

[Click Here to Install Silverlight](#)

United States [Change](#) | [All Microsoft Sites](#)

Microsoft TechNet

Search Microsoft.com for:

Go

Microsoft Windows Server 2003 TechCenter

Windows Server
TechCenter

Technical Library ▶

Downloads

Events & Errors

Script Center

Virtual Lab

Webcasts

International TechCenters

Windows Server R2
Release Candidate

Additional Resources

[TechNet Home](#)

[Product Support](#)

[Community](#)

[MSDN Developer Center](#)

[Windows 2000 Server](#)

[Windows Server System](#)

[TechNet Home](#) > [Windows Server TechCenter](#) > [Identity and Directory Services](#) > [Active Directory](#) > [Step By Step](#)

Step-by-Step Guide to a Common Infrastructure for Windows Server 2003 Deployment

Part 1: Installing Windows Server 2003 as a Domain Controller

Published: September 17, 2004

This document is the first in a series of step by step guides explaining how to build a common network infrastructure for deployment of the Microsoft WindowsServer 2003 operating system. Subsequent guides build upon this base infrastructure by detailing the configuration of common customer use scenarios. This guide begins with the installation of the Windows Server 2003 operating system and Active Directory.

On This Page

- ↓ [Introduction](#)
- ↓ [Overview](#)
- ↓ [Server Installation](#)
- ↓ [Appendix A: Active Directory Populace](#)
- ↓ [Additional Resources](#)

Introduction

Step-by-Step Guides

The Microsoft Windows Server 2003 Deployment step-by-step guides provide hands-on experience for many common operating system configurations. The guides begin by establishing a common network infrastructure through the installation of Windows Server 2003, the configuration of Active Directory, the installation of a Windows XP Professional workstation, and finally the addition of this workstation to a domain. Subsequent step-by-step guides assume that you have this common network infrastructure in place. If you do not wish to follow this common network infrastructure, you will need to make appropriate modifications while using these guides.

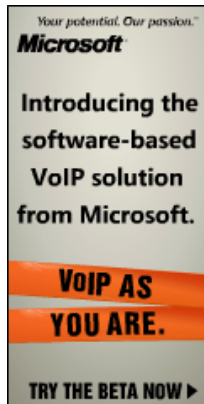
The common network infrastructure requires the completion of the following guides.

- **Part I: Installing Windows Server 2003 as a Domain Controller**
- **[Part II: Installing a Windows XP Professional Workstation and Connecting it to a Domain](#)**

Once the common network infrastructure is configured, any of the additional step-by-step guides may be employed. Note that some step-by-step guides may have additional prerequisites above and beyond the common network infrastructure requirements. Any additional requirements will be noted in the specific step-by-step guide.

Microsoft Virtual PC

The Windows Server 2003 Deployment step-by-step guides may be implemented within a physical lab environment or through virtualization technologies like Microsoft Virtual PC 2004 or Virtual Server 2005. Virtual machine technology enables customers to run multiple operating systems concurrently on a single physical server.



Virtual PC 2004 and Virtual Server 2005 are designed to increase operational efficiency in software test and development, legacy application migration, and server consolidation scenarios.

The Windows Server 2003 Deployment step-by-step guides assume that all configurations will occur within a physical lab environment although most configurations can be applied to a virtual environment without modification.

Applying the concepts provided in these step-by-step guides to a virtual environment based is beyond the scope of this document.

Important Notes

The example companies, organizations, products, domain names, e-mail addresses, logos, people, places, and events depicted herein are fictitious. No association with any real company, organization, product, domain name, email address, logo, person, places, or events is intended or should be inferred.

This common infrastructure is designed for use on a private network. The fictitious company name and Domain Name System (DNS) name used in the common infrastructure are not registered for use on the Internet. You should not use this name on a public network or Internet.

The Active Directory service structure for this common infrastructure is designed to show how Windows Server 2003 Change and Configuration Management works and functions with Active Directory. It was not designed as a model for configuring Active Directory for any organization.

[↑ Top of page](#)

Overview

This guide explains how to build a common network infrastructure beginning with the installation and configuration of the Microsoft Windows Server 2003 operating system as a domain controller. This common infrastructure allows you to learn about and evaluate Windows Server 2003. As you implement this guide, think about how you will use them in your organization.

