



EMC[®] Mainframe Enablers TimeFinder[™] /Clone Mainframe Snap Facility

Version 7.6

Product Guide

REV 04

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Document Coverage

The *TimeFinder/Clone Mainframe Snap Facility Product Guide* provides descriptions of operations, commands, site options and global parameters for the following EMC products:

- ◆ TimeFinder/Clone for z/OS
- ◆ TimeFinder/Snap for z/OS
- ◆ TimeFinder/Consistency Group

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PREFACE

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features.

Contact your EMC representative if a product does not function properly or does not function as described in this document.

Note: This document was accurate at publication time. New versions of this document might be released on the EMC online support website. Check the EMC online support website to ensure that you are using the latest version of this document.

Purpose

This guide describes how to use the EMC TimeFinder/Clone Mainframe Snap Facility.

Audience

This guide is intended for the host system administrator, system programmer, or operator who is evaluating, planning for, managing, or using EMC TimeFinder/Clone Mainframe Snap Facility.

Related documentation

The following EMC publications provide more information:

- ◆ *Mainframe Enablers Release Notes*
- ◆ *Mainframe Enablers Installation and Customization Guide*
- ◆ *Mainframe Enablers Message Guide*
- ◆ *ResourcePak Base for z/OS Product Guide*
- ◆ *Consistency Groups for z/OS Product Guide*
- ◆ *TimeFinder Mirror for z/OS Product Guide*
- ◆ *Symmetrix® Remote Data Facility (SRDF) for VMAX™ 40K, VMAX™ 20K/VMAX™, DMX™ Series Product Guide*
- ◆ *Symmetrix TimeFinder® for VMAX 40K, VMAX 20K/VMAX Series Product Guide*

Conventions used in this document

EMC uses the following conventions for special notices:



CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

Note: A note presents information that is important, but not hazard-related.

IMPORTANT

An important notice contains information essential to software or hardware operation.

Typographical conventions

EMC uses the following type style conventions in this document:

Normal	Used in running (nonprocedural) text for: <ul style="list-style-type: none"> Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus Names of resources, attributes, pools, Boolean expressions, buttons, DQL statements, keywords, clauses, environment variables, functions, and utilities URLs, pathnames, filenames, directory names, computer names, links, groups, service keys, file systems, and notifications
Bold	Used in running (nonprocedural) text for names of commands, daemons, options, programs, processes, services, applications, utilities, kernels, notifications, system calls, and man pages Used in procedures for: <ul style="list-style-type: none"> Names of interface elements, such as names of windows, dialog boxes, buttons, fields, and menus What the user specifically selects, clicks, presses, or types
<i>Italic</i>	Used in all text (including procedures) for: <ul style="list-style-type: none"> Full titles of publications referenced in text Emphasis, for example, a new term Variables
<code>Courier</code>	Used for: <ul style="list-style-type: none"> System output, such as an error message or script URLs, complete paths, filenames, prompts, and syntax when shown outside of running text
Courier bold	Used for specific user input, such as commands
<i>Courier italic</i>	Used in procedures for: <ul style="list-style-type: none"> Variables on the command line User input variables
< >	Angle brackets enclose parameter or variable values supplied by the user
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections — the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information omitted from the example

Where to get help

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Note: To open a service request through the EMC Online Support site, you must have a valid support agreement. Contact your EMC sales representative for details about obtaining a valid support agreement or to answer any questions about your account.

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For documentation, release notes, software updates, or for information about EMC products, licensing, and service, go to the EMC Online Support site (registration required) at:

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CHAPTER 1

Introduction to the TimeFinder/Clone Mainframe Snap Facility

This chapter provides an introduction and overview of each component of the TimeFinder/Clone Mainframe Snap Facility.

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Introduction

EMC® TimeFinder® is a family of Symmetrix® replication products that allows you to nondisruptively create and manage point-in-time copies of data, enabling simultaneous action of business tasks that were previously sequential. For example, TimeFinder allows you to create a point-in-time copy of critical data while this data continues to be used in production operations.

The ability to access source data during the TimeFinder copy operation can increase the availability of the application. TimeFinder can also shorten backup windows, maintenance windows and improve service levels.

The TimeFinder product family is used in environments configured with the following:

- ◆ Symmetrix VMAX™ Family arrays, and
- ◆ Symmetrix DMX™ arrays

Symmetrix VMAX Family arrays require EMC Enginuity™ Operating Environment for Symmetrix systems release 5874 or higher. Symmetrix DMX arrays require Enginuity 5773 and lower.

Note: Unless noted, features that are new in Enginuity 5874 are not supported on Symmetrix arrays running Enginuity 5773 or lower versions.

TimeFinder concepts

For a comprehensive description of the TimeFinder replication concepts and features, refer to the *EMC Symmetrix TimeFinder Product Guide*.

In this manual

This manual provides the command and parameter details for using the EMC TF/Clone Mainframe Snap Facility, which is a TimeFinder product that supports the z/OS mainframe environment as one of the components of the EMC Mainframe Enablers.

Mainframe Enablers and TimeFinder

EMC TF/Clone Mainframe Snap Facility (TimeFinder) is one of the EMC Mainframe Enablers. The EMC Mainframe Enablers allow you to monitor and manage your storage and include the following components:

- ◆ ResourcePak® Base for z/OS
- ◆ EMC Consistency Groups for z/OS
- ◆ SRDF® Host Component for z/OS
- ◆ TimeFinder/Clone Mainframe Snap Facility
- ◆ TimeFinder/Mirror for z/OS
- ◆ TimeFinder Utility

When you install the EMC Mainframe Enablers product suite, you install ResourcePak Base, which runs in a persistent address space under z/OS, and includes the software for all the other components.

However, to enable any of these components, you need one of the following:

- ◆ For Engenuity level 5875 or higher, you need the eLicense for that component.
- or
- ◆ For Engenuity level 5874 or lower, you need to install the License Feature Code (LFC) for that component into the ResourcePak Base initialization parameters file.

Follow the steps outlined in the *EMC Mainframe Enablers Installation and Customization Guide* and the *EMC ResourcePak Base for z/OS Product Guide* to install the Mainframe Enablers and activate the TF/Clone Mainframe Snap Facility.

Note: TF/Clone Mainframe Snap Facility is installed with MFE 7.0 or higher versions. Prior to MFE 7.0, TFCMSF was a separate product and installed separately.

TF/Clone Mainframe Snap Facility

EMC TF/Clone Mainframe Snap Facility is the software foundation for three functional products:

- ◆ TimeFinder/Clone
- ◆ TimeFinder/Snap
- ◆ TimeFinder/Consistency Group¹

Figure 1 shows the architecture of the TF/Clone Mainframe Snap Facility.



Figure 1 TF/Clone Mainframe Snap Facility

TF/Clone Mainframe Snap Facility consists of common code and specific code for each of the functional products.

Licensing

As of Engenuity level 5875 or higher, Mainframe Enablers introduces support for Electronic Licensing (eLicensing). With the introduction of eLicensing, Symmetrix licensing is moving from a host-based model to a Symmetrix-based model, with the majority of licenses now being stored in a feature registration database on the Symmetrix system.

However, there are still a number of Symmetrix licenses that remain host-based and use License Feature Codes (LFCs).

1. TF/Consistency Group should not be confused with EMC Consistency Groups for z/OS. They are separate products. “[TF/Consistency Group overview](#)” on page 35 describes TF/Consistency Group. The *EMC Consistency Groups for z/OS Product Guide* describes EMC Consistency Groups for z/OS.

For these remaining host-based licenses and for Symmetrix systems running Enginuity level 5874 or lower, ResourcePak Base (EMCSCF) requires LFCs to enable separately chargeable features in EMC software. These features require an LFC to be provided during the installation and customization of EMCSCF. The *EMC Mainframe Enablers Installation and Customization Guide* lists the LFCs for the Mainframe Enablers components.

TimeFinder LFCs for Enginuity Level 5874 or lower

To use TF/Clone and TF/Snap, you must install the matching Licensed Feature Code (LFC) as illustrated in [Table 1](#).

Table 1 Functional products and LFCs

To use	you need to install the
TF/Clone and the TARGET parameter	TF/Clone Licensed Feature Code
TF/Snap and the VDEVice parameter	TF/Snap Licensed Feature Code
TF/Consistency Group does not required a separate license.	

Note: *EMC Mainframe Enablers Installation and Customization Guide* provides more information about LFCs.

After you enter one of the Licensed Feature Codes (as described in the *EMC Mainframe Enablers Installation Guide*), the common code and the specific code for the functional product are enabled by that Licensed Feature Code.

For example, if you enable the LFC for the TF/Snap functional product, you can use the VDEV parameter in command specifications and perform any task enabled by the common code and by TF/Snap.

IMPORTANT

The following sections in this chapter and the remaining chapters of this guide discuss TF/Clone, TF/Snap, and TF/Consistency Group. Any information that specifically applies to one of these functional products is labeled for that product. Any information that applies to all of the functional products and the common code uses the term “TimeFinder” for TF/Clone Mainframe Snap Facility.

TF/Clone overview

TF/Clone for z/OS produces point-in-time copies of full volumes or of individual datasets. TF/Clone operations involve full volumes or datasets where the amount of data at the source is the same as the amount of data at the target.

In addition to providing real-time, non-disruptive backup and restore, TF/Clone can compress the cycle time for such processes as:

- ◆ Application testing
- ◆ Software development
- ◆ Loading or updating a data warehouse

TF/Clone also provides significant configuration flexibility because clone copies do not require Symmetrix mirror positions. The clone copies can have any configuration except VDEV (virtual device); that is, they can have any form of RAID protection. The clone target can also be configured as a standard device or as a Business Continuance Volume (BCV).

The source devices can have any configuration except VDEV.

Basic clone operations

You can use TF/Clone to perform the following operations:

- ◆ Dataset snap
- ◆ Full-volume snap
- ◆ Remote full-volume snap
- ◆ Simultaneous TF/Clone (using the PARALLEL_CLONE parameter)
- ◆ VP Snaps
- ◆ Clone Restore Virtual Snaps

Dataset snap

A dataset snap copies replicas of individual datasets to target datasets. Dataset snap copies the contents of the source dataset to a new or existing target dataset.

Note: “[SNAP DATASET \(TF/Clone\)](#)” on page 262 lists the types of datasets that TF/Clone can snap.

As long as the source and target reside on the same Symmetrix system, a dataset snap uses the EMC Enginuity operating environment for Symmetrix to copy the dataset. This allows you to initiate the request, and before the copy process is finished, start using the target.

Requests for snaps between two different Symmetrix systems can invoke an external datamover to perform the copy. In this case, the target dataset is available when the external copy is completed.

Full-volume snap

A full-volume snap captures a complete replica of the source volume on the target volume in the local Symmetrix system.

TF/Clone requests that span Symmetrix devices can invoke an external datamover to accomplish the request. This allows volume placement to be flexible without requiring changes to snap jobs. Parameters you place on the command specify how the Symmetrix system performs the request.

A local, full-volume snap requires all Symmetrix controllers to be running Enginuity level 5x71 or higher.

Remote full-volume snap

A remote, full-volume snap captures a complete replica of the source volume on a target volume in a remote Symmetrix system that is connected to the local Symmetrix system by SRDF links. You initiate remote snap commands in a local z/OS system. A local channel-attached Symmetrix system passes the commands on to the remote Symmetrix system for execution.

Remote snap requires all Symmetrix controllers involved be running Enginuity level 5x71 or higher. This includes each Symmetrix system in the SRDF link.

You identify the volumes to be copied by specifying the Symmetrix internal device number (SYMDV#) rather than by specifying the host channel ID (CCUU or UNIT) or the volume label (VOLSER). All volumes must reside in the same Symmetrix system and have the same emulation and device geometry (CKD vs. FBA, 3380 vs. 3390, and so forth.).

A gatekeeper device is required to send commands and provide access to a remote Symmetrix system. The gatekeeper device in a local channel-attached Symmetrix system must be identified by using the REMOTE parameter (UNIT, VOLUME, or DDNAME subparameters).

Note: [Chapter 4](#) describes these parameters and subparameters and the commands to which they apply.

Additionally, the “path” from the local channel-attached Symmetrix system to the remote Symmetrix system must be provided using the REMOTE parameter (RAGROUP subparameter). The path consists of the SRDF group identifiers associated with the SRDF links to the remote Symmetrix system. The commands to perform the snap operation are sent down this path to the remote Symmetrix system and then executed on the remote Symmetrix system.

When there is the possibility of multiple, remote Symmetrix controllers, EMC suggests that you also use the REMOTE parameter (CONTROLLER subparameter) to verify that the remote Symmetrix system found is the Symmetrix system you want.

The target volume cannot be relabeled as part of the snap process. Enginuity level 5x71 or higher is required for this option.

Starting with TimeFinder Version 5.8, you can use the CONTROLLER parameter in place of the REMOTE parameter if the remote Symmetrix system is only one or two hops away. The CONTROLLER parameter automatically chooses a local device and the SRDF group to be used to reach the remote Symmetrix system.

Note: [“CONTROLLER parameter” on page 83](#) provides more information about the CONTROLLER parameter.

Simultaneous TimeFinder /Clone

Enginuity 5875 with both synchronous SRDF and TimeFinder Clone supports the simultaneous copies of source (R1) volumes and target (R2) to separate volumes in the respective Symmetrix controllers. This avoids transmission of the clone tracks across the SRDF links. This feature is called parallel clone and is analogous to IBM's remote pair Flashcopy.

SRDF/S creates a synchronous remote image of the production R1 volumes on the R2 volumes.

When conditions are met, a dual clone session is established between the source and target R2 devices, avoiding the secondary SRDF/S transmission of a copied dataset from the target R1 to the corresponding R2 device.

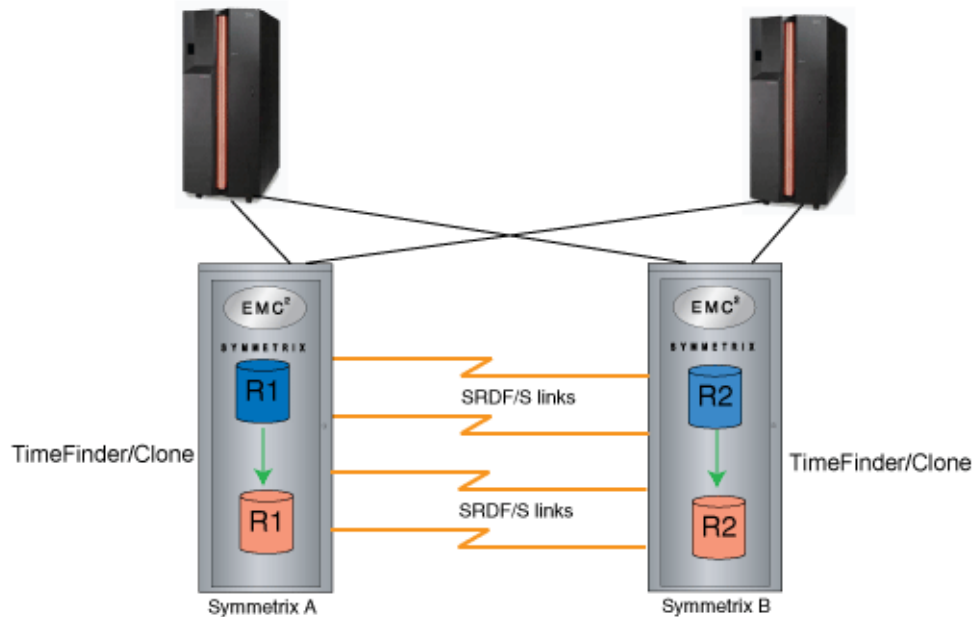


Figure 2 Simultaneous TF/Clone (also referred to as parallel clone)

In previous Enginuity versions, SRDF/S mirroring is used to create remote mirrors of the production R1 volumes and their local replicas.

Enginuity version 5875 uses TF/Clone remote command support to simultaneously create TF/Clone local replicas on both sides of the SRDF links and thus reduce bandwidth consumption.

Note: This feature supports full-device and extent-level TF/Clone operations in SRDF/S configurations. It can be used in Concurrent SRDF solutions on the SRDF/S branch of the concurrent configuration. Parallel clone operations in SRDF/A configurations are not supported.

Parallel clone ensures disaster restartability is intact at all times and is allowed on the SNAP DATASET and the SNAP VOLUME statements, and can also be set as a Site option or Global parameter using the following syntax:

```
PARALLEL_CLONE (YES|NO|PREFerred|REQuired)
```

When enabling this feature, the ACTIVATE CONSISTENT(YES) parameter is also required, and if omitted, the simultaneous TF/Clone operation is still performed and the following informational message is issued:

```
ESNPF371 PARALLEL_CLONE(YES) DETECTED, CONSISTENT(YES) ASSUMED
```

When using Parallel clone feature, you should be aware of the following requirements:

- ◆ Enginuity level 5875 is required on both sides of the SRDF/S link.
- ◆ The R2 source and target clone volumes are located in the same Symmetrix controller.
- ◆ The R2 source and target devices cannot be larger than the R1 devices. Currently, TimeFinder blocks this operation.

What is not supported when using this feature includes the following:

- ◆ Cascaded SRDF devices.
- ◆ SRDF/Star environments.
- ◆ Flashcopy (future Enginuity release)
- ◆ PPRC mode volumes

In addition, the following SRDF operations are blocked on Simultaneous TF/Clone (PARALLEL_CLONE) devices:

- ◆ Delete and Half Delete
- ◆ Swap and Half Swap
- ◆ Move Group and Half Move Group

Note: The PARALLEL_CLONE parameter should not be confused with the Global PARALLEL parameter for multi-tasking or the PARALLEL SNAP solution described on page [122](#).

VP Snaps

A VP Snap leverages TimeFinder/Clone technology to create space-efficient snaps for thin devices by allowing multiple sessions to share allocations within a thin pool. VP Snap provides the efficiency of Snap technology with improved cache utilization and simplified pool management. With VP Snap, tracks can be stored in the same thin pool as the source, or in another pool of your choice.

VP Snap sessions copy data from the source device to the target device only if triggered by a host I/O. Read I/Os to protected tracks on the target device do not result in data being copied.

Note: VP Snaps only apply to thin devices with the MODE(VSE) parameter specified for the copy.

Clone Restore Virtual Snaps (CRVS)

Starting with MFE Version 7.5, TF Clone supports an incremental restore to a source that has either active or VP Snaps.

CRVS only supports a restore to its standard, which is also a virtual/VP Snap source, and does not support a restore to third device.

The example below shows a relationship exists between A and B and another relationship exists between A and C, where C is a VDEV. With CRVS, you now have ability to perform a restore or incremental restore from B to A without terminating the relationship between A and C.

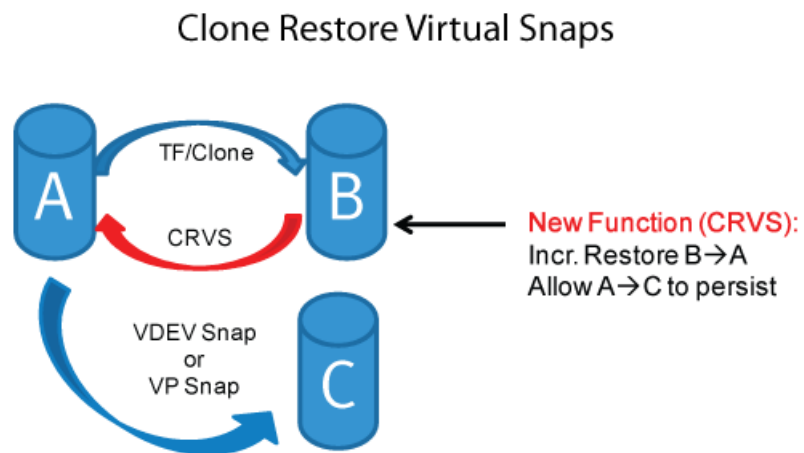


Figure 3 Clone Restore Virtual Snaps (CRVS)

CRVS requirements/limitations

The following requirements and limitations apply to CRVS actions:

- ◆ Requires MFE version 7.5 with Enginuity level 5876 on Symmetrix 40K only.
- ◆ CRVS does not support a restore to a third device, such as an additional virtual/VP Snap standard.
- ◆ A Resnap of the virtual/VP Snap session is not allowed when CRVS is in progress.
- ◆ All other restrictions related to “restore in progress” also apply when CRVS is in progress.
- ◆ CRVS is not supported for Clone Emulation.
- ◆ Incremental resnap of a clone during a persisting TimeFinder cascaded VP Snap session.
- ◆ Incremental resnap during a cascaded virtual snap session
- ◆ A restore from a TF Cascaded Virtual Snap to a fully copied clone target.

Additional TF/Clone capabilities

Additional capabilities of TF/Clone for z/OS include:

- ◆ Differential snap operations require only the changed data be copied on subsequent snaps.
- ◆ Compatibility with STK Snapshot Copy and IBM Snap products including reuse of its SIBBATCH syntax.
- ◆ Compatibility with TimeFinder Utility for z/OS, which conditions the catalog by relabeling and recataloging entries and thereby avoids the issues associated with duplicate volume serial numbers in the mainframe environment.
- ◆ Compatibility with mainframe security mechanisms such as RACF.
- ◆ Integration with many mainframe-specific Independent Software Vendors (ISVs) and their products.

Working with clone copies

As previously discussed, TF/Clone takes a point-in-time copy of data at the dataset or volume level.

After you issue a TF/Clone command, the TF/Clone process initiates data movement from the source dataset to the target dataset, which is dynamically allocated on a standard or a BCV volume. You can take multiple copies of a dataset. Copies are immediately available for read and write access while the copying process completes as a background task.

Compared to traditional data copying, TF/Clone minimizes the downtime for applications by reducing the time required for copying the data being used by the applications. Replication of the data occurs within the Symmetrix system and requires minimum resources from the host.

For more information

For a comprehensive overview of the TimeFinder clone concepts, refer to the *EMC Symmetrix TimeFinder Product Guide*.

TF/Snap overview

TF/Snap produces pointer-based replicas where the preimages of changed data are written, along with changes to the snap device.

TF/Snap is the only space-saving, snapshot-copy product available in the enterprise storage arena. Because TF/Snap does not actually create a full copy of the source data, its copies take only a fraction of the space a full-volume snap would.

TF/Snap is ideal when you require fast, temporary, parallel access to production data. However, keep in mind that if your source data is destroyed (for example, because of multiple disk failures), the snap will also be lost and cannot be used for the restore.

Therefore, you should not rely on TF/Snap as the sole means of local replica protection if you need absolute availability nor use it with unprotected source volumes as TF/Snap relies on the availability of the source data.

TF/Snap operations involve:

- ◆ Virtual devices
- ◆ Snap Pool devices

Virtual device operations

Virtual devices (VDEVs) are space-efficient copies that consist of tables and pointers to capture a point in time. Virtual devices can be either CKD or FBA. Virtual devices are host accessible and do not consume physical storage. However, because they are host addressable, virtual devices do consume Symmetrix device numbers and host addresses.

TimeFinder supports two virtual device methodologies. The original and default method uses a single session for each virtual device in a relationship with a standard device. This allows a maximum of 8 virtual devices, or 16 sessions, per standard device (four datasets, four full volumes, and 8 virtual volumes).

The multi-virtual method uses a single session on the standard device, that allows up to 128 virtual devices to “share” the single device session. Each virtual device is monitored by an independent session that is not associated with the source device.

Note: On a VMAX 40K and higher, the multi-virtual method is the only method used, so whether the MULTI_VIRTUAL parameter is set to NO or to YES, or whether it is used at all, the system always allows 128 virtual device sessions.

Prior to TimeFinder Version 5.8, two jobs trying to assign an unassigned VDEV in a multi-sysplex environment may run at the same instant in two different sysplexes and both acquire the same VDEV.

Starting with Version 5.8, TimeFinder has a new site option to avoid this contention, VDEV_MULTI_SYSPLEX. The VDEV_MULTI_SYSPLEX site option uses Symmetrix system and device locks so that any system in any sysplex accessing the Symmetrix system becomes resource pending just the same way as they would if the locks were in the same sysplex.

There is additional overhead involved with using the VDEV_MULTI_SYSPLEX feature so it is disabled by default.

Note: [“VDEV_MULTI_SYSPLEX” on page 70](#) provides more information.

Starting with 7.4 Virtual Space Efficient(VSE) FBA became available allowing THIN FBA devices to use shared allocations. The shared allocation make it a VSE device.

VSE (thin devices using shared allocation) may have up to 32 sessions that do not use the standard 16 clone session positions. This means that you may have a total of 48 sessions present (32 VSE plus the 16 original) at one time. Only 32 sessions may be VSE sessions.

Snap Pool devices

Snap pool devices (SNAPDEVs) are log devices. Unlike VDEVs, they are not host accessible; but, do consume physical storage. Snap pool devices are gathered in *snap device pools*.

Snap device pools (SNAPPOOLS) are named groups of snap pool devices that provide a pool of physical space used to store *pre-update images* of tracks changed on the source device or *new writes* to the virtual devices. As specific virtual device sessions are terminated, the space associated with them is returned to free space in the snap device pools, while the actual snap pool devices are saved.

Note: To perform virtual-device snaps and use SNAPPOOLS, you must configure your Symmetrix systems with virtual and snap pool devices to use TF/Snap.

Basic Snap operations

Upon creating a session, a virtual snap is activated to capture the point-in-time image. As writes arrive at the source volume, the existing tracks or *pre-update images* are moved to the snap device pool you specify, to preserve the point in time of the snap.

Subsequently, activated virtual devices for the same source go through the same steps of creating pointers to capture the point-in-time image. As long as a virtual device remains active, its responsibility is to point to tracks, either on the source or snap pool device.

The consumption of storage in the snap device pool (SNAPPOOL) is determined by the new data change rate on a track-by-track basis. This means that the same track updated several times takes only the space for one preimage. This uses far less space in the snap device pool than the same number of updates affecting completely different tracks.

You can create multiple snap device pools to isolate workloads. This alleviates contention for snap pool device space among several sessions and lessens the possibility of a single session consuming all the space. This option is only available with Engenuity level 5x71 and higher.

SNAPPOOL management

The devices for these SNAPPOOL device pools come from a special pool called the DEFAULT_POOL. The DEFAULT_POOL contains snap pool devices that have not been assigned to any named pool, but are available for use.

ResourcePak Base provides a set of General Pool Management (GPM) commands that can be executed online or in batch mode. Devices in pool storage are a predefined set of devices that provide a pool of physical space.

Multiple SNAPPOOLS can be created to isolate workloads. This alleviates contention for device space among several users and lessens the possibility of a single pool consuming all the available space.

Devices can also be removed from a SNAPPOOL, but the devices must first be "drained" and disabled. Drained devices will become inactive within their pool and can then be moved out of the pool to be available for other pools.

The *EMC ResourcePak Base for z/OS Product Guide* describes the GPM commands and provides a complete description of creating pools and managing the pooling process.

Note: Prior to ResourcePak Base version 7.4, pool management consisted only of a batch utility and a set of CONFIGPOOL commands. While these command have been replaced by the GPM commands, ResourcePak Base version 7.4 and higher will continue to recognize and support these previous commands and keywords. However, EMC recommends that

you eventually replace these commands with the new GPM commands to take advantage of their flexibility and recognized support.

Virtual restore operations

Virtual restore allows you to restore a virtual device. There are two types of virtual restore:

- ◆ From the virtual device to the original source of the snap.

The virtual device session being restored of course may exist, but no other sessions are allowed, as identified previously. The virtual snap device referenced in the restore is removed when the restore occurs and can be used for other purposes.
- ◆ From a virtual device to a different standard device (STD).

The virtual snap device referenced in the restore is removed when the restore occurs. The virtual snap device can be used for other purposes.

Virtual restores have the following limitations:

- ◆ For a restore from a VDEV to a clone (or clone emulation) source device, the clone session must be active (SPLIT) with NO tracks to be copied.
- ◆ The target of the restore cannot be an active target of any SNAP VOLUME or SNAP DATASET.
- ◆ The target of the restore cannot be a clone-emulation BCV as long as the clone-emulation relationship exists.

These states can be determined using the QUERY VOLUME command, which reports on the type of sessions currently active for the device.

VP Snap restore to copied clone target (VRTT)

Starting with MFE version 7.5, TimeFinder provides ability to do a VP Snap (VSE) Restore to a copied Clone Target (VRTT), when the standard (source) of the VP Snap (VSE) target is also a target of a (fully copied) regular native clone.

The following example shows the clone relationship that exists between A and B, and the VP Snap relationship that exists between B and C.

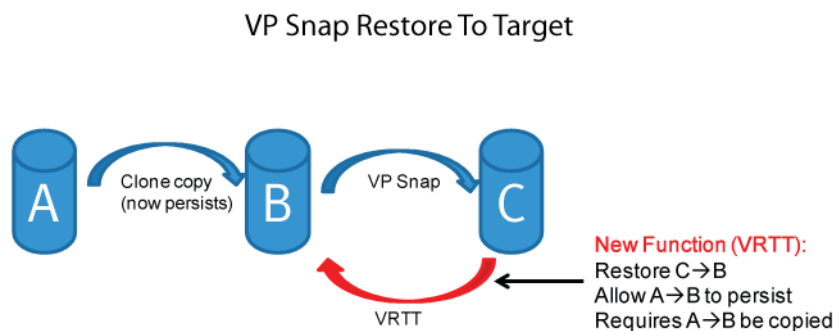


Figure 4 VP Snap Restore to Target (VRTT)

Previously, you could not restore C to B without terminating the relationship between A and B.

With this VRTT enhancement, the restore of C to B may occur without affecting the relationship between A and B, but A and B must be copied, and all devices must be thin devices.

VRTT requirements and limitations

The following requirements and limitations apply to VRTT actions:

- ◆ Requires MFE version 7.5 and Enginuity level 5876 on VMAX 20K and VMAX 40K platforms.
- ◆ MFE does not support this feature on the VMAX 10K platform, but it is supported by the EMC Solutions Enabler product.
- ◆ A, B and C are all FBA (B is a clone copy and C is a VSE relationship).
- ◆ The A to B clone copy must be completed.
- ◆ B cannot own virtual or multi-virtual snap sessions (VDEV).
- ◆ No other kind of restore to device B is tolerated when the user issues a VRTT.
- ◆ When any other restore sessions are in progress, VRTT is rejected.
- ◆ Resnap of A to B leg is not allowed if a VRTT session exists. A user needs to terminate the VRTT session before resnapping the A to B leg.
- ◆ All other limitations related to VP Snap Restore apply.

Incremental clone refresh/resnap

Starting with MFE Version 7.5 and Enginuity level 5876, you can perform the following incremental clone refresh/resnap operations:

- ◆ Incremental refresh/resnap of a clone during a persistent TimeFinder cascaded VP Snap session.
- ◆ Incremental refresh/resnap during a cascaded virtual snap session.

These features enable you to do a differential resnap of an intermediate TF/Clone when a cascaded VP Snap session exists. For example, if A→B is a regular clone session, and B→V is an active VP Snap session, then users are allowed to resnap A→B and the Engenuity microcode maintains the persistence of the VP Snap copies from these clones.

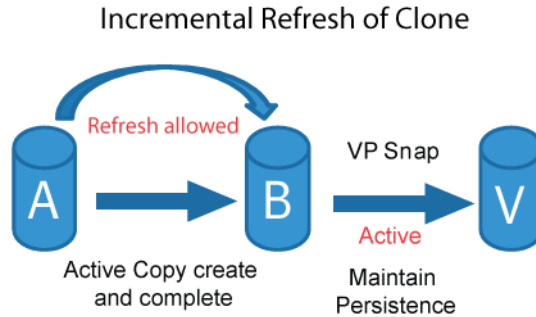


Figure 5 Incremental refresh/resnap of clone

Incremental clone refresh/resnap requirements and limitations

The following requirements and limitations apply to incremental clone refresh/resnap actions:

- ◆ Resnap will not be allowed if B→C VSE/Snap is not active
- ◆ A→B resnap session can be activated only when the precopy of A→B completes and the state moves to precopy sync.

Persistent restore operations

Virtual restores cause the virtual device to be removed after the restore. Persistent restore allows you to restore from a virtual device to a standard device, either the original source, a different device, without losing the source virtual device or terminating other snapshots in the session.

You specify persistent restore with the PERSISTENT parameter of the GLOBAL and RESTORE VOLUME commands. The maximum number of virtual devices off a source volume is eight (8). However, persistent restore has a maximum of seven (7).

Note: [“GLOBAL” on page 150](#) and [“RESTORE VOLUME \(TF/Snap\)” on page 252](#) provide more information.

Persistent restore is a feature of the Engenuity level 5x70 or higher. If you specify persistent restore when using an earlier version of Engenuity, TF/Snap performs a standard virtual restore, which removes the virtual device.

Persistent restores do not require all of the other VDEV sessions (or virtual devices assigned to the restore device) to be terminated.

Persistent virtual restore to a cloned target

Starting with MFE Version 7.5 and Engenuity level 5876, users can perform a persistent virtual restore (PVR) to a cloned target. When performed, this feature is referred to as PTT and can support a restore to the snap source which is also a clone target.

Planning for virtual device implementations

A planning phase is essential for virtual device snap implementations. Consider the following as part of a virtual snap implementation:

- ◆ Both virtual devices and snap pool devices need to be configured in the Symmetrix system.
- ◆ The right number of virtual devices must be configured for the intended use.
- ◆ Virtual devices must have the same geometry, track size, and number of cylinders as any source device that is going to be used in virtual snaps.

For example, you can only use a virtual 3390-1 with a real 3390-1. You can only use a virtual 3390-9 with a real 3390-9, and so forth.

- ◆ Virtual devices are configured with host addresses (ccuu) and consume Symmetrix device numbers.
- ◆ Snap pool devices are not host addressable but do consume Symmetrix device numbers.
- ◆ Sufficient storage space must be allocated to the snap device pool. This is crucial because if the snap device pool fills up, pre-update images of the newly changed tracks arriving on source volumes that have active virtual device sessions or writes to existing virtual devices are lost. Therefore, point-in-time copies are lost for any source device receiving newly changed tracks or writes to the virtual device if the snap device pool is full.

EMC provides a monitor function within the ResourcePak Base product that advises you if and when you are reaching predetermined thresholds within the snap device pool(s). (All pools can be individually monitored.) User exits can be created based on your site-specific policies.

Note: The *ResourcePak Base for z/OS Product Guide* describes the monitor function in detail.

VSE FBA

Starting with release 7.4, Virtual Space Efficient(VSE) FBA is available allowing THIN FBA devices to use shared allocations. The shared allocation makes it a VSE device. With VSE you can have up to 32 sessions that do not use the standard 16 clone session positions. This means that you can have a total of 48 sessions present (32 VSE, plus the 16 original sessions) at one time. Only 32 sessions may be VSE sessions.

For more information

For a comprehensive overview of the TimeFinder concepts, refer to the *EMC Symmetrix TimeFinder Product Guide*.

TF/Consistency Group overview

Using the Engenuity Consistency Assist (ECA) feature, TF/Consistency Group allows you to perform consistent snap operations on volumes so that the target is dependent-write consistent.¹ TF/Consistency Group is available for *full device*, *virtual device*, *remote full device* and *dataset* snaps.

The source and target device pairs must reside in the same Symmetrix system. Consistency can be preserved over multiple volumes and multiple Symmetrix controllers.

- ◆ For a full-device, consistent snap, you need to have Engenuity 5x68 or higher.
- ◆ For a virtual-device, consistent snap, you need to have Engenuity 5x69 or higher.
- ◆ For a remote, full-device, consistent snap, you need to have Engenuity 5x71 or higher.
- ◆ For a consistent dataset snap, you need to have Engenuity 5875 or higher.

Keep in mind the following device type consistency considerations when performing a remote, full-device, consistent snap.

TF/Consistency Group enforces the consistency parameter (CONSISTENT) in conjunction with the ACTIVATE command. The ACTIVATE command applies to SNAP VOLUME and SNAP DATASET commands preceding it in the input stream. Like a full device snap, you first code all of the SNAP statements and then code the ACTIVATE CONSISTENT(YES) statement.

There are a variety of SNAP statements, involving the following types of devices: local, remote (non-SRDF), remote (SRDF/S), and remote (SRDF/A). Consistency among the various types of devices occurs, but may not be what you expect.

For instance, if you have some local and some remote (non-SRDF) devices in the same ACTIVATE group, the remote devices are consistent with each other, but they may not be consistent with the local devices. Likewise, the local devices are consistent with each other, but they may not be consistent with the remote devices. Basically, devices of the same type are consistent with each other, but not with devices of another type.

1. Engenuity Consistency Assist (ECA) is a feature of the Engenuity operating environment. ECA (often called RDF-ECA, a part of *SRDF consistency*) provides an enterprise solution for ensuring dependent-write consistency in SRDF/S configurations with more than one SRDF group. ECA requires that you have the TF/Consistency Group Licensed Feature Code (parameter CONSISTENT) installed. The *EMC Mainframe Enablers Installation and Customization Guide* provides more information.

CHAPTER 2

Performing Configuration and Administrative Operations

This chapter describes the main TimeFinder configuration and administration operations.

- ◆ Running the ResourcePak Base (EMCSCF) software..... 38
- ◆ Executing EMCSNAP..... 39
- ◆ eLicensing and Licensed Feature Codes..... 40
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Running the ResourcePak Base (EMCSCF) software

TimeFinder requires that the Mainframe Enablers' ResourcePak Base (EMCSCF) is installed and running. If EMCSCF is not running, all TimeFinder operations receive the following message:

```
EMC SCF IS NOT AVAILABLE - reason
IEF450I STON01B EMCSMMF - ABEND=000 U0806 REASON=00000000
```

Where:

reason

One of the following:

- SERVICE EMCSAI FAILED
- SERVICE SAICALL FAILED

Running multiple copies of EMCSCF

You can run multiple instances of EMCSCF as separate z/OS sub-systems. You may want to do this when you are testing new versions of EMCSCF or EMCSCF-enabled products.

This is accomplished by adding the following DD statement to the test EMCSCF procedure.

```
//SCF$nnnn DD DUMMY
```

Where:

nnnn

Defines this instance of EMCSCF as a unique z/OS sub-system. The same DD statement would then be included in the JCL of any task you want to use this copy of EMCSCF.

For example:

```
Test version of EMCSCF
//EMCSCF EXEC PGM=SCFMAIN,TIME=1440,REGION=0M
//STEPLIB DD DISP=SHR,DSN=test.load_library
//SCFINI DD DISP=SHR,DSN=init_dataset
//SYSABEND DD SYSOUT=*
//SCF$0100 DD DUMMY
```

Any task needing to use this instance of EMCSCF would add the SCF\$0100 DD statement. For example, the JCL for TimeFinder would add the DD statement:

```
//SNAP EXEC PGM=EMCSNAP,REGION=0M
//SYSOUT DD SYSOUT=A
//SCF$0100 DD DUMMY
//QCINPUT DD *
```

Software interoperability considerations

This section provides methods for avoiding possible interoperability problems between TimeFinder and other software products:

- ◆ If you plan to run with full IBM SNAPSHOT compatibility, place the EMC supplied SIBBATCH in the search list ahead of the IBM supplied SIBBATCH.
SIBBATCH uses the same DD statements as SNAPSHOT. If you want any TimeFinder functions, code the statement exactly as it is coded in TimeFinder. For instance, a GLOBAL statement could be added to the input stream.
- ◆ If your installation uses the SRS (space management software) from DTS Software, you should exclude TimeFinder from SRS recovery by coding the following rule:

```
DEFRULE NOEMC
IF PGM=EMCSNAP
THEN EXIT
```

- ◆ IBM 2105 and 2107 controllers are recognized. and IBM FlashCopy is automatically invoked as a datamover, if appropriate. TimeFinder recognizes FlashCopy V2 support and uses FlashCopy V2 to copy dataset extents.
- ◆ TimeFinder recognizes whether a Symmetrix system is FlashCopy capable. It also recognizes when a FlashCopy session is active at the logical volume level.

In earlier versions, TimeFinder would detect whether a Snap session or Flashcopy session already existed and would then use the prevailing method to ensure that the session types were consistent. This means that if the site options table has snap as the preferred copy method (&EMCDSSU_FLASH_SNAP = SNAP), but a FlashCopy session already existed on the device, TimeFinder would use FlashCopy.

Starting with Version 7.0, FlashCopy and Snap sessions can coexist and the value in the site options table for &EMCDSSU_FLASH_SNAP is always used. This means that if the site options table has snap as the preferred copy method (&EMCDSSU_FLASH_SNAP = SNAP) and a FlashCopy session already existed on the device, TimeFinder would use snap.

QCERROR DD statement

Starting with Version 5.7, TimeFinder has a QCERROR DD statement to aid in resolving any problems you encounter. When you add QCERROR to the EMCSNAP JCL, any error messages generated are written to this file, as well as to the regular QCOUTPUT file.

Executing EMCSNAP

The interface to TimeFinder is through the program EMCSNAP. You normally execute EMCSNAP as a batch job.

The following is example JCL for running EMCSNAP as a batch job:

```
//EMCSNAP EXEC PGM=EMCSNAP,REGION=0M
//STEPLIB DD DISP=SHR,DSN=your timefinder.library
//SYSABEND DD SYSOUT=*
//QCOUTPUT DD SYSOUT=*
//SCF$nnnn DD DUMMY
//QCINPUT DD *
```

Notes:

- ◆ The STEPLIB DD statement is optional if you have copied EMCSNAP to a system LINKLIST library.
- ◆ The SCF\$*nnnn* statement is optional. It is used to match the batch job to the SCF task that you would like to run against. If you do not specify it, the default SCF subsystem name is SCF\$EMC.
- ◆ The QCINPUT DD statement can reference a disk file: DISP=SHR,DSN=*dsn*.
- ◆ The QCOUTPUT file contains the summary report that is produced at the end for each run. Within that report are the following fields.

```
RQST RC SOURCE TARGET DISP TRACKS EXTENTS
  2 04 SNAP VOLUME U6A236 *6EF7* 16695
```

RQST	Maps back to the STATEMENT# when actions are parsed.
RC	Is the return code for that statement.
SOURCE	Identifies two things: the action being performed and the entity that the action is being performed upon.
TARGET	Identifies any target entity
DISP	DISP is used with SNAP DATASET requests to identify whether the target dataset was created or already existed. Additionally, if a command is skipped in processing, it says SKIP.
TRACKS	Lists the number of SOURCE tracks being operated upon. In the TRACKS column, the following symbols are used to indicate whether the target dataset has more or less tracks than the source dataset: <ul style="list-style-type: none"> • “)” indicates the target dataset has fewer tracks than the source dataset. • “(“ indicates the target dataset has more tracks than the source dataset. • “ “ (blank - no symbol) indicates the target dataset has the same number of tracks as the source dataset.
EXTENTS	The number of SOURCE extents and the number of TARGET extents.

eLicensing and Licensed Feature Codes

As of Engenuity level 5875 or higher, Mainframe Enablers introduces support for Electronic Licensing (eLicensing). With the introduction of eLicensing, Symmetrix licensing is moving from a host-based model to a Symmetrix-based model, with the majority of licenses now being stored in a feature registration database on the Symmetrix system.

However, there are still a number of Symmetrix licenses that remain host-based and use License Feature Codes (LFCs).

For these remaining host-based licenses and for Symmetrix systems running Engenuity level 5874 or lower, EMCSCF requires LFCs to enable separately chargeable features in EMC software. These features require an LFC to be provided during the installation and customization of EMCSCF. The *EMC Mainframe Enablers Installation and Customization Guide* lists the LFCs for the Mainframe Enablers components.

LFCs for Engenuity Levels 5874 and lower

Under LFC management, certain commands have valid parameters that apply to specific functional products. For example, SNAP VOLUME has a TARGET parameter that you can only use if you have installed the TF/Clone licensed feature code and a VDEVICE parameter that you can only use if you have installed the TF/Snap LFC.

However, you cannot use the VDEVICE parameter with SNAP VOLUME if you have only installed the TF/Clone LFC or use TARGET if you have only installed the TF/Snap LFC.

[Table 2 on page 41](#) shows the command set in the foundation software and how they are used in the functional products: TF/Clone, TF/Snap, and TF/Consistency Group.

Conventions

- ◆ The word **Available** in a table cell indicates that the functional product uses the command. (The command may be part of the common code or may be specific to the product.) Additional text in a table cell explains the special conditions for using this command with this functional product.
- ◆ Gray shade in a table cell means that the functional product cannot use the command.

Table 2 Functional product commands (page 1 of 2)

Foundation command	TF/Clone LFC	TF/Snap LFC	TF/Consistency Group
ACTIVATE	Available	Available	Available CONSISTENT parameter usable
CLEANUP [EXTENT TRACK ON]	Available	Available	Available
CONFIG	Available	Available	Available
DEFINE GROUP	Available	Available	Available
DEFINE_SOURCE_VOLUME_LIST	Available	Available	Available
DELETE GROUP	Available	Available	Available
END GROUP	Available	Available	Available
GLOBAL	Available	Available	Available CONSISTENT parameter usable
QUERY DATASET	Available		
QUERY GLOBAL	Available	Available	Available
QUERY GROUP	Available	Available	Available
QUERY VDEVICE		Available	
QUERY VOLUME	Available	Available	Available
RESTORE VOLUME		Available	
SNAP DATASET	Available		

Table 2 Functional product commands (page 2 of 2)

Foundation command	TF/Clone LFC	TF/Snap LFC	TF/Consistency Group
SNAP VOLUME	Available TARGET parameter usable	Available VDEV parameter usable	Available, but requires TF/Clone LFC to use the TARGET parameter Requires TF/Snap LFC to use the VDEV parameter
STOP SNAP TO DATASET	Available		
STOP SNAP TO VOLUME	Available	Available	Available

Administrative site options and parameters

TimeFinder has three configuration layers, each of which can override the one above it:

1. EMCSNAPO site options
2. GLOBAL command parameters
3. Parameters on other commands



Only the administrator for the site should set and change site options to avoid unforeseen complications and problems with TimeFinder processing and the expected results.

Configuration Layer 1: EMCSNAPO site options

The first configuration layer consists of the TimeFinder site options. You can accept the site option default values or you may permanently change the value to suit your requirements.

The site-specific values are specified in the EMCSNAPO macro in the Mainframe Enablers SAMPLIB (SMP/E DDNAME: MFESAMP). You can change a value by adding the modification to a member in the RIMLIB and then running the EMCSNAPO statement.

The JCL in the RIMLIB specifies that the Mainframe Enablers SAMPLIB as the first dataset in the SYSLIB concatenation for the assembly.

Refer to [“EMCSNAPO site options” on page 44](#) and for a list of the site options and a description on how to edit the EMCSNAPO macro.

Configuration Layer 2: GLOBAL command parameters

The second layer consists of the GLOBAL command parameters. The GLOBAL command parameters match many of the site options. GLOBAL command parameters override EMCSNAPO site options. If you need temporarily to change a site option value that has a matching GLOBAL parameter, you can set that GLOBAL parameter to the value you want to use.

GLOBAL parameter values apply only to commands that follow the GLOBAL command in the current job step. They do not affect any commands that precede them in the current job step. After that job step is over, TimeFinder uses the site option value again.

You can set multiple global commands within a job step. In each case, the GLOBAL command applies to the commands that follow unless overridden by another, later GLOBAL command.

Example In this example, GLOBAL *parameter_x* applies to both the SNAP DATASET and SNAP VOLUME commands, because it precedes both. GLOBAL *parameter_y* applies only to SNAP VOLUME because it comes after SNAP DATASET, but before SNAP VOLUME.

```
//QCINPUT DD *
GLOBAL parameter_x
SNAP DATASET
GLOBAL parameter_y
SNAP VOLUME
//
```

In one job step, a GLOBAL command can override a preceding GLOBAL command.

Example In the following example, GLOBAL *parameter_z* applies to SNAP DATASET while GLOBAL *Newparameter_z* (same parameter, different value) applies to SNAP VOLUME.

```
//QCINPUT DD *
GLOBAL parameter_z
SNAP DATASET
GLOBAL Newparameter_z
SNAP VOLUME
//
```

Configuration Layer 3: Parameters on other commands

The third layer consists of the parameters associated with other TimeFinder commands. Many of the TimeFinder commands can take parameters available on the GLOBAL command statement. If you need to override an EMCSNAPO site option or a GLOBAL parameter, you can issue the equivalent parameter with that command.

The value you use is only in force for the duration of the operation of the command to which it is appended. After the command is finished, TimeFinder uses either the GLOBAL parameter value (if one was set) or the site option value again.

Example In this example, TimeFinder has a &DATAMOVR site option. This option specifies a default datamover utility to be used for SNAP DATASET and SNAP VOLUME operations. The default value for &DATAMOVR is “None.” However, you can set &DATAMOVR to the name of the datamover you normally want to use.

The matching GLOBAL parameter is DataMoverName. If you set DataMoverName to a different value than you set &DATAMOVR, the value you use overrides the &DATAMOVR site option for all the commands that follow in the job step.

If you then want to change the datamover again for a specific SNAP DATASET command, you can specify DATAMOVERNAME as an argument to that SNAP DATASET. TimeFinder uses the datamover you specify for that SNAP DATASET operation.

After that SNAP DATASET is complete, TimeFinder then uses the GLOBAL specification for the rest of the commands in the job step. After the job step completes, TimeFinder returns to the set (or default) value of &DATAMOVR.

EMCSNAPO site options

Table 3 lists the EMCSNAPO site options and their default values, the full name of each site option, the possible option values, and a page links to their descriptions in this manual.

Editing the EMCSNAPO macro

The EMCSNAPO macro lists all of the site options you can change. (Many of these site options are also parameters of the GLOBAL command.) For each site option, the macro lists:

- ◆ A short form of the site option name with the default value in the form:

&SHORTFORM=DEFAULT

- ◆ The full name of the site option.
- ◆ A list of possible values.

For example, the macro listing for the AUTOMATIC_DEALLOC parameter is:

```
&AUTODEAL=YES,          AUTOMATIC_DEALLOC          (Y/N)
```

To change a parameter setting, you use the member #91SNPJB supplied in the RIMLIB and add the parameter to the EMCSNAPO statement and then run the job.

For example, the default value for the macro &AUTODEAL is YES. To change this setting to NO, you would add AUTODEAL=NO to the EMCSNAPO statement.



The ampersand (&) is used only in the macro definition, but you do not use it when you are adding to the EMCSNAPO statement for execution.

Before:

```
EMCSNAPO DSECT=NO
```

After:

```
EMCSNAPO AUTODEAL=NO,DSECT=NO
```

The #91SNPJB executes the IBM assembler and the EMCSNAPO statement must follow the IBM assembler rules for coding. This especially applies to statement continuation, placing a character in column 72 to indicate continuation and continuing in column 16 of the next line. DSECT=NO must always be present.

For example:

```

v - column 10
v - column 16
EMCSNAPO DATACLAS=ABC,          v - column 72
MGMTCLAS=DEF,                    X
STORCLAS=GHI,                    X
DSECT=NO                          X

```

Note: In [Table 3](#), default values are underlined. Some site options do not have default values.

Note: In an effort to reduce duplicate descriptions of site options that are also GLOBAL command parameters, page links are provided to either the GLOBAL command parameter description in Chapter 4 of this manual or the non-GLOBAL command site option description provided later in this chapter.

Table 3 EMCSNAPO site options (page 1 of 7)

Site option and default value (without the macro “&” designation)	Full name of the site option	Possible values	Page Link
ACT_SCF_GATEKEEPER=YES	ACTIVATE_SCF_GATEKEEPER	(Y N)	51
ACTIVATE_SUBTASK#=3	ACTIVATE_SUBTASK#	(0-255)	52
ADMIN=NO	ADMINISTRATOR	(Y N)	155
ALLOFAIL=NO	TOLERATEALLOCATIONFAILURE	(Y N)	222
ALLOSEQ=DSNAME	ALLOCATION_SEQUENCE	(DSNAME SIZE NONE)	156
ALLOUNIT=SYSALLDA	ALLOCATION_UNITNAME	(SYSALLDA)	53
ALLOW_CANCEL_LOCKED=YES	ALLOW_CANCEL_LOCKED	(Y N)	53
ALLOW_SYMDV#=YES	ALLOW_SYMDV#	(Y N)	53
ALUNUSED=YES	ALLOCATE_UNUSED_SPACE	(Y N)	156
AUTOACTIVATE=YES	AUTOMATIC_ACTIVATE	(Y N)	156
AUTOCLN=YES	AUTOMATIC_CLEANUP	(Y N)	157
AUTODEAL=YES	AUTOMATIC_DEALLOC	(Y N)	158
AUTORLSE=NO	AUTOMATIC_RELEASE	(Y N)	158
AUTOXPND=YES	REUSE_AUTO_EXPAND	(Y N)	211
BACKGRND=YES	BACK_GROUND_COPY	(Y N NOCOPYRD VSE)	159
BCVONLY=NO	BCVONLY	(Y N)	160
CATALOG=YES	CATALOG	(Y N)	161
CHECKBCV=YES	CHECK_BCV_HOLD_STATUS	(Y N)	162
CHKONLIN=YES	CHECK_ONLINE_PATH_STATUS	(Y N NEVER)	162
CLEAN_R2=YES	AUTOMATIC_CLEANUP_R2 CLEANUP_R2	(Y N)	158
CLEANDIFF=NO	CLEANUP_DIFFERENTIAL	(Y N)	163
CMPLT=NO	WAIT_FOR_COMPLETION	(Y N Wait_seconds)	233
CMPLTMSG=NO	WAIT_FOR_COMPLETION MESSAGE	(Y N)	233
COLLAPSE=	COLLAPSE_DATASET_EXTENTS	(VSAM NOVSAM) (No default value)	164

Table 3 EMCSNAPO site options (page 2 of 7)

Site option and default value (without the macro “&” designation)	Full name of the site option	Possible values	Page Link
CONDVOL=ALL	CONDITION_VOLUME	(ALL DUMP LABEL)	164
CONGROUP=IGNORE	CONGROUP	(IGNORE REQUIRED_SAME REQUIRED_ANY REQUIRED_TARGET WARNING NONE)	54
CONGROUP_LDMF=IGNORE	CONGROUP_LDMF	(IGNORE REQUIRED_SAME REQUIRED_ANY REQUIRED_TARGET WARNING NONE)	55
CONSALL=NO	EXTENT_ALLOcation	(YES [, CONSOLIDATE_VOLume ,CONSOLIDATE_ALL] NO)	181
CONSIST=NO	CONSISTENT	(Y N)	166
CONSVOL=NO	EXTENT_ALLOcation	(YES [, CONSOLIDATE_VOLume ,CONSOLIDATE_ALL] NO)	181
COPYCYL=10	COPYCYL COUNT	Number of I O operations	55
COPYFAIL=NO	TOLERATE_COPY_FAILURE	(Y N)	223
COPYVOL=YES	COPYVOLID	(Y N)	167
CSMSDATA=NO	COPY_SOURCE_SMS_CLASS (DATA)	(Y N)	166
CSMSMGMT=NO	COPY_SOURCE_SMS_CLASS (MGMT)	(Y N)	166
CSMSSTOR=NO	COPY_SOURCE_SMS_CLASS (STOR)	(Y N)	166
DATACLAS=	DATACLAS	<i>name</i>	168
DATAMOVR=	DATA_MOVER_NAME	<i>name</i>	169
DEALLOC=DEALLOC	DE_ALLOCATION_STC_NAME	<i>name</i>	56
DEBUG_ERROR=NO	DEBUG_ERROR	(Y N)	170
DEBUG_SDUMP=NO	DEBUG_SDUMP	(Y N)	170
DFDSS_ADMIN=NO	DFDSS_ADMIN	(Y N)	172
DFDSS_CC=YES	DFDSS_CC	(Y N)	173
DFDSS_OP=4	DFDSS_OPTIMIZE	(1 2 3 4)	173
DIFF=NO	DIFFERENTIAL	(Y N)	174
DIFFDSN=NO	DIFFERENTIAL_DATASET	(Y N)	174
DMIDCAMS=NO	DATAMOVERNAME (IDCAMS)	(Y N)	169
EATTR=	EATTR	NO OPT	175

Table 3 EMCSNAPO site options (page 3 of 7)

Site option and default value (without the macro "&" designation)	Full name of the site option	Possible values	Page Link
EMCCOPY=NO	EMCCOPY	(Y N)	57
EMCALLOC_TRACE=NO	DEBUG (EMCALLOC_TRACE)	(Y N)	56
EMCDSSU_FLASH_SNAP=SNAP	EMCDSSU_FLASH_SNAP	(SNAP FLASH)	57
EMCDSSU_TARGET=MATCH	EMCDSSU_TARGET_MATCH	(MATCH IGNORE)	57
EMCONLY=NO	EMC_ONLY	(Y N)	182
EMCQCAPI_TRACE=NO	DEBUG (EMCQCAPI_TRACE)	(Y N)	56
ENQFAIL=NO	TOLERATE_ENQ_FAILURE	(Y N)	224
ENQSCOPE=REQUEST	ENQ_SCOPE	(REQUEST STEP)	175
ENQWAIT=YES	ENQWAIT	(Y N)	176
ERRCHK=NORMAL	ERRCHK	(NORMAL REDUCED)	177
ERRDISP=DELETE	ERROR_DISPOSITION	(DELETE KEEP)	177
ERRREC=NORMAL	ERRREC	(NORMAL ENHANCED)	58
ESNP119=WARNING	ESNP119	(WARNING ERROR)	179
ESNP220=ERROR	ESNP220	(ERROR WARNING)	179
ESNP231E=NO	ESNP231E	(Y N)	58
EXAMINE=NO	EXAMINE	(Y N)	180
EXPATHGRP=	EXCLUDE_PATHGROUPID	<i>pathgroup</i> ^a	180
EXTADDNEW=	EXTEND_EXPAND (ADDNEW)	(Y N)	183
EXTALLOC=	ALLOCATION_BY_EXTENT	(Y N OK)	52
EXTXPAND=	EXTENT_EXPAND	(Y N)	183
EXTXPVOL=	EXTENT_EXPAND (SAMEVOL NEWVOL)	(Y N)	183
FBA=INCLUDE	FBA	(EXCLUDE INCLUDE)	183
FLASH_SNAP=SNAP	FLASH_SNAP	(FLASHCOPY SNAP)	184
FORCE=NO	FORCE	(Y N)	184
FORCECMP=NO	FORCE_COMPLETION	(Y N)	185
FREESPC=NO	FREESPACE	(Y N)	185
FULL=NO	FULL	(Y N)	60
GROUP_DEVICE_READY_STATE= AUTO	GROUP_DEVICE_READY_STATE	(AUTO NEVER)	186
GROUP_DSNAME=	GROUP DATASET FOR SITE	<i>name</i>	186
GROUP EMCQCAPI_VERIFY=YES	GROUP EMCQCAPI_VERIFY	(Y N)	187
GROUP_HISTORY_LIMIT=100	GROUP_HISTORY_LIMIT	<i>number</i>	60

Table 3 EMCSNAPO site options (page 4 of 7)

Site option and default value (without the macro “&” designation)	Full name of the site option	Possible values	Page Link
HOSTCOPY=OLD	HOSTCOPYMODE	(OLD SHARED NONE)	187
IGNORERDF=NO	IGNORE_RDF	(Y N)	60
INVALIDATE_PDSE=YES	INVALIDATE_PDSE	(Y N)	61
MAXDSSU=10	MAXIMUM ADRDSSU ADDRESS SP	<i>number</i> (of Asids)	191
MAXTASK2=999	MAXIMUM SUBTASKS (IN-RQST)	<i>number</i> (of tasks)	192
MAXTASKR=99	MAXIMUM SUBTASKS (REQUEST)	<i>number</i> (of tasks)	192
MBRSTATE=DISABLE	MEMBERSTATE	(ENABLE DISABLE)	193
MRGEXIST=YES	EXTALLOC (MGREXIST)	(Y N)	59
MESSAGE=NONE	MESSAGE	(DISPLAY PROMPT NONE DETAIL)	194
MGMTCLAS=	MGMTCLAS	<i>class</i>	191
MIGRATRC=8	MIGRATE RETURN CODE	4 8	194
MINSNAP=	MINIMUM TRACK FOR UCODE	<i>number</i> (of tracks)	61
MULTI_VIRTUAL=NO	MULTI_VIRTUAL	(Y N)	299
NTFYGRP=	NOTIFY (GROUP (<i>group name</i>))	<i>group name</i>	198
NTFYLVL=	NOTIFY	(DATASET JOB STEP SNAP)	62
OFFLINE=YES	OFFLINE	(Y N)	62
OPEN_SOURCE_RC=4	OPEN SOURCE RETURN CODE	0 4 8	62
OPT_CKD=INCLUDE	QUERY VOL (CKD)	(INCLUDE EXCLUDE)	64
OPT_FBA=INCLUDE	QUERY VOL (FBA)	(INCLUDE EXCLUDE)	64
OPT_NOTREADY=INCLUDE	QUERY VOL (NOTREADY)	(INCLUDE EXCLUDE)	64
OPT_RAID=ALL	QUERY VOL (RAID)	(ALL N S 1 5 6 10)	64
OPT_READY=INCLUDE	QUERY VOL (READY)	(INCLUDE EXCLUDE)	65
OPT_SAVEDEV=INCLUDE	QUERY VOL (SAVEDEV)	(INCLUDE EXCLUDE)	65
OPT_TDEV=INCLUDE	OPT_TDEV	(INCLUDE EXCLUDE)	63
OPT_VDEV=INCLUDE	QUERY VOL (VDEV)	(INCLUDE EXCLUDE)	65
PARALLEL=NO	PARALLEL	(Y N)	200
PARALLEL_CLONE=	PARALLEL_CLONE	(Y N PREFERRED REQUIRED)	200
PERSIST=NO	PERSISTENT	(Y N)	201
POOL=	POOL	<i>name</i>	202
POOLUSE=NO	CHECK_POOL_USABLE	(Y N)	163

Table 3 EMCSNAPO site options (page 5 of 7)

Site option and default value (without the macro "&" designation)	Full name of the site option	Possible values	Page Link
PRECOPY=YES	PRECOPY	(Y N)	202
PREPARE=NO	PREPARE_FOR_SNAP	(Y N)	203
PROCESS_COPYCYL_DATAMOVER= NO	PROCESS_COPYCYL_DATAMOVER	(Y N)	63
PURGE=NO	MIGRATE (PURGE)	(Y N)	194
QCAPIMSG=YES	EMCQCAPI MESSAGE JOBNAME	(Y N)	58
R1FULLCOPY=YES	R1FULLCOPYONLY	(Y N)	204
R1R2SYNC=NO	WAIT_FOR_COMPLETION(R1R2SYNC)	(Y N)	233
RECALC_FREE=NO	RECALCULATE_FREESPACE	(Y N)	206
RECALL=NO	MIGRATE (RECALL)	(Y N)	194
REFVTOC=NO	REFVTOC	(Y N)	207
REMOVE_REMOTE=NO	REMOVE_REMOTE	(Y N)	208
REPLACE=NO	REPLACE	(Y N)	209
RESERVE=YES	RESERVE	(Y N)	210
RESERVE_SERIALIZATION=YES	RESERVE	(Y N)	66
RETAIN_SOURCE_REFDT=NO	RETAIN_SOURCE_REFDT	(Y N)	66
RETRY1731=NO	RETRY 1731 1767	(Y N <i>number of minutes</i>)	66
RETRY1756=YES	RETRY 1756	(Y N)	67
REUSE=NO	REUSE	(Y N)	210
REUSFAIL=NO	TOLERATE_REUSE_FAILURE	(Y N)	222
SAMEONLY=NO	SAMEONLY	(Y N)	67
SAVEFULL=READY	WHEN_SAVEDEV_FULL	(READY NOTREADY)	235
SCRATCH=NO	SCRATCH_DATASET	(Y N)	67
SESSDETL=NODETAIL	SESSION_LIST DETAIL	(DETAIL NODETAIL)	212
SESSDIFF=NODIFF	SESSION_LIST DIFFERENTIAL	(DIFF NODIFF)	212
SESSLIST=YES	SESSION_LIST	(Y N)	212
SMFRID=0	SMFRID	(0 (128-255))	68
SMSKSDS=NO	SEPARATE SMS KSDS COMPONENTS	(Y N)	68
SMSPASSVOL=NO	PASS SUGGESTED VOLSER TO SMS	(Y N)	63
SNUNUSED=YES	SNAP_UNUSED_SPACE	(Y N)	214

Table 3 EMCSNAPO site options (page 6 of 7)

Site option and default value (without the macro “&” designation)	Full name of the site option	Possible values	Page Link
SRDFAR1=NO	SRDFA_R1_TARGET	(Y N DATAMOVERNAME PHYSICAL INFORMATIONAL)	215
SRDFAR2=WARNING	SRDF_R2_SYNC	(WARNING R1R2SYNC DATAMOVE)	217
SRDFAR2_PRECOPY=YES	SRDFA_R2_PRECOPY_WAIT_OVERRIDE	(Y N)	68
SRDFA_RETRY	SRDFA_CONSISTENT_RETRY	(Y N nn)	215
SRDFSR1=YES	SRDFS_R1_TARGET	(Y N DATAMOVERNAME PHYSICAL INFORMATIONAL)	217
STORCLAS=	STORCLAS	<i>classname</i>	219
STORED_LOG_SIZE=25000	STORED_LOG_SIZE	<i>number (of lines)</i>	219
SUBTNAME=EMCSNAPI	SUBTASK NAME	<i>subtask name</i>	69
SYSCALL_RETRY=1600	GENERIC SYSCALL RETRY COUNT	<i>count</i>	60
TERMSSESS=YES	TERMINATE_SESSION_WHEN_COMPLETE	(Y N)	220
THINPOOL=INCLUDE	THINPOOL	(INCLUDE EXCLUDE)	221
TIMEOUT=0	TIMEOUT	<i>number (time in seconds)</i>	221
TRKALIGN=NO	EXTENT_ALLOCATION(ALIGN_TRACKS)	(Y N)	59
TOL_COMPACT=NO	TOLERATE_DATACLASS_COMPACTION_MISMATCH	(Y N)	224
TOL_EXTEND=NO	TOLERATE_DATACLASS_EXTENDED_MISMATCH	(Y N)	224
TRUNC=NO	TOLERATE_TRUNCATION	(Y N)	225
VALIDATE=NO	VALIDATE	(Y N)	69
VALFIRST=0	VALIDATE(FIRST(#))	<i>number (of tracks)</i>	69
VALLAST=	VALIDATE(LAST(#))	<i>number (of tracks)</i>	69
VALRANGE_LOCAL=AUTO	VALRANGE_LOCAL	(AUTO IGNORE FORCE)	227
VALRANGE_REMOTE=AUTO	VALRANGE_REMOTE	(AUTO IGNORE FORCE)	227
VALSMS=YES	VALIDATE_SMS	(Y N)	70
VARYOFF=AUTO	VARY_OFFLINE	(AUTO NEVER)	228
VARYON=AUTO	VARY_ONLINE	(AUTO NEVER)	228
VCLOSE=NO	VCLOSE	(Y N)	229
VDEV_MULTI_SYSPLEX=NO	VDEV_MULTI_SYSPLEX	(Y N)	70

Table 3 EMCSNAPO site options (page 7 of 7)

Site option and default value (without the macro "&" designation)	Full name of the site option	Possible values	Page Link
VDEV_REUSE=YES	VDEV_REUSE	(Y N)	71
VDEVWAIT=NO	VDEVWAIT	(Y N)	230
VERIFY_OPEN_SOURCE=NO	VERIFY_OPEN_SOURCE	(Y N)	231
VERIFY=YES	VERIFY	(Y N)	231
VSAMENQ=NONE	VSAMENQMODE	(EXCLUSIVE SHARED NONE)	232
VSAMFAIL=NO	TOLERATE_VSAM_ENQ_FAILURE	(Y N)	226
VTOCIX=NO	BUILD_VTOCIX	(Y N)	161
WAIT_OFFLINE_LIMIT=5	WAIT_OFFLINE_TIME	<i>number</i> (time in seconds)	71
WAIT_ONLINE_LIMIT=5	WAIT_ONLINE_TIME	<i>number</i> (time in seconds)	72
WAIT_PRECOPY=NO	WAIT_PRECOPY	(Y N)	234
WAIT=NO	WAIT_FOR_SESSION	(Y N <i>time in seconds</i>)	234
XTENDBNDRY=NO	EXTALLOC (XTNTBNDRY)	(Y N)	59

- a. The parameter description "[EXCLUDE_PATHGROUPID\[EX_PGID\(pathlist\)\]](#)" on page 180 provides more information about how to specify path groups.

Non-GLOBAL command site option descriptions

The following are descriptions of site options that are not already described in the command reference chapter, under "[GLOBAL](#)" on page 150.

ACTIVATE_SCF_GATEKEEPER

Description

This option allows you to automatically assign a gatekeeper device from the previously installed and licensed application EMCSCF ResourcePak Base (EMCSCF). EMCSCF is a Mainframe Enablers component and maintains a list of available devices that can be used as gatekeepers.

Note: This parameter cannot be used for group processing.

Syntax

ACT_SCF_GATEKEEPER (YES|NO)

YES
(Default) Assign a gatekeeper from EMCSCF for I/O operations.

NO

No = use one of the participating devices in the Snap command.

For example, in this command:

```
SNAP VOLUME (SOURCE (UNIT (xxxx) ) TARGET (UNIT (yyyy) ) )
```

If it is followed by an ACTIVATE command, then either *xxxx* or *yyyy* is assigned as the gatekeeper.

If you have five "SNAP VOLUME" statements with an ACTIVATE after them all, you have 10 potential devices to be used as the gatekeeper.

Note: For detailed information on management, refer to the *EMC Mainframe Enablers Installation and Customization Guide*. For specific sizing recommendations for all Symmetrix configurations, refer to Knowledgebase article EMC255976 available on Powerlink.

ACTIVATE_SUBTASK#=

Description

This site option sets the minimum number of controllers being activated to invoke the subtasking feature. The subtasking feature assigns one subtask for each controller to minimize the ECA window when multiple syscalls are required.

When the ECA window is opened, the subtasks are posted to perform the ACTIVATE at the same time. As each subtask completes, it posts to the maintask. Once all subtasks have completed, the maintask closes the ECA window, and the subtasks are terminated.

The number value may be set anywhere from 0 to 255. Zero effectively turns off the feature. When subtasking is used, there is one subtask attached for each controller.

Syntax

```
ACTIVATE_SUBTASK#=nnn
```

nnn

This site option sets the minimum number of controllers before the subtasking feature is invoked. **(Default=3)**

ALLOCATION_BY_EXTENT

Description

This option determines if new target datasets are defined through extent allocation or by another means.

Syntax

```
ALLOCATION_BY_EXTENT=YES|NO|OK
```

YES

Always use extent allocation to create new target datasets.

OK

Use IDCAMS/SVC99 or Extent allocation to create new target datasets.

NO
Never use extent allocation.

Note: There is no EMCSNAPO default value for this option.

ALLOCATION_UNITNAME

Description

This option assigns a default unit name for the dataset location.

Syntax

ALLOCATION_UNITNAME=SYSALLDA

SYSALLDA
Default name

ALLOW_CANCEL_LOCKED

Description

This option allows the execution of the CANCEL command when the device lock is held by a QCAPI instruction.

Syntax

ALLOW_CANCEL_LOCKED (YES|NO)

YES
(Default) Allow the CANCEL command even while the device lock is held by a QCAPI instruction.

NO
Disable the CANCEL command while the device lock is held in QCAPI instruction.

ALLOW_SYMDV#

Description

This option allows you to prevent the SYMDV# parameter from being used. (In some situations where multiple users are sharing the same Symmetrix system, using the SYMDV# parameter may be considered a security exposure.)

Syntax

ALLOW_SYMDV#=YES|NO

YES
(Default) Allow full usage of the SYMDV# parameter.

NO
The SYMDV# parameter is not allowed.

BACK_GROUND_COPY(VSE)

Description

This option allows you to run a background copy function when in VSE copy mode. This option is the same as COPYMODE(VSE).

Syntax

BACK_GROUND_COPY=YES | NO

YES

(Default) Allow background copy in VSE copy mode.

NO

Do not allow background copy in VSE copy mode.

CONGROUP

Description

This option enforces the use of devices that match ConGroup (EMC Consistency Groups for z/OS) criteria. This site option is for normal TF/Snap activity.

Note: There are two site options that control TimeFinder interaction with ConGroup (EMC Consistency Groups) and z/OS Migrator (formerly Logical Data Migration Facility). They are CONGROUP and CONGROUP_LDMF. Although both site options have the same values, they allow you to set one value for TimeFinder-ConGroup operations and the other for operations when ConGroup was invoked by z/OS Migrator.

Syntax

CONGROUP=IGNORE | REQUIRED_SAME | REQUIRED_ANY | REQUIRED_TARGET | WARNING | NONE

IGNORE

(Default) Do not use any special ConGroup processing.

REQUIRED_SAME

If the source is in a consistency group, the target must be in the same consistency group.

REQUIRED_ANY

If the source is in a consistency group, the target must be in a consistency group, but the target does not have to be in the same consistency group as the source.

REQUIRED_TARGET

The target must be in a consistency group. However, the source does not have to be in a consistency group.

WARNING

Check and issue a warning if the target is not in the same consistency group as the source.

NONE

The target must not be in a consistency group.

CONGROUP_LDMF

Description

This option enforces the use of devices that match ConGroup (EMC Consistency Groups for z/OS) criteria. This site option is for z/OS Migrator (formerly named LDMF) activity.

Note: There are two site options that control TimeFinder interaction with ConGroup (EMC Consistency Groups) and z/OS Migrator (formerly Logical Data Migration Facility). They are CONGROUP and CONGROUP_LDMF. Although both site options have the same values, they allow you to set one value for TimeFinder-ConGroup operations and the other for operations when ConGroup was invoked by z/OS Migrator.

Syntax

CONGROUP_LDMF=IGNORE | REQUIRED_SAME | REQUIRED_ANY | REQUIRED_TARGET | WARNING | NONE

IGNORE

(Default) Do not use any special ConGroup processing for z/OS Migrator.

REQUIRED_SAME

If the source is in a consistency group, the target must be in the same consistency group.

REQUIRED_ANY

If the source is in a consistency group, the target must be in a consistency group; but, the target does not have to be in the same consistency group as the source.

REQUIRED_TARGET

The target must be in a consistency group. However, the source does not have to be in a consistency group.

WARNING

Check and issue a warning if the target is not in the same consistency group as the source.

NONE

The target must not be in a consistency group.

COPYCYLCOUNT

Description

This option allows you to specify the number of cylinders used for simultaneous I/O during a datamover cylinder copy operation.

Syntax

COPYCYLCOUNT=number of I/O operations

Number of cylinders

Simultaneous I/O operations for COPYCYL datamover.

Default: 10

COPYMODE(VSE)

Description

This option allows you to run a background copy when in VSE copy mode. This option is the same as BACK_GROUND_COPY(VSE).

Syntax

COPYMODE=YES | NO

YES
(Default) Allow background copy in VSE copy mode.

NO
Do not allow background copy in VSE copy mode.

DE_ALLOCATIONSTCNAME

Description

This option specifies the default task name for the "S DEALLOC" parameter if a device fails to go offline or online.

Syntax

DE_ALLOCATIONSTCNAME=*name*

name
DEALLOC (Default), or another name that you specify.

Note: If a name other than DEALLOC is used, it must be present in your STC Proclib.

DEBUG(EMCALLOC_TRACE)

Description

This option determines whether trace is on or off during a EMCALLOC operation. Tracing is captured and included in the QCOUTPUT log.

Syntax

DEBUG (EMCALLOC_TRACE) =YES | NO

YES
The EMCALLOC_TRACE parameter is set to on.

NO
(Default) The EMCALLOC_TRACE parameter is set to off .

DEBUG(EMCQCAPI_TRACE)

Description

This option allows you to turn debug tracing on or off for EMCQCAPI operations. Tracing is captured and included in the QCOUTPUT log.

Syntax

```
DEBUG (EMCQCAPI_TRACE) =YES | NO
```

YES

Debug tracing is on.

NO

(Default) Debug tracing is off.

EMCCOPY

Description

This option determines whether EMCCOPY microcode can be used with 5x65 Microcode if the source is not a STD or the target is not BCV.

Syntax

```
EMCCOPY=YES | NO
```

YES

EMCCOPY microcode may be used.

NO

(Default) EMCCOPY microcode may not be used .

EMCDSSU_FLASH_SNAP

Description

This option allows you to specify IBM's FLASHCOPY or EMC's SNAP as the preferred copy method on a device running 5x71 or higher microcode.

Syntax

```
EMCDSSU_FLASH_SNAP=SNAP | FLASHCOPY
```

SNAP

(Default) Use the SNAP microcode.

FLASHCOPY

Use the FLASHCOPY microcode.

Comments

If multiple extents are grouped in datasets, TF/Clone replicates source datasets to target datasets as long as the source device and the target device reside on the same Symmetrix system. If an external data mover such as IBM FlashCopy is required to replicate datasets between control units or Symmetrix systems, Enginuity provides support for IBM FlashCopy and invokes a FlashCopy session to replicate within an array, and not between arrays.

EMCDSSU_TARGET_MATCH

Description

This option allows you to decide whether EMCQCAPI (EMC's TF Snap interface) or ADRDSSU (IBM datamover utility program) is used for a copy/datamover operation.

Syntax

EMCDSSU_TARGET_MATCH=MATCH | IGNORE

MATCH

(Default) The Symmetric source and target volume must match to invoke EMCSNAPI instead of ADRDSSU.

IGNORE

Only the source volume must be a Symmetric device to invoke EMCQCAPI.

EMCQCAPIMESSAGEJOBNAME

Description

This option allows you to add the job name to each message generated by EMCQCAPI.

Syntax

EMCQCAPIMESSAGEJOBNAME=YES | NO

YES

(Default) Add the job name prefix to each message.

