



CHAPTER 5

Cisco SME Tape Configuration

This chapter contains information about managing tapes that are encrypted using Cisco SME. It includes the following sections:

- [About Cisco Storage Media Encryption Tape Management](#)
- [Adding Tape Groups, page 5-2](#)
- [Deleting Tape Groups, page 5-6](#)
- [Adding Tape Devices, page 5-7](#)
- [Deleting Tape Devices, page 5-10](#)
- [Adding Tape Paths, page 5-11](#)
- [Adding Tape Volume Groups, page 5-14](#)
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- [Viewing Tape Device Details, page 5-17](#)

About Cisco Storage Media Encryption Tape Management

Once provisioned, Cisco SME provides transparency to hosts and targets. To manage the paths from a hosts to tape devices, Cisco SME uses the following:

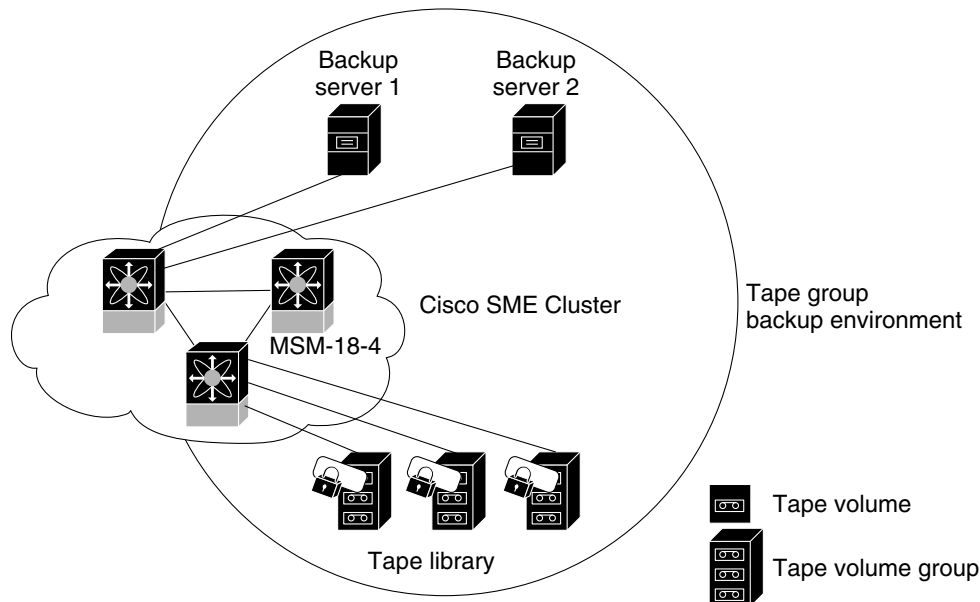
- **Tape group**—A backup environment in the SAN. This consists of all the tape backup servers and the tape libraries that they access.
- **Tape device**—A tape drive that is configured for encryption.
- **Tape volume**—A physical tape cartridge identified by a barcode for a given use.
- **Tape volume group**—A logical set of tape volumes configured for a specific purpose. Using Cisco SME, a tape volume group can be configured using a barcode range or a specified regular expression. In an auto-volume group, a tape volume group can be the volume pool name configured at the backup application.

Cisco SME provides the capability to export a volume group with an encryption password. This file could later be imported to a volume group. Also, volume group filtering options provide mechanisms to specify what type of information will be included in a specific volume group. For example, you could filter information in a volume group by specifying a barcode range.

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Figure 5-1 shows the Cisco SME tape backup environment.

Figure 5-1 Cisco SME Tape Backup Environment and Configuration



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The following concepts are used in tape management procedures:

- Key management settings (see [Key Management Settings, page 6-4](#))
- Auto-volume group (see [Auto-volume grouping, page 3-9](#))
- Key-on-Tape (see [Unique Key with Key-On-Tape, page 6-4](#))
- Compression (see [Compression, page 3-9](#))
- Tape recycling (see [Tape Recycling, page 6-4](#))
- Exporting volume groups (see [Exporting Volume Groups, page 6-8](#))
- Importing volume groups (see [Importing Volume Groups, page 6-10](#))



Note

If data is written to a partially non-Cisco SME encrypted tape, it is left in clear text. When a tape is recycled or relabeled, the tape will be encrypted by Cisco SME.

Adding Tape Groups



Note

If a tape is written before Cisco SME is activated, it will remain a clear text tape and will only become an encrypted tape when it is reformatted or relabeled on a tape drive that is defined in an active Cisco SME environment.



Note

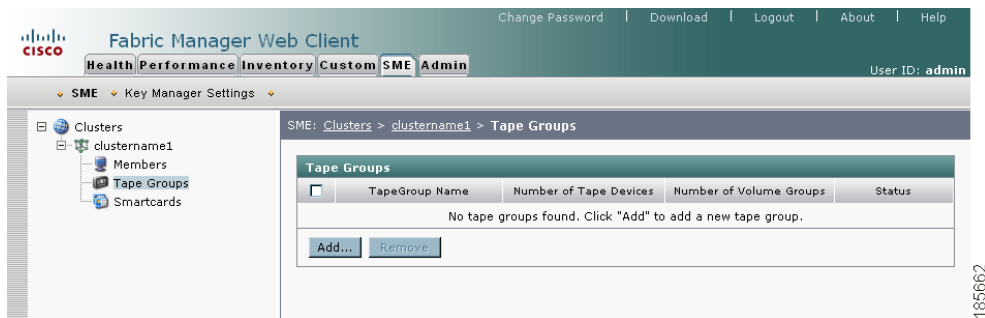
Messages are logged to the switch when the tapes bypass encryption.

