

Microsoft
Exchange Server

**Upgrading Public Folders from
Microsoft Exchange Server 5.5 to
Microsoft Exchange 2000 Server**

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For the latest information, see <http://www.microsoft.com/exchange/>

Changes in Public Folders from Microsoft Exchange Server 5.5 to Microsoft Exchange 2000 Server

In Microsoft® Exchange 2000 Server, as in Microsoft Exchange Server 5.5, a public folder is a storage container for messages or information that are shared among all users in your organization. Public folders can still contain different types of information—ranging from custom forms to Internet content—and are still part of the information store that Exchange clients and Web browsers can access. Now Microsoft Office 2000 and custom applications can also browse Exchange public folder stores, and open and save documents directly in the public folder stores.

Exchange 2000 Server includes a number of features to enhance use and administration of public folders, such as multiple store support, integration with Microsoft Windows® 2000 groups, public folder connection agreements, Web exposure, a new way to configure public folder affinity, and full-text indexing. The features that affect the upgrade of public folders from Exchange 5.5 to Exchange 2000 are multiple store support, integration with Windows 2000 groups (which affects permissions on public folders), and public folder connection agreements. After upgrading to Exchange 2000, you must take the additional step to reconfigure public folder affinities. You must do this because a very different method is used to configure these affinities in Exchange 2000, and they are not upgraded by default.

Upgrade Scenarios

When you install the first Exchange 2000 server on an Exchange 5.5 site, you create a mixed-mode environment. For your Exchange 5.5 and Exchange 2000 public folders to function properly in a mixed-mode environment, you must meet three conditions:

- Public folder objects must exist in the Windows 2000 Active Directory™ directory service.
- A public folder hierarchy must be created on each server that has a public folder database.
- The actual public folder content that is held in each public folder replica must exist as configured by the administrator.

When you are ready to deploy Exchange 2000 in an existing Exchange 5.5 organization, you can meet these three requirements by upgrading an Exchange 5.5 server with a public folder database. Alternatively, you can add a new Exchange 2000 server and migrate the objects and public folder data from the Exchange 5.5 servers.

If you are upgrading an Exchange 5.5 server that was previously configured to replicate public folders with other Exchange 5.5 servers in your organization, it already contains the hierarchy and the content in the database. Before you upgrade the server to Exchange 2000, you must upgrade the directory objects in Active Directory—but you do not need to create the hierarchy or replicate the content into Exchange 2000 databases.

Considerations Before Upgrading

Multiple Store Support

With multiple store support, you can reconfigure the one public information store that is available in Exchange 5.5 into smaller logical units in Exchange 2000 to reflect departments in your organization. When running Exchange 5.5, servers can have only two databases: one database for e-mail in the mailbox store, and one database for shared folders in the public information store. Exchange 2000 supports as many as four storage groups on a single server, each holding as many as five databases. For purposes of planning backup and disaster recovery, each database does not have its own set of transaction logs. All databases in the same storage group share a set of transaction logs. With Exchange 2000, if one server is dedicated to public folders, you can distribute data among 20 separate databases.

To distribute the load, you can create top-level folder hierarchies in addition to the public folder hierarchy that is automatically created after installation. Each folder hierarchy is represented by its own database—called a public folder store—in Microsoft Web Storage System. Web Storage System supports multiple public folder stores running under a single process. Multiple stores increase scalability by allowing you to segment the folder data and distribute it across servers in your organization. When you upgrade folders from Exchange 5.5 to Exchange 2000, you can create new hierarchies to organize your folders. However, not all clients can access the new hierarchies you create. For this reason, the location of information in Exchange 2000 public stores is a very important planning consideration.

Public Folder Hierarchy Access

In an Exchange organization, public folder hierarchies—also called public folder trees—help organize public folders into collections of information that are easy to browse. Typically, public folder hierarchies reflect a company's internal organizational structure. A well-defined public folder structure is essential for any Exchange server implementation because it allows delegation of administrative tasks and quicker retrieval of information. Tasks such as adding permissions and adding and removing folders can be performed by users or delegated to a group administrator.

