

ETERNUS SF AdvancedCopy Manager 13.4



GUI User's Guide

B1WW-8871-06ENZ0(00)
January 2009

Preface

Purpose of the User's Guide

The AdvancedCopy Manager GUI User's Guide provides detailed information relating to the configuration and operation of Fujitsu's ETERNUS SF AdvancedCopy Manager (hereafter abbreviated to AdvancedCopy Manager) using the AdvancedCopy Manager GUI Client.

The information contained in this GUI User's Guide is generally complete, but where the product is used in conjunction other products, it is highly recommended that both this manual and the reference sources provided should be consulted prior to or in conjunction with relevant product manuals to ensure a reliable operation.

Organization of this Manual

The AdvancedCopy Manager User's Guide is organized as follows:

- Workbench
This information describes the elements of the AdvancedCopy Manager Workbench environment and guides the user through how to invoke AdvancedCopy Manager functionality using the GUI Client.
- Maintenance and Configuration
This information describes how to perform replication using the AdvancedCopy Manager GUI Client.
- Backup
This information describes how to perform backup and restore using the AdvancedCopy Manager GUI Client.
- Replication
This information describes how to perform replication using the AdvancedCopy Manager GUI Client.

Audience

The intended audience for this document are users who are responsible for configuring or using AdvancedCopy Manager GUI Client in a Windows or UNIX environment and who have effective knowledge and experience in the topics outlined in the section entitled Prior Knowledge Assumptions.

Prior Knowledge Assumptions

These manuals have been prepared on the assumption that the reader will have access to the full suite of AdvancedCopy Manager operations manuals and a functional understanding of at least some of the topics described below, as may be applied in a Windows environment.

The requirement of such prior expertise may depend on the specific nature and vendor mix of the environment into which the AdvancedCopy Manager is installed.

- Fujitsu's ETERNUS SF Storage Systems
- Operational understanding of backup and replication
- Generic hardware copy modes such as snapshot, differential and incremental
- Management of a Windows or UNIX environment
- Disk management and configuration.

Abbreviations and Terms

A glossary of terms is contained in Glossary provided with this manual.

Diagrams and Screenshots

All diagrams and schematics are indicative only, but are subject to change without notice. Any diagrams and screenshots contained in these manuals are the property of Fujitsu Limited and are subject to copyright.

Indicative screen displays are displayed in text boxes with a colored background when viewed online.

Trademarks

The following are registered trademarks of Fujitsu Limited:

- AdvancedCopy Manager
- ETERNUS

The following are Trademarks of other companies which are used in this documentation only to identify particular products or systems.

Product Trademarks/Registered Trademarks
Microsoft, SQL Server, Exchange Server, Microsoft® Cluster Server and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
High Availability Cluster Multi-Processing
HP-UX and MC/ServiceGuard are registered trademarks of Hewlett-Packard Company
Solaris, Sun Cluster and all Solaris-based marks and logos are trademarks of Sun Microsystems, Inc. in the United States and other countries, and are used under license
AIX is a trademark of International Business Machines Corporation in the United States and other countries.
Linux is a trademark or registered trademark of Mr Linus Torvalds in the United States and other countries
Oracle is a registered trademark of Oracle Corporation
UNIX is a registered trademark exclusively licensed by X/Open Company Ltd in the United States and other countries
DB2 is a registered trademark of IBM Corporation
Veritas is a registered and unregistered trademarks and service marks owned by Symantec Corporation or its affiliates in the U.S. and other countries

Other company and product names in this documentation are trademarks or registered trademarks of their respective owners.

Disclaimers

Specifications are subject to change without notice.

For the latest detailed information, contact your local Fujitsu representative.

All other company/product names mentioned may be trademarks or registered trademarks of their respective holders and are used for identification purposes only.

Related Documents

The following additional AdvancedCopy Manager documentation should be used in conjunction with the AdvancedCopy Manager GUI User's Guide:

- ETERNUS SF AdvancedCopy Manager Overview
- ETERNUS SF AdvancedCopy Manager Installation Guide
- ETERNUS SF AdvancedCopy Manager Operator's Guide

- ETERNUS SF AdvancedCopy Manager Message Guide
- ETERNUS SF AdvancedCopy Manager Operator's Guide for Cluster Environment
- ETERNUS SF AdvancedCopy Manager Operator's Guide for Tape Backup Option

Table of Contents

Workbench	1
Supported Environment.....	1
Starting the AdvancedCopy Manager GUI Client.....	2
Navigating the AdvancedCopy Manager GUI Client.....	5
Workbench Elements.....	5
Maintenance and Configuration	11
Manage Servers	11
View Site Information.....	11
View Storage Management Server Information.....	12
Add and Delete a Storage Server.....	12
View Storage Server Information.....	15
Manage Devices	15
View Storage Server Device Information.....	15
Hide non-ETERNUS Devices.....	16
View Devices Using the Same Copy Area or the Same Logical Group.....	17
Add and Delete a Device.....	18
Manage the Network Environment	21
Modify Storage Management Server Information.....	21
Modify Storage Server Information.....	22
Manage User Access and Permissions	23
View User Accounts.....	23
Add a New User.....	24
Edit User Permissions.....	25
Remove a User.....	27
Download Logs	27
Backup	29
View Volume Information	29
View Summary of All Transaction and Backup Volumes at the Site.....	29
View Summary of All Volumes for a Specified Storage Server.....	33
Enable Backup for a Storage Server	34
Configure a Device for Use with Backup	36
Define the Role of a Volume.....	36
Remove a Transaction Volume.....	37
Remove a Backup Volume.....	38
Manage Backup Policy	39
Set Backup Policy.....	39
Delete Backup Policy.....	41
Perform a Snapshot Backup	42
Backup with One Point Copy (OPC) or QuickOPC.....	42
Restore.....	45
Display the Tracking Status of Any Current QuickOPC.....	46
Cancel Tracking.....	47
Perform an Equivalent Copy (EC) Backup	48
Starting and Resuming Synchronization.....	48
Check the Status of Synchronization.....	50
Backup (Stop EC/Suspend EC).....	52
Restore.....	55
Cancel Synchronization.....	57
Manage Backup History	58

GUI User's Guide - Table of Contents

Display Backup Policy and History.....	58
Delete Backup History.....	60
Backup Error Recovery	62
Replication.....	63
Configure a Replication Group	63
Requirements for Replication Groups.....	63
Create a Replication Group.....	63
Modify Replication Group Information.....	67
Delete a Replication Group.....	69
View Summary Information for Replication	70
View Summary of All Replication Groups at the Site.....	70
View Summary for Replication Groups.....	70
View Summary for Volume Pairs.....	72
Perform Replication	76
Snapshot Replication.....	76
Equivalent Copy with Suspend and Resume.....	79
Remote Equivalent Copy (REC).....	83
View and Change the Transfer Buffer.....	92
Concurrent Suspend Function.....	94
Initial Copy Skip Process.....	95
Remain Mode.....	97
Cancel a Replication session.....	98
Restore	103
Replicate from Destination Volume to Source Volume.....	104
Reverse Direction of Replication.....	105
Replication Error Recovery	108
Glossary	I

Workbench

The AdvancedCopy Manager GUI Client is a rich client application that is invoked on a user's local computer and is operated much like any other Windows application. When started, it connects to the AdvancedCopy Manager's Storage Management Server and allows users to monitor and manage the AdvancedCopy Manager environment.

The AdvancedCopy Manager GUI Client includes a collection of tabbed panes called Views, collectively referred to as the AdvancedCopy Manager Workbench perspective. The primary views include the Site view which presents to the user a layered view of the entire AdvancedCopy Manager site structure in a single pane, and a Details view which presents a more granular perspective of information relating to these elements.

Views offer a consistent and highly configurable way of navigating and interfacing with the AdvancedCopy Manager application. Some views can also be detached, and then repositioned elsewhere on the screen. Each view has a toolbar and drop-down menu offering functions that apply specifically to the view's contents. The AdvancedCopy Manager Workbench perspective can be modified to include or exclude specific views. The default perspective can be reinstated at any time using the [Reset Perspective] option in the [Window] pull-down menu.

The searchable online help can be initiated from the application and it provides instructions on how to perform tasks using the AdvancedCopy Manager GUI Client.

Supported Environment

The supported environment for the AdvancedCopy Manager GUI Client is as follows:

Supported OS	Unsupported OS
<ul style="list-style-type: none">- Windows 2000- Windows Server 2003- Windows XP- Windows Vista- Windows Server 2008	Solaris, Linux, HP-UX, AIX.

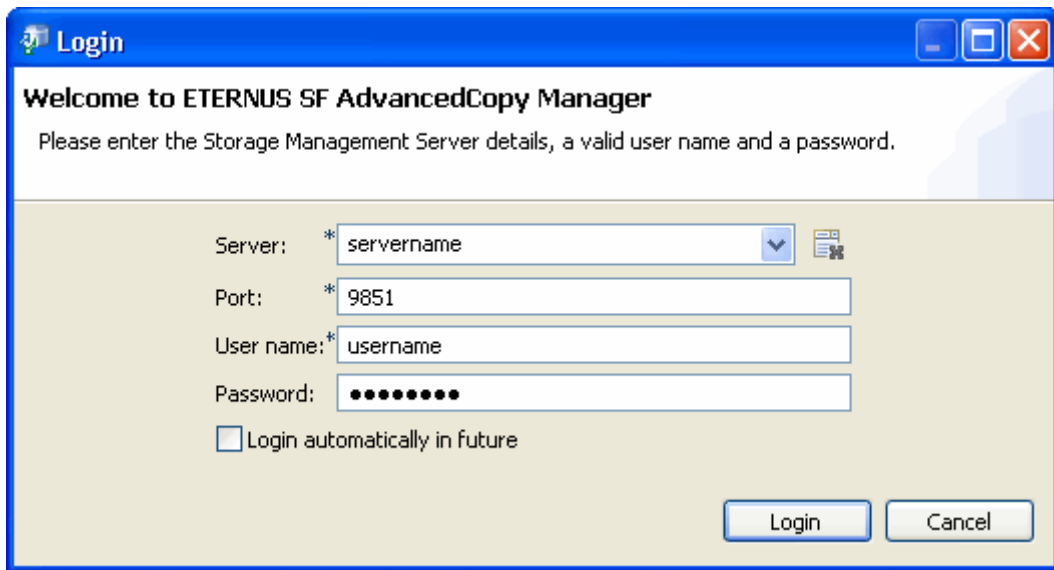


The features supported in AdvancedCopy Manager differ depending on the version. Using the replication features by the GUI Client is only available when version 13.1 or above is installed on the Storage Server. Use the CLI to operate replication if your Storage Server is 13.0 or below.

Starting the AdvancedCopy Manager GUI Client

To start the AdvancedCopy Manager GUI Client, from the Windows [Start] menu, select [All programs] > [AdvancedCopy Manager] > [GUI Client]. The [Login] dialog is displayed and prompts the user for the following details:

- Storage Management Server host name or IP address
- Port Number
- A valid User name and password



1. Specify a Storage Management Server host name or IP address or select a Storage Management Server host name or IP address from the server dropdown combo box.
2. Enter the Port number used to connect to the Storage Management Server.
3. Enter a valid AdvancedCopy Manager user name and password.

Use the UNIX root or Windows startup account if no AdvancedCopy Manager user name has been registered.

4. Click the [Login] button to start the GUI Client.

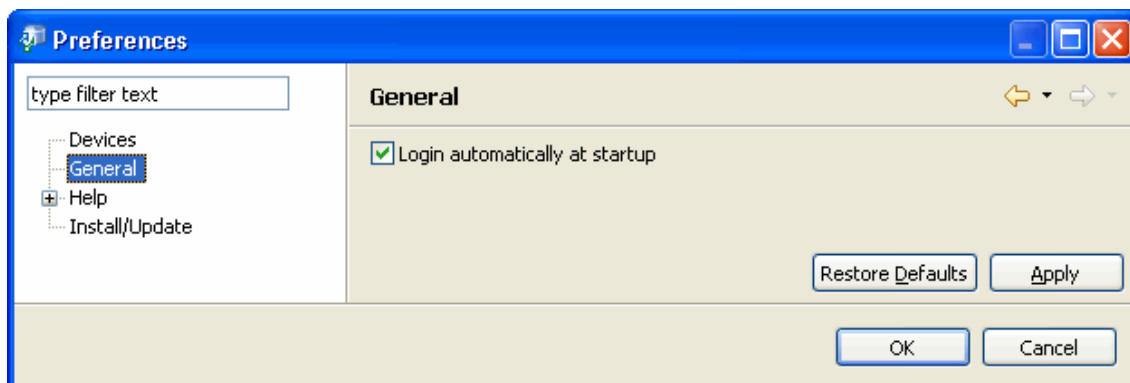
The user's login details (Server, Port, User name) as specified in the [Login] dialog can be saved by enabling the [Login automatically in future] option. The system will then log in automatically using the saved details on subsequent attempts.

If you have more than one Storage Management Server, the login details are saved for each Storage Management Server.

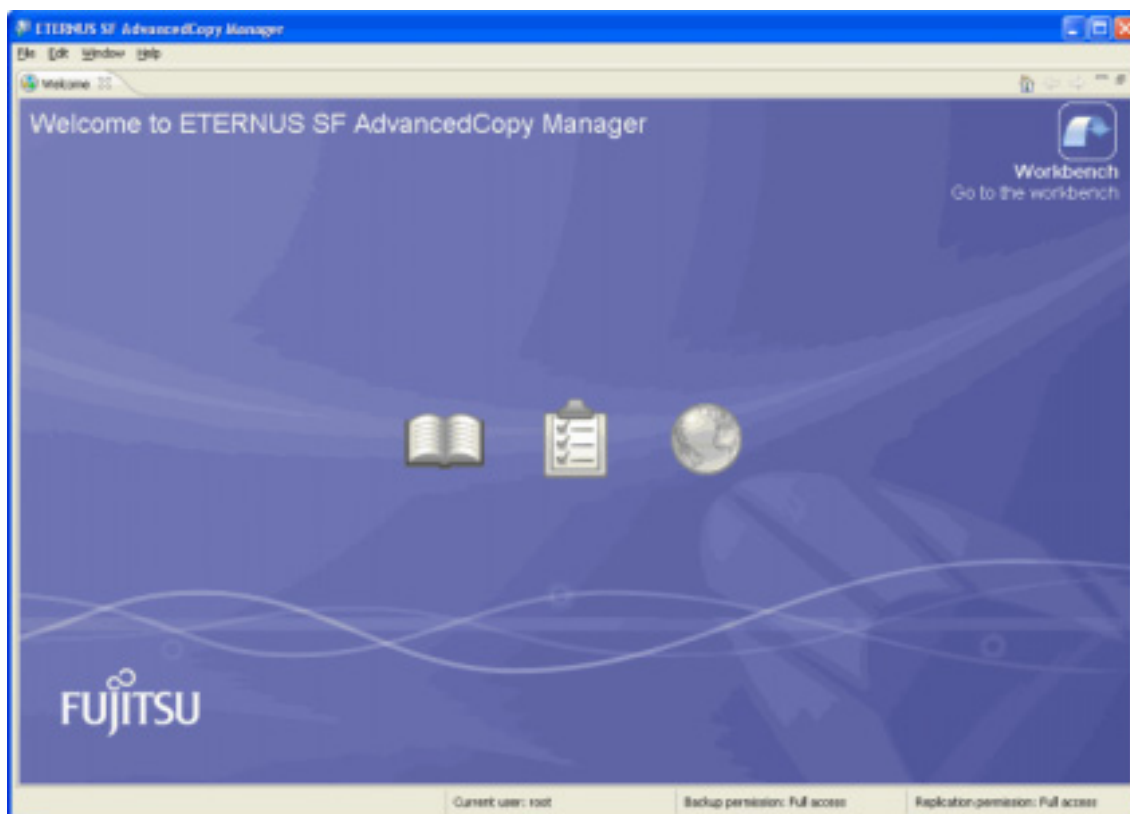
The [Login automatically at startup] option can be disabled as follows:

1. Open the [Window] pull-down menu on the main menu bar and select [Preferences] to open the [Preferences] dialog.

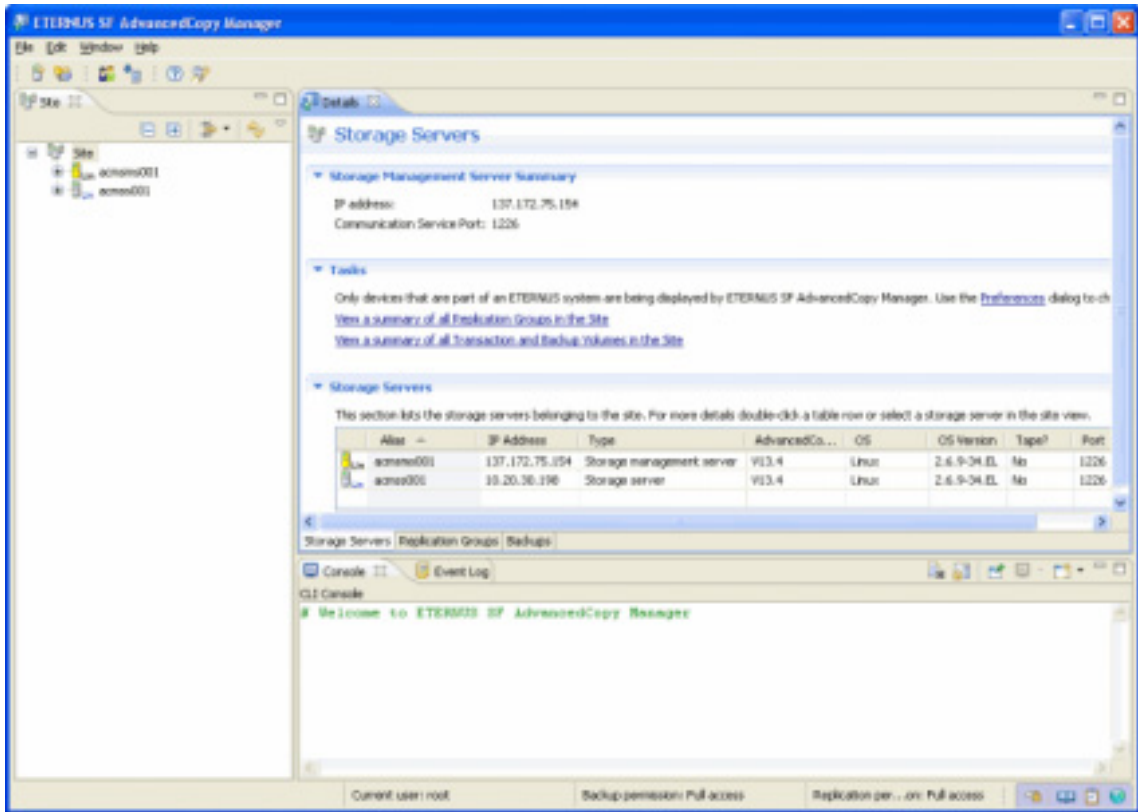
2. Select [General] to reveal the [Login automatically at startup] checkbox and disable it.







The Welcome topic is displayed once the user is authenticated. Click an icon on the Welcome topic to refer to information you wish to view. Click the Workbench icon on the top right side of the window to proceed to use AdvancedCopy Manager.

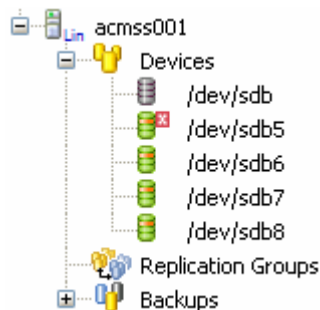


The main application perspective is displayed.



3. Select the Site icon in the Navigation tab and click the  symbol to view all registered Storage Servers at the site.
4. Select any Storage Server icon and click the  symbol again to view all groups and elements associated with that Storage Server.
5. Progressively click a sub-node (Devices, Replication Groups, Backups) and click the  symbol to reveal all subordinate elements associated with each one.

Device error or unknown devices detected upon opening the view will be denoted by the  symbol located in the top right corner of the device icon.

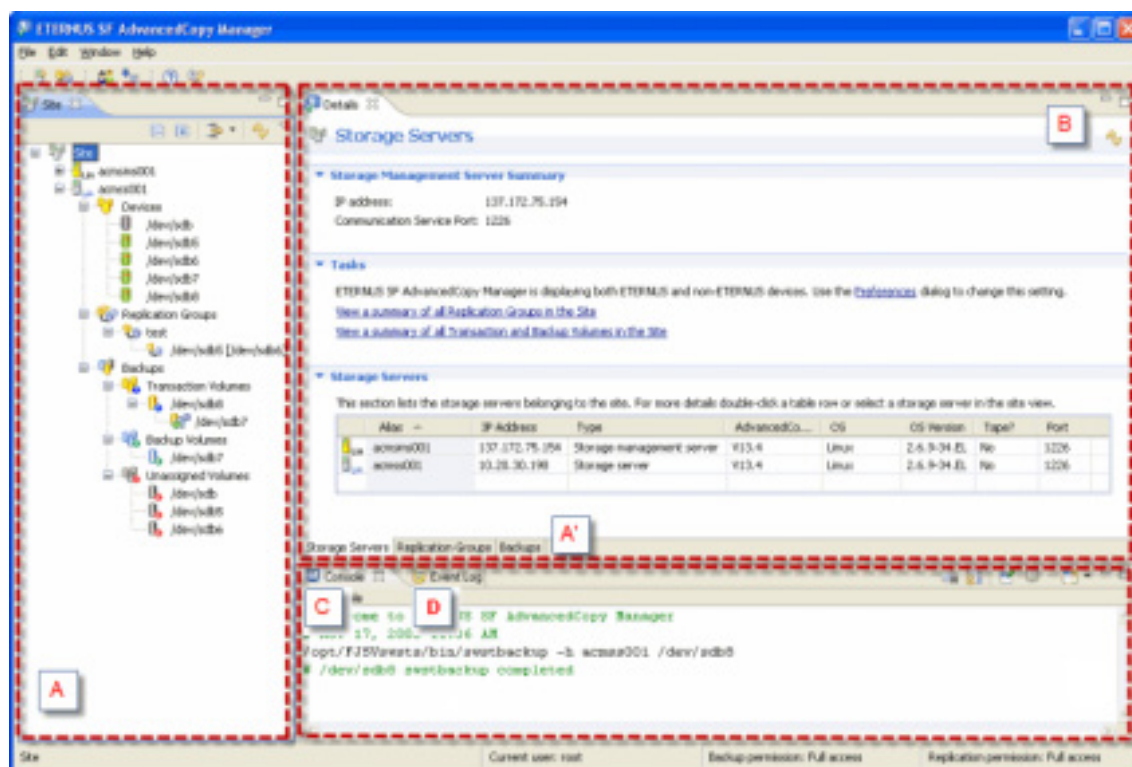


Navigating the AdvancedCopy Manager GUI Client

Workbench Elements

Views

The main application perspective consists of the following views.




A: Site View








The AdvancedCopy Manager GUI Client Site view displays all of the registered elements of the current AdvancedCopy Manager environment (Site) in a tree view. These elements include servers, devices, replication groups and backups.

Drilling down in the relevant object tree displayed in the Navigation tab displays subordinate objects with the object's properties displayed in the Details view to the right of the Navigation tab.







A Filter can be invoked by clicking the Filter Icon  to limit the view to only those objects of a specified type or group, and to retrieve an object for display which matches either an explicitly specified criteria or a pattern using standard wildcard characters such as "*", "?".

The Storage Management Server is shown as a yellow server icon and the Storage Server is shown as a gray server icon. The server icons include the abbreviated operating system name as well. A Storage Management Server or Storage Server is identified by either host name or a user-defined Storage Server alias, if defined.

Icon	Description
	Storage Management Server (Windows)

Icon	Description
	Storage Server (Windows)
	Storage Management Server (Solaris)
	Storage Server (Solaris)
	Storage Management Server (Linux)
	Storage Server (Linux)
	Storage Server (HP-UX)
	Storage Server (AIX)

The devices under the Devices node in each Storage Server are being managed by the AdvancedCopy Manager. The different device types are denoted by a unique device icon in accordance with the classification below:

Icon	Description
	Disk
	Partition (Slice or LUN)
	SDX Object which is managed by PRIMECLUSTER GDS
	VxVM Volume managed by VERITAS Volume Manager
	LVM Volume managed by Logical Volume Manager
	Unknown device

Clicking on the Site view top level icon will display a tab at the bottom of the Details view for each major resource group such as Storage Servers, Replication Groups and backup groups. (A' in the figure) Click on either of these group tabs to view relevant information for all like groups across the entire site.

B: Details View

The Details view is by default located to the right of the Site view and displays more detailed information in either summary or tabulated form, depending on the object's position in the site tree.

The Details view incorporates a Tasks pane inside the view which lists a range of links to invoke tasks related to the selected object.



If the object displayed in the summary view has any child objects such as groups or devices, clicking on any one of these in the Site view will display more detailed information in one or more sections in the Details view called Forms. This information is typically in tabulated form.

An icon in the top left hand corner of the form will expand or collapse the form as required.

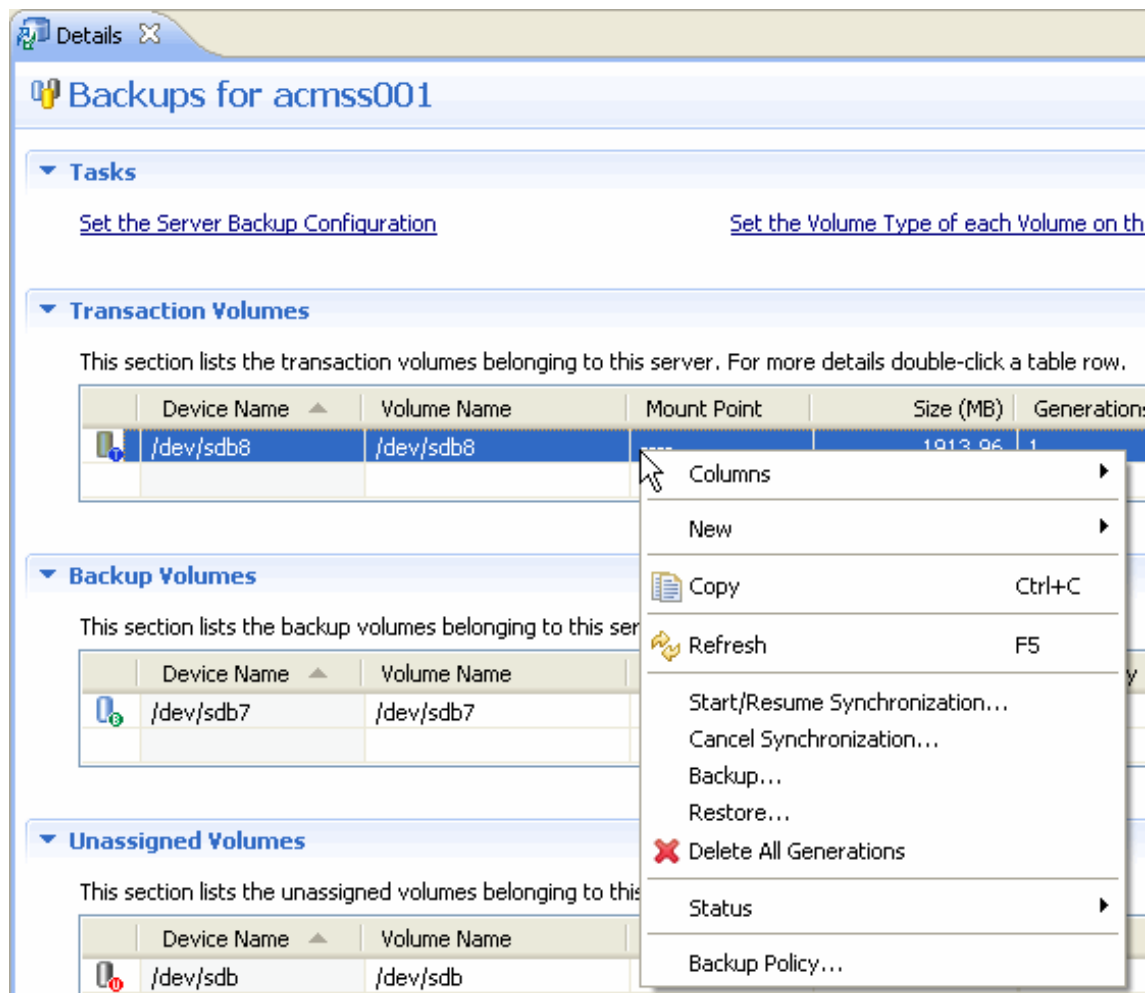
Double-clicking an item in any form will change the selection in the Site view to that child object and refresh the Details view with summary information relating to that object.

The form will be titled in accordance with the group to which they belong or the defined role of the object.

The columns in the tabulated form can be reordered by dragging and dropping the heading to the right or left as required.

Click on the  or  icon located in the left of each form to expand or close the form.

Right-clicking in sections of the view or on an item in the form will invoke the relevant context menu.



Tasks

[Set the Server Backup Configuration](#) [Set the Volume Type of each Volume on th](#)

Transaction Volumes

This section lists the transaction volumes belonging to this server. For more details double-click a table row.

Device Name	Volume Name	Mount Point	Size (MB)	Generation
/dev/sdb8	/dev/sdb8		1913.96	1

Backup Volumes

This section lists the backup volumes belonging to this server.

Device Name	Volume Name
/dev/sdb7	/dev/sdb7

Unassigned Volumes

This section lists the unassigned volumes belonging to this server.

Device Name	Volume Name
/dev/sdb	/dev/sdb

A Task pane is incorporated in the Details view and presents hyperlinked shortcuts to perform configuration or operational tasks related to the current object.

C: Console View

The Console view displays the equivalent CLI commands of any action performed from within the AdvancedCopy Manager GUI Client, and any success/failure messages returned from the Storage Management Server.

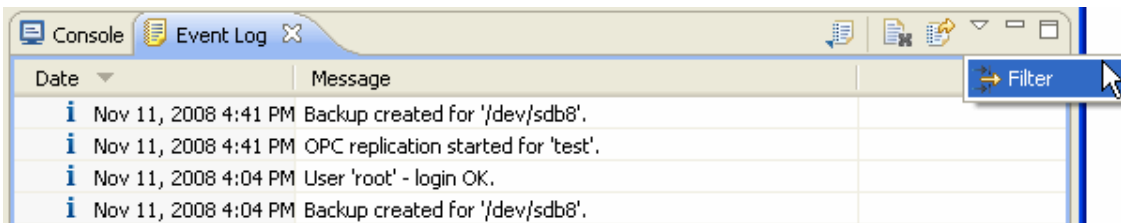
Output is appended to the end of the console so that a history of issued commands for the current session is retained. The console text can be copied or exported as a text file for use in your own scripts. Please note that task history is not retained between GUI Client sessions.

D: Event Log View

The Event Log will chronicle and timestamp any success, confirmation or failure messages returned from the Storage Management Server.

This detail can be exported, saved or restored as required.

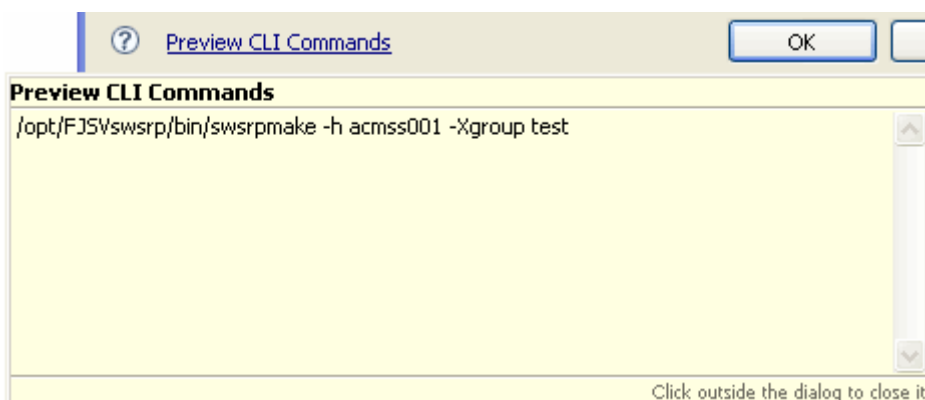
Information chronicled in the Event Log can be grouped or filtered to reduce the difficulty of searching for a specific instance or event in a log which may have many entries.



To provide more workbench space, the CLI Console and the Event Log may be detached and viewed in a separate window. To restore the separated Console or Event Log to the main perspective, use the [Show View] option in the [Window] menu on the Main Application Toolbar or click [Reset Perspective].

CLI Preview

Click the [Preview CLI Commands] link in the bottom right hand corner of the dialog to preview the Command Line Interface syntax for the dialog task with all options selected.



Status Bar

The status bar is located at the bottom of the GUI Client and typically shows the current AdvancedCopy Manager element or range of elements selected, the name of the current user and some shortcut icons for the welcome topics.

Toolbars

Main Application Toolbar

The main application toolbar contains the following toolbars in accordance with the [File] pull-down menu:

- New Server - Configure a new Storage Server.
- New Replication Group - Configure a new Replication Group.
- User Accounts - Manage User accounts and permissions.
- Download Logs - Download log files for troubleshooting.
- Help Contents - Invokes the Help in a separate window.
- Search Help - Invokes a searchable help pane.



View Toolbars

Standard functionality such as Minimize, Maximize, and Close are provided for all views in the view toolbar at the top of each view. For example, the Site view has icons to Expand All, Collapse All, Filter Items in the Tree and Refresh the Site tree.



The Menu icon (a small inverted triangle) contains additional menu items that control the display and configuration of the view contents.

Menus

An array of standard high level pulldown menus for AdvancedCopy Manager tasks are available on the main application menu bar.

Only those options that are allowable for the selected object and in accordance with the current user's permissions level will be available, with invalid options grayed out. Some options also support selection of multiple elements if not already grouped.

Menus or specific menu items can be disabled according to a user's permissions profile.

Help

Context Help



All dialogs and wizards support context help which is denoted by the icon shown below.



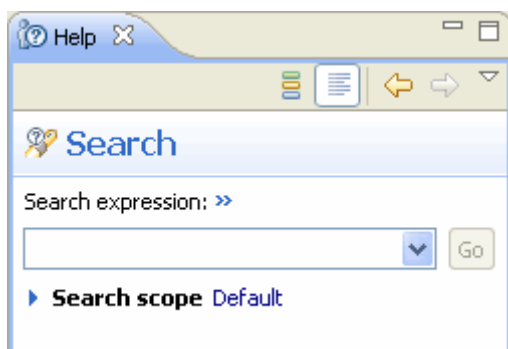
Click the [Help] icon in the bottom left of the dialog to access supplementary information related to the task being attempted. In the error message dialog with an error code, clicking the [Help] icon shows the section in the Message Guide that corresponds with the error code.

Alternatively, a fully indexed and searchable Help can be accessed through either the main application [Help] pull-down menu or one of the [Help Contents] icons on the main application toolbar (see inset) as illustrated below.



The AdvancedCopy Manager GUI Client Help allows the user to browse topics in the Contents frame in the left pane and to click on a topic in order to display its contents. Use the navigation arrows (the  [Back] and  [Forward] buttons) to navigate within the history of viewed topics.

A Search function is provided to quickly locate topics on a particular subject in the documentation. Enter a query topic in the search field and use the Search frame in the right hand pane to display the Search view. The user can narrow the scope of the search by selecting only the sections of interest.



Maintenance and Configuration

This chapter provides details on managing the following maintenance and configuration components of AdvancedCopy Manager:

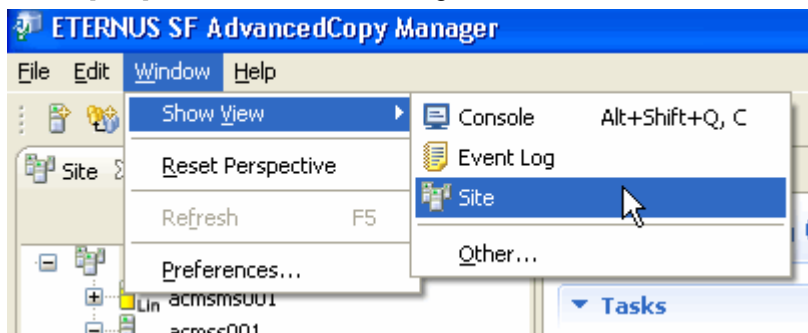
- Managing Servers
- Managing Devices
- Managing the Network
- Managing Usernames and Passwords


Manage Servers

View Site Information

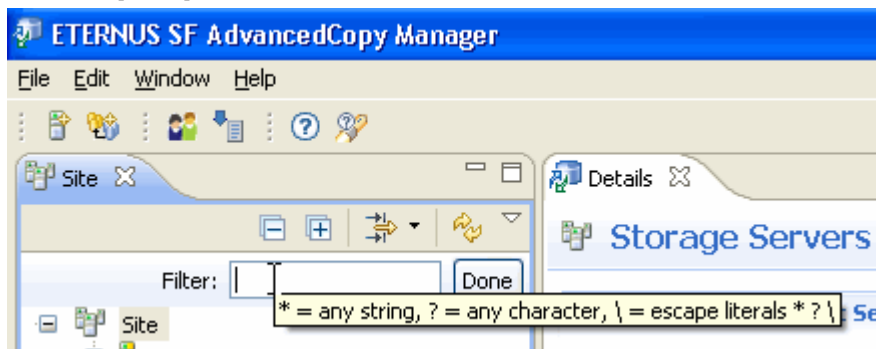
The Site structure can be displayed in a single tree view using the [Show View] option under the [Window] item on the main menu bar.

1. Select [Window] on the main menu bar and select [Show View].
2. Select [Site] in the submenu to change the focus to the Site view in the Navigation tab.



