

IBM System Storage SAN Volume Controller



# Software Installation and Configuration Guide - Errata

*Version 4.3.1 - June 12, 2009*

**Note:**

Before using this information and the product it supports, read the information in **Notices**.

This edition applies to the IBM System Storage™ SAN Volume Controller, release 4.3.1, and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright International Business Machines Corporation 2009.**

US Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Introduction . . . . .</b>	<b>v</b>	RamSan user interfaces . . . . .	1
<b>Chapter 11. Configuring and servicing storage systems . . . . .</b>	<b>1</b>	Logical units and target ports on RamSan systems	2
Configuring Texas Memory Systems RamSan Solid State Storage systems . . . . .	1	Switch zoning for RamSan storage systems . . . .	3
TMS RamSan Solid State Storage supported models . . . . .	1	Configuration settings for RamSan systems . . . .	4
Supported TMS RamSan firmware levels . . . .	1	Quorum disks on RamSan systems . . . . .	5
Concurrent maintenance on RamSan systems . . .	1	Copy functions for RamSan systems . . . . .	5
		<b>Notices . . . . .</b>	<b>7</b>
		Trademarks. . . . .	9



---

## Introduction

This guide provides errata information that pertains to release 4.3.1 of the *IBM System Storage SAN Volume Controller Software Installation and Configuration 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 *Software Installation and Configuration Guide* that is supplied with your SAN Volume Controller.

### Who should use this guide

This errata should be used by anyone who uses the *IBM System Storage SAN Volume Controller Software Installation and Configuration Guide*. Review the errata that is contained within this guide and note the details with respect to the copy of the *Software Installation and Configuration Guide* that is supplied with your SAN Volume Controller.

### Last update

This document was last updated June 2009.

### Change history

The following revisions have been made to this document:

*Table 1. Change history*

<b>Revision data</b>	<b>Sections modified</b>
May 20, 2009	Configuring Texas Memory Systems RamSan Solid State Storage systems
June 12, 2009	Information about LUN presentation was revised



---

## Chapter 11. Configuring and servicing storage systems

*The following additional information is provided.*

*Page 279*

---

### Configuring Texas Memory Systems RamSan Solid State Storage systems

This section provides information about configuring Texas Memory Systems (TMS) RamSan systems for attachment to a SAN Volume Controller.

#### TMS RamSan Solid State Storage supported models

SAN Volume Controller clusters can be used with the RamSan Solid State Storage systems.

For the latest RamSan models that can be used with SAN Volume Controller clusters, see the SAN Volume Controller (2145) Web site:

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

#### Supported TMS RamSan firmware levels

You must ensure that the RamSan firmware level can be used with the SAN Volume Controller cluster.

For the supported firmware levels and hardware, see the SAN Volume Controller (2145) Web site:

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

#### Concurrent maintenance on RamSan systems

Concurrent maintenance is the capability to perform I/O operations while you simultaneously perform maintenance operations on the RamSan system.

Apply firmware upgrades to a RamSan system during a maintenance window. A power cycle of the RamSan system is required for the upgraded firmware to take effect.

#### RamSan user interfaces

You can configure a RamSan system through a Web GUI based on Java or a command-line interface (CLI). You can also perform some system-critical operations by using the front panel on the RamSan system.

##### RamSan Web GUI

The Web GUI is an applet based on Java that is accessible through the IP address of the RamSan system. All configuration and monitoring steps are available through this interface. By default, the Web GUI uses SSL encryption to communicate with the RamSan system.

## RamSan CLI

The command-line interface (CLI) is accessible through SSH, Telnet, and RS-232 port. The CLI includes all functionality that is available in the GUI with the exception of statistics monitoring. The CLI includes a diagnostics interface, however, for internal hardware checks.

## Logical units and target ports on RamSan systems

Partitions on RamSan systems are exported as logical units (LUs) with a logical unit number (LUN) that is assigned to the partition.

### LUNs on RamSan systems

RamSan systems are shipped with a particular capacity of user space, which depends on the model. Capacities on one model can range from 1 - 2 TB. A partition with this capacity is known as a *logical unit*.

RamSan systems can export up to 1024 LUNs to the SAN Volume Controller through various exported FC ports. The maximum logical-unit size is the full, usable capacity of the RamSan system.

### LUN IDs

RamSan systems identify exported LUs through identification descriptors 0, 1, and 2. The EUI-64 identifier for the LU is in the CCCCCLLLLMMMMM notation where CCCCC is the Texas Memory Systems IEEE Company ID of 0020C2h, LLLL is the logical unit handle, and MMMMM is the serial number of the chassis. The EUI-64 identifier is available on the detailed view of each logical unit in the GUI.

### LUN creation and deletion

RamSan LUNs are created, modified, or deleted either by using a wizard tutorial in the GUI or by entering a CLI command. LUNs are not formatted to all zeros upon creation.

To create a logical unit, highlight **Logical Units** and select **Create toolbar**. To modify, resize, or delete an LU, select the appropriate toolbar button when the specific logical unit is highlighted in the navigation tree.

**Note:** Delete the MDisk on the SAN Volume Controller cluster before you delete the LUN on the RamSan system.

### LUN presentation

LUNs are exported through the available FC ports of RamSan systems by access policies. Access policies are associations of the logical unit, port, and host. A RamSan system requires that one of the three items is unique across all available access policies. LUNs that are to be presented to SAN Volume Controller must be presented to all node ports in the cluster through at least two ports on the RamSan system. Present each LU to the SAN Volume Controller on the same LUN through all target ports.

