

IBM XIV Provider for Microsoft Windows Volume Shadow
Copy Service
Version 2.5.0

User Guide



Note

Before using this document and the product it supports, read the information in "Notices" on page 19.

Edition notice

Publication number: GC27-3920-04. This publication applies to version 2.5.0 of the IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service and to all subsequent releases and modifications until otherwise indicated in a newer publication.

© **Copyright IBM Corporation 2009, 2013.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Figures	v
Tables	vii
About this guide.	ix
Who should use this guide	ix
Conventions used in this guide	ix
Related information and publications	ix
Getting information, help, and service	x
Ordering publications	x
Sending your comments	x
Chapter 1. Introduction	1
VSS mirrored snapshots	1
Integration with VMware environments	1
NPIV snapshots	1
Volume snapshot capabilities	2
Chapter 2. Installation.	3
Download site	3
Compatibility and requirements	3
Performing pre-installation checks	3
Windows Server and XIV connectivity checks	3
VMware environment checks	4
Using the compatible installation package	5
Running the installation wizard	5
Performing an upgrade	8
Chapter 3. Configuration	11
Adding an XIV storage system from the Machine Pool Editor	11
Using the Machine Pool command-line interface (CLI)	13
Adding an XIV storage system from the CLI	13
Listing XIV storage systems on the CLI	14
Removing an XIV storage system through the CLI	14
Configuring the VMware environment	14
Adding a VMware host on the XIV storage system	14
Setting the VMware host connectivity parameters	15
Managing VMware platform credentials	15
Enabling and verifying the NPIV snapshot functionality	15
Enabling and verifying the mirrored snapshot functionality	16
Configuring volumes for Hyper-Scale Mobility	16
Notices	19
Trademarks	21
Index	23

Figures

1.	Virtual disk compatibility mode selection (in VMware vSphere)	5
2.	IBM XIV VSS Provider Installation Wizard Language panel	6
3.	IBM XIV VSS Provider Installation Wizard Welcome panel	6
4.	Destination Folder panel	7
5.	Post install operations panel	7
6.	IBM XIV VSS Provider Installation Wizard Welcome panel with upgrade confirmation	8
7.	Destination Folder panel	9
8.	Machine Pool Editor panel	11
9.	IBM XIV Storage System login details	12
10.	IBM XIV Storage System added	12
11.	Example output from the CLI list command	14
12.	Machine Pool Editor right-click menu	16
13.	Hyper-Scale Mobility Target column on the Machine Pool Editor	17

Tables

1. Supported and unsupported volume snapshot types 2
2. IBM XIV VSS Provider installation packages 5

About this guide

This guide describes how to install and configure the IBM® XIV® Provider for Microsoft Windows Volume Shadow Copy Service.

Who should use this guide

This guide is intended for system and storage administrators who are familiar with the Microsoft Windows Server environment, the Microsoft VSS framework, the IBM XIV Storage System, and the VMware ESX, vCenter, and vSphere environments (if used).

Conventions used in this guide

These notices are used to highlight key information.

Note: These notices provide important tips, guidance, or advice.

Important: These notices provide information or advice that might help you avoid inconvenient or difficult situations.

Attention: These notices indicate possible damage to programs, devices, or data. An attention notice appears before the instruction or situation in which damage can occur.

Related information and publications

You can find additional information and publications related to the IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service on the following information sources.

- IBM Storage Host Software Solutions Information Center (publib.boulder.ibm.com/infocenter/strhosts/ic/index.jsp)
- IBM XIV Storage System Information Center (publib.boulder.ibm.com/infocenter/ibmxiv/r2/index.jsp)
- *IBM XIV Storage System – IBM Hyper-Scale Mobility Overview and Usage* (describing the XIV Online Volume Migration feature) (www.redbooks.ibm.com/redbooks.nsf/redpieceabstracts/redp5007.html)
- Microsoft MSDN web page for Volume Shadow Copy Service (msdn.microsoft.com/en-us/library/bb968832.aspx)
- Microsoft Windows Server troubleshooting center (technet.microsoft.com/en-us/windowsserver)
- VMware ESXi and ESX Info Center (www.vmware.com/products/vsphere/esxi-and-esx)
- VMware Product Support for VMware vSphere (www.vmware.com/support/product-support/vsphere), including support for ESX, ESXi, and vCenter
- VMware knowledgebase (kb.vmware.com)

Getting information, help, and service

If you need help, service, technical assistance, or want more information about IBM products, you can find various sources to assist you. You can view the following websites to get information about IBM products and services and to find the latest technical information and support.

- IBM website (ibm.com[®])
- IBM Support Portal website (www.ibm.com/storage/support)
- IBM Directory of Worldwide Contacts website (www.ibm.com/planetwide)

Ordering publications

The IBM Publications Center is a worldwide central repository for IBM product publications and marketing material.

The IBM Publications Center website (www.ibm.com/shop/publications/order/) offers customized search functions to help you find the publications that you need. Some publications are available for you to view or download at no charge. You can also order publications. The publications center displays prices in your local currency.

Sending your comments

Your feedback is important in helping to provide the most accurate and highest quality information.

Procedure

To submit any comments about this guide or any other IBM Storage Host Software documentation:

- Go to the online feedback form (<http://pic.dhe.ibm.com/infocenter/strhosts/ic/topic/com.ibm.help.strghosts.doc/icfeedback.htm>). You can use this form to enter and submit comments.
- You can send your comments by email to starpubs@us.ibm.com. Be sure to include the following information:
 - Exact publication title and version
 - Publication form number (for example: GA00-1111-22)
 - Page, table, or illustration numbers that you are commenting on
 - A detailed description of any information that should be changed

Note: When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

Chapter 1. Introduction

The IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service (VSS), also referred to as the IBM XIV VSS Provider, is a software module that runs as a service on Microsoft Windows Server and automatically creates snapshots of Windows-based or VMware-based applications.

