StorageTek Storage Management Component (MVS Implementation)

Configuration and Administration Guide

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SMC 6.2 (MVS) Configuration and Administration Guide

E20864-01

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Contents

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Preface

This publication provides configuration and administration information for Oracle's StorageTek Storage Management Component (SMC) software. It is intended for storage administrators, system programmers and operators responsible for configuring and maintaining SMC.

Related Documentation

Oracle's StorageTek Nearline Control Solution (NCS)

- *NCS Installation Guide*
- *NCS User Exit Guide*
- *NCS/VTCS XML Guide*

Oracle's StorageTek Host Software Component (HSC)

- *HSC Configuration Guide*
- *HSC Operator's Guide*
- *HSC System Programmer's Guide*
- *HSC Messages and Codes Guide*

Oracle's StorageTek MVS Client System Component (MVS/CSC)

- *MVS/CSC Configuration Guide*
- *MVS/CSC Operator's Guide*
- *MVS/CSC System Programmer's Guide*
- *MVS/CSC Messages and Codes Guide*

Oracle's StorageTek Virtual Tape Control System (VTCS)

- *Beyond the Basics - VTCS Leading Edge Techniques*
- *Installing and Configuring VTCS*
- *Introducing VTCS*
- *Managing VTCS*
- *VTCS Messages and Codes Guide*
- *VTCS Command and Utility Reference*

IBM JES3

- *MVS/ESA JES3 Initialization and Tuning Reference*
- *OS/390 JES3 Initialization and Tuning Reference*

Documentation, Support, and Training

Function	URL
Oracle Home	http://oracle.com
Documentation	http://oracle.com/technetwork/indexes/documentation/index.html
Support	http://www.oracle.com/us/support/044752.html
Training	http://www.oracle.com/global/us/education/sun_select_country.html

Additional Information

Conventions for Reader Usability

Typographic

Some JCL examples in this guide include *italic* type. Italic type is used to indicate a variable. You must substitute an actual value for these variables.

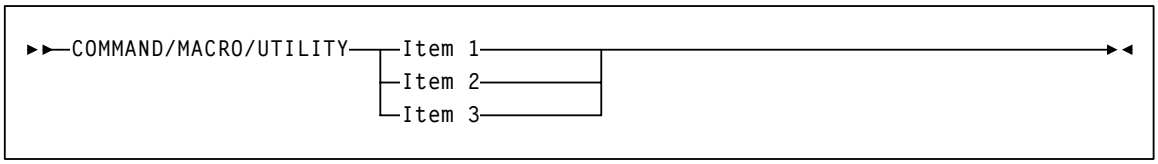
The use of mixed upper and lower case characters for commands, control statements, and parameters indicates that lower case letters may be omitted to form abbreviations. For example, you may simply enter POL when executing the POLicy command.

Syntax Flow Diagrams

Syntax flow diagramming conventions include the following:

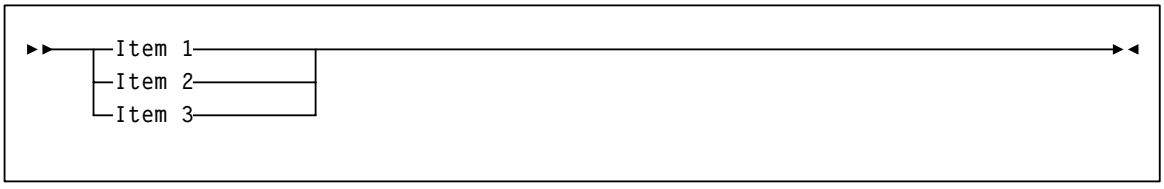
Flow Lines

Syntax diagrams consist of a horizontal base line, horizontal and vertical branch lines, and the text for a command, control statement, macro, or utility. Diagrams are read left to right, and top to bottom. Arrows indicate flow and direction.



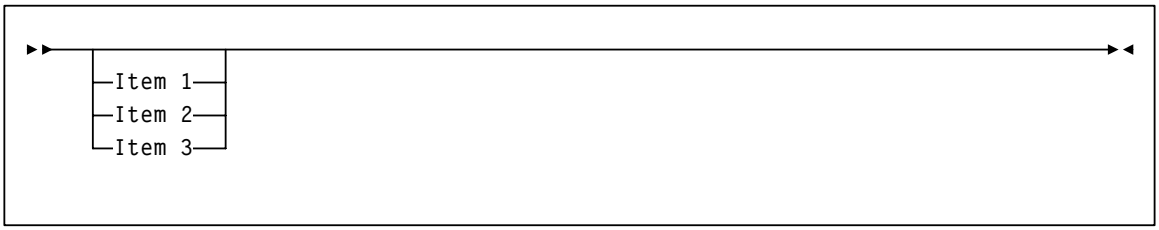
Single Required Choice

Branch lines (without repeat arrows) indicate that a single choice must be made. If one of the items to choose from is positioned on the baseline of the diagram, one item must be selected.



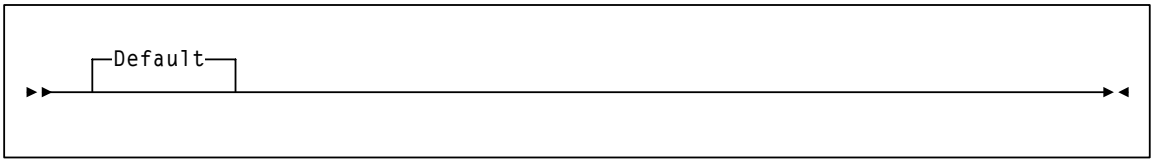
Single Optional Choice

If the first item is positioned on the line below the baseline, one item may be optionally selected.

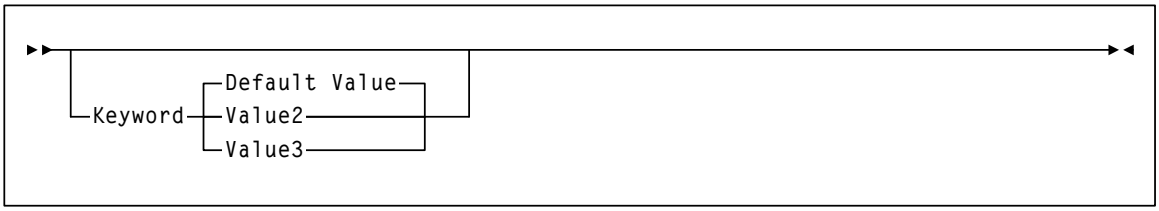


Defaults

Default values and parameters appear above the baseline.



Some keyword parameters provide a choice of values in a stack. When the stack contains a default value, the keyword and the value choices are placed below the base line to indicate that they are optional, and the default value appears above the keyword line.



Repeat Symbol

A repeat symbol indicates that more than one choice can be made or that a single choice can be made more than once. The following example indicates that a comma is required as the repeat delimiter.

Keywords

All command keywords are shown in all upper case or in mixed case. When commands are not case sensitive, mixed case implies that the lowercase letters may be omitted to form an abbreviation.

Variables

Italic type is used to indicate a variable.

Alternatives

A bar (|) is used to separate alternative parameter values.

Optional

Brackets [ ] are used to indicate that a command parameter is optional.

Delimiters

If a comma (,), a semicolon (;), or other delimiter is shown with an element of the syntax diagram, it must be entered as part of the statement.

Ranges

An inclusive range is indicated by a pair of elements of the same length and data type, joined by a dash. The first element must be strictly less than the second element.

A hexadecimal range consists of a pair of hexadecimal numbers (for example, 0A2-0AD, or 000-0FC).

A decimal range consists of a pair of decimal numbers (i.e., 1-9, or 010-094). Leading zeros are not required. The decimal portion is referred to as an incremental range. The character positions of the incremental portion of both range elements must match, and the non incremental characters of the first element must be identical to those of the second element.

A numeric VOLSER range (*vol-range*) consists of a pair of VOLSER elements containing a decimal numeric portion of 1 to 6 digits (for example, ABC012-ABC025, or X123CB-X277CB). The decimal portion is referred to as an incremental range. The following additional restrictions apply:

- The character positions of the incremental portion of both range elements must match.
- The non incremental characters of the first element must be identical to those of the second element.
- You cannot increment two portions of a range element. If 111AAA is the first element, you cannot specify 112AAB for the second element.

- If a VOLSER range contains more than one decimal portion, any portion is valid as the incremental range. For example:

A00B00	the largest range that can be specified is A00B00 through A99B99.
A0B0CC	the largest range that can be specified is A0B0CC through A9B9CC.
000XXX	the largest range that can be specified is 000XXX through 999XXX.

An alphabetic VOLSER range (*vol-range*) consists of a pair of VOLSER elements containing an incremental portion of 1 to 6 characters (for example, 000AAA-000ZZZ, or 9AAA55-9ZZZ55). This portion is referred to as an incremental range. The following additional restrictions apply:

- The character positions of the incremental portion of both range elements must match.
- The non incremental characters of the first element must be identical to those of the second element.
- You cannot increment two portions of a range element. If 111AAA is the first element, you cannot specify 112AAB for the second element.
- The alphabetic portion of the VOLSER range is defined as being from character A to Z. To increment multi-character sequences, each character increments to Z. For instance, ACZ is part of the AAA-AMM range. Examples are:

A00A0-A99A0	increments VOLSERs A00A0 through A09A0, then A10A0 through A99A0.
9AA9A-9ZZ9A	increments VOLSERs 9AA9A through 9AZ9A, then 9BA9A through 9ZZ9A.
111AAA-111ZZZ	increments VOLSERs 111AAA through 111AAZ, then 111ABA through 111ZZZ
999AM8-999CM8	increments VOLSERs 999AM8 through 999AZ8, then 999BA8 through 999CM8
A3BZZ9-A3CDE9	increments VOLSERs A3BZZ9 through A3CAA9, then A3CAB9 through A3CDE9
AAAAAA-AAACCC	increments VOLSERs AAAAAA through AAAAAZ, then AAAABA through AAACCC
CCCNNN-DDDNNN	increments VOLSERs CCCNNN through CCCNNZ, then CCCNOA through DDDNNN *

* **Caution:** This is a very large range.

The number of volumes in an alphabetic VOLSER range depends on the number of elements in the incrementing portion of the VOLSER range. For an A to Z range in each character position, the number of volumes can be calculated by 26 to the power of the number of positions that are being incremented.

A-Z	26^1	26
AA-ZZ	26^2	676
AAA-ZZZ	26^3	17,576
AAAA-ZZZZ	26^4	456,976
AAAAA-ZZZZZ	26^5	11,881,376
AAAAAA-ZZZZZZ	26^6	308,915,776

Lists

A list consists of one or more elements. If more than one element is specified, the elements must be separated by a comma or a blank space, and the entire list must be enclosed in parentheses.

Blanks

Keyword parameters and values may be separated by any number of blanks.

Control Statements

The standard syntax conventions for control statements are as follows:

- The only valid control statement information area is from column 1 to column 72. Columns 73-80 are ignored.
- Parameters may be separated by one or more blanks or a comma.
- A value is associated with a parameter by an equal (=) sign or by enclosing the value in parentheses, and concatenating it immediately after the parameter.
- Case (upper or lower) is ignored in actual control statements.
- Continuations are supported by including a plus (+) sign at the end of the line to be continued. A control statement is terminated if the statement is not continued.
- /* and */ can be used to enclose comments in the job stream. Comments can be continued over multiple lines, but cannot be nested.

  PARMLIB members **must** include a /*...*/ comment as the **first** control statement. Otherwise, the old format is assumed. Comments in the old format must begin with an asterisk (*) in column 1.

  For definition data sets (e.g., VOLATTRs, UNITATTRs and TAPEREQs), comments **must** be in the new format (/*...*/).

  - Asterisk (*) comments are **not** allowed.
  - A /*...*/ comment in the first line is **not** required.
- The maximum length for a control statement is 1024 characters.

What's New?

This publication includes information about the following ELS enhancements:

Revision 01

Enhancement	Primary Location
Support for Oracle's StorageTek T10000C tape drive	Appendix B, "MEDia, RECtech, and MODel Values" "POLicy Command" on page 170 "TAPEREQ (Tape Request) Control Statement" on page 200 "UNITAttr Command" on page 227

Revision D

This revision contains minor technical updates and corrections.

Revision C

Enhancement	Primary Location
Support for Oracle's StorageTek T10000B tape drive (SMC 6.1 and later)	Appendix B, "MEDia, RECtech, and MODel Values" "POLicy Command" on page 170 "TAPEREQ (Tape Request) Control Statement" on page 200 "UNITAttr Command" on page 227

Revision B

Enhancement	Primary Location
The client communication monitor subtask feature provides periodic validation of active communication paths for all non-disabled TapePlexes. This feature is enabled using the **MONitor** parameter on the TCPip command.	"Client Communication Monitor Subtask" on page 39 "TCPip Command" on page 212
The automatic primary server switching feature directs Cz/OS to automatically switch from an active secondary server to the primary server when the primary server becomes available. This feature is enabled using the **PREFprimary** parameter on the TCPip MONitor command.	"Automatic Primary Server Switching" on page 39 "TCPip Command" on page 212
The SMSDef command includes a new TEMPdsn parameter that allows you to retrieve the MGMTCLAS for a temporary data set. &LIBNAME is added to the list of read-only variables passed by SMC to DFSMS when the information is available to the SMC.	"SMSDef Command" on page 189 "SMC Esoteric Substitution at IDAX" on page 74 "DFSMS Automatic Class Selection (ACS) Routine Environment for SMC" on page 78
Support for Oracle's StorageTek T9840D tape drive (SMC 6.1 and later)	Appendix B, "MEDia, RECtech, and MODel Values" "POLicy Command" on page 170 "TAPEREQ (Tape Request) Control Statement" on page 200 "UNITAttr Command" on page 227

Enhancement	Primary Location
Support for Oracle's StorageTek T10000 tape drive (SMC 6.1 and later)	Appendix B, "MEDia, RECtech, and MODel Values" "POLicy Command" on page 170 "TAPEREQ (Tape Request) Control Statement" on page 200 "UNITAttr Command" on page 227

Revision A

Enhancement	Primary Location
The new SMC POLicy command, in conjunction with the TAPEREQ control statement or the SMC DFSMS interface, provides an improved method for tape policy management.	"POLicy Command" on page 170
The new SMC TAPEPlex command **replaces** the SMC LIBrary command. Additionally, the TAPEPlex parameter **replaces** the LIBrary parameter for the SMC SERVer and UNITAttr commands. **Note:** Existing LIBrary commands are supported for compatibility with SMC 6.1. A TapePlex (formerly "library") is a single StorageTek hardware configuration, normally represented by a single HSC Control Data Set (CDS). A TapePlex may contain multiple Automated Cartridge Systems (ACSs) and Virtual Tape Storage Subsystems (VTSSs). The TAPEPlex command includes a STATus parameter, used to list the current status of all TapePlexes or a specific named TapePlex.	"TAPEPlex Command" on page 195
The new SMC COMMtest command is used to perform an end-to-end communication test between SMC and defined TapePlexes.	"COMMtest Command" on page 142
The new SMC Display DRive command allows SMC to list drive attributes and TapePlex ownership.	"Display DRive Command" on page 145
The new SMC Display Volume command allows SMC to list volume attributes and TapePlex ownership.	"Display Volume Command" on page 148
The new SMC IDAX command is used to control SMC behavior during IDAX (MVS Interpreter/Dynamic Allocation Exit) processing. The SEQuence parameter allows you to control whether SMC DFSMS routines are processed before or after IBM DFSMS. The VTVMAXvol parameter, previously part of the ALLOCDef command, is now an IDAX command parameter.	"IDAX Command" on page 152
The new SMC Route command allows SMC to route HSC Unified User Interface (UUI) commands and VTCS commands to an HSC TapePlex. ■ HSC and VTCS load libraries (SOSLINK and SWSLINK) must be included in the STEPLIB concatenation of the SMC START procedure to support the ability to route HSC and VTCS commands from the SMC to an HSC TapePlex on the same host. ■ HSC and VTCS load libraries (SOSLINK and SWSLINK) must be included in the HTTP Server START procedure to support the ability to route HSC and VTCS commands from a remote SMC to a local HSC TapePlex.	"Route Command" on page 182 "Creating the SMC START Procedure" on page 62 "Creating the HTTP Server START Procedure" on page 336
The SMC ALLOCJob command no longer supports the SMS parameter. If necessary, code your DFSMS ACS routines to select jobnames.	"ALLOCJob Command" on page 136

Enhancement	Primary Location
The SMC MSGDef command includes a new VERBose parameter, used to produce additional update messages during SMC command processing.	"MSGDef Command" on page 164
The POLicy command includes IDAXSUBSYS and IDAXPROGRAM parameters, used to direct an allocation to use Oracle's StorageTek ExHPDM (Extended High-Performance Data Mover).	"POLicy Command" on page 170
The SMC Read command includes the new VOLume and UNIT parameters, used to specify data set location using volume serial number or unit name.	"READ Command" on page 178
The SMC SERVer command includes a new INITFail parameter, used to specify the maximum number of failures (before successful communication is established) allowed before the server path is disabled or placed out of service.	"SERVer Command" on page 184
The SMC SMSDef command includes a new MGMTPol parameter, used to specify whether the management class returned from a DFSMS ACS routine may represent an SMC policy.	"SMSDef Command" on page 189
The SMC TAPEREQ control statement includes two new parameters: ■ POLicy parameter, used to specify the name of a policy defined on an SMC POLicy command. ■ VOLSer parameter, used to specify a specific volume id.	"TAPEREQ (Tape Request) Control Statement" on page 200
The SMC TCPip command includes a new PORTrange parameter used to specify a range of ports used by the SMC to bind() sockets on the client when communicating on remote server paths. A default TCPip PORTrange of 6001-6040 is automatically defined at startup.	"TCPip Command" on page 212
The SMC TRace command includes a new POLicy parameter, used to enable tracing of selected SMC policy name and selection criteria to the job log of the jobname specified in the TRAce command for allocation and mount policies.	"TRace Command" on page 217
The SMC UNITAttr command includes a new TAPEPlex parameter, used to specify the name of a TapePlex to be associated with the drive before communication is established.	"UNITAttr Command" on page 227
The ZEROscr parameter for the SMC ALLOCDef command allows you to specify the allocation action when there are no scratch volumes in any TapePlex, or in one or more ACSs within a TapePlex in a multiple ACS environment.	"ALLOCDef Command" on page 129
SMC commands are now echoed to the log, along with the user ID associated with the command, for audit trail purposes.	Chapter 7, "Commands and Control Statements" on page 125
The new POLicy and TAPEREQ Batch Test utility (SMCUTRQ) allows you to test POLicy and TAPEREQ lookup for a specified set of criteria.	"POLicy and TAPEREQ Batch Test Utility (SMCUTRQ)" on page 258

Enhancement	Primary Location
The new SMC Unified User Interface utility (SMCUUUI) allows you to issue SMC and HSC UUI commands as well as VTCS requests, from a batch job.	"SMCUUUI Utility" on page 253 "UUI Return Codes" on page 329
The SMC TAPEPlex command includes a new STATus parameter, used to list the current status of all TapePlexes or a specific named TapePlex.	"TAPEPlex Command" on page 195
The POLCVT02 REXX script (included in the SMC SAMPLIB) converts existing TAPEREQ statements to use the new SMC POLicy command.	Appendix C, "TAPEREQ Conversion Script (POLCVT02)" on page 367
JES2 and JES3 specific volume request drive exclusion criteria for allocation level 1 is expanded to include the exclusion of virtual drives when a specific virtual volume has been specified as nonlabeled.	"Drive Exclusion - Specific Volumes" on page 94
Message changes, additions and deletions.	Chapter 10, "Messages" on page 263 "StorageTek HTTP Server Messages" on page 341

CHAPTER 1

Introduction

SMC, the Storage Management Component, is the interface between IBM's OS/390 and z/OS operating systems and StorageTek NCS automated library control systems, HSC and MVS/CSC. SMC resides on every MVS host that accesses StorageTek real and virtual tape hardware. It operates on both JES2 and JES3 systems and is a required NCS component. SMC's primary functions are:

- Influencing tape allocation according to hardware requirements and customer policies to ensure that appropriate tape drives are selected
- Intercepting tape management, and operating system mount, dismount, and swap messages and translating them in order to request the required tape hardware functions from the appropriate NCS automated library control system
- Coordinating requests among multiple StorageTek ***TapePlexes***

A ***TapePlex*** (formerly "library"), is a single StorageTek hardware configuration, normally represented by a single HSC Control Data Set (CDS). A TapePlex may contain multiple Automated Cartridge Systems (ACSs) and Virtual Tape Storage Subsystems (VTSSs).

SMC may communicate with any number of TapePlexes, using cross address space facilities to communicate with HSC or MVS/CSC running on the same host, and TCP/IP to communicate with HSC systems executing on other hosts.

Note – For the purposes of this publication, **HSC** refers to the **MVS** implementation of the StorageTek Host Software Component. The VM implementation of HSC is not supported by SMC.

CHAPTER 2

SMC and StorageTek TapePlex Management

Overview

This chapter describes sample SMC configuration scenarios and provides an introduction to the SMC TAPEPlex and SERVer commands as well as the StorageTek HTTP Server for OS/390 and z/OS.

The SMC provides the interface between IBM's OS/390 and z/OS operating systems and StorageTek NCS library control systems, HSC and MVS/CSC. These library control systems can operate in several ways:

- HSC can operate on the same local MVS host as the SMC.
- HSC can operate on a remote MVS host.
- MVS/CSC can operate on the same local MVS host as the SMC.
- A combination of local and remote library control systems can be used.

In a simple configuration, with SMC residing on the same MVS host as HSC and/or one or more MVS/CSC systems each accessing a different TapePlex, the SMC may automatically detect the library control system(s) using MVS interface facilities. However, it is recommended that you use the SMC TAPEPlex command to define the local TapePlexes.

In a more complex configuration, where you wish to define remote HSC systems or enable simple server switching by defining multiple server paths to one or more TapePlexes, you must use the SMC TAPEPlex and SERVer operator commands in addition to the StorageTek HTTP Server for OS/390 and z/OS.

Note – Support for MVS/CSC communication with LibraryStation will end in the next product release. It is recommended that you convert existing MVS/CSC systems to use SMC and the StorageTek HTTP server.

Security Administration Considerations for Communication

All users at OS/390 V2R5 and above who wish for the SMC to communicate with a remote HSC subsystem **must** define an OMVS segment in RACF for the userid associated with the SMC. If this is not done, an OS/390 UNIX process initialization failure occurs. To define the OMVS segment, refer to the IBM document *OS/390 IBM Communications Server IP Migration Guide*.

If you are running a functionally equivalent security product (e.g., ACF2), refer to the documentation for that product.

SMC TAPEPlex and SERVer Commands

In a configuration including both local and remote TapePlexes, you must use the SMC TAPEPlex command to define all TapePlexes to SMC. Additionally, because a remote TapePlex can be shared by multiple instances of HSC running on different remote hosts, you must use the SMC SERVer command to define the path to each remote host. See Chapter 7, "Commands and Control Statements"for more information about these commands.

Primary and Secondary Servers

The SMC SERVer command defines a named path to a remote library server. The first server defined is considered to be the primary server. Additional servers defined are secondary servers. If a communication error occurs on the primary server during allocation or mount processing, SMC automatically switches communication to the next available secondary server. If a communication error occurs on the secondary server, the SMC automatically switches to the next available secondary server.

Client Communication Monitor Subtask

This feature directs SMC to periodically validate whether an active communication path is available for all non-disabled TapePlexes. It does not require SMC to process an allocation or mount event. Validation automatically occurs at a specified monitor scan interval. This interval is specified using the MONitor parameter on the TCPip command.

By default, the communication monitor subtask is automatically enabled at SMC startup. To disable this feature, issue the following SMC command:

```
TCPIP MONITOR(OFF)
```

One communication monitor subtask services all TapePlexes defined to SMC and the TCPip MONitor and PREFprimary parameters apply to all non-disabled TapePlexes.

If an active communication path is not available for a TapePlex, the monitor subtask attempts to communicate with each defined communication path beginning with the local path (if available) followed by the primary server path and each secondary server path in turn. If the monitor subtask re-establishes communication with the TapePlex, all pending mounts are automatically redriven.

Note –

- The communication monitor subtask eliminates the need to specify the FAIL or INITFAIL parameters on the SERVer command. If specified, these parameters are ignored.
- The communication monitor subtask does not attempt to re-establish communication with disabled server paths.
- See Chapter 7, "Commands and Control Statements" for more information about the SMC TCPip and SERVer commands.

Automatic Primary Server Switching

By default, the communication monitor subtask automatically switches back to the primary server when it becomes available.

Automatic primary server switching is controlled by the PREFprimary parameter on the TCPip command. To disable this feature, issue the following command:

```
TCPIP PREFprimary(OFF)
```

Note – See "TCPip Command" on page 212 for more information about the SMC TCPip command.

The StorageTek HTTP Server for OS/390 and z/OS

The StorageTek HTTP Server for OS/390 and z/OS provides the middleware to allow communication between the SMC (client) and a remote HSC subsystem (server). The HTTP server executes as a separate subsystem on the MVS host where the remote HSC subsystem resides. The HTTP Server is **not** required on a host where only the SMC is executing.

Note –

- See Chapter 12, "Using the StorageTek HTTP Server" for more information about the StorageTek HTTP server.
- Refer to the *NCS Installation Guide* for information about installing the StorageTek HTTP server.
- The StorageTek HTTP server is also included with the Virtual Storage Manager (VSM) GUI product. However, for performance and security reasons, it is recommended that you do not use the same instance of the HTTP server for both SMC server programs and VSM GUI programs. To execute multiple HTTP server subsystems on a single host, they must each listen on a unique PORT number.

Allocation and Multiple StorageTek TapePlexes

If your configuration includes multiple StorageTek TapePlexes (as illustrated in Scenarios 5 and 6 in this chapter), SMC directs the allocation of each DD to the appropriate TapePlex based on TAPEREQ statements, POLicy commands, user exits, specific volume locations, and scratch subpools.

SMC Configuration Scenarios

This section provides several scenarios for SMC in local, remote, and multiple TapePlex configurations.

Scenario 1: SMC and a Single HSC TapePlex (Local)

In this scenario, the SMC and HSC execute on the same MVS host:

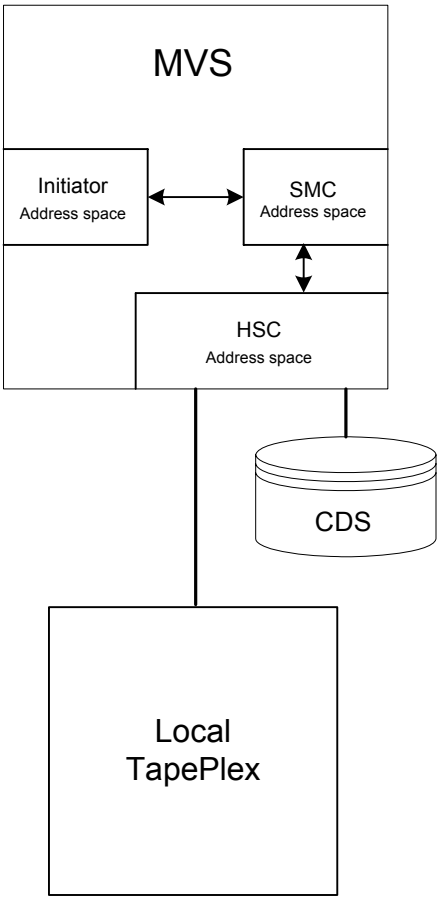


FIGURE 2-1 SMC and a Single HSC TapePlex (Local)

This configuration utilizes three address spaces:

- Initiator Address Space, from which allocation and mount events originate
- SMC Address Space, which intercepts those events
- HSC Address Space, to which SMC sends requests for drive and volume data, and mount requests

It is recommended that you issue TAPEPlex commands to define the local TapePlexes. For example, the following TAPEPlex command is used to define the local HSC TapePlex:

```
TAPEPLEX NAME(PLEX1) LOCSUBSYS(HSC)
```

where PLEX1 is the desired name of the local TapePlex, and HSC is the local MVS subsystem name for the HSC.

If your configuration includes an MVS/CSC executing on the same host, a second TAPEPlex command is needed to define the CSC TapePlex. For example:

```
TAPEPLEX NAME(PLEX2) LOCSUBSYS(CSC)
```

It is recommended that you use the TAPEPlex command to define the TapePlexes, even in a local-only configuration. However, if no TAPEPlex commands are entered, the SMC automatically detects the local HSC TapePlex (and any MVS/CSC TapePlexes) by scanning the MVS Subsystem Communication Vector Table (SSCVT) chain.

Note – When the SMC receives a TAPEPlex command, automatic TapePlex detection using the MVS SSCVT chain is disabled and only TapePlexes identified with TAPEPlex commands are known to the SMC.

Scenario 2: SMC and a Single HSC TapePlex (Remote)

In this scenario, the SMC communicates with a single HSC on a remote MVS host:

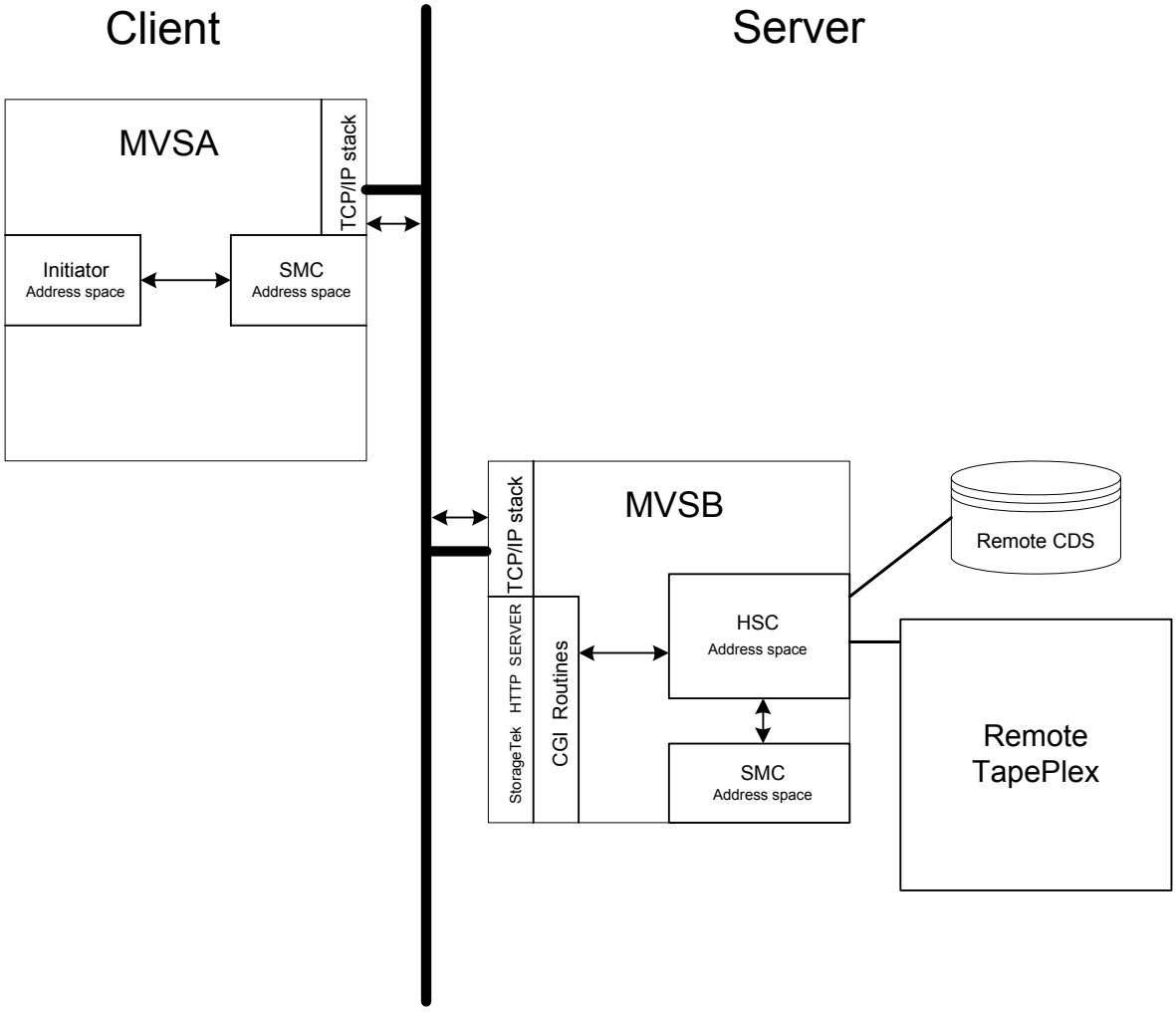


FIGURE 2-2 SMC and a Single HSC TapePlex (Remote)

In this scenario, the SMC acts as a client and the HSC acts as a server.

The SMC Address Space intercepts allocation and mount requests from an Initiator Address Space on MVSA and sends the requests through the TCP/IP stack to the designated StorageTek HTTP server on a remote host (MVSB). The HTTP server on MVSB executes the SMC CGI routine, which routes the request to the HSC executing on MVSB using OS/390 and z/OS facilities for cross address space communication.

Any configuration that includes a remote TapePlex requires the StorageTek HTTP server along with TAPEPlex and SERVer commands. The following example illustrates the TAPEPlex and SERVer commands for the SMC on MVSA:

```
TAPEPLEX NAME(PLEX1)
SERVER NAME(REMPATH) TAPEPLEX(PLEX1) HOST(MVSB)
```

Only the local TapePlex is defined on MVSB:

```
TAPEPLEX NAME(PLEX1) LOCSUB(HSCB)
```

Note – See "Client/Server Drive Address Mapping" on page 53 for additional requirements if different drive addresses are defined between client and server hosts.

Scenario 3: SMC and a Single HSC TapePlex with One Local and One Remote (alternate) Path

When a single TapePlex is shared between multiple MVS hosts, you can define multiple paths to the TapePlex as shown in the following figure:

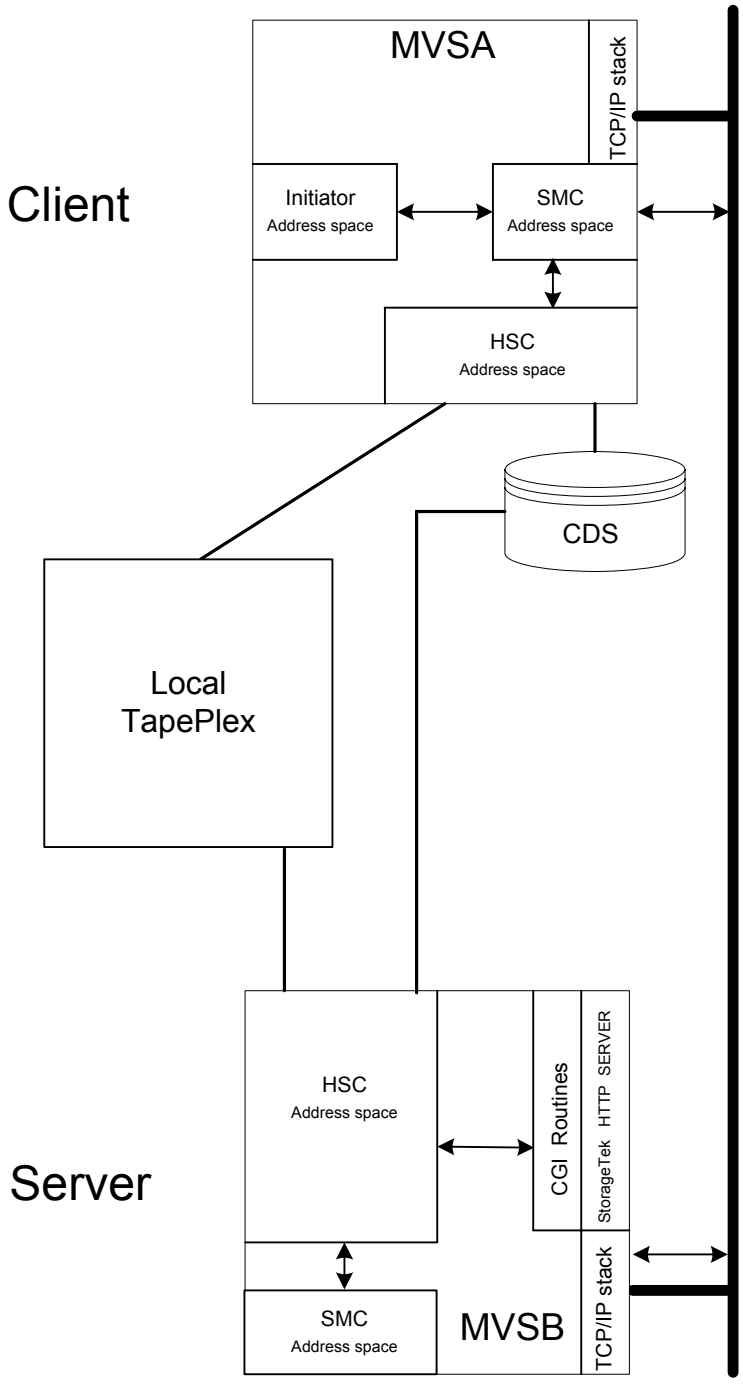


FIGURE 2-3 SMC and a Single HSC TapePlex with One Local and One Remote (alternate) Path

The following example illustrates the TAPEPlex and SERVer commands for the SMC on MVSA:

```
TAPEPLEX NAME(PLEX1) LOCSUBSYS(HSC)
SERVER NAME(REMPATH) TAPEPLEX(PLEX1) HOST(MVSB)
```

In this scenario, if the HSC is active on host MVSA, the SMC communicates with the local HSC as described in Scenario 1. If the HSC on MVSA is inactive, the SMC on MVSA communicates with the remote HSC on MVSB as described in Scenario 2.

In this scenario, only the local TapePlex is defined on MVSB:

```
TAPEPLEX NAME(PLEX1) LOCSUB(HSC)
```

Primary And Alternate Path Selection Hierarchy To A Single TapePlex With A Local Path

The path utilized by the SMC in this scenario is dependent upon the following factors:

- Whenever a local path is available to a TapePlex, the SMC attempts to use it.
- If a local path to a TapePlex is not enabled, or the local HSC is inactive, the SMC attempts to communicate with the first defined remote server path. Once successful communication is established for a remote server, it becomes the active path. All subsequent requests use the active path unless the local path becomes active or the remote server path becomes unavailable.
- If a remote server path becomes unavailable, the SMC attempts to use the next available server in the order the SERVer commands were entered.

In this example, when HSC is active on host MVSA, the server path defined to MVSB is not used. However, if the HSC on MVSA becomes unavailable, the SMC attempts to send its requests to the TapePlex using the REMPATH server definition. When the HSC on MVSA becomes active again, the SMC automatically adjusts to use the HSC on MVSA.

It is possible to configure an HTTP server to run on MVSA to allow MVSA to act as a backup library server to MVSB, just as MVSB is acting as a backup library server to MVSA. This scenario is described in "Scenario 4: SMC and a Single HSC TapePlex with Multiple Remote Server Paths" on page 47.

Note – See "Client/Server Drive Address Mapping" on page 53 for additional requirements if different drive addresses are defined between client and server hosts.

Scenario 4: SMC and a Single HSC TapePlex with Multiple Remote Server Paths

In this scenario, the SMC runs on a host with no local HSC, but with multiple paths to a remote HSC, as illustrated in the following figure:

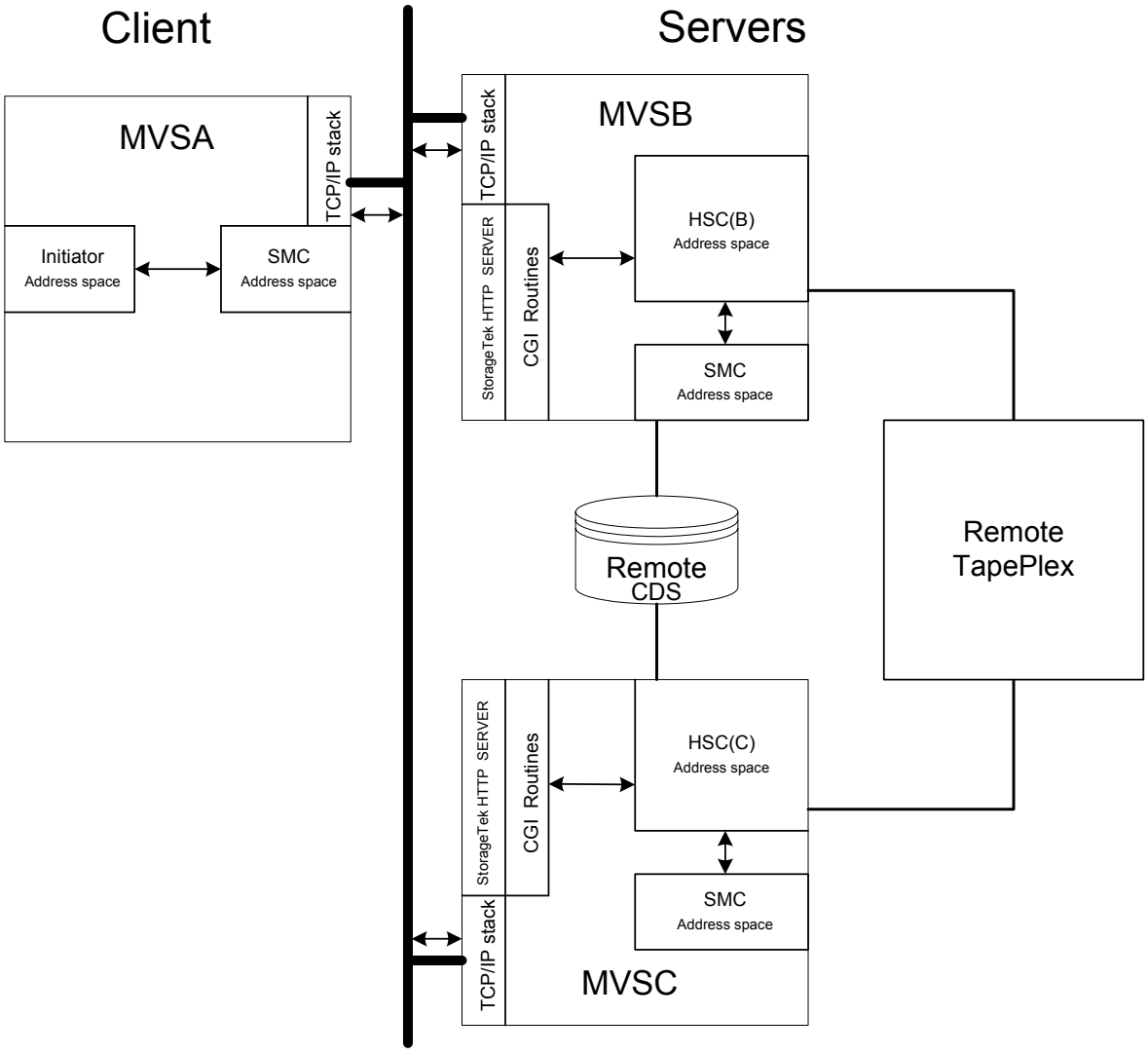


FIGURE 2-4 SMC and a Single HSC TapePlex with Multiple Remote Server Paths

The following example illustrates the TAPEPlex and SERVer commands for the SMC on MVSA:

```
TAPEPLEX NAME(PLEX1)
SERVER NAME(REMPATH1) TAPEPLEX(PLEX1) HOST(MVSB)
SERVER NAME(REMPATH2) TAPEPLEX(PLEX1) HOST(MVSC)
```

Requests originating in an Initiator Address Space on MVSA are intercepted by the SMC Address Space on MVSA. The SMC on MVSA sends requests for volume and drive data, and mount requests to the server on MVSB or MVSC.

The SMC attempts to communicate with the first defined server (MVSB). If this attempt fails, the SMC attempts to communicate with MVSC. Once successful communication with MVSC is established, the active path is not changed even if the server on MVSB becomes available. Either of the following methods can be used to change the active path from MVSC to MVSB:

- Disable the REMPATH2 server using the following command:

  ```
  SERVER NAME(REMPATH2) DISABLE
  ```

  The SMC automatically attempts to communicate with the first server in the list (REMPATH1).
- Issue the RESYNChronize REStart command. See "RESYNChronize Command" on page 180 for more information.

On MVSB and MVSC, the SMC may operate only with the local HSC, or may use the communications facility to provide a backup, as shown:

MVSB:

```
TAPEPLEX NAME(PLEX1) LOCSUBSYS(HSC)
SERVER NAME(REMPATH) TAPEPLEX(PLEX1) HOST(MVSC)
```

MVSC:

```
TAPEPLEX NAME(PLEX1) LOCSUBSYS(HSC)
SERVER NAME(REMPATH) TAPEPLEX(PLEX1) HOST(MVSB)
```

The above TAPEPlex and SERVer commands allow MVSB to act as the backup library server to MVSC, and MVSC to act as the backup library server to MVSB.

See "SMC Drive Type Information Synchronization" on page 55 for information about how the SMC acquires drive type information from the HSC and MVS/CSC.

Scenario 5: SMC with Two TapePlexes; One Local and One Remote

In this scenario, the SMC can coordinate allocation and mount requests among multiple TapePlexes as illustrated in the following figure.

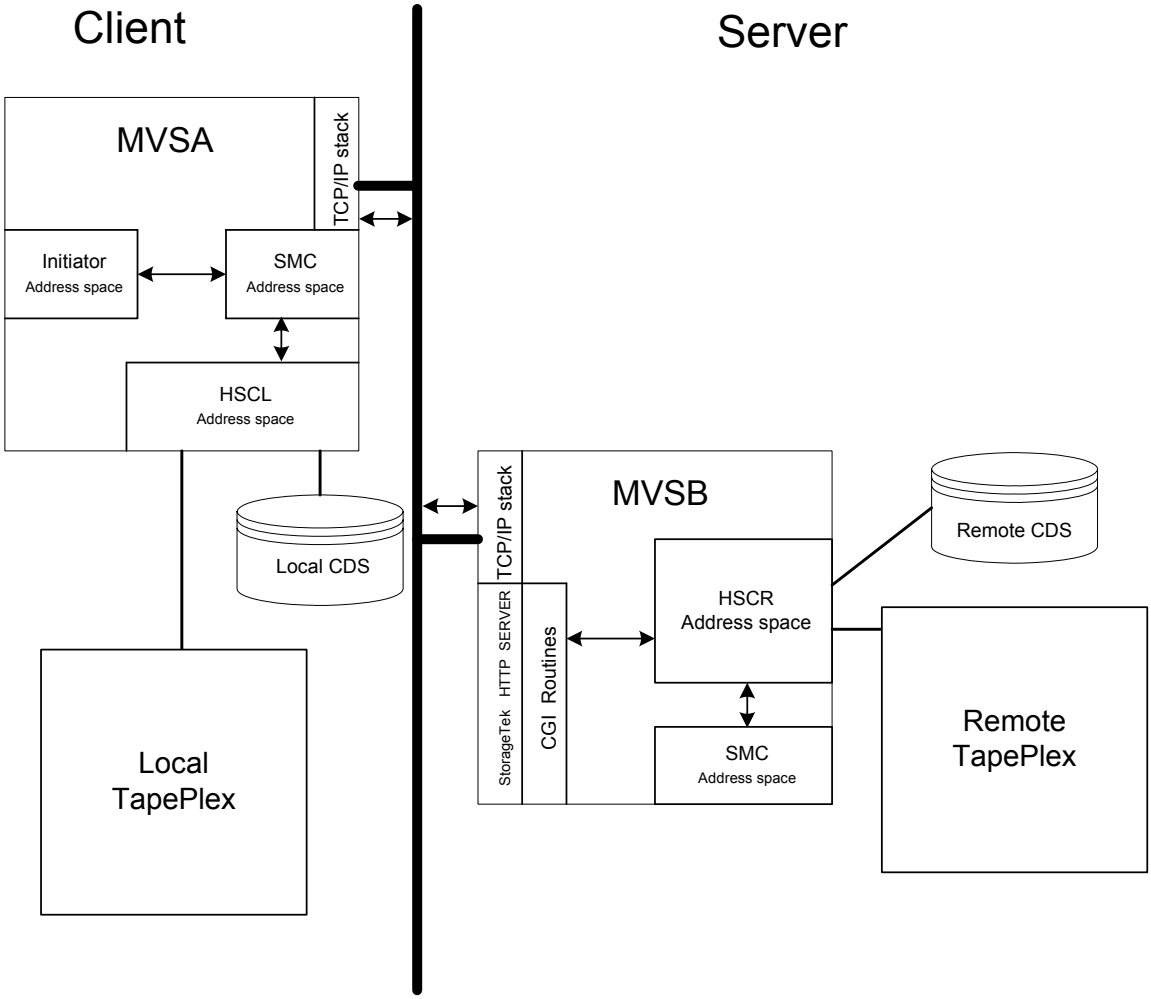


FIGURE 2-5 SMC with Two TapePlexes; One Local and One Remote

In this scenario, assume there are two separate TapePlexes, each defined by a different CDS. In previous releases, this configuration was supported by executing MVS/CSC on MVSA and executing HSC with LibraryStation on MVSB. SMC eliminates the need for MVS/CSC and LibraryStation in an MVS-only environment. The SMC can communicate directly with the remote HSC using the StorageTek HTTP server.

Allocation and mount requests originating in an Initiator Address Space on MVSA are intercepted by the SMC on MVSA. These requests are then sent to either the local HSCL executing on the same host, or to the remote HSCR executing on the remote host MVSB.

The following example illustrates the TAPEPlex and SERVer commands for the SMC on MVSA:

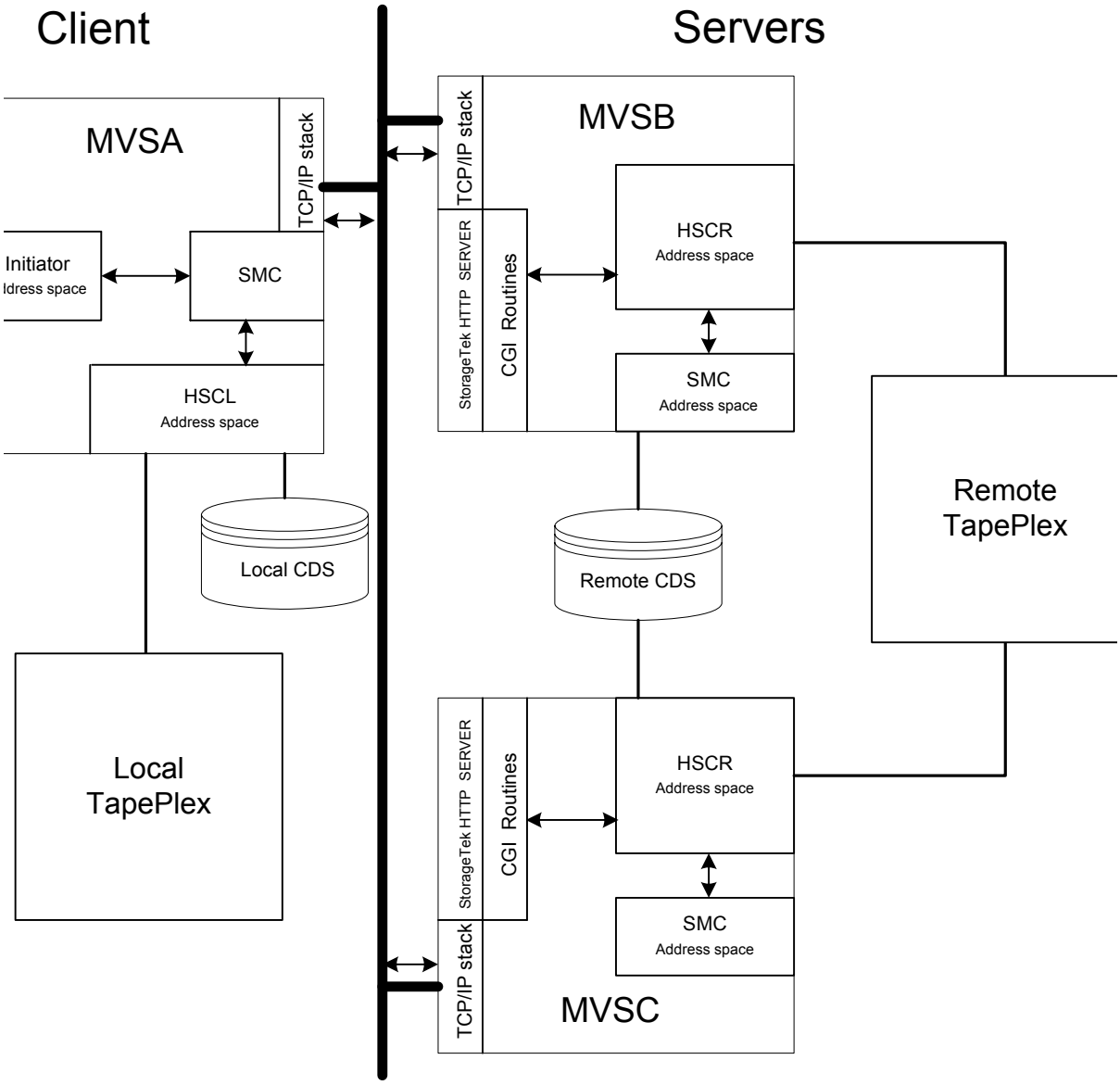
```
TAPEPLEX NAME(LOCPLEX) LOCSUBSYS(HSCL)
TAPEPLEX NAME(REMPLEX)
SERVER NAME(REMPATH) TAPEPLEX(REMPLEX) HOST(MVSB)
```

TAPEPlex commands are required to define both the local and remote TapePlexes.

See "SMC TapePlex Selection" on page 59 for information on how the SMC selects among multiple TapePlexes to determine an "owner" for each allocation request (i.e., each DD in a job step may have a different TapePlex owner).

Scenario 6: SMC with Two TapePlexes; One Local and One Remote with Multiple Paths

In this scenario, multiple TapePlexes are configured with multiple paths as illustrated in the following figure.



RE 2-6 SMC with Two TapePlexes; One Local and One Remote with Multiple Paths

This scenario is a combination of scenarios 1 and 4. The following example illustrates the TAPEPlex and SERVer commands for the SMC on MVSA:

```
TAPEPLEX NAME(LOCPLEX) LOCSUBSYS(HSCL)
TAPEPLEX NAME(REMPLEX)
SERVER NAME(REMPATH1) TAPEPLEX(REMPLEX) HOST(MVSB)
SERVER NAME(REMPATH2) TAPEPLEX(REMPLEX) HOST(MVSC)
```

Note – There are no predefined limits to the number of TapePlexes or server paths that a single SMC can have configured.

Client/Server Drive Address Mapping

SMC and HSC provide facilities that allow you to manage an environment in which drive addresses are different between client and server hosts. The table on the next page provides scenarios to help you determine whether client/server drive address mapping is required, and what actions and facilities are required.

TABLE 2-1 SMC Client/Server Drive Address Mapping Scenarios

Scenario	Drive Address Mapping - Action Required
■ Client/server processing is **not** used. ■ Each MVS host runs a copy of HSC.	None.
■ Client/server processing is used. ■ Device addresses are identically defined for all hosts participating in a single client/server network.	None.
■ Client/server processing is used. ■ Device addresses are identically defined for all hosts in a single client/server network, but not all devices are defined to all hosts.	Drive address mapping is not required. However, you must use the HSC SET SLIDRIVS utility to define all drive addresses on hosts that will be used as servers, even if the devices are not defined to the host. Refer to the *HSC System Programmer's Guide* for more information about the SET SLIDRIVS utility.
■ Client/server processing is used. ■ Device addresses are identically defined to all HSC hosts, but one or more SMC client-only hosts use a different set of addresses for the same device.	Use the SMC DRIVemap operator command to map the SMC client host addresses to the HSC host addresses. SMC performs the necessary address translations in influencing allocations and requesting mounts from the server. See "DRIVemap Command" on page 150 for more information.

■ Client/server processing is used.
■ Two MVS hosts (MVS1 and MVS2), both running HSC and SMC.
■ One MVS host (MVS3) running only SMC but defined as communicating to *either* of the two hosts as a server.
■ Device addresses are defined differently among all three hosts. For example:
  ■ MVS1 (AA0-AAF)
  ■ MVS2 (BA0-BAF)
  ■ MVS3 (CA0-CAF)
	1. Since the SMC on MVS3 can communicate with either the MVS1 or MVS2 host for a particular mount event, you must use the HSC SET utility, SET DRVHOST, to designate one of these hosts as the "drive host master." For example, MVS1 (AA0-AAF).
	
	Once the drive host master is specified in the HSC CDS, the addresses associated with that host master (AA0-AAF) are used by both MVS1 and MVS2 when communicating with the SMC.
	
	If desired, you can add a dummy host ID to be the HSC DRVHOST, and use nonexistent drive addresses to map to client addresses. For example, use the HSC SET NEWHOST utility to define hostname DRVDUMMY and define the device range as 000-00F.
	
	Refer to the *HSC System Programmer's Guide* for more information about the HSC SET DRVHOST utility and HSC SET NEWHOST utility.
	
	2. Use the SMC DRIVemap operator command on clients MVS2 and MVS3 to map drive addresses BA0-BAF and CA0-CAF to the server addresses AA0-AAF. See "DRIVemap Command" on page 150 for more information.

SMC Drive Type Information Synchronization

The SMC acquires drive type information from the NCS library control systems, HSC and MVS/CSC using configuration queries sent from the SMC to each defined TapePlex.

- For HSC subsystems, drive configuration changes are automatically recognized by the SMC for both local and remote systems.
- For MVS/CSC subsystems, an SMC RESYNChronize command must be issued whenever the equivalent MVS/CSC command is issued. See "RESYNChronize Command" on page 180 for more information.

Specifying Drive Type Information Using SMC UNITAttr Commands

The SMC UNITAttr command allows you to augment or override information returned from NCS library control system configuration queries as required by the local host tape device configuration. Specifically, the UNITAttr command allows you to do the following:

- Set MODEL=IGNORE for device addresses not available for this host.
- Specify model types for nonlibrary devices on this host.
- Specify NOTAPEPLEX for a nonlibrary device address or range on this host, that are TapePlex owned devices on other hosts.
- Specify TapePlex ownership for a device address or range that is defined to multiple TapePlexes, but for this host the attached devices belong to the specified TapePlex.
- Specify TapePlex ownership and model for devices that may be referenced by a mount after the SMC is started, but before the TapePlex is initialized.

Note – UNITAttr commands are not required, and should only be issued under the conditions described in this section.

Specifying SMC UNITAttr Commands for Inaccessible Devices

To define devices that are represented by a UCB, but are not accessible from this host, issue an SMC UNITAttr command for each inaccessible device as follows:

```
UNITATTR ADDR(ccuu) MODEL(IGNORE)
```

UNITAttr MOdel(IGNORE) processing remains unchanged from previous releases. As a result, SMC does not include the device in any of its processing.

Specifying SMC UNITAttr Commands for Nonlibrary Devices

To define nonlibrary device types on this host, issue an SMC UNITAttr command for each nonlibrary device as follows:

```
UNITATTR ADDR(ccuu) MODEL(model)
```

A nonlibrary device is a StorageTek device that requires additional model information to be defined in order to differentiate it from other nonlibrary devices with similar UCB characteristics.

Specifying SMC UNITAttr Commands for Nonlibrary Devices

To define nonlibrary device types on this host, issue an SMC UNITAttr command for each nonlibrary device as follows:

```
UNITATTR ADDR(ccuu) MODEL(model)
```

A nonlibrary device is a StorageTek tape device that requires additional model information to be defined in order to differentiate it from other nonlibrary devices with similar UCB characteristics.

Specifying SMC UNITAttr Commands for Nonlibrary Devices with the Same Address as a TapePlex-Owned Device

If a device address for your host overlaps with a device address for a TapePlex owned device, and the TapePlex owned device is inaccessible from this host, issue an SMC UNITAttr command specifying the NOTAPEPlex parameter as follows:

```
UNITATTR ADDR(ccuu) MODEL(model) NOTAPEPLEX
```

As a result, if a TapePlex such as HSC claims ownership via data returned from a configuration query, NOTAPEPlex overrides the TapePlex. The configuration information is ignored and the device remains a nonlibrary device.

If you fail to specify NOTAPEPlex, the TapePlex configuration information overrides the UNITAttr specified without the NOTAPEPlex parameter, and the device definition changes from a nonlibrary to TapePlex owned device.

Specifying SMC UNITAttr Commands for TapePlex-Owned Devices with the Same Address as Another TapePlex-Owned Device

If your configuration includes multiple TapePlexes with overlapping device addresses or ranges, and both TapePlexes are defined to the SMC, enter a UNITAttr command with the TAPEPlex parameter to establish which TapePlex owns the specified device or range on this host. Enter a UNITAttr command for each of the duplicate drive addresses as follows:

```
UNITATTR ADDR(ccuu) MODEL(model) TAPEPLEX(name)
```

Example

Assume:

- Host MVSA includes two TapePlexes, HSC1 and HSC2.
- HSC1 includes a 9840 device range 2900-2903.
- HSC2 includes a 4480 device range 2900-2903.
- However, on MVSA, devices 2900-2903 are attached to HSC1. MVSA has no connection to the HSC2 device range.

Given this scenario, issue an SMC UNITATTR command as follows:

```
UNITATTR ADDR(2900-2903) MODEL(9840) TAPEPLEX(HSC1)
```

This command directs the SMC to ignore any configuration information for the specified devices from any TapePlex other than the specified TapePlex.

Note – If MVSA recognized address range 2900-2903 defined to HSC2 as a different address range (e.g. 4900-4903), MVSA would use the SET DRVHOST facilities (see page 53) to define address range 2900-2903 on HSC2 as address range 4900-4903 for any client configuration queries.

Specifying SMC UNITAttr Commands for Devices in TapePlexes that are Initialized After the SMC

To define TapePlex owned devices when tape jobs are executed after the SMC starts but before the TapePlex is initialized, enter an SMC UNITAttr command for all TapePlex owned devices as follows:

```
UNITATTR ADDR(2900-2903) MODEL(9840) TAPEPLEX(HSC1)
...
UNITATTR ADDR(9000-903F) MODEL(VIRTUAL) TAPEPLEX(HSC1)
```

This directs the SMC to keep track of any tape policy for pending mounts, including VTCS MGMTCLAS.

SMC TapePlex Selection

When the SMC intercepts a specific or scratch allocation request, it selects an owning TapePlex to service the request. The following criteria are evaluated by the SMC in the order shown to determine which TapePlex controls the allocation request:

1. TapePlexes are interrogated in the order they are defined. If TAPEPlex commands are defined to the SMC, the order of the TAPEPlex commands is used. If TAPEPlex commands are not defined to the SMC, the order in the MVS SSCVT table is used.
2. If the Eligible Device List (EDL) for the request does not contain drives owned by a specific TapePlex, that TapePlex cannot own the request.
3. If an applicable SMC POLicy requests a specific TapePlex, it is selected as the request owner.
4. If the TAPEREQ or SMC POLicy esoteric contains only drives in a single TapePlex, it is selected as the request owner.
5. If a user exit explicitly selects a subsystem name or TapePlex name that is active, that TapePlex is the owner.
6. If the requested specific volume serial is specified in a TAPEREQ statement, the POLicy associated with the TAPEREQ determines the owner.
7. If a specific requested volume is found in a TapePlex, that TapePlex is considered the owner unless overridden by explicit esoteric or TapePlex selection. If the volume is not found in a TapePlex, but that TapePlex contains a VOLATTR for that volume, then the TapePlex is considered the owner if the specific volume is not found in any other TapePlex.
8. If a TapePlex indicates that it has scratch volumes for the request, it is considered the owner unless overridden by explicit esoteric or TapePlex selection. If the TapePlex does not have scratch volumes for the request, but the specified subpool name is known to the TapePlex, then the TapePlex will be considered the owner if scratch volumes are not found in any other TapePlex.

The preferred way to select a TapePlex owner from among multiple libraries is to specify a TapePlex name using the TAPEPlex parameter on the SMC POLicy command. Alternatively, TAPEREQ or POLicy esoteric, or user exit esoteric or TapePlex name can be used.

Note –

- Only a single version of an allocation user exit is executed, regardless of the number of TapePlexes defined. Therefore, user exit return codes such as “USE LIBRARY DRIVES”, “USE VIRTUAL DRIVES”, etc. are **not** used to determine a request owner, nor does the user exit return code of “USE NONLIBRARY DRIVES” result in the selection of a “different” TapePlex.
- If your pre-NCS 6.0 user exit uses the “USE NONLIBRARY DRIVES” return code to select an MVS/CSC subsystem in a mixed HSC and MVS/CSC environment, you must now use one of the methods described above to select the appropriate TapePlex for allocation.

MVS/CSC Issues

Converting MVS/CSC Systems to Use HSC and the StorageTek HTTP Server

If you have MVS/CSC library control software used to control transports in TapePlexes managed by LibraryStation, it is recommended that you convert such installations to use remote HSC and StorageTek HTTP server facilities.

If your MVS/CSC library control software is used to control transports in TapePlexes managed by Automated Cartridge System Library Software (ACSLS), it **cannot** be converted to use HSC and the StorageTek HTTP server.

If you wish to test the HTTP server communicating with HSC (replacing an MVS/CSC and LibraryStation communicating with the HSC), do the following:

1. Define a local MVS/CSC TapePlex and a second TapePlex for the remote HSC server.

```
TAPEPLEX NAME(PLEX1) LOCSUB(CSC1)
TAPEPLEX NAME(PLEX2) DISABLE
   SERVER NAME(REM1) TAPEPLEX(PLEX2)
```

2. To switch to the MVS/CSC, issue the following command:

```
TAPEPLEX NAME(PLEX1) DISABLE
TAPEPLEX NAME(PLEX2) ENABLE
```

Note – The SMC will **not** automatically switch from a local MVS/CSC to a remote HSC.

SMC TAPEPlex Commands and MVS/CSC Systems

If you have a mixed HSC and MVS/CSC environment and are using SMC TAPEPlex commands to define TapePlexes and remote server paths, you cannot define both HSC and MVS/CSC subsystems using the same TapePlex name. That is, you **cannot** define a SERVer command for a TapePlex where the local subsystem is an MVS/CSC.
For example, the following is **not** valid (assuming subsystem CSC1 is an MVS/CSC system).

```
TAPEPLEX NAME(PLEX1) LOCSUBSYS(CSC1)
   SERVER NAME(REM1) TAPEPLEX(PLEX1)
```

CHAPTER 3

Starting the SMC

Overview

The SMC manages all interfaces with MVS for allocation and message handling, and therefore must be started as a task on every MVS host where tape processing occurs.

The SMC calls on HSC and MVS/CSC for volume and drive information. Therefore, HSC or MVS/CSC can be active on the same host, or HSC can be active on another host with the StorageTek HTTP server.

HSC and/or MVS/CSC can be initialized before the SMC without producing error messages. However, an SMC subsystem must be active to influence tape allocations and intercept MVS messages.

SMC startup requires the following tasks:

- Creating the SMC START procedure
- Executing the SMC START procedure

Note –

- Refer to the *NCS Installation Guide* for SMC installation procedures and JES3 post-installation tasks.
- See Chapter 12, "Using the StorageTek HTTP Server" for information about starting the StorageTek HTTP server.

Creating the SMC START Procedure

An SMC START procedure must be created in the procedure library of the host system. The MVS START command invokes this catalogued procedure, thus activating the SMC with the specified startup parameter settings.

