

CA ARCserve® Backup for Windows

Agent for Microsoft Exchange Guide

r12.5



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CA Product References

This documentation set references the following CA products:

- BrightStor® ARCserve® Backup for Laptops and Desktops
- BrightStor® CA-Dynam®/TLMS Tape Management
- BrightStor® CA-Vtape™ Virtual Tape System
- BrightStor® Enterprise Backup
- BrightStor® High Availability
- BrightStor® Storage Resource Manager
- CA Antivirus
- CA ARCserve® Backup Agent for Advantage™ Ingres®
- CA ARCserve® Backup Agent for Novell Open Enterprise Server for Linux
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- CA ARCserve® Backup Client Agent for Mainframe Linux
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- CA ARCserve® Backup Client Agent for UNIX
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- CA ARCserve® Backup Enterprise Option for AS/400
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- CA ARCserve® Backup for Windows Disaster Recovery Option
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- CA ARCserve® Backup for Windows Image Option
- CA ARCserve® Backup for Windows Microsoft Volume Shadow Copy Service
- CA ARCserve® Backup for Windows NDMP NAS Option
- CA ARCserve® Backup for Windows Serverless Backup Option
- CA ARCserve® Backup for Windows Storage Area Network (SAN) Option
- CA ARCserve® Backup for Windows Tape Library Option
- CA Dynam®/B Backup for z/VM
- CA VM: Tape for z/VM
- CA XOsoft™ Assured Recovery™
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Documentation Changes

The following documentation updates have been made since the last release of this documentation:

- [How to Protect Different Parts of Your Exchange Server Organization](#) (see page 12)--Added elements to consider when using other CA ARCserve Backup products to protect your Microsoft Exchange environment.
- [Configure the Agent for Document Level Backup and Restore](#) (see page 22)--Updated the description for specifying the Log Level Detail option.
- [Database Level Restore Options](#) (see page 43)--Updated the limitations on using the Restore to Recovery Storage Group option.
- [Prerequisite Tasks for Restoring Recovery Storage Groups on Exchange Server 2003 Systems](#) (see page 46)--Describes the tasks that you must complete before you restore Recovery Storage Group that was backed up using an older version of the agent.
- [Backup Agent Service Account Requirements for Document Level Backup and Restore](#) (see page 81)--Updated the criteria for mailbox names.
- [Configure Document Level Restore Options](#) (see page 92)--Updated the description for specifying the Create mailbox if not existing option.

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Chapter 1: Introducing the Agent

This section contains the following topics:

[Introduction](#) (see page 11)

[Microsoft Exchange Server Description](#) (see page 11)

[How to Protect Different Parts of Your Exchange Server Organization](#) (see page 12)

[How Microsoft Exchange Server Organization Hierarchy Works](#) (see page 12)

[How Single Instance Storage Works](#) (see page 13)

[How the Agent Backs Up and Restores Exchange Server Data](#) (see page 14)

Introduction

CA ARCserve Backup is a comprehensive, distributed storage solution for applications, databases, distributed servers, and file systems. It provides backup and restore capabilities for databases, business-critical applications, and network clients.

Among the backup agents CA ARCserve Backup offers is the CA ARCserve Backup Agent for Microsoft Exchange.

The agent works with CA ARCserve Backup to back up and restore Microsoft Exchange Server (Exchange Server) databases and mailboxes. The agent lets you ensure that your messaging solution is reliable and secure.

The agent provides you with the following types of backup and restore operations:

- Database level
- Document level

Microsoft Exchange Server Description

Microsoft Exchange Server is a centralized corporate messaging system that enables you to manage electronic mail and other messaging tools for your organization from a single location.

How to Protect Different Parts of Your Exchange Server Organization

The following CA ARCserve Backup agents and options can be used to protect different parts of your Exchange Organization:

- **CA ARCserve Backup Agent for Microsoft Exchange**--Includes Database Level and Document Level backup and restore. Database Level backup and restore protects the Exchange Server database and logs. Document Level backup and restore, which is only available with this agent, eases and expedites many administrative tasks and maximizes flexibility by offering the most granular level of restore.
- **CA ARCserve Backup Client Agent for Windows**--Protects files and system state, including Active Directory. It is important to protect Active Directory when using Exchange Server 2000, 2003, and 2007 because it stores mailbox and user information. CA ARCserve Backup Client Agent for Windows also protects your domain controllers, which are equally as important to protect as your Exchange Server.
- **CA ARCserve Backup Disaster Recovery Option**--In the event of a disaster, the CA ARCserve Backup Disaster Recovery Option recovers the machine to the last full backup state.

Be aware aware of the following:

- You do not need to install an email client on the Exchange server that you are protecting. For example, Microsoft Outlook.
- You do not need to install the <caab Agent for Open Files on the Exchange server that you are protecting. The Agent for Open Files is beneficial when you want to protect files that are open or in use by active applications. Because the CA ARCserve Backup Agent for Microsoft Exchange is an application-specific agent, dedicated to protecting Microsoft Exchange, it offers a complete solution that encompasses all the features offered by the Agent for Open Files.

How Microsoft Exchange Server Organization Hierarchy Works

A Microsoft Exchange Server messaging system comprises several administrative units, the largest of which is the organization. The organization hierarchy varies depending on the version of Exchange Server you are using:

- **Exchange 2000 Server and Exchange Server 2003**--In Exchange 2000 Server and Exchange Server 2003, the organization hierarchy includes organizations, administrative groups, servers, and storage groups. The organization is the highest level in the hierarchy and includes the entire enterprise. An administrative group is a set of servers that share an administrative security context. Each server in the administrative group can have up to four storage groups. Each storage group includes up to five database stores that can be mounted and dismounted independently. For more information on the Exchange 2000 Server and Exchange Server 2003 organization hierarchy, see your Microsoft Exchange Server documentation.

Note: If you are using Exchange Server 2003 and want information on performing Volume Shadow Copy Service backups, see the *Microsoft Volume Shadow Copy Service Guide*.

- **Exchange Server 2007**--In Exchange Server 2007, there are four organization models:
 - Simple Exchange organization
 - Standard Exchange organization
 - Large Exchange organization
 - Complex Exchange organization

Note: For more information about Exchange Server 2007 organization models, see the Microsoft TechNet web site.

Each Exchange mailbox server in the organization can have up to 50 storage groups. In a non-replicated environment, each storage group can have up to five database stores. In a replicated environment, each storage group can have one database. Each database can be mounted and dismounted independently.

How Single Instance Storage Works

Single Instance Storage is the method Exchange Server uses to process messages. This method stores only one copy of a message, links it to multiple recipients in the Information Store, and uses references to the message in each recipient's mailbox. Single Instance Storage applies to individual attachments and other message components.

The backup and restore products that you can use to protect your Exchange Server support varying levels of Exchange Server's Single Instance Storage:

- **No Single Instance Storage**--Without Single Instance Storage, an Exchange Server is scanned mailbox-by-mailbox and copies of individual message bodies and attachments are backed up as they arrive, without any regard for data that may have been backed up already.
- **Partial Single Instance Storage**--Partial Single Instance Storage support backs up attachments only once, but continues to back up other message components, like message bodies, every time they are referenced. This translates into large amounts of unnecessary backup duplication because most messages do not include attachments, but all messages include message bodies and other message components.
- **Complete Single Instance Storage**--Complete Single Instance Storage checks to see whether each attachment, message body, and other single instance components of a message have been backed up already, and backs up only one copy. This is the fastest and most efficient solution because it removes unnecessary backup duplication and maximizes performance.

Document Level backup and restore supports Complete Single Instance Storage.

How the Agent Backs Up and Restores Exchange Server Data

The Agent for Microsoft Exchange integrates with CA ARCserve Backup to let you back up and restore Exchange Server databases and database components (such as mailboxes). It also integrates with the Exchange Server's backup and restore functions, enabling you to perform online backups.

The agent offers many benefits, such as:

- Manage backups of Exchange Server databases, mailboxes, and public folders from a remote location.
- Perform online database backups using Exchange Server's backup and restore APIs.

Note: For Exchange Server 2000 and Exchange Server 2003, Exchange Server streaming backup APIs are used. For Exchange Server 2007, Volume Shadow Copy Service (VSS) APIs are used.

- Schedule Exchange Server backups using the powerful Backup Manager.
- Back up to a wide array of storage devices.
- Push agent technology
- Multi-threading
- Multi-streaming support
- Enhanced cluster support

The agent lets you perform the following types of Exchange Server backups and restores:

- Database level
- Document level

More information:

[How You Can Use the Agent to Perform Database Level Backups and Restores](#)
(see page 15)

[How You Can Use the Agent to Perform Document Level Backups and Restores](#)
(see page 16)

How You Can Use the Agent to Perform Database Level Backups and Restores

Using the agent to perform database level backup and restore, you can do the following:

Exchange Server 2000 and 2003 Systems

- Restore the system in disaster recovery scenarios.
- Back up an Exchange Server system at the database-level.

Exchange Server 2007 Systems

- Restore the system in disaster recovery scenarios.
- Back up an Exchange Server system at the storage group level; it cannot be used to perform a more granular level of backup.
- Back up from replication and back up from an active database.
- Restore only individual databases and restore log files.

- Restore data to its original location and alternate locations such as:

- Another Exchange server
- Another Storage Group
- Another Database
- Windows File System

Note: To enable recovery from older full and copy backups to the current point in time, Exchange 2007 lets you restore the Log component individually from full or copy backups.

- With the use of a Recovery Storage Group, you can restore individual mailboxes from a database level backup using advance filters.

Important! Every time you back up your Exchange Server, you should perform a database level backup.

More information:

[Backup and Restore Limitations on Exchange Server Data](#) (see page 17)

How You Can Use the Agent to Perform Document Level Backups and Restores

This type of operation should be used for a granular level of backup and restore, such as backing up individual folders, restore individual messages, and as a supplement to database level backups.

Document level backup and restore lets you:

- Perform folder level backups and message level restores. Document level backup supports advanced filtering during backup and offers advanced configuration options.
- Maximize performance and flexibility by supporting complete messaging single instance storage, multi-threading, and by offering the most granular level of restore.
- Simplify many administrative tasks, such as auditing, migration, pruning, and aging.
- Back up many messaging objects including posts, tasks, notes, journal entries, mail messages, events, appointments, meeting requests, and contacts.
- Schedule Exchange Server backups using the Backup Manager.

The agent provides you additional capabilities such as:

- Migration support.
- Job continuation.

More information:

[Backup and Restore Limitations on Exchange Server Data](#) (see page 17)

Backup and Restore Limitations on Exchange Server Data

The following limitations affect backup and restore operations on Exchange server data:

- You cannot use the Backup Wizard or the Restore Wizard to submit jobs.
- The CA ARCserve Backup Restore Manager lets you restore Exchange server data based on the location of the source data (Restore by Tree) and by session (Restore by Session). You cannot restore Exchange server data using any of the following restore methods:
 - Restore by Query
 - Restore by Backup Media
 - Restore by Image/Serverless

How the Agent Communicates With CA ARCserve Backup

The agent uses the following methodology to communicate with CA ARCserve Backup:

- The agent is installed on the Exchange Server and facilitates all communication between CA ARCserve Backup and the Exchange Server database during backup and restore operations.

This includes preparing, retrieving, transmitting, interpreting, and processing data packets that are sent back and forth across the network.
- When CA ARCserve Backup starts to back up a database or database component, it sends a request to the agent. The agent retrieves the data from the Exchange Server and sends it to CA ARCserve Backup, where the full database or the components are backed up to your storage media.

Similarly, the agent transfers database information when data is restored from storage media.

Chapter 2: Installing the Agent

The CA ARCserve Backup Agent for Microsoft Exchange can be installed locally or remotely on a CA ARCserve Backup client machine.

This section contains the following topics:

[System Requirements](#) (see page 19)

[Installation Prerequisites](#) (see page 19)

[Install the Agent for Microsoft Exchange](#) (see page 20)

[Post-installation Tasks](#) (see page 20)

[Configure the Agent to Run on a Cluster](#) (see page 29)

[Remote Server Views in the Backup Manager](#) (see page 30)

System Requirements

See the readme file on the installation disk for hardware and software requirements for installing and running the agent. Check <http://ca.com> for any updates to these requirements.

Installation Prerequisites

Before installing the agent, you must satisfy the following prerequisites:

- Ensure your system requirements meet the minimum requirements needed to install the agent. For a list of requirements, see the readme file.
- Ensure that you have Administrator privileges.
- Ensure that you know the name and password of the machine you are installing the agent on.
- If you will be performing remote backups, ensure that File and Printer Sharing for Microsoft Networks is enabled on the agent machine that you will be backing up.
- The NetLogon service must be started to support pass-through authentication of account logon events for computers in a domain.
- If you are installing the agent on an Exchange 2007 Server system, ensure that Microsoft Messaging API and Collaboration Data Objects 1.2.1 is installed before you install the agent. You must perform this task because the agent requires the Messaging API (MAPI) client libraries to run properly and to perform document level backup operations.

Note: Microsoft Messaging API and Collaboration Data Objects 1.2.1 is not included with the Exchange Server 2007 installation.

Install the Agent for Microsoft Exchange

Before you install the agent, consider the following:

- You must install the agent on the server where you have Exchange Server installed and on the local drives of all Exchange Servers.
- If your Exchange Server has high CPU usage during normal operations, you should have a separate server for the Backup Manager and should not install it on the same server where you install the agent.
- When you install the agent, you should also consider installing the Client Agent for Windows and the Disaster Recovery Option. The Client Agent allows you to back up your System State and the Disaster Recovery Option lets you recover the entire server in the event of a disaster.

Note: When you install the agent, the CA ARCserve Universal Agent is installed. Because the agent uses push technology and shares the transport layer with the Client Agent for Windows, see the *Client Agents Guide* for more information about configuring network communication.

After you have reviewed the installation considerations, you can install the agent using the standard installation procedure for all CA ARCserve Backup system components, agents, and options. For information about installing CA ARCserve Backup, see the *Implementation Guide*.

Post-installation Tasks

Before you can use the CA ARCserve Backup Agent for Microsoft Exchange, you must complete the following post-installation tasks:

- [Configure the Agent for Database Level Backup and Restore](#) (see page 20)
- [Configure the Agent for Document Level Backup and Restore](#) (see page 22)
- [Create or Verify a Brick Level Account](#) (see page 26)

Configure the Agent for Database Level Backup and Restore

This section describes how to configure the agent for database level backup and restore on Exchange 2000 Server, Exchange Server 2003, and Exchange Server 2007 installations.

To configure the agent for database level backup and restore

1. From the Windows Start menu, select All Programs, CA, ARCserve Backup, and Backup Agent Admin.

The CA ARCserve Backup Agent Admin dialog opens.

2. From the drop-down list, select CA ARCserve Backup Exchange Agent and click the Configuration button.

The Configuration dialog with the Exchange Database Level tab selected opens.

Important! The options displayed on the Configuration dialog vary based on the version of Exchange that you are using in your environment.

3. Specify the following options as necessary:

Note: The options listed below apply to Exchange 2000 Server, Exchange Server 2003, and Exchange Server 2007 systems unless otherwise noted.

- **Backup Read Size**--Do not change this value unless directed by a trained CA Customer Support technician. This option specifies the suggested buffer size to allocate for transferring data between the Exchange Storage Engine (ESE) and the Exchange agent.

Note: This option does not apply to Exchange Server 2007 systems.

- **Log Detail Level**--Do not change this value unless directed by a trained CA Customer Support technician. This option specifies the level of detail on the debug trace and log in the log location you specify. The default Debug Level value is 1 and the supported range is between 0 and 5.

- **Single log file size**--This option specifies the maximum size of a single log file. After the file reaches the specified maximum file size, a new file is created.

Note: The default value for this option is 200 MB.

- **Max log files**--This option specifies the maximum number of log files. After the maximum number of log files reaches this value, the oldest log file is deleted and a new log file is created.

Note: The default value for this option is 50 MB.

- **Retry Counter**--If an Exchange backup API error or time out occurs while trying to retrieve data from the Exchange server, this option lets you control the number of times you want to retry. The default Retry counter value is 2 and the supported range is between 0 and 10.

- **Retry Delay**--If an Exchange backup API error or time out occurs while trying to retrieve data from the Exchange server, this option setting lets you control the delay between retries. The default Retry Delay value is 20 and the supported range is between 0 and 60.

- **Log Locations**--Specifies the path to the log file.

- **Path for creating recovery storage group**--If the Recovery Storage Group (RSG) needs to be created during the restore operation, specify the path to the RSG.

Note: This option only affects Exchange Server 2003 and Exchange Server 2007 systems.

4. Click **OK**.

The database level options are saved.

Configure the Agent for Document Level Backup and Restore

After you install the CA ARCserve Backup Agent for Microsoft Exchange, you can configure performance and file location settings.

To configure the agent for document level backup and restore

1. From the Windows Start menu, select All Programs, CA, ARCserve Backup, and Backup Agent Admin.

The CA ARCserve Backup Agent Admin dialog opens.

2. From the drop-down list, select CA ARCserve Backup Exchange Agent and then click Configuration on the toolbar.

The Configuration dialog with the Exchange Document Level tab selected opens.

Note: The options displayed on the Configuration dialog vary based on the version of Exchange that you are using in your environment.

3. When the Configuration dialog opens, select the following settings as required for your environment:

Note: The options listed below apply to Exchange 2000 Server, Exchange Server 2003, and Exchange Server 2007 systems unless otherwise noted.

- **Complete Messaging Single Instance Storage--**This option checks to see if attachments and messages have already been backed up and then backs up only one copy. This eliminates the need to back up each time the attachment and message are referenced. This can significantly decrease the size of your backups.
- **Back up Only Local Public Folder Documents--**In Exchange Server, public folders can include multiple public folder stores on many servers across the organization. As a result, when you select to back up a public folder, you could be backing up many public folder stores. To save time and maximize performance, this option lets you exclude remote public folder documents during public folder backups.

- **Number of Threads**--This is the number of threads you want to use to connect to MAPI per session. If you increase this number, it increases performance, but also increases CPU utilization. The default Number of threads value is 1.5 multiplied by the number of CPUs rounded down and the supported range is between 1 and 64.
- **Thread Priority**--This is the priority you want to set for your threads: low, medium, or high. If you increase the priority, the operating system increases the CPU cycles to the thread. If you increase the number of threads in the Number of threads field, you should decrease the thread priority to lessen the impact on your server.
- **Maximum Backup Size**--To allow an efficient flow of information during backup, data is stored in a transition queue. This setting lets you configure the size of this queue. The default Max queue depth value is 256 items and the supported range is between 32 and 1024.
- **Maximum Restore Size**--This sets the threshold for memory that SIS restores will use before saving objects to the temporary location you specify. If the amount of cached SIS data exceeds this value, you can increase the value to gain better performance. If the amount of cached SIS data exceeds the value you select, the restore is not affected, but a notification message appears in the activity log. The default Max Restore memory value is half of your system RAM and the supported range is between 32 and 1024.
- **Retry Counter**--If a MAPI error or time out occurs while trying to retrieve an object from Exchange Server, this setting lets you control the number of times you want to retry. This is useful for when your backups are competing with third-party applications or during periods of high volume activity. If a MAPI error or time out occurs, the object is skipped, but the backup continues and a notification message is displayed in the log location you specify. The default Retry counter value is 2 and the supported range is between 0 and 10.
- **Retry Delay**--If a MAPI error or time out occurs while trying to retrieve an object from Exchange Server, this setting lets you control the delay between retries. This is useful when your backups are competing with third-party applications or during periods of high volume activity. If a MAPI error or time out occurs, the object is skipped, but the backup continues and a notification message is displayed in the Log location you specify. The default Retry Delay value is 20 and the supported range is between 0 and 60.

- **Log Detail Level**--This sets the level of detail on the debug trace and log in the log location you specify. The log detail level determines the level of detail in the debug trace and log. This does not affect the level of detail in the Activity Log in the CA ARCserve Backup Manager window. The default log detail level value is 1 and the supported range is between 0 and 5. If you want to disable agent side logging, use 0. Otherwise, you should always use level 1.

Important! Do not change this value unless directed by a trained CA Customer Support technician.

- **Job Continuation Level**--If a job fails to complete, this setting lets you skip mailboxes and root public folders that already have been backed up and continue the job from the point of interruption. This is especially useful for continuing jobs in the case of a cluster failover. The default Job Continuation Level value is 1 and the supported range is between 0 and 2. 0 disables job continuation, 1 continues makeup jobs only, 2 continues any interrupted jobs.

Note: Because job continuation begins the job at the point of interruption and skips items that were already backed up in the original job, you should ensure that the skipped items were backed up properly in the original job and that they can be browsed from a restore view.

- **Skip Log Setting**--At the end of each backup job, a summary of each session is displayed in the Activity Log. If individual folders, messages, and attachments are not backed up, by default, the details will be listed in the skip log in the agent log directory. If you would rather view the skip log information in the Activity Log or if you want to view it in the Activity Log in addition to the skip log, this setting lets you configure the location. The default Skip Log Setting value is 0 and the supported range is between 0 and 2. 0 logs information to the skip log only, 1 logs information to the Activity Log only, 2 logs information to both the skip log and Activity Log.

Note: This skip log is also useful for tracking corrupt messages in an Exchange Server.

- **Backup Additional User Properties**--If you are using Exchange 2000 Server, Exchange Server 2003, or Exchange Server 2007 this setting lets you back up a greater level of user properties detail and determines what is restored when using the Create user if not existing restore option.

Note: For more information on restore options, see Document Level Restore Options.

If you do not enable this option, only the display name that is associated with the mailbox is backed up. This is useful if you will be using this user as a placeholder to perform an audit or test restore. If you do enable this option, most additional properties, such as first name, last name, fax number, and address information are backed up. This is useful for migration, but will increase the backup time.

- **Disable Purge Option**--When a backup job is created using the time based backup method, the Purge documents after backup option can be enabled so that documents are automatically deleted after they are backed up. However, since this option should be used with caution, you can enable the Disable Purge Option as a safety feature to override the purge and prevent an agent from pruning an Exchange Server.

- **Append To Restored Mailbox**--During restore, if you want to create duplicates of existing users and mailboxes in the same organization, you must append a string to the user and mailbox names. Enter the string you want to append in this field. Since the maximum character limit for user and mailbox names on some systems is 20 characters, try to keep the string short. If you do not want to create duplicates, leave this field blank.

Note: This option must be used in conjunction with the Create mailbox if not existing options. For information about Create mailbox if not existing, see [Configure Document Level Restore Options](#) (see page 92).

- **Log Location**--If you want to change your log location from the default location, click Browse and select a new location.

- **Temp Location**--If you want to change your temp location from the default, click Browse and select a new location.
- **Allow Brick Level Restore**--Select this option to restore brick level backup data that was backed up using a previous version of the Agent for Microsoft Exchange.
 - **Configure Brick Level Agent**--This option lets you open the Exchange Brick Level Agent Configuration dialog. If you selected the Allow Brick Level Restore option, you can click this button to configure the Brick-Level agent. To restore Brick Level backup data, you must create or verify a Brick Level account. For more information, see [Create or Verify a Brick Level Account](#) (see page 26).

Note: This option does not apply to Exchange Server 2007 systems.

4. Click OK.

The document level backup and restore options are saved.

Create or Verify a Brick Level Account

To have the capability to restore brick level backups on Exchange 2000 Server and Exchange Server 2003 systems, you must either create a new brick level account or verify that an existing account meets the requirements for the backup agent service account.

The following sections describe how to perform the following tasks:

- Create a new brick level account
- Verify an existing brick level account

To create a new brick level account

1. From the Windows Start menu, select Programs, CA, ARCserve Backup, and click Backup Agent Admin.

The ARCserve Backup Agent Admin dialog opens.

2. From the drop-down list, select Agent for Exchange, and then click the Configuration button.

The Configuration dialog opens with the Exchange Document Level tab selected.

3. Select the Allow Brick Level Restore check box.

For more information, see [Configure the Agent for Document Level Backup and Restore](#).

4. Click the Configure Brick Level Agent button.

Note: The Configure Brick Level Agent button is not available on Exchange Server 2007 systems.

The Exchange Brick Level Agent Configuration dialog opens.

5. Complete the following fields as required for your environment:

Mailbox

Specify a unique name for your mailbox. A unique name is a name that does not exist in the organization as a subset of characters in another mailbox name. For example, you cannot use the name Admin, if there is a mailbox named Administrator in your organization.

Service Account

Specify a unique name for your Service Account.

Password

Specify a password. When entering the password, ensure that it meets the length, complexity, and history requirements of the domain and server you are restoring to.

Confirm Password

Confirm your password.

Domain of Account

Confirm your local domain name.

6. Place a check mark in the Create a new account check box and click Finish.

CA ARCserve Backup creates the mailbox in the first database of the first storage group on the local machine. You can move this mailbox to any mailbox database on the local server.

7. When the dialog opens confirming that your account has been added as a member to the Administrators, Backup Operators, and Domain Admins groups, click Yes, and then click OK.

The new brick level account is created.

To verify an existing brick level account

1. From the Windows Start menu, select Programs, CA, ARCserve Backup, and click Backup Agent Admin.

The ARCserve Backup Agent Admin dialog opens.

2. From the drop-down list, select Agent for Exchange, and then click the Configuration button.

The Configuration dialog opens with the Exchange Document Level tab selected.

3. Click the Configure Brick Level Agent button.

The Exchange Brick Level Agent Configuration dialog opens.

4. Complete the following fields as required for your environment:

Mailbox

Specify the name of your mailbox.

Service Account

Specify the name of your Service Account.

Password

Specify your password.

Confirm Password

Confirm your password.

Domain of Account

Confirm your local domain name.

5. Click Finish.

The existing brick level account is verified.

More information:

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)

Configure the Agent to Run on a Cluster

For the agent to properly perform document level backups on a cluster, the cluster resource type **CA ARCserve Backup Exchange Agent Notifier** must be registered and the resource instance type **CA ARCserve Backup Exchange Agent Notifier** must be created.

The binaries for the cluster resource type are CAExCluRes.dll and CAExCluResEX.dll. The installation procedure registers the cluster resource type and creates the cluster resources instance for you automatically when you install the agent on local nodes.

