

NetApp® Virtual Storage Console 1.0 for VMware vSphere **Installation and Administration Guide**

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Contents

Copyright information.....	5
Trademark information.....	7
About this guide.....	9
Audience.....	9
Terminology.....	9
Where to enter commands.....	10
Keyboard and formatting conventions.....	10
Special messages.....	12
How to send your comments.....	12
Virtual Storage Console overview.....	13
Storage discovery overview.....	17
Storage system credentials.....	17
Difference between Update and Refresh commands.....	18
Online help.....	19
Virtual Storage Console 1.0 supported configurations.....	19
Supported ALUA configurations for ESX hosts.....	20
Where to find more information.....	20
Installing Virtual Storage Console.....	23
Registering the VSC plugin with vCenter Server.....	23
Uninstalling Virtual Storage Console.....	24
Discovering and adding storage resources.....	27
Configuring ESX server multipathing and timeout settings.....	29
Launching FilerView from VSC.....	31
VSC displays configuration details.....	33
Collecting diagnostic information.....	35
Downloading and running tools.....	37
Downloading MBR tools.....	37
Installing GOS scripts.....	38
Adding the CD-ROM to a VM.....	38
Index.....	41

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About this guide

This document helps you to use the product that it describes. You can do that more effectively when you understand the intended audience and the conventions that this document uses to present information.

This guide describes how to install and use the NetApp Virtual Storage Console 1.0 for VMware vSphere (VSC) software.

VSC is a plug-in to the VMware vCenter Server that enables you to manage storage resources for ESX hosts.

See the VSC *Release Notes* for information on the specific ESX configurations supported.

Next topics

[Audience](#) on page 9

[Terminology](#) on page 9

[Where to enter commands](#) on page 10

[Keyboard and formatting conventions](#) on page 10

[Special messages](#) on page 12

[How to send your comments](#) on page 12

Audience

This document is written with certain assumptions about your technical knowledge and experience.

This guide is for administrators of ESX host computers and NetApp storage systems.

You should be familiar with the specifics of your configuration, including the following items.

- The iSCSI or Fibre Channel (FC) protocols.
- ESX hosts.
- vSphere Client.
- FC host bus adapters (HBAs) and iSCSI initiators (software or HBA)

Terminology

To understand the concepts in this document, you might need to know how certain terms are used.

Storage terms

- *Storage system* refers to the hardware device running Data ONTAP that receives data from and sends data to native disk shelves, third-party storage, or both.
Storage systems that run Data ONTAP are sometimes referred to as *filers*, *appliances*, *storage appliances*, *V-Series systems*, or *systems*. When a storage system is in a high-availability configuration, it is usually referred to as a *node*. The terms used in this document reflect one of these common usages.
- *Storage controller* refers to the component of a storage system that runs the Data ONTAP operating system and controls its disk subsystem.
Storage controllers are also sometimes called *controllers*, *storage appliances*, *appliances*, *storage engines*, *heads*, *CPU modules*, or *controller modules*.

Cluster and high-availability terms

- In Data ONTAP 7.2 and 7.3 release families, an *HA pair* is referred to as an *active/active configuration* or *active/active pair*.

Where to enter commands

You can use your product more effectively when you understand how this document uses command conventions to present information.

You can perform common administrator tasks in one or more of the following ways:

- You can enter commands on the system console, or from any client computer that can obtain access to the storage system using a Telnet or Secure Shell (SSH) session.
In examples that illustrate command execution, the command syntax and output might differ, depending on your version of the operating system.
- You can enter Windows, ESX, HP-UX, AIX, Linux, and Solaris commands on a client console.
Your product documentation provides specific command options you can use.
- You can use the client graphical user interface.
Your product documentation provides details about how to use the graphical user interface.

Keyboard and formatting conventions

You can use your product more effectively when you understand how this document uses keyboard and formatting conventions to present information.

Keyboard conventions

Convention	What it means
The NOW site	Refers to <i>NetApp On the Web</i> at http://now.netapp.com/ .
<i>Enter, enter</i>	- Used to refer to the key that generates a carriage return; the key is named Return on some keyboards. - Used to mean pressing one or more keys on the keyboard and then pressing the Enter key, or clicking in a field in a graphical interface and then typing information into the field.
hyphen (-)	Used to separate individual keys. For example, Ctrl-D means holding down the Ctrl key while pressing the D key.
type	Used to mean pressing one or more keys on the keyboard.

