

Technical Notes

EMC[®] NetWorker[®] Performing Backup and Recovery of SharePoint Server by using NetWorker Module for Microsoft SQL VDI Solution

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Revision history

The following table presents the revision history of the document:

Table 1 Revision history

Revision	Date	Description
01	September, 2015	First release of this document for EMC NetWorker Module for Microsoft release 9.0.

Introduction

These technical notes describe the procedures to perform backup and recovery of a SharePoint Server by using the SQL Server Virtual Device Interface (VDI) technology and the SharePoint VSS Writer with EMC® NetWorker® Module for Microsoft (NMM).

In a SharePoint Server farm, the SQL Server database contains the configuration data and the content data.

NMM with SharePoint VSS Writer supports SharePoint Server backup and recovery. The NMM SQL Server VDI technology provides capabilities such as, incremental backups, log truncation, recovery of secondary replica for SQL Server 2012 with AlwaysOn configuration, copy recovery, No Recovery Mode, and so on.

You must perform additional configuration steps to use the SQL Server VDI technology and the SharePoint VSS Writer together to provide a solution for recovery of SharePoint web applications, site collections, and list items.

NOTICE

The *EMC NetWorker Module for Microsoft Administration Guide*, *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide*, and *EMC NetWorker Module for Microsoft for SQL VDI User Guide* supplement the procedures that these technical notes describe.

You can download these guides from EMC Online Support (<https://support.emc.com>).

SharePoint Server farm configurations

The *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide* provides information about the components in a SharePoint Server stand-alone farm configuration and a SharePoint Server distributed farm configuration.

SharePoint Server backup and recovery considerations

Review the following considerations when you back up and recover a SharePoint Server by using SQL Server VDI and SharePoint VSS Writer:

- The procedures in these technical notes are based on a sample SharePoint Server 2013 farm configuration with the following components:
 - The SharePoint Central Administration