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To add a tape group, follow these steps:

Step 1 Click **Tape Groups**. Click **Add**.

Figure 5-2 Adding Tape Groups

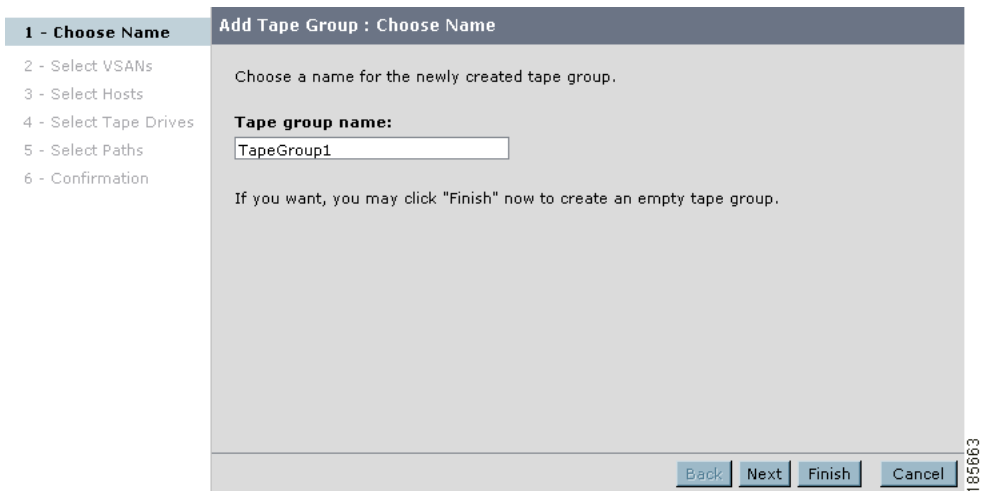


Note

A default volume group is created when the tape group is created; none of the configurations can be changed for the default volume group; however, you can create a new volume group.

Step 2 Enter a name for the tape group. Click **Next**.

Figure 5-3 Name the Tape Group



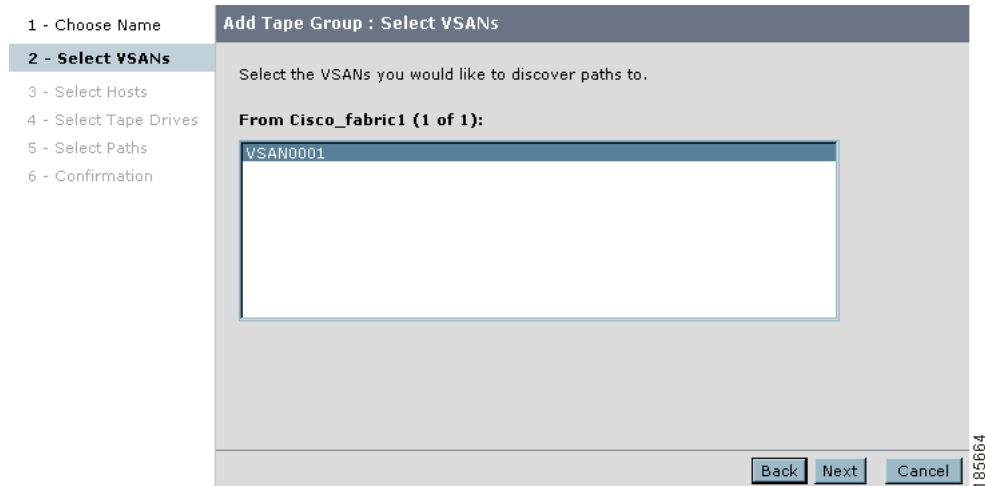
Note

You can click Finish to create an empty tape group that can be used for preprovisioning. You can specify the devices later.

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Step 3 Select specific VSANs for the tape group. Click **Next**.

Figure 5-4 *Select VSANs*



Step 4 Select the hosts (backup servers) for the tape group. Click **Next**.

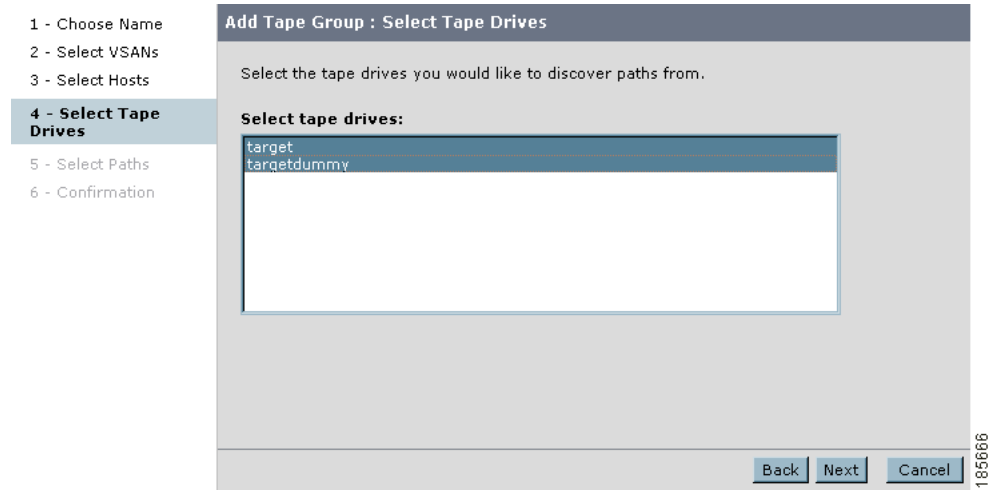
Figure 5-5 *Select Hosts (backup servers)*



