



EMC[®] NetWorker[®] Module for Microsoft for SQL and SharePoint VSS

Version 9.0

User Guide

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Preface

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

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Note

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Purpose

This guide contains information about using the EMC NetWorker Module for Microsoft (NMM) Release 9.0 software to back up and recover SQL Server and SharePoint Server using the Volume Shadow Copy Service (VSS) technology.

Note

The *EMC NetWorker Module for Microsoft Administration Guide* supplements the backup and recovery procedures described in this guide and must be referred to when performing application-specific tasks. Download a copy of the *EMC NetWorker Module for Microsoft Administration Guide* from EMC Online Support (<https://support.emc.com>) before using this guide.

Audience

This guide is part of the NMM documentation set, and is intended for use by system administrators during the setup and maintenance of the product. Readers should be familiar with the following technologies used in backup and recovery:

- EMC NetWorker software
- Microsoft Volume Shadow Copy Service (VSS) technology

Revision history

The following table presents the revision history of this document.

Table 1 Revision history

Revision	Date	Description
02	December, 2015	Updated to incorporate technical feedback from engineering team.
01	September, 2015	First release of this document for EMC NetWorker Module for Microsoft release 9.0.

Related documentation

The NMM documentation set includes the following publications:

- *EMC NetWorker Module for Microsoft Release Notes*
- *EMC NetWorker Module for Microsoft Administration Guide*
- *EMC NetWorker Module for Microsoft Installation Guide*
- *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide*
- *EMC NetWorker Module for Microsoft for SQL VDI User Guide*
- *EMC NetWorker Module for Microsoft for Exchange VSS User Guide*
- *EMC NetWorker Module for Microsoft for Hyper-V VSS User Guide*
- *EMC NetWorker Module for Microsoft for Windows Bare Metal Recovery Solution User Guide*
- *EMC NetWorker Performing Backup and Recovery of SharePoint Server by using NetWorker Module for Microsoft SQL VDI solution Technical Notes*
- *EMC NetWorker Performing Exchange Server Granular Recovery by using NetWorker Module for Microsoft with Ontrack PowerControls Technical Notes*
- *EMC NetWorker SharePoint BLOB Backup and Recovery by using NetWorker Module for Microsoft and Metalogix StoragePoint Technical Notes*
- NetWorker documentation set

Special notice conventions that are used in this document

EMC uses the following conventions for special notices:

NOTICE

Addresses practices that are not related to personal injury.

Note

Presents information that is important, but not hazard-related.

Typographical conventions

EMC uses the following type style conventions in this document:

Table 2 Style conventions

Bold	Used for names of interface elements, such as names of buttons, fields, tab names, and menu paths (what the user specifically selects or clicks)
-------------	--

Table 2 Style conventions (continued)

<i>Italic</i>	Used for full titles of publications that are referenced in text
Monospace	Used for: <ul style="list-style-type: none"> • System code • System output, such as an error message or script • Pathnames, file names, prompts, and syntax • Commands and options
<i>Monospace italic</i>	Used for variables
Monospace bold	Used for user input
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate non-essential information that is omitted from the example

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Your comments

Your suggestions help to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to DPAD.Doc.Feedback@emc.com.

CHAPTER 1

Introduction

This chapter includes the following sections:

- [SharePoint Server overview](#)..... 16
- [SQL Server overview](#)..... 19

SharePoint Server overview

This section provides an introduction to using EMC NetWorker Module for Microsoft (NMM) to back up and recover Microsoft SharePoint Server by using VSS technology.

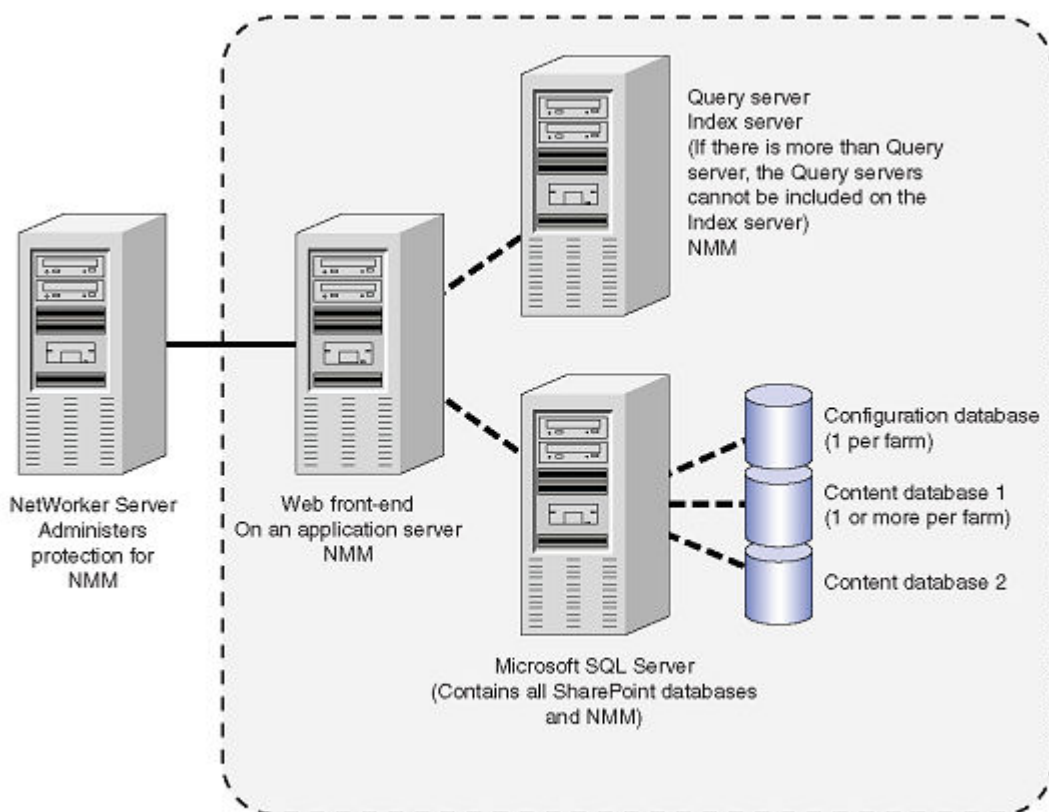
Microsoft SharePoint environments

NMM uses the Windows VSS framework and the Microsoft Office SharePoint Server VSS Writers for consistent point-in-time snapshots and backs up the entire SharePoint farm.

NMM supports backup and recovery of a Microsoft Office SharePoint Server farm in a distributed configuration. A distributed configuration includes several servers that host separate services, as shown in the following figure.

To back up the entire distributed SharePoint Server farm, ensure that NMM is installed on each server that hosts SharePoint data, including servers that host the content index and search index.

Figure 1 SharePoint Server distributed farm configuration



GEN-000752

NMM backs up the following SharePoint farm components:

- Configuration database — SharePoint configuration database
- Content database — SharePoint content database
- SharePoint Help Search — (Only for Microsoft SharePoint Server 2007 and 2010) SharePoint search indexes and associated SQL databases

- Microsoft Office Search — Microsoft Office search indexes and associated databases
- Service applications — (Only for Microsoft SharePoint Server 2010 and 2013) You can configure individual services independently, and third-party companies can add services to the platform. Services that are deployed are named service applications. A service application provides a resource that can be shared across sites throughout a farm, and can be accessed by users through a hosting Web application. Service applications are associated to Web applications by service application connections. Some services can be shared across farms.

Table 3 Services and servers in a SharePoint Server farm

Services and servers	Description
Central Administration site and shared services	The services that are usually installed on a web front-end server.
Web front-end server	The web page-based GUI that manages the server.
Application server	A server that provides software applications with services, such as security, data services, transaction support, load balancing, and management of large distributed systems. For example, Excel Calculation Services.
SQL Server	The server that contains SharePoint databases: <ul style="list-style-type: none"> • Configuration database (only one per farm) • Content databases (one or more per farm) • Search database (one or more per farm)
Index server	The server included on the query server if there is only one query server.
Query server	An application server with only the search service role enabled (in this case the query role). If there is more than one query server, the index server cannot be included on a query server.

Using NMM in a SharePoint Server environment

This section provides information about using NMM in a SharePoint Server environment.

Supported SharePoint Server VSS Writers

This section lists the VSS Writers that SharePoint Server supports.

Table 4 Supported SharePoint Server VSS Writers

VSS Writers	Description	Found in SharePoint Server versions
SharePoint Services Writer	Writer for SharePoint Server	SharePoint Server 2013 SharePoint Server 2010 SharePoint Server 2007
SqlServer Writer	VSS Writer for SQL Server	SharePoint Server 2013 SharePoint Server 2010

Table 4 Supported SharePoint Server VSS Writers (continued)

VSS Writers	Description	Found in SharePoint Server versions
		SharePoint Server 2007
OSearch15 VSS Writer	Writer for Microsoft Office server search	SharePoint Server 2013
SPSearch4 VSS Writer	Writer for SharePoint Server 2010 help search	SharePoint Server 2010
OSearch14 VSS Writer	Writer for Microsoft Office server search	SharePoint Server 2010
SharePoint Search Writer	Writer for SharePoint Server 2007 search	SharePoint Server 2007
Office Server Search Writer	Writer for Microsoft Office Server search	SharePoint Server 2007

Note

NMM backs up the SharePoint Server by using the SharePoint VSS Writer. The SharePoint Server VSS Writer is dependent on the SQL Server VSS Writer, SharePoint SPSearch Writer, and SharePoint Server OSearch Writer.

The SharePoint SPSearch Writer is only available in SharePoint Server 2007 and SharePoint Server 2010. This Writer is not present in SharePoint Server 2013

SharePoint Server backups

NMM supports SharePoint Server backups for distributed farms.

- SharePoint farm level backup
- Content database backup

SharePoint Server recovery

NMM supports SharePoint Server recovery for distributed farms.

- SharePoint farm level recovery
- Content database recovery
- Granular recovery with third-party software, such as Kroll Ontrack PowerControl

Granular Level Recovery for SharePoint Server

You can perform Granular Level Recovery (GLR) for backups of SharePoint applications created with NMM. GLR enables you to recover specific items, such as files and folders, from a single full backup without having to recover the full backup. This feature reduces the recovery time and the space requirements on local system storage.

To perform GLR for SharePoint, use the GLR option in the NetWorker User for Microsoft GUI. The GLR plug-in uses NetWorker Virtual File System (NWFS). This plug-in exposes files from a list of save sets within a single full backup as a virtual file system on an NMM client.

If the GLR option is selected during the NMM installation, NMM installs NWFS and the Eldos CBFS filer driver, which requires a system reboot.

The NWFS virtual file system manages initialization through the GLR plug-in or plug-in service, which creates the NWFS COM server. Only one NWFS virtual file system can be active at any given time. If you mount another backup to restore, NWFS releases the current save set, and you lose access to its contents until you remount the save set.

You can back up to any NetWorker device type. However, recovery is only possible with an adv_file (AFTD) or Data Domain device on a NetWorker server or storage node. If the device type is ineligible for GLR restores, the backup must be cloned to an AFTD or Data Domain device before a GLR restore can be performed.

Once a GLR session is complete, the plug-in shuts down the NWFS virtual file system. The client closes the NWFS, removes the virtual file system from the system, and deletes the temporary locally stored data.

NMM support for SharePoint Server FAST Search backup and recovery

NMM 9.0 supports the SharePoint Server 2013 FAST Search component, and you can backup and restore the SharePoint Server 2013 FAST Search component with NMM 9.0. The Microsoft documentation provides information about SharePoint Server FAST Search.

NMM 8.2.x or earlier and SharePoint Server 2010 or earlier are not supported.

Dedicated web front-end server crawling with NMM

You can use a dedicated web front-end server for crawling with NMM, especially if the crawling content produces more traffic on the web front-end servers than a user requests. You can specify any web front-end server in your farm for crawling.

The Microsoft TechNet website provides more details about dedicated web front-end crawling.

You must perform the required steps to configure a dedicated web front-end server.

Procedure

1. Back up the existing host file.
2. Open SharePoint Central Administration, and configure dedicated web front-end crawling.

After the configuration is complete, a new host file is created by the SharePoint Central Administration.

3. Append the information from the backed-up host file to the newly created host file.
4. Configure NMM backups.

SQL Server overview

This section provides an introduction to using NMM to back up and recover Microsoft SQL Server by using VSS technology.

Note

Do not use both the NMM VSS technology and NMM Virtual Backup Device Interface (VDI) technology together to back up and recover a SQL Server.

Supported SQL Server and Windows Server versions

The *NetWorker Online Software Compatibility Guide* on EMC Online Support lists the most up-to-date information about supported SQL Server and Windows Server versions.

NMM does not support backup and recovery of:

- SQL Server running on IA64
- SQL Server 2000
- SQL Server Express Editions

Note

Perform a SQL Server Express Edition backup by using the VDI technology workflow, as described in the *NetWorker Module for Microsoft for SQL VDI User Guide*.

SQL Server backups and recoveries

NMM supports full backups and full recoveries of the SQL VSS Server.

- NMM supports backups at instance level and database level.
- NMM does not support the following:
 - SQL incremental backup
 - SQL differential backup
 - SQL backup of individual filegroups, files, or logs
- NMM only supports databases in SQL simple recovery mode.

Note

A SQL Server database that is configured as AlwaysOn is treated by NMM as a normal database. Perform a backup of the database as described in the "Federated Backups" chapter.

CHAPTER 2

Microsoft SharePoint Server Scheduled Backups

This chapter includes the following sections:

- [Prerequisites](#)..... 22
- [Configuring scheduled backups](#)..... 23

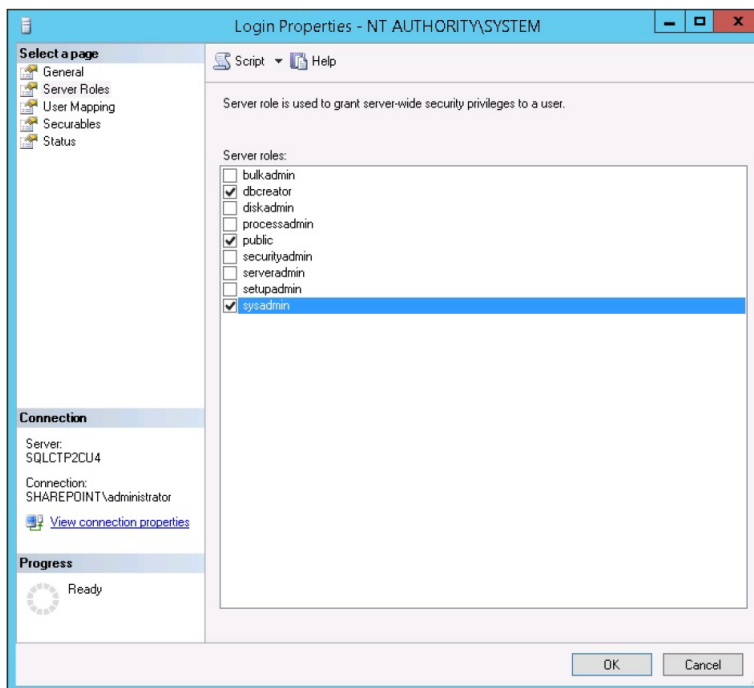
Prerequisites

Ensure that the prerequisites listed in this section are taken care of before performing SharePoint Server scheduled backups:

- Install the NetWorker client and NMM on the hosts with data that needs to be backed up.
- Register the SharePoint services Writer, so that the save sets can be browsed and backed up successfully. The "Registering the SharePoint VSS Writers" section provides details.
- Provide the required permission so that the SYSTEM user can run SharePoint PowerShell. The `nsrmmmsv` command runs under the security context of SYSTEM user.
 - For SharePoint Server 2010 and SharePoint Server 2013, perform both the following steps:
 1. Use the command: **Add-SPShellAdmin -UserName "<DOMAIN>\<HOSTNAME>\$"**
This command must be used on each web front-end server and the Search server.

Verify that the SYSTEM account is added to SPShellAdmin by using the command **Get-SPShellAdmin**
 2. In the **Microsoft SQL Server Management Studio > Security > Login > Login Properties** page, grant the SQL Server system dbcreator, public, and sysadmin permissions to the Windows login account. Provide these permissions to the NTAUTHORITY\SYSTEM user and the DOMAIN\HOSTNAME\$ user on a distributed farm.

Figure 2 Granting permissions to view subcomponents in the SQL Management Studio



- For SharePoint Server 2007, grant the SQL Server system dbcreator, public, and sysadmin permissions to the Windows login account. Provide these permissions

to the NTAUTHORITY\SYSTEM user on a stand-alone farm and to the DOMAIN\HOSTNAME\$ user on a distributed farm.

- Ensure that all the SharePoint Server databases are mounted before backing up the application server. Unmounted SharePoint Server databases are not backed up.
- Do not move or change the Admin component of Search inside the same SharePoint Server after installation.
- If any major change is made to the SharePoint Server configuration or database structure, perform a fresh backup. For example, if you have performed a farm backup on Monday, and have added a new content database on Tuesday, then perform a fresh backup of the complete farm to keep the backup up-to-date.
- Configure the SharePoint Server farm with the SQL Server using FQDN or shortname of the SQL Server and not the SQL Server IP. If a SharePoint farm is configured with an SQL Server using the IP and the Client Backup Configuration wizard is used to create the client resources, the SQL cluster virtual client resource summary displays both the IP and shortname in “other client” resource. Backup fails with the error message “<SQL server shortname> is already an alias of the <SQL server IP>”.
- Ensure that a dependent SQL Server in a SharePoint farm does not have an alias when using the Client Backup Configuration wizard to create a client resource.
- On the NetWorker server, set appropriate attribute values for various resources, such as Policy, Protection group, and client resources. This is done by an administrator by using the NMC. The *NetWorker Administration Guide* provides details.

Configuring scheduled backups

To configure a SharePoint Server backup, perform the tasks outlined in this section.

Table 5 Tasks for SharePoint Server backups

Tasks	Considerations
Enable and start the services	Enable and start the services on the hosts where the SharePoint VSS Writers are run or SharePoint search activities are being performed. Enabling services for backup on page 24 provides details.
Register the SharePoint VSS Writers	Registering the SharePoint VSS Writers on page 24 provides details.
Configure a backup schedule	Set up a consistent schedule of full farm level backups. Configure a backup schedule so that a farm is backed up automatically at a regular interval, and the farm data is later recovered successfully. You must configure only full backups of SharePoint and SQL writers. If backing up individual content databases, schedule these in between the full farm level backups. The <i>NetWorker Module for Microsoft Administration Guide</i> provides details.
Setting data protection policies	Complete the following tasks: <ul style="list-style-type: none"> • Create a protection group—The type of group that you create depends on the actions that you plan to perform for the group. • Create a policy—When you create a policy, you specify the name and notification settings for the policy. • Within the policy, create a workflow—When you create a workflow, you specify the name of the workflow, the schedule for running the workflow,

Table 5 Tasks for SharePoint Server backups (continued)

Tasks	Considerations
	<p>notification settings for the workflow, and the protection group to which the workflow applies.</p> <ul style="list-style-type: none"> • Create one or more actions for the workflow. <p>The <i>NetWorker Module for Microsoft Administration Guide</i> provides details.</p>
Configure the client resource	<p>You can use either of the following methods to configure a client resource:</p> <ul style="list-style-type: none"> • Use the Client Backup Configuration wizard • Use the Client Properties dialog box <p>Configuring SharePoint Server client resources on page 25 provides details.</p>

Enabling services for backup

Before starting a backup, ensure that the services listed in this section are enabled and started.

Enable and start the following services:

- Windows SharePoint VSS Writer that is running the web front-end host
- SPSearch Writer and OSearch Writer
- SQL Server VSS Writer that is running on the host that contains the configuration database or content databases

The services for the VSS Writers must be enabled and started on each host:

- On a stand-alone configuration, all of these Writers and services run on one host.
- In a distributed configuration, the SQL Server and SharePoint Servers may run on separate hosts.

If SharePoint Search is configured, the services are automatically started. However before performing a backup, check that all the services for SharePoint are started, otherwise, backup fails with an error. Start the services manually, if not already started.

Registering the SharePoint VSS Writers

Use the “Service account” privileges that were used during installation of the SharePoint Server to register wsswriter.

You must complete the required steps to register the SharePoint Writer.

Procedure

1. The SharePoint Writer must be registered on all the nodes where SharePoint is installed by using the command line utility `STSADM.exe`. The `STSADM.exe` utility is available at the following locations:

Table 6 SharePoint Writer and their location

SharePoint Server version	Location
SharePoint Server 2007	C:\Program Files\Common files \Microsoft Shared \Web Server Extensions\12\BIN
SharePoint Server 2010	C:\Program Files\Common files \Microsoft Shared \Web Server Extensions\14\BIN
SharePoint Server 2013	C:\Program Files\Common files \Microsoft Shared \Web Server Extensions\15\BIN

2. Type the following command to register the SharePoint Writer:


```
STSADM.EXE -o registerwsswriter
```

Configuring SharePoint Server client resources

To create a client resource, you can use either the Client Backup Configuration wizard or the NetWorker administrator program method from the NMC. On the NetWorker server, set appropriate attribute values for various resources, such as Policy, Group, and client resources. This is done by an administrator by using the NMC. Scheduled backups can be configured to run at any time.

Note

All the procedures described in this section must be performed on a NetWorker server. Use NMC to access the NetWorker Administration page to perform all the procedures.

Click the question mark icon  at the bottom left of each page of the NMC for details about each field in the page. Review the *NetWorker Administration Guide* for details about NMC.

Creating a client resource using the Client Backup Configuration wizard

This section describes the steps required to configure a client resource using the Client Backup Configuration wizard

The Client Backup Configuration wizard for SharePoint has the following properties:

- The Configuration Wizard for SharePoint simplifies the client resource configuration of NMM clients for scheduled backup of SharePoint farms.
- The wizard automatically configures SharePoint application-specific save sets, backup command, Application Information parameters, command line options, and so on.
- The wizard provides remote browsing of a SharePoint farm to select the save sets for scheduled backup in a distributed configuration.
- The wizard creates client resource for all dependent clients like Web front-ends, Search Servers, and SQL Servers attached with the SharePoint farm.
- During modification, any change in the save set selection is reflected in the client resource. However, dependent client resources are not modified. You must manually modify the client resource by using the NMC.

