

PART I

Getting Started

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Deploying Exchange Servers

IN THIS CHAPTER, YOU WILL LEARN TO:

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The first step along the journey of administering Microsoft Exchange Server 2010 is deploying the product. In many cases, deploying Exchange isn't a process that should be taken lightly. It is vital to build an Exchange infrastructure that can meet the needs of your business, ensure appropriate levels of availability, and support the growth of your organization. Therefore, this chapter starts out by explaining the factors that go into deploying Exchange before diving into the process of installing Exchange servers.

Prepare for Installation

Preparation is often a key to success. When you take the appropriate amount of time to prepare for a big change in your IT environment, you are in a better position to anticipate potential problems and you are more likely to be ready with a solution.

In preparation for the installation of Exchange, you need to focus on three stages. Without considering all three of these stages, you could encounter many setbacks during the deployment of Exchange. These three stages are as follows:

1. Properly planning the Exchange deployment
2. Preparing Active Directory
3. Preparing the server that runs Exchange

Plan the Exchange Deployment

Planning the deployment of Exchange is a crucial step that should be given heavy consideration. A properly planned Exchange deployment will help minimize the problems that you could run into during deployment. Many different frameworks exist for deployment planning. Regardless of your methodology for planning Exchange, the process encompasses three common elements:

1. Know where you are starting from, and weigh that against the requirements for Exchange.
2. Design a well-thought-out Exchange architecture.
3. Create a deployment plan that helps you understand how to get from where you are to where you want to be.

These three components are a required part of a solid deployment strategy for Exchange. If any of them are omitted, you are sure to encounter bumps along the way.

Understand the Server Roles

Exchange Server 2010 uses the concept of roles. A server with a particular role performs a specific functionality. In a typical Exchange installation, four roles are commonly used:

Hub Transport Server Role The Hub Transport Server role is responsible for transporting email around the Exchange organization. Every message that is sent or received in the organization flows through at least one Hub Transport server. Because of this, the Hub Transport server provides the perfect location for virus scanning, transport rules, or other activities that would require every message to be touched.

In Exchange Server 2010, you are required to have at least one Hub Transport server in every site that contains Mailbox servers. It also makes sense to install additional Hub Transport servers in each site for redundancy and load balancing.

Client Access Server Role The Client Access Server role is the connection point for your email clients. Because Exchange Server 2010 uses Client Access servers to perform MAPI (the Messaging Application Programming Interface) on the Middle Tier (MoMT), all connectivity from mail clients is funneled through these servers. MoMT is a feature that moves the client access point for all mailbox connections to a Client Access server instead of the Mailbox server. Therefore, it's important to ensure that you have enough Client Access servers to handle your expected load. Generally, Microsoft recommends three Client Access server processor cores for every four Mailbox server processor cores. (Your mileage may vary depending on the Exchange design.)

Like Hub Transport servers, Client Access servers are required in every site. In Chapter 10, "Maintaining Reliability and Availability," you'll learn how to load balance your Client Access servers to ensure that they are redundant.

Mailbox Role Mailbox servers house all of the data for the users. In Exchange Server 2010, Mailbox servers contain databases with multiple users inside. Clients do not connect directly to the Mailbox

servers. Rather, clients connect to the Client Access servers and the Client Access servers access the Mailbox servers on the clients' behalf.

In Exchange Server 2010, Mailbox server databases can be made highly available through the use of database availability groups (DAGs); therefore, you will likely install multiple Mailbox servers. DAGs are covered in more detail in Chapter 7, "Managing Mailbox Databases."

Edge Transport Server Role The Edge Transport Server role is a unique role among the others. The Edge Transport server was designed to sit on the edge of your network and minimize the outside attack surface. Therefore, Edge Transport servers *cannot* be members of the Active Directory forest that your Exchange implementation resides in.

NOTE Exchange Server 2010 also has a role called Unified Messaging. The Unified Messaging role is not covered in any depth in this book.

Understand Exchange Requirements

When thinking in terms of requirements for Exchange, you must take into account multiple facets. You need to think of requirements for Exchange in terms of both hardware and software.

The hardware requirements for Exchange Server 2010 are similar to those for Exchange Server 2007. Typically, you must consider three primary areas when selecting Exchange hardware:

- Amount and speed of processors
- Amount of memory
- Size, speed, and configuration of storage

As with previous versions of Exchange, the specifics of your hardware will vary depending on your design. Different roles require different hardware configurations.

Exchange Server 2010 supports only 64-bit processors in a production environment. Unlike with Exchange Server 2007, however, Microsoft has decided to not make the 32-bit version available. This means any workstations on which you install the Management Tools need to run 64-bit Windows as well as the servers that you use to perform the Active Directory preparation.

The number of processors required for Exchange will vary based on how you use Exchange. Table 1.1 shows the processor requirements based on role.

Table 1.1: Processor Requirements

Role	Minimum CPU Cores	Maximum CPU Cores
Client Access Server	2	12
Hub Transport Server	1	12
Edge Transport Server	1	12
Mailbox Server	2	12
Unified Messaging Server	2	12
Multifunction Server (CAS+Hub+Mail)	2	24

The memory requirements for Exchange are also dependent on the role of the server. Microsoft makes memory recommendations for most server roles based on the number of processor cores in the server. Table 1.2 shows the memory requirements for Exchange based on role.

Table 1.2: Memory Requirements

Role	Minimum Memory	Maximum Memory
Client Access Server	4 GB	16 GB
Hub Transport Server	4 GB	16 GB
Edge Transport Server	4 GB	16 GB
Mailbox Server	4 GB	64 GB
Unified Messaging Server	4 GB	16 GB
Multifunction Server (CAS+Hub+Mail)	8 GB	64 GB

Calculating the storage requirements for Exchange is always somewhat of an art. The storage used by Exchange will vary greatly between

server roles. The Client Access (CA) role has a completely different storage requirement than the Mailbox (MB) role, which is heavily dependent on the amount of mailbox data that is being stored. However, there are some baseline storage requirements for every role. The Exchange software requires 1.2 GB of free space on the volume that you are installing it on. There should also be a minimum of 200 MB free on the operating system volume. Additional storage requirements will be necessary depending on the type of server, as shown in the following list:

Transport Servers Transport servers require enough space to store the message queue database. You need at least 500 MB, but the amount of storage needed will vary depending on how big you expect the queues to get.

Unified Messaging (UM) Servers UM servers require an additional 500 MB of disk space for each language pack installed.

Mailbox Servers The sizing of storage for mailbox servers is heavily dependent on the data that the server will hold. The common factors in considering this are the number of people on each Mailbox server, the limits of their mailboxes, and how long you expect to keep deleted mail and mailboxes for.

In terms of software, Table 1.3 illustrates the software requirements for Exchange Server 2010.

Table 1.3: Software Requirements

Component	Minimum Version Required
Operating system	Windows Server 2008 Standard Edition with SP2 x64 Windows Server 2008 Enterprise Edition with SP2 x64 Windows Server 2008 R2 Standard Edition Windows Server 2008 R2 Enterprise Edition Windows Vista with SP2 x64 (Management Tools only)
Transition from previous Exchange versions	Exchange Server 2003 SP2 Exchange Server 2007 SP2
Active Directory	Windows Server 2003 Forest-Functional Mode One Windows Server 2003 SP2 Global Catalog server in each site Writable domain controller in each site

Design the Exchange Architecture

You would not build a house without having a design first. In the same manner, you should not deploy Exchange without having a designed architecture. Putting together a design that represents the end state of your Exchange environment helps you anticipate the overall picture of what you will accomplish with Exchange. By laying this out on paper first, you will understand every aspect of your Exchange deployment. You will easily see where your strong points are as well as your deficiencies, and you can tweak your design to compensate for those areas. If you deploy Exchange first and then try to tweak your design, you will have a much tougher time and incur more setbacks.

When you're designing your Exchange architecture, here are a few areas you need to consider:

Message Routing The first piece of the Exchange architecture that you should look at is the message routing component. You want to make sure that you fully understand the impact of the site topology in Active Directory and how it affects your plans for a routing architecture.

Server Placement When deciding where to place servers, many factors come into play. Server placement has a large impact on your site architecture and is also usually tied into the message routing system. The idea is to understand where your servers are and how many of them there are at each site.

Capacity Planning Another important aspect of the Exchange architecture is making sure that the servers can accommodate the number of people that you expect to be using them. With Exchange Server 2010 in particular, additional responsibilities are placed on the Client Access servers, so they will probably need to be upsized from Exchange Server 2007 architectures. Another area of capacity planning that is important is the Mailbox server. Ensure that you can provide enough storage for the Mailbox servers to satisfy user quotas, archiving requirements, and responsiveness metrics.

Disaster Recovery The disaster recovery component is often overlooked in the design phase of the system. Ensure that you have in place a solid design and plan for disasters before you start implementing your design.

Anything that comes out of the design should be well documented. Write it down. Doing so will enable you to see the big picture and fill in any gaps that are missing before the deployment starts. Creating the documentation gives you a guide to follow. After the deployment is done, the documentation provides a record of what you did for others to reference as well.

Create a Deployment Plan

The final thing you will want to do to prepare for Exchange is to develop a deployment plan. A deployment plan should cover the entire lifespan of your Exchange deployment. Here, you will determine what all of the moving pieces are. You will orchestrate those moving pieces so that they can be executed with ease. A solid deployment plan accommodates the following areas:

- What is currently in the production environment?
- What does the end-state vision look like (design)?
- What do we need to do to get from where we are to where we want to be?