The following figure provides a sample SMC START procedure:

```
//yourprocname   PROC PRM='WARM'
//stepname  EXEC PGM=SMCBINT,REGION=4M,TIME=1440,
//           PARM='&PRM'
//*
//STEPLIB    DD DISP=SHR,DSN=your.ncs.smc6200.smclink
//           DD DISP=SHR,DSN=your.ncs.exitlib
//           DD DISP=SHR,DSN=your.ncs.sos6200.slslink
//           DD DISP=SHR,DSN=your.ncs.sws6200.swslink
//*
//SMCPARMS   DD DISP=SHR,DSN=parmlib_name(parm_member_name)
//*
//SMCCMDS    DD DISP=SHR,DSN=cmdlib_name(cmd_member_name)
```

FIGURE 3-1 Sample SMC START Procedure

Note –

- The first four characters of *yourprocname* specify the SMC subsystem name (unless the SSYS startup parameter is specified). The recommended value is SMC*x*, where *x* is any valid jobname character.
- HSC and VTCS load libraries (SLSLINK and SWSLINK) are required in the STEPLIB concatenation to support the ability to route HSC and VTCS commands from the SMC to an HSC TapePlex on the same host (using the SMC Route command).
- The SMCPARMS and SMCCMDS DD statements are optional. Both statements are processed during initialization. The SMCCMDS data set may be re-processed during execution. See Chapter 7, "Commands and Control Statements" for information about SMC commands that may be specified in either of these data sets. It is recommended that you include **only** those commands required to be in the SMCPARMS data set (e.g. CMDDEF and USERMSG) in SMCPARMS. Place all remaining startup parameters in SMCCMDS.

  Review the following commands or control statements to determine whether they should be included in your SMCCMDS data set:

  - ALLOCDef
  - DRIVemap
  - MOUNTDef
  - POLicy
  - READ
  - RESYNChronize
  - SERVer
  - TAPEPlex
  - TCPip
  - TREQDef

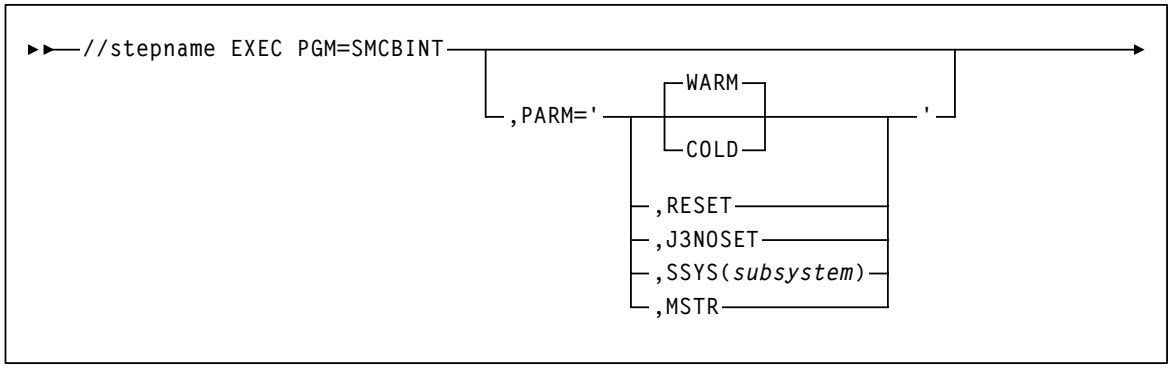
- UEXit
- UNITAttr

- Use of the POLicy command requires that TAPEPlex and SERVer commands be processed before POLicy commands (which must be processed before TAPEREQ control statements).
- TIME=1440 must be coded to ensure that the SMC does not time out and terminate.

SMC EXEC Statement

The EXEC statement is used to define SMC startup parameter settings.

EXEC Statement Syntax



EXEC Statement Parameters

PARM=

defines the list of parameters passed to the SMC initialization routine.

Note – Execution parameters must be separated with commas. Separating parameters with blanks results in a syntax error.

WARM

specifies that the SMC main control block is not rebuilt. This is the default setting for normal operation.

COLD

specifies that all SMC control blocks are rebuilt. This parameter is mutually exclusive with WARM.

Caution – Do **not** use this parameter unless the SMC has terminated abnormally and cannot be restarted.

SSYS

specifies a *subsystem* ID that is different from the first four characters of the SMC START procedure. The SMC searches for this subsystem ID during initialization.

subsystem must be one to four characters in length.

RESET

specifies that the active subsystem status flag in the MVS Subsystem Communications Vector Table (SSCVT) for the SMC is reset. This parameter may correct a situation in which the SMC was terminated abnormally. It can be specified with WARM or COLD.

Note – Using this parameter when an SMC subsystem is active and functional causes unpredictable results.

J3NOSET

indicates that a JES3 system is not using JES3 tape setup. When this parameter is specified, allocation influencing behaves as described for JES2.

MSTR

specifies that the SMC start under the MSTR subsystem instead of under JES.

When specifying this parameter, you **must** also perform **one** of the following actions:

- Start the SMC subsystem using SUB=MSTR on the MVS Start command.
- Add the SMC subsystem to the IEFSSNxx subsystem table using the keyword format.

Note –

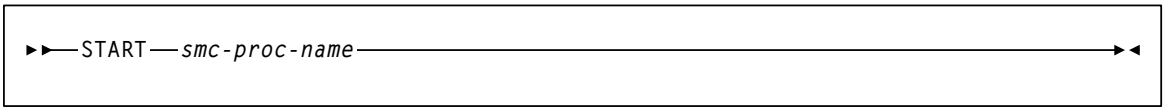
- This parameter is not supported for JES3 with SETUP environments.
- If you wish to run the SMC under the master MVS subsystem, the PROCLIB containing the SMC START procedure must be present in the PROCLIB concatenation for the master address space. This concatenation is defined in SYS1.PARMLIB(MSTJCLxx), under DD IEFPDSI.

Executing the SMC START Procedure

The MVS START command is used to initialize the SMC software. When this command is issued, the SMC subsystem initialization routine is invoked. This routine determines what parameters are in effect, performs any cleanup necessary, and begins normal processing.

Parameters associated with PARM= on the EXEC statement of the SMC Start Procedure can also be supplied via PARM= on the MVS START command. The PARM= specification on the MVS START command overrides the PARM= specification in the SMC Start Procedure. See "EXEC Statement Parameters" on page 63 for parameter descriptions.

MVS START Command Syntax



MVS START Command Parameters

START or **S**

initiates the MVS START command

smc-proc-name

indicates the name of the SMC START procedure member.

CHAPTER 4

Policy

Overview

Two primary functions of the SMC are to influence MVS allocation to select devices compatible with tape volumes and to intercept MVS messages for tape mounts and dismounts to automate these operations for library and virtual drives.

For specific volumes, SMC allocation is primarily based on volume media and location. For scratch volumes, SMC allocation and mount processing are primarily based on user policies. Policies to control scratch allocation and mount processing may be selected in one or more of the following ways:

- DFSMS ACS routines
- SMC TAPEREQ statements
- User exits

The order listed is the preference order in SMC. That is, a policy specified via DFSMS has priority over one specified via TAPEREQ, which in turn has preference over a policy specified in a user exit.

The SMC POLicy Command

SMC 6.2 introduces a new method for specifying policies for tape allocation and mount requests. The SMC POLicy command allows you to create named policy objects (SMC policies) that contain all of the tape policy attributes associated with an allocation or mount event, including MEDia, RECtech or MODel, SUBPool, ESOTeric, VTCS MGMTclas, and TAPEPlex.

The POLicy command can be used in conjunction with TAPEREQ statements or the SMC DFSMS interface to associate a named policy with allocation and mount requests. The SMC TAPEREQ control statement and SMSDef operator command are enhanced to support the new policy specification. These enhancements are described in this chapter.

Additionally, the POLicy command provides the ability to influence allocation variables during IDAX (MVS Interpreter/Dynamic Allocation Exit) processing. Unlike previous releases, which allowed only SMC DFSMS interface at IDAX for esoteric substitution, the new POLicy IDAX parameters can be used by both SMC DFSMS interface and TAPEREQ users to change variables normally supplied by JCL.

SMC policies are normally defined in a single data set or PDS member which is loaded at SMC startup using the SMC READ command. Additionally, the POLicy command may be issued at any time to add a new policy or replace the contents of an existing policy.

In the following sample SMCCMDS data set, the READ command loads the POLMEM data set containing the SMC policies:

```
ALLOCDEF ZEROSCR(ON,INSIDE)
MSGDEF CASE(MIXED)
TAPEPLEX NAME(HSCPLEX) LOCSUB(HSC0)
READ DSN('CNTL.PDS(POLMEM)')
TREQDEF DSN('CNTL.PDS(TREQMEM)')
```

FIGURE 4-1 Sample SMCCMDS Data Set

Note –

- POLicy commands must be processed **before** the TREQDEF command if any TAPEREQ statements reference policies by name.
- If any POLicy command references a TAPEPlex, the TapePlex name must be defined using a TAPEPlex command **before** the POLicy command is processed.
- See "POLicy Command" on page 170 for more information about the SMC POLicy command.
- See Chapter 7, "Commands and Control Statements" for detailed information about the TAPEREQ control statement and SMSDef operator command.
- Existing policy specifications using non-policy TAPEREQ parameters and user exits are still supported. However, this support will end in a future release.

SMC Policy and the TAPEREQ Control Statement

SMC TAPEREQ control statements are used to specify tape request attributes, including tape policy. For each allocation or mount request, SMC evaluates TAPEREQ statements to determine the tape policies to be applied, for example, esoteric name, subpool, media and management class. These policy attributes are selected according to a set of selection criteria, for example, job step, step name, and data set name.

TAPEREQ control statements reside in a definition data set specified by the TREQDEF operator command. TAPEREQ statements must be placed in this definition data set; they **cannot** be issued as operator commands.

SMC 6.2 allows TAPEREQ control statements to reference SMC policy objects. The optional TAPEREQ POLicy parameter directs the SMC to reference an associated SMC policy defined by an SMC POLicy command.

Note – POLicy commands must be processed **before** the TREQDEF command if any TAPEREQ statements reference policies by name. See FIGURE 4-1 on page 68.

The POLicy parameter is mutually exclusive with all other TAPEREQ output parameters or tape policy attributes, including MEDia, RECtech, MODel, SUBpool, ESOTeric, and MGMTclas. When the POLicy parameter is specified, the SMC locates the associated SMC policy definition and uses it to determine **all** policy information for the allocation or mount event. This enhancement is designed to make TAPEREQ behavior more predictable. Use of the SMC POLicy parameter eliminates a condition where multiple tape policy attributes are selected from multiple TAPEREQ control statements.

If the POLicy parameter is not specified on the TAPEREQ control statement, SMC reverts to its previous behavior and performs a separate lookup for each required parameter for an allocation or mount event.

If you are migrating from a previous SMC release, it is recommended that you convert your existing TAPEREQ statements to use the new SMC POLicy command facility. A TAPEREQ conversion script, included in the SMC SAMPLIB, is provided to assist you in this process. See Appendix C, "TAPEREQ Conversion Script (POLCVT02)" for more information. This appendix includes an example of output generated from existing TAPEREQ statements.

Note –

- Existing policy specifications using non-policy TAPEREQ parameters and user exits are still supported. However, this support will end in a future release.
- If a tape policy attribute is not present in the named policy object, then no additional policy is applied to that tape policy attribute and no further TAPEREQ lookups are performed.
- If a TAPEREQ statement specifying the POLicy parameter matches an allocation or mount request, **no** parameters supplied from a user exit are honored. Message SMC0197 is issued to indicate user exit supplied parameters that are ignored. For example, suppose the following POLicy is applied to an allocation or mount event:

  ```
  POLICY NAME(POL1) MEDIA(STK1R) TAPEPLEX(HSCPLEX)
  ```

  In addition, suppose that a scratch user exit (UX02/UX04) supplies a subpool name or number. The user exit subpool is **not** honored and the allocation is performed using the default subpool (subpool 0).
- Optionally, a named policy object may be referenced via DFSMS ACS routines via a matching management class name. See "SMC DFSMS Processing" on page 75 for more information.

SMC Policy and Esoteric Preferencing

The SMC POLicy command allows you to preference devices during the allocation process. The ESOTeric parameter can specify a list containing a maximum of eight esoterics. During drive exclusion, devices in any of the listed esoterics are included. During drive prioritization, devices are ordered according to their position in the esoteric list. This feature allows you to do the following:

- Prefer faster or slower models of equivalent drives.
- Prefer a certain device type (e.g. 9940) if drives are available but select an alternative device type if preferred drives are busy.

By default, SMC prefers drives based on the following criteria in order:

1. specific volume LSM location
2. esoteric list
3. LSM scratch count.

The relative weight can be changed using the POLicy PREFer parameter. See "POLicy Command" on page 170 for more information.

Specifying TAPEREQ and Policy by Volume Serial

Using a combination of TAPEREQ statements and POLicy commands, SMC allows you to specify allocation policy based on specific volume serial numbers. In some cases this feature may allow you to replace HSC nonlibrary VOLATTRs with SMC TAPEREQ and POLicy commands.

Note – The VOLSER keyword on a TAPEREQ statement is allowed only if the POLicy keyword is also specified and references a previously defined SMC policy with the keyword VOLTYPE(SPECIFIC).

Using policy associated with volume serials allows you to:

- Define different volume characteristics for the same volume serial for different clients.

  For example, suppose that volser AAAAAA exists in the TapePlex on an HSC server with a media of STK1R, but on a specific client, volume AAAAAA is a nonlibrary standard cartridge. The following combination of POLicy commands and TAPEREQ statements allows the SMC to bypass the volume lookup for volume AAAAAA and use the specified policy information:

  ```
  POLICY NAME(MANVOL) VOLTYPE(SPECIFIC) MEDIA(STANDARD) NOTAPEPLEX

  TAPEREQ VOLSER(AAAAAA) POLICY(MANVOL)
  ```

- Limit volume lookup to a single TapePlex based on volume serial.

  For example, suppose that the SMC on a client host has two defined TapePlexes, PLEX1 and PLEX2, which contain overlapping volume serial ranges (AAA000-AAA999 and BBB000-BBB999). By default, SMC queries the TapePlexes in the order in which they are defined and uses information from the first TapePlex that recognizes the volume serial. The following combination of POLicy commands and TAPEREQ statements allows the SMC to choose the correct version of the volume for the client host:

  ```
  POLICY NAME(PLEX1VOL) VOLTYPE(SPECIFIC) TAPEPLEX(PLEX1)
  POLICY NAME(PLEX2VOL) VOLTYPE(SPECIFIC) TAPEPLEX(PLEX2)

  TAPEREQ VOLSER(AAA000-AAA999) POLICY(PLEX1VOL)
  TAPEREQ VOLSER(BBB000-BBB999) POLICY(PLEX2VOL)
  ```

- Direct allocation of volumes outside the library into a specific library.

  The following combination of POLicy commands and TAPEREQs causes SMC to bypass library volume lookup and allocate the selected nonlibrary volumes to library drives compatible with standard cartridges:

  ```
  POLICY NAME(INLIB) VOLTYPE(SPECIFIC) ESOTERIC(LIB1ESOT)
  MEDIA(STANDARD) NOTAPEPLEX

  TAPEREQ VOLSER(AAA000-AAA999) POLICY(INLIB)
  ```

Example

The following example illustrates the recommended method for specifying SMC Policy commands, TREQDEF commands, and TAPEREQ control statements.

1. Include the following entry in the SMC Start procedure:

```
//SMCCMDS DD DSN=MY.PARMLIB(MYSMCCMD),DISP=SHR
```

2. Include the following entries in SMCCMDS member MYSMCCMD:

```
READ DSN('MY.PARMLIB(SMCPOL)')
TREQDEF DSN('MY.PARMLIB(SMCTREQ)')
```

Note – If TAPEREQ statements include POLicy parameters, the POLicy commands **must** be processed **before** the TREQDEF command since the policy name in the TAPEREQ statement is validated against the defined policy definitions.

---

3. Add the SMC POLicy commands to member SMCPOL, for example:

```
POLICY NAME(POL1) SUBPOOL(SP1) MEDIA(STK1R) RECTECH(STK1RC)
TAPEPLEX(HSC)

POLICY NAME(POL2) SUBPOOL(SP2) MEDIA(VIRTUAL) MGMTCLAS(ABC)
```

4. Modify TAPEREQ control statements in member SMCTREQ to point to the named policies, for example:

```
TAPEREQ DSN(A.B.*) POLICY(POL1)
TAPEREQ DSN(A.C.*) POLICY(POL2)
```

   These TAPEREQ statements point to the SMC policy names defined in Step 3.

Note – The HOST parameter on the SMC READ command may be used to specify different policy definitions for different hosts. For example:

```
READ DSN(MY.PARMLIB(PRODPOLS)) HOST=PROD
READ DSN(MY.PARMLIB(TESTPOLS)) HOST=TEST
```

If the host name is PROD, member PRODPOLS is loaded. If the host name is TEST, member TESTPOLS is loaded.

SMC Processing at IDAX

SMC processing at IDAX (MVS Interpreter/Dynamic Allocation Exit) allows specification of additional user policies based on the SMC IDAX command setting and the tape policies specified in individual SMC POLicy commands.

SMC IDAX processing allows you to change the JCL parameters for esoteric, volume count, expiration date or retention period, or subsystem and program name, based on policies specified in named SMC policy objects.

These IDAX policy features are enabled by the SMC IDAX command, which allows you to:

- Specify that IDAX policies are applied based on TAPEREQ.
  The IDAX command parameter POLICY(ON) specifies that SMC should perform a TAPEREQ lookup for a policy name at IDAX if no SMC DFSMS policy is supplied.
- Specify that SMC IDAX processing must execute before IBM DFSMS interface processing occurs. The IDAX command parameter SEQUENCE(FIRST) specifies that SMC IDAX processing precedes IBM DFSMS processing.
- Specify that MOD data sets are treated as new (MOD(ON)). This parameter continues to be supported on the SMSDEF command for compatibility with earlier releases.
- Specify that data sets which may be directed to virtual volumes have their count set to 255 (VTVMAXVOL(ON)). This parameter continues to be supported on the SMSDEF command for compatibility with earlier releases.

The SMC POLicy command is used to set the policies to be applied during IDAX. All policy parameters that begin with the letters “IDAX” are applied only if the SMC IDAX command parameter POLICY(ON) is specified. These parameters include:

- **IDAXESOTERIC**

  This parameter specifies the name of an esoteric to be substituted for the JCL esoteric. IDAXESOTERIC may also be applied when the JCL statement does not contain any unit information. Unlike the POLICY ESOTERIC parameter, which is used to specify devices as a subset of the JCL esoteric, the IDAXESOTERIC performs a “true” esoteric substitution.

- **IDAXEXPDT** and **IDAXRETPD**

  These parameters are mutually exclusive and allow you to specify a retention period or expiration date to the DD statement, overriding any value that may have been specified in the JCL.

- **IDAXVOLCNT**

  This parameter allows you to override the volume count parameter specified in the JCL.

- **IDAXSUBSYS** and **IDAXPROGRAM**

  These parameters can be used to direct an allocation to use the StorageTek ExHPDM (Extended High-Performance Data Mover).

SMC Esoteric Substitution at IDAX

SMC can perform esoteric substitution at IDAX using either the POLicy command IDAXESOTERIC parameter (preferred), or the SMC DFSMS returned storage group names. When SMC performs esoteric substitution at IDAX, the original unit is replaced with a different unit (esoteric). Any valid esoteric can be substituted; for example, you can substitute a disk esoteric for a tape esoteric.

Considerations

- If your SMC IDAX processing modifies units which were optionally disk, or changes tape units to disk, it is recommended that you specify the IDAX command parameter SEQUENCE(FIRST) to allow SMC SMS processing to precede IBM SMC processing. This ensures that tape and disk data sets are managed as intended.
- New allocations that are DFSMS-managed are not eligible for SMC IDAX esoteric substitution.
- SMC performs esoteric substitution for all DISP=NEW data sets.
- By default, the SMC treats a DISP=MOD data set as pre-existing and does not perform esoteric substitution. SMC performs esoteric substitution for DISP=MOD data sets **only** if the IDAX command MOD(ON) parameter is specified **and** the first reference to the data set in the job's JCL specifies either DISP=MOD or DISP=NEW.
- Unit affinity chains are always separated if ACS routines return different esoterics for different members of the chain.
- VOL=REF chains within a job are validated and updated with the head-of-chain esoteric if necessary to ensure that volume references are honored.
- You **must** specify SMSDef TEMPdsn(ON) before IDAX esoteric substitution can be performed for temporary data sets.

Note –

- See "IDAX Command" on page 152 for more information about the IDAX command.
- See "SMSDef Command" on page 189 for more information about the SMSDef command.

SMC DFSMS Processing

The SMC interface to DFSMS provides the following capabilities:

- At MVS JCL interpretation (IDAX), “true” esoteric substitution can occur.
- At device allocation time, the DFSMS MGMTCLAS value can reference an SMC policy name to specify esoteric, scratch subpool, VTCS management class, media, recording technique, and TapePlex name.
- At device allocation time, the DFSMS DATACLAS value can request a specific recording technique and/or media.
- At device allocation time, the DFSMS MGMTCLAS value can be used for VTV allocations.
- At volume mount, the DFSMS MGMTCLAS value can reference an SMC policy name to specify scratch subpool, media, and VTCS management class.
- At volume mount, the DFSMS MGMTCLAS value can be assigned to a VTV.
- At volume mount, the DFSMS DATACLAS value can request a media for a scratch request.

Note –

If you are currently using the storage group STK1 esoteric substitution method, it is recommended that you convert all SMC DFSMS routines to use the new SMC management class policy feature. To accomplish this task, do the following:

1. Create SMC POLicy commands containing IDAXESOTERIC, MGMTCLAS, and other policies currently set in the SMC DFSMS ACS routines.
2. Use the SMSDEF parameter MGMTPOL(ALL) to indicate that all DFSMS routines return a management class to be interpreted as a policy name.
3. Convert existing SMC DFSMS routines to return a dummy storage class name and a management class name that maps to a POLicy name.

Existing SMC DFSMS interfaces ESOTSUB, DCRECMED, and VTVMGMT are still supported and continue to function as in previous releases.

Enabling/Disabling the SMC DFSMS Interface

To enable the SMC DFSMS interface, specify the SMS parameter of the ALLOCDef command as follows:

```
ALLOCDEF SMS=ON
```

To disable the SMC DFSMS interface, specify the SMS parameter of the ALLOCDef command as follows:

```
ALLOCDEF SMS=OFF
```

Tailoring the SMC DFSMS Interface

The SMSDef command can be used to tailor the default SMC DFSMS support for your installation's requirements. This command provides the ability to include or bypass certain SMC DFSMS functions. See "SMSDef Command" on page 189 for more information about the options that can be specified.

DATACLAS, STORCLAS, and MGMTCLAS Specification

DFSMS DATACLAS can be specified by using the DATACLAS parameter on the DD JCL statement or by executing an Automatic Class Selection (ACS) routine. STORCLAS and MGMTCLAS can only be specified by ACS routines.

Note – STORCLAS and MGMTCLAS JCL parameters are not supported by the SMC DFSMS interface due to conflicts with IBM MVS DFSMS. Using the STORCLAS JCL parameter causes a data set to become DFSMS-managed, and the MGMTCLAS JCL parameter requires a DFSMS-managed data set. The data sets assigned STORCLAS and MGMTCLAS values in the STKTAP1 environment are not actually DFSMS-managed.

Invoking ACS Routines

IBM DFSMS invokes ACS routines with the variable &ACSENVIR set to ALLOC before the SMC invokes the ACS routines with variable &ACSENVIR set to STKTAP1.

The SMC invokes the ACS routines at the following points in processing:

JES2

- SSI55 Interpreter/Dynamic Allocation Exit (IDAX)
- SSI24 common allocation
- Mount message interception

JES3

- SSI55 Interpreter/Dynamic Allocation Exit (IDAX)
- JES3 Converter/Interpreter (C/I)
- SSI23 JES3 Dynamic Allocation
- JES3 Main Device Scheduler (MDS)
- Mount message interception

ACS Routine Order

The ACS routines are invoked in the following order:

1. data class
2. storage class
3. management class
4. storage group.

Management class and storage group ACS routines are called only if a storage class is assigned.

DFSMS Automatic Class Selection (ACS) Routine Environment for SMC

The following list of read-only variables is passed by SMC to DFSMS when the information is available to the SMC. Not all variables are available for every call to the ACS routines. In particular, processes that occur in the JES3 address space, such as MDS, do not provide the SMC access to the MVS control blocks that contain the values for these fields. See the descriptions of each DFSMS interface for exceptions.

- &ACSENVIR (equals STKTAP1 for the SMC interface)
- &ALLVOL
- &ANYVOL
- &DATACLAS
- &DD
- &DSORG
- &DSN
- &DSTYPE
- &EXPDT
- &FILENUM
- &JOB
- &LABEL
- &LIBNAME
- &NVOL
- &PGM
- &RETPD
- &SYSNAME
- &SYSPLEX
- &UNIT.

In the STKTAP1 environment, the &ANYVOL variable is used only to match a specific VOLSER and does not contain the "REF=*xx*" values for VOL=REF allocations.

The &DATACLAS field is set when the JCL DD statement specifies this parameter.

&LIBNAME is set to character "3" if SMSDef TEMPdsn(ON) is specified and the current data set being processed is a temporary data set.

If your installation uses the IGDACSXT routine to modify the read-only variables before the DFSMS ACS routine calls, be aware that the following variables, even if initialized, are not passed to the DFSMS ACS routines when &ACSENVIR is set to STKTAP1.

- &ACCT_JOB
- &ACCT_STEP
- &GROUP
- &MSGVP
- &USER
- &XMODE

Refer to the IBM manual *DFSMSdfp Storage Administration Reference* for more information about constraints when using read-only variables.

Using the SMC POLicy Command with SMC DFSMS MGMTCLAS

The SMC SMSDef operator command is used to tailor default SMC DFSMS support. It allows you to include or bypass certain SMC DFSMS functions.

SMC 6.2 introduces a new MGMTPol parameter for the SMC SMSDef operator command. This optional parameter is used to specify whether the management class name returned by the SMC DFSMS ACS routine is to be interpreted as an SMC policy name. MGMTPol values include:

- **OFF**

  The SMC Does not interpret management class as an SMC policy name. This is the default value.

- **ON**

  The SMC interprets management class as an SMC policy name in JES2 during common allocation (SSI24) and mount message processing, and in JES3 during JES3 Converter/Interpreter (C/I), SSI23 JES3 Dynamic Allocation, JES3 Main Device Scheduler (MDS), and mount message processing.

- **IDAX**

  The SMC interprets management class as an SMC policy name **only** during IDAX processing.

- **ALL**

  The SMC interprets management class as an SMC policy name during all of the processes mentioned above.

When the MGMTPol parameter indicates that a management class name is to be interpreted as a policy name, SMC first attempts to find a policy name that matches the management class name. If a match is found, all applicable policies in the policy command are applied. If no matching policy is found, other DFSMS processing is performed as specified in the SMSDEF command.

Examples

Esoteric Substitution Example

The following commands are in effect:

```
ALLOCDEF SMS(ON)
SMSDEF MGMTPOL(IDAX) ESOTSUB(ON)
POLICY NAME(POL1) IDAXESOTERIC(ABC)
```

During IDAX processing the SMC DFSMS ACS routine returns a STORGRP of 'STK1', 'XYZ' and a MGMTCLAS POL1. SMC attempts to interpret the MGMTCLAS name POL1 as a policy name. POL1 is a valid policy name, and therefore, SMC uses esoteric ABC for the allocation.

Next, suppose the SMC DFSMS ACS routine returns a STORGRP of 'STK1','XYZ' and MGMTCLAS POL2. SMC attempts to interpret MGMTCLAS POL2 as a policy name. However, POL2 does not exist, and therefore, the esoteric supplied by the STORGRP DEF is applied to the allocation.

VTV Management Class Example

The following commands are in effect:

```
ALLOCDEF SMS(ON)
SMSDEF MGMTPOL(ALL) VTVMGMT(ON)
POLICY NAME(POL1) MGMTCLAS(ABC) SUBPOOL(SUB1)
```

During mount message processing, the SMC DFSMS ACS routine returns a MGMTCLAS POL1. The SMC attempts to interpret the MGMTCLAS name POL1 as a policy name. POL1 is a valid policy name, and therefore, SMC uses MGMTCLAS(ABC) and SUBPOOL(SUB1) for the mount processing.

Next, suppose the SMC DFSMS ACS routine returns a MGMTCLAS POL2. POL2 is not a valid policy name, and therefore, SMC uses MGMTCLAS(POL2) for the mount processing.

Suppose the SMSDEF command specified VTVMGMT(OFF). POL2 is not a valid policy name, and therefore, no policy is applied to the mount request.

SMC DFSMS Esoteric Substitution Using Returned Storage Groups

When the SMSDEF parameter ESOTSUB(ON) is specified and DFSMS management class policy is not in effect, SMC may perform esoteric substitution based on the DFSMS storage groups returned from the SMC DFSMS routine. SMC calls the DFSMS ACS routines with the environment variable &ACSENVIR set to STKTAP1. When the ACS routines return a pair of storage group names with the first name being STK1, the second storage group name is interpreted as the substitution esoteric.

See "SMC Esoteric Substitution at IDAX" on page 74 for more information.

Defining Storage Groups and Storage Classes

There are two methods used to enable esoteric substitution during IDAX processing.

Method 1 (Recommended)

Perform the following steps:

1. Specify the MGMTPol(ON) parameter on the SMSDef command to specify that the ACS routine management class name is used to reference a named policy.
2. Specify the IDAXESOTeric parameter on the POLicy to specify a "true" esoteric name to be substituted during IDAX processing.

Method 2

Perform the following steps:

1. Define a storage group of type POOL named STK1.
2. Define a storage group of type POOL for each possible esoteric returned, giving it the same name as the esoteric name.
3. Define at least one volume to each storage group. It is recommended that you use a nonexistent volume for this definition.
4. Create a storage class ACS routine that, when it is invoked by the SMC (i.e., when the environmental variable is &ACSENVIR=STKTAP1), returns a storage class to be passed to the storage group ACS routine. See FIGURE 4-2 on page 83.
5. Create a storage group ACS routine that, when the environmental variable is &ACSENVIR=STKTAP1, returns two storage groups (e.g., &STORGRP= 'STK1','CART'). In this case, "STK1" is the first storage group returned, and "CART," the replacement esoteric, is the second. See FIGURE 4-2 on page 83.
6. Test for the &ACSENVIR=STKTAP1 read-only variable in the storage class and storage group ACS routines. This enables you to prevent the storage class being assigned when MVS invokes the ACS routines. If MVS invokes the SMC version of the ACS routines, the data set becomes DFSMS-managed and all SMC allocation functions are bypassed.
7. Return both a storage class and a storage group during the SMC invocation of the DFSMS ACS routines. If a storage class is returned but a storage group is not, DFSMS issues a message stating that allocation has failed, but in reality that may not be the case.

FIGURE 4-2 on page 83 provides sample storage class and storage group routines.

```
PROC STORCLAS

FILTLIST LOCALDSN INCLUDE (BACKUP*.**,
                           PROD.BKP*.**)

FILTLIST RMTDSN INCLUDE (PROD.OFFSITE.**)

  IF &ACSENVIR = 'STKTAP1' THEN
        SELECT
        WHEN &DSN = &LOCALDSN
          SET &STORCLAS = 'CART'
        WHEN &DSN = &RMTDSN
          SET &STORCLAS = 'RMTCART'
        END
  END

=============================================================================

PROC STORGRP

  IF &ACSENVIR = 'STKTAP1' THEN
        SELECT
        WHEN &STORCLAS = 'CART'
          SET &STORGRP = 'STK1','CART'
        WHEN &STORCLAS = 'RMTCART'
          SET &STORGRP = 'STK1','RMTCART'
        END
  END
```

FIGURE 4-2 Sample Storage Class/Storage Group Routines

Availability of Read-only Variables

During DFSMS STORCLAS/STORGRP ACS routine processing, all read-only variables listed in "DFSMS Automatic Class Selection (ACS) Routine Environment for SMC" on page 78, except &DSORG, are available to the IDAX interface for esoteric substitution. The &DATACLAS field is set when the DD statement in the JCL specifies this parameter.

Retrieving DFSMS Values During Allocation and Volume Mount

Requesting Policy or VTCS Management Class Using DFSMS ACS Routines

During allocation and mount processing, a management class name can be specified for a virtual allocation by coding any of the following:

- SMC POLicy command
- TAPEREQ statement
- MGMTCLAS ACS routine to specify VTCS management class name directly (MGMTPol(OFF))
- MGMTCLAS ACS routine to specify SMC policy name (MGMTPol(ON))

The MGMTCLAS JCL parameter is not supported by the SMC DFSMS interface.

Note –

- If the SMSDef operator command, MGMTPol parameter is set to **ON**, the management class name returned by the SMC ACS routine is interpreted as an SMC policy name, and the SMC uses the associated SMC policy definition to determine **all** policy information for the allocation or mount request. See "SMSDef Command" on page 189 for more information about the SMSDef command.
- The MGMTCLAS management class name overrides a TAPEREQ management class name or POLicy name.
- You must specify SMSDef TEMPdsn(ON) before a management class can be assigned to a temporary virtual data set.

When writing a management class routine, keep in mind:

- The management class routine is invoked only when a storage class is assigned.
- The management class routine must test for the &ACSENVIR='STKTAP1' read-only variable value.
- During volume mount message IEC501A interception, the &UNIT read-only variable contains the generic unit type, such as 3490. Therefore, careful consideration must be taken when coding ACS routines that use the &UNIT read-only variable.
- DFSMS issued messages for JES3 static allocations are routed to the SMC GTF trace file.

The following figure provides a sample management class routine:

```
PROC STORCLAS

  IF &ACSENVIR = 'STKTAP1' THEN
       SET &STORCLAS = 'STKSTORC'
    END
  END

================================================================================

PROC MGMTCLAS

FILTLIST LOCAL INCLUDE(BACKUP*.**.,
                       PROD.BKP*.**)

FILTLIST REMOTE INCLUDE(PROD.OFFSITE.**)

  IF &ACSENVIR = 'STKTAP1' THEN
    SELECT
    WHEN (&DSN = &LOCAL)
      SET &MGMTCLAS = 'INVTAPE'
    WHEN (&DSN = &REMOTE)
      SET &MGMTCLAS = 'OFFVTAPE'
    END
  END
```

FIGURE 4-3 Creating Management Class Routines

Note – In this example, the STORCLAS routine assigns a storage class to every call. This ensures that the MGMTCLAS routine is also driven at mount time. If SMSDef MGMTPol is set to ON, the management class name is used to reference a named policy. Otherwise, the management class name is interpreted as a VTCS MGMTCLAS.

Interaction Between SMC DFSMS MGMTCLAS and VTCS MGMTCLAS

SMC 6.2 introduces a new MGMTPol parameter for the SMC SMSDef operator command. This optional parameter is used to specify that the management class name returned by the DFSMS ACS routine is interpreted as an SMC policy name.

The interaction of the MGMTPol and VTVmgmt parameters determines how the returned management class is interpreted:

	VTVMGMT(ON)	VTVMGMT(OFF)
MGMTPOL(ON)	Interpret as an SMC policy. If policy name is not found, interpret as a VTCS management class.	Interpret as an SMC policy. If policy name is not found, no policy is used.
MGMTPOL(OFF)	Interpret as a VTCS management class. Other policies may be specified on TAPEREQ.	The DFSMS ACS management class is ignored.

Example

This example illustrates the use of the SMC SMSDef operator command to influence VTCS management class and scratch subpool:

1. The MGMTCLAS ACS routine specifies management class name POL1.
2. The SMSDef operator command, MGMTPol parameter is set to **ON**.

Therefore, the management class name POL1 is interpreted as a policy name and the SMC uses the POL1 policy definition (defined by an SMC POLicy command) to satisfy the request:

```
POLICY NAME(POL1) MGMTCLAS(ABC) SUBPOOL(XYZ) RECTECH(VIRT)
```

Requesting Recording Technique/Media using DFSMS DATACLAS

During allocation processing, the media and/or recording technique can be specified for a DD allocation by coding:

- SMC POLicy command
- TAPEREQ statement
- DATACLAS parameter on the DD statement
- DATACLAS ACS routines

During scratch volume mount processing, only the volume media can be specified.

The following DATACLAS media and recording techniques are supported:

Media:

- MEDIA 1 (Standard capacity 18-track and 36-track media) (default)
- MEDIA 2 (Enhanced capacity 36-track media)

Recording Techniques:

- 18TRACK (18-track recording technique)
- 36TRACK (36-track recording technique)

Note –

- If an SMC policy is selected using the SMS management class with the SMSDef MGMTPol option set to ON or ALL, then the DCrecmed value returned from the DFSMS ACS routine is **not** honored. In all other cases, the DCrecmed value is honored and takes precedence over a TAPEREQ MEDia/RECtech value or a MEDia/RECtech value set via TAPEREQ POLicy.
- You cannot specify a DATACLAS of VIRTUAL via the SMC DFSMS interface. Instead, Use MGMTclas and POLicy statements to specify VIRTUAL.

Defining Data Classes

To use DATACLAS, customers must define their own data class and specify the recording technique and media. If the recording technique is left blank, the SMC defaults to allowing both 18TRACK and 36TRACK to remain eligible for the allocation request, unlike MVS, which defaults to 36TRACK.

As an example, a customer can define a DATACLAS named STD18 that specifies a recording technique of 18TRACK and standard media.

In JES3, when specifying a DATACLAS by coding it on the DD statement, the system programmer must have installed the optional Type-1 modification to IATIICM. The Type-1 modification retrieves the DATACLAS, determines its recording technique and media specification, and saves it in the IJSMEDIA field. This information is used during C/I processing (IATIIP1) and then passed to the JSTMEDIA field and used again during MDS processing.

When using an ACS routine to supply a DATACLAS to set recording technique and media, do not specify &ACSENVIR='STKTAP1'. The DATACLAS ACS routine is invoked both by the SMC and MVS, and the resulting recording technique and media should be consistent.

The following figure provides a sample data class routine:

```
PROC DATACLAS

FILTLIST RMTDSN INCLUDE(PROD.OFFSITE.**)

  SELECT
  WHEN &DSN = &RMTDSN
    SET &DATACLAS = 'ECART36'
  END
```

FIGURE 4-4 Sample Data Class Routine

In the example above, assume DATACLAS ECART36 is defined with a recording technique of 36-track and a media type of MEDIA2. This data class routine example assigns ECART36 to data sets with names that start with "PROD.OFFSITE."

By default, any DATACLAS value specified by the DFSMS ACS routine overrides the DATACLAS parameter specified on the JCL statement. Your installation can change this behavior by adding the following statements to your DFSMS DATACLAS ACS routine.

```
WHEN (&DATACLAS NE '')
DO
SET &DATACLAS = &DATACLAS
EXIT
END
```

Note – During JES3 C/I POSTSCAN processing, JES3 MDS processing, and IAT5210 mount message processing, the DATACLAS name specified on the JCL statement is not available and is not passed to the ACS routines. Thus, the statements above may not produce the expected results.

Availability of Read-only Variables

During DFSMS ACS routine processing, the SMC sets the values for all read-only variables when the information is available. Not all information is available for each process for which the SMC calls ACS routines.

JES2

- At allocation time and at mount time processing of message IEF233A, the &UNIT read-only variable is set by the SMC to the value specified by the UNIT= parameter of the DD statement. At mount time processing of message IEC501A, the SMC sets the &UNIT read-only variable to the generic unit type, such as 3490.
- During dynamic allocation, the &DATACLAS value can be specified by coding the DADACL text unit. However, this value is not available to the SMC when processing mount message IEF233A.

JES3

During JES3 C/I POSTSCAN processing, the following read-only variables are **not** available to the SMC:

- &DATACLAS (if specified in JCL)
- &EXPDT
- &PGM
- &RETPD

During SSI23 dynamic allocation processing, all read-only variables are available to the ACS routines.

During JES3 MDS processing, the following read-only variables are **not** available to the SMC:

- &DATACLAS (if specified in JCL)
- &EXPDT
- &PGM
- &RETPD

During IAT5210 mount message processing, the following read-only variables are **not** available to the SMC:

- &DATACLAS (if specified in JCL)
- &EXPDT
- &PGM
- &RETPD
- &UNIT (does not contain the original esoteric but does contain the selected device number, such as 0A10)

When processing mount message IEF233A for a dynamic allocation, the &DATACLAS value specified by the SVC99 text unit DADACL is **not** available.

When processing mount message IEC501A, the SMC sets the &UNIT read-only variable to the generic unit type, such as 3490.

Note – Each SMC interaction with DFSMS invokes all levels of ACS routines. The variable availability listed above applies to all ACS routines.

Validating DFSMS ACS Routine Execution

DFSMS provides the following ways to validate correct ACS routine execution:

- DFSMS WRITE statement in the ACS routines
- DFSMS ISMF test function

When the SMC invokes the DFSMS ACS routines, all messages issued by DFSMS WRITE statements are routed to the GTF trace file if SMC tracing is active.

Note –

- DFSMS WRITE statements are **only** sent to the SYSMSG data set for the SSI55 Interpreter/Dynamic Allocation Exit (IDAX) esoteric substitution phase.
- Refer to the publication *DFSMS/MVS DFSMSdfp Storage Administration Reference* for further information about writing and testing DFSMS ACS routines.

CHAPTER 5

Allocation

Overview

A primary function of the SMC is to influence the operating system selection of tape drives during allocation to ensure that acceptable devices are selected in a StorageTek TapePlex and virtual environment. In addition, the SMC creates a preferred list of acceptable devices based on specific volume location, scratch load balancing, and user policies. Although the mechanism by which allocation is influenced differs between JES2 (or JES3 without SETUP) and JES3 with tape setup, the logic that selects the acceptable and preferred devices is the same for all systems.

Generally, SMC allocation cannot add devices to the original list created from the job's JCL. It can only eliminate unacceptable devices and preference the remaining acceptable devices. However, by using the SMC IDAX interface (see page 74) or the SMC DFSMS interface (see page 75), you can replace the original esoteric in the JCL with any other esoteric, which may have different devices or device types.

The SMC determines the list of drives acceptable for each tape allocation by applying a series of criteria (referred to as "exclusion levels") to the initial set of devices, removing those drives that do not meet the criteria. This process is referred to as **drive exclusion**.

If the SMC attempts to apply a particular exclusion criterion and as a result, all remaining eligible drives are excluded, messages SMC0045 and SMC0046 are displayed indicating that a particular exclusion criterion could not be applied. However, the exclusion process continues, with the SMC applying subsequent criteria if possible.

SMC allocation may intentionally cause a job to fail allocation when it appears that a mount to any of the drives in the available list would fail. For example, a volume with a media STK1R cannot be physically mounted on a 9490 drive, and a nonlabeled tape cannot be virtual.

Additionally, some customers may prefer to fail a job in allocation rather than use undesired scratch media or require a specific volume to be ejected and entered into a different ACS. The SMC ALLOCDEF (or ALLOCJOB) MINLVL parameter can be used to fail jobs in allocation, or conversely, to override the SMC default behavior of failing jobs in allocation.

- Setting MINLVL=0 specifies that the SMC should NEVER fail a job in allocation.
- The default MINLVL, 2, indicates that jobs should be failed in allocation only for incompatible media or virtual label type.

Customers may set MINLVL to higher values if desired. See "SMC Drive Exclusion" below for detailed information about SMC exclusion levels for specific and scratch volumes.

After all exclusion criteria have been applied, the remaining drives are arranged in order of their desirability based on policy, volume location or scratch count, and last mount time. This process is referred to as **drive prioritization**. During this process, the SMC also sets flags in MVS control blocks to indicate that the mount should be deferred until OPEN, unless a policy specifies that mounts should not be deferred.

Note – SMC allocation does not consider the status of the drives (e.g. offline, busy) when selecting drives eligible for an allocation request. If all SMC-selected drives are unavailable, the job enters allocation recovery.

SMC Drive Exclusion

The SMC drive exclusion process includes the following steps:

1. The SMC examines the initial list of eligible devices for each tape DD in each jobstep (or dynamic allocation), and gathers policy information from various sources, including DFSMS ACS routines, a combination of SMC POLicy commands and TAPEREQ control statements, and user exits.
2. The SMC performs "volume lookup" by communicating with one or more TapePlexes, and gathering information about specific volume characteristics and location, as well as available scratch volumes. If the SMC is unable to obtain this information from a TapePlex, the ALLOCDef FAILnoinfo parameter may be used to control whether the job is allowed to fail in allocation or to proceed based only on available policies.
3. The SMC applies the information received from volume lookup and policies using an ordered set of levels, with the earliest (lowest numbered) levels applied first and least important levels applied later, e.g. level 2 is considered more important, and is applied before level 3, etc.

Whenever application of a particular exclusion would eliminate all drives, the SMC ignores the criterion and continues with the next exclusion level.

Note – See Chapter 4, "Policy" for a description of SMC Policy specification.

Allocation User Exits

If allocation user exits are specified using the SMC UEXIT command, these exits are executed prior to the drive exclusion process. Only one user exit may be specified for each type of allocation. Each exit may be in either HSC or MVS/CSC format, though support for MVS/CSC format exits will be dropped in the next release.

Allocation user exits include:

- UX02 - JES2 (or JES3 without tape setup) Scratch volume user exit
- UX08 - JES2 (or JES3 without tape setup) Specific volume user exit
- UX04 - JES3 with tape setup Scratch volume user exit
- UX13 - JES3 with tape setup Specific volume user exit

The Scratch volume user exits are invoked prior to the volume lookup. Their policies, including esoteric and TapePlex name, may be used to influence which TapePlexes are queried by the SMC for available scratch volumes.

The Specific volume user exits are invoked after volume lookup and are passed the TapePlex name and the location where the volume resides, if the volume is found in a TapePlex. The exit may supply either an esoteric or a different TapePlex name to force the allocation to a different location than that determined by the volume lookup.

Note –

- It is recommended that you replace user exits with SMC POLicy and TAPEREQ statements whenever possible.
- Refer to the *NCS User Exit Guide* for more information about the NCS allocation user exits.

Drive Exclusion - Specific Volumes

For a specific volume allocation, the SMC excludes drives in order from lowest exclusion level to highest based on the criteria in the following table. The lower the level number, the more important the exclusion criteria.

TABLE 5-1 Drive Exclusion Levels (Specific Request)

Level	Specific Volume Criteria	Keyword†
1	For non-labeled (NL) specific volume requests, exclude **all** virtual drives. Exclude all MODEL=IGNORE drives. Exclude drives incompatible with the volume media. **Primary source:** external volume label **Secondary source:** VOLATTR MEDIA parameter The volume media can be obtained from the volume label or from an HSC VOLATTR statement MEDIA parameter.	VIRTUALLABEL MEDRECTECH
2*	For virtual volumes only, exclude virtual drives that reside in an inaccessible VTSS or in a VTSS to which a migrated virtual volume cannot be recalled.	AVAILVTSS
3	Exclude drives based on the required recording technique. **Source:** VOLATTR RECTECH parameter or volume density (i.e. 9840A/B and 9840C).	VOLATTRRECTECH
4	Exclude drives based on user location policies. **Primary source:** POLicy or TAPEREQ ESOTERIC parameter. **Secondary source:** Specific volume user exit (08/13) or affinity separation exit (10/12) return codes.	USERPOLICY
5	Exclude drives based on the SMC ALLOCDEF EXTVOLESOT esoteric.	EXTVOLESOT
6	Exclude drives based on volume location type (i.e. library or nonlibrary).	LOCTYPE
7	Exclude drives based on the ACS location of the volume (for library volumes), and the resident VTSS for virtual volumes.	ACSORVTSS
8	Exclude drives based on the requested recording technique. **Primary source:** DFSMS data class recording technique. **Secondary source:** POLicy or TAPEREQ RECTECH parameter.	POLRECTECH

*Level 2 is the default minimum level.

†Keywords associated with each exclusion level are specified in the exclusion criteria displayed in message SMC0046.

Example

The following example illustrates how the SMC applies exclusion levels to influence the allocation of specific volumes.

JCL:

```
//DDNAME DD DSN=ABC.DEF,DISP=OLD
```

Policy specification:

```
POLICY NAME(POL1) VOLTYPE(SPECIFIC) ESOTERIC(A19840B,A19840A)
RECTECH(STK1RB)

TAPEREQ DSN(ABC.*) POLICY(POL1)
```

Volume lookup information:

- Specific volume VOL123
- SMC volume lookup indicates that VOL123 has a media type of STK1R single density in TapePlex HSCLIB ACS 0.

Allocation exclusion processing:

1. Starting at exclusion level 1, the SMC excludes all non-9840 devices (those not compatible with the volume media).
2. Level 2 has no effect.
3. The SMC does not exclude any devices at level 3 since there was no HSC VOLATTR to limit the volume to single density drives.
4. The SMC excludes all drives not in the esoteric A19840B or A19840A.
5. The SMC does not exclude any devices at level 5 because the volume is in the TapePlex.
6. The SMC excludes all nonlibrary drives, if any remain.
7. The SMC attempts to exclude all drives not in ACS 0. However, since the remaining devices at this point include only 9840 drives in ACS1 (based on the esoterics A19840B and A19840A), there are no drives remaining in the EDL after this exclusion.

   The SMC then "backs up" to the EDL as it was prior to the level 7 exclusion and issues messages SMC0045/SMC0046 specifying ACSORVTSS as the conflicting criterion.

   Only drives in esoterics A19840B and A19840A remain eligible, based on exclusion level 4.
8. Level 8 has no effect.

Allocation preference processing:

During drive prioritization, SMC assigns a higher preference value to drives in esoteric A19840B, and a lower preference value to drives in A19840A.

Drive Exclusion - Scratch Volumes

For a scratch volume allocation, the SMC excludes drives in order from lowest exclusion level to highest based on the criteria in Table 3. The lower the level number, the more important the exclusion criteria.

TABLE 5-2 Drive Exclusion Levels (Scratch Request)

Level	Scratch Volume Criteria	Keyword*
1	For nonlabeled (NL) scratch volume requests, exclude **all** virtual drives. Exclude all MODEL=IGNORE drives.	VIRTUALLABEL
2	For virtual volumes only, exclude virtual drives that reside in an inaccessible VTSS, and all drives in VTSSs that do not support the requested VTCS Management Class.	AVAILVTSS
3	Exclude drives based on the requested media. **Primary source:** DFSMS data class media specification. **Secondary source:** POLicy or TAPEREQ MEDIA parameter. **Tertiary source:** Scratch volume user exit (02/04) virtual media return code or virtual esoteric.	POLMEDIA
4	Exclude drives based on user location policies. **Primary source:** POLicy or TAPEREQ ESOTERIC parameter. **Secondary source:** Scratch volume user exit (02/04) or affinity separation exit (10/12) return codes.	USERPOLICY
5	Exclude drives based on the media of available scratch volumes in subpool. **Primary source:** POLicy or TAPEREQ SUBPOOL parameter. **Secondary source:** Scratch volume user exit (02/04) subpool name or number. **Tertiary source:** Scratch subpool 0 (default subpool), containing all real and virtual scratch tapes including those in named subpools.	SUBPOOL
6	Exclude library, nonlibrary, or virtual drives based on location of available library or virtual scratch volumes.	LOCTYPE
7	Exclude drives based on the SMC ALLOCDef command ZEROSCR parameter.	ZEROSCRATCH
8	Exclude drives based on the requested recording technique. **Primary source:** DFSMS data class recording technique. **Secondary source:** POLicy or TAPEREQ RECTECH parameter.	POLRECTECH

***Keywords associated with each exclusion level are specified in the exclusion criteria displayed in message SMC0046.**

Example - Real Scratch Volume

The following example illustrates how the SMC applies the exclusion levels to influence the allocation of scratch volumes.

JCL:

```
//DDNAME DD DSN=DEF.GHI,DISP=NEW
```

Policy specification:

```
POLICY NAME(POL2) VOLTYPE(SCRATCH) SUBPOOL(SP1) MEDIA(ECART)
MODEL(9490)

TAPEREQ DSN(DEF.*) POLICY(POL2)

SMC ALLOCDEF ZEROSCR(ON)
```

Scratch user exit returns use SUBPOOL(SP2) and ESOTERIC(XYZ).

Volume lookup information:

SMC volume lookup reports that TapePlex HSCLIB has scratch volumes in subpool SP1.

Allocation exclusion processing:

1. Starting at exclusion level 1, the SMC excludes drives which have an SMC UNITATTR command specifying MODEL=IGNORE.
2. Level 2 has no effect.
3. The SMC excludes all devices that do not support a media ECART.
4. Because POLicy is specified, the user exit esoteric XYZ is ignored, and level 4 has no effect. Message SMC0197 is issued to indicate this.
5. The SMC excludes all drives not compatible with the scratch volumes in subpool SP1 (TAPEREQ policy overrides user exit policy).
6. The SMC excludes all nonlibrary drives.
7. If scratch volumes for SP1 exist only in a single ACS, the SMC excludes drives in other ACSs.
8. The SMC excludes all remaining drives that do not have a MODEL of 9490.

Example - Virtual Scratch Volume

The following example illustrates how the SMC applies the exclusion levels to influence the allocation of virtual scratch volumes.

JCL:

```
//DDNAME DD DSN=GHI.JKL,DISP=NEW
```

Policy specification:

```
POLICY NAME(POL3) VOLTYPE(SCRATCH) ESOTERIC(VTSS1) SUBPOOL(VIRT1)
MGMTCLAS(MGMT1)

TAPEREQ DSN(GHI.*) POLICY(POL3)

SMC ALLOCDEF SMS(ON)

SMC SMSDEF MGMTPOL(OFF) VTVMGMT(ON)

The DFSMS routine returns Management Class MGMT2.
```

Volume lookup information:

SMC volume lookup returns a list of VTSSs eligible for scratch allocation. In this example the list returned is VTSS2 and VTSS3 based on online VTSSs with access to ACSs and RTD recording techniques compatible with MGMT2.

Note – Management class MGMT2 from DFSMS overrides management class MGMT1 from TAPEREQ POLICY.

Allocation exclusion processing:

1. Starting at exclusion level 1, the SMC excludes drives which have an SMC UNITATTR command specifying MODEL=IGNORE.
2. The SMC excludes all virtual drives not in either VTSS2 or VTSS3.
3. The SMC excludes all non-virtual drives because the POLICY esoteric VTSS1 contains only virtual drives.
4. The SMC excludes all drives not in VTSS1.

   Since VTSS1 is not one of those returned by HSC/VTCS, the SMC "backs out" the level 4 exclusion and issues messages SMC0045/SMC0046, but continues other processing. Only drives in VTSS2 and VTSS3 remain eligible, based on exclusion level 2.

   In this example, the remaining exclusion levels have no effect.

Affinity Separation

Explicit unit affinity is an MVS facility that allows volumes associated with two separate JCL DD statements, or allocation requests, to be mounted serially on the same drive. A request for all generations of a GDG group (GDG ALL chain) can be considered as a GDGALL affinity.

The SMC makes no distinction between these two types of affinity. When processing an affinity chain, the drive exclusion process examines each allocation in the chain separately up to and including the minimum exclusion level. The chain is always separated when the minimum exclusion level processing results in lists of eligible drives, for two or more members of the chain, that do not contain common drives.

For example:

```
//DD1 DD UNIT=CART,DSN=MY.STK1R.DATASET,DISP=OLD
//DD2 DD UNIT=AFF=DD1,DSN=MY.LONGI.DATASET,DISP=OLD
```

DD1 specifies a data set on 9840 or T9840B media and DD2 specifies a data set on longitudinal media. Drive exclusion level 1 for specific volumes creates a list of eligible drives for each DD according to volume media required. The two lists do not contain a common drive. As a result, the SMC breaks the affinity chain between DD1 and DD2, and the two DD statements no longer represent one drive allocation but two separate allocation requests.

Affinity Head-Of-Chain

For SMC affinity chain processing, the head of the affinity chain containing only scratch or only specific volumes is the first DD statement in the chain. If an affinity chain contains both scratch and specific volumes, the first specific volume is treated as the head of chain.

User Policy Influence on Affinity Separation

After the minimum level of drive exclusion and affinity separation completes, user policy influences the remaining affinity separation decisions.

The ALLOCDef or ALLOCJob SEPLvl parameter can be used to indicate that affinity chains NOT be separated based on the exclusion levels described in this chapter. User exits 10 and 12 can also be used to control affinity separation. Refer to the *NCS User Exit Guide* for more information.

Drive Prioritization

SMC drive priority is assigned based on the following criteria:

- For specific volumes, drives in LSMs closest to the volume are preferred. The SMC sets equal priority value for drives that are located the same number of passthrus away from the specific volume.
- For scratch volumes, drives in LSMs with the largest number of scratch volumes matching the policy-requested media and rectech are preferred.
- The POLicy ESOTeric list causes drives to be preferred according to the order specified in the esoteric list.
- The POLicy PREFer parameter indicates the relative priority of LSM location (location for specific volumes), the esoteric list (esoteric for both scratch and specific volumes) and scratch count (count for scratch volumes) in determining the preference value of each device.
- The TAPEREQ DEVTPREF parameter causes drives with specific recording technique to be preferred.
- The TAPEREQ SCOPE parameter indicates the relative priority of LSM location and device type in determining the preference value of each device.

The following parameters, control statements, and user exits also influence drive priority:

- HSC ALLOC command parameters LOWSCR, LSMPREF, and SCRTECH
- Scratch user exit (HSC format user exit 02 or 04)

After a final list of drives has been selected for allocation, the preference order of the eligible drives (after considering LSM and drive type preferencing) is selected based on a "last use" algorithm.

To reduce excessive wear on allocated drives, the SMC assigns drive preference values by rotation based on the "last mount time" for each drive. This value is examined for every drive in the final drive list. The drive that had the most recent mount is located, and the drive immediately following it in the list is selected as the most preferred for the current allocation.

Note – This algorithm does not apply to virtual drives.

Deferring Mounts

By default, the SMC defers all automated tape mounts. The SMC ALLOCDef command DEFER parameter can be set to override this default. For optimal performance, it is recommended that you use the default DEFER(ON). See "ALLOCDef Command" on page 129 for more information about this parameter.

Note – Virtual mounts are always deferred.

SMC Allocation Exceptions

The SMC does not influence the following types of cartridge tape allocation:

- Demand allocation (i.e., request for a specific drive(s))

Note – The SMC does perform DEFER processing for demand allocation.

- Allocations excluded explicitly by entering the ALLOCJob command BYPASS parameter. See "ALLOCJob Command" on page 136 for more information about this parameter.
- Allocations where the list of eligible devices contains only devices that are "unknown" (i.e., not virtual, not library, and not defined in an SMC UNITAttr command).
- DFSMS-managed allocation. An SMS-managed data set is defined as a data set that has a storage class defined. A storage class is assigned when either:
  - The STORCLAS parameter is specified on the DD statement.
  - An installation-written ACS routine selects a storage class for a new data set.

SMC Allocation Processing - JES2 Operating System Hooks

The SMC examines all I/O device allocations on a JES2 system to determine whether to process the allocation request.

The SMC uses the MVS subsystem interface (SSI) IEFJFRQ Subsystem Function Request exit to gain control during tape allocation events. The SMC takes control in the JES2 environment for these Subsystem Functions:

- SSI55 - DFSMS Interpreter/Dynamic Allocation Exit (IDAX)
- SSI24 - common allocation
- SSI78 - tape allocation

SSI55 IDAX (Interpreter/Dynamic Allocation Exit)

During MVS JCL interpretation processing, IDAX provides an opportunity to replace the JCL unit parameter, volume count, retention period or expiration date, and other specific JCL attributes for DISP=NEW (and optionally DISP=MOD) data sets.

Note – This function is optional. See "SMC Processing at IDAX" on page 73 for information about implementing SMC IDAX processing and specifying IDAX policy attributes.

SSI24 Common Allocation

During SSI24 common allocation processing, the SMC performs the following processes to arrive at the best set of eligible drives:

- Drive exclusion
- Unit affinity separation
- Defer processing (when CA1RTS is set to ON)
- EDL updated with the drive exclusion results (when MIACOMPAT is set to ON)

The results of the drive exclusion process are not reflected in MVS control blocks until tape allocation time, unless MIACOMPAT or CA1RTS is set to ON.

The results of unit affinity separation are used to update MVS VOLUNIT entries in the SIOT.

SSI78 Tape Allocation

During SSI78 tape allocation processing, the SMC performs the following:

- Updates to MVS control blocks based on drive exclusion results (unless MIACOMPAT is set to ON)
- Drive prioritization
- Mount deferral (unless CA1RTS is set to ON)

The SMC sets all unacceptable drives to ineligible status and assigns a priority to each drive that remains eligible for the allocation. The higher the priority, the more likely the device will be chosen for the mount.

The SMC updates the IEFSSTA control blocks for mount deferral, drive exclusion, and prioritization during SSI78 processing.

SMC Allocation Processing - JES3 Considerations

SMC Allocation - JES3 Not Managing Drives

If JES3 is not managing any devices and SETUP=NONE has been specified on the JES3 STANDARDS initialization statement, the SMC operates the same as it does in a JES2 environment.

If JES3 is not managing any cartridge drives but is managing other types of devices, specify the J3NOSET parameter on the EXEC statement of the SMC START procedure. See "Creating the SMC START Procedure" on page 62 for more information. When J3NOSET is specified, the SMC operates the same as it does in a JES2 environment.

If either SETUP=NONE or J3NOSET is specified, no Type 1 modifications need to be installed on your JES3 system.

SMC Allocation - JES3 Managing Drives

The SMC supports JES3-managed drives. JES3 manages drives through SETUP processing, which allocates drives identified on SETNAME statements when JOB, HWS (high watermark setup), or THWS (tape high watermark setup) is specified on the SETUP parameter of the JES3 STANDARDS initialization statement. In this environment, JES3 must manage all cartridge drives for the SMC to operate correctly.

SMC support operates during the following MVS subsystem interfaces (SSIs) and JES3 component phases:

- SSI55 Interpreter/Dynamic Allocation Exit (IDAX)
- JES3 Converter/Interpreter (C/I)
- SSI23 JES3 Dynamic Allocation
- JES3 Main Device Scheduler (MDS)
- SSI24 common allocation

SSI55 IDAX (Interpreter/Dynamic Allocation Exit)

SMC SSI55 processing is identical in JES2 and JES3. See "SSI55 IDAX (Interpreter/Dynamic Allocation Exit)" on page 102 for more information.

JES3 Converter/Interpreter (C/I)

During JES3 C/I POSTSCAN processing, the SMC substitutes an esoteric to eliminate unacceptable drives from the allocation. The SMC performs the following processes to arrive at the best set of eligible drives:

- Drive exclusion
- Affinity separation
- Esoteric unit name replacement to exclude unacceptable devices

At the end of JES3 C/I POSTSCAN processing, the SMC can defer the allocation until the job enters the initiator according to the SMC ALLOCDef command DEFER parameter. Also, at this point of processing, fetch messages can be suppressed according to the ALLOCDef command FETCH parameter.

SSI23 JES3 Dynamic Allocation

During SSI23 JES3 Dynamic Allocation processing, the SMC performs the same functions for dynamic allocations that the POSTSCAN C/I processes for common allocations:

- Drive exclusion
- GDGALL affinity separation
- Esoteric unit name replacement
- Mount deferral

JES3 Main Device Scheduler (MDS)

At the beginning of JES3 MDS processing, the SMC provides the ability to suppress fetch messages for dynamic allocation requests according to the SMC ALLOCDef command FETCH parameter.

During MDS device selection, the SMC sets preference values for drives according to their relative desirability, that is, JES3 selects the available drive with the highest preference value for the allocation.

SSI24 Common Allocation

If a mount has been deferred until the job enters an initiator, during SSI24 common allocation processing, the mount may be deferred further until the data set is opened. The SMC ALLOCDef command DEFER parameter determines whether or not the mount is deferred.

Esoteric Unit Name Replacement in JES3

After drive exclusion and affinity separation successfully complete, each allocation may have a new list of eligible drives. The search begins to find an esoteric containing that exact list of drives. The SMC replaces the original JCL unit name in the Intermediate Job Summary Table (IJS) with this new esoteric.

The search for the "perfect" esoteric begins with the original JCL unit name or the unit name from the catalog entry for that data set. For example, assume the data set being allocated has been cataloged with the unit name 3490. The following table lists all "3490" drives in the system.

TABLE 5-3 3490 Drive List

ACS0	ACS1	Nonlibrary Location
0A10: 9490	0C10: 9490	0E10: 9490
0B10: 9840	0C11: 9490	0E11: 9490

JES3 groups devices by XTYPE names and groups XTYPE names by esoterics. The following example shows DEVICE statements coded in the JES3 initialization parameters:

```
DEVICE,TYPE=TA33490,XTYPE=(ACS09490,CA),JNAME=CA10,
 JUNIT=(A10,MVS1,TAP,ON),XUNIT=(A10,MVS1,TAP,ON)

DEVICE,TYPE=TA33490,XTYPE=(ACS09840,CA),JNAME=CA11,
 JUNIT=(B10,MVS1,TAP,ON),XUNIT=(B10,MVS1,TAP,ON)

DEVICE,TYPE=TA33490,XTYPE=(ACS19490,CA),JNAME=CC10,
 JUNIT=(C10,MVS1,TAP,ON),XUNIT=(C10,MVS1,TAP,ON)

DEVICE,TYPE=TA33490,XTYPE=(ACS19490,CA),JNAME=CC11,
 JUNIT=(C11,MVS1,TAP,ON),XUNIT=(C11,MVS1,TAP,ON)

DEVICE,TYPE=TA33490,XTYPE=(NLIB9490,CA),JNAME=CE10,
 JUNIT=(E10,MVS1,TAP,ON),XUNIT=(E10,MVS1,TAP,ON)

DEVICE,TYPE=TA33490,XTYPE=(NLIB9490,CA),JNAME=CE11,
 JUNIT=(E11,MVS1,TAP,ON),XUNIT=(E11,MVS1,TAP,ON)
```

Each unique location and device type pair has a unique XTYPE name. For example, the 9490 drive in ACS0 has a unique XTYPE name because it is the only 9490 in that location. The two nonlibrary 9490 drives share an XTYPE name because they are the same device type in the same location. An XTYPE should always include either a single device type or multiple compatible device types. For example, 9840A and 9840B are compatible device types and may be assigned to the same XTYPE.

XTYPE names are associated with esoteric unit names in the JES3 initialization parameters as shown here:

```
SETNAME,XTYPE=ACS09490,NAMES=(CART,3490,LIBDRVS,ACS0DRVS,A09490)
SETNAME,XTYPE=ACS09840,NAMES=(CART,3490,LIBDRVS,ACS0DRVS,A09840)
SETNAME,XTYPE=ACS19490,NAMES=(CART,3490,LIBDRVS,ACS1DRVS,A19490)
SETNAME,XTYPE=NLIB9490,NAMES=(CART,3490,NLIBDRVS,NL9490)
```

Assume that during drive exclusion processing, the SMC determined the volume specified for this allocation resides in ACS0 and requires a 9490 drive. The drive exclusion process eliminates groups of drives by XTYPE.

In the environment defined above, the following XTYPE groups are no longer eligible for the allocation:

- ACS09840 - excluded at level 1 because T9840 drives are incompatible with the volume media
- NLIB9490 - excluded at level 6 because the volume is in the library and these drives are not
- ACS19490 - excluded at level 7 because the volume is in ACS0 and these drives are in ACS1

One XTYPE, ACS09490, remains eligible for allocation at the end of drive exclusion.

SMC esoteric unit name replacement now searches the SETNAME definitions for an esoteric that only contains the XTYPE ACS09490. For this allocation, the SMC selects the esoteric A09490 because it contains only XTYPE ACS09490 The A09490 esoteric replaces the original unit name, 3490, in the Intermediate Job Summary (IJS) table for that job.

If the example required two drives for the allocation (e.g., UNIT=(3490,2)) and the first volume to be mounted resides in ACS0, the results of drive exclusion would be as follows:

- ACS09840 - excluded at level 1 because T9840 drives are incompatible with the volume media.
- NLIB9490 - excluded at level 6 because the volumes are in the library and these drives are not.
- Exclusion level 7 fails.

On entry to level 7, three drives remain, two drives defined to XTYPE ACS19490 and the other drive to XTYPE ACS09490. If XTYPE ACS19490 were excluded because of ACS location, only one drive would remain. This allocation requires two drives. Thus, exclusion level 7 does not exclude the drives in ACS1.

Two XTYPEs, ACS09490 and ACS19490, remain eligible for allocation at the end of drive exclusion. The SMC esoteric unit name replacement now determines that XTYPE ACS09490 cannot be used for the allocation.

