

## Overland Storage SnapSAN<sup>™</sup> Logical Disk

# Administrator's Guide

\$3000/\$5000





March 2013

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This user guide explains how to use the SW (Software) Logical Disk Administrator (hereinafter Logical Disk or LD) to control spare disks in respective servers as a group; add disks dynamically as required and; to lock configuration changes.

This guide assumes that you are familiar with computer hardware, data storage, and network administration terminology and tasks. It also assumes you have basic knowledge of Internet SCSI (iSCSI), Serial-attached SCSI (SAS), Serial ATA (SATA), Storage Area Network (SAN), and Redundant Array of Independent Disks (RAID) technology.

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## **Product Documentation and Firmware Updates**

Overland Storage SnapSAN product documentation and additional literature are available online, along with the latest release of the SnapSAN 3000/5000 software.

Point your browser to:

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## Conventions

This user guide exercises several typographical conventions:

Convention	Description & Usage
Boldface	Words in a boldface font ( <b>Example</b> ) indicate items to select such as menu items or command buttons.
Ctrl-Alt-r	This type of format details the keys you press simultaneously. In this example, hold down the <b>Ctrl</b> and <b>Alt</b> keys and press the <b>r</b> key.
NOTE	A Note indicates neutral or positive information that emphasizes or supplements important points of the main text. A note supplies information that may apply only in special cases—for example, memory limitations or details that apply to specific program versions.
	An Important note is a type of note that provides information essential to the completion of a task or that can impact the product and its function.
	A Caution contains information that the user needs to know to avoid damaging or permanently deleting data or causing physical damage to the hardware or system.
	A Warning contains information concerning personal safety. Failure to follow directions in the warning could result in bodily harm or death.
Menu Flow Indicator (>)	Words in bold font with a greater than sign between them indicate the flow of actions to accomplish a task. For example, <b>Setup &gt;</b> <b>Passwords &gt; User</b> indicates that you should press the Setup button, then the Passwords button, and finally the User button to accomplish a task.

Information contained in this guide has been reviewed for accuracy, but not for product warranty because of the various environments, operating systems, or settings involved. Information and specifications may change without notice.



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Chapter 1

# Logical Disk Administrator

## Overview

#### **Functions**

The SW (Software) LD (Logical Disk) Administrator (hereinafter Logical Disk or LD) provides functions to:

- Control spare disks in respective servers as a group and add disks dynamically as required and to lock configuration change.
- Set and cancel information on accessibility from the application server to logical disks by using AccessControl
- Operate logical disks inaccessible from the application server
- Initialize logical disk
- Set and cancel the Work Disk for Optimization
- Lock and unlock configuration change

Using these functions enable users to easily and flexibly change configuration of logical disks, to set accessibility, and to prevent wrong configuration changes caused by an operational mistake.

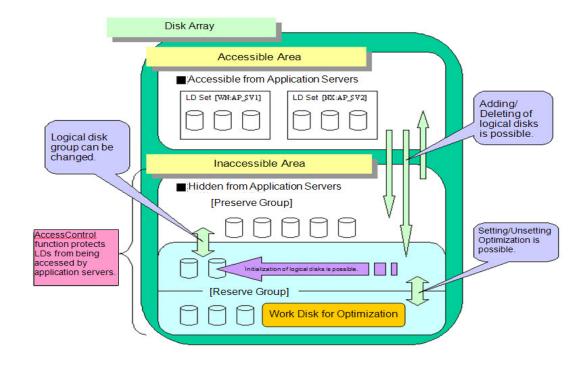


Figure 1-1: LD Administrator Overview

#### [Inaccessible Area]

Logical disk groups hidden from the application server by the AccessControl function exist in this area. This area can be classified into two groups as shown below:

[Preserve Group]...Logical disks in this area are hidden from the application server and cannot be accessed. Contents of the logical disks are retained and existing logical disks include ordinary logical disks with no specific purpose, replication volume (MV, RV), volume for snapshots (BV), link-volume (LV), logical disks to which the data protection setting has already been set by the WORM function, and control volume (CV).

[Reserve Group]...Logical disks in this area are hidden from the application server and cannot be accessed. However, contents of the logical disks are not retained. Existing logical disks include ordinary logical disks with no specific purpose and the Work Disks for Optimization.

#### [Accessible Area]

Logical disk groups accessible from the application server by using the AccessControl function. Contents of the logical disks depend on the application server, and existing logical disks include ordinary logical disks with no specific purpose, replication volume (MV, RV), volume for snapshots (BV), link-volume (LV), logical disks to which the data protection setting has already been set by the WORM function, and control volume (CV). In addition, each logical disk is assigned to an LD Set.

Chapter 2

## Assigning and Canceling of Logical Disks

To use functions of the LD Administrator, it is indispensable to apply an AccessControl program product.

In the LD Administrator, setting/canceling information on accessibility from the application server to logical disks must be performed by using the AccessControl function. Logical disks used from the application server are set to be assigned to the LD Set. Logical disks hidden from the application server are set not to be assigned to the LD Set. Of logical disks hidden from the application server, logical disks that require holding the contents are set to belong to the preserve group. Logical disks that do not require holding the contents are set to belong to the reserve group. (To delete the contents of a logical disk, initialize a logical disk.)

It is possible to display the total logical disk capacity by LD Set, by group, and by purpose. This makes it easy to grasp the circumstances of capacity usage in disk arrays.

For an iSCSI LD Set, information on accessibility to a logical disk cannot be set or canceled in the LD Administrator screen.

Set or cancel this information using the iSCSI setting wizard.

#### Logical Disk Initialization

When a logical disk used for the application server becomes unnecessary, it may be assigned again to another application server. If an application server to which the logical disk is to be assigned is in the same file system as the application server to which the disk has been assigned, the logical disk contents can be used for the new application server without change.

Even in such a case, it is possible to put access control by using a function of Access Control first, then initialize the logical disks hidden from the application server, thus it helps to ensure the security and secrecy.

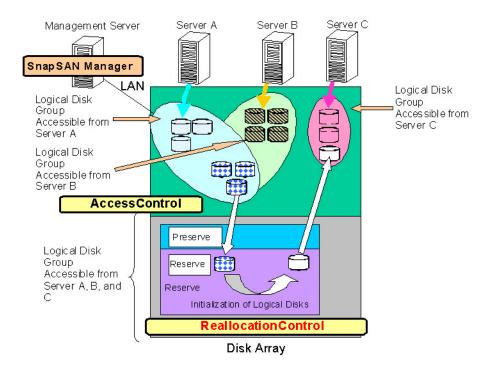


Figure 2-1: Logical Disk Initialization

### **Reserving LD to Each Function**

#### Work Disk for Optimization

The AutoTier function allows logical disks on a high-load physical disk to be assigned to a low-load physical disk so as to distribute the load. In this case, it is necessary to specify logical disks which are surely inaccessible, hidden from the application server as the destination Work Disks for Optimization. The LD Administrator is capable of setting and canceling the Work Disk for the AutoTier function.

#### Disk Arrays for which the Performance

**Optimization Function Is Available** 

The AutoTier function becomes available for any of the following disk arrays for which the AutoTier license is unlocked. The Work Disk for Optimization cannot be set to disk arrays for which the AutoTier function is not available.

## **Configuration Setting Operation Guard**

This is a function protecting the operating environment from wrong operations at configuration change. Locking resources related to the operating services guards them against configuration change operations such as access control setting and pair setting for them. This function suppresses data destruction and service suspension due to human error such as wrong operation, and improves the robustness.

Resources that can be locked are LD Sets, ports, logical disks, and disk arrays (disk array name setting, network setting, and spare unbinding). Operation guard is available in the configuration setting and change operations where user authority of L3 which is authorized for execution from the SnapSAN Manager client is necessary.

Lock resources in advance to prevent a mistake at operation. When changing configuration, unlock the resources to be changed before performing configuration change operation. This can guard the resources not to be set and changed against wrong operation. Lock the resources again after completing the configuration change operation.

Lock/unlock an LD Set, ports, and logical disks basically per LD Set. For logical disks and ports not assigned to LD Sets, lock/unlock them per logical disk or port.

The guard operation by the configuration setting operation guard function is not performed for an LD Set in the abnormal state. When the state of LD Set is restored, the guard operation can be performed again.

Make sure that the operation target is not locked by the configuration setting operation guard function when asking the maintenance person to change configuration. When the operation target is locked, unlock it and ask the maintenance person to change configuration.

When operating from the SnapSAN Manager client that does not support the configuration setting operation guard function, operation is enabled even if the resources are locked. When operating the locked resources, operate from the SnapSAN Manager client that supports this function.

## **Setting Operation Guard Function**

Disk arrays for which the configuration setting operation guard function is available are the following for which the ReallocationControl license has been unlocked.

#### **Guarded-Against Operations for Locked Resources**

Locking resources guards the resources against the following operations. Refer to the explanation of each operation.

#### **Guarded-Against Operations for Locked LD Set**

Function	Guarded-Against Operations
LD Administrator	Adding logical disk, preserving logical disk, reserving logical disk
AccessControl	Deleting LD Set, renaming LD Set, linking with path information, changing LD Set action mode, adding logical disk, deleting logical disk, iSCSI authentication settings
Partitioning wizard	Allocating/freeing pool, allocating/freeing logical disk, allocating/freeing port, changing/deleting cache segment

#### **Guarded-Against Operations for Locked Port**

Function	Guarded-Against Operations
AccessControl (FC)	Deleting LD Set, renaming LD Set, changing LD Set action mode, linking with path information, changing mode type of port

Function	Guarded-Against Operations
Configuration settings	Setting platform for port, setting port name, setting nicknames collectively
Partitioning wizard	Allocating/freeing pool, allocating/freeing logical disk, allocating/freeing port

#### Guarded-Against Operations for Locked Logical Disk

Function	Guarded-Against Operations
LD Administrator	Adding logical disk, preserving logical disk, reserving logical disk, changing logical disk group, initializing logical disk, setting/canceling optimization for logical disk
AccessControl	Deleting LD Set, renaming LD Set, changing LD Set action mode, adding logical disk, deleting logical disk, setting iSCSI authentication
Configuration settings	Freeing logical disk, expanding logical disk capacity, changing the quota or threshold value of a virtual capacity logical disk, adding generation, binding link-volume, unbinding pool, expanding SRA, changing threshold (snapshot), unbinding SRA, setting OS type/Logical Disk Name, setting nicknames collectively, setting pair collectively
Cache partitioning	Changing/deleting cache segment, assigning/freeing logical disk, starting cache partitioning function (taking over the setting), stopping cache partitioning function
Replication	Setting pair, unpairing, forcibly unpairing
WORM management screen	Initializing OS type/Logical Disk Name
Partitioning wizard	Allocating/freeing pool, allocating/freeing logical disk, changing/deleting cache segment

#### Guarded-Against Operations for Locked Disk Array

Function	Guarded-Against Operations
Configuration settings	Setting disk array name, setting network, unbinding spare disk

#### Chapter 3

## Operation

## How to Operate LD Administrator

This software is installed at the same time the SnapSAN Manager server of LD Administrator is installed.

Perform LD Administrator operations on the following screen.

#### LD Administrator Setting

SEI LD S		^	LUN	Number	OS Type	Logical Dis	k Name	RAID	Capacity[GB
	K:DB_SERVE	R	80000h		WN	WB_SERVERO1	2	6	2.0
	K:sune250		0001h	0001h	WN	WB_SERVERO2		6	2.0
	K:a500sv2 N:BSC CENTI		0002h	0003h	WN	WB_SERVER04		6	2.0
	N:Server01 N:WEB_SERV 1000-5555 1000-6666 N:ex120ef1	ER 5-5555-5555 5-6666-6666	0003h	0004h	WN	WB_SERVEROS		6	2.1
	N-AVI2010								
LD	N- 6v1201a	>	<			]		Configu	vration Change
LD ID Inaccessil Selection	dd	U Dele	te(To Preg	erve)		ce(To <u>R</u> eserv		Lo	
LD 1 Inaccessi	dd	U Dele	,	gerve)		ce(To <u>R</u> eserve 206.4 (48		Lo B]	aration Change ck/ <u>U</u> nlock
LD Inaccessil Selection, Capacity Number	dd ble LD Lis / ALL	U Dele	te(To Preg	serve)		206.4 (48	34.4) [G	Lo B]	uration Change
LD Inaccessil Selection, Capacity Number 0002h 0002h	dd ble LD Lis / ALL	U	te(To Preg Name Po 00	-		206.4 (48 Name RA: 202	34.4) [G	Lo B]	aration Change ck/ <u>U</u> nlock
LD Inaccessil Selection, Capacity Number 0002h 0005h 0006h	dd ble LD Lis / ALL OS Type WN	Dele t Logical Disk WE_SERVER03	te(To Preg Name Po 00 00	ol Numbe 02h	Delet / /	206.4 (4) Name RA 202 202	34.4) [G (D 6	Lo B] Ch	uration Change ck/Unlock
LD Inaccessil Selection, Capacity Number 0005h 0005h 0006h 0006h	dd ble LD Lis / ALL OS Type WN	Dele t Logical Disk WB_SERVER03 WB_SERVER06	te(To Preg Name Po 00 00 81 00	ol Numbe 02h 02h	Delet / er Pool I Pool00 Pool00	206.4 (48 Name RA: 002 002 002	(D) 6 6	Lo B] Ch	uration Change ck/Unlock lec <u>t</u> All ange Group
LD Inaccessil Selection, Capacity Number 0002h 0005h 0006h	dd ble LD Lis" (ALL OS Type WN NX	Dele t Logical Disk WE_SERVER03 WE_SERVER03 20000004C51	te(To Preg Name Po 00 00 .81 00 9 00	ol Numbe 02h 02h 02h	Delet     Delet     /     /     Pool 1     Pool0     Pool0     Pool0	206.4 (48 Name RA: 002 002 002 002	(1) (G (1) (G (1) (G (1) (G) (1) (G) (	Lo B] Ch Ini	uration Change ck/Unlock lec <u>t</u> All ange Group

Figure 3-1: LD Administrator Setting

-LD Set De		ssControl Sett	ing/Refer	ence					
	artition_( LX:DB_SE LX:MAIL_ WN:WEB_S 2	RVER	LUN 0000h	Number 0211h 0212h	OS Type WN WN	Logical Dis WEB_SERVERO WEB_SERVERO	1	RAID 1 1	Capacity
	aa ble LD Li.	Delet	e(To Pre <u>s</u> e	erve)		(To <u>R</u> eserve)	C		> tion Change /Unlock
Se <u>l</u> ection				•	/	548.0 (554.	0) [GB]		
Capacity	OS Type	Logical Disk	Name   Par	tition N	ame Node	Number Poo	ol 1🔨	☐ Selec	t All
Capacity Number	no spe		Par	tition_0		000	01h	Chang	re Group
Number 0213h 0214h	WN WN	WEB_SERVERO3 WEB_SERVERO4	Par	tition_0	01 00h	000	Jih		
Number 0213h 0214h 0215h	WIN	WEB_SERVERO4 WEB_SERVERO5	Par	tition_0	01 00h		01h 01h	Initia	alization
Number 0213h 0214h	WN WN	WEB_SERVER04	Par Par	1000	01 00h 01 00h	000		<u> </u>	alization

Figure 3-2: LD Administrator (Partitioning Function)

		ing/Reference				
D						Configuration Change
	aa	Delete(To 1	Pre <u>s</u> erve)	Delete(To Be	1	Configuration Change
Inaccessi Selection,	ble LD Li				eserve)	Lock/Unlock
Inaccessi	ble LD Li	st	Pregerve)		1	Lock/Unlock
Inaccessi Selection, Capacity Number	ble LD Li	st		/ 206.	eserve)	Lock/Unlock
Inaccessi Selection, Capacity Number	ble LD Li ALL OS Type	st Logical Disk Name WB_SERVER03 WB_SERVER06	Pool Number	/ 206. Pool Name	eserve) 4 (484.4) [G RAID 6 6	Lock/Unlock
Inaccessi Selection, Capacity Number 0002h 0005h 0006h	ble LD Li ALL OS Type WN WN WN	tugical Disk Name UB_SERVER03 WB_SERVER06 WB_SERVER04	Pool Number 0002h 0002h 0002h	/ 206. Pool Name Pool0002 Pool0002 Pool0002	eserve) 4 (484.4) [G RAID 6 6 6 6	Lock/Unlock
Tinaccessi Selection, Capacity Number 0002h 0005h 0006h 0007h	ble LD Li / ALL OS Type WN WN	Logical Disk Name WB_SERVER03 WB_SERVER06 WB_SERVER04 WB_SERVER05	Pool Number     0002h     0002h     0002h     0002h     0002h     0000h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000	4 (484.4) [G RAID 6 6 6 6 6 6	Lock/Unlock
Inaccessi Selection, Capacity Number 0002h 0005h 0006h 0007h 0008h	ble LD Li ALL OS Type WN WN WN	UB_SERVERO3 WB_SERVERO3 WB_SERVERO6 WB_SERVERO4 WB_SERVERO5 200000004C5181	Pool Number     0002h     0002h     0002h     0000h     0000h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000 Pool0000	eserve) 4 (484.4) [G RAID 6 6 6 6	Lock/Unlock
Tinaccessi Selection, Capacity Number 0002h 0005h 0006h 0007h	ble LD Li ALL OS Type WN WN WN	Logical Disk Name WB_SERVER03 WB_SERVER06 WB_SERVER04 WB_SERVER05	Pool Number     0002h     0002h     0002h     0002h     0002h     0000h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000	4 (484.4) [G RAID 6 6 6 6 6 6	Lock/Unlock

Figure 3-3: LD Administrator (iSCSI)

For an iSCSI LD Set, the following operations cannot be executed from the LD Administrator screen.

Use the iSCSI Setup Wizard when specifying Access Control settings and to lock or unlock an LD Set.

- Add
- Delete (To Preserve)
- Delete (To Reserve)
- Lock or unlock LD Sets
- Lock or unlock logical disks assigned to an LD Set

#### Add Button

When setting permission of access from the application server to a logical disk, select an LD Set of a desirable application server from the tree view of the LD Set Definition and Assignment display area. Then, select a logical disk to be added from the Inaccessible LD List display area, and click the [Add] button.

However, a logical disk cannot be assigned to the LD Set locked by the configuration setting operation guard function. Nor can the locked logical disks be assigned to the LD Set.

When the partitioning function is available, a logical disk of a partition different from that of the LD Set cannot be assigned to the LD Set.

When the logical disk to be added is in the partition different from that of the LD Set, the operation warning dialog screen shown below is displayed.

iSM	
⚠	[25314] Partition(s) of logical disk(s) is/are different from that of the LD set(s) selected.

Figure 3-4: Confirm Dialog

Before adding a logical disk of the Reserve Group, it is necessary to perform Change Group operation beforehand by using the Change Group button. Note that, with regard to a logical disk which is being initialized or being performed by the AutoTier function, Change Group operation is not possible until the processing is completed.

Moreover, logical disks not belonging to the group cannot be added.

When logical disks to be added do not belong to the Preserve Group located in the Inaccessible LD List, the operation warning dialog screen shown below is displayed.

iSM	
⚠	[05311] The selected LD(s) does not belong to Preserve Group. Select LD(s) belongs to Preserve Group.
	(OK)

Figure 3-5: Warning Dialog

When conditions for addition are met, the "LD Setting" dialog screen below is displayed at the time of clicking the [Add] button.

LUN	Number	OS Type	Logical Disk Name	RAID	Capacity[GB]	
<b>9</b> 0000h	0019h	WN	DB_SERVER01	6	2.0	Top
<b>9</b> 0001h	001ah	WN	DB_SERVER02	6	2.0	Tob
<b>9</b> 0002h	001bh	WN	DB_SERVERO3	6	2.0	
<b>9</b> 0003h	01d7h	WN	DB_SERVER04	6	2.0	Move <u>U</u> p
0004h	01d8h	WN	DB_SERVER05	6	2.0	
<b>0005</b> h	01d9h	WN	DB SERVERO6	6	2.0	
						Move Down
						Bottom
<					>	

Figure 3-6: LD Setting

The logical disk to be newly added is displayed at the end of the logical disk group which has been assigned on the "LD Setting" dialog screen, and LUN can be changed by button operation. However, in the states (1) and (2) stated below, logical disks to be newly added will be displayed after the selected LUN line:

(1) The LUN selected in the LD Set Definition and Assignment display area has not assigned logical disks.

(2) The number of selected logical disks coincides with the number of lines of the LUN which has not assigned logical disks or less.

Furthermore, when selecting multiple LUNs which have not assigned logical disks, the selected LUNs must be sequential.

Only a newly added logical disk group can be moved on this dialog screen. Logical disks cannot be moved to the LUN displayed as the **b** icon. Furthermore, the LUN to which logical disks have been assigned cannot be changed.

Logical disk information displayed on the "LD Setting" dialog screen is as follows:

LUN to which newly added, movable logical disks are assigned

 ${}^{m{V}}$  LUN whose logical disks cannot be moved

Number

OS Type

Logical Disk Name

RAID

Capacity

PD Type

The following button can be operated on the "LD Setting" dialog screen.

[Top] Moves a selected logical disk in a newly added logical disk group to the top line of the newly added logical disk group.

[Move Up] Moves a selected logical disk in a newly added logical disk group to the immediately preceding line of the newly added logical disk group.

[Move Down] Moves a selected logical disk in a newly added logical disk group to the immediately following line of the newly added logical disk group.

[Bottom] Moves a selected logical disk in a newly added logical disk group to the end line of the newly added logical disk group.

[OK] Clicking this button will display a dialog for preliminarily confirming the addition.

[05761]					
Confirm the If correct,			e added to the LD :	set.	
LD Set Li:	st				
Platform	LI	) Set Name	Path		
SET WIN	WI	B_SERVER	1000-5555-5555-5	555	
LD List-					
LD List	Number	05 Type	Logical Disk Name	RAID	Capacity[!
LUN © 0000h	0000h		Logical Disk Name WB_SERVER01	RAID	Capacity[1
LUN	0000h 0001h	WN			Capacity[1
LUN 0000h 0001h 0002h	0000h 0001h 0002h	WN WN WN	WB_SERVERO1 WB_SERVERO2 WB_SERVERO3	6	Capacity[) : ;
LUN 0000h 0001h 0002h 0002h 0003h	0000h 0001h 0002h 0003h	UN UN UN UN	WB_SERVERO1 WB_SERVERO2 WB_SERVERO3 WB_SERVERO4	6 6 6	Capacity[
LUN 0000h 0001h 0002h	0000h 0001h 0002h 0003h	UN UN UN UN	WB_SERVERO1 WB_SERVERO2 WB_SERVERO3	6 6 6	Capacity[ : : : :

Figure 3-7: Setting Check

[Cancel] Clicking this button will display the following dialog to make the operation performed in this "LD Setting" dialog invalid and confirmation will be made about whether to close the "LD Setting" dialog screen. Clicking [OK] button will close this "LD Setting" dialog.

iSM	
?	[05763] Do you want to close the window without applying the LD setting?
	OK Cancel

Figure 3-8: Close Setting

The logical disk display item order can be changed.

When performing [Add], logical disks which have been assigned to an "Add" target LD Set cannot be doubly added to the LD Set.

- A logical disk can be assigned to multiple LD Sets.
- A link-volume cannot be assigned to LUN 0.

If the [Add] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

[Delete (To Preserve)] button

When setting inaccessibility from the application server to logical disks, stop the assignment. In this case, select a logical disk or LD Set of a desirable application server from the LD Set Definition and Assignment display area, and then click the [Delete (To Preserve)] button.

However, the assignment of logical disks locked by the configuration setting operation guard function cannot be canceled.

In addition, if it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to cancel logical disk assignment. Stop all target application servers, and then perform this operation.

- Logical disks which can be moved to the Preserve Group are as follows:
- Logical disks with no specific purpose
- Replication volumes set in pairs
- Volume with snapshot setting (BV)
- Link-volume (LV)
- Logical disks to which the data protection has already been set through the WORM function
- Control volume (CV)

Clicking the [Delete (To Preserve)] button will display a dialog for confirmation.