This guide, which is the first in a two-part series, shows how to install a server as a domain controller and populate a sample Active Directory service structure. Part two describes steps to install a Windows XP Professional client and connect that client to the domain controller. First, complete the procedures in this guide, then use "[Part II: Installing a Windows XP Professional Workstation and Connecting It to a Domain](#)" to complete your common network infrastructure.

Prerequisites

- None

Guide Requirements

These are the hardware requirements for the common infrastructure.

Item	Quantity	Comments
Server(s)	1	Capable of running Windows Server 2003
Workstation(s)	As Needed	Capable of running Windows XP Professional
Network Hub(s)	As Needed	A private network is recommended
Remote Access Hardware	As Needed	For testing slow-link and remote connections
Network Interface Cards	As Needed	100 MB Card
UPS	Optional	To protect the servers
Printer	Optional	To print configuration information and other tests

Notes:

- An Intel processor-based server running Windows Server 2003 must have at least 128 megabytes (MB) of RAM. Microsoft also recommends that the server have several gigabytes of disk storage. In addition, servers should be equipped with high-speed network interface cards.
- Use a sufficient number of workstations to simulate a variety of workstation environments, including your organization's typical desktop, roaming user, mobile user, and any other configurations that may be appropriate. These computers must be capable of running Windows XP Professional. Microsoft recommends a minimum of 64 MB of RAM for Intel processor-based workstations.
- When creating the physical infrastructure, a private network is recommended; therefore, you need sufficient network hubs and other networking hardware to connect all of the workstations and servers to a single network.
- The most current information about hardware requirements and compatibility for servers is available at the [Windows Server 2003 Product Compatibility](http://www.microsoft.com/windowsserver2003/compatibility/) Web site.

Additional Server Parameters

If you add additional servers to the common infrastructure, use the following server naming convention.

Parameter	Value
Computer Name(s)	HQ-CON-SRV-01 HQ-CON-SRV-nn

Server Configuration**Overview**

Figure 1 shows the basic server configuration.

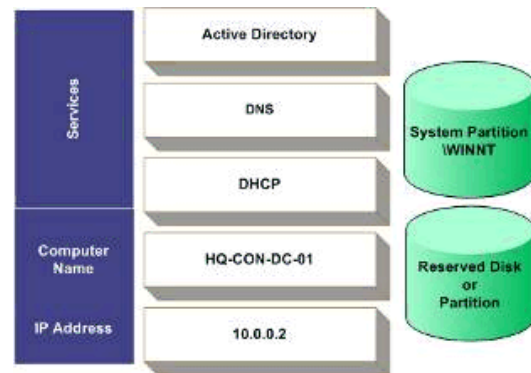


Figure 1. The Server Configuration

Server Disk Configuration

To use a single server for the infrastructure in this guide, you will need a server with either two disk drives or a single disk drive with two partitions.

Note: Subsequent step-by-step guides in this series may require additional servers or other equipment; those additions are addressed in the specific guide.

The first disk or partition holds Windows Server 2003 and other files for the common infrastructure, such as the Windows Installer packages and application source files. The second disk or partition is reserved for Active Directory log files and procedures required by other step-by-step guides.

Each disk or partition must hold several gigabytes of information, and each disk or partition must be formatted for the NT file system (NTFS). The steps for creating and formatting partitions are contained in this guide.

[↑ Top of page](#)

Server Installation

To begin the installation procedure, boot directly from the Windows Server 2003 CD. Your CD-ROM must support bootable CDs.

Note: When you configure partitions and format drives, all data on the server hard drive is destroyed.

Beginning the Installation

Setup creates the disk partitions on the computer running Windows Server 2003, formats the drive, and then copies installation files from the CD to the server.

Note: These instructions assume that you are installing Windows Server 2003 on a computer that is not already running Windows. If you are upgrading from an older version of Windows, some of the installation steps may differ.

To begin the installation

1. Insert the **Windows Server 2003 CD** in the CD-ROM drive.
2. **Restart** the computer. If prompted, press any key to boot from the CD.

The Windows Server 2003 installation begins.

3. On the **Welcome to Setup** screen, press **Enter**.
4. Review and, if acceptable, agree to the license agreement by pressing **F8**.

Note: If you had a previous version of Windows Server 2003 installed on this server, you might get a message asking if you want to repair the drive. Press **Esc** to continue and not repair the drive.

