Setting Up a DHCP Server

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What Does a DHCP Server Do?

A Dynamic Host Configuration Protocol (DHCP) Server provides any client that connects to this network with an IP address, gateway and DNS resolution.

The client's Network Interface Card (NIC) is set to dynamically accept the TCP/IP address given to it by the DHCP Server.



Naming the External NIC

On the server, we should give the NICs identifiers that will allow us to quickly determine what they control just by reading. The card that connects the server to the outside networks can be called such names as external, Internet or outside.

To make the name alteration, we enter the Control Panel and then Network Connections. Select the Local Area Connection that joins to the Internet and right click on the name. When the submenu pops up, we select rename and type External in the new name textbox. We press the OK button to accept the change.



Naming the Internal NIC

The card that connects the server to the inside networks can be called such names as internal, Intranet or inside.

To make the name alteration, we enter the Control Panel and then Network Connections Select the Local Area Connection 2 that joins to the Local Area Network (LAN) and right click on the name. When the submenu pops up, we select rename and type Internal in the new name textbox. We press the OK button to accept the change.



The External NIC

Now, we go to the Network Connection window and select the External NIC. The External NIC Status window will open and we will select the Properties button. At the External Properties window, we choose the Advanced tab on the top right of the dialogue box. At this time, we can see the Internet **Connection Sharing** checkbox. We will place a check in the box.

	Setwork Connections	
	<u>File Edit View Favorites Tools Advanced H</u> elp	A
	🕥 Back 🔻 🕥 👻 🏂 🔎 Search 🌔 Folders 🛛 🕼 🕥 🗙 🍤 🛄 🖬	
	Address 😒 Network Connections	💌 🄁 Go
	LAN or High-Speed Internet	
General Support	idress Network Vetwork Scom EtherLink 10/100 PC	1 Fo
Connection	External Properties	
Status:	General Authentication Advanced	
Duration:	Connect using:	? ×
Speed.	B 3Com EtherLink 10/100 General Authentication Advanced	
Activity Sen Packets: Properties Disab	This connection uses the follo Windows Firewall Image: Client for Microsoft N Protect my computer and network by limiting or preventing access to this computer from the Internet Image: Protect my computer and network by limiting or preventing access to this computer from the Internet Image: Protect my computer and network by limiting or preventing access to this computer from the Internet Image: Protect my computer and network by limiting or preventing access to this computer from the Internet Image: Protect my computer and network by limiting or preventing access to this computer from the Internet Image: Protect my computer or preventing access to this computer from the Internet Image: Protect my computer or preventing access to this computer from the Internet Image: Protect my computer or preventing access to this computer from the Internet Image: Protect my computer or preventing access to this computer from the Internet Image: Protect my computer or preventing access to the Internet connection Image: Protect my computer to ac network. Image: Protect my computer to ac network. <td>Settings</td>	Settings
	Notify me when this conne	

OK.

Cancel

The External NIC TCP/IP Settings

The computer will tell us that the IP address 192.168.0.1 will be used for our system. We will continue to utilize the external IP address scheme, gateway IP and DNS IP addresses that we previously had installed on the External network interface card.

Internet Protocol (TCP/IP) Propertie	s	? ×
General		
You can get IP settings assigned autom this capability. Otherwise, you need to for the appropriate IP settings.	atically if your network suppo ask your network administrato	rts or
O Obtain an IP address automatical	by .	
• Use the following IP address:		
IP address:	192.168.10.2	
S <u>u</u> bnet mask:	255 . 255 . 255 . 0	
Default gateway:	192.168.10.1	
C Obtain DNS server address autom	natically	
• Use the following DNS server add	resses:	
Preferred DNS server:	8.8.8.8	
Alternate DNS server:	8.8.4.4	
	Advanced	
	OK Ca	ncel

The Internal NIC

Now, we will setup the Internal network interface card. We double click on the Internal card and the Internal NIC Status window will open and we will select the Properties button. At the Internal Properties window, we double click on the TCP/IP Internet Protocol. We can type our own IP address scheme in for the Intranet IP of 192.168.1.1. The subnet mask will be 255.255.255.0. We leave the gateway and DNS IP addresses blank.



Configure the Server Wizard

Now to setup the DHCP server, we choose the Configure Your Server Wizard . The first window in the procedure will appear on the graphical display and we select the Next command button to continue.

Configure Your Server Wizard		X
	Welcome to the Configure Your Server Wizard This wizard helps you assign roles to this server. You determine the role of a server based on the tasks, such as sharing documents, sharing printers, or hosting a Web site, you want the server to perform. You can also use this wizard to remove roles that you previously added to this server. Read about server roles To continue, click Next.	
	< Back Next > Cancel Help	

Preliminary Steps

We are prompted to have the Windows Server CD available to load extra files and to have the necessary Network Interface Cards, cables and Internet connections to complete the task. When we are ready, we should press the Next command button.