The module uses the Windows Server VSS framework for its management interface, and the IBM XIV Storage System as the storage system on which snapshot data is stored and maintained.

VSS mirrored snapshots

In addition to creating regular snapshots, the IBM XIV VSS Provider supports the creation of VSS mirrored snapshots.

When this feature is enabled, a remote mirrored snapshot is created (using the XIV remote mirroring feature) for any locally-created VSS snapshot copy. Remote shadow copies are created through either synchronous or asynchronous mirroring, and can be used as an aid tool in Disaster Recovery (DR) scenarios.

Note: When a locally-created VSS snapshot copy is deleted, the remote mirrored snapshot cannot be deleted automatically by the IBM XIV VSS Provider.

Integration with VMware environments

The IBM XIV VSS Provider supports full integration with VMware ESX or vCenter server environments, enabling Windows Server to issue snapshots of VMware virtual platforms as well.

Because the copy service performs a volume-level copy, the IBM XIV VSS Provider uses Raw Device Mapping (RDM) to physically attach an entire volume to a virtual machine.

To manipulate RDM disks during the snapshot operation, the IBM XIV VSS Provider interacts with VMware ESX or vCenter servers via the vSphere API that runs on the server as a web service.

NPIV snapshots

The IBM XIV VSS Provider supports the creation of N_Port ID Virtualization (NPIV) snapshots.

NPIV delivers significant advantages for running multiple virtual machines and managing workload across multiple physical servers. You have the ability to control access to LUNs on a per virtual machine basis.

NPIV allows a single host bus adaptor (HBA) or target port on a storage array to register multiple world wide port names (WWPNs) and N_Port identification numbers. Each virtual server has a unique WWPN on the Storage Area Network (SAN) and has access to its own storage, but no other virtual server's storage.

If NPIV is configured, the IBM XIV VSS Provider performs the following NPIV snapshot functions.

Create snapshot

During the snapshot creation process, the IBM XIV VSS Provider maps all the snapshot target LUNs to both the physical HBA WWPNs and virtual WWPNs. Then the LUN is assigned to the virtual machine from the ESX server as the Raw Device Mapping (RDM) disk.

Delete snapshot

During deletion, the IBM XIV VSS Provider first unassigns the RDM disk from the virtual machine. Then the LUN is masked from both physical HBA WWPNs and virtual WWPNs.

Import snapshot

During import, the IBM XIV VSS Provider first maps the snapshot target LUN to both the physical HBA WWPNs and virtual WWPNs of the destination server. Then the LUN is assigned to the virtual machine from the ESX server as the RDM disk.

Mask snapshot

The mask operation removes the RDM disk from the virtual machine. Then the LUN is masked from both physical HBA WWPNs and virtual WWPNs.

Volume snapshot capabilities

Refer to the following table for information about specific XIV volume snapshot types that the IBM XIV VSS Provider supports or does not support.

Table 1. Supported and unsupported volume snapshot types

Snapshot type	Supported or unsupported by the VSS Provider
Single volume	Supported
Single mirrored volume	Supported
Migrated volume (Hyper-Scale Mobility)	Supported; refer to “Configuring volumes for Hyper-Scale Mobility” on page 16.
A group of OS volumes (CG)	Unsupported
A group of OS volumes (CG) residing on two (or more) different XIV storage systems	Unsupported

Chapter 2. Installation

This chapter describes topics associated with the installation of the IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service.

Refer to the following installation-related topics:

- “Download site”
- “Compatibility and requirements”
- “Performing pre-installation checks”
- “Using the compatible installation package” on page 5
- “Running the installation wizard” on page 5

Download site

The IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service software package is available for download from the IBM Fix Central (www.ibm.com/support/fixcentral).

Compatibility and requirements

For the complete and up-to-date information about the compatibility and requirements of the IBM XIV Provider for Microsoft Windows Volume Shadow Copy Service, refer to the latest release notes.

You can obtain the latest release notes on the IBM Fix Central (www.ibm.com/support/fixcentral) or on the IBM Storage Host Software Solutions Information Center (publib.boulder.ibm.com/infocenter/strhosts/ic/index.jsp).

Note: Refer to the relevant VMware documentation for information about how to install the compatible versions of VMware vCenter, ESX or ESXi, and vSphere.

Performing pre-installation checks

Perform the following checks prior to installing the IBM XIV VSS Provider package.

- Windows Server and IBM XIV connectivity checks
- VMware environment checks

Windows Server and XIV connectivity checks

Perform the following checks for the Windows Server host and the XIV storage systems that you are using.

- Verify that your Windows Server version, service pack, and architecture is supported. For more information, refer to the release notes.
- Verify that IP connectivity has been established with the XIV storage system. For more information, refer to the IBM XIV Host Attachment Guide.
- Verify that you have **storage administrator** credentials on the XIV storage system.

- If you are using Microsoft Cluster Service (MSCS) on Windows Server 2003, create a Distributed Transaction Coordinator resource type before you install the package. For more information, refer to the relevant Microsoft documentation.

VMware environment checks

Perform the following checks if you intend to use the IBM XIV VSS Provider in a VMware environment.

- Verify that the VMware Tools package is installed. The VMware Tools allow you to establish communication between the ESX web services and the virtual machines. The guest-related information, such as the IP address and host name is collected by using the VMware Tools. For information about how to install the VMware Tools package, refer to the VMware documentation.
- Verify that the vSphere web services are up and running on the ESX or vCenter Server. Use your web browser to access the following address: <https://x.x.x.x/mob> (where **x.x.x.x** is the server IP address). If the vSphere web services are down, configure the `proxy.xml` file as needed. For more information, refer to the relevant VMware documentation.
- Verify that the VMware user privileges are set to allow user access to the following admin options:
 - Host > Configuration > **Storage partition configuration**
 - Virtual machine > Configuration > **Raw device**
 - Virtual machine > Configuration > **Change resource**
 - Virtual machine > Configuration > **Add or remove device**

Important: In the VMware vSphere configuration, the Read-Only role must be assigned to the datacenter to which the ESX server belongs. In the role definition for the datacenter, ensure the **Propagate** check box is selected.

