IBM Virtualization Engine 3954



# IBM Virtualization Engine for Tape TS7500 V3.2 Software Upgrade and Migration Guide

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# Contents

Figures
Tables
Software Installation Instructions ix
Chapter 1. Purpose and description1Who should read this documentInstallation timeWhat's new in this edition
Chapter 2. Prerequisites.3Verifying correct software level3Ensuring that SMcli can resolve hostname6Configuration backup and diagnostic summary.7Saving a configuration backup7Saving a diagnostic summary.9
Chapter 3. Installing the TS7500 V3.1 Software Upgrade CD 13
Chapter 4. Installing the TS7500 V3.2 Software Upgrade CD
Chapter 5. Verifying that required patches have been installed 31

Chapter 6. Firmware			. (	35
Updating Storage Manager on the VE console				
workstation				35
Updating firmware on the servers				44
Identifying the controller firmware level.				46
Updating the SV6 controller firmware level.				53
Updating the SX6 expansion firmware level				60
Configuring the Call Home functionality insta	alle	d		
during migration				63
Verifying the migration on SV6 controllers .				63
Verifying the migration on SX6 expansion uni	ts			64
Conclusion				64
Appendix A. Installing PuTTY on th	e			
VE console workstation		•	. (	65
Appendix B. Removing failover			. (	67
Appendix C. Reinstalling failover				71
		•		•••
Index				<b>R1</b>
		•	- 9	

# Figures

1.	PuTTy Security Alert 4
2.	Save configuration 8
3.	Saving configuration message
4.	Configuration saved successfully 9
5.	Diagnostic Summary Data selection 10
6.	Choosing to create summary data 10
7.	Diagnostic Summary Data Options window 11
8.	Diagnostic data location
9.	Diagnostic summary data message 12
10.	PuTTy Security Alert
11.	PuTTy Security Alert
12.	PuTTy Security Alert
13.	PuTTy Security Alert
14.	PuTTy Security Alert
15.	PuTTy Security Alert
16.	Confirming installed patches
17.	Subscribing to My notifications
18.	Enterprise Management Window Task
	Assistant
19.	Storage Manager installation wizard Welcome
	page
20.	Storage Manager installation wizard Copyright
	Statement page
21.	Storage Manager installation wizard License
	Agreement page
22.	Storage Manager installation wizard Choose
	Install Folder page
23.	Storage Manager installation wizard Select
	Installation Type page
24.	Storage Manager installation wizard
	Automatically Start Monitor? page 40
25.	Storage Manager installation wizard
	Pre-Installation Summary page
26.	Storage Manager installation wizard Install
_0.	Complete page 41
27	Select Addition Method window 41
28	Add Storage Subsystem window 42
29	Storage Subsystem Added window 43
30	Enterprise Management Window Task
	Assistant 44
	10010mit

31.	Select Addition Method dialog	46
32.	Select Addition Method dialog	47
33.	Add Storage Subsystem dialog	48
34.	Storage Subsystem Added dialog	49
35.	Global Locate LED	49
36.	Subsystem Management Window Task	
	Assistant dialog	50
37.	Selecting Properties	51
38.	Selecting Recovery Guru	52
39.	Firmware upgrade utility	54
40.	Entering password	55
41.	Firmware upgrade utility: Status window	55
42.	Not upgradeable status	57
43.	Selecting downloads and source files	58
44.	Confirming download	59
45.	Firmware upgraded.	60
46.	Enterprise Management Window Task	
	Assistant	61
47.	ESM Firmware Menu	62
48.	Select enclosures table	62
49.	Selecting the failover group to remove failover	67
50.	Removing Failover Server	68
51.	Remove Failover Server confirmation	69
52.	Root information window.	69
53.	Starting the Failover Setup Wizard	71
54.	Select the Secondary Server window	72
55.	Rescanning Physical Devices is required	
	window	73
56.	Summary of inconsistent device information	74
57.	Rescanning physical devices	74
58.	Scan existing devices	75
59.	Entering or confirming network interface IP	
	addresses for adapter 1	76
60.	Entering or confirming service IP addresses for	
	adapter 1	77
61.	Entering or confirming network interface IP	
	addresses for adapter 2	78
62.	Entering or confirming service IP addresses for	
	adapter 2	79
63.	Confirm the Failover Configuration window	80
	5	

# Tables

## **Software Installation Instructions**

TS7500 V3.2 Software Upgrade CD

Written by: Checked by: S. P. Reviewed by: Approved by: Status: Alecia Ramsay Kevin Kartchner, Hydie Andrews Don Newson Tony Poulton Field use

**Note:** This Field Feature Bill of Materials must be used on the TS7520 or TS7530 Server (IBM 3954 Model CV6 or Model CV7) for which it was shipped.

## Chapter 1. Purpose and description

This document describes the procedure for upgrading the following systems to the TS7500 V3 R2 level using the TS7500 V3.2 Software Upgrade CD:

- TS7520 system running TS7500 V2 R1, TS7500 V2 R2, TS7500 V3 R1 software level
- TS7530 system running TS7500 V3 R1 software level

**Note:** You cannot load the TS7500 V3 R1 or V3 R2 software level on a TS7510 system.

## Who should read this document

This publication is intended for use by customers who are using the TS7500 V3.2 Software Upgrade CD to upgrade either of the following:

- TS7520 system running TS7500 V2 R1, TS7500 V2 R2, TS7500 V3 R1 software level
- TS7530 system running TS7500 V3 R1 software level

## Installation time

I

The estimated installation time for this procedure is three to six hours, depending on the experience level of the installer. The server and storage firmware updates in Chapter 6, "Firmware," on page 35 can be performed as a separate outage after the TS75200 V3.2 software is installed.

## What's new in this edition

Technical changes occurring in this edition are identified with a vertical bar (|) in the left margin of the page.

Major changes and additions to this document since the last edition include the following:

• A new step was added to Chapter 4, "Installing the TS7500 V3.2 Software Upgrade CD," on page 21.

## **Chapter 2. Prerequisites**

The following prerequisites are to be met prior to performing the upgrade procedure.

**Note:** For general TS7500 operating procedures, refer to the *IBM Virtualization Engine for Tape TS7500 User's Guide*, publication number GC27-2179.

- Empty the virtual vault. If there are tapes inside the virtual vault before software upgrade, move them to a virtual library before proceeding. (Refer to the *IBM Virtualization Engine for Tape TS7500 User's Guide* for detailed procedures.)
- Complete all necessary software upgrades:
  - System is at the TS7500 V2 R2 or TS7500 V3 R1 software level (minimum)
  - System has a minimum of 4GB of RAM.
    - If the Virtualization Engine is a 3954-CV7, it already has 4GB of RAM.
    - If the Virtualization Engine is a 3954-CV6, you must add FC 3460.
  - System is updated with all released patches. (To download the patches, go to: http://www-01.ibm.com/support/search.wss?rs=1174&tc=HW29K&q=ssg1\* &dc=D420&dtm)
- Take all defined drives in the application offline. (Refer to your backup application documentation for more information.)
- Stop any replication processes that are running.
- Suspend I/O to the server.
- Ensure that no tapes are loaded into any physical or virtual drives.
- Record all customer-created user IDs. You will need to recreate them after your upgrade (see *TS7500 User's Guide* for instructions).

**Attention:** This document includes occurrences of root passwords that are used to manage and configure the product. Improper use of these commands and passwords poses significant risk to the product and your data. Use these commands and passwords **only** as documented.

## Verifying correct software level

To determine whether the IBM<sup>®</sup> Virtualization Engine TS7500 is at the correct level on each server (both the upper and lower server if in an HA environment), perform the following steps:

#### Procedure

- Log into PuTTY by selecting Start > Programs > PuTTY > PuTTY. For instructions on how to install PuTTY on the VE Console workstation, see Appendix A, "Installing PuTTY on the VE console workstation," on page 65.
- 2. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

- 3. Click Open.
- 4. Click Yes at the PuTTY Security Alert screen (see Figure 1 on page 4).

PuTTY	Security Alert	×
PuTTY	Security Alert WARNING - POTENTIAL SECURITY BREACH! The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server. The new rsa2 key fingerprint is: ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fc: If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting. If you want to carry on connecting but without updating the cache, hit No. If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.	70
	Yes No Cancel Help	

Figure 1. PuTTy Security Alert

5. Enter the following user name and password.

```
User name: root
```

Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

6. At the command prompt, enter the following command:

cat /var/log/IBMApplianceType

The output may look like the following, depending on your configuration:

CVTx	HA	Lower	Server	(CVT2.2	HA	Lower	Server)
x366							

where *x* is the software version. In this example, the software level is TS7500 V2 R2 indicated by CVT2.2. The TS7500 should be at the v2.2 software level or greater as indicated by CVT2.2 above.

**Note:** If the output from the IBMApplianceType command reads CVT3.0, this actually indicates version 3.1.

- 7. If your system is at or above the 2.2 level, skip to step 8 on page 5. Otherwise, you must upgrade it to the 2.2 software level before continuing. Perform the following steps:
  - a. Ensure that SMcli can resolve hostname on the system (see "Ensuring that SMcli can resolve hostname" on page 6.

- b. Perform the configuration backup and diagnostic summary on the system (see "Configuration backup and diagnostic summary" on page 7).
- **c**. Locate a copy of the TS7520 2.2 Software Upgrade CD and CVT Console Installation Disk v2.2.3 that was included in this ship group.
- d. Go to the following Virtualization Engine patch download page: http://www-01.ibm.com/support/search.wss?rs=1174&tc=HW29K &q=ssg1\*&dc=D400&dtm
- e. Scroll down and click the link TS7520 Patch update-ve13821201.
- f. Scroll down and open the *TS7520 Patch update-ve13821201 Installation Instruction* for information on installing this software.

**Note:** You may have to uninstall a previous version of the VE console workstation in order to install a new version.

- g. After the upgrade is complete, continue to step 8.
- 8. If your system is at or above the 3.1 level, skip to step 9. If your system is *not* at or above the 3.1 level, you must upgrade it to the 3.1 software level before continuing. Perform the following steps:

**Note:** Remember that a result of CVT3.0 in step 6 on page 4 actually indicates level 3.1, meaning that you should skip to step 9.

- a. Ensure that SMcli can resolve hostname on the system (see "Ensuring that SMcli can resolve hostname" on page 6.
- b. Perform the configuration backup and diagnostic summary on the system (see "Configuration backup and diagnostic summary" on page 7).
- c. Locate the TS7520 3.1 Software Upgrade CD and the TS7500 Console Installation Disk Version 3.1.0 that were included in this ship group.
- d. Upgrade the system to the 3.1 software level (see Chapter 3, "Installing the TS7500 V3.1 Software Upgrade CD," on page 13).
- e. Using the *TS7500 User's Guide* that shipped with the system and the TS7500 Console Installation Disk Version 3.1.0, update the VE Console workstation.

**Note:** You may have to uninstall a previous version of the VE console workstation in order to install a new version.

- f. After the upgrade is complete, continue to step 9.
- **9**. If your system is at the 3.2 level, skip to step 10. Otherwise, you must upgrade it to the 3.2 software level before continuing. Perform the following steps:
  - a. Ensure that SMcli can resolve hostname on the system (see "Ensuring that SMcli can resolve hostname" on page 6.
  - b. Perform the configuration backup and diagnostic summary on the system (see "Configuration backup and diagnostic summary" on page 7).
  - c. Locate the TS7500 3.2 Software Upgrade CD and the TS7500 Console Installation Disk Version 3.2 that were included in this ship group.
  - d. Upgrade the system to the 3.2 software level (see Chapter 4, "Installing the TS7500 V3.2 Software Upgrade CD," on page 21).
- **10**. If your system is at the 3.2 software level, continue to Chapter 5, "Verifying that required patches have been installed," on page 31 to make sure all the available patches have been installed.
- 11. At the command prompt, enter exit to exit from PuTTY.

## Ensuring that SMcli can resolve hostname

#### About this task

Ensure that the SMcli can resolve your hostname by completing the following procedure.

**Note:** Refer to "Verifying correct software level" on page 3 to use PuTTY to log in to your system.

#### Procedure

1. At the command prompt, type the following command: nslookup *hostname* 

where *hostname* is the hostname specific to your configuration.

