

NEC Storage V Series Plug-In for Veeam Backup & Replication Quick Start Guide

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Preface

This document provides information about the environment settings, operating restrictions, and troubleshooting information that you need in order to introduce NEC Storage V Series Plug-In for Veeam Backup & Replication .

Target storage system

This document is applicable to the products (program products) corresponding to the following storage system.

- NEC Storage V100
- NEC Storage V300

This document may refer to the storage system of the above model simply as "storage system".

Intended audience

This document is intended for the following administrators:

- Storage system administrators who configure Veeam backup servers and storage systems.
- Backup administrators who use Veeam Backup & Replication to perform backup, restore, and replication operations for a virtual machine on a VMware ESXi host.

Chapter 1:

Overview

NEC Storage V Series Plug-In for Veeam Backup & Replication is a plug-in that allows you to use storage systems in Veeam Backup & Replication .

Veeam Backup & Replication is a backup solution used to perform backup, restore, and replication operations for virtual environments such as VMware vSphere. Veeam Backup & Replication is used to back up the virtual machine of a VMware ESXi host used as an application host.

If the virtual machine's VM snapshot retention time is long, it takes longer to commit the VM snapshot data after the backup is complete, which increases load on the machine. With NEC Storage V Series Plug-In, you can reduce the VM snapshot retention time, and prevent the performance degradation of the virtual machine.

You can use the following Veeam Backup & Replication functions: Backup from Storage Snapshots, Veeam Explorer for Storage Snapshots, and Snapshot Orchestration. For details, see the description of Integration with Storage Systems in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』 (<https://helpcenter.veeam.com/docs/backup/vsphere/>)).

In this documentation, the server assigned the role of backup proxy which is a component of Veeam Backup & Replication is described as the backup proxy server.

Note

The restore function using a secondary storage system in Veeam Explorer from Storage Snapshots is not supported.

1.1 System requirements

The following describes the specific requirements for NEC Storage V Series Plug-In. For details about Veeam Backup & Replication requirements, see the system requirements listed in the 『User Guide for VMware vSphere』 for Veeam Backup & Replication.

- NEC Storage V series storage systems whose microcode version is 93-04-21-XX or later are supported.
- Licenses for the following program products are required.
 - LUN Manager
 - Dynamic Provisioning
 - Resource Partition Manager
 - Snapshot

1.2 Environment requirements

To use NEC Storage V Series Plug-In, your environment must meet the following requirements:

- You can use Veeam Backup & Replication to perform operations on the VMware ESXi host on which the virtual machine to be backed up is located.

For details on the components and system configuration of Veeam Backup & Replication, see the description of Deployment Scenarios in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』).

- The datastore where the VMware ESXi host is to be backed up must be created from a volume on a supported storage system.
- The volume to be backed up must be a DP-VOL and must meet all of the following conditions:
 - If a pair is configured for the volume to be backed up, the following program products must be supported.
 - * Snapshot (root volume only)
 - * Active Mirror

If the Active Mirror pair is in a suspended state and the I/O mode of the volume is Block, the backup job will fail. To back up a Active Mirror volume, the volume to be backed up must belong to a device group. This device group must belong to a copy group created by specifying the same MU number as the Active Mirror pair.

- No attributes other than the following are set for the volume to be backed up.
 - * Dynamic Provisioning
 - * The supported program product
- Dedupe and compression are not enabled.

Note

If you mount a volume on a VMware ESXi host, the volume becomes writable from the VMware ESXi host, and the data might be changed.

Chapter 2:

Setting up the environment

Before introducing NEC Storage V Series Plug-In, the storage system administrator must prepare a backup environment for the storage systems that are in use. The storage system administrator must also use Veeam Backup & Replication to unregister storage systems when they are no longer needed.

Perform the following procedure to set up the environment:

1. [2.1 Preparing the backup environment for the storage system \(on page 3\)](#)

2. Installing NEC Storage V Series Plug-In.

For details, see the description of Installing Storage System Plug-Ins in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』).

