



B1WW-8871-05ENZO (00)

ETERNUS SF AdvancedCopy Manager V13.3

GUI User's Guide



FUJITSU



Preface

Purpose of the User's Guide

The chapters included in the AdvancedCopy Manager User's Guide are intended to provide detailed information relating to the configuration and operation of Fujitsu's ETERNUS SF AdvancedCopy Manager (hereafter abbreviated to AdvancedCopy Manager) using the AdvancedCopy Manager Workbench.

The information contained in this User's Guide is generally complete, but where the product is used in conjunction OEM products, it is highly recommended that both this manual and the reference sources provided should be consulted prior to or in conjunction with relevant OEM 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 workbench.
- Maintenance and Configuration
This information describes how to perform replication using the AdvancedCopy Manager Workbench
- Backup
This information describes how to perform backup and restore using the AdvancedCopy Manager Workbench.
- Replication
This information describes how to perform replication using the AdvancedCopy Manager Workbench

Audience

The intended audience for this document are users who may be responsible for configuring or using AdvancedCopy Manager Workbench in a Windows 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.

- High volume storage area networks and in particular Fujitsu's ETERNUS SF Storage Systems
- Operational understanding of the importance of backup and disaster recovery
- Generic hardware copy modes such as snapshot, differential and incremental
- Clustered environments
- Management of a Windows environment
- Disk management and configuration.

Abbreviations and Terms

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

Diagrams and Screenshots

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Related Documents

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

- AdvancedCopy Manager Command Reference
- AdvancedCopy Manager Operator's Guide (Windows)
- AdvancedCopy Manager Operator's Guide (UNIX)
- AdvancedCopy Manager Cluster Guide
- AdvancedCopy Manager Operator's Guide (Tape Backup)
- AdvancedCopy Manager Messages
- AdvancedCopy Manager Installation Guide

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Workbench

The AdvancedCopy Manager Workbench 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 Workbench 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 Workbench.

Supported Environment

The supported environment for the AdvancedCopy Manager Workbench 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.

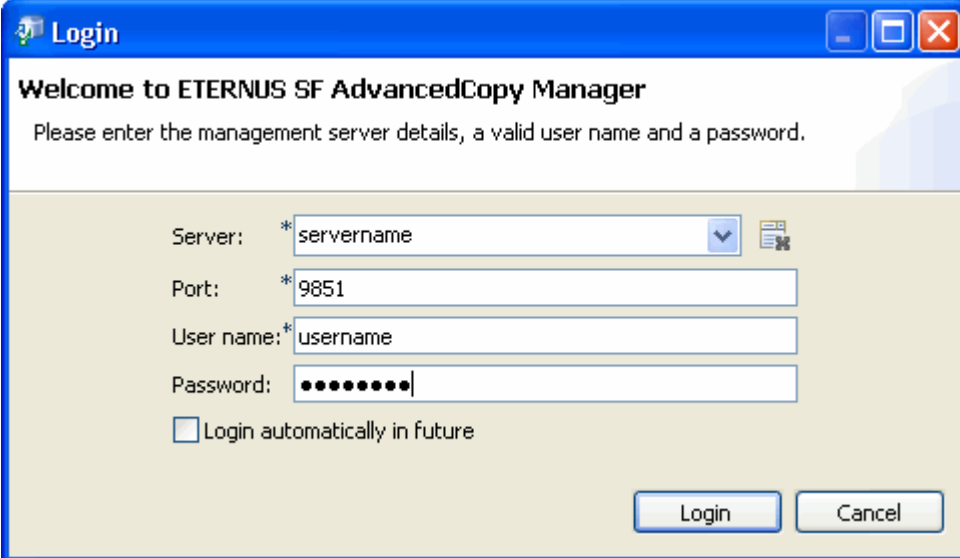


The features supported in AdvancedCopy Manager differ depending on the version. Using the replication features by the workbench is only available when version 13.1 or above is installed on the Storage Server. Use the CLI to operate replication if your Storage Server is 13.0 or below.

Starting the AdvancedCopy Manager Workbench

To start the AdvancedCopy Manager Workbench 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.

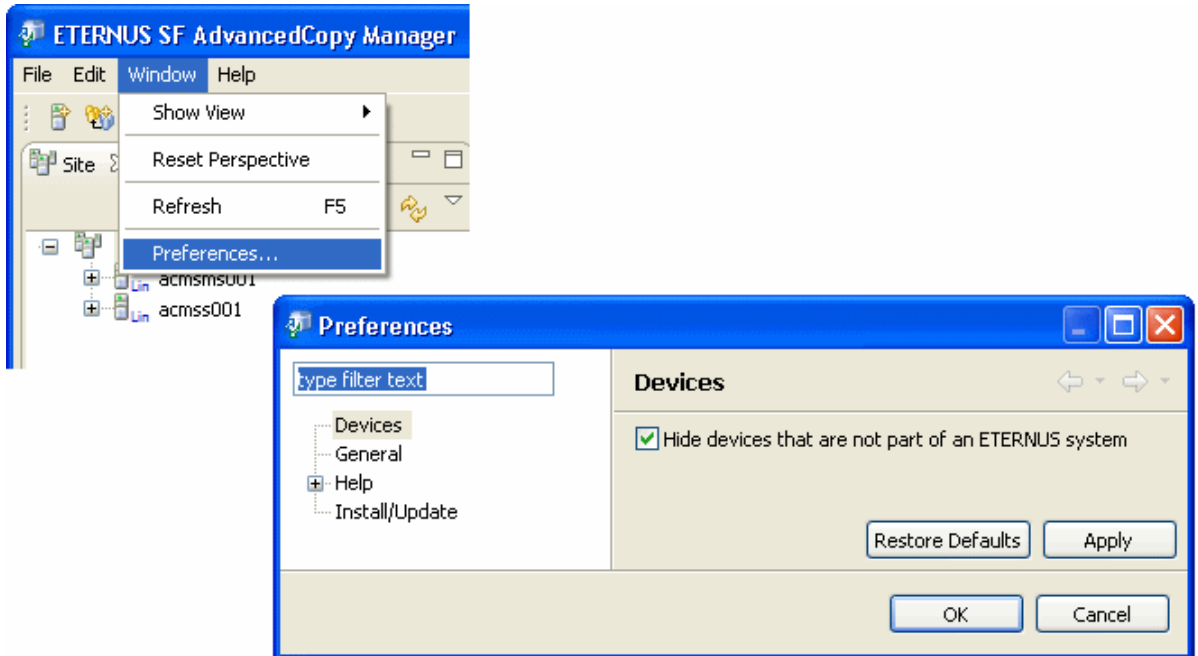
4. Click the [Login] button to start the workbench client.

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.

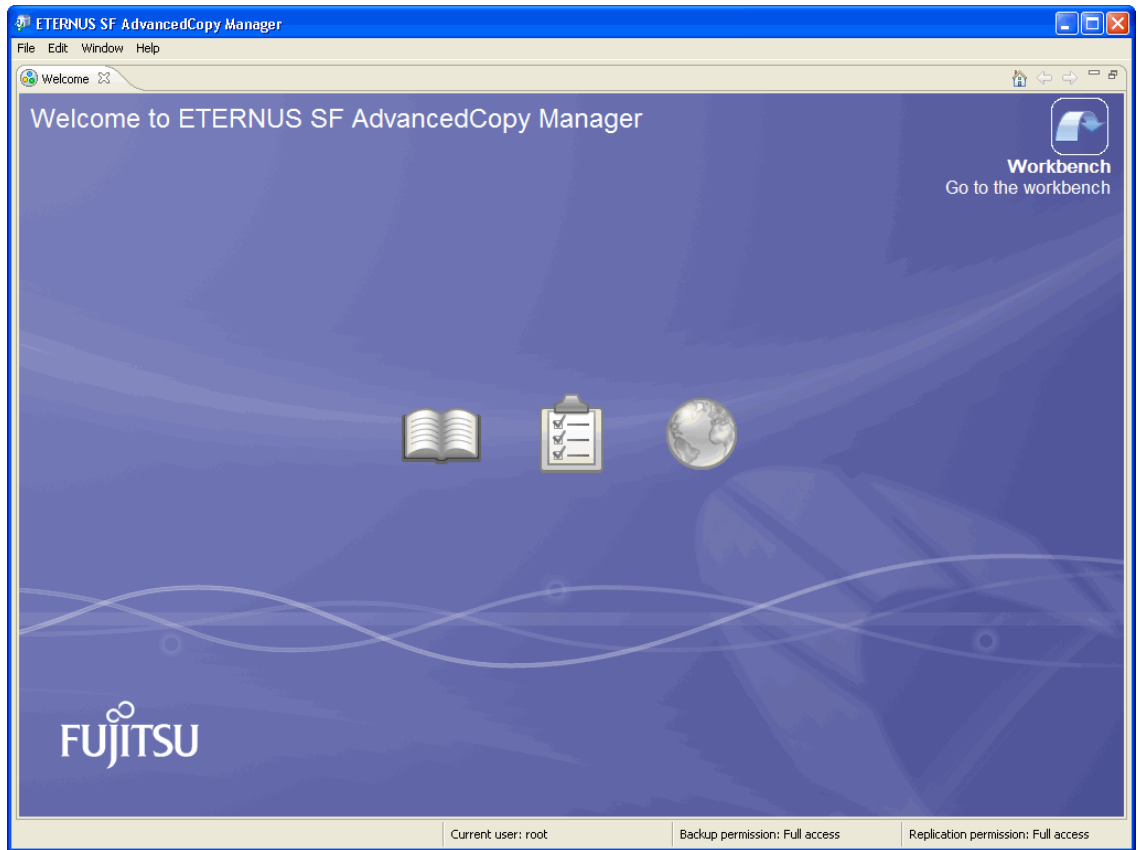
If you have more than one Storage Management Server, the login details are saved for each Storage Management Server.

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

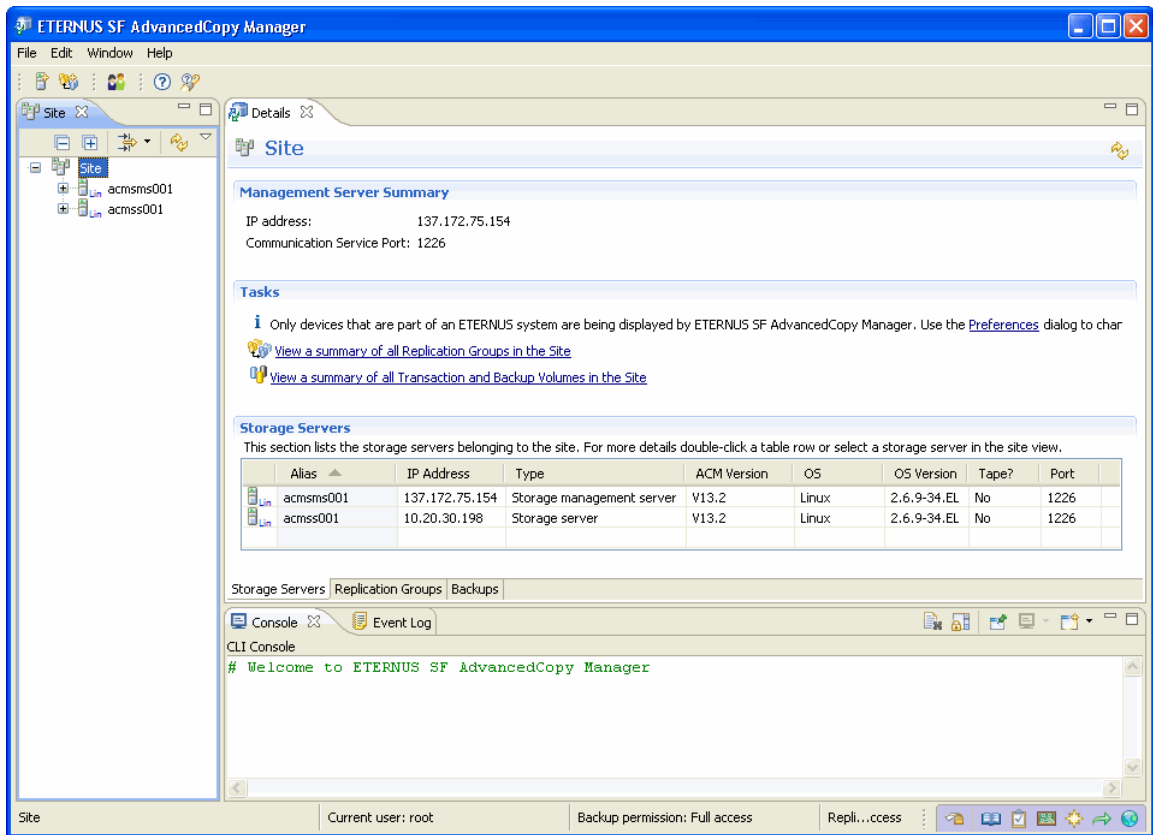
1. Open the [Window] pull-down menu on the main menu bar and select [Preferences] to open the [Preferences] dialog.
2. Select [General] to reveal the [Login automatically at startup] checkbox and disable it.



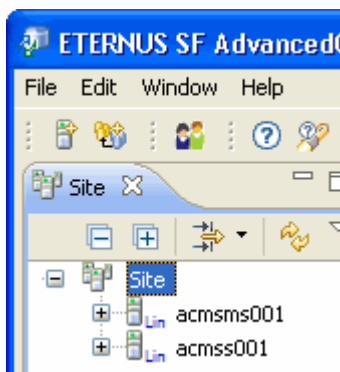
The Welcome topic is displayed once the user is authenticated. Click an icon on the Welcome topic to refer to information you wish to view. Click the Workbench icon on the top right side of the window to proceed to use AdvancedCopy Manager.



The main application perspective is displayed.

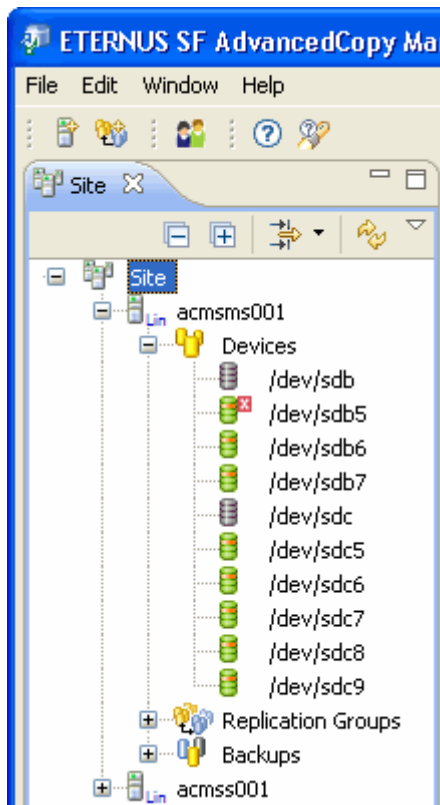


1. Select the Site icon in the Navigation tab and click the '+' symbol to view all registered Storage Servers at the site.
2. Select any Storage Server icon and click the '+' symbol again to view all groups and elements associated with that Storage Server.



3. 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 an 'x' symbol located in the top right corner of the device icon.

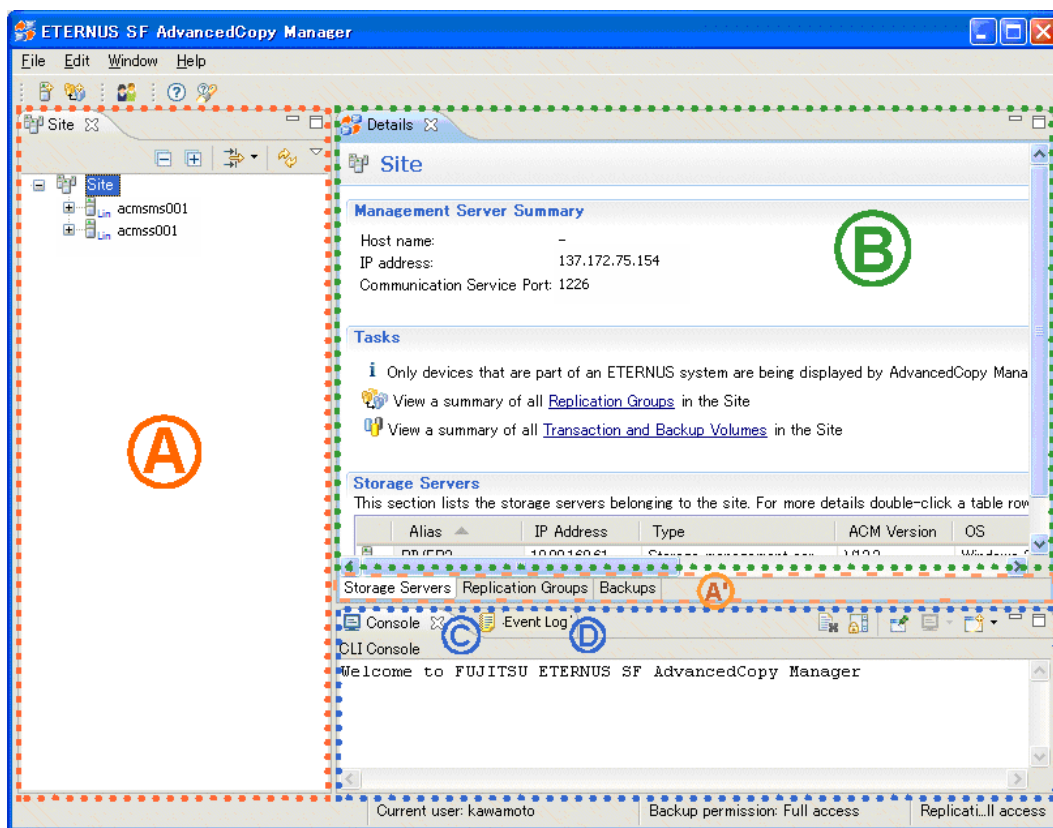


Navigating the AdvancedCopy Manager Workbench

Workbench Elements

Views


The main application perspective consists of the following views.

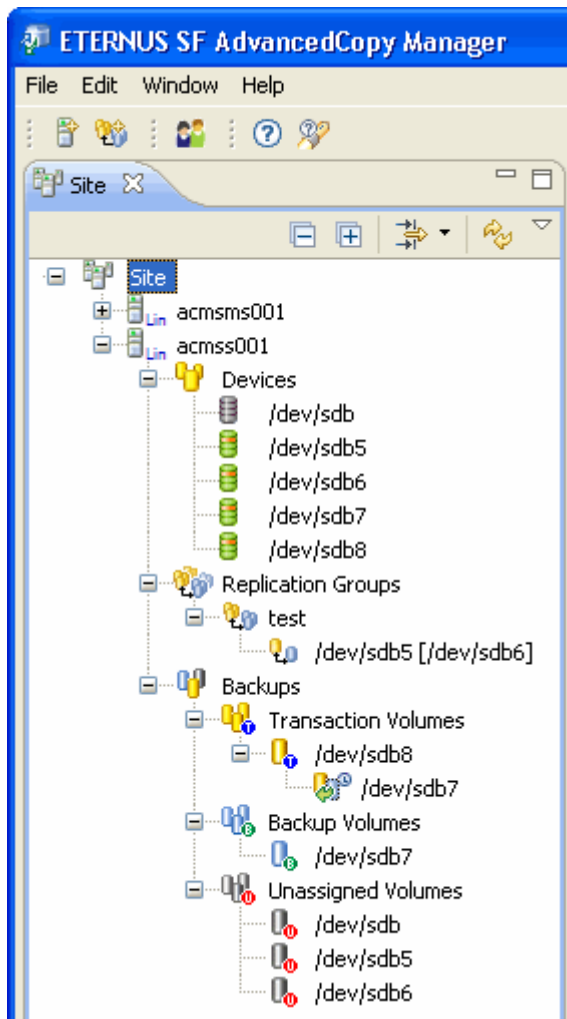


A: Site View






The AdvancedCopy Manager 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 “*”, “?”.

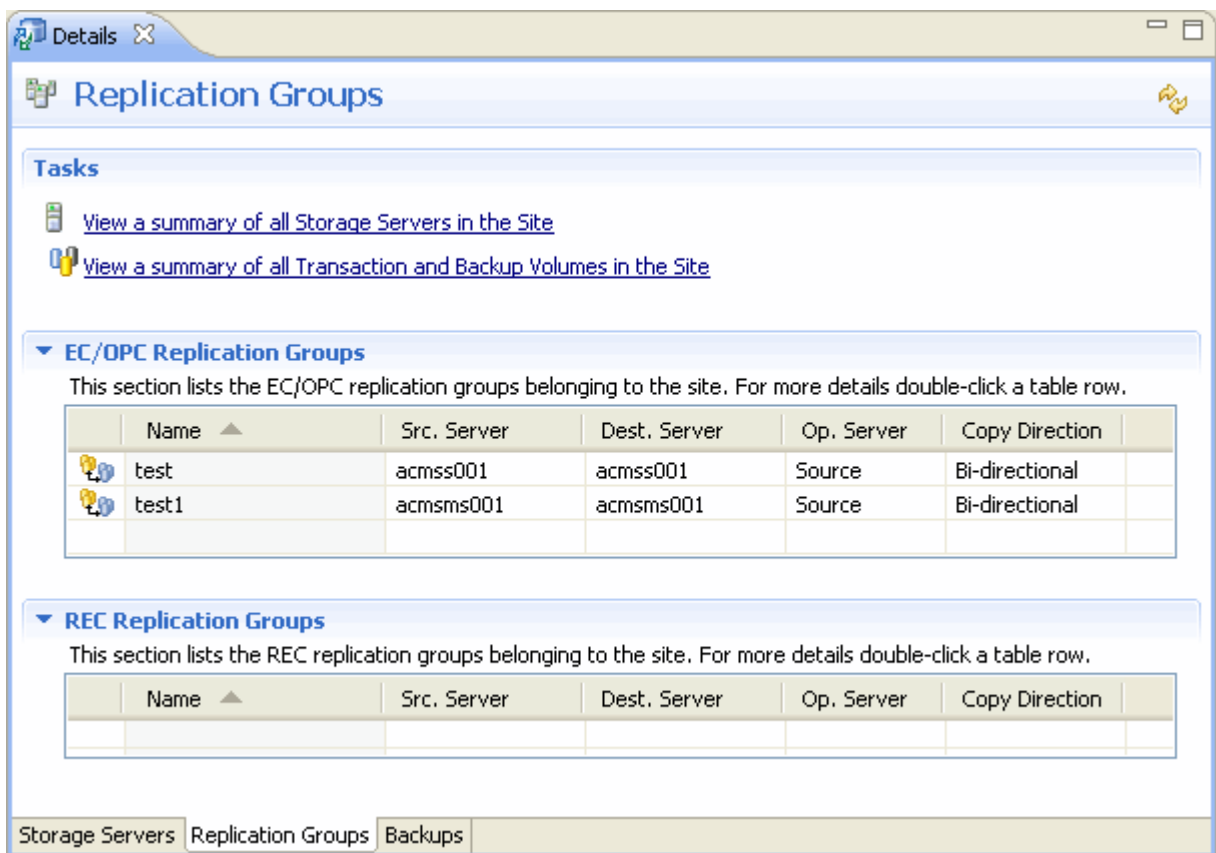


Each host Storage Server of a different type will have a different icon (depending on the installed operating system), and is identified by either host name or a user-defined Storage Server alias, if defined. The Devices node under each Storage Server groups devices that are being managed by the server, with different device types 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

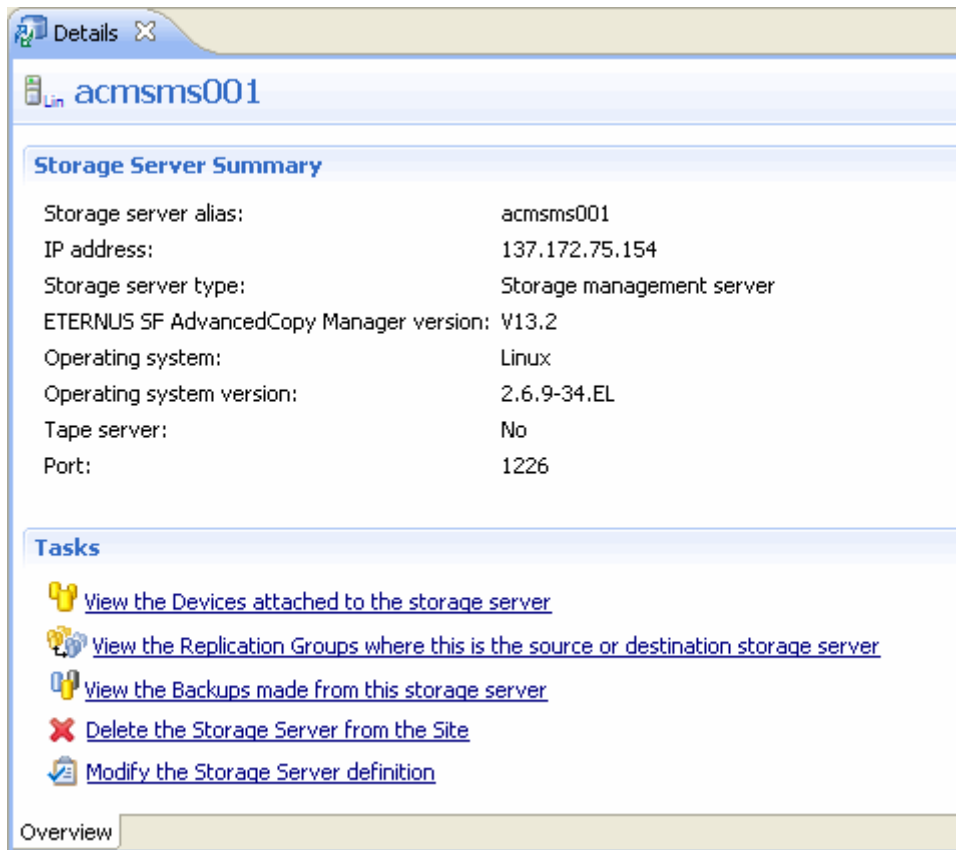
Icon	Description
	Unknown device

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.

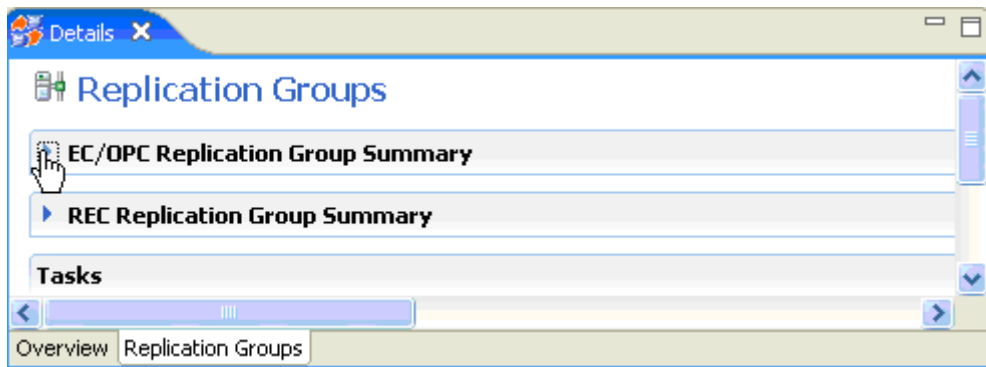
An icon in the top left hand corner of the form will expand or collapse the form as required.

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.

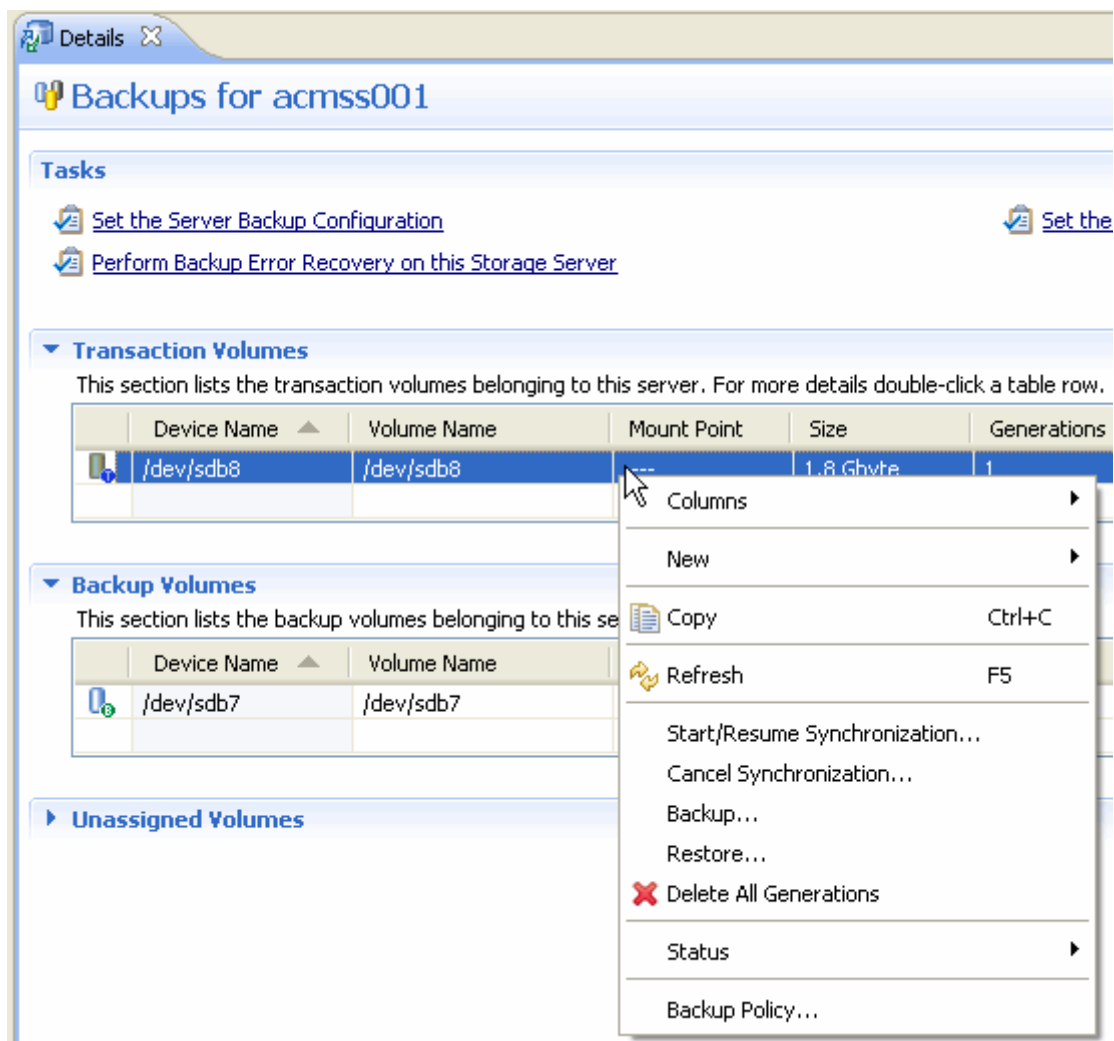
The form will be titled in accordance with the group to which they belong or the defined role of the object.

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.

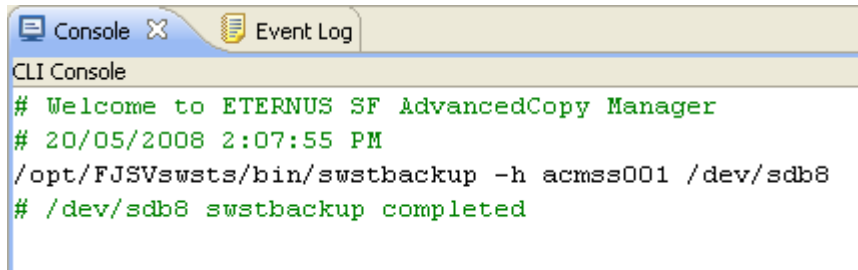


A Task pane is incorporated in the Details view and presents hyperlinked shortcuts to perform configuration or operational tasks related to the current object.

C: Console View

The Console view displays the equivalent CLI commands of any action performed from within the AdvancedCopy Manager Workbench, 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 workbench sessions.



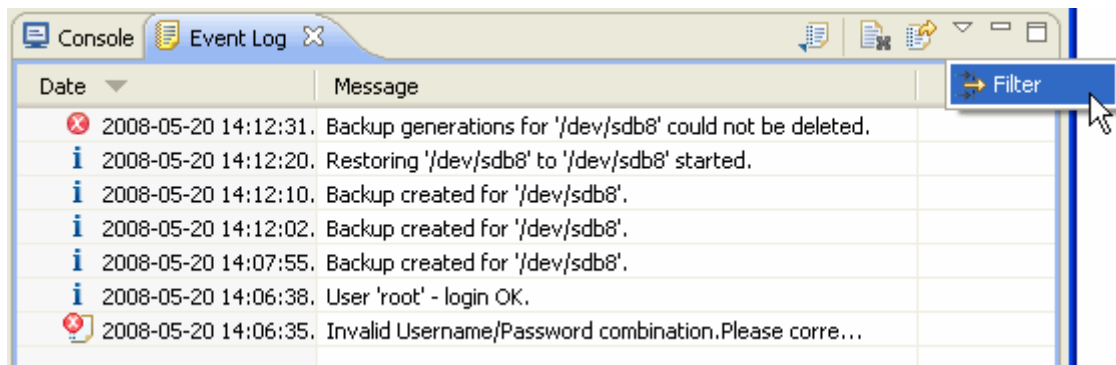
D: Event Log View

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

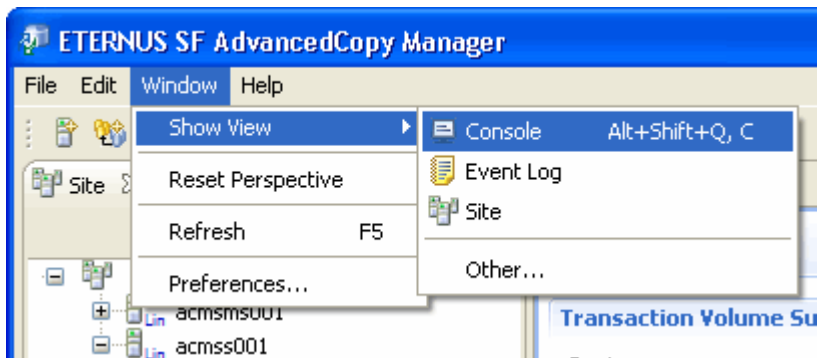
This detail can be exported, saved or restored as required.



