Hitachi Data Ingestor

6.4.2

Backup Restore Features Supplement for Veritas NetBackup

The purpose of this document is to supplement the NetBackup documentation provided by Symantec by explaining how to set up the environment needed to use NetBackup with Backup Restore and by summarizing the troubleshooting procedures in NetBackup.

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Preface

The purpose of this document is to supplement the NetBackup documentation provided by Veritas by explaining how to set up the environment needed to use NetBackup with Backup Restore and by summarizing the troubleshooting procedures in NetBackup. The instructions in this manual use the names of windows, menus, buttons, and other objects as they appear in NetBackup in Windows. The names used for windows, menus, buttons, and other objects might differ depending on the OS, or on the version and language of NetBackup.

For details on the NetBackup functions, see the NetBackup documentation from Veritas.

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Product version

This document revision applies to Hitachi Data Ingestor version 4.2.1 or later.

Release notes

Read the release notes before installing and using this product. They may contain requirements or restrictions that are not fully described in this document or updates or corrections to this document. Release notes are available on Hitachi Vantara Support Connect: https://knowledge.hitachivantara.com/Documents.

Referenced documents

Hitachi Data Ingestor

- *Hitachi Data Ingestor Installation and Configuration Guide*, MK-90HDICOM002

Abbreviation conventions

This document uses the following abbreviations for product names:

Abbreviation	Full name or meaning
NetBackup	Veritas NetBackup(TM) Enterprise Server
NetBackup for NDMP	Veritas NetBackup(TM) for NDMP
Windows	Microsoft(R) Windows(R) Operating System

Document conventions

This document uses the following typographic conventions:

Convention	Description
Bold	Indicates text on a window, other than the window title, including menus, menu options, buttons, fields, and labels. Example: Click **OK**.
Italic	Indicates a variable, which is a placeholder for actual text provided by the user or system. Example: `copy` *source-file target-file* *Note:* Angled brackets (< >) are also used to indicate variables.
`screen/code`	Indicates text that is displayed on screen or entered by the user. Example: `# pairdisplay -g oradb`

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Convention	Description
...	The item or items preceding the ellipsis (. . .) can be repeated. To specify multiple items, use a comma (,) to delimit them. Example: A,B...indicates that B can be specified as many times as necessary after A.

Accessing product documentation

Product user documentation is available on Hitachi Vantara Support Connect: https://knowledge.hitachivantara.com/Documents. Check this site for the most current documentation, including important updates that may have been made after the release of the product.

Getting help

Hitachi Vantara Support Connect is the destination for technical support of products and solutions sold by Hitachi Vantara. To contact technical support, log on to Hitachi Vantara Support Connect for contact information: https://support.hitachivantara.com/en_us/contact-us.html.

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Thank you!

Setting Up the Operating Environment

This chapter provides an overview of the tasks required on the backup servers and media servers so that NetBackup can be used to perform backup and restore operations.

☐ Tasks necessary for linking with NetBackup

☐ Deciding the backup performance tuning settings

☐ Installing NetBackup

☐ Setting up the NetBackup environment

☐ Granting access permissions to the NDMP servers and media servers

☐ Specifying storage device settings

☐ Adding NDMP policies

Tasks necessary for linking with NetBackup

To use NetBackup to perform backup and restore operations, you must perform the following tasks on the backup server and media server:

- Decide the backup performance tuning settings
- Install NetBackup
- Set up the NetBackup environment
- Grant access permissions to the NDMP server and media servers
- Specify storage device settings
- Add the NDMP policies

Deciding the backup performance tuning settings

You need to decide the backup performance tuning settings before you start backup and restore operations. The performance tuning consists of two separate settings, the NetBackup setting and the NDMP server setting. For details on the NetBackup setting, see the Veritas documentation.

The NDMP server setting involves the environment variable `BACKUP_ORDER`. For details on how to specify an environment variable, see Adding NDMP policies on page 1-9.