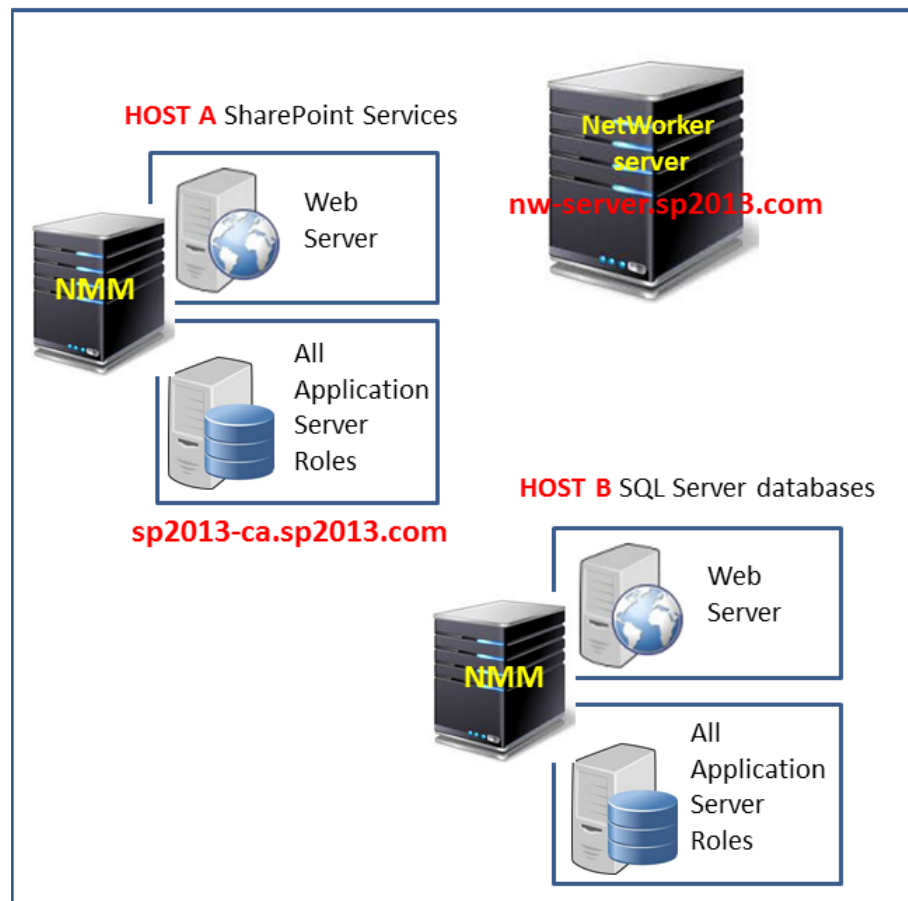
- A database server, which can be a SQL Server stand-alone server, a SQL cluster, a SQL Server 2012, or SQL Server 2012 R2 with AlwaysOn Availability Group configuration.
- The save sets and the backup and recovery procedures for SharePoint Server 2007, SharePoint Server 2010, and SharePoint Server 2013 backup and recovery are the same. Any differences in procedures and save sets are explicitly specified.
- The save sets and the procedures for the sample SQL Server VDI setup apply to SQL Server 2005, SQL Server 2008, SQL Server 2008 R2, SQL Server 2012, and SQL Server 2012 R2. Any differences in save sets and procedures are explicitly specified.
- Directed recovery by using NMM applies only to a SQL Server content database.
- During recovery, you must manually stop the SharePoint services.
- Ensure that you installed the supported versions of SQL Server and SharePoint Server in the setup. The *EMC NetWorker Online Software Compatibility Guide* provides the latest information about the supported SQL Server and SharePoint Server versions.
- Ensure that you installed NMM on all nodes in the SharePoint Server farm. The *EMC NetWorker Module for Microsoft Installation Guide* provides information.
- Ensure that you registered the SharePoint Writer on all nodes of the SharePoint Server farm. The *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide* provides information.
- Run the System Configuration Checker from the NMM installer to ensure that the setup suits NMM backup configurations. The *EMC NetWorker Module for Microsoft Installation Guide* provides information.
- The procedures in these technical notes do not apply to Windows Server 2003.

Backing up a SharePoint Server distributed farm

The sample SharePoint Server distributed farm setup contains the following components:

- The SharePoint Central Administration on the web front-end **sp2013-ca.sp2013.com**
- The SQL VDI Server stand-alone **sql2012-new.sp2013.com**
- The NetWorker server **nw-server.sp2013.com**
- SharePoint services that are hosted on **Host A**
- SQL Server databases that are configured on **Host B**
- Single protection policy containing single group, single workflow, single backup action that is configured for the SharePoint Server and the SQL Servers.

Figure 1 Example: SharePoint Server distributed farm



Procedure

1. Manually configure client resources for the SharePoint web front-ends by using the Client Properties dialog box. [Configuring client resources for the SharePoint web front-ends on page 5](#) provides information.
2. Use the Client Backup Configuration Wizard to configure client resources for the SQL Server by using the SQL VDI technology. [Configuring SQL Server client resources by using SQL VDI on page 5](#) provides information.
3. Back up the protection policy containing the workflow for the created client resources for:
 - SharePoint web front-ends
 - SQL Server VDI

Configuring client resources for the SharePoint web front-ends

Use the information in the following table to manually configure client resources from the Client Properties dialog box for all the web front-end servers in the SharePoint Server distributed farm.

Note

Do not use the Client Backup Configuration Wizard to configure the client resources for the web front-end servers. Although the Client Backup Configuration Wizard creates client resources for the associated SQL VSS Servers as well, the wizard does not create a client resource for a SQL VDI Server in a SharePoint farm.

Table 2 Values for the fields in Client Properties dialog box for client resource configuration

Field name	Value
Saveset	APPLICATIONS:\Microsoft Office SharePoint Services
Backup Command	nsrmmmsv.exe

Configuring SQL Server client resources by using SQL VDI

Use one of the following interfaces to configure client resources to back up a SQL Server by using the SQL VDI technology:

- The Client Configuration wizard
- The Client Properties dialog box

Specify the values from the following table in the Client Properties dialog box.