After the cluster resources are registered, you must specify a common location for the check point file. This location should be accessible from all possible nodes on which a virtual server can potentially run. This allows job continuation and incremental and differential jobs to properly execute even if they fail over to a different node. To set this destination, use one of the following registry keys:

Exchange Server 2000 and Exchange Server 2003 Systems

```
HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\CA ARCserve
Backup\ExchangeDocumentAgent\Parameters
Value Name:      <VirtualServerName>_ChkPath
Value Type:      REG_SZ
Value Data:      <Path>
```

Exchange Server 2007 Systems

```
HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\ComputerAssociates\CA ARCserve
Backup\ExchangeDocumentAgent\Parameters
Value Name:      <VirtualServerName>_ChkPath
Value Type:      REG_SZ
Value Data:      <Path>
```

Example: Traditional Single Copy Cluster (SCC)

If virtual server EXVS1 is using drive g: as a disk resource to store data and virtual server EXVS2 is using drive h: as a disk resource to store data, add the following registry key on all nodes that are possible owners of these virtual servers.

```
Value Name:      EXVS1_ChkPath
Value Type:      REG_SZ
Value Data:      g:\CA\Temp
```

```
Value Name:      EXVS2_ChkPath
Value Type:      REG_SZ
Value Data:      h:\CA\Temp
```

Example: Exchange Server 2007 Cluster Continuous Replication (CCR)

Find a server with a shared device that can be accessed from all possible nodes of the virtual Exchange server by the Exchange agent backup account user.

Note: It is recommended that you use the server hosting the Majority Node Set (MNS) quorum.

If the path on the shared device is \\ServerName\C\$\CA\TEMP and the virtual server name is EXVS1, add the following registry key on all nodes that are possible owners of the virtual server.

Value Name: EXVS1_ChkPath
Value Type: REG_SZ
Value Data: \\ServerName\C\$\CA\Temp

More information:

[Register the Cluster Resources Manually](#) (see page 151)

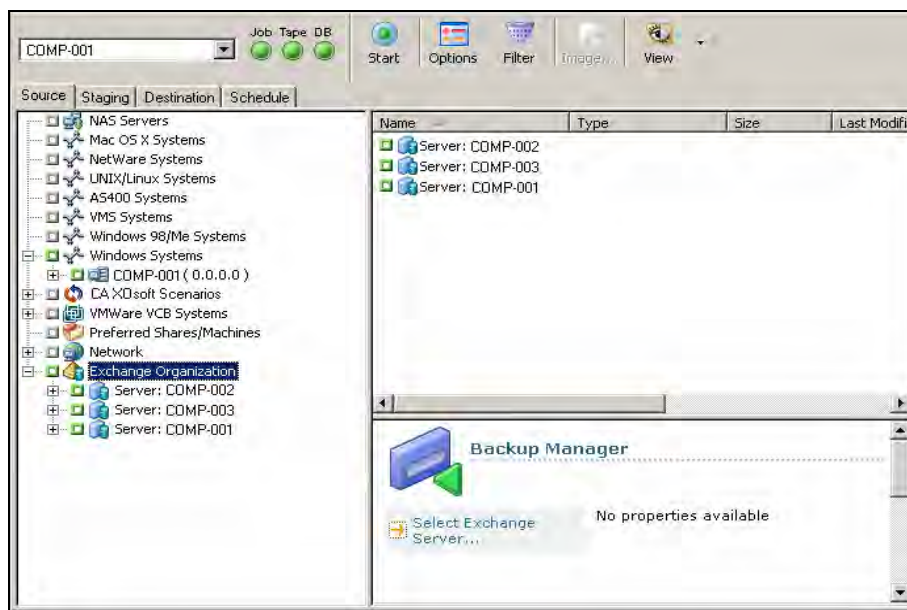
Remote Server Views in the Backup Manager

Depending on the configuration of the server on which CA ARCserve Backup is installed, you can view remote Exchange servers from:

- The Exchange Organization View
- The Windows Systems object

Exchange Organization View

The Exchange Organization View provides a central display of your entire Exchange Organization. This lets you quickly find all the remote Exchange servers in your environment rather than having to enter each of them manually under the Windows Systems object or Preferred Shares/Machines object.



To use the Exchange Organization View, the CA ARCserve Backup Manager and the Agent for Microsoft Exchange must be installed on the same machine as your Exchange server.

In the Exchange Organization View, the Exchange Server database objects are organized in a hierarchy similar to the Exchange Server Manager.

Note: The Exchange Organization is always explicitly packaged. You must repackage jobs if Exchange servers are added or removed from your organization. For more information on packaging your jobs, see the *Administration Guide*.

Add Remote Servers to the Systems Object

To view and manage remote Exchange Server systems, you must add them to the Windows Systems object in the Backup Manager.

To add a remote server to the Windows Systems object

1. From the Quick Start menu on the CA ARCserve Backup Home Page, click Backup Manager.

The Backup Manager window opens.

2. From the CA ARCserve Backup Manager window select the Source tab. Right-click the **Windows Systems** object and select **Add Machine/Object** from the pop-up menu.

The **Add Agent** dialog opens.

3. From the **Add Agent** dialog, enter the Host Name for the machine and either enable the **Use Computer Name Resolution** option to automatically search for the correct IP address each time you connect to this computer, or you can enter a specific IP address.

Important! The machine that you are adding must be running and have the Universal Agent started.

4. Click Add.

The machine is added to the **Windows Systems** object.

5. Repeat the previous two steps to add more remote Exchange Server systems to your environment.

6. Click Close.

The remote agents are added to the Backup Manager, Windows Systems object.

Chapter 3: Performing Database Level Backups and Restores

This section contains the following topics:

[How Database Level Backup Works](#) (see page 33)

[Database Level Backup and Restore Benefits](#) (see page 33)

[Database Level Backup and Restore for Exchange Server 2000 and 2003](#) (see page 34)

[Database Level Backup and Restore for Exchange Server 2007](#) (see page 51)

How Database Level Backup Works

Database level backup and restore protects the Exchange Server database files and logs. It is the fundamental backup for your Exchange server, and you should always use it regardless of whether you use one of the other granular backup types. You can use database level backups to restore Exchange server data in the event of a system failure, database corruption, or disaster recovery scenario.

Note: In addition to the full database backups that you perform during your weekly backup strategy, you should perform full database backups after installing service packs, after performing restores, and after changing the Circular Logging setting on your Exchange server.

Database Level Backup and Restore Benefits

Database level backup and restore offers many benefits, including:

- **Push Agent Technology**--Database level backup uses push agent technology to increase the efficiency of your backup jobs by processing the data at the remote client workstations rather than processing it all from the CA ARCserve Backup host server. This off loads the system resources from the CA ARCserve Backup host server and minimizes network traffic.
- **Multi Streaming Support**--Database level backup lets you take advantage of the full capacity of multiple drives and high-speed RAID arrays capable of fast concurrent backups to multiple tapes. It does this by partitioning information into concurrent streams for parallel backups.

- **Enhanced Cluster Support**--Database level backup offers Active/Active and Active/Passive cluster support with cross cluster node failover.

For database level operations on Exchange Server 2007 platforms, the agent supports Cluster Continuous Replication (CCR) and Single Copy Cluster (SCC) environments.

Note: For more information about installing the agent on a cluster, see [Configure the Agent to Run on a Cluster](#) (see page 29).

- **Job Continuation**--If a job fails to complete, the makeup job continues from the failed storage group.
- **Replica Database Support**--The agent can successfully back up replica databases (LCR and CCR), given the replication is healthy. This capability reduces the load on the active Exchange database.

More information:

[Configure the Agent to Run on a Cluster](#) (see page 29)

Database Level Backup and Restore for Exchange Server 2000 and 2003

For Exchange 2003, using the Database Level backup, you can back up the following types of databases:

- Information Store (IS)
- Site Replication Service (SRS)

For Exchange 2000, using the Database Level backup, you can back up the following types of databases:

- Information Store (IS)
- Key Management Service (KMS)
- Site Replication Service (SRS)

Database Level Views in the Backup Manager

Depending on your configuration, Microsoft Exchange Server – Database Level appears in the Backup Manager under the following objects:

- Windows Systems
- Exchange Organization

When you expand the Microsoft Exchange Server - Database Level(IS) object, you can view your local and remote Exchange servers. When you expand a server, you can view the databases and their components that you can protect using Database Level backup and restore:



Note: Microsoft Key Management Service (Exchange Server 2000 only) and Microsoft Site Replication Service are optional and appear in the Backup Manager only if you have them installed.

In CA ARCserve Backup, the Microsoft Exchange Server - Database Level (IS) object, Microsoft Site Replication Service object, and Microsoft Key Management Service object includes up to four storages groups. Each storage group includes up to five database stores.

Note: In a cluster environment, Exchange servers appear under the Exchange virtual server objects.

More information:

[Database Level Backup Methods](#) (see page 36)

Backup Agent Service Account Requirements for Database Level Backup and Restore

To perform database level backup and restore jobs on Exchange Server 2000 and Exchange Server 2003 systems, the backup agent service account must satisfy the requirements listed below.

The backup agent service account must be:

- A domain account.
- A member of the Administrator group and the Backup Operators group on the Exchange Server system.
- Assigned the Exchange Full Administrator role on the Exchange Organization level or the Exchange Administrative Group level.

Database Level Backup Features

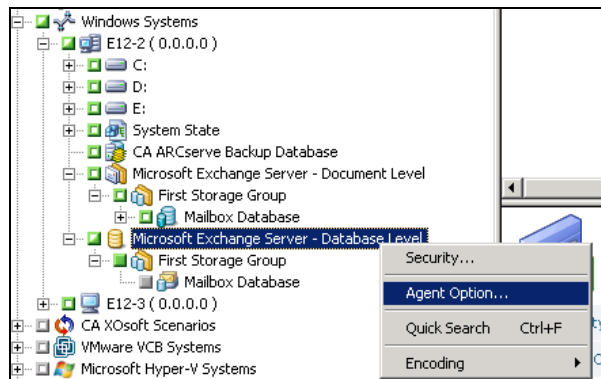
The following sections include information on the features that the CA ARCserve Backup Agent for Microsoft Exchange offers when performing database level backups.

Database Level Backup Methods

When you submit a backup job, you must select a backup method. The backup method tells CA ARCserve Backup how you want your data to be backed up. When you use the agent, you can select a backup method for your Database Level backup job at the storage group level or you can use a globally scheduled backup method.

Important! If you select to back up only a mailbox store or public folder store without dynamically selecting the entire storage group, the copy backup method is automatically used so that the storage group's logs are not affected.

To select a backup method at the storage group level, explicitly select the storage group's parent database object (Microsoft Exchange Server – Database Level (IS), Microsoft Site Replication Service, or Microsoft Key Management Service object), and select Agent Option from the pop-up menu:



Note: For more information on explicit job packaging, see the *Administration Guide*.

The Agent Options dialog opens.

The advantage of selecting a backup method at the storage group level is that it gives you the flexibility to use a different method for different storage groups. You can select from the following backup methods:

Use globally scheduled backup method

Enabled by default. You must disable this option if you want to set a backup method at the storage group level. If you do not disable this, you must select a backup method on the Schedule tab.

Note: If you do not disable this and select Custom Schedule on the Schedule tab, there is no difference between the full (Keep Archive Bit) and full (Clear Archive Bit) backup methods; they both function as full.

Full Backup

This is the default. It backs up the entire database, including the log files, and marks all of the files that have been backed up in preparation for a subsequent incremental or differential backup. The log files are also truncated during a full backup. The backup operation then purges, from the Exchange Server, the committed log files it no longer needs. While the backup is taking place, new database changes can occur, so a patch file (.pat) is created to log these late changes. The patch file is backed up at the end of the process along with the log files. These backed up .pat files are restored automatically with the log files.

Note: Always perform a full backup when running the agent for the first time, after upgrading to a Service Pack, and after performing a restore.

Copy Backup

Backs up the entire database, including the log files, but does not mark the files as having been backed up. Use a copy backup if you want to make a full backup of your data but do not want to disrupt any existing incremental or differential backups.

Note: The log files are not truncated during a copy backup.

Incremental Backup

Backs up the log files that have changed since the last full or incremental backup and marks them as backed up. The log files are also truncated. When restored, the log files are applied to recreate the database at the time of backup.

Note: Microsoft does not support incremental backups when the Circular Logging feature is enabled. If you do not disable Circular Logging and submit an incremental backup, the agent automatically converts the backup to full.

Differential Backup

Backs up the log files that have changed since the last backup. The log files are not truncated. It does not, however, mark them as backed up. When restored, the log files are applied to recreate the database at the time of backup.

Note: Microsoft does not support differential backups when the Circular Logging feature is enabled. If you do not disable Circular Logging and submit a differential backup, the agent automatically converts the backup to full.

Specify Database Level Backup Options for an Exchange Storage Group

This section describes how to specify Database Level backup options for an Exchange storage group.

To specify database level backup options for an Exchange storage group

1. Open the Backup Manager and select the Source tab.

Browse to and expand the **Microsoft Exchange Server - Database Level** object directory tree.

Right-click any storage group in the directory tree and select **Agent Option** from the pop-up menu.

The Agent Option dialog opens.

2. From the list of Exchange storage groups, select **Default**.

Clear the check mark from the Use globally scheduled backup method option.

The options under Backup Methods and Backup Source on Agent Options dialog become available.

3. Specify a Backup Method option, a Backup Source option, and click Apply..

The database level backup options for the selected Exchange storage group are saved.

Note: For more information about Backup Method and Backup Source options, see Database Level Backup Methods.

4. Click OK.

The Agent Options dialog closes.

Note: To apply the default backup options to the selected Exchange storage group, click the Reset All button.

More information:

[Database Level Backup Methods](#) (see page 36)

Perform a Database Level Backup

Before you submit a database level backup job, make sure that the Exchange server databases are mounted on your server and that the Microsoft Exchange Information Store and the CA ARCserve Backup Agent RPC Server service are running on your server.

To perform a database level backup on an Exchange Server 2000 or Exchange Server 2003 database

1. From the CA ARCserve Backup Home Page, select Backup from the Quick Start menu.

The Backup Manager window opens.

2. From the Backup Manager window, select the Database Level objects you want to back up (Microsoft Exchange Server - Database Level (IS), Microsoft Site Replication Service, and Microsoft Key Management Service). If you want to back up only certain storage groups or database stores within certain storage groups, expand a database object and select specific groups and database stores.

Note: You should back up an entire storage group rather than individual database stores. Individual database stores can be restored from a backup of an entire storage group.

3. If you are not planning to schedule your job to use a rotation scheme, right-click each storage group object you are including in this job and select Agent Option to select a backup method to use. If you do this, the storage group's database parent object must be explicitly selected. For more information, see [Database Level Backup Methods](#) (see page 36).

Note: Always perform a full backup when running the agent for the first time. This allows you to store a complete set of Exchange Server databases.

4. To enable CRC checking so that you can verify the integrity of your data using the Media Assure & Scan utility after the backup job is performed, do the following:
 - a. From the Backup Manager window, click the Options toolbar button.
The Options dialog opens.
 - b. Select the Operations tab.
Enter a check mark in the Calculate and Store CRC Value on Backup Media option and click OK.
5. To enable data encryption, compression, or both, do the following:
 - a. From the Backup Manager window, click the Options toolbar button.
The Options dialog opens.
 - b. Select the Backup Media tab.
In the Compression/Encryption section, specify the following options as required:
 - **Encrypt data**--Select at Agent.
 - **Session/Encryption**--Specify a password.
Note: You must specify a password when you select the Encrypt data option.
 - **Compress data**--Select at Agent.
 - c. Click OK.
6. Click the Destination tab and select a backup destination.
7. Click the Schedule tab.
If you want to use a Custom Schedule, select a Repeat Method. If you want to use a rotation scheme, select the Use Rotation Scheme option and set up your scheme. For more information on scheduling jobs and rotation schemes, see the online help or the Administration Guide.

Note: If you clear the check mark from the Use globally scheduled backup method option on the Agent Options dialog, the options in the Backup Method section on the Schedule tab do not apply. For more information, see [Database Level Backup Methods](#) (see page 36).
8. Click the Start toolbar button.
The Security and Agent Information dialog opens.
9. From the Security and Agent Information dialog, ensure that the correct user name and password are filled in for each object. If you need to enter or modify a user name or password, click the Security button, make your changes, and then click OK.

10. Click OK.

The Submit Job dialog opens.

11. From the Submit Job dialog, select Run Now to run the job immediately, or select Run On and select a future date and time when you want the job to run.

Enter a description for your job.

If you selected multiple sources to back up and want to set the priority in which the job sessions initiate, click Source Priority. Use the Top, Up, Down, and Bottom buttons to change the order in which the jobs are processed. When you finish setting priorities, click OK.

On the Submit Job page, click OK to submit your job.

More information:

[Database Level Backup Methods](#) (see page 36)

Database Level Data Restore

The following sections include information on the prerequisites you must meet before you perform a restore, the features that the CA ARCserve Backup Agent for Microsoft Exchange offers when restoring from a database level backup, and the procedure for how to perform a restore.

Database Level Restore Prerequisites

Before you restore data, and to prepare your Exchange server, you must dismount the database stores within all storage groups you want to restore. To do this, open the Exchange System Manager, navigate to, and expand, the Servers object and browse to the storage group you want to restore. Then right-click each database store and select Dismount Store.

Note: You can also dismount databases automatically using the Automatically dismount database before restore option. For more information on this option, see [Database Level Restore Options](#) (see page 43).

Enable the This database can be overwritten by a restore option for each of the database stores in the Storage Groups you want to restore. To do this, open the Exchange System Manager, navigate to, and expand, the Storage Group you want to restore, right-click each database store and select Properties, click the Database tab, enable the feature This database can be overwritten by a restore, and then click OK.

Note: You can also automatically allow databases to be overwritten using the option Allow database to be overwritten by restore. For more information on this option, see [Database Level Restore Options](#) (see page 43).

- Ensure that all of your necessary services are running on the Exchange server.
- Ensure that the agent is installed on the same system that has Exchange Server installed and that the CA ARCserve Universal Agent service is running.
- Ensure that the server you are restoring to is configured exactly the same as the original server you backed up from. If you are restoring to the original location, the configuration is typically the same. Otherwise, use the worksheet in the section Using the Server Configuration Worksheet - Exchange Server 2000 and 2003 Systems to determine what needs to be identical. All fields in the worksheet except the Server Name field must be the same when restoring to an alternate location.

More information:

[Database Level Restore Options](#) (see page 43)

Database Level Restore Sets

When you back up an Exchange server, the Information Store that you select to back up is saved on media as an individual session. To restore an Exchange server, you must restore all of the sessions that, when combined, completely restore the Information Store. These sessions are called your restore set.

The number of sessions in your restore set depends on the backup methods you used:

- If you backed up your Information Store using only the full backup method, your restore set includes only this full session.
- If you backed up your Information Store using both full and incremental backups, your restore set includes your full session and at least one, but up to as many incremental sessions as you want to include. For example, in the following backup scenario, your restore set can be full and incremental 1, full and incremental 1 and 2, full and incremental 1, 2, and 3, or full and incremental 1, 2, 3, and 4:

Full	Incremental 1	Incremental 2	Incremental 3	Incremental 4
------	---------------	---------------	---------------	---------------

- If you backed up your Information Store using both full and differential backups, your restore set includes your full session and one differential session. For example, in the following backup scenario, your restore set can be full and differential 1, full and differential 2, full and differential 3, or full and differential 4:

Full	Differential 1	Differential 2	Differential 3	Differential 4
------	----------------	----------------	----------------	----------------

After you determine your restore set, the entire set must be selected when you submit the restore job. When using the Restore by Tree method, select the last incremental or differential session in your restore set and the agent will automatically include the full session for you.

To select restore sets in the Restore Manager

1. From the CA ARCserve Backup Home Page, select the Restore Manager from the Quick Start menu.
2. When the Restore Manager opens, select Restore by Tree in the drop-down box below the Source tab.
3. Expand the server that has the Information Store that you backed up, select the Information Store object, and click the Version History button. The Version History dialog opens.

4. When the Version History dialog opens, highlight a session in your restore set and click Select. If your restore set includes incremental and differential backups, select the last incremental or differential backup in the set and the agent will automatically include the full backup for you.

Note: The most recent backups are displayed at the top of the Version History dialog.

5. Set your restore options, specify a destination, and submit the job.

Note: If you use Restore by Session rather than Restore by Tree, you must repeat Steps 1 to 4 for each session in your restore set.

Database Level Restore Options

When you create a restore job, you can specify restore options to customize the job.

The following list describes each of the restore options. When to use these options depends on your restore set. To determine when to use each option, see Database Level Restore Options Selection.

- **Automatically dismount database before restore--**To prepare your Exchange server before you restore, you must dismount the database stores within all storage groups that you want to restore. To do this automatically, enable this option. For information on how to dismount databases manually, see Database Level Restore Prerequisites.
- **Allow database to be overwritten by restore--**Before you restore, to prepare your Exchange server, you must allow each database store in the Storage Groups you want to restore to be overwritten. To do this automatically, enable this option. For information on how to do this manually, see Database Level Restore Prerequisites.

- **Restore to Recovery Storage Group**--Select this option when you want to restore data to a Recovery Storage Group.

Be aware of the behavior that follows:

- This option only appears on the Backup Agents Restore Options dialog when you are running Exchange Server 2003 or Exchange Server 2007 in your environment. You cannot restore data to a recovery storage groups that reside on Exchange 2000 Server systems. For more information on the Recovery Storage Group, see your Exchange Server documentation.
- This option does not appear on the Backup Agent Restore Options dialog when you protect a version of the Agent for Microsoft Exchange that pre-dates CA ARCserve Backup r12.

Be aware of the limitations that follow:

- To restore live databases that reside on agents that pre-date CA ARCserve Backup r12, you must remove the Recovery Storage Group from the Exchange server before you submit the restore. If you do not remove the the Recovery Storage Group, the job will fail.
- If you are restoring Exchange Server 2003 database level sessions that were backed using a previous version of the agent, you cannot explicitly restore data to a recovery storage group using the Backup Agent Restore Options dialog. For more information, see [Prerequisite Tasks for Restoring Recovery Storage Groups on Exchange Server 2003 Systems](#) (see page 46).
- If you performed a database level backup of an Exchange Server 2003 database using a previous version of the agent (for example, BrightStor ARCserve Backup r11.1 or BrightStor ARCserve Backup r11.5), and then upgraded the agent to CA ARCserve Backup r12 or CA ARCserve Backup r12 SP1, you can specify the Restore old sessions to Recovery storage group option on the Exchange Agent Configuration dialog. This option lets the agent restore the data to the recovery storage group. For more information, see [Configure the Agent for Database Level Backup and Restore](#) (see page 20).
- You can restore one storage group to a Recovery Storage Group, per job.
- You cannot restore public folders to a Recovery Storage Group.

- **Commit after restore**--Commits the database after the restore is completed. If you are restoring a set, use this option only when you are restoring the last backup in the set. If this option is not selected, the database is left in an intermediate state and is not yet usable but is ready for subsequent differential or incremental restores.

- **Apply existing logs**--If you enable this, both the existing logs and any new logs that will be restored are applied together in sequential order when the database is committed. If you do not select this, only the new logs will be applied (existing logs are not applied).

Important! Do not use this option if the Exchange server that you are restoring data to is not the Exchange server you backed up from, the existing database is corrupt, or the new logs that will be restored are out of sequence with the existing logs. If you enable this option and the agent detects that logs are out of sequence, the agent automatically disables the option to prevent the job from failing.

- **Mount database after restore**--Instructs Exchange Server to mount the database after the restore is completed. If you would rather manually mount your database, disable this option.

Note: If Exchange Server fails to mount the database, check the event log for details. If you think Exchange Server failed to mount because of existing logs on the server, repackage and run the restore without the Apply existing logs option enabled.

- **Wait for the database to commit**--If you enable this, the agent waits for Exchange Server to return the commit result before finishing the restore. This may take a long time depending on the number of logs Exchange Server is attempting to commit.

- **Temporary location for log and patch files**--Sets a temporary location on the Exchange Server machine to restore logs and patch files during the restore process. The temporary location you select must be empty before you restore and must have enough space for all the log files being restored. After the database commits the logs and patch files, they are deleted.

Note: If you are restoring a series of full backups, incremental backups, or differential backups, you must use the same temporary location for all restore jobs.

More information:

[Database Level Restore Prerequisites](#) (see page 41)

[Database Level Restore Options Selection](#) (see page 46)

[Configure the Agent for Database Level Backup and Restore](#) (see page 20)

Prerequisite Tasks for Restoring Recovery Storage Groups on Exchange Server 2003 Systems

To restore a Recovery Storage Group on Exchange Server 2003 systems using a version of the agent that pre-dates CA ARCserve Backup r12 (for example, BrightStor ARCserve Backup r11.5), you must perform the steps that follow before you submit the restore job.

1. From the [Backup Agent Restore Options dialog](#) (see page 43), clear the check mark next to the options that follow:
 - Automatically dismount database before restore
 - Allow database to be overwritten by restore
2. On the Exchange Server system, create a Recovery Storage Group.
Add the mailbox databases that you want to restore to the Recovery Storage Group.

Dismount the newly created database in the Recovery Storage Group.

Right-click the newly created database and click Properties on the pop-up menu.

The <Mailbox_Name> Database Properties dialog opens.
3. Click the Database tab and ensure that This database can be overwritten by restore is specified.

After you complete the above steps, you can restore the Recovery Storage Group.

Database Level Restore Options Selection

When to use these options depends on your restore set. The following tables describe when to use each restore option. If you restore using the Restore by Tree method, correct restore options are automatically applied for you. If you restore data using Restore by Session on Exchange 2000 Server and Exchange 2003 Server systems, use the following information to determine when to use each option.

If your restore set contains incremental backups:

Type	Full	Intermediate Incremental	Last Incremental
Apply	N	N	Y/N
Commit	N	N	Y
Mount	N	N	Y/N

If your restore set contains differential backups:

Type	Full	Differential
Apply	N	Y/N
Commit	N	Y
Mount	N	Y/N

If your restore set is a full backup:

Type	Full
Apply	Y/N
Commit	Y
Mount	Y/N

Perform a Database Level Data Restore

To perform a database level data restore on an Exchange Server database

1. From the CA ARCserve Backup Home Page, select Restore from the Quick Start menu.

The Restore Manager window opens.