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.

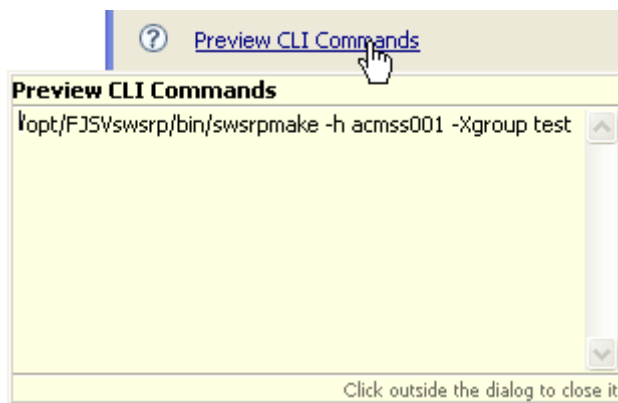


To provide more workbench space, the CLI Console and the Event Log may be detached and viewed in a separate window. To restore the separated Console or Event Log to the main perspective, use the [Show View] option in the [Window] menu on the Main Application Toolbar or click [Reset Perspective].



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 workbench workspace 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 workbench 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.
- Help Contents - Invokes the Help in a separate window.
- Search Help - Invokes a searchable help pane.



View Toolbars

Standard workbench 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 workbench management and 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.

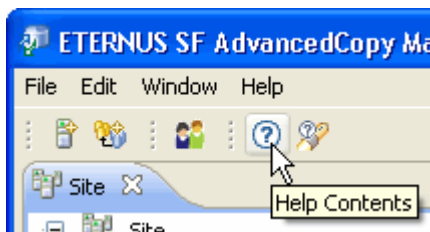
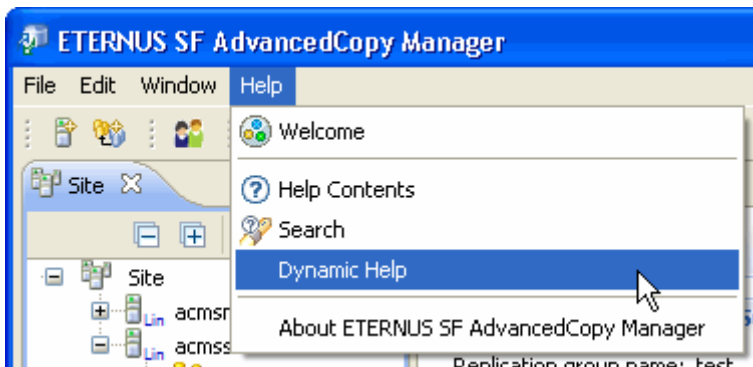
Help



Context Help

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

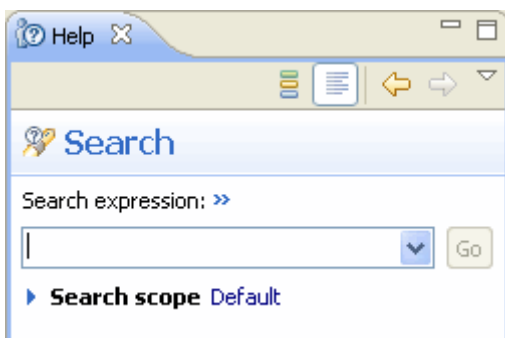


Click the [Help] icon in the bottom left of the dialog to access supplementary information related to the task being attempted. Alternatively, a fully indexed and searchable Help can be accessed through either the main application [Help] pull-down menu or one of the [Help Contents] icons on the main application toolbar (see inset) as illustrated below.



The AdvancedCopy Manager Workbench 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:

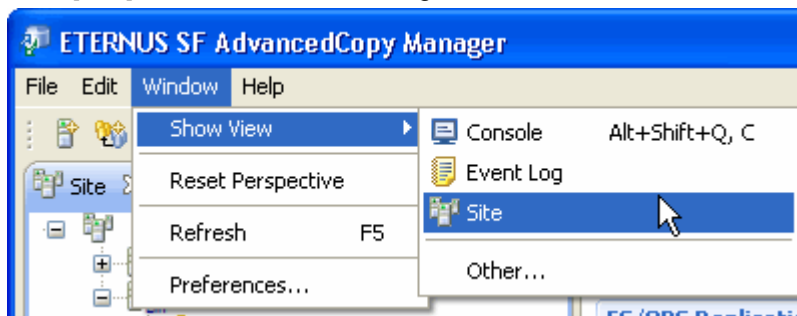
- Managing Servers
- Managing Devices
- Managing the Network
- Managing Usernames and Passwords


Manage Servers

View Site Information

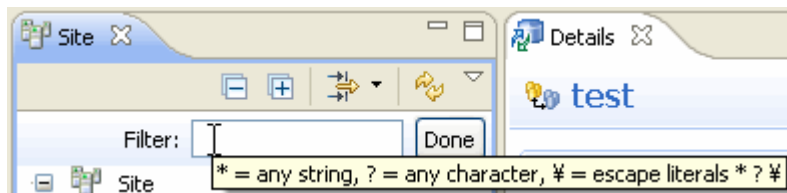
The Site structure can be displayed in a single tree view using the [Show View] option under the [Window] item on the main menu bar.

1. Click [Window] on the main menu bar and select [Show View].
2. Click [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.

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



2. 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.
3. Click the [Done] button when the required element has been located to refresh the Details view with summary information relating to that element.
4. 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

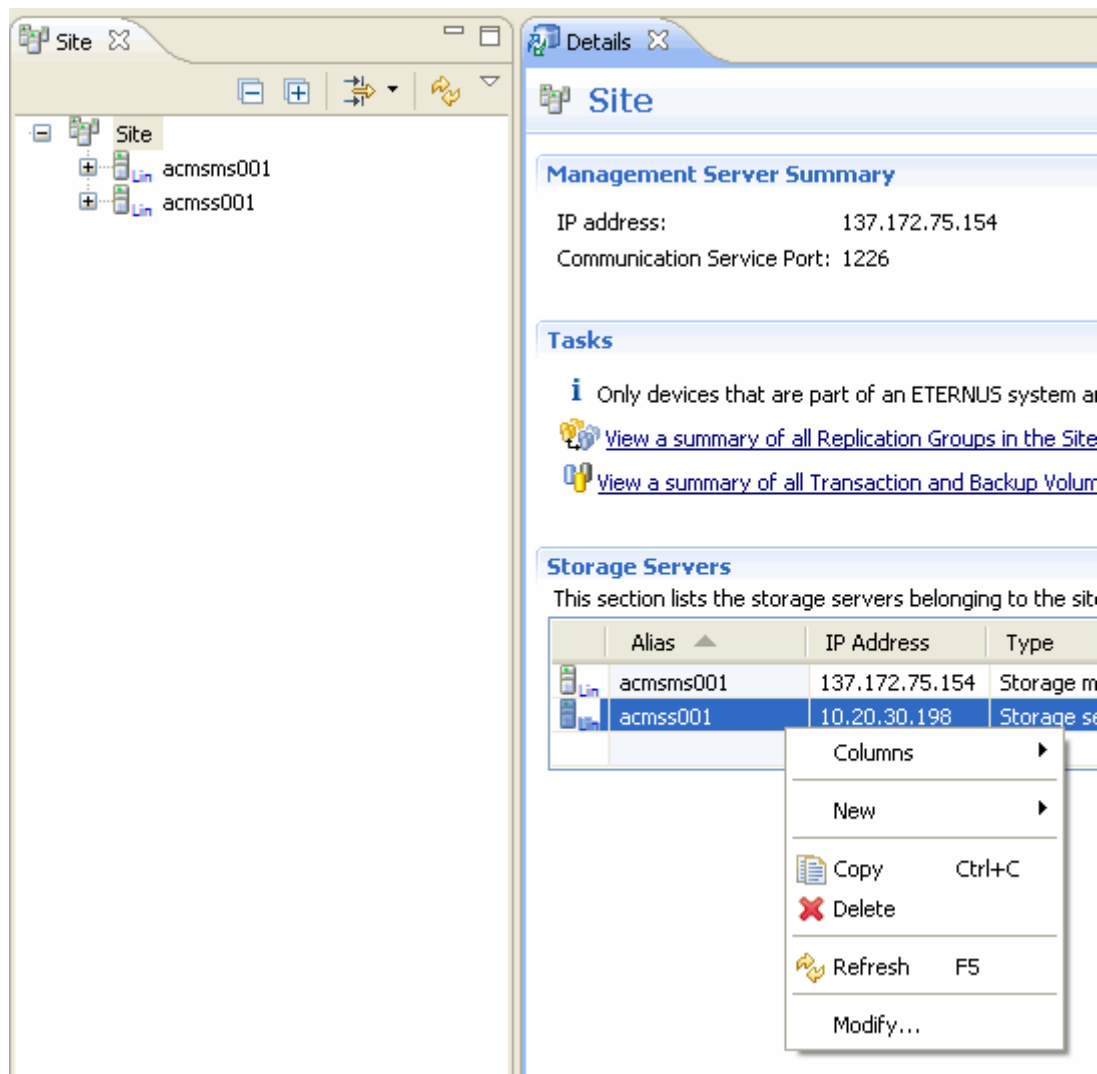
Click the Site icon to view summary details of a site.

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.



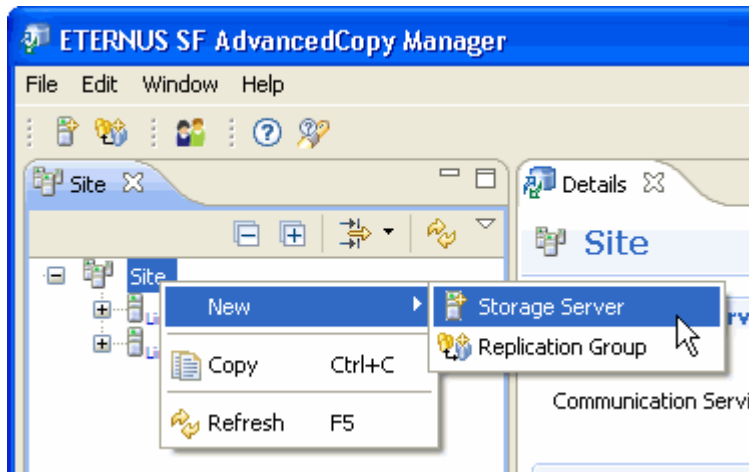
Add and Remove a Storage Server

Register a New Storage Server

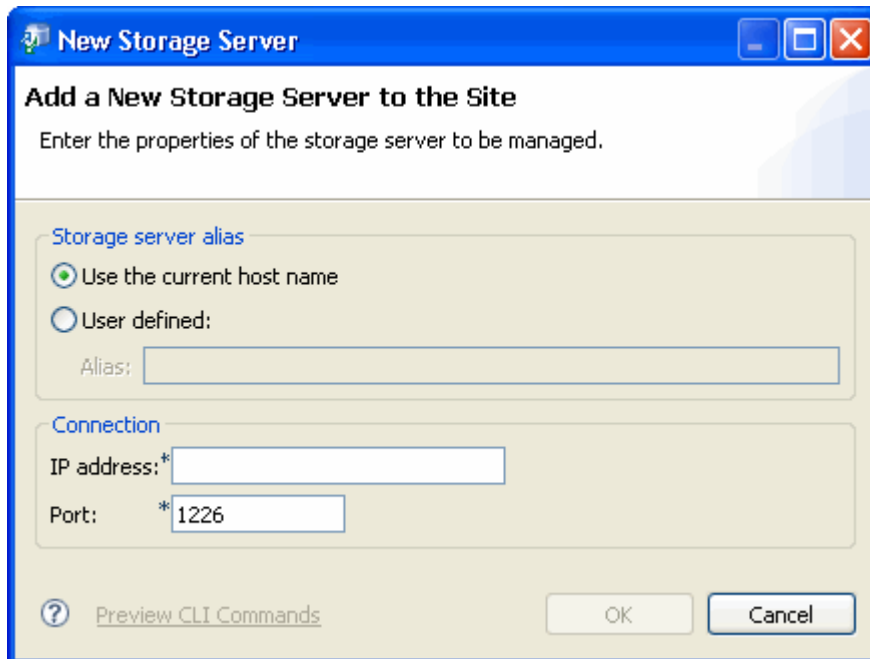
Register a new Storage Server to be managed under the Storage Management Server. When the Storage Management Server performs the role of both Storage Management Server and Storage Server, Storage Server registration is not required.

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

1. 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.

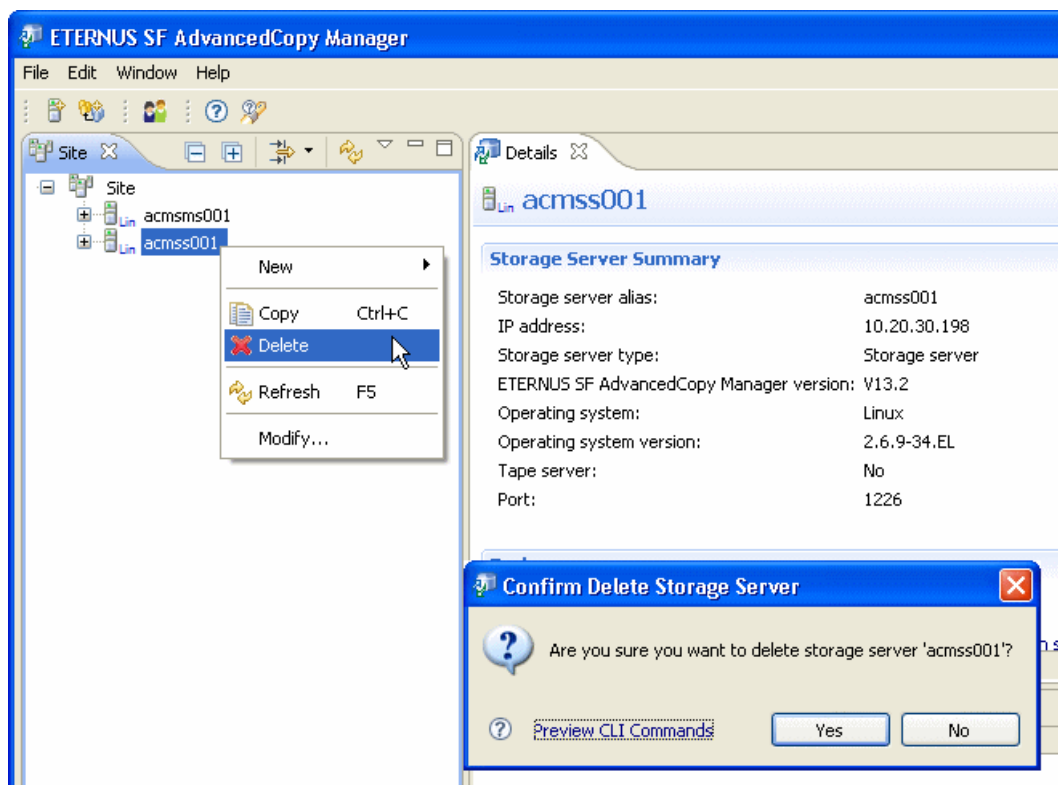


In a cluster configuration, enter the logical IP address of the Storage Server as the IP address. Specify the port number registered when the cluster was set up for the Storage Server.

Delete the Registration of a Storage Server

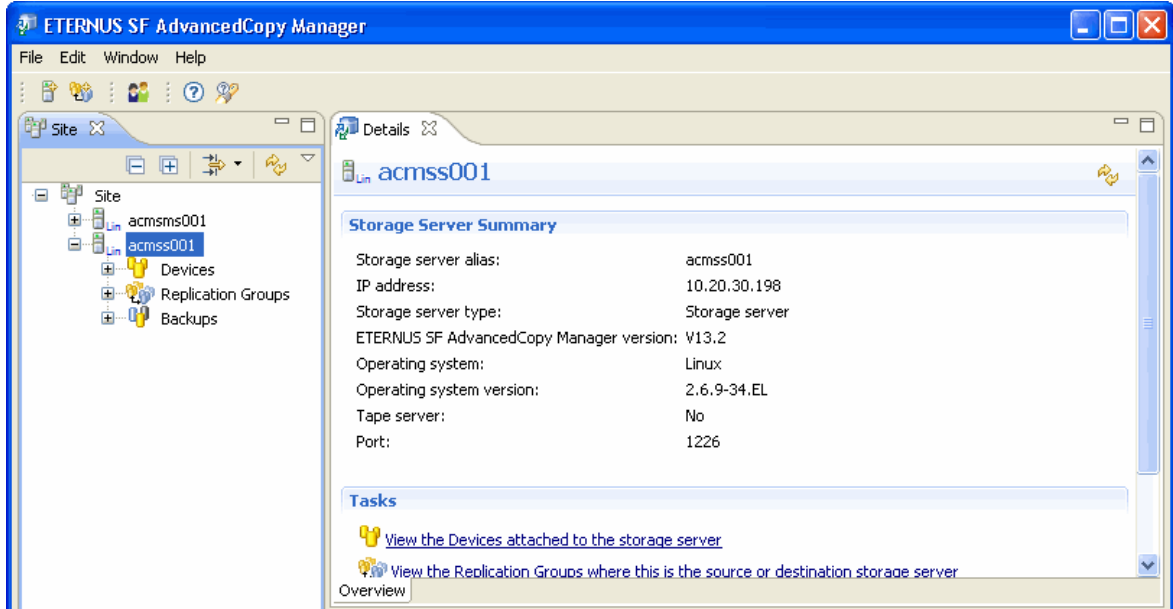
Delete a Storage Server as follows.

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.



Details

acmss001

Storage Server Summary

Storage server alias:	acmss001
IP address:	10.20.30.198
Storage server type:	Storage server
ETERNUS SF AdvancedCopy Manager version:	V13.2
Operating system:	Linux
Operating system version:	2.6.9-34.EL
Tape server:	No
Port:	1226

Tasks

- [View the Devices attached to the storage server](#)
- [View the Replication Groups where this is the source or destination storage server](#)

Overview

Manage Devices

View Storage Server Device Information

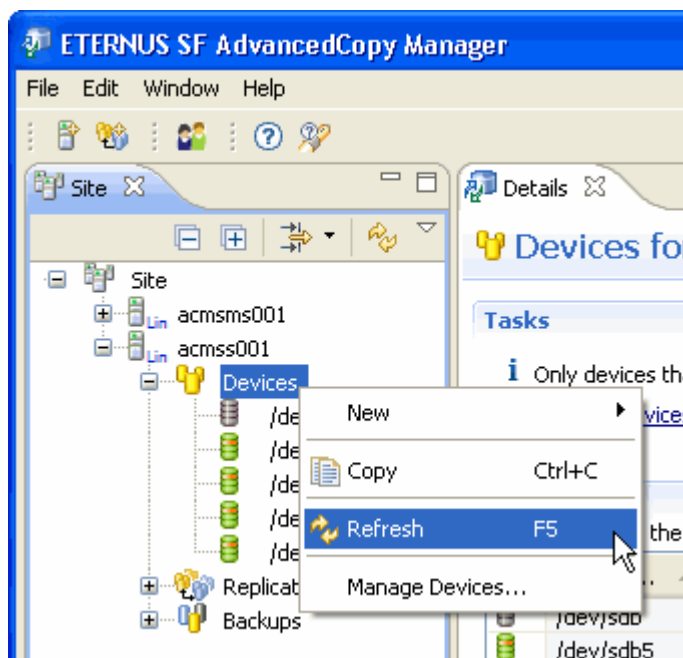
The following steps describe how to refresh the information related to a device on the Storage Server.

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].

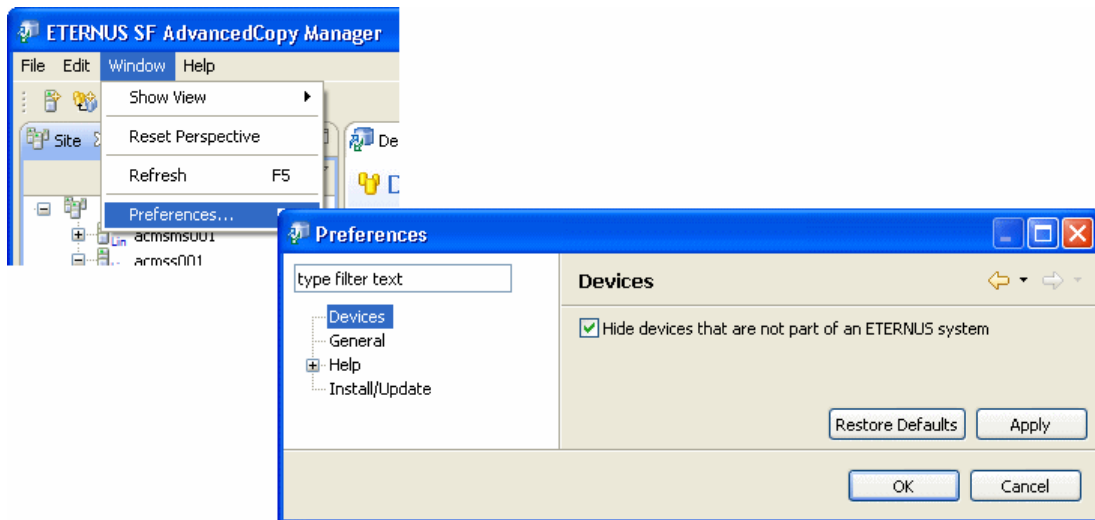
Show/Filter non-AdvancedCopy Manager Devices

The AdvancedCopy Manager Workbench allows the user to hide or show devices which may be hosted by an AdvancedCopy Manager registered Storage Server but not part of an ETERNUS system.

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

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.

Device Summary

Device name: /dev/sdb5
 Volume name: /dev/sdb5
 Block device name: /dev/sdb5
 Mount point:
 File system type:
 Device type: Partition/Slice
 Size (MB): 3816 [4001349632 bytes]
 Logical volume number: 0x6(6)
 ETERNUS box ID: 00E3000M357B##E330R20BU###JPA90013#####

Tasks

[Delete this Device so that it is no longer managed by the Storage Server](#)

Devices Using the Same Copy Area

The following devices reside in the same copy area as the selected device.
 All devices, including the selected one, in the following table will be copied by ACM regardless of which device is configured as a source in copy operation.
 It is recommended not to store data belonging to multiple applications in the same copy area. If such configuration is required, make sure all devices in the same copy area are brought to quiescent state before starting copy operation.
 Double-click a table row to view the device details.

Device Name	Volume Name	Mount Point
/dev/sdb5	/dev/sdb5	

Overview

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.

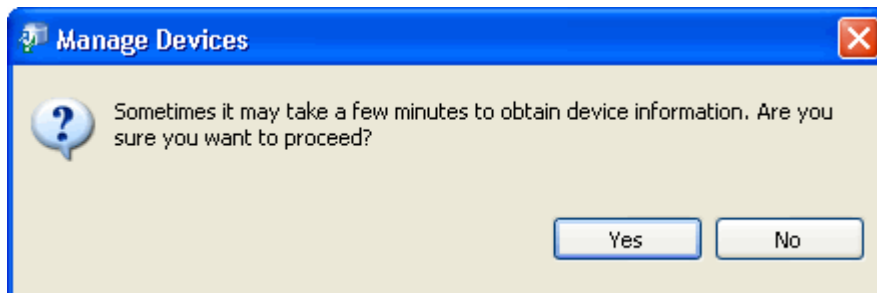
A backup policy will need to be associated with the volume if it is to be used in backup operations. Refer to the Set Backup Policy for more information relating to setting the operation type of a volume.

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.

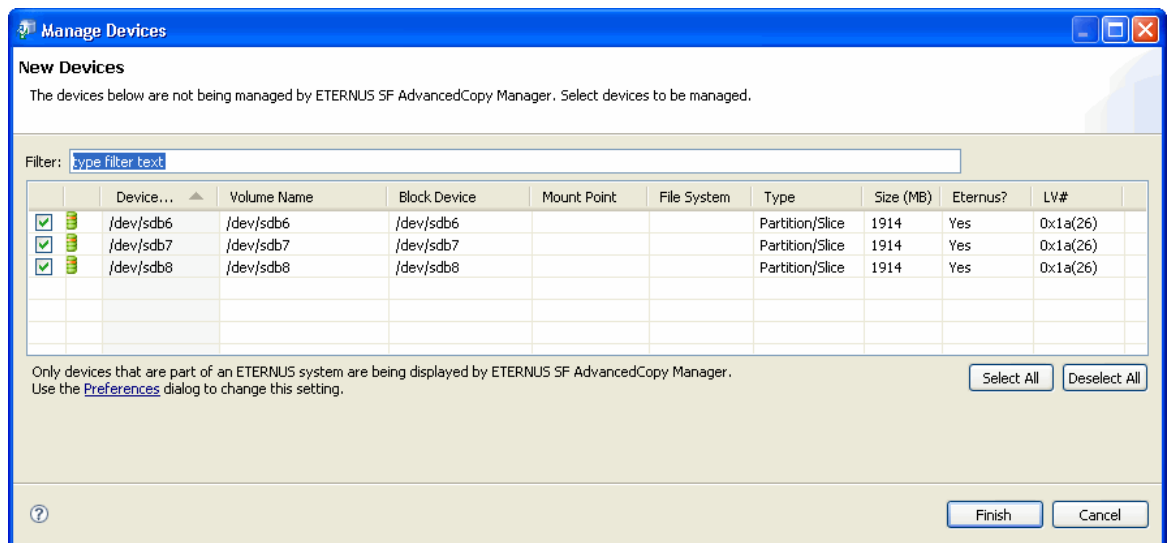
Perform the following steps to add a hosted device to the AdvancedCopy Manager environment:

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.

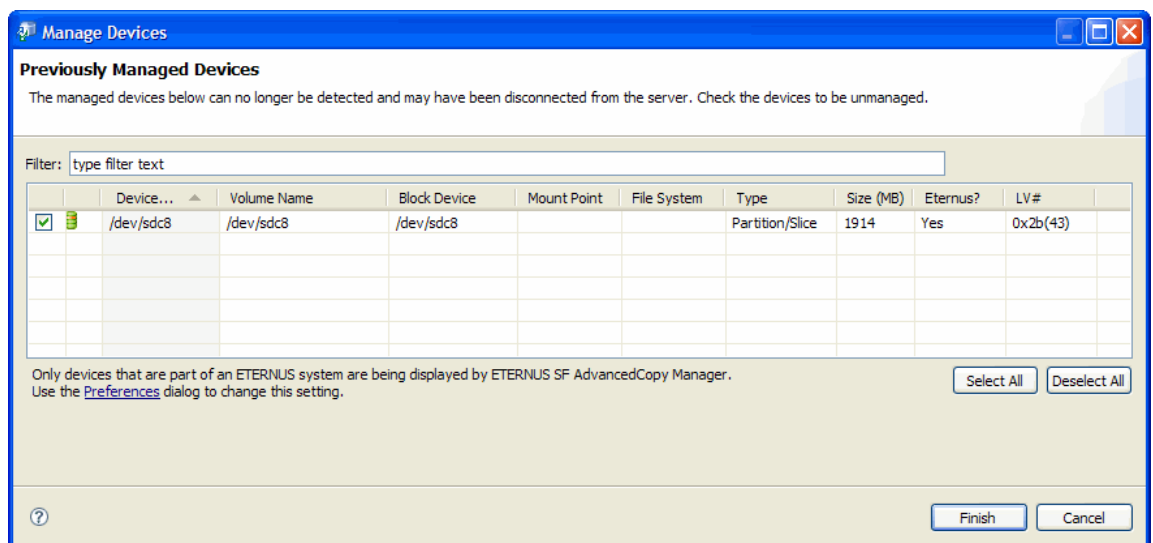
Querying the Storage Server for device information could take several minutes, so a [Manage Devices] confirmation dialog with the following message is displayed.



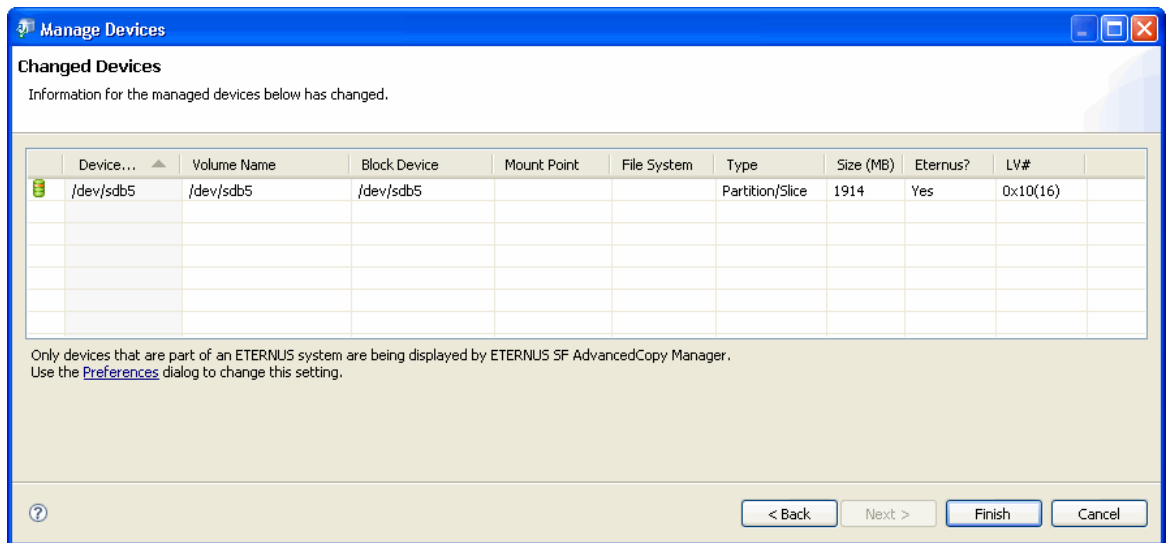
2. Click the [Yes] button to proceed. This closes the confirmation dialog and queries the server for device information. If device information has not changed, a standard [Manage Devices] information dialog is displayed containing the message "No device changes were detected". If any device information 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.



- 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.”

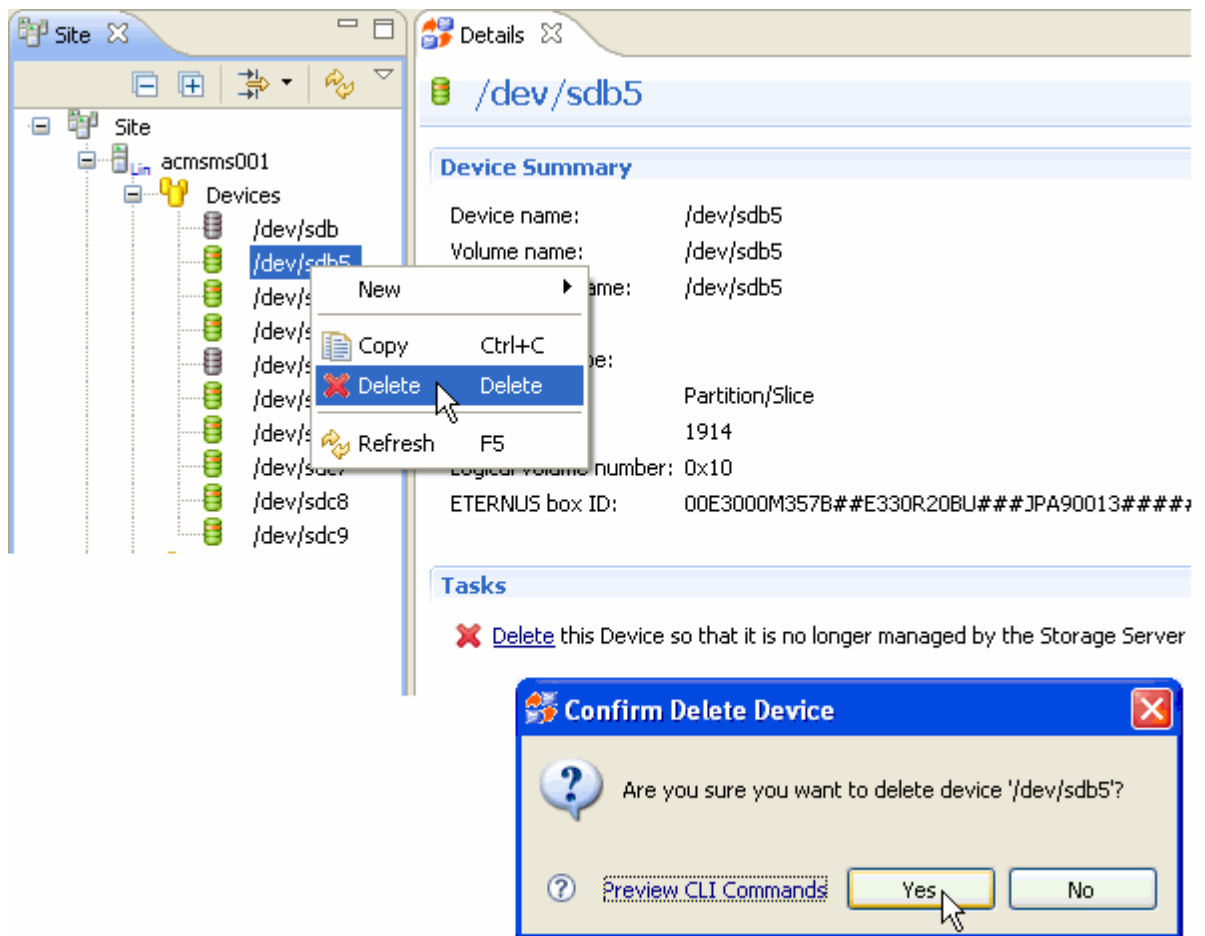
Delete a Device

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.

- 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.
- 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.