Table 3 Client Properties dialog box

Field name	Value
Client name	SQL Server hostname sql2012-new.sp2013.com
Saveset	MSSQL:
Backup Command	nsrsqlsv

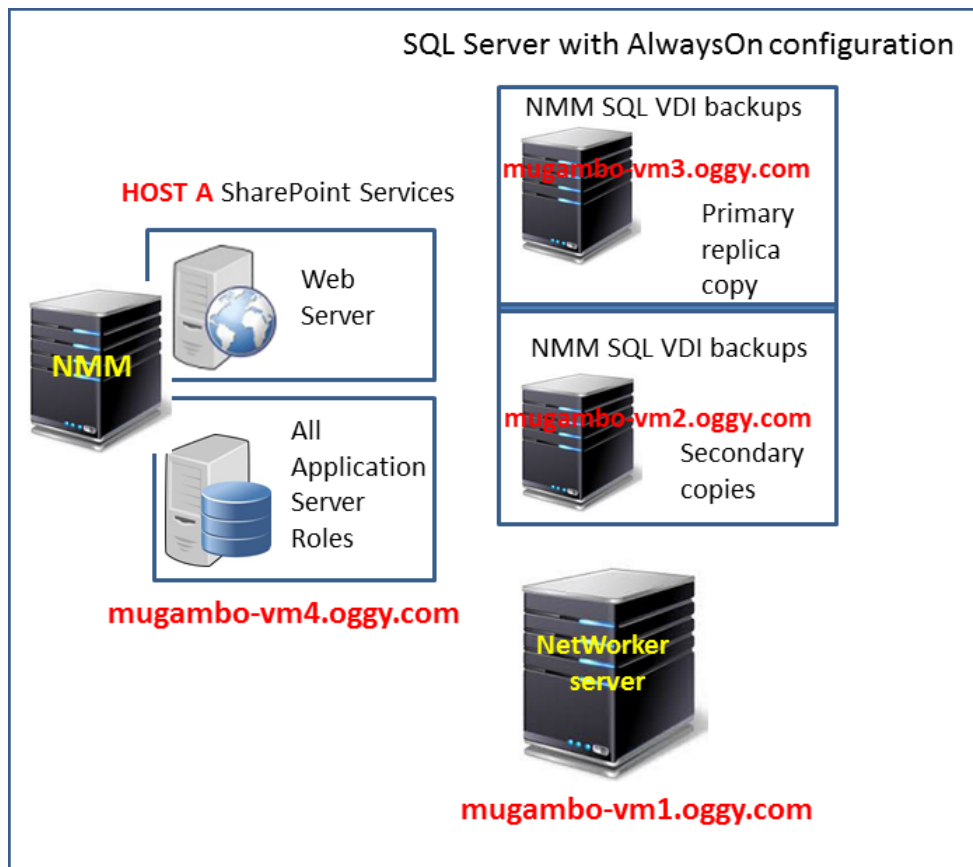
Backing up SQL Server with AlwaysOn configuration and SharePoint Server farm by using SQL VDI and SharePoint VSS Writer

The sample SharePoint Server distributed farm setup contains the following components:

- SharePoint Central Administration on the web front-end **mugambo-vm4.oggy.com**
- SQL Server AlwaysOn cluster with two nodes:
 - **Node A mugambo-vm3.oggy.com**
 - **Node B mugambo-vm2.oggy.com**

- NetWorker server **mugambo-vm1.oggy.com**
- SharePoint services that are hosted on Host A
- SQL Server databases that are configured on Host B
- Single protection policy containing single group, single workflow, single backup action that is configured for the SharePoint Server and the SQL Servers.