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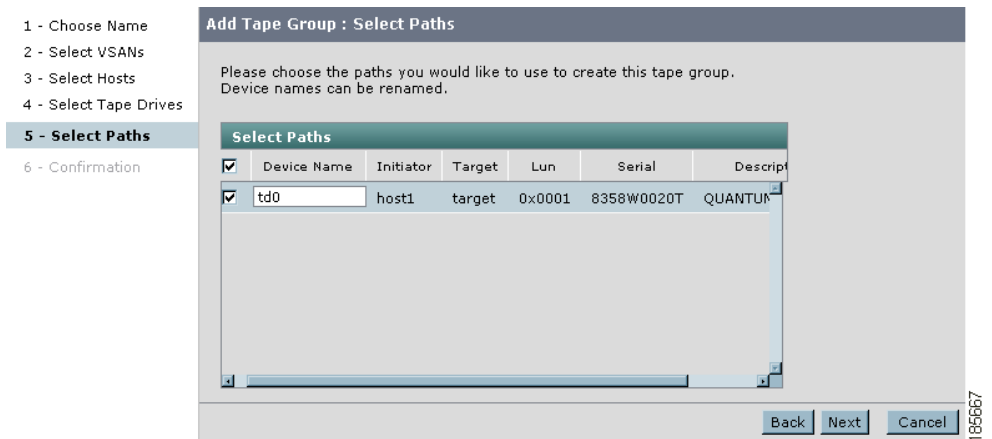
Step 5 Select the tape drives for the tape group. Click **Next**.

Figure 5-6 **Select Tape Drives**



Step 6 Select the paths to use to create the tape group. Click **Next**.

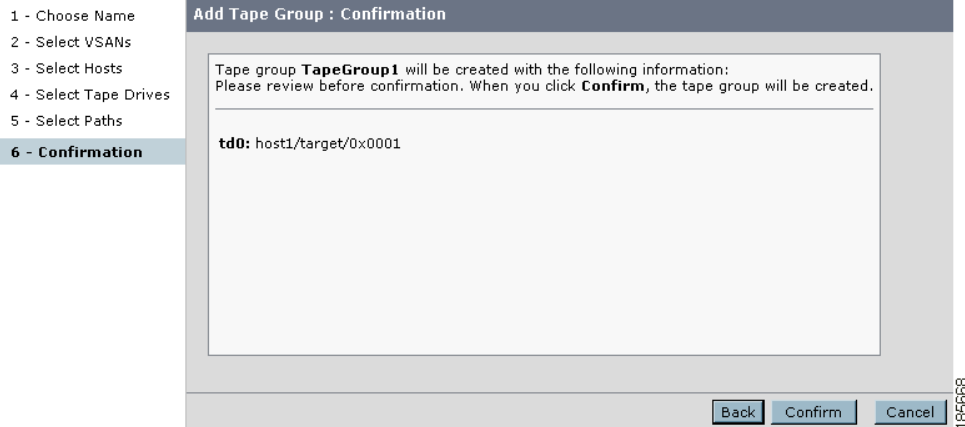
Figure 5-7 **Select the Paths**



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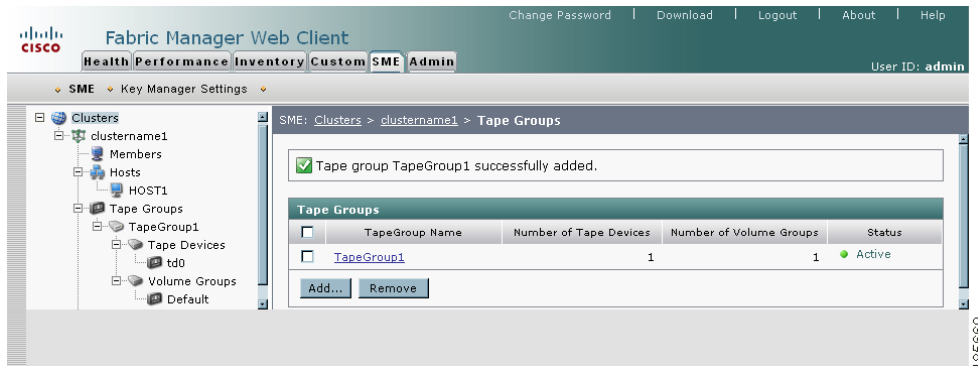
Step 7 Verify the information. Click **Confirm** to save and activate the changes. Your screen will refresh to the Fabric Manger Server SME screen.

Figure 5-8 *New Tape Group Confirmation*



Step 8 View the hosts, tape devices, and volume groups that belong to the tape group.

Figure 5-9 *New Tape Group Added to the Cluster*



Note

Messages are logged to the switch when tapes are bypassing encryption.

Deleting Tape Groups



Note

Before deleting a tape group, you must first delete tape devices and tape volume groups.