The Settin	ig Check							
LD Dele	te(Moving LD( [05732] The selected the Preserve - LD Set List	LD(s) wil Group. It	ll be mov	ved to	2			
	Platform	LD Se	et Name	Path		1		
	SET WN	WEB_S	SERVER	1000-5555	-5555-5	555		
	Number		-	Disk Name	RAID	Capacity	-	PD
	0019h		DB_SERVE		6		2.0	
	001ah		DB_SERVE DB_SERVE		6		2.0 2.0	
	<	01	ĸ	Car	ncel	]		

Figure 3-9: Setting Check

In the case where the logical disks selected are assigned to multiple LD Sets, the following dialog screen will be displayed and the execution of the [Delete (To Preserve)] operation concerning the multiple LD Sets will be reconfirmed.



Figure 3-10: Move Sets

The [Delete (To Preserve)] operation targets logical disks assigned to all LD Sets. Therefore, when moving logical disks from a particular LD Set to the Preserve Group, it is necessary to perform operation by using AccessControl located in the second tab.

The [Delete (To Preserve)] operation immediately reflects on the disk array. If this operation is wrong, the application server suddenly stops recognizing the logical disk in use. It is necessary to perform this operation after checking the operation state. Furthermore, stop business or the application server according to the necessity.

If all the logical disks and ports that have been assigned to the LD Set are locked by clicking [Delete (To Preserve)], a dialog box appears that confirms whether to lock the LD set. From this dialog box, you can select whether to lock the LD set.

If the [Delete (To Preserve)] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

(3)[Delete (To Reserve)] button

When setting inaccessibility from the application server to a logical disk, stop the assignment. In this case, select a logical disk or LD Set of a desirable application server, which are to be reserved for Initialization or the use of Work Disks for Optimization, from the LD Set Definition and Assignment display area, and then click the [Delete (To Reserve)] button.

However, the assignment of logical disks locked by the configuration setting operation guard function cannot be canceled.

In addition, if it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to cancel logical disk assignment. Stop all target application servers, and then perform this operation.

- Logical disks which can be moved to the Reserve Group are as follows:
- Logical disks with no specific purpose
- Logical disks which are not being performed by the AutoTier function
- Logical disks which are not being initialized by the WORM function
- Logical disks of which the update prevention state is not "prevent"
- Logical disks which are not in the rotation stop state

Clicking the [Delete (To Reserve)] button will display a dialog for confirmation.

the Reserve G	Froup. If correct	, click OK.			
Platform	LD Set Name	Path			
LD List	00 Terrs   1	Diale Maria	DATE		- DT
Number		Disk Name	RAID	Capacity[GB]	
Number 0	OS Type Logical WN DE_SERV WN DE_SERV	ERO1	RAID 6 6	Capacity[GB] 2.C 2.C	)

Figure 3-11: Delete Moving

When the logical disk corresponds to any of the following, the corresponding operation warning dialog below is displayed.

- Pair settings for replication are being carried out
- Snapshot settings are effective
- Link-volume
- Data protection has already been set through the WORM function
- Re-initialization due to unsetting of the volume protection is being executed
- The update prevention state is "prevent"
- In the rotation stop state
- Control volume

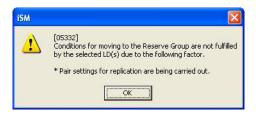


Figure 3-12: Moving Conditions (1)



Figure 3-13: Moving Conditions (3)



Figure 3-14: Moving Conditions (4)



Figure 3-15: Update Prevention



Figure 3-16: Stop State

In the case where the logical disks selected are assigned to multiple LD Sets, the following dialog screen will be displayed and the execution of the [Delete (To Reserve)] operation concerning the multiple LD Sets will be reconfirmed.



Figure 3-17: Reserve Group

The [Delete (To Reserve)] operation targets logical disks assigned to all LD Sets.

The [Delete (To Reserve)] operation immediately reflects on the disk array. If this operation is wrong, the application server suddenly stops recognizing the logical disk in use. It is necessary to perform this operation after checking the operation state. Furthermore, stop business or the application server according to the necessity.

If all the logical disks and ports that have been assigned to the LD Set are locked by clicking [Delete (To Reserve)], a dialog box appears that confirms whether to lock the LD set. From this dialog box, you can select whether to lock the LD set.

If the [Delete (To Reserve)] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

#### [Lock/Unlock] button

You can lock/unlock an LD Set and logical disk. Select an LD Set or logical disk to be locked or unlocked from LD Set Definition and Assignment and the Inaccessible LD List, and then click the [Lock/Unlock] button.

The [Lock/Unlock] button is displayed only for the disk array for which the configuration setting operation guard function is available.

Clicking [Lock/Unlock] button will display the screen confirming the contents.

Only the logical disks in the Inaccessible LD List can be locked or unlocked for a disk array with only iSCSI.

LD Set List	D Set(s) will be ick OK.	TOCKEL.	
Platform	LD Set Name	Path	Configuration (
SET WIN	WEB_SERVER	1000-5555-5555-5	
<			>

Figure 3-18: Preliminary Confirmation Dialog (Locking LD Set)

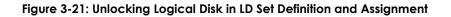
Confirm C	Change(s)				×
Unlock	[25701] The selected Li If correct, cl LD Set List-	D Set(s) will be ick OK.	unlocked.		
	Platform	LD Set Name	Path	Configuration (	
	ि जि ज	WEB_SERVER	1000-5585-5555-5	Lock	
	<				
		OK	Cancel		

Figure 3-19: Preliminary Confirmation Dialog (Unlocking LD Set)

The Settin	g Check			
Lock	[25702] The selected L If correct, cl - LD Set List-	D(s) will be loc ick OK.	cked.	
	Platform	LD Set Name	Path	Configuration
	SET WN	WEB_SERVER	1000-5555-5555-5555	
	LD List		Disk Name RAID C	apacity[GB] PD
	🖁 001ah W			2.0
	<			>
		OK	Cancel	

Figure 3-20: Locking Logical Disk in LD Set Definition and Assignment

The Settin	ng Check			
Unlock				
2	[25703] The selected L If correct, cl LD Set List-	D(s) will be und ick OK.	.ocked.	
	Platform	LD Set Name	Path	Configuration
	SET UN	WEE_SERVER	1000-5555-5555	5
	LD List			
		5 Type Logical	Disk Name RAID 0	Capacity[GB] PD
	001ah W7	N DB_SERVE	RO2 6	2.0
	<			
		OK	Cancel	



29	If correct, LD List Number	OS Type	Logical Disk Name	RAID	Capacity[GB]	Gr
	1 0005h	NX	WB_SERVERO6	6	2.0	Pr
	K					>

Figure 3-22: Locking Logical Disk in Inaccessible LD List

Confirm (	Change(s)					
Unlock	[25703] The selected If correct, LD List		be unlocked.			
	Number	OS Type	Logical Disk Name	RAID	Capacity[GB]	Gr
	0005h	NX	WB_SERVERO6	6	2.0	Pr
	<		OK C	Cancel	]	>

Figure 3-23: Unlocking Logical Disk in Inaccessible LD List)

When the selected state is only in the LD Set Definition and Assignment, lock/unlock the LD Set or logical disk selected from the list view in the LD Set Definition and Assignment. When there is no logical disk or LD Set selected from the list view, lock/unlock the LD Set selected from the tree view.

When the selected state is only in the Inaccessible LD List, lock/unlock logical disk selected from the Inaccessible LD List.

When the selected state is in both the LD Set Definition and Assignment and the Inaccessible LD List, a dialog is displayed selecting the operation target.



Figure 3-24: Operation Target Select Dialog

When selecting the LD Set Definition and Assignment in the operation target select dialog, lock/unlock is performed for the LD Set or logical disk selected from the list view in the LD Set Definition and Assignment. When there is no LD Set or logical disk selected from the list view, lock/unlock is performed for the LD Set selected form the tree view.

When selecting the Inaccessible LD List in the operation target select dialog, lock/unlock is performed for the logical disk selected from the Inaccessible LD List.

Note that when the LD Sets or logical disks in the lock/unlock state are selected by mixture on each list, the list cannot be selected.

[OK] Clicking this button will display the dialog confirming the contents of lock/unlock.

[Cancel] Clicking this button will close the operation target select dialog.

When the LD Set in the abnormal state is selected from the LD Set Definition and Assignment, lock/unlock cannot be performed for the LD Set Definition and Assignment.

When the LD Set is locked, logical disks and ports assigned to the LD Set cannot be separately unlocked.

If [Lock/Unlock] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. In this case, execute [Get Disk Array Info].

Change Group button

It is possible to change the group of logical disks listed in the Inaccessible LD List.

When changing a group of logical disks, select logical disks that you want to change their group from the [Inaccessible LD List], and then click the [Change Group] button.

However, it is impossible to change the group of logical disks locked by the configuration setting operation guard function.

In addition, if Access Control is stopped and it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to change the group of logical disks in a Preserve Group. Stop all target application servers, and then perform this operation.

- Logical disks in the Preserve Group can be moved to the Reserve Group.
- Logical disks which can be moved are as follows:
- Logical disks with no specific purpose
- Logical disks which are not being performed by the AutoTier function
- Logical disks which are not being initialized by the WORM function

- Logical disks of which the update prevention state is not "prevent"
- Logical disks which are not in the rotation stop state
- Logical disks which are not control volumes

When the logical disk corresponds to any of the following, the corresponding operation warning dialog below is displayed.

- Pair settings for replication are being carried out
- Snapshot settings are effective
- Link-volume
- Data protection setting has already been set through the WORM function
- · Re-initialization due to unsetting of volume protection is being executed
- The update prevention state is "prevent"
- In the rotation stop state



Figure 3-25: Changing Group Not Fulfilled



Figure 3-26: Changing Group Not Fulfilled - Factors (1)



Figure 3-27: Changing Group Not Fulfilled - Factors (2)



Figure 3-28: Re-initialization



Figure 3-29: Prevent State

iSM	
♪	[05391] Conditions for moving to the Reserve Group are not fulfilled by the selected LD(s) due to the following factor.
	* LD(s) is/are of rotation stop state.
	()

Figure 3-30: Rotation Stop State



Figure 3-31: Conditions Not Fulfilled (1)

Logical disks of the Reserve Group can be moved to the Preserve Group.

Logical disks which can be moved are as follows:

- Logical disks other than Work Disks for Optimization
- Logical disks which are not being initialized

When these conditions are not met, the operation warning dialog screen below is displayed.



Figure 3-32: Conditions Not Fulfilled (2)

A Work Disk for Optimization has to be converted to a logical disk with no specific purpose by unsetting the AutoTier using the [For Optimization] button before changing the group.

Logical disks which are being initialized cannot be changed until the Initialization is completed.

Clicking the [Change Group] button will display the following dialog screen and the execution of the operation will be confirmed.

[Change to the Preserve Group]

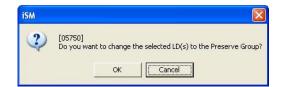


Figure 3-33: Preserve Group

[Change to the Reserve Group]



Figure 3-34: Reserve Group

When the Remote Replication license has been unlocked and the number of volumes of which assigned group is to be changed is more than 512 LDs, the following message box is displayed.



Figure 3-35: Start Checking

If the [Change Group] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

Initialization Button

It is possible to initialize logical disks of the Reserve Group located in the Inaccessible LD List.

When initializing logical disks, select logical disks that you want to initialize from the Inaccessible LD List, and click the [Initialization] button.

However, it is impossible to initialize logical disks locked by the configuration setting operation guard function.

Logical disks that can be initialized are as follows:

- Logical disks other than Work Disks for Optimization
- · Logical disks which are not being initialized
- Logical disks which are not in the rotation stop state

When these conditions are not met, the operation warning dialog screen below is displayed.



Figure 3-36: Warning

Clicking this button will display the following dialog screen and the Initialization of OS Type/Logical Disk Name option can be selected.

Init	ializing selected LD(s).
Ini	ialization of OS Type/Logical Disk Name
By (	choosing "With Initialization", OS Type
and	Logical Disk Name will be restored to
	initial settings of the Disk Array
	system accompanying the initialization of
	ected LD(s).
3	• With Initialization
1	With No Initialization

Figure 3-37: LD Initialization

Clicking the [OK] button will display the dialog shown below to confirm the logical disks to be initialized.

I	05752] he selected f correct, -LD List		ll be initialized			
	Number	OS Type	Logical Disk Nam	RAID	Capacity[GB]	PD
	10002h	WN	WB_SERVERO3	6	2.0	FC
	<			h		

Figure 3-38: LD Initialization

To check the progress of logical disk Initialization, terminate the configuration setting function once and then check the progress ratio on the "Logical Disk Related Information List Screen" of the SnapSAN Manager main window.

