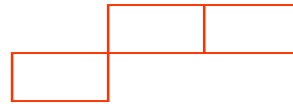
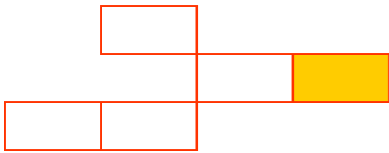
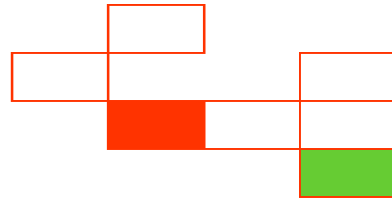
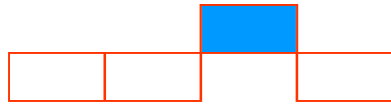
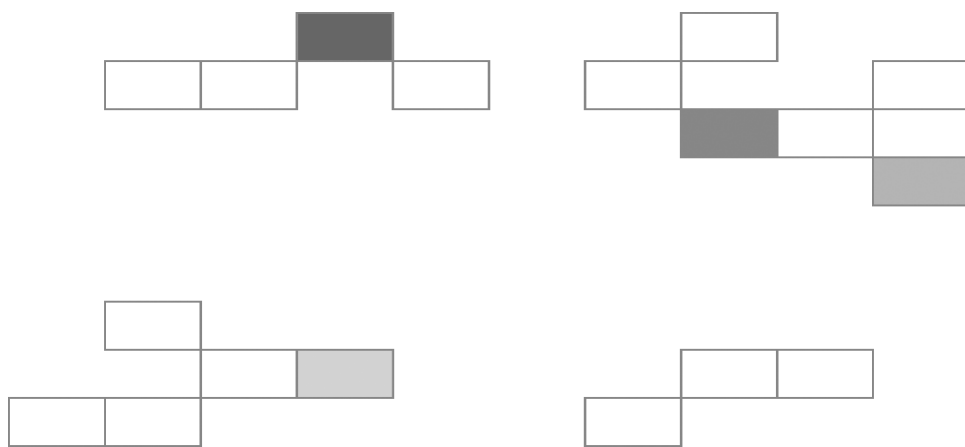


Exchange Instant Messaging over the Internet



Jyoti Kulkarni

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Introduction

Microsoft® Exchange Instant Messaging Service enables a unique medium of interpersonal communication. This service, provided with Exchange 2000, makes it possible for users to communicate in an immediate, interactive environment that conveys “presence” (user’s online status) information. Initially, the focus of this communication was text instant messaging, but today the updated Microsoft Windows® Messaging and MSN® Messaging clients give users the advantage of the back-end infrastructure support in Exchange 2000 for a more complete communications experience, including voice calls, video calls, collaborative tools, and more.

Important This paper contains information about editing the registry. Before you edit the registry, make sure you understand how to restore it if a problem occurs. For information about how to restore the registry, view the “Restore the Registry” Help topic in Regedit.exe or Regedt32.exe.

Intended Audience

This technical paper is intended for experienced administrators of Exchange 2000 Instant Messaging deployments. You need to have a working knowledge of administration and security for Exchange 2000 Instant Messaging deployments. You must also have knowledge of Registry Editor.

Background

This technical paper provides detailed information about Exchange 2000 Instant Messaging message flow over the Internet and about the deployment of Instant Messaging in an application service provider (ASP) environment. The following are examples of message flow over the Internet:

- Logging on to Instant Messaging
- Checking presence information for another Instant Messaging user
- Communication between Instant Messaging users

2 Exchange Instant Messaging over the Internet

An application service provider (ASP) is a business that provides software to businesses or to individuals over a network such as the Internet. For example, in this paper, Consolidated Messenger is fictional ASP that provides Exchange 2000 services to A. Datum Corporation, a fictional company that provides Exchange 2000 Instant Messaging capabilities to its customers.

The functionality of an Instant Messaging network is provided by the interaction of various entities, including Instant Messaging clients, Instant Messaging home servers, Instant Messaging routers, Domain Name Service (DNS), Microsoft Active Directory® directory service, proxies, and firewalls. You can customize Instant Messaging deployments for the needs of an organization.

1

Instant Messaging Service Architecture

Before discussing Instant Messaging in an ASP environment, it may be helpful to review Instant Messaging architecture.

All Instant Messaging communication uses the RVP protocol, an extension of the Distributed Authoring and Versioning (DAV) protocol and HTTP 1.1. RVP is designed for transmitting notifications and messages across a loosely coupled (federated) constellation of servers, and for providing notification in a secure, reliable, and scalable fashion. The RVP protocol encompasses both client-server and server-server interactions.

With Instant Messaging architecture, companies can administer their own Exchange Instant Messaging infrastructure. Within this infrastructure, businesses can limit their users to instant messaging within the organization or can allow users to send instant messages to other users across the Internet. An Instant Messaging configuration is characterized by the following elements:

- The servers are configured as Instant Messaging home servers, Instant Messaging routers, or a combination of both.
- One or more Instant Messaging domains exist within the configuration.

4 Exchange Instant Messaging over the Internet

The deployment can be designated as internet-capable, intranet-capable, or a combination of both. Figure 1 shows an example of an Instant Messaging configuration with the following components:

Note The Instant Messaging components are discussed in more detail later in this paper.

- Instant Messaging clients
- Instant Messaging domain
- Instant Messaging home server
- Instant Messaging router

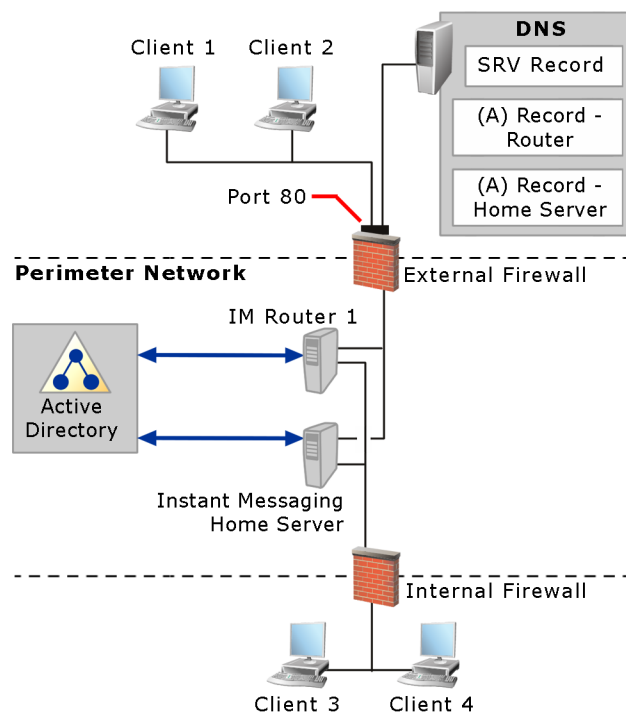


Figure 1 Example of an Instant Messaging configuration

Server Types in an Instant Messaging Configuration

An Instant Messaging configuration contains two types of virtual servers:

- Instant Messaging home servers
- Instant Messaging routers

Instant Messaging Home Servers

Home servers are virtual servers that host Instant Messaging user accounts and communicate directly with Exchange Instant Messaging clients to deliver instant messages and presence information. When users are enabled for Instant Messaging, an Instant Messaging home server is allocated. The users' private Instant Messaging URL is determined from the home server and the associated Instant Messaging router (if one exists). The home server maintains the status of the Instant Messaging client. Home servers also maintain a list of Instant Messaging users subscribed to presence information for another user. Presence information enables one computer user to see whether another user is currently logged on to a network, corporate LAN, or the Internet. Presence information can be set by the user to indicate a particular status, such as "On The Phone" or "Out To Lunch", or it can be updated automatically after a period of computer inactivity. Exchange 2000 provides support for presence information.

Instant Messaging Routers

Instant Messaging routers are virtual servers that receive incoming messages, locate the recipient's home server, and then refer the Instant Messaging client to the home server. Instant Messaging router servers use a unified namespace. You can simplify Instant Messaging users' addresses by using DNS service location records (SRVs) to create a unified namespace, so the Instant Messaging address is the same as the Simple Mail Transfer Protocol (SMTP) address. Incoming Instant Messages typically come in through a firewall or reverse proxy server and are forwarded to the Instant Messaging router. The Instant Messaging router then looks in Active Directory to locate the home server of the recipient and refers the Instant Messaging client to this home server. Only the Instant Messaging router needs to be exposed to the Internet. If an Instant Messaging router is not available, the home server is exposed to the Internet.

Note Instant Messaging routers do not host user accounts. Instead, Instant Messaging routers proxy (route) messages to a home server or redirect the Instant Messaging client to the correct home server and send messages to other servers on the network. It is recommended that large companies that deploy Instant Messaging use several Instant Messaging routers.

Instant Messaging Domains

An Instant Messaging domain is a Domain Name Service (DNS) name that identifies user accounts. It is recommended that Instant Messaging domains be configured to have one-to-one correspondence with e-mail domains. For example, a user with the e-mail address `JoBrown@adatum.com` is hosted in the Instant Messaging domain `im.adatum.com`. Instant Messaging routers answer queries for an Instant Messaging domain. Because an Instant Messaging router can only answer queries arriving at one Instant Messaging domain, at least one Instant Messaging router should exist for each e-mail domain.

Configuring for Internet or Intranet Capability

To configure Instant Messaging Service to be only intranet-capable, place Instant Messaging Service behind a firewall. If you want to configure Instant Messaging Service to be Internet-capable, you must set the appropriate inbound and outbound Internet connections through your firewall. Exchange Instant Messaging servers receive messages through port 80.

Instant Messaging URL and Instant Messaging Address

Instant Messaging Service identifies users by their unique Instant Messaging URL. For example, `http://im.adatum.com/instmsg/aliases/JoBrown` is the Instant Messaging URL for the user, Jo Brown, on the Instant Messaging domain `im.adatum.com`. Figure 2 shows the correlation between the Instant Messaging URL and Instant Messaging address.

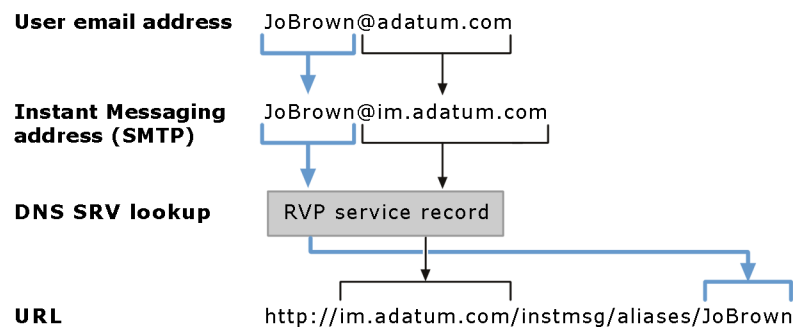


Figure 2 Instant Messaging URL and Instant Messaging address

Instant Messaging addresses are used to provide users with more convenient format of identification than URLs. For example, `JoBrown@adatum.com`. The format of an Instant Messaging address is the same as SMTP e-mail address. A user can have more than one Instant Messaging address that refers to the same account, but the user always has one unique Instant Messaging URL. With Instant Messaging, users can refer to each other by their friendlier SMTP-style formatted Instant Messaging addresses. Internally, Instant

Messaging clients and servers convert Instant Messaging addresses into Instant Messaging URLs. The domain of an Instant Messaging address is used to generate the Instant Messaging domain of the URL. The Instant Messaging client performs a DNS SRV lookup in the zone defined in the Instant Messaging address for an RVP record.

Note A DNS SRV record enables a service, such as Exchange Instant Messaging Service, to query DNS for the host name for a particular service. An Exchange Instant Messaging client performs a DNS SRV lookup for a server that supports the Instant Messaging protocol within the organization that hosts a particular contact. DNS SRV records provide flexibility in the naming of the server. Without this DNS SRV record, the server within the organization would need to be the same as that of the user's domain within their SMTP address.