Formatting conventions

Convention	What it means
<i>Italic font</i>	- Words or characters that require special attention. - Placeholders for information you must supply. For example, if the guide says to enter the <code>arp -d <i>hostname</i></code> command, you enter the characters "arp -d" followed by the actual name of the host. - Book titles in cross-references.
Monospaced font	- Command names, option names, keywords, and daemon names. - Information displayed on the system console or other computer monitors. - Contents of files. - File, path, and directory names.
Bold monospaced font	Words or characters you type. What you type is always shown in lowercase letters, unless your program is case-sensitive and uppercase letters are necessary for it to work properly.

Special messages

This document might contain the following types of messages to alert you to conditions that you need to be aware of.

Note: A note contains important information that helps you install or operate the system efficiently.

Attention: An attention notice contains instructions that you must follow to avoid a system crash, loss of data, or damage to the equipment.

How to send your comments

You can help us to improve the quality of our documentation by sending us your feedback.

Your feedback is important in helping us to provide the most accurate and high-quality information. If you have suggestions for improving this document, send us your comments by e-mail to doccomments@netapp.com. To help us direct your comments to the correct division, include in the subject line the name of your product and the applicable operating system. For example, *FAS6070—Data ONTAP 7.3*, or *Host Utilities—Solaris*, or *Operations Manager 3.8—Windows*.

Virtual Storage Console overview

The Virtual Storage Console (VSC) software enables you to manage ESX and ESXi servers connected to NetApp storage systems. VSC is a plugin to the VMware vCenter Server.

VSC supports ESX 4.0 and ESXi 4.0 hosts.

VSC offers limited support for ESX 3.5 and ESXi 3.5 hosts.

Because VSC is a vCenter Server plugin, it is available to all vSphere Clients that connect to the vCenter Server. This is different than a client-side plugin that must be installed on every vSphere Client. VSC is installed on either the vCenter Server or another Windows server in your data center; do not install it on a client computer.

VSC adds a NetApp tab to the vSphere Client GUI. Using VSC you can perform the following tasks:

- View the status of storage controllers from a SAN (FC and iSCSI) perspective
- View the status of storage controllers from a NAS (NFS) perspective
- View the status of ESX hosts, including ESX version and overall status
- Check at a glance whether the following are configured correctly, and if not, automatically set the correct values without needing to access the ESX console. You can select multiple ESX hosts and update settings for all hosts with a single command.
 - Storage adapter timeouts
 - Multipathing settings
 - NFS settings
- Set credentials to access storage controllers
- Launch the FilerView GUI to create LUNs and manage storage controllers
- Collect diagnostic information from the ESX hosts, storage controllers, and Fibre Channel switches
- Access tools to set guest operating system timeouts and to identify and correct misaligned disk partitions

When you select the NetApp tab for the vCenter Server, the **Overview** panel of VSC is displayed. It looks similar to the following.

Storage Controllers

Refresh Update

Controller	IP Address	Version	Free Capacity	Status	Supported Protocols
 vmshe-fas3020-6	10.60.232.127	7.3.1.1	2.14TB (81%)	 Normal	FC, NFS, iSCSI
 vmshe-fas3020-7	10.60.236.10	7.3.1.1	32.36TB (10...	 Normal	FC, NFS, iSCSI
 vmshe-fas3020-8	10.60.232.128	7.3.1.1	2.25TB (85%)	 Alert	FC, NFS, iSCSI

ESX Hosts

Hostname	IP Address	Version	Status	Adapter Settings	MPIO Settings	NFS Settings
 hpd1380g5-rtp12.rtp...	10.60.177.98	3.5.0	 Normal	 Unknown	 Unknown	 Normal
 vmshe-ibm3650-04.rt...	10.60.232.60	4.0.0	 Normal	 Normal	 Normal	 Normal
 vmshe-ibm3650-06.rt...	10.60.232.61	4.0.0	 Normal	 Normal	 Alert	 Normal

Last update: 8/5/2009 1:54:52 PM

When you select the **Storage Details - SAN** panel, VSC displays a list of all storage controllers used with the FC or iSCSI protocol. You can select a LUN in the top list to see detailed information.