During configuration setting, completion of logical disk Initialization is not automatically recognized. Terminate the configuration setting function once or click [Get Disk Array Info] and acquire the latest state of the disk array into the SnapSAN Manager client.

If the [Initialization] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

[For Optimization] button

It is possible to perform setting/unsetting of Work Disks for Optimization with respect to logical disks of the Reserve Group located in the Inaccessible LD List.

When performing setting/unsetting of AutoTier of logical disks, select target logical disks from the Inaccessible LD List, and then click the [For Optimization] button.

However, it is impossible to perform setting/unsetting of AutoTier of logical disks locked by the configuration setting operation guard function.

The [For Optimization] button is not displayed unless a AutoTier product has not been purchased.

Logical disks that can be set for Work Disks for Optimization are as follows:

- Logical disks of the Reserve Group
- · Logical disks which are not being initialized
- · Logical disks which are not being performed by the AutoTier function
- Logical disks which are not cache resident disks
- Logical disks of which capacity is less than 2 TB

- Logical disks which are not in the rotation stop state
- Logical disks for which a quota is not set

However, logical disks in multi-RANK configuration (for other than the disk arrays with pool) cannot be set.

When these conditions are not met, the operation warning dialog screen below is displayed.

iSM	
⚠	[05353] Conditions for setting performance optimization are not fulfilled by the selected LD(s) due to the following factors.
	* LD(s) does/do not belong to the Reserve Group. * Performance optimization setting has already been done. * Initialization is being carried out. * LD(s) of multi-RANK composition.
	(In the case of the disk arrays other than those with pool) * Cache resident disk(s). * LD(s) of capacity 2TB or more. * LD(s) is/are of rotation stop state.
	OK J

Figure 3-39: AutoTier Not Fulfilled

Also, when AutoTier is set for the disk array without enough capacity for the AutoTier license, the operation warning dialog screen below is displayed.

iSM	
1	[05358] The performance optimization cannot be set due to the license capacity insufficiency.

Figure 3-40: Warning

Logical disks that can be unset for Work Disks for Optimization are as follows:

- Work Disks for Optimization
- Logical disks which are not being performed by the AutoTier function
- Logical disks which are not in the rotation stop state

When these conditions are not met, the operation warning dialog screen below is displayed.

iSM	
<u>.</u>	[05354] Conditions for unsetting performance optimization are not fulfilled by the selected LD(s) due to the following factors. * LD(s) does/do not belong to the Reserve Group. * Performance optimization is being carried out.
	* LD(s) is/are of rotation stop state.

Figure 3-41: Warning Explanation

It is not possible to set logical disks which are being initialized for Work Disks for Optimization until the Initialization is completed.

It is not possible to unset logical disks which are being performed by the AutoTier function for Work Disks for Optimization until the AutoTier is completed.

Clicking the [For Optimization] button will display the following dialog screen and the execution of the operation will be confirmed.

[Work Disks for Optimization setting]

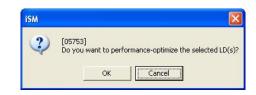


Figure 3-42: AutoTier

[Work Disks for Optimization unsetting]

iSM	
?	[05754] Do you want to unset the performance optimization setting of the selected LD(s)?

Figure 3-43: Use Setting

During the configuration setting, completion of logical disk AutoTier is not automatically recognized. Terminate the configuration setting function once or click [Get Disk Array Info] and acquire the latest state of the disk array into the SnapSAN Manager client.

If the [For Optimization] operation fails, the error dialog screen showing the failure will be displayed.

When an operation request is in error, there is a possibility of inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client. Therefore, click [Get Disk Array Info].

Get Disk Array Info button

Clicking this button will re-acquire information from the disk array necessary for operations on the LD Administrator screen.

Normally, it is not necessary to use this button to acquire information again from the disk array. If operations for the disk array on this screen fail, causing inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client and making normal operation impossible, use this button.

After clicking this button and while information is being acquired from the disk array, the following dialog screen will be displayed.



Figure 3-44: Acquiring Status

When canceling the acquisition of information by clicking the [Cancel] button while the information is being acquired, or the acquisition of information fails, there is a possibility that disk array information administrated by the SnapSAN Manager client may be wrong. Therefore, acquire information again from the disk array through [Get Disk Array Info].

[Select All] check box

This check box is used to perform auxiliary operation to select logical disks from the [Inaccessible LD List] display area.

This check box enables the auxiliary selection operation as shown below.

• Activate the check box

Selects all logical disks displayed in the [Inaccessible LD List].

• Deactivate the check box

Unselect logical disks currently selected and displayed in the [Inaccessible LD List].

[Close] button

Clicking this button will terminate LD Administrator and return to the Configuration Setting screen.

[Help] button

Clicking this button will display the Help screen concerning the [LD Administrator] tab screen.

#### **Operations on [AccessControl] Tab**

Use the iSCSI Setup Wizard to specify Access Control settings and to lock or unlock an LD Set.

#### **Operations on [Setting/Reference] Tab**

Perform Access Control setting by using LD Administrator on the following screen.

Administrator AccessControl Setting/Reference	
Port Settings	Product Information
Change Port Settings	Product Type Purchased
Access Control Setting	AccessControl
Start Access Control	Product Usage Status 10 / (nolim)
Configuration Change of Disk Array If locked, settings of Network or Disk Array Name, and Spare Unbinding cannot be performed.	Display Option Capacity Display Unit G GB C Byte
Configuration Change: Lock/Unlock	
Initialization Options Initialization of OS Type/Logical Disk Name- By choosing "With Initialization", OS Type and Logical Disk Name will be restored to the initial settings of the Disk Array Subsystem accompanying the initialization of selected LD(s).	Access Control Restoration R <u>e</u> store Settings
♥ With Initialization ♥ With No Initialization	
Initialization Time of LD (0-255) If you specify 0, LD can be initialized by the fastest.	
0 Hour[s] (Default : 0)	

Figure 3-45: Setting Reference

Port Settings	Product Information
Change <u>P</u> ort Settings	Product Type Purchased
-Access Control Setting-	AccessControl
Start Access Control	Product Usage Status
gvart Access concrot	3 / (nolim)
Configuration Change of Disk Array If locked, settings of Network or Disk Array Name, and Spare Unbinding cannot be performed. Configuration Change: <u>L</u> ock/Unlock	Display Option Capacity Display Unit G B C Byte
Initialization Options Initialization of 0S Type/Logical Disk Name By choosing "With Initialization", 0S Type and Logical Disk Name will be restored to the initial settings of the Disk Array Subsystem accompanying the initialization of selected LD(s).	Access Control Restoration Restore Settings
• With Initialization • With No Initialization	
Initialization Time of LD (0-255) If you specify 0, LD can be initialized by the fastest.	
0 Hour[s] (Default : 0)	

Figure 3-46: Setting Reference (iSCSI)

The port setting cannot be changed for a disk array with only iSCSI. Use the Initialization Wizard to change the port setting.

The Access Control is always available for a disk array with only iSCSI. However, the Access Control cannot be started.

Change Port Settings button

Clicking this button will display the mode type of each port of the disk array on the "Change Port Settings" dialog screen, and changing of mode type to WWN mode or Port mode is possible. If you want to change a port in Port mode, which has already linked with an LD Set, into WWN mode, unlink the port from the LD Set and then change to the WWN mode. For the disk array for which the configuration setting operation guard function is available, lock/unlock of the port can be performed in the "Change Port Settings" dialog.

The port number indicates "Director Number - Port Number". The LD Set indicates the LD Set to which ports are assigned. If no port is assigned to the LD Set, it is displayed in blank. Configuration Change is displayed for the disk array for which the configuration setting operation guard function is available. When the disk array for which the partitioning function is available is being used, the partition name is displayed.

For the partition user, ports allocated to the management partition are displayed.

Port Number	Port Name	Mode Type	LD Set	Configuration	c ^
<b>渴</b> 00h-00h	port_00	WWN			
200h-01h	port_01	wwn			
<b>2</b> 00h-02h	200000004C5181F40002	Port			
<b>2</b> 00h-03h	200000004C5181F40003	Port			
201h-00h	200000004C5181F40100	WWN			-
<b>5</b> 01h-01h	200000004C5181F40101	Port			
<b>5</b> 01h-02h	20000000465181740102	Port			~
<				>	
Mode Type	C Port Mode		Cor	figuration Chan Lock/Unlock	ge
Chang	re ALL Chan	re Selected			

Figure 3-47: Change Port Settings

[Mode Type] Select a new mode type of port.

Ports cannot be changed from the WWN mode into Port mode in AccessControl (WWN) - applied disk arrays. (If the change is necessary, consult the maintenance person about it.)

- WWN Mode: Changes the port into WWN mode.
- Port Mode: Changes the port into Port mode.

[Change ALL] Clicking this button will set all the ports into the mode type selected in [Mode Type].

In this case, it is not necessary to select ports from the Port List. If there are ports locked by the configuration setting operation guard function, however, the mode type cannot be changed by clicking this button. If it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to change to the Port mode. Stop all target application servers, and then perform this operation. If there are ports allocated to the partition, the mode type cannot be changed by clicking this button, either.

[Change Selected] Select a target port and click the [Change Selected] button.

The selected port is set into the mode type selected in [Mode Type]. Multiple ports can be selected and set at a time if the port list screen shows that they are of the same mode type. In addition, a preliminary confirmation dialog appears to confirm the previous and the new mode type of port. However, the mode type of a port locked by the configuration setting operation guard function cannot be changed. If it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to change to the Port mode. Stop all target application servers, and then perform this operation. The mode type of a port allocated to the partition cannot be changed, either.

TH	)5780] he specified p f correct, cli Port List	ort(s) will be change ck OK.	d to WWN mode.
	Port Number	Port Name	Mode Type Before Change
	200h-02h	port_0002	Port
	Lau		
	<		

Figure 3-48: Confirm Changes

The Change Mode Type of Port operation immediately reflects on the Disk Array. Therefore, if settings are wrong, there is a possibility that accessing from the application server to the LD may not be possible. It is necessary to perform operation after checking the operation state. Furthermore, stop business or the application server according to the necessity.

[Lock/Unlock] Select a target port and click this button. The selected port can be locked/unlocked. Multiple ports can be selected and set if the lock states of the ports are the same in the port list screen. Also, check the operation contents in the Preliminary Confirmation dialog.

This button is displayed for the disk array for which the configuration setting operation guard function is available.

If co		rt(s) will k ck OK.	e locked.				
Po	ort Number	Port Name		Mode	e Type	LD Set	Co
×	01h-03h	Port_03		Port			
<					- Y		

Figure 3-49: Preliminary (Locking Ports)

Number h-03h	Port Name 200000004C5181F40003	Mode Type Port	LD Set	Con
	Landstanding			12 12
				Loc]
				>
			line and a second s	

Figure 3-50: Preliminary (Unlocking Ports)

If all the logical disks and ports that have been assigned to the LD Set are locked by locking the ports, a dialog box appears that confirms whether to lock the LD set. From this dialog box, you can select whether to lock the LD set.

If the LD Set is locked, logical disks and ports assigned to the LD Set cannot be unlocked separately.

Start Access Control

Clicking this button enables the Access Control settings from the application server to logical disks via FC.

However, if it has been confirmed by the configuration change guard function that a target application server is operating, it is not possible to start Access Control. Stop all target application servers, and then perform this operation.

Partition users cannot start Access Control.

If the disk array with only iSCSI is used, the [Start Access Control] operation is not needed.

iSM	
Δ	[05384] Cross Call and Access Control of Disk Array Subsystem are set to ON. In the iSM client, once Access Control has been started, Access Control cannot be stopped.
	>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
	READ THE FOLLOWING BEFORE CONTINUING
	Changing access control without suspending the application servers has the following risks. Incorrect configurations also have the same risks.
	*The connection between logical disks and application servers may be lost, and the business may be stopped immediately.
	*Cache on the application servers that is not flushed to logical disks may cause data inconsistency.
	*Data in existing logical disks may be destroyed.
	200000000000000000000000000000000000000
	0K Cancel

Figure 3-51: Start Access Control

In the SnapSAN Manager client, once Access Control has been started, Access Control cannot be stopped. (If necessary, consult with a maintenance engineer.)