Thus, if an RVP record exists at adatum.com, and im.adatum.com is the host offering this service, an Instant Messaging address of JoBrown@adatum.com is translated to an Instant Messaging URL of <http://im.adatum.com/instmsg/aliases/JoBrown>.

2

Planning

This section describes the planning process for setting up Exchange Instant Messaging over the Internet.

Planning the Instant Messaging Network

Exchange 2000 needs to be implemented to ensure proper deployment of Instant Messaging. To fulfill the Exchange 2000 requirements, all Microsoft Windows 2000 domain controllers and global catalog servers must have Windows 2000 Service Pack 2 (SP2) or higher installed on them. Additionally, all Exchange 2000 Instant Messaging servers must be member servers in the local Active Directory domain (for example, Adatum.com) prior to the installation and configuration of Instant Messaging. Prior to installing Instant Messaging, Adatum.com needs to ensure that all Instant Messaging servers comply with software requirements described in the following section.

Software Requirements

This section describes the software requirements for Exchange Instant Messaging.

Windows 2000 Server with IIS

Microsoft Windows 2000 Server with Internet Information Services (IIS) version 5.0 must be installed. It is important to note that the IIS 5.0 with SMTP and Network News Transfer Protocol (NNTP) service must be installed prior to launching the Exchange 2000 Setup program. During the installation of Windows 2000, you need to add the NNTP service manually. The SMTP service is a part of the default installation. NNTP is an application protocol used in TCP/IP networks. It defines a client/server command set for access to newsgroups. Newsgroup public folders are public folders that are accessible as

USENET newsgroups. SMTP is a TCP/IP protocol for sending messages from one computer to another on a network. This protocol is used on the Internet to route e-mail.

DNS Server on Local Domain

The minimum requirement is to have a DNS server that supports SRV installed on the local domain. A DNS server that supports Dynamic DNS is recommended. With dynamic update protocol, clients and servers can automatically register themselves in the database without needing administrators to manually define records.

You can use name server (NS) resource records to assign authority to specified servers for a DNS domain name. Windows 2000 extends the NS resource record concept to support the dynamic update protocol by supplying Dynamic DNS, which enables clients with dynamically assigned addresses to register directly with a server running the DNS Service and update the DNS table dynamically. Dynamic DNS eliminates the need for other Internet naming services, such as Windows Internet Name Service (WINS), in a homogeneous environment. Your Dynamic DNS server must contain both a zone and a reverse lookup record with dynamic updates enabled.

Note All Exchange servers require Network News Transfer Protocol (NNTP).

Note The target installation computer must register all network interfaces with the Dynamic DNS server and corresponding zones with dynamic updates enabled.

Security Permissions

The following security permissions are required for Instant Messaging deployment:

- You must be a member of the Exchange Administrators security group to manage global Instant Messaging settings, such as firewall topology, proxy server configuration, and any Instant Messaging home servers and routers in your organization.
- You must be a member of the Domain Administrators security group to manage the domains that host the users.

3

Installation

This section provides information for installing Instant Messaging Service in an ASP environment. For this example, Consolidated Messaging is an ASP that provides hosting services to A. Datum Corporation. A. Datum Corporation uses the hosting services of Consolidated Messaging to provide Exchange 2000 Instant Messaging to its customers. The following section describes how Consolidated Messaging configures Instant Messaging Service for A. Datum Corporation.

Note This paper does not discuss Active Directory security configuration for hosting multiple organizations. For more information about Active Directory, see the Windows 2000 Web site at <http://www.microsoft.com/windows2000/>.

This section consists of discussions of the following procedures:

- Installing Exchange 2000 Server
- Creating an Instant Messaging home server
- Creating an Instant Messaging router
- Setting the connection configuration for Instant Messaging Polling and Fixed Port callback delivery
- Creating DNS forward and reverse lookup zones and DNS resource records
- Creating host records
- Setting administrative permissions
- Setting or changing a password policy
- Allowing users to access Instant Messaging
- Distributing the client software
- Testing Instant Messaging functionality
- Setting connection configuration options

Installing Exchange 2000 Server

To install Exchange 2000 Server, run the Microsoft Exchange 2000 Installation Wizard.

► **To run the Microsoft Exchange 2000 Installation Wizard**

1. Log on to the Windows 2000 Server with IIS 5.0 installed.
2. Insert the Exchange 2000 Server compact disc. On the **Microsoft Exchange 2000 Server** page, click **Exchange Server Setup**.
3. On the **Welcome** page, click **Next**.
4. On the **End-User License Agreement** page, read the agreement. If you accept the terms, click **I agree**, and then click **Next**.
5. On the **Product Identification** page, enter the 25-digit Product Key that is located on a sticker on the back of the product compact disc, and then click **Next**.
6. On the **Component Selection** page, under **Action**, in **Microsoft Exchange 2000**, click **Custom** (Figure 3).
7. Under **Action**, in **Microsoft Exchange System Management Tools**, click **Install** (Figure 3).

8. Under Action, in Microsoft Exchange Instant Messaging Service, click Install (Figure 3).

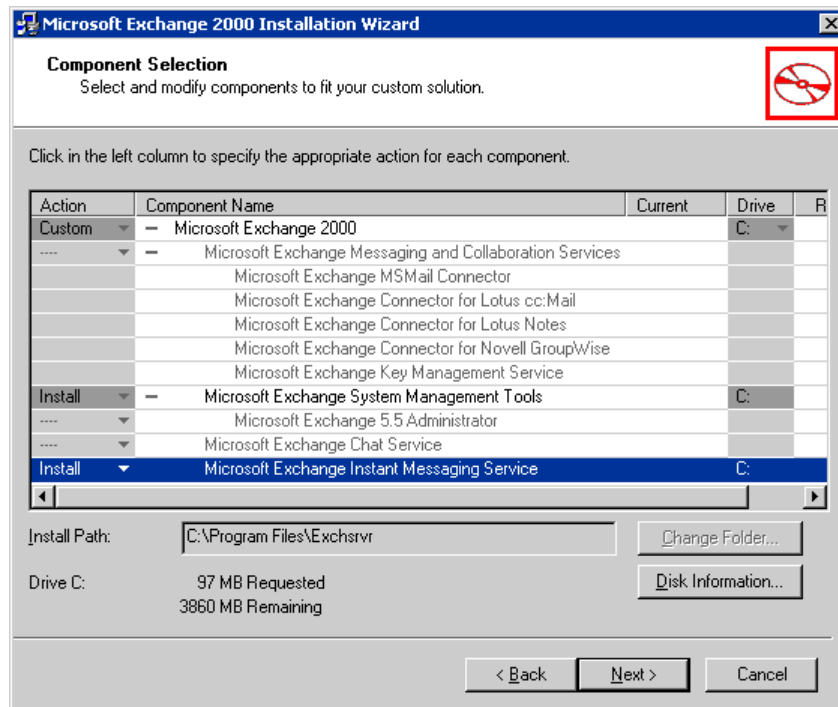


Figure 3 The Component Selection page

9. Click **Next** to verify the component selections, and then click **Finish**.

Creating an Instant Messaging Home Server

Instant Messaging home servers host Instant Messaging user accounts and communicate directly with Instant Messaging clients to send and deliver instant messages and presence information. Prior to creating the home server, you must complete the following procedures.

1. Create a new folder for the IIS Web site.
2. Launch the Internet Information Services Snap-in and create a new Web site.
3. Create an Instant Messaging home server

► To create a new folder for the IIS Web site

1. Click **Start**, point to **Programs**, point to **Accessories**, and then click **Windows Explorer**.

2. Click **My Computer**, expand the folder on the hard disk where you set up the default IIS location, and then right-click **Inetpub**.
3. Click **New**, and then click **Folder**. Type the folder name—for example, `adatum.home`, to represent the home server of A. Datum Corporation (Figure 4). This step simplifies the creation of IIS 5.0 Web sites in Internet Services Manager.

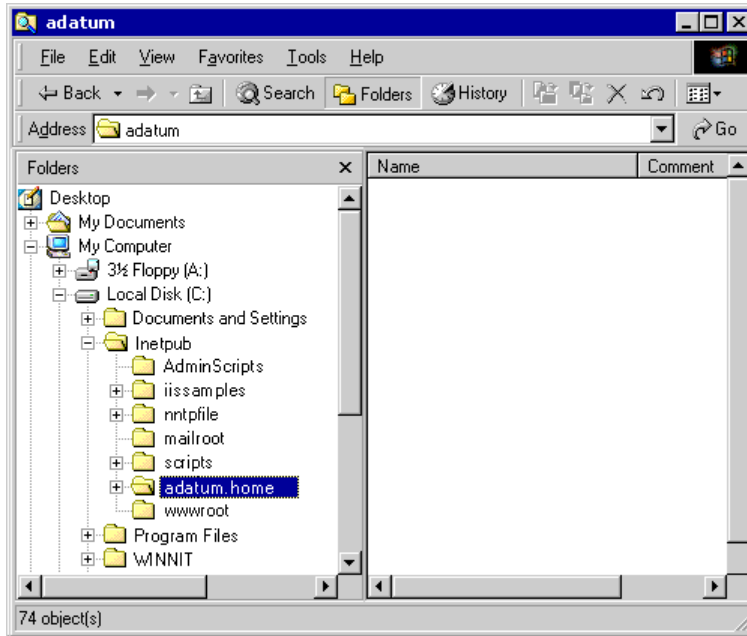


Figure 4 The Inetpub folder

► **To launch the Internet Information Services snap-in and create a new Web site**

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and click **Internet Services Manager**.
2. In the directory hierarchy of Internet Information Services, select the Instant Messaging computer and click the **Action** button from the menu.

3. Click **New**, and then click **Web Site** to launch the **Web Site Creation Wizard** (Figure 5). Click **Next**.



Figure 5 The Welcome to the Web Site Creation Wizard page

4. In the **Web Site Description** page, provide a description of the Web site to help administrators identify the Web site. For example, imhomeserver1.

5. In the **IP Address and Port Settings** page, type the IP address and the host header name that the Web site will use (Figure 6). The IP address and the host header name should be unique to each Instant Messaging server. For example, the host header name is home.adatum.com with an IP address of All Unassigned and TCP port is 80.

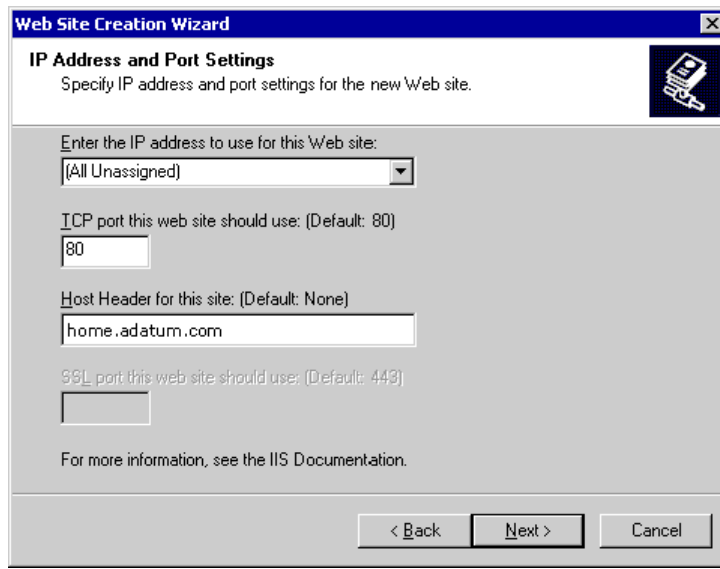


Figure 6 The IP Address and Port Settings page

6. In the **Web Site Home Directory** page, click **Browse** to select the home directory path for the new Web site (Figure 7). For this example, the path is C:\inetpub\adatum.home.

