

Lab 8.3.4: Configuring the NIC to Work with a DHCP Server

Estimated time: 10 Minutes

Objective

Upon completion of this lab, you will be able to configure a Network Interface Card to utilize DHCP.

Equipment

The following equipment is required for this exercise:

- Network created from the previous sections in this chapter with Win 9x and TCP/IP enabled.
- A DHCP server accessible on the network

Scenario

Your company informs you that they are expanding the number of users they currently have. The company will be changing to a dynamic addressing scheme and will need you to begin making the necessary changes to the host computers.

Procedures

As a technician or administrator, you will have a choice between two types of address management within a network - static or dynamic.

Static addressing requires an administrator to physically enter a unique IP address into each host on the network. The larger the network becomes the more difficult it may be to keep track of assigned addresses. This is especially true if hosts are changing to new subnets periodically.

Dynamic Host Configuration Protocol (DHCP) is used to automatically assign IP addresses to hosts within the network. A DHCP server is configured to automatically assign an address from a range of addresses known as a scope. The hosts will request an IP address from the DHCP server, which will then assign a unique address. This enables PCs to move around within a network and have their addresses changed automatically as needed. It also allows the administrator to manage thousands of addresses in the network.

Step 1

View the Network Neighborhood properties as described below.

Right-click on **Network Neighborhood**. Click on **Properties**.

Is TCP/IP listed as an installed component? If so, what is the name and model number of the NIC it is bound to?

Do you see TCP/IP listed with any other items? If so, list those items below.

Step 2

View the settings of TCP/IP as described below.

Highlight TCP/IP (make sure it is the one listed with your NIC).

Click on **Properties**.

Do you currently have an IP address assigned? If so, write down the address along with the subnet mask.

Step 3

Follow the instructions to change your address from being static to dynamically assigned.

Click on the radio button labeled "Obtain an IP address automatically".

Did anything change on the TCP/IP screen? If so, what?

Step 4

Follow the instructions below for saving the new configuration.

Click **OK** on the TCP/IP properties page.

Click **OK** on the Network Properties page.

Click on **Yes** when you are prompted to restart your computer.

You may be asked to insert a Windows disk in order to install files. If this happens, ask your instructor for further directions.

Step 5

After rebooting your machine follow the instructions below to verify your new IP address.

Note: Check the lights on back of the card. These lights will blink when there is network activity taking place. Blinking lights on the NIC is an indication that you are on the right track to successfully establishing network connection.

Click on **Start > Run**.

Type the command **winipcfg** and click **OK**.

Click on the arrow next to PPP adapter.

Highlight your NIC and click.

Click on the tab that says **More Info**.

What is your new IP address and subnet mask?

What is the IP address of the DHCP server?

When was the lease for the address obtained and when does it expire?

Troubleshooting

When configuring DHCP on a client computer, the computer might come back with an error stating that the server is unavailable. Should this happen, the easiest solution is to finish rebooting the machine and then follow the instructions below.

Click on **Start**.

Click on **Run**.

Type the command **winipcfg** and click **OK**.

Click on the arrow and choose your adapter.

Click on the **Release** which clears an address.

Click **Renew** which requests a new address.

The machine should now be able to join the network after rebooting.

Reflection

As a group try to think of situations where static addressing would be preferred over DHCP.

On your own try to see if you can find any other commands that would show you your IP

address under Windows 98 or Windows NT when using DHCP.

As a network or PC technician, you may be required to manage your company's addressing scheme. Static addressing requires a great deal of management on the technician's part. You will have to keep track of what addresses are available and which ones are in use. Depending on the size of your network, this could become very complicated and time consuming. DHCP allows you to create a range of addresses and allow a server to determine what address a host receives. Should a host be moved to a new network, DHCP will assign a new address without the administrator's intervention.