Figure 2 Example 2: SharePoint Server distributed farm



Procedure

1. Manually configure client resources for the SharePoint web front-ends by using the Client Properties dialog box. [Back up SharePoint web front-end on page 7](#) provides information.
2. Use the Client Backup Configuration Wizard to configure client resources for the SQL Server by using the SQL VDI technology. [Configure SQL Server client resources by using SQL VDI on page 7](#) provides information.
3. Back up the protection policy containing the workflow for the created client resources for:
 - SharePoint web front-ends
 - SQL Server VDI

Back up SharePoint web front-end

Use the information in the following table to manually configure client resources from the Client Properties dialog box for all the web front-end servers in the SharePoint Server distributed farm.

Note

Do not use the Client Backup Configuration Wizard to configure the client resources for the web front-end servers. Although the Client Backup Configuration Wizard creates client resources for the associated SQL VSS Servers as well, the wizard does not create a client resource for a SQL VDI Server in a SharePoint farm.

Table 4 Values for the fields in the Client Properties dialog box for client resource configuration

Field name	Value
Saveset	APPLICATIONS:\Microsoft Office SharePoint Services
Backup Command	nsrnmmsv.exe

Configure SQL Server client resources by using SQL VDI

Use one of the following interfaces to configure client resources to back up a SQL Server by using the SQL VDI technology:

- The Client Configuration wizard
- The Client Properties dialog box

Specify the values from the following table in the Client Properties dialog box.

Table 5 Client Properties dialog box

Field name	Value
Client name	Windows cluster Name (gorillas.oggy.com)
Saveset	MSSQL\$CHOCOLATE#A02 MSSQL:
Backup Command	nsrsqlsv

Recovering SharePoint site collection on a SQL stand-alone server by using SharePoint VSS and SQL VDI technologies

The procedure in this section is based on a sample setup with a site application named <http://sp2013-ca/>, which contains a site named **site3** with approximately 3000 documents, and a content database named **db2**.

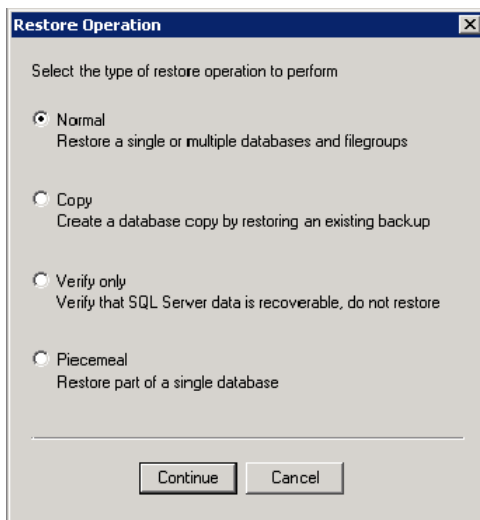
- Delete the example site collection <http://sp2013-ca/>.
- Use NMM (VSS) to recover the deleted site collection.

Procedure

1. Start the NetWorker User for Microsoft GUI on the SharePoint Server.
2. Expand **SharePoint Configuration Data** and recover **IIS Config Writer, IIS Metabase Writer, and IIS Virtual Directories**. The *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide* provides the procedure to select the IIS Writers.
3. After successful recovery, select **Yes** to restart the SharePoint Server.
4. Open the NetWorker User for SQL Server GUI on the SQL Server and select **Restore**.

The Restore Operation page appears.

