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Batch: B1 T.Y. B.Tech
CNL_1

DHCP CONFIGURATION

Title: Configure network using Dynamic Host Configuration Protocol.
Aim: Configure network using Dynamic Host Configuration Protocol (DHCP). Use Ping utility to test connectivity.
Objectives:
1.To learn the DHCP installation and understand the practical use of DHCP.
2.To learn the mechanism to access the remote machine by using ping utility to test connectivity.

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AIM: Configure network using Dynamic Host Configuration Protocol (DHCP). Use ping utility to test connectivity.

~~OBJECTIVES.~~

THEORY:

- Draw and explain DHCP state diagram.

→ DHCP is Dynamic Host Configuration Protocol for assigning IP addresses to devices on a network. A device can have a different IP address everytime it connects to a network.
The DHCP has been designed to provide state & dynamic address allocation.

- To provide dynamic address allocations, the DHCP client acts as a state machine that performs transitions from one state to another depending on the message it receives or sends.

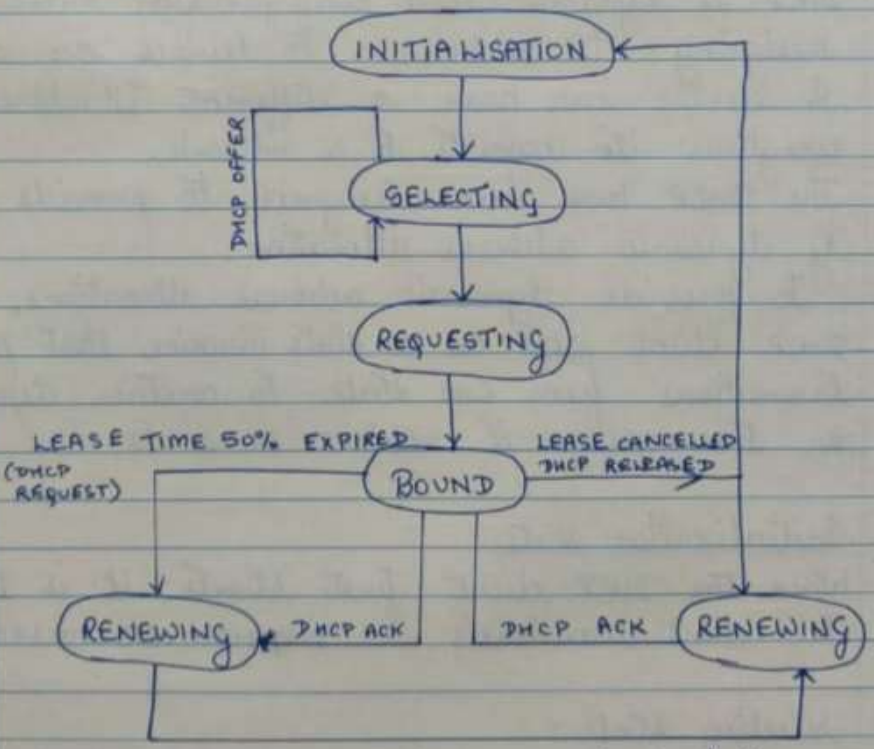
1. Initialization state:
When the DHCP client first starts, it is INIT stage. The client broadcasts a DHCPDISCOVER message.

2. Selecting state:
After sending the request message, the client goes to selecting stage.

3. Requesting state.
Client stays in this state till it receives DHCP ACK

message from the server that creates the binding b/w client physical address and its IP address.