3. [2.2 Registering a storage system in Veeam Backup & Replication \(on page 8\)](#)

2.1 Preparing the backup environment for the storage system

Create backup storage resources for active storage systems, and then configure the settings so that backup operation users can access the backup storage resources and the volumes targeted for backup.

Before you begin

- Configure the backup infrastructure that is required for Veeam Backup & Replication.

For details, see the description of Backup Infrastructure for Storage Integration in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』). To register storage systems after you perform this procedure, see [2.2 Registering a storage system in Veeam Backup & Replication \(on page 8\)](#).

- For details about the prerequisite environment, see [1.2 Environment requirements \(on page 2\)](#).
- The system configuration varies depending on whether the LDEVs to be backed up are allocated to meta_resource or to a business resource group. For details, see [2.1.1 Example of a system configuration \(on page 6\)](#).

A host group or iSCSI target corresponding to the VMware ESXi host used for business must be allocated to meta_resource or to a business resource group.

- Verify that VBR_ has not been added to the beginning of the name for any of the following. If VBR_ has been added, delete it.

- Resource groups (meta_resource or business resource group) where LDEVs to be backed up have been allocated
- Dynamic Provisioning pools where LDEVs to be backed up have been allocated
- Host groups or iSCSI targets where LDEVs to be backed up have been allocated

Procedure

1. (Optional) Create a parity group for backup, and then create a volume with an LDEV in this parity group.

The purpose of this step is to separate the work area from the backup area. Although this step is optional, it is recommended because doing so can minimize the impact of failure.

2. Create a Dynamic Provisioning pool for backup.

If you created an LDEV for backup in step 1, allocate it as a pool volume.

Specify the pool name in the following format: *VBR_any-string-of-single-byte-characters*.

You can use only one Dynamic Provisioning pool as the pool for snapshots or snapshot clones. Do not create more than one such pool.

3. Create a host group or an iSCSI target for a backup proxy server. If the VMware ESXi host is used for restoration and the storage system are connected, create a host group or an iSCSI target for the VMware ESXi host.

Create the host group or iSCSI target by performing the following operations:

- Specify the host group name or iSCSI target name in the following format: *VBR_any-string-of-single-byte-characters*.
- For the host mode, specify 21 [VMware Extension].
- For the host mode options, specify 2, 22, 25, 40, 54, 63, 68, 91, and 110.
- For Fibre Channel connections, register the WWN of the backup proxy server and the WWN of the VMware ESXi host used for restoration to the host group. To use multiple backup proxy servers and VMware ESXi hosts used for restoration, or to use multiple WWNs for each of these machines, register all of the WWNs. In such cases, register each WWN in a separate host group instead of registering all of the WWNs in one host group.

For example, to use all WWNs in the following system configuration, register each WWN (for WWN001 to WWN005) in a separate host group.

- Backup proxy server A (WWN001 and WWN002)
- Backup proxy server B (WWN003 and WWN004)
- VMware ESXi host used for restoration (WWN005)

- For iSCSI connections, create iSCSI targets without registering a host. The total of all of the following iSCSI targets is required:
 - The number of backup proxy servers
 - The number of iSCSI initiators of the backup proxy servers or of the VMware ESXi hosts for restoration

When multiple backup proxy servers or multiple VMware ESXi hosts for restoration are to be used, or when there are multiple iSCSI initiators on the machine to be used, the number of iSCSI targets to be created is the total number of all iSCSI initiators.

For example, to use all iSCSI initiators in the following system configuration, you need to create six iSCSI targets:

- Backup proxy server A (number of iSCSI initiators: 2)
- Backup proxy server B (number of iSCSI initiators: 1)
- VMware ESXi host used for restoration (number of iSCSI initiators: 1)

4. Create a backup resource group by specifying a resource group name in the following format:

VBR_any-string-of-single-byte-characters

Allocate the following resources to the resource group:

- The parity group and LDEV created in step 1
- The host groups or iSCSI targets created in step 3
- Unused LDEV ID

If you use Veeam Backup & Replication to create snapshots or snapshot clones, secondary volumes of Snapshot pairs or volumes cloned by using Snapshot will be created on the storage system. You must assign a number of LDEV IDs equal to the number of such secondary volumes and cloned volumes. For this reason, prepare a sufficient number of unused LDEV IDs. You can create up to 8,192 secondary volumes.

