

**IBM System Storage SAN Volume Controller**



# **Service Guide - Errata**

**Version 4.2.1**

**October 1, 2009**

GC26-7901-02-Errata



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## Introduction

This guide provides errata information that pertains to release 4.2.1 of the *IBM System Storage SAN Volume Controller Service Guide*.

This guide contains the corrections and additions on a per chapter basis. The chapter numbers in this guide correspond directly with the chapter numbers in the *Service Guide* supplied with your SAN Volume Controller.

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### Who should use this guide

This errata should be used by anyone using the using the *IBM System Storage SAN Volume Controller Service Guide*. You should review the errata contained within this guide and note the details with respect to the copy of the *Service Guide* supplied with your SAN Volume Controller.

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### Last Update

This document was last updated: October 1, 2009

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### Change History

The following revisions have been made to this document:

Revision Date	Sections Modified
March 10, 2008	New publication
April 21, 2008	Chapter 7: Added boot error 250
October 1, 2009	Frame assembly no longer available for the 2145-8G4

Table 1: Change History

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### Use of Frame Assembly FRU on the 2145-8G4

The 2145-8G4 frame assembly FRU, part number 31P0906 is no longer available. Throughout the Service Guide, wherever the 2145-8G4 frame assembly is suggested as a FRU replacement, the system board, part number 31P1090, should be used instead.

When the system board is replaced two alcohol wipes, part number 59P4739 and two thermal grease syringes, part number 41Y9292, will also be required.

See the IBM System Storage SAN Volume Controller Hardware Maintenance Guide Version 4.3.1, or later, for system board remove and replace instructions.

This is available on the SAN Volume Controller support website:

[www.ibm.com/storage/support/2145](http://www.ibm.com/storage/support/2145).

The SAN Volume Controller will continue to report the frame assembly as the required FRU in error notifications and directed maintenance procedures; the system board must be used instead.



## Chapter 7. Diagnosing problems with the SAN Volume Controller

*The following corrections should be noted.*

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### Definition of the FRU names for the SAN Volume Controller

*The following new FRU name should be added to the glossary of FRU names for every model type. Pages 128 to 132.*

Name of FRU	Description
SFP	Fibre-channel Small Form-factor Pluggable connector.

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### Understanding the boot codes

*The following new boot code has been defined*

*Page 155*

#### **250 The Ethernet ports did not start correctly**

The Ethernet ports on the node did not start correctly. This is a transient error that only occurs during node start up. It does not indicate a hardware error.

#### **Action**

Perform the following actions in order:

1. Power off the node using the front panel power control button.
2. Wait 30 seconds, then press the front power control button again to restart the node.
3. This error might occur again. If the error recurs, repeat the sequence up to four times. If this error still occurs after four repetitions of the step 1 and step 2 sequence, contact your Service Support Center.

#### **Possible Cause-FRUs or other:**

None.

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### Understanding the node error codes

*The following new node error code has been defined.*

*Page 167.*

#### **556 Duplicate WWNN detected**

The node has detected another device on the fibre-channel network with the same World Wide Node Name (WWNN) as itself. The last five digits of the node's WWNN are shown as the additional data for the error.

The node is not an active member of a cluster. It has disabled its fibre-channel ports to prevent disrupting the operation of the fibre-channel network.

Either just one node, or both nodes, with the same WWNN will show the error.

Due to the way WWNNs are allocated, the device with a duplicate WWNN should be another SAN Volume Controller node.

Only the last five digits of the WWNN are shown on the front panel displays. A WWNN is 16 hexadecimal digits long. For a SAN Volume Controller the first 11 digits are always 50050768010.

### **Action**

1. Find the SAN Volume Controller node with the same WWNN as the node reporting the error. The WWNN for a SAN Volume Controller Node can be found from the node VPD or from the Node menu on the front panel. The node with the duplicate WWNN need not be part of the same cluster as the node reporting the error; it could be remote from the node reporting the error on a part of the fabric connected through an interswitch link. The node's WWNN is stored with the service controller, so the duplication is most likely caused by a node that has recently had its service controller replaced and/or its WWNN changed.
2. If a SAN Volume Controller node with a duplicate WWNN is found, determine whether it, or the node reporting the error, has the incorrect WWNN. Normally it is the node that has had its service controller replaced, and/or its WWNN changed, that is incorrect. Also consider how the SAN is zoned when making your decision.
3. If both nodes with the same WWNN reported the error, the node with the correct WWNN can be restarted using the front panel power control button.
4. Determine the correct WWNN for the node with the incorrect WWNN. If the complete node or the service controller has been replaced as part of a service action, the WWNN for the node should have been noted down. If the correct WWNN cannot be determined contact your support center for assistance.
5. Use the front panel menus to modify the incorrect WWNN. If the node showing the error needs modifying this can safely be done immediately. If it is an active node that needs modifying care should be taken as the node will restart when the WWNN is changed. If this node is the only operational node in an I/O Group access to the VDisks it is managing will be lost. You should ensure the host systems are in a suitable state before changing the WWNN.
6. If the node showing the error had the correct WWNN it can be restarted, using the front panel power control button, once the node with the duplicate WWNN is updated.
7. If you are unable to find a SAN Volume Controller node with the same WWNN as the node showing the error, use the customer's SAN monitoring tools to determine if there is another device on the SAN with the same WWNN. This device should not be using a WWNN assigned to SAN Volume Controller, so you should follow the service procedures for the device to have its WWNN changed.

Possible Cause-FRUs or other:

- none

### **Related tasks**

For viewing and changing the WWNN see "Replacing the SAN Volume Controller 2145-8G4 service controller" on page 379.



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## Defining cluster error codes

*The following new cluster error codes have been defined.*

*Page 246.*

### **1623 One or more MDisks on a controller are degraded**

#### **Explanation**

At least one MDisk on a controller is degraded due to being unavailable through one or more nodes. These MDisks are available through at least one node. This means access to data may be lost if there is a single further failure.

In a correctly configured system each node should be able to access all MDisks on a controller through all the controller's ports.

This error is only logged once per controller, there may be more than one MDisk on this controller which has been configured incorrectly, but the error is only logged for one MDisk.

This error condition must have existed for one hour before being logged. This is to avoid the error being logged because of short-term fabric maintenance activities.

#### **Action**

1. Determine all problem MDisks, look for MDisks with a path count lower than the number of nodes. Do not use only the MDisk status since other errors can also cause degraded MDisks.
2. Check the controller is zoned correctly with all nodes.
3. Check the LU is mapped to all nodes.
4. Check the LU is mapped to all nodes using the same LUN.
5. Run the console or CLI command to discover MDisks and wait for it to complete.
6. Mark the error that you have just repaired as "fixed". When the error is marked fixed, the controller's MDisk availability will be tested and the error will be logged again immediately if the error persists for any MDisks (potentially the error will report a different MDisk).
7. Go to the repair verification MAP.

Possible Cause-FRUs or other:

- None

#### **Related tasks**

"Discovering MDisks"

"Discovering MDisks using the CLI"

"Marking error as fixed"

"MAP 5700: Repair verification"



# Chapter 8. Maintenance analysis procedures

The following corrections should be noted.

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## MAP 5600: Fibre channel

Page 315. Replace Step 7

7. (from step 6)

A previously reported fault with a fibre-channel port is no longer being shown. A problem with the SAN fibre-channel fabric might have been fixed or there might be an intermittent problem.

Check with the customer to see if any fibre-channel ports have been disconnected or if any component of the SAN fibre-channel fabric has failed and has been fixed recently.

**Is the fibre-channel port failure explained by the previous checks?**

**NO** There might be an intermittent fibre-channel error.

- a. Use the SAN problem determination procedure to check for and resolve any fibre-channel fabric connection problems. If you resolve a problem, continue with “MAP 5700: Repair verification” on page 319.
- b. Check if similar fibre-channel errors have occurred recently on the same port on this SAN Volume Controller node. If they have, replace the fibre-channel cable, unless it has already been replaced. If it has been replaced, replace the SFP, unless it has already been replaced. If it has been replaced, replace the fibre-channel adapter assembly shown in the following table.

SAN Volume Controller 2145-4F2 port 1, 2, 3 or 4	Fibre-channel adapter
SAN Volume Controller 2145-8F2 port 1 or 2	Dual port fibre-channel host bus adapter (HBA) - Low profile
SAN Volume Controller 2145-8F2 port 3 or 4	Dual port fibre-channel HBA - Full height
SAN Volume Controller 2145-8F4 port 1, 2, 3, or 4	4-port fibre channel HBA
SAN Volume Controller 2145-8G4 port 1, 2, 3, or 4	4-port fibre channel HBA

- c. Verify the repair by continuing with “MAP 5700: Repair verification” on page 319.

