

Practical-6

Date: - -

AIM: Understand & identify Packet(L3) & frame(L2) content detail.

Tools required:

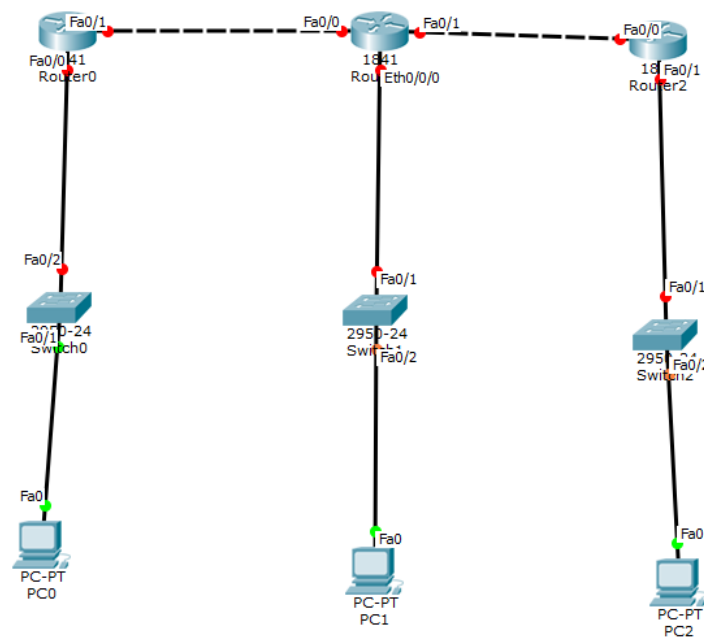
1. Desktop Computer
2. Cisco Packet Tracer

Note: While applying IP address, student need to allocate IP address as per his/her student ID. For Example, if student ID is 20ce005 then IP address allocation for first network should start with 5.0.0.0. For subsequent network, it should start with ID+1 i.e. 6.0.0.0, 7.0.0.0. and so on.

Submission: After writing answer into this word document, Student need to change name to his ID followed by practical number. Ex 20ce005_Pr1.docx. Upload on assignment segment.

Rubrics: Nicely drafted document with clarity in answers leads to full marks. Otherwise, submission carries proportional mark.

copy-past from cisco packet tracker is permitted.



Topology for the consideration

<<Student Topology with IP address and MAC address as label>>

Steps:

1. Create topology in Realtime mode
2. Configure IP address
3. Configure Static Routing in Each routers
4. Ping from PC0 to rest other PCs and all interface of routers and fill success table
5. Go to Simulation mode
6. Prepare MAC and IP address Table.
7. Prepare ARP table for all PCs
8. Prepare Routing tables for Router0, Router1 and Router2
9. Prepare ARP tables for Router0, Router1 and Router2
10. Prepare MAC table of all switches
11. In simulation mode follow instruction as given in exercise and write answer of questions.

Destination machine	Destination IP address	Command	Success/Fail
FE0/0 of Router0	10.0.0.2	Ping 10.0.0.2	Success
FE0/1 of Router0			
FE0/0 of Router1			
FE0/1 of Router1			
FE0/0/0 of Router1			
PC1			
FE0/0 of Router2			
FE0/1 of Router2			
PC2			

Ping Success table

Computer/Router Interface	MAC address	IP address
PC0		
Router0 FE0/0		
Router0 FE0/1		
Router1 FE0/0		
Router1 FE0/1		
Router1 ETH0/0/0		
PC1		
Router2 FE0/0		
Router2 FE0/1		

PC2		
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MAC and IP address Table

IP Address	MAC Address	Interface

ARP Table for PC0

IP Address	MAC Address	Interface

ARP Table for PC1

IP Address	MAC Address	Interface

ARP Table for PC2

Type	Network	Port	Next Hop ID	Metric

Routing table for Router0

Type	Network	Port	Next Hop ID	Metric

Routing table for Router1

Type	Network	Port	Next Hop ID	Metric

Routing table for Router2

IP Address	MAC Address	Interface

ARP Table for Router0

IP Address	MAC Address	Interface

ARP Table for Router1

IP Address	MAC Address	Interface

ARP Table for Router2

VLAN ID	MAC Address	port

Switching table for Switch0

VLAN ID	MAC Address	port

Switching table for Switch1

VLAN ID	MAC Address	port

Switching table for Switch2

In simulation mode**Exercise-1:** Ping form PC0 to FE0/0 of Router0

click on capture forward once so packet goes to switch, Inspect& write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Question: What decision will be taken by switch?

Answer:

Exercise-2: Ping form PC0 to FE0/1 of Router0

Click on capture forward once so packet goes to switch, Inspect& write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		

Source IP Address		
Destination IP address		

Question: Is there any difference between table content of exercise-1 and 2? Why?

Answer:

Exercise-3: Ping from PC0 to FE0/0 of Router1

Click on capture forward once so packet goes to switch, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward once so packet goes to Router0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Question: What decision will be taken by Router0?

Answer:

Question: Is Inbound and outbound PDU detail remain same? If not why?

Answer:

Exercise-4: Ping from PC0 to PC1 (For even roll number of student PC0 to PC2)

Click on capture forward so packet goes to switch0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to Router0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		

Destination IP address		
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Click on capture forward so packet goes to Router1, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to switch1, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to PC1, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to switch1, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to Router1, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to router0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to switch0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Click on capture forward so packet goes to PC0, Inspect & write Inbound and Outbound PDU and fill following table

	In Bound	Out Bound
Source MAC Address		
Destination MAC address		
Source IP Address		
Destination IP address		

Observe/inspect values of above tables and answer following questions.

Question: Is Source IP and Destination IP remains same for one way of data transmission?

Answer:

Justify: In reverse direction, source IP and destination IP address gets changed.

Answer: