

HP Connected Backup

Data Center Disaster Recovery

Version 8.8.3
16 March 2015

Protect



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Acknowledgements

RSA Data Security, Inc. MD5 Message-Digest Algorithm; zlib general purpose compression library, Jean-loup Gailly and Mark Adler; Info-ZIP, more information at <ftp://ftp.info-zip.org/pub/infozip/license.html>; HTML-to-RTF Pro DLL 1.8 © 2002-2007 SautinSoft.

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About This Document

This guide is for system administrators and Data Center technicians who need to recover the Data Center, the system drive, archives, and SQL databases. Readers of this manual must be familiar with the Microsoft® Windows® operating system and the operation of their Data Centers.

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Documentation Updates

The information in this document is current as of HP Connected Backup version 8.8.3. The content was last modified 16 March 2015.

You can retrieve the most current product documentation from Autonomy's Knowledge Base on the Customer Support Site.

A document in the Knowledge Base displays a *version number* in its name, such as *IDOL Server 7.5 Administration Guide*. The version number applies to the product that the document describes. The document may also have a *revision number* in its name, such as *IDOL Server 7.5 Administration Guide Revision 6*. The revision number applies to the document and indicates that there were revisions to the document since its original release.

Autonomy recommends that you periodically check the Knowledge Base for revisions to documents for the products your enterprise is using.

To access Autonomy documentation

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<https://customers.autonomy.com>
2. Click **Login**.
3. Type the login credentials that you were given, and then click **Login**.
The Customer Support Site opens.
4. Click **Knowledge Base**.
The Knowledge Base Search page opens.
5. Search or browse the Knowledge Base.
To search the knowledge base:
 - a. In the Search box, type a search term or phrase and click **Search**.
Documents that match the query display in a results list.To browse the knowledge base:
 - a. Select one or more of the categories in the **Browse** list. You can browse by:
 - **Repository**. Filters the list by Documentation produced by technical publications, or Solutions to Technical Support cases.
 - **Product**. Filters the list by product. For example, you could retrieve documents related to IDOL Server, Virage Videologger, or KeyView Filter.
 - **Version**. Filters the list by product or component version number.
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Related Documentation

The following documents provide more details on Connected Backup:

- *Connected Backup Release Notes*
- *Connected Backup Product Overview*
- *Connected Backup Installing PC Agents*
- *Connected Backup Installing Mac Agents*
- *Connected Backup Administering PC Agents*
- *Connected Backup Administering Mac Agents*
- *Connected Backup Installing the Data Center*
- *Connected Backup Administering the Data Center*
- *Connected Backup Upgrading the Data Center*
- *Connected Backup Data Center Disaster Recovery*
- *Connected Backup Data Transfer API Administration Guide*
- *Connected Backup Management API Administration Guide*
- *Connected Backup Account Management Web Services Development*
- *Connected Backup Web Services Programming Reference*
- *Connected Backup PC Agent Quick Start*
- *Connected Backup Mac Agent Quick Start*
- *Connected Backup Media Agent Quick Start*
- *Connected Backup Agent Version Matrix*

- *Connected Backup Interoperability Matrix*
- *Connected Backup Requirements Matrix*
- *Connected Backup Application Localization Matrix*
- *Connected Backup Documentation Localization Matrix*

In addition, all Connected Backup applications include online help.

Conventions

The following conventions are used in this document.

Notational Conventions

This document uses the following conventions.

Convention	Usage
Bold	User-interface elements such as a menu item or button. For example: Click Cancel to halt the operation.
<i>Italics</i>	Document titles and new terms. For example: <ul style="list-style-type: none">■ For more information, see the <i>IDOL Server Administration Guide</i>.■ An <i>action command</i> is a request, such as a query or indexing instruction, sent to IDOL Server.
<code>monospace font</code>	File names, paths, and code. For example: The <code>FileSystemConnector.cfg</code> file is installed in <code>C:\Program Files\FileSystemConnector\</code> .
monospace bold	Data typed by the user. For example: <ul style="list-style-type: none">■ Type run at the command prompt.■ In the User Name field, type Admin.
<i>monospace italics</i>	Replaceable strings in file paths and code. For example: <code>user <i>UserName</i></code>

Command-line Syntax Conventions

This document uses the following command-line syntax conventions.