You can use only one backup resource group, so do not create more than one such group.

5. Create a backup operation user group, and then create a user account for this group.

Assign the role Storage Administrator (View Only), Storage Administrator (Provisioning), and Storage Administrator (Local Copy) to the backup operation user group.

The user account is used to access the resource group where the LDEVs to be backed up are allocated (meta_resource or a business resource group) and the backup resource group you created in step 4. You can access the backup resource group only by using this user account or the built-in user account.

6. Assign the resource group (the meta_resource or business resource group) where the LDEVs that are to be backed up are allocated and the backup resource group you created in step 4 to the user group.

Do not assign any resource group other than the above to the user group you created.

Do not assign any other user group to the backup resource group.

7. Check the time zone and time of the Veeam backup server on which NEC Storage V Series Plug-In is installed and the time zone and time of the storage system. If the time zones and times do not match, change the settings so that they match.

2.1.1 Example of a system configuration

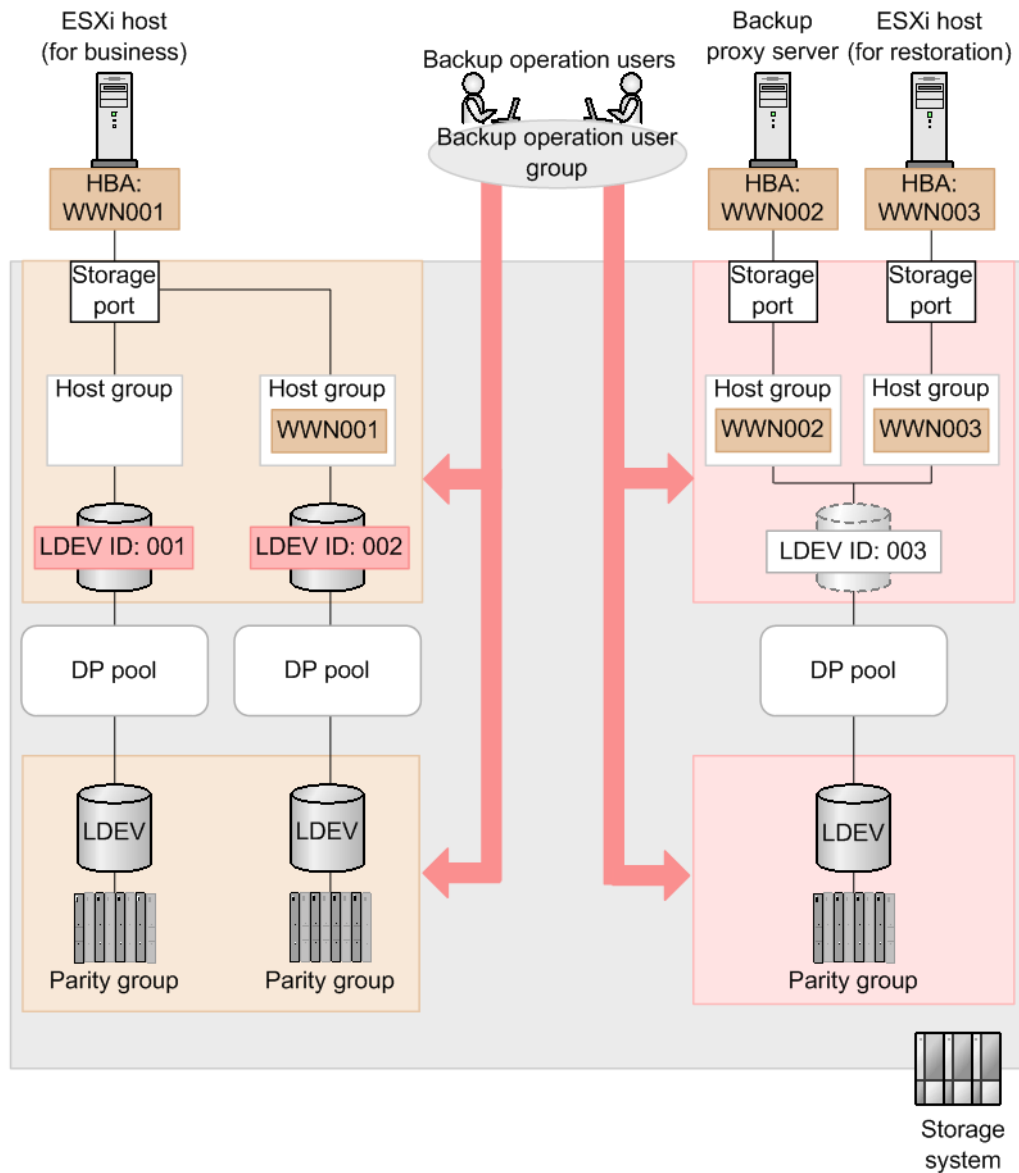
The following describes each of the system configurations for backing up volumes in meta_resource and for backing up volumes in a business resource group.