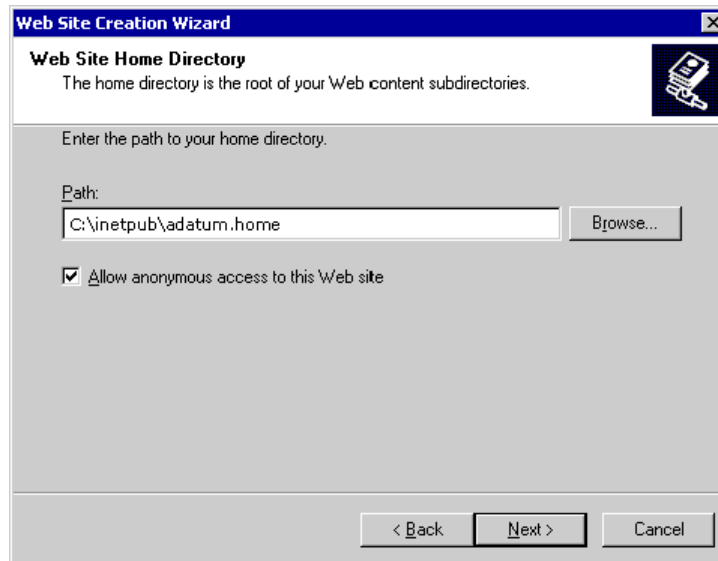


Figure 7 The Web Site Home Directory page

Important Do not clear the **Allow anonymous access to this Web site** check box. Security for this Web site is outlined later in this deployment process.

7. In the **Web Site Access Permissions** page, click **Next** to accept the default settings **Read** and **Run scripts** (Figure 8).



Figure 8 The Web Site Access Permissions page

8. In the **You have Successfully completed the Web Site Creation Wizard** page of the **Web Site Creation Wizard**, click **Finish** to complete the creation of the new Web site.

► **To create an Instant Messaging home server**

1. Click **Start**, point to **Programs**, point to **Microsoft Exchange**, and then click **System Manager**.
2. Expand **Servers**, expand the server in which you want to create the Instant Messaging home server, and then expand **Protocols**.
3. Right-click **Instant Messaging (RVP)**, point to **New**, and then click **Instant Messaging Virtual Server**.
4. In the **New Instant Messaging Virtual Server Wizard**, click **Next**.

5. In the **Enter Display Name** page, in the **Display Name** box, type a name to represent the virtual server (this is the server name displayed in System Manager), and then click **Next** (Figure 9). For this example, imhomeserver1.adatum.com.

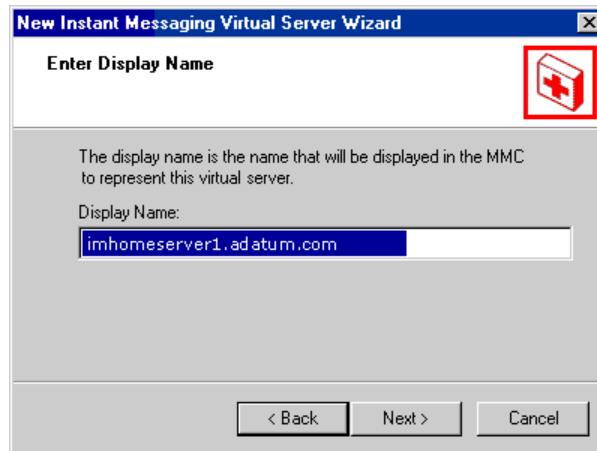


Figure 9 The Enter Display Name page

6. In the **Choose IIS Web Site** page, in the **IIS Web Sites** list, select the IIS Web site you created earlier—for example, imhomeserver1, and then click **Next** (Figure 10).

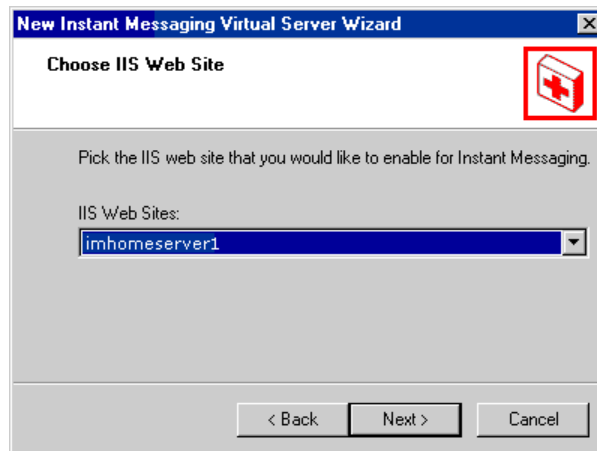


Figure 10 The Choose IIS Web Site page

Important You must have one IIS virtual server for every Instant Messaging home server you create. For more information, see the IIS online documentation.

7. In the **Domain Name** page, in the **DNS Domain Name** box, by default, the Domain Name System (DNS) domain name matches the fully qualified domain name of the computer (for this example, home.adatum.com). Click **Next** (Figure 11).

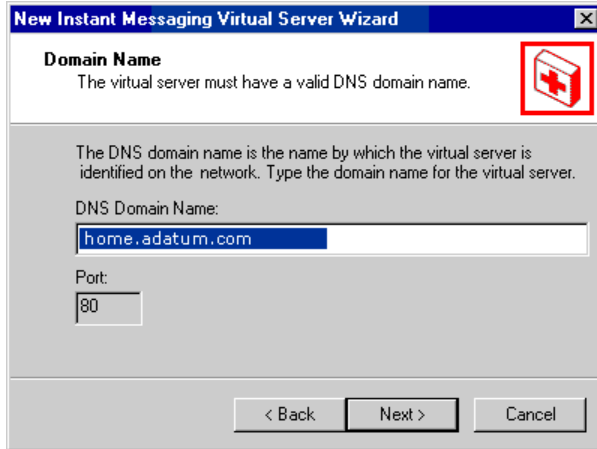


Figure 11 The Domain Name page

Note For the initial installation, accept the default entries in the **DNS Domain Name** and **Port** boxes.

8. In the **Instant Messaging Home Server** page, select the **Allow this server to host user accounts** check box, and then click **Next** (Figure 12). If you do not select this check box, the Instant Messaging home server is not created.

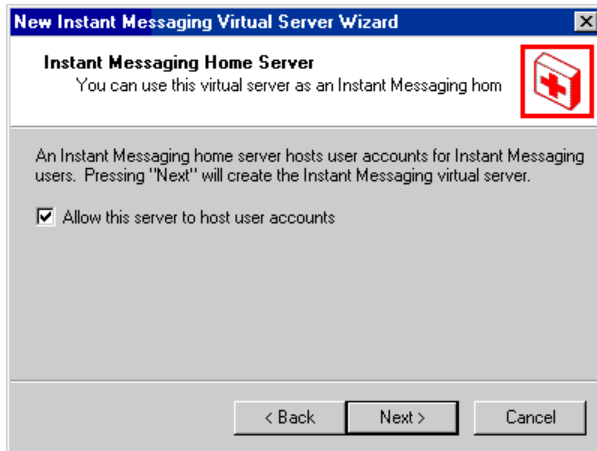


Figure 12 The Instant Messaging Home Server page

9. Click **Finish** to complete the setup of the Instant Messaging home server.

Note If the DNS domain name used in the New Instant Messaging Virtual Server Wizard is not resolvable by DNS (for example, if you created an IIS virtual server with a new domain name), you need to create the necessary DNS resource records. You also need to include a host address (A) record for the home server to ensure that the domain name is resolvable by DNS. Host address (A) records map a DNS domain name to an IP address used by a computer.

Creating an Instant Messaging Router

Create Instant Messaging routers for each of the organizations in A. Datum. An Instant Messaging router either proxies (routes) a message to a home server or redirects the client to the correct home server and sends messages to other servers on the network.

Important Before you create an Instant Messaging router, determine which Instant Messaging domain services the Instant Messaging router. IIS host headers, such as im.adatum.com, should be created on each Instant Messaging router so that the HTTP Web site can respond to the DNS name.

Note With the exception of step 8 of the following procedure, the procedure for creating an Instant Messaging router is the same as the procedure for creating an Instant Messaging home server.

Prior to creating the Instant Messaging router, you must complete the following procedures.

1. Create a new folder for the IIS Web site
2. Launch the Internet Information Services Snap-in and create a new Web site
3. Create an Instant Messaging router

► To create a new folder for the IIS Web site

1. Click **Start**, point to **Programs**, point to **Accessories**, and then click **Windows Explorer**.
2. Click **My Computer**, expand the folder on the hard disk where you set up the default IIS location, and then right-click **Inetpub**.

3. Click **New**, and then click **Folder**. Type the folder name—for example, `adatum.router`, to represent the router of A. Datum Corporation (Figure 13). This step simplifies the creation of IIS 5.0 Web sites in Internet Services Manager.

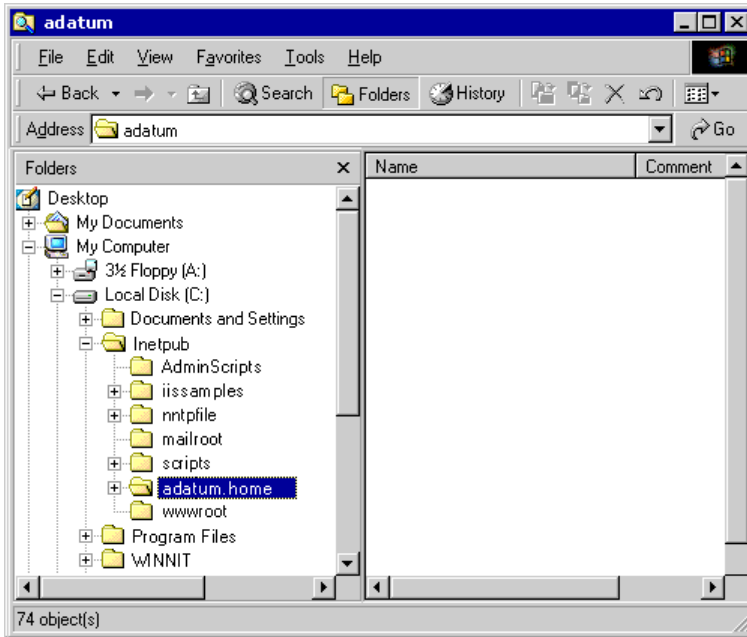


Figure 13 The Inetpub folder

► **To launch the Internet Information Services snap-in and create a new Web site**

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and click **Internet Services Manager**.
2. In the directory hierarchy of Internet Information Services, select the Instant Messaging computer, and click the **Action** button from the menu.

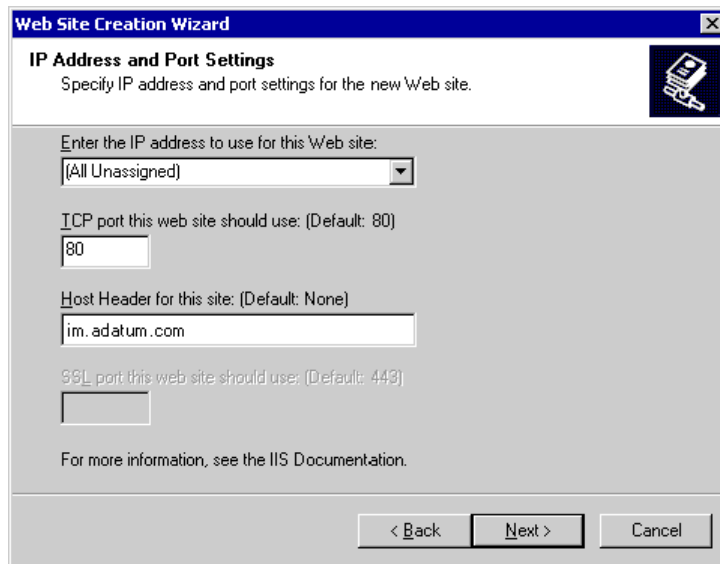
3. Click **New**, and then click **Web Site** to launch the **Web Site Creation Wizard** (Figure 14). Click **Next**.