5. Follow the instructions to delete all existing disk partitions. The exact steps will differ based on the number and type of partitions already on the computer. Continue to delete partitions until all disk space is labeled as **Unpartitioned space**.
6. When all disk space is labeled as **Unpartitioned space**, press **C** to create a partition in the unpartitioned space on the first disk drive (as applicable).
7. If your server has a single disk drive, split the available disk space in half to create two equal-sized partitions. Delete the total **space default value**. Type the value of half your total disk space at the **Create partition of size (in MB)** prompt, and the press **Enter**. (If your server has two disk drives, type the total size of the first drive at this prompt.)
8. After the **New <Raw>** partition is created, press **Enter**.
9. Select **Format the partition using the NTFS file system <Quick>**, and then press **Enter**.

Windows Server 2003 Setup formats the partition and then copies the files from the Windows Server 2003 Server CD to the hard drive. The computer restarts and the Windows Server 2003 Installation Program continues.

Completing the Installation

To continue the installation with the Windows Server 2003 Setup Wizard

1. The **Windows Server 2003 Setup Wizard** detects and installs devices. This can take several minutes, and during the process your screen may flicker.
2. In the **Regional and Language Options** dialog box, make changes required for your locale (typically, none are required for the United States), and then click **Next**.
3. In the **Personalize Your Software** dialog, type **Mike Nash** in the **Name** box and type **Reskit** in the **Organization** box. Click **Next**.
4. Type the **Product Key** (found on the back of your Windows Server 2003 CD case) in the text boxes provided, and then click **Next**.
5. In the **Licensing Modes** dialog box, select the appropriate licensing mode for your organization, and then click **Next**.
6. In the **Computer Name and Administrator Password** dialog box, type the new computer name **HQ-CON-DC-01** in the computer name box, and then click **Next**.

Best Practice: To facilitate the steps in these guides, the Administrator password is left blank and there is no password. This is not an acceptable security practice. When installing a server for your production network, a password should always be set. Windows Server 2003 requires complex passwords by default.

7. When prompted by **Windows Setup**, click **Yes** to confirm a blank Administrator password.
8. In the **Date and Time Settings** dialog box, correct the current date and time if necessary, and then click **Next**.
9. In the **Networking Settings** dialog box, make sure **Typical Settings** is selected, and then click **Next**.
10. In the **Workgroups or Computer Domain** dialog box (**No** is selected by default), click **Next**.

Note: A domain name could be specified at this point, but this guide uses the Configure Your Server Wizard to create the domain name at a later time.

The Windows Server 2003 Installation continues and configures the necessary components. This may take a few minutes.

11. The server **restarts** and the operating system loads from the hard drive.

Preparing a Secondary Partition or Secondary Disk Drive

The unpartitioned space from the installation of Windows Server 2003 requires formatting before it can be accessed by the operating system. Management of disks and partitions occurs through the **Computer Management** snap-in for **Microsoft Management Console**. The following steps assume a second disk drive is in use; modify procedures accordingly for a second partition.

To prepare a secondary partition or disk drive

Warning: Formatting a partition destroys all data on that partition. Make sure that you select the correct partition.

1. Press **Ctrl+Alt+Del** and log on to the server as **administrator**. Leave the password blank.
2. Click the **Start** button, point to **Administrative Tools**, and then click **Computer Management**.
3. To define and format the unpartitioned space, click **Disk Management**.
4. Right-click **Unallocated** on Disk 1.

5. To define a partition, click **New Partition**, and then click **Next** to continue.
6. Select **Primary Partition** (default), and then click **Next** to continue.
7. Click **Next** leaving the **Partition size in MB** set to the default.
8. For **Assign the following drive letter**, select **L**, and then click **Next** to continue.
9. Under **Format this partition with the following settings**, click **Perform a quick format**. Click **Next**, and then **Finish** to complete the configuration of the secondary disk drive. Once you have finished, your disk allocation should look similar to Figure 2.