IBM APAR OW38427 to JES3 introduced the restriction that multi-unit allocations use devices defined in the same XTYPEs. Since XTYPE ACS09490 only contains one drive, it cannot satisfy the allocation requirements. The SMC esoteric unit name replacement now searches the SETNAME definitions for an esoteric that only contains the XTYPE ACS19490. The A19490 esoteric replaces the original unit name, 3490, in the IJS for that job.

After the SMC has updated the IJS, JES3 C/I processing continues. JES3 creates a Job Summary Table (JST) from the IJS table and performs any high watermark setup (HWS) chaining. During HWS chaining, JES3 can also change the esoteric unit name in the JST after the SMC changes the esoteric. The HWSNAME initialization statements define which esoteric unit names are subsets of other esoteric unit names. This allows JES3 to reuse devices in following steps.

See "JES3 Initialization Parameter Considerations" on page 109 for more information about setting up your installation's JES3 DEVICE, SETNAME and HWSNAME statements.

Suppressing Fetch Messages in JES3

By the time JES3 C/I processing completes, the IJS becomes the JST that represents the job for the remainder of its existence. The JST reflects the esoteric substitutions made by the SMC and JES3. The next stage for the job is the Main Device Scheduler (MDS).

At the beginning of MDS processing, JES3 begins preparing the job for allocation. Asking the operator to fetch volumes is an optional phase in MDS. JES3 issues a fetch message when a job requires a volume that is not currently mounted and the SETPARAM statement FETCH parameter is set to YES (the default). If the SETPARAM statement also specifies ALLOCATE=MANUAL, jobs are placed on the volume wait queue until the operator retrieves the volume(s) and issues the *START SETUP command.

A customer's installation may not want to receive fetch messages for volumes in the library. To do so for common allocation requests (JCL statement allocation), install the SMC version of the JES3 user exit IATUX09. For dynamic allocation requests, install the SMC Type-1 modification to IATMDFE.

Use the SMC ALLOCDef FETCH parameter to control the issuing of fetch messages. FETCH(OFF) is the default and suppresses fetch messages for any volume that is to be mounted on a library drive. If fetch messages are desired for nonlibrary volumes that are to be mounted on a library drive, FETCH(NONLIB) should be entered.

Note – FETCH(NONLIB) causes another volume lookup request to the TapePlex, which can affect performance.

If your system is running with ALLOCATE=MANUAL as described above, when fetch messages are suppressed for a volume allocation, that allocation does not go onto the volume wait queue.

If your system is running with the SETPARAM statement set to FETCH=NO, or if you prefer to receive fetch messages for all volumes, then the IATMDFE Type-1 modification does not need to be applied to your system. The IATUX09 user exit also performs other functions and should be applied.

Drive Prioritization in JES3

The next step in Main Device Scheduler (MDS) allocates the devices required for the job.

The SMC Type-1 modification to IATMDAL provides the SMC with the ability to review the list of drives available for each tape allocation. The list of drives contains drives that are online and available and are members of the group of drives defined in the esoteric placed in the Job Summary Table (JST) after drive exclusion processing.

JES3 Initialization Parameter Considerations

The TapePlex and nonlibrary drive environment must be defined to JES3 in the initialization deck using the following parameter statements:

- DEVICE statements to define drive addresses, device types, and XTYPEs
- SETNAME statements to define esoteric names and to associate them with XTYPEs
- HWSNAME statements to define the esoteric name relationships used during HWS processing

This section describes these statements and shows how to code them for a sample configuration. This configuration consists of the following drive addresses and esoterics attached to two systems, MVS1 and MVS2.

TABLE 5-4 Sample Configuration

Nonlibrary	ACS0	ACS1	Virtual
120-127 3480	220-223 4490	320-327 9490	A20-A5F VTSS1
140-143 3490	240-243 9490	440-447 9490	A60-A9F VTSS2
180-189 9840	280-289 9840	460-461 9940	

Note – The drive addresses and esoterics in this example are not meant to be taken literally but are intended to show how a wide variety of device types can be defined using JES3. Exact JES3 initialization statements are configuration dependent.

JES3 DEVICE Initialization Statements

DEVICE statements define the drives that JES3 can use to satisfy allocation requests. These statements define:

- Drive addresses
- JES3/MVS systems that can access the drives
- Initial drive online status
- Device type of the drive

The XTYPE parameter is especially important to SMC allocation. XTYPE connects devices with the same XTYPE value to a group of esoteric unit names. For example:

```
DEVICE,XTYPE=(DEV0220,CA),XUNIT
(220,MVS1,TAP,ON,220,MVS2,TAP,ON),
      NUMDEV=4,...
```

Devices 220-223 in ACS0 (TABLE 5-4 on page 109) have been associated with the XTYPE name DEV0220. This name allows JES3 to allocate a device from the group 200-223 when any of the esoteric unit names listed on the SETNAME statement associated with XTYPE DEV0220 are specified in JCL or in a catalog entry.

The SMC relies on each XTYPE group to be unique with regard to real drive type and location. In the list of drives for ACS0, the 4490 drives should not be defined with the same XTYPE as the 9490 drives. Also, the T9840 drives located in ACS0 should not be defined with the same XTYPE as the nonlibrary T9840 drives. Devices in different VTSSs should have different XTYPEs.

During SMC initialization, XTYPE groupings are examined to verify these XTYPE restrictions. If an XTYPE contains mixed devices types or mixed locations, the characteristics of the first drive in the XTYPE group defines the remaining drives.

The SMC configuration report utility shows XTYPE, esoteric, and drive information. See "Utilities" on page 239 for more information about the configuration report.

Note – Drives must be defined to MVS prior to defining them to JES3. Use the Hardware Configuration Definition (HCD) facility to assign MVS unit addresses to the devices in the I/O Configuration.

JES3 SETNAME Initialization Statements

The SETNAME statements define all esoteric unit names and device type names associated with JES3-managed devices. These esoteric unit names and device type names can be specified by the UNIT parameter on a DD statement or as the unit type in a cataloged data set entry.

DEVICE statements associate a set of drives with an XTYPE. The SETNAME statement associates the XTYPE with a group of esoteric unit names.

During SMC esoteric unit name replacement, the relationships among the devices, the XTYPEs, and the esoteric unit names enable the SMC to choose the optimal esoteric unit name.

Note – During allocation of specific volumes, the SMC attempts to substitute an esoteric containing only drives compatible with the volume. If all esoterics that are a subset of the original esoteric contain some drives not compatible with the volume (except for drives defined as MODEL=IGNORE in an SMC UNITAttr command), the SMC issues message SMC0068 and does not substitute for the original esoteric.

Therefore, to ensure the SMC's ability to perform esoteric substitution, you must define at least one esoteric containing only compatible drive types within each TapePlex. For example, if you have a single TapePlex that contains ECART and standard volumes and 9490, 4490 and 4480 drives, you must, at a minimum, define one esoteric containing only drives compatible with the ECART volumes (9490, 4490, and 4480 drives). You can also define other esoterics containing any desired combinations of these drive types.

For best SMC performance, define a unique esoteric for each drive type in each location. For example, an esoteric named A09840 can be defined to contain only the T9840 drives located in ACS0.

The following example shows how SETNAME statements can be coded for this single TapePlex configuration. The esoteric unit names specified in the NAMES parameter value list consist of the following:

CART	All cartridge drives in the environment
NLCART	All cartridge drives not in a library ACS
A0CART	All cartridge drives in ACS0
A1CART	All cartridge drives in ACS1
ALL*xxxx*	All cartridge drives of the same device type, *xxxx*, independent of location
LIB*xxxx*	All cartridge drives of the same device type, *xxxx*, in any library location
yyxxxx	All cartridge drives of the same device type, *xxxx*, in location yy
zzzzzzzz	All virtual devices in VTSS *zzzzzzzz*

The generic device type names, such as 3480 or SYS3480R, are also specified in the NAMES lists.

```
* 3480/NONLIBRARY
SETNAME,XTYPE=DEV120,NAMES=(SYS3480R,CART,3480,NLCART,NL3480)
*
* 3490/NONLIBRARY
SETNAME,XTYPE=DEV0140,NAMES=(SYS3480R,SYS348XR,CART,3490,NLCART,
                             ALL3490, NL3490)
*
* 9840/NONLIBRARY
SETNAME,XTYPE=DEV0180,NAMES=(SYS3480R,SYS348XR,CART,3490,NLCART,
                             ALL9840,NL9840)
*
* 4490/ACS0
SETNAME,XTYPE=DEV0220,NAMES=(SYS3480R,SYS348XR,CART,3490,A0CART,
                             A04490,A0DEVT90)
*
* 9490/ACS0
SETNAME,XTYPE=DEV0240,NAMES=(SYS3480R,SYS348XR,CART,3490,A0CART,
                             ALL9490,LIB9490,A09490,A0DEVT90)
*
* 9840/ACS0
SETNAME,XTYPE=DEV0280,NAMES=(CART,3590-1,A0CART,ALL9840,A09840)
*
* 9490/ACS1
SETNAME,XTYPE=ACS19490,NAMES=
(SYS3480R,SYS348XR,CART,3490,A1CART,
                              ALL9490,LIB9490,A19490)
*
* 9940/ACS1
SETNAME,XTYPE=DEV0460,NAMES=(CART,3590-1,A1CART,ALL9940,A19940)
*
* VIRTUAL DRIVES/VTSS1
SETNAME,XTYPE=DEV0A20,NAMES=(CART,3490,VIRTCART,VTSS1)
*
* VIRTUAL DRIVES/VTSS2
SETNAME,XTYPE=DEV0A60,NAMES=(CART,VIRTCART,VTSS2)
```

Refer to the appropriate version of the *IBM JES3 Initialization and Tuning Reference* for more information about esoteric unit name values for the SETNAME statement NAMES parameter.

JES3 HWSNAME Initialization Statements

HWSNAME statements define which esoteric unit names are subsets of other esoteric unit names. Used during JES3 high watermark setup (HWS), these statements determine if a device can be reused from step to step.

The first HWSNAME TYPE parameter specifies the esoteric unit name, known as the major name, used during HWS processing. The following esoteric unit names, called minor names, can be used as an alternate to the major name.

The order of the minor names listed in the HWSNAME statement is the order in which they can be substituted for the major name.

For example:

```
HWSNAME TYPE=(3490,ALL4490,ALL9490,ALL3490)
```

and

```
//STEP1 EXEC PGM...
//DD1   DD UNIT=3490,...
//STEP2 EXEC PGM...
//DD1   DD UNIT=ALL3490,...
//DD2   DD UNIT=ALL4490,...
```

JES3 HWS processing allocates two drives for this job. The Job Summary Table (JST) for the job after HWS shows the following esoterics for each DD allocation request:

- STEP1 DD1 and STEP2 DD2 JST entries contain ALL4490 because ALL4490 appears in the minor name list before ALL3490.
- STEP2 DD1 JST entry contains ALL3490.

Another example shows how HWS names are used when allocating across step boundaries:

```
//STEP1 EXEC PGM...
//DD1   DD UNIT=ALL9490,...
//DD2   DD UNIT=ALL4490,...
//STEP2 EXEC PGM...
//DD1   DD UNIT=3490
```

JES3 HWS begins with DD1 of STEP1 looking for an allocation in STEP2 that can use the same device. DD1 of STEP2 specifies 3490. The HWSNAME above for major name 3490 indicates that ALL9490 is an alternate (or minor) name for 3490. Therefore, STEP1 DD1 and STEP2 DD1 allocate the same drive. The JST entry for DD1 of STEP2 is not updated to reflect a new esoteric. The drive allocated for STEP1 DD2 is freed at the end of STEP1.

The minor names should not contain any devices that are not defined to the major name.

For example:

```
HWSNAME TYPE=(A0CART,ALL9840,...)
```

Assume the following:

- A0CART contains drives 220-223, 240-243, and 280-289.
- ALL9840 contains drives 180-189 and 280-289.

ALL9840 contains drives (180-189) not in A0CART. In this case, volumes inside the TapePlex requesting a T9840 drive may attempt to allocate to a drive outside the TapePlex after HWS processing by JES3. HWS processing occurs after SMC esoteric unit name replacement. Therefore, the HWSNAME definitions can affect the final allocation decision if JES3 also changes the esoteric unit name as in the first example.

The best solution for this situation is to create unique esoteric unit names (by location and device type) so that the SMC can select an esoteric unit name that has no minor name. See the HWSNAME entries in the following example that have been coded for the sample configuration.

```
* GENERIC MAJOR NAMES
HWSNAME TYPE=(SYS3480R)
HWSNAME TYPE=(SYS348XR)
HWSNAME TYPE=(3480,NL3480)
HWSNAME TYPE=(3490,SYS348XR,
              ALL3490,ALL9490,LIB9490,A0DEVT90,
              A04490,A09490,A19490,NL3490,NL9840)
HWSNAME TYPE=(3590-1, ALL9940,
              A09840,A19940)
*
* ALL DRIVES IN THE COMPLEX
HWSNAME TYPE=(CART,SYS3480R,SYS348XR,3490,3480,3590-1,
              ALL3490,ALL9840,ALL9490,ALL9940,LIB9490,
              A0CART,A1CART,NLCART,A0DEVT90,
              A04490,A09490,A09840,A19490,A19940,
              NL3480,NL3490,NL9840)
*
* DRIVES BY DEVICE TYPE
HWSNAME TYPE=(ALL3490,LIB9490,A0DEVT90,A09490,A19490,NL3490)
HWSNAME TYPE=(ALL9840,A09840,NL9840)
HWSNAME TYPE=(ALL9490,LIB9490,A09490,A19490)
HWSNAME TYPE=(ALL9940,A19940)
*
* DRIVES BY LOCATION
HWSNAME TYPE=(LIB9490,A09490,A19490)
HWSNAME TYPE=(NLCART,ALL3490,ALL3480,3480,
              NL3480,NL3490,NL9840)
HWSNAME TYPE=(A0CART,A04490,A09490,A09840,A0DEVT90)
HWSNAME TYPE=(A1CART,ALL9940,A19940,A19490)
*
* DRIVES BY LOCATION AND DEVICE TYPE
HWSNAME TYPE=(A0DEVT90,A04490,A09490)
HWSNAME TYPE=(NL3480)
HWSNAME TYPE=(NL3490)
HWSNAME TYPE=(NL9840)
HWSNAME TYPE=(A04490)
HWSNAME TYPE=(A09490)
HWSNAME TYPE=(A09840)
HWSNAME TYPE=(A19490)
HWSNAME TYPE=(A19940)
*
* VIRTUAL DRIVES
HWSNAME TYPE=(VIRTCART,VTSS1,VTSS2)
HWSNAME TYPE=(VTSS1)
HWSNAME TYPE=(VTSS2)
```

Esoteric Preferencing Considerations

The POLicy ESOTeric list allows users to request a higher priority for devices in one esoteric over another.

To enable this processing, define an esoteric that contains all esoterics in the specified list. For example, in the sample configuration, the esoteric A0DEVT90 is used for esoteric substitution for the following policy:

```
POLICY NAME(P1) ESOTERIC(A09490,A04490)
```

Device Preferencing Considerations

The DEVTpref parameter of the SMC TAPEREQ statement allows users to request a higher priority for one type of StorageTek 36-track drive during drive prioritization processing. A second or third model of 36-track drive can be specified as alternate choices. This device preferencing is applicable to a TapePlex configuration containing a mixture of 4490, 9490 and 9490EE cartridge drives.

To enable this processing, define an esoteric to include all the desired device types by ACS location or in the entire TapePlex configuration. In the sample configuration, the esoteric, A0DEVT90, serves this purpose for ACS0.

During drive exclusion, if a TAPEREQ indicated DEVT(9490,4490) for an allocation, the SMC could substitute A0DEVT90 for the original unit name if A0DEVT90 is a subset (e.g., UNIT=3490).

Note – JES3 HWS processing can change this esoteric to A09490 or A04490 when reusing drives across steps.

ZEROSCR Considerations

When specifying the SMC ALLOCDef command parameter ZEROSCR with a value of ON, create esoteric unit names that span ACS boundaries. As an example, the following esoterics could be added to the sample installation:

- CA0A1 - an esoteric containing all drives in ACS0 and ACS1
- A0A1X490 - an esoteric containing all 4490 and 9490 drives in ACS0 and ACS1

Assume both ACSs contain scratch volumes.

- If the scratch request does not specify media or recording technique, the SMC can substitute CA0A1 for CART.
- If the scratch request asked for 36-track recording technique, the SMC can substitute A0A1X490 for 3490.

In this way, both ACSs remain eligible for the allocation.

Note – Once again, JES3 HWS can alter esoteric unit names after the SMC has selected its choice.

SMC Normal Operations

The SMC runs on all processors that are active in a JES3 global and local environment. On both global and local processors, start the SMC and the library subsystem(s), the HSC, and/or MVS/CSC(s) before starting jobs requiring cartridge drives.

When the SMC and the library subsystem have initialized on the global processor and are communicating, the SMC performs drive exclusion, affinity separation, esoteric unit name replacement, fetch message suppression, drive prioritization, and mount deferral for both common and dynamic cartridge drive allocations. If the SMC has not completed initialization before jobs enter the JES3 C/I DSP, this processing is not performed. The PROMPT value on the NOSMC parameter of the SMCEHOOK macro delays one C/I DSP if the SMC has not initialized and reminds the operator to start the SMC.

When the SMC and the library subsystem have initialized on the local processor and are communicating, the SMC performs drive exclusion, affinity separation, and esoteric unit name replacement for dynamic cartridge drive allocations.

Note –

- Refer to the *NCS Installation Guide* for more information about the SMCEHOOK macro and its parameters.
- See Chapter 8, "Recovery Procedures" for recovery procedures related to the SMC, library subsystems, and JES3.

JES3 Constraints

Timing Between C/I and MDS

A timing window exists between C/I processing and MDS processing. A requested volume's location or a scratch subpool count can change during the interval between these two processes. When this situation happens, one or more volumes may need to be ejected from or entered into an ACS.

JES3 High Watermark Setup and LSM Pass-Thru Processing

When a job consists of multiple steps, JES3 HWS processing attempts to minimize the number of devices required. Thus a job consisting of multiple steps, each requesting one tape drive, can be allocated a single drive for the entire job. The following example shows the possible effects on pass-thru processing.

The following figure shows a library configuration containing four LSMs. All drives in the library are online and available.

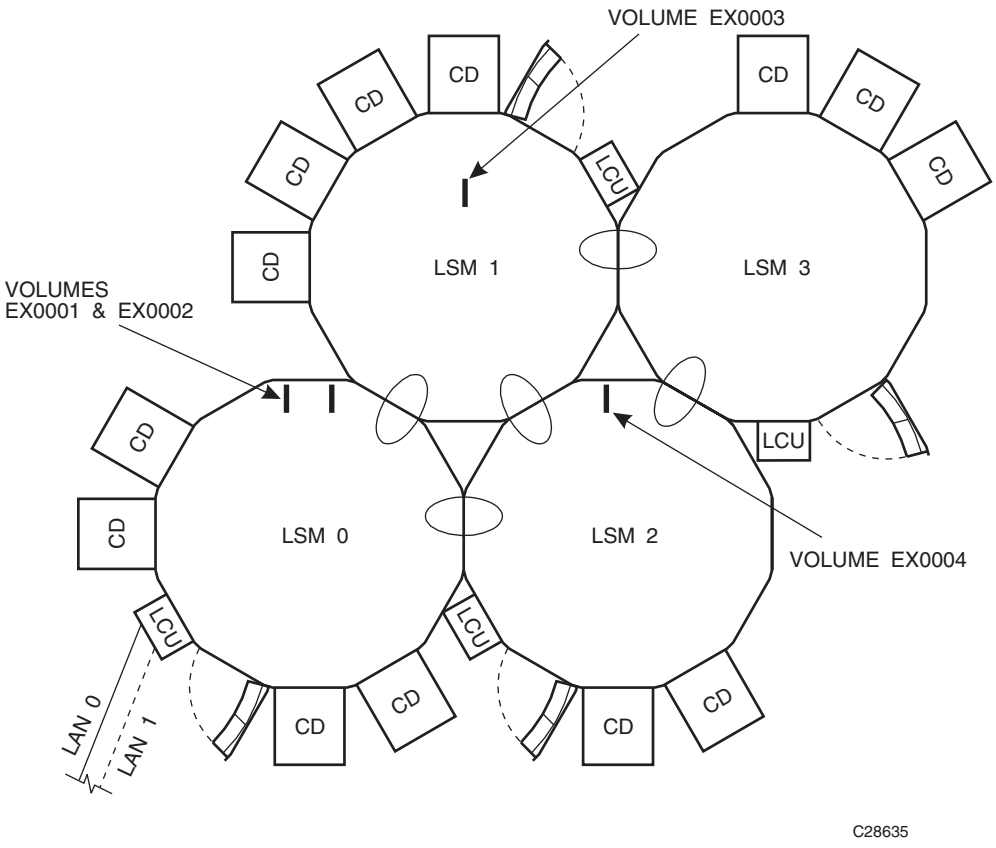


FIGURE 5-1 Volume Locations for the Pass-thru Example

The following example shows the JCL for the job:

```
//STEP1  EXEC
//DD1    DD DSN=DSN.IN.LSM0,UNIT=3490,VOL=SER=(EX0001,EX0002)
//*
//STEP2  EXEC
//DD1    DD DSN=DSN.IN.LSM1,UNIT=3490,VOL=SER=EX0003
//*
//STEP3  EXEC
//DD1    DD DSN=DSN.IN.LSM2,UNIT=3490,VOL=SER=EX0004
//*
//STEP4  EXEC
//DD1    DD DSN=DSN.IN.LSM0,UNIT=3490,VOL=SER=(EX0001,EX0002)
```

Volumes EX0001 and EX0002 are in LSM0, EX0003 is in LSM1, and EX0004 is in LSM2 and all volumes are the same media and require the same recording technique. The SMC drive exclusion process picked the same esoteric for the allocation.

After the SMC drive exclusion process completes, JES3 HWS analysis determines that the maximum number of drives required for running the job is one. MDS processing allocates the device. Pass-thru processing occurs as follows:

- If the allocated drive is attached to LSM0, the number of pass-thrus is two (volume EX0003 moves from LSM1, and volume EX0004 moves from LSM2).
- If the allocated drive is attached to LSM1 or LSM2, the number of pass-thrus is three (volumes EX0001 and EX0002 move from LSM0, and either EX0003 or EX0004 moves, depending upon which LSM contains the drive).
- If the allocated device is attached to LSM3, the number of pass-thrus is four (all volumes move to LSM3).

The SMC drive prioritization process uses the pass-thru counts when setting a priority for a drive. However, if the "preferred" drive is not available, other available drives can be selected.

CHAPTER 6

Message Handling

Overview

The SMC intercepts specific MVS, JES3, and Tape Management System (TMS) messages related to mount, dismount, and swap operations. When the intercepted message includes a drive defined to a TapePlex, the SMC directs the owning TapePlex to perform the requested operation.

Messages that are intercepted by the SMC are listed in Appendix A, "Intercepted Messages".

Note – The IATUX71 user exit must be installed to allow JES3 mount messages to be processed. Refer to the *NCS Installation Guide* for more information.

User Directed Message Handling

If the SMC does not currently support the Tape Management System at your installation, you can still direct the SMC to intercept the specific messages issued by your TMS. Use the USERMsg operator command to define these additional messages. See "USERMsg Command" on page 230 for more information.

User Exit 01 allows you to change or enhance actions taken on intercepted messages, and can direct the SMC to perform actions on messages that are not in the intercepted message list.

The SMC calls the user exit for each intercepted message. This includes the default messages listed in Appendix A, "Intercepted Messages" and all messages defined using the USERMsg command.

Note –

- Only messages intercepted by the SMC are passed to the user exit.
- The SMC does not support the user exit 01 return code of REPLY.

Message Handling Policies

The SMC honors the following MVS and SMC policies related to mount, dismount, and swap message handling:

MVS Policies

The System Authorization Facility (SAF) can be used to protect tapes at the volume level (CLASS=TAPEVOL) using your current security software. If defined, the SMC honors the policies defined through the SAF interface regarding the write-protect requirement for a volume mounted on a library transport. The SMC invokes the SAF interface by issuing a RACROUTE macro, and protects read-only volumes through the ACS Virtual Thumbwheel (VTW) support.

SMC Policies

The SMC MOUNTDef command is used to control message handling (i.e., mount/dismount) options previously controlled by the HSC MNTD command, HSC input parameters and LIBGEN options, and the MVS/CSC ALTER command and input parameters.

These options control the automation of pending mounts, delete disposition at dismount time, whether messages are produced when a library volume is mounted outside the library, and when mount messages are rolled off the console.

Note – See "MOUNTDef Command" on page 161 for more information.

Tape Management System Support

The SMC interprets Mount, Dismount, and Swap messages from the following Tape Management Systems:

- CA-1
- CA-DYNAM/TLMS
- DFSMSrmm
- AutoMedia (Zara)
- CONTROL-T

For tape management systems that supply a subpool, the subpool is interpreted by the SMC and used as the requested subpool name, unless overridden by user exit 01 or a TAPEREQ statement. Related messages include:

- CTS002
- CTT101A
- CTT104A
- TMS002

SMC Swap Processing

The SMC automates the swap process (I/O error or operator initiated) in the same manner as HSC enhanced swap processing. This eliminates the need for operators to find a compatible “swap-to” device when DDR has chosen an incompatible device. If the SMC cannot find a compatible swap-to device, or if all compatible devices are busy, the SMC issues a message and control is returned to DDR processing with no further SMC involvement. Note that enhanced swap processing is the only mode supported in SMC.

On JES3 systems, the SMC does not influence the swap-to device selection. The SMC does not issue SMC0107 or SMC0110. JES3 can select a compatible drive itself based on proper initialization deck definitions. The SMC still automates the swap when the IGF502E is received.

The SMC swap process begins when one of the following messages is issued:

```
IGF500I SWAP  XXX1 TO XXX2 - I/O ERROR
IGF503I ERROR ON XXX1, SELECT NEW DEVICE
IGF509I SWAP XXX1 - I/O ERROR
```

If device *XXX1* is known to the SMC as a library device, the SMC suppresses the message and begins the automatic swap process.

The SMC issues one of two messages:

```
SMC0108  No compatible drive found for SWAP processing
```

Or when a compatible drive can be selected by the SMC:

```
SMC0107  SWAP volser from XXX1 to XXX2
```

Device *XXX2* is the SMC-selected device that has been determined to be compatible for the swap. The SMC next suppresses the MVS IGF500D or IGF509D message and replaces the message with:

```
SMC0110  Allow swap of volser from XXX1 to XXX2;
Reply ‘Y’, or ‘N’ or DEVICE
```

The operator may approve the device selected, cancel the swap or choose a different device. If the operator selects a different device, the SMC accepts the device with no further compatibility checking.

If the reply is ‘Y’ or a new device, MVS issues the following message:

```
IGF502E  PROCEED WITH SWAP OF XXX1 TO XXX2
```

If *XXX1* is a library owned device, the dismount of the volume is automated. If *XXX2* is a library owned device, the mount of the volume is automated.

Note – Ensure that your MVS security package (e.g., RACF, TopSecret) is configured to grant SMC the necessary authority to respond to MVS swap messages IGF500D and IGF509D.

HSC Mount-Related Messages

Certain mount-related messages may still be issued by the HSC due to error conditions.

- SLS0088D is issued when, due to an error condition, a repeated mount for the same volume is required.
- SLS1075D is issued when a dismounted volume encounters an I/O or other type of error.

In addition, the following HSC messages are replaced by SMC messages:

- SLS4306I and SLS4308I are replaced by SMC0106.
- SLS4310D is replaced by SMC0110.

Managing HSC Mounts from the SMC Client

SMC client/server architecture provides the ability to perform management of certain mount/dismount exception conditions from the client console rather than from the server console. Conditions handled by the SMC include the following:

- Displaying messages on the drive and console indicating the volume and its location for manual mounts when an LSM is offline.
- When a drive is found to be loaded with another volume during a mount request from a job in execution or JES3 setup processing, the dismount is forced and the mount is automatically redriven based on the UCB outstanding mount status (or JES3 SETUNIT).

Note – When a mount or dismount message is intercepted by SMC and directed to an HSC server, the SLS0107D message is not issued on the server or client. When a loaded drive condition is detected by the HSC for an SMC directed dismount, the HSC waits one minute for the drive to unload, and then terminates the dismount. If the dismount is performed as part of a mount request from the SMC, the loaded drive status is returned to the SMC, and the SMC then redrives the mount request if the mount is still pending.

- When a drive or volume is in use by another process, verifying that the mount is still pending, periodically retrying the request, and allowing the operator to cancel or retry the request at any time.
- When the TAPEPlex WTORdest Client option is selected, certain WTOR messages are not issued on the HSC server but are sent directly to the client console instead. The operator response to the message is then transmitted back to the server, as SMC redrives the mount or dismount to the server. The following HSC mount/dismount WTOR messages are currently supported with this option:
  - SLS0134
  - SLS0905
  - SLS2126
  - SLS2905
  - SLS2984
  - SLS0109
  - SLS4084

  Refer to the *HSC Messages and Codes Guide* for more information about these messages.

CHAPTER 7

Commands and Control Statements

Overview

This chapter describes the following SMC operator commands and control statements, and the methods used to issue them:

- ALLOCDef
- ALLOCJob
- CMDDef
- COMMtest
- Display DRive
- Display Volume
- DRIVemap
- IDAX
- LIst
- LOG
- MOUNTDef
- MSGDef
- MSGJob
- POLicy
- READ
- RESYNChronize
- Route
- SERVer
- SMSDef
- TAPEPlex (formerly LIBrary)
- TAPEREQ (control statement)
- TCPip
- TRace
- TREQDEF
- UEXit
- UNITAttr
- USERMsg

Note – See "Syntax Flow Diagrams" on page xxxv for syntax flow diagramming conventions.

Issuing SMC Commands

Use any of the following methods to issue SMC operator commands:

- Issue SMC commands using the MVS Modify command
- Issue SMC commands using the SMC command prefix
- Specify SMC commands in the SMCPARMS or SMCCMDS data set(s).

Issuing SMC Commands Using the MVS Modify Command

Use the following command format to issue an SMC command using the MVS Modify (F) command:

```
F started-task-name,command-name [parameter]
```

The following information is included:

- MVS Modify command (F)
- SMC started task name
- Command name
- Parameters (optional or required)

The following example illustrates the MSGDef command:

```
F SMC1MVS,MSGDEF LVL=4
```

Note –

- The started task name and command name **must** be separated with a comma. Spaces are **not** allowed between the subsystem name and command name.
- Parameters and values may be separated with any number of spaces, and may optionally include an equal (=) sign. Values may also be included in parentheses.

  The following are equivalent commands:

  ```
  F SMC1MVS,MSGDEF LVL 4
  F SMC1MVS,MSGDEF LVL=4
  F SMC1MVS,MSGDEF LVL(4)
  ```

Issuing SMC Commands Using the SMC Command Prefix

SMC operator commands can be issued using an SMC command prefix. This prefix is assigned by specifying the SMC CMDDef command in the SMCPARMS data set.

See "CMDDef Command" on page 140 for more information about this command.

Specifying SMC Commands in the SMCPARMS or SMCCMDS Data Set

SMC operator commands specified in the SMCPARMS or SMCCMDS data set are automatically processed at startup. See "Control Statements" on page xxxix for syntax conventions used when specifying commands in the SMCPARMS or SMCCMDS data set.

- The SMCCMDS data set is used for user-configured items that can be changed while the SMC is active. The SMCCMDS data set can be reprocessed using the READ command. The following is a sample SMCCMDS member entry:

```
MSGDEF CASE(MIXED) LVL(4)
TAPEPLEX NAME(HSCPLEX) LOCSUB(HSC0)
READ DSN('MY.PARMLIB(POL)')
TREQDEF DSN('MY.PARMLIB(TREQ)')
RESYNCHRONIZE
```

- The SMCPARMS data set is used for user-configured items that **cannot** be changed while the SMC is active. The SMCPARMS data set **cannot** be reprocessed using the READ command. The following is a sample SMCPARMS member entry:

```
CMDDEF PREFIX(B@F$)
```

Note – It is recommended that you include **only** the CMDDef PREFix and USERMsg ID parameter settings in the SMCPARMS data set. Specify all other commands in the SMCCMDS data set.

SMC Commands that Specify JOBname, STEPname, and PROCstep

SMC ALLOCJOB, MSGJOB, and TRACE commands allow specification of JOBname, STEPname, or PROCstep. These commands are evaluated by the SMC in order of most specific to least specific job name specification. Therefore, commands can be entered in any order. Consider the following example:

Two ALLOCJob commands are entered:

```
ALLOCJOB JOBNAME=NOALLOC* MINLVL=4
ALLOCJOB JOBNAME=NOALLOC1 MINLVL=3
```

Regardless of the order in which these commands are entered, job name NOALLOC1 is processed with MINLVL 3 because this command's job name is more specific than job name NOALLOC*.

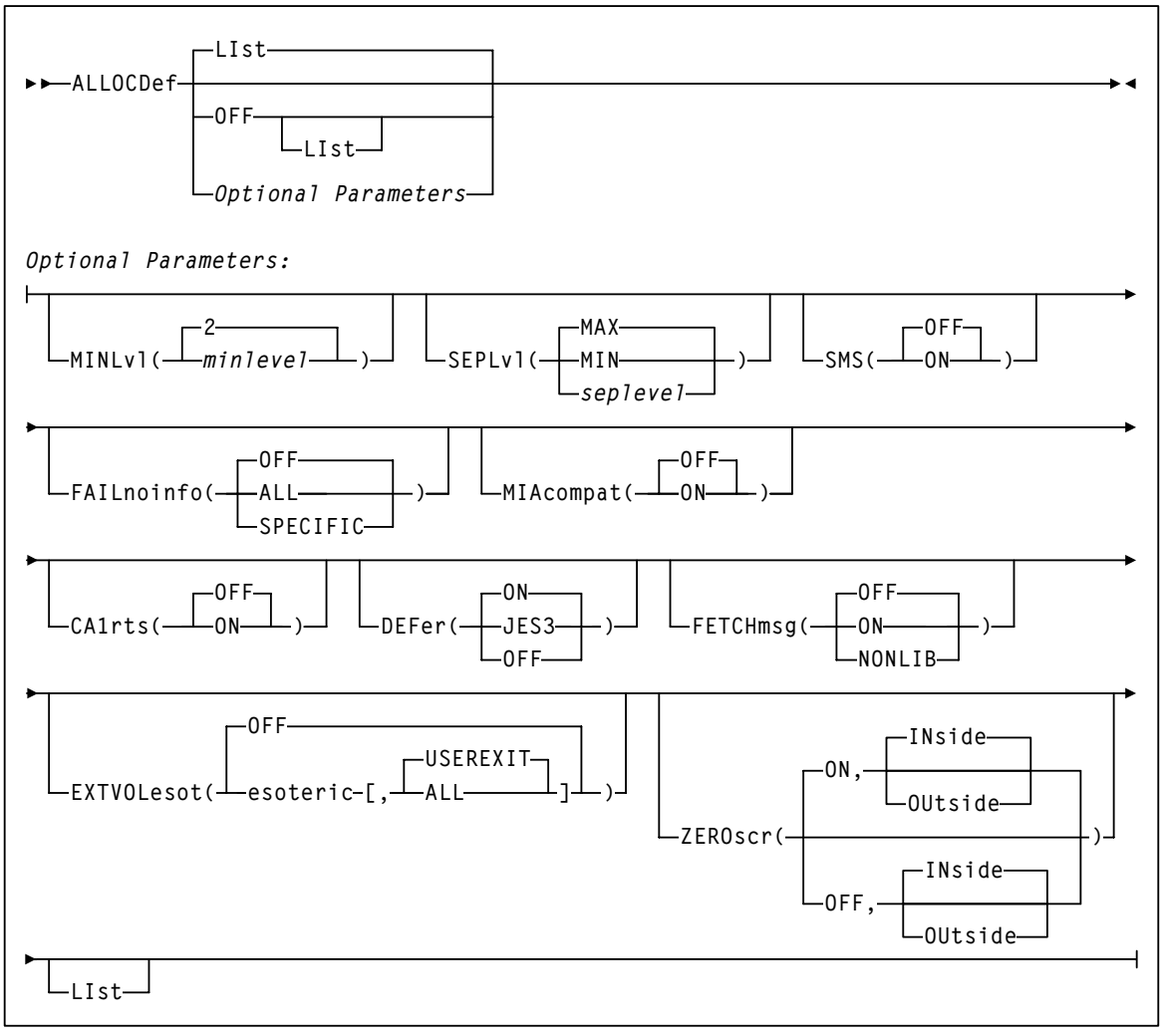
Note –

- If an SMC ALLOCJOB or MSGJOB command is entered specifying only JOBname, STEPname, or PROCstep, the command is interpreted as if LIST had also been specified.
- The above behavior does **not** apply to TAPEREQ statements, which are always evaluated in the order in which they appear in the TREQDEF DD.

ALLOCDef Command

The SMC ALLOCDef command is used to specify default allocation settings for the SMC subsystem.

Syntax



Command Name

ALLOCDef

initiates the ALLOCDef command

Parameter Descriptions

LIst

optionally, lists current default allocation settings

- LIst is the default when **no** parameters are specified on the ALLOCDef command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, resets all default allocation values to original SMC default settings. Specify LIst with this parameter to list these settings.

MINLvl

optionally, specifies the minimum level of drive exclusion. If a job is not allocatable at the minimum exclusion level, the SMC still excludes drives to the minimum level and allows the job to fail.

minlevel

the minimum allocation exclusion level. Valid values are 0-8. 2 is the default value.

Note –

- Setting MINLVL=0 indicates that the job will **not** be failed by the SMC even if the device and specific volume are incompatible. MINLVL=0 may be used to force SMC to allow allocation to succeed when a "foreign" tape cartridge has the same volume serial number as an existing library or virtual volume.
- Increasing *minlevel* has no effect unless message SMC0045 or SMC0091 has been issued for a specific job step.
- See Chapter 5, "Allocation" for more information regarding SMC exclusion levels.

SEPLvl

optionally, specifies the exclusion level at which affinity and GDG chains are separated

seplevel

an exclusion level between the minimum and maximum levels. When sufficient drives exist, the SMC attempts to separate chains at this level. This value **cannot** be less than the *minlevel* value.

MAX

Affinity and GDG chains for conflicting exclusion criteria are separated whenever sufficient drives are available. This is the default value.

MIN

Affinity and GDG chains are **not** separated beyond the minimum level.

Note –

- If HSC or MVS/CSC allocation previously specified UNITAFF(NOSEP) and GDGALL(NOSEP), the default SMC exclusion tables can specify SEPLvl=3 in order to preserve existing behavior for scratch affinity chains with different media types.
- See Chapter 5, "Allocation" for more information regarding SMC exclusion levels.

SMS

optionally, enables or disables the DFSMS interface. When the DFSMS interface is enabled, the SMC invokes the DFSMS ACS routines. The returned constructs are used to influence device allocation of data sets. See "SMSDef Command" on page 189 for information about using specific SMS features.

OFF

disables the DFSMS interface. This is the default setting.

ON

enables the DFSMS interface

FAILnoinfo

optionally, specifies whether the SMC fails a job step during allocation when a communication failure prevents the retrieval of volume information from a TapePlex, or when no TapePlexes are available.

OFF

SMC does **not** fail the job step.

ALL

SMC marks all devices ineligible and fails the job step.

SPECIFIC

If a communication failure occurs during the volume lookup process for a specific volume, or if no TapePlexes are available and the step contains allocations for specific volumes, the SMC marks all devices ineligible and fails the job step.

If the job step contains only scratch allocations, then the job step is allowed to proceed and allocation is based solely on SMC tape policy specifications.

MIAcompat

optionally, specifies whether the EDL is updated at SSI24 time for compatibility with Computer Associates Unicenter CA-MIA Tape Sharing for z/OS and OS/390 product. This parameter is **not** valid in JES3 environments with TAPE SETUP processing.

OFF

The EDL is **not** updated at SSI24 time. This is the default value.

ON

The EDL is modified at SSI24 time. Specify this value if you use Unicenter CA-MIA.

CA1rts

optionally, specifies whether the DEFER processing is performed at SSI24 time for compatibility with Computer Associates Real Time Stacking feature of its CA-1 tape management system. This parameter is **not** valid in JES3 environments with TAPE SETUP processing.

OFF

DEFER status is **not** updated at SSI24 time. This is the default value.

ON

DEFER status is updated at SSI24 time. Specify this value if you use the Real Time Stacking feature of CA-1.

DEFer

optionally, enables or disables deferred mount processing for library mounts. With deferred mounting enabled, a library resident volume is mounted when the data set is opened. If the data set is not opened, the cartridge is not mounted, freeing the robot to perform other work If the data set is opened, however, the job waits until the cartridge is mounted.

ON

enables deferred mount processing. This parameter overrides the user's JCL and defers all ACS mounts until the data set is opened. **This is the default setting for both JES2 and JES3 environments.**

Note –

- On the JES3 SETPARAM initialization statement, set the DEFERCT parameter to YES to ensure that jobs requiring deferred mounts are included in SDEPTH job counts.
- Refer to IBM JES3 publications for detailed information about SETPARAM:
  - *JES3 Initialization and Tuning Reference*
  - *JES3 Command Reference Summary*
  - *JES3 Commands*
  - *JES3 Messages*

JES3

In a JES3 (with SETUP) environment, all mounts are JES3 deferred until a step begins execution.

OFF

disables deferred mount processing and honors user JCL specifications

FETCHmsg

optionally, for JES3 with SETUP environments that use volume fetch, specifies whether fetch messages are issued for tape volumes that are allocated to a library drive

OFF

Fetch messages are **not** issued for volumes allocated to library drives. Fetch messages are still issued for volumes allocated to nonlibrary drives. This is the default value.

ON

Fetch messages are issued for **all** volumes, regardless of whether they are allocated to library or nonlibrary drives.

NONLIB

Fetch messages are issued for nonlibrary volumes allocated to a library transport.

If the drive and volume both reside inside the library (i.e., the volume can be automatically mounted) then the fetch message is suppressed. Queries to the library subsystem(s) are required to determine volume location, and may have a negative impact on performance.

EXTVOLesot

optionally, directs the SMC to use a specified esoteric to allocate a specific external volume (i.e., a volume that is not in a TapePlex). When this esoteric is used depends upon the setting of the modifier value specified after the esoteric, as well as whether the specified esoteric is valid (intersects with the original esoteric specification).

OFF

EXTVOLesot processing is disabled. Nonlibrary drives are selected, if possible, when a specific external volume is allocated. This is the default value.

esoteric,USEREXIT

specifies an esoteric to be used to allocate a specific external volume when the “use specvol” (UX08) or “use library drives” (UX13) return code is specified. If the specific volume user exit returns the “use specvol” (UX08) or “use library drives” (UX13) return code for this DD, then any drives in the specified esoteric that intersect with the original esoteric will be selected for allocation. This is the default value if esoteric is specified.

esoteric,ALL

Whenever an external volume is allocated, drives in the specified esoteric are selected.

ZEROscr

optionally, specifies the exclusion action when there are no scratch volumes in any TapePlex (ON or OFF), or in one or more ACSs within a TapePlex in a multiple ACS environment (INside or OUtside)

ON

This is the default value. ON indicates one of the following:

- If scratch subpools are not being used, and one or more ACSs contain zero scratch volumes, then drives in those ACSs are excluded from the list of eligible devices.
- If a scratch subpool is being requested (either though TAPEREQ or User Exit 02/04), and one or more ACSs contain zero scratch volumes in the requested subpool, then drives in those ACSs are excluded from the list of eligible devices.
- In JES3 with SETUP environments only, drives in the ACS with the largest number of available scratch volumes remain eligible. All other drives are excluded from selection.

INside

All nonlibrary drives are excluded when there are no scratch volumes in any ACS, and there are library drives eligible for allocation. This is the default value.

OUtside

All library drives are excluded when there are no scratch volumes in any ACS, and there are nonlibrary drives eligible for allocation.

OFF

All drives in all ACSs are to remain eligible for selection.

INside

All nonlibrary drives are excluded when there are no scratch volumes in any ACS, and there are library drives eligible for allocation. This is the default value.

OUtside

All library drives are excluded when there are no scratch volumes in any ACS, and there are nonlibrary drives eligible for allocation.

Examples

In the following example, the ALLOCDef command sets the minimum level of allocation exclusion to 4 and specifies that unit affinity and GDGALL chains are separated based on levels 1-4. It also specifies that when a user exit returns “use specvol” (UX08) or “use library drives” (UX13), the allocation should be directed to drives in the esoteric SACS0.

```
ALLOCDEF MINLVL=4 SEPLVL=MIN EXTVOL=(SACS0,USEREXIT)
```

In the next example, ALLOCDef settings are set to their default values, and then listed.

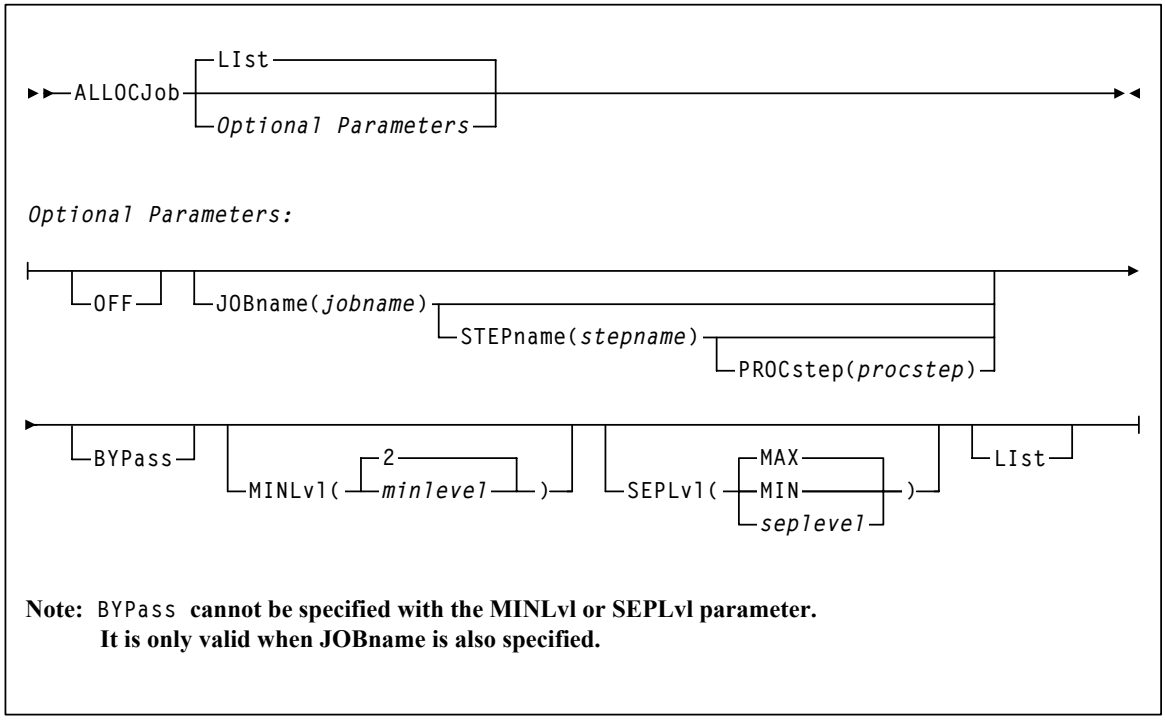
```
ALLOCDEF OFF LIST
```

ALLOCJob Command

The SMC ALLOCJob command is used to override SMC default allocation parameters by job name, step name, and PROC step.

Note – The SMS parameter is no longer supported for this command. If necessary, code your SMS ACS routines to select jobnames.

Syntax



Note: `BYPass` **cannot be specified with the MINLvl or SEPLvl parameter. It is only valid when JOBname is also specified.**

Command Name

ALLOCJob

initiates the ALLOCJob command

Parameter Descriptions

LIst

optionally, lists current default allocation settings and override settings (in the order they are processed) by job name, step name, and PROC step

- LIst is the default when **no** parameters are specified on the ALLOCJob command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, removes all job name, step name, and PROC step overrides for allocation

- If no other parameters are specified, allocation overrides are removed for all jobs.
- If only JOBname is specified, allocation overrides are removed for ALL ALLOCJob entries for that job name.
- If JOBname, STEPname and PROCstep are specified, allocation overrides are removed **only** for the specified entry.

Global allocation settings are **not** affected by this parameter.

JOBname

optionally, specifies a job name

This parameter is required unless LIst or OFF is specified.

jobname

the job name. The value entered must be one to eight characters in length. An asterisk (*) can be used as a wildcard when included as the last character. ALLOCJob is set for all jobs whose job names match the characters preceding the asterisk.

STEPname

optionally, specifies a step name. This parameter is **only** valid when JOBname is also specified. It is **not** valid in JES3 environments with TAPE SETUP processing.

stepname

the step name. The value entered **must** be one to eight characters in length. An asterisk (*) can be used as a wildcard when included as the last character.

PROCstep

optionally, specifies a PROC step. This parameter is **only** valid when JOBname and STEPname are also specified. It is **not** valid in JES3 environments with TAPE SETUP processing.

procstep

the PROC step

The value entered **must** be one to eight characters in length. An asterisk (*) can be used as a wildcard when included as the last character.

BYPass

optionally, specifies that SMC allocation influencing is **not** performed for the indicated job (job step, step name, PROC step)

This parameter **cannot** be specified with the MINLvl, SEPLvl, or SMS parameter. It is **only** valid when JOBname is also specified.

Note – It is recommended that you use MINLV=0 instead of BYPASS, except when no mounts will be performed (i.e., IEFBR14 jobs).

MINLvl

optionally, specifies the desired minimum level of drive exclusion. If a job is not allocatable at the minimum exclusion level, the SMC still excludes drives to the minimum level and allows the job to fail.

This parameter **cannot** be specified with the BYPass parameter. It is **only** valid when JOBname is also specified.

minlevel

the desired minimum allocation exclusion level. Valid values are 0-8. 0 indicates that the SMC will **not** exclude any drives, even if all drives would be excluded during level 1 exclusion processing. The default is the current value of the ALLOCDEF MINLVL setting. See Chapter 5, “Allocation” for more information regarding SMC exclusion levels.

Note –

- Setting MINLVL=0 indicates that the job will **not** be failed by the SMC even if the device and specific volume are incompatible. MINLVL=0 may be used to force SMC to allow allocation to succeed when a “foreign” tape cartridge has the same volume serial number as an existing library or virtual volume.
- Increasing ***minlevel*** has no effect unless message SMC0045 or SMC0091 has been issued for a specific job step.

SEPLvl

optionally, specifies the exclusion level at which affinity and GDG chains are separated

This parameter **cannot** be specified with the BYPass parameter. It is **only** valid when JOBname is also specified.

MIN

Affinity and GDG chains are **not** separated beyond the minimum level.

MAX

Affinity and GDG chains are separated for conflicting exclusion criteria whenever sufficient drives are available. This is the default value.

seplevel

an exclusion level between the minimum and maximum levels. When sufficient drives exist, the SMC attempts to separate chains at this level. See Chapter 5, "Allocation" for more information regarding SMC exclusion levels.

Note – The *seplevel* value **cannot** be less than the *minlevel* value.

Examples

In the following example, the ALLOCJob command specifies that job PRODJOB1 with stepnames beginning with STEP1 be allowed to allocate even though SMC determines that volumes are not compatible with any drives in the EDL or esoteric.

```
ALLOCJOB JOB=PRODJOB1 STEP=STEP1* MINLVL=0
```

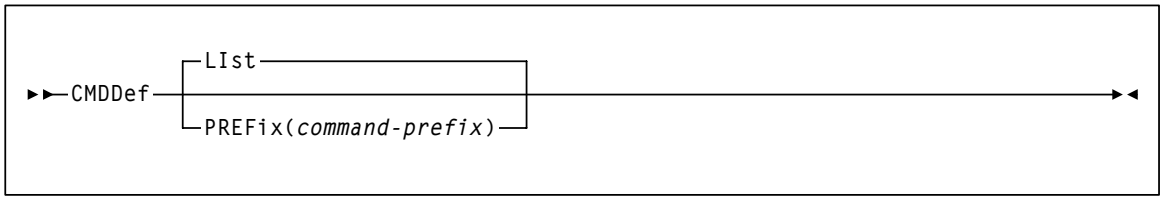
In the next example, the ALLOCJob command specifies that all jobs with jobnames beginning with BYPSMC be ignored by the SMC during allocation processing.

```
ALLOCJOB JOB=BYPSMC* BYPASS
```

CMDDef Command

The SMC CMDDef command is used to assign an SMC command prefix.

Syntax



Command Name

CMDDef

initiates the CMDDef command

Parameter Descriptions

LIst

optionally, lists the current command prefix

This is the default if no parameters are specified. It **cannot** be specified with any other parameter.

PREFix

optionally, specifies a command prefix for the SMC subsystem

This parameter may **only** be specified in the SMCPARMS data set.

command-prefix

the command prefix. The value entered **must** be one to eight characters in length and **must** meet the following requirements:

- Valid characters include:

  A-Z 0-9 @ ¢ $ # , . / ‘ ( ) < > * & + - = | ! ; : “ % _ ?
- The command prefix **cannot** include a command string, a command abbreviation, or any string that invokes a command.
- The command prefix **cannot** include a string that is a subset or superset of an existing prefix beginning with the same character.

Note – The MVS command, DISPLAY OPDATA, displays all active command prefixes and their corresponding subsystem name.

Example

In the following example, the CMDDef command is specified in the SMCPARMS data set as follows:

```
CMDDEF PREFIX(B@F$)
```

As a result, SMC operator commands can be entered as follows:

```
B@F$MSGDEF CASE(MIXED)
```

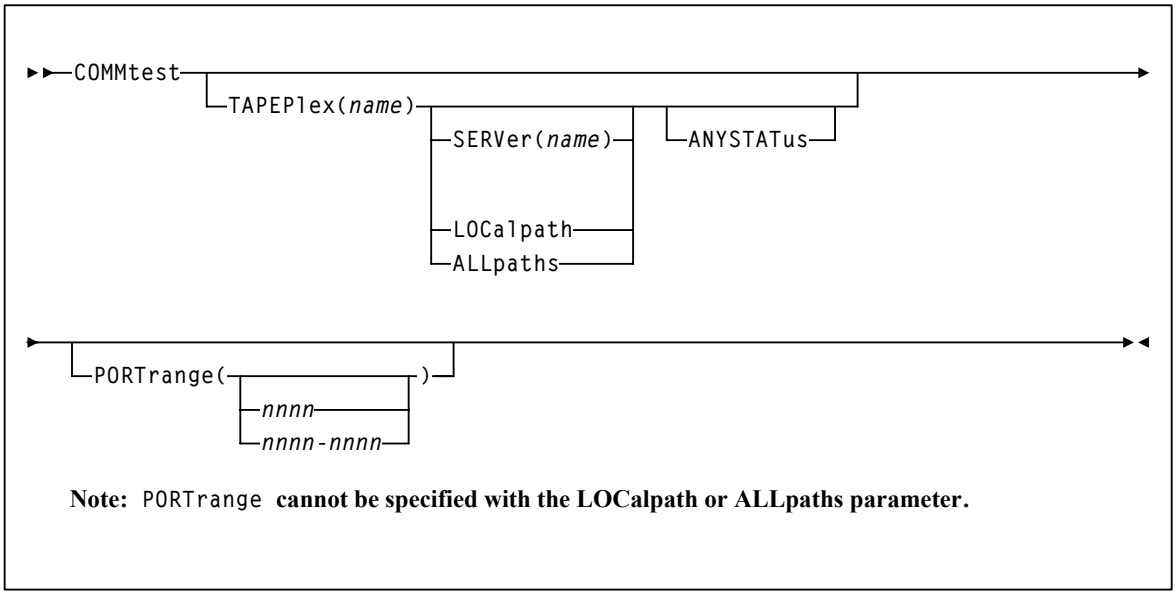
COMMtest Command

The SMC COMMtest command is used to perform an end-to-end communication test between SMC and defined TapePlexes. This command can generate a request for all paths to all TapePlexes, regardless of their status. The COMMtest command does **not** update any error statistics or libpath status, but does display messages indicating the communication result.

Note –

- **This command is new for SMC release 6.2**.
- **Only** HSC TapePlexes are eligible for the COMMtest command.

Syntax



Note: `PORTrange` **cannot be specified with the LOCalpath or ALLpaths parameter.**

Command Name

COMMtest

initiates the COMMtest command

Parameter Descriptions

TAPEPlex

optionally, restricts communication to the specified TapePlex. By default, communication with all defined TapePlexes is attempted.

name

the TapePlex name as defined by the SMC TAPEPlex command

SERVer

optionally, restricts communication to the specified server path. When specifying this parameter, TAPEPlex must also be specified. By default, communication with all server paths is attempted.

name

the server path name as defined by the SMC SERVer command

LOCalpath

The local server path, if any, is tested. By default, only defined remote server paths are tested.

ALLpaths

All server paths, both local and remote, are tested.

ANYSTATus

Communication is attempted on all communication paths, including paths that were disabled by an operator command or by the SMC. By default, the communications test is performed on any communication path that is active, inactive, or never active. Specification of ANYSTATus also includes disabled communication paths.

PORTrange

optionally, specifies that communication for a remote server path be tested from the specified port or range. The specified PORTrange may be different from the TCPip PORTrange specification to allow testing of a firewall setup.

PORTrange is mutually exclusive with the LOCalpath and ALLpaths keywords.

nnnnn or nnnn-nnnn

the port number or port number range to be used for communication

If omitted, a port in the defined TCPip PORTrange is used. If no such port is defined, any ephemeral port is used. If a port range is specified, then communication is attempted on each port number.

Example

In the following example, the COMMtest command tests all communication paths, including those that were disabled, for TapePlex PLEX1:

```
COMMTEST TAPEPLEX(PLEX1) ALLPATHS ANYSTATUS
```

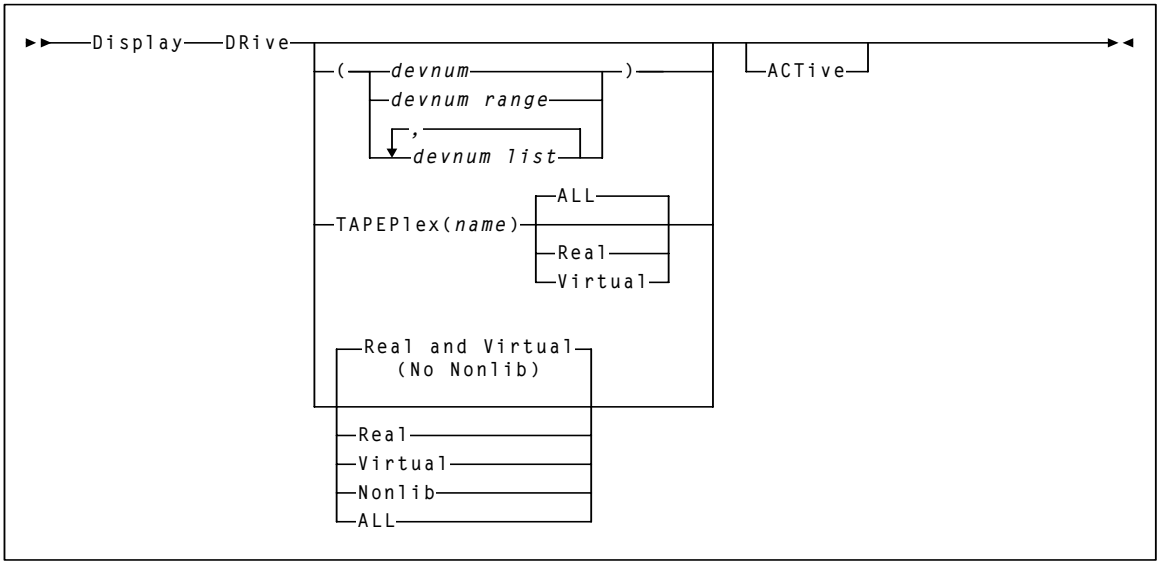
Display DRive Command

The SMC Display DRive command is used to request SMC drive attribute and TapePlex ownership information.

Note –

- **This command is new for SMC release 6.2**.
- TapePlex drive information is also available by issuing the HSC Display Drives command via the SMC Route command.

Syntax



Command Name

Display DRive

initiates the Display DRive command

Parameter Descriptions

devnum, devnum-range, and devnum-list

indicates the device number(s) to be processed. If specified, all device addresses specified are displayed. The *devnum* form of the Display DRive command is the only way that defined devices that are not TapePlex owned, or not defined by an SMC UNITAttr command, can be displayed.

TAPEPlex

optionally, lists **only** devices owned by the specified TapePlex

name

the TapePlex name

Real

optionally, lists **only** "real" (i.e. nonvirtual) devices owned by the specified TapePlex

Virtual

optionally, lists **only** virtual devices owned by the specified TapePlex

ALL

optionally, lists **all** devices owned by the specified TapePlex.
This is the default if no parameters are specified.

Real

optionally, lists **only** "real" (i.e. nonvirtual) devices owned by SMC-defined TapePlexes.

Virtual

optionally, lists **only** virtual devices owned by SMC-defined TapePlexes

Nonlib

optionally, lists **only** "real" devices that are not owned by any SMC-defined TapePlex, but have UNITATTR statements defined

ALL

optionally, lists **all** devices owned by SMC-defined TapePlexes.

ACTive

optionally, lists **only** drives currently mounted or awaiting mounts according to SMC internal data

---

Note – If a Display DRive command is issued without any parameters, by default, the SMC lists all real and virtual devices owned by SMC-defined TapePlexes.

Example

In the following example, the Display DRive command requests drive attribute information for a specific drive address range:

```
DISPLAY DRIVE 2900-2903
```

The following response is displayed:

```
SMC0000 (OPER) D DR 2900-2903
SMC0178 SMC DISPLAY DRIVE:
Addr Location             Model    SMC Status    MVS Status
------------------------- -------- ------------ ----------
2900 PLEX1    01:00:04:00 9490     MNTD SCRTCH   allocated
2901 PLEX1    01:00:04:01 9490     none          online
2902 PLEX1    01:00:04:02 9490     DISM 122333   not ready
2903 PLEX1    01:00:04:03 9490     none          online
```

Note – Contrast the output of this display with the Route command example on page 183.

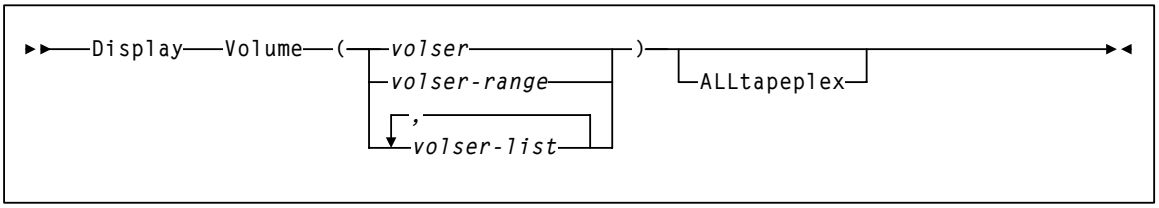
Display Volume Command

The SMC Display Volume command is used to request volume attribute and TapePlex ownership information.

Note –

- **This command is new for SMC release 6.2**.
- TapePlex volume information is also available by issuing the HSC Display Volume command via the SMC Route command.
- When the server is ACSLS, this command displays NONE for MEDIA and RECTECH.

Syntax



Command Name

Display Volume

initiates the Display Volume command

Parameter Descriptions

volser, volser-range, volser-list

indicates the volser, volser range, or volser list to be processed. If multiple volumes are specified, only the first 100 are queried.

ALLtapeplex

optionally, specifies that all active TapePlexes are queried for the specified volser(s). If specified, multiple display lines may be listed for the same volser if it is defined in multiple TapePlexes.

If this parameter is not specified, the Display Volume command queries TapePlexes in the order they are defined and lists only the first occurrence of the volume.

Example

In the following example, the Display Volume command requests volume attribute and ownership information for a volume range.

```
DISPLAY VOLUME FB2948-FB2952
```

The following response is displayed:

```
SMC0000 (OPER) D VOL FB2948-FB2952
SMC0177 SMC DISPLAY VOLUME:
Volser TapePlex  Location        Media    Rectech  Density
------ --------  --------------- -------- -------- -------
FB2948 PLEX1     01:00           STANDARD LONGITUD default
FB2949 PLEX1     01:00           STANDARD LONGITUD default
FB2950 PLEX1     01:00           STK2P    STK2P    default
FB2951 PLEX1     00:00           STK2P    STK2P34  low
FB2952 not found in any TAPEPLEX
```

Note – Contrast the output of this display with the Route command example on page 183.

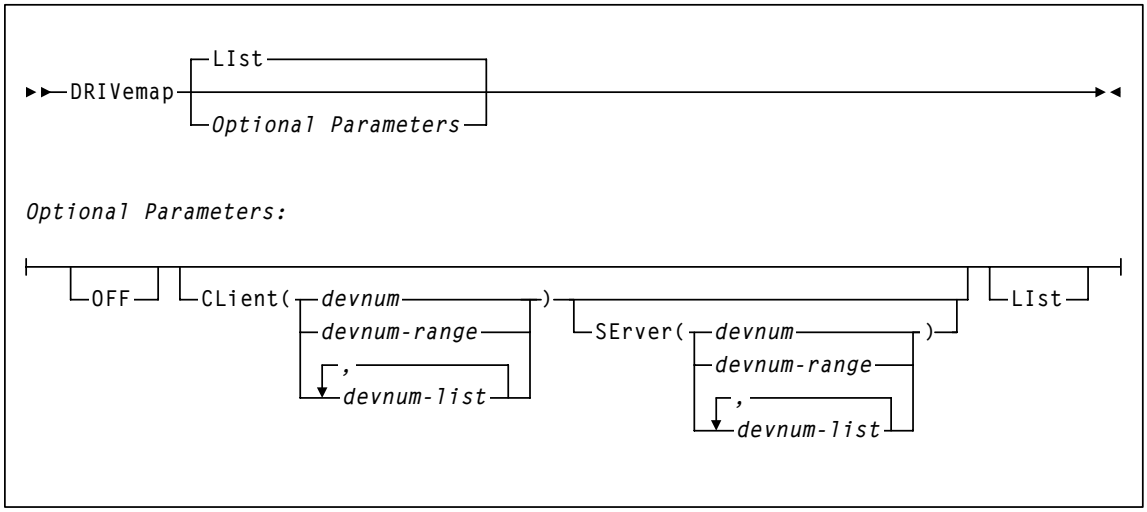
DRIVemap Command

The SMC DRIVemap command is used to map client drive addresses to server drive addresses. This command allows users to specify different MVS device addresses on different hosts for the same TapePlex or virtual drives in client-server mode.

Note –

- See Chapter 2, "SMC and StorageTek TapePlex Management" for more information about drive mapping.
- See "Client/Server Drive Address Mapping" on page 53 for information about using DRIVemap commands and the HSC DRVHOST parameter when client and server addresses differ.

Syntax



Command Name

DRIVemap

initiates the DRIVemap command

Parameter Descriptions

LIst

optionally, lists all current DRIVemap mappings

- LIst is the default when **no** parameters are specified on the DRIVemap command. In this case, all DRIVemap entries are listed.
- LIst may be specified with other parameters. In this case, the LIst is applied **after** the other parameters are processed.

OFF

optionally, removes all current DRIVemap mappings. When specified with CLient, this parameter removes DRIVemap ranges specified in the CLient parameter.

CLient

optionally, specifies the device numbers mapped by the DRIVemap command

devnum, devnum-range, devnum-list

the device number, device number range, or device number list

SErver

optionally, specifies the device numbers that are defined on the HSC server

devnum, devnum-range, devnum-list

the device number, device number range, or device number list

The ranges and lists must match those in the CLient parameter. For example:

CL(AA0-AA2) SE(BA0-BA2) is valid;
CL(AA0-AA2) SE(BA0, BA1, BA2) is invalid.