The [Filter] icon  on the Site view toolbar may be used to selectively view a specific AdvancedCopy Manager element or a range of elements.

3. Click the [Filter] icon  on the Site view toolbar to invoke the filter text box.



4. Specify all or part of the relevant name to progressively display those elements matching the filter criteria. Wildcard characters may also be used in the filter string.
5. Click the [Done] button when the required element has been located to refresh the Details view with summary information relating to that element.

- Refresh the full Site view again by opening the filter dialog again and delete the filter criteria from the text box. The Site view will be progressively restored as each character is deleted.

View Storage Management Server Information

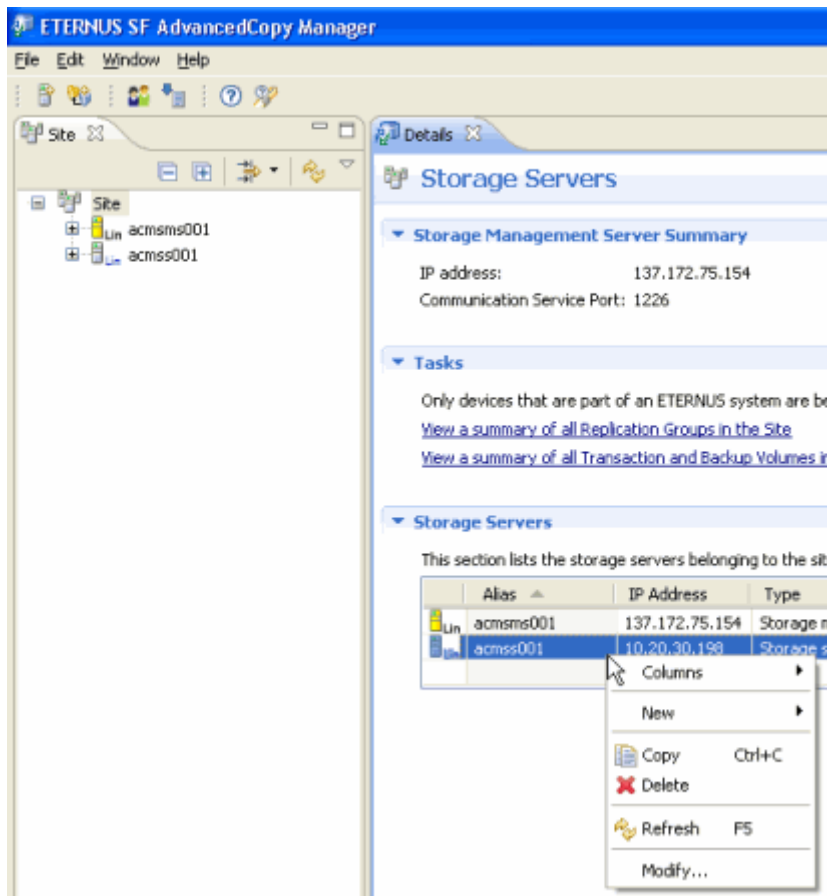
Click the Site icon to view summary details of a site.

A form is displayed in the Details view with summary of the site.

This will include host Storage Management Server information such as name, IP address and the port number. The port number is used for the Storage Management Server to communicate with all subordinate Storage Servers.

Storage Servers managed within the site will be detailed in a list array within the form.

Right-click on any of the subordinate objects in the list array to invoke a context menu.



Add and Delete a Storage Server

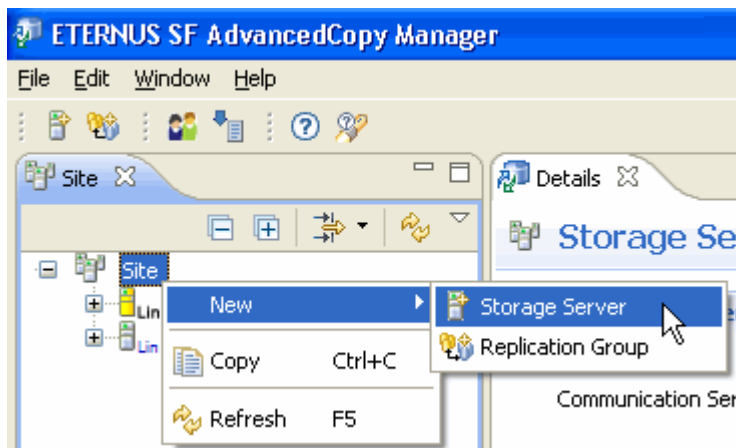
Add a New Storage Server

Add a new Storage Server to be managed under the Storage Management Server. When the Storage Management Server performs the role of both Storage Management Server and Storage Server, Storage Server registration is not required.

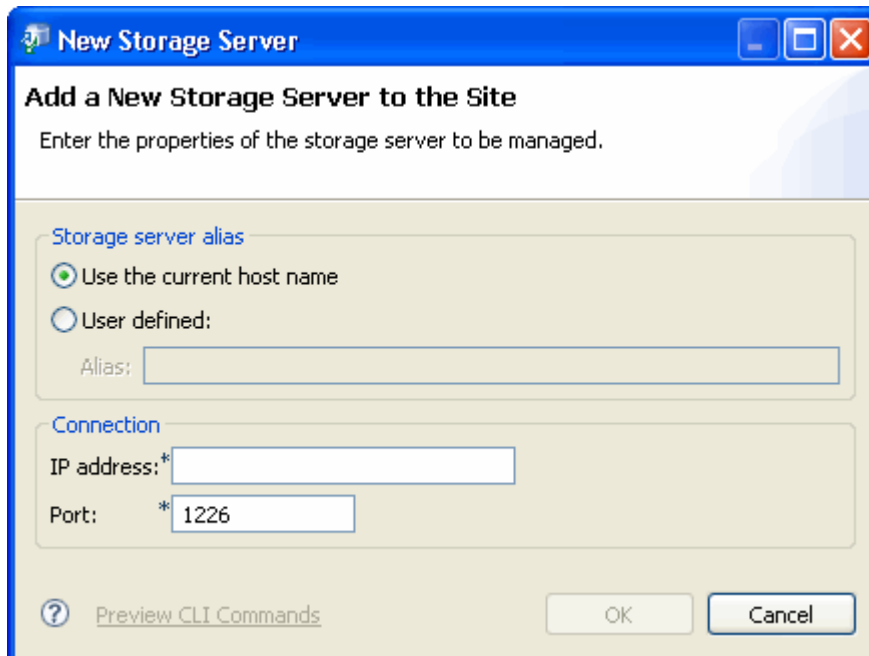
To add a new Storage Server, perform the following steps:

- Right-click anywhere in the Site view to invoke the context menu.

2. Select the [New] > [Storage Server] options to invoke the [New Storage Server] dialog



The [Add a New Storage Server to the Site] dialog box is displayed.



3. Check the [Storage server alias] option as appropriate.
The new Storage Server will take the current host name unless the option to define a host name is selected, in which case the alias becomes a mandatory field. The alias must be not greater than 255 bytes and must be unique within the site.
Should the server name change in the future, this alias need not change.
4. Specify an IP address and a port number for the new Storage Server.
The IP address must be unique and also the port number, which is used to communicate with the Storage management Server.
5. Check that the information provided is correct and click the [OK] button to proceed.

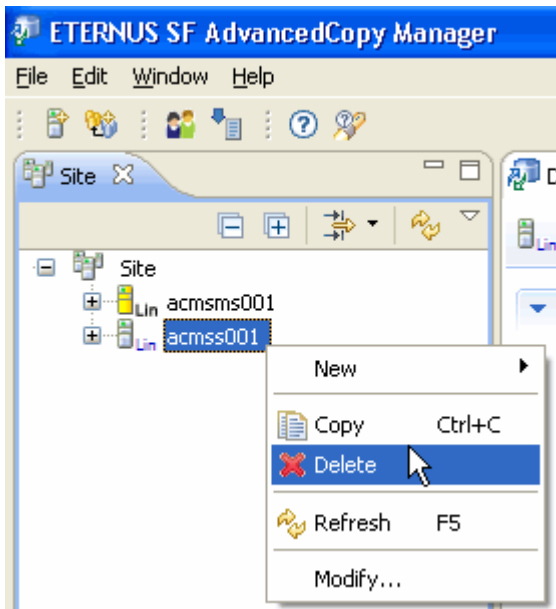


In a cluster configuration, enter the logical IP address of the Storage Server as the IP address. Specify the port number registered when the cluster was set up for the Storage Server.

Delete the Registration of a Storage Server

Delete a Storage Server as follows.

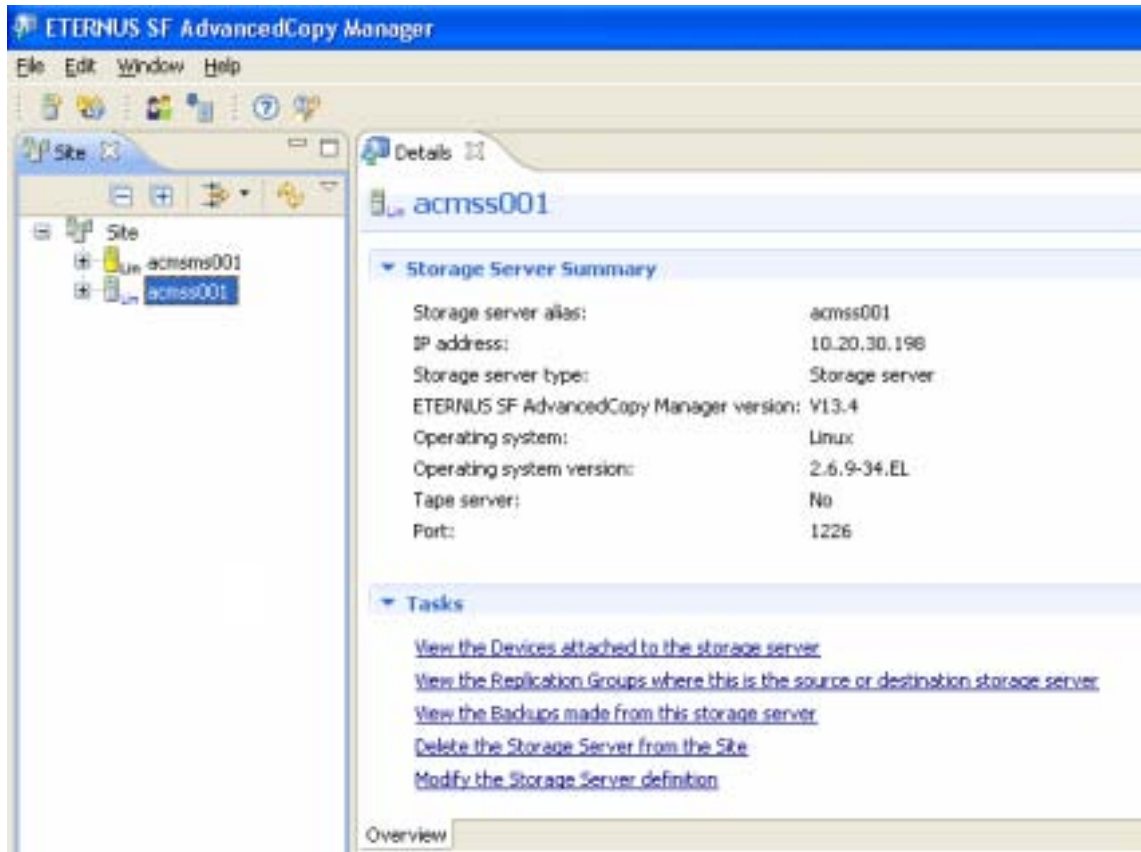
1. Perform the following steps before deleting the Storage Server:
 - (a) In case the backup is being used
 - Delete all backup generations.
 - Delete backup policies associated with the volumes.
 - Remove transaction and backup volumes.
 - Delete tape backup management class.
 - (b) In case the replication is being used
 - Delete Replication Pairs.
 - Delete Replication Groups.
2. In the Site view, right-click on the **Storage Server** icon to be deleted, and select [Delete].



3. The [Confirm Delete Storage Server] dialog is displayed. Click the [Yes] button to delete the Storage Server.

View Storage Server Information

Select a Storage Server from the Site view to show the summary of the server in the Details view.



Manage Devices

View Storage Server Device Information

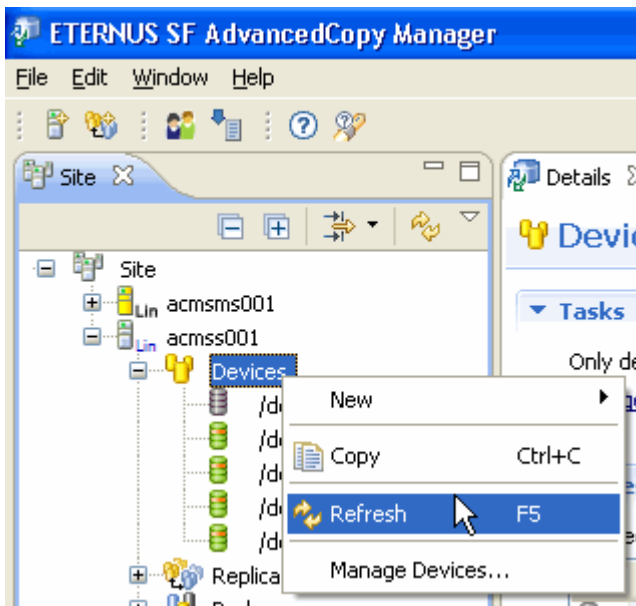
The following steps describe how to refresh the information related to a device on the Storage Server.

Refresh information for Devices on a Server

Perform the following to refresh information for all devices on a server.

1. Right click on the [Devices], and select the [Refresh].

A form is displayed in the Details view with all devices associated with the selected device node in a list array. Not all devices displayed will necessarily be configured for use with AdvancedCopy Manager.



Alternatively, perform the following to refresh selected devices only.

1. Select one or more devices from the Site view or the Details view.
2. Right-click on the selected devices, and then click [Refresh].

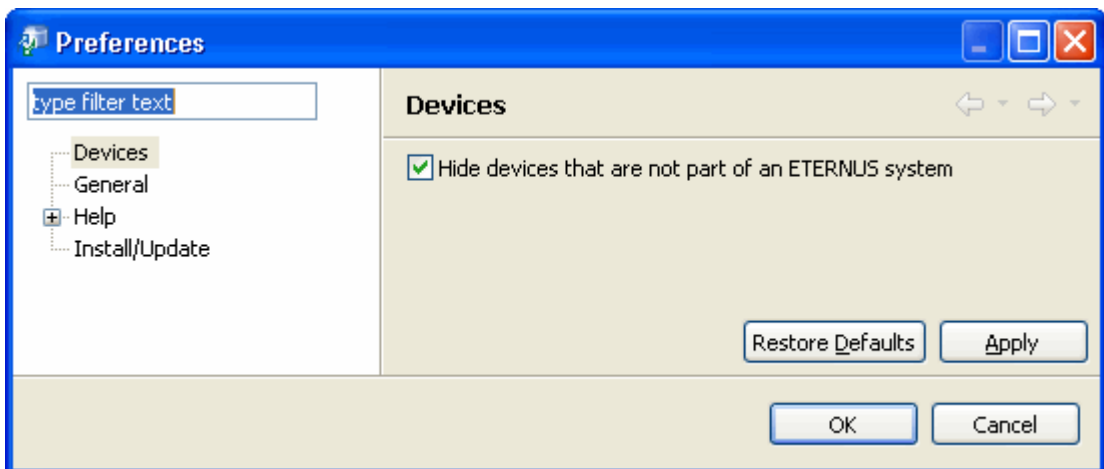
Hide non-ETERNUS Devices

The AdvancedCopy Manager GUI Client allows the user to hide the devices that are not part of an ETERNUS system.

This feature is enabled from a global perspective across the entire AdvancedCopy Manager GUI Client.

To hide or show these non-ETERNUS devices, select the [Preferences] option from the [Window] option on the main menu bar.

In the [Preferences] dialog, check or uncheck the [Hide devices that are not part of an ETERNUS system] checkbox as appropriate.



View Devices Using the Same Copy Area or the Same Logical Group

Select a Device tree object to refresh the Details view with information relating to the selected device.

- The first part of the view is titled Device Summary, and displays general information about the device.
- If the device is in an error state, then the state icon and a description will be displayed after the first section of the view.
- Additional forms may be displayed in the same view, listing information about any devices which share the same copy area or are in the same logical group.

The screenshot shows a window titled 'Details' for the device '/dev/sdb5'. It is divided into three main sections, each marked with a red dashed box and a letter in a box:

- Section A (Device Summary):** Contains the following information:
 - Device name: /dev/sdb5
 - Block device name: /dev/sdb5
 - Mount point:
 - File system type:
 - Device type: Partition/Slice
 - Size (MB): 1913.93 [2006903808 bytes]
 - Volume name: /dev/sdb5
 - Logical volume number: 0x1a(26)
 - ETERNUS box ID: 00E300M357B##E330R20BU###JPA90013#####
- Section B (Tasks):** Contains a single link: [Delete this Device so that it is no longer managed by the Storage Server](#).
- Section C (Devices Using the Same Copy Area):** Contains a table with the following data:

Device Name	Mount Point
/dev/sdb5	

Double-click any row in either table to change the Site view focus to that device, and to refresh the Details view with information for the device.



A device cannot be selected in the following cases.

- The ETERNUS Storage System containing this device has an unregistered AdvancedCopy Manager license.
- The cache table size is unspecified or is too small.

Add and Delete a Device

Add a New Device

A device attached to a Storage Server must be added before you can use it with AdvancedCopy Manager.

Operation type and role also need to be set depending upon whether it is to be used for backup or replication.

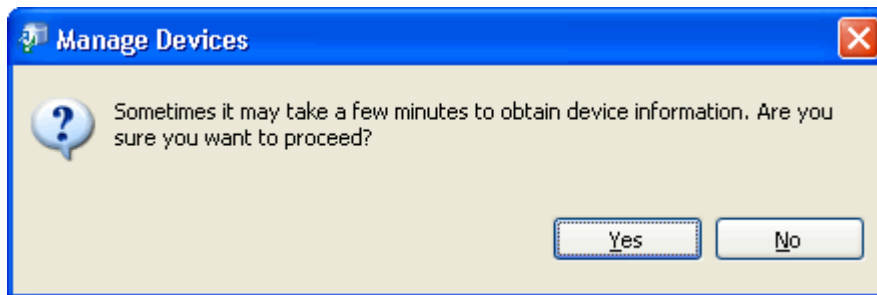
A backup policy will need to be associated with the volume if it is to be used in backup operations. Refer to the Set Backup Policy for more information relating to setting the operation type of a volume.

If this device is to be used in replication, the volume will need to be associated with a Replication Group or Volume Pair. Refer to the Create a Replication Group for more information relating to configuring replication.

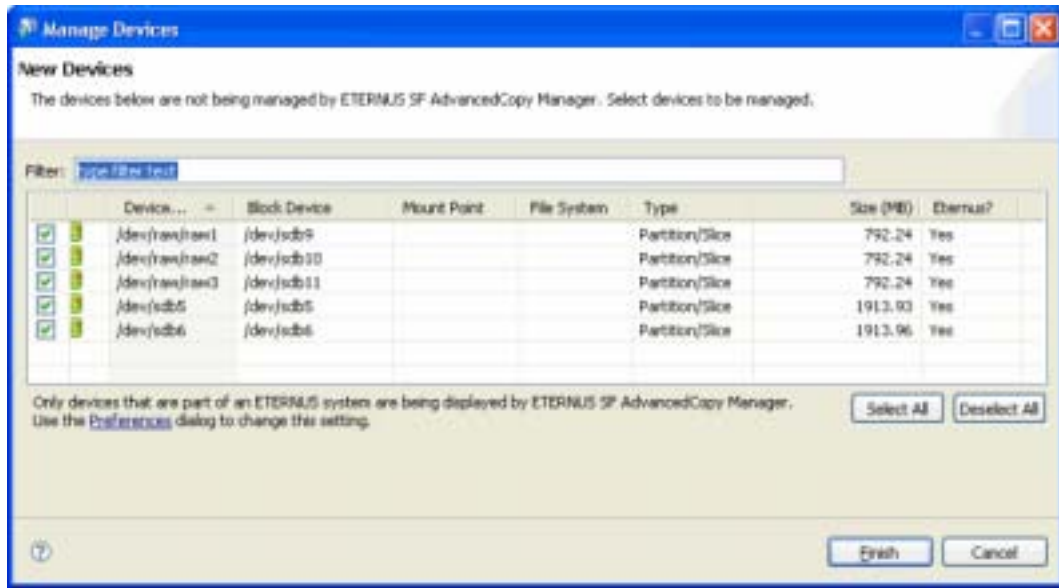
Perform the following steps to add a hosted device to the AdvancedCopy Manager:

1. Select a device node belonging to a Storage Server and right-click it to invoke the context menu, and then select the [Manage Devices] option.

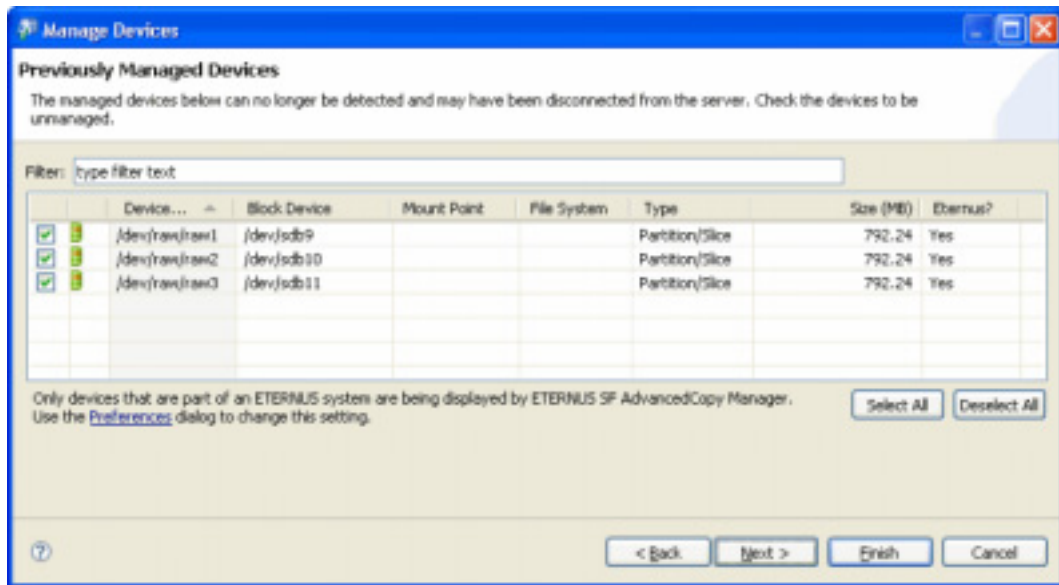
Querying the Storage Server for device information could take several minutes, so a [Manage Devices] confirmation dialog with the following message is displayed.



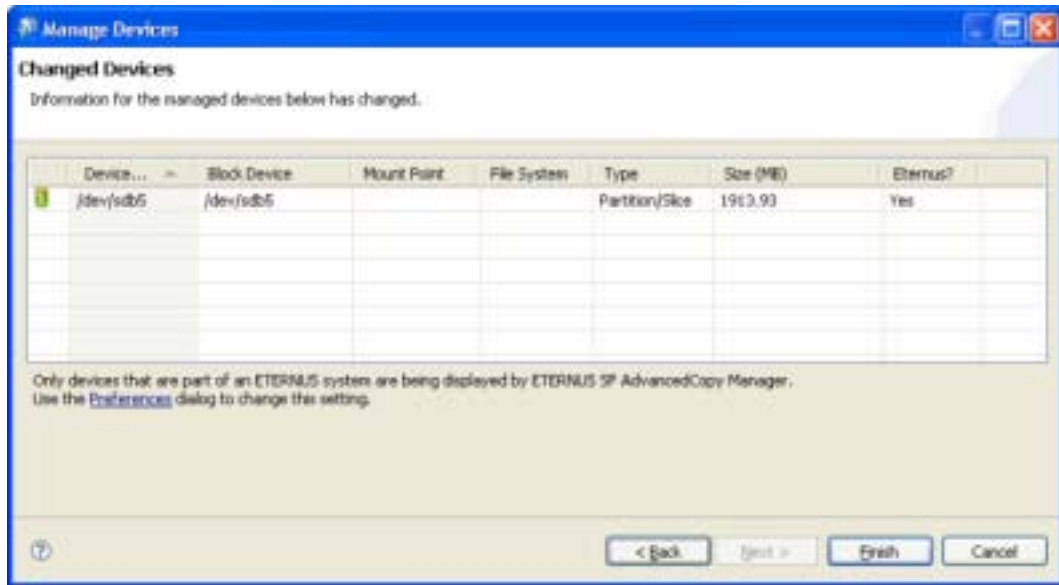
2. Click the [Yes] button to proceed. This closes the confirmation dialog and queries the server for device information. If device information has not changed, a standard [Manage Devices] information dialog is displayed containing the message "No device changes were detected". If any device information for the Storage Server has changed, the [Manage Devices] wizard is invoked which may contain several wizard screens depending on what information has changed. If there are any new devices previously unknown to AdvancedCopy Manager, the [New Devices] dialog is invoked. The user can enter a filter string to reduce the number of devices shown in the table and select devices that are to be managed by AdvancedCopy Manager.



3. If any managed devices are no longer attached to the Storage Server, Click the [Next] button. This will invoke the [Previously Managed Devices] wizard page which also has a filter.



If any device information has changed, click the [Next] button to invoke the [Changed Devices] wizard page which will display a table containing details for each device.



4. Click the [Finish] button to add or modify any device information relating to the Storage Server, after which the wizard dialog will be closed.
If this is successful, the Site view is refreshed with the new or changed device information.



Under certain circumstances (depending on the operating system or ETERNUS), attempting to manage new devices in AdvancedCopy Manager may require the user to confirm that processing should proceed for some ETERNUS devices. In this case, the device details and the following text will be displayed in an information dialog before the wizard is closed:

"The devices below belong to an ETERNUS system that may have incorrect settings. Are you sure that you want to proceed?"

This may be because the AdvancedCopy Manager license or table size has not been configured on the ETERNUS system, or the table size is not large enough."

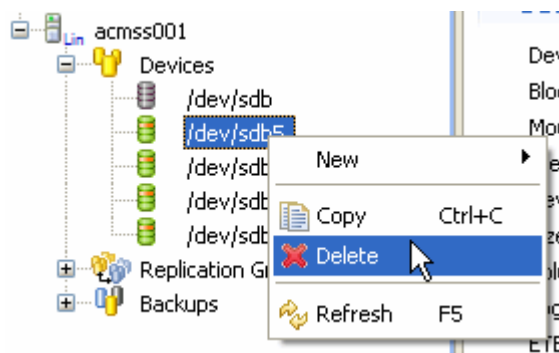
Delete a Device

This section describes how to remove a managed device from a Storage Server.

Before the device can be removed from AdvancedCopy Manager registration, it must no longer be registered for backup, or associated with any backup policy or a member of any Volume Pair or Replication Group.

Refer to Remove a Transaction Volume, Remove a Backup Volume and Delete a Replication Group for details.

1. Select one or more devices from the Devices node in the Site view and right-click them to invoke the context menu.
Alternatively, use the [Device Delete] option in the Task pane.
2. Select the [Delete] option to invoke the [Confirm Delete Device] dialog.



3. Click [Yes] to proceed with the removal of the device and all related information. Confirmation or otherwise of the operation will be recorded in the console log and the Site view will be refreshed accordingly.

Manage the Network Environment

All Storage Server services and Storage Management Server services must be running when these changes are made.



This procedure only updates the network information stored in the AdvancedCopy Manager repository. To change the IP address, port number or server name of a Storage Server, it is necessary that the network environment of the operating system must be reconfigured manually. This procedure does not change the operating system's network parameters. Also, the AdvancedCopy Manager daemons or services must be stopped and started before and after this procedure as well.

Modify Storage Management Server Information

The following Storage Server information can be modified:

- Server name
- Storage Server IP address
- Storage Server port number

Before proceeding with this procedure, refer to the Operational Maintenance chapter in the AdvancedCopy Manager Operator's Guide of your operating system and modify the server name (alias), IP address and port number of the Storage Management Server.

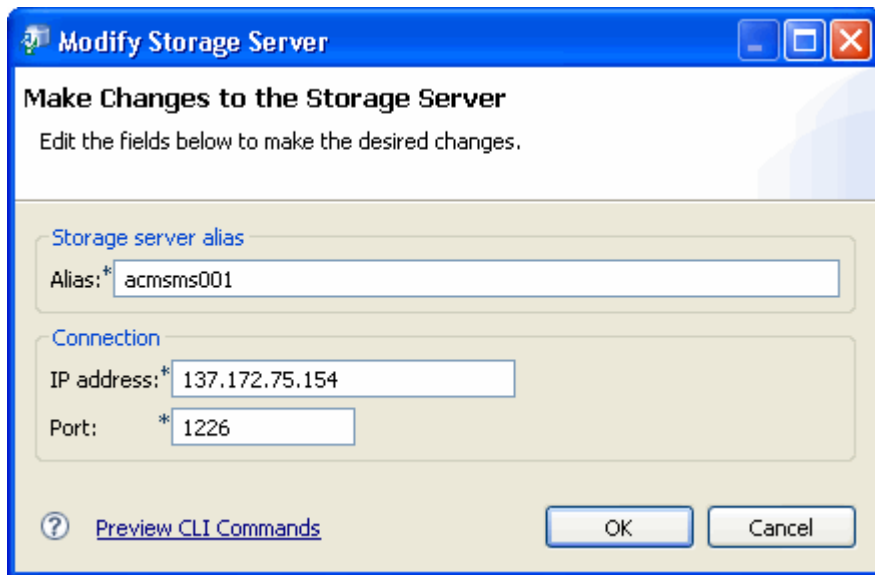


This procedure only updates the network information stored in the AdvancedCopy Manager repository. To change the IP address, port number or server name of a Storage Server, it is necessary that the network environment of the operating system must be reconfigured manually. This procedure does not change the operating system's network parameters. Also, the AdvancedCopy Manager daemons or services must be stopped and started before and after this procedure as well.

1. Check whether the Storage Management Server is also the Storage Server. If this is the case, follow the steps in 'Modify Storage Server Information' and then go to step 5 of this section.
2. Select a single Storage Management Server from the Site view, then right-click the selected Storage Server to invoke context menu.
3. Right-click the selected Storage Management Server to invoke context menu. Select the [Modify] option to invoke the [Modify Storage Server] dialog.

The following information is required to be provided:

- Alias: Id or name for the purposes of display only
- IP address: IP address of the Storage Management Server to be modified
- Port: Port number for communicating with the Storage Management Server.



4. Click the [OK] button to modify the Storage Management Server information and then close the dialog.
All fields must be specified and the [OK] button will be disabled until all fields have been entered and validated.
Click the [Cancel] button to close the dialog without modifying the Storage Management Server information.
5. Execute `stgcmmodnode` on all the Storage Servers managed under this Storage Management Server. Refer to Command reference of your operating system for details of this command.

Modify Storage Server Information

The following Storage Server information can be modified:

- Server name
- Storage Server IP address
- Storage Server port number

Before proceeding with this procedure, refer to the Operational Maintenance chapter in the AdvancedCopy Manager Operator's Guide of your operating system and modify the server name (alias), IP address and port number of the Storage Server.

1. Select a single Storage Server from the Site view.
2. Right-click the selected Storage Server and select the [Modify] option. The [Modify Storage Server] dialog is displayed.

The following information is required to be provided:

- Alias: Id or name for the purposes of display only
- IP address: IP address of the Storage Server to be modified
- Port: Port number for communicating with the Storage Management Server.

Modify Storage Server

Make Changes to the Storage Server

Edit the fields below to make the desired changes.

Storage server alias

Alias: * acmss001

Connection

IP address: * 10.20.30.198

Port: * 1226

[Preview CLI Commands](#)

3. Click the [OK] button to modify the Storage Server information and then close the dialog. All fields must be specified and the [OK] button will be disabled until all fields have been entered and validated.

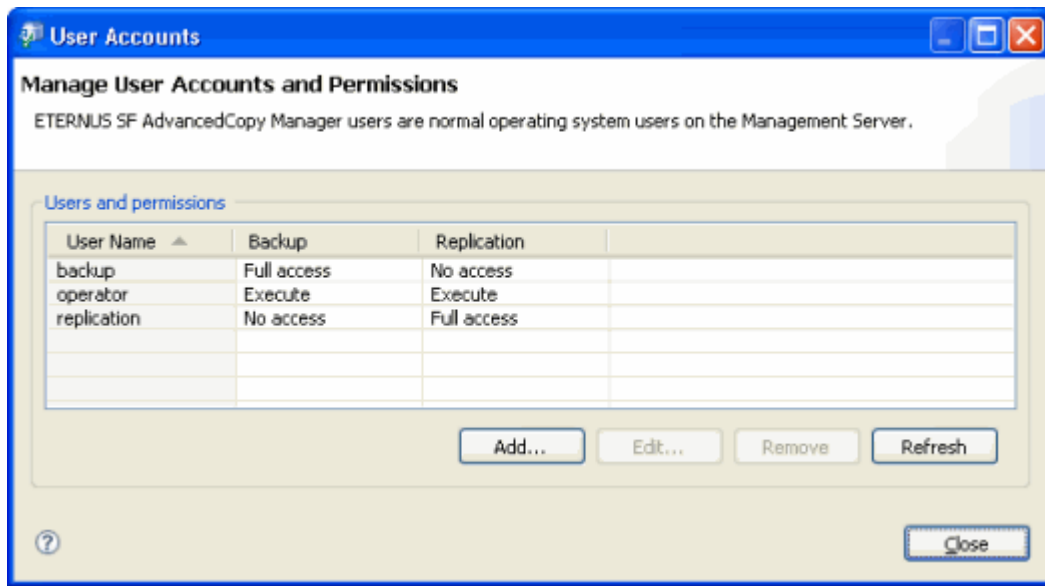
Manage User Access and Permissions

View User Accounts

Only the Windows start-up account and UNIX root users, as specified during AdvancedCopy Manager installation, can view account information for any or all users.

If the user is NOT the start-up account specified during installation, the menu item [User Accounts] and the relevant toolbar icons are disabled.

1. Click the User Accounts icon from the main application toolbar to invoke the [User Accounts] dialog.
The dialog will detail the following information according to the user's access:
 - Current User
 - Backup Permissions
 - Replication Permissions



2. Click the [Close] button to exit the dialog.



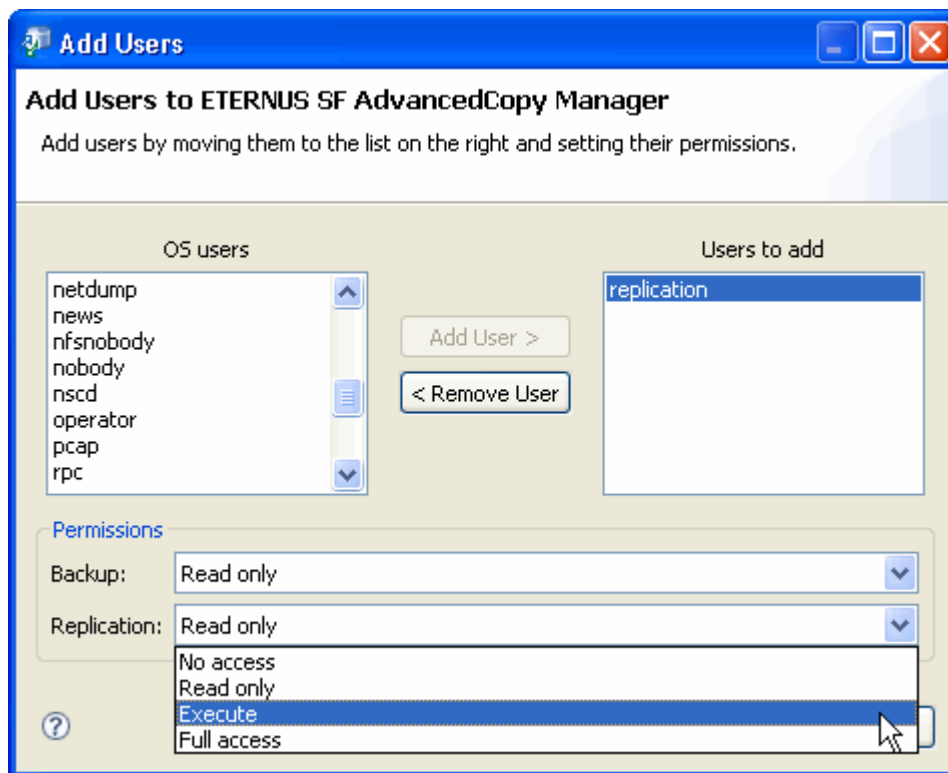
- If the user is a root user (in UNIX) or the start-up account specified during installation (in Windows) then the table inside the Users group is enabled and all AdvancedCopy Manager users are listed. However the root/start-up users (including the current user) are not shown in the table, so they cannot be deleted or their permissions changed (they are assumed to have full access).
- With a Windows management server, users in the Administrators group have the text "(admin)" appended to their user name. Permissions for users in this group cannot be edited, as they are assumed to be full access.
- The [Add], [Edit] [Remove] and [Refresh] buttons are only enabled for root or administrator users.

Add a New User

Only the Windows start-up account specified during AdvancedCopy Manager installation or the UNIX root user can add users.

The following steps describe how to add a user and set up access permissions.