**Note:** You can use the hostname command to identify your hostname: #hostname

The output of this command varies for 2.x and 3.x systems, but will resemble the following:

```
#nslookup hostname
Server: 9.47.64.191
Address: 9.47.64.191 abc102.abc.beaverton.ibm.com
Name: hostname
Address: 10.0.0.1 hostname.abc.beaverton.ibm.com
```

You must correct your settings if your output **does not** include the following line (specific to your network environment):

Address: 10.0.0.1 *hostname*.abc.beaverton.ibm.com

You might also need to correct your settings if the command returns error output similar to the following:

```
#nslookup hostname
Server: 9.47.64.191
Address: 9.47.64.191 abc102.abc.beaverton.ibm.com
nslookup: getaddrinfo('hostname') failed: Name or service not known
```

2. Using a vi editor (or similar type of editor), correct your settings by adding the IP address and host name to your /etc/hosts file as seen below, where *hostname* is the hostname specific to your environment:

10.0.0.1 *hostname*.abc.beaverton.ibm.com

**Note:** You might need to type cd .. to change to the proper directory prior to entering the vi /etc/hosts command.

 At the command prompt, type the following command: SMcli -d

The output is similar to the following:

```
# SMcli -d
Base1-SV7Upper localhost hostname.abc.beaverton.ibm.com
Base1-SV7Lower localhost hostname.abc.beaverton.ibm.com
SMcli completed successfully.
```

In the event of an incorrect configuration, the error message resembles the following:

```
#SMcli -d
There are currently no storage subsystems listed in the configuration file. Add
storage subsystems using the Add Storage Subsystem option in the storage
management software or by command line.
SMcli failed.
```

You must correct your settings if your output looks different. Using a vi editor (or similar editor), correct your settings by editing the file /etc/hostsas seen below:

· where the loopback address is resolved to localhost

127.0.0.1 localhost

 where the system hostname (determined by the command hostname is resolved to the ip address of eth0 (determined by command ifconfig eth0) 10.0.0.1 hostname.abc.beaverton.ibm.com

**Note:** You might need to issue cd .. to change to the proper directory before typing the vi /etc/hosts command.

After modifying the /etc/hosts file, type the following command: SMcli -A

The output is similar to the following:

```
# SMcli -A
Starting auto discovery.....
Auto discovery operation successful.
SMcli completed successfully.
```

Type the following command to verify that your system is correctly configured:

SMcli -d

## Configuration backup and diagnostic summary

**Attention:** If the upgrade does not complete successfully, you will need a configuration backup and diagnostic summary for recovery operations. The configuration backup and diagnostic summary must be created **before** the software upgrade.

## Saving a configuration backup

To save a configuration backup, perform the following steps:

#### Procedure

- 1. Start the TS7500 Virtualization Engine management console (VE console) workstation by performing one of the following:
  - If there is a desktop shortcut for the **VE for Tape Console** application, double-click it.
  - If there is not a desktop shortcut for the VE for Tape Console application, click Start > Programs > IBM > VE for Tape > VE for Tape Console.

**Note:** This is the default installation location for the **VE for Tape Console** application. The location of the application might differ for you.

- 2. Double-click VE for Tape Servers to expand the server list.
- 3. Double-click any server icon.
- 4. In the VE for Tape User Login window, enter the following user name and password.

User name: vetapeuser Password: veuserpassword

Note: The user name and password are case-sensitive.

- 5. From the menu bar, select **Tools** > **Save Configuration**.
- 6. Select a location to save the file and give it a filename. Click the Save button.

Save					×
Save in:	Configura	tion	<b>~</b> 🔊	🤊 🛄 🖻	1
My Recent Documents					
Desktop					
My Documents					
My Computer					
My Network	File <u>n</u> ame:				Save
Places	Hiles of type:	All Files		×	Cancel

Figure 2. Save configuration

7. Wait for the configuration to save.



Figure 3. Saving configuration message

8. When the configuration save finishes, click **OK** on the pop-up window.

VE for Tape Console	X	
Saved configuration file successfully.	;	
OK		s750474

Figure 4. Configuration saved successfully

9. Do not exit the VE console.

## Saving a diagnostic summary

To save a diagnostic summary, perform the following steps:

#### Procedure

1. In the VE console, right-click the server icon and select **Diagnostic Summary Data**. See Figure 5 on page 10.

🖮 📻 zelda	Disconnect	
Ā 🚮	Administrators	
ф 📊	Change Password	
¢-	Key Management	
	Event Log	K
	Diagnostic Summary Dat	а
	License	
	System Maintenance	×
	Options	×
	Properties	

Figure 5. Diagnostic Summary Data selection

2. Click **Yes** in the pop-up window. The Diagnostic Summary Data Options window is displayed.

TotalSt	orage TS7500 V2 R1 Virtualization Engine for Tape Console 🛛 🔯
?	Diagnostic Summary Data is a diagnostic tool used by your Technical Support team to help solve system problems. Each file contains technical information about your server, such as server messages and a snapshot of your server's current configuration and environment. You should not create summary data unless you are requested to do so by your Technical Support representative. Do you still want to continue?
	Yes No

Figure 6. Choosing to create summary data

**3**. Click the ... button (or **Browse** when using the console v3.1) and choose a location to save the diagnostic data file.

**Note:** Select the location that you used for the configuration file in "Saving a configuration backup" on page 7

🚯 Diagnostic Summary Dat	ta Options 🛛 🕅
System Information	🔽 Loaded Kernel
VE for Tape Configuration	Network Configuration
SCSI Devices	Kernel Symbols
VE for Tape Virtual Device	Core File
Fibre Channel	Scan Physical Devices
Storage Subsystem	
🖂 Log File ————	
Specific Records Last 100 Date Range 06/06 VE for Tape Messages	Lines /2008 💌 to 08/07/2008 💌 s Only
Save As diagsum-080807-15	0335-build1382.tar.gz

Figure 7. Diagnostic Summary Data Options window

4. Click OK.

Look in:	Configura	tion	✓	📁 📰 🚍	
3	-				
My Recent Documents					
Desktop					
Deskop					
1					
My Documents					
My Computer					
My Network	File <u>n</u> ame:	zelda-diagsum-080807-150335-build138	2		)k
Places	Files of type:	.tar.gz & .tgz			ncel

Figure 8. Diagnostic data location

5. Without changing the defaults in the Diagnostic Summary Data Options window, click the **Create Diagnostic Summary Data** button. A dialog indicates that the diagnostic summary data is being collected.



Figure 9. Diagnostic summary data message

- 6. Wait for the data collection to complete. This might take several minutes. After the data collection is complete, the Diagnostic Summary Data Options window closes.
- 7. Select **File** > **Exit** to close the VE console
- 8. Return to the step following the one that sent you here.

## Chapter 3. Installing the TS7500 V3.1 Software Upgrade CD

To install the TS7500 V3.1 Software Upgrade CD, perform the following steps.

#### Before you begin

If you have reached this point without performing the steps in Chapter 2, "Prerequisites," on page 3, then you must perform them prior to continuing in this section.

- If you are upgrading from TS7500 V2.2 to TS7500 V3.2, you must first perform the installation procedures in this chapter to bring the system up to V3.1.
- If you are upgrading from TS7400 v2.2 to TS7500 v3.2, your system must be at TS7500 v3.1.

Refer to "Verifying correct software level" on page 3 to determine the current software level of your system.

#### Procedure

1. Obtain the TS7500 V3.1 Software Upgrade CD with part number PN 45E3010.

**Note:** If you have a TS7500 V3.1 software upgrade CD with a different part number, discard it. Use the disc included in this ship group instead.

- 2. Do one of the following, depending the number of installed servers.
  - If one server is installed, skip to step 8.
  - If two servers are installed, continue to step 3.
- **3**. Start the TS7500 Virtualization Engine management console (VE console) workstation by performing one of the following:
  - If there is a desktop shortcut for the VE for Tape Console application, double-click it.
  - If there is not a desktop shortcut for the VE for Tape Console application, click Start > Programs > IBM > VE for Tape > VE for Tape Console.

**Note:** This is the default installation location for the **VE for Tape Console** application. The location of the application might differ for you.

- 4. Double-click VE for Tape Servers to expand the server list.
- 5. Double-click any server icon.
- 6. In the VE for Tape User Login window, enter the following user name and password.

User name: vetapeuser

Password: veuserpassword

**Note:** The user name and password are case-sensitive.

- 7. If **two** servers are installed and failover has been configured, remove failover on both the lower and the upper servers (Appendix B, "Removing failover," on page 67).
- 8. Place the TS7500 V3.1 Software Upgrade CD (PN 45E3010) into the DVD drive of the lower server.
- 9. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.

10. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

- 11. Click Open.
- 12. Click Yes at the PuTTY Security Alert screen (see Figure 10).

PuTTY	Security Alert	
	WARNING - POTENTIAL SECURITY BREACH!         The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server.         The new rsa2 key fingerprint is:         ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:         If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting.         If you want to carry on connecting but without updating the cache, hit No.         If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.         Yes       No       Cancel       Help	fc:70

Figure 10. PuTTy Security Alert

13. Enter the following user name and password.

User name: root Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as

14. Verify that the VE services are running, by entering the following command at the command line:

ve status

documented.

All the services should indicate a status of RUNNING.

• If the VE services are **not** running, start them by entering the command ve start

and repeat this step.

- If the command cannot be found, exit PuTTY, log back into PuTTY and repeat this step.
- If the problem persists, contact your next level of support.

- 15. Mount the TS7500 V3.1 Software Upgrade CD by running the following command at the command prompt: mount /dev/hda /media/cdrom
- **16.** Run the Software Upgrade by running the following command at the command prompt:

/media/cdrom/SW\_CVT2\_to\_CVT3

**Attention:** The system checks for the amount of RAM available (with 4GB being the minimum). If the amount of RAM installed is inadequate, do not continue with installation until the minimum amount of RAM has been installed.

Note: The following messages are displayed:

<pre>zelda:~ # /media/cdrom/SW_CVT2_to_CVT3 Total Memory=3630008 Used=%used Free=2683032</pre>	
IBM VE for Tape Server v2.00 (Build 1382) Copyright (c) 2001-2007 FalconStor Software. All Rights	Reserved.
Starting VE for Tape Configuration Module Starting VE for Tape Base Module Starting VE for Tape HBA Module Starting VE for Tape SNMPD Module Starting VE for Tape Authentication Module Starting VE for Tape Server (Compression) Module Starting VE for Tape Server (HW Compression) Module Starting VE for Tape Server (Application Upcall) Module Starting VE for Tape Server (FSNBase) Module Starting VE for Tape Server (Upcall) Module Starting VE for Tape Server (Application) Module Starting VE for Tape Server (Application IOCTL) Module Starting VE for Tape Server (User) Starting VE for Tape Resources Starting VE for Tape Communication Module Starting VE for Tape Communication Module Starting VE for Tape Self Monitor Module Verify the Tape in the drive. WARNING: The CD will format the LUN0 and update OS. Do you want to continue (yes/no)? yes Starting SOFTWARE UPGRADE CVT3.0. /dew/emp: mumman: Invalid argument	[RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [RUNNING] [SKIPPED] [RUNNING] [RUNNING] [RUNNING] [RUNNING]
/dev/mem: munmap: invalid argument Save repository. Please wait The Repository saved. populate vtapes finished.	
********* * rebooting now with the CD * ******************************	

17. When prompted, type yes to proceed.

**Note:** During the upgrade process, status messages indicate the progress of installing various software packages. This is normal.

After the installation is complete and the CD ejects, the system reboots. You lose connectivity to the server as it reboots. Wait approximately 15 minutes before continuing.

- 18. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.
- **19**. Enter the IP address of the server you are connecting to where specified. The IP address should be on the top of the server.
- 20. Click Open.

21. Click Yes at the PuTTY Security Alert screen (see Figure 11).

ecurity Alert	×
WARNING - POTENTIAL SECURITY BREACH! The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server. The new rsa2 key fingerprint is: ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fi If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting. If you want to carry on connecting but without updating the cache, hit No. If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.	:70
	ecurity Alert WARNING - POTENTIAL SECURITY BREACH! The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server. The new rsa2 key fingerprint is: ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fi If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting. If you want to carry on connecting but without updating the cache, hit No. If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.

Figure 11. PuTTy Security Alert

22. Enter the following user name and password.

User name: root Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

23. Run the following command at the command prompt:

/var/tmp/set\_ve\_type

The server begins to finish updating itself and reboots again. You lose connection to the server as it reboots. Wait approximately 15 minutes before continuing.

Note: The following messages are displayed:

done
done

16

usr/share/fluxbox/init usr/share/fluxbox/keys usr/share/fluxbox/menu etc/ etc/X11/ etc/X11/xdm/ etc/X11/xdm/Xsetup etc/X11/XF86Config.x346 etc/X11/XF86Config.x366 etc/X11/XF86Config.x3755 configuring /etc/X11/XF86Config Adding SMClient to /usr/share/fluxbox/menu file Adding SMClient to /etc/X11/twm/system.twmrc file creating isadmin group Create ServiceAgent group and user Creating CVT3.0 userids Adding root dirs to vetapeservice path setting Setting default window manager in /etc/X11/xinit/xinitrc Modifying /etc/sudoers Creating /var/log/lastlog file done with mcp configuration Installing VE Console GUI. IBM TotalStorage TS7500 V3 R1 Virtualization Engine for Tape Console installation completed. Adding VE Console GUI to fluxbox menu. Verifying archive integrity... All good. Uncompressing Open iSCSI initiator 2.0-754..... Stopping iSCSI service... Uninstalling iscsi-initiator... Installing open iSCSI initiator 2.0-754... Adding swap. mke2fs 1.38 (30-Jun-2005) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) 488640 inodes, 976896 blocks 48844 blocks (5.00%) reserved for the super user First data block=0 30 block groups 32768 blocks per group, 32768 fragments per group 16288 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736 Writing inode tables: done Creating journal (16384 blocks): done Writing superblocks and filesystem accounting information: done This filesystem will be automatically checked every 36 mounts or 180 days, whichever comes first. Use tune2fs -c or -i to override. mke2fs 1.38 (30-Jun-2005) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) 727200 inodes, 1454080 blocks 72704 blocks (5.00%) reserved for the super user First data block=0 45 block groups 32768 blocks per group, 32768 fragments per group 16160 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736 Writing inode tables: done Creating journal (32768 blocks): done Writing superblocks and filesystem accounting information: done This filesystem will be automatically checked every 28 mounts or 180 days, whichever comes first. Use tune2fs -c or -i to override. Install IBM package for 3494 Library support. Adding 1mcpd 3494 port to /etc/services file... Adding lmcpd entry to /etc/inittab file... Finish to the installation Install IBM package for 3494 Library support done. Found xSeries 366. Change rotation policy of messages. Г ОК 1 Change rotation policy Shutting down syslog services done Starting syslog services done Change rotation policy of messages done. Starting the DS4100 agent. Running.. SMagent Started successfully [ OK ]

New storage subsystem was discovered at address 127.0.0.1.