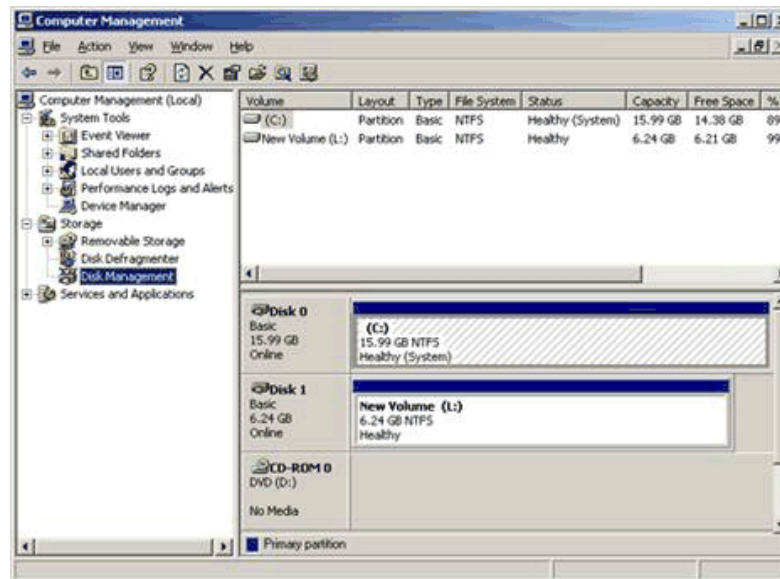


Figure 2. Disk Management

10. Close the **Computer Management** console.

Configuring Your Server as a DHCP Server

Dynamic Host Configuration Protocol (DHCP) can be installed manually or by using the **Windows Server 2003 Manage Your Server** wizard. This section uses the wizard to complete the installation.

To install DHCP using the Windows Server 2003 Manage Your Server wizard

Warning: The following section will configure your server as a DHCP server. If this server resides on a production network, the server may distribute IP address information that might not be valid on the network. Microsoft recommends that these exercises be completed on an isolated network.

1. Within the **Manager Your Server** page, click **Add or remove a role**.

Note: If you closed the **Manage Your Server** page you can start the **Configure Your Server** wizard from **Administrative Tools**. If you select this option the following steps may differ slightly.

2. After the **Configure Your Server** wizard appears, click **Next**.
3. Click **Custom configuration**, and then click **Next**.
4. Under **Server Role**, click **DHCP server**, and then click **Next**.
5. Review the **Summary of Selections**, and then click **Next** to begin the installation.
6. When the **New Scope Wizard** appears, click **Next** to define a DHCP scope.
7. For **Name**, type **Contoso HQ**. Leave the description blank, and then click **Next**.
8. Enter a **Start IP address** of **10.0.0.10** and enter **10.0.0.254** for the **End IP address**. Click **Next**.
9. Exclusions will not be defined at this time. Click **Next** to continue the installation.
10. To accept the default **Lease Duration**, click **Next**.
11. To set **DHCP Options**, click **Next**.
12. On the **Router** (Default Gateway) screen, type **10.0.0.1** for **IP address**, click **Add**, and then click **Next**.
13. For **Parent Domain** on the **Domain Name and DNS Server** screen, type **contoso.com**. For **IP address**, type **10.0.0.2**, click **Add**, and then click **Next**.
14. Click **Next** as **WINS Servers** will not be utilized in this environment.
15. Click **Next** to **Activate Scope**.
16. Click **Finish** twice.
17. Close the **Manage Your Server** screen.

Configuring Your Server as a Domain Controller

Domain Name Service (DNS) and DCPromo (the command-line tool that creates DNS and Active Directory) can be installed manually or by using the **Windows Server 2003 Manager Your Server** Wizard. This section uses the manual tools to complete the installation.

To install DNS and Active Directory using the manual tools

1. Click the **Start** button, click **Run**, type **DCPROMO**, and then click **OK**.
2. When the **Active Directory Installation Wizard** appears, click **Next** to begin the installation.
3. After reviewing the **Operating System Compatibility** information, click **Next**.
4. Select **Domain controller for a new domain** (default), and then click **Next**.
5. Select **Domain in a new forest** (default), and then click **Next**.
6. For **Full DNS name**, type **contoso.com**, and then click **Next**. (This represents a Fully Qualified name.)

7. Click **Next** to accept the default **Domain NetBIOS name** of **CONTOSO**. (NetBIOS names provides for down-level compatibility.)
8. On the **Database and Log Folders** screen, point the Active Directory **Log Folder** to **L:\Windows\NTDS**, and then click **Next** to continue.
9. Leave the default folder location for **Shared System Volume**, and then click **Next**.
10. On the **DNS Registration Diagnostics** screen, click **Install and configure the DNS server on this computer**. Click **Next** to continue.
11. Select **Permissions compatible only with Windows 2000 or Windows Server 2003** (default), and then click **Next**.
12. Type **password** for **Restore Mode Password** and **Confirm password**, and then click **Next** to continue.

Note: Production environments should employ complex passwords for Directory Services Restore passwords.

