NetWare Module

Version 2.6

Installation and User's Guide

STOREWAY DPA

Bull

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Installation and User's Guide

Software

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Chapter 1. Overview

See:

File System

The File System is a group of files and directories. It is possible to associate attributes, a long name, specific access rights (trustees), extended attributes etc. to each file system object.

The Target Service Agent (TSA) modules, TSA500 for NetWare 5.x, TSA600 for NetWare 6.x or TSAFS, enable backup and restoration of all this information using SMS technology.

NOTE: The TSADOSP module manages the DOS partition.

NOTE: Refer to the glossary at the end of this guide for more information on the acronyms used.

NDS directory versus bindery

It is important to remember that thanks to the NetWare Directory Service (NDS), you process global DNS (Distributed Name Service). The server network linked to the NDS directory continuously exchanges updates and other information. As with the NetWare 3 Bindery, the NDS directory is a group of files saved on NetWare servers.

NDS directory files are saved on the SYS volume of a server, and are hidden so that users cannot delete them or modify the NDS directory contents. However, you cannot directly back up NDS directory in the same way as the bindery.

If you know the NetWare 3 environment, you are probably used to backing up your network on a group of servers. For each server, you back up data, allocate trustees and the bindery even if server B is down whereas you back up server A, or if the user had an account and trustees on all servers. NetWare 3 updates the bindery, the user account, and the trustees separately on each server.

The NDS directory does not rely on a single server, neither for backups and restorations. During the NDS directory backup, you mainly back up data spread over several servers. A partition user can have trustees for a server which do not keep a user NDS directory object replication. To process all necessary links and dependencies between the objects, the backup and the restoration must be able to explore the entire NDS directory tree.

As such, the StoreWay DPA NDS directory is based on SMS and uses a TSA agent to browse the tree and access the necessary data.

NDS directory replications and backups

In the case of a multi-server network, the NDS directory module enables a hot backup of an NDS directory whose partition replications are spread over several servers. For example, for a network comprising two servers and a partition, the NDS directory is protected because a partition replication is stored on each server. If a replication is lost due to disk failure or because of a defective SYS volume on the server, the partition data remain intact thanks to the replication on the other server.

Keeping replications of each partition enables hot backups and the reconstruction of the NDS directory tree. In the case of a sudden server or volume loss, the network administrator can restore the missing NDS directory tree with an active replication. A defective replication can therefore be rebuilt from another replication.

Partition replications comprise the first NDS directory protection strategy. However, some situations do not allow efficient protection against the loss of the NDS directory:

> First case: network comprising a single server. Because no other server can back up a replication, the hot backup is impossible using partition replications.

> Second case: when the network administrator (or a user with adequate rights) accidentally deletes a valid NDS directory object. All other replications are deleted which means it is impossible to retrieve the object from a replication.

> Third case: a catastrophe (fire, flood, etc.) destroys a whole site including the servers which contained all NDS directory partition replications.

WARNING: If you lose a partition and have no replications of it, you could lose access to a part of the NDS directory tree. If possible, keep a server replication in a different physical location. In certain cases, this increases network traffic. It is up to you to assess the advantages and drawbacks to define the best NDS directory configuration for your network.

WARNING: To avoid losing the NDS directory, it is essential to back it up regularly using a SMS (Storage Management Services) type backup program such as the StoreWay DPA.

NDS directory backup strategies in network environments

The three network environments below have different backup and restoration strategies.

Single server/one partition

In the case of a network with a single server, the partition replications are impossible because there is no other server to back up a replication. In this environment, you must perform a hot backup of the NDS directory via the StoreWay DPA.

Multi-server network/one partition

In the case of a multi-server network and a single partition, you must have at least three replications of the partition. Performing a hot backup of the NDS directory is also essential. If the servers are all on the same site, make contingency plans for a catastrophe which could destroy all servers. Keep a set of your backup cartridges in another place if possible.

Multi-server network/multiple partitions

In this environment, the partition replication and the hot backup of the NDS directory are essential. If possible, keep at least three replications of the partitions spread over your different network servers. Avoid all partition replications on the servers on the same site. Keep a full set of your backup cartridges in a different place. Because SMS type backups ignore partition limits, restoring the NDS Directory (particularly a partial restoration) is more complicated. We advise you to keep a written trace of your partition and your partition replications configuration. The server specific information can help you to recover this information.

Central or distributed backup administration

Several administrators can manage the NDS directory. By sharing this responsibility, take into account your backup needs and give adequate rights to users who will perform backup and restoration operations.