4. Bound State :
In this state the client can use the IP address until the lease expires.

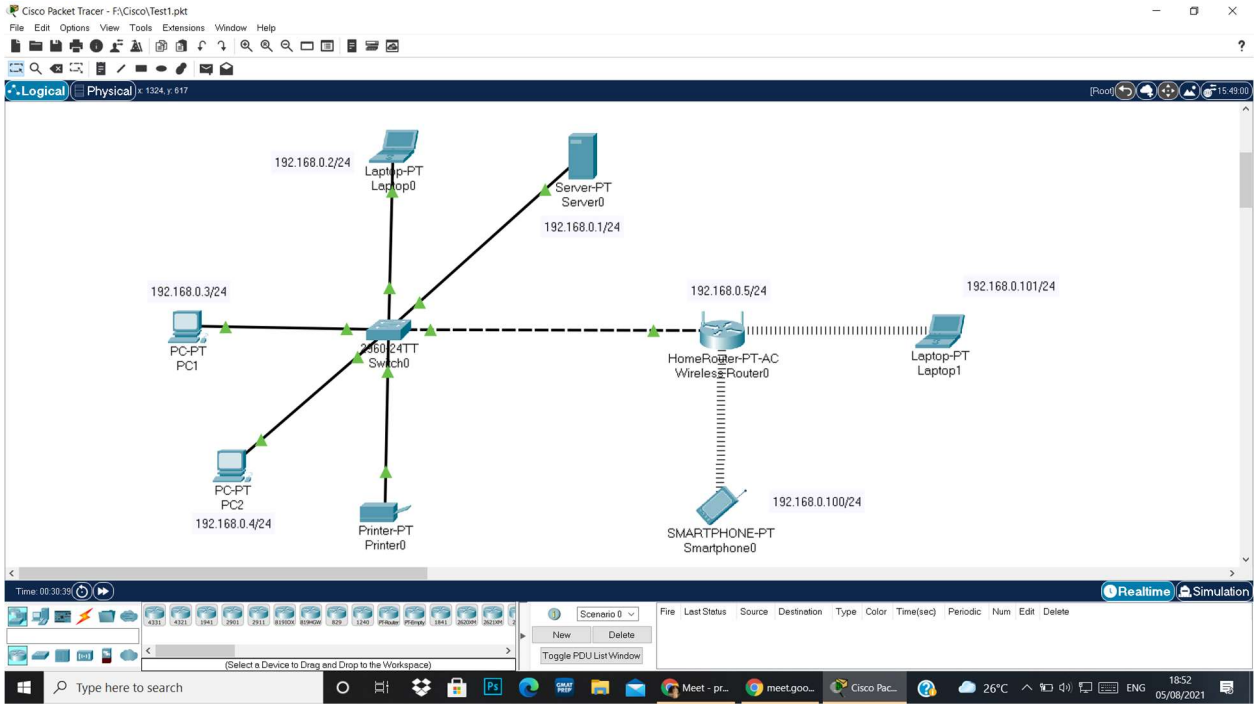


Transition State of DHCP.

5. Renewing state.
Client stays in this step until:
a) It receives a DHCP ACK which renews the lease arrangement. In this case, client goes back to Bound state.
b) If DHCP ACK not received and 87.5% lease expires, client goes back to the rebinding state.

6. Rebinding state
The client will remain in this state until 1 of the 3 even occurs. It can receive DHCP ACK or the lease expires.