Convention	Usage
[optional]	Brackets describe optional syntax. For example: [-create]
	Bars indicate “either or” choices. For example: [option1] [option2] In this example, you must choose between <i>option1</i> and <i>option2</i> .
{ required }	Braces describe required syntax in which you have a choice and that at least one choice is required. For example: { [option1] [option2] } In this example, you must choose <i>option1</i> , <i>option2</i> , or both options.
required	Absence of braces or brackets indicates required syntax in which there is no choice; you must type the required syntax element.
<i>variable</i> <variable>	Italics specify items to be replaced by actual values. For example: <i>-merge filename1</i> (In some documents, angle brackets are used to denote these items.)
...	Ellipses indicate repetition of the same pattern. For example: <i>-merge filename1, filename2 [, filename3 ...]</i> where the ellipses specify, <i>filename4</i> , and so on.

The use of punctuation—such as single and double quotes, commas, periods—indicates actual syntax; it is not part of the syntax definition.

Notices

This document uses the following notices:



CAUTION A caution indicates an action can result in the loss of data.



IMPORTANT An important note provides information that is essential to completing a task.



NOTE A note provides information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases—for example, memory limitations, equipment configurations, or details that apply to specific versions of the software.



TIP A tip provides additional information that makes a task easier or more productive.

Product References

This document references the following product:

- Connected Backup

Autonomy Customer Support

Autonomy Customer Support provides prompt and accurate support to help you quickly and effectively resolve any issue you may encounter while using Autonomy products. Support services include access to the Customer Support

Required Disaster Recovery Items

The items in this section are required for any disaster recovery process. Be sure that these items are saved to a secure backup location on a regular basis as a part of your Data Center maintenance

Registry and Directory SQL database backups

This can be either the `.bak` backup files, or the `.mdf` and `.ldf` files themselves.

To back up Registry and Directory databases on a standalone Data Center

1. Open the Scheduled Tasks Control Panel.
2. Right-click **WeeklyMaint**, and then select **Run**.
3. Close the Scheduled Tasks Control Panel.

To back up Registry and Directory databases on a mirrored or clustered Data Center



NOTE Mirrored Data Center servers have both a Directory and Registry database.

Clustered Data Center servers can have both a Directory and Registry database (non-dedicated Registration Master), just a Registry database (dedicated Registration Master), or just a Directory database (directory server).

1. Open the SQL Server Management Studio, and then connect to the Data Center.
2. Run `\DataCenter\DRProcs\database_backup.sql`.
3. Close the SQL Server Management Studio.

License.dat file

Each server has a `License.dat` file specific to its Network Identification Card (NIC). The license file is in the Data Center installation folder. To request a license, use the License Request form on the Customer Support Site. To access the Customer Support Site, go to:

<https://customers.autonomy.com>.

Configuration\$ folder

In the `\DataCenter` folder on the Data Center, copy the `Configuration$` folder to a safe location. This folder contains the Connected Backup Agent file sets and configuration files. Directory servers in a clustered configuration do not have a `Configuration$` folder, and do not require this item for disaster recovery.

Windows Registry Connected\Keys

Export the Windows registry key from the Data Center server to a folder in a safe location. The key is in the following registry location:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Connected\Keys

To export the Keys registry key

1. Open the Registry Editor on your Data Center server.
2. Locate the `...\Connected\Keys` key, and then examine the values.
3. If the MEK and PMEK keys and values are not visible to you, right-click `...\Connected\Keys` and then select **Permissions**. Change the permissions for the logged-on user to **Read**. To close the window, click **OK**.
4. After the MEK and PMEK keys are visible, right-click `...\Connected\Keys`, and then select **Export**.
5. Navigate to a folder in a safe, known location, provide a file name for the export file, and then click **Save**.
6. The exported file has a `.reg` extension and contains the key that is required to recover your Data Center.
7. Close the Registry Editor

Security files

In the `\DataCenter` folder on the Data Center, back up the following files:

- `PrivateKey.pem`
- `Certificate.pem`
- `dh1024.pem`

Additional Components

Be sure to have the following components available during the Disaster Recovery process:

- ***Installing the Data Center guide***

Provides information on installation procedures for Microsoft Windows and SQL Server.

- **Connected Backup Requirements Matrix**

Provides information on supported hardware for Connected Backup Data Center installations.

- ***Connected Backup Interoperability Matrix***

Identifies third-party software that works with Connected Backup software.

- **Microsoft Windows Server software**

Use the same software version that you installed on the Data Center server before the disaster. If you run a mirrored server configuration, you must install the same software version on each server pair.

- **Microsoft SQL Server software**

Use the same software version that you installed on the Data Center server before the disaster. If you run a mirrored server configuration, you must install the same software version on each server pair.

- **Data Center software**

Use the same software version that you installed on the Data Center server before the disaster. If you run a mirrored server configuration, you must install the same software version on each server pair.

- **SQL scripts**

Many disaster recovery procedures in this guide contain SQL scripts that you must download to complete the disaster recovery tasks. These scripts are in the Data Center installation folders `\DataCenter\DRProcs` and `\DataCenter\Scripts`.

