3PAR VSS Provider for Microsoft Windows 1.5 User's Guide

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Revision Notice
This is the fourth release of this manual. A complete revision history is provided at the end of this manual.

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1 Introduction

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This user's guide provides the information you need to install and use the 3PAR™ VSS (Volume Shadow Copy Service) Provider for Microsoft Windows.

1.1 Audience

This guide is intended for System Administrators and Microsoft Windows Administrators who are responsible for maintaining the Microsoft Windows operating system environment and who understand Microsoft Windows 2003 and 2008.

1.2 Related Documents

The following documents also provide information related to the InServ Storage Server:

For information about…	Read the…
Using the InForm command line interface (CLI) to configure and manage the InServ storage server	*3PAR InForm OS CLI Administrator's Manual*
Using the InForm Graphical User Interface (GUI) to configure and manage the InServ Storage Server	*3PAR InForm OS Management Console Online Help*
Using the InForm Command Line Interface (CLI) for remote clients to install and configure Recovery Manager	*3PAR InForm OS Command Line Interface Reference*.
Identifying InServ Storage Server components and fixing problems	3PAR *InForm OS Messages and Operator's Guide*
Understanding the InServ Storage Server and its features	*3PAR InForm OS Concepts Guide*
Shadow copies using 3PAR VSS Provider for Microsoft Windows	3PAR VSS Provider for Microsoft Windows User Guide

1.3 Organization

This guide is organized as follows:

- This chapter provides an overview of this guide, including intended audience, related documentation, typographical conventions, and advisories.
- Chapter 2, *Overview*, provides an overview and information regarding supported components and system requirements for the 3PAR VSS Provider for Microsoft Windows.

- Chapter 3, *Installation, Upgrade and Deinstallation*, provides installation, upgrade and deinstallation instructions for the 3PAR VSS Provider for Microsoft Windows.
- Chapter 4, *Features*, describes the features provided by 3PAR VSS Provider for Microsoft Windows.
- Chapter 5, *Diagnostics*, describes the diagnostic capabilities of 3PAR VSS Provider for Microsoft Windows.

1.4 Typographical Conventions

The following typographical conventions are used in this guide:

Typeface	Meaning	Example
ABCDabcd	Used for dialog box elements such as titles and button labels.	Enter your system name in the **Value** box and click **OK**.
ABCDabcd	Used for file names, paths, and screen output, and for text you are to enter.	`Found < 12 > 73G disks.` Enter `cli` at the Windows command prompt.
ABCDabcd	Used to contrast your input with system output.	`cli% removevv VV1` `Removing vv VV1.`
<ABCDabcd>	Used for variables in file names, paths, and screen output, and variables in user input.	[root@(<systemID-nodeID>)root] `To continue Enter your system name ==>` <systemname>

1.5 Advisories

To avoid injury to people or damage to data and equipment, be sure to observe the cautions and warnings in this guide. ***Always be careful when handling any electrical equipment.***



NOTE: Notes are reminders, tips, or suggestions that supplement the procedures included in this guide.



CAUTION: Cautions alert you to actions that can cause damage to equipment, software, or data



WARNING: Warnings alert you to actions that can cause injury to people or irreversible damage to data or the operating system.

2 Overview

In this chapter

2.1 Microsoft VSS 2.1

2.2 Operation of 3PAR VSS Provider for Microsoft Windows 2.2

2.3 Host System Requirements 2.3

2.4 3PAR InServ Requirements 2.4

This chapter provides an overview and information regarding supported components and system requirements for the 3PAR VSS Provider for Microsoft Windows.

2.1 Microsoft VSS

Microsoft includes VSS in the Windows 2003 and 2008 operating system to simplify the enterprise's storage environment. VSS provides a framework for creating a point-in-time copy of a single volume or multiple volumes.

Microsoft Windows Server 2003 and 2008 VSS works with VSS-aware applications that are in use to determine when a volume shadow copy (snapshot) can be made. A snapshot is a copy of some data set, (a disk volume for example), at a given point-in-time.

2.2 Operation of 3PAR VSS Provider for Microsoft Windows

The 3PAR VSS Provider for Microsoft Windows (see Figure 2-1) communicates with the operating system and applications, and freezes computing tasks to allow for the creation of snapshots. The freeze function allows for the creation of a snapshot that reflects the state of application data at a given point in time. When the process resumes, the original volume will continue to change while the shadow copy of the volume remains constant.

The 3PAR VSS Provider for Microsoft Windows also gives permission for the backup application to access the volume and back it up in its "frozen" state. The shadow copy volume is then used for the actual backup. After the shadow copy volume is saved on the backup device, the shadow copy is deleted.

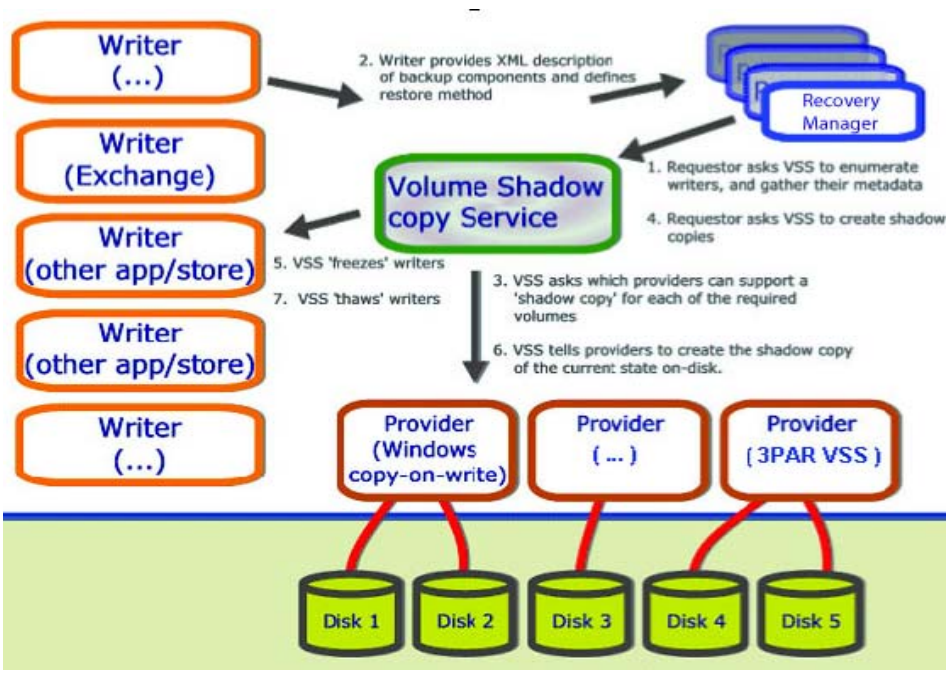


Figure 2-1. 3PAR VSS Provider for Microsoft Windows Operation Overview

2.2.1 3PAR VSS Provider for Microsoft Windows Aware Components

To ensure absolute data integrity for all volumes, especially those that are interrelated, the application, the backup program, and the backup device should be "VSS aware". This means that the components participating in the backup must be specifically programmed to work