1. Select [User Accounts] to invoke the [User Accounts] dialog.
2. Click the [Add] button to invoke the [Add Users] dialog.
The Operating System users list contains all operating system level users of the Storage Management Server that do not already have access to AdvancedCopy Manager.
3. Select one or more users in the users list to enable the [Add User >] button.
4. Click the [Add User >] button to add these users to the [Users to add] list to the right.
Conversely, double-click a user in either list to move that user to the other list.
Selecting one or more users in the [Users to add] list and clicking the [< Remove User] button removes the selected users from the [Users to add] list and places them back into the [OS users] list.
5. Select one or more users in the [Users to add] list to enable the permissions combo box in the Permissions form at the bottom of the dialog.
You must select the user's permissions for both backup and replication.
6. Click the [OK] button to add the selected users to AdvancedCopy Manager and close the dialog.



Click the [Cancel] button to close the dialog at any time without performing any operation.

7. Click the [Refresh] button in the [User Accounts] dialog to check that the user's status and permissions are correct.

Any users that are successfully added will immediately be listed in the [User Accounts] dialog.



- If the right hand list [Users to add] contains one or more users from the Windows Administrator's group, then the permissions for all users to be added will default to Full access in accordance with the permissions of the Administrator's user id.
- It is not possible to set both backup and replication permissions as giving no access for a user.
- If one or more users cannot be added, an information-only dialog with the message "Not All Users Could be Added" is displayed. The message will also table those users that could not be added, and reasons for the failure to add. Click the [OK] button to close the message.

Edit User Permissions

Only the UNIX root user or the Windows start-up account specified during AdvancedCopy Manager installation can change user permissions.

1. From the main application select [File] > [User Accounts] to open the [User Accounts] dialog, and select one or more users in the table.

Alternatively, click the [User Accounts] icon from the main toolbar.

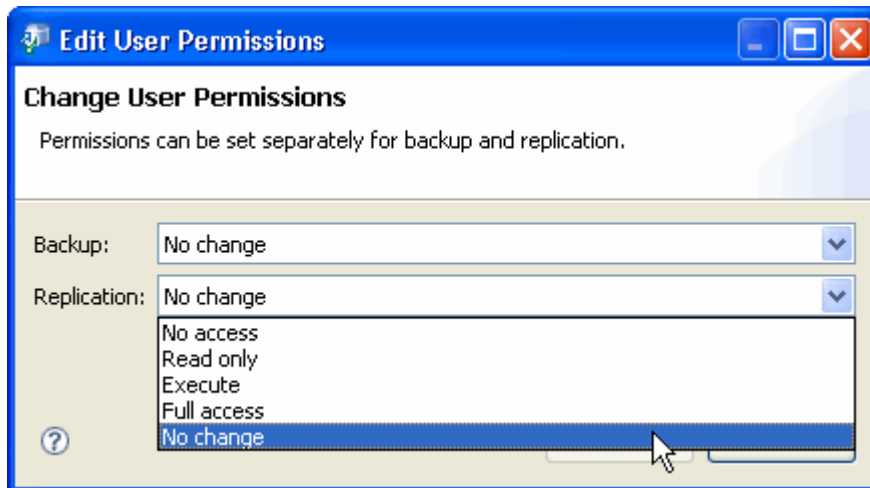
2. Click the [Edit] button to invoke the [Edit User Permissions] dialog. Permissions for both backup and replication must be set separately. The following table shows access permission details.

Access permission details

Operation	Full access	Execute	Read only
Server information display	Yes	Yes	Yes
Device information display	Yes	Yes	Yes
Partition information display	Yes	Yes	Yes
Display item modification	Yes	Yes	Yes
Refresh	Yes	Yes	Yes
Check devices using same copy area	Yes	Yes	Yes
Check devices in same logical group	Yes	Yes	Yes
Add server	Yes	No	No
Change server	Yes	No	No
Delete server	Yes	No	No
Add or delete devices for all devices	Yes	No	No
Add or delete devices a specific device	Yes	No	No
Delete device	Yes	No	No

The default is No Change.

- Open the combo box to reveal the range of allowable permissions for all users selected in the [User Accounts] dialog, and select a permissions attribute as appropriate.



- Click the [OK] button to change the permissions for the selected user/s and close the dialog. If permissions for one or more users cannot be changed, an information-only dialog with the message

“Permissions could not be changed for all users” is displayed.

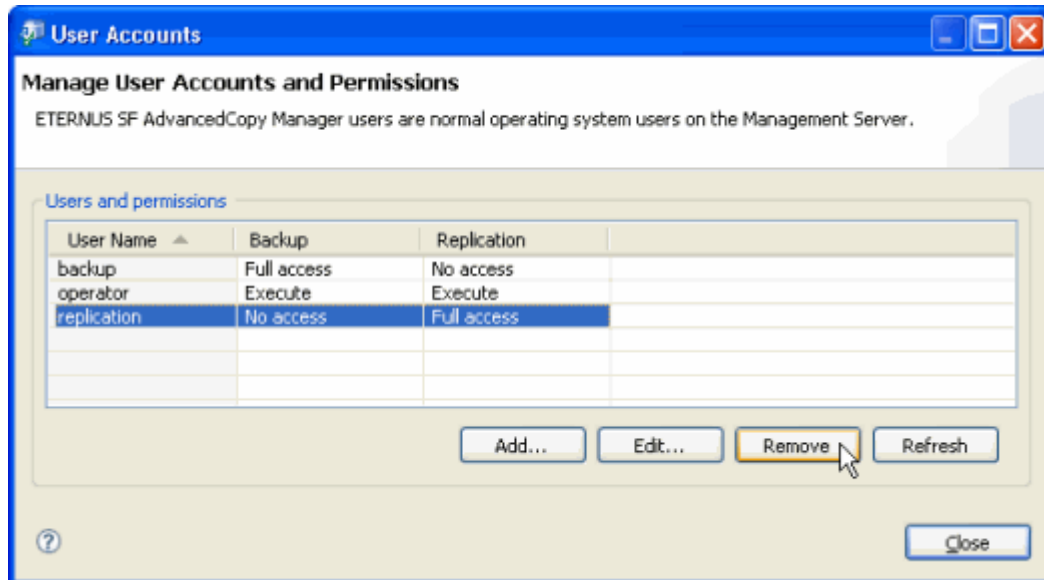
The message will also table those users for whom permissions could not be changed with reasons for failure. Click the [OK] button to close the message dialog.

Remove a User

Only UNIX root users or the Windows start-up account specified during AdvancedCopy Manager installation can change user permissions.

The following steps describe how to remove a user and associated access permissions.

1. Click the [User Accounts] from the [File] menu to invoke the [User Accounts] dialog.



2. Select one or more users from the dialog table and click the [Remove] button. The [Confirm Delete] dialog is displayed.
3. Click the [Yes] button to remove the selected users.

If one or more users cannot be removed, an information-only dialog with the message “Not all users could be removed” is displayed. The message will also table the users that could not be removed with reasons for the failure. Click the [OK] button to close the message dialog.

Download Logs

This function collects the log files which are used to troubleshoot an error caused by the GUI Client. Use this function to collect the log files and to send a zip file of the logs to the support center if it is required.

Collect the log files as follows.

1. From the [File] menu, select [Download Logs].
2. In the [Save As] dialog, enter the zip file name with which to save the logs. Click the [Save] to collect the log files and save them as a zip file.

Backup

This chapter describes how to use the backup function using the AdvancedCopy Manager GUI Client.

Refer to the Backup chapter of the AdvancedCopy Manager Operator's Guide for details of the backup functionality.

Also refer to the Maintenance and Configuration chapter of this guide for the settings requires for the backup function.

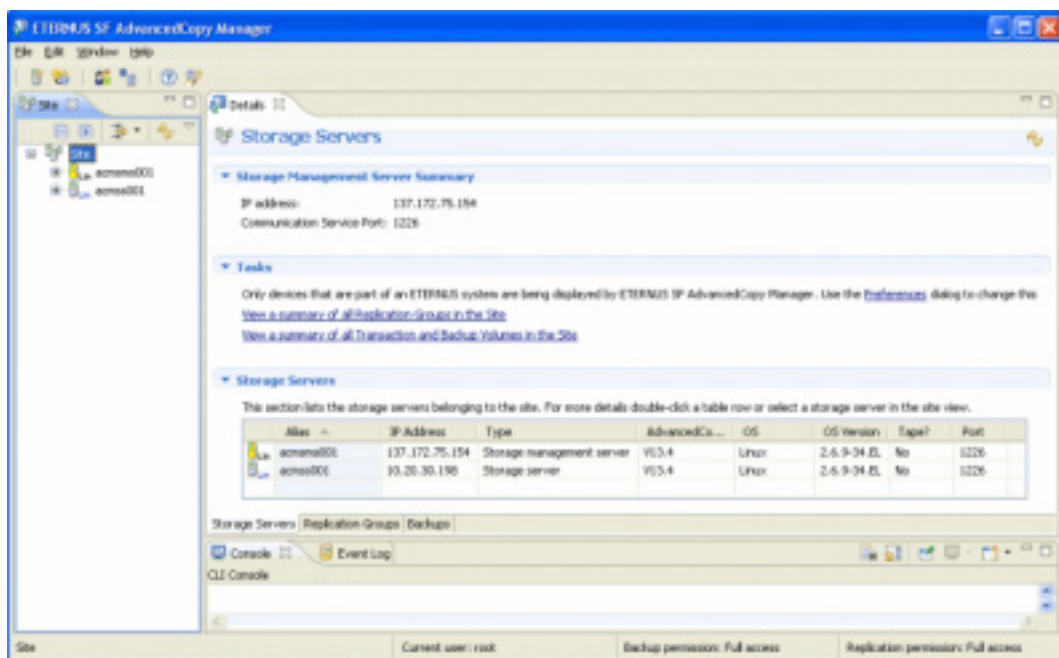
View Volume Information

View Summary of All Transaction and Backup Volumes at the Site

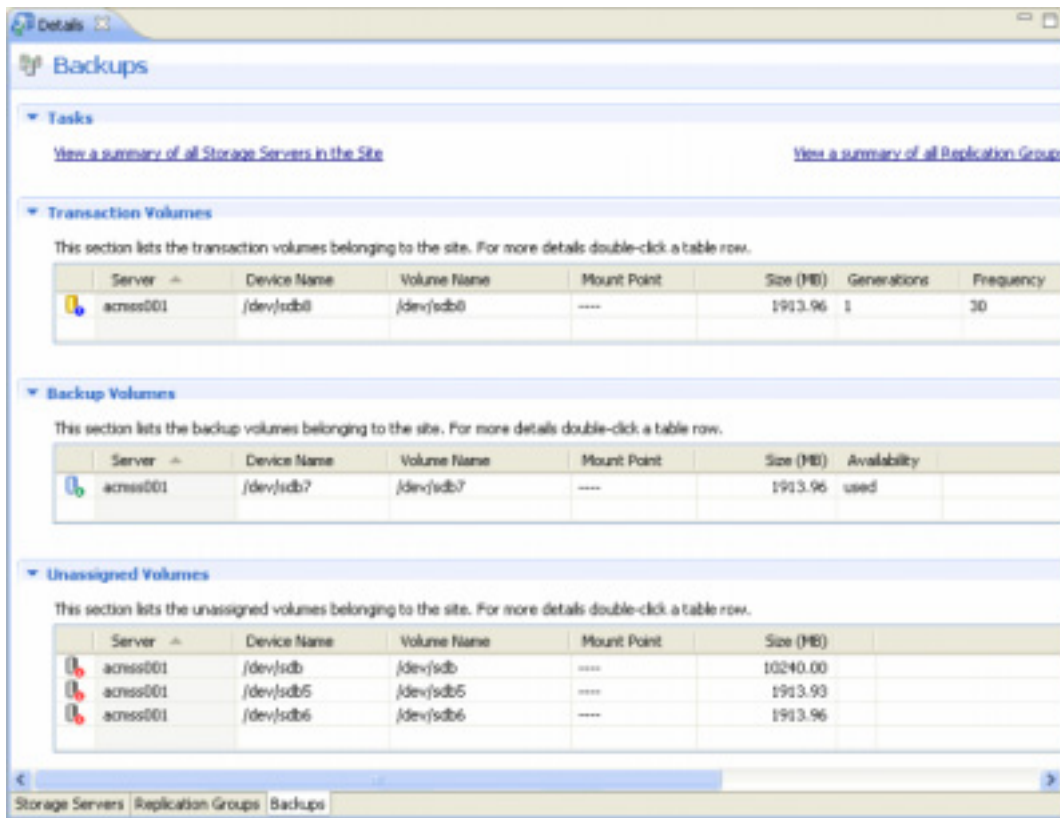
A Site view will show all transaction, backup and unassigned volumes for the site in a single tabbed view.

To invoke a Site view, the user should perform the following procedure:

1. Click on the [Site] icon of the Site view tree to populate the perspective with Storage Management Server and Storage Server information relating to the site in the Details view.



2. Click the [Backups] tab at the bottom of the Details view to display a form showing information relating to all transaction, backup and unassigned volumes at the site.



A Tasks form provides a series of links to related information or common tasks.

The Transaction Volumes form details all devices that have been defined as transaction volumes at the site.

Double-click any table row to refresh the Details summary view with specific information about the selected transaction volume.

The following information is provided in the Transaction Volumes form:

Transaction Volumes

Label	Description
Device Name	Displays a device name.
Volume Name	Displays a volume name.
Mount Point	Displays a transaction volume mount point name (drive letter). When the volume is a Symfoware transaction volume, the Symfoware RDB system name and group name, and the DBS name are displayed.
Volume Size (MB)	Displays a volume size. Displays the size of the area that is actually used for copying for VxVM logical volume.
Generations to keep	Displays the number of generations to keep, that is set for the backup policy.

Label	Description		
Suggested Backup Frequency (days)	Displays the backup frequency (in days) that is set for the backup policy.		
Current Status	Displays processes that are currently under execution.		
	<table border="1"> <tr> <td data-bbox="576 470 887 562">“----”</td> <td data-bbox="887 470 1372 562">Nothing (a command/OPC/EC) is being executed</td> </tr> </table>	“----”	Nothing (a command/OPC/EC) is being executed
	“----”	Nothing (a command/OPC/EC) is being executed	
	“swststartsync”	Backup synchronous processing start command is being executed	
	“swstcancelsync”	Backup synchronous processing cancel command is being executed	
	“swstbackup”	The backup execution command is being processed	
	“swstrestore”	The restore execution command is being processed	
	“swstcancelrest”	The restore cancellation command is being processed	
	“swstbkpolset”	The backup policy setting command is being processed	
	“swstbkpoldel”	The backup policy deletion command is being processed	
	“swsthistdel”	The history information deletion command is being processed	
	“swstcanceltrk”	The tracking cancel command is being processed	
	“sync(%)”	Progress rate of backup synchronization	
	“sync(failed)”	EC has terminated abnormally	
	“sync(halt)”	EC is in halt status	
	“snapshot(%)”	Progress rate of backup using OPC	
	“snapshot(failed)”	Backup using OPC has terminated abnormally	
	“snapshot(halt)”	Backup using OPC has been halted	
	“restore(%)”	Rate of progress of restoration	
	“restore(halt)”	Restoration using OPC has been halted	
“gds-error”	Copying with GDS has terminated abnormally.		

Label	Description
Time when last backup started (local time on Storage Server)	Displays the time when the data was last backed up.
Days Overdue for Backup	If the number of days specified for the interval following the last time a backup was taken has elapsed, this number of days is displayed.

Additional Transaction Volume Information

Label	Description
Abs. Generation	Displays the absolute generation number. If the generation number for the data that was first backed up is 1, the generation for the new data will be 2.
Rel. Generation	Displays the relative generation number. Whenever data is backed up, the generation number for the data that was first backed up is reassigned, so the generation for the new data will always be 1.
Backup Date	Date and time last backup started
Backup Volume	Backup volume
Status	Displays the backup data copy status. <ul style="list-style-type: none"> - succeeded - executing (%) - failed - halt - gds-error
Progress	Copy progress
ArcSerial	Not used for the English version

The Backup Volumes form details all devices that have been defined as backup volumes at the site. Double-click any table row to refresh the Details summary view with specific information about the selected backup volume.

The following information is provided in the Backup Volumes form:

Backup Volumes

Label	Description
Device Name	Name of the backup volume
Volume Name	Name of the backup volume
Mount Point	Backup Volume Mount point (drive letter). If the volume is a Symfoware transaction volume, the Symfoware RDB system name or group name and the DBS name, and so on, are displayed.
Size (MB)	Displays a volume size. Displays the size of the area that is actually used for copying for VxVM logical volume.
Volume Availability	Displays "free" or "used" for the backup volume status. <ul style="list-style-type: none"> - free: There is volume available - used: Volume generations are being managed

The Unassigned Volumes form details any volumes yet to be assigned a specific role for backup at the site.

Double-click any table row to refresh the Details summary view with specific information about the selected unassigned volume.

The following information is provided in the Unassigned Volumes form:

Unassigned Volumes

Label	Description
Device Name	Name of the backup volume
Volume Name	Name of the backup volume
Mount Point	Displays a transaction volume mount point name (drive letter). When the volume is a Symfoware transaction volume, the Symfoware RDB system name and group name, and the DBS name are displayed.
Size (MB)	Displays a volume size. Displays the size of the area that is actually used for copying for VxVM logical volume.

View Summary of All Volumes for a Specified Storage Server

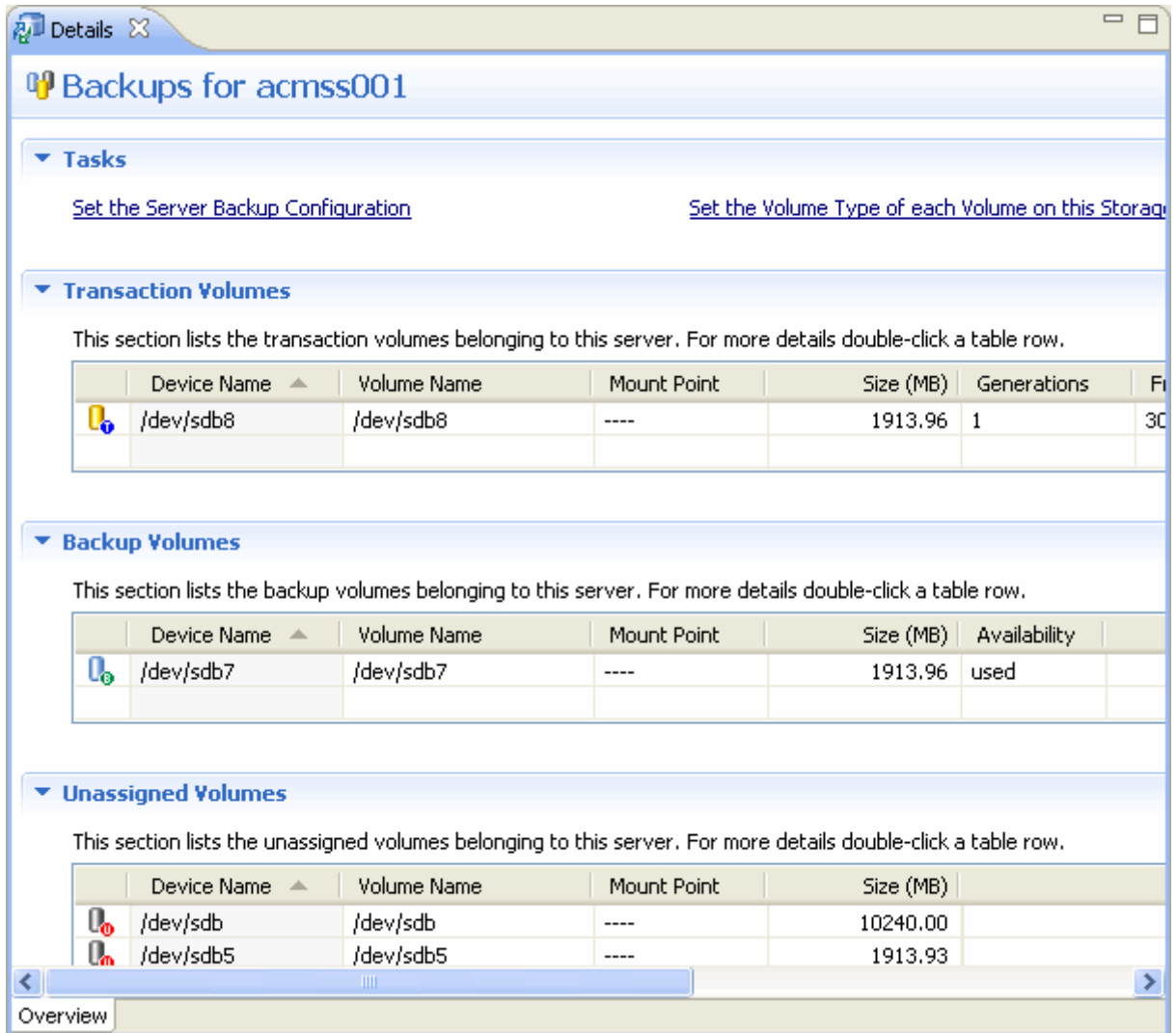
A Server view will show all groups and devices associated with a specific Storage in a single view.

To invoke a Server view, the user should perform the following procedure:

1. Click on the [Site] root node of the [Site] node to refresh the Site view.

2. Select a [Backups] node for a Storage Server and click to refresh the Details view with device information by operation type in a form for each of the three Volume operation types (Transaction, Backup and Unassigned).

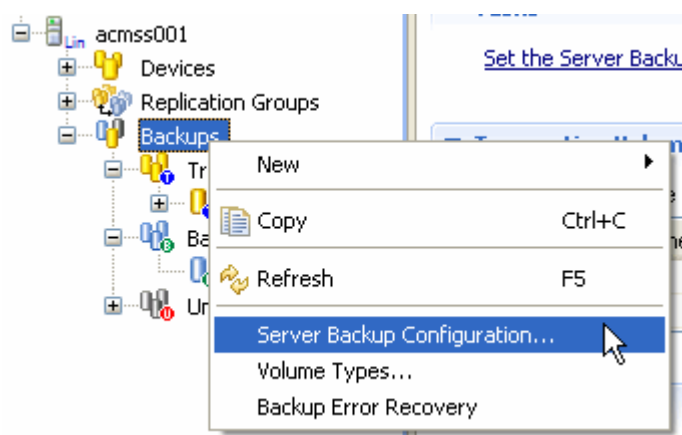
Refer to View Summary of All Transaction and Backup Volumes at the Site for the description of labels.



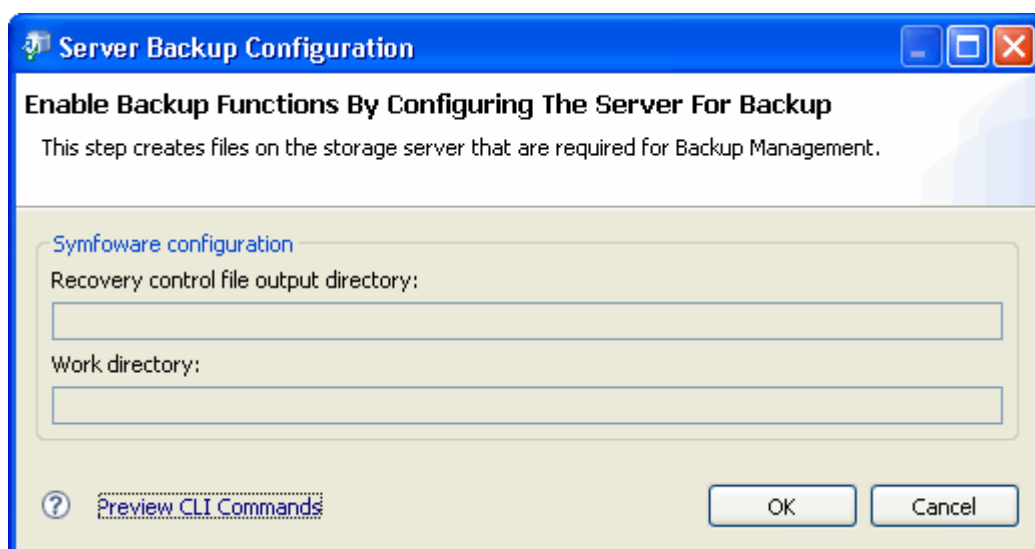
Enable Backup for a Storage Server

Backup functionality must be enabled for each Storage Server on which backup is to be invoked.

1. Right-click on the [Backups] node in the Site tree to invoke the context menu.



2. Select the [Server Backup Configuration] option to invoke the [Server Backup Configuration] dialog.



3. Click the [OK] button to enable backup for the Storage Server.

Configure a Device for Use with Backup

Before a backup can be performed, the device must be defined explicitly as either a transaction volume or a backup volume. A device may remain unassigned indefinitely but will not be available for use in any backup until its operation type has been defined.

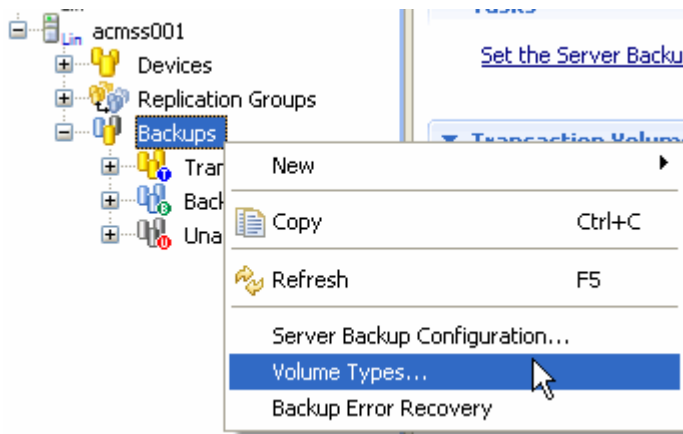
A device may also be defined as both a replication source device and a transaction volume but cannot be both a replication device and a backup volume.

The backup volume must be the same size (that is, the same number of bytes) as the transaction volume.

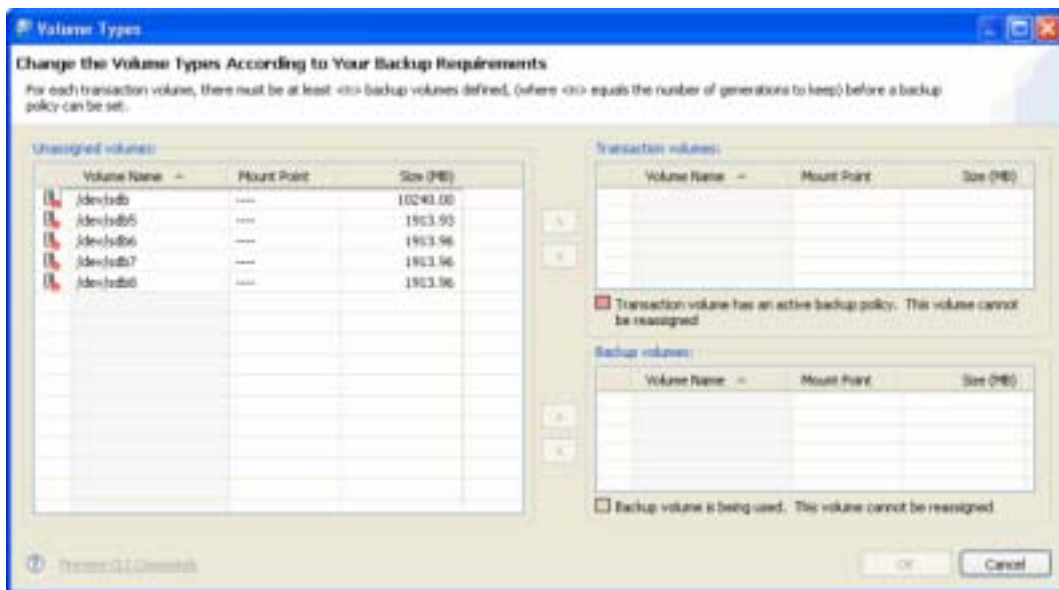
Define the Role of a Volume

Define the role of a transaction or backup volume in accordance with the following steps:

1. Select the [Backups] node from the Site view and right-click to invoke the backup context menu.



2. Select the [Volume Types] option to invoke the [Volume Types] dialog.



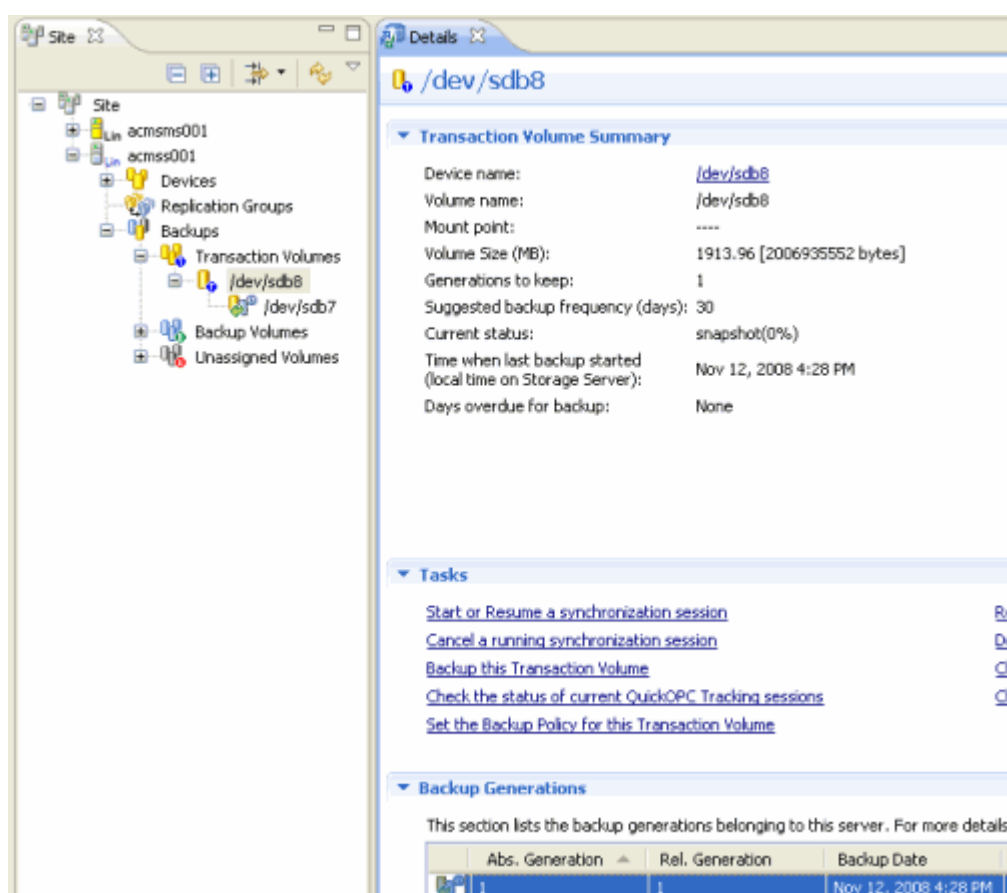
3. Select a volume from the Unassigned volumes pane and click the appropriate [>] button to move the volume to either the Transaction volumes pane or the Backup volumes pane on the right hand side of the dialog.
4. Click the [OK] button to continue to set the operation type for the selected volume/s.

Remove a Transaction Volume

When deleting a transaction volume, it is important to ensure that all of the following steps are completed beforehand.

Select the transaction volume to be deleted in the Site view to refresh the Details view with the transaction volume summary information.

Any current backup policy and history information will be displayed in the summary.



Delete any backup history for the transaction volume to be removed.

For more information on this, refer to Delete Backup History.

1. Delete any backup policies that have been set for volume that is to be deleted.

Refer to Delete Backup Policy below.

2. Set the operation type for the volume or device to "unassigned".

For more information, refer to Define the Role of a Volume.

Remove a Backup Volume

When deleting a backup volume, it is important to ensure that the steps are completed in the following order.

1. Check all existing backup policies for any transaction volumes with which the volume may be associated. See note below.
2. Ensure that the backup volume is unused. That is, that it does not exist in any backup history.

Select the [Backup Volumes' node for the relevant host Storage Server to refresh the Details view with information relating to all backup volumes for the selected Storage Server.

If the availability status is "free", then there is no current backup history.

If the status is "used", then the volume has current backup history.

The screenshot shows the 'Backup' configuration page for a server. The left sidebar shows a tree view with 'Backup' selected. The main window has two sections: 'Transaction Volumes' and 'Backup Volumes'. The 'Transaction Volumes' table has one row with Device Name '/dev/sdb0', Volume Name '/dev/sdb0', Mount Point '----', Size (MB) '1913.96', and Generations '1'. The 'Backup Volumes' table has two rows: one with Device Name '/dev/sdb6', Volume Name '/dev/sdb6', Mount Point '----', Size (MB) '1913.96', and Availability 'free'; and another with Device Name '/dev/sdb7', Volume Name '/dev/sdb7', Mount Point '----', Size (MB) '1913.96', and Availability 'used'.

The backup generation history must be deleted before proceeding to the next step.

Refer to the AdvancedCopy Manager Operator's Guide for more information relating to deleting backup history.

3. Delete the device information for the volume. Refer to the AdvancedCopy Manager Operator's Guide for more information relating to deleting device information.



- If a backup volume is deleted, a previously defined backup policy for an existing transaction volume may no longer be valid. For example, if the number of backup volumes is then less than the number of preservation generations defined in the policy, this backup policy can no longer be used.
- If a backup policy references any backup volume which is to be deleted, you must
- First register a replacement backup volume and associate it with the relevant policy
- Modify the policy to reduce the number of backup volumes required to maintain the policy.

- To maintain the validity of the backup policy, this must be done before deleting the backup volume.

Manage Backup Policy

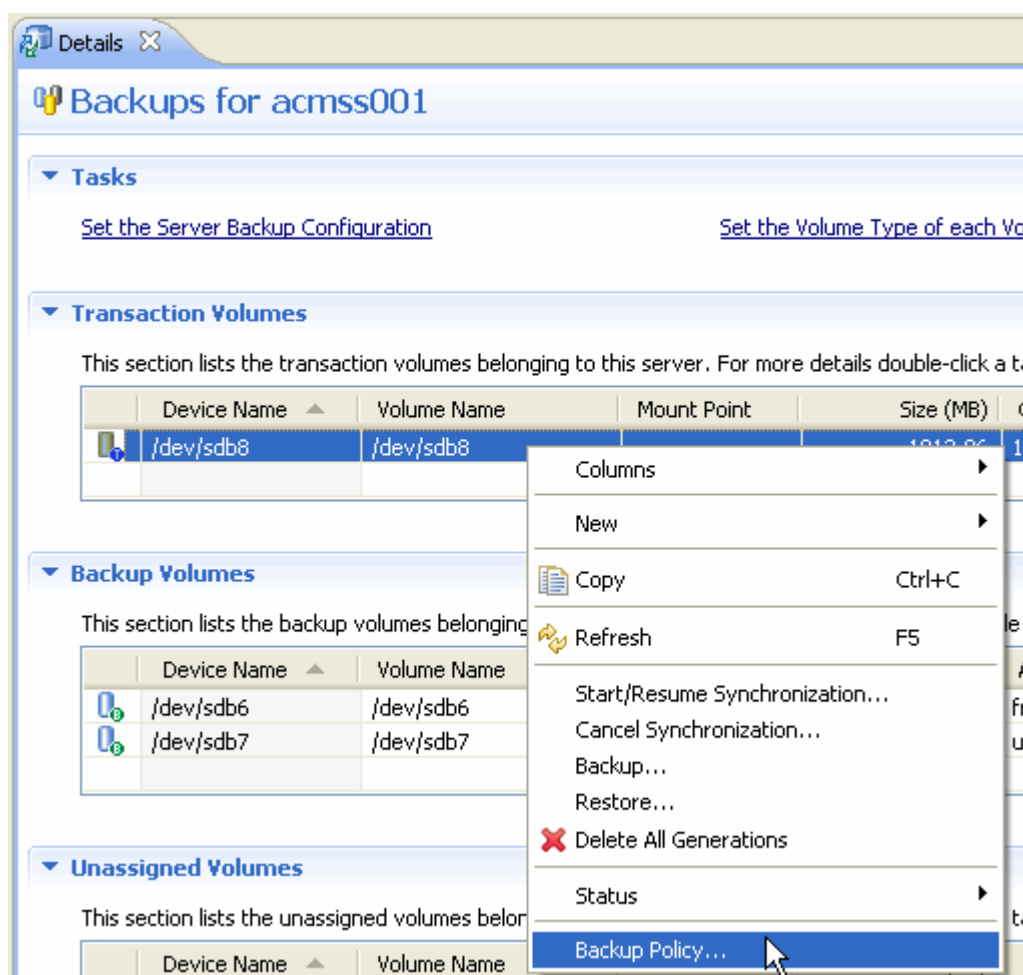
This section describes how to set and delete backup policy and display or delete backup history for one or more transaction volumes.

Set Backup Policy

Ensure the devices have been configured as described in the previous chapter.

Set the backup policy using the following procedure:

1. Select the [Backups] node in the Site view for a specific Storage Server to refresh the Details view with volume information for the Storage Server.
2. Right-click anywhere in the [Transaction Volumes] tab to invoke the context menu.



