PROMISE®
TECHNOLOGY, INC.

VTrak S3000
Snapshot Director
User Manual

Version 1.0

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Contents

Chapter 1: Introduction

The PROMISE Snapshot Director for VMware®, also known as Application Snapshot Director (ASD), facilitates rapid recovery of transactionally consistent backups for VMware-hosted applications. It is a cost effective solution that provides optimal data protection with complete transparency with no performance reduction on your applications.

VMware includes utilities to take snapshots of VM instances housed within the ESX operating system. Snapshot Director for VMware extends the data protection to applications by making them aware that a snapshot backup has taken place.

Before the Snapshot Director for VMware, coordinated backups with applications, required you to:

- Install a backup client for each VM instance
- Create an external snapshot of the entire ESX server as a whole

This process only allowed for crash-consistent backups, equivalent to a rebooting after an abrupt shutdown.

The Snapshot Director for VMware coordinates with other PROMISE products and third-party backup software to seamlessly place critical applications into *Hot Backup Mode* during the seconds required for VMware to snapshot the instance.

Since each hosted application is aware a backup has taken place, recovery is rapid and simple.

What is a Snapshot?

The concept of performing a snapshot is similar to taking a picture. A photograph captures a moment-in-time to a visual medium, the object itself continues to change. Similarly, a snapshot of a disk enables you to capture data at any given moment and move it to a storage medium, while allowing data is written to the disk.

The basic function of the Snapshot Director for VMware is to allow point-in-time, frozen images of data on virtual hosts so the data is backed up with transactional integrity.

When a snapshot is triggered, cached data and buffers are written to disk and the image is frozen. The backup proceeds even while new data is written to the disk.

Chapter 2: Installation

There are three software components to the Snapshot Director for VMware:

- **Snapshot Director for VMware** – Runs on a generic ESX server or ESXi hypervisor.
- **SAN Client** – Runs on the virtual host machine.
- **Application-specific Snapshot Agents** – Run on the virtual host machine.

SDVA is a pre-built, ready-to-run Linux system consisting of Snapshot Director and SAN Client packages. You can import it as a virtual machine on ESXi hosts that do not have a service console available for installing Snapshot Director.

Importing SDVA on an ESX and ESXi Server

To import SDVA on an ESX or ESXi server:

1. Launch the VMware vSphere Client and connect to the ESXi server as **root**.

   If your ESX or ESXi server is managed by vCenter, connect to the vCenter instead.
2. Mount the Snapshot Director Installation ISO package.
3. In the vSphere Client, from the **File** menu, navigate to the **Virtual Appliance** folder, and click **Import**.
4. For the **Import** location, browse to the **SDVA** folder and select the file **SDVA.ovf**.
5. Click the **Next** button to continue the import.
6. Accept the license agreement.

   The Name and Location displays the default appliance name: SDVA. You can change the display name.
7. If prompted for Datastore Mapping, select a datastore containing at least 5 GB of free space.
8. If prompted for Network Mapping, on the ESXi server network, select the virtual machine to link to the SDVA Virtual Ethernet adapter.
9. Review all settings and click the **Finish** button to begin importing.

   The process takes a few minutes to complete.
10. When the import is finished, click the **Close** button.

    The SDVA appears as a virtual machine on your ESX or ESXi server.

Installing Snapshot Agents on Virtual Host Machines

The Snapshot Director for VMware offers Snapshot Agents for Microsoft Windows, Microsoft Exchange, Oracle, and Microsoft SQL Server. Snapshot Agent software is installed on the virtual host machine.

Chapter 3: Configuration and Usage

Starting Snapshot Director Virtual Appliance

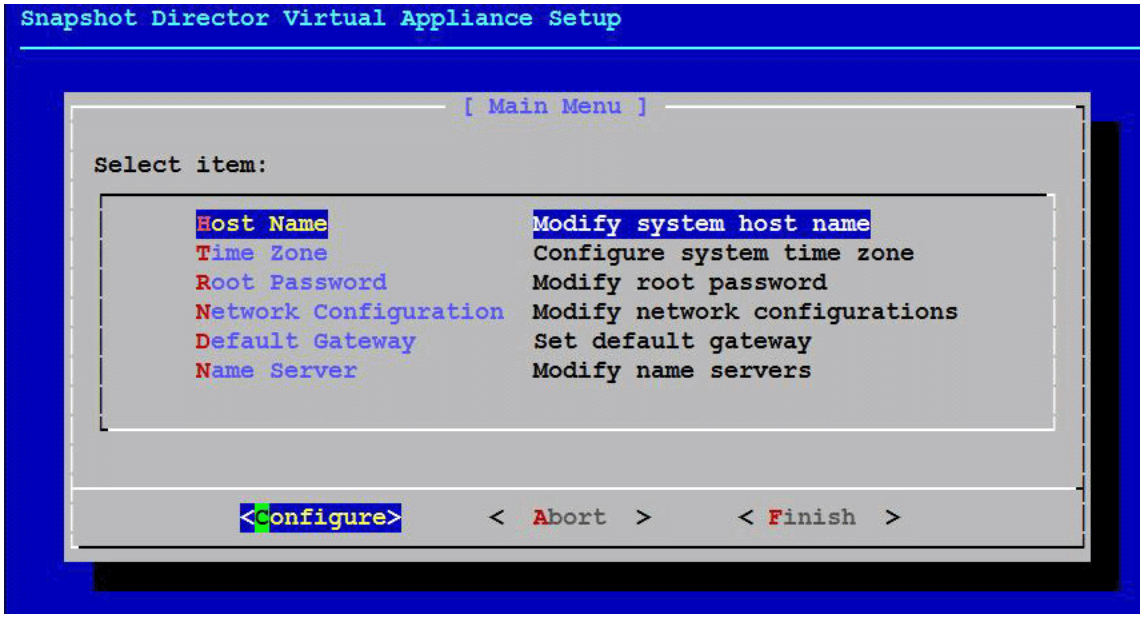
1. In the VMware vSphere Client, select the SDVA virtual host and power it on.
2. Switch to the console window for the SDVA host and wait for the login prompt to appear.
3. Login as the root user with the default password. It is recommended that you change the default password after logging in. The login credentials are:

   Username: root

   Password: default

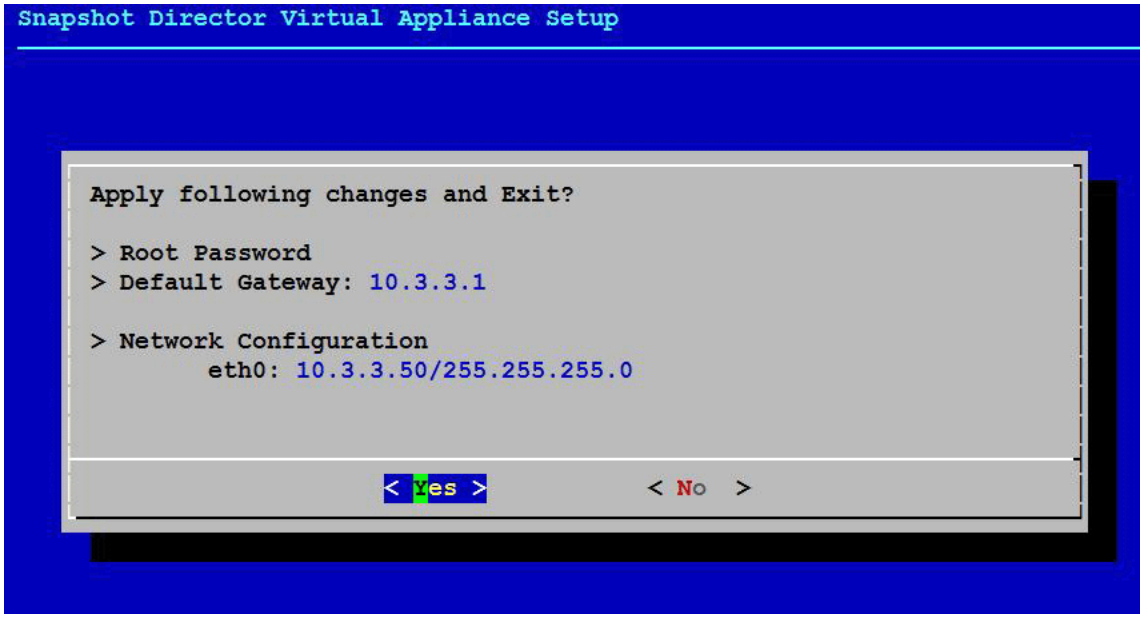
Configuring Snapshot Director Virtual Appliance

The first time you log into the SDVA console, the Virtual Appliance Setup utility starts up automatically. The utility lets you easily modify basic system settings using a menu-based interface. You can invoke this utility again at any subsequent time using the command vaconfig from the SDVA console while logged in as the root user.



- **Host Name** – Select this option to change the hostname of the SDVA host. By default, this is set to FS-SDVA.
- **Time Zone** – Select this option to specify the time zone you would like to use for the system and to specify whether the system clock uses UTC.
- **Root Password** – Select this option to change the root password. It is strongly recommended that you do this after logging into the SDVA console for the first time.
- **Network Configuration** – Select this option to modify your network configuration. By default, the SDVA is configured to obtain an IP address using DHCP. You can disable this and specify a static IP address if needed.
- **Default Gateway** – Select this option to specify the default gateway used by your network connection.
- **Name Server** – Select this option to specify your DNS servers. By default, the SDVA is set to obtain these from your DHCP server.

Changes you make using the Virtual Appliance Setup utility are not applied until you click the **Finish** option. The utility shows you a summary of the changes to be applied and prompts you for confirmation.



Click the **Yes** option to apply your changes.

To exit the utility without making or saving any changes, click the **Abort** option.