This example describes a system configuration assuming that the following storage resources are created as storage resources for backup.

- Parity groups
- LDEVs for pool volumes
- Dynamic Provisioning pool
- Host group for the backup proxy server
- Host group for the VMware ESXi host to be used for restoration
- Unused LDEV ID (LDEV ID: 003)

When backing up volumes in meta_resource

The following shows an example of backing up the LDEV allocated to meta_resource when there is no business resource group.

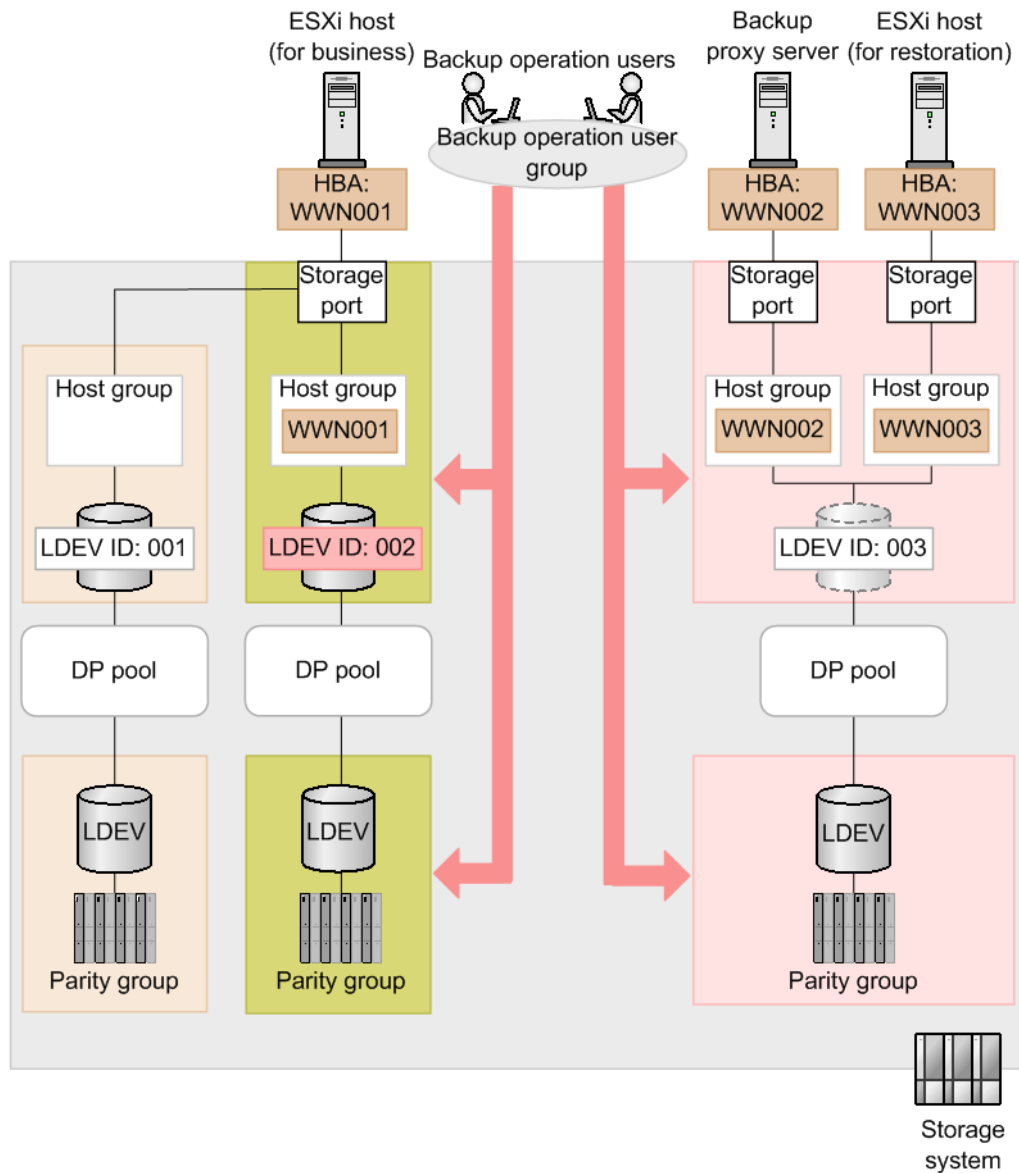


Legend

- : meta_resource
- : Backup resource group : User access to resource groups
- : Volumes to be backed up

When backing up volumes in a business resource group

The following shows an example where a business resource group has been created, and you back up the LDEVs allocated to the business resource group.



Legend

- : meta_resource
- : Business resource group
- : Backup resource group
- : Volumes to be backed up
- : User access to resource groups

2.2 Registering a storage system in Veeam Backup & Replication

Register the storage system in Veeam Backup & Replication.

You can register multiple storage systems for one of the Veeam backup servers configured in the backup environment. However, you cannot register one storage system for multiple Veeam backup servers.

For details, see the description of Adding Universal Storage API Integrated Systems in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』).

When you use the [Add Storage] wizard, note the following:

- In the vendor list, select [NEC Storage V Series].
- For [DNS name or IP address], specify the IP address of CTL1 or CTL2 in IPv4 format.

