



IBM XIV Volume Shadow Copy Service (VSS) Provider

For Microsoft Windows Server

Release Notes

Version 2.2.4





Third Edition (January 2011)

This edition applies to Version 2.2.4 of the IBM XIV VSS Provider for Microsoft Windows Server software package and to all subsequent releases and modifications until otherwise indicated in new editions.

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Overview

The IBM XIV Volume Shadow Copy Service (VSS) Provider (xProv) for Microsoft Windows Server is a software module that allows you to take snapshots of Windows Server applications by using the server-based VSS framework as the application manager, and the IBM XIV Storage System as the snapshot management system.

Compatibility and requirements

The IBM XIV VSS Provider is compatible with different versions of the Microsoft Windows Server operating system, and with different versions (microcode levels) of the IBM XIV Storage System.

Supported operating systems	Windows Server 2003 x86 SP1 or later
	Windows Server 2003 x64 SP1 or later
	Windows Server 2008 x86
	Windows Server 2008 x64
	Windows Server 2008 R2 x86
	Windows Server 2008 R2 x64
Supported IBM XIV versions (microcode levels)	10.0.x or later
	10.2.2 or later for the VSS replicated snapshots feature (see <i>Changes in version 2.2.4</i>)

Important: Microsoft .NET Framework 2.0 or later must be installed on any of the supported operating systems.

Changes in version 2.2.4

The scope of version 2.2.4 (January 2011) includes new features and components.

New features and components

This section lists the new features and components that were added in version 2.2.4.

Replicated snapshots creation (DR) support

The IBM XIV VSS Provider now supports the creation of VSS replicated snapshots. When this feature is enabled, a remote replicated snapshot is created for any local VSS shadow copy that is created.

Remote shadow copies are created through either synchronous or asynchronous mirroring, and can be used as powerful resilience aid in DR scenarios.

You can enable the VSS replicated snapshots feature per XIV storage system, by using either the Machine Pool Editor or the Machine Pool CLI on the server.

Note: The replicated snapshots feature is supported only with XIV system microcode version 10.2.2 or later (see *Compatibility and requirements*).

Changes in version 2.2.3

The scope of version 2.2.3 (March 2010) included:

- New features and components
- Resolved issues and bug fixes

New features and components

This section lists the new features and components that were added in version 2.2.3.

Command line interface (CLI)

A command-line interface (CLI) has been added for configuring XIV systems.

To invoke the CLI from Microsoft Windows Server, run the `MachinePoolCLI.exe` file, located in the `.NET` folder of the `xProv` installation directory.

Resolved issues and bug fixes

This section lists the resolved issues and bug fixes in version 2.2.3.

Support for the FCM Instant Restore feature

The FlashCopy Management (FCM) Instant Restore feature restores shadow sets that are taken in Windows 2003 and Windows 2008 environments. This feature is fixed and supported in version 2.2.3.

Machine Pool Editor 'revalidate' operation does not validate configuration data

In addition to testing the connection to the XIV system, the revalidate operation now validates the system configuration data.

Note: The revalidate operation does not fix incorrect IP addresses.

Changes in version 2.2.2

The scope of version 2.2.2 (November 2009) included:

- New features and components
- Resolved issues and bug fixes

New features and components

This section lists the new features and components that were added in version 2.2.2.

Improved communication

The xProv communication with the XIV storage array has been optimized. VSS operations involving communication with the storage array are completed in a shorter amount of time.

Verifying sufficient space in pool during the Prepare phase

xProv verifies that the storage pool has a sufficient amount of space to create all the required snapshots without deleting old ones. If there is not enough space, the Prepare phase returns a veto and Shadow set creation fails. A message is displayed in the Event Viewer application log.

The minimum required space is $17 \times (\text{No. of Snapshots to create} + 1)$.

Support for LUN resynchronization on Windows 2008 R2

xProv supports the Windows 2008 R2 LUN resynchronization ("Resync") operation. The LUN Resync operation restores the original volume from its snapshot.

Mapping snapshots to a single host in a cluster environment

For XIV version 10.2.0 or later, xProv supports the mapping snapshots to a single host. This means that even if the host is defined in a cluster, the VSS snapshot import operation only unmaps the LUNs to the specific host.

Resolved issues and bug fixes

This section lists the resolved issues and bug fixes in version 2.2.2.