Example

In the following example, the DRIVemap command maps a set of client drive addresses (BA0-BAF) to a set of server drive addresses (AA0-AAF):

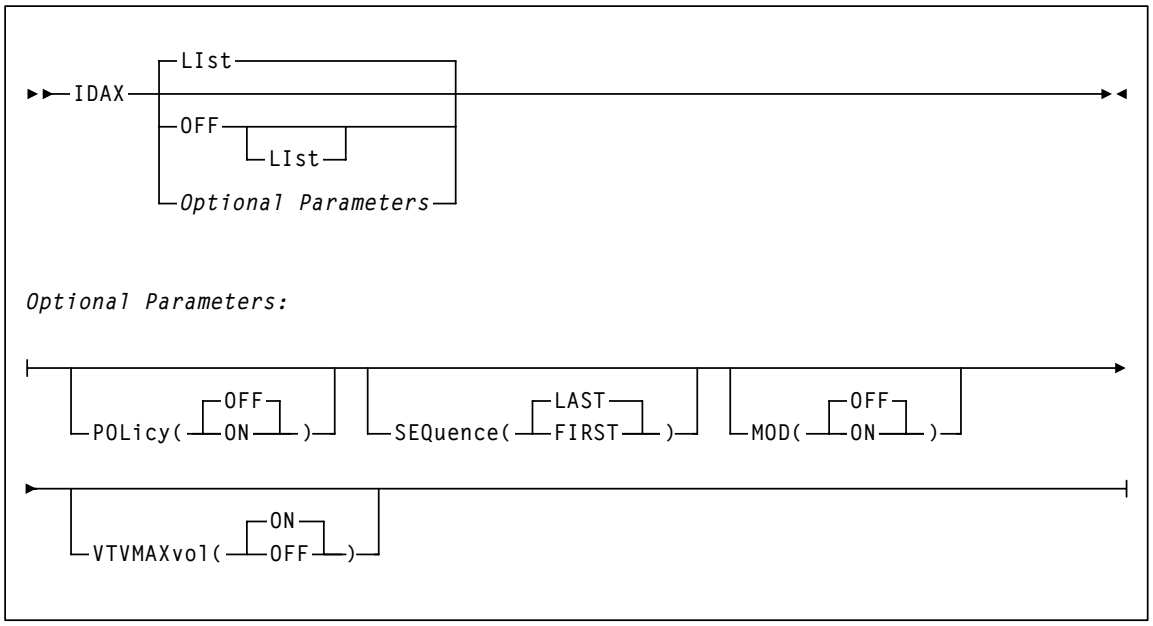
```
DRIVEMAP CLIENT(BA0-BAF) SERVER(AA0-AAF)
```

IDAX Command

The SMC IDAX command is used to control SMC behavior during IDAX (MVS Interpreter/Dynamic Allocation Exit) processing.

Note – This command is new for SMC release 6.2.

Syntax



Command Name

IDAX

initiates the IDAX command

Parameter Descriptions

LIst

optionally, lists current SMC IDAX settings

- LIst is the default when **no** parameters are specified on the IDAX command.
- LIst may be specified with other parameters. In this case, the LIst is applied **after** the other parameters are processed.

OFF

optionally, resets all IDAX settings to original SMC default settings. Specify LIst with this parameter to list these settings.

OFF **cannot** be specified with any other parameter.

POLicy

optionally, specifies whether SMC TAPEREQ/POLicy command processing is performed during IDAX

OFF

TAPEREQ/POLicy command processing is **not** performed during IDAX. This is the default value.

ON

TAPEREQ/POLicy command processing is performed during IDAX.

Note – SMC policy processing at IDAX using a DFSMS ACS routine MGMTCLAS as a policy name is controlled by the MGMTPol parameter of the SMSDef command.

SEQuence

optionally, specifies the relative sequence of SMC and IBM DFSMS ACS routine invocation during IDAX (Interpreter/Dynamic Allocation Exit) processing

LAST

SMC invokes the DFSMS ACS routines after IBM. This is the default value.

FIRST

SMC invokes the DFSMS routines before IBM. This parameter allows your SMC DFSMS routines to assign tape esoterics to data sets with no specified esoteric, or to data sets that would otherwise be SMS-managed if IBM invoked the DFSMS routines before the SMC.

MOD

optionally, specifies whether the POLicy IDAXESOT parameters or SMC DFSMS esoteric substitution applies to DISP=MOD data sets as well as DISP=NEW data sets

OFF

SMC POLicy IDAXESOT parameters or SMC DFSMS esoteric substitution **do not** apply to DISP=MOD data sets. This is the default value.

ON

SMC IDAX parameters and SMC DFSMS esoteric substitution (if specified) apply to **all** DISP=MOD data sets when the first reference to the data set in the job's JCL specifies either DISP=MOD or DISP=NEW.

Note – During SMS IDAX substitution, the SMC **cannot** determine whether a MOD data set exists.

VTVMAXvol

optionally, specifies whether the volume count for a new allocation is set to 255 if the derived esoteric contains at least one virtual device. The derived esoteric is obtained from the JCL specification, the POLicy command IDAXESOTERIC value, or the SMC DFSMS ACS routine value.

OFF

Volume count is **not** adjusted for virtual allocations. This is the default value.

ON

Volume count is set to 255 if the JCL (or IDAX-substituted) esoteric contains virtual devices for a scratch allocation.

Example

In the following example, the IDAX command specifies that TAPEREQ/POLicy processing is enabled during IDAX, SMC invokes the DFSMS routines before IBM invokes the DFSMS ACS routines, and SMC IDAX parameters and SMC DFSMS esoteric substitution (if specified) apply to all DISP=MOD data sets.

```
IDAX POLICY(ON) SEQUENCE(FIRST) MOD(ON)
```

LIBrary Command (SMC 6.1)

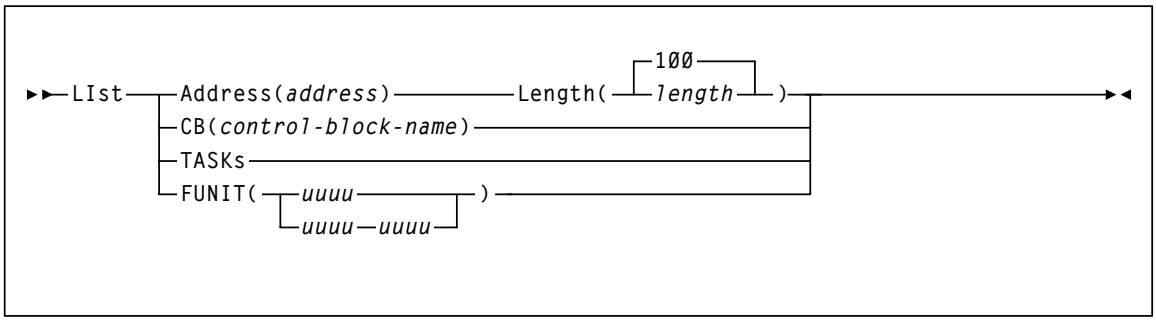
In SMC Release 6.2, the SMC LIBrary command is replaced by the SMC TAPEPlex command. However, existing LIBrary commands are still processed for SMC 6.1 compatibility.

See "TAPEPlex Command" on page 195.

LIst Command

The SMC LIst command is used to display storage accessible from the SMC started task address space.

Syntax



Command Name

LIst

initiates the LIst command

Parameter Descriptions

Address

optionally, specifies the address at which to begin listing SMC memory contents

address

the address. The value entered **must** be a valid hexadecimal address.

Length

optionally, specifies the length of SMC memory (bytes) to be listed. Length is required if Address is specified.

length

the length.

The value entered **must** be a valid hexadecimal value between 1 and FFFF. Memory is listed beginning at the location specified in the *address* parameter. The default value is 100 (decimal 256).

CB

optionally, specifies the internal SMC control block to be listed

control-block-name

the control block name

SMC control blocks are listed for diagnostic purposes. Specify *control-block-name* only as directed by StorageTek Software Support.

TASKs

optionally, lists the tasks in the SMC subsystem address space

FUNIT

optionally, lists SMC control blocks associated with the specified unit address(es)

uuuu* or *uuuu-uuuu

the unit address(es)

Example

In the following example, the LIst command displays the given length (FFF) of accessible storage beginning with address 01FE00.

```
LIST ADDRESS=01FE00 LENGTH=FFF
```

LOG Command

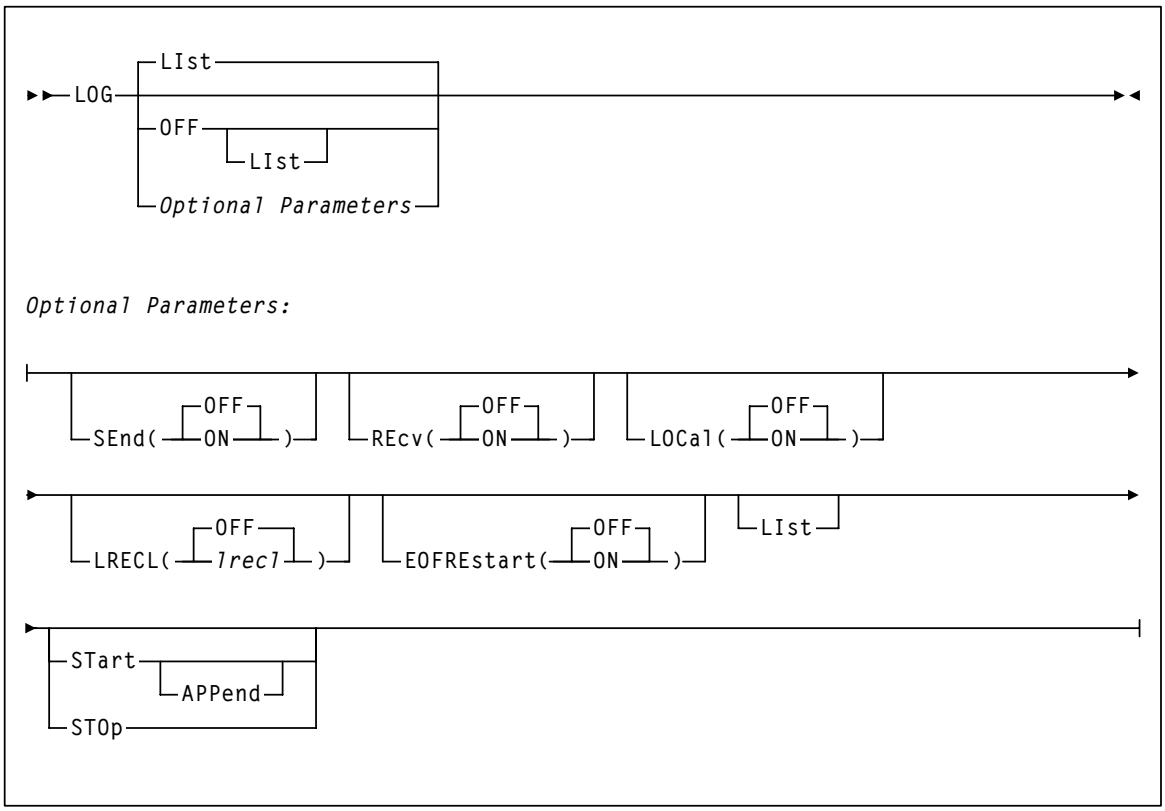
The SMC LOG command logs XML transactions sent and/or received from TapePlexes and servers to an SMCLOG file. Outgoing requests and incoming responses can be logged from both local and remote TapePlexes. This command is intended to be used primarily as directed by StorageTek Software Support.

In addition, you may specify command parameters to control the following:

- Length of the log data line written (independently of the SMCLOG DCB attributes)
- Whether log data is appended to an existing file
- Handling of SMCLOG EOF conditions

Note – EOFRESTART, used to restart logging at SMCLOG EOF, simply restarts the log at EOF and does not wrap the log (i.e., all data prior to EOF is lost).

Syntax



Command Name

LOG

initiates the LOG command

Parameter Descriptions

LIst

optionally, lists current SMC LOG settings

- LIst is the default when **no** parameters are specified on the LOG command.
- LIst may be specified with other parameters. In this case, the LIst is applied **after** the other parameters are processed.

OFF

optionally, resets all LOG settings to original SMC default settings and stops SMC logging (if started). Specify LIst with this parameter to list these settings.

SEnd

optionally, specifies whether request data sent to a TapePlex is logged in the SMCLOG file

OFF

Requests sent to a TapePlex are **not** logged to the SMCLOG file. This is the default value.

ON

Requests sent to a TapePlex are logged to the SMCLOG file.

REcv

optionally, specifies whether response data received from a TapePlex is logged to the SMCLOG file

OFF

Responses received from a TapePlex are **not** logged to the SMCLOG file. This is the default value.

ON

Responses received from a TapePlex are logged to the SMCLOG file.

LOCal

optionally, specifies whether the local data, in addition to remote (TCP/IP) requests and responses, is logged to the SMCLOG file

---

Note – Data sent and received over TCP/IP to remote servers is always logged.

OFF

Data sent and received from a local TapePlex using cross memory services is **not** logged to the SMCLOG file. This is the default setting.

ON

Data sent and received from a local TapePlex using cross memory services is logged.

LRECL

optionally, specifies the line length written to the LOG file

nnnnn

a value from 80 to 32767, used to limit the logical line length.

If the data sent or received exceeds the specified LRECL, then multiple lines are written. If LRECL is specified, then the log date and time stamp are written as separate LOG records. If this value exceeds the DCB LRECL, then the DCB LRECL is used.

OFF

The maximum line length is controlled by the DCB LRECL. The LOG record is appended to the log date and time stamp. This is the default setting.

EOFREstart

optionally, specifies the response when the LOG file reaches End of File (EOF)

OFF

Logging stops at EOF.

ON

The LOG file closes and re-opens at EOF, and logging continues.

STArt

optionally, starts logging

APPend

optionally, specifies that data is appended to the current LOG file when logging is started. If not specified, then data is added to the LOG file from the beginning of the log file, and any data currently in the log file is lost. APPend can only be specified when STArt is also specified.

STOp

optionally, stops logging. Current LOG settings are preserved.

Example

In the following example, the LOG logical record length is set to 120, the log is started, and then the log settings are listed.

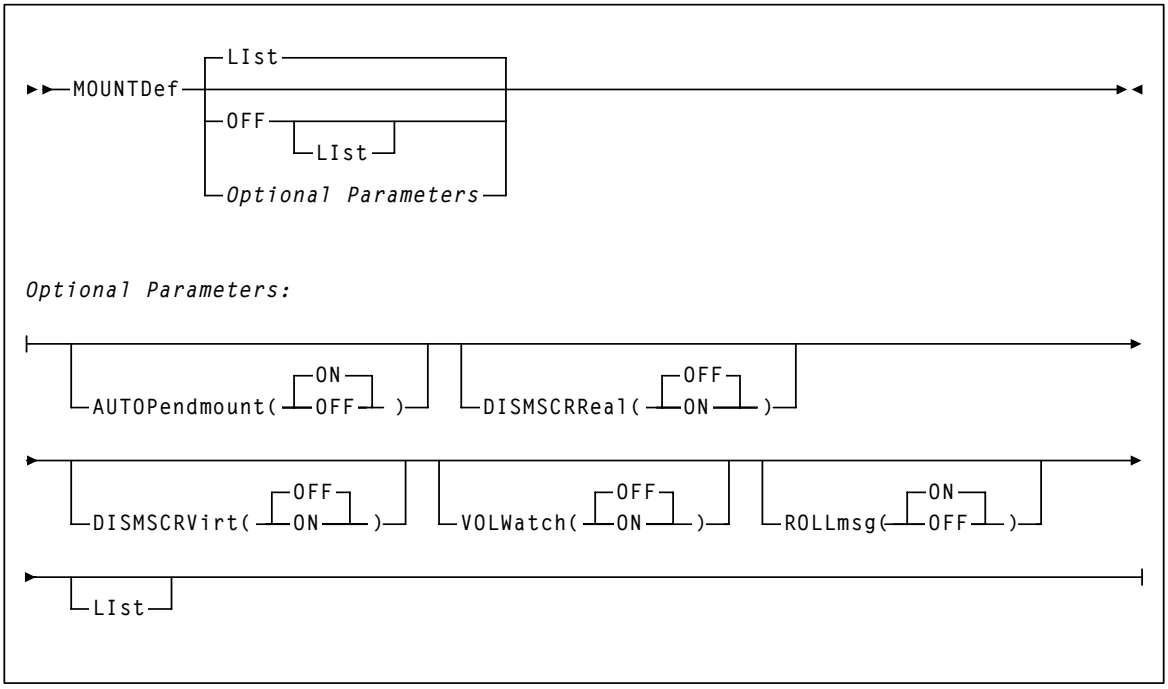
```
LOG LRECL(120) START LIST
```

MOUNTDef Command

The SMC MOUNTDef command is used to control message processing (i.e., mount/dismount) options previously controlled by the HSC MNTD command, HSC input parameters and LIBGEN options, and the MVS/CSC ALTER command and input parameters.

These options control the automation of pending mounts, delete disposition at dismount time, whether messages are produced when a library volume is mounted outside the TapePlex, and when mount messages are rolled off of the console.

Syntax



Command Name

MOUNTDef

initiates the MOUNTDef command

Parameter Descriptions

LIst

optionally, lists current SMC MOUNTDef settings

- LIst is the default when **no** parameters are specified on the MOUNTDef command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, resets all MOUNTDef settings to original SMC default settings. Specify LIst with this parameter to list these settings.

AUTOPendmount

optionally, specifies whether the pending mounts are automated for library or virtual drives found when SMC is first initialized and the owning TapePlex is first activated.

ON

Pending mounts are automated. This is the default setting.

OFF

Pending mounts are **not** automated.

Note – If AUTOPendmount is OFF, you must issue an HSC MOUNT command to complete any pending mounts found when a TapePlex is first activated.

DISMSCRReal

optionally, specifies how the SMC interprets the delete disposition on a dismount message for real (nonvirtual) volumes

---

Note – The DISMSCRReal and DISMSCRVirt parameters replace the DELDISP= parameter of the HSC LIBGEN SLILIBRY macro.

OFF

The real cartridge is retained as nonscratch when MVS indicates delete disposition in the dismount message. This is the default setting, and is recommended for CA-1 or CA-TLMS users to leave volumes in a consistent nonscratch status during the CA-1 and CA-TLMS grace period.

ON

The real cartridge is scratched when MVS indicates delete disposition in the dismount message.

DISMSCRVirt

optionally, specifies how the SMC interprets the delete disposition on a dismount message for virtual volumes

---

Note – The DISMSCRReal and DISMSCRVirt parameters replace the DELDISP= parameter of the HSC LIBGEN SLILIBRY macro.

OFF

The virtual volume is retained as nonscratch when MVS indicates delete disposition in the dismount message. This is the default setting.

ON

The virtual volume is scratched when MVS indicates delete disposition in the dismount message.

VOLWatch

optionally, specifies whether an SMC message is issued when a library volume is to be mounted on a nonlibrary drive

OFF

No message is issued when a library volume is to be mounted on a nonlibrary drive.

ON

A console message is issued when a library volume is to be mounted on a nonlibrary drive.

ROLLmsg

optionally, specifies whether mount messages handled by the SMC are allowed to roll off the operator console before mount requests are satisfied

ON

Mount messages are allowed to roll off the console screen before mounts are satisfied. This is the default setting.

Note – You can limit the rolling of specific mount messages (e.g., TMS007) by presetting the messages xxxxRCDC (Request to Change Descriptor Codes) flag word xxxxRBFB1. The SAMPLIB includes a sample MPF USEREXIT to preset the xxxxRCDC flag.

OFF

Mount messages remain on the console screen until mount requests are satisfied.

Example

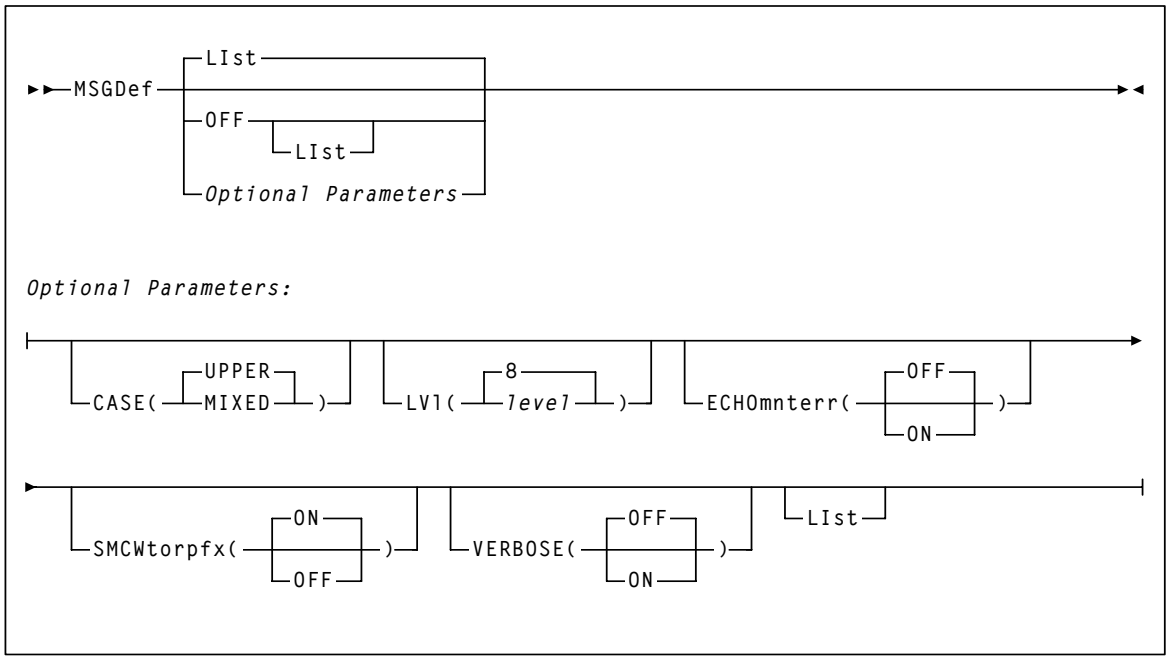
In the following example, the VOLwatch option, used to issue a message when a library volume is mounted on a nonlibrary drive, is enabled. Then all of the MOUNTDef settings are listed.

```
MOUNTDEF VOLWATCH(ON) LIST
```

MSGDef Command

The SMC MSGDef command defines the appearance of SMC system messages, and controls which messages are displayed and suppressed.

Syntax



Command Name

MSGDef

initiates the MSGDef command

Parameter Descriptions

LIst

optionally, lists current default SMC message settings

- LIst is the default when **no** parameters are specified on the MSGDef command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, resets all MSGDef values to original SMC default settings. Specify LIst with this parameter to list these settings. MSGDef **cannot** be specified with any other parameter.

CASE

optionally, specifies the message case. Valid values are UPPER or MIXED.

UPPER

specifies upper case. This is the default.

MIXED

specifies mixed case

LVl

optionally, specifies the default level used to control which SMC messages are displayed and suppressed

level

the default level. Valid values include the following:

0	Display error messages **only**.
4	Display error and warning messages from the SMC subsystem.
8	Display all SMC subsystem messages and allocation job log warning messages. This is the default value if the MSGDef parameter is not specified.

If no value is specified, the default value of 8 is used.

Note – Levels higher than 8 are used for diagnostic purposes and should **only** be specified as directed by StorageTek Software Support.

ECHOmnterr

optionally, specifies whether mount errors generated by the HSC are echoed directly to the console for the SMC client

ON

Mount errors generated by the HSC are echoed to the console for the SMC client.

Note – This parameter is valid for both local and remote servers.

OFF

Mount errors generated by the HSC are **not** to the console for the SMC client. This is the default.

SMCWtorpfx

optionally, specifies whether the SMC0137 prefix is displayed for HSC WTOR messages generated by WTORDEST(CLIENT) on the TAPEPlex command

ON

The SMC0137 prefix is displayed. This is the default.

OFF

The SMC0137 prefix is **not** displayed.

VERBOSE

optionally, specifies whether SMC0190 and SMC0191 messages are displayed whenever any SMC settings are altered

ON

SMC0190 and SMC0191 messages are displayed.

OFF

SMC0190 and SMC0191 messages are **not** displayed.

Example

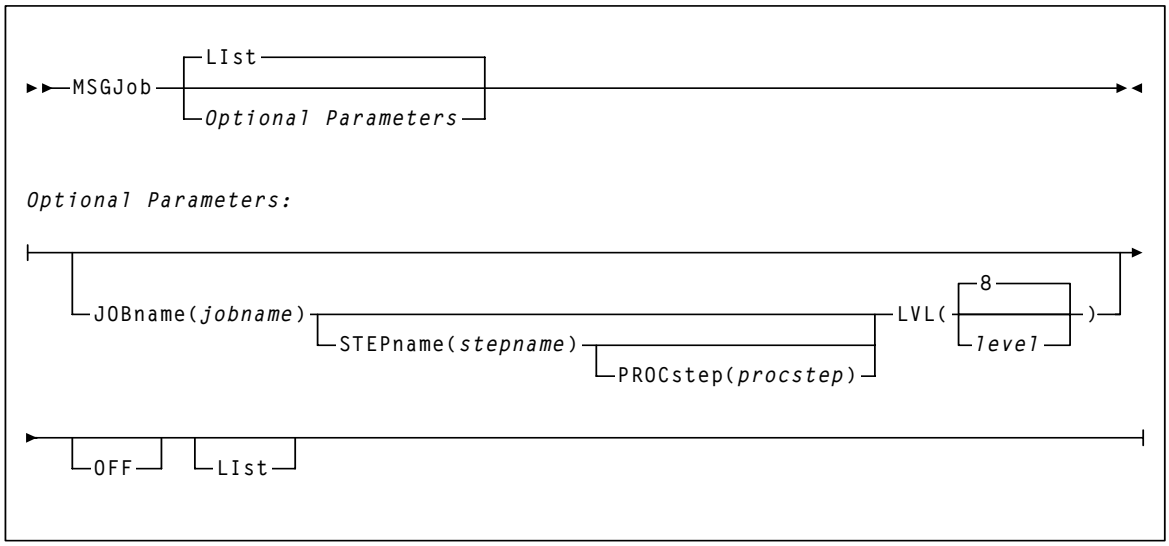
In the following example, the MSGDef command specifies that SMC messages are displayed in mixed case. The command also specifies that **only** error and warning messages from the SMC subsystem are displayed.

```
MSGDEF CASE(MIXED) LVL(4)
```

MSGJob Command

The SMC MSGJob command allows an override of the default message level by job name, step name, and PROC step.

Syntax



Command Name

MSGJob

initiates the MSGJob command

Parameter Descriptions

LIst

optionally, lists current default SMC message settings and job name, step name, and PROC step exceptions (in the order of evaluation)

- LIst is the default when **no** parameters are specified on the MSGJob command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, removes MSGJob overrides

- If no other parameters are specified, MSGJob overrides are removed for all jobs.
- If only JOBname is specified, MSGJob overrides are removed for ALL MSGJob entries for that job name.
- If JOBname, STEPname and PROCstep are specified, MSGJob overrides are removed **only** for the specified entry.

The global MSGDef is **not** affected by this parameter.

JOBname

optionally, specifies a job name

jobname

the job name

The value entered **must** be one to eight characters in length. An asterisk (*) can be used as a wildcard when included as the last character. In this case, the message level is set for all jobs whose job names match the characters preceding the asterisk.

STEPname

optionally, specifies a step name. It is **only** valid when JOBname is also specified (may be "JOB=*").

stepname

the step name

The value entered **must** be one to eight characters in length. This parameter is **only** valid if JOBname is also specified.

PROCstep

optionally, specifies a PROC step. It is **only** valid when JOBname and STEPname are also specified. It is **not** valid in JES3 environments with TAPE SETUP processing.

procstep

the PROC step

The value entered **must** be one to eight characters in length. This parameter is **only** valid if JOBname and STEPname are also specified.

LVL

optionally, specifies the default level used to control which SMC messages are displayed. This parameter is required when JOBname is specified.

level

the default level. Valid values include the following:

0	Display error messages **only**.
4	Display error and warning messages from the SMC subsystem.
8	Display all SMC subsystem messages and allocation job log warning messages.

If no value is specified, the default value of 8 is used.

Note – Levels higher than 8 are used for diagnostic purposes and should **only** be specified as directed by StorageTek Software Support.

Example

In the following example, the MSGJob command specifies that **only** error and warning messages are displayed for job PRODJOB1, step STEP3, PROC step REPORT.

```
MSGJOB JOBNAME(PRODJOB1) STEPNAME(STEP3) PROCSTEP(REPORT) LVL(4)
```

POLicy Command

The SMC POLicy command is used to specify all tape policy specifications in a single named policy object. It can be used with TAPEREQ statements or SMC DFSMS ACS routines to associate a named policy with an allocation or mount event.

Note –

- **This command is new for SMC release 6.2**.
- See Chapter 4, "Policy" for more information about the use of SMC policies.
- Policies defined using the SMC POLicy command create SMC policy objects that can be referenced by name from either SMC TAPEREQ control statements using the TAPEREQ POLicy parameter, or from IBM DFSMS ACS routines using the management class. A policy name may be associated with two policy objects: a scratch policy with the specified name, and a specific policy with the specified name.
- Policies referenced from SMC TAPEREQ control statements must be defined prior to executing the TREQDEF command that processes the TAPEREQ control statements.
- When a policy to be added to the SMC contains a policy specification error, for example, specifying a scratch subpool name with VOLTYPE(SPECIFIC), the SMC still creates the policy object. However, the SMC marks the policy object in error, allowing any reference to the named policy object to find it. However, the returned policy will be empty, indicating that the default tape policy attributes will be applied to the event.
- To update an SMC policy, enter a new SMC POLicy command for the given policy NAme and VOLType. Be aware that the new POLicy command **replaces** the existing scratch or specific policy object. Therefore, when updating a policy, you must enter all values you wish to preserve.

  For example, if the original scratch policy object is defined as:

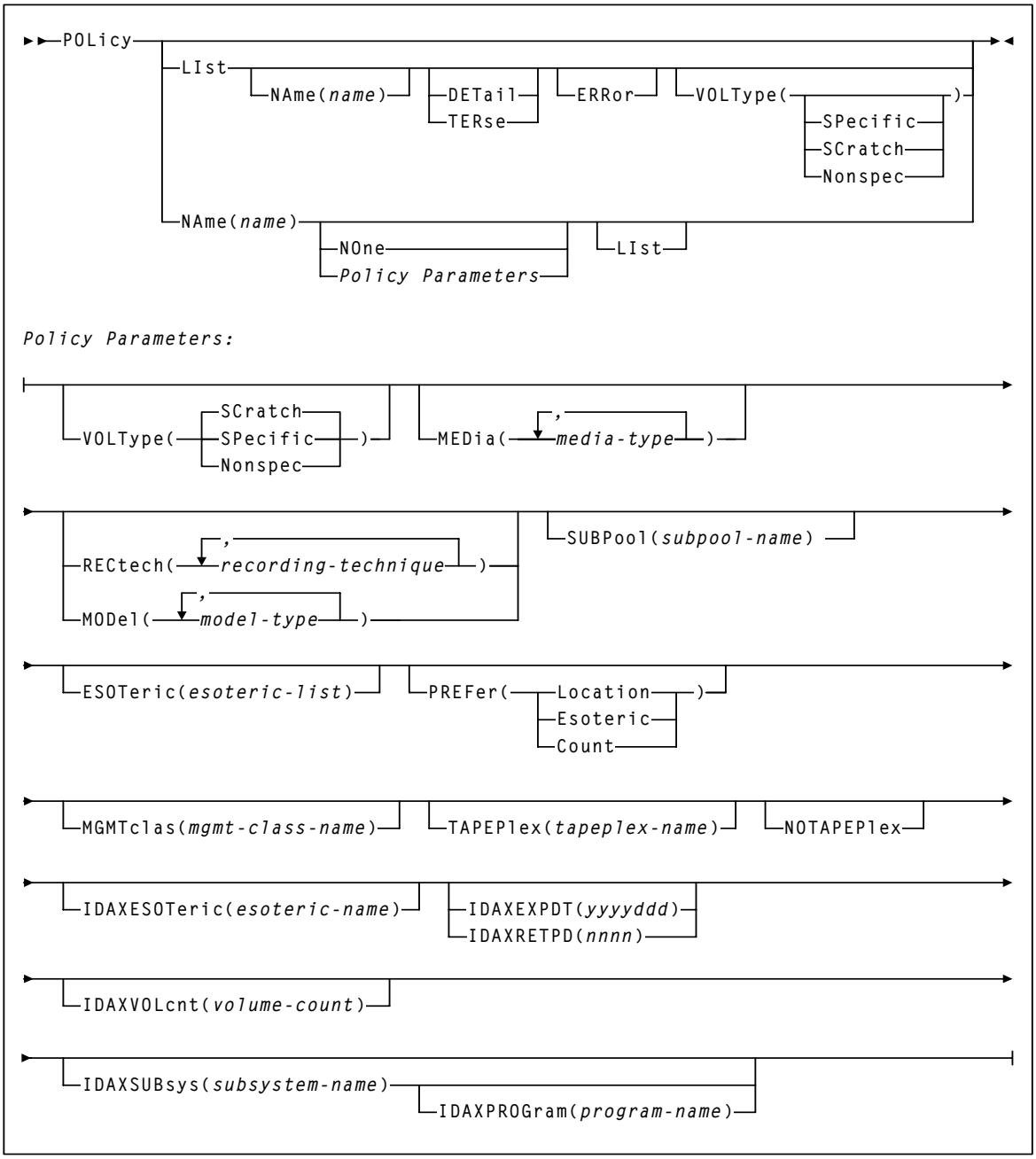
  ```
  POLICY NAME(POL1) VOLTYPE(SCRATCH) MEDIA(VIRTUAL) MGMTCLAS(MGMT1)
  ```

  and you wish to add a subpool to the policy, you must enter:

  ```
  POLICY NAME(POL1) VOLTYPE(SCRATCH) MEDIA(VIRTUAL) MGMTCLAS(MGMT1)
  SUBPOOL(SUBP1)
  ```

  This behavior allows you to modify one or more POLicy commands in a file and reload all policies using the SMC READ command.
- When an SMC policy object to be updated contains a policy specification error, for example, specifying a scratch subpool name with VOLTYPE(SPECIFIC), the SMC will not update any part of the existing policy object. The policy object is not marked in error, and the complete update is discarded.
- DEVTPREF is **not** supported on this command. However, you can use an esoteric list to specify preferencing for different device types.

Syntax


POLicy
LIst
NAme(name)
DETail
TERse
ERRor
VOLType(
SPecific
SCratch
Nonspec
)
NAme(name)
NOne
Policy Parameters
LIst
Policy Parameters:
VOLType(
SCratch
SPecific
Nonspec
)
MEDia(
,
media-type
)
RECtech(
,
recording-technique
)
MODel(
,
model-type
)
SUBPool(subpool-name)
ESOTeric(esoteric-list)
PREFer(
Location
Esoteric
Count
)
MGMTclas(mgmt-class-name)
TAPEPlex(tapeplex-name)
NOTAPEPlex
IDAXESOTeric(esoteric-name)
IDAXEXPDT(yyyyddd)
IDAXRETPD(nnnn)
IDAXVOLcnt(volume-count)
IDAXSUBsys(subsystem-name)
IDAXPROGram(program-name)

Command Name

POLicy

initiates the Policy command

Parameter Descriptions

LIst

optionally, displays all policy information. Additional parameters allow you to limit which policies are listed, and how much detail is displayed.

NAme

optionally, specifies the name of the policy to be displayed. If the last character is an asterisk (*), all policies that begin with the prefix are displayed. For example, POL LI NA V*.

DETail

optionally, displays audit detail information about the policy, including last update date, time, and source

TERse

optionally, lists only policy names and whether each policy name applies to scratch, specific, or all allocations

ERRor

optionally, displays each policy in error status

When a policy to be added to the SMC contains a policy specification error, for example, specifying a scratch subpool name with VOLTYPE(SPECIFIC), the SMC still creates the policy object. However, the SMC marks the policy object in error, allowing any reference to the named policy object to find it. However, the returned policy will be empty, indicating that the default tape policy attributes will be applied to the event. ERRor lists **only** those policies that contain an error.

VOLType

optionally, specifies whether the list applies to scratch or specific policy types

SCratch or **Nonspec**

List **only** scratch (nonspecific) policies.

SPecific

List **only** specific policies.

Note –

- Matching policies are listed in alphabetic order, regardless of the order in which the they were defined to the SMC. When specified with other parameters, the LIst is performed **after** the other parameters have been processed.
- DETail and TERse are mutually exclusive.

NAme

specifies the name of a policy that matches the name specified in a TAPEREQ or DFSMS ACS routine management class

name

the policy name

NOne

optionally, removes all policy parameters associated with the named policy. Specifying NOne for a policy implies that the default behavior is applied, e.g. any media/rectech, subpool 0, etc.

VOLType

optionally, specifies whether the policy applies to scratch or specific allocation

SCratch or Nonspec

The policy applies only to scratch (nonspecific) allocations. This is the default.

SPecific

The policy applies only to specific allocations.

Note –

When VOLType(SPecific) is specified:

- The SUBPool parameter is **not** permitted.
- The MEDia parameter is only permitted if the NOTAPEPlex parameter is specified.

MEDia

optionally, specifies the desired media type for a data set being created. You can enter a list of media types, separated by commas. A list specifies a generic pool from which a selection is made. There is no implied priority.

media-type

the media type

See TABLE B-1 on page 357 for a list of valid *media-type* values.

Note –

- MEDia and VOLType(SPecific) are mutually exclusive unless the NOTAPEPlex parameter is specified.
- If this parameter is not specified, a default is chosen based on the value of the RECtech parameter. See TABLE B-2 on page 359 for default values used if the MEDia parameter is omitted.
- If both media type and recording technique are omitted, all available device types are eligible for allocation.

RECtech

optionally, specifies the method used to record data tracks on the tape surface for the desired data set. You can enter a list of recording techniques, but they must be separated by commas. A list specifies a generic pool from which a selection is made. There is no implied priority.

recording-technique

the recording technique

See TABLE B-3 on page 360 for a list of valid *recording-technique* values.

Note –

- RECtech and MODel are mutually exclusive.
- If this parameter is not specified, a default is chosen based on the value of the MEDia parameter. See TABLE B-2 on page 359 for default values used if the MEDia parameter is omitted.
- If both media type and recording technique are omitted, all available device types are eligible for allocation.

MODel

optionally, specifies the model number of a transport. You can enter a list of models, separated by commas. A list specifies a generic pool from which a selection is made. There is no implied priority.

MODel provides the same type of information as RECtech, but a user may find it more convenient to specify a transport model rather than a recording technique.

model-type

the model type

See TABLE B-5 on page 364 for a list of valid *model-type* values.

Note – MODel and RECtech are mutually exclusive.

SUBPool

optionally, specifies the subpool used to satisfy a scratch request

subpool-name

the subpool name

Note – SUBPool and VOLType(SPecific) are mutually exclusive.

ESOTeric

optionally, specifies the name of a device esoteric group, or list of device groups defining the list of eligible transports to be used to satisfy a tape request

esoteric-group-name

the esoteric group name

The name specified can consist of one to eight alphanumeric or national (#, @, $) characters. A slash (/) or hyphen (-) is also valid.

Note – If the esoteric list contains devices not currently in the Eligible Device List, SMC allocation **cannot** add devices to the list, but can exclude devices not in the specified esoteric. During drive exclusion, devices in any of the listed esoterics are included. During drive prioritization, devices are ordered according to their position in the esoteric list.

PREFer

optionally, specifies the relative value of the esoteric list and additional preferencing information. PREFer is **only** valid when a list of esoterics is specified.

Location

Drives are preferred based on LSM location of a specific volume. This is the default for specific volumes. Location is **only** valid for VOLType (SP).

Esoteric

Drives are preferred based on the order specified in the esoteric list. This is the default for scratch allocations.

Count

Drives are preferred based on scratch counts in the LSM. Count is **only** valid for VOLType (N).

MGMTclas

optionally, specifies a Management Class defined on the VTCS MGMTclas control statement. Refer to the *VTCS Command and Utility Reference* for more information.

mgmt-class-name

the Management Class name

TAPEPlex

optionally, specifies the name of a TapePlex defined to SMC. SMC uses the specified TapePlex name to determine the "owner" of an allocation request. Only the specified TapePlex name is queried to determine specific volume information or scratch availability.

tapeplex-name

the TapePlex name

Note –

- The named TapePlex must be defined using a TAPEPlex command before the POLicy command is processed.
- TAPEPlex and NOTAPEPlex are mutually exclusive.

NOTAPEPlex

optionally, specifies that SMC will **not** perform a TapePlex lookup to obtain volume information

---

Note –

- NOTAPEPlex and TAPEPlex are mutually exclusive.
- VOLType (SPecific) is required.

IDAXESOTeric

optionally, specifies the esoteric name to be substituted during IDAX (MVS Interpreter/Dynamic Allocation Exit) processing

Specification of IDAXESOTeric is similar to changing the JCL unit name, and completely replaces the original esoteric.

Unlike the ESOTeric parameter, the IDAXESOTeric *esoteric-name* does not need to include any devices in the original JCL esoteric.

esoteric-name

a valid esoteric name to be used for the allocation

IDAXEXPDT

optionally, specifies the expiration date to be applied to the allocation during IDAX. This parameter is mutually exclusive with IDAXRETPD.

yyyyddd

the desired expiration date (4-digit year and Julian day)

IDAXRETPD

optionally, specifies the retention period to be applied to the allocation during IDAX. This parameter is mutually exclusive with IDAXEXPDT.

nnnn

the retention period in number of days

IDAXVOLcnt

optionally, specifies the maximum number of volumes to be applied to the allocation during IDAX. This value overrides the volume count parameter specified in the JCL.

volume-count

the maximum volume count. Valid values are 1-255.

IDAXSUBsys

optionally, specifies that SMC direct an allocation job to another subsystem or program

For example, SMC can direct any FDR/DFDSS job to the StorageTek ExHPDM backup and restore software. The IDAXSUBsys policy directs the output tape data set allocation to ExHPDM, effectively placing the DD SUBSYS JCL specification in the job.

subsystem-name

the subsystem name

IDAXPROGram

optionally, alters the program name in the allocation job

For example, this parameter can alter the program name for DFDSS (ADRDSSU) to the ExHPDM User Interface Module (SOVDSSU), and in conjunction with the IDAXSUBsys parameter, direct the backup DFDSS job to ExHPDM.

program-name

program name

Note – Refer to the *ExHPDM Operator and System Programmer's Guide* for more information about the ExHPDM backup and restore software.

Examples

In the following example, the POLicy command defines an SMC policy named POLICY1, which specifies management class ABC, subpool XYZ, and the virtual recording technique. Since VOLType is not specified, the policy applies **only** to the default, scratch requests.

```
POLICY NAME(POLICY1) MGMTCLAS(ABC) SUBPOOL(XYZ) RECTECH(V)
```

In the next example, given the following IDAX command, and assuming the JCL esoteric specifies disk:

```
IDAX POLICY(ON) SEQUENCE(FIRST)
```

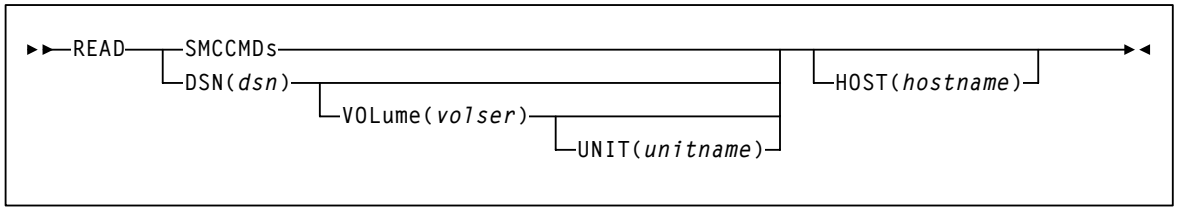
The following POLicy command changes the JCL esoteric to 3490, and based on the ESOT parameter, directs tape requests to 9840B devices, followed by 9840A devices.

```
POLICY NAME(POLICY2) IDAXESOTERIC(3490) ESOTERIC(S9840B,S9840A)
```

READ Command

The SMC READ command is used to enter a series of commands using an input data set instead of console commands.

Syntax



Command Name

READ

initiates the READ command

Parameter Descriptions

SMCCMDs

optionally, re-processes commands contained in the data set specified in the SMCCMDS DD statement of the SMC START procedure

DSN

optionally, processes commands contained in the specified data set

dsn

the data set name

Note – If the DSN parameter specifies a member name, the full data set **must** be enclosed in single quotes.

HOST

optionally, specifies a host name for which this READ command is valid. If this parameter is specified, the READ command is only processed when the specified hostname matches the MVS host. If this parameter is not specified, the READ command is processed regardless of the MVS host.

hostname

the hostname

VOLume

optionally, specifies the volume serial number of the DASD volume on which the data set resides. Specify this parameter if the data set is not catalogued.

volser

the volume serial number on which the data set resides

UNIT

optionally, specifies the unit name of the specified VOLume for uncataloged data sets. Requires that VOLume also be specified.

unitname

the unit name

If not specified, then a unit name of SYSALLDA is the default.

Note –

- HOST is **not** valid when the READ command is entered from an MVS console.
- In a JES3 environment, the host name is the SMF host, **not** the JES3 MAIN name.
- Specification of the HOST parameter allows you to share a single SMC parameter file set across multiple MVS hosts as shown in the following example:

your.parmlib(COMMCMDS)

```
MSGDEF CASE(MIXED)
...other common SMC parameter settings...
READ DSN('your.parmlib(MVS1CMDS)') HOST(MVS1)
READ DSN('your.parmlib(MVS2CMDS)') HOST(MVS2)
```

your.parmlib(MVS1CMDS)

```
DRIVEMAP CL(AB0-AB7) SE(BB0-BB7)
```

your.parmlib(MVS2CMDS)

```
DRIVEMAP CL(CB0-CB7) SE(BB0-BB7)
```

The file COMMCMDS contains SMC parameter settings applicable to all hosts, and the READ commands with HOST specifications for your MVS hosts. The file MVS1CMDS contains SMC specifications applicable only to MVS host MVS1, while the file MVS2CMDS contains SMC specifications applicable only to MVS host MVS2.

Example

In the following example, the READ command processes commands included in the MYCMDS member of the MY.COMMAND.PDS data set.

```
READ DSN('MY.COMMAND.PDS(MYCMDS)')
```

RESYNChronize Command

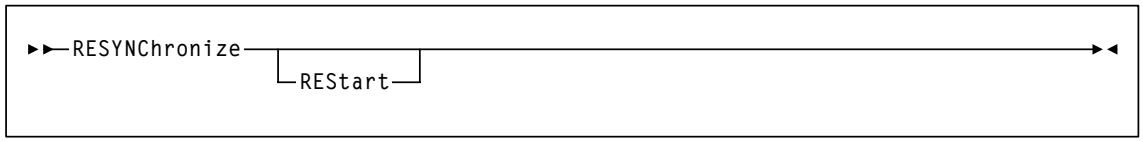
The SMC RESYNChronize command is used to re-establish connections to all defined TapePlexes for the purpose of acquiring drive configuration information from all TapePlexes.

This action is automatically performed when the SMC first activates a new path to a TapePlex, when an HSC subsystem (local or remote) reports a configuration change, or when an active local path to a TapePlex is accessed during an MVS allocation or mount event. However, the operator **must** issue the RESYNChronize command in the following instances:

- When the MVS/CSC RESYNC command is issued and the MVS/CSC is active
- When the user wants to automate pending mounts for a newly activated TapePlex, and does not want to wait for an MVS allocation or mount event to trigger the reconnection.
- To attempt to redrive outstanding mounts that may have been lost due to hardware or communication errors.

Note – It is recommended that you include a RESYNC command at the end of your SMCCMDS file (after all TAPEPlex and SERVer commands) to initialize communication with TapePlexes prior to the first intercepted allocation or mount.

Syntax



Command Name

RESYNChronize

initiates the RESYNChronize command

Parameter Descriptions

REStart

optionally, starts the RESYNChronize attempt at the first server, regardless of the last active path. REStart also attempts to redrive any outstanding mounts.

Note –

- The SMC RESYNChronize command is **not** required when communicating with HSC, but may be used to redrive outstanding mounts that may have failed due to hardware or communication errors with **either** a local or remote HSC.
- Use of the RESYNChronize command to automate pending mounts for newly active HSC or MVS/CSC systems requires that the SMC MOUNTDef AUTOPendmount ON option is specified.
- Use of the RESYNChronize command to automate pending mounts for newly active HSC systems should be issued after the HSC system has reached FULL service level.

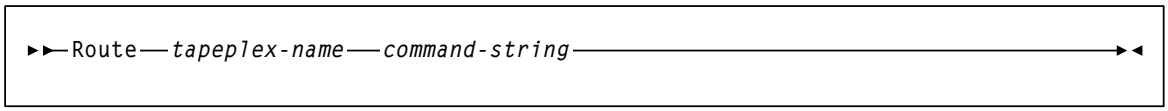
Route Command

The SMC Route command is used to request routing of transactions from SMC to a defined TapePlex name. Only VTCS commands and commands supported by the HSC UUI are supported by the Route command. Refer to the *NCS/VTCS XML Guide* for a list of supported commands.

Note –

- **This command is new for SMC release 6.2**.
- HSC and VTCS load libraries (SOSLINK and SWSLINK) must be included in the STEPLIB concatenation of the SMC START procedure to support the ability to route HSC and VTCS commands from the SMC to an HSC TapePlex on the same host. See "Creating the SMC START Procedure" on page 62 for more information.
- HSC and VTCS load libraries (SOSLINK and SWSLINK) must be included in the HTTP Server START procedure to support the ability to route HSC and VTCS commands from a remote SMC to a local HSC TapePlex. See "Creating the HTTP Server START Procedure" on page 336 for more information.

Syntax



Command Name

Route

initiates the Route command

Parameter Descriptions

tapeplex-name

specifies a TapePlex name as defined on an SMC TAPEPlex command. SMC routes the request to the specified TapePlex using the currently active TapePlex path. Commands may be sent to either a local or remote HSC TapePlex. This command is **not** supported for MVS/CSC TapePlexes.

command-string

specifies the command string to be routed to the requested TapePlex. Note that VTCS commands should **not** be prefixed with VT; the HSC UUI interface routes VTCS commands to the correct functional processor without the VT prefix. The command string must be a command supported by the HSC UUI or any VTCS command (except DISPLAY MSG and DISPLAY CMD).

Examples

In the following example, the Route command routes a Display DRive request to TapePlex HSC0:

```
ROUTE PLEX01 D DR DET ALL U(2900-2903)
```

The following response is displayed:

```
SMC0000 (OPER) R PLEX01 D DR DET ALL U(2900-2903)
SMC0173 Response from TAPEPLEX HSC0:
SLS4633I Display Drives Command
DRIVE LOCATION    VOLSER STATUS    MODEL     MEDIA
2900  01:00:04:00        Online    9490      LONGITUD
2901  01:00:04:01        Offline   9490      LONGITUD
2902  01:00:04:02        Online    9490      LONGITUD
2903  01:00:04:03        Offline   9490      LONGITUD
Display of drives complete
SMC0173 Response RC=0
```

In the next example, the Route command routes a Display Volume request to TapePlex HSC0:

```
ROUT PLEX01 D VOL FB2948-FB2952
```

The following response is displayed:

```
SMC0000 (OPER) R PLEX01 D VOL FB2948-FB2952
SMC0173 Response from TAPEPLEX HSC0:
SLS0600I Volume FB2948 ; 01:00:02:06:00, Unselected, Nonscratch
SLS0600I Volume FB2949 ; 01:00:19:00:00, Unselected, Nonscratch
SLS0600I Volume FB2950 ; 01:00:14:00:00, Unselected, Nonscratch
SLS0600I Volume FB2951 ; 00:00:07:00:07, Unselected, Nonscratch
SLS0603I Volume(s) FB2952 not in ACS
SMC0173 Response RC=8
```

Note – Contrast the output of these Route commands with the Display DRive example on page 147 and Display Volume example on page 149.

SERVer Command

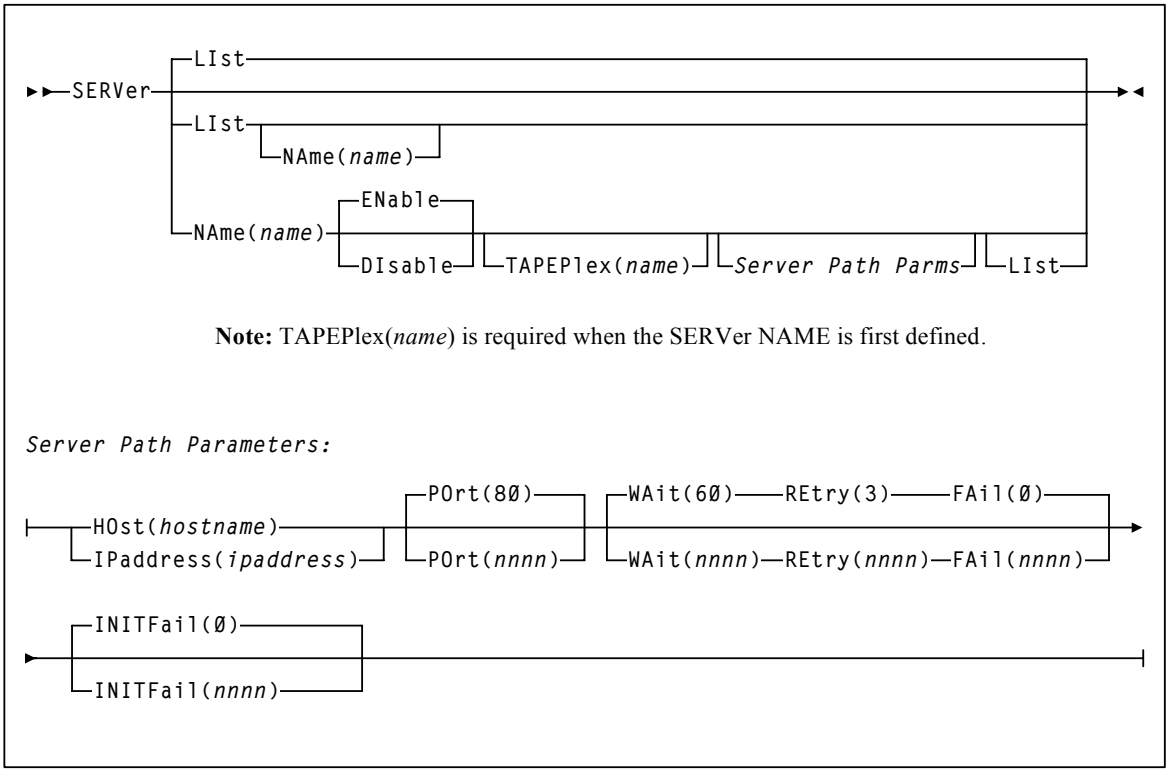
The SMC SERVer command defines a named path to a remote library server; an HSC subsystem executing on another host. The SERVer command describes the communication path to the StorageTek HTTP server.

Note –

- Before a SERVer is defined, the TapePlex that it references must be defined using a TAPEPlex command. The TapePlex name associated with a SERVer **cannot** be changed. See "TAPEPlex Command" on page 195 for more information.
- You **cannot** define a server if the corresponding TAPEPlex defines a LOCSUBsys for an MVS/CSC subsystem. For example, the following is **not** valid (assuming the subsystem CSC1 is an MVS/CSC system).

```
TAPEPLEX NAME(LIB1) LOCSUBSYS(CSC1)
SERVER NAME(REM1) TAPEPLEX(LIB1)
```

Syntax



Note: TAPEPlex(*name*) is required when the SERVer NAME is first defined.

Server Path Parameters:

Command Name

SERVer

initiates the SERVer command

Parameter Descriptions

LIst

optionally, displays status information for TapePlex server paths

- LIst is the default when **no** parameters are specified on the SERVer command. In this case, all library server paths are listed.
- LIst may be specified with other parameters. When specified with parameters other than NAme, the LIst is generated **after** the other parameters are processed.

NAme

optionally, specifies a TapePlex server path for which status is displayed

name

the TapePlex server path

NAme

optionally, specifies the communication path or route to the server

name

an identifier for the path parameters. This name is reported in any communication error messages. The following rules apply:

- The value must be one to eight characters in length.
- The first character must be an alpha character.
- The last character must be either an alpha character or digit.
- Any character between the first and last must be either an alpha character, digit, or hyphen.

ENable

optionally, enables the specified server path to be selected for allocation or mount requests

DIsable

optionally, disables the specified server path. If this is the only path to the TapePlex, the TapePlex is unavailable for allocation or mount requests.

TAPEPlex

optionally, specifies the TapePlex name associated with an actual ACS hardware configuration. The TAPEPlex parameter **must** be specified when a new server is defined.

name

the TapePlex name. This name is reported in any TapePlex error messages. The following rules apply:

- The value must be one to eight characters in length.
- The first character must be an alpha character.
- The last character must be either an alpha character or digit.
- Any character between the first and last must be either an alpha character, digit, or hyphen.

Note – If you are using the StorageTek HTTP server, there can be multiple NAMEd paths to a single TapePlex. See Chapter 2, "SMC and StorageTek TapePlex Management" for more information.

HOst

optionally, specifies the host on which the subsystem resides

hostname

the host name. The following arpanet rules apply:

- The first character must be an alpha character.
- The last character must be either an alpha character or digit.
- Any character between the first and last must be either an alpha character, digit, hyphen, or period.
- The host name can be a maximum of 128 characters.

IPaddress

optionally, specifies the subsystem IP address

ipaddress

the IP address

Note – IPaddress and HOst are mutually exclusive.

POrt

optionally, specifies the server port

nnnn

the server port. The default is 80.

WAit

optionally, specifies the maximum wait time for any single request made over the network before the SMC assumes that a communication or server problem exists

nnnn

the wait time in seconds. The default is 60.

Note –

- The default for a mount or dismount request is 10 minutes (600 seconds) or more if the specified WAIT time is greater than 600 seconds.
- If your HSC CDS backup job runs longer than the specified wait time, set your wait time to match the normal execution time of your CDS backup job.

REtry

optionally, specifies the number of retry attempts for any single request before the task is allowed to resume, and a failure recorded

nnnn

the number of retries. The default is 3.

FAil

optionally, specifies the number of failures (**after** communication is established) before the server path is disabled or placed out of service

---

Note – The FAil limit count **only** applies **after** successful communication has been established on this server path.

---

nnnn

the number of failures. The default is 0.

If 0 is specified, the named server is never automatically disabled due to communications errors. Specify this value when there are no backup server paths to a named TapePlex.

After successful communication is established with a TapePlex, the error severity and server FAil count are used to determine whether a server path should be automatically disabled.

INITFail

optionally, specifies the number of failures (**before** communication is established on the server path) before the server path is disabled or placed out of service

nnnn

the number of failures. The default is 0.

If 0 is specified, the named server is **never** automatically disabled due to communications errors. Use this value only if the library associated with the server is to always be active.

If a remote library may be inactive, specify a small INITFail value, such as 3, for servers associated with the remote library. Specifying a small INITFail value can minimize delays when SMC attempts to communicate with multiple libraries.

Example

In the following example, two TapePlexes (DENVER and OMAHA) are defined

The first TapePlex, DENVER, has both a local HSC (HSC0, on the SMC host) and a backup remote path on MVS system DEN1. SMC uses the local path unless the local subsystem is inactive or is disabled using the command TAPEPLEX NAME(DENVER) LOCDIS. If the backup remote path is used, selected HSC messages are displayed on the client host.

```
TAPEPLEX NAME(DENVER) LOCSUBSYS(HSC0) WTORDEST(CLIENT)
SERVER NAME(DENBKUP) TAPEPLEX(DENVER) HOST(DEN1) PORT(8888)
```

The second TapePlex, OMAHA, is always accessed using a remote server. The SMC attempts to use the first defined server, OMAHA1. If this server becomes inactive, inaccessible, or is disabled, the SMC uses the next defined server, OMAHA2. If the SMC is unable to communicate with either server, no TapePlex requests are directed to the OMAHA TapePlex.

```
TAPEPLEX NAME(OMAHA) WTORDEST(CLIENT)
SERVER NAME(OMAHA1) TAPEPLEX(OMAHA) HOST(OMA1) PORT(8888)
SERVER NAME(OMAHA2) TAPEPLEX(OMAHA) IP(11.22.33.44) +
    PORT(7777)
```

MVS hosts DEN1, OMA1, and the host represented by the IP address 11.22.33.44 must each have an instance of the StorageTek HTTP server executing on them in order for SMC to communicate with the HSC on these hosts. The HTTP server port must be defined as 8888 for the first two hosts and 7777 for the third host.

SMSDef Command

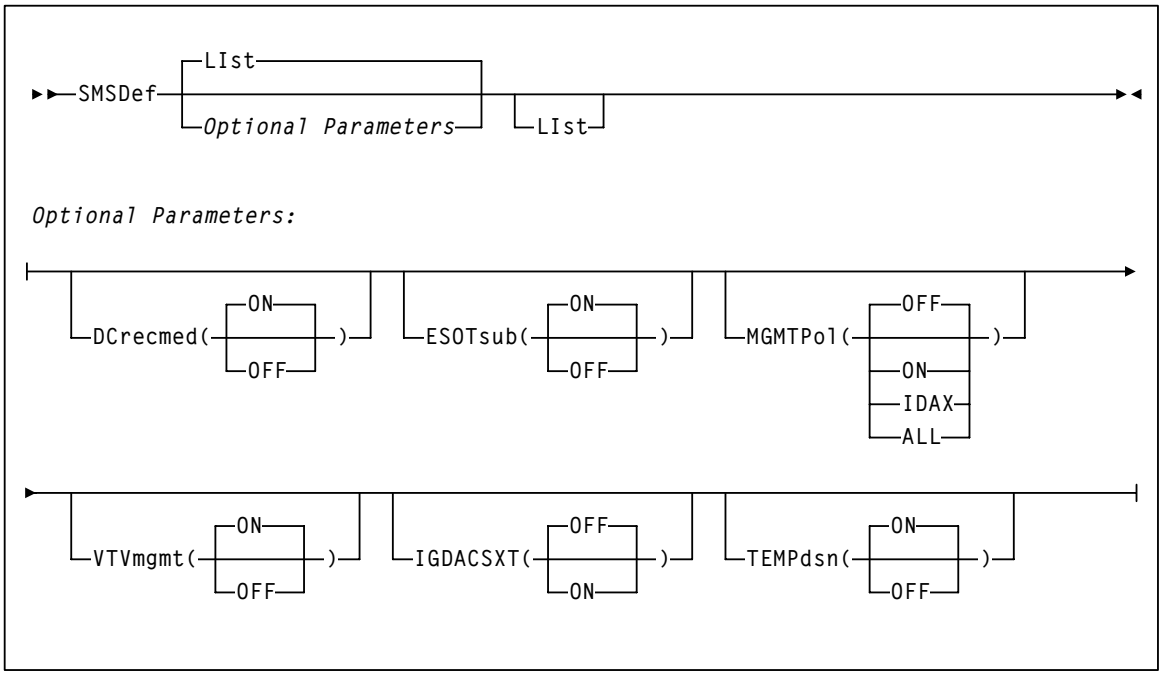
The SMSDef command is used to tailor default SMC DFSMS support.

Note – This command takes effect when SMC DFSMS support is activated by setting the ALLOCDef or ALLOCJob SMS parameter value to ON.

During an allocation resulting in a tape mount, the SMC makes up to four calls to the DFSMS ACS routines. The SMSDef command allows you to bypass certain routine calls.

- DFSMS data class constructs specify a limited set of recording techniques and media supported by Oracle. Conversely, TAPEREQ statements or Policy commands can specify all recording techniques and media supported by Oracle. By default, DFSMS data class construct recording technique and media values override the TAPEREQ/Policy values. However, by setting the SMSDef DCRecmed parameter to OFF, the TAPEREQ/Policy recording technique and media values are always used.
- If VTCS is installed in your environment but TAPEREQ statements or Policy commands are used to assign a management class instead of DFSMS ACS routines, the calls to the DFSMS ACS routines can be bypassed by setting the SMSDef VTVmgmt parameter to OFF.
- If your environment does not support esoteric substitution using DFSMS storage group assignment, these DFSMS ACS routine calls can be bypassed by setting the SMSDef ESOTsub parameter to OFF.
- If your environment does not support DFSMS functions, the ALLOCDef SMS parameter can be set to or allowed to default to OFF. The SMC bypasses all DFSMS ACS routine calls.
- The MGMTPol parameter can be used to specify that the ACS routine management class is an SMC policy. The use of MGMTPol allows the user's SMC DFSMS routines to define all policies associated with a scratch allocation, including media, subpool, and VTCS management class.

Syntax



Command Name

SMSDef

initiates the SMSDef command

Parameter Descriptions

List

optionally, lists the current SMS settings

- LIst is the default when **no** parameters are specified on the SMSDef command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

DCrecmed

optionally, specifies whether the data class construct is returned when a data class is assigned either during DFSMS ACS data class routine invocation or by using the DATACLAS parameter on the DD statement. The data class construct contains the recording technique and media value of the associated data class.

ON

The data class construct is returned. The recording technique and media, if defined to the data class, are retrieved during allocation and mount processing.

OFF

The data class construct is **not** returned.

TEMPdsn

optionally, specifies whether temporary data sets are presented to the DFSMS ACS routines as permanent data sets so that a MGMTCLAS may be returned.

ON

The &DSTYPE read only variable is set to "2" (indicating a permanent data set) if the original data set is a temporary data set.

The &LIBNAME read only variable will contain the character "3" if the &DSTYPE read only variable is changed.

ON is the default setting.

OFF

The &DSTYPE read only variable is set to the actual disposition of the data set.

Note –

- If DCrecmed is ON, the SMC DFSMS ACS data class routine is still invoked, and any returned information overrides media/rectech information specified in the policy.
- If DCrecmed is set to OFF, the DFSMS ACS data class routine is still retrieved from the DFSMS ACS data class routine or from the DATACLAS JCL parameter if the ESOTsub parameter or VTVmgmt parameter is set to ON, and either the MGMTPol parameter is set to OFF or the MGMTPol parameter is set to ON but there is no matching SMC policy name.

ESOTsub

optionally, specifies whether DFSMS ACS routines are invoked during IDAX (MVS Interpreter/Dynamic Allocation Exit) processing. The IDAX DFSMS interface can be used to provide a different unit name for new allocations.

ON

All four (data class, storage class, management class and storage group) DFSMS ACS routines are invoked during IDAX processing.

OFF

DFSMS ACS routines are **not** invoked during IDAX processing.

MGMTPol

optionally, specifies whether the management class returned from a DFSMS ACS routine may represent an SMC policy

OFF

A management class name returned from a DFSMS ACS routine is either ignored (if VTVmgmt if OFF), or is interpreted as a VTCS management class name (if VTVmgmt is ON). This is the default value.

ON

A management class name returned from an SMC DFSMS ACS routine is interpreted as an SMC policy name during allocation and mount message processing, but **not** during IDAX processing. If a matching SMC policy name is found, all policy information applies to the request. If the policy name is not found, other SMC DFSMS processing is applied as specified.

IDAX

A management class name returned from an SMC DFSMS ACS routine is interpreted as an SMC policy name during IDAX processing, but **not** during allocation or mount processing. If the policy name is not found, other SMC DFSMS processing is applied as specified. For example, if ESOT(ON) is specified, the returned storage group is used as a substitution esoteric.

ALL

A management class name returned from an SMC DFSMS ACS routine is **always** interpreted as a policy name.

- If a matching SMC policy name is found, all policy information applies to the request.
- If the policy name is not found, other SMC DFSMS processing is applied as specified. For example, if VTVMGMT is ON, the DFSMS management class name is interpreted as a VTV management class.

Note – If MGMTPol is on, and the matching policy name contains an esoteric, the esoteric name in the policy is used during common allocation to exclude devices not contained in the specified esoteric. It is **not** used as a "true" esoteric substitution parameter.

IGDACSXT

optionally, specifies whether the SMC invokes the Pre-ACS Installation Exit, IGDACSXT, before invoking the DFSMS ACS routines during SMC DFSMS processing. Refer to the IBM manual *DFSMS Installation Exits* for more information about this exit.

ON

The IGDACSXT exit is invoked before the SMC calls the DFSMS ACS routines. The exit receives the ACERO control block that contains the read only variable settings. The exit has the opportunity to change these settings before SMC invokes the DFSMS ACS routines.