Figure 14 The Welcome to the Web Site Creation Wizard page

4. In the **Web Site Description** page, provide a description of the Web site to help administrators identify the Web site. For example, imrouterserver1.

5. In the **IP Address and Port Settings** page, type the IP address and the host header name that the Web site will use (Figure 15). The IP address and the host header name should be unique to each Instant Messaging server. For example, the host header name is `im.adatum.com` with an IP address of All Unassigned and the TCP port is 80.



The screenshot shows a dialog box titled "Web Site Creation Wizard" with a sub-header "IP Address and Port Settings". The main instruction is "Specify IP address and port settings for the new Web site." The form contains the following fields:

- "Enter the IP address to use for this Web site:" with a dropdown menu set to "(All Unassigned)".
- "TCP port this web site should use: (Default: 80)" with a text box containing "80".
- "Host Header for this site: (Default: None)" with a text box containing "im.adatum.com".
- "SSL port this web site should use: (Default: 443)" with an empty text box.

At the bottom, there is a note: "For more information, see the IIS Documentation." and three buttons: "< Back", "Next >", and "Cancel".

Figure 15 The IP Address and Port Settings page

6. In the **Web Site Home Directory** page, click **Browse** to select the home directory path for the new Web site (Figure 16). For this example, the path is C:\inetpub\adatum.router.

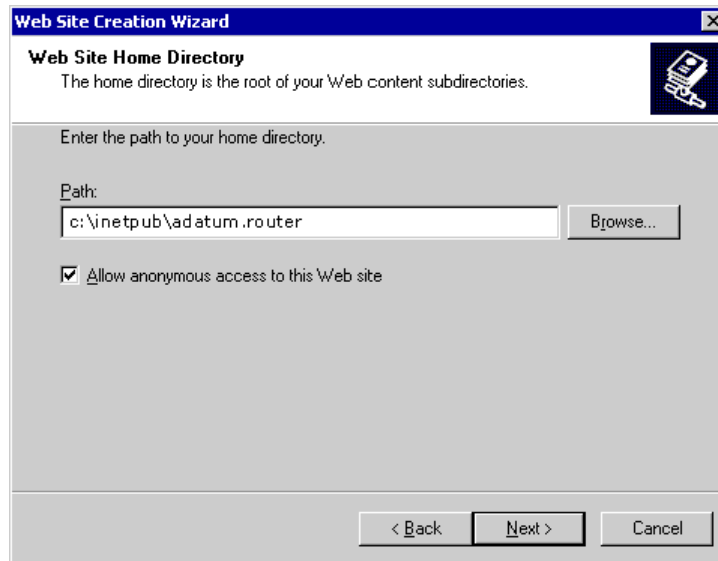


Figure 16 The Web Site Home Directory page

Important Do not clear the **Allow anonymous access to this Web site** check box. Security for this Web site is outlined later in this deployment process.

7. In the **Web Site Access Permissions** page, click **Next** to accept the default settings, **Read** and **Run scripts** (Figure 17).

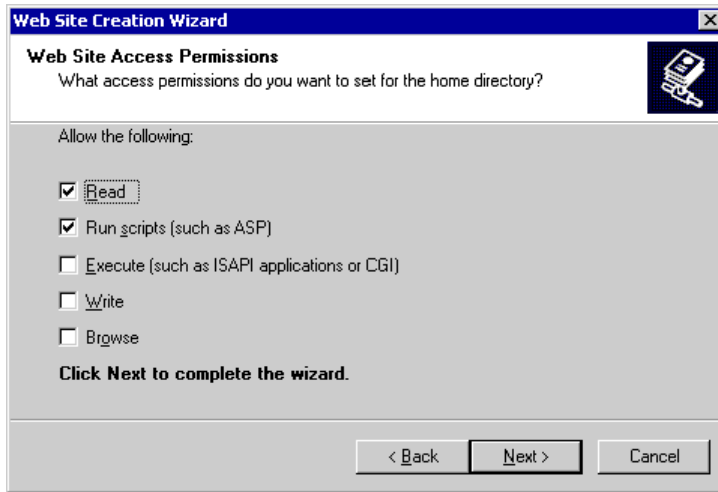


Figure 17 The Web Site Access Permissions page

8. In the **You have Successfully completed the Web Site Creation Wizard** page of the **Web Site Creation Wizard**, click **Finish** to complete the creation of the new Web site.
- **To create an Instant Messaging router**
1. Click **Start**, point to **Programs**, point to **Microsoft Exchange**, and then click **System Manager**.
 2. In the directory hierarchy, expand **Servers**, expand the server in which you want to create the Instant Messaging router, and then expand **Protocols**.
 3. Right-click **Instant Messaging (RVP)**, point to **New**, and then click **Instant Messaging Virtual Server**.
 4. In the **New Instant Messaging Virtual Server Wizard**, click **Next**.
 5. In the **Enter Display Name** page, in the **Display Name** box, type a name to represent the virtual server. (This is the server name displayed in System Manager.) For example, imrouterserver1.adatum.com. Click **Next**.

6. In the **Choose IIS Web Site** page, in the **IIS Web Sites** list, select the IIS Web site you created earlier—for example, `imrouterserver1`, and then click **Next** (Figure 18).

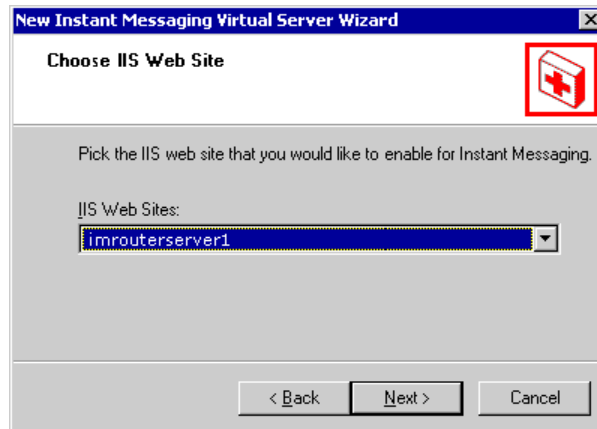


Figure 18 The Choose IIS Web Site page

7. In the **Domain Name** page, in the **DNS Domain Name** box, by default the DNS domain name matches the fully qualified domain name of the computer (for example, `im.adatum.com`). Click **Next** (Figure 19).

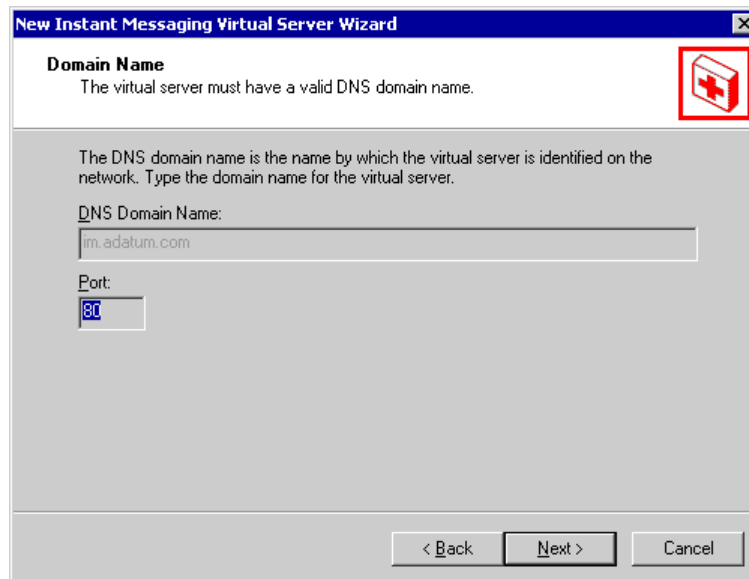


Figure 19 The Domain Name page

8. On the **Instant Messaging Home Server** page, clear the **Allow this server to host user accounts** check box, and then click **Next** (Figure 20).

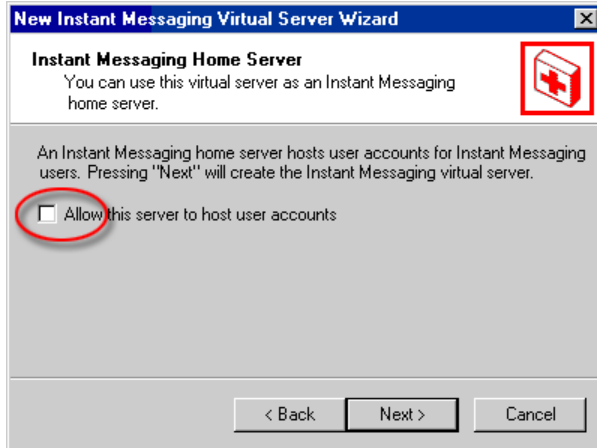


Figure 20 The **Allow this server to host user accounts** check box on the **Instant Messaging Home Server** page

9. Click **Finish** to complete the setup of the Instant Messaging router.

Note Ensure that you have the necessary DNS resource records for the Instant Messaging router. If you have more than one Instant Messaging router, each router must have a host address (A) record.

Note For a group of Instant Messaging routers that have the same Instant Messaging domain name (the typical situation for large installations), use a DNS round robin (a sequential, cyclical allocation of resources to more than one process or device) to translate the same domain name to the different IP addresses of the routers. This option is not available for home servers.

Setting the Connection Configuration for Instant Message Polling and Fixed Port Callback Delivery

Instant Message Polling and Fixed Port callback delivery are new connection features available in Microsoft Exchange 2000 Server Service Pack 1 (SP1) or higher. These features facilitate connections between the Instant Messaging server and the Instant Messaging client even if a firewall protects the Instant Messaging client or server.

In Instant Message Polling, the Instant Messaging client polls the Instant Messaging server at regular intervals to check for pending messages. When a connection is established with the Instant Messaging server, the messages are delivered.

In Fixed Port callback delivery, a single port or range of ports is designated for outbound connections from the Instant Messaging server to the Instant Messaging client.

For more information about Instant Message Polling and Fixed Port callback delivery, see the “Instant Message Polling and Fixed Port Callback Delivery” paper available at <http://www.microsoft.com/exchange/>.

Creating DNS Forward and Reverse Lookup Zones and DNS Resource Records

You must create Domain Name System (DNS) forward and reverse lookup zones for the ASP environment to ensure that Instant Messaging communication occurs over DNS.

Note For proper DNS resolution to occur for the home and router servers of the organization, either these servers must have a DNS entry to the external DNS for their public network interface card (NIC), or the internal DNS of the Exchange domain must be able to route DNS requests to the Internet, and the external DNS must be registered on the Internet.

► To create a DNS forward lookup zone

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **DNS**.
2. In DNS, right-click the server, and then click **New Zone** to launch **New Zone Wizard** (Figure 21).