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To delete a tape group, follow these steps:

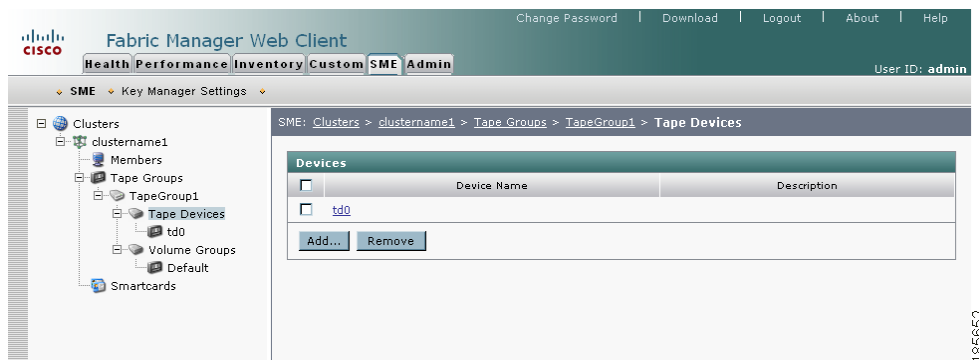
-
- Step 1** Click **Tape Groups** to display the tape groups that are part of the cluster.
 - Step 2** Select a tape group and click **Remove**.
 - Step 3** Click **OK** to delete the tape group.
-

Adding Tape Devices

To add tape devices to an existing tape group, follow these steps:

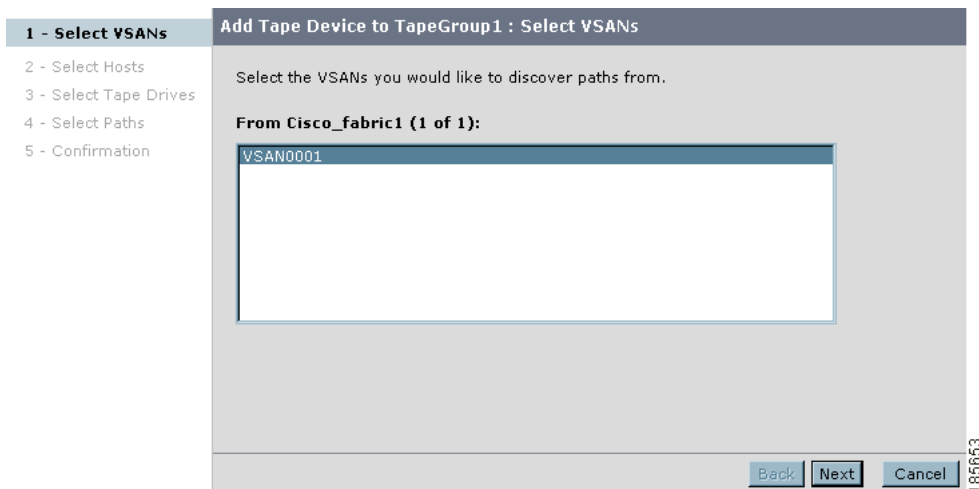
-
- Step 1** Click **Tape Devices**. Click **Add**.

Figure 5-10 Adding Tape Devices to an Existing Tape Group



- Step 2** Select the VSANs that you would like to discover paths from. Click **Next**.

Figure 5-11 Selecting VSANs



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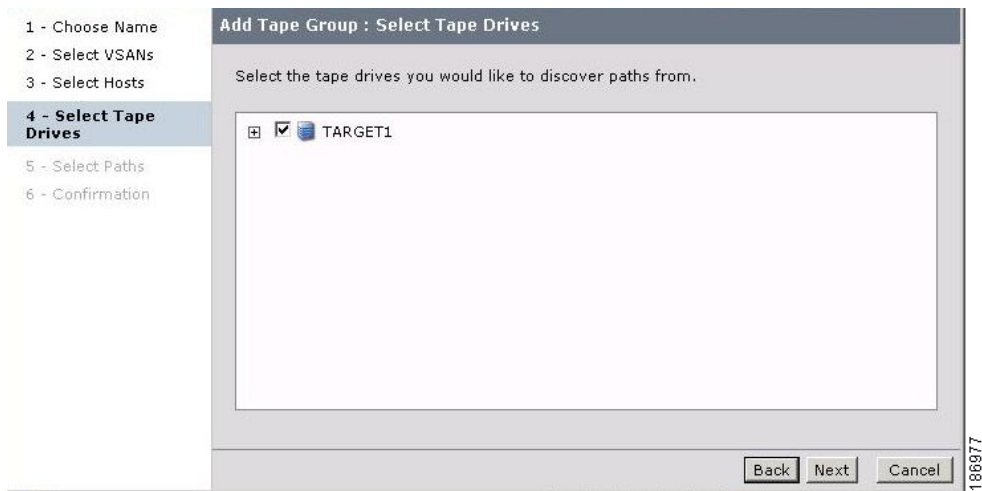
Step 3 Select the hosts that you would like to discover paths from. Click **Next**.

Figure 5-12 *Selecting Hosts*



Step 4 Select the tape drives. Click **Next**.