NO

Do not add the job name prefix to each message.

ERROR_RECOVERY

Description

This option determines how error recovery is handled when a copy operation fails.

Syntax

ERROR_RECOVERY (NORMAL | ENHANCED)

NORMAL

(Default) Perform normal error recovery after a copy operation fails.

ENHANCED

Perform enhanced error recovery when a copy operation fails. Used in conjunction with ERROR_CHECKING in order to recover from an error that would normally be caught before the copy operation is processed.

ESNP231E

Description

This is a site-options parameter that has no GLOBAL equivalent. Normally, when the ESNP231E message is issued (dataset not found) during the parse phase, execution of all statements is bypassed.

Syntax

ESNP231E=YES | NO

YES

Change the severity of message ESNP231E to ESNP231W and allow the execution of other statements to occur.

NO

(Default) If ESNP231E is issued during the parse phase, skip the execution phase.

EXTALLOC(XTNTBNDRY)

Description

This options allows you to determine the handling of extent boundaries.

Syntax

EXTALLOC (XTNTBNDRY) =YES | NO

YES

Target extent matches source extent and source extent boundary.

NO

(Default) Do not worry about extent boundaries.

EXTENT_ALLOCATION(MERGE_EXISTING)

Description

This options allows you to consolidate, or not consolidate, extents on a volume.

Syntax

EXTALLOC (MRGEXIST) =YES | NO

YES

(Default) Consolidate extents on a volume.

NO

Do not consolidate extents on a volume.

EXTENT_ALLOCATION

Description

Specifies whether or not to match the source dataset track alignment.

Syntax

EXTENT_ALLOCATION (ALIGN_TRACKS) YES | NO

YES

Match source dataset track alignment.

NO

(Default) Do not match source track alignment.

FULL

Description

This option determines if SNAP is operational on a full device or on a defined extent device.

Syntax

```
FULL=YES | NO
```

```
YES
```

Full device microcode SNAP.

```
NO
```

(Default) Extent device microcode SNAP.

GENERICSYSCALLRETRYCOUNT

Description

Specifies logic for handling generic syscalls.

Syntax

```
GENERICSYSCALLRETRYCOUNT=count
```

```
count
```

Issue a retry message to the console, but only for this number of attempts.

(Default = 1600)

GROUP_HISTORY_LIMIT

Description

This option sets a limit for the number of history records that are kept for a group.

Syntax

```
GROUP_HISTORY_LIMIT=number
```

```
number
```

(Default = 100) The number of history records to keep.

IGNORE_RDF

Description

This option allows you to ignore any R1/R2 relationships in a SNAP operation.

Syntax

```
IGNORE_RDF=YES | NO
```

```
YES
```

Ignore the R1/R2 relationship.

```
NO
```

(Default) Take advantage of the R1/R2 relationship.

INVALIDATE_PDSE

Description

This option causes or prevents the flushing of PDSE buffers when a SNAP DATASET or SNAP VOLUME command is processed.

The situation in which you need to flush the PDSE buffers needs further explanation. The PDSE buffers need to be flushed if they are being cached, which only happens if the SMS parameters PDSE_BUFFER_BEYOND_CLOSE or PDSE1_BUFFER_BEYOND_CLOSE are set to YES.

This can cause unwanted results. If you do choose to leave the SMS parameters and INVALIDATE_PDSE_BUFFERS set to YES and one or more of the PDSEs is open, the flush fails and you receive one or more messages (ESNPX10W-ESNPX12W).

Note: The *EMC Mainframe Enablers Message and Code Guide* presents more information about these ESNPX messages.

To avoid the flush and the possibility of an error, set the two SMS site options (&SMSKSDS and &SMSPASSVOL) and INVALIDATE_PDSE_BUFFERS to NO.

Note: The current version of the IBM publication, *z/OS DFSMS Technical Update* (SG25-7435-00) provides more information about the SMS parameters PDSE_BUFFER_BEYOND_CLOSE and PDSE1_BUFFER_BEYOND_CLOSE.

Syntax

INVALIDATE_PDSE=YES | NO

YES

(Default) Causes the PDSE data cache to be flushed when a SNAP DATASET or SNAP VOLUME command is processed.

NO

Prevents the PDSE data cached from being flushed when a SNAP DATASET or SNAP VOLUME command is processed.

MINIMUM_SNAP

Description

This option allows you to decide on the minimum number of tracks to be SNAPPED before microcode is used.

Syntax

MINIMUM TRACK FOR UCODE=*number of tracks*

number of tracks

Sets the minimum number of tracks. If the number of tracks is less than this number, then a physical copy of the tracks occurs instead of using microcode to complete the SNAP.

The **default** is 5.

NOTIFY

Description

This options allows you to request ResourcePak Base (EMCSCF) to issue a WTO when the SNAP operation is complete.

Syntax

NOTIFY=DATASET | JOB | SNAP | STEP

Default = No notification

DATASET

EMCSCF issues WTO for each dataset or volume when SNAP is completed.

JOB

EMCSCF issues WTO for all datasets or volumes in the JOB when SNAP is completed.

SNAP

EMCSCF issues WTO for all datasets or volumes in a single SNAP statement when it is completed.

STEP

EMCSCF issues WTO for all datasets or volumes in the JOB STEP when SNAP is completed.

OFFLINE

Description

This option determines whether you can allow offline devices to participate in a SNAP VOLUME operation.

Syntax

OFFLINE=YES | NO

YES

(Default) SNAP VOLUME operation may specify offline devices.

NO

SNAP VOLUME operation may not specify any offline devices.

OPENSOURCERETURNCODE

Description

This options lists the message severity (0, 4, or 8) and code type (informational, warning, or error) if the source dataset is open.

Syntax

OPENSOURCERETURNCODE=0 | 4 | 8

0

Message severity = 0, message code = I (Informational)

- 4
(Default) Message severity = 4, message code = W (Warning)
- 8
Message severity = 8, message code = E (Error)

OPT_TDEV

Description

This option determines whether thin devices are to be included in reports generated by the QUERY VOLUME command.

Syntax

OPT_TDEV=EXCLUDE | INCLUDE

EXCLUDE

Exclude thin devices on QUERY VOLUME reports.

INCLUDE

(Default) Include thin devices on QUERY VOLUME reports.

PASSSUGGESTEDVOLSERTOSMS

Description

This option allows you to pass user suggested volumes to SMS for allocation.

Syntax

PASSSUGGESTEDVOLSERTOSMS=YES | NO

YES

Pass suggested volumes to SMS for allocation

NO

(Default) Let SMS determine the volume candidates.

PROCESS_COPYCYL_DATAMOVER

Description

This option controls whether an internal datamover may be used when a snap target device is an z/OS Migrator source device.

Syntax

PROCESS_COPYCYL_DATAMOVER=YES | NO

YES

Instead of failing the request, use the internal datamover to copy the track images.

NO

(Default) Fail the request when the snap target device is an z/OS Migrator source device.

QUERYVOL(CKD)

Description

This option allows you to include or exclude CKD devices in the outcome report of a QUERY.

Syntax

QUERYVOL (CKD) =INCLUDE | EXCLUDE

INCLUDE

(Default) Include CKD devices in the query report.

EXCLUDE

Do not include CKD devices in the query report.

QUERYVOL(FBA)

Description

This option allows you to include or exclude FBA devices in the outcome report of a QUERY.

Syntax

QUERYVOL (FBA) =INCLUDE | EXCLUDE

INCLUDE

(Default) Include FBA devices in the query report.

EXCLUDE

Do not include FBA devices in the query report.

QUERYVOL(NOTREADY)

Description

This option allows you to include or exclude NOTREADY devices in the outcome report of a QUERY.

Syntax

QUERYVOL (NOTREADY) =INCLUDE | EXCLUDE

INCLUDE

(Default) Include NOTREADY devices in the query report.

EXCLUDE

Do not include NOTREADY devices in the query report.

QUERYVOL(RAID)

Description

This option allows you to include or exclude all or specific RAID devices in the outcome report of a QUERY.

Syntax

```
QUERYVOLRAID) =ALL|N|S|1|5|6|10
```

ALL — **(Default)** Include all RAID devices.

N — Do not include any RAID devices.

S — Include RAID 'S' devices.

1 — Include RAID '1' devices.

5 — Include RAID '5' devices.

6 — Include RAID '6' devices.

10 — Include RAID '10' devices.

QUERYVOL(READY)

Description

This option allows you to include or exclude READY devices in the outcome report of a QUERY.

Syntax

```
QUERYVOL (READY) =INCLUDE|EXCLUDE
```

INCLUDE

(Default) Include READY devices in the query report.

EXCLUDE

Do not include READY devices in the query report.

QUERYVOL(SAVEDEV)

Description

This option allows you to include or exclude SAVEDEV devices in the outcome report of a QUERY.

Syntax

```
QUERYVOL (SAVEDEV) =INCLUDE|EXCLUDE
```

INCLUDE

(Default) Include SAVEDEV devices in the query report.

EXCLUDE

Do not include SAVEDEV devices in the query report.

QUERYVOL(VDEV)

Description

This option allows you to include or exclude VDEV devices in the outcome report of a QUERY.

Syntax

QUERYVOL (VDEV) =INCLUDE|EXCLUDE

INCLUDE

(Default) Include VDEV devices in the query report.

EXCLUDE

Do not include VDEV devices in the query report.

RESERVE_SERIALIZATION

Description

This option allows you to specify the enqueue area when serializing devices for syscalls.

Syntax

RESERVE_SERIALIZATION=YES|NO

YES

When serializing devices for syscalls, use a reserve instead of a system enqueue.

NO

(Default) Only use the system enqueue and not a reserve for serialization.

RETAIN_SOURCE_REFDT

Description

This option allows you to keep the original date of the source dataset or reset to the current date.

Syntax

RETAIN_SOURCE_REFDT=YES|NO

YES

Retain the original source reference date of the dataset.

NO

(Default) Set the reference date of the dataset to the current date.

RETRY1731

Description

This options allows you to set the retry logic when a 1731 and 1767 type of error is encountered.

Syntax

RETRY1731=YES|NO|*number of minutes*

YES

Issue a retry message to the console and continue to retry.

NO

(Default) Accept a failure with the error.

number of minutes

Issue a retry message to the console and continue to retry for ## of minutes.

RETRY1756

Description

This options allows you to set the retry logic when a 1756 type of error is encountered.

Syntax

```
RETRY 1756=YES|NO
```

YES

(Default) Attempt to release the processing hold status and retry the TimeFinder command.

NO

Fail and generate an error.

SAMEONLY

Description

There are several conditions which must be met for SAMEONLY to take effect:

- ◆ You must specify SAMEONLY(YES) in the site options table.
- ◆ You must select EXTENT_ALLOCATION for allocation. SVC99 and IDCAMS allocation ignore the SAMEONLY site option.
- ◆ You must specify DATAMOVERNAME(NONE). If a datamover is specified, then SAMEONLY is ignored.

Syntax

```
SAMEONLY=YES|NO
```

SCRATCH_DATASET

Description

With this option, you can choose to delete the dataset when a STOP SNAP TO DATASET command is issued.

Syntax

```
SCRATCH_DATASET=YES|NO
```

YES

Delete the dataset after issuing the STOP SNAP TO DATASET command.

NO

(Default) Do not delete the dataset after issuing a STOP SNAP TO DATASET command.

SEPARATESMSKSDSCOMPONENTS

Description

With this option you can force the key sequential dataset (KSDS) components to be stored on separate volumes. i.e. The INDEX and DATA components is separated.

Syntax

SEPARATESMSKSDSCOMPONENTS=YES | NO

YES

Force the KSDS components to be stored on separate volumes.

NO

(Default) Allow SMS to determine how the KSDS is stored.

SMFRID

Description

Enables SMF records for each command executed. The values for the record ID may be 0, meaning omit this feature, or a valid integer between 128 and 255, inclusive. Since the records are written for EMCSNAP commands, if the command is executed on a non-EMC device, it is still recorded.

Syntax

0

(Default) Do not enable recording of SMF records.

128-255

Values for the SMF record ID. (IBM reserves the values 1-127)

SRDFA_R2_PRECOPY_WAIT_OVERRIDE

Description

This options allows you to determine if the SRDFA/R2 precopy operation can be overridden, allowing the SNAP to occur.

Syntax

SRDFA_R2_PRECOPY_WAIT_OVERRIDE=YES | NO

YES

(Default) Allow the SRDFA/R2 precopy wait time to be overridden allowing the SNAP to occur.

NO

Do not allow the SNAP unless the precopy has completed. Wait if necessary.

SUBTASKNAME

Description

Establish a sub task name or accept the default of EMCSNAPI.

Syntax

```
SUBTASKNAME=subtask name
```

```
subtask name
```

(Default) EMCSNAPI

VALIDATE

Description

This option allows you to read and compare all the source and target tracks after a SNAP is executed.

Syntax

```
VALIDATE=YES | NO
```

```
YES
```

Read and compare all source and target tracks.

```
NO
```

(Default) Do not read and compare source and target tracks.

VALIDATE(FIRST(# TRACKS))

Description

This option allows you to read and compare the first track numbers from each extent after the SNAP is started. This overrides the VALIDATE=YES to limit it to just the first number of tracks.

Syntax

```
VALIDATE (FIRST (# TRACKS) )
```

```
# TRACKS
```

Number of tracks to compare.

(Default = 0)

VALIDATE(LAST(# TRACKS))

Description

This option allows you to read and compare the last track numbers from each extent after the SNAP is started. This overrides the VALIDATE=YES to limit it to just the last number of tracks.

Syntax

```
VALIDATE (LAST (# TRACKS))  
  
# TRACKS  
Number of tracks to compare.  
(Default = 0)
```

VALIDATE_SMS

Description

This option allows you to validate SMS class names when supplied by Parser or API.

Syntax

```
VALIDATE_SMS=YES | NO  
  
YES  
(Default) Validate class names during parsing.  
  
NO  
Do not validate SMS class names during parsing.
```

VDEV_MULTI_SYSPLEX

Description

This option determines whether Symmetrix Lock and Symmetrix Device Locks should be used when handling VDEV(FREE) requests.

Syntax

```
VDEV_MULTI_SYSPLEX=YES | NO  
  
YES  
Use a Symmetrix Lock and Symmetrix Device Lock in addition to the standard system  
enqueue when handling VDEV(FREE) requests.  
  
NO  
(Default) Only use the system enqueue when handling VDEV(FREE) requests.
```

Explanation

Currently, you can use VDEV(FREE) to instruct TF/Snap to automatically assign a VDEV that is not being used. This works well in a single sysplex environment; but, could create problems in a multi-sysplex environment. In such an environment, two jobs could run at the same time in two different sysplexes and be assigned the same VDEV.

VDEV_MULTI_SYSPLEX can alleviate this problem. When you set this site option (VDEV_MULTI_SYSPLEX=YES), TF/Snap uses a Symmetrix Systems Lock and Device Lock to hold the VDEV across multiple systems environments.

Note: There is additional overhead involved with using the VDEV_MULTI_SYSPLEX=YES feature, and the only benefit in where VDEV(FREE) is used in a multi-sysplex environment, so it is disabled by default.

If you do not set this option (VDEV_MULTI_SYSPLEX=NO), a system enqueue is issued while the selection of a free VDEV is made. A system enqueue is not propagated across multiple sysplexes.

VDEV_REUSE

Description

Starting with Version 5.8, TimeFinder includes VDEV_REUSE. This option permits you to allow, or prevent, a VDEV from being reused unless a STOP SNAP has been done to the device.

Syntax

VDEV_REUSE=YES | NO

YES

(Default) Allow multiple, separate SNAP VOLUME to VDEV requests to be issued with the same VDEV specified. TimeFinder automatically detects and reuses the VDEV by internally issuing a STOP SNAP to the VDEV and then letting the SNAP VOLUME continue.

NO

Do not allow multiple, separate SNAP VOLUME to VDEV requests to be issued with the same VDEV specified. Instead, a STOP SNAP request must be issued to release the VDEV device before another SNAP VOLUME is used with the device

Explanation

By default, VDEV_REUSE=YES allows multiple, separate SNAP VOLUME to VDEV requests to be issued with the same VDEV specified. TF/Snap automatically detects and reuses the VDEV by internally issuing a STOP SNAP to the VDEV and then letting the SNAP VOLUME continue.

With VDEV_REUSE=NO, TF/Snap fails the new SNAP VOLUME request when it detects that the VDEV is already being used. This forces you to manually issue a STOP SNAP to free the virtual device. After the virtual device is freed, a SNAP VOLUME request is successful.

WAIT_OFFLINE_LIMIT

Description

This option allows you to governs the time to wait for a device to go offline when a VARY OFFLINE command has been issued to a device.

Syntax

WAIT_OFFLINE_LIMIT=*time*

time

Number of minutes to wait (0 to infinity).

(Default = 5)

WAIT_ONLINE_LIMIT

Description

This option allows you to governs the time to wait for a device to come online when a VARY OFFLINE command has been issued to a device.

Syntax

```
WAIT_ONLINE_LIMIT=time
```

time

Number of minutes to wait (0 to infinity).

(Default = 5)

TimeFinder and protection sessions

For protection sessions, TimeFinder takes the following steps internally:

- ◆ Establishes a protection session for the source dataset or volume
- ◆ Copies the tracks with a background process

This allows the target to be immediately available without waiting for the copy process to complete. There is a limit of 64 protection sessions within an SSID, further limited by a maximum of 16 protection sessions for any given device. TimeFinder limits the maximum number of sessions it uses to four per logical device for physical TimeFinder and eight for Virtual Device Snapshot.

[Table 4](#) provides details on protection session limits:

Table 4 Protection session limits

	Protection Sessions Allowed	Protection Sessions used indirectly	Multi-Virtual sessions
Extents in Engenuity versions lower than 5x73	4	Max 4 combined with old extents (differential)	0
Extents in Engenuity versions lower than 5x73 (Differential)	3	1 SDDF on source and target for each differential session Max 4 combined with old extents	0
Native Extents	4	Max 4 combined with native extents (differential)	0
Native Extents (Differential)	3	1 SDDF on source and target for each differential session Max 4 combined with native extents	0
Full Device Clone	4	1 SDDF on source and target for each differential session	0
Native Flash Copy	12	1 SDDF on source and target for each differential session	0
Virtual Device	8	0	0
Multi-Virtual Device	1 Required	0	128

Table 4 Protection session limits

	Protection Sessions Allowed	Protection Sessions used indirectly	Multi-Virtual sessions
TF/Mirror (native)	8(Multi-BC V)	N/A	0
TF/Mirror Clone Emulation	6	1 SDDF on source and target for each clone emulation session	0
VSE(Virtual Space Efficient)	32	There is a limit of 32 VSE sessions in addition to the existing limit of 16 non-VSE sessions. If differential is used, no more than 16 VSE differential session may be establish because the differential SDDF session occupies one of the 16 non-VSE sessions.	32

Keep in mind that TimeFinder’s use of protection sessions is quite efficient at both the volume and the SSID level. When there is no source extent conflict/overlap, TimeFinder uses the same protection session for multiple snap operations for different datasets on the same source volume as well as across multiple volumes in an SSID.

Prior to Version 5.7, TimeFinder Clone required that the background copy must complete before it allowed a new, full device snap operation. Starting with Version 5.7, if you are using Enginuity 5772, you can perform a full-device resnap operation while there are still protected and indirect tracks present. (If you are using an earlier version of Enginuity, you must wait for the background copy to complete.)

When establishing a session for copying a dataset or volume, TimeFinder Clone is using one of these sessions and must coexist with any regular protection session activities taking place. TimeFinder establishes a session, identifies the tracks to be copied, and then terminates, leaving the actual copy process to complete in the background.

Because TimeFinder is no longer running, cleanup of the TimeFinder protection sessions does not take place when the background copy process completes. Instead, the TimeFinder protection sessions remain registered (although idle) until one of the following events occurs:

- ◆ A CLEANUP command is issued.
- ◆ Another snap involving the same source device is run.
- ◆ The TERMINATE_SESSION_WHEN_COMPLETE parameter is specified. (“DELETE GROUP” on page 148 and “SNAP VOLUME” on page 289 provide more information.)

The CLEANUP command is designed to be executed against the source device and to analyze all of the outstanding requests to be copied. Any requests that have completed are removed and any protection sessions no longer needed are released.

Each time TimeFinder initiates a new request for a source device, it automatically performs the CLEANUP command. This may result in additional protection sessions being released for other uses.

Note that if you use TimeFinder against many source devices within a storage system without using the CLEANUP command, a large number of protection sessions can remain registered for a long period of time until you perform the next TimeFinder request or CLEANUP. While this does not affect the Symmetrix system, it does impact the availability of the protection sessions for other purposes.

TimeFinder Vary processing exit

The TimeFinder Vary processing exit gives a user exit routine the opportunity to influence the VARY ONLINE and VARY OFFLINE processing that occurs when a complete volume is the target of a SNAP VOLUME request.

The exit routine is called before the VARY command is issued, and may determine whether the VARY command is indeed issued. TimeFinder is an authorized program and the exit routine is authorized when it is invoked. The exit routine should return control to TimeFinder in the same mode as when it was invoked.

The exit must name a CSECT or ENTRY point name of SNAPVARY and must be link edited with the SCFGBLSN load module. A sample exit and the necessary LKED statements are contained in member SNAPVARY in the Mainframe Enablers SAMPLIB.

Parameters

Five parameters are passed to the exit in a standard parameter list. The parameters are:

1. The address of an eight character field containing the word “ONLINE” or “OFFLINE.” This may be used to determine whether a VARY ONLINE or VARY OFFLINE is about to be performed.
2. Address of a 36-character field containing the command string about to be issued. The actual text is something like:

```
V ccuu,OFFLINE
```

or

```
V ccuu,ONLINE
```

You can modify this field in which case the modified field is used and not the original.

3. Address of a six-character field containing the volser of the device about to be varied offline or online.
4. Address of the mainframe UCB for the device about to be varied offline or online.
5. Address of a 256-byte work area available to the exit.

Return codes

Three return codes are accepted from the exit. The return code values are:

- 0 TimeFinder is to continue and issue the command in the field pointed to by the second parameter. The contents of the field may be modified by the user exit routine.
- 4 TimeFinder is to continue, but no command is to be issued. The exit routine is responsible for ensuring the proper device status.
- 8 TimeFinder is to stop processing the SNAP VOLUME command and the contents of the 36-character field pointed to by the second parameter is written to the message log.

Register contents

Register contents upon entry to the TimeFinder Vary Processing Exit:

R0	Unknown.
R1	Points to a five word parameter list, the fifth word in the list has the VL indicator set.
R2 - R12	Unknown, these registers must be restored by the exit.
R13	Points to an 18-word save area. The first word of the save area is important and must be restored by the exit.
R14	Contains the entry point address of the exit routine.
R15	Contains the return address for the exit routine.

CHAPTER 3

Performing TimeFinder Operations

This chapter describes some of the basic TimeFinder operations for duplicating volumes or datasets.

- ◆ Specifying devices 78
- ◆ Defining a group of statements 79
- ◆ Using common command parameters 82
- ◆ Performing a SNAP VOLUME copy 88
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Specifying devices

SNAP VOLUME and various other TimeFinder commands have a series of keywords that you can use to identify the device on which you want the command to operate. The usual syntax (employed in [Chapter 4, “Command Reference”](#)) is as follows:

```
VOLUME (volser) | UNIT (device[s]) | SYMDV# (dev_no[s]) | GROUP (grpname[, grpname...])
```

- ◆ VOLUME(*volser*) and UNIT(*device[s]*) identify a device that is known to z/OS. When you query z/OS about the device or devices, TimeFinder returns both the device and what controller it is in.

Note: When predefined and stored in a group, the VOLUME subparameter can be used within the SOURCE parameter, but cannot be used within the TARGET parameter. The UNIT or SYMDV# subparameter must be used within the TARGET parameter to identify a device when predefined and stored in a group.

- ◆ SYMDV#(*dev_no[s]*) identifies a Symmetrix device number in a Symmetrix system. But, it does not identify which Symmetrix system.

For that reason, most commands on which you need to specify a particular device require you to use the LOCAL, the REMOTE, or the CONTROLLER parameter to specify the gatekeeper for the SYMDV# device.

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system. The REMOTE parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system.

The CONTROLLER parameter specifies the Symmetrix controller to be queried. You can use either the 5 or 12 digit serial number of the controller or a logical controller name if you previously defined that name to ResourcePak Base.

The CONTROLLER parameter is available as an optional subparameter of the LOCAL and REMOTE parameters. It is also available as a separate parameter. If you use the separate CONTROLLER parameter, do not include the LOCAL and REMOTE parameters.

For most commands, you only use the LOCAL, REMOTE, and CONTROLLER parameters when you use the SYMDV# parameter. This is because SYMDV# identifies only a device, not its location.

The QUERY commands are different. Because the QUERY commands use a Symmetrix system as a target, you can use the LOCAL, REMOTE, and CONTROLLER parameters with them without a SYMDV# parameter being present. The various filtering parameters each QUERY command can take let you isolate the particular devices on which you want to report.

- ◆ GROUP(*grpname[, grpname,...]*) identifies one or more groups of TimeFinder statements. The commands and parameters you include in these groups identify a particular device or devices in a particular Symmetrix system.

Note: [“Defining a group of statements” on page 79](#) provides more information.

Defining a group of statements

TimeFinder allows you to define a group of TF SNAP VOLUME or GLOBAL statements, store them in a group dataset, and then use that group as an argument to ACTIVATE, CLEANUP, CONFIG, SNAP VOLUME, and STOP SNAP TO VOLUME commands.

The steps in defining and using groups are as follows:

1. Specifying the group dataset to store the groups
2. Defining the groups
3. Using the groups as arguments to TimeFinder commands
4. Selecting processing by phases (if applicable)

Specifying the group dataset

Before you define groups, you must define the group dataset. The group dataset can be a partitioned dataset (PDS) or partitioned dataset extended (PDS/E).

The group dataset must have the following characteristics:

- ◆ RECFM=FB
- ◆ LRECL=80
- ◆ BLKSIZE=8880 (Or any valid multiple of 80)

The amount of space needed is entirely dependent on expected usage. EMC does not recommend secondary space.

Two members are maintained for each group:

- ◆ The first member to hold the syntax
- ◆ The second member to hold the status and history

You should plan to use one directory block for every three groups. If the dataset fills, simply allocate a new dataset and copy all of the members from the old dataset into the new dataset.

You can specify the group dataset in three ways:

- ◆ Use the GROUP_DSNAME (*dataset name*) parameter of the GLOBAL command.

Note: “GROUP_DATASET_name|GROUP_DSName(‘dataset name’)” on page 186 provides more information about this parameter.

- ◆ Use the DD statement //EMCGROUP DD to point to the group dataset.

Note: You can concatenate multiple datasets together with EMCGROUP.

- ◆ Define GROUP_DSNAME in the site options table EMCSNAPO.

The format is EMCSNAPO GROUP_DSNAME(*dataset name, dataset name,...*) You can specify an unlimited number of dataset names. When allocated, they are concatenated in order.

Note: [Table 3 on page 45](#) describes the site options table, EMCSNAPO.

You can override any group dataset specification in the site options table by using a different dataset specification in the GROUP_DSNAME(*dataset name*) parameter of the GLOBAL command.

Note: If you use a PDS, you are responsible for regularly compressing the dataset. If you use a PDSE, compressing is not necessary.

Each group stores two members into the group dataset. One contains the syntax or source statements. The other contains the group description and history.

Of the two members, one is all uppercase letters and the other is lowercase letters. The uppercase member contains the group history. The lowercase member contains the group syntax.

Each member has a cyclic redundancy check (CRC) calculated. If the CRC doesn't match, the group is unusable. This process prevents the members from being directly changed without the status also being updated.

Defining the groups

You now create groups using the GROUP commands. There are four commands for group processing:

- ◆ DEFINE GROUP
- ◆ END GROUP
- ◆ DELETE GROUP
- ◆ QUERY GROUP

You use DEFINE GROUP to create or change a group definition. TimeFinder stores each group you define in a member in your group dataset under the group name you give it. TimeFinder performs simple syntax validation of the statements in the group when it adds the group to the group dataset library.

You cannot edit a group you have already created. Instead, issue the DEFINE GROUP command (with the REPLACE parameter) to re-specify all the commands within the group.

All commands that follow (until an END GROUP command is encountered) are considered to be part of the group definition. Only GLOBAL and SNAP VOLUME commands may be part of the group definition. The END GROUP command ends the group definition, and may be followed by other statements, including statements that refer to the group, or statements defining other groups.

The DELETE GROUP allows you to delete a group from the group dataset. The QUERY GROUP command allows you to display information about a group.

Note: You cannot reference a group that is defined or deleted in the current job step because a group reference is expanded at parse time, but the DEFINE GROUP (or DELETE GROUP) is performed at processing time. This means that the group reference gets the

contents of the group at the beginning of the step, before the DEFINE GROUP or DELETE GROUP is processed. Separate the DEFINE GROUP or DELETE GROUP into a different job step. This ensures that the desired group contents are used by the group reference.

Referencing other groups from within a group

Starting with TimeFinder Version 5.8, you can use %INCLUDE in a group definition to reference other groups in that definition. The %INCLUDE causes the indicated group to be brought in to replace the actual %INCLUDE statement. Nesting is allowed, but recursion is not.

The syntax for %INCLUDE is:

```
%INCLUDE GROUP (grpname)
```

Where:

grpname

The name of the group.

The group status is handled the same way as when the group is coded on the user commands. This means that all of the group initial statuses must be correct and all of the group statuses are updated after the contents are executed.

Note: You cannot reference a group that is defined or deleted in the current job step because a group reference is expanded at parse time, but the DEFINE GROUP (or DELETE GROUP) is performed at processing time. This means that the group reference gets the contents of the group at the beginning of the step, before the DEFINE GROUP or DELETE GROUP is processed. Separate the DEFINE GROUP or DELETE GROUP into a different job step. This ensures that the desired group contents are used by the group reference.

The following example shows how you can nest multiple group definitions:

```
DEFINE GROUP A
  %INCLUDE GROUP (B)
  %INCLUDE GROUP (C)
  .
  .
  .
END GROUP
DEFINE GROUP B
  .
  .
  .
  %INCLUDE GROUP (D)
  . . .
END GROUP
DEFINE GROUP C
  .
  .
  .
END GROUP
DEFINE GROUP D
  .
  .
  .
END GROUP
```

Using groups as arguments to TimeFinder commands

After you define such a group, you can handle the devices as a group in an argument of the GROUP parameter with the ACTIVATE, CLEANUP, CONFIG, SNAP VOLUME, and STOP SNAP TO VOLUME commands. The GROUP parameter allows you to specify multiple groups at once. This is most important for consistent activate — allowing multiple groups to be activated together.

When TimeFinder encounters the GROUP parameter, it retrieves the definition for the group from the group library, along with the statements and parameters it contains. TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group at that time. TimeFinder then performs the requested operation on all appropriate devices in the group.

Using common command parameters

The following sections discuss the use of common command parameters used by one or more TimeFinder commands.

NOTIFYwhencomplete parameter

You can use the NOTIFYwhencomplete parameter with the following commands:

- ◆ GLOBAL
- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME
- ◆ SNAP DATASET

After all of the requested snap operations have started, the snap step ends. The actual copy operation continues within the Symmetrix system without host intervention. You can use the NOTIFYwhencomplete parameter to signal when the actual copy operation completes.

Note: For more detailed information on the “NOTIFYwhencomplete” parameter, go to [page 198](#).

The syntax is the same for each statement.

```
NOTIFYwhencomplete [ ( [GROUP (name) ] [DATASET | JOB | STEP | SNAP] ) ]
```

Group *name*

You can specify the GROUP *name* with or without the other subparameters. The DATASET, JOB, STEP and SNAP subparameters are mutually exclusive. If you do not specify any subparameters, NOTIFY(SNAP) is the default.

You can use the GROUP name to supply identifying information in the completion message. The name may contain up to 44 characters. You must enclose the value in quotations if blanks are present.

DATASET, JOB, STEP, and SNAP

You can use the DATASET, JOB, STEP and SNAP subparameters to indicate when the completion message should be issued:

- ◆ DATASET — issue a completion message for each dataset or volume as the background snap is completed.
- ◆ JOB — issue a completion message when the background snap for all datasets or volumes (requesting notification and with the same GROUP name (if specified)) in this job have completed.
- ◆ STEP — issue a completion message when the background snap for all datasets or volumes (requesting notification and with the same GROUP name (if specified)) in this step have completed.
- ◆ SNAP — issue a completion message when the background snap for all datasets or volumes (requesting notification and with the same GROUP name, if specified) in this SNAP statement have completed.

Note: The notify message is issued from the EMCSCF address space, and requires EMCSCF Version 5.1 or higher.

Any extents copied by a datamover other than by TimeFinder are automatically considered complete after the datamover has finished copying the tracks.

Example

```
GLOBAL NOTIFY
GLOBAL NOTIFY (GROUP ("TESTING NOTIFY"))
GLOBAL NOTIFY (GROUP (MY_SNAP_IS_DONE) STEP)
SNAP DATASET (SOURCE (EMC.***) TARGET (EMCT.***) -
NOTIFY (GROUP (COPY_MY_DATASETS) JOB)
```

CONTROLLER parameter

The CONTROLLER parameter is available on the following commands:

- ◆ CLEANUP {EXTENT TRACK ON}
- ◆ CONFIG
- ◆ QUERY VDEVICE
- ◆ QUERY VOLume
- ◆ RESTORE VOLume
- ◆ SNAP VOLume
- ◆ STOP SNAP TO VOLume

In versions of TimeFinder prior to 5.8, the CONTROLLER parameter was an optional subparameter of the LOCAL and REMOTE parameters that you could use to direct TimeFinder to verify that the correct Symmetrix system was reached. CONTROLLER allowed only the serial number to be specified. TimeFinder then compared the serial number entered against the serial number of the Symmetrix system to verify that the correct Symmetrix subsystem had been reached.

Starting with TimeFinder Version 5.8, and because of the named controller support in ResourcePak Base, you can also use CONTROLLER as a separate parameter to identify the Symmetrix system and automatically provide the address of the gatekeeper device and SRDF group.

This means that you can use the CONTROLLER parameter instead of the LOCAL and REMOTE parameters. It allows you to verify that the Symmetrix system found using the gatekeeper (and RAGROUP if REMOTE), where the request is to take place, is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

As a separate parameter, CONTROLLER has the form:

```
CONTROLLER ( [xxxxxxxx-] xxxxx | name)
```

Name is a logical controller name of up through 64 characters that was already assigned through ResourcePak Base. If the logical controller name has a simple format (single-word string of uppercase letters), then you may enter the controller name without quotation marks. If the logical controller name is made up of mixed case characters or contains spaces, then you need to enclose it in quotation marks.

Note: The *EMC ResourcePak Base for z/OS Product Guide* provides more information about the controller naming facility.

MODE parameter

The MODE(COPY | NOCOPY | NOCOPYRD | VSE) parameter specifies when the background copy from source to target occurs. MODE is available on the following commands:

- ◆ CONFIG
- ◆ GLOBAL
- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Note: The VSE parameter is only available for the SNAP VOLUME command.

Note: BACKGROUNDCOPY(YES | NO | NOCOPYRD) is equivalent to MODE(COPY | NOCOPY | NOCOPYRD). MODE(COPY) and BACKGROUND(YES) are the defaults. You may specify these parameters interchangeably; but, you cannot specify both at the same time. They are mutually exclusive.

Note: Beginning with Engenuity level 5773 and higher, the microcode no longer distinguished between NOCOPY and NOCOPYRD, as both have the same result, which is NOCOPYRD.

MODE(COPY)

MODE(COPY) is the default. MODE(COPY) specifies that the source to target background copy should begin immediately after the snap is issued. You must use MODE(COPY) when:

- ◆ You are attempting to snap to an R1 device (even if you also specify MODE(NOCOPY) or MODE(NOCOPYRD))

- ◆ You are attempting to snap from an SRDF/A R2 device.

MODE(NOCOPY)

MODE(NOCOPY) specifies that the background copy task does not copy any tracks that are marked NOCOPY. A read of the source does not cause the source track image to be copied to the target device. However, any read or write of the target causes the source track image to be written to the target device.

Note: The NOCOPY keyword is available on Engenuity 5772 and lower, on Engenuity level 5773 and higher it is internally changed to NOCOPYRD .

With MODE(NOCOPY), the source and target of the snap are available for processing after the snap is activated. Updates to the target remain intact as of the last update to the target.

When used with the CONFIG command, MODE(NOCOPY) allows you to change MODE(NOCOPY) dynamically to MODE(COPY) without requiring a resnap or a “stop snap” (STOP SNAP TO DATASET or STOP SNAP TO VOLUME) operation.

Otherwise, the snap relationship between the source and target remains until either:

- ◆ A “stop snap” is issued against the target
- ◆ All of the tracks on the source have been updated, creating a complete original source image on the target

Restrictions

The only restriction to MODE(NOCOPY) is that the source and target must be in the same Symmetrix system. The current limit on the number of active TimeFinder sessions for any one source (either dataset or full volume) is four (4). This means that after a source dataset or volume has been snapped four times with the MODE(NOCOPY) option, it cannot be snapped again until one of the previous sessions completes or is stopped.

Note: If all of the snapped tracks are not accessed, MODE(NOCOPY) snaps may never complete. To cause the MODE(NOCOPY) snap to normally complete, run the original TimeFinder job (JCL and control cards), adding PARM=”GLOBAL MODECOPYFINISH” to the PGM=EMCSNAP execute statement. If you use STOP SNAP *, the target of a MODE(NOCOPY) snap is indeterminate because all the source tracks may not have been copied. If the target is accessed after a STOP SNAP * data checks results when referencing tracks that have not been copied.

MODE(NOCOPYRD)

MODE(NOCOPYRD) specifies that the background copy occurs only when a track is written to the source or target. Read operations to either the source or target never cause the track to be copied.

MODE(NOCOPYRD) advantages

The main benefit of MODE(NOCOPYRD) comes when your system is under stress conditions. For example, if volumes are copied with TF/Clone and a consistent copy is produced, you can back up the copy to tape and give up the copy after it resides on tape.

In this situation, NOCOPYRD may be desirable because the target device is being read, not written, and there is no long term desire to create a “hardened copy” of the data on the target device.

Note: A “hardened” copy is one where the data contents exist on the actual device.

With predictive read ahead in the control unit, you can maximize cache for read-ahead track images, instead of holding track images that must be destaged (written) to the target device, as would happen with regular MODE(NOCOPY).

This cache advantage also benefits the source device. Regular production traffic on the source devices are not impacted by a potential cache shortage which occurs with the track images that must be destaged (written) to the target devices.

MODE(NOCOPYRD) cautions

One possible caution with MODE(NOCOPYRD) is in situations where you intend to retain the copy for any period of time and expect that copy to be a truly “hardened” copy.

- ◆ With NOCOPY, a read of the target device or a write of the source or target device causes the track image to be copied to the target device. Over time, most or all track images are copied to the target device.
- ◆ With NOCOPYRD, only write operations cause the track image to be copied to the target device. If a failure was to occur on a source device, the target device may not be accurate.

Another possible caution is in situations where you are using both SNAP DATASET and SNAP VOLUME. These two request types, when intermixed, regularly conflict, especially if you specify NOCOPY. There are several situations where copying track images is not allowed if either the source or target track is involved in a NOCOPY relationship. This is currently handled in host software, typically by reading the indirect track that is marked NOCOPY.

With NOCOPY, a read of the track actually causes the track to be destaged so that it is no longer indirect. With NOCOPYRD, if a track is involved in a NOCOPYRD relationship and a SNAP DATASET or SNAP VOLUME request bumps into that track, the request fails. If SNAP VOLUME is used with NOCOPYRD and the device then used with SNAP DATASET as either source or target, SNAP DATASET fails.

MODE(VSE)

With MODE(VSE), device allocations are shared for THIN FBA devices and requires both the source and target device to be THIN FBA.

MODE(VSE) works the same as MODE(NOCOPY) and specifies that the background copy task does not copy any tracks that are marked VSE for thin FBA devices. A read of the source does not cause the source track image to be copied to the target device. However, any read or write of the target causes the source track image to be written to the target device

Note: The MODE(VSE) parameter is only available for the SNAP VOLUME command.

Restrictions

Restrictions for MODE(VSE) include:

- ◆ The source and target must be in the same Symmetrix system. Both devices must be THIN FBA devices. MODE(VSE) is limited to 32 sessions. No more than 16 copies can be created with differential.
- ◆ The persistent preallocation feature is not supported for VP Snap (formerly Clone VSE).
- ◆ If there is a persistent preallocation associated with a device, a VP Snap (Clone VSE) session cannot be created using that device as a target.
- ◆ If a device is the target of a VP Snap (Clone VSE) session, persistent preallocation cannot be used on that device.

PREPARE_FOR_SNAP parameter

The PREPARE_FOR_SNAP parameter is available on the GLOBAL command, and is also available as a site option.

Volume or dataset snaps require that you perform validations and setup work before you issue a SNAP VOLUME or SNAP DATASET command. For example, for volume snaps, any tracks remaining to be copied from a prior snap must be completed. For dataset snaps, the REUSE parameter validates the targets of the snap.

In many cases, this setup work represents a significant portion of the total elapsed time of the snap job. The actual SNAP VOLUME and SNAP DATASET commands are very fast.

PREPARE_FOR_SNAP is a parameter of the GLOBAL command. The PREPARE_FOR_SNAP parameter separates some of the preparatory work from the actual snap. Running a Symmetrix snap job with PREPARE_FOR_SNAP at a noncritical time and then running the same snap job without PREPARE_FOR_SNAP in the critical batch path of the workload may provide reductions in the elapsed time of the second execution of snap and positively affect the critical batch path.

The first execution performs some of the validation and setup work but not the actual snap. The second execution performs the final validation and setup work, and then issues the snap.

Note: The PREPARE_FOR_SNAP parameter has a matching site option, &PREPARE. [Table 3 on page 45](#) lists the site options.

Performing a SNAP VOLUME copy

You can copy a volume to a target with the SNAP VOLUME command. SNAP VOLUME creates an exact copy of the source volume on the target volume (requires the TF/Clone Licensed Feature Code).

You can also perform copies to virtual devices. (This requires the TF/Snap Licensed Feature Code).

Options to consider

The SNAP VOLUME command enables you to specify:

- ◆ Whether to wait for a session if all four sessions are in use.
- ◆ Whether to wait for the volume to be completely copied prior to the program terminating.
- ◆ A device to be snapped, identified by volser (SOURCE and VOLUME parameters).
- ◆ An existing target device identified by volser (TARGET and VOLUME parameters).
- ◆ Whether data from the source device is to overwrite data on the target device (REPLACE parameter).
- ◆ Whether the source volser is to be copied to the target with the SNAP (COPYVALID parameter).
- ◆ Whether a background copy begins after the source and target are selected, prior to the activate operation (PRECOPY parameter).
- ◆ Whether the snap session should be automatically terminated as soon as the background copy is complete. (TERMINATE_SESSION_WHEN_COMPLETE parameter).
- ◆ That diagnostic messages and trace records are to be generated (TRACE and DEBUG parameters).
- ◆ Whether to request asynchronous notification upon completion of the SNAP VOLUME operation using the NOTIFY parameter.
- ◆ Whether the snap is to a virtual device.
- ◆ Whether the snap is differential, which only copies tracks changed since the last differential snap.
- ◆ Whether the virtual device is mounted and online at the end of the snap.
- ◆ Whether a snap can occur in a remote Symmetrix system that is connected by network to a local Symmetrix system (SYMDV# and REMOTE parameters).

Important points

Keep the following points in mind when you use SNAP VOLUME:

- ◆ You must define source and target volumes to emulate identical models. For example, you can snap a 3390 volume to another 3390; but, you cannot snap a 3390 to a 3380 device.

- ◆ The source and target volumes must be located in the same Symmetrix system for the internal snap operation to be effective. Otherwise, you must specify, and have available, a datamover utility to perform the actual track copy operation.
 - For Engenuity level 5265, the source device must be a standard Symmetrix device (STD) and the target device must be a business continuance volume (BCV). Otherwise, a datamover utility must be specified.
 - For Engenuity level 5x66 and higher, the source and target devices can be STD or BCV devices.
 - For Engenuity level 5x69 and higher, the target can be a virtual device.
- ◆ You can use the COPYVOLID(YES) parameter to copy the source volume label to the target volume and have the target volume varied offline after the snap completes. Use the COPYVOLID(NO) to:
 - Restore the target volume label.
 - Vary online the target volume.
- ◆ If you use the MODE(NOCOPY) parameter, you may find it necessary to cause the MODE(NOCOPY) snap to normally complete by running the original snap job (JCL and control cards) and adding PARM='GLOBAL MODECOPYFINISH' to the PGM=SNAP execute statement.
- ◆ If a target volume is shared by more than one host, that target volume should be offline to all other hosts but the one from which you issue the command.
- ◆ A SNAP VOLUME command places the target volume in a Hold status. To remove the Hold status, use the RELEASE(YES) option on the CONFIG command after the snap is complete or has been stopped. The Hold status cannot be released while there are any indirect tracks on the volume.

Note: You can use the AUTOMATIC_RELEASE_HOLD parameter to request ResourcePak Base to monitor the background copy and to automatically release the Hold when the copy is complete. [“SNAP VOLUME” on page 289](#) provides more information about the AUTOMATIC_RELEASE_HOLD parameter.

- ◆ If the target devices are FBA, they are offline to all mainframe systems. This ensures that the cache information kept on the target volume by other hosts remains unaffected by the snap operation.
- ◆ You can replace existing target volumes that contain datasets using optional SNAP VOLUME command parameters.
- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature with SNAP VOLUME. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:
 - PRECOPY(YES)
 - MODE(COPY)
 - WAIT_FOR PRECOPY_PASS1(YES)

- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Clone and TF/Snap off an active SRDF/A R2 device is supported with device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Thick and Thin device support

TimeFinder currently supports both thick and thin FBA and CKD devices for clone operations.

For both FBA and CKD devices, TimeFinder allows:

- ◆ Thick or thin device to thick or thin device operations
- ◆ Thick or thin device to virtual device operations

Note: Enginuity version 5874 supports mixed thin device and thick (standard device) operations.

You can perform these thick and thin device operations with SNAP VOLUME, STOP SNAP VOLUME, and CONFIG. There is no new device syntax. Using regular source and target notation, if a thin device is selected, it is utilized.

TF/Clone and TF/Snap supports operations between thin and non-thin (thick) devices.

There are some restrictions on using thin devices:

- ◆ In Enginuity level 5874, thin devices cannot be used as gatekeepers. Thin devices may be used as gatekeepers in 5875 and higher.
- ◆ Thin devices cannot be used for extent-level operations.
- ◆ Data devices are not allowed to be the source or target of any TF/Clone or TF/Snap operations.

Note: Starting with Version 7.0, TimeFinder has a OPT_TDEV site option that determines whether thin devices are to be included in reports generated by the QUERY VOLUME command. [“OPT_TDEV” on page 63](#) provides more information about this site option.

Extended address volumes

Starting with Version 7.0, SNAP VOLUME and all TimeFinder components can perform operations against *extended address volumes* (EAVs).

Diskless SRDF devices

Starting with Version 7.0, SNAP VOLUME and all TimeFinder components recognize diskless SRDF devices; but, do not perform operations against diskless SRDF devices. If you attempt to issue a command against a diskless SRDF device, TimeFinder logs an error.

Offline volume support

TimeFinder can process offline volumes. The volumes may be CKD or FBA devices. CKD volumes can only be snapped to CKD volumes of the same size or larger. FBA volumes can only be snapped to FBA volumes of the same size.

The syntax of the SNAP VOLUME and STOP SNAP TO VOLUME statements remains unchanged. The CLEANUP [EXTENT TRACK ON] has been enhanced with the UNIT parameter.

When you use the UNIT parameter, the indicated device may be offline. If you use both the UNIT and VOLUME parameter in a SNAP VOLUME request for a CKD device and the volume is offline, the volume label is read and verified before the execution of the snap.

IMPORTANT

You should not use the VOLUME parameter with a FBA device.

TimeFinder ignores the CONDVOL, COPYVOLID, REFVTOC and REPLACE parameters if you specify them when snapping a FBA device. The ADRDSSU, DFDSS, DSS, FDR and FDRDSF DATAMOVERNAMEs do not work correctly if you specify them with FBA devices. A DATAMOVERNAME of COPYCYL or COPYTRK can be used with FBA devices.

SNAP DATASET supports offline source devices when SOURCE_VOLUME_LIST is used. The target device must still be online. Refer to the section [“Snaps from offline or cloned volumes” on page 118](#) for more information.

Full-device resnap operations

A resnap is basically any snap operation of a source dataset, or device to a target dataset, or devices that were the source and target of a previous snap. A requirement of this feature is the original snap operation, as well as subsequent resnap operations that are differential.

Note: TimeFinder Version 7.0 has an improved virtual resnap feature that normally provides better performance with no changes in command syntax.

If you are using Enginuity 5772 or higher, you can perform a full-device resnap operation from the same source device to the same target device as used in an original snap operation while there are still protected and indirect tracks present.

If you are using an earlier version of Enginuity, you still must wait for the background copy to complete.

However, even with Enginuity 5772, you cannot perform full-device resnap operations using the original target device as the source device and another device as the target until the original background copy has completed.

For example, you can do a full-device resnap of device A to device B before a previous snap of device A to device B is complete. However, you cannot execute a full-device resnap of device B to device A or to device C before the previous snap of device A to device B is complete.

Reminder regarding license requirements

- ◆ To use SNAP VOLUME to perform full-volume snaps, you need to install the TF/Clone licensed feature code.
- ◆ To use SNAP VOLUME to perform virtual-device operations, you need to install the TF/Snap licensed feature code.
- ◆ To use the TARGET parameter with either a clone or a virtual-device snap, you need to install the TF/Clone licensed feature code.

Incremental clone restore

Although TF/Snap and TF/Mirror both have a RESTORE command, TF/Clone does not have a separate RESTORE command. A TF/Clone restore is achieved by reversing the source and target volumes and performing a “snap back”.

In the situation where you have created a full clone or increment using the DIFF option, and at some point you need to copy the clone target volume back to the original source device, you can take advantage of the automatic restore feature in V7.0 and higher. Engenuity level 5x74 or higher is required, and the background copy must be complete prior to starting the restore.

By executing a SNAP VOLUME with DIFF (YES) in the opposite direction, the need for a differential synchronization is automatically recognized.

For example, if the original SNAP command was:

```
SNAP VOLUME (SOURCE (UNIT(1234)) TARGET (UNIT (3456)) DIFFERENTIAL (YES))
```

Once the copy from the source to the target is complete, and there are no protected or indirect tracks on the source and target drives, you can copy back the volume using SNAP's incremental clone restore feature by executing the following command:

```
SNAP VOLUME (TARGET (UNIT(1234)) SOURCE (UNIT 3456)) DIFFERENTIAL (YES))
```

After the restore (snap back) is completed, the original SNAP VOLUME statement can be used to reverse the direction again.

Note: When the DIFFERENTIAL keyword is used, a full copy is avoided after the initial synchronization.

Multi-device operations

In Version 5.8 or lower, multi-device operations required the issuing of an ACTIVATE command. That is, when multiple SNAP VOLUME requests are issued with an ACTIVATE, the requests are processed together.

Note: Standard thin and thick devices are supported for multi-device operations.

TimeFinder Version 7.0 (and higher), has a new site option, &AUTOACTIVATE, and parameter, AUTOMATIC_ACTIVATE, that:

- ◆ Automatically performs an ACTIVATE operation when there are two or more SNAP VOLUME commands in the input stream and no ACTIVATE command was issued.

- ◆ Causes the SNAP VOLUME requests to be processed together.

The default for AUTOMATIC_ACTIVATE is YES. If you do not want to use &AUTOACTIVATE or AUTOMATIC_ACTIVATE, set the value to NO.

Even if you use the YES default, there are some limitations:

- ◆ SNAP VOLUME ignores AUTOMATIC_ACTIVATE(YES) for any requests that specify a group name.
- ◆ SNAP VOLUME ignores AUTOMATIC_ACTIVATE(YES) for any requests with a VDEV.

Note that AUTOMATIC_ACTIVATE does not provide a consistent activate. For the activate to be consistent, you need to:

- ◆ Issue a separate ACTIVATE command with the CONSISTENT parameter.
- ◆ Specify the CONSISTENT parameter on the GLOBAL command.

Note: “CONSISTENT(YES|NO)” on page 131 provides more information about the CONSISTENT parameter with the ACTIVATE command. “CONSISTENT(YES|NO)” on page 166 provides more information about the CONSISTENT parameter with the GLOBAL command.

SNAP/FlashCopy coexistence

Starting with Version 7.0, TimeFinder allows SNAP and FlashCopy sessions to exist on the same volume. Previously, TimeFinder would detect whether a Snap or FlashCopy session already existed and would then use the appropriate method to ensure that the session types were consistent.

Sometimes this procedure would go against the desired session setting in the site options table. For instance if the site options table has Snap as the preferred copy method, but a FlashCopy session already existed on the device, TimeFinder would use FlashCopy. Now that the sessions can coexist, the preferred method for copying as set in the site options table (the &EMCDSSU_FLASH_SNAP option) is always used.

Note: Table 3 on page 45 in this document provides more information about the site options table.

R21 device recognition

Starting with Version 5.8, TimeFinder recognizes R21 devices. An R21 device is a dual-role SRDF R1/R2 device used in Cascaded SRDF operations. R21 devices are supported only at Enginuity level 5773 and higher.

Cascaded SRDF is a three-site disaster recovery configuration where data from a primary site is synchronously replicated to a secondary site, and then asynchronously replicated to a tertiary site. The core benefit behind a “cascaded” configuration is its inherent capability to continue replicating from the secondary site to the tertiary sites in the event that the primary site goes down. This enables a faster recovery at the tertiary site.

Located at the secondary site, The R21 device simultaneously acts as an R2 device to the primary site and as an R1 to the tertiary site.

Note: Although you can perform a snap from a regular R21 device, you cannot perform a snap from a R21 “diskless” device.

Note: The *EMC SRDF Host Component for z/OS Product Guide* presents more information about Cascaded SRDF.

Although you can perform snaps from R1, R2 and R21 devices, you cannot perform snaps to an R2 or R21 device, only to an R1 device.

Concurrent R2 (R22) device recognition

Starting with Version 7.0, and available with Enginuity 5874, TimeFinder recognizes concurrent R2 devices. Concurrent R2 is an Enginuity feature that allows an R2 device to have two SRDF mirrors. Each R2 mirror is paired with a different R1 mirror and only one of the R2 mirrors can be Read-Write on the link at a time.

Note: *The SRDF Host Component for z/OS Product Guide* provides more information about diskless R22 devices.

Security considerations

No change is required to your existing security process when implementing the SNAP VOLUME command. DASDVOL requests made to SAF verify access at the device level.

If you are using Version 5.8 or higher, you can also make use of the EMCSAFI Security Interface and the SAF command security. The EMCSAFI Security Interface feature provides additional security checks for environments where multiple groups of users are using different devices in a single controller.

SNAP VOLUME with the COPYVOLID(NO) parameter

When a full device volume copy is performed, the microcode accepts a simple instruction to copy all of the tracks from the source device to the target device. When COPYVOLID(NO) is specified, it is the intent that the original target volser is retained on the target device. Physically speaking, this cannot happen when all of the tracks are being copied from the source device to the target device. So the retention of the original volser takes place logically, as follows:

- ◆ Prior to initiating the copy, the volser of the target device is read and retained in memory.
- ◆ Because the target device is physically changing identities, it is varied offline in order to reduce confusion.
- ◆ The microcode initiates the copy of the source device to the target device. Physically, this means that the target device now has the same volser as the source device.
- ◆ Once the microcode copy is initiated, the target device label is read. The contents are verified to ensure that they match the original source device. Then the target device label is updated with the original target device volser. This restores the target device volser to it's original contents.

- ◆ The target device is now varied back online with its original volser.

SNAP VOLUME with the COPYV(N) and CONDVOL(ALL) parameters

When you specify COPYV(N) and CONDVOL(ALL) with SNAP VOLUME, the following additional changes are made after successful completion of the SNAP VOLUME command:

- ◆ If a VTOC index and VVDS are present and active on the target volume, TF/Snap updates any records for the VTOC index and VVDS files to reflect the new names of these files. VTOC index names have the form SYS1.VTOCIX.*volser* and VVDS names have the form SYS1.VVDS.*Vnnnnn*. The volser portion of these names is the same as the volser of the target volumes.
- ◆ If the volser begins with a numeric character, the default name for the VTOC index is SYS1.VTOCIX.*Vnnnnn*, where *nnnnn* is the final five characters of the target volume volser.
- ◆ TF/Snap updates the VTOC records for the VTOC index and VVDS, if present, to reflect the new names for these files with the same naming conventions as for the VTOC index updates.
- ◆ If a RESTORE VOLUME command with COPYVOLID(YES) parameter occurs in a JES3 environment, the target volume must be manually varied offline to JES3 after the RESTORE VOLUME completes.

During the RESTORE VOLUME operation with COPYVOLID(NO), the target volume is normally varied offline during the operation and varied online after the RESTORE VOLUME completes. You can link edit a user exit into TF/Snap to be invoked prior to the VARY ONLINE and VARY OFFLINE commands being issued. This exit is available for automating JES3 operations.

Examples

Example 1: This example demonstrates snapping a volume:

```
SNAP VOLUME (SOURCE (VOL(USER00)) TARGET (VOL(BKUP75)))
```

Example 2: This example shows both a GLOBAL statement and a SNAP VOLUME statement. In this example:

- ◆ The GLOBAL statement sets the maximum acceptable return code to 4 and only issues a warning statement if the target volume is currently ONLINE to any other z/OS image in the complex.
- ◆ The SNAP VOLUME statement tells TimeFinder which volumes to use as the source and the target. Both the source and target volumes must be online to this z/OS image.
- ◆ The REPLACE(Y) parameter indicates that data on the target volume is to be completely overwritten.
- ◆ CONDVOL(ALL) and COPYVOLID(NO) cause the target volume serial number to remain MV3497. In addition, all of the pointers in the VTOC, IXVTOC and VVDS (if applicable on the target volume) are updated for all of the datasets snapped to the target. None of the datasets on the target volume are cataloged.

- ◆ The WAITFORCOMPLETION (Y,MESSAGES) cause the SNAP VOLUME step to remain active until the Symmetrix system completes the background copy of the source volume to the target volume and to issue status messages of the number of remaining tracks to be copied to the target volume.

```
GLOBAL MAXRC(4) CHKO(N)
  SNAP VOLUME (SOURCE (VOLUME (MV3417)) -
              TARGET (VOLUME (MV3497)) -
              REPLACE (Y) -
              CONDVOL (ALL) -
              COPYVOLID (NO) -
              WAITFORCOMPLETION (Y, MESSAGES) -
              )
*
```

Example 3: This example demonstrates a remote full device snap:

- ◆ The source volume at Symmetrix device number 00CE is copied to the target volume at Symmetrix device number 032E in the remote Symmetrix system.
- ◆ The remote Symmetrix system is found by using the gatekeeper found by using volume serial UMC001 in a local Symmetrix system, and then using RAGROUP(21) to determine the remote Symmetrix system.
- ◆ The Controller serial number is an extra check to make sure the correct Symmetrix system is being used for the remote full volume snap.

```
SNAP VOLUME (SOURCE (SYMDV# (00CE)) TARGET (SYMDV# (032E)) -
  REMOTE (VOL (UMC001) RAGROUP (21) CONTROLLER (0001879-90171) ) )
```

Performing a SNAP VOLUME using virtual devices

Virtual devices (VDEV) are Symmetrix devices that are represented by a collection of pointers, as shown in [Figure 6](#).

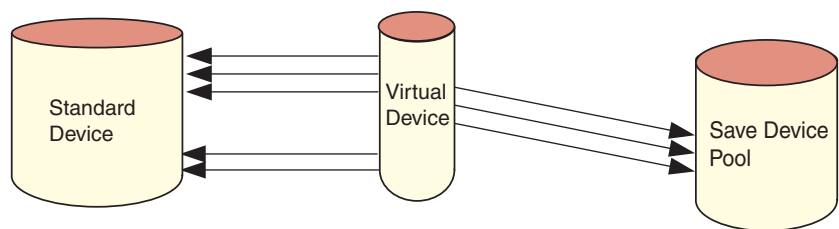


Figure 6 SNAP VOLUME using virtual devices

Virtual devices have the following characteristics:

- ◆ Are configured in the Symmetrix system
- ◆ Have Symmetrix device numbers and host channel addresses
- ◆ Do not reserve space equal to their size
- ◆ Share common snap pool devices to store new writes to the source or target virtual device

A virtual device snap creates a point-in-time image of the source device that only consumes space for new writes to either the source or the target virtual device. As a result, virtual device snaps can consume much less space than full device snap.

Tracks that are updated on the source after the snap cause the *pre-update image* of the updated tracks to be copied from the source to the snap pool device. Tracks that are updated on the virtual device have the updated, or *post-image track*, written to the snap pool device.

For devices with very low change rates (total number of tracks changed, not total write activity for the volume), virtual devices can provide a space-efficient way to capture one or more point-in-time copies of a logical volume. They are best used as a complement to TF/Clone full volume copies.

Virtual devices that are associated with a source device can be mounted, read from, written to, and varied online or offline. Virtual devices that are not associated with a source device remain offline and not ready.

Performing Cascaded clone operations

Starting with Enginuity 5874, TimeFinder allows for *cascaded clone* operations. This allows a clone operation to take place with a device that is already involved in a clone operation without ending the first clone session.

For instance, as shown in [Figure 7](#), you can use TimeFinder to clone device A to device B. Then, while the relationship between A and B is preserved, clone device B to device C.

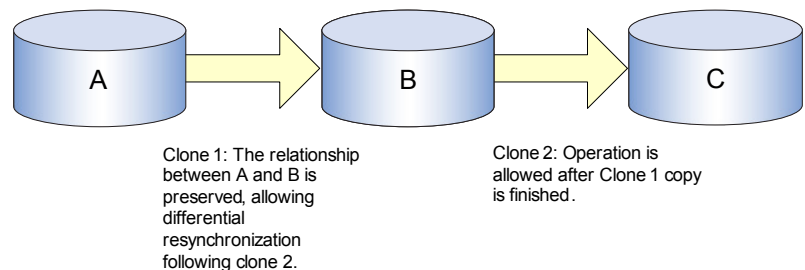


Figure 7 Cascaded clone

A cascaded relationship is implied in a snap from A to B and then from B to C. After the A to B snap has finished, the A to B cascaded operation may still be active. In this situation, you can encounter a problem when you try to perform a cascaded-like snap from B to C and then from A to B.

In both cases, B becomes the “middle” of an extended relationship. In the traditional cascaded situation, B is the target of a persistent relationship (like differential). In the second, cascaded-like case, B is the source of a persistent relationship (like differential). Neither situation is allowed by Enginuity.

TimeFinder always attempts to ensure that both situations work. However, there are times that one must fail. For instance, if C is a virtual device (VDEV), in a snap of B to C and A to B, TimeFinder does not delete virtual device C. C may be used for more than one purpose. Instead, TimeFinder fails the snap of A to B.

Cascaded clone emulation

Engenuity 5874 allows a cascaded-like operation for clone emulation. Under Engenuity 5874, you can cascade from a device involved in a clone operation to a device involved in a clone emulation operation, as shown in [Figure 8 on page 98](#).

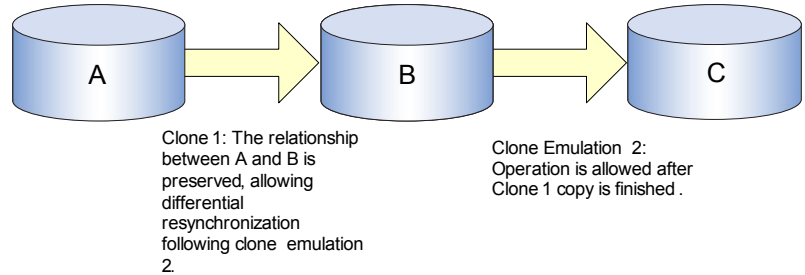


Figure 8 Cascaded clone to cascaded clone emulation

However, as shown in [Figure 9](#), you cannot cascade from a device involved in a clone emulation operation to a device involved in a clone operation.

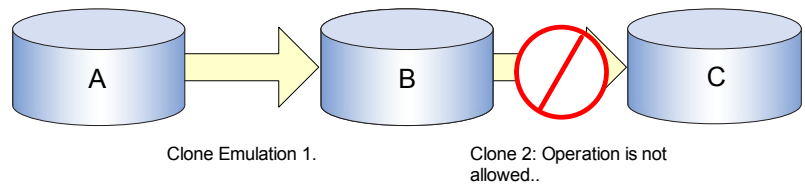


Figure 9 Cascaded clone emulation to cascaded clone

For instance, you can use TimeFinder to clone device *xxx* to a STD device. Then, after the *xxx* to STD copy has completed but while the *xxx* to STD session is still in effect, use TF/Mirror clone emulation to clone the STD device to a BCV. However, you cannot then use TF/Clone MainFrame SNAP Facility to clone the BCV to device *yyy*.

In addition, as shown in [Figure 10](#), operations A to B and B to C cannot both be clone emulation.

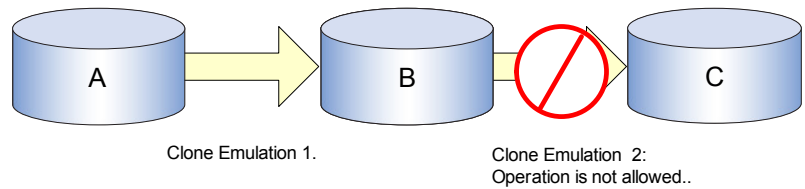


Figure 10 Cascaded clone emulation to cascaded clone emulation

Requirements

There are a few requirements to keep in mind:

- ◆ There cannot be any indirect tracks on the source device.
- ◆ There cannot be any protected tracks on the target device.
- ◆ A virtual device (VDEV) cannot have a session with any target device.

- ◆ If the new source device is already a target of another operation, the corresponding session must be active.

Limitations

Although circular cascading ($A \rightarrow B \rightarrow A$) is not allowed, devices A and B can have multiple targets. For example: $A \rightarrow B_{(1)} \rightarrow C_{(1)}$ and $A \rightarrow B_{(2)}$ and $A \rightarrow B_{(3)} \rightarrow C_{(2)}$.

There is also a limitation on full-volume, Incremental FlashCopy. If $A \rightarrow B$ is full-volume FlashCopy, device B cannot be used as the source of a FlashCopy command. However, you can use TimeFinder Clone Mainframe SNAP Facility and use B as a source. In other words, FlashCopy can do $A \rightarrow B$ or $B \rightarrow C$, but it cannot do $A \rightarrow B \rightarrow C$.

Example

Consider the following example of cascading three devices:

1. A user issues SNAP VOLUME with the DIFFERENTIAL parameter set to snap device AAA to device BBB.
2. After ensuring that all background copy operations have completed, the user issues SNAP VOLUME with the DIFFERENTIAL parameter set to snap device BBB to device CCC. The user then ensures that all background copy operations have completed.
3. The user then makes changes to the data on devices AAA and BBB.
4. The user issues SNAP VOLUME with the DIFFERENTIAL parameter set to snap device AAA to device BBB.
5. After ensuring that the changes made to device AAA are on device BBB and that all background copy operations have completed, the user issues SNAP VOLUME with the DIFFERENTIAL parameter set to snap device BBB to CCC.
6. After ensuring that the changes made to device AAA are on device CCC, the user issues a STOP SNAP to all volumes.

Influencing SMS volume selection

When the EMC volume preferencing exit routine is activated, TimeFinder attempts to influence SMS volume selection. Volume preferencing causes a target volume to be selected from a device that is on the same Symmetrix system as the source, even though the SMS storage group contains target volumes on multiple Symmetrix systems.

The following EMC components are involved when influencing SMS:

- ◆ Utility program — used to activate, inactivate, and query the status of the exit routine.
- ◆ Exit routine — used to tailor the SMS volume candidate list in an attempt to limit allocations to the Symmetrix system containing the source dataset/volume.
- ◆ TimeFinder — recognizes when the exit routine is active and prepares information about the target allocation and the target Symmetrix system for use by the exit routine.

EXTENT_ALLOCATION

The result of influencing target device selection is dependent on whether EXTENT_ALLOCATION(YES) is specified or internally selected. Volume preferencing is **not** used with EXTENT_ALLOCATION. It does not even need to be activated.

Note: When necessary, you may select EXTENT_ALLOCATION internally for some SMS controlled dataset types, such as striped extended format datasets.

When requested or selected, EXTENT_ALLOCATION(YES) causes TimeFinder to attempt to select a target device using the following sequence:

1. Target device in the same Symmetrix system or control unit as the source device.
2. Target device in any Symmetrix system.
3. Any eligible device.

If desired, a TimeFinder site default is available, SAMEONLY, to fail the allocation if the target BCV or STD is not in the same Symmetrix system or control unit.

Note: [Table 3 on page 45](#) lists the site options.

Internal selection

When you do not use EXTENT_ALLOCATION but activate volume preferencing, TimeFinder attempts to:

- ◆ Influence the allocation by examining the SMS candidate device list.
- ◆ Select the same Symmetrix system or control unit for the target device as the source device.

This mode of allocation offers no opportunity to fail the request if the same controller condition cannot be met. Eventually, allocation continues on any eligible target device where space is available.

Installation and activation of the EMC volume preferencing exit routine (EMCVLPRF) is performed by executing the utility program (EMCSNPVS). EMCSNPVS accepts its commands through the parameter field and displays its responses on the console. Each execution of EMCSNPVS performs one command.

Exit routine activation should be done automatically after system IPL. It is only necessary to activate the exit routine once after an IPL.

Note: These modules are shipped as LINKLIB members of the EMCSCF component of ResourcePak Base for z/OS.

Query VOLumePREferencing SET VOLumePREferencing

The syntax of the EMCSNPVS volume preferencing commands are:

```
Query VOLumePREferencing
SET VOLumePREferencing ( [ STATus ( Active | Inactive ) ] )
```

```
[ DEBUG ( OFF | ON ) ]
[ TRACE ( OFF | ON ) ] )
```

The QUERY command displays whether the exit routine is installed and enabled. The SET command can activate and inactivate the exit routine. Normally, the exit code is completely removed when the exit routine is deactivated.

Examples The following example displays the status of the EMC volume preferencing exit:

```
//TSTSNVPS JOB (EMC) , ,MSGCLASS=X,MSGLEVEL=(1,1),CLASS=A
//VOLPROF EXEC PGM=EMCSNVPS,PARM=' QUERY VOLPREF '
//STEPLIB DD DSN=EMC.SCFvrm.LINKLIB,DISP=SHR
```

The following example activates the EMC volume preferencing exit. Note that the STEPLIB DD-statement must point to the library containing the EMCVLPREF program. This may be run as a batch job stream or a started task:

```
//USRSNVPS JOB (EMC) , ,MSGCLASS=X,MSGLEVEL=(1,1),CLASS=A
//VOLPROF EXEC PGM=EMCSNVPS,PARM=' SET VOLPREF (STATUS(ACTIVE)) '
//STEPLIB DD DSN=EMC.SCFvrm.LINKLIB,DISP=SHR
```

The following example inactivates the EMC volume preferencing exit:

```
//USRSNVPS JOB (EMC) , ,MSGCLASS=X,MSGLEVEL=(1,1),CLASS=A
//VOLPROF EXEC PGM=EMCSNVPS,PARM=' SET VOLPREF (STATUS(INACTIVE)) '
//STEPLIB DD DSN=EMC.SCFvrm.LINKLIB,DISP=SHR
```

Selecting volume processing by phases

The SNAP VOLUME and ACTIVATE commands have two parameters, PRESNAP and POSTSNAP, that allow you to select SNAP VOLUME processing by phases:

- ◆ Presnap
- ◆ Activate
- ◆ Postsnap

By using groups, you can run these phases individually to make sure that:

- ◆ The correct volume list is used in all phases.
- ◆ The processing phases are scheduled appropriately.

For example, before a nightly backup, you can execute the presnap phase and allow the precopy to take place in the background. Then, later, you can execute the short activate phase and follow it with the postsnap phase to make the snapped devices available.

All three phases must complete before the target volume(s) are available; but, this allows them to be scheduled in a way to minimize impact on other workloads.

Note: PRESNAP and POSTSNAP parameters only apply to regular input (after a //QCINPUT DD * JCL statement) SNAP VOLUME statement that references a GROUP, and are only valid if GROUP is also specified. The GROUP parameter identifies a set of stored statements that are to be executed, while the PRESNAP and POSTSNAP indicate some special processing for the GROUP. This is why these parameters cannot be stored within a group definition.

Presnap processing

Presnap processing involves:

1. Validating the request.
2. Taking the target device offline.
3. Making the target device not-ready to the channel.
4. Issuing the Engenuity request to pair the two devices together.

Usually, you would also specify (or default) the PRECOPY parameter and the background copy would begin after the “establish” is accepted by the Symmetrix system. The target device would not be available from this point until the postsnap phase is executed.

Activate processing

Activate processing involves making sure that the source and target device pairs have an existing session that has been “established” but not “activated.” Then the “activate” Engenuity request is used to enable the session.

Note: [“ACTIVATE” on page 129](#) provides more information on the ACTIVATE command.

Postsnap processing

Postsnap processing involves making the target device ready to the channel and performing any label management. If requested, the target device is also varied online.

Phase processing and group status

[Table 5](#) shows how the group status interacts with various phase processing. For instance, postsnap processing is not allowed unless activate has already been performed. As in the past, a simple SNAP VOLUME with no PRESNAP or POSTSNAP parameters performs all three phases together. An ACTIVATE group with PRESNAP and POSTSNAP also performs all three phases together.

Table 5 Phase processing and group status (page 1 of 2)

Group status (before)	Action	PRESNAP	POSTSNAP	Group status (after)
INITIAL	ACTIVATE	YES	NO	ACTIVATE
INITIAL	ACTIVATE	YES	YES	POSTSNAP
PRESNAP	ACTIVATE	YES –or– NO <i>(Ignored, when PRESNAP is already group status.)</i>	NO	ACTIVATE
PRESNAP	ACTIVATE	YES –or– NO <i>(Ignored, when PRESNAP is already group status.)</i>	YES	POSTSNAP
	DEFINE GROUP	-N/A-	-N/A-	INITIAL

Table 5 Phase processing and group status (page 2 of 2)

Group status (before)	Action	PRESNAP	POSTSNAP	Group status (after)
-any-	CLEANUP	-N/A-	-N/A-	INITIAL
-any-	CONFIG	-N/A-	-N/A-	INITIAL
INITIAL, FAILED, POSTSNAP	SNAP VOLUME	NO	NO	POSTSNAP
INITIAL, FAILED, POSTSNAP	SNAP VOLUME	YES	NO	PRESNAP
ACTIVATE	SNAP VOLUME	NO	YES	POSTSNAP
INITIAL, FAILED, POSTSNAP	SNAP VOLUME	YES	YES	POSTSNAP
-ANY-	STOP VOLUME	-N/A-	-N/A-	INITIAL

Examples

Example 1 The following example defines the groups TEST and TEST2:

```

DEFINE GROUP TEST (DESC ('SNAP TWO VOLUMES'))
GLOBAL FREESPACE(YES)
SNAP VOLUME (SOURCE (VOLUME(U6A230)) -
  TARGET(UNIT(6FE6)) NEWVOLID(BAP000) )
SNAP VOLUME (SOURCE (VOLUME(U6A231)) -
  TARGET(UNIT(6FE7)) NEWVOLID(BAP001) )
END GROUP
*
DEFINE GROUP TEST2 (DESC ('MAKE VIRTUAL COPIES'))
SNAP VOLUME (SOURCE (VOLUME(U6A232)) -
  VDEV (UNIT(6DC0)) NEWVOLID(VBAP00) )
SNAP VOLUME (SOURCE (VOLUME(U6A233)) -
  VDEV (UNIT(6DC1)) NEWVOLID(VBAP01) )
END GROUP

```

Note: You can also use the same source to make up to 8 copies.

Note: In the previous example The VDEV parameter is only available if you purchase the TF/Snap Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

Example 2 The following example snaps TEST and TEST2 in three separate actions:

```

SNAP VOLUME ( GROUP ( TEST,TEST2 ) PRESNAP(YES))
**
ACTIVATE ( GROUP ( TEST,TEST2 ) -
PRESNAP(NO) POSTSNAP(NO) -
CONSISTENT(YES) MESSAGE(DISPLAY))
**
SNAP VOLUME ( GROUP ( TEST,TEST2 ) POSTSNAP(YES))

```

The following example stops the snap and performs cleanup on the groups:

```

STOP SNAP TO VOLUME ( GROUP ( TEST ,TEST2) )
**
CLEANUP EXTENT TRACK FOR GROUP ( TEST ) CLEANDIFF(YES)
**
CONFIG (GROUP(TEST,TEST2) RELEASE(YES))

```

Performing a SNAP DATASET copy

Use the SNAP DATASET command to create a copy of the specified dataset. Source and target devices must be the identical models. That is, you can snap a 3390 device to another 3390 device, but you can not snap a 3390 to a 3380 device.