- **Windows domain account and password used by Data Center services**

The following are the three service accounts:

- CNTD_DCServices
- CNTD_WebServices
- CNTD_DataBundler

If you run a mirrored Data Center configuration, use the same Windows domain account and password on each server.

- **Latest version device drivers for server hardware**

Collect the most recent drivers according to vendor recommendations.

- **Vendor contact information**

Collect this information for all hardware, software, and firmware in your Data Center.

- **Data Center Management Console (DCMC)**

Available after you install the Data Center software.

- **Archives**

You must have access to all archives for the Data Center configuration.

2. Install the Microsoft Windows Server operating system. See “[Install and Configure Microsoft Windows](#)” on page 20.
3. Install Microsoft SQL Server. See “[Install and Configure SQL Server](#)” on page 20.
4. Restore the SQL databases. See “[Recover the Connected Databases](#)” on page 21
5. Install the Data Center software. See “[Install the Data Center Software](#)” on page 22.
6. Verify that the procedures have restored your Data Center components. See “[Data Center Verifications](#)” on page 23.

Install and Configure Microsoft Windows

To install the Microsoft Server operating system, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- For information about how to install the Microsoft Server operating system, refer to Chapter 2: Preparing for Installation in the *Installing the Data Center* guide.
- For information about Data Center hardware and software requirements, refer to the *Connected Backup Requirements Matrix*.

Install and Configure SQL Server

To install SQL Server, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- Use the same domain account that you previously used for your Data Center installation.



CAUTION Ensure that the Data Center installation account has local administrator privileges and SQL Server sa account rights.

If you attempt a Data Center recovery with an account that does not have SQL Server sa account rights, you will have to reinstall SQL Server and restart the Data Center recovery.

- For information about how to install SQL Server, refer to the Chapter 2: Preparing for Installation in the *Installing the Data Center* guide.

Recover the Connected Databases

If the Data Center databases have been lost or corrupted during the server disaster, use the following procedure to restore the Registry and Directory databases to the Data Center server. Perform this task on each database that you need to restore.

To restore the databases

1. From your backup, copy the `.bak` or `.mdf` and the `.ldf` files to the same folder location on the Data Center in recovery as was on the original Data Center.
2. Open the SQL Server Management Studio and then connect to the Data Center server in recovery.
3. If you restore databases from a backup (`.bak` files)
 - a. Right-click **Databases**, and then click **Restore Database**.
 - b. Type the name of the database to restore in **To database**.
 - c. Select **From device**, and then click the ellipsis button (...).
 - d. Ensure that **File** is selected for **Backup Media**, and then click **Add**.
 - e. Navigate to the location of the `.bak` file and select the file. Click **OK**.
 - f. To start the database restore process, click **OK**.
You have restored the selected database. Repeat this step for each database you need to restore.
4. If you restore databases from backed up `.mdf` and `.ldf` files
 - a. Right-click **Databases** and then click **Attach**. The Attach Databases dialog box opens.
 - b. Click **Add** to select a database. The Locate Database Files dialog box opens.
 - c. Navigate to the location of the database and select the appropriate `.mdf` file.
 - d. Click **OK** to accept the database selection.
 - e. If the location of the `.ldf` file is in a different folder, click the ellipsis button (...) in the database details section for the `.ldf` file for the database, and then select the appropriate `.ldf` file.
 - f. Click **OK**.
You have attached the selected database. Repeat this step for each database that you need to attach.
 - g. Verify that this procedure restored your databases.

You cannot verify that the information in the database is correct and accounted for, but you can verify that the tables exist and contain appropriate information. To ensure the tables exist and contain the appropriate information, run the following queries, and then verify that each query displays information.

```
PRINT 'Number of active accounts on server'
SELECT COUNT(*) FROM Registry.dbo.Customer
WHERE Status = 'A'
PRINT 'Number of ArchiveSet rows on server'
SELECT COUNT(*) FROM Directory.dbo.ArchiveSet
```

The results of the first query returns the number of active accounts in your SQL database. If that number does not match the number of active accounts that you believe are in your SQL database, contact Support.

Install the Data Center Software

Use the following procedure to install the Data Center software on a Connected Backup Data Center server that was lost or corrupted.