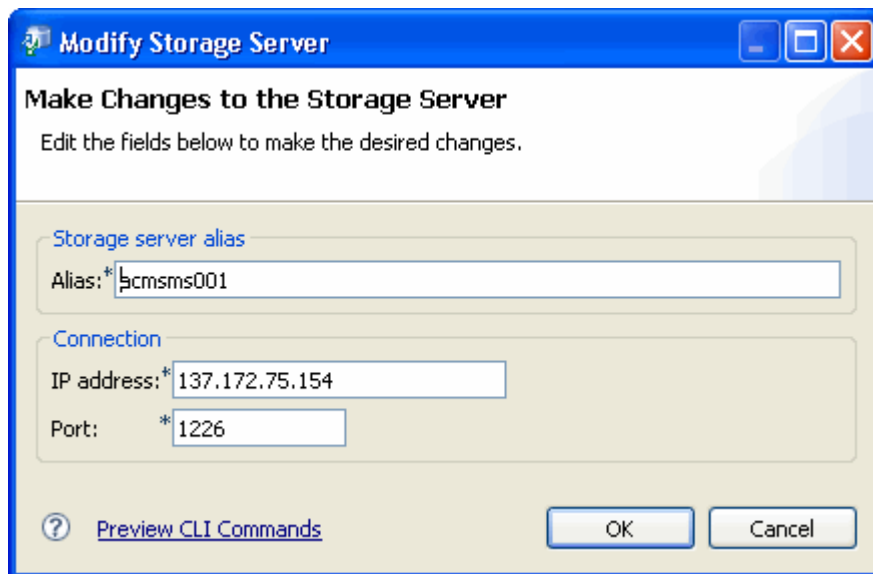


This procedure only updates the network information stored in the AdvancedCopy Manager repository. To change the IP address, port number or server name of a Storage Server, it is necessary that the network environment of the operating system must be reconfigured manually. This procedure does not change 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:

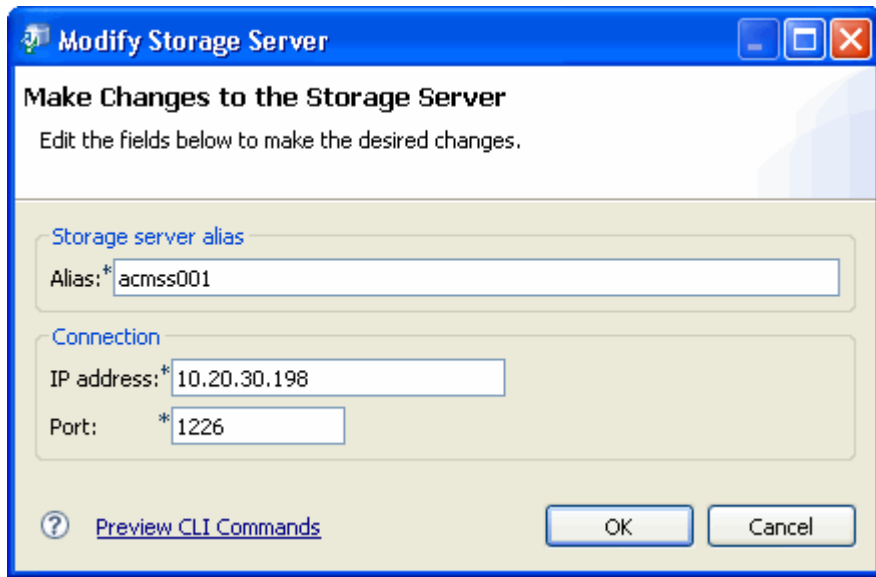
- Server name
- Storage Server IP address
- Storage Server port number

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.



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

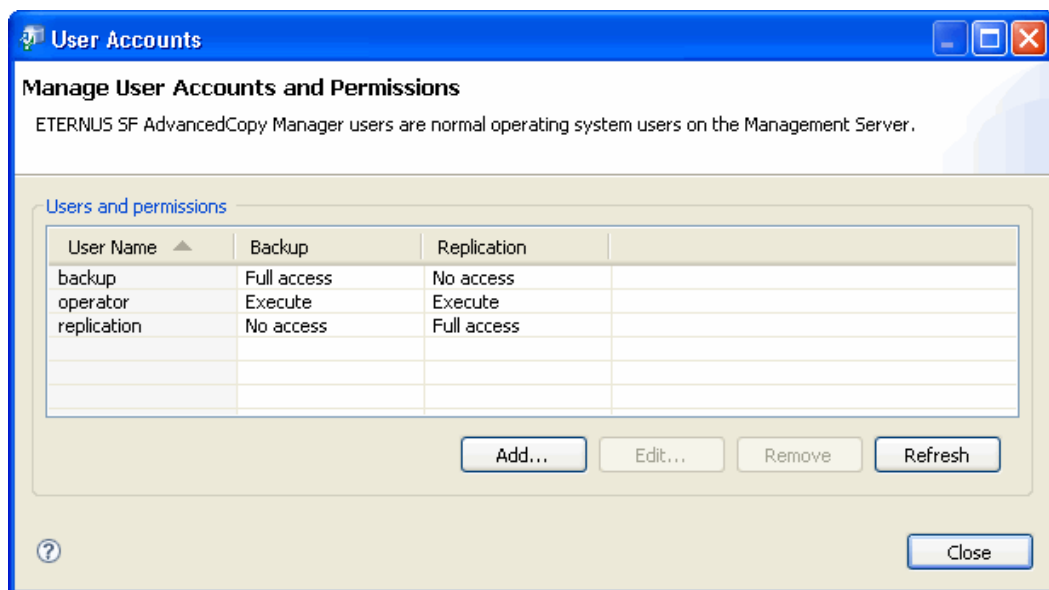
Only the Windows start-up account and UNIX root users, as specified during AdvancedCopy Manager installation, can view account information for any or all users.

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.



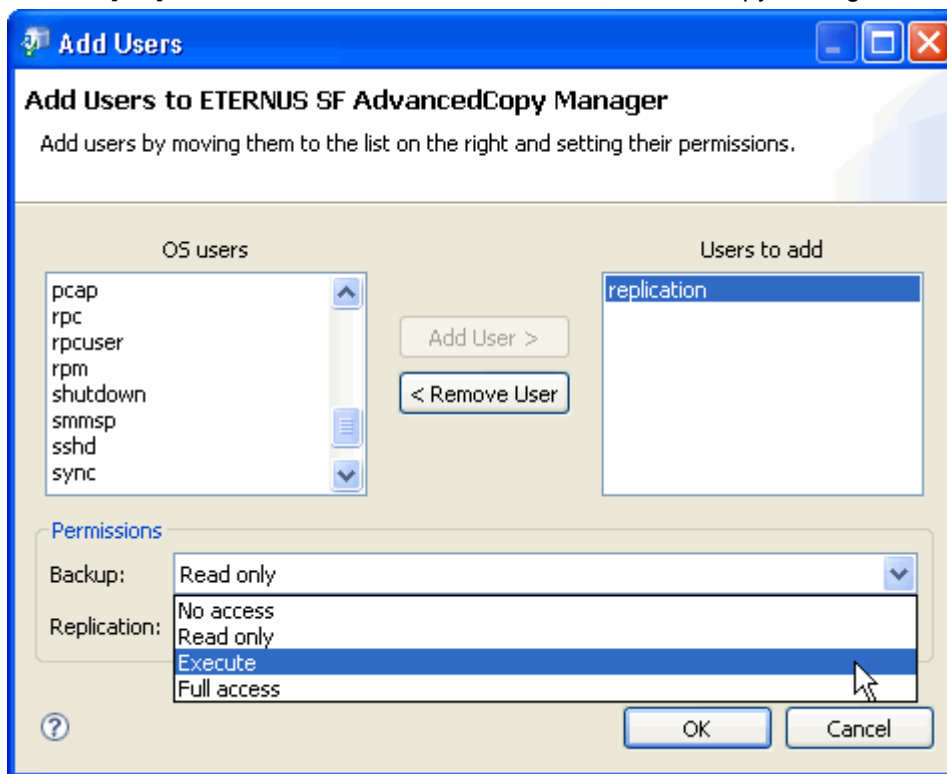
- If the user is a root user (in UNIX) or the start-up account specified during installation (in Windows) then the table inside the Users group is enabled and all AdvancedCopy Manager users are listed. However the root/start-up users (including the current user) are not shown in the table, so they cannot 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.



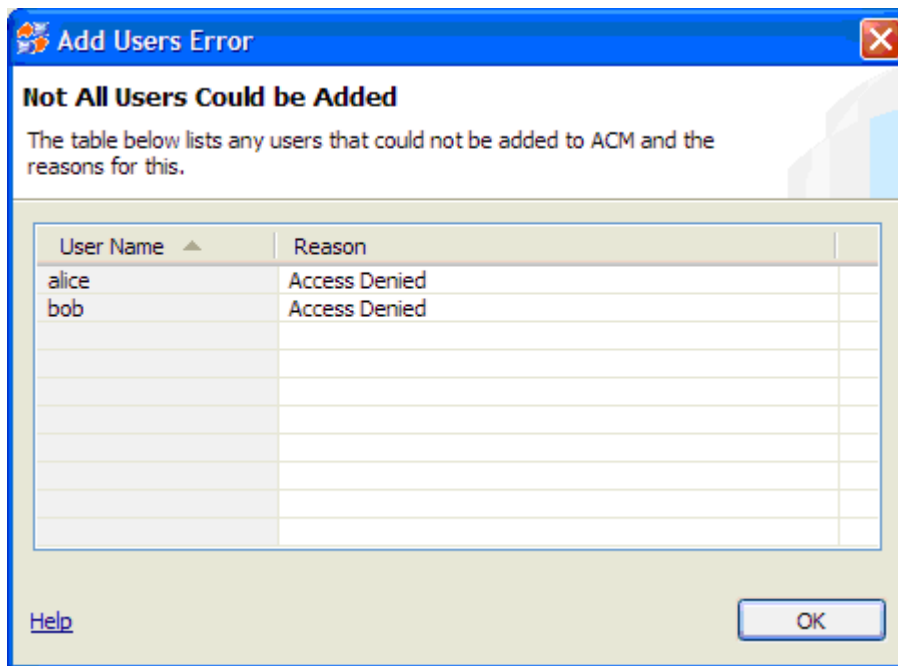
Click the [Cancel] button to close the dialog at any time without performing any operation.

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.

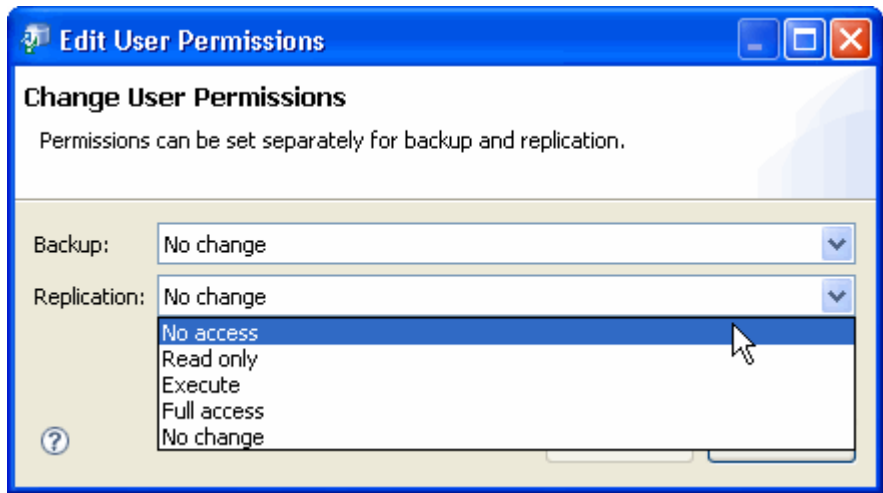
Access permission details

Operation	Full access	Execute	Read only
Server information display	Yes	Yes	Yes
Device information display	Yes	Yes	Yes

Operation	Full access	Execute	Read only
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.



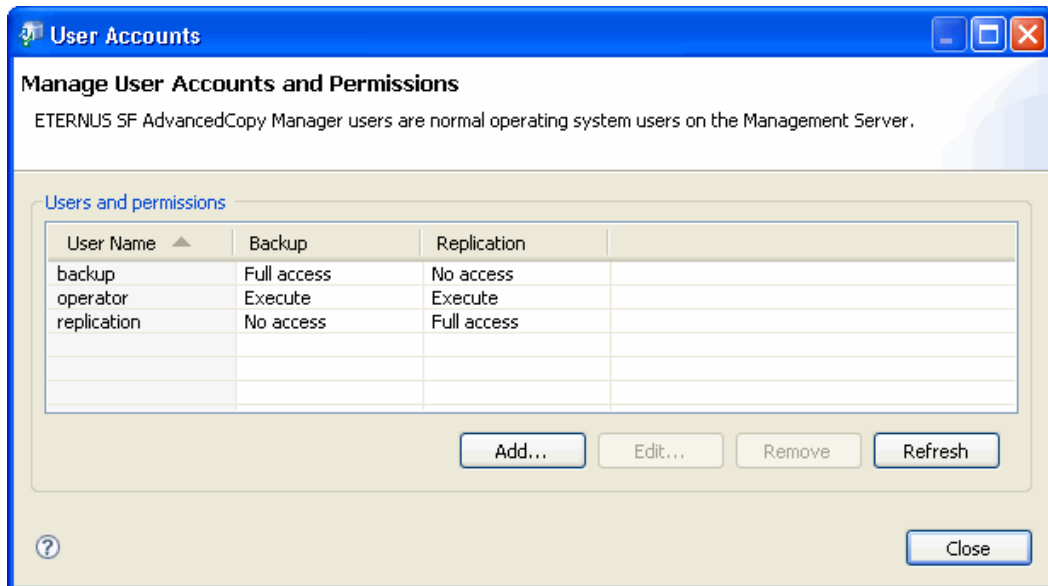
- Click the [OK] button to change the permissions for the selected user/s and close the dialog. If permissions for one or more users cannot be changed, an information-only dialog with the message "Permissions could not be changed for all users" is displayed. The message will also table those users for whom permissions could not be changed with reasons for failure. Click the [OK] button to close the message dialog.

Remove a User

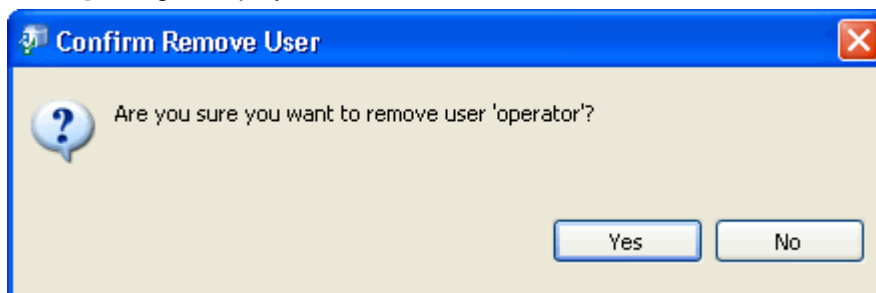
Only UNIX root users or the Windows start-up account specified during AdvancedCopy Manager installation can change user permissions.

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.

Backup

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

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.

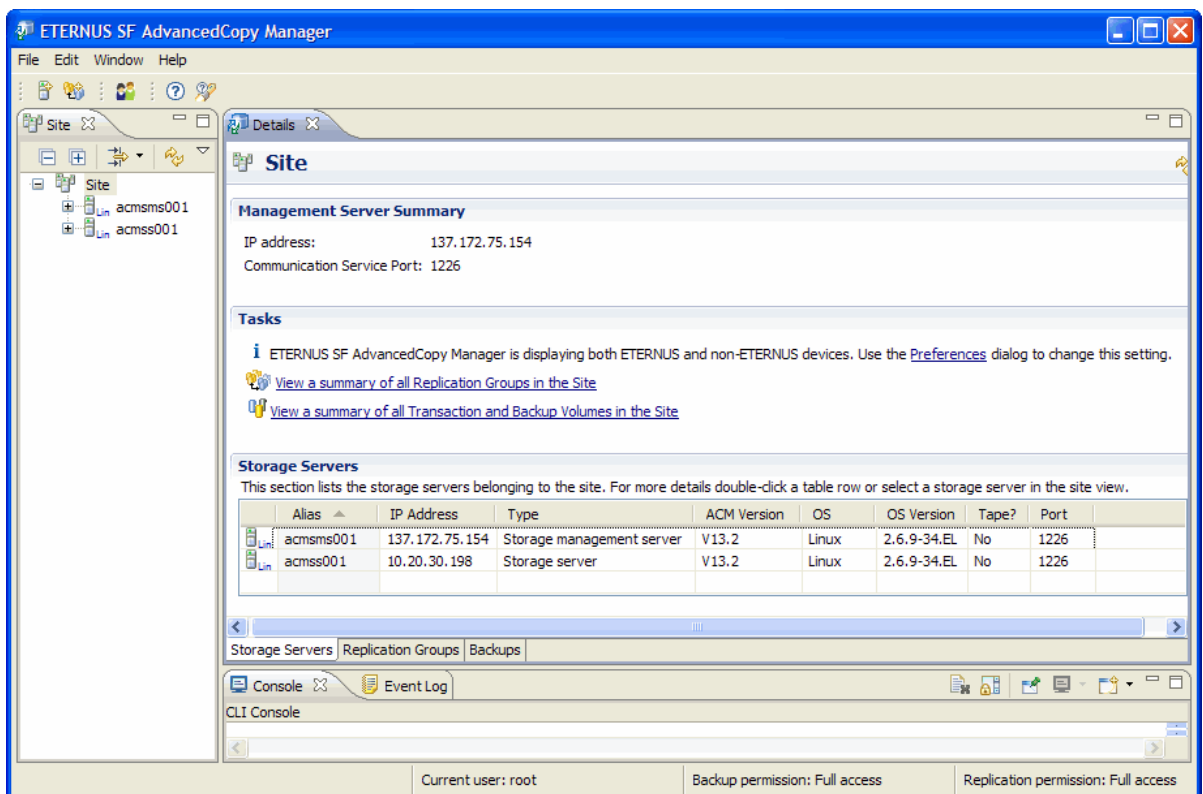
View Device Information

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.



The screenshot displays the ETERNUS SF AdvancedCopy Manager interface. The main window is titled "ETERNUS SF AdvancedCopy Manager" and features a menu bar (File, Edit, Window, Help) and a toolbar. On the left, a tree view shows a "Site" folder containing two sub-items: "acmsms001" and "acmss001". The main area is split into two panes: "Site" and "Details". The "Details" pane is active and shows the following information:

- Management Server Summary**
 - IP address: 137.172.75.154
 - Communication Service Port: 1226
- Tasks**
 - Information icon: ETERNUS SF AdvancedCopy Manager is displaying both ETERNUS and non-ETERNUS devices. Use the [Preferences](#) dialog to change this setting.
 - View a summary of all Replication Groups in the Site
 - View a summary of all Transaction and Backup Volumes in the Site
- Storage Servers**
 - This section lists the storage servers belonging to the site. For more details double-click a table row or select a storage server in the site view.

Alias	IP Address	Type	ACM Version	OS	OS Version	Tape?	Port
acmsms001	137.172.75.154	Storage management server	V13.2	Linux	2.6.9-34.EL	No	1226
acmss001	10.20.30.198	Storage server	V13.2	Linux	2.6.9-34.EL	No	1226

At the bottom of the interface, there are tabs for "Console" and "Event Log". The "CLI Console" area shows the current user as "root", backup permission as "Full access", and replication permission as "Full access".

- 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.

Tasks

- [View a summary of all Storage Servers in the Site](#)
- [View a summary of all Replication Groups in the Site](#)

Transaction Volumes

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

Server	Device Name	Volume Name	Mount Point	Size	Generations	Frequency
acmss001	/dev/sdb8	/dev/sdb8	----	1.8 Gbyte	1	30

Backup Volumes

This section lists the backup volumes belonging to the site. For more details double-click a table row.

Server	Device Name	Volume Name	Mount Point	Size	Availability
acmss001	/dev/sdb7	/dev/sdb7	----	1.8 Gbyte	used

Unassigned Volumes

This section lists the unassigned volumes belonging to the site. For more details double-click a table row.

Server	Device Name	Volume Name	Mount Point	Size
acmss001	/dev/sdb	/dev/sdb	----	10.0 Gbyte
acmss001	/dev/sdb5	/dev/sdb5	----	1.8 Gbyte
acmss001	/dev/sdb6	/dev/sdb6	----	1.8 Gbyte

Storage Servers | Replication Groups | Backups

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.

Label	Description	
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	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.	
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.	
	“----”	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	

Label	Description										
	<table border="1"> <tr> <td>"snapshot(failed)"</td> <td>Backup using OPC has terminated abnormally</td> </tr> <tr> <td>"snapshot(halt)"</td> <td>Backup using OPC has been halted</td> </tr> <tr> <td>"restore(%)"</td> <td>Rate of progress of restoration</td> </tr> <tr> <td>"restore(halt)"</td> <td>Restoration using OPC has been halted</td> </tr> <tr> <td>"gds-error"</td> <td>Copying with GDS has terminated abnormally.</td> </tr> </table>	"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.
"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.										
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	<p>Displays the absolute generation number.</p> <p>If the generation number for the data that was first backed up is 1, the generation for the new data will be 2.</p>
Rel. Generation	<p>Displays the relative generation number.</p> <p>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.</p>
Backup Date	Date and time last backup started
Backup Volume	Backup volume
Status	<p>Displays the backup data copy status.</p> <ul style="list-style-type: none"> - succeeded - executing (%) - failed - halt - gds-error

Label	Description
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	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

Label	Description
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	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.

The screenshot shows a 'Details' window for 'Backups for acmsms001'. The window is divided into several sections:

- Tasks:** Contains two tasks: 'Set the [Server Backup Configuration](#)' and 'Perform [Backup Error Recovery](#) on this Storage Server'.
- Transaction Volumes:** A section with a table listing transaction volumes. The table has columns: Device Name, Volume Name, Mount Point, Volume Size, and Generations. One row is visible for /dev/sdb6.
- Backup Volumes:** A section with a table listing backup volumes. The table has columns: Device Name, Volume Name, Mount Point, Size, and Availability. Three rows are visible for /dev/sdc6, /dev/sdc8, and /dev/sdc9.
- Unassigned Volumes:** A section with a table listing unassigned volumes. The table has columns: Device Name, Volume Name, Mount Point, and Size. One row is visible for /dev/sdb.

The 'Overview' tab is selected at the bottom of the window.

Device Name	Volume Name	Mount Point	Volume Size	Generations
/dev/sdb6	/dev/sdb6	----	1.8 Gbyte	2

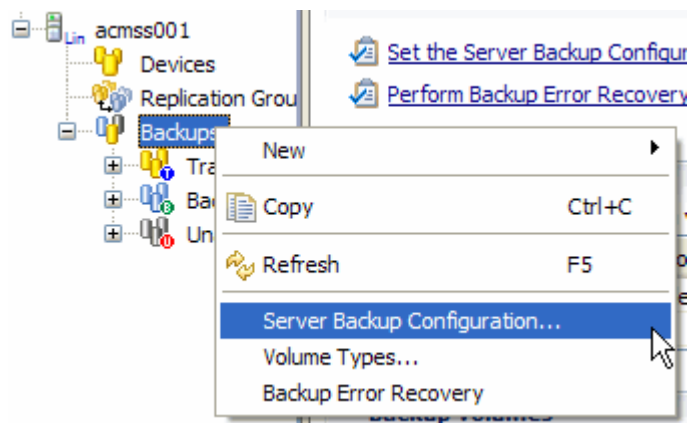
Device Name	Volume Name	Mount Point	Size	Availability
/dev/sdc6	/dev/sdc6	----	1.8 Gbyte	free
/dev/sdc8	/dev/sdc8	----	1.8 Gbyte	free
/dev/sdc9	/dev/sdc9	----	1.8 Gbyte	used

Device Name	Volume Name	Mount Point	Size
/dev/sdb	/dev/sdb	----	10.0 Gbyte

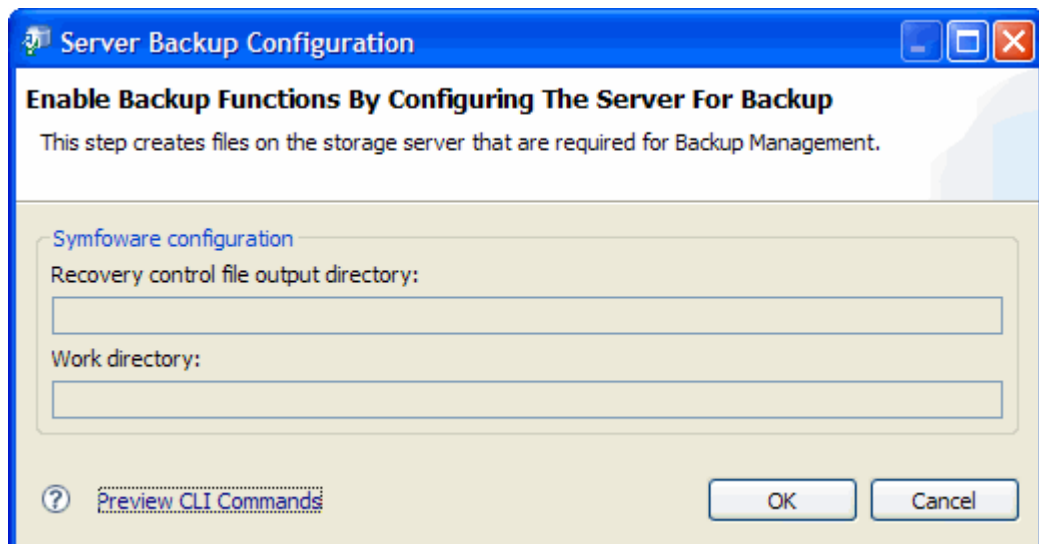
Enable Backup for a Storage Server

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.

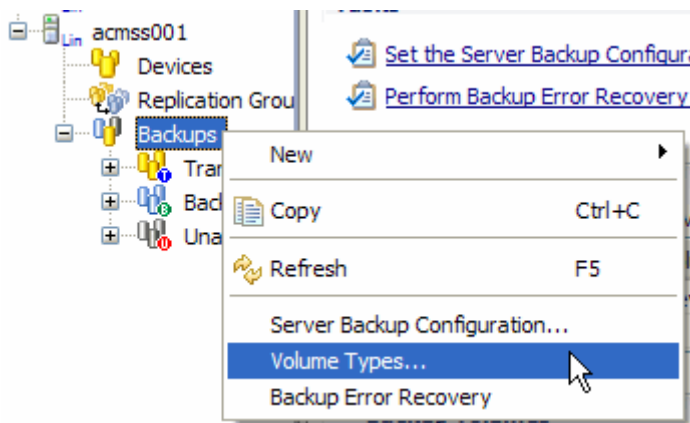
A device may also be defined as both a replication source device and a transaction volume but cannot be both a replication device and a backup volume.

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

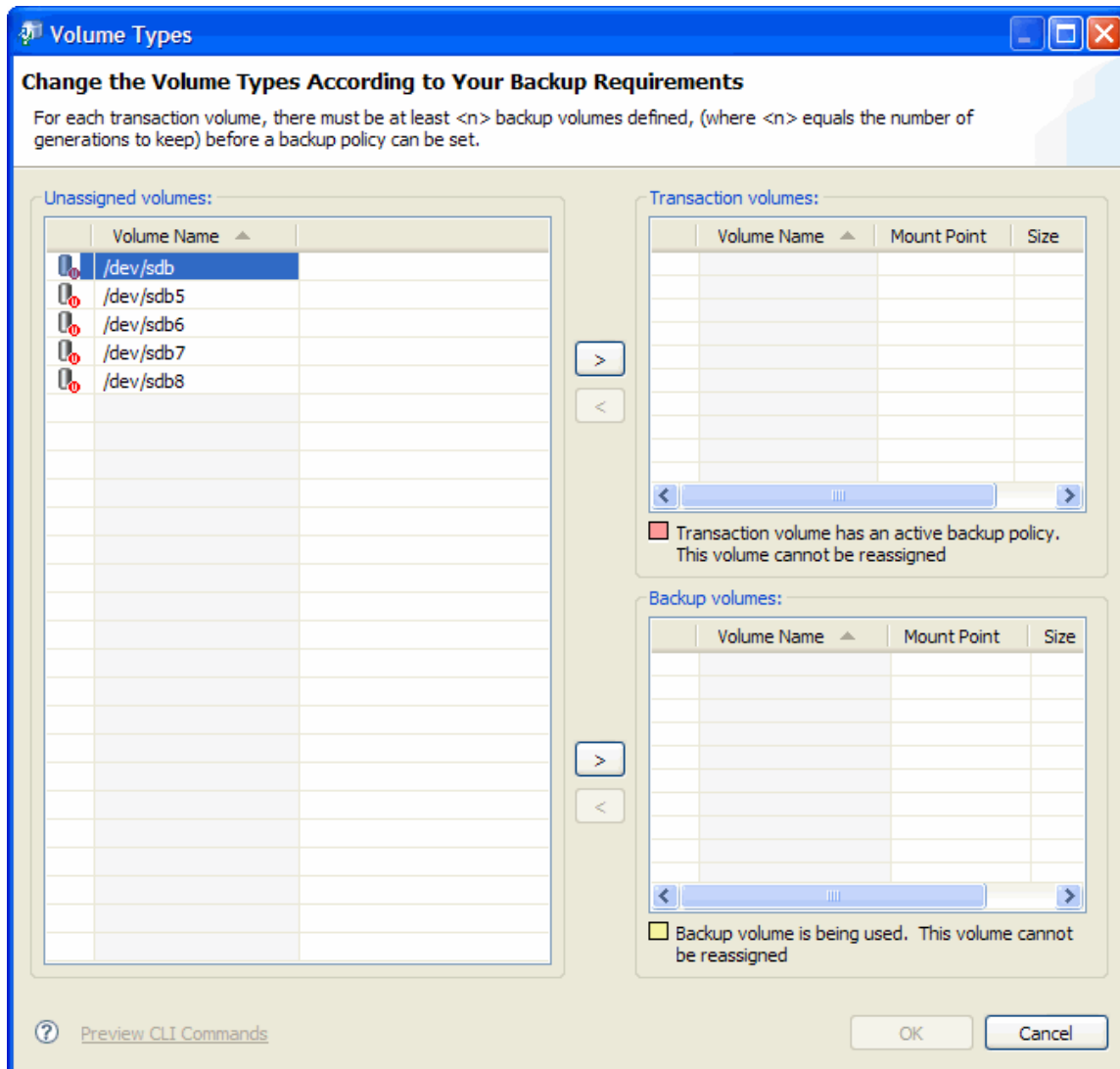
Define the Role of a Volume

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.



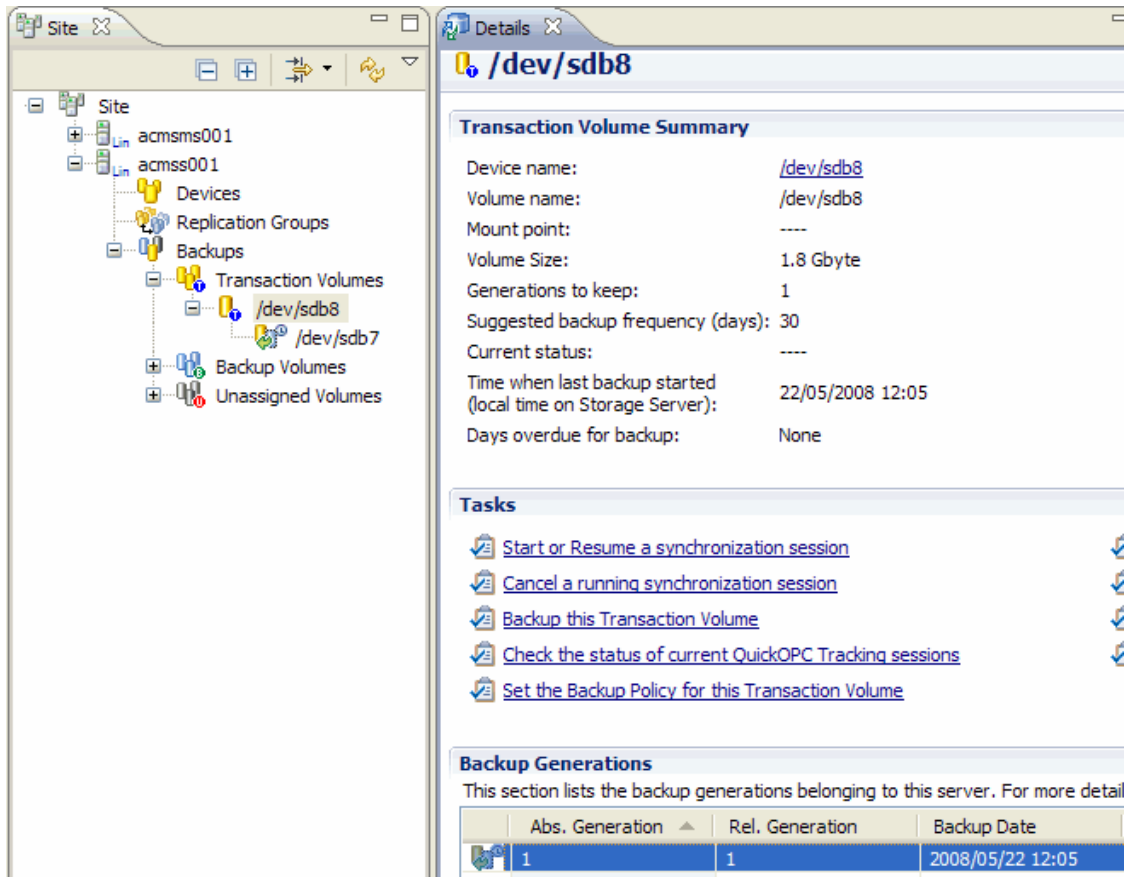
3. Select a volume from the Unassigned volumes pane and click the appropriate [>] button to move the volume to either the Transaction volumes pane or the Backup volumes pane on the right hand side of the dialog.
4. Click the [OK] button to continue to set the operation type for the selected volume/s.

Remove a Transaction Volume

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

1. 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.