Supported dataset types

The SNAP DATASET command can snap the following types of datasets:

- ◆ Direct access (DA) datasets
- ◆ Extended format sequential datasets
- ◆ Extended Partitioned datasets (PDSE)
- ◆ GDG base names and GDG datasets
- ◆ Extended format VSAM Keyed Sequential Datasets (KSDS)
- ◆ Partitioned (PO) datasets (TYPE=HFS is not supported)
- ◆ Physical Sequential (PS) datasets
- ◆ Striped Sequential datasets
- ◆ BDAM datasets
- ◆ VSAM datasets:
 - Alternate Index (AIX)
 - ESDS
 - KSDS
 - Linear
 - RRDS
 - Spheres (KSDS | ESDS + PATHS + AIX)
 - VRRDS
 - Logical copy operations of IMBED, KEYRANGE and REPLICATE datasets are supported with DATAMOVER(DFDSS)
 - Datasets on offline volumes
- ◆ Undefined datasets (only with the FORCE (YES) option on the SNAP DATASET command)

Unsupported dataset types

SNAP DATASET *does not* support snapping the following types of datasets:

- ◆ Concatenated datasets
- ◆ ISAM datasets
- ◆ Individual members of partitioned datasets
- ◆ Open Edition HFS datasets
- ◆ zFS datasets
- ◆ Page datasets
- ◆ VSAM Volume datasets (VVDS)
- ◆ VTOCs
- ◆ VTOC indexes

The SNAP DATASET command allows you to use either a ddname or dataset name to designate the source dataset and the target dataset. If the target dataset already exists, it may be reused or erased and a new one allocated, depending upon the replace and reuse parameters.

In most circumstances, the SNAP DATASET operation is not affected by the size of a single extent. However, the directory must reside within the first extent of a partitioned dataset. As a performance consideration, SNAP DATASET does not check the member directory size, but issues a warning message when the first extent of the target PDS is smaller than the first extent of the source.

SNAP DATASET options and operations

The following sections discuss SNAP DATASET options and operations.

Source and target datasets

Source datasets are identified by either:

- ◆ The SOURCE parameter
- ◆ The INDDname parameter

Unless SOURCE_VOLUME_LIST is specified, all datasets identified by the SOURCE parameter must be cataloged. You can only specify uncataloged datasets with the INDDname parameter, or by specifying the SOURCE_VOLUME_LIST parameter.

Target datasets are identified by either:

- ◆ The TARGET parameter
- ◆ The OUTDDname parameter

A dataset identified by the OUTDDname parameter is always reused. An existing dataset identified by the TARGET parameter may be reused or replaced, depending on the REUSE and REPLACE parameter settings. A new target dataset may be created and not cataloged, except in an SMS environment, where non-cataloged datasets are not allowed.

SMS classes

SNAP DATASET allows you to specify SMS classes. If you specify SMS storage, data, or management classes on the SNAP DATASET command, TimeFinder supplies the classes to DYNALLOC or IDCAMS during allocation. You can use the COPYSOURCESMSCLASSES (COPYSMS) parameter to indicate which classes are to be obtained from the source (SMS managed) dataset.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

The COPYSMS parameter does not work with TimeFinder and an alternate index dataset. This is because SMS does not record the class information when an alternate index dataset is created.

SMS ACS rules are not modified to accomplish a snap operation.

TimeFinder honors additional IBM Systems Managed Storage volume states, DISNEW and QUINNEW.

Note: [“Influencing SMS volume selection” on page 99](#) provides more information regarding volume selection.

WAIT options

SNAP DATASET also allows you to specify wait options. There are three circumstances where a built-in wait may be desirable. Each of these must be addressed individually:

- ◆ Waiting for a source dataset enqueue to become available, ensuring that the snap occurs *cleanly*.
- ◆ When the volume or dataset has four snaps occurring for the same track range.
- ◆ When a background snap operation has started and it is desirable to wait for the background snap operation to complete.

Waiting for a source dataset enqueue

Waiting for a source dataset enqueue only applies to the SNAP DATASET command. By default, the snap operation waits for the source dataset until it becomes available.

The type of enqueue is determined by the HOSTCOPYMODE parameter. You may set this parameter to:

- ◆ EXCLUSIVE
- ◆ SHARED
- ◆ NONE

The parameter ENQWAIT controls whether the enqueue must successfully complete before proceeding. If you specify ENQWAIT(NO) and the HOSTCOPYMODE indicates either EXCLUSIVE or SHARED, then failure to obtain the enqueue results in an action based upon the TOLERATEENQFAILURE parameter.

The following list outlines this flow of events.

1. If you specify HOSTCOPYMODE(NONE), no additional processing is required.
2. If you specify ENQWAIT(YES), an enqueue is issued that must be satisfied before proceeding. After the enqueue is satisfied, no additional processing is required.
3. If you specify ENQWAIT(NO), issue an enqueue to acquire/test the availability of the source dataset.
 - If you acquire the enqueue for the dataset, no additional processing is required.
 - If the enqueue for the dataset is not available, you must test the TOLERATEENQFAILURE parameter.
 - If you specify TOLERATEENQFAILURE(NO), an error message is written and the SNAP DATASET action terminates.
 - If you specify TOLERATEENQFAILURE(YES), a warning message is written and processing continues.

Four snaps occurring in the same track range

A maximum of four snap operations may be active for a range of tracks at any given moment. For example, you can snap a single source dataset to four new datasets without any problems. A fifth snap of that same source dataset may not begin until one of the four previous snaps has completed.

Note: This limitation also applies to SNAP VOLUME.

By default, if a range of tracks is already involved in four snap operations, a request to snap it a fifth time fails. You can control this by using the WAITFORSESSION parameter. The WAITFORSESSION parameter indicates how to handle the fifth and succeeding snap operations. WAITFORSESSION(NO) is the default setting. However, if you wish to wait for one of the prior snap operations to complete, you can specify WAITFORSESSION(YES). In addition, you may indicate a time value and the operation is checked until the time period expires.

For example, WAITFORSESSION(5:0) indicates that the snap operation waits up to 5 minutes for a prior operation to complete. At the end of that time period, if the snap operation is unable to start the new snap operation, it fails with an error message.

TimeFinder may optionally wait for the actual copy operations to complete. This is done by polling the Symmetrix system periodically and checking the status of the copy operations. You can specify the parameter WAITFORCOMPLETION on:

- ◆ The GLOBAL command
- ◆ The RESTORE VOLUME command
- ◆ The SNAP DATASET command
- ◆ The SNAP VOLUME command

At program termination, after all copy operations have been initiated, TimeFinder makes a final check to wait for the copy operations. An optional subparameter indicates whether the remaining tracks to be copied are logged as each check is made. The amount of time between checks is dependent upon the number of tracks remaining to be copied. The more tracks, the longer the time period.

All datasets or volumes are checked one at a time in the same sequence as the original copy operation. After a dataset or volume copy is complete, then the next dataset or volume copy is checked.

Session limit under Enginuity 5874 and higher

Under Enginuity 5874 and higher, TimeFinder no longer strictly enforces the limit of four full-device sessions for any one device. This means that you can create up to 16 simultaneous, full-device copies of a single source device as long as no other sessions exist on the device.

A single device is limited to an absolute maximum of 16 sessions of various types. This does not affect the current limit of four extent sessions or eight virtual device sessions, except to limit the total number of full device sessions for a single volume to 16 or less.

This does not affect the current limit of four full-device sessions of Enginuity 5773 or lower.

Multivolume datasets

TimeFinder can snap:

- ◆ A single volume source dataset to a single volume target dataset
- ◆ A multivolume source dataset to a multivolume target dataset

- ◆ A single volume source dataset to a multivolume target dataset
- ◆ A multivolume source dataset to a single volume target dataset

Special consideration is required when snapping a multivolume, extended-format, non-VSAM dataset with a stripe count of one. In this situation, the target dataset must have the exact same number of volumes and tracks allocated to each volume, corresponding to the source dataset.

For instance, if the source dataset is allocated to three volumes containing 3000, 2000, and 1000 tracks, the target dataset must also be allocated to three volumes containing 3000, 2000, and 1000 tracks. Otherwise, the snap operation fails.

Multi-stripe datasets must have the same number of stripes for the source and target dataset.

Summary of multivolume SNAP DATASET scenarios

The target attributes of all *dynamically allocated* datasets are influenced by either z/OS allocation (UNITNAME, BCVGROUP, SCFGROUP, and/or VOLUME parameters) or SMS allocation (STORCLAS, DATACLAS, MGMTCLAS and/or ACS routines).

Table 6 summarizes the various possible SNAP DATASET scenarios.

Table 6 Summary of multivolume SNAP DATASET scenarios (page 1 of 5)

Source	Target	Result
Same Symmetrix system	Dynamically Allocated	Multivolume dataset on the same Symmetrix system. Extent sizes may be different from source and may be consolidated.
Same Symmetrix system	Preallocated	Multivolume dataset on the same Symmetrix system. Determined by pre-allocation. If necessary to extend dataset, then z/OS automatically selects the last allocated or next candidate volume.
Same Symmetrix system	Extent Allocation	Multivolume dataset on the same Symmetrix system. Is determined by candidate list. Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent. Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): Each target volume contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume. Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source.
Different Symmetrix system	Dynamically Allocated	Multivolume dataset on available volumes in one Symmetrix system. Is determined by candidate list. Extent sizes may be different from source and may be consolidated. A datamover is required to copy extents between different Symmetrix systems.

Table 6 Summary of multivolume SNAP DATASET scenarios (page 2 of 5)

Source	Target	Result
Different Symmetrix system	Preallocated	Multivolume dataset whose placement is determined by pre-allocation. If necessary to extend dataset, z/OS automatically selects the last allocated or next candidate volume. A datamover is required to copy extents between different Symmetrix systems.
Different Symmetrix system	Extent Allocation	Multivolume dataset on the different Symmetrix systems. Is determined by candidate list. Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent. Each target volume is also in the same Symmetrix system as its respective source volume. Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): Each target volume contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume. Each target volume is also in the same Symmetrix system as its respective source volume. Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source. Each target volume is also in the same Symmetrix system as its respective source volume.
Mixed Symmetrix system and RVA or ESS	Dynamically Allocated	Multivolume dataset on available volumes in Symmetrix systems and RVA or ESS. Is determined by candidate list. Extent sizes may be different from source and may be consolidated. A datamover is required to copy extents between units. For RVA or ESS, TimeFinder invokes SNAPSHOT and/or FlashCopy if possible.
Mixed Symmetrix system and RVA or ESS	Preallocated	Multivolume dataset whose placement is determined by pre allocation. If necessary to extend dataset, z/OS automatically selects the last allocated or next candidate volume. A datamover is required to copy extents between units. For RVA or ESS, TimeFinder invokes SNAPSHOT and/or FlashCopy if possible.

Table 6 Summary of multivolume SNAP DATASET scenarios (page 3 of 5)

Source	Target	Result
Mixed Symmetrix system and RVA or ESS	Extent Allocation	<p>Multivolume dataset on the different Symmetrix systems and RVA or ESS. Is determined by candidate list.</p> <p>Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent. Each target volume is in the same Symmetrix system or RVA and/or ESS as its respective source volume. If enough target volumes exist in the respective Symmetrix systems and/or RVA or ESS and IBM SNAPSHOT is available, it is not necessary to code a datamover. For RVA, TimeFinder invokes SNAPSHOT or FlashCopy if available.</p> <p>Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): Each target volume contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume. Each target volume is in the same Symmetrix system or RVA and/or ESS as its respective source volume. If enough target volumes exist in the respective Symmetrix systems and/or RVA or ESS and IBM SNAPSHOT is available, it is not necessary to code a datamover. For RVA, TimeFinder invokes SNAPSHOT or FlashCopy if available.</p> <p>Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source. Each target volume is in the same Symmetrix system or RVA and/or ESS as its respective source volume. If enough target volumes exist in the respective Symmetrix systems and/or RVA or ESS and IBM SNAPSHOT is available, it is not necessary to code a datamover. For RVA, TimeFinder invokes SNAPSHOT or FlashCopy if available.</p>
Mixed Symmetrix system and non-Symmetrix	Dynamically Allocated	<p>Multivolume dataset on available volumes in Symmetrix system. Is determined by candidate list. Extent sizes may be different from source and may be consolidated. A datamover is required to copy extents between storage controllers.</p>
Mixed Symmetrix system and non-Symmetrix	Preallocated	<p>Multivolume dataset whose placement is determined by pre-allocation. If necessary to extend dataset, z/OS automatically selects the last allocated or next candidate volume. A datamover is required to copy extents between units.</p>

Table 6 Summary of multivolume SNAP DATASET scenarios (page 4 of 5)

Source	Target	Result
Mixed Symmetrix system and non-Symmetrix	Extent Allocation	<p>Multivolume dataset on the different Symmetrix systems and RVA and/or ESS. Is determined by candidate list.</p> <p>Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent.</p> <p>Each target is in the same Symmetrix system, RVA and/or ESS or other controller as its respective source volume. A datamover is required to copy extents between non-Symmetrix system or RVA and/or ESS controllers.</p> <p>Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): Each target volume contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume.</p> <p>Each target is in the same Symmetrix system, RVA and/or ESS or other controller as its respective source volume. A datamover is required to copy extents between non-Symmetrix system or RVA and/or ESS controllers.</p> <p>Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source.</p> <p>Each target is in the same Symmetrix system, RVA and/or ESS or other controller as its respective source volume. A datamover is required to copy extents between non-Symmetrix system or RVA and/or ESS controllers.</p>
Same RVA and/or ESS	Dynamically Allocated	<p>Multivolume dataset on the same RVA and/or ESS. Extent sizes may be different from source and may be consolidated. TimeFinder invokes SNAPSHOT and/or FlashCopy to copy extents.</p>
Same RVA and/or ESS	Preallocated	<p>Multivolume dataset on the same RVA and/or ESS. Determined by pre-allocation. If necessary to extend the dataset, z/OS automatically selects the last allocated or next candidate volume. TimeFinder invokes SNAPSHOT and/or FlashCopy to copy extents.</p>
Same RVA and/or ESS	Extent Allocation	<p>Multivolume dataset on the same RVA and/or ESS. Is determined by candidate list.</p> <p>Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent. TimeFinder invokes SNAPSHOT and/or FlashCopy to copy extents.</p> <p>Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): Each target volume contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume. TimeFinder invokes SNAPSHOT and/or FlashCopy to copy extents.</p> <p>Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source. TimeFinder invokes SNAPSHOT and/or FlashCopy to copy extents.</p>

Table 6 Summary of multivolume SNAP DATASET scenarios (page 5 of 5)

Source	Target	Result
Non Symmetrix or RVA and/or ESS	Dynamically Allocated	Multivolume dataset anywhere. Extent sizes may be different from source and may be consolidated. A datamover is required to copy extents.
Non Symmetrix or RVA and/or ESS	Preallocated	Multivolume dataset anywhere. Determined by pre-allocation. If necessary to extend dataset, z/OS automatically selects the last allocated or next candidate volume. A datamover is required to copy extents.
Non Symmetrix or RVA and/or ESS	Extent Allocation	Multivolume dataset anywhere. Is determined by candidate list. Using EXTENT_ALLOCATION(YES): Each target volume has the same number of tracks used as its respective source volume. Each target extent matches the corresponding source extent. A datamover is required to copy extents. Using EXTENT_ALLOCATION(YES,CONSOLIDATE_VOLUME): The target volumes contains the same number of tracks as the source volume; but, the number and size of extents on the target volume may be different from those on the source volume. A datamover is required to copy extents. Using EXTENT_ALLOCATION(CONSOLIDATE_ALL): The number of target volumes may be different from the number of source volumes and the number and size of the extents on the targets may not match those on the source. A datamover is required to copy extents.

Volser assignment for multivolume datasets defined with and without guaranteed space

The volser assignment for target multivolume datasets depends on whether the source and target dataset is:

- ◆ A VSAM or non-VSAM dataset
- ◆ Defined as having guaranteed or nonguaranteed space

The following tables show the resulting allocation following the snap of a multivolume non-VSAM and VSAM dataset where the source and target are either guaranteed space or nonguaranteed space. [Table 7](#) shows results of snapping non-VSAM datasets. shows the results of snapping VSAM datasets.

Table 7 Snapping non-VSAM datasets

If the source dataset	and the target dataset	
has guaranteed space	has guaranteed space, then	has nonguaranteed space, then
	all volumes have specific volsers.	all volumes have specific volsers.
has nonguaranteed space	the first volume has a specific volser. The other volumes are candidate volumes.	the first volume has a specific volser. The other volumes are candidate volumes.

Table 8 Snapping VSAM datasets

If the source dataset	and the target dataset	
has guaranteed space	has guaranteed space, then	has nonguaranteed space, then
	all volumes have specific volsers.	all volumes have specific volsers.
has nonguaranteed space	all volumes have specific volsers.	the first volume has a specific volser. The other volumes are candidate volumes.

Relative GDGs

You can use TimeFinder to manipulate a relative GDG if you use the INDDname and/or OUTDDname options instead of the SOURCE and TARGET options for snap by dataset. The relative GDG number specified in the INDD or OUTDD parameter are converted to an absolute GDG number by z/OS. When using a relative GDG, then only that generation is considered.

Note: TimeFinder does *not* create the model GDG statement when using datasets addressed by a relative GDG number.

The following examples illustrate the capabilities available for INDD and OUTDD. These examples are not complete TimeFinder statements (only the input and/or output DD statements are shown); they are samples that show the different capabilities available when versions of a GDG are desired.

The examples are based on the existence of a GDG base for both the source and target datasets, with a limit of 5 generations. The source and target datasets have cataloged generations G0001V00 through G0005V00. The name of the source GDG is EMC.SOURCE, and the name of the target GDG is EMC.TARGET.

Example 1 Use the relative (+0) source dataset and create its associated target dataset.

```
//STDIN DD DISP=SHR,DSN=EMC.SOURCE(+0)
//QCINPUT DD *
SNAP (INDD(STDIN) -
      TARGET(EMC.TARGET.*) -
      other SNAP parameters )
```

Result: EMC.TARGET.G0005V00 is replaced.

Example 2 Create the relative (+1) source dataset and in another step in the same job, create its associated target dataset.

```
//SNAPSTEP EXEC PGM=EMCSNAP
//CREATE DD DISP=(NEW,CATLG),DSN=EMC.SOURCE(+1),UNIT=3390,
// VOL=SER=STDVOL,SPACE=(CYL,(3,1)),...
//*
//STDIN DD DISP=SHR,DSN=EMC.SOURCE(+1)
//QCINPUT DD *
SNAP (INDD(STDIN) -
      TARGET(EMC.TARGET.*) -
      other SNAP parameters )
```

Result: EMC.SOURCE.G0006V00 and EMC.TARGET.G0006V00 are created.

Example 3 Create the relative (+1) source dataset and in another step in the same job create a relative (+1) target dataset.

```
//SNAPSTEP      EXEC   PGM=EMCSNAP
//CREATE        DD     DISP=(NEW, CATLG), DSN=EMC.SOURCE(+1), UNIT=3390,
//              VOL=SER=STDVOL, SPACE=(CYL, (3,1)), . . . .
//*
//STDIN         DD     DISP=SHR, DSN=EMC.SOURCE(+1)
//OUTPUT        DD     DISP=(NEW, CATLG), DSN=EMC.TARGET(+1), UNIT=3390,
//              VOL=SER=OUTVOL, SPACE=(CYL, (3,1)), . . . .
//QCINPUT       DD     *
SNAP (INDD(STDIN)          -
      OUTDD(OUTPUT)       -
      other SNAP parameters )
```

Result: Assuming Example 2 completes before Example 3, EMC.SOURCE.G0007V00 and EMC.TARGET.G0007V00 are created.

Note: Keep in mind that Example 2 is a different job from Example 3.

The use of the INDD and OUTDD parameters in TimeFinder allows for many other options for both input to the snap and output from the snap process.

Candidate volume list

SNAP DATASET allows you to specify the ESOTERIC(UNITNAME), VOLUME, SCFGROUP and BCVGROUP parameters together. SNAP DATASET then uses the resulting list of volumes as a candidate volume list.

As SNAP DATASET processes each source and target dataset pair, it chooses the volumes used for target dataset allocation from the candidate volume list. SNAP DATASET determines the eligibility of a particular volume using the following criteria:

- ◆ A matching volume is found online.
- ◆ The volume is a BCV volume.
- ◆ The volume is on the same Symmetrix system as the source volume.
- ◆ The volume is of the same device type as the source volume.
- ◆ The volume track size is the same as the source volume track size.

After compiling a list of eligible volumes, SNAP DATASET determines the amount of free space for each of the eligible volumes. Then SNAP DATASET sorts the list based upon the amount of free space. Finally, TimeFinder selects the first VOLUMECOUNT number of volumes for use when allocating the target dataset.

A SNAP DATASET command places the target volume in a Hold status. To remove the Hold status, use the RELEASE option on the CONFIG command after the snap is complete or has been stopped. You cannot release the Hold status while there are any indirect tracks on the volume.

If you used the MODE(NOCOPY) parameter, you may find it necessary to cause the MODE(NOCOPY) snap to complete normally by:

- ◆ Running the original snap job (JCL and control cards)
- ◆ Adding PARM="GLOBAL MODECOPYFINISH" to the PGM=snap execute statement

Note: In an SMS environment, TimeFinder ignores the candidate volume list.

VSAM ENQ support

If you specify (or default) VSAMENQMODE (NONE) on SNAP DATASET, then TimeFinder performs no testing of the SYSVSAM ENQ.

If you specify VSAMENQMODE (SHARED), an ENQ is issued with the SHR attribute. If you specify VSAMENQMODE (EXCLUSIVE), an ENQ is issued with the EXC attribute. If the ENQ is satisfied, processing continues normally.

After the request is processed, then a DEQ is issued to release the resource.

- ◆ If you specified (or defaulted) TOLERATEVSAMENQFAILURE (NO), an error message is issued and processing of the request terminates.
- ◆ If you specified TOLERATEVSAMENQFAILURE (YES), a warning message is issued and processing of the request is continues.

After the request is processed, then a DEQ is issued to release the resource. If the ENQ cannot be satisfied, the value of the TOLERATEVSAMENQFAILURE parameter determines what happens.

- ◆ If you specified (or defaulted) TOLERATEVSAMENQFAILURE (NO), an error message is issued and processing of the request terminates.
- ◆ If you specified TOLERATEVSAMENQFAILURE (YES), a warning message is issued and processing of the request continues.

The QNAME used is 'SYSVSAM'. The RNAME used is 'dsname|catalogname|L1|L2|L3|O', the same as used by VSAM for protecting resources opened for update purposes.

Note: IBM documentation provides more information about the QNAME and RNAME.

When a different job attempts to use the VSAM dataset while it is being snapped, results vary depending on the VSAM dataset share options and the VSAMENQMODE. [Table 9](#) provides more information.

Table 9 VSAM dataset share options and the VSAMENQMODE (page 1 of 2)

VSAMENQMODE	Share options	Open mode	Results
SHR	(1,3) or (1,4)	Input	File Open Error – IEC161I 052-084.
SHR	(1,3) or (1,4)	Update	File Open Error – IEC161I 052-084.
EXC	(1,3) or (1,4)	Input	File Open Error – IEC161I 052-084.

Table 9 VSAM dataset share options and the VSAMENQMODE (page 2 of 2)

VSAMENQMODE	Share options	Open mode	Results
EXC	(1,3) or (1,4)	Update	File Open Error – IEC161I 052-084.
SHR	(2,3) or (2,4)	Input	File opened successfully.
SHR	(2,3) or (2,4)	Update	File opened successfully.
EXC	(2,3) or (2,4)	Input	File opened successfully.
EXC	(2,3) or (2,4)	Update	File Open Error – IEC161I 052-084.
SHR	(3,3) or (3,4)	Input	File opened successfully.
SHR	(3,3) or (3,4)	Update	File opened successfully.
EXC	(3,3) or (3,4)	Input	File opened successfully.
EXC	(3,3) or (3,4)	Update	File Open Error – IEC161I 052-084.
SHR	(4,3) or (4,4)	Input	File opened successfully.
SHR	(4,3) or (4,4)	Update	File opened successfully.
EXC	(4,3) or (4,4)	Input	File opened successfully.
EXC	(4,3) or (4,4)	Update	File Open Error – IEC161I 052-084.

VSAM open indicator support

The VSAM open (for update) indicator is located in the VVDS. Whenever you open a VSAM cluster for update, the open (for update) indicator is set. When the VSAM cluster is successfully closed, the open (for update) indicator is reset.

If multiple jobs open the VSAM cluster for update, the last job to close the cluster resets the open (for update) indicator. If the last (or only) job fails, the open (for update) indicator is left set.

It is the responsibility of the next job that opens the VSAM cluster for update to perform a VERIFY. The VERIFY ensures that the meta data for the cluster matches the contents of the VSAM cluster.

A warning message is issued if a VSAM cluster is snapped and the VSAM open (for update) indicator is set.

Note: The number of extents does not matter. You can use the EXTENT ALLOCATION parameter on the GLOBAL or SNAP DATASET commands to snap non-VSAM datasets with a stripe count of one (1).

Dataset name masking

SNAP DATASET supports dataset masking for the SOURCE, EXCLUDE, TARGET, and RENAMEUNCONDITIONAL parameters following the DFDSS masking rules. Table 10 shows the DFDSS masking rules.

Table 10 DFDSS masking rules

Character	Meaning
* (single asterisk)	Takes the place of exactly one qualifier or indicates that you are specifying one part of a qualifier.
** (double asterisk)	Used with other qualifiers, denotes either the nonexistence of leading, trailing and middle qualifiers, or that they play no role in the selection.
% (percent character)	Indicates a single-character .

Follow these rules when using asterisks in a qualifier:

- ◆ The maximum permissible asterisks in a qualifier is two.
- ◆ When two asterisks are present in a qualifier, they must be the first and last.

For example:

Valid qualifiers:

**
A

Invalid qualifiers:

**A*
*A*B*
*A*B
A*B*C

Keep in mind the following masking rules:

- ◆ SOURCE, EXCLUDE, TARGET and RENAMEUNCONDITIONAL (RENUNC) dataset name mask rules are different. The SOURCE, EXCLUDE and RENUNC (*oldname*) allow partial index level masking. For example, while EMC.DATA*.ABC** is valid for SOURCE, EXCLUDE or RENUNC (*oldname*), it is not valid as a TARGET or RENUNC (*newname*).
- ◆ The SOURCE, EXCLUDE and RENUNC (*oldname*) dataset name masks follows DFDSS rules for dataset selection.

Note: The first qualifier of the source dataset must not include any wildcards.

- ◆ The TARGET and RENUNC (*newname*) masks only allow wild carding for complete index levels. For example, while EMC.DATA*.ABC** is invalid for a TARGET or RENUNC (*newname*), EMC.DATA.** is valid as a target.
- ◆ The TARGET and RENUNC (*newname*) dataset follow DFDSS rules for RENAME processing. The RENUNC dataset name masks follows DFDSS rules for RENUNC.

Some examples of valid TARGET masks are:

- A.** Replace the first index level of the source dataset name with “A.”
- A.B.** Replace the first two index levels of the source dataset name with “A.B.”
- *.A.** Replace the second index level of the source dataset name with “A.”
- ** .BCD Replace the last index level of the source dataset name with “BCD.”
- *.*.EFG Copy the first two index levels from the source dataset name and make the third index level “EFG.”

Some examples of invalid TARGET masks are:

- ** .DEF.** INVALID, don't know which level to replace.
- A.*BCD* INVALID, the entire index level must be wild, or not at all.

Snaps from offline or cloned volumes

TF/Clone can now perform snaps from devices that are offline or cloned. To do this, you must identify all of the volumes to be scanned. Then, TF/Clone performs the following steps:

1. Examines the VVDS and VTOC for each device specified in the SOURCE_VOLUME_LIST parameter, looking for datasets that match the SOURCE(DATASET (x)) parameter.

Note: You can use wild cards for dataset names.

For non-VSAM, primary information is acquired from the VTOC. For VSAM, cluster and component relationships and names are acquired from the VVDS and VTOC. The VVDS and VTOC records are cached in memory for future reference, ensuring code compatibility.

2. Verifies that all pieces of a dataset are present. This includes
 - Checking for missing volumes on multivolume non-VSAM datasets. If the end-of-dataset indicator is not set for a multivolume non-VSAM dataset, the dataset cannot be copied.
 - Analyzing the RBA values for VSAM datasets to ensure that the entire range of RBAs is represented by the components found.
3. Resumes normal processing. Since the VVDS and VTOCIX entries are cached, no further reference to the VTOC or VVDS is made.

A single SNAP DATASET statement may reference catalogued datasets, or datasets on offline volumes, but not both together.

Cascaded operations

“[SNAP/FlashCopy coexistence](#)” on page 93 provides information about cascaded operations with both SNAP VOLUME and SNAP DATASET.

Security considerations

No change is required to your existing security process when implementing the SNAP DATASET command. To verify that the users have proper access to perform the snap, a request is made to SAF with a resource ID of “DATASET” and the dataset name. The source dataset is checked for READ access and the target is checked for ALTER access.

If you are using TimeFinder Version 5.8 or higher, you can also make use of the EMCSAFI Security Interface and the SAF command security. The EMCSAFI Security Interface feature provides additional security checks for environments where multiple groups of users are using different devices in a single storage controller.

Note: The *EMC Mainframe Enablers Installation and Customization Guide* provides more information about the EMCSAFI Security Interface.

Examples

Example 1: This example snaps a dataset:

```
SNAP DATASET (SOURCE (' PROD.R1.DATA' ) -
TARGET (PROD.R1.DATA.SNA))
```

Example 2: This example snaps a dataset to a target to be allocated using the storage class PROJ1. The snap is to proceed even if exclusive serialization is not obtained for the source.

```
SNAP DATASET (SOURCE (' PROJECT1.OUTPUT.FILE' ) -
TARGET (SNAP.PROJECT1) STORCLAS (PROJ1) -
TOLENQF (YES))
```

Example 3: This example snaps a dataset, that is being shared by another job to a target that is allocated on volume PACK01.

```
SNAP DATASET (SOURCE (' DATA.RVA#1.FILE' ) -
TARGET (BACKUP.RVA#1.FILE) VOLUME (PACK01) -
HCPYMODE (SHR))
```

Example 4: This example snaps a VSAM KSDS and its SPHERE records (alternate index and path records). In the example:

- ◆ Wild cards are used in the RENAMEUNCONDITIONAL statement to make sure only the first two HLQ are changed.
- ◆ A BCVGROUP and a VOLUME are both used, which allows TF/Clone to choose the best target volume from the combination of the BCVGROUP and the volume statements.
- ◆ The HOSTCOPYMODE (SHR) allows other users to access the source dataset while the snap is in progress.
- ◆ The REPLACE(Y) enables the overwriting of target datasets if they exist.
- ◆ The WAITFORCOMPLETION(YES,MESSAGES) parameter tells TF/Clone to continue this job step until this snap is complete.

- ◆ The MESSAGES sub-parameter activates a progress report with the number of remaining tracks for the Symmetrix system to copy. This status report is given from time to time until this snap is finally completed.

```

*
* SNAP      MULTI-AIX VSAM KSDS WITH UPGRADE PATH
*
SNAP DATASET ( SOURCE( STANDARD.MV3404.VSAM.CL1 ) -
TARGET (BCV.MV3424.VSAM.CL1 ) -
VOL (MV3424 ) -
BCVGROUP (BCV_GRP1) -
CATALOG (YES) -
SPHERE (YES) -
RENAMEU ( ( STANDARD.MV3404.** ,BCV.MV3424.** ) ) -
HOSTCOPYMODE (SHR ) -
REPLACE (Y) -
WAITFORCOMPLETION (YES, MESSAGES) -
)
*

```

Example 5: This example uses wildcards. In the example:

- ◆ In the SOURCE statement, the % symbol represents a single character. All selected datasets with a suffix of G00x1V00 (where x is a number from 0 to 9 respectively) is selected.
- ◆ The wild carding in the target dataset changes only the HLQ of the target dataset names to BG5. The rest of the dataset name is like the source dataset name. This is a SMS managed source and target, and the suggested volumes come from BCVGROUP (SMS_GRP1), but the ACS routines determine the DFSMS approved candidate volume or volumes.
- ◆ The DATACLASS is to be copied from the source dataset. The target dataset is cataloged.
- ◆ HOSTCOPYMODE(SHARED) means that exclusive control of the source is not required, and the user manages multiple access to the source dataset during the snap operation. The snap tolerates an allocation of the target failure, a target copy failure, and an ENQUEUE failure of the source and completes this operation. The target is to be replaced.
- ◆ If this job causes more than a maximum of the sessions allowable for a dataset, TF/Clone waits for a completed session before starting another session. If the target dataset already exists, then the old target dataset is deleted and a new one is allocated.

Note: If the GDG base does not exist, a GDG target base is created with the same attributes as the GDG source base. If the GDG target base does exist, it is updated with the GDG source base attributes.

```

*
* SNAP      GDG USING WILDCARDS
*
SNAP DATASET (SOURCE(SG5.SNAP.GDG.G00%1V00)      -
              TARGET (BG5.**                      ) -
              BCVGROUP (SMS_GRP1)                -
              COPYSMS (DATACLAS)                 -
              DATAMOVERNAME (EMCCOPY)            -
              CATALOG (YES)                      -
              HOSTCOPYMODE (SHARED)              -
              TOLERATEALLOCATIONFAILURE (YES)     -
              TOLERATECOPYFAILURE (YES)         -
              TOLERATEENQFAILURE (YES)          -
              REPLACE (Y)                        -
              WAITFORSESSION (YES)              -
              REUSE (NO )                       -
              )
*

```

Example 6 The following example uses the DEFINE_SOURCE_VOLUME_LIST to define a list of offline volumes. Then, it uses SNAP DATASET to perform a snap from the volumes.

```

* DEFINE
*
  DEFINE SOURCE_VOLUME_LIST OFFVOLS ( -
    UNIT (6EF0) -
    UNIT (6EF6-6EF7) -
    VOL (U6A230) -
    VOL (U6A23*) -
  )
*
* SNAP
*
SNAP DATASET ( SOURCE (BAP.TESTING.TWOKSDS) -
              TARGET (BAP.TESTING.NEWKSDS) -
              HOSTCOPYMODE (NONE) -
              SOURCE_VOLUME_LIST (OFFVOLS) -
              REPLACE (Y) -
              REUSE (N) -
              SPHERE (YES) -
              VOL (U6A231, U6A230) -
              )

```

Performing a Parallel Snap

Note: The the PARALLEL SNAP solution should not be confused with the Simultaneous TF Clone feature introduced with Engenuity level 5875. Refer to [“Simultaneous TimeFinder /Clone” on page 25](#) for more information on the use of the PARALLEL_CLONE parameter.

Parallel Snap creates a snap copy of a dataset on both sides of an SRDF/S configuration. To allow for Parallel Snap, the configuration must meet the following conditions:

- ◆ The snap source volumes are the R1/R2 pair.
- ◆ The snap target volumes are non-SRDF devices.
- ◆ Data is not replicated across the SRDF link.
- ◆ TF/Mirror operations are supported on both sides of the SRDF relationship.

Figure 11 shows a Parallel Snap operation.

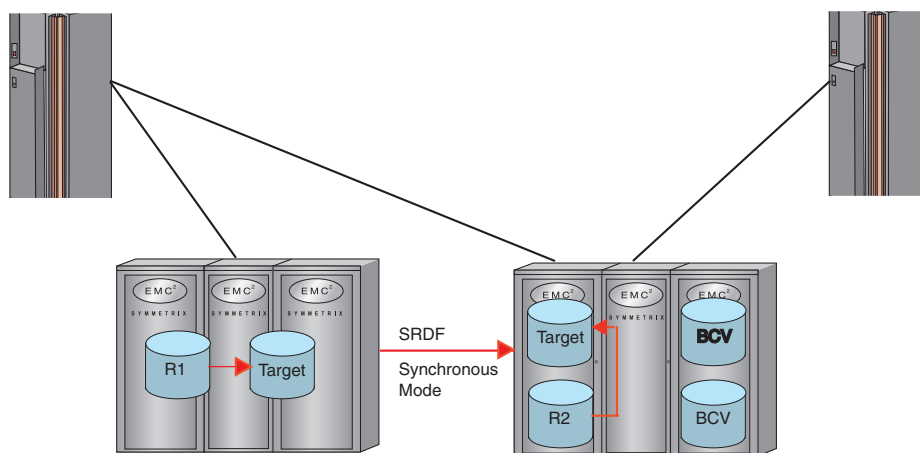


Figure 11 Parallel Snap operation

Parallel Snap software requirements

The minimum levels of EMC software required for Parallel Snap are:

- ◆ TF/Mirror for z/OS, PTF level – ST54009 or higher.
- ◆ TimeFinder, PTF level – SN55008 or higher.

Parallel Snap operations

Parallel Snap allows two independent snap operations in the same or different Symmetrix systems. These operations are driven by two independent SNAP DATASET commands. These commands specify the same source dataset name, but different target dataset names. Serialization can be guaranteed across both commands so as to achieve the same consistent point in time copy on each target dataset.

In a parallel operation, TimeFinder requires a channel to the Symmetrix system on which the R2 is located. Parallel Snap performs the following steps:

1. Obtains dataset information from the R1 device.
2. Allocates the snap target dataset on both the local and remote Symmetrix system.
3. After detecting that there is a synchronously mirrored R2 that is a partner of the source R1, performs the snap of the source datasets from the R2 mirror within the remote Symmetrix system.

In short, the R1 provides the dataset information to drive allocation, and SRDF provides a copy of the data remotely from which to perform the snap. The target dataset is cataloged on the R1 Symmetrix system, and (assuming the catalog volumes are remotely mirrored as they should normally be) the snap target dataset is properly cataloged and accessible if you need to perform an IPL operation on the z/OS system after a disaster occurs.

To achieve independent dataset snaps at the same point in time from both the R1 and R2 of a mirrored pair, you must write SMS ACS routines to direct the allocation of the snap target datasets to the appropriate Symmetrix systems.

These routines also need to ensure that the target volumes selected on the local site are not R1 devices. If an R1 device is selected as the snap target a “redundant” copy of the data is propagated across the link, obviating the benefit of this solution.

Invoking Parallel Snap

Invoking Parallel Snap requires proper TimeFinder syntax if BCV operations are to be performed against the snap source or snap target volumes in the R2 Symmetrix system.

Parallel Snap operation

For both snap targets to represent a consistent point in time image of the source datasets, specify the following parameters:

- ◆ For non-VSAM datasets, set TOLERATEENQFAILURE to NO (the default) and set HOSTCOPYMODE(EXCLUSIVE).

To ensure consistency for the snap target, these settings do not allow read access to occur on the source dataset during snap initiations. You can allow read access with HOSTCOPYMODE(SHARE), but doing so does not guarantee a consistent point-in-time snap.

For VSAM datasets, set HOSTCOPYMODE(SHARED) with VSAMENQMODE(EXCLUSIVE). Also specify TOLERATEENQFAILURE(NO) and TOLERATEVSAMENQFAILURE(NO).

Note: VSAM concurrency is controlled by a combination of VSAMENQMODE and the VSAM SHAREOPTIONS settings for the dataset. Consistent, point-in-time copies of a dataset can only be obtained using EXCLUSIVE.

- ◆ You must also use the new GLOBAL command parameter:

```
GLOBAL ENQSCOPE (STEP)
```

This option is required for the ENQ to be set for the dataset that is to be snapped.

Example

The following example shows parameter usage for Parallel Snap operation:

```

/*****
/*
/*      USER WANTS TO SNAP TO A LOCAL TGT NOT IN THE
/*      SRDF GROUP, AND AT THE SAME TIME SNAP THE
/*      SAME DS THRU THE R2 TO A DIFFERENT TARGET
/*      ON THE REMOTE BOX, ALSO NOT IN THE SRDF GROUP,
/*      ALL OF THIS WHILE AN ESTABLISH/SPLIT
/*      RELATIONSHIP IS IN PROGRESS ON THE
/*      REMOTE BOX USING THE R2 AND A BCV THAT IS
/*      DIFFERENT FROM THE REMOTE SNAP TARGET VOLUME.
/*
/*****
//*****
//*          VOLUMES USED FOR SNAP
//*      STD : 6600          R1 VOL LCL   SNAP SOURCE
//*      STD : D740          R2 VOL RMT   SNAP SOURCE
//*
//*      STD : 6608          LCL SNAP TARGET
//*      STD : D750          RMT SNAP TARGET
//*****
GLOBAL ENQSCOPE (STEP)          -
      HOSTCOPYMODE (EXCLUSIVE)  - ←The next 4 parameters ensure
      VSAMENQMODE (EXCLUSIVE)   - consistency of the snaps.
      TOLERATEENQFAILURE (NO)   -
      TOLERATEVSAMENQFAILURE (NO)
*
* SNAP FROM R1 TO LOCAL TGT
*
SNAP DATASET ( SOURCE (LCLSRC.MV6600.**          ) - ←Same source.
      TARGET (LCLTGT.MV6608.**          ) - ←Different target.
      VOLUME (MV6608          ) -
      REPLACE (Y) -
      REUSE (NO ) -
      )
*
* SNAP FROM R1 THRU R2 TO REMOTE TGT
*
SNAP DATASET ( SOURCE (LCLSRC.MV6600.**          ) - ←Same source.
      TARGET (RMTTGT.MVD750.**          ) - ←Different target.
      VOLUME (MVD750          ) -
      REPLACE (Y) -
      REUSE (NO ) -
      )
*

```

CHAPTER 4

Command Reference

This chapter provides a reference for the TimeFinder commands.

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Conventions

This chapter provides reference sections for the TimeFinder commands. In the following sections:

- ◆ Those commands that apply to both TF/Clone and TF/Snap have headings that consist only of the command name.
- ◆ Those commands that only apply to TF/Clone have headings that consist of the command name and the term: (TF/Clone).

Note: Any command that is noted as (TF/Clone) requires a TF/Clone License before you can use it.

- ◆ The commands that only apply to TF/Snap have headings that consist of the command name and the term: (TF/Snap).

Note: Any command that is noted as (TF/Snap) requires a TF/Snap License before you can use it.

- ◆ The descriptions of parameters that are only available if you install the appropriate licensed feature code have notes that explain which licensed feature code is needed.

Syntax conventions

The commands in this chapter follow these syntax conventions:

- ◆ CAPITALIZATION = must be typed
- ◆ [] = optional entry
- ◆ Italics = argument
- ◆ | = alternative argument values
- ◆ Default values are indicated by an underline. For example, if the parameter has the following option, (YES | NO), the underlined NO indicates the default value.

Customer task guide

The customer task guide table allows you to quickly find the corresponding command for TimeFinder tasks. Follow the page references for a more complete description of each command.

Table 11 Customer Task Guide

Task	Associated Command
Determine when the preceding SNAP VOLUME or SNAP DATASET actions take place. ACTIVATE optionally specifies whether the SNAP actions are to be performed using Enginuity Consistency Assist (ECA) to form consistent point-in-time volume snaps.	“ACTIVATE” on page 129
Check each extent track on the indicated volume to determine whether it is complete, and then remove each completed extent in the extent track.	“CLEANUP [EXTENT TRACK ON]” on page 133
Specifies RELEASE, NR, and READY conditions for BCV and STD devices.	“CONFIG (TF/Clone)” on page 139
Define a group of SNAP VOLUME and GLOBAL statements.	“DEFINE GROUP” on page 145
Create a list of offline devices, and then specify that list (as an argument to the SOURCE_VOLUME_LIST parameter) to the QUERY DATASET and SNAP DATASET commands.	“DEFINE SOURCE_VOLUME_LIST (TF/Clone)” on page 147
Delete an existing group, that was defined with the DEFINE GROUP command.	“DELETE GROUP” on page 148
Completes the definition of a group. You must enter an END GROUP after you finish entering the SNAP VOLUME and GLOBAL statements that define the group.	“END GROUP” on page 149
Specify parameters that apply to all following commands, unless you override them using optional parameters specified for an individual command.	“GLOBAL” on page 150
Get dataset status information.	“QUERY DATASET (TF/Clone)” on page 236
Display both the site options table and any GLOBAL overrides that have been specified in the input stream.	“QUERY GLOBAL” on page 237
Query the contents of one or all groups.	“QUERY GROUP” on page 238
Get information about the status of virtual devices in one or more Symmetrix systems.	“QUERY VDEVICE (TF/Snap)” on page 239
Get information about the status of devices in one or more Symmetrix systems.	“QUERY VOLUME” on page 242
Restore the contents of a virtual device (VDEV) to a Standard (STD or BCV) volume.	“RESTORE VOLUME (TF/Snap)” on page 252
Create a copy of the specified dataset. Source and target devices must be the identical models.	“SNAP DATASET (TF/Clone)” on page 262

Table 11 Customer Task Guide

Task	Associated Command
Duplicate a single volume to another volume. You can snap only between devices of the same device type and model.	“SNAP VOLUME” on page 289
Stop the copy to a specified target dataset.	“STOP SNAP TO DATASET (TF/Clone)” on page 315
Stop the copy to a specified target volume.	“STOP SNAP TO VOLUME” on page 317

ACTIVATE

Purpose

The ACTIVATE command determines when the preceding SNAP VOLUME or SNAP DATASET actions are to take place. ACTIVATE optionally specifies whether the SNAP actions are to be performed using Enginuity Consistency Assist (ECA) to form consistent point-in-time volume snaps.

Note: For a SNAP VOLUME with ACTIVATE and CONSISTENT, both ECA and full device are required (Enginuity 5x68).

For a SNAP VOLUME with ACTIVATE and CONSISTENT to VDEV — ECA, full device, and virtual devices are required (Enginuity 5x69).

For a SNAP DATASET with ACTIVATE and CONSISTENT, ECA and Enginuity level 5875 are required.

For remote full device snap, Enginuity 5x71 is required.

ACTIVATE applies to SNAP VOLUME and SNAP DATASET commands preceding it in the input stream, but after any previous ACTIVATE command.

SNAP VOLUME

The SNAP VOLUME may use:

- ◆ Physical target volumes
- ◆ Virtual devices¹
- ◆ Mixed target references
- ◆ Remote volumes

For example:

```
SNAP VOLUME (SOURCE (VOLUME (VOL001)) VDEVICE (FREE))
SNAP VOLUME (SOURCE (UNIT (AA10)) TARGET (UNIT (BA00)))
ACTIVATE (CONSISTENT (YES))
```

```
SNAP VOLUME (SOURCE (VOLUME (VOL002)) TARGET (UNIT (C100)))
SNAP VOLUME (SOURCE (VOLUME (VOL003)) TARGET (UNIT (C101)))
SNAP VOLUME (SOURCE (VOLUME (VOL004)) TARGET (UNIT (C102)))
SNAP VOLUME (SOURCE (VOLUME (VOL005)) TARGET (UNIT (C103)))
ACTIVATE
```

The first ACTIVATE requests a CONSISTENT snap using ECA of volume VOL001 and the volume at address AA10. The first snap is a Virtual Device Snapshot using the first FREE virtual device with matching device characteristics (that is, 3380; 3390; and the model number, which determines the number of cylinders). The second is a physical snap to the target address BA00.

The second ACTIVATE refers to the snap of volumes VOL002, VOL003, VOL004, and VOL005 to the respective targets.

ACTIVATE allows you to specify when a group of SNAP VOLUMEs occurs and whether to use ECA to form a consistent snap operation.

1. If you have installed the TF/Snap licensed feature code.

The MESSAGE(DISPLAY) parameter provides more control to automate controls to outside applications such as quiescing a DB2 database in coordination with snap commands.

SNAP DATASET

With SNAP DATASET commands, the ECA mechanism is at the volume level and access to other datasets is affected while the ECA window is active. Dependent-write consistency is provided across a group of target datasets.



With SNAP DATASET and CONSISTENT(YES) parameter, only inter-dataset dependent write consistency is provided. Intra-dataset (meta data) consistency is not guaranteed. Users must ensure that meta data changes, such as additional extents, DO NOT occur during consistent dataset snap processing.

Syntax

```
ACTIVATE [(optional parameter[s])]
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a blank space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[ACTIVATE_SUBTASK#(nnn) ]
[CONSISTENT (YES|NO) ]
[GROUP (grpname[, grpname, ...])]
[MESSAGES|MSGs (DISplay|PROmpt|NONE|DETAIL) ]
[POSTSNAP (YES|NO) ]
[PRESNAP (YES|NO) ]
[SRDFA_CONSISTENT_RETRY (Yes|No|nn) ]
[TIMEOUT (nnn|0) ]
```

Parameter descriptions

The following sections describe the ACTIVATE parameters:

ACTIVATE_SUBTASK#(nnn)

This parameter sets the minimum number of controllers being activated to invoke the subtasking feature. The subtasking feature assigns one subtask for each controller to minimize the ECA window when multiple syscalls are required.

When the ECA window is opened, the subtasks are posted to perform the ACTIVATE at the same time. As each subtask completes, it posts to the maintask. Once all subtasks have completed, the maintask closes the ECA window, and the subtasks is terminated.

The number value may be set anywhere from 0 to 255. Zero effectively turns off the feature. When subtasking is used, there is one subtask attached for each controller.

Syntax

```
ACTIVATE_SUBTASK# (nnn)
```

nnn

This parameter sets the minimum number of controllers before the subtasking feature is invoked.

Default value

3

Note: There is an associated site option and global command parameter.

CONSISTENT(YES|NO)

The CONSISTENT parameter determines whether to perform the snap using ECA.

For the duration of the ACTIVATE command, CONSISTENT overrides any value set by the GLOBAL command CONSISTENT parameter or by the &CONSIST site option.

[“CONSISTENT\(YES|NO\)” on page 166](#) and [Table 3 on page 45](#) provide more information.

GROUP(*grpname*[,*grpname*,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices on which you want to perform the operation. The *grpname* values are the names you have previously defined with the DEFINE GROUP command. You can specify up to 127 group names, separated by commas.

Note: [“DEFINE GROUP” on page 145](#) provides more information about the DEFINE GROUP command.

When TimeFinder encounters the GROUP parameter, it retrieves the definition for the group from the group library, along with the statements and parameters.

TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group at this time. The requested operation is then performed on all appropriate devices in all groups named as if they were a single group.

Default value

None

MESsages|MSGs(DISplay|PROmpt|NONE|DETAIL)

The MESSAGES parameter determines how messages are handled.

For the duration of the ACTIVATE command, MESSAGES overrides any value set by the GLOBAL command MESSAGES parameter or by the &MESSAGE site option. [“DELETE GROUP” on page 148](#) and [Table 3 on page 45](#) provide more information.

POSTSNAP(YES|NO)

The POSTSNAP parameter indicates whether SNAP VOLUME post processing should be automatically performed after the ACTIVATE command is executed or as part of the SNAP VOLUME command processing.

[“Postsnap processing” on page 102](#) provides more information about post processing.

Yes	Perform SNAP VOLUME post processing automatically after the ACTIVATE command.
No	Perform SNAP VOLUME post processing as part of SNAP VOLUME processing.

Comment

This parameter may be only used if GROUP is also specified.

Note: PRESNAP and POSTSNAP parameters only apply to regular input (after a //QCINPUT DD * JCL statement) SNAP VOLUME statements that reference a GROUP. The GROUP parameter identifies a set of stored statements that are to be executed, while the PRESNAP and POSTSNAP indicate special processing for the GROUP. This is why these parameters cannot be stored within a group definition.

Refer to [“ACTIVATE_SUBTASK#=” on page 52](#) for a description of the site option that can help to minimize the ECA window when multiple controllers and subsequent syscalls are required.

Default value

None

PRESNAP(YES|NO)

The PRESNAP parameter indicates whether SNAP VOLUME preprocessing should be automatically performed before the ACTIVATE command is executed or performed as part of the SNAP VOLUME command processing.

[“Presnap processing” on page 102](#) provides more information about preprocessing.

Yes	Perform SNAP VOLUME preprocessing automatically before the ACTIVATE command.
No	Perform SNAP VOLUME preprocessing as part of SNAP VOLUME processing.

Comment

This parameter may only be used if GROUP is also specified.

Note: PRESNAP and POSTSNAP parameters only apply to regular input (after a //QCINPUT DD * JCL statement) SNAP VOLUME statements that reference a GROUP. The GROUP parameter identifies a set of stored statements that are to be executed, while the PRESNAP and POSTSNAP indicate special processing for the GROUP. This is why these parameters cannot be stored within a group definition.

Default value

None

SRDFA_CONSISTENT_RETRY(Yes|No|nn)

This parameter controls the retry attempts when SRDF/A is not consistent. The default value is 10. Yes means retry indefinitely. No means do not retry at all.

Comments

- ◆ When the suspend is attempted, it fails if any invalids exist on any R1 device in the group (not just R1 devices related to devices being copied). If it fails and retry is allowed, a wait occurs until the current cycle trips. Then the suspend is attempted again. The number of retries is a real count, not a time value. If multiple SRDF/A groups are involved, all of them switches to a new cycle before the suspend is retried.

- ◆ SRDFA_CONSISTENT_RETRY is only used if ACTIVATE with CONSISTENT(YES) is specified. Otherwise it is ignored.
- ◆ The SRDFA_CONSISTENT_RETRY parameter is also available as a site option, &SRDFA_RETRY. [Table 3 on page 45](#) lists the site options.

Global parameter effects

- ◆ ACTIVATE

Default value

10 (retry attempts)

TIMEOUT(*nnn|o*)

The TIMEOUT parameter sets the time-out value for the ECA operation.

For the duration of this ACTIVATE command, TIMEOUT overrides any value set by the GLOBAL command TIMEOUT parameter or by the &TIMEOUT site option. “[TIMEOUT\(*nnn|o*\)](#)” [on page 221](#) and [Table 3 on page 45](#) provide more information.

CLEANUP [EXTENT TRACK ON]

Purpose

The CLEANUP command checks each extent track on the indicated volume to determine whether it is complete. CLEANUP then removes each completed extent in the extent track. If all individual extents within a session are completed, CLEANUP also frees the session.

CLEANUP can support both local and remote operations with full-volume cleanups. Starting with Engenuity level 5875, CLEANUP now supports cleanups on remote dataset extents.

Syntax

```
CLEANUP [EXTENT TRAcK ON]
VOLUME (volser) | UNIT (device[s]) | SYMDV# (dev_no[s])
[optional parameter[s]]
```

See “[Comments](#)” [on page 137](#) for additional information.

Optional parameters

The optional parameters are as follows. They must be separated from each other by a blank space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[AUTOMatic_CLEANUP_R2 | CLEANUP_R2 (YES | NO)]
[CLEANup_DIFFerential (YES | NO)]
[CONTROLLER ([xxxxxxx-] xxxxx | name)]
[GROUP (grpname [, grpname, ...])]
[FORCE_COMPLETION (YES | NO)]
[LOCAL (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
[CONTROLLER ([xxxxxxx-] xxxxx | name)])]
[REMOTE (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
RAGROUP (nn.nn.nn.nn)
[CONTROLLER ([xxxxxxx-] xxxxx | name)])]
[REMOVE_REMOTE_extent_sessions (YES | NO)]
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Note: The GROUP parameter is an alternative to VOLUME, UNIT, or SYMDV# parameters and cannot be used together in the same CLEANUP command.

Parameter descriptions

The following sections describe the CLEANUP parameters.

VOLUME(*volser*)

VOLUME specifies the volser of the volume on which the command-specified operation is to be performed.

Note: VOLUME(*volser*) allows only a single device.

UNIT(*device[s]*)

UNIT specifies the unit-address(es) of a device(s) on which the command-specified operation is to be performed. The unit value is a CCUU value. You can specify a single unit:

```
UNIT (address)
```

You can also specify a range of units. You can write a unit range in three ways:

- ◆ Specify the lowest addressed unit in the range and the highest addressed unit in the range separated by a dash:

```
UNIT (lowaddress-highaddress)
```

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

```
UNIT# (lowaddress:highaddress)
```

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional units there are between that number and the highest unit in the range. The count value includes the lowest numbered unit in the range and the highest numbered unit in the range. (For example, to specify addresses between 10 and 13, enter 4 as the count.)

The total number of units in the range (that is, the count value) cannot exceed 256.

```
UNIT (address(count))
```

SYMDV#(*dev_no[s]*)

SYMDV# identifies the device number or a range of device numbers in the destination Symmetrix system for the command-specified operation. This is a device in a local Symmetrix system if the LOCAL parameter is used to identify the Symmetrix system. This is a device number in a remote Symmetrix system if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system.

You can specify a single Symmetrix device number:

```
SYMDV# (dev_no)
```

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

```
SYMDV#(lowdev_no-highdev_no)
```

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

```
SYMDV#(lowdev_no:highdev_no)
```

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
SYMDV#(dev_no(count))
```

See [“Comments” on page 137](#) for additional information.

AUTOMATIC_CLEANUP_R2|CLEANUP_R2(YES|NO)

This parameter ensures that when an active R1 device with an R2 device is cleaned, the R2 device is cleaned also. This parameter works when the CLEANUP command specifies devices using UNIT, VOLSER or SYMDV# parameters.

Default value

YES

CLEANUP_DIFFERENTIAL(YES|NO)

The CLEANUP_DIFFERENTIAL parameter is used to make sure that differential sessions is cleaned up.

For the duration of the CLEANUP command, CLEANUP_DIFFERENTIAL overrides any value set by the GLOBAL command CLEANUP_DIFFERENTIAL parameter or by the &CLEANDIFF site option. [“CLEANUP_DIFFERENTIAL\(YES|NO\)” on page 163](#) and [Table 3 on page 45](#) provide more information.

CONTROLLER([xxxxxxx-]xxxxx|name)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (xxxxx) or a 12 digit (xxxxxxx-xxxxx) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Note: “[CONTROLLER parameter](#)” on page 83 provides more information.

Default value

None

FORCE_COMPLETION(YES|NO)

The FORCE_COMPLETION parameter is used to specify that CLEANUP does not complete until all source extents and sessions on the device are completed. You can abbreviate FORCE_COMPLETION as FORCECMP.

For the duration of the CLEANUP command, FORCE_COMPLETION overrides any value set by the GLOBAL command FORCE_COMPLETION parameter or by the &FORCECMP site option. “[FORCE_COMPLETION\(YES|NO\)](#)” on page 185 and [Table 3 on page 45](#) provide more information.

GROUP(*grpname*[,*grpname*,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices on which you want to perform the operation. You can specify up to 127 group names, separated by commas. When TimeFinder encounters the GROUP parameter, TimeFinder retrieves the definition for the group from the group library, along with the statements and parameters.

Note: The GROUP parameter is an alternative to VOLUME, UNIT, or SYMDV# parameters and cannot be used together in the same CLEANUP command.

TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group at this time. The requested operation is then performed on all appropriate devices and all groups named as if they were a single group.

grpname A name you have previously defined with the DEFINE GROUP command.

Note: “[DEFINE GROUP](#)” on page 145 provides more information about the DEFINE GROUP command.

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) [CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)])

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT(*device*) Specifies the unit address of the gatekeeper.

Note: The MVS device number cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

Note: VOLUME(*volser*) allows only a single device.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. If using the LOCAL parameter, then it would be a LOCAL controller. The purpose of specifying the CONTROLLER subparameter inside the LOCAL parameter is to verify the serial number of the Symmetrix where the action is to take place.

You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.
- ◆ Cleanup of extent track contents (dataset level versus cleanup of full device sessions) requires the UNIT (*CCUU*) or VOLUME parameter, and extent track cleanup (dataset level) is not performed when the SYMDV# is used.

Default value

None

**REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*)
[CONTROLLER([*xxxxxxxx-xxxxx*]*name*)])**

The REMOTE parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. As noted earlier, CLEANUP supports only full volume remote sessions. Therefore, the REMOTE parameter only works with full-volume sessions. REMOTE does not work with remote extent sessions.

Values can be:

UNIT (*device*)

Specifies the unit address of the gatekeeper.

Note: The MVS device number cannot be the unit address of a VDEV.

VOLUME (*volser*)

Specifies the volser of the gatekeeper.

DDNAME (*ddname*)

Identifies the DD statement that refers to the gatekeeper.

RAGROUP (<i>nn.nn.nn.nn</i>)	Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.
CONTROLLER	<p>Optional. If using the REMOTE parameter, then it would be a REMOTE controller. The purpose of specifying the CONTROLLER subparameter inside the REMOTE parameter is to verify the serial number of the Symmetrix where the action is to take place.</p> <p>You may specify either a five-digit (<i>xxxxx</i>) or a 12 digit (<i>xxxxxx-xxxxx</i>) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.</p> <p>If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.</p> <p>If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.</p>

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.

Default value

None

REMOVE_REMOTE_extent_sessions(YES|NO)

The REMOVE_REMOTE_extent_sessions parameter allows or prohibits removal of any extent sessions found on a remote device that is being cleaned up.

For the duration of the CLEANUP command, REMOVE_REMOTE_extent_sessions overrides any value set by the GLOBAL command REMOVE_REMOTE_extent_sessions parameter or by REMOVE_REMOTE site option.

[“REMOVE_REMOTE_extent_sessions\(YES|NO\)” on page 208](#) and [Table 3 on page 45](#) provide more information

Example

```
CLEANUP EXTENT TRACK ON VOLUME (USER00)
```

Or, for a remote volume:

```
CLEANUP ( (SYMDV# (032E) REMOTE (VOLUME (UMC001) RAGROUP (21) -  
CONTROLLER (0001879-90171) )
```

Comments

- ◆ The CLEANUP command must be executed against source devices. The following show two different ways of cleaning up a range of devices:

```
CLEANUP EXTENT TRACK ON UNIT (0C00-0C1F)
```

```
CLEANUP EXTENT TRACK ON UNIT (0C20(08))
```

- ◆ Use REMOTE and LOCAL with SYMDV# parameters only with full-volume sessions. Extent sessions only work if you omit the REMOTE and LOCAL parameters. As a result, datasets cannot be snapped remotely and CLEANUP does not affect remote dataset extents or sessions.

CONFIG (TF/Clone)

Purpose

The CONFIG command specifies RELEASE, NR, and READY conditions for BCV devices. CONFIG also performs a RELEASE for STD devices starting with Engenuity level 5x66 and higher.

Note: You can use this command only if you install the TF/Clone licensed feature code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

Syntax

```
CONFIG|CNFG
(
TaRGet
(VOLume(volser)|UNIT(device[s])|SYMDV#(dev_no[s])|GROUP(grpname[,grpname,...]))
[optional parameter[s]]
)
```

Optional parameters

The optional parameters are as follows. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[ALLOW_REPLICATION|ALLOW_FC|ALLOW_COPY(YES|NO)]
[CONTROLLER([xxxxxxx-]xxxxx|name)]
[LOCAL(UNIT(device)|VOLUME(volser)|DDNAME(ddname)
[CONTROLLER([xxxxxxx-]xxxxx|name)])]
[MODE(COPY|NOCOPY|NOCOPYRD)]
[READY(YES|NO)]
[RELEASE(YES|NO)]
[REMOTE(UNIT(device)|VOLUME(volser)|DDNAME(ddname)
RAGROUP(nn.nn.nn.nn)
[CONTROLLER([xxxxxxx-]xxxxx|name)])]
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Parameter descriptions

The following sections describe the CONFIG parameters:

TaRGet(VOLume(*volser*)|UNIT(*device*[*s*])|SYMDV#(*dev_no*[*s*])|GROUP(*grpname*[,*grpname*,...]))

The TARGET parameter specifies the device(s) on which the command-specified operation is to be performed.

Note: You can only use this parameter if you install the TF/Clone licensed feature code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

VOLUME(*volser*)

VOLUME specifies the *volser* of the volume.

Note: VOLUME(*volser*) allows only a single device.

UNIT(*device[s]*)

UNIT specifies the unit-address(es) The unit value is a CCUU value. You can specify a single unit:

UNIT (*address*)

You can also specify a range of units. You can write a unit range in three ways:

- ◆ Specify the lowest addressed unit in the range and the highest addressed unit in the range separated by a dash:

UNIT (*lowaddress-highaddress*)

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

UNIT# (*lowaddress:highaddress*)

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional UCBs there are between that number and the highest UCB in the range. The count value includes the lowest numbered UCB in the range and the highest numbered UCB in the range. (For example, to specify addresses between 10 and 13, enter 4 as the count.)

The total number of units in the range (that is, the count value) cannot exceed 256.

UNIT (*address(count)*)

Note: If you specify a range of UCBs, you cannot use some of the optional parameters, such as NEWVOLID and VOLUME. In the case of SNAP VOLUME, you must specify the same number of UCBs in the SOURCE and TARGET parameters.

SYMDV#(*dev_no[s]*)

SYMDV# identifies the internal device number or a range of device numbers in the destination Symmetrix system. This is a device in a *local* Symmetrix system if the LOCAL parameter is used to identify the Symmetrix system. This is a device number in a *remote* Symmetrix system if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system.

You can specify a single Symmetrix device number:

SYMDV# (*dev_no*)

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

```
SYMDV#(lowdev_no-highdev_no)
```

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

```
SYMDV#(lowdev_no:highdev_no)
```

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
SYMDV#(dev_no(count))
```

GROUP(*grpname*[,*grpname*,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices on which you want to perform the operation. You can specify up to 127 group names, separated by commas. When TimeFinder encounters the GROUP parameter, it retrieves the definition for the group from the group library, along with the statements and parameters.

TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group. The requested operation is then performed on all appropriate devices for all groups named as if they were a single group.

grpname A name you have previously defined with the DEFINE GROUP command.

Default value

None

Examples

```
CONFIG (TARGET (UNIT (6618-661F)) RELEASE (YES) )
```

You can use the GROUP parameter to specify the devices; for example:

```
CONFIG (GROUP (SNP7350) -
  MODE (COPY) -
  READY (YES) -
  RELEASE (YES) -
)
```

ALLOW_REPLICATION|ALLOW_FC|ALLOW_COPY(YES|NO)

This parameter is used to set or reset the FlashCopy inhibit outboard bit for devices. When this bit is set to NO, the device cannot be used in any local or remote replication.

Comments

When the parameter is set to NO, the following message is issued:

```
ESNP982E TARGET DEVICE HAS "INHIBIT OUTBOARD COPY" SET, PREVENTING MICROCODE COPIES
```

Default value

None

Examples

```

CONFIG (GROUP (SNP8510) -
  MODE (COPY) -
  READY (YES) -
  RELEASE (YES) -
  ALLOW_REPLICATION (YES)
)

```

CONTROLLER([xxxxxxxx-xxxxx]name)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (xxxxx) or a 12 digit (xxxxxxxx-xxxxx) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Note: “CONTROLLER parameter” on page 83 provides more information.

Comments

The CONTROLLER parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

LOCAL(UNIT(device)VOLUME(volser)DDNAME(ddname) [CONTROLLER([xxxxxxxx-xxxxx]name)])

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT (device) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (volser) Specifies the volser of the gatekeeper.

DDNAME (ddname) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.
- ◆ The LOCAL parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

MODE(COPY|NOCOPY|NOCOPYRD)

The MODE parameter specifies when the background copy from source to target occurs.

Note: The NOCOPYRD keyword is available only with Engenuity 5772 and higher.

For the duration of the current CONFIG command, MODE overrides any value set by the GLOBAL command MODE parameter. Refer to the description of the MODE parameter on page [196](#) for additional information.

Note: The MODE parameter is ignored cannot affect sessions created with MODE(VSE).

Note: “MODE parameter” on page [84](#) provides additional information.

READY(YES|NO)

The READY parameter specifies whether the BCV is made ready to the host. Values can be:

YES Specifies that the BCV device is made Ready to the host. If a QUERY command is issued immediately after this action, the status of the BCV may show AVAILB for up to 5 seconds.

NO Specifies that the BCV device is made Not Ready to the host. If a QUERY command is issued immediately after this action, the status of the BCV may show AVAILB for up to 5 seconds.

Default value

None

Example

READY (Y)

RELEASE(YES|NO)

The RELEASE parameter specifies whether a Hold is placed on the BCV. Values can be:

YES Specifies that the BCV device, which has been held by a RELEASE(N) command, is made available for TF/Mirror operations. This allows the BCV to be used by the TF/Mirror operation.

NO Specifies that the BCV device is not available for TF/Mirror operations.

Default value

None

Example

RELEASE (Y)

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*) [CONTROLLER([*xxxxxxx-xxxx*]*name*)])

The REMOTE parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n*
n.nn) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.
- ◆ The REMOTE parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

Example

```
REMOTE (VOL (UMC001) RAGROUP (21) CONTROLLER (90171))
```

General Pool Management commands (TF/Snap)

EMC ResourcePak Base provides a set of General Pool Management (GPM) commands that can be executed online, or in batch mode, to configure and manage a predefined set of devices that provide a pool of physical space.

For TimeFinder use, the devices for SNAPPOLs come from a special pool called the DEFAULT_POOL. The DEFAULT_POOL contains snap pool devices that have not been assigned to any named pool, but are available for use.

Multiple SNAPPOLs can be created to isolate workloads. This alleviates contention for device space among several users and lessens the possibility of a single pool consuming all the available space.

The *EMC ResourcePak Base for z/OS Product Guide* describes the GPM commands and provides a complete description of creating pools and managing the pooling process.

Note: Prior to ResourcePak Base version 7.4, pool management consisted only of a batch utility and a set of CONFIGPOOL commands. While these command have been replaced by the GPM commands, ResourcePak Base version 7.4 and higher will continue to recognize and support these previous commands and keywords. However, EMC recommends that you eventually replace these commands with the new GPM commands to take advantage of their flexibility and recognized support.

DEFINE GROUP

Purpose

Allows you to define a group of SNAP VOLUME and GLOBAL statements which are then stored into a PDS or PDS/E file.

Syntax

```
DEFINE GROUP grpname [(optional parameters)]
```

Optional parameters

The optional parameters are as follows.

```
[REPLACE ( YES | NO ) ]
[FORCE (YES | NO ) ]
[DESCRIPTION ('descriptive text') ]
```

Parameter descriptions

The following sections describe the DEFINE GROUP parameters. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

grpname

The name of the group. The name can contain as many as eight characters, with no embedded spaces. The characters you use must be valid for a PDS member name.

Note: You cannot reference a group that was deleted in this job step.

REPLACE (YES|NO)

The REPLACE parameter indicates whether an existing group may be replaced with a new group definition.

For the duration of the current DEFINE GROUP command, the value of REPLACE overrides any value set by the GLOBAL command REPLACE parameter or by the &REPLACE site option. [“REPLace\(YES|NO\)” on page 209](#) and [Table 3 on page 45](#) provide more information.

FORCE (YES|NO)

If an existing group has a status of PRESNAP or ACTIVATE, then FORCE(YES) is required to replace the group definition. This is intended to prevent a group from being redefined while in use, possibly impacting the relationship or status of existing devices in the group.

If the existing group has a status of INITIAL, POSTSNAP or FAILED, then the FORCE parameter is not required.

For the duration of the current DEFINE GROUP command, the value of FORCE overrides any value set by the GLOBAL command FORCE parameter or by the &FORCE site option. [“FORCE\(YES|NO\)” on page 184](#) and [Table 3 on page 45](#) provide more information.

DESCRIPTION ('*descriptive text*')

A text string, of up to 64 characters, that describes the group. The description is stored in the group member and listed each time you query the group.

Default value

None

DEFINE SOURCE_VOLUME_LIST (TF/Clone)

Purpose

You can use DEFINE SOURCE_VOLUME_LIST to create a list of offline devices. When you use the DEFINE SOURCE_VOLUME_LIST, you assign a name (of up to 16 characters) to the list. Then, you specify the devices you want to include in the list.

After you create the list, you can specify that list (as an argument to the SOURCE_VOLUME_LIST parameter) to the QUERY DATASET and SNAP DATASET commands.

You must use DEFINE SOURCE_VOLUME_LIST to define a source volume list before you use it with QUERY DATASET and SNAP DATASET. The source volume list you specify is not stored. Therefore, you must supply it (through a new DEFINE SOURCE_VOLUME_LIST) every time you use it in QUERY DATASET and SNAP DATASET.

Syntax

```
DEFINE SOURCE_VOLUME_LIST sourcevollist
(
UNIT(addr[s]) | VOLUME(volser)
)
```

Parameter descriptions

The following sections describe the parameters of the DEFINE SOURCE_VOLUME_LIST command.

sourcevollist

The list name. The name can be a text string of up through 16 characters.

UNIT(*addr[s]*)

The UNIT parameter specifies the unit-address(s) to be examined. The unit value is a CCUU value. You can specify a single unit:

```
UNIT(device)
```

You can also specify a range of units. You can write a UCB range in three ways:

- ◆ Specify the lowest addressed UCB in the range and the highest addressed UCB in the range separated by a dash:

```
UNIT(low address-high address)
```

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

```
UNIT(low address:high address)
```

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional UCBs there are between that number and the highest UCB in the range. The count value includes the lowest numbered UCB and the highest numbered UCB.¹ The total number of UCBs in the range (that is, the count value) cannot exceed 256.

1. For example, if you want to specify addresses between 10 and 13, you would enter 4 as the count.

```
UNIT (address (count) )
```

VOLUME(*volser*)

The VOLUME parameter specifies a volume label or a mask for matching volume labels.

Example

The following example defines a source volume list (BAPVOLS) with offline volumes, then uses that list to snap the volumes.

```
*
*  DEFINE
*
DEFINE SOURCE_VOLUME_LIST BAPVOLS ( -
    UNIT (6EF0) -
    UNIT (6EF6-6EF7) -
    VOL (U6A230) -
    VOL (U6A23*) -
)
*
*  SNAP
*
SNAP DATASET (SOURCE (BAP.TESTING.TWOVOL) -
    TARGET (BAP.TESTING.NEWTWO) -
    HOSTCOPYMODE (NONE) -
    SOURCE_VOLUME_LIST (BAPVOLS) -
    REPLACE (Y) -
    REUSE (N) -
    VOL (U6A231, U6A230) -
)
```

DELETE GROUP

Purpose

Allows you to delete an existing group (that was defined with DEFINE GROUP). The deletion removes the definition from the PDS in which it is stored.

Note that you cannot edit a previously defined group to change its contents. Instead, you must:

1. Delete the group.
2. Redefine the group with DEFINE/REPLACE and a new set of SNAP VOLUME or GLOBAL commands.

Syntax

```
DELETE GRoup grpname
[ (
FORCE (YES|NO)
) ]
```

Parameter descriptions

The following sections describe the DELETE GROUP parameters. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

grpname

The name of the group. The name can contain as many as eight characters, with no embedded spaces. The characters you use must be valid for a PDS member name.

Note: You cannot reference a group that was defined or already deleted in this jobstep.

FORCE (YES|NO)

If an existing group has a status of PRESNAP or ACTIVATE, then FORCE(YES) is required to replace the group definition. This is intended to prevent a group from being redefined while in use. A redefinition of a group in use could impact the relationship or status of existing devices in the group. If a group has the status of INITIAL, POSTSNAP, or FAILED, then you would not have to use FORCE.

For the duration of the current DELETE GROUP command, the value of FORCE overrides any value set by the GLOBAL command FORCE parameter or by the &FORCE site option. [“FORCE\(YES|NO\)” on page 184](#) and [Table 3 on page 45](#) provide more information.

END GROUP

Purpose

The END GROUP command completes the definition of a group. You must enter an END GROUP after you finish entering the SNAP VOLUME and GLOBAL statements that define the group. You may follow END GROUP with other commands, including commands that refer to the group or commands that define other groups.

Syntax

```
END GROUP
```

Parameters

None

GLOBAL

Purpose

Parameters specified on the GLOBAL command apply to all commands following it, unless you specifically override them through optional parameters specified with commands.

For example, if you specify REPLACE(YES) on the GLOBAL command, all commands following automatically have REPLACE(YES) as a default value.

All parameters to the GLOBAL command are optional.