SAN Storage Controllers

Refresh Update

Datastore	Datastore Capacity	LUN Pathname	Storage Capacity	Storage Status
 vmsfs_datastore1	99.75GB	/vol/vol1/ibm320-1_vmfs1	100.00GB	 Online
 snap-280afe91-vmshe_virtctr	49.75GB	/vol/vol_config/vmshe_virtctr.lun	50.00GB	 Online
-- RDM LUN --	N/A	/vol/vol1/testlun0	5.00GB	 Online
 vteam_datastore3	149.75GB	/vol/vol1/lun_vmfs3	150.00GB	 Online
 vteam_datastore2	149.75GB	/vol/vol1/lun_vmfs2	150.00GB	 Online

DetailsStorage Controller: **vmshe-fas3020-7** Partner: **vmshe-fas3020-8**

LUN
Name: naa.60a9800043346771654a4c616d704c59
LUN Pathname: /vol/vol1/ibm320-1_vmfs1
Serial Number: C4gqeJLampLY
Status: Online
Space Reservation: Enabled
LUN Type: vmware
Protocol: iSCSI
IGroup: vteam_vcs_igroup : 1 (Type: vmware)
Portset:
ALUA Capable: N/A
Deduplication (Advanced Single Instance Storage)
State: enabled
Status: idle
Space Savings: 3%

Capacity
Datastore Usage (13%)
LUN Usage (5%)
Volume Usage (67%)
Aggregate Usage (26%)
Volume
Name: vol1
Status: online
Type: flex
Guarantee: volume
Aggregate: aggr0
Snapshot Reserve: 20%
Autogrow Increment: 10.00GB
Autogrow Max Size: 240.00GB

View Mapped Hosts...

When you select the **Storage Details - NAS** panel, VSC displays a list of all storage controllers used with the NFS protocol. You can select a datastore in the top list to see detailed information.

NAS Storage Controllers Refresh Update

Datastore	Datastore Capacity	NFS pathname	Access Mode	Storage Status
Controller: vmshe-fas3020-7 (1 Datastore)				
vol2-datatore-3020-07	1.60GB	/vol/vol2	readOnly	Normal
Controller: vmshe-fas3020-8 (1 Datastore)				
qtree99	8.00GB	/vol/nfs_vol2/qtree99	readWrite	Normal

Details

Storage Controller: **vmshe-fas3020-7** Partner: **vmshe-fas3020-8**

NFS

VMFS pathname: /vmfs/volumes/491bfc5b-0f9247dd
NFS pathname: /vol/vol2
Status: **normal**
File System Security: **unix**
Anonymous Username: **N/A**

Host Privileges

View Read-Only Hosts...
View Read-Write Hosts...
View Root Access Hosts...

Deduplication (Advanced Single Instance Storage)

State: **enabled**
Status: **idle**
Space Savings: **0%**

View Mounted Hosts...

Capacity

Datastore Usage (0%)
Volume Usage (0%)
Aggregate Usage (26%)

Volume

Name: vol2
Status: **online**
Type: **flex**
Guarantee: **volume**
Aggregate: **aggr0**
Snapshot Reserve: 20%
Autogrow Increment: 500.00MB
Autogrow Max Size: 3.00GB
convert_unicode: **off**
create_unicode: **on**
no_atime_update: **off**

When you select the **Data Collection** panel, VSC displays a list of diagnostic data you can collect.

Data Collection

Target Hostname:

Example: controller.netapp.com ▼

User name:

User name

Password:

Collect information from:

- ☒ Controller
- ☐ ESX host
- ☐ Brocade switch
- ☐ Cisco switch
- ☐ McDATA switch
- ☐ QLogic switch

☒ Save File Locally

Submit

When you select the **Tools** panel, VSC displays a list of tools you can download and run.

MBR Tools

mbrtools is a collection of ESX console based tools used to detect and correct guest filesystem alignment.

mbrscan

This ESX console based tool allows vmdk to be checked for proper alignment (for VMFS and NFS datastores).

mbralign

This ESX console based tool properly aligns guest filesystems to NetApp Controllers. The data is migrated from a backup of the original -flat.vmdk file to a new, properly aligned -flat.vmdk file.


