Overland Storage

SnapSAN™ Logical Disk

Administrator's Guide

S3000/S5000

March 2013

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FM 2.1.1 or 2.2 [reviewers ignore.]

Preface

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:

http: //docs.overlandstorage.com/snapsan

Follow the appropriate link to download the **latest** software file or document. For additional assistance, search at http: //support.overlandstorage.com.

Overland Technical Support

For help configuring and using your SnapSAN 3000/5000, search for help at:

http: //support.overlandstorage.com/kb

You can email our technical support staff at techsupport@overlandstorage.com or get additional technical support information on the Contact Us web page:

http: //www.overlandstorage.com/company/contact-us/

For a complete list of support times depending on the type of coverage, visit our web site at:

http: //support.overlandstorage.com/support/overland_care.html

Conventions

This user guide exercises several typographical conventions:

Convention	Description & Usage
Boldface	Words in a boldface font (**Example**) 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 **Ctrl** and **Alt** keys and press the **r** 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.
IMPORTANT 	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.
CAUTION 	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.
WARNING 	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, **Setup > Passwords > User** 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.

Contents

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.

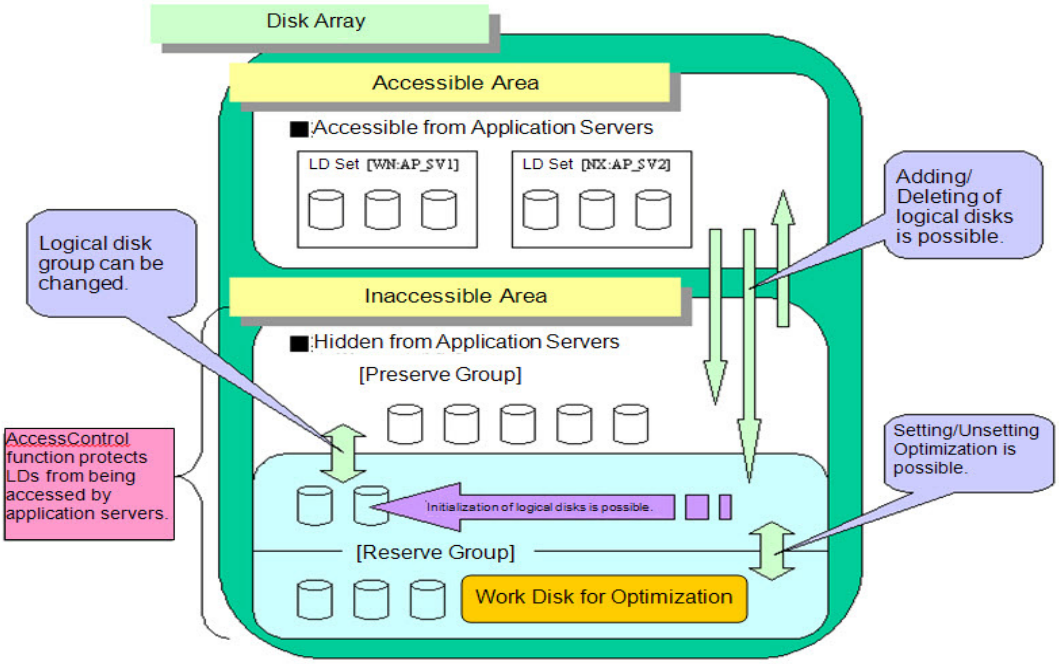

Figure 1-1: LD Administrator Overview

[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.

Functions

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.

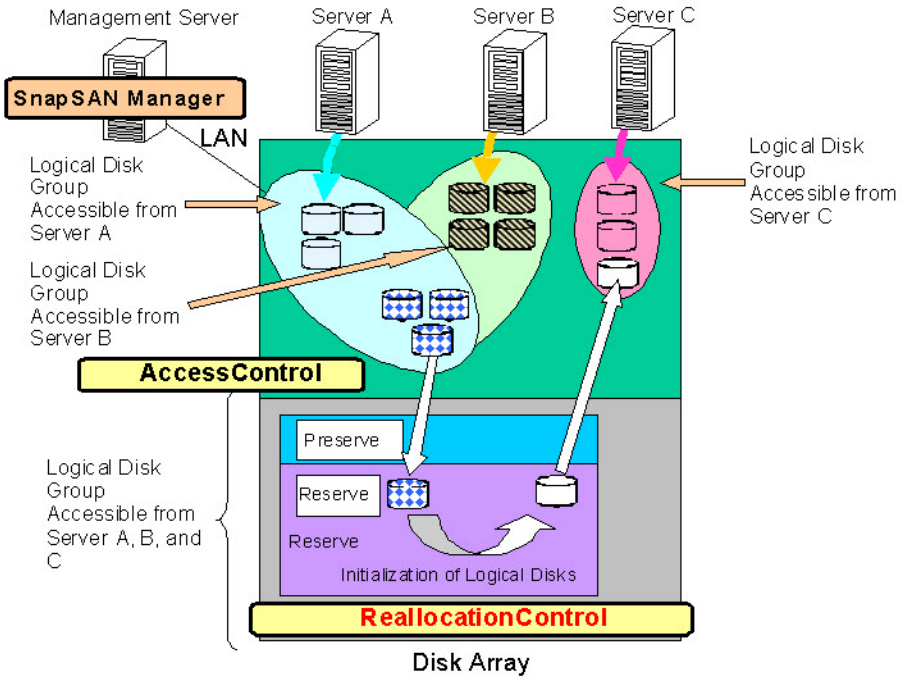

Figure 2-1: Logical Disk Initialization

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

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

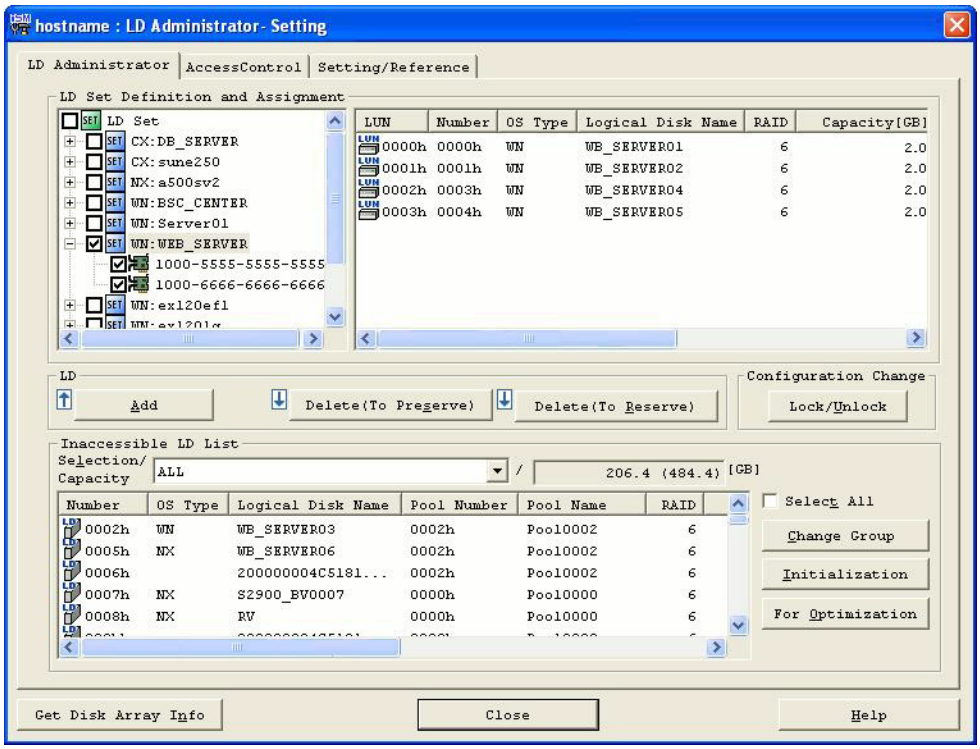

Figure 3-1: LD Administrator Setting

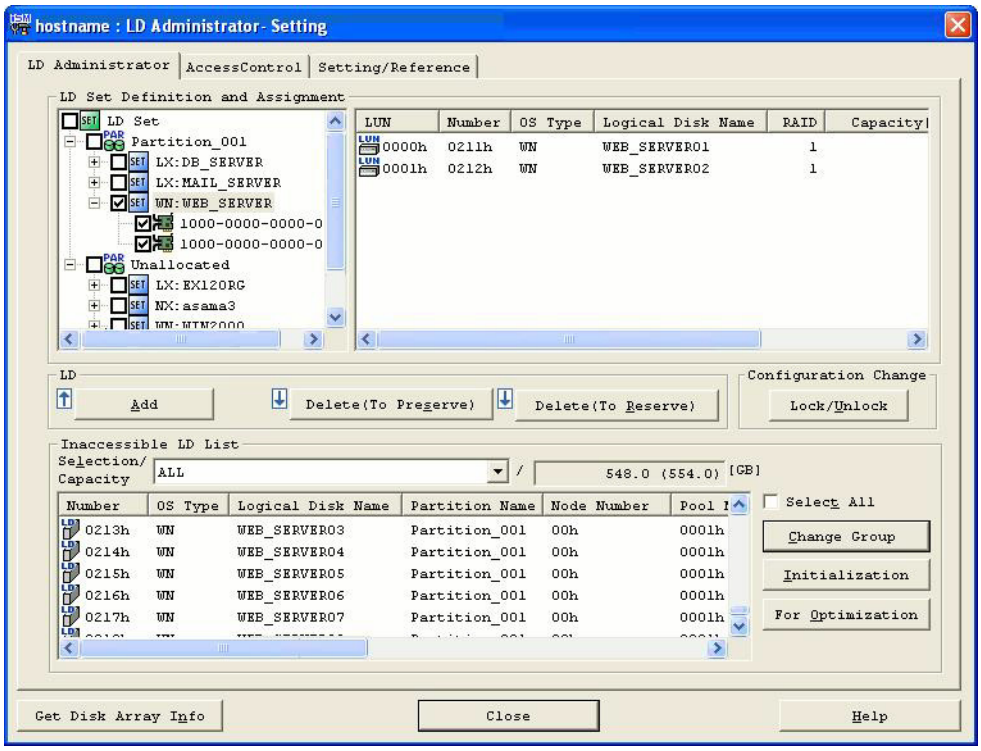

Figure 3-2: LD Administrator (Partitioning Function)

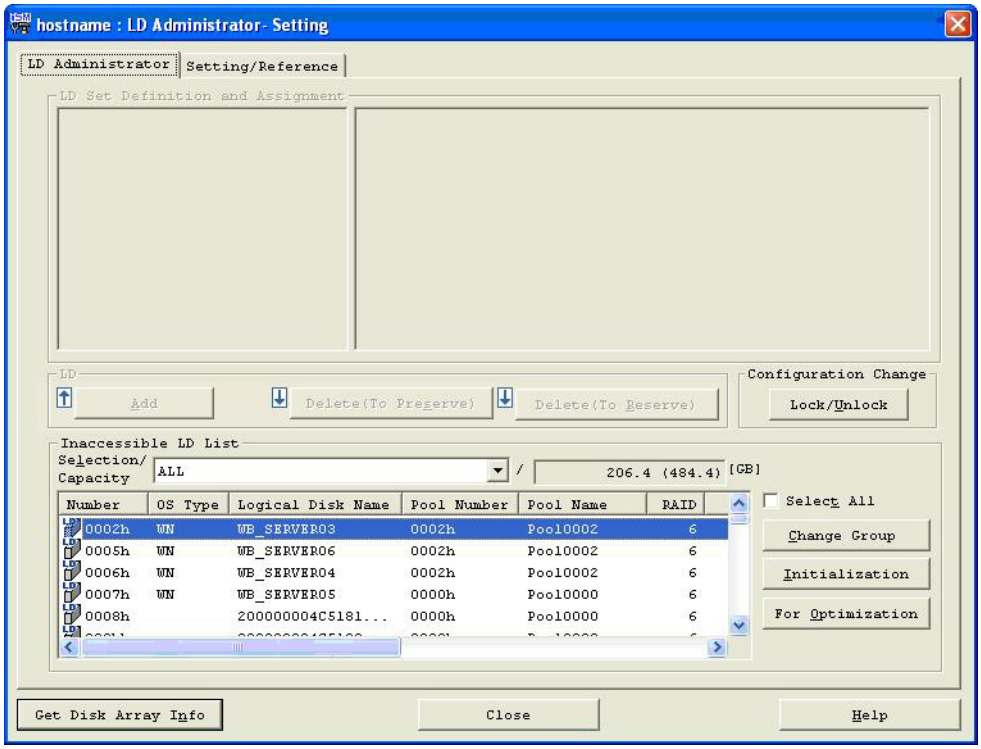

Figure 3-3: LD Administrator (iSCSI)

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.