2. Delete any backup history for the transaction volume to be removed.
For more information on this, refer to Delete Backup History.
3. Delete any backup policies that have been set for volume that is to be deleted.
Refer to Delete Backup Policy below.
4. 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

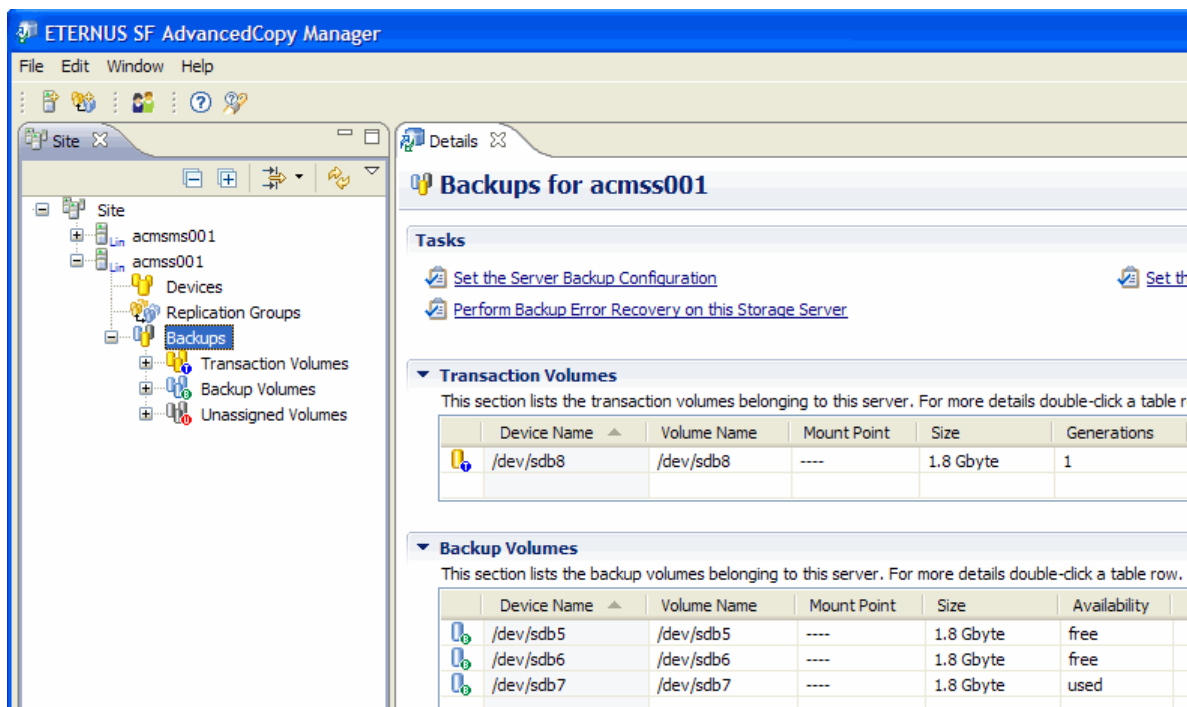
When deleting a backup volume, it is important to ensure that the steps are completed in the following order.

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 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

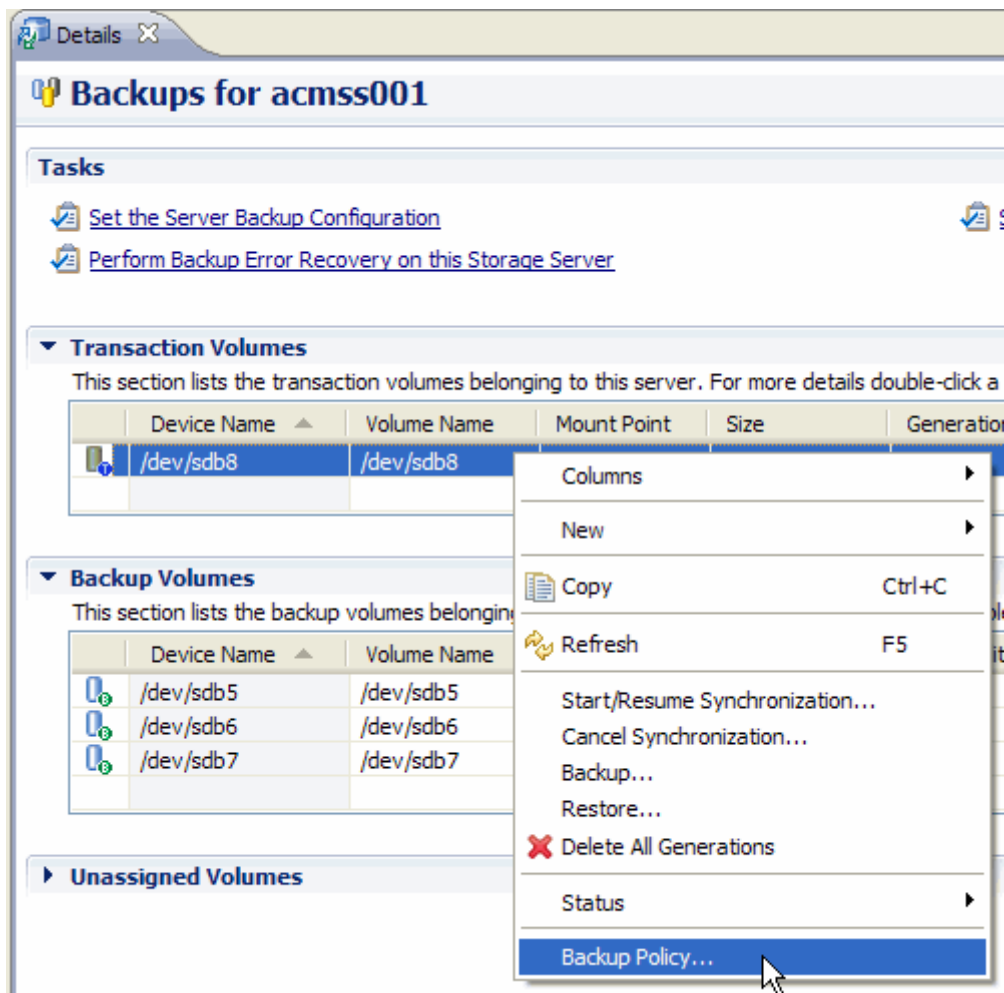
This section describes how to set and delete backup policy and display or delete backup history for one or more transaction volumes.

Set Backup Policy

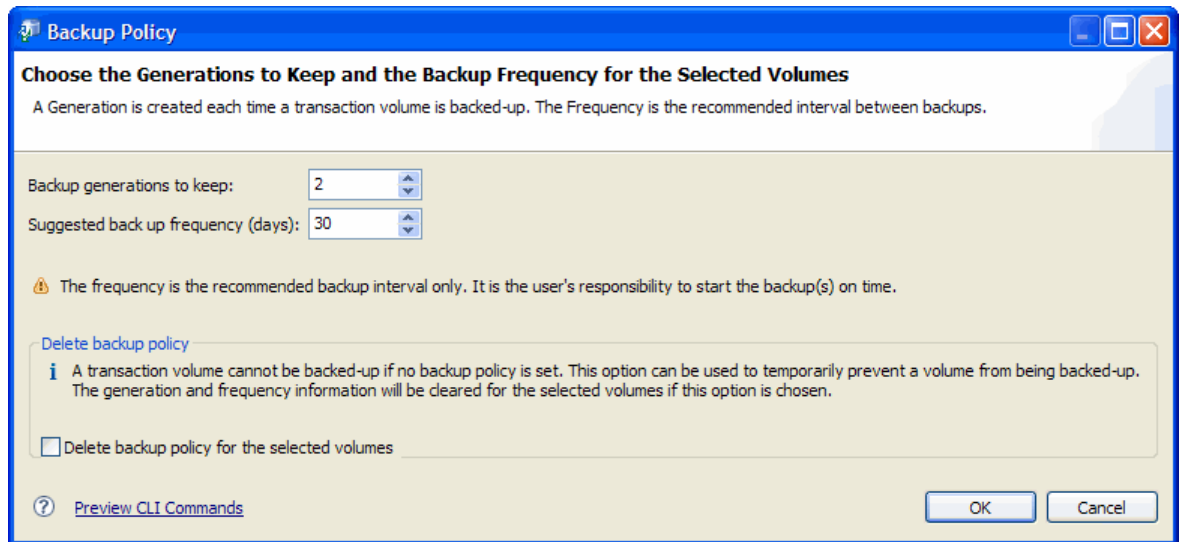
Ensure the devices have been configured as described in the previous chapter.

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 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.

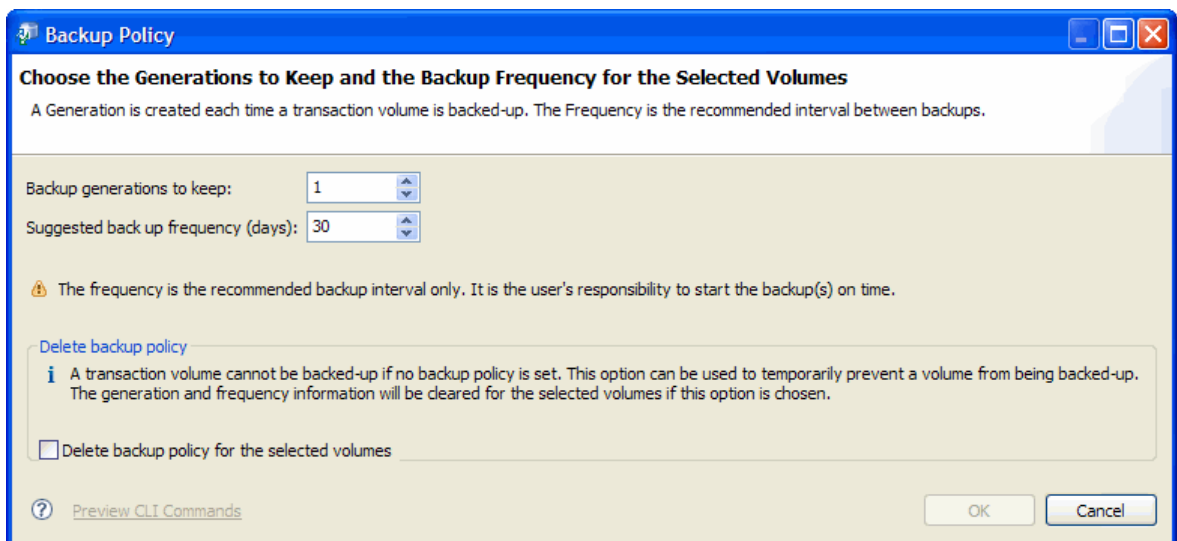
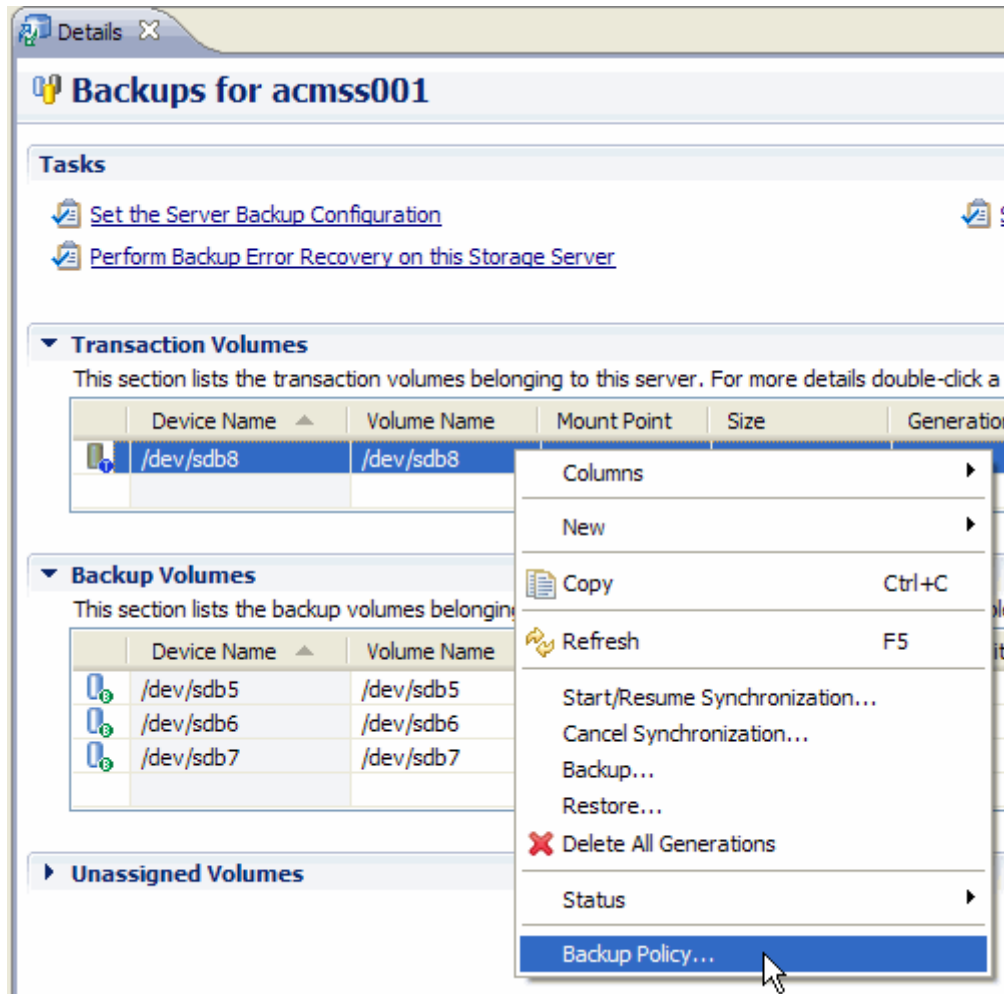
5. Click the [OK] button to register the policy and close the dialog.

Delete Backup Policy

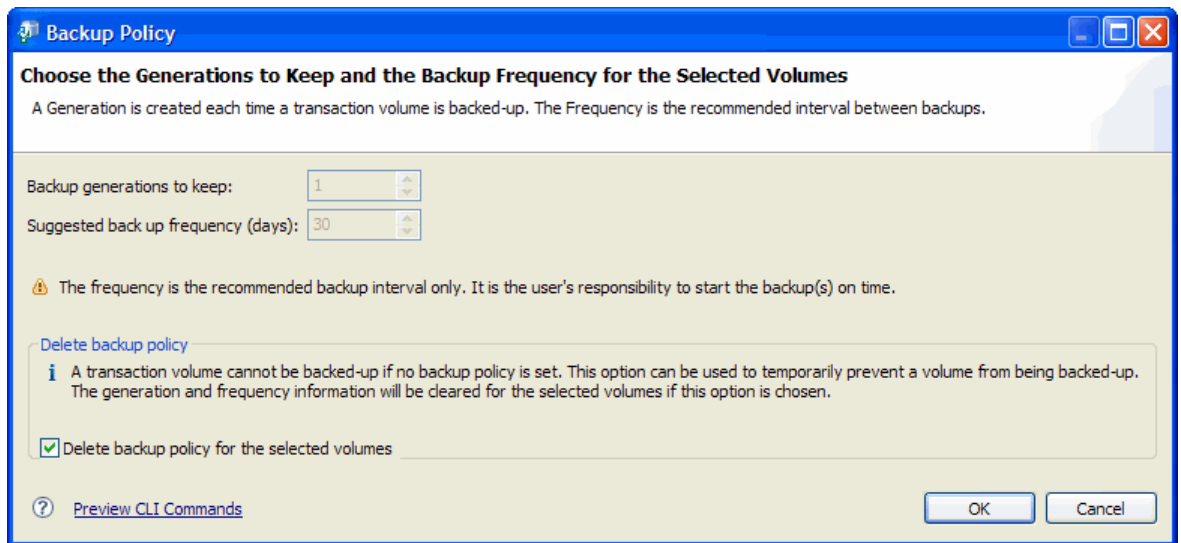
Delete a backup policy as follows.

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.



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



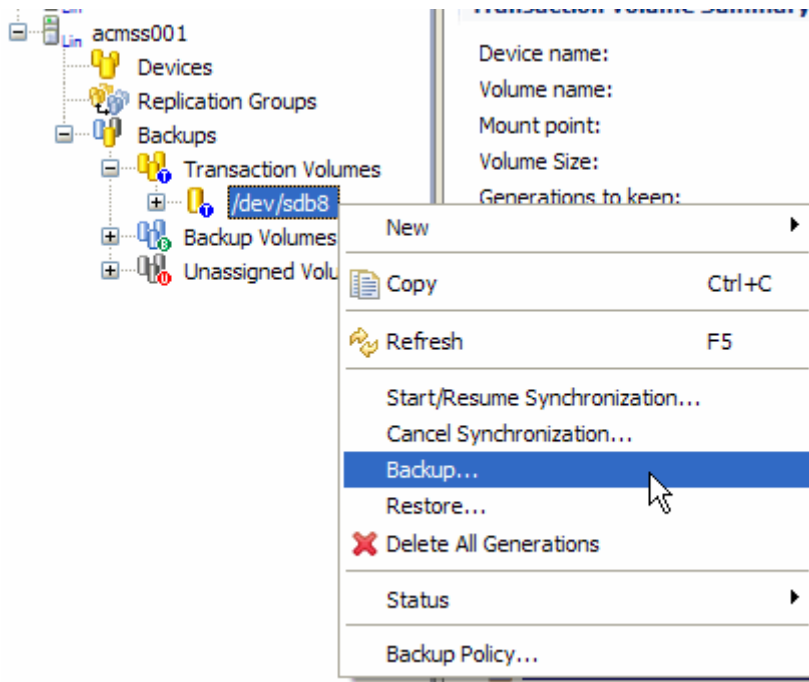
5. Click the [OK] button to delete the backup policy.

Perform a Snapshot Backup

Backup with One Point Copy (OPC) or QuickOPC

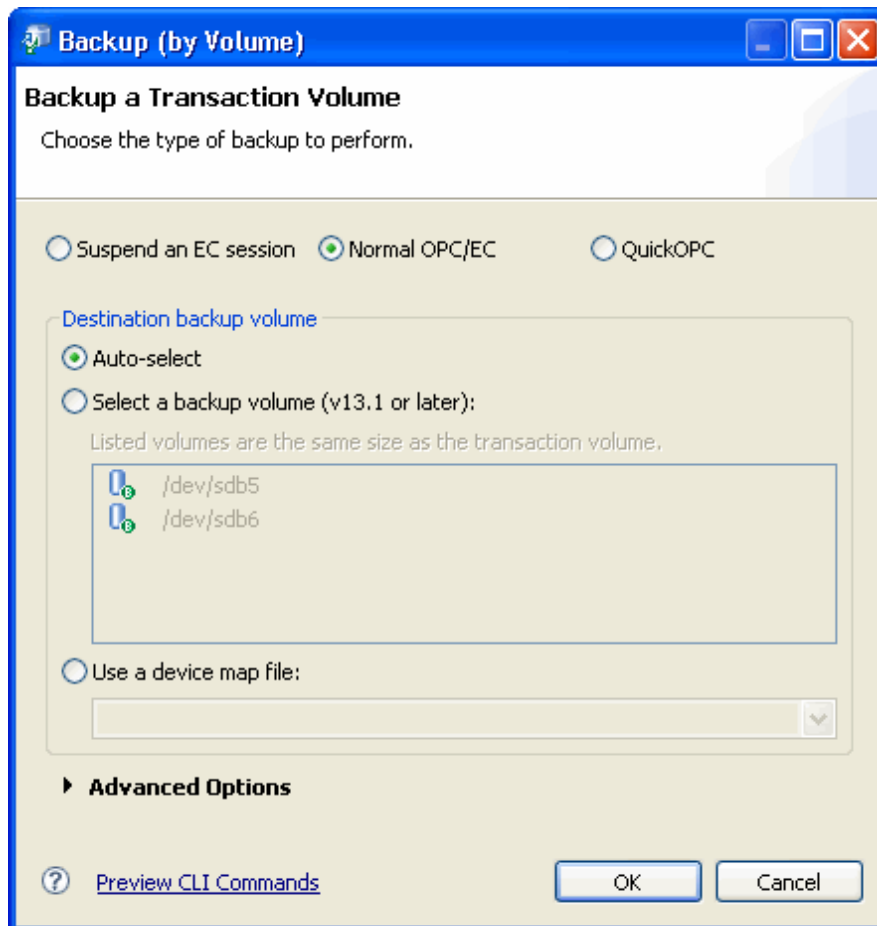
The following procedure describes how to perform a snapshot backup.

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

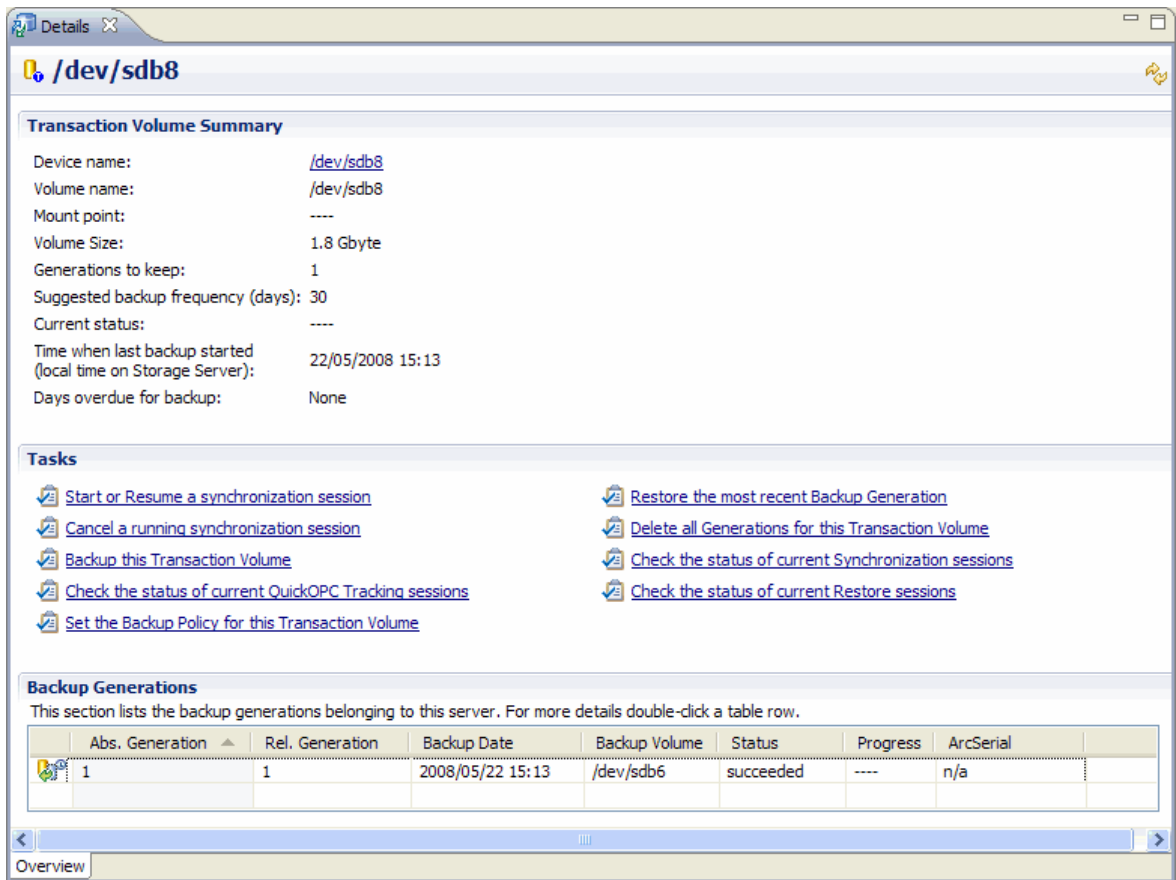


2. Select the [Backup] item to invoke the [Backup] dialog.

Backup Dialog



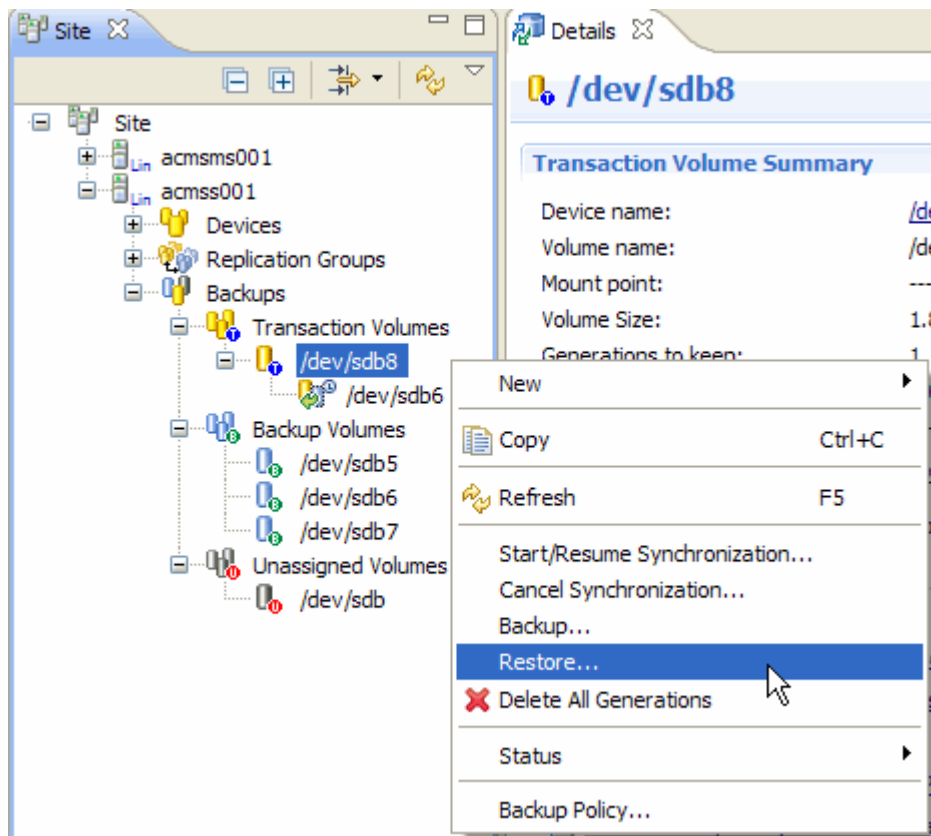
3. Select either the [Normal OPC/EC] or the [QuickOPC] radio button at the top of the dialog.
4. Select a method of performing the backup.
 - a) AdvancedCopy Manager can select a backup volume automatically.
 - Select [Auto-select] from [Destination backup volume]
 - b) Alternatively, you can specify a backup volume manually.
 - Select [Select a backup volume (v13.1 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.
5. Click the [OK] button to start the backup.
6. Upon completion of backup, the Details view is refreshed with the details of the latest backup generation.



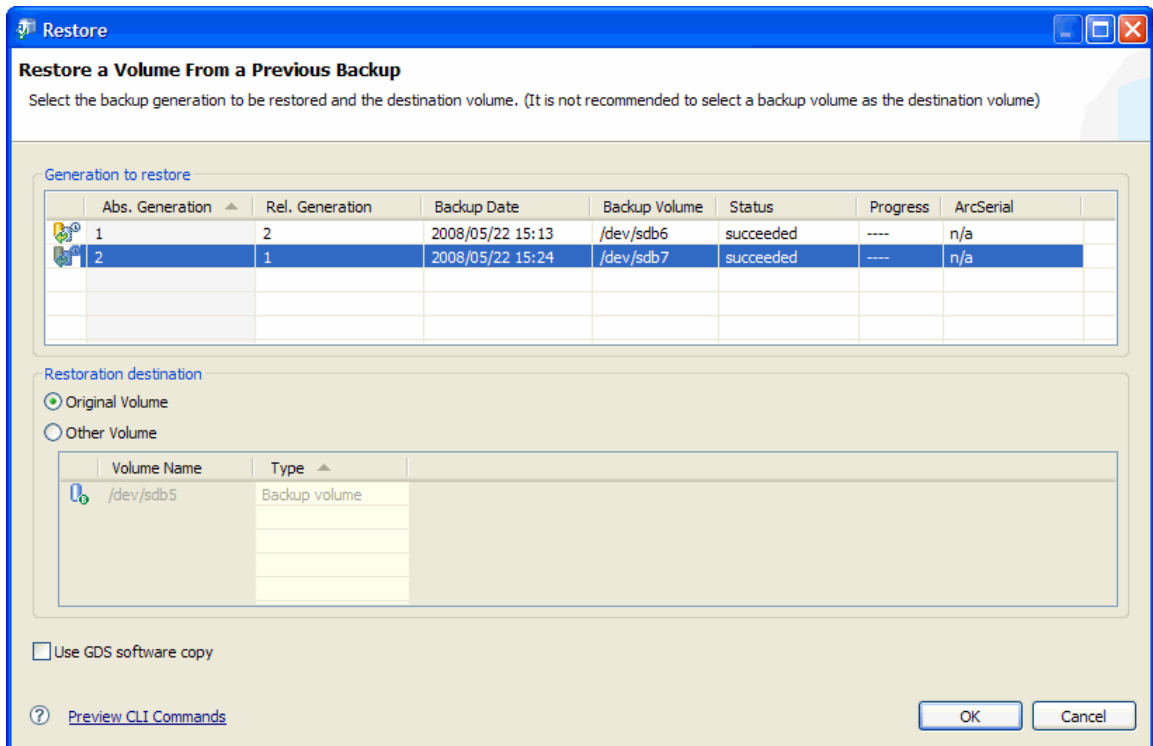
Restore

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.

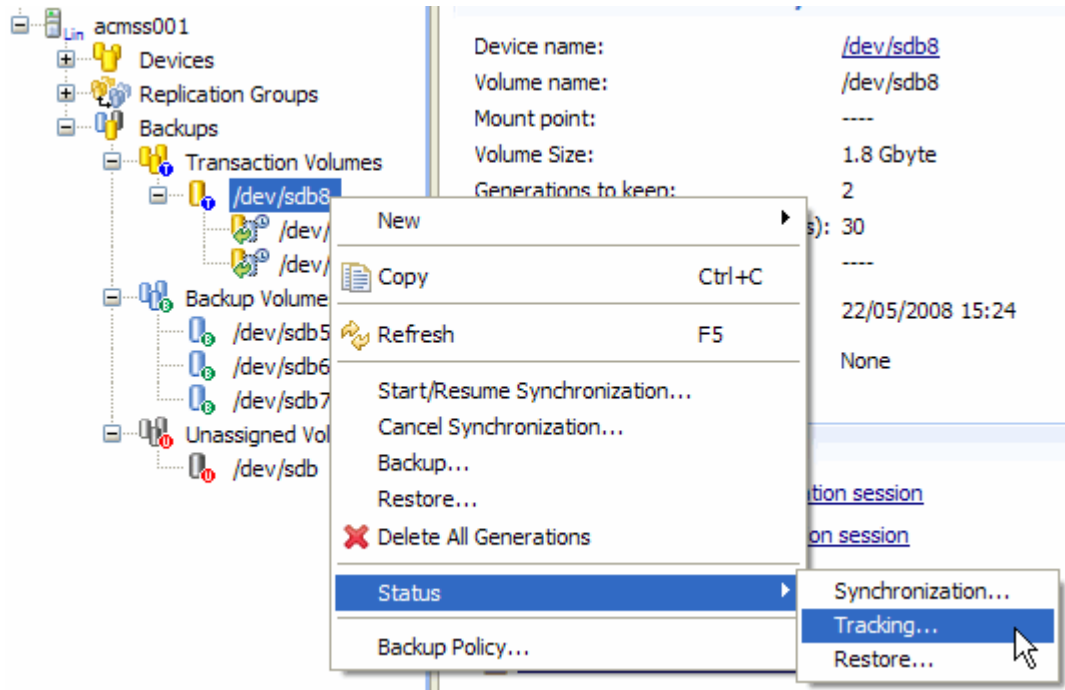


The [Used GDS software copy] checkbox is only applicable when the transaction volume is GDS logical volume.

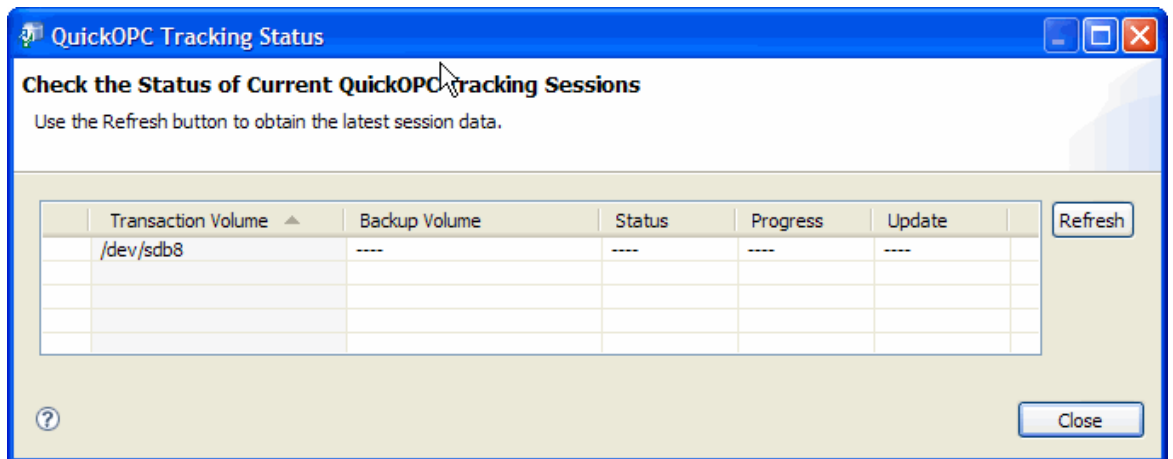
Display the Tracking Status of Any Current QuickOPC

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.



3. 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.

Label	Description
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 workbench and must be performed at the CLI using the Tracking Cancel command [swstcanceltrk](#).

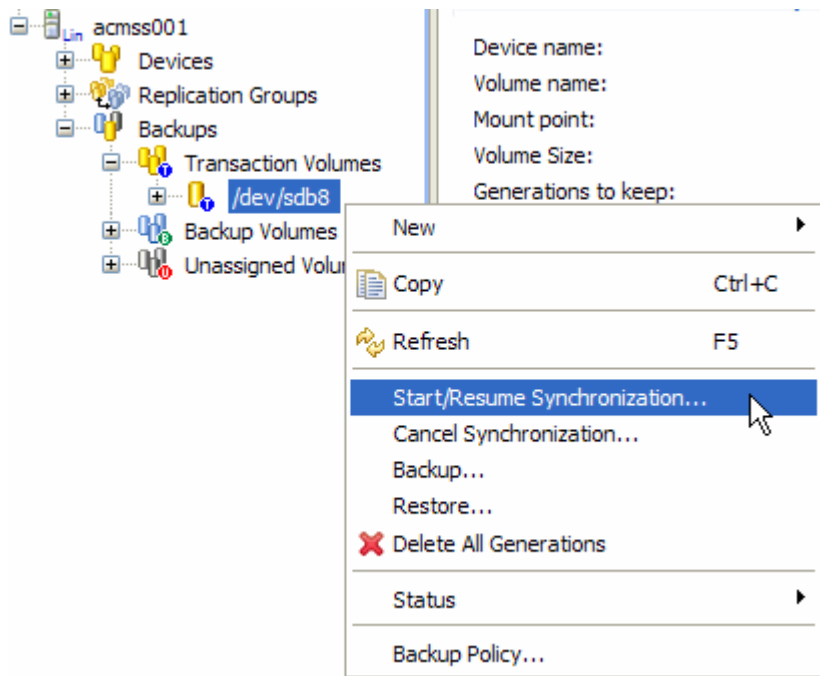
Refer to the Command Reference for more information regarding the Tracking Cancel Command.