with the 3PAR VSS Provider for Microsoft Windows. Microsoft provides a Software Development Kit (SDK) to enable independent hardware and software vendors to interface with their components. This includes applications, data stores, snapshot engines and backup applications that interface with the 3PAR VSS Provider for Microsoft Windows.

The 3PAR VSS Provider for Microsoft Windows was developed with VSS SDK, release 7.2 for Windows 2003 and Windows Server 2008 Platform SDK, as part of the VSS provider implementation.

These components are called writers, requestors, and providers respectively, as described in more detail in Table 2-1 on page 2.3.

Table 2-1. 3PAR VSS Provider for Microsoft Windows Components

VSS Component	VSS Component Description
Requestor	The requestor is backup software that initiates the creation of the shadow copy.
Writer	The writer is any application software that participates in the shadow copy process and whose files and data are included in the process.
Provider	The provider is the storage technology that performs the actual shadow copy.

2.3 Host System Requirements

- Microsoft Windows Server 2003 or 2008. For the latest system service pack requirements, refer to the InForm OS 2.2.4 Configuration Matrix (PN 320-200099) which can be accessed through the 3PAR Document Control System (DCS).
- 3PAR InForm CLI installation. For the supported InForm CLI version, see the InForm OS 2.2.4 Configuration Matrix (PN 320-200099) which can be accessed through the 3PAR Document Control System (DCS).
- The Windows logical volume must be configured as Basic Disk and located on the 3PAR virtual volume.

2.4 3PAR InServ Requirements

- 3PAR InForm OS with Virtual Copy license enabled. For the supported InForm OS release, refer to the InForm OS 2.2.4 Configuration Matrix (PN 320-200099) which can be accessed through the 3PAR Document Control System (DCS).
- The VSS Provider for Microsoft Windows license is enabled from the InServ Storage Server. Refer to InForm OS Command Line Reference for instructions on verifying the license from the InServ Storage Server.
- Snapshot space must be available on 3PAR Virtual Volumes. In order to take snapshots on 3PAR's base volume, the volume itself must have snapshot space allocated during the base volume creation. Please see the *3PAR InForm OS Command Line Reference* for instructions on creating a base volume with snapshot allocation, or assigning snapshot space after the base volume is created.

3 Installation, Upgrade and Deinstallation

In this chapter

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3.1 System Setup

The 3PAR VSS Provider for Microsoft Windows serves as a communication bridge between Microsoft VSS and the 3PAR InServ Storage Server during the shadow copy creation and removal.



NOTE: The system setup, including the InForm OS Command Line for Microsoft Windows installation, must be completed prior to the 3PAR VSS Provider installation. Additionally, an InForm user with "Edit" privileges is required to access the 3PAR InServ Storage Server.

To set up the system for the 3PAR VSS Provider for Microsoft Windows:

1. Log on as System Administrator.

   As the Windows System Administrator, you will need a username and password for VSS. You can subsequently change this password using the CLI `setpassword` command.

2. Install the 3PAR InForm Administration Tools onto the storage server. See the *3PAR InForm OS CLI Administrator's Manual* and *3PAR InForm OS GUI Administrator's Manual* to install the InForm Administration Tools onto a Windows environment.

3.1.1 Creating an Inform User Using the InForm OS Command Line

An InForm user with "Edit" privileges is required to communicate between VSS Provider and the InServ Storage Server. If an InForm user doesn't exist, use InForm CLI `createuser` command to grant users permission to use VSS Provider, and use the `setpassword` command to save the user password to an encrypted local file.



NOTE: The system setup, including the InForm OS Command Line for Microsoft Windows installation, must be completed prior to the 3PAR VSS Provider installation. Additionally, an InForm user with "Edit" privileges is required to access the 3PAR InServ Storage Server. Please refer to the 3PAR InForm OS CLI Reference for details on using the CLI commands to create a user with the appropriate privileges.

3.2 Installing the 3PAR VSS Provider for Microsoft Windows



NOTE: Prior to installing 3PAR VSS Provider for Microsoft Windows, the host server must have 3PAR InForm CLI installed and configured. For instructions on installing and configuring 3PAR InForm CLI, please refer to *System Setup* on page 3.1.



NOTE: If you are installing the application through a remote desktop session, the newly added environment variables will not become effective until you log off the session. It is recommended that you install the application directly from the system console.

To ensure that the correct level of the Windows operating system is installed:

On Windows 2003

1. Click **Start** > **My Computer**.
2. Right-click **My Computer**.
3. Click **Properties** to look for system information under the **General** tab.

On Windows 2008

1. Click **Start>Sever Manager** to look for system information.

   Ensure that Microsoft Windows Server and the appropriate Service Pack is displayed. Please refer to the InForm OS 2.2.4 Configuration Matrix (PN 320-200099) which can be accessed through the 3PAR Document Control System (DCS).

To install the 3PAR VSS Provider for Microsoft Windows:

On Windows 2003

1. Log-in as System Administrator.
2. Insert the 3PAR VSS Provider for Microsoft Windows CD into the CD-ROM drive.
3. Click **Start > My Computer** to expand the CD-ROM drive directory.
4. Click the **VSSProvider** directory.

5 Click the **Setup_2k3.exe** command as seen for 32 bit x86 platform. As an alternative, you can select **Setup_2k3_x64.exe** for the x86-64 platform.

6 Follow the instructions in the **3PAR VSS Provider for Microsoft Windows installer window** (Figure 3-1).

On Windows 2008

1 Log-in as System Administrator.

2 Insert the 3PAR VSS Provider for Microsoft Windows CD into the CD-ROM drive.

3 Click **Start >Computer** to expand the CD-ROM drive directory.

4 Click the **VSSProvider** directory.

5 Click the **Setup_2k8.exe** command as seen for 32 bit x86 platform. As an alternative, you can select **Setup_2k8_x64.exe** for the x86-64 platform.