When you install Exchange 2000, a default public folder hierarchy is created. All MAPI clients, such as Microsoft Outlook®, can access this public folder hierarchy

to read messages and store documents. You can create subfolders to reflect the departments in your organization. In addition to this default hierarchy, you can create alternate public folder hierarchies for applications or Web browsers to access. There are different methods to access the default public folder hierarchy and to access alternate hierarchies that you create. The means of accessing a particular hierarchy is based on its intended use. Outlook Web Access users, for example, access their dedicated public folder hierarchy through Hypertext Transfer Protocol (HTTP). Other groups might find Network News Transfer Protocol (NNTP) more suitable. The following table compares the two types of hierarchies.

Note If you want to determine which type of folder hierarchy you are currently working with, you can view the properties on the public folder root in Exchange System Manager. On the **General** tab, look in a field called **Folder tree use** to determine which clients can access a public folder tree. If **MAPI clients** is displayed, clients such as Outlook can access the hierarchy, in addition to applications, Web browsers, and IFS shares. If **General purpose** is displayed, MAPI clients cannot see the hierarchy, but applications, Web browsers, and IFS shares can access the public folder hierarchy. In the following table, the usage displayed in System Manager is identified in the column titled "Folder Tree Use Displayed As."

Table 1 Default vs. Alternate Public Folder Hierarchy

Hierarchy type	Folder tree use displayed as	Accessible by
Default	MAPI clients	MAPI clients, such as Outlook Applications, such as Microsoft Word and Microsoft Excel Web browsers IFS shares
Alternate	General purpose	Applications, such as Microsoft Word and Microsoft Excel Web browsers IFS shares

Although one server can have multiple public folder stores, only one public folder store contains the default public folder hierarchy. Outlook and other MAPI clients can see only this default hierarchy. Although MAPI clients can use only the default (MAPI) hierarchies, applications, Web browsers and installable file system (IFS) shares can use both the default and alternate hierarchies.

Outlook Web Access Client and Public Folder Hierarchies

The Outlook Web Access client provides users with access to public folders, e-mail, personal calendars, group scheduling, and collaboration applications through a Web browser.

Although the version of Outlook Web Access determines which public folders you can access, if you create a replica of all folders on an Exchange 2000 server, you can access all folders in an environment in which both Exchange 5.5 and Exchange 2000 are running.

Use the following table to determine which client best meets your requirements.

Table 2 Using Outlook Web Access with Public Folders

Outlook Web Access version	Is content in the default MAPI hierarchy on an Exchange 5.5 server accessible?	Is content in the default MAPI hierarchy on an Exchange 2000 server accessible?	Is content in Exchange 2000 alternate hierarchy on an Exchange 2000 server accessible?
Exchange 5.5	Yes	Yes	No
Exchange 2000	No	Yes	Yes

If clients run the version of Outlook Web Access that is available with Exchange 5.5, they can access all folders in the MAPI public folder hierarchies. Outlook Web Access 5.5 clients can see all folders on Exchange 5.5 servers and any folders in the default public folder hierarchy on Exchange 2000 servers. Outlook Web Access 5.5 clients cannot see the alternate public folder hierarchies created on Exchange 2000 servers.

If clients run the version of Outlook Web Access that is available with Exchange 2000, they can access all folders on Exchange 2000 servers. Unlike Outlook 2000 clients, Outlook Web Access clients can use both the default and the alternate public folder hierarchies. Outlook Web Access clients cannot see any public folders on Exchange 5.5 servers unless the Exchange 5.5 folder content is replicated on the Exchange 2000 server.

For users to access all public folders on either Exchange 5.5 or Exchange 2000 servers, a replica of all folders must exist on an Exchange 2000 server. After the replica is in place, unless Outlook Web Access is accessed through an Exchange 2000 server interface, the **Default public store** setting on Outlook Web Access clients should be an Exchange 2000 server.

Public Folder Connection Agreements

Public folder connection agreements are new in Exchange 2000. They replicate public folder names between the Exchange Server 5.5 directory and Active Directory. To manage public folder connection agreements, you can use Active Directory Connector (ADC) on a computer running Windows 2000. After DomainPrep runs in the domain in which you are installing the first Exchange 2000 server, you can create a public folder connection agreement for all your Exchange 5.5 sites. Then ADC creates the public folder objects in Active Directory from the Exchange 5.5 directory service. After this, you can verify or set permissions on the folder containers.

Note For information on the DomainPrep utility, see the article "ForestPrep and DomainPrep," on this Exchange Up-To-Date Web site.