SMcli completed successfully.

Starting SMmonitor. Cannot start SMmonitor because SMmonitor is already running. SMcli completed successfully. Starting the DS4100 agent done. Running PreferredPath, Please wait... Setting VE Engine type. Adding the application LUN. The number of cylinders for this disk is set to 26108. There is nothing wrong with that, but this is larger than 1024, and could in certain setups cause problems with: 1) software that runs at boot time (e.g., old versions of LILO) 2) booting and partitioning software from other OSs (e.g., DOS FDISK, OS/2 FDISK) mke2fs 1.38 (30-Jun-2005) 100+0 records in 100+0 records out 104857600 bytes (105 MB) copied, 0.480608 seconds, 218 MB/s Repository sdb. 100+0 records in 100+0 records out 104857600 bytes (105 MB) copied, 0.46492 seconds, 226 MB/s Mirror of the Repository sdo. Installing VE RPM package. Initialize IMA configuration file ..... [ OK ] Preparing... 1:ve International Business Machines, Inc. TotalStorage TS7500 V3 R1 Virtualization Engine for Tape Server v3.00 (Build 1465) Setup Copyright (c) 2001-2008 FalconStor Software. All Rights Reserved. Supported SCSI device(s) found: 48 TotalStorage TS7500 V3 R1 Virtualization Engine for Tape configuration created. International Business Machines, Inc. TotalStorage TS7500 V3 R1 Virtualization Engine for Tape installation completed Update VE Installing VE RPM package done. Configure the FC drivers. IBM VE for Tape Server v3.00 (Build 1465) Copyright (c) 2001-2008 FalconStor Software. All Rights Reserved. Starting VE for Tape SNMPD Module L 0K \_ Starting VE for Tape Authentication Module Starting VE for Tape Server (Compression) Module 0K -0K Starting VE for Tape Server (Hifn HW Compression) Module Starting VE for Tape Server (Application Upcall) Module 0K <sup>-</sup> 0K Starting VE for Tape Server (FSNBase) Module Starting VE for Tape Server (Upcall) Module 0K -0K Starting VE for Tape Server (Application) Module 0K Starting VE for Tape Server (Application IOCTL) Module 0K Starting VE for Tape Server (User) 0K -Starting VE for Tape Target Module 0K Starting VE for Tape Local Client (VBDI) 0K -Loading VE for Tape Resources OK . Starting VE for Tape Server IMA Daemon Starting VE for Tape Server RDE Daemon 0K -[ 0K ] Starting VE for Tape Communication Module Starting VE for Tape Logger Module 0K -0K Starting VE for Tape Self Monitor Module Г ОК 1 Please wait... virtualization of LUN 0.0.0.1 done. Making new kernel image.... Root device: /dev/sda1 (mounted on / as ext3) Module list: fsbase fsconf fshba tg3 bonding () Kernel image: /boot/vmlinuz-2.6.16.46-229-smp Initrd image: /boot/initrd-2.6.16.46-229-smp.img Shared libs: lib64/ld-2.4.so lib64/libacl.so.1.1.0 lib64/libattr.so.1.1.0 lib64/libblkid .so.1.0 lib64/libc-2.4.so lib64/libcom\_err.so.2.1 lib64/libd4/libdext2fs.so. 2.4 lib64/libhistory.so.5.1lib64/libncurses.so.5.5 lib64/libpthread-2.4.so lib64/libread line.so.5.1 lib64/librt-2.4.so lib64/libuuid.so.1.2lib64/libnss\_files-2.4.so lib64/libns s files.so.2 lib64/libgcc s.so lib64/libgcc s.so.1 Driver modules: scsi\_mod sd\_mod fsbase fsconf fshba tg3 bonding libata pata\_serverworks Filesvstem modules:

Including: initramfs fsck.ext3

23938 blocks

```
You may now have to update your boot loader configuration.
New kernel image made successfully [ OK ]
making a new kernel image done.
Adding VE auto start.
CVT3 SOFTWARE UPGRADE COMPLETED SUCCESSFULLY..
Rebooting...
```

- 24. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.
- 25. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

- 26. Click Open.
- 27. Click Yes at the PuTTY Security Alert screen (see Figure 12).

PuTTY S	Security Alert 🛛 🔀	
1	WARNING - POTENTIAL SECURITY BREACH!         The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server.         The new rsa2 key fingerprint is:         ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fc:70         If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting.         If you want to carry on connecting but without updating the cache, hit No.         If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.         Yes       No       Cancel       Help	15/50471

Figure 12. PuTTy Security Alert

28. Enter the following user name and password.

User name: root

Password: warning2use

Note: The user name and password are case-sensitive.

Attention: Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

**29**. At the command prompt, make sure all services are running by entering the following command:

ve status

Note: The following messages are displayed:

zelda:~ # ve status	
IBM VE for Tape Server v3.00 (Build 1465)	
Copyright (c) 2001-2008 FalconStor Software. All Rights Reserve	d.
Status of VE for Tape SNMPD Module	[RUNNING]
Status of VE for Tape Configuration Module	[RUNNING]
Status of VE for Tape Base Module	[RUNNING]
Status of VE for Tape HBA Module	[RUNNING]
Status of VE for Tape Authentication Module	[RUNNING]
Status of VE for Tape Server (Compression) Module	[RUNNING]
Status of VE for Tape Server (Hifn HW Compression) Module	[RUNNING]
Status of VE for Tape Server (Application Upcall) Module	[RUNNING]
Status of VE for Tape Server (FSNBase) Module	[RUNNING]
Status of VE for Tape Server (Upcall) Module	[RUNNING]
Status of VE for Tape Server (Application) Module	[RUNNING]
Status of VE for Tape Server (Application IOCTL) Module	[RUNNING]
Status of VE for Tape Server (User)	[RUNNING]
Status of VE for Tape Target Module	
Status of VE for Tape Server IMA Daemon	
Status of VE for Tape Server RDE Daemon	
Status of VE for Tape Communication Module	
Status of VE for Tape Logger Module	
Status of VE for Tape Local Client (VBDI)	
Status of VE for Tape Self Monitor Module	[RUNNING]
zelda:'~ #	

**Note:** If any status is not shown as [RUNNING], type ve restart at the command line. If the problem persists, contact IBM support

- **30**. Repeat step 14 on page 14 through step 29 on page 19 for all other servers in all base frames.
- **31**. Remove the CD from the drive.
- 32. Return to the step following the one that sent you here.

## Chapter 4. Installing the TS7500 V3.2 Software Upgrade CD

## Before you begin

If you are upgrading from TS7500 V2.2 to TS7500 V3.2, you must perform the installation procedures in Chapter 3, "Installing the TS7500 V3.1 Software Upgrade CD," on page 13 **before** performing the installation steps in this section. If you have reached this point without performing the steps in Chapter 2, "Prerequisites," on page 3, then you must perform them prior to continuing in this section. If you are upgrading from TS7400 v2.2 to TS7500 v3.2, your system must be at TS7500 v3.1. Refer to "Verifying correct software level" on page 3 to determine the current software level of your system.

## About this task

To install the TS7500 V3.2 Software Upgrade CD, perform the following steps:

#### Procedure

- 1. Obtain the TS7500 V3.2 Software Upgrade CD.
- 2. Do one of the following, depending the number of installed servers.
  - If one server is installed, skip to step 8.
  - If two servers are installed, continue to step 3.
- **3**. Start the TS7500 Virtualization Engine management console (VE console) workstation by performing one of the following:
  - If there is a desktop shortcut for the **VE for Tape Console** application, double-click it.
  - If there is not a desktop shortcut for the VE for Tape Console application, click Start > Programs > IBM > VE for Tape > VE for Tape Console.

**Note:** This is the default installation location for the **VE for Tape Console** application. The location of the application might differ for you.

- 4. Double-click VE for Tape Servers to expand the server list.
- 5. Double-click any server icon.
- 6. In the VE for Tape User Login window, enter the following user name and password.

User name: vetapeuser

Password: veuserpassword

Note: The user name and password are case-sensitive.

- 7. If **two** servers are installed and failover has been configured, remove failover on both the lower and the upper servers (see Appendix B, "Removing failover," on page 67).
- **8**. Place the TS7500 V3.2 Software Upgrade CD into the DVD drive of the lower server.
- 9. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.
- 10. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

11. Click Open.

12. Click Yes at the PuTTY Security Alert screen (see Figure 13).

8	WARNING - POTENTIAL SECURITY BREACH!
•	The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server. The new rsa2 key fingerprint is: ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fc:70 If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting. If you want to carry on connecting but without updating the cache, hit No.

Figure 13. PuTTy Security Alert

13. Enter the following user name and password.

User name: root Password: warning2use

Note: The user name and password are case-sensitive.

Attention: Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

14. Verify that the VE services are running, by entering the following command at the command line:

ve status

(If the command cannot be found, exit PuTTY, log back into PuTTY and repeat this step.) All the services should indicate a status of RUNNING. If the VE services are **not** running, start them by entering the command ve start

and repeat this step. If the problem persists, contact your next level of support.

- Mount the TS7500 V3.2 Software Upgrade CD by running the following command at the command prompt: mount /dev/hda /media/cdrom
- **16.** Run the Software Upgrade by running the following command at the command prompt:

/media/cdrom/SW\_CVT3.0\_to\_CVT3.2

**Attention:** The system checks for the amount of RAM available (with 4GB being the minimum). If the amount of RAM installed is inadequate, do not continue with installation until the minimum amount of RAM has been installed.

17. When prompted, type yes and press Enter. The following messages are displayed:

<pre>cvtras14:~ # mount /dev/hda /media/cdrom mount: block device /dev/hda is write-protected, mounting read cvtras14:~ # /media/cdrom/SW_CVT3.0_to_CVT3.2 Total Memory=4052292 Used=%used Free=3394196 WARNING: The CD will format the LUN0 and update OS. Do you want to continue (yes/no)? yes Starting SOFTWARE UPGRADE CVT3.2.</pre>	d-only
IBM VE for Tape Server v3.00 (Build 1465) Copyright (c) 2001-2008 FalconStor Software. All Rights Reserv	ved.
Stopping VE for Tape Self Monitor Module[Stopping VE for Tape Logger Module[Stopping VE for Tape Server RDE Daemon[Stopping VE for Tape Server IMA Daemon[Stopping VE for Tape Communication Module[Stopping VE for Tape Target Module[Stopping VE for Tape Communication Module[Stopping VE for Tape Target Module[Stopping VE for Tape Server (User)[Stopping VE for Tape Server (Application IOCTL) Module[Stopping VE for Tape Server (Application) Module[Stopping VE for Tape Server (Proceent (Proceen	0K ] 0K ]
IBM VE for Tape Server v3.00 (Build 1465) Copyright (c) 2001-2008 FalconStor Software. All Rights Reserv	ved.
Starting VE for Tape SNMPD Module [ Starting VE for Tape Authentication Module [ Starting VE for Tape Server (Compression) Module [ Starting VE for Tape Server (Hifn HW Compression) Module [ Starting VE for Tape Server (Application Upcall) Module [ Starting VE for Tape Server (Upcall) Module [ Starting VE for Tape Server (Upcall) Module [ Starting VE for Tape Server (Application IOCTL) Module [ Starting VE for Tape Server (Application IOCTL) Module [ Starting VE for Tape Server (User) [ Starting VE for Tape Server (User) [ Starting VE for Tape Server IMSDI [ Loading VE for Tape Resources [ Starting VE for Tape Server IMA Daemon [ Starting VE for Tape Server RDE Daemon [ Starting VE for Tape Server Module [ Starting VE for Tape Server Module [ Starting VE for Tape Server RDE Daemon [ Starting VE for Tape Server Module [ Starting VE for Tape Server RDE Daemon [ Starting VE for Tape Server Module [ Starting VE for Tape Server RDE Daemon [ Starting VE for Tape Ser	OK ] OK ] OK ] OK ] OK ] OK ] OK ] OK ]
******	

**Note:** During the upgrade process, status messages indicate the progress of installing various software packages. This is normal.