Coming out of your deployment plan should be a clear direction on how to get from the state that you are in now to the state that is described in your architecture documentation. Know which Exchange servers you should install first and where. Design a strategy for transitioning your routing topology from your legacy Exchange environment to Exchange Server 2010. If you are currently using something other than Exchange, know exactly what it takes to move off your current mail system.

Having this deployment plan in place and well communicated to the key players in your organization is a major time-saver.

Prepare Active Directory

Before Exchange Server 2010 can be installed in your domain, Active Directory must be updated to support it. The process of preparing Active Directory can be performed in one fell swoop with a single command. However, you can also perform the tasks individually so you can verify that each one was successful before moving on to the next one. This also allows you to install Exchange with as few permissions as possible and delegate the installation of certain components to other people. This

might be helpful if you want to perform one of the tasks after hours and would prefer to have someone on the late shift do it for you. Some organizations have a group of administrators who are trusted to perform certain tasks, such as updating the schema. Performing certain tasks separately allows you to delegate those tasks to others.

NOTE Exchange Server 2010 is the first version of Exchange that will not have a 32-bit install package. Therefore, all of the Active Directory preparation must be performed from a 64-bit system.

The Active Directory preparation process consists of a series of steps:

1. Prepare the legacy permissions if you're running Exchange Server 2003.
2. Update the Active Directory schema.
3. Update the Active Directory forest.
4. Update each of the domains that will house Exchange or mail-enabled users.

TIP Before Active Directory can be prepared, the server that you are using to run the preparation steps must have PowerShell version 2.0 and Windows Remote Management (WinRM) version 2.0 installed. The steps for installing these updates are covered in the upcoming section "Prepare the Server."

Install the Active Directory Management Tools

If you are not using a domain controller to update Active Directory (AD) and are instead using a Windows Server 2008 member server, you must first install the AD Management Tools on the server. These tools are installed through the Server Manager on the member server. You can add these tools by either using the Server Manager graphical user interface (GUI) or by using the `ServerManagerCmd` command.

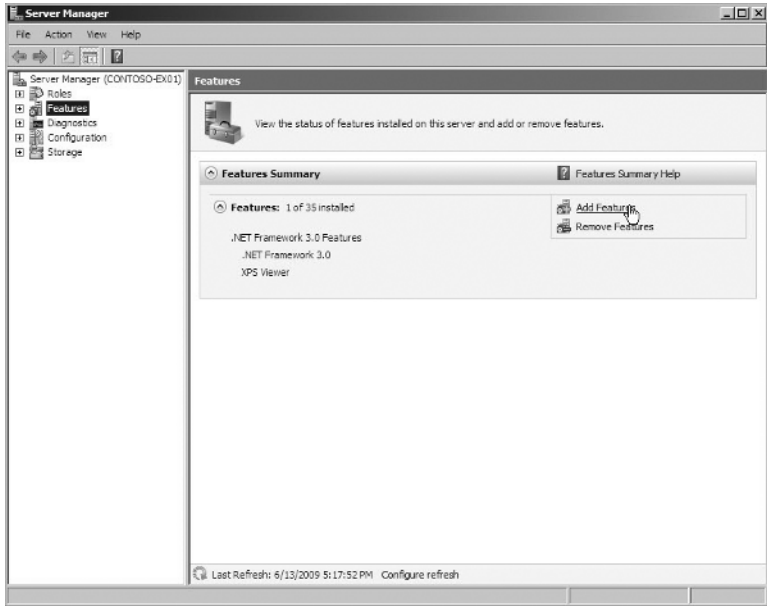
Installing the Management Tools with the GUI

To install the AD Management Tools with the GUI:

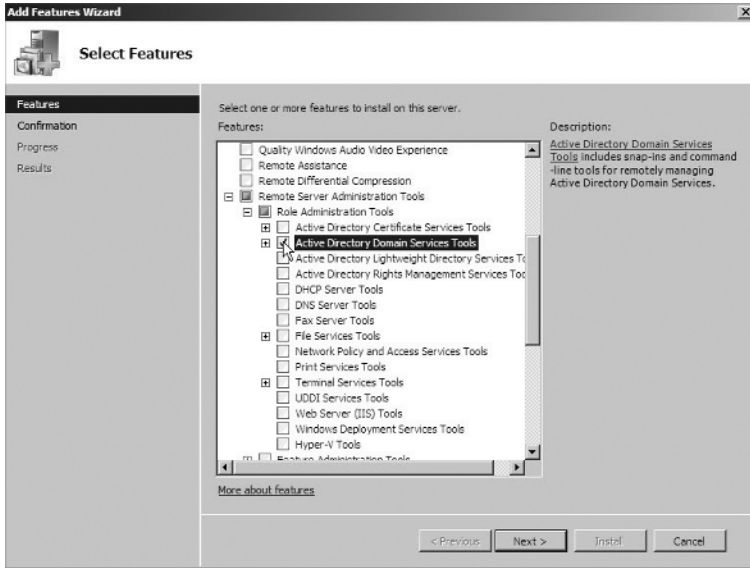
1. Click Start > Administrative Tools > Server Manager to open the Server Manager tool.

2. Once Server Manager is open, you will see a set of nodes in the left pane. Right-click on the node called Features and select Add Features from the menu, as shown in Figure 1.1. This launches the Add Features Wizard.

Figure 1.1: Launching the Add Features Wizard in Server Manager



3. In the middle of the Add Features Wizard, scroll down the list of available features and click on the plus sign (+) next to the feature Remote Server Administration Tools to expand that feature. Then expand the Role Administration Tools feature, as shown in Figure 1.2.
4. Click the check box for the Active Directory Domain Services Tools option and click Next.
5. In the confirmation dialog box, verify that you are installing the Remote Server Administration Tools and then click the Install button.

Figure 1.2: Installing the Active Directory Domain Services Tools

Installing the Management Tools at the Command Prompt

To install the AD Management Tools with the command prompt:

1. Open the command prompt. Click Start > Accessories > Command Prompt to open up a command prompt.
2. Run the following command from the command prompt:
ServerManagerCmd -I RSAT-ADDS

Modify the Active Directory Schema

To update the schema, the account you use will need to be a member of the Schema Admins group in Active Directory. Also, the Schema Master Flexible Single Master Operation (FSMO) role must reside on a domain controller that is running on at least Windows Server 2003 Service Pack 2. To determine which domain controller hosts the Schema Master role, you can run the following command at the command prompt:

```
Netdom query fsmo
```

NOTE If you have existing Windows 2000 domain controllers in your AD environment, you will want to use the `/DomainController` switch to target a Windows Server 2003 SP1 domain controller.

When performing the schema updates, some Active Directory classes and attributes are updated to accommodate Exchange Server 2010. It's important that you only run the Exchange Server 2010 schema extensions in a forest that you expect to finish the AD preparation in. If you do not run the additional steps to prepare the forest for Exchange, you will run into some permissions problems.

To perform the schema update, run the following command from the Exchange media:

```
setup.com /PrepareSchema
```

Prepare the Active Directory Forest

Exchange must also make some additional updates to the configuration partition in Active Directory. This process needs to be completed only once for the entire forest, since the configuration partition is replicated among all domain controllers in the forest. When performing this update, Active Directory must contain information about the Exchange organization. If the Exchange organization does not already exist, you'll need to supply the organization name when you perform this process.

To prepare the Active Directory forest, run the following command:

```
setup.com /PrepareAD
```

Prepare the Active Directory Domains

In addition to preparing the schema and the forest, each domain that contains Exchange servers or mail-enabled users will also have to be updated. This process can be run on each domain individually or on all of the domains at the same time.

To prepare the Active Directory domains individually, open a command prompt and run the following command from the Exchange installation media:

```
setup.com /PrepareDomain:[Domain_Name]
```

For example, the contoso.com domain would be prepared with the command `setup.com /PrepareDomain:contoso.com`.

If you run the command with only the `/PrepareDomain` switch and do not specify a domain name, the command will run against the domain that you are currently logged in at. You do not need to perform this step in the domain that you ran `/PrepareAD` from.

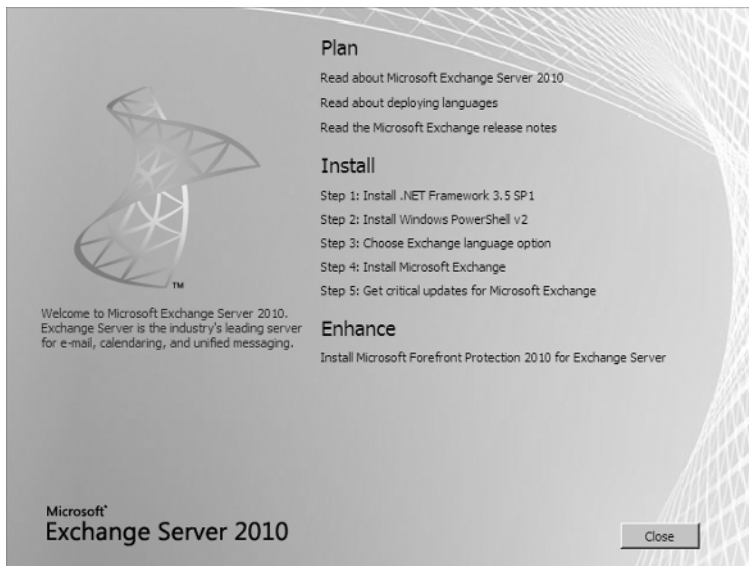
To prepare all of the domains in the forest, run the following command from a command prompt:

```
setup.com /PrepareAllDomains
```

Prepare the Server

Before Exchange Server 2010 can be installed on a member server, there are some prerequisites that must be met. When using the installation interface, these prerequisites are outlined as a series of steps you need to take before you can start the installation of the Exchange server software. Figure 1.3 shows the necessary steps in the installation interface.