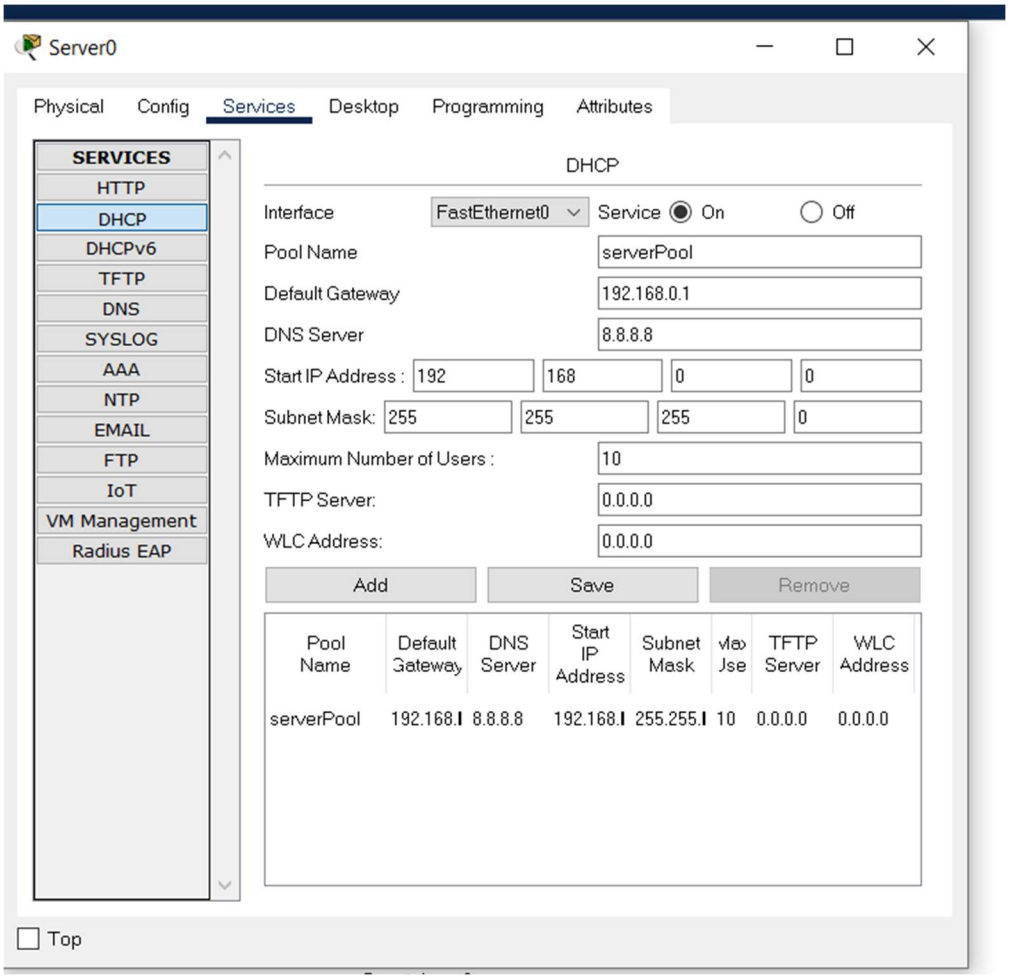
DHCP CONFIGURATION DESIGN:



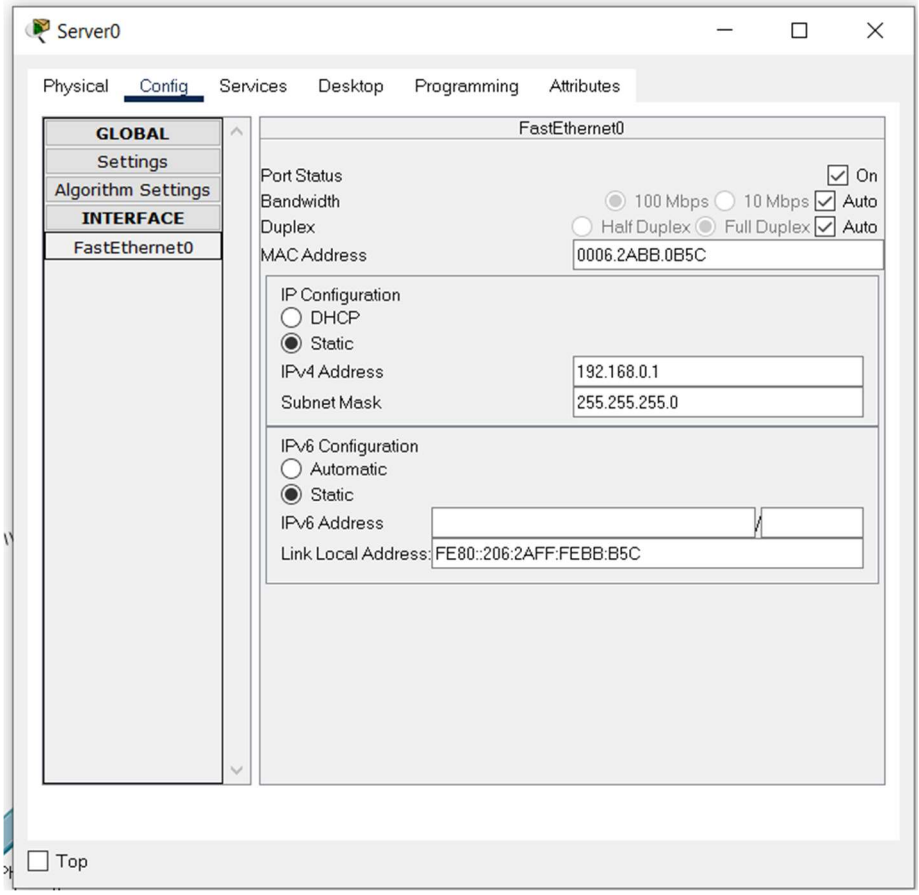
Steps followed for the configuration after making connections are:

1. Server-->Enter services-->Click on DHCP.
2. Enable services→Enter Details such as
    a. Pool Name

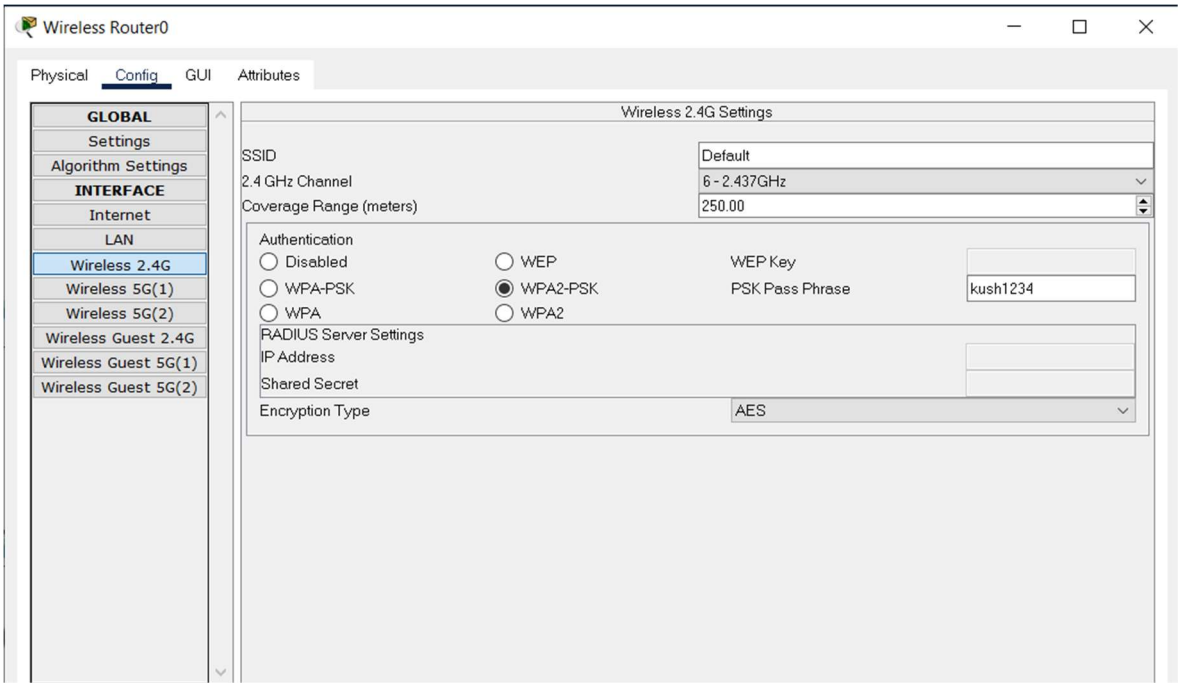
b. Default Gateway
c. DNS Server
d. Start IP Address
e. Subnet Mask
f. Maximum no. of Users