VSS snapshot operation fails for shadow sets that contain more than 5 volumes

To prevent snapshot operation failures for shadow sets that contain more than 5 volumes, the VSS snapshot operation now supports up to 20 volumes on the XIV storage system.

Missing notification if a snapshot is deleted due to insufficient space in pool

If a required snapshot is not found during the creation or import of a shadow set, a query is performed against the XIV system events log to check whether the snapshot has been deleted as a result of insufficient space in the storage pool. A notification is displayed if such a deletion is detected.

Installation and Configuration

The installation and configuration process includes the following stages:

- Performing initial checks
- Choosing the compatible installation package
- Running the installation wizard

- Adding an XIV system with the Machine Pool Editor
- Using the Machine Pool CLI (optional)
- Enabling and verifying the replicated snapshots support.

Performing initial checks

Perform the following checks prior to installing the IBM XIV VSS Provider (xProv) package:

- Verify that your Windows Server platform is supported (see *Compatibility and requirements*).
- Verify that IP connectivity has been established with the IBM XIV storage array.
- Verify that you have administrator credentials on the IBM XIV storage array.
- If you are using Microsoft Cluster on Windows 2003 server, create a Distributed Transaction Coordinator resource type before you install the package.

Choosing the compatible installation package

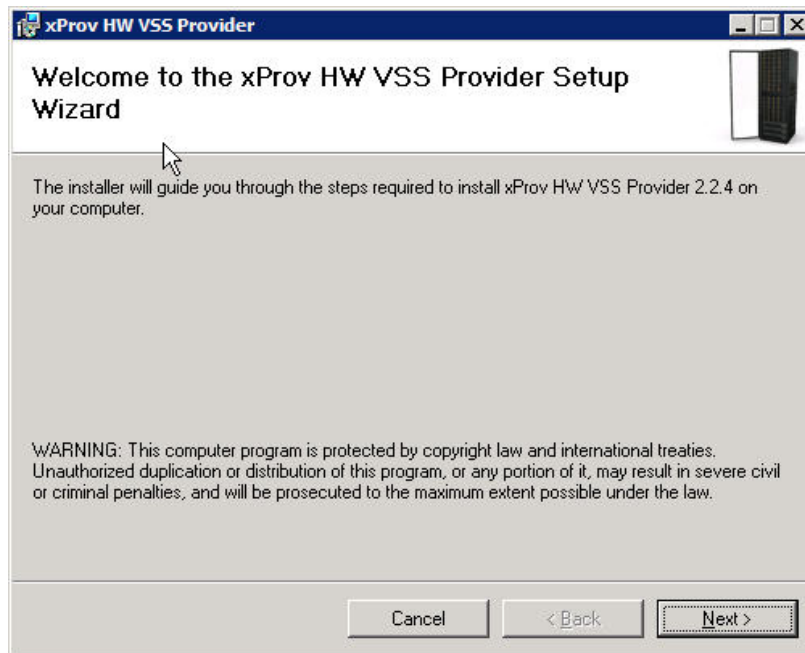
Depending on the operating system that you use, choose the compatible xProv installation package as detailed in the following table.

Package name	Use with
xProvSetup-2.2.4-x86.msi	Windows Server 2003 x86 SP1 or later Windows Server 2008 x86
xProvSetup-2.2.4-x64.msi	Windows Server 2003 x64 SP1 or later Windows Server 2008 x64 Windows Server 2008 R2 x64

Running the installation wizard

The xProv installation wizard guides you through the steps required to install xProv on your Windows Server platform.

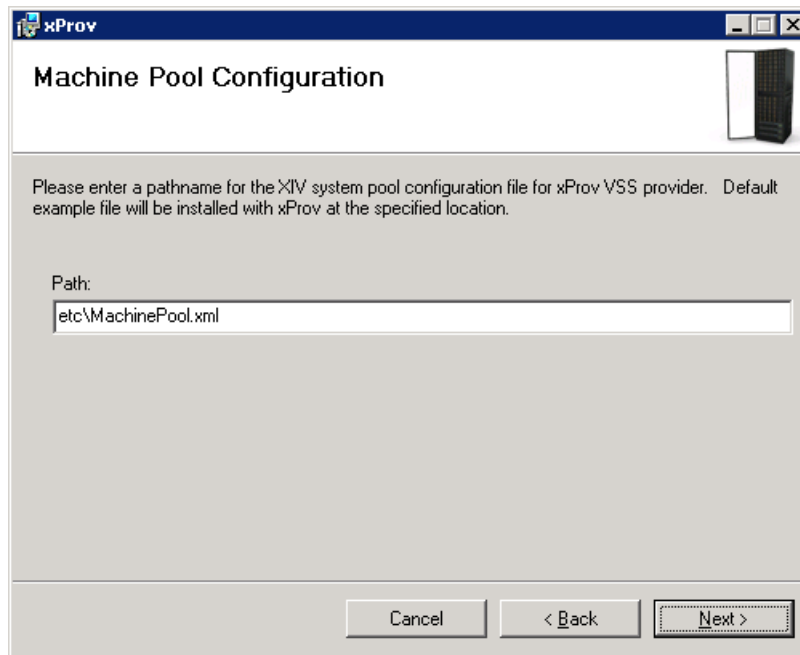
1. Run the compatible installation package (see *Choosing the compatible installation package*). The xProv installation wizard appears.