If Access Control is already in operation, the [Start Access Control] button is inoperable.

The Start Access Control operation immediately reflects on the disk array. Therefore, if assignment of logical disks to LD Set or Link Path settings is wrong, there is a possibility that accessing from the application server to logical disks may not be possible. It is necessary to perform operation after checking the operation state. Furthermore, stop business or the application server according to the necessity.

Lock/Unlock Button

Clicking this button will lock or unlock disk arrays (disk array name setting/network setting/spare unbinding). This button is displayed for the disk array for which the configuration setting operation guard function is available. Clicking this button will display the following dialog to confirm execution of the operation.

Disk arrays can be locked or unlocked on the [Setting/Reference] tab screen or iSCSI setting screen.

Partition users cannot change the disk array configuration.

[When locking disk arrays]



Figure 3-52: Lock Changes

[When unlocking disk arrays]

iSM	
?	[25709] Do you want to unlock the disk array for configuration changes?
	Yes

Figure 3-53: Unlock for Changes

# **Initialization Options**

Product information

Display option information

# [Restore Settings] button

Clicking this button displays the "Restore Settings" screen, using which the LD Set (FC) settings can be restored.

# [Get Disk Array Info] button

Clicking this button will re-acquire information from the disk array necessary for operations on the LD Administrator screen.

Normally, it is not necessary to use this button to re-acquire information from the disk array. If operations for the disk array on this screen fail, causing inconsistency between the disk array setting information and the information administrated on the SnapSAN Manager client and making normal operation impossible, use this button.

After clicking this button and while information is being acquired from the disk array, the following dialog screen will be displayed.



Figure 3-54: Acquire Information

When canceling the acquisition of information by clicking the [Cancel] button while the information is being acquired, or the acquisition of information fails, there is a possibility that disk array information administrated by the SnapSAN Manager client may be wrong. In this case, re-acquire information from the disk array through [Get Disk Array Info].

# [Close] button

Clicking this button will terminate LD Administrator and return to the "Configuration Setting" screen.

# [Help] button

Clicking this button will display the Help screen concerning [Setting/Reference] tab screen.

# **Description of LD Administrator Screen**

Depending on the purchase product situations, the Configuration Setting screen, shown below, for invoking the LD Administrator will be switched. When only an AccessControl product has been purchased, the following screen is displayed.

hostname : Configuration Setting	
Disk Array Subsystem Information Disk Array Name : Storage Product ID : XXXXXXXX Serial Number : 0000000000000000	
Batch Setting	
LD Batch <u>B</u> inding	Multiple logical disks can be bound at the same time in a dynamic pool.
Nickname Setting	Hultiple logical disks or disk arrays can be renamed at the same time.
Replication Setting	Setting about replication can be done collectively.
Individual Setting/Reference Storage Configuration Setting Management Setting	LD can be bound or unbound. Configuration of Snapshot can be set up. Disk array management parameters can be set.
Setting Access Control (FC)	LUN masking and mapping.
Setting <u>C</u> ache Segment	Set about the Cache Partitioning Function. This function can divide a cache memory into a segment, and can restrict the amount of cache memory occupancy for every business.
Get Configuration Configuration Information <u>S</u> aving	Current configuration information will be saved to a file.
	Close <u>H</u> elp

### Figure 3-55: Configuration 2

When both an LD Administrator product and an AccessControl product have been purchased, the following screen is displayed.

SEI LD S	let	~	LUN	Number	OS Type	Logical D:	.sk Name	RAID	Capacity[GB
	X:DB_SERVE	R	80000h	0000h	WN	WB_SERVER	)1	6	2.0
1. <b>1</b>	X:sune250		0001h	0001h	WN	WB_SERVER	02	6	2.0
	X:a500sv2 N:BSC CENT		0002h		WN	WB_SERVER	)4	6	2.0
						WB_SERVER(			
	N:ex120efl N:ex1201g	×							aration Change
LD Inaccessi Selection	N:ex120ef1 N:ex1201a dd dd	Delet	<		П	ce(To <u>R</u> eser 206.4 (	ve)	Lo	
LD Inaccessi	N:ex120efl N:ex1201a dd dd ble LD Lis	Delet	e(To Preg			206.4 (		3B]	uration Change
LD T LD Capacition Capacity Number OCO2h	N:ex120ef1 N:ex1201a dd ble LD Lis	Delet	Name Po			206.4 ( Name   R 302	484.4)	JB]	uration Change ock/ <u>U</u> nlock
LD T A Selection Suber South South Selection South South South South Selection South South South Selection South South South Selection South South South Selection South Sou	N:ex120ef1 N:ex1201a dd ble LD Lis / ALL 0S Type WN	Delet	Name Po 00	ol Numbe	Delet / /	206.4 ( Name R 002 002	484.4) [( AID	I Ch	uration Change ock/Unlock
LD T LD Capacition Capacity Number OCO2h	N:ex120ef1 N:ex1201a dd ble LD Lis / ALL 0S Type WN	Delet	Name Po 00 01 00	ol Numbe 02h 02h	Delet / Pool J Pool00 Pool00	206.4 ( Vame R 002 002 002	484.4) [( AID 6 6		uration Change ock/Unlock

Figure 3-56: Configuration

# [LD Administrator] Operation Screen

# [LD Administrator] Tab

When the LD Administrator is invoked, the following screen is displayed.

SET LD S	tot .		LUN	Number	0.0	Tanéna Dia		RAID	Course and provide D
	X:DB_SERVER								Capacity[GB]
	X: sune250		00001		WN	WB_SERVERO.		6	2.0
+ SET N	IX: a500sv2		- 00001P		WIN WIN	WB_SERVERO		6	2.0
+ D SET W	N:BSC_CENTER		00002r		WN WN	WB_SERVERO		6	2.0
	N:WEB_SERVER 1000-5555-55 1000-6666-66 N:ex120ef1								
LD	dd	Del	ete(To Pre	<u>s</u> erve)	Delet	ce(To <u>R</u> eserv	e)		≥ ration Change ck/Unlock
LD Inaccessi Selection	dd		,	<u>serve)</u> [	m	ce(To <u>R</u> eserv 206.4 (4		Lo	ration Change
LD 1 ID ID A Inaccessi	udd		ete(To Pre	serve)	Delet	206.4 (4	34.4) [G	Lo B]	ration Change
LD Inaccessi Selection Capacity Number 0002h 0005h	ALL OS Type Lon WN WB	Uel	ete(To Pre		Delet	206.4 (4 Name RA 002	34.4) [G	Lo B]	ration Change ck/ <u>U</u> nlock
LD Inaccessi Selection Capacity Number 0002h 0005h 0006h	idd ble LD List ALL OS Type Lo. WN WB NX WB	Del gical Dis SERVER03	ete(To Pre	pol Numbe	Delet / r Pool 1 Pool0	206.4 (4 Name RA 002 002	34.4) [G 1D 6	Lo B] Chi	ration Change ck/Unlock
LD Inaccessi Selection Capacity Number 0002h 0005h	dd ble LD List ALL OS Type Lo. WN WB NX WB 200	Del gical Dis SERVEROS SERVEROS 0000004C5 900_BV000	ete(To Pre sk Name P 3 00 5 00 5181 00 97 00	ool Numbe 002h 002h	Delet / r Pool 1 Pool00 Pool00	206.4 (4 Name RA 002 002 002	34.4) [G 1D 6 6	Lo B] ☐ Sel 	ration Change ck/Unlock

Figure 3-57: LD Administrator Tab

When the partitioning function is available, the following setting screen is displayed.

	at		A LU		Number	OS Type		Disk Name	RAID	Concerter
	artition_( LX:DB_SE LX:MAIL_ WN:WEB_S ZHE 1000-	ERVER SERVER 20000-0000-0 0000-0000-0 4 0RG		0000h	0211h	UN WN	LOGICAL WEB_SER	VEROL	1 1	Capacity
	I MM-МТМ20		× <							
LD 1 A Inaccessi	dd ble LD Li:		elete(T	o Pre <u>s</u> e	rve)	Delete	(To <u>R</u> eser	rve)	-	tion Chang
LD	ble LD Li:		elete(T	o Pre <u>s</u> e	rve)	Delete		1	-	1
LD <b>1</b> Inaccessi Se <u>l</u> ection	ble LD Lis				rve)	/ [		554.0) [GB]	-	/Unlock
LD Inaccessi Selection, Capacity Number 0213h 0214h	ble LD Lis		isk Nam RO3	e Part Part		/   me   Node 1 00h	548.0 (	554.0) [GB]	Lock.	/Unlock
LD Inaccessi Selection, Capacity Number 0213h 0214h 0215h	ble LD Lis ALL OS Type WN	st Logical D WEB_SERVE	isk Nam RO3 RO4	e Part Part Part	vition Na	/ Node 1 00h 1 00h	548.0 (	ve) [GB] 554.0) [GB] Pool 1	Lock.	/Unlock
LD Inaccessi Selection Capacity Number 0213h 0214h 0215h 0216h	ble LD Li: ALL OS Type WN WN WN WN	st Logical D WEB_SERVE WEB_SERVE WEB_SERVE WEB_SERVE	isk Nam RO3 RO4 RO5 RO6	e Part Part Part Part Part	vition Na cition_00 cition_00 cition_00 cition_00	Me Node 1 00h 1 00h 1 00h 1 00h 1 00h	548.0 (	ve)           554.0)         [GB]           Pool 1         0           0001h         0           0001h         0           0001h         0           0001h         0	Lock Selec Chang Initi	/Unlock
LD Inaccessi Selection, Capacity Number 0213h 0214h 0215h	ble LD Lis ALL OS Type WN WN WN	st Logical D WEB_SERVE WEB_SERVE WEB_SERVE	isk Nam RO3 RO4 RO5 RO6	e Part Part Part Part Part Part Part	vition Na tition_00 tition_00 tition_00	Me Node Node 1 00h 1 00h 1 00h 1 00h 1 00h 1 00h	548.0 (	ve)           554.0)         [GB]           Pool 1         )           0001h                     0001h                     0001h	Lock Selec Chang Initi	/Unlock

Figure 3-58: Partitioning Function

The following setting screen is displayed for a disk array with only iSCSI.

		ing/Reference					
LD Set De	finition a	and Assignment					
						-	
LD	1				1	Co	nfiguration Change
	dd	Delete(To I	Pre <u>s</u> erve)	Delete(To <u>R</u> e	eserve)	Co	nfiguration Change Lock/ <u>U</u> nlock
	dd		Preservej	Delete(To <u>B</u> e	eserve)	Co	1
Î Inaccessi Se <u>l</u> ection	ble LD Lis						1
Inaccessi Se <u>l</u> ection Capacity	ble LD Lis	st		/ 206.	4 (484.4)		Lock/Unlock
Inaccessi Selection Capacity Number	ble LD Lis / ALL OS Type	st Logical Disk Name	Pool Number	/ 206. Pool Name	4 (484.4)		1
Inaccessi Selection Capacity Number	ble LD Lis / ALL   OS Type   WN	Logical Disk Name WB_SERVER03	Pool Number 0002h	/ 206. Pool Name Pool0002	4 (484.4) RAID 6		Lock/Unlock
Inaccessi Selection Capacity Number 0002h 0005h	ble LD Lis / ALL OS Type WN WN	Logical Disk Name WE_SERVER03 WE_SERVER06	Pool Number 0002h 0002h	/ 206. Pool Name Pool0002 Pool0002	4 (484.4) RAID 6 6		Lock/Unlock Select All Change Group
Inaccessi Selection Capacity Number 0002h 0005h 0005h	ble LD Lis / ALL OS Type WN WN WN	Logical Disk Name WB_SERVERO3 WB_SERVERO6 WB_SERVERO4	Pool Number 0002h 0002h 0002h	/ 206. Pool Name Pool0002 Pool0002 Pool0002	4 (484.4) RAID 6 6 6		Lock/Unlock
Inaccessi Selection Capacity Number 0002h 0005h 0006h 0007h	ble LD Lis / ALL OS Type WN WN	Logical Disk Name WB_SERVERO3 WB_SERVERO6 WB_SERVERO4 WB_SERVERO5	Pool Number     0002h     0002h     0002h     0002h     0000h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000	4 (484.4) RAID 6 6 6 6 6 6		Lock/Unlock Select All Change Group Initialization
Inaccessi Selection Capacity Number 0002h 0005h 0006h 0007h 0008h	ble LD Lis / ALL OS Type WN WN WN	Logical Disk Name WB_SERVERO3 WB_SERVERO6 WB_SERVERO4	Pool Number 0002h 0002h 0002h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000 Pool0000	4 (484.4) RAID 6 6 6		Lock/Unlock Select All Change Group
Inaccessi Selection Capacity Number 0002h 0005h 0006h 0007h	ble LD Lis / ALL OS Type WN WN WN	UDJICAL DISK NAME WE_SERVERO3 WE_SERVERO6 WE_SERVERO4 WE_SERVERO5 200000004C5181	Pool Number     0002h     0002h     0002h     0000h     0000h	/ 206. Pool Name Pool0002 Pool0002 Pool0002 Pool0000	4 (484.4) RAID 6 6 6 6 6 6		Lock/Unlock Select All Change Group Initialization

Figure 3-59: Disk Array with Only iSCSI

An accessible logical disk cannot be confirmed at the LD Administrator screen for a disk array with only iSCSI.