Guest OS Tools

Guest OS timeout scripts are used to set the SCSI I/O timeout values for supported Linux and Windows guest operating systems. The timeout values ensure correct failover behavior.

Linux OS

http://127.0.0.1:1304/public/linux_gos_timeout-install.iso

Windows OS

http://127.0.0.1:1304/public/windows_gos_timeout.iso

When you select the **About** panel, VSC displays version information and the number of resources discovered and managed.

About

NetApp Virtual Storage Console for VMware vSphere

Version: 1.0.09217.1059

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Last update:	8/5/2009 1:54:52 PM
Number of Hosts:	3
Number of Controllers:	3
Number of Failed Controllers:	0
Number of Unmanaged Controllers:	0
Number of LUNs:	10
Number of Orphaned LUNs:	0
vCenter Server:	127.0.0.1
vCenter Locale:	en_US

Next topics

[Storage discovery overview](#) on page 17

[Online help](#) on page 19

[Virtual Storage Console 1.0 supported configurations](#) on page 19

[Where to find more information](#) on page 20

Storage discovery overview

Virtual Storage Console queries the ESX hosts managed by the vCenter Server to discover NFS exports and LUNs mapped from NetApp storage systems.

The discovery process takes place automatically when you first install and run VSC. The discovery process is repeated after you run the Repair option of the VSC installation program or if you click **Update** on the NetApp tab in vCenter Server.

Note: You do not manually add or remove storage controllers when using VSC. VSC prompts you for controller credentials or addresses when needed.

Next topics

[Storage system credentials](#) on page 17

[Difference between Update and Refresh commands](#) on page 18

Storage system credentials

VSC uses the storage system credentials you provide when it sends commands to a storage system controller. You must provide the credentials when a storage system is initially discovered and you must update the credentials if you later change the controller's password.

During initial resource discovery, VSC queries each ESX host for a list of the storage controllers that own NFS exports and LUNs mapped to the host. If the host is running ESX 3.5 update 3 or later, and the storage system is running Data ONTAP 7.3.1 or later, then the ESX host returns the IP address of the NFS export (NAS) or of the storage controller's management port (SAN).

VSC tries to log in to each storage controller as root, with a blank password. If that login attempt fails, VSC runs the **Controller Credential** wizard that prompts you to provide user names and passwords for the storage controllers. By default, VSC uses an SSL connection to the storage controller. If SSL is not enabled on the storage controller, you can clear the SSL check box and use a plain text connection.

VSC stores the storage controller credentials so that you do not have to enter them again, unless the password changes. The password is encrypted using a 128-bit encryption algorithm.

For NFS exports, VSC attempts to log into the storage controller on the IP address used for the export. If not successful, VSC adds an entry "[Add NFS Controller]" to the wizard for each unknown export. Note that there could be several entries associated with a single storage controller, but when you enter the credentials for that controller the first time, VSC will identify all of the remaining exports from that controller without prompting you again.

The **Controller Credential** wizard first prompts for the credentials for all known storage controllers. You can choose to skip a controller if you do not have the credentials available.

For earlier versions of ESX and Data ONTAP software, VSC is unable to identify the storage controller that owns a LUN. These LUNs are called "orphaned LUNs" in VSC.

If there any orphaned LUNs, the wizard shows "[Unknown Controller]" and prompts you to enter the host name or IP address of a controller in your network. The wizard continues to prompt for additional controllers until there are no orphaned LUNs remaining.

After you enter credentials for all storage controllers, the discovery process continues by querying each controller for more information about the NFS exports and mapped LUNs. The specific information collected differs for LUNs and NFS exports.

If VSC is unable to connect to a storage controller with the credentials you provide, VSC displays an appropriate error message. You can either correct the problem right away, or skip that controller and discover it again later.

If you choose to skip a controller, you can enter the credentials later by right-clicking the controller in the **Storage Controllers** list of the **Overview** panel and selecting **Modify Credentials**. Once you skip a controller, the wizard does not prompt you for it again.