6 Follow the instructions in the 3PAR VSS Provider for Microsoft Windows installer window (Figure 3-1).



NOTE: The **Disk Cost** button analyzes the amount of available storage space and compares it to the amount required for the 3PAR VSS Provider installation. The default options to install for **Everyone** will create Windows service for everyone who has access to the system. Accept the default settings.

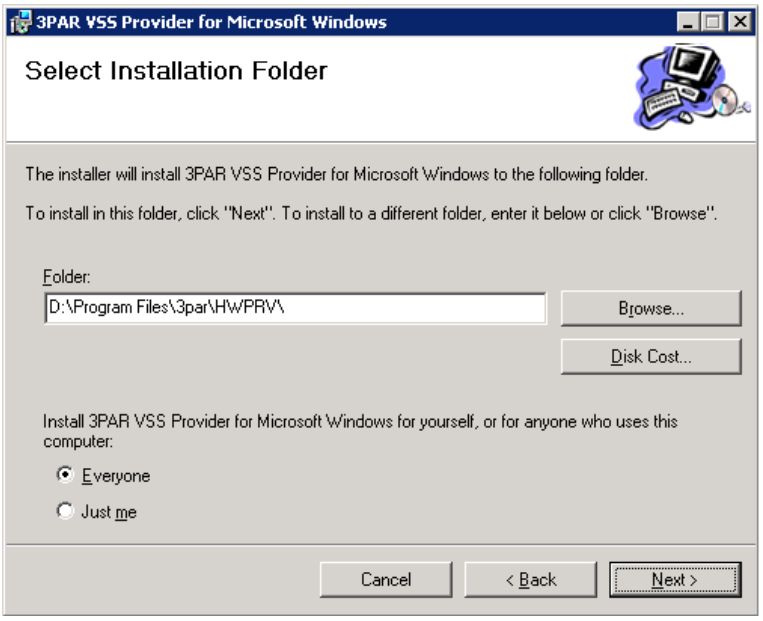


Figure 3-1. Installer Window

7 Configure the InServ Connection.

During the installation, an InServ Connection Configuration dialog appears to collect the InServ server name, InForm user, password and the local destination to store the encrypted

password file. This information is required when connecting to the InServ Storage Server via the InForm Command Line.

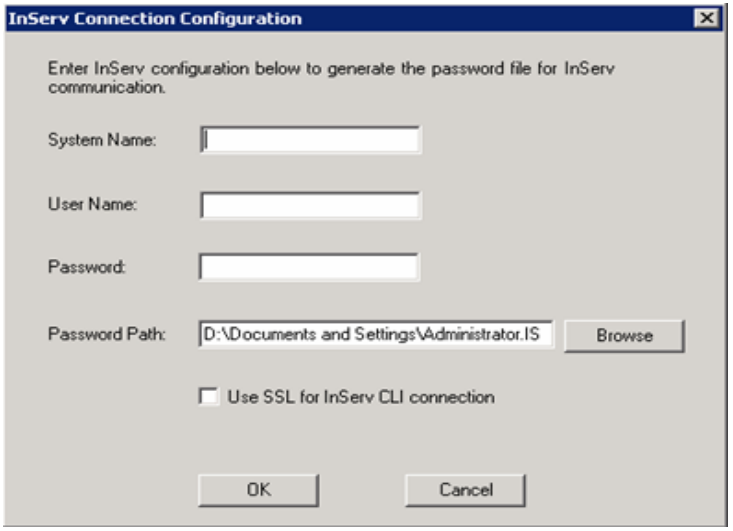


Figure 3-2. InServ Connection Configuration Window

Fill in the fields in the InServ Connection Configuration window with the following values:

- **System Name**: InServ Storage Server name or IP address.
- **User Name**: InForm user ID; see the InForm OS Command Line Reference for information on determining the user name via the InServ Storage Server.
- **Password**: The password associated with the specified user name.
- **Password Path**: The local destination where the encrypted password file is stored. Specify a location with limited access from security properties to prevent unauthorized InServ connections.
- **Use SSL for InServ CLI Connection**: Select this option to use SSL for socket connection to the InServ.

8 Click **OK** when you are finished entering information for the InServ configuration.

NOTE: The information you supply for the InServ configuration needs to be properly validated before the installation can continue. An encrypted password file will be generated and stored in the destination specified in "Password Path". Both System Name and Password Path will be recorded in the Windows registry under key name "InServConfig" of 3PAR VSS Provider.

During the installation, a Windows command prompt will be launched for VSS Provider registration to the system. The Windows command prompt will be closed automatically after the registration has completed.

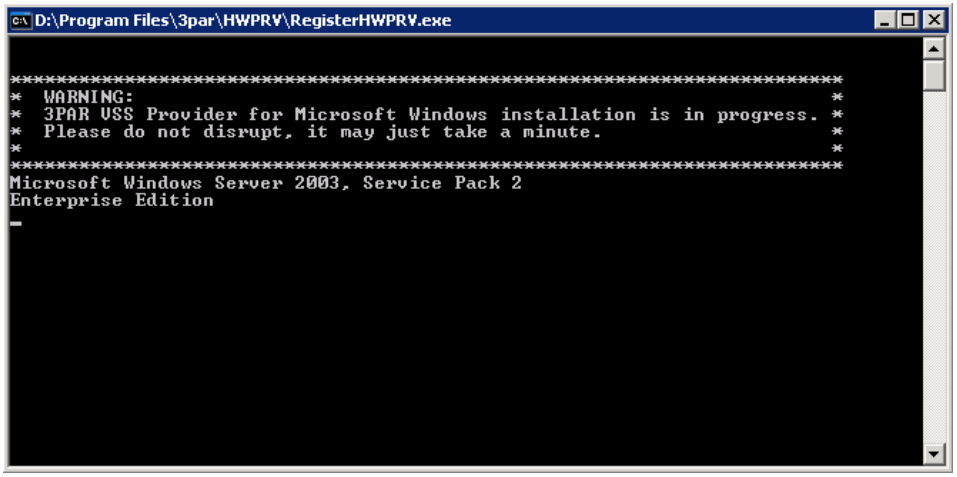


Figure 3-3. Windows Command Prompt

NOTE: After using Remote Desktop Connection to install 3PAR VSS Provider, you must log out of the session and re-connect to refresh the connection after the installation has completed. You can then activate the Remote Desktop Connection.