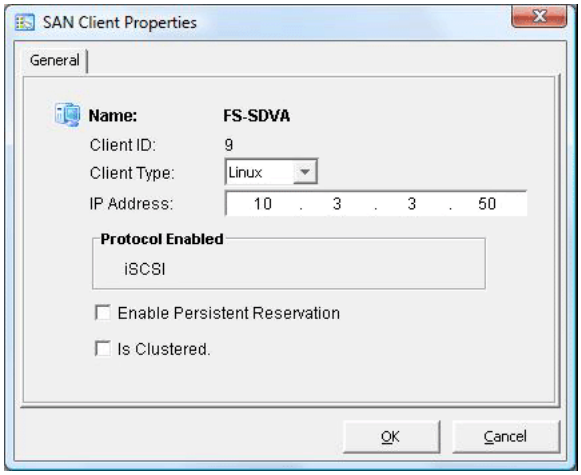
Configuring SAN Clients for Snapshot Director Virtual Appliance

Important

To protect the ESXi server's virtual disks when you trigger snapshots from the storage server, follow these configuration steps exactly. For more information, see “Using Snapshot Director” on page 9.

Once you have exited the Virtual Appliance Setup utility, the SAN Client Setup utility starts up automatically. This utility allows you to create a SAN Client for the SDVA virtual host on one or more storage servers that you will use to provision storage to your ESXi server.

If you choose not to configure SAN Clients when the SDVA first starts up, you can invoke the SAN Client Setup utility again at any time using the command **sanclientconfig** from the SDVA console while logged in as the root user.



1. To create a SAN Client for the SDVA host, enter the IP address and root user credentials for your storage server in the SAN Client Setup utility. The utility automatically creates a SAN Client for the SDVA host on your storage server. The hostname of the SDVA host is used as the name for the SAN Client.

   The utility attempts to create a SAN Client using the iSCSI protocol.

If iSCSi is not enabled on the server, do one of the following actions:

- Enable iSCSI on the server in order to use Snapshot Director, or you must
- Manually create a Fibre Channel client for Snapshot Director Virtual Appliance (SDVA).

  For more information, see “Creating an SDVA SAN Client using Fibre Channel” on page 7.

After creating a SAN Client, the utility asks you if you want to configure another storage server.

2. Configure every storage server that you use to provision storage to the ESXi server.
3. After configuring all your storage servers, exit the SAN Client Setup utility.
4. In the Management Console, log into each of the storage servers that you configured.
5. For each storage server, expand the **SAN Clients** tab, right-click the SAN client for the SDVA host and select **Properties**.
6. Enter the IP address of the SDVA host in the IP Address field.

   For every snapshot group or virtual device that you assign to the ESXi server using VTrak S3000 Server, you must assign the same snapshot group or virtual device to the SDVA SAN Client as well.

Important

If the IP address of the SDVA host changes, use the Management Console to enter the new IP address of the SDVA SAN Client on all your storage servers.

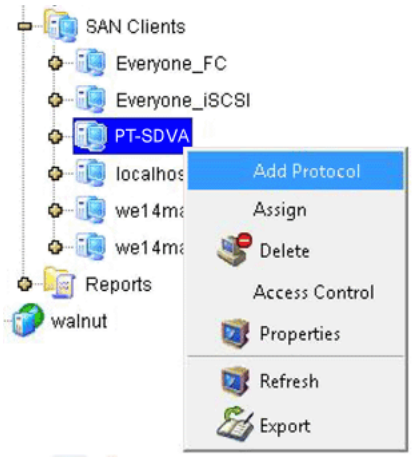
Creating an SDVA SAN Client using Fibre Channel

The Snapshot Director Virtual Appliance requires a SAN Client to be present on the VTrak S3000 Server in order to receive snapshot notifications. All virtual devices assigned to the ESXi hosts being protected by SDVA must also be assigned to the SDVA’s SAN Client.

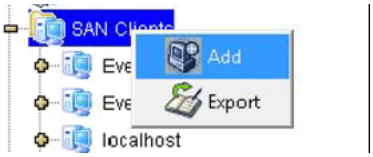
The **sanclientconfig** utility described in the 'Configuration' section is able to automatically create this client, but only for the iSCSI protocol. If your VTrak S3000 Server does not have iSCSI enabled, you must manually add a Fibre Channel initiator for the SDVA SAN Client, as described below.

1. In the Management Console, connect to the VTrak S3000 Server and log in.
2. Expand the SAN Clients list and verify that a SAN Client for the SDVA has been created by the *sanclientconfig* utility.

