Experiment 8

AIM: To analyze and view the Network Device Mac Addresses

Devices Used: Switches, PCs, and Cables.

Objectives:

Part 1: Configure Devices and Verify Connectivity.

Part 2: Display, Describe, and Analyze Ethernet MAC Addresses

Procedure:

Part 1: Configure Devices and Verify Connectivity.

Step 1: Cable the network as shown in the topology.

Step 2: Configure the IPv4 address for the PC.

Step 3: Configure basic settings for the switch.

Part 2: Display, Describe, and Analyze Ethernet MAC Addresses

Step 1: Analyze the MAC address for the PC-A NIC.

Step 2: Analyze the MAC address for the S1 F0/6 interface.

Step 3: View the MAC addresses on the switch.

```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
Switch(config)#hostname S1
S1(config)#
S1(config)#no ip domain-lookup
S1(config)#
S1(config)#interface vlan 1
S1(config-if)#ip address 192.168.1.2 255.255.255.0
S1(config-if)#no shutdown

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1(config-if)#end
S1#
%SYS-5-CONFIG_I: Configured from console by console

S1#
```

```
C:\>ipconfig /all

FastEthernet0 Connection:(default port)

   Connection-specific DNS Suffix..:
   Physical Address.................: 0003.E456.A180
   Link-local IPv6 Address.........: FE80::203:E4FF:FE56:A180
   IPv6 Address....................: ::
   IPv4 Address....................: 192.168.1.3
   Subnet Mask.....................: 255.255.255.0
   Default Gateway.................: ::
                                     0.0.0.0
   DHCP Servers....................: 0.0.0.0
   DHCPv6 IAID.....................:
   DHCPv6 Client DUID..............: 00-01-00-01-22-DB-22-24-00-03-E4-56-A1-80
   DNS Servers.....................: ::
                                     0.0.0.0

Bluetooth Connection:

   Connection-specific DNS Suffix..:
   Physical Address.................: 00D0.BC27.5B7A
   Link-local IPv6 Address.........: ::
 --More--
```

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=16ms TTL=128
Reply from 192.168.1.3: bytes=32 time=6ms TTL=128
Reply from 192.168.1.3: bytes=32 time=4ms TTL=128
Reply from 192.168.1.3: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 16ms, Average = 7ms
```

```
S1#show mac address-table
          Mac Address Table
-------------------------------------------

Vlan    Mac Address       Type        Ports
----    -----------       --------    -----

   1    0003.e456.a180    DYNAMIC     Fa0/1
```

Q.) Were the pings successful?

Ans) Yes they were successful.

```
S1#show interfaces vlan 1
Vlan1 is up, line protocol is up
  Hardware is CPU Interface, address is 0001.4392.3e22 (bia 0001.4392.3e22)
  Internet address is 192.168.1.2/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 21:40:21, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     1682 packets input, 530955 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicast)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     563859 packets output, 0 bytes, 0 underruns
     0 output errors, 23 interface resets
     0 output buffer failures, 0 output buffers swapped out
```

Q.) What is the MAC address for VLAN 1 on S1?

Ans) 000b.be7e.67e7

Q.) What is the MAC serial number for VLAN 1 on S1?

Ans) 001b.0c6d.8f40

Q.) **What is OUI for VLAN 1?**

Ans) 001.0c6d

Q.) What does bia stand for?

Ans) The MAC address is often referred to as a burned-in address (BIA) because, historically, this address is burned into ROM (Read-Only Memory) on the NIC.

```
S1#show arp
Protocol  Address          Age (min)  Hardware Addr   Type   Interface
Internet  192.168.1.2            -   0001.4392.3E22  ARPA   Vlan1
Internet  192.168.1.3            6   0003.E456.A180  ARPA   Vlan1
S1#
```

Q.) What is the Layer 2 address displayed on S1?

Ans) 192.168.1.2

Result: Mac address of network devices were viewed and verified.