3.3 Verifying the Installation

To verify the 3PAR VSS Provider for Microsoft Windows installation:

On Windows 2003

1. Log on as System Administrator.
2. Verify Window service registration:
   a. Click **Start.**
   b. Right-click **My Computer**.
   c. Click **Manage**.
   d. Expand the **Services and Applications** tree node.
   e. Click **Services**.

On windows 2008

1. Log on as System Administrator.
2. Verify Window service registration:
   a. Click **Start**.
   b. Click **Server Manager**.
   c. Expand the **Configuration** tree node.
   d. Click on **Services.**

Verify that one of the Windows Services that is displayed in the registry lists **3PAR VSS Provider**. (Figure 3-4)

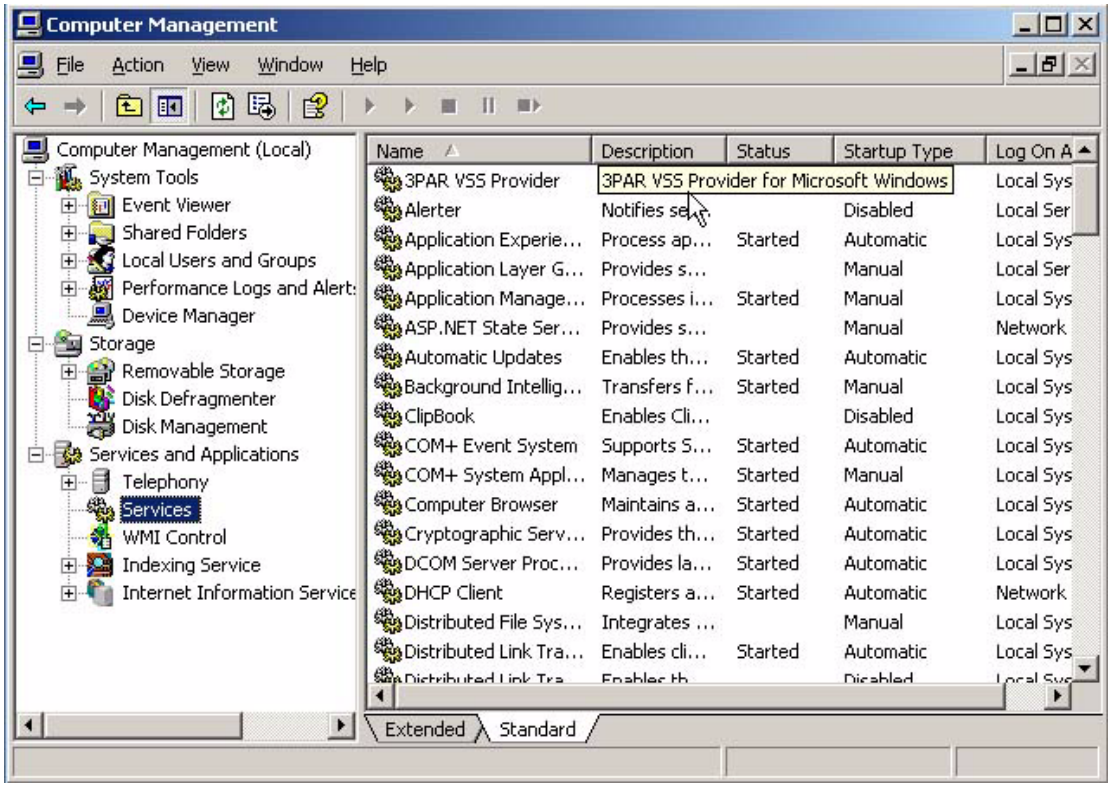


Figure 3-4. Verifying Installations as a Windows Service on Windows 2003

3 Verify the Provider registration to 3PAR VSS Provider for Microsoft Windows from a command line prompt by entering **vssadmin list providers**.

Result: The **3PAR VSS Provider** is recognized by the Volume Shadow Copy Service.

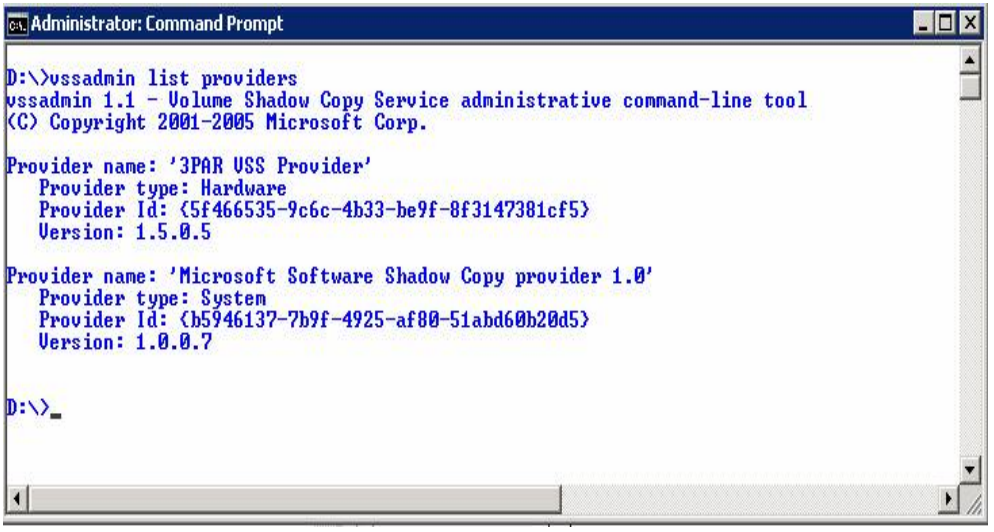


Figure 3-5. Verifying the 3PAR VSS Provider

4 Verify installation by looking at the installation log, 3parprov.log, located at%SYSTEMROOT% directory. A successful installation message appears, similar to figure Figure 3-6.