- The compatibility mode of virtual RDM disks must be physical, as shown in the following figure.

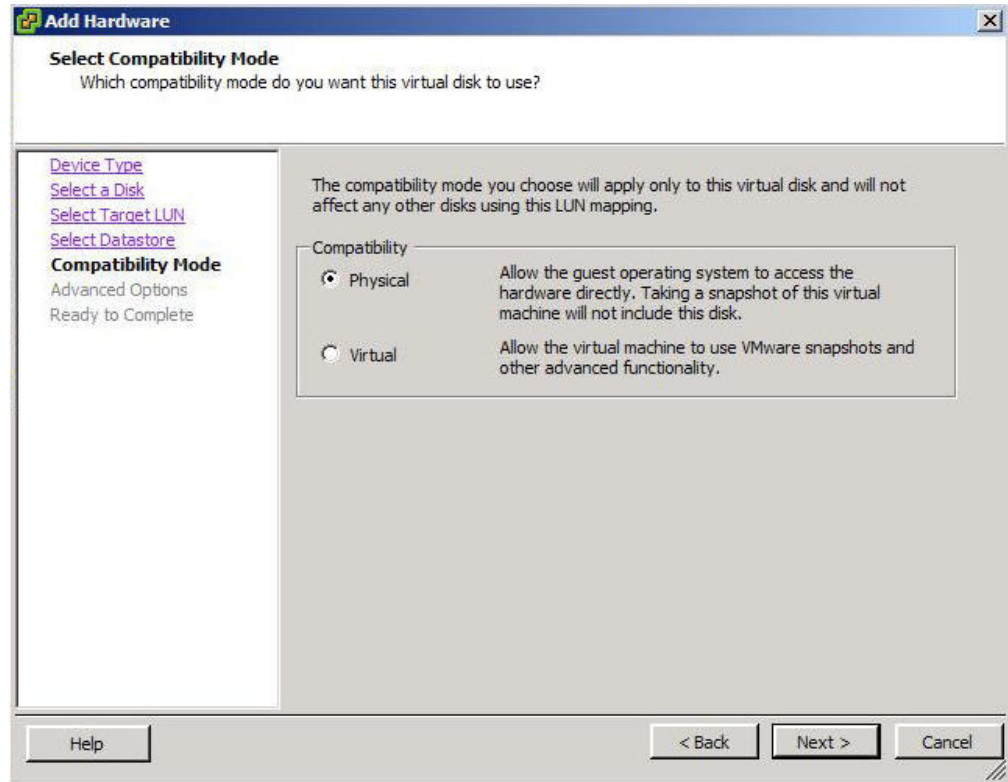


Figure 1. Virtual disk compatibility mode selection (in VMware vSphere)

Using the compatible installation package

Choose the compatible installation package depending on the operating system and architecture that you use.

Table 2. IBM XIV VSS Provider installation packages

Package name	Use with
xProvSetup-2.5.0-x86.exe	Windows Server 2003 x86 (SP2 or later) Windows Server 2008 x86
xProvSetup-2.5.0-x64.exe	Windows Server 2003 x64 (SP2 or later) Windows Server 2008 x64 Windows Server 2008 R2 x64 Windows Server 2012 x64 Windows Server 2012 R2 x64

Running the installation wizard

The installation wizard guides you through the steps required to install the IBM XIV VSS Provider on your Windows Server host.

Procedure

1. Run the compatible installation package (see Table 2 on page 5). The installation wizard is displayed.



Figure 2. IBM XIV VSS Provider Installation Wizard Language panel

2. Select your preferred language, and click OK.

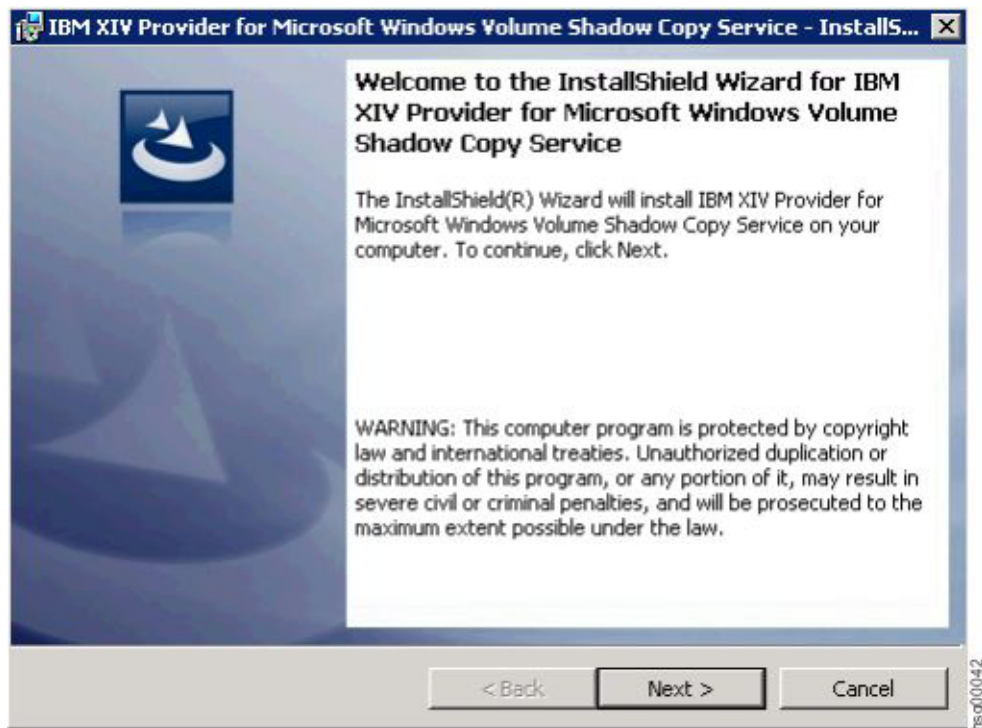


Figure 3. IBM XIV VSS Provider Installation Wizard Welcome panel

3. Click **Next**. The License Agreement panel is displayed.
4. Read the license agreement, select **I Agree**, and then click **Next**. The Destination Folder panel is displayed.

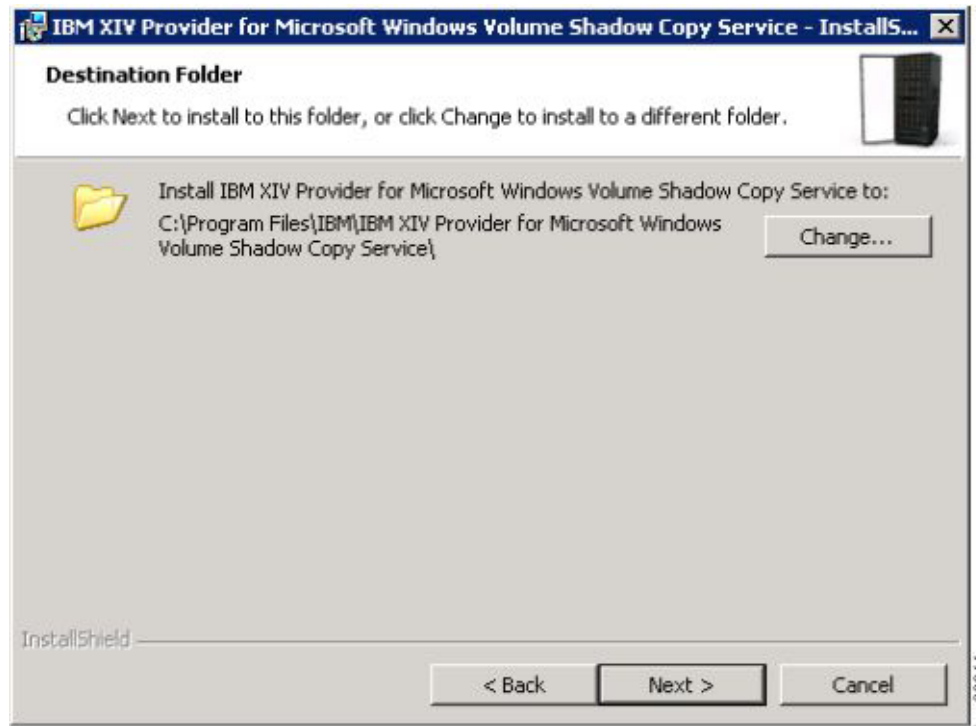


Figure 4. Destination Folder panel

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

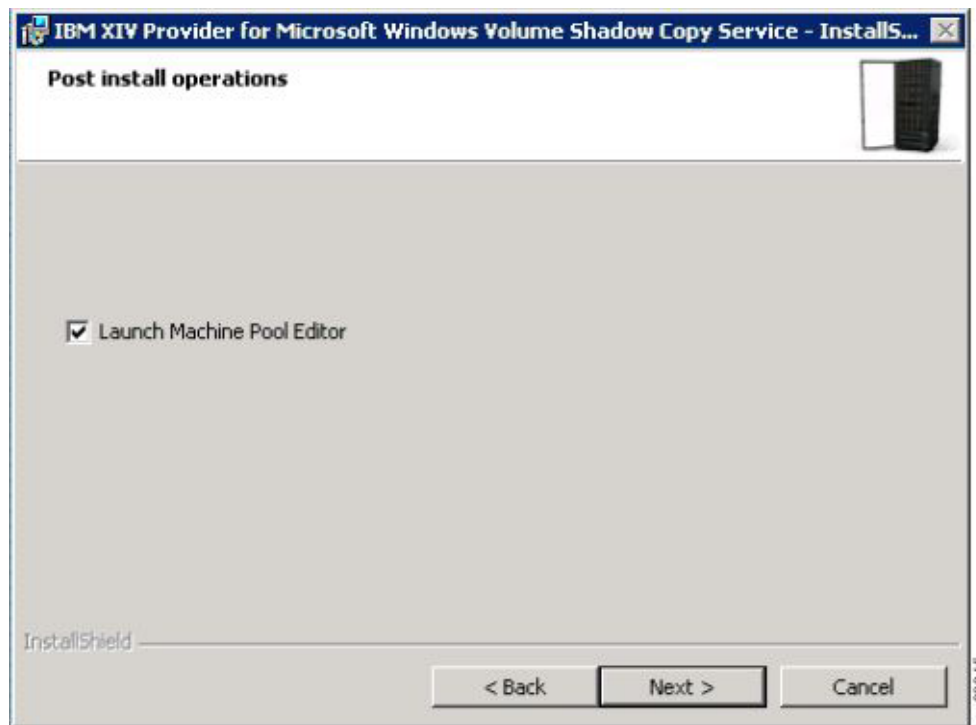


Figure 5. Post install operations panel

6. Keep the **Launch Machine Pool Editor** option selected (see Figure 5 on page 7) if you want to start the Machine Pool Editor utility immediately after the installation. Then, click **Next**. The Ready to Install the Program panel appears.
7. Click **Install**. The installation begins.
8. When the installation completes, click **Finish**. The Machine Pool Editor GUI appears if you previously selected to launch it after the installation.

Performing an upgrade

When installing upon a previously installed version, the upgrade wizard guides you through the steps required to upgrade the version of the IBM XIV VSS Provider on your Windows Server host.