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.

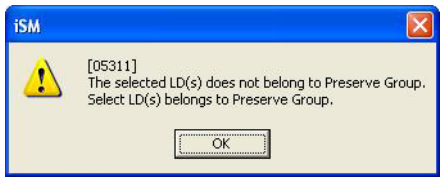

Figure 3-5: Warning Dialog

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

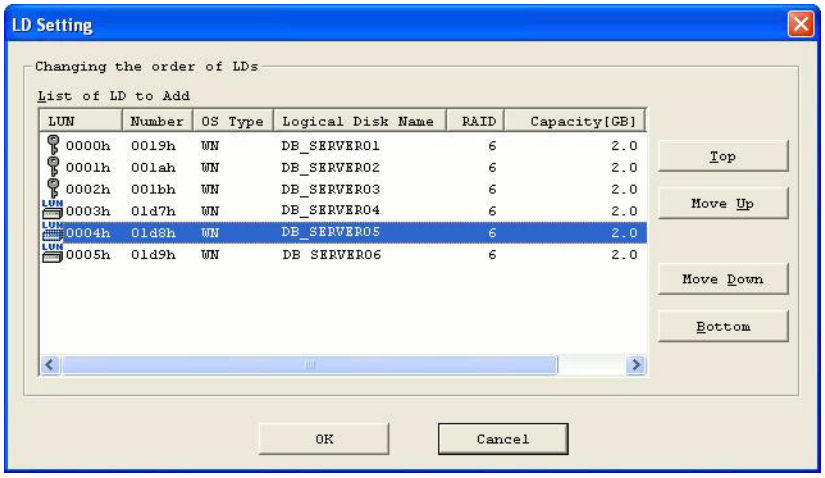

Figure 3-6: LD Setting

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 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

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.

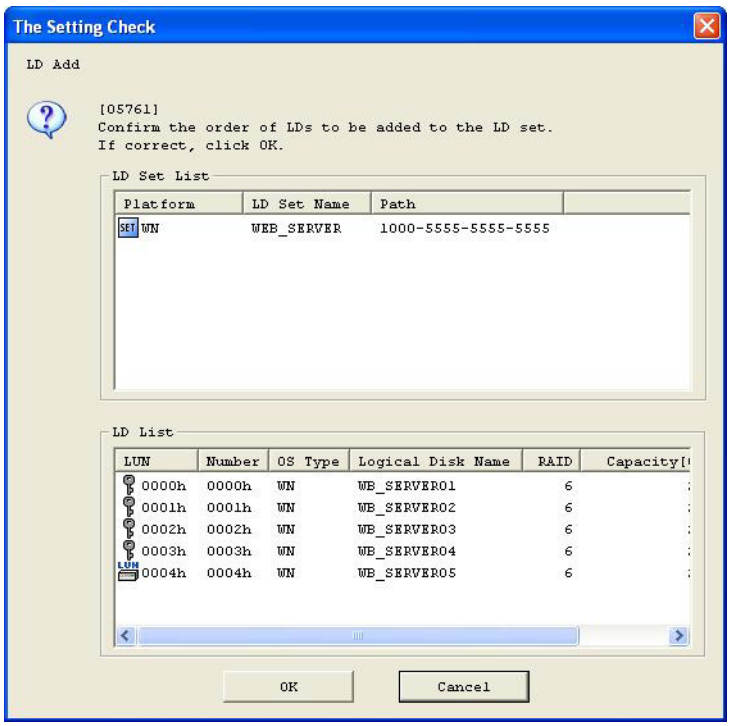

Figure 3-7: Setting Check

[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.

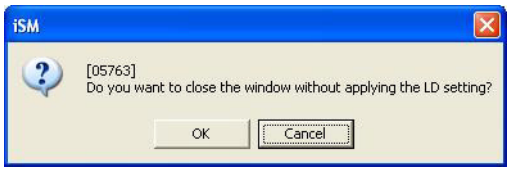

Figure 3-8: Close Setting

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.

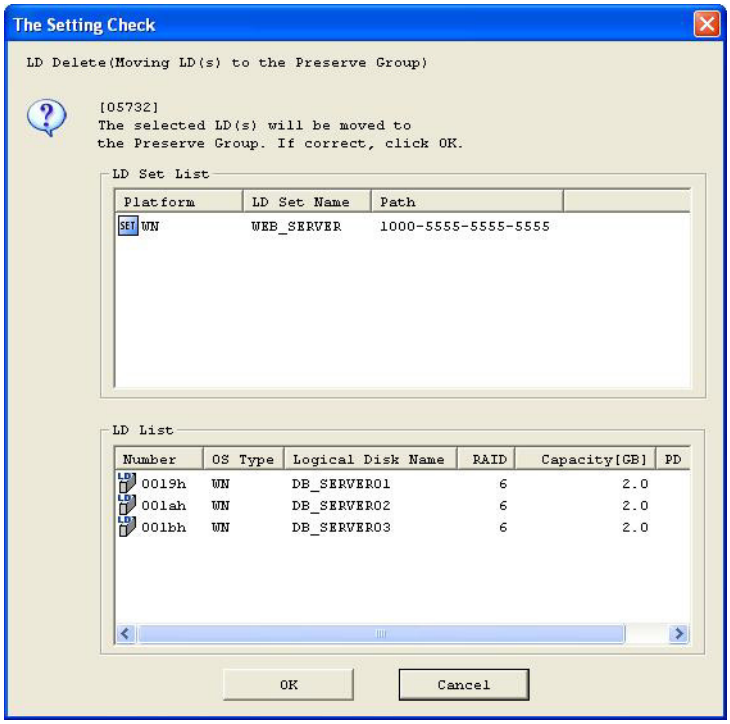

Figure 3-9: Setting Check

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.

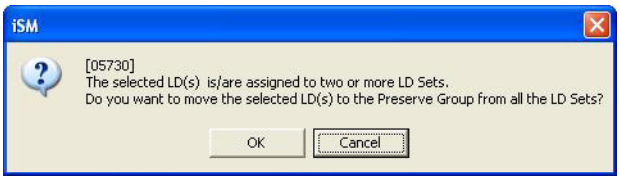

Figure 3-10: Move Sets

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.

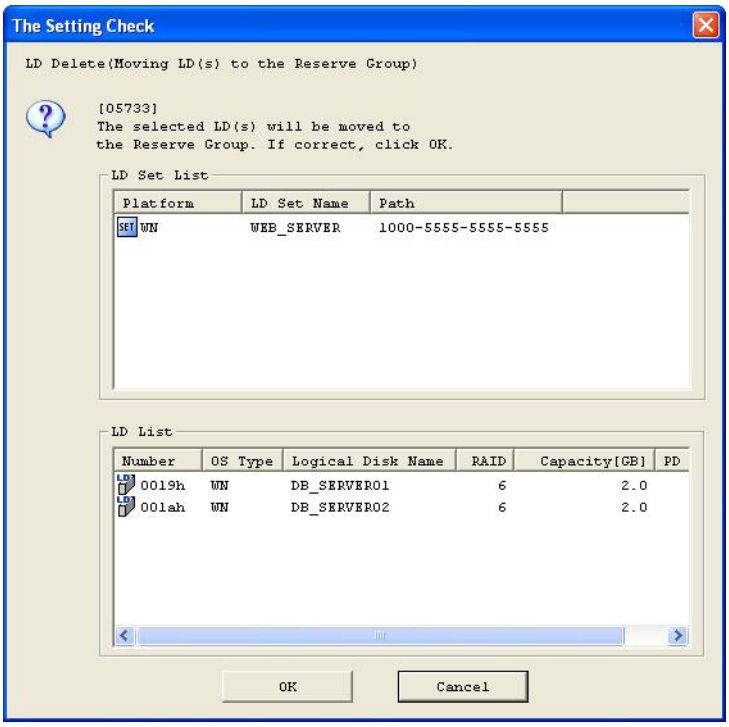

Figure 3-11: Delete Moving

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.

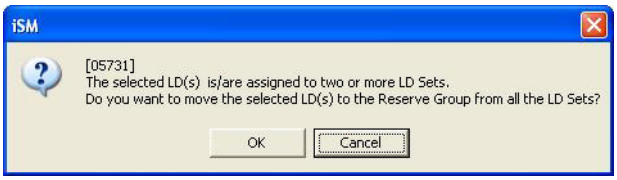

Figure 3-17: Reserve Group

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.

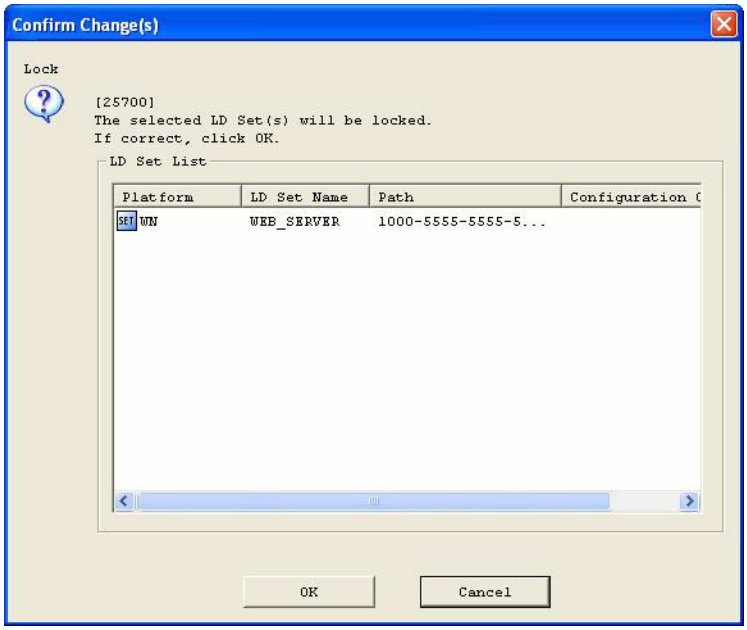

Figure 3-18: Preliminary Confirmation Dialog (Locking LD Set)

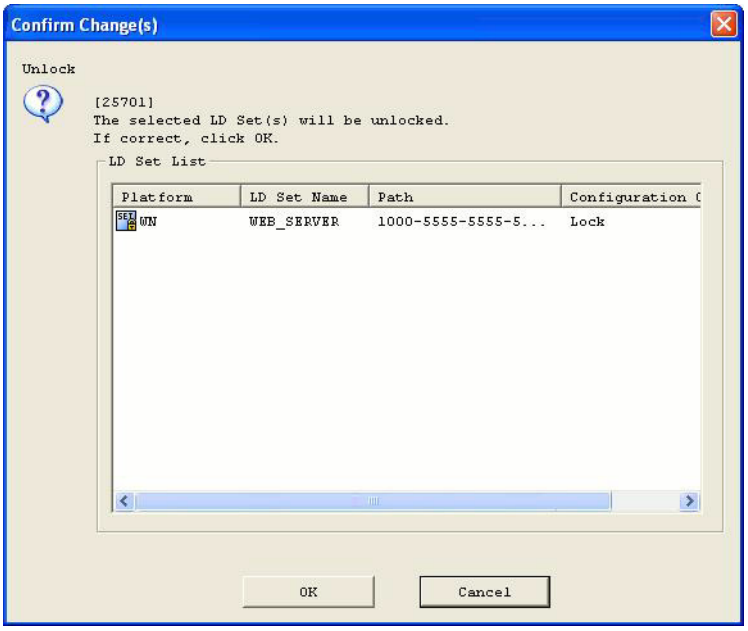

Figure 3-19: Preliminary Confirmation Dialog (Unlocking LD Set)