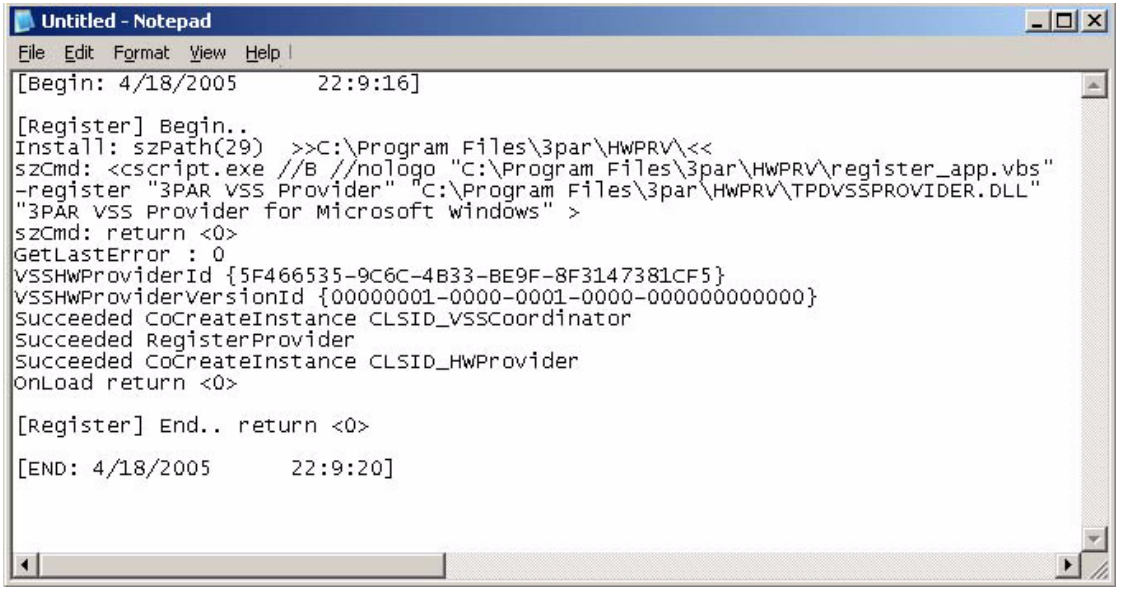


Figure 3-6. Verifying Installation in the 3parprov.log

3.4 Upgrading from a Previous Version



WARNING: Make sure that no backup jobs are running in the background prior to upgrading 3PAR VSS Provider.

To upgrade 3PAR VSS Provider for Microsoft Windows, from release 1.3.0 or later, follow the same instructions as for installing the product. Refer to *Installing the 3PAR VSS Provider for Microsoft Windows* on page 3.3.



NOTE: If you have previously installed 3PAR VSS Provider for Microsoft Windows, you may remove the definition of environment variables TPDSYSNAME and TPDPWFILE. Both environment variables are no longer valid for the current 3PAR VSS Provider release.

3.5 Removing the 3PAR VSS Provider For Microsoft Windows

To remove the 3PAR VSS Provider for Microsoft Windows:

On Windows 2003

1. Log on as System Administrator.
2. Click **Start** > **Control Panel**.
3. Click **Add or Remove Programs**.

   Result: The Add or Remove Programs window appears.
4. Select **3PAR VSS Provider For Microsoft Windows**.

On Windows 2008

1. Log on as System Administrator.
2. Click **Start > Control Panel**.
3. Click **Programs and Features**.

   Result: The Add or Remove Programs window appears.

4 Select **3PAR VSS Provider For Microsoft Windows**.

5 Click **Uninstall**.

6 Verify the deinstallation procedure by viewing the installation log, **3parprov.log**, located at the **%SYSTEMROOT%** directory.

7 Click **Remove**.

8 Verify the deinstallation procedure by viewing the installation log, `3parprov.log`, located at the `%SYSTEMROOT%` directory.

Result: The successful deinstallation message appears, similar to Figure 3-7.

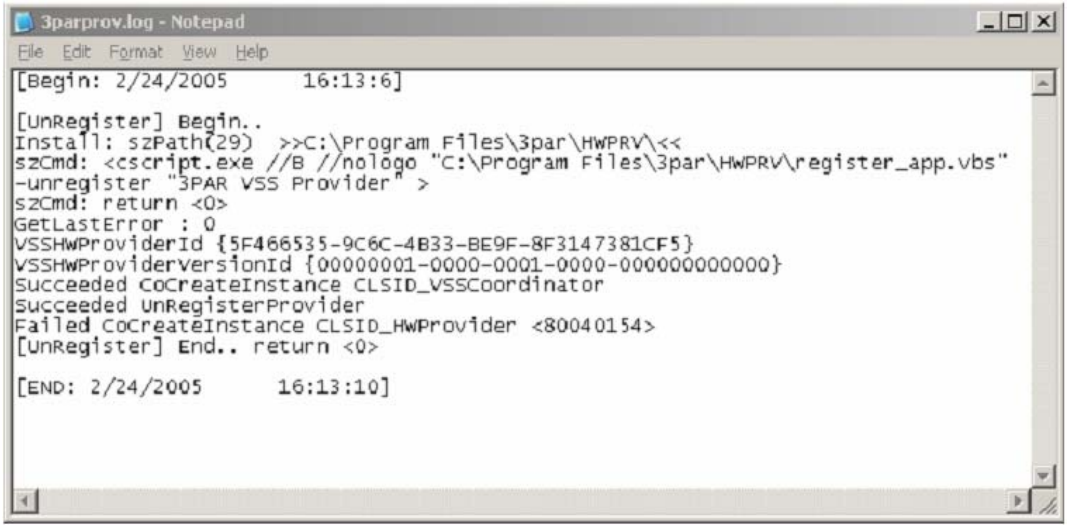


Figure 3-7. Successful Deinstallation Message

3.6 System Registry

After installing the 3PAR VSS Provider for Microsoft Windows, there is a **3par->HWPRV** registry key created under **HKEY_LOCAL_MACHINE->Software**.

CAUTION: DO NOT edit the registry key value unless asked by your local service provider to do so for support purposes.

NOTE: For tracking purposes, modify the value on LogLevel to a higher number in order to record more detailed information to a file.

To edit the registry data for the 3PAR VSS Provider for Microsoft Windows:

1. Click **Start** > **Run**.
2. In the Run window, enter **regedit**.
3. Then **Registry Editor** window appears. (Figure 3-8).
4. Expand **HKEY_LOCAL_MACHINE** > **SOFTWARE** > **3par** > **HWPRV** from the left panel.
5. Double-click **LogLevel** from the right panel.

   Result: The **Edit Value** window appears.
6. Modify the value data to the **Edit Value** and click **OK** to save the change.