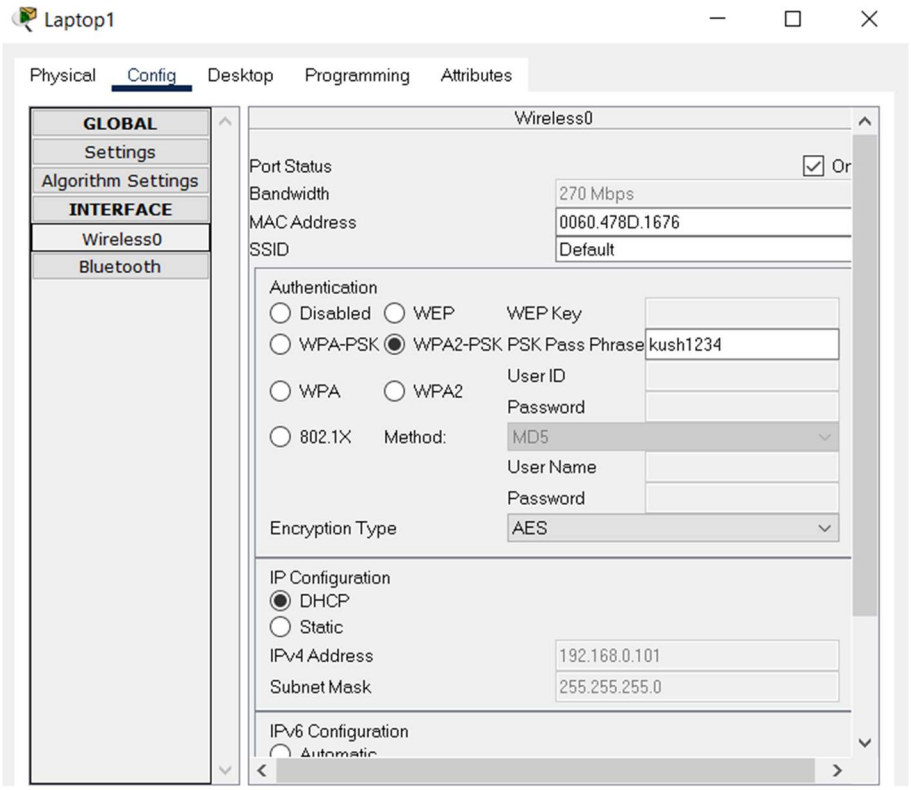
3. Save and go to Config→ Enter same IPv4 and Subnet Mask in IP configurations, under Fastethernet0.



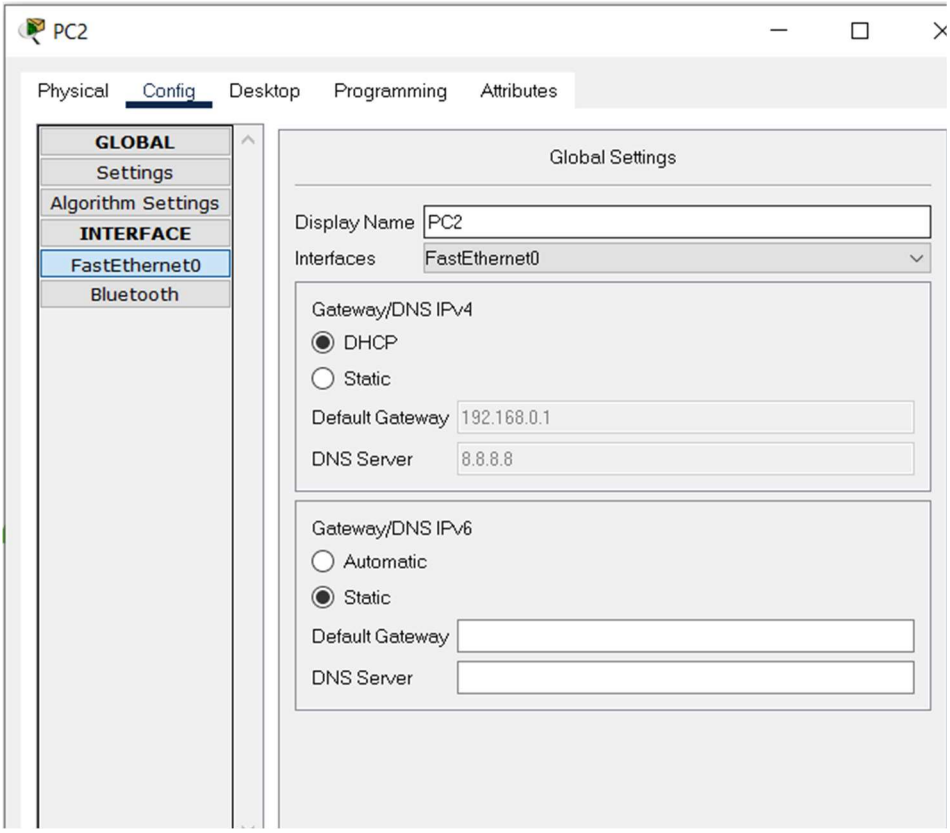
4. For wireless connection: Go to Config for a wireless router and select DHCP under Internet.
5. Then Set WPA2-PSK under Wireless 2.4G and set a Pass Phrase. (optional)