When you have a large number of files and directories to back up, you might be able to shorten the amount of time it takes to backup by specifying `datablock` for the environment variable `BACKUP_ORDER`. The actual effectiveness varies depending on your operation environment. Therefore, specify `datablock` after you check its effectiveness in the test environment.

Consider the notes on backup and restore operations listed in the following table, and then decide the value set for the environment variable `BACKUP_ORDER`.

Table 1-1 Notes on backup and restore operations regarding the value set for the environment variable BACKUP_ORDER

| Item | Value set for the environment variable `BACKUP_ORDER` | |
	When `directory` (default value) is specified	When `datablock` is specified
Last modified time for a file	Will be restored normally.	Will be restored normally.
Last modified time for a directory	Will be restored normally.	Will not be restored normally, but might become the time of the restore operation instead.
Available ACL type	• Advanced ACL type • Classic ACL type	• Advanced ACL type • Classic ACL type

Item	Value set for the environment variable BACKUP_ORDER	
	When directory (default value) is specified	When datablock is specified
		For the Classic ACL type, backup performance might deteriorate if there is a large number of files and directories to which ACLs have been set.
File history storing (Specifying f for the environment variable HIST)	Can be used.	Can be used. However, when you have a large number of files and directories to back up, the load on NetBackup might become heavy. This might lead to deterioration in backup performance. If there is a large number of files and directories, specify n for the environment variable HIST, or create multiple base points for the backup, which can reduce the amount of file history information processed at one time.
Memory usage	Not consumed due to the directory structure.	Memory might be consumed heavily on backup when there are a lot of directories that have long-path names. If backup processing terminates abnormally because of a memory shortage, try backing up again. If the error occurs again, try by specifying directory in the BACKUP_ORDER environment variable.
DAR for directory restoration#	Will normally operate.	Will not normally operate. Only a portion of files will be restored. (Note that you will be informed that restoration has been successfully completed even if it has not.)

#

NetBackup uses DAR by default for directory restoration.
To disable DAR for directory restoration:

Insert the string NDMP_DAR_DIRECTORY_DISABLED in the following file:

> *NetBackup-installation-directory*/netbackup/db/config/ndmp.cfg

For details, see the Veritas documentation.

Installing NetBackup

Install NetBackup and configure the optional NetBackup for NDMP on any backup servers and media servers.

In addition, to use NetBackup, you must also specify several license settings. To share tape drives with multiple nodes , you need to set the Shared Storage Option license.

Setting up the NetBackup environment

Set up the NetBackup environment so that the NetBackup logs can be acquired at both the backup servers and media servers. For details, contact Veritas Corporation.

Granting access permissions to the NDMP servers and media servers

For the backup server, set the permissions for accessing the media server and the NDMP server on a node .

To use a tape device connected to the media server, for the backup server, set the permissions for accessing both the media server and NDMP server.

To use a tape device connected to a node via a SAN, for the backup server, set the permissions for accessing the NDMP server. If tape drives are shared by multiple nodes , set the permissions for accessing the individual NDMP servers.

Note:

If you change the password for the NDMP server, you must specify the access permission settings again.

Setting new access permissions

To set new access permissions:

1. Set the server for which you want to set access permissions.

   Choose **Media and Device Management**, **Credentials**, **NDMP Hosts**, and then execute **New NDMP Host...**. In the displayed Media and Device Management window, specify the server for which you want to set access permissions.

   The following table explains the information you set in the Media and Device Management window.

   Table 1-2 Information to be specified in the Media and Device Management window of NetBackup

Item	Explanation
NDMP host name	When you set the permissions for accessing the NDMP server, specify the host name or virtual IP address of the node . If you specify a fixed IP address, a backup or restore operation in degenerate mode might fail.

2. Specify the information about the NDMP server.

   In the New NDMP Host: *host-name* window, specify the user name and password for the NDMP server.

   The following table explains the information you specify in the New NDMP Host: *host-name* window.