To install the Data Center Software after a disaster

1. From your backup, copy the `.reg` file that you created in “[Before You Begin](#)” on page 13 to the Data Center in recovery, and then run the file to import the Master Encryption Keys (MEK and PMEK).
2. Install the Connected Backup Data Center software as a **Standalone server**. For more information, refer to the *Installing the Data Center* guide.
3. Open the Data Center Management Console (DCMC), and then stop all Data Center services.
4. From your backup, copy the following files to `\DataCenter`:
 - ❑ `PrivateKey.pem`
 - ❑ `Certificate.pem`
 - ❑ `dh1024.pem`
 - ❑ `License.dat`
5. From your backup, copy the `Configuration$` folder to `\DataCenter`.
6. From your backup of the `Configuration$` folder, copy the `cafile.pem` file to the `DataCenter\` folder.
7. Use the DCMC to restart Data Center services.

You have installed the Data Center software.

Data Center Verifications

To verify that you have recovered the Data Center

1. To verify that the Support Center works, log on and search for any number of accounts.
2. To verify that Account Management Website works, log on and view account information (if applicable).

You might be unable to account for some database processes because they might happen after the database backup occurs, but before the actual disaster. The following list includes some items that might not appear in the database:

- ❑ Accounts registered after the last backup
- ❑ Backups for current accounts
- ❑ Changes made to account status
- ❑ New Support Center technicians created
- ❑ Support Center technician password changed

CHAPTER 3

Recovery of a Mirrored Data Center

This chapter describes how to recover a mirrored Data Center.

- [Recover One Data Center Server of a Mirrored Pair](#)
- [Recover Both Servers of a Mirrored Data Center](#)

Recover One Data Center Server of a Mirrored Pair

This section describes how to recover one Data Center server of a mirrored pair while the other Data Center server in the pair continues to be functional.

Tasks

To recover one Data Center server of a mirrored pair, complete the following tasks:



NOTE You must complete the following tasks in order. If you have already completed tasks during your recovery, continue with the task that contains the next steps for the disaster recovery.

1. Before you perform the procedures in this manual, make sure you have the required files and information for the disaster recovery. See [“Before You](#)

Begin” on page 13.

2. Install the operating system. See “Install and Configure Microsoft Windows” on page 26
3. Install SQL Server. See “Install and Configure SQL Server” on page 26
4. Restore the SQL databases. See “Recover the Connected Databases” on page 27.
5. Install the Data Center software. See “Install the Data Center Software” on page 28.
6. Recover the archives. See “Recover Archives from the Functional Server” on page 29.
7. Find and remove orphaned archives. See “Find and Remove Orphaned Archives” on page 30.
8. Verify the success of the recovery. See “Verify the Data Center Recovery” on page 31.

Install and Configure Microsoft Windows

To install the Microsoft Server operating system, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- For information about how to install the Microsoft Server operating system, refer to Chapter 2: Preparing for Installation in the *Installing the Data Center* guide.
- For information about Data Center hardware and software requirements, refer to the *Connected Backup Requirements Matrix*.

Install and Configure SQL Server

To install SQL Server, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- Use the same domain account that you previously used for your Data Center installation.



CAUTION Ensure that the Data Center installation account has local administrator privileges and SQL Server sa account rights.

If you attempt a Data Center recovery with an account that does not have SQL Server sa account rights, you will have to reinstall SQL Server and restart the Data Center recovery.

- For information about how to install SQL Server, refer to Chapter 2: Preparing for Installation in the *Installing the Data Center* guide.

Recover the Connected Databases

This section explains how to restore the Data Center databases to a mirrored Data Center server after a database loss on the recovering server. This procedure lets backups and restorations continue on the functional server.

To restore your databases from a working Data Center server in a mirror to the Data Center server in recovery

1. On the functional server, use the DCMC to stop the ReplicationServer and Compactor services.
2. On both servers, use the Services Control Panel to verify that SQLServerAgent and MSSQLServer are both running.
3. On the functional server, open the SQL Server Management Studio and then connect to the functional server.
4. On the server in recovery, open the SQL Server Management Studio and then connect to the server in recovery.
5. Copy the following files from the functional server to the server in recovery:
 - Directory.bak
 - Registry.bak

By default, these files are located in `\Program Files\Microsoft SQL Server\MSSQL\Backup` on the designated SQL database volume. You select this volume during the Data Center Setup process.
6. On the server in recovery, use the Services Control Panel to stop the SQL Server and SQL Server Agent services. Then, restart the SQL Server and SQL Server Agent services (in that order).
7. On the server in recovery, run the `database_recovery.sql` script from `\Data Center\DRProcs` on the functional server to restore the database backups.

If the backup and database files are not in the default locations, using Notepad, edit the `database_recovery.sql` script to replace `\Program Files\Microsoft SQL Server\MSSQL` with the correct location of the backup and database files.