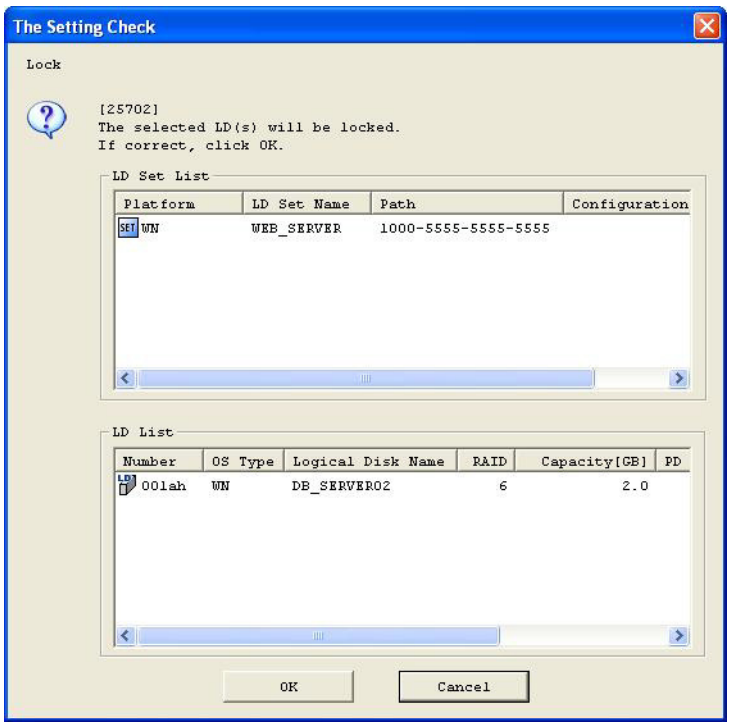

Figure 3-20: Locking Logical Disk in LD Set Definition and Assignment

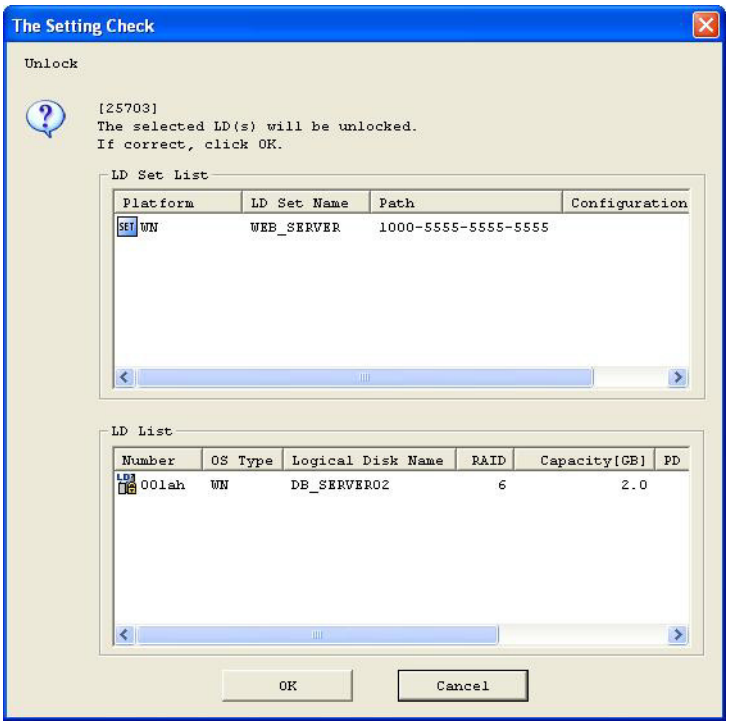

Figure 3-21: Unlocking Logical Disk in LD Set Definition and Assignment

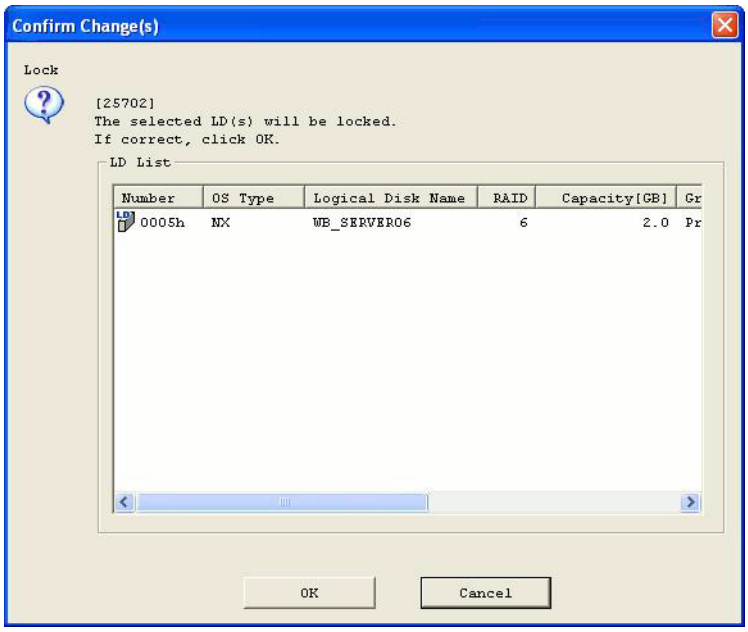

Figure 3-22: Locking Logical Disk in Inaccessible LD List

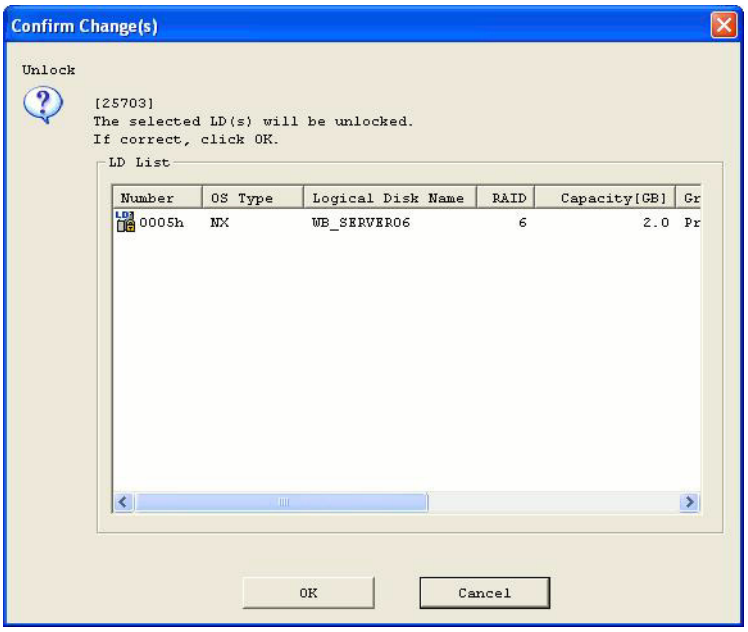

Figure 3-23: Unlocking Logical Disk in Inaccessible LD List)

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.

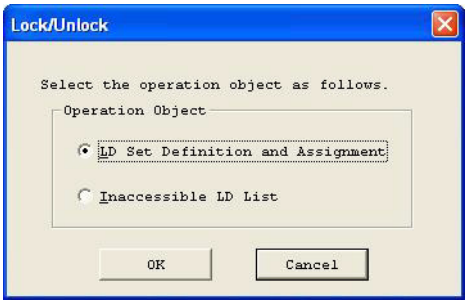

Figure 3-24: Operation Target Select Dialog

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

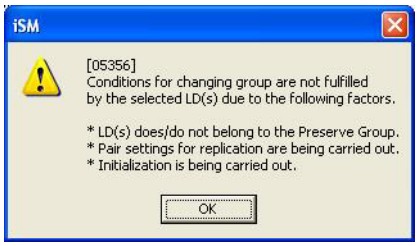

Figure 3-25: Changing Group Not Fulfilled

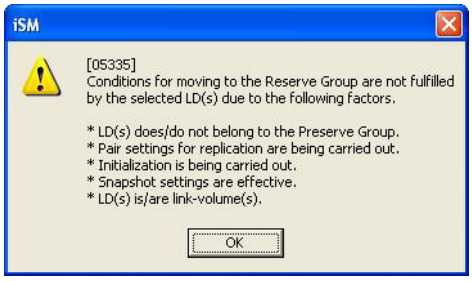

Figure 3-26: Changing Group Not Fulfilled - Factors (1)

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

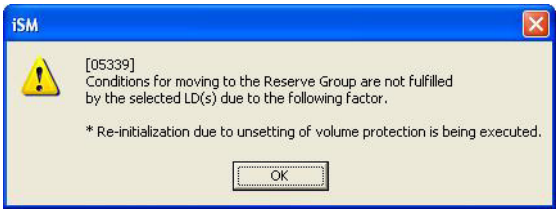

Figure 3-28: Re-initialization

Figure 3-29: Prevent State

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.

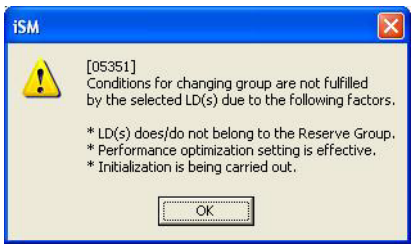

Figure 3-32: Conditions Not Fulfilled (2)

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]

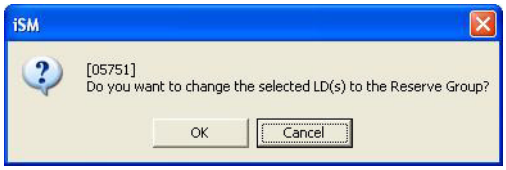

Figure 3-34: Reserve Group

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.

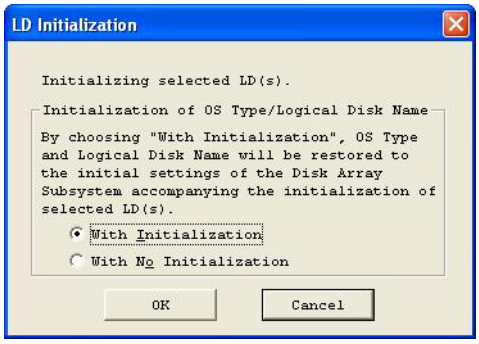

Figure 3-37: LD Initialization

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

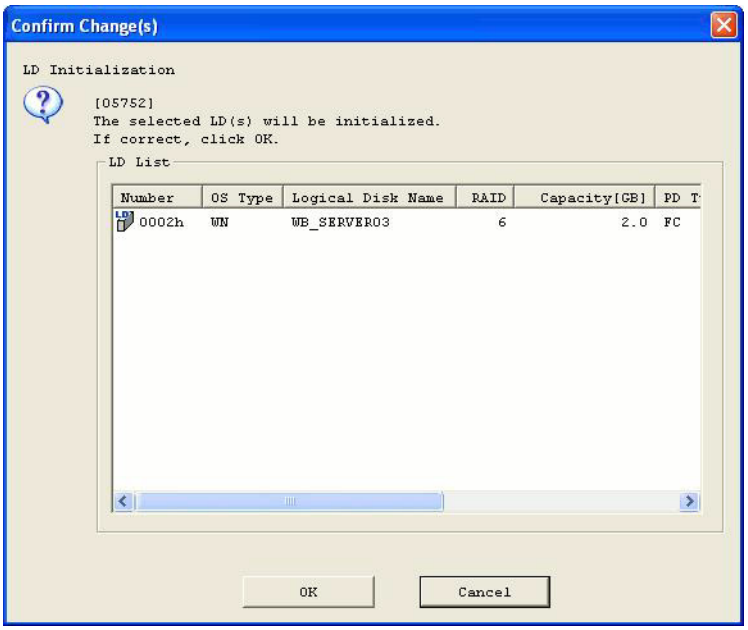

Figure 3-38: LD Initialization

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.

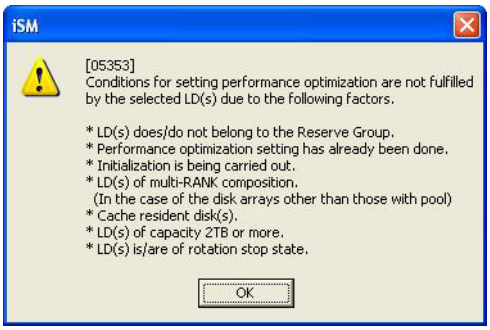

Figure 3-39: AutoTier Not Fulfilled

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

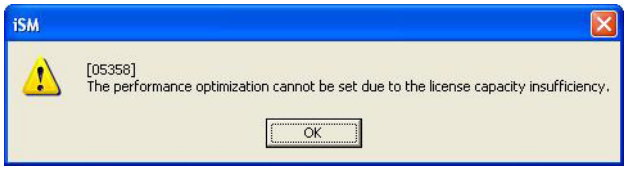

Figure 3-40: Warning

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.