Table 1-3 Information to be specified in the New NDMP Host: host-name window of NetBackup

Item	Explanation

NDMP Host Credentials	Select **Use the following credentials for this NDMP host on all media servers**.
	Username
	    Specify the user name for the NDMP server.
	Password
	    Specify the password for the NDMP server.
	Confirm Password
	    For confirmation, specify the password for the NDMP server again.

Setting access permissions again

To set access permissions again on the backup server:

1. Select the NDMP server for which you want to set access permissions again.

   Choose **Media and Device Management**, **Credentials**, and then **NDMP Hosts**. In the displayed list, select the host name of the target NDMP server.

2. Specify the information about the NDMP server.

   Execute **Change...**. In the Change NDMP Host - *host-name* window, specify the user name and password for the NDMP server.

   The following table explains the information you specify in the Change NDMP Host - *host-name* window.

Table 1-4 Information to be specified in the Change NDMP Host - host-name window of NetBackup

Item	Explanation

NDMP Host Credentials	Select **Use the following credentials for this NDMP host on all media servers**.
	Username
	    Specify the user name for the NDMP server.
	Password
	    Specify the password for the NDMP server.
	Confirm Password
	    For confirmation, specify the password for the NDMP server again.

Specifying storage device settings

This subsection describes how to specify storage device settings.

When using a tape device connected to the media server

To specify storage device settings when using a tape device connected to the media server:

1. Register the tape device to be used as a storage device.

   Choose **Media and Device Management**, and then **Configure Storage Devices**. When a wizard appears, perform storage device registration as instructed by the wizard.

2. Add a Media Manager storage unit.

   Choose **NetBackup Management**, and then **Storage Units**. In the displayed New Storage Unit window, create a storage unit.

   The following table explains the information you specify in the New Storage Unit window.

   Table 1-5 Information to be specified in the New Storage Unit window of NetBackup

Item	Explanation
Storage unit type	Select **Media Manager**.

   Note:
   > Specify other settings according to operational requirements.

3. Have the system recognize the media on the tape device you want to use.

   Choose **Media and Device Management**, and then **Configure Volumes**. When the Volume Configuration Wizard appears, have the system recognize the media as instructed by the wizard.

When using a tape device connected to a node via a SAN

To specify storage device settings when using a tape device connected to a node via a SAN:

Note:
> To use a tape device connected to a node via a SAN, register the information about the tape drive on the NDMP server, and then register the tape device as an NDMP storage device on the backup server. If you use Shared Storage Option to share tape drives among multiple nodes , register the information about the tape drives on each node . If the nodes use separate tape drives, register the individual tape drive information on each node .

1. Register the robot.

   Choose **Media and Device Management**, **Devices**, and then **Robots**. In the displayed New Robot window, register the robot information.

The following table explains the information you specify in the New Robot window.

Table 1-6 Information to be specified in the New Robot window of NetBackup

Item	Explanation
Device host	Specify the host name of the backup server.
Robot control	Select **Robot is controlled locally by this device host**.
Robot device	Click the **Browse** button to select the relevant robot in the Devices window.

Note:

Specify other settings according to operational requirements.

2. Check the paths of the tape drives that can be used as storage devices. Execute the following command:

```
tpautoconf -probe host-name-of-the-NDMP-server
```

For *host-name-of-the-NDMP-server*, specify either a host name or a virtual IP address.

3. Register tape drives.

Choose **Media and Device Management**, **Devices**, **Drives**, and then execute **New Tape Drive...**. In the displayed New Drive window, register tape drives.

4. Set the paths of the tape drives.

In the New Drive window, click the **Add** button to display the Add Path window. In the window, set the paths of the tape drives.

The following table explains the information you specify in the Add Path window.

Table 1-7 Information to be specified in the Add Path window of NetBackup

Item	Explanation
Device host	Specify the host name of the backup server.
This path is for a Network Attached Storage device	Select this check box.
NDMP Host	Select the host name or virtual IP address of a node .
Path	Specify the path of the device file for a tape drive. You can use the `tapelist` command to check the paths of device files.