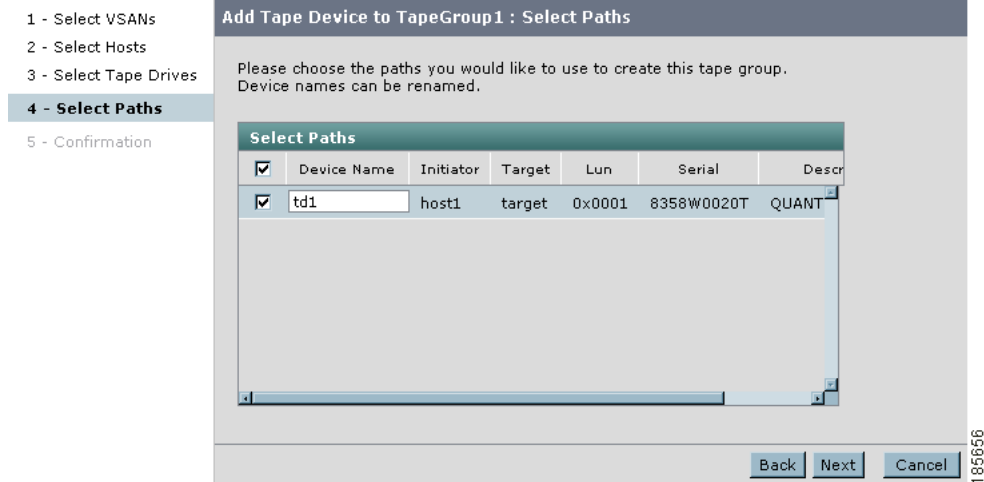
Figure 5-13 *Selecting Tape Drives*



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Step 5 Choose the paths that Cisco SME would use for encrypted data between the host and tape devices. Click **Next**.

Figure 5-14 Selecting Paths



Step 6 Confirm the addition of the new tape device. Click **Confirm** to close the Cisco SME wizard and to return to the Fabric Manager Server SME screen.

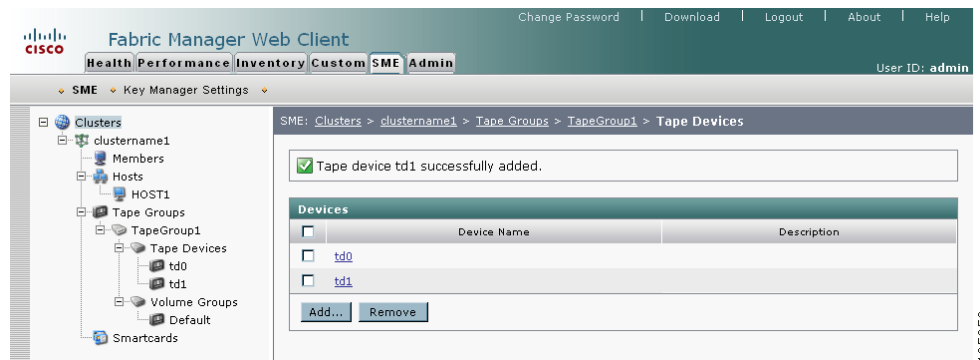
Figure 5-15 New Tape Device Confirmation



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Step 7 View the new tape device that was added to the cluster.

Figure 5-16 *New Tape Device Added to the Cluster*



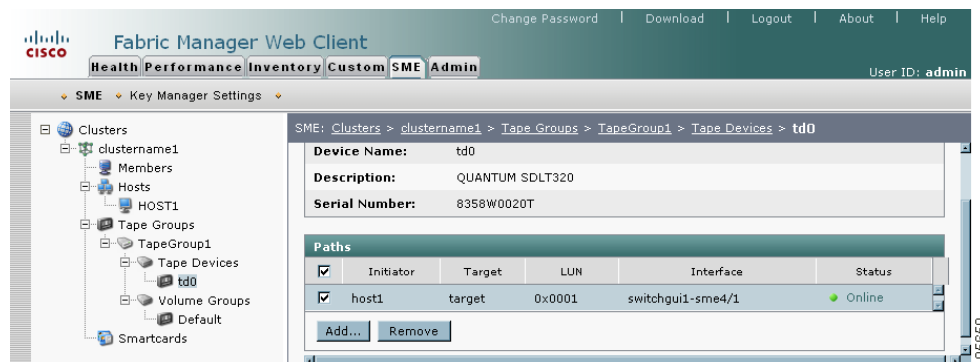
Deleting Tape Devices

To delete a tape device from an existing tape group, follow these steps:

Step 1 Click **Tape Devices** then select the device you want to remove.

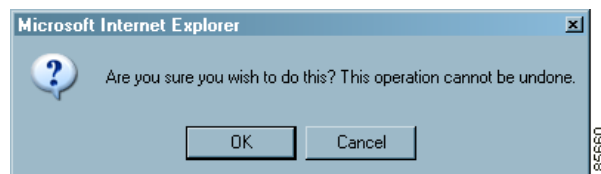
Step 2 Click **Remove**.

Figure 5-17 *Deleting Tape Devices From an Existing Tape Group*



Step 3 Click **OK** to delete the tape device.

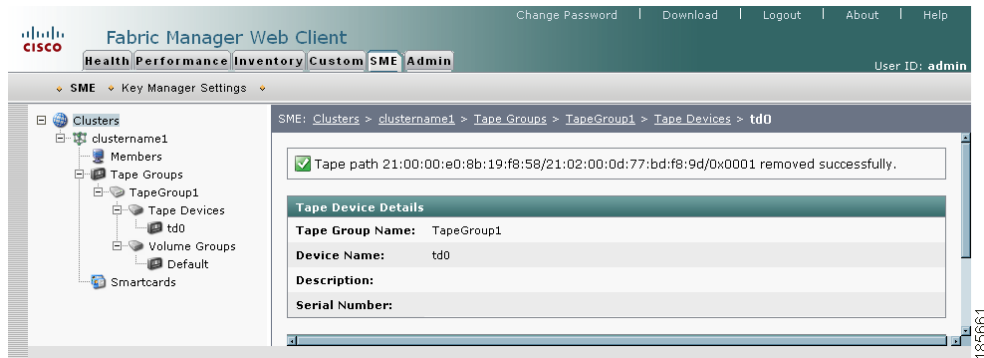
Figure 5-18 *Tape Device Deletion Confirmation*



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Step 4 View the notification that the tape drive has been removed.