8. Make sure that your SQL service account has read access to any volumes that contain the Customer archives.
9. On the server in recovery, run the `FilesInCustomersFolder.sql` script from `\DataCenter\DRProcs` on the functional server. This process consumes more time and does not display any status.
10. Run the following query:

```
exec Directory..sp_UpdateVolumeID
```

11. On both servers, to verify that you recovered the databases correctly, run the following queries:

```
SELECT COUNT(*) 'Customer Rows' FROM Registry.dbo.Customer
SELECT COUNT(*) 'Community Rows' FROM Registry.dbo.Community
SELECT COUNT(*) 'ArchiveSet Rows' FROM Directory.dbo.ArchiveSet
SELECT COUNT(*) 'Symlink Rows' FROM Directory.dbo.Symlink
```

All counts should be equal or close to equal on both sides of the mirrored pair.

These queries let you verify that the tables exist and contain appropriate information.

12. On both servers, close SQL Server Management Studio.
13. On the functional server, use the DCMC to restart the `ReplicationServer` and `Compactor` services.

Install the Data Center Software

This section describes how to install the Data Center software on a Data Center server where data was lost or corrupted because of a disaster.

To install the Data Center Software after a disaster

1. From your backup, copy the `.reg` file that you created in “[Before You Begin](#)” on [page 13](#) to the Data Center in recovery, and then run the file to import the Master Encryption Keys (MEK and PMEK).
2. Install the Connected Backup Data Center software in the same role that you initially installed it.
 - ❑ If your server in recovery was the primary server in the mirror, install the Data Center software as the **Primary server in a new cluster**.
 - ❑ If your server in recovery was the secondary server, install the Data Center software as the **Secondary server**.

Use the same Server ID and Server Group ID values that were in use before the disaster. For more information, see the *Installing the Data Center* guide.

3. On the server in recovery, open the DCMC, and then stop all Data Center services.
4. From your backup, copy the following files to `\DataCenter`:
 - ❑ `PrivateKey.pem`
 - ❑ `Certificate.pem`
 - ❑ `dh1024.pem`
 - ❑ `License.dat`
5. From your backup, copy the `Configuration$` folder to `\DataCenter`.
6. From your backup of the `Configuration$` folder, copy the `cafile.pem` file to the `DataCenter\` folder.
7. On the server in recovery, use the DCMC to re-start all Data Center services.
You have installed the Data Center software.

Recover Archives from the Functional Server

Use this procedure to copy archives from a functional Data Center server to its mirrored Data Center server that lost archives.



NOTE Depending on the number of archives lost, this procedure can take hours or days to complete.

Begin this procedure after you ensure that the affected disk volumes on the server in recovery are replaced or stable. When you replace a lost volume, be sure to replace the volume with another volume of equal or greater capacity.

To recover archives on volumes that were lost on one side of a mirrored Data Center but still exist on the functional Data Center server

1. On the server in recovery, run the DataCopier tool in the `\DataCenter` folder.
The DataCopier - Select Option window opens.
2. Select **Recover a volume**, and then click **Next**.
The DataCopier - Select Volume window opens.
3. Select the volume you want to recover, and then click **Next**.
The DataCopier - Summary window opens.

4. Click **Next**, and then click **Start**.

The time required for the recovery process to complete for all the archives that you need to recover can take hours or days. It is important to monitor the status of the archive recovery process.

5. To monitor the progress of the archive recovery
 - a. Open the DataCopier Status window.
 - b. To view the DataCopier log, click **Show Log**.
 - c. To refresh the log, close the file and then click **Show Log** again.

If DataCopier could not recover certain archives, Compactor removes the references to the missing archives and then sends a notification to the accounts to back up another copy of the file. Therefore, it is important to run Compactor service after the recovery process completes.

6. Compact any accounts that have a large number of missing archives.
7. On the server in recovery, use the DCMC to make sure that backups and restores are allowed.

For more information about how to view the backup and restore status of the BackupServer service, see DCMC Help.

Find and Remove Orphaned Archives

Restoring the databases might leave some newly backed up archives orphaned on the Data Center server.

When an Agent performs a backup that puts archives on the Data Center, the Data Center tracks these files in the Directory database. If an Agent sends archives to the Data Center after the last good backup of the Directory database, the restored database no longer has information about the archives. This creates orphaned archives.

To find orphaned archives on a Data Center server and remove them

1. On the server in recovery, use the DCMC to stop all Data Center services.
2. On the server in recovery, open the SQL Server Management Studio, and then connect to the server in recovery. Make sure you use an account with administrative privileges. You cannot perform this procedure remotely using SQL Server Management Studio.
3. Run the `FilesInCustomersFolder.sql` script from `\DataCenter\DRProcs`. This process consumes more time and does not display any status.
4. Make sure that no errors occurred. If you see errors in the script results, contact Support.