If you use Shared Storage Option to share tape drives among multiple nodes register the same path as the path of the tape drive to be shared

for each NDMP host. If the nodes use separate tape drives, register the individual tape drive path for each NDMP host.

If you cannot register the path of the tape drive in the Add Path window, execute the following command:

```
tpconfig -add -drpath -path device-file-path-of-the-tape-drive -nh host-name-of-the-NDMP-server -asciiname tape-drive-name
```

The following table explains the information to be specified when executing the `tpconfig` command:

Table 1-8 Information to be specified when executing the tpconfig command of NetBackup

Item	Explanation
device-file-path-of-the-tape-drive	Specify the path of the device file for a tape drive. You can use the `tapelist` command to check the paths of device files.
host-name-of-the-NDMP-server	Select the host name or virtual IP address of a node .
tape-drive-name	Specify any tape drive name. For details, see the Veritas documentation.

To check the registration status of the paths specified by the `tpconfig` command, execute the following command:

```
tpconfig -dl
```

5. Confirm that the robot is registered correctly.

   Choose **Media and Device Management**, **Devices**, and then **Robots**. In the displayed window, confirm that `Yes` is displayed in **Enabled**.

6. Create an NDMP-type storage unit.

   Choose **NetBackup Management**, **Storage**, and then **Storage Units**. In the displayed New Storage Unit window, create a storage unit.

   The following table explains the information you specify in the New Storage Unit window.

Table 1-9 Information to be specified in the New Storage Unit window of NetBackup

Item	Explanation
Storage unit type	Select **NDMP**.
NDMP host	Select the host name or virtual IP address of a node .

Note:
   Specify other settings according to operational requirements.

7. Have the system recognize the media on the tape device you want to use.

Choose **Media and Device Management**, and then **Configure Volumes**. When the Volume Configuration Wizard appears, have the system recognize the media as the wizard instructs.

Adding NDMP policies

To back up or restore data, the system administrator must perform the following operations: Choose **NetBackup Management**, and then **Policies**. In the displayed Add a New Policy window, set the policy name. After setting the policy name, In the displayed Change Policy - *policy-name* window, perform each setting.

Settings on the Attributes tab

On the **Attributes** tab, specify the information about the storage unit and volume pool.

The following table explains the information you specify on the **Attributes** tab.

Table 1-10 Information to be specified on the Attributes tab of the Change Policy - policy-name window

Item	Explanation
Policy storage	To use a tape device connected to the media server:
	From this drop-down list, select a storage unit in Media Manager format created in When using a tape device connected to the media server on page 1-6.
	To use a tape device connected to a node via a SAN:
	From this drop-down list, select an NDMP-type storage unit created in When using a tape device connected to a node via a SAN on page 1-6. The storage unit you select must be a storage unit for which the node that performs backup operations is registered as the NDMP host.
	If you specify **Any Available** or a storage unit connected to another node , backup or restore data might travel over the Front-end LAN.
Allow multiple data streams	When NetBackup 7.6 is used, to specify multiple directories to be backed up to the backup target list, select the check box.
	In other cases, clear the check box.

Note:
Specify other settings according to operational requirements.

Settings on the Schedules tab

On the **Schedules** tab, specify the backup start date and time, and the backup type. Specify these settings according to the operational requirements.

Settings on the Clients tab

On the **Clients** tab, specify the host names or virtual IP addresses of the nodes for which a backup operation is to be performed. Specify this setting according to the operational requirements.

Settings on the Backup Selections tab

On the **Backup Selections** tab, specify the data to be backed up and environment variables.

In the Backup Selections list, specify the directories that will serve as the base point of a backup target, in the following format:

`/mnt/`*`path-for-a-directory-that-will-serve-as-a-base-point-of-a-backup-target/`*

Specify the directories to be used as the base point of the backup target, so that they satisfy the following conditions:

- The length of a path name, including `/mnt/`, should not exceed 1,023 bytes. Adjust the hierarchical level of the backup base-point directory so that the path name does not exceed 1,023 bytes. If the path name exceeds 1,023 bytes, `TOO LONG` is displayed in the NetBackup window. Although a backup operation will terminate normally when the path name exceeds 1,023 bytes, it might be restored incorrectly. Note that you can omit the forward slash (`/`) at the end of the path name.