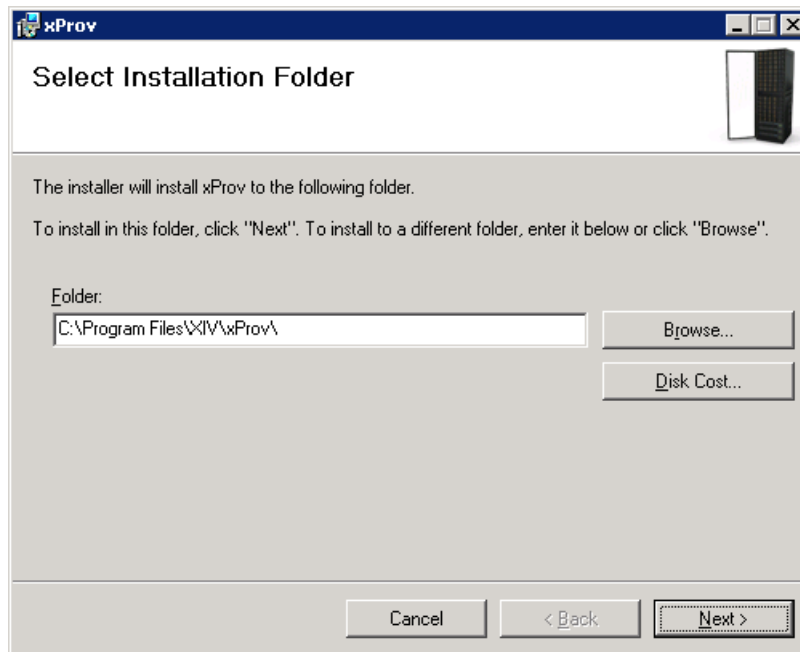
2. Click **Next**. The license agreement panel is displayed.



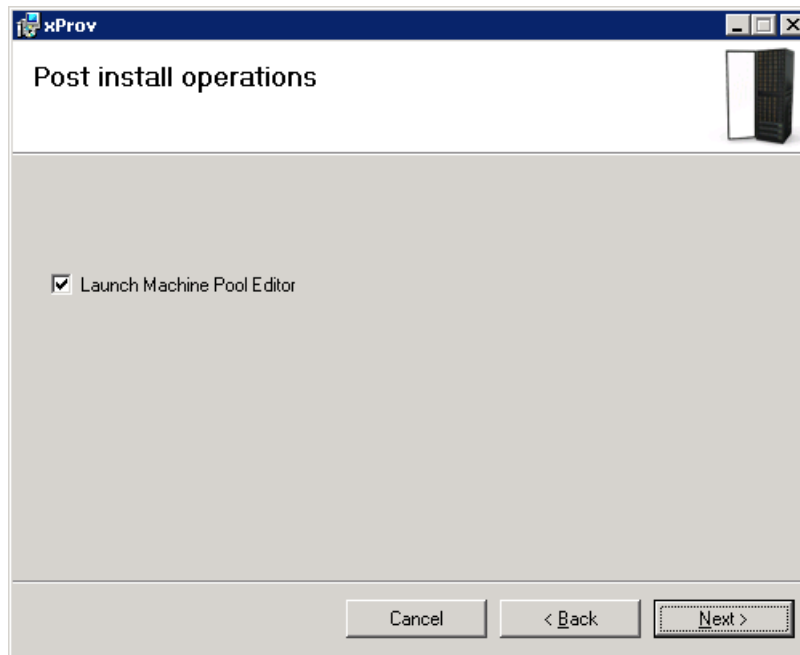
3. Read the license agreement, select **I Agree**, and then click **Next**. The Machine Tool Configuration panel is displayed.