Syntax

```
GLOBAL [optional parameters]
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

IMPORTANT

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EXTENT_ALLOCaTion (YES[, CONSOLIDATE_VOLume , CONSOLIDATE_ALL] <u>NO</u>)	181
EXTALLOC_EMCC_ONLY (YES <u>NO</u>)	182

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Parameter and range of valid values	Page link
EXTENT_EXPAND (YES NO, [ADDNEW (YES NO)] [, SAMEVOL] [, NEWVOL])]	183
FBA (EXCLUDE INCLUDE)	183
FLASH_SNAP (FLASHCOPY SNAP)	184
FORCE (YES NO)	184
FORCE_COMPLETION (YES NO)	185
FREESPACE (YES NO)	185
GROUP_DATASET_name GROUP_DSName (' dataset name')	186
GROUP_DEVICE_ready_state (AUTO NEVER)	186
GROUP_EMCCAPI_VERIFY (YES NO)	187
HOSTCOPYMODE (EXCLUSIVE SHARED NONE)	187
INVALIDATE_PDSE_buffers (YES NO)	188
LIST ([[NO] STATEMENTS] [[NO] HISTORY])	189
LOCAL (UNIT (device) VOLUME (volser) DDNAME (ddname) [CONTROLLER ([xxxxxxx-] xxxxx name)]	189
LOGINDYMAN (volume[, volume...])	190
MANAGEMENTCLASS (classname)	191
MAXIMUM_ADRDSSU_address_spaces MAXDSSU (number)	191
MAXIMUM_SUBTASKS MAXTASKS (number1, number2)	192
MAXRC (return code value)	192
MEMBERSTATE (ENABLE DISABLE)	193
MESSAGE MSGs (DISPLAY PROMPT NONE DETAIL)	194
MIGRATE ([PURGE (YES NO)] [RECALL (YES NO)])	194
MODECOPYFINISH	195
MODE (COPY NOCOPY NOCOPYRD)	196
MULTI_VIRTUAL (YES NO)	299
MULTI_LINE_query (YES NO)	197
NOTIFYwhencomplete [([GROUP (name)] [DATASET JOB STEP SNAP])]	198
NOTREADY (EXCLUDE INCLUDE)	199
PARALLEL (YES NO)	200
PARALLEL_CLONE (YES NO PREFERRED REQUIRED)	200
PERSISTENT (YES NO)	201
POOL (name)	202

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Parameter and range of valid values	Page link
PRECOPY (<u>YES</u> NO)	202
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R1FULLCOPYonly (<u>YES</u> NO)	204
RAID (<u>ALL</u> NONE RAIDS RAID1 RAID5 RAID6 RAID10)	205
READY (EXCLUDE <u>INCLUDE</u>)	205
RECALCULATE_FREESPACE (YES <u>NO</u>)	206
RENAMEUnconditional (<i>px</i>) RENAMEUnconditional (<i>px</i>) (<i>oldnamemask, newnamemask</i>) ... RENAMEUnconditional ((<i>oldnamemask, newnamemask</i>) ...)	206
REFVTOC (YES <u>NO</u>)	207
REMOVE_REMOTE_extent_sessions (YES <u>NO</u>)	208
REPLace (YES <u>NO</u>)	209
RESERVE (<u>YES</u> NO)	210
REUSE (YES <u>NO</u>)	210
REUSE_AUTO_expand (<u>YES</u> NO)	211
SAVEDEV (EXCLUDE <u>INCLUDE</u>)	212
SELECTMULTI (ALL ANY FIRST)	212
SESSION_LIST (Yes <u>No</u> [, DETail , NODETail , DIFFerential])	212
SIZE (<u>ALL</u> MOD1 MOD2 MOD3 MOD9 MOD27 MOD54 # <i>low-high</i>)	213
SMS_PASS_volumes (YES <u>NO</u>)	214
SNAP_UNUSED_SPACE (<u>YES</u> NO)	214
SRDFA_CONSISTENT_RETRY (YES NO <i>nn</i>) Default value = 10	215
SRDFA_R1_target (Yes <u>No</u> DATAMOVERName PHYSical INFormational)	215
SRDF_R2_sync (<u>WARNING</u> R1R2SYNC DATAMOVE)	217
SRDFS_R1_target (<u>Yes</u> No DATAMOVERNAME PHYSICAL INFORMATIONAL)	217
STORAGECLASS (<i>classname</i>)	219
STORED_LOG_SIZE (<i>size</i>)	219
TDEV (EXCLude <u>INCLude</u>)	220
TDEV_RECLAIM (<u>YES</u> NO)	220
TERMINATE_SESSION_when_complete (<u>YES</u> NO)	220
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Parameter and range of valid values	Page link
TIMEOUT (<i>nnn 0</i>)	221
TOLERATE_REUSE_FAILURE (YES <u>NO</u>)	222
TOLerateALLOcationFailure (YES <u>NO</u>)	222
TOLERATE_COPY_FAILURE (YES <u>NO</u>)	223
TOLERATE_DATACLASS_COMPACTIOn_MISMATCH (YES <u>NO</u>)	224
TOLERATE_DATACLASS_EXTENDED_MISMATCH (YES <u>NO</u>)	224
TOLERATEENQFAILURE (YES <u>NO</u>)	224
TOLERATETRUNCATIOn (YES <u>NO</u>)	225
TYPRUN (NORUN <u>RUN</u> SCAN)	226
VALIDATE_RANGE (LOCAL (<u>AUTO</u> IGNORE)) VALIDATE_RANGE (REMOTE (<u>AUTO</u> IGNORE))	227
VARY_OFFline (<u>AUTO</u> NEVER)	228
VARY_ONline (<u>AUTO</u> YES NO)	228
VCLOSE (YES <u>NO</u>)	229
VDEVWAIT (YES <u>NO</u>)	230
VERIFY (<u>YES</u> NO)	231
VERIFY_OPEN_SOURCE (YES <u>NO</u>)	231
VSaMENQMODE (SHARED SHR EXClusive <u>NONE</u>)	232
WAITFORCOMPLETION ([YES <u>NO</u> <i>hh:mm:ss</i>] [,MeSsaGes] [,R1R2SYNC] [,TIMEOUT (<u>IN</u> Formational WARning ERRor)])	233
WAIT_FOR_PRECOPY_PASS1 (YES <u>NO</u>)	234
WAITforsession (YES <u>NO</u> <i>hh:mm:ss</i>)	234
WHEN_SAVEDEV_FULL (<u>READY</u> NOTREADY)	235

Parameters

The following sections describe the GLOBAL parameters:

ACTIVATE_SUBTASK#(*nnn*)

This global parameter sets the minimum number of controllers being activated to invoke the subtasking feature. The subtasking feature assigns one subtask for each controller to minimize the ECA window when multiple syscalls are required.

When the ECA window is opened, all the subtasks are posted to perform the ACTIVATE at the same time. As each subtask completes, it posts to the maintask. Once all subtasks have completed, the maintask closes the ECA window, and the subtasks is terminated.

The number value may be set anywhere from 0 to 255. Zero effectively turns off the feature. When subtasking is used, there is one subtask attached for each controller.

Syntax

ACTIVATE_SUBTASK# (*nnn*|3)

nnn

This global parameter sets the minimum number of controllers before the subtasking feature is invoked. The default value is 3.

Comments

The ACTIVATE_SUBTASK# parameter has a matching site option. [Table 3 on page 45](#) lists the site options.

ADMINISTRATOR(YES|NO)

When you use DFDSS (ADRDSSU) as a datamover, it queries RACF for each dataset being copied. The ADMINISTRATOR parameter determines whether DFDSS avoids RACF calls. This action can make the DFDSS processing faster.

Note: DFDSS requires that you have certain RACF privileges for ADMINISTRATOR to be accepted.

If you specify ADMINISTRATOR(YES), DFDSS_ADMIN(YES) is implied.

The ADMINISTRATOR parameter with a NO value instructs TimeFinder not to use the ADMINISTRATOR parameter.

Note: The IBM publication, *Implementing ESS Copy Services with IBM eServer zSeries* (SG24-5680) provides more information.

Possible values are:

YES	Specifies passing the ADMINISTRATOR parameter to DFDSS.
NO	Specifies not passing the ADMINISTRATOR parameter.

Comments

The ADMINISTRATOR parameter has a matching site option, &ADMIN. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ DFDSS (ADRDSSU)
- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

No

ALLOCATE_UNUSED_SPACE(YES|NO)

The ALLOCATE_UNUSED_SPACE parameter determines whether the target dataset is allocated using the total space, both used and unused, of the source dataset or just the used space. This parameter only applies to sequential and standard partitioned datasets.

Possible values are:

<u>YES</u>	Specifies allocating the target dataset large enough to contain both the used and unused space of the source dataset.
NO	Specifies allocating the target dataset only large enough to contain the used space of the source dataset.

Comments

The ALLOCATE_UNUSED_SPACE parameter has a matching site option, &ALUNUSED. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

ALLOCATION_SEQUENCE|ALLOSEQ(DATASET|NONE|SIZE)

The ALLOCATION_SEQUENCE parameter specifies the processing order of datasets (VSAM clusters and non-VSAM files) in a wild-carded request. Possible values are:

<u>DATASET</u>	Specifies processing VSAM clusters and non-VSAM files in ascending name sequence.
NONE	Specifies processing VSAM clusters and non-VSAM files in the order they are selected for processing. This may appear random.
SIZE	Specifies processing VSAM clusters and non-VSAM files in descending size sequence. The largest datasets are processed first and the smallest are processed last.

Comments

The ALLOCATION_SEQUENCE parameter has a matching site option, &ALLOSEQ. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

DATASET

AUTOMATIC_ACTivate(YES|NO)

The AUTOMATIC_ACTIVATE parameter allows or disallows automatic performance of an ACTIVATE when there are two or more SNAP VOLUME requests in the input stream and no ACTIVATE has been supplied by the user.

Note: The `AUTOMATIC_ACTIVATE` (YES|NO) parameter cannot be used for group processing.

Possible values are:

<u>YES</u>	Multiple SNAP VOLUME requests are processed when there are two or more SNAP VOLUME commands in the input stream and no ACTIVATE was supplied.
NO	Multiple SNAP VOLUME requests are not processed when there are two or more SNAP VOLUME commands in the input stream without the presence of an ACTIVATE command.

Comments

- ◆ The `AUTOMATIC_ACTIVATE` parameter has a matching site option, `&AUTOACTIVATE`. [Table 3 on page 45](#) provides more information about the matching site option.
- ◆ TimeFinder ignores `AUTOMATIC_ACTIVATE` for any SNAP VOLUME requests that specify a group name.
- ◆ TimeFinder ignores `AUTOMATIC_ACTIVATE` for any SNAP VOLUME requests that specify a virtual device (VDEV).
- ◆ The activate provided by `AUTOMATIC_ACTIVATE` is not consistent. For the activate to be consistent, you must either:
 - Specify the consistent ACTIVATE command with the `CONSISTENT` parameter.
 - Specify the GLOBAL command with the `CONSISTENT` parameter.

Note: [“ACTIVATE” on page 129](#) provides more information about the ACTIVATE command. (Refer especially to [“CONSISTENT\(YES|NO\)” on page 131.](#))

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

`AUTOMATIC_CLEANUP`(YES|NO)

The `AUTOMATIC_CLEANUP` parameter allows or disallows an automatic cleanup to be run as part of the `RESTORE VOLUME` command prior to the restore occurring. This cleans up the device and prevents some related errors from occurring. Possible values are:

<u>YES</u>	CLEANUP is automatically run against the device.
NO	CLEANUP is not automatically run against the device.

Comments

The `AUTOMATIC_CLEANUP` parameter has a matching site option, `&AUTOCLN`. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ RESTORE VOLUME

Default value

YES

AUTOMATIC_CLEANUP_R2|CLEANUP_R2(YES|NO)

This parameter ensures that when an active R1 device with an R2 device is cleaned, the R2 device is cleaned also. This parameter works when the CLEANUP command specifies devices using UNIT, VOLSER or SYMDV# parameters.

Comments

The AUTOMATIC_CLEANUP_R2 parameter has a matching site option, &CLEAN_R2. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ CLEANUP

Default value

YES

AUTOMATIC_DEALLOC|AUTO_DEALLOC(YES|NO)

The AUTOMATIC_DEALLOC parameter allows or disallows automatic issuance of an S DEALLOC command to z/OS when a device VARY ONLINE or VARY OFFLINE appears to be hung. z/OS sometimes requires a job to go through allocation to handle these situations.

Possible values are:

<u>YES</u>	Allow TimeFinder to automatically issue an S DEALLOC.
NO	Prevent TimeFinder from automatically issuing an S DEALLOC.

Comments

- ◆ The AUTOMATIC_DEALLOC parameter has a matching site option, &AUTODEAL. [Table 3 on page 45](#) lists the site options.
- ◆ The AUTOMATIC_DEALLOC parameter only applies to locally addressable volumes. AUTOMATIC_DEALLOC is ignored if you specify it on actions with the SYMDV#, LOCAL or REMOTE parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

YES

Example

AUTO_DEAL (NO)

AUTOMATIC_RELEASE_hold|AUTOMATIC_RELEASE(YES|NO)

The AUTOMATIC_RELEASE_HOLD parameter allows the Hold to be automatically released when the background snap of a volume is complete. (This only applies to SNAP VOLUME.) This feature is provided through the SNAP NOTIFY feature in EMCSCF.

If requested, then the SNAP NOTIFY subtask in EMSCSF monitors the volume progress and issues the CONFIG RELEASE command to the volume when the snap is complete.

Possible values are:

- YES Allow Hold to be automatically released.
- NO Disallow Hold from being automatically released.

Comments

- ◆ The AUTOMATIC_RELEASE_HOLD parameter has a matching site option, &AUTORLSE. [Table 3 on page 45](#) lists the site options.
- ◆ The AUTOMATIC_RELEASE_HOLD parameter only applies to locally addressable volumes. AUTOMATIC_RELEASE_HOLD is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

NO

Example

```
AUTOMATIC_RELEASE (YES)
```

BACKGROUNDCOPY(YES|NO|NOCOPYRD|VSE)

The BACKGROUNDCOPY parameter specifies the background copy mode. Values can be:

- YES Enables background copy.
- NO Establishes a snap relationship where tracks are copied from the source to the target either when tracks are updated on the source or target or read on the target. Additional updates to the same source track are not copied.
- NOCOPYRD Specifies that the background copy occurs only when a track is changed either on the source or target. This causes the original source track to be copied to the target. Additional updates to the same source track are not copied to the target. A read of the source or target track does not cause the track to be copied.
- VSE This option allows you to run a background copy function when in VSE copy mode. This option is the same as COPYMODE(VSE).

Comments

- ◆ You can specify The NOCOPYRD keyword as:
 - NOBACKGROUNDCOPYONREAD
 - NOBGCOPYONREAD
 - NOCOPYONREAD
 - NOCOPYREAD
 - NOCOPYRD
- ◆ The NOCOPYRD keyword is only supported on Engenuity 5772 and higher.

- ◆ The BACKGROUNDCOPY and MODE parameters serve the same purpose and cannot be specified at the same time. They are mutually exclusive. “MODE parameter” on page 84 provides additional information
- ◆ The BACKGROUNDCOPY parameter has a matching site option, &BACKGRND. Table 3 on page 45 lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

YES

“MODE parameter” on page 84 provides additional information.

BCVOnly(YES|NO)

The BCVONLY parameter restricts allocation of new target devices to BCV devices. This is not an issue with Engenuity 5265, because BCVs are the only valid target device. But Engenuity 5x66 and higher allow both STD and BCV devices to be a target device. For backwards compatibility, BCVONLY limits new allocations to BCV devices.

Note: This optional parameter is only valid when you do not specify the TARGET parameter using the SYMDV#, UNIT or the VOLUME parameter.

Possible values are:

YES	Only BCV devices are to be considered for new target devices or datasets.
NO	Either STD or BCV devices are to be considered for new target devices or datasets.

Comments

- ◆ The BCVONLY parameter has a matching site option, &BCVONLY. Table 3 on page 45 lists the site options.
- ◆ The BCVONLY parameter applies only to Symmetrix control units running Engenuity 5x66 and higher.
- ◆ Exceptions to BCVONLY(YES) specification:
 - If you specify a STD device in a BCVGROUP, TimeFinder honors BCVONLY(YES) and ignores STD devices.
 - If you specify a specific target using the UNIT, SYMDV#, or VOLUME parameter on the command, then TimeFinder ignores the BCVONLY(YES) request.
 - If a target dataset is being reused, then TimeFinder ignores the volume type.
 - If volume preferencing is used to influence SMS volume selection, then TimeFinder honors BCVONLY(YES) and relegates STD devices to the secondary list.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

BUILD_VTOCIX(YES|NO)

The BUILD_VTOCIX parameter is employed when extent allocation is used and the device in question does not have a VTOC INDEX present on the device. If you specify BUILD_VTOCIX(YES), then extent allocation attempts to create a VTOC INDEX on the device.

If extent allocation is successful, the allocation proceeds normally.

Possible values are:

YES	Attempt to create a VTOC INDEX on a device that does not have one.
NO	Do not attempt to create a VTOC INDEX on a device that does not have one.

Comments

The BUILD_VTOCIX parameter has a matching site option, &CATALOG. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

CATalog(YES|NO)

The CATALOG parameter determines whether the new target dataset created by the SNAP DATASET command is to be cataloged. TF/Clone supports Integrated Catalog Facility (ICF) catalog entries.

Possible values are:

<u>YES</u>	Specifies that the allocated target dataset is to be cataloged.
NO	Specifies that the allocated target dataset is not to be cataloged.

Comments

- ◆ The CATALOG parameter has a matching site option, &CATALOG. [Table 3 on page 45](#) lists the site options.
- ◆ The CATALOG parameter only applies to new non-VSAM datasets. Existing datasets is not cataloged. VSAM datasets are always be cataloged. Datasets managed by SMS are always be cataloged, because SMS allows only the creation of cataloged datasets on SMS-managed volumes.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

CHECKBCVholdstatus(YES|NO)

The CHECKBCVHOLDSTATUS parameter determines whether the snap operation honors the Hold status of a BCV. Hold indicates that the BCV was either a source or target of a previous snap operation. Possible values are:

- | | |
|------------|--|
| <u>YES</u> | Specifies that the snap operation honors the Hold status of a BCV. |
| NO | Specifies that the snap operation does not honor the Hold status of a BCV. |

Comments

The CHECKBCVHOLDSTATUS parameter has a matching site option, &CHECKBCV. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

YES

CHECKONLINEpathstatus(YES|NO|NEVER)

The CheckOnlinepathstatus parameter checks to see if paths from other CPUs to the target device are offline or online before performing a VOLUME SNAP.

Possible values are:

- | | |
|------------|---|
| <u>YES</u> | Specifies that if there are paths to the target device that are online to other CPUs, issue an error message and do not snap to the target volume. |
| NO | Specifies that if there are paths to the target device that are online to other CPUs, issue a warning message and proceed with the snap to the target volume. |
| NEVER | Specifies that no check or report is issued to indicate that the device is online to other systems. |

Comments

The CheckOnlinepathstatus parameter has a matching site option, &CHKONLIN. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

YES

CHecK_POOL_usable(YES|NO)

If CHECK_POOL_USABLE(YES) is specified, then the pool name and pool usability is checked during the parse phase to ensure that the pool is a valid name. Pool usability is defined by at least one enabled device, with one or more free tracks, with the same geometry as the virtual device (3380, 3390, fba512, fba520)

If CHECK_POOL_USABLE(NO) is specified, then the pool name and pool usability is not checked until the VDEV (or thin device if AUTO_BIND_UNBIND(YES) is specified) is actually being created in the Symmetrix device.

Comments

- ◆ The CHECK_POOL parameter has a matching site option, &POOLUSE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

NO

CKD(EXCLUDE|INCLUDE)

The CKD parameter includes or excludes CKD devices from a QUERY VOLUME device list. Possible values are:

EXCLUDE Exclude CKD devices from QUERY VOLUME device list.

INCLUDE Include CKD devices on QUERY VOLUME device list.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INCLUDE

CLEANUP_DIFFerential(YES|NO)

The CLEANUP_DIFFERENTIAL parameter is used to make sure that differential sessions are cleaned up. When run without CLEANUP_DIFFERENTIAL, a CLEANUP command ignores differential sessions.

Note: [“CLEANUP \[EXTENT TRACK ON\]” on page 133](#) provides more information about the CLEANUP command.

If you specify CLEANUP_DIFFERENTIAL(YES), then CLEANUP also examines and removes differential sessions, if all tracks have been copied.

YES CLEANUP should examine and remove differential sessions.

NO CLEANUP should ignore differential sessions.

Comments

The CLEANUP_DIFFERENTIAL parameter has a matching site option, &CLEANDIFF. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ CLEANUP [EXTENT TRACK ON]

Default value

NO

COLLAPSE_dataset_extents(VSAM|NONVSAM|VSAM, NONVSAM)

If EXTENT_ALLOCATION is not requested, TimeFinder uses a simple two-pass approach to allocation. The first pass attempts to allocate the dataset as one large single extent. Often this fails because z/OS is not able to find such free space on the available volume list. If the first pass fails, then a second attempt is made by:

1. Allocating a single small extent (approximately equal in size to the first extent of the source dataset).
2. Expanding the dataset until it is as large as the source dataset.

This parameter indicates whether the first pass should be attempted. Possible values are:

VSAM	Both passes are used for VSAM datasets.
NONVSAM	Both passes are used for non-VSAM datasets.
<u>VSAM, NONVSAM</u>	Both passes are used for all dataset types.

Comments

The COLLAPSE_DATASET_EXTENTS parameter has a matching site option, &COLLAPSE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

VSAM, NONVSAM

CONDitionVOLume(ALL|LaBeL|DUMP)

The CONDITIONVOLUME parameter is used with COPYVOLID(NO) to condition the new target volume so that the target volume can remain online with its original volser, or with the *newvolid*, if specified.

Possible values are:

<u>ALL</u>	Specifies that the label, VTOC, VTOCIX and VVDS of the target volume are to be conditioned so that the volume can remain online with its original volser. Datasets on this volume may be cataloged or re-cataloged with no problem.
LaBeL	Only the label of the target volume is to be retained and no changes are made to the copied VTOC, VTOCIX and VVDS. The VTOC, VTOCIX and VVDS are the same as the original source volume. This is equivalent to an ICKDSF REFORMAT command with the VOLID parameter.
DUMP	Specifies that the label of the target volume is updated so that it retains the original and the copied volser. No changes are made to the copied VTOC, VTOCIX, and the VVDS. This is equivalent to an ADRDSSU COPY VOLUME command with the DUMPCONDITIONING parameter.

Comments

- ◆ The CONDITIONVOLUME parameter has a matching site option, &CONDVOL. [Table 3 on page 45](#) lists the site options.
- ◆ The CONDITIONVOLUME parameter only applies to locally addressable volumes. CONDITIONVOLUME is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.
- ◆ When you specify COPYV(N) and CONDVOL(ALL), the following additional changes are made after successful completion of the SNAP VOLUME command:
 - If a VTOC index and VVDS are present and active on the target volume, TF/Snap updates any records for the VTOC index and VVDS files to reflect the new names of these files. VTOC index names have the form SYS1.VTOCIX.*volser* and VVDS names have the form SYS1.VVDS.*Vnnnnn*. The volser portion of these names is the same as the volser of the target volume.
 - If the volser begins with a numeric character, the default name for the VTOC index is SYS1.VTOCIX.*Vnnnnn*, where *nnnnn* is the final five characters of the target volume volser.
 - TF/Snap updates the VTOC records for the VTOC index and VVDS, if present, to reflect the new names for these files with the same naming conventions as for the VTOC index updates.
 - If a RESTORE VOLUME command with COPYVOLID(YES) parameter occurs in a JES3 environment, the target volume must be manually varied offline to JES3 after the RESTORE VOLUME completes. During the RESTORE VOLUME operation with COPYVOLID(NO), the target volume is normally varied offline during the operation and varied online after the RESTORE VOLUME completes. You can link edit a user exit into TF/Snap to be invoked prior to the VARY ONLINE and VARY OFFLINE commands being issued. This exit is available for automating JES3 operations.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

ALL

CONSISTENT(YES|NO)

The CONSISTENT parameter determines whether you use Enginuity Consistency Assist (ECA) for consistent SNAP VOLUME operations. Possible values are:

YES	Use ECA for consistent SNAP VOLUME operations.
<u>NO</u>	Do not use ECA for consistent SNAP VOLUME operations.

Comments

- ◆ The CONSISTENT parameter has a matching site option, &CONSIST. [Table 3 on page 45](#) lists the site options.
- ◆ You cannot use the CONSISTENT parameter unless you have installed the TF/Consistency Group Licensed Feature Code.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

Note: Consistent snaps require Enginuity 5x68 and higher. Consistent snaps including remote volumes require Enginuity 5x71 and higher.

COPYsourceSMSClasses([DATACLASs] [ManaGeMenTCLASs] [STORAgeCLASs] [ALL])

The COPYsourceSMSClasses parameter determines whether SMS class values are to be used from the existing source dataset. You may supply SMS class information on the action statement, or copy it from the source dataset.

Possible values are:

DATACLASs	Use dataclass.
ManaGeMenTCLASs	Use management class.
STORAgeCLASs	Use storage class.
ALL	Use all classes.

Comments

- ◆ The COPYsourceSMSClasses parameter with the ManaGeMenTCLASs option has a matching site option, &CSMSMGMT.
- ◆ The COPYsourceSMSClasses parameter with the DATACLASs option has a matching site option, &CSMSDATA.
- ◆ The COPYsourceSMSClasses parameter with the STORAgeCLASs option has a matching site option, &CSMSSTOR. [Table 3 on page 45](#) lists the site options.
- ◆ The COPYsourceSMSClasses parameter is honored only while creating new datasets. If you reuse a dataset, the existing DATA, MANAGEMENT, and STORAGE class values are not affected. Any class value coded on the GLOBAL or SNAP DATASET statement overrides the ability to copy the class value from the source dataset (that is, DATACLASs parameter takes precedence over the COPYSMS(DATACLASs) parameter).

The COPYSMS parameter is not valid when using TF/Clone with alternate index datasets. This is because SMS does not record the class information when an alternate index dataset is created.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

None

Example

```
COPYSMS (DATACLAS STORCLAS)
```

COPYVolid(YES|NO)

The COPYVolid parameter determines whether the source volume volser is copied to the target volume. Possible values are:

<u>YES</u>	Specifies that the volser of the source volume is to be retained in the snap and the target volume is to be made unavailable to the host (that is, TimeFinder issues a VARY OFFLINE against the target volume).
NO	Specifies that the original volser of the target volume is to be retained and the target volume is to be made available to the host (that is, TimeFinder issues a VARY ONLINE against the target volume).

Comments

- ◆ The COPYVolid parameter has a matching site option, ©VOL. [Table 3 on page 45](#) lists the site options.
- ◆ The COPYVOLID parameter only applies to locally addressable volumes. TimeFinder ignores COPYVOLID if you specify it on actions with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ When you specify COPYV(N) and CONDVOL(ALL), the following additional changes are made after successful completion of the SNAP VOLUME command:
 - If a VTOC index and VVDS are present and active on the target volume, TimeFinder updates any records for the VTOC index and VVDS files to reflect the new names of these files. VTOC index names have the form SYS1.VTOCIX.*volser* and VVDS names have the form SYS1.VVDS.*Vnnnnn*. The *volser* portion of these names is the same as the volser of the target volume.
 - If the volser begins with a numeric character, the default name for the VTOC index is SYS1.VTOCIX.*Vnnnnn*, where *nnnnn* is the last five characters of the volser of the target volume.
 - TimeFinder updates the VTOC records for the VTOC index and VVDS, if present, to reflect the new names for these files with the same naming conventions as for the VTOC index updates.
 - If you enter a SNAP VOLUME command with COPYVOLID(YES) in a JES3 environment, the target volume must be manually varied offline to JES3 after the SNAP VOLUME completes.

During the SNAP VOLUME operation with COPYVOLID(NO), the target volume is normally varied offline during the operation and varied online after the SNAP VOLUME completes.

You can link edit a user exit into TimeFinder to be invoked before the VARY ONLINE and VARY OFFLINE commands are issued. This exit is available for automating the JES3 operations.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

YES

Example

```
COPYV (YES)
```

DATACLASs(*classname*)

The DATACLASs parameter specifies the SMS data class to be assigned to the target dataset after TF/Clone dynamically allocates the target dataset.

classname Specifies a locally defined data class to be assigned to the target dataset. Your storage administrator determines the valid data class names.

- ◆ The DATACLASs parameter has a matching site option, &DATACLAS. [Table 3 on page 45](#) lists the site options.
- ◆ You must have SAF or equivalent authorization for the data class specified.
- ◆ Local SMS ACS routines may place the target dataset in a data class other than that specified by this parameter. As with all SMS datasets, specifying data class is only a suggestion to SMS, and may or may not be accepted by SMS.

TF/Clone does not assign the source data class to a target dataset automatically unless you specify COPYSMS(DATACLAS). You must ensure that the correct data class is assigned to the target dataset by using the DATACLASS parameter or ACS selection.

If an existing target dataset is reused, the data class information associated with the target dataset is not changed.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

None

DATA_MOVER_NaMe (ADRDSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAMS|NONE)

Normally, the source and target dataset must reside within the same physical Symmetrix system for the operation to be performed. In some situations, this is not feasible. The DataMoverNaMe parameter allows you to specify a datamover utility program that can actually copy the physical tracks.

- ◆ ADRDSU
- ◆ FDRDSF

ADRDSU (also DFDSS, DSS) is an IBM utility program which may be invoked to copy physical tracks between physical control units. The utility control statement used to invoke ADRDSU is:

```
COPY TRACKS ( ) OUTTRACKS ( ) INDYNAM ( ) OUTDYNAM ( ) CANCELERROR OPTIMIZE (4)
```

FDRDSF (also called FDR) is a utility program from INNOVATION which may be invoked to copy physical tracks between physical control units. The utility control statement used to invoke FDRDSF is:

```
COPY TYPE=DSF      SELECT FROM ( ) TO ( ) VOL= NEWTOCYL= NEWTOTRK= NVOL=
```

Possible values are:

<u>NONE</u>	Specifies that an error occurs if regular TF/Clone is not able to handle the requested copy operation.
ADRDSU DFDSS DSS	Specifies that ADRDSU is to be used to copy physical tracks between physical control units or in non-Symmetrix control units. ADRDSU is used to copy physical tracks within a Symmetrix system that TF/Clone is not able to handle. DFDSS can be used to perform a logical dataset copy for dataset types such as IMBED, REPLICATE and KEYRANGE.
COPYCYL	Specifies that the internal copy utility COPYCYL is to be used. COPYCYL reads/writes a full cylinder at a time (fewer if necessary).
COPYTRK	Specifies that the internal copy utility COPYTRK is to be used. COPYTRK reads/writes three tracks at a time (fewer if necessary).
FDRDSF FDR	Specifies that FDRDSF is to be used to copy physical tracks between physical control units or in non-Symmetrix control units. FDRDSF is used to copy physical tracks within a Symmetrix system that regular TimeFinder is not able to handle.
IDCAMS	Specifies that IDCAMS may be used to perform a logical dataset copy for going between differing VSAM organizations, differing stripe counts, STRIPE=1 with differing track counts or volume counts, and going to/from extended format.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

Comments

- ◆ The DataMoverName parameter applies only to locally addressable volumes. DataMoverName is ignored if you specify it on actions with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ To duplicate datasets, an appropriate datamover must be selected. When the source and target datasets are both in the same Symmetrix system, TimeFinder may be used according to the Enginuity level.
 - If the Enginuity level is 5x66 or higher, the snap microcode is always used.
 - If the Enginuity level is 5x65, then the snap microcode is used when the source is a STD device and the target is a BCV device.
 - If the source and target datasets or volumes are both in the same RVA and the IBM SNAPSHOT software is available, it is automatically used.

When the source and target datasets or volumes are in separate controllers, an appropriate datamover must be selected. DFDSS, FDRDSF, COPYCYL, or COPYTRK works.

If the source and target datasets or volumes are in controllers not supported by TF/Clone or IBM SNAPSHOT, an appropriate datamover must be selected.

- ◆ The DataMoverName parameter has a matching site option, &DATAMOVR. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

None

Example

```
DATAmover (COPYCYL)
DataMoverName (DFDSS, IDCAMS)
```

Note: IDCAMS is a secondary datamover, so it can be used with any other datamover as coded above. IDCAMS is invoked to copy the logical records from the source to the target if there is a compatibility problem, such as a different stripe count between source and target. The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

DEBUG(ALL|EXTRA|TRACE|DUMP|ERROR|SDUMP)

The DEBUG parameter specifies the default debug option for all TimeFinder operations.

Note: If you do not include DEBUG, no debugging is performed.

Possible values are:

ALL	Produce the TRACE and DEBUG information needed for most situations.
EXTRA	Produce all possible TRACE and DEBUG information (more complete than ALL).
TRACE	Produce normal TRACE output.
DUMP	Produce normal TRACE and DEBUG output.
ERROR	Record some TRACE and DEBUG output in memory. Put this information in the message log only if an error occurs.
SDUMP	When an abend occurs, an SDUMP (SVC DUMP) is automatically taken.

Comments

- ◆ The DEBUG parameter with SDUMP has a matching site option, &DEBUG_SDUMP=YES|NO.
- ◆ The DEBUG parameter with ERROR has a matching site option, &DEBUG_ERROR. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ DEBUG sets the type of debugging actions that are to be performed by default. You can control DEBUG and TRACE default actions on specific commands through the DEBUG(ON|OFF) and TRACE(ON|OFF) parameters.

For example, consider the three cases shown in [Table 13](#).

Table 13 Effect of GLOBAL DEBUG

Case	DEBUG parameter	Effect
1	GLOBAL DEBUG (ALL)	Sets run to produce the TRACE and DEBUG information needed for most situations.
	SNAP DATASET DEBUG (OFF)	For SNAP DATASET action, sets DEBUG(OFF) TRACE(ON).
	SNAP VOLUME TRACE (OFF)	For SNAP VOLUME action, sets DEBUG(ON) TRACE(ON) TRACE is set to ON because DEBUG includes trace.
2	GLOBAL DEBUG (TRACE)	Sets run to produce normal TRACE output.
	SNAP DATASET DEBUG (OFF)	For SNAP DATASET action, sets DEBUG(OFF) TRACE(ON).
	SNAP VOLUME TRACE (OFF)	For SNAP VOLUME action, sets DEBUG(OFF) TRACE(OFF).
3	GLOBAL DEBUG (EXTRA)	Sets run to produce all possible TRACE and DEBUG information.
	SNAP DATASET DEBUG (OFF)	For SNAP DATASET action, sets DEBUG(OFF) TRACE(ON) and produces extra information.
	SNAP VOLUME TRACE (OFF)	For SNAP VOLUME action, sets DEBUG(ON) TRACE(ON) and produces extra information. TRACE is set to ON because DEBUG includes trace.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

- ◆ RESTORE VOLUME

Default value

None

DEBUG_EXTENTS(YES|NO)

DEBUG_EXTENTS controls whether the EXTENTS program, when invoked, writes debug information to the console log.

- | | |
|-----------|---|
| YES | Causes EXTENTS to write debug information to the console log on startup. |
| <u>NO</u> | Prohibits EXTENTS from writing debug information to the console log on startup. |

Comments

This parameter is not normally required. It should only be used when requested by EMC.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ EXTENTS program

Default value

NO

DFDSS_ADMIN(YES|NO)

The DFDSS_ADMIN parameter determines whether the ADMINISTRATOR parameter is passed to DFDSS to avoid the RACF calls for each dataset. This can make the DFDSS processing faster.

DFDSS does require you to have certain RACF privileges for ADMINISTRATOR to be accepted.

Note: The IBM publication, *Implementing ESS Copy Services with IBM eServer zSeries* (SG24-5680) provides more information.

Possible values are:

- | | |
|-----------|---|
| YES | Specifies passing the ADMINISTRATOR parameter to DFDSS. |
| <u>NO</u> | Specifies not passing the ADMINISTRATOR parameter to DFDSS. |

Comments

- ◆ If ADMINISTRATOR(YES) is specified, DFDSS_ADMIN(YES) is implied.
- ◆ The DFDSS_ADMIN parameter has a matching site option, &DFDSS_ADMIN. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NO

DFDSS_CC(YES|NO)

The DFDSS_CC parameter determines whether ADRDSSU establishes a concurrent copy session while performing the track copy. A concurrent copy session allows a more *point-in-time* type of copy operation to occur. This optional parameter is valid only when the DATAMOVERNAME specifies ADRDSSU. Values can be:

- | | |
|------------|--|
| <u>YES</u> | Directs ADRDSSU to use concurrent copy to protect tracks being copied. |
| NO | Directs ADRDSSU not to use concurrent copy to protect tracks being copied. |

Comments

- ◆ The DFDSS_CC parameter is also available as a site option, &DFDSS_CC. [Table 3 on page 45](#) provides more information.
- ◆ When you use DFDSS_CC(Y), the DFDSS_CC parameter has some implications when using an IBM RVA.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

YES

Example

```
DFDSS_CC (NO)
```

Note: The IBM publication, *Implementing ESS Copy Services with IBM eServer zSeries* (SG24-5680) provides more information.

DFDSS_OPTimize(*optimize number*)

The DFDSS_OPTIMIZE parameter specifies the OPTIMIZE value to be used when DFDSS is specified as the DATAMOVERNAME. Acceptable values for *optimize number* are 1 through 4.

Comments

The DFDSS_OPTIMIZE parameter has a matching site option, &DFDSS_OP. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ DFDSS datamover program

DIFferential(YES|NO)

The DIFFERENTIAL parameter determines whether the Engenuity Differential Snap feature is used. The Differential Snap feature creates a relationship so that, after the initial snap, only changed tracks are moved for subsequent snaps of the same source/target volume pair. Always specify DIFFERENTIAL for a Differential Snap.

For Engenuity level 5x68 or lower, DIFFERENTIAL is not available, and a full volume snap is executed.

Values can be:

- YES Use Differential Snap.
NO Do not use Differential Snap.

Comments

- ◆ The DIFFERENTIAL parameter has a matching site option, &DIFF. [Table 3 on page 45](#) lists the site options.
- ◆ You need to have purchased and installed the TF/Clone licensed feature code to perform full-volume snaps.
- ◆ With Version 7.0 and higher, TimeFinder automatically supports the snapback operation by performing a SNAP VOLUME with DIFF(YES) in the opposite direction. There is no need to specify a RESTORE operation.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

NO

Example

DIF(NO)

DIFFERENTIAL_DATASET(YES|NO)

The DIFFERENTIAL_DATASET parameter enables or disables the Differential Dataset Snap feature. With Differential Dataset Snap, a dataset's contents are copied in their entirety when that dataset is snapped for the first time.

When you set DIFFERENTIAL_DATASET(YES), only the changed tracks are copied when the dataset is snapped again.

This feature is only effective if REPLACE(YES) and REUSE(YES) are also specified. Possible values are:

- YES Enables the Differential Dataset Snap feature.
NO Disables the Differential Dataset Snap feature.

Comments

The DIFFERENTIAL_DATASET parameter has a matching site option, &DIFFDSN. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

EATTR(NO|OPT)

EATTR is an IBM parameter that specifies whether the dataset can support extended attributes or not. These datasets must be allocated on an extended address volume (EAV).

Values include:

- | | |
|-----|---|
| NO | Extended attributes are not allowed, and the dataset cannot reside in EAS space on EAV devices. |
| OPT | Extended attributes are allowed. The dataset may also reside in EAS space on EAV devices. |

Comments

EATTR is also a Site option.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default values:

NO for non-VSAM files

OPT for VSAM files

ENQSCOPE (REQuest|STEP)

The ENQSCOPE parameter determines when and for how long the source dataset ENQ is held.

Possible values are:

- | | |
|----------------|--|
| <u>REQuest</u> | Specifies that, at the beginning of request, the source dataset ENQ is obtained. When the request is completed, the source dataset ENQ is released (DEQ). |
| STEP | Specifies that all source dataset ENQ is obtained after the parse phase, but before any requests are processed. After ALL requests have completed, the source dataset ENQ is released (DEQ). |

Comments

The ENQSCOPE parameter has a matching site option, &ENQSCOPE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value:

REQuest

ENQWAIT(YES|NO)

The ENQWAIT parameter is used with HOSTCOPYMODE. If you specify HOSTCOPYMODE(NONE), ENQWAIT is ignored.

If you specify HOSTCOPYMODE(EXCLUSIVE) or HOSTCOPYMODE(SHARED), ENQWAIT determines the action to take if exclusive or shared access is not immediately available for a source dataset.

If you specify ENQWAIT(YES), the action waits until the source dataset becomes available. If you specify ENQWAIT(NO), the action continues or fails based upon the TOLERATEENQFAILURE parameter setting. Values can be:

<u>YES</u>	Processing waits until the source dataset becomes available.
NO	Processing continues. The action may continue or fail based upon the TOLERATEENQFAILURE parameter setting.

Comments

- ◆ The ENQWAIT parameter does not apply to datasets specified by INDDname or OUTDDname.
- ◆ The ENQWAIT parameter has a matching site option, &ENQWAIT. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

ERROR_CHecking|ERRCHK(NORma|REDUCED)

The ERROR_CHECKING parameter specifies special error handling.

NORma1 The extents are checked and an attempt to resolve all “protected and indirects” occurs before the establish.

Note: *Protected and indirects* are the EMC terms for the controlled relationship of tracks that is established between a source and a target. Source tracks are “protected” before being copied to a target’s “indirects”, or the tracks locations dedicated to receive the data.

Note: NORMAL is how error checking has always worked. It is still recommended for a mixed SNAP DATASET and SNAP VOLUME environment.

REDUCED The checks before the establish are skipped and TimeFinder simply issues the establish.

Note: REDUCED would be used in circumstances where you believe that there shouldn’t be any reason for the establish to fail.

Comments

- ◆ You can abbreviate the ERROR_CHECKING parameter name as ERRCHK.
- ◆ The ERROR_CHECKING parameter has a matching site option, &ERRCHK. [Table 3 on page 45](#) lists the site options and their possible values.
- ◆ “[ERROR_REcovery\(NORma|ENHanced\)](#)” on [page 178](#) provides more information about the relationship between ERROR_CHECKING and ERROR_RECOVERY.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NORMAL

Example

```
ERROR_CHECKING (REDUCED)
```

ERROR_DISPosition(DELete|KEEP)

The ERROR_DISPOSITION parameter specifies what to do with the target datasets when a SNAP DATASET request fails. (The normal action is to delete any target datasets. An alternative is to keep the target datasets.)

Note: The ERROR_DISPosition command can also be used in the shorter form, ERR_DISP.

Possible values are:

<u>DE</u> Lete	Delete the target datasets if a SNAP DATASET request fails.
KEEP	Keep the target datasets if a SNAP DATASET request fails.

Comments

The ERROR_DISPOSITION parameter has a matching site option, &ERRDISP. [Table 3 on page 45](#) lists the site options and their possible values.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default

DELete

ERROR_RECOvery(NORmal|ENHanced)

ERROR_RECOVERY parameter specifies how TimeFinder should handle recovery in an error situation.

<u>NOR</u> mal	If the establish fails, so does the request. NORMAL is how error checking has always worked in the past.
ENHanced	With ENHANCED, if the establish fails, TimeFinder attempts to resolve protection and indirects.

Comments

- ◆ You can abbreviate the ERROR_RECOVERY parameter name as ERRREC.
- ◆ The ERROR_RECOVERY parameter has a matching site option, &ERRREC. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ Normally, you would use the two error handling parameters, ERROR_CHECKING and ERROR_RECOVERY in the following combinations.
 - ERROR_CHECKING(NORMAL) and ERROR_RECOVERY(NORMAL)
 - ERROR_CHECKING(REDUCED) and ERROR_RECOVERY(ENHANCED)

Other combinations do not work well. Since ERROR_CHECKING(NORMAL) performs checking before the establish, it would be very difficult for ERROR_RECOVERY(ENHANCED) to help because the checking was already performed. ERROR_CHECKING(REDUCED) and ERROR_RECOVERY(NORMAL) would not perform before any checking, either before the establish or when the establish fails.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NORMAL

ESNP119(WARNING|ERROR)

The following ESNP119 message involves a request for a consistent copy and has two different outcomes that can be set.

```
CONSISTENT COPY ATTEMPTED, BUT TIMEOUT OCCURRED OR
UNSUPPORTED DEVICE, COPY NOT CONSISTENT
```

It can be a warning message, where the attempt that caused the message is identified and the processing is continued, or it can be set as an error condition where the processing is stopped.

Values include:

WARNING Message is issued as a warning and processing continues.

ERROR Message is issued and processing stops.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default

WARNING

ESNP220(ERROR|WARNING)

The following ESNP220 message involves dataset extents and has two different outcomes that can be set.

```
SOURCE DATA SET HAS NO EXTENTS
```

It can be a warning message, where the extent discovery that caused the message is identified and the processing is continued, or it can be set as an error condition where the processing is stopped.

Values include:

ERROR Message is issued and processing stops.

WARNING Message is issued as a warning and processing continues.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default

ERROR

Example

```
ESNP220 WARNING
```

EXAMINE(YES|NO)

The EXAMINE parameter causes TimeFinder to do an IDCAMS EXAMINE on the target VSAM dataset. Possible values are:

YES	Directs TimeFinder to do an IDCAMS EXAMINE on the target VSAM dataset.
NO	Directs TimeFinder not to do an IDCAMS EXAMINE on the target VSAM dataset.

Comments

- ◆ The EXAMINE parameter has a matching site option, &EXAMINE. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

EXCLUDE_PATHGROUPID|EX_PGID(*pathlist*)

Normal processing of SNAP VOLUME requests ensure that the target volume is not online (path group established) to any other LPAR or system. A parameter already exists (CHECK_ONLINE_PATH_STATUS) that allows the severity of the situation to be changed from an error to a warning.

The EXCLUDE_PATHGROUPID parameter allows certain LPARs or systems to be ignored. No error or warning message are issued if encountered.

pathlist Specifies a list of one or more entries. Each entry is made up of the first 14 characters in a 22-character path group ID. (The remaining, right most, eight characters are the timestamp.)

Each digit may be a valid hexadecimal character or a wild card mask character. Valid wild card mask characters are '*' or '%'. Both mean that a single digit is masked.

Comments

- ◆ The EXCLUDE_PATHGROUPID parameter has a matching site option, &EXPATHGRP. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ The *EMC SRDF Host Component for z/OS Product Guide* provides more information about timestamps.
- ◆ You can specify up to 127 path group IDs.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

None

Example

If the complete path group ID is: 880002A75C2084C173D526

then, you would enter as a list entry: EX_PGID (880002A75C2084)

EXPLAIN(VOLUME_SELECTION(YES|NO))

As each potential volume is examined to determine whether it can be a candidate for dataset allocation, a line is written with an explanation. Messages ESNPOA0I or ESNPOA1I are issued.

Comments

- ◆ Depending on the number of devices, this parameter can generate a lot of output.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

EXTENT_ALLOCATION(YES[,CONSOLIDATE_VOLUME[,CONSOLIDATE_ALL]]|NO)

The EXTENT_ALLOCATION parameter specifies whether operations should use extent allocation for target datasets in snap operations. The default value is NO, do not use extent allocation.

The YES keyword specifies using extent allocation. To maximize the possibility of successful snaps of EMC Symmetrix devices and IBM RVA devices, YES specifies that as long as appropriate candidate volumes are available, the target dataset should have the same number and size of extents as the source.

YES,CONSOLIDATE_VOLUME forces extent allocation to consolidate the extents on each volume. Each volume contains the same number of tracks, but the individual number and size of the extents on the target may not match the source.

YES,CONSOLIDATE_ALL forces extent allocation to consolidate the extents across all volumes. The number of volumes used may not match the source and the number and size of the extents on the targets may not have any relationship to the source.

Some dataset types always use extent allocation. All dataset types are supported by this method.

Because extent allocation bypasses the normal SVC99 and IDCAMS allocation methods, internal SMS storage group resolution and eligible volume determination is provided. TimeFinder invokes the SMS ACS routines and exits. Then TimeFinder builds a list of candidate volumes using selected storage groups.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

Possible values are:

<code>YES</code>	Use extent allocation.
<code>CONSOLIDATE_VOLume</code>	Force extent allocation to consolidate the extents on each volume.
<code>CONSOLIDATE_ALL</code>	Force extent allocation to consolidate the extents across all volumes.
<code>NO</code>	Do not use extent allocation.

Comments

The `EXTENT_ALLOCATION` parameter has the following matching site options:

- ◆ `&CONSALL (EXTENT_ALLOCATION(YES,CONSOLIDATE_ALL))`
- ◆ `&CONSVOL (EXTENT_ALLOCATION(YES,CONSOLIDATE_VOL))`

[Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ `SNAP DATASET`

Default value

`NO`

Example

```
EXTENT_ALLOCATION (YES, CONSOLIDATE_VOL)
```

EXTALLOC_EMCC_ONLY(YES|NO)

`EXTALLOC_EMCC_ONLY` controls whether only EMC-manufactured devices are to be used as possible candidates for extent allocation.

<code>YES</code>	Only use EMC-manufactured devices as candidates for extent allocation.
<code>NO</code>	Use any device as a candidates for extent allocation.

Comments

The `EXTALLOC_EMCC_ONLY` parameter has a matching site option, `&EMCC_ONLY`. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ `SNAP DATASET`

Default value

`NO`

EXTENT_EXPAND(YES|NO,[ADDNEW(YES|NO)][,SAMEVOL][,NEWVOL])

The EXTENT_EXPAND parameter controls how extent allocation allocates a dataset. When allocating a dataset, extent allocation normally makes every attempt to create a new dataset that, extent-wise, looks the same. This means that a multivolume target dataset is created to look just like a multivolume source dataset, down to the size of each extent and the number of volumes.

Extent allocation also requires that the dataset be allocated from scratch. That means that the existing dataset must be deleted first.

The option values determine the method of extent allocation used:

YES	Extent allocation is used to adjust the size of an existing dataset to match the size of the source dataset. This means that existing extent sizes may change. New extents may be created and existing extents may be removed.
NO	Extent allocation is not used to adjust the size of an existing dataset to match the size of the source dataset.
ADDNEW	A value of YES allows new volumes to be added to the existing dataset. A value of NO does not allow new volumes to be added to an existing dataset.
SAMEVOL	New extents must be found on the same volume.
NEWVOL	When the existing dataset cannot be expanded on the current volume, it is removed from the current volume and an attempt is made to create the dataset on a new candidate volume.

Comments

The EXTENT_EXPAND parameter has several matching site options:

- ◆ &EXTADDNEW to specify the ADDNEW option value.
- ◆ &EXTXPVOL to specify the SAMEVOL and NEWVOL option value.
- ◆ &EXTXPAND to specify EXTENT_EXPAND (YES|NO).

[Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

FBA(EXCLUDE|INCLUDE)

The FBA parameter includes or excludes FBA devices from a QUERY VOLUME device list.

Possible values are:

<u>EXCLUDE</u>	Exclude FBA devices from QUERY VOLUME device list.
<u>INCLUDE</u>	Include FBA devices on QUERY VOLUME device list.

Comments

The FBA parameter has a matching site option, &FBA. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INCLUDE

FLASH_SNAP(FLASHCOPY|SNAP)

FLASH_SNAP determines whether FLashCopy or TimeFinder operations is used by default. Values are:

FLASHCOPY FlashCopy is used by default.

SNAP TimeFinder is used by default.

Comments

- ◆ The FLASH_SNAP parameter has a matching site option, &FLASH_SNAP. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ You should not change the value of this parameter unless you are directed to do so by EMC.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ QUERY VOLUME
- ◆ SNAP DATASET

Default value

SNAP

FORCE(YES|NO)

The FORCE parameter establishes the FORCE parameter for all SNAP DATASET operations. Allows you to snap a dataset that was created as absolute track (ABSTR) or as unmovable (PSU, POU or DAU). TF/Clone makes no attempt to ensure that the target dataset is accessible. TF/Clone does not allocate absolute track locations.

Possible values are:

YES Specifies that an unmovable or absolute track dataset can be snapped to a different physical track location on another device. This option is required to snap an unmovable or absolute track dataset.

NO Specifies that an unmovable or absolute track dataset is not to be snapped.

Comments

The FORCE parameter has a matching site option, &FORCE. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

FORCE_COMPLETION(YES|NO)

The FORCE_COMPLETION parameter specifies that CLEANUP does not complete until all source extents and sessions on the device are completed. Any NOCOPY extents and sessions are changed to copy. After all of the extents and sessions are completed, the source extent track is also removed. Values can be:

YES CLEANUP does not complete until all source extents and sessions on the device complete.

NO CLEANUP may complete before all source extents and sessions on the device complete.

Comments

- ◆ You can abbreviate FORCE_COMPLETION as FORCECMP.
- ◆ FORCE_COMPLETION is also available as a site option, &FORCECMP. [Table 3 on page 45](#) lists the site options.
- ◆ The prime use for FORCE_COMPLETION is for conversion of new, native extents support with Engenuity 5773 and higher.
- ◆ The two formats of the extent track entries are mutually exclusive. You cannot use a previous version of TimeFinder in one LPAR and TimeFinder Version 7.0, exploiting the internal extent track, in another LPAR and have the operations complete successfully.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ CLEANUP

Default

None

FREESPACE(YES|NO)

When a SNAP VOLUME request is processed, the FREESPACE parameter specifies whether to snap unallocated space. When you use the default NO, snapping un-allocated space can only occur if the source volume is online and the z/OS VTOC services are available. After the snap is initiated for the complete volume, an internal STOP SNAP TO VOLUME is issued for all of the un-allocated space. Possible values are:

YES Specifies snapping the freespace.

NO Specifies that after the snap has initiated, stop the snap to freespace areas on the volume.

Comments

- ◆ The FREESPACE parameter has a matching site option, &FREESPC. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ The FREESPACE parameter only applies to locally addressable volumes. FREESPACE is ignored if specified on actions with the SYMDV#, LOCAL or REMOTE parameters.
- ◆ TimeFinder ignores the FREESPACE parameter with differential snap.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

NO

GROUP_DATaset_name|GROUP_DSName('dataset name')

The GROUP_DATaset_name parameter is valid only with the GLOBAL command and identifies the dataset used as the “working” group dataset. This must be a partitioned dataset or partitioned dataset extended and you must have read/write access to the dataset. Any group references are resolved into this dataset, along with the status information for actions executed for a group.

If this parameter omitted, then TimeFinder uses a DDNAME of EMCGROUP as the “working” group dataset.

Comments

The GROUP_DATASET_NAME parameter has a matching site option, &GROUP_DSNAME. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

None

GROUP_DEVICE_ready_state(AUTO|NEVER)

The GROUP_DEVICE_READY_STATE parameter controls the access, or readiness, to the devices on a channel. This determines when devices on the channel are available for an operation and when they are not.

Possible values are:

<u>AUTO</u>	Use the standard group processing option. Make the devices not ready on the channel during PRESNAP processing and ready on the channel when POSTSNAP is performed.
NEVER	Do not change the readiness of the devices on the channel.

Comments

- ◆ The GROUP_DEVICE_READY_STATE parameter has a matching site option, &GROUP_DEVICE_READY_STATE. [Table 3 on page 45](#) lists the site options and their parameters.
- ◆ You can abbreviate the “GROUP” in the GROUP_DEVICE_READY_STATE parameter name as “GRP.”

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default

AUTO

Example

GRP_DEV (NEVER)

GROUP EMCQCAPI_VERIFY(YES|NO)

Previous SNAP VOLUME processing ensures that the source and target volumes are completely suitable for use before requesting that the Symmetrix system establish a relationship between the two devices. The GROUP EMCQCAPI_VERIFY parameter allows you to avoid this additional overhead.

This can be a major benefit when a group is being executed on a periodic basis, and no other usage of the target devices occurs that might disrupt the device status.

The parameter values are:

<u>YES</u>	Avoid the additional suitability check. This eliminates some overhead, but raises the chance that the request fails.
NO	Do not avoid the additional suitability check.

Comments

The GROUP EMCQCAPI_VERIFY parameter has a matching site option, &GROUP EMCQCAPI_VERIFY. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

YES

Example

GROUP EMCQCAPI_VERIFY (NO)

HOSTCOPYMODE(EXCLUSIVE|SHARED|NONE)

The HOSTCOPYMODE parameter specifies whether and what type of disposition is used with dynamic allocations for all SNAP DATASET operations. Possible values are:

SHARED	Specifies the use of dynamic allocations with a disposition of SHR. Choose this option to modify the source during a snap operation.
EXCLUSIVE	Specifies use of the dynamic allocations with disposition of OLD. Exclusive control offers better protection of data integrity than shared control. Choose this option for exclusive control over the source during a snap operation.
NONE	No disposition used.

Comments

- ◆ The HOSTCOPYMODE parameter has a matching site option, &HOSTCOPY. [Table 3 on page 45](#) lists site options and their parameters.

- ◆ If you are attempting to snap a dataset previously opened within a Database Management System (DBMS) for which update activity has not been quiesced, you cannot obtain exclusive control because the database has not been closed or deallocated. In this case, choosing the SHARED option actually provides user managed exclusive control.
- ◆ Use the HOSTCOPYMODE(SHARED) or HOSTCOPYMODE(none) parameter if you know that the dataset is shared by another job because this option would use less overhead than using the TOLERATEENQFAILURE(YES) parameter.
- ◆ HOSTCOPYMODE does not apply to datasets specified by INDDname or OUTDDname.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

None

INVALIDATE_PDSE_buffers(YES|NO)

Description

The INVALIDATE_PDSE_buffers parameter causes or prevents the flushing of the PDSE buffers when a SNAP DATASET or SNAP VOLUME command is processed. Possible values are:

<u>YES</u>	Causes the PDSE buffers to be flushed when a SNAP DATASET or SNAP VOLUME command is processed
NO	Prevents the PDSE buffers from being flushed when a SNAP DATASET or SNAP VOLUME command is processed.

Comments

- ◆ The situation in which you need to flush the PDSE buffers needs further explanation. The PDSE buffers need to be flushed if they are being cached, which only happens if the SMS parameters PDSE_BUFFER_BEYOND_CLOSE or PDSE1_BUFFER_BEYOND_CLOSE are set to YES.

This can cause unwanted results. If you do choose to leave the SMS parameters and INVALIDATE_PDSE_BUFFERS set to YES and one or more of the PDSEs is open, the flush fails and you receive one or more messages (ESNPX10W-ESNPX12W).

To avoid the flush and the possibility of an error, set the two SMS parameters and INVALIDATE_PDSE_BUFFERS to NO.

Note: The current version of the IBM publication, *z/OS DFSMS Technical Update* (SG25-7435-00) provides more information about the SMS parameters PDSE_BUFFER_BEYOND_CLOSE and PDSE1_BUFFER_BEYOND_CLOSE.

- ◆ The INVALIDATE_PDSE_BUFFERS parameter is also available as a site option, INVALIDATE_PDSE. [Table 3 on page 45](#) provides more information.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

YES

LIST([[NO]STAtements][[NO]HIStory])

The LIST parameter is used with QUERY GROUP commands to list or not list syntax statements ([NO]STAtements) and/or recent action and resulting statuses ([NO]HIStory) associated with a specified group. Possible values are:

NOSTAtements	QUERY GROUP does not list the syntax statements associated with the specified group.
STAtements	QUERY GROUP lists the syntax statements associated with the specified group.
NOHIStory	QUERY GROUP does not list the recent action and resulting statuses associated with the specified group.
HIStory	QUERY GROUP lists the recent action and resulting statuses associated with the specified group.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY GROUP

Default value

None

**[LOCAL(UNIT(*device*)]VOLUME(*volser*)]DDNAME(*ddname*)
[CONTROLLER([*xxxxxxx*]*xxxxx*]*name*)]**

Identifies the gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: The MVS device number cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

Note: VOLUME(*volser*) allows only a single device.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.
- ◆ Cleanup of extent track contents (dataset level versus cleanup of full device sessions) requires the UNIT (*CCUU*) or VOLUME parameter. Extent track cleanup (at the dataset level) is not performed when the SYMDV# is used within the command.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ CLEANUP
- ◆ CONFIG
- ◆ QUERY VDEV
- ◆ QUERY VOLUME
- ◆ RESTORE
- ◆ SNAP VOLUME
- ◆ STOP SNAP TO VOLUME

Default value

None

LOGINDYNAM(*volume*[, *volume*...])

The LOGINDYNAM parameter specifies a list of volumes to be used for comparison purposes when selecting source datasets. [“SELECTMULTI\(ALL|ANY|FIRST\)” on page 212](#) describes how this volume list is used.

volume Volume specification.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

No default.

MANAGEMENTCLASS(*classname*)

The MANAGEMENTCLASS parameter establishes a default management class to be used for all new dataset allocations. This overrides the COPYSMS(MANAGEMENTCLASS) parameter.

classname Specifies a logically defined management class to be assigned to the target dataset. Your storage administrator determines the valid management class names for your site.

Comments

- ◆ The MANAGEMENTCLASS parameter is also available as a site option, &MGMTCLAS. [Table 3 on page 45](#) provides more information.
- ◆ You must have SAF or equivalent authorization for the management class specified.
- ◆ Local SMS ACS routines can place the target dataset in a management class other than that specified by MANAGEMENTCLASS. As with all SMS datasets, specifying management class is only a suggestion to SMS. SMS may or may not accept it.
- ◆ TF/Clone does not assign the source management class to a target dataset automatically unless you specify COPYSMS(MGMTCLAS). You must ensure that the correct management class is assigned to the target dataset by using the MANAGEMENTCLASS parameter or ACS selection.
- ◆ If an existing target dataset is reused, the management class information is not changed.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default

None

MAXIMUM_ADRDSSU_address_spaces|MAXDSSU(*number*)

TimeFinder automatically uses multiple address spaces when you request multitasking and TimeFinder encounters SNAP VOLUME requests. The MAXIMUM_ADRDSSU_ADDRESS_SPACES parameter determines the limit on address spaces that ADRDSSU (ADRXMAIA) spawns when used as a datamover.

number Specifies the limit on address spaces. The minimum value you can specify is one (1) and the normal maximum value you can specify is 15.

Note: Contact EMC if you want to use a larger maximum value than 15.

Comments

The MAXIMUM_ADRDSSU_ADDRESS_SPACES parameter has a matching site option, &MAXDSSU. [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ ADRDSSU (ADRXMAIA) - this is a datamover program

Default value

10

Examples

MAXDSSU (5)

MAXIMUM_SUBTASKS|MAXTASKs(*number1,number2*)

The MAXIMUM_SUBTASKS parameter establishes an absolute maximum number of subtasks that can be attached and used. TimeFinder automatically limits the number of subtasks based on the requests specified and the low and high region available. TimeFinder never exceeds the limits specified in this parameter.

Possible values are:

number1 The limit to the number of individual requests that can be processed simultaneously.

The minimum value you can specify is two (2). The maximum value you can specify is 9999.

number2 The limit to the number of individual activities that can be performed within a single request, typically as the result of wildcarding.

The minimum value you can specify is two (2). The maximum value you can specify is 9999.

Comments

- ◆ MAXIMUM_SUBTASKS (*number1...*) has a matching site option, MAXTASK2.
- ◆ MAXIMUM_SUBTASKS (*number2...*) has a matching site option, MAXTASKR.
- ◆ [Table 3 on page 45](#) lists the site options and their parameters.

Global parameter effects

This parameter sets a global value for the following:

- ◆ Maximum number of subtasks

Default value99 (*number1*)999 (*number2*)**Examples**

MAXTASK (10, 10)

MAXRC(*return code value*)

The MAXRC parameter specifies the maximum allowable return codes. If the return code value is exceeded by the code returned by a command, all commands following are bypassed.

Each message issued has a severity associated with it. Severities are associated with the last character of the message ID. For instance, if the last character is a 'I', the severity is 0. 'W' is 4, 'E' is 8 and 'S' is 16.

When a request (command) is completely processed, the highest severity for a message issued for that command is checked against the MAXRC setting to determine whether additional commands is processed.

Possible values for *return code value* are:

return code value The numeric value you want to use as the maximum allowable return code. The values you can use range from zero (0) through 16. By default, the MAXRC *return code value* is four (4).

Note: MAXRC does not apply until after the parsing phase is complete. If any ERROR is encountered during the parsing phase, the run is always terminated.

Global parameter effects

This parameter sets a global value for the following:

- ◆ All TimeFinder commands

Examples

Here are a few examples:

Message ESNPxxxI - severity is 0

If MAXRC(4), then additional commands is executed (0 is not greater than 4).

Message ESNPxxxW - severity is 4

If MAXRC(4), then additional commands is executed (4 is not greater than 4).

Message ESNPxxxE - severity is 8

If MAXRC(4), then additional commands is NOT executed (8 is greater than 4).

MEMBERSTATE(ENABLE|DISABLE)

The MEMBERSTATE parameter determines the status of the device when it is initially added to the pool. Possible values are:

ENABLE The POOL is active and available for use.

DISABLE The POOL is inactive and not available until the status is changed to active.

Comments

The MEMBERSTATE parameter has a matching site option, &MBRSTATE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ CONFIGPOOL ADD

Default value

DISABLE

Example

MEMBERSTATE (ENABLE)

MESsages|MSGs(DISplay|PROmpt|NONE|DETAIL)

The MESSAGES parameter controls console messages before and after the activation of a snap volume. Possible values are:

DISplay	Display console messages before and after.
PROmpt	Display WTOR on console and wait for reply before proceeding.
<u>NONE</u>	No console messages.
DETAIL	Displays console messages before and after, and also adds message EQCA921I. There will be one statement for each controller where SRDF/A is suspended.

Comments

- ◆ The MESSAGES parameter has a matching site option, &MESSAGE. [Table 3 on page 45](#) lists the site options.
- ◆ The MESSAGES parameter also works with SNAP DATASET to interface with automation systems.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ ACTIVATE

Default value

NONE

MIGrate([PURge(YES|NO)] [RECall(YES|NO)])

Normally a snap operation fails if either the source or target dataset is migrated. The MIGrate parameter allows the source dataset to be automatically recalled and any existing migrated target dataset to be purged.

The RECall subparameter applies only to the source dataset and the PURGE subparameter applies only to target datasets.

Values can be:

PURge (YES)	If the target dataset is migrated, then it is deleted and a new target dataset allocated.
PURge (<u>NO</u>)	If the target dataset is migrated, then the snap operation fails.
RECall (YES)	If the source dataset is migrated, then the snap operation is suspended and a recall is performed for the source dataset. After the source dataset is recalled, the snap operation continues.
RECall (<u>NO</u>)	If the source dataset is migrated, then the snap operation fails.
RECall (IGNORE)	If the source dataset is migrated, the dataset is not recalled, an error is not generated, and the dataset is ignored.

Comments

- ◆ The MIGRATE parameter has two matching site options:
 - MIGRATE(PURGE) has &PURGE.
 - MIGRATE(RECALL) has &RECALL.

[Table 3 on page 45](#) lists the site options and their parameters.

- ◆ Internally, the equivalent of a HDELETE and HRECALL is performed.
- ◆ A recall operation may take several minutes to complete.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Example

```
MIG (PUR (Y) REC (Y) )
```

MODECOPYFINISH

MODECOPYFINISH resolves outstanding indirected tracks. MODECOPYFINISH applies to both SNAP DATASET and SNAP VOLUME and is an alias of the PREPARE_FOR_SNAP parameter.

Note: “[PREPARE_FOR_SNAP\(YES|NO\)](#)” on page 203 provides more information about PREPARE_FOR_SNAP.

By default, MODECOPYFINISH is not used. If you do not want to use MODECOPYFINISH, do not specify the parameter.

If you want MODECOPYFINISH, code the GLOBAL command as follows:

```
GLOBAL MAXRC (0) MODECOPYFINISH
```

Note: The MODECOPYFINISH parameter applies only to locally addressable volumes. MODECOPYFINISH is ignored if specified on actions with the SYMDV#, LOCAL, or REMOTE parameters.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default

None

MODE(COPY|NOCOPY|NOCOPYRD)

The GLOBAL command MODE parameter specifies when the background copy from source to target occurs. Possible values are:

<u>COPY</u>	Specifies that the source to target background copy should begin immediately after the snap is issued.
NOCOPY	Specifies that the background copy task does not copy any tracks that are marked protected. A read of the source does not cause the source track image to be copied to the target device. However, the source track image is copied when the track on the target is an indirect.
NOCOPYRD	Specifies that the background copy occur only when a track is either changed on the source or target. This causes the original source track to be copied to the target. Additional updates to the same source track are not copied to the target. Read of the source or target track does not cause the track to be copied.

Comments

- ◆ You can specify the NOCOPYRD keyword as:
 - NOBACKGROUNDCOPYONREAD
 - NOBGCOPYONREAD
 - NOCOPYONREAD
 - NOCOPYREAD
 - NOCOPYRD
- ◆ The NOCOPYRD keyword is supported only on Enginuity 5772 and higher.
- ◆ The MODE and BACKGROUNDCOPY parameters serve the same purpose and cannot be specified at the same time. They are mutually exclusive.
- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:
 - PRECOPY(YES)
 - MODE(COPY)
 - WAIT_FOR PRECOPY_PASS1(YES)
- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ CONFIG
- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

COPY

Note: [“MODE parameter” on page 84](#) provides additional information.**MULTI_LINE_query(YES|NO)**

The MULTI_LINE_query parameter specifies a new multi-line query option that displays additional detail lines beyond the single summary line for each device.

For example, some EMCSNAP commands operate differently depending on the SRDF type. The multi-line query shows the SRDF type (A/S/PPRC/XRC) and whether it is an R1, R2, R11, or other device designation. Additionally, it shows if certain features are in use on the device, such as parallel clone, inhibit outboard copy, hold, and more.

In addition, each mirror position is shown along with its attributes (adaptive copy, sync or not, ready state, write state).

Possible values are:

YES	Display multiple lines of information for each device.
NO	Display only the single summary line of information for each device.

Comments

- ◆ Aliases for this parameter includes MULTILINEquery and MLQ.
- ◆ The single summary line displays information such as device number, CCUU, device attribute (STD, BCV, TDEV, etc.), CKD or FBA, number of cylinders, ready state, and primary RAID protection.
- ◆ The multiple line query displays message ESNPP36I, which contains the following information for each device:
 - Remote device type (R1, R11, R21, R2, R22 or blank)
 - Parallel Clone status (PC or blank)
 - Inhibit Outboard Copy status (IOC or blank)
 - Hold status (HOLD or blank)
 - PPRC/XRC status (PPRC or XRC)
 - ECA status (ECA)
 - Meta Setting (META-HEAD)
 - For each mirror position, the following information is available:
 - NCNFG if not configured. R1, R2 or LCL if mirror is configured.
 - For remote mirrors, Sync or Async indicator (-S or -A), Adaptive Copy indicator (-ADCOPY and /WPO, /DISK or /WP). RAGROUP value (RAG=(xx)).
 - Ready status (RDY or NRDY)
 - Read/write status (R/W or R-ONLY)

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ Query VOLUME

Default value

NO

MULTI_VIRTual(YES|NO)[alias MULTI_VDEV(YES|NO)]

The MULTI_VIRTUAL parameter specifies the method of handling virtual devices (VDEVs). The default of MULTI_VIRTUAL (NO), assigns the default method of allowing a single virtual device to share a maximum of 8 sessions. The parameter MULTI_VIRTUAL (YES) allows for the newer method of allowing multiple virtual devices (up to 128) to share a single standard device session.

Note: The MULTI_VIRTUAL parameter is available with Engenuity 5773 or higher.

Note: On a VMAX 40K and higher, the multi-virtual method is the only method used, so whether the MULTI_VIRTUAL parameter is set to NO or to YES, or whether it is used at all, the system always allows 128 virtual device sessions.

The two methods, default multi-virtual (NO) and multi-virtual (YES), are not allowed to be intermixed on a single standard device.

Once a session is created on a standard device, all subsequent sessions must be the same type. When a standard device has no virtual device relationships, either method can be used.

Comments

- ◆ The MULTI_VIRTUAL parameter has a matching site option, &MULTI_VIRTUAL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME

Default value

NO

NOTIFYwhencomplete [[GROUP(*name*)] [DATASET|JOB|STEP|SNAP]]

The NOTIFYWHENCOMPLETE parameter requests asynchronous notification upon completion of TimeFinder operations. Possible values are:

GROUP (*name*) You may specify this value alone or with the other parameter values. *name* is a completion message that you want to include. *name* can be up to 44 characters in length. If *name* includes blanks, you must enclose *name* in double quotation marks.

DATASET Issue a completion message for each dataset or volume as the background snap is completed.

JOB	Issue a completion message when the background snap for all datasets or volumes (requesting notification and with the same GROUP <i>name</i> , if specified) in a job have completed.
STEP	Issue a completion message to the console when the background snap for all datasets or volumes (requesting notification and with the same GROUP name, if specified) in a job step has completed.
SNAP	Issue a completion message when the background snap for all datasets or volumes (requesting notification and with the same GROUP name, if specified) in this statement have completed.

Note: “NOTIFYwhencomplete parameter” on page 82 provides additional information.

Comments

- ◆ The NOTIFYWHENCOMPLETE parameter has a matching site option, &NTFYLVL. [Table 3 on page 45](#) lists the site options.
- ◆ The NOTIFYWHENCOMPLETE parameter applies only to locally addressable volumes. NOTIFYWHENCOMPLETE is ignored if you specify it with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ The NOTIFYWHENCOMPLETE parameter has to poll the box to determine when the copy is complete. The poll is performed with a one-second wait (default) between checks. However, the overhead varies based on the number of extents and how long it takes the background copy to complete.

When the number of extents is large, you can add a parameter to the SCF INI file that allows a larger delay between polls, such as an interval of 60 seconds or more . The parameter is "SCF.SNAP.NOTIFY_POLLTIME" and the value is in seconds.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

None

NOTREADY(EXCLUDE|INCLUDE)

The NOTREADY parameter includes or excludes devices that are not ready from a QUERY VOLUME device list. Possible values are:

<u>EXCLUDE</u>	Exclude devices that are not ready from the device list.
<u>INCLUDE</u>	Include devices that are not ready from the device list.

Comments

The NOTREADY parameter has a matching site option, &OPT_NOTREADY. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

◆ QUERY VOLUME

Default value

INCLUDE

PARAllel|PAR(YES|NO)

The PARALLEL parameter enables or disables multitasking. Possible values are:

YES	Enables multitasking.
NO	Disables multitasking.

Comments

The PARALLEL parameter has a matching site option, &PARALLEL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value to enable or disable multitasking.

Default value

NO

Examples

PARALLEL (YES)

PARALLEL_CLONE(YES|NO|PREFferred|REQuired)

The PARALLEL_CLONE parameter is used to invoked the Simultaneous TF/Clone microcode feature (if available). When conditions are met, a dual clone session is established between the source and target R2 devices, avoiding the secondary SRDF/S transmission of a copied dataset from the target R1 to the corresponding R2 device.

This feature ensures disaster restartability is intact at all times.

Possible values are:

YES	Enables parallel cloning.
NO	Disables parallel cloning. Parallel Clone is not attempted, even if the devices have the potential to take advantage of the parallel clone function.
PREFferred	Parallel clone is enabled, but if there is a reason why the device cannot execute the simultaneous TF/Clone microcode feature, then the request continues using non-parallel clone methods.
REQuired	Parallel clone is enabled for the appropriate devices (for example, source and target are both R1 devices in a common controller, and the matching R2 devices are also in a common controller) . If there is some reason why the request cannot be completed using parallel clone, then the request fails.

Comments

This parameter is also allowed on the SNAP DATASET and the SNAP VOLUME statements, and can be set as a site option.

The `ACTIVATE CONSISTENT(YES)` parameter is required, if omitted, the parallel clone operation is still performed and the following informational message is issued:

```
ESNPF371 PARALLEL_CLONE(YES) DETECTED, CONSISTENT(YES) ASSUMED.
```

Other considerations include:

- ◆ SRDF/S is required.
- ◆ Engenuity level 5875 is required on both side of the link.
- ◆ R2 source and target snap volumes are in the same Symmetrix system.
- ◆ The R2 source and target snap volumes cannot be larger than the R1 volumes. TimeFinder blocks this operation.
- ◆ Not supported
 - Cascaded SRDF devices.
 - SRDF/Star environments.
 - Flashcopy (future Engenuity release)
 - Virtual Provisioning (VDEV)
- ◆ The following SRDF operations are blocked on Simultaneous TF/Clone (`PARALLEL_CLONE`) devices:
 - Delete and Half Delete
 - Swap and Half Swap
 - Move Group and Half Move Group

Note: The `PARALLEL_CLONE` parameter should not be confused with the Global `PARALLEL` parameter for multi-tasking or the `PARALLEL SNAP` solution. `PARALLEL_CLONE` invokes the Simultaneous TF/Clone feature starting with Engenuity 5875 microcode.

Global parameter effects

This parameter sets a global value to enable or disable the parallel clone feature.

Default value

None

Examples

```
PARALLEL_CLONE(YES)
SNAP VOLUME...
...
ACTIVATE CONSISTENT(YES) MESSAGES(DISPLAY)
```

PERSISTent(YES|NO)

The `PERSISTENT` parameter is only used on VDEV's and determines whether a standard virtual restore or a persistent virtual restore is performed.

Possible values are:

<code>YES</code>	Perform persistent virtual restore.
<code>NO</code>	Perform standard virtual restore.

Comments

- ◆ Virtual and persistent restores have different behaviors. If you are using a virtual restore (PERSISTENT parameter set to NO), you must terminate any other VDEV session or virtual device assigned to the restore device in order to proceed with a RESTORE VOLUME.

If you are using a persistent restore (PERSISTENT parameter set to YES), you do not have to terminate any other VDEV session or virtual device assigned to the restore device in order to proceed with a RESTORE VOLUME.

- ◆ The PERSISTENT parameter has a matching site option, &PERSIST. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ RESTORE VOLUME

Default value

NO

Examples

PERSISTENT (YES)

POOL(*name*)

The POOL parameter is only used on VDEVs and allows multiple pools to be selected, each with specific snap pool devices. When virtual devices are created, you can associate them with a particular pool.

name The name of the pool.

Note: Pools are used with TF/Snap only. You do not use pools with TF/Clone.

Comments

The POOL parameter has a matching site option, &POOL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

None

PRECOPY(YES|NO)

The precopy argument allows the background copy to begin after the source and target have been marked, prior to the activate operation. The PRECOPY parameter enables this feature.

The SNAP VOLUME command causes three operations to be performed.

- ◆ The first is to create the snap session on the source device.
- ◆ The second is to protect the source and mark the target as indirect.

- ◆ The third is to activate and make it all effective.

Values can be:

- | | |
|-----|--|
| YES | Specifies to initiate the background copy prior to the activation operation. |
| NO | Specifies not to initiate background copying. |

Note: This parameter requires Enginuity 5x71. TimeFinder ignores PRECOPY if you are using an earlier level of Enginuity.

Comments

- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:
 - PRECOPY(YES)
 - MODE(COPY)
 - WAIT_FOR PRECOPY_PASS1(YES)
- ◆ The PRECOPY parameter has a matching site option, &PRECOPY. [Table 3 on page 45](#) lists the site options.
- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

YES

PREPARE_FOR_SNAP(YES|NO)

The PREPARE_FOR_SNAP parameter allows you to bypass the actual snap action and instead, perform and report on all validation, resolve outstanding indirected tracks, and other preparatory work.

Note: The target dataset must already exist for this parameter to be used.

PREPARE_For_SNAP is *not designed* to work for a new snap, volume or dataset. It is designed so that if a situation occurs where a previous snap is not completed, all the relationships and snap status can be completed without initiating any new work, allowing the next snap operation to proceed without waiting for the previous snap to complete.

The PREPARE_FOR_SNAP parameter applies to both SNAP DATASET and SNAP VOLUME. Possible values are:

- | | |
|------------|---------------------------------------|
| <u>YES</u> | Bypass the actual snap action. |
| <u>NO</u> | Do not bypass the actual snap action. |

Comments

- ◆ The PREPARE_FOR_SNAP parameter has a matching site option. The [Table 3 on page 45](#) lists the site options.
- ◆ The PREPARE_FOR_SNAP parameter only applies to locally addressable volumes. PREPARE_FOR_SNAP is ignored if you specify it on actions with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ MODECOPYFINISH is an alias for this parameter.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NO

R1FULLCOPYonly(YES|NO)

In the situation where you specify MODE(NOCOPY) and perform a snap to an R1 device, the data may never be copied to the R1 (because of NOCOPY) or be copied to the corresponding R2 device.

The R1FULLCOPYonly parameter is designed to handle this situation. Works with the MODE(NOCOPY) parameter as it applies to R1 devices. If R1FULLCOPYonly is enabled, TimeFinder ignores MODE(NOCOPY) when the target of the snap is an R1 device. Possible values are:

- | | |
|------------|--|
| <u>YES</u> | Ignore MODE(NOCOPY) when the target of the snap is an R1. |
| <u>NO</u> | Perform MODE(NOCOPY) when the target of the snap is an R1. |

Comments

The R1FULLCOPYonly parameter has a matching site option, &R1FULLCOPY. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

YES

Examples

R1FULLCOPY (NO)

RAID(ALL|NONE|RAIDS|RAID1|RAID5|RAID6|RAID10|FTS)

The RAID parameter is used to restrict the list of devices to one or more types of RAID device. (You can specify multiple arguments.) The RAID parameter is a specification of RAID types desired. For example, if you specify RAID(ALL) on the GLOBAL command and RAID(RAID1,RAID10) on a QUERY VOLUME command, your output is limited to RAID 1 and RAID 10 devices.

Possible values are:

<u>ALL</u>	List all types of RAID devices.
NONE	Do not list RAID devices.
RAIDS	List RAID S devices.
RAID1	List RAID 1 devices.
RAID5	List RAID 5 devices.
RAID6	List RAID 6 devices.
RAID10	List RAID 10 devices.
FTS	List FTS devices.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

ALL

READY(EXCLUDE|INCLUDE)

The READY parameter includes or excludes ready devices from a QUERY VOLUME device list. The *Ready* status indicates devices on a channel that are available for any valid operation.

Possible values are:

<u>EXCLUDE</u>	Exclude ready devices from the QUERY VOLUME device list.
<u>INCLUDE</u>	Include ready devices on the QUERY VOLUME device list.

Comments

The READY parameter has a matching site option, &OPT_READY. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INCLUDE

RECALCULATE_FREESPACE(YES|NO)

Normally, after any allocation of a new dataset occurs, the free space amount is recalculated only on the affected volumes. If you specify RECALCULATE_FREESPACE(YES), the free space amount is recalculated on all candidate volumes.

This is especially useful when allocations are occurring in other jobs simultaneously with the execution of TimeFinder (for example: running multiple simultaneous TimeFinder jobs using the same target volumes). Values can be:

YES	Recalculate freespace on all candidate volumes.
NO	Recalculate freespace only on affected volumes.

Comments

The RECALCULATE_FREESPACE parameter as a site option, &RECALC_FREE. [Table 3 on page 45](#) provides more information.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

Example