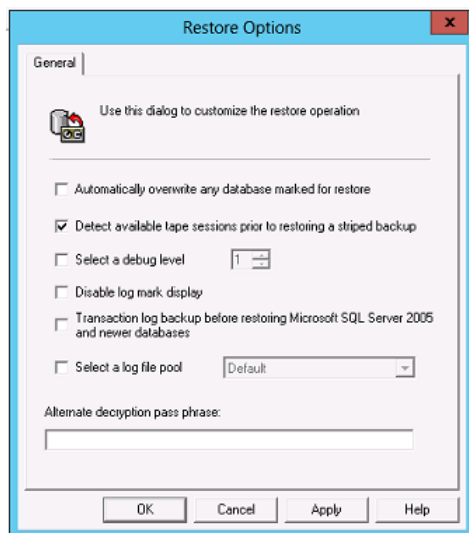
Figure 3 Restore operation page



5. Select **Normal** and click **Continue**.

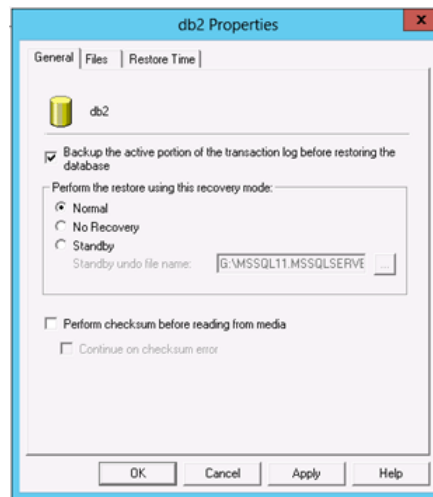
The Restore Options page appears.

Figure 4 Restore options page

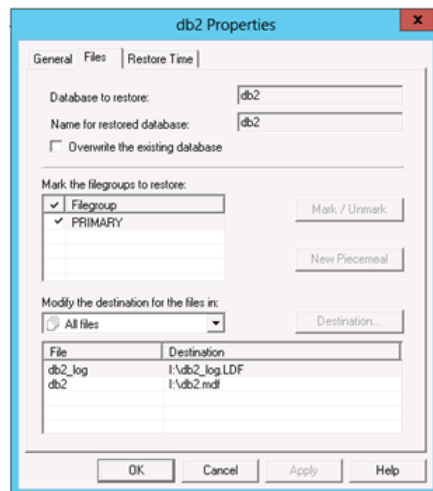


6. Specify the necessary fields and click **OK**.

The <database> Properties page appears.

Figure 5 Database properties - General page

7. Select **Backup the active portion of the transaction log before restoring the database**, and the relevant recovery mode, and then click **OK**.
8. Select the **Files** tab.

Figure 6 Database properties - Files page

9. Configure the following fields and click **OK**:
 - **Database to restore** - Displays the selected database for restore. You cannot modify this field.
 - **Name for restored database** - Specifies the name for the restored database. For a normal restore, this text box displays the name of the selected database for backup. You cannot modify this field.
 - **Overwrite the existing database** - Instructs the SQL Server to create the specified database and its related files, and deletes the old database that has the same name as the new database.

This field includes the WITH REPLACE SQL keyword in the restore sequence. The WITH REPLACE SQL keyword restores files by overwriting the old files that have the same name and location as the new files. Microsoft SQL Server Books Online provides more information.

- **Mark the filegroups to restore** - Lists the files and filegroups to restore. You cannot change the filegroups of the selected database if you are performing a normal, copy, or verify restore.

The set of marked filegroups in this field is copied to the list of the **Modify the destination for the files** in field.

- **Modify the destination for the files in** - Lists a set of views for the database files to be restored, and enables filtering of files that are visible in the **File and destination** table. The following table lists the supported views:

Table 6 Views in the Modify the destination for the files in field

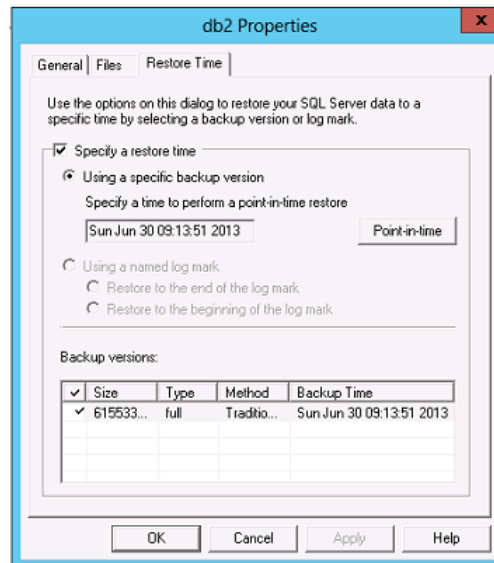
View	Description
All files	Displays all the files for the database, including transaction log files.
All log files	Displays only the transaction log files.
All data files	Displays only data files.
Filegroup name	Displays only data files for a specific filegroup.
Drive letter	Displays all files located on a given drive at the time the backup occurred, even if those files have since been relocated to a different drive.