Configure Your Server Wizard

Preliminary Steps

You can ensure that you successfully configure your server by completing the following steps before continuing.



Before continuing, verify that the following steps have been completed.

- Install all modems and network cards.
- Attach all necessary cables.
- If you plan to use this server for Internet connectivity, connect to the Internet now.
- Turn on all peripherals, such as printers and external drives.
- Have your Windows Server 2003 Setup CD available, or know your network installation path.

When you click Next, the wizard will search for network connections.

< <u>B</u> ack	Next >	Cancel	Help

Configure your Server Wizard

In most cases, we will choose a custom configuration. A typical configuration will have us install Active Directory (domain controller), DNS role, DHCP role and activate a security firewall.

We will opt for custom configuration and select the Next button.

Configure Your Server Wizard

Configuration Options

You can add a common set of roles to this server, or you can customize this server by specifying the roles to add or remove.



Configure this server using:

O <u>Typical configuration for a first server</u>

Simplify the setup of a new network by adding a common set of roles for a first server. This option sets up this server as a domain controller by installing the Active Directory directory service; installs DNS server and DHCP server (if required) for IP address management; configures network routing; and activates a security firewall.

Ocustom configuration

Customize this server by adding the roles, such as file server, print server, or application server, that you want it to perform. You can also use this option to remove existing roles from this server.

< <u>B</u>ack <u>N</u>ext > Cancel Help

Select DHCP Server

We will pick the DHCP Server function and we then push the Next button.

Configure Your Server Wizard

Server Role

You can set up this server to perform one or more specific roles. If you want to add more than one role to this server, you can run this wizard again.



Select a role. If the role has not been added, you can add it. If it has already been added, you can remove it. If the role you want to add or remove is not listed, open <u>Add or Remove Programs</u>.

Server Role	Configured	DHCP server
File Server	No	
SharePoint Services	No	
Print Server	No	DHCP (Dynamic Host Configuration
Application server (IIS, ASP.NET)	No	Protocol) servers assign IP addresses
Mail server (POP3, SMTP)	No	to network clients.
Terminal server	No	
Remote access / VPN server	No	Read about DHCP servers
Domain Controller (Active Directory)	No	
DNS server	No	
DHCP server	No	
Streaming media server	No	
WINS server	No	
	< Back	Next > Cancel Help

Install DHCP Server and New Scope

Next, a window shows the summary of selections. We go for the Next button to continue.

onfigure Your Server Wizard	×
Summary of Selections View and confirm the options you have selected.	No.
Summary:	
Install DHCP server Run the New Scope Wizard to configure a new DHCP scope	
To change your selections, click Back. To continue setting up this role, click Next.	
< <u>B</u> ack <u>Next</u> > Cancel	Help

Configuring Components

Now, the wizard will configure components.

Windows Setup Installing DHCP Server	×
Configuring Components Setup is making the configuration changes you requested.	t
Please wait while Setup configures the components. This may take several minutes, depending on the components selected.	
Status: Completing configuration of Management and Monitoring Tools	
<u></u>	
< <u>B</u> ack <u>N</u> ext >	

The New Scope Wizard

The next step is to create a scope. We pick the Next button to go on.

New Scope Wizard	Welcome to the New Scope Wizard This wizard helps you set up a scope for distributing IP addresses to computers on your network. To continue, click Next
	< Back Next > Cancel

Scope Name

We made the Scope name BITS66_LAN and the description is Managers LAN. Then we press Next to carry on.

New Scope Wizard				
Scope Name You have to provide an identifying scope name. You also have the option of providing a description.				
Type a name and how the scope is	d description for this scope. This information helps you quickly identify to be used on your network.			
N <u>a</u> me:	BITS66_LAN			
Description:	Managers LAN			
	< <u>B</u> ack <u>N</u> ext > Cancel			

IP Address Range

We will make the IP address range 192.168.0.1 to 192.162.0.254. The length of the subnet mask is 24 bits and the mask is 255.255.255.0.

We press Next to advance.