Confirm an accessible logical disk in the iSCSI Setting screen or the iSCSI Reference screen.

### LD Set Definition and Assignment

Consists of a tree view showing the relation between the LD Set and the path information and a list view of the logical disk List assigned to the LD Set or path information.

# **Tree View**

In the tree view, an LD Set can be selected by activating a check box and various types of information can be listed in the list view by clicking a tree item.

- <sup>sell</sup>: Item that shows all LD Sets
- 🐯: Partition
- ELD Set linked with path information
- ET: LD Set unlinked with path information
- E: LD Set linked with path information (locked state)
- E: LD Set unlinked with path information (locked state)

The following two icons indicate abnormal settings. If these icons are displayed, it is necessary to change the setting to the normal setting.

ELD Set in which a port in the WWN mode and a port in Port mode are mixed

EII: LD Set in which the assignment of logical disks is different for each path information item

Check boxes are displayed for the "LD Set" item that shows all LD Sets in the tree item, partition, each LD Set name, and path information linked with the LD Sets in the tree item.

Furthermore, a check box for path information is activated associated with a check box for the linked LD Set.

Check boxes are used for the following purposes:

- Selection of [Add] for logical disks target LD Set
- Selection of [Delete (To Preserve)] or [Delete (To Reserve)] target LD Set (targets are logical disks assigned to the LD Set)

However, when selecting multiple LD Sets simultaneously to perform [Add]/[Delete (To Preserve)]/[Delete (To Reserve)] operations of logical disks, the assignment states of logical disks for all the LD Sets must coincide.

• Selection of [Lock/Unlock] target LD Set

However, when selecting multiple LD Sets simultaneously to perform [Lock/Unlock] operations of the LD Sets, the locked state of all the LD Sets must coincide.

- When activating check boxes, a display content of the list view is switched as follows:
- When selecting an LD Set, the list of the logical disks assigned to the selected LD Set is displayed.
- When selecting multiple LD Sets, if the assignment states of logical disks for all the selected LD Sets are the same, the list of logical disks is displayed.
- When selecting a partition, all the LD Sets allocated to the partition are selected. If the assignment states of logical disks for all the selected LD Sets are the same, the list of logical disks is displayed.
- If the assignment states of logical disks for the selected LD Sets do not coincide, the list of selected LD Sets is displayed.

# List view

Items displayed in the list of logical disks are as follows:

# LUN

Order in which logical disks are recognized by an application server

: LUN to which logical disks are assigned

📛: LUN to which logical disks are not assigned

# Number

OS Type

Logical Disk Name

RAID

Capacity

# Purpose

RPL Logical disks set in pairs only for replication

snapshot Logical disks with snapshot setting (BV)

Link-volume Logical disks set as a link-volume (LV)

RPL/snapshot Logical disks set in pairs for replication and snapshot setting

# **Data protection**

Logical disks to which the data protection setting has already been set by the WORM function

# **RPL/data protection**

Logical disks to which a replication pair has been set and the data protection setting has been set by the WORM function

### Control volume

Logical disks for control volumes

(Blank) Ordinary logical disks with no specific purpose

### PD Type

FC Logical disks configured of FC disks

ATA Logical disks configured of ATA disks

SAS Logical disks configured of SAS disks

SSD Logical disks configured of SSD disks

Port (Displayed when using a disk array to which "AccessControl (WWN)" is applied)

yes Logical disks assigned to a port in Port mode

(Blank) Logical disks which are not assigned to a port in Port mode

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

Lock Logical disks that are locked

(Blank) Logical disks that are unlocked

However, the port items are automatically displayed only when a port in Port mode of AccessControl (WWN) port exists.

The logical disk display item order can be changed.

When LD Sets are not selected by using check boxes in the tree view, the list view is displayed in gray background color and LUN selection is not possible. Furthermore, when LD Sets are selected through check boxes, the list view is not displayed by clicking the "LD Set" item showing all the LD Sets or by clicking an individual LD Set.

When clicking the "LD Set" item showing all the LD Sets, items displayed in the list of LD Sets are as follows:

# Platform

- ELD Set linked with path information
- EII: LD Set unlinked with path information
- E: LD Set linked with path information (locked state)
- 🖫: LD Set unlinked with path information (locked state)

The following two icons indicate abnormal settings. If these icons are displayed, it is necessary to change the setting to the normal setting.

ELD Set in which a port in the WWN mode and a port in Port mode are mixed

ELD Set in which the assignment of logical disks is different for each path information item

# LD Set Name

Path Count

Capacity

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

Host Name (Displayed when using the disk array for which the host agent function is available)

SET LD Set	^	Platform	LD Set Name	Number of Paths	Capacity[GB]	Conf: 🔨
- SET A2: WORK_SERVER		SET AZ	WORK SERVER	2	4.0	·
CX: DB_SERVER		SET CX	DB SERVER	2	4.2	
CX: sune250		SET CX	_ sune250	2	4.0	
SET NX: a500sv2 SET WN: BSC CENTER		SET NX	a500sv2	2	4.0	
WN:BSC_CENTER		SET WIN	BSC CENTER	5	2.0	
SEI WN: EXP1020RD		SET WIN	EXPIOZORD	4	6.0	
SET WN:WEB_SERVER		SET WIN	WEB SERVER	2	4.0	
SET WN:ex1201g	_	SET WIN	ex120ef1	2	4.0	
SEI WN:ex1201g		SET WIN	ex1201g	2	2.0	
	~	SET WIN	ex1201q2	1	2.0	~

# Figure 3-60: LD Set List 1

The following items are displayed when using the disk array for which the partitioning function is available.

# **Partition Name**

🚟: Partition

# LD Set Number



# Figure 3-61: LD Set List (Partitioning Function)

If LD Sets which have different assignment of logical disk are checked, items displayed in the list are as follows:

# Platform

- ELD Set linked with path information
- <sup>SET</sup>: LD Set unlinked with path information
- E: LD Set linked with path information (locked state)
- E: LD Set unlinked with path information (locked state)

The following two icons indicate abnormal settings. If these icons are displayed, it is necessary to change the setting to the normal setting.

🔟: LD Set in which a port in the WWN mode and a port in Port mode are mixed

ED Set in which the assignment of logical disks is different for each path information item

# LD Set Name

Pattern

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

Host Name (Displayed when using the disk array for which the host agent function is available)

Partition Name (Displayed when using the disk array for which the partitioning function is available)

SET CX: sune250	^	Platform	LD Set Name	Pattern	Configuration Change
SET NX: a500sv2		SET WIN	ex120re	01	
SET WN: BSC_CENTER		SET WIN	ex120rg	02	
WN: EXP1020RD					
- 🗖 🏭 WN: WEB_SERVER					
SET WN:ex120ef1					
- 🗖 SET WN: ex1201g					
- 🗖 🖬 WN: ex 1201 g2					
WN:ex120re					
WN:ex120rg					
WN:work_server	~				

Figure 3-62: LD Set List 2

Set Platfor	m LD Set Name	Pattern	Configuration Change	Host
artition_001	DB_SERVER	01		
LX:DB_SERVER	MAIL_SERVER	02	Lock	
LX: MAIL_SERVER	WEB_SERVER	03		
WN:WEB_SERVER				
LX: EX120RG				
ma3				
WIN2000				
:ex120ef				
< <				>

Figure 3-63: LD Set Definition and Assignment

If a port in the WWN mode and a port in Port mode are mixed in a checked LD Set, the display items in the list are as follows:

<Mixed mode type list>

Path (Port numbers and names are displayed together.)

#### Mode Type

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

SEI LD Set	^	Path	Mode Type	Configuration Change
Image: Server Server           Image: Server Server		割 00h-02h (port_0002) 割 00h-03h (port_0003)	Port WWN	
SET WW. av 120 af1	<b>×</b>			

Figure 3-64: Mixed Mode

If the assignment of logical disks for each path information item (port) of a checked LD Set does not match, the display items in the list are as follows:

## <Port information list display>

Path (Port numbers and names are displayed together)

Pattern

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

	(1999)	Path		Pattern	Configuration Change
WN:WEB_SERVER		201h-01h	(200000004C	01	
WN:ex120ef1			(200000004C	02	
WN:ex1201g		1 mg		02	
🛯 WN:ex1201g2					
WN:ex120re					
🛯 WN:ex120rg					
WN:work_server					
☑ 🎘 01h-01h (200000004)	c 📗				
<b>7</b> 5 01h-02h (20000004)					

Figure 3-65: Port Information List

If the assignment of logical disks for each path information item (WWPN) of a checked LD Set does not match, the display items in the list are as follows:

# <Path information list display>

Path

Pattern

Configuration Change (Displayed when using the disk array for which the configuration setting operation guard function is available)

👫 CX: sune250 🛛 🔥	Path	Pattern	Configuration Change
SET NX: a500sv2	1000-0000-0000-0001	01	
SET WN: BSC_CENTER	1000-0000-0000-0002	01	
SIT WN: EXPlozord	<b>1000-0000-0000-00C3</b>	01	
I000-0000-0000-0001         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         I000-0000-0000-0002         III         IIII         IIIII         IIII         IIII         IIII         IIII         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	₩ <b>1</b> 000-0000-0000-00C4	02	

Figure 3-66: Path Information List

When the assignment states of logical disks of the check-marked LD Set for each path information item coincide, items displayed in the list are as follows:

### < list display>

LUN	Number	OS Type	Logical Disk Name	RAID	Capaci 🔨
0000h	Olfeh	WN	WEB_SERVERO1	6	
0001h	Olffh	WN	WEB_SERVER02	6	
80002h	0200h	WN	WEB_SERVEROS	6	
	0201h	WN	WEB_SERVER04	6	
	0202h	WIN	WEB_SERVEROS	6	
	0203h	WN	WEB_SERVERO6	6	
	0204h	WN	WEB_SERVER07	6	
	0205h	WN	WEB_SERVEROS	6	
0008h	0206h	WN	WEB SERVERO9	6	>
	UN 0000h UN 0001h UN 0002h UN 0002h	0000h 01feh 0001h 01ffh 0002h 0200h 0003h 0201h 0003h 0201h 0005h 0203h 0005h 0203h	0000h 01feh WN 0001h 01ffh WN 0002h 0200h WN 0003h 0201h WN 0003h 0202h WN 0005h 0203h WN 0005h 0203h WN	WOODON         Olfeh         WN         WEB_SERVERO1           OOODIN         Olffh         WN         WEB_SERVERO2           OOODIN         Olffh         WN         WEB_SERVERO3           OOODIN         O200h         WN         WEB_SERVERO3           OOODIN         O201h         WN         WEB_SERVERO3           OOODIN         O202h         WN         WEB_SERVERO4           OOODIN         O202h         WN         WEB_SERVERO6           OOOCA         O203h         WN         WEB_SERVERO7           OOOCA         O205h         UN         WEB_SERVERO8	Impose         OOOODh         Olfeh         WN         WEE         SERVERO1         6           0001h         01ffh         WN         WEE         SERVERO2         6           0002h         0200h         WN         WEE         SERVERO3         6           0003h         0201h         WN         WEE         SERVERO3         6           0003h         0201h         WN         WEE         SERVERO4         6           0003h         0202h         WN         WEE         SERVERO5         6           0005h         0203h         WN         WEE         SERVERO5         6           0005h         0203h         WN         WEE         SERVERO7         6           0007h         0205h         WN         WEE         SERVERO8         6

Figure 3-67: Accessible LD

An LD Set is a virtual concept that shows the aggregate of logical disks bound by the SnapSAN Manager. However, there is a possibility that the assignments of logical disks for each path may not coincide due to communication failures during setting.

