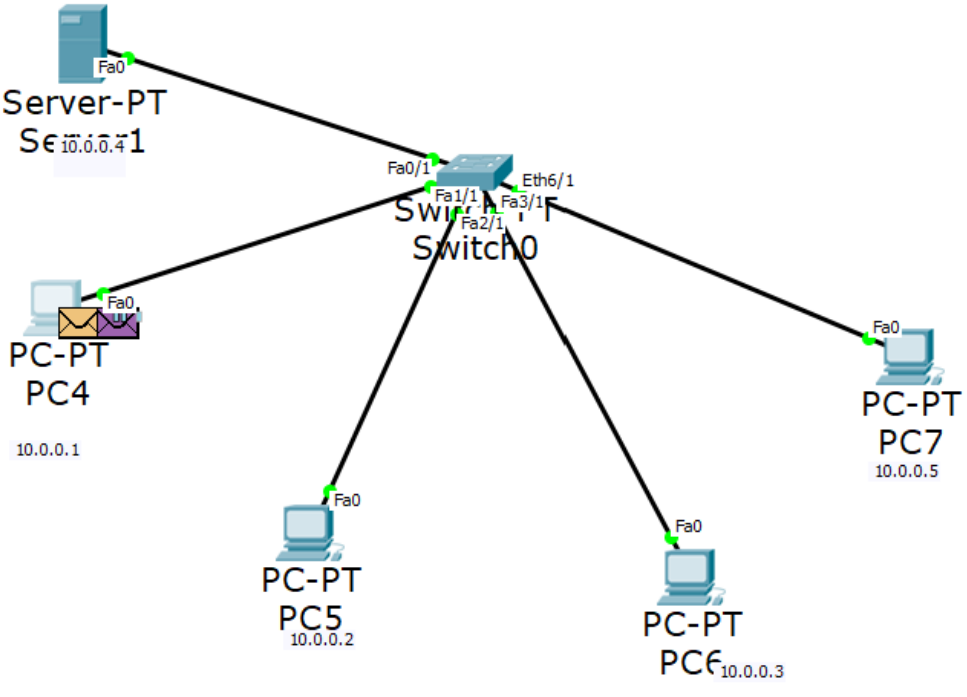
# Experiment - 8

Aim:To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)

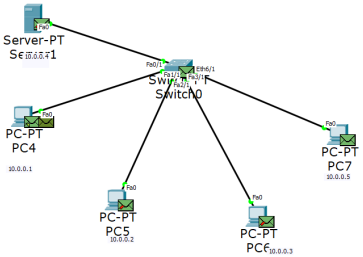
Topology:


Fa0
Server-PT
10.0.0.4
Fa0/1
Fa1/1
Fa2/1
Eth6/1
Fa3/1
Switch0
Fa0
PC-PT
PC4
10.0.0.1
Fa0
PC-PT
PC5
10.0.0.2
Fa0
PC-PT
10.0.0.3
Fa0
PC-PT
PC7
10.0.0.5

Cisco Packet Tracer Student

File Edit Options View Tools Extensions Help

Logical [Root] New Cluster Set Tiled Background Viewport




ARP Table for PC5

| Address | Hardware Addr | Interface |
|---|---|---|
| 10.0.0.1 | 0003.E49D... | FastEthern... |

ARP Table for PC4

| Address | Hardware Addr | Interface |
|---|---|---|
| 10.0.0.2 | 0005.5E6A... | FastEthern... |
| 10.0.0.4 | 0001.6383.... | FastEthern... |

ARP Table for PC6

| Address | Hardware Addr | Interface |
|---|---|---|
| 10.0.0.1 | 0003.E49D... | FastEthern... |

ARP Table for PC7

| Address | Hardware Addr | Interface |
|---|---|---|
| 10.0.0.1 | 0003.E49D... | FastEthern... |

ARP Table for Server1

| Address | Hardware Addr | Interface |
|---|---|---|
| 10.0.0.1 | 0003.E49D... | FastEthern... |

Simulation Panel

Event List

| Vis. | Time(sec) | Last D | At D | Type | Info |
|---|---|---|---|---|---|
| | 0.005 | Swit... | PC5 | ARP | |
| | 0.005 | Swit... | PC6 | ARP | |
| | 0.005 | Swit... | PC7 | ARP | |
| | 0.005 | -- | PC4 | ICMP | |