2. From the Restore Manager window, select Restore by Tree in the drop-down box below the Source tab.

Note: Both Restore by Tree and Restore by Session restore methods are supported for Database Level restores.

3. From the directory tree, expand the Windows Systems object, expand the server containing the database that you backed up, and select the database object.
4. If the most recent backup is not the backup you want to restore, click Version History, select the version you want to restore, and click Select.

Note: If you are using a restore set, you must restore the entire set in the order that it was backed up. If your restore set includes incremental and differential backups, select the last incremental or differential backup in the set and the agent will automatically include the full backup for you (applies to Restore by Tree only). For more information on restore sets, see [Database Level Restore Sets](#) (see page 42).

5. Right-click each storage group object you are including in this job and select Agent Option to select backup options. For more information about restore options, see [Database Level Restore Options](#) (see page 43).

6. Click the Destination tab. You can restore the database objects to their original location (default) or you can restore the database objects to an alternative location.

Note: For Exchange Server 2003, you can select to restore to the Recovery Storage Group, a specialized storage group you can use in addition to the regular storage groups in Exchange Server. For more information on the Recovery Storage Group, see your Exchange Server documentation.

7. If you want to restore to an alternative location, clear the check mark from the Restore files to their original locations check box, expand the Windows Systems object, expand the server you want to restore to, and select the Microsoft Exchange Server – Database Level (IS) object.

Note: For information about restoring to an alternative location, see the Disaster Recovery for Microsoft Exchange 2000 Server and Disaster Recovery for Microsoft Exchange 2003 Server white papers on the Microsoft web site.

8. Click the Start toolbar button.

If you are restoring to an alternative location, when the Security dialog appears, enter the user name and password for the destination server and click OK.

Note: CA ARCserve Backup does not support logging in to systems with passwords that are greater than 23 characters. If the password on the system you are attempting to log in to is greater than 23 characters, you must modify the password on the agent system such that it is 23 characters or less, and then you can log in to the agent system.

9. When the Session User Name and Password dialog opens, verify or change the user name and password for the destination Exchange Server. To change the user name or password, select the session, click Edit, make your changes, and then click OK.

Note: The user name must be entered in the following format:

DOMAIN\USERNAME

10. Click OK.
11. When the Submit Job dialog opens, select Run Now to run the job immediately, or select Run On and select a future date and time when you want the job to run.

Enter a description for your job and click OK.

More information:

[Database Level Restore Sets](#) (see page 42)

[Database Level Restore Options](#) (see page 43)

Perform a Database Level Test Restore to an Alternative Location

You should perform a test restore to a backup server at least **once a month** and make sure the restored database is functioning properly. This lets you test your backup and restore strategies to assess whether you are backing up your system accurately and to prepare for a possible disaster.

Before you can restore an Exchange Server database backup to an alternative location, you must ensure that the server you are restoring to is configured exactly the same as the original server you backed up from. To determine what needs to be identical, use the worksheet in the appendix "Using the Server Configuration Worksheet - Exchange Server 2000 and 2003 Systems." Information in all fields in this worksheet except the Server Name field must be the same on the server you are restoring to.

To perform a test restore to an alternative location

1. Ensure that the test server you are restoring to meets the following criteria:
 - Microsoft Exchange is installed and is configured exactly the same as the original server you backed up from.
 - CA ARCserve Backup and the agent are installed.
 - The server is in a different domain than the domain of the server you backed up from and it has its own Active Directory.
2. Open the Restore Manager and select the Source tab.
3. Browse to and select the session that you want to restore.
4. Click the Destination tab and disable the **Restore files to their original location(s)** option.
5. Expand the server object for your test server and select the **Microsoft Exchange Server - Database Level** object.
6. Click Start to submit the job.

Note: For information about restoring to an alternative location, see the *Disaster Recovery for Microsoft Exchange 2000 Server* or *Microsoft Exchange 2003 Server Disaster Recovery* white paper on the Microsoft web site.

Access an Individual Mailbox from a Database Level Test Restore

Complete the following procedure when you do not perform a document level backup in addition to your database level backup and need to restore an individual mailbox.

Note: The procedure that follows applies to Exchange 2000 Server systems and Exchange Server 2003 systems.

To access an individual mailbox from a database level test restore

1. Complete the procedure in [Perform a Database Level Test Restore to an Alternative Location](#) (see page 49).
2. Open the Exchange System Manager, expand the Mailbox Store, right-click the Mailboxes object and select Run Cleanup Agent. Because the new domain's Active Directory does not contain the same users as the original domain, mailboxes appear as disconnected.
3. Open the Active Directory Users and Computers dialog and create a new account to attach the mailbox to. While creating the new account, disable the Create an Exchange Mailbox option because you must connect the user to the restored mailbox rather than a new mailbox.
4. In the Exchange System Manager, right-click the name of the disabled mailbox, select Reconnect, and then select the appropriate domain account to link with the mailbox. This connects the mailbox to the user.
5. When the Reconnect dialog opens, click OK.
6. When the warning replication message appears, click OK.

After you connect the mailbox to the user, the information replicates and the restore mailbox is available in the new domain.

Database Level Disaster Recovery

If a disaster occurs, you must perform the following steps to restore the Exchange Server:

- For information about disaster recovery, see the Disaster Recovery for Microsoft Exchange 2000 Server and Disaster Recovery for Microsoft Exchange 2003 Server white papers on the Microsoft web site.
- Restore the operating system on your Exchange Server and your domain controller and ensure that the System State with Active Directory is in a consistent state with the backup you intend to restore. The CA ARCserve Backup Disaster Recovery Option provides an automated and efficient way for you to complete these tasks. For more information, see the *Disaster Recovery Option Guide*.

- Ensure that the Exchange Server application is operational and that you have the same Service Pack you had prior to the disaster.
- Restore the databases to the Exchange Server. For instructions on how to restore the databases to the Exchange Server, see Perform a Database Level Restore.

Database Level Backup and Restore for Exchange Server 2007

The following sections describe how to use database level backup and restore data on Exchange 2007 Server systems.

Database Level Views in the Backup Manager

Depending on your configuration, Microsoft Exchange Server – Database Level appears in the Backup Manager under the following objects:

- Windows Systems
- Exchange Organization

The following diagram illustrates that when you expand the Microsoft Exchange Server – Database Level object, you can view your local and remote Exchange servers. When you expand a server, you can view the databases and their components that you can protect using database level backup and restore processes.



To set options for the respective databases, right-click the Microsoft Exchange Server - Database Level object and select options from the pop-up menu.

Backup Agent Service Account Requirements for Database Level Backup and Restore

To perform Database Level backup and restore jobs on Exchange Server 2007 systems, the backup agent service account must satisfy the requirements listed below.

The backup agent service account must be:

- A domain account.
- A member of the Administrator group and the Backup Operators group on the Exchange Server system.
- Assigned the Exchange Full Administrator role on the Exchange Organization level or the Exchange Administrative Group level.

Note: The service account only needs to be assigned the Exchange View-Only Administrators role when you do not use the Restore to Recovery Storage Group and the Allow databases of destination storage group to be overwritten restore options.

Microsoft VSS Writer Requirements

A shadow copy is created for each storage group that you back up when you back up Exchange Server 2007 systems using Microsoft Volume Shadow Copy Services (VSS).

To create the shadow copy, a volume shadow copy is created on each volume or mount point that contains the system files, log files, or database files of the storage group. The default initial size of the shadow copy storage area for the VSS is 300 MB. You should therefore have at least 300 MB of free disk space available on each shadow copy storage volume.

The size of the shadow copy storage area may increase when VSS creates multiple shadow copies on the same volume concurrently. In this case, more available free disk space is required to ensure that your backups are successful.

For more information, see *Volume Shadow Copy Service Tools and Settings* on the Microsoft web site.

Database Level Backup Features

The following sections include information on the features that the CA ARCserve Backup Agent for Microsoft Exchange offers when performing database level backups.

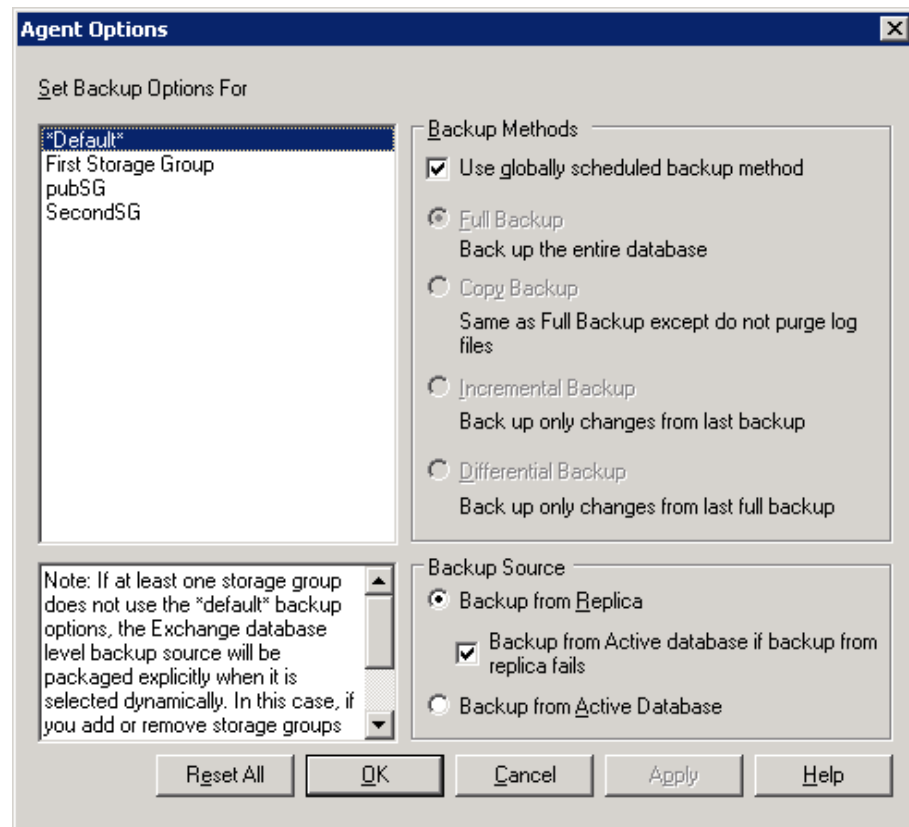
Database Level Backup Options

When you submit a backup job, you must specify a backup option. The backup option tells CA ARCserve Backup how you want your data to be backed up. When you use the agent, you can select a backup method for your Database Level backup job at the storage group level or you can use a globally scheduled backup method.

To specify a backup method at the storage group level, right-click the Microsoft Exchange Server - Database Level object and select Agent Option from the pop-up menu. The Agent Options dialog opens. The following dialog illustrates the Agent Options dialog and the globally scheduled backup method will be used for all storage groups.

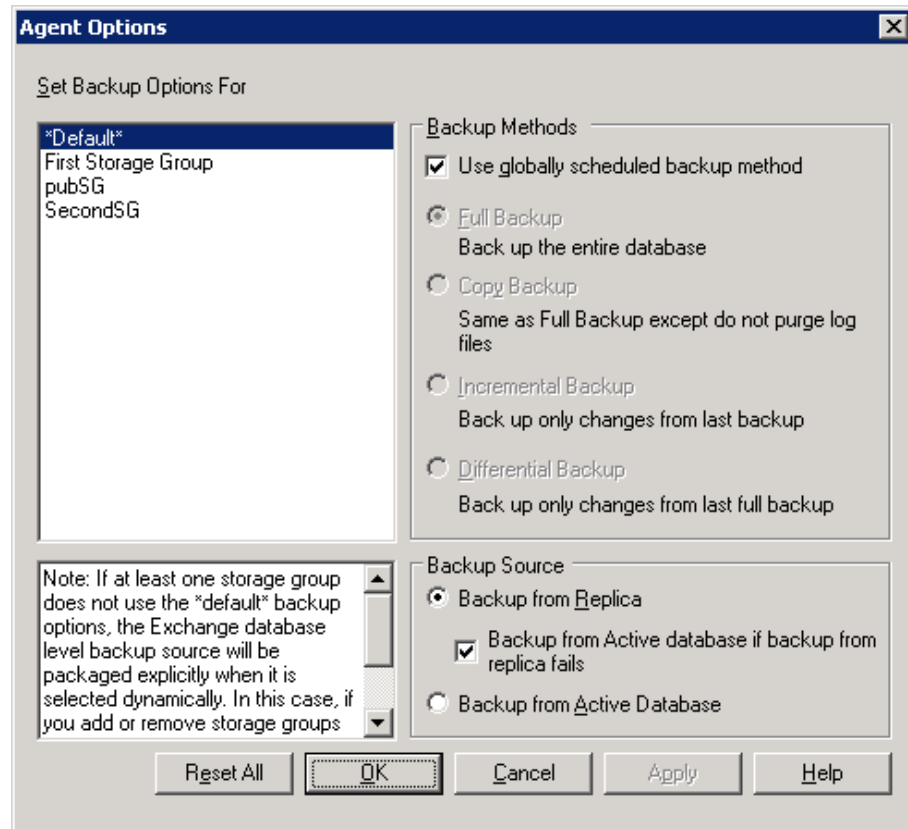
Note: The options corresponding with ***Default*** represent the default options for all storage groups. When necessary, you can specify options that are unique to the selected storage group.

Important! If at least one storage group does not use the **default** backup options, the Exchange database level backup source will be packaged explicitly when it is selected dynamically. In this case, if you add or remove storage groups from the Exchange server, you must repackage the jobs. For information about packaging jobs, see the Administration Guide.



The following diagram illustrates that for the storage group selected, the Use Default Option check box is selected.

Note: To overwrite the default options for the selected storage group, you must clear the check mark from the Use Default Option check box.



Important! The advantage of selecting a backup method at the storage group level is that it gives you the flexibility to use a different method for different storage groups.

You can specify the following backup methods on the Agent Options dialog:

Use globally scheduled backup method

Enabled by default. You must disable this option if you want to set a backup method at the storage group level. If you do not disable this, you must select a backup method on the Schedule tab.

Note: If you do not disable this and select Custom Schedule on the Schedule tab, there is no difference between the full (Keep Archive Bit) and full (Clear Archive Bit) backup methods; they both function as full.

Full Backup

This is the default. It backs up the entire database, including the log files, and marks all of the files that have been backed up in preparation for a subsequent incremental or differential backup. The log files are also truncated during a full backup. The backup operation then purges, from the Exchange Server, the committed log files it no longer needs.

If you dismount one or more databases in a storage group during the backup operation, the agent does not truncate the transaction logs. The final result will be equivalent to that of a copy backup operation - not a full backup operation. A full backup is required to run incremental or differential backups.

Note: You should always perform a full backup when running the agent for the first time, after upgrading to a Service Pack, and after performing a restore.

Copy Backup

Backs up the entire database, including the log files, but does not mark the files as having been backed up. Use a copy backup if you want to make a full backup of your data but do not want to disrupt any existing incremental or differential backups.

Note: The log files are not truncated during a copy backup.

Incremental Backup

Backs up the log files that have changed since the last full or incremental backup and marks them as backed up. The log files are also truncated. When restored, the log files are applied to recreate the database at the time of backup.

Be aware of the following behavior:

- Microsoft Exchange does not support incremental backups when the Circular Logging option is enabled. If you do not disable the Circular Logging option and submit an incremental backup job, the agent automatically converts the incremental backup to a full backup. For more information about Circular Logging, see the *Administration Guide*.
- If you submit an incremental backup job without first performing a full backup of the storage group, the agent automatically converts the incremental backup job to a full backup job.

Differential Backup

Backs up the log files that have changed since the last backup. The log files are not truncated. It does not, however, mark them as backed up. When restored, the log files are applied to recreate the database at the time of backup.

Be aware of the following behavior:

- Microsoft Exchange does not support differential backups when the Circular Logging option is enabled. If you do not disable the Circular Logging option and submit a differential backup job, the agent automatically converts the differential backup to a copy backup. For more information about Circular Logging, see the *Administration Guide*.
- If you submit a differential backup job without first performing a full backup of the storage group, the agent automatically converts the differential backup job to a full backup job.

Reset All

Reset the options selected back to the default settings for all or your Exchange storage groups.

You can specify one of the following backup sources Agent Options dialog:

Back up from replication if available

If the storage group has a healthy replication, then the backup will be performed from the replication. Otherwise, the backup will be performed from the active databases.

Back up from active databases

The backup is always performed from active databases.

Perform a Database Level Backup

Before you submit a database level backup job, ensure that the Exchange Server databases are mounted on your server and that the Microsoft Exchange Information Store and the CA ARCserve Backup Universal Agent service are running on your server.

To perform a database level backup on an Exchange Server 2007 database

1. From the CA ARCserve Backup Home Page, select Backup from the Quick Start menu.

The Backup Manager window opens.

2. From the Backup Manager window, select the storage groups that you want to back up.

Note: Individual database stores can be restored from a backup of an entire storage group.

3. Right-click the database level object that you selected to back up and select Agent Option from the pop-up menu.

Note: Always perform a full backup when running the agent for the first time. This allows you to store a complete set of Exchange Server databases.

4. To enable CRC checking so that you can verify the integrity of your data using the Media Assure & Scan utility after the backup job is performed, do the following:

- a. From the Backup Manager window, click the Options toolbar button.

The Options dialog opens.

- b. Select the Operations tab.

Click the check box in the Calculate and Store CRC Value on Backup Media option and click OK.

5. To enable data encryption, compression, or both, do the following:

- a. From the Backup Manager window, click the Options toolbar button.

The Options dialog opens.

- b. Select the Backup Media tab.

In the Compression/Encryption section, specify the following options as required:

- **Encrypt data**--Select at Agent.

- **Session/Encryption**--Specify a password.

Note: You must specify a password when you select the Encrypt data option.

- **Compress data**--Select at Agent.

- c. Click OK.

6. Click the Destination tab and specify a backup destination.

7. Click the Schedule tab.

If you want to use a Custom Schedule, select a Repeat Method. If you want to use a rotation scheme, select the Use Rotation Scheme option and set up your scheme. For more information on scheduling jobs and rotation schemes, see the online help or the *Administration Guide*.

Note: If you clear the check mark from the Use globally scheduled backup method option on the Agent Options dialog, the options in the Backup Method section on the Schedule tab do not apply. For more information, see Database Level Backup Methods.

8. Click the Start toolbar button.

The Security and Agent Information dialog opens.

9. From the Security and Agent Information dialog, ensure that the correct user name and password are filled in for each object. If you need to enter or modify a user name or password, click the Security button, make your changes, and then click OK.

10. Click OK.

The Submit Job dialog opens.

11. From the Submit Job dialog, select Run Now to run the job immediately, or select Run On and select a future date and time when you want the job to run.

Enter a description for your job.

If you selected multiple sources to back up and want to set the priority in which the job sessions initiate, click Source Priority. Use the Top, Up, Down, and Bottom buttons to change the order in which the jobs are processed. When you finish setting priorities, click OK.

On the Submit Job dialog, click OK to submit your job.

Database Level Data Restore

The following sections include information on the prerequisites you must meet before you perform a restore, the features that the agent offers when restoring from a Database Level backup, and the procedure for how to perform a restore.

Database Level Restore Prerequisites

Before you can restore database level backups on Exchange Server 2007 systems, you must complete the following prerequisite tasks:

- Dismount the database stores within all storage groups you want to restore.

To dismount the database stores, open the Exchange Management Console, navigate to, and expand, the storage group you want to restore, right-click each database store and select Properties from the pop-up menu.

Note: You can dismount databases automatically using the option Automatically dismount databases of destination storage group before restore. For more information on this option, see Database Level Restore Options.

After you click the Properties option from the right-click menu, the Mailbox Database Properties dialog opens and the General tab is selected.

On this dialog, you must enable the feature This database can be overwritten by a restore for each of the database stores in the Storage Groups you want to restore.

Note: You can also use the option Allow databases of destination storage group to be overwritten to automatically overwrite databases during the restore operation. For more information on this option, see Database Level Restore Options.

- Ensure that all of the required Exchange Server services are running.
- Ensure that the agent is installed on the same machine that has the Exchange Server installed and that the CA ARCserve Universal Agent service is running.

Database Level Restore Sets

When you back up an Exchange server, each storage group that you select to back up is saved on media as an individual session. To restore an Exchange server, you must restore all of the sessions that, when combined, completely restore the storage group. These sessions are called your restore set.

The number of sessions in your restore set depends on the backup methods you used:

- If you backed up your storage group using only the full backup method, your restore set includes only this full session.

- If you backed up your storage group using both full and incremental backups, your restore set includes your full session and at least one, but up to as many incremental sessions as you want to include. For example, in the following backup scenario, your restore set can be full and incremental 1, full and incremental 1 and 2, full and incremental 1, 2, and 3, or full and incremental 1, 2, 3, and 4:

Full	Incremental 1	Incremental 2	Incremental 3	Incremental 4
------	---------------	---------------	---------------	---------------

- If you backed up your storage group using both full and differential backups, your restore set includes your full session and one differential session. For example, in the following backup scenario, your restore set can be full and differential 1, full and differential 2, full and differential 3, or full and differential 4:

Full	Differential 1	Differential 2	Differential 3	Differential 4
------	----------------	----------------	----------------	----------------

After you determine your restore set, the entire set must be selected when you submit the restore job. To restore the data, select the last incremental or differential session in your restore set and the agent will automatically include the full session for you.

To select restore sets in the Restore Manager

1. From the CA ARCserve Backup Home Page, select the Restore Manager from the Quick Start menu.
2. When the Restore Manager opens, select Restore by Tree in the drop-down box underneath the Source tab.
3. Expand the server that has the storage group you backed up, select the storage group object, and click Version History.

The Version History dialog opens.

4. When the Version History dialog opens, highlight a session in your restore set and click Select. If your restore set includes incremental and differential backups, select the last incremental or differential backup in the set and the agent will automatically include the full backup for you.

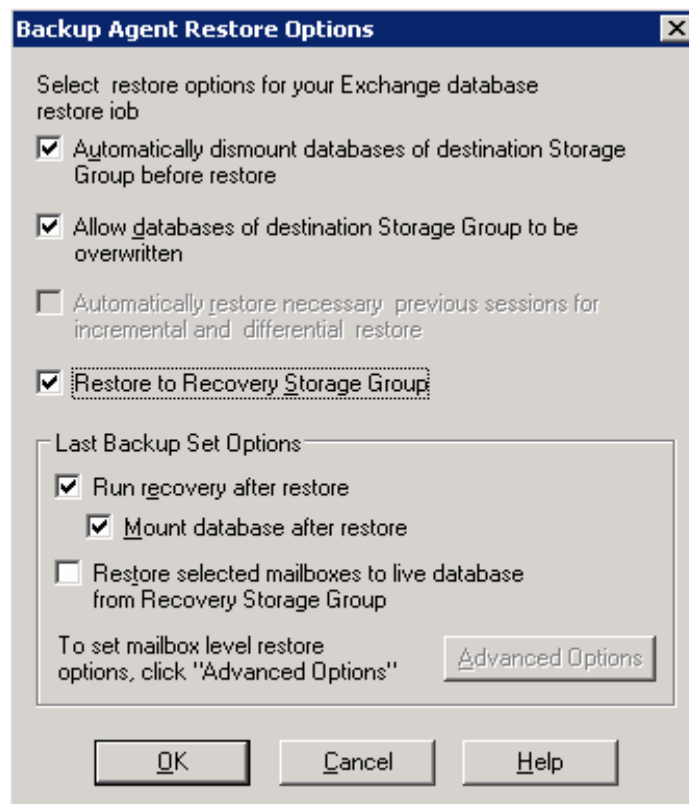
Note: The most recent backups are displayed at the top of the Version History dialog.

5. Set your restore options, select a destination, and submit the job.

Database Level Restore Options

When you create a restore job, you can specify restore options to customize the job.

The following dialog illustrates the Backup Agent Restore Options dialog. The options selected are the default options for a full backup session.



Note: For full backup sessions, the option Automatically restore necessary previous sessions for incremental and differential restore is disabled by default. For incremental and differential backup sessions, the option is selected and enabled by default.

The following list describes each of the restore options. When to use these options depends on your restore set. To determine when to use each option, see Database Level Restore Options Selection.

Automatically dismount destination database before restore--To prepare your Exchange server before you restore, you must dismount the database stores within all storage groups that you want to restore. To do this automatically, enable this option. For information on how to dismount databases manually, see Database Level Restore Prerequisites.

Allow destination database to be overwritten by restore--Before you restore, to prepare your Exchange server, you must allow each database store in the Storage Groups you want to restore to be overwritten. To do this automatically, enable this option. For information on how to do this manually, see Database Level Restore Prerequisites.

■ **Automatically restore necessary previous sessions for incremental and differential restore--**This option applies to incremental and differential sessions only.

- When you enable this option for incremental session restores, the last full backup session and necessary incremental backup sessions will be restored in sequence.
- When you enable this option for differential session restores, the last full backup session will be restored before restoring the selected session.

■ **Restore to Recovery Storage Group--**This option lets you restore the databases to the Recovery Storage Group (RSG). When you select this option you can specify a path to the RSG using the Backup Agent Admin utility. Through the Backup Agent Admin, the agent creates a subdirectory to the path specified for the RSG labeled as follows:

\RSG_<Original SG Name>

The variable <Original SG Name> represents the name of the source storage group.

Notes:

- For more information about using the Backup Agent Admin to specify the path for the RSG, see Post-installation Tasks on Exchange Server 2007 Systems.
- If the RSG already exists in a different path, or the existing RSG represents a different storage group, the agent removes the existing RSG and recreates it for the destination storage group.
- The contents of the subdirectory "\RSG_<Original SG Name>" will be emptied before the agent creates the Recovery Storage Group.

Last Backup Set Options

- **Run recovery after restore**--Enable this option when you want to run recovery after the restore is completed.
 - If you are restoring a set, use this option only when you are restoring the last backup in the set.
 - If this option is not selected, the database is left in an intermediate state and is not yet usable but is ready for a subsequent differential or incremental restore.
 - If you are restoring data to its original location, all of the existing logs will be played back into the database during the recovery process. This process ensures that the databases will be restored to the current point in time. However, if the existing logs are corrupt or not in sequence, the recovery will fail.