Procedure

1. Run the compatible installation package (see Table 2 on page 5). The language selection panel is displayed.
2. Select your preferred language, and then click **OK**. The **Previous Version Found** message box is displayed.

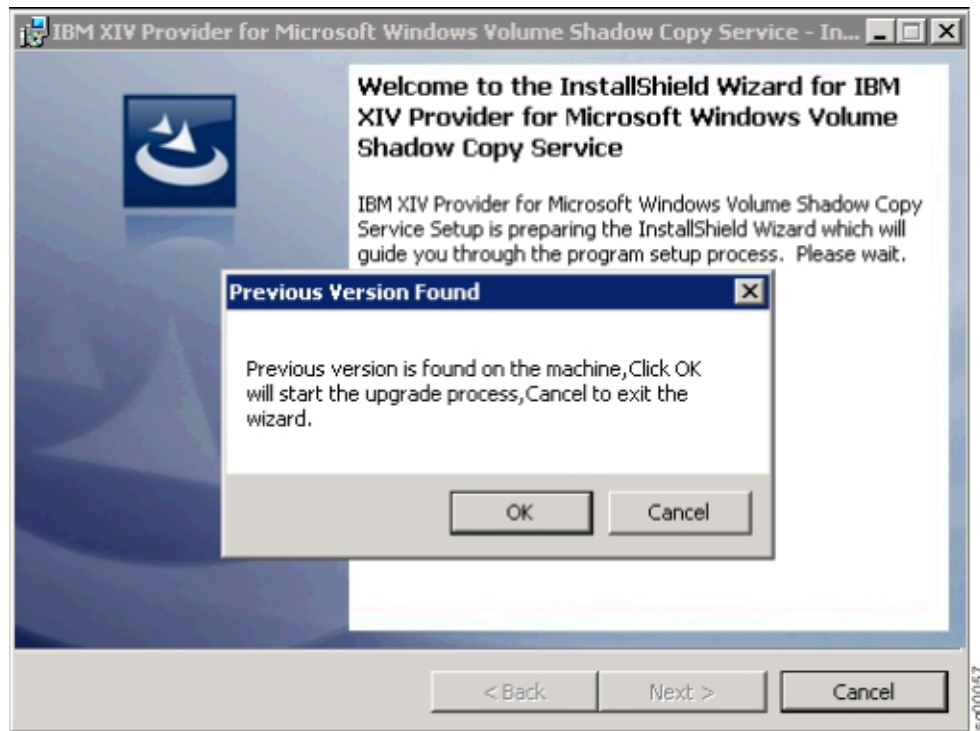


Figure 6. IBM XIV VSS Provider Installation Wizard Welcome panel with upgrade confirmation

3. Click **OK** to upgrade the version of the IBM XIV VSS Provider on your Windows Server host.
4. Click **Next**. The License Agreement panel is displayed.
5. Read the license agreement, select **I Agree**, and then click **Next**. The Destination Folder panel is displayed.

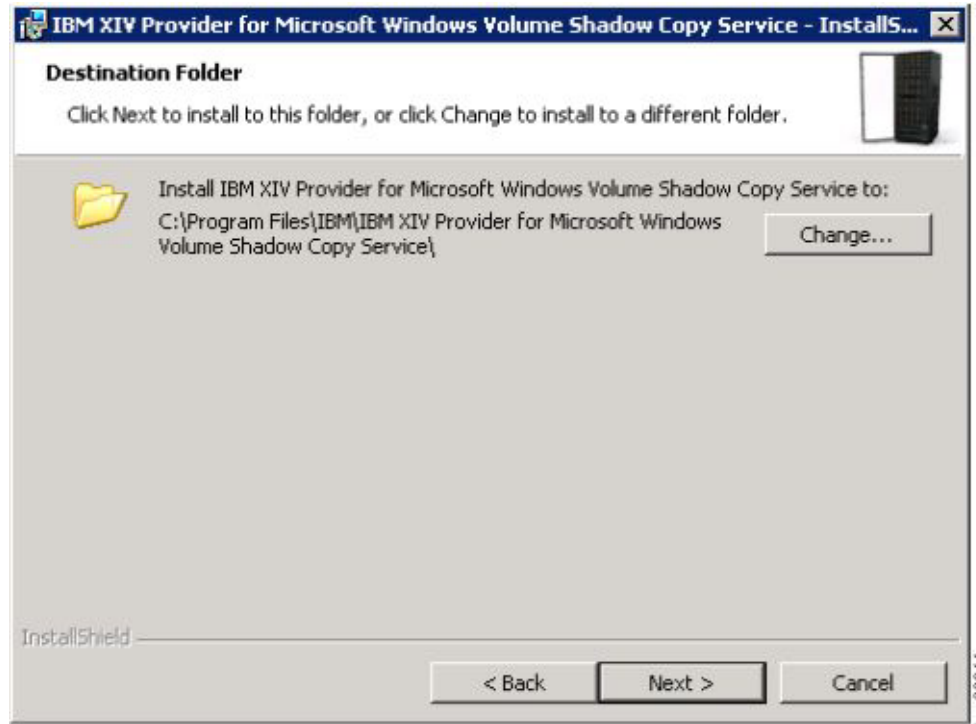


Figure 7. Destination Folder panel

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 (see Figure 5 on page 7) if you want to start the Machine Pool Editor utility immediately after the installation. Then, click **Next**. The Ready to Install the Program panel appears.
8. Click **Install**. The installation begins.
9. When the installation completes, click **Finish**. The Machine Pool Editor GUI appears if you previously selected to launch it after the installation.

Chapter 3. Configuration

This chapter describes how you can configure the IBM XIV VSS Provider.