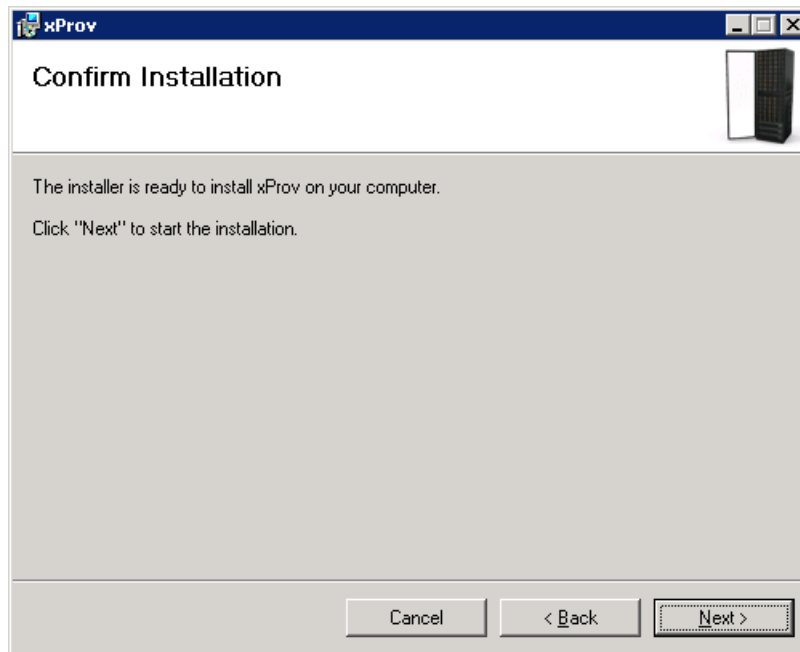
4. Confirm the displayed relative directory path to the Machine Pool configuration file, or enter a new path. The default path to this file is relative to the installation folder:
`<installation folder>\etc\MachinePool.xml`
5. Click **Next**. The Select Installation Folder panel is displayed.



6. Set the installation folder, and then click **Next**. The Post Install Operations panel is displayed.



7. Keep the **Launch Machine Pool Editor** option selected if you want to start the Machine Pool Editor utility immediately after the installation. Then, click **Next**. The Confirm Installation panel appears.



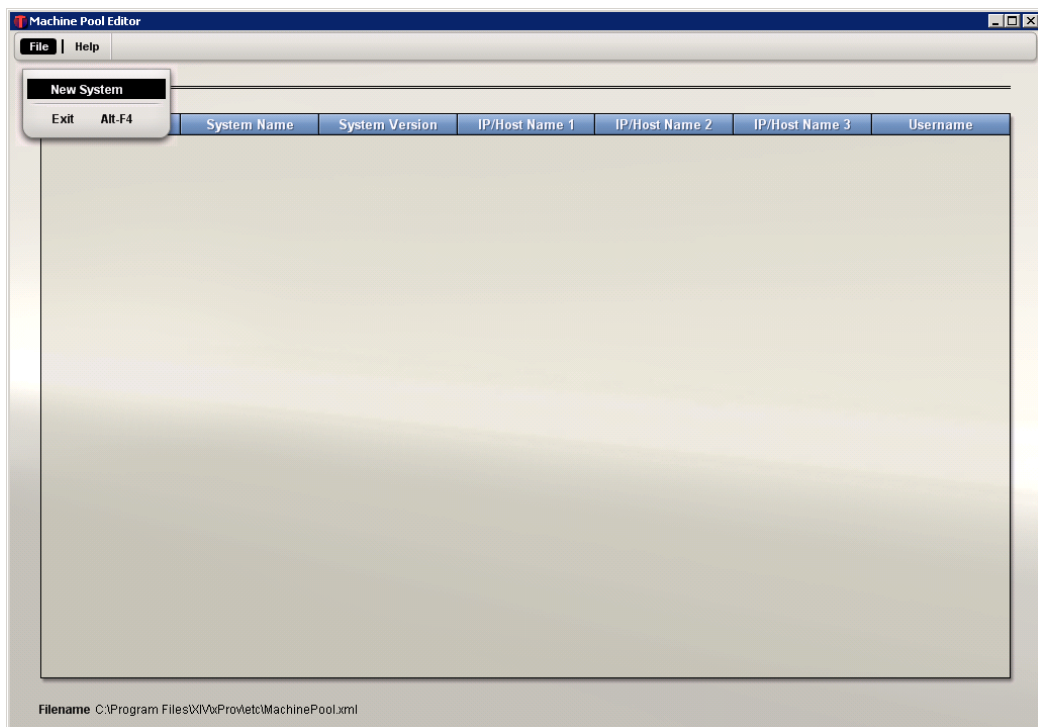
8. Click **Next**. The installation begins.
9. When the installation is complete, click **Finish**. The Machine Pool Editor GUI appears if you previously selected to launch it after the installation.