Ensure consistency according to the following procedure.

Take a note of a path to which wrong logical disks are assigned (the same characters are displayed for the same contents in the Pattern column). Next, after deleting wrong paths once from the Link Path screen, click the [Get Disk Array Info] button. Check that the LD Set icon is returned from Red to Blue in the LD Set Definition and Assignment, restore necessary link paths on the Link Path screen again.

There is a possibility that the partition allocated to each path may become an invalid partition configuration due to communication failures during setting.

Ensure consistency according to the following procedure.

If the message "Invalid configuration of partition detected. The storage user please do execute again after eliminating the errors and restoring the condition from the troubles by using the partitioning wizard." is displayed when the [LD Administrator] Operation screen is displayed, a storage user must start the partitioning wizard and correct the invalid partition configuration.

- Display items can be sorted, but their order cannot be changed.
- LUN to which logical disks are not assigned is made blank.
- When selecting [Delete (To Preserve)] and [Delete (To Reserve)] target logical disks, one logical disk or multiple logical disks can be simultaneously selected.

# Various Operation Buttons

Operation buttons shown below can be used for logical disks listed in the LD Set Definition and Assignment.

Each button is enabled under defined conditions.

- [Add] button
- [Delete (To Preserve)] button
- [Delete (To Reserve)] button
- [Lock/Unlock] button

Clicking [Add], [Delete (To Preserve)], or [Delete (To Reserve)] buttons will display a warning message for the operation.

# Inaccessible LD List

This is a list view of logical disks which are not used for business. Selective display is possible by entering keywords in the combo box. The total capacity for each selective keyword is displayed on the right side of the display selection combo box.

### List view

The displayed items are as follows:

Number

OS Type

Logical Disk Name

Partition Name (Displayed when using the disk array for which the partitioning function is available)

Node Number (The node number is displayed only for the disk arrays with node (in two-digit hexadecimal).)

RANK/Pool Number (The pool number is displayed only for the disk arrays with pool (in four-digit hexadecimal).)

Pool Name (Displayed only for the disk arrays with pool)

RAID

Capacity Group

Preserve Logical disks in the Preserve Group

Reserve Logical disks in the Reserve Group

(Blank) Le Logical disks not belonging to any group

### Purpose

RPL Logical disks set in pairs only for replication

snapshot Logical disks set with snapshot setting (BV, SV, SDV)

Link-volume Logical disks set as a link-volume (LV)

RPL/snapshot Logical disks set in pairs for replication and snapshot setting

### Data protection

Logical disks to which the data protection setting has already been set by the WORM function

# **RPL/data** protection

Logical disks to which a replication pair has been set and the data protection setting has been set by the WORM function

Optimization Work Disk for Optimization

System Volume Volume to store storage system information

Control Volume Logical disks for control volumes

(Blank) Ordinary logical disks with no specific purpose

# PD Type

FC Logical disks configured of FC disks

ATA Logical disks configured of ATA disks

SAS Logical disks configured of SAS disks

SSD Logical disks configured of SSD disks

Port (Displayed when using a disk array to which "AccessControl (WWN)" is applied)

yes L) Logical disks assigned to a port in Port mode

(Blank) Logical disks which are not assigned to a port in Port mode

Configuration change (Displayed when using the disk array for which the configuration setting operation guard function is available)

Lock Logical disks that are locked

(Blank) Logical disks that are not locked

However, the port items are automatically displayed only when a port in Port mode of AccessControl (WWN) exists.

The logical disk display item order can be changed.

Display items can be sorted, but their order cannot be changed.

Logical disks assigned to LD Sets are not displayed.

When selecting logical disks to be assigned to business, one logical disk or multiple logical disks can be simultaneously selected.

### Display Selection combo box

The Inaccessible LD List display can be selected by using the following keywords:

The total capacity for each selective keyword is displayed on the right side of the display selection combo box.

The unit of capacities displayed in this dialog box can be changed.

Selection Information	Display of Logical Disks
"Preserve Group"	Displays logical disks in the Preserve Group.
	Target logical disks include logical disks with no specific purpose, logical disks set in pairs for replication, logical disks for snapshots (BV only. SV and SDV are not displayed), logical disks that are link-volumes, and logical disks to which the data protection setting has already been set by the WORM function, and logical disks that are control volumes.

Selection Information	Display of Logical Disks
"Preserve - Purpose ()"	Displays logical disks which have not been paired for replication.
<b>```</b>	These keywords are targeted for the Preserve Group only.
"Preserve - Purpose	Displays logical disks set in pairs only for replication.
(RPL)"	These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (snapshot)"	Displays logical disks with snapshot setting (BV only. SV and SDV are not displayed). These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (Link-volume)"	Displays only logical disks that are link-volumes. These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (RPL/snapshot)"	Displays only logical disks set in pairs for replication and snapshot setting. These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (Data protection)"	Displays logical disks to which the data protection setting has already been set by the WORM function.
	These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (RPL/data protection)"	Displays logical disks to which a replication pair has been set and the data protection setting has already been set by the WORM function.
	These keywords are targeted for the Preserve Group only.
"Preserve - Purpose	Displays logical disks which are control volumes.
(Control volume)	These keywords are targeted for the Preserve Group only.
"Reserve Group"	Displays logical disks in the Reserve Group.
	Target logical disks include ordinary disks with no specific purpose and Work Disks for Optimization.
"Reserve - Purpose ()"	Displays logical disks with no specific purpose other than Work Disks for Optimization
	and replication volumes set in pairs.
	These keywords are targeted for the Reserve Group only.
"Reserve - Purpose	Displays Work Disks for Optimization.
(Optimization)"	These keywords are targeted for the Reserve Group only.
"Partition Name" (Exampl "Partition1")	Displays logical disks allocated to the partition.
"Node Number" (Example: "NODE00")	Displays logical disks bound on the node.
"ALL"	Displays all inaccessible logical disks.
	Target logical disks include logical disks with no specific purpose, logical disks for replication (MV and RV), Work Disks for Optimization, logical disks for snapshots (BV, SV, and SDV), link-volume (LV), and System Volume
	(SYV), logical disks to which the data protection setting has already been set by the WORM function, and control volume (CV). (Default)

# Selection/capacity display

The total capacity for each selective keyword is displayed on the right side of the display selection combo box.

The unit of capacities displayed in this dialog box can be switched between [GB] and [Byte].

It can be set on the [Setting/Reference] tab screen.

When the capacity is displayed in [Byte], the capacity display area is expanded.

# Step 1: <Selection/capacity display>



Figure 3-68: Selection Capacity

If a link-volume is included in the Inaccessible LD List, the total capacity including the capacity of the link-volume is displayed in parentheses next to the total capacity without the capacity of the link-volume.

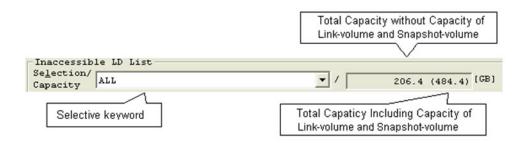


Figure 3-69: Selection Capacity

A link-volume is a virtual logical disk. Therefore, it does not have an actual area on a disk array. Instead, it has a virtual capacity as large as the capacity of the destination logical disk. To view the total capacity including the virtual capacity of a link-volume, see the value in parentheses.

For the disk array for which the configuration setting operation guard function is available, snapshot-volumes are displayed in the Inaccessible LD List. The capacity of the snapshotvolume is treated in the same way as the capacity of link-volume. In other words, when linkvolumes and snapshot-volumes are in the Inaccessible LD List, the total capacity including the capacity of link-volumes and snapshot-volumes is displayed in parentheses next to the total capacity not including the capacity of link-volumes and snapshot-volumes.

# Various Operation Buttons

Operation buttons shown below can be used for logical disks listed in the Inaccessible LD List.

Each button is enabled under defined conditions.

- [Add] button
- [Lock/Unlock] button
- [Change Group] button
- [Initialization] button
- [For Optimization] button
- [Select All] check box

Clicking the [Add] or [Initialization] button will display a warning message for the operation.

# [Access Control] Tab

### [Setting/Reference] Tab

Items that can be set on the [Setting/Reference] tab screen are as follows:

- Setting Port
- Setting Access Control
- Changing disk array configuration
- Initialization Options
- Product Information (reference only)
- Display Option
- Access Control Restoration

Contents of each item and setting information are described below.

Administrator AccessControl Setting/Reference	
Port Settings	Product Information
Change Port Settings	Product Type Purchased
Access Control Setting	
<u>S</u> tart Access Control	- Product Usage Status 10 / (nolim)
Configuration Change of Disk Array If locked, settings of Network or Disk Array Name, and Spare Unbinding cannot be performed.	-Display Option Capacity Display Unit © CB © Byte
Configuration Change: Lock/Unlock	1. PR 1. PALE
Initialization Options Initialization of 0S Type/Logical Disk Name By choosing "With Initialization", 0S Type and Logical Disk Name will be restored to the initial settings of the Disk Array Subsystem accompanying the initialization of selected LD(s).	Access Control Restoration Restore Settings
♥ With Initialization ♥ With No Initialization	
Initialization Time of LD (0-255) If you specify 0, LD can be initialized by the fastest.	

Figure 3-70: Setting Reference (2)

Port Settings	Product Information
Change Port Settings	Product Type Purchased
-Access Control Setting	AccessControl
Start Access Control	Product Usage Status 3 / (nolim)
Configuration Change of Disk Array If locked, settings of Network or Disk Array Name, and Spare Unbinding cannot be performe Configuration Change: Lock/Unlock	
Initialization Options Initialization of OS Type/Logical Disk Name By choosing "With Initialization", OS Type and Logical Disk Name will be restored to the initial settings of the Disk Array Subsystem accompanying the initialization of selected LD(s).	Access Control Restoration Restore Settings
• With Initialization • With No Initialization	
Initialization Time of LD (0-255) If you specify 0, LD can be initialized	1
by the fastest.	

Figure 3-71: iSCSI Only

The ports setting cannot be changed for an iSCSI port. Use the Initialization Wizard or the Disk Array Setting screen to change the setting of the port. Use the iSCSI setting screen to lock or unlock the iSCSI port.

The Access Control is always available for a disk array with only iSCSI. Operations to start Access Control is unnecessary.

### Ports Settings" field

The following setting can be performed in the "Ports Settings" field.

- Change Mode Type of Port
- Lock/unlock of port (When using the disk array for which the configuration setting operation guard functions is available)

Clicking [Change Port Settings] button will display a warning message for the operation.

Only a storage user can change the mode type of port. However, the mode type of ports allocated to the partition cannot be changed.

# Access Control Setting" field

The following setting can be performed in the "Access Control Setting" field.

Start Access Control

Only a storage user can perform the above setting. A partition user cannot.

Configuration Change of Disk Array" field

Configuration Change of Disk Array" field is displayed only for a disk array for which the configuration setting operation guard function is available. The following setting is possible in changing disk array configuration.

# Lock/unlock disk arrays

When a disk array is locked, "Lock" is displayed in Configuration Change. When a disk array is unlocked, nothing is displayed in Configuration Change. When a disk array is locked, the following operations cannot be executed. When unlocking a disk array, the following operations will be available again.

- Setting Disk Array Name
- Setting Network
- Unbinding Spare Disk

Only a storage user can perform the above setting. A partition user cannot.

# "Initialization Options" field

The following setting is possible in this field.

Initialization of OS Type/Logical Disk Name

This is a function to initialize a logical disk and simultaneously return its type and name to the initial settings for the disk array.

In the Confirmation dialog screen displayed at the initialization of a logical disk, it is possible to change default settings for the confirmation item about whether to initialize the OS type/Logical Disk Name or not.

With Initialization: "With Initialization" is displayed as default settings for the confirmation item.

With No Initialization: "With No Initialization" is displayed as default settings for the confirmation item.