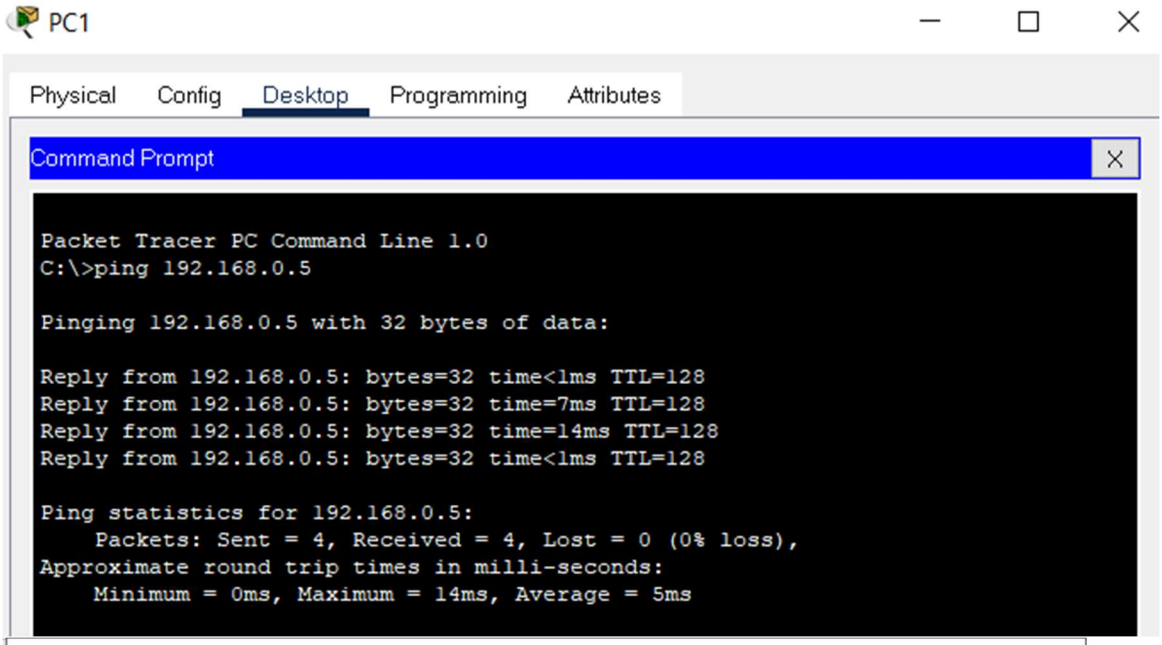
6. For connecting devices enter the Pass Phrase under Config.