3. Select the [Backup Policy] menu item to invoke the [Backup Policy] dialog.



4. Specify the Policy the number of backup generations required by the policy and the suggested frequency.

Backup Policy

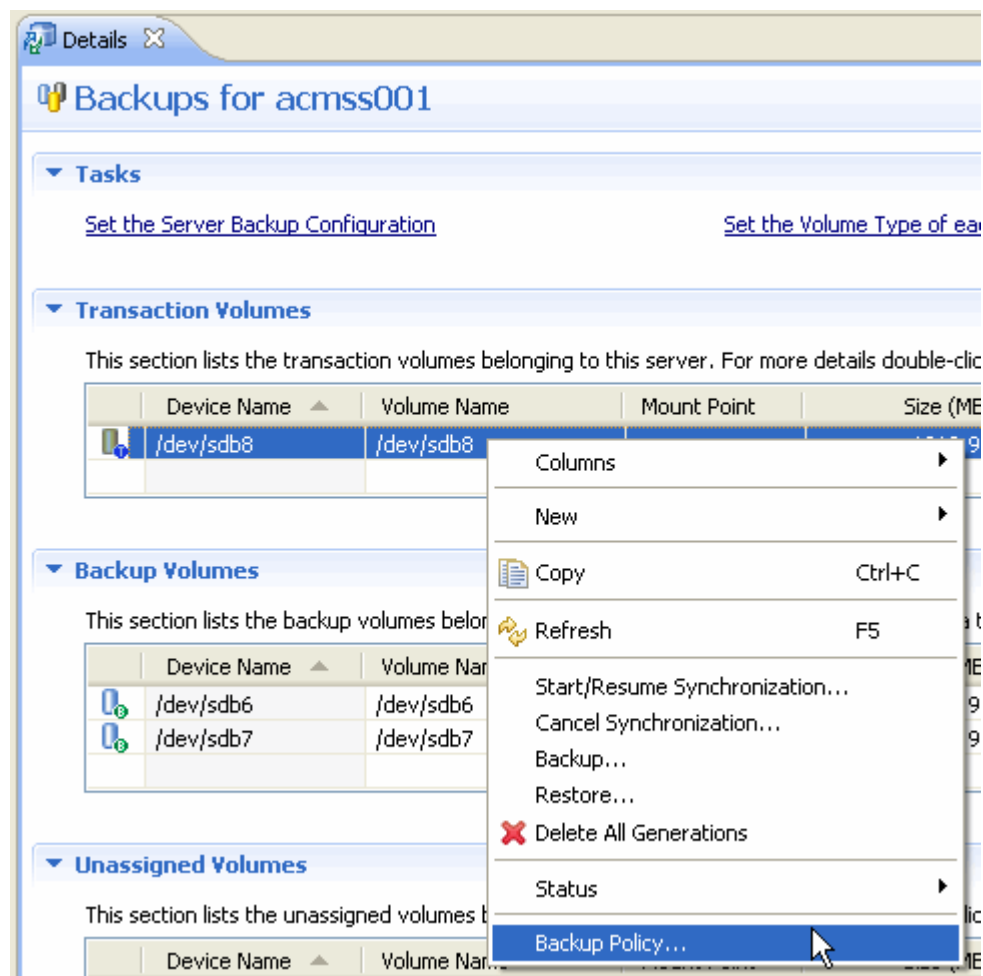
Label	Description
Backup generation to keep	Specify a value from 1 to 31. The default value is 2 when setting a new policy. The value previously set will be displayed in case of updating an existing policy.
Suggested back up frequency (days)	Specify a value from 1 to 366. The default value is 30 when setting a new policy. The value previously set will be displayed in case of updating an existing policy.

5. Click the [OK] button to register the policy and close the dialog.

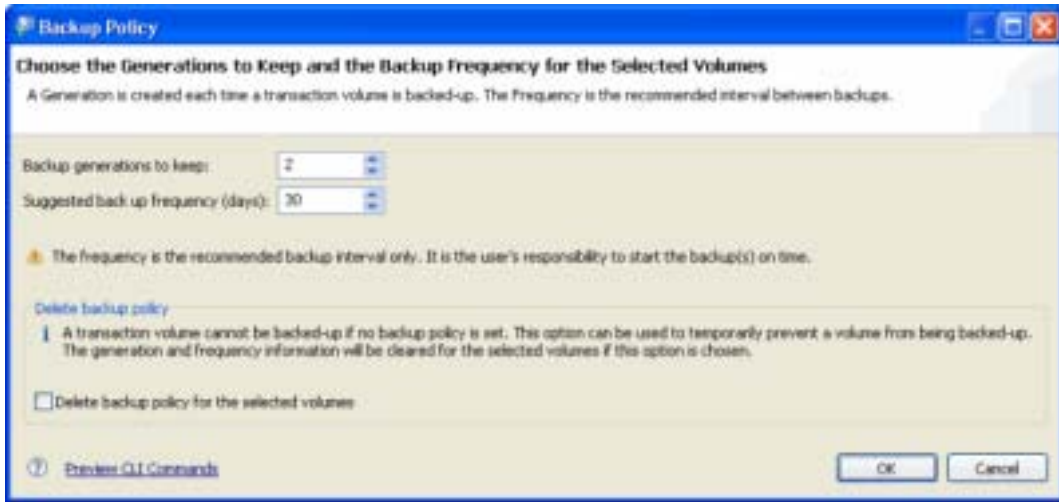
Delete Backup Policy

Delete a backup policy as follows.

1. In the Site view, select the [Backups] node under the Storage Server to refresh the Detail view.
2. Right-click the device in the Transaction Volumes pane to display the context menu.
3. Select the [Backup Policy] option to invoke the [Backup Policy] dialog.



Check the [Delete backup policy for the selected volumes] checkbox in the [Backup Policy] dialog.



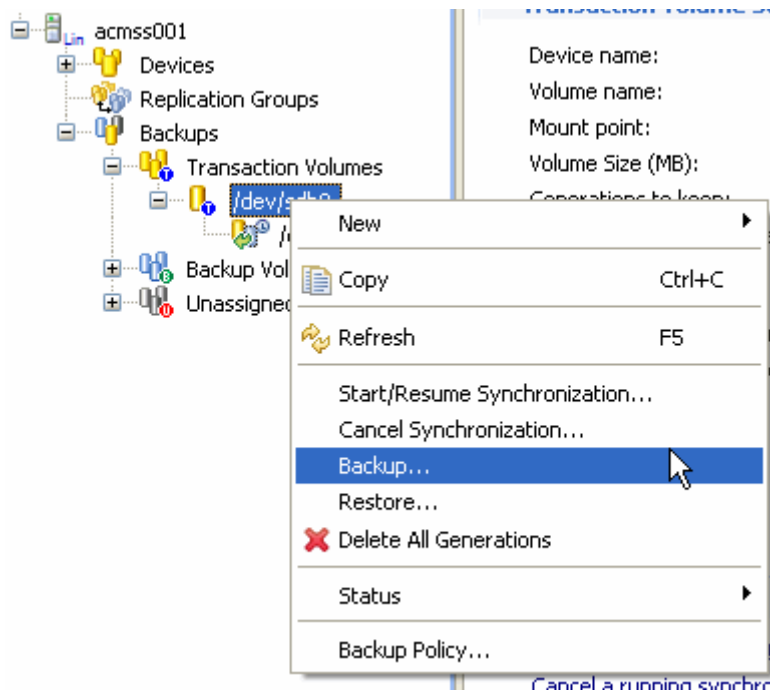
Click the [OK] button to delete the backup policy.

Perform a Snapshot Backup

Backup with One Point Copy (OPC) or QuickOPC

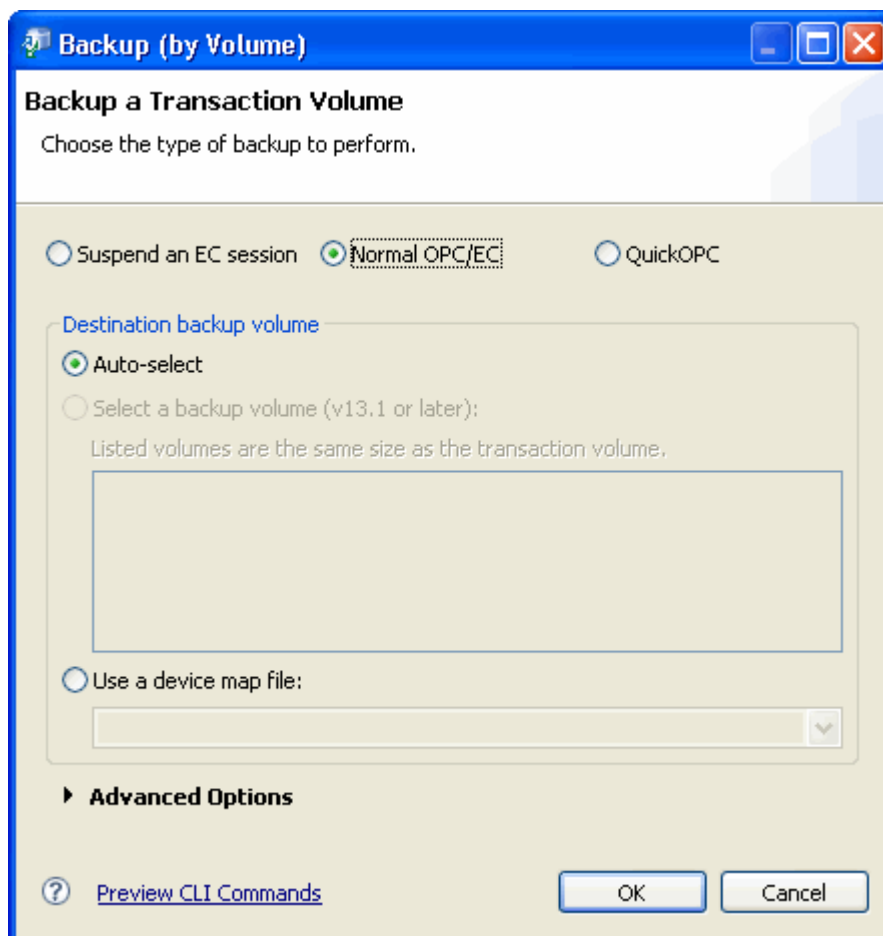
The following procedure describes how to perform a snapshot backup.

1. Select a transaction volume from the Site view and right-click it to invoke the backup context menu.



2. Select the [Backup] item to invoke the [Backup] dialog.

Backup Dialog



3. Select either the [Normal OPC/EC] or the [QuickOPC] radio button at the top of the dialog.

Select a method of performing the backup.

AdvancedCopy Manager can select a backup volume automatically.

- Select [Auto-select] from [Destination backup volume]

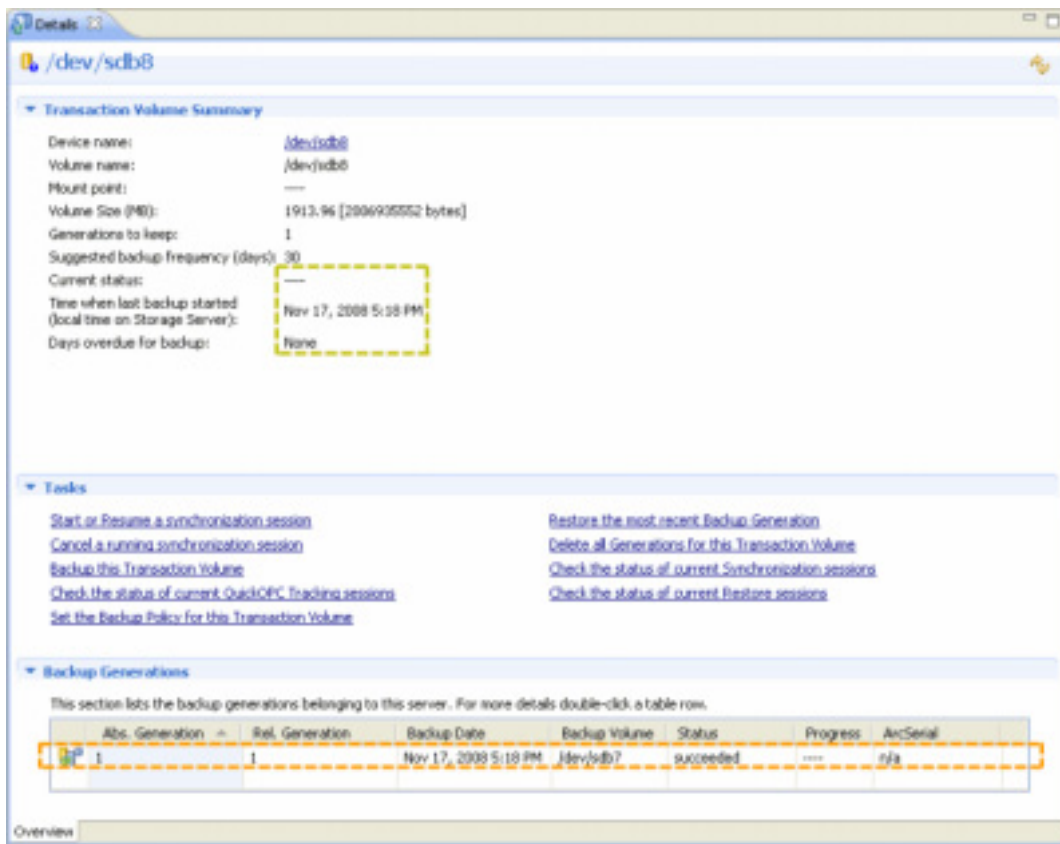
Alternatively, you can specify a backup volume manually.

- Select [Select a backup volume (v13.1 or later):] to select a backup volume from the list.
- Select [Use a device map file:] to specify a device map file which defines the associated backup volumes. The device map file name must be specified in the full path name.

4. Click the [OK] button to start the backup.

5. The current copy status is not refreshed automatically. Right-click on the transaction volume to open the context menu and select [Refresh] to check the latest copy status.

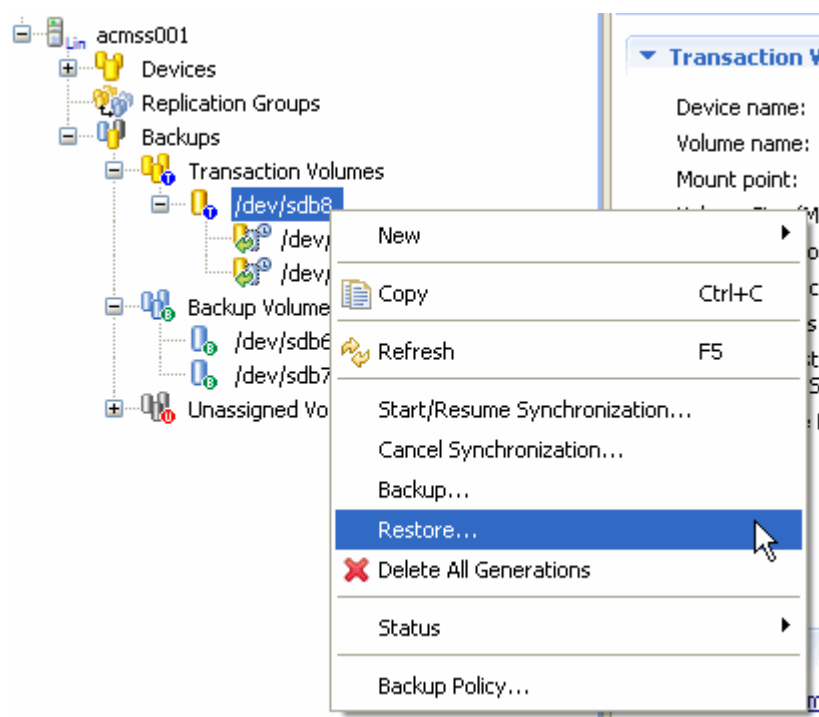
- Upon completion of backup, the Details view is refreshed with the details of the latest backup generation.



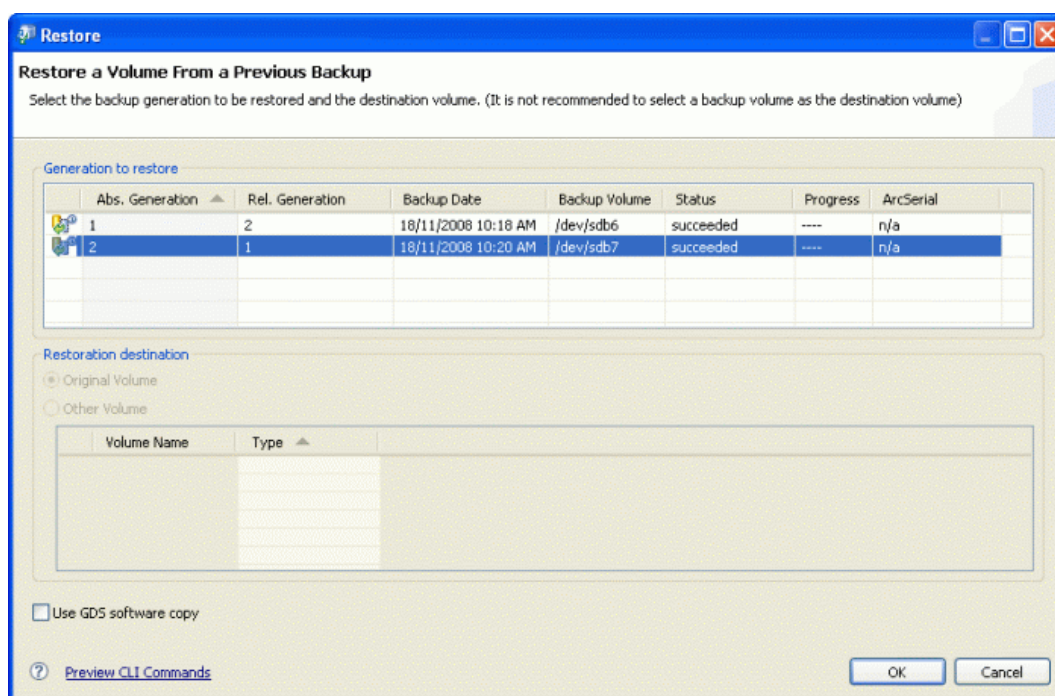
Restore

Perform restoration as follows.

1. Select the transaction volume to be restored from the Site view and right-click it to invoke the backup context menu.



2. Select [Restore] to invoke the [Restore] dialog.



3. The most recent backup volume will always be highlighted in the Generation to restore form when the [Restore] dialog displays. Select an appropriate generation if you wish to restore from an alternative backup generation.
4. If you wish to restore to an alternative destination volume, select [Other Volume] in the Restoration destination form and choose a device.
5. Click the [OK] button to continue.
6. The current copy status is not refreshed automatically. Right-click on the transaction volume to open the context menu and select [Refresh] to check the latest copy status.

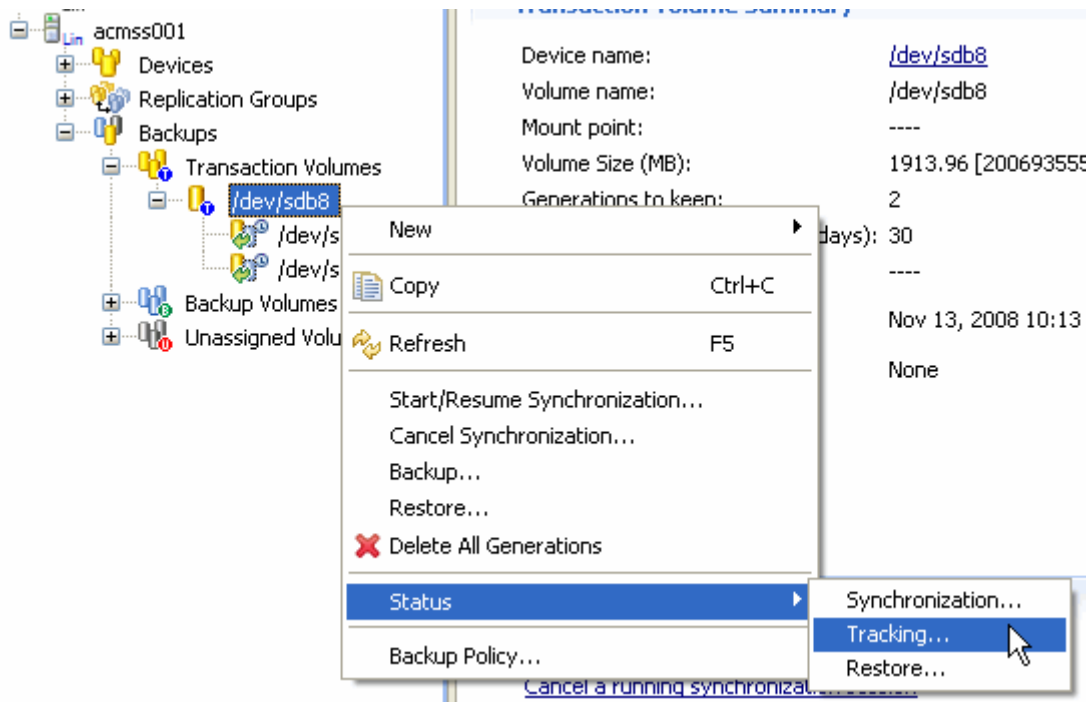


The [Use GDS software copy] checkbox is only applicable when the transaction volume is GDS logical volume.

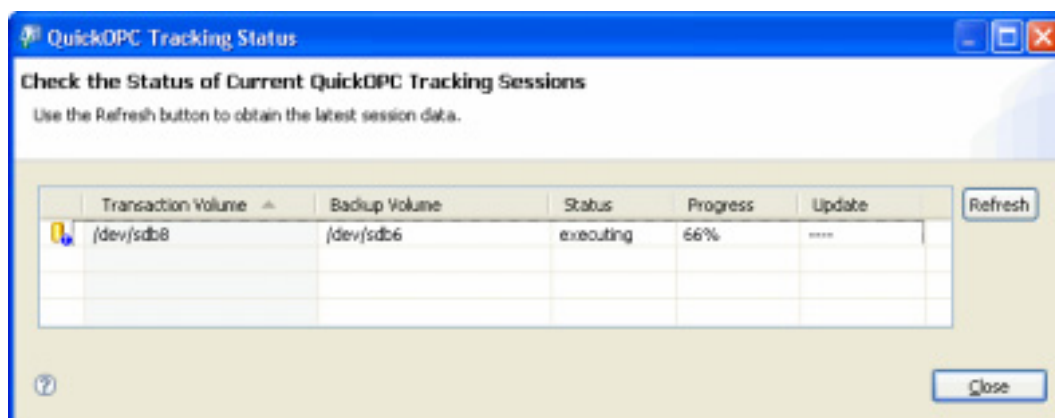
Display the Tracking Status of Any Current QuickOPC

Perform the following procedure to display the progress of any QuickOPC tracking.

1. Select the desired transaction volume from the Site view and right-click it to invoke the backup context menu.



2. Select the [Status] item from the context menu to display the [Status] submenu and then select [Tracking] to invoke the [QuickOPC Tracking Status] dialog.



Click the [Refresh] button to obtain the latest tracking status information for all backup volumes listed in the dialog form.

QuickOPC Tracking Status

Label	Description
Transaction Volume	Displays a transaction volume name.
Backup Volume	Displays a backup volume name. "----" is displayed when there is no tracking status.
Status	Displays the execution status. "----": There is no tracking status. "executing": Physical copy is in progress, and there is a tracking status. "tracking": There is a tracking status. "failed": Physical copy or tracking processing has terminated abnormally. "nosession": The session does not exist (the resource information does not match).
Progress	When "executing" is displayed in the Status column, it indicates that amount that has been copied, as a percentage (%). "----" is displayed when "tracking" is displayed in the Status column.
Update	Shows the percentage (%) of updated data after logical copying, when "tracking" is displayed in the Status column. "----" is displayed when "executing" is displayed in the Status column.

Cancel Tracking

Tracking for QuickOPC can not be performed using the AdvancedCopy Manager GUI Client and must be performed at the CLI using the Tracking Cancel command [swstcanceltrk](#).

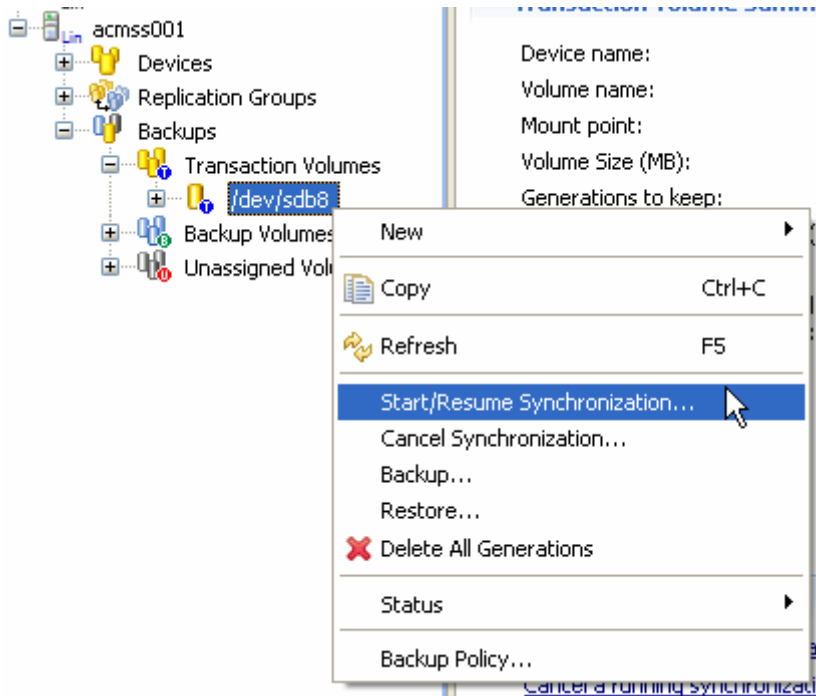
Refer to the Command Reference for more information regarding the Tracking Cancel Command.

Perform an Equivalent Copy (EC) Backup

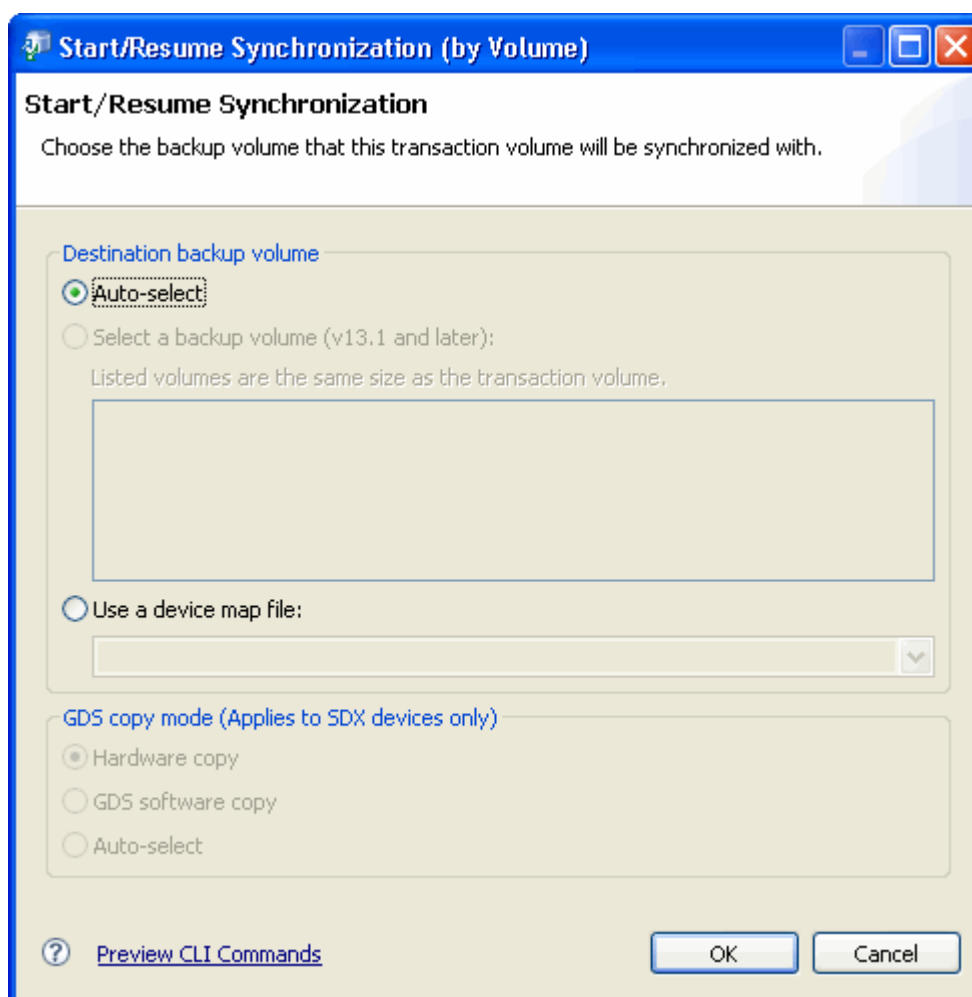
Starting and Resuming Synchronization

Perform the synchronization of the transaction and backup volumes using the following procedure:

1. Select the required transaction volume from the Site view and right-click it to invoke the backup context menu.



2. Select [Start/Resume Synchronization] from the context menu to invoke the [Start/Resume Synchronization] dialog.

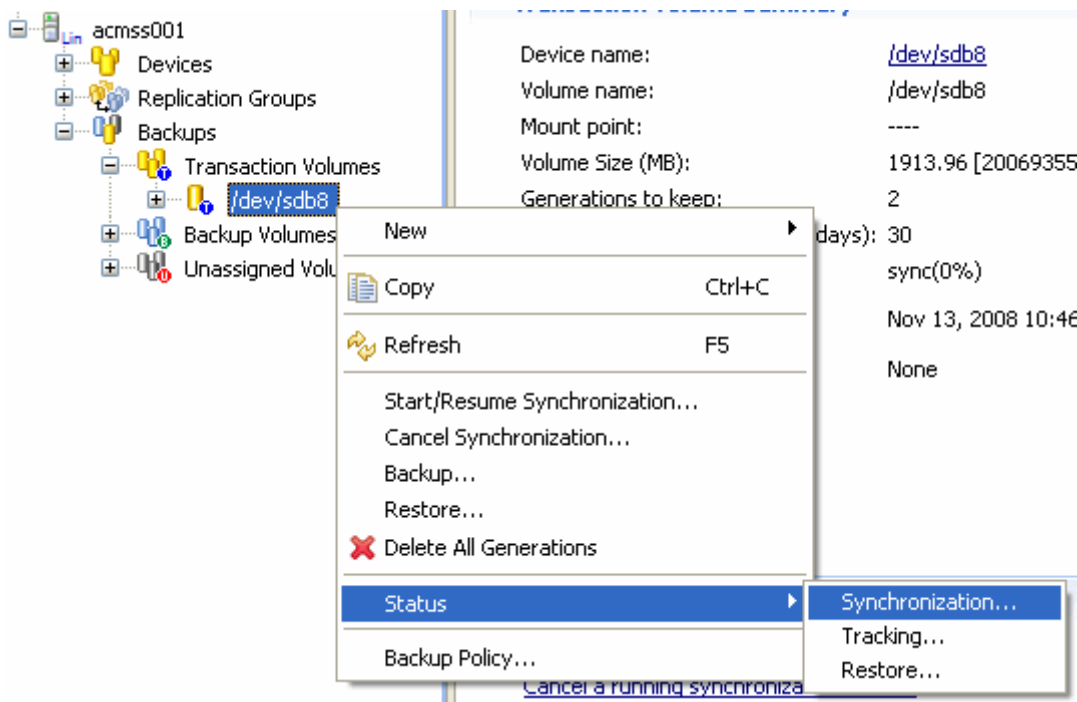


3. Select the method of performing the backup.
 - a) AdvancedCopy Manager can select a backup volume automatically.
Select [Auto-select] from [Destination backup volume]
 - b) Alternatively, you can specify a backup volume manually.
Select [Select a backup volume (v13.1 and later)] to choose a backup volume from the list.
Select [Use a device map file:] to specify a device map file which defines the associated backup volumes.
- Click the [OK] button to start the synchronization.
4. The current copy status is not refreshed automatically. Right-click on the transaction volume to open the context menu and select [Refresh] to check the latest copy status.

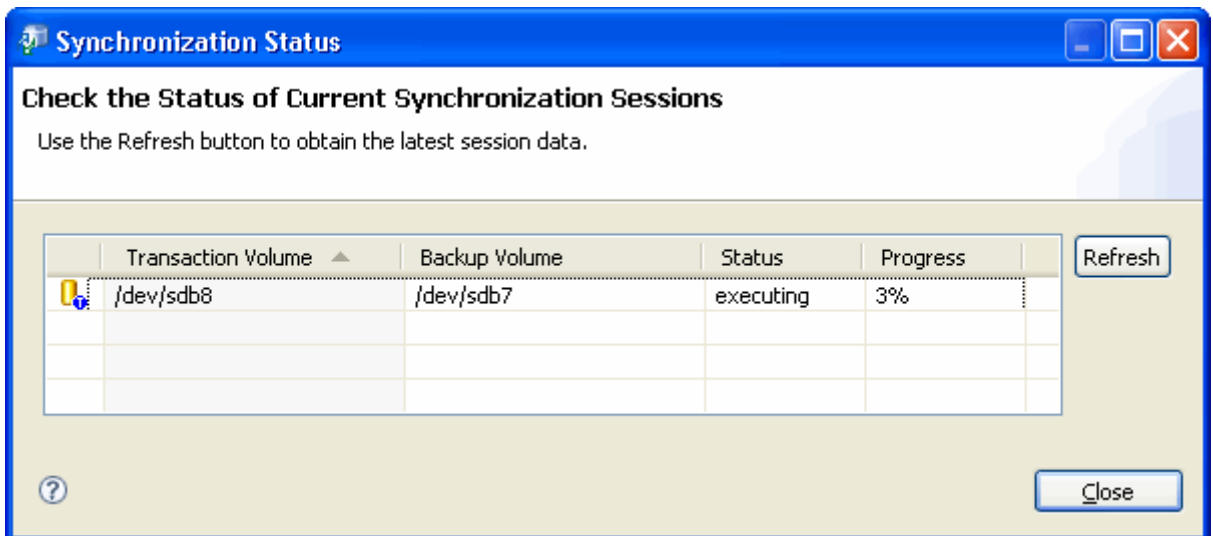
Check the Status of Synchronization

Check the status of synchronization as follows.

1. Select the required transaction volume from the Site view and right-click it to invoke the context menu.
2. Select the [Status] item from the context menu and then select the [Synchronization] item in the submenu to invoke the [Synchronization Status] dialog.



3. Select the [Status] from the context menu to display the submenu. Click [Synchronization] to display the [Synchronization Status] dialog.



4. Click the [Refresh] button to refresh the status information.

Click the [Close] button to close the [Synchronization Status] dialog.

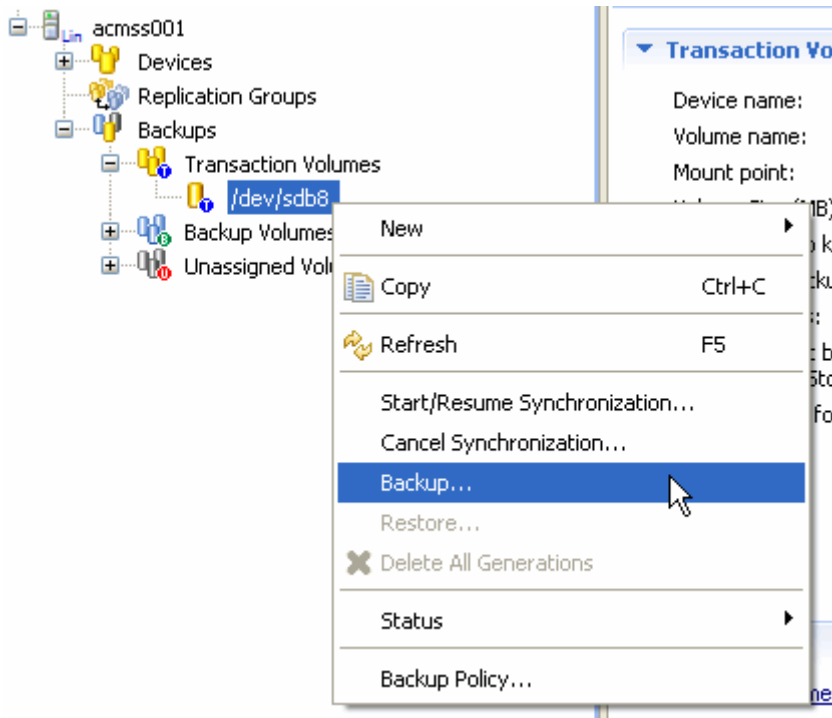
Synchronization Status

Label	Description
Transaction Volume	Displays a transaction volume name.
Backup Volume	Displays a backup volume name. "----" is displayed when there is no backup synchronization in progress.
Status	Displays the execution status. "----": There is no backup synchronization in progress. "executing": Synchronization is in progress, and the status is pre-equivalency maintenance. "equivalent": There is an equivalency maintenance status. "suspend": The EC or the GDS software copy has been suspended. "failed": Backup synchronization has terminated abnormally. "nosession": The session does not exist (the resource information does not match). "halt": The backup synchronization has been halted. "gds-error": Copying with GDS has terminated abnormally.
Progress	Displays the EC or GDS software copy execution status as a percentage (%). "----" is displayed when the copy is suspended, and during backup synchronization.