The configuration tasks and options include:

- “Adding an XIV storage system from the Machine Pool Editor”
- Using the Machine Pool command-line interface (CLI)
- Configuring the VMware environment
- Enabling and verifying the replicated snapshot functionality
- Configuring volumes for Hyper-Scale Mobility

Adding an XIV storage system from the Machine Pool Editor

Use the Machine Pool Editor utility to connect at least one IBM XIV Storage System to the Windows Server host on which you intend to use the IBM XIV VSS Provider service.

About this task

For each XIV storage system to which you want to connect a Windows Server host, enter the XIV storage system IP/hostname and login parameters as detailed in the following procedure.

Note: The Machine Pool Editor utility is available only for Windows Server hosts. For VMware hosts, use the Machine Pool CLI (see “Using the Machine Pool command-line interface (CLI)” on page 13).

Procedure

1. In the Machine Pool Editor (starts automatically after the installation if **Launch Machine Pool Editor** was selected in the installation wizard; see Figure 5 on page 7), click **File > New System** (alternatively, right-click anywhere in the application window, and then select **New System**).

The Add Storage System dialog box appears.

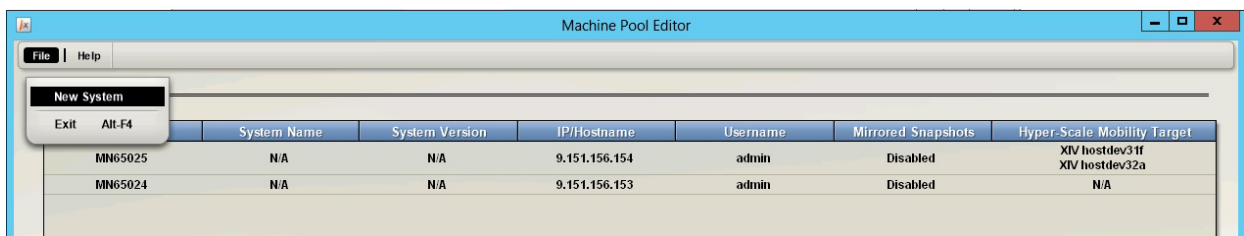


Figure 8. Machine Pool Editor panel



Figure 9. IBM XIV Storage System login details

2. Enter your storage administrator user name and password, as well as the IP address or hostname (domain based) of the XIV storage system that you want to add. If you want the VSS Provider to support mirrored snapshots for this XIV storage system, select **Enable Mirrored Snapshots**.

Note: You can enable mirrored snapshots at a later stage, as explained in “Enabling and verifying the mirrored snapshot functionality” on page 16.

3. Click **Add**. The XIV storage system to which you logged-in is added to the systems list in the Machine Pool Editor.

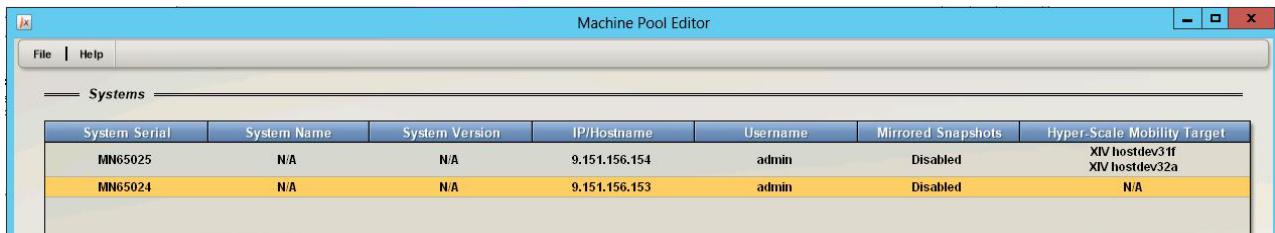


Figure 10. IBM XIV Storage System added

The IBM XIV Storage System information is saved to a local XML file. The file name and path are indicated in the status bar.

You can validate the connection to the storage system by right-clicking on its row and then clicking **Revalidate** (see Figure 12 on page 16).

Note: The validate operation cannot fix incorrect IP addresses.

The IBM XIV VSS Provider is now configured to work as the snapshot management system for the added XIV storage system. You can add more XIV storage systems by repeating the procedure.

What to do next

Check the following information on the added XIV storage systems list:

- **System Serial** – Serial number of the added XIV storage system.
- **System Name** – The user-given name of the added XIV storage system.
- **System Version** – Microcode version of the added XIV storage system.
- **IP/Hostname** – IP address or hostname of the added XIV storage system.
- **Username** – The storage admin username that is used to access the added XIV storage system.
- **Mirrored Snapshots** – Indicates whether the VSS Provider is configured to support mirrored snapshots for the added XIV storage system.
- **Hyper-Scale Mobility Target** – The user-given name of the XIV storage system to which volumes are migrated when the Hyper-Scale Mobility feature is used. For more information about the XIV Hyper-Scale Mobility feature, refer to the *IBM XIV Storage System – Product Overview* and to *IBM XIV Storage System – IBM Hyper-Scale Mobility Overview and Usage* (www.redbooks.ibm.com/redbooks.nsf/redpieceabstracts/redp5007.html).

At any time, if you want to disconnect from an XIV storage system and remove it from the list, right-click its row and then click **Remove** on the pop-up menu (see Figure 12 on page 16).

Using the Machine Pool command-line interface (CLI)

The Machine Pool command-line interface (CLI) is a command-prompt utility for adding, removing, and listing XIV storage systems when working in VMware environments.

You can use it as an optional tool on Windows Server hosts instead of using the GUI-based Machine Pool Editor. In addition, you can also use the CLI utility in scripts or other applications when the IBM XIV Storage System management GUI cannot be used.

You can find the MachinePoolCLI.exe utility in the .NET folder of the installation directory, and use it for:

- Adding an XIV storage system
- Listing XIV storage systems
- Removing an XIV storage system
- Configuring the VMware environment

Adding an XIV storage system from the CLI

You can use the Machine Pool CLI utility to connect to (add) XIV storage systems.