It is often interesting to have a super administrator who has overall responsibility and an overall view of the NDS directory and all backup and restoration objectives.

Grant the main backup administrator all the rights on the complete directory tree structure to avoid the risk of incomplete backups where a user has insufficient rights for certain parts of the NDS directory.

If you perform backups and restorations of the NDS directory and file systems data for remote sites from a central location, ensure that all the WAN connections (routers, gateways, telecommunication links, etc) are active before starting. If your host and the servers/workstations cannot communicate across the network, a full backup or a restoration is impossible.

For networks with remote sites connected across WAN links, you can eliminate problems linked to backup traffic and accelerate the backup and restoration operations by naming local administrators to back up remote site data. You can also create your NDS directory so that each partition replication is backed up on the on the same site as the backup host server. You can therefore back up and restore the NDS directory and avoid data having to use WAN links.

Chapter 2. Installation

See:

Installation prerequisites

To install the StoreWay DPA for NetWare agent, you must have the following elements and information listed below:

> A StoreWay DPA which is installed and configured.

> A TCP/IP Network linking the StoreWay DPA to the NetWare servers to be backed up.

> A ROOT/Administrator/Admin log on is required to enable the installation of products on the NetWare server.

> The **StoreWay® DPA Initial Setup (Windows), Agents (Windows, Linux, Netware, MAC OS), Graphical User Interface Setup, ASM & Disaster Recovery Agents Windows) Version X.X.XXX** CD-ROM.

Systems and modules supported by the StoreWay DPA for NetWare Agent

> NetWare 5.x or 6.x.

> Module TSANDS.NLM loaded.

> Module TSA500.NLM, TSA600.NLM or TSAFS.NLM loaded.

Systems and modules not supported by the StoreWay DPA for NetWare Agent

> Unrecognized Mac-OS partitions

Required disk and memory space to install agent

> You require 10 MB of disk space.

> You require 64 MB of RAM.

Before starting

> Check that you can ping between the server and backup machines.

> To enable support for files with accents, recopy on DOS the lc_437.033 file from the NetWare CD-ROM under the name lconfig.sys in the nwserver directory.

Restrictions

The main program for the StoreWay DPA NetWare agent is the **ESAVMSRV.NLM** module. Only one instance of this program can function at a given time. It is therefore impossible to perform several operations simultaneously such as backing up the NetWare agent on several flows or the navigation on NetWare agent whilst it is being backed up or restored.

Installing the StoreWay DPA NetWare agent

1st part: on a Windows machine:

1 Log onto a machine where the StoreWay DPA NetWare Agents are installed.

2 Open a NetWare session with an administrator account.

3 If the volume is not mounted as a network drive (on Windows, for example), mount it and note the letter corresponding to the drive.

4 Run the agent installation program «setup.exe» which is on the Windows Linux NetWare agents CD-ROM.

5 Enter the directory path which will be created to install the agent.

6 Enter the StoreWay DPA name.

> **NOTE:** The name entered here must be able to be resolved on the network. If this is not the case, update the **SYS:\ETC\hosts** file on the Novell server.

7 The setup then copies files to the server.

2nd part: on a NetWare server console

1 Log on to the StoreWay DPA NetWare server console.

Using the command: m tsa*

Search for the loaded TSA modules:

```
- TSANDS.NLM
- TSA500.NLM, TSA600.NLM or TSAFS.NLM.
```

You can also enter the following commands in succession:

```
modules tsands.nlm
modules tsa500.nlm
modules tsa600.nlm
Modules tsafs.nlm
```

2 Check that ESAVMSRV is not started with the command:

```
m esav*
```

Otherwise stop it with the command:

```
UNLOAD SYS:\Backup\nlm\esavmsrv
```

3 Enter the navigation password:

```
LOAD SYS:\Backup\nlm\esavmsrv -passwd
Keyword : tsands
Login : .<USER>.<ORGANIZATION>
Password : <PASSWORD>
LOAD SYS:\Backup\nlm\esavmsrv -passwd
Keyword : tsafs
Login : .<USER>.<ORGANIZATION>
Password : <PASSWORD>
```

4 Start the agent:

```
LOAD SYS:\Backup\nlm\esavmsrv
```

5 You can check that the agent is correctly started with the commands:

```
m esav*
```

Or

```
modules ESAVMSRV
```

Declaring a NetWare Agent on the StoreWay DPA

1 Create a new system:

- In the **settings/Systems** menu:

- Click the **Create a new system** icon to create the system which will host the application.