Reset Simulation | Constant Delay | Captured to: 0.005 s

Play Controls

Back | Auto Capture / Play | Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPSec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters | Show All/None

Time: 00:17:53.673 | Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture

Event List | Simulation

Connections

Automatically Choose Connection Type

Scenario 0 | New | Delete | Toggle PDU List Window

| Fire | Last Sta | Sou | Destina | Typ | Col | Time | Perio | Nu | Edi | Delete |
|---|---|---|---|---|---|---|---|---|---|---|
| | Succe... | PC4 | Server1 | I... | | 0.0... | N | 0 | (e... | (delete) |
| | In Pro... | PC4 | PC5 | I... | | 0.0... | N | 1 | (e... | (delete) |

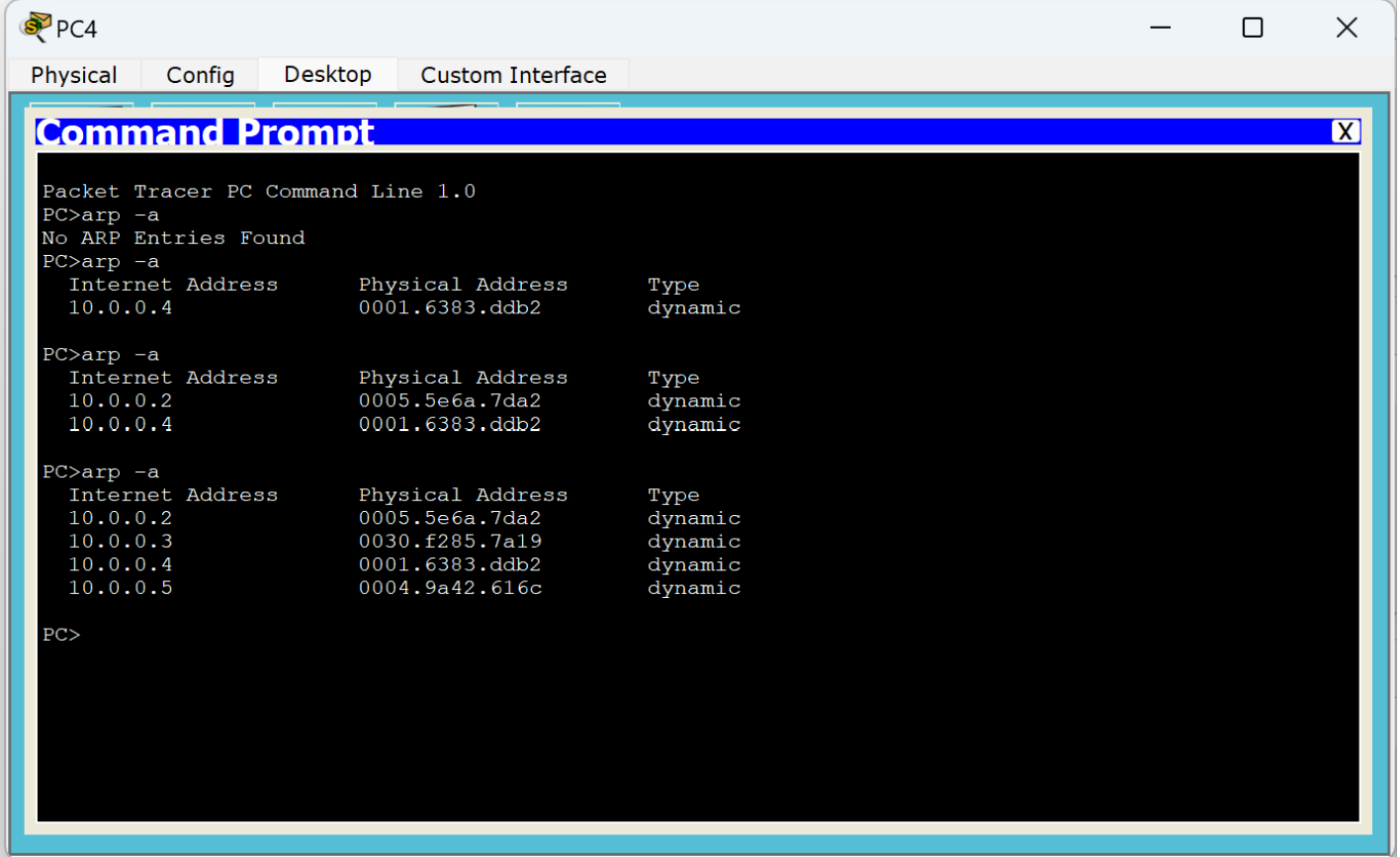
Switch0

Physical | Config | CLI

# IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to
up

%LINK-5-CHANGED: Interface FastEthernet1/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to
up