Figure 5-19 Tape Device Removed



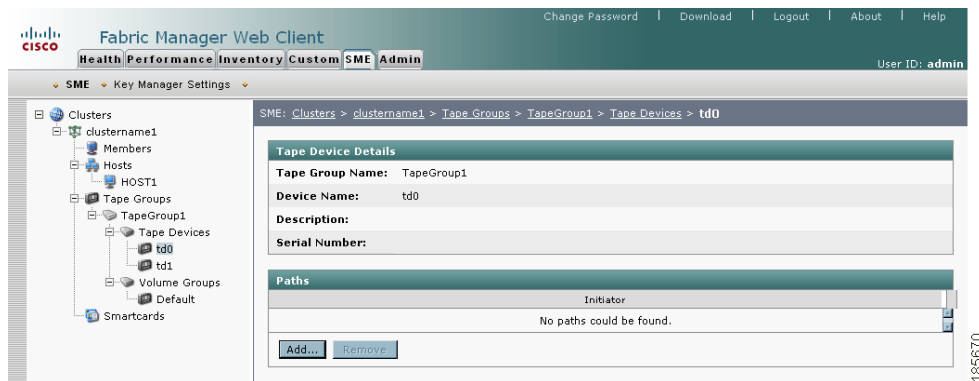
Adding Tape Paths

Use the Tape Path Wizard to quickly add or modify tape paths between hosts and target backup devices.

To add a tape path to a tape device, follow these steps:

Step 1 Click a tape device.

Figure 5-20 Adding Tape Paths to an Existing Tape Device



Step 2 Click Add.

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Figure 5-21 Entering Path Information

The screenshot shows a configuration window titled "Add Tape Paths to td0 in TapeGroup1 : Enter Path Info". The window has a sidebar with two steps: "1 - Enter Path Info" (selected) and "2 - Confirmation". The main area contains the following fields:

- VSAN:** 1
- Fabric:** Cisco_fabric1 (dropdown menu)
- Initiator WWN:** 21:00:00:e0:8b:19:5d:57
- Target WWN:** 50:01:04:f0:00:93:2e:6d
- LUN:** 0x0001

At the bottom right, there are three buttons: "Back", "Next", and "Cancel". A vertical ID number "185671" is visible on the right edge of the window.

Step 3 Select the appropriate fabric and enter the VSAN, initiator and target WWNs, and the LUN. Click **Next**.

Figure 5-22 Confirming New Tape Paths

The screenshot shows a confirmation window titled "Add Tape Paths to td0 in TapeGroup1 : Confirmation". The sidebar shows "1 - Enter Path Info" and "2 - Confirmation" (selected). The main area contains a summary of the configuration:

The tape path below will be added to **td0** in **TapeGroup1**. Please review the information and click **Confirm** to complete the action.

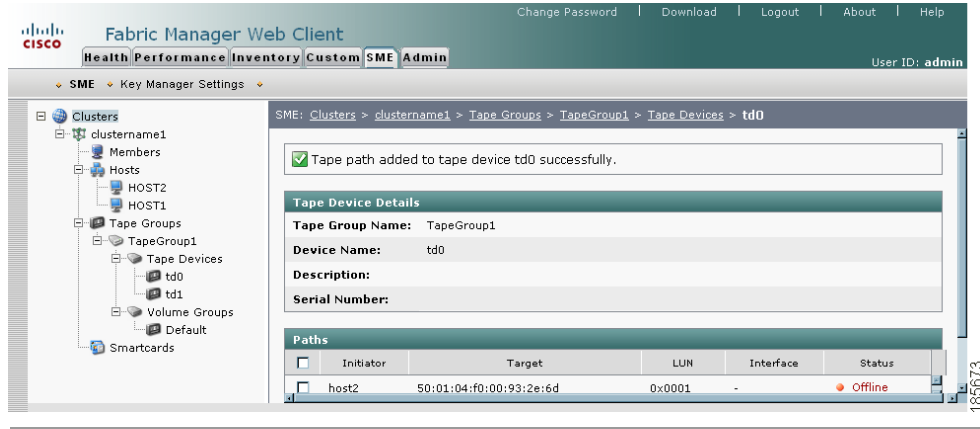
- VSAN:** 1
- Fabric:** Cisco_fabric1
- Tape group:** TapeGroup1
- Tape device:** td0
- Initiator:** 21:00:00:e0:8b:19:5d:57
- Target:** 50:01:04:f0:00:93:2e:6d
- Lun:** 0x0001

At the bottom right, there are three buttons: "Back", "Confirm", and "Cancel". A vertical ID number "185672" is visible on the right edge of the window.

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- Step 4** Confirm the addition of the new tape path. Click **Confirm** to close the Cisco SME wizard and to return to the Fabric Manager Server SME screen.