Public folder connection agreements function in the following ways:

- Public folder connection agreements always use two-way replication.
- Public folders are the only objects you can replicate in a public folder connection agreement. To replicate other objects, you must create different types of connection agreements.

- For public folder connection agreements, ADC automatically selects the Windows organizational unit, the Exchange container, and the default destination containers for Windows and Exchange. You cannot change these containers.
- Public folder connection agreements are always primary connection agreements from Exchange and this cannot be changed. This is beneficial because a primary connection agreement can create new objects, whereas all other types of connection agreements only replicate information to existing objects.
- Public folder connection agreements cannot be connection agreements between organizations.

Public Folder Permissions in Windows 2000 Groups

In Windows 2000, mail-enabled groups in Active Directory provide the functionality of distribution lists in Exchange 5.5. Although different Windows 2000 group types can provide access control and mail routing, each type can behave differently for Exchange. Because Exchange 2000 relies entirely on Windows 2000 for both security and mail distribution groups, it is important to understand the group types to determine which group to use.

Note This article only discusses groups as they relate to public folders. For a complete discussion about using Windows 2000 groups with Exchange 2000, see the article, "The Role of Groups and Access Control Lists in Microsoft Exchange 2000 Server Deployment," elsewhere on this Web site.

Windows 2000 supports both types of Microsoft Windows NT® 4.0 groups—domain local and domain global. In addition, it provides e-mail functionality for these groups. A major change in Windows 2000 group design is that groups can function as either security groups or distribution groups. Security groups can assign permissions to resources. Distribution groups are mail-enabled groups that cannot assign permissions to resources. All Windows 2000 groups can function as one or both of these types of group. Windows 2000 also introduces a third group type: universal groups. Universal groups behave the most like Exchange 5.5 distribution lists.

Only universal group membership can be viewed in all domains. If you do not use a universal group for Exchange 2000 in a multi-domain forest, an Exchange 2000 server in another domain might not be able to expand the group membership, including distribution groups. This was not a concern in Exchange 5.5.

The following table outlines the different groups and identifies membership and permission scope. Any additional requirements or alternatives available when you use a particular group are itemized in the Notes column.

Important Native mode requires you to have at least one native-mode domain; however, not all domains need to be in native mode.

Table 3 Windows 2000 Group Types

Group type	Membership scope	Permission scope	Public folder access	Notes
Domain local	In mixed-mode domains, contains user accounts and global groups from any domain.	On domain local groups only for objects in the domain in which the domain local group exists.	Only public folders in the same domains.	In native-mode domains, contains user accounts, global groups, and universal groups from any domain in the forest, as well as domain local groups from the same domain.
Domain global	In mixed-mode domains, contains user accounts from the same domain.	On global groups for all domains in the forest, regardless of the location of the global group.	All public folders in all domains.	In native-mode domains, contains user accounts from the same domain and global groups from the same domain.
Universal distribution group	In mixed-mode or native-mode domains, contains user accounts, global groups, and universal groups from any domain in the forest.	Cannot be used for access control.	Cannot be used for access control.	Distribution groups cannot set permissions on public folders.
Universal security group	In native-mode domains, contains user accounts, global groups, and universal groups from any domain in the forest.	On universal groups for all domains in the forest, regardless of the location of the universal group.	All public folders in all domains.	Available only in native-mode domains. You must have at least one native-mode domain. Not all domains need to be native.

If you are using a single domain, you do not need to use universal groups because scope and membership cross only one domain. If you are using multiple domains, you should use universal security groups. This requires you to have at least one native-mode domain, but not all domains in your forest need to be native.

Distribution lists are often used in Exchange 5.5 to set permissions on public folders. Because Exchange 2000 uses Windows 2000 security and Active Directory to set permissions on public folders, you must use a universal security group for this purpose. A universal security group has the following characteristics:

- Can include members from any domain
- Can be validated from any domain
- Functions as a security group because the group's security is what is stamped on the public folder

When you create a public folder connection agreement, ADC creates universal distribution groups based on the existing Exchange 5.5 distribution lists. Then, when you replicate the hierarchy, the public folder access control lists (ACLs) are upgraded. Exchange assigns Windows 2000 security to the public folder and upgrades the groups to universal security groups as needed.

Upgrading Public Folders from Exchange 5.5 to Exchange 2000

You must complete the following steps to successfully upgrade public folders from an Exchange 5.5 server to an Exchange 2000 server. After the list are sections that further explore each upgrade step.

