University of Asia Pacific

Department of Computer Science & Engineering

Computer Networks Lab

CSE 320

DHCP WITH DHS REPORT

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DHCP

DHCP Dynamic Host Configuration Protocol is a network management protocol used to dynamically assign an IP address to any device, or node, on a network so it can communicate using IP. DHCP automates and centrally manages these configurations rather than requiring network administrators to manually assign IP addresses to all network devices. DHCP can be implemented on small local networks, as well as large enterprise networks.

Windows Server 2016 includes DHCP Server, which is an optional networking server role that you can deploy on your network to lease IP addresses and other information to DHCP clients. All Windows-based client operating systems include the DHCP client as part of TCP/IP, and DHCP client is enabled by default.

USE OF DHCP

Every device on a TCP/IP-based network must have a unique unicast IP address to access the network and its resources. Without DHCP, IP addresses for new computers or computers that are moved from one subnet to another must be configured manually; IP addresses for computers that are removed from the network must be manually reclaimed.

The network administrator establishes DHCP servers that maintain TCP/IP configuration information and provide address configuration to DHCP-enabled clients in the form of a lease offer. The DHCP server stores the configuration information in a database that includes:

1. Valid TCP/IP configuration parameters for all clients on the network.

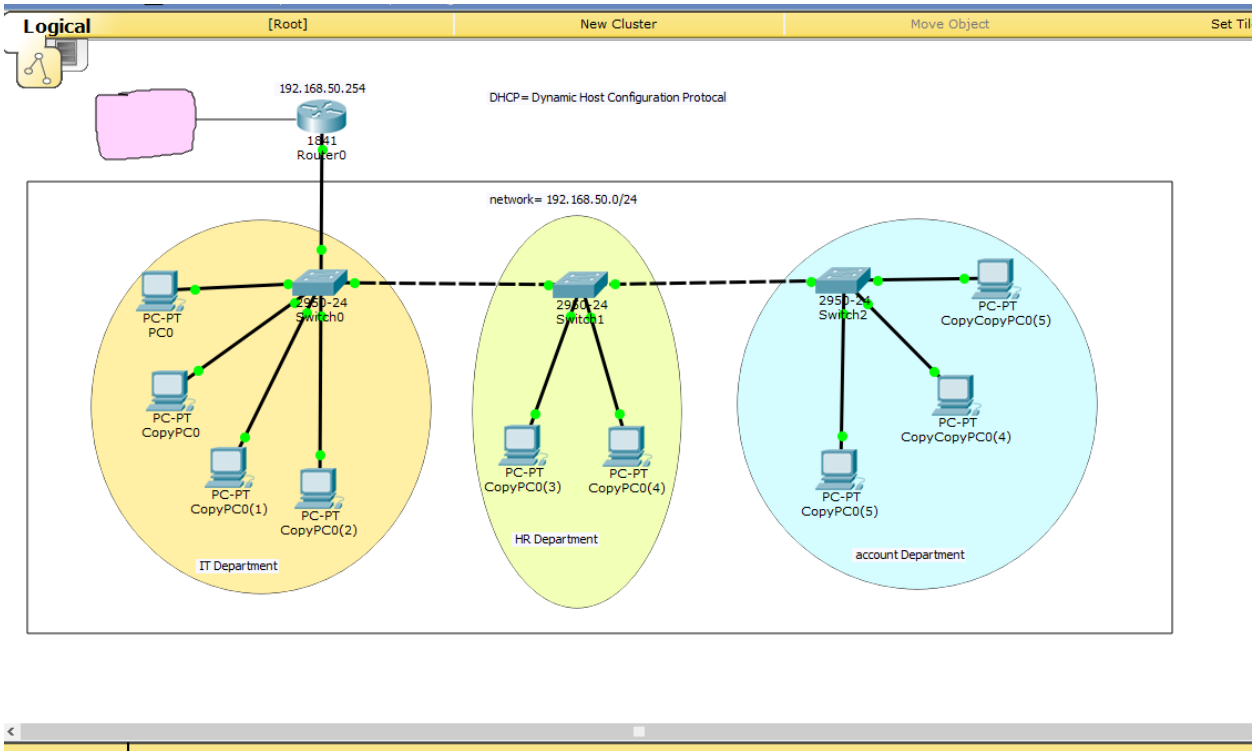
2. Valid IP addresses, maintained in a pool for assignment to clients, as well as excluded addresses.
3. Reserved IP addresses associated with particular DHCP clients. This allows consistent assignment of a single IP address to a single DHCP client.
4. The lease duration, or the length of time for which the IP address can be used before a lease renewal is required.
5. A DHCP-enabled client, upon accepting a lease offer, receives:
6. A valid IP address for the subnet to which it is connecting.
7. Requested DHCP options, which are additional parameters that a DHCP server is configured to assign to clients. Some examples of DHCP options are Router (default gateway), DNS Servers, and DNS Domain Name.