You can register only one of these controllers for each storage system.

- If the version of Veeam Backup & Replication is v11 or later, specify [Block or file storage for VMware vSphere] for [Role].
- For [Credential], specify the user account created in [2.1 Preparing the backup environment for the storage system \(on page 3\)](#).

2.3 Unregistering a storage system from Veeam Backup & Replication

If you no longer need to back up a storage system, unregister the storage system from Veeam Backup & Replication, and then delete the host groups or iSCSI targets that are no longer needed.

Note

If you unregister a storage system from Veeam Backup & Replication, all of the following storage resources created in the resource group for backup that you created by performing the procedure in [2.1 Preparing the backup environment for the storage system \(on page 3\)](#) will also be deleted.

- Volumes cloned by using Snapshot (snapshot clones of Veeam Backup & Replication)
- LU paths set for these volumes (LU paths set for the snapshots and for the snapshot clones of Veeam Backup & Replication)

Procedure

1. Unregister the storage system from Veeam Backup & Replication.

For details, see the description of Removing Storage Systems in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』).

2. Delete all of the host groups or iSCSI targets you created by performing the procedure in [2.1 Preparing the backup environment for the storage system \(on page 3\)](#) that remain on the unregistered storage system. However, you can skip this step if you want to continue using them.

Chapter 3:

Restrictions

The following restrictions apply when using NEC Storage V Series Plug-In.