Figure 1.3: The Exchange Server 2010 installation interface



If you attempt to skip ahead to Step 4 and try to install Exchange, an error will be returned stating that you can't continue unless you install the prerequisite software. This software needs to be installed even if you are only installing the Exchange Management Tools on a workstation. This is because the Exchange Management Tools need the prerequisite software in order to manage Exchange remotely.

NOTE Throughout the installation process of Exchange, you may encounter User Account Control (UAC) prompts. UAC is a security mechanism that is built into newer versions of Windows to prevent unauthorized software from making changes to your computer. If you encounter UAC prompts at any point during Exchange installation, click the Yes button to continue and authorize Exchange to install.

Install .NET Framework 3.5 SP1

The first step to preparing the server is to install the Microsoft .NET Framework version 3.5 with SP1. The .NET Framework provides a framework for developers to use when developing applications. Exchange Server 2010 takes advantage of the 3.5 SP1 version of the framework. The process for installing .NET Framework 3.5 SP1 is different for Windows Server 2008 SP2 and Windows Server 2008 R2.

If you are using Windows Server 2008 SP2 for your Exchange servers, you can download the .NET Framework 3.5 SP1 in either an online or an offline installer. The online installer is smaller (around 3 MB), but the Exchange server must have access to the Internet in order to download the rest of the package. The other option is to download the offline installer, which is over 200 MB in size. It's a bigger package, but you can install it on an Exchange server that is not on the Internet.

Download the .NET Framework 3.5 with Service Pack 1 from

<http://download.microsoft.com/download/2/0/e/20e90413-712f-438c-988e-fdaa79a8ac3d/dotnetfx35.exe>

To install the .NET Framework on Windows Server 2008 SP2:

1. Download and launch the `dotnetfx35.exe` installer package.
2. After the files extract, the setup wizard will launch. Accept the licensing agreement and click the Install button.

3. The package will download any necessary updates from the Internet (unless you are installing the full package) and will install the framework.
4. After installation is complete, click the Exit button to finish.

To install the .NET Framework on Windows Server 2008 R2, you can run the following command at a command prompt:

```
ServerManagerCmd -i NET-Framework-Core
```

Install the Windows Management Framework

The Windows Management Framework is a single download that contains PowerShell version 2 and Windows Remote Management 2.0. Windows Server 2008 R2 already contains the necessary components in this update, so this only needs to be applied to Exchange servers running on Windows Server 2008 with SP2.

PowerShell version 2 is used for running the Exchange Management Shell in Exchange Server 2010. PowerShell offers a great command-line interface for performing administrative tasks and running powerful scripts. Before installing PowerShell version 2, remove all previous versions of PowerShell that were installed on the server.

Windows Remote Management (WinRM) 2.0 is used to allow remote management capabilities on the Exchange server through PowerShell. Download the Management Framework from

<http://go.microsoft.com/fwlink/?LinkId=157601>

To install the Management Framework:

1. Download and launch the `Windows6.0-KB968930-x64.msu` installation package.
2. The Windows Update Standalone Installer dialog box will appear. Click OK to continue installation.
3. When the installer launches, click the I Accept button to accept the license terms.
4. When the update package completes, you will be asked to reboot the server. Click the Restart Now button and allow the system to reboot.

Install the Required Server Components

There are potentially several server components that you are required to install before you can install Exchange Server 2010. The components that need to be installed will depend on the roles that you select during installation. Table 1.4 shows the required components for each role. These features can be installed with the Add Roles or Add Features task in Server Manager.

Table 1.4: Required Components per Server Role

Role	Component
Hub Transport	<ul style="list-style-type: none"> IIS 6 Metabase Compatibility Web Server (IIS) Tools Windows Process Activation Service Process Model IIS 7 Basic Authentication IIS 7 Windows Authentication IIS 7 .NET Extensibility IIS 6 Management Console
Client Access	<ul style="list-style-type: none"> Internet Information Services World Wide Web Service (W3SVC) HTTP Activation IIS 6 Metabase Compatibility IIS 6 Management Console IIS 7 Dynamic Content Compression IIS 7 Static Content Compression Web Server (IIS) Tools Windows Process Active Service Process Model IIS 7 Basic Authentication IIS 7 Windows Authentication IIS 7 Digest Authentication IIS 7 .NET Extensibility
Unified Messaging	<ul style="list-style-type: none"> Windows Media Encoder Windows Media Audio Video Codec IIS 6 Metabase Compatibility Web Server (IIS) Tools Windows Process Activation Service Process Model IIS 7 Basic Authentication IIS 7 Windows Authentication IIS 7 .NET Extensibility IIS 6 Management Console

Table 1.4: Required Components per Server Role *(continued)*

Role	Component
Mailbox	Internet Information Services World Wide Web Service (W3SVC) 2007 Office System Converter: Filter Pack IIS 6 Metabase Compatibility IIS 6 Management Console Web Server (IIS) Tools Windows Process Activation Service Process Model IIS 7 Basic Authentication IIS 7 Windows Authentication IIS 7 .NET Extensibility
Edge Transport	Active Directory Lightweight Directory Services
Management Tools	Web Server (IIS) Tools IIS 6 Metabase Compatibility IIS 6 Management Compatibility IIS 6 Management Console

Rather than installing all of these components one at a time, Exchange Server 2010 setup provides `ServerManagerCmd` XML files for each set of components. Table 1.5 lists the package to install for each role.

Table 1.5: Server Component XML Files

Role	XML File
Hub Transport Server	<code>exchange-hub.xml</code>
Client Access Server	<code>exchange-cas.xml</code>
Unified Messaging Server	<code>exchange-um.xml</code>
Mailbox Server	<code>exchange-mbx.xml</code>
Edge Transport Server	<code>exchange-edge.xml</code>
Typical Exchange Installation	<code>exchange-typical.xml</code>
All Server Roles	<code>exchange-all.xml</code>

These XML files are located on the Exchange installation media under the \Scripts folder. To install the components with the XML file, run the following command:

```
ServerManagerCmd -ip <path and name of XML file>
```

For example, to install the server components for the Typical Exchange Installation, use the following command:

```
ServerManagerCmd -ip exchange-typical.xml
```

Configure the Net.Tcp Port Sharing Service

If you are installing the Client Access role on a server, you are required to set the Net.Tcp Port Sharing service to Automatic startup mode. Ensure that you only configure this setting on servers that have the Client Access role.

1. Open the Services management console by clicking on the Start menu and selecting All Programs > Administrative Tools > Services.
2. In the result pane in the management tool, scroll down to the Net.Tcp Port Sharing service and double-click on it to open the properties.
3. In the Properties dialog, ensure that the General tab is selected. In the drop-down menu for Startup Type, select Automatic.
4. Click OK to make the changes and close the Properties dialog.

Install Exchange Server 2010

After the preparations are complete, Exchange can be installed on the member server. There are many different options for installing Exchange. Exchange provides the capability to set up a server in a very basic configuration as well as advanced configurations.

Perform a Basic Installation

A basic installation of Exchange Server 2010 consists of a single server with the minimum roles installed. In the Exchange setup wizard, this

is referred to as a Typical Exchange Installation. The Typical Exchange Installation consists of the following roles:

- Hub Transport Server
- Client Access Server
- Mailbox Server
- Management Tools

A basic installation can be performed either through the graphical installation wizard or through the setup command prompt. Before performing the installation, ensure that you complete the prerequisite work outlined in the “Prepare the Server” section earlier in this chapter.

Install Exchange Using the GUI

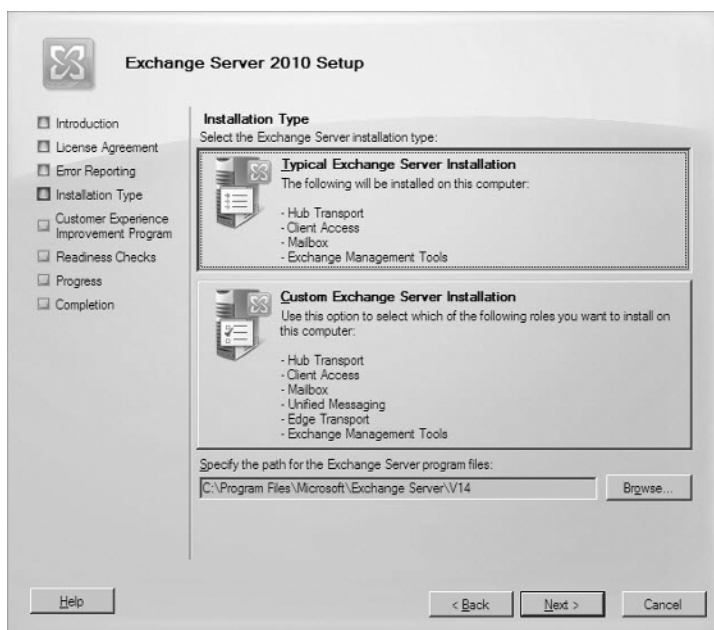
Installing Exchange using the GUI provides a walkthrough of the process. To perform a basic installation through the GUI, use the following steps:

1. Launch `setup.exe` from the Exchange installation media.
2. In the installation interface, ensure that steps 1 and 2 are completed and click the link for Step 3: Choose Exchange Language Option. Two additional options will appear below this link.
 - The first option, Install All Languages From The Language Bundle, gives you the ability to load all of the language packs available for Exchange.
 - The second option is Install Only Languages From The DVD. If you are installing Exchange in English, click this option.
3. From the main menu in the Exchange setup program, select Step 4: Install Microsoft Exchange, under the Install section. This launches the Exchange Server 2010 installation wizard, which will walk you through the remainder of the installation.
4. When the installation wizard launches, click Next on the Introduction page.
5. On the License Agreement page, select the option “I accept the terms in the license agreement.” and click Next.
6. On the Error Reporting page, choose whether or not you want to send error reports back to Microsoft and click Next.