OFF

The IGDACSXT exit is **not** invoked before the SMC calls the DFSMS ACS routines.

VTVmgmt

optionally, specifies whether the SMC invokes the storage class and management class DFSMS ACS routines during virtual volume allocation and virtual volume mount message processing

ON

If MGMTPol is OFF, or if MGMTPol is ON but no matching SMC policy name is found, the management class name is provided to VTCS during volume lookup and volume mount processing.

OFF

If MGMTPol is ON, the management class name returned by the DFSMS ACS routine is used to look up policy values from the named SMC policy. If no matching SMC policy name is found, no policy is applied to the request. If MGMTPol is OFF, SMC does **not** invoke the DFSMS ACS storage class or management class routines during allocation or mount processing.

Examples

In the following example, the SMSDef command disables the esoteric substitution function during IDAX processing.

```
SMSDEF ESOTSUB(OFF)
```

The next example illustrates the use of SMC policies with SMC DFSMS ACS routines. If the returned management class name does not match a defined SMC POLicy name, it is treated as a VTCS management class.

```
SMSDEF MGMTPOL(ON) VTVMGMT(ON)
```

In the next example, the SMSDef command is used to bypass all DFSMS ACS routine calls during virtual volume allocation and virtual volume mount processing. Setting VTVmgmt to OFF bypasses the storage class and management class ACS routines. Setting DCrecmed to OFF bypasses the data class ACS routine.

```
SMSDEF DCRECMED(OFF) VTVMGMT(OFF)
```

TAPEPlex Command

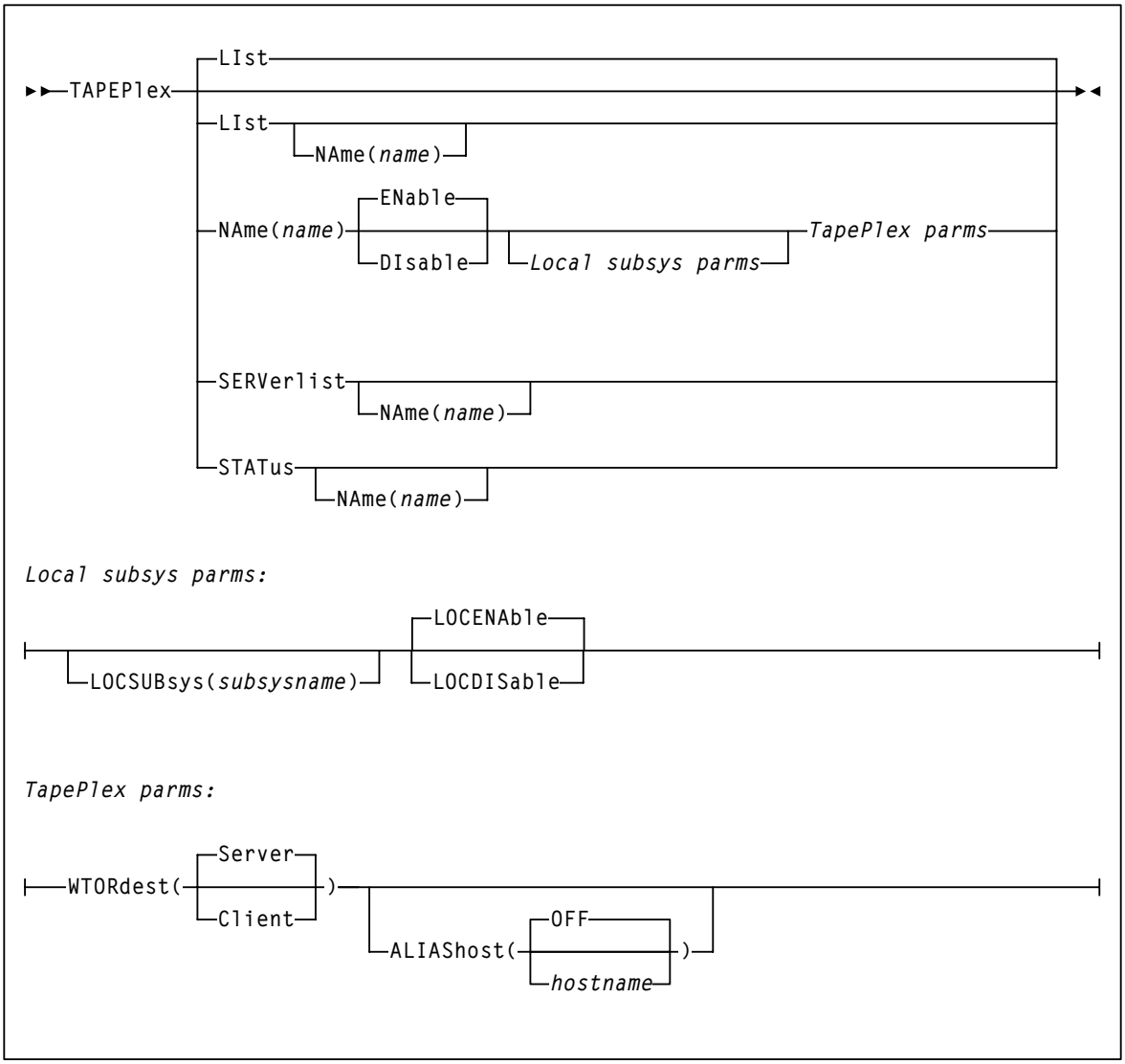
The SMC TAPEPlex command defines a TapePlex; a specific StorageTek tape hardware configuration normally represented by a single CDS.

Note –

- **This command is new for SMC release 6.2. It replaces the LIBrary command included in previous SMC releases.**
- TAPEPlex and SERVer commands are required to access remote HSC TapePlexes.
- If a TAPEPlex command is specified, then all TapePlexes must be explicitly defined.
- If the TAPEPlex command is not specified, the SMC uses active HSC and MVS/CSC subsystems defined in the host's SSCVT chain. It is recommended that you use the TAPEPlex command to define all TapePlexes.

The TAPEPlex command can also list TapePlexes that the SMC tries to communicate with, and report their status.

Syntax


TAPEPlex
LIst
LIst
NAme(name)
NAme(name)
ENable
DIsable
Local subsys parms
TapePlex parms
SERVerlist
NAme(name)
STATus
NAme(name)
Local subsys parms:
LOCSUBsys(subsysname)
LOCENAble
LOCDISable
TapePlex parms:
WTORdest(
Server
Client
)
ALIAShost(
OFF
hostname
)

Command Name

TAPEPlex

initiates the TAPEPlex command

Parameter Descriptions

LIst

optionally, lists the specified TapePlex

NAME

specifies the TapePlex name to be listed

name

the TapePlex name

Note –

- LIst is the default when **no** parameters are specified on the TAPEPlex command. In this case, all TapePlexes are listed.
- LIst may be specified with other parameters. In this case, the named TapePlex is LIsted after the other parameters are processed.

NAME

optionally, specifies the TapePlex name to be defined or modified

name

the TapePlex name. The following rules apply:

- The first character must be an alpha character.
- The last character must be either an alpha character or digit.
- Any character between the first and last must be either an alpha character, digit, or hyphen.

ENAble

enables the specified TapePlex to be selected for allocation or mount requests

DISable

disables the specified TapePlex. The TapePlex is **not** used for any allocation or mount requests

LOCSUBsys

specifies a local HSC and/or MVS/CSC subsystem

subsysname

the subsystem name

LOCENAble

enables the specified HSC or MVS/CSC subsystem to be used as a local path to the TapePlex

LOCDISable

disables the specified HSC or MVS/CSC subsystem. LOCDISable can be used to force the SMC to ignore the local subsystem and access the TapePlex via a remote server

WTORdest

optionally, specifies the console to which HSC WTOR messages are directed. See "Managing HSC Mounts from the SMC Client" on page 123 for messages that apply.

Client

The remote HSC returns selected WTORs to the SMC client without issuing the WTOR message. The SMC client then issues the WTOR to the operator of the system that the SMC executes on. The SMC redrives the mount or dismount request to the server supplying the WTOR response.

Server

WTOR messages are issued on the HSC server console. This is the default.

ALIAShost

optionally, specifies a host alias to be used in communications with the HSC TaplePlex.

hostname

a 1-8 character host name

OFF

The native SMF host name is used in communications with the HSC LIBRARY. This is the default.

SERVerlist

optionally, lists defined TapePlexes, their attributes and associated servers. The SERVerlist parameter may also be specified with the NAME parameter to limit the display to a single TapePlex.

NAME

specifies the TapePlex name for which servers are to be listed

name

the TapePlex name

STATus

optionally, lists current status of all TapePlexes, or a single named TapePlex. The TapePlex status indicates whether a TapePlex is active, inactive, or disabled. For an active TapePlex, the status lists the name of the current server or local subsystem. STATus does **not** perform a RESYNChronize.

NAME

specifies the TapePlex name for which status information is to be listed

name

the TapePlex name

Examples

In the following example, the TAPEPlex command defines a local HSC subsystem executing on the same host as the SMC.

```
TAPEPLEX NAME(DENVER) LOCSUB(HSC0)
```

In the next example, the TAPEPlex command defines a local MVS/CSC subsystem executing on the same host as the SMC.

```
TAPEPLEX NAME(CSCLIB) LOCSUB(CSCA)
```

In the next example, the TAPEPlex command specifies that the remote subsystem (OMAHA) return selected WTORs to the SMC client without the remote HSC issuing the WTOR message.

```
TAPEPLEX NAME(OMAHA) WTORDEST(CLIENT)
SERVER NAME(OMAHA1) TAPEPLEX(OMAHA) HOST(OMA1) PORT(8888)
SERVER NAME(OMAHA2) TAPEPLEX(OMAHA) IP(11.22.33.44) +
    PORT(7777)
```

Note – The SERVer command must be specified to define the path to the remote TapePlex.

In the next example, the local subsystem name of TAPEPlex BACKUP is changed to HSCB, and then the TAPEPlex entry for HSC will be listed.

```
TAPEPLEX NAME(BACKUP) LOCSUB(HSCB) LIST
```

TAPEREQ (Tape Request) Control Statement

The SMC TAPEREQ statement specifies tape request attributes. These attributes define the media type and recording technique or model number used for a particular data set or group of data sets.

TAPEREQ statements are placed in the definition data set (DDname) specified by the SMC TREQDEF command. SMC allocation calls on these TAPEREQ statements to help ensure that the correct media type is used to satisfy a request, and that the cartridge is mounted on the appropriate device. TAPEREQ statements must be placed in the definition data set; they **cannot** be issued as an operator command.

The new SMC POLicy command allows you to specify all tape policy specifications in a single named object. It can be used with TAPEREQ statements or SMS to associate a named policy with an allocation or mount event.

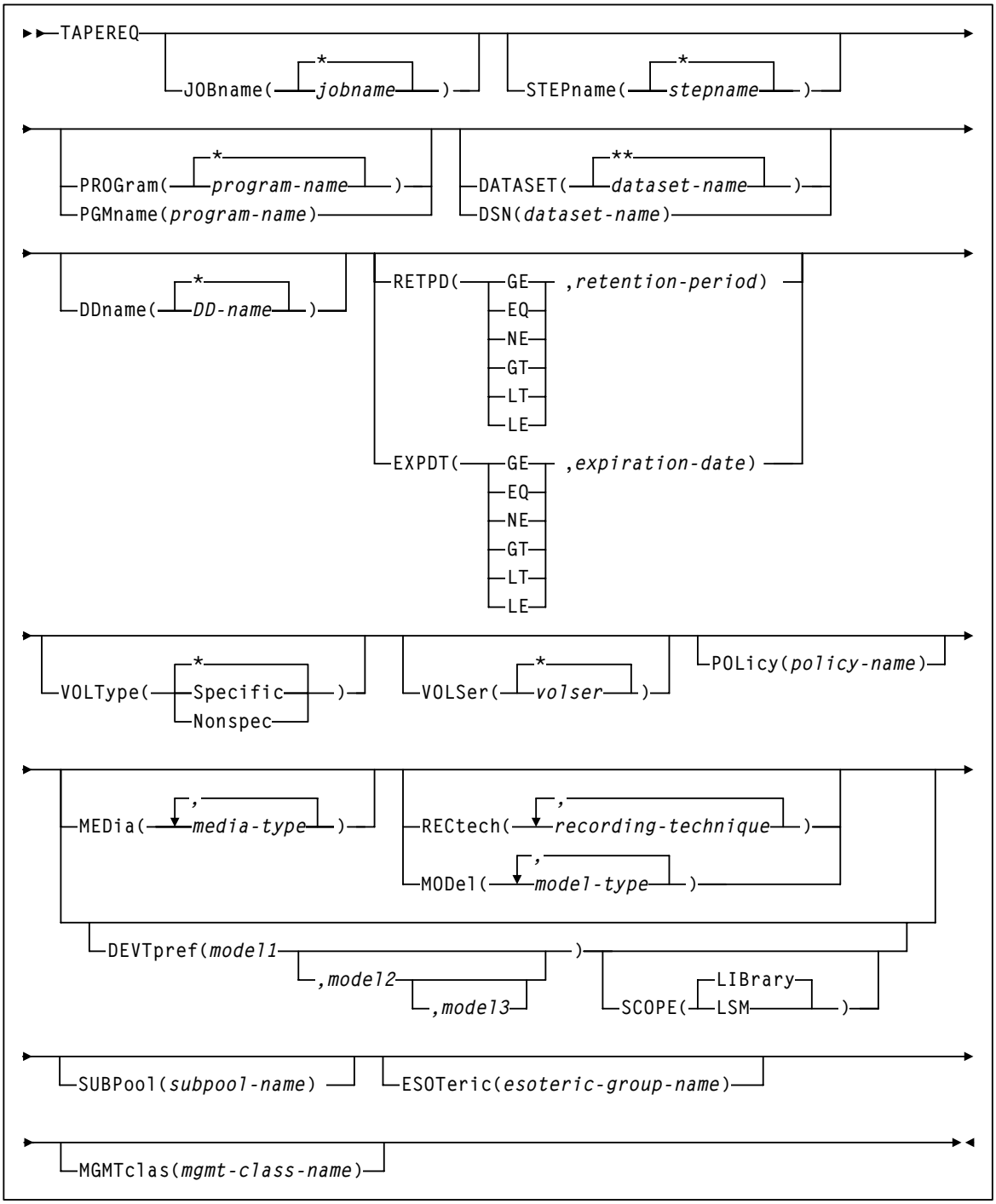
The optional TAPEREQ POLicy parameter directs the SMC to reference an associated SMC policy defined by an SMC POLicy command. See Chapter 4, "Policy"for more information. If the POLicy parameter is not specified on the TAPEREQ control statement, SMC reverts to its previous behavior and performs a separate lookup for each required parameter for an allocation or mount event. See page 211 for information about TAPEREQ ordering sensitivity issues.

It is recommended that you convert your existing TAPEREQ statements to use the new SMC POLicy command facility. A TAPEREQ conversion script, included in the SMC SAMPLIB, is provided to assist you in this process. See Appendix C, "TAPEREQ Conversion Script (POLCVT02)" for more information.

Note –

- **Existing HSC TAPEREQ control statements are not disabled, but are only processed for remote SMC 6.0 client systems**. See Appendix D, "SMC Compatibility Matrix" for more information.
- See "TREQDef Command" on page 222 for information about the TREQDEF Command.
- Specifications for recording technique and media type are ignored on TAPEREQ control statements if the SMC/DFSMS interface is enabled and data class specifications for media type and recording technique exist.
- Parameters from TAPEREQ lookup, including SUBPool and ESOTeric, always take precedence over values derived from a user exit.

Syntax



Note – See Appendix B for valid media types, recording techniques, and model types.

Control Statement Name

TAPEREQ

initiates the TAPEREQ control statement

If any of the following conditions exist:

- There is no TAPEREQ control statement specified in the definition data set to match a request.
- There is no matching TAPEREQ statement or Policy command specifying the MEDia, RECtech, or MODel parameters.
- There is no definition data loaded.

then the MEDia and RECtech or MODel parameters are set to undefined, which matches all requests. Any available device is eligible for allocation.

Parameters

The TAPEREQ control statement is in essence an IF-THEN statement. **IF** the Input (selection criteria) parameters match the current tape request variables, **THEN** the Output (media and format) parameters may apply.

TAPEREQ input and output parameters are described in the following sections.

Input Parameters

Note – The JOBname, STEPname, PROGram, and DATASET parameter values can include the following wild card characters:

% or ?	any single nonblank character
*	any character string (length zero to 8) not to exceed one qualification level. For example, A.B.* matches A.B and A.B.C, but does not match A.B.C.D.
**	used only in DATASET. Indicates any number of qualifiers (zero or more). Cannot be used with any other characters within a qualifier. For example, A.B.** matches A.B, A.B.C, A.B.C.D, A.B.C.D.E, and so forth.

The TAPEREQ input (selection criteria) parameters include:

JOBname

optionally, identifies the job name. If JOBname is not specified, the default value is *.

Note – If you are coding a TAPEREQ statement for DFHSM, you must specify JOBname as a selection criteria. Using DATASET (DSN) can cause unpredictable results.

---

jobname

the name of the job for which the TAPEREQ control statement is processed

The TAPEREQ control statement is used only when the specified *jobname* matches the job name in the request.

STEPname

optionally, specifies the step name. If the STEPname parameter is not specified, the default value is *.

stepname

the name of the step for which the TAPEREQ control statement is processed. The TAPEREQ control statement is used only when the specified *stepname* matches the step name in the request.

PROGram or **PGMname**

optionally, specifies the program name

The program name used is the job step program name. The default value is *.

program-name

the program name for which the TAPEREQ control statement is processed

The TAPEREQ control statement is used only when the specified *program-name* matches the program name in the request.

Note – This parameter is **not** supported in JES3 environments.

DATASET or **DSN**

optionally, specifies the data set name. The default value is **.

dataset.name

the data set name for which the TAPEREQ control statement is processed

The TAPEREQ control statement is used only when the specified *dataset.name* matches the data set name in the request. Rules for RACF and SMS enhanced generic naming apply.

Note –

- If you are coding a TAPEREQ statement for DFHSM, the data set name **must** match the backup or migration data set name specified in the following publications:
  - *IBM DFSMShsm Implementation and Customization Guide*
  - *IBM DFSMShsm Storage Administration Guide*
- The name you specify on this parameter might be different from the value coded in the DSN parameter on a DD statement. For example, `DSN=&&ABC` may be coded on a DD statement if a data set is temporary. However, the actual data set name is

not &&ABC. Similarly, if the DSN parameter refers back to a previous DD statement, the data set name is resolved to the referred-to data set. Thus, the data set name referred to must be coded on the DATASET parameter in order for the TAPEREQ control statement to be processed.

DDname

optionally, specifies the DDname.

If DDname is not specified, the default value is *.

DD-name

the DDname. The TAPEREQ control statement is used only when this DDname matches the DDname in the request.

RETPD

optionally, specifies the retention period and the relationship that must exist. If you do not specify either RETPD or EXPDT, the default value is RETPD(GE,0) (any expiration date will match this criterion).

EQ	equal to.
NE	not equal to.
GT	greater than.
GE	greater than or equal to.
LT	less than.
LE	less than or equal to.

retention-period

the retention period in days for the data set

Specify the number of days as a 1- to 4-digit decimal number.

Note – This parameter is **not** supported in JES3 environments.

EXPDT

optionally, specifies the expiration date and the relationship that must exist

EQ	equal to.
NE	not equal to.
GT	greater than.
GE	greater than or equal to.
LT	less than.
LE	less than or equal to.

expiration-date

the expiration date of the data set in *YYDDD* or *YYYY/DDD* format

---

Note – This parameter is **not** supported in JES3 environments.

VOLType

optionally, specifies whether or not a nonspecific volume is being requested. If VOLType is omitted, the default value is * (either specific or nonspecific matches).

Specific

specifies that the request is for a specific volume

Note – The TAPEREQ parameter never overrides the actual media type of the specific volume returned by the LCS.

Nonspec

specifies that the request is for a nonspecific (scratch) volume

VOLSer

optionally, identifies a specific volume id. If VOLSer is omitted, the default value is * (any volume). A range of volsers can also be specified.

Using a combination of TAPEREQ statements and POLicy commands, SMC allows you to specify allocation policy based on specific volume serial numbers. See "Specifying TAPEREQ and Policy by Volume Serial" on page 71 for more information.

volser

the volume id

Note –

- VOLSer requires that the POLicy parameter is also specified.
- VOLSer is mutually exclusive with VOLType, MEDia, RECtech, MODel, SUBPool, ESOTeric, and MGMTclas.

Output Parameters

The TAPEREQ output (media and format) parameters include:

POLicy

optionally, specifies the name of a policy defined by an SMC POLicy command

POLicy is mutually exclusive with VOLType, MEDia, RECtech, MODel, SUBPool, ESOTeric, and MGMTclas.

policy-name

the policy name

The SMC uses this policy name to determine **all** policy information associated with an allocation or mount request.

Note –

- The named policy must be defined using a POLicy command before the TREQDEF command is processed.
- See "POLicy Command" on page 170 for more information about the SMC POLicy command.
- See Appendix C, "TAPEREQ Conversion Script (POLCVT02)" for information about creating new POLicy definitions based on existing TAPEREQ statements.

MEDia

optionally, specifies the desired type of media for a data set being created. You can enter a list of media types, but they must be separated by commas.

media-type

the media type

See TABLE B-1 on page 357 for a list of valid *media-type* values.

Note –

- A list specifies a generic pool from which a selection is made. There is no implied priority.
- This parameter is ignored for an existing data set if the media characteristics are determined by the volume information contained in the LCS's control data set (CDS).
- If this parameter is not specified, a default is chosen based on the value of the RECtech parameter. See TABLE B-2 on page 359 for default values used if the MEDia parameter is omitted.
- To avoid problems, all TAPEREQ statements must specify MEDia and RECtech consistently. Be sure to include one or both parameters on each statement. If both media type and recording technique are omitted, all available devices are eligible for allocation.

RECtech

optionally, specifies the method used to record data tracks on the tape surface for the desired data set. You can enter a list of recording techniques, but they must be separated by commas.

Note – A list specifies a generic pool from which a selection is made. There is no implied priority.

---

recording-technique

the recording technique

See TABLE B-3 on page 360 for a list of valid *recording-technique* values.

Note –

- RECtech and MODel are mutually exclusive.
- If this parameter is not specified on any matching TAPEREQ, a default is chosen based on the value of the MEDia parameter. See TABLE B-2 on page 359 for default values used if the MEDia parameter is omitted.
- It is recommended that all TAPEREQ statements specify MEDia and RECtech consistently. Be sure to include one or both parameters on each statement. If both media type and recording technique are omitted, all available devices are eligible for allocation.

MODel

optionally, specifies the model number of a transport. You can enter a list of models, but they must be separated by commas. MODel provides the same type of information as RECtech, but a user may find it more convenient to specify a transport model rather than a recording technique.

model-type

the model type. See TABLE B-5 on page 364 for a list of valid *model-type* values.

Note –

- MODel and RECtech are mutually exclusive.
- A list specifies a generic pool from which a selection is made. There is no implied priority.

DEVTpref

requests device preferencing for a particular allocation request. The use of device preferencing is restricted to StorageTek 36-track class transport models: 4490, 9490, and 9490EE.

Note – The following rules apply when using the MEDia, MODel, and RECtech parameters in conjunction with DEVTpref:

- The MODel parameter must include the models specified in the DEVTpref parameter.
- The RECtech parameter must include valid values for each model specified in the DEVTpref parameter.
- The MEDia parameter must include valid values for each model specified in the DEVTpref parameter.

model1

specifies the transport model number of the preferred device. These transports are given a higher selection probability than the alternate transport model.

model2

optionally, specifies the transport model number of the first alternate device. It must be separated from the *model1* by either a comma or a blank.

model3

optionally, specifies the transport model number of the second alternate device. It must be separated from *model2* by either a comma or a blank.

If *model3* is omitted, the transport model number not specified by *model1* or *model2* is assumed to be the second alternate device.

The following table shows the alternate device order if only *model1* is entered:

TABLE 7-1 Alternate Device Default Value

Preferred Device (*model1*)**:**	***First Alternate Device*** (*model2*)**:**	***Second Alternate Device*** (*model3*)**:**
4490	9490	9490EE
9490	4490	9490EE
9490EE	4490	9490

Note – Entering DEVTpref(9490,4490) is functionally equivalent to DEVTpref(9490,4490,9490EE).

SCOPE

specifies whether device preferencing should be performed across the entire library complex (single or multiple-ACS), or at the individual LSM level. The SCOPE parameter may be used in an attempt to reduce pass-thru events. SCOPE is valid only when the DEVTpref parameter is specified on the same TAPEREQ statement.

LIBrary

All of the preferred models in the ACS are given a higher selection probability than all of the alternate models, while maintaining the ability to automate tape mounts. LIBrary is the default value.

In a multiple-ACS configuration, the way that the SMC processes SCOPE(LIBrary) depends on the following:

- The ability to automate the mount
- The type of request; specific versus scratch

A specific volume request is confined to the ACS where the volume resides so that the mount can be automated. The transports in all other ACSs, and all nonlibrary transports are marked ineligible for selection. The SMC then applies SCOPE(LIBrary) to one ACS, giving all of the preferred models in that ACS a higher selection probability.

A scratch request can be directed to any ACS, whether or not it contains scratch volumes. In this case, the SMC applies SCOPE(LIBrary) to all ACSs, giving all of the preferred models in all ACSs a higher selection probability.

Note – To prevent a scratch request from being directed to an ACS with no scratch volumes, use ALLOCDef Zeroscr (ON). See "ALLOCDef Command" on page 129.

LSM

All of the preferred models within an LSM are given a higher selection probability than all of the alternate models within that same LSM, while maintaining the ability to automate tape mounts.

Each LSM is processed individually without regard to the models attached to other LSMs in the ACS. This means that if the preferred model is not available in the LSM where the volume resides, an alternate transport in the same LSM is allocated preventing a pass-thru of the volume to a different LSM.

SCOPE(LSM) should be requested if reducing pass-thru events is more important than allocating a preferred transport in a different LSM.

SCOPE applies only when DEVTpref is specified. LIBrary is the default value for the SCOPE parameter.

SUBPool

optionally, specifies the subpool used to satisfy a scratch request

subpool-name

the subpool name

ESOTeric

optionally, specifies the esoteric defining the list of eligible transports to be used to satisfy a tape request

esoteric-group-name

the esoteric group name

The name specified can consist of one to eight alphanumeric or national (#, @, $) characters. A slash (/) or hyphen (-) is also valid.

Note – If the esoteric contains devices not currently in the Eligible Device List, SMC allocation **cannot** add devices to the list, but can exclude devices not in the specified esoteric.

MGMTclas

optionally, specifies a Management Class you defined on the VTCS MGMTclas control statement. Refer to the *VTCS Command and Utility Reference* for more information.

mgmt-class-name

the Management Class name

Caution – The Management Class applies **only** to virtual allocations and mounts.

Examples

In the following example, a TAPEREQ statement specifies that a 9840 cartridge and 9840 transport be used to satisfy a request for data set A.B.*.

```
TAPEREQ DSN(A.B.*) MODEL(9840) MEDIA(9840)
```

In the following example, a TAPEREQ statement specifies that the SMC policy definition POL1 (defined by an SMC POLicy command) be used to satisfy the request for data set A.C.*.

```
TAPEREQ DSN(A.C.*) POL(POL1)
```

In the following example, a TAPEREQ statement specifies that the SMC policy definition MANUAL be used to satisfy requests for specific volsers in the range AAA000-AAA100.

```
TAPEREQ VOLSER (AAA000-AAA100) POL(MANUAL)
```

Disabling a TAPEREQ Definition

Use the following procedure to disable a TAPEREQ definition.

1. Edit the definition data set containing the current TAPEREQ control statements.
2. Delete the parameters of the TAPEREQ control statement you want to disable, or delete the TAPEREQ control statement.
3. Issue the TREQDEF operator command to reload the definition data set.

To disable all TAPEREQ definitions, load a definition data set that contains only one TAPEREQ control statement with no parameters.

Note – If any individual TAPEREQ control statement is in error, the entire set is discarded.

Order Sensitivity of TAPEREQ Control Statements and Tape Policy Attributes Selected from Multiple TAPEPREQ Control Statements

The TAPEREQ control statement is, in essence, an IF-THEN statement. **IF** the input parameters (or selection criteria) match the current tape request variables, **THEN** the output parameters (or tape policy attributes) may apply.

If the SMC POLicy parameter is not specified on all TAPEREQ control statements, TAPEREQ processing can be order sensitive depending on the selection criteria specified. For example, consider the following TAPEREQ control statements:

```
TAPEREQ DSN(ARBACKUP.**) MEDIA(VIRTUAL) ESOTERIC(SVTSS1)
TAPEREQ JOBNAME(AR*) MEDIA(STK1R) MGMTCLAS(MCLASS1)
```

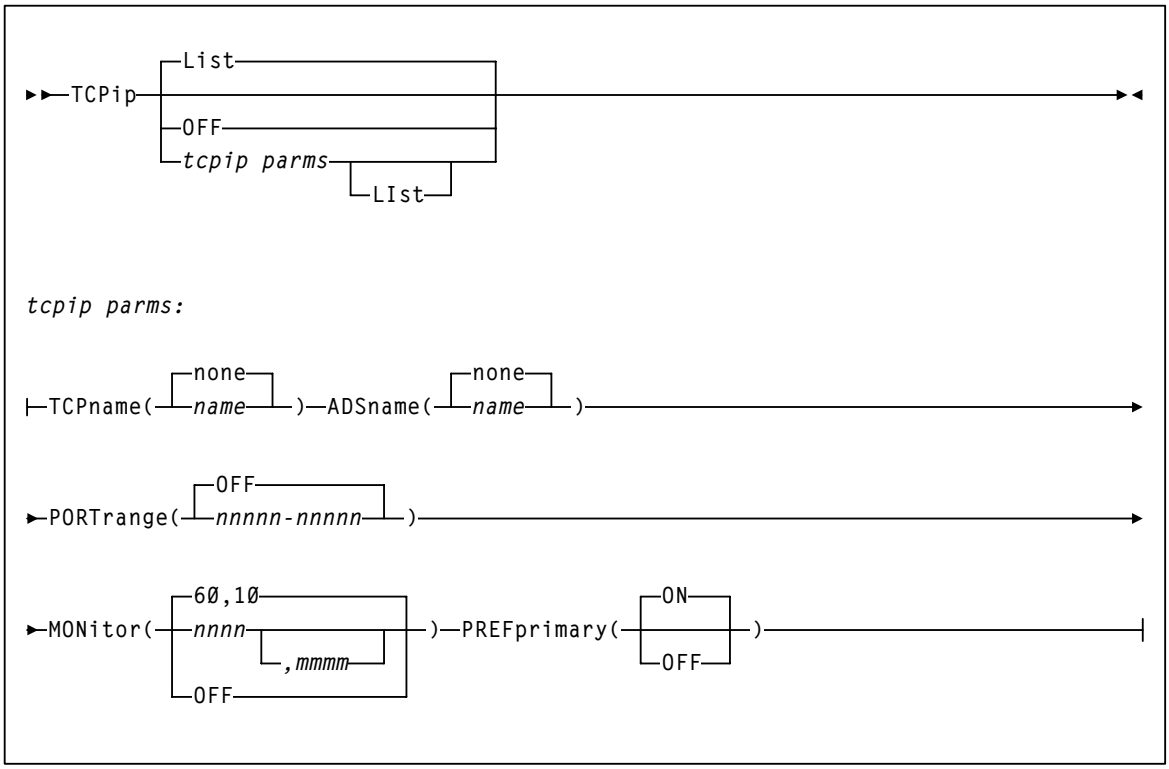
If there are jobs with job names beginning with “AR” which also contain data sets beginning with “ARBACKUP.”, then correct media selection depends on both TAPEREQ control statements being processed in the correct order. In this case, different policy attributes are selected from different TAPEREQ control statements. For example, MEDIA and ESOTERIC are selected from the first TAPEREQ control statement, while MGMTCLAS is selected from the second TAPEREQ control statement.

To avoid this situation, it is recommended that you convert your existing TAPEREQ statements to use the new SMC POLicy command facility. A TAPEREQ conversion script, included in the SMC SAMPLIB, is provided to assist you in this process. See Appendix C, “TAPEREQ Conversion Script (POLCVT02)” for more information. This appendix includes an example of output generated from existing TAPEREQ statements.

TCPip Command

The SMC TCPip command alters and/or lists current TCPNAME and ADSNAME defaults for your TCP/IP communications environment. It allows you to direct TCP/IP requests to a specific TCP/IP stack on an MVS host. The TCPip command can be issued at any time.

Syntax



Command Name

TCPip

initiates the TCPip command

Parameter Descriptions

LIst

optionally, lists current TCPNAME, ADSNAME, MONITOR, and PREFPRIMARY settings. If a PORTrange is specified, LIst also displays currently bound port numbers and the high-water bound port number indicating the largest number of concurrent communication subtasks executing at one time.

- LIst is the default when **no** parameters are specified on the TCPip command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

OFF

optionally, specifies that system defaults are used for client TCP/IP communication

TCPname

optionally, specifies the TCPNAME value for a specific TCP/IP stack on an MVS host. TCPNAME is the name of the MVS TCP/IP stack. Refer to the IBM publication *TCP/IP for MVS Application Programming Interface Reference* for more information about TCPNAME. The default is none.

name

the TCPNAME value

- If a subsystem name is specified, it must consist of one to four alphanumeric or national (#,@,$) characters, the first character being alphabetic or national.
- If an addressname is specified, it must consist of one to eight alphanumeric or national characters.

ADSname

optionally, specifies the ADSNAME value for a specific TCP/IP stack on an MVS host. ADSNAME is the jobname of the TCP/IP startup job. Refer to the IBM publication *TCP/IP for MVS Application Programming Interface Reference* for more information about ADSNAME.

name

the ADSNAME value

PORTrange

optionally, specifies a range of ports to be used by the SMC to bind() sockets on the client when communicating on remote server paths

When PORTrange is defined, the SMC binds() client sockets to one of the ports within the specified PORTrange and will **not** use client ports outside the PORTrange. This allows the SMC to operate behind a firewall that restricts communication to known ports. A unique port is required for each concurrent subtask requiring communication services for a volume lookup, mount, etc. If a PORTrange is not defined, then any ephemeral port is used by the SMC.

Only one PORTrange can be active at a time, but you can dynamically re-define the PORTrange even if the new PORTrange overlaps with the old PORTrange.

nnnnn-nnnnn

the port number range

Each port number can have a value of 1-65535. However:

- The **minimum** port number range that can be specified is **10** (e.g., 6400-6410).
- The **maximum** port number range that can be specified is **1000** (e.g., 6400-6500).

OFF

PORTrange logic is disabled. As a result, any ephemeral port is used.

Note –

- It is recommended that you specify a PORTrange that does not conflict with TCP/IP well-known ports.
- It is recommended that you specify a PORTrange greater than the anticipated number of concurrent subtasks requesting remote communication services. For most installations, a PORTrange of 40 ports is sufficient. However, if SMC0128 messages are produced with a return code indicating “no free port” then a larger PORTrange is required.
- When an SMC mount request to the PTCS server results in an outstanding WTOR on the PTCS, the used port number is unavailable until a reply is supplied for the outstanding WTOR. WTOR messages for mount requests are produced on the PTCS when TAPEPlex WTORdest(SERVER) is specified, or when TAPEPlex WTORdest(CLIENT) is specified and the PTCS mount message is not one returned to the SMC for processing. See “Managing HSC Mounts from the SMC Client” on page 123 for messages that apply.
- The TCPip LIST command may be used to display the high-water port number, indicating the largest number of concurrent communication subtasks executing at one time.

MONitor

optionally, specifies the communication monitor subtask scan interval and communication monitor subtask message interval.

nnnn

indicates the monitor scan interval in seconds. The communication monitor wakes every *nn* seconds to perform library communication validation. Specify a value between 10 and 9999 or OFF. The default is 60. OFF disables the communication monitor subtask.

It is recommended that you preserve the default setting of 60 to enable a monitor scan every minute. A value that is too low can potentially degrade performance when inactive libraries exist. A value that is too high can delay a return to the primary server if PREFPRIMARY(ON) is specified, or delay the redriving of mounts when there is no allocation or mount activity but a communication path becomes available.

mmmm

optionally, indicates the monitor scan interval in number of scans. Communication error messages are displayed according to this interval. The default is 10.

The default MONITOR(60,10) setting specifies a monitor scan interval of 60 seconds, and a monitor message interval of 10 scans. A scan is performed every minute, but error messages are only produced once every 10 scans.

An *mmmm* value of 0 disables all non-fatal or non-disabling error messages issued by the communication monitor subtask. However, errors resulting in the disabling of a server communication path are still issued.

PREFprimary

optionally, enables or disables automatic primary server switching. Automatic primary server switching requires that the communication monitor subtask be enabled. If MONITOR(OFF) is specified, primary server switching is disabled.

ON

enables automatic primary server switching. The communication path automatically switches back to the primary server from any secondary server when that primary server becomes available.

OFF

disables automatic primary server switching

Note – PREFprimary also affects behavior when the SMC SERVER command is used to ENABLE servers. If an SMC SERVER command is entered to ENABLE the primary SERVER when PREFPRIMARY(ON) is specified, then an automatic RESYNC is performed.

Example

In the following example, a TCPip command directs TCP/IP requests to a CA Unicenter TCPaccess TCP/IP stack using any ephemeral port.

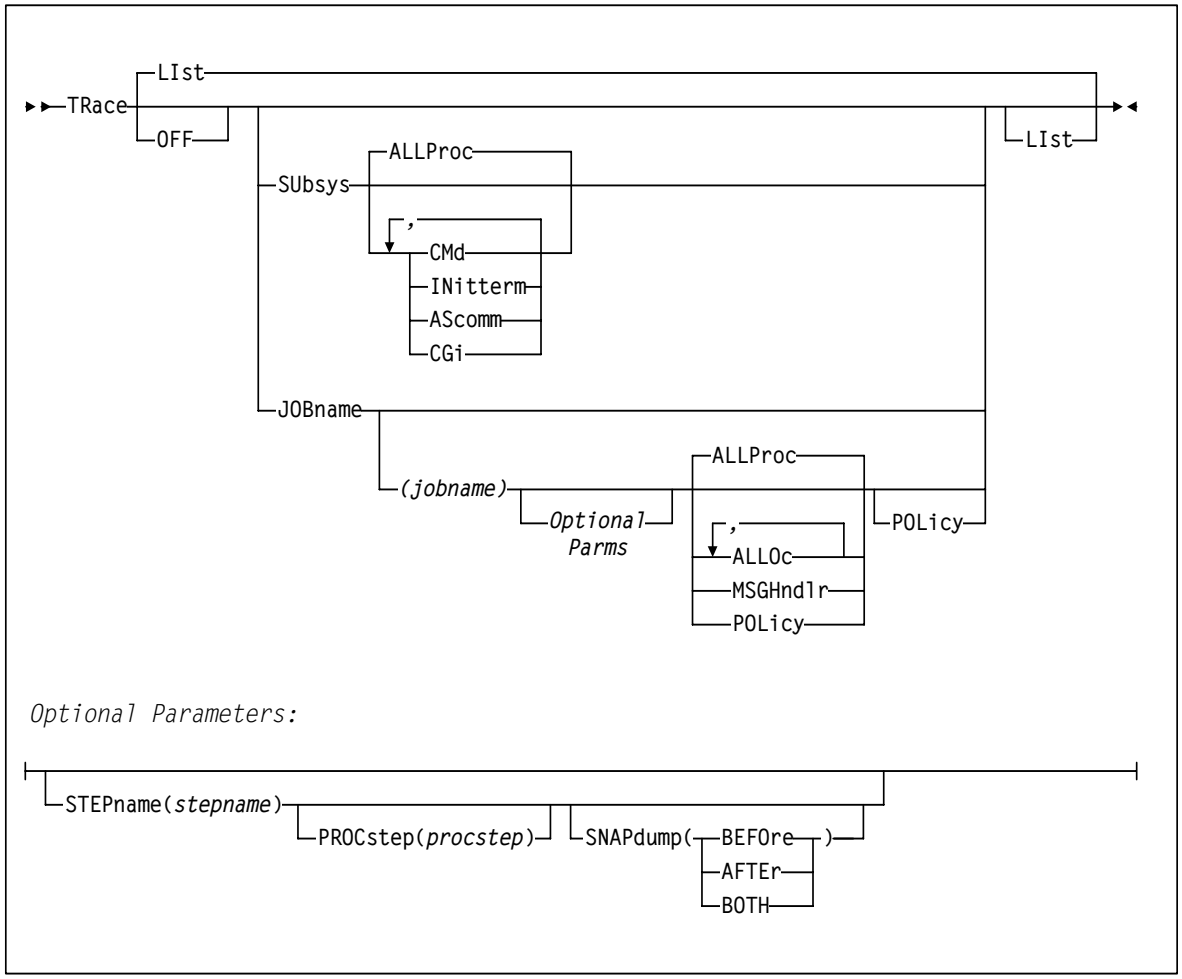
```
TCPIP TCPNAME(ACSS) PORTRANGE(OFF)
```

TRace Command

The SMC TRace command enables SMC tracing using the GTF trace facility and optionally provides a snap dump of the address space before and after control block modification.

Note – This command may impact system performance and should be used **only** as directed by StorageTek Software Support.

Syntax



Command Name

TRace

initiates the TRace command

Parameter Descriptions

LIst

optionally, lists current SMC trace settings for both the SMC subsystems and SMC components by job name, step name, and PROC step

- LIst is the default when **no** parameters are specified on the TRace command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.
- If no JOBname is specified, all jobs with SMC components being traced are listed.
- If JOBname is specified, **only** those jobs with SMC components being traced whose job name matches the specified job JOBname are listed.

OFF

optionally, disables SMC tracing

- If no other parameters are specified, tracing is disabled for all jobs.
- If only JOBname is specified, tracing is disabled for all entries for that job name.
- If JOBname, STEPname and PROCstep are specified, tracing is disabled **only** for the specified entry.

SUbsys

optionally, enables or disables SMC tracing for one or more SMC subsystem components or subtasks

ALLProc

optionally, enables tracing for the SMC operator command subtask, SMC initialization and termination subtask, and the SMC address space component. This is the default if no parameters are specified.

CMd

optionally, enables tracing for the SMC subtask that processes all SMC operator commands

INitterm

optionally, enables tracing for the SMC subtask that performs SMC initialization and termination

AScomm

optionally, enables tracing for the SMC address space component. Tracing of library and configuration requests is performed **only** if tracing is also enabled for the jobname making the request.

CGi

optionally, enables tracing to the log of the StorageTek HTTP server. Tracing of HTTP server requests is performed **only** if tracing is also enabled for the jobname making the request.

Note – CGi tracing is **not** automatically enabled when ALLProc is specified. It must be specifically requested.

JOBname

optionally, specifies a job name. If not specified, tracing information for all jobs is displayed.

jobname

a specific job name

The value entered **must** be one to eight characters in length. An asterisk (*) can be used as a wildcard when included as the last character. In this case, all jobs whose job names match the characters preceding the asterisk are traced or listed. To trace all jobs, specify TRACE JOB(*).

STEPname

optionally, specifies a step name

stepname

the step name

The value entered must be one to eight characters in length. This parameter is **only** valid if JOBname is also specified. It is **not** valid in JES3 environments with TAPE SETUP processing.

PROCstep

optionally, specifies a PROC step

procstep

the PROC step

The value entered **must** be one to eight characters in length. This parameter is **only** valid if JOBname and STEPname are also specified. It is **not** valid in JES3 environments with TAPE SETUP processing.

SNAPdump

optionally, requests a snap dump. This parameter is **not** valid in JES3 environments with TAPE SETUP processing.

Note – A snap dump may impact system performance, and should be used **only** as directed by StorageTek Software Support.

BEFORe

requests a snap dump before allocation influencing

AFTEr

requests a snap dump after allocation influencing

BOTH

requests a snap dump both before and after allocation influencing

ALLProc

optionally, enables tracing for both the SMC allocation component and message handler component. This is the default if no parameters are specified.

ALLOc

optionally, enables tracing for the SMC allocation component that performs drive exclusion and drive prioritization.

MSGHndlr

optionally, enables tracing for the SMC message handler component that processes all MOUNT, DISMOUNT, and SWAP messages and issues robotic movement commands to the StorageTek TapePlex

POLicy

optionally, enables tracing of selected SMC POLicy name and selection criteria to the job log of the jobname specified in the TRace command for allocation and mount policies

---

Note – POLicy tracing is **not** automatically enabled when ALLProc is specified. It must be specifically requested.

Examples

In the following example, tracing is enabled for any job whose name begins with "TESTJOB."

```
TRACE JOBNAME=TESTJOB*
```

In the next example, the TRace command specifies that tracing is disabled for all SMC initiator processes and SMC subsystem subtasks.

```
TRACE OFF
```

In the next example, tracing is enabled for SMC initiator allocation and message handling processes for any job with jobname ABC.

```
TRACE JOBNAME=ABC ALLOC MSGHN
```

In the next example, tracing is enabled for the SMC subsystem command component.

```
TRACE SUBSYS CMD
```

In the next example, tracing is disabled for all SMC subsystem subtasks.

```
TRACE SUBSYS OFF
```

In the next example, tracing is disabled for all jobs whose job name begins with "PROD."

```
TRACE OFF JOBNAME=PROD*
```

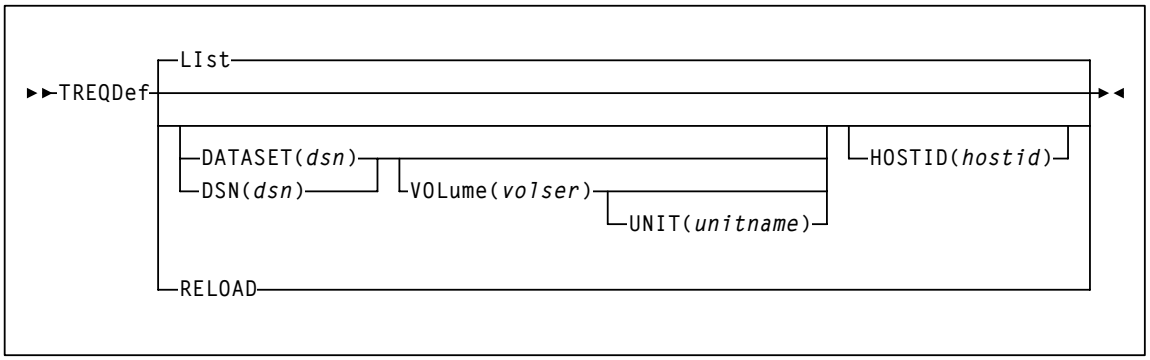
TREQDef Command

The TREQDEF command specifies and loads the definition data set containing your tape request (TAPEREQ) parameter statements.

This command may be issued from the SMCPARMS or SMCCMDS data set, or it may be issued by an operator.

Note – Existing HSC TREQDEF control statements are **not** disabled, but are only processed for remote SMC 6.0 client systems.

Syntax



Command Name

TREQDef

initiates the TREQDef command

Parameter Descriptions

LIst

lists information about the definition data set containing TAPEREQ control statements that are currently loaded. Information includes:

- Data set name
- Member name
- Identifying string (if the data set contains an OPTion TITLE statement)
- Date and time parameters were loaded

LIst is the default when **no** parameters are specified on the TREQDef command.

DATASET or **DSN**

optionally, specifies the name of the data set containing the TAPEREQ control statements to be processed and, optionally, an OPTion TITLE statement

dsn

the data set name

This data set can be a fixed length 80-byte sequential data set, or a fixed length 80-byte member of a PDS. If the data set name includes a member name, you must enclose the *dsn* in quotes. For example:

```
DATASET('YOUR.PDS.DSN(MEMBER)')
```

VOLume

optionally, specifies the volume serial number of the DASD volume on which the data set resides. Specify this parameter if the data set is not catalogued.

volser

the volume serial number

UNIT

optionally, specifies the unit name of the specified VOLume for uncataloged data sets. Requires that VOLume also be specified

unitname

the unit name

If not specified, then a unit name of SYSALLDA is the default.

HOSTID

optionally, specifies the hostid from which to execute this control statement. This parameter is valid only for use in PARMLIB, to allow multiple systems to share a parmlib member containing multiple TAPEREQ control statement members.

hostid

the host name(s) from which to execute this control statement. Multiple host names must be separated by commas.

RELOAD

optionally, reloads the currently loaded TAPEREQ control statements from the same data set. This parameter can be used after a TREQDEF DSN(*dsn*) command is issued, and changes may then be made to the contents of that data set.

Example

In the following example, the TREQDEF command loads the TAPEREQ parameters from YOUR.DSN(MEMBER).

```
TREQDEF DSN('YOUR.DSN(MEMBER)')
```

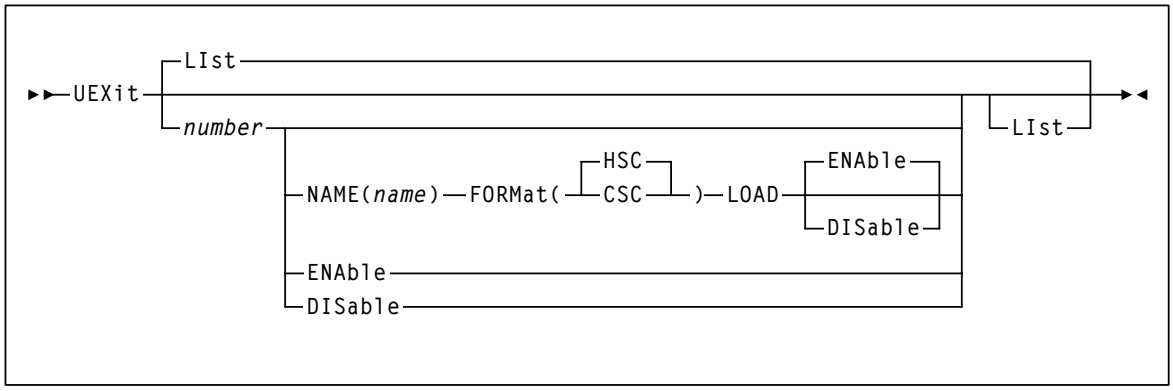
UEXit Command

User exits 1, 2, 4, 8, 9, 10, 11, 12, and 13 are invoked and managed by the SMC. The UEXit command defines which load module is invoked for a specific user exit, and whether the user exit is enabled or disabled. Both HSC and MVS/CSC user exit formats are supported. The UEXit command specifies the user exit format.

Note –

- Use this command to load each user exit you wish to use. If a user exit is not loaded, it **will not be** called.
- All user exits are executed on the host where the SMC resides, regardless of where the library server resides.
- Only one format of a given user exit can be invoked, regardless of the number of TapePlexes the SMC interacts with. The desired format (HSC or MVS/CSC) is specified using the FORMat parameter.
- HSC User exit 7 (SLSUX07) is no longer supported.
- These user exits must reside in a library accessible to the subsystem (SMC STEPLIB, JOBLIB, or you system's LINKLIB concatenation)
- User exit information is **not** honored when an SMC POLicy applies to an allocation, or a mount.
- Refer to the *NCS User Exit Guide* for information about each user exit.
- It is recommended that you use HSC user exit formats, as MVS/CSC user exit formats will **not** be supported in the next SMC release.

Syntax



Command Name

UEXit

initiates the UEXit command

Parameter Descriptions

LIst

optionally, displays status information for all user exits

- LIst is the default when **no** parameters are specified on the UEXit command.
- LIst may be specified with other parameters. In this case, the LIst is generated **after** the other parameters are processed.

number

optionally, specifies the user exit number. Valid values are 1, 2, 4, 8, 9, 10, 11, 12, and 13.

NAME

optionally, specifies the user exit's load module name

name

the load module name (e.g., SLSUX01)

FORMat

optionally, specifies the format of user exit to be enabled or disabled

HSC

the HSC user exit format

CSC

the MVS/CSC user exit format

LOAD

optionally, loads the specified user exit, making it available for use

---

Note –

- If a user exit is not loaded, it **will not be** called.
- A subsequent load of a module for the same user exit causes the currently active copy of the load module to be deleted when its use count reaches zero.

ENable

optionally, enables a user exit that was previously disabled due to a problem

DISable

optionally, disables a user exit to allow for problem resolution

Example

In the following example, the UEXit command is used to load the HSC format (SLSUX01) of user exit 01.

```
UEXIT 01 NAME(SLSUX01) FORMAT(HSC) LOAD
```

SLSUX01 is loaded from the SMC STEPLIB, JOBLIB, or your system's linklib concatenation.

UNITAttr Command

The SMC acquires drive type information from both the z/OS operating system and the NCS library control systems (TapePlexes). For the NCS library control systems, HSC and MVS/CSC, data returned from configuration queries is used to augment information returned from the operating system for library-controlled devices.

The SMC UNITAttr command allows you to specify device addresses and attributes to augment operating system information for nonlibrary controlled devices, and effectively ignore configuration information from TapePlexes for specified devices when multiple TapePlexes define the same device address. The SMC UNITAttr command allows you to do the following:

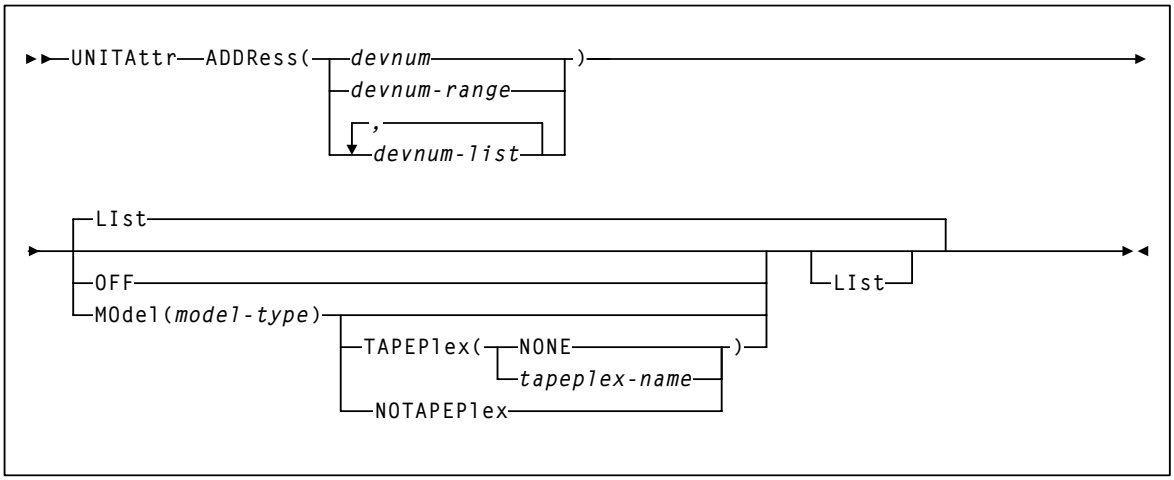
- Set MODEL=IGNORE for device addresses not available for this host.
- Specify model types for nonlibrary devices on this host.
- Specify NOTAPEPlex for a nonlibrary device address or range that is defined to multiple TapePlexes, but for this host the attached devices belong to the specified TapePlex.
- Specify TapePlex ownership and model for devices that may be referenced by a mount after the SMC is started but before the TapePlex is initialized.

See "SMC Drive Type Information Synchronization" on page 55 for configurations that may require or benefit from the use of UNITAttr commands.

Note –

- Existing HSC UNITATTR control statements are **not** disabled. However, UNITATTR statements for nonlibrary and MODEL(IGNORE) devices are only processed for remote SMC 6.0 client systems. HSC UNITATTR statements for library and virtual drives are **not** used in any HSC processing after release 6.0.
- SMC does **not** support a UNITDEF command. Each UNITATTR command is parsed and processed independently.
- HSC nonlibrary and MODEL=IGNORE UNITATTR statements are no longer returned to SMC on a configuration query. Therefore, if you use UNITAttrs to bypass devices for allocation or to define the device type of nonlibrary drives, you must define these UNITATTR commands to the SMC subsystem.
- You must specify UNITATTR MODEL(IGNORE) commands for **all** over-genned devices on all MVS hosts.

Syntax



Command Name

UNITAttr

initiates the UNITAttr command

Parameter Descriptions

ADDRess

specifies the device numbers to be processed by the UNITAttr command

devnum, devnum-range, devnum-list

the device number, device number range, or device number list

LIst

lists the UNITAttr model information for the device numbers specified by the ADDRess parameter

OFF

optionally, specifies that the model type for the device numbers specified by the ADDRess parameter should be determined from the device UCB, or, for a device which was previously set to MODEL=IGNORE, that the MODEL information from the library server should be restored

MOdel

optionally, specifies the model type of the transport to be assigned the device numbers specified by the ADDRess parameter

model-type

the model type

See TABLE B-5 on page 364 for a list of valid *model-type* values.

TAPEPlex

optionally, specifies the name of a TapePlex to be associated with the drive before communication is established

TapePlex-name

the TapePlex name.

If specified, this name must match a TapePlex name defined in a TAPEPlex command.

NONE

optionally, removes the TapePlex association from the specified device addresses

NOTAPEPlex

optionally, specifies that the specified address or address range are nonlibrary devices, even when configuration queries from NCS library control systems indicate that the device is library controlled. Use this parameter when a local nonlibrary device address overlaps a TapePlex owned device that is not accessible from his host.

Note –

- When a MOdel is specified with TAPEPlex, the configuration query model information returned from the TapePlex is assumed to be the “real” or “correct” model, and it overrides any MOdel specified in the UNITAttr command.
- If TAPEPlex is specified for an address, but that address is not returned from the configuration query for that TapePlex, an error message is issued, but the erroneous TapePlex ownership remains with the specified device address. As a result, any mounts destined for the specified device address are not automated and are rejected by the specified TapePlex.

Example

In the following example, nonlibrary model 9840C devices are defined.

```
UNITATTR ADDR(2910,2911) MODEL(T9840C)
```

USERMsg Command

The USERMsg command allows you to specify additional message identifiers for messages to be intercepted and passed to the library subsystem's user exit 01. This command can also be used to list the message identifiers of those messages that have been defined using the USERMsg command.

Syntax

Command Name

USERMsg

initiates the USERMsg command

Parameter Descriptions

LIst

optionally, lists the message identifiers in the customer-defined message table. This is the default if no parameters are specified.

ID

optionally, specifies a message to be added to the customer-defined message table. This message is passed to user exit 01.

msgid

indicates the message identifier for the message to be added.

Note – This parameter may **only** be specified in the SMCPARMS data set.

Example

In the following example, the USERMsg command is used to list message identifiers for messages included in the customer-defined message table.

```
USERMSG LIST
```

CHAPTER 8

Recovery Procedures

Overview

This chapter describes recovery procedures used when the SMC, a TapePlex, or JES3 becomes inactive. Procedures for both JES2 and JES3 are included.

SMC Recovery Procedures (JES2)

This section describes recovery procedures for the following problem scenarios:

- Inactive SMC - active TapePlex
- Active SMC - inactive TapePlex
- Automating mount requests for inactive TapePlexes
- Lost MVS mount requests for active TapePlexes

Inactive SMC - Active TapePlex

When the SMC fails while one or more TapePlexes remain active, the following functions are **not** performed:

- Allocation processing
- Automation of mount/dismount/swap messages

When this occurs, re-start the SMC.

Certain software products allow you to suspend processing that may require dynamic allocation. For example, if Data Facility Hierarchical Storage Manager (DFHSM) is installed on the local processor, you can issue commands to prevent this type of processing without stopping DFHSM.

Common allocations can be postponed by holding the job queue or purging all initiators. Refer to the appropriate IBM publication for more information about JES2 operator commands.

If the SMC MOUNTDef AUTOPendmount (ON) option was specified, outstanding mount messages are re-driven.

Active SMC - Inactive TapePlex

When a TapePlex fails or is terminated, volumes and drives owned by that TapePlex become unknown to SMC. The following functions are **not** performed:

- Volume lookup for allocation influencing
- Automated mount processing

When this occurs, re-start the TapePlex and issue the SMC RESYNC command. The SMC re-establishes communication with the TapePlex and automates any outstanding mounts, regardless of the SMC MOUNTDef AUTOPendmount setting. See "Automating Mount Requests for Inactive TapePlexes" below for more information.

Certain software products allow you to suspend processing that may require dynamic allocation. For example, if Data Facility Hierarchical Storage Manager (DFHSM) is installed on the local processor, you can issue commands to prevent this type of processing without stopping DFHSM.

Common allocations can be postponed by holding the job queue or purging all initiators. Refer to the appropriate IBM publication for more information about JES2 operator commands.

Note – You can provide a backup path to a remote TapePlex that is automatically activated when the local HSC is discovered to be inactive. See Chapter 2, "SMC and StorageTek TapePlex Management" for more information.

Automating Mount Requests for Inactive TapePlexes

MVS mount requests for drives owned by inactive TapePlexes are automatically redriven when the corresponding TapePlexes are activated.

Lost MVS Mount Requests for Active TapePlexes

An MVS mount request may be lost when an LMU error occurs. Use this procedure if you suspect lost mounts.

1. Issue the following MVS command on the system requesting the mount to determine if any drives have a mount request pending:

   ```
   D R,L
   ```

2. Issue the following MVS command on the same system to determine which VOLSER to mount:

   ```
   D U,,,uuuu,1
   ```

3. If the drive is defined to an HSC TapePlex, issue the HSC Mount command for the volume on the MVS system on which the HSC is active.

SMC Recovery Procedures (JES3)

This section describes recovery procedures for the following problem scenarios:

- Inactive SMC - active TapePlex
- Active SMC - inactive TapePlex
- Inactive JES3 on a local processor
- Inactive JES3 on a global processor
- Automating mount requests for inactive TapePlexes
- Lost JES3 mount requests for active TapePlexes
- Lost MVS mount requests for active TapePlexes

Inactive SMC - Active TapePlex Subsystem

When the SMC fails while one or more TapePlexes remain active, the following functions are **not** performed:

- Allocation processing
- Automation of mount/dismount/swap messages

When this occurs, re-start the SMC.

Certain software products allow you to suspend processing that may require dynamic allocation. For example, if Data Facility Hierarchical Storage Manager (DFHSM) is installed on the local processor, you can issue commands to prevent this type of processing without stopping DFHSM.

To postpone the C/I process for batch jobs while SMC is inactive, use the following modify command:

```
*F X,D=POSTSCAN,MC=00
```

After the SMC is re-started, restore the maximum count to its original value, xx:

```
*F X,D=POSTSCAN,MC=xx
```

If the HSC and MVS/CSC were started with the AMPND startup parameter, outstanding mount messages are re-driven when SMC is re-started and an MVS allocation or mount event occurs. Alternatively, the SMC RESYNChronize command may be issued to redrive pending mounts under these circumstances.

Active SMC - Inactive TapePlex

When a TapePlex fails or is terminated, volumes and drives owned by that TapePlex become unknown to SMC. The following functions are **not** performed:

- Volume lookup for allocation influencing
- Automated mount processing

When this occurs, re-start the TapePlex and issue the SMC RESYNC command. The SMC re-establishes communication with the TapePlex and automates any outstanding mounts, regardless of the SMC MOUNTDef AUTOPendmount setting. See "Automating Mount Requests for Inactive TapePlexes" on page 237 for more information.

Certain software products allow you to suspend processing that may require dynamic allocation. For example, if Data Facility Hierarchical Storage Manager (DFHSM) is installed on the local processor, you can issue commands to prevent this type of processing without stopping DFHSM.

Note – You can provide a backup path to a remote TapePlex that is automatically activated when the local HSC is discovered to be inactive. See Chapter 1, "Introduction" for more information.

Inactive JES3 on a Local Processor

When JES3 fails on a local processor, jobs executing at the time that do not require JES3 services continue to execute. Drive exclusion still occurs for dynamic allocation requests.

To recover, restart JES3 (LOCAL start).

The SMC continues processing and requires no recovery.

Inactive JES3 on a Global Processor

When JES3 fails on a global processor, jobs executing at the time that do not require JES3 services continue to execute. Drive exclusion still occurs for dynamic allocation requests.

To recover, restart JES3 or invoke Dynamic System Interchange (DSI) processing.

You can use DSI to reassign the JES3 global function to a JES3 local processor when the global processor becomes inactive or requires maintenance. One of the JES3 local processors becomes the new JES3 global processor. By reassigning the global function to a local processor, the JES3 environment continues processing. The SMC continues processing and requires no recovery.

Refer to the *HSC System Programmer's Guide* or *MVS/CSC System Programmer's Guide* for more information about cross host recovery.

Automating Mount Requests for Inactive TapePlexes

MVS mount requests for drives owned by inactive TapePlexes are automatically redriven when the corresponding TapePlexes are activated.

Lost JES3 Mount Requests for Active TapePlexes

A JES3 mount request may be lost when an LMU error occurs. Use this procedure if you suspect lost mounts.

1. Issue the following JES3 command to determine which jobs are awaiting a volume mount:

   ```
   *I,S,V
   ```

2. Issue the following JES3 command to determine how long a job has been waiting:

   ```
   *I,J=nnnn,W
   ```

3. Issue the following JES3 command to determine the volume and drive the job is waiting on:

   ```
   *CALL,DISPLAY,J=nnnn
   ```

4. If the drive with a pending mount is defined to an HSC TapePlex, issue the HSC Mount command for the volume on the MVS system on which the HSC is active.

Lost MVS Mount Requests for Active TapePlexes

An MVS mount request may be lost when an LMU error occurs. Use this procedure if you suspect lost mounts.

1. Issue the following MVS command on the system requesting the mount to determine if any drives have a mount request pending:

   ```
   D R,L
   ```

2. Issue the following MVS command on the same system to determine which VOLSER to mount:

   ```
   D U,,,uuuu,1
   ```

3. If the drive is defined to an HSC TapePlex, issue the HSC Mount command for the volume on the MVS system on which the HSC is active.

CHAPTER 9

Utilities

Overview

This chapter provides information for the following SMC utilities:

- Tape Management Extract utility (SMCUDBX), used to support scratch synchronization between the SMC client host and the HSC CDS
- JES3 Configuration Report utility (SMCUPJS), used to generate JES3 configuration data which can be used to help verify JES3 initialization deck behavior
- Unified User Interface utility (SMCUUUI), used to issue HSC Unified User Interface (UUI) commands, VTCS commands, or SMC commands from a batch job
- POLicy and TAPEREQ Batch Test utility (SMCUTRQ), used to test POLicy and TAPEREQ lookup.

SMC Utility Return Codes and Messages

SMC utilities may return the following return codes:

- A return code of 0 is returned when the utility program completes successfully with no errors or warnings.
- A return code of 4 is returned when a warning message is detected.
- A return code of 8 is returned when an error that prevents the utility from completing is detected.

For a listing of SMC messages that may be returned by SMC utilities, see "SMC Utility Message Listing" on page 324. These messages are identified by the SMCU prefix.

