SV ZONE MANAGER

Installation

and

User Guide

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CONTENTS

PREFACE

Document Overview

This document describes the installation, operation, and fundamental concepts of SV Zone Manager. This software provides a centralized console for viewing and configuring the allocation of resources across an entire Storage Area Network (SAN).

Chapter 1 provides an overview of SV Zone Manager, including how to install it, and the components of a zone.

Chapter 2 explains how to use the SV Zone Manager CLI to configure zones and establish relationships between different hosts and drives.

Related Publications

SV SAN Builder – Installation and User Guide - Sun Release	prt no. 310-606154
SV Router FC-FC 3 – Installation and User Guide – Sun Release	prt no. 310-606155
SV SNMP Agent – Installation and User Guide - Sun Release	prt no. 310-606157
Vicom SVE Service Manual for UNIX – Sun Release	prt no. 310-606187

SV Zone Manager Revision History

Software Version	Date	Document
2.5	Sep 17 2001	Preliminary Release: 2.5.1
2.5	Oct 15 2001	Release: 2.5.2

Service and Support

Please fill out and mail or fax the warranty registration card included with the hardware as soon as possible. Each installation must be registered in order to qualify for technical support.

Vicom provides 24x7x365 support. Customers may call: 1-877-868-4266 or 510-743-1427.

At any time, customers may request support via email at support@vicom.com. Responses to requests will be made during the following business day.

CHAPTER 1

INTRODUCTION TO SV ZONE MANAGER

This chapter explains how to install SV Zone Manager and how it functions. It includes these sections:

- SV Zone Manager Overview

- The SV Domain and its Elements

- Understanding Zoning and Mapping

SV Zone Manager Overview

Vicom SV Zone Manager allows you to view and configure the allocation of resources across an entire Storage Area Network (SAN).

The following physical elements can occur in a SAN:

- Hosts   Server computers.

- Host adapters   Generally an FC or SCSI adapter card installed in a server.

- SVE FC-FC 3   Initiator or target SAN Appliance.

- Drives (Target Drives)   Individual storage devices or storage subsystem. Drives can be physical target drives or complex drives.

- Other devices   SV Bridges, switches, etc.

System Requirements

- Sun Solaris® 2.6, 2.7 (7), or 8.

- TCP/IP socket support.

- Network card (10BaseT or 100BaseT).

- Microcode version 8.1.0 or later.

Installing SV Zone Manager

SV Zone Manager is automatically installed with SV SAN Builder. See the *SV SAN Builder – Installation and User Guide* for detailed instructions.

The SV Domain and its Elements

The highest level of organization in the SV Zone Manager implementation is the SV domain, a logical entity that allows you to group the target drives and host adapters associated with a particular SVE FC-FC 3. These drive/host adapter associations take the form of zones.

Each SVE FC-FC 3 can have two domains: one primary SV domain and one alternate SV domain. Within each SV domain, you can define up to 64 zones.

The SV domain in use is called the active SV domain. The other SV domain is called inactive. These designations apply regardless of whether the primary or alternate SV domain is selected.

With both a primary and an alternate domain for an SVE FC-FC 3, you can configure each domain to represent a different collection of zone mappings, and then switch back and forth between them when necessary. SV domains contain Zones, Drives, Host Adapters, and SV Routers.

Zones

SV Zone Manager allows you to map drives to host adapters and create "zones." Zones contain host adapters and the drives these host adapters will access.

Using Zone Mapping, you can create a mapping between the zone's members that can be entirely unique from the mappings created in other zones. This provides a great deal of variation between the structure and composition of the SV domains. A zone is the only location where host adapters and storage drives actually are bound together.

Figure 1-1 demonstrates the mappings that might be seen in two zones.
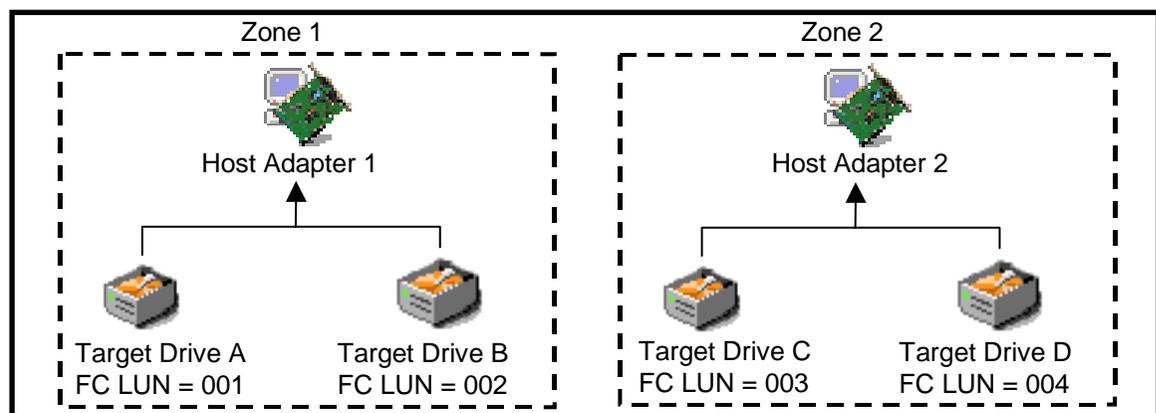
Figure 1-1   Zone Membership

Zone 1 contains Host Adapter 1 and target drives A and B. Zone 2 contains Host Adapter 2 and target drives C and D. Because these target drives are defined only in these zones, they are only visible and available to the host adapter that is in the same zone.

