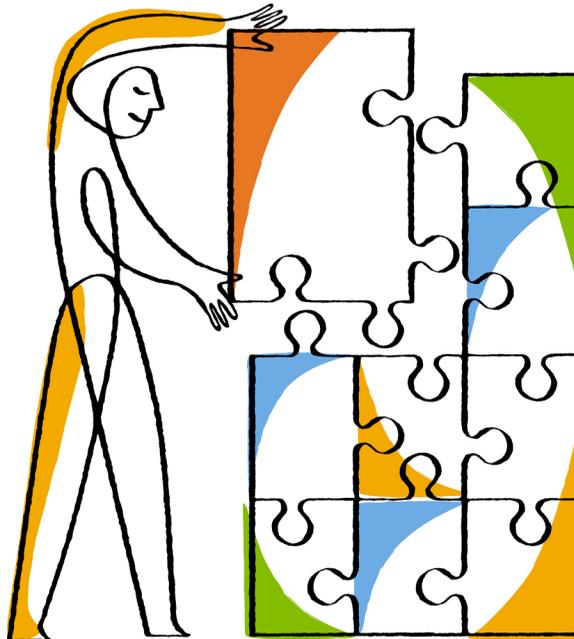




NetApp[®] Recovery Manager 1.1 for Citrix[®] ShareFile[®]

Installation and Administration Guide



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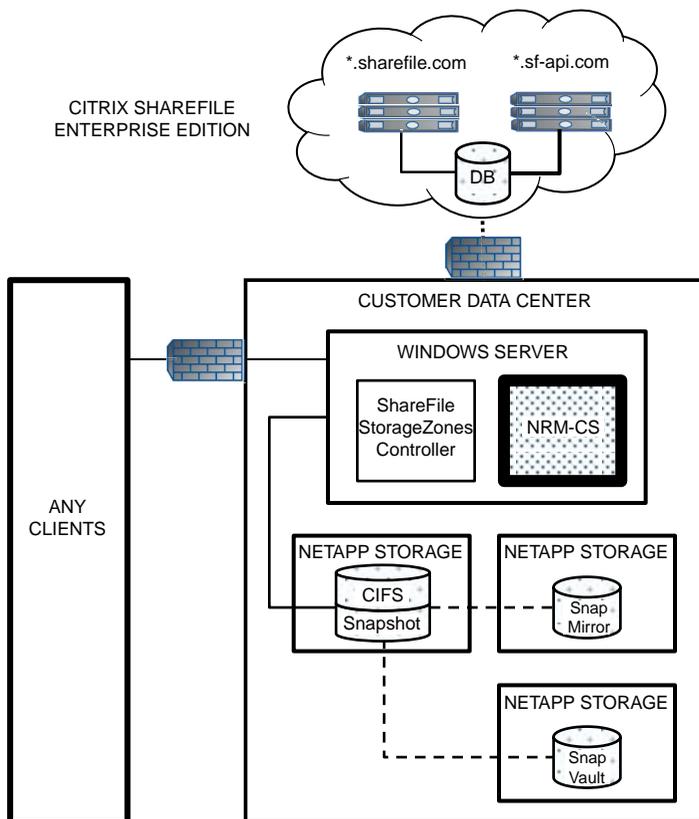
NetApp Recovery Manager for Citrix ShareFile overview

NetApp® Recovery Manager for Citrix® ShareFile® (NRM-CS) provides a background Microsoft Windows service for ShareFile administrators to restore user files and folders that have been removed from the ShareFile StorageZone.

Designed to leverage the data protection and replication provided by Snapshot™, SnapVault®, and SnapMirror® technology (running Data ONTAP operating in 7-mode and clustered Data ONTAP), NRM-CS provides the ability to fully automate the file recovery process that has been previously performed manually by the administrator.

Note: For more information about Snapshot, SnapVault, and SnapMirror, see the documentation available on the NetApp Support Site, which is available online at support.netapp.com.

Running as a background service, NRM-CS provides recovery functionality as shown in the following example of a Citrix ShareFile Enterprise Edition environment:



As shown in this example, NRM-CS provides the recovery functionality within the following workflow:

1. A ShareFile user requests a file restore from the ShareFile administrator.
2. The ShareFile administrator selects **Recover Files** from the StorageZone view in the ShareFile Administration interface.
When the administrator selects the files/folders to restore, a recovery queue item is created in the StorageZone recovery queue for each file that needs to be restored.
This recovery queue item provides the information needed to restore the files from the backup location to the primary storage.
3. NRM-CS reads the recovery queue and detects the old filename (the associated ID for the file); then searches for that file (by the associated ID) in Snapshot, SnapVault, and SnapMirror.
4. After the search process is complete, NRM-CS copies the file to the CIFS volume as specified by the recovery queue; then the recovery queue is marked as "success" or "failure."
5. Depending on the result of the process, one of the following occurs:
 - If the recovery process is successful, the restored files are available through the ShareFile web user interface and clients.
 - If the recovery process failed, the request for file recovery is removed from the queue.