1. Check permission consistency. Clean out your Exchange 5.5 databases by removing "unknown" users who have permissions to access public folders. This step is not required but is highly recommended.
2. Create public folder objects in Active Directory. On the Windows 2000 upgrade server, use a public folder connection agreement to create public folder objects in Active Directory that are identical to the public folder objects in the Exchange 5.5 directory service.
3. Create the public folder hierarchy. After Exchange 2000 and a default public folder store are installed, verify that e-mail is functioning so that the public folder hierarchy can be replicated automatically through e-mail from Exchange 5.5 servers.
4. Check folder ACLs in Exchange 2000. When the objects exist in Active Directory and the hierarchy exists in Exchange, verify that during the upgrade process the domain name used in the Exchange 5.5 ACL was mapped correctly to the security descriptor used in the Exchange 2000 ACL.
5. Replicate the Exchange 5.5 folder content into the Exchange 2000 public folder store as needed.

Check Permission Consistency Before Upgrading

Before upgrading from Exchange 5.5 to Exchange 2000, you must run DS/IS Consistency Adjuster on the server you are upgrading. DS/IS Consistency Adjuster is an option in the Exchange 5.5 Administrator that can be used to clear up any directory or information store inconsistencies. Select options to verify that all users deleted in Exchange 5.5 do not retain permissions on mailboxes and especially on public folders. If you do not do this, when you upgrade to Exchange 2000, folders that give permissions to unknown user accounts are accessible only to the owner of the folder, and event logs are generated to alert you of the inconsistency. An unknown user is a user who is listed in an ACL, but

whose user account no longer exists in the directory. Remove all users with deleted accounts from ACLs before upgrading.

Note Select only the permission option for public folders. You can remove unknown users from mailboxes at the same time. After choosing to clean up public folder ACLs, DS/IS Consistency Adjuster, through a dialog box, warns that you must rehome public folders, that is, move the public folder contents to another server. You do not need to move public folders to correct permission settings for deleted users or unknown user accounts.

To check permission consistency:

1. In **Exchange Administrator 5.5**, click the server you are upgrading, and then click **Properties**.
2. On the **Advanced** tab, select the **Consistency Adjuster** check box.
3. Make sure only the following check boxes are selected:
 - **Remove unknown user accounts from mailbox permissions**
 - **Remove unknown user accounts from public folder permissions**
4. On the dialog box that instructs you to rehome public folders, click **OK**. If you did not select the **Synchronize with the directory and reset the home server value for public folders homed in unknown sites** option, public folders will not be rehomed.

Create Public Folder Objects in Active Directory

Public folder objects in Active Directory contain all the information required for mailing. This includes the name of the public folder, e-mail addresses, and so on. You can use a special type of connection agreement in ADC to automatically replicate in Active Directory the public folder objects from the Exchange 5.5 directory service. The public folder connection agreement is used specifically for public folders, and it replicates public folder objects and the data they contain from the Exchange 5.5 directory service to Active Directory. There are two requirements for creating a public folder connection agreement. First, you must run DomainPrep successfully in the domain in which the first Exchange 2000 server is installed. Second, you must create a public folder connection for every Exchange 5.5 site in your organization.

To create a public folder connection agreement:

1. On the **Start** menu, point to **Programs**, point to **Administrative Tools**, and then click **Active Directory Connector**.
2. In the console tree, click **Active Directory Connector**.
3. From the **Action** menu, point to **New**, and then click **Public Folder Connection Agreement** to display the **Properties** dialog box.
4. On the **General** tab, in **Name**, type a name for the connection agreement.

Note You cannot use any special characters in the name, such as /, \, +, <, >, &, ^, \, [, or].

5. To verify the object names are replicating, in **Active Directory Users and Computers**, in the **Exchange System Folder**, check that the public folder names appear.

Create Public Folder Hierarchies

If you install a new Exchange 2000 server, it has a public folder database by default. This public folder database automatically creates the same hierarchy used by the Exchange 5.5 servers by replicating with the other Exchange 5.5 public folder servers. If instead you upgrade an Exchange 5.5 server that was previously configured to replicate with the other Exchange 5.5 servers, it already contains a hierarchy. In both cases, the hierarchy contains the ACL that indicates who can access a given public folder. This means the ACLs on upgraded servers are upgraded along with the hierarchy. Therefore, if you upgrade an Exchange 5.5 server that already contains a hierarchy, you can move to the next step of checking the ACLs to verify that they were upgraded correctly. Otherwise, when you install Exchange 2000, you must wait until the hierarchy is replicated with other Exchange 5.5 public folders before checking the ACLs.

