# MAC Addresses Lab Report

## PC MAC Addresses

Open a command prompt on PC-A and PC-B and type **ipconfig /all**.

Question:

What are the Ethernet adapter physical addresses?

PC-A MAC Address: 00E0.A337.1244

PC-B MAC Address: 00D0.5839.6817

## Switch MAC Addresses

Console into switch S1 and S2 and type the **show interface F0/1** command on each switch.

Questions:

On the second line of command output, what is the hardware addresses (or burned-in address [bia])?

S1 Fast Ethernet 0/1 MAC Address: 0001.6494.9b01

S2 Fast Ethernet 0/1 MAC Address: 000c.cf39.4b01

## Switch MAC Address Table

In privileged EXEC mode, type the **show mac address-table** command and press Enter

Questions: 3

Are there any MAC addresses recorded in the MAC address table?

Yes 3

What MAC addresses are recorded in the table? To which switch ports are they mapped and to which devices do they belong? Ignore MAC addresses that are mapped to the CPU.

000c.cf39.4b01 = S1

00D0.5839.6817 = PC-B

00E0.A337.1244 = PC-A

If you had not previously recorded MAC addresses of network devices in Step 1, how could you tell which devices the MAC addresses belong to, using only the output from the show mac address-table command? Does it work in all scenarios?

Clear the table and ping this show to two computers you can also use the ports to figure out

## Clear MAC Address Table

In privileged EXEC mode, type the **clear mac address-table dynamic** command and press Enter. Quickly type the **show mac address-table** command again.

Does the MAC address table have any addresses in it for VLAN 1? Are there other MAC addresses listed?

yes

Wait 10 seconds, type the **show mac address-table** command, and press Enter. Are there new addresses in the MAC address table?

no

## Ping

From PC-B, open a command prompt and type **arp -a**.

Not including multicast or broadcast addresses, how many device IP-to-MAC address pairs have been learned by ARP?

No Entries Found

From the PC-B command prompt, ping PC-A, S1, and S2.

Did all devices have successful replies? If not, check your cabling and IP configurations.

No and ken said he didn’t see why it wouldn’t

From a console connection to S2, enter the **show mac address-table** command

Has the switch added additional MAC addresses to the MAC address table? If so, which addresses and devices?

00D0.5839.6817 = PC-B

00E0.A337.1244 = PC-A

0001.6494.9b01 = S1

From PC-B, open a command prompt and retype **arp -a**.

Question:

Does the PC-B ARP cache have additional entries for all network devices that were sent pings?

Yes 00e0.a337.1244

## Reflection

On Ethernet networks, data is delivered to devices by their MAC addresses. For this to happen, switches and PCs dynamically build ARP caches and MAC address tables. With only a few computers on the network this process seems fairly easy. What might be some of the challenges on larger networks? On Ethernet networks, data is delivered to devices by their MAC addresses. For this to happen, switches and PCs dynamically build ARP caches and MAC address tables. With only a few computers on the network this process seems fairly easy. What might be some of the challenges on larger networks?

The cache might fill up

There may be many more hops

A computer could pretend to have a mac address when they don’t and confuse the Arp protocol into sending them the traffic rather than who is supposed to get it