Related tasks

[Discovering and adding storage resources](#) on page 27

Difference between Update and Refresh commands

The Update command starts a complete discovery of ESX hosts and their storage. After discovery completes, VSC writes the configuration information to an XML-formatted file on the VSC server. The Refresh command only displays the last configuration stored in the XML file.

You do not need to enter credentials for known storage controllers when using the Update command. The existing controller credentials are reused. If a new controller is discovered, or the storage controller for a LUN or NFS export cannot be determined, the **Controller Credential** wizard is displayed to help you enter the required credentials.

In addition to discovering new resources, the Update command updates the capacity data and other statistics displayed by VSC.

VSC displays the timestamp of the last update at the bottom of the NetApp tab in the vSphere Client.

If another administrator selects **Update**, your vSphere Client does not automatically display the updated configuration information.

Select **Refresh** to read the latest configuration information from the XML file on the VSC server. Refresh does not discover new resources, it just updates your vSphere Client with resources already discovered by another user.

Note that VSC can only discover what is already known by the vCenter Server. When adding new storage resources, you must first rescan your storage adapters in the vSphere Client before they can be discovered by VSC.

Online help

The Virtual Storage Console GUI has online help that describes the fields and commands in the GUI.

The online help is available from the vCenter Client **Help** menu. When you select **NetApp VSC Plug-in Help**, the information is displayed in a Web browser.

Virtual Storage Console 1.0 supported configurations

NetApp Virtual Storage Console 1.0 for VMware vSphere is supported on specific releases of ESX and Data ONTAP software.

Windows software

VSC installs on a computer running one of the following versions of Microsoft Windows software:

- Windows Server 2008 and later
- Windows Server 2003 SP1 and later
- Windows XP Professional SP2 and later (32-bit only)

vCenter Server

VSC requires vCenter Server version 4.0.

ESX host software

The following versions of ESX software are fully or partially supported with VSC.

ESX 4.0 All VSC functions and displays are supported.

ESX 3.5 VSC displays most storage information about ESX 3.5 hosts, but cannot set any of the host adapter, MPIO, or NFS settings. The data collection programs run successfully.

Note: Use ESX Host Utilities 5.1 to set host adapter, MPIO, and NFS settings for ESX 3.5 hosts.

Data ONTAP software

The following versions of Data ONTAP software are fully or partially supported with VSC.

7.3.1.1 and later Supports all SAN and NAS functions and displays.

7.2.4 to 7.3.0

Supports the NAS functions. SAN storage controllers are discovered, but no LUN information is displayed. Storage controllers are marked with the "unmanaged" status.

Adapter models and firmware

VSC supports the same storage adapter models and firmware as are supported by ESX Host Utilities 5.1. See the Interoperability Matrix for details.

Related information

NetApp Interoperability Matrix - <http://now.netapp.com/NOW/products/interoperability/>

Supported ALUA configurations for ESX hosts

ALUA (asymmetric logical unit access) is supported for certain combinations of ESX, Data ONTAP, and guest operating system configurations.

You should enable ALUA when you have a supported configuration. ALUA is enabled on the igroup mapped to NetApp LUNs used by the ESX host. Currently, the default setting in Data ONTAP software for ALUA is disabled.

ALUA is enabled on the igroup mapped to LUNs used by ESX hosts. You use the following Data ONTAP command to enable ALUA:

igroup set *igroup_name* alua yes

See the *Data ONTAP Block Access Management Guide for iSCSI and FC* for your version of Data ONTAP for more information about enabling ALUA.

ALUA requires ESX 4.0 or later.

ALUA requires Data ONTAP 7.3.1 or later. The single_image cfmode setting is required for Fibre Channel.

ALUA is *NOT* supported with guest operating systems in a Microsoft cluster configuration. This includes both MSCS on Windows Server 2003 and Windows failover clusters on Windows Server 2008 guests.

Where to find more information

For additional information about host and storage system requirements, supported configurations, your operating system, and troubleshooting, see the documents listed in the following table.