Perform an Equivalent Copy (EC) Backup

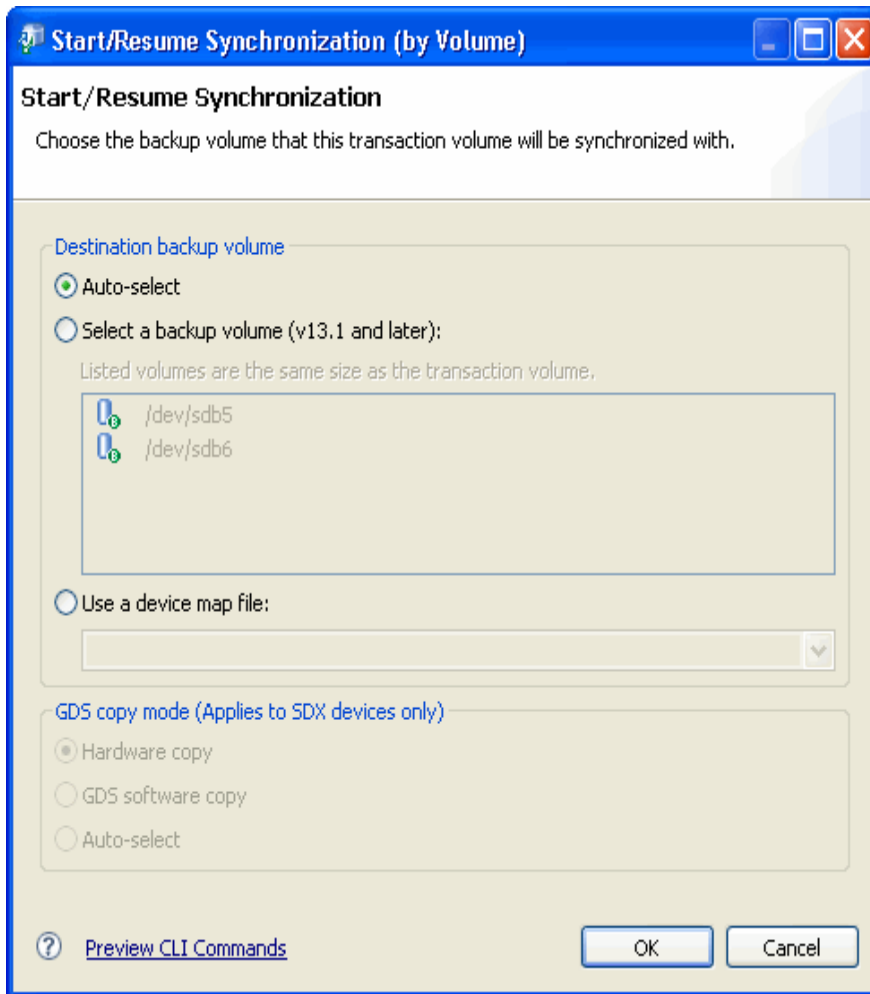
Starting and Resuming Synchronization

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.

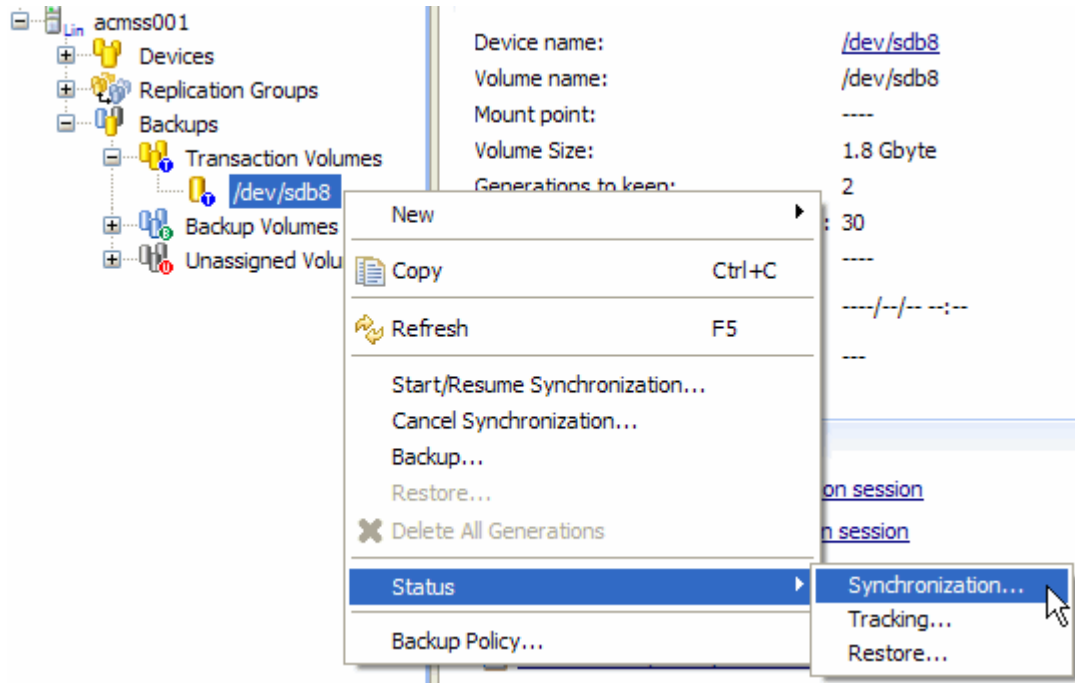


3. Select the method of performing the backup.
 - a) AdvancedCopy Manager can select a backup volume automatically.
Select [Auto-select] from [Destination backup volume]
 - b) Alternatively, you can specify a backup volume manually.
Select [Select a backup volume (v13.1 and later):] to choose a backup volume from the list.
Select [Use a device map file:] to specify a device map file which defines the associated backup volumes.
4. Click the [OK] button to start the synchronization.

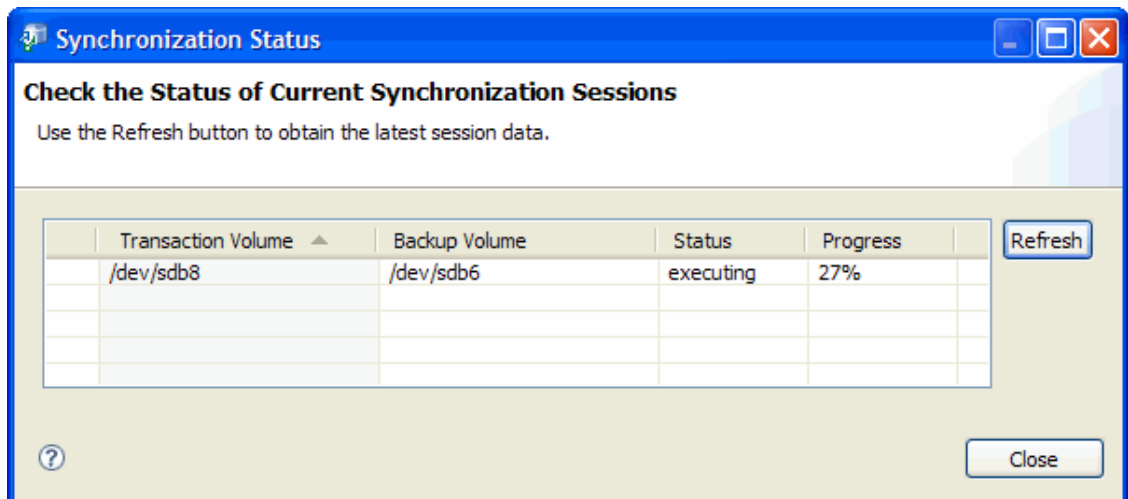
Check the Status of Synchronization

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.



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



3. Click the [Refresh] button to refresh the status information.
Click the [Close] button to close the [Synchronization Status] dialog.

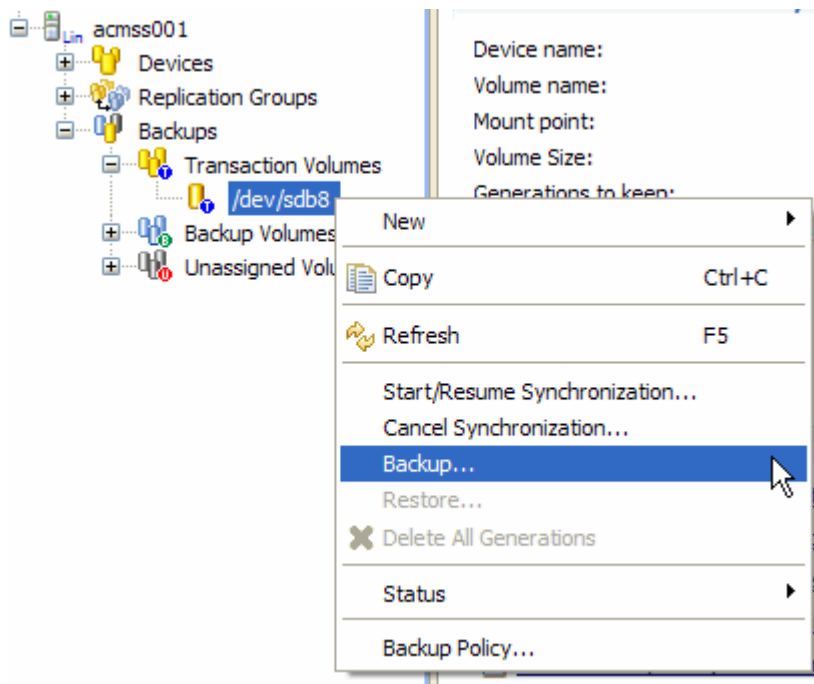
Synchronization Status

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.

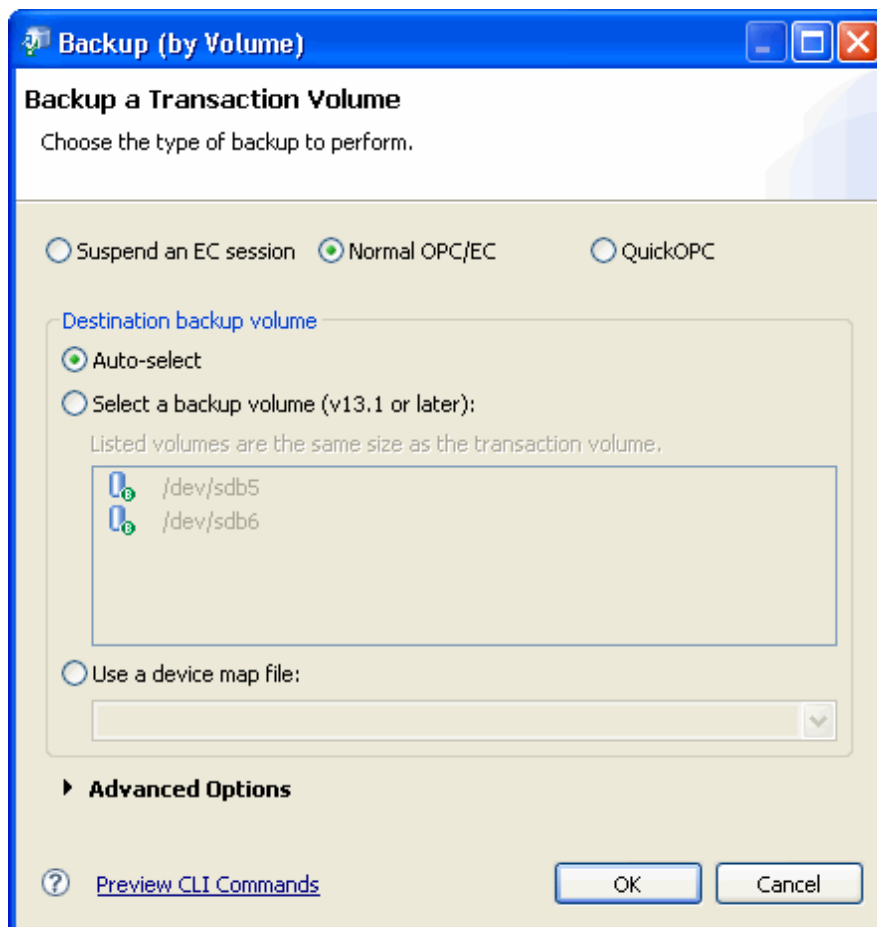
Backup (Stop EC/Suspend EC)

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.

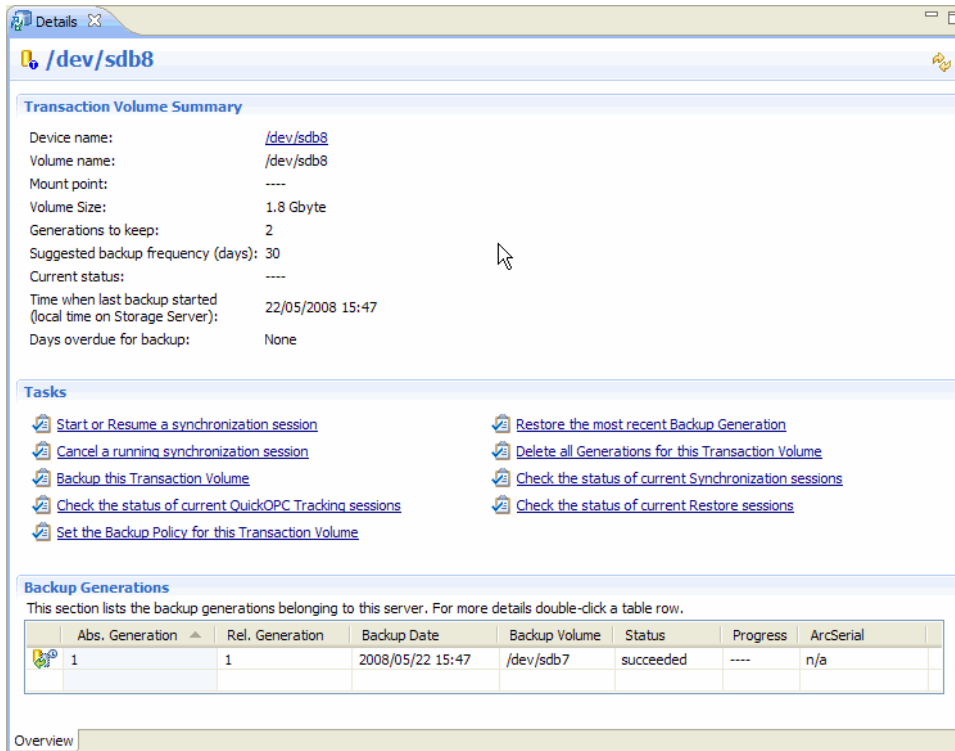


3. Select [Suspend an EC session] to create a backup by suspending EC or select [Normal OPC/EC] to create a backup by stopping the equivalence copy. .



4. Click the [OK] button to continue.

5. 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.



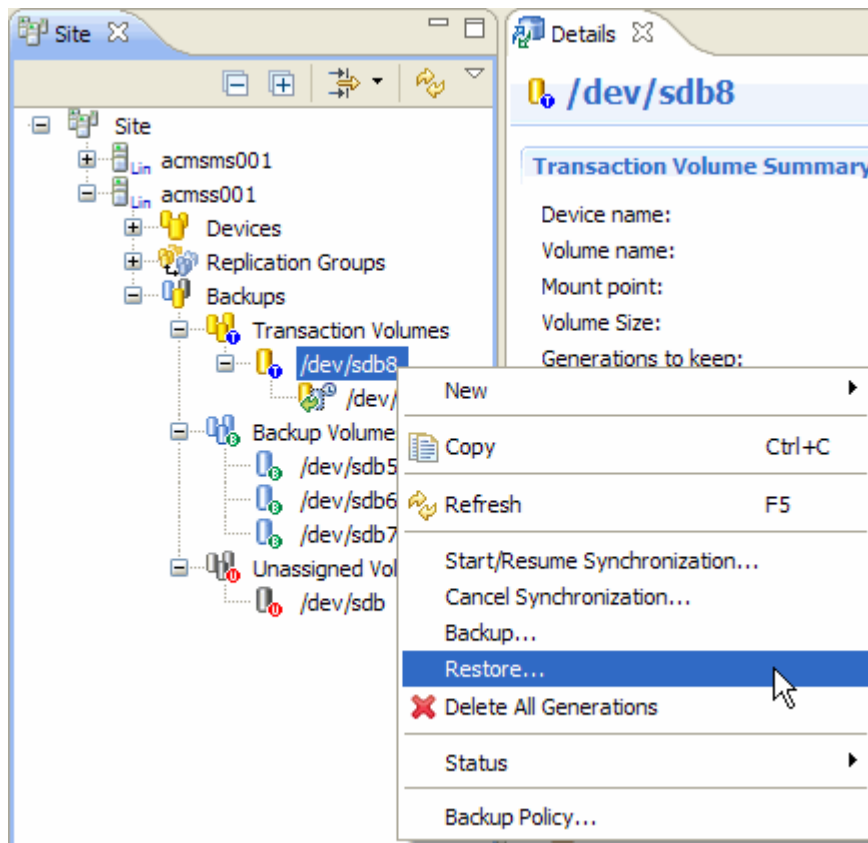
Restore

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.

Restore

Restore a Volume From a Previous Backup

Select the backup generation to be restored and the destination volume. (It is not recommended to select a backup volume as the destination volume)

Generation to restore

Abs. Generation	Rel. Generation	Backup Date	Backup Volume	Status	Progress	ArcSerial
1	2	2008/05/22 15:54	/dev/sdb6	succeeded	----	n/a
2	1	2008/05/22 15:54	/dev/sdb7	succeeded	----	n/a

Restoration destination

Original Volume

Other Volume

Volume Name	Type
/dev/sdb5	Backup volume

Use GDS software copy

[Preview CLI Commands](#)

OK Cancel

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.

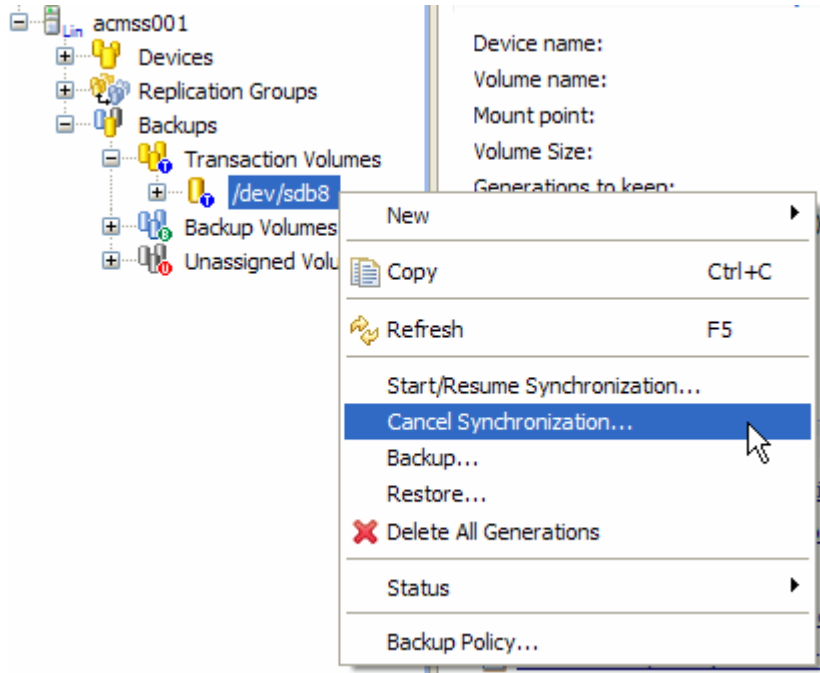


The [Use GDS software copy] checkbox is only applicable when the transaction volume is GDS logical volume.

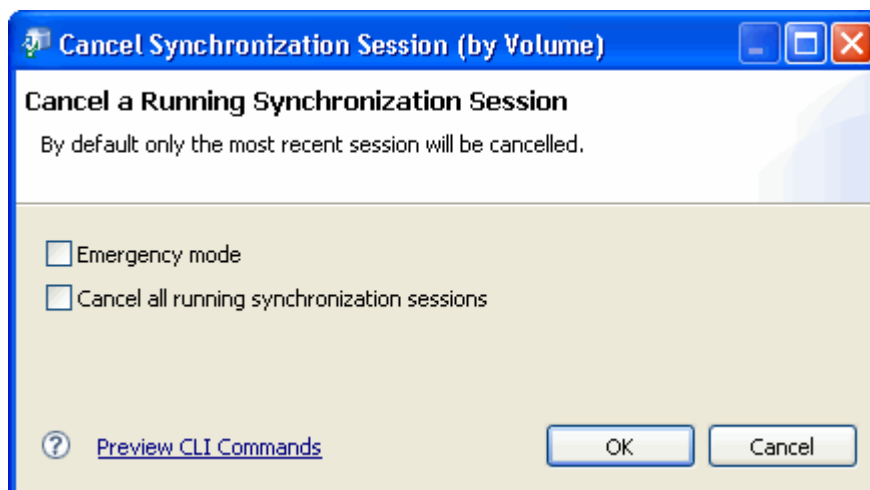
Cancel Synchronization

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 screenshot shows a web interface with a 'Details' tab and a breadcrumb path '/dev/sdb8'. Below this is a 'Transaction Volume Summary' section with the following information:

Device name:	/dev/sdb8
Volume name:	/dev/sdb8
Mount point:	----
Volume Size:	1.8 Gbyte
Generations to keep:	2
Suggested backup frequency (days):	30
Current status:	----
Time when last backup started (local time on Storage Server):	22/05/2008 15:54
Days overdue for backup:	None

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

The screenshot shows a 'Backup Generations' section with a table listing backup generations. Below the table is an 'Overview' tab.

	Abs. Generation ▲	Rel. Generation	Backup Date	Backup Volume	Status	Progress	ArcSerial
	1	1	2008/05/22 16:06	/dev/sdb6	succeeded	----	n/a

Overview

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

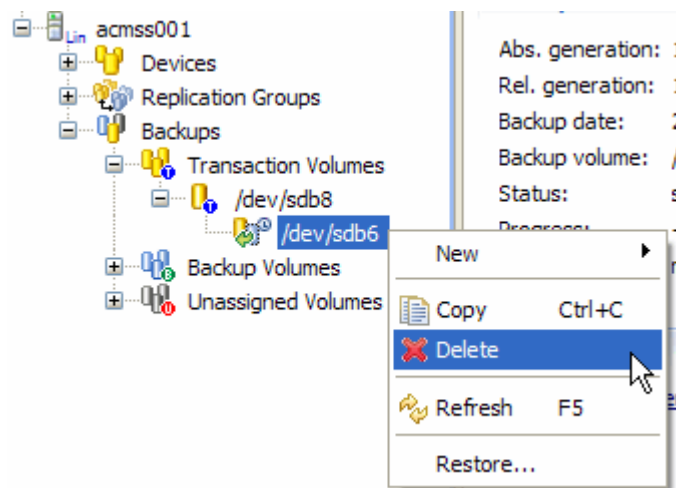
Delete Backup History

This section describes how to delete backup history.

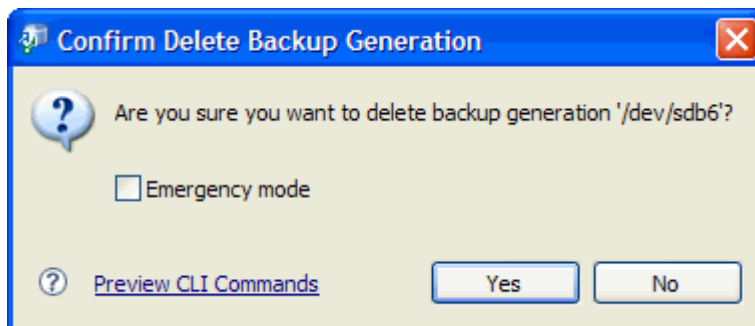
Delete a Backup Generation

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.

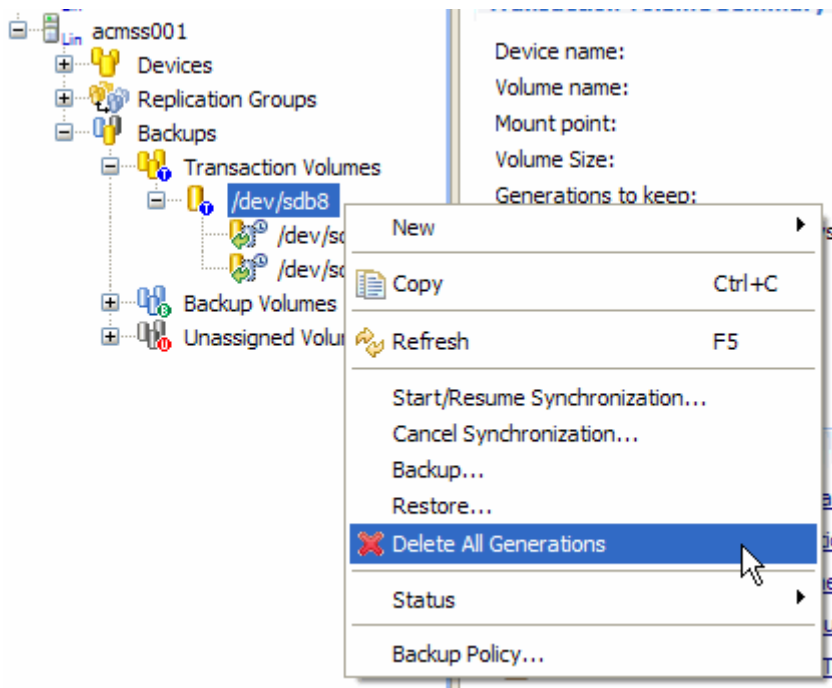
For information concerning the emergency mode, refer to "History information deletion command ([swsthistdel](#))" and "Backup synchronization cancel command ([swstcancelsync](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.

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

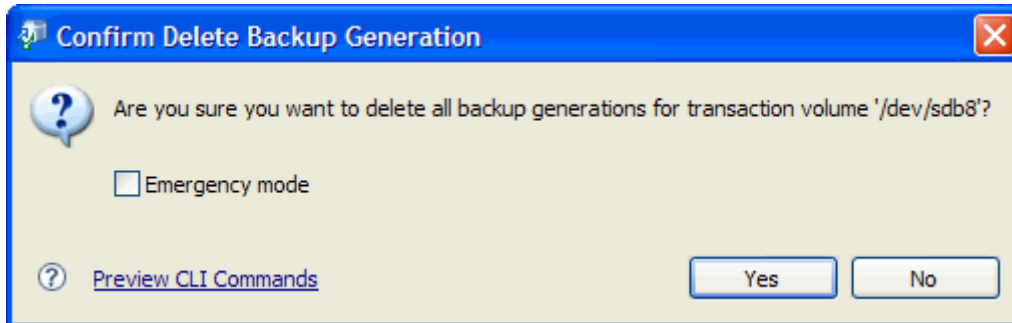
Delete All Generations for a Transaction Volume

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.

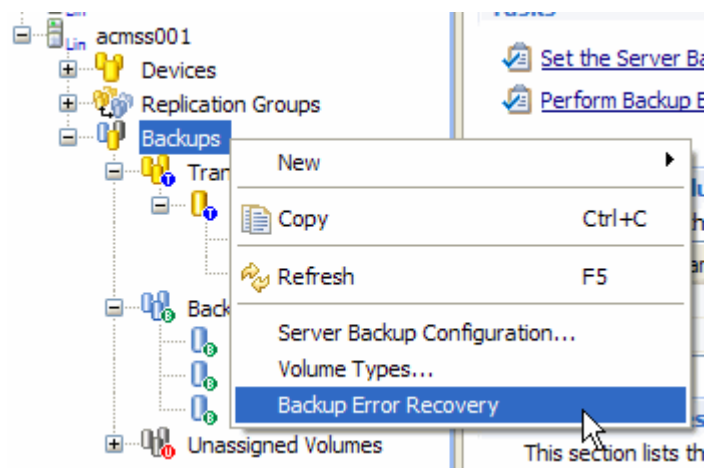


3. Enable the [Emergency mode] option if appropriate.
For information concerning the emergency mode, refer to "History information deletion command ([swsthistdel](#))" and "Backup synchronization cancel command ([swstcancelsync](#))" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide" for the appropriate OS.
4. Click the [Yes] button to delete the selected backup history.

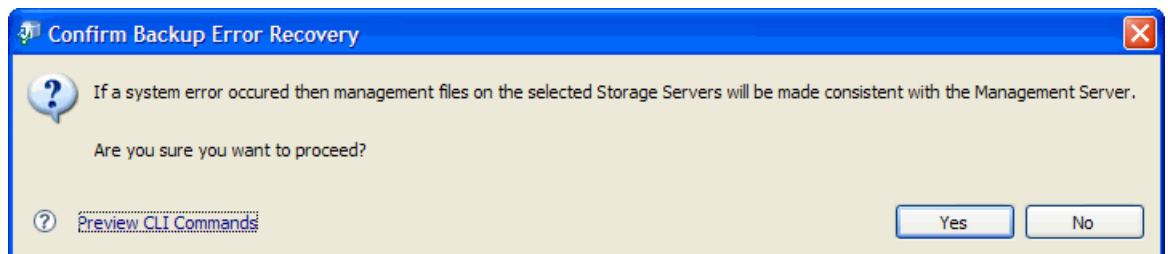
Backup Error Recovery

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 a 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 Workbench.

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

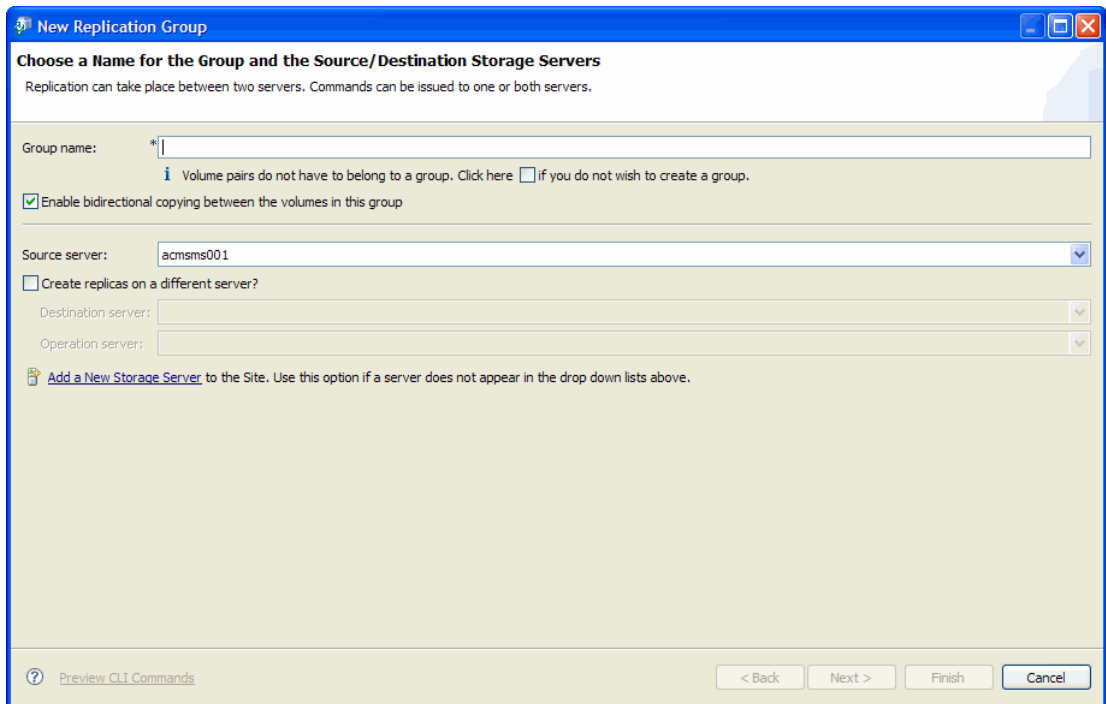
Replication Groups can be created for ease of replication management with one or more source/destination device pairs belonging to any single group.

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.

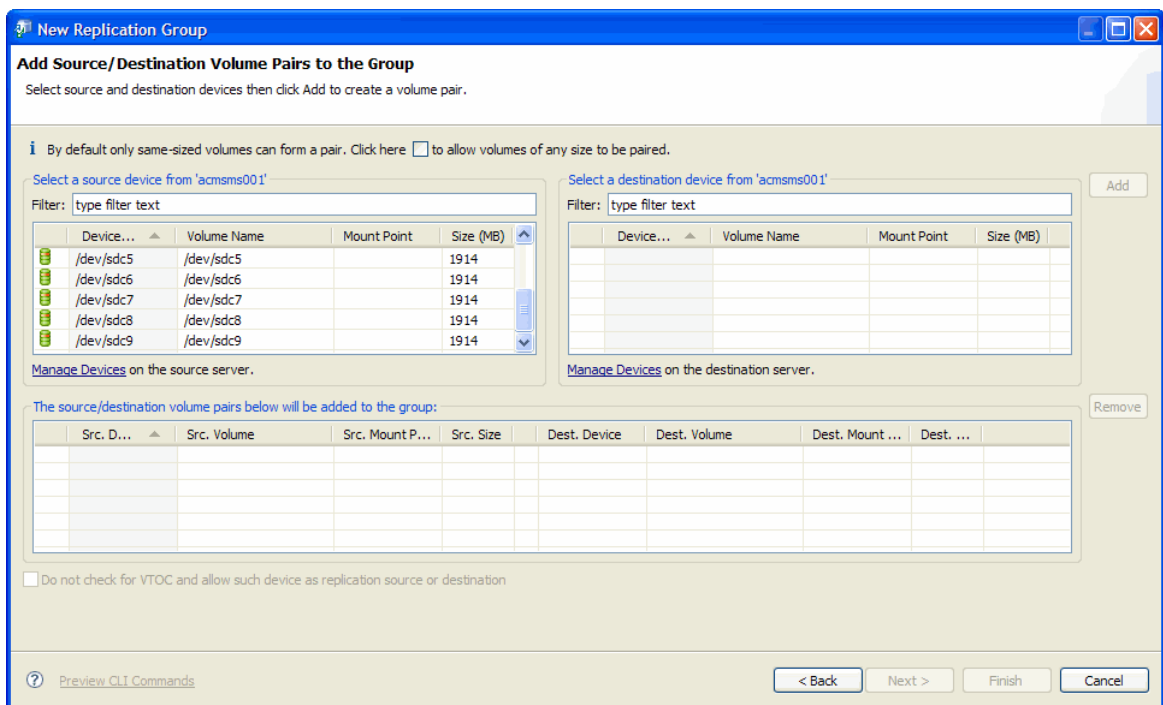


New Replication Group – Choose Names dialog fields

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.