5. Run the following query:

```
EXEC Directory..sp_ListUnregisteredFilesInCustomersFolder 'C:\Archives_Orphaned\RemoveFiles.txt'
```

This command creates a text file that lists archives and files that are on disk, but not indexed in the database.

6. Review the text file for accuracy. If you are unsure the status of a file, copy the file to a new location or remove the entry from the list.



NOTE Files referenced in `RemoveFiles.txt` will be deleted by this process unless you remove the file names from `RemoveFiles.txt`.

7. After you review the file, rename `RemoveFiles.txt` as `RemoveFiles.bat`.
8. Use Windows Explorer or the Command Prompt window to run `RemoveFiles.bat` to delete the referenced files from the Data Center.
9. In SQL Server Management Studio, enter the following command:


```
EXEC Directory..sp_FilesInCustomersFolderCleanup
```

This command removes the database items that the stored procedures in this process created and used.
10. On the server in recovery, close the SQL Server Management Studio.
11. On the server in recovery, use the DCMC to restart all Data Center services.

Verify the Data Center Recovery

To verify recovery of the Data Center

1. To verify that the Support Center works, log on and search for a number of accounts.
2. To verify that Account Management Website works, log on and view account information (if applicable).

Some database processes might take place after the database backup but before the actual disaster, which are no longer accounted for in the database. The following is a partial list of items that might not appear in the database:

- Accounts registered during that time
- Backups for current accounts
- Changes made to account status
- New Support Center technicians created

- ❑ Support Center technician password changed

Recover Both Servers of a Mirrored Data Center

If you need to recover both servers in a mirrored Data Center from a disaster, use the procedures listed below to recovery the primary server, and then recover the secondary server using the procedures earlier in the chapter.

This section assumes that you have good and recent database backups available, and that all archives still exist on at least one of the Data Centers.



NOTE You must regularly back up your Connected databases manually for mirrored Data Centers. If you do not have a recent backup of your Connected databases, contact Support.

Tasks

Complete the following tasks on the primary server of the mirrored pair in recovery:



NOTE You must complete the following tasks in order. If you have already completed tasks during your recovery, continue with the task that contains the next steps for the disaster recovery.

1. Before you perform the procedures in this manual, make sure you have the required files and information for the disaster recovery. See [“Before You Begin” on page 13](#).
2. Install the operating system. See [“Install and Configure Microsoft Windows” on page 33](#)
3. Install SQL Server. See [“Install and Configure SQL Server” on page 33](#).
4. Restore the SQL databases. See [“Recover the Connected Databases” on page 33](#).
5. Install the Data Center software. See [“Install the Data Center Software” on page 35](#).
6. Verify the Data Center recovery. See [“Verify the Data Center Recovery” on page 35](#).
7. Recover the secondary server in the mirrored pair. See [“Recover the Secondary Server” on page 36](#).

- e. Navigate to the location of the `.bak` file and select the file. Click **OK**.
- f. To start the database restore process, click **OK**.

You have restored the selected database. Repeat this step for each database you need to restore.

- 4. If you restore databases from backed up `.mdf` and `.ldf` files
 - a. Right-click **Databases** and then click **Attach**.
 - b. In the Attach Databases dialog box, click **Add** to select a database.
 - c. In the Locate Database Files dialog box, navigate to the location of the database, and select the appropriate `.mdf` file.
 - d. Click **OK** to accept the database selection.
 - e. If the location of the `.ldf` file is in a different folder, click the ellipsis button (...) in the database details section for the `.ldf` file for the database, and then select the appropriate `.ldf` file.
 - f. Click **OK**.

You have attached the selected database. Repeat this step for each database that you need to attach.

- 5. Verify that this procedure restored your databases.

You cannot verify that the information in the database is correct and accounted for, but you can verify that the tables exist and contain appropriate information. To ensure the tables exist and contain the appropriate information, run the following queries, and then verify that each query displays information.

```
PRINT 'Number of active accounts on server'  
SELECT COUNT(*) FROM Registry.dbo.Customer  
WHERE Status = 'A'  
PRINT 'Number of ArchiveSet rows on server'  
SELECT COUNT(*) FROM Directory.dbo.ArchiveSet
```

The results of the first query returns the number of active accounts in your SQL database. If that number does not match the number of active accounts that you believe are in your SQL database, contact Support.

- ❑ Changes made to account status
- ❑ New Support Center technicians created
- ❑ Support Center technician password changed

Recover the Secondary Server

After you recover the primary Data Center server affected by a disaster, recover the secondary Data Center server. To recover the secondary server in the mirrored pair, perform the procedures in [“Recover One Data Center Server of a Mirrored Pair”](#) on page 25.