Note: For more information about Citrix ShareFile and the recovery queue, refer to the Citrix ShareFile documentation.

For this release (1.1), NRM-CS contains the following features:

- Support has been added for SnapVault running clustered Data ONTAP (8.2).
- NRM-CS can now be installed on another Windows server, apart from the StorageZones Controller server (called ShareFile Storage Center in versions prior to 2.0).
- High availability support. NRM-CS can be installed on multiple servers for a single StorageZone. This provides the following advantages:
 - Redundancy in the event an NRM-CS server goes down
 - Load sharing in the file recovery process
- The ability to restore files in parallel; the maximum number of files (up to 18) that you select depends on the system memory in your environment.
- Enhanced, easy-to-use graphical interface using the NetApp Recovery Manager for Citrix ShareFile – Configuration window that contains the following views:
 - **Dashboard** view, which displays the following summaries:
 - Configuration:
 - Recovery queue status (detected or not)
 - Recovery service status (running or not)
 - Primary and secondary storage (associated SnapVault and SnapMirror) information and configuration validation
 - Controller:

- Credentials (hostname or IP address)
- Connection type
- Version
- Controller type
- System ID
- Serial number
- **Recovery Service** view, which displays the current settings (Service Poll Timeout, Parallel File Restores, Queue Retry Timeout, NDMP Retry Count, NDMP Timeout, ShareFile StorageZones Controller URL, Recovery Queue detection, and NRM-CS service status), recovery queue and service status. From this view, you can also edit the service settings and create a recovery queue.
- **StorageZone** view, which displays the hostname and volume that hosts the CIFS share used by the ShareFile StorageZone. From this view, you can also edit, as well as delete, this connection to the NetApp storage system.
- **Protection** view, which displays the configured SnapVaults and SnapMirrors; multiple destinations are supported. From this view, you can also reorder the priority (displayed in the **Priority** column) of these SnapVault and SnapMirror destinations.
- **Logs** view, which displays the associated service logs. From this view, you can also export these logs.
- **Help > About** menu option, which displays version information about the installed product.

For detailed information about the Citrix ShareFile Enterprise Edition and the NetApp storage solution, refer to the NetApp Technical Report TR-4124: *Citrix ShareFile StorageZones on NetApp Solution Guide*.

Related information

[*TR 4124: Citrix ShareFile StorageZones on NetApp Solution Guide.pdf*](#)

Installation and upgrade overview

You can install or upgrade NetApp Recovery Manager for Citrix ShareFile on a 32-bit or 64-bit Windows computer that either has Citrix ShareFile installed or is a stand-alone server.

To install or upgrade the NRM-CS software, follow these guidelines:

- NRM-CS can be installed on the same server as the StorageZones Controller, or on a separate stand-alone Windows server. In addition, NRM-CS can be installed on every StorageZones Controller within a StorageZone; installation is no longer limited to only one server.
- NRM-CS is a 32-bit application. When installing on a 32-bit system, the default installation directory is `C:\Program Files`. When installing on a 64-bit system, the default directory is `C:\Program Files (x86)`. During a silent (unattended) install, you cannot force installation to the `Program Files` directory on a 64-bit system.
- A reboot of the Windows computer is not required to complete the installation, upgrade, or uninstall process.
- After upgrading, the following configuration settings must be addressed through the NetApp Recovery Manager for Citrix ShareFile – Configuration window:
 - The StorageZones Controller URL will default to `http://localhost`; reset if necessary through the **Recovery Service** view.
 - The NDMP credentials for the configured storage destinations must be set through the **StorageZone** and **Protection** views; otherwise, the NRM-CS recovery service will not run.

Installation requirements and configuration information

Before you install NetApp Recovery Manager for Citrix ShareFile, you should be aware of the following requirements and configuration information.

License requirements

In order to restore files from local Snapshots, SnapVault, and SnapMirror destinations, the following licenses may be required, depending on your environment:

- `cifs` (ShareFile StorageZone Controller only supports CIFS shares)
- `snaprestore` (for cloning files from Snapshot into the active file system)
- `snapvault` (to enumerate SnapVault information and restore files from SnapVault); used when running Data ONTAP operating in 7-mode
- `sv_ontap_sec` (to enumerate SnapVault information and restore files from SnapVault); used when running clustered Data ONTAP
- `snapmirror` (to enumerate SnapMirror information and restore files from SnapMirror)

Software requirements

The following software is required for use with NRM-CS:

- Microsoft .NET Framework
- Microsoft Windows
- PowerShell
- Data ONTAP
- Citrix ShareFile; one of the following:
 - ShareFile Storage Center
 - StorageZones Controller

See the Interoperability Matrix, which is online at support.netapp.com/matrix, for details regarding the supported software and associated versions.

Hardware requirements

Refer to the Citrix ShareFile hardware requirements. The NRM-CS software supports these minimum hardware requirements.

There should be at least 20 MB of space available for the NetApp Recovery Manager for Citrix ShareFile.