Adding an XIV system with the Machine Pool Editor

You can configure xProv host with the Machine Pool Editor utility (GUI) that is bundled with the xProv Installation.

For each XIV system to which the xProv host is connected, you must set the connection definitions, as follows:

1. In the Machine Pool Editor application (starts automatically after the installation if **Launch Machine Pool Editor** was selected; see *Running the installation wizard*), select **File** → **New System** (alternatively, right-click anywhere in the application window, and then select New System).



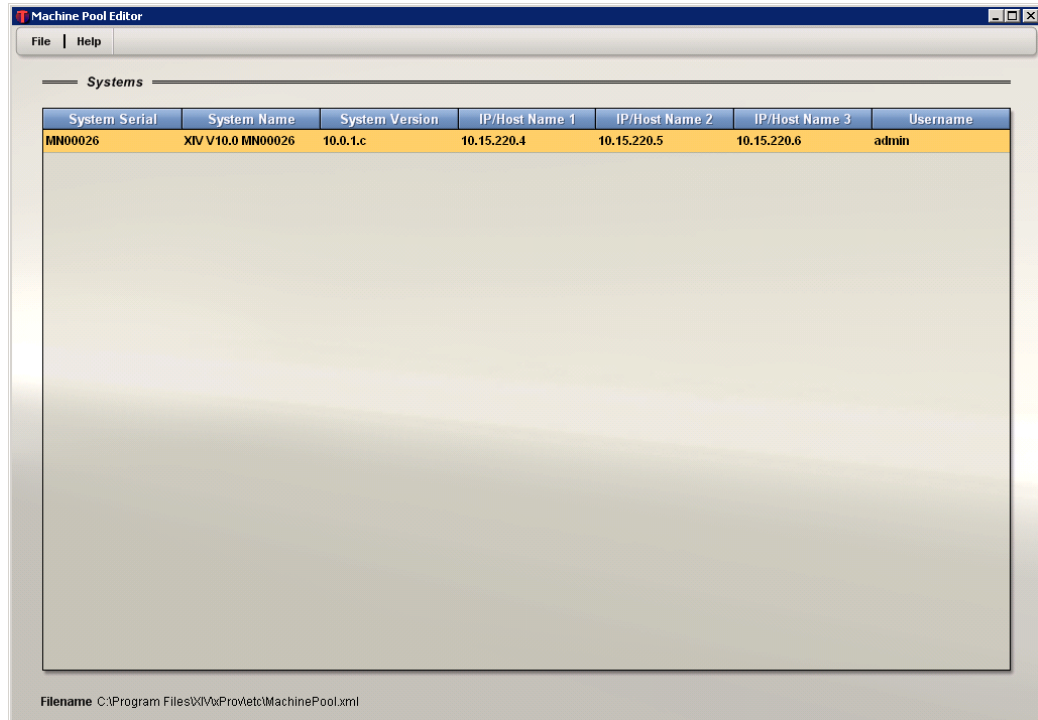
The Add System Management dialog box appears.

2. Enter your user name and password, as well as the IP address or host name (domain based) of the IBM XIV system that you want to add. Then, click **Add**.



Note: The **Enable Replicated Snapshots** option is applicable only if version 10.2.2 (or later) of the XIV microcode is detected.

The XIV system to which you logged in is added to the systems list in the Machine Pool Editor.



The system information is saved to a local XML file. The file name and path are indicated in the status bar.

The IBM XIV VSS Provider is now configured to work as the snapshot management system for the XIV system.

Using the Machine Pool CLI (optional)

The Machine Pool CLI is an alternative command prompt tool for adding, removing, and listing defined XIV systems instead of doing so with the GUI-based Machine Pool Editor. You can also use the CLI tool in scripts or other applications when the XIV GUI cannot be used.