If you need more information about...	Go to...
Known issues, system requirements, and last minute updates	The latest VSC <i>Release Notes</i>

If you need more information about...	Go to...
General information about using ESX hosts with NetApp storage, configuring guest operating systems, resolving VMDK alignment issues, data protection, and best practices	• The latest VSC <i>Using ESX Hosts with NetApp Storage</i> guide • NetApp Technical Report 3749: <i>NetApp and VMware vSphere Storage Best Practices</i>
The latest supported configurations	• VSC <i>Release Notes</i>. • System Configuration Guide.
Configuring the storage system	• The <i>Data ONTAP Software Setup Guide</i> • The <i>Data ONTAP Block Access Management Guide for iSCSI and FC</i>
Supported SAN topologies	The <i>FC and iSCSI Configuration Guide</i> for your version of Data ONTAP software
Installing and configuring the HBA in your host	Your HBA vendor documentation
Configuring the ESX host	The VMware <i>Fibre Channel SAN Configuration Guide</i> , <i>iSCSI SAN Configuration Guide</i> , and <i>Server Configuration Guide</i> for your version of ESX.
Managing SAN storage on the storage system	• <i>Data ONTAP Commands: Manual Page Reference, Volume 1</i> and <i>Data ONTAP Commands: Manual Page Reference, Volume 2</i> • The <i>Data ONTAP Block Access Management Guide for iSCSI and FC</i> • The FilerView online Help

Related information

FC and iSCSI Configuration Guide -

http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/

TR-3749: NetApp and VMware vSphere Storage Best Practices -

media.netapp.com/documents/tr-3749.pdf

Installing Virtual Storage Console

Install the VSC software on a Windows Server 2003, Windows Server 2008, or Windows XP Professional computer with network access to your vCenter Server.

Before you begin

You can install VSC on the same system as vCenter Server or on another Windows computer. The computer running VSC has the same system requirements as a Windows computer running vCenter Server. VSC runs on Windows XP Professional SP2 and later (32-bit only), Windows Server 2003 SP1 and later, or Windows Server 2008.

VSC must be installed on a local disk of the Windows computer. Do not attempt to install VSC on a network share.

The Windows computer running VSC must have network connectivity to the management ports of the storage controllers, the ESX hosts, and the vCenter Server computer.

A reboot is not required to complete the installation. However, vSphere Clients must be closed and restarted to be able to display the VSC plugin.

To view VSC pages correctly, use a minimum display setting of 1280 by 1024 pixels.

Steps

1. Download the installation program to the Windows server. This is a 32-bit program that runs on all processor architectures.
2. Run the installation program and follow the instructions on the screen.

After you finish

When the installation is complete, a web page is displayed so that you can register the VSC plugin with your vCenter Server. If you cleared the **Register Plugin with vCenter Server** check box, you must open the registration page manually.

Next topics

[Registering the VSC plugin with vCenter Server](#) on page 23

[Uninstalling Virtual Storage Console](#) on page 24

Registering the VSC plugin with vCenter Server

After installing VSC, you must register the plugin with your vCenter Server. By default, the registration web page opens when the VSC installation completes.

Steps

1. If the registration web page does not open automatically, point a web browser to the following URL:

https://localhost:61922/register

If you use a different computer from the one where VSC is installed, replace `localhost` with the hostname or IP address of the computer where VSC is installed.

If a security certificate warning is displayed, choose the option to ignore it or to continue to the website.

2. In the **Plugin service information** field, select the IP address that vCenter Server uses to access VSC.

This IP address must be accessible from the vCenter Server. If you installed VSC on the vCenter Server computer, this might be the same address as you use to access vCenter Server. IPv6 addresses are not currently supported.

3. Enter the vCenter Server IP address or Hostname, and the Administrator credentials for the vCenter Server.

The Administrator account credentials are required to register a plugin.

4. Click **Register**.

Uninstalling Virtual Storage Console

You can remove the VSC code using Windows Add/Remove Programs. A reboot is not required.

Before you begin

You must unregister the VSC plugin from the vCenter Server before removing the VSC code.

Steps

1. Point a web browser to the following URL:

https://localhost:61922/register

If you use a different computer from the one where VSC is installed, replace `localhost` with the hostname or IP address of the computer where VSC is installed.

If a security certificate warning is displayed, choose the option to ignore it or to continue to the website.

2. Enter the Administrator credentials for your vCenter Server, and then click **Unregister**.

3. On the Windows server where you installed VSC, open **Control Panel ► Add/Remove Programs** (Windows XP and Server 2003) or **Control Panel ► Programs and Features** (Windows Server 2008).
4. Select **NetApp Virtual Storage Console for VMware vSphere** and click **Uninstall**. Follow the instructions on the screen.