After the installation is complete and the CD ejects, the system reboots. You lose connectivity to the server as it reboots.

18. Wait approximately 15 minutes before continuing.

- 19. Remove the CD from the drive.
- **20**. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.
- 21. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

- 22. Click Open.
- 23. Click Yes at the PuTTY Security Alert screen (see Figure 14).

8	WARNING - POTENTIAL SECURITY BREACH!
•	The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server. The new rsa2 key fingerprint is: ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fc:70 If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting. If you want to carry on connecting but without updating the cache, hit No. If you want to abandon the connection completely, hit

Figure 14. PuTTy Security Alert

24. Enter the following user name and password.

User name: root Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

25. Run the following command at the command prompt:

/var/tmp/set\_ve\_type

The server begins to finish updating itself and reboots again. You lose connection to the server as it reboots. Wait approximately 15 minutes before continuing.

Note: The following messages are displayed:

Shutting down syslog services Starting syslog services Software Uprade CVT3.0 to CVT3.2. Copying, Please wait... done done
Start installation VE for Tape.... Installing SM packages. SMagent started. ls: /var/opt/SM/emwdata\*.bin: No such file or directory ls: /var/opt/SM/emwback\*.bin: No such file or directory SMmonitor started. Starting mcpConfig script. untarring files from mcpConfig.tgz: usr/ usr/share/ usr/share/fluxbox/ usr/share/fluxbox/init usr/share/fluxbox/keys usr/share/fluxbox/menu etc/ etc/X11/ etc/X11/xdm/ etc/X11/xdm/Xsetup etc/X11/XF86Config.x346 etc/X11/XF86Config.x366 etc/X11/XF86Config.x3755 configuring /etc/X11/XF86Config Adding SMClient to /usr/share/fluxbox/menu file Adding SMClient to /etc/X11/twm/system.twmrc file creating isadmin group Create ServiceAgent group and user Creating CVT3.2 userids Adding root dirs to vetapeservice path setting Setting default window manager in /etc/X11/xinit/xinitrc Modifying /etc/sudoers Creating /var/log/lastlog file done with mcp configuration Installing VE Console GUI. IBM TotalStorage TS7500 V3 R2 Virtualization Engine for Tape Console installation completed. Adding VE Console GUI to fluxbox menu. Verifying archive integrity... All good. Uncompressing Open iSCSI initiator 2.0-754..... Stopping iSCSI service... Uninstalling iscsi-initiator... Installing open iSCSI initiator 2.0-754... Adding swap. mke2fs 1.38 (30-Jun-2005) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) 488640 inodes, 976896 blocks 48844 blocks (5.00%) reserved for the super user First data block=0 Maximum filesystem blocks=1002438656 30 block groups 32768 blocks per group, 32768 fragments per group 16288 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736 Writing inode tables: done Creating journal (16384 blocks): done Writing superblocks and filesystem accounting information: done This filesystem will be automatically checked every 29 mounts or 180 days, whichever comes first. Use tune2fs -c or -i to override. mke2fs 1.38 (30-Jun-2005) Filesystem label= OS type: Linux Block size=4096 (log=2) Fragment size=4096 (log=2) 727200 inodes, 1454080 blocks 72704 blocks (5.00%) reserved for the super user First data block=0 Maximum filesystem blocks=1488977920 45 block groups 32768 blocks per group, 32768 fragments per group 16160 inodes per group Superblock backups stored on blocks: 32768, 98304, 163840, 229376, 294912, 819200, 884736 Writing inode tables: done Creating journal (32768 blocks): done Writing superblocks and filesystem accounting information: done This filesystem will be automatically checked every 36 mounts or 180 days, whichever comes first. Use tune2fs -c or -i to override. SMagent start.

Install IBM package for 3494 Library support.

Adding 1mcpd 3494 port to /etc/services file... Adding lmcpd entry to /etc/inittab file... Finish to the installation Install IBM package for 3494 Library support done. Found xSeries 366. Change rotation policy of messages. Change rotation policy [ OK ] Shutting down syslog services done Starting syslog services done Change rotation policy of messages done. Starting the DS4100 agent. Running... SMagent Started successfully [ OK ] New storage subsystem was discovered at address 127.0.0.1. SMcli completed successfully. Starting SMmonitor. Cannot start SMmonitor because SMmonitor is already running. SMcli completed successfully. Starting the DS4100 agent done. Running PreferredPath, Please wait... Setting VE Engine type. Adding the application LUN. The number of cylinders for this disk is set to 26108. There is nothing wrong with that, but this is larger than 1024, and could in certain setups cause problems with: 1) software that runs at boot time (e.g., old versions of LILO) 2) booting and partitioning software from other OSs (e.g., DOS FDISK, OS/2 FDISK) mke2fs 1.38 (30-Jun-2005) mount: special device /dev/mapper/application-part1 does not exist 25283 blocks 

 22203 Dicess

 10:04:40 up 21 min, 2 users, load average: 2.56, 1.82, 1.29

 USER

 TTY
 LOGIN@ IDLE

 JCPU
 PCPU

 WHAT

 root
 ttyl

 09:51
 13:28

 0.05s
 0.05s

 root
 pts/0

 09:54
 10:14

 12:42s
 0.00s /bin/sh ./set\_ve\_type

 USER root root Installing VE RPM package. Preparing... 1:ve International Business Machines, Inc. TotalStorage TS7500 V3 R2 Virtualization Engine for Tape Server v3.2.0 (Build 1507) Setup Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Supported SCSI device(s) found: 40 TotalStorage TS7500 V3 R2 Virtualization Engine for Tape configuration created. International Business Machines, Inc. TotalStorage TS7500 V3 R2 Virtualization Engine for Tape installation completed. Installing VE RPM package done. Configure the FC drivers. Update VE Upgrade CVT3.2 system, please wait ... Recover from 0:0:0:1 and 1:0:0:2. Recover from 0:0:0:1. NEW\_HOSTNAME is cvtras14. International Business Machines, Inc. TotalStorage TS7500 V3 R2 Virtualization Engine for Tape Server v3.2.0 (Build 1507) Setup Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Supported SCSI device(s) found: 40 IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (Compression) Module Г ОК 1 IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (Hifn HW Compression) Module [ OK ] IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (Application Upcall) Module [ OK ] IBM VE for Tape Server v3.2.0 (Build 1507)

Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (FSNBase) Module [ OK ] IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (Upcall) Module [ OK ] IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Starting VE for Tape Server (Application) Module Starting VE for Tape Server (Application IOCTL) Module 0K ] Starting VE for Tape Server (User) 0K IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved. Stopping VE for Tape Self Monitor Module [STOPPED] Stopping VE for Tape Logger Module [STOPPED] Stopping VE for Tape Server RDE Daemon [STOPPED] Stopping VE for Tape Server IMA Daemon [STOPPED] Stopping VE for Tape Communication Module [STOPPED] Stopping VE for Tape Target Module [STOPPED] Stopping VE for Tape Local Client (VBDI) [STOPPED] Stopping VE for Tape Server (User) 0K Stopping VE for Tape Server (Application IOCTL) Module 0K Stopping VE for Tape Server (Application) Module [ 0K Stopping VE for Tape Server (Upcall) Module 0K Stopping VE for Tape Server (FSNBase) Module Γ 0K Stopping VE for Tape Server (Application Upcall) Module 0K Stopping VE for Tape Server (Compression) Module 0K Stopping VE for Tape Server (Hifn HW Compression) Module 0K Stopping VE for Tape Authentication Module [STOPPED] Stopping VE for Tape SNMPD Module [STOPPED] Recovering WWPN. Recovered Persistence Binding Making a new kernel image. Root device: /dev/mapper/root-part1 (mounted on / as ext3) Module list: fsbase fsconf fshba tg3 bonding dm-multipath dm-rdac dm-mod dm-snapshot dm-round-robin dm-emc ( dm-mod dm-snapshot) Kernel image: /boot/vmlinuz-2.6.16.46-229-smp Initrd image: /boot/initrd-2.6.16.46-229-smp.img Shared libs: lib64/ld-2.4.so lib64/libacl.so.1.1.0 lib64/libattr.so.1.1.0 lib64/ libblkid.so.1.0 lib64/libc-2.4.so lib64/libcom\_err.so.2.1 lib64/libdevmapper.so.1.02 lib64/ libdl-2.4.so lib64/libext2fs.so.2.4 lib64/libhistory.so.5.1 lib64/libncurses.so.5.5 lib64/ libpthread-2.4.so lib64/libreadline.so.5.1 lib64/librt-2.4.so lib64/libsysfs.so.1.0.3 lib64/ libuuid.so.1.2 lib64/libnss\_files-2.4.so lib64/libnss\_files.so.2 lib64/libgcc\_s.so lib64/ libgcc\_s.so.1 Driver modules: scsi\_mod sd\_mod fsbase fsconf fshba tg3 bonding dm-mod dm-multipath dm-rdac dm-snapshot dm-round-robin dm-emc libata pata\_serverworks Filesystem modules: initramfs dm/mpath fsck.ext3 Including: 25284 blocks You may now have to update your boot loader configuration. New kernel image made successfully Г ОК 1 Making a new kernel image done. Adding VE auto start. CVT3.2 SOFTWARE UPGRADE COMPLETED SUCCESSFULLY.. VE UPGRADE COMPLETED SUCCESSFULLY Please wait, system will reboot cvtras14:/var/tmp # Broadcast message from root (pts/0) (Wed Aug 19 10:09:49 2009): The system is going down for reboot NOW! 26. Wait approximately 15 minutes before continuing. 27. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**. 28. Enter the IP address of the server you are connecting to where specified.

Note: The IP address should be on the top of the server.

- 29. Click Open.
- 30. Click Yes at the PuTTY Security Alert screen (see Figure 15 on page 28).

PuTTY	Security Alert 🛛 🔀
	WARNING - POTENTIAL SECURITY BREACH!         The server's host key does not match the one PuTTY has cached in the registry. This means that either the server administrator has changed the host key, or you have actually connected to another computer pretending to be the server.         The new rsa2 key fingerprint is:         ssh-rsa 1024 df:02:88:6d:c1:55:3d:05:4f:00:c9:02:ed:0e:fc:70         If you were expecting this change and trust the new key, hit Yes to update PuTTY's cache and continue connecting.         If you want to carry on connecting but without updating the cache, hit No.         If you want to abandon the connection completely, hit Cancel. Hitting Cancel is the ONLY guaranteed safe choice.         Yes       No       Cancel       Help

Figure 15. PuTTy Security Alert

31. Enter the following user name and password.

User name: root

Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

**32**. At the command prompt, make sure all services are running by entering the following command:

ve status

Note: The following messages are displayed:

IBM VE for Tape Server v3.2.0 (Build 1507) Copyright (c) 2003-2009 FalconStor Software. All Rights Reserved.Status of VE for Tape SNMPD Module[RUNNING] Status of VE for Tape Configuration Module[RUNNING] Status of VE for Tape Base ModuleStatus of VE for Tape Base Module[RUNNING] Status of VE for Tape HBA Module[RUNNING] Status of VE for Tape Authentication ModuleStatus of VE for Tape Server (Compression) Module[RUNNING] Status of VE for Tape Server (Hifn HW Compression) Module[RUNNING] Status of VE for Tape Server (Application Upcall) ModuleStatus of VE for Tape Server (FSNBase) Module[RUNNING] Status of VE for Tape Server (Upcall) Module[RUNNING] Status of VE for Tape Server (Upcall) Module
Status of VE for Tape SNMPD Module[RUNNING]Status of VE for Tape Configuration Module[RUNNING]Status of VE for Tape Base Module[RUNNING]Status of VE for Tape HBA Module[RUNNING]Status of VE for Tape Authentication Module[RUNNING]Status of VE for Tape Server (Compression) Module[RUNNING]Status of VE for Tape Server (Hifn HW Compression) Module[RUNNING]Status of VE for Tape Server (Application Upcall) Module[RUNNING]Status of VE for Tape Server (FSNBase) Module[RUNNING]Status of VE for Tape Server (Upcall) Module[RUNNING]Status of VE for Tape Server (Application) Module[RUNNING]Status of VE for Tape Server (Upcall) Module[RUNNING]Status of VE for Tape Server (Application) Module[RUNNING]
Status of VE for Tape Server (Application TOULE) Module       [RUNNING]         Status of VE for Tape Server (User)       [RUNNING]         Status of VE for Tape Server IMA Daemon       [RUNNING]         Status of VE for Tape Server RDE Daemon       [RUNNING]         Status of VE for Tape Communication Module       [RUNNING]         Status of VE for Tape Logger Module       [RUNNING]         Status of VE for Tape Logger Module       [RUNNING]         Status of VE for Tape Logger Module       [RUNNING]         Status of VE for Tape Server RDE Daemon       [RUNNING]         Status of VE for Tape Communication Module       [RUNNING]         Status of VE for Tape Logger Module       [RUNNING]         Status of VE for Tape Self Monitor Module       [RUNNING]

**Note:** If any status is not shown as running, issue a ve restart command at the command line. If the problem persists, contact your next level of support.