7. On the Installation Type page, select the option for Typical Exchange Server Installation. If you want to install Exchange to a different location on your hard drive, you can choose that location here. After you're done, click Next.

Figure 1.4 shows the Installation Type page of the wizard.

Figure 1.4: Selecting the type of Exchange installation



8. If this is the first Exchange server in your organization, you will see the Exchange Organization page next. If you see this page, you will need to enter a name for the Exchange organization that you are creating.
If you don't see this option, then you are installing Exchange into an existing organization.
9. If this is the first Exchange server in your organization, then you will also see the Client Settings page. The question here is whether you want to install a public folder database. If you have older or legacy clients in your environment, then choose Yes. If you choose

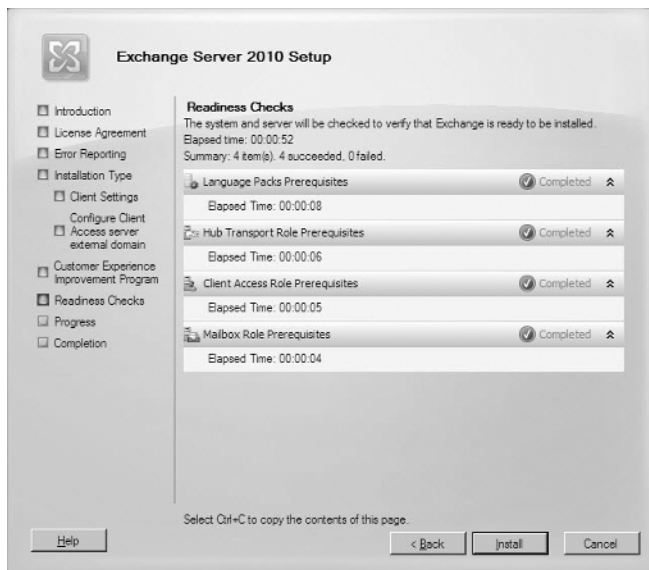
No, you can go back and add a public folder database later. Click Next to continue.

Public folder databases are required for certain clients, such as Outlook 2003 and earlier, because those clients rely on the system information that is stored in public folders. However, newer clients such as Outlook 2007 don't require this functionality.

10. On the Configure Client Access Server External Domain page, you are asked whether this Client Access server will be exposed to the Internet. If you want your users to access their email from outside of your network, you should check the option *The Client Access Server Role Will Be Internet-Facing*. You will also need to enter the name that users will use when contacting this Client Access server from the Internet, such as `mail.contoso.com`. Click Next to continue.
11. On the Customer Experience Improvement Program page, choose whether or not you want to participate in the customer experience improvement program and click Next.
12. On the Readiness Checks page (see Figure 1.5), Exchange will perform a series of tests for each role that the server will install. Before Exchange installation can continue, these checks must pass without any errors. If errors are encountered, you will need to review them and correct them before continuing. If your server passes all of the readiness checks, then click the Install button to continue. These errors are also captured in the setup log. For more information on reviewing the setup log, see “Verify a Successful Installation,” later in this chapter.
13. If you get this far, that means that the Exchange installation has been completed. Click Finish to close the setup wizard.

Install Exchange Using the Command Prompt

Exchange Server 2010 can also be installed with minimal interaction through the command prompt. Using the command prompt will still give you a verbose output like the GUI does, but some assumptions about installation options are made for you. You can specify additional installation options, but if you don't provide those options, you are not prompted to enter them. Instead, the default options are used.

Figure 1.5: Readiness Checks

To perform a basic installation using the command prompt, take the following steps:

1. Open a command prompt in administrator mode by right-clicking on the Command Prompt icon and selecting Run As Administrator from the drop-down list.
2. Navigate to the folder that contains the Exchange installation media.
3. Run the following command:

```
setup.com /mode:install /role:mailbox,hubtransport,↵
clientaccess/OrganizationName:NameOfExchangeOrg
```

Perform an Advanced Installation

An advanced installation of Exchange requires you to more thoroughly think through your implementation path ahead of time. Exchange allows different servers to perform different roles. Exchange servers can host multiple roles or even just one role per server. Performing an advanced installation gives you more control over the roles that you will install.

Select Which Roles to Install

Some roles require more planning before being implemented, so before you can complete the advanced installation, you need to know what roles you are installing on the Exchange server. Before choosing to install roles, review the section “Prepare the Server,” earlier in this chapter, and ensure that you have installed all of the prerequisites for the role.

In most cases, roles can be grouped together without discrimination. However, there are some situations where you will want a particular server to retain a single role rather than multiple roles. For example, your Client Access servers may be Internet-facing. In that situation, adding the Mailbox role to those servers may impose too much data exposure risk.

Start the Advanced Installation

The beginning of the process for performing an advanced installation of Exchange is the same for every role when you are using the graphical Exchange setup wizard. Use these steps to start the installation, and then use the following sections that pertain to the roles you want to install in order to complete the installation.

1. Launch `setup.exe` from the Exchange installation media.
2. In the installation interface, click on the link for Step 3: Choose Exchange Language Option. Two additional options will appear below this link:
 - The first option is labeled `Install All Languages From The Language Bundle`, and it gives you the ability to load all of the language packs available for Exchange.
 - The second option is labeled `Install Only Languages From The DVD`. If you are installing Exchange in English, click this option.
3. From the main menu in the Exchange setup program, select Step 4: Install Microsoft Exchange under the Install section. This launches the Exchange Server 2010 installation wizard, which will walk you through the remainder of the installation.
4. When the installation wizard launches, click Next on the Introduction page.

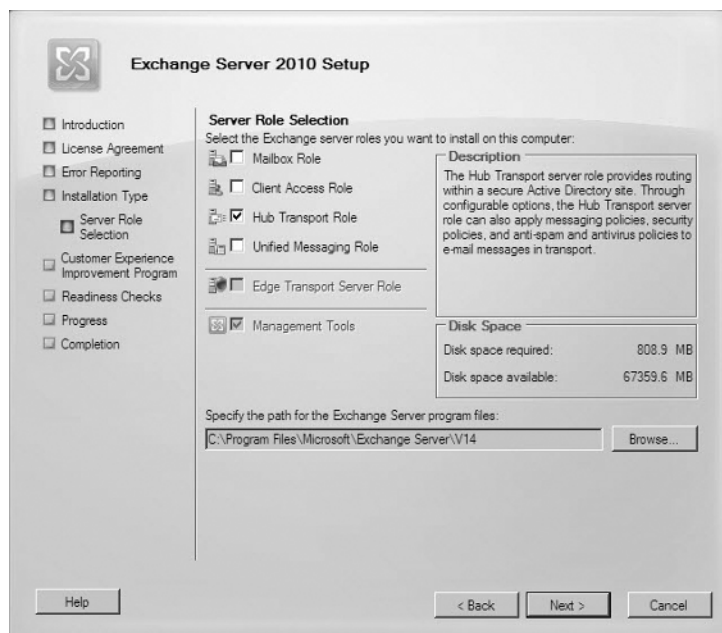
5. On the Licensing Agreement page, select the option “I accept the terms in the license agreement.” and click Next.
6. On the Error Reporting page, choose whether or not you want to send error reports back to Microsoft and click Next.
7. On the Installation Type page, select the option for Custom Exchange Server Installation. If you want to install Exchange to a different location on your hard drive, you can choose that location here. After you’re done, click Next.
8. Use the following sections to install specific roles on the server.

Installing the Hub Transport Server Role

To install the Hub Transport server through the graphical interface:

1. Follow the instructions in the earlier section “Start the Advanced Installation.”
2. On the Server Role Selection page, check the box next to Hub Transport Role (see Figure 1.6). The Management Tools will automatically be checked as well. Click Next to continue.

Figure 1.6: Choosing to install the Hub Transport role



3. If this is the first Exchange server in your organization, you will see the Exchange Organization page next. If you see this page, you will need to enter a name for the Exchange organization that you are creating.

If you don't see this option, then you are installing Exchange into an existing organization.

4. On the Customer Experience Improvement Program page, choose whether or not you want to participate in the customer experience improvement program and click Next.
5. On the Readiness Checks page, Exchange will perform a series of tests for the Hub Transport role. Before Exchange installation can continue, these checks must pass without any errors. If errors are encountered, you must review and correct them before continuing. If your server passes all of the readiness checks, then click the Install button to continue.