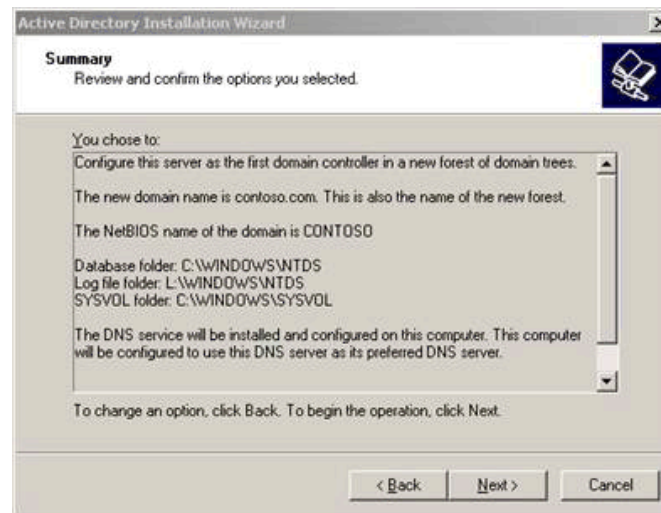


Figure 3. Summary of the Active Directory Installation Options

13. Figure 3 represents a **summary** of the **Active Directory installation options**. Click **Next** to start the installation of Active Directory. If prompted, insert the Windows Server 2003 installation CD.
14. Click **OK** to acknowledge the warning of having a dynamically assigned IP address for a DNS server.
15. If you have more than one network interface, select the **10.0.0.0 network interface** from the **Choose Connection** drop-down list, and then click **Properties**.
16. Under the **This connection uses the following items** section, click **Internet Protocol (TCP/IP)**, and then click **Properties**.
17. Select **Use the following IP address**, and then type **10.0.0.2** for the **IP address**. Press the **Tab** key twice, and then type **10.0.0.1** for the **Default gateway**. Type **127.0.0.1** for the **Preferred DNS server**, and then click **OK**. Click **Close** to continue.

18. Click **Finish** once the **Active Directory Installation Wizard** is finished.
19. Click **Restart Now** to reboot the computer.

To authorize the DHCP server

1. After the computer reboots, press **Ctrl+Alt+Del** and log on to the server as **administrator@contoso.com**. Leave the password blank.
2. Click the **Start** menu, select **Administrative Tools**, and then click **DHCP**
3. Click **hq-con-dc-01.contoso.com**. Right click **hq-con-dc-01.contoso.com** and then click **Authorize**
4. Close the **DHCP** management console

Active Directory Sample Infrastructure

The common infrastructure is based on the fictitious organization **Contoso**. **Contoso** owns the DNS name **contoso.com**, which was configured with the Active Directory Installation Wizard in the preceding section. Figure 4 illustrates the sample Active Directory structure.

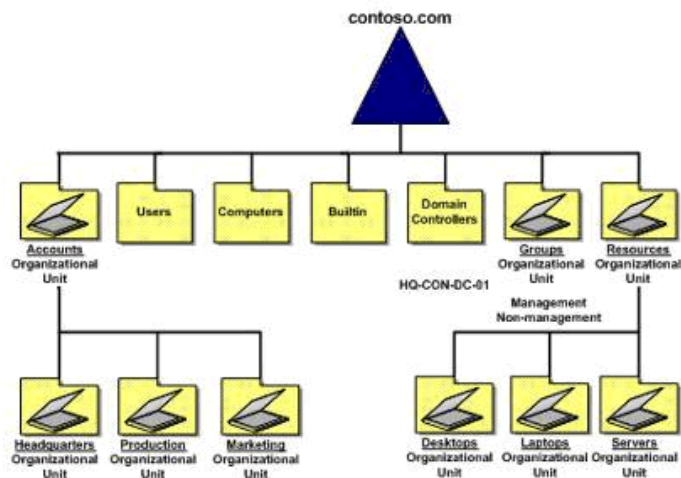


Figure 4. Sample Active Directory Structure

The most interesting aspects of this structure are the Domain (contoso.com); the Accounts, Headquarters, Production, Marketing, Groups, Resources, Desktops, Laptops, and Servers organizational units (OUs). These are represented by folders (book) in Figure 4. OUs exist for the delegation of administration and for the application of Group Policy—not simply to mirror a business organization. For an in-depth discussion on designing an OU structure, see "[Designing and Deploying Directory and Security Services](#)".