- **File and Destination** - Lists the SQL Server logical filenames and locations. The files in this table are associated with the marked database to be restored. When you perform a normal restore, this table displays the current name and destination depending on the SQL Server physical filename and logical location for the restored file.

Filestream data is displayed as a folder with no subordinate objects.

To modify the destination, perform the following steps:

- a. Either double-click a file in the list or click a file in the list, and then click **Destination**.
- b. In the Specify the file destination dialog box, specify the following fields:
 - **Source file name** - Displays the selected file from the **File and Destination** table. You cannot modify the value in this field. If you selected multiple files in the **File and Destination** table, this field is empty.
 - **Source location** - Displays the selected file and location from the **File and Destination** table. You cannot modify the value in this field. If you selected multiple files in the **File and Destination** table, this field displays the location of the first selected file.
 - **Destination location** - Displays the file system location for the restored file. If you selected multiple files in the **File and Destination** table, the default SQL data path is opened, but not selected. To change the location, either type a pathname or browse the file system tree and select a directory or file.
 - **Destination file name** - Displays the name of the selected file from the **File and Destination** table. If you selected multiple files in the **File and Destination** table, this field is empty. To change the filename, either type a new name or browse the file system tree and select a file.
- c. Click **OK**.

10. Select the **Restore Time** tab.**Figure 7** Database properties - Restore time page

This tab enables you to select a backup version and modify the restore date and time. The **Backup versions** table lists the default selection for restore. When you performed a point-in-time recovery, the recovery procedure reinstates transactions only from the backup version that was taken before the specified restore date and time.

You can change the backup version or the transaction time.

Specify the following fields and click **OK**.

- **Specify a restore time** - Select this option to schedule a restore.

If you selected the **Backup the active portion of the transaction log before restoring the database** option on the **General** tab, and you select this option but do not specify the point-in-time in the transaction log, the process does not restore the latest transactions that are captured in the active transaction log backup.

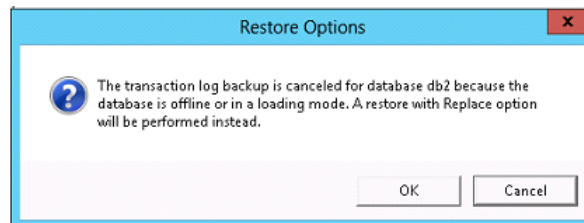
The process restores the latest transactions that are captured in the active transaction log backup to the specified point-in-time only if the transaction log contains those latest transactions.
- **Specify a time to perform the point-in-time restore** - Displays the backup time of the selected backup from the **Backup versions** table. The restore time indicates what data from the selected backup version is reinstated during the restore, and when to stop restoring transactions. Click **Point-in-Time** to modify the value in this field.
- **Point-in-Time** - When either the incremental backup or the latest backup regardless of whether it is full, incremental or differential is selected in the **Backup versions** table, the **Point-in-time** button is enabled to set the time for a point-in-time backup. If either a full or a differential backup is selected but it is not the latest backup, clicking this button displays an error message.
- **Using a named log mark** - This option is enabled only when log marks exist for the selected database backup. Selecting this field enables the **Restore to the end of the log mark** and **Restore to the beginning of the log mark** options.
 - **Restore to the end of the log mark** - Select this option to restore the backup and stop immediately after the named log mark. This restore includes the named transaction.

