

How to install and configure a DHCP Server in an Active Directory domain in Windows Server 2003

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The information in this article applies to:

- Microsoft Windows Server 2003, Datacenter Edition
 - Microsoft Windows Server 2003, Enterprise Edition
 - Microsoft Windows Server 2003, Standard Edition
 - Microsoft Windows Server 2003, 64-Bit Datacenter Edition
 - Microsoft Windows Server 2003, 64-Bit Enterprise Edition
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For a Microsoft Windows 2000 version of this article, see [300429](#).

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SUMMARY

This step-by-step article describes how to build and configure a new Microsoft Windows Server 2003-based Dynamic Host Configuration Protocol (DHCP) server in a Windows Server 2003 Active Directory domain. The Windows Server 2003-based DHCP service provides clients with IP addresses and information, such as the location of their default gateway, Domain Name System (DNS) servers, and Windows Internet Naming Service (WINS) servers.

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Installing the DHCP service

You can install DHCP either during or after the initial installation of Windows Server 2003 if all the following conditions are true:

- There is a working DNS server in the environment.

To confirm that a DNS server exists, click **Start**, click **Run**, type `cmd`, and then click **OK**. Type `ping DNS server name`, and then press ENTER. An unsuccessful reply generates an "Unknown Host My DNS server name" message.
- The server must have static IP addresses that are assigned to the server's network adapters.
- There must be no active DHCP server on the subnets to which the server is connected.

To install the DHCP Service on an existing Windows Server 2003-based computer, follow these steps:

1. Click **Start**, click **Settings**, and then click **Control Panel**.
2. Double-click **Add or Remove Programs**, and then click **Add/Remove Windows Components**.
3. In the **Windows Component Wizard**, click **Networking Services** in the **Components** box, and then click **Details**.
4. Click to select the **Dynamic Host Configuration Protocol (DHCP)** check box if it is not already selected, and then click **OK**.
5. In the Windows Components Wizard, click **Next** to start Windows Server 2003 Setup. Insert the Windows Server 2003 CD-ROM into your computer's CD-ROM or DVD-ROM drive if you are prompted to do so. Setup copies the DHCP server and tool files to your computer.
6. When Setup is complete, click **Finish**.

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Configuring the DHCP service

After you install and start the DHCP service, you must create a scope (a range of valid IP addresses that are available for lease to the DHCP clients). Each DHCP server in your environment should have at least one scope that does not overlap with any other DHCP server scope in your environment. In Windows Server 2003, DHCP servers in an Active Directory domain must be authorized to prevent rogue DHCP servers from coming online and authorizing a DHCP server.

When you install and configure the DHCP service on a domain controller, the server is typically authorized the first time that you add it to the DHCP console. However, when you install and configure the DHCP service on a member server or stand-alone server, you must authorize the DHCP server.

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Authorize a DHCP server

1. Click **Start**, click **Programs**, click **Administrative Tools**, and then click **DHCP**.

NOTE: You must be logged on to the server with an account that is a member of the Enterprise Administrators group.

2. In the console tree of the DHCP snap-in, select the new DHCP server. If there is a red arrow in the lower-right corner of the server object, the server has not yet been authorized.
3. Right-click the server, and then click **Authorize**.

- After a few moments, right-click the server again, and then click **Refresh**.

There should be a green arrow in the lower-right corner to indicate that the server has been authorized.

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Create a new scope

- Click **Start**, click **Programs**, point to **Administrative Tools**, and then click **DHCP**.
- In the console tree, right-click the DHCP server on which you want to create the new DHCP scope, and then click **New Scope**.
- In the New Scope Wizard, click **Next**, and then type a name and description for the scope. This can be any name that you choose, but it should be descriptive enough to identify the purpose of the scope on your network. For example, you might use *Administration Building Client Addresses*. Click **Next**.
- Type the range of addresses that can be leased as part of this scope. For example, you might use a starting IP address of 192.168.100.1 and an ending address of 192.168.100.100. Because these addresses are given to clients, they should all be valid addresses for your network and not currently in use.
- The subnet mask is automatically generated. If you want to use a different subnet mask, type the new subnet mask. Click **Next**.
- Type any IP addresses that you want to exclude from the range that you entered. This includes any addresses that may have already been statically assigned to various computers in your organization. Click **Next**.
- Type the number of days, hours, and minutes before an IP address lease from this scope expires. This determines the length of time that a client can hold a leased address without renewing it. Click **Next**.
- Click **Yes, I want to configure these options now**, and then click **Next** if you want to extend the wizard to configure settings for the most common DHCP options.
- Type the IP address for the default gateway that should be used by clients that obtain an IP address from this scope. Click **Add** to add the default gateway address to the list, and then click **Next**.
- If DNS servers already exist on your network, type your organization's domain name in the **Parent domain** box. Type the name of your DNS server, and then click **Resolve** to make sure that your DHCP server can contact the DNS server and determine its address. Then, click **Add** to include that server in the list of DNS servers that are assigned to the DHCP clients. Click **Next**.
- In the **WINS Servers** dialog box, type the server name and server IP addresses for your WINS server if you are using WINS. Click **Next**.
- Click **Yes, I want to activate this scope now** to activate the scope and allow clients to obtain leases from it. Click **Next**, and then click **Finish**.

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Troubleshooting

- Clients cannot obtain an IP address:**

If a DHCP client does not have a configured IP address, it generally means that the client has not been able to contact a DHCP server. This is either because of a network problem or because the DHCP server is unavailable. If the DHCP server has started and other clients have been able to obtain a valid address, verify that the client has a valid network connection and that all related client hardware devices (including cables and network adapters) are working properly.

- The DHCP server is unavailable:**

When a DHCP server does not provide leased addresses to clients, it is frequently because the DHCP service has not started. If this is the case, the server may not have been authorized to operate on the network. If you were previously able to start the DHCP service, but it has since stopped, use event viewer to check the system log for any entries that may explain the cause.

NOTE: To restart the DHCP service, follow these steps:

- Click **Start**, click **Run**, type `cmd`, and then press ENTER.
- Type `net stop dhcpserver`, and then press ENTER.
- Type `net start dhcpserver`, and then press ENTER.

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REFERENCES

For additional information about TCP/IP addresses and configuring a subnet, click the following article numbers to view the articles in the Microsoft Knowledge Base:

- [142863](#) Valid IP addressing for a private network
- [164015](#) Understanding TCP/IP addressing and subnetting basics
- [323349](#) How to configure subnets in Windows Server 2003 Active Directory

To download the "Microsoft Windows 2000 TCP/IP Implementation Details" white paper, visit the following Microsoft Web site:

http://www.microsoft.com/windows2000/techinfo/howitworks/communications/networkbasics/tcpip_implementation.asp

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