

HP P4000 Application-Aware Snapshot Manager Deployment Guide

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1 The Application Aware Snapshot Manager

The HP P4000 Application Aware Snapshot Manager can be used to create application-managed snapshots in Windows and VMware environments. In Windows environments, the HP P4000 VSS provider is leveraged to quiesce VSS-aware applications before creating the snapshot. In VMware environments, the Application Aware Snapshot Manager communicates with VMware Virtual Center Server to create VMware snapshots of virtual machines whose datastores reside on SAN/iQ volumes. Both one-time and scheduled snapshots are supported.

NOTE: “Application-managed snapshots” is the term used in the HP P4000 Centralized Management Console to designate snapshots that are taken using the Application Aware Snapshot Manager.

This chapter provides general information about installing and running the Application Aware Snapshot Manager with the HP P4000 SAN Solution. Detailed information about creating and using application-managed snapshots is available in the *HP P4000 SAN Solution User Guide* or Online Help. The *HP CLIQ - The SAN/iQ Command-Line Interface User Guide* contains commands for scripting the application-managed snapshots. You can find detailed information on the Microsoft web site about using the [Volume Shadow Copy Service](#).

Application Aware Snapshot Manager and VMware

When hosting VMware virtual machines on SAN/iQ volumes, the Application Aware Snapshot Manager creates snapshots that contain quiesced virtual machines. The resulting snapshots contain the virtual machine and its applications in a VMware snapshot. Mounting the application-managed snapshot allows the VMware snapshot manager to see the VMware snapshot in its history. Rolling back to the application-managed snapshot restores the virtual machine and its applications to a known and viable state.

Requirements

- To use the Application Aware Snapshot Manager in VMware environments, the ESX servers must be managed by VMware Virtual Center. The Application Aware Snapshot Manager must be installed on the Virtual Center Server that manages the ESX servers which are connected to the SAN/iQ volumes. The IP address of the Virtual Center Server must be configured as the controlling server in the CMC for all ESX servers for which application-managed snapshots are to be taken.
- The Application Aware Snapshot Manager only supports single-volume datastores. That is, application-managed snapshots cannot be taken of volumes that are part of a datastore that spans multiple volumes.

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Application Aware Snapshot Manager and Windows

The Application Aware Snapshot Manager quiesces applications and takes snapshots of single volumes and Microsoft Windows Cluster Shared Volumes (CSV), or snapshot sets.

Supported versions of Microsoft Windows Server

The Application Aware Snapshot Manager supports the following versions of Microsoft Windows:

- 64-bit Windows XP Pro
- Windows Server 2003, 32-bit and 64-bit versions

For transportable snapshots on the Standard version you must install a Microsoft QFE. See [“Using VSS snapshots” \(page 5\)](#) for details.

- Windows 2008 Server, 32-bit and 64-bit versions, including the following:
 - Windows 2008 Server R2
 - Windows 2008 Server Core
 - Windows 2008 Server R2 Core

Installing the Application Aware Snapshot Manager

Use the *HP P4000 Application Integration Solution Pack DVD* to install the Application Aware Snapshot Manager on any supported version of Windows Server. If you are installing the Application Aware Snapshot Manager on Windows 2008 Server Core or Windows 2008 Server R2 Core, go to the section [“Installing on Windows 2008 Server Core or Windows 2008 Server R2 Core option” \(page 4\)](#).

Have the port number of the CIM connection ready for use during the installation. The ports used for SAN/iQ operations are listed in the SANiQ TCP and UDP Port Usage appendix of the *HP P4000 SAN Solution User Guide* and the CMC online help.

Installing on Windows Server

1. Begin the installer one of the following ways:
 - Insert the HP P4000 Application Integration Solution Pack DVD in the DVD drive.
 - Double-click the executable that you downloaded to start the installation.
2. From the Home page of HP P4000 Application Integration Solution Pack installer, click **Application Aware Snapshot Manager**.
3. From the Application Aware Snapshot Manager page, click **Install Application Aware Snapshot Manager** to begin the installer.
4. Accept the terms of the license agreement and click **Next**.
5. Choose the location for the software and click **Next**.
6. Enter the user name and company for the installation and click **Next**.
7. Enter the port number for the CIM server connection and click **Next**.
8. Click **Next** to continue the installation.
9. Read the message titled **Important** that describes the requirement to enter management group credentials to finish configuring the Application Aware Snapshot Manager.
10. Click **Next** when you have finished reading the message.
11. Click **Finish** to complete the installation.
12. Click **Documentation** on the installer Home page to review or save the documentation for the HP P4000 Application Integration Solution Pack, and then close the installer.