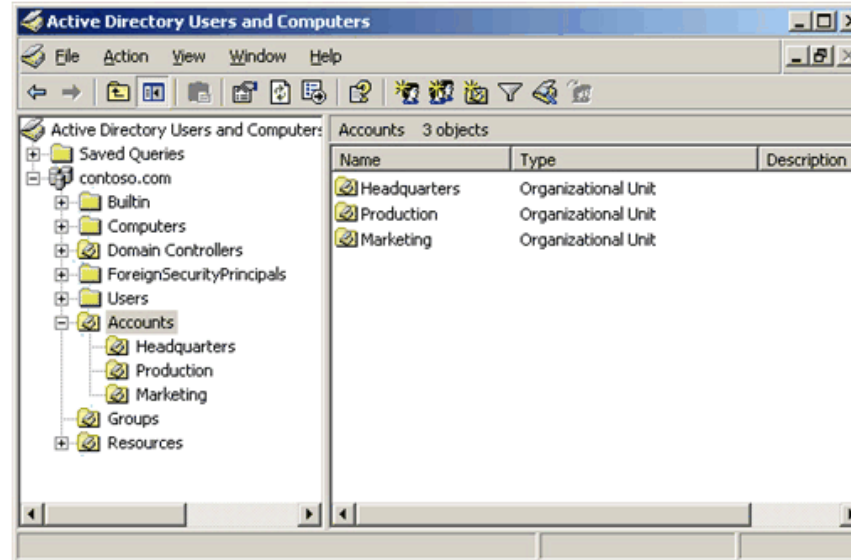
Populating Active Directory

This section describes how to manually create the OUs, Users, and Security Groups outlined in Appendix A.

Creating Organizational Units and Groups

To create OUs and Security Groups

1. Click the **Start** button, point to **All Programs**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.
2. Click the + next to **contoso.com** to expand it. Click **contoso.com** itself to show its contents in the right pane.
3. In the left pane, right-click **contoso.com**, point to **New**, and then click **Organizational Unit**.
4. Type **Accounts** in the name box, and then click **OK**.
5. Repeat steps 3 and 4 to create the **Groups** and **Resources** OUs.
6. Click **Accounts** in the left pane. Its contents now display in the right pane. (It is empty at the beginning of this procedure.)
7. Right-click **Accounts**, point to **New**, and then click **Organizational Unit**.
8. Type **Headquarters**, and then click **OK**.
9. Repeat steps 7 and 8 to create **the Production and Marketing OUs in Accounts**. When you have finished, the OU structure should look like Figure 5.

**Figure 5. Creating Organizational Units**

[See full-sized image](#)

10. In the same way, create **Desktops**, **Laptops**, and **Servers** in the Resources OU.
11. Create the two security groups by right-clicking **Groups**, pointing to **New**, and then clicking **Group**. The two groups to add are **Management** and **Non-management**. The settings for each group should be **Global** and **Security**. Click **OK** to create each group. When all steps are completed, the final OU

structure should look like Figure 6.