- **33**. Repeat steps 14 on page 22 through 30 on page 27 for all other servers in all base frames.
- **34**. Using the *IBM Virtualization Engine for Tape TS7500 User's Guide* that shipped with the system and the TS7500 Console Installation Disk Version 3.2, update the VE Console workstation.

**Note:** You might have to uninstall a previous version of the VE console workstation in order to install a new version.

**35**. Create a new virtual library to update the repository to the CVT3.2 version. This new library can be deleted if not needed.

L

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**36**. Continue to Chapter 5, "Verifying that required patches have been installed," on page 31 to verify and download, if needed, the latest software service updates (patches) from the IBM Support Web site.

# Chapter 5. Verifying that required patches have been installed

Use the following procedure to verify that **all** the required patches have been installed on each server (both the upper and lower server if in an HA environment). It is **critical and mandatory** that you install all the latest patches after the software upgrade has been performed and prior to operating the virtualization engine(s).

## About this task

This is a very important step and should not be ignored. All steps should be performed immediately after the software upgrade has been completed.

#### Procedure

- 1. At the VE console workstation, open a Web browser window.
- 2. In the Web browser address bar, type the following address: http://www.ibm.com/support
- **3**. In the **Search all of support** search box, type T\$7530 and click the arrow. A list of search results is displayed.
- 4. In the **Document type** menu, select **Downloads and drivers** and click the arrow.
- 5. In the **Versions** menu, select **3.2** and click the arrow. A list of downloads is displayed.
- 6. Write down all the patch numbers present. Example: Patch update-ve146501.

**Note:** Patches are not hardware dependent, meaning that the TS7500 you are working on could be using TS7520 hardware but running V3 software.

- 7. Start the TS7500 Virtualization Engine management console (VE console) workstation by performing one of the following:
  - If there is a desktop shortcut for the VE for Tape Console application, double-click it.
  - If there is not a desktop shortcut for the VE for Tape Console application, click Start > Programs > IBM > VE for Tape > VE for Tape Console.

**Note:** This is the default installation location for the **VE for Tape Console** application. The location of the application might differ for you.

- 8. Double-click VE for Tape Servers to expand the server list.
- 9. Double-click any server icon.
- **10.** In the VE for Tape User Login window, enter the following user name and password.

User name: vetapeuser

**Password:** veuserpassword

Note: The user name and password are case-sensitive.

11. Click the **Version Info** tab to confirm what patches are installed on the servers. There should be a Version Info entry stating **update-ve***xxxxxx*, where *xxxxxxxx* is the patch number (see Figure 16 on page 32).

**Note:** You might have to scroll through the log in order to find these entries depending on the configuration of the TS7500.



## Server Version:

IBM VE for Tape Server v3.00 (Build 1465.0.01)

Console Version:

IBM VE for Tape v3.00 (Build 1465)

# Patches:

12Sep08\_140946 Install update-ve146501, patch i using LTO4 drive, reported density and max block 12Sep08\_141550 Install update-ve146502, patch i jobs, and a function to move a tape from the virtua any status

### Figure 16. Confirming installed patches

**12**. Verify that the patches are present. If any patches are not present, install them. Refer to the *IBM Virtualization Engine for Tape TS7500 User's Guide* that came with your system for instructions on how to install patches.

**Note:** Always check the IBM Systems Support Web site (http:// www.ibm.com/support) for the latest patches available. To receive automatic notification of all new patches, you can subscribe to the **My notifications** feature of the site (see Figure 17 on page 33).

Select your product		Sup	port & downloads	
Fields marked with an asterisk (*) are required.		Ŷ	Download	C Register
Product family: *		8	Troubleshoot	
Tape systems	<b>v</b>	8	Search	Stay informed
Product:			Documentation	Subscribe to receive
157530 Virtualization Engine	× (	83	Forums & Communities	Learn more
→ All products	Go	Ô	Plan & upgrades	My notifications

Figure 17. Subscribing to My notifications

13. Continue to "Updating Storage Manager on the VE console workstation" on page 35.

# **Chapter 6. Firmware**

This chapter provides procedures for updating server and controller firmware, and for verifying firmware levels after an update.

# Updating Storage Manager on the VE console workstation

## About this task

If the Storage Manager (on the workstation where your VE console application is installed) is not at level 10.50.35.19 for V3R2, then you must perform the steps outlined in this chapter.

### Procedure

- 1. To identify the level of your Storage Manager, do the following:
  - a. From the VE Console workstation, select Start > Programs > Storage Manager 10 Client > Storage Manager 10 Client.
  - b. Select Close (see Figure 18 on page 36).

## Enterprise Management Window Task Assistant

IBM.

#### What are the Enterprise and Subsystem Management Windows?

#### Which Task Would You Like To Perform?

The Task Assistant helps you complete tasks quickly and easily within the Enterprise Management Window. Please choose a task:

×

	Initial Setup	^
	Add Storage Subsystems You must add a storage subsystem to the management domain before it can be configured or managed.	
	Name/Rename Storage Subsystems Naming a storage subsystem and providing a comment makes it easy to find the array within the management domain or determine its physical location.	
	Configure Alerts Configuring alerts allows you to receive email or SNMP notification whenever there are critical problems on a storage subsystem.	
	Subsystem Management:	
	Manage a Storage Subsystem Launch the Subsystem Management Window to perform configuration tasks suc as logical drive creation and bot share assignment on a storage subsystem you	~
1	Don't show the task assistant at start-up again Note: To display the Task Assistant again, select ∀iew >> Task Assistant.	
	Close	

Figure 18. Enterprise Management Window Task Assistant

- c. Select Help > About.
- 2. Click OK.
- **3.** If the Storage Manager is at level 10.50.x.x for V3R2, go to step 22 on page 44. Otherwise, continue to step 4.
- 4. Uninstall the current version of Storage Manager by performing the following steps:
  - a. Click Start > Settings > Control Panel
  - b. Double click Add or Remove Programs.
  - c. Locate and click IBM DS4000/FastT Storage Manager Host Software version aa.bb.cc.dd.
  - d. Click Change/Remove.
  - e. Click Next.
  - f. Click Complete Uninstall.
  - g. Click Next.

- h. Click Done.
- i. Close the Add or Remove Programs and Control Panel windows.
- 5. Load the Virtualization Engine TS7500 Base Firmware Update Disk into the CD-ROM drive of the workstation with the VE console application.

**Note:** If you have a previous version of the TS7500 firmware CD, discard it. Use the disc included in this ship group instead.

- 6. If the installation wizard does not start automatically, go to the x:\Tools/TS7500-disks\StorageManagerWin\ ibm\_sw\_ds4kfc\_10.50.xx.19\_windows\_int1386\WS03WS08\_10p50\_IA32\Windows folder on the CD and double-click SMIA-WS32-10.50.35.19.exe. The Storage Manager Installation wizard starts.
- 7. Select Language and click OK.
- 8. In the Introduction page of the wizard, click Next.



Figure 19. Storage Manager installation wizard Welcome page

9. In the Copyright Statement page of the wizard, click Next.



Figure 20. Storage Manager installation wizard Copyright Statement page

 In the License Agreement page of the wizard, click I accept the terms of the License Agreement and then click Next.



Figure 21. Storage Manager installation wizard License Agreement page

11. In the Choose Install Folder page of the wizard, click Next.



Figure 22. Storage Manager installation wizard Choose Install Folder page

**12.** In the Select Installation Type page of the wizard, click **Management Station** and then click **Next**.



Figure 23. Storage Manager installation wizard Select Installation Type page

 In the Automatically Start Monitor? page of the wizard, click Do not Automatically Start the Monitor and then click Next.



Figure 24. Storage Manager installation wizard Automatically Start Monitor? page

14. In the Pre-Installation Summary page of the wizard, click Install.



Figure 25. Storage Manager installation wizard Pre-Installation Summary page

15. In the Install Complete page of the wizard, click **Done**.



Figure 26. Storage Manager installation wizard Install Complete page

- **16.** Eject the Virtualization Engine Base Firmware Update Disk from the workstation's CD-ROM drive.
- Start the Storage Manager application by clicking Start > Programs > Storage Manager 10 Client > DS Storage Manager 10 Client.
- 18. In the Select Addition Method window, click Manual: and then click OK.

🌐 Select Addition Method	×
The Enterprise Management Window is not configured to monitor or storage subsystems. Choose a method for the addition of storage	r manage any subsystems:
O Automatic:	
Discovers storage subsystems automatically within the local s The discovery process may take several minutes to complete.	ub-network.
• Manual:	
Add storage subsystems by host or controller IP address or ho option is typically used only to add a storage subsystem that is local sub-network.	ost name. This outside the
OK Cancel <u>H</u> elp	10040

Figure 27. Select Addition Method window

- 19. In the Add Storage Subsystem window:
  - a. Click In-band management:.
  - b. In the **Host:** field, enter the eth0 IP address (the IP address of Ethernet port 1) of the Server to be added.

Note: The IP address can be found on a label on the top of the server.

c. Click Add.

🕀 Add Storage Subsystem 🛛 🛛 🔯	
You can add storage arays to your management domain in two different ways (Out-of-band or In-band). Out-of-band management is done through each controller's Ethernet connection. In-band management is done through a host running appropriate host software.	
What are in-band and out-of-band management connections?	
O Out-of-band management:	
Note: If you are adding an out-of-band controller for a partially-managed storage subsystem, please enter it in the first field regardless of whether it is the first or second controller. <u>Adding controllers with more than one Ethernet port</u> <u>First Controller (host name or IP address)</u> :	
Segond Controller (host name or IP address):	
<ul> <li>In-band management: Host (host name or IP address):</li> </ul>	
192.168.0.1	
Add Cancel Help	

Figure 28. Add Storage Subsystem window

20. In the Storage Subsystem Added window, perform one of the following:

- Click **Yes** and repeat step 19 on page 41 if other servers are present.
- Click **No** if there are no other servers present or all servers that are present have been added



Figure 29. Storage Subsystem Added window

21. If the Enterprise Management Window Task Assistant window is open, click **Close**.

#### Enterprise Management Window Task Assistant

IBM.

#### What are the Enterprise and Subsystem Management Windows?

#### Which Task Would You Like To Perform?

The Task Assistant helps you complete tasks quickly and easily within the Enterprise Management Window. Please choose a task:

×

Initial Setup:	^
Add Storage Subsystems You must add a storage subsystem to the management domain before it can be configured or managed.	
Name/Rename Storage Subsystems Naming a storage subsystem and providing a comment makes it easy to find the array within the management domain or determine its physical location.	
Configure Alerts Configuring alerts allows you to receive email or SNMP notification whenever there are critical problems on a storage subsystem.	
Subsystem Management:	
Manage a Storage Subsystem Launch the Subsystem Management Window to perform configuration tasks suc as logical drive creation and bot spare assignment on a storage subsystem you	~
Don't show the task assistant at start-up again Note: To display the Task Assistant again, select View >> Task Assistant.	
Close	

Figure 30. Enterprise Management Window Task Assistant

22. After Storage Manager has been verified or updated to the required level on the VE console workstation, continue to "Updating firmware on the servers."

## Updating firmware on the servers

#### Before you begin

Before starting the firmware upgrade procedure, make sure that:

- The system is at the TS7500 V3 R2 software level
- All defined drives in the application are offline.
- All replication processes have been stopped.

**Attention:** Do not attempt to update the firmware on the servers unless the system is at the TS7500 V3 R2 software level. Doing so poses significant risk to the product and your data.

## Procedure

- 1. Obtain the TS7500 Base Firmware Update Disk that shipped with this ship group.
- 2. Do one of the following, depending the number of installed servers.
  - If one server is installed, skip to step 8.
  - If two servers are installed, continue to step 3.
- **3**. Start the TS7500 Virtualization Engine management console (VE console) workstation by performing one of the following:
  - If there is a desktop shortcut for the VE for Tape Console application, double-click it.
  - If there is not a desktop shortcut for the VE for Tape Console application, click **Start** > **Programs** > **IBM** > **VE** for **Tape** > **VE** for **Tape** Console.

**Note:** This is the default installation location for the VE for Tape Console application. The location of the application might differ for you.

- 4. Double-click VE for Tape Servers to expand the server list.
- 5. Double-click any server icon. The VE for Tape User Login dialog is displayed.
- 6. Enter the following user name and password.

User name: root

Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

- 7. If **two** servers are installed and failover has been configured, remove failover on both the lower and the upper servers (Appendix B, "Removing failover," on page 67).
- 8. Insert the Virtualization Engine Base Firmware Update Disk into the DVD-ROM drive of the first TS7500 Server.
- 9. Log into PuTTY by selecting **Start** > **Programs** > **PuTTY** > **PuTTY**.
- 10. Enter the IP address of the first TS7500 server where specified.
- 11. Select Open.
- 12. Enter the following user name and password.