2 Create a new application :

- Click the **Create a new application** icon.

- Select Novell SMS in the list «Application type»:

3 Click **create**.

In the **Description** zone:

- Enter the name of the application.

- In the drop-down menu, choose the system hosting the application.

- Enter a comment (optional).

In the **Settings** section:

- Enter the version of the TSA FS module. This enables you to declare the module to use to back up files. Possible values are :

- tsa500.nlm

- tsa600.nlm

- tsafs.nlm

NOTE: One of these three 3 modules must be present on the server to back up. To find it, use the command m tsa*.

NOTE: The tsa600.nlm module can be used on NetWare versions 6.0 and 6.5.

Declaring the volumes to back up

Each volume containing data to back up must be declared by specifying if it is configured with short file names (code 0) or long file names (code 4). Use the following syntax:

`<Name of the volume1>:<type>;<Name of the volume2>:<type>;...`

In the backup zone:

- Declare the data to back up or activate a profile. The declaration of data can be at application or profile level. This depends on the type of backup policy.

NOTE: If «/» is declared, all accessible data will be backed up (File systems and the NDS directory).

4 Click **create**. The application appears in **Edition** mode.

NOTE: A browse button appears once the application has been created. It allows you to select the volumes and directories to take into account for the backup.

NOTE: To select the data to back up, select the corresponding checkbox and click **add to cart** then **Apply**.

Chapter 3. Backup NetWare

The backup appliance enables you to navigate in the NetWare system file tree. Backup the NDS directory by selecting dpa_appli in the file tree.

See:

Exclusion filters

In addition to the standard exclusion via the web interface, it is possible to only take certain directories or files into account for your backups. This method consists of creating a specific file in the directory in question. It must be called SAVNOBKP (upper case only).

Use this file to list the objects you do not want to back up. For example, to not back up 'rep1', 'rep2' directories and the file1.txt file in the directory «SYS:\System», create a SYS:\System\SAVNOBKP file with the following lines:

```
rep1
rep2
file1.txt
```

Creating an empty file allows you to exclude the contents of a directory.

Ignore the error messages for non-backed up files

In the case where file systems cannot be backed up, simply add them to the noerror.bkp file.

EXAMPLE: `SYS:\Backup\Config\NOERROR.BKP`

Here is an example of an entry added to the noerror.bkp file. In this example, we suppose that the non-backed up file is called:

```
SYS:\DATABASE\ORACLE.DBS.
Add the entry as follows:
##################################################################
#####
# NOVELL NetWare
##################################################################
#####
###################################
# ORACLE files
###################################
#
SYS:\DATABASE\ORACLE.DBS
```

NOTE: We can also give a directory name by using the same syntax as for a file name.

Chapter 4. Restoration

See:

File System restoration

Data restoration is managed by the StoreWay DPA using standard procedures as described in the Quick Start guide.

Restoring the NDS directory

A specific object for the NDS directory appears in the restoration interface. This represents the entire NDS directory. Depending on the parameter configured in the application (see section: "Backup NetWare" page 17) either missing objects or all backed up objects will be restored.

The NDS directory object cannot be selected for restoration; you need to go to the 'novell' level to be able to select the element to restore.

NOTE: It is not necessary to restart the NetWare server after restoring the NDS directory.

The restoration options screen has similar parameters to the data restoration described in the Quick Start guide with the exception of the interaction on NDS directory objects.

Chapter 5. Appendix

This appendix regroups a certain number of FAQ, Frequently Asked Questions on the question of backup and restoration with the StoreWay DPA for NetWare.

See:

"FAQ"

"Glossary"

FAQ

Can I perform backups at any moment?

Full or incremental backups can be performed without restriction.

Can I change the installation directory of the StoreWay DPA agent?

Yes. However, the autoexec.ncf file of the NetWare server must be updated to be able to restart the service when you reboot.

What are the file restore rights?

When you restore any file version, the rights for the latest version are those which are restored.

Glossary

This glossary groups the terms used in this guide. The terms are specific to NetWare and the StoreWay DPA for NetWare module.

A

AttributeFile: Directory characteristics.

N

NDS directory NetWare Directory Service: A directory containing all the information and access rights to each resource.

NDS directory tree: Organizational structure which regroups all logical and physical NetWare components.

R

Replication Security: Copy of the NDS directory on another server.

S

SMS Services: Enable you to access the NDS directory

backup and restoration files

T

Trustee File: Access rights for a directory or an object.

TSA Target Service Agent: Program which manages data transfer.

V

Volume Total: Physical disk space.

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