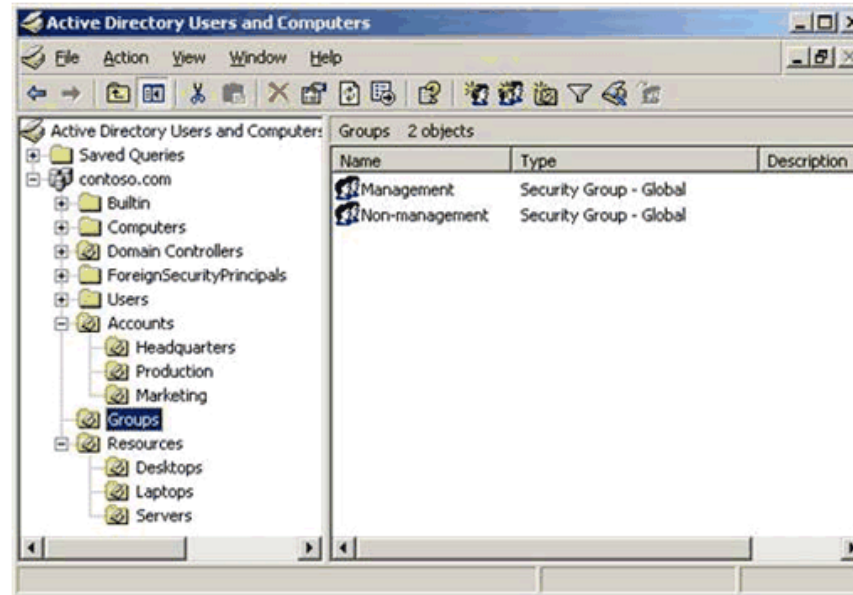


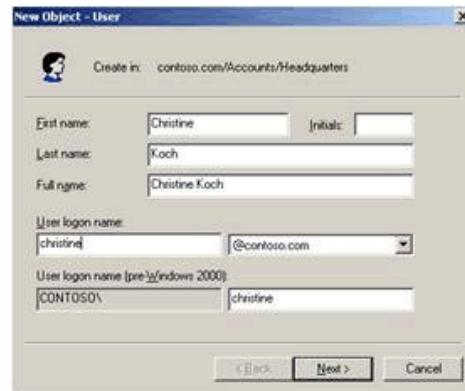
Figure 6. Final OU Structure

[See full-sized image](#)

Creating User Accounts

To create a user account

1. In the left-hand pane, click **Headquarters** (in **Accounts**).. Its contents now display in the right pane. (It is empty at the beginning of this procedure.)
2. Right-click **Headquarters**, point to **New**, and then click **User**.
3. Type **Christine** for the first name and **Koch** for the last name. (Note that the full name automatically appears in the **Full name** box.)
4. Type **Christine** for the **User logon name**. The window should look like Figure 7.



The screenshot shows the 'New Object - User' dialog box. At the top, it says 'Create in: contoso.com/Accounts/Headquarters'. Below that, there are several input fields: 'First name' with 'Christine', 'Initials' (empty), 'Last name' with 'Koch', 'Full name' with 'Christine Koch', 'User logon name' with 'christine' and a dropdown menu showing '@contoso.com', and 'User logon name (pre-Windows 2000)' with 'CONTOSO\' and 'christine'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Figure 7. Adding a User

5. Click **Next**.
6. Type **pass#word1** for **Password** and **Confirm password**, and then click **Next** to continue.
Note: By default, Windows Server 2003 requires complex passwords for all newly created users. Password complexity requirements may be disabled through Group Policy.
7. Click **Finish**. Christine Koch now displays in the right-hand pane as a user under *Reskit.com/Accounts/Headquarters*.
8. Repeat steps 2 through 7, adding the names listed in Appendix A for the Headquarters OU. When you are finished, the Headquarters OU screen should look like Figure 8.

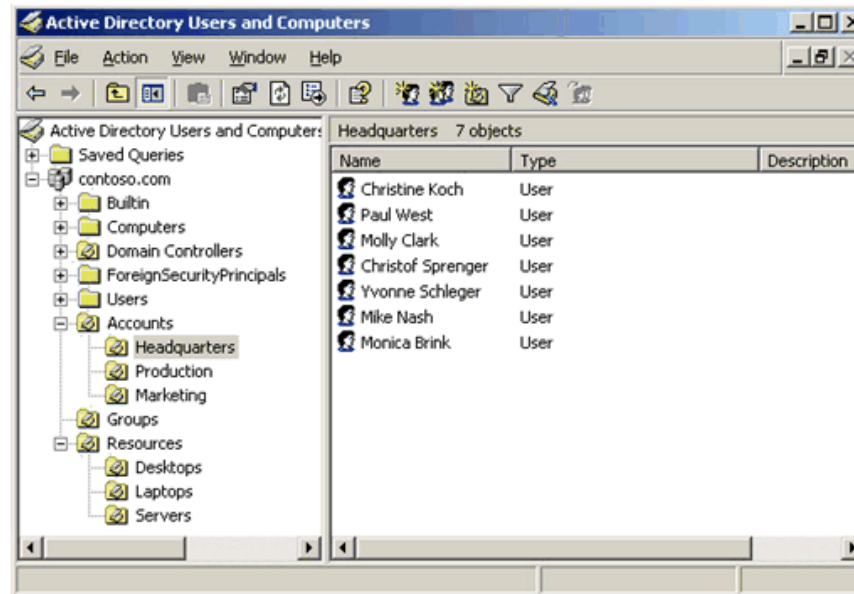


Figure 8. User listing in the Headquarters OU

[See full-sized image](#)

- Repeat steps 1 through 8 to create the users in the Production and Marketing OUs.

