

## Expt 5:- Configuring DHCP within a LAN in a packet Tracer

~~Prerequisites~~

DHCP uses UDP as transport layer Protocol.

IP - 10.0.0.1

We make server as DHCP server so that all end-devices dynamically get IP addresses

In the Interface give default ~~ip address~~ gateway as 10.0.0.1

Configure Router

In fastEthernet0

→ IP address is 10.0.0.2

Server is ready but need to config

Services → DHCP → <sup>ON</sup> assign default & DNS server, start & end range, no of users and then save

PC → <sup>Desktop</sup> ~~Router~~ → IP config → DHCP

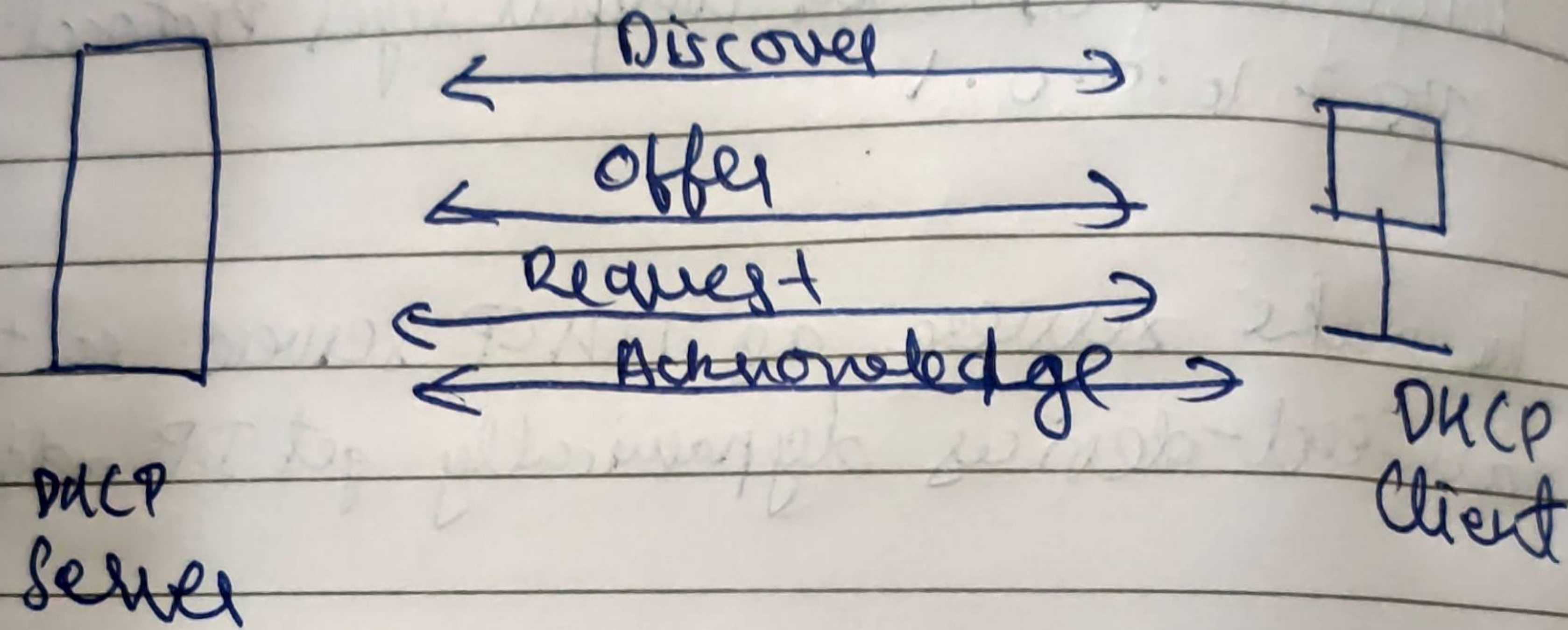
Note:- every IP is unique in the PC's

Learning Outcomes:-

- 1) We learnt how to make a DHCP server
- 2) We learnt how to dynamically assign IP-addresses to end devices
- 3) DHCP DORA process stands for the following message flows between the client & the server.