Installing on Windows 2008 Server Core or Windows 2008 Server R2 Core option

Prerequisites

32-bit or 64-bit version of Windows 2008 Server or Windows 2008 Server R2 installed with the Server Core option.

To install the Application Aware Snapshot Manager:

1. Copy the Application Aware Snapshot Manager installer file to the Windows 2008 server that has the Server Core option installed.
2. Run the installer from the command prompt.
3. Click **Next** to finish the installer.

The installation wizard progresses through the steps for installing the Application Aware Snapshot Manager.

After the Application Aware Snapshot Manager is installed, a reminder window opens, with a message to configure user names and passwords for management groups.

4. Click **Next** to finish the installation wizard.
5. Continue with the procedure for setting management group credentials.

Setting management group credentials

The credentials required for using the Application Aware Snapshot Manager include:

- Management group name
- Management group user name and password

Before using the Application Aware Snapshot Manager, set the management group credentials one of two ways:

- Open the Authentication Console and enter the management group credentials. For more information, see “ [Setting credentials to authenticate management groups](#)” (page 7).
- Use the CLI commands `cacheCredentials` and `clearCredentials` on the application server to set credentials for management groups. For more information, see *HP CLIQ - The SAN/iQ Command-Line Interface User Guide*.

Using VSS snapshots

The Application Aware Snapshot Manager uses the VSS Provider to create a VSS snapshot as a persistent target in the MS iSCSI initiator. The VSS snapshot also appears in the CMC with the naming convention of `VSS-<unique id>`. The snapshot is available as needed to the backup application. When the snapshot is no longer needed, it is deleted from both the CMC and the iSCSI initiator.

In the SAN/iQ software all snapshots are created as thinly provisioned.

Viewing a VSS-named snapshot in the CMC

When working with other backup products, all VSS snapshots remain in the CMC until processing is complete, and then they are deleted. If they are not deleted, you can delete them manually when you are certain that the backup process is finished.

Transportable snapshots

VSS snapshots can be used as transportable snapshots; that is, they can be mounted on a different server for backup. Transportable snapshots are persistent, which means they remain in the CMC and the iSCSI initiator until the backup is finished.

To use transportable snapshots on Windows Server 2003 Standard, you must install the Microsoft QFE referenced in Microsoft Knowledge Base article listed at:

<http://support.microsoft.com/kb/913648>

Deleting transportable snapshots

To cleanly delete a transportable snapshot from the system, use the requestor application to perform the deletion.

For example, a CommVault QR job requests a transportable snapshot from the VSS Provider. When the snapshot is no longer needed, you can log in to the CommVault application and delete the snapshot that is associated with the job that created it.

Troubleshooting the Application Aware Snapshot Manager

The Application Aware Snapshot Manager VSS Provider runs as an NT service. You can view both the Volume Shadow Copy service and the VSS Provider service in the Computer Management window under Services and Applications > Services.

Restarting the VSS Provider service

The VSS Provider service starts automatically. If you check in the Services list and it is not started, you can start it manually.

Viewing the event log messages

The event log reports issues with the VSS Provider, the iSCSI initiator, and Volume Shadow Copy. Open the event log to view messages about those applications.

Uninstalling the Application Aware Snapshot Manager

Uninstall the Application Aware Snapshot Manager using **Start→Control Panel→Programs and Features**.

2 Authenticating management groups on the SAN

Authenticating management groups on the SAN using management group credentials is required for using the Application Aware Snapshot Manager. Authenticate management groups by setting credentials in the Authentication Console. This authentication is normally a one-time process. You only need to redo or update the authentication if you changed any of the following:

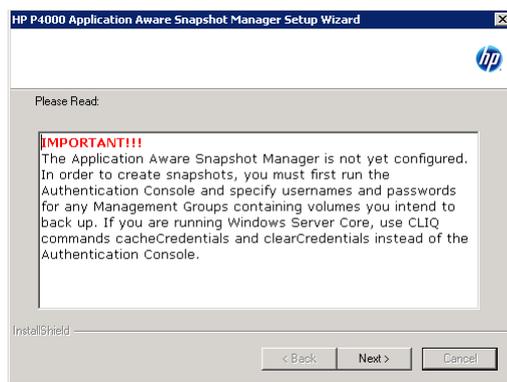
- IP addresses of storage systems
- User name and password for logging in to storage systems
- Which storage systems are in the management group, that is, you added or removed storage systems

If you are using Windows 2008 Server Core or Windows 2008 Server R2 Core installation, you add the management group credentials using the CLI. See “[Setting credentials using the P4000 CLI](#)” (page 9).