CHAPTER 4

Recovering a Clustered Data Center

This chapter describes how to recover a clustered Data Center.

- [Recover a Clustered Data Center Server](#)
- [Recover a Mirrored Pair from a Clustered Data Center](#)

Recover a Clustered Data Center Server

This section describes how to recover one Data Center in a server pair in a clustered Data Center configuration.

If you need to recover more than one server in the cluster, as long as the other server in their pair still functions, use this section for each affected server.

Tasks

To recover one Data Center server of a pair of servers in a cluster, complete the following tasks:



NOTE You must complete the following tasks in order. If you have already completed tasks during your recovery, continue with the task that contains the next steps for the disaster recovery.

1. Before you perform the procedures in this manual, make sure you have the required files and information for the disaster recovery. See [“Before You Begin” on page 13](#).
2. Install the operating system. See [“Install and Configure Microsoft Windows” on page 38](#)
3. Install SQL Server. See [“Install and Configure SQL Server” on page 38](#)
4. Restore the SQL databases. See [“Recover Databases to a Data Center Server” on page 39](#).
5. Install the Data Center software. See [“Install the Data Center Software” on page 40](#).
6. Change the volume IDs of the archives. See [“Change the Volume IDs for Archives” on page 41](#).
7. Find and remove orphaned archives. See [“Find and Remove Orphaned Archives” on page 42](#).
8. Verify the recovered Data Center. See [“Verify the Data Center Recovery” on page 43](#)

Install and Configure Microsoft Windows

To install the Microsoft Server operating system, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- For information about how to install the Microsoft Server operating system, refer to Chapter 2: Preparing for Installation in the *Installing the Data Center* guide.
- For information about Data Center hardware and software requirements, refer to the *Connected Backup Requirements Matrix*.

Install and Configure SQL Server

To install SQL Server, use the following guidelines:

- Use the same software version that you installed on the Data Center server before the disaster.
- Use the same domain account that you previously used for your Data Center installation.

If the backup and database files are not in the default locations, using Notepad, edit the `database_recovery.sql` script to replace `\Program Files\Microsoft SQL Server\MSSQL` with the correct location of the backup and database files.

5. Make sure that your SQL service account has read access to the volumes that contain the Customer archives.
6. On the server in recovery, run the `FilesInCustomersFolder.sql` script from `\DataCenter\DRProcs` on the functional server. This process consumes more time and does not display any status.
7. Run the following query:

```
EXEC Directory..sp_UpdateVolumeID
```

8. On both servers, to verify that you recovered the databases correctly, run the following queries:

```
SELECT COUNT(*) 'Customer Rows' FROM
RegistryMaster.Registry.dbo.Customer
SELECT COUNT(*) 'Community Rows' FROM
RegistryMaster.Registry.dbo.Community
SELECT COUNT(*) 'ArchiveSet Rows' FROM
Directory.dbo.ArchiveSet
SELECT COUNT(*) 'Symlink Rows' FROM Directory.dbo.Symlink
```

All counts should be equal or close to equal on both sides of the mirrored pair.

These queries let you verify that the tables exist and contain appropriate information.

9. On both servers, close the SQL Server Management Studio.
10. On the functional server, use the DCMC to restart the `ReplicationServer` and `Compactor` services.

Install the Data Center Software

This section describes how to install the Data Center software on a Data Center server on which data was lost or corrupted because of a disaster.

To install the Data Center Software after a disaster

1. From your backup, copy the `.reg` file that you created in [“Before You Begin” on page 13](#) to the Data Center in recovery, and then run the file to import the Master Encryption Keys (MEK and PMEK).
2. Install the Connected Backup Data Center software in the same role you initially installed it.

- ❑ If your server in recovery was the primary Registration Master server in the cluster, install the Data Center software as the **Primary server in a new cluster**.
- ❑ If your server in recovery was a directory server on the primary side of the cluster, install the Data Center software as the **Primary server in an existing cluster**.
- ❑ If your server in recovery was a server on the secondary side of the cluster (Registration Master or directory), install the Data Center software as the **Secondary server**.

Use the same Server ID and Server Group ID values that were in use before the disaster. For more information, refer to the *Installing the Data Center* guide.

3. On the server in recovery, open the DCMC, and then stop all the Data Center services.
 4. From your backup, copy the following files to `\DataCenter`:
 - ❑ `PrivateKey.pem`
 - ❑ `Certificate.pem`
 - ❑ `dh1024.pem`
 - ❑ `License.dat`
 5. From your backup, copy the `Configuration$` folder to `\DataCenter`.
 6. From your backup of the `Configuration$` folder, copy the `cafile.pem` file to the `DataCenter\` folder.
 7. On the server in recovery, use the DCMC to restart all Data Center services.
- You have installed the Data Center software.