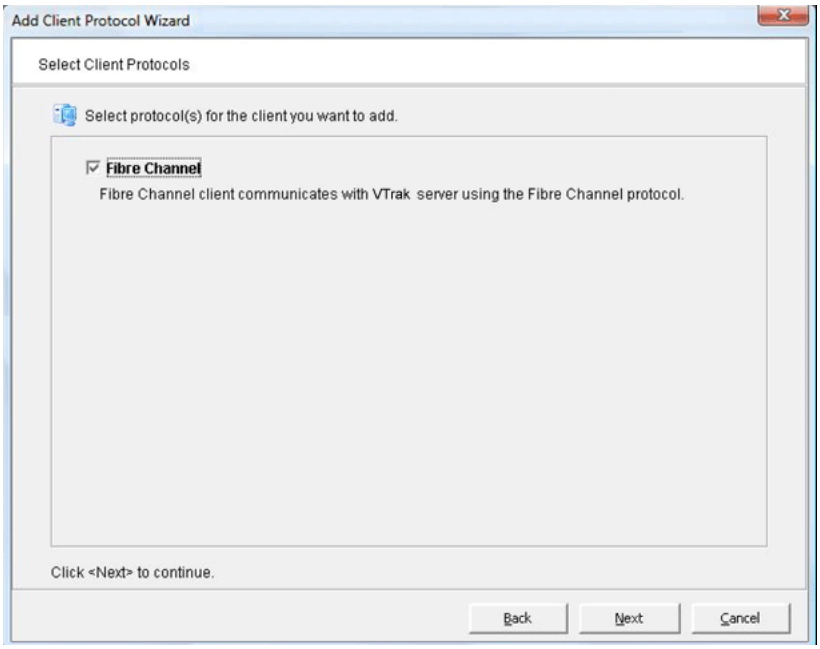
   The name of the SAN Client matches the hostname of your SDVA host. By default, this is **PT-SDVA**. The SAN/IP protocol is listed under the SAN Client. However, this protocol must be changed.
3. Do one of the following actions:
   - If the SAN Client for the SDVA exists, right-click the **SAN Client** name and select **Add Protocol**.



   - If the SAN Client for the SDVA does NOT exist, right-click the **SAN Clients** list header and select **Add**.



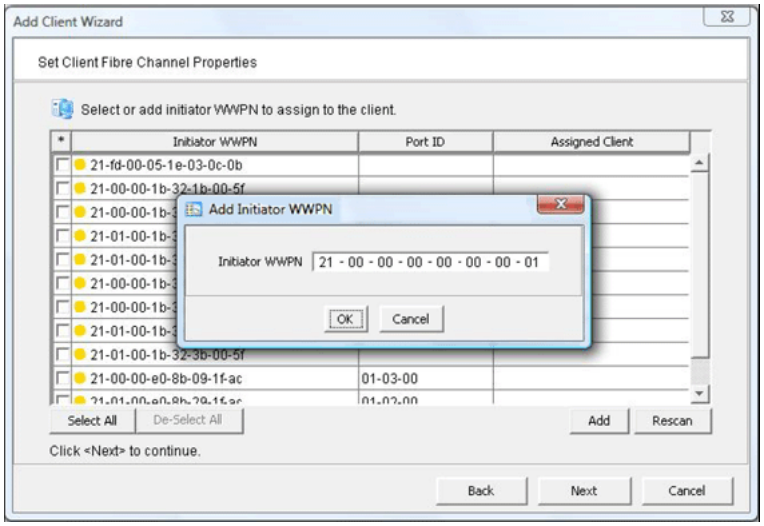
4. When prompted to select the protocol to be added to this client, select **Fibre Channel.**



5. When prompted to select the initiator WWPN to assign to the client, do NOT select an existing initiator. Click the **Add** button at the bottom of the initiator list.

   In the Add Initiator WWPM dialog box, enter a new WWPN in the field provided.

   Be sure the dummy initiator you create does not match the WWPN of any existing initiators nor any initiators you may add in the future.

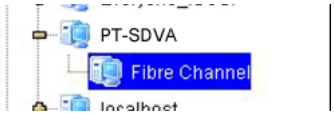


   The new WWPN appears in the list of initiators.

6. If not already selected, check the box next to the new WWPN and click the **Next** button.
7. Complete the rest of the wizard to create the new SDVA client or edit the existing one. If creating a new SAN Client, you will also be prompted to enter a name for the client. It is recommended that you use the hostname of the SDVA host as the name for the SAN Client.
8. When the wizard completes, verify that your SDVA SAN Client contains the Fibre Channel protocol under it.

   Check the properties of the Fibre Channel client to ensure it uses the new dummy initiator you entered in step 5.

If the client has the previously created SAN/IP protocol also listed under it, delete the protocol so that the SAN Client has only the Fibre Channel protocol listed under it.



This completes creating a client for the SDVA host using Fibre Channel.

9. Edit the properties of the SAN Client and enter the IP address of the SDVA host, and assign to it all virtual devices that are assigned to the ESXi host being protected. Refer to the 'Configuration' section for details.

Installing VMware Tools and VMware vSphere CLI

Before you begin to use Snapshot Director Virtual Appliance, install the following packages on the SDVA host:

- VMware Tools
- VMware vSphere CLI

For more information, see the VMware vSphere documentation.

Using Snapshot Director

Running Snapshot Director for VMware

Snapshot Director for VMware contains a menu-driven interface that allows you to perform a variety of functions. Many of these functions (such as running a script) can also be initiated via the command line and can be set to happen automatically (before a backup, for example). For more information about the command line, see “Chapter 4: Command Line Usage” on page 15.

To run the Snapshot Director, type the following at a command prompt on the ESX console or the SDVA console:

 # asd

If this is the first time you are running Snapshot Director, it prompts you to enter the hostname or IP address of the ESX server.

If the ESX server is managed by a vCenter Server, enter the hostname or IP address of the *vCenter host* instead.

