

Windows System State Module

Version 2.6

Installation and User's Guide

STOREWAY DPA



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Windows System State Module Version 2.6

Installation and User's Guide

Software

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**BULL CEDOC
357 AVENUE PATTON
BP.20845
49008 ANGERS CEDEX 01
FRANCE**

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Chapter 1. Overview

Microsoft Windows 2000/2003 operating systems has many new features including the Active Directory. A number of these features are organised in the form of a database, as with the registry database. You need to use specific backup methods to back up these databases.

These features, in addition to other critical system files are regrouped under the name of System State.

| System Components | Windows server 2000/2003 or 2000 Pro/XP |
|--------------------------|--|
| Registry | Yes |
| Eventlog | Yes |
| System State | Yes |

See:

["The different Windows System components" page 8](#)

The different Windows System components

Registry

The registry database contains all the system information and installed product information.

Eventlog

Corresponds to the Windows event logs.

System State

Windows 2000/2003 components are as follows:

- 1 The Active Directory:** a secure, structured and hierarchical database of principal enterprise network objects such as machines, services etc. The Active Directory is a complete tool which allows you to identify and work with these objects.
WARNING: This entry is only present on Windows 2000/2003 domain controllers, i.e. machines with the Windows 2000/2003 Server version or higher installed (Advanced Server/Enterprise).
- 2 Certificate Services:** provide personalized services which enable the distribution and management of certificates used for software security systems using public key encryption. Services Certificates play a central role in software security systems management to enable secure connections on the internet, company intranets and other non-secure networks.
- 3 COM+ Database:** the COM+ database is a transactional resource management service used for COM+ transactions. It enables you to carry out administrative commands within a transaction and validate or remove configuration modifications such as an atomic operation, even across several machines.
- 4 Boot Files:** this term regroups several elements:
 - Startup files: includes the files **boot.ini**, **ntldr**, **bootsect.dos**, **ntdetect.com** and **ntbootdd.sys** (if Windows is installed on a SCSI disk).
 - Protected files: some files can be flagged as protected. The system file (NTFS5) places all these files in a cache. As such, when the system detects a problem on one of these files, it can be replaced automatically.
 - The configuration of performance counters.
- 5 The SYSVOL directory:** Windows 2000/2003 System Volume, or **SYSVOL**, is constructed during the creation of a domain controller. The SYSVOL is a shared directory that stores the server copy of the domain's public files that must be shared for common access and replication throughout a domain. Each modification to the directory contents is automatically replicated onto all other relevant domain controllers.

Chapter 2. Installation and configuration

See:

["Installation prerequisites" page 10](#)

["Creating the application" page 11](#)

Installation prerequisites

This documentation does not aim to explain Windows administration tasks. This means that the operator/administrator has minimal knowledge of Active Directory for domain controllers for Windows 2000/2003 in addition to different Windows Systems components (Registry, Eventlog, System State).

Creating the application

The StoreWay DPA applications declaration is accessible from the entities configuration page, via the **settings/Systems** menu. This menu is only accessible for StoreWay DPA administrators. If you are not authorized to access this account, ask your administrator to declare the application.

Create the application

- 1 In the **settings** menu, click **Systems**
- 2 Click the **Create a new application** icon .
- 3 Select **MS Windows System State** in the **Application type** list.

Application: Create

● Application type

Please choose the type of application you want to create:

- MS Exchange 5.5
- MS Exchange 2000/2003
- MS Exchange 2007
- MS SQL Server 7
- MS SQL Server 2000/2005
- MS Windows System State
- Oracle
- Novell SMS
- Lotus Notes
- Disaster Recovery

- 4 Click the **create** button.
- 5 In the **Description** section.
 - Enter the application name.
 - Choose the system which hosts this application from the drop-down list.
 - Enter a comment (optional).
- 6 In the **Backup** section

Data to backup:

 - Specify the data to back up on this application. Enter, for example / (or associate the application to a profile which backs up all data "/" in the **Data path** field to back up all data.

Activated profiles on this application:

 - Select the application profile to attach to the application.

Application: Create

Description

Name: windows2000_sys

Type: MS-Windows System State

Linked to: nick_laptop

Status: Active

Comments:

Backup

Data to backup

Add:

| Type | Data path |
|-------------|-----------|
| Directories | |

Profiles checked for this application

| Activated | Name | Associated data to backup |
|-------------------------------------|-----------------------|---------------------------|
| <input checked="" type="checkbox"/> | Critical applications | All data |
| <input type="checkbox"/> | Normal applications | All data |

7 Click the **create** button. The application appears in **Edit** mode.

Chapter 3. Backup

The Windows application lets you back up a Microsoft Windows machine system state. It minimizes service downtime caused by hardware or software failure by allowing the rapid and secure restoration of system data.

See:

["Backup strategy" page 14](#)

Backup strategy

Windows system state backups are “hot” backups which take place during system utilization.

Backup Frequencies

The Windows System State can, on certain systems, include an Active Directory (Domain Controller etc.). It is therefore recommended to proceed with full and incremental backups on other “standard” systems. Only full weekly backups will be necessary.

The recommended frequency for StoreWay DPA comprises a full weekly backup and an incremental daily backup.

Backup retention periods

The Windows System State backup retention periods is limited if this system has a Domain Controller. The restoration of the Active Directory must only be performed from a backup which is older than the lifetime of objects deactivated in the Active Directory (Tombstone Life).