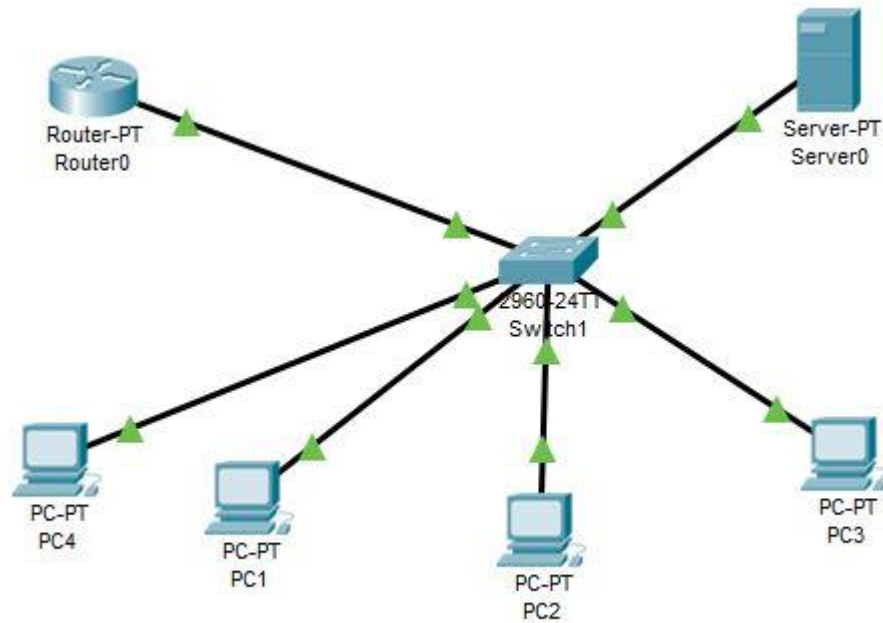


D - Discover  
O - offer  
R - Request  
A - Acknowledge



Message flow between DHCP client & the Server.





Network topology

Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Would you like to enter the initial configuration dialog? [yes/no]:
no