DHCP WORKING PRINCIPLE

DHCP runs at the application layer of the TCP/IP stack. It dynamically assigns IP addresses to DHCP clients and allocates TCP/IP configuration information to DHCP clients. This information includes subnet mask information, default gateway IP addresses and domain name system (DNS) addresses.

DHCP is a client-server protocol in which servers manage a pool of unique IP addresses, as well as information about client configuration parameters. The servers then assign addresses out of those address pools.
DHCP-enabled clients send a request to the DHCP server whenever they connect to a network.

DHCP Structure



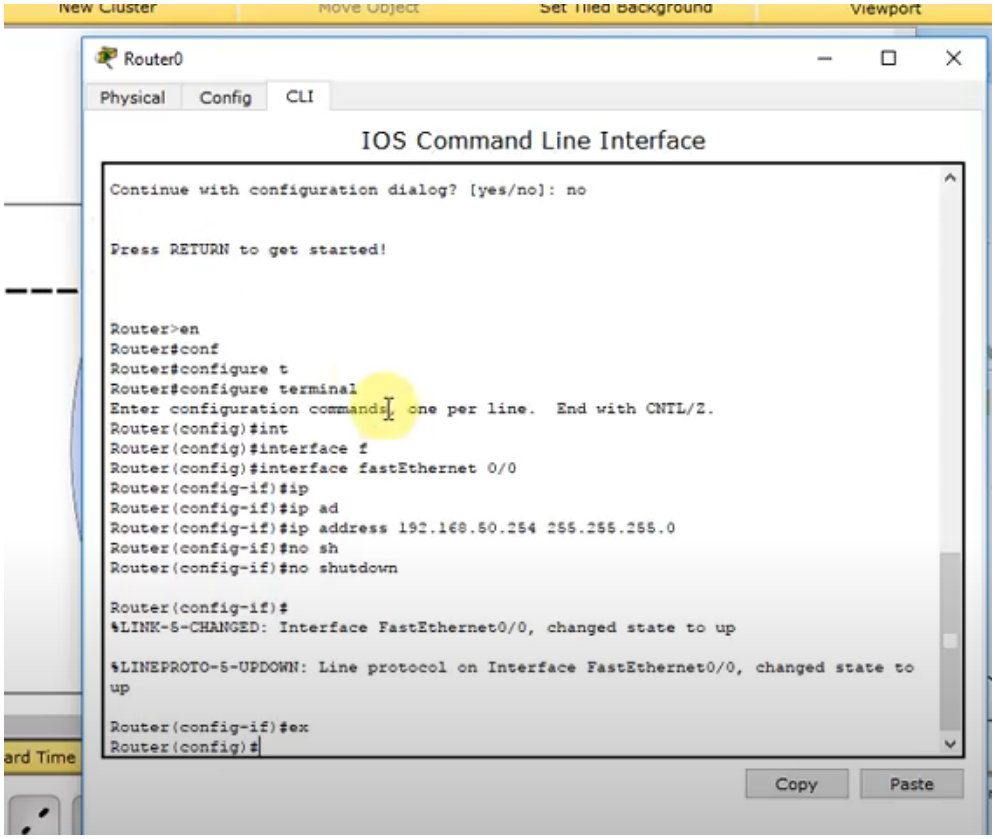
Equipment:

- 1841 router
- 2960-24 switch
- PC-PT end devices
- wire

STEP FOR DHCP

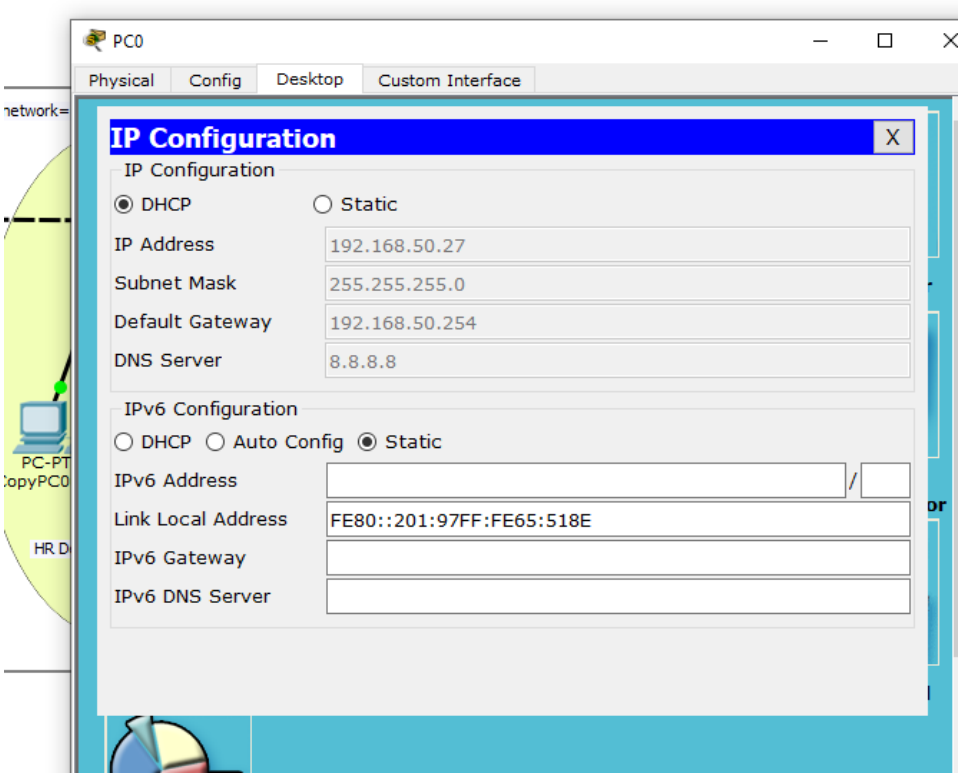
1. Connect all the devices with proper wire.
2. Setup the router.
3. Put the correct ip address in DHCP.
4. Configure all PCs using the DHCP protocol.
5. For checking pass messages from one pc to another.

FOR ROUTER CONFIGURE:

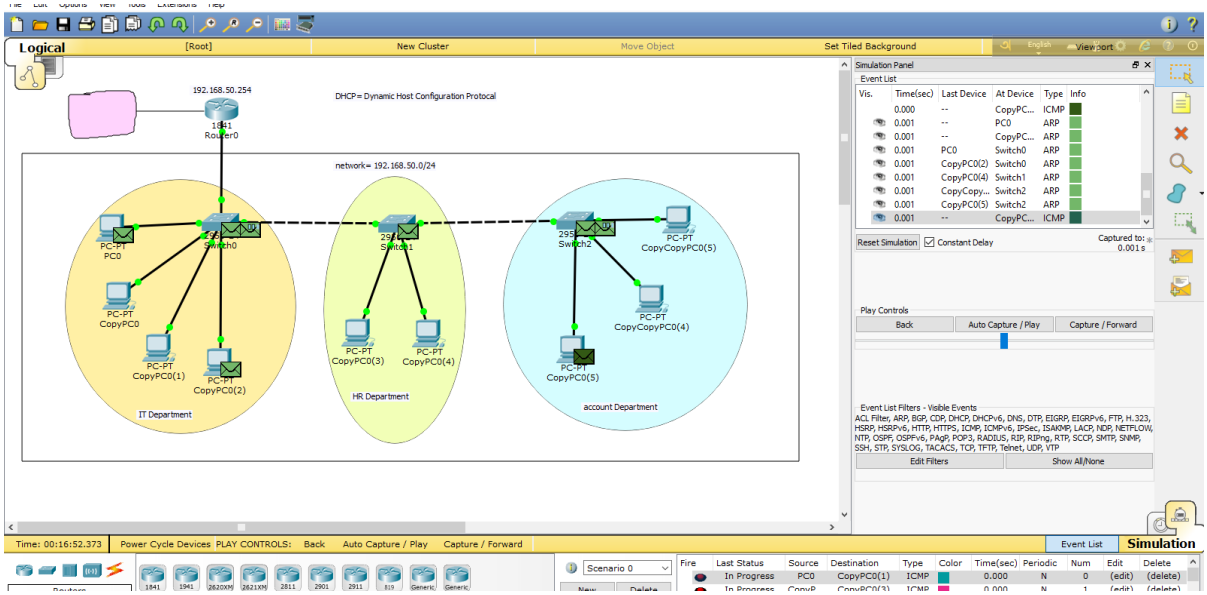


IP ADDRESSING PC

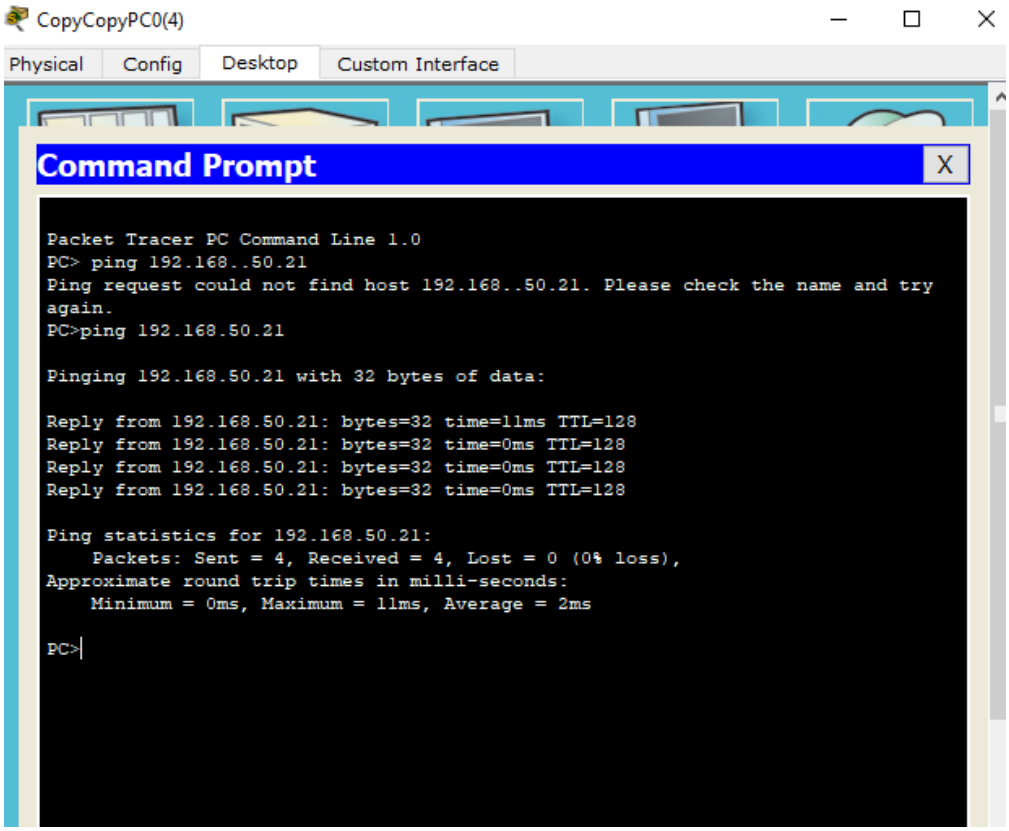
DHCP = Dynamic Host Configuration Protocal