Label	Description
Operation server:	<p>The argument values are as follows:</p> <ul style="list-style-type: none"> - Source - Destination - Both <p>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.</p>
Add a New Storage Server to the Site. Use this option if a server does not appear in the drop down lists above.	<p>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.</p>

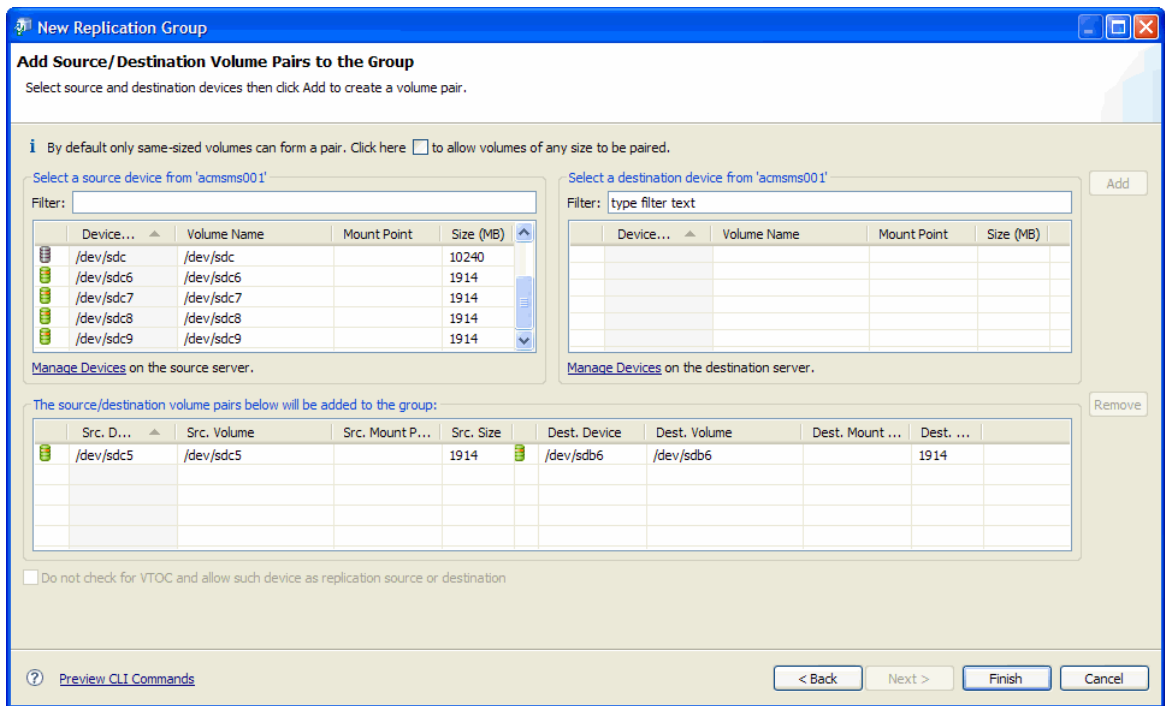
3. Select a source server from the Source server combo box.
If the replica is hosted on a different Storage Server, enable the checkbox [Create replica on a different server?]. Specify the destination server and operation server accordingly.
4. Click the [Next] button to display the New Replication Group dialog. Create a Volume Pair by specifying the source and destination servers.



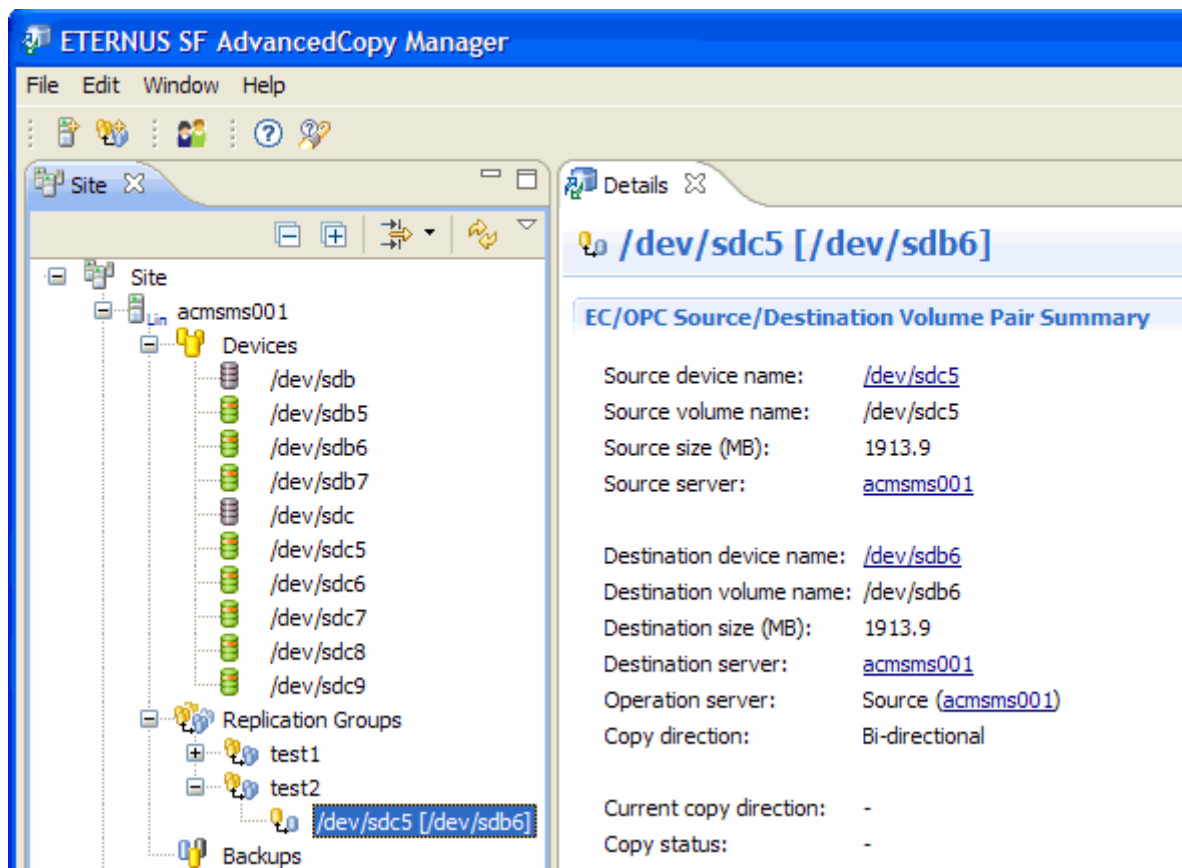
New Replication Group - Add Volume Pairs dialog fields

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.
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.

- 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.



6. Select a destination volume and click the [Next] button to add the Paired Volume/s to the group.
7. 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.
8. 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.

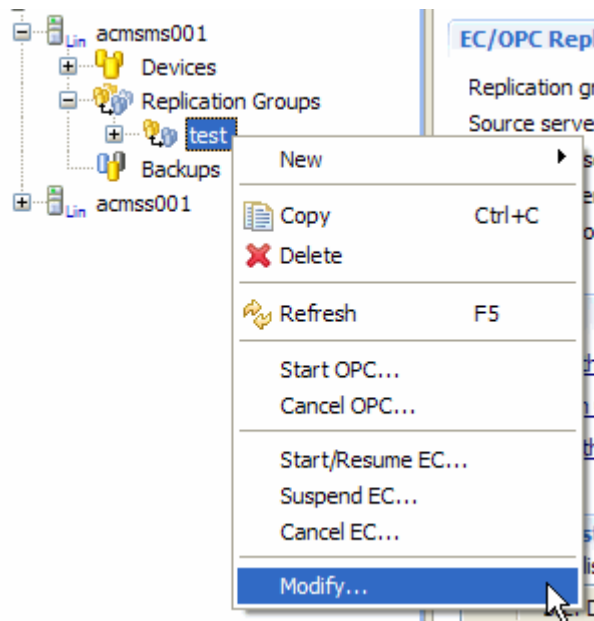
This can be performed using the [Modify a Replication Group] function through the AdvancedCopy Manager Workbench.

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:

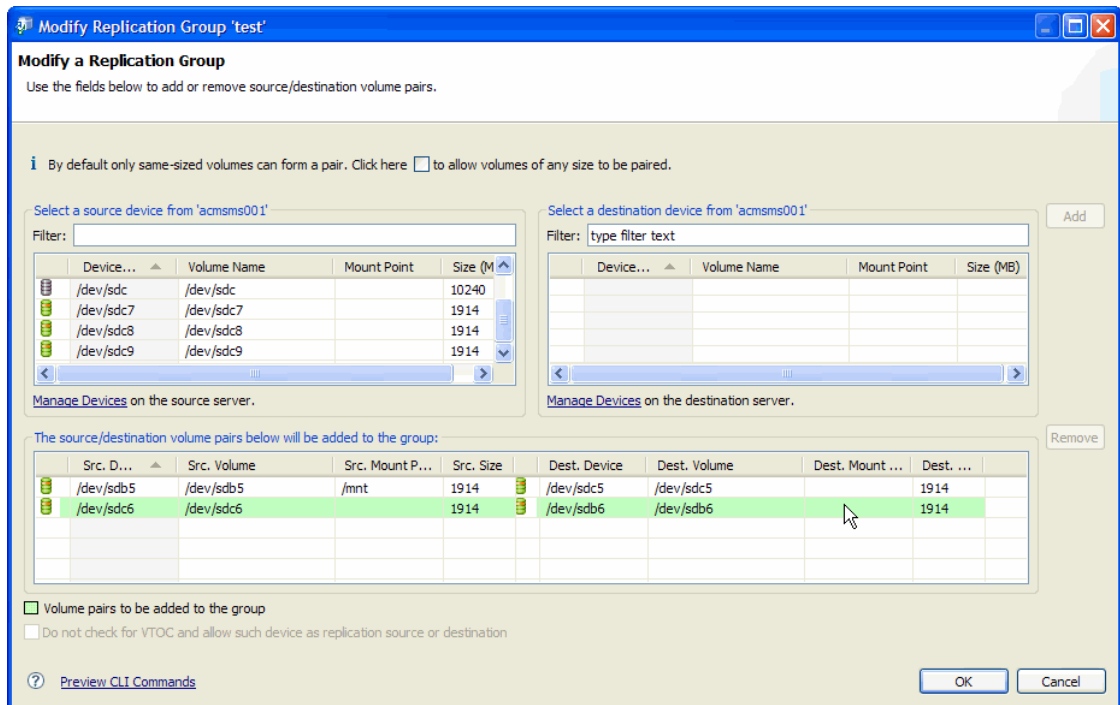
- Group name
- Source and destination server
- Volume Pairs
- Copy direction
- Operation server

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.

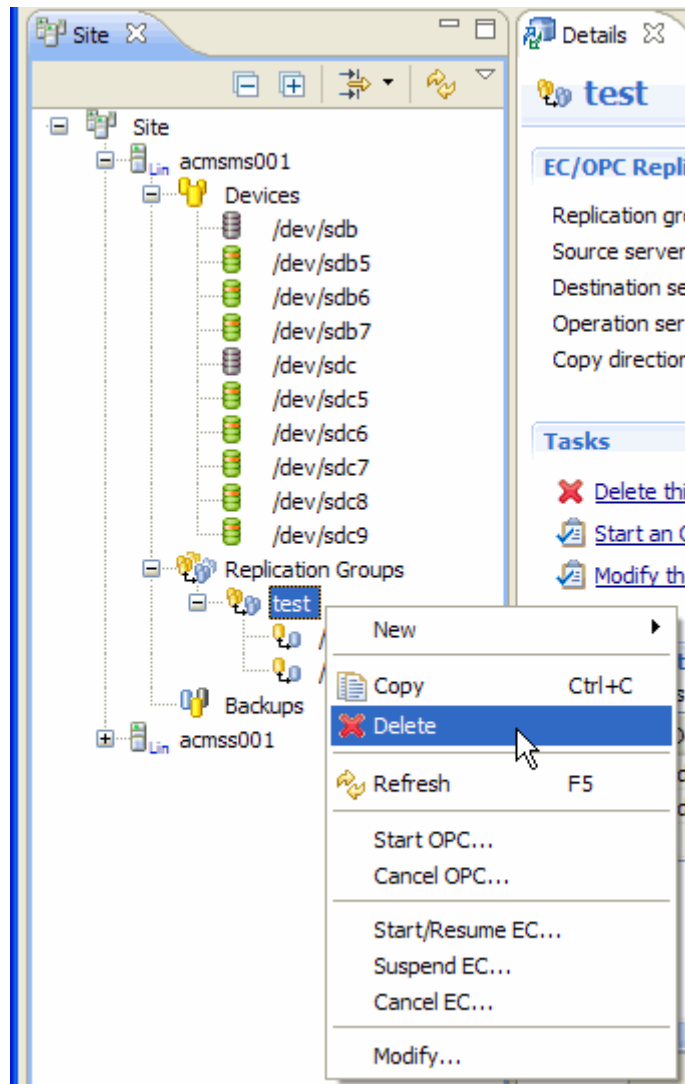


3. Confirm that the details are correct, and then click the [OK] button to exit the dialog.

Delete a Replication Group

Follow this procedure to delete a replication group.

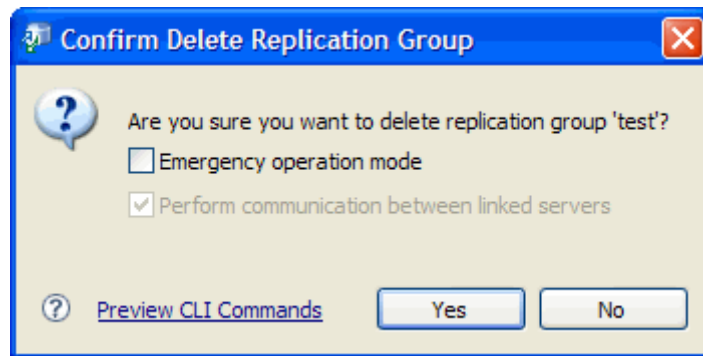
1. Right-click on the Replication Group in the Site view to invoke the context menu.



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.

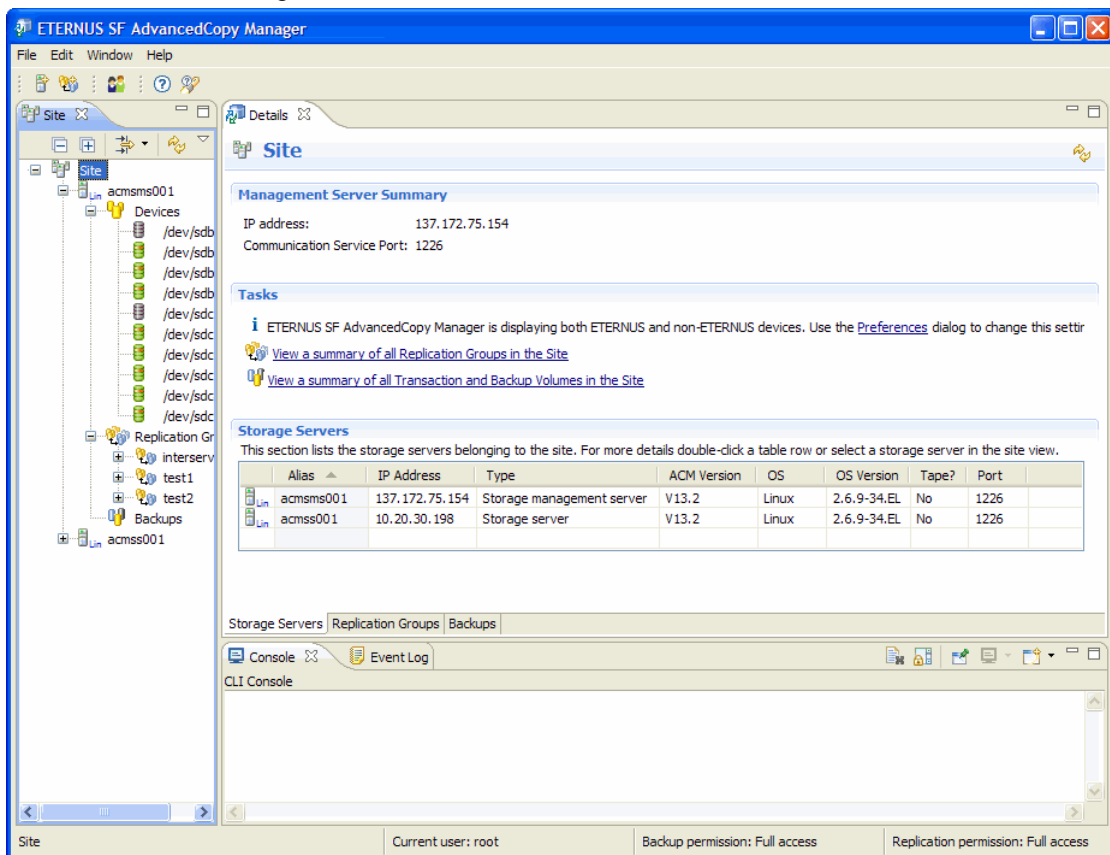
View Summary Information for Replication

View Summary of All Replication Groups at the Site

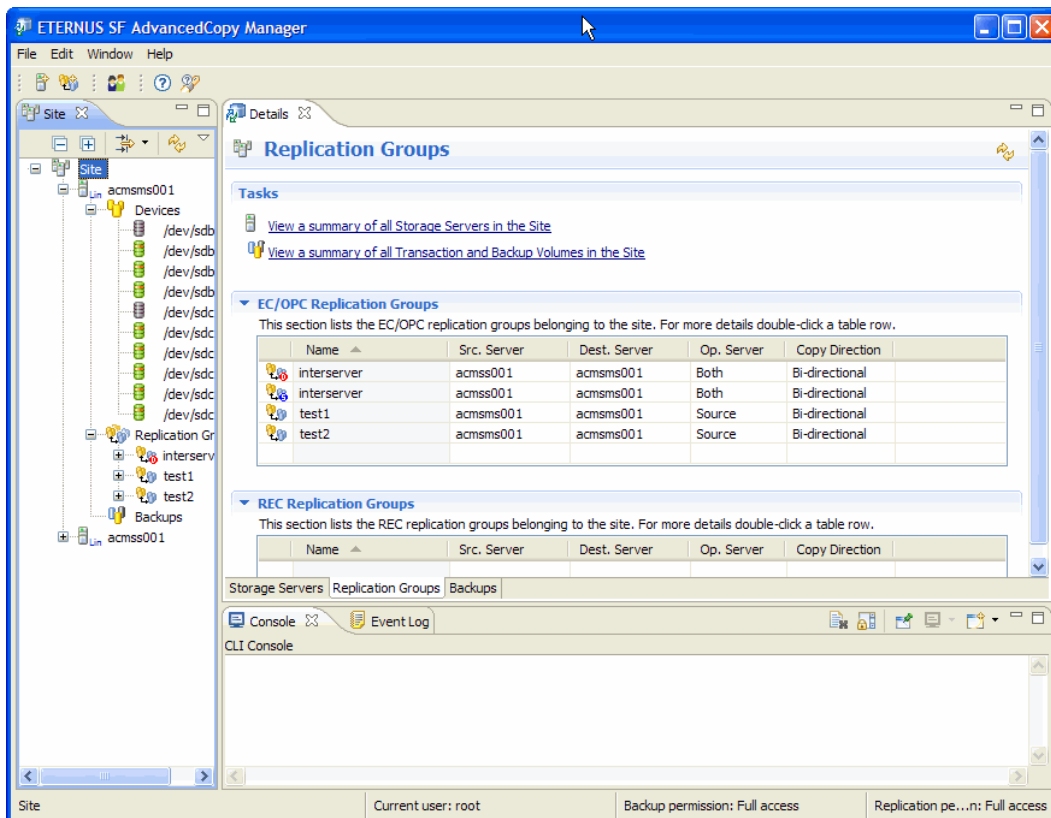
A Site view will show all replication groups for the site in a single tabbed view.

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:

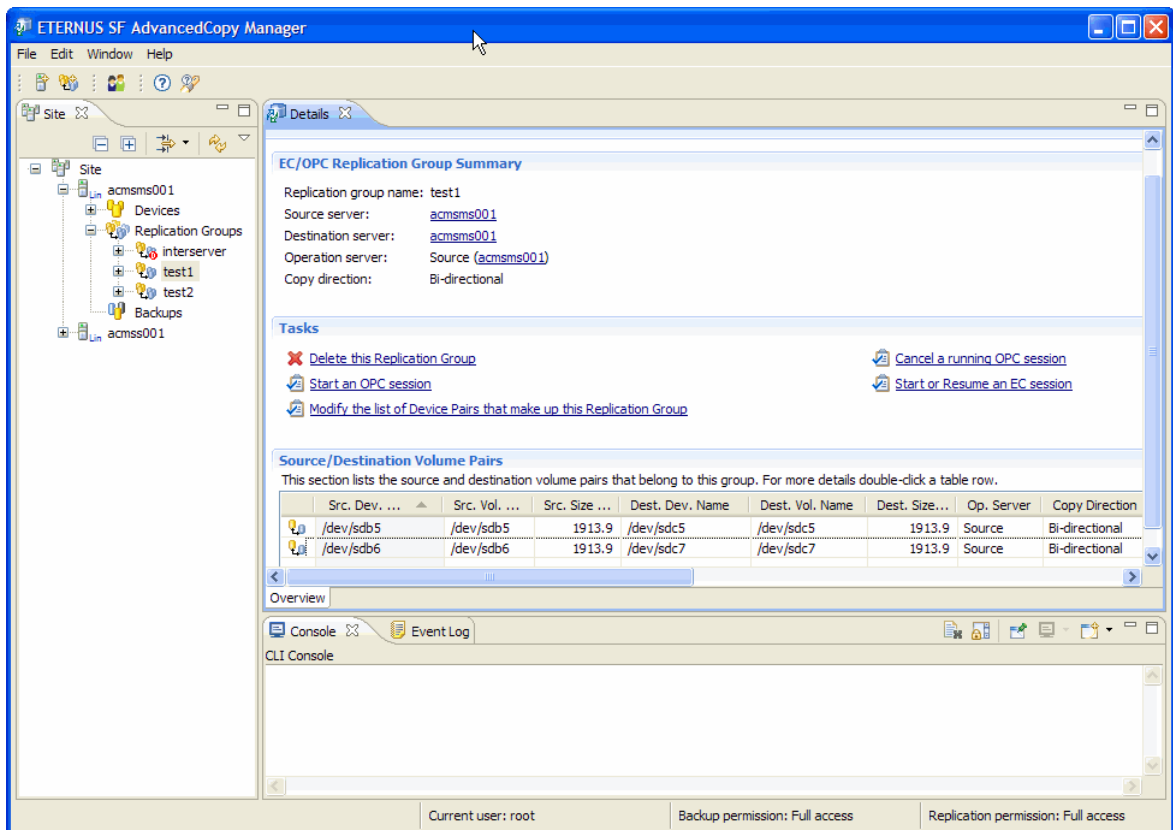
Label	Description
Name	Name of the group/pair (Source volume[Destination volume])
Source server	Replication source server name. (Shown as link to Details page of the server.)
Destination server	Replication destination server name. (Shown as link to Details page of the server.)
Operation server	The operation 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:

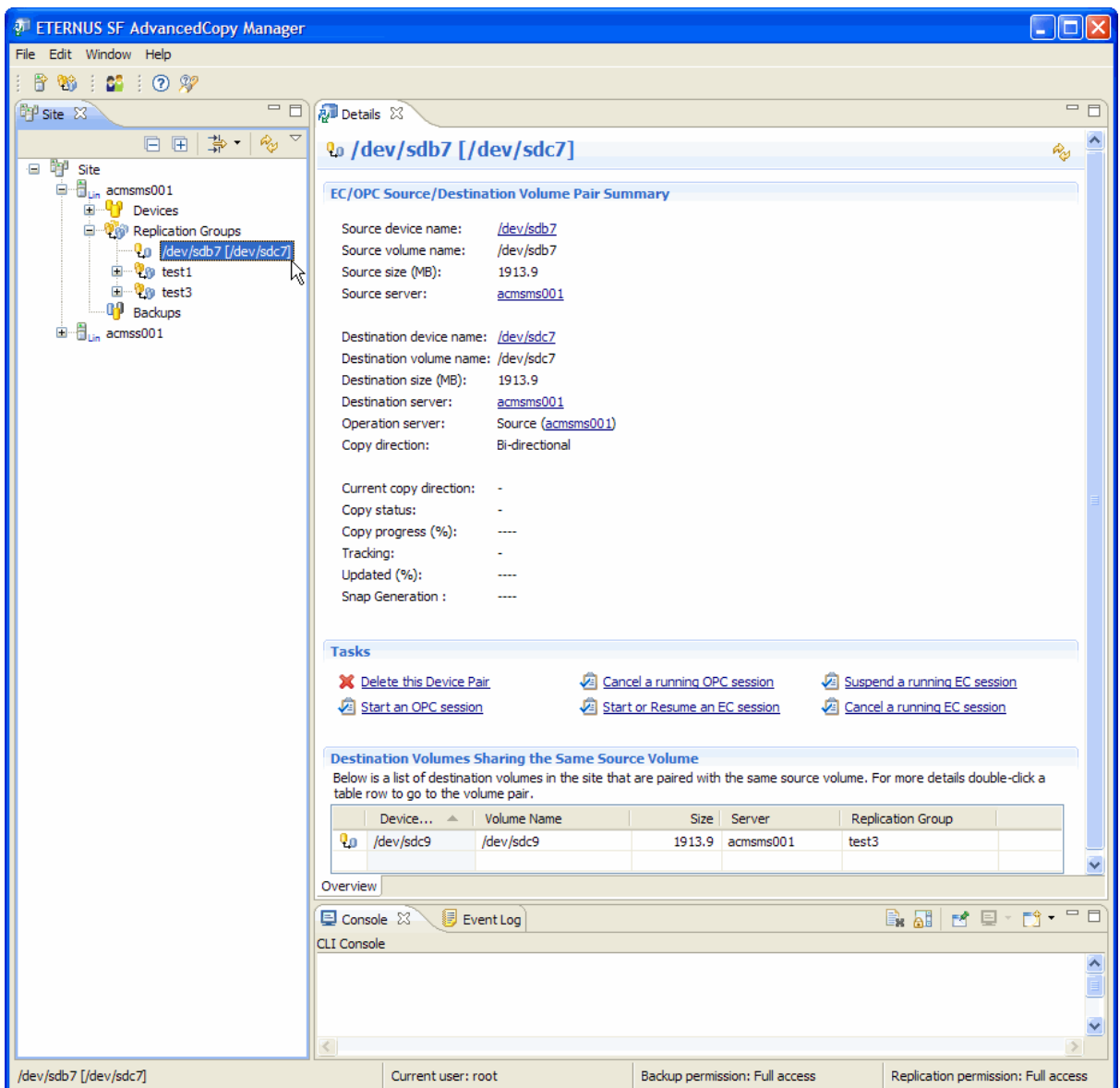
Label	Description
Replication Group Name	One of the following is displayed: <ul style="list-style-type: none"> - Replication Group name - Volume Pair name (replication source volume name[replication destination volume name])
Source server	Name of the server that manages the replication source volume. 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 name:	System defined device 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

Label	Description
Copy status:	<p>Indicates copy status while copy is in progress</p> <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 (%) :	<p>Displays the copy progress in a percentage (%). If replication has not been executed or SnapOPC is in progress, displays "----".</p>
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>

Label	Description
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 For non-SnapOPC+, displays “----” The oldest snap generation number is 1. The bigger the number is, the later the generation will be.</p>
If Remote Equivalent Copy is in progress, the following additional information is displayed	
Transfer mode:	<p>Denotes REC transfer mode 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. 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 not being performed
Split mode:	<p>Denotes Split mode for REC Displays the Split mode of the device-to-device synchronous processing</p> <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.

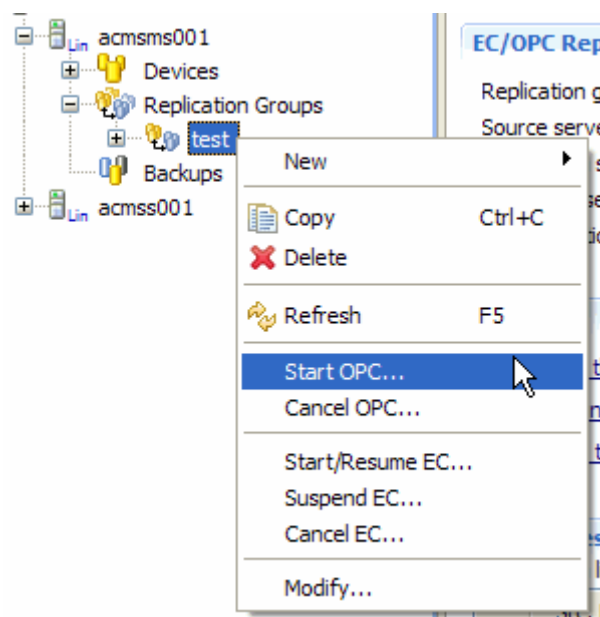
Snapshot Replication

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 Workbench.

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

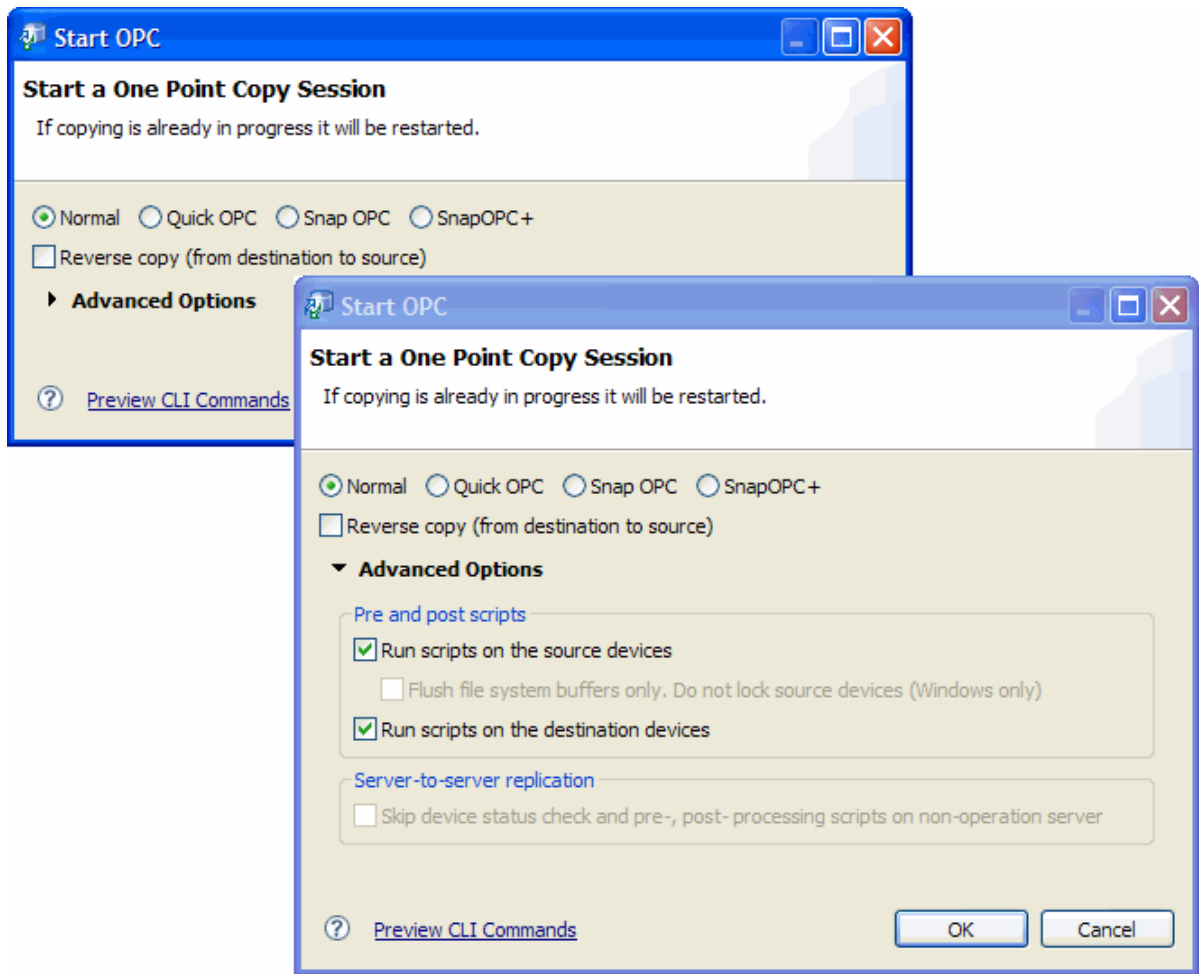
Start OPC / QuickOPC / SnapOPC / SnapOPC+ Replication

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+		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
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).	Flushes the file system buffer for the replication source volume Valid for Windows only
	Run scripts on the destination devices	Performs pre- and post-processing for the replication destination volume Note that this checkbox must be unchecked to resume synchronous processing after a forced suspension.
Server-to-server replication	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

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 [OK] 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, 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, 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

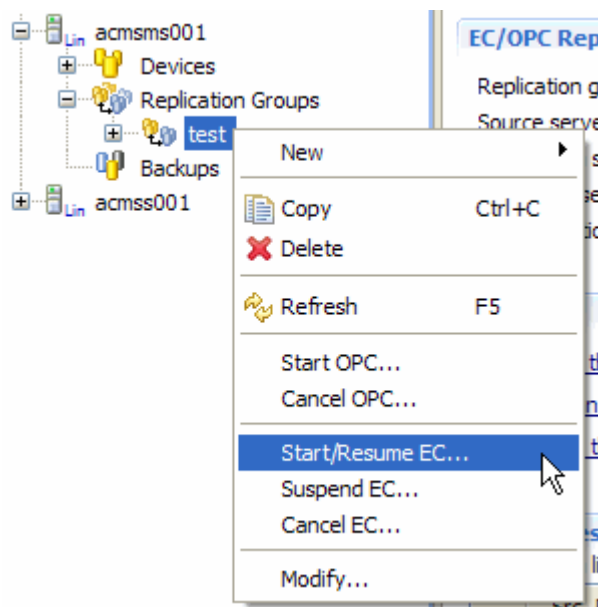
Synchronous Replication refers to replications that use the Equivalent Copy (EC) or Remote Equivalent Copy (REC) functions of a Fujitsu ETERNUS Storage System.