Figure 21 The Welcome to the New Zone Wizard page

3. In the **Welcome to the New Zone Wizard** page, click **Next**.

4. In the **Zone Type** page, click **Standard primary**, and then click **Next** (Figure 22).

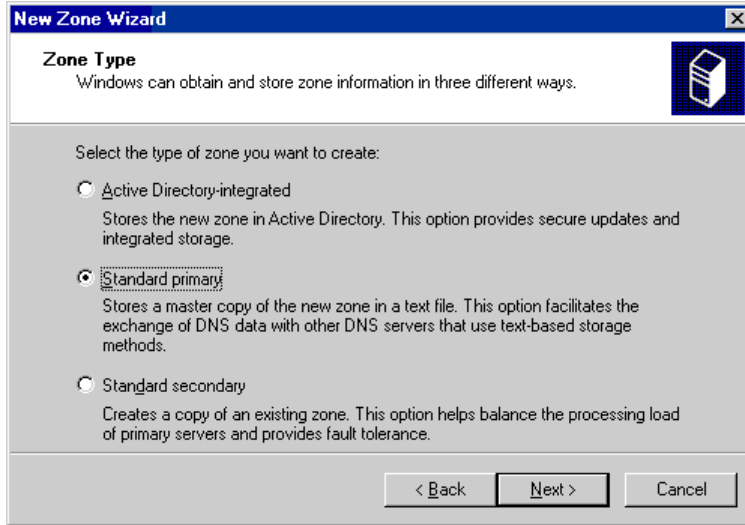


Figure 22 The Zone Type page

5. In the **Forward or Reverse Lookup Zone** page, click **Forward lookup zone**, and then click **Next** (Figure 23).

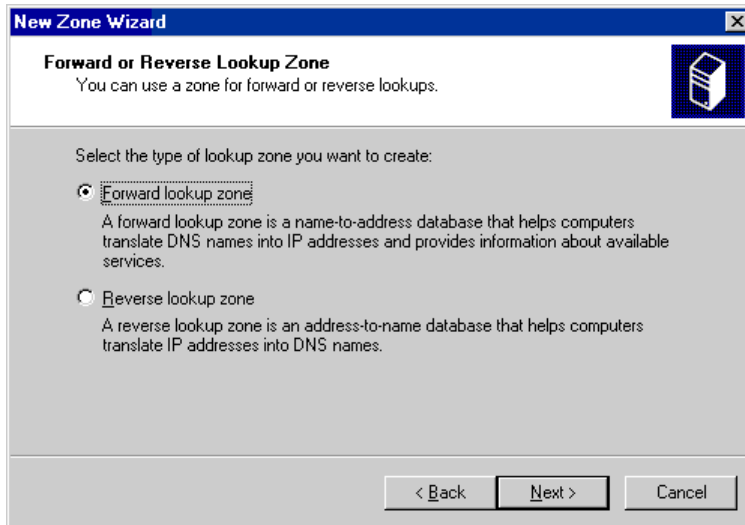
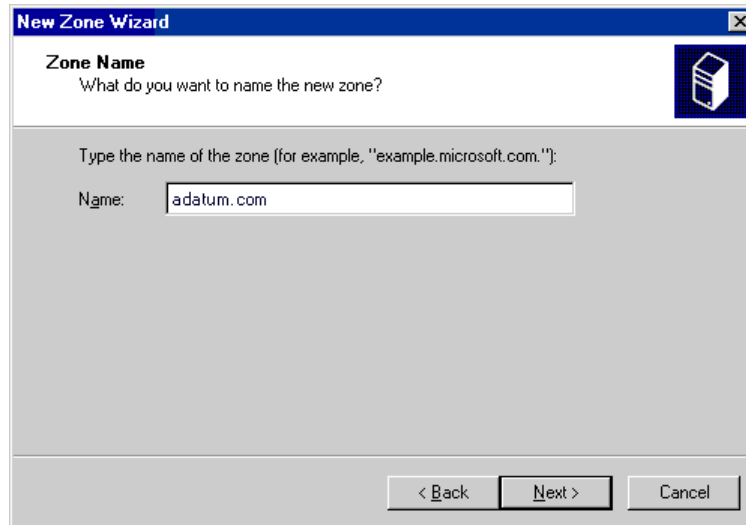


Figure 23 The Forward or Reverse Lookup Zone page

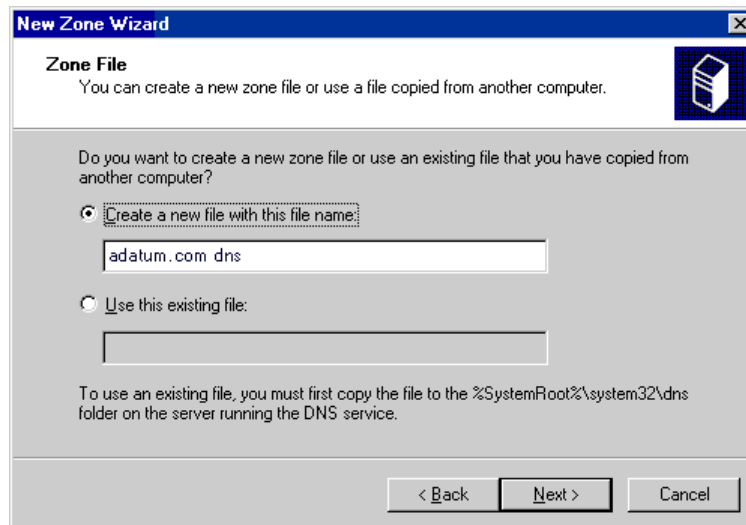
- In the **Zone Name** page, type the **Zone Name** for the DNS domain. For example, adatum.com (Figure 24).



The screenshot shows a Windows dialog box titled "New Zone Wizard". The "Zone Name" section asks "What do you want to name the new zone?". Below this, it says "Type the name of the zone (for example, 'example.microsoft.com.'):". A text input field labeled "Name:" contains the text "adatum.com". At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Figure 24 The Zone Name page

- On the **Zone File** page, click **Next** (Figure 25). On the next page, click **Finish**.



The screenshot shows a Windows dialog box titled "New Zone Wizard". The "Zone File" section asks "You can create a new zone file or use a file copied from another computer.". Below this, it asks "Do you want to create a new zone file or use an existing file that you have copied from another computer?". There are two radio button options: "Create a new file with this file name:" (which is selected) and "Use this existing file:". The "Create a new file" option has a text input field containing "adatum.com dns". The "Use this existing file" option has an empty text input field. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Figure 25 The Zone File page

Note If the reverse lookup zone is already present, you can skip the **Create a DNS reverse lookup zone** procedure.

► **To create a DNS reverse lookup zone**

1. In **DNS Manager**, right-click the server, and then click **New Zone**.
2. In the **Zone Type** page, click **Standard primary**, and then click **Next**.

Note The Zone Name is derived from the IP network address.

3. In the **Forward or Reverse Lookup Zone** page, click **Reverse lookup zone**, and then click **Next** (Figure 26).

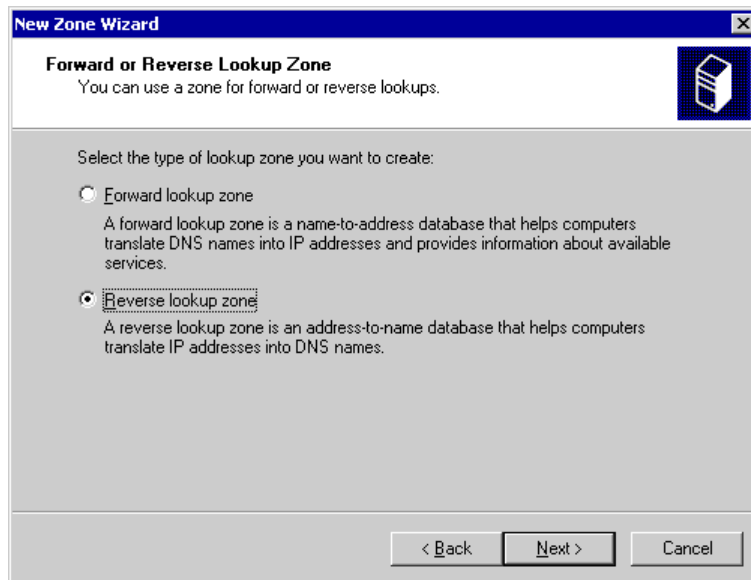


Figure 26 The Forward or Reverse Lookup Zone page

4. In the **Reverse Lookup Zone** page, type the Network ID, and then click **Next** (Figure 27).

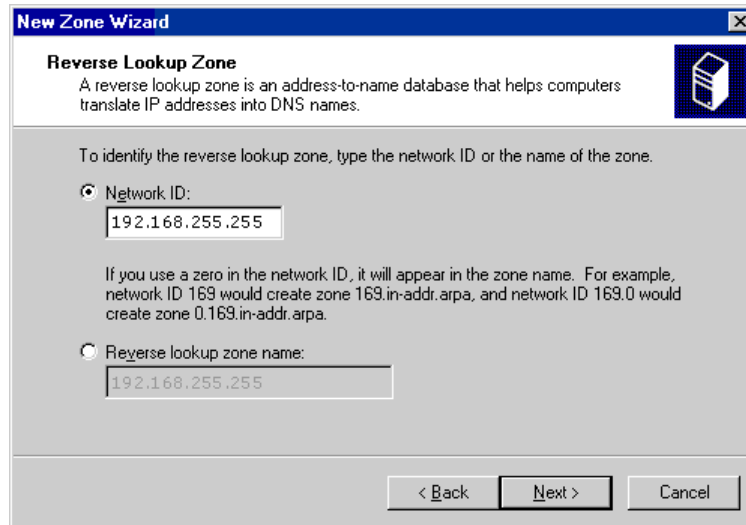


Figure 27 The Reverse Lookup Zone page

5. In the **Zone File** page, click **Next**, and then click **Finish**.

Note Reverse lookup zones may not be necessary in your network, but it is recommended that one be present. If you do not configure a reverse lookup zone, NSlookup, a tool that tests the DNS name resolution, fails when run on the DNS server. NSlookup also supports reverse DNS lookups and can find a host name from an IP address.

Creating Host Records

You need to create host records for each of the Instant Messaging servers you created. You must create a host record for the Instant Messaging home server and Instant Messaging router. For example, host address (A) records are created for home.adatum.com (home server) and im.adatum.com (router). The following procedure describes how to create host records for the Instant Messaging home server, home.adatum.com.

► To create host records

1. Expand the **Forward Lookup Zone**, click the zone you want, right-click the forward zone—for example, **adatum.com**, and then click **New Host**.
2. In the **New Host** page, type the host name of the DNS and the IP address. For example, home.

3. Select the **Create associated pointer (PTR) record** check box, and then click **Add Host** (Figure 28).

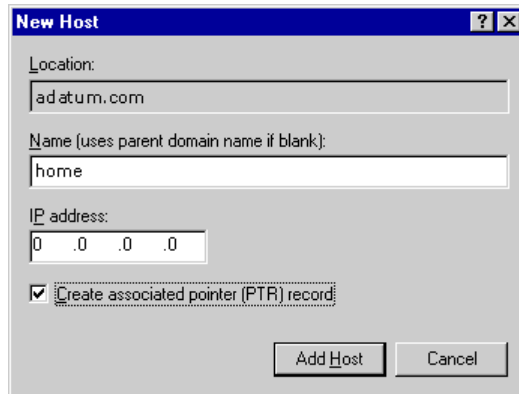


Figure 28 The New Host page

4. In the **The host record home.adatum.com was successfully created** message box, click **OK** (Figure 29). Then click **Done**.

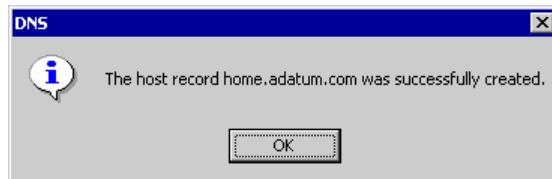


Figure 29 The host record home.adatum.com was successfully created message box

Important You must create host records for the Instant Messaging router (not shown here).

Setting Administrative Permissions

The Exchange Administration Delegation Wizard is a tool that simplifies delegating permissions to Exchange administrators. When you start the Exchange Administration Delegation Wizard, it prompts for users and groups to which you want to apply the administrative permissions. You can delegate administrative permissions at the organization level in System Manager or at an administrative group level. The scope of permissions you set is determined by the place from which you launch the wizard. If you launch the wizard from the organization level, the groups or users that you specify have administrative permissions at the organizational level.