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]

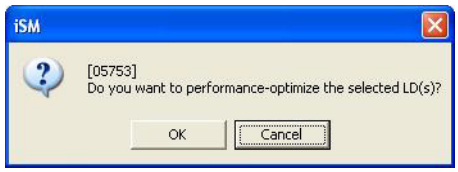

Figure 3-42: AutoTier

[Work Disks for Optimization unsetting]

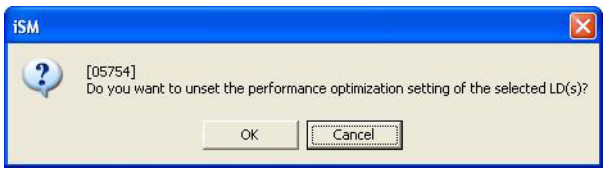

Figure 3-43: Use Setting

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.

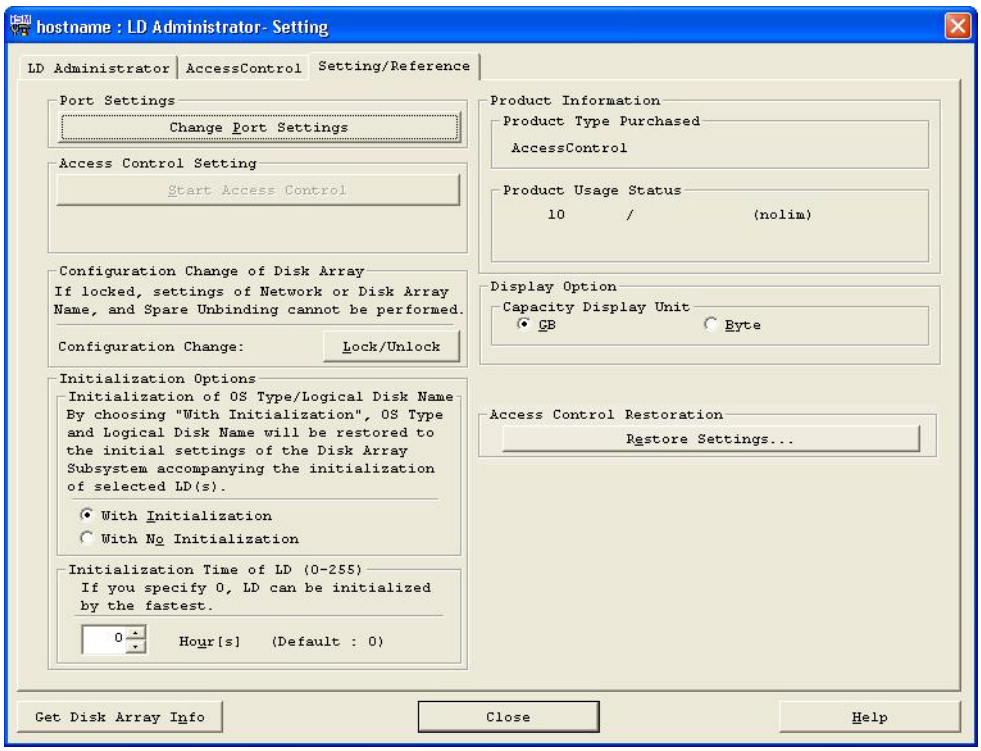

Figure 3-45: Setting Reference

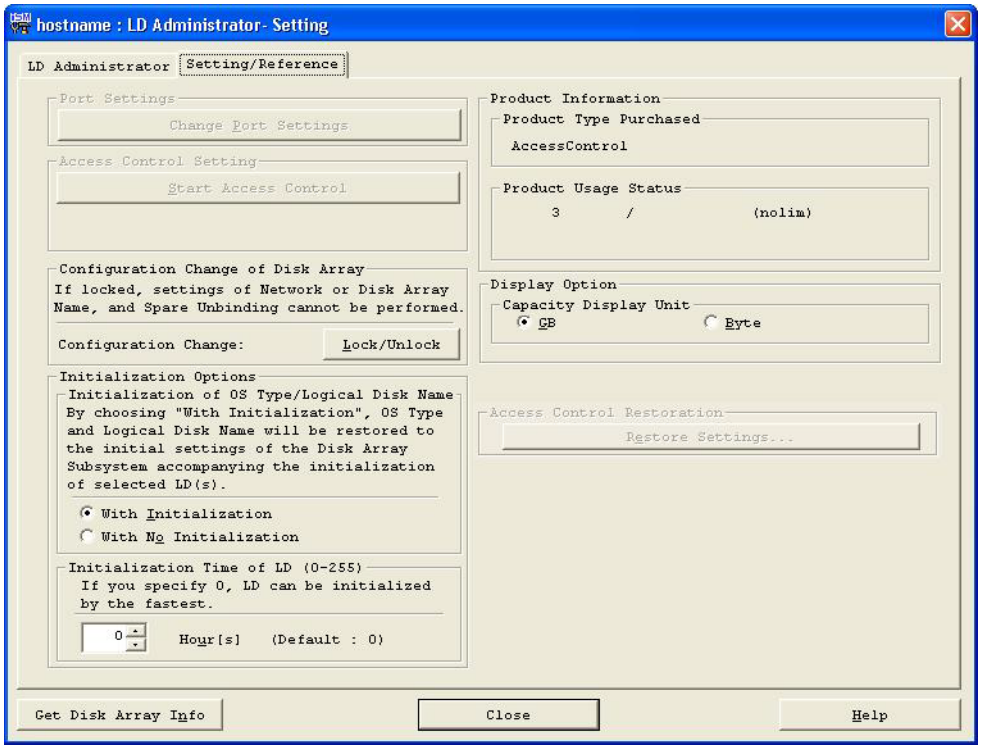

Figure 3-46: Setting Reference (iSCSI)

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.

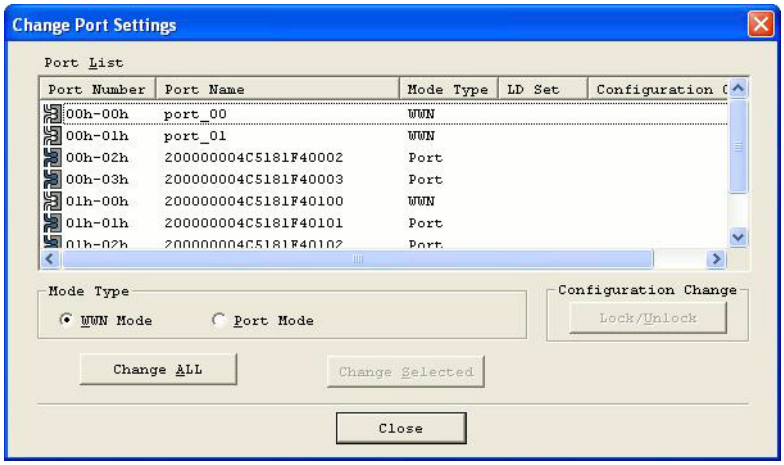

Figure 3-47: Change Port Settings

[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.

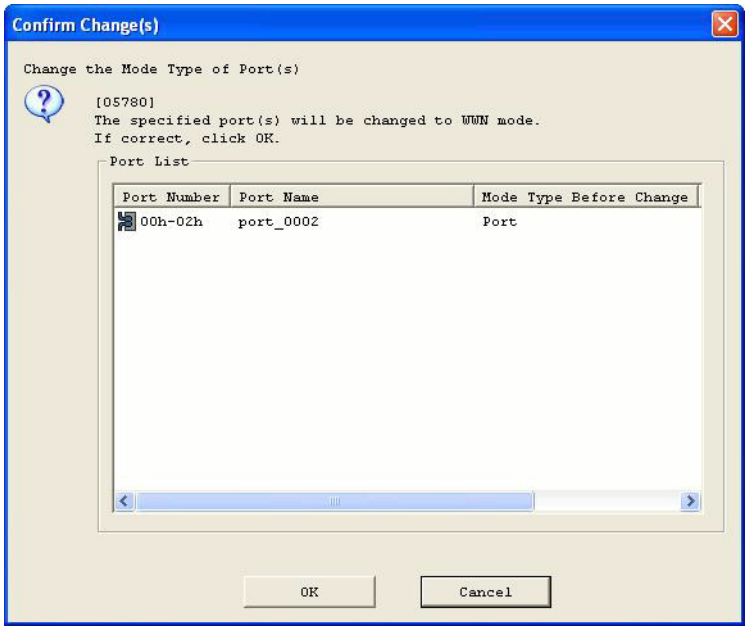

Figure 3-48: Confirm Changes

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.

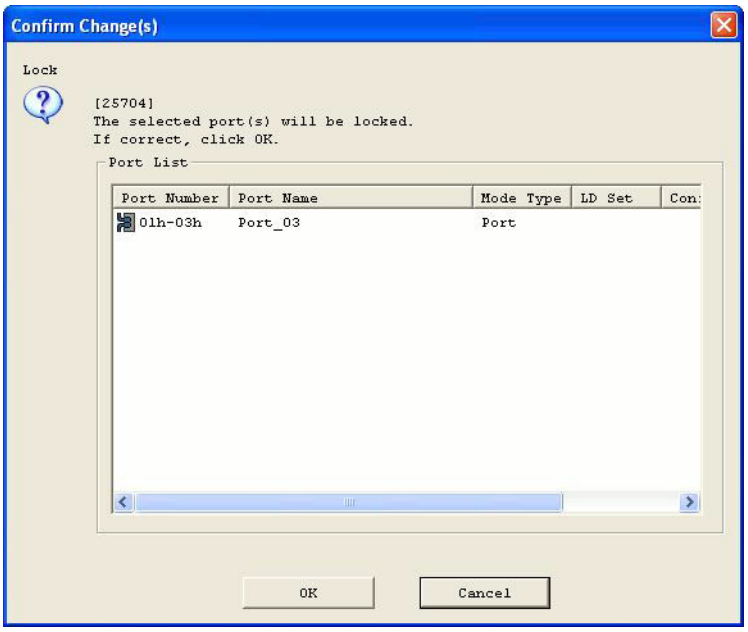

Figure 3-49: Preliminary (Locking Ports)

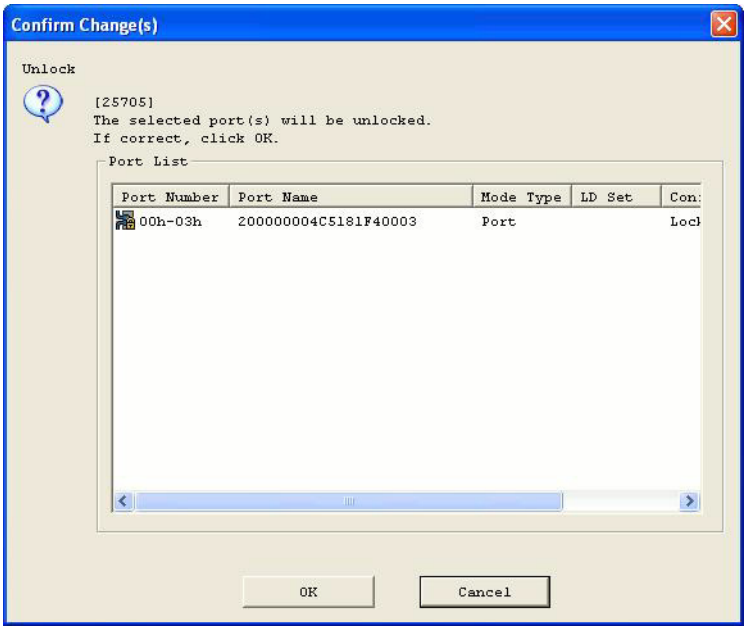

Figure 3-50: Preliminary (Unlocking Ports)

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.