Install NRM-CS

You can install NRM-CS using the installation wizard or from a command line.

NRM-CS can be installed either on the same server as the StorageZones Controller or on a stand-alone Windows server.

In addition, for environments running multiple instances of StorageZones Controller, NRM-CS can be installed on every server.

Installing NRM-CS using the installation wizard

You can use the installation wizard to install the NRM-CS software.

Before you begin

- You must be logged on with administrator privileges to the machine where you are installing NRM-CS.
- Make sure that the following are installed on the server:
 - Microsoft .NET Framework
 - PowerShell

Note: For specific information regarding these requirements, refer to the topic *Installation requirements and configuration information*.

About this task

To install the NRM-CS using the installation wizard, perform the following steps.

Steps

1. Download the NRM-CS installer (NRM-CS.1.1.msi) from the NetApp Support Site at support.netapp.com.
2. Double-click the installer icon, and click **Run** to start the installation wizard.
3. Follow the instructions in the installation wizard to install the software.

Note: NRM-CS can be installed in any directory as the destination.

4. Click **Finish** to complete the installation.

Note: If you want to configure the product immediately after the installation is complete, make sure to select the **Launch NRM-CS Configuration** check box.

Result

As a result of using the installation wizard, an `install.log` file is not generated. If you need to have an `install.log`, install NRM-CS from a command line. For more information, see topic *Installing NRM-CS from a command line*.

If you selected the **Launch NRM-CS Configuration** check box in the last screen of the installation wizard, the NetApp Recovery Manager for Citrix ShareFile – Configuration window opens, allowing you to configure the connection to the NetApp storage system. For information, refer to the topic *Configure NRM-CS*.

Note: If you did not select the **Launch NRM-CS Configuration** check box, select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration** to configure NRM-CS.

Related concepts

[Installation requirements and configuration information](#) on page 7

[Configure NRM-CS](#) on page 18

Related tasks

[Installing NRM-CS from a command line](#) on page 10

Installing NRM-CS from a command line

You can install NRM-CS from a command line instead of using the installation wizard.

Before you begin

- You must be logged on with administrator privileges to the machine where you are installing NRM-CS.
- Make sure that the following are installed on the server:
 - Microsoft .NET Framework
 - PowerShell

Note: For specific information regarding these requirements, refer to the topic *Installation requirements and configuration information*.

About this task

Typically, you install from a command line to take advantage of performing the install in silent (unattended) mode (using the `/qn` option) where no user interface, progress bars, or error messages are displayed during the process. Silent mode also enables you to request an installer log file.

Note: An `install.log` is not generated when using the installation wizard.

To install the NRM-CS from a command line, perform the following steps.

Steps

1. Download the NRM-CS installer (`NRM-CS.1.1.msi`) from the NetApp Support Site at support.netapp.com.
2. From the command line prompt, switch to the directory where you saved the executable file.
3. Run the following command, which includes the options for an installer log file, silent mode, and specifying an installation directory other than the default directory:

```
start /wait msisexec /l*v install.log /qn /i installer_filename
INSTALLDIR=C:\XYZ
```

Where:

- `start /wait` prevents the command from returning until the installation is complete.
- *(optional)* `/l*v install.log` generates an installer log file (`install.log`), which is recommended for a silent install for possible debugging issues.
- *(optional)* `/qn` is the silent mode flag.

Note: If you want the NetApp Recovery Manager for Citrix ShareFile – Configuration window to open after the installation is complete so that you can configure the product, do

not include this option in your command. You have the option to select the **Launch NRM-CS Configuration** check box in the last screen of the installation wizard.

- `/i installer_filename` informs msiexec which installer file to install (for example, NRM-CS.1.1.msi).
- *(optional)* `INSTALLDIR=C:\XYZ` specifies the installation directory instead of accepting the default directory.

Note: For more command line options, enter `msiexec /?` at the command prompt.

The installation begins and runs in the background.

Note: If you did not use the silent mode option (`/qn`), follow the instructions in the installation wizard to install the software.

Result

In this example, because the `/l*v install.log` was inserted in the command, the `install.log` file containing the actions performed during the installation process is generated and placed in the installation directory (in this example, `C:\XYZ`). In addition, this file also contains any errors that occur during this process, together with their associated messages.

If you ran the command in silent mode, select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration** to configure NRM-CS. For information, refer to the topic *Configure NRM-CS*.

Note: If you did not run the command in silent mode and selected the **Launch NRM-CS Configuration** check box, the NetApp Recovery Manager for Citrix ShareFile – Configuration window automatically opens, allowing you to configure the connection to the NetApp storage system.

Related concepts

[Installation requirements and configuration information](#) on page 7

[Configure NRM-CS](#) on page 18

Upgrade NRM-CS

You can upgrade NRM-CS using the installation wizard or from a command line.

After upgrading NRM-CS, you must configure the NDMP Hostname or IP for the NetApp storage system before the service will run properly.