Because the change of "With" or "With No" Initialization of OS type/Logical Disk Name made on the Confirmation dialog screen is a temporary change, the change does not reflect on the default setting.

### Initialization Time of LD

It is possible to change the standard time required for initialization of a logical disk.

The specification range differs depending on the disk array type as follows

0 hour (default setting) to 255 hours.

When 0 hour is set, a logical disk is initialized at the maximum speed.

Please note that actual initialization time varies with the load of the disk array. Also, pay careful attention because initialization may affect logical disks located on the same RANK or pool which is accessed by the application server.

#### "Product Information" field

This field displays information on the AccessControl product required for setting information on accessibility to logical disks.

Product Type Purchased: Displays the type of the purchased AccessControl product.

Product Use Situation: Displays the maximum number of path information links permitted for an AccessControl product and the current number of path information links.

If using a disk array with FC and iSCSI, the number of links used for FC and iSCSI disks is displayed.

# "Display Option" field

The following setting can be performed in the "Display Option" field.

# **Capacity Display Unit**

The items of a list view displayed in each screen and a newly selected capacity unit can be displayed.

GB: Capacities are displayed in gigabytes.

Byte: Capacities are displayed in bytes.

"Access Control Restoration" field

For access control restoration, the following can be specified:

**Restore Access Control Settings** 

# **Display of the Main Screen**

The state monitoring screen of the SnapSAN Manager client describes how the information on Access Control is displayed. The main windows of the SnapSAN Manager client (Web GUI) and SnapSAN Manager client (Win GUI), are displayed immediately after logging in to the SnapSAN Manager server. There is no difference in basic constitution between the two main windows.

LD Set names are displayed as the information of each logical disk only when the AccessControl product has been introduced.

The LD Set, which results from naming an aggregate of multiple logical disks in the Access Control, is set through "AccessControl Tab Screen".

- @	•					🖌 🛃 📈	Live Sea	rch	Q
le <u>E</u> dit	<u>V</u> iew F <u>a</u> vorites <u>T</u> ools I	<u>H</u> elp							
r 🕸 🛛	🏀 hostname					6	• 5	🖶 🔹 🔂 Bag	ge 🔹 💮 T <u>o</u> ols 🔹
	Diskar	ray Name 💠	Storage_1						0
	Model		03-10			100 Mar		Help 🔻 🏼 🎽	Fault
	Monito	oring Status : I	anner an an					-	a construction of the second s
			SM Server		🚟 Status - S	corage_l\Logical Disk			
onitor		8 📤 🖻	Storage_1		Access Cont:	01 A11		~	
Screen			Pool     Cogical Disk		Number OS	Type Logical Disk Name	Status	RAID	Capacity[GB]
Screen Op	eration		Physical Disk		7 0012h	20000030138414850012	Ready	6	1.0 🔨
Refres	h F5		- Connected Ho	ost	🗗 0013h	20000030138414850013	Ready	6	1.0
Start /9	itop Monitoring		Controller		🗊 0014h	20000030138414850014	Ready	6	1.0
100000000	an the second	- == -			🗗 0015h	20000030138414850015	Ready	6	1.0
Report	ing of Information List				🗗 0016h	20000030138414850016	Ready	6	1.0
ault Info	ormation				🗗 0017h	20000030138414850017	Ready	6	1.0
Power Co	nsumption				🗊 0018h	20000030138414850018	Ready	6	1.0
nfigurati	ion	8			🕑 0019h	20000030138414850019	Ready	6	1.0
nitializatio					🗗 001ah	2000003013841485001A	Ready	6	1.0
nitializatio	n				🕑 001bh	2000003013841485001B	Ready	6	1.0
User Sett	ting				🗊 001ch	2000003013841485001C	Ready	6	1.0
Quick Setti	ngs	0			🕅 001dh	2000003013841485001D	Ready	6	1.0 🧹
Configura	ation Settings				<		)		>
	Composition	~			2			LD	: 104
pe	Date & Time	Process ID	Process Name	Message Numbe	r Message Te:	t			
Info	Tue Apr 12 19:27:47 2011	I VANNER AN AND THE	iSMmaind	iSM01451	the second s	ion setting has ended normally			^
Info	Tue Apr 12 19:27:42 2011	0000000436	iSMrmond	iSM07011	Resource mo	nitoring started.(Storage_1 productI	D=D3-10 SN	=000000000COND	0001)
Err	Tue Apr 12 19:27:42 2011	0000001972	iSMrmond	iSM07162		P5(43h-00h) has become fault.(Sto			
						with server Storage (	NOVING CONTRACTOR	r administ	

Figure 3-72: AccessControl Tab

Access Control	All			•				
iSM Server	Number OS	Type Logical Di	sk Name	Status	RAID	Capacit	RPL	T'
± 🐻 S2500/1950	17 0000h		138408730000	Ready	6	0.2	I٧	
52500/1949	1 0001h	20000030	)138408730001	Ready	6	0.2	I٧	
Pool	1 0002b	20000030	138408730002	Ready	6	0.2	IV	
🗄 🎽 Logical Disl	120 0003b	20000030	138408730003	Ready	6	0.2	IV	
Physical Disk	1 0004h	20000030	138408730004	Ready	6	0.2	IV	
Controller	1 0005h	20000030	138408730005	Ready	6	0.2	I٧	
	1 0006h	20000030	)138408730006	Ready	6	0.2	IV	
	🖗 0007h	20000030	138408730007	Ready	6	0.2	IV	
	1 0008h	20000030	138408730008	Ready	6	0.2	IV	
	1 0009h	20000030	138408730009	Ready	6	0.2	IV	
	7 000ah	20000030	)13840873000A	Ready	6	0.2	I٧	
	1 000bh	20000030	)13840873000B	Ready	6	0.2	IV	
	1 000ch	20000030	)13840873000C	Ready	6	0.2	IV	
	1 000dh	20000030	13840873000D	Ready	6	0.2	IV	
	1 000eh	20000030	13840873000E	Ready	6	0.2	IV	
	1 000fh	20000030	13840873000F	Ready	6	0.2	IV	
	🕈 0010h	20000030	138408730010	Ready	6	0.2	IV	
	H 0011b	2000030	138408730011	Ready	6	0.2	TV	
	<							>
Type Date & 1	ïme	Process ID	Process Name	Message Number	Message	Text		_
Dinfo Wed Sep	19 16:09:59 2003	7		iSM99001	Connected	d with iSM se	rver(	Se

Figure 3-73: Access Control (2)

Selecting the "Access Control" part from the pull-down menu of this screen makes it possible to narrow down the logical disks to be displayed based on the LD Set name.

All	*
SET WN: MailServerl	^
SET WN: MailServer2	
567 WN: MailServer3	
SH WN: MailServer4	
SET WN:WebServerl	
SH WN:WebServer2	
SH WN:WebServer3	
SH WN: WebServer4	~
20000030138414850017 Ready	6

Figure 3-74: Access Control (2)

itro	1	A11			<b>–</b>	
la	S	ALL			🔺 ne	PD Ty
Ir	R	CX:DB_SE	RVER			FC
Ir	R	ET CX: sune2	50		þ	FC
900	R	NX: a500s	v2		þ	FC
2900	R	SET WN: BSC_CENTER				FC
00	R	WN:Serve	r01		þ	FC
1	R	UN:WEB S	ERVER		þ	FC
1	R	💵 WN:ex120	efl		2	FC
	R	💵 WN:ex120	lg		þ	FC
1	R	WN:ex120	1g2		2	FC
1	R	UN: ex120	re		~	FC
i1	Ready	/ 6	2.0 IV	0002h	Pool0002	FC
	Ready	/ 1	83	00016	Pool0001	EC

Figure 3-75: Access Control (3)

# **iSCSI** Lock Setting Operation

To perform iSCSI lock settings, click the [Lock Setting] button on the "iSCSI Setting" screen.

erial Numb	er : 000000	torage 0000004713	Product ID Product Usage Stat	
D Set Inf	ormation List -	(Nur	mber of LD Sets : 3)	
latform	LD Set Name	Number of Initiators	Authentication	Create
LX	DBserverl			
LX LX	DBserver2	1		<u>E</u> dit
				Delete Delete Delete
				Conf.Chg Lock Setting Access Control Lestore Setting

Figure 3-76: iSCSI Setting

# Operations on the LD Set Tab

Use the screen below to lock or unlock the iSCSI LD Set or logical disk.

Lock Setting				X
LD Set Port Disk Array				
Accessible LDs				
🖌 SE LD Set	LUN	Number	OS Type	Logical Dis
SH WN: WebServer	📇 0000h	0095h	WN	WebServer00(
	0001h	0096h	WN	WebServer000
				>
			Lock	Unlock
	Close		(	Help

Figure 3-77: LD Lock Setting

Select the LD Set or logical disk to lock or unlock and click the [Lock] or [Unlock] button.

Clicking the [Lock] or [Unlock] button displays the preliminary confirmation dialog screen. Confirm the details of operation.

Confir Lock	m Change(s)		E
2	[25700] The selected LD If correct, cli - LD Set Inform		
	Platform	LD Set Name	Conf.Chg

Figure 3-78: LD Set Lock Preliminary Confirmation

Confirm Unlock	Change(s)		X
2	[25701] The selected LD If correct, cli - LD Set Inform		
	Platform	LD Set Name	Conf.Chg
	IT IN	WebServer	Lock
		OR Car	ncel

Figure 3-79: Unlocking the LD Set

The Set	ting Check			
Lock	[25702] The selected If correct, -LD Set List		e locked.	
	Platform	LD S	et Name	Conf.Chg
	ED List			
	Number	OS Type	Logical Disk Name	RAID
	0095h	WIN IIII	WebServer0000	6
			K Cancel	]

Figure 3-80: Locking the Logical Disk

The Sett	ing Check			
Unlock	[25703] The selected If correct, LD Set List		a unlocked.	
	Platform SE WN		et Name rver	Conf.Chg
	LD List-			
	Number	OS Type	Logical Disk Name	RAID
	0095h	WN	WebServer0000	6
		01	K Cancel	)

Figure 3-81: Unlocking the Logical Disk

When an LD Set is selected, the selected LD Set and the logical disk assigned to it are locked or unlocked.

# Port Tab

Use the screen below to lock or unlock an iSCSI port.

Set Port	)isk Array		
Port List -			
ort Number	Port Name	IP Address	Conf.Chg
00h-00h 00h-01h 00h-00h 00h-01h	PortOl	10.72.28.250	Lock
00h-01h	Port02	10.72.28.251	
00h-00h	Port03	10.72.28.252	Lock
00h-01h	PortO4	10.72.28.253	

### Figure 3-82: Lock Setting Screen (Port)

Select the port to lock or unlock and click the [Lock] or [Unlock] button.

If the lock statuses of ports are the same, two or more of them can be selected for setting in the port list.

Clicking the [Lock] or [Unlock] button displays the preliminary confirmation dialog screen. Confirm the details of operation.

Confin	n Change (s)							
Lock	[25704] The selected port (s) will be locked. If correct, click OK. Port List							
	Port Number	Port Name	IP Address	Conf.Chg				
	00h-00h	PortOl	10.72.28.250					
		OK (	Cancel					

Figure 3-83: Locking the Port

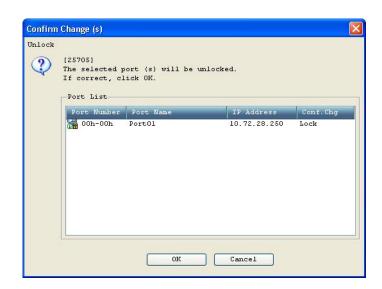


Figure 3-84: Unlocking the Port

# **Disk Array Tab**

Use the screen below to lock or unlock the iSCSI disk array.

Lock Setting		X
LD Set Port Disk Array		
If locked, settings of Network or Disk Array Name, and Spare Unbinding cannot be performed.	2	
Conf.Chg :		
	Lock Un	Lock
Close		Help

Figure 3-85: Lock Setting - Disk Array

To lock or unlock a disk array (disk array name setting, network setting, spare unbind), click the [Lock] or [Unlock] button.

Clicking the [Lock] or [Unlock] button displays the following dialog used to confirm the execution of operation.

[When locking the disk array]



# Figure 3-86: Lock Changes

[When unlocking the disk array]



Figure 3-87: UnLock Changes

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