To create public folder hierarchies:

1. If you have not yet done so, install Exchange 2000. A default public folder store is installed.
2. Verify that e-mail is functioning so that the public folder hierarchy can be replicated automatically through e-mail from Exchange 5.5 servers.
3. To verify that the hierarchy is replicating, in System Manager, check the public folder hierarchy. This is a direct representation of the current hierarchy that is replicated to that server.

Check Folder ACLs in Exchange 2000

After the public folder objects are created in Active Directory and the hierarchy exists in Exchange 2000, verify that the domain name used in the Exchange 5.5 ACL is mapped correctly to the security descriptor used in the Exchange 2000 ACL.

To identify errors when upgrading public folder ACLs:

1. If you have a large number of folders, open the event log and find any errors logged for replicating public folders.
2. If you find errors, you can check that public folder's ACL. If you do not find any events logged, you might want to check the permissions on a few random parent folders to verify that they are correct.

To check public folder ACLs:

1. On the **Start** menu, point to **Programs**, point to **Microsoft Exchange**, and then click **System Manager**.
2. If administrative groups are displayed, expand **Administrative Groups**, and then expand the group with which you want to work.
3. In the console tree, expand **Folders**, and then expand the folder tree that contains the folder you want.
4. Right-click a folder, and then click **Properties**.

5. On the **Permissions** tab, click **Client Permissions**. Verify that users have appropriate access.
6. If the folder is mail-enabled, on the **Permissions** tab, click **Directory rights**. Verify that the permissions on the public folder objects in Active Directory are appropriate.
7. On the **Permissions** tab, click **Administrative rights**. Verify that the users and groups who administer the folders have appropriate access.

Replicate Folder Content to the New Hierarchies As Needed

If you install a new Exchange 2000 server and add a public folder database, the server has the hierarchy. However, it does not contain any content until you configure it to replicate with Exchange 5.5 servers. When you replicate with other public folder servers, you can determine which public folders should replicate content to the new server. This is necessary because in Exchange 2000 you have more options to organize your folders. You are replicating content that was stored on Exchange 5.5 servers to content that can be stored in multiple Exchange 2000 databases.

If you upgrade an Exchange 5.5 server that is configured to replicate with other Exchange 5.5 servers, the upgraded server retains its Exchange 5.5 content and continues to replicate that content based on settings prior to the upgrade.

To replicate public folder content from Exchange 5.5 servers:

1. On the **Start** menu, point to **Programs**, point to **Microsoft Exchange**, and then click **System Manager**.
2. If administrative groups are displayed, expand **Administrative Groups**, and then expand the group with which you want to work.
3. In the console tree, expand **Folders**, and then expand the folder tree that contains the folder you want.
4. Right-click a folder, and then click **Properties**.
5. On the **Replication** tab, view the list of servers in **Replicate content to these public stores**.
6. To add an Exchange 5.5 server, click **Add**.
7. Select the server from which you want to replicate content.
8. On the **Replication** tab, you can also decide to use the store's replication schedule, or you can customize a new schedule.

To upgrade an Exchange 5.5 server that has never replicated with other Exchange 5.5 servers, or to add Exchange 5.5 public folders to an Exchange 2000 server, you must replicate public folder objects to Active Directory, create the folder hierarchy, and replicate the content to the server. If the Exchange 5.5 server you are upgrading was previously configured to replicate with other Exchange 5.5 servers, it will continue to replicate in the same way after you upgrade it to Exchange 2000.

After you upgrade an Exchange 5.5 server, you should not encounter problems if you removed unknown users from your Exchange 5.5 databases and verified that ACLs were upgraded correctly. If you do encounter problems—for example, if you cannot find a Windows NT 4.0 distinguished name—all users except the administrator of the folder are denied access to that public folder as long as it is in this state. In the case of a missing distinguished name, if you replicate the folder's mailbox from Exchange 5.5 by using ADC, the distinguished name is upgraded automatically. If it is not, contact Microsoft Product Support Services for additional instructions.