In addition, the **StorageZones Controller URL** is set to `http://localhost` (the default) during the upgrade process. Depending on your environment, you might have to modify this URL.

Note: For information, refer to the *Configure NRM-CS* section.

Upgrading NRM-CS using the installation wizard

You can use the installation wizard to upgrade the NRM-CS software.

Before you begin

- You must be logged on with administrator privileges to the machine where you are upgrading NRM-CS.
- Make sure you have closed or exited the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

About this task

To upgrade the NRM-CS using the installation wizard, perform the following steps.

Steps

1. Download the NRM-CS installer (`NRM-CS.1.1.msi`) from the NetApp Support Site at support.netapp.com.
2. Double-click the installer icon, then click **Run** to start the installation wizard.
3. Follow the instructions in the installation wizard to install the software.

Note: NRM-CS can be installed in any directory as the destination.

4. Click **Finish** to complete the installation.

Note: To configure the product immediately after the installation is complete, make sure to select the **Launch NRM-CS Configuration** check box.

Result

As a result of using the installation wizard, an `install.log` file is not generated. If you need to have an `install.log`, upgrade NRM-CS from a command line. For more information, see topic *Upgrading NRM-CS from a command line*.

If you selected the **Launch NRM-CS Configuration** check box in the last screen of the installation wizard, the NetApp Recovery Manager for Citrix ShareFile – Configuration window opens, allowing you to set the NDMP configuration for the NetApp storage system within the **StorageZone** and **Protection** views. For information, refer to the *Configure NRM-CS* section.

Note: If you did not select the **Launch NRM-CS Configuration** check box, select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration** to configure NRM-CS.

Related concepts

[Configure NRM-CS](#) on page 18

Related tasks

[Upgrading NRM-CS from a command line](#) on page 13

Upgrading NRM-CS from a command line

You can upgrade NRM-CS from a command line instead of using the installation wizard.

Before you begin

- You must be logged on with administrator privileges to the machine where you are upgrading NRM-CS.
- Make sure you have closed or exited the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

About this task

Typically, you upgrade from a command line to take advantage of performing the install in silent (unattended) mode (using the `/qn` option) where no user interface, progress bars, or error messages are displayed during the process. Silent mode also provides the ability to create an installer log file.

Note: An `install.log` is not generated when using the installation wizard.

To upgrade the NRM-CS from a command line, perform the following steps.

Steps

1. Download the NRM-CS installer (`NRM-CS.1.1.msi`) from the NetApp Support Site at support.netapp.com
2. From a command line prompt, switch to the directory where you saved the executable file.
3. Run the following command, which includes the options for an installer log file, silent mode, and specifying an installation directory other than the default directory:

```
start /wait msixec /l*v install.log /qn /i installer_filename  
INSTALLDIR=C:\XYZ
```

Where:

- `start /wait` prevents the command from returning until the installation is complete.
- *(optional)* `/l*v install.log` generates an installer log file (`install.log`), which is recommended for a silent install for possible debugging issues.
- *(optional)* `/qn` is the silent mode flag.

Note: If you want the NetApp Recovery Manager for Citrix ShareFile – Configuration window to open after the installation is complete so that you can configure the product, do not include this option in your command. You will have the option to select the **Launch NRM-CS Configuration** check box in the last screen of the installation wizard.

- `/i installer_filename` informs `msiexec` which installer file to install (for example, NRM-CS.1.1.msi).
- *(optional)* `INSTALLDIR=C:\XYZ` specifies the installation directory instead of accepting the default directory.

Note: For more command line options, enter `msiexec /?` at the command prompt.

The installation begins and runs in the background.

Note: If you did not use the silent mode option (`/qn`), follow the instructions in the installation wizard to install the software.

Result

In this example, because the `/l*v install.log` was inserted in the command, the `install.log` file containing the actions performed during the installation process is generated and placed in the installation directory (in this example, `C:\XYZ`). In addition, this file also contains any errors that occur during this process, together with their associated messages.

Note: If an `install.log` existed from a previous installation, this file is overwritten by this upgrade.

If you ran the command in silent mode, select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration** to configure the NDMP credentials for the NetApp storage system within the **StorageZone** and **Protection** views. For information, refer to the *Configure NRM-CS* section.

Note: If you did not run the command in silent mode and selected the **Launch NRM-CS Configuration** check box, the NetApp Recovery Manager for Citrix ShareFile – Configuration window automatically opens, allowing you to configure NRM-CS.

Related concepts

[Configure NRM-CS](#) on page 18

Uninstall NRM-CS

You can uninstall NRM-CS using the installation wizard or from a command line.

Uninstalling NRM-CS using Remove/Uninstall programs

You can uninstall the NRM-CS software using the Windows Remove or Uninstall Programs function.

Before you begin

- You must be logged on with administrator privileges to the machine where you are uninstalling NRM-CS.
- Make sure you have closed or exited the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

About this task

The uninstall process removes the NRM-CS application. However, the logs and data files are not removed automatically during this process; when uninstalling with the Windows remove programs feature, you are prompted as to whether you want to remove these files or leave them (the default option).