► **To set administrative permissions using the Exchange Administration Delegation Wizard**

1. On the **Start** menu, point to **Programs**, point to **Microsoft Exchange**, and then click **System Manager**.
2. Right-click the organization or administrative group for which you want to delegate administrative permissions, and then click **Delegate Control**.
3. In the **Exchange Administration Delegation Wizard**, click **Next**.
4. In **Users or Groups**, click **Add** to grant a new user or group administrative permissions.
5. In the **Delegate Control** page, click **Browse** (Figure 30).

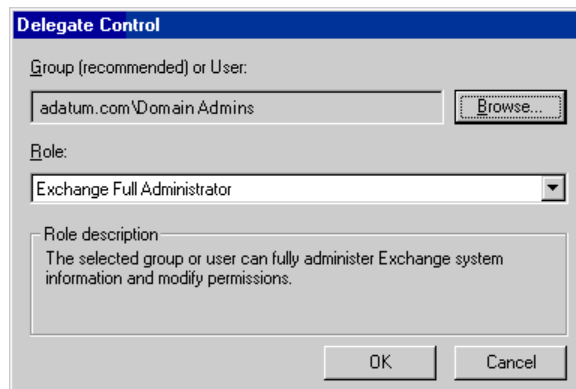


Figure 30 The Delegate Control page

6. In the **Look in** list, select a group or user to whom you want to grant permissions. You can view the list of groups and users in Active Directory or the list in a particular domain. Alternately, in **Name**, you can type the name of the group or user to whom you want to grant permissions. You must type one name at a time.
7. After you select a group or user in the **Delegate Control** page, in the **Role list**, select one of the following types of administrative permissions for the group or user:
 - **Exchange Administrator** Groups or users with this permission can fully administer Exchange system information.
 - **Exchange Full Administrator** Groups or users with this permission can fully administer Exchange system information and modify permissions.
 - **Exchange View Only Administrator** Groups or users with this permission can view Exchange configuration information.
8. To remove a group or user, select the group or user, and then click **Remove**.
9. To assign the permissions, click **Next**, and then click **Finish**.

Setting or Changing a Password Policy

Instant Messaging uses the same passwords as those used by Windows 2000 Server. You can reset user passwords from Active Directory Users and Computers. For more information, see Windows 2000 online documentation.

► **To set or change a password policy**

1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.
2. In **Active Directory Users and Computers**, in the directory hierarchy, right-click the object for which you want to set or change the password policy, and then click **Properties**.
3. In the server properties page, click **Group Policy**.
4. On the **Group Policy** tab, under **Group Policy Object Links**, click **Default Domain Policy**, and then click the **Edit** button (Figure 31).

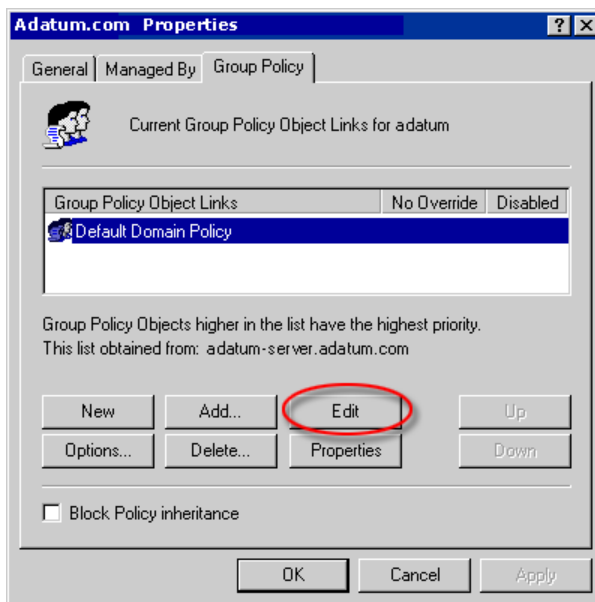


Figure 31 The Edit button on the Group Policy tab in the server properties page

5. In the **Group Policy** page:
- a. On the **Tree** tab, in **Computer Configuration**, expand **Windows Settings**, expand **Security Settings**, expand **Account Policies**, and then click **Password Policy** (Figure 32).

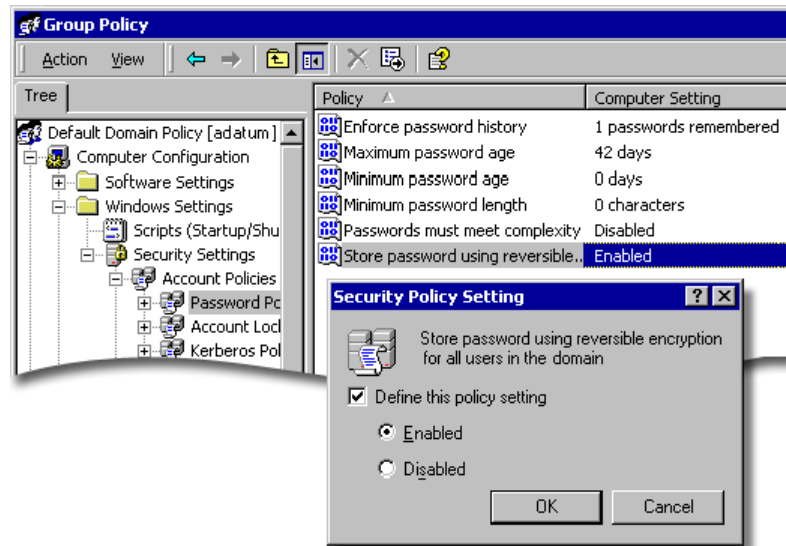


Figure 32 The Group Policy and Security Policy Setting pages

- b. Under **Policy**, right-click **Store password using reversible encryption for all users in the domain**, and then click **Security**.
- c. In the **Security Policy Setting** page, select the **Define this policy setting** check box, click **Enabled**, and then click **OK**.

Tip To propagate this change immediately throughout the domain, open a command prompt and type the following command:
secdit/refreshpolicy MACHINE_POLICY

Allowing Users to Access Instant Messaging

Important You must activate Instant Messaging for users. You must also activate Instant Message Polling on all Instant Messaging servers.

- **To allow users to access Instant Messaging**
 1. Click **Start**, point to **Programs**, point to **Administrative Tools**, and then click **Active Directory Users and Computers**.

- 2.** In **Active Directory Users and Computers**, in the directory hierarchy, expand the server you want, and then click **Users**. If you need to create a new user account, perform the following steps.
 - a.** Right-click **Users**, point to **New**, and then click **User**.
 - b.** In **New Object – User**, type the user’s information in the appropriate boxes, and then click **Next**.
 - c.** Type the user’s password in the appropriate boxes, and then click **Next**.
 - d.** This step (d) is optional but necessary if you want to create Exchange mailboxes for users. Select the **Create an Exchange mailbox** check box, and then click **Next**. (To authenticate users, Instant Messaging uses the same password as Windows 2000 Server. An Exchange mailbox is not required to use Instant Messaging.)
 - e.** Verify that the user’s information is correct, and then click **Finish**.

Important If you require Internet validation and your users have been enabled to access Instant Messaging, you can activate digest authentication. Digest authentication is required for Instant Messaging to work across firewalls or proxy servers. After you set the group policy, you must change the user’s password. The change in group policy cannot be used until the user changes the password or the administrator resets the user’s password. Non-digest scenarios continue to function as before. To reset the user’s password, use Active Directory Users and Computers. Resetting passwords is necessary only if you want to deploy digest authentication. For more information, see Microsoft Windows 2000 online documentation.

- 3.** In the details pane, right-click the user you want, and then click **Exchange Tasks** to start **Exchange Task Wizard**.

4. In the **Available Tasks** page, under **Select a task to perform**, click **Enable Instant Messaging**, and then click **Next** (Figure 33).

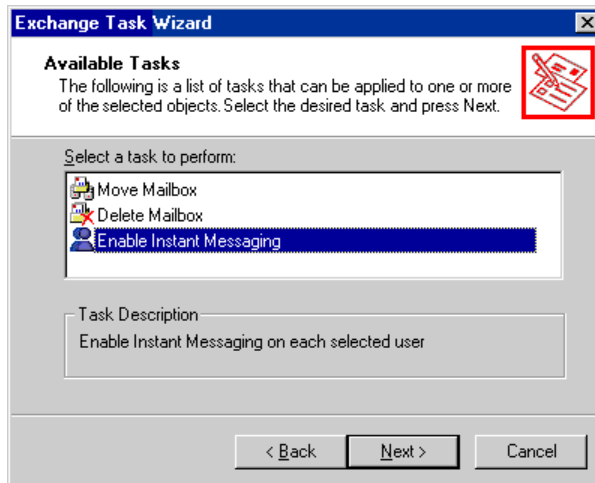


Figure 33 The Enable Instant Messaging option in the Available Tasks page

5. In the **Enable Instant Messaging** page, click **Browse**.
6. In **Select Instant Messaging Server**, on the **General** tab, under **Server Name**, click the home server you want, for example `imhomeserver1.adatum.com`, and then click **OK** (Figure 34).

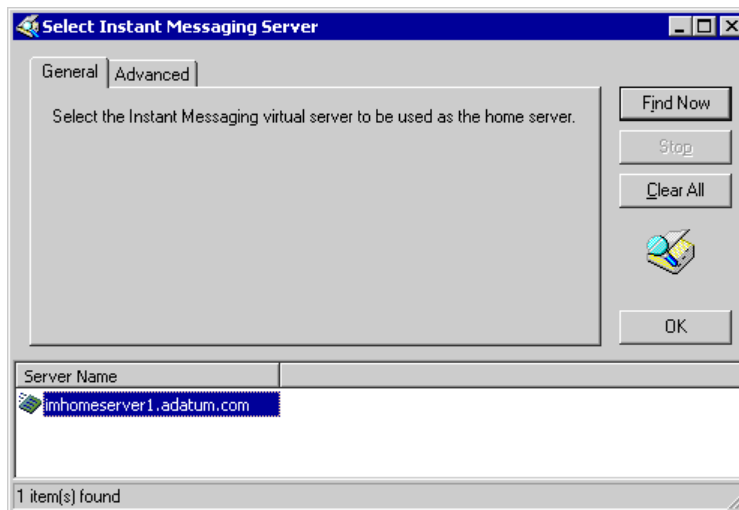


Figure 34 The Server Name selection in the Select Instant Messaging Server page

7. In the **Enable Instant Messaging** page, in the **Instant Messaging Domain Name** list, click the domain name you want, and then click **Next** (Figure 35).

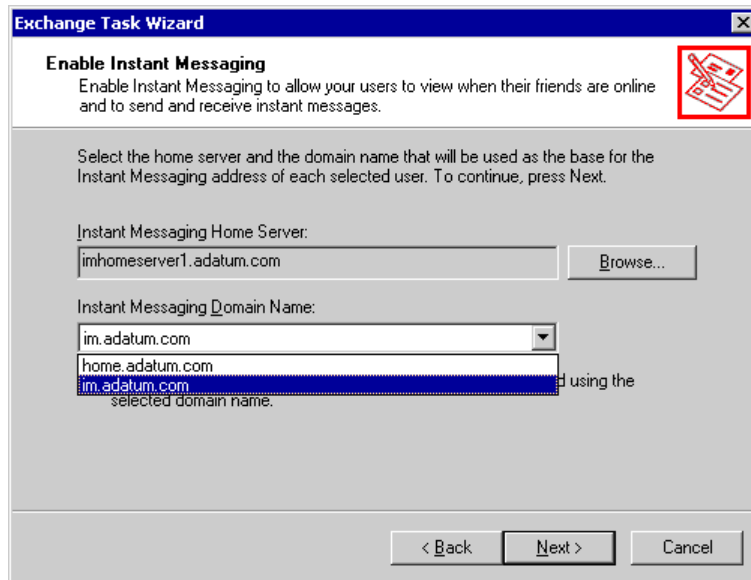


Figure 35 The Enable Instant Messaging page

Note If you have already configured an SRV, you do not have to click the domain name you want from the **Instant Messaging Domain Name** list. A DNS SRV resource record can be used to map an e-mail domain to an Instant Messaging domain. When a user has a valid e-mail address configured, Instant Messaging Service performs a DNS SRV lookup to determine the Instant Messaging domain of the user.