Procedure

1. In the Administration window, click **Protection**.

2. In the expanded left pane, right-click **Clients** and select **New Client Wizard**.
 3. In the Specify the Client Name page that appears:
 - Type the fully qualified domain name (FQDN) of the NetWorker client computer in the **Client Name** field.
 - Type a description for the client resource in the **Comment** field.
 - In the **Tag** field, type one or more tags to identify this client resource for the creation of dynamic client groups for data protection policies.

Dynamic client groups automatically generate a list of clients for a data protection policy based on the tags assigned to the client and group.
 - From the **Group** menu, select the group created for the client resource. The *NetWorker Administration Guide* provides details.
-
- Note**
- You may also create a group later and assign the client resource to it.
-
- Select the **Traditional NetWorker client** option.
4. Click **Next**.
 5. In the Specify Backup Configuration Type page that appears:
 - The client operating system and the NetWorker version being used in the configuration setup are automatically displayed in the **Client Operating System** field and **NetWorker Client Version** field respectively.
 - From the Available Application list, select the **SharePoint Server** option.
 - Do not select the **Enable NetWorker Snapshot Management on the selected application** option.
 6. Click **Next**.
 7. In the Specify the NetWorker Client Properties page that appears:
 - Select the priority level in the **Priority** field.
 - Select the level of parallelism in the **Parallelism** field.
 - Type the required attributes in the **Remote Access** field. You can control client recover access with the attributes in the **Remote Access** field during in the Client resource configuration. The **Remote Access** attribute displays a list of the users that can recover save sets for a client. Add or remove user names depending on the level of security the files require.
 - Select the device type from the **Data Domain Interface** list.
 - Leave the **Block Based Backup** option clear. This feature is not supported for SharePoint Server.
 - The **Client Direct** attribute, which is selected by default, enables the client to send backup data directly to the storage device, bypassing the storage node.
 - Select the **Parallel Save Streams** option to enable multiple save streams for each save set during backup.

Note

To use the default NetWorker Client settings, do not change the options provided on the page.

8. Click **Next**.
9. In the Specify the SharePoint Login Credentials page that appears, type the **Remote User Name** and **Password**. Use either the format `Domain\username` or `username@domain.com` in the **Remote User Name** field.
10. Click **Next**.
11. In the Select SharePoint Backup Objects page that appears, the entire SharePoint farm is selected by default. Clear the options for the SharePoint objects that you do not want to include in the backup.
12. Click **Next**.
The Backup Configuration Summary page appears.
13. Check the details in the **Client Configuration Summary** page to make sure that the configuration choices made are correct. Select **Back** to revisit the previous pages and make changes, or select **Create** to configure the client resources.
The Client Configuration Results page appears with details about the client resources that have been created.
14. Click **Finish**.
15. To verify the details for the client, select the client, right-click and view the **Client Properties** page in the NetWorker Management Console.
16. To make changes to the configuration that was created earlier, right-click on that client resource and select **Client Backup Configuration > Modify**.

Creating a client resource using the NetWorker Administrator program

You must complete the required steps to configure a client resource on a host.

Create client resource for all the clients that are part of the SharePoint farm. For example, if the farm has two dependent WFE and two SQL nodes, then manually create client resources for all the four clients.

Procedure

1. Open NMC.
2. In the **Administration** page, click **Protection**.
3. In the expanded left pane, select **Clients**, right-click and select **New**.
4. Click the **General** tab.
5. In the **Name** field, type either of the following:
 - The fully qualified domain name (FQDN) of the NetWorker client computer.
 - The hostname of the NetWorker client computer.
6. In the **Comment** field, type a description. If you are creating multiple client resources for the same NetWorker client host computer, use this attribute to differentiate the purpose of each resource.
7. In the **Save Set** field, specify the save set to be backed up.

To view the list of save sets on each host in the SharePoint farm that is participating in the backup, open a command prompt, type the command `nsrnmmsv -P`, and press **Enter**.

Each line of output corresponds to a save set entry that you can add to the Save Set attribute of a client resource. Each entry that you add to the Save Set attribute must

be typed on a separate line. Remove the inverted commas when copying the save set name from the output.

Special characters in save sets, such as the backward slash (\), must be specified by their URL-encoded values.

Table 7 Special characters and their URL-encoded values

Special character	URL-encoded value	Special character	URL-encoded value
\	%5C	?	%3F
/	%2F]	%5D
"	%22	[%5B
%	%25	}	%7D
#	%23	{	%7B
&	%26	^	%5E
<	%3C	'	%60
>	%3E		%7C

Table 8 Save Set field

For	Save set
Full SharePoint backup	APPLICATIONS:\Microsoft Office SharePoint Services
SharePoint content database	APPLICATIONS:\Microsoft Office SharePoint Services \<SQLHostName>\<SharePointContentDatabaseName>
SharePoint web front-end	APPLICATIONS:\Microsoft Office SharePoint Services
SharePoint Search Index and SharePoint Content Index	APPLICATIONS:\Microsoft Office SharePoint Services

8. For the **Protection Group List** field, select the backup group to which this client resource will be added. If client resources for the same NMM client host are added to different backup groups, ensure that the **Start Time** attribute for each backup group is spaced such that the backups for the host's client resources do not overlap.
9. In the **Backup command** field, type the backup command **nsrnmmsv.exe**
10. In the **Deduplication** area, to enable client-side Data Domain Boost deduplication backups, select the **Data Domain backups** option.
11. Click the **Globals (1 of 2)** tab.
12. Click **OK**. The alias names are listed automatically in the **Aliases** field.
13. Complete other fields, as required.
14. Click **OK**.

CHAPTER 3

Microsoft SharePoint Server Federated Backups

This chapter includes the following sections:

- [Overview of federated backup](#)..... 30
- [Backup settings](#)..... 30
- [Special backup scenarios when performing federated backups](#) 32
- [Performing federated backups](#)..... 33

Overview of federated backup

This feature enables users to offload SharePoint backups of SQL Server 2012 or later databases so that there is no backup load on the primary (active SQL Server or database). Users can maximize the backup performance with no impact to production SharePoint performance.

Users must configure the AlwaysOn Availability Group feature for the SQL Server 2012 or later in the SharePoint farm and keep their databases under an Availability Group (AG) for the high availability. The SQL Server 2012 or later uses Windows Failover Cluster to provide the high availability. Additionally, the database administrator can set the backup priority for the AG or a database in the AG and nominate a particular replica for the backup. During SharePoint backups, NMM detects the SQL Server preferred backup setting for the AG and performs the backup at the preferred node.

Note

SQL federated backup is not supported for an Availability Group that is configured with SQL virtual server instances.

If there are both non-AlwaysOn Group databases and AlwaysOn Group databases in a SQL Server setup, then federated backups must be the preferred mode of backup for non-AlwaysOn Group databases because federated backups help in avoiding backup conflicts with scheduled backups.

To perform backups of secondary replicas, set the Readable Secondary option of the SQL Server AlwaysOn configuration to “Yes.” Enable this option for both primary and secondary replicas because, during the backup process, the secondary replicas may become primary and the primary replicas may become secondary.

Backup settings

NMM supports the AUTOMATED_BACKUP_PREFERENCE and BACKUP PRIORITY settings for SQL Server 2012 Availability Group.

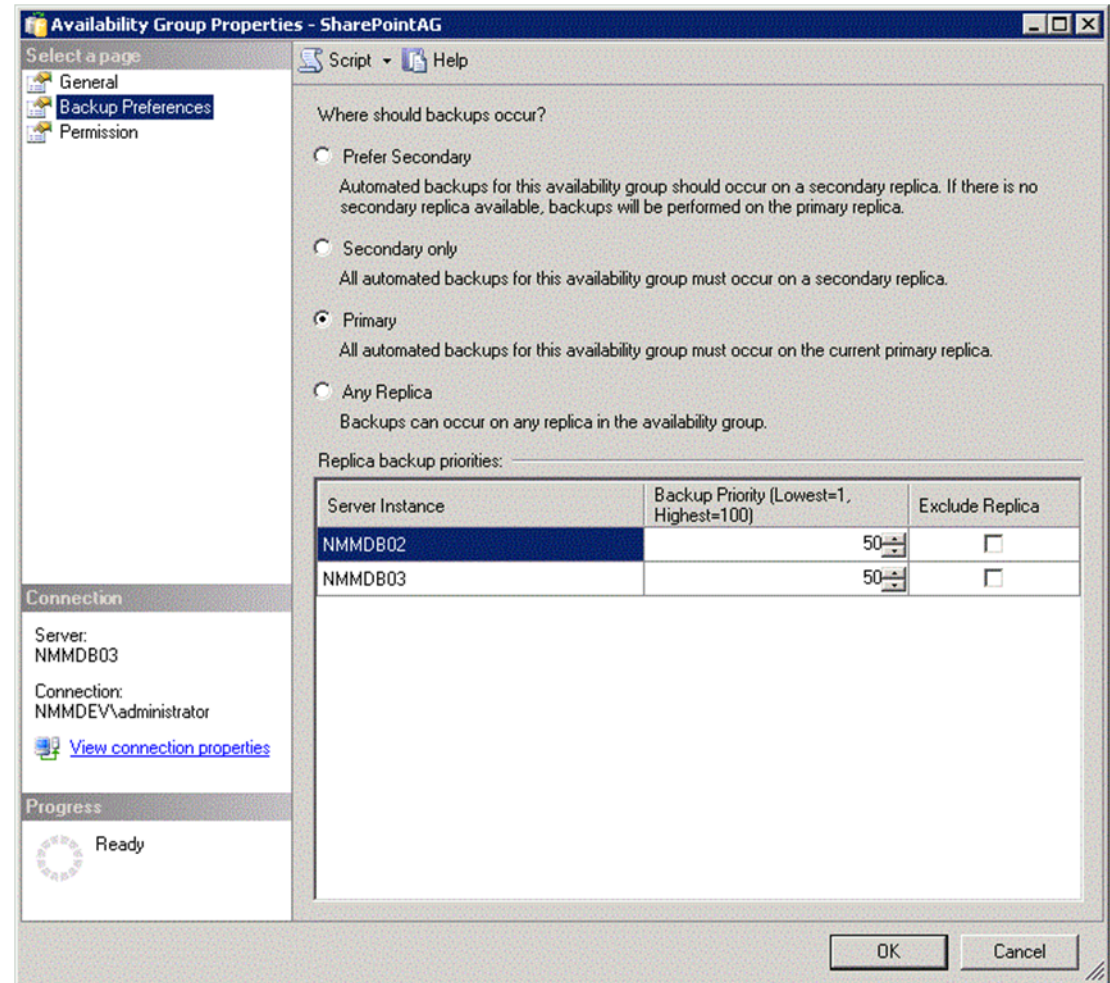
- AUTOMATED_BACKUP_PREFERENCE—Specify any one of the following:
 - PRIMARY— Specifies that the backups should always occur on the primary replica. This option is useful if you need backup features, such as creating differential backups that are not supported when backup is run on a secondary replica.
 - SECONDARY_ONLY— Specifies that backups should never be performed on the primary replica. If the primary replica is the only replica online, the backup should not occur.
 - SECONDARY (Prefer Secondary)— Specifies that backups should occur on a secondary replica except when the primary replica is the only replica online. In that case, the backup should occur on the primary replica. This is the default option.
 - NONE (Any replica)— Specifies that you prefer that backup jobs ignore the role of the availability replicas when choosing the replica to perform backups. Note backup jobs might evaluate other factors such as backup priority of each availability replica in combination with its operational state and connected state.
- BACKUP_PRIORITY =n—Specifies your priority for performing backups on this replica relative to the other replicas in the same availability group. The value is an integer in the range of 0...100. These values have the following meanings: 1...100 indicate that the availability replica could be chosen for performing backups. 1 indicates the lowest

priority, and 100 indicate the highest priority. If `BACKUP_PRIORITY = 1`, the availability replica would be chosen for performing backups only if no higher priority availability replicas are currently available. 0 indicates that this availability replica will never be chosen for performing backups. This is useful, for example, for a remote availability replica to which you never want backups to fail over.

The SQL Server backup preference for the Availability Group can be configured by using the Microsoft SQL Server Management Studio or using Transact-SQL.

Use the SQL Server Management Studio to set the options as shown in the following page.

Figure 3 SQL Server Management Studio - Availability Group Properties page



Or use the following **T-SQL** command:

```
ALTER AVAILABILITY GROUP [AG1] SET (AUTOMATED_BACKUP_PREFERENCE = PRIMARY);
ALTER AVAILABILITY GROUP [AG1] MODIFY REPLICA ON CLUSTER NODE1 WITH
(BACKUP_PRIORITY = 70);
```

Note

Because Full backups are not supported on the secondary replica, NMM performs a Copy Only Full backup instead of Full backup on the secondary replica (when `AUTOMATED_BACKUP_PREFERENCE` is configured to backup of Secondary replica) for SharePoint federated backup.

Note

If a SharePoint database is configured with AG Listener, the database is created on the SQL instance that is the primary replica at that point of time. If a SharePoint database is configured with AG Listener but not joined to AlwaysOn Availability Group; the database is inaccessible from SharePoint after AlwaysOn AG failover happens to another node. In this case (after failover) SharePoint writer does not report this database.

Special backup scenarios when performing federated backups

This section provides information on special backup scenarios when federated backups are not performed.

Copy-Only full backups of databases on secondary replicas

Because full backups are not supported on the secondary replica, NMM performs a copy only full backup instead of full backup on the secondary replica when AUTOMATED_BACKUP_PREFERENCE is configured for backup of secondary replica.

<http://msdn.microsoft.com/en-us/library/hh245119.aspx> provides details about backup types supported on secondary replicas.

Backups of asynchronous secondary replicas

Backup of asynchronous secondary replicas will not support disaster restore. They will support Content Database restore and item level restore using SharePoint GLR.

Table 9 Supported high availability and disaster recovery options for SharePoint Server

	Configuration Database	Central Admin Content Database	Content Database	Search Service Database
Supports SQL Server AlwaysOn Availability Group with synchronous-commit for high availability	Yes	Yes	Yes	Yes
Supports SQL Server AlwaysOn Availability Group with asynchronous-commit for disaster recovery	No	No	Yes	No

<http://technet.microsoft.com/en-us/library/jj841106.aspx> provides details for supported high availability and disaster recovery options for SharePoint Server 2013 databases.

Backups when a SharePoint database is configured with AG listener but not joined to AlwaysOn Availability Group

If a SharePoint database is configured with AG Listener:

- The database is created on the SQL instance that is primary replica at that point of time.

- But not joined to AlwaysOn Availability Group, the database is inaccessible from SharePoint after AlwaysOn AG failover to another node. The SharePoint Writer does not report this database after the failover.

Performing federated backups

You must create client resources for federated backups by using either the Client Backup Configuration Backup or the NetWorker Management Console. Use the Windows cluster client for the backup.

NMM provides support for non-AG database backups in federated workflow so that the backups are taken using a single client (cluster host). However, non-AG databases are indexed against the host name reported by SharePoint and AG databases against the WSFC host name. Use `NSR_FEDERATED_BACKUP=yes` when configuring backups on Windows cluster client.

By using the Client Backup Configuration wizard—The Client Backup Configuration wizard creates client resources for:

- SharePoint Servers
Example save set: APPLICATIONS:\Microsoft Office SharePoint Services
- Windows Cluster Name "WSFC"
Example save set: APPLICATIONS:\SqlServerWriter\SQL1 \WSS_Content
- Windows Cluster and SQL nodes (for index creation)

Follow the procedure provided in the "Scheduled Backups" chapter for using the Client Backup Configuration wizard to create the client resources and then perform backup.

By using the NetWorker Administrator Program—Follow the procedure provided in the "Scheduled Backups" chapter for using the NetWorker Administrator Program to create the client resources and then perform backup.

- Create client resources for:
 - SharePoint Central Administration Web server, Web Front Ends, Search Server, and so on as described in the section Configuring SharePoint Server client resources using the Client Configuration Backup wizard.
 - Additional client resources for the Windows cluster which hosts the SQL Servers and SQL nodes (for index creation)
- Type the following save sets in the **Save Set** field:

Table 10 Save sets

Type of save set	Save sets
Top level save set	APPLICATIONS:\Microsoft Office SharePoint Services
Content database level save set	APPLICATIONS:\Microsoft Office SharePoint Services\AGListener \Content Database WSS_Content
Dependent SQL save sets	The save sets are grouped by the resource that it are indexed against.

The following table provides examples of dependent save sets, where NMMDA247 is a SharePoint WFE and acWinCluster is the WFSC.

Table 11 Save Set examples

Resource	Save sets
NMMDA247	<ul style="list-style-type: none"> ▪ Dependent save set: APPLICATIONS:\Microsoft Office Search \IndexComponentGroup_81813057-905b-4aa5-a462-620828af1a8e ▪ SharePoint save set: APPLICATIONS:\Microsoft Office SharePoint Services \81813057-905b-4aa5-a462-620828af1a8e \IndexComponentGroup_81813057-905b-4aa5-a462-620828af1a8e
acWinCluster	<ul style="list-style-type: none"> ▪ Dependent save set: APPLICATIONS:\SqlServerWriter \NMMDB03\SharePoint_Config ▪ SharePoint save set: APPLICATIONS:\Microsoft Office SharePoint Services \spaglistener\SharePoint_Config ▪ Dependent save set: APPLICATIONS:\SqlServerWriter\NMMDB03\WSS_Content ▪ SharePoint save set: APPLICATIONS:\Microsoft Office SharePoint Services \spaglistener\WSS_Content

Note

The SharePoint Writer reports the AG group listener in "Logical path" (AGListener), "Full path" (\AGListener\WSS_Content) and SQL instance name in "Component Dependency" (Dependency to "{a65faa63-5ea8-4ebc-9dbd-a0c4db26912a}:\NMMDB03\ NMMDB03\WSS_Content").

- On the SharePoint host, run the command `nsrnmmsv -P NSR_FEDERATED_BACKUP=yes` and create a client for the Windows Cluster name that hosts the SQL instances. Add the database level save sets that are reported by SharePoint and add **NSR_FEDERATED_BACKUP=yes** for the client.

CHAPTER 4

Microsoft SharePoint Server Granular Level Recovery

This chapter includes the following sections:

- [SharePoint Server Granular Level Recovery](#) 36
- [Performing GLR for small and medium farms](#) 36
- [Performing GLR for large farms](#) 42
- [Performing GLR for Remote BLOB Storage](#) 42

SharePoint Server Granular Level Recovery

Granular Level Recovery (GLR) enables you to recover specific items, such as files and folders, from a single full backup without having to recover the full backup. GLR reduces the recovery time and the space requirements on a production SharePoint Server.

To enable the GLR functionality, select the option for GLR on the Granular Level Recovery Option page of the installer during the NMM installation process.

You can perform GLR for SharePoint Server 2007, SharePoint Server 2010, SharePoint Server 2010 SP2, and SharePoint 2014 content databases by using NMM and third-party software, such as Kroll OnTrack PowerControls. NMM does not provide a GUI for GLR. To perform GLR, start the third-party software GUI separately.

Only VSS-based full backups are GLR-compatible, and no additional configuration is required for GLR-compatible backups. You must not select a SQL VDI backup for a SharePoint GLR.

The steps in the GLR process depend on the size of the SharePoint farm:

- Medium and small farms—A medium farm is a farm with a 200 GB database or site collection, approximately 100 sites, and 400 KB items or an average of 4,000 items for each site. The SQL databases in a medium site use the full recovery model. Any farm smaller than this is considered to be a small farm.

[Performing GLR for small and medium farms on page 36](#) provides details.

- Large farms—A large farm is a farm with a 4 TB database or site collection, 1,000 or more sites, and 8 MB to 10 MB items or an average of 1,000 items per site. The SQL databases in a large site use the full recovery model. When you perform GLR of a large farm, you must recover only from a physical disk.

[Performing GLR for large farms on page 42](#) provides details.

Performing GLR for small and medium farms

This section describes how you can perform GLR of SharePoint Server 2010 and SharePoint Server 2010 SP2. Unless otherwise mentioned, use the same information for SharePoint Server 2007. All SharePoint Server 2007 specific information is mentioned explicitly.

SharePoint Server backup prerequisites

- The SharePoint backups must be created by using the NetWorker Virtual File System (NWFS) functionality.
- The backups must be available and located on one or more Advanced File Type Devices (AFTDs) or Data Domain backup devices configured on a NetWorker storage node or NetWorker server.
- The backups must be VSS-based. You cannot perform GLR when a tape is used as a backup device or when the backup of the SQL databases is VDI-based. NMM automatically creates a full backup of SharePoint content databases when you perform a VSS backup. A full backup with VSS supports GLR.

The *NetWorker Module for Microsoft Administration Guide* provides an overview about how NMM uses the NWFS functionality for GLR. Microsoft SharePoint Server Scheduled Backups provides details about performing SharePoint Server VSS backups using the Client Backup Configuration wizard.

Mounting backups by using NMM

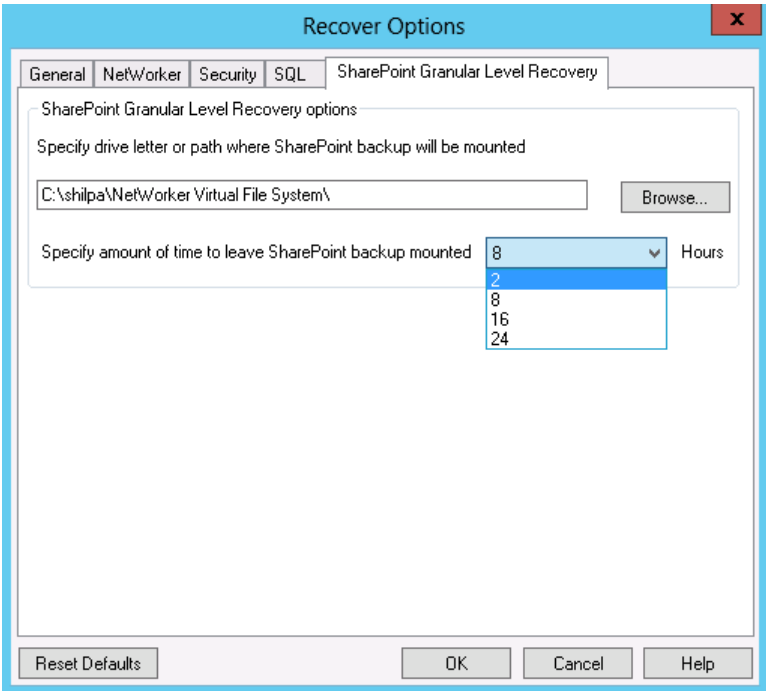
If the backup of SharePoint content databases is GLR-compatible, then the SharePoint Granular Level Recovery tab appears on the SharePoint and SQL Server Recover Options page.