To add an XIV storage system from the CLI, enter the following command:

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

Note: <user>, <password>, and <ip> are system-specific login variables. [/rs|replicate_snapshots] is optional and enables the mirrored snapshots support.

Listing XIV storage systems on the CLI

You can display a list of all the XIV storage systems to which the host is currently connected.

To display the list of XIV systems, enter the following command:

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

Note:

1. The optional `/v` flag displays the name and microcode version of each IBM XIV Storage System.
 2. The **Validate** option is available only from the Machine Pool Editor GUI (see “Adding an XIV storage system from the Machine Pool Editor” on page 11).
-

```
c:\Program Files\IBM\IBM XIV Provider\.NET>MachinePoolCLI /l
System Serial      System Version  IP/Hostname  Username  Mirrored Snapshots  Hyper-Scale Mobility Target
MN625025           N/A            9.151.156.154  admin     Disabled             XIV hostdev31f;XIV hostdev32a
MN65024            N/A            9.151.156.153  admin     Disabled             N/A
```

Figure 11. Example output from the CLI list command

Removing an XIV storage system through the CLI

You can use the CLI to disconnect your host from an XIV storage system.

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

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

Configuring the VMware environment

Complete the following tasks to configure the VMware environment.

Important: For information about the VMware environment requirements, see “VMware environment checks” on page 4.

- “Adding a VMware host on the XIV storage system”
- Setting the VMware parameters
- “Enabling and verifying the NPIV snapshot functionality” on page 15

Adding a VMware host on the XIV storage system

Any VMware host (ESX, ESXi, or vCenter – if used) must be defined on the XIV storage system in order to enable the VSS Provider functionality on that host.

About this task

Use the IBM XIV Storage System management GUI to define the VMware host on the storage system, as detailed in the following procedure.

Note: For more detailed information about VMware host connectivity, refer to the IBM XIV Host Attachment Guide.

Procedure

1. In the IBM XIV Storage System management GUI, go to **Host and Clusters > Hosts Connectivity**.
2. Click **Add Host** and then enter the name of the host.
3. Right-click the newly created host name and then select **Add Port** to add FC or iSCSI ports.
4. After the host is defined, verify the connectivity between the VMware host and the XIV storage system.

Setting the VMware host connectivity parameters

When using the IBM XIV VSS Provider in a VMware environment, you must define several parameters that are specific to the VMware guest OS feature.

The guest OS feature allows the IBM XIV VSS Provider to communicate with the vSphere web services and manipulate the RDM disks during a snapshot creation. This communication is required when:

- The snapshot disk is discovered by the VMware server through Fibre Channel, and mapped to a virtual machine as an RDM disk.
- The snapshot disk is discovered by the VMware server through iSCSI, and mapped to a virtual machine as an RDM disk.

Note: For more information about how to set these parameters, refer to the relevant VMware documentation.

Managing VMware platform credentials

You can use the Machine Pool CLI utility to perform the following VMware-specific credential operations.

- Create or modify VMware credential information:

```
MachinePoolCLI.exe /ae <username> <password> <ESX server|vCenter name(IP)>
MachinePoolCLI.exe root password 109.110.111.112
```

- List credential information:

```
MachinePoolCLI.exe /le
ESX Server | vCenter URL: https://109.110.111.112/sdk
ESX Server | vCenter User: root
```

- Delete credential information:

```
MachinePoolCLI.exe /de
```

Enabling and verifying the NPIV snapshot functionality

Before you can use the NPIV snapshots feature, you must enable it for each VMware host on the IBM XIV Storage System.

You must have two hosts for the NPIV snapshot functionality: one for physical HBA port WWPNS, and one for virtual port WWPNS. At least one RDM disk must be attached to each host, and each LUN must be mapped to both hosts.

For more information about how to define and configure hosts, refer to “Adding a VMware host on the XIV storage system” on page 14 and “Setting the VMware host connectivity parameters” on page 15.

You can verify that the NPIV snapshots feature is functional by locating virtual WWPNs on the physical ESX server.

Enabling and verifying the mirrored snapshot functionality

Before you can use the mirrored snapshots feature, you must enable it for each XIV storage system to which the host is connected.

To enable the mirrored snapshots feature from the Machine Pool Editor GUI, right-click the row of the relevant XIV storage system, and then click **Enable Mirrored Snapshots** on the pop-up menu.

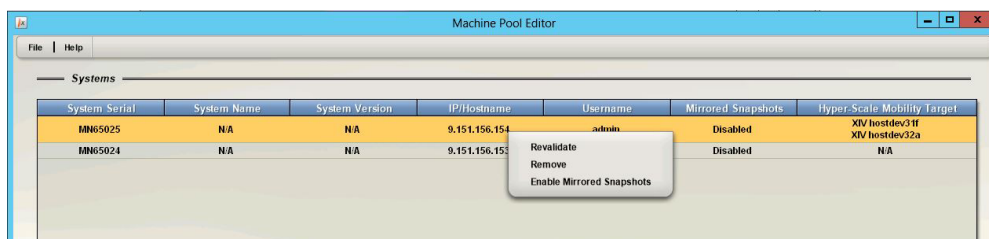


Figure 12. Machine Pool Editor right-click menu

For more information about how to enable this feature using Machine Pool CLI utility, refer to “Adding an XIV storage system from the CLI” on page 13.

Important: After enabling the mirrored snapshot functionality, you must restart the IBM XIV VSS Provider service and the Microsoft VSS service on the Windows Server host.

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

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

Configuring volumes for Hyper-Scale Mobility

When used, the XIV Hyper-Scale Mobility feature requires hosts, XIV storage systems and volumes to be configured as detailed in this section.