- If the path name of data to be backed up is too long, although a backup operation will terminate normally, you might not be able to operate in the NetBackup window when you want to perform restore operation. If such a problem has occurred, try, for example, specifying `n` for the `HIST` environment variable for the backup target list, or changing the base point of the backup target.

- Wildcard characters cannot be used.

- If a directory name contains spaces, specify a higher-level directory name that does not contain spaces.

- Note that `.history` cannot be specified for a directory name. Also, `.arc`, `.system_gi`, and `.system_reorganize` cannot be specified for the name of a directory immediately under the file system.

In the Backup Selections list, you can specify multiple directories to be backed up. However, if an entry in the backup list contains an invalid path to a directory that is the base point of the backup target, the data in the invalid directory will not be backed up. Only the data in correct directories will be backed up.

Also, some environment variables can be set for each base-point directory to be backed up. For the directory that is the base point of the first backup target specified in the Backup Selections list, always specify the `TYPE` environment variable. All other environment variable specifications are optional. Each environment variable must be specified before the directory specified for the base point of a backup target, in the following format.

`SET `*`environment-variable-name=value`*

Settings for environment variables are inherited until the same environment variables are the next to be specified. Thus, you can omit the environment variable specification if you are using the same settings as those for the base directory for the backup target specified immediately before.

The following table shows the environment variables that can be set for a directory that will serve as the base point of a backup target.

Table 1-11 Environment variables that can be set for a directory that will serve as the base point of a backup target

Environment variable	Description
TYPE	Specify the format type. Specify `tar`.
FILES[#]	Specify the backup targets. Specify directories and files below the base directory of the backup target in the relative path normalized from the base directory for the backup target. Up to 1,023 bytes can be specified. The `./` at the beginning of the relative path can be omitted. When backing up the entire base directory, the FILES specification can be omitted. (Backing up is processed as if `./` had been specified.) If the FILES environment variable is not specified, all the directories and files located below the directory that is the base point of the backup target will be backed up. The FILES environment variable is specified only when individually backing up paths that include symbols and wild cards. In that case, only one path should be specified. If a specified path includes a symbolic link, an error will occur during backup. For details on paths that can be specified in the FILES environment variable, see Symbols and wild cards specifiable in the FILES environment variable on page 1-14 and Notes when specifying multiple paths in the FILES environment variable on page 1-17. If the total size of the length of the directory and file names to be backed up at the same time exceeds 1 GB, backup processing ends with an error. Adjust the hierarchy so that the total length of the names of the directories and files to be backed up does not exceed 1 GB. When calculating the sum, add 1 byte as the delimiter between each directory and file.

Environment variable	Description
HIST	Specify whether or not to store the backed up directories and files in the file history. The data stored in the file history can be restored on a directory or file basis. The initial setting is n. If you specify a value other than the following values, such as a or b, the system assumes n: f When this value is specified, backed up directories and files are stored in the file history. n When this value is specified, backed up directories and files are not stored in the file history.
SNAPSHOT	Specify the backup method. The initial setting is n. If you specify a value other than the following values, such as a or b, the system assumes n: n Specify when performing an offline backup.
RECURSIVE	Specify the backup method for the directories and files under the directory specified for the FILES environment variable. The initial setting is y. If you specify a value other than the following values, such as a or b, the system assumes y: y Backs up all the directories and files under the directory specified for the FILES environment variable. n Backs up the directories and files immediately below the directory specified for the FILES environment variable.
QUOTA	Specify whether or not to back up the quota information. The initial setting is n. If you specify a value other than the following values, such as a or b, the system assumes n: y Backs up quota information. Backs up quota information registered in the node that is to be backed up. To back up quota information, the backup-

Environment variable	Description
	source volume must be mounted with the quota settings enabled. If the volume has been mounted with the quota settings disabled, processing ends with an error. n Does not back up quota information.