When prompted, enter your authentication credentials for the ESX or vCenter host.

If you choose to enter the hostname, it must be resolvable by the ESX server or the Snapshot Director virtual host on which Snapshot Director runs. To do this, add an entry for the desired host to your DNS server or in the local **/etc/hosts** file.

If the vCenter uses Windows Domain authentication, enter the username in the format domain\username.

Licensing Snapshot Director

When you first run Snapshot Director, a message displays to inform you that the software is not licensed. Enter a license key to enable Snapshot Director.

To enter keycode information:

1. Select the **Add/Change License** option.
2. Enter your license key.

Creating a Script

When you create a script, you configure all of the virtual machines that should have a snapshot taken at the same time.

You will need to create a script if you will be triggering snapshots from the ESX server. You do not need to create a script if snapshots will only be triggered from the storage server.

To create a script:

1. Select the **Create/Modify Script** option.
2. Enter a name for the script.
3. Select the Add Virtual Machine Configuration option.

   A list of virtual machines found on the ESX or vCenter host displays.
4. Select the virtual machine to add to the script.

   If VMware Tools is installed in the guest operating system, Snapshot Director automatically detects the IP address of the virtual machine.

5. Accept the default IP discovered, or manually enter an IP address or hostname.

   The hostname should be resolvable by the ESX console or the SDVA host. To do this, add an entry for the desired host to your DNS server or in the local **/etc/hosts** file.

6. If you are using Snapshot Director with VTrak S3000 Server, enter the IP address or hostname of the storage server used to provision storage for the selected virtual machine.

   If you enter the IP address or hostname of the storage server, snapshots created from the ESX server will be used to create point-in-time images in VTrak S3000 Server.

   To use the hostname, the following must apply:

   - The ESX server or SDVA host must be able to access the storage server by its hostname.
   - The storage server must be able to resolve itself.

   To achieve this, add the storage server hostname to a DNS server accessible by the ESX server or SDVA host, and the storage server. Alternatively, add the storage server hostname to the local **/etc/hosts** files of both the VTrak S3000 Server and the ESX server or SDVA host.

Creating a Snapshot

Running a script triggers a snapshot to be taken of a frozen data image for all virtual hosts specified in a script.

Creating a snapshot can be done manually from the menu or it can be set to happen automatically using the command line (in a pre-processing script for a backup, for example). For more information about the command line, see “Chapter 4: Command Line Usage” on page 15.

To run a script from the menu:

1. Select the **Execute Snapshot Operation** > **Create Snapshot** option.
2. Select which script you want to run.

   If successful, a message similar to the following displays after the snapshot is created,

   ```
   NOTICE: Successfully created VMware snapshot for VM WIN2K3Demo.
   ```

Removing a Snapshot

Removing a snapshot can be done manually from the menu or it can be set to happen automatically using the command line (in a post-processing script for a backup, for example). For more information about the command line, see “Chapter 4: Command Line Usage” on page 15.

To remove a snapshot from the menu:

1. Select the **Execute Snapshot Operation** > **Remove Snapshot** option.
2. Select the appropriate script.

   If successful, a message similar to the following displays after the snapshot is removed,

   ```
   NOTICE: Successfully removed VMware snapshot from WIN2K3Demo.
   ```

Listing All Scripts

To display a list all configured scripts, select the **List Script Repository** option.

Viewing Script Information

You can see which .vmx files are included in a specific script.

To display information about a specific script:

1. Select the **Display Script** option.
2. Select which script you want to display.

   You will see something like the following,

   ```
   Virtual Machine: WIN2K3Demo
   VMX File: /vmfs/volumes/43cfb482-808d0d42-8f7a-000423d4e0fd/WIN2K3Demo/WIN2K3Demo.vmx
   Guest Host: 10.3.3.178
   Storage Server: 10.3.3.138
   ```

Importing a Script

Importing a script copies its configuration from an external XML file to this server. This can be useful to restore a script's configuration or to use the configuration from another machine.

To import a script:

1. Select the **Import Script** option.
2. Specify the full path to the file you want to import.

Exporting a Script

Exporting a script copies its configuration to an external XML file. This can be useful as a backup tool or to use the configuration on another machine.

To export a script:

1. Select the **Export Script** option.
2. Select which script you want to export.
3. Specify a full path for the file you want to export.

Deleting a Script

To delete a script:

1. Select the **Delete Script** option.
2. Select which script you want to delete.

Changing Host Authentication

If you are using Snapshot Director with a PROMISE VTrak S3000 server, the Snapshot Director must authenticate to the storage server. Use this option if the username and/or password have changed for a storage server that is already specified in one or more scripts. You can also use this option to update the credentials of the ESX or vCenter server that Snapshot Director is configured to use.

To change host authentication:

1. Select the **Update vCenter** > **ESX** > **Storage Server Credentials** option.
2. Enter the IP address or host name of the server whose credentials you want to change.
3. Enter a new username.
4. Enter a new password.