User name: root

Password: warning2use

**Note:** The user name and password are case-sensitive. **Attention:** Improper use of this password and command poses significant risk to the product and your data. Use this password and command **only** as documented.

**13**. In the PuTTY window, type the following command: reboot The Virtualization Engine Base Firmware Update Disk automatically updates the firmware on the system reboot. You lose connection to the server as it reboots.

**Note:** If the Virtualization Engine Base Firmware Update Disk ejects, remove the firmware CD from the DVD-ROM and manually power cycle the server by pressing and holding the white recessed power-control button on the server operator panel until the power-on LED is flashing. When the power-on LED is flashing, press the white recessed power-control button again to power on the server. You do not need to hold the button to restart the server.

- 14. Wait approximately 15 minutes before continuing.
- **15.** Repeat steps 8 on page 45 through 14 for each server present, placing the Virtualization Engine Base Firmware Update Disk in the server being updated.
- **16**. After the firmware has been verified or updated to the required level on the servers, continue to "Updating the SV6 controller firmware level" on page 53.

## Identifying the controller firmware level

To determine the firmware level of your controllers, perform the following:

#### Procedure

- If the Storage Manager application is not already running, start it by clicking Start > Programs > DS Storage Manager 10 Client > Storage Manager 10 Client
- 2. If the Select Addition Method dialog is displayed, perform the following steps. Otherwise, skip to step 3 on page 49.

Select Addition Method	
	IBM.
No storage subsystems have been discovered or added. Choose a me the addition of storage subsystems:	ethod for
O Automatic:	
Discovers storage subsystems automatically within the local sub- The discovery process may take several minutes to complete.	etwork.
• Manual:	
Add storage subsystems by host or controller IP address or host r option is typically used only to add a storage subsystem that is ou local sub-network.	name. This Itside the
OK Cancel	

Figure 31. Select Addition Method dialog

a. In the Select Addition Method dialog, select Manual:. Click OK.

(iii) Select Addition Method	1
The Enterprise Management Window is not configured to monitor or manage any storage subsystems. Choose a method for the addition of storage subsystems:	
C Automatic:	
Discovers storage subsystems automatically within the local sub-network. The discovery process may take several minutes to complete.	
Manual:	
Add storage subsystems by host or controller IP address or host name. This option is typically used only to add a storage subsystem that is outside the local sub-network.	
OK Cancel <u>H</u> elp	s750048

Figure 32. Select Addition Method dialog

b. In the Add Storage Subsystem dialog, select In-band management:.

Hadd Storage Subsystem	
You can add storage arays to your management doma ways (Out-of-band or In-band). Out-of-band managem through each controller's Ethernet connection. In-band done through a host running appropriate host software	in in two different ent is done management is e.
What are in-band and out-of-band management conne	ections?
O Out-of-band management:	
Note: If you are adding an out-of-band controller for partially-managed storage subsystem, please ente regardless of whether it is the first or second con	or a r it in the first field troller.
Eirst Controller (host name or IP address):	<u></u>
Second Controller (host name or IP address):	
<ul> <li>In-band management:</li> <li>Host (host name or IP address):</li> </ul>	
192.168.0.1	
Add Cancel Help	]

Figure 33. Add Storage Subsystem dialog

**c**. In the **Host:** field, enter the eth0 IP address (the IP address of Ethernet port 1) of the Server to be added.

Note: The IP address can be found on a label on the top of the server.

- d. Click Add.
- e. In the Storage Subsystem Added dialog, perform one of the following:
  - Click Yes and repeat step 2 on page 46 if other servers are present.
  - Click **No** if no other servers are present or all servers have been added.

📴 Stora	age Subsystem Added	
		IBM.
٩	The storage subsystem was added successfully. Would you like to add another?	

Figure 34. Storage Subsystem Added dialog

- f. If the Enterprise Management Window Task Assistant window is open, click **Close**.
- **3**. If there are multiple subsystems on your network, perform the following steps to select the one you want:
  - a. Right-click a subsystem.
  - b. Select Locate Storage Subsystem. After a few seconds, the Global Locate LED 3 comes on.
  - c. Verify that you have selected the right subsystem.
  - d. Select **OK** to turn off the LED.



Figure 35. Global Locate LED

- 4. Double-click the subsystem you selected.
- 5. In the Subsystem Management Window Task Assistant dialog, determine whether the subsystem is in an optimal state or needs attention. Record this information for use in step 11 on page 51.



Figure 36. Subsystem Management Window Task Assistant dialog

- 6. Select Close.
- 7. Right-click controller A and select Properties



Figure 37. Selecting Properties

- 8. On a piece of paper, record the firmware level of the controller.
- 9. Select Close.
- 10. Repeat steps 5 on page 49 through 9 for controller B.
- 11. If the subsystem was in an optimal state during step 5 on page 49, skip to step 12 on page 52. If the subsystem needed attention, perform the following steps:
  - a. Select Storage Subsystem > Recovery Guru

🗄 Base1-SV6Upper - IBM System Storage DS4000/FAStT Storage Manager 9 (Subsystem Management)	
Rorage Subsystem View Mappings Array Logical Drive Controller Drive Advanced Help	7554
Yiew Hat W	1911.
Locate	
Configuration  Physical	
Premium Features SV6Upper Enclosure 85 - SATA Sate Remote Mirroring Figure 30 - SATA Sate (front)	
Monitor Performance	
Change (back)	
Set Controller Clocks	
Manage Enclosure Alarm B	
Rename	
Set Password	
Exit	

Figure 38. Selecting Recovery Guru

b. Perform the recommended recovery steps to fix the problems.

**Note:** If, after you perform the recovery steps, the subsystem still needs attention, contact IBM service at www.ibm.com/planetwide. The machine type is 3955 model SV6 or SX6 and the serial number is found on the drawer label. You must eliminate *all* storage fault conditions before you continue with the SV6 firmware update.

- c. If the state of the subsystem becomes optimal, go to step 12.
- Exit from the Subsystem Management window by selecting Storage Subsystem > Exit.
- **13**. Repeat steps 3 on page 49 through 12 for each controller that is connected to the system you upgraded or is running V3.2 code.

### What to do next

- If the controller firmware level you recorded in step 8 on page 51 is 7.36, go to "Updating the SX6 expansion firmware level" on page 60.
- If the controller firmware level in not at 7.36, go to "Updating the SV6 controller firmware level" on page 53.

## Updating the SV6 controller firmware level

For controller firmware level 6.x, you must update the controller firmware with the controller firmware upgrade utility.

### Before you begin

Before you start, make sure that you have an adequate maintenance window to do the upgrade. The upgrade utility provides an estimate of the time required to upgrade your specific configuration. The microcode of the DS4000 storage server controllers consists of two packages:

- Controller firmware
- NVSRAM

The NVSRAM is similar to the settings in the BIOS of a host system. The firmware and the NVSRAM are closely tied to each other and are therefore not independent. Be sure to install the correct combination of the two packages.

**Important:** Before upgrading the storage server firmware and NVSRAM, make sure that the system is in an optimal state. If not, run the Recovery Guru to diagnose and fix the problem before you proceed with the upgrade. Always read the readme before upgrading any firmware to check for compatibility with your system.

## About this task

To update the controller firmware with the firmware upgrade utility, perform the following steps.

### Procedure

- 1. If the firmware upgrade utility is not already installed, perform the following steps.
  - **a**. Load the Virtualization Engine TS7500 Base Firmware Update Disk into the CD-ROM drive of the workstation with the VE console application.

**Note:** If you have a previous version of the software upgrade CD with a different part number, discard it. Use the disc included in this ship group instead.

- b. If the CD does not automatically run, go to **My computer** and double click the CD-ROM drive where the CD was inserted.
- c. Open the following folder: Tools\TS7500-Disks\StorageManagerWin\ ibm\_sw\_ds4kfc\_10.50.xx.19\_windows\_int1386\WS03WS08\_10p50\_IA32\ Controller\_Firmware\_Upgrade\_Tool
- d. Double-click the file SMFWUpgInstaller-WS32-10.36.35.10.exe and follow the prompts. The firmware upgrade utility is installed.
- e. Do not remove the firmware CD from the CD-ROM
- To start the upgrade utility program, select Start > Programs > Storage Manager 10 Firmware Upgrade > Storage Manager 10 Firmware Upgrade. A dialog similar to the one shown in Figure 39 on page 54 is displayed.



Figure 39. Firmware upgrade utility

- **3**. If the Select Addition Method dialog is not automatically displayed as shown in Figure 39, click **Add...**.
- 4. Select Manual: and click OK.
- 5. In the Add Storage Subsystem dialog, perform the following steps:
  - a. Click In-band management:.
  - b. In the **Host:** field, enter the eth0 IP address (the IP address of Ethernet port 1) of the Server.

Note: The IP address can be found on a label on the top of the server.

- c. Click Add.
- 6. In the Storage Subsystem Added dialog, perform one of the following:
  - Click Yes and repeat step 5 if other servers are present.
  - Click No if no other servers are present or all servers have been added

**Note:** You can add multiple DS4000 systems in the upgrade utility. Install one first, and then, if the operation was successful, continue with others in a single pass. The utility program can download and activate firmware images to the same DS4000 model and controller type in a parallel fashion.

7. If prompted for a password, type warning2use.

**Attention:** Improper use of these commands and passwords poses significant risk to the product and your data. Use them only as documented.

🙆 Enter	Password - Base1-SV6Upper	
		IBM.
<b>}</b>	This operation requires the storage subsystem password. <b>Storage Subsystem: Base1-SV6Upper</b>	
<u>E</u> nter pa	oK Cancel	

Figure 40. Entering password

8. Click OK.

**Note:** You will be prompted to enter a password for each storage subsystem present.

If multiple systems are added or automatically discovered, they are presented in the graphical interface and sorted by controller types and grouped as upgradeable or non-upgradeable, as shown in Figure 41. After the DS4000 system is added successfully, the upgrade utility performs an automatic check for any non-optimal condition that would prevent the upgrade from succeeding.

orage Subsystem	Name	Status	Туре	Current Version	Pending Version
Add	D54100	🚫 Not upgradeable	2822/2822	06.16.16.00	06.16.16.00
C Refresh	D54300T	🚫 Not upgradeable	2882/2882	06.16.16.00	06.16.16.00
	DS4500	🚫 Not upgradeable	5884/5884	06.16.16.00	06.16.16.00
Yiew Log	D54800	诸 Upgradeable: Needs	6091/6091	06.16.16.00	None
	D54800 EXP810	👚 Upgradeable: Optimal	6091/6091	06.16.16.00	None
	DS4700	🕆 Upgradeable: Optimal	3994/3994	06.23.05.00	Non
Download					
Activate					

Figure 41. Firmware upgrade utility: Status window

- **9**. Check the status detected by the upgrade utility for your specific DS4000 to upgrade. The status column shows different values depending on the version found in the storage system and the system itself, since not all the models are compatible with Version 7.xx and later. Models not supported by this firmware continue to use the Storage Manager to install upgrades up to the latest level available for the particular model. The only status that allows you to proceed with the firmware upgrade is Upgradeable:Optimal, as shown in Figure 41 on page 55.
- **10**. If the status is not optimal, you can use the view log option to find the reason detected by the utility.
  - a. Select a storage subsystem.
  - b. Click the **View Log** icon

The conditions as checked by the utility for a system to be upgradeable and optimal are:

- Status upgradeable if all of the following are true:
  - The storage subsystem supports Version 7.10 or later and is a DS4200, DS4700, or DS4800
  - The current version is equal to or later than 6.14 (minimum) and earlier than 7.10 (already upgraded)
- Status optimal if all of the following are true:
  - No failed assigned drives are found
  - No hot spares replacing failed drives are found
  - No volumes are missing
  - Both controllers are in optimal status
  - No operations are in progress

If there is a problem with any of the above conditions, the utility program does not allow the upgrade of the affected DS4000 subsystem. Other non-optimal conditions are indicated, and you should correct them before proceeding with the upgrade. (The upgrade utility will perform the upgrade even if you do not.)

A common reason for a status of "Not upgradeable" (Figure 42 on page 57) is that the event log is full and needs to be cleared and all event entries deleted.

BM System Storag	ge DS4000 Controlle	er Firmware Upgrad	e Tool		
					IBM.
Storage Subsystem	Name	Status	Board ID	Current Version	Pending Version
A <u>d</u> d	Base1-SV6Upper	🚫 Not upgradeable	3992/3992	07.36.17.00	None
Refresh	Base1-SV6Lower	🚫 Not upgradeable	3992/3992	07.36.14.01	None
View Log					
Firmware					
Download					
∠ Clear					
<u>View readme file</u> About this utility					
	1 problem detected				×

Figure 42. Not upgradeable status

The event log is cleared by using the Storage Manager. Highlight the storage subsystem (repeat this procedure for each storage subsystem) and then select menu option **Advanced** > **Troubleshooting** > **View Event Log**. Click **Clear All** and type yes to confirm that you want to clear all the event log entries. Close the Event Log window and go back to the Firmware Upgrade Tool. Click **Refresh** to recheck your storage subsystem status.