About this task

If you want to use the IBM XIV VSS Provider with migrated volumes and allow snapshots of migrated volumes, you need to pre-configure these volumes accordingly. Use the XIV management tools (XIV GUI or XCLI) to configure the source and target XIV storage systems.

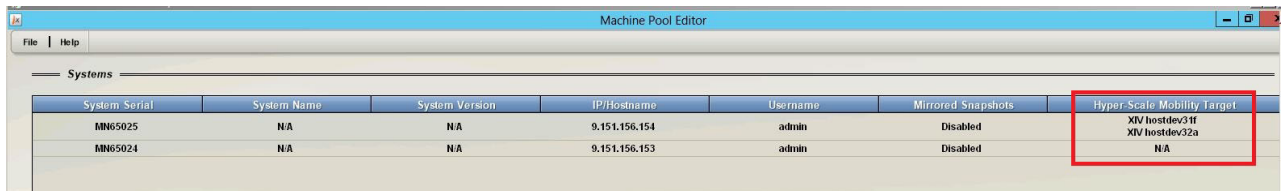
For more information about the XIV Hyper-Scale Mobility feature, refer to the *IBM XIV Storage System – Product Overview* and to *IBM XIV Storage System – IBM*

Hyper-Scale Mobility Overview and Usage (www.redbooks.ibm.com/redbooks.nsf/redpieceabstracts/redp5007.html).

Procedure

In this example procedure, 'Volume A' resides on the Hyper-Scale Mobility Target **source** XIV storage system.

1. Use the XIV GUI or XCLI to map 'Volume A' to the host upon which the IBM XIV VSS Provider is installed and running.
2. Use the XIV GUI or XCLI to define the same host (with the same name) on the Hyper-Scale Mobility Target **target** XIV storage system.
3. On the **source** XIV storage system, use the **olvm_create** XCLI command on 'Volume A' (or use the matching XIV GUI function).
4. On the **source** XIV storage system, use the **olvm_activate** XCLI command on 'Volume A' (or use the matching XIV GUI function).
5. On the **source** XIV storage system, use the **olvm_proxy** XCLI command on 'Volume A' (or use the matching XIV GUI function).
6. On the host upon which the IBM XIV VSS Provider is installed and running, add both the **source** XIV system and the Hyper-Scale Mobiltarget XIV system to the list of available XIV systems (see “Adding an XIV storage system from the Machine Pool Editor” on page 11). Both systems should be listed and available for use by the IBM XIV VSS Provider.



The screenshot shows the 'Machine Pool Editor' window with a table of systems. The table has columns for System Serial, System Name, System Version, IP/Hostname, Username, Mirrored Snapshots, and Hyper-Scale Mobility Target. The 'Hyper-Scale Mobility Target' column is highlighted with a red box. The data in the table is as follows:

System Serial	System Name	System Version	IP/Hostname	Username	Mirrored Snapshots	Hyper-Scale Mobility Target
MN65025	N/A	N/A	9.151.156.154	admin	Disabled	XIV hostdev31f XIV hostdev32a
MN65024	N/A	N/A	9.151.156.153	admin	Disabled	N/A

Figure 13. Hyper-Scale Mobility Target column on the Machine Pool Editor

The following message appears when XIV storage systems with Hyper-Scale Mobility targets are added:

The Hyper-Scale Mobility Target feature is enabled on the current XIV system. If you want to create snapshots of a proxy volume or a proxy ownership, you must first add the target XIV system to the list of systems.

Notices

These legal notices pertain to IBM Storage Host Software Solutions product documentation.

This information was developed for products and services offered in the U.S.A.

IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan Ltd.
1623-14, Shimotsuruma, Yamato-shi
Kanagawa 242-8502 Japan*

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Corporation
Attn: Office of Legal Counsel
650 Harry Road
San Jose, CA 95120-6099
U.S.A.*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Copyright and trademark information website (www.ibm.com/legal/us/en/copytrade.shtml).

Microsoft, Windows Server, Windows, and the Windows logo are trademarks or registered trademarks of Microsoft Corporation in the United States, other countries, or both.

VMware, ESX, ESXi, vSphere, vCenter, and vCenter Site Recovery Manager are trademarks or registered trademarks of VMware Corporation in the United States, other countries, or both.

Other product and service names might be trademarks of IBM or other companies.

Index

A

- add an XIV system 11
- adding an XIV system 13
- asynchronous mirroring 1
- asynchronous replication 1

C

- checking the host 3
- compatibility 3
- configuration tasks 11
- connect to an XIV system 11
- connectivity checks 3
- credential information 15

D

- download site 3

E

- enable NPIV snapshots 15
- enable replicated snapshots 16
- ESX servers 1

F

- Fibre Channel 15

G

- guest OS 15

H

- Hyper-Scale Mobility configuration 16

I

- initial checks 3
- installation 3
- installation package 5
- installation wizard 6, 8
- iSCSI 15

L

- list storage systems 14

M

- Machine Pool CLI 13, 15
- Machine Pool Editor 11
- mirrored snapshots 1

N

- NPIV snapshot functionality 15
- npiv snapshots 1

O

- overview 1

P

- pre-installation checks 3

R

- RDM disk 15
- RDM disks 1
- release notes 3
- Removing an XIV system 14
- replicated snapshot functionality 16
- replicated snapshots 1
- requirements 3

S

- snapshot data 1
- supported volume snapshots 2
- synchronous mirroring 1
- synchronous replication 1

U

- unsupported volume snapshots 2

V

- verify NPIV snapshots 15
- verify replicated snapshots 16
- VMware credentials 15
- VMware environment 14
- VMware environment checks 4
- VMware environments 1
- VMware host definition 14
- vSphere web services 15
- VSS overview 1

W

- Windows Server checks 3

X

- x64 installation package 5
- x86 installation package 5
- XIV connectivity checks 3
- XIV microcode 1



Printed in USA

GC27-3920-04