Triggering Snapshots from the Storage Server

The Replication, Snapshot View, and Snapshot Copy options all trigger snapshots on a VMware disk. Refer to the *VTrak S3000 Server User Manual* on the software DVD for more information about scheduling and triggering snapshots.

Note the following requirements:

- You must use the Group feature for VMware disks, even if there is only one disk in a group. The Group feature allows disks to be grouped together so that when a snapshot is triggered, all drives in the group are taken at the same time. Groups ensure transactional integrity for database or messaging files that reside on multiple disks.
- Snapshot notification must be enabled on the storage server disk used by the ESX server and the SAN client when a snapshot is triggered from the storage server.
- Because the SAN client is used for snapshot notification only, you do not need to add each virtual host to the storage server through the SAN client software, unless an external disk is directly assigned to the virtual host.
- When triggering snapshots from the storage server, you must start the SAN Client process on the ESX or SDVA console. The process is set to start manually. You must manually enable it every time you reboot the ESX or SDVA console.

Notes for Snapshot Director Virtual Appliance (SDVA)

To speed up the snapshot process, the SDVA includes a caching feature that pre-fetches and caches certain important information from your ESX or vCenter host.

If the SDVA, the cache is not be immediately available the first time you start and configure the SDVA, you must manually create the cache:

1. Log into the SDVA console as the **root** user.
2. Enter the command **# asd_cache refresh**.

   The refresh process takes several minutes depending on the total number of virtual machines on your ESX or vCenter host. Do NOT interrupt the cache refresh process.

By default, the cache is set to update automatically every six hours using a cron job. You can customize the refresh schedule by editing the **/etc/crontab** file in the SDVA console. After changing the refresh schedule, use the **# service crond restart** command to restart the cron daemon.

The following modifications to your ESX or vCenter host require you to refresh the SDVA cache to reflect the changes:

- Adding or deleting a virtual machine
- Adding or deleting a virtual disk in a virtual machine
- Moving a virtual machine from one datastore to another

To manually force a cache refresh, use the **asd_cache** command.

Triggering Snapshots from the ESX Server

Snapshots can be triggered in the following ways:

- Via backup software
- Cron jobs

If snapshots are created from the ESX server, the SAN Client should NOT be running on the ESX server or on the SDVA console.

If you are using VTrak S3000 Server with the Snapshot Director, you should turn off snapshot notification as well.

If you are using VTrak S3000 Server with the Snapshot Director, when you view the list of Snapshots in the Management Console, the corresponding Snapshot created on the ESX server displays *No* in the Quiescent column even though the drive was actually quiesced.

When triggering snapshots from the ESX or SDVA console, make sure the SAN Client process is stopped.

Triggering Snapshots via Backup Software

If you are NOT using VTrak S3000 Server, you can configure pre- and post-processing jobs in your backup software to create and remove snapshots.

In the backup software's pre-processing job, use the create snapshot command:

 # asd create-snapshot <script>

For more information, see "Creating a Snapshot" on page 15.

Afterwards, your backup software should back up the data file representing the virtual host. For example, back up the **.vmdk** files from the directory beneath **/vmfs/volumes/** that represents the location of the storage for the virtual host.

In the backup software's post-processing job, use the remove snapshot command:

 # asd remove-snapshot <script>

For more information, see "Removing a Snapshot" on page 15.

Triggering Snapshots via Cron Jobs

You can create cron jobs on your ESX server to create and remove snapshots at specified times.

To create a snapshot, use the create snapshot command:

 # asd create-snapshot <script>

If you are using VTrak S3000 Server with the Snapshot Director, make sure that the backup script has the storage server specified in it. Conversely, if you are NOT using VTrak S3000 Server, make sure that the backup script does NOT have a storage server specified in it.

For more information, see “Creating a Snapshot” on page 15.

To remove a snapshot, use the remove snapshot command:

 # asd remove-snapshot <script>

For more information, see “Removing a Snapshot” on page 15.

Disabling VMware Snapshots

By default, Snapshot Director creates VMware snapshots of virtual machines as part of its operation. To skip the triggering of VMware snapshots, override the default behavior as follows:

1. Edit the file **/etc/asd/asd.conf** file.

   If the file does not exist, create a new file at this location.

2. Append the following line and save the file.

   SkipVMSnapshots = 1

Chapter 4: Command Line Usage

Snapshot Director for VMware has a menu-driven interface that allows you to perform a variety of functions. Many of these functions can also be initiated via the command line.

Commands

This chapter contains a list of commands you can use to perform various functions. All of the commands can be executed directly from a command line or from a shell script, such as a pre- or post-processing backup script.

Licensing Snapshot Director

To enter a license key and license Snapshot Director:

1. Enter this command,

   # asd license
2. When prompted, enter your license key.

Creating a Script

A script contains all of the disks and all of the virtual hosts that should have a snapshot taken at the same time.

To create a script:

Enter this command,

 # asd create

You are prompted for the following items:

- Script name.
- Virtual host. From a list of virtual machines (VM) found on the ESX or vCenter host, select a VM to add to the script.
- IP address or host name of the *virtual host*. Enter a host name only if it is resolvable by the ESX console server.
- If you are using the Snapshot Director with VTrak S3000 Server, enter the IP address or host name of the *storage server*. Enter the username and password for the storage server.
- Indicate if you want to add other virtual hosts to the same script.