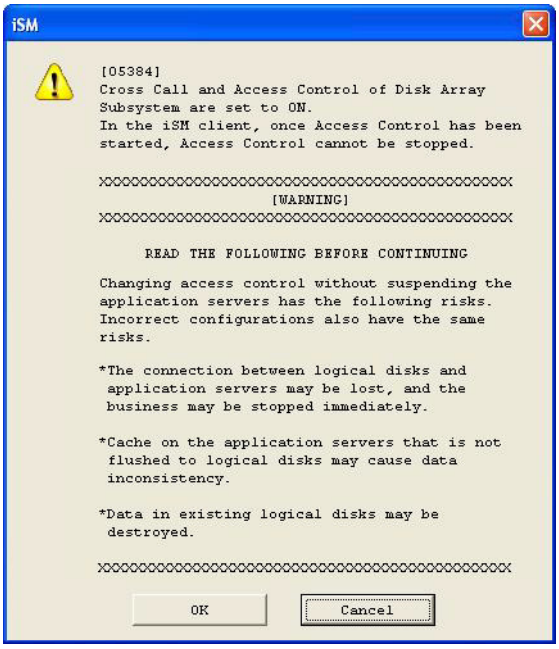

Figure 3-51: Start Access Control

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]

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.

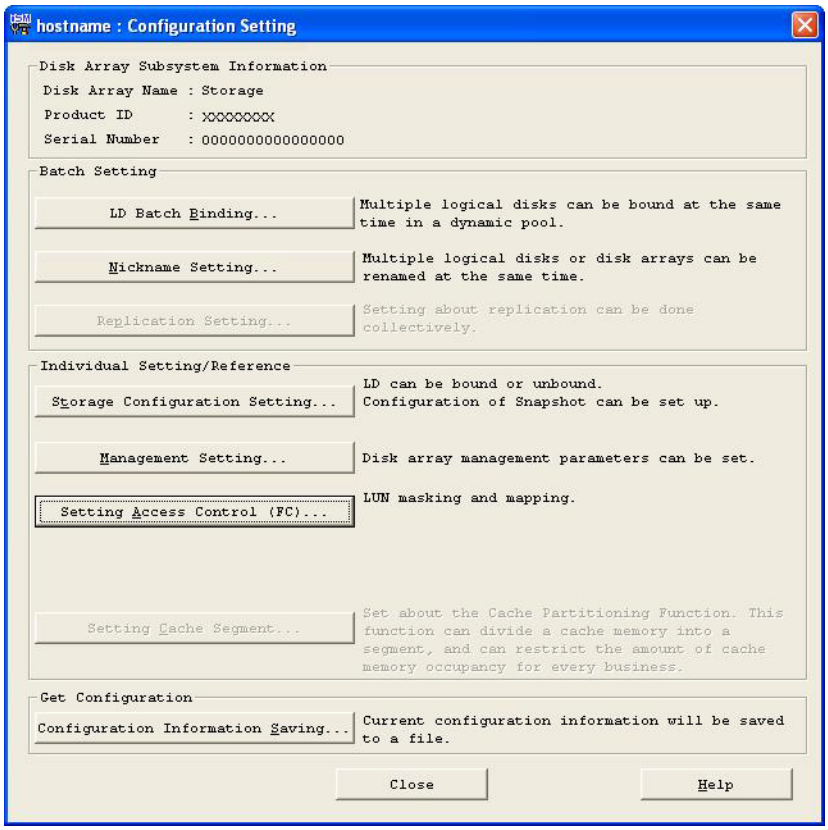

Figure 3-55: Configuration 2

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

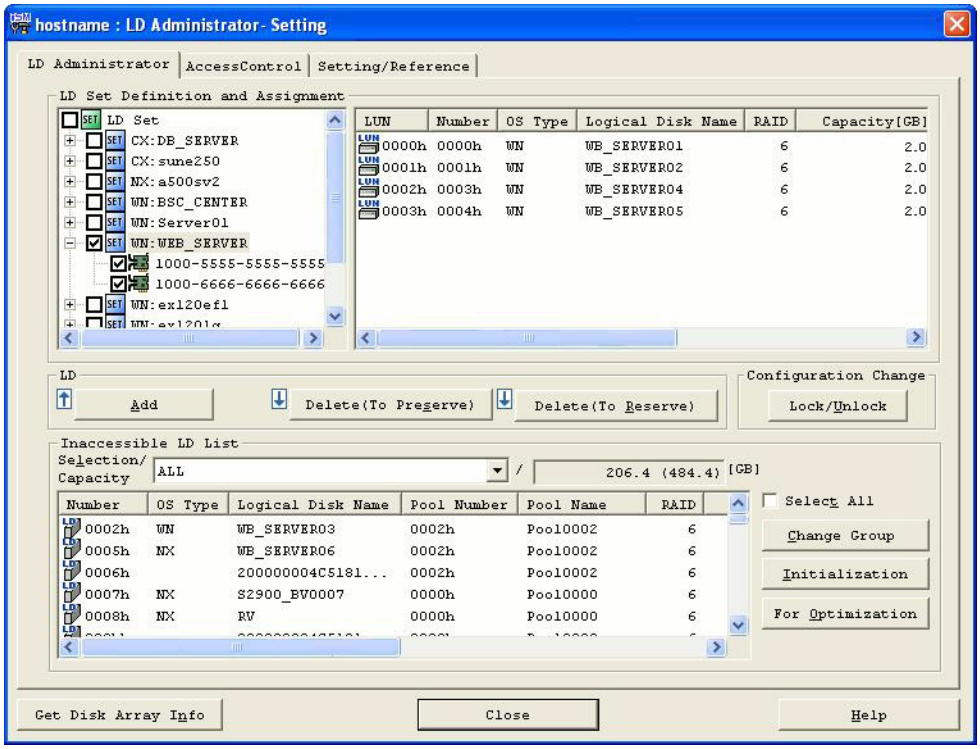

Figure 3-56: Configuration

[LD Administrator] Operation Screen

[LD Administrator] Tab

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

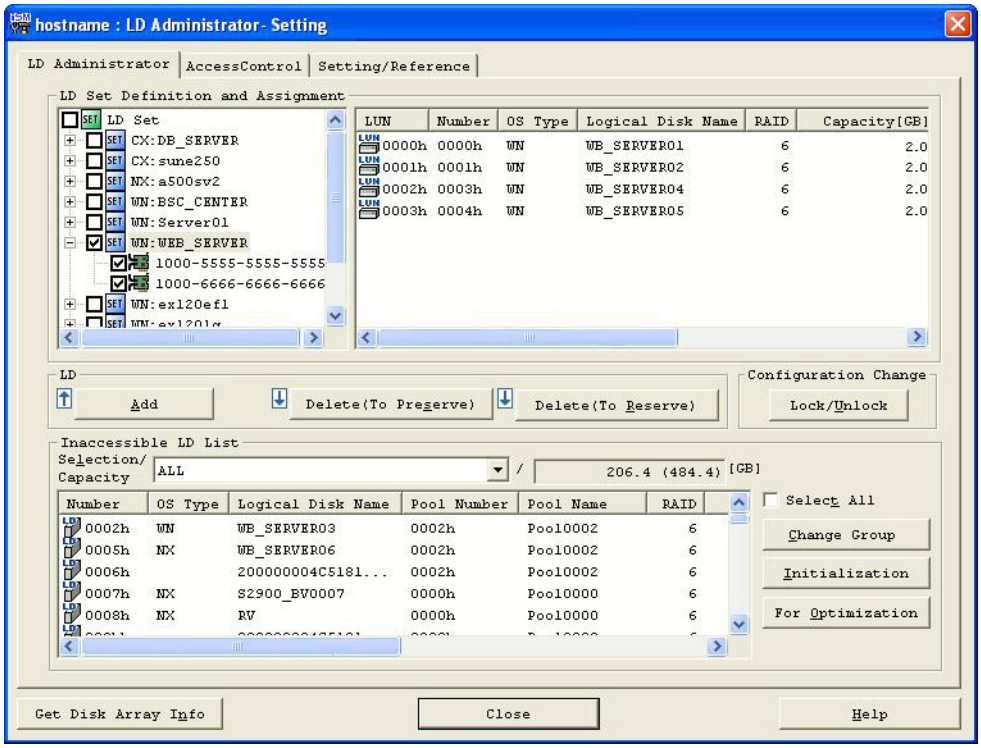

Figure 3-57: LD Administrator Tab

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

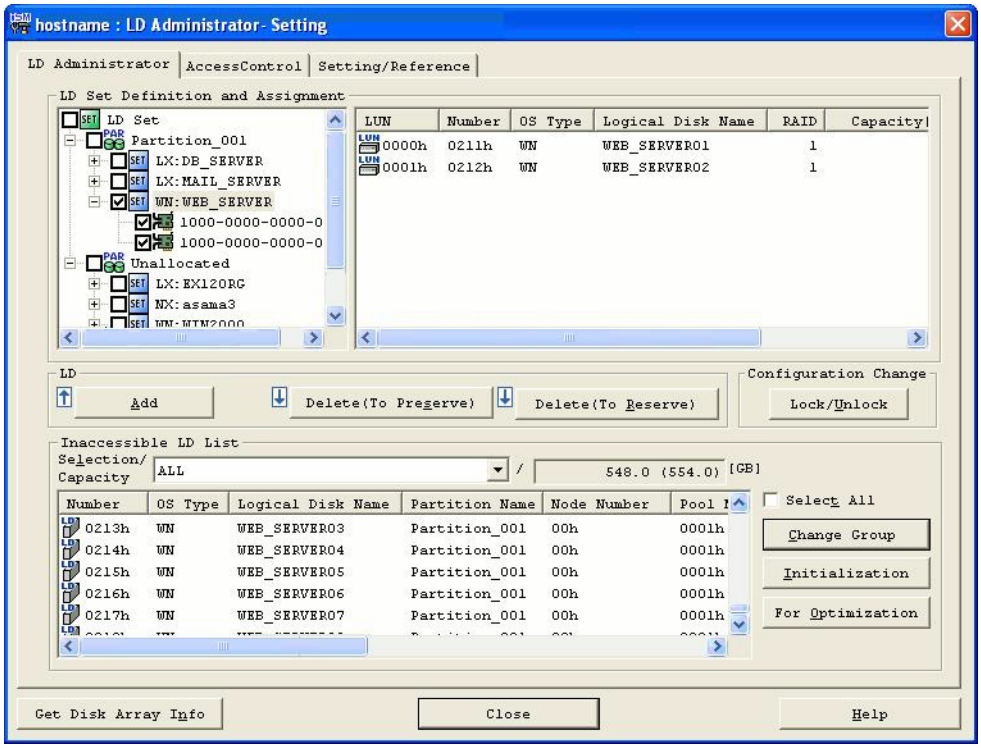

Figure 3-58: Partitioning Function

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

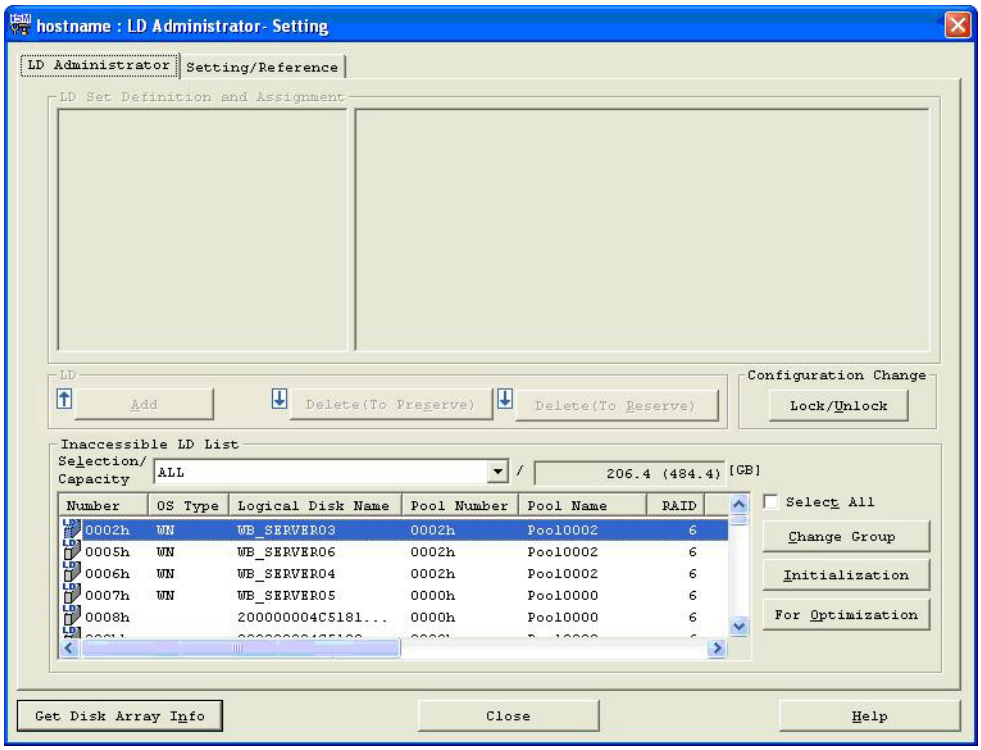

Figure 3-59: Disk Array with Only iSCSI

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.