Change the Volume IDs for Archives

If the server in recovery is a secondary Data Center server, change the volume IDs of the archives for Data Copier to function.

This procedure depends on whether your Data Center servers store archives on a single volume or multiple volumes.

To change the volume IDs for archives

1. If your Data Center servers are configured with a single archive storage volume, use SQL Server Management Studio on the server in recovery to run the following SQL query:

```
SELECT ID FROM Directory.dbo.Volumes
WHERE ServerID = <server>
```

where

`<server>` is the Server ID for the server in recovery.

2. To point the archives to the volume ID on the server in recovery, run the following SQL query:

```
UPDATE Directory.dbo.ArchiveSet  
SET VolumeID = <id>
```

where

`<id>` is the volume ID returned from step 1.

3. If your Data Center servers are configured with multiple archive storage volumes, run the following SQL query on the server in recovery:

```
UPDATE Directory.dbo.ArchiveSet  
SET VolumeID = -1
```

This script changes the archive references on the server in recovery to show that they are not located on the server. To associate archives with their correct volume locations, see [“Find and Remove Orphaned Archives” on page 42](#).

Find and Remove Orphaned Archives

Restoring the databases might leave some newly backed up archives orphaned on the Data Center server.

When an Agent performs a backup that puts archives on the Data Center, the Data Center tracks these files in the Directory database. If an Agent sends archives to the Data Center after the last good backup of the Directory database, the restored database no longer has information about the archives. This creates orphaned archives.

To find orphaned archives on a Data Center server and remove them

1. On the server in recovery, use the DCMC to stop all Data Center services.
2. On the server in recovery, open the SQL Server Management Studio, and then connect to the server in recovery. Make sure you use an account with administrative privileges. You cannot perform this procedure remotely using SQL Server Management Studio.
3. Run the `FilesInCustomersFolder.sql` script from `\DataCenter\DRProcs`. This process consumes more time and does not display any status.
4. Make sure that no errors occurred. If you see errors in the script results, contact Support.
5. Run the following query:

Recover a Mirrored Pair from a Clustered Data Center

This section contains procedures that explain how to recover both servers of a mirrored pair in a clustered Data Center environment.

Tasks

To recover both servers of a mirrored pair within a clustered Data Center, complete following steps:



NOTE You must complete the following tasks in order. If you have already completed tasks during your recovery, continue with the task that contains the next steps for the disaster recovery.

1. Before you start any of the procedures in this manual. See [“Before You Begin” on page 13](#).
2. Install the operating system. See [“Install and Configure Microsoft Windows” on page 38](#).
3. Install SQL Server. See [“Install and Configure SQL Server” on page 38](#).
4. Restore the SQL databases. See [“Recover Databases to a Data Center Server” on page 39](#).
5. Install the Data Center software. See [“Install the Data Center Software” on page 40](#).
6. Recover the archives. See [“Recover the Archives After a Disaster” on page 45](#).
7. Verifications. See [“Verify the Data Center Recovery” on page 43](#).

Restrictions

Use this procedure whether the pair lost was a Registration Master pair or a directory pair. If all servers in the cluster were lost, use this procedure to recover the Registration Master servers first and then each directory server pair next. This procedure assumes that a good and recent database backup and the archives are available.

Contact Support if the following scenarios have occurred:

- You have lost the archives on your Registration Master servers.

- You have lost the SQL databases on your Registration Master servers and a good, recent backup of the databases is not available.

Use the [“Recover a Clustered Data Center Server”](#) on page 37 if only one server of the mirror has been lost to a disaster.

Recover the Archives After a Disaster

To recover the archives

1. In the DataCopier - Select Option window, select **Recover a volume**, and then click **Next**.
2. In the DataCopier - Select Volume window, select the volume to be recovered, and then click **Next**.
3. In the DataCopier - Summary window, click **Next**, and then click **Start**.

The time required for the recovery process to complete for all the archives that you need to recover can take hours or days. It is important to monitor the status of the archive recovery process.

4. To monitor the progress of the archive recovery
 - a. Open the DataCopier Status window.
 - b. To view the DataCopier log, click **Show Log**.
 - c. To refresh the log, close the file and then click **Show Log** again.

If DataCopier could not recover certain archives, Compactor removes the references to the missing archives and then sends a notification to the accounts to back up another copy of the file. Therefore, it is important to run Compactor service after the recovery process completes.

5. Compact any accounts that have a large number of missing archives.
6. Use Data Center Management Console to verify that backups and restores are allowed. For detailed instructions, refer to the Data Center Management Console Help.