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fa0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
exit
Router(config)#
```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

Router Configuration

Server0

Physical

Config

Services

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Global Settings

Display Name

Server0

Gateway/DNS IPv4

DHCP

Static

Gateway

10.0.0.1

DNS Server

Gateway/DNS IPv6

DHCP

Auto Config

Static

IPv6 Gateway

IPv6 DNS Server

Top

Server0

Physical

Config

Services

Desktop

Programming

Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

FastEthernet0

Port Status

Bandwidth

Duplex

MAC Address

000C.851B.9E4C

IP Configuration

DHCP

Static

IP Address

10.0.0.2

Subnet Mask

255.0.0.0

IPv6 Configuration

DHCP

Auto Config

Static

IPv6 Address

Link Local Address

FE80::20C:85FF:FE1B:9E4C

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Server0

Physical Config **Services** Desktop Programming Attributes

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 10.0.0.1

DNS Server: 10.0.0.2

Start IP Address: 10 0 0 0

Subnet Mask: 255 0 0 0

Maximum Number of Users: 512

TFTP Server: 10.0.0.2

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	10.0.0.1	10.0.0.2	10.0.0.0	255.0.0.0	512	10.0.0.2	0.0.0.0

## DHCP Server configuration

PC4

Physical Config **Desktop** Programming Attributes

**IP Configuration**

Interface: FastEthernet0

**IP Configuration**

☒ DHCP ☐ Static

IP Address: 10.0.0.3

Subnet Mask: 255.0.0.0

Default Gateway: 10.0.0.1

DNS Server: 10.0.0.2

**IPv6 Configuration**

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address: /

Link Local Address: FE80::290:21FF:FE35:B800

IPv6 Gateway:

IPv6 DNS Server:

**802.1X**

☐ Use 802.1X Security

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PC1

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static

IP Address 10.0.0.4

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 10.0.0.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::201:97FF:FE72:69E0

IPv6 Gateway

IPv6 DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Username

Password

☐ Top

PC2

Physical Config **Desktop** Programming Attributes

☒ DHCP ☐ Static

IP Address 10.0.0.5

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 10.0.0.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:97FF:FE37:3981

IPv6 Gateway

IPv6 DNS Server

802.1X

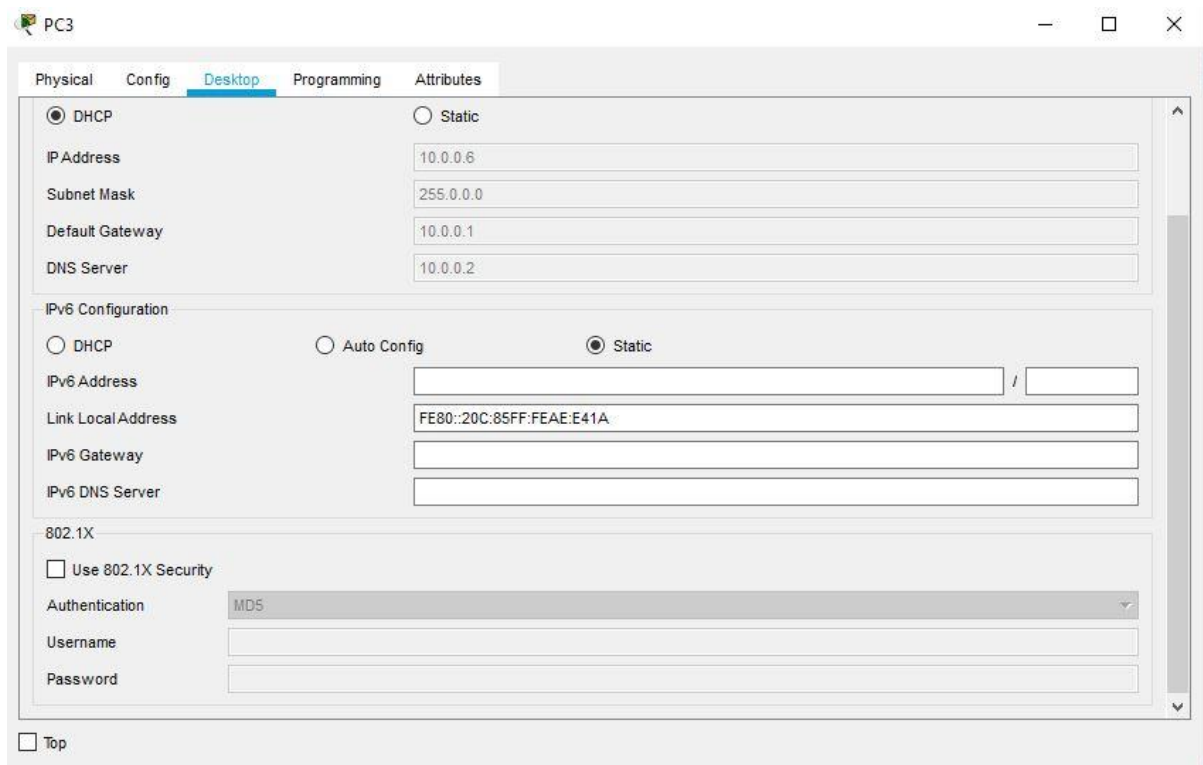
☐ Use 802.1X Security

Authentication MD5

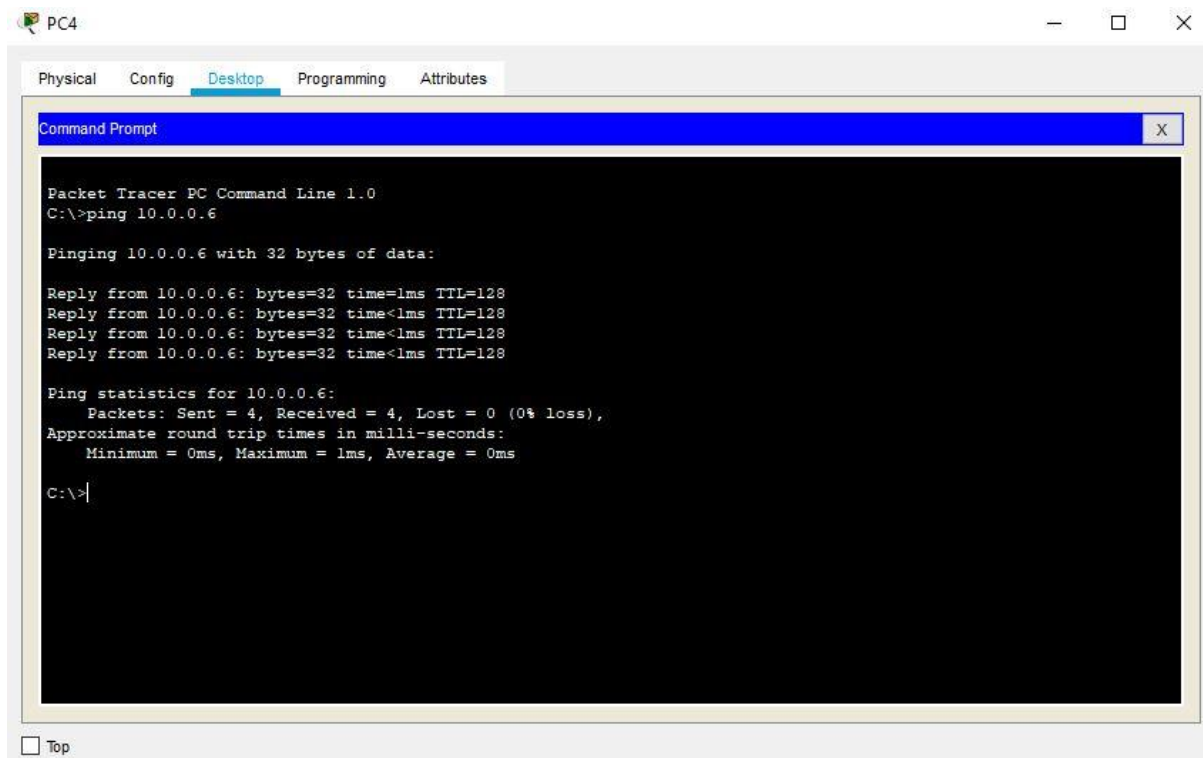
Username

Password

☐ Top



Dynamically assign IP address to end devices



Ping Response (pinged from PC-0 to PC-1)