Note: If you want to restore the storage group to the point of the last backup, you can use the Restore files to their original location restore method and do the following:

1. Dismount all of the databases in the storage group.
2. Delete or move the existing log files and the .chk file for the storage group to a different location.
3. Restore the storage group using the Run recovery after restore option.
4. Perform a full backup of the storage group.

Note: To ensure that subsequent differential and incremental backups are properly sequenced with the last full backup, you must perform a full backup of the storage group at this time. If you do not perform a full backup at this time, your attempts to restore the subsequent differential and incremental backups will fail.

- **Mount database after restore**--Instructs Exchange Server to mount the database after the restore is completed. If you would rather manually mount your database, disable this option.

- **Restore selected mailboxes to live database from Recovery Storage Group**--You can enable this option only if the Restore to Recovery Storage Group option is selected. This option lets you browse the restore source down to the mailbox level and select individual mailboxes as the restore source. When you restore data with this option enabled, the agent restores the entire database to the recovery storage group (RSG), and then restores the selected mailboxes to their original mailbox location from the RSG. The original mailbox is the mailbox that contains the same GUID as the source mailbox.

You can also use this option with respect to Dial Tone restore strategies for disaster recovery on Exchange systems. Dial Tone restore is a process that lets you restore email service to users quickly and then restore the users' previous data. For more information about Dial Tone restore strategies, see the Microsoft TechNet web site.

For more information, see [How to Select Restore Source Objects](#) (see page 69).

- **Advanced Options**--When you click this button, the Restore Mailbox Options dialog opens.

Important! The Advanced Options button is available only if the Restore selected mailboxes to live database from Recovery Storage Group is selected.

Advanced Options

The Restore Mailbox Options dialog contains three properties sheets that let you configure advanced options that apply to how CA ARCserve Backup restores mailboxes. From the Restore Mailbox Options dialog, you can perform the following tasks:

- Configure Restore Options
- Configure Folder Filters
- Configure Message Filters

Restore Options

The Restore Options properties sheet contains the following fields:

- **Global Catalog Server Name**--The name of the global catalog server to use for searching for the target mailbox.
Note: If you leave this field blank, the default global catalog server will be used.
- **Maximum number of bad items**--Specifies the number of corrupted items in a mailbox to skip before the exporting mailbox operation fails. The default value is 0.
- **Maximum number of threads**--Specifies the maximum number of threads to use for the restore. The default value is 4.
- **Target Folder**--Identifies the mailbox folder to which all data will be restored.

Notes:

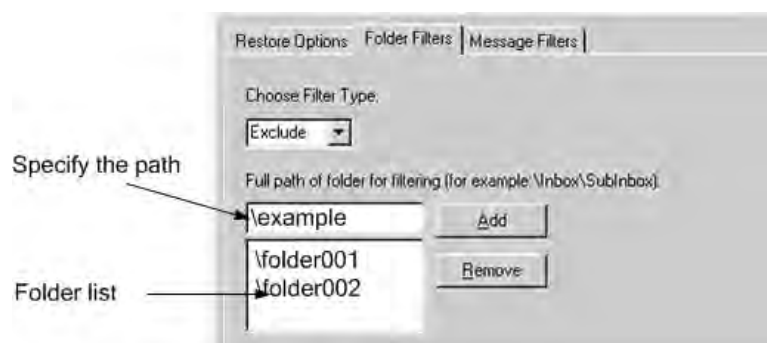
- If you specify a target folder, all other folders will remain unchanged.
- If you do not specify a target folder, all data is restored to its original location.
- If you are restoring messages to their original folder, CA ARCserve Backup will not restore messages that exist in their original folder.

Folder Filters

The Folder Filters properties sheet contains the following fields and buttons:

- **Choose Filter Type**--Specifies whether you want the specified folders to be excluded or included during mailbox export.
- **Full path of folder for filtering**--Specifies the list of folders to include or exclude during the mailbox export.
- **Specify a path**--Specifies the path of the folder filter.

Note: All folder paths must be preceded by the backslash "\" character.



- **Add a path**--Click **Add** to add the specified folder to the folder list.

Note: To remove a folder from the folder list, select the folder from the list and then click Remove.

Message Filters

The Message Filters properties sheet contains the following fields and buttons:

Restore Mailbox Option

Restore Options | Folder Filters | **Message Filters**

Include Filters for messages

Subject

Add Remove

Content

Add Remove

Attachment

Add Remove

All Content

Add Remove

Start Time:

1/ 1/1980

12:00:00 AM

End Time:

1/ 1/2030

12:00:00 AM

Locale

English (United States)

Set As Default Filter OK Cancel Help

Keywords

You can filter messages using a keyword contained in the subject, content, and the attachment file name. Click Add to add the keyword to the keyword list. To remove a keyword, select the keyword and then click Remove.

- **Subject filters**--Specifies the keyword filters for subjects of items in the source mailbox. This filter will find the search string even if it is part of a word.

Note: This filter is not a whole-word search.

- **Content filters**--Specifies the keyword filters for the message bodies of items in the source mailbox. This filter will find the search string if it is part of a word.

Note: This filter is not a whole-word search.

- **Attachment filters**--Specifies the keyword filters for attachment file names of messages in the source mailbox. If an Attachment filter string matches a word or part of a word in one of the message attachment file names, the message will be restored.

Note: Keyword filters for messages can be classified as include filters. Filters of this type let you restore only the messages that satisfy the filter search criteria. Therefore, if the filter search criteria for subject, content, and attachment filters are all satisfied, the message will be restored.

Start Time and End Time

Specifies the start date (and time) and end date (and time) of messages that you want to filter and export from the source mailbox. Only messages in the mailbox with received dates that are after the start date and before the end date will be exported. The start date must precede the end date.

Database Level Restore Options Selection

When to use these options depends on your restore set. The following tables describe when to use each restore option. If you restore using the Restore by Tree method, correct restore options are automatically applied for you. If you restore data using Restore by Session on Exchange 2007 Server systems, use the following information to determine when to use each option.

If your restore set contains incremental backups:

Type	Full	Intermediate Incremental	Last Incremental
Apply	N	N	Y/N
Run Recovery	N	N	Y
Mount	N	N	Y/N

If your restore set contains differential backups:

Type	Full	Differential
Apply	N	Y/N
Run Recovery	N	Y
Mount	N	Y/N

If your restore set is a full backup:

Type	Full
Apply	Y/N
Run Recovery	Y
Mount	Y/N

More information:

[Database Level Restore Options Selection](#) (see page 46)

How to Select Restore Source Objects

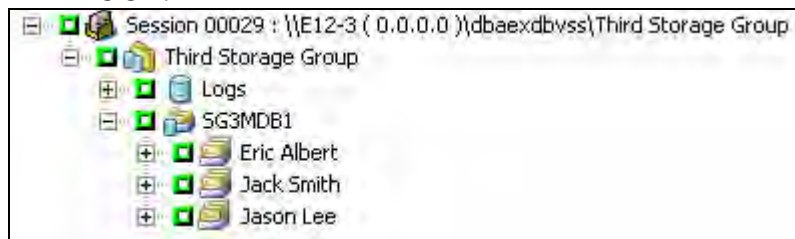
The method that you use to select the source that you want to restore depends on the methods used to back up the sessions.

- **Full and Copy Backups**--If you are restoring the full or copy session, the default restore options let you select a storage group, database, or logs to restore. If at least one database is selected, the logs will be automatically selected as illustrated by the following graphic:



Note: Even if you only select some databases of the storage group to restore, all the databases of the storage group will have to be dismounted before restore.

If the Restore selected mailboxes to live database from Recovery Storage Group is selected, you can browse the restore source down to the mailbox level, and select individual mailboxes as restore source as illustrated in the following graphic:



- **Incremental and Differential Backups**--If you are restoring an incremental or differential backup session, you can only select the whole storage group to restore since the incremental and differential backup sessions only contain log files.

How to Select Restore Destinations

When restoring a database level backup, you can restore data to its original location (default) or you can restore data to an alternative location.

Use the Restore files to their original location option only when you want to restore data to the exact location that you backed up from and the hierarchy of the server has not changed.

For all other scenarios, you must restore data to an alternative location. The alternative locations can be a different server, storage group, database, or to a Windows file system.

Note: The restore target must be on an Exchange Server 2007 system.

How You Can Browse Restore Targets

The following list describes how you can browse Exchange objects:

- If you need to restore data to an alternate destination, the Restore manager must communicate with the Exchange 2007 agent on the target server so that it can browse for Exchange objects.
- The agent backup account can be entered by right clicking on Microsoft Exchange Server – Database Level. On the agent side, if the agent backup account is not provided, it should use the machine user account instead of the agent backup account.
- The restore destination browsing can be done down to the database level.

Supported Restore Destinations

When restoring to an alternative location, the destination that you select depends on the source that you select. The following table lists the source objects that you can select, and the corresponding supported restore destinations.

Source Objects	Supported Restore Destinations
More than one storage group	<ul style="list-style-type: none">■ Microsoft Exchange Server - database level. In this case, the storage groups and databases with the same names as the sources must exist at run time on the destination server. Otherwise, the restore will fail.■ Windows File System.
One entire storage group, or more than one database in a storage group	<ul style="list-style-type: none">■ Microsoft Exchange Server - database level. In this case, the storage groups and databases with the same names as the sources must exist at run time on the destination server. Otherwise, the restore will fail.■ A storage group. In this case, the databases with the same names as the source have to already exist at run time. Otherwise, the restore will fail.■ Windows File System.
One database	<ul style="list-style-type: none">■ Microsoft Exchange Server - database level. In this case, the storage groups and databases with the same names as the sources must exist at run time on the destination server. Otherwise, the restore will fail.■ A storage group. In this case, the databases with the same names as the source have to already exist at run time. Otherwise, the restore will fail.

Source Objects	Supported Restore Destinations
	<ul style="list-style-type: none"> ■ A database. If a mailbox is restored to a public folder database or vice versa, the restore may fail at run time. ■ Windows File System.
Logs	<ul style="list-style-type: none"> ■ Microsoft Exchange Server - database level. In this case, the storage groups and databases with the same names as the sources must exist at run time on the destination server. ■ A storage group. ■ A Windows File System.

Note: If you select multiple sources to restore, you must select a destination that supports all sources.

Set the File System Path Manually When Restoring Data to a Windows File System

If you want to restore data to a Windows file system, you must select the Exchange database level agent in the Restore Manager Window. When you select this agent, the path to the target system appears in the Destination field. To complete the path to the Windows file system, enter the path to the file system into the Destination field immediately after the name of the target system.

The following procedure describes how to perform this task.

To set the path manually when restoring data to a Windows file system

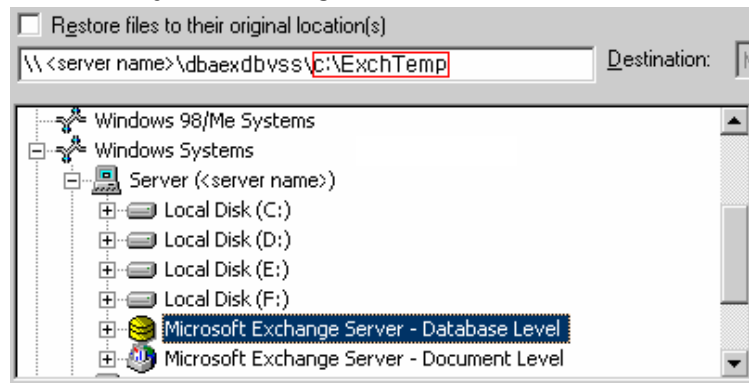
1. Open the Restore Manager and select the destination tab.
2. Clear the checkmark from the **Restore files to their original location(s)** option.
3. Expand the **Windows Systems** object and browse to the target system that you want to restore the data to.

Expand the target system and select the **Microsoft Exchange Server - Database Level** object.

CA ARCserve Backup automatically populates the Destination field with the following:

```
\\<server name>\dbaexdbvss
```

4. Enter path to the file system directory, for example c:\ExchTemp, as illustrated by the following:



Note: If the file system directory does not exist on the target system, CA ARCserve Backup creates the directory that you specified for you (for example, c:\ExchTemp).

The agent creates one subdirectory for each storage group under the specified destination at restore time labeled as follows:

\<original storage group>

Where <original storage group> represents the name of the source storage group.

For example, the path to restore the storage group named "First Storage Group" is as follows:

c:\ExchTemp\First Storage Group

When you restore a full backup or copy backup to a file system, the agent empties the contents of the target folder before the restore operation starts. For example, when you restore a full backup or copy backup of a storage group named "First Storage Group," the agent empties the following directory:

c:\ExchTemp\First Storage Group

After you specify the file system as the restore destination, CA ARCserve Backup applies the following options at run time to the restore operation (if specified):

- Run recovery after restore.
- Automatically restore necessary previous sessions for incremental and differential restore.

Note: CA ARCserve Backup ignores all other restore options at run time when restoring data to a Windows file system.

Perform a Database Level Restore

To restore an Exchange Server database

1. From the CA ARCserve Backup Home Page, select **Restore** from the **Quick Start** menu.

The Restore Manager window opens.

2. From the Restore Manager window, select Restore by Tree in the drop-down box underneath the Source tab.

Note: Both Restore by Tree and Restore by Session are supported for Database Level restore.

3. Expand the **Windows Systems** object, expand the server you are restoring from, and then expand the server object to select the objects you want to restore. See Selecting restore source objects.
4. If the most recent backup is not the backup you want to restore, click Version History, select the version you want to restore, and click Select.

Note: If you are using a restore set, you must restore the entire set in the order that it was backed up. If your restore set includes incremental and differential backups, simply select the last incremental or differential in the set and the agent will automatically include the full backup for you. For more information, see Database Level Restore Sets.

5. Right-click each storage group object you are including in this job and select **Agent Option** to select backup options. For more information about restore options, see Database Level Restore Options.
6. Click the **Destination** tab. You can restore the database objects to their original location (default) or you can restore the database objects to an alternative location.
7. If you want to restore to an alternative, clear the **Restore files to their original locations** check box, expand the **Windows Systems** object, expand the server you want to restore to, and select the Exchange destination object. For more information, see How You Can Select Restore Destinations.
8. Click Start.
9. If you are restoring to an alternative location, when the Security dialog appears, enter the user name and password for the destination server and the Exchange agent account on the destination server and click OK.

10. When the Session User Name and Password dialog opens, verify or change the user name and password for the destination Exchange Server. To change the user name or password, select the session, click Edit, make your changes, and then click **OK**.

Note: The user name must be entered in the following format:

DOMAIN\USERNAME

11. Click **OK**.
12. When the Submit Job dialog opens, select **Run Now** to run the job immediately, or select **Run On** and select a future date and time when you want the job to run.
13. Enter a description for your job and click OK.

More information:

[Database Level Restore Sets](#) (see page 59)

[How to Select Restore Destinations](#) (see page 69)

Perform a Database Level Test Restore to an Alternative Location

You should perform a test restore to a backup server at least once a month to ensure that the restored database is functioning properly. This lets you test your backup and restore strategies to assess whether you are backing up your system accurately and to prepare for a possible disaster.

Before you can restore an Exchange Server database backup to an alternative location, you must ensure that the server you are restoring to is configured exactly the same as the original server you backed up from. To determine what needs to be identical, use the worksheet in the appendix "Using the Server Configuration Worksheet - Exchange Server 2000 and 2003 Systems." Information in all fields in this worksheet except the Server Name field must be the same on the server you are restoring to.

To perform a test restore to an alternative location

1. Ensure that the test server you are restoring to meets the following criteria:
 - Microsoft Exchange is installed and is configured exactly the same as the original server you backed up from.
 - CA ARCserve Backup and the agent are installed.
 - The server is in a different domain than the domain of the server you backed up from and it has its own Active Directory.
2. Open the Restore Manager and select the Source tab.
Browse to and select the session that you want to restore.
3. Click the Destination tab and disable the Restore files to their original location(s) option.
4. Expand the server object for your test server and select the Microsoft Exchange Server - Database Level object.
5. Click Start to submit the job.

Note: For information about restoring to an alternative location, see the *Disaster Recovery for Microsoft Exchange 2000 Server* or *Microsoft Exchange 2003 Server Disaster Recovery* white paper on the Microsoft web site.

Access an Individual Mailbox from a Database Level Test Restore

Complete the following procedure when both of the following conditions exist in your backup environment:

- You did not perform a document level backup in addition to a database level backup.
- You need to restore an individual mailbox.

Note: The procedure that follows applies to Exchange Server 2007 systems.

To access an individual mailbox from a database level test restore

1. Complete the procedure described in [Perform a Database Level Test Restore to an Alternative Location](#) (see page 74).
2. Open the Exchange Management Shell and execute the following command:

```
Clean-MailboxDatabase <Mailbox Database>
```

Note: <Mailbox Database> represents the name of the mailbox database containing the mailbox that you want to access.

3. Open the Exchange Management Console and find the mailbox that appears in the Disconnected Mailbox folder.

Note: The mailbox appears in the Disconnected Mailbox folder because the active directory of the new domain does not contain the same user as the active directory of the original domain.

Open the Active Directory Users and Computers dialog and create a new user account to attach the mailbox to.

4. From the Exchange Management Console, right-click the name of the disconnected mailbox and select Connect from the pop-up menu.

The Connect Mailbox dialog opens.

5. From the Connect Mailbox dialog, select the domain account that you want to link to the disconnected mailbox.

The user is connected to the mailbox.

After you connect the mailbox to the user, the information replicates and the restore mailbox is available in the new domain.

More information:

[Perform a Database Level Test Restore to an Alternative Location](#) (see page 74)

Database Level Disaster Recovery

If a disaster occurs, you must perform the following steps to restore the Exchange Server:

- For information about disaster recovery, see the *Disaster Recovery for Microsoft Exchange 2007* white papers on the Microsoft web site.
- Restore the operating system on your Exchange Server and your domain controller and ensure that the System State with Active Directory is in a consistent state with the backup you intend to restore. The CA ARCserve Backup Disaster Recovery Option provides an automated and efficient way for you to complete these tasks. For more information, see the *Disaster Recovery Option Guide*.
- Ensure that the Exchange Server application is operational and that you have the same Service Pack you had prior to the disaster.
- Restore the databases to the Exchange Server. For instructions on how to restore the databases to the Exchange Server, see Perform a Database Level Restore.

Chapter 4: Performing Document Level Backups and Restores

This section contains the following topics:

[How Document Level Backup Works](#) (see page 77)

[Document Level Backup and Restore Benefits](#) (see page 78)

[Document Level Views in the Backup Manager](#) (see page 79)

[Backup Agent Service Account Requirements for Document Level Backup and Restore](#) (see page 81)

[Document Level Backup Features](#) (see page 82)

[Document Level Data Restore](#) (see page 91)

[How to Perform Brick Level Restores on Exchange 2000 and Exchange 2003 Systems](#) (see page 103)

How Document Level Backup Works

Document level backup is the most powerful and flexible backup type. It offers advanced configuration options, performs folder level backups and message level restores, and supports advanced filtering during backup. It also maximizes performance and flexibility by supporting complete messaging single instance storage (SIS), multi-threading, and by offering the most granular level of restore.

You should use document level backup and restore when you want the flexibility to restore individual objects, such as a mailbox, folder, or a single message. Document level backup and restore can also be used to simplify many administrative tasks, such as auditing, migration, pruning, and aging. With document level backup and restore, you can back up many messaging objects including posts, tasks, notes, journal entries, mail messages, events, appointments, meeting requests, and contacts.

In addition to document level backups, you should perform database level backups. Database level backup is the fundamental backup for your Exchange Server, and you should always use it regardless of whether you use one of the other granular backup types. You can use database level backups to restore Exchange Server in the event of a system failure, database corruption, or disaster recovery situation.

Document Level Backup and Restore Benefits

Document level backup and restore offers many benefits, including:

- **Complete Messaging Single Instance Storage**--Traditional Brick level backups scan an Exchange Server mailbox-by-mailbox. They back up copies of individual message bodies and attachments as they arrive, without any regard for data that may have been backed up already and without accounting for the Exchange Server's ability to store only one copy of an attachment when it is sent to multiple people. This results in decreased speed and performance.

Document level backup and restore solves this problem by providing complete single instance storage backups of attachments and message bodies. Document level backup checks to see whether each attachment and message body has already been backed up and backs up only one copy.

- **Push Agent Technology**--Document level backup uses push agent technology to increase the efficiency of your backup jobs by processing the data at the remote client workstations rather than processing it all from the CA ARCserve Backup host server. This off loads the system resources from the CA ARCserve Backup host server and minimizes network traffic.

Push agent technology operates on a "per job" request, which means the host server sends an entire list of files to the remote client at one time. The push agent then enables the remote client to take an active role in the process by pushing all of the requested files to the host server. (Without push agent technology, backup jobs for remote clients operate on a series of "per file" requests—the host server has to request files from the remote client one file at a time.)

- **Multi Threading**--Document level backup lets you take advantage of the full capacity of multi CPU machines capable of concurrent operations. It does this by supporting up to 64 threads per storage group and an additional 64 threads in the public folder store for a maximum of 320 threads. This lets you make the most of your resources and increases performance. For information on how to configure the multi-threading settings number of threads and thread priority, see [Configure the Agent For Document Level Backup and Restore](#) (see page 22).
- **Multi Streaming Support**--Document level backup lets you take advantage of the full capacity of multiple drives and high-speed RAID arrays capable of fast concurrent backups to multiple tapes. It does this by partitioning information into concurrent streams for parallel backups.

- **Document Level Restore**--Document level restore lets you select a storage group, mailbox, folder, or even a particular document for restore.
- **Migration Support**--Document level backup lets you seamlessly back up and restore documents, folders, and mailboxes between different versions of Exchange Server, including Exchange Server 2000, 2003 and 2007. For more information about the guidelines on how you can restore from different versions of Exchange Server, see [Document Level Restore Locations](#) (see page 94).
- **Enhanced Cluster Support**--Document level backup offers Active/Active and Active/Passive cluster support with cross cluster node failover.

For document level operations on Exchange 2007 platforms, the agent supports Cluster Continuous Replication (CCR), Local Continuous Replication (LCR), and Single Copy Cluster (SCC) environments.

Note: For more information about installing the agent on a cluster, see [Configure the Agent to Run on a Cluster](#) (see page 29).
- **Job Continuation**--If a job fails to complete, under certain circumstances, document level backup can automatically continue where the first job left off. For information on how to configure job continuation, see [Configure the Agent For Document Level Backup and Restore](#) (see page 22).

More information:

[Configure the Agent to Run on a Cluster](#) (see page 29)

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)

[Document Level Restore Locations](#) (see page 94)

Document Level Views in the Backup Manager

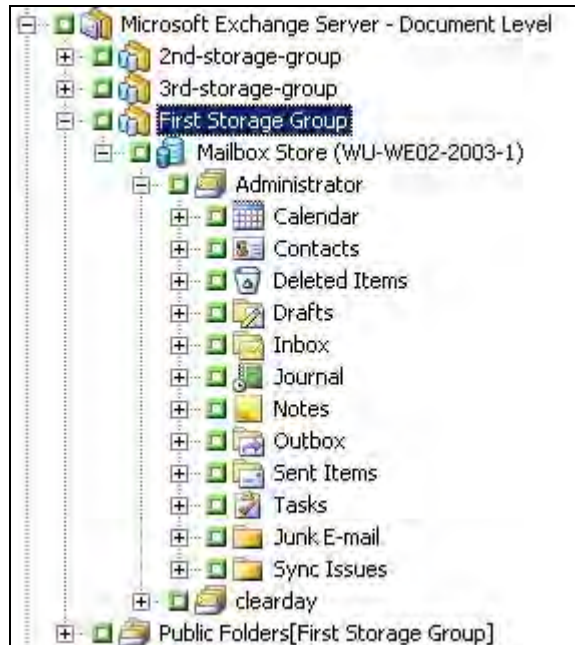
Depending on your system configuration, Microsoft Exchange Server – Document Level appears in the Backup Manager under the following objects:

- Windows Systems
- Exchange Organization

When you expand the Document Level object, you can view its storage groups. For Exchange 2000 and 2003 Server systems, each server can include up to five storage groups. For Exchange 2007 Server systems, each server can include up to 50 storage groups.

For document level backup and restore, the **Public Folders** object is treated as a storage group.

When you expand a storage group you can view its containing folders:



Note: If a mailbox or folder has the character “\” in its name, the character is substituted with another character in the Backup Manager only for display purposes (restored data will have the “\” character).

Example: Character Substitution

A folder named a\b\c is displays as follows in the Backup Manager:



Backup Agent Service Account Requirements for Document Level Backup and Restore

To perform a document level backup and restore job, your backup agent service account must meet the following criteria on the Exchange server:

- It must be a domain account.
- There must be a mailbox on the Exchange server to which you plan to back up or restore to. This mailbox must be operational, initialized, and must have the same name as the backup agent service account.

The name of the mailbox must be unique. A unique name is a name that does not exist in the organization as a subset of characters in another mailbox name. For example, if there is a mailbox named Administrator in your organization, you cannot use the name Admin.

- It must be a member of the Administrator group.
- It must be a member of the Backup Operators group.
- It must be assigned the Exchange Full Administrator Role (Exchange 2000 Server and Exchange Server 2003 only).
- On Exchange Server 2007 systems, it must be assigned either the Exchange Organization Administrator Role or the Exchange Server Administrator Role.
- It must be assigned the Exchange Server MAPI Owner role on every public folder you intend to back up and restore because permissions for public folders can vary. If a lower permission level is assigned, back up or restore may fail or duplicate items may be restored because the backup agent service account does not have the permission to delete original documents. The method that you use to assign Exchange Server MAPI Owner role varies depending on the version of Exchange in your environment:

Exchange 2000 Server and Exchange Server 2003

To assign this role, open the Exchange System Manager, right-click the public folder you want to back up or restore, and select Properties. When the Properties dialog opens, click the Permissions tab, click the Client permissions button, either add a new client with the Owner role or modify an existing client to assign the Owner role, and then click OK.

Exchange Server 2007

To assign this role, use the Exchange Management Shell command **add-publicfolderclientpermission** to grant the user Owner access rights.

Document Level Backup Features

The following sections describe the features that are available when using document level backup and restore and describes how to perform a document level backup and restore.