You can browse and mount the SQL content databases from the SQL tab.

Procedure

1. Start the NetWorker User for Microsoft GUI.
2. Select **Options > Recover Options**.
3. In the **Recover Session Options** dialog box, click the **SharePoint Granular Level Recovery** tab.

Figure 4 SharePoint Granular Level Recovery tab



4. In the **Specify the drive letter or path where the SharePoint will be mounted** field, specify the path to which the content databases must be mounted for GLR. Click **Browse** to browse to a path.

The default mount path that was created during the installation from the registry appears in the field by default. Databases mounted for GLR include the original folder hierarchy from the NWFS based virtual drive.

5. From the **Specify amount of time to leave SharePoint mounted** list, select how long to leave the content database backup mounted on the NWFS virtual drive.
6. Click **OK**.
7. For a stand-alone farm, right-click the content database in the right pane and select **Mount SharePoint backup for Granular Level Recovery** from the menu that appears.
8. For a distributed farm, browse the SQL Server in the right pane, right-click the content database, and select **Mount SharePoint backup for Granular Level Recovery** from the menu that appears.

Although you can select and mount only a single content database at a time, multiple databases appear mounted on the virtual volume. Ignore the additional databases.

[Performing GLR by using Ontrack PowerControls on page 38](#) provides details about performing GLR. After performing GLR, unmount the database.

9. Open the **Monitor** window and check that the mounting is successful.
10. Start the third-party software and complete the GLR process.
Once the recovery is complete, you can either manually dismount the content database or allow the content database to be dismounted based on the mount timeout session.
11. To manually dismount the content databases, perform either of the following steps:
 - Select the **Dismount** option in the SharePoint GLR service tray.
 - Right-click the content database and select **Dismount SharePoint backup** from the menu that appears.

When you select the dismount option, a dialog box appears.

12. Select either of the following options:
 - **Yes**—So that NMM dismounts the SharePoint backup from the virtual drive and shuts down NWFS. NWFS cleans up its resources, for example cleanup cache and temporary files created by NWFS.
 - **No**—So that no action is taken and the backup remains mounted for the duration that you specified.

The content databases are automatically dismounted when either of the following occur:

- The NetWorker server or client is changed.
 - The NetWorker User for Microsoft GUI is refreshed.
 - The backup time is changed.
 - The mount timeout session expires.
 - The system is rebooted.
13. To extend the mount time, select the **Extend the time for SharePoint backup** option from the SharePoint GLR service tray on the bottom right-side of the window. You are notified ten minutes before the mount time expires.
The Extend MOSS GLR Service Timeout dialog box that appears.
 14. Select the amount of time to extend the mounting. The Event Viewer displays a message that the mount time has been extended.

Performing GLR by using Ontrack PowerControls

Use Ontrack PowerControls to perform GLR of the SQL Server database. A SQL Server database restored by using NMM directed recovery is used as the source for GLR by Ontrack PowerControls.

You must complete the required steps to perform GLR of a SharePoint site, a list, or list items by using the Ontrack PowerControls software.

Procedure

1. Ensure that the OntrackPowerControlsAgentForContentTransfer service is running.

- On web front-end server and application server, open the Ontrack PowerControls GUI by clicking **Start > Ontrack PowerControls for SharePoint**.

The welcome page appears.

Figure 5 Welcome page



- Click **Next**.

The Source Path Selection page appears.

- Click **Add** and select the .mdf and .ldf databases, which were recovered by directed recovery by using NMM or point to the NWFS mounted drive from NMM. Microsoft SQL Server Directed Recovery provides details about SQL Server directed recovery.

The SharePoint content databases that are used for GLR must be offline or in dismounted state.

In the example environment, the following source paths are provided for the .mdf and .ldf databases:

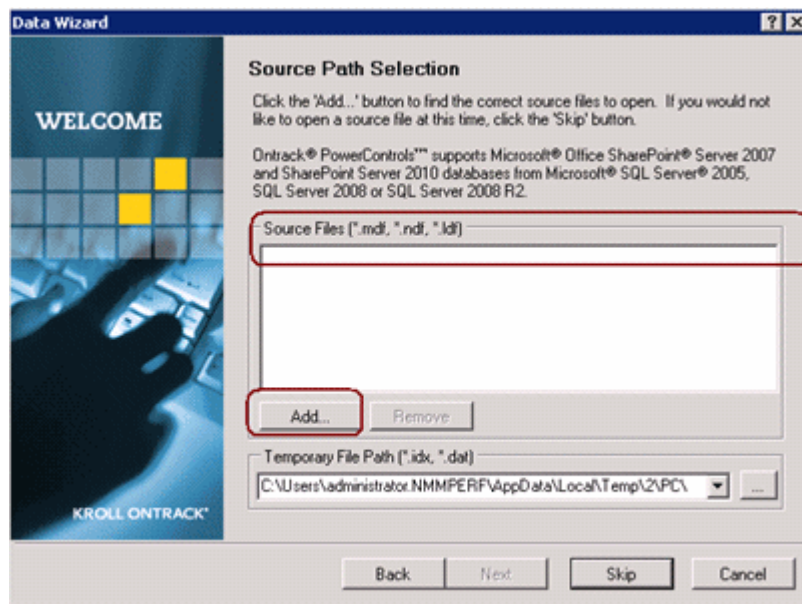
- C:\SQL_DATA\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ WSS_Content_SR Request Portal.mdf
- C:\SQL_DATA\Program Files\Microsoft SQL Server\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\ WSS_Content_SR Request Portal_log.ldf

where C:\SQL_DATA is the NWFS mount drive.

- Click **Next**.

The Target Server Selection path appears.

Figure 6 Target Server Selection page



6. From the **SharePoint Server Site URL** list, select the site collection URL.

This step connects the Ontrack PowerControls software to the SharePoint content database, which is online or in mounted state and defines the target path or the destination location for item-level recovery. In SharePoint, the site collection and its content, which includes the subsite, the SharePoint list, and list items, are stored in the content database. After the connection to the SharePoint content database is made, the hierarchy list of site collection, sites, lists, and list items that are stored in the content database are visible.

7. In the **Agent for Content Transfer Service Port Number** box, specify the port number. You can use the default value of 49175.

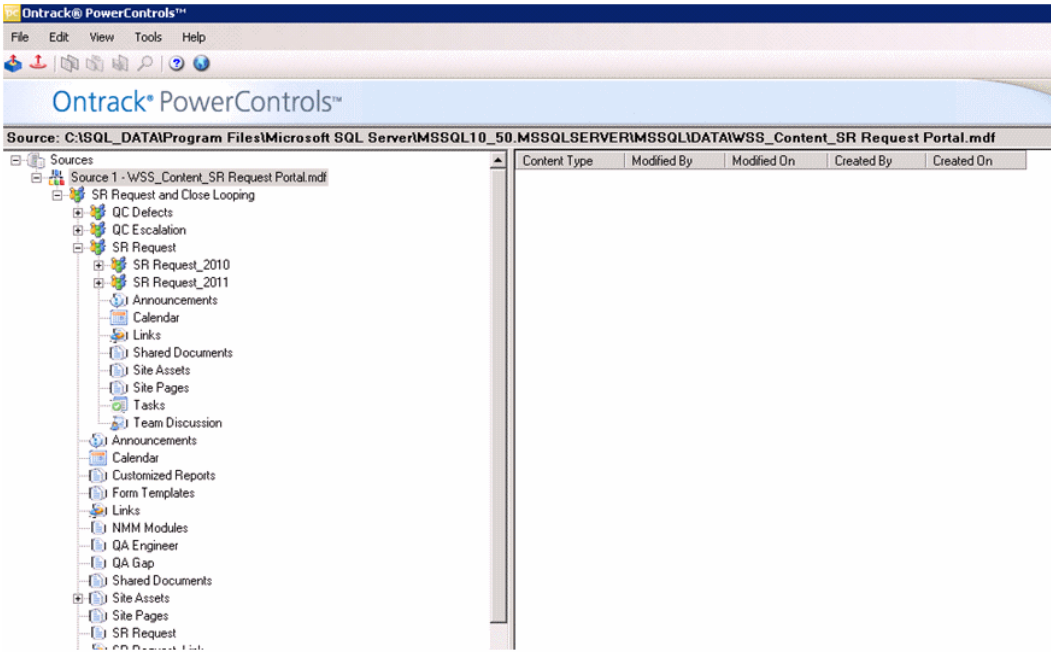
8. In the **Authentication Information** section, provide the credentials required to access the site collection URL. The Ontrack PowerControls administrator must have full access control permissions.

In the example environment, the site collection URL is `http://sqlsrv1vmssp10:8082/sites/Item_Recover_Test`.

9. Click **Finish**.

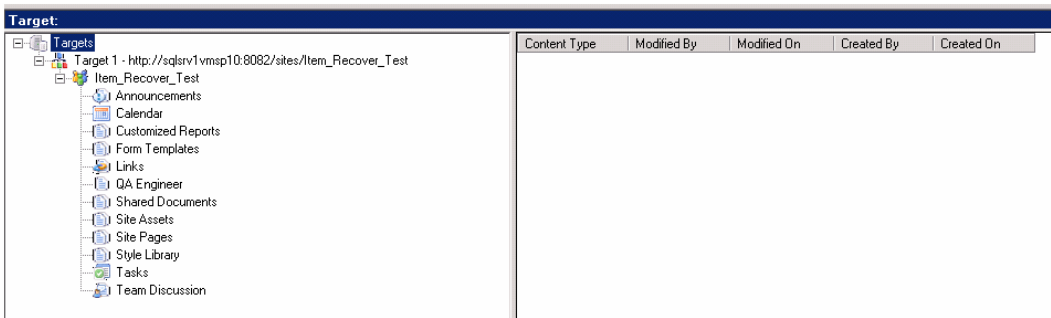
The Ontrack PowerControls software connects to the source and target hosts, and displays the extracted source database.

Figure 7 Extracted source database



The Ontrack PowerControls GUI displays the extracted target farm.

Figure 8 Extracted target farm



10. On the source host, right-click the SharePoint site, lists, or list items to recover and select **Copy** from the menu.
11. On the target host, right-click the recovery destination for the SharePoint site, lists, or list items and select **Paste** from the menu.

The Copy Progress dialog box appears with details of the recovery operation.

12. (Optional) When the recovery is complete, click **Save** to save the completion report. The details from the completion report are similar to the following:

```

=====
Source: C:\SQL_DATA\Program Files\Microsoft SQL Server
\MSSQL10_50.MSSQLSERVER\MSSQL\DATA\WSS_Content_SR Request
Portal.mdf

Source Path: WSS_Content_SR Request Portal.mdf\SR Request
and Close Looping\QA Engineer

Target: http://sqlsrv1vmosp10:8082/sites/Item_Recover_Test
Target Path: Item_Recover_Test

```

```
=====  
Copy started on 5/5/2011 at 3:24:41 PM.  
Total number of lists to be processed: 1  
Total number of items to be processed: 13  
All lists successfully copied.  
All items successfully copied.  
Copy finished on 5/5/2011 at 3:24:47 PM.
```

13. To select multiple sources and multiple targets for recovery, click **File > Open Source** or **Open Target** in the Ontrack PowerControls GUI and perform GLR.

Performing GLR for large farms

Complete the tasks listed in this section to perform GLR for large farms.

- Perform a full backup of SharePoint databases by using NMM — Microsoft SharePoint Server Scheduled Backups provides details about performing SharePoint Server VSS backups using the Client Backup Configuration wizard.
- Perform directed recovery of SQL content databases by using NMM— Microsoft SQL Server Directed Recovery provides details about directed recovery of SQL content databases.
- Perform granular recovery by using Ontrack PowerControls — [Performing GLR by using Ontrack PowerControls on page 38](#) provides detailed steps.

Performing GLR for Remote BLOB Storage

Remote BLOB Storage (RBS) enables you to store BLOB data, such as streaming videos, image files, and sound clips, outside a SQL Server database.

When you enable RBS for SQL Server data in a SharePoint environment and you back up the data with NMM, then you can perform granular recovery of the data by using NMM and OnTrack PowerControls software.

Configure RBS for use with NMM

You must complete the required tasks before performing GLR of RBS.

- Configure the content database to use RBS with FILESTREAM. RBS configuration requires enabling the FILESTREAM provider on SQL Server.
- Install the RBS provider on the SQL Server.
- Install the RBS provider on all SharePoint Servers.
- Run the required PowerShell cmdlets command to enable the content database to use RBS.

Note

NMM supports only the FILESTREAM RBS provider.

The procedures in this section are based on the following example configuration setup:

- The SharePoint distributed farm is configured with three servers:
 - Web front-end server

- SQL Server 2008 R2 database
- SharePoint Central Administration server
- The SharePoint content database is configured with RBS on a SQL instance
- The FILESTREAM is enabled and configured for RBS datastore at a location
- Site collection

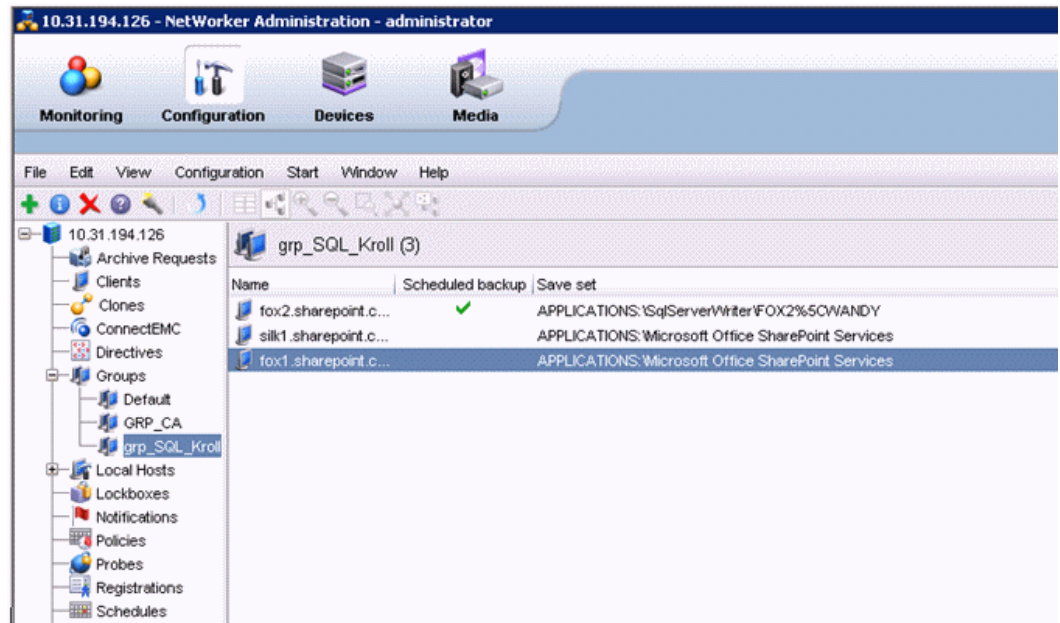
Perform a full backup of SharePoint databases by using NMM

You must complete the required steps to perform a backup of SharePoint content databases.

Procedure

1. Open NMC and create client resources for the SQL Server, the web front-end, and the application server.

In the example environment, the farm is multitiered, with the web front-end and the application server running on fox2.sharepoint.com and the SQL Server running on fox1.sharepoint.com.



2. On fox2.sharepoint.com, perform a full backup of the SQL Server at the VSS writer-level.

Use the following information while performing the backup:

- Snapshot policy: 1\1\day\All
- Save set: APPLICATIONS:\SqlServerWriter
- Backup command: **nsrnmmsv**
- Application information variable: NSR_SNAP_TYPE=vss

A full backup saves all the SQL databases, including the SharePoint configuration and content databases.

After a successful backup, the NetWorker User for Microsoft GUI displays the SQL configuration and content databases on fox2.sharepoint.com.

Perform a directed recovery of content databases by using NMM

You must complete the required steps to perform a directed recovery of the SQL database by using NMM.

Procedure

1. Open the NetWorker User for Microsoft GUI on the target server of fox1.sharepoint.com.

2. Select **Options > Configure Options**.

3. In **Configuration Options**, click the button next to the **Client** name.

The Select Viewable Clients dialog box appears. In the example environment, the farm is multitiered, with the web front-end and the application server running on fox2.sharepoint.com and the SQL Server running on fox1.sharepoint.com.

4. Select **fox2.sharepoint.com** from the **Available clients on list**, and click **Add** to move the available clients to the **Clients to list on menu bar** list.

5. Click **OK**.

The fox2.sharepoint.com client appears in the Client list.

6. Select **fox2.sharepoint.com** from the **Client** list.

The saved SQL Server databases appear in the list.

7. Select the content database for directed recovery.

8. Select **Recover Options**.

The Recover Session Options dialog box for SharePoint and SQL Server recover session appears.

9. On the **SQL** tab, select the **Specify the path where the SQL databases should be restored** option and then click **Browse to browse to the path to which to restore the database**.

10. Click **OK** to start the recovery.

The Recovery Summary dialog box appears.

11. Click **Start Recover**.

12. Check the status of the SQL directed recovery in the **Monitor** window.

On the fox1 machine, after the SQL directed recovery completes, you can view the SharePoint content databases recovered to the specified location.

For the example described in this procedure, the location details are as follows:

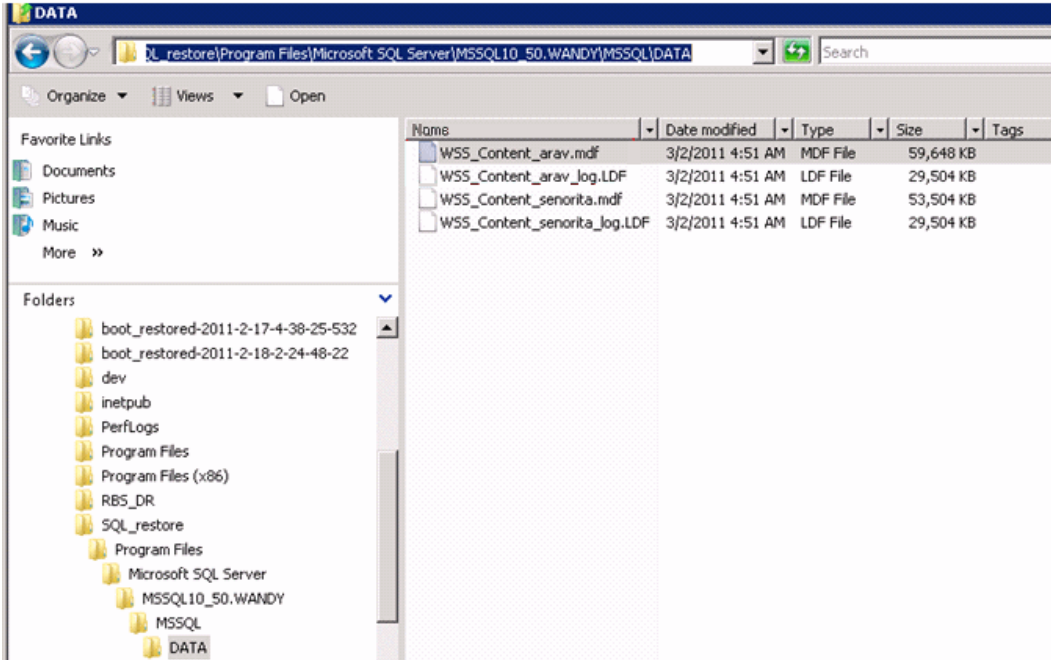
```
C:\SQL_restore\Program Files\Microsoft SQL Server\MSSQL10_50.WANDY\MSSQL\DATA
```

C:\RBSdataS:\SQL_restore\RBSDataStore because this is a FILESTREAM enabled database

Use the recovered database and FILESTREAM configuration file as the source when using the Ontrack PowerControls software.

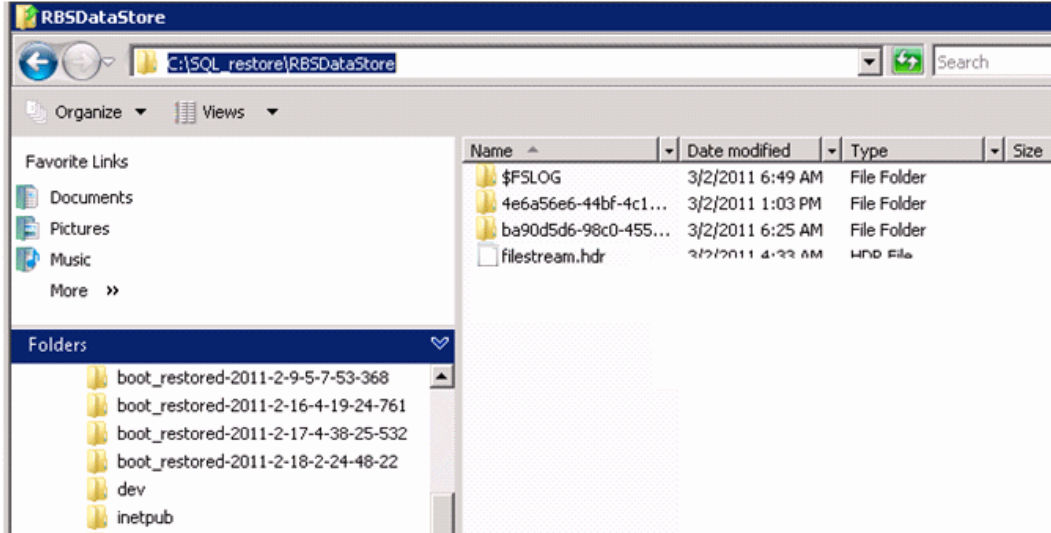
The recovered FILESTREAM database, which is configured for the RBS, is displayed.

Figure 9 Recovered FILESTREAM database



The recovered FILESTREAM configuration file required for RBS recovery is displayed.

Figure 10 Recovered FILESTREAM configuration file



Performing GLR by using Ontrack PowerControls

You must complete the required steps to perform GLR of a SharePoint site, a SharePoint list, or list items by using the Ontrack PowerControls software.

Procedure

1. Ensure that the OntrackPowerControlsAgentForContentTransfer service is running.
2. On the target machine fox1.sharepoint.com, open the Ontrack PowerControls GUI by clicking **Start > Ontrack PowerControls for SharePoint**.

The Welcome page appears.