- Do not use storage system management software such as Device Manager - Storage Navigator or RAID Manager to perform operations on the following storage resources:
 - Snapshots or snapshot clones created by using Veeam Backup & Replication
 - Do not use storage system management software to perform operations on the following storage resources: secondary volumes of Snapshot pairs and volumes cloned by using Snapshot.
 - Storage resources created by using the procedure in [2.1 Preparing the backup environment for the storage system](#) (on page 3)

If you perform operations by using storage system management software, the following problems might occur:

- The data on the storage system and the data in Veeam Backup & Replication might become inconsistent, and you might not be able to perform operations on snapshots or snapshot clones by using Veeam Backup & Replication.
- The data in a snapshot or in its clone might change.
- You might not be able to delete clone volumes.
- For storage systems that use NEC Storage V Series Plug-In, do not add `_DEL` to the end of LDEV names, because such LDEVs are periodically and automatically deleted.
- If a volume with the name *any-string-of-single-byte-characters_DEL* (*LDEV-ID*) appears in the Storage Infrastructure view, use storage system management software such as Device Manager - Storage Navigator, find the corresponding volume based on the LDEV ID in the volume name, and then delete that volume.
- If the following changes are made to the backup proxy server or the VMware ESXi host used for restoration, you must change the host group or iSCSI target settings.
 - The number of machines
 - The ports to be used and the number of ports

If you change the settings of the following resources, you need to restart the Veeam backup server.

- Host groups or iSCSI targets of the backup proxy servers and VMware ESXi hosts used for restoration
- Ports of the backup proxy servers and VMware ESXi hosts used for restoration
- The Dynamic Provisioning pool for backup

- The backup resource group

If you do not restart the Veeam backup server, the correct port information is not obtained, and an error might occur in the backup processing.

- Do not delete snapshots while a configuration window of Device Manager - Storage Navigator is open.

If an attempt to delete a snapshot fails with the following message, use storage system management software to manually delete the LDEV specified in the message.

```
Failed to change the label of LDEV. Please delete the LDEV manually. (LDEV ID:LDEV-ID)
```

- If you want to back up LDEVs in a Microsoft VSS environment, when you create backup jobs, do not set the Application-Aware Processing options. If you set these options, the backup jobs might not run successfully.
- If the two volumes in a Active Mirror pair are registered as one datastore and a virtual machine on this datastore is specified as a backup target, in Veeam Backup & Replication, one of the two volumes will be selected at random to be backed up.

Chapter 4:

Troubleshooting

The following describes how to handle failures that occur during operation and how to collect maintenance information.

4.1 What to check first

If an error occurs, refer to [Chapter 2: Setting up the environment \(on page 3\)](#) and make sure that the storage system environment is configured correctly.

Also, perform the following checks to ensure that the status is normal.

- Make sure that the status of the network environment is normal.
- Make sure that the target datastore and virtual machine are working correctly.

For the volumes to be used, perform the following checks using the storage system management software to ensure that the settings and status are correct. For the snapshots and snapshot clones created using Veeam Backup & Replication, verify that the secondary volumes of the Snapshot pairs and the volumes that were cloned by using Snapshot are correct.

- Make sure that the target volume and Snapshot pair created for the volume are correct.
- Make sure that unused LDEV IDs have been assigned to the backup resource group created in [2.1 Preparing the backup environment for the storage system \(on page 3\)](#) .

Make sure that a sufficient number of LDEV IDs have been assigned.

4.2 Handling failures

The following describes how to handle failures that occur during operation.

4.2.1 Message: The hostGroup used in the plugin does not exist

If this message is output when there are multiple ports on the VMware ESXi host used for restoration and you run Veeam Explorer for Storage Snapshots:

This message might be output if there is a port that cannot connect to the storage system. In this case, the processing continues on another port, but the displayed job status might be "Failed" even if the processing ends normally. To verify that processing ended normally, check the log for each step of the job.

In situations other than the above:

Make sure that the backup proxy server and the VMware ESXi host settings used for restoration are configured as follows on the storage system:

- The host group or iSCSI target is created and allocated to the backup resource group.
- The host group name or the iSCSI target name is in the *VBR_any-string-of-single-byte-characters* format.
- The WWN is registered correctly in the host group, or the iSCSI initiator name is registered correctly in the iSCSI target.

After performing the above checks, rerun the processing.

4.2.2 Message: Unable to access file snapshot

If this message is output while the backup processing is running, make sure that there is sufficient space in the Dynamic Provisioning pool for backup, and then rerun the processing.