- In order for Host Adapter 1 to see drives C and D, it must be added to Zone 2, or drives C and D must be added to Zone 1.

- In order for Host Adapter 2 to see drives A and B, it must be added to Zone 1, or drives A and B must be added to Zone 2.

Drives

The availability of target drives depends upon the specific host adapters with which they are associated and to which zones they belong. Drives can be seen only by host adapters that belong to the same zones.

Host Adapters

As seen in Figure 1-1, zoning establishes the relationship between host adapters and the storage devices to which they can connect (see 'Zoning Rules and Restrictions' on page 6 for rules that apply to the host adapters and target drives).

SV Routers

SVE FC-FC 3s define the domains that are used to organize a SAN in SV Zone Manager. They link the storage drives to the host adapters in the zones.

Understanding Zoning and Mapping

SV Zone Manager provides zoning that directly ties the storage drives to the host adapters that are going to use them. You can create zones in the primary SV domain, the alternate SV domain or both.

Zone mapping is defined in the context of the particular SVE FC-FC 3 that is connected to the host adapter. Any zone configuration you create is saved in the memory of that particular SVE FC-FC 3. That configuration is relevant only to that SVE FC-FC 3.

The active SV domain for the SVE FC-FC 3 provides the defining zone configuration. If no zones are defined for a particular SVE FC-FC 3, it takes the global mapping (see 'Global Mapping'). This has a number of implications:

- Instead of having only a single global mapping that applies to the entire SAN, drives can have mappings specific to individual zones.

- Changing the membership or drive mappings of a zone will not affect those of other zones.

- You can create and change aliases for the SVE FC-FC 3s, zones, and SV domains.

- Changes to zones and SV domains on a particular SVE FC-FC 3 do not affect the configurations of other SAN Appliances.

- You can define alternate SV domains, zones, and mappings (see 'The SV Domain and its Elements' on page 3).

Types of Drive Mapping

Drive mapping in a Storage Area Network using SVE FC-FC 3 occurs when the SVE FC-FC 3 provides each logical or physical drive (general spare drives are unmapped) with a Logical Unit Number (LUN) and an ID (if SCSI). The FC LUN (or SCSI LUN/ID) identifies the drive to any host adapters attempting to connect to it.

Global Mapping

Global mapping refers to the sharing of target device mapping (FC LUN or SCSI LUN/ID) among all SVE FC-FC 3s in a storage subsystem. Changing the LUN or ID of a target drive affects the entire SAN and all SVE FC-FC 3s and host adapters contained within it. With this global mapping of the SAN, all host adapters must share the same drive mapping table.

Zone Mapping

With zone mapping, drive mapping tables exist for each established zone, and all host adapters within such a zone share this mapping table.

Drive mapping can be changed at two levels: between the alternate and primary SV domains and within those SV domains by defining different mappings for individual zones. Thus, a specific drive can have a different LUN in each zone in which it is defined, as well as a different LUN for the other SV domain.

Adding a host adapter to another zone that has the same drive mapping will result in drive mapping conflicts (see Figure 1-2). The drives in one of the zones must be remapped. See 'Zone Commands [sliczone]' on page 18 for more information.
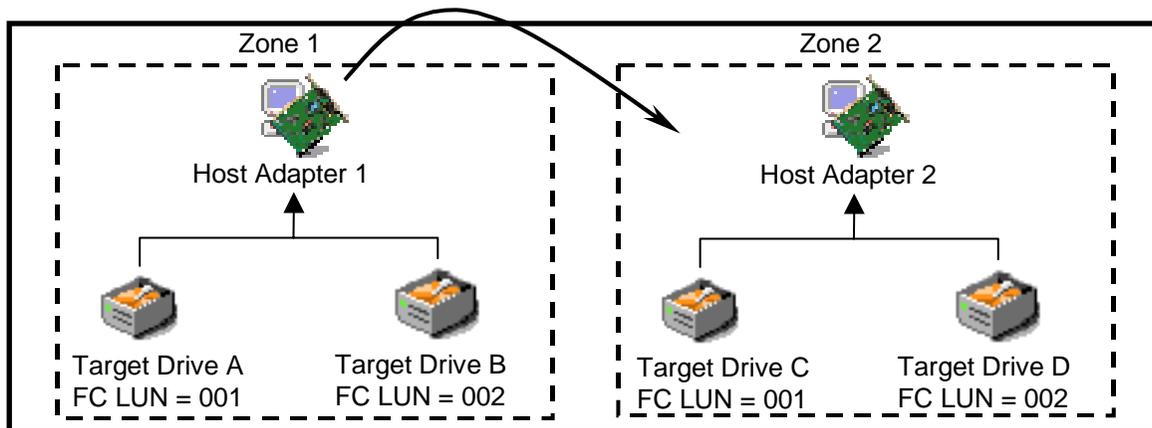
Figure 1-2   Zone Mapping Conflicts

Zoning Rules and Restrictions

The quantitative restrictions placed on the establishment of SV domains and zones are:

- Maximum number of host adapters connected to an SVE FC-FC 3: 32.

