	4.094491	192.168.2.10	192.168.2.11	ICMP	98	Echo (ping) request id=0x9edb, seq=5/1280, ttl=64 (reply in 12)
12	4.096545	192.168.2.11	192.168.2.10	ICMP	98	Echo (ping) reply id=0x9edb, seq=5/1280, ttl=64 (request in 11)

Wireshark · Packet 3 · Standard input

▼	Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface -, id 0
	Section number: 1
▼	Interface id: 0 (-)
	Interface name: -
	Interface description: Standard input
	Encapsulation type: Ethernet (1)
	Arrival Time: Mar 6, 2025 23:00:02.286044000 India Standard Time
	UTC Arrival Time: Mar 6, 2025 17:30:02.286044000 UTC
	Epoch Arrival Time: 1741282202.286044000
	[Time shift for this packet: 0.000000000 seconds]
	[Time delta from previous captured frame: 0.009009000 seconds]
	[Time delta from previous displayed frame: 0.009009000 seconds]
	[Time since reference or first frame: 0.010866000 seconds]
	Frame Number: 3
	Frame Length: 98 bytes (784 bits)
	Capture Length: 98 bytes (784 bits)
	[Frame is marked: False]
	[Frame is ignored: False]
	[Protocols in frame: eth:ethertype:ip:icmp:data]
	[Coloring Rule Name: ICMP]
	[Coloring Rule String: icmp icmpv6]
▼	Ethernet II, Src: Private_66:68:00 (00:50:79:66:68:00), Dst: Private_66:68:01 (00:50:79:66:68:01)
	> Destination: Private_66:68:01 (00:50:79:66:68:01)
	> Source: Private_66:68:00 (00:50:79:66:68:00)
	Type: IPv4 (0x0800)
	[Stream index: 1]



Source MAC: 00:50:79:66:68:00

Destination MAC: 00:50:79:66:68:01

Ethertype: 0x0800 (IPv4)

Source IP: 192.168.2.10

Destination IP: 192.168.2.11