- **Restore to the beginning of the log mark** - Select this option to restore the backup and stop immediately before the named log mark. This restore excludes the named transaction.
- Use the **Log Mark** table field to specify a log mark to perform the recovery. Either double-click a log mark or select a log mark in the list and click **Mark**.

11. In the NMC, select **Options > Restore Options** and monitor the recovery.

If the database is either offline or in the loading mode, a message as shown in the following figure appears.

Figure 8 Restore options message



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

13. After successful recovery, attach the recovered content database in the SharePoint Server and check the recovered documents and sites.

14. Perform step 4 to step 13 to recover any document that is deleted from the site in a SharePoint site collection.

Performing Granular Level Recovery of sites, lists, and items by using directed (copy) content database recovery and third party Kroll Ontrack PowerControls

Use the NetWorker User for SQL Server GUI and the third-party Kroll Ontrack PowerControls GUI to perform Granular Level Recovery (GLR) of SharePoint sites, lists, and items.

Performing directed recovery of SQL Server

Procedure

1. Start the NetWorker User for SQL Server GUI on the SQL Server and click **Restore**.
2. In the **Restore Operation** page, select the recovery type.
3. Select **Copy** and click **Continue**.
4. In the **Select the SQL Server** page, select **A NetWorker SQL Server client** for the SQL Server to recover, and click **Continue**.
5. In the **Select the SQL Server Instance** page, select the **A SQL Server named instance** option, select the available SQL Server from the list, and then click **Continue**.
6. In the **Select the database** page, select the database to recover and click **Restore**.

The `WSS_Content_SR Request Portal.mdf` and `WSS_Content_SR Request Portal.ldf` files are recovered to the user-defined location.

Performing GLR by using Ontrack PowerControls

The *EMC NetWorker for Microsoft for SQL and SharePoint VSS User Guide* provides information.

Performing SQL Server with AlwaysOn configuration and SharePoint web application recovery by using SQL VDI and SharePoint VSS Writer

The procedure in this section is based on a sample setup with a web application **WebApplication UNDER TEST 1**, which contains a site collection http://mugambo-vm4:3361/sites/sit1_under_web_app1.

Delete the web application **Webapplication UNDER TEST 1**.

Use the NMM (VSS) to recover the deleted site collection.

Procedure

1. Start the NetWorker User for Microsoft GUI on the SharePoint Server.
2. Expand **SharePoint Configuration Data** and recover **IIS Config Writer**, **IIS Metabase Writer**, and **IIS Virtual Directories**. The *EMC NetWorker Module for Microsoft for SQL and SharePoint VSS User Guide* provides the steps to select the IIS Writers.
3. After successful recovery, select **Yes** to restart the SharePoint Server.
4. Start the NetWorker User for SQL Server on the SQL server **Node A** with primary replica copy.
5. Select **Operation** > **Select NetWorker SQL Server Client** and select **NetWorker SQL Server Client**.
6. In the **Select the SQL Server Instance** dialog box:
 - a. Select **A SQL Server named instance**.
 - b. From the drop-down list, select the named instance that contains the SQL Server content database and the SharePoint configuration database.
 - c. Click **Continue**.
7. Stop the SharePoint service on the SharePoint Server because SQL recovery requires exclusive access to databases.
8. Recover the SQL Server content database and the SharePoint Server configuration database.
9. Select **Yes** when prompted.
10. Start the NetWorker User for SQL Server on **Node B**, which has the secondary replica copy of the SQL Server with AlwaysOn Configuration.
11. Select **NO Recover** and start the recovery.
12. Start the SQL Server Management Studio (SSMS). SSMS displays the database in the restoring mode for the secondary replica copies being recovered.
13. Add the content databases and the configuration databases back to Availability Group by using the **Add Database to Availability Group** option in the SSMS GUI.
14. In the SSMS GUI, select the synchronization preferences.

In this sample configuration, use the **Join only** option because the secondary copy is available.

If the secondary copy is not available, use the **FULL synchronization** option to seed the other node. Seeding depends on the database size and can take a long time. So, you must use the **Join only** option.