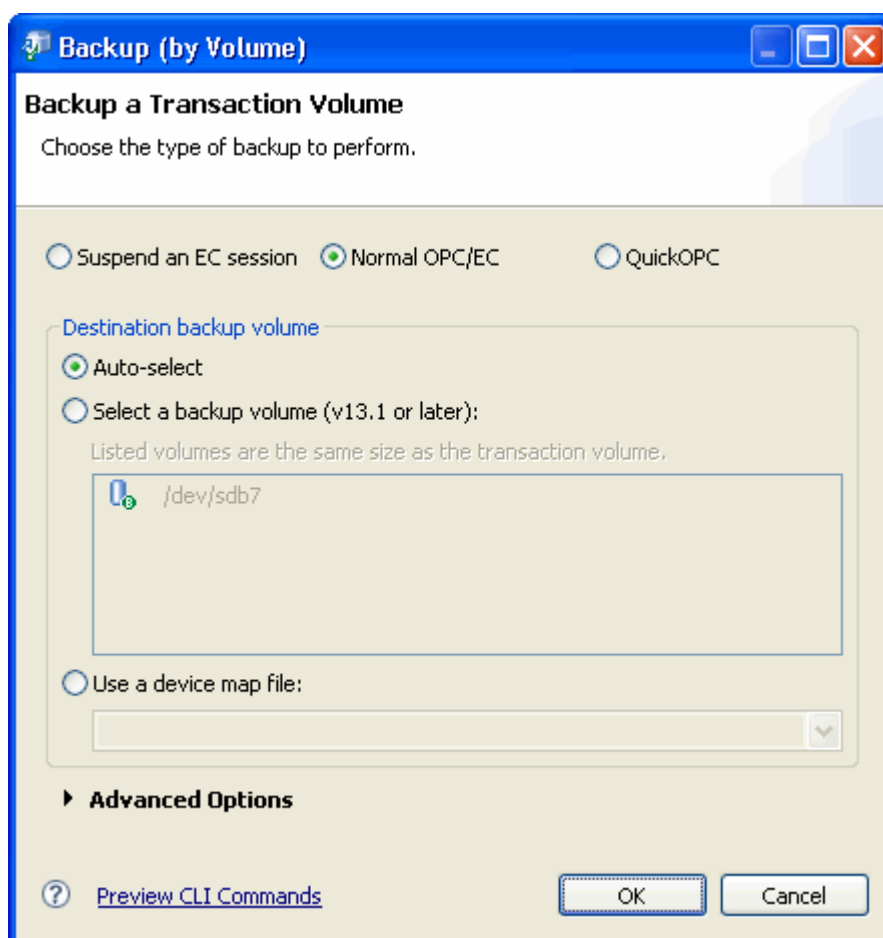
Backup (Stop EC/Suspend EC)

The following procedure will create a backup:

1. Ensure Equivalency Maintenance Status has been attained by selecting the relevant Transaction Volumes node from the Site view to refresh the Details view with status information.
2. Select the transaction volume for which you wish create a backup from the Site view and right-click the [Backup] option in the context menu to invoke the [Backup] dialog.



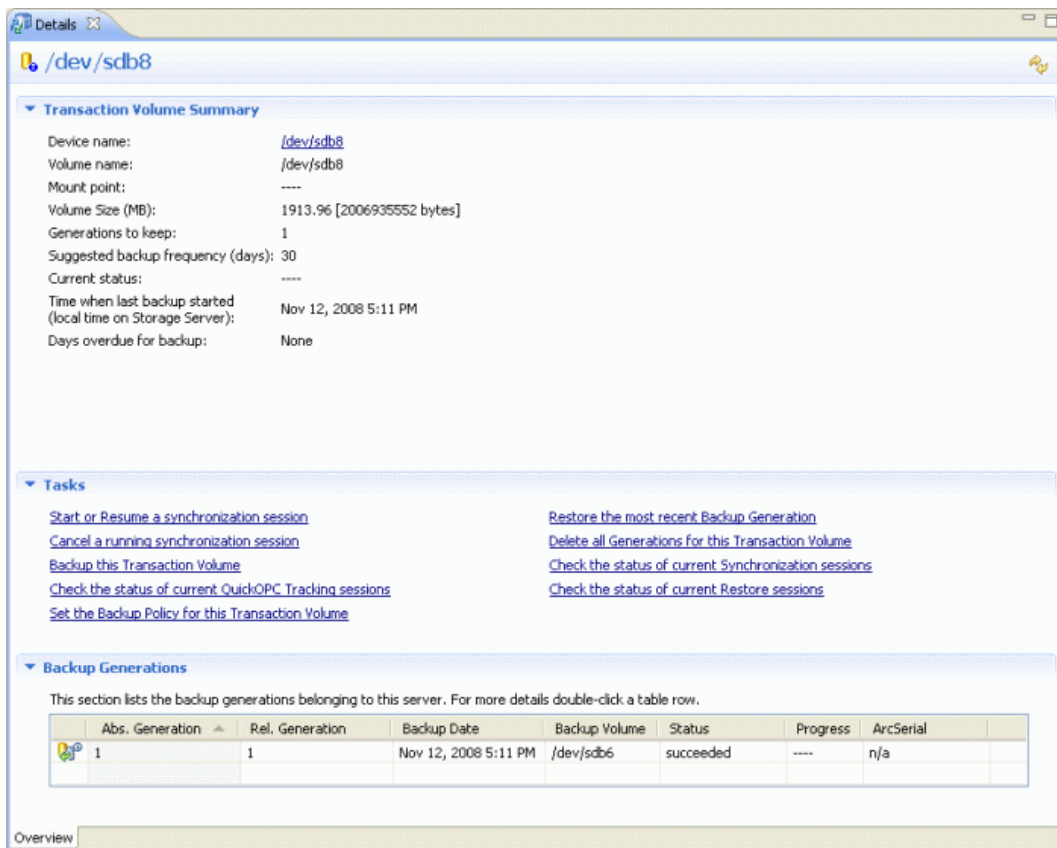
3. Select [Suspend an EC session] to create a backup by suspending EC or select [Normal OPC/EC] to create a backup by stopping the equivalence copy. .



4. Click the [OK] button to continue.

Select the transaction volume again from the Site view to refresh the Details view with current status information, in order to ensure that the backup has been created successfully, with history.

- The current copy status is not refreshed automatically. Right-click on the transaction volume to open the context menu and select [Refresh] to check the latest copy status.



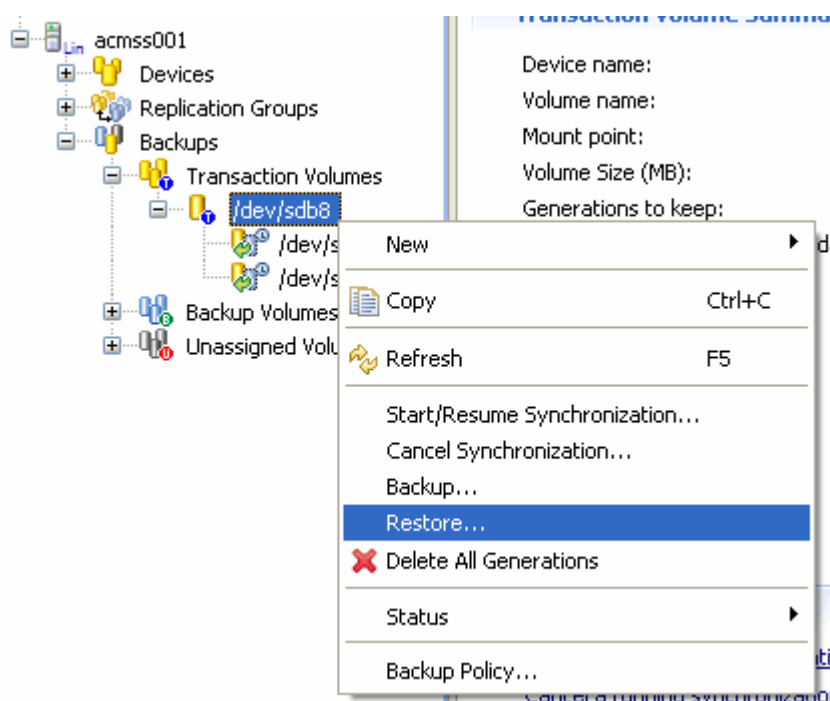
Restore

Perform restoration from an EC backup volume as follows:

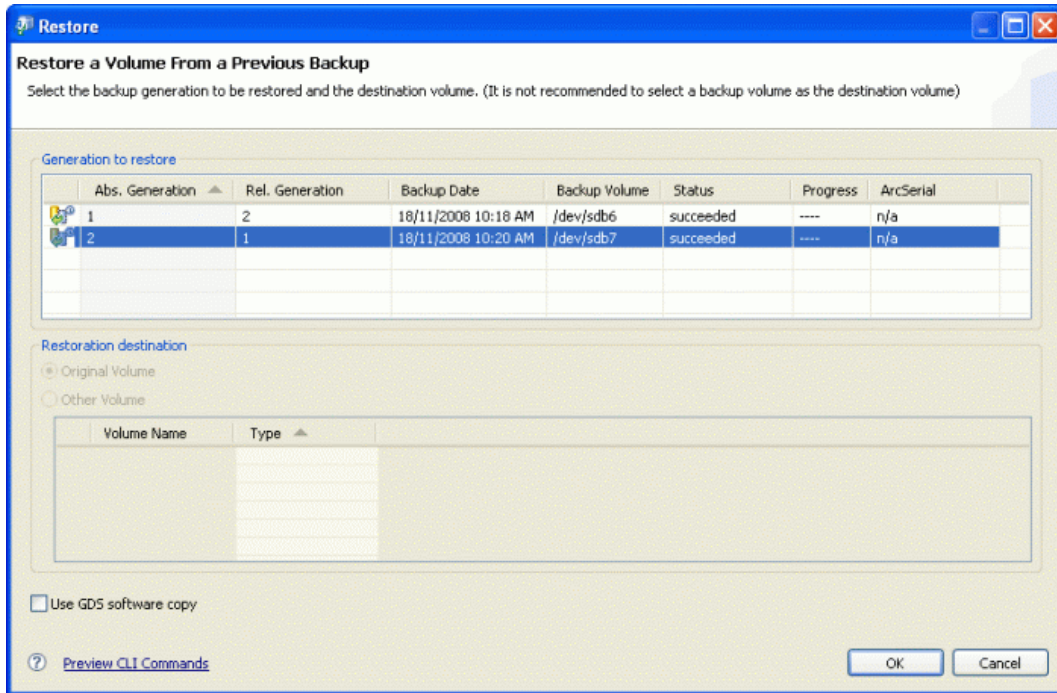
1. Check Status of any Equivalent Copy (EC) sessions

Check the status of Equivalent Copy synchronization sessions for the transaction volume. Ensure all the synchronization sessions have been stopped. Refer to Cancel Synchronization for details.

2. Select the transaction volume from the Site view and right-click it to invoke the backup context menu.



3. Select [Restore] to invoke the [Restore] dialog.



4. The most recent backup volume will always be highlighted in the Generation to restore form when the [Restore] dialog displays. Select a different generation if you wish to restore from another backup generation.
5. If you wish to restore to an alternative destination volume, select [Other Volume] in the Restoration destination form and choose a device.
6. Click the [OK] button to continue with the restore.
7. The current copy status is not refreshed automatically. Right-click on the transaction volume to open the context menu and select [Refresh] to check the latest copy status.

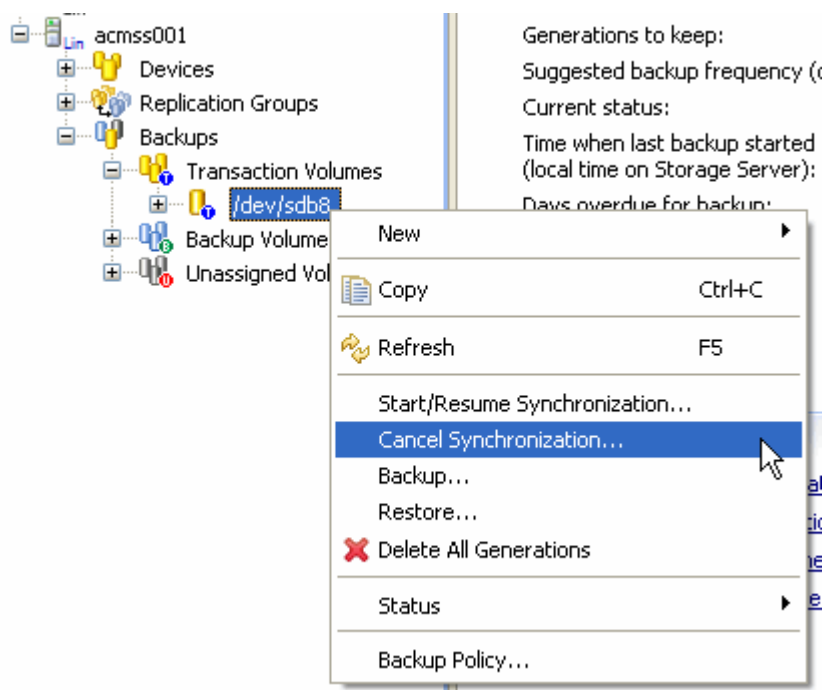


The [Use GDS software copy] checkbox is only applicable when the transaction volume is GDS logical volume.

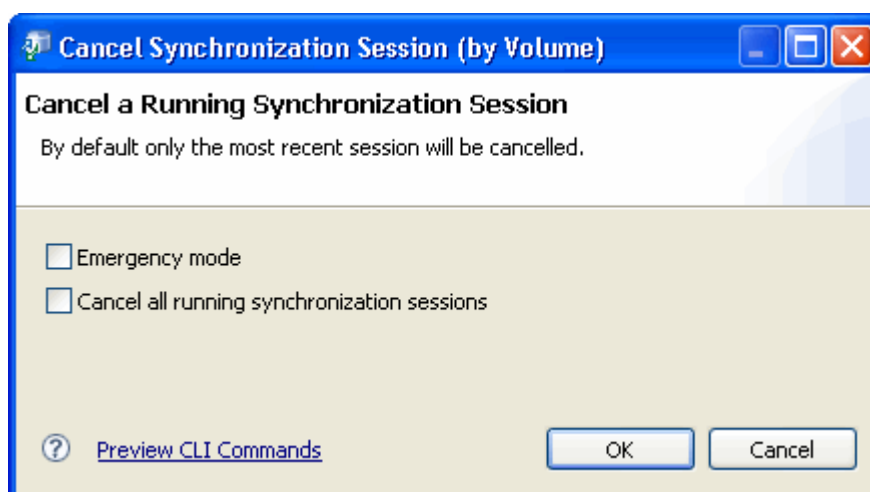
Cancel Synchronization

Use the following process to cancel synchronization:

1. Select the backup volume with the Equivalent Copy session you wish to cancel, and right-click the backup volume to invoke the backup context menu



2. Select the [Cancel Synchronization] option to invoke the [Cancel Synchronization Session] dialog.



3. Enable the [Emergency mode] option **only** if it is necessary.

For information concerning the emergency mode, refer to "History information deletion command ([swsthistdel](#))" and "Backup synchronization cancel command ([swstcancelsync](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.

4. Enable the [Cancel all running synchronization sessions] checkbox **only** if you wish to cancel all synchronization sessions associated with this transaction volume.

5. Click the [OK] button to perform the cancellation.

Manage Backup History

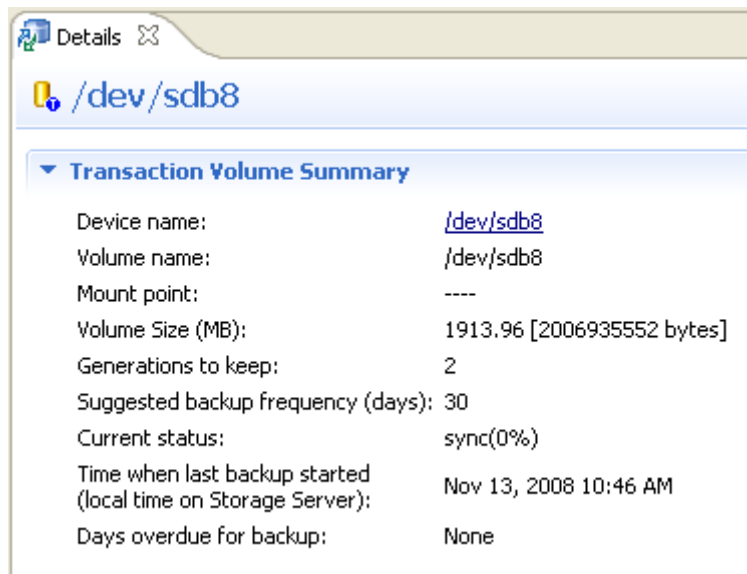
This section describes how to display or delete backup history.

Display Backup Policy and History

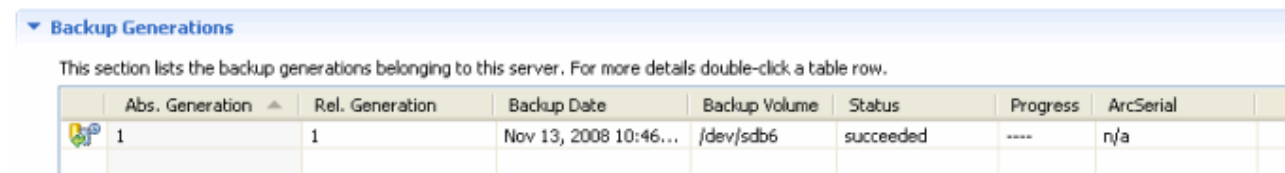
Backup history for a specific transaction volume can be viewed in the transaction volume form when you view all devices, or only the transaction volumes for a specific Storage Server.

1. Select the required transaction volume under the [Backups] node for a Storage Server in the Site view.
2. The Details view will be refreshed with summary information relating to the selected transaction volume displayed in three separate forms.

The Transaction Volume Summary form will show summary information relating to the transaction volume including the number of backup generations and suggested backup frequency.



The Backup Generations form is a summary of each backup generation associated with the backup policy for the selected transaction volume.



The following information is shown in the Backup Generations form:

Backup Generations Summary

Label	Description
-------	-------------

Abs. Generation	Displays the absolute generation number. If the generation number for the data that was first backed up is 1, the generation number for the new data will be 2.
Rel. Generation	Displays the relative generation. Whenever data is backed up, the generation number for the data that was first backed up is reassigned, so the generation number for the new data will always be 1.
Backup Date	Date and time last backup started
Backup Volume	Backup volume
Status	Displays the backup data copy status. <ul style="list-style-type: none">- succeed- executing (%)- failed- halt- gds-error
Progress	Copy progress
ArcSerial	Not used for the English version

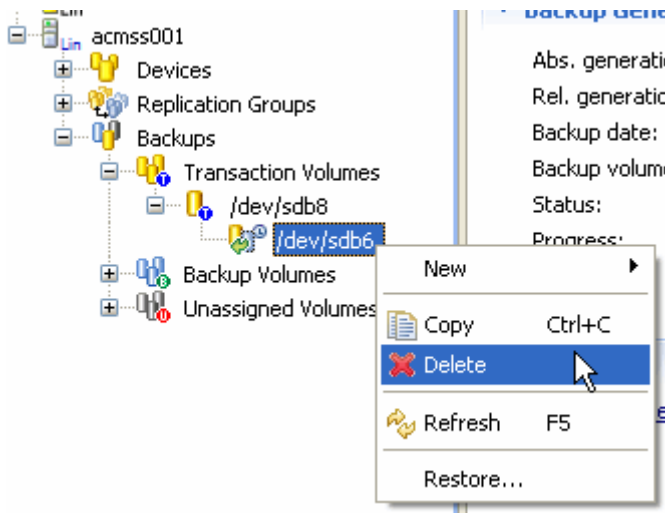
Delete Backup History

This section describes how to delete backup history.

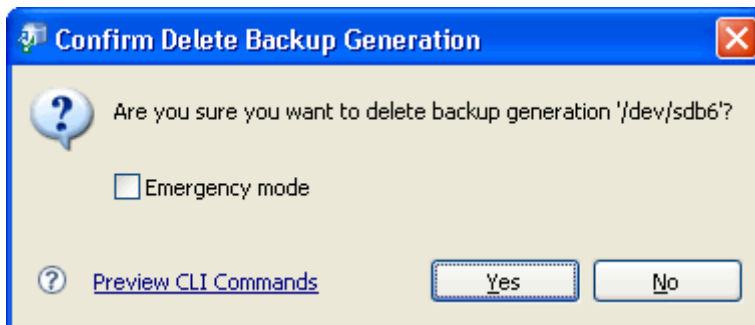
Delete a Backup Generation

The user must have at least execution access for backup to delete a backup generation.

1. Select one or more backup generation objects from the Site view and right-click it to invoke the context menu.



2. Select the [Delete] item from the context menu to invoke the [Confirm Delete Backup Generation] dialog.



3. Enable the [Emergency mode] option, if appropriate.

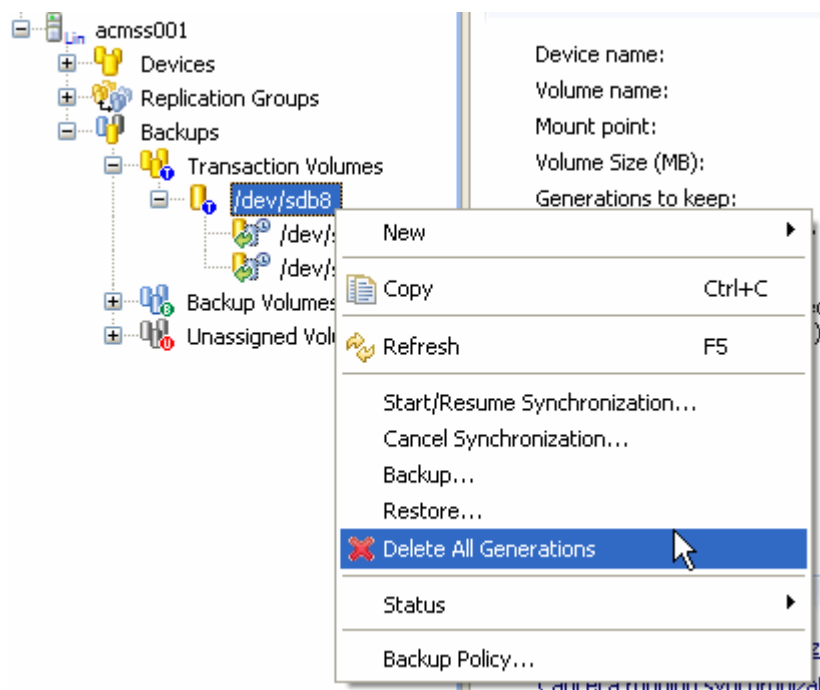
For information concerning the emergency mode, refer to "History information deletion command ([swsthistdel](#))" and "Backup synchronization cancel command ([swstcancelsync](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.

4. Click the [Yes] button to delete the selected backup history.

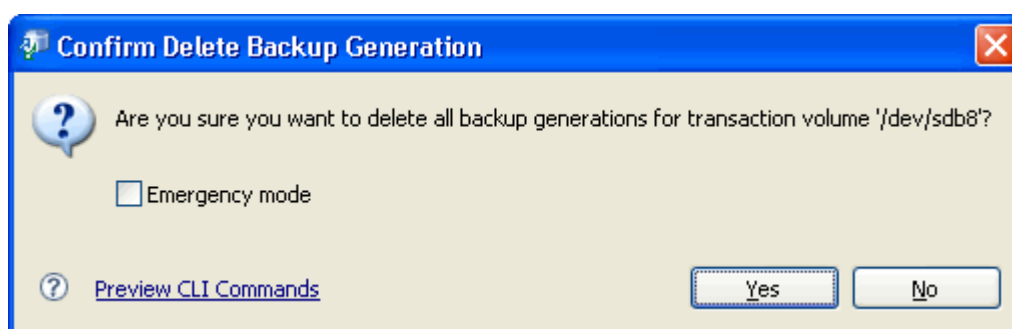
Delete All Generations for a Transaction Volume

The user must have at least execution access for backup to delete a backup generation.

1. Select a transaction volume from the Site view and right-click it to invoke the context menu.



2. Select the [Delete All Generations] option to invoke the [Confirm Delete Backup Generation] dialog.



3. Enable the [Emergency mode] option if appropriate.

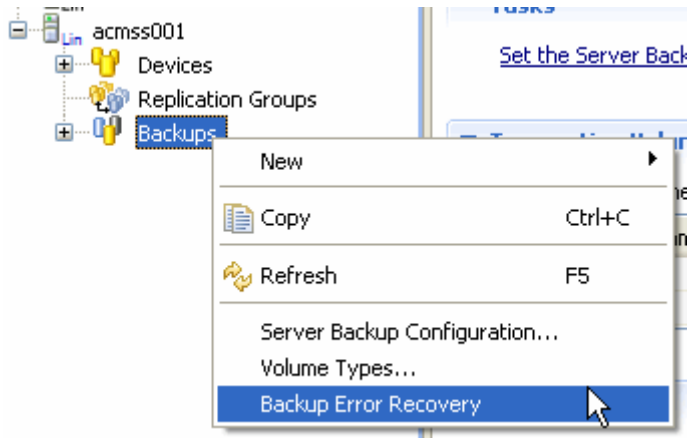
For information concerning the emergency mode, refer to "History information deletion command ([swsthistdel](#))" and "Backup synchronization cancel command ([swstcancelsync](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.

4. Click the [Yes] button to delete the selected backup history.

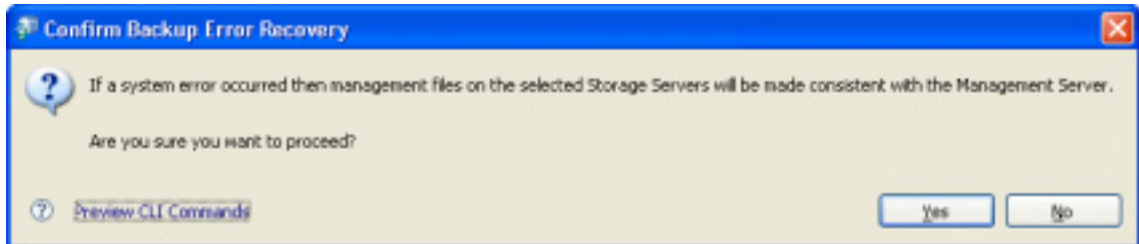
Backup Error Recovery

This function allows the user to recover backup management files after errors (i.e. caused by a system failure whilst a backup is being performed) by ensuring that the Storage Management Server repository information is consistent with the backup management files located on a Storage Server.

1. Select one or more Storage Server Backup Groups nodes from the Site view and right-click them to invoke the context menu.



2. Select the [Backup Error Recovery] option to invoke the [Confirm Backup Error Recovery] dialog.



3. Clicking the [Yes] button attempts to perform backup error recovery for the selected servers and then closes the dialog.

Replication

This chapter describes how to use the replication function using the GUI client.

Refer to the Replication chapter of the AdvancedCopy Manager Operator's Guide for details of the replication function.

Also refer to the Maintenance and Configuration chapter of this guide for the settings required for the replication function.

Configure a Replication Group

Replication can be performed either using a Volume Pair or by configuring a Replication Group. The [New Replication Group] dialog box is used to create and manage both Volume Pairs and Replication Groups in the AdvancedCopy Manager GUI Client.

Requirements for Replication Groups

Replication volumes that configure a Replication Group must satisfy the conditions described in the notes for the Replication Volume Information Setting command [swsrpsetvol](#) in the AdvancedCopy Manager Operator's Guide. For details, refer to an operator's guide relevant to the user environment.

Create a Replication Group

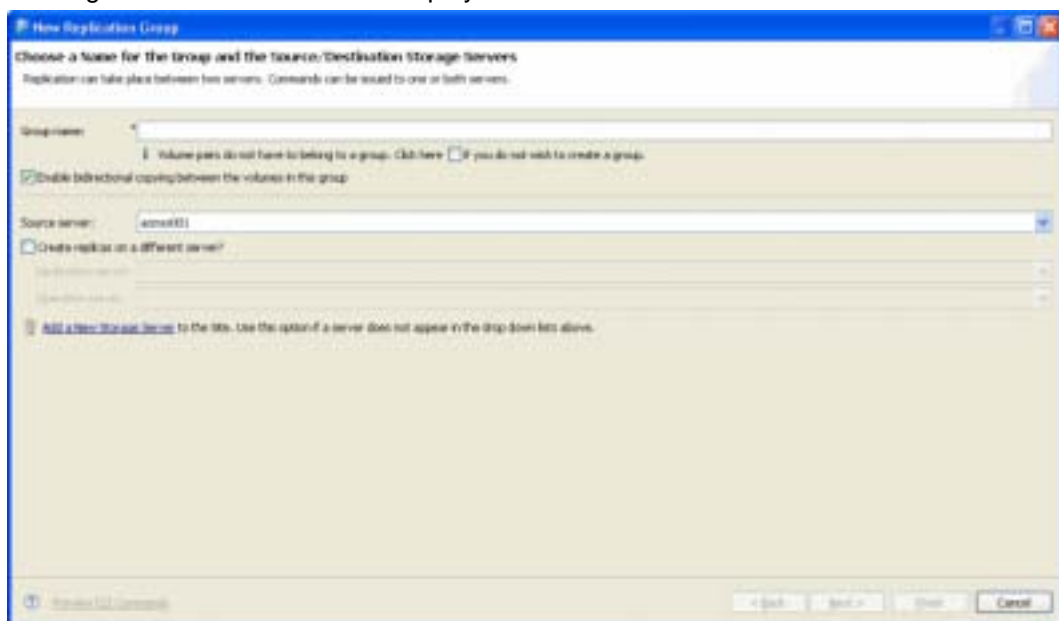
Replication Groups can be created for ease of replication management with one or more source/destination device pairs belonging to any single group.

It is also possible to create Volume Pairs that do not belong to a Replication Group.

Replication Groups are created by using the following steps:

1. Right-click anywhere in the Site view to invoke the context menu.
2. Select the [New] > [Replication Group] option to invoke the [New Replication Group] wizard dialog.

Enter settings in accordance with the displayed contents.



New Replication Group – Choose Names dialog fields

Label	Description
Group name:	Mandatory field for the group name only if it is other than a Volume Pair.
Click here if you do not wish to create a group.	Enable this checkbox if you do not wish to create a group. Volume Pairs do not have to belong to a Replication group.
Enable bidirectional copying between the volumes in this group	Enable bidirectional copying between the devices in this group
Source server:	Can be any server in the site
Create replicas on a different server?	Enable this field only if the destination is on a different server. If the site has only one server, then this field is disabled.
Destination server:	Shows all servers at the site except the current source server. If the source is changed, this list will be updated. This field is only enabled if the [Create replicas on a different server?] checkbox is enabled.
Operation server:	The argument values are as follows: <ul style="list-style-type: none"> - Source - Destination - Both "Both" is the default value. Only enabled when the source and destination servers are different and the [Create replicas on a different server?] checkbox is enabled.
Add a New Storage Server to the Site. Use this option if a server does not appear in the drop down lists above.	This link opens the [New Storage Server] dialog to add more servers to the site if necessary. If a server is added, the combo box values are automatically updated.

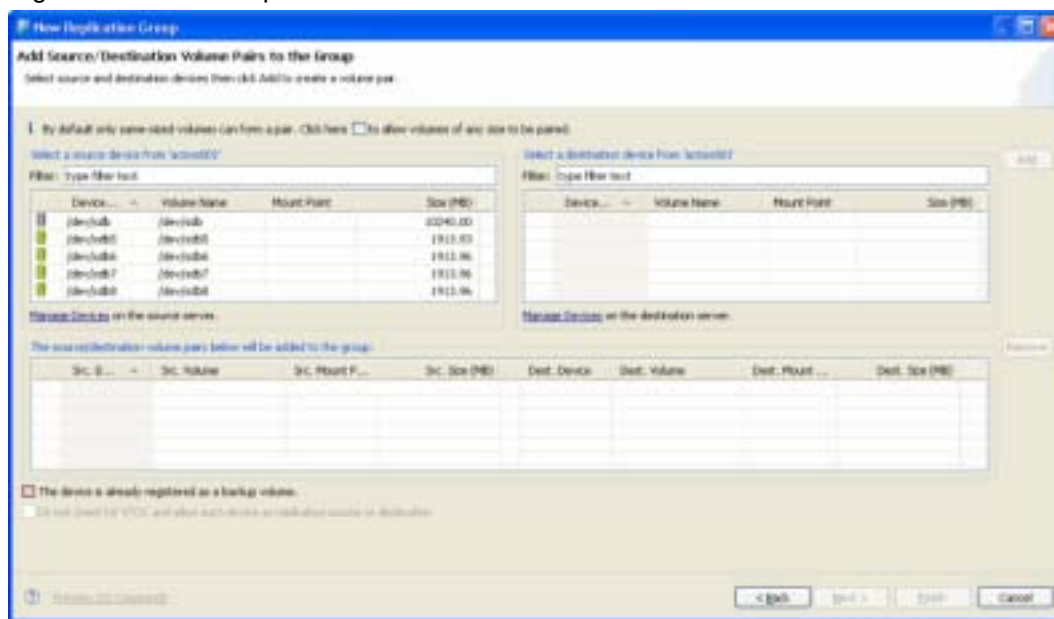
3. Select a source server from the Source server combo box.

If the replica is hosted on a different Storage Server, enable the checkbox [Create replica on a different server?]. Specify the destination server and operation server accordingly.

Click the [Next] button to display the New Replication Group dialog. Create a Volume Pair by specifying the source and destination servers.



When creating a new Replication Group, do not select a device that is already registered as a backup volume.

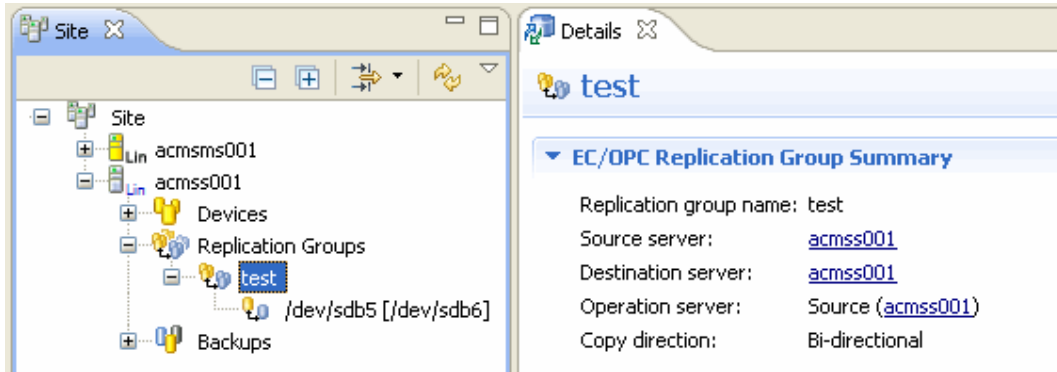


New Replication Group - Add Volume Pairs dialog fields

Label	Description
By default only same-sized devices can form a pair. Click here to allow volumes of any size to be paired.	Enable the checkbox only to allow devices of any size to be paired. When unchecked, the destination server devices table displays only compatible devices. When checked, any size devices can be paired
Select a source device from 'server_name1':	Lists all devices on the source server that have not yet been assigned as the source device of a pair in this group only.
Select a destination device from 'server_name2':	Lists all devices on the destination server that have not been assigned yet as the destination device of a pair in this group only.
Manage Devices on the source server. Manage Devices on the destination server.	Click one of these links to open the [Manage Devices] wizard for the server. If any devices are added, the source list is automatically updated.

Label	Description
Allow volume with VTOC as replication source or destination	This option is only enabled when one of the devices is a slice in a Solaris operating platform and allows the volume with VTOC to be the replication source or destination.

4. Specify a filter string to limit the range of devices available for selection. Similarly, a list of available destination server devices with compatible attributes is displayed to the right of the source list.
5. Select a destination volume and click the [Add] button to add the Paired Volume to the group.
6. If more than one Volume Pair is to be added to the group, repeat the previous two steps as required. Click the [Finish] button to complete the creation of the Replication Group.
7. Check the details of the new Replication Group or Volume Pair by selecting it from the Site view to refresh the Details view with summary information.



Modify Replication Group Information

Only information relating to the source or destination volume pairs in a Replication Group can be changed without removing and re-creating the entire Replication Group.

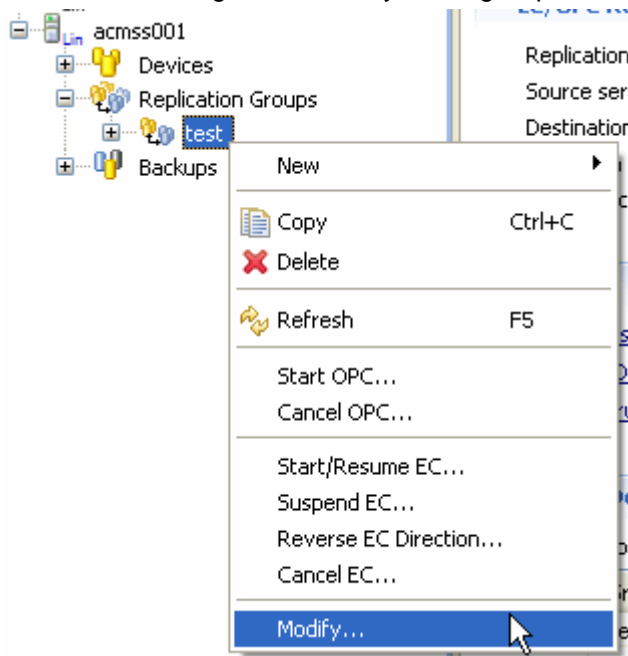
This can be performed using the [Modify a Replication Group] function through the AdvancedCopy Manager GUI Client.