Scope Wizard				
P Address Range You define the scope addre addresses.	ess range by identify	ving a set of c	onsecutive IP	(S)
Enter the range of addresse	s that the scope di	stributes.		
Start IP address: 192	. 168 . 1 . 1			
End IP address: 192	. 168 . 1 . 254			
A subnet mask defines how IDs and how many bits to u length or as an IP address.	many bits of an IP se for the host ID. Y	address to us 'ou can speci	e for the network fy the subnet ma:	/subnet sk by
Length: 24	•			
S <u>u</u> bnet mask: 255	. 255 . 255 . 0			

Exclusions

We will exclude the server's IP address and any other static IP devices. In this example, we excluded the server Internal Network Interface Card. Other devices that can be excluded are network printers, scanners and routers.

lew Scope Wizard	
Add Exclusions Exclusions are addresses or a range of addresses that are not distributed by the server.	J.
Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.	
Start IP address: End IP address: I I I I	
Excluded address range:	
Address 192.168.1.1	
< <u>B</u> ack <u>N</u> ext > Cance	

Lease Duration

The default duration is 8 days, but we will change the time for a computer to be continuously on the network to 20 hours. We then will choose the Next button and continue.

New Scope Wizard

Lease Duration

The lease duration specifies how long a client can use an IP address from this scope.



Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.

Set the duration for scope leases when distributed by this server.

Limited to:



DHCP Options

Yes, we will want to set DHCP options and after that we will opt for the Next button to go onward.

New Scope Wizard

Configure DHCP Options

You have to configure the most common DHCP options before clients can use the scope.



When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.

The settings you select here are for this scope and override settings configured in the Server Options folder for this server.

< Back

Do you want to configure the DHCP options for this scope now?

- Yes, I want to configure these options now
- O No, I will configure these options later

Cancel

Next >

Identify the Router

We can identify routers on the LAN by typing in their IP address and then we hit the Add button. We press the Next button to advance to another window.

lew Scope Wizard	ew Scope Wizard				
Router (Default Gateway) You can specify the routers	Router (Default Gateway) You can specify the routers, or default gateways, to be distributed by this scope.				
To add an IP address for a	router used by c	lients, enter the address below.			
I <u>P</u> address:					
1	A <u>d</u> d				
198.168.1.254	<u>R</u> emove				
	<u>U</u> p				
	D <u>o</u> wn				
		I			
		< Back Next >	Cancel		

DNS Server

We can identify the Domain Name and DNS server for the scope. When we type in the server name, we can resolve the IP address by choosing the Resolve button. After placing the parent domain and DNS server in this window, we choose the Next button.

ew Scope Wizard		
Domain Name and DNS Servers The Domain Name System (DNS) maps a clients on your network.	nd translates domain names used	» (
You can specify the parent domain you want t DNS name resolution.	he client computers on your netwo	ork to use for
Parent domain: BITS_Domain		
To configure scope clients to use DNS servers servers.	s on your network, enter the IP ad	dresses for those
<u>S</u> erver name:	I <u>P</u> address:	
BITS_DNS		A <u>d</u> d
R <u>e</u> solve	192.168.0.245	<u>R</u> emove
		<u>U</u> р
		Down
	,	
	< <u>B</u> ack <u>N</u> ext >	Cancel

WINS Server

We can also determine the WINS server on the LAN by typing the WINS server NetBIOS name and picking the Resolve button. Then, we can choose the Next button to continue.

New Scope Wizard WINS Servers Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses. Entering server IP addresses here enables Windows clients to guery WINS before they use broadcasts to register and resolve NetBIOS names. Server name: IP address: . Resolve Remove Up Down To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options. < Back Next > Cancel

Finish the New Scope Wizard

We can activate the new scope by opting the yes radial button. We press the Next button to go on.

New Scope Wizard			
Activate Scope Clients can obtain address leases only if a s	scope is activate	d.	
Do you want to activate this scope now?			
Yes, I want to activate this scope now			
O No, I will activate this scope later			
	< <u>B</u> ack	<u>N</u> ext >	Cancel

New Scope Wizard is Complete

The wizard is now complete and we pick the Finish button.

New Scope Wizard			
	Completing the New Scope Wizard		
	You have successfully completed the New Scope wizard.		
	Before clients can receive addresses you need to do the following:		
	1. Add any scope specific options (optional).		
	2. Activate the scope.		
	To close this wizard, click Finish.		
	< Back Finish Cancel		

DHCP Server is Complete

Our server has DHCP capabilities. We press the Finish button.



DHCP Server Inactive

We see the DHCP is not active, so we double click on the new scope to activate it.



Activate the DHCP Server

We can use the DHCP console to make changes to the address pool, to check the lease, and to make alterations to the scope. We can also add new scopes in this console.

C DHCP			
<u>File A</u> ction <u>V</u> iew <u>H</u> elp			
	•		
DHCP DHCP Complete Scope [198.100.0.0] BITS66_LAN Server Options	Scope [198.100.0.0] BITS60	6_LAN	
	,		