Note: For more information about the command line process, see the topic *Uninstalling NRM-CS from a command line*.

To uninstall the NRM-CS using the Windows remove program, perform the following steps.

Steps

1. On the server where the NRM-CS software is installed, navigate to the Windows Control Panel and using the applicable remove or uninstall feature, select **NetApp Recovery Manager 1.1 for Citrix ShareFile**.

For details on how to use the Windows remove programs feature to uninstall programs, see the documentation for your Windows operating system.

2. Click the uninstall or remove option.

An uninstall prompt appears.

3. Follow the prompts to remove the application and logs and data files.

Result

As a result of using the Windows Remove/Uninstall program, an `uninstall.log` file is not generated. If you need to have an `uninstall.log`, uninstall NRM-CS from a command line. For more information, see topic *Uninstalling NRM-CS from a command line*.

Related tasks

[Uninstalling NRM-CS from a command line](#) on page 16

Uninstalling NRM-CS from a command line

You can uninstall NRM-CS from a command line instead of using the Windows Remove/Uninstall Program. From the command line, you can uninstall the entire NRM-CS at the same time.

Before you begin

- You must be logged on with administrator privileges to the machine where you are uninstalling NRM-CS.
- Make sure you have closed or exited the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

About this task

You would typically uninstall from a command line to take advantage of performing the uninstall in silent mode (using the `/qn` option) where no user interface, progress bars, or error messages are displayed during the process.

Uninstalling from a command line also provides the ability, by using the applicable optional commands, to remove all of the associated data files and to create an uninstall log file.

Note: When using the Windows Remove/Uninstall programs, an uninstall log file is not generated.

To uninstall the NRM-CS from a command line, perform the following steps.

Step

1. On the machine where the NRM-CS software is installed, from a command line prompt, run the following command, which includes the options for an uninstall log file, silent mode, and removing the data and log files:

```
start /wait Msiexec /l*v uninstall.log /qn /x installer_filename
REMOVECONFIGFILES=1
```

Where:

- `start /wait` prevents the command from returning until the uninstall is complete.
- *(optional)* `/l*v uninstall.log` generates an uninstall log file (`uninstall.log`), which is recommended for a silent uninstall for possible debugging issues.

Note: If needed, you can specify a directory for this file other than the current directory (for example, `/l*v C:\uninstall.log`).

- *(optional)* `/qn` is the silent mode flag.
- `/x installer_filename` informs msiexec which installer file to uninstall (for example, `NRM-CS.1.1.msi`).
- *(optional)* `REMOVECONFIGFILES=1` informs the uninstaller to remove the data and log files.

Note: For more command line options, enter `msiexec /?` at the command prompt.

Result

In this example, because the `/l*v uninstall.log` was inserted in the command, the `uninstall.log` file containing the actions performed during the uninstall process is generated and placed in the current directory. In addition, this file also contains any errors and associated messages that might occur during this process.

Configure NRM-CS

You can configure NetApp Recovery Manager for Citrix ShareFile by using the NetApp Recovery Manager for Citrix ShareFile – Configuration window to access various configuration settings through categorized views.

The NetApp Recovery Manager for Citrix ShareFile – Configuration window can be accessed either immediately after the installation process by selecting the **Launch NRM-CS Configuration** check box on the last screen of the installation wizard or after the installation has been completed by selecting **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration**.

The NetApp Recovery Manager for Citrix ShareFile – Configuration window provides access to the following views, allowing you to configure the associated settings:

Note: Before configuring NRM-CS, review the *Guidelines for configuring NRM-CS* topic for various factors to consider when setting up the recovery service.

- **Dashboard** view
You can view the existing NRM-CS configuration and controller summaries.
- **Recovery Service** view
You can establish service settings (Service Poll Timeout, Parallel File Restores, Queue Retry Timeout, NDMP Retry Count, NDMP Timeout, ShareFile StorageZones Controller URL, Recovery Queue detection, and NRM-CS service status) and view recovery queue and service status. You can also create or delete the recovery queue.
- **StorageZone** view
You can set the connection to your NetApp storage system.
- **Protection** view
You can set the data protection configuration, including the ability to select the priority order for the configured SnapVault and SnapMirror destinations.
- **Logs** view
You can view the service log file, open the log directory, and zip the log files.

Before you can configure NRM-CS, the StorageZones Controller must be set up, which requires the setup of the NetApp storage controller and volume and the CIFS share, as well as any applicable SnapVault and SnapMirror relationships. Applicable licenses must also be installed on the storage controller. For more information, refer to the topic *Installation requirements and configuration information*.

You also have the option of managing user roles and access by implementing role-based access control (RBAC) using various Zephyr APIs (ZAPIs) through the command line or OnCommand System Manager. For more information, see the *Role Based Access Control for NRM-CS* topic.