: Item that shows all LD Sets
: Partition
: LD Set linked with path information
: LD Set unlinked with path information
: 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.

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

 : LD Set linked with path information

 : LD Set unlinked with path information

 : 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.

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

: LD 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)

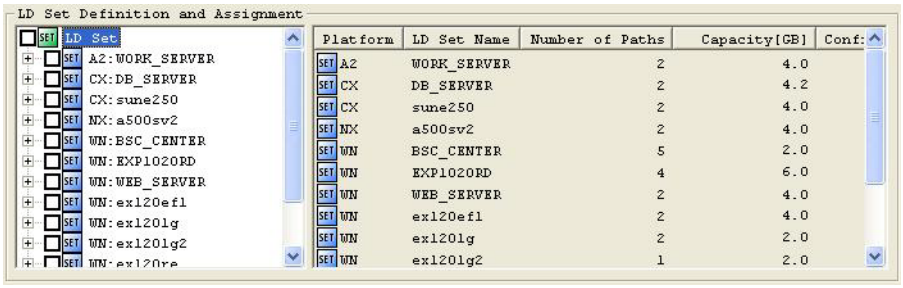

Figure 3-60: LD Set List 1

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

Partition Name

: Partition

LD Set Number

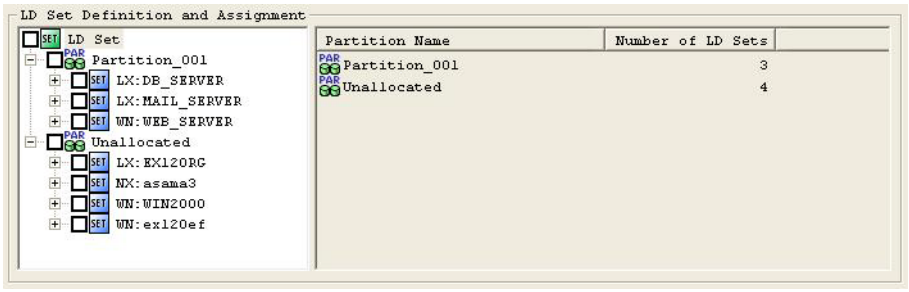

Figure 3-61: LD Set List (Partitioning Function)

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

Platform

: LD Set linked with path information

: LD Set unlinked with path information

: 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.

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

: LD 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)

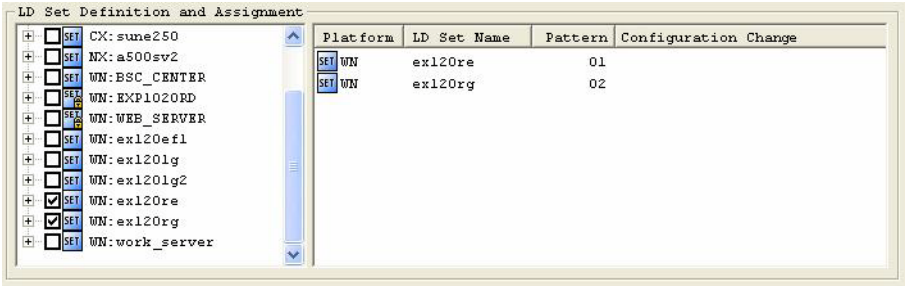

Figure 3-62: LD Set List 2

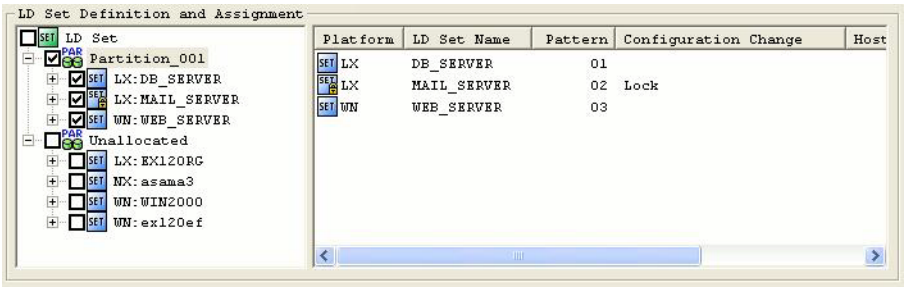

Figure 3-63: LD Set Definition and Assignment

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)

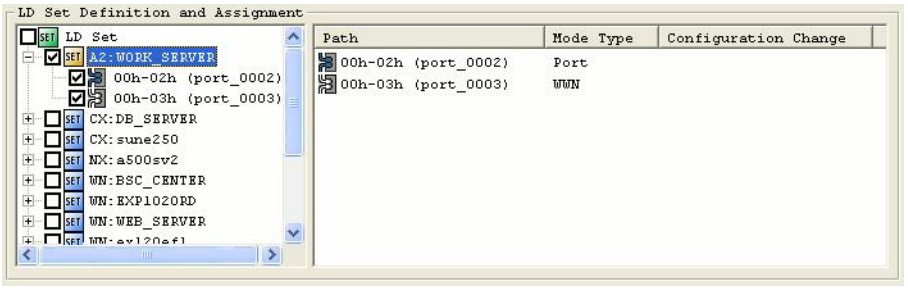

Figure 3-64: Mixed Mode

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)

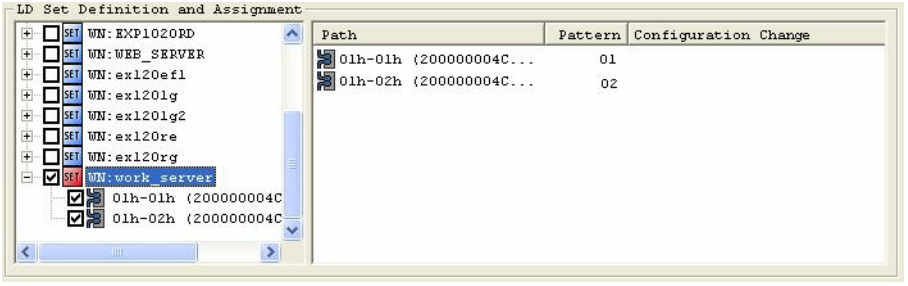

Figure 3-65: Port Information List

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)

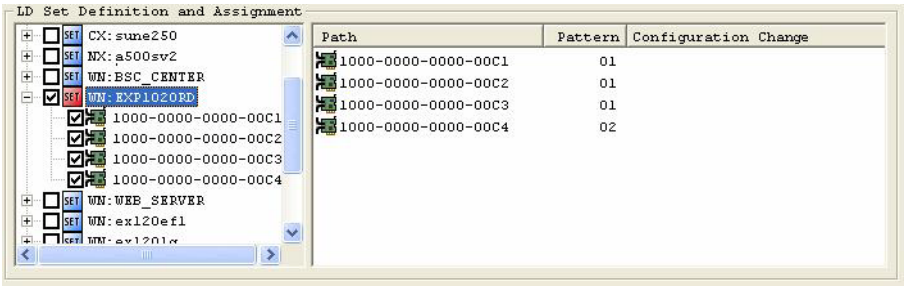

Figure 3-66: Path Information List

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>

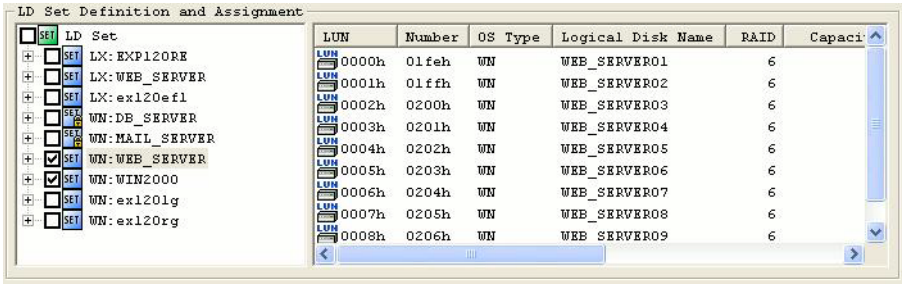

Figure 3-67: Accessible LD

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. These keywords are targeted for the Preserve Group only.
"Preserve - Purpose (RPL)"	Displays logical disks set in pairs only for replication. 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 (Control volume)	Displays logical disks which are control volumes. 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 (Optimization)"	Displays Work Disks for 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>

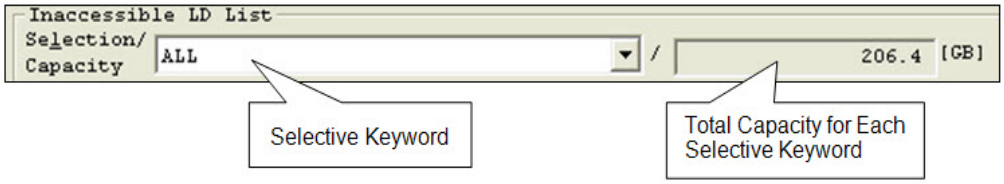

Figure 3-68: Selection Capacity

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.

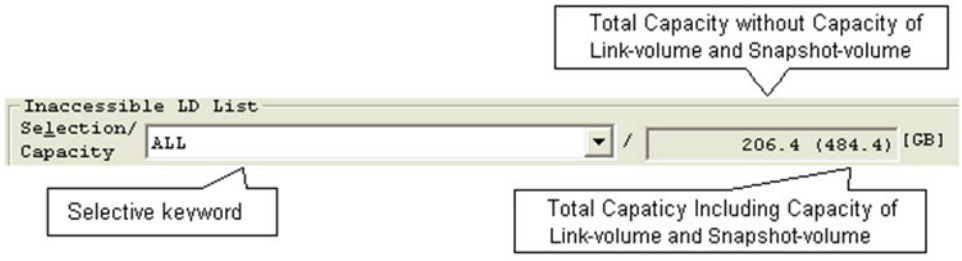

Figure 3-69: Selection Capacity

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 snapshot-volume is treated in the same way as the capacity of link-volume. In other words, when link-volumes 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.

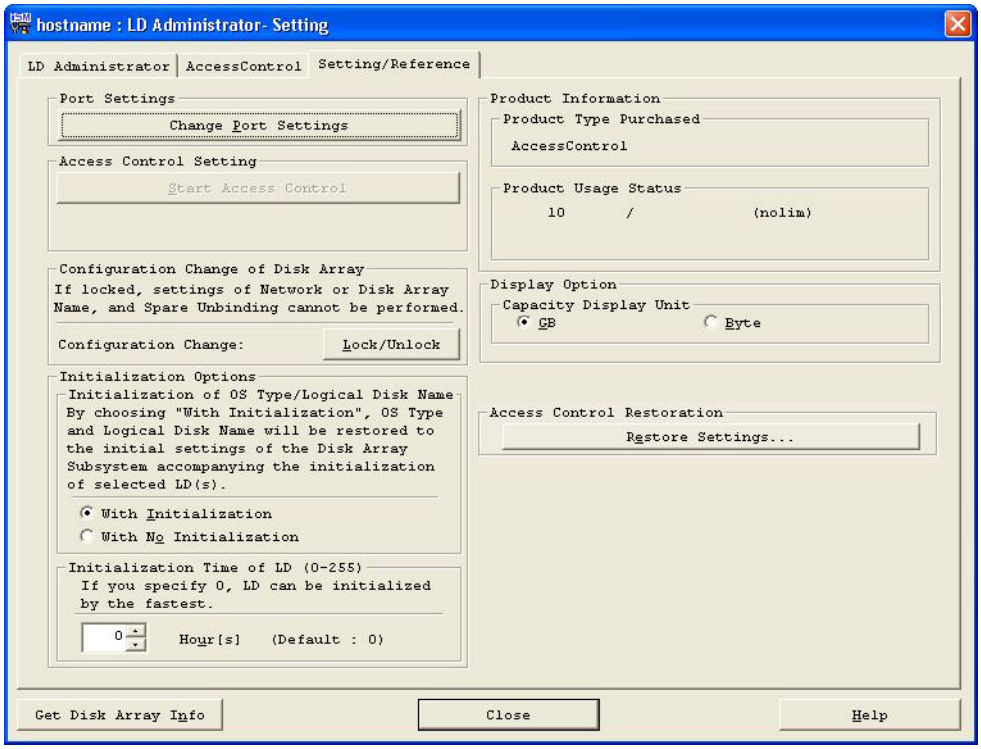

Figure 3-70: Setting Reference (2)

