

Lab 4 plus

*Lab 4 plus is a combination of Lab 4 and an extra activity on ARP.

Packet Tracer Simulation – Exploration of ARP and Switch Table Communications

Objectives

- To explore ARP and switching operations.

Introduction

The topology is given to you. All IP addresses have been assigned to all devices. Please follow each step in sequence.

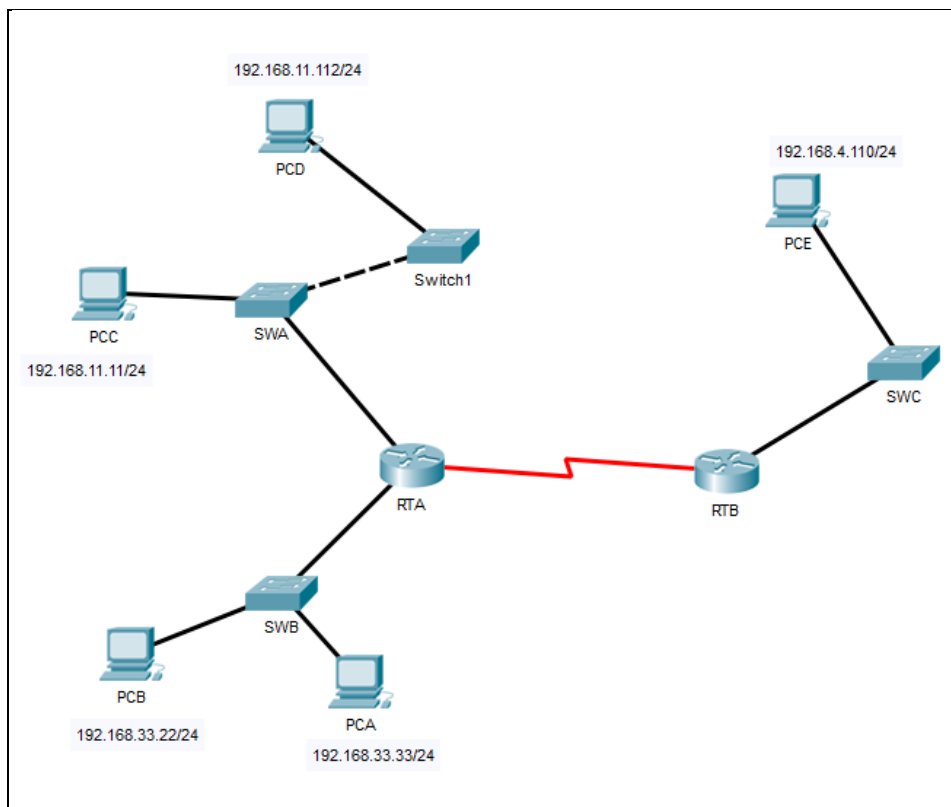


Figure 1

Part 1: Review the topology

Step 1: Perform the following tasks.

- At Router RTA, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
RTA>enable
RTA#show arp
```

- b. At Router RTB, enter the CLI. At the command prompt type the commands as in Figure 2. Snap the results after the last command and paste it here.
- c. At Switches SWA, SWAB and SWC, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
SWA>enable
SWA#show arp
SWA#show mac-address-table
```

- d. At PCA, click on the PC icon, and then choose Desktop-Command Prompt. At the command prompt type **arp -a** and click enter. Snap the results after the last command and paste it here. Do this to all PCs in the topology.
- e. What are your thoughts on the results?

Part 2: Generate Network Traffic

Step 1: Generate traffic between PCA and PCB.

In the command prompt Perform the following tasks task to reduce the amount of network traffic viewed in the simulation.

- a. Click **PCA** and click the Desktop tab > Command Prompt.
- b. Enter the **ping 192.168.33.22** command. This may take a few seconds.
- c. In the Command prompt of PCA, type **arp -a**. Paste the result of this command here.
- d. In the Command prompt of PCB, type **arp -a**. Paste the result of this command here.
- e. In the Command prompt of PCC, PCD abd PCE, type **arp -a**. Paste the result of this command here.

Step 2: Generate traffic between PCC to all other PC except PCA.

- a. Click **PCC** and click the Desktop tab > Command Prompt.
- b. Enter the **ping 192.168.33.22** command (ping to PCB). Then type **arp -a**. Paste the result after these commands here.
- c. Enter the **ping 192.168.11.112** command (ping to PCD). Then type **arp -a**. Paste the result after these commands here.

- d. Enter the **ping 192.168.4.110** command (ping to PCE). Then type **arp -a**. Paste the result after these commands here.
- e. Discuss the results you got from all the commands on PCC.
- f. At Router RTA, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
RTA>enable  
RTA#show arp
```

- g. At Router RTA, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
RTB>enable  
RTB#show arp
```

Step 3: Switch MAC address table.

- a. At Switch SWA, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
SWA>enable  
SWA#show arp  
  
SWA#show mac-address-table
```

- b. At Switch SWB, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
SWB>enable  
SWB#show arp  
  
SWB#show mac-address-table
```

- c. At Switches SWC and Switch1, enter the CLI. At the command prompt type the following commands. Snap the results after the last command and paste it here.

```
SWC>enable
SWC#show arp

SWC#show mac-address-table
```

- d. Do switches use arp table? (Y/N)
- e. Explain your answer in (d) **Hint: the answer may surprise you. Google for the explanation. It is not part of NetComm syllabi, it is just for knowledge..*
- f. What information does the command **show mac-address-table** gives?

Part 3: Attach wireless lab results.

In this part, you will use Lab 4.pka file.

Step1: Change the filename of Lab 4.

- a. Change the Lab 4 filename to include your group number and lab number. **Example: Group3a_Lab4.pkt*
- b. Go through the instructions. As you complete the tasks, you will see the bottom right hand corner of the pkt file increase in completion percentage, until you get 100/100.

The screenshot displays the Packet Tracer interface. On the left, a network topology is shown with a central switch (S1) connected to three PCs (PC1, PC2, PC3) and a wireless router (WRS2). PC1 is connected to S1 via F0/11, PC2 via F0/18, and PC3 via WRS2. The IP addresses and VLANs for each device are listed in a box on the left:

- Subinterfaces:
 - G0/0.10 172.17.10.1/24
 - G0/0.20 172.17.20.1/24
 - G0/0.88 172.17.88.1/24
- PC1: 172.17.10.21/24, VLAN 10
- PC2: 172.17.20.22/24, VLAN 20
- WRS2: 172.17.88.25/24, VLAN 88
- PC3: 172.17.40.100/24

On the right, the 'Packet Tracer – Configuring Wireless LAN Access' activity wizard is shown. It includes an 'Addressing Table' with the following data:

Device	Interface	IP Address	Subnet Mask	Default Gate
R1	G0/0.10	172.17.10.1	255.255.255.0	N/A
	G0/0.20	172.17.20.1	255.255.255.0	N/A
	G0/0.88	172.17.88.1	255.255.255.0	N/A
PC1	NIC	172.17.10.21	255.255.255.0	172.17.10.1

At the bottom right, the 'Completion: 100/100' status is displayed, indicating that the activity is fully completed.

- c. Once you have completed fully, capture the screen (which includes the filename, the topology and the activity wizard showing completion) and paste it here.