Related concepts

[Installation requirements and configuration information](#) on page 7

[Guidelines for configuring NRM-CS](#) on page 19

[Role Based Access Control for NRM-CS](#) on page 24

Guidelines for configuring NRM-CS

Before configuring NetApp Recovery Manager for Citrix ShareFile, there are various factors to consider when setting up the recovery service.

Before you proceed to configure NRM-CS, observe the following guidelines:

- The following are not supported:
 - The recovery of files and folders from QTrees mounted as CIFS shares, or QTree SnapMirrors
 - Multistore (vFiler unit connection)
 - Direct connect Vservers for Data ONTAP versions prior to 8.2
- When performing parallel file restoration, the process is limited by the number of NRM-CS servers and the maximum number of NDMP sessions as described in the *Data Protection Tape Backup and Recovery Guide* for your Data ONTAP environment.

Based on these limits, use the following to determine your maximum number of files that are restored in parallel:

$$(X / Y) / 2 = Z$$

where:

- X is the maximum number of NDMP sessions.
- Y is the number of installed NRM-CS servers.
- 2 is used for the transfer from the same node/Vserver back to itself. For example, if there are two volumes on the same aggregate on a node, but on different Vservers, with node NDMP the same IP would be used, and each NDMP transfer would take up two NDMP sessions, one to send and one to receive.
- Z is the number of files to restore in parallel for each configured NRM-CS server.

For example:

- If the maximum NDMP sessions is 8, and there is 1 NRM-CS installed, set the **Parallel File Restores** to 4.
- If the maximum NDMP sessions is 20, and there are 2 NRM-CS installed, set the **Parallel File Restores** to 5 on each NRM-CS configured.
- If the maximum NDMP sessions is 36, and there are 3 NRM-CS installed, set the **Parallel File Restores** to 6 on each NRM-CS configured.
- If the maximum NDMP sessions is 36, and there is only 1 NRM-CS installed, set the **Parallel File Restores** to 18.

Viewing configuration and controller summaries

You can view the current configuration and controller settings for NRM-CS from the **Dashboard** view in the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

About this task

To view the current configuration, perform the following steps.

Steps

1. Select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration**.

The NetApp Recovery Manager for Citrix ShareFile – Configuration window opens to the **Dashboard** view (the default view).

2. Review the configuration and controller summaries in the right pane.

Specifying service settings

Using the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can configure the Recovery service settings (Service Poll Timeout, Parallel File Restores, Queue Retry Timeout, NDMP Retry Count, NDMP Timeout, ShareFile StorageZones Controller URL, Recovery Queue detection, and NRM-CS service status) for NRM-CS.

About this task

From the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can access the **Recovery Service** view to set the initial configuration of the service settings, as well as edit the existing configuration.

To configure the NRM-CS service settings, perform the following steps.

Note: The NetApp Recovery Manager for Citrix ShareFile – Configuration window must be open. If you selected the **Launch NRM-CS Configuration** check box in the installation wizard, this window is automatically opened. If you did not select this check box or installed the product in silent mode, select the **NRM-CS Configuration** option from the **Start** menu.

Steps

1. In the **NetApp Recovery Manager for Citrix ShareFile – Configuration** window, select **Recovery Service** in the left pane.

The **Recovery Service** view displays in the right pane.

2. Click **Edit**.

The Recovery Service Wizard opens.

3. Select the recovery service poll timeout (in seconds, minutes, or hours).
4. Select the number of files to restore in parallel.

Note: The maximum number of files that you select depends on the system memory in your environment.

For details about determining the number of files to select, see the *Guidelines for configuring NRM-CS* topic.

5. Select the queue work item retry timeout (in seconds, minutes, or hours), then click **Next**.
6. Configure the NDMP settings:
 - a. Select the number of times (up to 100) to retry failed NDMP connections.
 - b. Select the amount of time (in seconds, minutes, or hours) before terminating the NDMP connections.

Click **Next**.

7. Modify the default entry (`http://localhost`) for the StorageZones Controller URL connection, if needed; then click **Finish**.

The service settings are saved

8. If needed, click either **Create Recovery Queue** or **Delete Recovery Queue** to perform the associated action.

Result

If this is the initial configuration of NRM-CS, configure the storage system connection (see the topic *Configuring to the storage system connection*).

If you edited the existing configuration, the **Recovery Service** view displays the provided information. NRM-CS loads the configuration and runs in the background. You can close the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

Related concepts

[Guidelines for configuring NRM-CS](#) on page 19

Related tasks

[Configuring the storage system connection](#) on page 22

Configuring the storage system connection

Using the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can configure the connection to the NetApp storage system.

About this task

From the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can access the **StorageZone** view to set the initial configuration to the NetApp storage system, as well as to edit the existing configuration.

To configure the connection to the NetApp storage system, perform the following steps.

Note: The NetApp Recovery Manager for Citrix ShareFile – Configuration window must be open. If you selected the **Launch NRM-CS Configuration** check box in the installation wizard, this window is automatically opened. If you did not select this check box or installed the product in silent mode, select the **NRM-CS Configuration** option from the **Start** menu.