### Important:

- Make sure to install the firmware for each of the DS4000 components (ESM, drives, controller, NVSRAM) in the sequence described in the readme file for that version.
- Update the controller firmware first, and then the NVSRAM.
- Any power or network/SAN interruption during the update process might lead to configuration corruption or extended downtime. Therefore, do not power off the DS4000 storage server or the management station during the update. If you are using in-band management and have Fibre Channel hubs or managed hubs, then make sure that no SAN-connected devices are powered up during the update. Otherwise, this can cause a loop initialization process and interrupt the process.
- 11. Click the **Download** button in the left margin (Figure 41 on page 55) under **Firmware**. A dialog is displayed (Figure 43 on page 58).

🔀 Download Firmware	
	IBM.
Current versions Firmware: PkgInfo 06.60.08.00 NVSRAM: N1814D420R960V03 Select files Selected firmware file: Code_07361700\FIRMWARE\D54200\FW_D54200_07361700.dlp Firmware file information Firmware=07.36.17.00	Browse
Download NVSRAM file with firmware  Selected NVSRAM file:  Itroller_Code_07361700\NVSRAM\D54200\N1814D42R1036V12.dlp  NVSRAM file information  No displayable attributes associated with this file.	Browse
OK Cancel <u>H</u> elp	

Figure 43. Selecting downloads and source files

**Note:** The utility window is the same as the one obtained when updating through the Storage Manager, although the utility and background process are different.

- 12. Click Browse next to the Selected firmware file text box and navigate to X:\Firmware\SV6\Controller\_Code\_07361700\ FIRMWARE\DS4200, where X is the drive letter of the CD-ROM drive.
- 13. Select FW\_DS4200\_07361700.dlp and click OK.
- 14. In the Select Files window, click **Browse** next to the **Selected NVSRAM file** text box and navigate to X:\Firmware\SV6\Controller\_Code\_07361700\ NVSRAM\DS4200, where X is the drive letter of the CD-ROM drive.
- 15. Select N1814D420R1036V12.dlp, and click OK. The dialog shown in Figure 44 on page 59 is displayed.

🚺 Conf	irm Download
	IBM.
(j)	You have elected to transfer firmware file RC_97106400_crystal_399x.dlp and NV5RAM file N1814D47R1010V04.dlp and activate them immediately. There could be pending versions that already exist but have not been activated. If you proceed, you will overwrite those files.
	The controllers will be offline during the activation process. Make sure that no hosts, applications, or file systems are attempting to access the storage subsystem.
	WARNING Check your documentation to ensure that the NVSRAM file is compatible with the firmware file. When activated, an incompatible NVSRAM file may cause features inherent with the firmware to behave unusually.
	Activating an NVSRAM file will overwrite the current NVSRAM file. If you customized any of your current NVSRAM settings, you should record these custom settings now. Depending on the contents of the new NVSRAM file, you may need to re-apply the custom settings after the download is complete.
	This operation may take a long time to complete and you cannot cancel it after it starts.
	Are you sure you want to continue?
	Yes No

Figure 44. Confirming download

- 16. Click Yes to continue.
- 17. Observe the progress indication during the file transfer and activation. After these operations are complete, the utility indicates the result of the operation. If the transfer and activation were successful, the window shown in Figure 45 on page 60 is displayed.

rage Subsystem	Name	Status	Туре	Current Version	Pending Version
Add	D54100	🚫 Not upgradeable	2822/2822	06.16.16.00	06.16.16.00
Refresh	D54300T	Not upgradeable	2882/2882	06.16.16.00	06.16.16.00
	DS4500	🚫 Not upgradeable	5884/5884	06.16.16.00	06.16.16.0
View Log	D54800	诸 Upgradeable: Needs	6091/6091	06.16.16.00	None
	D54800 EXP810	👚 Upgradeable: Optimal	6091/6091	06.16.16.00	None
iiware	DS4800-Prod	📲 Unresponsive	6091/6091	06.16.16.00	None
Download	D54700	V Firmware upgraded	3994/3994	97.10.69.00	None
Activate					
 &					
Clear					

Figure 45. Firmware upgraded

If the operation finishes with an error, the utility displays failure details in the notification field. Check additional details for all the process using the view log option.

- 18. Close the Controller Firmware Upgrade tool.
- 19. Continue to "Updating the SX6 expansion firmware level."

## Updating the SX6 expansion firmware level

### About this task

Perform the following steps if there are SX6s in the frames of system you upgraded. If no SX6s are present, go to "Configuring the Call Home functionality installed during migration" on page 63.

#### Procedure

- 1. If the Virtualization Engine Base Firmware Update Disk is not already in the CD-ROM drive on the VE console workstation, insert it.
- If Storage Manager 10 Client is already running, skip to step 4 on page 61. Otherwise, select Start -> Programs -> Storage Manager 10 Client -> Storage Manager 10 Client.
### Enterprise Management Window Task Assistant

IBM.

#### What are the Enterprise and Subsystem Management Windows?

#### Which Task Would You Like To Perform?

The Task Assistant helps you complete tasks quickly and easily within the Enterprise Management Window. Please choose a task:

#### Initial Setup:



Add Storage Subsystems You must add a storage subsystem to the management domain before it can be configured or managed.



Name/Rename Storage Subsystems Naming a storage subsystem and providing a comment makes it easy to find the array within the management domain or determine its physical location.



Configure Alerts Configuring alerts allows you to receive email or SNMP notification whenever there are critical problems on a storage subsystem.

#### Subsystem Management:



Manage a Storage Subsystem Launch the Subsystem Management Window to perform configuration tasks suc as logical drive creation and bot spare assignment on a storage subsystem you

□ Don't show the task assistant at start-up again Note: To display the Task Assistant again, select View >> Task Assistant.

Figure 46. Enterprise Management Window Task Assistant

- 3. Click Close.
- 4. From the Subsystem Management window, select **Advanced -> Maintenance -> Download -> ESM Firmware**.

Close

×

~

Storage Subsystem         View         Mappings         Array         Logical Drive         Controller         Dr	D (Sübsystem Management)
Consider Physical View	Maintenance         Download         Controller Firmware           Troubleshooting         Activate Controller Firmware         Controller NSRAM           Recovery         Glear Controller Firmware         Drive Firmware/Mode Pages           Prystear         Drive Firmware/Mode Pages         Drive Firmware/Mode Pages
Storage Subsystem ITSO_LEFT     Total Unconfigured Capacity (7,240.793 GB)     Array 1 (RAID 5)     Array 2 (RAID 5)     Array 3 (RAID 5)	Enclosure 81 (back)     Persistent Reservations     ESM Firmwere       A     Image: Array     Image: Array       B     Image: Array     Image: Array       B     Image: Array     Image: Array       Enclosure 12 (front) - SATA Satis     Image: Array       Image: Array     Image: Arra
	Enclosure 32 (front) - SATA SATA Enclosure 32 (front) - SATA SATA
🗰 00  C3 Û 🕼	

Figure 47. ESM Firmware Menu

- 5. Select one or more enclosures.
- 6. In the **Select Files** window, click **Browse** next to the **File** text box and navigate to **[X]:\Firmware\SX6**, where **[X]** is the drive letter of the CD-ROM drive.
- 7. Select **esm98C5.esm** and click **Start**.
- 8. Confirm the selection and click Yes.
- **9**. In the **status** field in the **Select enclosures** table, wait for the download for each enclosure to complete.

Base1-SV6Up	per - Downlo	ad Environm	iental (ESM)	Card Firmwa	ire		
							ĪB
ect a firmware fi osystem Base1-5 -Drive enclosure Select enclosure	le to transfer na W6Upper, s	w firmware fron	n this manageme	ent station to th	e selected envir	onmental (ESM) o	ards on Storage
Enclosure ID	Maximum Data Rate	Card Manufacturer	Card A Firmware	Card A Product ID	Card B Firmware	Card B Product ID	Status
Enclosure 0	4 Gbps	IBM	98C5	PN 41Y0725	98C5	PN 41Y0725	
ESM firmware Selected ESM D:\Firmware	firmware file inf \SX6\esm98C5.6	ormation:				Sel	ect File
		Se	lect start to t	pegin the tran	sfer.		
		St	art 🖸	lose H	lelp		

Figure 48. Select enclosures table

### Configuring the Call Home functionality installed during migration

Complete this section if you would like Call Home installed and set up on the system. This setup can be done at a later time.

For instructions on how to configure Call Home functionality, refer to the *IBM Virtualization Engine TS7530 Call Home Function Installation and Setup Guide.* 

**Note:** Copies of the Call Home guides and CDs are included in this migration ship group.

Continue to "Verifying the migration on SV6 controllers."

### Verifying the migration on SV6 controllers

Perform the following steps to verify that the migration was successful.

### Before you begin

If you closed Storage Manager 10 Client after you updated the firmware on the controllers, repeat steps 1 on page 46 through 9 on page 51 to verify the firmware levels.

#### Procedure

- 1. Right-click Controller A under Enclosure 85 and select Properties.
- Verify that Firmware version: 07.36.17.00 and NVSRAM version: N1814D420R1036V12 are listed under current configuration for SV6 controllers.
- 3. Right-click Controller B under Enclosure 85 and select Properties.
- 4. Verify that Firmware version: 07.36.17.00 and NVSRAM version: N1814D420R1036V12 are listed under current configuration for SV6 controllers.
- 5. Repeat for each storage subsystem.

#### What to do next

Continue to "Verifying the migration on SX6 expansion units" on page 64.

### Verifying the migration on SX6 expansion units

Perform the following steps to verify that the migration was successful.

### Before you begin

If you closed Storage Manager 10 Client after you updated the firmware on the controllers, repeat steps 1 on page 46 through 9 on page 51 to verify the firmware levels.

#### Procedure

- 1. Double-click the storage subsystem you want to select.
- 2. Click Storage Subsystem -> View -> Profile.
- 3. Select the Enclosures tab at the top of the window.
- 4. Using the scroll bar, verify that the ESM Firmware version is 98C5 for each enclosure.
- 5. If failover was removed, then reinstall failover on both servers by following the steps in Appendix C, "Reinstalling failover," on page 71.

### Conclusion

You have finished the upgrade of your system to the TS7500 V3.2 software level.

- If failover was removed, and you haven't already done so in another step, reinstall failover on both servers by following the steps in Appendix C, "Reinstalling failover," on page 71.
- Store the CDs that shipped in this ship group securely for possible later use.

# Appendix A. Installing PuTTY on the VE console workstation

Perform this procedure to install the PuTTY on the VE Console workstation if not previously installed on the VE console workstation.

#### Procedure

1. Locate and insert the Virtualization Engine Base Firmware Update Disk into the CD-Rom drive of the VE console workstation.

**Note:** Start Windows Explorer if it does not automatically start and navigate to X:Tools, where *X* is the letter of the CD-ROM drive.

- 2. Click the **TOOLS** folder.
- 3. Click the **PuTTY** folder.
- 4. Click the INSTALLER folder.
- 5. Click the PuTTY 0.58-Installer folder.
- 6. At the PuTTY Wizard, click Next.
- 7. Click Next.
- 8. Click Next.
- 9. Click Next.
- 10. Click Install.
- 11. Click Finish.
- 12. Read and close the Read Me window.
- 13. Close the Windows explorer window.
- 14. Remove the Virtualization Engine Base Firmware Update Disk from the CD-ROM drive of the workstation.

# Appendix B. Removing failover

#### Procedure

1. Right-click the failover group name icon and click **Failover** > **Remove**. See Figure 49.



Figure 49. Selecting the failover group to remove failover

**Note:** This procedure assumes that you selected the hostname of the lower server and ran the wizard on the lower server. Example screens in this procedure show the wizard running on the lower server.

**Note:** You might have to log in to each failover partner (server) to perform this step.

- 2. At the Remove Failover Server screen, perform the following substeps (see Figure 50 on page 68):
  - **\_\_\_\_a.** Record the lower server hostname (**1** in Figure 50 on page 68) in row **1** of Table 1 on page 68.
  - \_\_\_\_\_b. Record the upper server hostname (2 in Figure 50 on page 68) in row 1 of Table 1 on page 68.
  - \_\_\_\_ C. Record the lower server Adapter 1 (eth0) network interface IP address (3a in Figure 50 on page 68) in row 2 of Table 1 on page 68.
  - \_\_\_\_ d. Record the upper server Adapter 1 (eth0) network interface IP address (3b in Figure 50 on page 68) in row 2 of Table 1 on page 68.
  - e. Record the lower server Adapter 2 (eth1) network interface IP address (4a in Figure 50 on page 68) in row 3 of Table 1 on page 68.
  - \_\_\_\_\_f. Record the upper server Adapter 2 (eth1) network interface IP address (4b in Figure 50 on page 68) in row 3 of Table 1 on page 68.
  - \_\_\_\_ g. Record the lower server Adapter 1 (eth0) service interface IP address (5a in Figure 50 on page 68) in row 4 of Table 1 on page 68.
  - \_\_\_\_h. Record the upper server Adapter 1 (eth0) service interface IP address (**5b** in Figure 50 on page 68) in row **4** of Table 1 on page 68.