Creating a Snapshot

A snapshot is a frozen data image for all virtual hosts specified in a script.

To trigger a snapshot:

Enter this command,

 # asd create-snapshot <script>

For example, **# asd create-snapshot sql_server_2000_script**

Sample output, `NOTICE: Successfully created VMware snapshot for WIN2K3Demo.`

Removing a Snapshot

To remove a snapshot:

Enter this command,

 # asd remove-snapshot <script>

For example, **# asd remove-snapshot sql_server_2000_script**

Sample output, `Notice: Successfully removed VMware snapshot for WIN2K3Demo.`

Listing All Scripts

To display a list all configured scripts:

Enter this command,

 # asd list

Sample output,

backup_script
sql_server_2000_script

Viewing Script Information

Script information includes which disks, virtual hosts, and .vmx files are included in the script.

To view information about a script:

Enter this command,

 # asd display <script>

For example, # asd display sql_server_2000_script

Sample output,

```
Virtual Machine: WIN2K3Demo
VMX File: /vmfs/volumes/43cfb482-808d0d42-8f7a-000423d4e0fd/WIN2K3Demo/WIN2K3Demo.vmx
Guest Host: 10.3.3.178
Storage Server: 10.3.3.138
```

Importing a Script

To import the configuration of a script from an external XML file to this server:

Enter this command,

 # asd import <filename>.xml

For example, **# asd import sql_server_2000_script.xml**

Sample output,

```
Importing configuration file sql_server_2000_script.xml
NOTICE: successfully imported configuration script file sql_server_2000_script.xml
```

Exporting a Script

To copy the configuration of a specific script to an external XML file:

Enter this command,

 # asd export <script> <filename>.xml

For example, **# asd export sql_server_2000_script backup_script.xml**

Sample output, `NOTICE: Exporting script sql_server_2000_script.xml to backup_script_1.xml`

Deleting a Script

To delete a specific script:

Enter this command,

 # asd delete <filename>.xml

For example, **# asd delete sql_server_2000_script.xml**

Creating an X-Ray

An X-ray file can be used by technical support to diagnose system problems.

To create an X-ray file:

Enter this command,

 # asd xray

The generated file will be located in the **/tmp/** directory.

Return Codes

The command line returns codes based on the success or failure of the operation. The valid return codes are:

Name	Return Code	Description
RET_SUCCESS	0	Executed successfully
RET_PARAM_ERROR	1	Invalid parameter
RET_EXP_ERROR	2	Internal error/exception thrown
RET_LIC_ERROR	3	Problem with license
RET_SSN_ERROR	4	Problem with snapshot notification
RET_VH_ERROR	5	Exception thrown from virtual host
RET_ERROR	6	Uncategorized error

All output from the licensing and snapshot operations is logged in the following files:

- /var/tmp/asd_conf.log
- /var/tmp/asd_ctrl.log
- /var/tmp/asd_agent.log
- /var/tmp/ssm_trace.log

Chapter 5: Snapshot Agents

Working in combination with Snapshot Director for VMware, VTrak Snapshot Agents protect databases, messaging systems, and file systems with full point-in-time consistency while still allowing full speed, non-stop access to the data.

The Snapshot Agents ensure that the resulting copy of data not only has “point-in-time consistency,” but also has transactional integrity. This can save many hours of valuable time in the case of a disaster.

Snapshot Director for VMware will automatically trigger the appropriate snapshot agents any time a snapshot is executed.

Supported Versions

Snapshot agents are supported for the following platforms

Snapshot Agent	Supported Platforms
Microsoft Exchange 2003	Windows 2003
Microsoft Exchange 2007	Windows 2008, Windows 2003
Microsoft Exchange 2003	Windows 2003
Microsoft SQL Server 2008	Windows 2008, Windows 2003
Microsoft SQL Server 2005	Windows 2003
Microsoft Windows Filesystem	Windows 2003
Oracle 11g	Windows 2003
Oracle 10g (v10.0.2)	Windows 2003

Snapshot Agent Requirements

Installation of the Snapshot Agents has the following requirements:

- You must be an administrator or have administrator privileges in order to install.
- Sanclient (for Linux Guest OS) or IMA/SDM (for Windows Guest OS) must already be installed on the virtual machine.
- If you install a snapshot agent for an *application*, such as Microsoft Exchange, Microsoft SQL, or Oracle, you must also install the snapshot agent for the *Windows filesystem*.
- **Snapshot Agent for Microsoft Exchange** – The Snapshot Agent has to be installed on the same virtual machine where the Exchange Server is running. Your Exchange Server must be started before installing the agent.
- **Snapshot Agent for Microsoft SQL** – The Snapshot Agent has to be installed on the same machine where the SQL Server database is running. Your SQL Server must be started before installing the agent.
- **Snapshot Agent for Oracle** – Your Oracle database must be started before installing the agent. Oracle archive logging must be turned on.