8. In the **Completing the Exchange Task Wizard** page, under **Task summary**, review the user information, including the Instant Messaging user address, public URL, and home server URL. The user needs the Instant Messaging user address to log on to Instant Messaging Service. Then click **Finish**.

Note If you configured an SRV resource record before you enabled the user to access Instant Messaging and if the user was already assigned a primary e-mail address with a domain matching the DNS zone for the SRV resource record, the Instant Messaging address for this user is the same as the primary SMTP address (for example, `username@email_domain`). If you did not configure an SRV resource record, the Instant Messaging address for this user takes the following form: `username@Instant_Messaging_Domain`. For example, `user@im.adatum.com`.

Distributing the Client Software

As an administrator in your Exchange 2000 organization, you are responsible for distributing the Instant Messaging client software to users and providing them with instructions for logging on to Instant Messaging Service.

► To distribute the client software

1. The Microsoft Exchange 2000 Server Instant Messaging client is no longer distributed on CD. The latest version of the Exchange Instant Messaging client is available on the Microsoft Exchange Web site at <http://www.microsoft.com/exchange>. To obtain the latest version of the Exchange Instant Messaging client, go to the Exchange Web site and select **Downloads**. On the **Downloads** page, click **Instant Messaging Services Client for Exchange 2000**. The client is available for download in all of the supported languages.

Important Versions earlier than Exchange 2000 Server SP1 do not support Instant Message Polling. For Instant Message Polling support, you must upgrade to Instant Messaging client provided with Exchange 2000 Server SP1 or higher.

2. Copy the Mmssetup.exe file to a network location that is accessible to your users, such as a server share or a Web page.
3. Instruct users to install the Instant Messaging client program by running Mmssetup.exe from the shared location.
4. Provide each user with the following logon information:
 - **User Name:** *Alias@E-mail_Domain* (if an SRV record is used)
or *Alias@Instant_Messaging_Domain* (if an SRV record is not used), where *Alias* and *Instant_Messaging_Domain* are the account name and Instant Messaging domain.
 - **NT Name:** User name in the Windows 2000 domain
 - **Password:** *password*

For more information about how to deploy software to multiple users, see:

- *Microsoft Systems Management Server Resource Guide*
- *Microsoft Windows 2000 Server Resource Kit*

Testing Instant Messaging Functionality

You need to supply your credentials to log on to Exchange Instant Messaging.

► To test Instant Messaging functionality

1. In the **Sign In** box, type your full e-mail address, user name, and password.

2. To log on, click **OK** (Figure 36).



Figure 36 The Sign In page for Instant Messaging

3. You are connected to Exchange Instant Messaging Service and see your Exchange contact list, unless authentication fails.

Setting Connection Configuration Options

Using the **Exchange Connection Configuration** page, you can select the method of notification you want to set for the Instant Messaging client. The user configures these notifications.

Important If the client registry settings were previously configured on Instant Messaging client, the following connection configuration settings override those client registry settings.

► To configure notifications

1. Click **Start**, and then click **Exchange Instant Messaging**.

2. On the **Tools** menu, click **Options**, click **Accounts**, and then click **Advanced** (Figure 37). The **Connection Configuration** page is displayed.

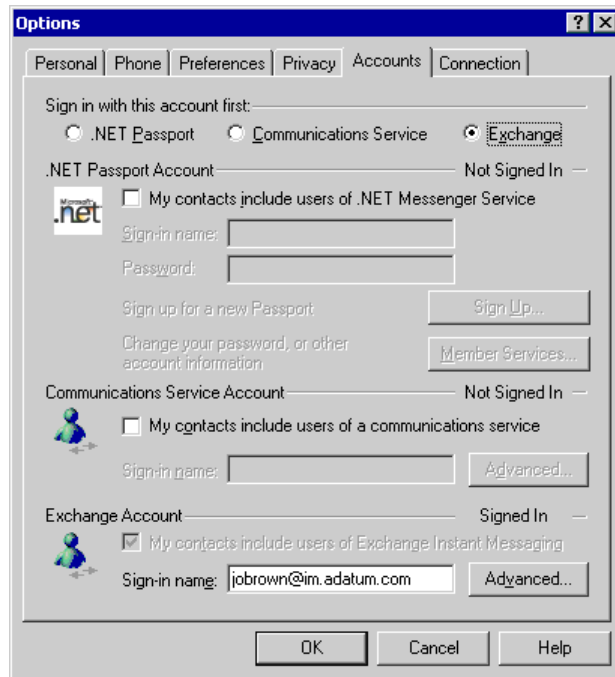


Figure 37 Advanced button on the Accounts tab in the Options page

3. In the **Exchange Connection Configuration** page, click **Default**, **Polling**, or **Fixed Port(s)** (Figure 38).

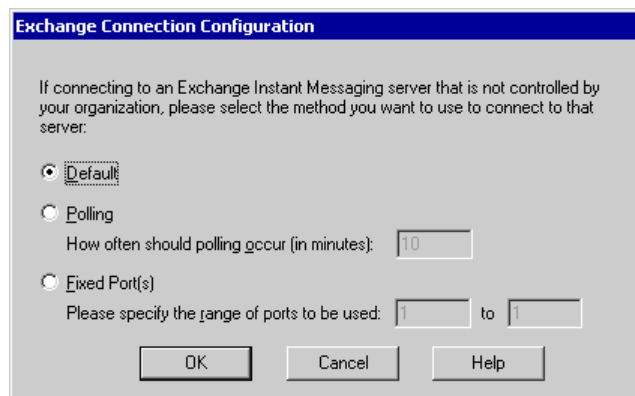


Figure 38 The Connection Configuration page

- Click **Default** to receive your contact's online status and instant messages through a random port.
- Click **Polling** to activate the Instant Message Polling feature. The **How often should polling occur (in minutes)** text box has a default value of 10 minutes. The maximum permissible time is 15 minutes. If you enter a value that is not valid (values smaller than 1 or larger than 15), and then click **OK**, an error message prompts you to enter a value between 1 and 15 minutes.
- Click **Fixed Port(s)** to activate the Fixed Port callback delivery feature. In the **Please specify the range of ports to be used** text boxes, values can range from 1025 to 65535. If you enter a port range that is not valid (values smaller than 1025 or larger than 65535), and then click **OK**, an error message prompts you to enter a value in the permissible range.

Note Although you can input value ranges from 1 to 65535 in the user interface for the **Fixed Port(s)** option, the actual permissible range is 1025 to 65535. If you select port ranges below 1025, the Instant Messaging server defaults to random port selection.

4. After you click **Default**, **Polling**, or **Fixed Port(s)** and enter valid values in the appropriate text boxes, click **OK**. The registry is then updated with the new setting, and you are returned to the **Options** page. The message box notification **The changes you made to your connection configuration won't take effect until the next time you sign in** is displayed. The new settings take effect only after you log off from and then log on to the Instant Messaging client. If you click **Cancel**, the registry is not affected, and you are returned to the **Options** page.

Important The administrator must use Registry Editor to add the Instant Messaging value. The registry values exist in the following directory:
`\\HKEY_LOCAL_MACHINE\Software\Microsoft\Exchange\InstantMessaging`. The server registry settings must be configured first for Instant Message Polling and Fixed Port callback delivery to function properly.

For more information about Registry Editor, see the Microsoft TechNet Web site at <http://www.microsoft.com/technet/>. For more information about Instant Message Polling and Fixed Port callback delivery, see the "Instant Message Polling and Fixed Port Callback Delivery" paper available at <http://www.microsoft.com/exchange/>.

4

Instant Messaging Scenarios

This section describes the Instant Messaging flow scenarios between two Instant Messaging users, Jo Brown and Kari Hensien. For this example, both Instant Messaging users have im.adatum.com domain, and an RVP record has been defined in the DNS for adatum.com. Jo Brown is homed on the Instant Messaging home server with DNS name imhomeserver1, and Kari Hensien on imhomeserver2. The following scenarios are discussed in detail:

- Logging on to Instant Messaging
- Adding contacts to the contact list
- Contact logs on to Instant Messaging
- Users communicate using Instant Messaging
- Contact changes presence information
- User's presence information changes to idle
- User logs off the computer

Scenario 1: Logging On to Instant Messaging

This scenario discusses the Instant Messaging flow when an Instant Messaging user, Jo Brown, logs on to Instant Messaging Service. The following flow chart (Figure 39) describes the user logon process.

Note The flow chart in Figure 39 is an overview of the user logon process, and does not document all the steps of the process. The section then discusses the logon process in detail.

1. Instant Messaging user, Jo Brown, logs on to Instant Messaging Service with the Instant Messaging address JoBrown@adatum.com.

2. The Instant Messaging client performs a DNS SRV lookup for `_RVP._TCP.adatum.com` to locate the Instant Messaging router `im.adatum.com`.
3. DNS SRV lookup generates the Instant Messaging URL of `http://im.adatum.com/instmsg/aliases/JoBrown`.
4. The Instant Messaging client sends an HTTP SUBSCRIBE method to 80 at the IP address. The Instant Messaging client sends connection requests to the Instant Messaging server through port 80 and registers an IP address and callback port greater than 1024. The Instant Messaging server contacts the Instant Messaging client on the registered callback port. This contact is important for firewall implications, as this is the port number on which the Instant Messaging home server communicates with the Instant Messaging client.
5. A header called RVP-From-Principal indicates the Instant Messaging URL of the user, Jo Brown, who is attempting to log on. For example, in the callback URL `http://10.10.1.98:1051`, the numbers 10.10.1.98 indicate the IP address of Jo Brown's computer. The number 1051 is the registered callback port number.
6. The Instant Messaging client on the Instant Messaging router locates Active Directory to determine the Instant Messaging home server for Jo Brown and retrieves the private URL of `http://imhomeserver1/instmsg/aliases/local/im.adatum.com/instmsg/aliases/JoBrown`. The Instant Messaging router returns the referral to Jo Brown's Instant Messaging home server. Then, the Instant Messaging client sends the message to the Instant Messaging home server.
7. The Instant Messaging home server, `imhomeserver1`, sets the callback property on `http://imhomeserver1/instmsg/local/im.adatum.com/instmsg/aliases/JoBrown` in the host header. This private URL is used to send any notification requests to the user's Instant Messaging URL. These requests may be incoming instant messages or incoming notifications of presence changes.
8. The `instmsg` ISAPI extension at `im.adatum.com` must authenticate the SUBSCRIBE request by finding the user object in Active Directory that matches the client's Instant Messaging URL. For example, `http://imhomeserver1/instmsg/aliases/local/im.adatum.com/instmsg/aliases/JoBrown`. If the server supports NTLM and digest authentication, NTLM authentication is attempted first. If NTLM authentication fails, digest authentication is attempted. Digest authentication is an Internet standard that allows clients to authenticate by using a sequence of challenges and responses carried over HTTP. Digest authentication is required for Instant Messaging users that are connecting through a firewall or proxy servers. Digest authentication needs to be configured on every Web site and virtual directory that hosts Instant Messaging. The Instant Messaging client retrieves the

password from the user and sends the password to the server. The server verifies the password.

Note A default domain policy must be set that allows user passwords to be stored in Active Directory in a reversible encrypted form. This policy allows the Instant Messaging server to retrieve and verify the user's password.