%LINK-5-CHANGED: Interface FastEthernet2/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to
up

%LINK-5-CHANGED: Interface FastEthernet3/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet3/1, changed state to
up

%LINK-5-CHANGED: Interface Ethernet6/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet6/1, changed state to up

Switch(config)#show mac address-table
               ^
% Invalid input detected at '^' marker.

Switch(config)#exit
Switch#show mac address-table
          Mac Address Table
-------------------------------------------

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

   1    0001.6383.ddb2    DYNAMIC     Fa0/1
   1    0003.e49d.b2d9    DYNAMIC     Fa1/1
   1    0004.9a42.616c    DYNAMIC     Eth6/1
   1    0005.5e6a.7da2    DYNAMIC     Fa2/1
   1    0030.f285.7a19    DYNAMIC     Fa3/1
Switch#
```

Copy | Paste

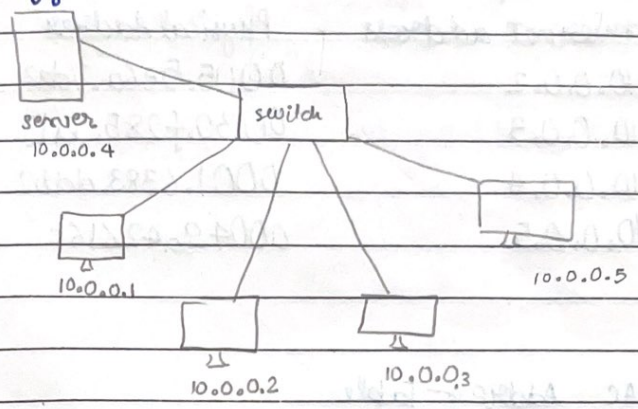

PC4
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>arp -a
Internet Address Physical Address Type
10.0.0.4 0001.6383.ddb2 dynamic
PC>arp -a
Internet Address Physical Address Type
10.0.0.2 0005.5e6a.7da2 dynamic
10.0.0.4 0001.6383.ddb2 dynamic
PC>arp -a
Internet Address Physical Address Type
10.0.0.2 0005.5e6a.7da2 dynamic
10.0.0.3 0030.f285.7a19 dynamic
10.0.0.4 0001.6383.ddb2 dynamic
10.0.0.5 0004.9a42.616c dynamic
PC>

Bafna Gold
Date: Page:

# Experiment 8

Aim: To construct simple LAN and understand the concept and operation of address Resolution Protocol (ARP).

Topology:




Procedure:

- Create a topology of 4 PC's and a server.
- IP address assigned to all
- Connect them through a switch.
- Use the inspect tool to click on PC to see the ARP Table
- Command in command prompt of the PC for arp-a
- Initially ARP Table is empty
- Also in CLI of switch, the command - show mac address-table can be given on every transaction to see how the switch learns from transactions and built the address-table.
- Use capture button in the simulation panel to go step by step so that the changes in

ARP can be clearly noted

- Nodes and switches get updated in the ARP table and new connections start.

command prompt

```
PC> arp -a
```

| Internet address | Physical Address | Type |
|---|---|---|
| 10.0.0.2 | 0005.5e6a.7da2 | dynamic |
| 10.0.0.3 | 0030.f285.7a19 | dynamic |
| 10.0.0.4 | 0001.6383.ddb2 | dynamic |
| 10.0.0.5 | 0004.9a42.616c | dynamic |

show MAC Address-Table

| Vlan | Mac Address | Type | Ports |
|---|---|---|---|
| 1 | 0001.6383.ddb2 | DYNAMIC | Fa0/1 |
| 1 | 0003.e49d.b2d9 | DYNAMIC | Fa1/1 |
| 1 | 0004.9a42.616c | DYNAMIC | Eth 6/1 |
| 1 | 0005.5e60.7da2 | DYNAMIC | Fa 2/1 |
| 1 | 0030.f285.7a19 | DYNAMIC | Fa 3/1 |

9/10

4/8/23