To apply access policies to a logical unit, highlight the specific logical unit in the GUI and click the **Access toolbar** button.



## Special LUNs

The RamSan system has no special considerations for logical unit numbering. LUN 0 can be exported where necessary. In one RamSan model, a licensed Turbo feature is available to create a logical unit up to half the size of the cache to keep locked in the DRAM cache for the highest performance. No identification difference exists with a Turbo or locked LUN as opposed to any other LUN ID.

## Target ports on RamSan systems

A RamSan system is capable of housing 4 dual-ported FC cards. Each worldwide port name (WWPN) is identified with the pattern 2P:0N:00:20:C2:MM:MM:MM where P is the port number on the controller and N is the address of the controller. The MMMMM represents the chassis serial number.

The controller address is as follows:

04: FC77-1  
08: FC77-2  
0C: FC77-3  
10: FC77-4

Port 2B has a WWPN of 21:08:00:20:C2:07:83:32 for a system with serial number G-8332. The same system has a worldwide node name (WWNN) of 10:00:00:20:C2:07:83:32 for all ports.

## LU access model

On a RamSan system, all controllers are Active/Active on a nonblocking crossbar. To avoid an outage from controller failure, configure multipathing across FC controller cards in all conditions. Because all RamSan systems are equal in priority, there is no benefit to using an exclusive set for a specific LU.

## LU grouping

The RamSan system does not use LU grouping.

## LU preferred access port

There are no preferred access ports for the RamSan system because all ports are Active/Active across all controllers.

## Detecting ownership

Ownership is not relevant to the RamSan system.

## Switch zoning for RamSan storage systems

Switch zoning configurations for the RamSan system include considerations for fabric zoning, target port sharing, host splitting, and controller splitting.

## Fabric zoning

To enable multipathing, ensure that you have multiple zones or multiple RamSan and SAN Volume Controller ports for each zone when you are zoning a RamSan system to the SAN Volume Controller backend ports.

## Target port sharing

The RamSan system can support LUN masking to enable multiple servers to access separate LUNs through a common controller port. There are no issues with mixing workloads or server types in this setup. LUN Masking is a licensed feature of the RamSan system.

## Host splitting

There are no issues with host splitting on a RamSan system.

## Controller splitting

RamSan system LUNs that are mapped to the SAN Volume Controller cluster cannot be mapped to other hosts. LUNs that are not presented to the SAN Volume Controller can be mapped to other hosts.

## Configuration settings for RamSan systems

The RamSan GUI provides configuration settings and options that can be used with SAN Volume Controller clusters.

## LU options and settings

When you create a logical unit (LU), the options in Table 2 are available on RamSan systems.

Table 2. RamSan LU options

Option	Data type	Range	Default	SAN Volume Controller setting	Comments
Name	String	1 character - 32 characters	Logical unit number	Any	This is only for management reference.
Number	Integer	0 - 1023	Next available LUN	0 - 254	Some hosts have known limitations of 254 as their highest LUN ability. One logical unit can appear at multiple LUNs. For example, the same data could appear at LUN 1, LUN 7, and LUN 124.
Size	Integer	1 MB - maximum capacity	Maximum available capacity	Any	MB and GB are BASE2 offerings.

Table 2. RamSan LU options (continued)

Option	Data type	Range	Default	SAN Volume Controller setting	Comments
Backup mode	Option list	Writeback caching or writethrough caching	Writeback caching	Writeback caching	Use writeback caching in production. Use writethrough caching strictly for diagnostics.
Device ID	Integer	Blank, 0 - 32768	Blank	Blank	Specific only to OpenVMS.
Report corrected media errors	Checkbox	Checked or Unchecked	Checked	Checked	Notifies the host if ECC was used to correct the requested data.
Report uncorrected media errors	Checkbox	Checked or Unchecked	Checked	Checked	Always report uncorrected media errors.

## Host options and settings for RamSan systems

No host options are required to present the RamSan systems to SAN Volume Controller clusters.

## Quorum disks on RamSan systems

The SAN Volume Controller cluster selects managed disks (MDisks) that are presented by RamSan systems as quorum disks. To maintain availability with the cluster, ensure that each quorum disk resides on a separate disk system.

## Clearing SCSI reservations and registrations

You must not use the RamSan CLI to clear SCSI reservations and registrations on volumes that are managed by the SAN Volume Controller. This option is not available on the GUI.

## Copy functions for RamSan systems

The RamSan system does not provide copy, replicate, or SnapShot features. The RamSan system also does not provide thin provisioning.



---

## Notices

This information was developed for products and services offered in the U.S.A.

IBM® may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive  
Armonk, NY 10504-1785  
U.S.A.*

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing  
Legal and Intellectual Property Law  
IBM Japan, Ltd.  
3-2-12, Roppongi, Minato-ku, Tokyo 106-8711 Japan*

**The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:**

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATIONS "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Corporation  
Almaden Research  
650 Harry Road  
Bldg 80, D3-304, Department 277  
San Jose, CA 95120-6099  
U.S.A.*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products may be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

#### COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application

programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

---

## Trademarks

IBM, the IBM logo, and [ibm.com](http://ibm.com) are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at Copyright and trademark information at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

Other company, product, or service names may be trademarks or service marks of others.