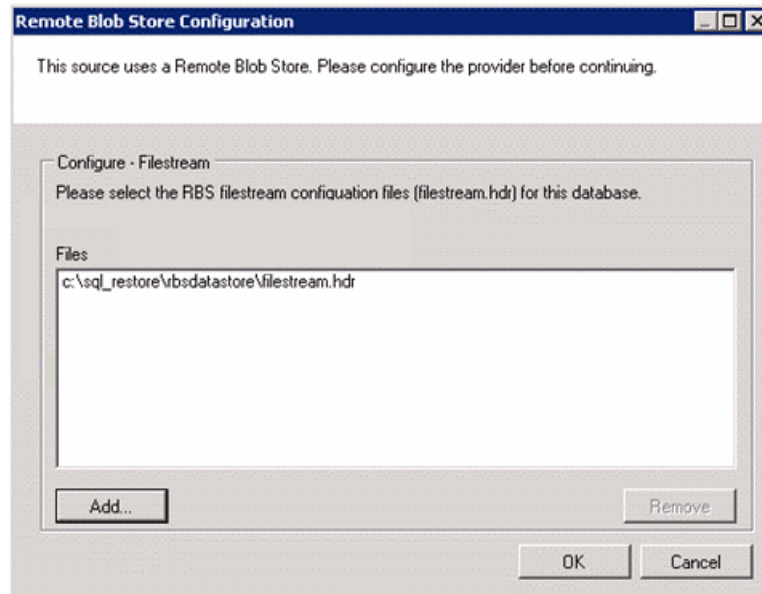
3. Click **Next**.

The Source Path Selection page appears.

4. Click **Add** and select the .mdf and .ldf databases, which were recovered by NMM SQL directed recovery.

The Remote Blob Store Configuration dialog box appears.

Figure 11 Remote Blob Store Configuration dialog box



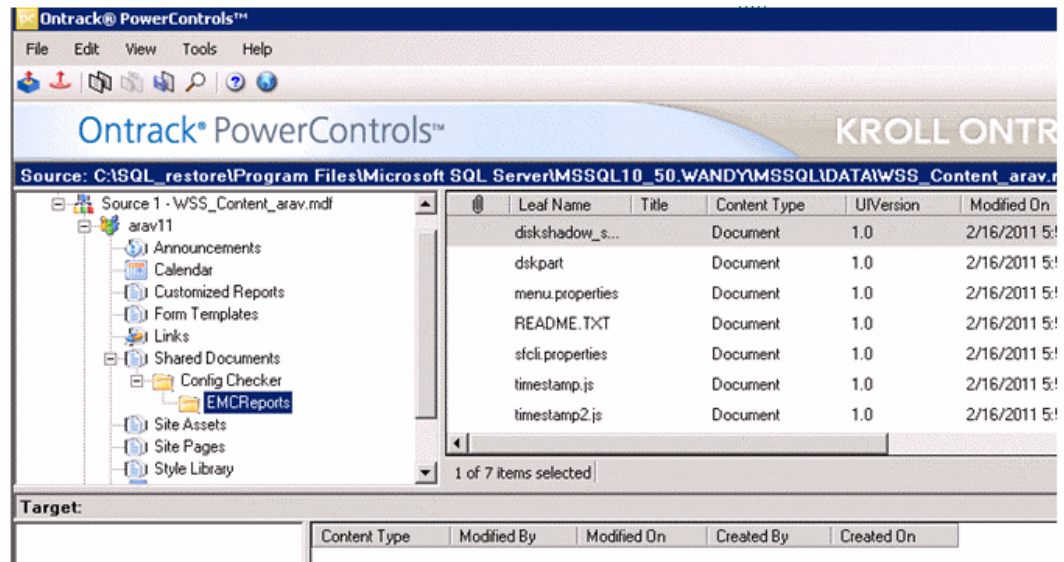
5. Select the RBS FILESTREAM configuration header file, which was recovered using NMM at directed recovery location C:\SQL_restore\RBSDataStore, and click **OK**.

The Ontrack PowerControls GUI displays the extracted source database.

6. From the site collection, delete the shared document. In the example, **EMC Report** is deleted from the site collection **Arav11**.

7. In the **Target Server Selection** dialog box of the Ontrack PowerControls GUI, select the site collection URL from the **SharePoint Server Site URL** list.

Figure 12 Ontrack PowerControls GUI



This connects the Ontrack PowerControls software to the content database, which is online or in mounted state and defines the target path or the destination location for item-level recovery. In SharePoint, the site collection and its content, which includes the subsite, the SharePoint list, and list items, are stored in the content database. After the connection to the content database is made, the hierarchy list of site collection, sites, lists, and list items that are stored in the content database are visible.

8. In the **Agent for Content Transfer Service Port Number** box, specify the port number. You can use the default value of 49175.
9. In the **Authentication Information** section, provide the credentials required to access the site collection URL. The Ontrack PowerControls administrator must have full access control permissions.
10. Click **Finish**.

The Ontrack PowerControls software connects to the source and the target.
11. In the source pane, right-click the SharePoint site, lists, or list items to recover and select **Copy** from the menu.
12. In the target pane, right-click the destination for the recovered item and select **Paste** from the menu.

The Copy Progress dialog box displays the progress of the recovery operation.
13. (Optional) Click **Save** to save the completion report.

CHAPTER 5

Microsoft SharePoint Server Recovery

This chapter includes the following sections:

- [SharePoint Server recovery](#)..... 50
- [Viewing required volumes for SharePoint Server recovery](#)..... 50
- [Performing full recovery in a stand-alone environment](#)..... 50
- [Performing recovery of an individual item](#)..... 51
- [Performing web application recovery](#)..... 51
- [Performing SharePoint Server search services recovery](#)..... 54

SharePoint Server recovery

Review the prerequisites in this section before performing the recovery procedures.

- Perform recovery in the following sequence:
 1. SharePoint Configuration Data
 2. SharePoint Writer (for SharePoint databases recovery)
Data loss occurs if this sequence is not followed.
- It is a Microsoft requirement that if a SharePoint configuration database is recovered as part of an entire farm recovery, all the content databases in that farm must also be recovered for the SharePoint Writer to ensure consistency. However, a content database can be recovered separately without the recovery being a part of an entire farm recovery.
- If a SharePoint farm has SQL Server 2012 databases that are configured with AlwaysOn, break the replication before the database is recovered. Before starting the recovery procedure, perform the steps described in [AlwaysOn configuration for SQL Server 2012](#).

Viewing required volumes for SharePoint Server recovery

You must perform the required steps to view volumes for the recovery of SharePoint Server 2007, SharePoint Server 2010, and SharePoint Server 2013 recovery.

- At the database level:
 1. Right-click the database for which you want to view the required volumes.
 2. Select **Required volumes**.
The Required NetWorker Volumes page appears with details about the volumes.
- At the sub-component level:
 1. Select the save set for which you want to view the required volumes, and select **Required volumes**.
A dialog box appears with the message that NetWorker is unable to display the required volumes for the selected component, and that you must query the particular node whose details are provided in the message.
 2. Go to the node whose details are provided in the message, right-click the node, and select **Required volumes**.
The Required NetWorker Volumes page appears with details about the volumes.

Performing full recovery in a stand-alone environment

This section describes the steps required to perform full recovery in a stand-alone environment.

In a stand-alone environment, a full recovery includes recovery of the following data:

- SharePoint Configuration Data
- All SharePoint databases, including configuration database and all content databases.

Procedure

1. Open the NetWorker User for Microsoft GUI.
2. Recover **SharePoint Configuration Data**.
3. You are prompted to reboot.
4. In the navigation tree, expand the **APPLICATIONS** folder and select **SQLServerWriter**.
5. Select the relevant SharePoint databases for recovery.
6. After the successful recovery, select **Microsoft Office SharePoint Services**.
7. From the **SharePoint and SQL Server Recover Session** toolbar, click **Recover**.

Recovery proceeds to completion. Details about the recovery appear in the Monitor page.

Performing recovery of an individual item

You must complete the required steps to restore the list item that is deleted from document library.

Procedure

1. Open NetWorker User for Microsoft GUI on the web front-end server.
2. In the navigation tree, expand the **APPLICATIONS** folder and select the web application that contains the items and sites that need to be recovered.
3. Click **Recover**.
4. In the **Recovery Summary** page, click **Start Recover**.

A dependency dialog box appears with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.

5. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
6. In the navigation tree, locate and mark the dependent SQL content database.
7. Click **Recover**.
8. Return to the NetWorker User for Microsoft GUI on web front-end, and click **Continue** in the dependency dialog box.

Recovery proceeds to completion. Details about the recovery are displayed in the Monitor page.

9. After the recovery, go to the SharePoint Central Administration and check that the list item is restored in the website.

Performing web application recovery

This section provides information about performing recovery of all the web applications in a distributed SharePoint Server farm or content database. Directed Recovery of a SharePoint Web Application provides detailed information about performing recovery of only one web application at a time.

Note

When performing a web application recovery from a web server where the web server and SQL Server are on the same machine (standalone configuration), ensure to restore the Configuration Database and Content Database with SqlServerWriter. You are not prompted by NMM to do this but this is a requirement for successful recovery.

Skip the steps for recovering the Content Database with SharePoint Writer when recovering Configuration Database and Content Database with SqlServerWriter.

You must complete the required steps to restore the web application, and associated content database and web site.

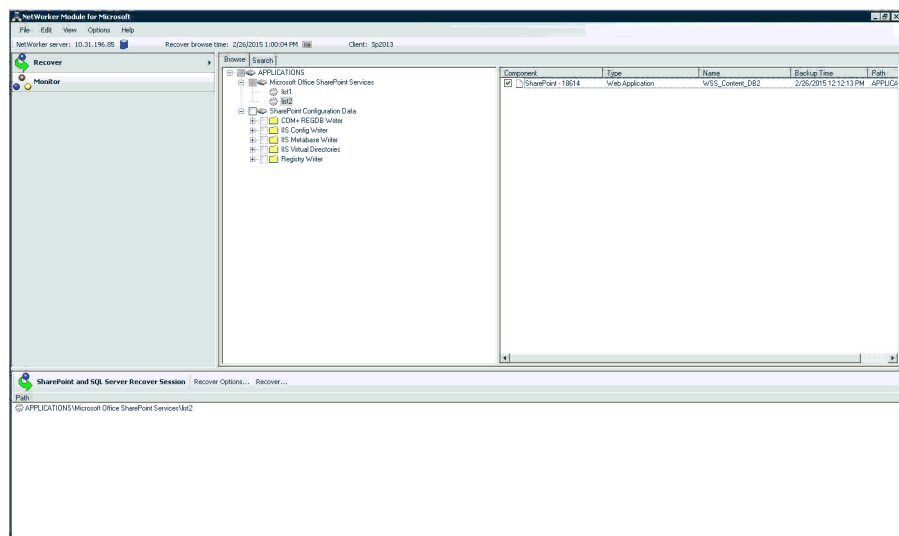
Procedure

1. Open the NetWorker User for Microsoft GUI on the application server.
2. Select **SharePoint Configuration Data**.
3. To select the IIS Writers, follow the steps provided in [Selecting the IIS Writers](#).
4. Click **Recover**.
5. In the **Recovery Summary** page, click **Start Recover**.

You are prompted to restart the application server and a dialog box with the message “The system must be rebooted to complete the recovery process. Would you like to reboot now?” appears.

6. Click **Yes**.
7. After the application server is restarted, open the NetWorker User for Microsoft GUI.
8. Select the content database that is associated with the web application that needs to be restored.

Figure 13 Select the content database

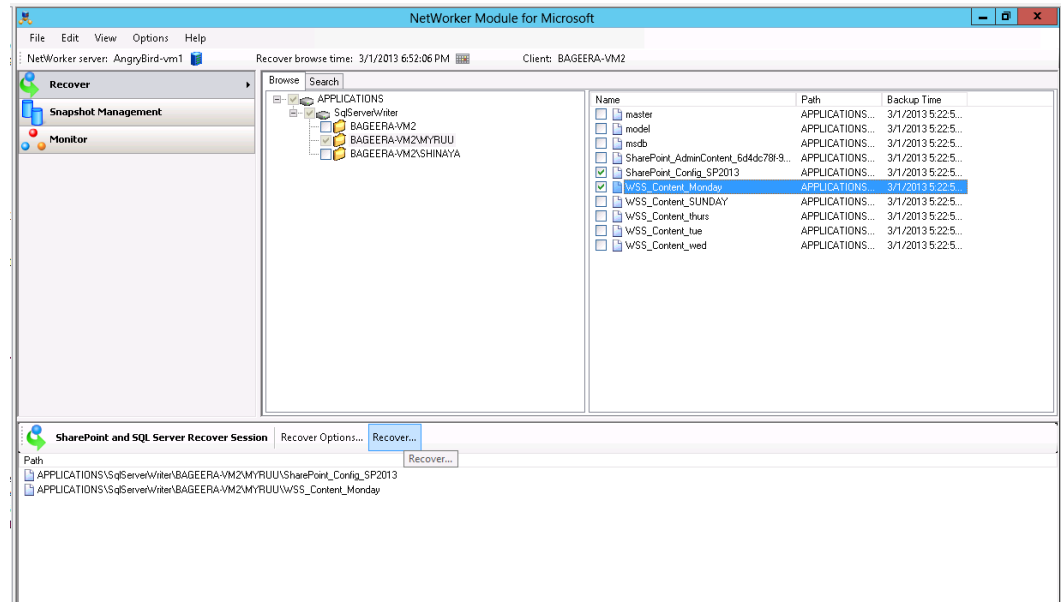


9. Select **Recover**.

A dependency dialog box appears, with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.

10. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
11. In the navigation tree, locate and select the SQL Server content database and SharePoint configuration database. Although the SharePoint configuration database is not mentioned in dependency dialog box, it must be restored for complete recovery of web application.

Figure 14 Select the SQL Server content database and SharePoint configuration database

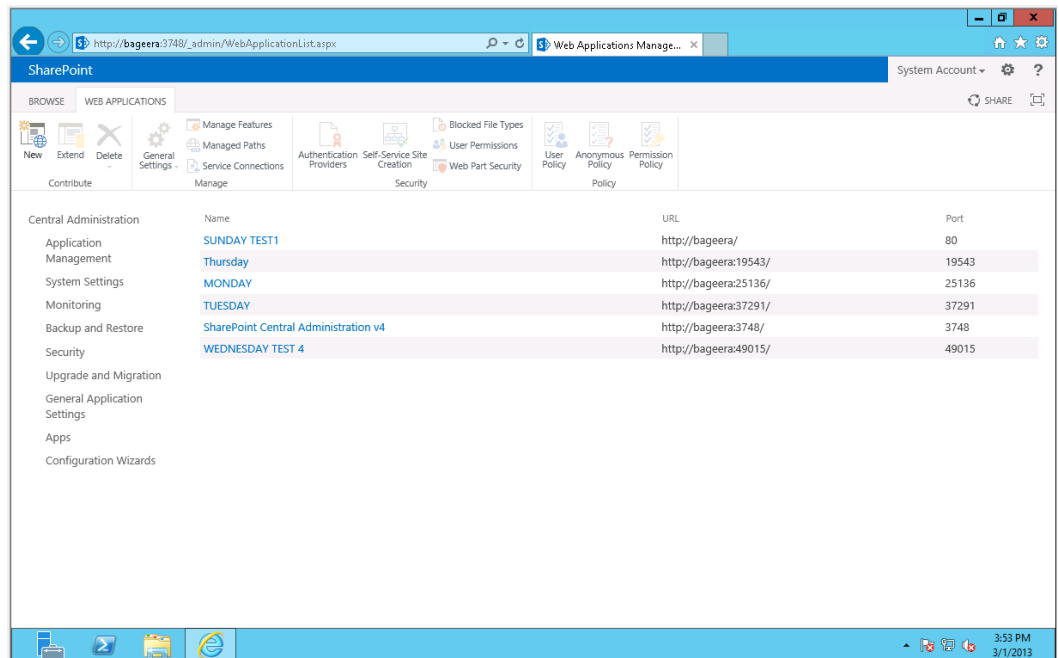


12. Click **Recover**.
13. Return to the NetWorker User for Microsoft GUI on the application server, and click **Continue** in the dependency dialog box.

Recovery proceeds to completion. Details about the recovery are displayed in the Monitor page.

14. After the recovery, go to the SharePoint Central Administration and check that the web application is restored.

Figure 15 SharePoint Central Administration



Performing SharePoint Server search services recovery

You must complete the required steps to restore the search service application that is deleted.

Procedure

1. Open the NetWorker User for Microsoft GUI on the application server.
2. Select **SharePoint Configuration Data**.

To select the IIS Writers, follow the steps provided in [Selecting the IIS Writers](#).

3. Click **Recover**.
4. In the **Recovery Summary** page, click **Start Recover**.

After recovery is complete, you are prompted to restart the application server and a dialog box with the message “The system must be rebooted to complete the recovery process. Would you like to reboot now?” appears.

5. Click **Yes**.
6. After the application server restarts, open the NetWorker User for Microsoft GUI.
7. Select the **SharePoint Service Writer**.
8. Click **Recover**.

A dependency dialog box appears with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.

9. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
10. In the navigation tree, locate and select the SQL Server content database and SharePoint configuration database. Although the SharePoint configuration database is not mentioned in dependency dialog box, it must be restored for complete restore of search service application.

11. Click **Recover**.
12. Return to the NetWorker User for Microsoft GUI on the application server, and click **Continue** in the dependency dialog box.
Recovery proceeds to completion. Details about the recovery appear in the Monitor page.
13. Go to the SharePoint Central Administration and check that the search service application is restored.
14. Go to the SharePoint Central Administration and check that the deleted data is restored, as described in [Additional steps required for SharePoint Server 2013 on page 55](#).

Additional steps required for SharePoint Server 2013

Perform the following steps after performing the steps in "Performing SharePoint Server search services recovery" section.

Procedure

1. To restore and locate the Search 2013 topology file, select the **SP Topology Directories** from SharePoint Configuration Data and click **Recover**.
The following message appears in the NMM GUI "SharePoint 2013 Search Topology XML file C:\Program Files\Microsoft Office Servers\15.0\Data\Office Server\Applications\Search\Nodes\7866A9\IndexComponent1\storage\data is restored."
2. Copy the Search Topology file to the C: drive. This file is by default recovered as <search application name>.xml in a location that is specified in the NetWorker User for Microsoft GUI restore logs after recovery of SharePoint Configuration Data.
3. Go to SharePoint Central Administration and delete the Search Service Application (SSA).
4. Recover the search databases from the SQL Server.
5. Recover Search Server Application from the Search Topology .xml file.

For example, run the following PowerShell commands of SharePoint Server:

```
"PS C:\Users\administrator.NMMDEV> $applicationPool = New-SPServiceApplicationPool -name "SARestorePool" -account "nmmdev\administrator"
```

```
"PS C:\Users\administrator.NMMDEV> Restore-SPEnterpriseSearchServiceApplication -Name "Search Restore Application 1" -ApplicationPool $applicationPool -TopologyFile C:\SSA1Topology.xml -KeepId"
```

The following messages appear:

Name : Search Restore Application 1

Id : d85b7565-29cb-42cc-8260-ba81c1eeae4e

ServiceName : SearchQueryAndSiteSettingsService

CrawlTopologies :

CrawlStores :

```
{Search_Service_Application_1_CrawlStoreDB_673fc16067a3408882132498ab2ab9a0}
```

ActiveTopology : TopologyId: aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42,

CreationDate: 11/9/2012 8:19:00 AM, State: Active,

Components :

```

AnalyticsProcessingComponent[AnalyticsProcessingComponent1,
33f4c22a-848a-4432-b8c3-1ceb22bf6a86] part of aaea2ad5-0e2a-4a03-
a3ee-aceee2b46b42 on SHAREPOINTFARM1,
AdminComponent[AdminComponent1, 57639b4e-a901-4e87-
ab30-4bca077d750f] part of aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on
SHAREPOINTFARM1,
ContentProcessingComponent[ContentProcessingComponent1, 8d1dd334-
a0e8-49ad-8b9e-5064885db5db] part of aaea2ad5-0e2a-4a03-a3ee-
aceee2b46b42 on SHAREPOINTFARM1,
QueryProcessingComponent[QueryProcessingComponent1, bfa2af77-
ecaa-4284-882e-649a4599047d] part of aaea2ad5-0e2a-4a03-a3ee-
aceee2b46b42 on SHAREPOINTFARM1, IndexComponent[IndexComponent1,
19def9aa-eb42-4719-8c86-cf3206145f68] part of aaea2ad5-0e2a-4a03-
a3ee-aceee2b46b42 on SHAREPOINTFARM1,
CrawlComponent[CrawlComponent0, 9e65f76a-7ebd-4661-954b-
d8bec5b58243] part of aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on
SHAREPOINTFARM1

```

SearchAdminDatabase : SearchAdminDatabase

```

Name=Search_Service_Application_1_D
B_5d76d14d77cf406b8573d051195018e9

```

Status : Online

DefaultSearchProvider : SharepointSearch

Properties : {Microsoft.Office.Server.Utilities.SPPartitionOptions}

```

"PS C:\Users\administrator.NMMDEV> $ssa = Get-
SpEnterpriseSearchServiceApplication -Identity "Search Restore
Application 1"

```

```

"PS C:\Users\administrator.NMMDEV> New-
SPEnterpriseSearchServiceApplicationProxy -Name "Search Restore
Application 1" -SearchApplication $ssa

```

The following messages appear:

```

DisplayName TypeName Id
-----

```

```

Search Restore Ap... Search Service Ap... 6d132d7f-2874-45ba-9950-
cdc79f1991f9

```

6. Run the following command: `net stop SPSearchHostController`

You can stop the service by using services.msc too.

7. Open the NetWorker User for Microsoft GUI.

8. Restore only the Office SharePoint Server Search service (Osearch) writer.

You can stop the service by using services.msc too.

The index file is restored.

9. Run the following command:

```
net start SPSearchHostController
```

10. Either restart the server or run the following PowerShell commands to restart the search service application:


```
"PS C:\Users\administrator.NMMDEV> Get-  
SPEnterpriseSearchServiceInstance -Local | Start-  
SPEnterpriseSearchServiceInstance  
  
"PS C:\Users\administrator.NMMDEV> $qssInstance = Get-  
SPEnterpriseSearchQueryAndSiteSettingsServiceInstance -Local  
  
"PS C:\Users\administrator.NMMDEV> Start-  
SPEnterpriseSearchQueryAndSiteSettingsServiceInstance -  
Identity $qssInstance  
  
"PS C:\Users\administrator.NMMDEV> Resume-  
SPEnterpriseSearchServiceApplication -Identity $ssa
```


CHAPTER 6

Microsoft SQL Server Scheduled Backups

This chapter includes the following sections:

- [Prerequisites](#)..... 60
- [Configuring scheduled backups](#)..... 60

Prerequisites

Review the prerequisites in this section before performing a SQL Server VSS scheduled backup.