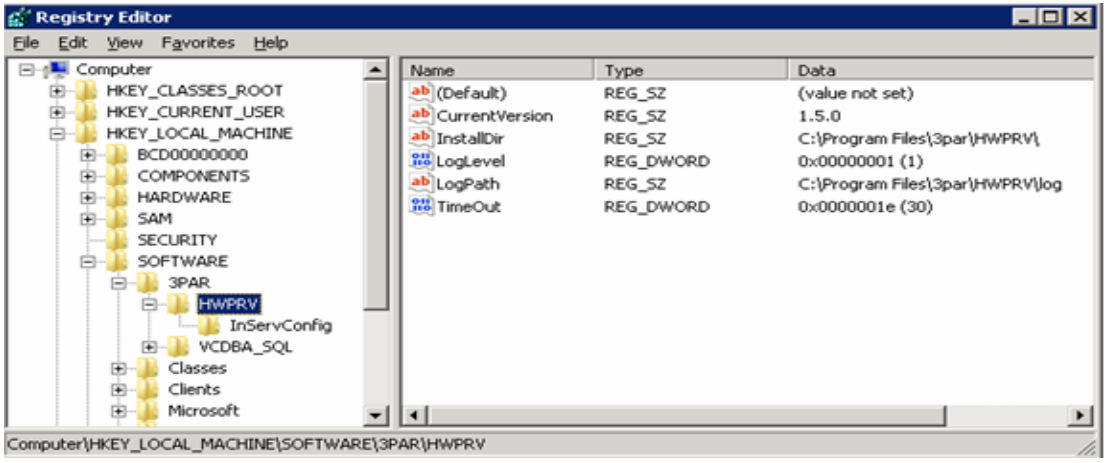


Figure 3-8. Registry Editor Window

Table 3-1. Registry Values for the 3PAR VSS Provider for Microsoft Windows.

Name	Value
CurrentVersion	The current release version of the 3PAR Provider for Microsoft VSS.
InstallDir	The directory where the 3PAR Provider for Microsoft VSS is installed.
LogLevel	The trace level to the log file where resided inside the directory specified by LogPath. 1 error occurred 2 warning 3 Information 4 routine route 5 verbose The default value is set to "5".
LogPath	The location where the log file resides.
TimeOut	Timeout value set for SCSI inquiry and InForm CLI operations; the default is 30 seconds.
InServname	The InServ Storage Server to which VSS is connected. It is under InServConfig sub-key.
InServPasswd	An encrypted password file provides the capability to access the InServ non-interactively from the Windows service program. It is under InServConfig sub-key.
EnableSSL	The value to be used: 0 Disable use of SSL of CLI connection. 1 Enable use of SSL fo CLI connection. It is under InServConfig sub-key.

3.7 Using the Command Line Interface to Set Up or Modify the InServ Connection

An optional command line interface is provided to quickly list details and modify the current connection setup.

COMMAND

`provcfg`

USAGE:

To view current InServ communication setup:

```
ProvCfg InServ
```

To change password file path:

```
ProvCfg InServ <-sys InServNode> <-pwf PasswdFilePath> [-sockssl]
```

To generate and use the new password file:

```
ProvCfg InServ <-sys InServNode> <-user InServUserName> <-pass
InServPassword> <-pwf PasswdFilePath> [-sockssl]
```

To view the current log level:

```
ProvCfg Log
```

To change the current log level:

```
ProvCfg Log -level LevelNumber
```

OPTIONS:

-sys - (optional) InServ system name.

-pwf - (optional) InServ password file path.

-user - (optional) InServ user name to generate password file.

-pass - (optional) InServ password to generate password file.

-level - (optional) Change Log level to log file. The valid range is from 1 to 5.

-sockssl - (optional) Use SSL for socket connection to InServ.

EXAMPLES:

The following command will change the password file path.

```
ProvCfg InServ -sys MyInServ -pwf "c:\tpdinfo.pwf"
```



NOTE: Use quotes ("") to surround file paths that include spaces.



NOTE: The folder structure for PasswdFilePath must exist prior to running the `ProvCfg` command. It can be created by using the InForm OS Command Line `setpassword` command.



NOTE: Any change to the InServ connection information requires the PasswdFilePath to be regenerated.

4 Features

In this chapter

4.1 Features 4.1

4.2 Special Notifications 4.2

4.1 Features

The following features are included in the 3PAR VSS Provider for Microsoft Windows:

- Atomic Shadow Copy creation

  Supports up to 64 shadow copies per volume (snapshots to a volume) within a shadow copy set.

- Writable Snapshot Volume

  Provides a "Point in Time" writable snapshot volume by using the Copy On Write technique to Volume Shadow Copy Service. This is a very quick process with little storage space required.

- User mode DLL installed as a Windows service to provide communication between VSS and 3PAR InServ Storage Server

- Recovery Manager for Exchange

Provides the capability to take a non-destructive virtual copy of Microsoft Exchange 2003 and 2007 for backup and fast recovery.

- Recovery Manager for SQL

  Provides the capability to take a non-destructive virtual copy to Microsoft SQL Server for backup and fast recovery.

- Veritas NetBackup

  Support for Veritas NetBackup through the VSS snapshot method.

- Transportable shadow copy

  Supports transportable shadow copy to allow import from another machine.

- x86-64 platform support

  Provides a 64-bit installation package for working with the x86-64 platform.

- Secure InServ Storage Server connection

  Connects to the InServ Storage Server via user local encrypted password file to eliminate the global access.

- Support for the following:

  - Microsoft VSS Transportable shadow copy.
  - Egenera environment.
  - iSCSI configurations.

- Command line interface for InServ connection setup

  A command line interface is provided to quickly determine and modify connection settings.

4.2 Special Notifications

- Auto-Import Shadow Copies are not supported on Windows Cluster service.

  Windows Cluster service cannot accommodate LUNs with duplicate signatures and partition layout. The shadow copy LUNs must be transported to a host outside the cluster, or the original volume must be dismounted before the shadow copy can be imported. This is a limitation of the Window Cluster service.

- Shadow Copies Containing Dynamic Disks must be Transported.

  The native support for dynamic disks cannot accommodate LUNs with duplicate signatures and configuration database contents. The shadow copy LUNs must be transported to a different host. VSS enforces this by not allowing auto-import shadow copies of dynamic disks. A requestor should not import a transportable shadow copy back to the same host. This is a limitation on Dynamic Disk.