- Maximum number of storage devices defined in a zone: 128.

- Maximum number of SV domains you can define: 2 (one primary & one alternate).

- Maximum number of zones a user can define per SV Router: 128 (64 per SV domain).

- Maximum number of SANs managed from a single console: 32.

- Maximum number of SV Router per SAN: 16.

Rules that apply to the host adapters and target drives placed within a zone are:

- A host adapter that is not in the same zone as a drive cannot view or access that drive (see Figure 1-1 on page 3).

- For a drive to be made available to all host adapters connected to a given SVE FC-FC 3, create a zone that includes that drive, and all of the host adapters.

- To see all host adapters connected to a given SVE FC-FC 3, you can create a zone that includes all of the host adapters, but no drives.

Note: Do not create more than one zone that contains only host adapters.

- Names assigned to physical and logical components referenced by the SVE FC-FC 3 have a maximum of 16 characters. Do not use spaces if you plan to refer to these components by name in the Command Line Interface.

- Drives can belong to multiple zones. The drive mapping in one zone can be the same or different from the mapping in other zones. Figure 1-3 shows a single target drive with different mapping in each of the zones to which it belongs.
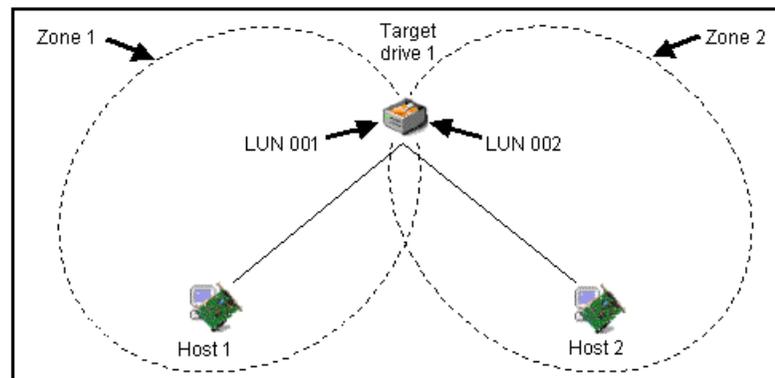
Figure 1-3   Target Drive with Different LUN in Different Zones.

Public Zones

A public zone is a special type of zone that contains all of the host adapters connected to an SVE FC-FC 3. Every SV domain that contains zones has a public zone. Public zones are created automatically by SV Zone Manager.

The public zone, by default, is hidden from the user. To view the public zones, select Show Public Zones in program options. If Show Public Zones is selected, the public zone will not be created automatically. Therefore, if you create a new zone for an SV domain that contains no zones, you will be prompted to create the public zone manually.

A number of rules govern public zones:

- Only one public zone can be created for each SV domain.

- A normal zone must contain at least one target device; a public zone is created with no devices (you can add devices to a public zone if it is not hidden).

- A public zone can be deleted only if it is the only zone in its SV domain.

If a single public zone is the last existing zone for both SV domains and it is deleted, all mapping changes made by the user in SV Zone Manager (SV domain, zone definitions, etc.) will be removed, and only the Global SAN mapping will remain. This is referred to as rollback.

CHAPTER 2

SV ZONE MANAGER COMMAND LINE INTERFACE

This chapter explains the Command Line Interface and the commands that can be used to configure zones and establish relationships between different hosts and drives. (For a summary of the commands available, see Appendix A 'Command Line Quick Reference' on page 23.) The chapter includes these sections:

- Using the SV Zone Manager Command Line Interface

- Viewing SV Router Zone Components [slicview]

- Listing SLIC Daemons [sgetname]

- Host Adapter Commands [sadapter]

- Viewing SV Domain Properties [sdomain]

- Zone Commands [sliczone]

Using the SV Zone Manager Command Line Interface

The following commands can be used to configure zones. They are accessed from the operating system's command prompt.

Getting Started

1. Open a terminal.

2. Change to the directory that contains the sduc directory (default is **svengine**).

   Example: **# cd /svengine**

3. Change to the sduc directory.

   Example: **# cd sduc**

Overview of Common CLI Parameters

The following parameters are used commonly in the SV SAN Builder CLI.

- **-d Cx**

  Cx represents the SignOn path, as specified in the config file. The configuration file (svengine.cfg) is located in the sdus directory in the server running the daemon. If the SignOn path name is unknown, view the config file to determine it.

  In the config file, the example used to show the SignOn path configuration is r0. You may use any name desired. The name you use in the config file must also be uses in the command line.

  Example SignOn Path used in config file:

  ```
  r0 = {
  internet_path = 123.123.456.789;
  };
  ```

  In this example, the **-d Cx** parameter would be written in the CLI as **-d r0**.

- **-h Host**

  The host represents the name or IP address of the server running the daemon. The IP

address or the host name is typically located in the 'hosts' file located in the 'etc' directory. If the name or IP address of host is unknown, view the 'hosts' file to determine them. If the config file has been edited for use, you may view the config file to determine the IP address. The host name, however, will not be listed in the config file.

Example Host IP Address in Config File:

```
PrimaryDaemon = 100.1.2.32
```

In this example, the `-h Host` parameter would be written in the CLI as `-h 100.1.2.32`.

- `-v`

The `-v` parameter is used both for verbose mode (the result of the command is printed to the screen) and for user confirmation mode (confirmation is required before the command is executed).

Viewing SV Router Zone Components [slicview]

Use the **slicview view** command to view information about the SV Router and all drives and host adapters that are accessible from it.

If an SV Router initiator is specified, then only the information pertaining to that particular SV Router is displayed. When no SV Router initiator is specified, the complete list of SV Routers in the SAN and their accessible drives and host adapters is displayed.

If the host is specified the SV Router initiator number is not required.

Usage:

```
slicview view -d Cx {-r Ixxxxx -h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Optional. Initiator/SLIC Number of the SV Router.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. Show public zone information.

Examples:

The following example will display the zoning information of SV Router I00003. The **slicview** command is executed on a remote server (MYHost) running the daemon (r0).

```
slicview view -d r0 -r I3 -h MyHost
```

The following example will display the zoning information of all the SV Routers in the SAN. The **slicview** command is executed on a server running the daemon (r0).

```
slicview view -d r0
```

Listing SLIC Daemons [sgetname]

Use the **sgetname** command to list the SignOn paths for the SLIC Daemon processes running on each host. If the host parameter is omitted, only the local SignOn paths (the SignOn Paths for the computer you are directly connected to) will be listed.

Usage:

```
sgetname -h Host
```

    -h Host   The name or IP address of the host running the daemon.

Examples:

The following example will display the SignOn paths for the SLIC Daemon processes running on host 205.119.173.113.

```
sgetname -h 205.119.173.113
```

Host Adapter Commands [sadapter]

The **sadapter** command is used to add a host adapter to a SV Router, assign or change alias to a host adapter, or view properties of the host adapters connected to a SV Router.

Viewing Host Adapter Properties

Use the **sadapter view** command to view the active/inactive drive list of host adapters connected to the SV Router selected. When a host adapter is specified (either by UID or name), it displays the active/inactive drives for that particular host. If no host adapter is specified, it displays the complete list of hosts and their active/inactive drive list.

Note: When viewing a host adapter's properties, use either -a HostName or -u HostUID to specify the host adapter. If no alias is defined for a host adapter, -u HostUID should be used to identify the host adapter.

Usage:

```
sadapter view -d Cx -r Ixxxxx {-a HostName -u HostUID} {-h Host}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-a HostName	The name assigned to the host adapter. Not needed if **-u HostUID** is used.
-u HostUID	UID or WWN of the host adapter. Not needed if **-a HostName** is used.
-h Host	Optional. The name or IP address of the host running the daemon.

Examples:

The following example will display the properties of host adapter HBA_A on SV Router I00002. The **sadapter** command is executed on a server running the daemon (r0).

```
sadapter view -d r0 -r I2 -a HBA_A
```

The following example will display the properties of host adapter 213784FE74A93DC1 on SV Router I00003. The **sadapter** command is executed on a server running the daemon (r0).

```
sadapter view -d c0 -r I3 -u 213784FE74A83DC1
```

The following example will display the properties of all host adapters connected to SV Router I00002. The **sadapter** command is executed on a server running the daemon (r0).

```
sadapter view -d r0 -r I2
```

Creating or Changing the Host Adapter Alias

Host adapters are identified by their 16-digit Unique IDs (UID). The UID, also called the worldwide name, cannot be changed. Use **sadapter alias** to create an alias to identify a host adapter or to change an existing host adapter alias.

Note: When changing a host adapter's alias, use either the -a HostName or the -u HostUID to specify the host adapter. If no alias is defined for a host adapter, the -u HostUID should be used to identify the host adapter.

Usage:

```
sadapter alias -d Cx -r Ixxxxx -n NewHostName {-a HostName -u
HostUID} {-h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-n NewHostName	The new host adapter name to be assigned.
-a HostName	The name assigned to the host adapter. Not needed if **-u HostUID** is used.
-u HostUID	UID or WWN of the host adapter. Needed when creating the alias for the first time. When changing the alias, it is not needed if **-a HostName** is used.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. User confirmation required.

Examples:

The following example will create an alias (HBA_A) for HBA 213784FE74A83DC1 on SV Router I00002. The **sadapter** command is executed on a server running the daemon (r0).

```
sadapter alias -d r0 -r I2 -n HBA_A -u 213784FE74A83DC1
```

The following example will change the alias Data_Host on SV Router I00003 to DB_Host. The **sadapter** command is executed on a server running the daemon (r0).

```
sadapter alias -d r0 -r I3 -a Data_Host -n DB_Host
```

Adding a Host Adapter

Use the **`sadapter add`** command to add a host adapter to the SV Router. You must specify the host adapter UID, and you also can assign an alias for the host adapter.

Usage:

```
sadapter add -d Cx -r Ixxxxx -n NewHostName -u HostUID {-h Host -v}
```

`-d Cx`	Cx is the SignOn Path, as specified in the config file.
`-r Ixxxxx`	Initiator/SLIC Number of the SV Router.
`-n NewHostName`	The alias that will be applied to the host adapter (maximum = 16 characters).
`-u HostUID`	UID or WWN of the host adapter.
`-h Host`	Optional. The name or IP address of the host running the daemon.
`-v`	Optional. User confirmation required.

Examples:

The following example will add the HBA 213784FE74A83DC1 to SV Router I00003, and give it the alias MyServer. The **`sadapter`** command is executed on a server running the daemon (r0).

```
sadapter add -d c0 -r I3 -u 213784FE74A83DC1 -n MyServer
```

Viewing SV Domain Properties [sdomain]

Use the **sdomain view** command to view the SV domain information (the ID, type (active or inactive), the number of zones it contains, and a list of the zones).

If a domain name is specified, the zone information for that domain is displayed. If no domain name is specified, all the domains and their zone information are displayed.

Usage:

```
sdomain view -d Cx -r Ixxxxx {-g DomainName -h Host -v}
```

-d Cx	Cx is the SignOn path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-g DomainName	Optional. The name of the SV domain.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. Show public zone information.

Examples:

The following example displays the primary domain information of SV Router I00003. The **slicview** command is executed on a remote server (MyHost) running the daemon (r0).

```
sdomain view -d r0 -r I3 -g Primary_Domain -h MyHost
```

The following example displays the properties of all the domains available in the SV Router I3. The **slicview** command is executed on a server running the daemon (r0).

```
sdomain view -d r0 -r I3
```

Zone Commands [sliczone]

The **sliczone** command is used to configure and manage the zones for all the SV Routers in a SAN. All zone commands require the SV Router initiator number.

Creating a Zone

Use the **sliczone create** command to create zones. A zone must contain at least one host adapter, which you can use either **-a HostName** or **-u HostUID** to specify. One or more drives can be included in this zone during the creation process.

A zone is part of an SV domain. If you do not specify an SV domain it will default to the primary SV Domain.

If you do not select the -m option, this program will generate the map in sequence, filling in any gaps in the sequence (similar to the **-m auto** behavior).

Usage:

```
sliczone create -d Cx -r Ixxxxx -z ZoneName {-a HostName -u
HostUID} {-t Txxxxx -g DomainName -m [auto/global] -h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-a HostName	The name assigned to the host adapter. Not needed if **-u HostUID** is used.
-u HostUID	The UID or WWN of the host adapter. Not needed if **-a HostName** is used.
-z ZoneName	The new zone name to be assigned. If not specified, a zone name will be assigned automatically.
-t Txxxxx	Optional. The target number of the drive.
-g DomainName	Optional. The name of the SV domain.
-h Host	Optional. The name or IP address of the host running the daemon.
-m auto/global	Optional. Zone map generation.
auto	Auto assigns LUN maps in sequence.
global	Retains the global map of the drives.

Note: If you do not select the **-m** option, Zone Manager will use the **-m auto** function by default.

-v   Optional. User confirmation required.

Examples:

The following example will create a zone (ZONE_NY) with HBA HBA_NY on SV Router
I00002. No drive is included in this zone. The **sliczone** command is executed on a server
running the daemon (r0).

```
sliczone create -d r0 -r I2 -a HBA_NY -z ZONE_NY
```

The following example will create a zone (ZONE_CA) with HBA HBA_CA and two drives
(T16384 and T16385) on SV Router I00002. The **sliczone** command is executed on a server
running the daemon (r0).

```
sliczone create -d r0 -r I2 -a HBA_CA -z ZONE_CA -t t16384 t16385
```

Adding Members to a Zone

Use the **sliczone add** command to add members (drives (**-t Txxxxx**)) and/or host
adapters (use either **-a HostName** or **-u HostUID**) to a zone. You must specify the name of
the zone to which these component members will be added.

Usage:

```
sliczone add -d Cx -r Ixxxxx -z ZoneName {-t Txxxxx -a HostName -u
HostUID} {-m[auto/global] -h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-t Txxxxx	The target number of the drive.
-a HostName	The name assigned to the host adapter. Not needed if **-u HostUID** is used.
-u HostUID	The UID or WWN of the host adapter. Not needed if **-a HostName** is used.
-z ZoneName	The name of the zone.
-h Host	Optional. The name or IP address of the host running the daemon.
-m auto/global	Optional. Zone map generation.
auto	Auto assigns LUN maps in sequence.
global	Retains the global map of the drives. If there are

any duplicates, the command will fail.

Note: If you do not select the **–m** option, Zone Manager by default will save the existing zone maps and then fill in any gaps in sequence before proceeding incrementally.

    -v   Optional. User confirmation required.

Examples:

The following example will add a drive (T16386) to a zone (Zone_NY) on SV Router I0002. The sliczone command is executed on a server running the daemon (r0).

```
sliczone add -d r0 -r I2 -z ZONE_NY -t t16386
```

Deleting Members from a Zone

Use the **sliczone del** command to delete existing members from a zone. Members may be host adapters (specified using either **-a HostName** or **-u HostUID**) or target drives (**-t Txxxxx**). You must specify the name of the zone.

Note: Zones must contain at least one host adapter. To delete all host adapters, you must remove the zone (see 'Removing Zones').

Usage:

```
sliczone del -d Cx -r Ixxxxx -z ZoneName {-t Txxxxx -a HostName -u
HostUID} {-h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-t Txxxxx	The target number of the drive.
-a HostName	The name assigned to the host adapter. Not needed if **-u HostUID** is used.
-u HostUID	UID or WWN of the host adapter. Not needed if **-a HostName** is used.
-z ZoneName	The name of the zone.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. User confirmation required.

Examples:

The following example will delete one drive (T16385) from a zone (ZONE_CA) on SV Router I0002. The **sliczone** command is executed on a server running the daemon (r0).

```
sliczone del -d r0 -r I2 -z ZONE_CA -t t16385
```

Mapping Drives in a Zone

Use the **sliczone map** command to re-map the members of a zone—the target drives as viewed by the host adapter. You must specify the name of the zone to map.

This command has no terminal output.

Usage:

```
sliczone map -d Cx -r Ixxxxx -z ZoneName {-h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-z ZoneName	The name of the zone.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. User confirmation required.

Examples:

The following example will remap the drives in a zone (ZONE_NY) on SV Router I00003. The **sliczone** command is executed on a server running the daemon (r0).

```
sliczone map -d r0 -r I3 -z Zone_NY
```

Viewing Members of a Zone

The **sliczone view** command is used to view the members of a zone: the host adapters, target drives, and any other devices present. Specify the name of the zone to be viewed.

Usage:

```
sliczone view -d Cx -r Ixxxxx -z ZoneName {-h Host}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.

-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-z ZoneName	The name of the zone.
-h Host	Optional. The name or IP address of the host running the daemon.

Examples:

The following example will display the properties of a zone (ZONE_NY) on SV Router I00002. The **sliczone** command is executed on a server running the daemon (r0).

```
sliczone view -d r0 -r I2 -z ZONE_NY
```

Removing Zones

Use the **sliczone remove** command to remove a zone entirely. Specify the name of the zone to be removed.

Usage:

```
sliczone remove -d Cx -r Ixxxxx -z ZoneName {-h Host -v}
```

-d Cx	Cx is the SignOn Path, as specified in the config file.
-r Ixxxxx	Initiator/SLIC Number of the SV Router.
-z ZoneName	The name of the zone.
-h Host	Optional. The name or IP address of the host running the daemon.
-v	Optional. User confirmation required.

Examples:

The following example will remove a zone (ZONE_CA) from SV Router I0002. The **sliczone** command is executed on a server running the daemon (r0).

```
sliczone remove -d r0 -r I2 -z ZONE_CA
```

APPENDIX A

COMMAND LINE QUICK REFERENCE

Viewing SV Router Zone Components [slicview]

View information about the SV Router and all drives and host adapters that are accessible from it.

```
slicview view -d Cx {-r Ixxxxx -h Host -v}
```

Listing SLIC Daemons [sgetname]

List the SignOn paths for the SLIC Daemon processes running on each host.

```
sgetname -h Host
```

Host Adapter Commands [sadapter]

View the active/inactive drive list of host adapters connected to the selected SV Router.

```
sadapter view -d Cx -r Ixxxxx {-a HostName -u HostUID} {-h Host}
```

Create an alias to identify a host adapter or change an existing host adapter alias.

```
sadapter alias -d Cx -r Ixxxxx -n NewHostName {-a HostName -u
HostUID} {-h Host -v}
```

Add a host adapter to the SV Router.

```
sadapter add -d Cx -r Ixxxxx -n NewHostName -u HostUID {-h Host -v}
```

Viewing SV Domain Properties [sdomain]

View the SV domain information (the ID, type (active or inactive), the number of zones it contains, and a list of the zones).

```
sdomain view -d Cx -r Ixxxxx {-g DomainName -h Host -v}
```

Zone Commands [sliczone]

Create a zone.

```
sliczone create -d Cx -r Ixxxxx -z ZoneName {-a HostName -u
HostUID} {-t Txxxxx -g DomainName -m [auto/global] -h Host -v}
```

Add members (drives and/or host adapters) to a zone.

```
sliczone  add -d Cx -r Ixxxxx -z ZoneName {-t Txxxxx -a HostName -
u HostUID} {-m[auto/global] -h Host -v}
```

Delete existing members from a zone.

```
sliczone del -d Cx -r Ixxxxx -z ZoneName {-t Txxxxx -a HostName -u
HostUID} {-h Host -v}
```

Re-map the members of a zone.

```
sliczone map -d Cx -r Ixxxxx -z ZoneName {-h Host -v}
```

View the members of a zone.

```
sliczone view -d Cx -r Ixxxxx -z ZoneName {-h Host}
```

Remove a zone.

```
sliczone remove -d Cx -r Ixxxxx -z ZoneName {-h Host -v}
```

GLOSSARY

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async alert

A signal sent by a drive or a storage area router to inform the user that an error has occurred with the originator of the signal.

auto rebuild

The storage router automatically replaces the failed drive with the spare drive. Router then copies the data from the primary drive to the spare drive, which is now a member of the mirror drive.

available drive pool

A list of usable, functional drives. This includes composite, simple, and general spare drives.

command line interface

A program that accepts commands as typed-in phrases for both UNIX and NT operating systems.

complex drive

A group of storage drives that contains a single ID and LUN. Complex drives can be mirror, composite, mirror composite or multipath.

composite drive

A combination of multiple drives that are seen by the host computer as one. The host sees one drive with the capacity of all the drives combined. Maximum number of drives that a user may combine is eight. When writing to this drive, the information is written in a sequential manner.

concatenation

See composite drive.

configuration file (config file)

The configuration (config) file defines the function of the SLIC daemon.

daemon

See SLIC daemon.

daemon server

The server used to run the SLIC daemon.

dedicated spare   A drive assigned to replace any failed drive within a designated mirror set.

delete Instant Copy   Removes Instant Copy member from a mirror drive.

device router   The router connected to the storage loop.

disk partition   A designated section of memory created on a disk drive.

disk pool   The disk pool is a group of drives from which virtual drives are created. The group of drives that make up the disk pool are called pool drives. Pool drives are created from mapped drive(s), unmapped drive(s), spare drive(s), or multipath drive(s).

DMP   An acronym for dynamic multi-pathing. A software based process that provides and manages multiple data paths. It provides load balancing across multiple I/O channels and if a path fails, it redirects the data through an alternate route.

encapsulation technique   Creating a partition on a drive for use by the storage router.

Ethernet communication   Also called out-of-band communication. SAN connection where control-related signals are transmitted through TCP, rather than in-band with the data.

failover   Automatic and seamless possession of a device's operations when it fails.

FC-AL   An acronym for Fibre Channel – Arbitrated loop. A form of Fibre Channel network in which up to 127 nodes are connected in an arbitrated loop topology. All devices share the same bandwidth and only two devices can communicate with each other at the same time.

FC Node   Fibre Channel Architecture. Any device on the FC-AL loop.

GBIC   An acronym for Gigabit Interface Converter. An interface that converts serial optical signals to serial electrical signals and vice versa. The GBIC is designed to transmit signals via Fibre Channel and Ethernet protocol. It can be designed for use with an optical or copper path. The GBIC is also hot-swappable.

general spare   A spare drive prepared to replace any failed mirror drive.

Glossary

heartbeat A signal used to identify and ensure that paired failover devices in the network are functioning. Once the partner no longer detects the heartbeat signal then the device will perform failover.

heterogeneous Dissimilar. In storage it usually refers to servers or storage that have differing protocol (SCSI, FC, SSA etc.) and exist within the same network.

host The computer that is coordinating the functions of the (local) SV Router in use.

host bus adapter A device that connects one or more peripheral units to a computer.

host router The router connected to the host computer.

host server The computer that is coordinating the functions of the target router in use.

hot plugging (hot swapping) The connection and disconnection of peripherals or other components without interrupting system operation.

in-band communication SAN connection where both control-related signals and data are transmitted through the same path.

initiator A device that originates a signal or a command.

Instant Copy An Instant Copy drive will duplicate the data on any mirror drive (two-way or three-way) without interrupting normal operating functions.

IOCB I/O Control Block. It restricts the number of I/O commands sent from the Host Buffer. When the IOCB count is reached, it will issue a "Queue Full" message to the corresponding HBA. Limiting the Queue Depth keeps the host adapters from issuing too many commands, which can slow down system performance.

IOPS Input/Output Per Second. It is the number of inputs and outputs or read/writes per second.

Ixxxxx The initiator's identification number.

local SLIC The SV Router that is attached to the host computer running the daemon.

logical drive
A group of drives that contain a single ID and LUN. Logical drives can be mirror, composite, mirror composite, Instant Copy or multipath.

logical volume
A designated section of memory created on a disk drive.

logical unit number (LUN)
The SCSI identifier of a logical unit within a target. Each SCSI ID can be divided into eight (0-7) logical units. These logical units can represent whole disks. This identifying number determines the device's priority.

LUN mapping
The ability to change the virtual LUN number as presented to the server from the storage. This allows such benefits as the ability for a server to boot from the SAN without the requirement of a local disk drive. Each server requires LUN 0 to boot.

LUN masking
Enables an administrator to dynamically map an HBA to a specified LUN. This allows an individual server or multiple servers access to an individual drive or to multiple drives, and prohibits unwanted server access to the same drive(s).

management information base
See MIB.

mapped drive
A drive that is assigned an ID and/or LUN for addressing purposes.

mapping table
See SAN database.

master SLIC (master router)
This is the SV Router that controls the storage loop including the drive configuration. All changes to drives must come through this master.

member drive
A drive within a complex drive. Within a Mirror drive, a member can be a simple or a composite drive.

media
The permanent storage area of a drive.

MIB
Acronym for Management Information Base. A database that describes the objects of the a device monitored by SNMP agent.

microcode
An instructional program to enable the proper operations between electrical functions of the computer and its corresponding device(s).

mirror composite drive
A combined group of drives seen as one drive by the host and mirrored or copied by another drive or combined group of drives.

mirror drive	A group of two or three members that contain the same information. A member of a mirror drive can be a simple or a composite drive.
mirroring	Writing identical information to separate drives simultaneously. Also known as RAID Level 1.
multipath drive	A logical LUN or drive created to hide, from the data server, the active and passive paths to a disk array that does not support multi-initiator attach.
node	Any device on the storage loop.
node mapping table	See SAN database.
node table	See SAN database.
offline	Describes a device that is not connected to or not installed in the storage subsystem. A drive could be connected physically to the SAN, but if it is not turned on or not in ready mode, it is considered offline.
owner	The SV Router or SV Routers that have access to the corresponding drive.
one-way mirror	A drive that contains only one mirror member. A one-way Mirror Drive is designed specifically to transmit data from a physical or a composite drive to an Instant Copy drive. This feature is only useful with the Instant Copy command.
out-of-band communication	SAN connection where both control-related signals and data are transmitted through separate paths.
physical drive	A drive that exist in the storage subsystem. They can be mapped or unmapped drives.
primary member	The drive that is copied via mirroring by other drives.
pool drives	The name for drives in the disk pool.
private drive	A simple drive or a complex drive that can be accessed only by an authorized storage router.
public drive	A drive (simple or complex) that can be accessed by any router on the storage loop.