- \_\_\_\_i. Record the lower server Adapter 2 (eth1) service interface IP address (6a in Figure 50) in row 5 of Table 1.
- \_\_\_\_j. Record the upper server Adapter 2 (eth1) service interface IP address (6b in Figure 50) in row 5 of Table 1.

	n cyuas i	1			
Server IP		Service IP		Subnet	Interface
9.11.218.74	3a	9.11.218.46	5a	9.11.218.0	eth0
192.169.0.111	4a	192.169.0.223	ба	192.169.0.0	eth1
9.11.218.75	3b	9.11.218.45	5b	9.11.218.0	eth0
9.11.218.75	3b	9.11.218.45	5b	9.11.218.0	eth0
192.169.0.222	4b	192.169.0.112	бb	192.169.0.0	eth1

Figure 50. Removing Failover Server

Table 1. Failover setup information

Row	Item	Lower Server	Upper Server
1	Hostname		
2	Adapter 1 (eth0 port) network interface IP address		
3	Adapter 2 (eth1 port) network interface IP address		
4	Adapter 1 (eth0 port) service interface IP address		
5	Adapter 2 (eth0 port) service interface IP address		

**3**. After Table 1 has been filled out, click **Remove**. Refer to Figure 50.

4. After failover has been removed, click OK. Refer to Figure 51 on page 69



Figure 51. Remove Failover Server confirmation

5. If required, click **OK** at the Root Information window (see Figure 52).



Figure 52. Root information window

### What to do next

Return to the step following the one that sent you here.

# Appendix C. Reinstalling failover

### About this task

**Attention:** During this procedure, two types of IP address are assigned to the two Ethernet ports for each server. This procedure assumes that you run the wizard on the lower server. Example screens in this procedure show the wizard running on the lower server.

### Procedure

- \_\_\_\_ 1. If not already connected, connect to both servers.
- 2. Ensure that the following services and features are set the same for both servers. (For example, if iSCSI is enabled for the lower server, it must also be enabled for the upper server. If Email Notification is disabled for the lower server, it must also be disabled for the upper server.)
  - \_\_\_\_\_ iSCSI
  - \_\_\_ Email Notification
  - \_\_\_\_ Hosted Backup
  - \_\_\_\_ NDMP
- \_\_\_\_ **3**. Right-click the lower **TS7530 Server** icon.
- 4. Click Failover > Failover Setup Wizard. The Failover Setup Wizard starts. Figure 53 shows this result for the lower server.



Figure 53. Starting the Failover Setup Wizard

\_\_\_\_ 5. In the Select the Secondary Server window (see Figure 54), do the following:

Select the secondary se	rver from the list or	connect to the serv	er you want.	
VE for Tape Server			1	Add
cvt2perf2				

Figure 54. Select the Secondary Server window

- \_\_\_\_a. From the **VE for Tape Server** list, select the hostname of the secondary server. The secondary server is the other server in the frame. For instance, if you started the Failover Setup Wizard on the lower server in the frame, the secondary server is the upper server. You recorded the hostname for both servers in row 1 of the table when you recorded the server information.
- \_\_\_b. Click Next.
- \_\_\_\_ 6. Do one of the following:
  - If the Rescanning Physical Devices is required window (Figure 55 on page 73) opens, proceed to step 7 on page 73

Not all the physical devices following physical device int and you have rescanned bo	are accessible from formation, make sure th servers to synchro	both servers. F e the servers ar onize the config	Please review the re configured prope uration.	erly
Device GUID		cvt2perf1	cvt2perf2	
IBM:18 7caab945-b799-4(	) 52-d760-00004638	0:0:0:2	3:0:0:2	O
Click the buttor	n at the detail Column (-	+) of the Device	to view the detail. 🔺	
Click the buttor	n at the detail Column (- vt2perf1.	+) of the Device	to view the detail. 🔺	
Click the buttor List mismatched devices on c List mismatched devices on c	n at the detail Column (· vt2perf1, vt2perf2,	+) of the Device	to view the detail. 🔺	

Figure 55. Rescanning Physical Devices is required window

- If the Enter the IP addresses of the Servers (Adapter 1) window (Figure 60 on page 77) opens, proceed to step 11 on page 75
- 7. In the Rescanning Physical Devices is required window (Figure 55), click OK.
- \_\_\_\_ 8. In the Virtual Device or Service Enabled Device... window (Figure 56 on page 74), click **OK**.

Virtual Device or information is inc	Service Enabled Device configuration consistent for the same device.
Device Name	IBM:1814 FAStT
guid	7caab945-b799-4052-d760-000046387b95
Primary Server	cvt2perf1
Category	Reserved for Virtual Device
Owner	SANsystem2
SCSI address	0:0:0:2
	2:0:0:2
Secondary Serve	r cvt2perf2
Category	Used by Virtual Device(s)
Owner	cvt2perf2
SCSI address	3:0:0:2
	1:0:0:2

Figure 56. Summary of inconsistent device information

\_\_\_\_ 9. In the VE console (Figure 57), do the following:

			5 Star 1	
VE for Tape Servers	SCSI Adapters SCSI Devices	Adapter Info		
🕨 🏂 Virtual Tape Library System	ila o	QL onic		
SAN Clients		QLogic		
Benorte	2	QLogic		
Reports	3	QLogic		
Rescan	4	QLogic		
e cvt2perf2 Prepare Devices	<b>1</b> 5	QLogic		
🕽 🍠 Virtuar rape Library bystem	<b>i</b> 6	QLogic		
SAN Clients	7	QLogic		
Pierre Reports				
- 😡 Physical Resources				

- Figure 57. Rescanning physical devices
  - \_\_\_\_a. Expand the icon for the lower server.

- \_\_\_\_b. Right-click **Physical Devices** and then click **Rescan**.
- \_\_\_\_ c. In the Specify Adapter, SCSI ID and LUN ranges to scan window (Figure 58), select **Scan Existing Devices**, then click **OK**.

Scan Existing De Discover New De	vices		
apter:	0	to	7
SLID:	0	to	15
💿 Use Report LU	Ns		
OLUN Range —			
	0	to	0
Stop scan w	hen a LUN with	nout a device	is encountered

Figure 58. Scan existing devices

\_\_\_\_ 10. Return to the Failover Setup Wizard.

**Attention:** If the Rescanning Physical Devices is required window (Figure 57 on page 74) reopens, do not rescan. You **must** wait at least 10 minutes before rescanning again. If after rescanning a second time, the Rescanning Physical Devices is required window reopens, contact your next level of support.

\_\_\_\_ 11. In the Enter the IP addresses of the Servers (Adapter 1) window (Figure 59 on page 76), do the following:

Enter the IP addresses of the Se	ivers
Enter the IP addresses that the	clients will use to access the servers.
IP address for the server: cv	t2perf1 9 11 210 190
IP address for the server: cv	t2perf2 9 11 210 191
The above addresses will be to access the VE for Tape Se the default addresses above will be assumed by the surviv	used by the VE for Tape SAN Clients and the VE for Tape Console rvers. If the Console is logged into VE for Tape using a DNS name, were resolved using DNS. When a failover occurs, both addresses ring VE for Tape Server.
Click Nexts to continue	

Figure 59. Entering or confirming network interface IP addresses for adapter 1

- \_\_\_\_a. In the **IP address** fields, confirm that the wizard retrieved and filled in the network interface IP addresses for adapter 1 (eth0) for the servers. You recorded the hostname for both servers in row 2 of the table when you recorded the server information. If the wizard did not automatically fill in these values, enter them into the **IP address** fields of the Failover Setup Wizard screen.
- \_\_\_b. Click Next.
- \_\_\_\_ 12. In the Enter Service IP addresses for the Servers (Adapter 1) window (Figure 60 on page 77), do the following:

Enter the IP addresses that will be used to servic Adapter: 1, Subnet Mask: 255.255.254.0, Subnet: 9.1	e the servers. 1.210.0
Service IP address for the server: cvt2perf1	9.11.210.4
Service IP address for the server: cvt2perf2	9.11.210.5
audition to the existing IP address.	
Marning VE for Tano SAN Cliente and VE for	Cana Cancolo must not uso those addresses to
Warning! VE for Tape SAN Clients and VE for connect to the VE for Tape Server.	Tape Console must not use these addresses to
Warning! VE for Tape SAN Clients and VE for connect to the VE for Tape Server.	Fape Console must not use these addresses to

Figure 60. Entering or confirming service IP addresses for adapter 1

- \_\_\_\_a. In the **IP address** fields, type the service IP addresses for adapter 1 (eth0) for the lower and upper servers. You recorded the hostname for both servers in row 4 of the table when you recorded the server information.
- \_\_\_\_b. Click Next.
- \_\_\_\_ 13. In the Enter the IP addresses of the Servers (Adapter 2) window (Figure 61 on page 78), do the following:



Figure 61. Entering or confirming network interface IP addresses for adapter 2

- \_\_\_\_a. In the **IP address** fields, confirm that the wizard retrieved and filled in the network interface IP addresses for adapter 2 (eth1) for the lower and upper servers. You recorded the hostname for both servers in row 3 of the table when you recorded the server information. If the wizard did not automatically fill in these values, type them in the **IP address** fields.
- \_\_\_b. Click Next.
- \_\_\_\_ 14. In the Enter Service IP addresses for the Servers (Adapter 2) window (Figure 62 on page 79), do the following:

Enter Service IP Addresses for the Ser	vers
Enter the IP addresses that will be u	sod to service the service
Adapter: 2, Subnet Mask: 255.0.0.0, Su	ibnet: 10.0.0.0
Service IP address for the server	: cvt2perf1 10 . 10 . 11 . 45
Service IP address for the server	: cvt2perf2 10 . 10 . 11 . 46
failover occurs. Each VE for Tape S addition to the existing IP address.	Server will maintain the respective service IP address in
addition to the existing IP address. Warning! VE for Tape SAN Clients connect to the VE for Tape Server	and VE for Tape Console must not use these addresses to
Click ≺Next> to continue.	

Figure 62. Entering or confirming service IP addresses for adapter 2

- \_\_\_\_a. In the **IP address** fields, type the service IP addresses for adapter 2 (eth1) for the lower and upper servers. You recorded the hostname for both servers in row 5 of the table when you recorded the server information.
- \_\_\_\_b. Click Next.
- \_\_\_\_15. In the Confirm the Failover Configuration window (Figure 63 on page 80), verify that the entered information is correct and click **Finish**.

ailover Setup for cvt2pe	rf1/cvt2perf2		
Quorum Disk: IBM:181	4 FAStT (SCSI Add	dress: 0:0:0:1)	^
Network Adapter 0, Sub	onet: 10.10.10.0		=
Server IP:	10.10.10.45		
Service IP:	10.10.10.2		
Fibre Channel Adapter	4: QLogic		
ailower Setue for ext2nd	04 04 00 04	77 00 -7 -44	
anover Setup for CVC2pe		hara 0.0.0.42	
Quorum Disk: IBM:181-	4 FASTI (SCSLAdd	aress: 0:0:0:1)	^
Network Adapter 0, Sub	onet: 10.10.10.0		=
Server IP:	10.10.10.46		
Service IP:	10.10.10.3		
Fibre Channel Adapter	4: QLogic		
T	24 04 00 04	77.00 64.44	×

Figure 63. Confirm the Failover Configuration window

- \_\_\_\_16. In the Successful Configuration Notification window, click OK.
- \_\_\_\_17. Verify successful configuration by performing the following substeps for each server:
  - \_\_\_\_a. In the VE console, click a server icon.
  - \_\_\_\_b. Click the **General** tab.
  - \_\_\_\_ c. Verify that the server status is **Online**.
  - \_\_\_\_d. Click the **Failover Information** tab.
  - \_\_\_\_e. Verify that the Failover State is Normal.
  - \_\_\_\_f. Verify that the **Failover Removed** value is **No**.

# Index

### В

backup, configuration 8

# С

Call Home 63 configuration, backing up 8 controller firmware level, identifying 46

# D

diagnostic summary, saving 9

# F

failover reinstalling 64, 71 removing 13, 21, 67 firmware controller, identifying 46 SX6 expansion, updating 60 updating on servers 44 updating on SV6 controller 53

# Η

hostname, resolving 6

installation time 1

# Μ

memory 23

# Ρ

patches 31 prerequisites for installation 3 PuTTY, installing 65

# R

RAM 23 resolving hostname 6

# S

servers, updating firmware 44 SMcli 6 software, verifying 3 Storage Manager, updating 35 SV6 controller firmware, updating 53 SV6 controller (*continued*) verifying migration 63 SX6 expansion firmware 60 verifying migration 64

### Т

TS7500 V3.1 Software Upgrade CD, installing 13 TS7500 V3.2 Software Upgrade CD, instaling 21

### V

verifying migration SV6 controllers 63 SX6 expansion 64



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