```
RECALCULATE_FREESPACE (YES)
```

RENAMEUnconditional(*px*) |
RENAMEUnconditional((*px*) (*oldnamemask*,*newnamemask*)...) |
RENAMEUnconditional((*oldnamemask*,*newnamemask*)...)

You can issue RENAMEUnconditional for any snap dataset. It is a method to provide alternate naming conventions to components being copied. The *oldnamemask* is used to match existing PATH or AIX names. The corresponding *newnamemask* is used to transform the old name into a new name.

A maximum of 127 (*oldnamemask*, *newnamemask*) pairs may be specified.

Note: RENUNC is a valid alias for the RENAMEUnconditional parameter.

Values can be:

<i>px</i>	Specifies the prefix you want to use to replace the first-level qualifier of the dataset name. It is optional, but if specified, must be the first parameter in the list of sub-fields. The prefix is used only if the (<i>oldnamemask</i> , <i>newnamemask</i>) parameters are not specified or the <i>oldnamemask</i> filters do not match the dataset name.
<i>oldnamemask</i>	Specifies a mask to be used as a filtering criterion to check if it matches the dataset name.
<i>newnamemask</i>	Specifies a mask used to derive the new dataset name when the existing dataset name matches the corresponding <i>oldnamemask</i> filtering criterion.

Default value

None

REFVTOC(YES|NO)

The REFVTOC parameter enables or prohibits automatic running of ICKDSF for all SNAP VOLUME operations. Possible values are:

- YES** ICKDSF automatically runs when the target volume is larger than the source volume.
- NO** ICKDSF does not automatically run when the target volume is larger than the source volume.

Comments

- ◆ The REFVTOC parameter has a matching site option, &REFVTOC. [Table 3 on page 45](#) lists the site options.
- ◆ The REFVTOC parameter only applies to locally addressable volumes. REFVTOC is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

NO

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.n*) [CONTROLLER([*xxxxxxx*]-*xxxxx*]*name*)])

The REMOTE parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. As noted earlier, CLEANUP supports only full volume remote sessions. Therefore, the REMOTE parameter only works with full-volume sessions. REMOTE does not work with remote extent sessions.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: The MVS device number cannot be a unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.nn.n*
n) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER

Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters in the same command.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ CLEANUP
- ◆ CONFIG
- ◆ QUERY VDEV
- ◆ QUERY VOLUME
- ◆ RESTORE VOLUME
- ◆ SNAP VOLUME
- ◆ STOP SNAP TO VOLUME

Default value

None

REMOVE_REMOTE_extent_sessions(YES|NO)

The REMOVE_REMOTE_extent_sessions parameter allows or prohibits removal of any extent sessions found on a remote device that is being cleaned up. Values can be:

- YES** Allow removal of any extent session found on a remote device that is being cleaned up.
- NO** Prohibit removal of any extent session found on a remote device that is being cleaned up.

Comments

- ◆ Because the device involved in the extent session is remote, TimeFinder cannot determine whether the background activity for the extent session has completed. If the background activity for the extent session has completed, everything proceeds normally. If the background activity for the extent session has not completed, the target datasets is incomplete or corrupted when the session is removed.
- ◆ The REMOVE_REMOTE_extent_sessions parameter has a matching site option, REMOVE_REMOTE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ CLEANUP

Default value

NO

REPLace(YES|NO)

The REPLACE parameter establishes the REPLACE value for all operations. REPLACE specifies whether the source device is to overwrite data on an existing target device. If the existing device contains user data and you do not specify this parameter, the snap operation terminates. A volume with no user data is defined as one with only a VTOC, a VTOC index, and a VVDS.

If you specify YES and the target volume is not empty, old data on that volume are overwritten. Catalog entries for any datasets existing on the target volume may become invalid. Values can be:

- YES** Specifies that an existing target device with user data be overwritten.
- NO** Specifies that an existing target device with user data not be overwritten.

Comments

- ◆ The REPLACE parameter has a matching site option, &REPLACE. [Table 3 on page 45](#) lists the site options.
- ◆ Depending upon the REUSE parameter, the existing target dataset may be scratched and reallocated (REPLACE(Y) REUSE(N)), or simply reused (REPLACE(Y) REUSE(Y)). [Table 14](#) demonstrates the effect of the REPLACE and REUSE parameters:

Table 14 REPLACE and REUSE effects

Target dataset	REPLACE	REUSE	Result
New - does not exist	(Y) or (N)	(Y) or (N)	A new target dataset is created.
Exists	(N)	(N)	The action fails.
Exists	(N)	(Y)	Syntax error, REUSE(Y) is not allowed with REP(N).
Exists	(Y)	(N)	The existing target dataset is erased and a new target dataset is created.
Exists	(Y)	(Y)	The existing target dataset is reused. If it is not large enough, an attempt is made to expand it.

Note: If REPLACE(Y) and REUSE(Y) and TOLERATE_REUSE_FAILURE(Y) is specified, then initially an existing target dataset is reused. If for some reason, such as size or attributes, the target is not reusable, then the existing target dataset is erased and a new target dataset is created.

- ◆ The REPLACE parameter only applies to locally addressable volumes. REPLACE is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.
- ◆ Using REPLACE(Y) speeds up the snap operation by not querying the VTOC for user dataset names.
- ◆ This REPLACE is valid only with the TARGET parameter.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NO

RESERVE(YES|NO)

If RESERVE(YES) is specified, then the source and target volumes are enqueued and reserved so that VTOC changes cannot take place during the validate function.

If RESERVE(NO) is specified, then the source and target volumes is not enqueued and it is possible for VTOC changes to take place, causing a missed compare during validation.

Comments

- ◆ The RESERVE parameter has a matching site option, &RESERVE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP VOLUME

Default value

YES

REUSE(YES|NO)

The REUSE parameter specifies for all SNAP DATASET operations whether any existing target dataset is to be erased.

Possible values are:

- | | |
|-----|---|
| YES | Specifies that an existing target dataset is not to be erased, but the existing allocation is to be reused. |
| NO | Specifies that the existing target dataset is to be erased. |

Comments

- ◆ Specifying REUSE(YES) is valid only with REPLACE(YES).
- ◆ If you specify REPLACE(YES) and REUSE(YES) when the existing target dataset is not large enough to hold the source dataset, TF/Clone tries to expand the existing target dataset until it is capable of holding the entire source dataset.

Note: If you specify REPLACE(YES) and REUSE(YES) and TOLERATE_REUSE_FAILURE(YES), then an existing target dataset is initially reused. If for some reason, such as size or attributes, the target is not reusable, the existing target dataset is erased and a new target dataset is created.

- ◆ The REUSE parameter has a matching site option, &REUSE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

REUSE_AUTO_expand(YES|NO)

The REUSE parameter controls whether expanding an existing dataset is allowed. To take effect, REPLACE (YES) and REUSE(YES) must also be set.

Note: This parameter is used only for dataset copies, not for volume copies.

Possible values are:

<u>YES</u>	If the existing target dataset is not large enough, an attempt is made to expand it.
NO	If the existing target dataset is not large enough, no attempt is made to expand it.

Note: You can use RESUSE_AUTO_EXPAND(NO) with ALLOCATE_UNUSED_SPACE(NO) and TOLERATE_TRUNCATION(YES). “ALLOCATE_UNUSED_SPACE(YES|NO)” on [page 156](#) and “TOLERATE_TRUNCATION(YES|NO)” on [page 225](#) provide more information about these parameters.

Comments

The REUSE parameter has a matching site option, &AUTOXPND. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

SAVEDEV(EXCLUDE|INCLUDE)

The SAVEDEV parameter includes or excludes SAVEDEV devices from QUERY VOLUME device lists. Possible values are:

<u>EXCLUDE</u>	Exclude SAVEDEV devices from QUERY VOLUME device list.
<u>INCLUDE</u>	Include SAVEDEV devices on QUERY VOLUME device list.

Comments

The SAVEDEV parameter is also available as a site option, &OPT_SAVEDEV. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INCLUDE

SELECTMULTI(ALL|ANY|FIRST)

SELECTMULTI specifies the criteria you want to apply to volumes in a LOGINDYNAM list before processing selection can take place. Possible values are:

<u>ALL</u>	All dataset volumes must be in the LOGINDYNAM list for the dataset to be selected for processing. If one volume is not in the list, then the dataset is not selected.
ANY	Any of the dataset volumes must be found in the LOGINDYNAM list for the dataset to be selected for processing. If no volumes are found in the list, then the dataset is not selected.
FIRST	Check the first source dataset volume. If that first source dataset volume is not found in the LOGINDYNAM list of volumes, that dataset is not selected.

Comments

Any volumes supplied to DFSS's INDYNAM are passed to the EMCSNAPI interface as if they were supplied by LOGINDYNAM with SELECTMULTI(ALL) specified.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

ALL

SESSION_LIST(Yes|No[,DETail],NODETail,DIFFerential))

The SESSION_LIST query parameter indicates whether more detail is desired about sessions active on a device. If you specify you want a list of active sessions (by selecting YES). You can then specify what kind of information you want whether about the sessions by choosing DETAIL, NODETAIL, or DIFFERENTIAL. Possible values are:

Yes	List the active sessions.
-----	---------------------------

<u>No</u>	Do not list the active sessions.
DETail	Provide detail about the active sessions on the list.
NODETail	Do not provide detail about the active sessions on the list.
DIFFerential	<p>The DIFFERENTIAL parameter allows you to add data to the QUERY volume report (messages ESNPP31I and ESNPP30I) about changed tracks on the source and target volumes.</p> <p>If you specify DIFFERENTIAL, you see the following additional fields in the report:</p> <p>DIFF_CNT = The total number of changed tracks on the source and target (determined by combining bit-masks before counting bits).</p> <p>DIFF-SRC =The total number of tracks changed on the source.</p> <p>DIFF-TGT = The total number of tracks changed on the target.</p> <p>“QUERY VOLUME” on page 242 provides more information.</p>

Note: SESSIONLIST, SESS_LIST and SESSLIST are all valid short-forms for SESSION_LIST.

Comments

- ◆ SESSION_LIST(Yes|No) has a matching site option, &SESSLIST.
- ◆ SESSION_LIST with the DETail|NODETail parameter has a matching site option, &SESSDETL.
- ◆ SESSION_LIST with the DIFFerential parameter has a matching site option, &SESSDIFF.

[Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

NO

SIZE(ALL|MOD1|MOD2|MOD3|MOD9|MOD27|MOD54|#|*low-high*)

The SIZE parameter selects the devices to be listed based on the number of cylinders that a device has. You can specify multiple keywords in a single command. Separate each keyword with a space (as shown in the following example). You can also specify a range of values.

Possible values are:

<u>ALL</u>	List devices if all cylinder configurations.
MOD1	List devices of 1113 cylinders.
MOD2	List devices of 2226 cylinders.
MOD3	List devices of 3339 cylinders.
MOD9	List devices of 10017 cylinders.
MOD27	List devices of 32760 cylinders.
MOD54	List devices of 65520 cylinders.
#	List devices of the specified number of cylinders.
<i>low - high</i>	List devices in the specified range (low to high) of cylinders.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

ALL

Example

```
QUERYVOLUME (SIZ (MOD9 MOD27) )
```

SMS_PASS_volumes(YES|NO)

The SMS_PASS_VOLUMES parameter allows you to change SMS processing so that you can supply volumes on a SNAP DATASET command that is passed to SVC99 and IDCAMS even through the dataset is an SMS-managed dataset. This allows the ACS routine to determine whether the supplied volumes is allowed or ignored.

Note: The ACS routines also determine if the UNITNAME or ESOTERIC is ignored.

Possible values are:

YES Allow SMS-managed datasets to be passed to SVC99 and IDCAMS, with a volume list, where the ACS routine can either use or ignore them.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

NO Ignore any user-supplied volumes.

This has no effect if the storage class is guaranteed space. With guaranteed space, the user-supplied volume list is always passed.

Comments

The SMS_PASS_VOLUMES parameter is also available as a site option, &SMSPASSVOL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

SNAP_UNUSED_SPACE(YES|NO)

The SNAP_UNUSED_SPACE parameter determines whether the tracks copied to the target dataset are only those tracks in the used portion of the source dataset or the entire allocation including both used and unused space. This parameter only applies to sequential and standard partitioned datasets.

Possible values are:

<u>YES</u>	Specifies copying all the tracks in the source dataset including both used and unused space.
NO	Specifies only copying the tracks in the used portion of the source dataset.

Comments

The SNAP_UNUSED_SPACE parameter is also available as a site option, &SNUNUSED. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

SRDFA_CONSISTENT_RETRY(Yes|No|*nn*)

This parameter controls the retry attempts when SRDF/A is not consistent. The default value is 10. Yes means retry indefinitely. No means do not retry at all.

Comments

- ◆ When the suspend is attempted, it fails if any invalids exist on any R1 device in the group (not just R1 devices related to devices being copied). If it fails and retry is allowed, a wait occurs until the current cycle trips. Then the suspend is attempted again. The number of retries is a real count, not a time value. If multiple SRDF/A groups are involved, all of them switch to a new cycle before the suspend is retried.
- ◆ SRDFA_CONSISTENT_RETRY is only used if ACTIVATE with CONSISTENT(YES) is specified. Otherwise it is ignored.
- ◆ The SRDFA_CONSISTENT_RETRY parameter is also available as a site option, &SRDFA_RETRY. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ ACTIVATE

Default value

10 (retry attempts)

SRDFA_R1_target(Yes|No|DATAMOVERName|PHYSical|INFormational)

The SRDFA_R1_TARGET parameter specifies how SRDF/A R1 devices are to be used if they are designated as target devices.

Possible values are:

<u>No</u>	Does not allow SRDF/A R1 devices to be used as target devices. Also generates an error message (ESNPQ11E or ESNPQ13E) when an R1 device is the target.
-----------	--

Yes	Allows SRDF/A R1 devices to be used as target devices. A warning message is generated (ESNPQ10W or ESNPQ12W) when an R1 device is the target.
DATAMOVERName	Allows SRDF/A R1 devices to be used as target devices as long as a datamover name is also specified. If you do not specify a datamover name, DATAMOVERRIDE acts as if you specified No. If a device is not active on the link, it is treated like a non-RDF device, so the datamover will not be used. If DATAMOVERRIDE is used with the SRDFA_R1_target parameter, the parameter DATAMOVERRIDE(datamover utility) is also required.
PHYSICAL	Allows SRDF/A devices to be used as targets. Forces an internal datamover (COPYCYL) to always be used to copy track contents to a targeted R1 device.
INFORMATIONAL	Allows SRDF/A devices to be used as target devices and allow the Enginuity to copy the track contents. An informational message is generated (ESNPQ14I) when R1 devices are targets.

Comments

- ◆ The SRDFA_R1_TARGET parameter has a matching site option, &SRDFAR1. [Table 3 on page 45](#) lists the site options.

- ◆ TimeFinder in an SRDF Environment

Whenever you use an SRDF/A R1 device as the target device, you receive messages to warn you that the data is not available on the R2 when the snap is first initiated. In fact, it could take some time for the data to actually be copied to the R2 device.

To allow an SRDF/A R1 device to be used as a target device, specify the SRDFA_R1_TARGET parameter indicating YES, DATAMOVERRIDE, or PHYSICAL.

On an SRDF/A device, the underlying Enginuity uses an internal copy mode to migrate the indirect tracks to the R1 device, and then copy and apply the tracks to the R2 device during normal SRDF/A cycles. Because it is difficult to know when the *indirects* are done copying, it is also hard to know which cycle may complete the copy to the R2. By default an error message (ESNPQ11E) is issued when the R1 device is an SRDF/A device.

Note: *Protected and indirects* are the EMC terms for the controlled relationship of tracks that is established between a source and a target. Data on the source tracks is “protected” before being copied to a target’s “indirects”, or the tracks locations dedicated to receive the data.

If the data is critical in an outage situation, then you should use a physical datamover. This ensures that the data placement on the R2 device is complete. It is definitive that when the physical datamover is complete, the data is in a cycle to show up on the R2 (in SRDF/A mode).

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET

◆ SNAP VOLUME

Default value

No

SRDFA_R2_sync(WARNING|DATAMOVER|R1R2SYNC)

The SRDFA_R2_SYNC parameter indicates the processing that should occur if TimeFinder detects that it can use the SRDF/A R2 device as the snap source in a two-Symmetrix system SRDF/A snap situation. This parameter only affects snaps that are not consistent. Consistent snaps always suspend cycle switching on the SRDF/A group. Possible values are:

<u>WARNING</u>	A warning message (ESNPP20W) is issued when a snap occurs from the secondary device and there is the possibility that the contents may not match the primary device at the time the snap is invoked.
DATAMOVER	If you specify datamover name, then TimeFinder uses it to copy the data from the primary device, instead of snapping from the R2 device. If you do not specify a datamover name, the snap proceeds from the secondary device and a warning message (ESNPP20W) is issued.
R1R2SYNC	The snap occurs from the R2 device, but a wait takes place. TimeFinder monitors the cycle values and waits for two complete cycles to pass to ensure that the contents of the primary device at the time the snap was invoked have propagated to the secondary device.

Comments

- ◆ The SRDFA_R2_SYNC parameter has a matching site option, &SRDFAR2. [Table 3 on page 45](#) lists the site options.
- ◆ The operation is a snap of the R1 source volume or dataset through the SRDF/A R2 device to a target in the same Symmetrix system where the R2 device resides.
- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

WARNING

SRDFS_R1_target(Yes|No|DATAMOVERName|PHysical|INformational)

The SRDFS_R1_TARGET parameter specifies how SRDF/S R1 devices are to be used if they are designated as target devices.

Possible values are:

Yes	Allows SRDF/S R1 devices to be used as target devices with Enginuity. A warning message is generated (ESNPQ10W or ESNPQ12W) when an R1 device is the target.
No	Prohibits SRDF/S R1 devices to be used as target devices. Also generates an error message (ESNPQ11E or ESNPQ13E) when an R1 device is the target.
DATAMOVERNAME	Allows SRDF/A R1 devices to be used as target devices as long as a datamover name is also specified. If you do not specify a datamover name, DATAMOVERNAME acts as if you specified No. If a device is not active on the link, it is treated like a non-RDF device, so the datamover will not be used. If DATAMOVERNAME is used with the SRDFA_R1_target parameter, the parameter DATAMOVERNAME(datamover utility) is also required. An informational message is generated (ESNPQ15I) when an R1 device.
PHYSICAL	Allows SRDF/S devices to be used as targets. Forces an internal datamover (COPYCYL) always to be used to copy track contents to a targeted R1 device.
INFORMATIONAL	Allows SRDF/S devices to be used as target devices and allows Enginuity to be used to copy the track contents. An informational message is generated (ESNPQ15I) when R1 devices are targets

Comments

- ◆ The SRDFS_R1_TARGET parameter has a matching site option, &SRDFS_R1. [Table 3 on page 45](#) lists the site options.
- ◆ TimeFinder in an SRDF Environment: Whenever you use an SRDF/S R1 device as the target device, you receive messages that the data is not available on the R2 the instant the snap is initiated. In fact, it could take some time for the data to be copied to the R2 device.

On an SRDF/S device, Enginuity uses an internal copy mode to migrate the indirect tracks to the R1 device (independent of the source device). Then, Enginuity uses adaptive copy mode to migrate the copied tracks to the R2 device.

Because two background copies are occurring, the R1/R2 are normally equal, but may be out of sync for a very brief period of time. By default, a warning message (ESNPQ12W) is issued when the R1 device is a SRDF/S device.

If the data is critical in an outage situation, then a physical data move should be used, ensuring the data placement on the R2 device is complete. When the physical datamover is complete, the data is on the R2 (in SRDF/S mode).

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET

- ◆ SNAP VOLUME

Default value

No

STORAGECLASS(*classname*)

The STORAGECLASS parameter sets the SMS storage class for a newly allocated target dataset.

classname Specifies the locally defined list of storage attributes required for the target dataset. Your storage administrator determines the valid storage class names for your site.

Comments

- ◆ The STORAGECLASS parameter is also available as a site option, &STORCLAS. [Table 3 on page 45](#) lists the site options.
- ◆ SAF or equivalent authorization is required if you are requesting the source class.
- ◆ Local SMS ACS routines may place the target dataset in a storage class other than that specified by this parameter. As with all SMS datasets, specifying storage class is only a suggestion. SMS may or may not accept it.
- ◆ TF/Clone does not assign the source storage class to a target dataset automatically unless you specify COPYSMS(STGCLASS). You must ensure that the correct storage class is assigned to the target dataset by using the STORAGECLASS parameter or ACS selection.
- ◆ If an existing target dataset is reused, the storage class information is not changed.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

None

Example

```
STORCLAS (SITESSCL)
```

STORED_LOG_SIZE(*size*)

The STORED_LOG_SIZE parameter is used with GLOBAL_DEBUG(ERROR) and GLOBAL_DEBUG(EMCQCAPI_INLINE_TRACE) to set the number of output debug lines that are stored in memory. If an error occurs, the stored debug lines are written to the output listing file.

size Specifies the number of output debug lines to be stored. The value can be an integer from 0 (zero) to a very large number, over a billion.

Comments

The STORED_LOG_SIZE parameter is also available as a site option, &STORED_LOG_SIZE. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ GLOBAL (only)

Default value

None

Example

```
GLOBAL DEBUG (ERROR, EMCQCAPI_INLINE_TRACE)
GLOBAL STORED_LOG_SIZE (25000)
```

TDEV(EXClude|INClude)

This TDEV parameter determines whether thin devices are to be included in reports generated by the QUERY VOLUME command. Possible values are:

EXClude Exclude thin devices on QUERY VOLUME reports.
INClude Include thin devices on QUERY VOLUME reports.

Comments

The TDEV parameter is also available as a site option, &OPT_TDEV. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INClude

TDEV_RECLAIM(YES|NO)

This TDEV parameter can initiate a reclaim of the target device after a full device clone operation to prevent any “unallocated but assigned” tracks on the source device to be copied to the target device.

YES Initiate a reclaim of unallocated but assigned tracks.
NO Copy without reclaiming unallocated but assigned tracks.

Comments

No comments.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

YES

TERMINATE_SESSION_when_complete(YES|NO)

The TERMINATE_SESSION_WHEN_COMPLETE parameter allows a full-volume session snap to terminate automatically after the copy is complete. This eliminates the need to remove the session by running a CLEANUP on the source device.

Note: “[CLEANUP \[EXTENT TRACK ON\]](#)” on page 133 provides more information about the CLEANUP command.

Possible values are:

<u>YES</u>	The full-volume snap session is terminated automatically when the background copy is complete.
NO	The full-volume snap session is not automatically removed. A CLEANUP request is necessary to remove the session after the background copy is complete.

Comments

- ◆ The TERMINATE_SESSION_WHEN_COMPLETE parameter has a matching site option, &TERMSESS. [Table 3 on page 45](#) lists the site options.
- ◆ The TERMINATE_SESSION_WHEN_COMPLETE parameter requires Engenuity 5x71. TimeFinder ignores this parameter if it encounters earlier levels of Engenuity.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

YES

THINPOOL(INCLUDE|EXCLUDE)

Used to include or exclude thin pool log devices from a QUERY VOLUME device list.

Comments

- ◆ The THINPOOL parameter has a matching site option, &THINPOOL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ QUERY VOLUME

Default value

INCLUDE

TIMEOUT(*nnn*|0)

The TIMEOUT parameter determines the maximum time ECA is active during consistent SNAP VOLUME operations. Possible values are:

<i>nnn</i>	A value from zero (0) to 127 seconds. When this value is exceeded, ECA is released whether the consistent snap is formed or not. A message is issued indicating that the snap is not consistent.
<u>0</u>	The duration of the ECA assist is determined by the time needed to initiate a consistent snap.

Comments

The TIMEOUT parameter has a matching site option, &TIMEOUT. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ ACTIVATE

Default value

0 (zero)

Example

```
ACTIVATE (TIMEOUT(10))
```

Note: Enginuity Consistency Assist (ECA) is a feature of the Enginuity operating environment. ECA (often called RDF-ECA, a part of SRDF consistency) provides an enterprise solution for ensuring dependent write consistency in SRDF/S configurations with more than one SRDF group. ECA requires that you have the TF/Consistency Group Licensed Feature Code (parameter CONSISTENT) installed. The *EMC Mainframe Enablers Installation and Customization Guide* provides more information.

TOLERATE_REUSE_FAILURE(YES|NO)

The TOLERATE_REUSE_FAILURE parameter specifies whether to continue the snap operation if the target dataset is not reusable by scratching and reallocating the dataset. Possible values are:

- | | |
|-----------|---|
| YES | Continue the snap operation if the target dataset is not reusable. |
| <u>NO</u> | Do not continue the snap operation if the target dataset is not reusable. |

Comments

- ◆ The TOLERATE_REUSE_FAILURE parameter has a matching site option, &REUSFAIL. [Table 3 on page 45](#) lists the site options.

Note: If you specify REPLACE(YES) and REUSE(YES) and TOLERATE_REUSE_FAILURE(YES), then an existing target dataset is initially reused. If for some reason, such as size or attributes, the target is not reusable, the existing target dataset is erased and a new target dataset is created.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

Example

```
TOL_REUS_F(YES)
```

TOLerateALLOcationFailure(YES|NO)

The TOLERATEALLOCATIONFAILURE parameter specifies whether to override normal multiple target allocation failure procedure to allow execution to continue on successfully allocated targets. This parameter is useful where the target dataset name is wild carded.

When multiple targets are allocated due to wild carding, the normal procedure stops the action and deletes any successfully allocated targets as soon as any one allocation fails. Specifying TOLERATEALLOCATIONFailure overrides the normal procedures and allows the allocation and subsequent copy to continue on the successfully allocated targets.

When several target datasets are being allocated, it may be desirable for those which are successfully allocated to be copied even when some of the target dataset allocations fail. Values can be:

- | | |
|-----------|--|
| YES | Allows execution to continue even when some target datasets were not successfully allocated. |
| <u>NO</u> | Specifies that execution is to stop and to erase any successfully allocated target datasets when any target datasets are not successfully allocated. |

Comments

The TOLERATEALLOCATIONFAILURE parameter has a matching site option, &ALLOFAIL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TOLERATE_COPY_FAILURE(YES|NO)

The TOLERATECOPYFAILURE parameter specifies whether to override normal multiple extent copy procedure to allow execution to continue on successfully allocated targets.

When a copy process fails for any extent or group of extents, the normal procedure stops the action and deletes any successfully allocated datasets. Specifying the TOLerateCOPYFailure parameter overrides the normal procedures to prevent deletion of successfully allocated datasets and to continue with the copy.

The TOLERATECOPYFAILURE parameter prevents the target datasets from being deleted after a copy failure.

When several target datasets are being allocated, it may be desirable for those which are successfully allocated to be copied even when some of the target dataset allocations fail. Values can be:

- | | |
|-----------|--|
| YES | Allows all existing target datasets to remain allocated after a copy failure. |
| <u>NO</u> | Specifies that all allocated target datasets are deleted if a copy failure occurs. |

Comments

The TOLERATECOPYFAILURE parameter has a matching site option, ©FAIL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TOLERATE_DATACLASS_COMPACTION_MISMATCH (YES|NO)

The default value of NO checks to ensure that the source dataset compaction type matches the target data class compaction type. If they do not match, an error occurs.

If the value is changed to YES, then the check is not made and it is possible to copy a non-compact dataset to a compact data class, or a compact dataset to a non-compact data class.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TOLERATE_DATACLASS_EXTENDED_MISMATCH (YES|NO)

The default value of NO checks to ensure that the source dataset extended type matches the target data class extended type. If they do not match, an error occurs.

If the value is changed to YES, the check is not made and it is possible to copy a non-extended dataset to a extended data class, or a extended dataset to a non-extended data class.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TOLERATEENQFAILURE(YES|NO)

The TOLERATEENQFAILURE parameter allows you to snap datasets when exclusive serialization control over them cannot be obtained. Integrity of the dataset cannot be assured. You must use the TOLERATEENQFAILURE parameter, if you specify HOSTCOPYMODE(EXCL), to snap a dataset that is unavailable at the exclusive serialization level.

This parameter also is used for snapping a volume that must remain allocated during the snap operation. An example is a volume in use by a database management system (DBMS).

Values can be:

- | | |
|------------------|--|
| YES | Enables the snapping of a dataset that is unavailable at the exclusive serialization level. |
| <u>NO</u> | Specifies that the dataset is not to be snapped if it is unavailable at the exclusive serialization level. |

Comments

- ◆ The TOLERATEENQFAILURE parameter has a matching site option, &ENQFAIL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ RESTORE VOLUME
- ◆ SNAP DATASET
- ◆ SNAP VOLUME

Default value

NO

TOLERATETRUNCATION(YES|**NO**)

The TOLERATETRUNCATION parameter set to YES allows a dataset to be truncated and a warning message to be issued if the target extent size is smaller than the source. TimeFinder truncates the dataset only if it cannot allocate more space. Truncation may cause loss of data.

If the TOLERATETRUNCATION parameter is defaulted, or set to NO, the snap fails if the target cannot be extended.

Because VSAM, PDSE, striped, or extended addressability datasets never allow truncation, this option has no effect on them. Values can be:

- | | |
|------------------|--|
| YES | Enables the truncation of a data snapped to a smaller dataset. |
| <u>NO</u> | Specifies that the dataset is not to be truncated if the target is smaller than the source dataset and the snap fails. |

Comments

- ◆ The TOLERATETRUNCATION parameter has a matching site option, &TRUNC. [Table 3 on page 45](#) lists the site options.
- ◆ If the target dataset cannot be allocated as large as the source dataset (x37), TF/Clone allows the snap operation but truncates the data being snapped to the size of the target dataset.
- ◆ This parameter is only active when the target dataset requires more space than its primary allocation.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TOLerateVSAMENQFailure(YES|NO)

If a VSAMENQMODE cannot be satisfied, the TOLERATEVSAMENQFAILURE parameter determines what happens.

If TOLERATEVSAMENQFAILURE (NO) is specified (or defaulted), an error message is issued and processing of the request terminates. If TOLERATEVSAMENQFAILURE (YES) is specified, a warning message is issued but processing of the request continues.

Possible values are:

YES Specifies that a warning message is issued and processing continues.

NO Specifies that an error message is issued and processing stops.

Comments

The TOLERATEVSAMENQFAILURE parameter has a matching site option, &VSAMFAIL. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

TYPRUN(NORUN|RUN|SCAN)

The TYPRUN parameter determines the type of command processing. Possible values are:

NORUN Specifies parsing all commands and identifying the datasets that are going to be processed, but not actually doing any work.

RUN Specifies fully processing all commands.

SCAN Specifies stopping command processing after all commands have been parsed. In other words, performing syntax checking and then stopping.

Global parameter effects

This parameter sets a global value for how commands are processed.

Default value

RUN

VALIDATE_RANGE(LOCAL(AUTO|IGNORE))**VALIDATE_RANGE(REMOTE(AUTO|IGNORE))**

In normal SNAP VOLUME processing, each request is handled as independent and unrelated to any other requests. This means that each SNAP VOLUME request is processed as if there were no other statements present in the input stream. Each device (source or target) is validated individually and perhaps repeatedly (for example, a source volume may be used in multiple requests).

Depending on the keyword you use, the VALIDATE_RANGE parameters can change the validation processing.

VALIDATE_RANGE(LOCAL... can change validation processing for local (source and target) devices.

VALIDATE_RANGE(REMOTE... can change validation processing for remote (source and target) devices.

Parameter values can be:

AUTO Changes device validation processing. Information about the device that is obtained from the Symmetrix system includes information about many devices instead of a single device.

This additional information is cached and is used if additional requests refer to any of these devices. This processing is automatically chosen for three situations:

- ◆ SYMDV# is specified and uses a range.
- ◆ UNIT is specified and uses a range.
- ◆ A group is processed.

LOCAL Changes device validation. Information about local devices is obtained from the local Symmetrix system.

This additional information is cached and is used if additional requests refer to any of these devices. This processing is automatically chosen for three situations:

- ◆ SYMDV# is specified and uses a range.
- ◆ UNIT is specified and uses a range.
- ◆ A group is processed.

REMOTE Changes device validation. Information about remote devices is obtained from the remote Symmetrix system.

This additional information is cached and is used if additional requests refer to any of these devices. This processing is automatically chosen for three situations:

- ◆ SYMDV# is specified and uses a range.
- ◆ UNIT is specified and uses a range.
- ◆ A group is processed.

IGNORE Does not change device validation.

Comments

VALIDATE_RANGE(LOCAL... and VALIDATE_RANGE(REMOTE... have matching site options:

- ◆ &VALRANGE_LOCAL
- ◆ &VALRANGE_REMOTE

[Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

AUTO

VARY_OFFline(AUTO|NEVER)

The VARY_OFFLINE parameter specifies whether the target device must be offline before the request processing begins. Possible values are:

AUTO	Use VARY OFFLINE when appropriate.
NEVER	Do not vary devices offline.

Comments

- ◆ The VARY_OFFLINE parameter has a matching site option, &VARYOFF. [Table 3 on page 45](#) lists the site options.
- ◆ The VARY_OFFLINE parameter only applies to locally addressable volumes. VARY_OFFLINE is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.
- ◆ When VARY_OFFLINE is set to AUTO and the device is already in the required state, TimeFinder takes no action. When VARY_OFFLINE is set to NEVER, TimeFinder also takes no action, but leaves the device in the existing state.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ RESTORE VOLUME
- ◆ SNAP VOLUME

Default value

AUTO

VARY_ONline(AUTO|YES|NO)

The VARY_ONLINE parameter specifies whether the target device must be online after the requested processing completes. Possible values are:

AUTO	Use VARY ONLINE when appropriate.
YES	Use VARY ONLINE all the time whatever the current state.
NO	Do not vary devices online.

Comments

- ◆ The VARY_ONLINE parameter only applies to locally addressable volumes. VARY_ONLINE is ignored if you specify it on actions with the SYMDV# or LOCAL or REMOTE parameters.
- ◆ When VARY_ONLINE is set to AUTO and the device is already in the required state, TimeFinder takes no action. When VARY_ONLINE is set to YES, TimeFinder always varies the device online regardless of the device's current state. When VARY_ONLINE is set to NO, TimeFinder takes no action, but leaves the device in the existing state.
- ◆ The VARY_ONLINE parameter has a matching site option, &VARYON. &VARYON, however, only takes the values AUTO and NEVER. (NEVER has the same meaning as NO.) [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ RESTORE VOLUME
- ◆ SNAP VOLUME

Default value

AUTO

VCLOSE(YES|NO)

The VCLOSE parameter determines whether a VCLOSE operator command is issued to the CATALOG address space for the target volume. If a catalog resides on the target volume, the CATALOG address space should be notified or subsequent problems may occur.

Possible values are:

- | | |
|-----------|---|
| YES | Issue the VCLOSE CAS modify command. |
| <u>NO</u> | Do not issue the VCLOSE CAS modify command. |

Comments

- ◆ The VCLOSE parameter has a matching site option, &VCLOSE. [Table 3 on page 45](#) lists the site options.
- ◆ The VCLOSE parameter only applies to locally addressable volumes. VCLOSE is ignored if you specify it on actions with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ You need to have purchased and installed the TF/Clone Licensed Feature Code to perform full-volume snaps.
- ◆ VCLOSE is applied only to online volumes.
- ◆ VCLOSE should be used whenever there is a catalog on a volume.
- ◆ VCLOSE (YES) can be safely specified all the time.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ RESTORE VOLUME
- ◆ SNAP VOLUME

Default value

NO

VDEVice(EXCLUDE|INCLUDE)

The VDEVICE parameter excludes or includes virtual devices on QUERY VOLUME lists.

Values can be:

<code>EXCLUDE</code>	Excludes virtual devices from QUERY VOLUME lists.
<code>INCLUDE</code>	Includes virtual devices from QUERY VOLUME lists.

Comments

- ◆ The VDEVICE parameter has a matching site option, &OPT_VDEV. [Table 3 on page 45](#) lists the site options.
- ◆ The VDEVICE parameter is only available if you purchase the TF/Snap Licensed Feature Code. “[eLicensing and Licensed Feature Codes](#)” on page 40 provides more information.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ ACTIVATE
- ◆ QUERY VOLUME

Default value

INCLUDE

Example

```
GLOBAL (VDEV (EXCLUDE) )
```

VDEVWAIT(YES|NO)

Multiple jobs executing TF/Snap should not perform operations on the same VDEV at the same time. It causes confusion. The VDEVWAIT parameter indicates what should happen if TF/Snap attempts to perform an operation against a VDEV that already has another job operating against it.

If you allow the default (VDEVWAIT(NO)), an error message, ESNPT30E is issued that indicates that VDEV is in use. If you specify VDEVWAIT(YES), the additional TF/Snap job waits until the first TF/Snap job finishes with the VDEV before proceeding.

Comments

- ◆ The VDEVWAIT parameter has a matching site option, &VDEVWAIT. [Table 3 on page 45](#) lists the site options.
- ◆ This behavior may cause unwanted or undesired actions on the VDEV, simply depending on the order of the jobs executing.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP VOLUME

Default value

NO

VERIFY(YES|NO)

The VERIFY parameter causes TimeFinder to do an IDCAMS VERIFY on the target VSAM dataset. Possible values are:

<u>YES</u>	Directs TimeFinder to perform an IDCAMS VERIFY on the target VSAM dataset.
NO	Directs TimeFinder not to perform an IDCAMS VERIFY on the target VSAM dataset.

Comments

- ◆ The VERIFY parameter has a matching site option, &VERIFY. [Table 3 on page 45](#) lists the site options.
- ◆ The *EMC TimeFinder/Utility for z/OS Product Guide* provides more information about IDCAMS.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

YES

VERIFY_OPEN_SOURCE(YES|NO)

The VERIFY_OPEN_SOURCE parameter determines whether TimeFinder issues a warning message (ESNPB21) and performs an IDCAMS VERIFY whenever an attempt is made to copy an open VSAM file. The purpose of this verification is to attempt to reset the VSAM OPEN indicator for those files that were not really open but simply had a VSAM OPEN indicator left set from a previous operation.

Possible values are:

<u>YES</u>	Specifies that the message is issued and an IDCAMS VERIFY is performed whenever an attempt is made to copy an open VSAM file.
NO	Specifies that no message is issued and no IDCAMS VERIFY is performed whenever an attempt is made to copy an open VSAM file.

Comments

- ◆ The VERIFY_OPEN_SOURCE parameter has a matching site option, &VERIFY_OPEN_SOURCE. [Table 3 on page 45](#) lists the site options.
- ◆ The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

VSaMENQMODE(SHAREd|SHR|EXCLusive|NONE)

The VSAMENQMODE parameter identifies the type of VSAM ENQ testing to perform. Possible values are:

SHAREd SHR	Specifies that an ENQ is issued with the SHR attribute.
EXCLusive	Specifies that an ENQ is issued with the EXCLUSIVE attribute.
NONE	Specifies that no testing of the SYSVSAM ENQ is performed.

Comments

- ◆ The VSAMENQMODE parameter has a matching site options, &VSAMENQ. [Table 3 on page 45](#) lists the site options.
- ◆ If you specify VSAMENQMODE (SHARED), then TF/Clone issues an ENQ with the SHR attribute. If the ENQ is satisfied, then processing continues normally. After the request is processed, TF/Clone issues a DEQ to release the resource. If the ENQ cannot be satisfied, the TOLERATEVSAMENQFAILURE parameter determines what happens.
- ◆ If you specify TOLERATEVSAMENQFAILURE (NO) (or default it), TF/Clone writes an error message and terminates processing of the request. If you specify TOLERATEVSAMENQFAILURE (YES), TF/Clone writes a warning message and continues processing the request.
- ◆ If you specify VSAMENQMODE (EXCLUSIVE), an ENQ is issued with the EXC attribute. If the ENQ is satisfied, processing continues normally. After the request is processed, then TF/Clone issues a DEQ to release the resource. If the ENQ cannot be satisfied, the TOLERATEVSAMENQFAILURE parameter determines what happens.

Note: [Table 5 on page 102](#) provides additional information.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

None

WAITFORCOMPLETION([YES|NO|*hh:mm:ss*] [,MeSsaGes][,R1R2SYNC] [TIMEOUT(INFormational|WARning|ERRor)])

The WAITFORCOMPLETION parameter specifies for all SNAP DATASET, SNAP VOLUME, and RESTORE VOLUME operations. whether TimeFinder is to wait for the copy operations to complete before terminating.

Possible values are:

YES	This causes TimeFinder to wait for the copy operations to complete before terminating.
NO	This causes TimeFinder to terminate without waiting for copy operations to complete.
R1R2SYNC	Wait for the snap to an R1 to complete and for the R1 to complete synchronization with its partner R2.
<i>hh:mm:ss</i>	Wait for a specific time limit represented by <i>hh:mm:ss</i> , after which the system polling is stopped and TF/Clone reports an error condition and terminates the snap of the dataset.
MESSAGES	Displays an ongoing status message while waiting for the copy operation to complete.
TIMEOUT (INFormational WARning ERRor)	Specify the type of error message to be issued. Default value is INFormational.

Comments

- ◆ The WAITFORCOMPLETION parameter has a matching site options, &CMPLT. [Table 3 on page 45](#) lists the site options.
- ◆ The time between polls of the Symmetrix system (consequently the time between status messages) is based upon the number of tracks remaining to be copied.
 - › 20000 Wait 60 seconds before next check.
 - › 10000 Wait 30 seconds before next check.
 - › 5000 Wait 15 seconds before next check.
 - › 1000 Wait 5 seconds before next check.
 - › 500 Wait 2 seconds before next check.
 - › 200 Wait 1 second before next check.
 - › 100 Wait 1/2 second before next check.
 Otherwise wait 1/10 second before next check.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ SNAP DATASET
- ◆ SNAP VOLUME
- ◆ RESTORE VOLUME

Default value

None

Example

WAITFORCOMPLETION (Y,MSG)

At program termination, wait for the copy to complete within the Symmetrix system. A status message is written each time the Symmetrix system is checked, identifying the number of tracks remaining to be processed.

WAIT_FOR_PRECOPY_PASS1(YES|NO)

The WAIT_FOR_PRECOPY_PASS1 parameter determines for SNAP VOLUME and ACTIVATE GROUP requests whether any precopy activity must have completed one pass of the whole volume before the appropriate ACTIVATE occurs. Possible values are:

YES	Wait for the precopy to complete one pass before activating the devices.
NO	Do not wait for the precopy to complete one pass. Activate the devices.

Comments

- ◆ The WAIT_FOR_PRECOPY_PASS1 parameter has a matching site options, &WAIT_PRECOPY. [Table 3 on page 45](#) lists the site options.
- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:
 - PRECOPY(YES)
 - MODE(COPY)
 - WAIT_FOR PRECOPY_PASS1(YES)
- ◆ You can abbreviate the WAIT_FOR_PRECOPY_PASS1 parameter name as PRECOPY_WAIT.
- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ ACTIVATE
- ◆ SNAP VOLUME

Default value

NO

WAITforsession(YES|NO|hh:mm:ss)

The WAITFORSESSION parameter controls whether TimeFinder is to wait for available sessions on the source device. Each time a dataset is snapped, a Symmetrix session is required.

Each source device is allowed multiple sessions for processing datasets.

Note: [Table 4 on page 72](#) provides details on protection session limits.

Many datasets may share each session, but if a single dataset is snapped multiple times, each snap of that dataset requires its own session. After a snap of a dataset completes, you can reuse that session. Also, if the volume is snapped twice, then a single dataset may only be snapped two additional times before the sessions are exhausted.

Possible values are:

<code>YES</code>	If all sessions are in use, TF/Clone waits for one to finish and then continues processing normally.
<code>NO</code>	If all sessions are in use, TF/Clone reports an error condition and terminates the snap of this dataset.
<code>hh:mm:ss</code>	If all sessions are in use, TF/Clone waits for the requested time period (limit) specified by <code>hh:mm:ss</code> . If a session completes within the time period, TF/Clone continues processing normally. If the time period expires and all four sessions are still in use, TF/Clone reports an error condition and terminates the snap of the dataset.

Comments

The `WAITFORSESSION` parameter has a matching site options, `&WAIT`. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ `SNAP DATASET`
- ◆ `SNAP VOLUME`

Default value

None

WHEN_SAVEDEV_FULL(READY|NOTREADY)

The `WHEN_SAVEDEV_FULL` parameter determines the state of a virtual device that encounters a snap pool device full condition. Possible values are:

<code>READY</code>	Track is marked invalid but device remains available.
<code>NOTREADY</code>	Track is marked invalid and the device is made not ready.

Comments

The `WHEN_SAVEDEV_FULL` parameter has a matching site option, `&SAVEFULL`. [Table 3 on page 45](#) lists the site options.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ `SNAP VOLUME`

Default value

`READY`

Example

```
WHEN_SAVEDEV_FULL (NOTREADY)
```

QUERY DATASET (TF/Clone)

Purpose

The QUERY DATASET command returns dataset status information.

Syntax

```
QUERY DataSet
(
SOURCE (dataset) | INDDname (ddname)
[optional parameter]
)
```

Optional parameter

```
[SOURCE_VOLUME_LIST (vollist)]
```

Parameter descriptions

The following sections describe the QUERY DATASET parameters:

SOURCE(*dataset*)

The SOURCE parameter specifies the dataset name for which you want status information.

<i>dataset</i>	The name of the dataset. The dataset name can be masked or wildcarded.
----------------	--

Default value

None

Example

```
SOURCE (MY . DATASET)
```

INDDname(*ddname*)

The INDDname parameter specifies a DD statement already allocated to the source dataset.

<i>ddname</i>	The DD statement.
---------------	-------------------

Default value

None

Example

```
INDD (DD1)
```

SOURCE_VOLUME_LIST(*vollist*)

The SOURCE_VOLUME_LIST parameter specifies the source volumes for SNAP DATASET and QUERY DATASET commands. You must previously define the source volume list name, using a DEFINE SOURCE_VOLUME_LIST command.

The value can be:

vollist

The name of the defined volume list. The name can be up to 16 characters.

Default value

None

QUERY GLOBAL

Purpose

The QUERY GLOBAL command displays both the site options table and any GLOBAL overrides that have been encountered in the input stream.

Syntax

```
QUERY GLOBAL
```

Parameters

None

Comments

None

Example

The following example is output from a QUERY GLOBAL command:

```
ESNPW20I --- EMCSNAPO --- VER n.n.n --- SIZE 494 --- DATE/TIME nn/nn/09 14.53 ---
ESNPW21I                               SITE SETTING                               GLOBAL OVERRIDE
ESNPW22I  ADMINISTRATOR                   N                                           N
ESNPW22I  ALLOCATE_UNUSED_SPACE           Y                                           Y
ESNPW22I  ALLOCATION_SEQUENCE              D                                           D
ESNPW22I  ALLOCATION_UNITNAME              SYSALLDA                                     -N/A
ESNPW22I  ALLOW_SYMDV#                    Y                                           -N/A-
ESNPW22I  AUTOMATIC_CLEANUP              Y                                           Y
ESNPW22I  AUTOMATIC_DEALLOC              Y                                           Y
ESNPW22I  AUTOMATIC_RELEASE              N                                           N
ESNPW22I  BCVONLY                         N                                           N
ESNPW22I  BUILD_VTOCIX                   N                                           N
```

QUERY GROUP

Purpose

The QUERY GROUP command allows you to query the contents of one or all groups. If you specify a group name, QUERY GROUP returns information about that group. If you do not specify a group name, QUERY GROUP returns information about all groups.

Syntax

```
QUERY GROUP grpname [optional parameter]
```

Optional parameters

The optional parameter is as follows.

```
[ (
LIST ([NO]STAtements|[NO]HIStory)
)]
```

Parameter descriptions

The following sections describe the QUERY GROUP parameters.

grpname

The name of the group. The name can contain as many as eight characters, with no embedded spaces. The characters you use must be valid for a PDS member name.

Note: You cannot reference a group that was defined or deleted in the current jobstep.

LIST ([NO]STAtements|[NO]HIStory)

The LIST parameter lists syntax statements associated with a specified group.

For the duration of the current QUERY GROUP command, the value of LIST overrides any value set by the GLOBAL command LIST parameter. “LIST([[NO]STAtements][[NO]HIStory])” [on page 189](#) provides more information.

QUERY VDEVICE (TF/Snap)

Purpose

The QUERY VDEV command returns information about the status of virtual devices in one or more Symmetrix system(s). The QUERY VDEV command without any parameters returns information on all the Symmetrix systems addressable by the host.

Note: This command is only available if you purchase the TF/Snap Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

Syntax

```
QUERY VDEvice (
[LOCAL (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
  [CONTROLLER ( [xxxxxxx-] xxxxx | name ) ] ) ]
[REMOTE (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
  RAGROUP (nn.nn.nn.nn)
  [CONTROLLER ( [xxxxxxx-] xxxxx | name ) ] ) ]
[CONTROLLER ( [xxxxxxx-] xxxxx | name ) ]
)
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Parameter descriptions

The following sections describe the QUERY VDEvice parameters:

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) [CONTROLLER([xxxxxxx-]xxxxx|*name*)]])

The LOCAL parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be a VDEV MVS device number.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ All messages that reference controller serial numbers have been enhanced to use 12 digits.
- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.

Default value

None

**REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*)
 [CONTROLLER([*xxxxxxx-xxxx*]*name*)])**

This parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n
n.nn*) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ All messages that reference controller serial numbers have been enhanced to use 12 digits.
- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.

Default value

None

CONTROLLER([xxxxxxx-]xxxxx|name)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (xxxxx) or a 12 digit (xxxxxxx-xxxxx) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

Default value

None

QUERY VOLUME

Purpose

The QUERY VOLUME command returns information about the status of devices in one or more Symmetrix system(s). By default, the information includes all devices. However, you can limit output to:

- ◆ A single CCUU or range of CCUUs.
- ◆ A single Symmetrix device or range of Symmetrix devices.

Syntax

```
QueRY VOLume
(
UNIT(device) | VOLume(volser) | SCFGROUP(scfgroup)
| CONTROLLER([xxxxxxx-] xxxxx | name)
| GROUP(grpname [, grpname, ...])
[optional parameter[s]]
)
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Optional parameters

The optional parameters are as follows. They must be separated from each other by a blank space.

```
[CKD (EXCLUDE | INCLUDE) ]
[CcUU (ccuu | low-high | low:high | ccuu(count) ) ]
[DEVIce (syndv# | low-high | low:high | syndv#(count) ) | ALL ]
[FBA (EXCLUDE | INCLUDE) ]
[FLASH_SNAP (FLASHCOPY | SNAP) ]
[MULTI_LINE_query (YES | NO) ]
[NotReaDY (EXCLUDE | INCLUDE) ]
[RAID (ALL | NONE | RAIDS | RAID1 | RAID5 | RAID6 | RAID10) ]
[ReaDY (EXCLUDE | INCLUDE) ]
[LOCAL (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
[CONTROLLER ([xxxxxxx-] xxxxx | name) ] ) ]
[REMOTE (UNIT (device) | VOLUME (volser) | DDNAME (ddname)
RAGROUP (nn.nn.nn.nn)
[CONTROLLER ([xxxxxxx-] xxxxx | name) ] ) ]
[SAVEDEV (EXCLUDE | INCLUDE) ]
[SCFGROUP | SCFGRP (scfgroup) ]
[SESSION_LIST (Yes | No [, DETail |, NODETail |, DIFFerential] ) ]
[SIze (ALL | MOD1 | MOD2 | MOD3 | MOD9 | MOD27 | MOD54 | # | low-high) ]
[TDEV (EXCLUDE | INCLUDE) ]
[THINPOOL (EXCLUDE | INCLUDE) ]
[VDEV (EXCLUDE | INCLUDE) ]
```

Parameter descriptions

The following sections describe the QUERY VOLUME parameters:

UNIT(*device*)

UNIT(*device*) specifies the unit address of the volume to be queried.

Default value

None

Example

UNIT (A099)

VOLume(*volser*)

VOLUME(*volser*) specifies the volser of the volume to be queried.

Default value

None

Example

VOL (VOL000)

CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)

Specifies the Symmetrix Controller to be queried. You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Default value

None

GROUP(*grpname*[,*grpname*,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices you want to query. (This allows you to display all the devices in a group together without having to build the query manually.) You can specify up to 127 group names, separated by commas.

Each controller you reference has just the devices in the specified group displayed. Both the source and target devices are listed.

grpname The name you previously defined with the DEFINE GROUP command.

Comments

- ◆ If you use the GROUP parameter, then you should not use the UNIT, SCFGROUP, CONTROLLER, LOCAL, REMOTE, CCUU, or DEVICE parameters.
- ◆ If you use the GROUP parameter, you can use the CKD, FBA, SAVEDEV, VDEV, READY, NOTREADY, RAID, SESSION_LIST, and SIZE parameters to tailor your results.

Default value

None

CcUU(ccuu|low-high|low:high|ccuu(count))

The CCUU parameter specifies using the z/OS CCUU to define the devices to be queried. This limits the QUERY VOLUME output to those devices that match the CCUU specification. If you omit this parameter, then TimeFinder does not check the CCUU value and may show all devices.

You can specify a single CCUU:

```
CUU (ccuu)
```

You can also specify a range of CCUUs. You can write a range in three ways:

- ◆ Specify the lowest CCUU in the range and the highest CCUU in the range separated by a dash:

```
CUU (low-high)
```

- ◆ Specify the lowest CCUU in the range and the highest CCUU in the range separated by a colon:

```
CUU (low:high)
```

- ◆ Specify the starting CCUU in the range and a count value (in parentheses) that indicates how many additional devices there are between that CCUU and the end of the range. The count value includes the lowest and the highest CCUUs.

The total number of CCUUs in the range (that is, the count value) cannot exceed 256.

```
CUU (ccuu(count))
```

CKD(EXCLUDE|INCLUDE)

The CKD parameter includes or excludes CKD devices from a QUERY VOLUME device list.

For the duration of the current QUERY VOLUME command, the value of CKD overrides any value set by the GLOBAL command CKD parameter or by the &OPT_CKD site option.

[“CKD\(EXCLUDE|INCLUDE\)” on page 163](#) provides more information.

DEvIce(symdv#|low-high|low:high|symdv#(count)|ALL)

The DEVICE parameter defines the devices to query by using the internal Symmetrix device numbers. The resulting output includes only the devices specified.

You can specify a single Symmetrix device:

```
DEVICE (symdv#)
```

You can also specify a range of Symmetrix devices. You can write a range in three ways:

- ◆ Specify the lowest device in the range and the highest device in the range separated by a dash:

```
DEVICE (low-high)
```

- ◆ Specify the lowest device in the range and the highest device in the range separated by a colon:

DEVICE (*low:high*)

- ◆ Specify the starting device in the range and a count value (in parentheses) that indicates how many additional devices there are between that device and the end of the range. The count value includes the lowest and the highest devices.

The total number of devices in the range (that is, the count value) cannot exceed 256.

DEVICE (*syndv#(count)*)

For most commands, you only use the LOCAL, REMOTE, and CONTROLLER parameters when you use the SYMDV# parameter. This is because SYMDV# identifies only a device, not its location.

The QUERY commands are different. Because the QUERY commands use a Symmetrix system as a target, you can use the LOCAL, REMOTE, and CONTROLLER parameters with them without a SYMDV# parameter being present. The various filtering parameters each QUERY command can take let you isolate the particular devices on which you want to report.

- ◆ You can also specify ALL. TimeFinder returns data on all devices.

Default value

ALL

Example

None

FBA(EXCLUDE|INCLUDE)

The FBA parameter includes or excludes FBA devices from a QUERY VOLUME device list.

For the duration of the current QUERY VOLUME command, the value of FBA overrides any value set by the GLOBAL command FBA parameter or by the &OPT_FBA site option.

FLASH_SNAP(FLASHCOPY|SNAP)

The FLASH_SNAP parameter determines whether FlashCopy or TimeFinder operations are used by default.

For the duration of the current QUERY VOLUME command, the value of FLASH_SNAP overrides any value set by the GLOBAL command FLASH_SNAP parameter or by the &FLASH_SNAP site option.

[“FLASH_SNAP\(FLASHCOPY|SNAP\)” on page 184](#) provides more information.

IMPORTANT

Do not change the value of this parameter unless directed to do so by EMC.

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*)[CONTROLLER([*xxxxxxx*-*xxxxx*|*name*])])

The LOCAL parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:]

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.

Default value

None

MULTI_LINE_query(YES|NO)

The MULTI_LINE_query parameter specifies a new multi-line query option that displays additional detail lines beyond the single summary line for each device.

For example, some EMCSNAP commands operate differently depending on the SRDF type. The multi-line query shows the SRDF type (A/S/PPRC/XRC) and whether it is an R1, R2, R11, or other device designation. Additionally, it shows if certain features are in use on the device, such as parallel clone, inhibit outboard copy, hold, and more.

In addition, each mirror position is shown along with its attributes (adaptive copy, sync or not, ready state, write state).

Possible values are:

YES	Display multiple lines of information for each device.
NO	Display only the single summary line of information for each device.

Comments

- ◆ Aliases for this parameter includes MULTILINEquery and MLQ.
- ◆ The single summary lines displays information such as device number, CCUU, device attribute (STD, BCV, TDEV, etc.), CKD or FBA, number of cylinders, ready state, and primary raid protection.

- ◆ The multiple line query displays message ESNPP361, which contains the following information for each device:
 - Remote device type (R1, R11, R21, R2, R22 or blank)
 - Parallel Clone status (PC or blank)
 - Inhibit Outboard Copy status (IOC or blank)
 - Hold status (HOLD or blank)
 - PPRC/XRC status (PPRC or XRC)
 - ECA status (ECA)
 - Meta Setting (META-HEAD)
 - For each mirror position, the following information is available:
 - NCNFG if not configured. R1, R2 or LCL if mirror is configured.
 - For remote mirrors, Sync or Async indicator (-S or -A), Adaptive Copy indicator (-ADCOPY and /WPO, /DISK or /WP). RAGROUP value (RAG=(xx)).
 - Ready status (RDY or NRDY)
 - Read/write status (R/W or R-ONLY)

Global parameter effects

This parameter sets a global value for the following commands:

- ◆ Query VOLUME

Default value

NO

NotReaDY(EXCLUDE|INCLUDE)

The NOTREADY parameter includes or excludes devices that are not ready from a QUERY VOLUME device list.

For the duration of the current QUERY VOLUME command, the value of NOTREADY overrides any value set by the GLOBAL command NOTREADY parameter or by the &OPT_NOTREADY site option. [“NOTREADY\(EXCLUDE|INCLUDE\)” on page 199](#) provides more information.

RAID(ALL|NONE|RAIDS|RAID1|RAID5|RAID6|RAID10|FTS)

The RAID parameter restricts the list of devices to one or more types of RAID device.

For the duration of the current QUERY VOLUME command, the value of RAID overrides any value set by the GLOBAL command RAID parameter or by the &OPT_RAID site option. [“RAID\(ALL|NONE|RAIDS|RAID1|RAID5|RAID6|RAID10|FTS\)” on page 205](#) provides more information.

ReaDY(EXCLUDE|INCLUDE)

The READY parameter includes or excludes devices that are ready from a QUERY VOLUME device list.

For the duration of the current QUERY VOLUME command, the value of READY overrides any value set by the GLOBAL command READY parameter or by the &OPT_READY site option. “READY(EXCLUDE|INCLUDE)” on page 205 provides more information.

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*) [CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)])

The REMOTE parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This MVS device number cannot be a VDEV MVS device number.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n*
n.nn) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.

Default value

None

Example

```
QUERY VOLUME (-
  REMOTE (VOL (U6A230) RAGROUP (06) CONTROLLER (0001879-90132) ) )
```

SAVEDEV(EXCLUDE|INCLUDE)

The SAVEDEV parameter includes or excludes SAVEDEV devices from a QUERY VOLUME device list.

For the duration of the current QUERY VOLUME command, the value of SAVEDEV overrides any value set by the GLOBAL command SAVEDEV parameter or by the &OPT_SAVEDEV site option. “SAVEDEV(EXCLUDE|INCLUDE)” on page 212 provides more information.

SCFGROUP|SCFGRP(*scfgroup*)

SCRGROUP(*scfgroup*) identifies the controllers to be listed for QUERY VOLUME.

scfgroup An SCF Group name. The name can contain up to 64 characters. If the name includes any special characters (including spaces), enclose the name in single quotes.

The name must be predefined to ResourcePak Base.

Note: The *EMC ResourcePak Base for z/OS Product Guide* provides more information.

Default value

None

Example

None

SESSION_LIST(Yes|No[,DETail],NODETail,DIFFerential))

The SESSION_LIST parameter indicates whether more detail is desired about sessions active on a device.

For the duration of the current QUERY VOLUME command, the value of SESSION_LIST overrides any value set by the GLOBAL command SESSION_LIST parameter or by the &SESSDETL, &SESSDIFF, and &SESSLIST site options.

Note: SESSIONLIST, SESS_LIST and SESSLIST are all valid short-forms for SESSION_LIST

SESSION_LIST on [page 212](#) provides more information.

SIZE(ALL|MOD1|MOD2|MOD3|MOD9|MOD27|MOD54|#|*low-high*)

The SIZE parameter selects the devices to be listed, based on the number of cylinders on that device.

For the duration of the current QUERY VOLUME command, the value of SIZE overrides any value set by the GLOBAL command SIZE parameter.

SIZE on [page 213](#) provides more information.

THINPOOL(INCLUDE|EXCLUDE)

Used to include or exclude thin pool log devices from a QUERY VOLUME device list.

Comments

- ◆ The THINPOOL parameter has a matching site option, &THINPOOL. [Table 3 on page 45](#) lists the site options.

Default value

INCLUDE

TDEV(EXclude|INclude)

The TDEV parameter determines whether thin devices are to be included in reports generated by the QUERY VOLUME command.

For the duration of the current QUERY VOLUME command, the value of TDEV overrides any value set by the GLOBAL command TDEV parameter or by &OPT_TDEV site option.

“TDEV(EXCLUDE|INCLUDE)” on page 220 provides more information.

VDEVICE(EXCLUDE|INCLUDE)

The VDEVICE parameter excludes or includes virtual devices on QUERY VOLUME lists.

For the duration of the current QUERY VOLUME command, the value of VDEVICE overrides any value set by the GLOBAL command VDEVICE parameter or by the &OPT_VDEV site option. “VDEVICE(EXCLUDE|INCLUDE)” on page 230 provides more information.

Example

The following example shows the output of a QUERY VOLUME command with the parameter SESSION_LIST(YES,DETAIL,DIFF).

```
ESNPI63I      0048(6108)   *6108* STD  CKD-03339  READY    RAID/1    SNAP-SRC NO INVALID TRACKS
ESNPP30I      SESSION    TARGET      TRACKCNT  PROT-TRK  PRECOPY#  DIFF-CNT  DIFF-SRC  DIFF-TGT
BGCOPY
ESNPP31I      ....
```

The QUERY VOLUME display is in the form of TimeFinder messages. The ESNPI63I message includes the basic information about a device. Consider the following ESNPI63I message line:

```
ESNPI63I      0048(6108)   *6108* STD  CKD-03339  READY    RAID/1    SNAP-SRC NO INVALID TRACKS
```

0048	Symmetrix device number.
6108	z/OS device number (CCUU).
6108	Volume serial number as known by z/OS. If an asterisk (*) is in the first position, z/OS doesn't know the volume serial and TimeFinder made it up. <ul style="list-style-type: none"> ◆ If the item is *xxxx*, then xxxx is the z/OS CCUU. ◆ If the item is *Lxxxx, then xxxx is the Symmetrix device number. ◆ If the item is *Rxxxx, then xxxx is the Symmetrix device number.
STD	Symmetrix device type. The device type may be STD, BCV, VIRT, LOG, META, DMY, PVL, TDAT, TDEV.
CKD	The device architecture. Can be CKD or FBA.
03339	The number of cylinders on the device.
READY	The device state, can be READY or NOTREADY.
RAID/1	Raid type, can be RAID/S, RAID/5, RAID/10, RAID/1, RAID/6, or RAID/NA.
SNAP-SRC	Indicates that this device is a source device.

Can also be:

- ◆ SNAP-TGT, indicating that the device is a target device.
- ◆ VIRT-SRC(*xxxx*) - indicates that this device is a virtual source device. The virtual device Symmetrix device number is *xxxx*.
- ◆ VIRT-TGT(*xxxx-yyy*) - indicates that this device is a virtual device. The source Symmetrix device number is *xxxx* and the source session ID is *yyy*.

SOME INVALID TRACKS
NO INVALID TRACKS

Indicates whether there are invalid tracks on this device.

The headings, and their meanings are:

SESSION Lists the session identifier.

TARGET Lists the volume identifier.

TRACKCNT Lists the track count.

PROT-TRK Lists the number of protected tracks.

PRECOPY# Lists the number of tracks that are still protected by the source device. It should always match IND-TRK (the indirect track count).

Note: You do not see this column if you are using a version of Enginuity prior to 5772.

DIFF-CNT (Only displayed if you used the DIFFERENTIAL keyword with the SESSION_LIST parameter.)

The items under this header are the total number of changed tracks on the source and the target.

DIFF-SRC (Only displayed if you used the DIFFERENTIAL keyword with the SESSION_LIST parameter.)

The items under this header are the total number of tracks changed on the source.

DIFF-TGT (Only displayed if you used the DIFFERENTIAL keyword with the SESSION_LIST parameter.)

The items under this header are the total number of tracks changed on the target.

PRECOPY# (Only displayed if you are using Enginuity 5772 or higher.)

The items under this header is a count of tracks that are still protected on the source device. It should always match the IND-TRK value.

ACT Indicates that PRECOPY is active and has *not* completed a whole pass of the source volume.

ACT/1ST Indicates that PRECOPY is active and has completed a whole pass of the source volume.

If ACT and ACT/1ST are missing from the report, PRECOPY is not active on the device for that session.

BGCOPY	If set to YES, indicates that a background copy is expected to occur.
	If set to NO, indicates that a background copy is not expected to occur.

Message ESNPP30I consists of the heading for the detailed QUERY information. ESNPP31I includes the data for each of the headings in ESNPP30I. When all of the tracks have been copied, both PROT-TRK and IND-TRK should be zero.

Note: The *EMC Mainframe Enablers Message and Code Guide* describes ESNPP30I, ESNPP31I, and ESNPI63I.

RESTORE VOLUME (TF/Snap)

Purpose

The RESTORE VOLUME command restores the contents of a virtual device (VDEV) to a Standard (STD or BCV) volume. The term “Standard” refers to both STD and BCV volumes, but not virtual devices.

There are three types of RESTORE VOLUME operations.

- ◆ From a VDEV to a BCV that has been SPLIT from the original Standard that had a relationship with the virtual device.

Note: This only applies to an original TF/Mirror split. It does not apply to a TF/Mirror Clone Emulation (CE) split. When clone emulation is involved, the CE session needs to be removed, using a DELINC command in TF/Mirror against the BCV. In addition to any CE sessions, any dataset extent or clone sessions need to be removed before a RESTORE can proceed.

- ◆ From a VDEV to a different Standard
- ◆ From a VDEV to the original Standard (*SNAP back*)

Note: For a TF/Clone or TF/Clone Emulation (CE), the VDEV restore to a Standard device can proceed to completion when the clone is fully copied and in a split state. The clone session can remain in place for future full or differential operations, with the following exception; until the Standard or VDEV relationship is removed, neither differential nor full BCV RESTORE for clone emulation or “snap back” for TF/Clone are allowed. Engenuity 5874 or higher is required for this VDEV restore action.

The restore is accomplished by a background copy task that copies indirect tracks to the *restore* device. The virtual device being restored is then removed and returns to the available pool of virtual devices for future use, if you are performing a VDEV to Standard RESTORE, and the PERSISTENT parameter is set to YES, then the Standard/VDEV relationship remains, and the virtual device is not returned to the virtual device pool.

If you are using a virtual restore (PERSISTENT parameter set to NO), you must terminate any other VDEV session or any virtual device assigned to the restore device in order to proceed with a RESTORE VOLUME.

For example:

```
RESTORE VOLUME (VDEV(UNIT(6FC0)) TO (UNIT(6C10)) - NEWVOLID(U6A010)
  REPLACE(YES))
```

If you are using a persistent restore (PERSISTENT parameter set to YES), you do not have to terminate any other VDEV session or any virtual device assigned to the restore device in order to proceed with a RESTORE VOLUME.

Note: This command is available only if you purchase the TF/Snap Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

Syntax

```
RESTORE VOLUME
(
  VDEVICE (VOLUME(volser) | UNIT(device[, device]) | SYMDV#(dev_no(s)))
    TO (VOLUME(volser) | UNIT(device[, device]) | SYMDV#(dev_no(s)))
  [optional parameter[s]]
)
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[AUTOMATIC_CLEANUP(YES|NO)]
[CHECKBCVholdstatus(YES|NO)]
[CHECKONLINEpathstatus(YES|NO|NEVER)]
[CONDitionVOLUME(ALL|LaBeL|DUMP)]
[CONTROLLER([xxxxxxx-]xxxxx|name)]
[COPIVolid(YES|NO)]
[DEBUG(ON|OFF)]
[EXCLUDE_PATHGROUPID|EX_PGID(pathlist)]
[INDDname(ddname)]
[LOCAL(UNIT(device) | VOLUME(volser) | DDNAME(ddname)
  [CONTROLLER([xxxxxxx-]xxxxx|name)])]
[NEWVOLID(volser)]
NOTIFYwhencomplete [( [GROUP(name) ] [DATASET|JOB|STEP|SNAP] )]
[OUTDDname(ddname)]
[PERSISTent(YES|NO)]
[REMOTE(UNIT(device) | VOLUME(volser) | DDNAME(ddname)
  RAGROUP(nn.nn.nn.nn)
  [CONTROLLER([xxxxxxx-]xxxxx|name)])]
[REPLace(YES|NO)]
[TOLerateENQFailure(YES|NO)]
[TRACE(ON|OFF)]
[VARY_OFFline(AUTO|NEVER)]
[VARY_ONline(AUTO|YES|NO)]
[VCLOSE(YES|NO)]
[WAITFORCOMPLETION([YES|NO|hh:mm:ss][,MeSsaGes]
  [,R1R2SYNC][,TIMEOUT(INformational|WARning|ERRor)])]
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Parameter descriptions

The following sections describe the RESTORE VOLUME parameters:

VDEvice(VOLume(*volser*)|UNIT(*device*)|SYMDV#(*dev_no*))

Note: You can use this parameter only if you install the TF/Snap Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

The VDEVICE parameter identifies the virtual device to use for the restore operation. Values can be:

VOLume (<i>volser</i>)	Specifies the volser of the virtual device.
UNIT (<i>device</i> [, <i>device</i>])	Specifies the unit address of the virtual device or range of devices.
SYMDV# (<i>dev_no</i> (<i>s</i>))	Specifies the remote Symmetrix device number(s) to be used as the target device(s). If SYMDV# is specified, then the UNIT and VOLUME, and INDDNAME and OUTDDNAME parameters are not allowed.

Default value

None

Example

UNIT (C100)

TO(VOLume(*volser*)|UNIT(*device*)|SYMDV#(*dev_no*))

The TO parameter identifies the target volume of the restore. Values can be:

VOLume (<i>volser</i>)	Identifies the target volume volser.
UNIT (<i>device</i> [, <i>device</i>])	Identifies the target volume UNIT address or range of addresses.
SYMDV# (<i>dev_no</i> (<i>s</i>))	Specifies the Symmetrix device number(s) in the remote Symmetrix storage system. If SYMDV# is specified, then the UNIT and VOLUME, and INDDNAME and OUTDDNAME parameters are not allowed.

IMPORTANT

If you use SYMDV#, you must use it throughout the operation. That is, if you use SYMDV# for the source device, you must also use SYMDV# for the target device.

Default value

None

Example

UNIT (AA0F)

AUTOMATIC_CLEANUP(YES|NO)

AUTOMATIC_CLEANUP indicates that an automatic cleanup is run as part of the RESTORE VOLUME command before the restore occurs.

For the duration of the current RESTORE VOLUME command, the value of AUTOMATIC_CLEANUP overrides any value set by the GLOBAL command AUTOMATIC_CLEANUP parameter or by the &AUTOCLN site option.
[“AUTOMATIC_CLEANUp\(YES|NO\)” on page 157](#) provides more information.

CHECKBCVholdstatus(YES|NO)

The CHECKBCVHOLDSTATUS parameter determines whether the operation honors the Hold status of a BCV. Hold indicates that the BCV was either a source or target of a previous TF/Snap operation.

For the duration of the current RESTORE VOLUME command, the value of CHECKBCVHOLDSTATUS overrides any value set by the GLOBAL command CHECKBCVHOLDSTATUS parameter or by the &CHECKBCV site option.
[“CHECKBCVholdstatus\(YES|NO\)” on page 162](#) provides more information.

CHECKONLINEpathstatus(YES|NO|NEVER)

The CHeckOnlinepathstatus parameter ensures that paths from other CPUs to the target device are offline before performing a VOLUME SNAP.

For the duration of the current RESTORE VOLUME command, the value of CHeckOnlinepathstatus overrides any value set by the GLOBAL command CHeckOnlinepathstatus parameter or by the &CHKONLIN site option.
[“CHECKONLINEpathstatus\(YES|NO|NEVER\)” on page 162](#) provides more information.

CONDitionVOLume(ALL|LaBeL|DUMP)

Used with COPYVOLID(NO), the CONDITIONVOLUME parameter conditions the new target volume so that it can remain online.

For the duration of the current RESTORE VOLUME command, the value of CONDITIONVOLUME overrides any value set by the GLOBAL command CONDITIONVOLUME parameter or by the &CONDVOL site option.

[“CONDitionVOLume\(ALL|LaBeL|DUMP\)” on page 164](#) provides more information.

CONTROLLER([xxxxxxx-]xxxxx|name)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (xxxxx) or a 12 digit (xxxxxxx-xxxxx) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

The CONTROLLER parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

COPYVOLID(YES|NO)

The COPYVOLID parameter specifies whether TF/Snap should retain the source or target volume identity during a RESTORE VOLUME operation.

For the duration of the current RESTORE VOLUME command, the value of COPYVOLID overrides any value set by the GLOBAL command COPYVOLID parameter or by the ©VOL site option. [“COPYVolid\(YES|NO\)” on page 167](#) provides more information.

DEBUG(ON|OFF)

The DEBUG parameter controls the logging of diagnostic messages. Values can be:

ON Enable diagnostic message generation.

OFF Disable diagnostic message generation.

Comments

The information resulting from specifying DEBUG(ON) may be of use only to an EMC customer support representative.

Default value

OFF

Example

DEBUG (ON)

EXCLUDE_PATHGROUPEID|EX_PGID(*pathlist*)

The EXCLUDE_PATHGROUPEID parameter allows certain LPARs or systems to be ignored. No error or warning message are issued if encountered.

For the duration of the current RESTORE VOLUME command, the value of EXCLUDE_PATHGROUPEID overrides any value set by the GLOBAL command EXCLUDE_PATHGROUPEID parameter or by the &EXPATHGRP site option.

[“EXCLUDE_PATHGROUPEID|EX_PGID\(pathlist\)” on page 180](#) provides more information.