Steps

1. In the **NetApp Recovery Manager for Citrix ShareFile – Configuration** window, select **StorageZone** in the left pane.

The **StorageZone** view displays in the right pane.

2. Click **Edit**.

The StorageZone Wizard opens.

3. Enter the login information (unique hostname or IP address, username, and password) for the storage controller to which you want to connect; then click **Next**.

The service detects whether this storage controller is running Data ONTAP operating in 7-mode or clustered Data ONTAP.

4. Select the appropriate Vserver and volume; then click **Next**.

5. Enter the NDMP credentials (hostname or IP address, username, and password); then click **Finish**.

The StorageZone Wizard closes and the configured connection displays in the **StorageZone** view.

Result

If this is the initial configuration of NRM-CS, configure the data protection connection (see the topic *Configuring the data protection connection*).

If you edited the existing configuration, the **StorageZone** view displays the provided information. NRM-CS loads the configuration and runs in the background. You can close the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

Related tasks

[Configuring the data protection connection](#) on page 23

Configuring the data protection connection

Using the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can configure the connection to the available data protection (SnapVault and SnapMirror) for your system.

About this task

From the NetApp Recovery Manager for Citrix ShareFile – Configuration window, you can access the **Protection** view to set the initial configuration to the configured data protection, as well as edit the existing configuration.

To configure the connection to the data protection, perform the following steps.

Note: The NetApp Recovery Manager for Citrix ShareFile – Configuration window must be open. If you selected the **Launch NRM-CS Configuration** check box in the installation wizard, this window is automatically opened. If you did not select this check box or installed the product in silent mode, select the **NRM-CS Configuration** option from the **Start** menu.

Steps

1. In the **NetApp Recovery Manager for Citrix ShareFile – Configuration** window, select **Protection** in the left pane.
The **Protection** view displays in the right pane.
2. Depending on the action you want to take, the following options are available:
 - If you want to add a new data protection connection, then click **Add** and select the appropriate option from the drop-down list. Proceed to the next step.
 - If you want to edit an existing data protection connection, then select the desired connection and click **Edit**. Proceed to the next step.
 - If you want to delete a connection, then select the desired connection and click **Delete**. The connection is removed from the **Protection** view.
 - If you want to select primary and secondary backups, re-ordering the connections in the display, then select the desired connection and click either **Move Down** or **Move Up**. The connection is re-ordered in the **Protection** view.
3. Enter the login information (unique hostname or IP address, username, and password) for the storage controller to which you want to connect, then click **Next**.

4. Select the appropriate Vserver and destination, then click **Next**.
5. Enter the NDMP credentials (hostname or IP address, username, and password); then click **Finish**.

The Protection Wizard closes and the connection display in the **Protection** view is updated.

Result

The **Protection** view displays the provided information. NRM-CS loads the configuration and runs in the background. You can close the NetApp Recovery Manager for Citrix ShareFile – Configuration window.

Role Based Access Control for NRM-CS

Role-based access control (RBAC) is optional; however, the implementation of RBAC is recommended if you want to manage user roles and access. Otherwise, you can use root or full permission on the NetApp storage controller.

The RBAC operation for NetApp Recovery Manager for Citrix ShareFile is implemented by the use of ZAPIs on the storage controller side. RBAC also requires permissions associated with the administrator role on the Citrix ShareFile side.

The following ZAPIs and commands or directories are used to manage the storage controllers:

- Data ONTAP operating in 7-Mode
 - ems-autosupport-log
 - file-get-file-info
 - license-list-info
 - snapmirror-get-status
 - snapshot-list-info
 - snapshot-restore-file
 - snapvault-secondary-destinations-list-info
 - snapvault-secondary-get-configuration
 - system-cli
 - system-get-info
 - useradmin-group-list
 - useradmin-role-list
 - useradmin-user-list
 - volume-list-info
 - volume-list-info-iter-end
 - volume-list-info-iter-next
 - volume-list-info-iter-start
- Clustered Data ONTAP
 - Read-only commands/directories:

- storage aggregate show
- volume file show-disk-usage
- network interface show
- security login show
- snapmirror show
- volume snapshot show
- system node show
- volume show
- vserver show
- Read-write commands/directories:
 - volume file show-disk-usage
 - system node
 - volume snapshot restore-file
 - system node run

Troubleshooting and logging

This section provides information about NetApp Recovery Manager for Citrix ShareFile error codes and mitigation, as well as support logs.

Troubleshooting

This section provides information about error codes and mitigation.

Error codes and mitigation

Various error codes and messages might be generated as you use NRM-CS.

Each error message is comprised of a four-digit unique identifier, along with the message. For example:

Error 1000

An unexpected error occurred, try again

Note: For error codes that are displayed through the user interface, the unique identifier is displayed in the dialog box title bar, along with the message.

The following table lists the NRM-CS error codes in numerical order, along with their associated messages and resolutions.