Tape Management Extract Utility (SMCUDBX)

The SMC utility SMCUDBX supports scratch synchronization between the SMC client host and the HSC CDS. Using common tape extract modules (SLUDRCA1, SLUDRTLM, SLUDRRMM, and SLUDRZAR) with HSC and MVS/CSC, the SMC accesses the client tape management system to produce an extract file that can be read as input by the HSC scratch tape conversion module SLUCONDB. This process is illustrated in the following figure:

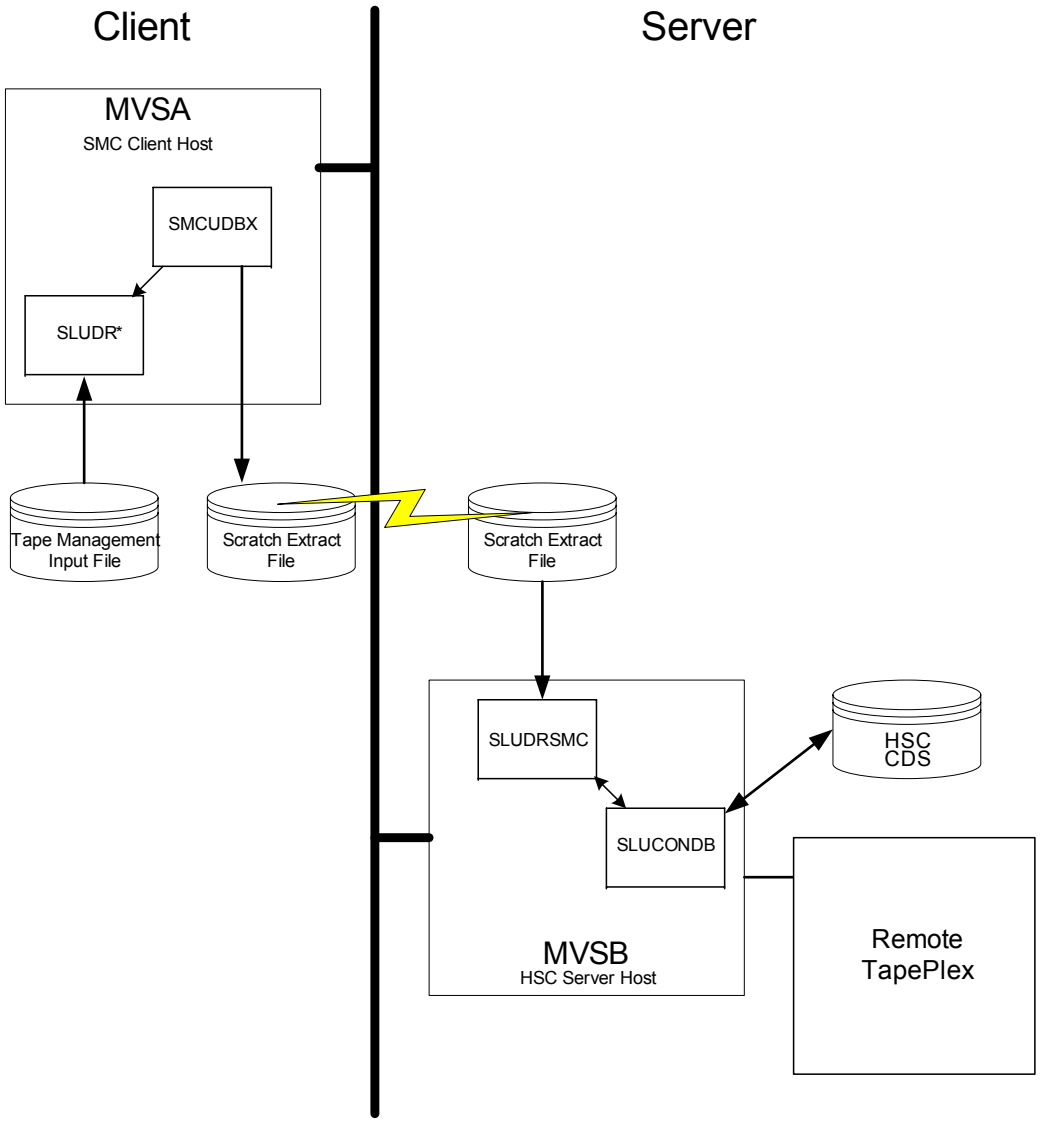


FIGURE 9-1 Scratch Synchronization Between SMC Client host and HSC CDS

If the client and server share a tape management system, the HSC utility SLUCONDB may be run directly using the common tape management system data base as input.

If, however, the client host has a tape management system that is not accessible to the HSC host, the SMC utility SMCUDBX can be used to extract scratch volumes from the tape management system using label and date parameters. The SMCUDBX output can then be used as input on the HSC host to the SLUCONDB utility. The SMC process supports timing synchronization by comparing the GMT time of the SMCUDBX run with the last select time of the HSC CDS volume record. If the volume was selected after the SMC scratch run, it is not eligible for scratch by SLUCONDB.

Running the SMC Scratch Extract Utility

You can run the SMC scratch extract utility regardless of whether the SMC is executing on the host.

SMCUDBX processes the CA-1 Tape Management Catalog (TMC), the CA-DYNAM/TLMS Volume Master File (VMF), the DFSMSrmm report extract file, or the Zara database, and selects the volume serial numbers for processing based on information specified on the PARM parameter of the JCL EXEC statement.

For CA-1, CA-DYNAM/TLMS, and DFSMSrmm, SMCUDBX calls the appropriate tape management system database READ routine. For Zara, SMCUDBX invokes the SLUDRZAR module, which in turn invokes an application programming interface (API) to read Zara's database. The data returned from these routines is used to format the SMC scratch extract file.

The following list describes the READ routines that are called for the CA-1, CA-DYNAM/TLMS, DFSMSrmm, and Zara tape management systems.

SLUDRCA1

Called to read the CA-1 TMC when CA-1 is defined as the tape management system. This routine uses CA-1 macros to map the layout of the TMC.

SLUDRTLM

Called to read the CA-DYNAM/TLMS VMF when CA-DYNAM/TLMS is defined as the tape management system. This routine uses a CA-DYNAM/TLMS COPY member to map the layout of the VMF.

SLUDRRMM

Called to read the DFSMSrmm report extract file when DFSMSrmm is defined as the tape management system. This routine uses the DFSMSrmm EDGRVEXT macro to map the layout of the report extract file.

SLUDRZAR

Called to invoke an API to read Zara's database when Zara is defined as the tape management system.

Note – Both source and load module versions of the SLUDR* tape management extract routines are provided as part of the SMC product installation. Source modules are provided in the SMC SAMPLIB file and load modules are provided in the SMC SMCLINK distribution library.

If your installation uses a different tape management system, you can develop a program modeled on one of the supplied examples SLUDRCA1, SLUDRTLM, SLUDRRMM, or SLUDRZAR, or you can write your own program to produce an extract file in the following format:

Position	Field	Format
1	Scratch volume	CL6
7	GMT of run	XL8
15	Unused	CL2

The time filed in the SMC scratch extract file is a character representation of the first four bytes of the output of the MVS STCK macro. For example, if the STCK macro produces a result of X'B0912345 6789ABCD', the GMT field of the SMC extract contains the character value C'B0912345'.

SMCUDBX, SLUDRCA1, SLUDRTLM, SLUDRRMM, and SLUDRZAR are provided as load modules. You can use the current versions of these load modules with CA-DYNAM/TLMS Release 5.4 and above, CA-1 Release 5.0 and above, DFSMSrmm 1.1, and Zara 1.2. The HSC SAMPLIB file on the base installation tape contains the sample source code.

Note –

- If there are local modifications to your tape management system, you must reassemble the associated READ routine.
- If your tape management system is CA-1 Release 4.9 or below, you must modify and reassemble the SLUDRCA1 routine. See "Using SMCUDBX with CA-1 Release 4.9 or Below" on page 243 for information about modifying and reassembling this routine.
- If your tape management system is CA-DYNAM/TLMS Release 5.3 or below, you must reassemble the SLUDRTLM routine. See "Using SMCUDBX with CA-DYNAM/TLMS Release 5.3 or Below" on page 243 for information about reassembling this routine.
- If your tape management system is Zara, the SMCUDBX utility must be able to access the data set that contains the Zara API module (ZARAAPI1). You can either store this module in the LINKLIST, or include a JOBLIB or STEPLIB DD statement in the SMCUDBX JCL that points to the library containing the module.
- Any routine that you modify and reassemble must be re-linked as non-reentrant (NORENT parameter) with AMODE=24 and RMODE=24.

Using SMCUDBX with CA-1 Release 4.9 or Below

To use SMCUDBX with CA-1 Release 4.9 or below, you must modify and reassemble the SLUDRCA1 routine. The CA-1 MACLIB containing the TMRECORD MACRO must be accessible during the assembly.

Perform the following steps for CA-1 Release 4.9:

1. Delete the asterisk in column 1 of the following line:
   ```
   TMRECORD
   ```
2. Add an asterisk in column 1 of the following line:
   ```
   TMMTMREC
   ```
3. Reassemble the SLUDRCA1 routine.

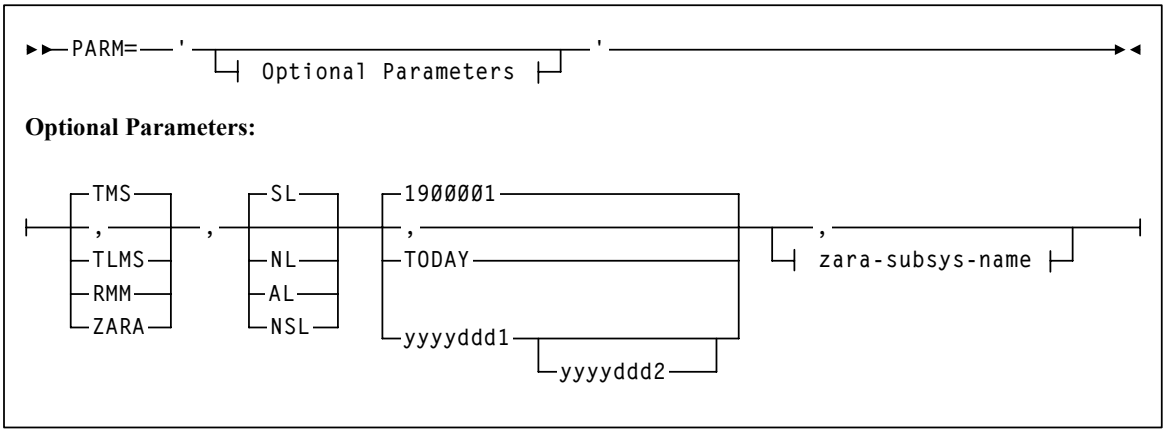
Using SMCUDBX with CA-DYNAM/TLMS Release 5.3 or Below

Perform the following steps to use SMCUDBX with CA-DYNAM/TLMS Release 5.3 or below:

1. Verify that the CA-DYNAM/TLMS Release 5.3 MACLIB containing the VMFBASE MACRO is accessible for the re-assembly of the SLUDRTLM routine.
2. Reassemble the SLUDRTLM routine; no modifications to the source code are required.

Specifying Values for the PARM Parameter

You can specify the following values for the PARM parameter on the JCL EXEC statement when running the Scratch Extraction utility.



The keywords for the PARM parameter are positional. If the PARM parameter is not specified, default values are used.

Parameter Descriptions

This section describes the values you can specify for the PARM parameter on the JCL EXEC statement.

TMS

Specifies the CA-1 tape management system.

This is the default value.

TLMS

Specifies the CA-DYNAM/TLMS tape management system.

RMM

Specifies the DFSMSrmm tape management system.

ZARA

Specifies the Zara tape management system.

SL

specifies standard label type for the scratch volume selection. This is the default value.

NL

specifies nonlabeled type for the scratch volume selection.

AL

specifies ANSI label type for the scratch volume selection.

NSL

specifies nonstandard label type for the scratch volume selection.

1900001

Specifies January 1, 1900 as the date. This is the default date.

Note – You must specify a four-year format for year 2000 dates. For example, specify 2000001 for January 1, 2000.

TODAY

Specifies the current system date.

yyyyddd1

Specifies a single date in four-year format. This date becomes the *from* date. The *to* date is the current system date (which is not specified). All dates must be specified in Julian notation (year-day).

yyyyddd1-yyyyddd2

Specifies a range of dates in which the volumes became scratch. Neither date specified can be greater than the current system date, and the first date cannot be greater than the second date.

Note – A comma (,) or no keyword (blank) results in the system default date of January 1, 1900 (1900001).

MIXED

Specifies to print all report headings and messages in mixed-case characters (uppercase and lowercase).

Note – A comma (,) or no keyword (blank) results in headings and messages being printed in uppercase characters.

---

zara-subsys-name

Specifies the subsystem name for the Zara tape management system, where *zara-subsys-name* is the four-character name. The default subsystem name is ZARA.

Sample JCL

The following definitions apply to the JCL used for the SMC Scratch Extract utility.

DBTMS

Input to the Scratch Extract utility in the form of the CA-1 TMS, the CA-DYNAM/TLMS VMS, or DFSMSrmm report extract file. This DD statement is not required for Zara.

STDOUT

Output messages from the Scratch Extraction utility. This DD statement is required.

DBEXTFIL

Output file from the Scratch Extract Utility. If a DCB LRECL is specified, it must specify a 16-byte value.

If Zara is the tape management system, the Zara API module must either reside in the MVS LINKLIST, or you must include one of the following JCL statements to access the module.

```
//STEPLIB DD DISP=SHR, DSN=your.zaraapi1.library
             DISP=SHR, DSN=your.tmsextract.library
                       or
//JOBLIB DD DISP=SHR, DSN=your.zaraapi1.library
```

The following figure shows sample JCL used to invoke the Scratch Extraction utility to process the CA-DYNAM/TLMS VMF for all tapes scratched in 2003.

```
//yourstd JOB card
//STEP0  EXEC PGM=SMCUDBX,PARM='TLMS,,2003001-2003365'
//STEPLIB DD DISP=SHR,DSN=your.SMCLINK
//        DD DISP=SHR,DSN=your.SLUDRxxx.LINKLIB
//DBTMS   DD DISP=SHR,DSN=your.tlms.database
//DBEXTFIL DD DISP=(NEW,KEEP),DSN=scratch.extract.file,
//        SPACE=(TRK,(5,1)),UNIT=SYSDA
//STDOUT  DD SYSOUT=*
/*
```

FIGURE 9-2 Sample JCL for Scratch Extraction Utility

Sample Output

Scratch Extraction utility output includes the following:

- Messages associated with error conditions resulting from an unsuccessful attempt to execute scratch extraction processing
- Messages indicating errors or actions occurring during processing
- Output data set containing Scratch Update utility control statements

The following figure shows sample output from the SMCUDBX utility.

```
SMCUDBX 6.2.0      SMC TMS DB SCRATCH EXTRACT                          Page 0001
TIME 15:26:41                                                  Date  2006-08-14

Total records extracted for scratch volumes = 977
```

FIGURE 9-3 Scratch Extraction Utility Sample Output Messages

JES3 Configuration Report Utility (SMCUPJS)

The SMC utility SMCUPJS generates JES3 configuration data which can be used to help verify that the JES3 initialization deck defines the intended devices and esoterics. This data is derived from internal SMC JES3 configuration control structures. These control structures are built during SMC/JES3 initialization through analysis of the SETNAME and SETUNIT statements in the user's JES3 initialization deck. For this reason, the SMC must be active on the system on which the report is run.

The following reports are generated from the SMC JES3 configuration control structures:

- List of XTYPE numbers in hexadecimal order with their corresponding XTYPE names
- List of XTYPEs in hexadecimal order with all esoterics in which the XTYPE appears
- List of esoterics in alphabetical order with all XTYPEs that each contains and the total number of devices in the esoteric. This report also lists any discrepancies between JES3 and HCD esoterics
- List of XTYPEs in hexadecimal order with all devices in that XTYPE, along with the location and recording technique of the devices in the XTYPE
- List of devices in hexadecimal order and the XTYPE to which each belongs, along with the location and recording technique of the device

Sample JCL

The following JCL sample executes the SMCUPJS utility to produce the five individual reports listed above.

```
//yourstd JOB card
//STEP EXEC PGM=SMCUPJS
//STEPLIB DD DSN=yoursmc.LINKLIB,DISP=SHR
//STDOUT  DD DSN=yourstd.printout.dataset,DISP=SHR
```

FIGURE 9-4 JCL to Produce the JES3 Configuration Report

Note – *yourstd.printout.dataset* should be allocated with LRECL=80.

Sample Reports

In the following report fragments, XTYPE 27 is carried through all five reports to illustrate how the reports are related. Lines pertaining to XTYPE 27 are underlined in each report.

XTYPE Number to XTYPE Name (EXTON)

Below are fragments of the XTYPE Number to XTYPE Name report. This mapping is useful when reading other reports that reference the XTYPE number instead of the name. The number in parenthesis is the XTYPE number, followed by the XTYPE name.

```
SMCUPJS (6.2.0)       SMC JES3 CONFIGURATION REPORT              PAGE 0001
TIME 15:03:42       XTYPE NUMBER TO XTYPE NAME (EXTON)      DATE 2006-01-09

  XTYPE(01) DEV01D5
  XTYPE(02) DEV2504
  XTYPE(03) DEV2507
  XTYPE(04) DEV2506
  XTYPE(05) DEV01D6
  XTYPE(06) DEV01DA
  XTYPE(07) DEV01DD
  XTYPE(08) DEV01DF
  XTYPE(09) DEV01D0
...
  XTYPE(27) DEV0AA0
  XTYPE(28) DEV0A20
...
```

XTYPE Number to Esoteric (EXTOE)

Below are fragments of the XTYPE Number to Esoteric report, which lists each XTYPE in hexadecimal order, along with all esoterics that contain that XTYPE. Both the XTYPE number (in parenthesis) and name are displayed.

```
SMCUPJS (6.2.0)   SMC JES3 CONFIGURATION REPORT                    PAGE 0001
TIME 15:03:42     XTYPE NUMBER TO ESOTERIC (EXTOE)            DATE 2006-01-09


  XTYPE(01) DEV01D5  appears in 11 ESOTERICs
    CART     EAGLE    3590-1   HVALL   HSCV3590 MCZZZZ0   HVZZZZ01 MCZZ9840
    HV994035 HRACS1L1 HV994010
  XTYPE(02) DEV2504  appears in 10 ESOTERICs
    CART
...
  XTYPE(27) DEV0AA0  appears in 7 ESOTERICs
    SYS3480R  CART     3480     TL3480   SLIB     SACS0   S04480
```

Esoteric to XTYPE (EETOX)

Below are fragments of the Esoteric to XTYPE report, which lists each esoteric in alphabetical order, along with all XTYPES in that esoteric in hexadecimal order. The XTYPE number can be mapped to its corresponding XTYPE name using the XTYPE Name to XTYPE Number report described above.

```
SMCUPJS (6.2.0)       SMC JES3 CONFIGURATION SUPPORT                PAGE 0001
TIME 15:03:42        ESOTERIC TO XTYPE NUMBER (EETOX)          DATE 2006-01-09

  ESOTERIC AUSALL   contains 4 XTYPEs and 12 devices
    2C 2D 3D 85
  ESOTERIC AUSREDW  contains 1 XTYPEs and 2 devices
    2D
...
  ESOTERIC CART     contains 84 XTYPEs and 433 devices
    01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 21 22 23 24 25 26 27
    28 29 2A 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42
    43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A
    5B 5C 5D 5E 5F 60 61 62 63 64 65 66
...
  ESOTERIC SACS0    contains 9 XTYPEs and 22 devices
    10 11 27 42 43 44 45 5E 5F
SMCU0005 *** WARNING: HCD esoteric does not match JES3 esoteric
  JES3 esoteric drives not in HCD:
    0AA3
  HCD esoteric drives not in JES3:
    (NONE)
...
  ESOTERIC SLIB       contains 13 XTYPEs and 34 devices
    10 11 23 24 27 42 43 44 45 46 47 5E 5F
...
  ESOTERIC SYS3480R contains 102 XTYPEs and 1511 devices
    21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38
    39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50
    51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68
    69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F 80
    81 82 83 84 85 86
...
  ESOTERIC S04480  contains 1 XTYPEs and 4 devices
    27
...
  ESOTERIC TL3480  contains 5 XTYPEs and 48 devices
    25 26 27 28 29
...
  ESOTERIC 3480     contains 14 XTYPEs and 132 devices
    21 22 23 24 25 26 27 28 29 83 84 85 86
...
```

XTYPE to Device Number (EXTOD)

Below are fragments of the XTYPE to Device Number report, which lists each XTYPE in hexadecimal order along with its devices. For each XTYPE number the following information is displayed:

- XTYPE number
- XTYPE name
- Number of devices in the XTYPE
- Associated TapePlex
- Device location
- Device recording technique

The device location is one of the following:

- In a TapePlex, in which case "*tapeplex-name* LSM AA:LL" is displayed, where tapeplex-name is the name of the TapePlex containing the HSC where the nonlibrary device is defined via the NONLIB esoteric or UNITATTR
- In a VTSS, in which case "*tapeplex-name* VTSS (*nnnnnnnn*)" is displayed
- Defined with an SMC UNITATTR command, in which case "nonlib" is displayed
- Neither in the library nor defined with an SMC UNITATTR command, in which case "not lib or nonlib" is displayed.

```
SMCUPJS (6.2.0)          SMC JES3 CONFIGURATION REPORT              PAGE 0001
TIME 15:03:42            XTYPE TO DEVICE NUMBER (EXTOD)       DATE 2006-01-09

  XTYPE(01) DEV01D5  contains 1 DEVICEs  not lib or nonlib, rectech STK1RA35
    01D5
  XTYPE(02) DEV2504  contains 1 DEVICEs  not lib or nonlib, rectech STK1RA35
    2505
...
  XTYPE(0F) DEV2801  contains 1 DEVICEs  nonlib, rectech STK1RA35
    2801
...
  XTYPE(27) DEV0AA0  contains 4 DEVICEs  PLEX1 LSM 00:00, rectech 18TRACK
    0AA0 0AA1 0AA2 0AA3
...
  XTYPE(48) DEV9000  contains 64 DEVICEs  PLEX1 VTSS SVTSS1
    9000 9001 9002 9003 9004 9005 9006 9007 9008 9009 900A 900B 900C 900D
    900E 900F 9010 9011 9012 9013 9014 9015 9016 9017 9018 9019 901A 901B
    901C 901D 901E 901F 9020 9021 9022 9023 9024 9025 9026 9027 9028 9029
    902A 902B 902C 902D 902E 902F 9030 9031 9032 9033 9034 9035 9036 9037
    9038 9039 903A 903B 903C 903D 903E 903F
...
```

Device Number to XTYPE (EDTOX)

Below are fragments of the Device Number to XTYPE report, which lists each device in hexadecimal order and the XTYPE to which it belongs. For each device the following is displayed:

- Associated TapePlex
- Device location
- Device recording technique

The device location and recording technique are displayed as in the XTYPE to Device Number report described above.

```
SMCUPJS (6.2.0)          SMC JES3 CONFIGURATION REPORT              PAGE 0001
TIME 15:03:42            DEVICE TO XTYPE NUMBER (EDTOX)       DATE 2006-01-09

  DEVICE/XTYPE - 0120/3C  not lib or nonlib, rectech 36ATRACK
  DEVICE/XTYPE - 0121/3C  not lib or nonlib, rectech 36ATRACK
...
  DEVICE/XTYPE - 0AA0/27  PLEX1 LSM 00:00, rectech 18TRACK
  DEVICE/XTYPE - 0AA1/27  PLEX1 LSM 00:00, rectech 18TRACK
  DEVICE/XTYPE - 0AA2/27  PLEX1 LSM 00:00, rectech 18TRACK
  DEVICE/XTYPE - 0AA3/27  PLEX1 LSM 00:00, rectech 18TRACK
...
```

SMCUUUI Utility

The SMC utility SMCUUUI is used to issue SMC and HSC Unified User Interface (UUI) commands, or VTCS requests from a batch job. The commands can be routed to a local or remote HSC TapePlex. Several types of output can be received for a UUI command, including:

- **Plain text output**

  This type of output is written to TEXTOUT, and corresponds to the normal output produced by the HSC or VTCS command or report utility. If plain text output is requested for an HSC or VTCS report, the report headings are **not** produced by the UUI.

- **Structured XML**

  This type of output is written to XMLOUT. Structured XML is a well formed XML data stream with XML header tags and XML data tag elements, and XML data element content. The complete list of SMC, HSC and VTCS XML tag names and types is listed in the *NCS/VTCS XML Guide*.

- **Comma Separated Values (CSV)**

  This type of output is written to CSVOUT. An input template of XML data tag names is used to define the format of the CSVOUT corresponding to a particular request. The output data for each request is a CSV header line that contains a comma-separated list of the XML data tags requested, followed by CSV detail lines. Each CSV detail line contains one comma-separated entry for each requested XML data tag. This type of output is readily adaptable as input into spreadsheets or customized report writers. Refer to the *NCS/VTCS XML Guide* for more information about the format for specifying CSV.

The type of output received is controlled by the data set definition statements (DD) defined in the JCL to execute the SMCUUUI utility.

Note – In general, error messages are **not** produced for CSV output. To view error messages produces by the UUI process, you **must** include either a TEXTOUT or XMLOUT DD statement.

Sample JCL

The following JCL sample executes the SMCUUUI utility.

```
//yourstd JOB card
//STEP EXEC PGM=SMCUUUI,PARM='pgmparms'
//STEPLIB  DD DSN=yoursmc.LINKLIB,DISP=SHR
//         DD DSN=yourvtcs.LINKLIB,DISP=SHR
//         DD DSN=yourhsc.LINKLIB,DISP=SHR
//STDOUT   DD DSN=yourstd.printout.dataset,DISP=SHR
//UUIIN    DD *
 CSV and uui commands
//*************************************************************
//* Specify at least one of the following output data sets:   *
//*************************************************************
//CSVOUT   DD DSN=yourcsv.output.dataset,DISP=SHR
//XMLOUT   DD DSN=yourxml.output.dataset,DISP=SHR
//TEXTOUT  DD DSN=yourtext.output.dataset,DISP=SHR
```

FIGURE 9-5 JCL to Execute the SMCUUUI Utility

Parameters

The following SMCUUUI utility parameters may be specified for *pgmparms* in the sample JCL:

SSYS(*subsystem-name*)

Specifies the SMC subsystem name. This can be one to four characters in length.

TAPEPlex(*name*)

Specifies the name of the SMC TapePlex to which the UUI commands will be directed. If omitted, the first active TapePlex found is used.

Use TAPEPlex(SMC) to indicate that the input commands are to be issued directly to the SMC, and not to a TapePlex (such as the SMC Display Volume and Display DRive command).

XMLDate(*format*)

Specifies the format of the returned date fields in the XML and CSV output.

Valid date formats and examples are as follows:

- ***YYYYMONDD*** (default format)

  Example: 2006Aug13 for August 13, 2006

- ***YYYY-MM-DD***

  Example: 2006-08-13 for August 13, 2006

- ***YYYY-MON-DD***

  Example: 2006-Aug-13 for August 13, 2006

Required Data Set Definition (DD) Statements

You must specify the UUIIN and STDOUT data set definitions.

UUIIN Data Set

The UUIIN data set contains:

- SMC UUI commands
- HSC UUI commands
- VTCS PGMI requests

Native SMC UUI commands include Display DRive and Display Volume.

Refer to the *NCS/VTCS XML Guide* for a list of supported HSC UUI requests. Syntax rules for UUI input are as follows:

- Input must be 80 byte card images.
- Only columns 1-72 of the 80 byte card image may contain actual command input. Columns 73-80 may be used for sequence numbers if desired.
- If the last non-blank character in columns 1-72 is a "+", the logical command is continued on the next physical card.
- Comments begin with "/*" (in column 2 or beyond) and end with "*/".
- The maximum logical command length is 32000 bytes.

STDOUT Data Set

The STDOUT data set is where the SMCUUUI utility reports the input and final completion code for each UUI request.

Output Data Set Definition (DD) Statements

You **must** specify at least one of the following output data set definition statements:

- XMLOUT
- CSVOUT
- TEXTOUT

XMLOUT Data Set

The XMLOUT data set is where the SMCUUUI utility outputs the structured XML output corresponding to the UUIIN command, as shown in the following example:

```
//yourstd JOB card
//STEP EXEC PGM=SMCUUUI
...
//UUIIN  DD *
SCRATCH VOL(400720)
//XMLOUT DD DSN=yourxml.output.dataset,DISP=SHR
...
```

The XMLOUT DD would contain the following output:

```
<scratch_request>
<header>
<hsc_version>6.2.0</hsc_version>
<date>2006Apr19</date>
<time>13:54:34</time>
<host_name>MVSB</host_name>
</header>
<volume_data>
<volser>400720</volser>
<result>success</result>
<reason>SLS0167I Volume 400720 successfully added to library as
scratch
</reason>
</volume_data>
</scratch_request>
```

CSVOUT Data Set

The CSVOUT data set is where the SMCUUUI utility writes the CSV output for the requested UUIIN commands that specified corresponding CSV formatting. Refer to the *NCS/VTCS XML Guide* for a complete explanation of the Comma Separated Value (CSV) specification.

The maximum logical CSV input length is 4096 bytes.

Note – In general, error messages are **not** produced for CSV output. To view error messages produces by the UUI process, you **must** include either a TEXTOUT or XMLOUT data set definition statement.

TEXTOUT Data Set

The TEXTOUT data set is where the SMCUUUI utility outputs plain text UUI responses. This is the same output that would be received from the corresponding SMC, HSC or VTCS command, or written to the SLSPRINT DD by the SLUADMIN or SWSADMIN utility, except that page and column headings are not produced. This data set is optional.

POLicy and TAPEREQ Batch Test Utility (SMCUTRQ)

The SMC utility SMCUTRQ is used to test SMC tape policy lookups. The program accepts control cards containing the same type of information that is extracted by the SMC during tape allocation and mount processing.

After you input the jobname, stepname, program name and other attributes on the control cards, this utility formats those attributes and requests SMC tape policy lookups from the SMC subsystem as if it were a job with those simulated characteristics.

Next, the utility generates a report indicating what policy was matched, or what TREQDef TAPEREQ statements, if any, were matched for the specific criteria. If the currently active TREQDef file is accessible, as indicated by the TREQDef LIst command, the actual TAPEREQ statements matching each lookup are listed.

The SMCUTRQ utility requires an active SMC subsystem on the same host. If SMC is not active, an error message is produced and the program terminates.

Sample JCL

Execute load module SMCUTRQ in the SMC linklib to produce the report.

The following JCL sample executes the SMCUTRQ utility:

```
//yourstd JOB card
//STEP    EXEC PGM=SMCUTRQ
//STEPLIB DD   DSN=yoursmc.LINKLIB,DISP=SHR
//STDOUT  DD   DSN=yourstd.printout.dataset,DISP=SHR
//SYSOUT  DD   SYSOUT=*
//SMCIN   DD   *
POL1 jobname stepname pgmname ddname nnnn yyyy/ddd mgmtclas
POL2 C volser dataset.name
```

FIGURE 9-6 JCL to Execute the SMCUTRQ Utility

Control Cards

Each TAPEREQ POLicy lookup requires that you enter two control cards specifying the job step characteristics to be simulated. The control card format is as follows:

Card 1:

Column	Length	Field	Format
1	4	ID	"POL1" required identifier
6	8	jobname	1-8 character non-generic jobname
15	8	stepname	1-8 character non-generic stepname
24	8	program name	1-8 character non-generic program name
33	8	ddname	1-8 character non-generic ddname
42	4	retention period	4 digit retention period
47	8	expiration date	*yyddd*, *yyyyddd*, or *yyyy/ddd* format expiration date
56	8	management class	1-8 character non-generic SMS management class name

Card 2:

Column	Length	Field	Format
1	4	ID	"POL2" required identifier
6	1	volume type	"S" for specific
			"N" for non-specific (scratch)
8	6	volume serial	6 character volser
15	44	dataset name	44 character non-PDS MVS dataset name

Note –

- All variable length fields must be left justified.
- Retention period and expiration date fields are mutually exclusive. When both are specified, retention period is used.
- The management class field is used to simulate a returned SMS ACS MGMTCLAS and assumes that the SMC SMSDEF MGMTPol(ALL) or (IDAX) policy has been specified. If the SMC finds a matching policy name, then the remaining tape policy lookups are bypassed.
- If a policy name matching the specified management class name is not found, or if the management class field was not specified, then a series of TAPEREQ lookups is performed using the remaining input criteria.
- You may ignore the lookup fields that are not important to your lookup. This is determined by looking at what selection criteria you actually use on your TAPEREQ statements. However, it is recommended that you specify all non-mutually exclusive fields.
- "POL1" and "POL2" control cards are required, even if all input fields are not coded.
- You can input multiple sets of control cards.

Sample Input

Example 1

```
POL1 TSTNEWPG STEP1    TESTPGM  MYTAPE1
POL2 S 123456 ABC.QUAL1.QUAL2.TEST
```

Simulate the TAPEREQ lookup that would occur when:

- Specific volume 123456 for DSN ABC.QUAL1.QUAL2.TEST
- Allocated to DD MYTAPE1 for job TSTNEWPG, step STEP1, executing program TESTPGM.

Example 2

```
POL1 TSTNEWPG STEP1    TESTPGM  MYTAPE1  0099
POL2 N        ABC.QUAL1.QUAL2.TEST
```

Simulate the TAPEREQ lookup that would occur when:

- Scratch volume for DSN ABC.QUAL1.QUAL2.TEST
- Allocated to DD MYTAPE1 with a retention period of 99 days
- For job TSTNEWPG, step STEP1, executing program TESTPGM.

Example 3

```
POL1 TSTNEWPG STEP1    TESTPGM  MYTAPE1  MCLASS01
POL2 N 123456 ABC.QUAL1.QUAL2.TEST
```

Simulate the TAPEREQ lookup that would occur when:

- Scratch volume for DSN ABC.QUAL1.QUAL2.TEST
- Allocated to DD MYTAPE1
- For job TSTNEWPG, step STEP1, executing program TESTPGM, when the DFSMS ACS routine returns a management class of MCLASS01.

Sample Output

```
SMCUTRQ 6.2.0              SMC POLICY/TAPEREQ TEST
Time 11:25:49            POLICY/TAPEREQ Lookup Report

SMCU0019 SMC subsystem=SMC0

Card 0001: *OL1|JOBNAME |STEPNAME|PGMNAME |DDNAME  |RETP|EXPDT |SMSMGMT
Card 0002: *OL2|T|VOLSER|DSN
Card 0003: POL1 ANYJOB   STEP1    TESTPGM  DD1
Card 0004: POL2 S 123456 ABC.QUAL1.QUAL2.TEST

TAPEREQ lookup keys:
        JOBname=ANYJOB   STEPname=STEP1    PROGname=TESTPGM  DDname=DD1
        VOLType=S        VOLSer=123456     DSN=ABC.QUAL1.QUAL2.TEST

        Lookup for POLICY         not matched
        Lookup for RECTECH/MEDIA  matched TREQDEF record 5
        Statement: TAPEREQ DSN(ABC.**.TEST)  MEDIA(VIRTUAL)
        Lookup for SUBPOOL        not matched
        Lookup for ESOTERIC       not matched
        Lookup for MGMTCLAS       not matched
        Lookup for DEVTPREF       not matched

Card 0005: POL1 ANYJOB   ANYSTEP  ANYPGM   DD1
Card 0006: POL2 S 123456 ABC.D11.XYZ.ABC

TAPEREQ lookup keys:
        JOBname=ANYJOB   STEPname-ANYSTEP  PROGname=ANYPGM   DDname=DD1
        VOLType=S        VOLSer=123456     DSN=ABC.D11.XYZ.ABC

        Lookup for POLICY         not matched
        Lookup for RECTECH/MEDIA  matched TREQDEF record 10
        Statement: TAPEREQ DSN(**.XYZ.**) MEDIA(VIRTUAL)
        Lookup for SUBPOOL        not matched
        Lookup for ESOTERIC       not matched
        Lookup for MGMTCLAS       not matched
        Lookup for DEVTPREF       not matched

Processing complete; RC=0
```

FIGURE 9-7 SMCUTRQ Utility Sample Output

CHAPTER 10

Messages

Overview

This chapter provides information about SMC messages and return codes. This information is provided to help system programmers and operators:

- Initialize the SMC.
- Monitor SMC activity.
- Diagnose and correct SMC problems.

See Chapter 12, "Using the StorageTek HTTP Server" for information about messages issued by the StorageTek HTTP Server for OS/390 and z/OS.

Message Format

Messages are displayed on the console in the following format:

`SMC`***`nnnn`*** *`message-text`*

where:

- SMC identifies the Storage Management Component (SMC).
- *nnnn* is the four-character message number.
- *message-text* is the actual text displayed on the job log or system log.

Message Descriptions

This chapter provides a description for each SMC message. In addition to the message number and message text, this description includes the following:

Message Level

The message level represents a message category. Using the MSGDEF or MSGJOB operator command, the message level is specified in order to control which categories of messages are issued. See "MSGDef Command" on page 164 for more information.

Explanation

The explanation describes the message.

System Action

The system action describes how the SMC reacts when a message-triggering event occurs.

User Response

The user response describes how the user should respond to the message. In many cases, no response is required.

Variable Definitions

Italicized text indicates variable data that is replaced by actual values when messages are issued. Message specific variable data is symbolized as follows:

TABLE 10-1 Variable Data Definitions

Variable Data	Definition
AA	ACSid
n	decimal value
X	hexadecimal value
various letters (*C*, *N*, *K*, etc.)	variable information (character data)
numbers (*1*, *2*, etc.) (combined with letters)	related variable information i.e., commands *CCCCCCCC1* and *CCCCCCCC2*
{ }	multiple choices
[ ]	optional field (may not appear in message)

Message Change Summary

The following SMC messages have been added, changed, or deleted in this release:

Note – See Chapter 12, "Using the StorageTek HTTP Server" for information about StorageTek HTTP Server messages.

New Messages

New System Messages

- SMC0000
- SMC0092
- SMC0172
- SMC0173
- SMC0174
- SMC0175
- SMC0176
- SMC0177
- SMC0178
- SMC0179
- SMC0180
- SMC0181
- SMC0182
- SMC0183
- SMC0184
- SMC0185
- SMC0186
- SMC0187
- SMC0188
- SMC0189
- SMC0190
- SMC0191
- SMC0192
- SMC0193
- SMC0194
- SMC0195
- SMC0196
- SMC0197
- SMC0200
- SMC0201
- SMC0202
- SMC0203
- SMC0204
- SMC0205
- SMC0206
- SMC0207
- SMC0208
- SMC0226
- SMC0230

New Utility Messages

- SMCU0014
- SMCU0015
- SMCU0016
- SMCU0017
- SMCU0020
- SMCU0021
- SMCU0022
- SMCU0023

Changed Messages

- SMC0048
- SMC0049
- SMC0099
- SMC0101
- SMC0104
- SMC0106
- SMC0116
- SMC0117
- SMC0118
- SMC0128
- SMC0130
- SMC0131
- SMC0132
- SMC0133
- SMC0134
- SMC0135
- SMC0136
- SMC0137
- SMC0138
- SMC0139
- SMC0142
- SMC0143
- SMC0154
- SMC0167

Deleted Messages

- SMC0104
- SMC0143

SMC System Message Listing

The following SMC messages are listed numerically.

SMC0000

`{(`*CCCCCCCC*`)} command string`

Level: 0

Explanation: The SMC received an input command from an operator console. The console name or user ID, if available, is listed followed by the command string.

System Action: None

User Response: None

SMC0001

`SMC subsystem initializing`

Level: 0

Explanation: The MVS start command was entered for the SMC, and the SMC subsystem initialization process has begun.

System Action: None.

User Response: None.

SMC0002

CCCCCCCCCCCCCCCC `failed; return code=`*XXXX1*`, reason code=`*XXXX2*

Level: 0

Explanation: MVS facility or macro *CCCCCCCCCCCCCCCC* completed with the specified nonzero return code *XXXX1* and reason code *XXXX2*.

System Action: Depending upon the type of error, initiation/termination may try to continue. If the MVS facility is listed as *Requested SDUMP*, the error occurred during the TRACE SNAP process, and processing will continue without producing the requested SDUMP.

User Response: Look for IBM related messages in the SYSLOG or job log, and refer to IBM documentation for the explanation.

SMC0003

`SMC subsystem` *SSSS* `terminating`

Level: 0

Explanation: The MVS stop command was entered for the SMC, and the SMC subsystem termination process has begun.

System Action: None.

User Response: None.

SMC0004

```
MVS release is down-level
```

Level: 0

Explanation: An attempt was made to initialize the SMC on an MVS system that does not support the necessary services required by this version of SMC.

System Action: The SMC subsystem terminates.

User Response: Upgrade MVS to the required release level.

SMC0005

Invalid command *CCCCCCCC* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: An undefined command, *CCCCCCCC*, was encountered by the SMC.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0006

```
SMC subsystem not dynamic
```

Level: 0

Explanation: The SMC was defined as a nondynamic subsystem using the positional form of the IEFSSN*xx* parmlib member. The SMC must run as a dynamic subsystem.

System Action: The SMC subsystem terminates.

User Response: Use the keyword format of the subsystem definition in the IEFSSN*xx* parmlib member to define the SMC subsystem, or remove the SMC subsystem from the IEFSSN*xx* parmlib member.

SMC0007

Explanation: SMCCVT incompatible with previous version; defaulting to COLD start

Level: 4

Explanation: During initialization, the SMC subsystem detected that the prior SMC subsystem of the same name was an incompatible version. The COLD start parameter was not specified.

System Action: Initialization continues, but in COLD start mode (the SMC subsystem CVT is rebuilt).

User Response: None.

SMC0008

```
Not running from an authorized linklib; SMC subsystem
terminating
```

Level: 0

Explanation: The SMC subsystem initialization module, SMCBINT, was executed from an unauthorized library.

System Action: The SMC subsystem terminates.

User Response: Ensure that the SMC link library is APF authorized.

SMC0009

Job *JJJJJJJJ* JOB*nnnn* active at termination

Level: 4

Explanation: The SMC subsystem received the MVS stop ('P') command, but there is an active job, *JJJJJJJJ*, in tape allocation or message processing. The SMC0012 message was issued previously, but the job allocation or message processing has not completed after waiting one minute.

System Action: Termination continues. No allocation influencing is performed for the job, and mounts or dismounts will not be automated.

User Response: None.

SMC0010

Unable to acquire storage for *CCCCCCCC*; return code=*XXXX*

Level: 0

Explanation: During initialization, the SMC subsystem could not acquire sufficient storage for the specified dynamic control block or module, *CCCCCCCC.*

System Action: The SMC subsystem terminates.

User Response: Ensure that there is sufficient CSA storage available. Refer to IBM documentation for the explanation of return code *XXXX*.

SMC0011

Load failed for module *MMMMMMMM*

Level: 0

Explanation: The SMC subsystem could not load the required module *MMMMMMMM*.

System Action: The SMC subsystem terminates.

User Response: Ensure that the SMC startup procedure has access to all SMC distributed load libraries in its steplib concatenation.

SMC0012

Termination waiting for job *JJJJJJJJ* JOB*nnnnn [in allocation|in message handling]*

Level: 0

Explanation: The SMC subsystem received the MVS stop command, but there is an active job *JJJJJJJJ* in tape allocation or message handling.

System Action: The SMC waits for 30 seconds or until all active processes are complete.

User Response: Ensure that there are no jobs performing tape allocation or message handling when the SMC is terminated. Respond to any MVS allocation recovery messages.

SMC0013

TRACE settings:
CCCC....CCCC

Level: 0

Explanation: The TRACE command was specified with the LIST keyword. The SMC0013 multiline message lists the current settings for the SMC subsystem. Refer to the TRACE command for parameter descriptions.

System Action: None.

User Response: None.

SMC0014

Unmatched [quote|or invalid parenthesis] detected; command ignored [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command containing an unterminated quoted string, or invalid or unmatched parenthesis.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0015

Invalid keyword *KKKKKKKK* for the *CCCCCCCC* command [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified an invalid keyword *KKKKKKKK*.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0016

Invalid value *VVVVVVVV* for keyword *KKKKKKKK* of the *CCCCCCCC* command [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified keyword *KKKKKKKK* with an invalid value *VVVVVVVV*.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0017

Keyword *KKKKKKKK* of the *CCCCCCCC* command requires a value [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified keyword *KKKKKKKK* without an accompanying value (required by most keywords).

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0018

Keyword *KKKKKKKK* of the *CCCCCCCC* command is not allowed for *EEEEEEEE* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified keyword *KKKKKKKK,* which is not valid in the current operating environment *EEEEEEEE.* For example, some keywords or keyword=value pairs may be invalid depending upon whether the user is executing JES2 or JES3.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the specified keyword is valid in your environment.

SMC0019

Duplicate keyword *KKKKKKKK* specified for the *CCCCCCCC* command [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified the same keyword, *KKKKKKKK*, more than once.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0020

Keyword *KKKKKKK1* of the *CCCCCCCC* command is mutually exclusive with keyword *KKKKKKK2* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified multiple keywords, two of which (*KKKKKKK1* and *KKKKKKK2)*, are mutually exclusive.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0021

{COLD|WARM} start failure

Level: 0

Explanation: During initialization, the SMC subsystem detected an error.

System Action: The SMC subsystem terminates.

User Response: Look for SMC related messages in the SYSLOG or job log. Associated messages may be (but are not limited to) SMC0002, SMC0004, SMC0006, SMC0008, SMC0010, or SMC0011.

SMC0022

Invalid format or missing keywords for the *CCCCCCCC* command [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command *CCCCCCCC* that contained either too many or too few keywords in the command line.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0023

CCCCCCCC command successfully processed [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The *CCCCCCCC* command was successfully validated and processed by the SMC.

System Action: None.

User Response: None.

SMC0024

SSSS subsystem initialization complete

Level: 0

Explanation: The SMC initialization process is complete. The SMC is ready to begin normal operations.

System Action: None.

User Response: None.

SMC0025

No {*CCCCCCCC*|control block} entries to list [(no JES3 tape setup)]

Level: 0

Explanation: One of the following occurred:

- Command *CCCCCCCC* was specified with the LIST keyword. However, no entries were found in the SMC queue for the specified command.
- A LIST command was specified with a control block keyword. However, no control blocks of the specified type were found.
- A LIST command was specified for an SMC JES3 specific control block name. However, the SMC is not operating on a system with JES3 tape setup.

System Action: None.

User Response: None.

SMC0027

Keyword *KKKKKKK1* of the *CCCCCCCC* command requires keyword *KKKKKKK2* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified keyword *KKKKKKK1*, but not the required co-requisite keyword, *KKKKKKK2*.

System Action: Processing continues. The command is ignored.

User Response: Ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0028

STOP command received

Level: 0

Explanation: The MVS stop ('P') command was received by the SMC, and the SMC subsystem termination process is set to begin.

System Action: The SMC subsystem begins termination processing.

User Response: None.

SMC0029

CCCCCCCC command processing error; [matching entry not found|command line truncated; will be ignored|parameter truncated; command ignored] [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: An error was found processing the *CCCCCCCC* command.

System Action: Processing continues. The command is ignored.

User Response: Use the LIST keyword to list the current SMC queue of entries; then ensure that the syntax in the command data set is correct, or enter the corrected command.

SMC0030

```
TRACE JOBNAME=JJJJJJJJ [STEPNAME=SSSSSSSS]
[PROCSTEP=PPPPPPPP] [SNAPDUMP DDDDDDDD] CCCCCCCC
```

Level: 0

Explanation: The TRACE command was specified with the LIST keyword. The SMC0030 message lists the jobs, step, and PROC steps and the associated processes which have been specified for tracing.

System Action: None.

User Response: None.

SMC0031

```
No SMC start mode specified; defaulting to WARM start
```

Level: 4

Explanation: During SMC initialization, the subsystem detected that neither a WARM or COLD start was specified in the initialization program's execution parameters.

System Action: Initialization continues in WARM start mode.

User Response: None.

SMC0032

```
Number of SMC startup parameters specified exceeds maximum of
n
```

Level: 0

Explanation: During initialization, the SMC subsystem initialization program encountered an execution parameter string containing too many parameters.

System Action: The SMC subsystem terminates.

User Response: Correct the subsystem initialization startup procedure to specify the correct execution parameter string.

SMC0033

```
SMC startup parameter PPPPPPPP may not have a value
```

Level: 0

Explanation: During initialization, the SMC subsystem initialization program encountered a valid execution parameter, but it was specified as a keyword=value pair, where no value is allowed.

System Action: The SMC subsystem terminates.

User Response: Correct the subsystem initialization startup procedure to specify the correct execution parameter string.

SMC0034

SMC startup parameter *PPPPPPPP* must have a value

Level: 0

Explanation: During initialization, the SMC subsystem initialization program encountered a valid execution parameter, but it was not specified as a keyword= value pair, and a value is required.

System Action: The SMC subsystem terminates.

User Response: Correct the subsystem initialization startup procedure to specify the correct execution parameter string.

SMC0035

Error processing SMC startup parameter *PPPPPPPP*; *CCCCCCCCCCCC*

Level: 0

Explanation: During initialization, the SMC subsystem initialization program encountered an error in the execution parameter string. The string *CCCCCCCCCCCC* indicates the type of error encountered.

System Action: The SMC subsystem terminates.

User Response: Correct the subsystem initialization startup procedure to specify the correct execution parameter string.

SMC0036

SMC startup parameter *PPPPPPPP* successfully processed

Level: 4

Explanation: During SMC initialization, the execution parameter *PPPPPPPP* was successfully verified and processed.

System Action: None.

User Response: None.

SMC0037

Invalid SMC startup parameters; subsystem terminating

Level: 0

Explanation: During initialization, the SMC subsystem initialization program detected an error processing the execution parameter string.

System Action: The SMC subsystem terminates.

User Response: Look for SMC related messages in the SYSLOG or job log. Associated messages may be (but are not limited to) SMC0032 SMC0033, SMC0034, or SMC0035.

SMC0038

`Another SMC system SSSS is already active`

Level: 0

Explanation: During initialization, the SMC subsystem initialization program detected a different SMC subsystem, *SSSS,* already active on the system.

System Action: The initializing SMC subsystem terminates.

User Response: Only one SMC can be active on a system at a time.

- If SMC *SSSS* is active, and is preventing the current SMC from initializing, terminate SMC *SSSS*.
- If SMC *SSSS* was terminated abnormally and is not truly active, restart the current SMC subsystem with the RESET execution parameter.

SMC0039

`Identically named subsystem SSSS is already active`

Level: 0

Explanation: During initialization, the SMC subsystem initialization program detected an identically named subsystem *SSSS* already active on the system.

System Action: The initializing SMC subsystem terminates.

User Response: Determine whether the subsystem SMC *SSSS* is active. If so, terminate SMC *SSSS*. If SMC *SSSS* was terminated abnormally and is not truly active, restart the current SMC subsystem with the RESET execution parameter.

SMC0040

`SMC subsystem SSSS is already active; RESET specified; startup continuing`

Level: 4

Explanation: During initialization of SMC subsystem *SSSS,* the initialization program detected that the prior SMC subsystem terminated abnormally, but the user specified the RESET execution parameter to ignore this condition.

System Action: None.

User Response: None.

SMC0041

`{Command|Comment} beginning at line nnnn of {SMCCMDS|SMCPARMS} is unterminated`

Level: 4

Explanation: A command or comment beginning at line *nnnn* of an input command file ended with a continuation character (+), but no continuation was found.

System Action: Processing continues. The command containing the unterminated string is ignored.

User Response: Ensure that the syntax in the command data set is correct.

SMC0042

Job *JJJJJJJJ* step *SSSSSSSS* not allocatable before SMC modification

Level: 4

Explanation: During execution of job *JJJJJJJ* step *SSSSSSSS*, the SMC allocation component detected that the job step was not allocatable before any allocation influencing was performed.

System Action: None. The job is failed by MVS or express-canceled by JES3.

User Response: Correct the JCL.

SMC0043

Job *JJJJJJJJ* step *SSSSSSSS* not allocatable at MINLVL=*nn*; failing DD *DDDDDDDD*

Level: 4

Explanation: During execution of a job with tape allocation, the SMC allocation component detected that the job is not allocatable at the specified minimum exclusion level (MINLVL).

System Action: The job is failed by MVS or express-canceled by JES3.

User Response: Correct the JCL, or change the MINLVL for the specified job.

SMC0044

SMC subsystem termination in progress; no allocation influence for job *JJJJJJJJ* step *SSSSSSSS*

Level: 8

Explanation: During execution of job *JJJJJJJ* step *SSSSSSSS*, the SMC allocation component detected that the SMC subsystem was being terminated.

System Action: No allocation influencing is performed for the job.

User Response: None.

SMC0045

Conflicting exclusion criteria for job *JJJJJJJJ* step *SSSSSSSS* DD *DDDDDDDD*

Level: 8

Explanation: Messages SMC0045 and SMC0046 are always produced together. See the explanation for message SMC0046 for more information.

System Action: None.

User Response: None.

SMC0046

CCCCCCCCCCCCCCCC would have excluded all devices; not honored

Level: 8

Explanation: When the SMC allocation component attempted to apply the exclusion criteria *CCCCCCCCCCCCCCCC* for job *JJJJJJJJ* step *SSSSSSSS* DD *DDDDDDDD*, no devices remained in the current exclusion level EDL. The SMC0045 and SMC0046 messages are always produced together.

For information about exclusion criteria, refer to the keyword column of the "Drive Exclusion Levels" tables in Chapter 5 of the *SMC Configuration and Administration Guide*.

System Action: None. The criteria that would have eliminated all devices is ignored.

User Response: Examine the message to determine which exclusion criteria could not be honored. If possible, change the specification of the allocation policy to eliminate policies that conflict, for example, specifying a subpool name or esoteric name incompatible with media or recording technique.

SMC0047

Esoteric *EEEEEEEE* contains no known devices; ignored for job *JJJJJJJJ* step *SSSSSSSS* DD *DDDDDDDD*

Level: 8

Explanation: During execution of job *JJJJJJJJ* step *SSSSSSSS*, the SMC allocation component encountered a user policy esoteric, *EEEEEEEE* (from POLicy, TAPEREQ or user exit), that did not contain any tape devices in the current EDL.

System Action: The specified esoteric is ignored.

User Response: None.

SMC0048

Support ending for *CCCCCCCC1*, change to *CCCCCCCC2*

Level: 0

Explanation: A *CCCCCCCC1* command or keyword was entered. However, the command or keyword will not be supported in the next release, where the *CCCCCCCC2* command or keyword will provide equivalent functionality.

System Action: None.

User Response: Change the *CCCCCCCC1* command or keyword to *CCCCCCCC2*.

SMC0049

```
No eligible TAPEPLEX for job JJJJJJJJ
```

Level: 8

Explanation: During execution of job *JJJJJJJJ*, the SMC allocation component did not find any TapePlexes at the correct release level, or no valid TAPEPlex commands were processed.

System Action: If ALLOCDEF FAILnoinfo is specified, the SMC marks all devices ineligible. Otherwise, no allocation influencing is performed for the job.

User Response:

- If TapePlexes are implied using the MVS SSCVT chain or via the TAPEPlex command LOCSUBsys parameter, ensure that the HSC or MVS/CSC(s) on the host are active and at the correct level.
- If TapePlexes on another host are defined using the TAPEPlex command, ensure that the HSC on the remote host defined by the SERVer command is active and at the correct level. Also ensure that the HTTP server is active on the remote host.

SMC0051

```
SMC subsystem interface error for job JJJJJJJJ; reason=
SSSSSSSS function=CCCCCCCC
```

Level: 4

Explanation: SMC processing in an MVS initiator address space attempted to communicate with the SMC subsystem in order to process an allocation or mount request but encountered an error. The reason for the failure is *SSSSSSSS* while the function attempted was *CCCCCCCC*.

System Action: The SMC terminates its processing of the allocation or mount request.

User Response: Investigate the cause of the error by looking for related SMC subsystem or MVS error messages.

SMC0052

```
User exit nn {inactive|abended and disabled}
```

Level: 8

Explanation: During execution of a job, the SMC allocation or message handling component invoked the user exit *nn*. However, the user exit is currently inactive or has abended and is now disabled.

System Action: Processing continues without the user exit.

User Response: Correct the user exit.

SMC0053

**** SMC U1099 ABEND AT *CCCCCCCCn* ****

Level: 0

Explanation: An SMC task has abended in module *CCCCCCCC* at abend sequence number *n*.

System Action: If the abend occurs in the address space of a tape allocation job, the SMC subsystem does not influence the job's allocation. If the abend occurs in the SMC started task address space, a restart of the SMC subsystem may be required.

User Response: Look for SMC or IBM related messages in the SYSLOG or job log. Save the associated logs, dump data set, and JCL, and contact StorageTek Software Support.

SMC0054

MSGJOB LVL=*nn* for {DEFAULT SETTING|JOBNAME=*JJJJJJJJ*} [STEPNAME=*SSSSSSSS*][PROCSTEP=*PPPPPPPP*]

Level: 0

Explanation: A MSGJOB command was specified with the LIST keyword. Each unique job, job step, and PROC step entry found in the MSGJOB queue is displayed in a separate SMC0054 message, followed by the SMC defaults in a final SMC0054 message. *nn* indicates the message level, and any messages at that indicated level or lower are produced on that job's job log in JES2 or on the system log in JES3.

System Action: None.

User Response: None.

SMC0055

ALLOCJOB {BYPASSed|MINLVL=*nn*}[SEPLVL=MIN|MAX|*nn*] for {JOBNAME=*JJJJJJJJ*}[STEPNAME=*SSSSSSSS*][PROCSTEP=*PPPPPPPP*][SNAPDUMP *DDDDDD*] *PPPPPPPP*

Level: 0

Explanation: An ALLOCJOB command was issued with the LIST keyword. Each unique job, job step, and PROC step entry found in the ALLOCJOB queue is displayed in a separate SMC0055 message. The BYPASSED message indicates that the specified job, job step, or PROC step will not have any of its tape allocations influenced by the SMC. MINLVL=*nn* indicates the desired minimum exclusion level at which affinity and GDG chains are separated.

System Action: None.

User Response: None.

SMC0056

```
nn Bytes:
AAAAAAAA +0000| XX.XX XX.XX XX.XX XX.XX | CC..CC |
AAAAAAAA +0010| XX.XX XX.XX XX.XX XX.XX | CC..CC |
AAAAAAAA +0000| XX.XX XX.XX XX.XX XX.XX | CC..CC |
```

Level: 0

Explanation: An SMC LIst command was issued. The SMC0056 multiline message lists the nn bytes of storage in translated hexadecimal (*xx.xx*) and character (*cc.cc*) format, each line listing the next 16 bytes (X'10') bytes of storage, beginning at hexadecimal address *aaaaaaaa*.

System Action: None.

User Response: None.

SMC0057

```
No {SMCPARMS|SMCCMDS} DDNAME statement found
```

Level: 8

Explanation: During SMC initialization, the specified SMCPARMS DD or SMCCMDS DD was not present in the SMC startup procedure.

System Action: Initialization continues.

User Response: None.

SMC0058

```
Error opening {DDNAME {SMCPARMS|SMCCMDS}|DSNAME DDDDDDDD}
```

Level: 0

Explanation: The SMC encountered a READ command, but the specified DDNAME or DSNAME could not be opened.

System Action: The READ command is ignored.

User Response: Look for IBM related messages in the SYSLOG or job log, and refer to IBM documentation for more information.

SMC0059

```
Identically named subsystem SSSS is initializing
```

Level: 0

Explanation: During initialization, the SMC subsystem initialization program detected an identically named SMC subsystem, *SSSS*, already being initialized (but not yet fully active).

System Action: The currently initializing SMC subsystem terminates.

User Response: Only one SMC can be active on a system at a time. If the prior SMC subsystem, *SSSS*, was terminated abnormally, and is not truly active, then restart SMC *SSSS* with the RESET execution parameter.

SMC0060

I/O error reading {DDNAME {SMCPARMS|SMCCMDS}|DSNAME *DDDDDDDD*}

Level: 0

Explanation: The SMC received an I/O error attempting to read the SMCPARMS or SMCCMDS data set specified in the SMC started procedure or a data set specified on a READ command.

System Action: The indicated data set is not processed.

User Response: Determine the cause of the error. If the input data set is a PDS, ensure that a member name was specified.

SMC0061

Command beginning at line *nnnn* of {SMCCMDS|SMCPARMS} is too long; input ignored

Level: 4

Explanation: The SMC encountered a multi-line command beginning at line *nnnn* of the specified file. This command exceeds 1024 characters in length.

System Action: Processing continues. The entire multi-line is ignored.

User Response: Ensure that the command data set has the correct syntax.

SMC0062

Command *CCCCCCCC* [with parameter *PPPPPPPP*] is not allowed [{from console|at line *nnnn* of SMCCMDS|SMCPARMS}]

Level: 0

Explanation: The SMC encountered a command or a command parameter that is not supported for the indicated command origin. For example, the READ command is not supported if encountered during processing of another READ command.

System Action: The command is ignored.

User Response: Issue the command from a valid command origin.

SMC0063

MSGDEF settings:
CCCC....CCCC

Level: 0

Explanation: A MSGDEF command has been issued with the LIST keyword. The SMC0063 multiline message lists the current settings for the SMC subsystem. Refer to the MSGDEF command for parameter descriptions.

System Action: None.

User Response: None.

SMC0066

```
ALLOCDEF settings:
CCCC....CCCC
```

Level: 0

Explanation: An ALLOCDEF command has been issued with the LIST keyword. The SMC0066 multiline message lists the current settings for the SMC subsystem. Refer to the ALLOCDEF command for parameter descriptions.

System Action: None.

User Response: None.

SMC0067

```
SMSDEF settings:
CCCC...CCCC
```

Level: 0

Explanation: An SMSDEF command has been issued with the LIST keyword. The SMC0067 multiline message lists the current settings for the SMC subsystem. Refer to the SMSDEF command for parameter descriptions.

System Action: None.

User Response: None.

SMC0068

```
Cannot substitute for esoteric EEEEEEEE at MINLVL=n job
JJJJJJJJ step SSSSSSSS DD DDDDDDDD
```

Level: 8

Explanation: During execution of job *JJJJJJJ* step *SSSSSSS* on JES3, the SMC allocation component determined that the job step was not allocatable at the specified minimum level (MINLVL).

For example, if you are executing at the default minimum exclusion level 2, this message indicates that the SMC is unable to select an esoteric containing only drives compatible with the media type of a specific volume.

System Action: None. No esoteric substitution is performed. The job may later fail because a volume is requested on an incompatible drive.

User Response: Refer to "JES3 SETNAME Initialization Statements" in Chapter 5 for an explanation of esoteric definition requirements.

SMC0069

```
SMCERSLV release level LLLLLL1 does not match SMC release
level LLLLLL2
```

Level: 0

Explanation: Module SMCERSLV is at release level *LLLLLL1* which does not match SMC release level *LLLLLL2*.

System Action: The SMC does not initialize.

User Response: Reassemble SMCERSLV at the correct release level and restart the SMC.

SMC0070

SMC maintenance has been applied; reassemble SMCERSLV

Level: 0

Explanation: SMC maintenance was applied and affected the module SMCERSLV, but SMCERSLV was not reassembled.

System Action: The SMC does not initialize.

User Response: Reassemble SMCERSLV using the correct level of SMC macros and restart the SMC.

SMC0071

SMCERSLV JES3 release level *LLLLLL1* does not match JES3 release level *LLLLLL2*

Level: 0

Explanation: Module SMCERSLV was assembled using a different JES3 release level *LLLLLL1* than the active JES3 release level *LLLLLL2*.

System Action: The SMC does not initialize.

User Response: Reassemble SMCERSLV using the correct level of JES3 macros and restart the SMC.

SMC0073

JES3 C/I waiting for SMC to initialize; Start SMC or reply "GO" to continue

Level: 0

Explanation: JES3 has begun scanning the JCL of jobs requiring tape mounts and the SMC is not initialized and cannot influence allocation.

System Action: One JES3 C/I process waits until the SMC has been started or the operator has replied "GO".

User Response: Start the SMC or reply "GO" to proceed without SMC allocation influence.

SMC0074

Unsupported virtual label type for job *JJJJJJJJ* step *SSSSSSSS* DD *DDDDDDDD*

Level: 8

Explanation: All virtual devices were previously excluded for the DD because of an unsupported label type (NL). A subsequent exclusion criteria requesting virtual drives could not be honored. Message SMC0046 describes the criteria not honored.

System Action: The DD is allocated to a nonvirtual drive. Nonlibrary drives are preferred over library drives.

User Response: Change the JCL to request a supported label type, or change the policy to direct the allocation to a different device type.

SMC0075

SEPLVL cannot be less than MINLVL on the *CCCCCCCC* command [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The SMC encountered a command that specified either a SEPLVL that is lower than the applicable MINLVL or a MINLVL higher than the applicable SEPLVL.

System Action: Processing continues. The command is ignored.

User Response: Ensure that command MINLVL and SEPLVL values are correct in the command data set, or enter the corrected command.

SMC0076

Xtype *CCCCCCCC* (*XX*) has inconsistent {device type|location type|VTSS|ACS} between device *XXXX1* and device *XXXX2*

Level: 4

Explanation: In a JES3 environment, the SMC encountered an XTYPE that contains nonhomogeneous devices, where *CCCCCCCC* represents the JES3 SETNAME name. Use of this XTYPE may result in allocation to an incorrect device based on media, recording technique, or location.

System Action: Allocation is performed based on the device characteristics of the first device encountered in the XTYPE.

User Response: Refer to Chapter 3, "Starting the SMC" for JES3 initialization parameter requirements.

SMC0077

Subtask *CCCCCCCC* terminating at retry count *n*; please stop and restart SMC subsystem

Level: 0

Explanation: The specified SMC subsystem task abnormally terminated *N* times, and could not be restarted. The subsystem is now operating without a required service.

System Action: Processing continues. However, specific allocation or command facilities may be affected.

User Response: Stop and restart the SMC subsystem. If the named subtask is SMCOCMD, use the MVS CANCEL command to terminate the subsystem.

SMC0078

No command prefix defined

Level: 0

Explanation: No CMDDEF command specified a command prefix in the SMCPARMS data set.

System Action: Processing continues.

User Response: If a command prefix is desired, add the CMDDEF command to the SMCPARMS data set. The command is processed the next time SMC is initialized.

SMC0079

`The command prefix is PPPPPPPP`

Level: 0

Explanation: The command prefix for the subsystem is set to *PPPPPPPP*.

System Action: The SMC now accepts commands prefixed with *PPPPPPPP*.

User Response: None.

SMC0080

`Command prefix value VVVVVVVV contains invalid character C at line nnnn of SMCPARMS`

Level: 0

Explanation: The command prefix value *VVVVVVVV* of the CMDDEF command contained an invalid character *C*.

System Action: Processing continues. The command is ignored.

User Response: Review the list of valid characters for the command prefix listed with the CMDDEF command description. Update the CMDDEF command in the SMCPARMS data set with the new prefix value. The command is processed the next time the SMC is initialized.

SMC0081

`Command prefix not added; [prefix is not unique|CPF system error]`

Level: 0

Explanation: The command prefix was disallowed by the CPF facility because the prefix was not unique or a system error occurred.

System Action: Processing continues. The command is ignored.

User Response:

- If the prefix is not unique, issue the MVS DISPLAY OPDATA command and compare the prefix with those of the other subsystems. The command prefix **cannot** include a command string, a command abbreviation, or any string that invokes a command. The command prefix **cannot** include a string that is a subset or superset of an existing prefix beginning with the same character.
- If a CPF error occurred, look for IBM related messages in the SYSLOG and refer to IBM documentation for the explanation.

SMC0082

`Command prefix already set`

Level: 0

Explanation: The command prefix can be specified only once while the SMC is initializing and cannot be changed during execution.

System Action: Processing continues. The command is ignored.

User Response: To change the command prefix, update the CMDDEF statement in the SMCPARMS data set and recycle the SMC.

SMC0083

`Unable to locate {JES3 SETNAME table|JES3 SETUNIT table}`

Level: 0

Explanation: During SMC subsystem initialization on a JES3 system, the indicated JES3 control structures could not be located. The SMC could not initialize.

System Action: The SMC subsystem terminates.

User Response: Reassemble SMCERSLV with the current level of JES3 macros. Refer to the *NCS Installation Guide* for more information.

SMC0084

MMM DD YYYY HH:*MM*:*SS SSSS* active on hostid *HHHH*

Level: 4

Explanation: The date (*MMM DD YYYY*), time (*HH*:*MM*:*SS*), subsystem name (*SSSS*) and MVS hostid (*HHHH*) are displayed once a day at midnight and during SMC initialization.

System Action: None.

User Response: None.

SMC0085

SMCBPREI: IEFSSI failed RC=*XX* RS=*XXXX*

Level: 0

Explanation: The SMC subsystem pre-initialization routine (SMCBPREI) encountered an error.

System Action:

- If the Return Code (RC) is 4 or less, the SMC subsystem was defined.
- If the Return Code (RC) is 8 or higher, the SMC subsystem was not defined.

User Response: Investigate the Return Code (RC) and Reason (RS) and take the necessary action. The return code and reason are documented in the IBM manual *MVS Programming: Authorized Assembler Service Reference, Volume 2*.