- Start the SQL Server VSS Writer service and ensure that all the databases are online. Offline databases are not backed up, and no warning appears during the backup operation if a database is offline.
- Microsoft recommends that you create a snapshot backup of fewer than 35 databases at a time for the supported SQL Server versions. Microsoft Knowledge Base article KB943471 at <http://support.microsoft.com/kb/943471> provides more information.
- Ensure that a database name in a SQL Server VSS instance does not contain either leading or trailing spaces. View the valid application data save sets by using the `nsrnmmsv -P` command.

The *NetWorker Module for Microsoft Administration Guide* provides details.

Use the following command to locate the presence of spaces in front or at the end of database names:

```
SELECT database_id as DatabaseID, '##'+name+'##' as DatabaseName
from sys.databases
```

Example output:

```
DatabaseID DatabaseName
```

```
8 ##AdventureWorks## -- DB name is fine
```

```
15 ## DBWithLeadingSpace## -- DB name contains leading
spaces
```

```
17 ##DBWithTrailingSpace ## -- DB name contains trailing
spaces
```

Configuring scheduled backups

Complete the tasks in this section before configuring a client resource for a scheduled backup.

- Configure a backup pool
- Configure snapshot policies
- Configure a backup schedule
- Configure a backup group

The *NetWorker Administration Guide* provides details.

Configuring client resources

Complete the steps listed in this section to configure a client resource for a scheduled backup.

The *NetWorker Module for Microsoft Administration Guide* provides details.

Procedure

1. Open the NetWorker Management Console (NMC).

2. In the **Administration** page, click **Protection**.
3. In the expanded left pane, select **Clients**.
4. From the **File** menu, select **New**.
5. Click the **General** tab.
6. In the **Name** field, type the fully qualified hostname of the NetWorker client.
If you are backing up a SQL clustered instance, use the virtual SQL Server name here. Create client resources for all the physical cluster nodes where the SQL clustered instance is being run.
7. In the **Comment** field, type a description. If you are creating multiple client resources for the same NetWorker client host computer, use this attribute to differentiate the purpose of each resource.
8. For the **Retention Policy** field, select a retention policy from the list. The retention policy determines the time period during which the rolled-over data is available, although not necessarily quickly.
9. Select the **Scheduled Backups** field.
10. In the **Save Set** field, specify the save set name listed in the table.

Table 12 Backup type and save set name

Backup type	Save set
SQL Server full backup	APPLICATIONS:\SqlServerWriter
SQL Server named instance backup	APPLICATIONS:\SqlServerWriter\host%5Cinstance For example, to back up a SQL Server named instance MT11\BU, type the following: APPLICATIONS:\SqlServerWriter\MT11%5CBU\
SQL Server individual database backup	APPLICATIONS:\SqlServerWriter\host%5Cinstance \<database name> For example, to back up an individual database TestDB12, type the following: APPLICATIONS:\SqlServerWriter\MT11%5CBU\TestDB12

11. In the **Group** field, select the backup group that was configured.
12. Click the **Apps & Modules** tab.
13. In the **Access** area:
 - For cluster setups of all SQL Server versions and standalone setups of SQL Server 2012, type the **Remote user** and **Password**.
 - For standalone setups for SQL Server versions other than SQL Server 2012, leave the **Remote user** and **Password** fields empty.
14. In the **Backup command** field, type the backup command **nsrnmmsv.exe**.
15. In the **Globals (1 of 2)** tab:
 - Click **OK**. The alias names are automatically listed in the **Aliases** field.
 - Complete the other attributes, as required.
16. Click **OK**.

CHAPTER 7

Microsoft SQL Server Recovery

This chapter includes the following sections:

Note

The procedure for recovering SQL Server data in a non-clustered environment is different from the procedure for recovering SQL Server Express Edition databases. Review the sections that are applicable for your setup.

- [Performing SQL Server data recovery in a stand-alone environment](#)..... 64
- [Performing instance level recovery for SQL clusters](#)..... 64
- [Recovery of SQL Server federated backups](#) 64

Performing SQL Server data recovery in a stand-alone environment

Note

During a system databases recovery, the SQL Server services for the SQL database instances are automatically detected and stopped by NMM. After the system databases recovery is complete, the SQL Server services for the SQL Server database instances are automatically restarted by NMM. However, during user databases recovery, the SQL Server services are not stopped or started by NMM. You must perform these tasks manually before starting recovery.

Procedure

1. Open the NetWorker User for Microsoft GUI.
2. From the **navigation tree**, expand the **Applications** folder and the **SQLServerWriter** folder.
3. Select the databases to recover.
4. From the **SharePoint and SQL Server Recover Session** toolbar, click **Start Restore**.

Performing instance level recovery for SQL clusters

For instance level recovery on SQL Server cluster, you must perform the required steps. This procedure is common to all supported SQL Server versions and Windows platforms.

Procedure

1. Open the Windows Cluster Management console and make the **SQL Server** resource under the **Cluster Group of SQL Server** offline.
Now although the instance is offline, the disk is available because the group is online.
2. Open the NetWorker User for Microsoft GUI and perform SQL Writer recovery. When performing SQL Writer recovery, manually stop and start the SQL Server services.
3. In the Windows Cluster Management console, make the **SQL Server** resource online. Ensure that all the other SQL resources that depend on the SQL Server are online.

Recovery of SQL Server federated backups

Perform the steps in this section to recover SQL Server federated backups.

Federated backups are indexed against the Windows cluster client. This allows the user to perform consolidate backups from multiple clients under a single client.

- Normal Restore on original server
- Directed Restore on other servers

Recovering SQL Server

1. Ensure that you break the replication for databases that are configured with AlwaysOn configuration before recovering the databases. "Break the replication for databases that are configured with AlwaysOn configuration" section provides the steps.

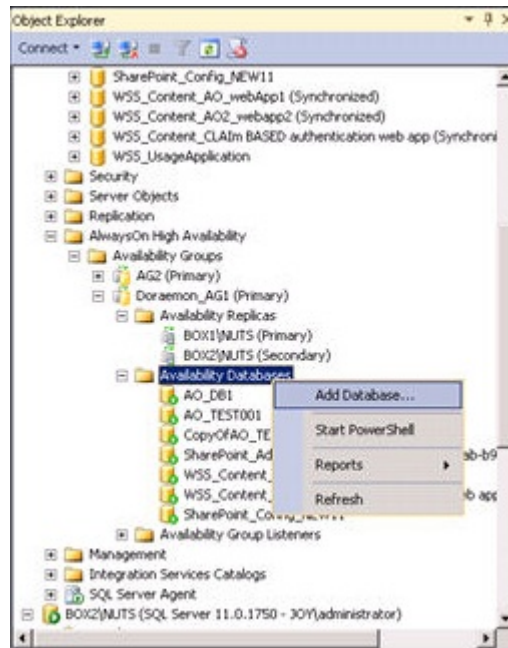
2. Delete the database on the machines which hosts the secondary replicas of AlwaysOn group.
3. Select the Windows Cluster client in NMM GUI on the machine which hosts the Primary replica of AlwaysOn Group.
4. Restore the database.
5. Join or re-add the database to the Always On Group using 'full join' method.

Break the replication for databases that are configured with AlwaysOn configuration

You can either use the SQL Server Management Studio GUI or the query window to perform the steps in this section.

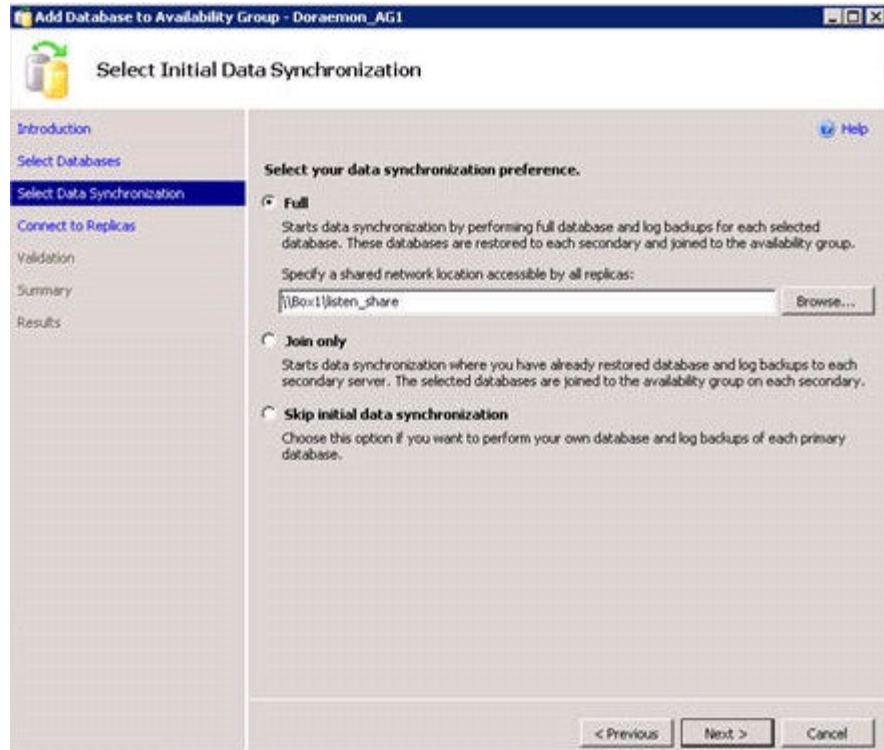
1. Right-click the SQL Server database and select **Remove Database from Availability Group**.
2. Open the NetWorker User for Microsoft GUI and perform recovery.
3. In the Microsoft SQL Server Management Studio, add the SQL Server database that was removed in [step 1](#) back to the Availability Group.
4. Right-click the **Availability Databases** and select the **Add Database to Availability Group** option.
The Add Database to Availability Group dialog box appears.

Figure 16 Add Database to Availability Group dialog box



5. In the **Select Databases** page, select the web application and click **Next**.
6. In the **Select Initial Data Synchronization** page, select the **Full** option and specify the synchronization location, and click **Next**.

Figure 17 Select Initial Data Synchronization dialog box



The synchronization may fail with an error in case a secondary replica copy with same name exists. Delete the secondary replica copy that is in restoring mode, and rerun the validation.

Figure 18 Secondary replica copy in restoring mode

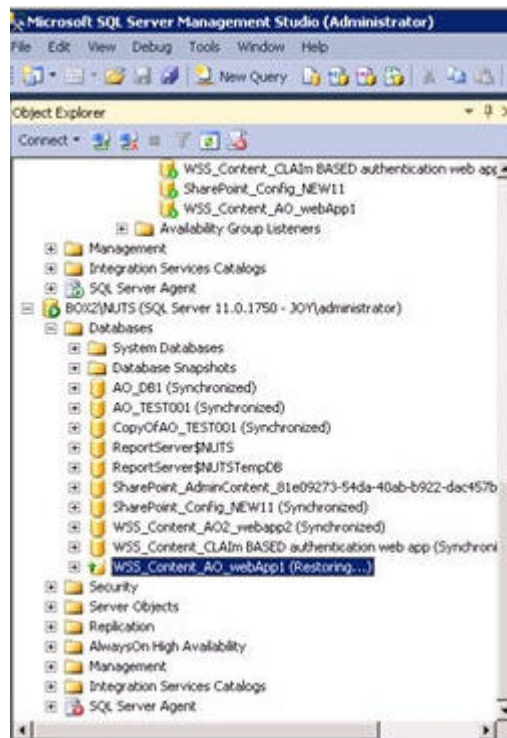
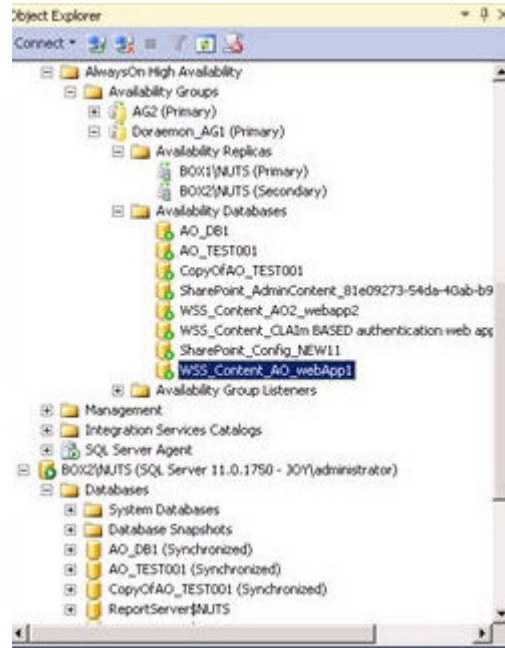


Figure 18 Secondary replica copy in restoring mode (continued)
The content database is added back to Availability Group.

Figure 19 Content database added back to Availability Group



7. In the NetWorker User for Microsoft GUI, click **Continue** in the dependency dialog box.
8. In the Microsoft SQL Server Management Studio GUI:
 - a. On the primary replica server, type the following command:
ALTER AVAILABILITY GROUP [Group9] REMOVE DATABASE [Weekly_test_weekly_data_backup_db9]
 - b. On the secondary replica server, delete the AlwaysOn database, which is in restoring state.

CHAPTER 8

Microsoft SQL Server Directed Recovery

This chapter includes the following sections:

- [Overview of SQL Server directed recovery](#) 70
- [Configuring SQL Server directed recovery to a different host](#)..... 71
- [Configuring a SQL Server directed recovery to the same host](#)..... 73
- [Examples of log messages in NMM log file and Monitor page](#)..... 75

Overview of SQL Server directed recovery

The directed recovery procedure does not use the SQL VSS Writer. A recovery performed without using SQL Writer guarantees a crash-consistent database, which means that there are no torn or corrupted pages. However, all transactions which were in progress at the time of the snapshot are rolled back. Directed recovery can only be performed from a full SQL Server database backup.

A SQL Server directed recovery can be performed to either of the following:

- The same host, which is on the same location or a different location
- A different host

When a SQL Server directed recovery is performed to a different host, the host can be:

- A SQL server, web front-end server, or a file server.
- Either part of or separate from the farm where the backup was performed.
- Either hosting or not hosting SharePoint or SQL services.

The following types of directed recovery are not supported:

- Directed recovery of:
 - Filestream database
 - Transparent Data Encryption (TDE) enabled database
- Cross-platform directed recovery
For examples, a directed recovery of SQL Server databases on Windows Server 2008 cannot be recovered to Windows Server 2008 R2, and vice versa.
- Directed recovery to:
 - Encrypted target
 - Compressed drive
Although the recovery takes place, the database attachment fails.
- Directed recovery from SQL system databases.

Note

Before performing a SQL Server system database recovery to an alternate location, stop the SQL Server instance. The recovery of a SQL Server system database to an alternate location fails if the SQL Server instance is running.

Prerequisites

- When performing a directed recovery to a different host:
 - Ensure that you have installed the same version of Windows Server on the source host where the backup is performed and the target host where the recovery is performed. For example, if the backup is performed on a Windows Server 2008 computer, then the directed recovery can be performed only to another Windows Server 2008 computer. Recover all database files to a single drive.
 - Ensure that the SQL database is marked on the client host where directed recovery browsing is performed, otherwise the SQL tab is not displayed for directed recovery browsing.
 - Ensure that you have added both the source and target hosts as client resources in the NMC.

- You are not required to install a SQL Server on the client machine where directed recovery is performed.
- Ensure that the recovery drive is available and has sufficient free disk space to accommodate the data.
- Install the VSS rollup patch from the Microsoft website <http://support.microsoft.com/kb/940349>. This patch rectifies the XML parsing failure and ensures that the directed recovery is successful.
- For directed recovery of multiple databases, recover one database at a time. Separate recovery paths can be provided for each database.
- For non-system database directed recovery, the SQL Server service can be either in stop or start state.

Configuring SQL Server directed recovery to a different host

You must complete the required steps to perform a directed recovery of a SQL content databases to a different host.

Procedure

1. On the host where the recovery is being performed, open the NetWorker User for Microsoft GUI.
The NetWorker server containing the SQL backups is selected.
2. To select a NetWorker server other than the one that is currently selected, click either the **NetWorker Server** icon or select the **Backup Server Name** option on **Option > Configure Option**.
The Change NetWorker Server dialog box appears.
3. Click the **Update Server List** button to refresh the list of NetWorker servers.
4. Select the desired NetWorker server and click **OK**.
5. To perform a directed recovery to another host, select the alternate client host.
6. From the **Options** menu, select **Configuration Options** to add the source client to the list of clients that you can browse.
The Configuration Options dialog box appears.
7. Click the button next to the **Client Name** field.
The Select Viewable Clients dialog box appears.
8. Select the SQL Server database from the **Available clients on** list, and click **Add** to move the available clients to the **Clients to list on menu bar** list.
9. Click **OK**.
The SQL Server database client appears in the Client list.
10. Select the same SQL Server database from the **Client** list.
The saved SQL databases appear in the list.
11. Select the desired SQL Server for directed recovery. After the application refreshes the current browse tree, select the **SharePoint and SQL Server Recover Session** option.
The SQL Server application backups appear for directed recovery browsing in the current browse tree.

12. Expand the **APPLICATIONS > SqlServerWriter** tree nodes.
13. Select the desired databases.
14. In the **Recover Options** dialog box, select the **SQL** tab.
The SQL tab appears only if the databases are marked.
15. On the **SQL** tab, provide the user defined path, as described in [Recovering to a user-defined path on page 72](#).
The Recover Session Options dialog box for SharePoint and SQL Server recover session appears.
16. On the **SQL** tab, click **Browse** to browse to the restore path.
17. Click **OK** to start the recovery.
The Recovery Summary window appears.
18. Click **Start Recover**.
After the SQL directed recovery is complete, you can view the SharePoint content databases that were recovered to the specified location.
19. Switch to the **Monitor** page to view the status and progress of the recovery.
20. When the directed recovery is complete:
 - Copy the recovered .mdf and .ldf files to the desired location, which may be on the same or different drive.
 - Use the Microsoft SQL Management Studio to manually attach the .mdf and the .ldf files from the respective locations. [Attaching recovered SQL databases on page 74](#) provides details.

Note

Directed recovery of the same data to the same location again, that is overwriting, is not allowed.

Recovering to a user-defined path

You must complete the required steps to recover SQL databases to a user-defined path.

Procedure

1. Open the NetWorker User for Microsoft GUI.
2. In **SharePoint and SQL Server Recover Session**, select the database to be recovered.
3. Click **Recover**.
The Recover Summary dialog box appears.
4. Click **Recover Option**.
The SharePoint and SQL Server Recover Session Options dialog box appears.
5. Click the **SQL** tab.
6. Select the **Specify the path where the SQL database(s) should be restored** option.
7. Click **Browse**.
8. Select a path in the **Browse For Folder** dialog box, and click **OK**.
9. Click **OK** in the **SharePoint and SQL Server Recover Session Options** dialog box. The field is read-only and you cannot manually type a path.

NOTICE

Do not provide a path in the NetWorker tab, otherwise recovery fails.

Configuring a SQL Server directed recovery to the same host

You must complete the required steps to perform a directed recovery of the SQL content databases to the same host where backup was performed.

Procedure

1. Open the NetWorker User for Microsoft GUI on server where the backup was performed.
The NetWorker server containing the SQL backups is selected.
2. To select a NetWorker server other than the one that is currently selected, click either the **NetWorker Server** icon or **Backup Server Name** option on **Option > Configure Option**.
The Change NetWorker Server dialog box appears.
3. Click the **Update Server List** button to refresh the list of NetWorker servers.
4. Select the desired NetWorker server and click **OK**.
5. Select the desired SQL Server location for directed recovery to the same host. After the application refreshes the current browse tree, select the **SharePoint and SQL Server Recover Session** option.
6. The SQL Server application backups appear for directed recovery browsing in the current browse tree.
7. Expand the **APPLICATIONS > SqlServerWriter** tree nodes.
8. Select the desired databases.
9. In the **Recover** option, select the **SQL** tab. The SQL tab appears only if the databases are marked.
10. In the **SQL** tab, perform either of the following steps:
 - Recover the SQL databases to a user-defined location from the SQL tab, as described in [Recovering to a user-defined path on page 72](#).
 - Recover the SQL databases to a default recover path, as described in [Recovering to default recovery path on page 74](#).
The Recover Session Options dialog box for SharePoint and SQL Server recover session appears.
11. On the **SQL** tab, click **Browse** to browse to the path to which to restore the database.
12. Click **OK** to start the recovery.
The Recovery Summary window appears.
13. Click **Start Recover**.
After the SQL directed recovery is complete, you can view the SharePoint content databases recovered to the specified location.
14. Switch to the **Monitor** page to view the status and progress of the recovery.
15. When the directed recovery is complete, copy the recovered .mdf and .ldf files to the desired location, which may be on the same or different drive.

16. Use the Microsoft SQL Management Studio to manually attach the .mdf and the .ldf files from the respective locations. [Attaching recovered SQL databases on page 74](#) provides details.

Recovering to default recovery path

You must complete the required steps to recover a SQL database to the default recovery path.

Procedure

1. Open the NetWorker User for Microsoft GUI.
2. In **System recover Session**, select the database to be recovered.
3. Click **Recover**.
The System Recover Summary dialog box appears.
4. Click **Recover Option**.
The System Recover Session Options dialog box appears.
5. Click the **SQL** tab.
6. Select the **Restore SQL file to local machine using their original directory path** option.
7. Click **OK**.
The File System Recover Summary form appears. The SQL database recovery path is based on the original path. This is the default SQL recovery path option.
8. Click **Start Recover** to start the directed recovery.
9. Switch to the **Monitor** page to view the status and progress of the recovery.

Attaching recovered SQL databases

You must complete the required steps to manually attach the SQL databases that were recovered.

Procedure

1. Open the Microsoft SQL Management Studio.
2. In the **SQL Attach Database** dialog box, locate the primary database file to attach.
The SQL Server recovers all primary database files (.mdf), logs files (.ldf), and secondary database files (.ndf), if present. The SQL Administrator must know which files are the primary database files.
3. Once the primary database file is attached, the SQL Server automatically identifies the other database files, provided that the files are all at the same location.
4. If the other database files are not in the same location, then you must specify the respective locations of the restored files (.mdf, .ldf, .ndf)
5. Click **OK** to create the database.
The database is now created and available.