The CLI tool is available in the .NET folder of the installation directory.

Adding an XIV system

To add an XIV system with the CLI, enter the following command (items in **bold** indicate system-specific variables):

```
MachinePoolCLI /a <user> <password> <ip> [/rs|replicate_snapshots]
```

Note: The /rs flag enables the snapshot replication feature (with XIV microcode 10.2.2 or later).

Listing XIV systems

To display a list of all the XIV systems to which the xProv host is currently connected, enter the following command:

```
MachinePoolCLI /l [/v]
```

Notes:

- The optional /v switch connects to the systems and displays the name and version.
- The validate option is available only from the Machine Pool Editor GUI.

Removing an XIV system

To disconnect from a specific XIV system, enter the following command along with the unique serial number of that system:

```
MachinePoolCLI /d <machine_serial_number>
```

Enabling and verifying the replicated snapshots support

Before you can use the replicated snapshots feature (see *Changes in version 2.2.4*), you must enable it for each XIV system to which the xProv host is connected, as explained in *Adding an XIV system with the Machine Pool Editor* and in *Using the Machine Pool CLI*.

When the replicated snapshots feature is enabled and functional, snapshots are created on a mirrored volume of the remote XIV system. All remote snapshot files contain the VSS- prefix, and each file name matches name to the local VSS snapshot.

You can verify that the replicated snapshots feature is functional by locating these snapshots on the remote XIV system.

Notes:

- The replicated snapshots feature is targeted to be used primarily in DR scenarios.
- Replicated snapshots are not considered part of the VSS framework, and are not recognized by the framework. Created snapshots are not involved in VSS operations, such as delete, import, and so on.

Known issues

This section lists the known issues in version 2.2.4 of the IBM XIV VSS Provider for Microsoft Windows Server.

Shadow copies that contain dynamic disks must be moved to a different host

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, and the VSS enforces this by not allowing auto-import shadow copies of dynamic disks.

A requester should not import a transportable shadow copy back to the same host.

For more information, see the following Microsoft MSDN web page:

<http://msdn.microsoft.com/en-us/library/aa384600.aspx>

Shadow set creation may fail after LUN Resync on Windows Server 2008 R2

Shadow sets creation may fail after performing LUN resynchronization on Windows Server 2008 R2. This is a known Microsoft VSS issue. Until Microsoft releases a KB hotfix, you must restart the VSS service after each LUN resynchronization.

Warning messages about storage identifiers not supported on Windows 2008

The following warning message is displayed for storage systems that support TPGS:

```
The provider has reported a storage identifier that is not supported by VSS.
```

This warning message does not interfere with the normal operation of VSS. For more information, refer to the relevant Microsoft Support page, at:

<http://support.microsoft.com/kb/951793>

Installation failure / Uninstall might leave xProv DLL registered – earlier versions

When performing a rollback to an older version after an installation failure, the xProv DLL may still be registered in DCOM.

To remove the xProv DLL from DCOM:

1. Click **Start** → **Run** and type `dcomcnfg.exe` in the command box.
2. Go to **Component Services** → **Computers** → **My Computer** → **DCOM Config**.
3. On the right pane, click **xProv**, and then press Delete on the keyboard. A message box is displayed to confirm the deletion of the xProv component.
4. Click **Yes**. The xProv DLL is removed.

VSS operation may fail during import on Windows 7 and Windows Server 2008 R2

A timeout may occur in the VSS process during an import of a shadow set. As a result, one or more snapshots may be missing from the system after a rescan, even if they are mapped to the host by the XIV system. The following Microsoft hotfix resolves this issue:

<http://support.microsoft.com/kb/977096>

This issue was fixed in Windows Server 2008 R2 SP1.

General notices

This section includes notices regarding reference publications, help information, and trademarks.

Publications and related information

For additional information about the IBM XIV VSS Provider for Microsoft Windows Server, refer to:

- IBM XIV Storage System – Product Overview, publication number: GA32-0791-02, available on the IBM XIV Storage System Information Center:
<http://publib.boulder.ibm.com/infocenter/ibmxiv/r2/index.jsp>
- Microsoft Windows Server website:
<http://www.microsoft.com/servers/os2.mspix>
- Microsoft Windows Server TechNet website:
<http://technet.microsoft.com/en-us/windowsserver>
- Microsoft MSDN web page for Volume Shadow Copy Service:
<http://msdn.microsoft.com/en-us/library/bb968832.aspx>

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