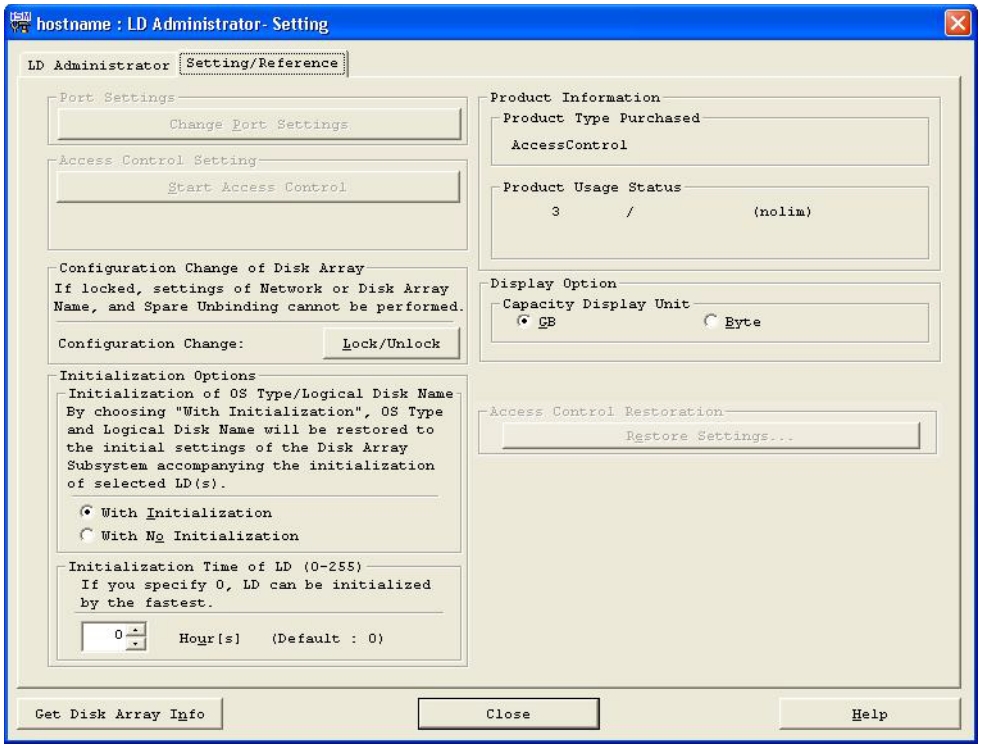

Figure 3-71: iSCSI Only

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".

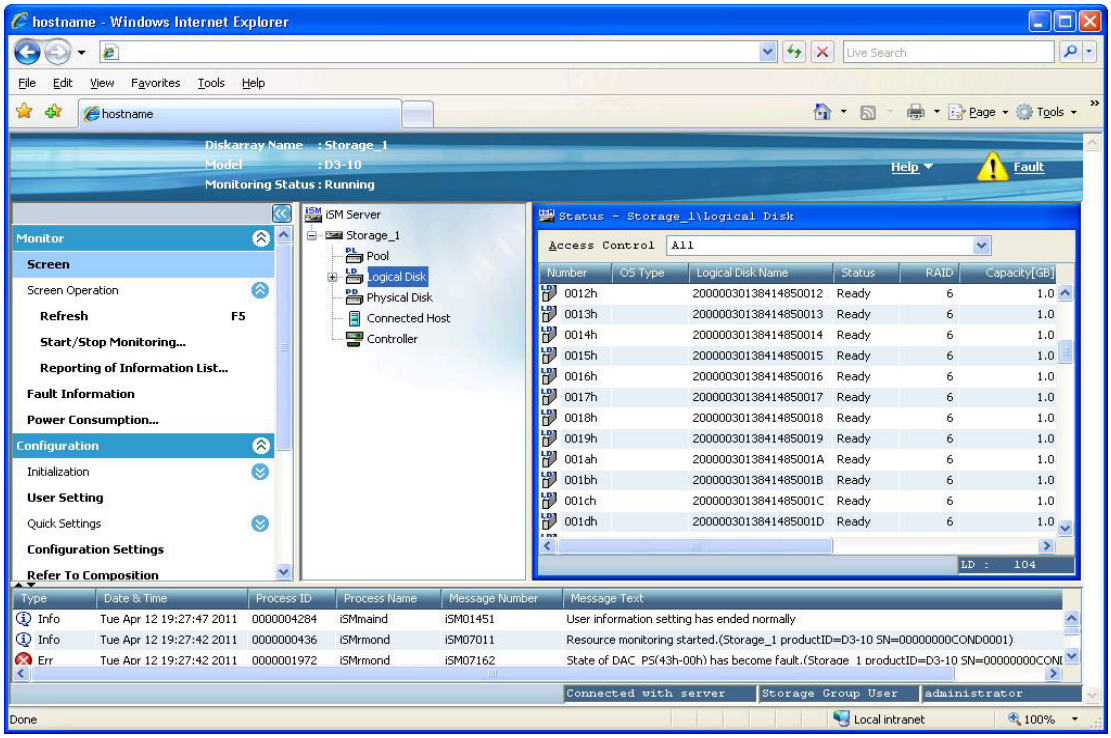

Figure 3-72: AccessControl Tab

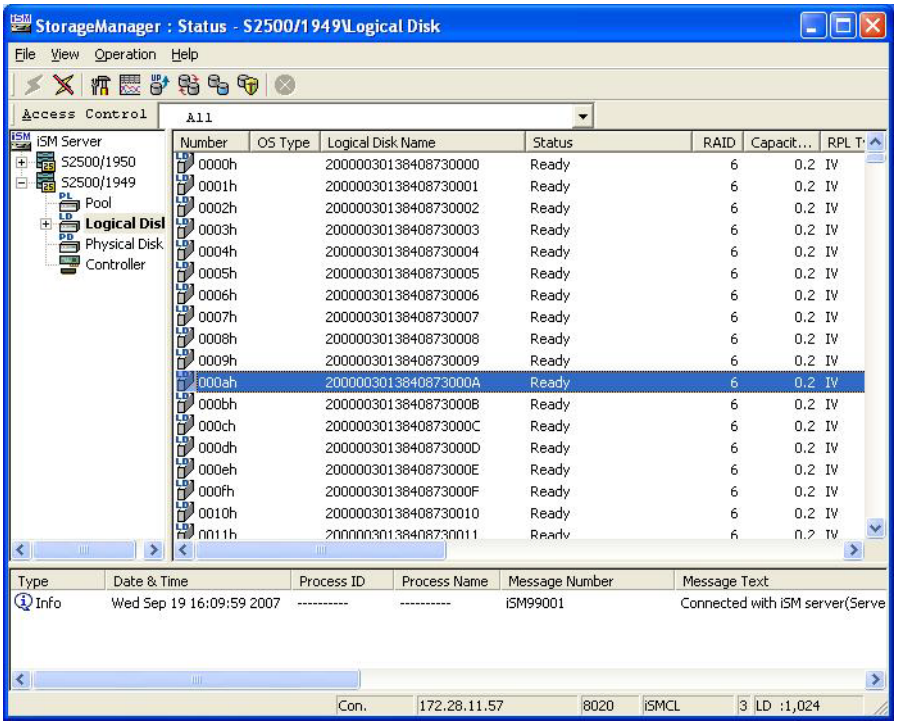

Figure 3-73: Access Control (2)

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.

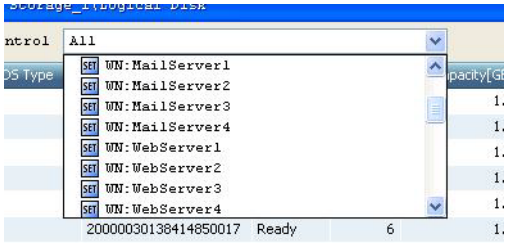

Figure 3-74: Access Control (2)

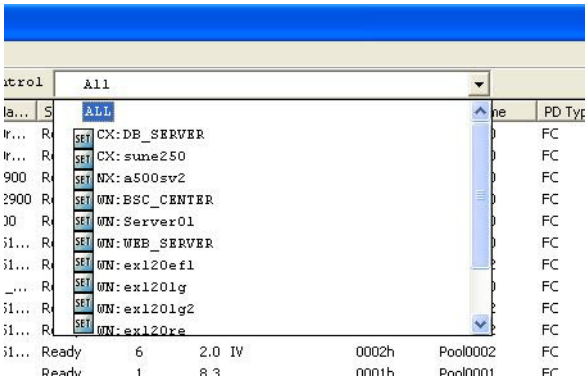

Figure 3-75: Access Control (3)

iSCSI Lock Setting Operation

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

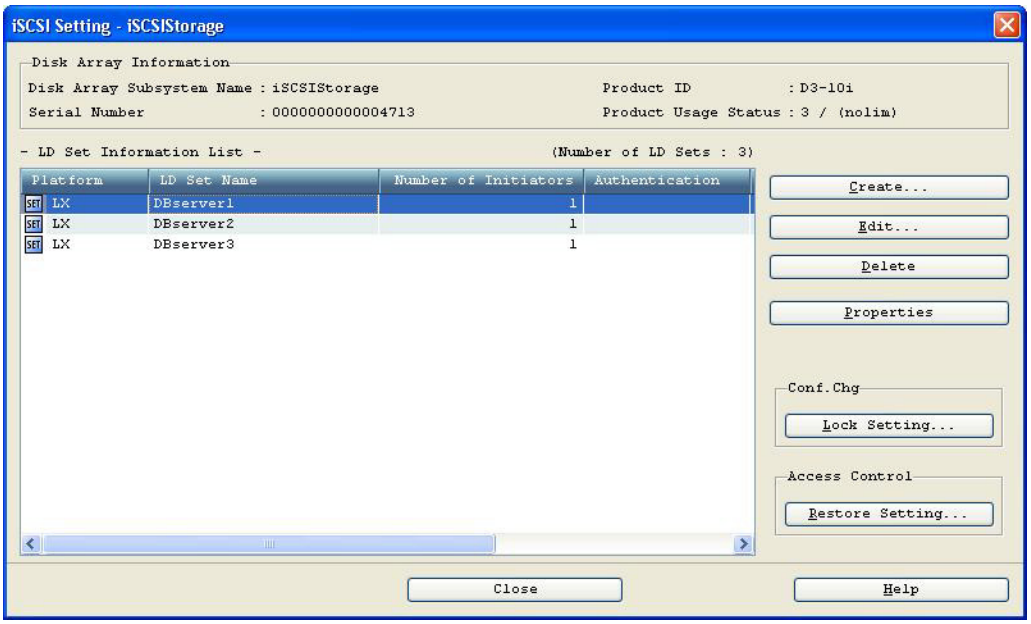

Figure 3-76: iSCSI Setting

Operations on the LD Set Tab

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

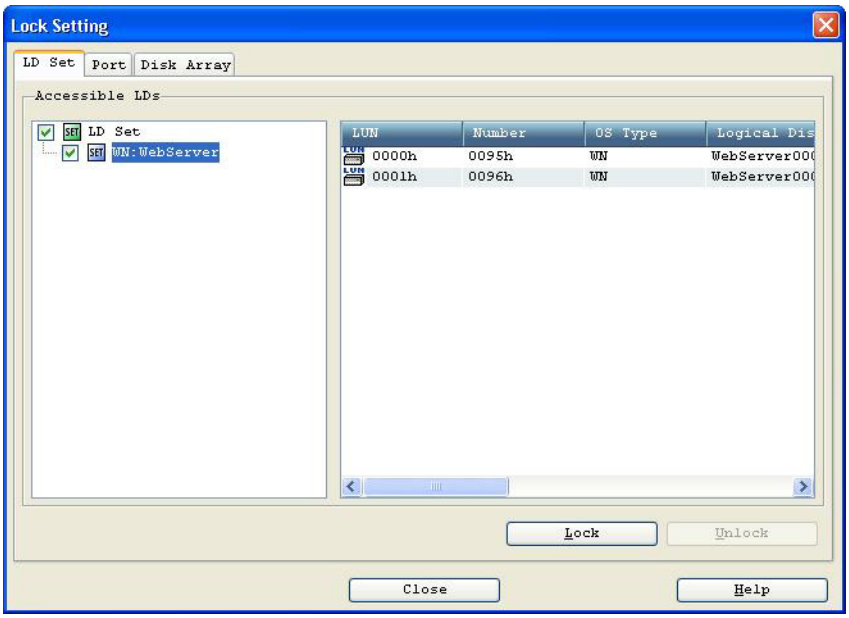

Figure 3-77: LD Lock Setting

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.