**YES** Verify the repair by continuing with “MAP 5700: Repair verification” on page 319.

Page 316. Replace Step 9

9. (from step 8)

The noted port on the SAN Volume Controller is displaying a status of inactive. If the noted port still displays a status of inactive, replace the parts that are associated with the noted port in the following order:

- a. Fibre-channel cables from the SAN Volume Controller to fibre-channel network.
- b. SAN Volume Controller fibre-channel SFP.
- c. Faulty fibre-channel fabric connections. Use the SAN problem determination procedure to resolve any fibre-channel fabric connection problem.
- d. c. Fibre-channel adapter assemblies.

SAN Volume Controller 2145-4F2 port 1, 2, 3 or 4	Fibre-channel adapter
SAN Volume Controller 2145-8F2 port 1 or 2	Dual port fibre-channel host bus adapter (HBA) - Low profile
SAN Volume Controller 2145-8F2 port 3 or 4	Dual port fibre-channel HBA - Full height
SAN Volume Controller 2145-8F4 port 1, 2, 3, or 4	4-port fibre channel HBA
SAN Volume Controller 2145-8G4 port 1, 2, 3, or 4	4-port fibre channel HBA

- e. Verify the repair by continuing with “MAP 5700: Repair verification” on page 319

# Chapter 9. Removing and replacing parts

*The following addition should be noted.*

*Page 427. Add the following new section.*

## Removing and Replacing the Fibre Channel SFP

Use the following steps to remove and replace a Small Form-factor Pluggable connector (SFP). These instructions apply to all model types.

**Note:** The SFP FRU is capable of operating at up to 4 Gb/s; on the 2145-8F2 and 2145-4F2 its maximum speed is limited to 2Gb/s by the fibre-channel adapter.



A replacement of an SFP should be made when a failure on a single fibre-channel link is indicated. A single failing fibre-channel link can be indicated by:

- The installation's SAN monitoring tools
- The fibre-channel port status shown on the SAN Volume Controller node's front panel
- The SAN Volume Controller rear panel fibre-channel status LEDs
- A SAN Volume Controller cluster, node or boot error that indicates a single port has failed.

The SFPs are designed to be hot-plugged, so the SAN Volume Controller node need not be powered off before replacement. Normal precautions for handling laser products should be followed. The procedure for removing and replacing a SFP is:

1. Carefully determine the failing physical port connection. Refer to the SAN Volume Controller Service Guide for the port positions. Removing the wrong SFP could result in loss of data access.
2. Remove the fibre-channel cable by pressing the release tab and pulling the connector out. Be careful to only exert pressure on the cable connector and not to pull on the fibre-channel cables themselves.
3. Remove the SFP. There are a number of different handling / locking mechanisms used on SFPs. The table below indicates the usual type found on a model. It is possible, however, that the installed SFPs have a different mechanism to that indicated:

Model	Hadling Mechanism
2145-4F2 and 2145-8F2	There is a small black locking tag on the bottom of the SFP. Push this back and then pull the SFP out.

<b>Model</b>	<b>Hadling Mechanism</b>
2145-8F4 and 2145-8G4	There is a release handle incorporated in the SFP. Pull this up and then pull the SFP out using the handle.
	Other SFPs have a plastic tag. Pull the tag to remove the SFP.

4. Push the new SFP into the aperture and ensure it is securely pushed home. Swing the removal handle down until it locks flush with the SFP connector.
5. Reconnect the fibre-channel cable.

## Appendix A. Parts catalog

The following additions should be noted.

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### Tables 24, 27, 29 and 30

*The following part should be added to the tables of part numbers*

*Pages 526 to 535.*

Assembly index	Part number	Units	Description
-	23R2770	4	4 Gb/s Fibre-channel Small Form-factor Pluggable connector.

**Note:** The SFP FRU is capable of operating at up to 4 Gb/s; on the 2145-8F2 and 2145-4F2 its maximum speed is limited to 2Gb/s by the fibre-channel adapter.