Adding Users to Security Groups

To add a user to a security group

- In the left pane, click **Groups**.
- In the right pane, double-click the **Management** group.
- Click the **Members** tab, and then click **Add**.
- Click **Advanced**, and then click **Find Now**.
- Select all appropriate users from the lower section by holding down the **Ctrl** key while clicking each name. Click **OK** while all members are highlighted. (The users who should be members of this security group are listed in Appendix A.) Click **OK** again to add these members to the Management Security Group. Click **OK** to close the **Management Security Group Properties** sheet.

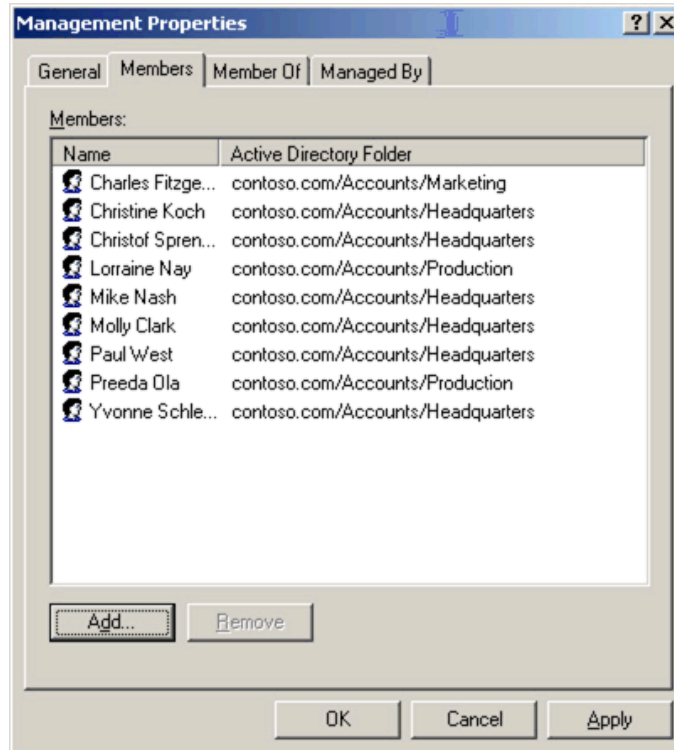


Figure 9. The Members of the Management Security Group Are Drawn from Three OUs

6. Repeat steps 2 through 5 to add members to the **Non-management** group.
7. Close the **Active Directory Users and Computers** snap-in.

[↑ Top of page](#)

Appendix A: Active Directory Populace

Users

OU	Full Name	Login Name	Group Membership
Headquarters	Koch, Christine	Christine	Management
	West, Paul	Paul	Management
	Clark, Molly	Molly	Management

	Sprenger, Christof	Christof	Management
	Schleger, Yvonne	Yvonne	Management
	Nash, Mike	Mike	Management
	Brink, Monica	Monica	Non-management
Production	Ola, Preeda	Preeda	Management
	Grande, Jon	Jon	Non-management
	Hector, Clair	Clair	Non-management
	Kim, Jim	Jim	Non-management
	Nay, Lorraine	Lorraine	Management
	Randall, Cynthia	Cynthia	Non-management
	Browne, Kevin F.	Kevin	Non-management
Marketing	Fitzgerald, Charles	Charles	Management
	Mustafa, Ahmad	Ahmad	Non-management
	Narp, Sylvie	Sylvie	Non-management

[↑ Top of page](#)

Additional Resources

For more information, see the following resources.

- Microsoft Virtual PC 2004 at <http://www.microsoft.com/windows/virtualpc/default.aspx>
- Overview of DHCP at http://www.microsoft.com/windows/windows2000/en/advanced/help/sag_DHCP_ovr_Topnode.htm
- Overview of DNS at http://www.microsoft.com/windows/windows2000/en/advanced/help/sag_DNS_ovr_topnode.htm
- Active Directory Design Concepts at <http://www.microsoft.com/technet/prodtechnol/windowsserver2003/library/depkit/D2FF1315-1712-48E4-ACDC-8CAE1B593EB1.mspix>
- For the latest information about Windows Server 2003, see the Windows Server 2003 Web site at <http://www.microsoft.com/windowsserver2003>

[↑ Top of page](#)

 Printer Friendly Version  Send This Content  Add To Favorites

How would you rate the usefulness of this content ?

1 2 3 4 5

Poor Outstanding

Tell us why you rated the content this way. (optional)

[Manage Your Profile](#)

© 2008 Microsoft Corporation. All rights reserved. [Contact Us](#) | [Terms of Use](#) | [Trademarks](#) | [Privacy Statement](#)