EXCLUSIVE	Specify whether to prohibit concurrent execution of multiple backup or restore operations on the same file system. Data inconsistency can be prevented by prohibiting the following operations on the file system during backup or restore operations.
	
	• Executing a restore operation during backup processing
	
	• Executing a backup operation during restore processing
	
	• Executing another restore operation during restore processing
	
	    Note: Multiple backup operations can be performed simultaneously.
	
	The initial setting is n. If you specify a value other than the following values, such as a or b, the system assumes n:
	
	y
	
	    Prohibits concurrent execution.
	
	n
	
	    Permits concurrent execution.

BACKUP_ORDER	Specify the order by which files and directories are backed up.
	
	The initial setting is directory. If you specify a value other than the following values, such as a or b, the system assumes directory.
	
	directory
	
	    Backs up files and directories in directory tree order.
	
	datablock
	
	    Backs up files and directories in data block order.

#:

    The backup target is specified as the path that is created from the combination of the backup-target base-point directory and the path specified in the FILES environment variable. For example, if you specify /mnt/filesystem01/home for the backup-target base-point

directory, and then specify `./unit01` in the `FILES` environment variable, the backup target is specified as `/mnt/filesystem01/home/unit01`.

The following table gives examples of Backup Selections lists, based on two cases.

Table 1-12 Example settings for environment variables for Backup Selections lists

Item	Case 1	Case 2
Base point directory for the backup target	/mnt/filesystem01/home	/mnt/filesystem01/home
TYPE	tar	tar
FILES	./unit01	./unit02
HIST	f	f
SNAPSHOT	n	n
RECURSIVE	y	y
QUOTA	y	y
EXCLUSIVE	y	y
BACKUP_ORDER	directory	directory

In this case, specify the following for the Backup Selections list:

```
SET TYPE=tar
SET FILES=./unit01
SET HIST=f
SET SNAPSHOT=n
SET RECURSIVE=y
SET QUOTA=y
SET EXCLUSIVE=y
SET BACKUP_ORDER=directory
/mnt/filesystem01/home
SET FILES=./unit02
/mnt/filesystem01/home
```

Symbols and wild cards specifiable in the FILES environment variable

This appendix describes the symbols and wild cards that can be specified in the `FILES` environment variable for the Backup Selections list.

The following explains how to specify a path in the `FILES` environment variable when the path includes symbols:

When spaces are included:
   Specify a directory in the hierarchy above that does not include a space.

   Example:
       When backing up `./staffA/temp 1`
       `./staffA`

When exclamation marks (`!`), double quotation marks (`"`), dollar signs (`$`), asterisks (`*`), question marks (`?`), backslashes (`\`), or grave accent marks (`` ` ``) are included:

Specify a backslash (`\`) immediately before the symbol.

Example:

When backing up `./staff"deleted"`

`./staff\"deleted\"`

When left square brackets (`[`) and right square brackets (`]`) are included:

Specify a backslash (`\`) immediately before the left square bracket (`[`).

Example:

When backing up `./[staff]`

`./\[staff]`

The following explains how to specify a path in the `FILES` environment variable when the path includes wildcards:

[*Character-or-symbolCharacter-or-symbolCharacter-or-symbol*...]

Use this pattern to specify each of the single characters or symbols in `[ ]` as a target.

You cannot specify an exclamation mark (`!`) at the beginning of the characters or symbols. If you enter an asterisk (`*`), question mark (`?`), left square bracket (`[`), or right square bracket (`]`) in `[ ]`, the symbol is interpreted as a regular symbol.

Example:

To back up `staffA`, `staffB`, and `staffD`, which are immediately below the directory that is the base point of the backup target, specify as follows:

`./staff[ABD]`

[!*Character-or-symbolCharacter-or-symbolCharacter-or-symbol*...]