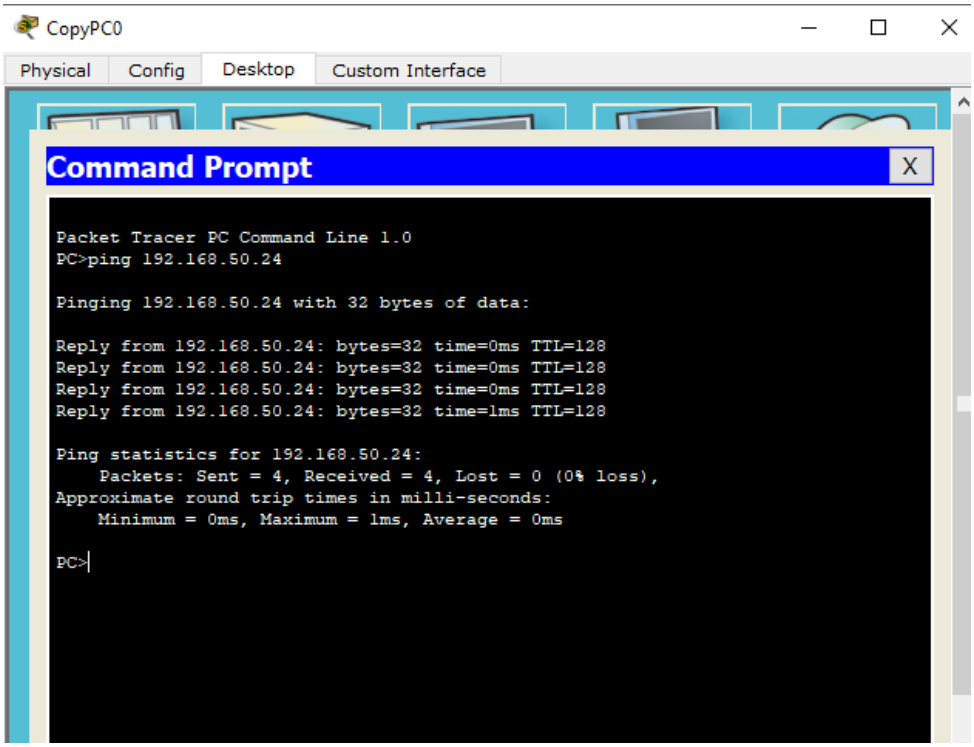


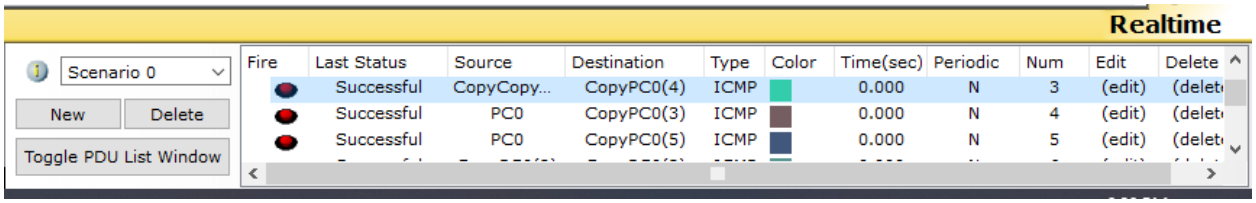
FOR SEND MESSAGE



Connection Between PCs







Here, we see the message will be sent properly. We have successfully done DHCP WITH DNS.