Figure 5-23 *Displaying a New Tape Path*

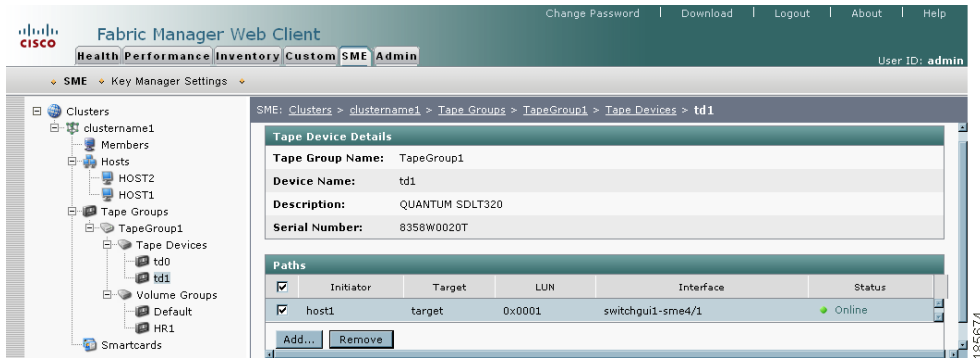


Deleting Paths from a Device

To delete a tape path from a device, follow these steps:

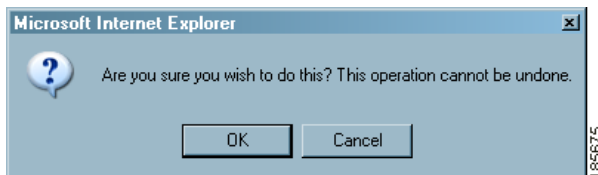
- Step 1** Click a tape device name to display the tape device details and the paths.

Figure 5-24 *Selecting a Tape Path*



- Step 2** Select a tape path and click **Remove**.

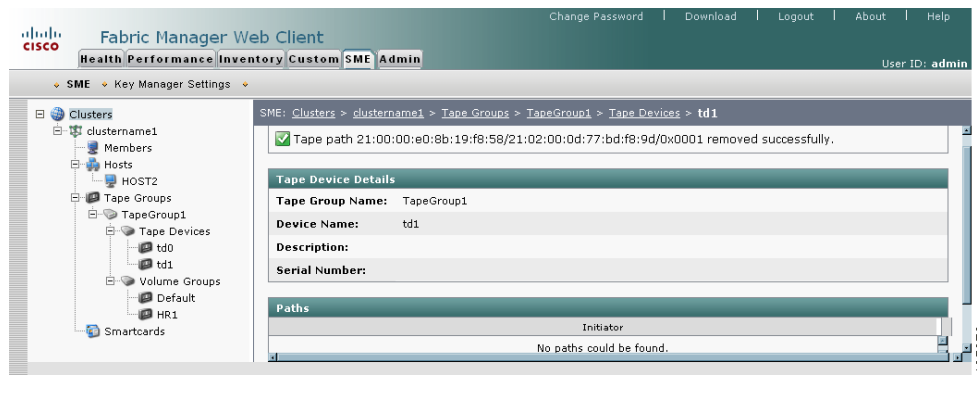
Figure 5-25 *Tape Path Removed Confirmation*



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Step 3 Click **OK** to delete the tape path and to view the tape path removed notification.

Figure 5-26 Tape Path Removed Notification

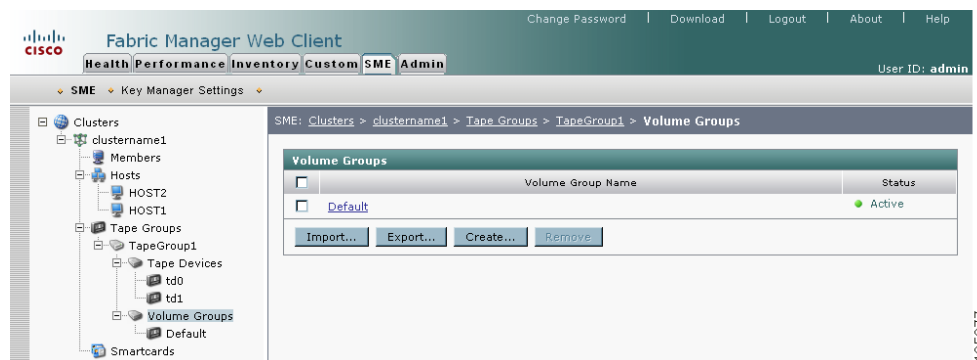


Adding Tape Volume Groups

To add tape volume groups to an existing tape group, follow these steps:

Step 1 Click **Volume Groups**. Click **Create...**

Figure 5-27 Adding Tape Volume Groups to an Existing Tape Group



Step 2 Enter the new volume group name and configure a filter that Cisco SME will use to match volumes for that volume group. Select from the following:

- **None**—Used only if you want to import volume groups into another volume group (see [Importing Volume Groups, page 6-10](#)).
- **Regex**—Cisco SME will place the volume if the barcode matches the expression.
- **Ranges**—Cisco SME will place the volume within a specific barcode range.



Note

Overlapping ranges are not recommended. If there are overlapping ranges, then Cisco SME places the volume based on the lexicographic ordering of the volume group.

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**Note**

If there is not a direct match, then the volumes will be placed in the default volume group.

Figure 5-28 Filtering by Regex

1 - Group Info

2 - Confirmation

Create Volume Group in TapeGroup1 : Group Info

Enter information that will be used to pre-provision volume group info. Tape barcodes that match the filtering criteria will be automatically added.

Volume Group Name:

Barcode Filtering Criteria:

None

Regex:

Ranges

- Step 3** Confirm the addition of the new volume group. Click **Confirm** to close the Cisco SME wizard and to return to the Fabric Manager Server SME screen.
- Step 4** View the new volume group added to the tape group.

Figure 5-29 Viewing a New Volume Group

Fabric Manager Web Client

Change Password | Download | Logout | About | Help

Health Performance Inventory Custom SME Admin User ID: admin

SME > Key Manager Settings

SME: Clusters > clustername1 > Tape Groups > TapeGroup1 > Volume Groups

Volume group HR1 has been successfully created.