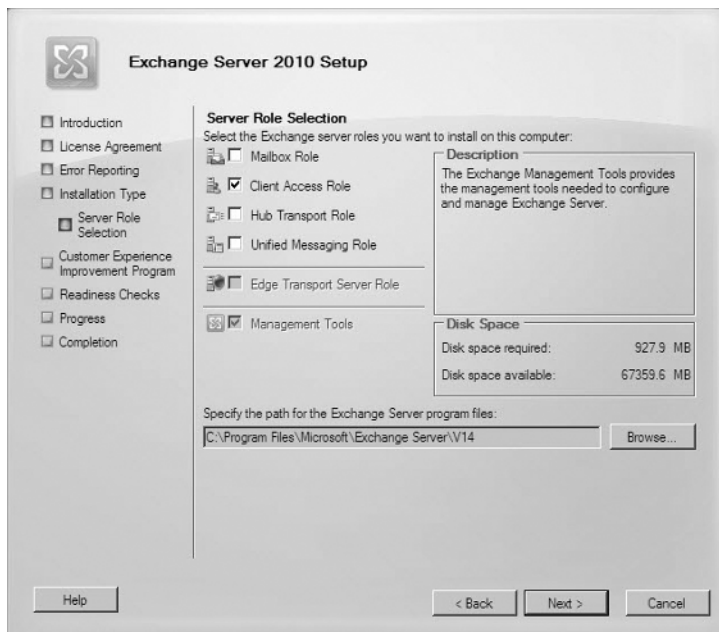
These errors are also captured in the setup log. For more information on reviewing the setup log, refer to the section "Verify a Successful Installation," later in this chapter.

6. After the server is finished installing, click Finish to close the setup wizard.

Install the Client Access Server Role

To install the Client Access Server role through the graphical interface:

1. Follow the instructions in the earlier section, "Start the Advanced Installation."
2. On the Server Role Selection page, check the box next to Client Access Role (see Figure 1.7). The Management Tools will automatically be checked as well. Click Next to continue.
3. If this is the first Exchange server in your organization, then you will see the Exchange Organization page next. If you see this page, you must enter a name for the Exchange organization that you are creating. If you don't see this option, then you are installing Exchange into an existing organization.

Figure 1.7: Choosing to install the Client Access role

4. On the Configure Client Access server external domain page, you are asked whether this Client Access server will be exposed to the Internet. If you want your users to access their email from outside of your network, you should check the option The Client Access Server Role Will Be Internet-Facing. You will also need to enter the name that users will use when contacting this Client Access server from the Internet, such as mail.contoso.com. Click Next to continue.
5. On the Customer Experience Improvement Program page, choose whether or not you want to participate in the customer experience improvement program and click Next.
6. On the Readiness Checks page, Exchange will perform a series of tests for the Client Access role. Before Exchange installation can continue, these checks must pass without any errors. If errors are encountered, you will need to review and correct them before continuing. If your server passes all of the readiness checks, click the Install button to continue.

These errors are also captured in the setup log. For more information on reviewing the setup log, refer to the section called “Verify a Successful Installation,” later in this chapter.

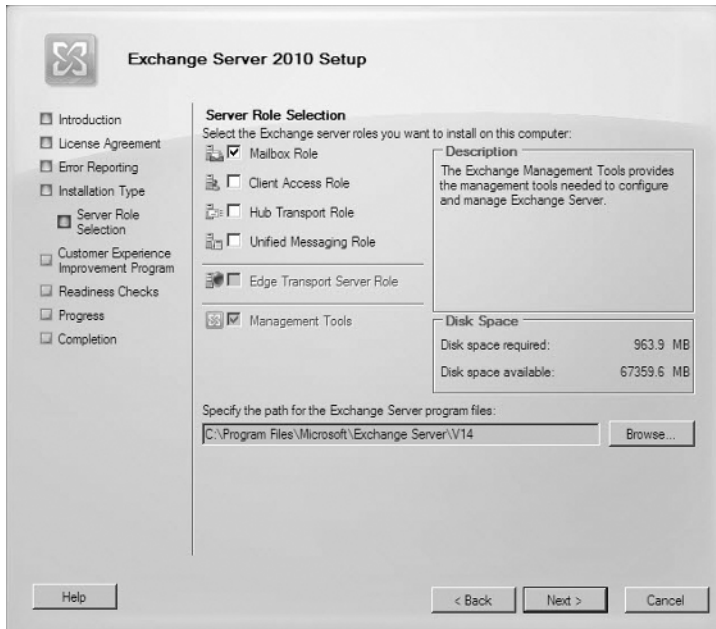
7. After the server is finished installing, click Finish to close the setup wizard.

Install the Mailbox Server Role

To install the Mailbox Server role through the graphical interface:

1. Follow the instructions in the earlier section, “Start the Advanced Installation.”
2. On the Server Role Selection page, check the box next to Mailbox Role (see Figure 1.8). The Management Tools will automatically be checked as well. Click Next to continue.

Figure 1.8: Choosing to install the Mailbox role



3. If this is the first Exchange server in your organization, then you will see the Exchange Organization page next. If you see this page, you must enter a name for the Exchange organization that you are creating. If you don't see this option, then you are installing Exchange into an existing organization.
4. If this is the first mailbox server in your organization, then you will also see the Client Settings page. The question here is whether you want to install a public folder database. If you have older or legacy clients in your environment, then choose Yes. If you choose No, you can go back and add a public folder database later. Click Next to continue.

Public folder databases are required for certain clients, such as Outlook 2003 and earlier, because those clients rely on the system information that is stored in public folders. However, newer clients, such as Outlook 2007, don't require this functionality.

5. On the Customer Experience Improvement Program page, choose whether or not you want to participate in the customer experience improvement program and click Next.
6. On the Readiness Checks page, Exchange will perform a series of tests for the Mailbox role. Before Exchange installation can continue, these checks must pass without any errors. If errors are encountered, you will need to review and correct them before continuing. If your server passes all of the readiness checks, click the Install button to continue.

These errors are also captured in the setup log. For more information on reviewing the setup log, refer to the section "Verify a Successful Installation," later in this chapter.

7. After the server is finished installing, click Finish to close the setup wizard.

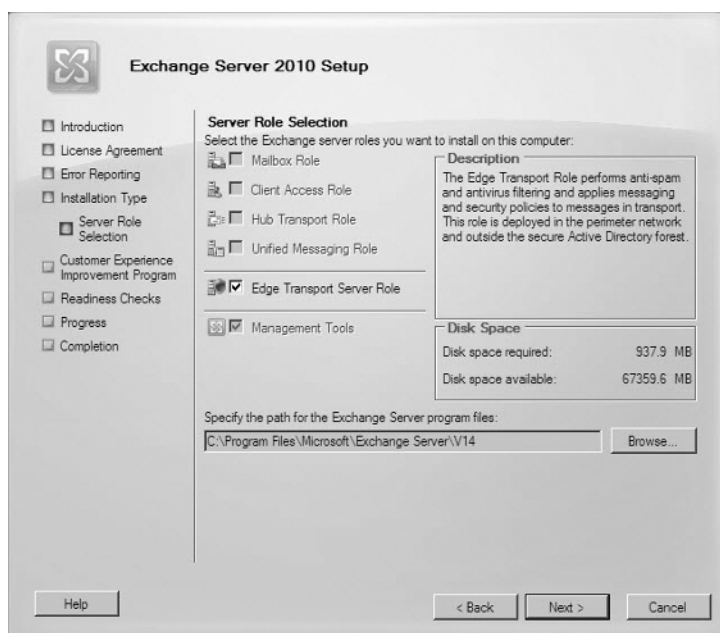
Install the Edge Transport Server Role

To install an Edge Transport server using the graphical Exchange setup wizard:

1. Ensure that the server you are installing the Edge Transport role on is *not* a member of the Active Directory forest that Exchange is deployed in.

- To verify this, open the System applet from Control Panel (Start > Control Panel). Under the section labeled Computer Name, Domain, And Workgroup Settings, ensure that the Domain field is empty.
2. Follow the instructions in the earlier section, “Start the Advanced Installation.”
 3. On the Server Role Selection page, check the box next to Edge Transport Server Role (see Figure 1.9). The Management Tools will automatically be checked as well. Click Next to continue.

Figure 1.9: Choosing to install the Edge Transport Server role



4. On the Customer Experience Improvement Program page, choose whether or not you want to participate in the customer experience improvement program and click Next.
5. On the Readiness Checks page, Exchange will perform a series of tests for the Edge Transport Server role. Before Exchange installation can continue, these checks must pass without any errors. If errors are encountered, you must review and correct them before continuing. If your server passes all of the readiness checks, click the Install button to continue.

These errors are also captured in the setup log. For more information on reviewing the setup log, refer to the section called “Verify a Successful Installation,” later in this chapter.

6. After the server is finished installing, click Finish to close setup wizard.

Perform an Automated Installation

Installing Exchange through the setup wizard makes the Exchange installation process simple. However, when deploying multiple Exchange servers across a large enterprise, we need a repeatable process that is quick to execute and ensures consistency across servers. Automating the installation of Exchange provides this level of assurance.

Perform an Unattended Install

Performing an unattended setup of Exchange is accomplished with the setup command-line installer. Using the command-line installer, you can run setup and specify the options that you want to customize as parameters. For example, if you want to install a Mailbox server, you can use the following setup command:

```
setup.com /mode:install /roles:Mailbox  
/OrganizationName:Contoso
```

Executing the command `setup.com /?` will give you a list of all of the supported setup parameters.

Error checking is performed during the install and the results are displayed on the screen. If errors are encountered, the unattended installer stops. You will then have to correct the errors before restarting the installation.

Install Using an Answer File

An answer file is a plain text file with the appropriate setup switches specified. The answer file can contain advanced options necessary for a more thorough Exchange configuration.

The answer file contains all of the information that the Exchange setup process is looking for so the setup program does not have to

prompt the administrator for the answer. You only spend a few minutes creating the answer file up front, and once it's created installation is a repeatable process that requires very little attention.

Figure 1.10 illustrates a common answer file.