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

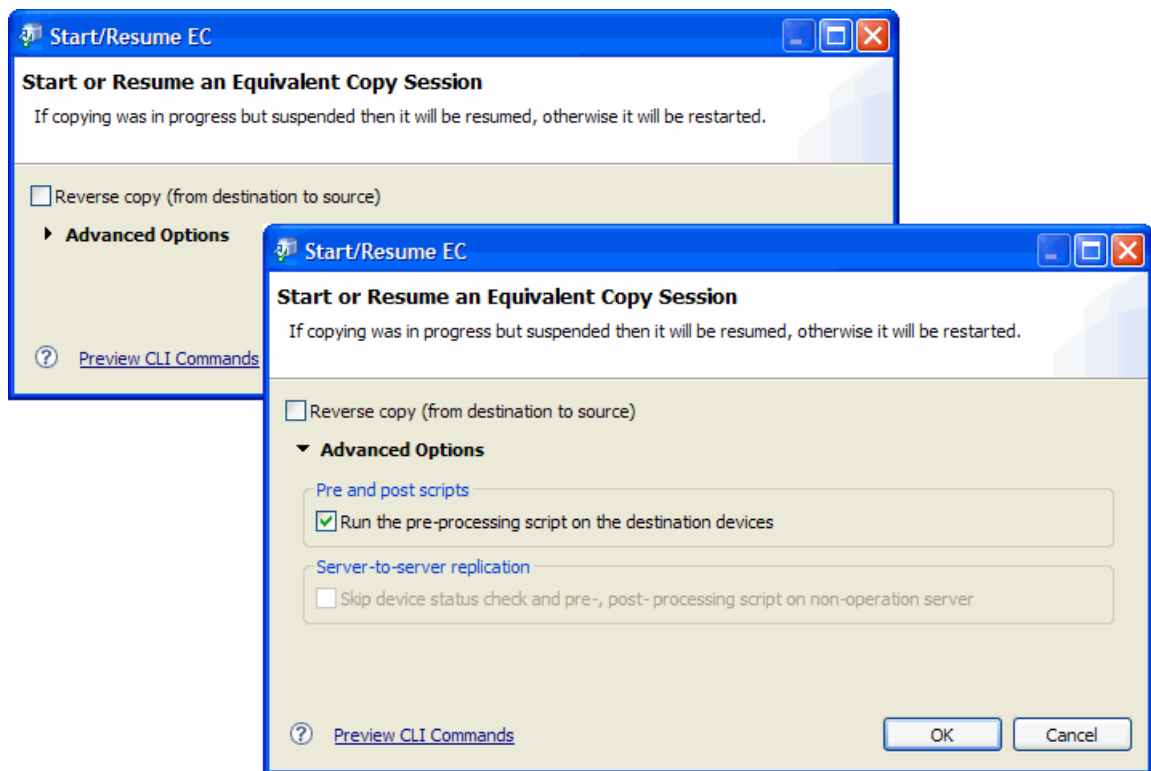
Start Synchronous Replication

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

- 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, 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

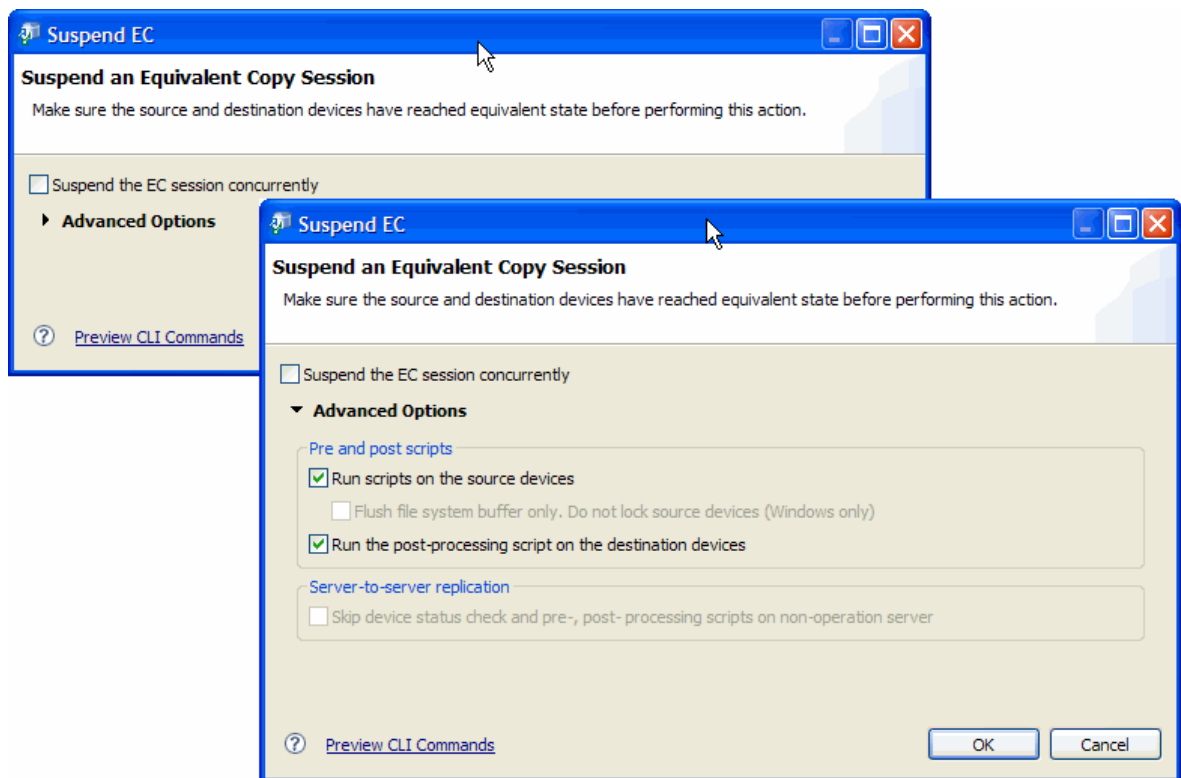
This section describes how to create a replica using the suspend option. The suspend option enables faster replication by copying the difference only.

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

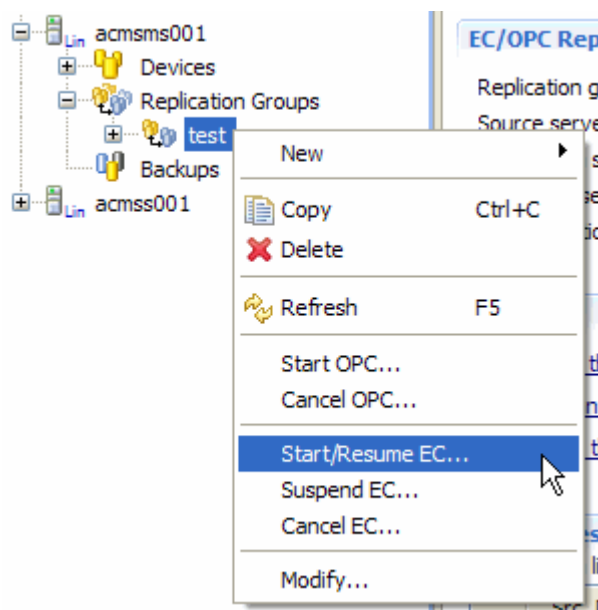
Label		Description
Server-to-server replication	Skip device status check and pre-, post-processing scripts on non-operation server	<p>This checkbox is valid for server-to-server replication only.</p> <p>Select this checkbox to perform the following processing :</p> <ul style="list-style-type: none">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

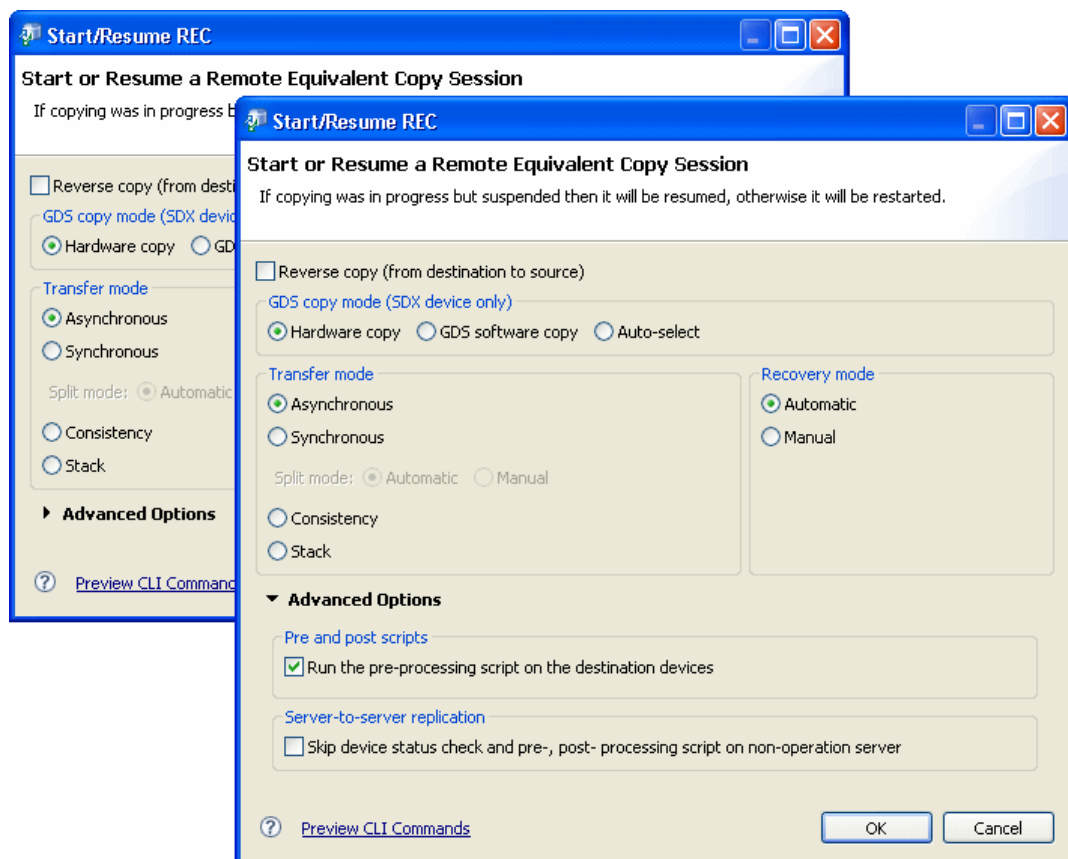
Remote Equivalent copy (REC), also known as Inter-ETERNUS synchronous replication, creates a replication from a source volume to a destination volume that is supported in a different ETERNUS using the REC function of the disk array.

The REC function supports the following copy modes:

- Transfer mode
- Recovery mode
- Split mode

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



3. 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 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

3. Click [OK] to start the synchronous processing.

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.

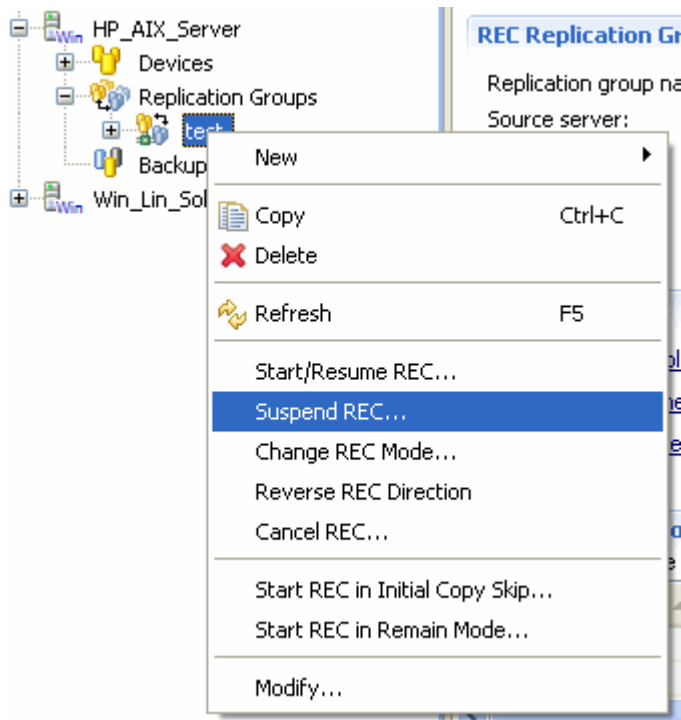
To create a replica in the synchronous replication operation in Stack mode or Consistency mode, either of the following must be performed.

For Consistency mode

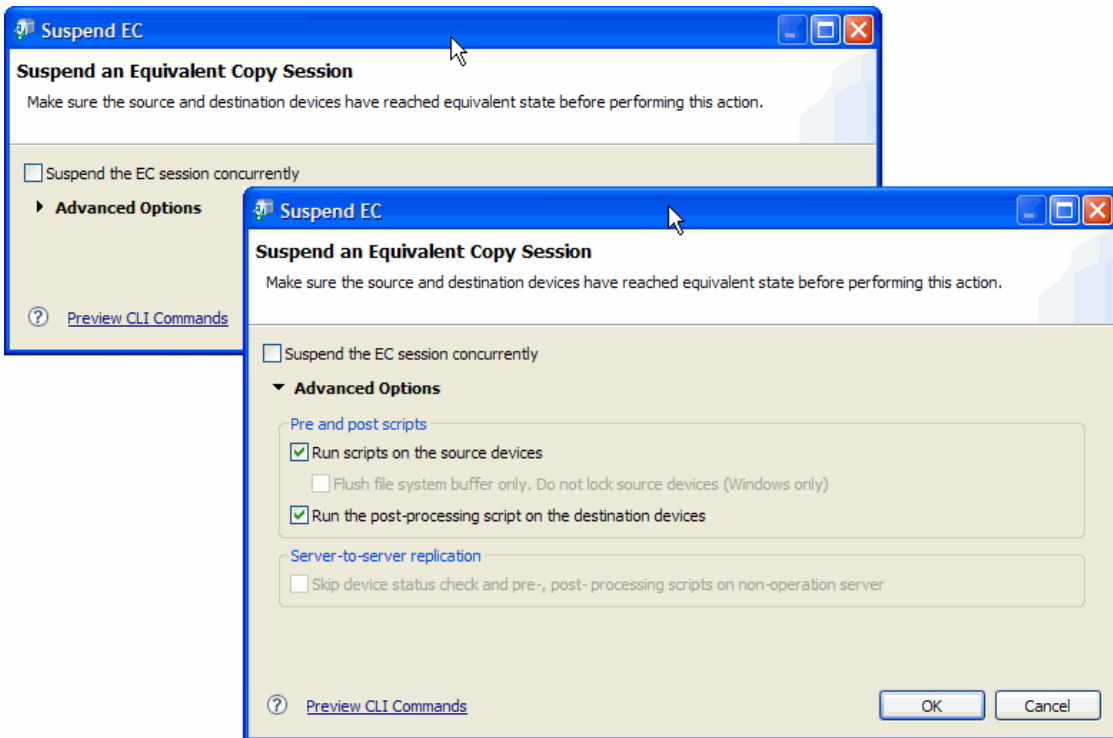
- 1) Change the transfer mode
 - At Change Transfer Mode, change the transfer mode to Asynchronous mode
 - Create a replica
 - At Change Transfer Mode, change the transfer mode to Consistency mode
- 2) Specify Concurrent Suspend, and create a replica

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.



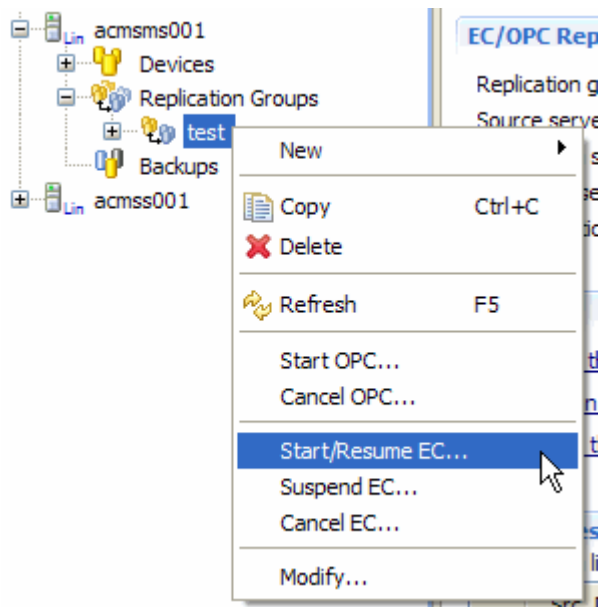
3. Select options as appropriate and click [OK] to proceed with the suspend to create a replica. Refer to Create a Replica Using the Suspend Option for details.



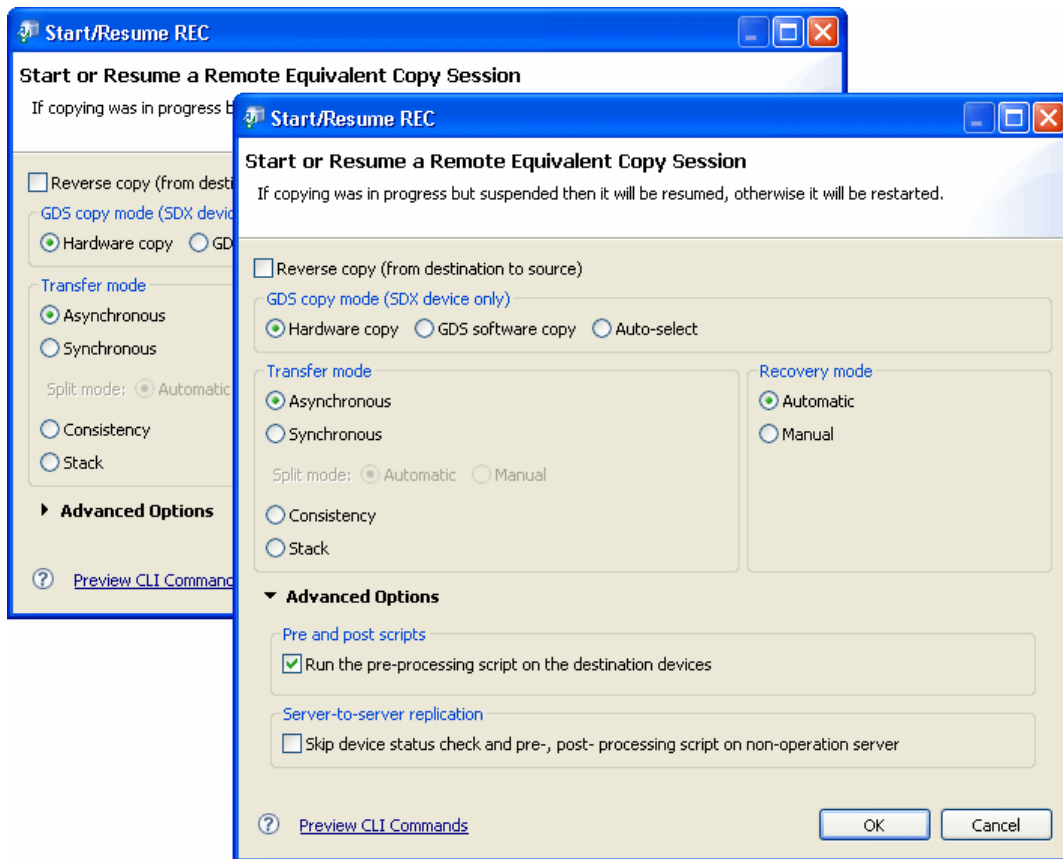
Resume an REC Synchronous Replication Using the Resume option

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 Execute a Remote Equivalent Copy Session for details.

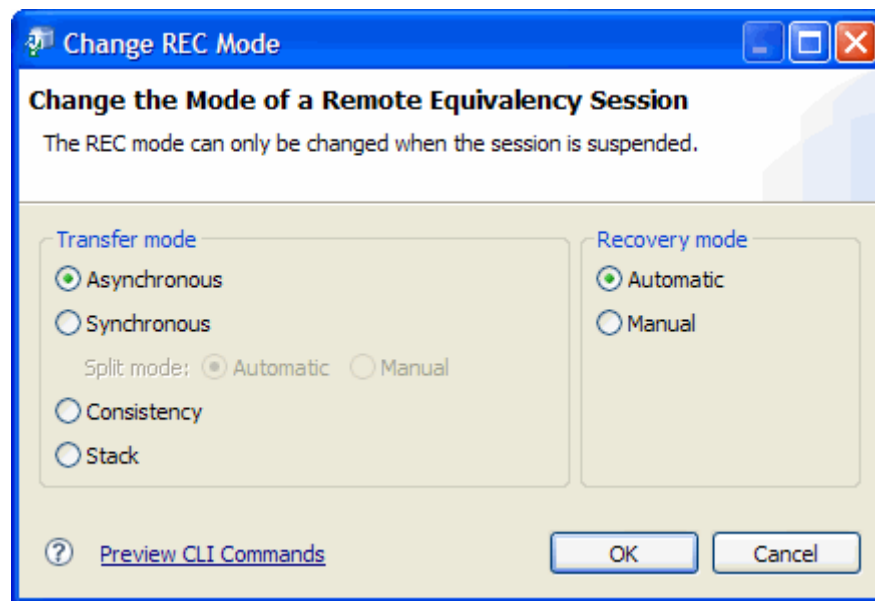


Transfer Mode

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.

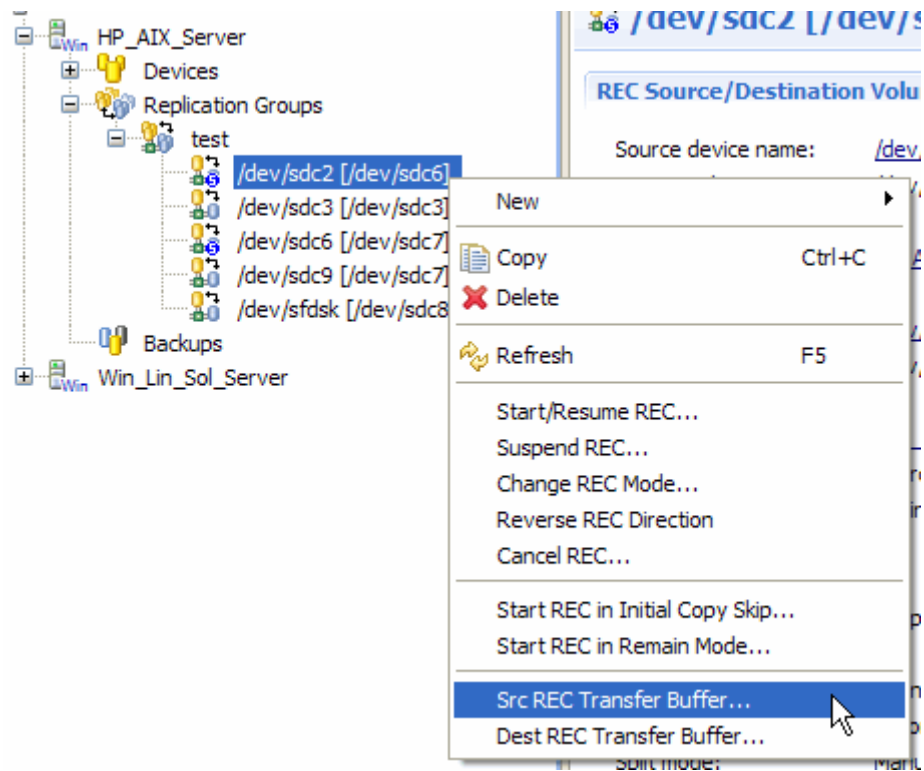


2. Select the required REC mode as appropriate and click [OK] to continue.

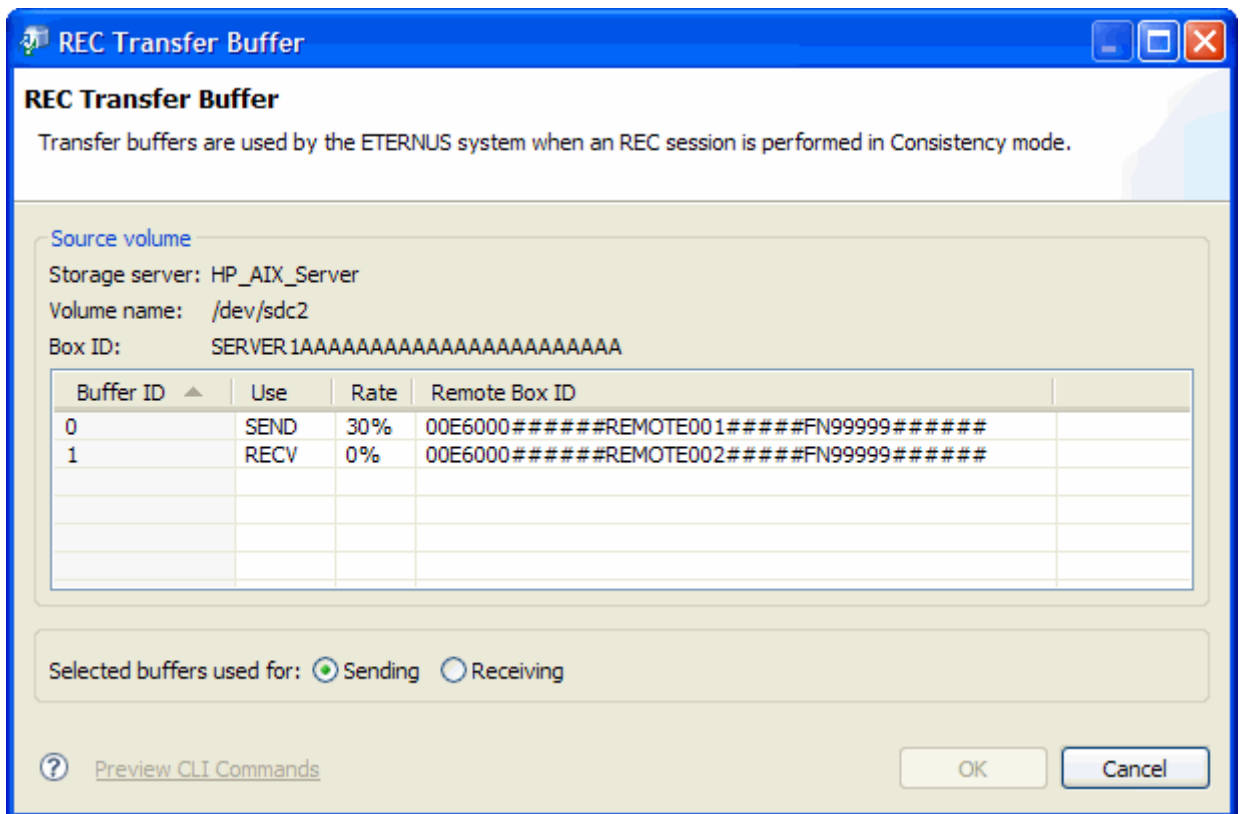
View and Change the Transfer Buffer

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. - 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 - 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

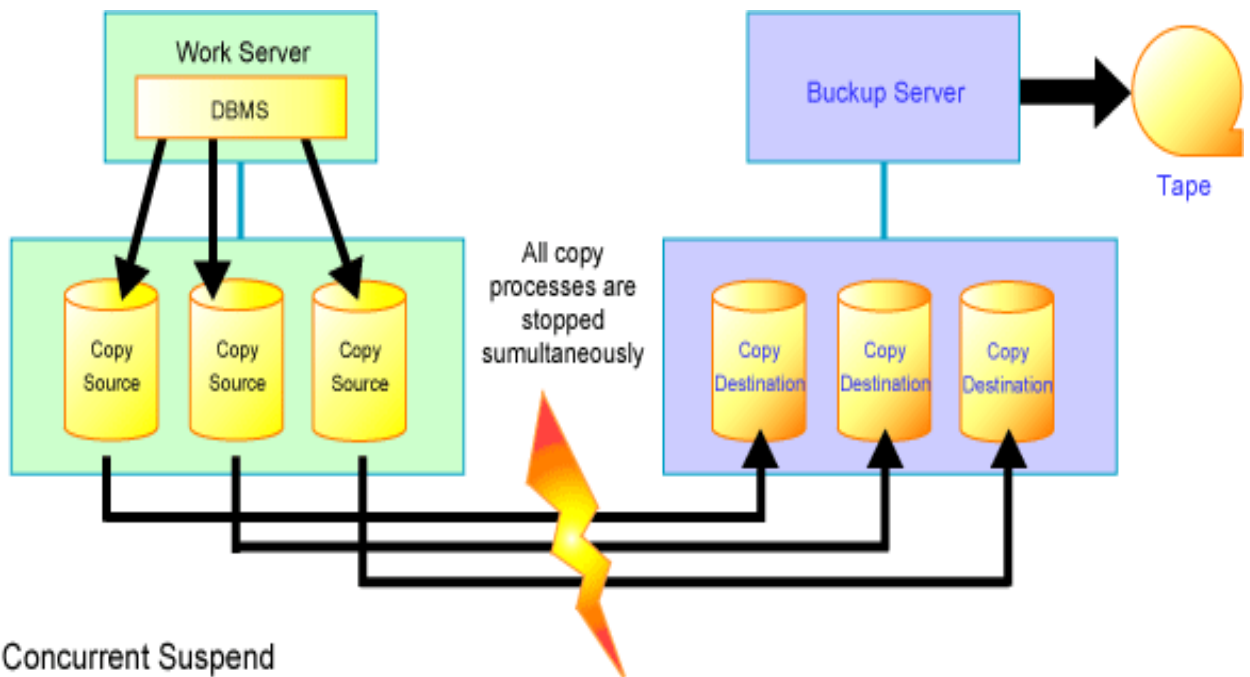
If either the source or destination volume is GDS/SDX device, the following [Alternate GDS Path] dialog is displayed.

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

Concurrent Suspend Function

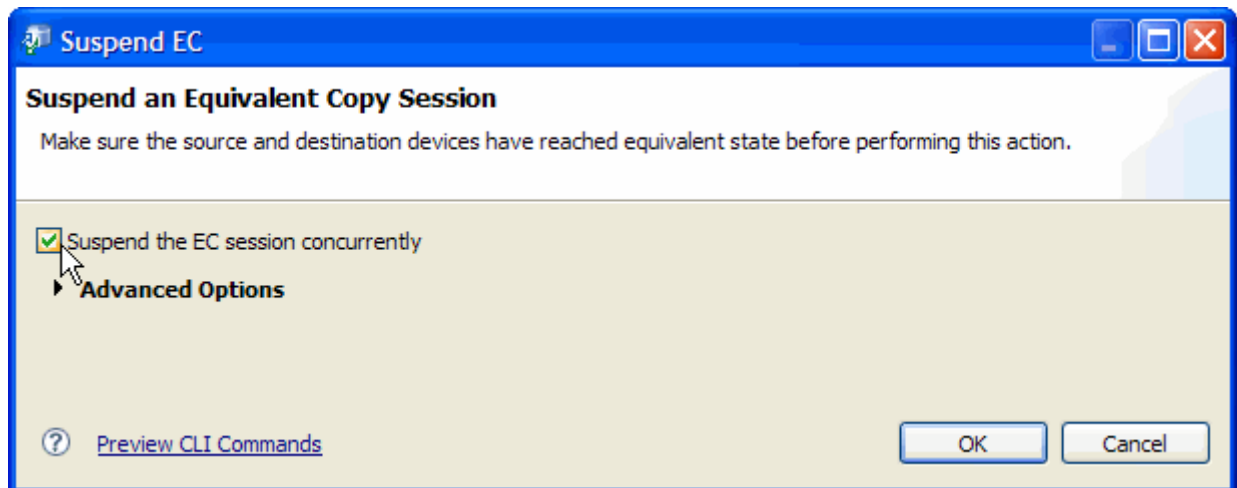
The Concurrent Suspend function simultaneously suspends multiple synchronous replication sessions and can be used with either Equivalent Copy (EC) or Remote Equivalent Copy (REC). By using this function, copies of multi-volume data objects such as databases can be easily taken with guaranteed consistency.

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

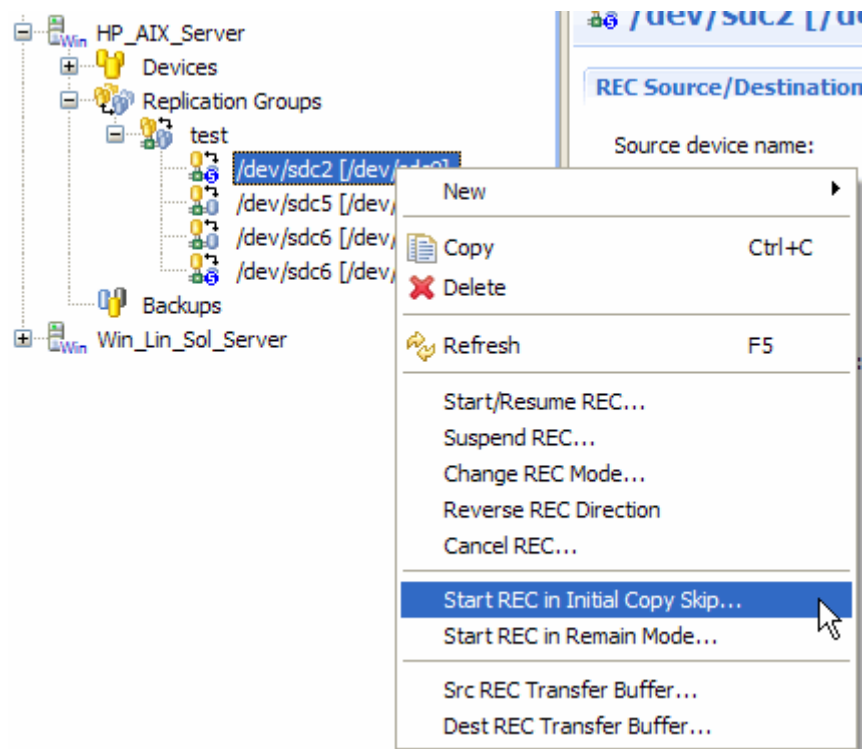
The Initial Copy Skip function enables replication when communications between the source and destination volumes are too slow to allow the initial copy to be performed.