INDDname(*dname*)

The INDDNAME parameter refers to a DD statement already allocated to the virtual volume to be restored.

dname The DD statement that refers to the virtual volume to be restored.

Default value

None

Example

INDD (INVOL)

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*)[CONTROLLER([*xxxxxxx*-*xxxxx*]*name*)])

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (xxxxx) or a 12 digit (xxxxxxx-xxxxx) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.
- ◆ The LOCAL parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

NEWVOLID(*volser*)

The NEWVOLID parameter specifies a new volser on the target.

volser Specifies the new volser for the target.

NOTIFYwhencomplete [[**GROUP**(*name*)][**DATASET**|**JOB**|**STEP**|**SNAP**]]

The NOTIFYWHENCOMPLETE parameter requests asynchronous notification upon completion of the RESTORE VOLUME operation.

For the duration of the current RESTORE VOLUME command, the value of NOTIFYWHENCOMPLETE overrides any value set by the GLOBAL command NOTIFYWHENCOMPLETE parameter or by the &NTFYLVI site option.

For more information go to [“NOTIFYwhencomplete \[\(GROUP\(name\)\)\]\[DATASET\]\[JOB|STEP|SNAP\]”](#) on page 198.

OUTDDname(*ddname*)

The OUTDDNAME parameter refers to a DD statement already allocated to the target volume of the restore.

ddname Identifies the DD statement that refers to the target volume of the restore.

Default value

None

Example

OUTDD(OUTVOL)

PERSISTent|PERSIST(YES|NO)

The PERSISTENT parameter determines whether a standard (virtual) restore or a persistent restore is performed.

For the duration of the current RESTORE VOLUME command, the value of PERSISTENT overrides any value set by the GLOBAL command PERSISTENT parameter or by the &PERSIST site option. [“PERSISTent\(YES|NO\)”](#) on page 201 provides more information.

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*) [CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)])

The REMOTE parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n*
n.nn) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.

- ◆ You cannot use the LOCAL and REMOTE parameters on the same command.
- ◆ The REMOTE parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

Example

```
RESTORE VOLUME (TO (SYMDV# (008C)) VDEV (SYMDV# (021E)) -
  REMOTE (VOL (U6A230) RAGROUP (06) CONTROLLER (0001879-90132) ) )
```

REPLACE(YES|NO)

The REPLACE parameter specifies whether an existing target device with user data can be overwritten.

For the duration of the current RESTORE VOLUME command, the value of REPLACE overrides any value set by the GLOBAL command REPLACE parameter or by the &REPLACE site option. [“REPLace\(YES|NO\)” on page 209](#) provides more information.

TOLerateENQFailure(YES|NO)

The TOLERATEENQFAILURE parameter allows you to snap a volume when you cannot obtain exclusive serialization control. Integrity of the volume cannot be assured. You must use this parameter to snap a volume that is unavailable at the requested serialization level.

This parameter is also used for snapping a volume that must remain allocated during the snap operation. An example is a volume in use by a database management system (DBMS).

For the duration of the current RESTORE VOLUME command, the value of TOLERATEENQFAILURE overrides any value set by the GLOBAL command TOLERATEENQFAILURE parameter or by the &ENQFAIL site option. [“TOLERATEENQFAILURE\(YES|NO\)” on page 224](#) provides more information.

TRACE(ON|OFF)

The TRACE parameter allows you to control whether trace messages are written to the message file. Values can be:

<u>ON</u>	Enables trace records to be generated.
OFF	Disables traces records from being generated.

Default value

ON

Example

TRACE (ON)

VARY_OFFline(AUTO|NEVER)

VARY_OFFLINE specifies whether the target device must be offline before the request processing begins.

For the duration of the current RESTORE VOLUME command, the value of VARY_OFFLINE overrides any value set by the GLOBAL command VARY_OFFLINE parameter or by the &VARYOFF site option. “[VARY_OFFline\(AUTO|NEVER\)](#)” on page 228 provides more information.

VARY_ONline(AUTO|YES|NO)

VARY_ONLINE specifies whether the target device must be online after the requested processing completes.

For the duration of the current RESTORE VOLUME command, the value of VARY_ONLINE overrides any value set by the GLOBAL command VARY_ONLINE parameter or by the &VARYON site option. &VARYON, however, only takes the values AUTO and NEVER. (NEVER has the same meaning as NO.)

“[VARY_ONline\(AUTO|YES|NO\)](#)” on page 228 provides more information.

VCLOSE(YES|NO)

The VCLOSE parameter determines whether a VCLOSE CAS modify command is issued to the CATALOG address space for the target volume. If a catalog resides on the target volume, the CATALOG address space should be notified or subsequent problems may occur.

For the duration of the current RESTORE VOLUME command, the value of VCLOSE overrides any value set by the GLOBAL command VCLOSE parameter or by the &VCLOSE site option.

“[VCLOSE\(YES|NO\)](#)” on page 229 provides more information.

WAITFORCOMPLETION([YES|NO|*hh:mm:ss*] [,MeSsaGes][,R1R2SYNC] [TIMEOUT(INFormational|WARning|ERRor)])

The WAITFORCOMPLETION parameter specifies for all SNAP DATASET, SNAP VOLUME, and RESTORE VOLUME operations whether TimeFinder is to wait for the copy operations to complete before terminating.

Possible values are:

YES	Establishes the WAITFORCOMPLETION parameter.
NO	Do not establish the WAITFORCOMPLETION parameter.
R1R2SYNC	Wait for the snap to an R1 to complete and for the R1 to complete synchronization with its partner R2.
<i>hh:mm:ss</i>	Wait for a specific time represented by <i>hh:mm:ss</i> .
MESSAGES	Displays an ongoing status message while waiting for the copy operation to complete.
TIMEOUT (INFormational WARning ERRor)	Specify the type of message to be issued. Default value is INFormational.

Comments

- ◆ The WAITFORCOMPLETION parameter has a matching site options, &CMPLT. [Table 3 on page 45](#) lists the site options.

- ◆ The time between polls of the Symmetrix system (consequently the time between status messages) is based upon the number of tracks remaining to be copied.
 - > 20000 Wait 60 seconds before next check.
 - > 10000 Wait 30 seconds before next check.
 - > 5000 Wait 15 seconds before next check.
 - > 1000 Wait 5 seconds before next check.
 - > 500 Wait 2 seconds before next check.
 - > 200 Wait 1 second before next check.
 - > 100 Wait 1/2 second before next check.
Otherwise wait 1/10 second before next check.

Default value

None

Example

```
WAITFORCOMPLETION (Y,MSG)
```

At program termination, wait for the copy to complete within the Symmetrix system. A status message is written each time the Symmetrix system is checked, identifying the number of tracks remaining to be processed.

SNAP DATASET (TF/Clone)

Purpose

Use the SNAP DATASET command to create a copy of the specified dataset. Source and target devices must be the identical models. That is, you can snap from a 3390 device to another 3390 device, but you can not snap from a 3390 to a 3380 device.

Syntax

```
SNAP DataSet
(
  SOUrce (dsname) | INDDname (ddname)  TaRGet (dsname) | OUTDDname (ddname)
  [optional parameter[s]]
)
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a blank space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[ADMINISTRATOR (YES|NO) ]
[ALLOCATE_UNUSED_SPACE (YES|NO) ]
[ALLOCATION_SEQUENCE|ALLOSEQ (DATASET|NONE|SIZE) ]
[BACKGROUNDCOPY (YES|NO|NOCOPYRD) ]
[BCVGROUP (groupname) ]
[BCVOnly (YES|NO) ]
[BUILD_VTOCIX (YES|NO) ]
[BY (DSORG = |EQ|NE|NQ [ ( ) BDAM|EXCP|HFS|ISAM|PAM|PDS|PDSE|SAM|VSAM [ ] ]
  |
  DATACLAS = | EQ | NE | NQ [ ( ) classname...[ ] ] |
  MGMTCLAS = | EQ | NE | NQ [ ( ) classname...[ ] ] |
  STORCLAS = | EQ | NE | NQ [ ( ) classname...[ ] ] ]
[CATalog (YES|NO) ]
[COLLAPSE_dataset_extents (VSAM|NONVSAM) ]
[COPYsourceSMSclasses (DATACLASs|ManagementCLASs|STORageCLASs|ALL) ]
[DATACLASs (classname) ]
[DataMoverName (ADRDSSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAMS|
  NONE) ]
[DEBUG (OFF|ON) ]
[DFDSS_ADMIN (YES|NO) ]
[DFDSS_CC (YES|NO) ]
[DIFFERENTIAL_DATASET (YES|NO) ]
[EATTR (NO|OPT) ]
[ENQSCOPE (REQuest|STEP) ]
[ENQWAIT (YES|NO) ]
[ERROR_CHecking (NORmal|REDUCED) ]
[ERROR_DISPosition (DELeTe|KEEP) ]
[ERROR_REcovery (NORmal|ENHanced) ]
[ESNP220 (ERROR|WARNING) ]
[ESOTERIC (esoteric_name) ]
[EXAMINE (YES|NO) ]
[EXClude (exclude_list) ]
[EXPlain (VOLUME_SELection (YES|NO) ) ]
[EXTENT_ALLOCatIon (YES [, CONSOLIDATE_VOLUME | CONSOLIDATE_ALL] |NO) ]
[EXTALLOC EMC_ONLY (YES|NO) ]
[FLASH_SNAP (FLASHCOPY|SNAP) ]
[FORCE (YES|NO) ]
[HostCoPYMODE (SHaRed|EXClusive|NONE) ]
[INDDname (ddname) ]
[INVALIDATE_PDSE_buffers (YES|NO) ]
[LOGINDYNAM (volume [, volume, . . .] ) ]
[ManagementCLASs (classname) ]
```

```

[MIGrate ([PURge (YES|NO) ] [RECall (YES|NO |IGNORE) ])]
[MODE (COPY|NOCOPY) |NOCOPYRD]
NOTIFYwhencomplete [ ([GROUP (name) ] [DATASET|JOB|STEP|SNAP] )]
[OUTDDname (ddname) ]
[PARALLEL_CLONE (YES|NO|PREFerred|REQuired) ]
[R1FULLCOPYONLY|R1FULLCOPY (YES|NO) ]
[RECALCULATE_FREESPACE (YES|NO) ]
[RENAMEUnconditional (pfx) |
  RENAMEUnconditional ((pfx) (oldnamemask, newnamemask)...) |
  RENAMEUnconditional ((oldnamemask, newnamemask)...) ]
[RELate (dsname) ]
[REPLace (YES|NO) ]
[REUSE (YES|NO) ]
[REUSE_AUTO_expand (YES|NO) ]
[SCFGRōUP|SCFGRP (scfgroup) ]
[SELECTMULTI (ALL|ANY|FIRST )]
[SMS_PASS_VOLUMES (YES|NO) ]
[SNAP_UNUSED_SPACE (YES|NO) ]
[SOURCE_VOLUME_LIST (vollist) ]
[SPHERE (YES|NO) ]
[SRDFA_R1_target (Yes|No|DATAMOVERName|PHYSical|INFormational) ]
[SRDFA_R2_sync (WARNING|DATAMOVER|R1R2SYNC) ]
[SRDFS_R1_target (Yes|No|DATAMOVERName|PHYSical|INFormational) ]
[STORageCLASs (classname) ]
[TOLerate_REUse_Failure (YES|NO) ]
[TOLerateALLOcationFailure (YES|NO) ]
[TOLerate_COPY_Failure (YES|NO) ]
[TOLerateENQFailure (YES|NO) ]
[TOLerateTRUNCation (YES|NO) ]
[TOLerateVSAMENQFailure (YES|NO) ]
[TRACE (ON|OFF) ]
[UNITName (unitname) ]
[VERIFY (YES|NO) ]
[VERIFY_OPEN_SOURCE (YES|NO) ]
[VOLume (volser) ]
[VOLumeCouNT (volumecount) ]
[VSAMENQMODE (NONE|SHARED|EXCLUSIVE) ]
[WAITFORCOMPLETION ( [YES|NO|R1R2SYNC|hh:mm:ss]
  [,MESSAGES] [,R1R2SYNC] [,TIMEOUT (INformational|WARning|ERRor) ] )]
[WAITforsession (Yes|NO|hh:mm:ss) ]

```

Parameter descriptions

The following sections describe the SNAP DATASET parameters:

ADMINISTRATOR(YES|NO)

The ADMINISTRATOR parameter determines whether DFDSS avoids RACF calls.

Note: DFDSS requires that you have certain RACF privileges for ADMINISTRATOR to be accepted.

For the duration of the current SNAP DATASET command, the value of ADMINISTRATOR overrides any value set by the GLOBAL command ADMINISTRATOR parameter or by the &ADMIN site option.

[“ADMINISTRATOR\(YES|NO\)” on page 155](#) provides more information.

ALLOCATE_UNUSED_SPACE(YES|NO)

The ALLOCATE_UNUSED_SPACE parameter determines whether the target dataset is allocated using the total space, both used and unused, of the source dataset, or just the used space. This parameter only applies to sequential and standard partitioned datasets.

For the duration of the current SNAP DATASET command, the value of ALLOCATE_UNUSED_SPACE overrides any value set by the GLOBAL command ALLOCATE_UNUSED_SPACE parameter or by the &ALUNUSED site option.

[“ALLOCATE_UNUSED_SPACE\(YES|NO\)” on page 156](#) provides more information.

ALLOCATION_SEQUENCE|ALLOSEQ(DATASET|NONE|SIZE)

The ALLOCATION_SEQUENCE parameter specifies the processing order of datasets (clusters and non-VSAM files) in a wild-carded request.

For the duration of the current SNAP DATASET command, the value of ALLOCATION_SEQUENCE overrides any value set by the GLOBAL command ALLOCATION_SEQUENCE parameter or by the &ALLOSEQ site option.

[“ALLOCATION_SEQUENCE|ALLOSEQ\(DATASET|NONE|SIZE\)” on page 156](#) provides more information.

BACKGROUNDCOPY(YES|NO|NOCOPYRD)

The BACKGROUNDCOPY parameter specifies the background copy mode.

Note: The NOCOPYRD keyword is available only with Engenuity 5772 and higher.

For the duration of the current SNAP DATASET command, the value of BACKGROUNDCOPY overrides any value set by the GLOBAL command BACKGROUNDCOPY parameter or by the &BACKGRND site option.

[“BACKGROUNDCOPY\(YES|NO|NOCOPYRD|VSE\)” on page 159](#) provides more information.

BCVGROUP(*groupname*)

The BCVGROUP parameter allows a group of BCV volumes to be indirectly referenced. The BCVGROUP input file contains a list of valid BCVGROUPs. This list is searched for a matching BCVGROUP name. All volumes referenced by the BCVGROUP are added to the SNAP DATASET volume candidate list. The BCVGROUP you specify can reference no more than 60 volumes.

groupname Specifies a name that represents a BCV group.

Comments

If you choose BCVONLY(NO) (the default option), you can include standard volumes in the BCVGROUP as well.

Default value

None

Examples

```
BCVGROUP (IMGROUP1)
```

The following is an example of a definition of a BCVGROUP in line in the JCL.

```
//BCVGROUP DD *
BCVGROUP IMGROUP1 VOL(VOL001 VOL002 VOL003)
/*
```


BCVOnly(YES|NO)

The BCVOnly parameter restricts allocation of target datasets to BCVs.

For the duration of the current SNAP DATASET command, the value of BCVONLY overrides any value set by the GLOBAL command BCVONLY parameter or by the &BCVONLY site option.

Comments

- ◆ The BCVONLY parameter has a matching site option, &BCVONLY. [Table 3 on page 45](#) lists the site options.
- ◆ The BCVONLY parameter applies only to Symmetrix control units running Engenuity 5x66 and higher.
- ◆ Exceptions to BCVONLY(YES) specification:
 - If you specify a STD device in a BCVGROUP, TimeFinder honors BCVONLY(YES) and ignores STD devices.
 - If you specify a specific device using the UNIT, SYMDEV#, or VOLUME parameter on the command, then TimeFinder ignores the BCVONLY(YES) request.
 - If a target dataset is being reused, then TimeFinder ignores the volume type.
 - If volume preferencing is used to influence SMS volume selection, then TimeFinder honors BCVONLY(YES) and relegates STD devices to the secondary list.

BUILD_VTOCIX(YES|NO)

The BUILD_VTOCIX parameter enables or prohibit attempting to create a VTOC INDEX for devices that do not have VTOC INDEXes.

For the duration of the current SNAP DATASET command, the value of BUILD_VTOCIX overrides any value set by the GLOBAL command BUILD_VTOCIX parameter or by the &VTOCIX site option.

[“BUILD_VTOCIX\(YES|NO\)” on page 161](#) provides more information

BY

```
BY(DSORG = | EQ | NE | NQ [(] BDAM | EXCP | HFS | ISAM |
  AM | PDS | PDSE | SAM | VSAM [)] |
  DATACLAS =| EQ | NE | NQ [(] classname...[)] |
  MGMTCLAS  =| EQ | NE | NQ [(] classname...[)] |
  STORCLAS  =| EQ | NE | NQ [(] classname...[)]
```

The BY parameter determines how datasets are selected. Values can be:

DSORG Selection based on dataset allocation type. This can be a comma delimited list of dataset allocation types.

Note: EXCP = Exclude datasets types that are not supported, such as HFS.

DATACLAS Selection based on membership in the specified SMS data class.

MGMTCLAS Selection based on membership in the specified SMS management class.

STORCLAS Selection based on membership in the specified SMS storage class.
Valid values are:

- EQ — equal
- NE — not equal
- NQ — not equal

Default value

None

Example

```
BY(DSORG EQ (PDS PDSE))
```

CATalog(YES|NO)

The CATALOG parameter determines whether the new target dataset created by the SNAP DATASET command is to be cataloged.

For the duration of the current SNAP DATASET command, the value of CATALOG overrides any value set by the GLOBAL command CATALOG parameter or by the &CATALOG site option.

[“CATalog\(YES|NO\)” on page 161](#) provides more information.

COLLAPSE_dataset_extents(VSAM|NONVSAM|VSAM,NONVSAM)

The COLLAPSE_DATASET_EXTENTS parameter specifies whether two-pass allocation is used for VSAM datasets, non-VSAM datasets, or both.

For the duration of the current SNAP DATASET command, the value of COLLAPSE_DATASET_EXTENTS overrides any value set by the GLOBAL command COLLAPSE_DATASET_EXTENTS parameter or by the &COLLAPSE site option.

[“COLLAPSE_dataset_extents\(VSAM|NONVSAM|VSAM,NONVSAM\)” on page 164](#) provides more information.

COPYsourceSMSclasses(DATACLASs|ManaGeMenTCLASs|STORAgeCLASs|ALL)

The COPYSOURCESMSCLASSES parameter indicates whether SMS class values are to be used from the existing source dataset. You may supply SMS class information on the action statement, or copy it from the source dataset.

For the duration of the current SNAP DATASET command, the value of COPYSOURCESMSCLASSES overrides any value set by the GLOBAL command COPYSOURCESMSCLASSES parameter. [“COPYsourceSMSclasses\(\[DATACLASs\] \[ManaGeMenTCLASs\] \[STORAgeCLASs\] \[ALL\]\)” on page 166](#) provides more information.

The COPYSOURCESMSCLASSES parameter is also available as three site options:

- ◆ &CSMSDATA
- ◆ &CSMSMGMT
- ◆ &CSMSSTOR

[Table 3 on page 45](#) provides a list of site options and parameters.

DATACLASs(*classname*)

The DATACLASS parameter specifies the SMS data class to be assigned to the target dataset after TF/Clone dynamically allocates the target dataset.

For the duration of the current SNAP DATASET command, the value of DATACLASS overrides any value set by the GLOBAL command DATACLASS parameter or by the &DATACLAS site option. “[DATACLASs\(classname\)](#)” on page 168 provides more information.

DataMoverNaMe(ADRDSSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAMS|NONE)

The DATAMOVERNAME parameter allows you to specify a datamover utility program that can copy the physical tracks.

For the duration of the current SNAP DATASET command, the value of DATAMOVERNAME overrides any value set by the GLOBAL command DATAMOVERNAME parameter or by the &DATAMOVR site option. “[DATA_MOVER_NaMe\(ADRDSSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAMS|NONE\)](#)” on page 169 provides more information.

DEBUG(ON|OFF)

The DEBUG parameter enables or disables diagnostic message logging. It would normally be used at the request of EMC Customer Support. Values can be:

- ON Enables generation of diagnostic messages.
- OFF Disables generation of diagnostic messages.

Default value

OFF

Example

DEBUG (OFF)

Comments

Some of the information resulting from DEBUG(ON) may be of use only to an EMC customer support representative.

DFDSS_ADMIN(YES|NO)

The DFDSS_ADMIN parameter determines whether the ADMINISTRATOR parameter is passed to DFDSS to avoid the RACF calls.

For the duration of the current SNAP DATASET command, the value of DFDSS_ADMIN overrides any value set by the GLOBAL command DFDSS_ADMIN parameter or by the &DFDSS_ADMIN site option. “[DFDSS_ADMIN\(YES|NO\)](#)” on page 172 provides more information.

DFDSS_CC(YES|NO)

The DFDSS_CC parameter indicates that ADRDSSU is to establish a concurrent copy session while performing the track copy. This allows you to attempt a point-in-time copy operation.

This optional parameter is only valid when the DATAMOVERNAME specifies ADRDSSU.

For the duration of the current SNAP DATASET command, the value of DFDSS_CC overrides any value set by the GLOBAL command DFDSS_CC parameter or by the &DFDSS_CC site option.

[“DFDSS_CC\(YES|NO\)” on page 173](#) provides more information.

DIFFERENTIAL_DATASET(YES|NO)

The DIFFERENTIAL_DATASET parameter enables the Differential Dataset Snap feature. When a dataset is snapped for the first time, its entire contents are copied. When you specify DIFFERENTIAL_DATASET, only the changed tracks are copied when that dataset is snapped again. This feature is only effective if you also specify REPLACE(YES) and REUSE(YES).

Note: [“REPLace\(YES|NO\)” on page 278](#) and [“REUSE\(YES|NO\)” on page 278](#) provide more information about these two parameters.

For the duration of the current SNAP DATASET command, the value of DIFFERENTIAL_DATASET overrides any value set by the GLOBAL command DIFFERENTIAL_DATASET parameter or by the &DIFFDSN site option.

[“DIFFERENTIAL_DATASET\(YES|NO\)” on page 174](#) provides more information.

EATTR(NO|OPT)

EATTR is an IBM parameter that specifies whether the dataset can support extended attributes or not. These datasets must be allocated on an extended address volume (EAV).

Values include:

- | | |
|-----|--|
| NO | Extended attributes are not allowed, and the dataset cannot reside in EAS space on EAV devices.

<u>NO</u> is the default value for non-VSAM datasets. |
| OPT | Extended attributes are allowed. The dataset may also reside in EAS space on EAV devices.

<u>OPT</u> is the default value for VSAM datasets. |

ENQSCOPE(REQuest|STEP)

The ENQSCOPE parameter determines when and for how long the source dataset ENQ is held.

For the duration of the current SNAP DATASET command, the value of ENQSCOPE overrides any value set by the GLOBAL command ENQSCOPE parameter or by the &ENQSCOPE site option. [“ENQSCOPE \(REQuest|STEP\)” on page 175](#) provides more information.

ENQWAIT(YES|NO)

The ENQWAIT parameter is used with HOSTCOPYMODE. If you specify HOSTCOPYMODE(none), the value of ENQWAIT is ignored. Otherwise, ENQWAIT determines the action to take if shared or exclusive access is not immediately available for a source dataset. If you specify or allow the default value of ENQWAIT(YES), the action waits until the source dataset becomes available. If you specify ENQWAIT(NO), the action continues or fails based upon the TOLERATEENQFAILURE parameter setting.

For the duration of the current SNAP DATASET command, the value of ENQWAIT overrides any value set by the GLOBAL command ENQWAIT parameter or by the &ENQWAIT site option. [“ENQWAIT\(YES|NO\)” on page 176](#) provides more information.

ERROR_CHecking|ERRCHK(NORmal|REDUCED)

The ERROR_CHECKING parameter specifies special error handling.

For the duration of the current SNAP DATASET command, the value of ERROR_CHECKING overrides any value set by the GLOBAL command ERROR_CHECKING parameter or by the &ERRCHK site option. [“ERROR_CHecking|ERRCHK\(NORmal|REDUCED\)” on page 177](#) provides more information.

ERROR_DISPosition(DELeTe|KEEP)

The ERROR_DISPOSITION parameter specifies what to do with the target datasets when a SNAP DATASET request fails. (The normal action is to delete any target datasets. An alternative is to keep the target datasets.)

For the duration of the current SNAP DATASET command, the value of ERROR_DISPOSITION overrides any value set by the GLOBAL command ERROR_DISPOSITION parameter or by the &EFFDISP site option. [“ERROR_DISPosition\(DELeTe|KEEP\)” on page 177](#) provides more information.

ERROR_RECovery(NORmal|ENHanced)

The ERROR_RECOVERY parameter specifies how TimeFinder should handle recovery in an error situation.

For the duration of the current SNAP DATASET command, the value of ERROR_RECOVERY overrides any value set by the GLOBAL command ERROR_RECOVERY parameter or by the &ERRREC site option. [“ERROR_RECovery\(NORmal|ENHanced\)” on page 178](#) provides more information.

ESNP220(ERROR|WARNING)

The following ESNP220 message involves dataset extents and has two different outcomes that can be set.

```
SOURCE DATA SET HAS NO EXTENTS
```

It can be a warning message, where the extent discovery that caused the message is identified and the processing is continued, or it can be set as an error condition where the processing is stopped.

Values include:

ERROR Message is issued and processing stops.

WARNING Message is issued as a warning and processing continues.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default

ERROR

Example

```
ESNP220 WARNING
```

ESOteric(*esoteric_name*)

The ESOTERIC parameter specifies the device group name of the DASD devices onto which the source dataset is snapped. The value can be:

esoteric_name The device group name.

Default value

None

Comments

- ◆ The ESOTERIC parameter may be ignored for SMS targets. When the ESOTERIC is passed to ACS routines, the routine determines if the ESOTERIC is ignored.
- ◆ The ESOTERIC and UNITNAME parameters are aliases of each other and are mutually exclusive. If you use ESOTERIC, you cannot use UNITNAME.

Examples

```
ESO (DASD)
```

EXAMINE(YES|NO)

The EXAMINE command causes TF/Clone to do an IDCAMS EXAMINE on the target VSAM dataset.

For the duration of the current SNAP DATASET command, the value of EXAMINE overrides any value set by the GLOBAL command EXAMINE parameter or by the &EXAMINE site option. [“EXAMINE\(YES|NO\)” on page 180](#) provides more information.

EXCLUDE(*exclude_list*)

The EXCLUDE parameter prevents datasets that are already selected from being snapped. If the SOURCE parameter causes several datasets to be selected, the EXCLUDE parameter may be used to eliminate some of them from the selection list. You can specify a comma-delimited list of up to 127 names or masks.

exclude_list Specifies a list of up to 127 names or masks of datasets.

Default value

None

Examples

```
SNAP DATASET (SOURCE (EMC . ** .ASM)
EXCLUDE (EMC . TEST* . **) TARGET (BACKUP . ** .ASM)
VOL (EMCBCV) )
```

Selects all datasets with the high level index EMC and the third index of ASM. All datasets where the second index begins with TEST are not snapped.

```
SNAP DATASET (SOURCE (EMC . ** .ASM)
EXCLUDE (EMC . MASK* . **, EMC . DATASET1 , EMC . DATASET2 ,
EMC . OTHER . **) TARGET (BACKUP . ** .TEXT)
VOL (EMCBCV) )
```

Selects all datasets with the high level index EMC and the third index of ASM. All datasets where the second index begins with MASK, EMC.DATASET1, EMC.DATASET2, and all datasets where the second level index is OTHER are not snapped.

EXPLAIN(VOLUME_SELECTION(YES|NO))

As each potential volume is examined to determine whether it can be a candidate for dataset allocation, a line is written with an explanation. Messages ESNPOA0I or ESNPOA1I are issued.

Comments

- ◆ Depending on the number of devices, this parameter can generate a lot of output.

Global parameter effects

This parameter sets a global value for the following command:

- ◆ SNAP DATASET

Default value

NO

EXTENT_ALLOCATION(YES[,CONSOLIDATE_VOLUME[,CONSOLIDATE_ALL]]|NO)

The EXTENT_ALLOCATION parameter specifies whether operations should use extent allocation for target datasets. The default value is NO, do not use extent allocation.

For the duration of the current SNAP DATASET command, the value of EXTENT_ALLOCATION overrides any value set by the GLOBAL command EXTENT_ALLOCATION parameter or by the following matching site options:

- ◆ &EXTALLOC = EXTENT_ALLOCATION(YES|NO)
- ◆ &CONSALL = EXTENT_ALLOCATION(YES,CONSOLIDATE_ALL)
- ◆ &CONSVOL = EXTENT_ALLOCATION(YES, CONSOLIDATE_VOL)

Note: For more information on the “EXTENT_ALLOCATION” parameter, go to the complete description provided on [page 181](#).

EXTALLOC_EMCCOPY_ONLY

The EXTALLOC_EMCCOPY_ONLY parameter controls whether only EMC-manufactured devices are to be used as possible candidates for extent allocation

For the duration of the current SNAP DATASET command, the value of EXTALLOC_EMCCOPY_ONLY overrides any value set by the GLOBAL command EXTALLOC_EMCCOPY_ONLY parameter or by the &EMCCOPY site option.

“EXTALLOC_EMCCOPY_ONLY(YES|NO)” on [page 182](#) provides more information.

EXTENT_EXPAND(YES|NO,[ADDNEW(YES|NO)],[SAMEVOL],[NEWVOL]])

The EXTENT_EXPAND parameter controls how extent allocation allocates a dataset.

For the duration of the current SNAP DATASET command, the value of EXTENT_EXPAND overrides any value set by the GLOBAL command EXTENT_EXPAND parameter or by the following site options:

- ◆ &EXTADDNEW

- ◆ &EXTXPVOL
- ◆ &EXTXPAND

“[EXTENT_EXPAND\(YES|NO,\[ADDNEW\(YES|NO\)\]\[,SAMEVOL\]\[,NEWVOL\]\)](#)” on page 183 provides more information.

FLASH_SNAP(FLASHCOPY|SNAP)

The FLASH_SNAP parameter determines whether FlashCopy or TimeFinder operations are used by default.

For the duration of the current SNAP DATASET command, the value of FLASH_SNAP overrides any value set by the GLOBAL command FLASH_SNAP parameter or by the &FLASH_SNAP site option.

“[FLASH_SNAP\(FLASHCOPY|SNAP\)](#)” on page 184 provides more information.

IMPORTANT

Do not change the value of this parameter unless directed to do so by EMC.

FORCE(YES|NO)

The FORCE parameter allows you to snap a dataset that was created as absolute track (ABSTR) or as unmovable (PSU, POU or DAU).

Note: It also allows you to snap a RECFM=U or DSORG=U datasets, which were previously listed as unsupported datasets.

For the duration of the current SNAP DATASET command, the value of FORCE overrides any value set by the GLOBAL command FORCE parameter or by the &FORCE site option.

“[FORCE\(YES|NO\)](#)” on page 184 provides more information.

HostcoPYMODE(SHARED|EXCLUSIVE|NONE)

The HOSTCOPYMODE parameter specifies the level of serialization control to be obtained for the source datasets.

For the duration of the current SNAP DATASET command, the value of HOSTCOPYMODE overrides any value set by the GLOBAL command HOSTCOPYMODE parameter or by the &HOSTCOPY site option. “[HOSTCOPYMODE\(EXCLUSIVE|SHARED|NONE\)](#)” on page 187 provides more information.

INDDname(*ddname*)

You must specify either INDDname or the SOURCE parameter. INDDname refers to a DD statement already allocated to the source dataset to be snapped.

ddname Identifies the DD statement referring to the dataset to be snapped. The dataset may be any supported dataset type.

Comments

- ◆ The INDDname parameter is the only way to specify a source dataset that is not cataloged.
- ◆ Concatenated DD statements are not supported.

- ◆ The ENQWAIT and HOSTCOPYMODE parameters are ignored with the INDDname parameter.

Default value

None

Example

INDD(INFILE)

INVALIDATE_PDSE_buffers(YES|NO)

The INVALIDATE_PDSE_buffers parameter causes or prevents the flushing of the PDSE data caches when a SNAP DATASET or SNAP VOLUME command is processed.

For the duration of the current SNAP DATASET command, the value of INVALIDATE_PDSE_BUFFERS overrides any value set by the GLOBAL command INVALIDATE_PDSE_BUFFERS parameter or by INVALIDATE_PDSE site option.

[“INVALIDATE_PDSE_buffers\(YES|NO\)” on page 188](#) provides more information.

LOGINDYNAM(volume[, volume...])

The LOGINDYNAM parameter specifies a list of volumes to be used for selecting source datasets.

For the duration of the current SNAP DATASET command, the value of LOGINDYNAM overrides any value set by the GLOBAL command LOGINDYNAM parameter.

[“LOGINDYNAM\(volume\[, volume...\]\)” on page 190](#) provides more information.

ManaGeMenTCLASs(classname)

The MANAGEMENTCLASS parameter specifies the SMS management class to be assigned to the target dataset after TF/Clone dynamically allocates the target dataset. Identifies the DD statement referring to the dataset to be snapped. The dataset may be any supported dataset type.

For the duration of the current SNAP DATASET command, the value of MANAGEMENTCLASS overrides any value set by the GLOBAL command MANAGEMENTCLASS parameter or by the &MGMTCLAS site option. [“MANAGEMENTCLASS\(classname\)” on page 191](#) provides more information.

MIGrate([PURge(YES|NO)] [RECall(YES|NO|IGNORE)])

The MIGRATE parameter establishes the migration process for the current SNAP DATASET command.

For the duration of the current SNAP DATASET command, the value of MIGRATE overrides any value set by the GLOBAL command MIGRATE parameter. [“MIGrate\(\[PURge\(YES|NO\)\] \[RECall\(YES|NO\)\]\)” on page 194](#) provides more information.

- ◆ The MIGRATE parameter is also available as the site options:
 - &PURGE (MIGRATE PURGE)
 - &RECALL (MIGRATE RECALL)

[Table 3 on page 45](#) provides more information.

Example

```
MIG (PUR (Y) REC (Y) )
```

MODE(COPY|NOCOPY|NOCOPYRD)

The MODE parameter specifies when the background copy from source to target occurs.

Note: The NOCOPYRD keyword is available only with Engenuity level 5772 and higher.

For the duration of the current SNAP DATASET command, the value of MODE overrides any value set by the GLOBAL command MODE parameter. Refer to the description of the MODE parameter on page [196](#) for additional information.

NOTIFYwhencomplete ([[GROUP(*name*)][DATASET][JOB][STEP][SNAP]])

The NOTIFYWHENCOMPLETE parameter requests asynchronous notification upon completion of the SNAP DATASET operation.

For the duration of the current SNAP DATASET command, the value of NOTIFYWHENCOMPLETE overrides any value set by the GLOBAL command NOTIFYWHENCOMPLETE parameter or by the &NTFYVLV site option.

For more information go to “[NOTIFYwhencomplete \(\[\[GROUP\(*name*\)\]\[DATASET\]\[JOB\]\[STEP\]\[SNAP\]\]\)](#)” on page [198](#).

OUTDDname(*ddname*)

The OUTDDname parameter refers to a DD statement already allocated to the target dataset that is reused. You must specify either this parameter or the TARGET parameter.

ddname Identifies the DD statement that refers to the dataset to be reused. The dataset may be any supported dataset type, but must match the source dataset type.

Comments

- ◆ You should not attempt to snap a dataset onto itself.
- ◆ If you use the OUTDDname parameter, the dataset is automatically reused. REPLACE(YES) and REUSE(YES) are assumed, and do not need to be specified.
- ◆ Concatenated DD statements are not supported.

Default value

None

Example

```
OUTDD (OUTFILE)
```

PARALLEL_CLONE(YES|NO|PREferred|REQuired)

The PARALLEL_CLONE parameter is used to invoked the Simultaneous TF/Clone microcode feature (if available). When conditions are met, a dual clone session is established between the source and target R2 devices, avoiding the secondary SRDF/S transmission of a copied dataset from the target R1 to the corresponding R2 device.

This feature ensures disaster restartability is intact at all times.

Possible values are:

YES	Enables parallel cloning.
NO	Disables parallel cloning. Parallel Clone is not attempted, even if the devices have the potential to take advantage of the parallel clone function.
PREFferred	Parallel clone is enabled, but if there is a reason why the device cannot execute the simultaneous TF/Clone microcode feature, then the request continues using non-parallel clone methods.
REQuired	Parallel clone is enabled for the appropriate devices (for example, source and target are both R1 devices in a common controller, and the matching R2 devices are also in a common controller). If there is some reason why the request cannot be completed using parallel clone, the request fails.

Comments

This parameter is also allowed on the SNAP DATASET and the SNAP VOLUME statements, and can be set as a site option.

The ACTIVATE CONSISTENT(YES) parameter is required, if omitted, the parallel clone operation is still performed and the following informational message is issued:

```
ESNPF371 PARALLEL_CLONE(YES) DETECTED, CONSISTENT(YES) ASSUMED.
```

Other considerations include:

- ◆ Enginuity level 5875 is required on both side of the link.
- ◆ R2 source and target snap volumes are in the same Symmetrix device.
- ◆ The R2 source and target devices cannot be larger than the R1 devices. Currently, TimeFinder blocks this operation.
- ◆ Not supported
 - Cascaded SRDF devices.
 - SRDF/Star environments.
 - FlashCopy (future Enginuity release)
 - Virtual Provisioning (VDEV)
- ◆ The following SRDF operations are blocked on Simultaneous TF/Clone (PARALLEL_CLONE) devices:
 - Delete and Half Delete
 - Swap and Half Swap
 - Move Group and Half Move Group

Note: The PARALLEL_CLONE parameter should not be confused with the Global PARALLEL parameter for multi-tasking or the PARALLEL SNAP solution. PARALLEL_CLONE invokes the Simultaneous TF/Clone feature starting with Enginuity 5875 microcode.

Global parameter effects

This parameter sets a global value to enable or disable the parallel clone feature.

Default value

None

Examples

```
PARALLEL_CLONE (YES)
SNAP DATASET . . .
. . .
. . .
ACTIVATE CONSISTENT (YES) MESSAGES (DISPLAY)
```

R1FULLCOPYONLY|R1FULLCOPY(YES|NO)

In the situation where you specify MODE(NOCOPY) and perform a snap to an R1 device, the data may never be copied to the R1 (because of NOCOPY) or be copied to the corresponding R2 device.

The R1FULLCOPYONLY parameter is designed to handle this situation. This works with the MODE(NOCOPY) parameter as it applies to R1 devices. If R1FULLCOPYONLY is enabled, TF/Clone ignores MODE(NOCOPY) when the target of the snap is an R1 device.

For the duration of the current SNAP DATASET command, the value of R1FULLCOPYONLY overrides any value set by the GLOBAL command R1FULLCOPYONLY parameter or by the &R1FULLCOPY site option. “[R1FULLCOPYonly\(YES|NO\)](#)” on [page 204](#) provides more information.

RECALCULATE_FREESPACE(YES|NO)

The RECALCULATE_FREESPACE parameter determines whether freespace is recalculated only on effected volumes or on all candidate volumes after the current SNAP DATASET operation.

For the duration of the current SNAP DATASET command, the value of RECALCULATE_FREESPACE overrides any value set by the GLOBAL command RECALCULATE_FREESPACE parameter or by the &RECALC_FREE site option.

Normally, after any allocation of a new dataset occurs, the free space amount is recalculated only on the affected volumes. If you specify RECALCULATE_FREESPACE(YES), the free space amount is recalculated on all candidate volumes.

This is especially useful when allocations are occurring in other jobs simultaneously with the execution of TimeFinder (for example: running multiple simultaneous TimeFinder jobs using the same target volumes). Values can be:

<u>YES</u>	Recalculate freespace on all candidate volumes.
<u>NO</u>	Recalculate freespace only on affected volumes.

Comments

The RECALCULATE_FREESPACE parameter as a site option, &RECALC_FREE. [Table 3 on page 45](#) lists the site options.

Default value

NO

Example

```
RECALCULATE_FREESPACE (YES)
```

RENAMEUnconditional(*pfx*) |
RENAMEUnconditional((*pfx*) (*oldnamemask*,*newnamemask*)...) |
RENAMEUnconditional((*oldnamemask*,*newnamemask*)...)

You can issue RENAMEUNCONDITIONAL for any snap dataset. It is a method to provide alternate naming conventions to components being copied. The *oldnamemask* is used to match existing PATH or AIX names. The corresponding *newnamemask* is used to transform the old name into a new name.

A maximum of 127 (*oldnamemask*, *newnamemask*) pairs may be specified.

Note: RENUNC is a valid alias for the RENAMEUnconditional parameter.

Values can be:

<i>pfx</i>	Specifies the prefix you want to use to replace the first-level qualifier of the dataset name. It is optional, but if specified, must be the first parameter in the list of sub-fields. The prefix is used only if the (<i>oldnamemask</i> , <i>newnamemask</i>) parameters are not specified or the <i>oldnamemask</i> filters do not match the dataset name.
<i>oldnamemask</i>	Specifies a mask to be used as a filtering criterion to check if it matches the dataset name.
<i>newnamemask</i>	Specifies a mask used to derive the new dataset name when the existing dataset name matches the corresponding <i>oldnamemask</i> filtering criterion.

Default value

None

RELate(*dsname*)

The RELATE parameter is used when snapping an alternate index dataset. By default, the target dataset is related to the same base cluster to which the source dataset is related. You can change this base cluster name by using the RELATE parameter. If the target dataset is being reused, this parameter is ignored.

<i>dsname</i>	Specifies the name of the base cluster that the new target alternate index is related.
---------------	--

Comment

- ◆ The RELATE and SPHERE parameters are mutually exclusive. The RELATE parameter is used with alternate indexes, whereas the SPHERE parameter is used with primary clusters.
- ◆ The RELATE parameter may be used only with a single source dataset. The SOURCE and TARGET parameters may not be wildcarded.

Default value

None

Example

```
REL (EMC.BASE.MASTER)
```

REPLace(YES|NO)

The REPLACE parameter gives permission to replace an existing target dataset. Depending upon the REUSE parameter, the existing target dataset may be scratched and reallocated (REPLACE(Y) REUSE(N)), or simply reused (REPLACE(Y) REUSE(Y)).

This optional parameter is valid only with the TARGET parameter.


CAUTION

Take care when using this parameter. Some datasets that appear to be empty actually contain data.

For the duration of the current SNAP DATASET command, the value of REPLACE overrides any value set by the GLOBAL command REPLACE parameter or by the &REPLACE site option.

[“REPLace\(YES|NO\)” on page 209](#) provides more information.

REUSE(YES|NO)

The REUSE parameter allows replacement of the contents of an existing target dataset without erasing and allocating it again.

For the duration of the current SNAP DATASET command, the value of REUSE overrides any value set by the GLOBAL command REUSE parameter or by the &REUSE site option.

[“REUSE\(YES|NO\)” on page 210](#) provides more information.

Note: If you specify REPLACE(YES) and REUSE(YES) and TOLERATE_REUSE_FAILURE(YES), then an existing target dataset is initially reused. If for some reason, such as size or attributes, the target to not reusable, the existing target dataset is erased and a new target dataset is created.

Default

NO

Example

REUSE (Y)

REUSE_AUTO_expand(YES|NO)

The REUSE_AUTO_EXPAND parameter controls whether expanding an existing dataset is allowed. To take effect, REPLACE (YES) and REUSE(YES) must also be set.

For the duration of the current SNAP DATASET command, the value of REUSE_AUTO_EXPAND overrides any value set by the GLOBAL command REUSE_AUTO_EXPAND parameter or by the &AUTOXPND site option.

[“REUSE_AUTO_expand\(YES|NO\)” on page 211](#) provides more information.

SCFGROUP|SCFGRP(*scfgroup*)

The SCFGROUP parameter specifies an SCF Group that is made up of a candidate list of volumes.

scfgroup Specifies an SCF Group name. The name can consist of up to 64 characters. If the name includes any special characters (including spaces), enclose the name in single quotes.

The SCF group name must be predefined to ResourcePak Base.

Note: The *EMC ResourcePak Base for z/OS Product Guide* provides more information.

SELECTMULTI(ALL|ANY|FIRST)

The SELECTMULTI parameter specifies the criteria you want to apply to volumes in a LOGINDYNAM list before processing selection can take place.

For the duration of the current SNAP DATASET command, the value of SELECTMULTI overrides any value set by the GLOBAL command SELECTMULTI parameter.

[“SELECTMULTI\(ALL|ANY|FIRST\)” on page 212](#) provides more information.

SMS_PASS_VOLUMES(YES|NO)

The SMS_PASS_VOLUMES parameter allows you to change SMS processing so that you can supply volumes on a SNAP DATASET command that is passed to SVC99 and IDCAMS even through the dataset is an SMS-managed dataset. This allows the ACS routine to determine whether the supplied volumes is allowed or ignored.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

For the duration of the current SNAP DATASET command, the value of SMS_PASS_VOLUMES overrides any value set by the GLOBAL command SMS_PASS_VOLUMES parameter or by the &SMSPASSVOL site option.

[“SMS_PASS_volumes\(YES|NO\)” on page 214](#) provides more information.

SNAP_UNUSED_SPACE(YES|NO)

The SNAP_UNUSED_SPACE parameter determines whether the tracks copied to the target dataset are only those tracks in the used portion of the source dataset or the entire allocation, including both used and unused space. This parameter only applies to sequential and standard partitioned datasets.

For the duration of the current SNAP DATASET command, the value of SNAP_UNUSED_SPACE overrides any value set by the GLOBAL command SNAP_UNUSED_SPACE parameter or by the &SNUNUSED site option.

[“SNAP_UNUSED_SPACE\(YES|NO\)” on page 214](#) provides more information.

SOURCE(*dsname*)

The SOURCE parameter specifies the name of the dataset to be snapped. You must specify either SOURCE or the INDDname parameter.

To use TF/Clone, both the source and target datasets must resolve to compatible devices within the same Symmetrix system. All extents for the source dataset must reside on devices that are currently online and accessible.

The source device can be either a Symmetrix standard device or a business continuance volume (BCV).

The dataset is located by using the standard catalog search sequence. JOBCAT and or STEPCAT statements are not supported. The source dataset name must be different from the target dataset name.

dsname Specifies the dataset name of the source dataset. It can contain from one to 44 alphanumeric or national (\$ @ #) characters, and two special characters (- or {}).

When special characters are used, the name must be surrounded by quotation marks and the special characters cannot be used as the first character of the name.

You can use wildcard characters in the source dataset name:

% = a single character wildcard.

* = a number of characters, up to the next period.

** = a number of characters, including periods.

Wild card characters (*,%) do not need to be enclosed in quotation marks.

Comments

You must have SAF READ or equivalent authorization for the source dataset.

Default value

None

Example

The following example identifies the source by standard dataset name.

```
SOURCE (PAYROLL.EMPLOYEE.MASTER)
```

SOURCE_VOLUME_LIST(*vollist*)

The SOURCE_VOLUME_LIST parameter specifies the source volumes for SNAP DATASET and QUERY DATASET commands. You must have previously defined the source volume list name using a DEFINE SOURCE_VOLUME_LIST command.

The value can be:

vollist The name of the defined volume list. The name can be up to 16 characters.

Comments

A single SNAP DATASET statement may reference cataloged datasets or datasets on offline volumes; but not both. In other words, if you use the SOURCE_VOLUME_LIST parameter in a SNAP DATASET command, TF/Clone selects only datasets from the volumes on the source volume list.

Note: [“DEFINE SOURCE_VOLUME_LIST \(TF/Clone\)” on page 147](#) provides more information about how to create and use source volume lists.

Default value

None

SPHERE(YES|NO)

The SPHERE parameter specifies that, for any VSAM cluster copied, all associated AIX clusters and paths are to be copied. Individual names of sphere components do not need to be specified. The base cluster name must be specified through the SOURCE or INDDname parameters.

Values can be:

- | | |
|-----|---|
| YES | All associated AIX clusters and PATHs are to be copied. |
| NO | Only the selected base cluster is copied. |

Comment

Because you can copy multiple components without a common naming structure in a single action, you can use the RENAMEUNCONDITIONAL parameter to provide the naming convention used for the copied PATH and AIX names.

DB2 linear datasets have a specific naming convention. The second level qualifier denotes whether it is the cluster or the data portion of the dataset. TF/Clone can only be used against the cluster. A component of the cluster can not be specified.

SPHERE can be used with *wildcarded* sources and targets.

Default value

None

Example

```
SPHERE (YES)
```

SRDFA_R1_target(Yes|No|DATAMOVERName|PHYSical|INFormational)

The SRDFA_R1_TARGET parameter specifies how SRDF/A R1 devices are to be used if they are specified as target devices.

For the duration of the current SNAP DATASET command, the value of SRDFA_R1_TARGET overrides any value set by the GLOBAL command SRDFA_R1_TARGET parameter or by the &SRDFAR1 site option.

[“SRDFA_R1_target\(Yes|No|DATAMOVERName|PHYSical|INFormational\)” on page 215](#) provides more information.

SRDFA_R2_sync(WARNING|DATAMOVER|R1R2SYNC)

The SRDFA_R2_SYNC parameter indicates the processing that should occur if TimeFinder detects that it can use the SRDF/A R2 device as the snap source in a two-Symmetrix system SRDF/A snap situation. This parameter only affects snaps that are not consistent. Consistent snaps always suspend cycle switching on the SRDF/A group.

For the duration of the current SNAP DATASET command, the value of SRDFA_R2_SYNC overrides any value set by the GLOBAL command SRDFA_R2_SYNC parameter or by the &SRDFAR2 site option.

[“SRDFA_R2_sync\(WARNING|DATAMOVER|R1R2SYNC\)” on page 217](#) provides more information.

SRDFS_R1_target(Yes|No|DATAMOVERName|PHYSical|INFormational)

The SRDFS_R1_TARGET parameter specifies how SRDF/S R1 devices are to be used if they are specified as target devices.

For the duration of the current SNAP DATASET command, the value of SRDFS_R1_TARGET overrides any value set by the GLOBAL command SRDFS_R1_TARGET parameter or by the &SRDFSR1 site option.

[“SRDFS_R1_target\(Yes|No|DATAMOVERName|PHYSical|INFormational\)” on page 217](#) provides more information.

STORAGECLASS(*classname*)

The STORAGECLASS parameter requests an SMS storage class for a newly allocated target dataset.

classname Specifies the locally defined list of storage attributes required for the target dataset. Your storage administrator determines the valid storage class names for your site.

Comments

- ◆ The STORAGECLASS parameter is also available as a GLOBAL parameter and as a site option, the &STORCLAS. [“STORAGECLASS\(classname\)” on page 219](#) and [Table 3 on page 45](#) provide more information.
- ◆ SAF or equivalent authorization is required if you are requesting the source class.
- ◆ Local SMS ACS routines may place the target dataset in a storage class other than that specified by this parameter. As with all SMS datasets, specifying storage class is only a suggestion. SMS may or may not accept it.
- ◆ TF/Clone does not assign the source storage class to a target dataset automatically unless you specify COPYSMS(STGCLASS). You must ensure that the correct storage class is assigned to the target dataset by using the STORAGECLASS parameter or ACS selection.
- ◆ If an existing target dataset is reused, the storage class information is not changed.

Default value

None

Example

```
STORCLAS (SITESSCL)
```

TARGET(*dsname*)

Note: You can only use this parameter if you install the TF/Clone Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

The TARGET parameter specifies the name of the target dataset. You must specify either this parameter or the OUTDDname parameter. The value can be:

dsname Specifies the dataset name of the target dataset. It can contain from one to 44 alphanumeric or national (\$ @ #) characters, and two special characters (- or {}).

When special characters are used, the name must be surrounded by quotation marks and the special characters cannot be used as the first character of the name.

You can use wildcard characters in the target dataset name:

% = a single character wildcard.

* = a number of characters, up to the next period.

** = a number of characters, including periods.

Wild card characters (*,%) do not need to be enclosed in quotation marks.

The source and target datasets may be on the same Symmetrix system, on different Symmetrix system, or even other compatible storage devices.

Normally, the source and target dataset must reside within the same physical Symmetrix system for the snap operation to be performed by the Symmetrix system. In some situations, this is not feasible. The DataMoverName parameter allows for a utility program to be specified to be invoked and actually copy the physical tracks.

For new non-VSAM target allocations, TF/Clone copies the LSTAR, TRBAL, BLKSIZE, DSORG, RECFM, LRECL, RKP and KEYLEN attributes from the source dataset to the target dataset. For existing non-VSAM target allocations which is reused, TF/Clone copies the LSTAR, TRBAL, BLKSIZE, RECFM, LRECL, RKP and KEYLEN attributes from the source dataset to the target dataset. The DSORG of the target dataset must match that of the source dataset, or the snap fails.

During the target dataset allocation process for VSAM clusters, if a new index or data component name can be made by appending the appropriate suffix to the cluster name, then TF/Clone builds the new name. Otherwise, TF/Clone does *not* generate the new name. Instead, TF/Clone simply passes the request to IDCAMS, which uses IBM rules for component name generation.

Note: The *EMC TimeFinder Utility for z/OS Product Guide* provides more information about IDCAMS.

After the new dataset is successfully allocated, TF/Clone obtains the new component names from the catalog.

Note: You can find an explanation of VSAM component naming in the appropriate IBM Access Method Service manual.

Comments

- ◆ SAF ALTER authorization is required for the target dataset. To ensure that the requestor has access to the target, TF/Clone opens the dataset for output.

- ◆ You cannot specify the same dataset name on both the SOURCE and TARGET parameters.
- ◆ DB2 linear datasets have a specific naming convention. The second level qualifier denotes whether it is the cluster or the data portion of the dataset. TF/Clone can only be used against the cluster. The component of the cluster can not be specified.

The following two examples use TF/Clone to duplicate DB2 linear datasets. Both of the options require the use of wildcarding that is available in TF/Clone.

For the following source dataset:

```
SOURCE (EMCDB2 . DSNDBC . STORE . TSSTORA . I00001 . A001)
```

- Option 1: Use a wildcard to denote the single unique level in the target dataset name. If the single level wildcard specification is used, it must be the second level qualifier:

```
TARGET (BCVDB2 . * . STORE . TSSTORA . I0001 . A001)
```

- Option 2: Use a wildcard to denote the entire target dataset name after the specification of a unique high level qualifier (HLQ):

```
TARGET (BCVDB2 . **)
```

Default value

None

Example

The following example identifies the target by standard dataset name.

```
TARGET (PAYROLL . EMPLOYEE . SNAP)
```

TOLerate_REUSE_Failure(YES|NO)

The TOLERATE_REUSE_FAILURE parameter determines whether to continue the snap operation if the target dataset is not reusable by scratching and reallocating the dataset.

For the duration of the current SNAP DATASET command, the value of TOLERATE_REUSE_FAILURE overrides any value set by the GLOBAL command TOLERATE_REUSE_FAILURE parameter or by the &REUSFAIL site option.

[“TOLERATE_REUSE_FAILURE\(YES|NO\)” on page 222](#) provides more information.

TOLerateALLOcationFailure(YES|NO)

The TOLERATEALLOCATIONFAILURE parameter overrides normal multiple target allocation failure procedure to allow execution to continue on successfully allocated targets. This command is useful where the target dataset name is wild carded.

For the duration of the current SNAP DATASET command, the value of TOLERATEALLOCATIONFAILURE overrides any value set by the GLOBAL command TOLERATEALLOCATIONFAILURE parameter or by the &ALLOFAIL site option.

[“TOLerateALLOcationFailure\(YES|NO\)” on page 223](#) provides more information.

TOLerate_COPY_FAILure(YES|NO)

The TOLERATECOPYFAILURE parameter overrides normal multiple extent copy procedure to allow execution to continue on successfully allocated targets.

For the duration of the current SNAP DATASET command, the value of TOLERATECOPYFAILURE overrides any value set by the GLOBAL command TOLERATECOPYFAILURE parameter or by the ©FAIL site option.

[“TOLERATE_COPY_FAILURE\(YES|NO\)” on page 223](#) provides more information.

TOLerateENQFailure(YES|NO)

The TOLERATEENQFAILURE parameter allows you to snap datasets when exclusive serialization control over them cannot be obtained. Integrity of the dataset cannot be assured. You must use this parameter, if you specify HOSTCOPYMODE(EXCL), to snap a dataset that is unavailable at the exclusive serialization level.

For the duration of the current SNAP DATASET command, the value of TOLERATEENQFAILURE overrides any value set by the GLOBAL command TOLERATEENQFAILURE parameter or by the &ENQFAIL site option.

[“TOLERATEENQFAILURE\(YES|NO\)” on page 224](#) provides more information.

TOLerateTRUNCation(YES|NO)

The TOLERATETRUNCATION parameter allows a dataset to be truncated and a warning message to be issued if the target extent size is smaller than the source. If the target cannot be extended, the snap fails. TF/Clone truncates the dataset only if it cannot allocate more space. Truncation may cause loss of data.

For the duration of the current SNAP DATASET command, the value of TOLERATETRUNCATION overrides any value set by the GLOBAL command TOLERATETRUNCATION parameter or by the &TRUNC site option.

[“TOLERATETRUNCATION\(YES|NO\)” on page 225](#) provides more information.

TOLerateVSAMENQFailure(YES|NO)

If a VSAMENQMODE cannot be satisfied, the TOLERATEVSAMENQFAILURE parameter determines what happens.

If TOLERATEVSAMENQFAILURE (NO) is specified (or defaulted), an error message is issued and processing of the request terminates. If TOLERATEVSAMENQFAILURE (YES) is specified, a warning message is issued and processing of the request continues.

For the duration of the current SETSNAP command, the value of TOLERATEVSAMENQFAILURE overrides any value set by the GLOBAL command TOLERATEVSAMENQFAILURE parameter or by the &VSAMFAIL site option.

[“TOLerateVSAMENQFailure\(YES|NO\)” on page 226](#) provides more information.

TRACE(ON|OFF)

The TRACE parameter enables or disables writing trace messages to the message file. Values can be:

- ON Enables trace records to be generated.
- OFF Disables trace from being generated.

Comments

Some of the information resulting from TRACE(ON) may be of use only to an EMC customer support representative.

Default value

OFF

Example

TRACE (OFF)

UNITName(*unitname*)

The UNITName parameter specifies the device group name of the DASD devices onto which the source dataset is snapped. This optional parameter is only valid with the TARGET parameter.

unitname Specifies the name of the generic locally defined group.

Comments

- ◆ The UNITName parameter may be ignored for SMS targets. When the UNITName is passed to ACS routines, the routine determines if UNITName is ignored.
- ◆ The ESOTERIC and UNITName parameters are aliases of each other and are mutually exclusive. If UNITName is used, ESOTERIC can not be used.

Note: [“SNAP DATASET \(TF/Clone\)” on page 262](#) provides additional information.

Default value

None

Example

UNITN (DASD)

VERIFY(YES|NO)

The VERIFY parameter causes TF/Clone to perform an IDCAMS VERIFY on the target VSAM dataset.

For the duration of the current SETSNAP command, the value of VERIFY overrides any value set by the GLOBAL command VERIFY parameter or by the &VERIFY site option.

[“VERIFY\(YES|NO\)” on page 231](#) and [Table 3 on page 45](#) provide more information.

VERIFY_OPEN_SOURCE(YES|NO)

The VERIFY_OPEN_SOURCE parameter determines whether TimeFinder issues a warning message (ESNPB21) and performs an IDCAMS VERIFY whenever an attempt is made to copy an open VSAM file.

For the duration of the current SETSNAP command, the value of VERIFY_OPEN_SOURCE overrides any value set by the GLOBAL command VERIFY_OPEN_SOURCE parameter or by the &VERIFY_OPEN_SOURCE site option.

[“VERIFY_OPEN_SOURCE\(YES|NO\)” on page 231](#) and [Table 3 on page 45](#) provide more information.

VOLume(*volser*)

The VOLUME parameter specifies the target volume candidate list to which the dataset is to be snapped. This optional parameter is only valid with the TARGET parameter.

Values can be:

volser Specifies the volume serial number of a device that is online to the host attempting the snap. You can specify up to 59 volumes. Multiple volsers are separated by a space.

Comments

- ◆ Guaranteed space is required, if this parameter is used in an SMS environment, or SMS could ignore the request for a specific target volume.
- ◆ The snap operation terminates when TF/Clone makes a request to obtain an extent and:
 - An allocation cannot be satisfied on the specified volume.
 - The VOLUME parameter does not resolve to an eligible device (the specified device has an invalid device type, is offline, or is unknown).

Note: If the source data set is SMS controlled, the allocation may be resolved to another volume that is not in the VOLUME list. This would occur if none of the volumes in the VOLUME list were eligible, but there were eligible volumes in the SMS storage group

Default value

None

Example

```
VOL (BKUP44)
VOL (BKUP44 BKUP45 BKUP46)
```

VOLumeCouNT(*volumecount*)

The VOLUMECOUNT parameter specifies the maximum number of volumes on which a new target dataset can be allocated. This optional parameter is only valid with the TARGET parameter.

volumecount Specifies the maximum number of volumes of which the target dataset is allocated. The *volumecount* must be a decimal number from 1 to 59 without quotes.

The rules of precedence are:

- ◆ If VOLUMECOUNT is coded on the request statement, it is used with no override.
- ◆ If a data class is detected for the dataset, the volume count is used from that data class.
- ◆ If COPYSMS(DATACLAS) is specified and the source dataset has a data class, the volume count is used from that data class.
- ◆ If a data class is coded on the request statement, the volume count is used from that data class.

- ◆ If no data class is selected, coded, or implied, the source volume count (including candidates) is used.

Comments

- ◆ If you do not specify the VOLUMECOUNT parameter, TF/Clone uses, by default, specifies the same number of volumes for the target that the source uses.
- ◆ The VOLUMECOUNT parameter, is ignored for striped datasets.
- ◆ In an SMS environment, when the VOLUMECOUNT parameter, specifies a number greater than the actual number of source volumes, TF/Clone assigns candidate volumes to the target datasets.

Default value

Use the same number of volumes for the target as the number used for the source.

Example

```
VOLCNT (4)
```

VSAMENQMODE(NONE|SHARED|EXCLUSIVE)

The VSAMENQMODE parameter identifies the type of VSAM ENQ testing to perform.

For the duration of the current SET DATASET command, the value of VSAMENQMODE overrides any value set by the GLOBAL command VSAMENQMODE parameter or by the &VSAMENQ site option. “[VSaMENQMODE\(SHAREd|SHR|EXclusive|NONE\)](#)” on page 232 provides more information.

WAITFORCOMPLETION([YES|NO|hh:mm:ss] [,MeSsaGes][,R1R2SYNC] [,TIMEOUT(INFormational|WARning|ERRor)])

The WAITFORCOMPLETION parameter controls whether TF/Clone is to wait for the copy to complete prior to program termination. An optional parameter may be used to provide an ongoing status of the copy process.

For the duration of the current SNAP DATA command, the value of WAITFORCOMPLETION overrides any value set by the GLOBAL command WAITFORCOMPLETION parameter or by the &CMPLT site option. “[DELETE GROUP](#)” on page 148 provides more information.

WAITforsession(YES|NO|hh:mm:ss)

The WAITFORSESSION parameter controls whether TF/Clone is to wait for available sessions on the source device.

For the duration of the current SNAP DATASET command, the value of WAITFORSESSION overrides any value set by the GLOBAL command WAITFORSESSION parameter or by the &WAIT site option. “[WAITforsession\(YES|NO|hh:mm:ss\)](#)” on page 234 provides more information.

SNAP VOLUME

Purpose

The SNAP VOLUME command duplicates a single volume to another volume. You can snap only between devices of the same device type and model.

Syntax

```
SNAP VOLUME
(
SOURCE (VOLUME (volser) | UNIT (device[s]) | SYMDV# (dev_no[s])) |
SOURCE_VDEV (UNIT (addr[s]) | VOLUME (volser) | SYMDV# (dev_no[s])) |
INDDNAME (ddname)
TARGET (VOLUME (volser) | UNIT (device[s]) | SYMDV# (dev_no[s])) |
TARGET_VDEV (VOLUME (volser) | UNIT (device[s]) | SYMDV# (dev_no[s])) |
OUTDDNAME (ddname) |
VDEV (VOLUME (volser) | UNIT (device) | SYMDV# (dev_no[s]) | FREE)
[optional parameter[s]]
)
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a space. If a parameter has YES and NO keywords, you can substitute ON for YES and OFF for NO.

```
[ADMINISTRATOR (YES|NO) ]
[AUTO_BIND_(thin_device|tdev) (YES|NO) ]
[AUTOMATIC_DEALLOC (YES|NO) ]
[AUTOMATIC_RELEASE_HOLD|AUTOMATIC_RELEASE (YES|NO) ]
[BACKGROUNDCOPY (YES|NO|NOCOPYRD) ]
[BCVOnly (YES|NO) ]
[CHECKBCVholdstatus (YES|NO) ]
[CHECKONLINEpathstatus (YES|NO|NEVER) ]
[CHECK_POOL_usable (YES|NO) ]
[CONDITIONVOLUME (ALL|LaBeL|DUMP) ]
[CONTROLLER ([xxxxxxx-] xxxxxx| name) ]
[COPYVolid (YES|NO) ]
[DataMoverName (NONE|ADRDSU|DFDSS|DSS|FDR|FDRDSF|COPYCYL|COPYTRK) ]
[DEBUG (ON|OFF) ]
[DFDSS_ADMIN (YES|NO) ]
[DFDSS_CC (YES|NO) ]
[Differential (YES|NO) ]
[ERROR_CHecking (NORmal|REDUCED) ]
[ERROR_RECOvery (NORmal|ENHanced) ]
[EXCLUDE_PATHGROUPID|EX_PGID (pathlist) ]
[FREESPACE (YES|NO) ]
[GROUP (grpname1 [, grpname2, ...] ) ]
[INDDNAME (ddname) ]
[INVALIDATE_PDSE_buffers (YES|NO) ]
[LOCAL (UNIT (device) | VOLUME (volser) | DDNAME (ddname) [CONTROLLER ([xxxxxxx-] xxxxxx| name) ] ) ]
[MODE (COPY|NOCOPY|NOCOPYRD|VSE) ]
[MULTI_VIRtUal (YES|NO) [alias MULTI_VDEV (YES|NO) ] ]
[NEWVOLID (volser) ]
[NOTIFYwhencomplete ([GROUP (name) ] [DATASET|JOB|STEP|SNAP] ) ]
[OUTDDNAME (ddname) ]
[PARALLEL_CLONE (YES|NO|PREFerred|REQuired) ]
[POOL (name) ]
[POSTSNAP (YES|NO) ]
[PRECOPY (YES|NO) ]
```

```
[PRESNAP (YES|NO) ]
[R1FULLCOPYONLY (YES|NO) ]
[READY (YES|NO) ]
[REFVTOC (YES|NO) ]
[REMOTE (UNIT (device) | VOLUME (volser) | DDNAME (ddname)      RAGROUP (nn.nn.nn.nn)
  [CONTROLLER ([xxxxxxx-]xxxxx|name) ] ) ]
[REPLace (YES|NO) ]
[SRDFA_R1_target (YES|NO|DATAMOVERName|PHYSical|INFormational) ]
[SRDFA_R2_sync (WARNING|DATAMOVER|R1R2SYNC) ]
[SRDFS_R1_target (YES|No|DATAMOVERName|PHYSical|INFormational) ]
[TDEV_RECLAIM (YES|NO) ]
[TERMINATE_SESSION_when_complete (YES|NO) ]
[TOLerateENQFailure (YES|NO) ]
[TRACE (ON|OFF) ]
[VARY_OFFline (AUTO|NEVER) ]
[VARY_ONline (AUTO|YES|NO) ]
[VCLOSE (YES|NO) ]
[VDEVWAIT (YES|NO) ]
[WAITFORCOMPLETION ([YES|NO|hh:mm:ss]
[,MESSAGES] [,R1R2SYNC] [, TIMEOUT(INFormational|WARning|ERRor) ] ) ]
[WAIT_FOR_PRECOPY_PASS1 (YES|NO) ]
[WAITforsession (YES|NO|hh:mm:ss) ]
[WHEN_SAVEDDEV_FULL (READY|NOTREADY) ]
```

Note: GROUP, PRESNAP or POSTSNAP parameters are not allowed in SNAP VOLUME statements that are stored within a group. These parameters are allowed when the SNAP VOLUME statements occur in regular input, such as after a //QCINPUT DD * JCL statement.

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Parameter descriptions

The following section describes the SNAP VOLUME required and optional parameters:

ADMINISTRATOR(YES|NO)

The ADMINISTRATOR parameter determines whether DFDSS avoids RACF calls.

Note: DFDSS requires that you have certain RACF privileges for ADMINISTRATOR to be accepted.

For the duration of the current SNAP VOLUME command, the value of ADMINISTRATOR overrides any value set by the GLOBAL command ADMINISTRATOR parameter or by the &ADMIN site option. [“ADMINISTRATOR\(YES|NO\)” on page 155](#) provides more information.

AUTO_BIND_(thin_device|tdev)(YES|NO)

AUTO_BIND_THIN_DEVICE(YES), along with the required pool name, binds a thin device to a requested pool prior to the SNAP VOLUME processing. This parameter is used when an unbound thin device is referenced as a target device in a SNAP VOLUME statement.

AUTO_BIND_THIN_DEVICE has two optional parameters:

- ◆ PERSISTent

This optional parameter indicates that allocated tracks are assigned the persistent attribute. Allocated tracks having the persistent attribute are not freed until the thin device they are backing has been unbound from the pool containing the data device on which the tracks are allocated.

◆ **PREALlocate**

This optional parameter indicates that physical (data device) tracks are to be allocated at the time the bind is performed to back all logical (thin device) tracks on each device being bound. If this parameter is not specified, physical tracks are allocated on data devices only when data is written to the thin device.

AUTOMATIC_DEALLOC|AUTO_DEALloc(YES|NO)

The AUTOMATIC_DEALLOC parameter allows or disallows automatic issuance of an S DEALLOC command to z/OS when a device is VARY ONLINE or when VARY OFFLINE appears to be hung. z/OS sometimes requires a job to go through allocation to handle these situations.

For the duration of the current SNAP VOLUME command, the value of AUTOMATIC_DEALLOC overrides any value set by the GLOBAL command AUTOMATIC_DEALLOC parameter or by the &AUTODEAL site option.

[“AUTOMATIC_DEALLOC|AUTO_DEALloc\(YES|NO\)” on page 158](#) provides more information.

AUTOMATIC_RELEASE_HOLD|AUTOMATIC_RELEASE(YES|NO)

The AUTOMATIC_RELEASE_HOLD parameter allows a BCV Hold to be automatically released when the background snap of a volume is complete.

For the duration of the current SNAP VOLUME command, the value of AUTOMATIC_RELEASE_HOLD overrides any value set by the GLOBAL command AUTOMATIC_RELEASE_HOLD parameter or by the &AUTORLSE site option.

[“AUTOMATIC_RELEASE_hold|AUTOMATIC_RELEASE\(YES|NO\)” on page 158](#) provides more information.

BACKGROUNDCOPY(YES|NO|NOCOPYRD)

The BACKGROUNDCOPY parameter specifies the background copy mode.

Note: The NOCOPYRD keyword is available only with Engenuity 5772 and higher.

For the duration of the current SNAP VOLUME command, the value of BACKGROUNDCOPY overrides any value set by the GLOBAL command BACKGROUNDCOPY parameter or by the &BACKGRND site option.

[“BACKGROUNDCOPY\(YES|NO|NOCOPYRD|VSE\)” on page 159](#) provides more information.

BCVOnly(YES|NO)

The BCVONLY parameter determines whether allocation is restricted to BCV devices.

For the duration of the current SNAP VOLUME command, the value of BCVONLY overrides any value set by the GLOBAL command BCVONLY parameter or by the &BCVONLY site option.

Comments

- ◆ The BCVONLY parameter has a matching site option, &BCVONLY. [Table 3 on page 45](#) lists the site options.
- ◆ The BCVONLY parameter applies only to Symmetrix control units running Engenuity 5x66 and higher.
- ◆ Exceptions to BCVONLY(YES) specification:
 - If you specify a STD device in a BCVGROUP, TimeFinder honors BCVONLY(YES) and ignores STD devices.
 - If you specify a specific device using the UNIT, SYMDEV#, or VOLUME parameter on the command, then TimeFinder ignores the BCVONLY(YES) request.
 - If a target dataset is being reused, then TimeFinder ignores the volume type.
 - If volume preferencing is used to influence SMS volume selection, then TimeFinder honors BCVONLY(YES) and relegates STD devices to the secondary list.

CHECKBCVholdstatus(YES|NO)

The CHECKBCVHOLDSTATUS parameter determines whether the snap operation honors the Hold status of a BCV. Hold indicates that the BCV was either a source or target of a previous snap operation.

For the duration of the current SNAP VOLUME command, the value of CHECKBCVHOLDSTATUS overrides any value set by the GLOBAL command CHECKBCVHOLDSTATUS parameter or by the &CHECKBCV site option.

“CHECKBCVholdstatus(YES|NO)” on [page 162](#) provides more information.

CHECKONLINEpathstatus(YES|NO|NEVER)

The CHECKONLINEPATHSTATUS parameter ensures that paths from other CPUs to the target device are offline before a VOLUME SNAP is performed.

For the duration of the current SNAP VOLUME command, the value of CHECKONLINEPATHSTATUS overrides any value set by the GLOBAL command CHECKONLINEPATHSTATUS parameter or by the &CHKONLIN site option.

“CHECKONLINEpathstatus(YES|NO|NEVER)” on [page 162](#) provides more information.

CHeck_POOL_usable(YES|NO)

If CHECK_POOL_USABLE(YES) is specified, then the pool name and pool usability is checked during the parse phase to ensure that the pool is a valid name. Pool usability is defined by at least one enabled device, with one or more free tracks, with the same geometry as the virtual device (3380, 3390, fba512, fba520)

If CHECK_POOL_USABLE(NO) is specified, then the pool name and pool usability is not checked until the VDEV (or thin device if AUTO_BIND_UNBIND(YES) is specified) is actually being activated in the Symmetrix device.

Comments

- ◆ The CHECK_POOL parameter has a matching site option, &POOLUSE. [Table 3 on page 45](#) lists the site options.

Default value

NO

CONDitionVOLume(ALL|LaBeL|DUMP)

The CONDITIONVOLUME parameter is used with COPYVOLID(NO) or when you need to have the new target volume conditioned so that the volume can remain online with its original volser, or with the *newvolid*, if specified.

For the duration of the current SNAP VOLUME command, the value of CONDITIONVOLUME overrides any value set by the GLOBAL command CONDITIONVOLUME parameter or by the &CONDVOL site option.

“CONDitionVOLume(ALL|LaBeL|DUMP)” on page 164 provides more information.

CONTROLLER([xxxxxxx-]xxxxx|name)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks. If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

The CONTROLLER parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

COPYVolid(YES|NO)

The COPYVOLID parameter specifies whether TimeFinder retains the source or target volume identity during a SNAP VOLUME operation.

For the duration of the current SNAP VOLUME command, the value of COPYVOLID overrides any value set by the GLOBAL command COPYVOLID parameter or by the ©VOL site option.

“COPYVolid(YES|NO)” on page 167 provides more information.

DataMoverNaMe(ADRDSSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAMS|NONE)

The DATAMOVERNAME parameter allows for a utility program to be specified, to be invoked, and to copy the physical tracks.

For the duration of the current SNAP VOLUME command, the value of DATAMOVERNAME overrides any value set by the GLOBAL command DATAMOVERNAME parameter or by the &DATAMOVR site option.

[“DATA_MOVER_NaMe \(ADRSSU|COPYCYL|COPYTRK|DFDSS|DSS|FDR|FDRDSF|IDCAM|NONE\)”](#) on page 169 provides more information.

DEBUG(ON|OFF)

The DEBUG parameter enables or disables the logging of diagnostic messages. Values can be:

- | | |
|------------|--|
| ON | Enables diagnostic messages to be generated. |
| <u>OFF</u> | Disables diagnostic messages from being generated. |

Comments

- ◆ [“DEBUG\(ALL|EXTRA|TRACE|DUMP|ERROR|SDUMP\)”](#) on page 170 provides more information.
- ◆ The information resulting from specifying DEBUG(ON) may be of use only to an EMC customer support representative.

Default value

OFF

Example

DEBUG (ON)

DFDSS_ADMIN(YES|NO)

The DFDSS_ADMIN parameter determines whether the ADMINISTRATOR parameter is passed to DFDSS to avoid the RACF calls.

For the duration of the current SNAP VOLUME command, the value of DFDSS_ADMIN overrides any value set by the GLOBAL command DFDSS_ADMIN parameter or by the &DFDSS_ADMIN site option.

[“DFDSS_ADMIN\(YES|NO\)”](#) on page 172 provides more information.

DFDSS_CC(YES|NO)

The DFDSS_CC parameter indicates that ADRDSSU is to establish a concurrent copy session while performing the track copy. This allows a more *point-in-time* type of copy operation to occur. This optional parameter is valid only when the DATAMOVERNAME specifies ADRDSSU.

For the duration of the current SNAP VOLUME command, the value of DFDSS_CC overrides any value set by the GLOBAL command DFDSS_CC parameter or by the &DFDSS_CC site option.

[“DFDSS_CC\(YES|NO\)”](#) on page 173 provides more information.

DIFferential(YES|NO)

The DIFFERENTIAL parameter determines whether to use the Engenuity Differential Snap feature. This creates a relationship so that after the initial snap, only changed tracks are moved for subsequent snaps of the same source/target volume pair. Always specify DIFFERENTIAL for a Differential Snap.

For the duration of the current SNAP VOLUME command, the value of DIFFERENTIAL overrides any value set by the GLOBAL command DIFFERENTIAL parameter or by the &DIFFDSN site option.

[“DIFFERENTIAL\(YES|NO\)” on page 174](#) provides more information.

ERROR_CHECKING|ERRCHK(NORMAL|REDUCED)

The ERROR_CHECKING parameter specifies special error handling.

For the duration of the current SNAP VOLUME command, the value of ERROR_CHECKING overrides any value set by the GLOBAL command ERROR_CHECKING parameter or by the &ERRCHK site option.

[“ERROR_CHECKING|ERRCHK\(NORMAL|REDUCED\)” on page 177](#) provides more information.

ERROR_RECOVERY|ERRREC(NORMAL|ENHANCED)

The ERROR_RECOVERY parameter specifies how TimeFinder should handle recovery in an error situation.

For the duration of the current SNAP VOLUME command, the value of ERROR_RECOVERY overrides any value set by the GLOBAL command ERROR_RECOVERY parameter or by the &ERRREC site option.

[“ERROR_RECOVERY\(NORMAL|ENHANCED\)” on page 178](#) provides more information.

EXCLUDE_PATHGROUPID|EX_PGID(*pathlist*)

The EXCLUDE_PATHGROUPID parameter allows certain LPARs or systems to be ignored. No error or warning message are issued if encountered.

For the duration of the current SNAP VOLUME command, the value of EXCLUDE_PATHGROUPID overrides any value set by the GLOBAL command EXCLUDE_PATHGROUPID parameter or by the &EXPATHGRP site option.

[“EXCLUDE_PATHGROUPID|EX_PGID\(*pathlist*\)” on page 180](#) provides more information.

FREESPACE(YES|NO)

When a SNAP VOLUME request is processed, the FREESPACE parameter specifies whether to snap unallocated space. When you use the default NO, snapping unallocated space can occur only if the source volume is online and the z/OS VTOC services are available. After the snap is initiated for the complete volume, an internal “Stop Snap” is issued for all of the unallocated space.

For the duration of the current SNAP VOLUME command, the value of FREESPACE overrides any value set by the GLOBAL command FREESPACE parameter or by the &FREESPC site option.

Note: Under certain conditions, FREESPACE (YES) can overlay existing data on the target volume, but this is dependant on a number of variables, such as the timing and the size of the volume.

[“FREESPACE\(YES|NO\)” on page 185](#) provides more information.

GROUP(*grpname1*[,*grpname2*,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices on which you want to perform the operation. When TimeFinder encounters the GROUP parameter, TimeFinder retrieves the definition for the group from the group library, along with the statements and parameters.

You can specify up to 127 group names. Separate the group names with commas.

TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group at this time. The requested operation is then performed on all appropriate devices in all groups named as if they were a single group.

grpname The name you have previously defined with the DEFINE GROUP command.

Comments

If you use the GROUP parameter, do not use either the SOURCE or TARGET parameters.

Default value

None

For information on naming groups, refer to

[“GROUP_DATASET_name|GROUP_DSName\(‘dataset name’\)” on page 186.](#)

INDDname(*ddname*)

You must specify either the SOURCE parameter or the INDDname parameter. You may use either, but not both. The INDDname parameter refers to a DD statement already allocated to the source volume to be snapped.

ddname Identifies the DD statement that refers to the volume to be snapped. The volume may be any supported dataset type.

Comments

- ◆ If you use the SOURCE or INDDNAME parameters, then you must also use the TARGET or OUTDDNAME parameters. However, if you use the GROUP parameter, do not use either the SOURCE or TARGET parameters.
- ◆ If you use TARGET subparameter SYMDV#, you cannot use INDDname.

Default value

None

Example

INDD (INVOL)

INVALIDATE_PDSE_buffers(YES|NO)

The INVALIDATE_PDSE_BUFFERS parameter causes or prevents the flushing of the PDSE data caches when a SNAP DATASET or SNAP VOLUME command is processed.

For the duration of the current SNAP VOLUME command, the value of INVALIDATE_PDSE_buffers overrides any value set by the GLOBAL command INVALIDATE_PDSE_buffers parameter or by INVALIDATE_PDSE site option.

[“INVALIDATE_PDSE_buffers\(YES|NO\)” on page 188](#) provides more information.

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*)[CONTROLLER([*xxxxxxx*]-*xxxxx*]*name*)])

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

This parameter requires all Symmetrix controllers involved be running Engenuity level 5x71 or higher.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use LOCAL and REMOTE parameters on the same command.
- ◆ The LOCAL parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

MODE(COPY|NOCOPY|NOCOPYRD|VSE)

The MODE parameter specifies when the background copy from source to target occurs.

Possible values are:

<u>COPY</u>	Specifies that the source to target background copy should begin immediately after the snap is issued.
NOCOPY	Specifies that the background copy task does not copy any tracks that are marked protected. A read of the source does not cause the source track image to be copied to the target device. However, the source track image is copied when the track on the target is an indirect.
NOCOPYRD	Specifies that the background copy occur only when a track is either changed on the source or target. This causes the original source track to be copied to the target. Additional updates to the same source track are not copied to the target. Read of the source or target track does not cause the track to be copied.
VSE	If MODE(VSE) is used, device allocations are shared for THIN FBA devices. This parameter is only available on the SNAP VOLUME command.

Comments

- ◆ MODE(VSE) only applies to THIN FBA devices, other MODE parameters are not valid for virtual devices.
- ◆ The VSE parameter is supported only on Enginuity level 5876 or higher.
- ◆ You can specify the NOCOPYRD keyword as:
 - NOBACKGROUNDCOPYONREAD
 - NOBGCOPYONREAD
 - NOCOPYONREAD
 - NOCOPYREAD
 - NOCOPYRD
- ◆ The NOCOPYRD keyword is supported only on Enginuity 5772 and higher.
- ◆ The MODE and BACKGROUNDCOPY parameters serve the same purpose and cannot be specified at the same time. They are mutually exclusive.
- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:
 - PRECOPY(YES)
 - MODE(COPY)
 - WAIT_FOR PRECOPY_PASS1(YES)
- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Default value

COPY

For the duration of the current SNAP VOLUME command, the value of MODE overrides any value set by the GLOBAL command MODE parameter.

Note: “MODE parameter” on page 84 provides additional information.

MULTI_VIRTual(YES|NO)[alias MULTI_VDEV(YES|NO)]

The MULTI_VIRTUAL parameter specifies the method of handling virtual devices (VDEVs). The default of MULTI_VIRTUAL (NO), assigns the default method of allowing a single virtual device to share a maximum of 8 sessions. The parameter MULTI_VIRTUAL (YES) allows for the newer method of allowing multiple virtual devices (up to 128) to share a single standard device session.

Note: The MULTI_VIRTUAL parameter is available with Engenuity 5773 or higher.

Note: On a VMAX 40K and higher, the multi-virtual method is the only method used, so whether the MULTI_VIRTUAL parameter is set to NO or to YES, or whether it is used at all, the system always allows 128 virtual device sessions.

The two methods, default MULTI_VIRTUAL(NO) and MULTI_VIRTUAL(YES), are not allowed to be intermixed on a single standard device. Once a session is created on a standard device, all subsequent sessions must be the same type. When a standard device has no virtual device relationships, either method can be used.

Comments

- ◆ The MULTI_VIRTUAL parameter has a matching site option, &MULTI_VIRTUAL. [Table 3 on page 45](#) lists the site options.

Default value

NO

NEWVOLID(*volser*)

The NEWVOLID parameter allows you to specify a new volser on the target.

volser Defines the new volser on the target.

NOTIFYwhencomplete [[GROUP(*name*)] [DATASET] [JOB] [STEP] [SNAP]]

The NOTIFYWHENCOMPLETE parameter requests asynchronous notification upon completion of the SNAP VOLUME operation.

For the duration of the current SNAP VOLUME command, the value of NOTIFYWHENCOMPLETE overrides any value set by the GLOBAL command NOTIFYWHENCOMPLETE parameter or by the &NTFYVLV site option.

Note: For more information on the “NOTIFYwhencomplete” parameter, go to [page 198](#).

OUTDDname(*ddname*)

The OUTDDNAME parameter refers to a DD statement already allocated to the target volume to be snapped. You must specify either this parameter, the TARGET parameter, or the VDEvice parameter.

ddname Identifies the DD statement that refers to the volume to be snapped. The volume may be any supported dataset type.

Comments

- ◆ If you use the SOURCE or INDDNAME parameters, then you must also use the TARGET or OUTDDNAME parameter. However, if you use the GROUP parameter, do not use either the SOURCE or TARGET parameters.
- ◆ If you specify the TARGET subparameter SYMDV#, then you cannot specify OUTDDname.

Default value

None

Example

OUTDD (OUTVOL)

PARALLEL_CLONE(YES|NO|PREferred|REQuired)

The PARALLEL_CLONE parameter is used to invoked the Simultaneous TF/Clone microcode feature (if available). When conditions are met, a dual clone session is established between the source and target R2 devices, avoiding the secondary SRDF/S transmission of a copied dataset from the target R1 to the corresponding R2 device.

This feature ensures disaster restartability is intact at all times.

Possible values are:

YES	Enables parallel cloning.
NO	Disables parallel cloning. Parallel Clone is not attempted, even if the devices have the potential to take advantage of the parallel clone function.
PREferred	Parallel clone is enabled, but if there is a reason why the device cannot execute the simultaneous TF/Clone microcode feature, then the request continues using non-parallel clone methods.
REQuired	Parallel clone is enabled for the appropriate devices (for example, source and target are both R1 devices in a common controller, and the matching R2 devices are also in a common controller) . If there is some reason why the request cannot be completed using parallel clone, then the request fails.

Comments

This parameter is also allowed on the SNAP DATASET and the SNAP VOLUME statements, and can be set as a site option.

The ACTIVATE CONSISTENT(YES) parameter is required, if omitted, the parallel clone operation is still performed and the following informational message is issued:

```
ESNPF371 PARALLEL_CLONE(YES) DETECTED, CONSISTENT(YES) ASSUMED.
```

Other considerations include:

- ◆ Engenuity level 5875 is required on both side of the link.
- ◆ R2 source and target snap volumes are in the same Symmetrix device.
- ◆ Not supported
 - Cascaded SRDF devices.
 - SRDF/Star environments.
 - FlashCopy (future Engenuity release)
 - Virtual Provisioning (VDEV)
- ◆ The following SRDF operations are blocked on Simultaneous TF/Clone (PARALLEL_CLONE) devices:
 - Delete and Half Delete
 - Swap and Half Swap
 - Move Group and Half Move Group

Note: The PARALLEL_CLONE parameter should not be confused with the Global PARALLEL parameter for multi-tasking or the PARALLEL SNAP solution. PARALLEL_CLONE invokes the Simultaneous TF/Clone feature starting with Engenuity 5875 microcode.

Global parameter effects

This parameter sets a global value to enable or disable the parallel clone feature.

Default value

None

Examples

```
PARALLEL_CLONE (YES)
SNAP VOLUME . . .
    . . .
    . . .
ACTIVATE CONSISTENT (YES) MESSAGES (DISPLAY)
```

POOL(*name*)

The POOL parameter allows multiple pools to be selected, each with specific snap pool devices. When virtual devices are created, you can associate them with a particular pool.

For the duration of the current SNAP VOLUME command, the value of POOL overrides any value set by the GLOBAL command POOL parameter or by the &POOL site option.

[“POOL\(name\)” on page 202](#) provides more information.

POSTSNAP(YES|NO)

The POSTSNAP parameter is used to indicate whether SNAP VOLUME post processing should be automatically performed after the ACTIVATE command is executed or as part of the SNAP VOLUME command processing.

Note: PRESNAP and POSTSNAP parameters only apply to regular input (after a //QCINPUT DD * JCL statement) SNAP VOLUME statements that reference a GROUP. The GROUP parameter identifies a set of stored statements that are to be executed, while the PRESNAP and POSTSNAP indicate special processing for the GROUP. This is why these parameters cannot be stored within a group definition.

For more information, refer to [“GROUP\(grpname\[,grpname,...\]\)” on page 317](#).

Values may be:

YES	Perform SNAP VOLUME post processing automatically after the ACTIVATE command.
NO	Perform SNAP VOLUME post processing as part of SNAP VOLUME processing.

Default value

None

PRECOPY(YES|NO)

The PRECOPY parameter specifies whether to enable the TimeFinder Precopy feature. The Precopy feature initiates the background copy before the activation operation.

The SNAP VOLUME statement causes three Engenuity operations to be performed.

1. Create the snap session on the source device.
2. Protect the source and mark the target as indirect.
3. Activate and make it all effective.

Precopy allows the background copy to begin after the source and target are marked, before the activate operation. Values can be:

<u>YES</u>	Initiate background copying before the activation operation.
NO	Do not initiate background copying before the activation operation.

Comments

- ◆ The PRECOPY parameter is also available as a GLOBAL parameter and as a site option, &PRECOPY. [“PRECOPY\(YES|NO\)” on page 202](#) provides more information.
- ◆ Starting with Version 5.8, TimeFinder has a new SRDF/A R2 Wait for Precopy feature. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device.

To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device:

- PRECOPY(YES)
- MODE(COPY)
- WAIT_FOR PRECOPY_PASS1(YES)

- ◆ Starting with Enginuity Version 5875 and Version 7.2 of TimeFinder a TF/Snap off an active SRDF/A R2 device is supported with group and device level pacing set by SRDF HC commands. Refer to the *EMC SRDF Host Component for z/OS, Version 7.2 Product Guide* for more information.

Default value

YES

PRESNAP(YES|NO)

The PRESNAP parameter is used to indicate whether SNAP VOLUME preprocessing should be automatically performed, either:

- ◆ Before the ACTIVATE command is executed.
- ◆ As part of the SNAP VOLUME command processing.

provides more information about preprocessing.

YES	Perform SNAP VOLUME preprocessing automatically before the ACTIVATE command.
NO	Perform SNAP VOLUME preprocessing as part of SNAP VOLUME processing.

Comment

PRESNAP may only be used if GROUP is also specified.

Note: PRESNAP and POSTSNAP parameters only apply to regular input (after a //QCINPUT DD * JCL statement) SNAP VOLUME statements that reference a GROUP. The GROUP parameter identifies a set of stored statements that are to be executed, while the PRESNAP and POSTSNAP indicate special processing for the GROUP. This is why these parameters cannot be stored within a group definition.

Default value

None

R1FULLCOPYONLY|R1FULLCOPY(YES | NO)

In the situation where you specify MODE(NOCOPY) and perform a snap to an R1 device, the data may never be copied to the R1 (because of NOCOPY) or be copied to the corresponding R2 device.

The R1FULLCOPYONLY parameter is designed to handle this situation. R1FULLCOPYONLY works with the MODE(NOCOPY) parameter as it applies to R1 devices. If R1FULLCOPYONLY is enabled, TimeFinder ignores MODE(NOCOPY) when the target of the snap is an R1 device.

For the duration of the current SNAP VOLUME command, the value of R1FULLCOPYONLY overrides any value set by the GLOBAL command R1FULLCOPYONLY parameter or by the &R1FULLCOPY site option. “[R1FULLCOPYonly\(YES|NO\)](#)” on [page 204](#) provides more information.

READY(YES|NO)

The READY parameter specifies whether the target device is made ready to the host. The *Ready* status indicates the devices on a channel are available for any valid operation.

Values can be:

<u>YES</u>	The target device is made ready to the host.
NO	The target device is made not ready to the host.

Comment

If a QUERY command is issued immediately after you execute a SNAP VOLUME with the READY parameter either set (YES) or cleared (NO), the status of the target device may show AVAILB for up to 5 seconds.

Default value

Yes.

Example

READY (Y)

REFVTOC(YES|NO)

If the target volume is physically larger than the source volume, the additional space is not usable until ICKDSF is run with the REFVTOC option. TimeFinder automatically runs ICKDSF with the REFVTOC option when you specify REFVTOC(YES). The REFVTOC feature simply rebuilds the VTOC and VTOCIX to reflect the real device capacity.

Note: If a volume is online to another LPAR, it should be varied offline to all other LPARS before the snap with a REFVTOC(YES) is run.

Values can be:

<u>YES</u>	ICKDSF automatically runs when the target volume is larger than the source volume.
<u>NO</u>	ICKDSF does not automatically run when the target volume is larger than the source volume.

Comments

- ◆ For the duration of the current SNAP VOLUME command, the value of REFVTOC overrides any value set by the GLOBAL command REFVTOC parameter or by the &REPLACE site option.

[“REFVTOC\(YES|NO\)” on page 207](#) and [Table 3 on page 45](#) provide more information.
- ◆ The REFVTOC parameter applies only to locally addressable volumes. REFVTOC is ignored if you specify it on actions with the SYMDV#, LOCAL, or REMOTE parameters.
- ◆ After the SNAP VOLUME operation completes, the target volume is always immediately available for use.

Default value

NO

Example

REFVTOC (Y)

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*) [CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)])

The REMOTE parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system.

This parameter requires all Symmetrix controllers involved be running Engenuity level 5x71 or higher.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n*
n.nn) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.
- ◆ You cannot use LOCAL and REMOTE parameters on the same command.
- ◆ The REMOTE parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

Example

```
REMOTE (VOL (UMC001) RAGROUP (21) CONTROLLER (0001879-90171) )
```

REPLACE(YES|NO)

The REPLACE parameter specifies whether the source device is able to overwrite data on an existing target volume. A volume with no user data is defined as one with only a VTOC, a VTOC index, and a VVDS.

If the existing device contains user data and you leave REPLACE with the default value of NO, the snap operation terminates. If you specify REPLACE(YES) and the target volume is not empty, old data on that volume is overwritten.

For the duration of the current SNAP VOLUME command, the value of REPLACE overrides any value set by the GLOBAL command REPLACE parameter or by the &REPLACE site option.

[“REPLace\(YES|NO\)” on page 209](#) provides more information.

SOURce(VOLume(*volser*)|UNIT(device[s])|SYMDV#(*dev_no*[s]))

You must specify an input source device by using the INDDname or SOURce parameters. Either may be used, but not both.

Values can be:

VOLUME(*volser*)

The volume serial number of a device that is online to the host attempting the snap.

UNIT(*device*[s])

The unit address of one or more devices that are online to the host attempting the snap.

You can also specify a range of unit addresses. You can write a range in three ways:

- ◆ Specify the lowest address in the range and the highest address in the range separated by a dash:

```
UNIT (lowdevice-highdevice)
```

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

```
UNIT (lowdevice:highdevice)
```

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest address in the range. The count value includes the lowest and the highest units. (For example, if you want to specify units between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
UNIT (device(count))
```

```
SYMDV# (dev_no[s])
```

Identifies the internal Symmetrix device number in the source Symmetrix system for the snap operation. This is a device in a local Symmetrix system if the LOCAL parameter is used to identify the Symmetrix system. This is a device in a remote Symmetrix system if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system.

If you specify SYMDV#, then the UNIT and VOLUME parameters are not allowed. However, you must use either the LOCAL, REMOTE, or CONTROLLER parameters when you specify SYMDV#.

You can specify a single Symmetrix device number:

```
SYMDV# (dev_no)
```

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

```
SYMDV#(lowdev_no-highdev_no)
```

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

```
SYMDV#(lowdev_no:highdev_no)
```

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
SYMDV#(dev_no(count))
```

If you use SYMDV#, you must use it throughout the operation. That is, if you use SYMDV# for the source device, you must also use SYMDV# for the target device.

Comments

- ◆ If you use SOURCE, you must also use TARGET. However, if you use the GROUP parameter, do not use either the SOURCE or TARGET parameters.
- ◆ The number of devices specified in the SOURCE parameter must be the same as the number of devices specified in the TARGET parameter.

Default value

None

Example

```
SOU(VOLUME(STDVOL))
```

SOURCE_VDEV(UNIT(addr[s])VOLUME(volser)|SYMDV#(dev_no[s]))

Note: You can use this parameter for virtual volume operations only if you have installed the TF/Snap licensed feature code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

The SOURCE_VDEV parameter determines whether a virtual device is used as the source device of a “duplicate snap” operation. This would mean creating a point-in-time copy of a virtual device that is already participating in a previously activated Snap Session.

By specifying a virtual device as both the source and target of a SNAP VOLUME statement, the source VDEV is duplicated to the target VDEV and the target VDEV is based on the same original standard device.

Values can be:

```
UNIT(device[s])
```

Specifies using the virtual device(s) addressed as a Symmetrix device number.

You can also specify a range of unit addresses. You can write a range in three ways:

- ◆ Specify the lowest address in the range and the highest address in the range separated by a dash:

```
UNIT(lowdevice-highdevice)
```

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

```
UNIT(lowdevice:highdevice)
```

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest address in the range. The count value includes the lowest and the highest units. (For example, if you want to specify units between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
UNIT(device(count))
```

```
VOLume(volser)
```

Specifies to use the virtual device labeled *volser*.

```
SYMDV#(dev_no[s])
```

Specifies the device number to be used as the source device. If SYMDV# is specified, then the UNIT and VOLUME, and INDDNAME and OUTDDNAME parameters are not allowed. However, you must use either the LOCAL, REMOTE, or CONTROLLER parameters when you specify SYMDV#.

You can specify a single Symmetrix device number:

```
SYMDV#(dev_no)
```

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

```
SYMDV#(lowdev_no-highdev_no)
```

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

```
SYMDV#(lowdev_no:highdev_no)
```

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

```
SYMDV#(dev_no(count))
```

Default

None

Comments

- ◆ A duplicate VDEV is counted as part of the 128 multi-virtual limit off of a source device.
- ◆ There is a maximum of 2 duplicate VDEVs per source in an “established and inactive” state at any time. Once activated, up to 2 more can be established.
- ◆ Termination or re-snap of the original VDEV session is not allowed with an inactive duplicate VDEV.

Example

```
SNAP VOLUME (SOURCE_VDEV VOLUME(scrdvdev) TARGET_VDEV VOLUME(tgtvdev))
```

SRDFA_R1_target(YES|NO|DATAMOVER|NaMe|PHYSical|INFormational)

The SRDFA_R1_TARGET parameter specifies how SRDF/A R1 devices are to be used if they are designated as target devices.

For the duration of the current SNAP VOLUME command, the value of SRDFA_R1_TARGET overrides any value set by the GLOBAL command SRDFA_R1_TARGET parameter or by the &SRDFAR1 site option.

[“SRDFA_R1_target\(Yes|No|DATAMOVER|NaMe|PHYSical|INFormational\)” on page 215](#) provides more information.

SRDFA_R2_sync(WARNING|DATAMOVER|R1R2SYNC)

The SRDFA_R2_SYNC parameter indicates the processing that should occur if TimeFinder detects that it can use the SRDF/A R2 device as the snap source in a two-Symmetrix system SRDF/A snap situation. This parameter affects only snaps that are not consistent. Consistent snaps always suspend cycle switching on the SRDF/A group.

For the duration of the current SNAP VOLUME command, the value of SRDFA_R2_SYNC overrides any value set by the GLOBAL command SRDFA_R2_SYNC parameter or by the &SRDFAR2 site option.

[“SRDFA_R2_sync\(WARNING|DATAMOVER|R1R2SYNC\)” on page 217](#) provides more information.

SRDFS_R1_target(YES|NO|DATAMOVER|NaMe|PHYSical|INFormational)

The SRDFS_R1_TARGET parameter specifies how SRDF/S R1 devices are to be used if they are designated as target devices.

For the duration of the current SNAP VOLUME command, the value of SRDFS_R1_TARGET overrides any value set by the GLOBAL command SRDFS_R1_TARGET parameter or by the &SRDFS1 site option.

[“SRDFS_R1_target\(Yes|No|DATAMOVER|NaMe|PHYSical|INFormational\)” on page 217](#) provides more information.

TaRGeT|TARGET_VDEV(VOLume(*volser*)|UNIT(device[s])|SYMDV#(*dev_no*[s]))

Note: You can only use this parameter for full-volume snaps if you install the TF/Clone Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

The TARGET parameter defines the target of the snap. With Engenuity level 5875, the target device can also be a virtual device that participates in a “duplicate snap” operation. TARGET_VDEV is an alias for TARGET.

Values can be:

VOLUME (*volser*)

Specifies the volume serial number of a device that is online to the host attempting the snap.

Note: TARGET parameters that apply to a group must use the UNIT subparameter instead of the VOLUME subparameter.

UNIT (*device[s]*)

Specifies the unit address of a device that is online to the host attempting the snap.

You can also specify a range of unit addresses. You can write a range in three ways:

- ◆ Specify the lowest address in the range and the highest address in the range separated by a dash:

UNIT (*lowaddress-highaddress*)

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

UNIT (*lowaddress:highaddress*)

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest address in the range. The count value includes the lowest and the highest units. (For example, if you want to specify units addresses between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

UNIT (*address(count)*)

SYMDV# (*dev_no[s]*)

Identifies the internal Symmetrix device number in the target Symmetrix for the snap operation. This is a device in a local Symmetrix if the LOCAL parameter is used to identify the Symmetrix. This is a device in a remote Symmetrix if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system.

If you specify SYMDV#, then the UNIT and VOLUME parameters are not allowed. However, you must use either the LOCAL, REMOTE, or CONTROLLER parameters when you specify SYMDV#.

You can specify a single Symmetrix device number:

SYMDV# (*dev_no*)

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

`SYMDV#(lowdev_no-highdev_no)`

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

`SYMDV#(lowdev_no:highdev_no)`

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

`SYMDV#(dev_no(count))`

IMPORTANT

If you use `SYMDV#`, you must use it throughout the operation. That is, if you use `SYMDV#` for the source device, you must also use `SYMDV#` for the target device.

Comments

- ◆ If you use the `TARGET` or `OUTDDNAME` parameters, then you must also use the `SOURCE` or `INDDNAME` parameters. However, if you use the `GROUP` parameter, do not use either the `SOURCE` or `TARGET` parameters.
- ◆ The number of devices specified in the `TARGET` parameter must be the same as the number of devices specified in the `SOURCE` parameter.

Default value

None

Example

`TRG(VOLUME(TGTVOL))`

TDEV_RECLAIM(YES|NO)

This `TDEV` parameter can initiate a reclaim of the target device after a full device clone operation to prevent any “unallocated but assigned” tracks on the source device to be copied to the target device.

YES Initiate a reclaim of unallocated but assigned tracks.

NO Copy without reclaiming unallocated but assigned tracks.

Comments

No comments.

Default value

YES

Example

`TDEV_RECLAIM(NO)`

TERMINATE_SESSION_when_complete(YES|NO)

The TERMINATE_SESSION_WHEN_COMPLETE parameter allows a full-device session snap to terminate automatically after the copy is complete. This eliminates the need to remove the session by running a CLEANUP on the source device.

For the duration of the current SNAP VOLUME command, the value of TERMINATE_SESSION_WHEN_COMPLETE overrides any value set by the GLOBAL command TERMINATE_SESSION_WHEN_COMPLETE parameter or by the &TERMSESS site option.

[“TERMINATE_SESSION_when_complete\(YES|NO\)” on page 220](#) provides more information.

TOLerateENQFailure(YES|NO)

The TOLERATEENQFAILURE parameter allows you to snap a volume when exclusive serialization control cannot be obtained and integrity of the volume cannot be assured. You must use this parameter to snap a volume that is unavailable at the requested serialization level.

For the duration of the current SNAP VOLUME command, the value of TOLERATEENQFAILURE overrides any value set by the GLOBAL command TOLERATEENQFAILURE parameter or by the &ENQFAIL site option.

[“TOLERATEENQFAILURE\(YES|NO\)” on page 224](#) provides more information.

TRACE(ON|OFF)

Note: This option should only be set on at the request of an EMC Customer Support representative.

The TRACE parameter allows you to write trace messages to the message file.

Values can be:

`ON` Enables trace records to be generated.

`OFF` Disables trace records from being generated.

Default value

`OFF`

Example

`TRACE (ON)`

VARY_OFFline (AUTO|NEVER)

The VARY_OFFLINE parameter specifies whether the target device must be offline before the request processing begins.

For the duration of the current SNAP VOLUME command, the value of VARY_OFFLINE overrides any value set by the GLOBAL command VARY_OFFLINE parameter or by the &VARYOFF site option. [“VARY_OFFline\(AUTO|NEVER\)” on page 228](#) provides more information.

VARY_ONline(AUTO|YES|NO)

The VARY_ONLINE parameter specifies whether the target device must be offline after the requested processing completes.

For the duration of the current SNAP VOLUME command, the value of VARY_ONLINE overrides any value set by the GLOBAL command VARY_ONLINE parameter or by the &VARYON site option. “[VARY_ONline\(AUTO|YES|NO\)](#)” on page 228 provides more information.

VCLOSE(YES|NO)

The VCLOSE parameter determines whether a VCLOSE CAS modify command is issued to the CATALOG address space for the target volume for a SNAP VOLUME request. If a catalog resides on the target volume, the CATALOG address space should be notified or subsequent problems may occur.

For the duration of the current SNAP VOLUME command, the value of VCLOSE overrides any value set by the GLOBAL command VCLOSE parameter or by the &VCLOSE site option. “[VCLOSE\(YES|NO\)](#)” on page 229 provides more information.

VDEvice(FREE|UNIT(*addr[s]*)|VOLume(*volser*)|SYMDV#(*dev_no[s]*))

Note: You can use this parameter for virtual volume operations only if you have installed the TF/Snap licensed feature code. “[eLicensing and Licensed Feature Codes](#)” on page 40 provides more information.

The VDEVICE parameter determines whether a virtual device is used for the snap. Values can be:

FREE

Specifies to use the first free virtual device available.

VDEV(FREE) attempts to pick a VDEV that is not already being used. During the analysis, it guards against multiple jobs picking the same device by using a system-wide ENQ.

If you have multiple sysplexes, this ENQ cannot provide the protection and it is very possible that multiple jobs running in multiple sysplexes pick the same VDEV.

You should limit the use of VDEV(FREE) to a single sysplex, or avoid its use altogether in a multiple sysplex environment.

UNIT(*device[s]*)

Specifies using the virtual device(s) addressed as a Symmetrix device number.

You can also specify a range of unit addresses. You can write a range in three ways:

- ◆ Specify the lowest address in the range and the highest address in the range separated by a dash:

UNIT(*lowdevice-highdevice*)

- ◆ Specify the lowest address in the range and the highest address in the range separated by a colon:

UNIT(*lowdevice:highdevice*)

- ◆ Specify the starting address in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest address in the range. The count value includes the lowest and the highest units. (For example, if you want to specify unit addresses between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

`UNIT (device (count))`

`VOLUME (volser)`

Specifies to use the virtual device labeled *volser*.

`SYMDV# (dev_no[s])`

Specifies the device number to be used as the target device. If SYMDV# is specified, then the UNIT and VOLUME, and INDDNAME and OUTDDNAME parameters are not allowed. However, you must use either the LOCAL, REMOTE, or CONTROLLER parameters when you specify SYMDV#.

You can specify a single Symmetrix device number:

`SYMDV# (dev_no)`

You can also specify a range of device numbers. You can write a device range in three ways:

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a dash:

`SYMDV# (lowdev_no-highdev_no)`

- ◆ Specify the lowest numbered device in the range and the highest numbered device in the range separated by a colon:

`SYMDV# (lowdev_no:highdev_no)`

- ◆ Specify the starting device number in the range and a count value (in parentheses) that indicates how many additional devices there are between that number and the highest numbered device in the range. The count value includes the lowest and the highest numbered device. (For example, if you want to specify devices between 10 and 13, you would enter 4 as the count.)

The total number of devices in the range (that is, the count value) cannot exceed 256.

`SYMDV# (dev_no (count))`

Default

None

Example

`VDEV (FREE)`

VDEWAIT(YES|NO)

The VDEWAIT parameter indicates what should happen if TF/Snap attempts to perform an operation against a VDEV that already has another job operating against it.

For the duration of the current SNAP VOLUME command, the value of VDEVWAIT overrides any value set by the GLOBAL command VDEVWAIT parameter or by the &VDEVWAIT site option. “VDEVWAIT(YES|NO)” on page 230 provides more information.

WAITFORCOMPLETION([YES|NO|hh:mm:ss] [,MeSsaGes][,R1R2SYNC] [TIMEOUT(INFormational|WARning|ERRor)])

The WAITFORCOMPLETION parameter controls whether TimeFinder is to wait for the copy to complete, prior to program termination. An optional parameter may be used to provide an ongoing status of the copy process.

For the duration of the current SNAP VOLUME command, the value of WAITFORCOMPLETION overrides any value set by the GLOBAL command WAITFORCOMPLETION parameter or by the &CMPLTMSG site option.

“WAITFORCOMPLETION([YES|NO|hh:mm:ss] [,MeSsaGes][,R1R2SYNC]
[TIMEOUT(INFormational|WARning|ERRor)])” on page 233 provides more information.

WAIT_FOR_PRECOPY_PASS1(YES|NO)

For SNAP VOLUME and ACTIVATE group requests, the WAIT_FOR_PRECOPY_PASS1 parameter determines whether any precopy activity must have completed one pass of the whole volume before the appropriate ACTIVATE occurs.

For the duration of the current SNAP VOLUME command, the value of WAIT_FOR_PRECOPY_PASS1 overrides any value set by the GLOBAL command WAIT_FOR_PRECOPY_PASS1 parameter or by the &WAIT_PRECOPY site option.

“WAIT_FOR_PRECOPY_PASS1(YES|NO)” on page 234 provides more information.

WAITforsession(YES|NO|hh:mm:ss)

The WAITFORSESSION parameter controls whether TimeFinder is to wait for available sessions on the source device.

For the duration of the current SNAP VOLUME command, the value of WAITFORSESSION overrides any value set by the GLOBAL command WAITFORSESSION parameter or by the &WAIT site option.

“WAITforsession(YES|NO|hh:mm:ss)” on page 234 provides more information.

WHEN_SAVEDEV_FULL(READY|NOTREADY)

The WHEN_SAVEDEV_FULL parameter determines the state of a virtual device that encounters a snap pool device full condition.

For the duration of the current SNAP VOLUME command, the value of WHEN_SAVEDEV_FULL overrides any value set by the GLOBAL command WHEN_SAVEDEV_FULL parameter or by the &SAVEFULL site option.

“WHEN_SAVEDEV_FULL(READY|NOTREADY)” on page 235 provides more information.

STOP SNAP TO DATASET (TF/Clone)

Purpose

The STOP SNAP TO DATASET command stops the specified target dataset.

Syntax

```
STOP SNAP TO DATASET
(
OUTDDname (ddname) | TARGET (dsname) [SCRATCHdataset (YES|NO) ]
)
```

Parameter descriptions

The following sections describe the STOP SNAP TO DATASET parameters:

OUTDDname(*ddname*)

The OUTDDNAME parameter specifies the target dataset.

ddname The DD name of the target dataset.

Default value

None

Example

None

SCRATCHdataset(YES|NO)

The SCRATCHDATASET parameter is valid only when used with the TARGET parameter. SCRATCHdataset erases the dataset specified in TARGET(*dsname*), even if the dataset specified is the source of a dataset snap. Values can be:

YES Erases the scratch dataset identified by the TARGET(*dsname*) parameter.
NO Does not erase the scratch dataset identified by the TARGET(*dsname*) parameter.

You can substitute ON for YES and OFF for NO.

Default value

NO

Example

None

TARGET(*dsname*)

Note: You can use this parameter only if you install the TF/Clone Licensed Feature Code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

Specifies the target dataset by name. The value can be:

dsname The dsname of the target dataset.

Comments

No wildcard name patterns are allowed with this command.

Default value

None

Example

None

STOP SNAP TO VOLUME

Purpose

The STOP SNAP TO VOLUME command stops the specified target volume. When you issue a STOP SNAP TO VOLUME, you may need to reinitialize the target volume before you can use it again.

Syntax

```
STOP SNAP TO VOLUME
(OUTDDname (ddname) |
TaRGeT (VOLuMe (volser) |UNIT (device[s]) |SYMDV# (dev_no[s])) |
VDeViCe (VOLuMe (volser) |UNIT (device[s]) |SYMDV# (dev_no[s]))
)
```

Optional parameters

The optional parameters are as follows. They must be separated from each other by a space.

```
[AUtO_UNbIND_(thin_device|tdev) (YES|NO)]
[GRouP (grpname[, grpname,...])]
[CONtROLLER ([xxxxxxx-]xxxxx|name)] ]
[LOCAL (UNIT (device) |VOLUME (volser) |DDNAME (ddname)
[CONtROLLER ([xxxxxxx-]xxxxx|name)] ) ]
[REMOtE (UNIT (device) |VOLUME (volser) |DDNAME (ddname)
RAGROuP (nn.nn.nn.nn)
[CONtROLLER ([xxxxxxx-]xxxxx|name)] ) ]
```

Note: Only one of the following can be present: CONTROLLER, LOCAL, or REMOTE. These parameters are mutually exclusive.

Parameter descriptions

The following sections describe the STOP SNAP TO VOLUME parameters:

AUTO_UNBIND_(thin_device|tdev)(YES|NO)

During a STOP SNAP request against a thin device, AUTO_UNBIND_THIN DEVICE(YES) unbinds the device from any pool after the sessions have been terminated.

GROUP(grpname[,grpname,...])

The GROUP parameter specifies one or more groups of TimeFinder statements that contain information about devices on which you want to perform the operation. You can specify up to 127 group names, separated by commas. When TimeFinder encounters the GROUP parameter, TimeFinder retrieves the definition for the group from the group library, along with the statements and parameters.

TimeFinder checks the current status of the group to ensure that the operation is appropriate for the group at this time. The requested operation is then performed on all appropriate devices all groups named as if they were a single group.

grpname A name you have previously defined with the DEFINE GROUP command.

Comments

The OUTDDNAME, TARGET, VDEV, and GROUP parameters are required, but mutually exclusive. That is, you need to specify one of these parameters, but you cannot specify any of the other three in the same statement.

Default value

None

CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)

You can use the CONTROLLER subparameter on LOCAL or REMOTE as a separate parameter. It allows you to verify that the Symmetrix system found using the gatekeeper [and RAGROUP if REMOTE] (where the request is to take place) is the Symmetrix system you want. When you use the separate CONTROLLER parameter, you do not include the LOCAL and REMOTE parameters.

You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

The CONTROLLER parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

LOCAL(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) [CONTROLLER([*xxxxxxx*]-*xxxxx*|*name*)])

The LOCAL parameter identifies a gatekeeper in the local Symmetrix system that allows access to devices in that local Symmetrix system.

Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Note: One of the following must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or DDNAME may be used instead.

Comments

- ◆ You cannot use both LOCAL and REMOTE parameters on the same command.
- ◆ The LOCAL parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

OUTDDname(*ddname*)

The OUTDDNAME parameter specifies the target volume.

ddname Specifies the DDname of the target volume.

REMOTE(UNIT(*device*)|VOLUME(*volser*)|DDNAME(*ddname*) RAGROUP(*nn.nn.nn.nn*) [CONTROLLER([*xxxxxxx*]-*xxxxx*]*name*)]

The REMOTE parameter is used to identify a gatekeeper in the local Symmetrix system that allows access to devices in a remote Symmetrix system. Values can be:

UNIT (*device*) Specifies the unit address of the gatekeeper.

Note: This cannot be the unit address of a VDEV.

VOLUME (*volser*) Specifies the volser of the gatekeeper.

DDNAME (*ddname*) Identifies the DD statement that refers to the gatekeeper.

RAGROUP (*nn.nn.n*
n.nn) Identifies the path through the remote network. This can consist of up to four (4) SRDF group identifiers, separated by periods.

CONTROLLER Optional. You may specify either a five-digit (*xxxxx*) or a 12 digit (*xxxxxxx-xxxxx*) serial number. Or, you may specify a logical controller name if you previously defined that name to ResourcePak Base.

If the logical controller name is simple in format (single-word string, all upper case and no more than 64 characters), you can specify the controller name without quotation marks.

If the logical controller name is mixed case or contains spaces, you must enclose it in single quotation marks.

Comments

- ◆ You cannot use both LOCAL and REMOTE parameters on the same command.
- ◆ The OUTDDNAME, TARGET, VDEV, and GROUP parameters are required, but mutually exclusive. That is, you need to specify one of these parameters, but you cannot specify any of the other three in the same statement.
- ◆ One of the following values must be present: UNIT, VOLUME, or DDNAME. UNIT and VOLUME can be specified together, or you may use DDNAME instead.
- ◆ The REMOTE parameter is only needed and can only be used if you use the SYMDV# parameter.

Default value

None

Example

```
REMOTE (VOL (UMC001) RAGROUP (21) CONTROLLER (0001879-90171))
```

TaRGet(VOLume(*volser*)|UNIT(*device[s]*)|SYMDV#(*dev_no[s]*))

Note: You can use this parameter only if you install the TF/Clone licensed feature code. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

The TARGET parameter defines the target of the snap. Values can be:

VOLUME (<i>volser</i>)	The volume serial number of a device that is online to the host attempting the snap.
UNIT (<i>addr[s]</i>)	The unit address(es) of one or more devices that is online to the host attempting the snap. You can specify a single device or a range of devices. “VOLUME(<i>volser</i>)” on page 134 provides information about specifying ranges.
SYMDV# (<i>dev_no[s]</i>)	The internal Symmetrix device number(s) in the target Symmetrix system for the snap operation. This is in a local Symmetrix system if the LOCAL parameter is used to identify the Symmetrix system. This is in a remote Symmetrix system if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system. You can specify a single device number or a range of device numbers. “REMOVE_REMOTE_extent_sessions(YES NO)” on page 138 provides more information. If you specify SYMDV#, then the UNIT and VOLUME parameters are not allowed. You must, however, include the LOCAL REMOTE, or CONTROLER parameter.

Comments

The OUTDDNAME, TARGET, VDEV, and GROUP parameters are required, but mutually exclusive. That is, you need to specify one of these parameters, but you cannot specify any of the other three in the same statement.

Default

None

Example

None

VDEVice(VOLume(*volser*)|UNIT(device[s])|SYMDV#(*dev_no*[s]))

Note: This parameter is only available if you install the TF/Snap licensed feature code. “[eLicensing and Licensed Feature Codes](#)” on page 40 provides more information.

Identifies which virtual device to use as the target. Values can be:

VOLume (<i>volser</i>)	The volser of the virtual device.
UNIT (<i>device</i> [s])	The unit addresses of one or more virtual devices.
	You can specify a single device or a range of devices.
SYMDV# (<i>dev_no</i> [s])	The internal Symmetrix device number(s) in the target Symmetrix system for the SNAP operation. This is in a local Symmetrix system if the LOCAL parameter is used to identify the Symmetrix system. This is in a remote Symmetrix system if the REMOTE parameter and RAGROUP subparameter is used to identify the Symmetrix system.
	You can specify a single device number or a range of device numbers.
	If SYMDV# is specified, then the UNIT and VOLUME parameters are not allowed. You must include the LOCAL, REMOTE, or CONTROLLER parameter.

Comments

The OUTDDNAME, TARGET, VDEV, and GROUP parameters are required, but mutually exclusive. That is, you need to specify one of these parameters, but you cannot specify any of the other three in the same statement.

Default

None

Example 1

```
.
//STOPDD DD DISP=SHR,UNIT=3390,VOL=SER=MV3493
.
*
* ENTER STOP COMMAND
*
STOP SNAP TO VOLUME (OUTDDname (STOPDD))
STOP SNAP TO VOLUME (TARGET (VOLUME (MV3494 )))
STOP SNAP TO VOLUME (TARGET (UNIT (1200)))
STOP SNAP TO VOLUME (TARGET (VOLSER (MV0088) UNIT (1300)))
STOP SNAP TO VOLUME (VDEV (UNIT (A000)))
```

Example 2

```
STOP SNAP TO VOLUME (LOCAL (UNIT(8520)) (VDEV (SYMDV# (0010-1500))))
```

Example 3

This example issues a STOP SNAP to two volumes in a REMOTE controller not defined in the SCF of the user.

```
*
STOP SNAP TO VOLUME (                                     -
                    REMOTE (UNIT(7800) RAGROUP(90)       -
                    CONTROLLER (0001949-01031) )         -
                    TARGET (SYMDV# (04D0-04D1 ) ) )
*
```

APPENDIX A

Examples

This appendix provides examples of basic TimeFinder operations.

- ◆ SNAP VOLUME example 324
- ◆ SNAP DATASET example 324
- ◆ SNAP VDEVice example 325
- ◆ SNAP offline volumes example 326
- ◆ QUERY GROUP display example 327
- ◆ Remote QUERY VOLUME example 328
- ◆ Remote SNAP VOLUME example 328
- ◆ Remote CLEANUP example 329
- ◆ Allocate Group Dataset 329

SNAP VOLUME example

You can use this example only if you have purchased the licensed feature code for the keyword (parameter) TARGET. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

This example employs SNAP VOLUME to snap a volume from source to target. The target volume retains its original volser and is made available to the host.

```
// JOB
//QCOPYRUN EXEC PGM=EMCSNAP
//STEPLIB DD DISP=SHR,DSN=DS-PREFIX.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUPTPUT DD SYSOUT=*
//QCINPUT DD *
GLOBAL MAXRC(4)
*
SNAP VOLUME ( SOURCE( VOLUME ( YOUR-SOURCE-VOLUME) ) -
TARGET( VOLUME (BCV-VOLUME) ) -
COPYVOLID(N) )
/*
//
```

SNAP DATASET example

This example employs SNAP DATASET to snap two datasets from source to target. A BCV group is identified for inclusion in the volume candidate list and existing target datasets may be erased.

```
// JOB
//QCOPYRUN EXEC PGM=EMCSNAP
//STEPLIB DD DISP=SHR,DSN=DS-PREFIX.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUPTPUT DD SYSOUT=*
//QCINPUT DD *
*
GLOBAL MAXRC(8)
*
SNAP DATASET (SOURCE(YOUR-SOURCE-DSN) -
TARGET(YOUR-TARGET-DSN) BCVGROUP(SYMBCV) -
REPLACE(Y) FORCE(N) HOSTCOPYMODE(NONE) )
*
SNAP DATASET (SOURCE(YOUR-SOURCE-DSN1) -
TARGET(YOUR-TARGET-DSN1) BCVGROUP(SYMBCV) -
REPLACE(Y) FORCE(N) HOSTCOPYMODE(NONE) )
/*
//BCVGROUP DD *
BCVGROUP SYMBCV VOL(BCVVOL1 BCVVOL2 BCVVOL3 BCVVOL4)
//
```

SNAP VDEvice example

You can use this example only if you have purchased TF/Snap for z/OS and its licensed feature code for the keyword (parameter) VDEV, along with the LFC for ECA. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

This example employs SNAP VOLUME VDEvice to snap from a volume to a virtual device. The virtual device has a new volser and is made available to the host.

The example contains two snap operations:

In the first snap operation:

- ◆ There is a query of all of the VDEVS (virtual devices) and of all of the snap pool devices before the SNAP VOLUME VDEvice and after the SNAP VOLUME VDEvice.
- ◆ The source volume on A00A is snapped to virtual volume A04A.
- ◆ The BCV HOLD status is not checked.
- ◆ Freespace is not copied from the source to the target.
- ◆ If no session is available for the source volume copy, TF/Snap waits for a session.
- ◆ The session is completed with messages before the step is completed.
- ◆ The new volume ID is UWC0AA.
- ◆ The data on A04A is replaced by the data on A00A.

In the second snap operation:

- ◆ The source volume at A00B is snapped to a virtual volume at A04B.
- ◆ The BCV HOLD status is not checked.
- ◆ Freespace is not to be copied.
- ◆ If no session is available for the source volume copy, TF/Snap waits for a session.
- ◆ The session is completed with messages before the step is completed.
- ◆ The new volume ID is UWC04B.
- ◆ The data is replaced on the VDEV.

For the ACTIVATE Command:

- ◆ These two commands are activated at the same time using ECA assist to make sure each volume is consistent.
- ◆ A message is displayed to show when consistency is completed.
- ◆ An ECA time-out value of 15 seconds maximum is set.

```
//      JOB
//QCOPYRUN EXEC PGM=EMCSNAP,REGION=0M
//STEPLIB DD DISP=SHR,DSN=DS-PREFIX.LINKLIB
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUPTUT DD SYSOUT=*
//QCINPUT DD *
*
      QUERY VDEV (LOCAL(UNIT(A04A)))
```

```

QUERY SNAPPOOL (UNIT(A04A))
SNAP VOL(SOURCE (UNIT (A00A)) -
CHECKBCVHOLDSTATUS(N) -
FREESPACE(N) -
WAITFORSESSION(Y) -
WAITFORCOMPLETION(Y,MSG) -
NEWVOLID(UWC0AA) -
REPLACE(Y) -
VDEV(UNIT(A04A)) )

SNAP VOL(SOURCE (UNIT (A00B)) -
CHECKBCVHOLDSTATUS(N) -
FREESPACE(N) -
WAITFORSESSION(Y) -
WAITFORCOMPLETION(Y,MSG) -
NEWVOLID(UWC0AB) -
REPLACE(Y) -
VDEV (UNIT (A04B)) )
ACTIVATE (CONSISTENT(YES) MSG(DIS) TIMEOUT(15))
QUERY VDEV (UNIT(A04B))
QUERY SNAPPOOL (UNIT(A04A))
/*

```

SNAP offline volumes example

You can use this example only if you have purchased the licensed feature code for the keyword (parameter) TARGET. [“eLicensing and Licensed Feature Codes” on page 40](#) provides more information.

This example uses groups to snap multivolume, VSAM KSDS (with AIX) from offline volumes.

1. The example defines a source volume list called OFFVOLS for the offline volumes.
2. The example performs a SNAP DATASET specifying a target of BAP.TESTING.NEWKSDS. It also uses SOURCE_VOLUME_LIST to specify the source volume list created previously.

```

*
* DEFINE
*
DEFINE SOURCE_VOLUME_LIST OFFVOLS ( -
UNIT(6EF0) -
UNIT(6EF6-6EF7) -
VOL(U6A230) -
VOL(U6A23*) -
)
*
* SNAP
*
SNAP DATASET ( SOURCE(BAP.TESTING.TWOKSDS) -
TARGET(BAP.TESTING.NEWKSDS) -
HOSTCOPYMODE(NONE) -
SOURCE_VOLUME_LIST (OFFVOLS) -
REPLACE(Y) -
REUSE(N) -
SPHERE(YES) -
VOL(U6A231,U6A230) -
)

```

QUERY GROUP display example

The following example shows the output from a QUERY GROUP command.

```

PROCESSING FOR STATEMENT #2 BEGINNING, QUERY GROUP REQUEST FOR GROUP SNP7310
GROUPNAME - STATUS - DESCRIPTION
SNP7310 - INITIAL - SNP7310 - 8 VOL SNAP
HISTORY:      RC      DATE      / TIME      OLD STAT      STATUS
  DEFINE    - 0000  2006-12-02 / 15:28:58  INITIAL    -> INITIAL
  DEFINE    - 0000  2006-12-02 / 14:31:45  INITIAL    -> INITIAL
  SNAP VOL  - 0008  2006-12-02 / 15:31:50  INITIAL    -> FAILED
  SNAP VOL  - 0008  2006-12-02 / 15:54:59  FAILED     -> FAILED
  SNAP VOL  - 0004  2006-12-02 / 15:57:37  FAILED     -> PRESNAP
  STOP VOL  - 0000  2006-12-02 / 16:22:34  PRESNAP    -> INITIAL
STATEMENTS:
+ *
+  SNAP VOLUME (SOURCE (VOLUME(mC0C10)) TARGET (uNIT(0C30)) -
+  NEWVOLID (MV0C30) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C11)) TARGET (UNIT(0C31)) -
+  NEWVOLID (MV0C31) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C12)) TARGET (UNIT(0C32)) -
+  NEWVOLID (MV0C32) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C13)) TARGET (UNIT(0C34)) -
+  NEWVOLID (MV0C34) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C14)) TARGET (UNIT(0C34)) -
+  NEWVOLID (MV0C34) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C15)) TARGET (UNIT(0C35)) -
+  NEWVOLID (MV0C35) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C16)) TARGET (UNIT(0C36)) -
+  NEWVOLID (MV0C36) )
+  SNAP VOLUME (SOURCE (VOLUME(MV0C17)) TARGET (UNIT(0C37)) -
+  NEWVOLID (MV0C37) )
+ *
+ END GROUUP
PROCESSING FOR STATEMENT #2 COMPLETED, HIGHEST RETURN CODE ENCOUNTERED IS 0

```

The output is organized as follows:

- ◆ The group name (SNP7310), the status (INITIAL) and a description (SNP7310 - 8 VOL SNAP).
- ◆ A history of group usage, including:
 - Commands executed
 - Resulting return codes (RC)
 - Date of execution
 - Time of execution
 - Original status (OLD STAT)
 - Resulting status (STATUS)
- ◆ The commands in the group.
- ◆ The results.

Remote QUERY VOLUME example

This example employs three parameters available for the remote QUERY VOLUME command. Any of the three works.

```
//SNPQUERY EXEC PGM=EMCSNAP
//STEPLIB DD DISP=SHR,DSN=EMC.SSNP.V580.LINKLIB
//MV6C00 DD DISP=SHR,UNIT=3390,VOL=SER=MV6C00
//SYSPRINT DD SYSOUT=*
//EMCQCAPI DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUTPUT DD SYSOUT=*
//QCINPUT DD *
GLOBAL MAXRC(4)
*
* 1. QUERY REMOTE SYMM USING LOCAL VOLUME
  QUERY VOLUME (REMOTE (VOL (MV6C00) RAGROUP(17) ) )
*
* 2. QUERY REMOTE SYMM USING LOCAL UNIT
  QUERY VOLUME (REMOTE (UNIT( 6C00) RAGROUP(17) ) )
*
* 3. QUERY REMOTE SYMM USING LOCAL DDNAME
  QUERY VOLUME (REMOTE (DDNAME(MV6C00) RAGROUP(17) ) )
/*
//
```

Remote SNAP VOLUME example

This example performs a remote SNAP VOLUME. This is an operational job that shows some of the options.

```
//RMTSNAP EXEC PGM=EMCSNAP
//STEPLIB DD DISP=SHR,DSN=EMC.SSNP.V580.LINKLIB
//MV6C00 DD DISP=SHR,UNIT=3390,VOL=SER=MV6C00
//SYSPRINT DD SYSOUT=*
//EMCQCAPI DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUTPUT DD SYSOUT=*
//QCINPUT DD *
GLOBAL MAXRC(4) CHKO(N) AUTOMATIC_RELEASE_HOLD(YES) -
      CHECKBCVHOLDSTATUS(NO)
*
* SNAP REMOTE DEVICE # 0000 to DEVICE # 0001 USING the DMX
* INTERNAL PATH THROUGH RAGROUP 17 WITH UNIT 6C00
* THE REMOTE DMX SERIAL NUMBER IS 90132
*
SNAP VOLUME (SOURCE (SYMDV# ( 0000)) -
      TARGET (SYMDV# ( 0001)) -
      REMOTE (RAGROUP(17) CONTROLLER (90132)) -
      REMOTE (UNIT (6C00)) -
      TOLERATEENQFAILURE(YES) -
      COPYVOLID(NO) -
      REPLACE (YES) -
* THIS STATEMENT AND THE NEXT ONE ARE BOTH COMMENTS.. -
* DATAMOVERNAME(DFDSS) -
  WAITFORSESSION(YES) -
  )
*
/*
//
```


Remote CLEANUP example

This example performs a remote CLEANUP to a source volume.

```
//CLEANUP EXEC PGM=EMCSNAP
//STEPLIB DD DISP=SHR,DSN=EMC.SSNP.V580.LINKLIB
//SYSPRINT DD SYSOUT=*
//EMCQCAPI DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//QCOUTPUT DD SYSOUT=*
//QCINPUT DD *
GLOBAL MAXRC(4) CHKO(N) AUTOMATIC_RELEASE_HOLD(YES)
*
* CLEANUP 2 REMOTE VOLUMES USING UNIT AS THE
*
CLEANUP REMOTE(UNIT(6C00) RAGROUP(17) CONTROLLER(90132)) SYMDV#(0000)
CLEANUP REMOTE(UNIT(6C00) RAGROUP(17) CONTROLLER(90132)) SYMDV#(0001)
*
/*
```

Allocate Group Dataset

The following example allocates a group dataset.

```
//IEFBR14 EXEC PGM=IEFBR14
//GROUP DD DSN=group.dataset.name,DISP=(NEW,CATLG),
// UNIT=3390,SPACE=(CYL,(3,3,90)),VOLSER=volser,
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=0)
```


APPENDIX B

DFDSS COPY command support

This appendix discusses DFDSS command support through EMCSSU.

- ◆ [Introduction](#) 332
- ◆ [EMCSSU parameters](#) 332

Introduction

TF/Mirror V5.3 and higher supports the invoking of TimeFinder processing within a Symmetrix system in response to a DFDSS COPY DATASET and COPY FULL statements for dataset or volume copies.

This support is provided through the module, EMCDSSU, which handles the SYSIN and SYSPRINT files for the DFDSS syntax.

EMCDSSU accepts DFDSS supported syntax and processes COPY statements by invoking TimeFinder to create copies of datasets or volumes with a Symmetrix system. There are four categories of EMCDSSU COPY parameters:

- ◆ Fully supported.
- ◆ Partially supported; that is, supported for one action and not another or for one subparameter and not more than one.
- ◆ Not supported.
- ◆ Ignored.

For a command to be processed by EMCDSSU, all of the parameters on that command must be either supported or ignored.

- ◆ If a parameter is supported, EMCDSSU processes the command and that parameter.
- ◆ If a parameter is one that is ignored, then EMCDSSU processes the command, but does not process that parameter.
- ◆ If a parameter is one that is not supported, then the command with that parameter is not processed by EMCDSSU. Instead, it is passed to the module ADRDSSU for processing.

EMCDSSU parameters

Table 15 lists the EMCDSSU parameters and their categories. A Yes in a column indicates that the parameter is in that category. If a parameter is partially supported, the supported column lists the supported form(s) and the unsupported column lists the unsupported forms.

Table 15 EMCDSSU parameters (page 1 of 4)

Parameter	Fully supported?	Partially supported?	Not supported?	Ignored?
ADMINISTRATOR	Yes			
ALLDATA	ALLDATA(*)	Yes	ALLDATA(<i>dsn</i>)	
ALLEXCP				Yes
AUTORELBLOCKADDR			Yes	
BY			Yes	
BYPASSACS			Yes	
CANCELERROR			Yes	

Table 15 EMCDSSU parameters (page 2 of 4)

Parameter	Fully supported?	Partially supported?	Not supported?	Ignored?
CATALOG	Yes			
CGCREATE			Yes	
CHECKVTOC			Yes	
CICSVRBACKUP			Yes	
CONCURRENT			Yes	
CONVERT			Yes	
COPYVOLID	Yes			
CPVOLUME			Yes	
DATASET	Yes			
DEBUG				Yes
DELETE			Yes	
DUMPCONDITIONING	Yes			
DYNALLOC			Yes	
EXCLUDE			Yes	
FASTREPLICATION				Yes
FCFREEZE			Yes	
FCNOCOPY	COPY VOLUME	Yes	COPY DATASET	
FCTOPPRCPrimary			Yes	
FILTERDD			Yes	
FORCE	Yes			
FORCECP			Yes	
FREESPACE			Yes	
FULL	Yes			
INCAT			Yes	
INCLUDE	Yes			
INDDNAME	COPY VOLUME	Yes	COPY DATASET	
INDYNAM	COPY DATASET COPY VOLUME (single volume)		COPY VOLUME (multiple volumes)	
LOGINDDNAME			Yes	
LOGINDYNAM			Yes	
MAKEMULTI			Yes	
MENTITY			Yes	

Table 15 EMCSSU parameters (page 3 of 4)

Parameter	Fully supported?	Partially supported?	Not supported?	Ignored?
MGMTCLAS	Yes			
NOPACKING			Yes	
NOTIFYCONCURRENT			Yes	
NULLMGMTCLAS			Yes	
NULLSTORCLAS			Yes	
ONLYINCAT			Yes	
OUTDDNAME	COPY DATASET COPY VOLUME (single volume)	Yes	COPY VOLUME (multiple volumes)	
OUTDYNAM	COPY DATASET COPY VOLUME (single volume)	Yes	COPY VOLUME (multiple volumes)	
OUTTRACKS			Yes	
PASSWORD			Yes	
PERCENTUTILIZED			Yes	
PROCESS			Yes	
PURGE	Yes			
READIOPACING			Yes	
REBLOCK			Yes	
RECATALOG			Yes	
REBLOCKADDRESS			Yes	
RENAMEUNCONDITIONALY	Yes			
REPLACE	Yes			
REPLACEUNCONDITIONAL				Yes
SELECTMULTI			Yes	
SHARE	Yes			
SPHERE	Yes			
STORCLAS	Yes			
STORGRP			Yes	
TGTALLOC			Yes	
TGTGDS			Yes	
TOLERATE	TOLERATE (ENQFAILURE)		TOLERATE (IOERROR)	
TRACKS			Yes	

Table 15 EMCDSSU parameters (page 4 of 4)

Parameter	Fully supported?	Partially supported?	Not supported?	Ignored?
TTRADDRESS				
UNCATALOG			Yes	
VOLCOUNT			Yes	
WAIT			Yes	
WRITECHECK			Yes	

Installation considerations

You can install EMCDSSU as a replacement for ADRDSSU. In this case, you must rename ADRDSSU to IBMDSSU and rename EMCDSSU to ADRDSSU.

Note: IBMDSSU is the only valid rename or alias for ADRDSSU.

Keep in mind that this approach has additional considerations for the application of future maintenance to the IBM ADRDSSU module.

APPENDIX C

Messages and Error Codes

This appendix describes messages you may receive from TimeFinder/Mirror and provides a comprehensive list of error codes that can be issued by TimeFinder Clone Mainframe Snap Facility.

- ◆ TimeFinder/Mirror messages 338
- ◆ User abend codes 339
- ◆ DOIO error codes..... 339
- ◆ Symmetrix interface error codes 340

TimeFinder/Mirror messages

If you are using TimeFinder/Clone Mainframe Snap Facility with Enginuity level 5874 or later, or with Enginuity levels 5773 and lower with various RAID operations, you may receive messages from TimeFinder/Mirror.

These messages can include:

```
BCVM006E ESTABLISH failed on BCV xxxx, reason code yy
BCVM009E SPLIT failed on BCV xxxx, reason code yy
BCVM011E RE-ESTABLISH failed on BCV xxxx, reason code yy
BCVM013E RESTORE failed on BCV xxxx, reason code yy
```

When TimeFinder/Mirror ESTABLISH, SPLIT, RE-ESTABLISH, and RESTORE operations are invoked with Enginuity level 5874 or higher, or with Enginuity levels 5773 and lower on clone emulation operations, TimeFinder/Clone Mainframe Snap Facility accomplishes the requested function. This is confirmed by the BCVM140I message, as shown in the following example:

```
BCVM140I COMMAND PROCESSED VIA TF/CLONE EMULATION
```

TimeFinder/Mirror reason code conversion

Whenever a TimeFinder/Mirror error occurs during the Snap operation, one of the usual TimeFinder/Mirror error messages is generated (as stated above), followed by message BCVM144I.

Message BCVM144I shows the original TimeFinder Mirror hexadecimal reason code (*yy*) converted into a decimal number (*xxx*) that translates to a specific EQCAxxxE message identifier.

```
BCVM144I - REFER TO EQCAxxxE JOBLOG MESSAGE
```

Refer to the EQCA message description in this manual for an explanation of the error.



If the BCVM144I message is not contained in the JOBSTEP LOG, an error occurred where TimeFinder has not been able to generate a message. In this case, contact EMC Customer Support and save as much information as possible to help resolve the issue.

Note: You can find descriptions of these messages in the *Mainframe Enablers Message Guide*.

Example

The following is an example of one of those error conditions:

```
BCVM004I RE-ESTABLISH REMOTE BCV SYMDEV 07A0 THROUGH 93C8
BCVM140I COMMAND PROCESSED VIA TF/CLONE EMULATION
BCVM011E RE-ESTABLISH FAILED ON BCV 07A0, REASON CODE 78
BCVM144I - REFER TO EQCA120E JOBLOG MESSAGE
BCVM108E BCV 07A0 LOCK FREE FAILED, RC 001F, RSNC 0000001C
BCVM108E BCV 07A0 LOCK FREE FAILED, RC 001F, RSNC 0000001C
BCVM047I ALL CONTROL STATEMENTS PROCESSED, HIGHEST RC 8
```

Note the reason code of 78 in the BCVM011E message. The reason code of 78 is the hexadecimal equivalent of decimal 120, as in the TimeFinder message EQCA120E. This is confirmed in the next message:

BCVM144I - REFER TO EQCA120E JOBLOG MESSAGE

Using this information, you can then find:

```
EQCA120E DEVICE nnnn FAILED TO GO READY, RC: xx R0: xx R1: xx
```

Note: The TimeFinder/Mirror message BCVM108E also gives specific information about this particular problem, but BCVM108E is only displayed when there is relevant extra information available.

User abend codes

The following user abend codes are issued in the event a error occurs before the message system is initialized.

Table 16 Abend codes

Code	Description
U0001	The SYSOUT DDNAME was not specified in the JCL.
U0002	The OPEN request failed for the SYSOUT DDNAME.
U0806	SCF Address space not found.

DOIO error codes

Figure 12 shows the format for DOIO error codes.

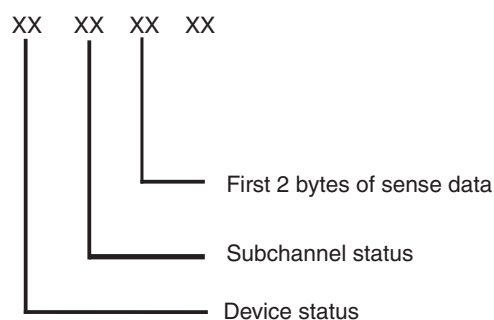


Figure 12 DOIO error code format

Symmetrix interface error codes

The following tables contain reason codes related to TimeFinder operations. [Table 17](#) contains return and reason codes for TimeFinder. [Table 18 on page 342](#) contains error codes for the EXTENTS program:

Table 17 Symmetrix interface error codes (page 1 of 2)

Error code	Description
1701	The CRC is invalid in an individual extent in the extent track. A request to obtain the extents track pointer failed because the device number is invalid.
1702	The destination device number in an extent entry is not a valid destination device. A request to obtain the extents track pointer failed because the device count is invalid.
1703	The destination device number in an extent entry is not a valid BCV device.
1704	The beginning CCBH in an extent entry is not valid for the source device.
1705	The beginning CCBH in an extent entry is not valid for the target device.
1706	The flag setting in an extent entry is not valid or the feature is not available at the installed Engenuity level.
1707	The number of tracks to copy is not valid. Either the source CCBH plus the number of tracks to copy exceeds the capacity of the source device, or the target CCBH plus the number of tracks to copy exceeds the capacity of the target device.
1708	Protection is not on for the selected extent entry.
1709	The session ID in an extent entry is not valid.
1710	A timeout occurred.
1711	The request to remove a session failed because the session ID has not been established.
1712	The request to remove a session failed because the session selected is not a SNAP session.
1713	The request to remove a session has failed.
1721	The request to identify the extent track failed. The CCBH is invalid for the device.
1722	The request to identify the extent track failed. The device is a BCV device.
1723	The request to identify the extent track failed. The extent track is not in a Perma-Cache slot.
1724	The request to identify the extent track failed. The extent track is not in cache.
1725	The request to identify the extent track failed. The Symmetrix number is invalid.
1726	The request to identify the extent track failed. The extent track has no record one.
1727	Snap to destination R2 device is disabled.
1731	The request to establish or remove an extent failed. The extent track address is invalid.
1732	The request to establish or remove an extent failed. The extent track is not in a Perma-Cache slot.

Table 17 Symmetrix interface error codes (page 2 of 2)

Error code	Description
1733	The request to establish or remove an extent failed. The destination device in an extent entry is not a BCV device.
1735	The request to establish or remove an extent failed. The extent track slot is invalid.
1736	The request to establish or remove an extent failed. The start extent entry is invalid.
1737	The request to establish or remove an extent failed. The end extent entry is invalid.
1738	The request to establish or remove an extent failed. The number of extents to process exceeds the maximum permissible.
1739	The request to establish or remove an extent failed. An invalid extent entry was detected.
173A	The request to establish or remove an extent failed. The GST queue is full.
173B	The request to establish or remove an extent failed. More than one target device is specified in a single request.
173C	The request to establish or remove an extent failed. Unable to obtain the lock for the destination device.
173D	The request to establish or remove an extent failed. The destination device is not ready.
1741	Device is not a BCV.
1742	Device already set or released.
1743	BCV device is established.
1744	BCV has active TimeFinder sessions.
1746	Device has active concurrent copy session.
1751	The request to remove protection failed. The command was issued to a non-BCV device.
1752	The request to remove protection failed. The extent indicated is not a valid extent.
1761	The request to establish an extent failed. The maximum of 16 sessions has been exceeded.
1779	Displayed when an establish occurs against a thin pool with insufficient available tracks.
1792	DA error.
1799	The request has failed. Cannot lock extents track.
179A	The request has failed. GST (Global Special Task) call failed.
17FF	DA failure/timeout on syscall.

Table 18 EXTENTS error codes

R15	Reason	Explanation
0		Successful
4 or 8	1	Illegal mask specified
	2	No matching datasets found
	3	Unknown function code
	4	Overflow, unable to return all matching datasets.
	5	UCB not found
	6	Dataset not found on volume
	7	DSCB not type 1 or type 4
	8	Tracks allocated = 0
	9	Extents not available due to HSM migrate
	A	Caller not APF authorized
	B	Extents program logic error
	C	Entry type not GDG base
	D	Entry name and catalog name match
	E	Volume serial not supplied
	F	DEVTYPE indicates unsupported device type geometry
	10	DEVTYPE failed
12		Catalog management return code Locate failed - the reason code contains the locate return code
	8	Dataset is not catalogued
16		EXTWA Failed validation

APPENDIX D

SMF Record Layout

This appendix shows the SMF record layout, which is contained in the macro SNSMFRCD and is a distributable macro.

- ◆ [SMF record layout 344](#)
- ◆ [SMF record sub-sections and TimeFinder actions 354](#)

SMF record layout

The volume and variety of information in the SMF records enables sites to produce many types of analysis and summary reports. By keeping historical SMF data and determining trends, an installation can evaluate changes in the configuration, workload, or job scheduling procedures. Similarly, an installation can use SMF data to determine where system resources are wasted because of problems, such as inefficient operational procedures or poor programming conventions.