Discovering and adding storage resources

When you first install VSC, it discovers ESX hosts, their LUNs and NFS exports, and the NetApp storage systems that own those LUNs and exports. You must provide the storage system credentials when prompted.

Before you begin

You can discover new resources and get the latest capacity and configuration information at any time by clicking **Update** on the NetApp tab in the vSphere Client.

The discovery process might take a long time depending on your configuration and system load.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory Panel, and then select the NetApp tab.
3. If the discovery process does not start automatically, or if you want to discover new resources and update information, click **Update**.
4. When the **Controller Credential** wizard starts, enter the credentials for the requested systems.

You are prompted for credentials for each new storage controller that owns LUNs or NFS exports used by your ESX hosts.

If VSC is unable to connect to a storage controller with the credentials you provide, VSC displays an appropriate error message. Correct the problem and continue with that controller, or skip that controller and discover it again later.

After you finish

After discovery is complete, use VSC to configure ESX host settings for any hosts displaying an Alert icon.

Related concepts

[Storage system credentials](#) on page 17

Configuring ESX server multipathing and timeout settings

VSC checks and sets the ESX host multipathing and HBA timeout settings that ensure proper behavior with NetApp storage systems.

Before you begin

This process might take a long time, depending on your configuration and system load. The task progress is displayed in the **Recent Tasks** panel. As tasks complete, the host status icons change from Alert to Normal.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory panel, and then select the NetApp tab.
3. Select the **Overview** panel.
4. Select one or more ESX hosts that have an Alert icon in the **Adapter Settings**, **MPIO Settings**, or **NFS Settings** columns.

Use Ctrl-click or Shift-click to select multiple hosts.

5. Right-click the selected hosts and select **Set Recommended Values**.
6. Select the types of settings you want to update and then click **OK**.

Launching FilerView from VSC

You can launch the FilerView GUI from VSC to create LUNs and manage storage systems.

Before you begin

Your client computer must have network connectivity to the management port of a storage controller to be able to run the FilerView GUI for that controller.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory panel, and then select the NetApp tab.
3. Select the **Overview** panel.
4. Right click the storage controller you want to manage and select **Open FilerView**.
5. If the storage controller requires a password, enter the User name and Password when prompted.

The FilerView GUI for the storage controller opens in a new browser window.

VSC displays configuration details

You can display details of your storage configuration using VSC.

The NetApp tab displays four pages of configuration information.

Overview	Displays the status of storage controllers and ESX hosts. You can right-click a host to get detailed configuration information.
Storage Details - SAN	Displays a list of all LUNs mapped to managed ESX hosts. When you select a LUN, the LUN details are displayed.
Storage Details - NAS	Displays a list of all NFS exports mounted on managed ESX hosts. Each export corresponds to an ESX datastore. When you select a datastore, the details are displayed.
About	Displays details of VSC itself.

Collecting diagnostic information

You can use VSC to collect diagnostic information about storage controllers, ESX hosts, and Fibre Channel switches. This is the equivalent of the *_info scripts provided by ESX Host Utilities.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory panel, and then select the NetApp tab.
3. Click **Data Collection**.
4. Select the component you want to collect data from.
5. Select or enter the hostname or IP address of the component, and enter a User name and Password with root or administrator rights.
6. Clear the **Save File Locally** check box if you do not want the file copied to your local workstation.
7. Click **Submit**.

The diagnostic data is collected in a .tar.gz file.

8. When the Download file dialog box is displayed, select a location to save the file and the click **Save**.

This dialog box is displayed only if the **Save File Locally** check box is selected.

The .tar.gz file is stored on the Windows server running VSC, and optionally copied to your local workstation. On the VSC server, the file is saved to the
C:\Program Files\NetApp\Virtual Storage Console\webapps\public\support on 32-bit systems and
C:\Program Files (x86)\NetApp\Virtual Storage Console\webapps\public\support on 64-bit systems.

After you finish

Send the file to Technical Support for analysis.

Downloading and running tools

VSC includes tools for setting virtual machine timeouts and for detecting and correcting misaligned disk partitions.