Backup Profiles

The Windows System State backup must respect certain conditions to be consistent. It is recommended to perform a full backup to the root (/). The backup of selected objects is not recommended, and reserved for experienced users only.

NOTE: It is recommended to back up simultaneously the system state and file system disks to be able to restore the system in a consistent manner if the machine needs to be reinstalled.

Chapter 4. Restoration

The StoreWay DPA for MS Windows System State Module allows you to restore simply and rapidly all system data for a Microsoft machine.

WARNING: It is essential to have extensive knowledge of Windows environments before proceeding with a restoration of systems elements.

The restoration of these different elements must be performed simultaneously from the same backup session.

The isolated restoration of a system element can harm the system and lead to the loss of data it contains. It is reserved for specific cases (application errors, for example), and only expert users must proceed with such manipulations: Microsoft MCSE certification is recommended.

See:

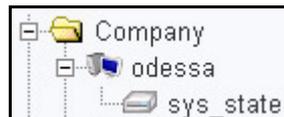
["Restoration procedure" page 16](#)

Restoration procedure

- 1 In the **operations** menu, click **Restoration**.



- 2 Click the icon of the machine where the Windows application to restore is located. To locate this machine, use the navigation pane on the left and select the application:



- 3 Open a restoration session by clicking [**Open a new restoration session**].



- 4 Click **time navigation** and specify the restoration date you want, then select the elements you want to restore. Click **add to cart**.

The Active Directory, Boot Files, SYSVOL etc. objects are located in the **System State** primary object.

- 5 Restore the selected elements.

NOTE: It is possible to restore only some of these elements in a directory which is different from their original directory. However, not all the elements allow this: the Registry can be restored to a different place, whereas the Active Directory object cannot. It depends on the restoration context.

Chapter 5. Full Restoration

This chapter deals with how to perform a full restoration of a Windows 2000/2003 machine.

See:

["Warning and restrictions" page 18](#)

["Full restoration procedure" page 19](#)

["Installation in unattended mode" page 21](#)

Warning and restrictions

This methodology is provided and validated by Bull. However, the success of the restoration procedures requires, in addition to the initial configuration of a Windows expert, the programming of regular restoration exercises. These exercises must enable administrators to react correctly when the problem occurs in production environment.

Full restoration procedure

WARNING: It is essential to know machine partition sizes in addition to the type of formatting these partitions to be able to recreate them identically. The system partition must be able to accommodate two Windows installations (otherwise install the Windows repair system on another partition).

NOTE: No Windows session can be open on the machine when steps 3-4-5-8 are performed. This can cause restoration errors.

1 Installation of Windows Repair

Installation of a Windows Repair (e.g.: C:\WINREP). Recreate the partitions with identical sizes and formatting types as those which existed previously. On Windows 2000/2003, to specify a different installation directory of C:\WINNT or WINDOWS you need to install in "unattended" mode (see below). Windows must be installed on a Workgroup and have the same name as the machine to recover. Reboot on the Windows repair machine and configure the IP address with that of the machine to repair.

2 StoreWay DPA Agent

- Reinstall the StoreWay DPA agent in a different location from its original location.

3 File Restoration.

Restoration of all files in the location of former files ("Overwrite existing files" option click **Yes**).

WARNING: There can be errors or warnings concerning the rights or attributes of certain files. In this case, it may be necessary to restore these files again using the restored StoreWay DPA agent. (After the end of the procedure, in other words after the machine has restarted on the original Windows system).

4 Restoring boot files

This step only concerns Windows 2000 versions.

Restoring Boot Files (which contain essential system files ("Overwrite existing files" option. Click **Yes**)).

5 Restoring the registry

This step only concerns Windows 2000 versions.

Restoring the registry database with redirection to the recovered Windows system ("Overwrite existing files". Option click **Yes**).

This object **must not** be restored "as is". Otherwise, there is a risk of overwriting the currently used registry database!

Mandatory redirection: "**c:\original directory**", for example: c:\winnt.

6 Modification of the boot.ini file

The restored boot.ini file does not contain information on the Windows repair.

To be able to restart on the server in the event of a problem, you need to add a corresponding entry to the Windows repair.

7 Restart the restored Windows system.

On **Windows 2003**, the procedure finishes here. The StoreWay DPA uses VSS mode (Volume Shadow-Copy Service) which performs snapshots and enables file restoration. During the files system backup, the different Windows Systems elements are backed up at the same time. Whether your server is autonomous or domain controller, the procedure finishes here. Your Windows system is

operational again.

On **Windows 2000**, restart in "Directory Services Restore Mode" (If Active Directory).

8 System State Restoration

- System State Restoration, except for Boot Files ("Overwrite files" option click **Yes**).

9 Restart the Windows system

- Restart the system.

Your Windows server is operational.

Installation in unattended mode

This installation utilises a response file enabling Windows to know, among other things, the installation directory. Create a Winnt.sif file (Warning: the file extension must be .sif and not .txt,) on a diskette which must be in the drive when you reboot the machine with the installation CD-ROM. This diskette must contain the following lines:

```
[Unattended]
UnattendMode=GuiAttended
OemPreinstall=No
TargetPath=WINRep <-installation directory name.
[data]
unattendedinstall=yes
msdosinitiated =0
```

By specifying the parameter **TargetPath** with the value **WINRep**, Windows will be installed in the C:\WINRep directory.

You can find more information on this subject on the Microsoft web site, particularly the note <http://support.microsoft.com/kb/216258>.

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