4.2.3 Message: Unexpected character encountered while parsing value

A communication problem between NEC Storage V Series Plug-In and the storage system or a problem in the processing tasks on the storage system might prevent to obtain the correct information. To ensure that the status is normal, make sure:

- The status of the network environment is normal.
- The storage system is running.
- The REST API of the storage system is running.
- The load on the storage system is not high. For example, make sure that a large number of processing tasks are not performed on the storage system.

After performing the above checks, rerun the processing.

4.2.4 The processing does not run correctly

Note

This problem applies only to Veeam Backup & Replication v10 and earlier versions. To avoid this problem, upgrade Veeam Backup & Replication to v11 or a later version.

When Backup from Storage Snapshots, restoration, or other operations are performed, if the storage system cannot communicate correctly with the backup proxy server or with the VMware ESXi host used for restoration, the same processing might repeat continuously, but incorrectly.

To resolve this problem, temporarily end Veeam Backup & Replication, and then perform the following checks to ensure that the storage system correctly connects with the backup proxy server and with the VMware ESXi host used for restoration:

- Make sure that the Fibre Channel port or iSCSI port for the backup proxy server is not disabled and that its status is normal.
- Make sure that the Fibre Channel port or iSCSI port of the VMware ESXi host used for restoration is not disabled and does not have an abnormal status.
- Make sure the Fibre Channel or iSCSI communication channel is functioning properly.

For example, verify the following:

- The path is physically connected.
- Devices such as the relay switch are running.
- Logical settings such as zoning are specified correctly.
- Make sure that the following are registered correctly in the host group or in the iSCSI target allocated to the backup resource group.
 - WWN of the backup proxy server or the iSCSI initiator name of the backup proxy server.
 - WWN of the VMware ESXi host used for restoration or the iSCSI initiator name of the VMware ESXi host used for restoration.

After performing the above checks, rerun the processing.

4.2.5 NEC Storage V Series Plug-In processing and storage system processing are slow

When multiple users perform processing tasks at the same time, or when multiple jobs run at the same time, it might take a long time for NEC Storage V Series Plug-In processing and storage system processing to finish.

Avoid running multiple processing tasks simultaneously by reducing the number of users who perform operations, or by staggering the start times of multiple jobs.

4.2.6 Error or warning is issued to the event log of the backup proxy server

Any of the following events might be issued to the event log of Windows Server operating as the backup proxy server. These events are issued when verification processing of the backup data completes in Veeam Backup & Replication and the volume is successfully disconnected. No action is necessary because this is normal behavior. If a path error occurs due to a cause other than the processing in Veeam Backup & Replication, check the cause of the error and take remedial action.

Event ID	Level	Message	Remarks
157	Error	Disk <i>number</i> has been surprise removed.	None.
15	Warning	The device, <i>a-path-of-device</i> , is not ready for access yet.	None.
20781	Error	KAPL05301-E A path has been removed. (The following part is omitted.)	This is issued when HA Dynamic Link Manager is used.
32787	Error	KAPL08019-E The path (<i>path-id</i>) detected an error (<i>error-code</i>). (The following part is omitted.)	This is issued when HA Dynamic Link Manager is used.
32790	Error	KAPL08022-E A path error occurred. (The following part is omitted.)	This is issued when HA Dynamic Link Manager is used.
32794	Error	KAPL08026-E An error occurred on all the paths of the LU. (The following part is omitted.)	This is issued when HA Dynamic Link Manager is used.

4.3 Information to be collected when a failure occurs

If a failure occurs in NEC Storage V Series Plug-In, collect the information and then contact your maintenance staff.

4.3.1 Collecting NEC Storage V Series Plug-In information

NEC Storage V Series Plug-In information is included in the log files of the Veeam backup server on which NEC Storage V Series Plug-In is installed. For details on how to collect those log files, see the description of Exporting Logs in the Veeam Backup & Replication documentation (『User Guide for VMware vSphere』). When you select the target component for which to collect log files, select the Veeam backup server on which NEC Storage V Series Plug-In is installed.

4.3.2 Collecting storage system information

If you are using an SVP, collect the normal dump files. If you are not using an SVP, collect system dumps by using the Maintenance Utility. For details about how to collect the dump files of these storage systems.

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