Use this pattern to specify any character or symbol other than those in `[! ]` as a target. If you enter an asterisk (`*`), question mark (`?`), left square bracket (`[`), or right square bracket (`]`) in `[ ]`, the symbol is interpreted as a regular symbol.

Example:

To back up directories and files whose names begin with `staff` but not `staffA`, `staffB`, or `staffD`, and which are immediately below the directory that is the base point of the backup target, specify as follows:

`./staff[!ABD]`

[*Character-or-symbol–Character-or-symbol*]

Use this pattern to specify any character or symbol within the range indicated by the hyphen (`-`). Specify the values in ascending order. The range is specified based on ASCII codes. If you enter an asterisk (`*`),

question mark (`?`), left square bracket (`[`), or right square bracket (`]`) in `[ ]`, the symbol is interpreted as a regular symbol.

Example:

To back up `staffA`, `staffB`, `staffC`, `staffD`, or `staffE`, which are immediately below the directory that is the base point of the backup target, specify as follows:

`./staff[A-E]`

Question mark (`?`)

Use this to specify any single character.

Example:

To back up all directories and files that are immediately below the directory that is the base point of the backup target, and have names in the `staff`*X* format, specify as follows:

`./staff?`

To target all hidden directories and files in the format of `./.`*X*`/`, such as `./.A/` and `./.B/`, specify as follows:

`./.[!.]/`

Asterisk (`*`)

Use this to specify any string longer than 0 characters.

Example 1:

To back up all directories and files whose names begin with `staff`, and which are immediately below the directory that is the base point of the backup target, specify as follows:

`./staff*`

Note that hidden directories and files are not backed up even if you use an expression like `./staffA/*` to specify all directories and files below a given directory. To target all directories and files including hidden ones, specify the parent directory for `FILES` and specify `y` for `RECURSIVE`. To back up hidden directories and files individually, specify as follows:

Example2:

The following example specifies (for the backup operation) all directories and files that have names beginning with `.`, such as `./.staff`:

`./.[!.]*`

Example 3:

The following example specifies (for the backup operation) all directories and files that have names beginning with `..`, such as `./..staff`:

`./..[!.]*`

Example 4:

To back up all directories and files that have names beginning with at least three periods (.) such as `./...staff` and `./....staff`, specify as follows:

`./...*`

Notes when specifying multiple paths in the FILES environment variable

When you specify multiple paths for the `FILES` environment variable to perform backup/restore, note the following points:

- If the backup area of the specified multiple paths includes hard links and these areas are duplicated, backup can be completed correctly but an error occurs during restoration.

- If an invalid path is included in the specified multiple paths, an error occurs during backup.

- To specify more than one path, use a space to separate the backup target paths, and enclose the entire string in double quotation marks (").

  "*Backup-target-path Backup-target-path*"

  Note that you cannot specify a path name that includes `\"`.

- The specification must not exceed 233 characters, including `SET FILES=`. If the specification exceeds 233 characters, backup terminates normally, but an error occurs in NetBackup during restoration. If the specification exceeds 233 characters, rename directories, specify values in multiple file lists, or divide the backup policy.

2

Troubleshooting

This chapter describes how to troubleshoot problems that occur when NetBackup is used to back up or restore data in the Hitachi Data Ingestor.

☐ When a backup or restore operation has terminated with an error

☐ When a problem has occurred on the connection between the backup server or media server and the NDMP server

☐ When tape drives are frequently placed in the DOWN status

☐ When NetBackup jobs do not terminate when an error has occurred on a tape device

☐ When a tape drive is in the DOWN status

When a backup or restore operation has terminated with an error

The result of a backup operation is displayed in the Job Details window. The error and warning messages output from the NDMP server during a backup or restore operation are sent to the unified logging file. If a problem occurs, check the log file to identify the cause of the problem. For details on how to check the unified logging file, see the Veritas documentation.

Note that NetBackup log file information is output to the following directory:

NetBackup-installation-directory/netbackup/logs

When a problem has occurred on the connection between the backup server or media server and the NDMP server

Use the `tpautoconf -verify` command to check whether the user name and password registered on the backup server are identical to those registered on the NDMP server and media server.