Complete Messaging Single Instance Storage

To maximize performance during backup, enable the option: **Complete Messaging Single Instance Storage**. If you enable this, the agent checks to see if attachments and messages have already been backed up and then backs up only one copy. This eliminates the need to back up each time the attachment and message are referenced and can significantly decrease the size of your backups. For information on how to enable Complete Single Instance Storage, see [Configure the Agent For Document Level Backup and Restore](#).

More information:

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)

Browsing Filter

To minimize the amount of time it may take and the impact on system resources when browsing extremely large amounts of data, document level backup includes a browsing filter that lets you reduce the number of items you want to search through.

More information:

[Filter Criteria](#) (see page 82)

Filter Criteria

The criteria you enter can be any combination of letters and numbers, with or without a wildcard at the end. If you do not enter a wildcard, the agent performs a substring search and finds all folders that have the criteria you entered somewhere in the file name. For example, if you enter "min", all folders that contain the letters "min" somewhere in the file name are displayed, such as "Minutes", "Administrator", and "Admin". If you enter a wildcard at the end of your criteria, the agent performs a prefix string search and finds only the folders that have the criteria you entered as the prefix of the file name. For example, if you enter "Admin*", only the files that begin with "Admin" are displayed, such as "Administrator" and "Admin26".

You can select from the following filters:

- **Display only the items that match the following pattern--**Enable this to only display the items that match the criteria you specify.
- **Display only the items in the following range--**Enable this to select a numeric range of items to be returned.
- **Enable the browsing filter only if there are more items than--**The browsing filter is automatically displayed when there are more than 500 items. Enter a new number in this field if you want to adjust this numeric threshold.

Note: You can also adjust the numeric threshold by creating a value under the following registry key:

```
HKEY_CURRENT_USER\Software\ComputerAssociates\CA ARCserve  
Backup\Base\ASMgr\DBAEXSIS  
Value Name: MaxItemsDisplayed  
Value Type: REG_DWORD  
Value Data (Base Decimal):Desired threshold
```

More information:

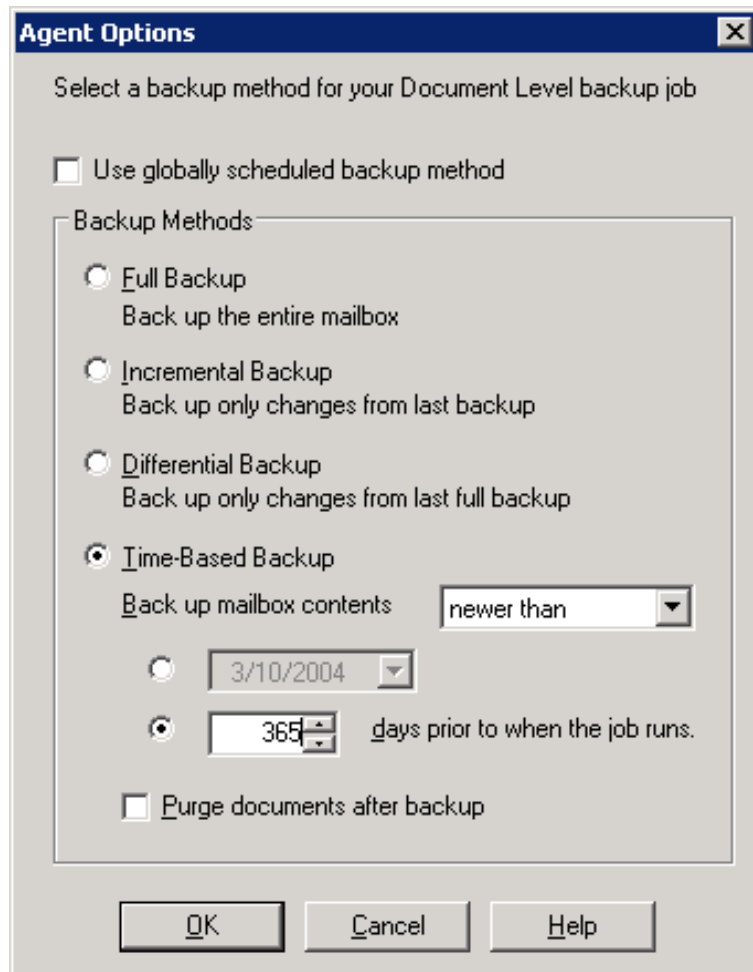
[Browsing Filter](#) (see page 82)

Document Level Backup Methods

When you submit a backup job, you must specify a backup method. The backup method tells CA ARCserve Backup how you want your data to be backed up. The agent provides you with the flexibility to select a backup method for your document level backup job at the Microsoft Exchange Server – Document Level or use a globally scheduled backup method.

Note: If you want to perform a document level backup job and include disaster recovery information, you must submit both a whole node backup job to generate the disaster recovery information and a separate document level backup job.

To select a backup method at the Document Level, right-click Microsoft Exchange Server – Document Level and select Agent Option from the pop-up menu. The Agent Options dialog opens as illustrated by the following example:



The advantage of selecting a backup method at the document level is that it gives you the flexibility to use a separate method for the document level backup portion of your job. You can select from the following backup methods:

- **Use globally scheduled backup method**--Enabled by default. You must disable this option if you want to set a backup method at the document Level. If you do not disable this, you must select a backup method on the Schedule tab.

Note: If you do not disable this and select Custom Schedule on the Schedule tab, there is no difference between the full (Keep Archive Bit) and full (Clear Archive Bit) backup methods, they both function as full.

- **Full Backup**--Backs up all documents.
- **Incremental Backup**--Backs up all documents created or modified since the last full or incremental backup. If no full backup has been performed, all documents are backed up.
- **Differential Backup**--Backs up all documents created or modified since the last full backup. If no full backup has been performed, all documents are backed up.
- **Time-Based Backup**--Backs up all documents newer than or older than a certain point in time. This point in time can either be a specific date or a number of days prior to when the job runs. If you select a number of days prior to when the job runs, the backup period is a moving window that stays relative to the time at which the job runs.

Note: If you select a specific date, 12:00 AM is the default time used. CA ARCserve Backup automatically adjusts for daylight savings when there is a time zone difference between the server that is running the CA ARCserve Backup Manager and the server that has the agent installed.

- **Purge documents after backup**--Automatically deletes documents after they are backed up. This is useful for pruning and aging an Exchange server. For example, you can use this option to back up and delete documents older than three years, thus reducing the size of your Exchange Server.

Important! This option should be used with caution since it will delete all documents that were backed up.

As an additional safety feature, you can prevent an agent from pruning an Exchange server by enabling the Disable Purge Option. For more information on this option, see Configure the Agent for Document Level Backup and Restore.

Specify Document Level Backup Filters

Document Level backup includes backup filters that give you the flexibility to exclude specific mailboxes, folders, or attachments from your backup job. In addition, you can set default filters, which is useful if you consistently use the same filters and do not want to have to set them every time you run a Document Level backup job.

To specify document level backup filters

1. To select a backup filter, right-click Microsoft Exchange Server – Document Level and select Filter.

The Backup Filter dialog opens.

2. On the **Mailbox** tab, in the **Mailbox Exclude Criteria** field, enter the name of the mailbox that you want to exclude or the criteria that you want the agent to use to exclude certain mailboxes, and then click **Add**.

Note: For information about filtering criteria, see Filter Criteria.

3. On the **Folder** tab, in the **Folder Exclude Criteria** field, enter the name of the folder that you want to exclude or the criteria that you want the agent to use to exclude certain folders, and then click **Add**.

Note: For information about filtering criteria, see Filter Criteria.

If you want to exclude default folders, enable the **Exclude the Default Folders selected below** option and place a check mark next to the particular folder you want to exclude.

4. On the **Attachment** tab, in the **Attachment Exclude Criteria** field, enter the extension type of the attachments that you want to exclude, and then click **Add**. For example, if you want to exclude text file attachments, enter **txt** and click **Add**.

If you want to exclude attachments that exceed a certain size limit, enable the **Exclude attachments with size bigger than maximum size** option and select the maximum size. When selecting the maximum size, allow a small margin of leeway since the size displayed by some email clients may slightly differ from the size read from the Exchange Server.

Note: The settings on the **Attachment** tab do not apply to embedded messages.

More information:

[Filter Criteria](#) (see page 82)

Multiplexing During Document Level Backups

Multiplexing is a process in which data from multiple sources is written to the same media simultaneously. When a job that has multiple sources is submitted with the multiplexing option enabled, it is broken into child jobs—one for each storage group. These child jobs write data to the same media simultaneously. If you enable multiplexing, Document Level backups from one or more storage groups on one or more machines can be backed up simultaneously in a single job to one device.

For more information on multiplexing, see the *Administration Guide*.

Multi Stream Option

If your CA ARCserve Backup server is equipped with multiple devices in two or more groups or multiple devices in one or more groups with the CA ARCserve Backup Enterprise Module and CA ARCserve Backup Tape Library Option installed, you can take advantage of the Multi Stream option. This option divides your backup jobs into several sub-jobs that run simultaneously to different devices. You can have as many jobs running simultaneously as you have devices or groups on your system. Document Level backup provides one to five streams for simultaneous backup. The available number of tapes, drives, and storage groups determines the number of streams that are run simultaneously during backup.

Note: You can enable the Multi Stream option on the Destination tab in the Backup Manager.

For more information on the Multi Stream option, see the *Administration Guide*.

Note: If you enable the Multi Stream option when you submit a local or remote Document Level backup job, the data is multi streamed at the storage group level. For example, if your Exchange Server has two storage groups and you enable the Multi Stream option during backup, one subordinate job is created for each storage group.

Perform a Document Level Backup

Before you submit a document level backup job, ensure that the Exchange Server services are started on your Exchange server and that the CA ARCserve Universal Agent is started.

To perform a document level backup

1. From the CA ARCserve Backup Home Page, select Backup from the Quick Start menu.

The Backup Manager window opens.

2. From the Backup Manager window, expand the Microsoft Exchange Server -- Document Level object to select the items that you want to back up.

Note: Special mailboxes, such as Mail Connectors, System Attendant, Internet Mail Service, and MS Schedule+, cannot be selected for backup. These are special system mailboxes and should not be backed up. Hidden mailboxes also cannot be backed up.

3. If the Browsing Filter opens (the browsing filter displays automatically when there are more than 500 items), set filters to specify the items you want to search through and click OK.
4. Select the items that want to back up.

5. To select a backup method at the document level, right-click Microsoft Exchange Server -- Document Level, select Agent Option, select a backup method, and then click OK.

For more information about backup methods, see [Document Level Backup Methods](#) (see page 83).

6. If you want to exclude mailboxes, folders, or attachments from your backup job, right-click Microsoft Exchange Server -- Document Level, select Filter, set up your filters, and then click OK. For more information on filters, see [Filter Criteria](#) (see page 82).

7. To enable CRC checking so that you can verify the integrity of your data using the Media Assure & Scan utility after the backup job is performed, do the following:

- a. From the Backup Manager window, click the Options toolbar button.

The Options dialog opens.

- b. Select the Operations tab.

Enter a check mark in the Calculate and Store CRC Value on Backup Media option and click OK.

8. To enable data encryption, compression, or both, do the following:

- a. From the Backup Manager window, click the Options toolbar button.

The Options dialog opens.

- b. Select the Backup Media tab.

In the Compression/Encryption section, specify the following options as required:

- **Encrypt data**--Select at Agent.

- **Session/Encryption**--Specify a password.

Note: You must specify a password when you select the Encrypt data option.

- **Compress data**--Select at Agent.

- c. Click OK.

9. Click the Destination tab and select a backup destination.

10. Click the Schedule tab. If you want to use a custom schedule, select a Repeat Method and, if you did not select a backup method at the document level, select a backup method. If you want to use a rotation scheme, select the Use Rotation Scheme option and set up your scheme.

For more information on scheduling jobs and rotation schemes, see the online help or the Administration Guide.

11. Click the Start toolbar button.

The Security and Agent Information dialog opens.

12. From the Security and Agent Information dialog, ensure that the correct user name and password are filled in for each object. If you need to enter or modify a user name or password, click the Security button, make your changes, and then click OK.

13. Click OK.

The Submit Job dialog opens.

14. From the Submit Job dialog, select Run Now to run the job immediately, or select Run On and select a future date and time when you want the job to run.

Enter a description for your job.

If you selected multiple sources to back up and want to set the priority in which the job sessions initiate, click Source Priority. Use the Top, Up, Down, and Bottom buttons to change the order in which the jobs are processed. When you finish setting priorities, click OK.

On the Submit Job page, click OK to submit your job.

After you submit your backup job, you can go to the Job Status Manager and double-click the active job to view real-time job properties. If you have Complete Messaging Single Instance Storage enabled, all of the fields related to size will reflect the size prior to single instance storage optimization. The actual size of the backup after single instance storage optimization opens in the Activity Log and is labeled "(xx)MB Written to Media".

More information:

[Filter Criteria](#) (see page 82)

Activity Log Messages

At the end of each backup job, a summary of each session is displayed in the Activity Log. Depending on what occurs during backup, the summary includes messages with the following information:

- The status of the job. Depending on what you selected to back up and what occurred during the backup job, you will receive one of three statuses:
 - **Successful**--All selected mailboxes and root public folders were backed up.
 - **Incomplete**--One or more of the selected mailboxes and root public folders were backed up. At least one mailbox or root public folder failed to back up.
 - **Failed**--No selected mailboxes and root public folders were backed up.

Note: Individual folders, messages, and attachments do not affect the status of the job. If these items are not backed up, the details will be listed in the skip log in the agent log directory. If you would rather view the skip log information in the Activity Log or if you want to view it in the Activity Log in addition to the skip log, you can change the value of the Skip Log Setting. For more information on the Skip Log Setting, see [Configure the Agent For Document Level Backup and Restore](#). This skip log is also useful for tracking corrupt messages in an Exchange Server.

- The number of root public folders, mailboxes, folders, and documents that were backed up successfully
- The amount of data that was backed up
- The amount of data that was written to media
- The amount of size reduction achieved through Complete Messaging Single Instance
- The number of items that were skipped
- The number of mailboxes that failed to back up
- The number of root public folders that failed to back up
- The status of the session has changed
- Instructions on how to resolve an issue

More information:

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)

Document Level Data Restore

The following sections include information about the prerequisites you must meet before you perform a restore, the features that the Exchange agent offers when restoring from a Document Level backup, and the procedure for how to perform a restore.

Document Level Restore Sets

When you back up an Exchange Server, each storage group that you select to back up is saved on media as an individual session. To restore an object, you should restore all of the sessions that, when combined, give you the most up-to-date version. These sessions are called your restore set.

The number of sessions in your restore set depends on the backup methods you used:

- If you backed up your storage group using only the full backup method, your restore set includes only this session.
- If you backed up your storage group using both full and incremental backups, your restore set includes the session from the full backup and at least one, but up to as many sessions from the incremental backup as you want to include. For example, in the following backup scenario, your restore set can be full and incremental 1, full and incremental 1 and 2, full and incremental 1, 2, and 3, or full and incremental 1, 2, 3, and 4:

Full	Incremental 1	Incremental 2	Incremental 3	Incremental 4
------	---------------	---------------	---------------	---------------

- If you backed up your storage group using both full and differential backups, your restore set includes the session from the full backup and one differential backup session. For example, in the following backup scenario, your restore set can be full and differential 1, full and differential 2, full and differential 3, or full and differential 4:

Full	Differential 1	Differential 2	Differential 3	Differential 4
------	----------------	----------------	----------------	----------------

After you determine your restore set, the entire set must be selected when you submit the restore job.

Note: Since Document Level backups are independent, you can restore an incremental backup or differential backup by itself (you do not have to restore it along with a full backup). As a result, if you want to restore your entire restore set, make sure you select the full backup because it is not automatically selected for you.

Document Level Restore Prerequisites

Before you can restore document level backups, you must satisfy the following prerequisites:

- The Exchange server must be running and the storage groups and mailbox stores that you are restoring to must already exist (they are not created at restore time).
- The account you are using to restore must meet the backup agent service account requirements for the machine you are restoring to. For information on these requirements, see [Backup Agent Service Account Requirements for Document Level Backup and Restore](#) (see page 81).

More information:

[Backup Agent Service Account Requirements for Document Level Backup and Restore](#) (see page 81)

Configure Document Level Restore Options

When you create a restore job, you can choose restore options to customize the job.

To configure document level restore options

1. Open the Backup Manager and select the Source tab.
The backup source tree appears.
2. Right-click a storage group and select Agent Option from the pop-up menu.
The Agent Options dialog opens.
3. Click the Mailbox tab and specify the options that follow, as required, for your environment.
 - **Create mailbox if not existing**--Use this option if you want to restore your data to a different Exchange Organization or if you want to restore to the same server you backed up from, but the mailbox you want to restore has been deleted.

Most standard folders are created and named using the language of the first client to access them. For example, if the first client you use to access a new mailbox is a French client, standard folders like the Inbox or Sent Items are given French names. For more information, see the Microsoft Q Article 188856 on the Microsoft web site.

Note: Use this option in conjunction with the Append to Restored Mailbox option. For more information about the Append to Restored Mailbox option, see [Configure the Agent for Document Level Backup and Restore](#) (see page 22).

Important! If the mailbox you want to restore has been deleted but the user associated with this mailbox still exists and has the same properties, associate this user with the new mailbox. If both the mailbox you want to restore and the user associated with the mailbox have been deleted, you must create a new user.

If you use this option, an email is sent to the new mailbox to finalize it and notify you that the mailbox is ready for use. If you want to customize the contents of this email, you can create a new message and save it as an RTF file in the CA ARCserve Backup Agent for Exchange directory to replace the default MailboxInitialize.rtf. In addition, you can also customize the subject line of this email by using the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\CA ARCserve  
Backup\ExchangeDocumentAgent\Parameters
```