If any other attributes or parameters for the group need to be changed, the Replication Group must be deleted and re-created with new values for all pairs in the group:

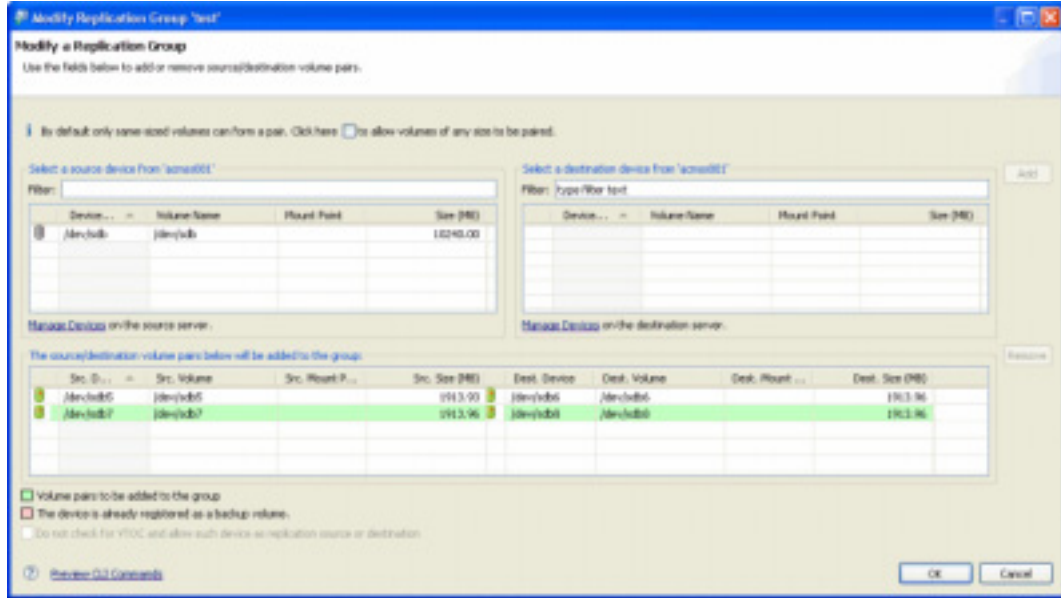
- Group name
- Source and destination server
- Volume Pairs
- Copy direction
- Operation server

Refer to Create a Replication Group for more information on re-creating a Replication Group.

1. In the Site view, right-click on any existing Replication Group to invoke the context menu item.



2. Select the [Modify] option to invoke the [Modify Replication Group 'group_name'] dialog. Only Volume Pairs can be added or removed using the [Modify Replication Groups] feature. When a new Volume Pair has been added to the group, it is added to the Volume Pair list box and is highlighted in green.

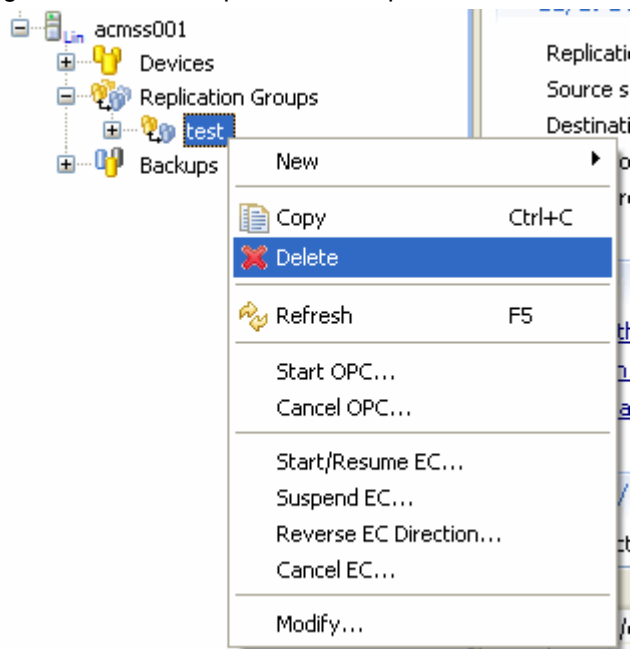


3. Confirm that the details are correct, and then click the [OK] button to exit the dialog.

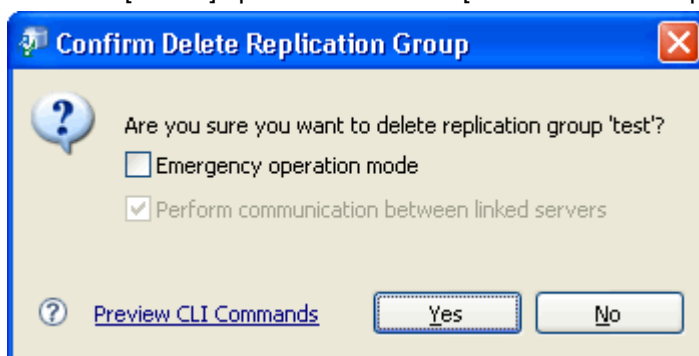
Delete a Replication Group

Follow this procedure to delete a replication group.

1. Right-click on the Replication Group in the Site view to invoke the context menu.



2. Select the [Delete] option to invoke the [Confirm Delete Replication Group] dialog.



The confirmation dialog includes two options.

- If the Replication Group or Volume Pair does not share the same source server, the [Perform communication between linked servers] option will be checked by default.
- If there has been a communications error during a previous replication which requires the relationship between the source and destination servers to be cleared at both ends, the [Emergency operation mode] option should be checked.

For information concerning the emergency mode, refer to "Replication volume information deletion command ([swsrpdelvol](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.

3. Click the [OK] button to continue with deletion of the Replication Group or the Volume Pair, and close the dialog.

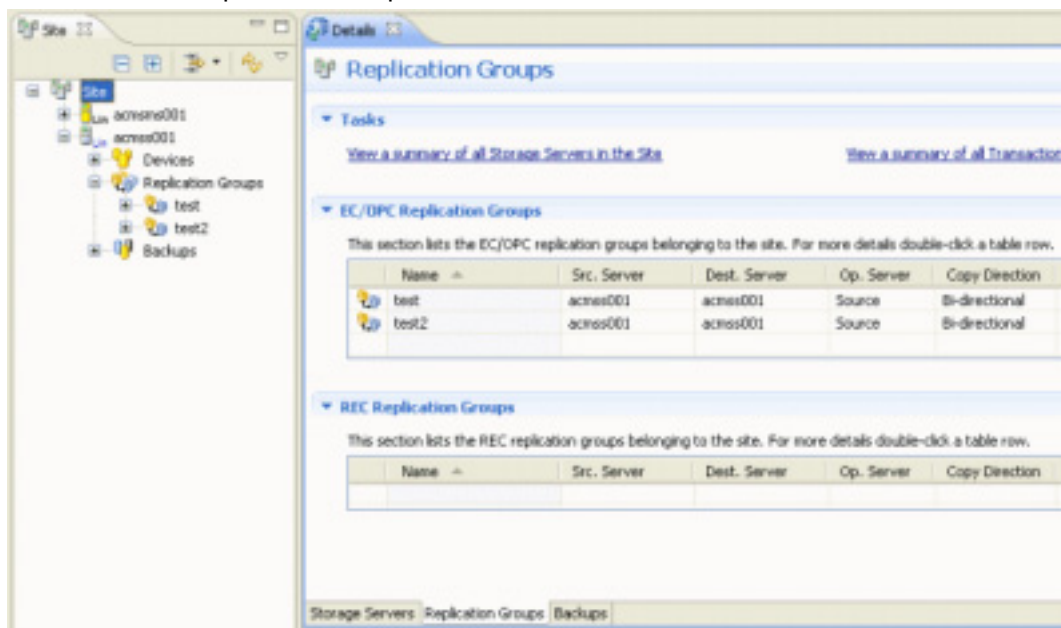
View Summary Information for Replication

View Summary of All Replication Groups at the Site

A Site view will show all replication groups for the site in a single tabbed view.

To invoke a Site view, the user should perform the following procedure:

1. Click on the [Site] root node of the Site view tree to populate the perspective with high level information relating to the site in the Details view.
2. Click the [Replication Group] tab at the bottom of the Details view to display the followings:
 - Task pane
 - Form
 - EC/OPC Replication Group
 - REC Replication Group



EC/OPC Replication Group and REC Replication Group

The information displayed in the view is described in the table below:

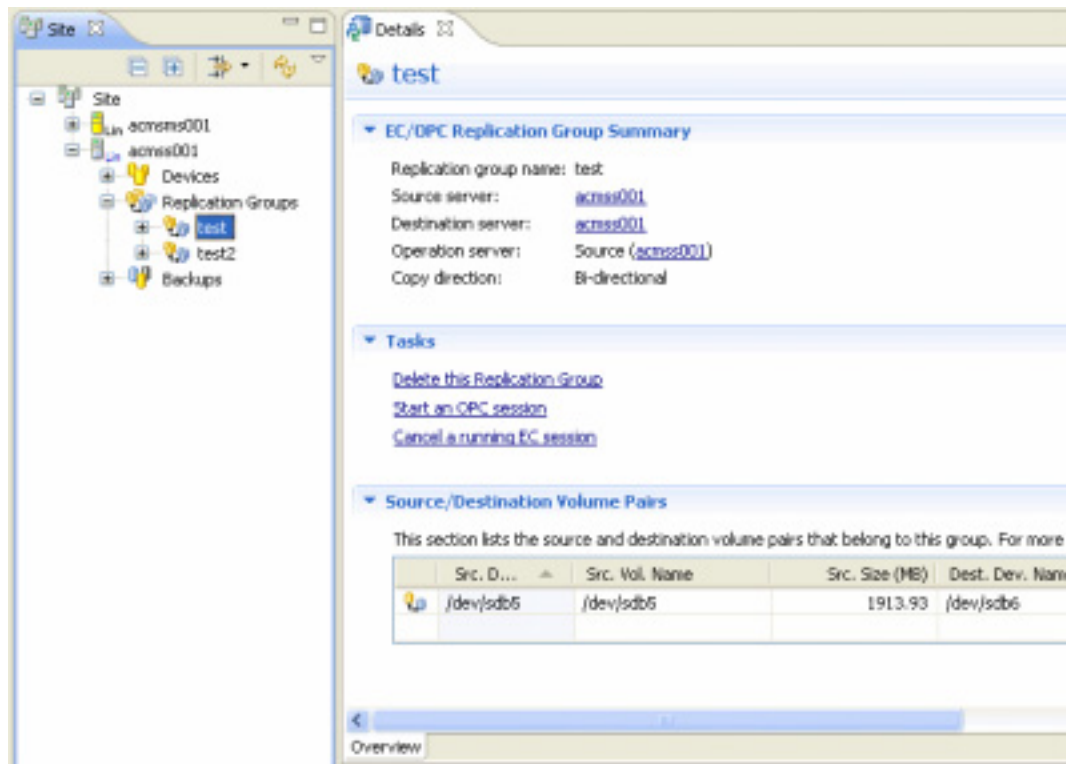
Label	Description
Name	Name of the group/pair (Source volume[Destination volume])
Source server	Replication source server name. (Shown as link to Details page of the server.)
Destination server	Replication destination server name. (Shown as link to Details page of the server.)
Operation server	The operation server.
Copy direction	Direction in which copying will be performed

View Summary for Replication Groups

The Details view shows the following information.

- Replication Group Summary
- Task pane
- Source/Destination Volume Pairs

Select a Replication Group from the Site view to display the Replication Group summary.



EC/OPC Replication Group Summary

A summary of EC/OPC Replication Groups is displayed.

The information displayed in the view is described in the table below:

Label	Description
Replication Group Name	One of the following is displayed: - Replication Group name - Volume Pair name (replication source volume name[replication destination volume name])
Source server	Name of the server that manages the replication source volume. It is shown as a Hyperlink to the detail page for host server.
Destination server	Name of the server that manages the replication destination volume. It is shown as a Hyperlink to the detail page for host server.
Operation server	The operation server. Where the Op server info is shown, the host server is shown as Hyperlink to detail page.

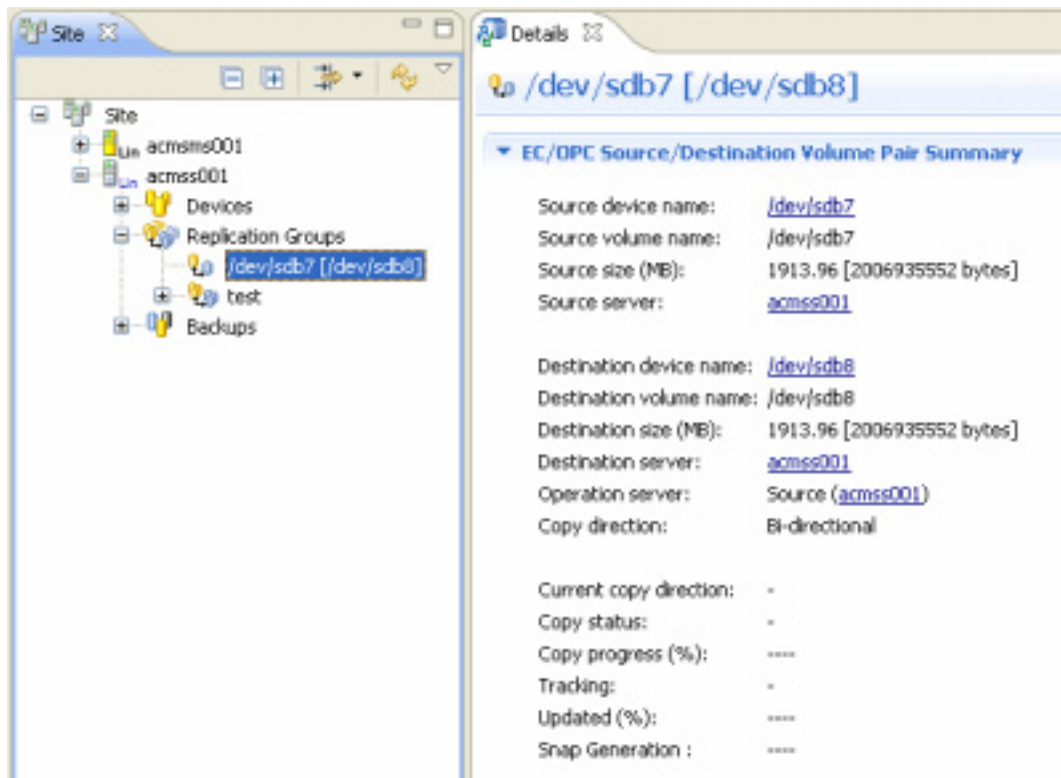
Copy direction	Direction in which copying will be performed
-----------------------	--

View Summary for Volume Pairs

Select the Volume Pair object under a Replication Group node from the Site view to display a Volume Pair summary.

The detail view shows the following information.

- EC/OPC Source/Destination Volume Pair Summary
- Tasks
- Destination Volumes sharing the Same Source Volume



EC/OPC Source/Destination Volume Pair Summary

The following information is provided in the Volume Pair summary view:

Label	Description
Source device name:	System-defined device name
Source volume name:	Source volume name
Source size (MB):	Source volume size Displays the size of the area that is actually used for copying if it is a VxVM logical volume
Source server:	Name of the server that manages the replication source volume. It is shown as a hyperlink to the detail page for the host server.
Destination device	System defined device name

Label	Description
name:	
Destination volume name:	Destination volume name
Destination size (MB):	Destination volume size Displays the size of the area that is actually used for copying if it is a VxVM logical volume
Destination server:	Server hosting the destination volume if different to the source server
Operation server:	The server from which the replication volume (pair) operation is invoked. <ul style="list-style-type: none"> - Replication source: The operation server is the replication source server. - Replication destination: The operation server is the replication destination server. - Both: Both the destination and source servers are the operation server.
Copy direction:	Configured copy direction (single direction or both) <ul style="list-style-type: none"> - Single direction: Can copy in one direction only from the replication source to the replication destination - Both: Can copy in either direction
Current copy direction:	Current copy direction while copy is in progress <ul style="list-style-type: none"> - Regular: Copying is in progress from the replication source to the replication destination - Reverse: Copying is in progress from the replication destination to the replication source - ----: Has not been replicated
Copy status:	Indicates copy status while copy is in progress <ul style="list-style-type: none"> - ----: Has not been replicated - Synchronous: Complete copying or differential copying is in progress - Equivalent: Equivalency maintenance state has been attained. - Replicated: Replication has been established. - Copy-on-write: SnapOPC is in progress. - Copy-on-write(active): SnapOPC+ is in progress (latest Snap generation). - Copy-on-write(inactive): SnapOPC+ is in progress (previous Snap generation). - Failed: In the error-suspend status - Halt: In the hard-suspend status - Snapshot: Snapshot is in progress - ?????: Failed to obtain the copying status - gds-error: Copying by GDS has ended abnormally.
Copy progress (%) :	Displays the copy progress in a percentage (%). If replication has not been executed or SnapOPC is in progress, displays "----".

Label	Description
Tracking:	<p>Displays the execution status.</p> <p>"-": Not being tracked</p> <p>"executing": Physical copy is in progress and tracking is being performed</p> <p>"tracking": Tracking is being performed</p> <p>"failed": Physical copying or tracking terminated abnormally</p> <p>"nosession": There are no sessions. (Resource information does not match.)</p>
Updated (%):	<p>When either of the following items applies, displays as a percentage the amount of data updated after the previous replica creation</p> <ul style="list-style-type: none"> - When the status column displays "----" and the trk column displays "on" (in other words, the operation is being tracked but physical copying is not being performed) - When the status column displays "copy-on-write" (in other words, SnapOPC is being performed) <p>When none of the above item applies, displays "----".</p> <p>Always displays "----" when the operation is linked to GDS Snapshot.</p>
Snap Generation:	<p>A SnapOPC+ generation number in the range 1 – 8 will display here only if a SnapOPC+ replication has been performed.</p> <p>For SnapOPC+, displays the Snap generation number in the range 1 – 8</p> <p>For non-SnapOPC+, displays "----"</p> <p>The oldest snap generation number is 1. The bigger the number is, the later the generation will be.</p>
<p>If Remote Equivalent Copy is in progress, the following additional information is displayed</p>	
Transfer mode:	<p>Denotes REC transfer mode</p> <p>Displays the transfer mode of the device-to-device synchronous processing</p> <ul style="list-style-type: none"> - Synchronous: Synchronous mode - Asynchronous: Asynchronous mode - Stack: Stack mode - Consistency: Consistency mode - ----: Synchronous replication between devices (REC) is not being performed
Recovery mode:	<p>Denotes Recovery mode for REC.</p> <p>Displays the Recovery mode of the device-to-device synchronous processing</p> <ul style="list-style-type: none"> - Automatic: Automatic Recovery mode - Manual: Manual Recovery mode - ----: Synchronous replication between devices (REC) is

Label	Description
	not being performed
Split mode:	Denotes Split mode for REC Displays the Split mode of the device-to-device synchronous processing <ul style="list-style-type: none"> - Automatic: Automatic Split mode - Manual: Manual Split mode - ----: Synchronous replication between devices (REC) is not being performed

Destination Volumes with the Same Source Volume

An additional form in the details view will display the [Destination Volumes with the Same Source Volume] form containing details of all other Volume Pairs in the site where the source volume is the same (a volume can be replicated to multiple destination volumes, but not vice-versa).

The table below describes the range of information displayed in this section.

Label	Description
Device Name	Replication destination device name
Volume Name	Replication destination volume name
Size	Volume size
Server	Destination server
Replication Group	Replication Group name. “-“ if it is not part of a group

Perform Replication

Before performing replication, the replication environment must be set up in accordance with information provided in the AdvancedCopy Manager Operator's Guide.

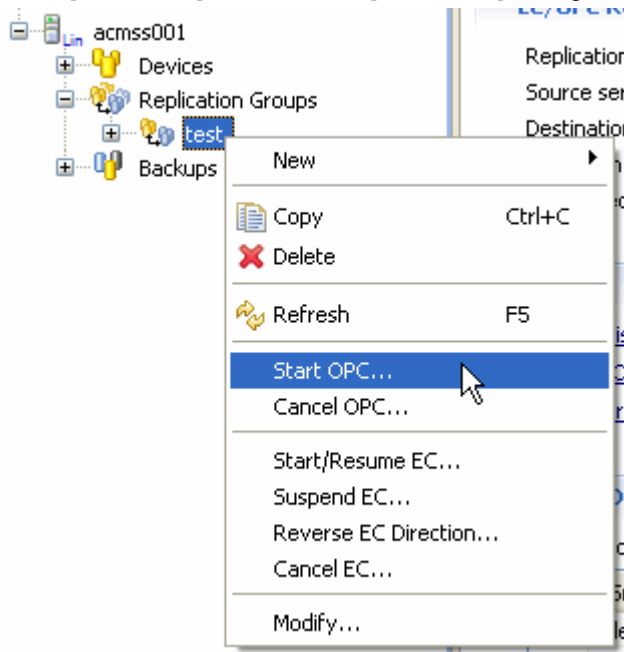
Snapshot Replication

Snapshot replication refers to replications that use the One Point Copy (OPC) function of a Fujitsu ETERNUS Storage System. This section describes the procedures for performing OPC, QuickOPC and SnapOPC using the AdvancedCopy Manager GUI Client.

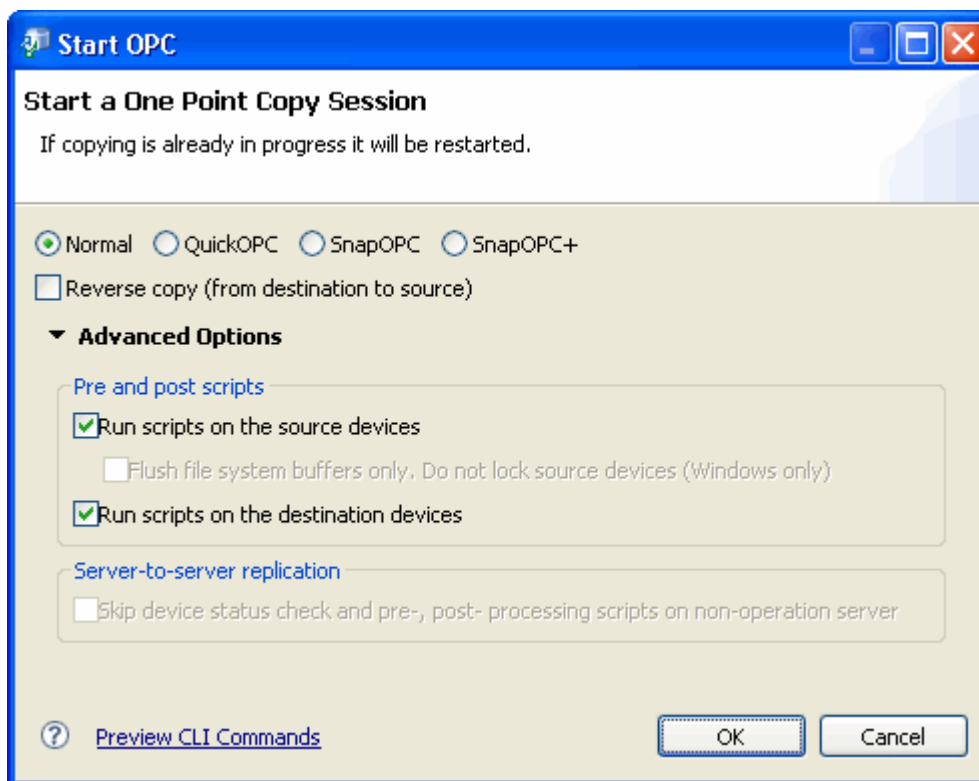
Refer to the AdvancedCopy Manager Overview and Operator's Guide for details of each copy type. Replication can be performed by volume or by group

Start OPC / QuickOPC / SnapOPC / SnapOPC+ Replication

1. Select a Replication Group or Volume Pairs from the site view and right-click to invoke the context menu.
2. Click [Start OPC] to invoke the [Start OPC] dialog and select from a range of OPC options.



3. Select one of the copy options as appropriate:
 A Reverse copy checkbox option is provided if the copy is to be performed in the opposite direction, that is, from the destination to the Source.



Advanced Options

Detailed options other than the above can be specified from an extension dialog box by clicking the Advanced Options checkbox.

Start OPC

Label	Description
OPC	Performs OPC
QuickOPC	Performs QuickOPC
SnapOPC	Performs SnapOPC This checkbox cannot be specified under the following conditions: When the replication source volume and the replication destination volume belong to different servers When synchronous processing is in progress

Label		Description
SnapOPC+		<p>Performs SnapOPC+</p> <p>This checkbox cannot be specified under the following conditions:</p> <p>When the replication source volume and the replication destination volume belong to different servers</p> <p>When synchronous processing is in progress</p>
Reverse copy		Creates a replica of the replication destination volume on the replication source volume
Pre- and post- scripts	Run scripts on the source devices	Performs pre- and post-processing for the replication source volume
	Flush file system buffers only. Do not lock source devices (Windows only).	<p>Flushes the file system buffer for the replication source volume</p> <p>Valid for Windows only</p>
	Run scripts on the destination devices	<p>Performs pre- and post-processing for the replication destination volume</p> <p>Note that this checkbox must be unchecked to resume synchronous processing after a forced suspension.</p>
Server-to-server replication	Skip device status check and pre-, post-processing scripts on non-operation server.	<p>Valid at server-to-server replication only</p> <p>Select this checkbox if the following processing is to be performed:</p> <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server

4. Click [Advanced Options] to expand the dialog to show more advanced options relating to the following aspects of OPC:
Some options may be disabled according to the operating platform or type of replication. Refer to the AdvancedCopy Manager Operator's Guide and Command Reference for more information.
5. Click the [OK] button to proceed with the OPC operation.
To check the latest progress of the OPC, right-click in the Details view and select [Refresh].



[Copy Progress] is not automatically refreshed.
Right-click the Volume Pair or Replication Group, then select [Refresh] from the context menu to refresh and view the copy progress.

If an error occurs, the error message dialog is displayed. Check the error message, and then click the [OK] button to close the dialog.

Messages indicating the success or failure of commands are also written to the console.

Equivalent Copy with Suspend and Resume

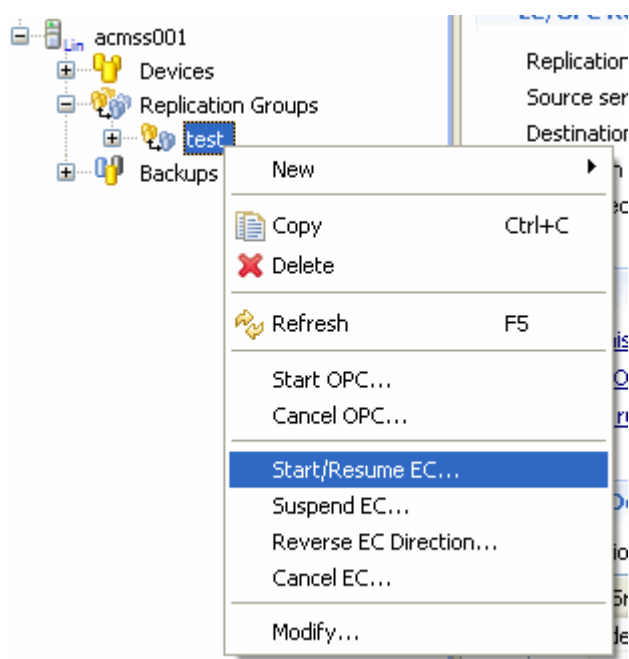
Synchronous Replication refers to replications that use the Equivalent Copy (EC) or Remote Equivalent Copy (REC) functions of a Fujitsu ETERNUS Storage System.

Refer to the AdvancedCopy Manager Overview or Operator's Guide for details.

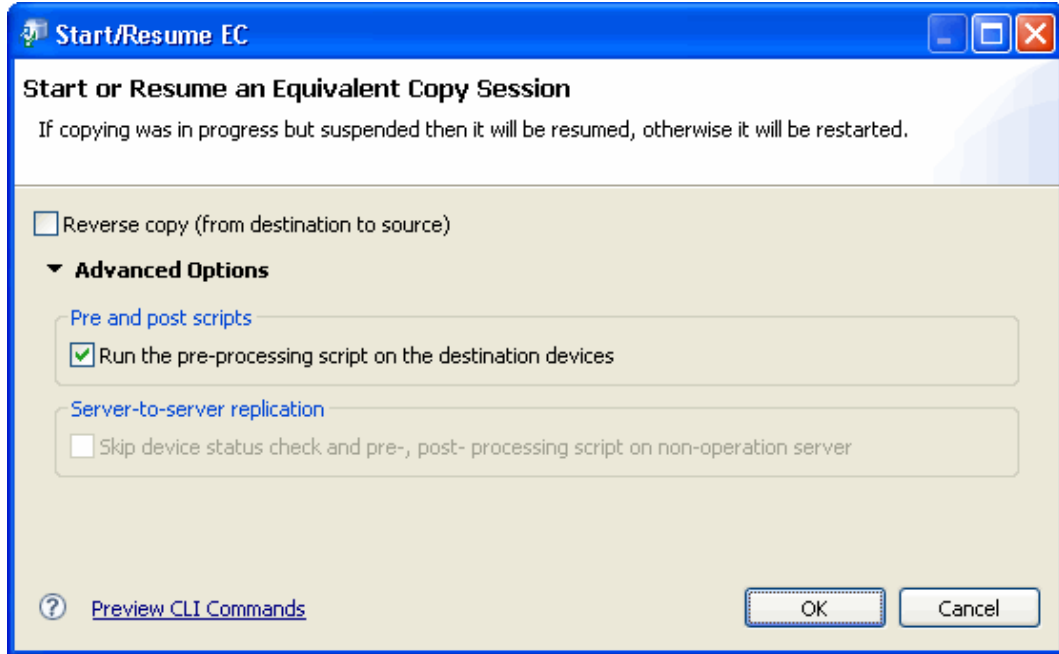
Start Synchronous Replication

Use the following procedure to perform synchronized replication. Refer to the Remote Equivalent Copy (REC) section for details of how to replicate across different ETERNUS Storage Systems.

1. From either the Site view or the Replications groups list in details view, select a single EC/OPC Replication Group or source/destination device pair and right-click the object to invoke the context menu.



2. Select [Start/Resume EC] to invoke the [Start/Resume EC] dialog.
3. Select the required options for the Start/Resume EC dialog.



Advanced options

Click [Advanced options] to expand the dialog to reveal advanced options for synchronous replication.

Refer to "Replication start command (*swsrpstartsync*)" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for details of the synchronous replication options.

Start/Resume EC

Label	Description
Reverse copy	Reverses the replication direction and executes synchronous processing from the replication destination to the replication source
Run the pre-processing script on the destination devices	Runs the pre-processing script on the destination volumes
Skip device status check and pre-, post-processing script on non-operation server	Valid at server-to-server replication only Select this checkbox if the following processing is to be performed: Communication with the non-operation server Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server

4. Click the [OK] button to proceed with the synchronous replication.

The relevant fields in the Details view are immediately updated.



The copy progress field is not refreshed automatically.

Right-click the Volume Pair to invoke the context menu, and select the [Refresh] option to update the copy progress field to monitor copy progress.

If an error occurs, the error message dialog is displayed. Check the error message, and then click the [OK] button to close the dialog.

Messages indicating success or failure are written to the console and are also updated in the corresponding event log.

Create a Replica Using the Suspend Option

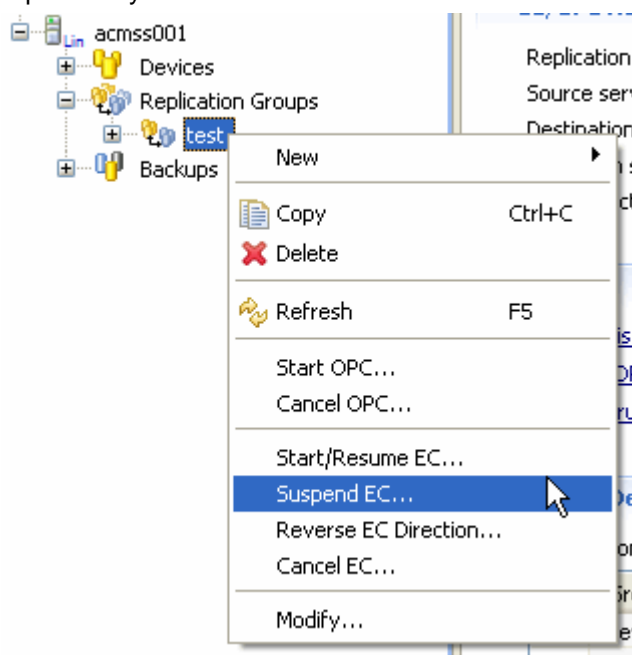
This section describes how to create a replica using the suspend option. The suspend option enables faster replication by copying the difference only.

The original (source) and replica (destination) volumes must have attained a state of equivalence in order to create a replica.

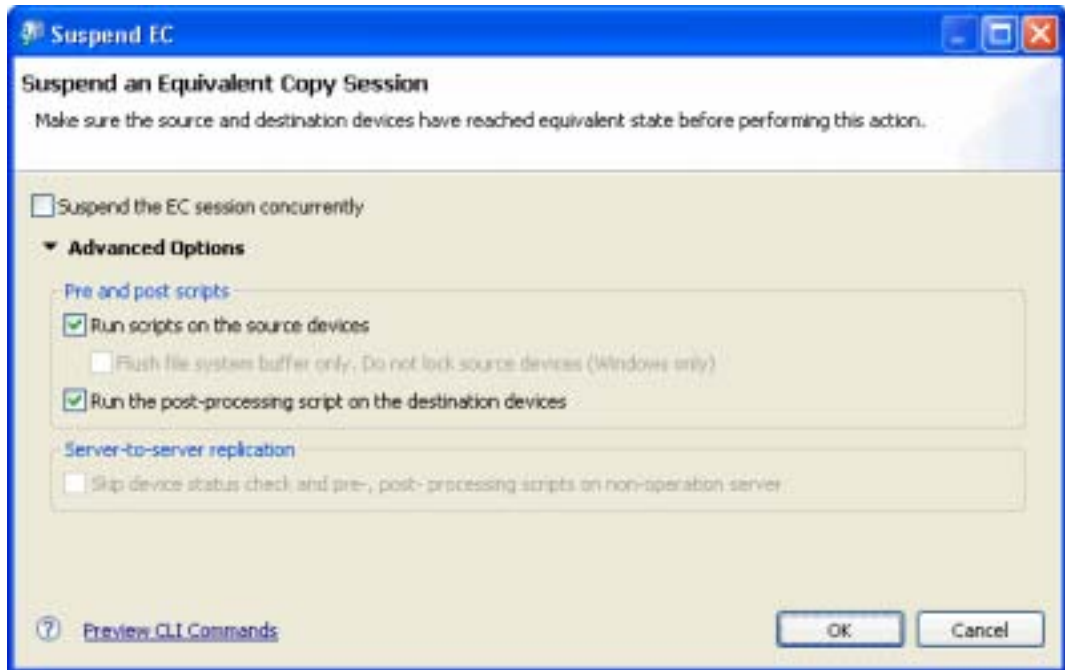
1. Right-click a Replication Group or Volume Pair to display the context menu.

Select the [Refresh] option to update the copy progress field in the Details view to ensure that the Replication Group or Volume Pairs have attained equivalency maintenance state.

If a Replication Group is selected, ensure that all Volume Pairs in the group have attained equivalency maintenance state.



2. From either the Site view or the Replications groups list in the Details view, select a single EC/OPC Replication Group or source/destination volume pair and right-click the object.
3. From the context menu, select [Suspend EC] to invoke the [Suspend EC] dialog.



Advanced options

Click [Advanced options] to expand the dialog to reveal advanced options.

Suspend EC

Label		Description
Suspend the EC session concurrently		Specify this option to create a replica using the concurrent suspend function. The option is not supported when the operation is linked to GDS Snapshot.
Pre- and post-scripts	Run scripts on the source devices	Performs pre- and post-processing of the replication source volume
	Flush file system buffer only. Do not lock source devices (Windows only)	Flushes the file system buffer for the replication source volume Valid for Windows only
	Run the post-processing script on the destination devices	Performs post-processing of the replication source volume

Label		Description
Server-to-server replication	Skip device status check and pre-, post-processing scripts on non-operation server	<p>This checkbox is valid for server-to-server replication only.</p> <p>Select this checkbox to perform the following processing :</p> <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server

4. Click the [OK] button to proceed with the creation of a replica by suspending.

Resume a Synchronous Replication using the Resume Option

Resuming synchronized processing on the selected Replication Group or Volume Pair can be performed using the Resume option.

1. Select a single EC/OPC Replication Group or source/destination device pair from either the Site view or the Replications Groups list in details view, and right-click the object to invoke the replication context menu.
2. Select [Start/Resume EC] to invoke the [Start/Resume EC] dialog.
Refer to the Start Synchronous Replication Section for the details of this operation.

Remote Equivalent Copy (REC)

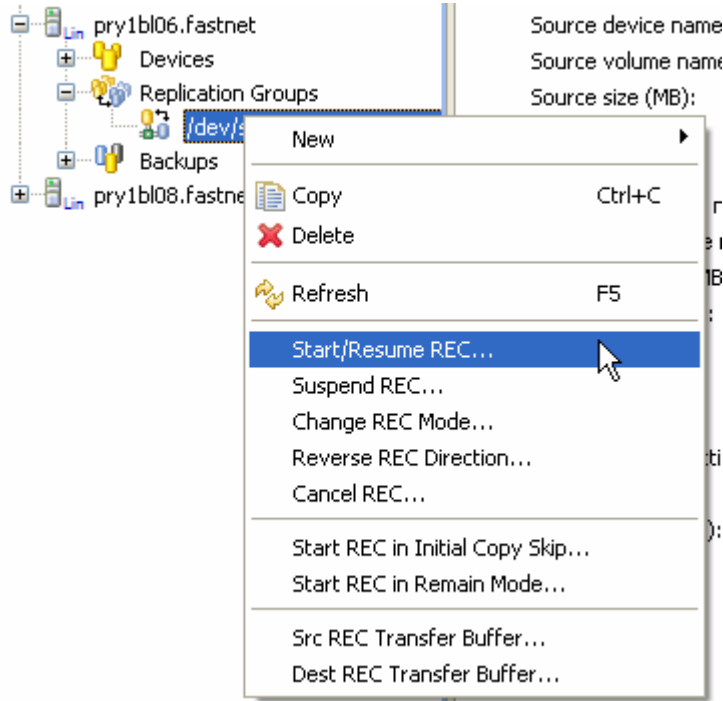
Remote Equivalent copy (REC), also known as Inter-ETERNUS synchronous replication, creates a replication from a source volume to a destination volume that is supported in a different ETERNUS using the REC function of the disk array.