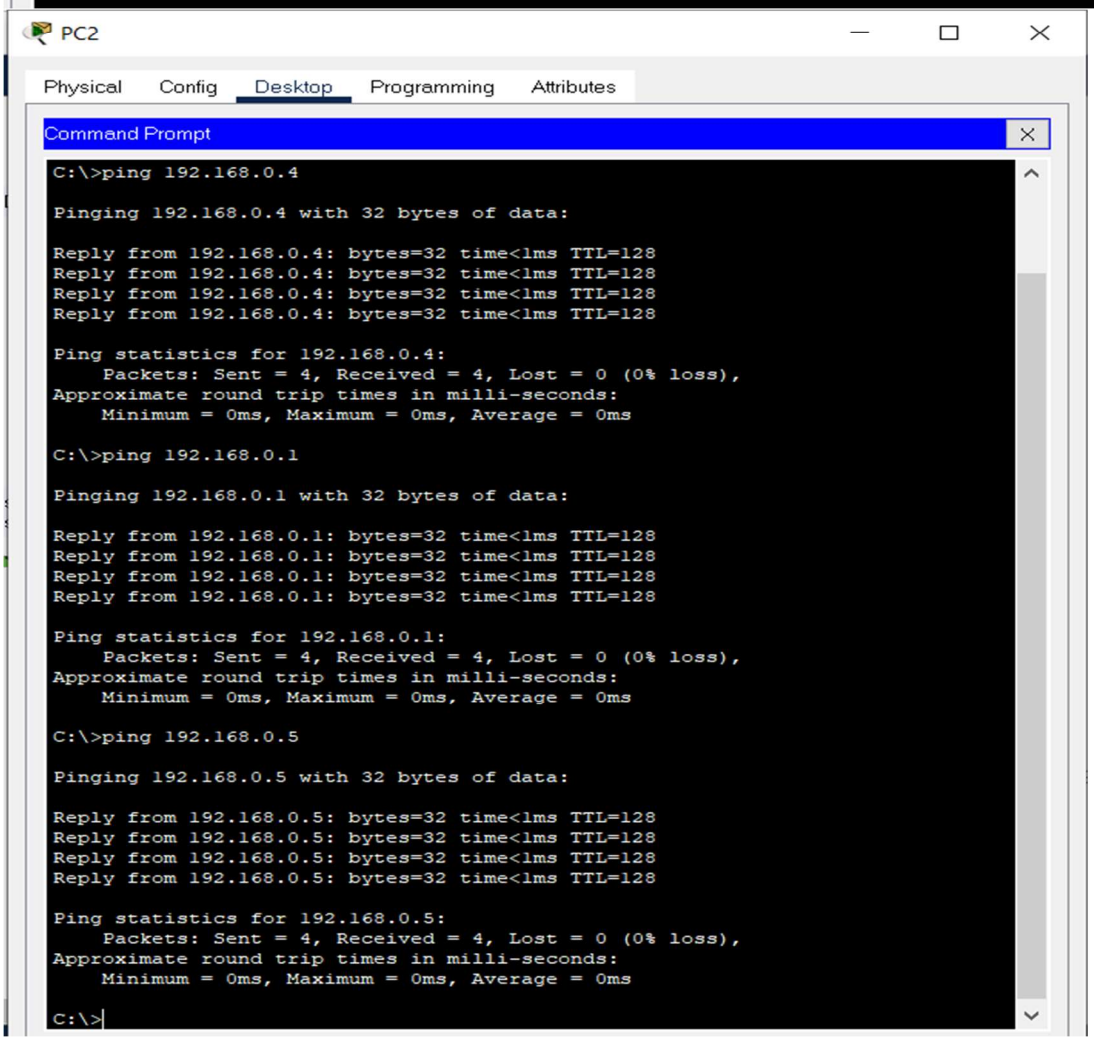


7. For wired connections select DHCP under FastEtherner0.



Using ping utility to check connections in the network:

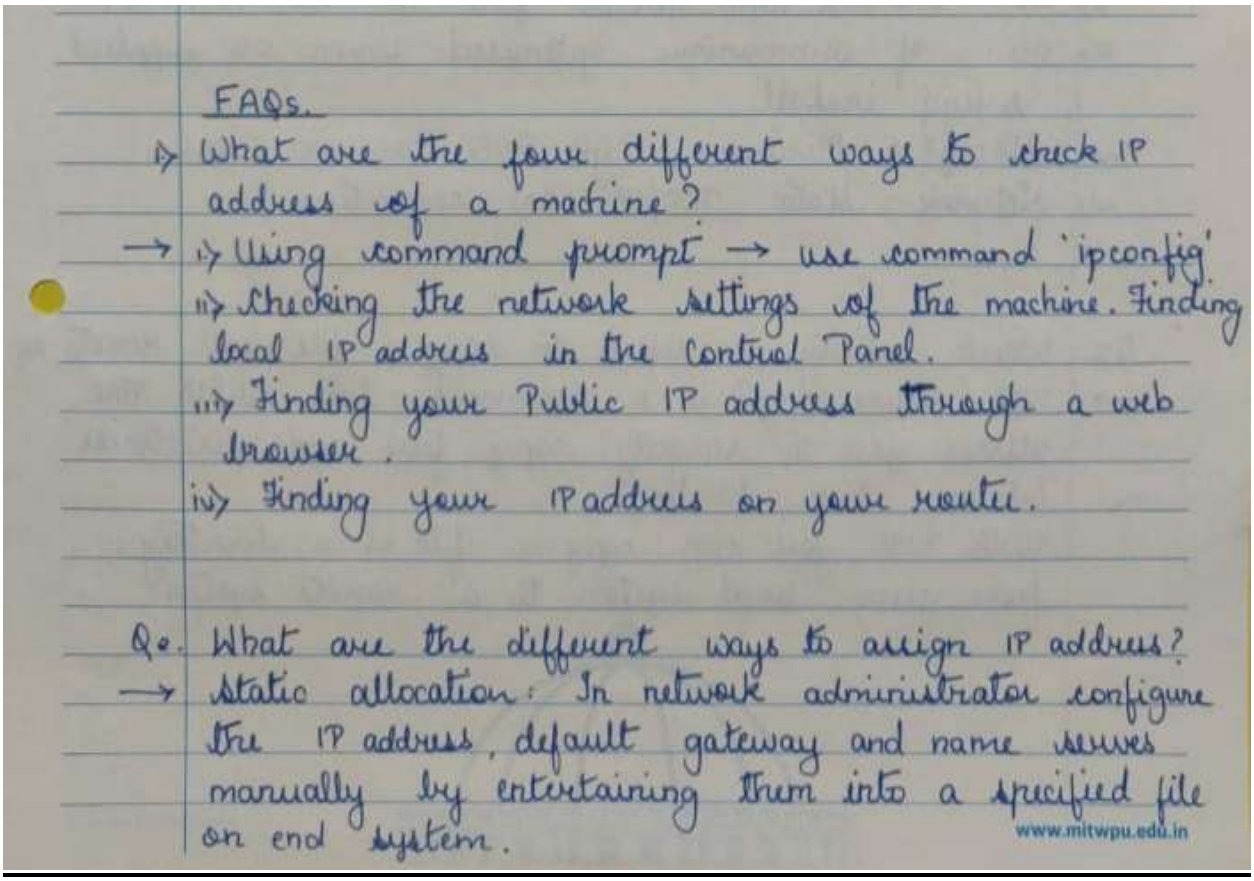




MY OBSERVATIONS:

- Different type of networks and their connections were seen.
- We can see the flow of packets between the multiple devices, switch and router.
- While configuring the server IP address range is decided based on the maximum number of connections.
- The devices take more time to connect to the wireless router on start up.

FAQS



FAQs.

Q. What are the four different ways to check IP address of a machine?

→ i) Using command prompt → use command 'ipconfig'

ii) Checking the network settings of the machine. Finding local IP address in the Control Panel.

iii) Finding your Public IP address through a web browser.

iv) Finding your IP address on your router.

Q. What are the different ways to assign IP address?

→ Static allocation: In network administrator configure the IP address, default gateway and name servers manually by entertaining them into a specified file on end system.

Dynamic allocation: This relieves the administrator of manually assigning an address to every network device.

Q3. What is the major difference between BOOTP & DHCP?

→ BootP support supports static configuration of the IP addresses while DHCP supports the dynamic config.

Q4. What is the pre-requisite to access the remote system?

→ i) CPU: Pentium 3 processor at 800MHz or higher. Hard drive redundancy suggested.

ii) RAM: 512 MB RAM min for first 100 users, 64 MB.

iii) OS: of communique optimised Linux OS supplied during install.

iv) Storage: Minimum 9GB SCSI for 100 users.

v) Network: Static TCP/IP LAN connection.

Q5. Which utility is used to copy a file into remote sys?

→ SCP (secure copy) is a command-line utility that allows you to securely copy files and directories between two locations.

With SCP, you can copy a file or a directory:
from your local system to a remote system.