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.

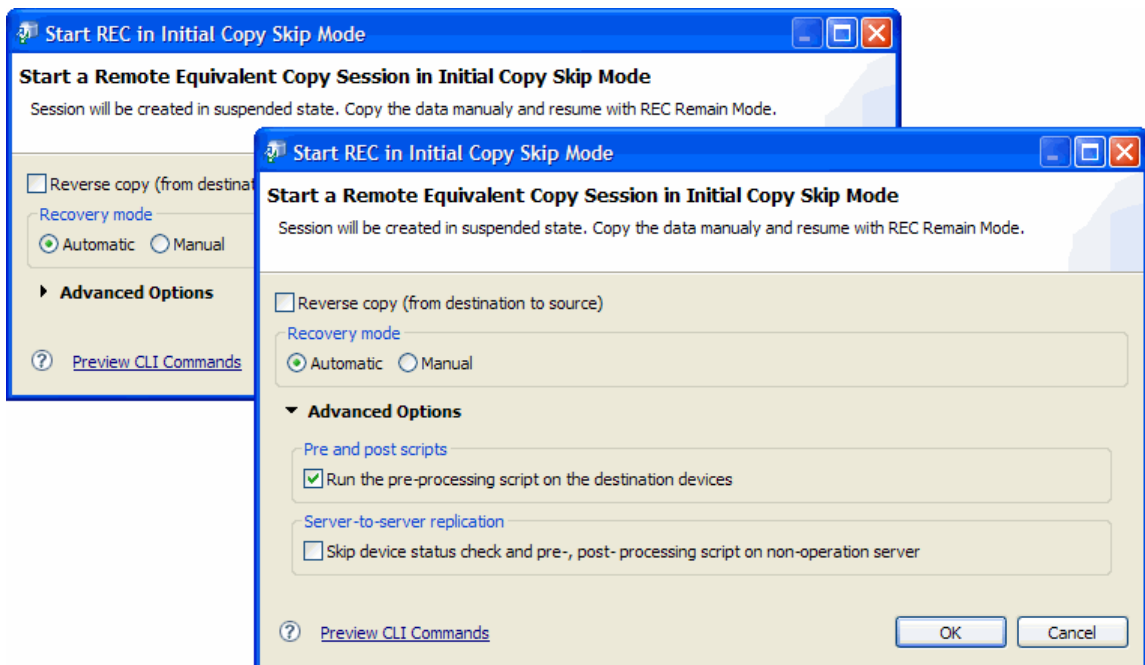
Once the copy from the tape to the destination volume is complete, the session is resumed to copy updates from the source volume to the destination volume.

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] 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.

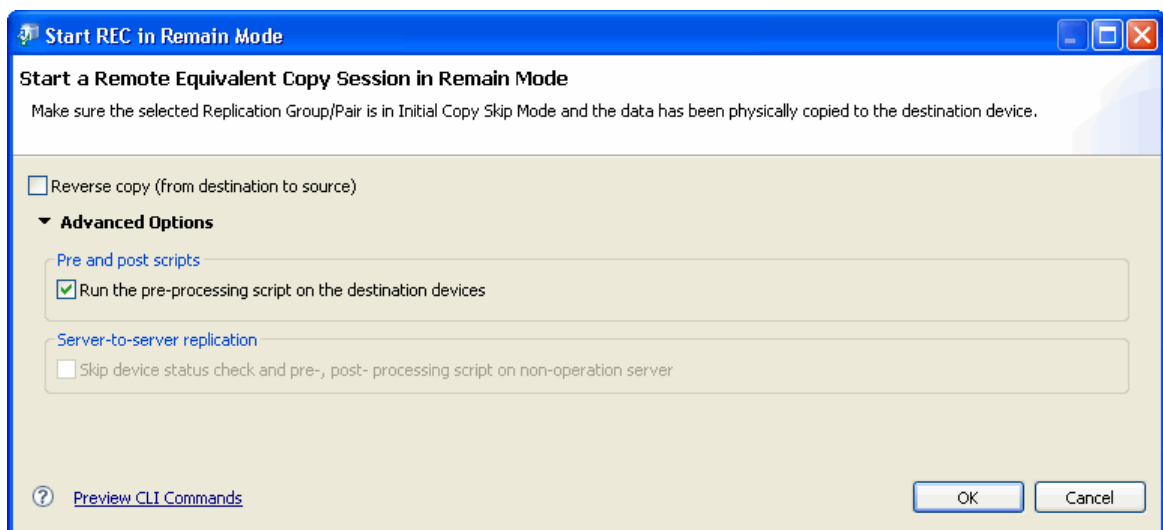


3. Click [OK] to start the replication session in Initial Copy Skip mode.

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 [OK] to restart the session in Remain mode.

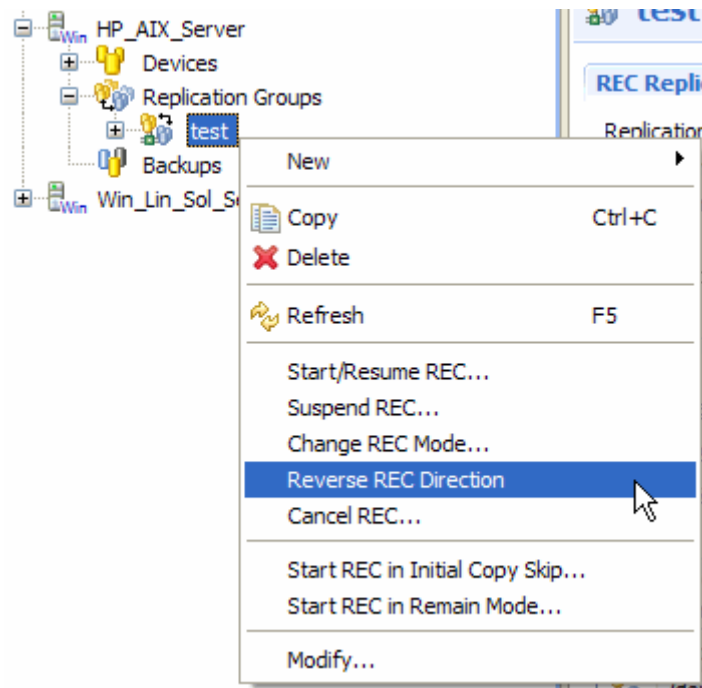
Reverse the Direction of Replication

It is possible to reverse the copy direction of synchronous processing (REC), allowing you to smoothly toggle between source and destination sites.

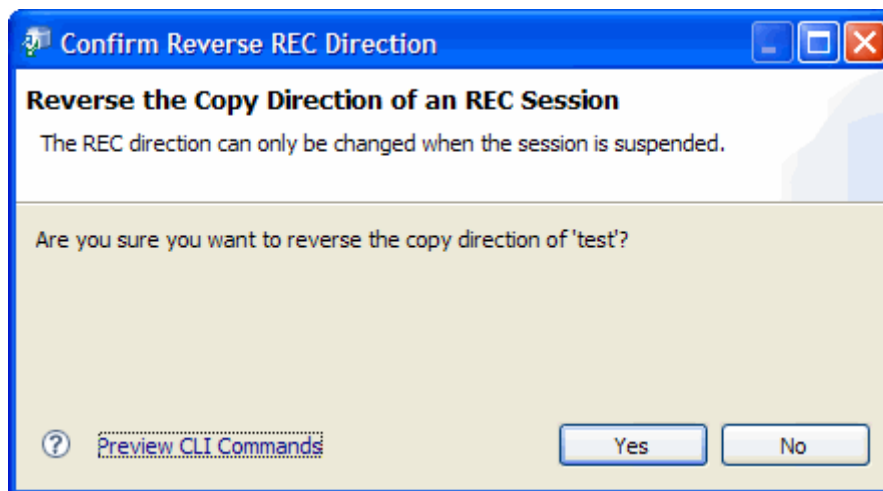
The synchronous processing direction can be reversed as follows.

Note that the copy direction type must be bi-directional and the replication must have a status of "Replicated" for the reversal to take effect. Refer to the [swsrprevsync](#) in the Command reference for details.

1. Right-click the Replication Group or Volume Pair to invoke the context menu, and select the [Reverse REC Direction] option. [Confirm Reverse REC Direction confirmation] dialog is displayed.



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



2. Click [OK] to confirm the copy direction change.



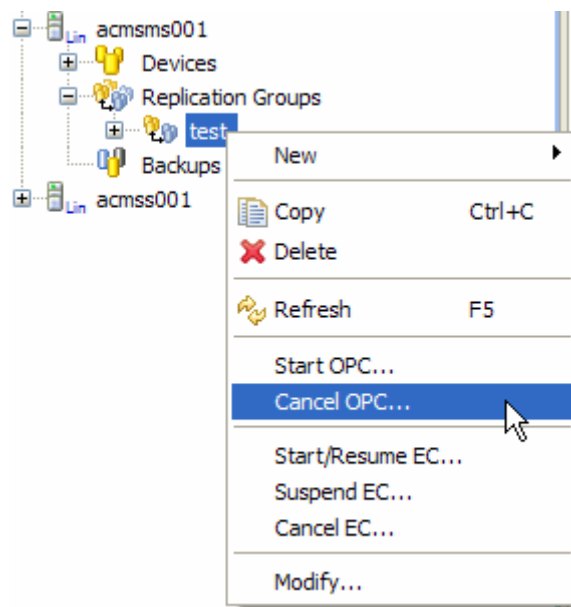
The REC direction can only be changed when either the group or the pair has attained equivalency maintenance state and the session is in a suspended state.

Cancel a Replication session

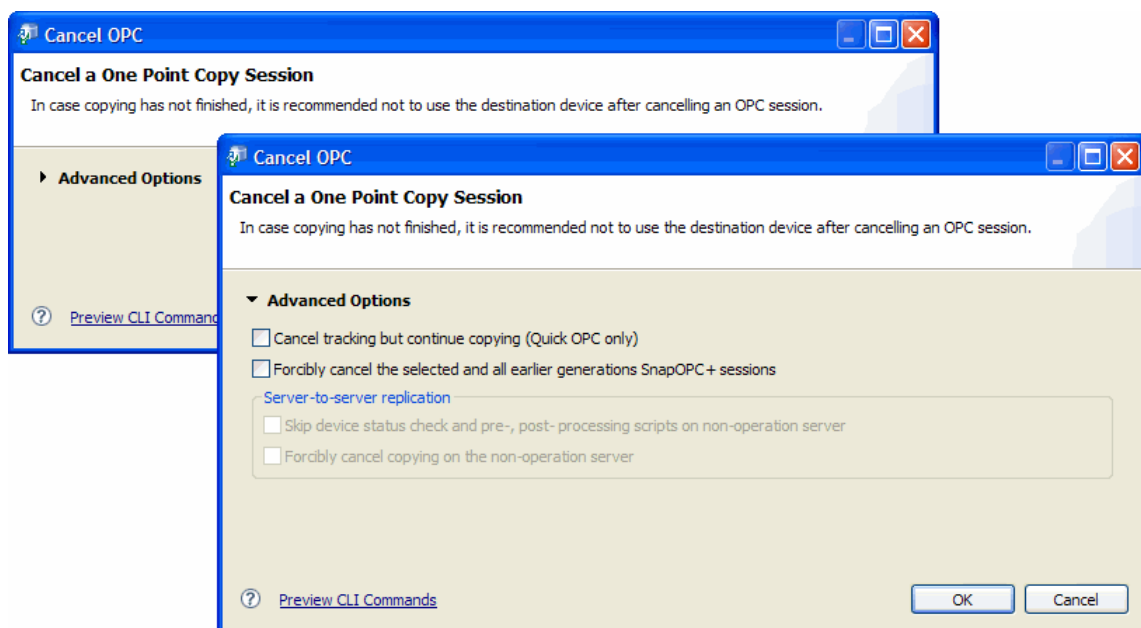
Cancel a One Point Copy (OPC) Session

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

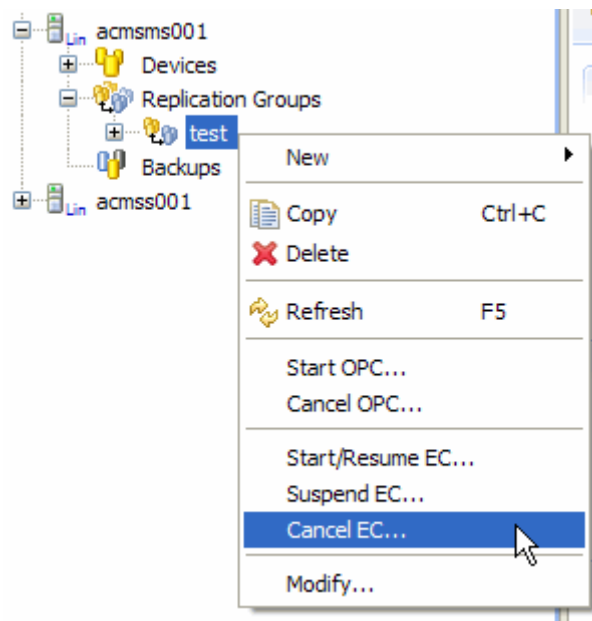
Label	Description
Cancel tracking but continue copying (QuickOPC only)	Stops differential snapshot processing. This option only stops tracking processing, without stopping the Snapshot processing. This checkbox is enabled in the following cases: <ul style="list-style-type: none"> - When the status is 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.

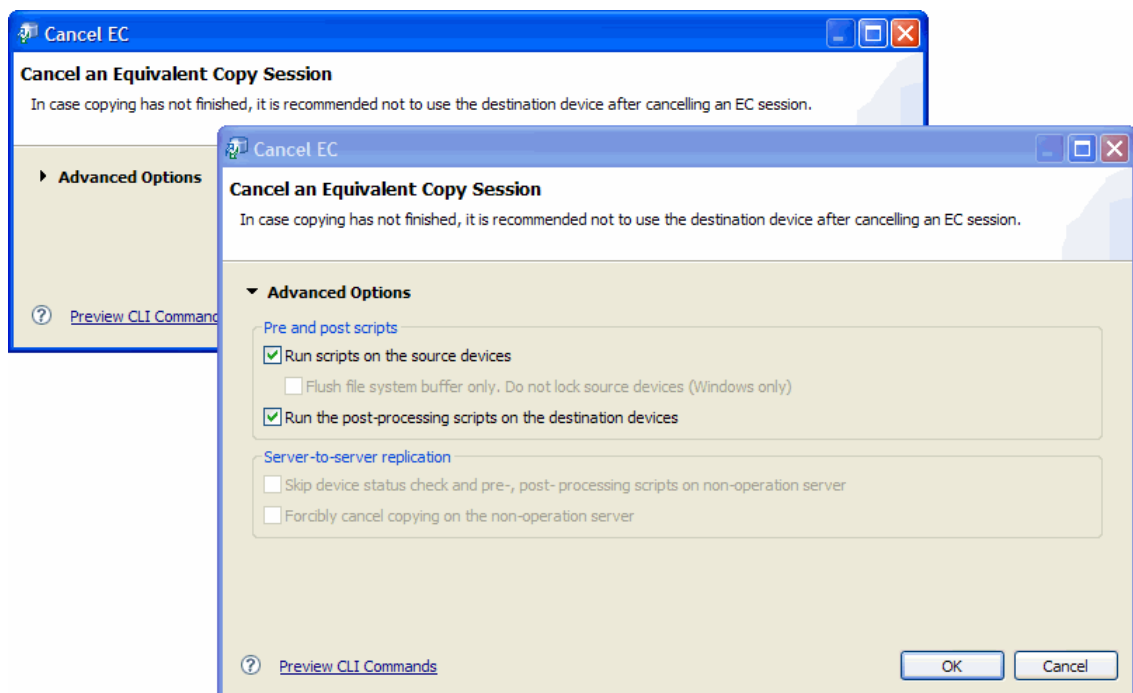
3. Click [OK] to cancel the OPC session.

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".
Flush file system buffer only	Performs flush processing instead of lock processing for the file system buffer of the replication source volumes.

Label	Description
(Windows only)	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.

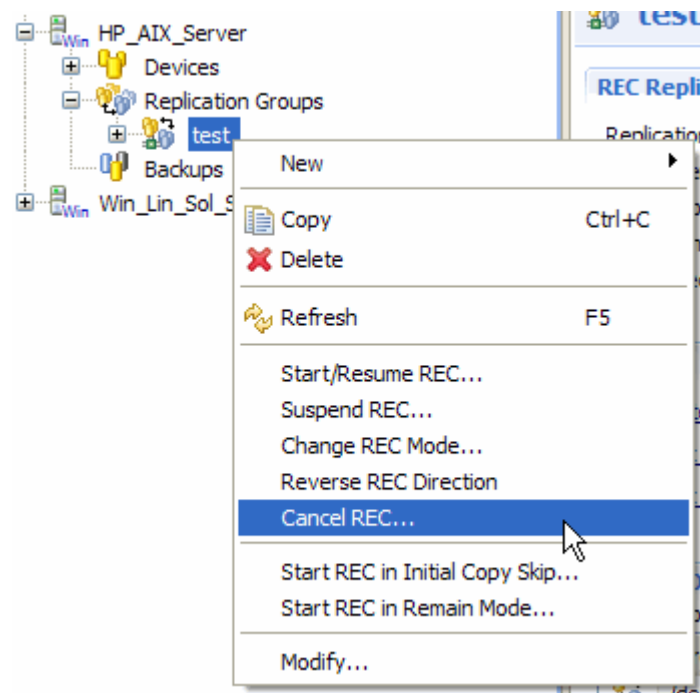
4. Click [OK] to start the cancellation and close the dialog.

Cancel a Remote Equivalent Copy (REC) Session

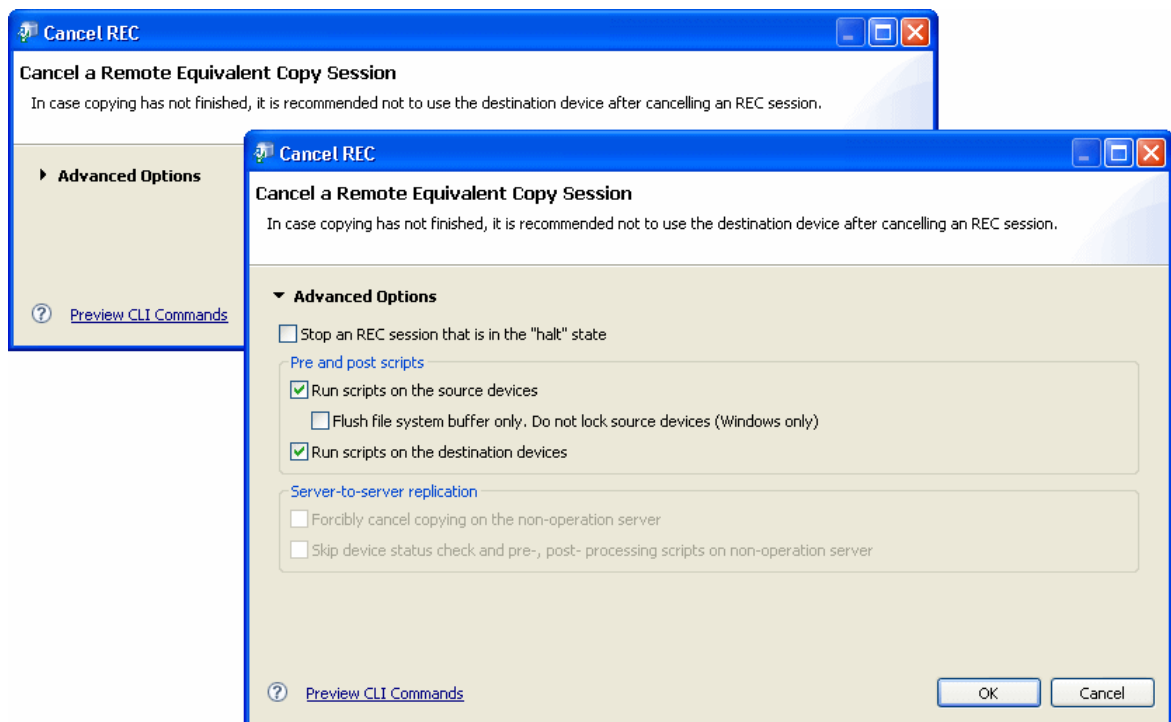
This section describes the procedures required to cancel a replication session between a source and destination volumes on different servers.

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".

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

Restore

Data is generally restored from a replica volume to the original source volume by reversing the direction of the copy but only if bi-directional copying was enabled for the Volume Pair during the original configuration process.

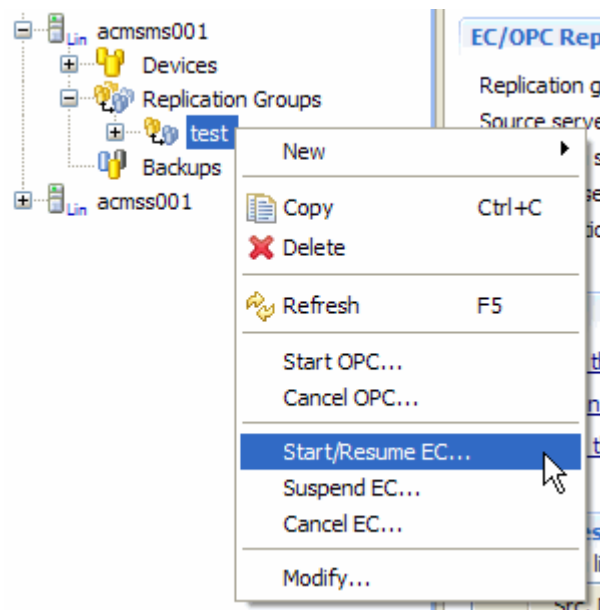


The user should be aware that a restore from any SnapOPC+ generated Snap Data Disk is NOT possible using the standard OPC restoration method and will require a special process involving manual restoration of the affected data. The relevant sections of AdvancedCopy Manager's Operator's Guide and Command Reference manuals should be carefully considered before attempting a SnapOPC+ replication.

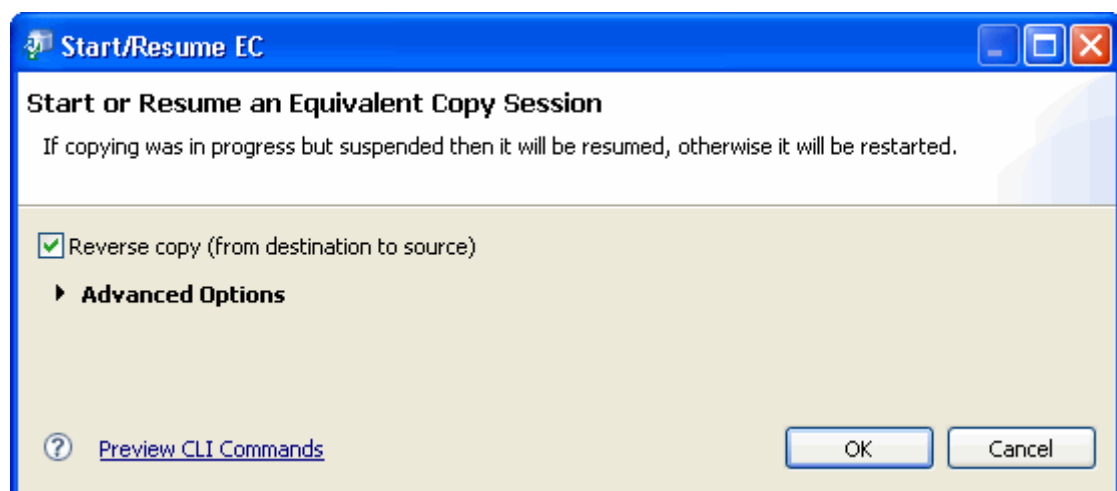
Restore an Equivalent Copy (EC)

Restore an Equivalent Copy as follows.

1. If a replication session is currently in progress, it must be cancelled before proceeding to restoration. Refer to Cancel a 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 replication context menu.



3. Select [Start/Resume EC] to invoke the EC Start/Resume dialog.
4. The [Reverse copy (from destination to source)] option must also be enabled for the restoration. The effect of this option is to reverse the arguments for the source and destination volumes in the Volume Pair. Select other options as appropriate.



5. Click [OK] to restart the synchronization in the reverse direction.

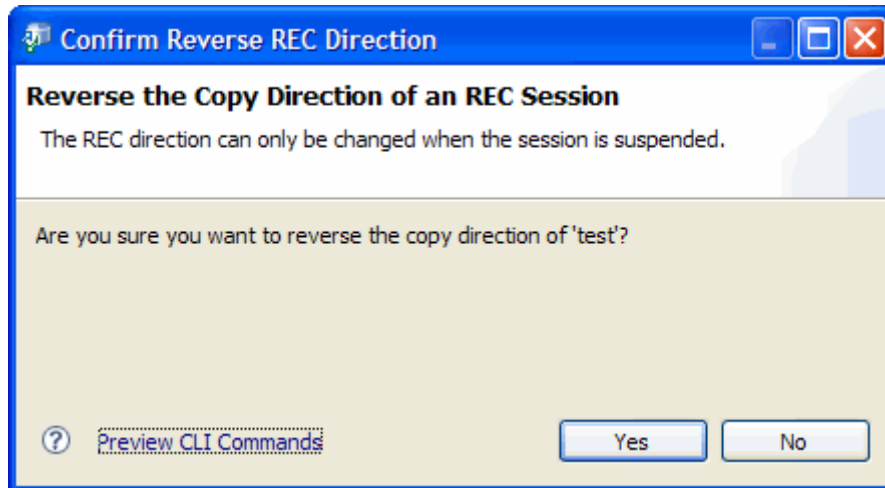
Restore a Remote Equivalent Copy (REC)

Reverse the copy direction to restore a remote equivalent copy.

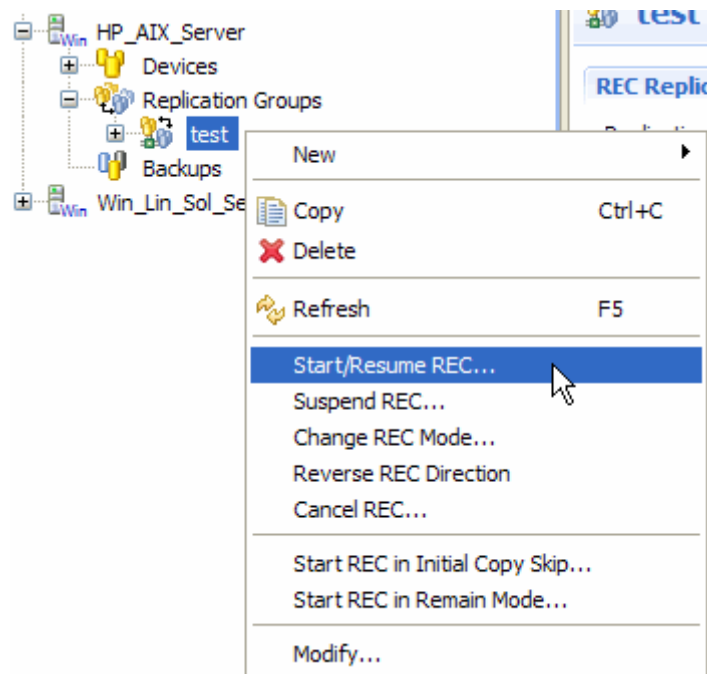
Resynchronize by Reversing an REC Session

1. Check the information carefully to ensure a replication related to the source volume is not currently in progress. If a replication session is currently in progress, it must be cancelled and the restore must then use a previous replica which not in any current Volume Pair as the source for the restoration.

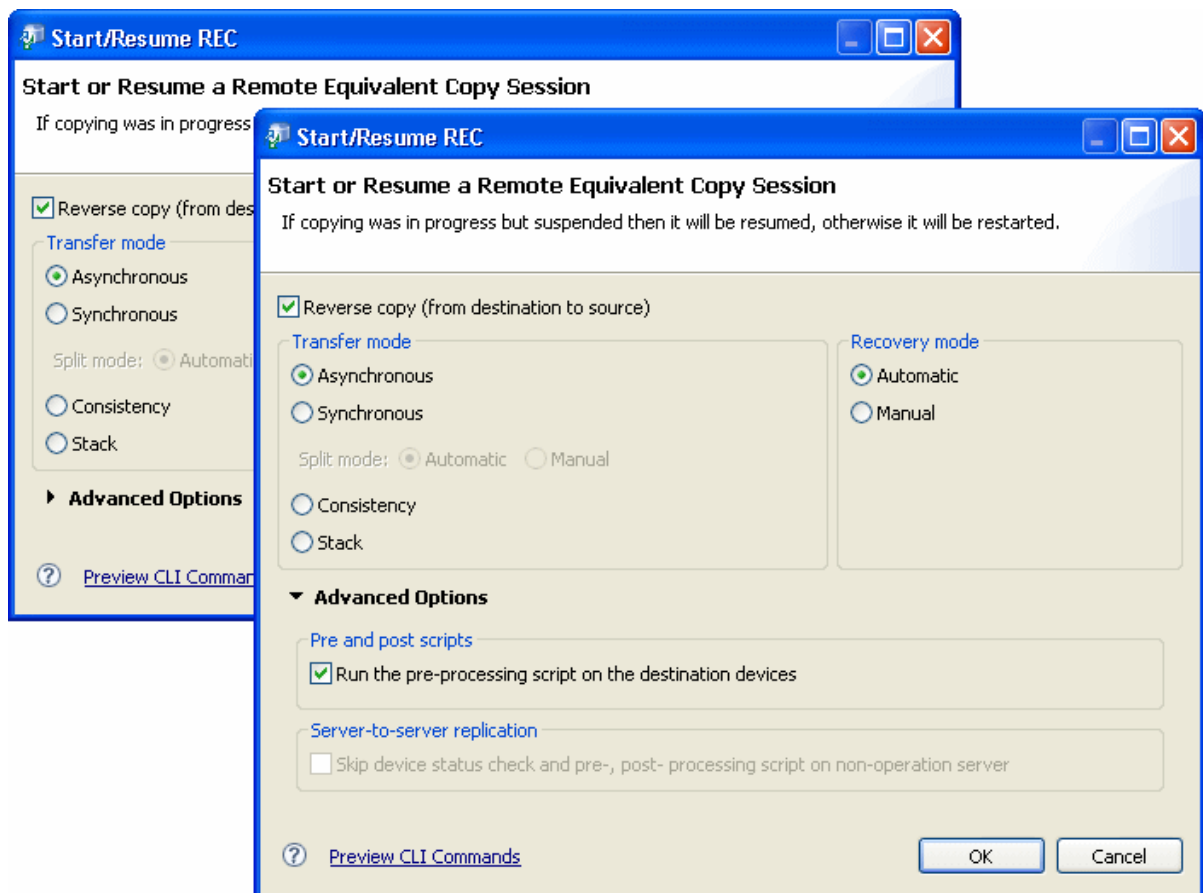
2. Select the Volume Pair or Replication Group to be restored from the site tree and right-click to invoke the replication context menu.
3. Select [Reverse REC Direction] to invoke the [Confirm Reverse REC Direction] dialog. The [Confirm Reverse REC Direction] dialog can also be invoked from the task pane in the Details view.



4. Click [OK] to confirm the details and close the dialog.
5. Select the reversed Volume Pair or Replication Group from the site view and right-click to invoke the REC replication context menu.



6. Select [Start/Resume REC] to invoke the [Start/Resume REC] dialog.
7. The [Reverse copy (from destination to source)] option must be enabled for the restoration.

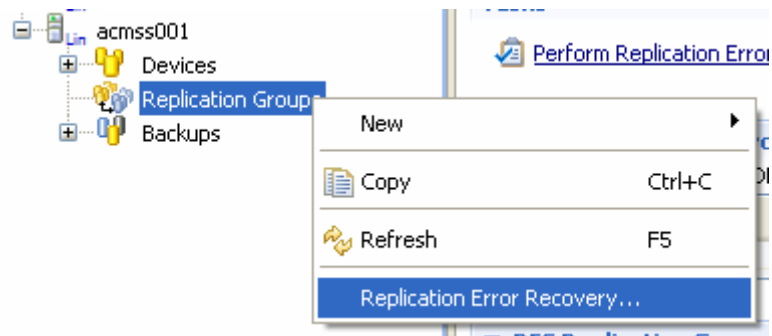


8. Select other options as appropriate and click [OK] to restart the synchronization in the reverse direction.
9. Use the REC Suspend function to create a replica when the copy reaches a state of equivalence, then cancel the tracking.
10. Use the REC [Reverse Direction of Copy] option again to restore the original configuration.

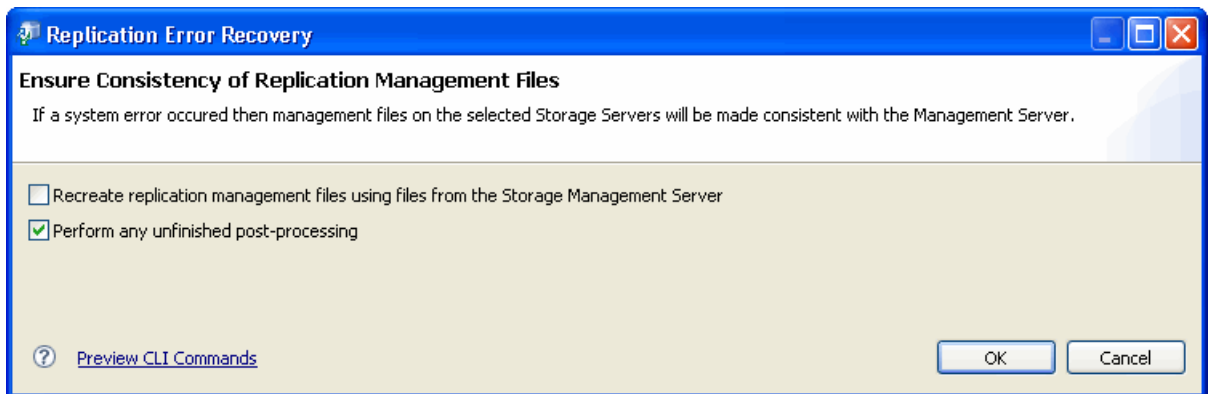
Replication Error Recovery

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 (swsrpdelvol) 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 post-processing	Any unfinished post-processing is performed.

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