When tape drives are frequently placed in the DOWN status

You can reduce the frequency of tape drives being placed in the `DOWN` status, even when the OS is heavily loaded, by adjusting the **Client connect timeout** value.

To adjust the Client connect timeout value:

1. Choose **NetBackup Management**, **Host Properties**, and then **Master Server**.
2. In the Properties dialog box for the target Master Server, choose **Timeouts**.
3. Specify a value in **Client connect timeout**.

When NetBackup jobs do not terminate when an error has occurred on a tape device

When using a tape device connected to a node via a SAN, if the tape device fails during backup or restore processing, the NetBackup job might not be able to terminate.

Changing the settings as described below might remedy this problem:

1. Choose **NetBackup Management**, **Host Properties**, and then **Master Server**.
2. In the Properties dialog box for the target Master Server, choose **Timeouts**.
3. Enable **Media mount timeout**, and specify a value for it.

When a tape drive is in the DOWN status

Place the tape drive in the UP status. To place the tape drive in the UP status, the tape drive information registered in the NDMP server must be enabled. For details, see the *Installation and Configuration Guide*.

If the tape drive remains in the DOWN status after you perform the above operation, reset the tape drive. For details, see the Veritas documentation.

Hitachi Data Ingestor Backup Restore Features Supplement for Veritas NetBackup

A

Notes on Using NetBackup

Note the following when you use NetBackup.

☐ Notes of Hitachi Data Ingestor

☐ Notes of NetBackup

Notes of Hitachi Data Ingestor

Note the following of Hitachi Data Ingestor when using NetBackup:

- Backup Restore manages history information of incremental backups by using the .backupdates file for each file system.

- Note the following when performing an incremental backup.

  - Make sure that you do not delete, rename, or change the .backupdates file.

  - The .backupdates file must be updated when an incremental backup is performed. Therefore you must mount the file system with the read and write permissions enabled.

  - If space is insufficient on the file system, the history of incremental backups might not be correctly written to the .backupdates file. After the history is not correctly written, an incremental backup might not be performed correctly.

Notes of NetBackup

Note the following when using NetBackup to perform backup and restore operations:

- When you specify a directory or file to be backed up or restored, make sure that the path name of the directory or file does not exceed 1,023 bytes.

- If a backed-up directory contains a directory whose path name is 250 or more characters, the path name displayed in the NetBackup History window might be truncated. Even when the entire path name is not displayed correctly, you can still perform a normal restore operation.

- NetBackup can only format the media on a tape device connected to a media server. NetBackup cannot format the media on a tape device connected to a node via a SAN.

- If you use a previous version of NetBackup to back up data, the backup data might not be restored. To avoid this problem, back up data again by using a supported version of NetBackup.

- If you use the DAR function to restore multiple files, an error might occur in NetBackup. If this happens, decrease the number of files to be selected, and then retry the restore operation. Alternatively, perform the restore operation without using the DAR function.

- If you use the DAR function to restore data that has been backed up by specifying multiple base points of a backup target, NetBackup might not operate normally. In this case, select target files at each base point of a backup target, and then retry the restore operation. Alternatively, perform the restore operation without using the DAR function.

- When data was backed up with a long path name specified for the base point of a backup target, if you restore the data by specifying target files, the processing might fail due to an error in NetBackup. If this happens,

perform the restore operation by specifying the upper directory so that the path name can be shorter.

- When a path for the target backup data includes a percent sign (`%`), the backup processing might fail due to an error in NetBackup. If this happens, perform the backup operation by specifying `n` in environment variable `HIST`.

- While executing a backup or restore operation, when multi-byte characters are included in the error messages or in the warning messages reported from the NDMP server to NetBackup, the messages might not be displayed in the Job Details window. If this happens, check the error messages and warning messages reported from the NDMP server in NetBackup unified logging files. For details on the methods for checking the unified logging files, see the Veritas documentation.

Notes on Using NetBackup

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