Figure 1.10: A common answer file for unattended installation



Using an answer file for unattended installation in Exchange is not a requirement. A capable administrator could just as easily run the `setup.com` installation program for Exchange and specify all of the options as switches in that one command. However, depending on the number of options that are configured during the install, this one command could be very long. Typing in a very long command even once is prone to error, but if you repeat it multiple times for many deployments in the enterprise then you are bound to improperly configure something on the server.

In many cases, therefore, creating an answer file makes a lot of sense. When executing the unattended installer with the answer file, you will use the `/AnswerFile` switch. In the following example, I'm installing Exchange using an answer file:

```
setup.com /mode:install /roles:mailbox  
/AnswerFile:TypicalExchange.txt
```

Perform Post-Installation Tasks

After Exchange is installed, there are some post-installation tasks that you will want to run through to finish configuring Exchange and to get mail flowing properly in your organization.

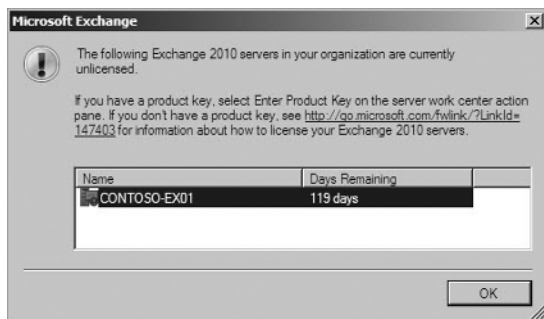
Finalize the Installation

After installing the Exchange server, you should finalize the installation by performing some additional tasks.

Enter the Product Key

Exchange doesn't require you to enter the product key before installation. Until you enter a product key, Exchange runs in trial mode. In trial mode, the server functions as Exchange Standard edition. The unlicensed server will function in trial mode for 120 days. Exchange is more than happy to let you know that you have unlicensed servers. Every time the Exchange Management Console is started, you will get a list of unlicensed servers and the amount of time before trial mode expires. (See Figure 1.11.)

Figure 1.11: The unlicensed server dialog box presented by the Management Console



You can also obtain this same information using the Exchange Management Shell (EMS). The Exchange Management Shell is covered in detail in Chapter 2, “Using the Exchange Management Console and the Exchange Management Shell.” To obtain licensing information, use the following one-liner:

```
Get-ExchangeServer | where-object
{$_ .IsExchange2007TrialEdition -match $true}
```

An example result of the licensing information command is shown in Figure 1.12.

Figure 1.12: Licensing information obtained from the EMS

The product key is entered after the server is installed. To enter the key, you will use the Exchange Management Console.

1. Open the Exchange Management Console by clicking Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Console.
2. In the left pane of the EMC, click on the Server Configuration Node.
3. In the center pane, select the server that is unlicensed.
4. In the right side under the Action pane, select Enter Product Key.
5. In the Product Key dialog box, type in the product key and click Enter.
6. Restart the Information Store service for the changes to take effect.

You can also use the EMS to enter the product key. With the EMS, you have ability to do this easily in bulk, or to script the product at the end of an automated installation. You can use the Set-ExchangeServer cmdlet to license the server:

```
Set-ExchangeServer -Identity MAILSRV1 -ProductKey ↵
XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

If you want to enter a product key for all unlicensed servers in your Exchange organization, you can use the following one-liner:

```
Get-ExchangeServer | where-object
{ $_.IsExchange2007TrialEdition-match $true } |
Set-ExchangeServer -ProductKey
XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
```

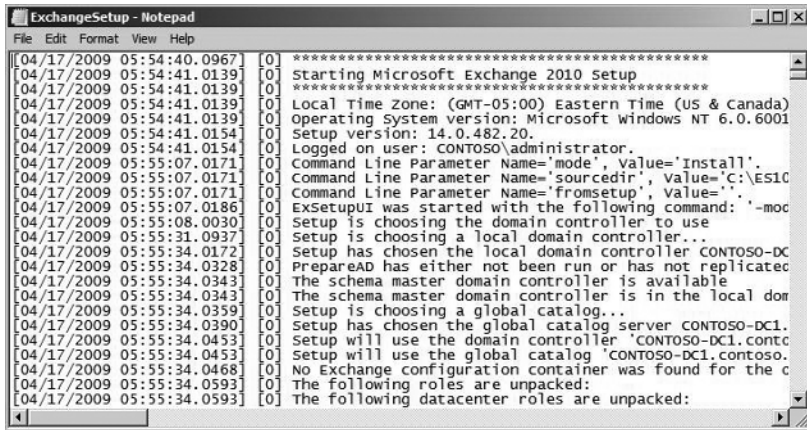
Verify a Successful Installation

Another thing that you will want to do after Exchange is installed is to verify that the installation was completely successful. In particular, you will want to review the setup logs.

All of the setup logs for Exchange are found in a folder on the root of the system drive. If your system drive is C:, then the logs are stored in the folder C:\ExchangeSetupLogs.

The primary log that contains setup information about Exchange is ExchangeSetup.log. This log file records the status of every task that the installer performs when installing and configuring Exchange. This is especially useful when your system fails the readiness checks. The quickest way to view this log is to just review it in Notepad (see Figure 1.13).

Figure 1.13: Reviewing the Exchange setup log in Notepad



```

ExchangeSetup - Notepad
File Edit Format View Help
[04/17/2009 05:54:40.0967] [0] *****
[04/17/2009 05:54:41.0139] [0] Starting Microsoft Exchange 2010 Setup
[04/17/2009 05:54:41.0139] [0] *****
[04/17/2009 05:54:41.0139] [0] Local Time Zone: (GMT-05:00) Eastern Time (US & Canada)
[04/17/2009 05:54:41.0139] [0] Operating System version: Microsoft windows NT 6.0.6001
[04/17/2009 05:54:41.0134] [0] Setup version: 14.0.482.20.
[04/17/2009 05:54:41.0154] [0] Logged on user: CONTOSO\administrator.
[04/17/2009 05:55:07.0171] [0] Command Line Parameter Name='mode', Value='install'.
[04/17/2009 05:55:07.0171] [0] Command Line Parameter Name='sourCEDir', Value='C:\ES10
[04/17/2009 05:55:07.0186] [0] Command Line Parameter Name='fromSetup', Value='.'
[04/17/2009 05:55:07.0186] [0] EXSetupUI was started with the following command: '-moc
[04/17/2009 05:55:08.0030] [0] Setup is choosing the domain controller to use
[04/17/2009 05:55:31.0937] [0] Setup is choosing a local domain controller...
[04/17/2009 05:55:34.0172] [0] Setup has chosen the local domain controller 'CONTOSO-DC
[04/17/2009 05:55:34.0328] [0] PrepareAD has either not been run or has not replicated
[04/17/2009 05:55:34.0343] [0] The schema master domain controller is available
[04/17/2009 05:55:34.0343] [0] The schema master domain controller is in the local dom
[04/17/2009 05:55:34.0359] [0] Setup is choosing a global catalog...
[04/17/2009 05:55:34.0390] [0] Setup has chosen the global catalog server 'CONTOSO-DC1.
[04/17/2009 05:55:34.0453] [0] Setup will use the domain controller 'CONTOSO-DC1.conto
[04/17/2009 05:55:34.0453] [0] Setup will use the global catalog 'CONTOSO-DC1.contoso.
[04/17/2009 05:55:34.0468] [0] No Exchange configuration container was found for the c
[04/17/2009 05:55:34.0593] [0] The following roles are unpacked:
[04/17/2009 05:55:34.0593] [0] The following datacenter roles are unpacked:
  
```

You can also review the setup logs using a PowerShell script that parses the output for you. You can find the Get-SetupLog.ps1 script from the C:\Program Files\Microsoft\Exchange\Scripts folder. Sample output is shown in Figure 1.14.

Check the Health of the Server

After you verify that the installation of Exchange was successful, you can check the overall health of the Exchange server. The primary method for checking the health of the server is the Application log in the Event Viewer and the Exchange Management Shell.

Figure 1.14: Reviewing the setup logs in PowerShell

```

Machine: CONTOSO-EX1
[PS] C:\Program Files\Microsoft\Exchange Server\UI4\Scripts> .\get-setuplog.ps1
Setup launched task 'test-setuphealth -DomainController 'CONTOSO-DC1.contoso.com' -DownloadConfigurationUpdates $true -ExchangeVersion '14.0.482.20' -Roles 'Global' -ScanType 'PrecheckInstall' -SetupRoles 'Global' -PrepareDomain $null -PrepareLegacyExchangePermissions $null -PrepareOrganization $true -PrepareSchema $true -CustomerFeedbackEnabled $true'