```
Value Name:FirstMailSubject
```

```
Value Type: REG_SZ
```

```
Value Data:The desired subject line
```

- **Create user if not existing--**If you selected the Create mailbox if not existing option and do not have an existing user to associate with the mailbox, you must use this option and enter a password because every mailbox must have a user associated with it. When entering the password, ensure that it meets the length, complexity, and history requirements of the domain and server you are restoring to.

This option is useful if you want to perform a test restore of a mailbox to the backup server, if you want to audit a mailbox, or if you need a placeholder user because you plan on connecting the mailbox to a different user. When you use this option, the amount of properties that are assigned to the user during restore is determined by what setting you used for the Backup Additional User Properties configuration option during your backup job. For more information on the Backup Additional User Properties configuration option, see [Configure the Agent for Document Level Backup and Restore](#) (see page 22).

Be aware of the following:

- After the user is created, regardless of what you selected for the Backup Additional User Properties configuration option, you should still adjust the properties to set group memberships, to set up rights, and to reflect organizational policies.
- If you want to create duplicates of existing users and mailboxes in the same organization, you must append a string to the user and mailbox names. For information on how to configure this, see [Configure the Agent for Document Level Backup and Restore](#).

If you have trouble with mailbox or user creation, see [Unable to Create the User Account, Create the Mailbox, or Finalize the Mailbox](#) (see page 124).

4. Click the Document tab and specify the options that follow, as required, for your environment.

When restoring documents, a conflict may occur if a version of what you are restoring already exists on your destination. To prepare for this situation, select one of the following conflict resolution options:

- **Overwrite**--Delete original documents.
- **Overwrite only when Modified**--Delete only the original documents that have been modified since they were backed up. Because documents that have not been modified are skipped, this option is faster than the Overwrite option.
- **Restore as Copy**--Do not delete original documents and restore as copies. Use this option if you are restoring to an empty folder in the original location or an alternative location.
- **Restore as Copy only when Modified**--Do not delete original documents and restore as copies for documents that have been modified since they were backed up. Because documents that have not been modified are skipped, this option is faster than the Restore as Copy option.

Note: When a message is restored, a new message ID is created and assigned to it. Consequently, if you restore from one backup multiple times, you will see message duplicates even if you selected to overwrite the original.

5. Click OK.

The document level restore options are saved.

More information:

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)
[Unable to Create the User Account, Create the Mailbox, or Finalize the Mailbox](#)
(see page 124)

Document Level Restore Locations

When restoring a Document Level backup, you can restore the files to their original location (default) or you can restore the files to an alternative location. Use the Restore files to their original location option only when you want to restore the exact location you backed up from and the hierarchy of the server has not changed. For all other scenarios, you must restore files to an alternative location.

Examples: When You Can Restore to an Alternative Location

Some examples of when to restore to an alternative location include:

- If you want to restore a document to a different folder or mailbox on the same server that you backed up from
- If you want to restore a document to a different folder or mailbox on a different server than the server you backed up from
- If you want to merge a mailbox
- If you want to migrate a mailbox
- If you renamed storage groups or mailbox stores

Alternative Restore Locations

When you restore to an alternative location, there are certain rules that apply when selecting your source and destination:

- **Source**--When you select your source, you can either select to restore it as a new object inside your destination or to merge it into your destination.
- **Destination**--When you select your destination, you must consider what you selected to restore and what version of Exchange Server you are restoring to.

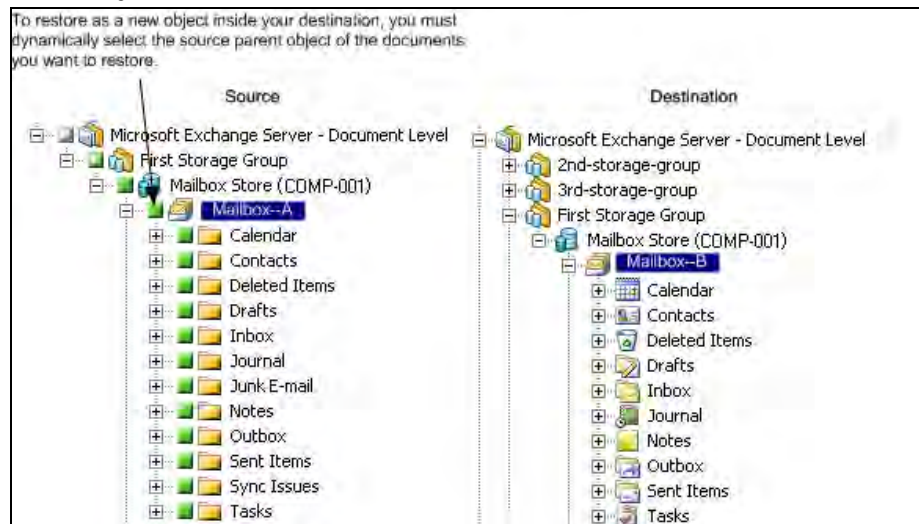
The following sections include more information on selecting a source and destination.

Source Selection Considerations

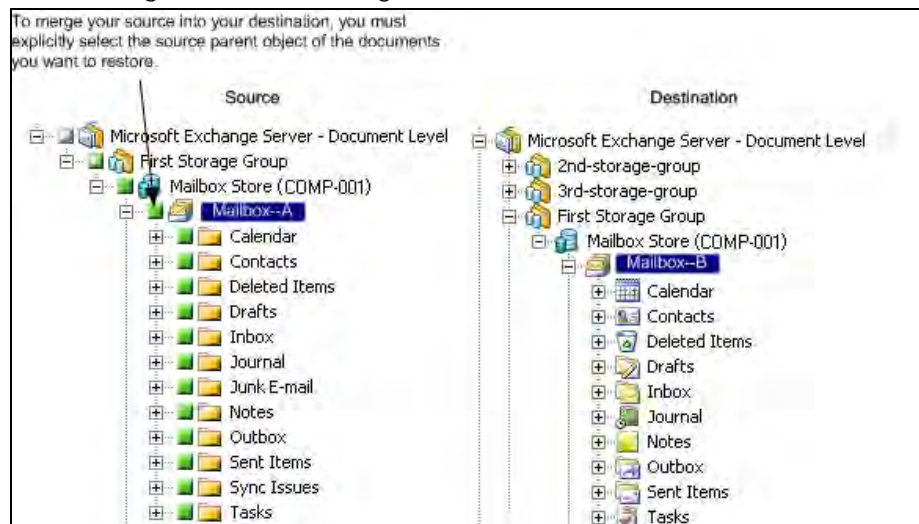
When you restore to an alternative location, the objects you restore are either restored as new objects inside or merged into, the destination you select, depending on how you select your source.

Examples: How Your Source Selection Affects Restore Operations

- Restoring inside your destination--This means that if you select Mailbox_A as your source and Mailbox_B as your destination, Mailbox_A is restored as a new object within Mailbox_B.



- Merging into your destination--This means that if you select Mailbox_A as your source and Mailbox_B as your destination, the contents of Mailbox_A will be merged into the existing contents of Mailbox_B.



Example: How Job Packaging Affects Jobs

You want to add new objects, like a mailbox, to your Exchange Organization after you submit a backup job. Do you need to resubmit the job to include the new objects?

There are two possible solutions:

- If you used dynamic job packaging, your new objects will be included because the contents of what you selected are determined when the job runs.
- If you used explicit job packaging, you must resubmit the job to include your new objects because the contents of what you selected are determined at the time the job is packaged.

Note: For more information on dynamic and explicit job packaging, see the *Administration Guide*.

Destination Selection Considerations

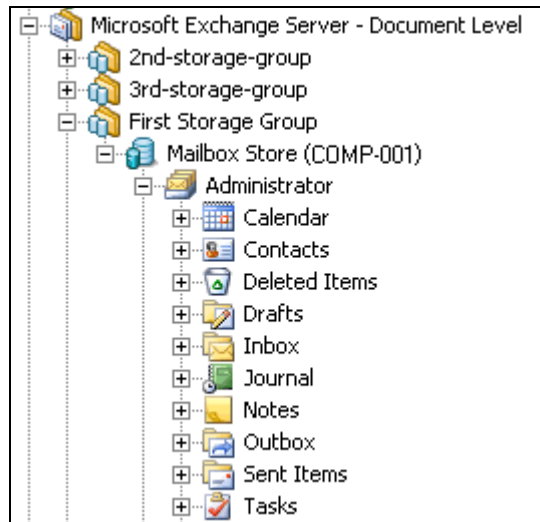
When restoring to an alternative location, there are certain rules that apply to the destination you select, depending on what you selected to restore and what version of Exchange Server you are restoring to.

Note: If you select multiple sources to restore, you must select a destination that supports all sources.

Because the destination you select depends on the source you select, the following diagrams display the CA ARCserve Backup source view for each version of Exchange Server. The charts that follow each diagram include information about each destination that is supported, depending on the source and version of Exchange Server.

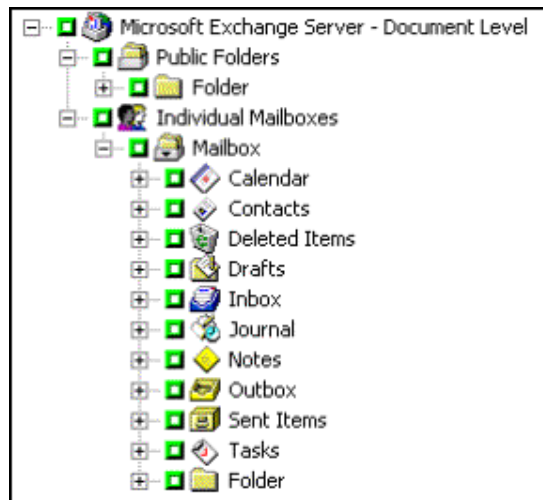
Source View for Exchange Server 2000 and 2003 Objects

The following diagram illustrates the source objects that you can restore for Exchange Server 2000 and 2003 using the CA ARCserve Backup Agent for Microsoft Exchange:





Source View for Exchange Server 5.5 Objects

The following diagram illustrates the source objects that you can restore for Exchange Server 5.5 using the CA ARCserve Backup Agent for Microsoft Exchange:



Source View of Document Objects for all Versions of Exchange Server

The following diagram displays the source document objects you can restore for all versions of Exchange Server using the CA ARCserve Backup Agent for Microsoft Exchange:

Subject	From	Received
 Document	Administrator	6/25/03 12:28 PM
 Document With Attachment	Administrator	6/25/03 12:27 PM

How You Can Restore Exchange Server 2000, 2003, or 2007 Data to Exchange Server 2000, 2003, 2007 Systems

The following table describes the source objects that you can select, and their supported destinations, when restoring Exchange Server 2000, 2003, or 2007 data to Exchange Server 2000, 2003, and 2007 systems using the CA ARCserve Backup Agent for Microsoft Exchange:

Source Objects	Supported Destinations
Storage Group	Microsoft Exchange Server - Document Level
Public Folders [Storage Group]	Microsoft Exchange Server - Document Level
Mailbox Store	Storage Group
Mailbox*	Public Folders [Storage Group], Mailbox Store, Mailbox, Folder
Folder	Public Folders [Storage Group], Mailbox, Folder
Document	Folder

*Mailbox is converted into a folder if it is not restored to a Mailbox Store.

How You Can Restore Exchange Server 5.5 Data to Exchange Server 2000, 2003, and 2007 Systems

The following chart lists the source objects you can select, and their supported destinations, when restoring Exchange Server 5.5 to Exchange Server 2000, 2003, 2007 systems using the CA ARCserve Backup Agent for Microsoft Exchange:

Source Objects	Supported Destinations
Public Folders	Microsoft Exchange Server - Document Level

Source Objects	Supported Destinations
Mailbox*	Public Folders [Storage Group], Mailbox Store, Mailbox, Folder
Folder	Public Folders [Storage Group], Mailbox, Folder
Document	Folder

*Mailbox is converted into a folder if it is not restored to a Mailbox Store.

Note: When restoring from Exchange Server 5.5 to Exchange Server 2000, 2003, and 2007, you cannot select the Individual Mailboxes parent object as a source because of the ambiguity of the child mailbox locations. You can, however, select a child mailbox as a source or the mailbox store (and select the option Create mailbox if not existing) if you need to migrate or restore mailboxes.

Manually Extending Your Destination Path to Create a New Folder

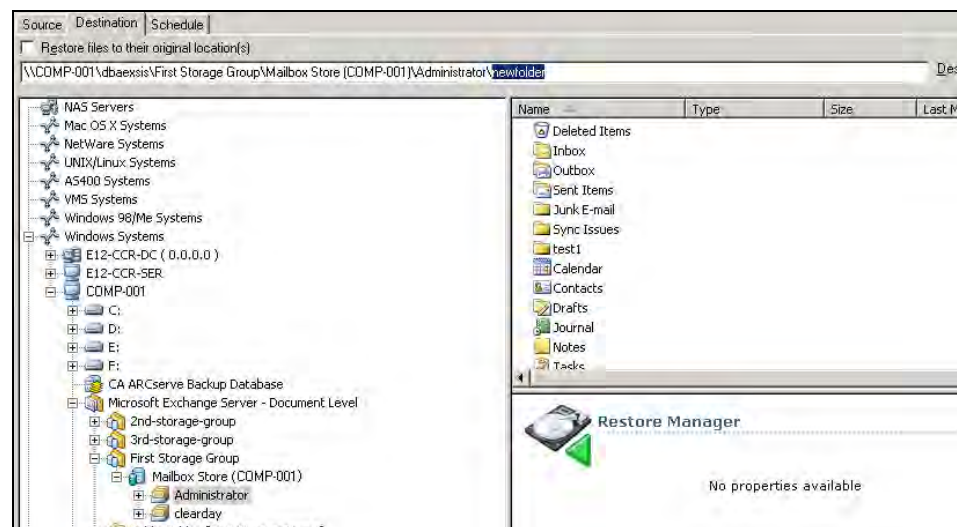
If you want to create a new folder to restore to within the mailbox or folder you selected as your destination, you can manually extend the destination path on the Destination tab in the Restore Manager.

Example: Extending the Destination Path

If you select Mailbox_A as your destination and want to add a new folder within Mailbox_A to restore to, add the name of your new folder at the end of the destination path at the top of the page.

The following graphic illustrates how to extend the destination path to a new folder labeled "newfolder."

Note: Do not enter a backslash (\) at the end of your new folder name.



Important! Because Document Level restore uses push agent technology, you must always have **Windows Systems** selected in the Destination field next to the destination path.

Perform a Document Level Restore

To restore using Document Level restore

1. From the CA ARCserve Backup Home Page, select **Restore** from the **Quick Start** menu.

The Restore Manager window opens.

2. From the Restore Manager window, select **Restore by Tree** in the drop-down box underneath the Source tab.

Note: Both Restore by Tree and Restore by Session are supported for Document Level restore.

3. Expand the **Windows Systems** object, expand the server you are restoring from, and then expand the server object to select the documents you want to restore—storage groups, mailbox stores, public folder stores, public folders, folders, or even individual documents.

Note: Special mailboxes, such as Mail Connectors, System Attendant, Internet Mail Service, and MS Schedule+, cannot be selected for restore. These are special system mailboxes and should not be restored.

4. Click **Version History**, select a backup version for this session, and click **Select**.

Note: Version History is supported at the storage group level only.

5. To select restore options, right-click a storage group, select **Agent Option**, select restore options, and then click **OK**.

For more information about restore options, see Document Level Restore Options.

6. Click the **Destination** tab. You can restore the database objects to their original location (default) or you can restore the database objects to an alternative location.

7. If you want to restore to an alternative location, clear the **Restore files to their original locations** check box, expand the **Windows Systems** object, expand the server you want to restore to, expand the **Microsoft Exchange Server – Document Level** object, and select where you want to restore to.

Note: When restoring to an alternative location, there are certain rules that apply to the destination you select, depending on what you selected to restore and what version of Exchange Server you are restoring to. For more information, see Alternate Restore Locations.

8. Click **Start**.

9. If you are restoring to an alternative location, when the Security dialog opens, enter the user name and password for the destination server and click **OK**.

Note: CA ARCserve Backup does not support logging in to systems with passwords that are greater than 23 characters. If the password on the system you are attempting to log in to is greater than 23 characters, you must modify the password on the agent system such that it is 23 characters or less, and then you can log in to the agent system.

10. When the Session User Name and Password dialog opens, on the **Machine** tab, verify or change the user name and password for the destination Exchange Server. To change the user name or password, select the session, click **Edit**, make your changes, and then click **OK**.
11. Click the DBAgent tab and verify or change the user name and password for the backup agent service account. This account must meet the requirements for the Exchange Server you are restoring to. For information on these requirements, see Backup Agent Service Account Requirements for Document Level Backup and Restore.
12. Click **OK**.
13. When the Submit Job dialog appears, select **Run Now** to run the job immediately, or select **Run On** and select a future date and time when you want the job to run.
14. Enter a description for your job and click **OK**.

More information:

[Configure Document Level Restore Options](#) (see page 92)

[Alternative Restore Locations](#) (see page 95)

How to Perform Brick Level Restores on Exchange 2000 and Exchange 2003 Systems

Although this release of CA ARCserve Backup does not support brick level backup operations, you can restore data that was backed up using a version of the agent that supported brick level backup.

Before you can restore brick level backup data, you must perform the following prerequisite tasks:

- Configure the document level agent such that the Allow Brick Level Restore option is enabled.
- Configure the brick level agent.

More information:

[Configure the Agent for Document Level Backup and Restore](#) (see page 22)
[Create or Verify a Brick Level Account](#) (see page 26)

Backup Agent Service Account Requirements for Brick Level Restore

To perform a brick level restore job, your backup agent service account must meet the following criteria on the Exchange Server.

- The account must be that of a domain user with a mailbox on the local Exchange server, and the mailbox name must be unique. A unique name is a name that does not exist in the organization as a subset of characters in another mailbox name. For example, you cannot use the name Admin, if there is a mailbox named Administrator in your organization.
- You must add the account to the Domain Administrators group on your domain controllers and to the Administrators group and Backup Operators group on your Exchange Server.

Note: If your Exchange Server is your domain controller, you must add all three groups to your backup agent service account only on your domain controller.

- You must assign the account the rights that follow:
 - Act as part of the operating system
 - Log on locally
 - Log on as service
- You must assign assign roles at the Organization, Site, and Configuration levels of the organization tree to the account.
- You must assign the account the Owner permission level on every public folder that you intend to back up and restore because permissions for public folders can vary. If a lower permission level is assigned, back up or restore may fail or duplicate items may be restored because the backup agent service account does not have the permission to delete original documents.

The Exchange Brick Level Agent Configuration Utility is the most efficient tool for creating your backup agent service account and ensuring that it is set up correctly. However, if because of the setup of your environment it is better for you to manually create a backup agent service account, see [How to Set Up Your Backup Agent Service Account](#) (see page 131) for instructions on how to do so.

Brick Level Data Restore

The following sections include information about the prerequisites you must meet before you perform a restore, the features that the agent offers when restoring from a brick level backup, and the procedure for how to perform a brick level restore.

Brick Level Restore Prerequisites

To perform a Brick Level restore, you must first meet the following prerequisites:

- The Exchange Server must be running and the storage groups, mailbox stores, and mailboxes that you are restoring to must already exist (they are not created during the restore process).
- If you are restoring to a mailbox, it cannot be disabled
- The account you are using to restore must meet the backup agent service account requirements for the machine you are restoring to. For information on these requirements, see [Backup Agent Service Account Requirements for Brick Level Restore](#) (see page 104).

More information:

[Backup Agent Service Account Requirements for Brick Level Restore](#) (see page 104)

Brick Level Restore Sets

To restore a folder or mailbox, you must select the object you want to restore in all of the sessions that, when combined, completely restore the folder or mailbox. These sessions are called your restore set.

The number of sessions in your restore set depends on the backup methods you used:

- If you backed up your folder or mailbox using only the full backup method, your restore set includes only this full session.
- If you backed up your folder or mailbox using both full and incremental backups, your restore set includes your full session and at least one, but up to as many incremental sessions as you want to include. For example, in the following backup scenario, your restore set can be full and incremental 1, full and incremental 1 and 2, full and incremental 1, 2, and 3, or full and incremental 1, 2, 3, and 4:

Full	Incremental 1	Incremental 2	Incremental 3	Incremental 4
------	---------------	---------------	---------------	---------------

- If you backed up your folder or mailbox using both full and differential backups, your restore set includes your full session and one differential session. For example, in the following backup scenario, your restore set can be full and differential 1, full and differential 2, full and differential 3, or full and differential 4:

Full	Differential 1	Differential 2	Differential 3	Differential 4
------	----------------	----------------	----------------	----------------

Brick Level Restore Options

When you create a restore job, a conflict may occur if a version of what you are restoring already exists on your destination server. To prepare for this situation, you can choose a conflict resolution restore option. To select a restore option, right-click Microsoft Exchange Server-Brick Level and select **Agent Option**.

Select one of the following conflict resolution options:

- **Never overwrite original message**--Do not delete original messages and always restore as copies. Use this option if you are restoring to an empty folder in the original location or an alternative location.
- **Overwrite original message if changed**--Delete only the original messages that have been modified since they were backed up. Do not delete original messages and always restore as copies. Use this option if you are restoring to an empty folder in the original location or an alternative location.
- **Always overwrite message**--Delete original messages.
- **Never overwrite original message if changed**--Do not delete original messages and always restore as copies those messages that have been modified since they were backed up. Because messages that have not been modified are skipped, this option is faster than the Restore as Copy option.

Note: When a message is restored, a new message ID is created and assigned to it. Consequently, if you restore from one backup multiple times, you will see duplicated messages even if you selected to overwrite the original.

Perform a Brick Level Data Restore

Use the following procedure to restore data that was backed up using a version of the agent that supported brick level backup.

To restore brick level backup data

1. From the CA ARCserve Backup Home Page, select Restore from the Quick Start menu.

The Restore Manager window opens.

2. From the Restore Manager window, select Restore by Tree in the drop-down box underneath the Source tab.
3. Expand the server you are restoring from, expand the Microsoft Exchange Server – Brick Level object, and select the folders that you want to restore.

Be aware of the following behaviors:

- When you select a folder, an object is displayed in the top right-pane. This represents the folder you selected to restore and all of its contents. You do not need to select this object because it is automatically selected for you.
 - Special mailboxes, such as Mail Connectors, System Attendant, Internet Mail Service, and MS Schedule+, cannot be selected for restore. These are special system mailboxes and should not be restored.
4. Click Version History, select a backup version for this session, and click Select.
 5. Choose a restore option. To do this, right-click Microsoft Exchange - Brick Level, select Agent Option, select a restore option, and click OK. For more information about restore options, see [Brick Level Restore Options](#) (see page 106).
 6. Click the Destination tab. You can restore folders to their original location (default) or you can restore the folders to an alternative location (includes restoring a folder to a different mailbox on the same or different server).
 7. If you want to restore to an alternative location, remove the check mark from the Restore files to their original locations check box, verify MS Windows System is selected in the Destination field, expand the Windows Systems object (if you do not have the Universal Agent installed, expand the Network object), expand the server you want to restore to, expand the Microsoft Exchange Server – Brick Level object, and select where you want to restore to.

8. Click Start.

The Session User Name and Password dialog opens.

9. When the Session User Name and Password dialog opens, verify or change the user name and password for the destination Exchange Server. To change the user name or password, select the session, click Edit, make your changes, and then click OK.

Note: The user name must be entered in the following format:

Domain\Username

10. Click the DBAgent tab and verify or change the user name and password for the backup agent service account. This account must meet the requirements for the Exchange Server you are restoring to. For information on these requirements, see [Backup Agent Service Account Requirements for Brick Level Restore](#) (see page 104).

Note: The user name must be entered in the following format:

Domain\Username

11. Click OK.

12. When the Submit Job dialog opens, select Run Now to run the job immediately, or select Run On and select a future date and time when you want the job to run.

Enter a description for your job and click OK.

The brick level restore job is submitted.

More information:

[Brick Level Restore Options](#) (see page 106)

[Backup Agent Service Account Requirements for Brick Level Restore](#) (see page 104)

Chapter 5: Using Functions Supported on Exchange Server 2000, 2003, and 2007 Systems

This section contains the following topics:

[Introduction](#) (see page 109)

[Multiplexing Backup Data](#) (see page 109)

[Multistreaming Backup Options](#) (see page 110)

[Encrypt and Compress Backup Data](#) (see page 110)

[How to Manage Media Containing Exchange Server Backup Data](#) (see page 111)

Introduction

CA ARCserve Backup supports the following functions for database level and document level operations on Exchange 2000 Server, Exchange Server 2003, and Exchange Server 2007 systems:

- Multiplexing during database level backups
- Multistreaming
- Data encryption
- Data compression
- Media Assure & Scan Utility

Multiplexing Backup Data

Multiplexing is a process in which data from multiple sources are written to the same media simultaneously. When a job that has multiple sources is submitted with the multiplexing option enabled, it is broken into child jobs—one for each remote node and additional streams for each local Exchange Server storage groups. These child jobs write data to the same media simultaneously.

For more information on multiplexing, see the *Administration Guide*.

Multistreaming Backup Options

If your CA ARCserve Backup server is equipped with multiple devices in two or more groups, or multiple devices in one or more groups with the CA ARCserve Backup Enterprise Module and CA ARCserve Backup Tape Library Option installed, you can use the Multi Stream option to back up data.

Multistreaming lets you divide backup jobs into several sub-jobs that run simultaneously to different devices. You can have as many jobs running simultaneously as you have devices or groups on your system.

Database level and document level backups provide one stream per storage group for simultaneous backup. The number of available tapes, drives, and storage groups determine the number of streams that run simultaneously during the job.

Note: You can enable Multistreaming on the Destination tab in the Backup Manager.

If you enable the Multistreaming option when you submit a database level backup job, the data is multistreamed at the storage group level under two conditions:

- You submit a local job under the Windows Systems object.
- You submit a local job under the Exchange Organization object.

Under all other conditions, database level backup data is multistreamed at the server level.

For more information about Multistreaming, see the *Administration Guide*.

Encrypt and Compress Backup Data

The Encrypt data option lets you secure backup data. The Compress data option lets you efficiently use network resources and backup media.

Note: For more information about data encryption and data compression, see the *Administration Guide*.

You can apply the Encrypt data and Compress data options when you perform database level and document level backups.

To enable data encryption, data compression, or both on database and document level backup data

1. From the Backup Manager window, click the Options toolbar button.

The Options dialog opens.

2. Select the Backup Media tab.

In the Compression/Encryption section, specify the following options as required for the backup:

- **Encrypt data**--Select at Agent.
- **Session/Encryption**--Specify a password.

Note: You must specify a password when you select Encrypt data option.

- **Compress data**--Select at Agent.

3. Click OK.

How to Manage Media Containing Exchange Server Backup Data

After you back up Exchange Server databases to media, you can use the CA ARCserve Backup Media Assure & Scan Utility to do the following:

- Determine what data is on your media.
- View information about your media backup sessions.
- If you enabled CRC checking during backup, verify the integrity of the data that was written to the media.

Note: For more information about how to enable CRC checking during backups on Exchange 2000 Server and Exchange Server 2003 systems, see [Perform a Database Level Backup](#) (see page 39). For more information about how to enable CRC checking during backup on Exchange Server 2007 systems, see [Perform a Database Level Backup](#) (see page 56).

Each source that you select to back up is saved on media as an individual session. You can scan a single session or an entire media. To view the results of the Scan job in the Job Queue, click the Job Log tab.

Use the Log tab in the Options dialog to select the level of detail you see in the Job Queue Log. You can select to see just summary information and any errors that occurred during the scan or you can select to see each file that was backed up, summary information, and any errors that may have occurred.

Scan Media

To scan media

1. From the CA ARCserve Backup Manager Console, open the Media Assure & Scan utility.
2. Select the media you want to scan.

If the media you want to scan is not currently in a storage device, you must enter the information into the Group and Media fields.

3. Enter a specific session to scan or select to scan all sessions on the media.
4. Click the Options button to specify scan options for the job.

Note: To verify the integrity of the data, you must enable the Calculate and Store CRC Value on Backup Media option.

5. Click the Filter toolbar button to specify filters for the job.
6. Click the Start toolbar button to submit the job.

Chapter 6: Using Best Practices

This section recommends best practices for using CA ARCserve Backup Agent for Microsoft Exchange.

This section contains the following topics:

[General Recommendations](#) (see page 113)

[Installation Recommendations](#) (see page 113)

[Exchange Server Configuration Recommendations](#) (see page 115)

[Backup Recommendations](#) (see page 115)

[Restore Recommendations](#) (see page 120)

[Backup and Restore Test Strategies](#) (see page 120)

General Recommendations

Consider the following best practices when using the agent.

Technical Resources

The Microsoft web site offers numerous technical resources for Exchange Server, including books, downloadable Help files, and software development kits. You should read these documents, especially white papers about disaster recovery for Microsoft Exchange Server. The more informed you are about Exchange Server, the more you can apply your knowledge to maximize data protection when using the agent.

Logs in the Event Viewer

In addition to monitoring the CA ARCserve Backup Activity log for events that may occur when using the agent, you should also monitor the logs in your Windows Event Viewer, especially the Application log and System log. The Application log includes internal Exchange Server events and the System log includes Windows events.

Installation Recommendations

Consider the following best practices when installing the agent.

Product Recommendations

CA ARCserve Backup offers agents and options that let you protect all of the servers in your Exchange Organization. These servers include your Exchange Servers and domain controllers.

Note: It is important to protect your domain controllers since they include the Active Directory containers, which hold user, mailbox, and public folder information.

To maximize your Exchange Server protection, use all of the following solutions on each of your Exchange Servers:

- **CA ARCserve Backup Agent for Microsoft Exchange**--Includes Database Level and Document Level backup and restore. Database Level backup and restore protects the Exchange Server database and logs. Document Level backup and restore, which is only available with this agent, eases and expedites many administrative tasks and maximizes flexibility by offering the most granular level of restore.

- **CA ARCserve Backup Client Agent for Windows**--Protects files and system state, including Active Directory. It is important to protect Active Directory when using Exchange 2000 Server, Exchange Server 2003, and Exchange Server because it stores mailbox and user information.

Note: In addition to using the CA ARCserve Backup Client Agent for Windows on all of your Exchange Servers, also use it to protect all of your domain controllers.

- **CA ARCserve Backup Disaster Recovery Option**--In the event of a disaster, the CA ARCserve Backup Disaster Recovery Option recovers the machine to the last full backup state. Install the CA ARCserve Backup Disaster Recovery Option on all servers you will use to back up your Exchange Servers and domain controllers.

You do not need to install the following applications to effectively protect Exchange Server data:

- **Microsoft Outlook**--It is not a requirement that you have an email client on the Exchange Server you are backing up.
- **CA ARCserve Backup Agent for Open Files**--CA ARCserve Backup Agent for Open Files is beneficial when you want to protect files that are open or in use by active applications. Because the CA ARCserve Backup Agent for Microsoft Exchange is an application-specific agent, dedicated to protecting Microsoft Exchange, it offers a complete and robust solution that encompasses all the features offered by CA ARCserve Backup Agent for Open Files.

Load Reduction

If you have the network infrastructure to support high performance remote backups, install the Backup Manager on a different server than your Exchange Server. This reduces the load on the Exchange Server.

Exchange Server Configuration Recommendations

Consider the following best practices for configuring your Exchange Server.

Circular Logging

Circular Logging must be disabled to take advantage of incremental and differential backups. If Circular Logging is not disabled and you submit an incremental or differential backup, the agent automatically converts the backup to full.

Although Circular Logging decreases the amount of disk space you use, it does not let you recover all changes since your last backup because it only maintains a small number of log files. Consequently, you cannot take advantage of the benefits of using a transaction-based system and you cannot completely recover if something goes wrong with the system. If you want to conserve disk space, perform regular backups rather than using Circular Logging because backups automatically remove transaction log files.

For more information about Circular Logging, see the *Administration Guide*.

Transaction Log Space

Make sure that you have enough space on your Exchange Server in case you want to restore transaction logs. Leave at least twice the amount of space that you expect your transaction logs to use. In addition, if you intend to restore Brick or Document Level backups, you should leave enough space to accommodate the size of the backups because the size of the database file may increase during the restore.

Backup Recommendations

Consider the following best practices for backing up your Exchange Server.

Online Backup Use

Always perform online backups. This lets you back up Exchange Server databases without shutting them down and losing work time. If you do not perform online backups, not only do you lose valuable work time, but you also run the risk of making costly errors since offline backups are detailed and labor-intensive. When you perform online backups, the agent manages files for you. When you perform offline backups, you must do all of the work yourself. In addition, if you perform offline backups, there is no process for validating the checksum on each page of the database so you cannot detect corruptions and check the integrity of the database.

Media Integrity

Use the global option Calculate and Store CRC Value on Backup Media when creating your backup job. Afterwards, scan your media with CRC verification to ensure the media integrity.

Database Level Backup Strategies

There are many factors that contribute to your backup strategy--backup window size, restore window size, server and storage hardware, the amount of available media, media retention time, network bandwidth, server load, and the size of your databases. Consequently, the backup strategy that you should use depends on your environment and physical hardware.

When determining a backup strategy, you must first assess the amount of time your organization has available each week for backing up your Exchange Server. When doing so, remember that the most time-consuming aspect of performing a restore is replaying the log files. Depending on how often you perform full backups, it can take several hours to replay log files on large servers during a restore because every transaction that has occurred since the last backup must be scanned. In addition, the speed at which transaction log replay occurs varies, depending on the type of transactions that must be replayed. Perform a test restore of your log files to get a more accurate estimate of how long it will take.

After you determine the size of your restore window, you must consider the affect that your environment and resources will have on your backup strategy:

- In an environment that has mission-critical data with minimal restore windows, you should perform full backups nightly (or during the hours your server is least active) and incremental backups at mid-day (or during a low production period during the day that is evenly spaced from your full backups).
- If media usage is a major factor in your backup strategy, either perform full backups daily or full alternating with differential backups daily.
- In an environment that has non mission-critical data with less aggressive restore windows, you should perform a full backup at least once a week and perform incremental or differential backups on the other days.

The following chart includes examples of a few backup strategies and their advantages and disadvantages. Although, for maximum protection, you should perform daily full and incremental backups, for maximum protection, you can customize your backup strategy to suit your organization's needs. The only requirement is that you minimally perform daily backups on work days with a full backup once a week.

Backup Strategy	Advantages	Disadvantages
Daily full and incremental backups*	High frequency of protection Short restore window	High media usage
Daily full backups	Good frequency of protection Short restore window	High media usage
Daily backups with a full at least once a week	Good frequency of protection Less media usage	Varying restore window

* Schedule full and incremental backups approximately 12 hours apart.

Document Level Backup Strategies

There are many factors that contribute to your backup strategy—backup window size, restore window size, server and storage hardware, the amount of available media, media retention time, network bandwidth, server load, and the size of your databases. Although it is important to consider all of these factors, for Document Level backups, the two most important factors are typically tape usage and the amount of time available for your backups. The following recommendations are based on these two factors. If other factors are more important in your environment, adjust your backup strategy accordingly.