- Create Shadow Copy Volumes Read-Only and Hidden.

  VSS sets flags on each affected LUN such that the resulting shadow copy will be hidden and read-only when detected by a Windows Server 2003 or 2008 machine. Drive letters and/or mount points are not automatically assigned. VSS maintains these flags throughout the lifecycle of a shadow copy. Modification of these flags may lead to unpredictable results.

- Shadow Copy Attribute Context

  The following are shadow copy attributes supported by passing in the shadow copy context:

  - The shadow copy is persistent across reboots.
  - The shadow copy is not automatically deleted when the shadow copy requestor process ends. The shadow copy can be deleted only by a call to `IvssBackupComponents::DeleteSnapshots`.
  - No writers are allowed in creating the shadow copy.
  - The shadow copy is currently not exposed to the requestor.
  - Copy-on-write mechanism is used to implement shadow copies.

  The following shadow copy attributes are not supported in the current release of the 3PAR VSS Provider for Microsoft Windows release:

  - All shadow copies are created with a copy-on-write mechanism.
  - All shadow copy is hidden.

- Taking a snapshot on a System Drive is not supported.

  With the additional System Writer involved on the System Drive, taking snapshots on a database where its physical location is on the System Drive is not supported.

- Volume-wide snapshot.

A virtual copy is taken of the entire volume. Data outside the backup scope that might reside on the same snapshot LUNs is not restorable from the virtual copy.

5 Diagnostics

In this chapter

5.1 Volume Shadow Copy Service Trace 5.1

5.2 Application Event Log 5.2

5.1 Volume Shadow Copy Service Trace

In order to get support from Microsoft, if the failure of the VSS request has been determined to be outside the scope of the 3PAR VSS Provider for Microsoft Windows, the following information should be gathered:

- Windows Application Event Log
- Windows System Event Log
- Volume Shadow Copy Service Trace

For 3PAR Provider for Microsoft VSS debug purposes, you can turn on the VSS logging by setting up the registry data value on the VSS registry.

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\VSS\Debug\Tracing]
```

To eliminate the risk of modifying the registry database, the 3PAR VSS Provider for Microsoft Windows provides a registry file for assistance with turning on VSS logging.

The file `vsstrace.reg` is located under the 3PAR VSS Provider for Microsoft Windows installation directory. Since VSS logging is volume based, the log file cannot be on the volume as part of the shadow copy set. The default location for the TraceFile is set to:

`c:\vsstrace.txt`. Modify it to fit into your system if necessary.

Use Windows Explorer to locate the `vsstrace.reg` file. Double-click on this file to make it active.

The trace log will be appended. In order to receive meaningful information, clear out the contents before a new run begins.

To turn off the VSS tracing, remove the following registry key from the registry database:

`[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\VSS\Debug\Tracing]`

5.1.1 Contents of the vsstrace.reg File