[ERROR] Cannot find information about the local server CONTOSO-EX1.contoso.com in Active Directory. This may be related to a change in the serv
er name.
Runspace context: Executing user: contoso.com/Users/Administrator, Execu
ting user organization: , Current organization: .
Beginning processing.
[ERROR] Couldn't find the Enterprise Organization container.
[ERROR] The Active Directory Schema is not up-to-date and Ldifde.exe is
not installed on this computer. You must install Ldifde.exe by running
'ServerManagerCmd -i RSAT-ADDS' or restart setup on a domain controller
.
Ending processing.
Beginning processing.
[ERROR] Couldn't find the Enterprise Organization container.
Ending processing.
Beginning processing.
[ERROR] Couldn't find the Enterprise Organization container.
[ERROR] Couldn't find the Enterprise Organization container.
[ERROR] The 'IIS 6 Metabase Compatibility' component is not installed. I
n stall the component via Server Manager.
[ERROR] The 'IIS 6 Metabase Compatibility' component is not installed. I
n stall the component via Server Manager.
[WARNING] The 'IIS 6 Management Console' component is recommended as it

```

Any errors or warning processed by Exchange are reported in the Application log in Event Viewer. You can use the following procedures to review the Application log:

1. Click Start > Administrative Tools > Event Viewer to launch the Event Viewer tool.
2. In the left pane of Event Viewer, expand the Windows Logs node and select Application. This will display the Application log in the center pane of Event Viewer, as shown in Figure 1.15.
3. Review the list of application events for any errors or warnings that may pertain to Exchange Server.

You can also use the Exchange Management Shell to review the configuration of the Exchange server that you just installed. Open the Exchange Management Shell and run the `Get-ExchangeServer` cmdlet.

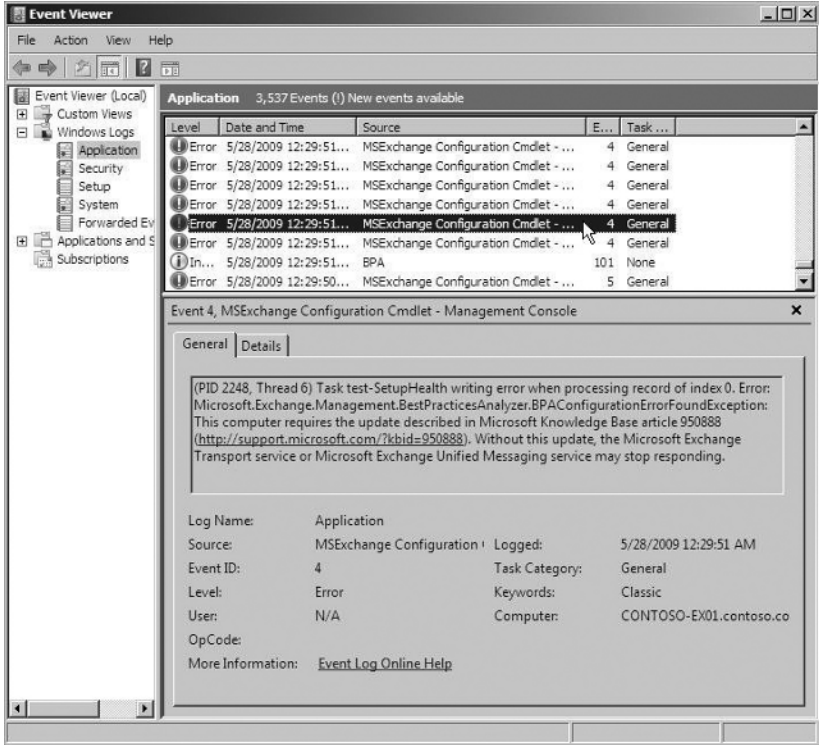
Install the Management Tools on a Different Computer

To help with the ongoing management of the Exchange server, you will want to install the Exchange Management Tools on another computer. Doing so will allow you to administer the Exchange Server without having to log into it.

One of the great improvements in Exchange Server 2010 in terms of administration is the powerful remote administration capabilities. These capabilities are exposed through the combination of the Exchange

Management Console and the Exchange Management Shell. Exchange Server 2010 uses Windows Remote Management (WinRM) to bring the power of the Exchange Management Shell to your workstation.

Figure 1.15: Reviewing the logs to ensure server health



To run the Management Tools on your workstation, you need to run Windows Vista with Service Pack 1 or later. Also, there is no 32-bit release for Exchange Server 2010, so your workstation has to be running the 64-bit version of Vista. In addition, the system needs to have the following software installed:

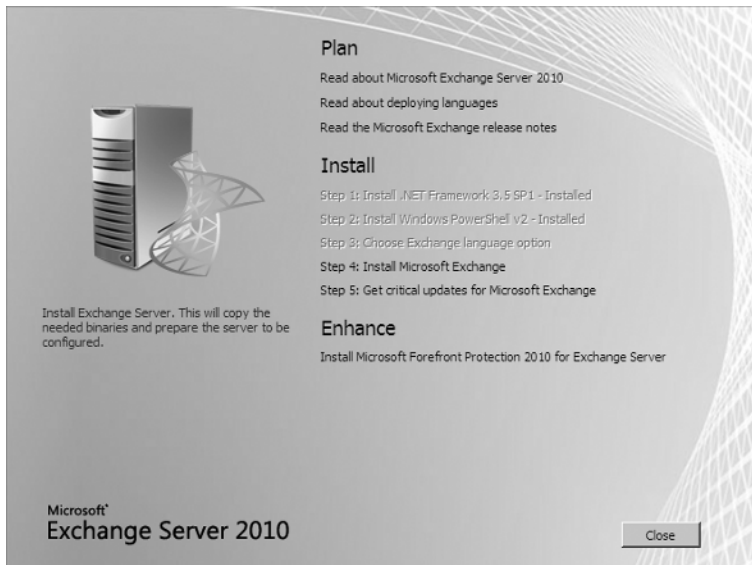
- .NET Framework 3.5
- Windows Remote Management (WinRM)
- PowerShell version 2

Install the Management Tools Using the GUI

To install the Management Tools with the graphical user interface:

1. From the Exchange installation media, run `setup.exe` as an administrator.
2. In the installation interface, ensure that steps 1–3 are completed and click the link for Step 3: Choose Exchange Language Option. Two additional options will appear below this link.
 - The first option is **Install All Languages From The Language Bundle**, and it gives you the ability to load all of the language packs available for Exchange.
 - The second option is **Install Only Languages From The DVD**. If you are installing Exchange in English, click this option.
3. Next, in the installation interface click the link for Step 4: Install Microsoft Exchange (see Figure 1.16).

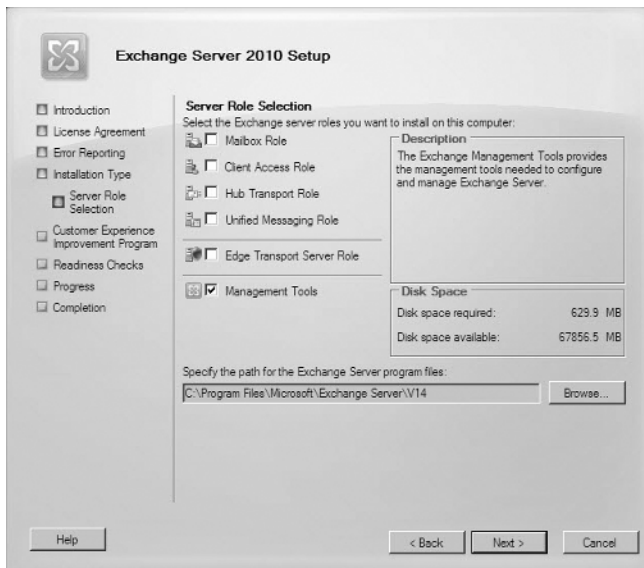
Figure 1.16: Launching Exchange setup from the GUI



4. The Exchange setup wizard will launch. On the Introduction page, click Next.

5. On the Licensing Agreement page, review the license agreement and select “I accept the terms in the license agreement.” Then click Next.
6. On the Error Reporting page, select your error reporting option and click Next.
7. On the Installation Type page, select the option Custom Exchange Server Installation and click Next.
8. On the Server Role Selection page, select the check box for the Management Tools (see Figure 1.17) and click Next.

Figure 1.17: Choosing to install the Management Tools



9. On the Exchange Organization page, enter the name of your Exchange organization and click Next.
10. On the next page, the readiness checks will run. This will ensure that your workstation meets the prerequisites for installing the Management Tools and the language packs you selected. If there are any errors reported, you must resolve those errors and rerun the setup. When this completes, click Install.
11. After installation is finished, click the Finish button on the completion page.

Install the Management Tools Using the Command Prompt

You can also use the command prompt to install the Management Tools in unattended mode:

1. Open the command prompt in administrator mode by right-clicking on the Command Prompt icon and selecting Run As Administrator from the drop-down list.
2. Navigate to the folder of the Exchange installation files.
3. Run the following command:

```
setup.com /mode:install /role:managementtools
```

4. Verify that the installation completed by reviewing the output of the command prompt for any errors. If any errors were encountered, correct them and rerun the unattended setup.

Configure Internet Mail Routing

After your Exchange server is installed, one of the more common tasks is to set up Internet mail routing. The depth of procedures to accomplish this will vary depending on your configuration of Exchange. When using the Typical Exchange Installation option in the Exchange setup, you can use the following set of procedures to get Internet mail routing configured. Note that this setup includes using the Hub Transport server to route Internet mail instead of an Edge Transport server.

Create the DNS MX Records

The Mail eXchanger (MX) records in DNS allow mail servers outside of your organization to figure out which server to send mail to. Without MX records, you can route mail inside your Exchange organization, but you will not be able to receive Internet mail.

In DNS, create a record with the type MX that points to the server that is going to route Internet mail for your organization; in this example it's the Hub Transport server. The following record will need to be created:

```
<Domain Name>.      IN      MX      <Priority>      <Server Name>
```

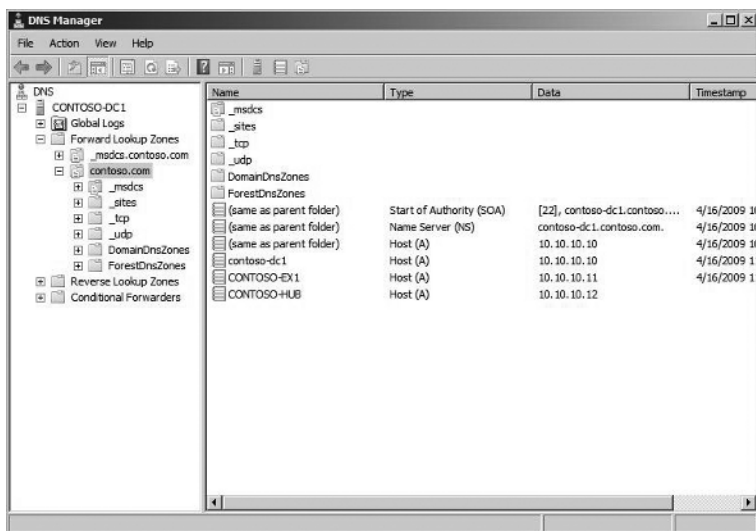
For the Hub Transport server in the `contoso.com` domain, the MX record would be:

```
contoso.com.      IN      MX      10      contoso-hub.contoso.com
```

To create this record using Windows DNS, follow these steps:

1. Open the DNS management snap-in by clicking Start > Administrative Tools > DNS.
2. In the left panel of the DNS Manager, browse down to the forward lookup zone that represents your domain (see Figure 1.18).

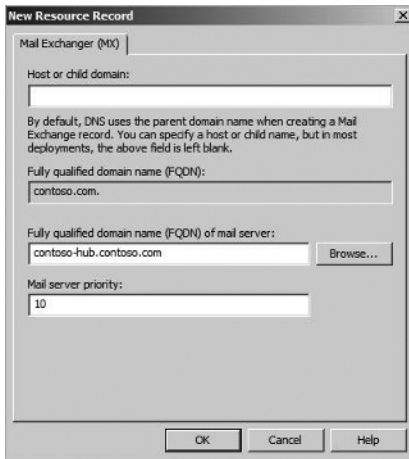
Figure 1.18: Opening the forward lookup zone for your domain in DNS Manager



3. Right-click on the zone and select New Mail Exchange (MX) from the drop-down list.
4. For the domain name of the record, ensure that the fully qualified domain name (FQDN) points to the name of the domain that Exchange is authoritative for.

To accomplish this for `contoso.com`, the Host Or Child Domain box is left empty. Enter the FQDN of the Hub Transport server in the Fully Qualified Domain Name (FQDN) Of Mail Server box. Then adjust the priority of the record in the Mail Server Priority box and click OK. (See Figure 1.19.)

Figure 1.19: Configuring an MX record for your domain



Create the Send Connector

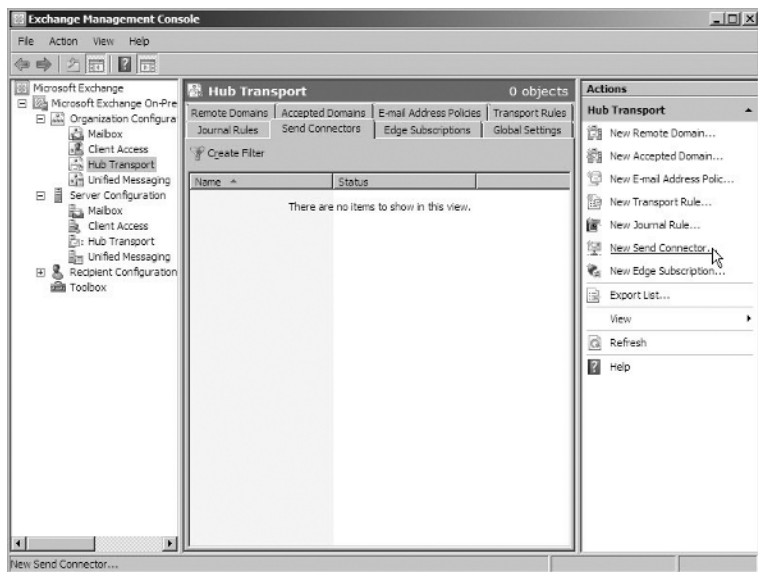
To ensure that Exchange knows how to route outgoing mail, you need to set up at least one send connector. For our example in the Typical Exchange Installation, we'll create one send connector for the Hub Transport server that will route all messages sent to locations outside of the Exchange organization through DNS MX record resolution. The Hub Transport server will use DNS along with public MX records that were published by other mail systems to ensure that the messages are sent to the right place.

Create the Send Connector in the Exchange Management Console

To create the send connector in the Exchange Management Console, follow these steps:

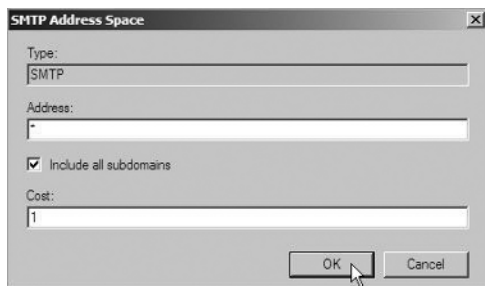
1. Open the Exchange Management Console by clicking Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Console.
2. In the left pane of the EMC, open the Organization Configuration node and choose Hub Transport.
3. In the center pane, choose the Send Connector tab.
4. In the right pane under Hub Transport Actions, choose the option New Send Connector (see Figure 1.20). The wizard launches.

Figure 1.20: Launching the New Send Connector wizard



5. In the New Send Connector wizard, type the name of the connector and choose Internet for its intended use.
6. In the Address Space dialog box, click the Add button. This will add a new SMTP address space and open the SMTP Address Space dialog box.
7. In the Address field, enter an asterisk (*). Ensure that you check the box Include All Subdomains, as shown in Figure 1.21. Click OK. Click Next in the wizard.

Figure 1.21: Configuring the Send Connector options



8. In the Network Settings dialog box, select the option Use Dynamic Name System (DNS) “MX” Records To Route Automatically. Click Next.
9. In the Source Servers dialog box, ensure that the correct Hub Transport server is selected and click Next.
10. In the New Connector dialog box, click New. After the new connector is created, click Finish to exit.

Create the Send Connector in the Exchange Management Shell

To create the send connector in the Exchange Management Shell, follow these steps:

1. Start the Exchange Management Shell by clicking Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Shell.
2. Run the following command:

```
new-SendConnector -Name 'SendConnectorName' ↵  
-Usage 'Internet' -AddressSpace 'SMTP:*;1' ↵  
-IsScopedConnector $false -DNSRoutingEnabled $true ↵  
-UseExternalDNSServersEnabled $false ↵  
-SourceTransportServers '<SERVERNAME>'
```

Configure Receive Connector Permissions

Now that you can send email to other people on the Internet, you're half-way there. The Exchange servers also have to be configured to receive email. Since your MX records are published in DNS, other email systems can find you and know which server to send mail to for your domain. However, Hub Transport servers in Exchange are secured by default and do not allow other email systems to send mail to them. This is because in most configurations, Microsoft wants to encourage you to use Edge Transport servers rather than Hub Transport servers for receiving Internet mail. Edge servers offer a wide range of security features that you should consider taking advantage of.

If you are using the Typical Exchange Installation without Edge Transport servers, you can change the permissions on the receive connector for the Hub Transport servers. Receive connectors run on transport servers and listen for incoming mail on a specific port. You will

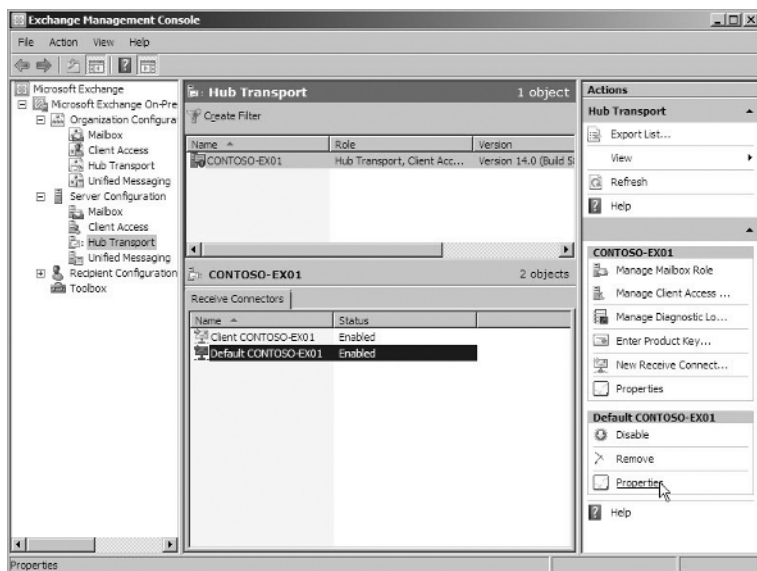
need to modify the default receive connector for routing Internet mail, which listens on port 25 of your Hub Transport server.

Configure the Receive Connector Permissions Using the Exchange Management Console

To configure the receive connector permissions using the Exchange Management Console, follow these steps:

1. Open the Exchange Management Console by clicking Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Console.
2. In the left pane of the EMC, open the Server Configuration node and choose Hub Transport.
3. At the bottom half of the center pane, choose the Default Receive Connector and in the right pane, select Properties, as shown in Figure 1.22. The Properties dialog box will appear.

Figure 1.22: Opening the properties for the default receive connector



4. In the Properties dialog box, select the Permission Groups tab.
5. Check the box next to Anonymous Users and click OK.

Configure the Receive Connector Permissions Using the Exchange Management Shell

To configure the receive connector permissions using the Exchange Management Shell, follow these steps:

1. Start the Exchange Management Shell by clicking Start > All Programs > Microsoft Exchange Server 2010 > Exchange Management Shell.
2. Run the following command in the EMS:

```
Set-ReceiveConnector -PermissionGroups AnonymousUsers,  
ExchangeUsers, ExchangeServers, ExchangeLegacyServers
```