SMC0086

```
SMC SUBSYSTEM TASKS:
A(PCE)    A(TCB)    USE    CT-S PROGRAM  JOBNAME  JOBID LAST
--------  --------  -----  ---- --------  -------- ----- -----
XXXXXXXX  XXXXXXXX 00001  BB-W SMCBINT   JJJJJJJJ Jnnnn TTTTTT
XXXXXXXX  XXXXXXXX 00001  BM-W SMCBMID   JJJJJJJJ Jnnnn TTTTTT
XXXXXXXX  XXXXXXXX 00001  QM-W SMCQMGR   JJJJJJJJ Jnnnn TTTTTT
XXXXXXXX  XXXXXXXX 00001  J
XXXXXXXX  XXXXXXXX 00001  O -W SMCOCMD   JJJJJJJJ Jnnnn TTTTTT
XXXXXXXX  XXXXXXXX 00001  BL-W SMCBLOG   JJJJJJJJ Jnnnn TTTTTT
XXXXXXXX  XXXXXXXX 00001  QW-X SMCQWRK   JJJJJJJJ Jnnnn TTTTTT
....
XXXXXXXX  XXXXXXXX nnnnn  QW-X SMCQWRK   JJJJJJJJ  Jnnnn TTTTTT
SMCQWRK executing tasks=nn waiting tasks=nn requests=nn
```

Level: 0

Explanation: An SMC LIST TASK command was issued. The SMC0086 multiline message lists status of each SMC subsystem task. The last line lists the number of SMCQWRK tasks currently executing, waiting for work, as well as the total number of requests processed.

System Action: None.

User Response: None.

SMC0087

```
EXTVOLESOT esoteric EEEEEEEE not found [at line nnnn of
SMCCMDS|SMCPARMS]
```

Level: 0

Explanation: An ALLOCDEF command was issued with the EXTVOLESOT keyword specifying *EEEEEEEE*. However, the specified *esoteric-name* is not a valid MVS esoteric.

System Action: The specified ALLOCDEF command is not processed.

User Response: Reissue the ALLOCDEF command specifying a valid MVS esoteric name.

SMC0088

```
Unable to [acquire/release] resource CCCCCCCC; attempt by
JJJJJJJJ XXXXXXXX1 owned by XXXXXXXX2
```

Level: 0

Explanation: A shared SMC resource could not be acquired or freed successfully. Job *JJJJJJJJ* is the task currently attempting to acquire or free the resource, but cannot because another task holds the resource.

System Action: Jobname *JJJJJJJJ* may not be processed correctly.

User Response: Contact StorageTek Software Support.

SMC0089

Unable to start subtask *CCCCCCCC*

Level: 0

Explanation: During initialization, the indicated SMC subsystem task could not be successfully attached.

System Action: The SMC subsystem terminates.

User Response: Look for related MVS or SMC messages in the SYSLOG or SMC job log.

SMC0090

Unable to restart subtask *CCCCCCCC*

Level: 0

Explanation: During subsystem processing the indicated SMC subsystem task abended and could not be restarted.

System Action: Processing continues. However, subsystem processing or command facilities may be affected.

User Response: Stop and restart the SMC subsystem. If the indicated subtask is SMCOCMD, use the MVS CANCEL command to terminate the subsystem.

SMC0091

Could not allocate job *JJJJJJJJ* step *SSSSSSSS* after applying all exclusion levels; backing up until allocatable

Level: 8

Explanation: The indicated job step would not allocate when all exclusion criteria were applied to all DDs in the step. This means that the remaining set of drives is insufficient for each DD to be assigned a unique drive.

System Action: The SMC backs out exclusion criteria on selected DDs in the step until the set of remaining drives is sufficient to allocate to all DDs in the step.

User Response: None.

SMC0092

IDAX Settings:
CCCC....CCCC

Level: 0

Explanation: An IDAX command has been issued with the LIST keyword. The SMC0092 multiline message lists the current setting for the SMC subsystem. Refer to the IDAX command for a description of keywords and their meanings.

System Action: None.

User Response: None.

SMC0093

TCPIP TCPNAME=*CCCCCCCC* ADSNAME=*CCCCCCCC*

Level: 0

Explanation: A TCPIP LIST command was issued. The current values of the TCPNAME and ADSNAME are displayed. If the SMC is using the default settings, "default" is displayed.

System Action: None.

User Response: None.

SMC0094

MOUNTDEF settings:
CCCC....CCCC

Level: 0

Explanation: A MOUNTDEF command has been issued with the LIST keyword. The SMC0094 multiline message lists the current settings for the SMC subsystem. Refer to the MOUNTDEF command for a description of keywords and their meanings.

System Action: None.

User Response: None.

SMC0095

UX01 function code UX01RPLY not supported

Level: 4

Explanation: The function code return of UX01RPLY (reply to a WTOR message) is not supported by SMC.

System Action: None. The user exit is ignored.

User Response: None.

SMC0096

Invalid UX01 function code X'*XX*'

Level: 4

Explanation: A user exit 01 returned an invalid function code of X'*XX*'.

System Action: All data returned by this invocation of UX01 is ignored.

User Response: Correct the UX01 to return only function codes documented in the *NCS User Exit Guide*.

SMC0097

UX01 function code X'*XX*' not valid for message *MMMMMMMM*

Level: 4

Explanation: The SMC detected that the action code returned for a message (mount, dismount, or swap) did not match the action for an SMC default message.

System Action: All data returned by this invocation of UX01 is ignored.

User Response: Correct the UX01 to return a function code compatible with the message.

SMC0098

UX01 drive *XXXX1* does not match message drive *XXXX2*, using UX01 drive

Level: 4

Explanation: The device address returned from UX01 does not match the address specified in the message.

System Action: The device address returned from UX01 is used in the message processing.

User Response: Ensure that UX01 is functioning as desired.

SMC0099

Drive *XXXX* not a TAPEPLEX drive

Level: 4

Explanation: A user exit 01 returned a drive *XXXX*, which is not a library or virtual drive.

System Action: All data returned by this invocation of UX01 is ignored.

User Response: Ensure that UX01 is functioning as desired.

SMC0100

Invalid UX01 drive *XXXX*

Level: 4

Explanation: A user exit 01 returned an invalid drive address of *XXXX* which is not defined as a valid tape device on this system.

System Action: All data returned by this invocation of UX01 is ignored.

User Response: Correct the UX01.

SMC0101

Invalid UX01 or TAPEREQ subpool *SSSSSSSSSSSS from TAPEPLEX PPPPPPPP for job JJJJJJJJ*

Level: 4

Explanation: A POLicy, TAPEREQ, or user exit 01 specified a subpool name that was not recognized by TAPEPlex *PPPPPPPP*, which owned the device for the mount request.

System Action: The default subpool 0 is used.

User Response: Correct the POLicy, TAPEREQ, or UX01 to specify a valid subpool.

SMC0102

Invalid UX01 volser *VVVVVV*

Level: 4

Explanation: A user exit 01 returned a volume serial containing invalid characters.

System Action: The volume serial returned by this invocation of UX01 is ignored.

User Response: Correct the UX01 to return a valid volume serial.

SMC0103

Unrecoverable mount error on device *XXXX* volser *VVVVVV* for JOB *JJJJJJJJ*

Level: 0

Explanation: The SMC detected a volume mount error in response to an IAT5310 message for a mount requested in message IAT5210.

System Action: The SMC breaks the mount loop and issues a dismount to the indicated device *XXXX*. The job remains in the MDS VERIFY queue.

User Response: Refer to the IAT5310 message for the cause of the mount error and take corrective action.

SMC0104

Default recording technique set for TAPEPLEX=*CCCCCCCC* device *XXXX*

Level: 4

Explanation: The configuration query response from TapePlex CCCCCCCC returned device address XXXX as a TapePlex-owned device, but could not determine the model type for the device.

System Action: The SMC sets the default recording technique for the device based on the UCB device type. Processing continues.

User Response: Verify that any maintenance for new device types has been applied to all NCS products, including SMC, or issue an SMC UNITAttr command for the device specifying the correct model information.

SMC0105

Keyword *KKKKKKKK* of the *CCCCCCCC* command is required

Level: 0

Explanation: The command *CCCCCCCC* was issued without the required keyword *KKKKKKKK*.

System Action: The command is not processed.

User Response: Re-issue the command with the required keyword.

SMC0106

Mount of volser *VVVVVV* in TAPEPLEX *PPPPPPPP* on device *XXXX* not in library

Level: 0

Explanation: An SMC MOUNTDEF VOLWATCH option is ON. The SMC has detected that a volume resident in TapePlex *PPPPPPPP* is being requested to be mounted on a nonlibrary drive.

System Action: None.

User Response: Cancel the job requesting the mount, or eject the volume to satisfy the mount request.

SMC0107

Swap *VVVVVV* from *XXXX1* to *XXXX2*

Level: 4

Explanation: The SMC has intercepted DDR swap processing. *XXXX2* is either the original device selected to swap to or a device selected by SMC that more closely matches the device characteristics of *XXXX1*.

System Action: DDR swap processing continues.

User Response: None.

SMC0108

No compatible drive found for SWAP processing

Level: 0

Explanation: The SMC has intercepted DDR swap processing. The original device chosen to swap to is not compatible with the swap from device and the SMC could not locate a compatible alternate device.

System Action: DDR swap processing continues.

User Response: If no compatible device is available, reply NO to message IGF500D or IGF509D to stop the swap process. If a compatible device is offline, vary it online and reply with its device number to message IGF500D or IGF509D.

SMC0109

The SMC subsystem is running in key *n*; results are unpredictable; reply 'Y' to continue or 'N' to terminate

Level: 0

Explanation: During initialization SMC detected that it is running in key *n*, not 1 through 7.

System Action: The SMC waits until a reply is received.

User Response: A reply of N stops SMC. A reply of Y causes SMC to continue initialization, though results are unpredictable. Possible problems are S0C1 and S0C4 ABENDs. To prevent this message, update the Program Properties Table (PPT) with "PPT PGMNAME(SMCBINT),SYST,KEY(*n*)", where *n* is between 1 and 7, inclusive.

SMC0110

Allow swap of *VVVVVV* from *XXXX1* to *XXXX2*; Reply 'Y', 'N' or DEVICE

Level: 0

Explanation: The SMC has intercepted DDR swap processing. The SMC is awaiting operator approval to allow the swap.

System Action: The SMC continues processing; however, the swap cannot complete until an operator reply is entered.

User Response: To allow the swap to proceed using the selected device *XXXX2*, reply Y. To select a different swap to device, reply with its device address. The SMC does not validate a new device address. To cancel the swap, reply N. If an I/O error on device *XXXX1* caused the swap, a reply of N causes the job to fail.

SMC0111

USER defined message ID: *MMMMMMMM*

Level: 0

Explanation: The SMC has listed the messages that were added using the USERMsg command.

System Action: Both SMC default and USERMsg added messages are sent to user exit 01 for each library subsystem. SMC processes USERMsg added messages according to the response from user exit 01.

User Response: None.

SMC0112

Cannot add duplicate message ID *MMMMMMMM* at line *nnnn* of SMCPARMS

Level: 0

Explanation: The USERMsg command was issued to add a new message ID that SMC will intercept. The supplied message ID *MMMMMMMM* is a duplicate of a message already defined to SMC.

System Action: The message is not added.

User Response: None.

SMC0113

```
SERVER=SSSSSSSS CCCCCCCC
Status={active|never active|inactive|disabled}
Messages=nnnn
Retries=nnnn
Init errors=nnnn
Errors=nnnn
```

Level: 0

Explanation: A SERVer command has been issued with the LIST keyword. The SMC0113 multiline message lists the server settings and status for each server defined to the SMC subsystem. Refer to the SERVer command for parameter descriptions.

- **STATUS** indicates the status of the server.
- **active** indicates that this server is the current path through which the specified TapePlex will be accessed.
- **never active** indicates that communication was never attempted on this path, or was attempted but never succeeded.
- **inactive** indicates that another server path is active, or that the last communication attempt on this path failed.
- **disabled** indicates that the server has been disabled by a discovered incompatibility, by reaching the FAIL limit, or by an operator command.
- **Messages** indicates the number of logical messages (volume lookup requests, mounts, dismounts) on this server path.
- **Retries** indicates how many message retries have been attempted.
- **Init errors** indicates the current count of number of errors for an inactive server.
- **Errors** indicates the total number of errors on this server.

System Action: None.

User Response: None.

SMC0116

```
Cannot find TAPEPLEX PPPPPPPP for SERVER SSSSSSSS [at line
nnnn of SMCCMDS|SMCPARMS]
```

Level: 0

Explanation: A SERVer command was issued with a TapePlex name that was not previously defined.

System Action: The server is not added or updated.

User Response: Specify a TAPEPlex command to define the TapePlex, then specify the SERVer command.

SMC0117

Cannot change TAPEPLEX name for *existing* SERVER *SSSSSSSS* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A SERVer command was issued with the NAME of an existing server and a TapePlex name, but the TapePlex name of the existing server did not match the TapePlex name in the new command.

System Action: The command is rejected.

User Response: Omit the TapePlex name, change the TapePlex name to match the existing server, or change the server name to add a new server to the specified TapePlex.

SMC0118

No LOCSUBSYS for [LOCENABLE|LOCDISABLE] parameter on TAPEPLEX command [at line nnnn of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A TAPEPlex command was issued with a LOCENABLE or LOCDISABLE parameter, but the TapePlex was not defined with a LOCSUBSYS subsystem name.

System Action: This message is a warning. The TapePlex will be added or modified, but the LOCENABLE or LOCDISABLE parameter is ignored.

User Response: None.

SMC0119

[SERVER|LOCSUBSYS] *CCCCCCCC* now disabled

Level: 0

Explanation: The SMC detected TCP/IP errors in excess of the FAIL count or detected a fatal error for a local subsystem. See the preceding SMC0128/SMC0129 messages for the reason for the disable.

System Action: None. If there are no additional server paths defined for the associated library, the library hardware is no longer accessible from this host.

User Response: Correct the problem with the TCP/IP network, SMC server, host operating system, or the HSC subsystem, and re-ENABLE the SERVer or LOCSUBsys.

SMC0120

NAME must be specified to add or modify a SERVER [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: The user entered a SERVer command to add a new server or modify an existing server path, but the server path name was not specified.

System Action: None.

User Response: Enter the SERVer command specifying the server path name.

SMC0121

```
UEXIT nn is now [ENABLED/DISABLED]
```

Level: 0

Explanation: The user entered a UEXIT *nn* ENABLE or DISABLE command, or the SMC detected an abend in the specified user exit. The specified user exit is now ENABLED or DISABLED.

System Action: None.

User Response: If the SMC automatically disabled the user exit due to an abend, the exit cannot be re-enabled unless it is also reloaded.

SMC0122

```
UEXIT=nn
Status={active|disabled|abended}
CCCC....CCCC
Sequence=nn
Loaded=YYYY-MM-DD HH:MM:SS
Changed=YYYY-MM-DD HH:MM:SS
```

Level: 0

Explanation: A UEXIT command was issued with the LIST keyword. The SMC0122 multiline message lists the user exit status for each user exit defined to the SMC subsystem. REfer to the UEXIT command for parameter descriptions.

- **nn** indicates the SMC user exit number (type).
- **STATUS** indicates the user exit status.
- **active** indicates that the exit is loaded and active.
- **disabled** indicates that the exit is loaded but was de-activated by the UEXIT disable keyword.
- **abended** indicates the user exit abended. A new version must be loaded for this exit to be re-activated.
- **Sequence** indicates how many loads have been performed for this user exit.
- **Loaded** indicates when this version of the module was loaded.
- **Changed** indicates when this version of the module was activated or disabled.

System Action: None.

User Response: None.

SMC0123

```
Drive range mismatch between CLIENT(XXXX1-XXXX2) and SERVER
(XXXX3-XXXX4)
```

Level: 0

Explanation: A DRIVemap command was issued. One of the specified CLient range did not match the format of the corresponding SErver range.

System Action: None.

User Response: Reissue the command, ensuring that the CLient parameter and the SErver parameter have corresponding formats and number of drives.

SMC0124

ABENDED or INACTIVE UEXIT *nn* must be reloaded to ENABLE [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A UEXIT *nn* ENABLE command was issued for a user exit that had previously abended, or inactivated itself via a return code.

System Action: None.

User Response: Use the UEXit command with the LOAD keyword to reload the exit.

SMC0125

UEXIT *nn* already [ENABLED/DISABLED][at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A UEXIT *nn* ENABLE or DISABLE command was issued but the exit was already in the specified state.

System Action: None.

User Response: Verify the exit number you are trying to alter.

SMC0126

UEXIT *nn* not valid for [JES2/JES3] [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A UEXIT command was issued for a user exit number not valid for this configuration.

System Action: None.

User Response: Verify the user exit number for your configuration.

SMC0127

Cannot resolve HOST name *H...H* [at line *nnnn* of SMCCMDS|SMCPARMS]

Level: 0

Explanation: A SERVer command was issued using the HOST keyword specification. However, the SMC could not resolve the IP address using the specified HOST *name*.

System Action: The SERVer command is ignored.

User Response: Enter the correct HOST name or use the IPADDRESS keyword instead.

SMC0128

```
TapePlex error:
{Fatal comm error detected|
 Initialization error number nn or {nn|unlimited}|
 Comm error number nn of {nn|unlimited}
 Comm error limit exceeded}
JOB=JJJJJJJJ IIIIIIII TASK=XXXXXXXXXXXXXXXX {MSG=XXXXXXXX}
TAPEPLEX=TTTTTTTT {SUBSYSTEM=AAAA|SERVER=SSSSSSSS} REQUEST=FFFF
{Client {IP=NNN.NNN.NNN.NNN} socket=NN port={nnnn|ANY}}
{Server IP=NNNN.NNNN.NNNN.NNNN port=nnnn}
{Bytes out=nnnn in=nnnn}
{Error=EEEE....EEEE}
{Reason=RRRR....RRRR}
{Response from STK HTTP server follows: HHHH...HHHH}
SMC comm RC=nnnn
```

Explanation: The SMC encountered an interface or communication error attempting to communicate with a TapePlex. The SMC0128 multiline message first lists the jobname, transaction type, and TapePlex name associated with the error.

If the communication error was produced for a local TapePlex using cross memory services on this same host (i.e., not using a server) then the next line will list the interface error.

If the communication error was produced for a remote HTTP server or its associated remote HSC TapePlex using TCP/IP, then one of the message reason lines will be displayed.

Examples of the reason strings include:

- Specific TCP/IP function errors (connect, send, recv, etc.)
- Data error (incomplete or invalid data response)
- Subsystem inactive, not found, or at an incompatible release level
- Subsystem function error
- HTTP server not authorized
- HSC ASCOMM error
- Interface or communication timeout

Note – Certain remote errors may result in a display of the entire HTTP server response as follows:

Response from HTTP server follows:
HTTP 1.0 401 Unauthorized

If the message indicates “Comm error limit (*nnn*) exceeded” then the SMC0128 message will be followed by an SMC0119 message and the server path will be disabled by the SMC.

If the message indicates an “Initialization error” then the error occurred before any successful communication to the named server path. Such errors are not counted against the cumulative error count on the server path, and will not result in the named server being automatically disabled by the SMC.

Also, "Initialization error" messages will not be generated for every request, but will only be generated at 5 minute intervals until the path is successfully activated.

System Action: The allocation or mount event may not be processed by the SMC.

User Response: Use the specified error reason to determine the cause of the problem. If the error was produced for a remote server, verify that the HTTP server is active.

SMC0129

`{ERROR|WARNING}: No cartridge transport(s) for` *`XXXX1- [XXXX2]`* `for {UNITATTR|DRIVEMAP} {ADDRESS|CLIENT}`

Level: 0

Explanation: A UNITATTR or DRIVEMAP command was issued specifying a device *XXXX1* or range *XXXX1-XXXX2*. None of the specified devices is an MVS-defined cartridge transport device.

System Action:

- If the message indicates an ERROR, the command is not processed.
- If the message indicates a WARNING, the SMC stores the value and may use it to translate addresses for non-MVS-defined RTD devices.

User Response: Review the devices specified in the command and re-issue the command if they are incorrect.

SMC0130

`TAPEPLEX` *`PPPPPPPP1`* `has same LOCSUBSYS` *`SSSS`* `as TAPEPLEX` *`PPPPPPPP2`* `[at line` *`nnnn`* `of SMCCMDS|SMCPARMS]`

Level: 0

Explanation: A TAPEPlex command was issued with a different TapePlex name *PPPPPPPP1* but the same LOCSUBSYS name as an existing TapePlex *PPPPPPPP2*.

System Action: The TAPEPlex command is not executed.

User Response: Correct the error and resubmit the command.

SMC0131

`Cannot use [TAPEPLEX|SUBSYSTEM]` *`CCCCCCCC`* `from user exit or POLICY;` *`RRRRRRRR`*

Level: 4

Explanation: The TapePlex name on an SMC POLICY, or the TapePlex or SUBSYSTEM name from a user exit, was not used by the SMC for the specified reason *RRRRRRRR*.

System Action: The SMC uses other criteria to establish library ownership. Other data from the policy or exit is honored.

User Response: Correct the condition specified by *RRRRRRRR*.

SMC0132

```
Mount retry limit exceeded for volser=VVVVVV device=XXXX from
TAPEPLEX=PPPPPPPP SERVER=SSSSSSSS
```

Level: 4

Explanation: When SMC mount or mount TAPEREQ retrieval processing determines that an MVS mount is still pending and should be retried, it waits before attempting the retry. After the mount or mount policy retrieval retry limit is reached, the SMC0132 message is displayed.

System Action: The SMC will not continue to process the mount request after this message is issued.

User Response: Investigate the cause of the HSC mount problem. After resolving the problem, issue the SMC RESYNChronize REStart command or the HSC MOUNT command if necessary.

SMC0133

```
TAPEPLEX=PPPPPPPP
CCCC....CCCC
Status={disabled|active|inactive|never active}
Requests=nnnn
[SERVER=SSSSSSSS
Status={disabled|active|inactive|never active}]
```

Level: 0

Explanation: A TAPEPlex command was issued with the LIST keyword. The SMC0133 multiline message lists parameters and status for each TapePlex defined to the SMC subsystem. Refer to the TAPEPlex command for parameter descriptions. Optionally, if the SERVerlist keyword was specified, the server status for all servers associated with this TapePlex is also displayed.

TapePlex **status** indicates the status of the TapePlex.

- **disabled** indicates that the TapePlex has been disabled by an operator command.
- **active** indicates that the last communication to this TapePlex was successful.
- **inactive** indicates that a communication path to this TapePlex is no longer active, although one was previously active.
- **never active** indicates that a communication path to this TapePlex was never successfully established.

Requests indicates the total number of requests (configuration, volume lookup, mount, dismount, and swap) that were directed to the specified TapePlex.

If the SERVER keyword was specified, then each server path defined for this TapePlex will also be displayed, along with its status.

System Action: None.

User Response: None.

SMC0134

No UNITATTR in effect for device(s) *XXXX1[-XXXX2]*

Level: 0

Explanation: Either no UNITATTR command was entered for the device, or a previously entered UNITATTR command was overridden by information from a TapePlex.

System Action: If the UNITATTR OFF parameter was specified, the device is not processed.

User Response: None.

SMC0135

{Mount/dismount message|Client response WTOR message|WTOR message issued by server} from TAPEPLEX=*PPPPPPPP* SERVER= *SSSSSSSS*

SMC0136

HSC mount or dismount message

Level: 4

Explanation: The WTORDEST(CLIENT) or ECHOMNTERR(ON) option is in effect. A mount or dismount was performed on an HSC TapePlex but did not complete successfully. The SMC0135 message indicates the TapePlex name and server name where the mount or dismount was requested. The SMC0136 merely echoes the HSC server mount or dismount message on the SMC client.

System Action: None.

User Response: Correct the problem indicated in the HSC mount or dismount message.

Note – Messages SMC0135 and SMC0136 are issued for all mount errors if the message level is 12 or greater, regardless of the WTORDEST or ECHOMNTERR setting, and for all HSC mount and dismount messages if the message level is 16 or greater.

SMC0137

HSC mount or dismount WTOR message

Level: 4

Explanation: A mount or dismount was performed on an HSC TapePlex with the TAPEPlex WTORDEST(CLIENT) set. HSC issued a WTOR that is to be handled by the client. The SMC0135 message indicates the TapePlex name and server name where the mount or dismount was requested.

System Action: The SMC redrives the mount or dismount to the server, transmitting the specified message response.

User Response: See the *HSC Messages and Codes Guide* for the corresponding HSC message, and respond as directed.

Note – The MSGDef command SMCWtorpfx parameter can be used to suppress the SMC0137 portion of the message.

SMC0138

XML {input|output} parse error RC=*nnn*; transaction=*TTTTTTTT* TAPEPLEX=*PPPPPPPP*

Level: 0

Explanation: The SMC encountered an XML parse error. Input XML errors are produced when the input XML transaction cannot be parsed. Output XML errors occur when transaction response data cannot be converted to XML. The transaction type and TapePlex-name are also displayed.

System Action: Depending upon the type of error, and server characteristics, the allocation or mount event may not be processed by the SMC.

User Response: Contact StorageTek Software Support.

SMC0139

UNITATTR for device *XXXX MODEL=MMMMMMMMM [TAPEPLEX=PPPPPPPP]*

Level: 0

Explanation: A UNITATTR command was issued with the LIst parameter. The model and TapePlex associated with the device are displayed.

System Action: None.

User Response: None.

nnnnnnnn

SMC0140 DFSMS message

Level: 0

Explanation: The DFSMS ACS routine has issued the DFSMS message. *nnnnnnnn* will be the JCL statement number or the DDNAME if it is a dynamic allocation.

System Action: None.

User Response: None.

nnnnnnnn

SMC0141 UNIT=value *VVVVVVVV1* replaced by *VVVVVVVV2*

Level: 0

Explanation: The DFSMS ACS routines have changed the esoteric.

- *nnnnnnnn* is the JCL statement number or the DDNAME if it is a dynamic allocation.
- *VVVVVVVV1* is the esoteric that was in the JCL. If a UNIT parameter was not used in the JCL, this will be NULL-UNIT.
- *VVVVVVVV2* is the esoteric that was supplied by the DFSMS ACS routines.

System Action: Use the new esoteric supplied by the DFSMS ACS routines for the allocation.

User Response: None.

SMC0142

```
Invalid reply to prior message from TAPEPLEX=PPPPPPPP SERVER=
SSSSSSSS
```

Level: 0

Explanation: The WTORDEST(CLIENT) option was specified for TapePlex *PPPPPPPP*, and SMC has communicated a mount or dismount request to HSC via server *SSSSSSSS*. When SMC attempted to redrive the request, HSC returned an indication that the response was invalid.

System Action: SMC redisplays the HSC message.

User Response: Refer to the *HSC Messages and Codes Guide* for the valid responses for the indicated message.

SMC0143

```
UNITATTR MODEL=MMMMMMM1 cannot override real MODEL MMMMMMM2
for TAPEPLEX=PPPPPPP device=XXXX
```

Level: 0

Explanation: A UNITATTR was specified for device *XXXX* specifying model *MMMMMMM1*. However, when the configuration query information was returned from TapePlex *PPPPPPPP*, the actual model was *MMMMMMM2*.

System Action: The SMC sets the recording technique for the device based on the actual model returned from the configuration query response. Processing continues.

User Response: Verify that any maintenance for new device types has been applied to all NCS products, including SMC, or issue an SMC UNITAttr command for the device specifying the correct model information.

SMC0144

```
Mount of volser=VVVVVV on device=XXXX; drive is in use; reply
'C' to cancel mount or 'R' to retry
```

Level: 0

Explanation: SMC has communicated a mount or dismount request to HSC. HSC has responded with a message indicating that the drive is in use.

System Action: If the mount is still outstanding, the SMC automatically redrives the mount every 30 seconds. The message is DOMed if the mount is no longer pending, or the drive becomes available.

User Response: Wait for the drive to become available, or reply 'C' to cancel the request, or 'R' to retry immediately.

SMC0145

```
Mount of volser=VVVVVV on device=XXXX; volume is in use; reply
'C' to cancel mount or 'R' to retry
```

Level: 0

Explanation: SMC has communicated a mount or dismount request to HSC. HSC has responded with a message indicating that the drive is in use.

System Action: The SMC verifies that the mount is still outstanding. If the mount is still outstanding, the SMC automatically redrives the mount every 30 seconds. The message is DOMed if the mount is no longer pending, or the volume becomes available.

User Response: Wait for the volume to become available, or reply 'C' to cancel the request, or 'R' to retry immediately.

SMC0146

```
All devices marked ineligible for job JJJJJJJJ step SSSSSSSS
due to volume lookup failure
```

Level: 4

Explanation: When SMC allocation attempted to acquire volume information, a communication failure with the library server occurred. The ALLOCDEF option FAILNOINFO was specified.

System Action: The SMC marks all devices as ineligible for allocation. The job is failed by MVS or express-canceled by JES3.

User Response: Investigate the cause of the communication failure and resubmit the job.

SMC0147

```
PPPPPPPP1 is incompatible with PPPPPPPP2 on the TAPEREQ
command line nnnn of TREQDEF DSN
```

Level: 0

Explanation: An incompatibility exists between *PPPPPPPP1* and *PPPPPPPP2* at line *nnnn* in the data set specified on the TREQDEF command.

System Action: The SMC continues to process the TAPEREQ statements, flagging additional errors.

User Response: Correct the errors and re-issue the TREQDEF command.

SMC0148

```
PPPPPPPP on the TAPEREQ command at line nnnn of TREQDEF DSN is
not valid in a JES3 environment
```

Level: 0

Explanation: The specified parameter *PPPPPPPP* at line *nnnn* of the data set specified in the TREQDEF command is not valid in a JES3 with tape setup environment.

System Action: The SMC continues to process the TAPEREQ statements, flagging additional errors.

User Response: Correct the errors and re-issue the TREQDEF command.

SMC0149

```
TREQDEF specifications not installed, reason code nn
```

Level: 0

Explanation: The TAPEREQ statements in the data set specified on the TREQDEF command were not installed.

08 - Syntax error on a TAPEREQ statement
12 - The TAPEREQ structure has not been initialized

System Action: None.

User Response: Correct the errors and re-issue the TREQDEF command.

SMC0150

```
TREQDEF specifications installed from DDDDDDDD
```

Level: 0

Explanation: The TAPEREQ statements in the data set specified on the TREQDEF command were successfully installed.

System Action: None.

User Response: None.

SMC0151

```
TREQDEF status:
Loaded from DDDDDDDD
Title: TTTTTTTT
{Loaded on YYYY-MM-DD at HH:MM:SS|
Not active due to error; process RC=nn}
```

Level: 0

Explanation: The TREQDEF command was issued with the LIST keyword. The current TAPEREQ statements were loaded from data set *DDDDDDDD*. The title *TTTTTTTT* is displayed if one was specified in the OPTION statement. If there was no currently active TREQDEF file due to an error, the message "not active due to error" is displayed but the data set name last used for the TREQDEF is available and can be used in the TREQDEF RELOAD command.

System Action: None.

User Response: None.

SMC0152

```
TREQDEF DSN command has not been previously issued
```

Level: 0

Explanation: The TREQDEF LIST or RELOAD commands have been specified without a prior TREQDEF DSN command.

System Action: None.

User Response: Issue a TREQDEF command with the DSN keyword prior to issuing the TREQDEF with the LIST or RELOAD keyword.

SMC0153

```
Dynamic allocation failed for DDDDDDDD
```

Level: 0

Explanation: Data set name *DDDDDDDD*, specified in a READ command, could not be allocated by the SMC.

System Action: The command is not processed.

User Response: Review the specified data set name to ensure that it is a cataloged MVS data set, and re-issue the command.

SMC0154

```
UNITATTR model MMMMMMMM ignored for TAPEPLEX device XXXX
```

Level: 0

Explanation: A UNITATTR command has been issued specifying device *XXXX*. The device is defined to a TapePlex known to SMC. The SMC obtains the device model from the TapePlex.

System Action: The UNITATTR command does not process the device.

User Response: None.

SMC0155

```
LOG settings:
CCCC....CCCC
Logging currently {INACTIVE|ACTIVE}
```

Level: 0

Explanation: A LOG command was issued with the LIST keyword. The SMC0155 multiline message lists the current settings and status for the SMC subsystem. Refer to the LOG command for parameter descriptions.

In addition, a log status of ACTIVE indicates that logging has been started; INACTIVE indicates that logging has not been started, or has been stopped at EOF.

System Action: None.

User Response: None.

SMC0156

```
SMCLOG file is not currently opened
```

Level: 0

Explanation: A LOG command has been issued with the STOP keyword. However logging is not currently active.

System Action: The LOG command is ignored.

User Response: None.

SMC0157

SMCLOG file is already opened

Level: 0

Explanation: A LOG command has been issued with the START keyword. However, the logging is already active.

System Action: The LOG command is ignored.

User Response: None.

SMC0158

No SMCLOG DD; logging cannot be started

Level: 0

Explanation: A LOG command has been issued with the START keyword. However, there was no SMCLOG DD in the SMC subsystem startup JCL.

System Action: The LOG command is ignored.

User Response: Add an SMCLOG DD to the SMC subsystem startup JCL, then restart the SMC subsystem.

SMC0159

Logging {started|stopped}

Level: 0

Explanation: A LOG command has been issued with the START or STOP keyword.

System Action: SMC logging is started or stopped.

User Response: None.

SMC0160

Invalid range *XXXX1-XXXX2* for keyword ADDRESS of the UNITATTR command

Level: 0

Explanation: A UNITATTR command has been issued specifying a device range *XXXX1-XXXX2, where XXXX1 is larger than XXXX2.*

System Action: The UNITATTR command does not process this device range.

User Response: Reissue the command specifying a valid range.

SMC0161

Restoring all default settings for the *CCC...CCC* command

Level: 0

Explanation: The *CCC...CCC* command has been issued with the OFF parameter. All SMC values have been restored for the SMC subsystem.

System Action: None.

User Response: None.

SMC0162

CCC...CCC object successfully {added|updated|deleted}

Level: 0

Explanation: The *CCC...CCC* command has been successfully processed.

System Action: None.

User Response: None.

SMC0163

DRIVEMAP settings:
CLIENT=*XXXX1*{-*XXXX2*} SERVER=*XXXX3*{-*XXXX4*}

Level: 0

Explanation: A DRIVEMAP command has been issued with the LIST keyword. The SMC0163 multiline message lists the currently active DRIVEMAPs. One line is produced for each client/server range.

System Action: None.

User Response: None.

SMC0164

CLIENT range *XXXX1*{-*XXXX2*} not found for the OFF keyword of the DRIVEMAP command

Level: 0

Explanation: The DRIVEMAP command has been issued with the OFF parameter and CLIENT parameter. No matching DRIVEMAP range matching the CLIENT parameter was found.

System Action: None.

User Response: None.

SMC0165

Keyword {CLIENT/SERVER} range *XXXX1*{-*XXXX2*} overlaps with previous DRIVEMAP entry

Level: 0

Explanation: A DRIVEMAP command was issued containing a client or server range that overlaps a range specified on a previously issued DRIVEMAP command.

System Action: The DRIVEMAP command is not processed.

User Response: Issue the DRIVEMAP LIST command to view the list of currently active DRIVEMAP ranges. Correct the DRIVEMAP command to specify a new range. Or, use the DRIVEMAP CLIENT(*XXXX1-XXXX2*) OFF command to de-activate the existing overlapping range and re-specify the command with unique ranges.

SMC0166

```
Excessive READ depth at line nn of DSN DDDDDDDD
```

Level: 0

Explanation: A READ command was issued from a file. However, too many command files are already open, and the read command depth has been exceeded. Read command depth is defined as the number of files that can be open simultaneously due to imbedded Read commands.

System Action: The READ command is not processed.

User Response: Restructure your command files to reduce the READ command depth and ensure that the files referenced do not contain a recursive loop.

SMC0167

```
CCCCCCC summary:
TAPEPLEX PPPPPPPP is {disabled|inactive|active on
{local subsystem SSSS|server SSSSSSSS}

All TAPEPLEX(s) active
n of n TAPE TAPEPLEX(s) active
WARNING: All TAPEPLEX(s) inactive
WARNING: No TAPEPLEX(s) defined
WARNING: No TAPEPLEX(s) enabled
```

Level: 0

Explanation: The *CCCCCCCC* command was issued and a TapePlex resynchronization was performed. Each TapePlex is represented by a line in the multiline WTO displaying its status.

System Action: None.

User Response: None.

SMC0168

```
WARNING: No TREQDEF command processed
```

Level: 4

Explanation: No TREQDEF command was found in the SMCPARMS or SMCCMDS file at startup.

System Action: TAPEREQ processing is not performed for allocation or mount requests.

User Response: If your installation previously specified TREQDEF in HSC or MVS/CSC, issue the TREQDEF command to SMC and add the TREQDEF command to the SMCCMDS (or SMCPARMS) file.

SMC0169

```
WARNING: {SMCCMDS|SMCPARMS} processing TIMEOUT; startup
continuing
```

Level: 4

Explanation: During SMC subsystem startup, startup command processing could not complete the indicated command file.

System Action: The SMC continues startup processing, but not all startup commands may have been processed.

User Response: None.

SMC0170

```
{Request timeout|SMC subsystem terminating}; request to
subsystem SSSS aborted
```

Level: 4

Explanation: The SMC issued a request to subsystem SSSS, but no response was received within the time limit, or the SMC subsystem was terminated.

System Action: The SMC continues processing without waiting for the HSC response. In addition, if a request timeout is indicated, the SMC server path to the specified subsystem is disabled.

User Response: Check the status of the subsystem that is not responding to SMC, and correct the problem. After correcting the problem, enable the appropriate server path.

SMC0171

```
Allocatability test matrix retries exceeded
```

Level: 0

Explanation: The SMC could not determine allocatability of the jobstep using its test matrix in the calculated number of retries.

System Action: Normally, processing continues, with SMC "backing out" exclusion conditions until the jobstep is allocatable.

During JES3 CI esoteric substitution, if SMC is unable to solve its allocatability matrix after reverting to the original list of eligible devices, an abend results, and no esoteric substitution is performed.

User Response: If possible, rerun the job with allocation trace turned on. Save trace and log output, and contact StorageTek Software Support.

SMC0172

```
Specified TAPEPLEX PPPPPPPP not
{defined|HSC|active|enabled|valid for UUI}
```

Level: 0

Explanation: An SMC command was issued specifying TAPEPLEX *PPPPPPPP*. However, the command cannot be completed because the TAPEPLEX is either not defined to the SMC, or is not eligible.

System Action: The command is not processed.

User Response: Either name a valid TAPEPLEX, or correct the TAPEPLEX status and reissue the command.

SMC0173

Response from TAPEPLEX *PPPPPPPP*:
CCCC....CCCC
CCCC....CCCC

Response RC=*nn*

Level: 0

Explanation: An SMC Route command was issued that specified TAPEPlex *PPPPPPPP*. The SMC0173 message lists the TAPEPLEX name, followed by the response from the specified TAPEPLEX, terminated by an SMC0173 message displaying the command return code.

System Action: None.

User Response: None.

SMC0174

`ASCOMM ACK timeout for job=JJJJJJJJ (DS=nnnn-nnnn)`

Level: 0

Explanation: The SMC replied to a request from job *JJJJJJJJ*, but no acknowledgment was received within the time limit.

System Action: The SMC continues processing without waiting for the acknowledgment.

User Response: None.

SMC0175

`Communication initialized on TAPEPLEX=name {SERVER=name}`

Level: 4

Explanation: The SMC has successfully communicated with the specified TapePlex for the first time. Additionally, if the communication path selected was a remote server, then the server is also displayed.

System Action: Processing continues.

User Response: None.

Note – This message is produced each time communication switches from one server to another, or communication is re-established after an error.

SMC0176

`No active TAPEPLEX(s) for DISPLAY command`

Level: 0

Explanation: A DISPLAY command has been entered. However, the SMC cannot establish communication with any TapePlex.

System Action: If the DISPLAY (or QUERY) VOLUME command was entered, the command terminates as there are no TapePlexes to direct the request. If the DISPLAY DRIVE command was entered, the command continues although the drive information displayed may not reflect TapePlex ownership.

User Response: None.

SMC0177

```
SMC DISPLAY VOLUME
Volser TapePlex  Location  Media     Rectech  Volume Data
------ -------  --------  --------  -------- ------------
VVVVVV PPPPPPPP {AA:LL}   MMMMMMMM RRRRRRRR DDDDDDDD
```

Level: 0

Explanation: A Display Volume command was entered. The SMC0177 message(s) lists the volsers that match the request. If ALLtapeplex parameter was specified, duplicate volsers, if found, are listed beginning with an asterisk (*). The displayed Rectech for a volume reflects a combination of the volume's media type, VOLATTR (if any), and volume data such as density. For example, a volume with a RECTECH of STK1RC may have either a VOLATTR that specifies a RECTECH of STK1RC for the volume, or may be known to have been mounted as scratch on a 9840C drive. The Volume Data for a volume reflects known characteristics of the volume as stored in the HSC CDS, such as volume density.

System Action: None.

User Response: None.

SMC0178

```
SMC DISPLAY DRIVE
Addr Location                Model     SMC Status  MVS Status
---- --------------------- -------- ----------- ----------
CCUU PPPPPPPP AA:LL:PP:DD  MMMMMMMM XXXX-VVVVVV SSSSSSSSSS
```

Level: 0

Explanation: A DISPLAY DRIVE command has been entered. The SMC0178 message(s) lists the device addresses that match the request. *XXXX* is the last SMC mount/dismount for the drive. *VVVVVV* is the last volume serial mounted or dismounted. *PPPPPPPP* is the TapePlex.

Note that the status of DISM will be displayed after a dismount is issued until another volume is mounted on the drive.

System Action: None.

User Response: None.

SMC0179

```
{TAPEPLEX|ESOTERIC} XXXXXXXX not defined for POLICY PPPPPPPP
```

Level: 0

Explanation: During policy verification, the SMC detected undefined TapePlex or ESOTERIC names on POLICY statements, or detected that a specified TapePlex was disabled.

System Action: None.

User Response: Correct the POLICY ESOTERIC or TapePlex name and re-enter the POLICY.

SMC0180

```
POLICY=CCCCCCCC {scr only|spec only|scr + spec|scr error|
spec error|in error|scr defined|spec defined}
Scratch policy: (displays entered policy values)
Specific policy: (displays entered policy values)
Created on mmm dd yyyy hh:mm:ss
[at line nnn of dsname| from console userid]
Changed on mmm dd yyyy hh:mm:ss
[at line nnn of dsname| from console userid]
```

Level: 0

Explanation: A POLICY LIST command was received. If the TERse option is specified, only the first line is displayed for each policy. The Created and Changed data are displayed only if the DETail option is entered.

System Action: None.

User Response: None.

SMC0181

```
WARNING: SMS MGMTPOL specified and no POLICY statements
defined
```

Level: 8

Explanation: ALLOCDef SMS option and SMSDef MGMTPol option are both on, but no POLICY commands were processed at startup.

System Action: None.

User Response: Provide policy definitions for policy names specified on DFSMS ACS management class routines.

SMC0182

```
POLICY CCCCCCCC not defined for TREQDEF statement nnnn
```

Level: 8

Explanation: During validation of the TREQDEF data set, a TAPEREQ statement specified a policy name *CCCCCCCC* that did not match a defined POLICY.

System Action: The TREQDEF definitions are rejected.

User Response: Ensure that POLICY commands are processed before the TREQDEF command, or change the TAPEREQ statement to correct the POLICY name.

SMC0183

```
POLICY CCCCCCCC not found in any TAPEREQ statement
```

Level: 8

Explanation: During policy validation, the SMC found a policy name *CCCCCCCC* that was not specified on any TAPEREQ statement.

System Action: None.

User Response: Remove the inactive POLICY statement, or specify the policy name on a TAPEREQ statement.

SMC0184

{Specific|Scratch} POLICY *CCCCCCCC* marked in error

Level: 0

Explanation: A POLICY that is to be added to the SMC contains a policy specification error, for instance, specifying a scratch SUBPOOL name with VOLTYPE(SPECIFIC).

System Action: Processing continues. The SMC creates the named POLICY object. However, the SMC marks the POLICY object in error, allowing any reference to the named POLICY object to find it. In such cases however, the returned POLICY will be empty, indicating that default tape policy attributes will be applied to the allocation or mount event.

User Response: Correct and reissue the POLICY command.

SMC0185

`Non-POLICY TAPEREQ statements detected`

Level: 8

Explanation: One or more TAPEREQ statements did not specify a POLICY keyword. It is recommended that you convert existing TAPEREQ statements to POLICY format.

System Action: None.

User Response: Convert TAPEREQ statements to use POLICY format.

SMC0186

`No matching POLICY found for SMS management class` *`CCCCCCCC`*

Level: 8

Explanation: With the SMS MGMTPol specified during SMC allocation or mount message processing, the SMS management class returned from the ACS routine did not match a defined POLICY and SMSDEF VTVMGMT is off.

System Action: The policy name is ignored. If TAPEREQs are loaded, the SMC attempts to look up policies using TAPEREQ.

User Response: Define the missing POLICY, or correct the ACS routine to specify a valid POLICY name.

SMC0187

`WARNING: Could not find device` *`XXXX`* `for TAPEPLEX` *`PPPPPPPP`* `specified in UNITATTR`

Level: 0

Explanation: A UNITATTR was specified for device *XXXX* as belonging to TAPEPLEX *PPPPPPPP*. However, the returned configuration query did not contain the specified device.

System Action: None. The SMC honors the UNITATTR. Depending upon when the server processes the configuration query during its startup, not all devices may be returned in the configuration query response.

User Response: Verify that the specified device actually belongs to the specified TAPEPLEX.

SMC0188

`Non-virtual MEDIA or RECTECH is not allowed with MGMTCLAS`

Level: 0

Explanation: A POLICY statement was entered that specified a MGMTCLAS with a non-virtual MEDIA and/or RECTECH. However, MGMTCLAS should be specified only for virtual policies.

System Action: The POLICY is rejected.

User Response: Correct the POLICY and reissue the POLICY command.

SMC0189

CCCCCCCC `entry` *EEEEEEE* `not found for {list|update|delete}`

Level: 0

Explanation: A *CCCCCCCC* command was entered specifying that entry *EEEEEEE* be either listed, deleted, or updated. However, no entry matching *EEEEEEE* was found.

System Action: None.

User Response: Issue the *CCCCCCCC* command with the LIST option to list all *CCCCCCCC* entries. Then re-issue the command specifying the correct entry name.

SMC0190

CCCCCCCC OOOOOOOO `set to {ON|OFF|`*XXXXXXXX*`}`

Level: 0

Explanation: A *CCCCCCCC* command was entered specifying that option *OOOOOOOO* be set to ON, OFF, or the specified value *XXXXXXXX*. If multiple options were specified on a single *CCCCCCCC* command, then multiple SMC0190 messages are issued, one for each specified option.

System Action: None.

User Response: None.

Note – SMC0190 messages are displayed only if MSGDef VERBose(ON) is specified.

SMC0191

CCCCCCCC OOOOOOOO `set to {ON|OFF|`*XXXXXXXX*`} for entry` *EEEEEEEE*

Level: 0

Explanation: A *CCCCCCCC* command was entered specifying that option *OOOOOOOO* be set to ON, OFF, or the specified value *XXXXXXXX* for the *CCCCCCCC* entry *EEEEEEEE*. If multiple options were specified on a single *CCCCCCCC* command, then multiple SMC0191 messages will be issued, one for each specified option.

System Action: None.

User Response: None.

Note – SMC0191 messages are displayed only if MSGDef VERBose(ON) is specified.

SMC0192

Specific volume lookup failure(s) occurred for job *JJJJJJJJ*

Level: 4

Explanation: During allocation processing for a specific volume in job *JJJJJJJJ*, volume lookup indicated a communication failure. The ALLOCDef FAILNOINFO option was not specified.

System Action: Processing continues. Allocation may be directed to a device incompatible with the volume.

User Response: Determine and correct the cause of the communication failure.

SMC0193

Scratch volume lookup failure(s) occurred for job *JJJJJJJJ*

Level: 8

Explanation: During allocation processing for a scratch volume in job JJJJJJJJ, volume lookup indicated a communication failure. ALLOCDef FAILNOINFO was set to OFF or SPECIFIC.

System Action: Allocation proceeds using policies specified in POLicy, TAPEREQ, user exit, or DFSMS ACS routines.

User Response: Determine and correct the cause of the communication failure. Ensure that policy information is adequate to allocate scratch volumes to the appropriate TapePlex and media.

SMC0194

TAPEPLEX *PPPPPPPP* from [POLICY|user exit] conflicts with ESOTERIC *EEEEEEEE* from [POLICY/TAPEREQ|user exit] for job *JJJJJJJJ*

Level: 8

Explanation: The TapePlex name provided by the SMC POLicy or user exit is different from that implied by the esoteric name in the POLicy/TAPEREQ or user exit.

Note – SMC0194 messages are displayed only if SMC MSGDef VERBose(ON) specified.

System Action: The SMC determines which TapePlex should be used for volume information based first on the POLicy TapePlex, then on the POLicy or TAPEREQ esoteric name (if all drives in the esoteric reside in a single library), next on the user exit TapePlex or subsystem name, and finally on the TapePlex implied by the esoteric returned from the user exit. The esoteric name will still be used in the drive exclusion process, even if it conflicts with the policy or user exit TapePlex name.

User Response: Review the applicable POLicy, TAPEREQ, and user exit values to be sure that the intended policies are being specified.

SMC0195

READ processing started for {SMC PARMS|SMCCMDS|*data set name*}

Level: 0

Explanation: The SMC has begun processing commands in the named file.

Note – SMC0195 messages are displayed only if SMC MSGDef VERBose(ON) specified.

System Action: None.

User Response: None.

SMC0196

READ processing complete; RC=*nn*
from {SMCPARMS|SMCCMDS|*data set name*}

Level: 0

Explanation: The SMC has completed processing commands in the named file. The highest return code for any command is *nn*.

System Action: None.

User Response: None.

SMC0197

WARNING: POLICY *PPPPPPPP* is specified; ignoring {esoteric subpool|subsystem|TapePlex} from user exit for job *JJJJJJJJ*

Level: 8

Explanation: An allocation user exit returned esoteric, subpool, TapePlex or subsystem data, but policy *PPPPPPPP* is in effect.

System Action: Since the policy is the only source for the information, the data returned from the user exit is ignored.

User Response: Ensure that the named policy contains all policy information that should apply.

SMC0200

ALLOC event ignored

Level: 8

Explanation: A READ command was specified from the SMC that required SMC tape allocation services.

System Action: None.

User Response: Issue the READ command for a disk data set.

SMC0201

```
{TAPEREQ|CONTROL} statements can only be input using the
TREQDEF command
```

Level: 0

Explanation: TAPEREQ control statements were read using the SMC READ command instead of the TREQDEF command.

System Action: None.

User Response: Issue the TREQDEF command to read the TAPEREQ control statements.

SMC0202

```
Update error not applied because {SCRATCH|SPECIFIC} POLICY for
entry PPPPPPPP already exists.
```

Level: 0

Explanation: An erroneous POLICY statement was entered. The update error was not applied because the SCRATCH or SPECIFIC policy already exists. If the SCRATCH or SPECIFIC policy did not exist, the POLICY would have been entered and flagged as an error.

System Action: None.

User Response: Correct and reissue the POLICY command.

SMC0203

```
COMMTEST:
JOB=JJJJJJJJ IIIIIIII TASK=XXXXXXXXXXXXXXXX {MSG=XXXXXXXX}
TAPEPLEX=LLLLLLLL {SUBSYSTEM=AAAA|SERVER=SSSSSSSS} REQUEST=FFFF
{Client {IP=NNN.NNN.NNN.NNN} socket=NN port={nnnn|ANY}}
{Server IP=NNNN.NNNN.NNNN.NNNN port=nnnn}
{Bytes out=nnnn in=nnnn}
{Error=EEEE....EEEE}
{Reason=RRRR....RRRR}
{Response from STK HTTP server follows: HHHH...HHHH}
Current LIBPATH status={active|inactive|never active|disabled}
SMC comm RC=nnnn elapsed time=nn.nn
```

Level: 0

Explanation: A COMMtest command was entered. The SMC0203 message is displayed for each communication path attempted.

System Action: None.

User Response: None.

SMC0204

```
No eligible COMMPATH(s) found
```

Level: 0

Explanation: A COMMtest command was entered, but the specified TAPEPlex, SERVer, and status parameters resulted in no eligible communication paths selected for the test.

System Action: None.

User Response: Correct and reissue the COMMtest command.

SMC0205

`Disabling bind to PORTRANGE nnnn-nnnn; any ephemeral port will be used`

Level: 0

Explanation: A TCPip PORTrange (OFF) command was entered. Sockets will no longer be bound to the fixed port range of nnnn-nnnn, but any ephemeral port will be used.

System Action: None.

User Response: None.

SMC0206

`No PORTRANGE currently defined`

Level: 0

Explanation: A TCPip PORTrange (OFF) command was entered but there is currently no active PORTrange specified to disable.

System Action: None.

User Response: None.

SMC0207

`Specified SERVER SSSSSSSS not {found|defined for TAPEPLEX= TTTTTTTT}`

Level: 0

Explanation: A COMMtest command was entered specifying a specific TapePlex and server. However, the server is either not defined to the SMC, or is not defined for the specified TapePlex.

System Action: None.

User Response: Correct and reissue the COMMtest command.

SMC0208

NEW TAPEPLEX=*PPPPPPP1* MODEL=*MMMMMMM1* for device *XXXX*
OLD TAPEPLEX=*PPPPPPP2* MODEL=*MMMMMMM2*

Level: 0

Explanation: A configuration query response from TapePlex *PPPPPPP1* was received for device *XXXX* that either changed the TapePlex ownership from TapePlex *PPPPPPP2*, or its model type from model *MMMMMMM2* to *MMMMMMM1*.

System Action: Processing continues. The SMC sets the TapePlex ownership and model to the new values.

User Response: This message most likely indicates that the same device address is defined to two or more TapePlexes, and the configuration information received from one TapePlex has been superseded by that of the other TapePlex. In this case, issue a UNITAttr command for the device specifying which TapePlex is the owner of the device on this host.

SMC0226

```
Path switch from SERVER=SSSSSSSS to SSSSSSSS for TAPEPLEX=
TTTTTTTT
```

Level: 4

Explanation: The SMC automatically switched the communication path from the secondary server SSSSSSSS to primary server SSSSSSSS for TapePlex *TTTTTTTT*.

System Action: Processing continues.

User Response: None.

SMC0230

```
IEFJFRQ exit smcxJFRQ is inactive. SMC is unable to influence
tape allocation
```

Level: 0

Explanation: Exit routine smcxJFRQ has reached its error threshold and has been made inactive by the operating system.

The smcx in smcxJFRQ will be replaced with the subsystem name belonging to SMC. IBM message CSV430I was issued when the routine was made inactive. An SVC dump of the job most likely occurred along with message CSV430I.

The dump title will be:

```
DUMP TITLE=COMPON=SSI,COMPID=5752SC1B6,ISSUER=IEFJSARR,
          MODULE=IEFJRASP,ABEND=aaaa,REASON=rrrrrrrr
```

System Action: SMC is unable to direct tape allocation to the correct drive. SMC will delete the SMC0230 each minute and re-check the state of exit routine. If the exit routine is still inactive SMC0230 will be re-issued.

User Response: Investigate the reason that the exit became inactive. To display the exit use the following MVS command:

```
DISPLAY PROG,EXIT,EXITNAME=IEFJFRQ,DIAG
```

The state of the exit can be made active by one of the following methods:

- Use the MVS SETPROG command:

  ```
  SETPROG EXIT,MODIFY,EX=IEFJFRQ,MOD=smcxJFRQ,STATE=ACTIVE
  ```

- Stop and re-start SMC.

  Retain the SVC dump and job log of the failing job. Contact StorageTek Software Support for analysis of the failure.

SMC0247

Mount failed for write-protected VTV *VVVVVV* on drive *DDDD*

Level: 8

Explanation: An attempt was made to modify a VTV that is in a write protected state. The VTV was received via Cross TAPEPLEX Replication from another TAPEPLEX running VTCS 7.0 or above. The CTR VTV was placed into a write protected state to preserve the data integrity of the VTV. An attempt to modify the CTR VTV has been done, possibly by a disaster recovery test job.

System Action: The volume is not mounted.

User Response: The occurrence of this message indicates that your disaster recovery plan may need to be reviewed and revised. If a CTR VTV that may be modified were to be used in an actual disaster, the state of such a VTV may not be known, and the disaster recovery could be compromised. The applications should either be changed so that new volumes are created instead of modifying existing volumes or the data sets being modified are restored from a backup to new VTVs before running the application.

SMC9999

MMMMMMMM Variable text

Level: 12, 16, 20, 24, 28

Explanation: SMC9999 messages are intended for StorageTek Software Support problem determination and resolution. *MMMMMMMM* is the name of the issuing module.

System Action: None.

User Response: None. A message level (LVL) of 12 or higher should generally be specified only when directed by StorageTek Software Support.

SMC Utility Message Listing

SMCU0001

```
SMC is not {active|JES3} cannot continue
```

Explanation: The utility was submitted on a system without an active SMC subsystem, or the SMCUPJS utility was submitted on a non-JES3 system.

System Action: Report processing terminates with a return code of 8.

User Response: Start the SMC subsystem and resubmit the utility job.

SMCU0002

Utility release level *n.n* is incompatible with SMC release *n.n*

Explanation: The utility load module is not at the same release level as the SMC subsystem on the host.

System Action: Report processing terminates with a return code of 8.

User Response: Resubmit the utility job with the release level matching the SMC subsystem.

SMCU0003

```
No active Tapeplexes; {unable to determine drive
characteristics|unable to continue}
```

Explanation: The utility was submitted on a system without an active library, or the SMC subsystem has not yet processed an allocation or message request. For the SMCUUUI utility, there is no defined HSC library.

System Action: Report processing terminates with a return code of 8.

User Response: Start the library subsystem. Then issue the RESYNC command and resubmit the job.

SMCU0004

```
*** WARNING: HCD esoteric not found
```

Explanation: The SMCUPJS utility found an esoteric defined by the JES3 SETUNIT statement that had no corresponding HCD esoteric.

System Action: Report processing continues, but a return code of 4 is returned.

User Response: Research and correct the discrepancy.

SMCU0005

```
*** WARNING: HCD esoteric does not match JES3 esoteric
```

Explanation: The SMCUPJS utility found an esoteric that contains different devices in its HCD and JES3 definitions.

System Action: The report lists JES3 devices missing from the HCD esoteric and HCD devices missing from the JES3 esoteric. Report processing continues, but a return code of 4 is returned.

User Response: Research and correct the discrepancy.

SMCU0006

```
*** WARNING:  XTYPE contains inconsistent location or drive
characteristics
```

Explanation: Drives contained within an XTYPE do not have the same location type (library, virtual, nonlibrary, or unknown), the same location (ACS or VTSS), or the same recording technique.

System Action: Report processing continues, but a return code of 4 is returned.

User Response: Review the Device to XTYPE report to determine the inconsistency, and correct the discrepancy.

SMCU0007

```
*** WARNING:  XTYPE contains unknown or MODEL(IGNORE) devices
```

Explanation: One or more of the drives within an XTYPE are either UNKNOWN, MODEL(IGNORE), or both. However, one or more drives in the XTYPE are NOT UNKNOWN or MODEL(IGNORE).

System Action: Report processing continues, but a return code of 4 is returned.

User Response: Verify that the XTYPEs are defined as intended.

SMCU0008

```
SMCUDBX input parameter error
```

Explanation: An error was detected in the input PARM for the SMCUDBX utility. A detailed description of the error follows.

System Action: The utility processing terminates with a return code of 8.

User Response: Correct the indicated error and resubmit the job.

SMCU0009

```
Unable to load TMS interface routine
{SLUDRCA1|SLUDRTLM|SLUDRRMM|SLUDRZAR}
```

Explanation: Based on the input TMS parameter, the SMCUDBX utility attempted to load the corresponding tape management access routine, but the load failed.

System Action: The utility processing terminates with a return code of 8.

User Response: Ensure that a load library containing the appropriate SLUDR* routine for your tape management system is available to the SMCUDBX utility though a JOBLIB, STEPLIB, or MVS LINKLIST library.

SMCU0010

```
Error opening file DDNAME DDDDDDDD
```

Explanation: The utility was unable to open the DDNAME *DDDDDDDD*.

System Action: The utility processing terminates with a return code of 8.

User Response: Correct the execution JCL to provide the required DD statement.

SMCU0011

```
Error processing ZARA interface for subsystem SSSS
```

Explanation: The user requested an extract from the ZARA tape management system with subsystem ID *CCCC*. A detailed description of the error follows the message.

System Action: The utility processing terminates with a return code of 8.

User Response: Correct the indicated error and resubmit the job.

SMCU0012

```
Unexpected return code XXXX from TMS interface
```

Explanation: An unexpected return code *XXXX* was received from the TMS extract routine.

System Action: The utility processing terminates with a return code of 8.

User Response: If user modifications have been made to the TMS extract routine, correct the routine. Otherwise, contact StorageTek Software Support for assistance.

SMCU0013

```
No VLF control record found by SLUDRTLM
```

Explanation: The user specified TLMS as the SMCUDBX tape management system, but the input file did not contain a CA-DYNAM/TLMS VLF record.

System Action: Utility processing terminates with a return code of 8.

User Response: Verify that the correct input file was specified on the DBTMS DD statement, and resubmit the job.

SMCU0014

```
Error reading file DDNAME DDDDDDDD [;unterminated
{comment|continuation} line detected]
```

Explanation: The utility detected an I/O error or system error on the named data set.

System Action: Utility processing terminates with a return code of 8.

User Response: Correct the error and resubmit the job.

SMCU0015

```
DDNAME DDDDDDDD is required; cannot continue
```

Explanation: The named DD name is required based on the input request.

System Action: Utility processing terminates with a return code of 12.

User Response: Supply the required DD statement and resubmit the job.

SMCU0016

```
Processing complete; UUI commands processed = nn, highest RC=
nn
```

Explanation: UUI processing has completed.

System Action: None.

User Response: None.

SMCU0017

`Error processing program PARMS; error description`

Explanation: The utility program PARM contained an error.

System Action: Utility processing terminates with a return code of 12.

User Response: Correct the error and resubmit the job.

SMCU0020

`CSV parsing error; [error text]`

Explanation: The UUI IN CSV command contained a syntax error.

System Action: The request(s) following the CSV command is not processed.

User Response: Correct the error and resubmit the job.

SMCU0021

`UUI command bypassed due to previous CSV error`

Explanation: A UUI request followed a CSV command that contained a syntax error.

System Action: The request is not processed.

User Response: Correct the error and resubmit the job.

SMCU0022

`CSV command ignored due to missing CSVOUT DD`

Explanation: A CSV command was processed but no CSVOUT DD was specified for the SMCUUUI utility.

System Action: The CSV command is ignored. Subsequent requests are processed with no CSV output.

User Response: Supply the CSVOUT DD statement and resubmit the job.

SMCU0023

MMMMMMMM `not executing from authorized library; cannot continue`

Explanation: The SMC utility module *MMMMMMMM* was executed from a non-APF library, but requires APF authorization.

System Action: Program execution is terminated.

User Response: Ensure that the SMC link library is APF authorized.

CHAPTER 11

Return Codes

UUI Return Codes

The following return codes are set by the SMC UUI Component for external user communication with a TAPEPLEX or with the SMC.

TABLE 11-1 General UUI Return Codes

Decimal Value	Hex Value	Description
1	1	More data to return
2	2	All data was returned (EOF)
4	4	Command issued warning message
8	8	Command issued error message
300	X'012C'	SMC not active
304	X'0130'	UUI unsupported in release
308	X'0134'	Request type invalid
312	X'0138'	Error acquiring new token
316	X'013C'	Module load error
320	X'0140'	Task attach error
324	X'0144'	No active TAPEPLEX for UUI
328	X'0148'	No TAPEPLEX or LVT addr
332	X'014C'	TAPEPLEX name not found
336	X'0150'	TAPEPLEX is disabled
340	X'0154'	TAPEPLEX is MVS/CSC
344	X'0158'	Invalid TAPEPLEX addr
348	X'015C'	Invalid NCSCOMM PLIST
352	X'0160'	Invalid PLIST for OUTPUT
356	X'0164'	Inconsistent CSV parms
360	X'0168'	Token does not exist

TABLE 11-1 General UUI Return Codes

Decimal Value	Hex Value	Description
364	X'016C'	No local HSC for LOCALHSC
368	X'0170'	Linklib not authorized
372	X'0174'	Parse error for remote XML
376	X'0178'	XML start tag not found
380	X'017C'	XML end tag not found
384	X'0180'	Error from SMC COMM... See HSC UUI messages and codes
388	X'0184'	Use local HSC for utility
392	X'0188'	Response length is 0
396	X'018C'	Response length too large
400	X'0190'	Requested service inactive
404	X'0194'	SMC service error inactive
408	X'0198'	File not found
412	X'019C'	File I/O error
416	X'01a0'	Max READ depth exceeded

SMC ASCOMM Return Codes

The following return codes are set by the SMC ASCOMM Component for MVS inter and intra address space communication.

TABLE 11-2 ASCOMM Return Codes

Decimal Value	Hex Value	Description
500	X'01f4'	SMC STOP command issued or task cancelled during communication
504	X'01f8'	Wrong version of SMCQASP
508	X'01fc'	At max SMCQUEE queue size
512	X'0200'	No GETMAIN storage
516	X'0204'	No dataspace storage
520	X'0208'	Invalid ASCOMM module index
524	X'020c'	QASTOKN acquisition error
528	X'0210'	Response timeout occurred
532	X'0214'	Final ACK timeout occurred
536	X'0218'	Indexed module not found
540	X'021c'	Asynch service already in progress, req bypassed
544	X'0220'	HSC or MVS/CSC timeout occurred
548	X'0224'	HSC or MVS/CSC error occurred
552	X'0228'	HSC or MVS/CSC abend occurred
560	X'0230'	SMC worker task abended

SMC Communication Component Return Codes

The following return codes are set by the SMC TAPEPLEX Communication for local or remote communications.:

TABLE 11-3 SMC Communication Component Return Codes

Decimal Value	Hex Value	Description
600	X′0258′	No active COMMPATH
604	X′025c′	SSCVT invalidated by TapePlex command
608	X′0260′	Local CSC/HSC inactive
612	X′0264′	Local CSC/HSC not valid
616	X′0268′	Local CSC/HSC not on SSCVT
620	X′026c′	Local CSC/HSC release error

The following return codes are set by the SMC Communication Component TCP/IP routines:

TABLE 11-4 SMC Communication Component TCP/IP Routine Return Codes

Decimal Value	Hex Value	Description
700	X′02bc′	Invalid remote transaction
704	X′02c0′	CGI module not specified
708	X′02c4′	TCPIP setsockparm() error
712	X′02c8′	TCPIP socket() error
716	X′02cc′	TCPIP setsockopt() error
720	X′02d0′	No free port (SMCCTCPP)
724	X′02d4′	TCPIP bind () error
728	X′02d8′	TCPIP connect () error
732	X′02dc′	TCPIP send () error
736	X′02e0′	TCPIP recv () error
740	X′02e4′	TCPIP timeout error

The following return codes are set by the SMC CGI routines or the HTTP server routines:

TABLE 11-5 SMC CGI Routine/HTTP Server Routine Return Codes

Decimal Value	Hex Value	Description
800	X'0320'	HTTP task limit exceeded
804	X'0324'	CGI module not found
808	X'0328'	CGI module abended
812	X'032c'	CGI module not authorized
816	X'0330'	CGI module not supported
820	X'0334'	CGI module returned error
824	X'0338'	Remote HSC subsystem is incorrect release
828	X'033c'	Remote file I/O request not supported
996	X'03c4'	Unknown logic error

CHAPTER 12

Using the StorageTek HTTP Server

Overview

The StorageTek HTTP Server for OS/390 and z/OS provides the middleware to allow communication between the SMC (client) and a remote HSC subsystem (server). The HTTP server executes as a separate subsystem **on the remote HSC host**. It is **not** required on a host where only the SMC is executing.