The first task you must perform when determining a backup strategy is to assess the amount of time your organization has available each week for backing up your Exchange Server. Next, perform a backup of your Exchange Server using Document Level backup to ascertain how long the backup job will take. Finally, use this information to determine the most efficient way of backing up your Exchange Server within the time available to you.

If your organization's backup schedule allows you to perform a full backup at least one day a week, perform daily differential backups with one full backup a week.

If you want to distribute the full backup throughout the week, perform a full backup of only one storage group per day and rotate which storage group gets the full backup. Back up all other storage groups using differential backups.

Document Level Backup and Restore Performance Tuning

To maximize performance when using Document Level backup and restore:

- Increase the value of the Number of Threads configuration setting and decrease the value of the Thread Priority configuration setting. This combination increases performance and minimizes the impact on your server.

- Enable multiplexing to take advantage of high performance devices. Because destination devices are faster than a single Document Level backup stream, multiplexing decreases backup time by dividing your backup jobs into several sub-jobs that run simultaneously to the same device.

If you enable multiplexing and also want to increase the value of the Number of Threads configuration setting, keep in mind that the Number of Threads value is per each backup stream. Therefore, the actual number of threads running on a system is the number of streams multiplied by the number of threads. As a result, leveraging multiplexing before leveraging the Number of Threads is optimal. For example, on a four processor machine with four storage groups, a total of six to eight threads is recommended. These threads should be configured as two threads per each storage group, resulting in four multiplexing streams. Because storage groups are independent resources, it is better to increase the level of streams with multiplexing than to increase the Number of Threads and sequentially back up one storage group at a time.

- Enable the Complete Messaging Single Instance Storage configuration option. This option checks to see if attachments and messages have already been backed up and backs up only one copy, eliminating the need to back up an attachment or message each time it is referenced. This can significantly decrease the size of your backups.
- If you are creating a short backup job or do not need an estimate of how long the job will take, enable the Disable File Estimate global option to save time.
- Use incremental and differential backup methods to back up only the data that has changed since your last full or incremental backup. This saves time by backing up only changed data rather than backing up all of your data.
- Use backup filters. This lets you exclude unwanted and large amounts of data from your backup jobs.
- If you want to reduce the disk space usage on your backup server, enable the Disable Database Recording global option when creating your backup job so that detail logs of every document are not recorded in the CA ARCserve Backup database. If you use this option and later want to restore, you must first submit a Merge Media operation.
- If media usage is a major factor in your backup strategy, either perform full backups daily or full alternating with differential backups daily.
- In an environment that has non mission-critical data with less aggressive restore schedules, you should perform a full backup at least once a week and perform incremental or differential backups on the other days.

Restore Recommendations

Consider the following best practices for restoring the Exchange Server.

General Restore Strategies

Perform a test restore to a backup server **at least once a month** and make sure the restored database is functioning properly.

For more information about how to perform test restores on Exchange 2000 and 2003 Server systems, see [Perform a Database Level Test Restore to an Alternative Location](#) (see page 49). For more information about how to perform test restores on Exchange 2007 Server systems, see [Perform a Database Level Test Restore to an Alternative Location](#) (see page 74).

Document Level Restore Strategies

If you are restoring to an original location that contains existing data, select the conflict resolution option, **Overwrite only when modified**. If you are restoring to an original location in an empty folder or an alternative location, select the conflict resolution option, **Restore as copy**.

Backup and Restore Test Strategies

After you have developed backup and restore strategies, you need to test them to ensure that they work satisfactorily. You can perform backup tests on a production system; however, you should perform recovery tests on a test system that closely mimics the production system before applying your backup and restore strategies to the product system.

You should perform a test restore to a backup server at least **once a month** and make sure the restored database is functioning properly. This lets you test your backup and restore strategies to assess whether you are backing up your system accurately and to prepare for a possible disaster.

For information about how to perform test restores on Exchange 2000 and 2003 Server systems, see [Perform a Database Level Test Restore to an Alternative Location](#) (see page 49).

For information about how to perform test restores on Exchange 2007 Server systems, see [Perform a Database Level Test Restore to an Alternative Location](#) (see page 74).

Note: Exchange Server 2003 has a recovery storage group, which can be used to test restores of a particular storage group. However, you should still practice restoring your entire Exchange Server to a test server.

Appendix A: Troubleshooting

This section provides troubleshooting information to help you identify and resolve problems that you may encounter when using the CA ARCserve Backup Agent for Microsoft Exchange. To help you quickly find the information you need, this section lists some error messages and possible reasons and solutions for these messages.

This section contains the following topics:

[Activity Log](#) (see page 123)

[Exchange Server Errors](#) (see page 123)

[Information for Customer Support](#) (see page 129)

Activity Log

Many of the actions to resolve error conditions advise you to check the CA ARCserve Backup Activity log. The Activity log contains comprehensive information about the operations performed by CA ARCserve Backup. It provides an audit trail of all CA ARCserve Backup activity for every job that is run. You can scan this log whenever necessary to see if any errors have occurred. The log is available from the Job Status Manager. For more information about using the Activity log, see the *Administration Guide*.

Exchange Server Errors

For additional information on any Exchange Server error, check the Event Log on the Exchange Server or see the Microsoft web site.

Exchange Agent Does Not Display When You Browse the Server

Valid on Exchange Server 2000, 2003, and 2007 systems.

Symptom:

When you attempt to browse the Exchange Server system, the Exchange Agent object does not display in either the Backup Manager or Restore Manager window.

Solution:

The Agent service is not running. Start the Universal Agent service. To restore Brick Level data that was backed up using Exchange Server 2000 and 2003, you should also start the CA ARCserve Backup Agent RPC Server service.

Unable to Create the User Account, Create the Mailbox, or Finalize the Mailbox

Valid on Exchange Server 2000, 2003, and 2007 systems.

Symptom:

When performing a Document Level restore with a new user and mailbox creation, the agent:

- Creates a basic user with minimal rights in the Users container of Active Directory.
- Creates a mailbox for the user.
- Sends a request to the recipient update service and sends a message to the mailbox to finalize it.

If all three of these steps are successful, you can view the mailbox in the Exchange System Manager. If any of these steps fail, the mailbox will not restore.

Solution:

There are several reasons why these steps may fail. Each reason, and the action you can take to resolve the error, is described below.

- The user account creation failed because the backup agent service account does not have enough rights to create a new account.

Ensure that your backup agent service account has the appropriate rights assigned to it. For information on these requirements, see [Backup Agent Service Account Requirements for Document Level Backup and Restore](#) (see page 81). Also, make sure that the backup agent service account is assigned membership to a group that has permissions over the Users container in Active Directory. For example the Account Operators group has these permissions by default.

- The user account or mailbox creation failed because the global catalog server could not be contacted or a Windows application or system error occurred.

Check the Event Viewer Application Log and System Log for recent errors. Also, check the agent logs DBAEXCUserSummary.log and WinUserUpd.log.

- The mailbox creation failed because a disabled mailbox with the same name already exists.

Check the Exchange System Manager to determine if there is a disabled mailbox with the same name. If you recently deleted a user account associated with the mailbox you are trying to restore, use the Run Cleanup Agent feature in the Exchange System Manager and purge the mailbox.

- The mailbox finalization failed because the Recipient Update Service failed to update the mailbox.

Make sure that the Recipient Update Service is able to finalize mailboxes when an update is called. You may have to rebuild the Recipient Update Service if it is not performing properly. For more information on the Recipient Update Service, see the Microsoft documentation.

- The mailbox finalization failed because of Active Directory replication delays or Exchange Server cache delays. This failure can occur even if the user or mailbox was successfully created.

In multi-domain controller environments or large Exchange Organizations, there may be delays before you can use the mailbox. If mailbox finalization fails, verify that the account appears in the Global Address List. If it appears in this list, repackage the failed mailbox with user and mailbox creation selected and run the job when the mailbox appears in the Exchange System Manager.

Authentication Errors Occur when Configuring the Brick Level Agent

Valid on Exchange Server 2000 and 2003 systems.

Symptom:

On Exchange Server 2000 and Exchange Server 2003 systems, authentication errors occur when configuring the Brick Level agent. As a result, CA ARCserve Backup cannot create or verify the agent account.

Solution:

There are several reasons why CA ARCserve Backup cannot verify or create the agent account. Various reasons, and the corrective actions you can take to resolve each problem are described below:

- The account that you are trying to verify does not have all of the necessary privileges, groups, and rights.

To remedy this problem, ensure that all of the requirements for the Backup Agent service account are satisfied. You can use the Exchange Agent Brick Level Configuration utility to create the backup agent service account and mailbox account automatically by enabling the Create a new account feature. When you use this utility, all of the necessary privileges, groups, and rights are applied.

Note: For more information, see [Create or Verify a Brick Level Account](#) (see page 26).

- The account that you are trying to verify does not have a mailbox on the Exchange Server that you are configuring.

To remedy this problem, create a new account and specify the mailbox location as the local Exchange Server. You can use the Exchange Brick Level Agent Configuration utility to create this account automatically by enabling the Create a new account feature.

Note: For more information, see [Create or Verify a Brick Level Account](#) (see page 26).

- Your mailbox name is not unique.

A name is unique when it does not exist in the organization as a subset of characters in another mailbox name. For example, you cannot use the name Admin, if there is a mailbox named Administrator in your organization.

To remedy this problem, create a new user with a unique mailbox name.

- The Windows API that is called during verification requires that the account used to run the Exchange Brick Level Agent Configuration has the “act as part of the operating system” privilege assigned to it.

To remedy this problem, log in to the machine as the account that you want to verify and run the configuration.

- The Windows Active Directory and Exchange Server caches may not have propagated a newly created user.

Propagating a newly created user can take minutes or hours depending on your domain configuration and traffic.

To remedy this problem, wait a few minutes longer.

- The mailbox is not finalized and ready for use. On Exchange Server 2000, this may be because the Recipient Update Service (RUS) has not completed the mailbox.

To remedy this problem, log in to the mailbox or send mail to it to complete a newly created mailbox. On Exchange Server 2000, you can force the RUS to update the mailbox so that it can be used immediately. To do this, open the Microsoft Exchange System Manager, expand the Recipients object in the left pane, and select Recipient Update Services. When you select this, your organization's recipient update services are displayed in the right pane. Right-click each service and select Update Now.

- The user or mailbox information that you entered is incorrect.

To remedy this problem, ensure that you enter the correct user name, password, and alias name for your mailbox.

- A conflicting or incomplete Mapisvc.inf exists on the Exchange Server. This can occur if you have a messaging client installed that is creating its own version of Mapisvc.inf.

To remedy this problem, find all copies of Mapisvc.inf on your Exchange Server and ensure that the most complete and accurate version is in the windows\System32 folder. If you need to make changes to Mapisvc.inf, first back up all copies of the file and see the Microsoft Q Article 294470 on the Microsoft web site for information on adding entries for Exchange Services.

VSS Errors Occur on Windows Server 2008 Systems

Valid on Windows Server 2008 platforms.

Symptom:

Database level backup jobs complete successfully and Windows Event ID 8194 appears in Windows Event Viewer.

Environment:

Microsoft Exchange Server 2007 is installed on a Windows Server 2008 x64 system.

Solution:

Event ID 8194 relates to Volume Shadow Copy Service errors.

For more information, see the Microsoft support website. You can eliminate the error condition by adding the access permissions for the Network Service account to the COM Security of the affected server. To add the access permissions for the Network Service account, do the following:

1. From the Start Menu, select Run
The Run dialog opens.
2. In the Open field, input dcomcnfg and click OK.
The Component Services dialog opens.
3. Expand Component Services, Computers, and My Computer.
Right-click My Computer and click Properties on the pop-up menu.
The My Computer Properties dialog opens.
4. Click the COM Security tab.
Under Access Permission click Edit Default.
The Access Permissions dialog opens.
5. From the Access Permissions dialog, add the Network Service account with Local Access allowed.
6. Close all open dialogs.
7. Restart the computer.

Information for Customer Support

If you need to contact CA support for assistance with Exchange Server 2000, Exchange Server 2003, and Exchange Server 2007, use the following registry keys to gather the information that Customer Support will need to help resolve your issues:

Database Level Backup and Restore

HKEY_LOCAL_MACHINE\SOFTWARE \ComputerAssociates\CA ARCserve Backup\
ExchangeDBAgent\Parameters

Value Name: Debug
Value Type: REG_DWORD
Value Data: 0(off), 1(default), 5(verbose)
Results: dbaexdb*.log & dbaexdb*.trc, in Exchange agent DBLOG directory

If the trace files grow too large or too many, you can use the following registry values to reduce the size and file count:

Value Name: MaxLogSize
Value Type: REG_DWORD
Value Data: size of each trace file in MB
Result: As soon as the size is reached, a new trace file will be generated.

Value Name: MaxLogCount
Value Type: REG_DWORD
Value Data: Number of log files
Results: After the maximum number of log file reaches this value, the oldest log file is deleted and a new log file is created.

Note: You can change the registry values listed above using the Exchange agent configuration utility. You do not need to restart the Universal Agent service.

Document Level Backup and Restore

For Exchange 2000 and 2003, the registry path is as follows:

HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\CA ARCserve
Backup\ExchangeDocumentAgent\Parameters

For Exchange 2007, the registry path is as follows:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\ComputerAssociates\CA ARCserve
Backup\ExchangeDocumentAgent\Parameters

Value Name: Debug
Value Type: REG_DWORD
Value Data: 0(off), 1(default), 5(verbose)
Results: Expaadp*.log & expaadp*.trc, in Exchange agent LOG directory

Note: You can change the debug level using the Exchange agent configuration utility. You do not need to restart the Universal Agent service.

If the size of the trace files grows too large, you can create and configure the following registry values to reduce the size:

Value Name: MaxLogSize
Value Type: REG_DWORD
Value Data: size of each trace file in MB
Result: As soon as the size is reached, a new trace file will be generated.

Value Name: DeleteLogFile
Value Type: REG_DWORD
Value Data: 0, 1
Results: 0: When a new trace file is generated, the previous trace file will NOT be deleted. 1: When a new trace file is generated, the previous trace file will be deleted.

Brick Level Restore

For brick level restore, the registry path is as follows:

HKEY_LOCAL_MACHINE\SOFTWARE\ComputerAssociates\CA ARCserve
Backup\DSAgent\CurrentVersion\agent\dbaxchg2

Value Name: Debug
Value Type: REG_DWORD
Value Data: 0(off, default)-3(on,verbose)
Results: Dbaxchg2.log & dbaxchg2*.trc, in Exchange agent directory

Note: Restart the CA ARCserve Backup Agent RPC Server service.

Appendix B: Setting Up a Backup Agent Service Account

After you install the CA ARCserve Backup Agent for Microsoft Exchange, you must set up a backup agent service account on your Exchange Server. The backup agent service account grants the agent the authority to communicate with the Exchange Server.

This section contains the following topics:

[How to Set Up Your Backup Agent Service Account](#) (see page 131)

[Set Up Your Backup Agent Service Account](#) (see page 133)

[Set Up Groups](#) (see page 139)

[Delegate Roles](#) (see page 141)

[Additional Configuration Considerations](#) (see page 144)

How to Set Up Your Backup Agent Service Account

Before you can set up your backup agent service account, you must perform the following tasks:

1. Determine your backup agent service account requirements.

Note: For more information, see [Backup Agent Service Account Requirements Overview](#) (see page 132).

2. Determine your tasks.

Note: For more information, see [Task Requirements](#) (see page 132).

3. Determine your environment.

Note: For more information, see [Implementation Considerations](#) (see page 132).

4. [Set Up Your Backup Agent Service Account](#) (see page 133).

Backup Agent Service Account Requirements Overview

The requirements for your backup agent service account depend on the type of backup and restore you will be using (database level, document level, or both). To determine these requirements, see information about backup agent service account requirements in the chapters “Performing Database Level Backups and Restores,” or “Performing Document Level Backups and Restores.”

Note: If you plan on using more than one type of backup and restore (for example, both database level and document level), your backup agent service account must meet the requirements for all types. Document level backup and restore requirements include all of the requirements for database level backup and restore.

Task Requirements

After you decide on your backup agent service account requirements, you must determine your tasks.

Depending on your requirements, you must perform one or more of the following tasks:

- Create a user account
- Create a mailbox
- Create groups
- Delegate roles

Implementation Considerations

Each task you must perform to manually set up your backup agent service account is dependant on one or more of the following factors:

- The version of Exchange Server you are using:
 - Exchange 2000 Server
 - Exchange Server 2003
 - Exchange Server 2007
- The version of Windows you are using:
 - Windows 2000
 - Windows Server 2003

- The type of server you are using:
 - Domain controller
 - Member server

Set Up Your Backup Agent Service Account

To set up your Backup Agent Service Account

1. Set up user accounts.
2. Set up mailboxes.
3. Set up groups.
4. Set up roles.

Important! Each task includes different procedures based on the environment. Select the tasks and environments that match your needs and use the corresponding procedures to manually set up your backup agent service account.

Note: For additional configuration considerations, see Additional Configuration Considerations.

More information:

[Create a Domain User on a Windows 2000 and 2003 Server](#) (see page 133)

[Create a Mailbox for Exchange 2000 and Exchange 2003 Server](#) (see page 135)

[Set Up Groups](#) (see page 139)

[Delegate Roles for Exchange Server 2000 and 2003 on a Domain Controller or Member Server](#) (see page 141)

[Additional Configuration Considerations](#) (see page 144)

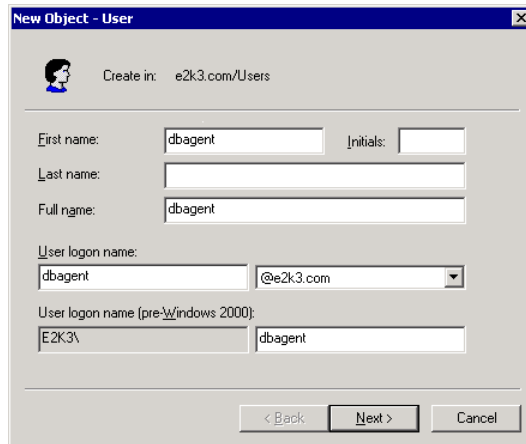
Create a Domain User on a Windows 2000 and 2003 Server

If you already have a domain account, you do not have to create a user. You can use the domain account as your backup agent service account. To do this, simply use your domain account to set up a mailbox, add groups, add rights, and delegate roles.

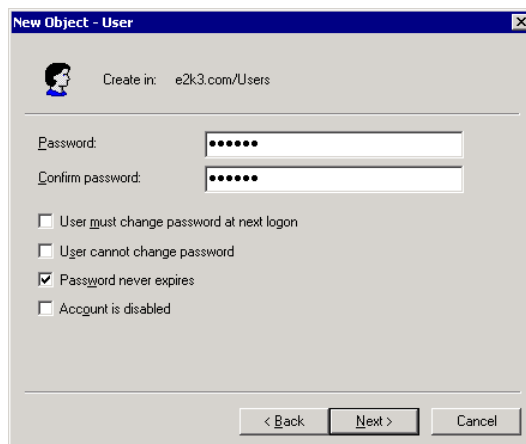
To create a backup agent service account

1. On your domain controller, from the Start menu, select All Programs, Administrative Tools, and select Active Directory Users and Computers.
The Active Directory Users and Computers window opens.

2. When the Active Directory dialog opens, expand the Active Directory Users and Computer tree and click Users.
3. From the Action menu, select New, User.



4. When the New Object - User dialog opens, in the First name field, enter a name for your backup agent service account, enter a User logon name, and then click Next.



5. Enter a password, confirm the password, enable the Password never expires option, and then click Next.
6. Click Finish.

Create a Mailbox for Exchange 2000 and Exchange 2003 Server

To create an Exchange Server mailbox for the backup agent service account

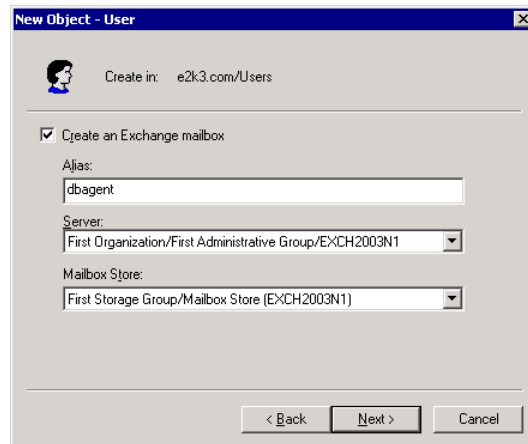
1. On your domain controller, from the Start menu, select All Programs, Administrative Tools, and select Active Directory Users and Computers.

The **Active Directory Users and Computers** window opens.

2. When the Active Directory dialog opens, expand the Active Directory Users and Computer tree and click **Users**.
3. From the **Action** menu, select **New, User**.

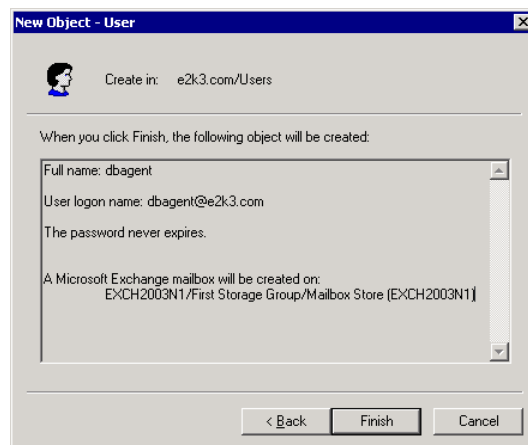
4. When the **New Object - User** dialog opens, in the **First name** field, enter a name for your backup agent service account, enter a **User logon name**, and then click **Next**.

5. Enter a password, confirm the password, enable the **Password never expires** option, and then click **Next**. If you have Exchange Server installed, the following dialog opens.



The 'New Object - User' dialog box shows the 'Create in' field set to 'e2k3.com/Users'. The 'Create an Exchange mailbox' checkbox is checked. The 'Alias' field contains 'dbagent'. The 'Server' dropdown is set to 'First Organization/First Administrative Group/EXCH2003N1'. The 'Mailbox Store' dropdown is set to 'First Storage Group/Mailbox Store (EXCH2003N1)'. At the bottom are '< Back', 'Next >', and 'Cancel' buttons.

6. Make sure the **Create an Exchange mailbox** option is enabled. In the **Alias** field, the **User Logon name** is automatically displayed. If you want to change it, enter a new name. In the **Server** field, select the server you are going to install on. In the **Mailbox Store** field, select a mailbox store. Click **Next**.



The 'New Object - User' dialog box shows a summary of the object to be created. It states: 'When you click Finish, the following object will be created:'. The summary includes: 'Full name: dbagent', 'User logon name: dbagent@e2k3.com', 'The password never expires.', and 'A Microsoft Exchange mailbox will be created on: EXCH2003N1/First Storage Group/Mailbox Store (EXCH2003N1)'. At the bottom are '< Back', 'Finish', and 'Cancel' buttons.

7. Confirm your selections and click **Finish**.

Note: After you finish creating your backup agent service account and mailbox, you should log into this account by using Outlook or by sending an email to the account to finalize the mailbox.

Create a Domain User with a Mailbox for Exchange Server 2007

To create domain user with a mailbox for Exchange Server 2007

1. From the Windows Start menu on your Exchange server system, select Programs, Microsoft Exchange Server 2007, and Exchange Management Console.

The **Exchange Management Console** opens.

2. Expand the Recipient Configuration object, select and right-click the Mailbox object.

From the pop-up menu, select New Mailbox.

The **New Mailbox - Introduction** dialog opens.

3. From the section **Choose mailbox type**, select the **User Mailbox** option and click Next.

The **New Mailbox - User Type** dialog opens.

4. From the section **New user**, select New user and click Next.

The **New Mailbox - User Information** dialog opens.

5. Complete the fields on this dialog as illustrated by the following:

New Mailbox

Introduction
User Type
User Information
Mailbox Settings
New Mailbox
Completion

User Information
Enter the user name and account information.

Organizational unit:
E12Dom.com/Users Browse...

First name: exchagent Initials: Last name:

Name:
exchagent

User logon name (User Principal Name):
exchagent @e12dom.com

User logon name (pre-Windows 2000):
exchagent

Password: Confirm password:

☐ User must change password at next logon

Help < Back Next > Cancel

In the First name field, enter a name for your backup agent service account, enter a User logon name and password, and then click Next.

The **New Mailbox - Mailbox Settings** dialog opens.

6. Complete the fields on this dialog as illustrated by the following:

The screenshot shows the 'New Mailbox' dialog box with the 'Mailbox Settings' tab selected. The 'Alias' field contains 'exchagent'. The 'Server' dropdown is set to 'E12-3'. The 'Storage group' dropdown is set to 'First Storage Group'. The 'Mailbox database' dropdown is set to 'Mailbox Database'. There are two unchecked checkboxes: 'Managed folder mailbox policy' and 'Exchange ActiveSync mailbox policy', each followed by a 'Browse...' button. A note at the bottom states: 'Messaging Records Management is a premium feature and requires an enterprise client access license to enable on a mailbox.' At the bottom of the dialog are buttons for 'Help', '< Back', 'Next >', and 'Cancel'.

Select a Storage Group and a Database for the mailbox, and then click Next.

The **New Mailbox - Configuration Summary** dialog opens.

7. Verify the configuration summary and click the **Back** button if you need to make changes.
8. To complete the configuration, click New and then click Finish.

You have successfully created a domain user with a mailbox on an Exchange 2007 Server system.

Note: After you finish creating your backup agent service account and mailbox, you should log into this account using Outlook or by sending an email to the account to verify that the mailbox functions properly.

Set Up Groups

Based on the type of Microsoft Exchange Server that is running in your environment (member server or domain controller), use one of the following procedures to set up groups.

Add Groups for all Versions of Exchange Server on a Windows Member Server

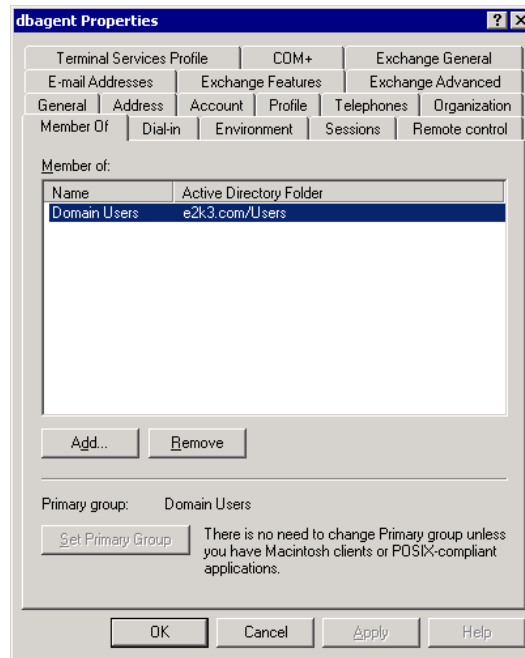
To add groups

1. Right-click My Computer and select **Manage**.
2. When the **Computer Management** dialog opens, expand the **Local Users and Groups** object and click **Groups**.
3. In the right-pane, double-click **Administrators**.
4. When the Properties dialog opens, click **Add**.
5. When the **Select Users or Groups** dialog opens, in the **Look in** field, select the appropriate domain. Next, in the **Name** column, select the name of your backup agent service account, click **Add**, and then click **OK**.
6. When the Properties dialog reopens, the name of your backup agent service account is displayed in the **Members** list. Click **OK**.
7. When the Computer Management dialog reopens, in the right-pane, double-click **Backup Operators** and repeat Steps 4 to 6.

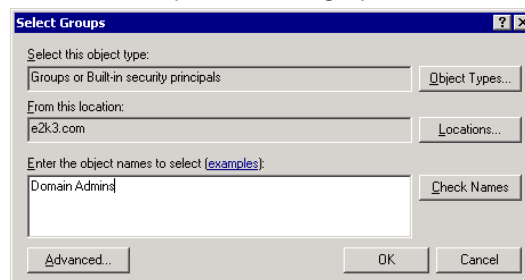
Add Groups for all Versions of Exchange Server on a Domain Controller

To add groups

1. On your domain controller, from the Start menu, select All Programs, Administrative Tools, and select Active Directory Users and Computers. From the Active Directory Users and Computers dialog, in the right pane, right-click your new account name and select **Properties**.

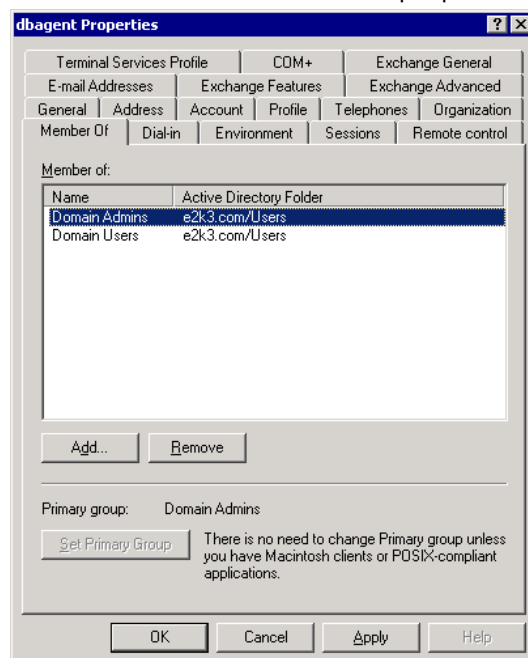


2. When the Properties dialog opens, click the Member Of tab and click Add.



- When the Select Groups dialog opens, type **Domain Admins** in the “Enter the object names to select” field and click OK.

Note: If your Exchange Server is your domain controller, you must also select Administrators and Backup Operators.



- When the Properties dialog reappears, select **Domain Admins** and click Set Primary Group. Next, select Domain Users, click Remove, click Yes, and then click OK.

Delegate Roles

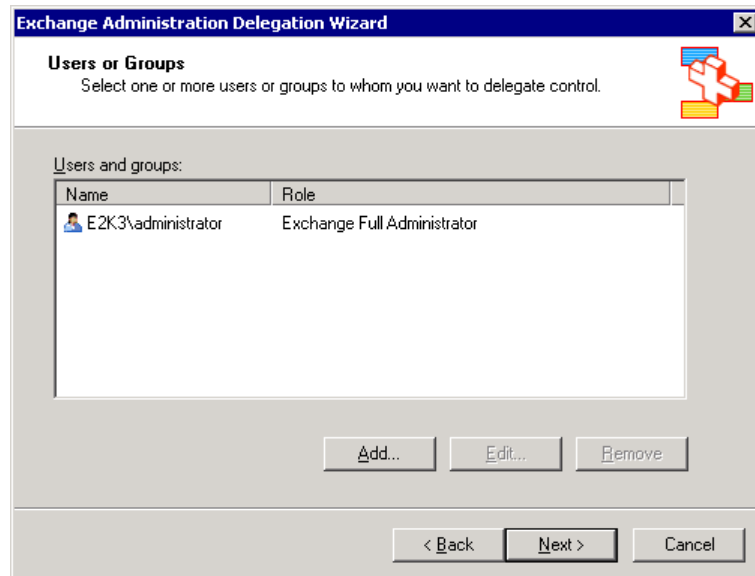
Use one of the following procedures to delegate roles.

Delegate Roles for Exchange Server 2000 and 2003 on a Domain Controller or Member Server

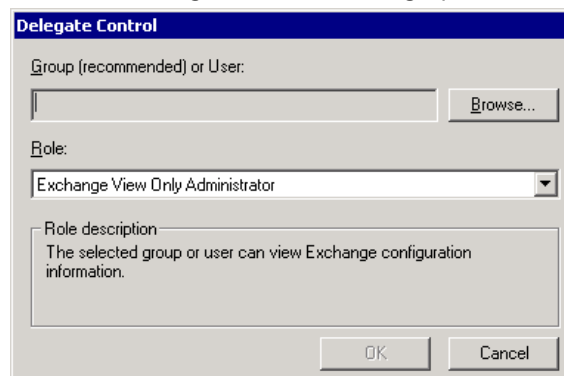
To assign permissions for the backup agent service account

- On the Exchange Server, from the Start menu, select All Programs, Microsoft Exchange, System Manager.
- When the **Exchange System Manager** dialog opens, right-click the name of your organization or Administrative Group and select **Delegate control**.
- When the Exchange Administration Delegation Wizard opens, click Next.

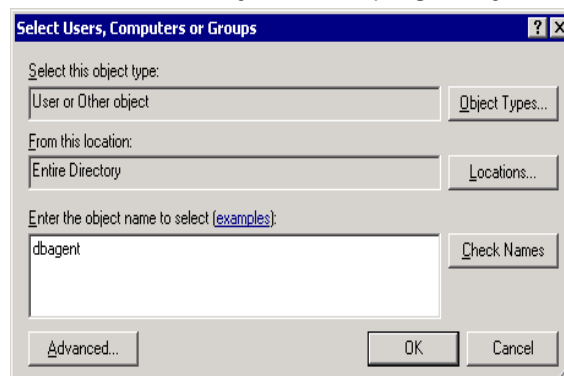
4. When the Users or Groups dialog opens, click Add.



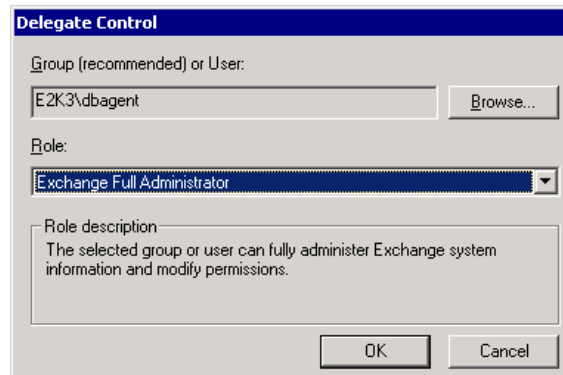
5. When the Delegate Control dialog opens, in the Group field, click Browse.



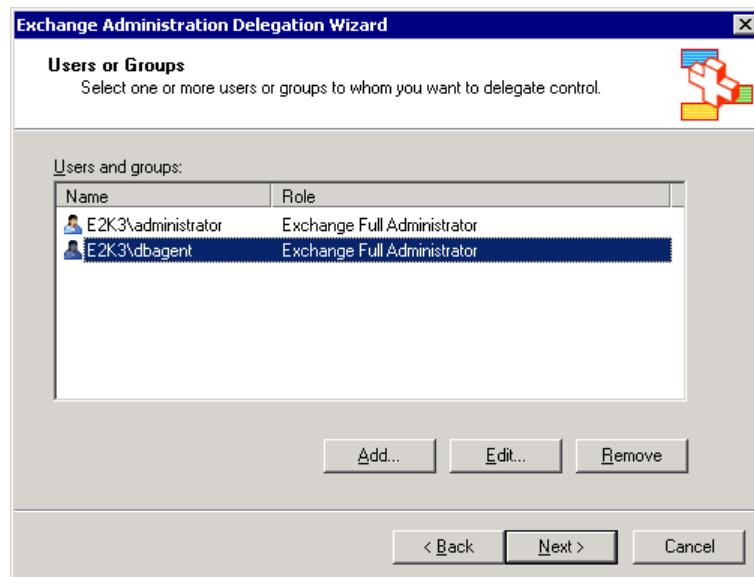
6. Enter the name of your Backup Agent System Account and click OK.



- When the Delegate Control dialog reopens, in the Role field, select **Exchange Full Administrator** and click OK.



The name of your account opens in the Users and groups field as shown.



- Click Next and then click Finish.

You have successfully assigned permissions for the backup agent service account.

Delegate Roles for Exchange Server 2007 on a Domain Controller or Member Server

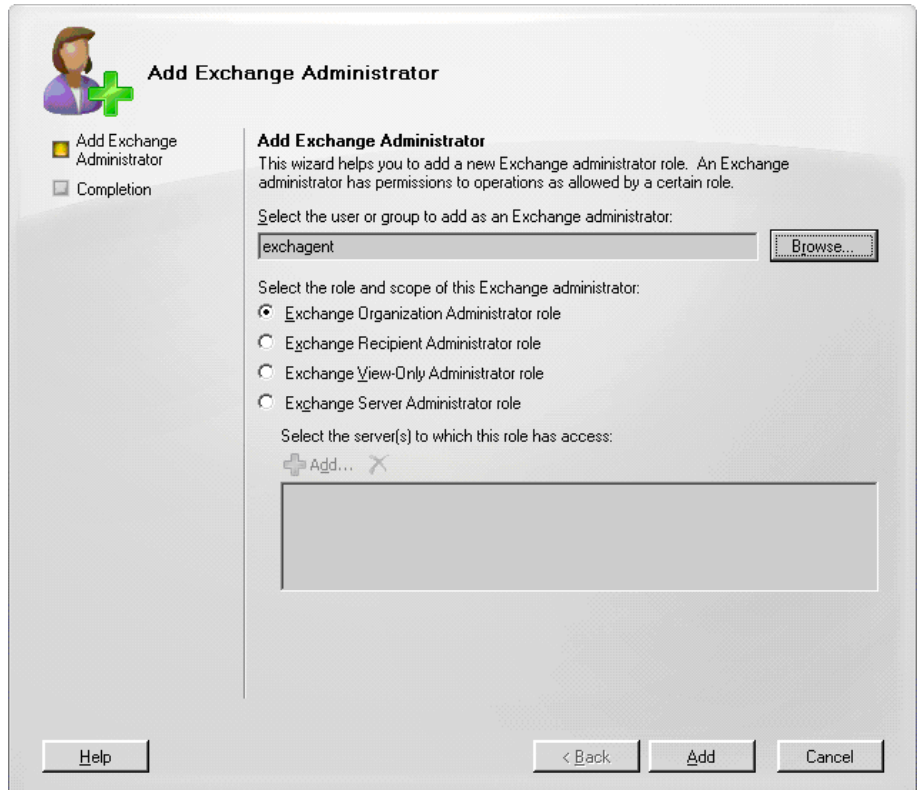
To assign permissions for the backup agent service account

- On your Exchange server, from the Start menu, select Programs, Microsoft Exchange Server 2007, and Exchange Management Console.

The **Exchange Management Console** opens.

2. Select and right-click the Organization Configuration object. From the pop-up menu, select **Add Exchange Administrator**.

The **Add Exchange Administrator** dialog opens as illustrated by the following example:



3. Click the **Browse** button to browse to and select the user or group to which you want to assign the role.
4. Select one of the following options:
 - Exchange Organization Administrator role
 - Exchange Server Administrative role

Click **Add**, and then click **Finish**.

The permissions are assigned to the backup agent service account.

Additional Configuration Considerations

The following sections include additional configuration considerations, depending on your environment.

Member Server Considerations

If your Exchange Server is on a member server, you may need to add the backup agent service account to the same groups and rights on the domain controller, depending on the domain controller security policies and security settings.

Multiple Domain Considerations

If your Exchange Server is running on a network that has multiple domains and you want to create the backup agent service account in a different domain than the domain where your Exchange Server is located, add the groups and rights in both domains.

Grant Additional Rights on Exchange 2000 Server

Exchange Server 5.5 included a Service Account that allowed unrestricted access to all mailboxes. To enhance security, Exchange Server 2000 did not include this Service Account. As a result, if you need unrestricted access to all mailboxes in Exchange 2000 Server, your account is a member of Domain Admins, and your other security settings do not give you this access, use the following procedure:

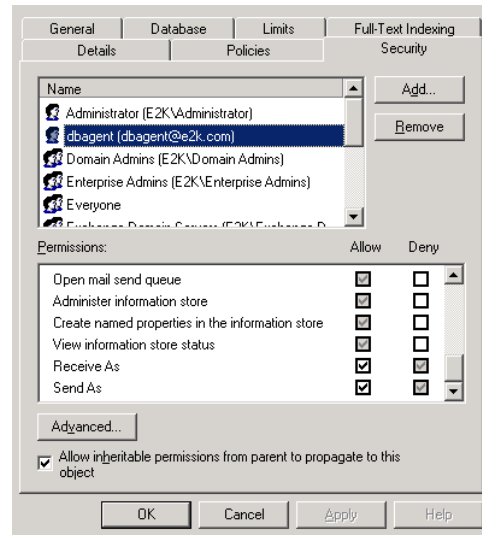
Note: If your account is not a member of Domain Admins, see the Microsoft web site for Microsoft Knowledge Base Article 262054, XADM: *How to Get Service Account Access to All Mailboxes in Exchange 2000*.

To grant additional rights in Exchange 2000 Server

1. Go to Start, All Programs, Microsoft Exchange, System Manager, and select System Manager.
2. When the Exchange System Manager dialog opens, in the left pane, expand Administrative Groups until you find the mailbox store or public folder store for which you want to have full mailbox access.

3. Right-click mailbox store or public store and select Properties. When the properties dialog opens, click the Security tab.

Note: If you do not see the Security tab, see the Microsoft web site for Microsoft Knowledge Base Article 259221, *XADM: Security Tab Not Available on All Objects in System Manager*.



4. In the Name column, select the name of your backup agent service account. Next, in the Permissions box, place a check mark in the Allow box next to the Receive As and Send As permissions, and then click OK.

Note: When you place a check mark in the Allow box, it overrides the Deny box, but only at the level where you are granting permission. For example, if you are granting permission for a mailbox store, the permission applies only to the mailbox store and not to its parent or children objects.

5. Repeat Steps 2 to 4 for each database object where you want to have full mailbox access.

Appendix C: Frequently Asked Questions

This section includes frequently asked questions to help you resolve issues that may arise when using the CA ARCserve Backup Agent for Microsoft Exchange.

This section contains the following topics:

[General Questions](#) (see page 147)

[Database Level Backup and Restore Questions](#) (see page 147)

[Document Level Backup and Restore Questions](#) (see page 148)

General Questions

The following questions are general questions.

Question:

What is the M drive (ExIFS) and do I need to back it up?

Answer:

The M drive is a virtual drive that exposes Exchange Server 2000 mailboxes and public folders. It is simply a view of Exchange Server 2000 and not a physical drive, so you do **not** need to back it up, which is why it is skipped when you perform a backup job using the Client Agent for Windows.

Database Level Backup and Restore Questions

The following questions relate to database backup and restore.

Question:

If I perform a document level backup, do I need to perform a database level backup?

Answer:

Yes. Database level backup is the fundamental backup for your Exchange Server, and you should always use it regardless of whether you use one of the other granular backup types. You can use database level backups to restore Exchange Server in the event of a system failure, database corruption, or disaster recovery situation.

Document Level Backup and Restore Questions

The following questions relate to document level backup and restore.

Question:

When I restore a document to the same location using the **Overwrite conflict** resolution option, why do I sometimes see duplicated messages?

Answer:

When a message is restored, a new message ID is created and assigned to it. Consequently, if you restore from one backup multiple times, you will see duplicated messages.

Question:

Can I perform a Database Level backup at the same time as a Document Level backup?

Answer:

Yes, you can perform a Database Level and Document Level backup at the same time. You can also perform multiple Document Level backups at the same time, and you can perform multiple Database Level backups at the same time by running up to one job for each storage group.

Question:

How can I tell how much space is saved by backing up with Complete Single Instance Storage enabled?

Answer:

After you submit your backup job, you can go to the Job Status Manager and double-click the active job to view real-time job properties. If you have Complete Messaging Single Instance Storage enabled, all of the fields related to size will reflect the size prior to single instance storage optimization. The actual size of the backup after single instance storage optimization opens in the Activity Log and is labeled "(xx)MB Written to Media".

Appendix D: Registering Cluster Resources

This section contains the following topics:

[Register the Cluster Resources Manually](#) (see page 151)

Register the Cluster Resources Manually

When you install the agent on local nodes, the installation procedure registers and creates the cluster resources for you automatically. This section describes how to register and create the cluster resources manually.

To register the cluster resources manually

1. Ensure that the agent is installed on all nodes on which Exchange Virtual Server could potentially run and the agent installation directory is the same on all nodes.
2. If the resource type is not already registered, run the following command:

```
Cluster.exe restype "CA ARCserve Backup Exchange Agent Notifier" /create  
/dll: CaExCluRes.dll /type:"CA ARCserve Backup Exchange Agent Notifier"
```

Note: If your resource type is already registered, CA ARCserve Backup Exchange Agent Notifier displays under the Cluster Configuration\Resource Types branch in the Cluster Administrator.

3. Run the following command to register the extension dll:

```
Cluster.exe/REGEXT:"C:\WINDOWS\cluster\CAExCluResEx.dll"
```

4. Use the Cluster Administrator to create the CA ARCserve Backup Exchange Agent Notifier cluster resource instance in the Exchange Virtual Server group. As a best practice, append the Exchange Server name to the cluster resource instance name. For example, CA ARCserve Backup Exchange Agent Notifier – (VS1) is the cluster resource instance name and VS1 is the Exchange Server name. When the New Resource dialog opens, enter the name and description of the resource instance, select **CA ARCserve Backup Exchange Agent Notifier** in the Resource type field, select the name of your Exchange Server virtual group in the Group field. Click Next.

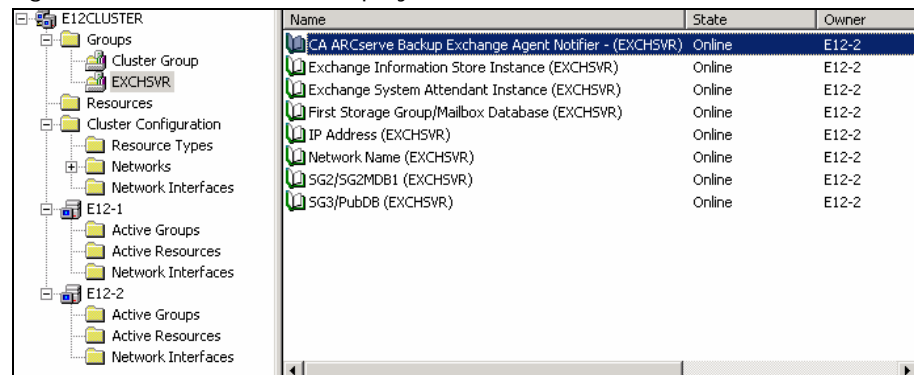
The **Possible Owners** dialog opens. The nodes in the cluster on which the resource can be brought online display in the Possible owners box.

5. Click Next.

The **Dependencies** dialog opens.

6. When the Dependencies dialog opens, click Finish to end the resource creation process, and then click OK.
7. Open the Cluster Administrator and confirm that the CA ARCserve Backup Exchange Agent Notifier resource is displayed.

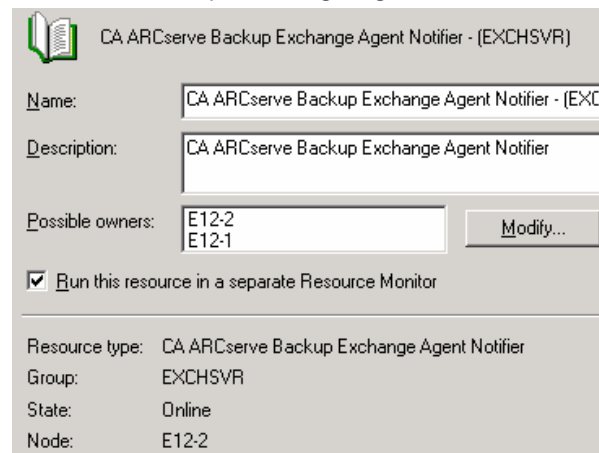
The following diagram illustrates that the CA ARCserve Backup Exchange Agent Notifier resource is displayed:



Name	State	Owner
CA ARCserve Backup Exchange Agent Notifier - (EXCHSVR)	Online	E12-2
Exchange Information Store Instance (EXCHSVR)	Online	E12-2
Exchange System Attendant Instance (EXCHSVR)	Online	E12-2
First Storage Group/Mailbox Database (EXCHSVR)	Online	E12-2
IP Address (EXCHSVR)	Online	E12-2
Network Name (EXCHSVR)	Online	E12-2
SG2/SG2MDB1 (EXCHSVR)	Online	E12-2
SG3/PubDB (EXCHSVR)	Online	E12-2

8. Right-click the CA ARCserve Backup Exchange Agent Notifier resource to verify the General, Dependencies, and Advanced options.

The following diagram illustrates how the options should appear on the CA ARCserve Backup Exchange Agent Notifier, General tab:



CA ARCserve Backup Exchange Agent Notifier - (EXCHSVR)

Name: CA ARCserve Backup Exchange Agent Notifier - (EXC

Description: CA ARCserve Backup Exchange Agent Notifier

Possible owners: E12-2
E12-1

☒ Run this resource in a separate Resource Monitor

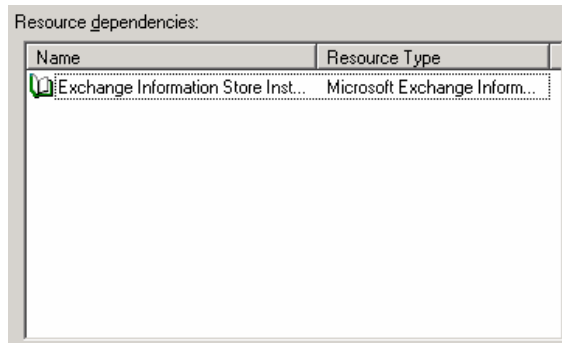
Resource type: CA ARCserve Backup Exchange Agent Notifier

Group: EXCHSVR

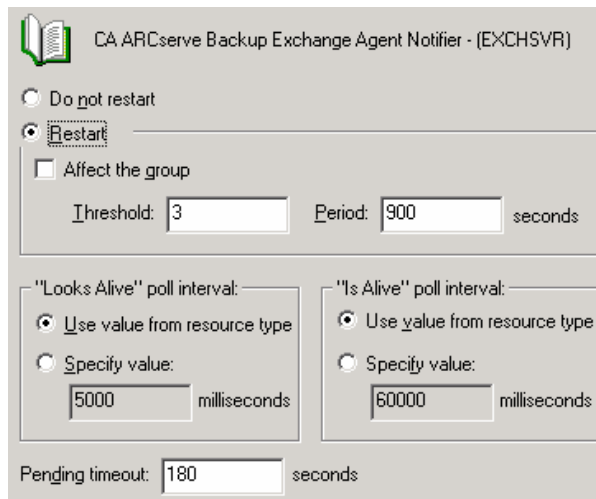
State: Online

Node: E12-2

The following diagram illustrates how the options should appear on the CA ARCserve Backup Exchange Agent Notifier, Dependencies tab:



The following diagram illustrates how the options should appear on the CA ARCserve Backup Exchange Agent Notifier, Advanced tab:



Note: On the Advanced tab, make sure the **Affect the group** check box is **not** selected. This ensures that the state of the resource does not affect the Exchange Server virtual group.

- Repeat Steps 2 to 6 on each node that has an Exchange Server virtual group where you need to create the resource.

More information:

[Configure the Agent to Run on a Cluster](#) (see page 29)

Appendix E: Using the Server Configuration Worksheet - Exchange Server 2000 and 2003 Systems

To limit the amount of time you spend troubleshooting restore issues when you are recovering from a disaster on an Exchange 2000 and 2003 Server system, consult the Exchange System Manager to gather information and complete the following worksheet for each Exchange server in your Exchange organization.

This section contains the following topics:

[Worksheet](#) (see page 156)

Worksheet

When restoring an Exchange 2000 and 2003 Server system to an alternative location, information in all fields in this worksheet except the Server Name field must be the same on the server you are restoring to.

Note: The information you enter into the worksheet is case sensitive.

Server Name

Exchange Server Version, Service
Pack, and Patches:

Exchange Organization Name:

Administrative Group Name:

Storage Group Name:

Database Store Names:

Storage Group Name:

Database Store Names:

Storage Group Name:

Database Store Names:

Storage Group Name:

Database Store Names:

LegacyExchangeDN Value:

Note: See the Microsoft web site for information on how to determine the LegacyExchangeDN value.

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