Examples of log messages in NMM log file and Monitor page

This section contains example messages that appear in the NMM log file and the Monitor page.

Example messages that appear in the NMM log file and the Monitor page for recovery to the original location:

```
Command line:\n C:\Program Files\EMC NetWorker\nsr\bin\nsrmmrc.exe -A
RESTORE_TYPE_ORDER=conventional -A BR_ELEVATED_WARNING=true -s mb-
nwsvr-1.baker.legato.com -c mb-clnt-3.belred.legato.com -A NSR_SNAP_TYPE=vss -A
NSR_SQL_RECOVER_MODE=alt_location -A NSR_SQL_TARGET_ORIG=yes -I -
```

```
nsrmmrc: flag=A arg=NSR_SQL_RECOVER_MODE=alt_location
```

```
nsrmmrc: flag=A arg=NSR_SQL_TARGET_ORIG=yes
```

```
NMM .. Performing SQL directed restore.
```

```
NMM .. SQL directed restore will relocate database files to their original locations.
```

Example of messages that appear in the NMM log file and the Monitor page for recovery to a user-defined location:

```
Command line:\n C:\Program Files\EMC NetWorker\nsr\bin\nsrmmrc.exe -A
RESTORE_TYPE_ORDER=conventional -A BR_ELEVATED_WARNING=true -s mb-
nwsvr-1.baker.legato.com -c mb-clnt-3.belred.legato.com -A NSR_SNAP_TYPE=vss -A
NSR_SQL_RECOVER_MODE=alt_location -A NSR_SQL_TARGET_DIR=E:\ -I -
```

```
nsrmmrc: flag=A arg=NSR_SQL_RECOVER_MODE=alt_location
```

```
nsrmmrc: flag=A arg=NSR_SQL_TARGET_DIR=E:\
```

```
NMM .. Performing SQL directed restore.
```

```
NMM .. SQL directed restore will relocate database files to path[E:\].
```

```
NMM .. SQL directed restore relocating database files for database [APPLICATIONS:
\SqlServerWriter\MB-CLNT-3\AcmeBank].
```

```
NMM .. SQL directed recover, relocating file [C:\Program Files\Microsoft SQL Server
\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank.mdf] to [E:\Program Files\Microsoft
SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank.mdf].
```

```
NMM .. SQL directed recover, relocating file [C:\Program Files\Microsoft SQL Server
\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank_log.ldf] to [E:\Program Files
\Microsoft SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank_log.ldf].
```

```
NMM .. SQL directed recover, relocating file [C:\Program Files\Microsoft SQL Server
\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank2.mdf] to [E:\Program Files\Microsoft
SQL Server\MSSQL10.MSSQLSERVER\MSSQL\DATA\AcmeBank2.mdf].
```


APPENDIX A

Microsoft SharePoint Server Backup and Recovery Examples

This appendix includes the following sections:

- [Save sets examples for SharePoint farm backups](#) 78
- [Recovery examples for SharePoint Server 2010 SP2 and SharePoint Server 2013](#) 79
- [Configuration steps for SQL Server 2012 AlwaysOn](#) 80
- [Restoring deleted individual items from document library](#) 81
- [Restoring deleted search service application](#) 83
- [Restoring deleted web application](#) 87

Save sets examples for SharePoint farm backups

Review the examples in this section for save sets that you can use for backup of SharePoint farm components.

To view a list of the SharePoint Server 2007, SharePoint Server 2010, and SharePoint Server 2013 save sets that are available for backup, type the following command on the application server and press Enter:

nsrnmmsv -P

Example 1 SharePoint Server standalone farm

A stand-alone farm in which the host contains the SharePoint Server 2010 and SQL Server Enterprise Edition. The NetWorker server should backup the following on same client:

APPLICATIONS:\Microsoft Office SharePoint Services

APPLICATIONS:\SqlServerWriter

Example 2 SharePoint Server distributed farm with two servers

A distributed farm with two servers of which one contains the web front-end and Central Admin, and the other contains the SQL Server.

The NetWorker server has two client resources, one for each server. Each client resource has different save sets:

- SharePoint web front-end host save set for resource 1:
APPLICATIONS:\Microsoft Office SharePoint Services
- SQL Server host save set for resource 2:
APPLICATIONS:\SqlServerWriter

Example 3 SharePoint Server distributed farm with four servers

A distributed farm with four servers:

- Server A - Runs the web front-end and the search components
- Server B - Runs only search components
- Server C - Runs only the web front-end
- Server D - SQL Server

In this example, the following save sets are backed up on each web front-end.

Table 13 Example: Required save sets to be backed up

Type of backup data	Required save sets to be backed up
Server A Server B	Take individual backups of all these save sets: APPLICATIONS:\Microsoft Office SharePoint Services

Example 3 SharePoint Server distributed farm with four servers (continued)**Table 13** Example: Required save sets to be backed up (continued)

Type of backup data	Required save sets to be backed up
Server C	
SQL Server	Take individual backups of all these save sets: APPLICATIONS:\SqlServerWriter

EMC recommends that you perform backups of the Application Writer (SQL Server or SharePoint Server), and the operating system in different schedules.

The SharePoint Configuration Data is backed up internally by Microsoft Office SharePoint Services.

Recovery examples for SharePoint Server 2010 SP2 and SharePoint Server 2013

This section provides example procedures that supplement the information on SharePoint Server recovery in [Microsoft SharePoint Server Recovery on page 49](#). The procedures with detailed step-by-step instructions will help you through the recovery process for SharePoint Server 2010 SP2 and 2013.

In the example procedure, the SharePoint distributed farm has a SharePoint Server 2010 SP2 and a SQL Server, and consists of:

- An application server, which is named 2010farm-cnadm and contains:
 - SharePoint Server 2010 SP2 and Central Administration
 - NMM client
- A web front-end, which is named 2010farm-wfe and contains:
 - SharePoint Server 2010 SP2 and Central Administration
 - NMM client
- A supported version of SQL Server that contains NMM client

In a SharePoint distributed farm that has a SharePoint Server 2010 SP2 and a SQL Server 2012 configured with the AlwaysOn Availability Group functionality, there are two additional nodes of a SQL Server 2012 cluster. These nodes are named clus251 and clus252, and each contain SQL Server 2012 with AlwaysOn Availability Group functionality and NMM client. Clus251 is configured as the primary replica copy and clus252 is configured as the secondary replica copy.

The website for which a SharePoint farm is used is named `http://2010farm-cnadm:1/sites/AO1_TEST ME`.

Unless otherwise stated all the steps provided for SharePoint Server 2010 SP2 are also applicable for SharePoint Server 2013. SharePoint Server 2013 specific steps are listed separated.

Considerations for Microsoft SharePoint

Review the following considerations when recovering Microsoft SharePoint data from save sets:

- Microsoft SharePoint farm level recovery — If you are performing a Microsoft SharePoint farm level restore, you must include all farm clients that were backed up in the restore procedures.
- Microsoft SharePoint content database level recovery—If you are performing a Microsoft SharePoint content database level restore, you must include the following:
 - Farm clients that were backed up in the backup procedures
 - SharePoint Web Front End where the backups were taken
 - SQL Server host
- Writer Save Set —If you are using a writer-level save set, include all writer save sets for a single backup in the repairing recycled media or scanning process.

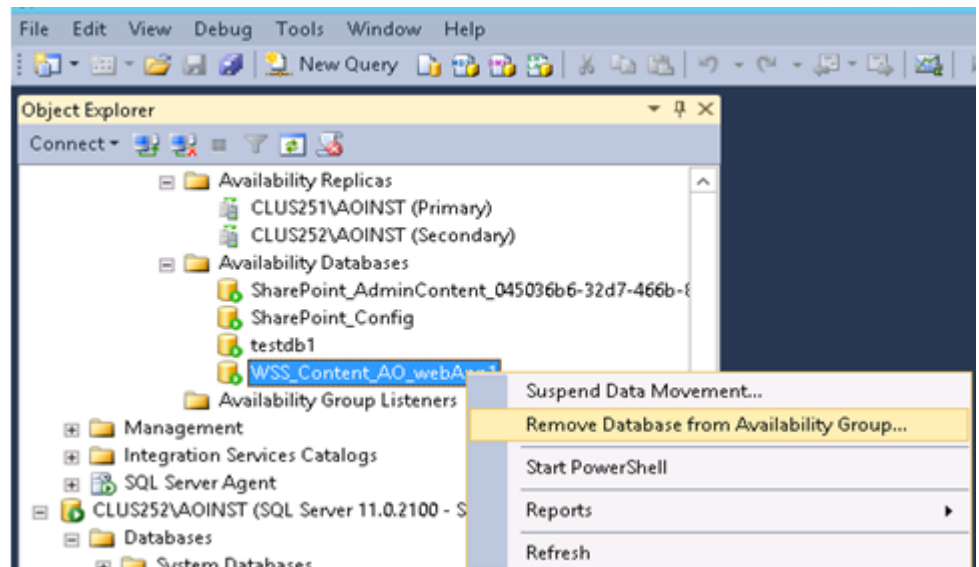
Configuration steps for SQL Server 2012 AlwaysOn

You must complete the required steps before starting the restore of the content database, for example WSS_Content_AO_webApp1, on the SQL Server node.

Procedure

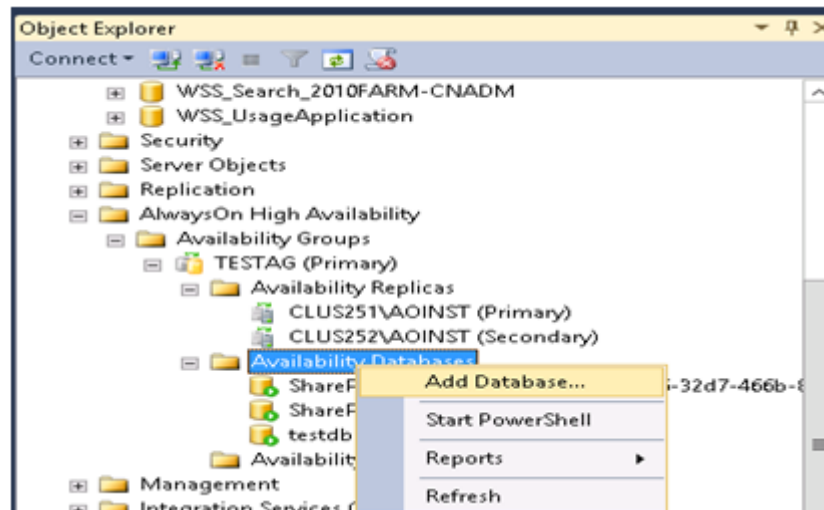
1. Open the SQL Server Management Studio and remove the content database from Availability Group. Right-click the content database and select **Remove Database from Availability Group**.

Figure 20 Remove Database from Availability Group option



2. Perform recovery as described in:
 - [Restoring deleted individual items from document library on page 81](#)
 - [Restoring deleted search service application on page 83](#)
 - [Restoring deleted web application on page 87](#)
3. After recovery is successful, go to the SQL Server Management Studio and add **WSS_Content_AO_webApp1** back to Availability Group.

Figure 21 Add Database option



4. Right-click the **Availability Databases** and select the **Add Database to Availability Group** option.

The Add Database to Availability Group dialog box appears.

5. In the Select Databases page that appears, select **WSS_Content_AO_webApp1** and click **Next**.
6. In the Select Initial Data Synchronization page, select the **Full** option and specify the synchronization location, and click **Next**.
7. The synchronization may fail with an error, in case a secondary replica copy with same name exists. An error message appears.
8. Delete the secondary replica copy that is in restoring mode.
9. Rerun the validation.

WSS_Content_AO_webApp1 is added back to Availability Group.

10. Return to the NMM GUI on the application server or web front-end as the case may be, and click Continue in the dependency dialog box. Continue with the remaining steps in:
 - [Restoring deleted individual items from document library on page 81](#) for list item.
 - [Restoring deleted search service application on page 83](#)
 - [Restoring deleted web application on page 87](#)

Restoring deleted individual items from document library

In this example, the content database WSS_Content_AO_webApp1 that contains the list item is deleted from the website http://2010farm-cnadm:1/sites/AO1_TEST ME and then restored.

[Microsoft SharePoint Server Scheduled Backups on page 21](#) provides information about backing up a SharePoint farm.

Deleting an list item

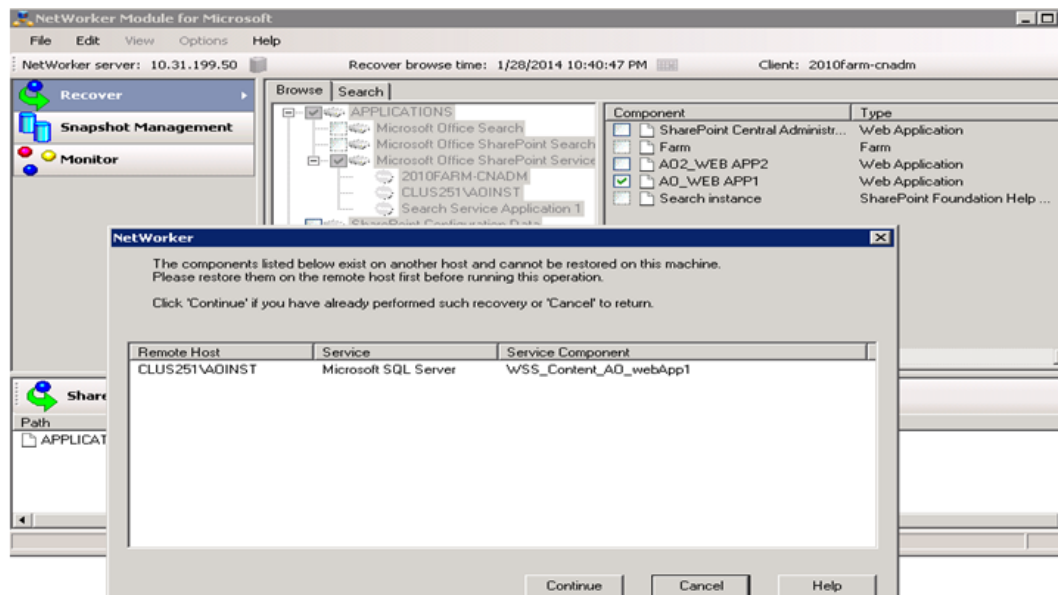
Use the Central Administration to delete the content database WSS_Content_AO_webApp1 that contains the list item. The content database and its list item are deleted.

Restoring individual items that were deleted from document library

You must perform the required steps to restore the list item that is deleted.

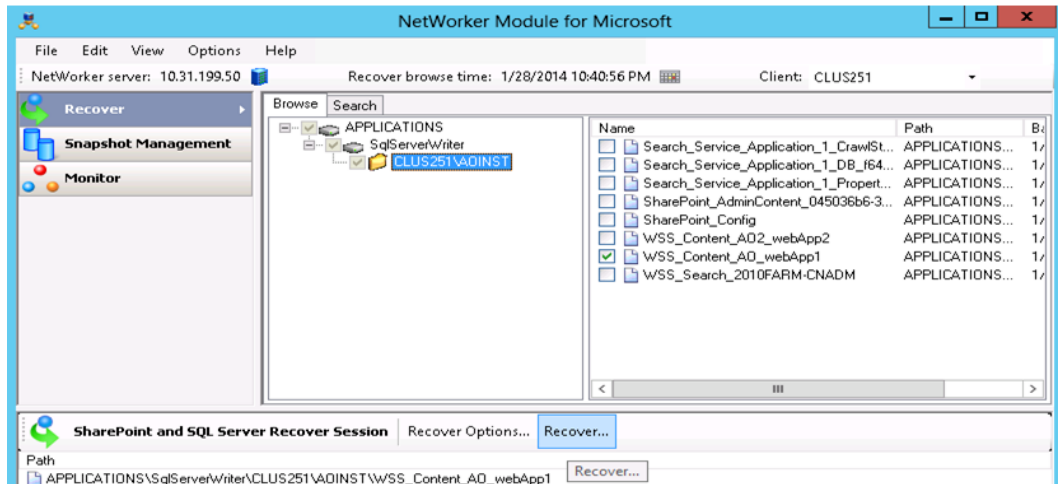
1. Open the NetWorker User for Microsoft GUI on the application server 2010farm-cnadm to start the recovery.
2. In the navigation tree, expand the **APPLICATIONS** folder and select the web application AO_WEB APP1 that contains the deleted list item.
3. Click **Recover**.
4. In the Recovery Summary page, click **Start Recover**.
A dependency dialog box appears with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.

Figure 22 Dependency dialog box



5. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
6. In the navigation tree, locate and mark the dependent SQL content database **WSS_Content_AO_webApp1**.

Figure 23 Dependent SQL content database



7. Click **Recover**.

[Configuration steps for SQL Server 2012 AlwaysOn on page 80](#) provides steps for restore of SharePoint Server 2010 SP2 with SQL Server 2012 that is configured with the AlwaysOn Availability Group functionality.

8. Return to the NetWorker User for Microsoft GUI on the application server 2010farm-cnadm, and click **Continue** in the dependency dialog box.

Recovery proceeds to completion. Details about the recovery are displayed in the Monitor page.

9. After the recovery, go to the Central Administration and check that the list item is restored in the website http://2010farm-cnadm:1/sites/AO1_TEST ME.

Restoring deleted search service application

In this example, the search service application is deleted and then restored. When the search service application is deleted, the associated content database and website are also deleted.

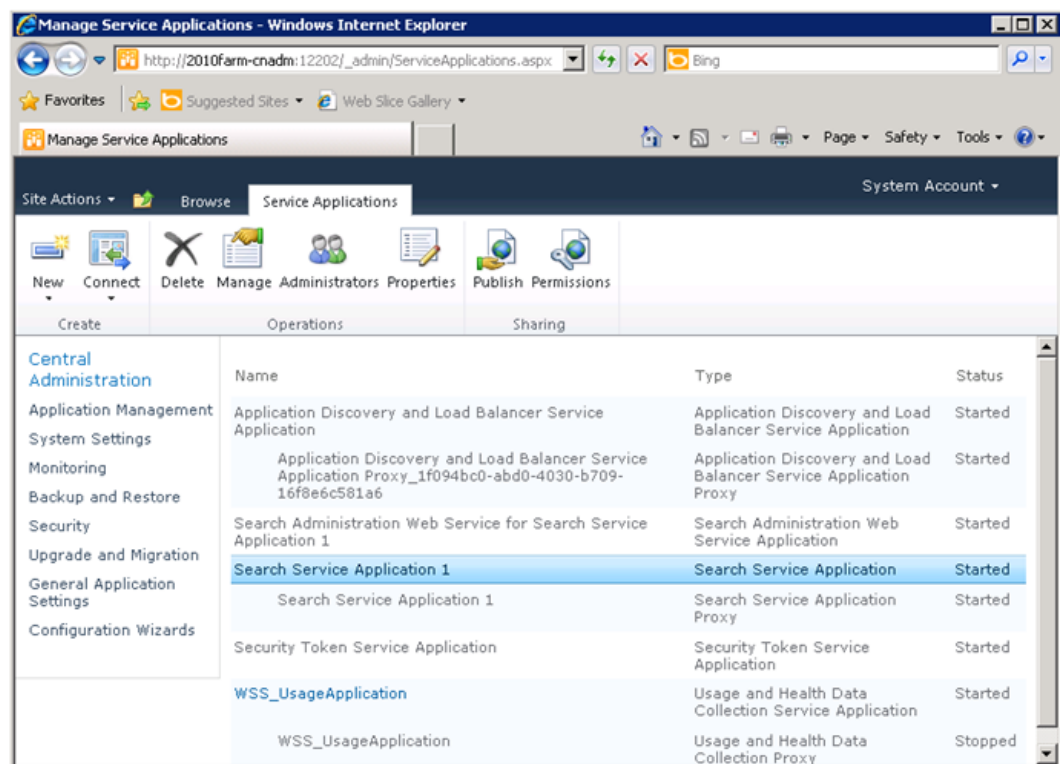
[Microsoft SharePoint Server Scheduled Backups on page 21](#) provides information about backing up a SharePoint farm.

Deleting a search service application

Perform the required steps on the application server.

1. Go to the **SharePoint Central Administration > Application Management > Service Applications**.
2. Delete the search service application **Search Service Application 1** by using the **Delete** button.

Figure 24 Delete search service application



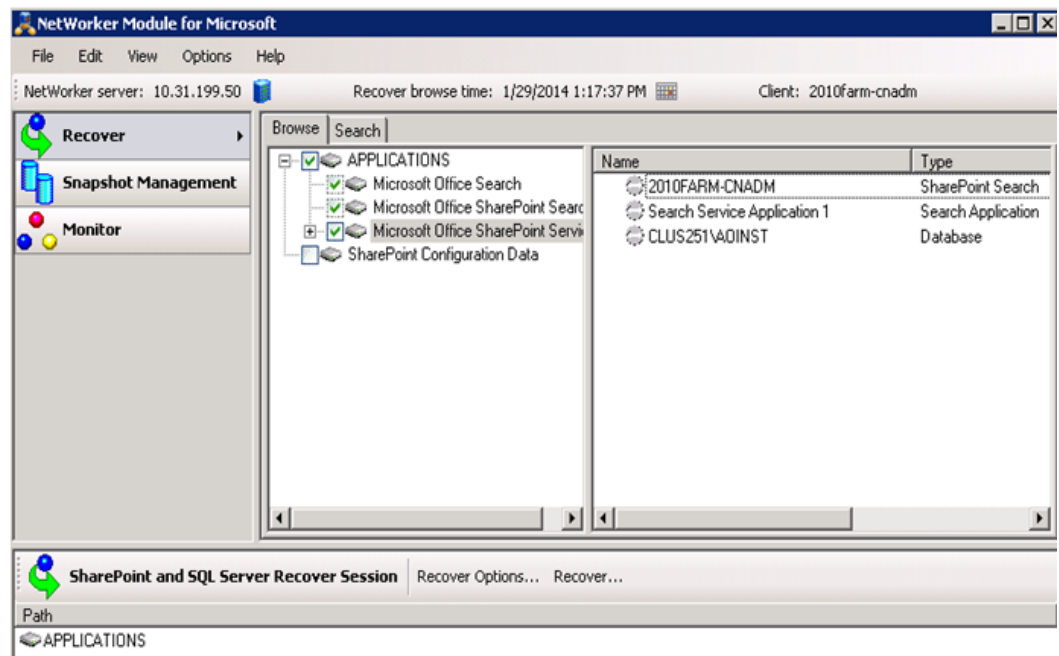
3. Note the name of the search index.