<input type="checkbox"/>	Volume Group Name	Status
<input type="checkbox"/>	Default	Active
<input type="checkbox"/>	HR1	Active

**Note**

For information on importing and exporting volume groups, see [Chapter 6, “Cisco SME Key Management.”](#)

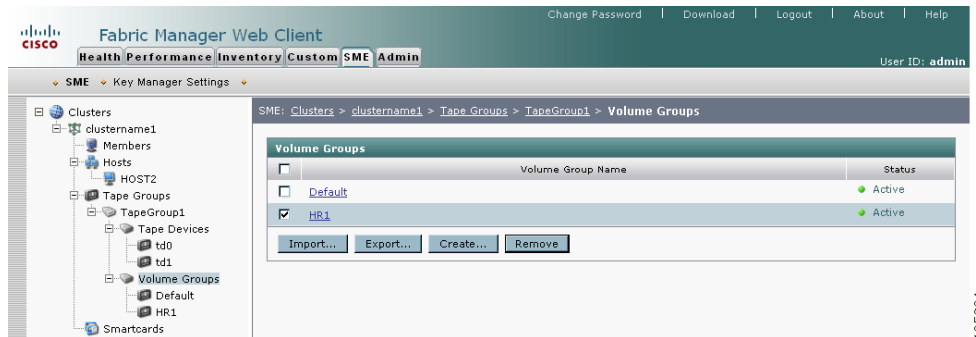
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Deleting Tape Volume Groups

To delete a tape volume group from a Cisco SME cluster, follow these steps:

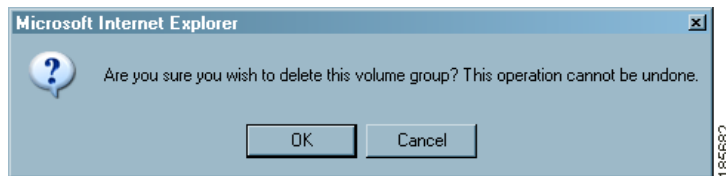
- Step 1** Click **Volume Groups** to display the tape volume groups in the cluster.

Figure 5-30 Volume Groups



- Step 2** Select a tape volume group and click **Remove**.

Figure 5-31 Volume Groups Removed Confirmation



- Step 3** Click **OK** to delete the tape volume group and to view the volume group notification.

Figure 5-32 Volume Groups Removed Notification



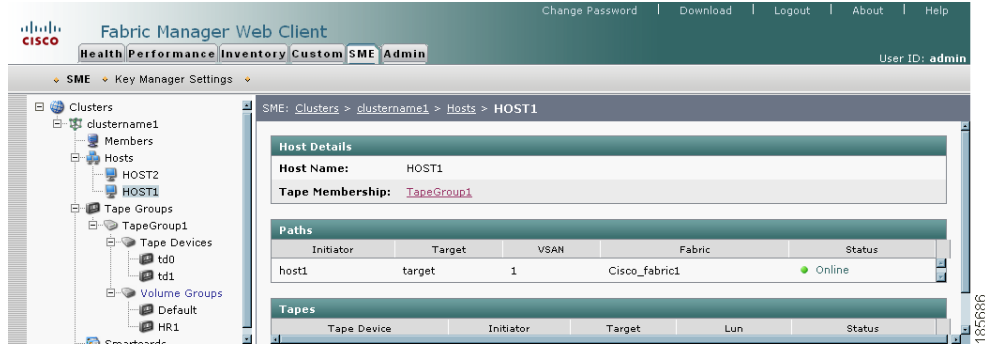
[Send documentation comments to mdsfeedback-doc@cisco.com](mailto:mdsfeedback-doc@cisco.com)

Viewing Host Details

You can view detailed information about hosts in a Cisco SME cluster. Information for a specific host includes the tape group membership, paths from the host to the target, VSAN, fabric, status, and the tape device.

Step 1 Click a host in the navigation pane.

Figure 5-33 Viewing Host Details

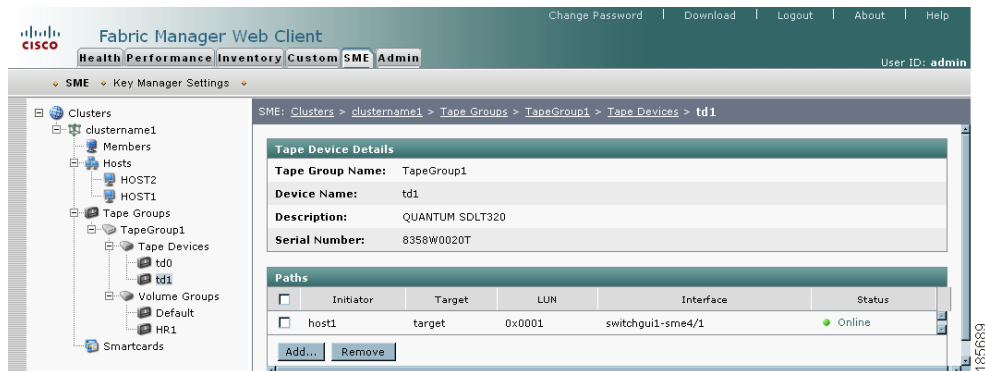


Viewing Tape Device Details

You can view detailed information about tape devices in a Cisco SME cluster. Information for a specific tape device includes the tape group membership, device description, serial number, and the host and target PWWN.

Step 1 Click a tape device in the navigation pane.

Figure 5-34 Viewing Tape Device Details



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