Installing Snapshot Agents

To install snapshot agents:

1. Insert the installation DVD into your DVD-ROM drive.
2. Select **Install Products** > **Snapshot Agents**.
3. Select the appropriate Snapshot Agent.
4. Accept the license agreement.

   The installation program installs the Snapshot Agent into the same directory where IMA/SDM for Windows is installed.
5. When done, click the **Finish** button.

   The SAN client automatically starts the Snapshot Agent. In addition, the agent is started automatically each time the client is restarted.

Configuring Snapshot Agents

After the installation completes, a configuration utility launches automatically.

1. On the **Monitor** tab, check the **Override the default drives** box and identify which disks contain the data to be protected. Separate each disk with a semicolon.

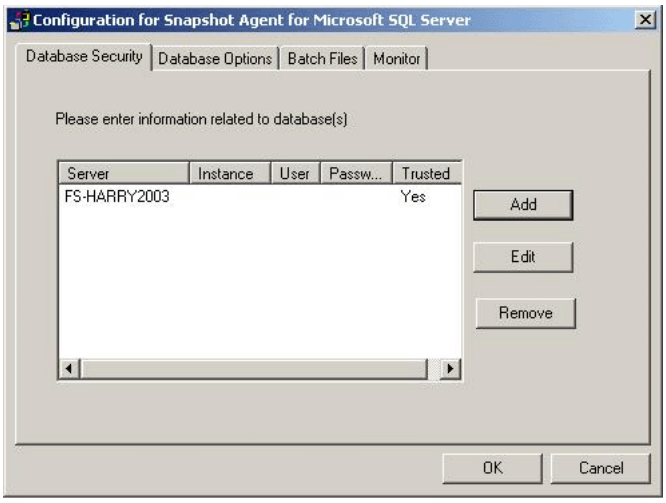
2. Click the **Batch Files** tab and indicate if you want to run batch files before or after each snapshot.

   Batch files can be used to quiesce applications for which VTrak does not have a Snapshot Agent, including custom designed applications.

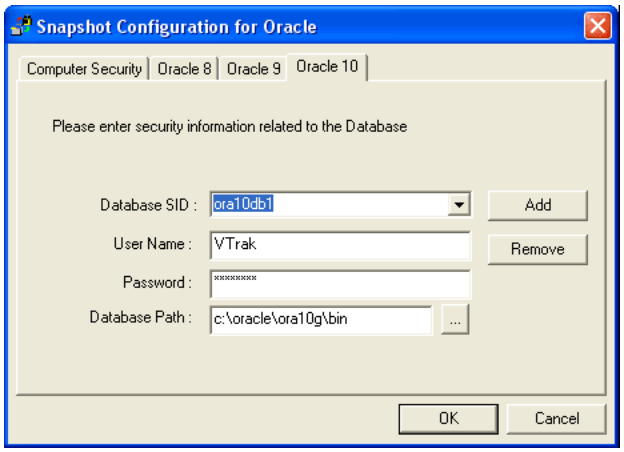
   To run the batch files, you must enter an administrative user name and password for the local computer.

   Then click the **Create** or **Edit** buttons and use Notepad to generate the batch files.
3. Select the Snapshot Agent for your system.

- **Snapshot Agent for Microsoft SQL** – Select the Database Security tab and click Add.



  - **Virtual Server or Host** – If the SQL server is in a cluster, enter the name of the virtual server on which the SQL instance is created. If the server is not in a cluster, put in the local host name. The drop down list displays the virtual server name and the host name that it detects from registry.
  - **Instance** – Enter the name of the SQL instance. For the default SQL instance, enter MSSQLSERVER.
  - **User Name and Password** – Enter the user name and password of the account that has access to the database.
- **Snapshot Agent for Oracle** – Select the tab for the version of Oracle you are using.



  - **Database SID** – Enter the Oracle instance name.
  - **User Name and Password** – Enter the user name and password of an Oracle account with DBA role (system, for example). This is the user and password that the storage server needs to access your database. When the Oracle database is set up initially, the default system user password is usually manager.
  - **Database Path** – Enter the Oracle bin path, typically **%ORACLE_HOME%/bin**. Click the button next to the field to have the agent search for the path or manually enter the path.

    If you click the button and the SID is *correct*, the path is automatically discovered.

    If the SID is *wrong*, the path is not found. Either enter the correct SID or start the specified database, if it is not running.

4. Click the **Add** button so the agent verifies the SID by connecting to the database with the provided information.
5. Click the **OK** button to save and exit.

Notes

- If you need to change the Database SID, User Name, or Password, click **Remove** to remove the existing SID and add it again.
- To access the configuration utility at a later time, in the Start menu, select **Promise** > **Tools** > **Configuration for Snapshot Director Agent**.

Removing a Snapshot Agent

To uninstall a Snapshot Agent:

1. Go to **Control Panel** > **Add/Remove Programs**.
2. Insert the installation DVD in to your DVD-ROM drive.
3. Select **Install Products** > **Install Agent Software** feature.
4. Select the appropriate Snapshot Agent.
5. Follow the on-screen instructions to uninstall the Snapshot Agent.

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