Installing the Authentication Console

The Authentication Console is installed automatically when you install the Application Aware Snapshot Manager. During the installation for the Application Aware Snapshot Manager, a reminder message opens, stating that you must first run the Authentication Console before creating LUNs or snapshots.

Figure 1 Reminder to run Authentication Console



Opening the Authentication Console

Open the Authentication Console from the **Start**→**Programs**→**HP**→**P4000** menu.

The first time you open the Authentication Console, a message opens describing your choices for entering credentials.

Setting credentials to authenticate management groups

The following information is required to authenticate each management group for the Application Aware Snapshot Manager:

- Management group name
- User name and password for logging in to the management group.

Set default credentials that work for all management groups or set credentials for individual management groups.

NOTE: With the latest version of the Application Aware Snapshot Manager, the credentials may be already configured because the system may automatically discover authentication from the SAN.

Using the Credentials Wizard to set credentials

The Credentials Wizard discovers all of the management groups on the subnet where you installed the Application Aware Snapshot Manager. You can then set default or individual credentials for each management group as appropriate, and test the credentials to confirm they are set correctly.

Figure 2 Opening the Credentials Wizard



1. From the Action menu, click **Credentials Wizard**.
The wizard may take a few minutes to discover the management groups on the subnet.
2. To use default credentials for one or more management groups, enter the credentials in the first window of the credentials wizard, select **Use default credentials**, and click **Next**.
3. For each management group that opens, do one of the following:
 - Use the default credentials by leaving the **Use default credentials** checkbox selected.
 - Clear the checkbox to enter individual credentials for the management group.
4. Click **Test** to verify the credentials for that management group.
If the credentials test fails, verify the correct credentials for that management group in the HP P4000 Centralized Management Console and try again.
5. Click **Next** to continue, repeating steps 3 and 4 for each management group.
6. When you have finished adding credentials, click **Done**.

Changing default credentials

Use the New Default Credentials dialog box to set default credentials or to change the current default credentials.

1. From the Action menu, click **Set Default Credentials**.
2. Enter the user name and password, and confirm the password.

3. Click **OK** to save the default credentials.
4. (Optional) To easily apply changed default credentials to management groups, do one of the following:
 - To change the default credentials for all management groups on the subnet, use the Credentials Wizard, described in [“Using the Credentials Wizard to set credentials” \(page 8\)](#).
 - To change the default credentials for one or more specific management groups:
 - a. Click **Properties** from the Action menu, and select **Use default credentials**.
 - b. Click **Test** to verify the credentials.
 - c. In the Test window, enter the IP address of any storage system in the management group.
If the test succeeds, the credentials are correct, and the management group is listed in the management group pane.
If the test fails, verify the correct credentials for that management group in the CMC and try again.
 - d. Click **OK** to finish.

Setting credentials for a management group on a different subnet

1. From the Action menu, click **New Management Group Credentials**.
2. Enter the management group name and the user name and password.
3. Click **Test**.
4. In the Test window, enter the IP address of any storage system in the management group.
If the test succeeds, the credentials are correct, and the management group is listed in the management group pane.
If the test fails, verify the correct credentials for that management group in the CMC and try again.

Setting credentials using the P4000 CLI

Use the CLI commands `cacheCredentials` and `clearCredentials` on the application server to set credentials for management groups. For more information, see *HP CLIQ - The SAN/iQ Command-Line Interface User Guide*.

Upgrading the Authentication Console

Upgrading the Authentication Console happens with an upgrade to the Application Aware Snapshot Manager. Management group credentials remain in place after an upgrade.

Deleting a management group or default credentials from the console

1. Select from the list in the right pane the management group or default credentials to delete.
2. Right-click and select **Delete** from the right-click menu.