Restoring the deleted Search Service Application

Perform the required steps to restore the Search Service Application that is deleted.

1. Open the NetWorker User for Microsoft GUI on the application server 2010farm-cnadm to start the recovery process.
2. Select **SharePoint Configuration Data**.
3. Click Recover.
4. In the Recovery Summary page, click **Start Recover**.
5. After recovery is complete, you are prompted to restart the application server and a dialog box with the message "The system must be rebooted to complete the recovery process. Would you like to reboot now?" appears.
6. Click **Yes**. The application server restarts.
7. Open the **NetWorker User for Microsoft GUI**.
8. Select the SharePoint Service Writer.

Figure 25 Select SharePoint Service Writer



9. Click **Recover**.
A dependency dialog box appears with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.
10. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
11. In the navigation tree, locate and select the SQL Server Content Database and SharePoint Configuration Database. Although the SharePoint Configuration Database is not mentioned in dependency dialog box, it must be restored for complete restore of search service application.
12. Click **Recover**.
[Configuration steps for SQL Server 2012 AlwaysOn on page 80](#) provides steps for restore of SharePoint Server 2010 SP2 with SQL Server 2012 that is configured with the AlwaysOn Availability Group functionality.
13. Return to the NetWorker User for Microsoft GUI on 2010farm-cnadm, and click **Continue** in the dependency dialog box.

Recovery proceeds to completion. Details about the recovery are displayed in the Monitor page.

14. Go to the Central Administration and check that the search service application is restored.
15. After the application server is restarted, go to the Central Administration and check that the deleted data is restored.

Additional steps required for SharePoint Server 2013

If you are using SharePoint Server 2013, perform the required steps after performing step 1 through step 8.

1. Copy the Search Topology file to the C: drive. This file is by default recovered as <search application name>.xml in the location C:\Program Files\Microsoft Office Servers\15.0\Data\Office Server\Applications\Search\Nodes\7866A9\Index Component1\Storage\data\.
2. Go to Central Administration and delete the Search Service Application (SSA).
3. Again restore the search databases from the SQL Server.
4. Restore Search Server Application from the Search Topology .xml file. For example, run the following PowerShell commands of SharePoint:

```
"PS C:\Users\administrator.NMMDEV> $applicationPool =New-SPServiceApplicationPool -name "SARestorePool" -account "nmmdev\administrator"
```

```
"PS C:\Users\administrator.NMMDEV> Restore-SPEnterpriseSearchServiceApplication -Name "Search Restore Application 1" -ApplicationPool $applicationPool -TopologyFile C:\SSA1Topology.xml -KeepId
```

The following information appears:

Name : Search Restore Application 1

Id : d85b7565-29cb-42cc-8260-ba81c1eeae4e

ServiceName : SearchQueryAndSiteSettingsService

CrawlTopologies :

CrawlStores : {Search_Service_Application_1_CrawlStoreDB_673fc16067a3408882132498ab2ab9a0}

ActiveTopology : TopologyId: aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42,

CreationDate: 11/9/2012 8:19:00 AM, State: Active,

Components: AnalyticsProcessingComponent[AnalyticsProcessingComponent1, 33f4c22a-848a-4432-b8c3-1ceb22bf6a86] part of

aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1,

AdminComponent[AdminComponent1,

57639b4e-a901-4e87-ab30-4bca077d750f] part of

aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1,

ContentProcessingComponent[ContentProcessingComponent1,

8d1dd334-a0e8-49ad-8b9e-5064885db5db] part of

aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1,

QueryProcessingComponent[QueryProcessingComponent1,

bfa2af77-ecaa-4284-882e-649a4599047d] part of

aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1,

IndexComponent[IndexComponent1, 19def9aa-eb42-4719-8c86-cf3206145f68]

```

part of aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1,
CrawlComponent[CrawlComponent0, 9e65f76a-7ebd-4661-954b-d8bec5b58243]
part of aaea2ad5-0e2a-4a03-a3ee-aceee2b46b42 on SHAREPOINTFARM1
SearchAdminDatabase : SearchAdminDatabase
Name=Search_Service_Application_1_D
B_5d76d14d77cf406b8573d051195018e9
Status : Online
DefaultSearchProvider : SharepointSearch
Properties : {Microsoft.Office.Server.Utilities.SPPartitionOptions}
"PS C:\Users\administrator.NMMDEV> $ssa =
Get-SPenterpriseSearchServiceApplication -Identity "Search Restore Application
1"
"PS C:\Users\administrator.NMMDEV> New-
SPEnterpriseSearchServiceApplicationProxy -Name "Search Restore Application 1" -
SearchApplication $ssa
The following is displayed:
DisplayName TypeName Id
-----
Search Restore Ap... Search Service Ap...
6d132d7f-2874-45ba-9950-cdc79f1991f9

```

5. Run the following command: **net stop SPSearchHostController**
You can stop the service by using services.msc too.
6. Open the NetWorker User for Microsoft GUI.
7. Restore only Office SharePoint Server Search service (Osearch) writer.
The index file is restored.
8. Run the following command: **net start SPSearchHostController**
9. Either restart the server or run the following PowerShell commands to restart the search service application:


```

"PS C:\Users\administrator.NMMDEV> Get-SPEnterpriseSearchServiceInstance -Local
|
Start-SPEnterpriseSearchServiceInstance
"PS C:\Users\administrator.NMMDEV> $qssInstance =
Get-SPEnterpriseSearchQueryAndSiteSettingsServiceInstance -Local
"PS C:\Users\administrator.NMMDEV>
Start-SPEnterpriseSearchQueryAndSiteSettingsServiceInstance -Identity
$qssInstance
"PS C:\Users\administrator.NMMDEV> Resume-SPEnterpriseSearchServiceApplication
-Identity $ssa

```

Restoring deleted web application

This section provides an example procedure for deleting and restoring a SharePoint Server 2010 SP2 web application.

Separate instructions are provided for restore of SharePoint Server 2010 SP2 with SQL Server 2012 that is configured with the AlwaysOn Availability Group functionality. [Configuration steps for SQL Server 2012 AlwaysOn on page 80](#) provides these instructions.

[Microsoft SharePoint Server Scheduled Backups on page 21](#) provides information about backing up a SharePoint farm.

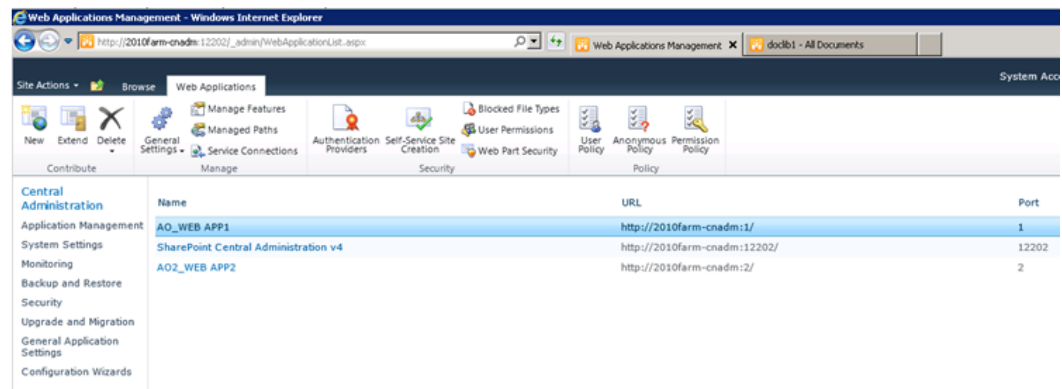
Deleting a web application

Perform the required steps on the application server.

Procedure

1. Go to **Central Administration > Application Management > Web Applications**.
2. Delete the web application AO_WEB APP1 by using the **Delete** button. When the web application is deleted, the associated content database and website are also deleted.

Figure 26 Delete web application



Restoring web application that is deleted

Perform the required steps to restore the web application, and associated content database and web site.

Procedure

1. Open the NetWorker User for Microsoft GUI on the application server Jack2 to start the recovery process.
2. Select **SharePoint Configuration Data**.
3. Click **Recover**.
4. In the Recovery Summary page, click **Start Recover**.

You are prompted to restart the application server and a dialog box with the message "The system must be rebooted to complete the recovery process. Would you like to reboot now?" appears.

5. Click **Yes**.

The application server restarts.

6. Open the NetWorker User for Microsoft GUI.
7. Select the web application AO_WEB APP1.
8. Select **Recover**.

A dependency dialog box appears with a list of the components that must be restored and the names of the remote SQL Server hosts on which the restore must be performed.

9. Open the NetWorker User for Microsoft GUI on the remote SQL Server host.
10. In the navigation tree, locate and select the SQL Server content database and SharePoint configuration database.

Although the SharePoint configuration database is not mentioned in dependency dialog box, it must be restored for complete restore of web application.

11. Click **Recover**.

[Configuration steps for SQL Server 2012 AlwaysOn on page 80](#) provides steps for restore of SharePoint Server 2010 SP2 with SQL Server 2012 that is configured with the AlwaysOn Availability Group functionality.

12. Return to the NetWorker User for Microsoft GUI on the application server, and click **Continue** in the dependency dialog box.

Recovery proceeds to completion. Details about the recovery are displayed in the Monitor page.

13. After the recovery, go to the Central Administration and check that the web application is restored.

APPENDIX B

Directed Recovery of a SharePoint Web Application

This appendix includes the following sections:

- [Introduction](#)..... 90
- [Performing a directed recovery of a web application](#)..... 90

Introduction

The current NMM software design does not support recovery of C:\Inetpub/IIS for a web application. A full recovery of a farm results in recovery of all the web applications to a point-in-time. However, the user may want to recover only one web application.

This can be achieved by performing additional steps during directed recovery of web applications. By performing these additional steps, one web application can be recovered without affecting the data of another web application.

The instructions in the appendix are applicable for SharePoint Server 2007 SP3, SharePoint Server 2010 SP2, and SharePoint Server 2013.

In the example procedure, the SharePoint distributed farm has two SharePoint Server 2010 SP2 nodes and a SQL Server 2008 R2 SP1 cluster, and consists of:

- An application server, which is named 2010farm-cnadm
- A pure web front-end server, which is named 2010farm-wfe
- A SQL Server active node, which is named clus16
- A SQL Server passive node, which is named clus18

NetWorker client and NMM are installed on the application server, web front-end server, SQL Server active node, and SQL Server passive node.

In the example procedure, two web applications named SharePoint - 3 and SharePoint - 4, are created. SharePoint - 4 is corrupted and must be recovered. A new web application named SharePoint - dr is created and through directed recovery, the data of the corrupted web application SharePoint - 4 is recovered to SharePoint - dr.

Performing a directed recovery of a web application

This section provides an example procedure for directed recovery of a web application.

Procedure

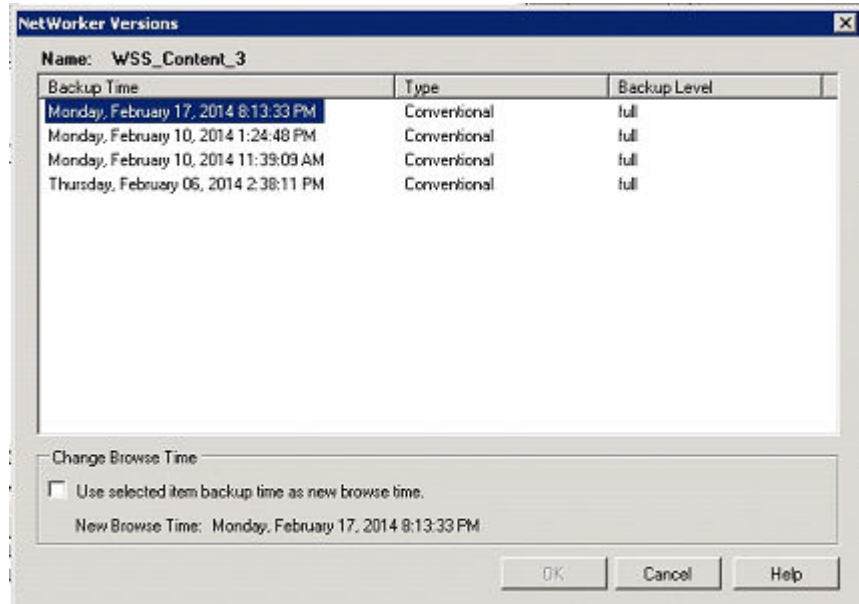
1. Create two web applications, **SharePoint - 3** and **SharePoint - 4**.

Back up the SharePoint data with 706 documents each in five site collections of size 300 KB each in SharePoint - 3 web application and 353 documents each in 10 site collections of size 300 KB each in SharePoint - 4 web application.

The content databases for **SharePoint - 3** and **SharePoint - 4** web applications are respectively **WSS_Content_3** and **WSS_Content_4**.

The highlighted text shows the backup version.

Figure 27 The backed up content database

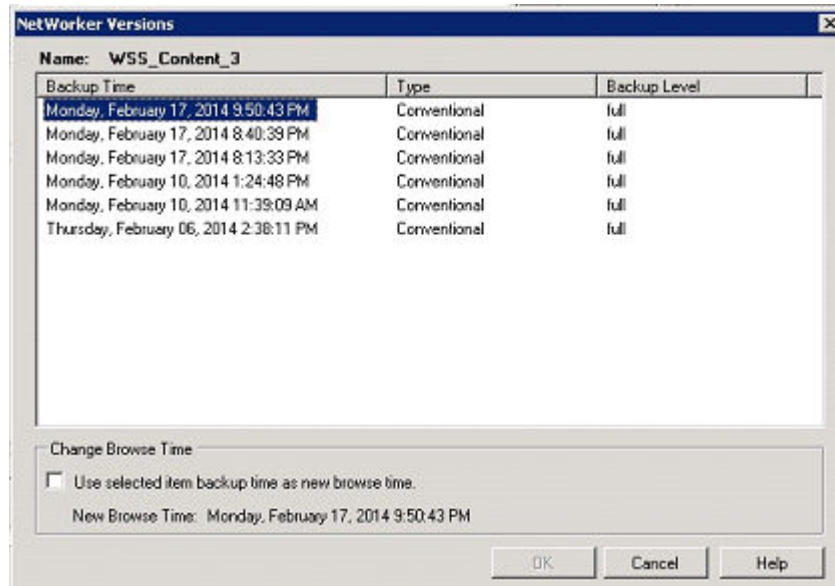


2. Upload five additional documents to one site collection in each of the two web applications and perform a second full backup.

Similarly, upload five additional documents to one site collection in each of the two web applications and perform a third full backup.

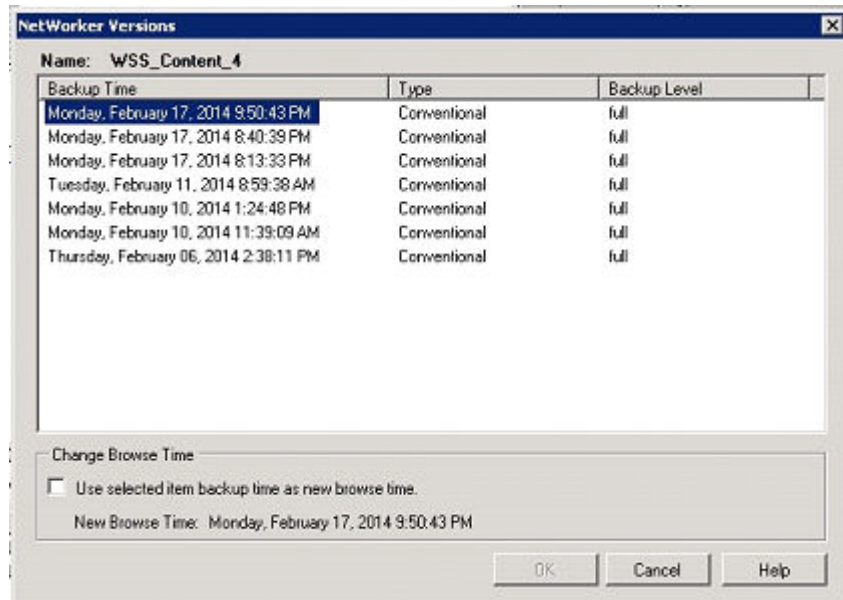
There are now three backups (dated February 17, 2014) for SharePoint - 3 web application.

Figure 28 Three backups for SharePoint - 3 web application



There are three backups (dated February 17, 2014) for SharePoint - 4 web application.

Figure 29 Three backups for SharePoint - 4 web application

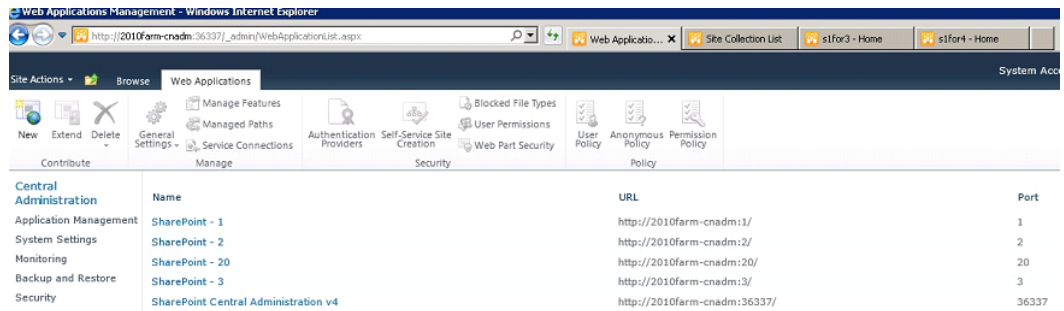


3. Upload additional five documents to the same site collection of the web application SharePoint - 4.

Disaster strikes SharePoint - 4 web application, and the IIS site is lost, the web application is not accessible from SharePoint Central Administration. However, the content database is available.

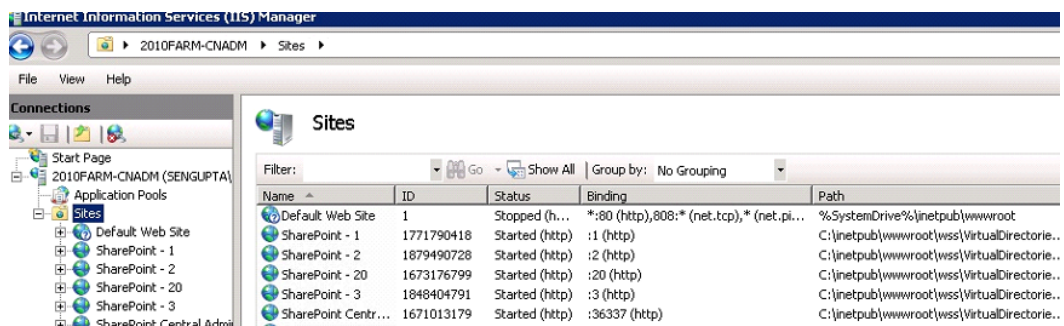
The web application is not accessible from SharePoint Central Administration.

Figure 30 Web application is not accessible



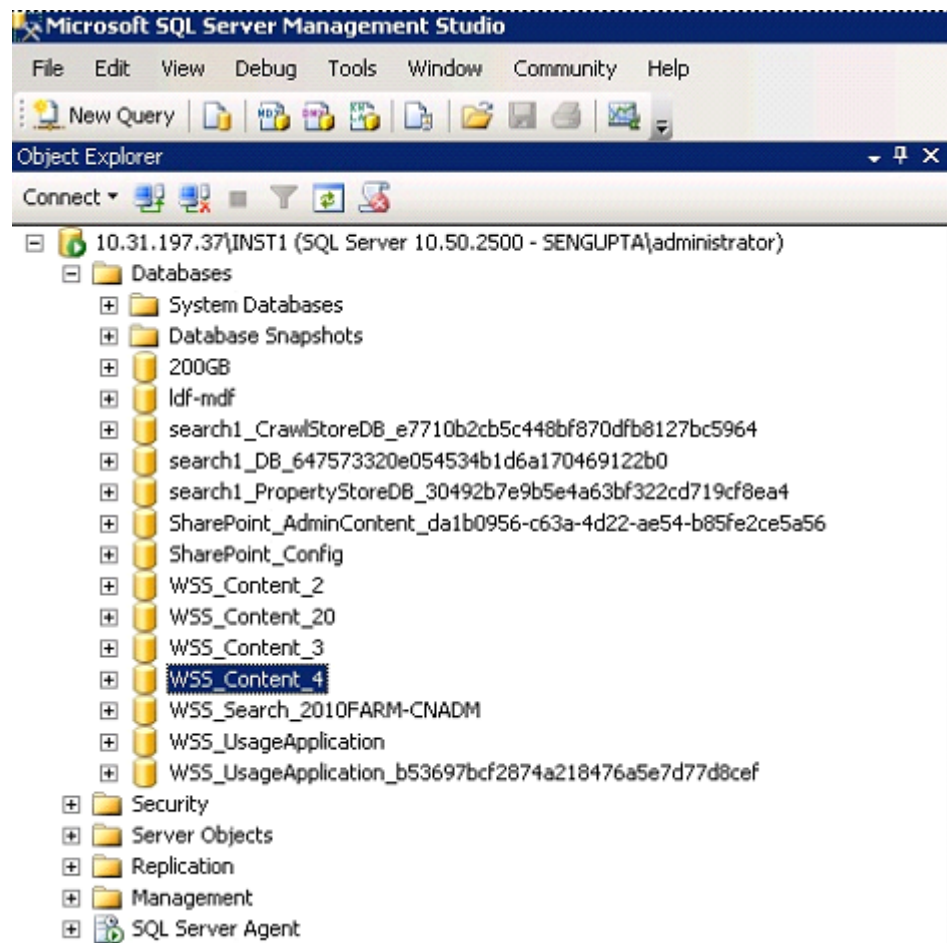
The IIS site for SharePoint - 4 is not available.