9. The Instant Messaging client issues PROPPATCH, PROPFIND, and SUBSCRIPTION requests, which are sent asynchronously to the Instant Messaging home server.
 - a. A PROPPATCH request is sent to set the presence information of the URL to "Online". This presence information is timed out in 20 minutes. If the Instant Messaging client does not issue another PROPPATCH within 20 minutes, the Instant Messaging home server sets the presence information to the default value "Offline".
 - b. The PROPFIND Request queries for Jo Brown's online status to synchronize the presence information.
 - c. The Instant Messaging client issues a SUBSCRIPTION request to find other users that have subscribed to Jo Brown's presence information. When the presence information is set to "Online," the Instant Messaging client issues an access control list (ACL) request to retrieve its Allow/Block lists.
10. The Instant Messaging home server examines the list of Instant Messaging URLs that are subscribed to the presence information of the user. The home server then generates and sends a NOTIFY method indicating the change of presence information from "Offline" to "Online" to each subscribed Instant Messaging URL.
11. The Instant Messaging client examines the list of contacts to whose presence information the user is subscribed. The contacts list is located in the registry: **HKCU/Software/Microsoft/Exchange/Messaging /<IM URL>/Contacts**. Each contact has its Instant Messaging address stored as a value under this key. The Instant Messaging client converts each Instant Messaging address into an Instant Messaging URL and then sends a SUBSCRIBE request to the user's URL.

Scenario 2: Adding Contacts to the Contact List

This scenario describes the Instant Messaging flow when the user adds contacts to the contact list. In this example, Jo Brown adds Kari Hensien to the Instant Messaging contact list.

1. Jo Brown adds Kari Hensien to the Instant Messaging contact list. To add a contact, click the **Instant Messaging** window, click **Open**, click **Tools**, and then click **Add a Contact**. In the Add a Contact Wizard, click: **By e-mail address or sign-in name** (if this information is known. For example, if Jo Brown knows the contact information of

Kari Hensien).

—Or—

Search for a contact to find the Kari Hensien's e-mail address. Follow the directions in the wizard. When searching, be sure **Microsoft Exchange Instant Messaging** appears in the **Search for this person at** box. If not, select it from the drop-down menu.

2. The Instant Messaging client performs a DNS SRV lookup to locate the user, Keri Hensien's, router `im.adatum.com`. An Instant Messaging URL of `http://im.adatum.com/instmsg/aliases/KariHensien` is generated.
3. An HTTP SUBSCRIBE request is sent to port 80 to the URL `http://im.adatum.com/instmsg/aliases/KariHensien` on the Instant Messaging router `im.adatum.com`. An HTTP header called `Notification-Type` indicates that this is an update/propchange subscription requesting notifications of presence information changes of the user, Kari Hensien. The Instant Messaging router `im.adatum.com` searches Active Directory to find the private Instant Messaging URL of Kari Hensien. The Instant Messaging server either proxies or redirects the Instant Messaging client to the Instant Messaging home server:
`http://imhomeserver2/instmsg/local/im.adatum.com/instmsg/aliases/KariHensien`.
4. The Instant Messaging home server sets a callback property on `http://im.adatum.com/instmsg/aliases/JoBrown`.
5. The originating user's Instant Messaging URL, `http://im.adatum.com/instmsg/aliases/JoBrown`, is logged as a property on this node. This value times out after 4 hours.

Scenario 3: Contact Logs On to Instant Messaging

1. Instant Messaging user, Kari Hensien, logs on to Instant Messaging Service with the Instant Messaging address: `KariHensien@adatum.com`.
2. The Instant Messaging client performs a DNS SRV lookup for `_RVP._TCP.adatum.com` to locate the Instant Messaging router `im.adatum.com`.
3. The Instant Messaging client performs a DNS SRV lookup for `adatum.com` in the DNS zone. The DNS SRV lookup generates the Instant Messaging URL of `http://im.adatum.com/instmsg/aliases/KariHensien`.
4. The Instant Messaging client sends an HTTP SUBSCRIBE method to port 80 at the IP address. The Instant Messaging client sends connection requests to the Instant Messaging server through port 80 and registers an IP address and callback port greater than 1024. The Instant Messaging server contacts the Instant Messaging client on the registered callback port. The registered callback port is important, because this is the port number on which the Instant Messaging home server communicates with the

Instant Messaging client, even if you are using a firewall. Outbound ports must be opened on firewalls to send out messages.

5. A header called RVP-From-Principal indicates that the Instant Messaging URL of the user, Kari Hensien, who is attempting to log on. For example, in the callback URL `http://10.10.1.98:1051`, the numbers 10.10.1.98 indicate the IP address of Kari Hensien's computer. The number 1051 is the registered callback port number.
6. The Instant Messaging client on the Instant Messaging router locates Active Directory to determine the Instant Messaging home server for Kari Hensien and retrieves the private URL of `http://imhomeserver2/instmsg/aliases/local/im.adatum.com/instmsg/aliases/KariHensien`. The Instant Messaging router returns the referral to Kari Hensien's Instant Messaging home server. Then, the Instant Messaging client sends the message to the Instant Messaging home server.
7. The Instant Messaging home server, imhomeserver1, sets the callback property on `http://imhomeserver2/instmsg/local/im.adatum.com/instmsg/aliases/KariHensien` in the host header. This private URL is used to send any notification requests to the user's Instant Messaging URL. These requests may be incoming instant messages or incoming notifications of presence changes.
8. The instmsg ISAPI extension at im.adatum.com must authenticate the SUBSCRIBE request. Finding the user object in Active Directory that matches the client's Instant Messaging URL authenticates the request. For example, `http://imhomeserver2/instmsg/aliases/local/im.adatum.com/instmsg/aliases/KariHensien`. If the server supports NTLM and digest authentication, NTLM authentication is attempted first. If NTLM authentication fails, digest authentication is attempted. Digest authentication is an Internet standard that you can use to permit clients to authenticate by using a sequence of challenges and responses carried over HTTP. Digest authentication is required for Instant Messaging users that are connecting through a firewall. Digest authentication needs to be configured on every Web site and virtual directory that hosts Instant Messaging. The Instant Messaging client retrieves the password from the user and sends the password to the server. The server verifies the password.

Note A default domain policy must be set allowing user passwords to be stored in Active Directory in a reversible encrypted form. This policy allows the Instant Messaging server to retrieve and verify the user's password.

9. The Instant Messaging client issues PROPATCH, PROPFIND, and SUBSCRIPTION requests, which are sent asynchronously to the Instant Messaging home server.
 - a. A PROPPATCH request is sent to set the presence information of its URL to "Online". This presence information is timed out in 20 minutes. If the Instant Messaging client does not issue another PROPPATCH within 20 minutes, the

Instant Messaging home server sets the presence information to the default value “Offline”.

- b.** The PROPFIND Request queries for Kari Hensien ’s online status to synchronize the presence information.
 - c.** The Instant Messaging client issues a SUBSCRIPTION request to find other users that have subscribed to Kari Hensien ’s presence information. When the presence information is set to *Online*, the Instant Messaging client issues an ACL request to retrieve its Allow/Block lists.
- 10.** The Instant Messaging home server examines the list of Instant Messaging URLs subscribed to the presence information of the user. The Instant Messaging home server generates and sends a NOTIFY method indicating the change of presence information from *Offline* to *Online* to each subscribed Instant Messaging URL.
 - 11.** The Instant Messaging client examines the list of contacts to whose presence information the user is subscribed. The contacts list is located in the following location in the registry: **HKCU/Software/Microsoft/Exchange/Messaging /<IM URL>/Contacts**. Each contact has its Instant Messaging address stored as a value under this key. The Instant Messaging client converts each Instant Messaging address into an Instant Messaging URL and then sends a SUBSCRIBE request to the user’s URL.

Scenario 4: Users Communicate Using Instant Messaging

This scenario discusses the Instant Messaging flow when the users, Jo Brown and Kari Hensien, communicate using Instant Messaging.

- 1.** Jo Brown types a message to Kari Hensien.
- 2.** The Instant Messaging client sends a NOTIFY request to the private Instant Messaging URL
`http://imhomeserver2/instmsg/local/im.adatum.com/instmsg/KariHensien`, connecting through port 80.
- 3.** The NOTIFY request contains a Multipurpose Internet Mail Extensions (MIME) body with a type of `text/x-msmsgscontrol`, which indicates to Kari Hensien that Jo Brown has initiated an Instant Messaging session.
- 4.** The Instant Messaging Home Server receives the NOTIFY request at
`http://imhomeserver2/instmsg/local/im.adatum.com/aliases/KariHensien` through port 80.
- 5.** The Instant Messaging home server then connects to the Instant Messaging client by using the port that was specified as the callback when the Instant Messaging client initially registered. Then the home server sends the HTTP NOTIFY request to the callback URL.

6. The NOTIFY request contains a MIME body with a type of text/x-msmsgscontrol, which indicates to Kari Hensien that Jo Brown is typing a message. Notifications are sent periodically to indicate that the users are typing messages.
7. Several of these notify requests may be sent as Jo Brown types in a message. When the **Send** button or ENTER key on the keyboard is pressed, a NOTIFY message is sent with the MIME body containing the actual text of the message.

Scenario 5: Contact Changes Presence Information

This scenario discusses the Instant Messaging flow when users change their presence information.

1. When Kari Hensien changes her presence information, the Instant Messaging client issues a PROPPATCH request to change the online status property on `http://imhomeserver2/instmsg/local/im.adatum.com/instmsg/aliases/KariHensien` to “On The Phone”.
2. The home server, imhomeserver2, examines and sends a NOTIFY request to subscribed Instant Messaging URLs. The Instant Messaging home server locates an Instant Messaging URL of `http://im.adatum.com /instmsg/aliases/JoBrown` and connects to the Instant Messaging router im.adatum.com through port 80.
3. The Instant Messaging router looks up Active Directory and refers the server to `http://imhomeserver1/instmsg/local/im.adatum.com/instmsg/aliases/JoBrown`. The Instant Messaging router then sends returns a referral to the Instant Messaging home server. The home server, imhomeserver2, sends the message to the Instant Messaging home server imhomeserver1.
4. The Instant Messaging home server, imhomeserver1, connects to the Instant Messaging client by using the port that was specified in the callback and sends the HTTP NOTIFY request to the callback URL.
5. The Instant Messaging client receives the NOTIFY requests and changes the status of the contact to “On The Phone”.

Scenario 6: User's Presence Information Changes to Idle

1. If the Instant Messaging client does not detect any keyboard or mouse activity within a specified period of time (the default is 10 minutes, but this can be configured to a different value), the Instant Messaging client issues a PROPPATCH request to change the online status for the user's Instant Messaging URL to *Away*.
2. On detection of any mouse or keyboard activity, the Instant Messaging client issues another PROPPATCH request to change the online status to *Online*.

Scenario 7: User Logs Off Instant Messaging

1. The Instant Messaging client issues an UNSUBSCRIBE request to its Instant Messaging home server to close the callback URL <http://10.10.1.98:1051>.
2. Instant Messaging client issues a UNSUBSCRIBE request to the subscribed contacts' Instant home servers. The callback URL is then closed. For example, if Jo Brown log off Instant Messaging, then the callback URL <http://im.adatum.com/instmsg/aliases/JoBrown> is closed.

Additional Resources

- Microsoft Exchange 2000 Instant Messaging Setup at <http://www.microsoft.com/exchange>
- “Instant Message Polling and Fixed Port Callback Delivery” at <http://www.microsoft.com/exchange>
- Microsoft MSDN Web site at <http://msdn.microsoft.com/>
- Microsoft TechNet Web site at <http://www.microsoft.com/technet/>

For more information see: <http://www.microsoft.com/exchange/>

Did this paper help you? Please give us your feedback. On a scale of 1 (poor) to 5 (excellent), how would you rate this paper?

<mailto:exchdocs@microsoft.com?subject=Feedback: Exchange Instant Messaging over the Internet>