The REC function supports the following copy modes:

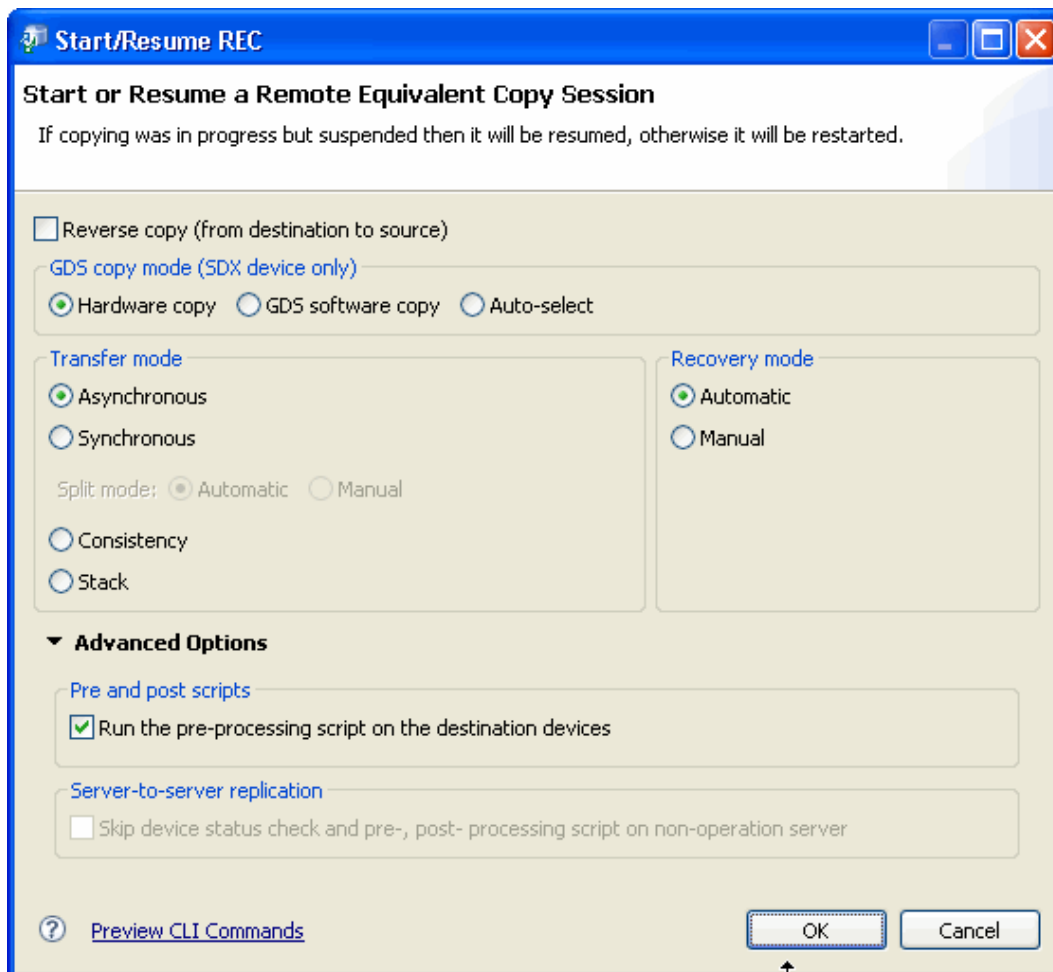
- Transfer mode
- Recovery mode
- Split mode

Start a Remote Equivalent Copy Session (REC)

1. Select an REC Replication Group or Volume Pair from the site view and right-click to invoke the context menu.



- Click [Start/Resume REC] to invoke the [Start/Resume REC] dialog to configure the replication.



- Specify options as appropriate.

Advanced Options

Detailed options other than the above can be specified from an extension dialog box by clicking the Advanced Options checkbox.

Start/Resume REC

Label	Description
Reverse copy	Reverses the replication direction, and executes the synchronous processing from the replication destination volume to the replication source volume
Hardware copy	Specifies to start synchronous processing using the disk array unit copy (OPC/EC)
GDS software copy	Specifies that the synchronous processing is to be started without specifying a copy type such as copying by the disk array unit (OPC/EC) or soft copying. GDS will select the copy type to be used.
Auto-select	Specifies that the synchronous processing of SDX objects is to be

Label	Description
	started using the software copy function and not the AdvancedCopy function. If the option is specified when the AdvancedCopy function is in use but differential copying has been started, the AdvancedCopy processing is terminated and the soft copy processing will be executed.
Transfer mode	Sets the transfer mode of the device-to-device synchronous processing. The option cannot be set when the status is "Replicated". When the synchronous mode is selected, the Split mode must be specified. <ul style="list-style-type: none"> - Asynchronous: Asynchronous mode - Synchronous: Synchronous mode - Consistency: Consistency mode - Stack: Stack mode
Recovery mode	Sets the Recovery mode for the device-to-device synchronous processing. The option cannot be set when the status is "Replicated". <ul style="list-style-type: none"> - Automatic: Automatic Recovery mode - Manual: Manual Recovery mode
Split mode	Specifies to start synchronous processing using the disk array unit copy (OPC/EC) Sets the Split mode for the device-to-device synchronous processing. The mode can be set only when the "transfer mode" is "synchronous". The option cannot be set when the status is "Replicated". <ul style="list-style-type: none"> - Automatic: Automatic Split mode - Manual: Manual Split mode
Execute pre-processing for the replication destination device	Check this checkbox to perform pre-processing for the replication destination volume.
Skip device status check and pre-, post-processing script on non-operation server	This checkbox is valid at server-to-server replication only. Select this checkbox to perform the following processing: <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server

4. Click the [OK] button to start the synchronous processing.
5. The copy progress is not refreshed automatically. Right-click on the Replication Group or Volume Pair to open the context menu and select [Refresh] to check the latest copy status.

Create a Replica using the REC Suspend Option

The REC suspend option suspends the equivalency maintenance state of EC/REC and creates a replica of the replication source volume.

By copying data differentially from the suspend status using this function, the speed of the synchronous replication operation can be increased.

The original (source) and replica (destination) volumes must have attained a state of equivalence in order to create a replica.

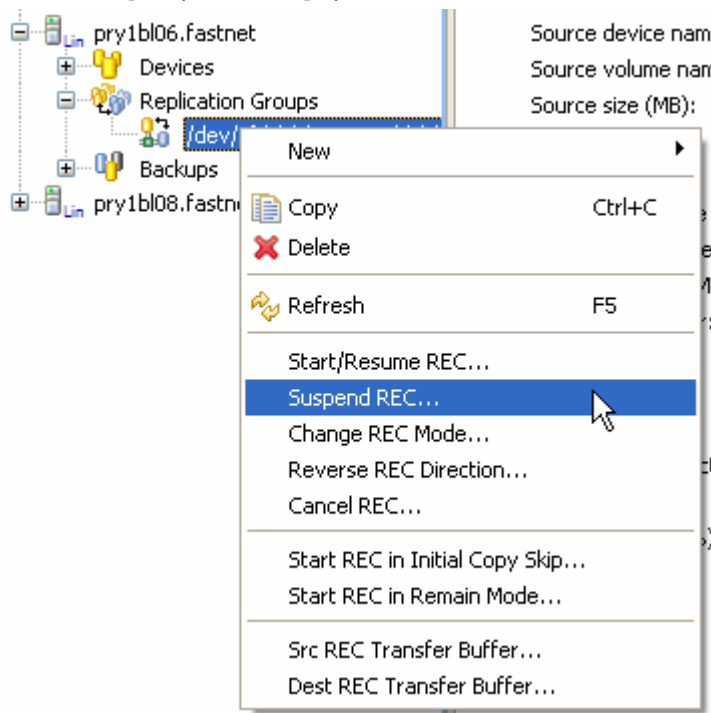
To create a replica in the synchronous replication operation in Stack mode or Consistency mode, either of the following must be performed.

For Consistency mode

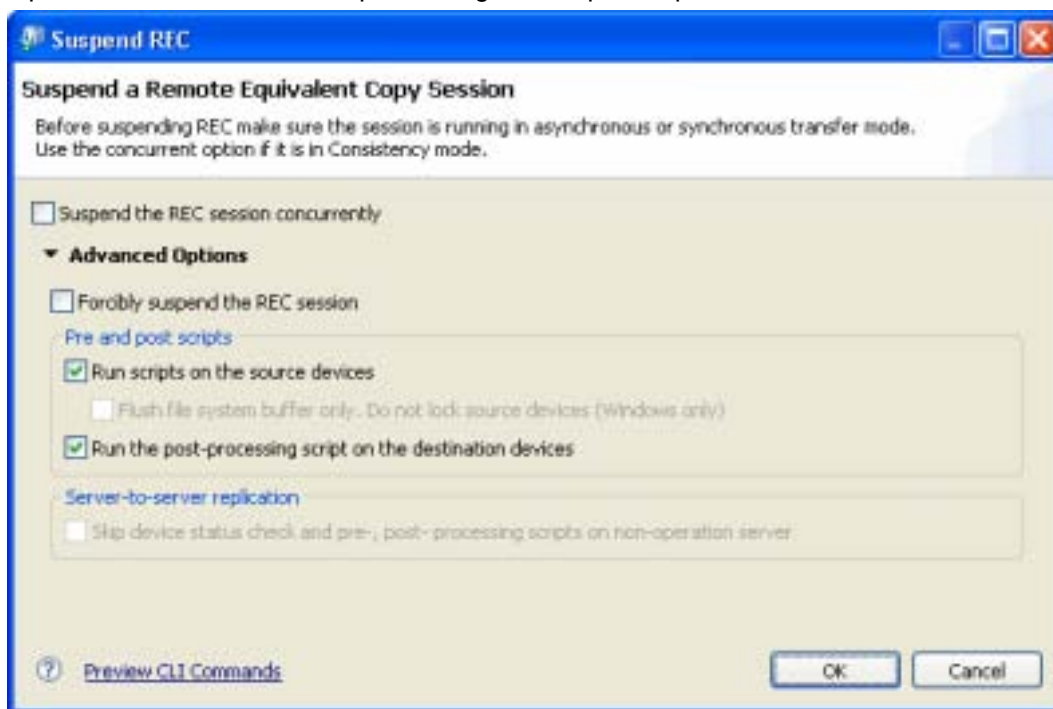
- 1) Change the transfer mode
 - At Change Transfer Mode, change the transfer mode to Asynchronous mode
 - Create a replica
 - At Change Transfer Mode, change the transfer mode to Consistency mode
- 2) Specify Concurrent Suspend, and create a replica

For Stack mode

- 1) Change the transfer mode
 - At Change Transfer Mode, change the transfer mode to Asynchronous mode
 - Create a replica
 - At Change Transfer Mode, change the transfer mode to Stack mode
- 2) Create a replica using the following procedures:
 1. Check the Details view for the Volume Pair to ensure they have reached a state of equivalence. If this is a replication group, ensure that all the Volume Pairs have attained equivalency maintenance state.
 2. Select the [Suspend REC] option from the context menu to invoke the [Suspend REC] dialog.



3. Select options as appropriate and click the [OK] button to proceed with the suspend to create a replica. Refer to Create a Replica Using the Suspend Option for details.



Resume an REC Synchronous Replication Using the Resume option

Resuming a Remote Equivalent Copy (REC) session processing on the selected Replication Group or Volume Pair can be performed using the Resume function.

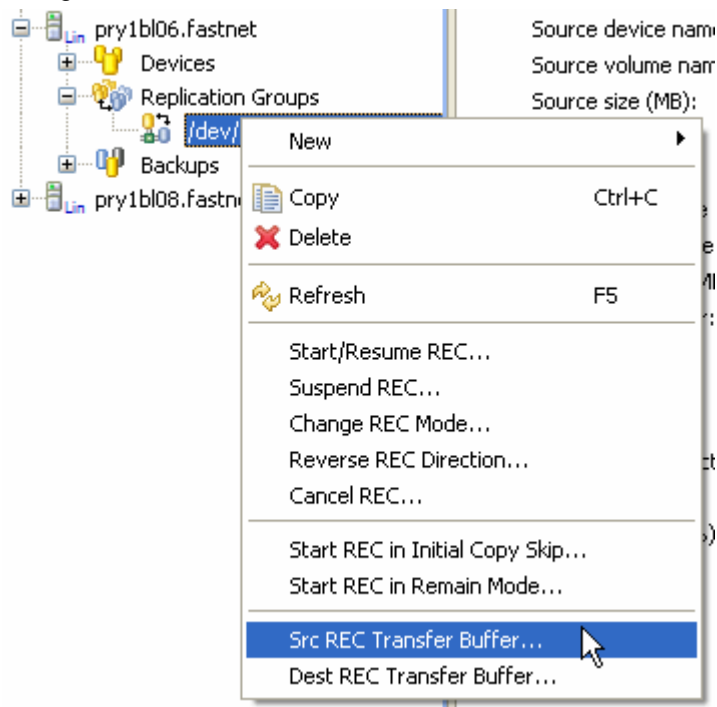
1. Select an REC Replication Group or source/destination Volume Pair from either the Site view or the Replications groups list in details view, and right-click the object to invoke the replication context menu.
2. Select [Start/Resume REC] to invoke the [Start/Resume REC] dialog. Refer to Start a Remote Equivalent Copy Session for details.

Transfer Mode

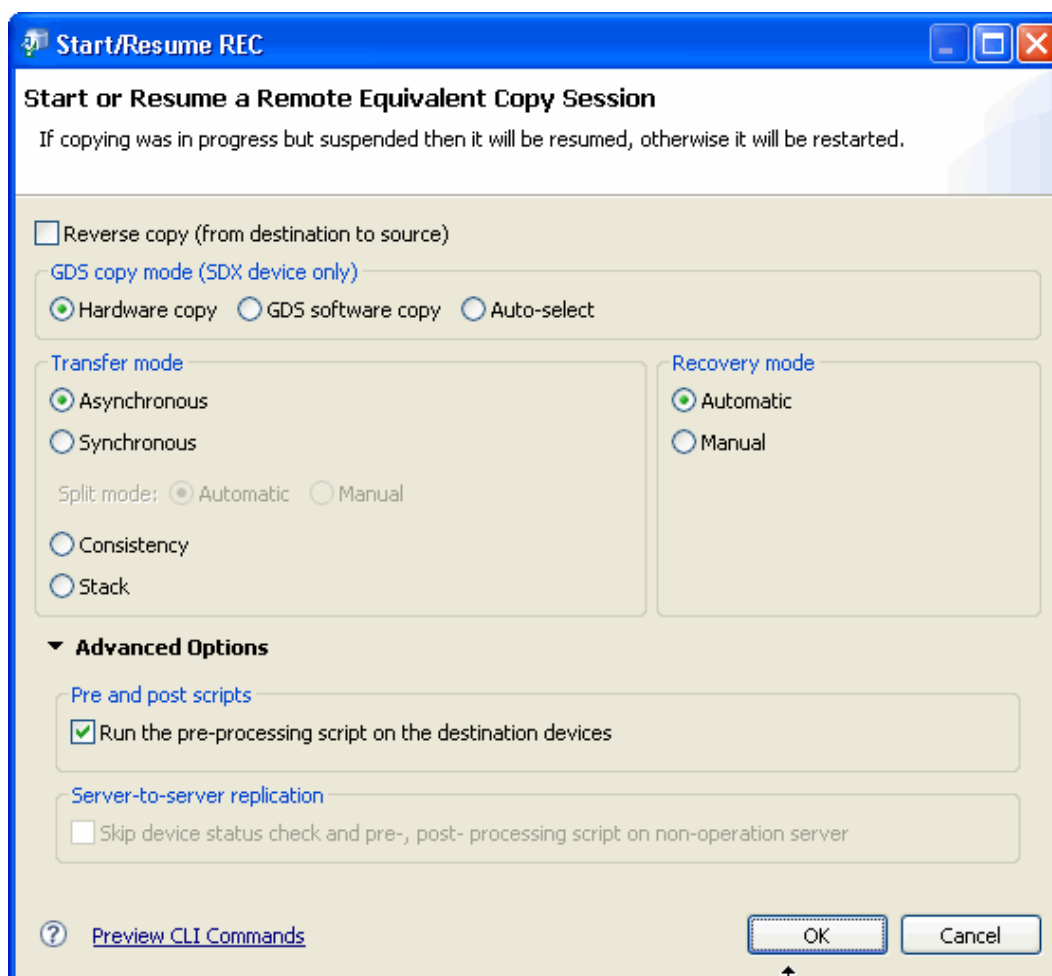
Remote Equivalent Copy (REC) has two transmission modes, asynchronous transmission mode and synchronous transmission mode.

Change the REC Transfer Mode during Replication

1. Select the relevant REC Replication Group or source/destination Volume Pair from either the Site view or the Replications groups list in the Details view, and right-click the object to invoke the replication context menu. Select [Change REC Mode] to invoke the [Change REC Mode] dialog.



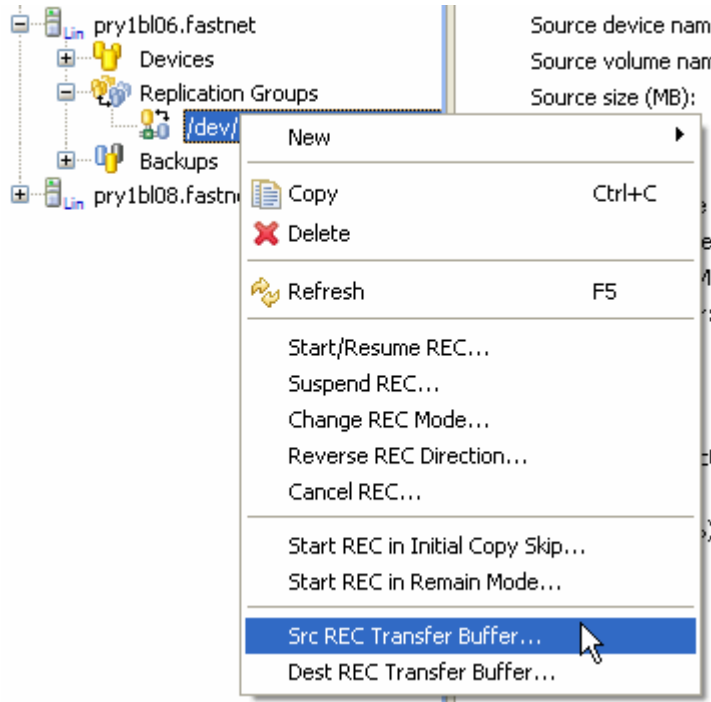
2. Select the required REC mode as appropriate and click [OK] to continue.



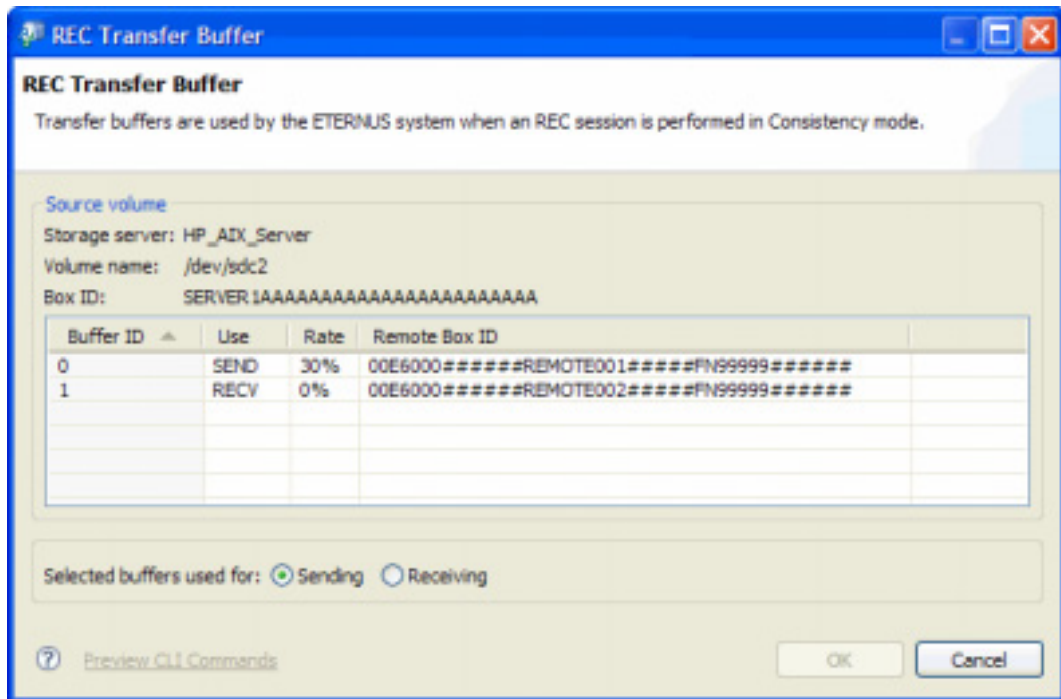
View and Change the Transfer Buffer

1. Right-click on a Volume Pair from the Site view and select the [Src REC Transfer Buffer] or [Dest REC Transfer Buffer] option from the context menu to invoke the [REC Transfer Buffer] dialog.

The [Alternate GDS path] dialog will be displayed if either the source or destination devices are a GDS/SDX device.



For Non GDS/SDX devices



REC Transfer Buffer

Label	Description
Storage server	Displays the name of the server that manages the replication source volume
Volume name	Displays the name of the replication source volume
Box ID	Displays the Box ID of the replication source volume
Buffer ID	Displays the buffer ID
Use	Displays the usage currently set for the buffer. <ul style="list-style-type: none"> - SEND: The buffer is set for sending - RECV: The buffer is set for receiving
Rate	Displays the buffer usage as a percentage (%)
Remote Box ID	Displays the Box ID of the volume set as the destination
Selected buffers used for:	Sets the usage of the buffer to be changed <ul style="list-style-type: none"> - Sending: Sets the buffer for sending - Receiving: Sets the buffer for receiving



The receiving use rate of the buffer is always shown as 0%.

Select the required buffer and designate it as a [Sending] or [Receiving] buffer using the [Selected buffers used for:] radio buttons at the bottom of the dialog. Check the selection and click [OK] to change the buffer information.

For GDS/SDX devices

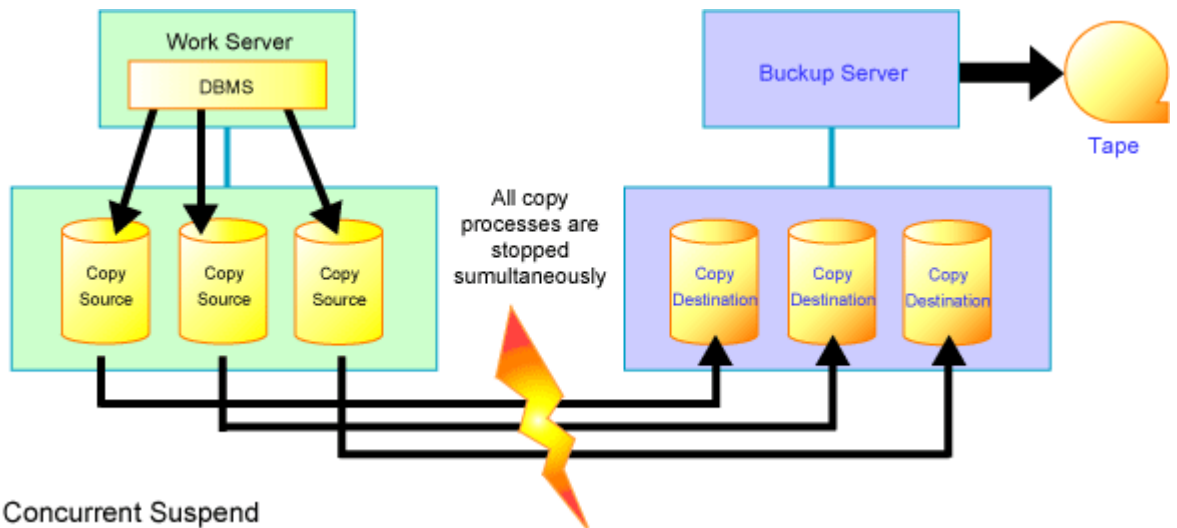
If either the source or destination volume is GDS/SDX device, the following [Alternate GDS Path] dialog is displayed.

Enter the alternate GDS path and click the [OK] button to change the buffer information.

Concurrent Suspend Function

The Concurrent Suspend function simultaneously suspends multiple synchronous replication sessions and can be used with either Equivalent Copy (EC) or Remote Equivalent Copy (REC). By using this function, copies of multi-volume data objects such as databases can be easily taken with guaranteed consistency.

Refer to the AdvancedCopy Manager Operator's Guide for more information relating to using the Concurrent Suspend functionality when performing replication.



Concurrent Suspend

Replication using the Concurrent Suspend function can be performed by checking the [Suspend the EC session concurrently] checkbox.



Initial Copy Skip Process

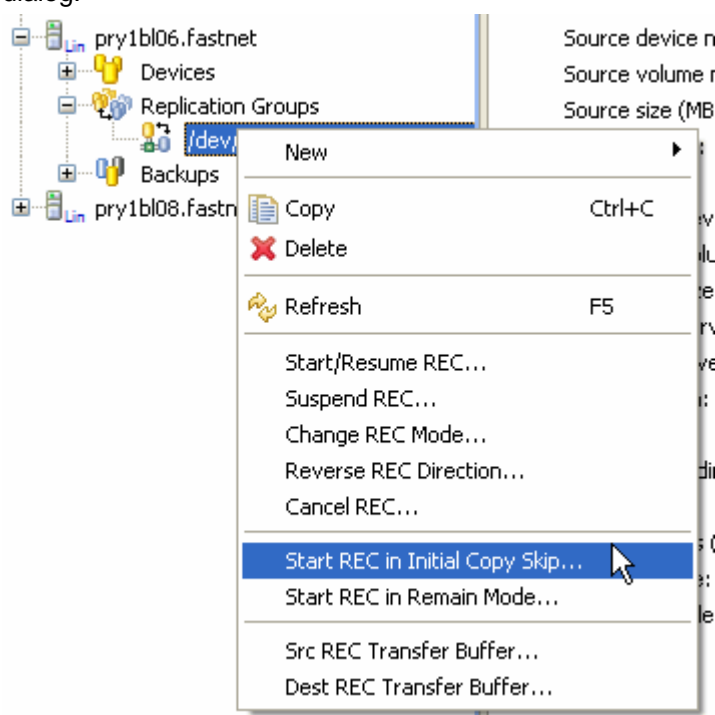
The Initial Copy Skip function enables replication when communications between the source and destination volumes are too slow to allow the initial copy to be performed.

This function effectively starts the copy and then immediately suspends it so that the initial copy, usually to tape, can be transported to the destination site where the replication session is resumed using the [Remain] option.

Once the copy from the tape to the destination volume is complete, the session is resumed to copy updates from the source volume to the destination volume.

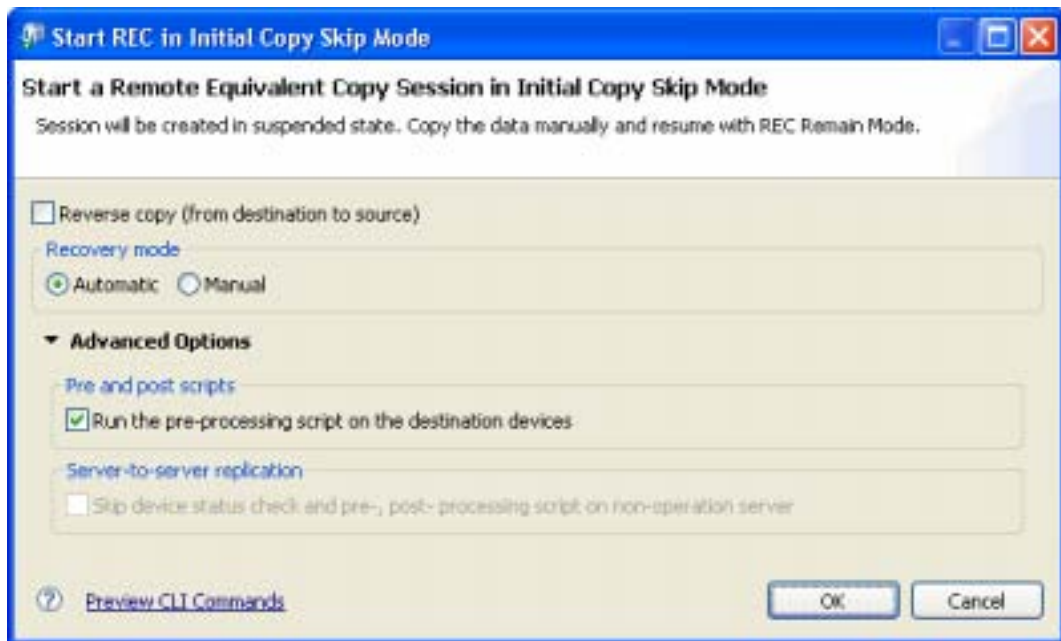
Execute an Initial Copy Skip process using the following procedure:

1. Right-click the relevant Replication Group or Volume Pair to invoke the context menu and click the [Start REC in Initial Copy Skip] option to invoke the [Start REC in Initial Copy Skip Mode] dialog.



2. Click [Advanced Options] to expand the dialog and select detailed options other than the above options as required.

Refer to the Command Reference manual for more information on available options.

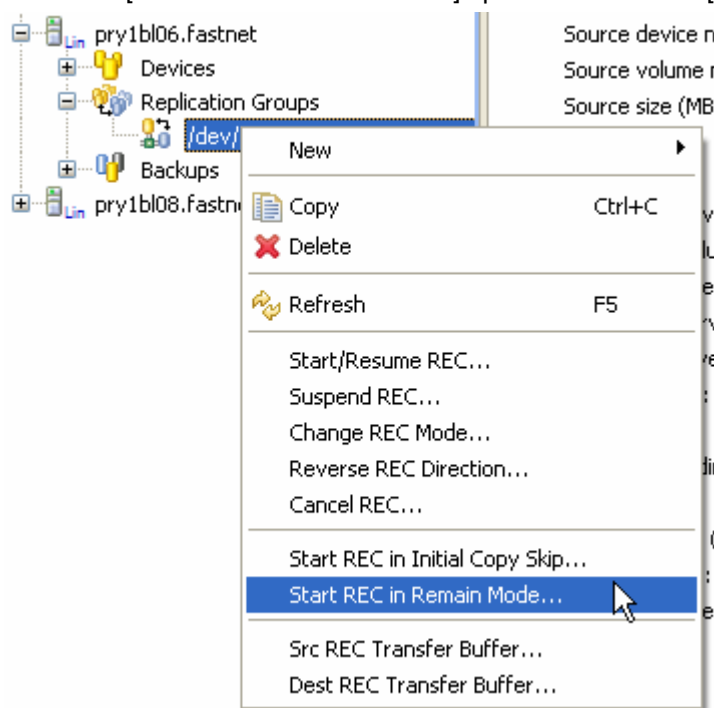


3. Click [OK] to start the replication session in Initial Copy Skip mode.

Remain Mode

Use the Remain mode after the source data has been copied to the destination and after initial copy skip has been completed. Restarting synchronous processing in Remain mode means that only data that has been updated on the copy source volume after synchronous processing has been started in the Initial Copy Skip process is reflected on the copy destination volume when the copy is resumed.

1. Right-click the relevant Replication Group or Volume Pairs to invoke the context menu and select the [Start REC in Remain Mode] option to invoke the [Start REC in Remain Mode] dialog.



2. Click [Advanced Options] to expand the dialog and select available options as required.



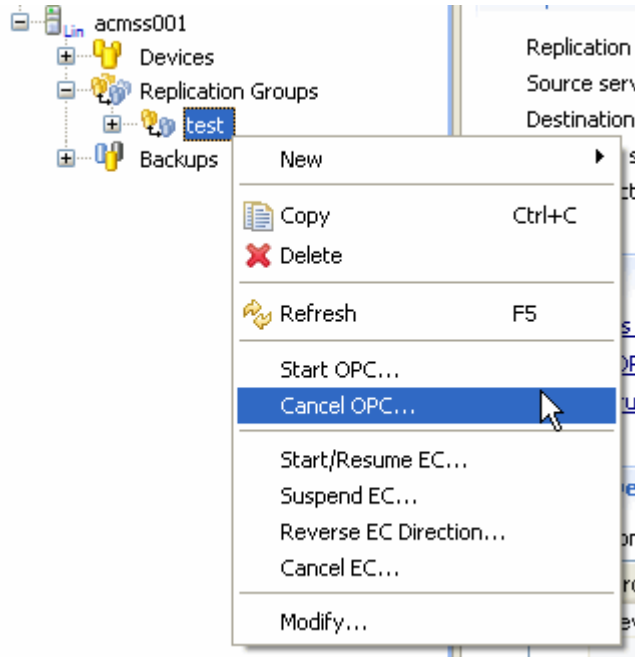
3. Click the [OK] button to restart the session in Remain mode.
4. The current copy status is not refreshed automatically. Right-click the transaction volume to open the context menu and select [Refresh] to check the latest copy status.

Cancel a Replication session

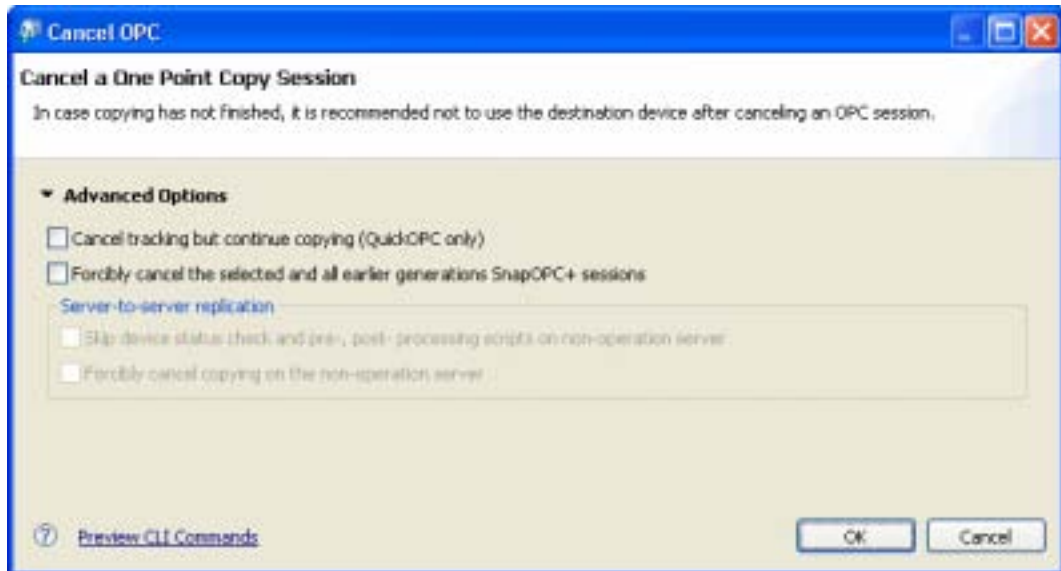
Cancel a One Point Copy (OPC) Session

Only users with execute replication permission can cancel a replication session.

1. Select the Site view or the Details view and right-click on the replication group or Volume Pair to invoke the context menu.



2. Select [Cancel OPC] to invoke the [Cancel OPC] dialog.



3. Click [Advanced Options] to expand the dialog for more advanced cancellation options if required.

Cancel OPC

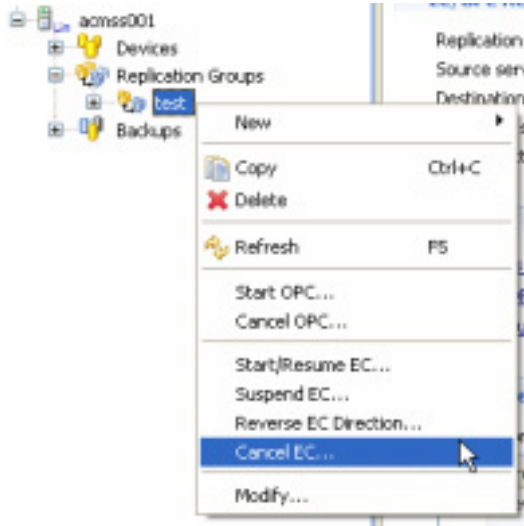
Label	Description
Cancel tracking but continue copying (QuickOPC only)	Stops differential snapshot processing. This option only stops tracking processing, without stopping the Snapshot processing. This checkbox is enabled in the following cases: <ul style="list-style-type: none"> - When the status is not "----" - When tracking is "ON"
Forcibly cancel the selected and all earlier generations SnapOPC+ sessions	Forcibly stops SnapOPC+ sessions. The specified Snap generation and all earlier Snap generations are stopped.
Skip device status check and pre-, post- processing scripts on non-operation server	Valid at server-to-server replication only Select this checkbox if the following processing is to be performed: <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server
Forcibly cancel copying on the non-operation server	Forcibly stops copy processing from the non-operation server. This checkbox is enabled in the following cases: <ul style="list-style-type: none"> - When the server is not operating - When server-to-server replication is being performed

Refer to [swsrpcancel](#) in the Command reference more information relating these advanced options.