This chapter includes information used to initialize and configure the StorageTek HTTP Server. The following topics are included:

- Customizing the HTTP Server START Procedure
- Security Administration Considerations for Communication
- Customizing the HTTP Server Parameter File
- Starting the HTTP Server
- Stopping the HTTP Server
- Displaying HTTP Server Status
- Tracing the SMC in the HTTP Server
- HTTP Server Messages

Note –

- Refer to the *NCS Installation Guide* for information about installing the StorageTek HTTP server.
- The StorageTek HTTP server is also included with the Virtual Storage Manager (VSM) GUI product. However, for performance and security reasons, do not use the same instance of the HTTP server for both SMC server programs and VSM GUI programs. To execute multiple HTTP server subsystems on a single host, they must each listen on a unique PORT number.

Creating the HTTP Server START Procedure

The HTTP server must be started on the same host as the HSC that will function as a remote server. It is not necessary to execute the HTTP server on client hosts running only SMC and not HSC.

To create the HTTP server START procedure, modify the SRVPROC member from the SMC sample library as described in the JCL comments and add the procedure to the production PROCLIB.

Figure 20 provides a sample HTTP server START procedure.

```
//yourprocname   PROC PRM=``
//*
//SERVER   EXEC PGM=SKYMAN,REGION=0M,PARM='&PRM',TIME=1440
//STEPLIB  DD DISP=SHR,DSN=your.ncs.smc6200.smclink
//         DD DISP=SHR,DSN=your.ncs.sos6200.slslink
//         DD DISP=SHR,DSN=your.ncs.sws6200.swslink
//         DD DISP=SHR,DSN=your.ncs.ssky500.stkload
//         DD DISP=SHR,DSN=your.ncs.sscr70d.saclink
//*
//SKYPRM   DD DISP=SHR,DSN=your.parmlib(SRVPARM)
//SKYSET   DD SYSOUT=*
//SKYLOG   DD SYSOUT=*
//SKYTRSN  DD SYSOUT=*
//STDOUT   DD SYSOUT=*
//STDERR   DD SYSOUT=*
//SKYDUMP  DD SYSOUT=*
//SYSOUT   DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSTERM  DD SYSOUT=*
```

FIGURE 12-1 Sample HTTP Server START Procedure

Note – HSC and VTCS load libraries (SLSLINK and SWSLINK) are required in the STEPLIB concatenation to support the ability to route HSC and VTCS commands from a remote SMC to a local HSC TapePlex (using the SMC Route command).

Security Administration Considerations for Communication

All users at OS/390 V2R5 and above **must** define an OMVS segment in RACF for the userid associated with the HTTP server. If this is not done, an OS/390 UNIX process initialization failure occurs. To define the OMVS segment, refer to the IBM document *OS/390 IBM Communications Server IP Migration Guide*. If you are running a functionally equivalent security product (e.g., ACF2), refer to the documentation for that product.

Optionally, you can secure (encrypt) complete communications using Application Transparent Transport Layer Security (AT-TLS), an application distributed as part of the IBM z/OS operating system.

AT-TLS provides data encryption and decryption based on policy statements specified in the Policy Agent. For more information about implementing AT-TLS, refer to Application Transparent Transport Layer Security (AT-TLS) information in the *z/OS Communications Server: IP Configuration Guide* and Policy Agent information in the *z/OS Communications Server: IP Configuration Reference*.

Customizing the HTTP Server Parameter File

The HTTP server START procedure SRVPROC uses the sample parameter file SRVPARM from the SMC sample library. Refer to the following sections for more information and modify the values in SRVPARM for your site's needs.

Note – When using the HTTP server with the SMC, do **not** specify the security *file* or authuserfile *file* HTTP server parameters. These security parameters apply only when using the HTTP server with the VSM GUI. Using these parameters with the SMC causes authentication errors.

Configuration Parameters

gmtoffset ***offset***

specifies the system clock offset from GMT. This parameter is required if the system clock is not set to GMT. You can specify the offset in hours, minutes, and seconds. For example, 10 hours 30 minutes specifies ten and a half hours ahead of GMT.

loglevel ***level***

specifies the logging message level. Valid values are error, warning and info. The default is warning.

If you specify info, informational, error, and warning messages are logged. If you specify error, only error messages are logged.

Network Parameters

servername *name*

specifies the server name reported in responses. The default is the network host name.

serverdomain *domain*

specifies the server domain name reported in responses; for example, your company.com. The default is all blanks.

serverbase *hlq*

specifies the high level qualifier of the server data sets in the form *hlq*. For a server used only for SMC communication to HSC, this should be specified as DUMMY. This parameter is required.

port *p*

specifies the IP network port the server listens on for connections. The default is port 80, the standard HTTP port.

CGI Parameters

load modules SMCGUUI and SMCGXTR

specify the SMC CGI modules to be preloaded for performance.

cgionly yes

indicates that the HTTP server instance is used only for communication from SMC to HSC and is not available for VSM GUI functions. The HTTP server's ability to retrieve files or directories is disabled.

requireapf yes

overrides the default requirement of apf authorization no (default).

Performance Considerations

The recommended MVS performance group is above batch but below TSO. If the server is extremely busy, reducing the maximum tasks for the HTTP server may improve performance. Use the following parameters to set the initial and maximum number of HTTP server tasks:

startservers 20

sets initial tasks to 20.

maxclients 20

sets the maximum number of tasks to 20.

Starting the HTTP Server

To start the HTTP server, enter the following MVS operator command:

```
START SRVPROC
```

The server is active when the following message appears:

```
SKY003I  HTTPD ready to accept requests
```

By default, when the server is started, it uses the SRVPARM member in the SMC sample library.

Stopping the HTTP Server

To stop the HTTP Server, enter either of the following MVS operator commands:

```
P SRVPROC
F SRVPROC,SHUTDOWN
```

Displaying HTTP Server Status

To display the status of the HTTP server, enter the following MVS operator command:

```
F SRVPROC,D S
```

The following shows a display status response:

```
SKY016I  HTTP Server 1.0.0 started at Fri Jan 24 06:51:35 2003

requests received 85
tasks default: 20 active: 20 limit:40
SKY053I Current active worker tasks: 0
```

This response shows an idle system with the default number of worker tasks, which handle client connections, idle waiting for work. At times of peak demand, the server can dynamically start additional tasks up to the limit.

To display the server connections, enter the following MVS command:

```
F SRVPROC,D C
```

The following shows a display connections response:

```
SKY031I  Connections total: 114  max: 63/min
SKY032I  Connection rates:  0/min   0/hour
SKY026I  Task: 5 Requests: 1 Client: 199.117.186.54 : 36292
```

This response shows one client active whose IP address is 199.117.186.54 and using port 36292.

Note – SMC transactions are displayed as active connections only when the transaction is actively being processed. The SMC HTTP communications model does not establish a persistent connection with the server. Therefore, the D C command will often display no active connections even when several hosts are communicating with the server.

Tracing the SMC in the HTTP Server

SMC requests in the HTTP server carry their trace settings, if any, from the SMC client. If the SMC TRace JObname CGI command has been entered for a specific job on the client, the trace information for that request is written to the HTTP SKYLOG data set. Do not specify any TRace commands on the SMC client unless requested by StorageTek Software Support.

StorageTek HTTP Server Messages

This section provides information about StorageTek HTTP server messages.

Message Format

Messages are displayed on the console in the following format:

SKY***nnnn*** *message-text*

where:

- SKY identifies the StorageTek HTTP server.
- *nnnn* is the four-character message number.
- *message-text* is the actual text displayed on the job log or system log.

Message Change Summary

The following messages have been added, changed, or deleted in this release:

New Messages

- SKY068E
- SKY069E
- SKY070E
- SKY071W
- SKY072I
- SKY073E
- SKY074W
- SKY075I

Message Listing

The following HTTP Server messages are listed numerically.

SKY001I

name Server *version* starting on *system* running MVS *level*

Explanation: This is the HTTP server startup message.

SKY002E

Error binding server socket - terminating

Explanation: The server cannot bind to the specified network port. The server shuts down.

SKY003I

name ready to accept requests

Explanation: The server name is ready for normal operation.

SKY004E

Error opening server socket - terminating

Explanation: The server cannot open a socket connection to the required network port. The server shuts down.

SKY005E

Server select failed rc=*ret* err=*msg*

Explanation: An error occurred while listening for a client connection.

SKY006I

TCP/IP connection terminated

Explanation: The client connection was terminated.

SKY007E

Accept error - shutting down

Explanation: There was an error in network connection accept processing. The server shuts down.

SKY008E

Error reading request

Explanation: A network error occurred while reading a client request.

SKY013I

Shutdown command from operator acknowledged

Explanation: The server has received a console command to shut down.

SKY016I

```
name Server ver started at tttt
"requests received: nnn
"tasks default: dd active: aa limit: ll
```

Explanation: Response to an operator display status command and indicates the server name, version, start date and the total number of requests received. It also details the worker task settings, the default number of idle tasks, the maximum limit of dynamically started tasks and the current number of active tasks.

SKY018I

```
Request n task completed rc=ret
```

Explanation: The worker task *t* has completed with return code *ret*.

SKY023E

```
Unknown server command: cmd
```

Explanation: The command *cmd* is not a valid console command.

SKY025E

```
Invalid command option: oooo
```

Explanation: The option oooo is not a valid option for the operator command.

SKY026I

```
Task: t Requests: n Client: xxx.xxx.xxx.xxx : pppp
```

Explanation: This message is issued in response to a display client console command. Task *t* has serviced *n* requests from the client at IP address *xxx.xxx.xxx.xxx* port *pppp*.

SKY027I

```
No active client connections
```

Explanation: This message is issued in response to a display client console command, when there are no clients currently connected to the server.

SKY030E

```
Missing to/from translation string
```

Explanation: The data set file name translation is incorrect.

SKY031I

```
Connections total: nn max: mm/min
```

Explanation: This message is issued in response to a display client console command. There have been a total of *nn* connections at a maximum rate of *mm* per minute.

SKY031W

```
Not APF authorized, some facilities not available
```

Explanation: The HTTP server is not APF authorized.

SKY032I

Connection rates: *nn*/min *mm*/hour

Explanation: This message is issued in response to a display client console command. The connection rates are *nn* per minute and *mm* per hour.

SKY040I

Option *nnnn ssss*

Explanation: The parameter option *nnnn* is set to *ssss*.

SKY043E

Terminating execution due to parameter error(s)

Explanation: There was an error in one or more parameters. The server shuts down.

SKY045E

SAF authentication requested but not APF authorized

Explanation: SAF authentication requires caller to be APF authorized, but server is not APF authorized. The server shuts down.

SKY046E

Supplied *parm* is too long

Explanation: The length of the parameter string *parm* exceeds the allowed length.

SKY047E

Unable to open *dsname*

Explanation: The HTTP server was unable to open the data set *dsname* in response to a client request.

SKY048E

abend_message_line

Explanation: Message number for abend reporting messages.

SKY049E

Not APF authorized, cannot continue

Explanation: The server is not APF authorized but APF authorization is required. The server shuts down.

SKY050E

Task shutdown time expired, terminating tasks

Explanation: During HTTP server shutdown, some tasks did not stop before the shutdown timeout was exceeded. These tasks are forcibly terminated.

SKY051E

Cannot find server module *name*

Explanation: When the HTTP server performed its startup checks, it could not find its module: *name*.

SKY052E

Cannot find all server modules, shutting down

Explanation: The HTTP server could not find all of its modules when it performed its startup checks. The server shuts down.

SKY053I

Current active worker tasks: *t*

Explanation: The current number of worker tasks for servicing requests.

SKY053E

Fatal error in main task, commencing forced shutdown

Explanation: The server suffered a fatal error in its main task and was unable to perform an orderly shutdown.

SKY054E

Fatal error in main task, attempting orderly shutdown

Explanation: The server suffered a fatal error in its main task and is attempting to perform an orderly shutdown.

SKY055I

Forcibly terminating task *t*

Explanation: The task *t* is forcibly terminated.

SKY056I

Disable abend handling option specified, handling disabled

Explanation: The HTTP server abend handlers will not be enabled so any abends can cause dumps and may also shut down the server.

SKY059E

Error initializing translation tables

Explanation: An error occurred while initializing the server file name translation table.

SKY060E

SERVERBASE not set, shutting down

Explanation: The required parameter SERVERBASE was not set in the parameter file. The server shuts down because it cannot locate its data files.

SKY061I

Authentication request received from client at *xxx.xxx.xxx.xxx* : *pppp*

Explanation: A request to authenticate was received from the client at network address *xxx.xxx.xxx.xxx* and port *pppp*.

SKY068E

CGI api call error for *function*: *reason*

Explanation: There was an error calling the CGI function *function* for reason *reason*.

SKY069E

Task *nnn* clientConnect: takesocket error: *err reason*

Explanation: The worker task *nnn* encountered an error obtaining the connection socket with error code *err* and error message *reason*.

SKY070E

Passrequest: givesocket error: *err reason*

Explanation: The main task encountered an error passing a connection socket to a worker task, error code *err* and error message *reason*.

SKY071W

Cannot utilize socket implementation *type* errno *err msg*

Explanation: The server cannot use the specified socket implementation *type* because of error code *err* and message *msg*. Server processing continues with the default socket implementation.

SKY072I

Loaded module *module*

Explanation: Module *module* was preloaded as requested by a LOADMODULE parameter.

SKY073E

Connection socket *nn* out of range

Explanation: The connection socket exceeds the supported range of sockets. The connection will be dropped and server operation continues.

SKY074W

Unable to allocate *dsn* Reason: *rr* rc=*nn* code=*cc*

Explanation: The data set *dsn* could not be allocated due to reason *rr*, dynamic allocation return code *nn* and code *cc*.

SKY075I

Socket *nnn* settings: linger=*spec* sndBuf=*sss* rcvBuf=*rrr*

Explanation: Server connection listener socket *nnn* has the following attributes:

- linger=*spec* is the socket timeout on close, either default or (1, *time-in-seconds*) the socket is unavailable for reuse.

SKY100W

Unable to set socket *option* to *value*

Explanation: The named socket *option* could not be set. Processing continues.

SKY101W

Unable to set socket option

Explanation: A socket option could not be set.

SKY102E

Socket *option* error: *explanation*

Explanation: Indicates why a socket option could not be set.

SKY103E

Cannot open parameter file *dsname*, terminating

Explanation: The HTTP server was unable to open the parameter file *dsname*. The server shuts down.

SKY104E

Parameter *ppp* invalid

Explanation: The parameter *ppp* is not known.

SKY105E

Unexpected character *c* encountered, skipping line

Explanation: When parsing the parameter file, an unexpected character was encountered. The parameter is skipped by moving to the next line.

SKY106E

Expected number but non numeric: *ssss*

Explanation: When parsing the parameter file, a non numeric item was found when a number was expected.

SKY107I

parm set to *vvv*

Explanation: The parameter *parm* is set to value *vvv*.

SKY108E

Expected string: *ssss*, skipping

Explanation: When parsing the parameter file, the string *ssss* was expected but not found. Parsing skips to the next parameter.

SKY109I

pppp set to *vvv*

Explanation: When reading the parameter file, the parameter *pppp* was set to value *vvv*.

SKY110E

Unknown token type: *tttt*

Explanation: The parameter token is unknown.

SKY112E

Cannot create *tbl*, terminating

Explanation: During initialization, the memory table *tbl* could not be allocated. The server shuts down.

SKY113E

Cannot start task *tttt*, terminating

Explanation: During initialization, the task *tttt* could not be started. The server shuts down.

SKY114I

Task *tttt* completed, rc=*nn*

Explanation: Task *tttt* completed with return code *nn*.

SKY115I

Commencing server shutdown

Explanation: The server has started to shut down.

SKY116E

Task *tttt* unable to get client id

Explanation: An error occurred while passing a socket connection to the work task *tttt*.

SKY118I

Task *t* waiting for work

Explanation: The worker task *t* is now idle after completing a request.

SKY119I

Task *t* shutting down

Explanation: Task *t* has commenced shutting down.

SKY120E

Task *t* unable to allocate dir list buffer

Explanation: The worker task *t* was unable to allocate a memory buffer needed for a directory listing.

SKY121E

Task *t* unable to open directory readme

Explanation: The worker task *t* encountered an error when attempting to open a directory readme file while listing a directory.

SKY122E

Task *tt* connection error with *xxx.xxx.xxx.xxx* errno *error_text*

Explanation: The worker task *t* encountered a connection error (error number errno, text *error_text*) with the client at IP address *xxx.xxx.xxx.xxx*.

SKY123E

Task *t*, connection eof from *xxx.xxx.xxx.xxx*

Explanation: For worker task *t*, the connection to client at IP address *xxx.xxx.xxx.xxx* ended.

SKY124I

Task *t* connection terminated by peer *adr*

Explanation: The network connection to worker task *t* was terminated by the client with IP address *adr*.

SKY125E

Task *t cmp*, abend *aaa* caught

Explanation: The abend handler for task *t* in component *cmp*, intercepted a type *aaa* abend. Task *t* is shut down and a replacement task is created.

SKY126E

Task *t cmp*, illegal instruction abend caught. Code *aaa*

Explanation: The abend handler for task *t* in component *cmp*, intercepted an illegal instruction abend of type *aaa*. Task *t* will be shut down and a replacement task created.

SKY127E

Task *t cmp* memory access abend caught. Code *aaa*

Explanation: The abend handler for task *t* in component *cmp*, intercepted a memory abend of type *aaa*. Task *t* is shut down and a replacement task is created.

SKY128E

Task *t* request error *nnn* msg: *description*

Explanation: For worker task t, an HTTP protocol error was encountered for a client request.

SKY129E

ppp out of valid range min - max

Explanation: The numeric parameter *ppp* is outside the allowed range.

SKY130I

hhh handler ready

Explanation: The handler *hhh* task has finished initializing and is ready for work.

SKY131I

hhh handler shutting down

Explanation: The handler *hhh* task has started shutting down.

SKY132E

hhh handler startup timeout, terminating

Explanation: The startup timeout for the handler task *hhh* has been exceeded. The handler will be terminated.

SKY133E

Unable to start *hhh* handler, terminating

Explanation: The HTTP server was unable to start its handler task *hhh*. The server shuts down.

SKY134E

Unable to allocate *mmm* memory, terminating

Explanation: During initialization, memory could not be allocated for *mmm* memory. The server shuts down.

SKY135E

Unable to open log, reason: *rrr*

Explanation: The log handler task was unable to open the log file for reason *rrr*.

SKY136W

Out of memory for stack space, requested *nnnn* bytes

Explanation: An HTTP server task was unable to allocate stack memory.

SKY138W

No free worker tasks, at maximum limit

Explanation: A request has been received but there are no idle worker tasks and the number of tasks is at the maximum limit. A server busy request is returned to the client. If this condition occurs frequently consider increasing the maximum limit of worker tasks to a value where this is a rare occurrence.

APPENDIX **A**

Intercepted Messages

IBM Operating System Messages

The messages listed in Table 13 are received by the SMC. IBM message manuals describe the exact format (spacing, etc.) and definition for each message. Ellipses are used to indicate that the message contains more text than is shown.

Correct operation of the SMC depends on these messages. Do not suppress or alter them using products designed to handle messages through the subsystem interface (SSI). Many automated operations systems make use of the subsystem interface to intercept and alter or suppress messages.

Note – If the ‘‘suppressed by subsystem’’ and ‘‘hardcopy only’’ bits are turned on in the WQE (the MVS write queue element) before the SMC has received the message, the SMC ignores the WTO, and the message is not displayed at the console.

If you plan to use an automated operations system and are unsure about how it intercepts messages, contact the product vendor.

Although these messages may be suppressed (that is, prevented from displaying in the console) by using MPFLSTxx parameters or an MPF exit, the text of these messages should not be changed. The use of other WTO exits to change the display characteristics or the text of these messages is not supported by the SMC.

Volume serial numbers (‘ser’) as specified in messages from the operating system, are defined as follows:

Messages that contain VOLSERs with more than six characters or any character except A-Z, 0-9, # (crosshatch), $, ¥ (yen character), and optional trailing blanks are ignored by the SMC.

TABLE A-1 Intercepted Operating System Messages

Message ID	Description
IEC068A	U dddd,ser
IEC101A	M dddd,ser,...
IEC111E	D dddd,ser
IEC114E	D dddd...
IEC135A	U dddd,ser...
IEC400A	M dddd, ser...
IEC401A	F dddd,ser...
IEC501A	M dddd,ser{,labtyp}
IEC501E	M dddd,ser{,labtyp}
IEC502E	n,dddd,ser...
IEC509A	F dddd,ser...
IEC512I	I/O ERR|LBL ERR|SEC VOL...
IEC701D	M dddd, VOLUME TO BE LABELED ser
IEC702I	dddd, VOLUME LABELS CANNOT BE VERIFIED
IEC703I	dddd, VOLUME IS FILE PROTECTED
IEF233A	M dddd,ser{,labtyp}
IEF233D	M dddd,ser{,labtyp}
IEF234E	{K|D|R} dddd{,ser...}
IGF500I	SWAP dddd to eeee - OPERATOR|I/O ERROR
IGF502E	PROCEED WITH SWAP OF dddd TO eeee
IGF503I	ERROR ON dddd, SELECT NEW DEVICE
IGF509I	SWAP ddd - OPERATOR|I/O ERROR
IGF511A	WRONG VOLUME MOUNTED ON dddd, MOUNT ser,...
IOS000I	MVS I/O error message processed only for specific Fault Symptom Codes generated by StorageTek tape devices
_TA0233D	Message for ASM2

JES3 Messages

The following JES3 messages are processed by the SMC:

- IAT5210
- IAT5310
- IAT5410

IBM message manuals describe the exact format (spacing, etc.) and definition of each message.

Tape Management System Messages

CA-1 Messages

The following CA-1 (TMS) messages are intercepted by the SMC. Refer to the appropriate Computer Associates publication for the exact format and meaning of each message.

TABLE A-2 Tape Management System Messages - CA-1

Message ID	Description
CTS001	See CA-1 User Manual, Volume 1
CTS002	See CA-1 User Manual, Volume 1
CTS004	See CA-1 User Manual, Volume 1
CTS005	See CA-1 User Manual, Volume 1
CTS007	See CA-1 User Manual, Volume 1
CTS008	See CA-1 User Manual, Volume 1
CTS009	See CA-1 User Manual, Volume 1
CTS010	See CA-1 User Manual, Volume 1
CTS011	See CA-1 User Manual, Volume 1
CTS014	See CA-1 User Manual, Volume 1
CTS015	See CA-1 User Manual, Volume 1
CTT100A	See CA-1 User Manual, Volume 1
CTT101A	See CA-1 User Manual, Volume 1
CTT102A	See CA-1 User Manual, Volume 1
CTT103A	See CA-1 User Manual, Volume 1
CTT104A	See CA-1 User Manual, Volume 1
CTT105A	See CA-1 User Manual, Volume 1

TABLE A-2 Tape Management System Messages - CA-1 (Continued)

Message ID	Description
TMS001	See CA-1 User Manual, Volume 1
TMS002	See CA-1 User Manual, Volume 1
TMS004	See CA-1 User Manual, Volume 1
TMS005	See CA-1 User Manual, Volume 1
TMS007	See CA-1 User Manual, Volume 1
TMS008	See CA-1 User Manual, Volume 1
TMS009	See CA-1 User Manual, Volume 1
TMS010	See CA-1 User Manual, Volume 1
TMS011	See CA-1 User Manual, Volume 1
TMS014	See CA-1 User Manual, Volume 1
TMS015	See CA-1 User Manual, Volume 1
IECTMS7	See CA-1 User Manual, Volume 1
CA$F810A	See CA-1 Message Guide
CA$F813A	See CA-1 Message Guide

CONTROL-M/TAPE (formerly CONTROL-T) Messages

The following CONTROL-M/TAPE messages are intercepted by the SMC. Refer to the appropriate BMC publication for the exact format and meaning of each message.

TABLE A-3 CONTROL-M/TAPE Messages

Message ID	Description
CTT100A	See BMC's INCONTROL for OS/390 and z/OS Message Manual
CTT101A	See BMC's INCONTROL for OS/390 and z/OS Message Manual
CTT102A	See BMC's INCONTROL for OS/390 and z/OS Message Manual
CTT103A	See BMC's INCONTROL for OS/390 and z/OS Message Manual
CTT104A	See BMC's INCONTROL for OS/390 and z/OS Message Manual
CTT105A	See BMC's INCONTROL for OS/390 and z/OS Message Manual

DFSMSrmm Messages

DFSMSrmm mount message (EDG6627A) must be acted on by the SMC when the volume or drive specified in the message is under the control of the SMC. The action of the SMC is similar to the SMC actions for the normal MVS mount messages (e.g., IEC233A, etc).

The DFSMSrmm Tape Initialization program (EDGINERS) issues a series of messages describing the success or failure of tape initialization, erasure, and/or verification. This series of messages is used to drive the dismount of the tapes mounted from the EDG6627A message. The following messages must be acted on by the SMC to dismount a tape:

TABLE A-4 Tape Management System Messages - DFSMSrmm

Message ID	Description
EDG6620I	VOLUME volser INITIALIZATION AND VERIFICATION SUCCESSFUL
EDG6621E	VOLUME volser INITIALIZATION FAILED
EDG6623I	VOLUME volser ERASE, INITIALIZATION AND VERIFICATION SUCCESSFUL
EDG6624I	VOLUME volser ERASE FAILED
EDG6627E	M dev VOLUME (volser) RACK (rack-number) TO BE action, lbltype
EDG6642E	VOLUME volser LABELLED SUCCESSFULLY
EDG6643E	VOLUME volser ERASED AND LABELLED SUCCESSFULLY

APPENDIX **B**

MEDia, RECtech, and MODel Values

This appendix provides values for MEDia, RECtech, and MODel parameters. These parameters are used to specify transport and media characteristics. They are specified in various NCS commands and control statements.

Media Type (MEDia)

The Media type is used to specify the desired type of media to be used for a data set. It is specified in various NCS commands and control statements, including:

- SMC POLicy operator command
- SMC TAPEREQ control statement
- HSC VOLATTR control statement

The following table describes valid MEDia types:

Note –

- The SL8500 library supports the T9840A, T9840B, T9840C, T9840D, T9940B, and T10000 media types and recording techniques.
- The SL3000 library supports the T9840C, T9840D, and T10000 media types and recording techniques.

TABLE B-1 Media Types

Media Type	Description
LONGItud	Indicates standard or enhanced (ECART) capacity cartridges.
ZLONGI	Indicates standard, enhanced (ECART), or extended-enhanced (ZCART) capacity cartridges.
Standard	Indicates a standard capacity cartridge. Synonyms include CST, MEDIA1, STD, 1, 3480. A standard capacity cartridge can be used on any longitudinal transport (i.e., 4480, 4490, 9490, or 9490EE). However, if the data is written on the tape in 36-track, the data cannot be read by an 18-track 4480 transport.
ECART	Indicates an enhanced capacity cartridge. Synonyms include E, ECCST, ETAPE, Long, MEDIA2, 3490E. An ECART cartridge can be used only on 36-track transports (i.e., 4490, 9490, and 9490EE), and is identified by a two tone colored case.

TABLE B-1 Media Types (Continued)

Media Type	Description
ZCART	Indicates an extended-enhanced capacity cartridge. A ZCART cartridge can be used only on TimberLine 9490EE 36-track transports. ZCART can be abbreviated as Z.
Virtual	Indicates a VTV (Virtual Tape Volume) mounted on a VTD (Virtual Tape Drive).
HELical	Indicates a helical cartridge. A helical cartridge can be used only on RedWood transports. The following subtypes and abbreviations specify a helical cartridge: **DD3** indicates any DD3A, DD3B, or DD3C helical cartridge. **DD3A or A** indicates a helical cartridge with a 10GB media capacity. **DD3B or B** indicates a helical cartridge with a 25GB media capacity. **DD3C or C** indicates a helical cartridge with a 50GB media capacity. The seventh position in the external label is encoded with the cartridge type (i.e., A, B, or C).
STK1	Indicates any T9840 cartridge.
STK1R	Indicates a T9840 data cartridge. STK1R can be abbreviated as R. T9840 cartridge media capacities are 20GB (T9840A and T9840B), 40GB (T9840C), or 75GB (T9840D).
STK1U	Indicates a T9840A, T9840B, or T9840C cleaning cartridge. STK1U can be abbreviated as U.
STK1Y	Indicates a T9840D cleaning cartridge. STK1Y can be abbreviated as Y.
STK2	Indicates any T9940 cartridge.
STK2P	Indicates a T9940 data cartridge. STK2P can be abbreviated as P. T9940 cartridge media capacities are 60GB (T9940A) or 200GB (T9940B)
STK2W	Indicates a T9940 cleaning cartridge. STK2W can be abbreviated as W.
T10000T1	Indicates a full-capacity 500GB T10000A or 1TB T10000B cartridge. T10000T1 can be abbreviated as T1.
T10000TS	Indicates a smaller-capacity 120GB T10000A or 240GB T10000B cartridge. T10000TS can be abbreviated as TS.
T10000T2	Indicates a full-capacity 5TB T10000C cartridge. T10000T2 can be abbreviated as T2.
T10000TT	Indicates a smaller-capacity 1TB T10000C cartridge. T10000TT can be abbreviated as TT.
T10000CT	Indicates a T10000A or T10000B cleaning cartridge. T10000CT can be abbreviated as CT.
T10000CL	Indicates a T10000A, T10000B or T10000C cleaning cartridge. T10000CL can be abbreviated as CL.

Note – T10000C drives can read T10000T1 or T10000TS media but cannot write to that media. T10000C drives can only write to T10000T2 or T10000TT media.

When the MEDia parameter is not specified, a default is chosen based on the value of the RECtech parameter. The following table shows default values used if MEDia is omitted:

TABLE B-2 Media Type Defaults

RECtech Entered	MEDia Default
18track	Standard
36track, 36Atrack, 36Btrack	LONGItud
36Ctrack	ZLONGI
LONGItud	LONGItud
DD3, Helical	DD3A
STK1R, STK1R34, STK1R35 STK1RA, STK1RA34, STK1RA35 STK1RB, STK1RB34, STK1RB35 STK1RAB, STK1RAB34, STK1RAB35 STK1RC, STK1RC34, STK1RC35 STK1RD, STK1RDE, STK1RDN, STK1RD34, STK1RD35, STK1RDE4, STK1RDE5	STK1R
STK2P, STK2P34, STK2P35 STK2PA, STK2PA34, STK2PA35 STK2PB, STK2PB34, STK2PB35	STK2P
T10K, T10KN, T10KE T10KA, T10KAN, T1A34, T1A35, T10KAE, T1AE34, T1AE35 T10KC, T10KCN, T1C34, T1C35, T10KCE, T1CE34, T1CE35	T10000T1*
Virtual	Virtual

* T10000C drives can read T10000T1 or T10000TS media but cannot write to that media. T10000C drives can only write to T10000T2 or T10000TT media.

Recording Technique (RECtech)

The recording technique, or RECtech, is used to specify the method used to record data tracks on the tape surface for the desired data set. It is used in the following NCS commands and control statements:

- SMC POLicy operator command
- SMC TAPEREQ control statement
- SMC UNITAttr operator command
- HSC VOLATTR control statement

The following table describes valid recording techniques:

Note –

- The SL8500 library supports the T9840A, T9840B, T9840C, T9840D, T9940B, and T10000 media types and recording techniques.
- The SL3000 library supports the T9840C, T9840D, and T10000 media types and recording techniques.
- The T9940B transport supports both 3490 and 3590 image definitions. However:
  - With VSM, T9940B transports may **only** be defined as 3490-image devices.
  - With a native interface, T9940B transports may **only** be defined as 3590-image devices.

TABLE B-3 Recording Techniques

Recording Technique	Description
LONGItud	Indicates any device that records data tracks in a linear format along the length of the tape surface. These devices include 4480, 4490, 9490, and 9490EE transports.
18track	Indicates a 4480 transport.
36track	Indicates a 4490, 9490, or 9490EE transport (any device that records in 36-track mode).
36Atrack	Indicates a 4490 transport.
36Btrack	Indicates a 9490 transport.
36Ctrack	Indicates a 9490EE transport.
HELical	Indicates a device using helical recording.

TABLE B-3 Recording Techniques (Continued)

Recording Technique	Description
DD3	Indicates a device using helical recording. DD3A, DD3B, DD3C, DD3D all indicate a helical cartridge. The media indicator in the external label is encoded with the cartridge type (A, B, C, or D). DD3A, DD3B, DD3C, or DD3D can be abbreviated to A, B, C, or D, respectively. Types of helical cartridges, along with their associated media capacities, are: ■ DD3A – 10GB ■ DD3B – 25GB ■ DD3C – 50GB ■ DD3D – cleaning cartridge. Data capacity differences between DD3A, DD3B, and DD3C cartridges are related to the length of the tape in the cartridge, not to the recording density of the data.
STK1R	Indicates any T9840 transport.
STK1R34	Indicates a 3490E-image T9840 transport.
STK1R35	Indicates a 3590-image T9840 transport.
STK1RA	Indicates a T9840A transport.
STK1RA34	Indicates a 3490E-image T9840A transport.
STK1RA35	Indicates a 3590-image T9840A transport.
STK1RB	Indicates a T9840B transport.
STK1RB34	Indicates a 3490E-image T9840B transport.
STK1RB35	Indicates a 3590-image T9840B transport.
STK1RAB	Indicates a T9840A or T9840B transport.
STK1RAB4	Indicates a 3490E-image T9840A or T9840B transport.
STK1RAB5	Indicates a 3590-image T9840A or T9840B transport.
STK1RC	Indicates a T9840C transport.
STK1RD	Indicates a T9840D transport.
STK1RDN	Indicates a non-encryption-enabled T9840D transport.
STK1RD34	Indicates a non-encryption-enabled 3490E-image T9840D transport.
STK1RD35	Indicates a non-encryption-enabled 3590-image T9840D transport.
STK1RDE	Indicates an encryption-enabled T9840D transport.
STK1RDE4	Indicates an encryption-enabled 3490E-image T9840D transport.
STK1RDE5	Indicates an encryption-enabled 3590-image T9840D transport.
STK1RC34	Indicates a 3490E-image T9840C transport.
STK1RC35	Indicates a 3590-image T9840C transport.
STK2P	Indicates any T9940 transport.
STK2P34	Indicates a 3490E-image T9940 transport.
STK2P35	Indicates a 3590-image T9940 transport.

TABLE B-3 Recording Techniques (Continued)

Recording Technique	Description
STK2PA	Indicates a T9940A transport.
STK2PA34	Indicates a 3490E-image T9940A transport.
STK2PA35	Indicates a 3590-image T9940A transport.
STK2PB	Indicates a T9940B transport.
STK2PB34	Indicates a 3490E-image T9940B transport.
STK2PB35	Indicates a 3590-image T9940B transport.
T10K	Indicates all T10000 transports.
T10KN	Indicates all non-encrypted T10000 transports.
T10KE	Indicates all encrypted T10000 transports.
T10KA	Indicates any T10000A transport.
T10KAN	Indicates a non-encryption enabled 3490E- or 3590-image T10000A transport.
T1A34	Indicates a non-encryption enabled 3490E-image T10000A transport.
T1A35	Indicates a non-encryption enabled 3590-image T10000A transport.
T10KAE	Indicates an encryption-enabled 3490E- or 3590-image T10000A transport.
T1AE34	Indicates an encryption-enabled 3490E-image T10000A transport.
T1AE35	Indicates an encryption-enabled 3590-image T10000A transport.
T10KB	Indicates any T10000B transport.
T10KBN	Indicates a non-encryption enabled 3490E- or 3590-image T10000B transport.
T1B34	Indicates a non-encryption enabled 3490E-image T10000B transport.
T1B35	Indicates a non-encryption enabled 3590-image T10000B transport.
T10KBE	Indicates an encryption-enabled 3490E- or 3590-image T10000B transport.
T1BE34	Indicates an encryption-enabled 3490E-image T10000B transport.
T1BE35	Indicates an encryption-enabled 3590-image T10000B transport.
T10KC	Indicates any T10000C transport.
T10KCN	Indicates a non-encrypted 3490E- or 3590-image T10000C transport.
T1C34	Indicates a non-encrypted 3490E-image T10000C transport.
T1C35	Indicates a non-encrypted 3590-image T10000C transport.
T10KCE	Indicates an encryption-enabled 3490E- or 3590-image T10000C transport.
T1CE34	Indicates an encryption-enabled 3490E-image T10000C transport.
T1CE35	Indicates an encryption-enabled 3590-image T10000C transport.
Virtual	Indicates a VTV (Virtual Tape Volume) mounted on a VTD (Virtual Tape Drive).

When the RECtech parameter is not specified, a default is chosen based on the value of the MEDia parameter. The following table shows default values used if RECtech is omitted.

TABLE B-4 Recording Technique Defaults

MEDia Entered	RECtech Default
LONGItud	LONGItud
ZLONGI	LONGitude
Standard	LONGItud
ECART	36track
ZCART	36Ctrack
DD3A, DD3B, DD3C, DD3D	DD3
STKR, STK1U, STKY	STK1R
STK2P, STK2W	STK2P
T10000T1, T10000TS, T10000CL	T10K
T10000CT	T10KA + T10KB
T10000T2, T10000TT	T10KC
Virtual	Virtual

MODel Type (MODel)

The model type is used to specify the model number of a transport (drive), or drive. MODel provides the same type of information as RECtech, but a user may find it more convenient to specify a transport model rather than a recording technique. MODel and RECtech are mutually exclusive.

MODel is used in the following NCS commands and control statements:

- SMC POLicy operator command
- SMC TAPEREQ control statement
- SMC UNITAttr operator command
- HSC VOLATTR control statement

The following table describes valid MODel types:

Note – You can specify multiple values for this parameter; separate each value with a comma.

TABLE B-5 Model Types

Model Type	Description
4480	Indicates a 4480 (18-track) transport.
4490	Indicates a 4490 (36-track Silverton) transport.
9490	Indicates a 9490 (36-track Timberline) transport.
9490EE	Indicates a 9490EE (36-track Timberline EE) transport.
SD3	Indicates an SD-3 (RedWood) transport.
9840	Indicates a 3490E-image T9840A transport.
984035	Indicates a 3590-image T9840A transport.
T9840B	Indicates a 3490E-image T9840B transport.
T9840B35	Indicates a 3590-image T9840B transport.
T9840C	Indicates a 3490E-image T9840C transport.
T9840C35	Indicates a 3590-image T9840C transport.
T9840D	Indicates a non-encryption-enabled 3490E-image T9840D transport.
T9840D35	Indicates a non-encryption-enabled 3590-image T9840D transport.
T9840DE	Indicates an encryption-enabled 3490E-image T9840D transport.
T9840DE5	Indicates an encryption-enabled 3590-image T9840D transport.
T9940A	Indicates a 3490E-image T9940A transport.
T9940A35	Indicates a 3590-image T9940A transport.
T9940B	Indicates a 3490E-image T9940B transport.
T9940B35	Indicates a 3590-image T9940B transport.
T1A34	indicates a 3490E-image T10000A transport.
T1A35	Indicates a 3590-image T10000A transport.

TABLE B-5 Model Types (Continued)

Model Type	Description
T1AE34	Indicates an encryption-enabled 3490E-image T10000A transport.
T1AE35	Indicates an encryption-enabled 3590-image T10000A transport.
T1B34	Indicates a 3490E-image T10000B transport.
T1B35	Indicates a 3590-image T10000B transport.
T1BE34	Indicates an encryption-enabled 3490E-image T10000B transport.
T1BE35	Indicates an encryption-enabled 3590-image T10000B transport.
T1C34	indicates a non-encryption enabled 3490E-image T10000C transport.
T1C35	Indicates a non-encryption enabled 3590-image T10000C transport.
T1CE34	Indicates an encryption-enabled 3490E-image T10000C transport.
T1CE35	Indicates an encryption-enabled 3590-image T10000C transport.
Virtual	Indicates a VTV (Virtual Tape Volume) mounted on a VTD (Virtual Tape Drive).

APPENDIX **C**

TAPEREQ Conversion Script (POLCVT02)

Overview

POLCVT02 is a REXX script designed to assist in converting existing TAPEREQ statements to use the new SMC POLicy method. This script is included in the SMC SAMPLIB. The sample JCL file POLCVT01 is used to execute the script.

The script reads existing TAPEREQ statements and produces the following output:

- TAPEREQ statements with existing policy parameters (MEDIA, RECTECH, etc.) replaced by a new POLicy name parameter
- POLicy definitions derived from the original TAPEREQ definitions. Policy names are created using the format POL*nnnnn*, where *nnnnn* is a decimal number from 00001 to 99999.

Note –

- The conversion script assumes that each TAPEREQ definition identifies a unique set of policy definitions. If multiple TAPEREQ definitions are used to identify policy, do not rely on the output of this conversion script to replace TAPEREQ processing. The output POLicy data set may require additional modifications.
- The TAPEREQ default VOLTYPE value is * (all volume types), your generated POLicy output file may contain policies with a VOLTYPE of SPECIFIC when the policy should reference scratch only.

  If this occurs, remove the VOLTYPE(SPECIFIC) POLICY statements from the output file. Note that in normal circumstances it is not necessary to provide any policies for specific allocations, since the SMC obtains information from the TapePlex about media and location that is used by default.

Executing the Script

Perform the following steps to execute the TAPEREQ conversion script:

1. Copy the SAMPLIB member POLCVT01 to your JCL library.

   POLCVT01 contains sample JCL to execute the POLCVT02 REXX script as follows:

```
//POLCVT01 JOB  (ACCTINFO),'CONVERT TAPEREQS TO USE POLICY'
//*------------------------------------------------------------- */
//* Modify this JCL to convert TAPEREQ definitions to use      */
//* policy definitions provided through the POLICY command.    */
//* This JCL executes a REXX samplib program called POLCVT02.  */
//* Change the following DD statements to identify the         */
//*   - dataset that contains the POLCVT02 REXX program        */
//*   - dataset that contains the TAPEREQ input statements     */
//*   - dataset that will contain the TAPEREQ output           */
//*   - dataset that will contain the POLICY output            */
//*------------------------------------------------------------- */
//STEP1    EXEC PGM=IKJEFT01
//SYSEXEC  DD DISP=SHR,DSN=rexx.dataset
//INTAPREQ DD DISP=SHR,DSN=tapereq.input(member)
//OTTAPREQ DD DISP=OLD,DSN=tapereq.output(member)
//OTPOLICY DD DISP=OLD,DSN=policy.output(member)
//*NPOLICY DD DISP=SHR,DSN=policy.input(member)
//SYSTSPRT DD SYSOUT=*
//SYSTSIN  DD *
  %POLCVT02 INTAPREQ OTTAPREQ OTPOLICY ( TRACE 0 )
/*
```

2. Change the JOB card to reflect your environment.
3. Change the SYSEXEC DD to point to the REXX data set program, POLCVT02.
4. Change the INTAPREQ DD statement to identify the data set containing your input TAPEREQ definitions.
5. Change the OTTAPREQ DD statement to identify the destination data set for the output TAPEREQ definitions.
6. Change the OTPOLICY DD statement to identify the destination data set for the output POLicy definitions.
7. Optionally, uncomment and change the INPOLICY DD statement to identify the data set containing input POLicy definitions. This data set contains previously defined POLicy statements, or those that exist from a previous execution of the conversion script.
8. Review the generated output to ensure that each output POLicy statement contains all policies, and delete any unnecessary policies with VOLTYPE (SPECIFIC). Optionally, edit both the OTTAPEREQ and output POLICY files to assign meaningful names to the policies.

APPENDIX **D**

SMC Compatibility Matrix

Use the following matrix to determine SMC compatibility with HSC and the StorageTek HTTP Server:

TABLE D-1 SMC Compatibility Matrix

	Compatible HSC Releases	Compatible MVS/CSC Releases	Compatible HTTP Server Releases
SMC 6.2	6.1, 6.2	6.1, 6.2	6.1, 6.2
SMC 6.1	6.1, 6.2	6.1, 6.2	6.1, 6.2
SMC 6.0	6.0, 6.1, 6.2	6.0, 6.1, 6.2	6.0, 6.1, 6.2

APPENDIX **E**

SMC Interaction with Other Software

Automated Operations

Customers who use an automated operations product should review WTOR SMC0110, issued during SMC swap processing, for possible auto-ops rule changes.

Open Type J

The Open Type J macro is **not** supported during SMC message handling processing.

Additionally, SMC allocation enhancements may not operate if you use the MVS Open Type J macro. Because this macro allows you to change volume serial numbers or data set names at open time, information available at Job Step Allocation time may be incorrect as interpreted by the SMC.

Note – Some vendor software products use MVS Open Type J. If you are experiencing unexpected allocation results using a vendor software product, check with the vendor to determine if Open Type J is used and follow the recommendations below.

SMC allocation may influence MVS allocation erroneously based on information that may have changed at open time. To prevent this problem when using the Open Type J macro, specify the appropriate esoteric in the JCL or specify an appropriate esoteric in an applicable TAPEREQ control statement **or POLicy command**.

SAMS: DISK (DMS)

Sterling Software's SAMS: DISK (DMS) has two methods of allocating transports:

- Allocates transports at session startup, holds onto the transports throughout the session and uses Open Type J (see page 371)
- Uses dynamic allocation (DYNALLOC) to allocate transports when required

The SMC allocates correctly when dynamic allocation is used. Therefore, the latter method of allocating transports is recommended.

CA-MIA Tape Sharing

The Computer Associates Unicenter CA-MIA Tape Sharing for the z/OS and OS/390 product relies upon direct modification of the EDL at SSI24 time to determine what tape drives remain eligible for an allocation event. However, the SMC does not directly modify the EDL as part of its normal allocation processing. To enable proper coexistence with CA-MIA Tape Sharing, set the MIAcompat parameter of the ALLOCDef command to ON.

CA1-RTS Real Time Stacking

The Computer Associates Real Time Stacking product relies on DEFER processing being performed at SSI24 time. However, the SMC normally performs DEFER processing during SSI78 time. To enable proper coexistence with CA1-RTS, set the CA1rts parameter of the ALLOCDef command to ON.

MVS Security Packages

Ensure that your MVS security package (e.g., RACF, TopSecret) is configured to grant SMC the necessary authority to respond to MVS swap messages.

Fault Analyzer for z/OS

The IBM program Fault Analyzer for z/OS is used to determine why an application abends. It may be installed on systems that also run StorageTek NCS software products, however, **it is not useful when applied to abends that occur in NCS code**. Because of the complex subsystem environment where NCS code executes, Fault Analyzer itself may abend.

If Fault Analyzer for z/OS is installed on your NCS system, **it is strongly recommended** that you specify the following update to ensure that this product ignores NCS product abends.

When Fault Analyzer is installed, perform the following update to SYS1.PARMLIB(IDICNF00):

```
EXCLUDE (NAME(HSC) NAME(SMC) NAME(CSC))
```

where:

- *HSC* is the name of the HSC console-started-task.
- *SMC* is the name of the SMC console-started-task.
- *CSC* is the name of the MVS/CSC console-started-task.

Alternatively, you can specify **EXCLUDE (TYPE(STC))** to exclude all console-started tasks from evaluation by Fault Analyzer. However, this broad exclusion may not be appropriate in your environment.

Glossary

Terms are defined as they are used in the text. If you cannot find a term here, check the index.

A

Abnormal end of task (abend) A software or hardware problem that terminates a computer processing task.

ACS-id A method used in the LIBGEN process to identify ACSs by using hexadecimal digits, 00 to nn.

ACS *See* Automated Cartridge System.

ACS library A library is composed of one or more Automated Cartridge Systems (ACSs), attached cartridge drives, and cartridges residing in the ACSs.

address Coded representation of hardware id, or the destination or origination of data.

allocation The assignment of resources to a specific task.

asynchronous transmission Character-oriented data transmission (as distinct from IBM's block-mode transmission).

Automated Cartridge System (ACS) A fully-automated, cartridge storage and retrieval library subsystem consisting of one or more Library Storage Modules (LSMs) connected by pass-thru ports.

Automated Cartridge System Library Software (ACSLS) The library control software, which runs in the UNIX®-based Library Control System.

automatic mode A relationship between an LSM and all attached hosts. LSMs operating in automatic mode handle cartridges without operator intervention. This is the normal operating mode of an LSM that has been modified online. The opposite situation is "manual mode." *See* manual mode.

B

bar code A code consisting of a series of bars of varying widths. This code appears on the external label attached to the spine of a cartridge and is equivalent to the volume serial number (volser). This code is read by the robot's machine vision system.

BISYNC Binary Synchronous Communications. An early low-level protocol developed by IBM and used to transmit data on a synchronous communications link. It is a form of data transmission in which synchronization of characters is controlled by timing signals generated at the sending and receiving stations.

C

CAPid A CAPid uniquely defines the location of a CAP by the LSM on which it resides. A CAPid is of the form "AAL" where "AA" is the acs-id and "L" is the LSM number.

cartridge The plastic housing around the tape. It is approximately 4 inches (100 mm) by 5 inches (125 mm) by 1 inch (25 mm). The tape is threaded automatically when loaded in a transport. A plastic leader block is attached to the tape for automatic threading. The spine of the cartridge contains an OCR/Bar Code label listing the VOLSER (tape volume identifier).

Cartridge Access Port (CAP) An assembly that allows several cartridges to be inserted into or ejected from an LSM without human entry into the LSM.

cartridge drive (CD) A hardware device containing two or four cartridge transports and associated power and pneumatic supplies.

cartridge tape I/O driver Operating system software that issues commands (for example, read, write, and rewind) to cartridge subsystems. It is the software focal point for attaching a particular type of control unit. (An example is the Oracle's StorageTek CARTLIB product.)

cartridge transport *See* transport.

cell A receptacle in the LSM in which a single cartridge is stored.

CGI Common Gateway Interface

channel A device that connects the host and main storage with the input and output devices' control units. A full-duplex channel has two paths (that is, 2 wires, or one wire with signals at two frequencies). A half-duplex channel requires that one port receives while the other transmits.

channel-to-channel (CTC) Refers to the communication (transfer of data) between programs on opposite sides of a channel-to-channel adapter.(I)

client The ultimate user of the ACS services as provided by the Library Control System.

client link The communications link between the LCS and a client.

client-server A model of interaction in a distributed system in which a program at one site serves a request to a program at another site and awaits a response. The requesting program is called a client; the program satisfying the request is called a server.

client system The system to which the LCS provides an interface to a StorageTek Automated Cartridge System.

Client System Component (CSC) Software that provides an interface between the Client Computing System's operating system and the StorageTek Library Control System (LCS).

coaxial cable A transmission medium used in data transmissions for networks using synchronous communications, as opposed to twisted-pair, the primary medium for asynchronous RS-232 communications.

complex A system composed of other systems, specifically the ACS server system and the client system.

connected mode A relationship between a host and an ACS. In this mode, the host and an ACS are capable of communicating (in the sense that at least one station to this ACS is online).

connection number The unique identifier on the server for a communications path. The number is assigned by TCP/IP to identify the unique connection between the server node and a specific port on the server, and the client node and a specific port on the client. The connection number exists only as long as the connection exists.

console The primary I/O device to control a session on a system.

control data set (CDS) The data set used by the host software to control the functions of the automated library. Also called a library database.

Control Path Adaptor (CPA) A Bus-Tech, Inc. hardware device that allows communications between a host processor's block multiplexer channel and a local area network.

Control Unit (CU) A microprocessor-based unit situated locally between a channel and an I/O device. It translates channel commands into device commands and sends device status to the channel.

coupling facility A special logical partition that provides high-speed caching, list processing, and locking functions in a sysplex.(I)

coupling facility channel A high bandwidth fiber optic channel that provides the high-speed connectivity required for data sharing between a coupling facility and the central processor complexes directly attached to it.(I)

coupling services In a sysplex, the functions of XCF that transfer data and status between members of a group residing on one or more MVS systems in the sysplex.(I)

cross-system coupling facility (XCF) XCF is a component of MVS that provides functions to support cooperation between authorized programs running within a sysplex.(I)

CTC Channel-to-channel.

Data Path Adapter A hardware device which translates from a client computing system's data protocol to the data protocol of the StorageTek Control Unit or IMU. An example is DEC's TC44-AA/BA STI-to-4400 ACS Interconnect.

D

data set A set of records treated as a unit.

data sharing The ability of concurrent subsystems or application programs to directly access and change the same data while maintaining data integrity.(I)

device number A four-digit hexadecimal number that uniquely identifies a device attached to a processor.

device preferencing The process of preferring one 36-track transport type over another 36-track transport type.

device separation *See* drive exclusion.

DFSMS Data Facility Storage Management Subsystem.

direct access storage device (DASD) IBM's term for a disk drive storage device.

directed allocation *See* drive prioritization.

disconnected mode A relationship between a host and an ACS. In this mode, the host and the ACS are not capable of communicating (there are no online stations to this ACS).

dotted-decimal notation The syntactic representation of a 32-bit integer that consists of four 8-bit numbers written in base ten with periods (dots) separating them. In TCP/IP descriptions, dotted-decimal notation is used for Internet addresses.

drive exclusion (previously referred to as *device separation*) refers to the Storage Management Component (SMC) function of excluding drives for an allocation request based on SMC exclusion criteria.

drive panel An LSM wall containing tape transports. The drive panel for a T9840 transport can contain either 10 or 20 transports. The drive panel for a non-T9840 transport can contain a maximum of 4 transports.

drive prioritization (previously referred to as *directed allocation*) refers to the Storage Management Component (SMC) function of influencing selection of a particular drive based on allocation criteria, including volume location.

Dual LMU A hardware/microcode feature that provides a redundant LMU capability.

dump A printed representation of the contents of main storage at time *t*. This representation is used for debugging purposes.

dynamic server switching The capability of switching server processors when a system failure occurs on the active server.

E

ECART Enhanced Capacity Cartridge.

Enhanced Capacity Cartridge A cartridge that has a length of 1100 feet and can be used only on 36-track transports (i.e., 4490, 9490, and 9490EE).

Enterprise Systems Connection (ESCON) A set of products and services that provides a dynamically connected environment using optical cables as a transmission medium.(I)

error codes (EC) Numeric codes displayed by messages indicating the type of problem that caused an error.

error recovery procedures (ERP) Procedures designed to help isolate and, where possible, to recover from errors in equipment.

ESCON Enterprise Systems Connection.

esoteric name The name assigned to transports that have the same device type.

Ethernet One LAN architecture using a bus topology that allows a variety of computers to be connected to a common shielded coaxial spine. The Ethernet architecture is similar to the IEEE 802.3 standard.

event control block (ECB) Provides an area for a completion code to be stored when an operation has completed.

F

file A set of related records treated as a unit.

File Transfer Protocol (FTP) A TCP/IP command that provides a way to transfer files between machines connected through TCP/IP.

foreign socket One of two end-points in a TCP/IP connection-oriented protocol. Specifies the address of a foreign host that can connect to the server.

G

GB 1,073,741,834 bytes of storage

H

handshake A flow-of-control signal sent by one process to another.

helical cartridge A high capacity, helical scan cartridge that can hold up to 50GB of uncompressed data. This cartridge can be used only on RedWood (SD-3) transports.

host computer A computer that controls a network of computers.

Host Software Component (HSC) Software running on the Library Control System processor that controls the functions of the ACS.

Host Software Component utilities Utilities provided by the VM/HSC that can be executed from the HSCUTIL virtual machine. *See* client-initiated utilities.

HSC *See* Host Software Component.

HTTP Hypertext Transfer Protocol.

I

IEEE 802.3 A standard produced by the IEEE and accepted worldwide for local area networks using CSMA/CD (Carrier Sense Multiple Access with Collision Detection).

ICRC Improved Cartridge Recording Capacity. A compression and compaction feature that increases the amount of data that can be stored on a 1/2-inch cartridge.

initial program load (IPL) A process that activates a machine reset.

Interactive Storage Management Facility A series of applications for defining DFSMS/MVS storage groups and classes.

Internet A collection of networks using TCP/IP that functions as a virtual network.

Internet address The numbering system used to specify a network or host on that network for TCP/IP communications. Standard Internet address notation is dotted-decimal format.

Internet Protocol (IP) Formal description of messages and rules two networks use to exchange messages.

ISMF Interactive Storage Management Facility.

J

job control language (JCL) A problem oriented language designed to describe a job's processing requirements to an operating system.

JES Job entry subsystem.(I)

JES2 An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for execution, processes their output, and purges them from the system. In an installation with more than one processor, each JES2 processor independently controls its job input, scheduling, and output processing. *See* also JES3.(I)

JES3 An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for execution, processes their output, and purges them from the system. In complexes that have several loosely coupled processing units, the JES3 program manages processors so that the global processor exercises centralized control over the local processors and distributes jobs to them via a common job queue. *See* also JES2.(I)

L

LAN *See* local area network.

LCS *See* Library Control System.

LCS processor console The Library Control System processor console is used to control the VM operating system (for the VM-based LCS).

LCU *See* Library Control Unit.

LIBGEN The process of defining the configuration of a library to the VM/HSC.

library *See* TapePlex.

library cartridge transport *See* transport.

library complex A library complex consists of one HSC Control Data Set (CDS) and may contain up to 256 Automatic Cartridge Systems (ACSs), each of which may contain up to 24 Library Storage Modules (LSMs).

library control component Software that controls the mounting and dismounting of cartridges in an ACS.

library control platform The hardware and software that provides the proper environment for the Library Control System.

library control processor Properly configured computer hardware that supports the operation of the Library Control System.

Library Control Software A library control component, the client system interface, and library utilities.

Library Control System (LCS) The library control platform and the Library Control Software.

Library Control Unit (LCU) The portion of an LSM that controls the movements of the robot.

library database A file or data set containing information about the location and status of the removable media volumes, such as cell location, scratch status. Also called a control data set (CDS).

library drive A cartridge drive in the ACS, as distinct from a stand-alone cartridge drive.

Library Management Unit (LMU) A hardware and software product that coordinates the activities of one or more LSMs/LCUs.

library mode The operation of a 4480 Cartridge Subsystem as part of a 4400 Automated Cartridge System, as opposed to manual mode, in which the operator inserts cartridges into the transports. *See* manual mode.

LibraryStation Software that allows MVS hosts to share ACS facilities with client systems.

Library Storage Module (LSM) The standard LSM (4410) a twelve-sided structure with storage space for up to around 6000 cartridges. It also contains a free-standing, vision-assisted robot that moves the cartridges between their storage cells and attached transports. *See* also PowderHorn, SL8500, and WolfCreek.

LMU *See* Library Management Unit.

local area network (LAN) A network in a small (local) geographic area.

local port The designation of a given application or process among many that are available for a TCP/IP-capable host processor.

local socket The address combination of a TCP/IP-capable host's network address and a specific port for an application process.

logical port (LP) CLS software that interfaces with the client system. The CLSLP is one of the software components used to pass data between the client system and the VM/HSC.

LP *See* logical port.

LSM *See* Library Storage Module.

LSM-id An LSM-id is composed of the ACS-id joined to (concatenated with) the LSM number.

LSM number A method used to identify an LSM. An LSM number is the result of defining the SLIACS macro LSM parameter during a LIBGEN. The first LSM listed in this parameter acquires the LSM number of 00 (hexadecimal) the second LSM listed acquires a number of 01, and so forth, until all LSMs are identified (up to a maximum of 24 or hexadecimal 17).

M

manual mode Operation of a cartridge drive apart from an ACS. *See* library mode.

master LMU The LMU currently controlling the functional work of the ACS in a dual LMU configuration.

mixed configuration A configuration that contains different types of cartridge drives in both manual and library modes.

modem A device that enables digital data to be transmitted over an analog transmission facility.

multi-client The environment where more than one (homogenous or heterogeneous) client system is connected to one LCS.

MVS system console The MVS/CSC provides an operator interface through the MVS system console.

N

NCS Nearline Control Solution, consisting of SMC, HSC, StorageTek HTTP server, MVS/CSC, and LibraryStation.

O

OCR label Optical character recognition label. An external label attached to the spine of a cartridge that is both human and machine readable.

operator console In this document, the operator console refers to the MVS client system console.

operating system (OS) Software that controls the execution of programs that facilitate overall system operation.

P

Pass-thru Port (PTP) A mechanism that allows a cartridge to be passed from one LSM to another in a multiple LSM ACS.

physical port The communications hardware required to support a server/client link.

physical volume A physically bound unit of data file media. *See* cartridge.

PowderHorn (9310) The high-performance version of the standard LSM.

pre-configured package A storage server package including all hardware, software, and configuration parameter settings delivered by the vendor.

product change request (PCR) A request for enhancement to a product. Normally, this request comes from a client, but may come from Oracle.

program temporary fix (PTF) A software release designed to remedy one or a series of defects.

program update tape (PUT) One or more tapes containing updates to, or new versions of, the MVS/CSC system software.

protocol A formal description of message formats and the rules two or more machines must follow to exchange these messages.

R

recovery Automatic or manual procedures to resolve problems in the server system.

reel-id Identifier of a specific tape volume. Equivalent to volume serial number (VOLSER).

request Term used to refer to commands issued to the 4400 ACS to perform a tape-related function.

S

scratch tape A tape that is available to any user because it is not owned.

scratch tape subpool A defined subset of all scratch tapes. Subpools are composed of one or more ranges of volsers with similar physical characteristics (type of volume—reel or cartridge, reel size, length, physical location, and so on). Some installations may also subdivide their scratch pools by other characteristics such as label type.

SD-3 The StorageTek helical cartridge transport. Also known as RedWood.

server An NCS library control system such as HSC. In SMC a server is represented by a named SERVER path to a named TAPEPLEX. While the StorageTek HTTP server software component is required as the middle ware on the remote host, the server, as far as SMC is concerned is the NCS library control system operating on the remote host.

socket A unique address on a network plus a node address plus the id of one specific application on a specific network. An abstraction used by TCP/IP.

standard capacity cartridge A cartridge that can be used on any longitudinal transport (i.e., 4480, 4490, 9490, or 9490EE).

standby The status of a station that has been varied online but is connected to the standby LMU of a dual LMU ACS.

standby LMU The redundant LMU in a dual LMU configuration that is ready to take over in case of a Master LMU failure or when the operator issues a SWITCH command.

station A hardware path between the host computer and an LMU over which the VM/HSC and LMU send control information.

Storage Management Component (SMC) Software interface between IBM's OS/390 and z/OS operating systems and StorageTek real and virtual tape hardware. SMC performs the allocation processing, message handling, and SMS processing for the NCS solution.

storage server A set of hardware and software products designed to enable heterogeneous computer systems to use automated tape cartridge library services.

switchover The assumption of master LMU function by the standby LMU.

synchronous *See* BISYNC.

synchronous LAN Local area network built on synchronous communications.

sysplex A set of MVS systems communicating and cooperating with each other through certain multisystem hardware components and software services to process customer workloads.(I)

Systems Network Architecture (SNA) A description of the logical structure, formats, protocols, and operational sequences for transmitting information units through and controlling the configuration and operation of networks.

T

tape drive A tape processing device consisting of up to four transports in a cabinet. A drive can refer to an individual transport.

tape library management system (TLMS) TLMS, as used in this document, refers to any tape library management system, not to CA-1.

TapePlex (formerly "library"), a single StorageTek hardware configuration, normally represented by a single HSC Control Data Set (CDS). A TapePlex may contain multiple Automated Cartridge Systems (ACSs) and Virtual Tape Storage Subsystems (VTSSs).

TCP/IP Transmission Control Protocol/Internet Protocol.

trace event type Types of event traced through the system when tracing is enabled.

trace file A file that contains information useful for debugging the system.

transaction A specific set of input that triggers the execution of a specific process.

Transmission Control Protocol (TCP) An inter-network standard protocol that provides a full-duplex stream service.

transport An electro-mechanical device used to thread, position, and read or write from a tape.

U

UCB Unit Control Block.

userid Sometimes referred to as the VM userid, the userid is the name that identifies a specific "virtual machine" user or client.

utility Program that performs a function ancillary to the chief function(s) of a computer system.

V

virtual machine (VM) A functional simulation of a computer and its associated devices. Each virtual machine is controlled by a suitable operating system.

virtual storage A feature of the OS where main storage requirements are allocated by segments (or pages) as needed by programs, thus creating the apparent existence of unlimited or virtual storage.

Virtual Storage Manager (VSM) A storage solution that virtualizes volumes and transports in a VTSS buffer in order to improve media and transport use.

Virtual Tape Control System (VTCS) The primary host code for the Virtual Storage Manager (VSM) solution. This code operates in a separate address space, but communicates closely with HSC.

Virtual Tape Storage Subsystem (VTSS) The DASD buffer containing virtual volumes (VTVs) and virtual drives (VTDs). The VTSS is a StorageTek RAID 6 hardware device with microcode that enables transport emulation. The RAID device can read and write "tape" data from/to disk, and can read and write the data from/to a real tape drive (RTD).

Virtual Telecommunications Access Method (VTAM) IBM host-resident communications software that serves as a common interface for communications.

VM *See* virtual machine.

VM/SP or VM/XA A proprietary operating system of IBM corporation that consists mainly of two major components, CP and CMS.

volume A tape cartridge (data carrier) that is mounted or dismounted as a unit.

volume serial number (VOLSER) An identifier of a physical volume.

W

WolfCreek (9360) The high-performance LSM with a smaller capacity than the standard LSM.

X

XCF Cross-system coupling facility.

Z

ZCART An extended-enhanced cartridge that uses a thinner media to provide twice the capacity of the enhanced capacity (ECART) cartridge. This cartridge has a length of 2200 feet and can be used only on TimberLine 9490EE 36-track transports.

Numerics

802.3 See IEEE 802.3.

3270 IBM synchronous, block-mode, half-duplex terminals preferred for use with IBM 370 and related types of machine.

3270 protocol A telecommunications protocol that supports networks of 327x CRTs on IBM mainframes.

3274 Terminal control unit used on the ACS for processor-to-LMU communications.

3480 IBM's 18-track half-inch cartridge tape drive model.

3490 IBM's 36-track half-inch cartridge tape drive model.

3590 IBM's newest cartridge tape drive model that supports 128-track recording technique.

4400 Automated Cartridge System (ACS) A fully automated, cartridge-based, 18-track storage and retrieval library. A 4400 ACS consists of 1 to 256 LMUs with each LMU connected to from 1 to 24 LSMs.

4410 The standard Library Storage Module (LSM).

4411 Library Control Unit (LCU).

4480 The StorageTek 18-track 1/2-inch cartridge transport.

4480 Cartridge Subsystem The StorageTek 4480 Cartridge Subsystem consists of a control unit (CU) plus cartridge drives (CDs).

4490 The StorageTek 36-track long-tape cartridge transport with ESCON support. Also known as Silverton.

4780 Same as a 4480, but is used for attachment to certain non-IBM computers.

8380 StorageTek DASD system.

9310 The PowderHorn, a high-performance version of the standard LSM (4410)

9360 The WolfCreek, a high-performance LSM with a smaller capacity than the standard LSM (4410).

9490 The StorageTek 36-track cartridge transport. Also known as TimberLine.

9490EE The StorageTek 36-track cartridge transport. Also known as TimberLine EE.

9740 A small, four-sided StorageTek library that supports large-style cartridge transports. This library can be configured to contain either 326 cartridges or 494 cartridges.

SL8500 The StorageTek modular library scalable from 1,500 to over 200,000 cartridges in mainframe, Windows, UNIX, and supercomputer environments. The SL8500 utilizes hot swap components and multiple robots.

T9840A The StorageTek access-centric cartridge transport capable of reading and writing 9840A cartridges.

T9840B The StorageTek access-centric cartridge transport capable of reading and writing T9840B cartridges.

T9840C The StorageTek access-centric cartridge transport capable of reading and writing T9840C cartridges.

T9840D The StorageTek access-centric cartridge transport capable of reading and writing T9840D cartridges.

T9940A The StorageTek capacity-centric cartridge transport capable of reading and writing 60GB T9940A cartridges.

T9940B The StorageTek capacity-centric cartridge transport capable of reading and writing 200GB T9940B cartridges.

T10000A The StorageTek high-capacity cartridge transport capable of reading and writing 120GB or 500GB T10000A cartridges.

T10000B The StorageTek high-capacity cartridge transport capable of reading and writing 240GB or 1TB T10000B cartridges.

T10000C The StorageTek high-capacity cartridge transport capable of reading and writing 1TB or 5TB T10000C cartridges.

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