The guest operating system (GOS) scripts set the required storage timeouts for virtual machines. They can be run on the guest operating system console using the vSphere Client.

The MBR (master boot record) tools detect and correct misaligned disk partitions. The MBR tools must be downloaded to the ESX host before use.

Next topics

[Downloading MBR tools](#) on page 37

[Installing GOS scripts](#) on page 38

Downloading MBR tools

The MBR (master boot record) tools enable you to detect and correct misaligned disk partitions for guest operating systems. The tools must be installed and run directly on the ESX host. They cannot run from the vSphere Client, vCenter Server, or VSC server.

Before you begin

You must be able to open a console connection to the ESX host. The MBR Tools cannot run on ESXi hosts.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory panel, and then select the NetApp tab.
3. Click **Tools**.
4. Under **MBR Tools**, click **Download**.

The file is approximately 1.75 MB.

5. When the File Download dialog is displayed, click **Save**. Select a location for the download.
6. Copy the MBR tools file to the ESX host computer.

You might need to open ESX firewall ports to enable copying the tools to the ESX host.

After you finish

Run the tools to check and fix the partition alignment. Detailed instructions are in the *VSC Using ESX Hosts with NetApp Storage* guide.

Installing GOS scripts

The ISO images of the guest operating system (GOS) scripts are loaded on the VSC server. Mount and run them from the vSphere Client to set the storage timeouts for virtual machines.

Before you begin

The virtual machine must be running.

If the CD-ROM does not exist in the virtual machine, you must add it.

Steps

1. Open the vSphere Client and log into your vCenter Server.
2. Select a Datacenter in the Inventory panel, and then select the NetApp tab.
3. Click **Tools**.
4. Under **Guest OS Tools**, copy the link to the ISO image for your guest operating system version.
5. In the vSphere Client, select the desired VM and click the **CD/DVD Connections** icon.
6. Select **CD/DVD Drive 1 ► Connect to ISO image on local disk**.
7. Paste the link you copied into the **File Name** field and then click **Open**.

After you finish

Run the script to set the storage timeout values. Detailed instructions are in the *VSC Using ESX Hosts with NetApp Storage* guide.

Adding the CD-ROM to a VM

Add the CD-ROM to a virtual machine if it does not exist to enable installing the guest operating system scripts.

Steps

1. In the vSphere Client, select the desired VM and power it off.
2. Right-click the virtual machine and select **Edit Settings**.
3. On the **Hardware** tab, click **Add**.
4. Select **CD/DVD Drive** and then click **Next**.
5. Click **Use physical drive**.

6. Click **Next** several times to accept the default values.
7. Click **OK** to finish adding the CD-ROM.
8. Power on the VM.

Index

A

Add NFS Controller
in Controller Credential wizard [17](#)

C

Controller Credential wizard [17](#)
credentials
storage system overview [17](#)

D

disk partitions
checking and fixing alignment [37](#)
documentation
finding more information [20](#)

E

ESX host
multipathing and timeout settings [29](#)

F

FilerView
launching [31](#)
finding more information [20](#)

H

help, online [19](#)
host
multipathing and timeout settings [29](#)

I

information
finding more [20](#)
installing
VSC [23](#)

L

LUN
orphaned [17](#)

M

MBR tools [37](#)
multipathing
configuring ESX host [29](#)

O

online help [19](#)
orphaned LUN [17](#)

P

partitions
checking and fixing alignment [37](#)
plugin
registering [24](#)
publications
finding more information [20](#)

R

references
finding more information [20](#)
refresh command
overview [18](#)
Register Plugin with vCenter Server check box [23](#)
registering
VSC plugin [24](#)
resources
discovering and adding [27](#)

S

storage resources
discovering and adding [27](#)
storage system
managing with FilerView [31](#)

T

- timeout settings
 - configuring ESX host [29](#)
- tools
 - partition alignment [37](#)

U

- Unknown Controller
 - in Controller Credential wizard [17](#)

- update command
 - overview [18](#)
- updating
 - VSC resource information [27](#)

V

- vCenter Server
 - registering VSC plugin [24](#)
- VSC
 - installing [23](#)
 - registering plugin [24](#)