Note: Refer to the IBM Manual *z/OS MVS System Management Facilities (SMF)*, section *Using SMF Macros*, subsection *SMFWTM -- Writing SMF Records* for more information about the value and use of the SMF record.

```

MACRO ,
SNSMFRCD ,
SNSMFRCD DSECT ,
*
* STANDARD SMF RECORD HEADER
*
SNSMFLEN DS      H          RECORD LENGTH
SNSMFSEG DS      H          SEGMENT DESCRIPTOR (ALWAYS 0)
SNSMFSYS DS      XL1        SYSTEM INDICATOR
SNSMFRC# DS      XL1        SMF RECORD NUMBER
SNSMFTME DS      XL4        TIME IN 100THS OF A SECOND
SNSMFDTE DS      XL4        DATE IN PACK DECIMAL - 0CYYDDDF
SNSMFSID DS      XL4        SYSTEM ID
DS              0F          ALIGN TO WORD BOUNDARY
*
* COMMON SNAP SMF RECORD PREFIX
*
SNSMFSTY DS      XL1        SUBTYPE
SNSMFBAD DS      XL1        RECORD IS INCOMPLETE OR BAD
SNSMFSG# DS      H          SEGMENT COUNT
DS              5H
SNSMFHDR_LEN EQU *-SNSMFRCD    LENGTH OF RECORD HEADER
*
* COMMON SEGMENT PORTION (1ST 4 BYTES)
*
SNSMFCMN DSECT ,
SCMSGLEN DS      H          SEGMENT LENGTH
SCMSGID# DS      XL1        SEGMENT ID
DS              XL1
*
* IDENTIFICATION SEGMENT
*
SNSMFID DSECT ,
SIDSGLEN DS      H          SEGMENT LENGTH
SIDSGID DS      XL1        SEGMENT ID
SNSMFID# EQU      1          . 1 = SEGMENT ID FOR IDENTIFICATION
DS              XL1
SIDJOBNM DS      CL8        JOBNAME                      FROM
SIDPROCS DS      CL8        PROC STEP NAME                JOB
SIDSTPNM DS      CL8        STEPNAME                      TIOT
SIDPGMMN DS      CL8        PROGRAM NAME
SIDVERLV DS      CL6        VVLLRR
SNSMFID_LEN EQU *-SNSMFID    LENGTH OF SNSMFID
*
* REQUEST INFORMATION
*
SNSMFREQ DSECT ,
SRQSGLEN DS      H          SEGMENT LENGTH
SRQSGID DS      XL1        SEGMENT ID

```



```

SNSMFRQ# EQU 2 . 2 = SEGMENT ID FOR REQUEST
          DS XL1
*
SRQTYPE DS XL2 REQUEST TYPE
SRQTYPE#DSN EQU 1 . COPY DATASET
SRQTYPE#VOL EQU 2 . COPY VOLUME
SRQTYPE#RST EQU 3 . RESET EXTENT TRACK
SRQTYPE#CLN EQU 4 . CLEANUP EXTENT TRACK
SRQTYPE#DBG EQU 5 . DEBUG DATASET
SRQTYPE#STD EQU 6 . STOP SNAP TO DATASET
SRQTYPE#STV EQU 7 . STOP SNAP TO VOLUME
SRQTYPE#RVD EQU 8 . RESTORE VIRTUAL DEVICE
SRQTYPE#ACT EQU 9 . ACTIVATE
SRQTYPE#QDS EQU 10 . QUERY DATASET
SRQTYPE#QSD EQU 11 . QUERY SAVEDEV
SRQTYPE#QVD EQU 12 . QUERY VDEV
SRQTYPE#CFG EQU 13 . CONFIG
SRQTYPE#QVL EQU 14 . QUERY VOLUME
SRQTYPE#SER EQU 15 . SERIAL
SRQTYPE#PAR EQU 16 . PARALLEL
SRQTYPE#CPL EQU 17 . CONFIGPOOL (SEE SRQSACTN)
SRQTYPE#QGR EQU 18 . QUERY GROUP
SRQTYPE#FGR EQU 19 . DEFINE GROUP
SRQTYPE#EGR EQU 20 . END GROUP
SRQTYPE#DGR EQU 21 . DELETE GROUP
SRQTYPE#GRP EQU 22 . EXTERNAL GRP RQST (SEE SRQSACTN)
SRQTYPE#QGL EQU 23 . QUERY GLOBAL
SRQTYPE#CDS EQU 24 . COMPARE DATASET
SRQTYPE#CVL EQU 25 . COMPARE VOLUME
*
** IF SRQTYPE = SRQTYPE#CPL, THEN USE THE FOLLOWING VALUES
** IF SRQTYPE = SRQTYPE#GRP, THEN USE SRQTYPE IN THIS FIELD
SRQSACTN DS XL2 SUB-ACTION
SRQSACTN_ADD EQU 01 . ADD
SRQSACTN_CREATE EQU 02 . CREATE
SRQSACTN_DELETE EQU 03 . DELETE
SRQSACTN_DISABLE EQU 04 . DISABLE
SRQSACTN_DISPLAY EQU 05 . DISPLAY
SRQSACTN_ENABLE EQU 06 . ENABLE
SRQSACTN_REMOVE EQU 07 . REMOVE
SRQSACTN_DRAIN EQU 08 . DRAIN
SRQSACTN_UNDRAIN EQU 09 . UNDRAIN
*
SRQSTMT# DS A STATEMENT NUMBER
SRQRC DS H HIGHEST RETURN CODE
SRQRE DS H . ASSOCIATED REASON CODE
SRQSTIME DS D COPY START TIME (TIME BIN)
SRQETIME DS D COPY END TIME (TIME BIN)
SRQPSTIM DS D PARSE START TIME (TIME STCK)
SRQPETIM DS D PARSE END TIME (TIME STCK)
SRQUESTIM DS D EXECUTION START TIME (TIME STCK)
SRQSETIM DS D EXECUTION SUSPEND TIME (TIME STCK)
SRQRSTIM DS D EXECUTION RESUME TIME (TIME STCK)
SRQEETIM DS D EXECUTION END TIME (TIME STCK)
SNSMFREQ_LEN EQU *-SNSMFREQ LENGTH OF SNSMFREQ
*
* OPTIONS INFORMATION
*
SNSMFOPT DSECT ,
SOPSGLEN DS H SEGMENT LENGTH
SOPSGID DS XL1 SEGMENT ID
SNSMFOP# EQU 3 . 3 = SEGMENT ID FOR OPTIONS
          DS XL1
*
SOPFLG01 DS XL1 FLAG BYTE 1
SOP_SRC_WILD EQU B'10000000' - SOURCE IS WILD

```

SMF Record Layout

```

SOP_TGT_WILD          EQU B'01000000' - TARGET IS WILD
SOP_EXCLUDE_HERE     EQU B'00100000' - EXCLUDE IS PRESENT
SOP_RELATE_HERE       EQU B'00010000' - RELATE IS PRESENT
SOP_RELATE_MADE       EQU B'00001000' - RELATE WAS DERIVED FROM SOURCE
SOP_SPHERE            EQU B'00000100' - SPHERE (YES)
SOP_EXECUTED          EQU B'00000010' - REQUEST WAS EXECUTED
SOP_ERRDISP_KEEP     EQU B'00000001' - ERRDISP (KEEP)
SOPFLG02 DS          XL1          FLAG BYTE 2
SOP_PERMINDIRECT     EQU B'10000000' - PERMANENTINDIRECT(Y) REQUESTED
SOP_NO_BACKGRND      EQU B'01000000' - BACKGROUND COPY(N) REQUESTED
SOP_WAIT4COMPLET     EQU B'00100000' - WAITFORCOMPLETION(MSG) REQUESTED
SOP_UCODE_FULL       EQU B'00010000' - SNAP "FULL" VOLUME REQUESTED
SOP_SYMM_CYL         EQU B'00001000' - SYMMETRIX_CYLINDER(Y) REQUESTED
SOP_VIRTUAL           EQU B'00000100' - VIRTUAL_DEVICE(Y) REQUESTED
SOP_VDEV             EQU B'00000010' - VDEV(UNIT()/VOL()) REQUESTED
SOP_MIG_IGNORE       EQU B'00000010' - MIGRATE(RECALL-IGNORE) SPECIFIED
SOP_R1R2SYNC        EQU B'00000001' - WAITFORCOMPLETION(R1R2SYNC) SPEC
SOPFLG03 DS          XL1          FLAG BYTE 3
SOP_NEED_REFVTOC    EQU B'10000000' - REFVTOC NEEDED
SOP_CSMS_DATA        EQU B'01000000' - COPYSMS(DATACLAS) SPECIFIED
SOP_CSMS_MGMT        EQU B'00100000' - COPYSMS(MGMTCLAS) SPECIFIED
SOP_CSMS_STG         EQU B'00010000' - COPYSMS(STGCLASS) SPECIFIED
SOP_MIG_PURGE        EQU B'00001000' - MIGRATE(PURGE) SPECIFIED
SOP_MIG_RECALL       EQU B'00000100' - MIGRATE(RECALL-YES) SPECIFIED
SOP_VERIFY           EQU B'00000010' - VERIFY(YES) SPECIFIED
SOP_EXAMINE          EQU B'00000001' - EXAMINE(YES) SPECIFIED
SOPFLG04 DS          XL1          FLAG BYTE 4
SOP_CONSIST          EQU B'10000000' - CONSISTENT(YES)
SOP_VIBBLD           EQU B'01000000' - BUILD_VTOCIX(YES)
SOP_VALIDATE         EQU B'00100000' - VALIDATE(YES)
SOP_VSAMFAIL         EQU B'00010000' - TOLERATE_VSAMENQ_FAILURE(YES)
SOP_CHK_BCVHOLD      EQU B'00001000' - CHECKBCVHOLDSTATUS(YES)
SOP_SCRATCH          EQU B'00000100' - SCRATCH(YES)
SOP_VCLOSE           EQU B'00000010' - VCLOSE(YES)
SOP_DFDSS_ADMIN      EQU B'00000001' - DFDSS_ADMIN(YES)
SOPFLG05 DS          XL1          FLAG BYTE 5 (DDNAME SETTINGS)
SOP_SRC_DSNAME       EQU B'10000000' - SOURCE_DSNAME_PRESENT
SOP_SRC_DDNAME       EQU B'01000000' - SOURCE_DDNAME_PRESENT
SOP_TGT_DSNAME       EQU B'00100000' - TARGET_DSNAME_PRESENT
SOP_TGT_DDNAME       EQU B'00010000' - TARGET_DDNAME_PRESENT
SOP_SRC_DD_JCL       EQU B'00001000' - SOURCE_DDNAME_ORIGINALY_PRESENT
SOP_TGT_DD_JCL       EQU B'00000100' - TARGET_DDNAME_ORIGINALY_PRESENT
SOPFLG06 DS          XL1          FLAG BYTE 6
SOP_REPLACE          EQU B'10000000' - REPLACE(YES)
SOP_REUSE            EQU B'01000000' - REUSE(YES)
SOP_COPYVOLID        EQU B'00100000' - COPYVOLID(YES)
SOP_FORCE            EQU B'00010000' - FORCE(YES)
SOP_ENQFAIL          EQU B'00001000' - TOLERATE_ENQ_FAILURE(YES)
SOP_ALLOFAIL         EQU B'00000100' - TOLERATE_ALLOCATION_FAILURE(YES)
SOP_COPYFAIL         EQU B'00000010' - TOLERATE_COPY_FAILURE(YES)
SOP_TRUNC            EQU B'00000001' - TOLERATE_TRUNCATION(YES)
SOPFLG07 DS          XL1          FLAG BYTE 7
SOP_CATALOG          EQU B'10000000' - CATALOG(YES)
SOP_ENQWAIT          EQU B'01000000' - ENQWAIT(YES)
SOP_REFVTOC          EQU B'00100000' - REFVTOC(YES)
SOP_CONDVOL_ALL      EQU B'00010000' - CONDITIONVOLUME(ALL)      OFF=LABEL
SOP_BCVONLY          EQU B'00001000' - BCVONLY(YES)
SOP_CHKONLIN         EQU B'00000100' - CHECKONLINEPATHSTATUS(YES)
SOP_DFDSS_CC         EQU B'00000010' - DFDSS_CC(YES)
SOP_RECALC_FREE      EQU B'00000001' - RECALCULATE_FREESPACE(YES)
SOPFLG08 DS          XL1          FLAG BYTE 8
SOP_SRCDSORG_VS      EQU B'10000000' - INDSORG(VS) PRESENT
SOP_TGTDORG_PS       EQU B'01000000' - OUTDSORG(PS) PRESENT
SOP_SPACECYL         EQU B'00100000' - NONVSAMSPACE(CYL)
SOP_SPACETRK         EQU B'00010000' - NONVSAMSPACE(TRK)
SOP_DATACYL          EQU B'00001000' - DATASPACE(CYL)

```

SOP_DATATRK	EQU B'00000100'	- DATASPACE (TRK)
SOP_INDEXCYL	EQU B'00000010'	- INDEXSPACE (CYL)
SOP_INDEXTRK	EQU B'00000001'	- INDEXSPACE (TRK)
SOPFLG09 DS	XL1	FLAG BYTE 9
SOP_NOTIFY_DATASET	EQU B'10000000'	- NOTIFY (DATASET)
SOP_NOTIFY_JOB	EQU B'01000000'	- NOTIFY (JOB)
SOP_NOTIFY_SNAP	EQU B'00100000'	- NOTIFY (SNAP)
SOP_NOTIFY_STEP	EQU B'00010000'	- NOTIFY (STEP)
SOP_VARYOFF	EQU B'00001000'	- VARY_OFFLINE (NEVER)
SOP_FREESPC	EQU B'00000100'	- FREESPACE (YES)
SOP_ORDER_NAME	EQU B'00000010'	- ORDER (NAME)
SOP_ORDER_SIZE	EQU B'00000001'	- ORDER (SIZE)
SOPFLG10 DS	XL1	FLAG BYTE 10
SOP_EXTALLOC_YES	EQU B'10000000'	- EXTENT_ALLOCATION (YES)
SOP_EXTALLOC_NO	EQU B'01000000'	- EXTENT_ALLOCATION (NO)
SOP_EXTXPAND	EQU B'00100000'	- EXTENT_EXPAND (YES)
SOP_ACTIVATE	EQU B'00010000'	- WAIT FOR ACTIVATE
SOP_ACTIVATE1	EQU B'00001000'	- ACTIVATE PHASE 1 DONE
SOP_ACTIVATE2	EQU B'00000100'	- ACTIVATE PHASE 2 DONE
SOP_DIFF_VOL	EQU B'00000010'	- DIFFERENTIAL (YES)
SOP_DISBAND	EQU B'00000001'	- DISBAND (YES)
SOPFLG11 DS	XL1	FLAG BYTE 11
SOP_DONE_EMCSNAP	EQU B'10000000'	- EMCSNAP USED FOR COPY
SOP_DONE_EMCCOPY	EQU B'01000000'	- EMCCOPY USED FOR COPY
SOP_DONE_IBMSNAP	EQU B'00100000'	- IBMSNAP USED FOR COPY
SOP_DONE_IBMFLSH	EQU B'00010000'	- IBM FLASH COPY USED FOR COPY
SOP_DONE_UTILITY	EQU B'00001000'	- UTILITY PROGRAM USED FOR COPY
SOP_DONE EMCFLSH	EQU B'00000100'	- EMCFLASH USED FOR COPY
SOPFLG12 DS	XL1	FLAG BYTE 12
SOP_COPY_ERROR	EQU B'10000000'	- COPY_TRACKS HAD AN ERROR
SOP_REUSFAIL	EQU B'01000000'	- TOLERATE REUSE FAILURE (YES)
SOP_CHKONL_NEVER	EQU B'00100000'	- CHECKONLINEPATHSTATUS (NEVER)
SOP_MSG_DISPLAY	EQU B'00010000'	- MESSAGE (DISPLAY)
SOP_MSG_PROMPT	EQU B'00001000'	- MESSAGE (PROMPT)
SOP_QRY_CNTL	EQU B'00000100'	- CONTROLLER (#) SUPPLIED FOR QUERY
SOP_CONDVOL_DUMP	EQU B'00000010'	- CONDITIONVOLUME (DUMP)
SOP_AUTO_EXPAND	EQU B'00000001'	- REUSE_AUTO_EXPAND (YES)
SOPFLG13 DS	XL1	FLAG BYTE 13
SOP_VARYON	EQU B'10000000'	- VARY_ONLINE (YES)
SOP_VARYON_AUTO	EQU B'01000000'	- VARY_ONLINE (AUTO)
SOP_VDEVFREE	EQU B'00100000'	- VDEV (FREE) SPECIFIED
SOP_ADMIN	EQU B'00010000'	- ADMINISTRATOR (YES)
SOP_ALLO_UNUSED	EQU B'00001000'	- ALLOCATE_UNUSED_SPACE (YES)
SOP_SNAP_UNUSED	EQU B'00000100'	- SNAP_UNUSED_SPACE (YES)
SOP_RELEASE_YES	EQU B'00000010'	- RELEASE (YES)
SOP_RELEASE_NO	EQU B'00000001'	- RELEASE (NO)
SOPFLG14 DS	XL1	FLAG BYTE 14
SOP_READY_YES	EQU B'10000000'	- READY (YES)
SOP_READY_NO	EQU B'01000000'	- READY (NO)
SOP_SAVEDEV_NR	EQU B'00100000'	- SAVEDEV_FULL (NO)
SOP_MOVR_ACTIVE	EQU B'00010000'	- DATAMOVER ACTIVE FOR REQUEST
SOP_MOVR_NSRCRSV	EQU B'00001000'	- DATAMOVER - NO SOURCE RESERVE
SOP_MOVR_NTGTRSV	EQU B'00000100'	- DATAMOVER - NO TARGET RESERVE
SOP_BIET_NOTGT	EQU B'00000010'	- BUILD EXTENTS WITH NO TARGET
SOP_PARALLEL_REQ	EQU B'00000001'	- PARALLEL REQUESTED
SOPFLG15 DS	XL1	FLAG BYTE 15
SOP_PERSIST	EQU B'10000000'	- RESTORE PERSISTENT (YES)
SOP_AUTORLSE	EQU B'01000000'	- AUTOMATIC_RELEASE (YES)
SOP_AUTODEAL	EQU B'00100000'	- AUTOMATIC_DEALLOC (YES)
SOP_R1FULLCOPY	EQU B'00010000'	- R1FULLCOPYONLY (YES)
SOP_AUTOCLN	EQU B'00001000'	- AUTOMATIC_CLEANUP (YES)
SOP_DIFF_DSN	EQU B'00000100'	- DIFFERENTIAL DATASET (YES)
SOP_MODE_COPY	EQU B'00000010'	- MODE (COPY) REQUESTED
SOP_MODE_NOCOPY	EQU B'00000001'	- MODE (NOCOPY) REQUESTED
SOPFLG16 DS	XL1	FLAG BYTE 16
SOP_VOL_LEVEL	EQU B'10000000'	- VOLUME LEVEL REQUEST

SMF Record Layout

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SOP_DSN_LEVEL      EQU B'01000000' - DATASET LEVEL REQUEST
SOP_CTRL_LEVEL     EQU B'00100000' - CONTROLLER LEVEL REQUEST
SOP_COLLAPSE_NV    EQU B'00010000' - COLLAPSE_DATASET_EXTENTS (NV)
SOP_COLLAPSE_VS    EQU B'00001000' - COLLAPSE_DATASET_EXTENTS (VS)
SOP_PRECOPY        EQU B'00000100' - PRECOPY
SOP_DUMPTRK        EQU B'00000010' - DUMP_TRACK_CONTENTS
SOP_MBRENABLE      EQU B'00000001' - MEMBERSTATE (ENABLE)
SOPFLG17 DS        XL1          FLAG BYTE 17
SOP_SRC_SYMDV      EQU B'10000000' - SOURCE SYMDV# PRESENT
SOP_TGT_SYMDV      EQU B'01000000' - TARGET SYMDV# PRESENT
SOP_TERMSESS       EQU B'00100000' - TERMINATE SESSION
SOP_SESSLIST       EQU B'00010000' - SESSION_LIST
SOP_RMT_DDNAME     EQU B'00001000' - REMOTE DDNAME PRESENT
SOP_RMT_DD_JCL     EQU B'00000100' - REMOTE DDNAME ORIGINAL
SOP_LCL_DDNAME     EQU B'00000010' - LOCAL DDNAME PRESENT
SOP_LCL_DD_JCL     EQU B'00000001' - LOCAL DDNAME ORIGINAL
SOPFLG18 DS        XL1          FLAG BYTE 18
SOP_DEV_NM         EQU B'10000000' - DEV(N:M) SPECIFIED
SOP_SRDFWA_WARN    EQU B'01000000' - SRDFA_R2_SYNC (WARNING)
SOP_SRDFWA_R1R2SYNC EQU B'00100000' - SRDFA_R2_SYNC (R1R2SYNC)
SOP_SRDFWA_DATAMOVR EQU B'00010000' - SRDFA_R2_SYNC (DATAMOVR)
SOP_FORCE_FLASHCOPY EQU B'00001000' - FLASH_SNAP (FLASH)
SOP_SRCEXTS        EQU B'00000100' - SOURCE_VOLUME_EXTENTS_ONLY
SOP_EXTXPVOL_NEW   EQU B'00000010' - EXTXPAND (NEWVOL)
SOP_EXTXPVOL_SAME  EQU B'00000001' - EXTXPAND (SAMEVOL)
SOPFLG19 DS        XL1          FLAG BYTE 19
SOP_OPT_CKD        EQU B'10000000' - QUERY VOLUME CKD OPTION
SOP_OPT_FBA        EQU B'01000000' - QUERY VOLUME FBA OPTION
SOP_OPT_NOTREADY   EQU B'00100000' - QUERY VOLUME NOTREADY OPT
SOP_OPT_READY      EQU B'00010000' - QUERY VOLUME READY OPTION
SOP_OPT_SAVEDEV    EQU B'00001000' - QUERY VOLUME SAVEDEV OPTION
SOP_OPT_VDEV       EQU B'00000100' - QUERY VOLUME VDEV OPTION
SOP_SESSDETL       EQU B'00000010' - SESSION_LIST W/DETAIL
SOP_OPT_SIZE       EQU B'00000001' - QUERY VOLUME SIZE OPTION
SOPFLG20 DS        XL1          FLAG BYTE 20
SOP_VEROPEN        EQU B'10000000' - VERIFY_OPEN_SOURCE
SOP_ENQ_BAD        EQU B'01000000' - REMEMBER - ENQ FAILURE
SOP_VSAMENQ_BAD    EQU B'00100000' - REMEMBER - VSAMENQ FAILURE
SOP_CLEANDIFF      EQU B'00010000' - CLEANUP_DIFFERENTIAL (YES)
SOP_UCODE_FULL_NOWAY EQU B'00001000' - USE EXTENT UCODE
SOP_SRCLIST        EQU B'00000100' - SOURCE_VOLUME_LIST USED
SOP_VDEV_ENQ       EQU B'00000010' - VDEV_ENQ OUTSTANDING
SOP_SMS_PASS       EQU B'00000001' - SMS_PASS VOLUMES (YES)
SOPFLG21 DS        XL1          FLAG BYTE 21
SOP_SRDFA1_ALLOW   EQU B'10000000' - ALLOW SRDFA-R1 FOR TARGET
SOP_SRDFA1_DMOVR   EQU B'01000000' - ALLOW SRDFA-R1 W/DATAMOVER
SOP_SRDFA1_PHYSIC EQU B'00100000' - ALLOW SRDFA-R1 W/DATAMOVER
SOP_SRDFA1_ALLOW   EQU B'00010000' - ALLOW SRDFA-R1 FOR TARGET
SOP_SRDFA1_DMOVR   EQU B'00001000' - ALLOW SRDFA-R1 W/DATAMOVER
SOP_SRDFA1_PHYSIC EQU B'00000100' - ALLOW SRDFA-R1 W/DATAMOVER
SOP_SRDFA_WARN_R1 EQU B'00000010' - WARNING MESSAGE ISSUED
SOP_SRDFA_WARN_R1 EQU B'00000001' - WARNING MESSAGE ISSUED
SOPFLG22 DS        XL1          FLAG BYTE 22
SOP_OPT_RD_ALL     EQU B'10000000' - QUERY VOLUME RAID (ALL)
SOP_OPT_RD_NONE    EQU B'01000000' - QUERY VOLUME RAID (NONE)
SOP_OPT_RD_S       EQU B'00100000' - QUERY VOLUME RAID (RAIDS)
SOP_OPT_RD_1       EQU B'00010000' - QUERY VOLUME RAID (RAID1)
SOP_OPT_RD_5       EQU B'00001000' - QUERY VOLUME RAID (RAID5)
SOP_OPT_RD_10      EQU B'00000100' - QUERY VOLUME RAID (RAID10)
SOP_OPT_RD_6       EQU B'00000010' - QUERY VOLUME RAID (RAID6)
SOPFLG23 DS        XL1          FLAG BYTE 23
SOP_SEL_M_FIRST    EQU B'10000000' - SELECTMULTI (FIRST)
SOP_SEL_M_ANY      EQU B'01000000' - SELECTMULTI (ANY)
SOP_SEL_M_ALL      EQU B'00100000' - SELECTMULTI (ALL)
SOP_LIST_STMT      EQU B'00010000' - LIST (STATEMENTS)
SOP_LIST_HIST      EQU B'00001000' - LIST (HISTORY)

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SOP_GROUP          EQU B'00000100' - PART OF GROUP INVOCATION
SOP_POSTSNAP      EQU B'00000010' - POSTSNAP (YES)
SOP_PRESNAP       EQU B'00000001' - PRESNAP (YES)
SOPFLG24 DS       XL1          FLAG BYTE 24
SOP_EXTXPVOL_ADDNEW EQU B'10000000' - EXTXPAND (ADDNEW)
SOP_IGNORE_RDF    EQU B'01000000' - IGNORE_RDF (YES)
SOP_EMCONLY       EQU B'00100000' - EMC_ONLY (YES)
SOP_LDMF_DIVERT   EQU B'00010000' - LDMF_DIVERT (YES)
SOP_SRDFAR1_INFO EQU B'00001000' - SRDFA-R1 SEVERITY=I (RC=0)
SOP_SRDFSR1_INFO EQU B'00000100' - SRDFA-R1 SEVERITY=I (RC=0)
SOP_IGNORE_SYMDV# EQU B'00000010' - IGNORE SYMDV#
SOP_CCUU_NM       EQU B'00000001' - CCUU(N:M) SPECIFIED
SOPFLG25 DS       XL1          FLAG BYTE 25
SOP_USESVL4LG     EQU B'10000000' - USE_SVL_FOR_LOGINDYNAM
SOP_USESVL4SV     EQU B'01000000' - USE_SVL_FOR_LOGINDYNAM
SOP_EXTALLOC_CONSALL EQU B'00100000' - EXTALLOC (CONSALL)
SOP_EXTALLOC_CONSVOL EQU B'00010000' - EXTALLOC (CONSVOL)
SOP_EXTALLOC_TRKALIGN EQU B'00001000' - ALIGN_TRACKS
SOP_VDEVWAIT      EQU B'00000100' - VDEVWAIT (YES)
SOP_SESSDIFF      EQU B'00000010' - SESSION_LIST W/DIFFERENTIAL
SOP_PROCGATE      EQU B'00000001' - PROCESSING GATEKEEPER
SOPFLG26 DS       XL1          FLAG BYTE 26
SOP_GRPAPIVER     EQU B'10000000' - GROUP EMCQCAPI_VERIFY
SOP_GRPDEVRDY     EQU B'01000000' - GROUP_DEVICE_READY_STATE
SOP_UNIT_RANGE    EQU B'00100000' - 1ST OF UNIT RANGE
SOP_UNIT_NRANGE   EQU B'00010000' - NOT 1ST OF UNIT RANGE
SOP_SYMDV_RANGE   EQU B'00001000' - 1ST OF SYMDV RANGE
SOP_SYMDV_NRANGE  EQU B'00000100' - NOT 1ST OF SYMDV RANGE
SOP_SVOL_PRESENT  EQU B'00000010' - SOURCE VOLUME SPECIFIED
SOP_TVOL_PRESENT  EQU B'00000001' - TARGET VOLUME SPECIFIED
SOPFLG27 DS       XL1          FLAG BYTE 27
SOP_MODE_NOCOPYRD EQU B'10000000' - MODE (NOCOPYRD) REQUESTED
SOP_NO_BACKGRNDRD EQU B'01000000' - BACKGROUND COPY (NOCOPYRD)
SOP_VDEV_DEL_LOCK EQU B'00100000' - VDEV DEL LOCK ACQUIRED
SOP_PREPARE       EQU B'00010000' - PREPARE FOR SNAP
SOP_SKIP          EQU B'00001000' - SKIP EXECUTION OF THIS REQ
SOP_ERRCHK_REDUCED EQU B'00000100' - REDUCED ERROR CHECKING
SOP_ERRREC_ENHANCED EQU B'00000010' - ENHANCED ERROR RECOVERY
SOP_CTRLNAME      EQU B'00000001' - CONTROLLER NAME SUPPLIED
SOPFLG28 DS       XL1          FLAG BYTE 28
SOP_CG_IGNORE     EQU B'10000000' - NO CONGROUP CHECKING
SOP_CG_SAME       EQU B'01000000' - CONGROUP SRC/TGT SAME
SOP_CG_ANY        EQU B'00100000' - CONGROUP SRC/TGT ANY
SOP_CG_TARGET     EQU B'00010000' - CONGROUP TGT REQUIRED
SOP_CG_WARNING    EQU B'00001000' - CONGROUP SRC/TGT WARNING
SOP_CG_NONE       EQU B'00000100' - CONGROUP NONE REQUIRED
SOP_PRECOPY_WAIT  EQU B'00000010' - WAITFORPRECOPYPASS1
SOP_FORCECMP      EQU B'00000001' - FORCE_COMPLETION
SOPFLG29 DS       XL1          FLAG BYTE 29
SOP_LOCAL         EQU B'10000000' - LOCAL KEYWORD
SOP_REMOTE        EQU B'01000000' - REMOTE KEYWORD
SOP_LDMF_CLUSTER  EQU B'00100000' - LDMF_COMPONENT (CLUSTER)
SOP_LDMF_DATA     EQU B'00010000' - LDMF_COMPONENT (DATA)
SOP_LDMF_INDEX    EQU B'00001000' - LDMF_COMPONENT (INDEX)
SOP_EXTALLOC_MRGEXIST EQU B'00000100' - EXTALLOC (MRGEXIST)
SOP_EXTALLOC_XTNTBNDRY EQU B'00000010' - EXTALLOC (XTNTBNDRY)
SOP_VERIFY_NEVER  EQU B'00000001' - VERIFY (NEVER)
SOPFLG30 DS       XL1          FLAG BYTE 30
SOP_SRC_SYMDV#_OK EQU B'10000000' - SOURCE SYMDV# SECURITY OK
SOP_TGT_SYMDV#_OK EQU B'01000000' - TARGET SYMDV# SECURITY OK
SOP_INVALIDATE_PDSE EQU B'00100000' - INVALIDATE PDSE BUFFER
SOP_REMOVE_REMOTE EQU B'00010000' - REMOVE_REMOTE_EXTENT_SESSIONS
SOP_OPT_TDEV      EQU B'00001000' - QUERY_VOLUME_TDEV_OPTION
SOP_EXAMINE_INDX  EQU B'00000100' - EXAMINE (INDEXTEST)
SOP_EXAMINE_DATA  EQU B'00000010' - EXAMINE (DATATEST)
SOP_EXAMINE_NEVER EQU B'00000001' - EXAMINE (NEVER)

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SMF Record Layout

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SOPFLG31 DS      XL1      FLAG BYTE 31
SOP_MULTIVDEV    EQU B'10000000' - MULTI_VIRTUAL (YES)
SOP_EATTR_NO     EQU B'01000000' - EATTR(NO)
SOP_EATTR_OPT    EQU B'00100000' - EATTR(OPT)
SOP_VALVOLID     EQU B'00010000' - VALIDATE (VOLID)
SOP_VALBWD       EQU B'00001000' - VALIDATE (BACKWARD)
SOP_IOMODE_TRK   EQU B'00000100' - VALIDATE (IOMODE (TRACK))
SOP_IOMODE_BLK   EQU B'00000010' - VALIDATE (IOMODE (BLOCK))
SOP_IOMODE_RDM   EQU B'00000001' - VALIDATE (IOMODE (RANDOM))
SOPFLG32 DS      XL1      FLAG BYTE 32
SOP_VALUNUSE     EQU B'10000000' - VALIDATE (UNUSED)
SOP_POOLUSE      EQU B'01000000' - CHECK_POOL_USAGE (YES)
SOP_OPT_THINPOOL EQU B'00100000' - QUERY VOLUME THINPOOL
SOP_XXX_ESNP231W EQU B'00010000' - MAKE ESNP231E INTO ESNP231W
SOP_CMPRSV       EQU B'00001000' - RESERVE (YES)
SOP_SRCVDEV      EQU B'00000100' - VDEV (UNIT () /VOL ()) REQUESTED
SOP_ALLOWFC_YES  EQU B'00000010' - ALLOW_FLASHCOPY (YES)
SOP_ALLOWFC_NO   EQU B'00000001' - ALLOW_FLASHCOPY (NO)
SOPFLG33 DS      XL1      FLAG BYTE 33
SOP_PCLONE       EQU B'10000000' - PARALLEL_CLONE (YES)
SOP_NOUCODE      EQU B'01000000' - DATAMOVER (NOUCODE)
SOP_PCLONE_REQ   EQU B'00100000' - PARALLEL_CLONE (REQUIRED)
SOP_PCLONE_PREF  EQU B'00010000' - PARALLEL_CLONE (PREFERRED)
SOP_INLINE_PRINT EQU B'00001000' - AVOID PRINT BUFFERING
SOP_ACTIVATE_OFF EQU B'00000100' - ACTIVATE?
SOP_MLQ          EQU B'00000010' - MULTI_LINE_QUERY (YES)
SOP_RPTDIFF      EQU B'00000001' - REPORT (DIFFERENTIAL (YES))
SOPFLG34 DS      XL1      FLAG BYTE 34
SOP_TOL_COMPACT  EQU B'10000000' - TOLERATEDATACLASSCOMPACTION...
SOP_MODELDS_WARN EQU B'01000000' - ESNP220 (WARNING)
SOP_TOL_EXTENDED EQU B'00100000' - TOLERATEDATACLASSEXTENDED...
SOP_EXPLAIN_VOL  EQU B'00010000' - EXPLAIN (VOLUMESELECTION)
SOP_CLEAN_R2     EQU B'00001000' - AUTOCLEANR2
SOP_CRC_COMPAREA EQU B'00000100' - CRC_COMPARE (ALWAYS)
SOP_CRC_COMPAREN EQU B'00000010' - CRC_COMPARE (NEVER)
SOPFLG35 DS      XL1      FLAG BYTE 35
SOPFLG36 DS      XL1      FLAG BYTE 36
SOPFLG37 DS      XL1      FLAG BYTE 37
SOPFLG38 DS      XL1      FLAG BYTE 38
SOPFLG39 DS      XL1      FLAG BYTE 39
SOPFLG40 DS      XL1      FLAG BYTE 40
SOPFLG41 DS      XL1      FLAG BYTE 41
SOPFLG42 DS      XL1      FLAG BYTE 42
SOPFLG43 DS      XL1      FLAG BYTE 43
SOPFLG44 DS      XL1      FLAG BYTE 44
SOPFLG45 DS      XL1      FLAG BYTE 45
SOPFLG46 DS      XL1      FLAG BYTE 46
SOPFLG47 DS      XL1      FLAG BYTE 47
SOPFLG48 DS      XL1      FLAG BYTE 48
*
SOPDEBUG DS      XL1      DEBUG FLAG
SOP_DEBUG        EQU B'10000000' - DEBUG (ON)
SOP_TRACE        EQU B'01000000' - TRACE (ON)
SOP_ERROR        EQU B'00100000' - DEBUG (ERROR)
SOP_EXTRA        EQU B'00010000' - DEBUG (EXTRA)
SOP_QCAPI        EQU B'00001000' - DEBUG (EMCQCAPI)
SOP_ALLOC        EQU B'00000100' - DEBUG (EMCALLOC)
SOP_DBGSKIP      EQU B'00000010' - DEBUG (SKIP)
SOPMOVER DS      CL8      DATA MOVER NAME
SOPMOVTY DS      YL2      DATA MOVER KEYWORD
SOPMOVTY_NONE    EQU 1      - NO DATA MOVER SPECIFIED
SOPMOVTY_EMCCOPY EQU 2      - EMCCOPY SPECIFIED
SOPMOVTY_COPYTRK EQU 3      - COPYTRK SPECIFIED
SOPMOVTY_COPYCYL EQU 4      - COPYCYL SPECIFIED
SOPMOVTY_DFDSS   EQU 5      - DFDSS SPECIFIED
SOPMOVTY_FDRDSF  EQU 6      - FDRDSF SPECIFIED

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SOPMOVTY_IDCAM5	EQU 7	- IDCAMS SPECIFIED
SOPMOVTY_UTILITY	EQU 99	- GENERIC UTILITY SPECIFIED
SOPWAIT DS	FL4	WAIT TIME FOR API
SOPCMLPT DS	FL4	WAIT TIME FOR SNAP COMPLETION
SOPVALF DS	FL4	VALIDATE (FIRST(##))
SOPVALL DS	FL4	VALIDATE (LAST(##))
SOPVALLM DS	FL4	VALIDATE (LIMIT(##))
SOPVOLCT DS	YL2	VOLCOUNT FOR MULTI-VOLUME ALLOC
SOPRELAT DS	CL44	RELATE DATA SET NAME FOR AIX
SOPBCVGP DS	CL8	TARGET BCVGROUP
SOPUNITN DS	CL8	TARGET UNITNAME
SOPDATCL DS	CL8	DATA CLASS
SOPSTGCL DS	CL8	STORAGE CLASS
SOPMGTCCL DS	CL8	MANAGEMENT CLASS
SOPSTGRP DS	CL8	STORAGE GROUP
SOPENQ DS	CL1	ENQ = EXC/SHR/NONE
SOPDFDSS_OPT DS	AL1	DFDSS_OPTIMIZE
SOPVENQ DS	CL1	VSAMENQMODE = EXC/SHR/NONE
SOPNTGRP DS	CL44	NOTIFY (GROUP (XXX))
SOPNEWVL DS	CL6	NEW VOLID
SOPSCFGP DS	CL66	TARGET SCFGROUP
SOPGRPNM DS	CL8	GROUP NAME
SOPCMPENQ DS	XL1	COMPARE ENQ = EXC/SHR/NONE
SOP_ACT_SUBTASK# DS	XL1	CONSISTENT SUBTASK COUNT
SOPTIMEOUT DS	FL4	CONSISTENT TIMEOUT VALUE
SOPPOOL DS	CL12	SAVEDEV POOL NAME
SOPCPLTY DS	Y	CONFIGPOOL TYPE
SOPCPLTY_SAVEDEV EQU	X'0101'	
SOPSRCVL DS	CL16	SOURCE_VOLUME LIST NAME
SOPDESC DS	CL64	GROUP DESCRIPTION
SOPCNTLR12 DS	CL12	QUERY - BY CONTROLLER - 12 DIGIT
SNSMFOPT_LEN EQU	*-SNSMFOPT	LENGTH OF SNSMFOPT
*		
* SOURCE DATASET INFORMATION		
*		
SNSMFSRC DSECT ,		
SSDSGLEN DS	H	SEGMENT LENGTH
SSDSGID DS	XL1	SEGMENT ID
SNSMFSID# EQU	4	. 4 = SEGMENT ID FOR SOURCE DATASET
DS	XL1	
*		
SSDDSNAM DS	CL44	SOURCE DATASET NAME
SSDDDNAM DS	CL8	SOURCE DDNAME
SSDCATNM DS	CL44	SOURCE CATALOG NAME
SSDDATCL DS	CL8	SOURCE - DATA CLASS
SSDMGTCL DS	CL8	SOURCE - MANAGEMENT CLASS
SSDSTGCL DS	CL8	SOURCE - STORAGE CLASS
SSDTRK# DS	F	NUMBER OF TRACKS IN SOURCE FILE
SSDUSED# DS	F	NUMBER OF USED TRACKS IN SOURCE
SSDHARBA DS	F	VSAM HIGH ALLOCATED RBA
SSDHURBA DS	F	VSAM HIGH USED RBA
SSDHRBA DS	F	VSAM HIGH KEY RBA
SSDXTN# DS	Y	SOURCE NUMBER OF EXTENTS
SSDTYPE DS	CL1	DATA SET TYPE (SEE EXWAATYP)
* EXWAATYP_NV5AM EQU	C'A'	NONVSAM DATASET
* EXWAATYP_GDG EQU	C'B'	GDG BASE
* EXWAATYP_CLUSTER EQU	C'C'	CLUSTER
* EXWAATYP_DATA EQU	C'D'	DATA COMPONENT
* EXWAATYP_AIX EQU	C'G'	ALTERNATE INDEX
* EXWAATYP_IND5 EQU	C'I'	INDEX COMPONENT
* EXWAATYP_PATH EQU	C'R'	PATH
* EXWAATYP_ALIAS EQU	C'X'	ALIAS NAME
SSDSTRP DS	XL1	SOURCE STRIPE COUNT
SSDDSG DS	XL2	DSORG
SSDLRCL DS	XL2	LRECL
SSDBLKZ DS	XL2	BLOCKSIZE

SMF Record Layout

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SSDRFM    DS    XL1          RECFM
SSD_CG    DS    CL8          SOURCE CONGROUPE NAMES
SSD_CG2   DS    CL8          . . .
SNSMFSRC_LEN EQU *-SNSMFSRC  LENGTH OF SNSMFSRC
*
* TARGET DATASET INFORMATION
*
SNSMFTGT DSECT ,
STDSGLEN DS    H            SEGMENT LENGTH
STDSGID  DS    XL1          SEGMENT ID
SNSMFTD# EQU    5           . 5 = SEGMENT ID FOR TARGET DATASET
                DS    XL1
*
STDDSNAM DS    CL44         TARGET DATASET NAME
STDDNAM  DS    CL8          TARGET DDNAME
STDCATNM DS    CL44         TARGET CATALOG NAME
STDDATCL DS    CL8          NEW DATA CLASS (FROM ACS ROUTINES)
STDMGTCL DS    CL8          NEW MGMT CLASS (FROM ACS ROUTINES)
STDSTGCL DS    CL8          NEW STG CLASS (FROM ACS ROUTINES)
STDTRK#  DS    F            NUMBER OF TRACKS IN TARGET FILE
STDXTN#  DS    Y            TARGET NUMBER OF EXTENTS
STDSTRP  DS    XL1          TARGET STRIPE COUNT
STDDSG   DS    XL2          DSORG
STDLRCL  DS    XL2          LRECL
STDBLKZ  DS    XL2          BLOCKSIZE
STDREFM  DS    XL1          RECFM
STD_CG   DS    CL8          TARGET CONGROUPE NAMES
STD_CG2  DS    CL8          . . .
SNSMFTGT_LEN EQU *-SNSMFTGT  LENGTH OF SNSMFTGT
*
* GATEKEEPER INFORMATION
*
SNSMFGTK DSECT ,
SGKSGLEN DS    H            SEGMENT LENGTH
SGKSGID  DS    XL1          SEGMENT ID
SNSMFGK# EQU    6           . 6 = SEGMENT ID FOR GATEKEEPER
                DS    XL1
SGKVOL   DS    CL6          SPECIFIED GATEKEEPER VOLUME
SGKUNIT  DS    XL2          SPECIFIED GATEKEEPER UNIT ADDRESS
SGKDDN   DS    CL8          SPECIFIED GATEKEEPER DDNAME
SGKMHOP  DS    XL8          SPECIFIED GATEKEEPER MULTI-HOP LIST X
                . (ALL X'FF' IF LOCAL GATEKEEPER)
SGKAUCB@ DS    AL4          ACTUAL GATEKEEPER UCB ADDRESS
SGKAVOL  DS    CL6          ACTUAL GATEKEEPER VOLUME
SGKAUNIT DS    XL2          ACTUAL GATEKEEPER UNIT ADDRESS
SNSMFGTK_LEN EQU *-SNSMFGTK  LENGTH OF SNSMFGTK
*
* SOURCE EXTENT LIST
*
SNSMFSXL DSECT ,
SSXSGLEN DS    H            SEGMENT LENGTH
SSXSGID  DS    XL1          SEGMENT ID
SNSMFSX# EQU    7           . 7 = SEGMENT ID FOR SOURCE EXTENTS
                DS    XL1
SSXTRK#  DS    FL4          NUMBER OF TRACKS IN EXTENT
SSXUCB@  DS    AL4          UCB ADDRESS
SSXVOL   DS    CL6          VOLSER FOR THIS EXTENT
SSXCCUU  DS    XL2          MVS CCUU
SSXBCCHH DS    XL4          BEGINNING CCHH OF EXTENT
SSXECCHH DS    XL4          ENDING CCHH OF EXTENT
SSXTNT#  DS    XL2          EXTENT NUMBER (RELATIVE TO 1)
SSXSTRK# DS    FL4          STARTING TRACK NUMBER (REL. TO 0)
SSXVOL#  DS    XL1          VOLUME NUMBER (RELATIVE TO 1)      X
                . OR STRIPE NUMBER
SSXSER#  DS    CL12         SYMMETRIX SERIAL NUMBER (ALL 12)
SSXDEV#  DS    XL4          PHYSICAL DEVICE NUMBER

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SSXMCODE DS      XL2                MICROCODE LEVEL - 5065, 5066...
SNSMFSXL_LEN EQU *-SNSMFSXL        LENGTH OF SNSMFSXL
*
* TARGET EXTENT LIST
*
SNSMFTXL DSECT ,
STXSGLEN DS      H                  SEGMENT LENGTH
STXSGID DS      XL1                SEGMENT ID
SNSMFTX# EQU     8                  . 8 = SEGMENT ID FOR TARGET EXTENTS
      DS      XL1
STXTRK# DS      FL4                NUMBER OF TRACKS IN EXTENT
STXUCB@ DS      AL4                UCB ADDRESS
STXVOL DS      CL6                 VOLSER FOR THIS EXTENT
STXCCUU DS      XL2                MVS CCUU
STXBCCHH DS     XL4                BEGINNING CCHH OF EXTENT
STXECCHH DS     XL4                ENDING CCHH OF EXTENT
STXTNT# DS      XL2                ENTENT NUMBER (RELATIVE TO 1)
STXSTRK# DS     FL4                STARTING TRACK NUMBER (REL. TO 0)
STXVOL# DS      XL1                VOLUME NUMBER (RELATIVE TO 1)      X
      . OR STRIPE NUMBER
STXSER# DS      CL12               SYMMETRIX SERIAL NUMBER (ALL 12)
STXDEV# DS      XL4                PHYSICAL DEVICE NUMBER
STXMCODE DS     XL2                MICROCODE LEVEL - 5065, 5066...
SNSMFTXL_LEN EQU *-SNSMFTXL        LENGTH OF SNSMFTXL
*
* COPY EXTENT LIST
*
SNSMFCXL DSECT ,
SCXSGLEN DS      H                  SEGMENT LENGTH
SCXSGID DS      XL1                SEGMENT ID
SNSMFCX# EQU     9                  . 9 = SEGMENT ID FOR COPY EXTENTS
      DS      XL1
SCXSUCB@ DS     AL4                SOURCE UCB ADDRESS
SCXSCCUU DS     XL2                SOURCE UCB CCUU
SCXSSYMD DS     XL4                SOURCE INTERNAL DEVICE NUMBER
SCXTUCB@ DS     AL4                TARGET UCB ADDRESS
SCXTCCUU DS     XL2                SOURCE UCB CCUU
SCXTSYMD DS     XL4                TARGET INTERNAL DEVICE NUMBER
SCXMHOP DS     XL8                REMOTE MULTI-HOP LIST
SCXASSTR DS     XL4                SOURCE CCCCCCH (ASCENDING)
SCXATSTR DS     XL4                TARGET CCCCCCH (ASCENDING)
SCXSSTR DS     XL4                SOURCE CCHH (IBM FORMAT)
SCXTSTR DS     XL4                TARGET CCHH (IBM FORMAT)
SCX#TRK DS     XL4                NUMBER OF TRACKS TO COPY
SCXCPYTY DS     XL1                COPY TYPE NECESSARY
SCXCPYTY_SKIP EQU 0                . SKIP COPY
SCXCPYTY_MCODE EQU 10              . USE MICROCODE TO COPY
SCXCPYTY_EMCFASH EQU 20            . USE FLASH MICROCODE TO COPY
SCXCPYTY_EMCCOPY EQU 30            . USE EMCCOPY TO COPY
SCXCPYTY_IBMSNAP EQU 40            . USE ANTRQST-SNAPSHOT TO COPY
SCXCPYTY_IBMFLASH2 EQU 50          . USE ANTRQST-FLASHCOPY V2
SCXCPYTY_IBMFLASH EQU 60           . USE ANTRQST-FLASHCOPY TO COPY
SCXCPYTY_COPYCYL EQU 70            . USE COPYCYL TO COPY
SCXCPYTY_UTILITY EQU 80            . USE UTILITY TO COPY
SCXSXTN# DS     XL2                SOURCE EXTENT NUMBER
SCXTXTN# DS     XL2                TARGET EXTENT NUMBER
SNSMFCXL_LEN EQU *-SNSMFCXL        LENGTH OF SNSMFCXL
      MEND ,

```

SMF record sub-sections and TimeFinder actions

The following tables identify which sub-sections of the SMF record are present for each TimeFinder action. In determining segment length values, check for the values embedded in the record content.

Table 19 SMF Record sub-sections and TimeFinder actions

CLEANUP EXTENT TRACK	ACTIVATE	QUERY VDEV	RESTORE VIRTUAL DEVICE	DESTROY EXTENT TRACK	QUERY DATASET	SNAP DATASET	STOP SNAP TO DATASET
SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42	SCMSGLEN=42
SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1
SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80	SCMSGLEN=80
SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2
SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428	SCMSGLEN=428
SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3
SCMSGLEN=40		SCMSGLEN=40	SCMSGLEN=171	SCMSGLEN=40	SCMSGLEN=171	SCMSGLEN=171	SCMSGLEN=171
SCMSGIDN=6		SCMSGIDN=6	SCMSGIDN=4	SCMSGIDN=6	SCMSGIDN=4	SCMSGIDN=4	SCMSGIDN=4
			SCMSGLEN=154		SCMSGLEN=154	SCMSGLEN=154	SCMSGLEN=154
			SCMSGIDN=5		SCMSGIDN=5	SCMSGIDN=5	SCMSGIDN=5
			SCMSGLEN=40		SCMSGLEN=40	SCMSGLEN=40	SCMSGLEN=40
			SCMSGIDN=6		SCMSGIDN=6	SCMSGIDN=6	SCMSGIDN=6
			SCMSGLEN=53		SCMSGLEN=53	SCMSGLEN=53	SCMSGLEN=53
			SCMSGIDN=7		SCMSGIDN=7	SCMSGIDN=7	SCMSGIDN=7
			SCMSGLEN=53			SCMSGLEN=53	
			SCMSGIDN=7			SCMSGIDN=7	
			SCMSGLEN=57			SCMSGLEN=57	
			SCMSGIDN=9			SCMSGIDN=9	

SNAP VOLUME	STOP SNAP TO VOLUME	CONFIG	QUERY VOLUME	CLEANUP EXTENT TRACK	ACTIVATE	QUERY VDEV	RESTORE VIRTUAL DEVICE	RESET EXTENT TRACK	QUERY DATASET	SNAP DATASET	STOP SNAP TO DATASET
SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1	SCMSGIDN=1
SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2	SCMSGIDN=2
SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3	SCMSGIDN=3
SCMSGIDN=4	SCMSGIDN=4	SCMSGIDN=6	SCMSGIDN=4	SCMSGIDN=6		SCMSGIDN=6	SCMSGIDN=4	SCMSGIDN=6	SCMSGIDN=4	SCMSGIDN=4	SCMSGIDN=4
SCMSGIDN=5	SCMSGIDN=5		SCMSGIDN=5				SCMSGIDN=5		SCMSGIDN=5	SCMSGIDN=5	SCMSGIDN=5
SCMSGIDN=6	SCMSGIDN=6		SCMSGIDN=6				SCMSGIDN=6		SCMSGIDN=6	SCMSGIDN=6	SCMSGIDN=6
SCMSGIDN=7	SCMSGIDN=7						SCMSGIDN=7		SCMSGIDN=7	SCMSGIDN=7	
SCMSGIDN=8	SCMSGIDN=8						SCMSGIDN=8			SCMSGIDN=8	SCMSGIDN=8
SCMSGIDN=9	SCMSGIDN=9						SCMSGIDN=9			SCMSGIDN=9	

Note: There may be multiple type 7, 8, or 9 segments.

APPENDIX E

Enhancements

This appendix provides a comprehensive list of enhancements to TimeFinder.

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Enhancements by release

Table 20 shows the enhancements added to each release of TimeFinder.

Table 20 TimeFinder enhancements (page 1 of 11)

Release	Enhancements
7.6	This version contains corrections and small content clarifications.
7.5	TimeFinder supports a restore action from a TimeFinder cascaded VP Snap to a fully copied clone. This feature is for FBA only.
	A new feature, Clone Restore Virtual Snaps (CRVS) allows TF Clone to support an incremental restore to a source that has active virtual (VDEV) or VP snaps.
	TimeFinder supports an incremental resnap of a clone, while persisting with a TimeFinder cascaded VP Snap session.
	TimeFinder supports an incremental resnap while a cascaded virtual snap sessions is active.
	TimeFinder supports restoration from a TF Cascaded Virtual Snap to a fully copied clone target.
	A new sub-parameter has been added to the WAITFORCOMPLETION parameter to specify the type of message issued (TIMEOUT(INFormational WARning ERRor). This update applies to GLOBAL, SNAP DATASET, SNAP VOLUME and RESTORE commands.
7.4	New optional parameter for GLOBAL and SNAP VOLUME commands. AUTO_BIND_TDEV parameter allows TDEV to be automatically bound to a TDAT pool (if not already bound). Poolname must be specified. Requires MFE 7.4 and Engenuity level 5875 or higher.
	New optional parameter for the GLOBAL and STOP SNAP commands. AUTO_UNBIND_tdev parameter provides the ability to unbind the TDEV if a copy-in-progress is terminated. Requires MFE 7.4 and Engenuity level 5875 or higher.
	TimeFinder now provides the option for SMF records for each command. The new SITE options parameter &SMFRID requires MFE 7.4, but there is no dependency on a specific Engenuity level.
	Snap support for Virtual Space Efficient (VSE) devices has been added. This is a thin FBA device with shared allocation, which makes it a VSE device. Requires MFE 7.4 and Engenuity level 5876, and support is provided only for FBA VSE devices. CKD devices are not supported.
	Additional corrections and clarifications have been made to this manual since the 7.3 release.
7.3	In order to minimize the ECA window when multiple syscalls are required, multiple subtasks are attached prior to opening the ECA window, one for each controller. When the ECA window is opened, the subtasks are posted to perform the ACTIVATE. As each subtask completes the activate, it closes the ECA window for that controller. Then it posts the maintask. Once all subtasks have completed, the subtasks is terminated. There is a new site option for this enhancement, as well as the ACTIVATE_SUBTASK#(nn) keyword on Global and Activate statements.
	QUERY VOLUME is enhanced with a new multi-line query option that continue to display the existing line, along with additional detail lines. The multi-line query shows the SRDF type (A/S/PPRC/XRC) and whether it is a R1, R2, R11, etc device. Additionally, it shows if certain features are in use on the device (like parallel clone, inhibit outboard copy, hold). Each mirror position is shown along with its attributes (adaptive copy, sync or not, ready state, write state). This feature includes a new keyword, MULTILINE query (YES NO), and new display results.
7.2	TimeFinder/Snap off SRDF/A R2 is no longer blocked by TFCMSF. TF/Snap is now enabled by the new "device pacing" feature in Engenuity level 5875 and is initiated and controlled by SRDF-HC commands and parameters.

Table 20 TimeFinder enhancements (page 2 of 11)

Release	Enhancements
	<p>With Duplicate SNAP, it is possible to create a point-in-time copy of a Virtual Device that is participating in a previously activated Snap Session. Prior to this new functionality, there was no way to achieve this goal. By specifying a VDEV as both the source and target of a SNAP VOLUME statement, the source VDEV is duplicated to the target VDEV and the target VDEV is based on the same original standard device.</p> <p>This functionality does not change the existing limit of 128 Snaps off a source set of volumes. It expands the limitation of only being able to snap from the source to allowing you to duplicate a Snap copy off another Snap from the source. The combined number of snaps, whether originally issued from the source or subsequently duplicated from other snaps from the source, can still not exceed a total of 128.</p>
	<p>The Consistent Dataset SNAP feature allows you to obtain a consistent image of multiple datasets using the SNAP DATASET command. Dependent-write consistency can now be assured across a group of target datasets.</p> <p>When the same SNAP DATASET is run with an ACTIVATE (CONSISTENT(YES)) statement present, the SNAP DATASET is consistent.</p> <p>It is important to note that while the dataset contents is consistent, the meta data may not. The meta data (VVDS and VTOC) records are captured before the microcode snap occurs and therefore, they may not be consistent with the actual dataset contents.</p>
	<p>The Simultaneous TF/Clone feature (using the Parallel_Clone parameter) is only able to be utilized when both the source and target volumes are R1 devices, and the corresponding R2 devices are contained in the same remote Symmetrix, and the R2 devices are not larger than the R1 devices. Instead of copying the data from the R1 to its corresponding R2 through the SRDF/S link, the new source copy that is already local on the same box (R2) is used.</p> <p>The benefit of using the parallel clone feature is to ensure that the remote location data matches the source location data at all times.</p> <p>This option is available on the SNAP DATASET and SNAP VOLUME commands, as well as a site option and global parameter.</p>
	<p>The ALLOW_REPLICATION parameter allows you to set the Engenuity bit that indicates whether the device can be the target of a local or remote replication. This parameter belongs to the CONFIG command.</p>
	<p>The CLEANUP command has been enhanced to support the cleanup and withdrawal of remote extents. When a local R1 device is being cleaned or the destroy is run on a local R1 device, it automatically sends a single query to the connected R2 and check for any extents. If extents are found, they are checked for completion and if complete, automatically removed.</p>
	<p>The TimeFinder product guide has been reorganized by taking information from several appendices and inserting it into the appropriate chapters to ensure the reader finds all the information about a command or parameter in one place, limiting the need to link to appendices and addition tables of information to obtain a complete description.</p> <p>Additional links have been provided in the Global command section to make it easier to link from the initial command syntax to the specific parameter and then return.</p>
7.0.0	<p>TimeFinder implements a new method for performing virtual resnaps. The new method should be transparent and does not required any syntax changes.</p>
	<p>TimeFinder supports two virtual device methodologies. The original method uses a single session for each virtual device in a relationship with a standard device. This allows a maximum of 16 virtual devices per standard device. The multi-virtual method uses a single session on the standard device, that allows up to 128 virtual devices to “share” the single device session. The needs of each virtual device are tracked by an independent session that is not associated with the source device.</p>
	<p>TimeFinder supports clone operations between thick and thin devices.</p>
	<p>TimeFinder supports a virtual device created on an active SRDF/A R2 device.</p>

Table 20 TimeFinder enhancements (page 3 of 11)

Release	Enhancements
	TimeFinder supports using thin FBA devices as sources and targets in SNAP VOLUME, STOP VOLUME, and CONFIG statements or as sources when the target is a virtual device. Allowed operations is thick or thin device to thick or thin device and thick or thin device to virtual device. TimeFinder supports operations between thin and thick (non thin) devices. TimeFinder does not support thin device operations with SNAP DATASET.
	TimeFinder now utilizes Enginuity’s new multi-device capabilities. Multi-device capabilities were already in effect when multiple SNAP VOLUME requests were processed with an ACTIVATE command, they were processed together. The new capability allows multiple SNAP VOLUME processing without a ACTIVATE being issued. The new parameter AUTOMATIC_ACTIVATE, when set, automatically performs an ACTIVATE when there are two or more SNAP VOLUME commands in the input stream with no ACTIVATE supplied by the user.
	TimeFinder supports Cascaded Clone. Cascaded clone is the ability for a clone operation to take place with a device that is already involved in a clone operation.
	TimeFinder recognizes diskless SRDF devices. However, TimeFinder does not support operations against diskless SRDF devices.
	TimeFinder now supports Extended Address Volumes (EAVs).
	TimeFinder allows the coexistence of SNAP and FlashCopy on the same volumes.
	<p>TimeFinder has several new parameters and site options:</p> <ul style="list-style-type: none"> • AUTOMATIC_ACTIVATE(YES NO) - Command parameter AUTOACTIVATE=YES NO - Site option Allows or prohibits treating multiple SNAP VOLUME requests without an accompanying ACTIVATE command as if an ACTIVATE had been specified. • INVALIDATE_PDSE_BUFFERS(YES NO) - Command parameter INVALIDATE_PDSE=YES NO - Site option Allows or prohibits flushing of PDSE data caches when a SNAP DATASET or SNAP VOLUME command is processed. • TDEV(EXCLUDE INCLUDE) - Command parameter OPT_TDEV - Site option Allows or prohibits inclusion of thin devices on QUERY VOLUME reports. • REMOVE_REMOTE_EXTENT_SESSIONS(YES NO) - Command parameter REMOVE_REMOTE(YES NO) - Site option Allows or prohibits removal of any extent sessions found on a remote device that is being cleaned up.
	TimeFinder operates with Symmetrix systems that are at Enginuity revision level 5874 as well as the prior levels defined in the <i>EMC Mainframe Enablers Version 7.0 Installation and Customization Guide</i> .
	TimeFinder supports all currently supported versions of z/OS.
	TimeFinder includes the application of accumulated maintenance.

Table 20 TimeFinder enhancements (page 4 of 11)

Release	Enhancements
5.8.0	TimeFinder recognizes the R21 device type. The R21 device is the target of one SRDF relationship and simultaneously the source of another SRDF relationship.
	<p>TimeFinder includes several performance enhancements for SNAP VOLUME. These include the following site options</p> <ul style="list-style-type: none"> • VALRANGE_LOCAL—When you request local (source) device information, information is obtained from the Symmetrix system and cached to be used if additional requests refer to any of these devices. • VALRANGE_REMOTE—When you request remote (target) device information, information is obtained from the Symmetrix system and cached to be used if additional requests refer to any of these devices. • GROUP EMCQCAPI_VERIFY Controls whether you take the step ensuring that local (source) and remote (target) devices are completely suitable before requesting the Symmetrix system to establish a relationship between them. • GROUP_DEVICE_READY_STATE—Controls whether TimeFinder makes the devices specified in the SNAP VOLUME command not ready to the channel after PRESNAP or ACTIVATE processing and then automatically makes the devices ready to the channel after POSTSNAP processing completes. <p>TimeFinder also includes equivalent GLOBAL parameters:</p> <ul style="list-style-type: none"> • VALIDATE_RANGE • GROUP EMCQCAPI_VERIFY • GROUP_DEVICE_READY_STATE
	<p>TimeFinder includes several new site options:</p> <ul style="list-style-type: none"> • VDEV_REUSE, allows you to prevent a virtual device from being reused unless a STOP SNAP has been done to the device. When you allow the default value of YES, VDEV_REUSE allows multiple separate SNAP VOLUME to VDEV requests to be issued with the same VDEV specified. It automatically detects and reuses the VDEV by internally issuing a STOP SNAP to the VDEV and then letting the SNAP VOLUME continue. • VDEV_MULTI_SYSPLEX, allows you to lock a VDEV across multiple sysplexes. • ALLOW_SYMDV#, allows you to prevent the SYMDV# parameter from being used. (In some situations, where multiple users are sharing the same Symmetrix system, using the SYMDV# parameter may be considered a security exposure.) • Two site options, CONGROUP and CONGROUP_LDMF, allow you to enforce the use of devices that match Consistency Groups for z/OS criteria. CONGROUP is for standard TF/Snap activity while CONGROUP_LDMF is for z/OS Migrator activity. • PROCESS_COPYCYL_DATAMOVER, controls whether an internal datamover may be used when the devices in question are already involved with z/OS Migrator.
	<p>TimeFinder provides enhanced error checking with dataset and volume snap operations. Version 5.8 provides two site options, ERRCHK and ERRREC and two parameters, ERROR_CHECKING and ERROR_RECOVERY for the GLOBAL, SNAP DATASET and SNAP VOLUME commands. Using these elements, you can either select the error handling used in previous versions or choose to reduce pre-establish error checking (the ERRCHK/ERROR_CHECKING REDUCED option) and increase error recovery if the establish fails (the ERRREC/ERROR_RECOVER ENANCED option).</p>
	<p>The MODE parameter of the CONFIG command has a new keyword, NOCOPYRD. NOCOPYRD specifies that the background copy occurs only when a track is either changed on the source or target. This causes the original source track to be copied to the target. Additional updates to the same source track are not copied to the target. Reads of the source or target track does not cause the track to be copied.</p>
	<p>TimeFinder has two new site options, CONGROUP and CONGROUP_LDMF, that control TimeFinder interaction with EMC Consistency Groups (ConGroup) and z/OS Migrator. Although both parameters have the same parameter values, they allow you to set one value for TimeFinder-ConGroup operations and the other for operations when TimeFinder has been invoked by z/OS Migrator.</p>
	<p>The EMCCOPY datamover is not supported with Enginuity 5773 or higher. EMCCOPY is still supported for previous versions of Enginuity.</p>

Table 20 TimeFinder enhancements (page 5 of 11)

Release	Enhancements
	The CONTROLLER subparameter of the LOCAL and REMOTE parameters can now also be used as a separate, standalone parameter. In addition, CONTROLLER, both as standalone and as part of LOCAL and REMOTE, allows you to specify a controller by a predefined name. (The <i>EMC ResourcePak Base for z/OS Product Guide</i> provides more information about the controller naming facility.)
	Extent SNAP processing has been moved from the host application to Enginuity 5773. As a result, there are now two options available for extent SNAP processing: <ul style="list-style-type: none"> • Legacy Extent SNAP Toleration - This feature is available only for versions of TimeFinder prior to TimeFinder 5.8 and Enginuity 5773. With the legacy extent SNAP toleration, the same extent track implementation is used that is available in previous levels of Enginuity. The associated legacy extent track and its respective session and differential session types continues to be used for extent SNAP processing. • Internal Extent SNAP Exploitation - This feature is the desired method of operation if TimeFinder 5.8 and a Symmetrix system with Enginuity 5773 is being used. The new extent track requires the use of its respective session and differential session types for extent SNAP to proceed. There is a new option for the CLEANUP command, FORCE_COMPLETION(Yes), to explicitly remove the legacy extent track before implementation of the new Internal Extent track. The two formats of the extent track entries are mutually exclusive. You cannot use a previous version of TimeFinder in one LPAR and TimeFinder 5.8 exploiting the internal extent track in another LPAR and have the operations complete successfully.
	TimeFinder has a new SRDF/A R2 Wait for Precopy feature with SNAP VOLUME. SRDF/A R2 Wait for Precopy is intended to address a situation when too many protected tracks occur on an SRDF/A R2 device. To minimize any possible issues, TimeFinder now requires that you specify the following parameters to snap from an SRDF/A R2 device: <ul style="list-style-type: none"> • PRECOPY(YES) • MODE(COPY) • WAIT_FOR PRECOPY_PASS1(YES)
	TimeFinder includes performance enhancements in support for large numbers of devices.
	TimeFinder includes enhanced security for devices, groups, pools, and commands through the EMCSAFI Security Interface. This security is provided through the SYMDV# parameter and the XFACILIT resource class.
	TimeFinder operates with Symmetrix systems that are at Enginuity revision level 5773 as well as the prior levels defined in <i>EMC Mainframe Enablers. Installation and Customization Guide</i> and in the <i>EMC Mainframe Enablers Release Notes</i> .
	TimeFinder supports all currently supported versions of z/OS.
	TimeFinder includes the application of accumulated maintenance.
	The command QUERY SAVEDEV is now part of the ResourcePak Base product and is documented in the ResourcePak Base Product Guide.
5.7.0	TimeFinder operates with Symmetrix systems that are at Enginuity revision level 5772 as well as the prior levels defined in Chapter 2.
	TimeFinder supports all current versions of z/OS.
	TimeFinder has added support for RAID 6 protected devices.
	TF/Snap includes several name changes that affect syntax. The former save devices are now called snap pool devices and save device pools are now called snap device pools. The parameter, TYPE(SAVEDEV) used in the CONFIGPOOL commands, has become TYPE(SNAPPOOL). All parameter specifications that include the term SAVEDEV now use the term SNAPPOOL. The QUERY SAVEDEV command is now QUERY SNAPPOOL. For compatibility, SAVEDEV is still recognized by TF/Snap in specifications where it was used in TF/Clone Mainframe Snap Facility Release 5.6.

Table 20 TimeFinder enhancements (page 6 of 11)

Release	Enhancements
	<p>TF/Snap adds two new commands, CONFIGPOOL DRAIN and CONFIGPOOL UNDRAIN.</p> <ul style="list-style-type: none"> • CONFIGPOOL DRAIN drains tracks from active SNAPPOOL devices and assigns the tracks to other active devices in the pool. After all active tracks have been moved, the device status is INACTIVE. The devices can now be reassigned. • CONFIGPOOL UNDRAIN stops the process of draining the SNAPPOOL devices (that is, of moving the tracks from the specified devices to other devices in the pool). After all active tracks have been restored, the state of the specified device changes from DRAINING to ACTIVE.
	<p>TimeFinder adds four new or modified parameters:</p> <ul style="list-style-type: none"> • CcUU - available on QUERY VOLUME. Defines the devices to be queried by specifying the CcUU. • DEVICE - available on QUERY VOLUME. Defines the devices to be queried by specifying the internal Symmetrix device number. • EXTENT_ALLOCATION -- available on GLOBAL and SNAP DATASET. Has the options: CONSOLIDATE_VOLUME, to force extent allocation to consolidate the extents on each volume, and CONSOLIDATE_ALL, to force extent allocation to consolidate the extents across all volumes. • VDEVWAIT - available on GLOBAL and SNAP VOLUME. Defines what should be done when there are multiple TF/Snap operations on the same virtual device.
	<p>If you are using Enginuity 5772, TF/Snap allows you to issue resnaps before the previous snap is finished, while there are still protected and indirect tracks present.</p>
	<p>TimeFinder adds new versions of the EXTENT_ALLOCATION parameter of the GLOBAL and SNAP DATASET commands. The versions are EXTENT_ALLOC(YES,CONSOLIDATE_VOLUME) and EXTENT_ALLOC(YES,CONSOLIDATE_ALL). These parameter versions allow you to consolidate newly allocated dataset extents that do not need to have identical numbers of tracks and volumes in the source and target datasets.</p>
	<p>TimeFinder includes the application of accumulated maintenance.</p>
5.6.0	<p>TF/Clone supports snapping datasets from devices that are either offline or in a “dump conditioning” status. A single-SNAP DATASET command can reference catalog datasets or datasets on offline volumes, but not together.</p>
	<p>TF/Clone has added a new parameter, SMS_PASS_VOLUMES, to GLOBAL and SNAP DATASET statements. SMS_PASS_VOLUMES changes SMS processing so that you may supply volumes on the SNAP DATASET statement that are passed to SVC99 and IDCAMS, even though the dataset is an SMS-managed dataset. This allows the ACS routine to determine whether the supplied volumes are allowed or ignored.</p> <p>The default value of SMS_PASS_VOLUMES is NOT, which signifies that SNAP DATASET should operate the way it always has, ignoring any user-supplied volumes.</p> <p>This has no effect if the storage class is guaranteed space. With guaranteed space, SNAP DATASET always passes the user-supplied volume list.</p>
	<p>TF/Clone has added the LOGINDYNAM and SELECTMULTI parameters to the GLOBAL and SNAP DATASET commands. The purpose of LOGINDYNAM and SELECTMULTI is to allow you to perform additional dataset selection.</p> <p>The INDYNAM parameter, already supported for COPY FULL, is now honored for COPY DATASET as well. If INDYNAM is encountered, then the volume list is passed to the EMCSNAP API as LOGINDYNAM volumes and SELECTMULTI(ALL) is also specified.</p>

Table 20 TimeFinder enhancements (page 7 of 11)

Release	Enhancements
	<p>TF/Clone now allows you to define and name a group of SNAP VOLUME and GLOBAL commands. To do so, you use the GROUP commands, DEFINE GROUP, DELETE GROUP, QUERY GROUP, and END GROUP. When you define a group (with DEFINE GROUP), TimeFinder Clone performs simple syntax checking and then stores these named groups in a PDS or PDS/E file.</p> <p>After the groups are stored, the devices specified in the commands can be handled as a group with ACTIVATE, CLEANUP, CONFIG, SNAP VOLUME, and STOP SNAP TO VOLUME commands. In addition, SNAP VOLUME and ACTIVATE allow processing to be selectable by phases: PRESNAP, ACTIVATE, and POSTSNAP.</p> <p>To increase the functionality of snap groups, a new parameter, GROUP, has been added to the ACTIVATE, CLEANUP, CONFIG, SNAP VOLUME, and STOP SNAP TO VOLUME commands. The GROUP parameter allows multiple groups to be specified at the same time. Activating multiple groups together allows for consistent activation.</p>
	<p>TF/Clone The SNAP VOLUME and ACTIVATE statement now allow you to select processing by phases – allowing processing to be scheduled in a more appropriate fashion. the ACTIVATE and SNAP VOLUME commands allow two parameters to be specified in conjunction with group processing – PRESNAP and POSTSNAP.</p> <p>These allow SNAP VOLUME processing to be selectable by phase. As in the past, a simple SNAP VOLUME with no PRESNAP or POSTSNAP parameters perform all three phases together. Additionally, an ACTIVATE group with PRESNAP and POSTSNAP also perform all three phases together.</p>
	<p>TF/Clone implements z/OS Version 1.7 Large Sequential Dataset Support. This feature allows non-SMS sequential datasets to be larger than 65535 tracks per volume. Dataset is still limited to 16 extents.</p> <p>Additionally, TF/Clone supports VSAM Extent Constraint Relief. This new feature of z/OS allows VSAM datasets to have more than 255 total extents. There is still a limit of 123 extents on a single volume, but the new limit for total number of extents is 59*123 or 7257.</p>
	<p>TF/Clone uses a z/OS feature that allows VSAM dataset to have more than 255 total extents. There is still a limit of 123 extents on a single volume; but, the new limit for total number of extents is 7257.</p>
	<p>TF/Snap now allows you to refer to controller serial numbers with either five or 12 digits. (All messages have been enhanced to use 12 digits.)</p>
	<p>TF/Snap allows you to individually control and monitor snap device pools. TF/Snap also allows you to use multiple SNAP device pools. You can identify each pool with a name of up to 12 characters.</p>
	<p>TF/Consistency Group) has added a new Licensed Feature Code, CONSISTENT, to enable the TF/Consistency Group functionality. Previously, the TF/Consistency Group did not require a separate Licensed Feature Code.</p>
	<p>TimeFinder has added two new parameters. One, the RAID parameter tailors the output by device RAID type (RAID S, RAID 1, RAID 5, RAID 10, ALL or NONE). The other, SIZE, tailors the output by the device size. The RAID parameter is available on the GLOBAL and QUERY VOLUME. The SIZE parameter is only available on the QUERY VOLUME.</p>
	<p>TimeFinder has added two new parameters. One, the RAID parameter tailors the output by device RAID type (RAID S, RAID 1, RAID 5, RAID 10, ALL or NONE). The other, SIZE, tailors the output by the device size. The RAID parameter is available on the GLOBAL and QUERY VOLUME. The SIZE parameter is only available on the QUERY VOLUME.</p>
	<p>TimeFinder has added two new parameters, SRDFA_R1_TARGET and SRDFS_R1_TARGET, to the GLOBAL, SNAP DATASET and SNAP VOLUME commands. These parameters provide you with a better ability to control data flow to an R1 device, and eventually to the corresponding R2 devices. The two parameters each have the same subparameters.</p>
	<p>TimeFinder has enhanced the CLEANUP, CONFIG, SNAP VOLUME, and STOP SNAP TO VOLUME commands to allow you to specify a range of devices. You can specify ranges through the UNIT and SYMDV# device parameters; however, you cannot use volser masking.</p>

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Release	Enhancements
	TimeFinder has added parameter to the QUERY VOLUME (and GLOBAL) commands that allow some tailoring of the resulting device list. CKD, FBA, SNAPPPOOL, VDEV, READY and non-READY devices may be included or excluded from the list. In addition, a new argument (DETAIL/NODETAIL) of the SESSION_LIST parameter allows for additional session information to be provided. By default, all devices are included and the session default information is not provided.
5.5.0	Precopy
	Extent Level Resnap
	Save Pool partition enhancements
	Consistent snap from an SRDF/A secondary device is now supported.
	Remote Full Device Snap
5.4.0	TimeFinder has been removed from TimeFinder and is now shipped as a separate product.
	Multitasking support can be used to overlap similar operations. Multiple requests may be dispatched simultaneously. Wildcarded SNAP DATASET requests may also be dispatched simultaneously.
	Persistent Restore option added. This RESTORE command option allows a VDEV to be restored to a standard device and allows the VDEV to continue to be used. Persistent restores do not require terminating all the other VDEV sessions.
	The AUTOMATIC_RELEASE_HOLD parameter may be used with SNAP VOLUME so that SCF can monitor the progress of the snap and automatically release the hold on the target volume after the background snap is complete.
	The CONTROLLER parameter for the QUERY SNAPPPOOL and QUERY VDEV commands can now accept 7+5 serial numbers (1234567-54321) in addition to the original five (5) digits.
	The AUTOMATIC_DEALLOC parameter for the GLOBAL and SNAP VOLUME commands determines whether TimeFinder can automatically issue an S DEALLOC command to the operating system when a DEVICE ONLINE or VARY OFFLINE appears to be hung.
	The AUTOMATIC_RELEASE_HOLD parameter for the GLOBAL and SNAP VOLUME command determines whether a BCV HOLD can be automatically released when the background snap of a volume is complete.
	The EXCLUDE_PATHGROUPID parameter for the GLOBAL, SNAP VOLUME, and RESTORE VOLUME commands allows users to specify that certain LPARs or systems be ignored when SNAP VOLUME and RESTORE VOLUME check to determine that a target volume is not online to any LPAR or system.
	The MAXIMUM_ADRSSU_ADDRESS_SPACES parameter of the GLOBAL command determines the limit of address spaces that ADRSSU spawns when used as a datamover.
	The MAXIMUM_SUBTASKS parameter of the GLOBAL command establishes the maximum number of subtasks that can be attached and used.
5.3.0	Virtual Device Snapshot support captures a point-in-time view of the source volume without duplicating the space requirement for each copy. Virtual devices support both CKD and FBA devices.
	MODECOPYFINISH GLOBAL parameter added to resolve outstanding <i>indirected</i> tracks for the snap operations in the job stream. Useful for concluding MODE(NOCOPY) requests. Applies to both SNAP DATASET and SNAP VOLUME.

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Release	Enhancements
	DIFFERENTIAL option. This option is only available for full device snaps. Results in copying tracks that have changed since the previous differential on the source and replacing tracks that have also changed on the target. The resulting state of the target after each Differential Snap is an identical copy of the source at the time of the Differential Snap.
	CONSISTENT option of ACTIVATE. This option is only available for full device and Virtual Device Snaps. This functionality allows users to snap multiple source devices in a consistent fashion using the Engenuity Consistency Assist feature. The source and target device pairs must reside in the same Symmetrix system.
	ACTIVATE Command. This command determines when the preceding SNAP VOLUME actions are to take place. The command optionally specifies whether the SNAP VOLUME actions are to be performed using Engenuity Consistency Assist (ECA) to form a consistent point-in-time volume SNAPS. ACTIVATE applies to SNAP VOLUME commands preceding it in the input stream, but after any previous ACTIVATE command. The SNAP VOLUME may use either physical target volumes or virtual devices, or can consist of mixed target references.
	CONFIG Command. The CONFIG command specifies HOLD, RELEASE, NR and READY conditions for BCV devices. This command also performs a RELEASE for STD devices starting with Engenuity level 5x66 and higher.
	Addition of QUERY command for snap operations, including virtual and SNAP device information.
5.2.0	DFDSS front end: This feature is implemented using a new program called EMCDSU. Replacing ADRDSSU with EMCDSU in their job stream provides customers with TimeFinder support for DFSMSdss COPY commands. If the involved volumes/datasets are on a single Symmetrix system, TimeFinder is used to create the copy. If the involved volumes/datasets are not on a single Symmetrix system, DFSMSdss completes the requested operation.
	TimeFinder now honors additional IBM Systems Managed Storage volume states DISNEW and QUINEW.
	Logical copy operations of IMBED, KEYRANGE and REPLICATE datasets are now supported with DATAMOVER(DFDSS).
	IBM 2105 is recognized and FLASHCOPY is automatically invoked as a datamover if appropriate.
	When running under VM, the devices are checked to ensure that they are dedicated.
	EXCLUDE may now be a list - up to 127 names or masks may be specified.
	RENAMEUNCONDITIONAL has been expanded to allow up to 127 names or masks.
	SPHERE(YES) may now be used with <i>wildcarded</i> sources and targets.
	The restriction on Key Range VSAM datasets is removed.
5.1.0	NOTIFY when complete is added to TimeFinder. This provides asynchronous notification of completed snap operations. It is valid on the three action statements: GLOBAL, SNAP DATASET, and SNAP VOLUME. The parameter is active only when using EMCSF V5.1.0, which is delivered as a component of ResourcePak Base Version 1.1.0.
	TimeFinder has been enhanced with optional BACKGROUNDCOPY (Yes No).
	Volume count propagated to target from SMS Data Class.
	A REXX exec has been added, which allows Dataset Snap from the standard ISPF Dataset List Utility (3.4) panel.
5.0.0	The candidate volume count is now propagated by TimeFinder.
	The STOP SNAP command has been added to end in-progress snaps.

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Release	Enhancements
4.1.0	Additional dataset support for multivolume sequential datasets with Stripe count=1.
	Enhanced support for VSAM clusters: <ul style="list-style-type: none"> • SYSVSAM ENQ support: Ensures that no other application is currently accessing the VSAM cluster in update mode. VSAM Open (for update) Indicator Support: Issues warning message if the VSAM Cluster is currently open in update mode, or was open in update mode and not properly closed.
	Integrated support for IBM RVA devices: If the source devices and target devices are within an IBM RVA, TimeFinder automatically utilizes the IBM SNAPSHOT API to copy the involved tracks from the source to the target.
	Support for Extent Allocation: A new parameter is added to the GLOBAL and SNAP DATASET syntax: EXTENT_ALLOCATION(Yes/No). This may be used to force the use of the new allocation method. Some dataset types always use extent allocation. All dataset types are supported by this method.
4.0.0	SMS Volume Selection and Tailoring.
	Additional dataset support: <ul style="list-style-type: none"> • VSAM multivolume target dataset support. • GDG base along with GDG elements. • Alternate Indexes. • VSAM clusters may be processed as a sphere, causing all related paths and alternate indexes to be snapped with the base cluster. Extended format VSAM datasets.
	Support for preallocated source datasets, referenced by ddname. <u>Note:</u> This support can be used to support relative GDG datasets.
	Support for preallocated target datasets, referenced by ddname. <u>Note:</u> This support can be used to support relative GDG datasets.
	Support for allowing existing datasets to be reused.
	SMS data, management and storage classes may be copied from the source dataset when allocating the target dataset.
	DFDSS, EMCCOPY and FDRDSF may be used as datamovers.
	TimeFinder now supports z/OS guest systems running in a VM environment.
	"%" is allowed as a wildcard character in dataset name masks - such as SOURCE, TARGET, EXCLUDE and RENAMEUNCONDITIONAL.
	A call may automatically be made to ICKDSF to perform a REFVTOC on a snap to a target volume that is larger than the source volume.
	Migrated source datasets may now be automatically recalled.
	Migrated target datasets may now be automatically purged.
	A user exit point is now provided that is called prior to issuing a VARY ONLINE or VARY OFFLINE command. JES3 shops may supply an exit to perform the JES3 volume manipulation.
	The GLOBAL command syntax now allows many of the parameters to be specified.
	The SNAP DATASET command syntax allows: CATALOG, COPYSOURCESMSCLASSES, DATAMOVERRIDE, INDDname, MIGRATE, OUTDDname, RELATE, RENAMEUNCONDITIONAL, REUSE and SPHERE.

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Release	Enhancements
	The SNAP VOLUME command syntax allows: INDDname, OUTDDname, REFVTOC and UNIT.
	A summary report now appears at the end of the log file.
3.3.0	Striped dataset support.
	CLEANUP command added.
	WAITFORCOMPLETION parameter added.
	Exclude parameter added to SNAP DATASET command.
	Wildcard requests allow for unsupported datasets to be ignored.

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