Figure 31 IIS site for SharePoint - 4 is not available



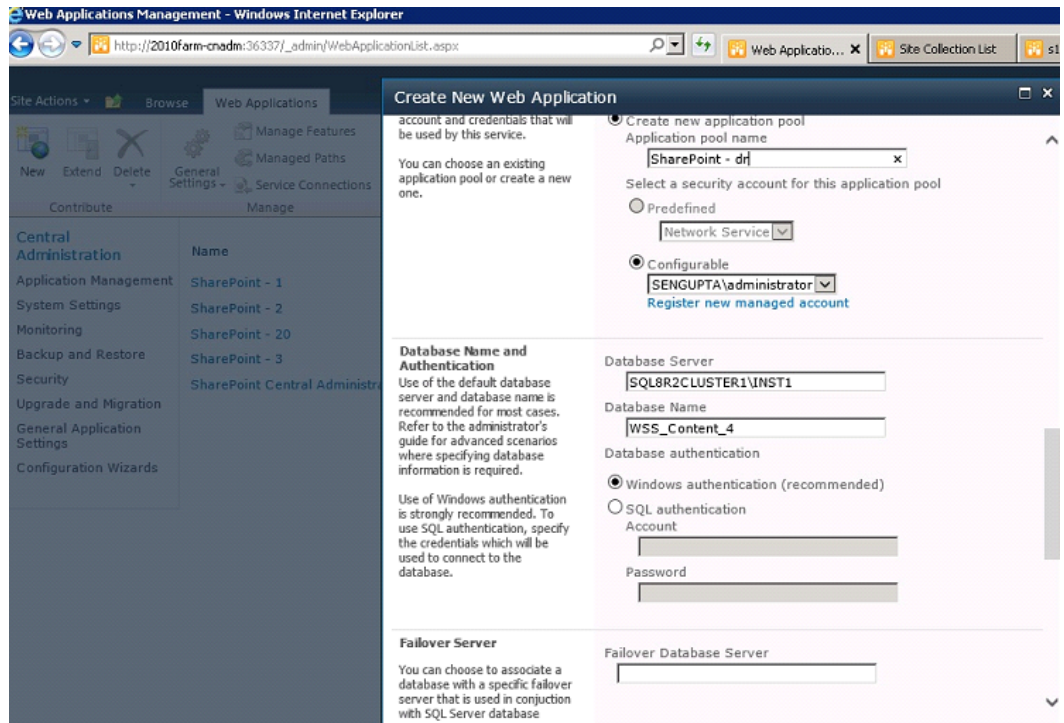
The content database is available for SharePoint - 4 web application.

Figure 32 Content database is available



4. Create a new web application SharePoint - dr and attach the database WSS_Content_4 to this web application. The new web application `SharePoint - dr` is created with the `WSS_Content_4` content database.

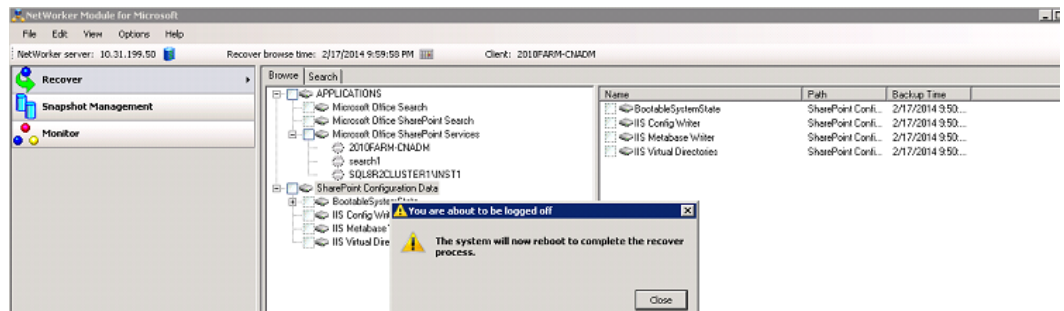
Figure 33 New web application created



5. Select the latest backup version in NetWorker User for Microsoft GUI of the application server 2010farm-cnadm.
6. Recover IIS Config Writer, IIS Metabase Writer, and IIS Virtual Directories in SharePoint Configuration Data.
7. To select the Writers, clear the Use Microsoft Best Practices for selecting the SharePoint Configuration Data option in the NetWorker tab in Recover Options.
8. Select Yes when the prompted System must be rebooted to complete the recovery process. Would you like to reboot now?

The system is restarted after recovery of SharePoint Configuration Data.

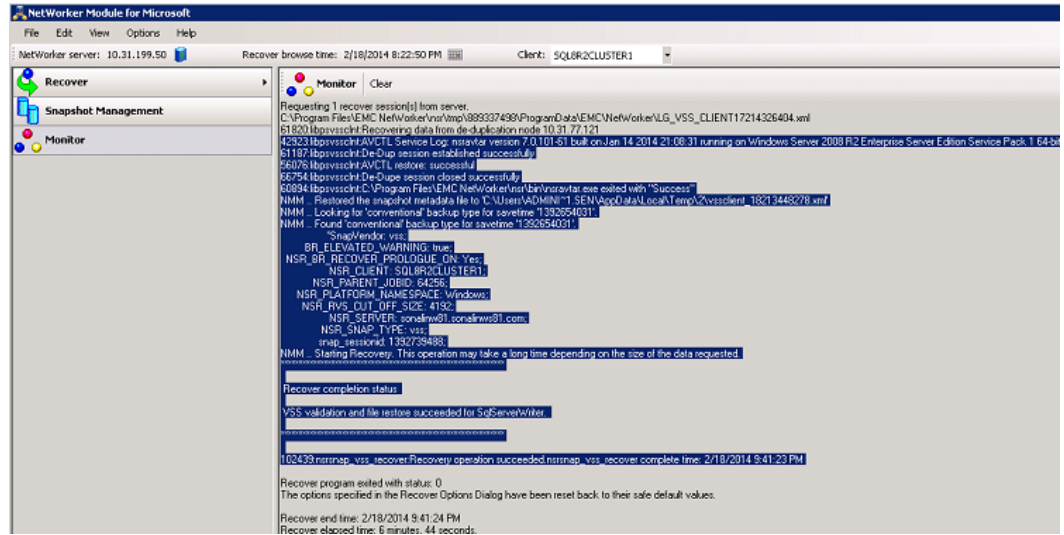
Figure 34 You are about to be logged off dialog box



9. Open the NetWorker User for Microsoft GUI on the SQL Server active node clus16 and select the content database WSS_Content_4 and SharePoint_Config, and start the recovery process.

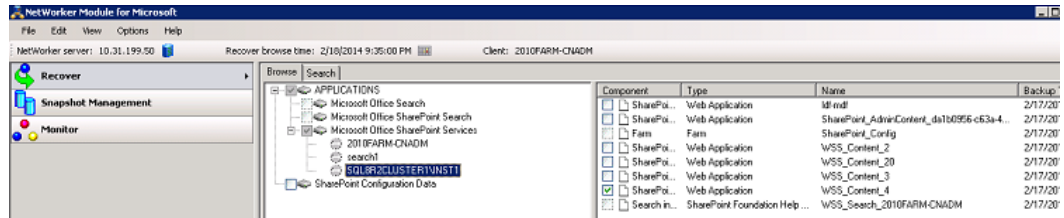
The recovery of the content database of corrupted web application is successful.

Figure 35 Successful recovery



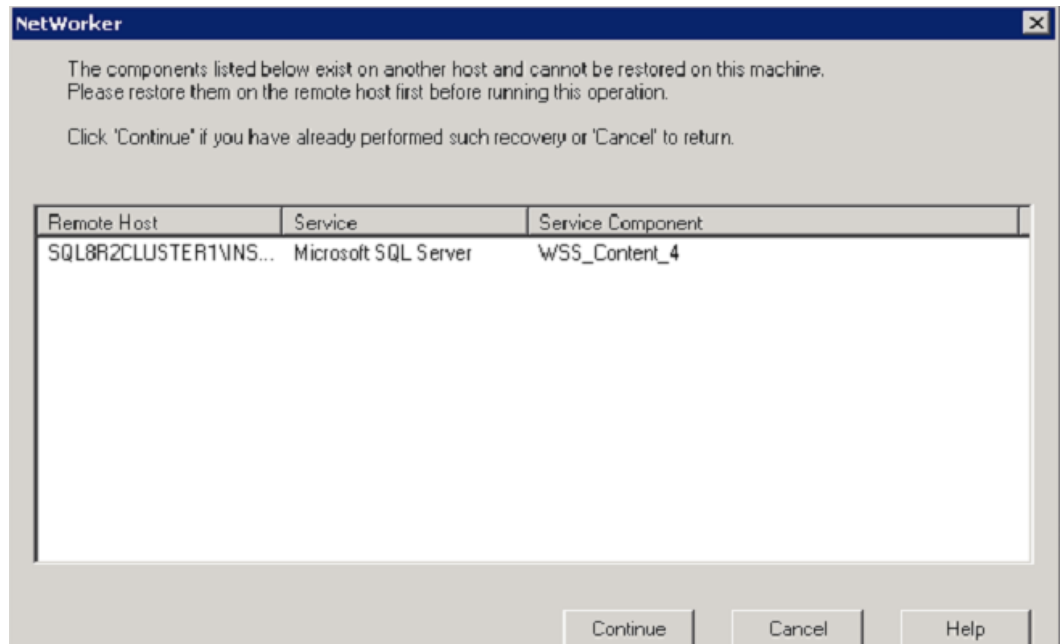
10. Recover the content database **wss_content_4** in the relevant SQL Server instance under **APPLICATION** save set in the NetWorker User for Microsoft GUI on the application server.

Figure 36 Content database recovery



11. Select **Continue** in the dependency dialog box to start the recovery process.

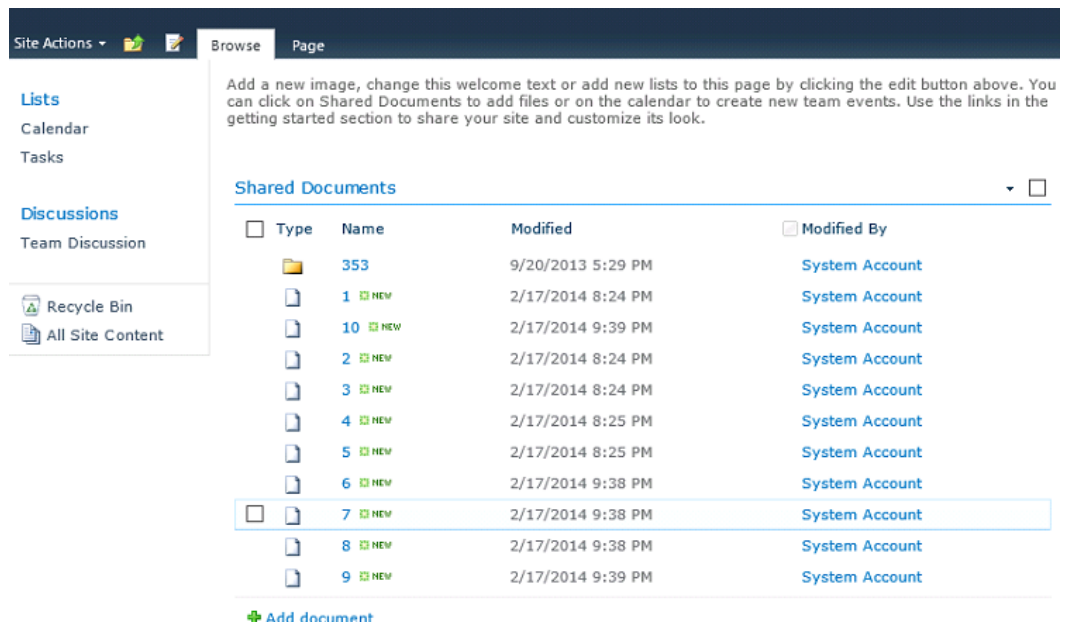
Figure 37 Dependency dialog box



The recovery is successful.

12. You can access the corrupted web application till the point the backup was taken. However, the last five documents that were added before disaster struck can not be accessed.

Figure 38 Browse tab



APPENDIX C

Troubleshooting

This appendix includes the following sections:

- [SharePoint Server issues](#).....98
- [SQL Server issues](#).....101

SharePoint Server issues

Review the issue descriptions and corresponding solutions to troubleshoot SharePoint Server related issues.

Perform manual steps to associate a web application to the original SSP after recovery

After performing a backup if you change the association of a web application to the original Shared Service Provider (SSP) and then perform a recovery, although recovery is successful, the association of a web application to the original SSP is not restored after a recovery.

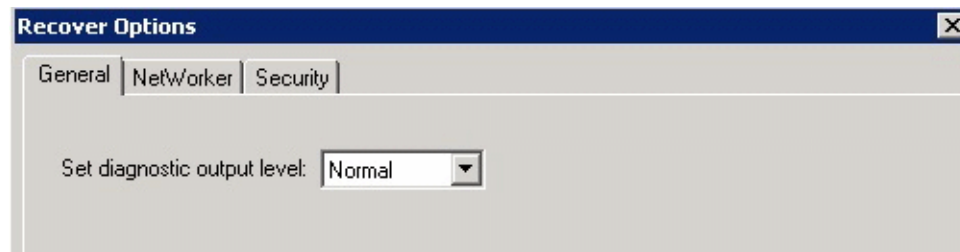
Solution

1. In the SharePoint Central Administration, select **Shared Services Administration**.
2. On the **Manage this farm's shared services** page, select **Change association**.
3. Assuming that you have already restored the SSP on a site, complete the required fields.
4. Specify the web application and database to which the SSP was restored.

Missing SQL tab during SharePoint GLR

The SQL tab is not displayed at the target location in the NetWorker User for Microsoft GUI for a redirected recovery if the SQL Server databases are not selected for recovery.

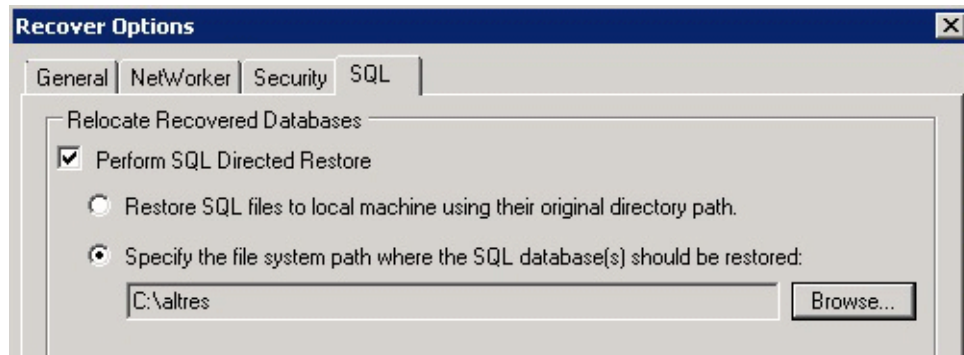
Figure 39 Missing SQL tab



Solution

Select the SQL Server databases for recovery. The SQL tab appears. Provide the recovery location for the databases in the SQL tab.

Figure 40 Available SQL tab



Locating the content database for directed recovery during SharePoint Server GLR

In some SharePoint Server configurations, the data is stored in multiple content databases. Before performing a recovery of a content database, you must know which content database contains the SharePoint data (SharePoint site or lists).

Solution

To locate the content database that contains the SharePoint data for recovery, use either the Command Line or the SharePoint Central Administration GUI.

Locating a content database by using the Command Line:

- If you know the site URL information, you can obtain information about the content database that contains the SharePoint data by running the following command:

```
C:\Program Files\Common Files\Microsoft Shared\Web Server
Extensions\14\BIN>stsadm.exe -o enumcontentdbs -url "http://
sqlsrv1vmspl0:8081"

<Databases Count="2">

<ContentDatabase Id="62ad9807-00c9-4494-9ba0-642e86b18b3d"
Server="sqlsrv1vmsql08.nmmperf.com" Name="WSS_Content_8081"
/>

<ContentDatabase Id="e31561b5-5843-40a2-96ac-2063775e41aa"
Server="sqlsrv1vmsql08.nmmperf.com" Name="WSS_Content_SR Re
quest Portal" />

</Databases>
```
- If you do not know the site URL information, you can obtain information about the site URL and the content database by running the following command:

```
C:\Program Files\Common Files\Microsoft Shared\Web Server
Extensions\14\BIN>stsadm.exe -o enumcontentdbs -url "http://
sqlsrv1vmspl0:8081"

<Database SiteCount="1" Name="WSS_Content_SR Request Portal"
DataSource="sqlsrv1vmsql08.nmmperf.com">

<Site Id="2998fdfd-56ba-4031-983e-18bb640e45f4"
OwnerLogin="NMMPERF\user" InSiteMap="True">

<Webs Count="7">

<Web Id="580174de-1818-490c-9a21-57ab18d4703a" Url="/"
LanguageId="1033" TemplateName="STS#0" TemplateId="1" />

<Web Id="c6768e65-1857-401e-8a68-f3885be76dee" Url="/
qcdefcts" LanguageId="1033" TemplateName="STS#0"
TemplateId="1" />

<Web Id="c467e967-c615-45dd-88ff-cc337efb775c" Url="/
qcdefcts/srrequest2010" LanguageId="1033"
TemplateName="STS#0" TemplateId="1" />

<Web Id="f6ff88b6-7456-4852-96c0-60b908743708" Url="/Qcesc"
LanguageId="1033" TemplateName="STS#0" TemplateId="1" />

<Web Id="87fe65ea-a8b6-4b9f-b5c4-20b0ad84740c" Url="/
srrequest" LanguageId="1033" TemplateName="STS#0"
TemplateId="1" />
```

```
<Web Id="b4239a41-ed7a-4f57-ba4d-f19dfb1ec7de" Url="/
srrequest/srrequest2010" LanguageId="1033"
TemplateName="STS#0" TemplateId="1" />
<Web Id="e92443e7-d73a-48c5-aafb-a4ac13fd9d7f" Url="/
srrequest/srrequest2011" LanguageId="1033"
TemplateName="STS#0" TemplateId="1" />
</Webs>
</Site>
</Database>
```

Locating a content database by using the SharePoint Server 2007 Central Administration GUI:

1. Open the SharePoint 2007 Central Administration.
2. Select the **Application Management** tab.
3. Under **SharePoint Site Management**, select **Site collection list**.
4. Select the web application to view the site collection list and the content database name that stores the site collection data.
5. Identify the correct content database.

Locating a content database by using the SharePoint Server 2010 Central Administration GUI:

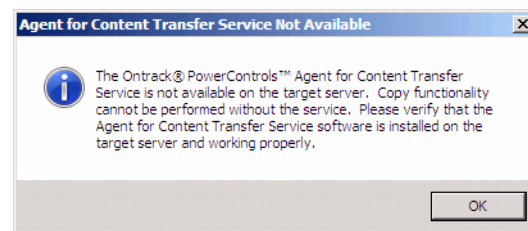
1. Open the SharePoint 2010 Central Administration.
2. Select the **Application Management** tab
3. Under **SharePoint Site Management**, select **View all the site collections**.
4. Identify the correct content database.

OntrackPowerControlsAgentForContentTransfer service error during SharePoint GLR

An error message appears if the OntrackPowerControlsAgentForContentTransfer service is not running when performing SharePoint GLR by using Ontrack PowerControls.

The following figure shows the error message that appears if the service is not running.

Figure 41 Error message if Ontrack PowerControls Agent Content transfer service is not running



Solution

The OntrackPowerControlsAgentForContentTransfer service does not start automatically and must be manually started by either using **services.msc** or by using the Command Line.

There is a separate installer called SetupACTS in the Ontrack PowerControls binaries to install the OntrackPowerControlsAgentForContentTransfer service.

The nsrnmmsv -P command does not list the save set

A NMM backup can not be performed unless the save set for a backup is available.

Solution

If the `nsrnmmsv -P` command does not list the save set, register the Windows SharePoint Services by using the `STSADM.exe` command.

Sometimes save sets are not listed correctly when a SharePoint client resource is created by using the Client Backup Configuration wizard

This error occurs when there is an issue in the SharePoint setup. Either the SharePoint configuration database is missing from the SQL database or is not connected.

Solution

Perform the following steps:

1. Disconnect and reconnect the SharePoint farm.
2. In the SQL Configuration Manager, check if the SharePoint configuration database is missing. If missing, reattach the SharePoint configuration database from SQL install directory.

Error message appears if a recovery is not performed in the correct sequence and when the nsrnmmsv -v -P command is run subsequently on the SharePoint node

If a recovery is not performed in the correct sequence, when the `nsrnmmsv -v -P` command is run subsequently on the SharePoint node, the following error message appears:

```
"APPLICATIONS:\Microsoft Office SharePoint Services
\445f327e-9abf-48c6-9a9a-32ddcba70bcc\OSearch Crawl Component"

Cannot retrieve dependent writer for APPLICATIONS:\SharePoint Services
Writer\445f327e-9abf-48c6-9a9a-32ddcba70bcc-crawl-0

"Depends on 'null' on Client '2010FARM-CNADM'"."
```

The recovery must be performed in the following sequence:

1. SharePoint Configuration Data
2. SQL Server database
3. SharePoint Writer

Solution

Perform either of the following steps:

- Recover the registry writer after recovering the SharePoint Writer.
- Disable the Search Writer and then enable the Search Writer again.

SQL Server issues

Review the issue descriptions and corresponding solutions to troubleshoot SQL Server issues.

Recovery of SQL Server database fails when the database is renamed after backup

If you perform recovery of a SQL Server database that is renamed after a backup is complete, the recovery of the database fails. This feature is not supported in NMM.

Solution

To rename a SQL Server database and its data files after backup, perform the following steps.

1. Open the Microsoft SQL Management Studio on the database.
2. Select the **Tasks and Copy Database** options.
3. Rename the SQL Server database and data files.
The wizard also offers a choice to move rather than copy the database.

SQL Server services stop during recovery of SQL Server master database

During recovery of SQL Server master databases, the SQL services to stop.

Solution

1. Stop the SQL Server Reporting Service (SSRS).
2. Open the NetWorker User for Microsoft GUI.
3. Perform recovery of the SQL Server.
4. Once the recovery is complete, restart the SQL Server Reporting Service.

Back up the SQL Server resource database during file system backup by using the NetWorker client

The SQL Server resource database must be protected for a full recovery of a SQL Server environment, but the SQL Server resource database is not backed up during the backup of the SQL Server.

Solution

You must back up the resource database as part of the file system backup by using the NetWorker client.

The SQL Server documentation and Microsoft Knowledge Base article <http://msdn.microsoft.com/en-us/library/ms190940.aspx> provide more information.

Freeing up disk space by shrinking the SQL log files

A transaction log file might contain unused space that you can reclaim by reducing the size of the transaction log. This process, known as shrinking the log file, helps in freeing up disk space.

Solution

Shrinking can occur only while the database is online. Run the following native SQL command (T-SQL) to avoid the log file from becoming full:

DBCC SHRINKFILE (<DBNAME_LOG>, <TARGET FILE SIZE>)

The SQL Server documentation and Microsoft Knowledge Base article <http://msdn.microsoft.com/en-us/library/ms189493.aspx> provide more information.