```
Windows Registry Editor Version 5.00

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\VSS\Debug\Tracing]
"TraceFile"="c:\vsstrace.txt"
"TraceLevel"=dword:ffffffff
"TraceEnterExit"=dword:00000001
"TraceToFile"=dword:00000001
"TraceToDebugger"=dword:00000000
"TraceFileLineInfo"=dword:00000001
"TraceForceFlush"=dword:00000000
```

5.2 Application Event Log

This section describes how to view event logs associated with 3PAR Provider and how to interpret the 3PAR Provider messages that get posted through the Application Event Log, in numerical order (Figure on page 5.3).



NOTE: Currently, only the English message catalog is supported.

To view the message from Window Application Event Viewer:

On Windows 2008

1 Click **Start**.

2 Right-click **My Computer**.

3 Click **Manage**.

4 Expand on the **System Tools** tree node from the left panel.

5 Click **Event,** and then **Application**.

Result: The Application Event log appears on the right panel. (Figure 5-1)

On Windows 2008

1 Click **Start**.

2 Right-click **Server Manager**.

3 Expand on the **Diagnostics\Event Viewer\Windows Logs** tree node from the left panel.

4 Click **Application**.

Result: The Application Event log appears on the right panel. (Figure 5-1)

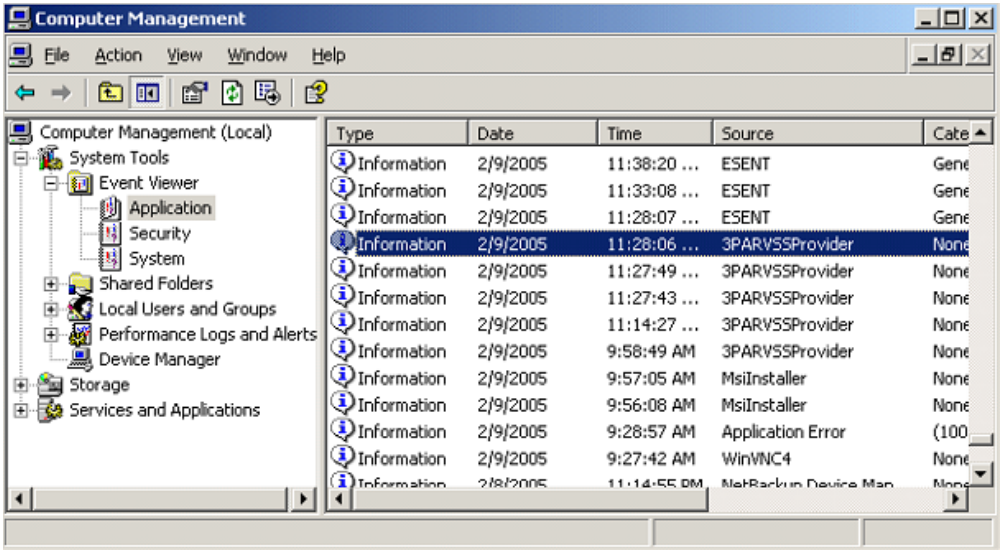


Figure 5-1. Application Event Log on Windows 2003

The following table provides descriptions and actions for the various application events. The **Description** subsection for each message describes the problem. The **Action** subsection suggests possible solutions.

Table 5-1. Application Events

Event ID	Description	Action
5000	3PAR VSS Provider for Microsoft Windows OnLoad was successful. 3PAR VSS Provider for Microsoft Windows has loaded the provider's DLL on demand. This message indicates VSS has invoked the 3PAR VSS Provider for Microsoft Windows successfully.	None
5001	3PAR VSS Provider UnLoad was successful. 3PAR VSS Provider for Microsoft Windows loads the provider's DLL on demand, and releases it once the task has been completed. This message indicates VSS has released the 3PAR VSS Provider for Microsoft Windows from the VSS control.	None

Table 5-1. Application Events

Event ID	Description	Action
5020	Snapshot ID <*snapshot_ID*> prepared. Internal logging, <*snapshot_ID*>. is a unique identifier.	None
5040	SnapshotSet <*snapshot_set*> created. Indicates the SnapshotSet request has been fulfilled.	None
5041	Exec: <*message*> Internal logging, which records the task from the 3PAR VSS Provider for Microsoft Windows to the 3PAR InServ Storage Server.	None
5042	Virtual Copy <*virtual_copy_number*> exported. A point-in-time snapshot disk has been created and exported to the host.	None
5043	Virtual Copy <*virtual_copy_ID*> removed. The exported snapshot disk has been removed from the host.	None

Table 5-1. Application Events

Event ID	Description	Action
5050	Unsupported feature *<feature_ID>.* The 3PAR VSS Provider for Microsoft Windows received an unsupported request through the VSS framework.	The request is unsupported by the current release. Contact your local service provider for a future release.
5051	A snapshot in one set has exceeded the maximum limitation. 3PAR VSS Provider for Microsoft Windows supports up to 64 snapshots in one set. This request has exceeded the maximum limitation.	Reduce the number of snapshot requests in one snapshot set to less than 64, and request again.
5052	Could not allocate memory. Internal error, failed to allocate memory during computing.	Insufficient memory is available to allow 3PAR VSS Provider for Microsoft Windows to operate normally. Shutdown some of the idle applications that are still running and resume the previously failed task.

Table 5-1. Application Events

Event ID	Description	Action
5053	Could not communicate with InForm CLI. The initial check on the InForm CLI configuration has generated an error. This could mean several thing went wrong: ■ the InForm CLI is not installed. ■ A valid password file could not be found or its contents are not valid for this installation.	See *System Setup* on page 3.1, to check for the 3PAR storage server CLI installation.
5054	<message> This is an error message that usually is associated with Event ID 5041. This event describes the cause to the action on Event ID 5041.	Correct the error and retry again, or contact your local service provider if the error continues.
5055	*<token_ID>*: Invalid token. Internal error. The output format does not match.	Set the LogLevel to '4' to show the detail error message to log file, and retry.
5056	Could not open the volume mapping file: *<mapping_file>*. Failed to open the mapping file that is generated by the `showvv -d` CLI command.	Set the LogLevel to '4' and look for vvmap as *<some_file_name>* from the `3parprov.log`.

Table 5-1. Application Events

Event ID	Description	Action
5057	Could not open file: *<filename>,* The 3PAR VSS Provider for Microsoft Windows failed to open the temporary file *<filename>* that is generated internally.	Look for file *<filename>* to see the if the permissions are set correctly.
5058	Could not create file *<filename>.* The 3PAR VSS Provider for Microsoft Windows failed to open the temporary file *<filename>* which is generated internally.	Contact your local service provider with the detailed logfile.
5059	Generic system error. This error message is generated by the system.	Try to correct the system error based on the message.
5061	IOCTL inquiry call failed. Failed on SCSI inquiry to the storage device through an IOCTL call.	Check the Window Disk Manager and the 3PAR InServ Storage Server to verify that the device is active and functioning properly.

Table 5-1. Application Events

Event ID	Description	Action
5062	Could not query the register key value for *<value_number>.* The 3PAR VSS Provider for Microsoft Windows relies on the registry to store certain data for internal use, such as snapshot set ID, or the LogLevel to log the trace.	Check for the existence of the key name *<value_number>* from the register database.
5063	Could not query the register key name of *<key_name>.* The 3PAR VSS Provider for Microsoft Windows relies on the registry to store certain data for internal use, such as snapshot set ID, or the LogLevel to log the trace.	Check for the existence of the key name *<key_name>* from the register database.
5064	Could not open the register key for 3PAR VSS Provider for Microsoft Windows. Failed to open register key [HKEY_LOCAL_MACHINE\SOFTWARE\3par\HWPRV]	The registry key was created by the installer program during the 3PAR VSS Provider for Microsoft Windows installation. Check to see if the installation was successful. If necessary, you may have to re-install the 3PAR VSS Provider for Microsoft Windows.

Table 5-1. Application Events

Event ID	Description	Action
5065	Target LUN <*LUN_number*> is not a 3PAR Virtual Volume. One of the snapshots from the snapshot set is not targeting a 3PAR Virtual Volume.	Move the data out from the non-3PAR Virtual Volume to a 3PAR Virtual Volume, and perform the task again.
5066	The target LUN could not be identified. 3PAR VSS Provider for Microsoft Windows failed to provide the information of the target LUN during the `AreLunsSupport()` interface.	Turn on VSS logging and reproduce the problem to collect VSS trace data for Microsoft Product Support Service.
5067	The destination LUN could not be identified. 3PAR VSS Provider for Microsoft Windows failed to provide the information of the destination LUN from the interface.	Turn on VSS logging and reproduce the problem to collect VSS trace data for Microsoft Product Support Service.
5068	Could not retrieve device descriptor <*device_ID*>. Failed to retrieve device <*device_ID*> information.	Check both the Window Disk Manager and the 3PAR InServ Storage Server to see if the device is active and functioning properly.

Table 5-1. Application Events

Event ID	Description	Action
5069	`DeviceIoControl` call failed. Internal error.	Set the LogLevel to '4' and reproduce the problem. Provide the `3parprov.log` file to your local service provider.
5070	The internal snapshot information is empty. This is an internal error. It is likely that the 3PAR VSS Provider for Microsoft Windows could not find the mounted snapshot volume.	Set the LogLevel to '4' and reproduce the problem. Provide the `3parprov.log` file to your local service provider.

Revision History

Release level	Revision summary
320-1306-01 May 2005	Original release of this manual to support product release 1.0.
320-1306-02 November 2005	Second release of this manual to support product release 1.1.
320-1306-03 August 2006	Third release of this manual to support product release 1.2.
320-1306-04 June 2007	Fourth release of this manual to support product release 1.3
320-1306-05 March 2008	Fifth release of this manual to support product release 1.4 with new text formatting and editing.
320-200110 Rev A July 2008	Sixth release of this manual to support product release 1.5.