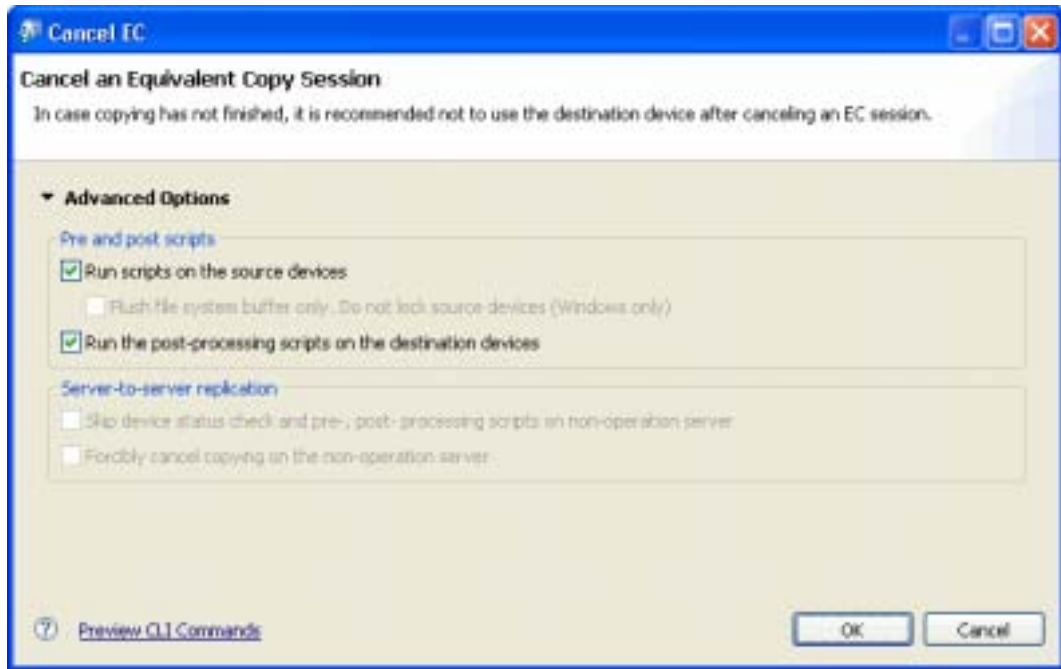
4. Click the [OK] button to cancel the OPC session.

Cancel an Equivalent Copy (EC) Session

1. Select the Site view or the Details view and right-click on the relevant Replication Group or Volume Pair to display the context menu.



2. Click [Cancel EC] to invoke the [Cancel EC] dialog.



3. Click the [Advanced Options] link to expand the dialog box and set the required options.

Cancel EC

Label	Description
Run scripts on the source devices	Performs pre- and post-processing for the replication source volumes. This checkbox is enabled only when the copy status is "equivalent".

Label	Description
Flush file system buffer only (Windows only)	Performs flush processing instead of lock processing for the file system buffer of the replication source volumes. This checkbox is enabled only when the copy status is "equivalent".
Run the post-processing scripts on the destination devices	Performs pre- and post-processing for the replication destination volumes. This checkbox is enabled only when the copy status is "equivalent".
Skip device status check and pre-, post- processing scripts on non-operation server	Valid at server-to-server replication only Select this checkbox if the following processing is to be performed: <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server
Forcibly cancel copying on the non-operation server	Forcibly stops copy processing from the non-operation server. This checkbox is enabled in the following cases: <ul style="list-style-type: none"> - When the server is non-operation server - When server-to-server replication is being performed

Refer to [swsrpcancel](#) in the Command reference more information relating these advanced options.

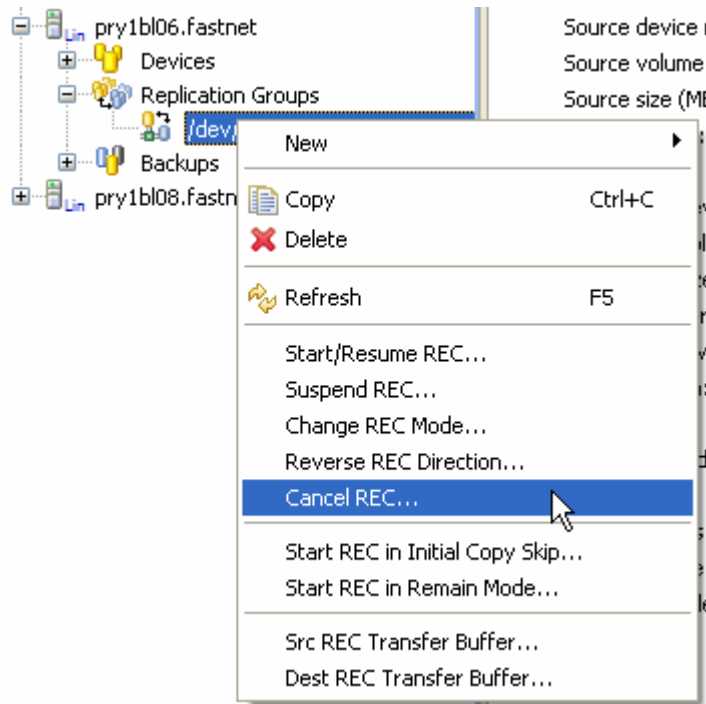
4. Click the [OK] button to start the cancellation and close the dialog.

Cancel a Remote Equivalent Copy (REC) Session

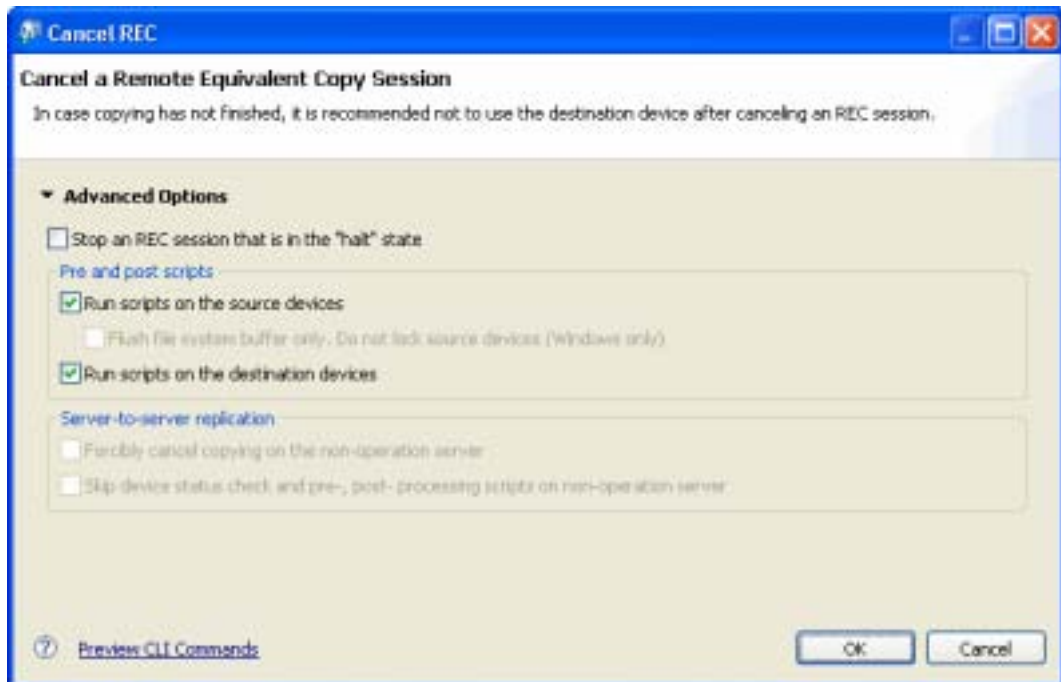
This section describes the procedures required to cancel a replication session between a source and destination volumes on different servers.

Only users with execute replication permission may cancel a Remote Equivalent Copy (REC) replication session.

1. Select the Site view and right-click on the relevant replication group or Volume Pairs to display the context menu.



2. Select [Cancel REC] to invoke the [Cancel REC] dialog.
3. Click [Advanced Options] to expand the dialog box and set the required options.



Cancel REC

Label	Description
Stop an REC session that is in the "halt" state	Stops copy processing if the status is "halt". This checkbox can be selected only if the copy status is "halt".
Run scripts on the source devices	Performs pre- and post-processing for the replication source volumes. This checkbox is enabled only when the copy status is "equivalent".
Flush file system buffer only (Windows only)	Performs flush processing instead of lock processing for the file system buffer of the replication source volumes. This checkbox is enabled only when the copy status is "equivalent".
Run scripts on the source devices	Performs pre- and post-processing for the replication source volumes. This checkbox is enabled only when the copy status is "equivalent".
Skip device status check and pre-, post- processing scripts on non-operation server	Valid at server-to-server replication only Select this checkbox if the following processing is to be performed: <ul style="list-style-type: none"> - Communication with the non-operation server - Volume status confirmation processing or pre-processing for the replication destination volume of the non-operation server
Forcibly cancel copying on the non-operation server	Forcibly stops copy processing from the non-operation server. This checkbox is enabled in the following cases: <ul style="list-style-type: none"> - When the server is non-operation server - When server-to-server replication is being performed

4. Click the [OK] button to start the cancellation and close the dialog.
Clicking [Cancel] at any time closes the dialog without performing the cancellation.

Restore

Restoration can be performed for a Volume Pair or Replication Group if bi-directional copying was enabled. This can be done either by replicating from the destination volume to the source volume or reversing the direction of synchronization.

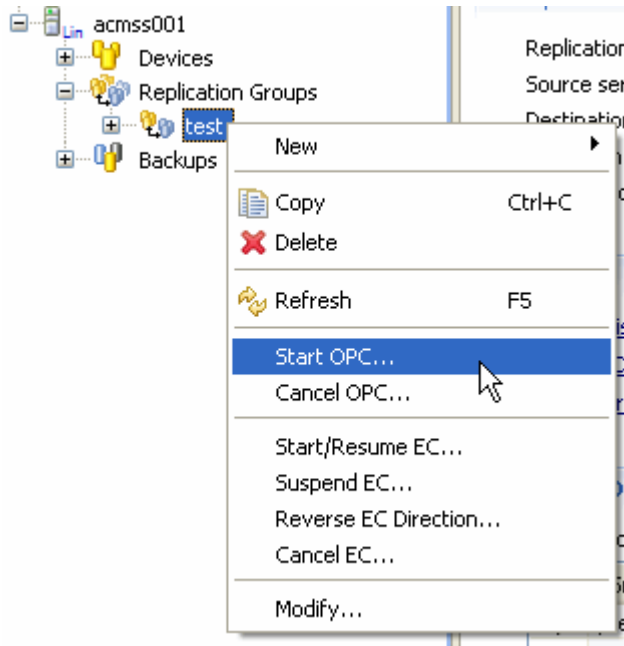


Restoring from SnapOPC+ cannot be performed using the Replication function, but requires a manual process. . The relevant sections of AdvancedCopy Manager's Operator's Guide and Command Reference manuals should be carefully considered before attempting a SnapOPC+ replication.

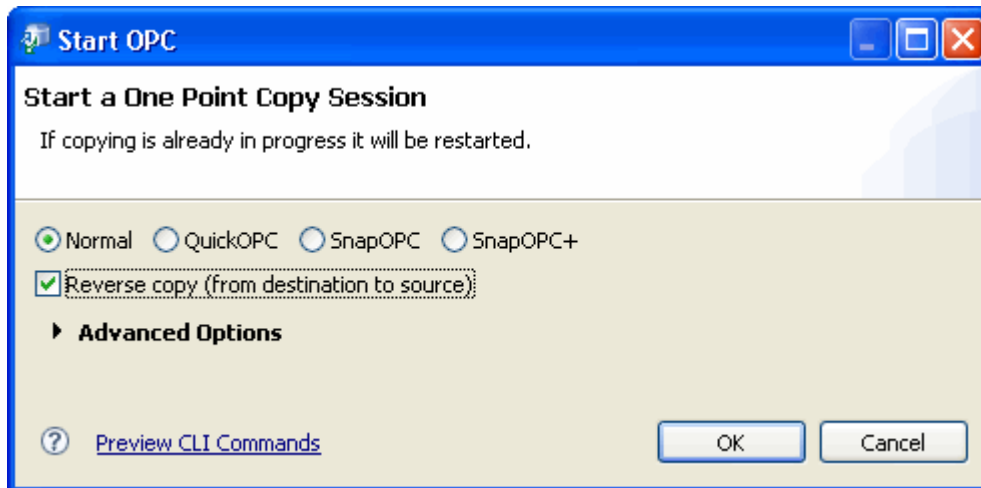
Replicate from Destination Volume to Source Volume

Replication from the destination volume to the source volume can be performed as follows.

1. If a replication session is currently in progress, it must be cancelled before proceeding to restoration. Refer to Cancel an Equivalent Copy (EC) Session for details of this.
2. Select the Volume Pair or Replication Group to be restored from the site tree and right-click to invoke the context menu.



3. Select [Start OPC] to invoke the [Start OPC] dialog.



4. The [Reverse copy (from destination to source)] option must also be enabled for the restoration. Select other options as appropriate.
5. Click [OK] to start OPC from the destination volume to the source volume.
6. The copy progress is not refreshed automatically. Right-click the Replication Group or Volume Pair to open the context menu and select [Refresh] to check the latest copy status.

Reverse Direction of Replication

It is possible to reverse the copy direction of EC or REC, allowing you to easily toggle between source and destination volumes.

Note the followings before reversing the direction.

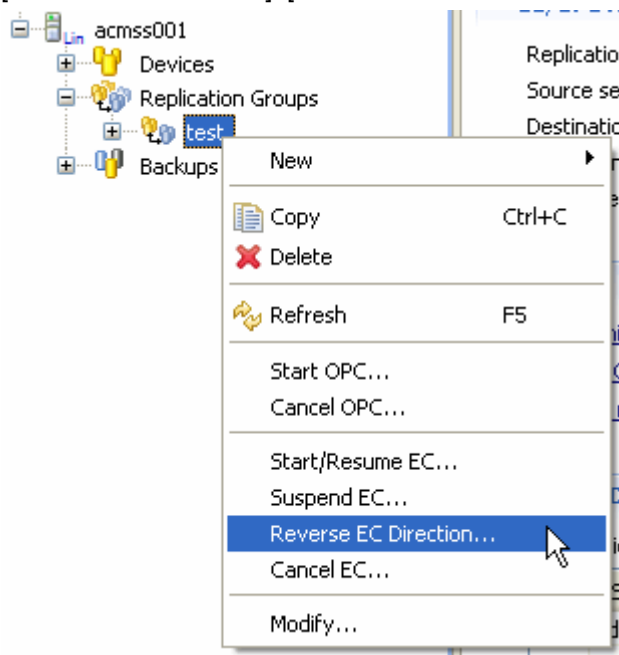
- The copy direction type must be set as bi-directional.
- The Volume Pair or Replication Group must be suspended and shown as "Replicated".
- Reversing the EC or REC direction is supported by your ETERNUS storage system.

Refer to the [swsrprevsync](#) in the Command Reference for details.

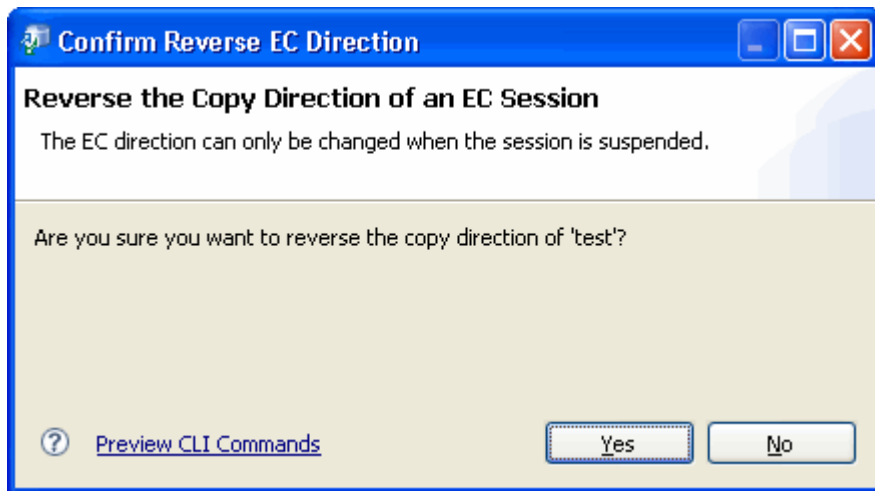
Reverse the EC Direction

The synchronous processing direction of an EC session can be reversed as follows.

1. Ensure the Volume Pair or Replication Group is suspended. Refer to Create a Replica Using the Suspend Option for details of how to suspend the group or pair.
2. Right-click the Replication Group or Volume Pair to invoke the context menu, and select the [Reverse EC Direction]. [Confirm Reverse EC Direction confirmation] dialog is displayed.



Check that the Replication Group or Volume Pair for which the copy direction is to be changed is correct.

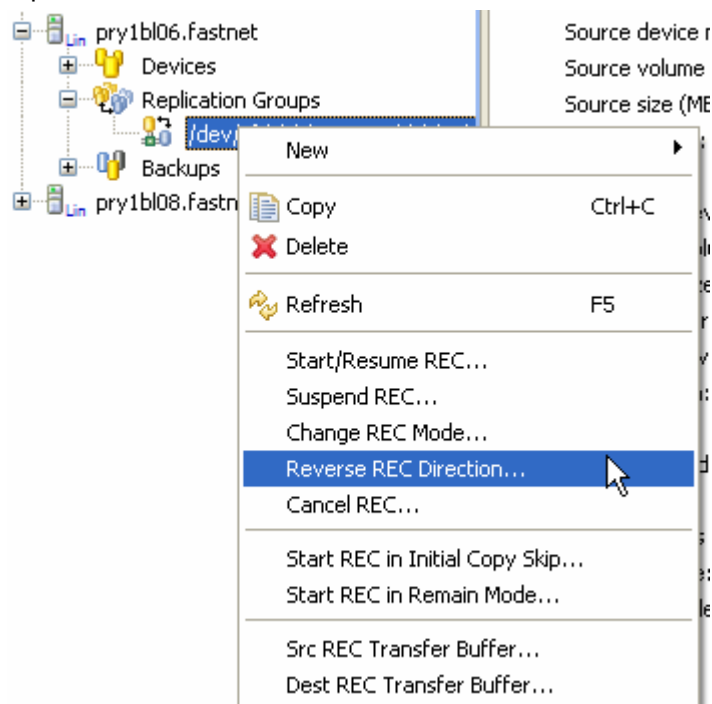


3. Click the [OK] button to confirm the copy direction change.
4. Select the reversed Volume Pair or Replication Group from the site view. Right-click to invoke the EC replication context menu.
5. Select [Start/Resume EC] to resume the synchronization.

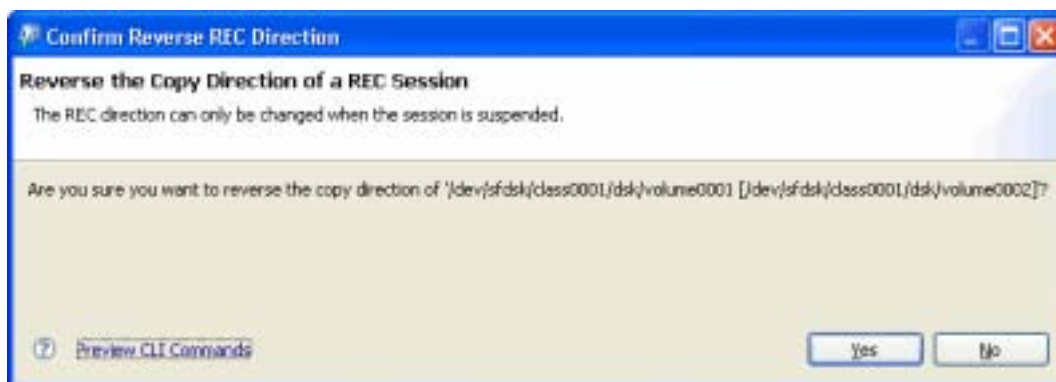
Reverse the REC Direction

The synchronous processing direction of a REC session can be reversed as follows.

1. Ensure the Volume Pair or Replication Group is suspended. Refer to Create a Replica Using the REC Suspend Option for how to suspend the group or pair.
2. Select the Volume Pair or Replication Group from the site tree and right-click to invoke the replication context menu.



3. Select [Reverse REC Direction] to invoke the [Confirm Reverse REC Direction] dialog. The [Confirm Reverse REC Direction] dialog can also be invoked from the task pane in the Details view.

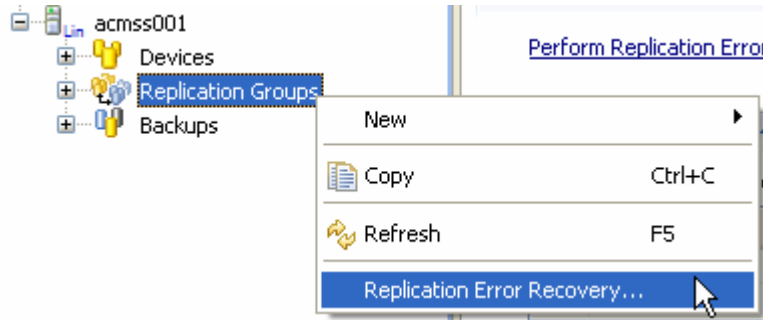


4. Click the [OK] button to confirm the details and close the dialog.
5. Select the reversed Volume Pair or Replication Group from the site view. Right-click to invoke the REC replication context menu.
6. Select [Start/Resume REC] to resume the synchronization.

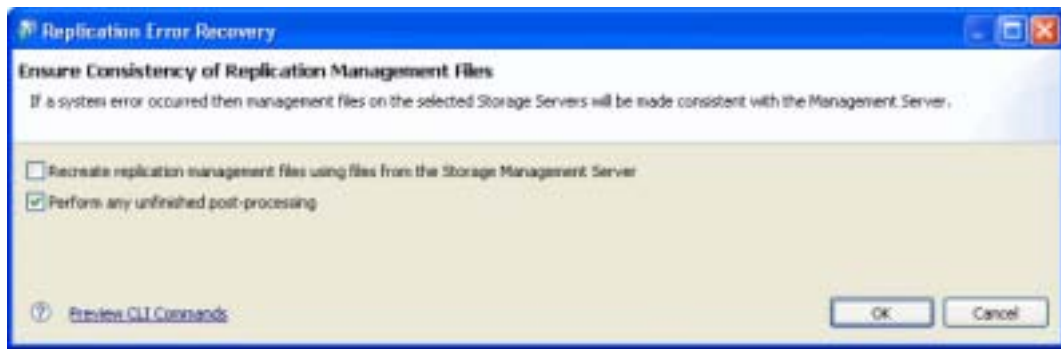
Replication Error Recovery

Replication Error Recovery allows the user to recover replication management files after errors (i.e. errors typically caused by a system failure whilst replication is being performed).

1. Select the relevant Replication Group from the Site view and right-click to invoke the context menu.



2. On the context menu, click [Replication Error Recovery] to invoke the [Replication Error Recovery] dialog.



Replication Error Recovery

Label	Description
Recreate replication management files using files from the Storage Management Server	<p>Select this option when the replication volume information setting command (swsrpsetvol) or the replication volume information deletion command (swsrpdelv) that updates the replication management files has ended unexpectedly because of a forced ending or a system failure, or when an error status has been generated for the replication management files (eg, because of an incorrect deletion of the replication management files).</p> <p>When the option is specified, the following replication management files will be recreated:</p> <p>Replication management information stored in the Storage Management Server repository will be downloaded and the replication volume information will be restored.</p> <p>By enquiring on the disk array unit to retrieve the execution information, the execution information of the synchronous processing will be restored.</p>
Perform any unfinished	Any unfinished post-processing is performed.

Label	Description
post-processing	

3. Set options, and then click the [OK] button to perform Replication Error Recovery for the selected servers.

Glossary

The special terms used in this manual are explained below.

Access path

Path required by a server to access disks in an ETERNUS storage system

Active site

The ACM backup environment that is normally active

Advanced copy function

Hardware-based copy function of ETERNUS storage systems. This is a generic name of EC and OPC.

AdvancedCopy Manager agent

Generic term referring to the daemons and applications used for backup or replication.

AdvancedCopy Manager client

Generic term referring to the GUI Client that operate in a storage management client.

AdvancedCopy Manager database

Generic term referring to management information such as registry, repository and management files for AdvancedCopy Manager.

AdvancedCopy Manager manager

Generic term referring to AdvancedCopy Manager-related services and applications existing in a Storage Management Server.

AdvancedCopy Manager tape agent

Generic term referring to the applications used for tape backup

AdvancedCopy Manager tape manager

Generic term referring to the Tape Server daemons and applications related to AdvancedCopy Manager in the Tape Server

Affinity Group

Management information on the ETERNUS storage system that shows the association between the Logical Unit Number (LUN) that can be recognized by the host, and the Logical Volume Number managed within the ETERNUS storage system.

Authentication management files

Generic term for the file where authentication management saves information on users and usage. There are two or more types and it is kept for every Storage Server with a repository.

Backup history

Backup data that is managed by backup management, and other backup related information

Backup management files

Generic term for files used during backup operations containing management information such as volume and server details. These files are stored in each Storage server and can be backed up by the resource backup command.

Backup management screen

GUI Client screen for backup management.

Backup server operation

The type of operation that uses a dedicated backup server that copies the copies destination volume to a tape device. The server is only connected to the copy destination volumes.

Backup synchronous processing

The process of synchronizing the contents of a transaction volume and a backup volume in preparation for synchronous backup operations.

CA (Channel adapter)

The adapter card used as an interface with server HBA/switch found in a Storage Server.

Cascade Copy

Group two or more concurrent copy processes by assuming the copy destination of one to be a copy origin of another.

Refer to the SA/SE handbook of the ETERNUS Series for the requirement of the cascade copy.

CCM Server

The server where the Copy Control Module is installed.

CM (Controller module)

The controller that manages devices within ETERNUS. The CM to be used as the access route (the CM in charge) is set separately for each RAID group in order to achieve load balancing.

Copy Control Module (CCM)

A tool that enables backup using the Advanced Copy function of the ETERNUS storage system. One advantage is that it can be used without installing the AdvancedCopy Manager Agent on the backup source server (the transaction server).

COS

The service class of the fibre channel. Classes 2 and 3 are general now, and the difference between classes 2 and 3 is that only class 2 requires the acceptance confirmation for frame notice assignment.

Day management backup

Backup operation that manages backups according to a specified number of preservation days. This backup operation is available only for backing up data to tape.

Device map file

File that describes both the relationship between transaction volumes and backup volumes for backup management, and the relationship between copy source volumes and copy destination volumes for replication management

Differential OPC

This is a previously used term for QuickOPC. Refer to the paragraph on QuickOPC for an explanation.

Disaster Recovery site

An environment prepared at a different location to be used for data recovery after a disaster.

EC

This is an abbreviation for Equivalent Copy. It is one of the copy functions of the hardware devices in the ETERNUS storage systems. This function maintains the mirror state between the disks in a hardware device. When detach control is executed from software, a copy of such a disk is created.

Equivalency maintenance state

A state in which the EC function maintains the contents of a transaction volume and backup volume in precise equivalence.

ETERNUS

Brand name for Fujitsu's storage systems

AdvancedCopy Manager provides high-speed backup and replication functions by linking with the following devices:

- ETERNUS disk array
(ETERNUS2000/ETERNUS3000/ETERNUS4000/ETERNUS6000/ETERNUS8000/ETERNUS GR series)
- ETERNUS NR1000F series network disk array
- ETERNUS tape library (ETERNUS LT series)

ETERNUS GR series

Generic name for Fujitsu's disk array devices (GR720/730/740/820/840).

ETERNUS VSS Hardware Provider

The ETERNUS VSS Hardware Provider (hereafter called "VSSHP") is software that provides the ETERNUS storage system service, based on the interface provided with the Microsoft Volume Shadow Copy Service (hereafter called "VSS").

In AdvancedCopy Manager, during backup of the Exchange database, the VSSHP function may be used to perform backup.

For details on VSSHP, refer to the "ETERNUS VSS Hardware Provider software manual".

ETERNUSmgr (ETERNUS Manager)

Software product for monitoring and displaying the status of the ETERNUS2000/ETERNUS3000/ETERNUS4000/ETERNUS6000/ETERNUS8000 machine and for setup and maintenance

Fabric

Topology using the fibre channel interface. A fibre channel switch is used and two or more communications between nodes can be performed simultaneously.

FC-AL (Fibre Channel Arbitrated Loop)

Topology using the fibre channel interface. A fibre channel that now allows the connection between two or more nodes using a hub. This topology is mostly used for 1 to 1 connectivity between devices. A port that is connected to the fibre channel is either an NL port or an L port.

Fibre channel

One of the interfaces used to perform serial transfer of data. High-speed forwarding of data and the long distance transmission with the server are features of this transfer type.

Fibre channel hub

This is a hub that is only used for fibre channel networks. It is a device that connects two or more fibre channel node devices in a loop. It operates with the FC-AL topology.

Fibre channel switch

This is a switch used only on fibre channel networks. Its primary function is to facilitate communication between two or more fibre channel nodes at the same time. It exceeds a fibre channel hub in performance and reliability and operates with the fabric topology.

File unit backup

Direct specification that performs backup to tape of only the specified data in a directory or file on a disk that is mounted on the backup target server

File unit backup agent

Software that performs backups on a file basis.

Starts the TSM client and specifies file unit backup or restore to a tape

FL port

The port of the fabric topology (fibre channel switch) connected to the NL port.

F port

The port of the fabric topology (fibre channel switch) connected to the N port.

Framework

Generic name referring to applications such as communication services and configuration management that form the foundation of the AdvancedCopy Manager product suite.

GDS Snapshot

Abbreviation of PRIMECLUSTER GDS Snapshot, which is an optional product of PRIMECLUSTER GDS (hereinafter referred to as GDS). With this product, you can create a snapshot of a GDS logical volume (ie, a replica at a certain time). AdvancedCopy Manager supports the backup and replication operations of logical volumes in linkage with GDS Snapshot.

Generation management backup

Backup operation that performs management with the specified number of preservation generations

Generation overflow

This is the situation that arises when the number of backups specified as backup generations have already been used. If the next backup is performed, the backup volume having the oldest backup history is deleted from the generation management. This is called generation overflow. The actual number of backup generations is specified by the backup policy configuration command.

GR Manager, GRmgr

Storage management software of GR720/730/740.

Hard disk driver

Hard disk driver software of a host server. Controls a disk array unit instead of the sd driver. This driver must be installed to perform multipath control.

HBA (Host bus adapter)

The adapter card used as an interface with the storage port/switch CA carried in a server.

HDDV

See "Hard disk driver."

Inter-server replication

Replication in which the source and destination are volumes connected to different servers

Host Affinity Group

Management information on the ETERNUS storage system that shows the association between the World Wide Name of the host and the Affinity Group.

Load share

One of the operation modes of a cluster system. It enables systems that are structured from multiple active nodes to be handled logically as one database.

Logical node

Name of a logical server in a cluster system

LUN

Abbreviation for Logical Unit Number. The logical unit is defined under a channel adapter on a storage unit.

LUN Mapping

Assigns and sets up a LUN which shows a Logical unit LUN (Logical Unit Number) defined as the channel adapter subordinate in GR720/GR730/GR740 storage equipment from the HOST side, and real LUN (mapping). Therefore, HOST to LUN0 and visible Logical unit can be set up with real Logical unit LUNxx.

MPHD

See "Multipath disk control."

MPLB

See "Multipath disk control, load balance option."

Multipath disk control

Driver software that performs multipath disk control of the host server.

Failover driver software that merges two physical access paths into one logical path to avoid stopping access to a disk array unit because of the failure of one physical access path.

Multi path disk control, load balance option

Driver software that performs multipath disk control of the host server. This driver has both load balance (path load distribution) and multipath (two to eight paths) functionality in addition to the multipath disk control failover function. It is superior in terms of reliability, operability, and performance and is the most suitable driver software for a SAN operation server.

NAS backup

The TSM backup function that uses the NDMP functions of the NAS device to back up the data on a NAS device without sending the data via a network

NAS device

The network disk array device of the ETERNUS NR1000F series

NAS directory

A directory created under a NAS volume

NAS volume

A disk volume on a NAS device.

Disk volumes are defined under /vol, and take the form /vol/vol0, /vol/vol1, and so on.

NDMP

NDMP (Network Data Management Protocol) is a communications protocol that manages data on an NAS device.

NL-Private port

The port of the FC-AL topology which has not made a fibre channel switch connection.

NL-Public port

The port of the FC-AL topology which is making a fibre channel switch connection.

N port

The port used by Fabric topology (switch environment) or Point-to-Point in a fibre channel.

OPC

This is an abbreviation of the term "one point copy" which is a hardware function of ETERNUS storage systems. This function executes disk copy at high speeds at the hardware level. When software issues a copy request, a physical copy operation is performed by the hardware. However, the emulation function makes it look like the copy is completed at the software level.

Ordinary transaction volume

Volume to be backed up and not provided with a database space.

Point-to-point

Topology using the fibre channel interface. Although it is the topology of 1 to 1 connection of an N port, the main part of the present 1 to 1 connection is the 1 to 1 connection of FC-AL.

Pre-processing or post-processing

Scripted processing that is executed immediately before or after advanced copying at the time of backup or replication. The pre-processing and post-processing scripts are called as part of the command processing of backup or replication management.

PRIMECLUSTER

Software product for cluster configuration

PRIMECLUSTER GDS

Software product that improves data integrity by mirroring disk units

PRIMECLUSTER GFS

Software product that creates a multivolume file system that offers robustness and improves data availability. This file system is completely compatible with UFS, which is the standard API of UNIX.

QuickOPC

This is a copy method generally used to copy only the data that is updated after a physical copy of all data by OPC is completed.

It is a suitable copy method for Disk to Disk backup.

Differential OPC is an old name for QuickOPC.

REC

Abbreviation for "Remote Equivalent Copy". REC uses a hardware function of ETERNUS storage systems to achieve EC (Equivalent Copy) between different cabinets.

Registry

AdvancedCopy Manager environment definition file.

Replication management files

Generic term referring to the files where replication management saves the usage information.

There are two or more kinds. It is kept for every Storage Server with a data repository.

Repository

The repository contains all management and operational information required by AdvancedCopy Manager and its domain.

It is comprised of data contained in a management database hosted in a Storage Management Server.

The information on the device to be managed, and information on backup and replication management, etc. are all stored in a repository.

This repository is created at the time of installation of AdvancedCopy Manager.

RMI daemon

The RMI server to an AdvancedCopy Manager client.

ROPC

Abbreviation of "Remote One Point Copy". ROPC uses a hardware function of ETERNUS storage systems to achieve OPC between different cabinets.

SafeFILE

Software product that creates a multivolume file system that offers robustness and improves data availability. SafeFILE extends the UNIX file system (UFS) and improves availability and performance.

SAN (storage area network)

Abbreviation for "Storage Area Network". It is a server storage network. Broadly speaking, this also refers to the implementation of centralized storage, data sharing among different servers, and integrated storage management.

SDX object

Virtual resource managed by PRIMECLUSTER GDS or SynfinityDISK. It is a general term for classes, groups, disks, volumes, and slices. An SDX object is sometimes called an "object."

Session

Unit of copying execution that is performed by the advanced copy function

Snap Data Disk

This is a disk for storing the copy used as the SnapOPC destination. It is necessary to define a Snap Data Disk in advance of SnapOPC being invoked.

SnapOPC

A copy method used when updating data. This method copies the pre-update status of the data parts that are to be updated, and matches the original non-updated parts to preserve the pre-update status (a copy-on-write copy method).

This method can be used for efficient data copying since it reduces the data size at the copy destination.

This copy method is suited to backing up file servers.

SnapOPC+

This method copies only the pre-update status of the data parts that are to be updated, and saves the data in snap generation units (a copy-on-write copy method).

This method can be used for efficient data copying since it reduces the data size at the copy destination and data can be saved in snap generation units. This copy method is suited to backing up file servers.

Snap shot type high-speed backup

Backup using the one point copy (OPC) function of ETERNUS storage systems.

Storage

A generic name of external storage devices such as disk array devices and tape units. These devices include ETERNUS storage systems, F649x series and Spectris/Platinum.

Storage management client

This term refers to a client machine that the AdvancedCopy Manager GUI Client is operated.

Storage Management Server

Server in which AdvancedCopy Manager's Manager exists.

Storage Server

Server in which AdvancedCopy Manager's Agent exists.

Suspend/Resume function

This function sets Suspend or Resume for the EC equivalency maintenance status. The synchronous backup operation can be made faster because the function can create a differential copy from the Suspend state.

Suspend specification

The act of specifying the `-suspend` option in the backup execution command (`swstbackup`) to back up using the Suspend/Resume function

Synchronous backup

This involves using the Equivalent Copy (EC) function of the disk array GR series to perform backup.

Tape library unit

A device that holds a large number of magnetic tapes and uses the controller in the device to automatically replace magnetic tapes in order to gain access to the tapes. It includes ETERNUS LT270 and ETERNUS LT230.

Tape Server

Backup Tape Server for processing requests regarding tape backup operations

TOC

The backup data table of contents provided from a NAS device in parallel with NAS backup operations. TSM uses the obtained TOC to restore data when executing NAS disk unit restore or NAS file unit restore.

TSM

The abbreviation of file backup management product "Tivoli Storage Manager". Tape servers deliver a backup management function by calling TSM internally.

TSM client GUI

Starts the TSM client and issues file unit backup and restore instructions to a tape. Commands and a GUI are provided for the TSM client, and processing instructions can be issued from the GUI interface.

TSM Web backup/archive client

A TSM processing interface that enables use of a Web browser to connect from an operations terminal to a TSM client.

This enables backup and restore instructions to be issued from an operations terminal to a tape.

Volume Shadow Copy Service

The Volume Shadow Copy Service is a function that provides a communications foundation for backup software, server applications and storage hardware. It is installed as standard with Windows Server 2003.

VSS

Refer to "Volume Shadow Copy Service".

VSSH

Refer to "ETERNUS VSS Hardware Provider".