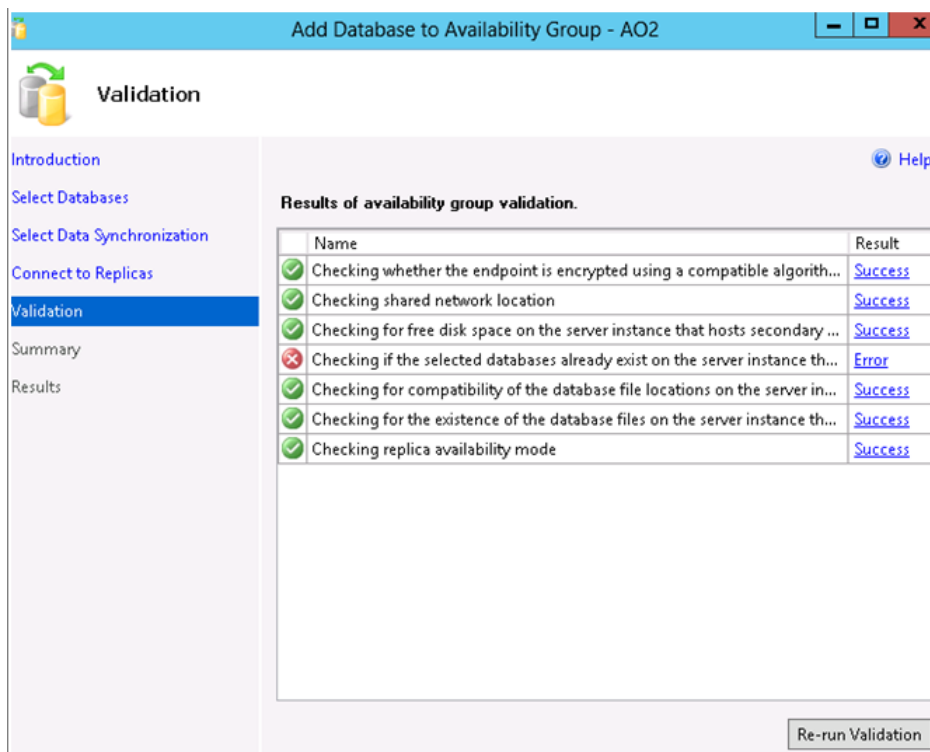
15. Start the NetWorker User for Microsoft on either the web front-end or the SharePoint Central Administration on the SharePoint Server.
16. Recover the SharePoint Writer.
17. You are prompted to select the dependent databases when recovering the respective content databases. Because you recovered the databases by using the SQL VDI technology, click **Continue** and recover the **SharePoint VSS Writer for web application UNDER TEST1**.
After successful recovery, the web application is available for browsing.
18. Manually start the SharePoint and SQL services.

Troubleshooting

Review the following troubleshooting information when backing up and recovering a SharePoint Server by using the NetWorker Module for Microsoft SQL VDI solution.

- If the secondary replica copy is not recovered or if normal recovery is performed on the secondary node, the Add database to Availability Group page displays an error message, as shown in the following figure.

Figure 9 Error message in the Add database to Availability Group page



Workaround: Use the NO Recovery option when you recover secondary replica copies for SQL Server 2012 with AlwaysOn configuration.

- Recovery fails if you do not stop the SharePoint services before recovering SQL Server databases by using the NetWorker User for SQL Server, as shown in the following figure.

Figure 10 Error message when the SharePoint services are not stopped

```
50:(pid 7132): Successfully established client DDCL session for recovering save-set ID
29:(pid 7132): VDI device did not close properly.
85:(pid 7132): Microsoft SQL Server Provider error:
06:(pid 7132): Exclusive access could not be obtained because the database is in use.
06:(pid 7132): RESTORE DATABASE is terminating abnormally..
```

Workaround: Manually stop the SharePoint services before recovering SQL Server databases.

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