quick initialize	Prompts SV SAN Builder to write zeros to the first block of the disk. After this process is complete, the drive appears new to the host. The host then will review the drive's configuration again. It is not a full initialization.
RAID Level 5	Data is striped across three or more drives for performance, and parity bits are used for fault tolerance. The parity bits from two drives are stored on a third drive.
RMBPS	An acronym for Read MegaBytes Per Second. Displays the rate at which data is read from a specific drive within the storage loop.
SAN	Acronym for Storage Area Network. A high-speed network that connects storage devices. The SV Routers are the foundation of the Vicom SAN. They share a common backbone and enable communication between storage device such as; data servers, switches, and disk arrays. In certain cases, the combination of all these devices may also be referred to as a SAN.
SAN database	A data reference source for the configuration of the SAN.
SLIC	An acronym for Serial Loop IntraConnect. Often used to represent SV Router.
SCSI-FC Extender	Extends SCSI connectivity to 500 meters, overcoming the SCSI distance constraint.
SCSI ID	An acronym for Small Computer Serial Interface Identification. A unique number, given to each device on the SCSI bus. This identifying number determines the device's priority. The numbers range from 0-15, with 7 reserved for the host.
SCSI topology	A map or view of all the complex drives on the storage loop.
service and diagnostic codes	A code composed of numbers referring to problems and events within the storage subsystem. Presented through an LED readout on the SV Router.
service request number	See SRN.
serial loop	A loop of devices connected via fibre channel or SSA protocol.
SignOn drive	The logical or physical drive containing all the configuration data that is located on the storage or serial loop. The host communicates with the SAN through this drive.

SignOn path The path that points to the location of the SLIC Partition on the sign-on drive.

SignOn router The router attached to the host computer running the SLIC daemon, through which communication to the SAN is established.

simple drive One storage drive that contains an ID and LUN. It is not a complex drive.

SLIC daemon A software agent running on the host (either a local or remote server) that permits communication between the client and the subsystem (SV Routers and Drives).

SNMP An acronym for Simple Network Management Protocol. A network protocol. Used with software (SNMP agent and manager) that monitors the network and transmit the information to the network administrator.

spare drive See general spare.

SRN An acronym for Service Request Number. A number used to notify the user of changes or problems that occur within the storage system

SSA An acronym for Serial Storage Architecture. A storage loop from IBM with speeds that can reach 160 Mbps. The loop's design provides added security. If one drive fails, access to the storage loop is maintained.

SSA node Any device on the SSA (Serial Storage Architecture) loop.

SSA topology A map of the nodes on the SSA loop.

standby drive An unmapped drive that is a member of a disk pool.

storage subsystem A combination of disk drives and controllers.

storage capacity The amount of data that can be stored on each drive or complex drive.

storage virtualization The secure and dynamic pooling of diverse storage equipment across heterogeneous servers and clients.

SV Router A Vicom developed hardware module in SVE, which serves as the fundamental building block in a SAN. It provides storage management functions that enable a Fibre Channel host to interface with and control all storage-related elements in a SAN.

SV SAN Builder	A Vicom developed software module in SVE, which creates virtual drives and logical drives on the SAN. Logical drives can be composite drive(s), mirror drive(s), general spare drives, and Instant Copy drives.
SV SNMP Agent	A Vicom developed software module in SVE, which stores and retrieves data from the SAN, and signals the SNMP manager when an event occurs.
SV Zone Manager	A Vicom developed software module in SVE, which enables the system administrator to map logical or physical storage to an HBA. This ability allows the administrator to allocate storage on demand.
target	The recipient of a command or a signal sent by the initiator.
target number	A number assigned to each drive on the loop, except unmapped drives.
target router	The router attached to the host computer.
three-way mirror	Triplicate drives that are created either by data simultaneously written to three separate drives or by data copied from one drive to another drive. Either method ensures that they become duplicates.
two-way Mirror	Duplicate drives that are created either by data simultaneously written to two separate drives or by data copied from one drive to another drive. Either method ensures that they become duplicates.
Txxxxx	The Target's identification number.
unmapped drive	A drive that has not been assigned an ID and/or LUN for addressing purposes.
virtual drive	A logical drive created from the free space of a disk pool.
VPD	An acronym for Vital Product Data. Information about a device that is stored on the device itself. It allows the device to be administered at a system or network level. Typical VPD information includes a product model number, a unique serial number, product release level, maintenance level, and other information specific to the device type.
web walk	The process of a device scanning the storage subsystem.
WMBPS	Acronym for Write MegaBytes Per Second. Displays the rate at which data is written to a specific drive within the storage loop.

zone   A dedicated path between a LUN and the HBA to which it is mapped.

zoning   The act of mapping a LUN(s) to an HBA(s).

INDEX