COMP247 Data Communications Laboratory

**Practical 3A Switches, MAC addresses and ARP**

Your Name:

Your Student ID:

**Documentation Task 1**.

State what features you can see on the switches (ports, power switches, etc) and what you know of their functions.

On the switch itself I have Ethernet ports and console ports.

**Documentation Task 2**.

What IP address has been assigned to each computer? What other IP address appear to be in use on this network?

What switch port is each computer connected to?

The ip address on the computer is192.168.1.24 192.168.1.23

The computer are connected to switch ports unit ? port number 14 and 7

**Documentation Task 3**.

Document what software you used to check whether your network was working and what the results were.

We use the comma line to ping each other, every one’s ping have been received successfully.

**Documentation Task 4**.

Include in your documentation what you consider to be the useful information from *ipconfig /all* for your laptop’s Ethernet connection.

The host name E6A240-PC24

The primary dns suffix : mqauth.uni.mq.edu.au

The node type: Hybrid

The Ethernet adapter Lab NIC interfaces including physical address/ Mac address, IP address , subnet mask, DHCP server and DNS server

**Documentation Task 5**.

Let’s have a look at the ARP table held by the laptops. Get a command window running (if you do not already have one). In the window type arp –a and press Enter.

What devices have an entry in the ARP table? Record this in your documentation.

Could you see the physical address of the other laptop(s) and the switch in your network? If not ping the other computer(s) and try arp –a again. Try all the IP addresses you found in use in your network. Are entries for them now in the table? Add the results to your documentation if necessary. Do any IP addresses share the same MAC address?

MAC address and IP address

Yes we could see the phycial address from the other computer which is a0-36-9f-bc-f3-78

**Documentation Task 6**.

1. Does the arp table now contain an entry for each IP you pinged?
2. What are the hexadecimal values for the source and destination addresses in the first Ethernet frame in your capture containing an ARP request message?
3. Can you identify the arp messages corresponding to the all the entries in the arp table? List the two MAC addresses found in each pair of messages
4. Compare hexadecimal source and destination addresses to the information given in the source and destination fields of the main Wireshark packet summary window. Are they different? If so, what is the information telling you?
5. What else can you observe about the functioning of ARP from this capture?
   * + 1. Yes
       2. Source address a0.36.9f.bc.f7.46 (0x0806) dest address ff.ff.ff.ff.ff.ff
       3. Target mac a0.36.9f.bc.f7.46 sender maca0.36.9f.bc.f3.78
       4. Yes they are different , one is sending one is receiving
       5. We can observe the encapsulation time, this interface id the epoch time the frame number and the frame length.

**Documentation Task 7**.

Record the interesting and useful information from using the *display current-configuration* command

Sysname : HPE

Irf mac address persistent timer

Undo inf link -delay

Irf member 1 priority 1

Dbcp enable

**Documentation Task 8**.

Check that the entries in the switch’s MAC table have the correct MAC addresses for your laptops and the correct port numbers (ie the ones you have plugged the cables into) and record your observations.

Note that the switch’s MAC address table doesn’t include IP numbers. Why do you think this is?

Yes the table contained the correct MAC address for our computer and correct port numbers

Because the mac address is given by the vendors and its static but the IP address can be changed as in above question.

**Documentation Task 9**.

Notice anything interesting in the Wireshark capture on the machine that wasn’t involved in the ping?

How do you think the switch is filling its MAC table?

The Wireshark captures more Infor from the machine than the ping including the course and the destination MAC address, hardware size and protocol size etc.