Error Code	Message	Resolution
1000	An unexpected error occurred, try again	There was a problem connecting to storage controller. Collect the logs (see topic <i>Exporting log files</i>) and contact NetApp Technical Support.
1001	AuthException	You entered the incorrect username or password when logging in to the storage controller. Access the StorageZone view in the NetApp Recovery Manager for Citrix ShareFile – Configuration window and enter the correct login credentials (see the topic <i>Configuring the storage system connection</i>).

Error Code	Message	Resolution
1002	ConnectionException	Unable to connect to storage controller. Check the network settings.
1003	ConnectionTimeoutException	Network timeout connecting to the storage controller. Verify that the storage controller is running.
1004	Error connecting to controller	Miscellaneous error talking to storage controller. Collect the logs (see topic <i>Exporting log files</i>) and contact NetApp Technical Support.
1005	Unable to create recovery queue	The recovery queue in the StorageZones Controller could not be created. Verify the StorageZones Controller URL, and make sure the StorageZones Controller is running.
1006	Unable to delete recovery queue	The recovery queue in the StorageZones Controller could not be deleted. Verify the StorageZones Controller URL, and make sure the StorageZones Controller is running. Also verify that the recovery queue is already created.
1010	No SnapMirrors found	The controller you connected to does not have any configured SnapMirror destinations. Connect to a different controller with SnapMirrors configured.
1011	No SnapVaults found	The controller you connected to does not have any configured SnapVault destinations. Connect to a different controller with SnapVaults configured.

Error Code	Message	Resolution
1012	NDMP connection failed, enable NDMP, verify credentials and try again	Could not connect to NDMP with the IP, Username, and Password specified. Make sure that NDMP is enabled and turned on for your controller, and that you are using the correct username and password
1020	Duplicate found in list, SnapMirror/SnapVault not added	You already have this SnapMirror or SnapVault destination configured; you can not add duplicates. Add a different backup destination (see the topic <i>Configuring the data protection connection</i>).
1021	SnapMirror/SnapVault found in list, changes not saved	Editing an item created a duplicate; the changes to this SnapMirror or SnapVault were not saved. Do not edit a backup destination to be the same as one that is already in the list (see the topic <i>Configuring the data protection connection</i>).
1030	NRM-CS Configuration is already running	Only one copy of NRM-CS Configuration can run at one time. Switch to the open NetApp Recovery Manager for Citrix ShareFile – Configuration window.

Related concepts

[Configure NRM-CS](#) on page 18

Related tasks

[Exporting log files](#) on page 30

Support log files

NRM-CS uses the service log file (`RecoveryManager.Service.log`) to record detailed information about event messages and errors.

The service log file is contained in the logs directory (`C:\ProgramData\NetApp\NetApp Recovery Manager for Citrix ShareFile\logs`).

This file contains the timestamp of each message, as well as a short description of its contents. Each log file contains 10 MB of data before a new file is created, and a maximum of 10 files is retained before the logs are rotated.

Example of a service log file:

```
2013-08-09T14:54:58.0718860-04:00 [ 4] DEBUG
NetApp.RecoveryManager.Service.RecoveryService - Configuration file
change detected
2013-08-09T14:54:58.1656360-04:00 [ 4] INFO
NetApp.RecoveryManager.Service.RecoveryService - starting service with
new configuration
2013-08-09T14:54:58.1656360-04:00 [ 4] INFO
NetApp.RecoveryManager.Service.RecoveryService - stopping timer
2013-08-09T14:54:58.1656360-04:00 [ 4] INFO
NetApp.RecoveryManager.Service.RecoveryService - configuration
successfully loaded
2013-08-09T14:54:58.1656360-04:00 [ 4] INFO
NetApp.RecoveryManager.Service.RecoveryService - starting timer with
value of 1 minutes
```

Viewing log files

You can view the service log file for information about event messages.

About this task

The **Logs** view is automatically updated and scrolls as the file is updated.

To view the service log file, perform the following steps.

Steps

1. Select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration**.

The NetApp Recovery Manager for Citrix ShareFile – Configuration window opens.

2. Select **Logs** in the left pane.

The **Logs** view displays in the right pane.

Result

From the **Logs** view, you can perform any of the following actions:

- Open the log directory (click **Open Log Directory**).
- Export the listed support log files in a .zip file (click **Zip Log Files**). For more information, see the topic *Exporting log files*.

Related tasks

[Exporting log files](#) on page 30

Exporting log files

You can export all of the associated service log files to a directory of your choice.

About this task

When exporting the log files, the entire `logs` directory (which includes the `RecoveryManager.Service.log`) is saved to a .zip file to a location of your choice. This zip file also collects host and controller information.

To export the log files, perform the following steps.

Steps

1. Select **Start > NetApp > NetApp Recovery Manager for Citrix ShareFile > NRM-CS Configuration**.

The NetApp Recovery Manager for Citrix ShareFile – Configuration window opens.

2. Select **Logs** in the left pane.

The **Logs** view displays in the right pane.

3. Click **Zip Log Files**.

The Save as dialog box opens.

4. Locate the directory to where you want to save the .zip file and click **Save**.

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