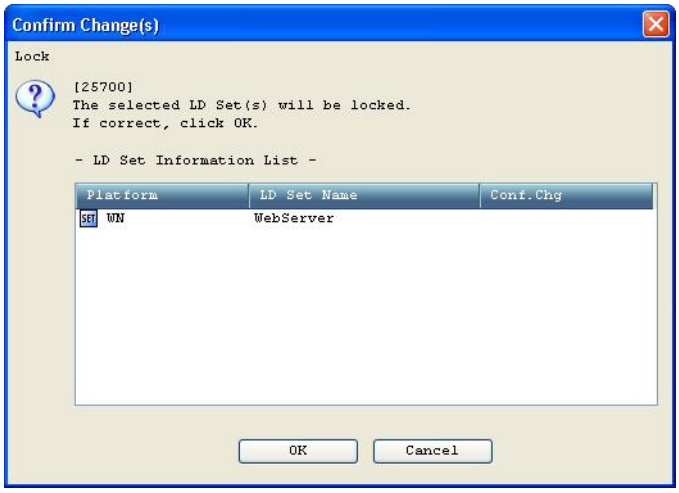

Figure 3-78: LD Set Lock Preliminary Confirmation

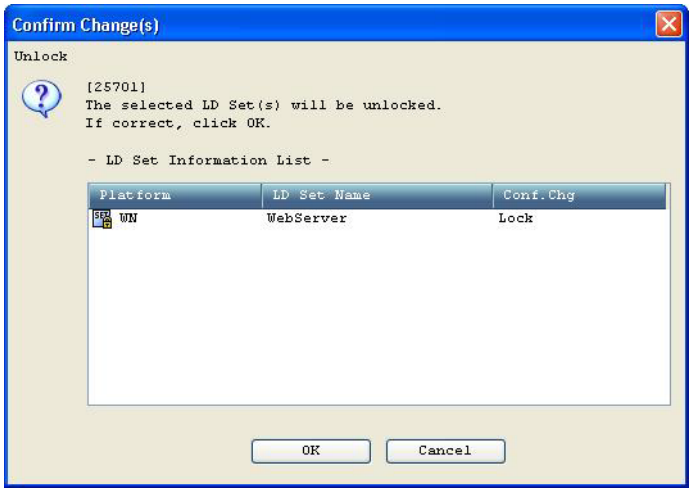

Figure 3-79: Unlocking the LD Set

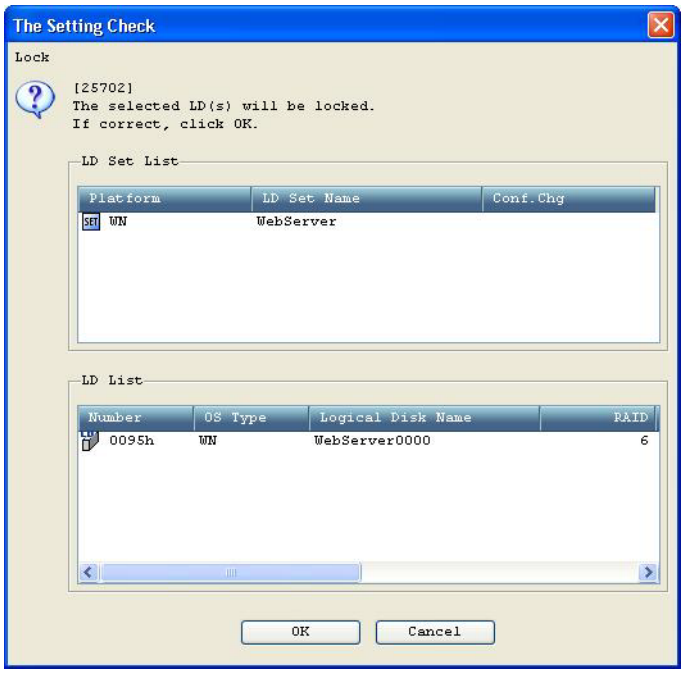

Figure 3-80: Locking the Logical Disk

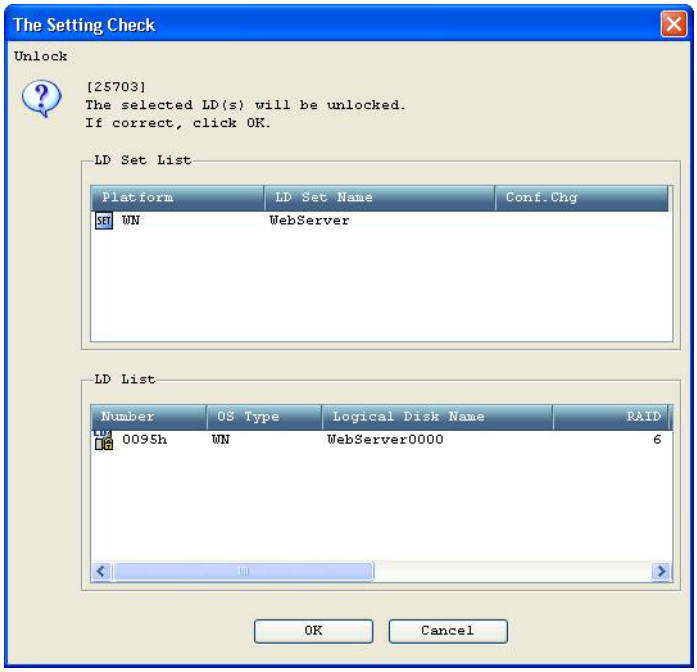

Figure 3-81: Unlocking the Logical Disk

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.

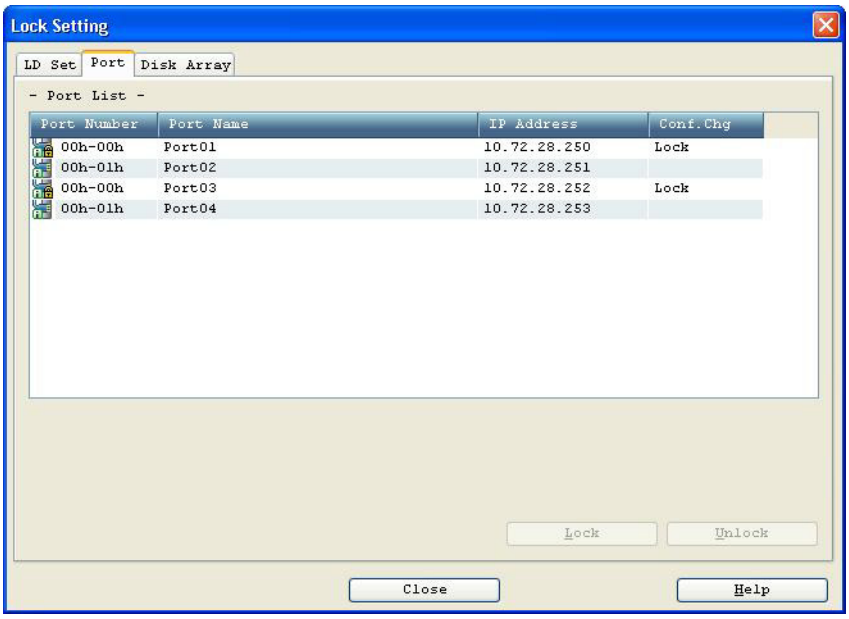

Figure 3-82: Lock Setting Screen (Port)

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.

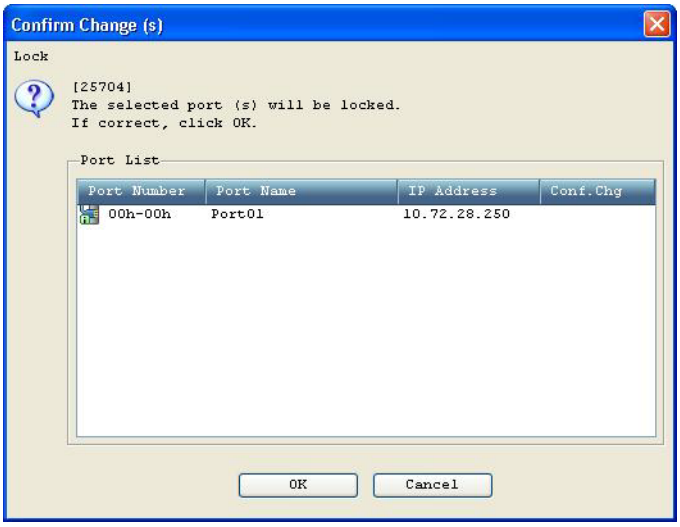

Figure 3-83: Locking the Port

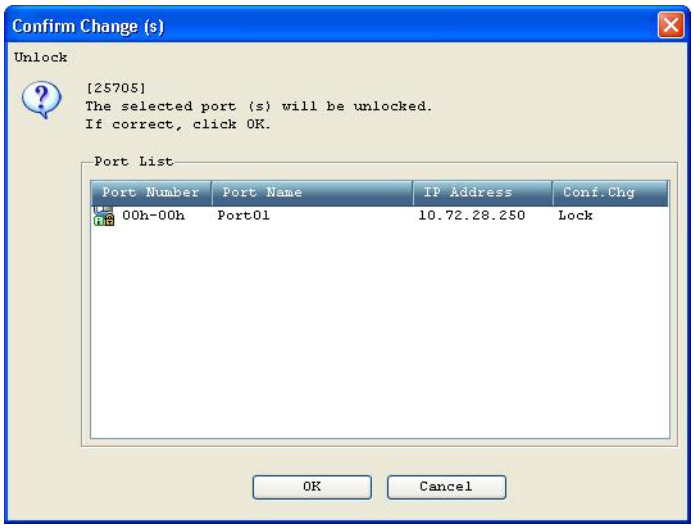

Figure 3-84: Unlocking the Port

Disk Array Tab

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

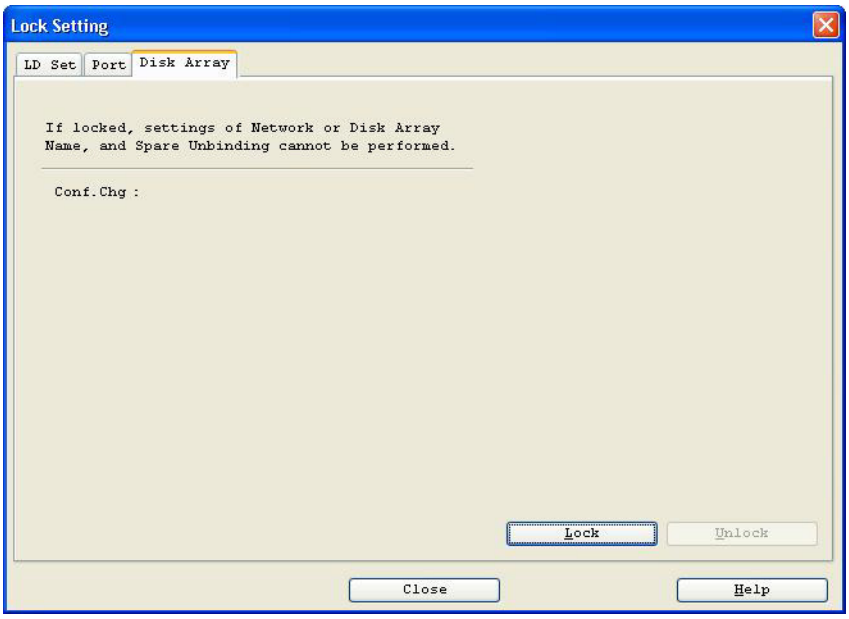

Figure 3-85: Lock Setting - Disk Array

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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