

NewEra Software, Inc.

SAE

User's Guide

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Technical Support Information

Around-The-Clock Support

NewEra Software is dedicated to providing the highest level of technical support to meet our customers growing needs. In order to meet these needs, NewEra provides around-the-clock technical support, 7 days a week, 24 hours a day.

Reaching Us By Telephone During Business Hours

In case of an emergency, please use the following phone numbers to reach our technical support staff during normal business hours (6 AM to 4 PM Pacific Time):

- In North America, dial 1-800-421-5035
 - Outside North America, dial 1-408-201-7000
-

Reaching Us By Telephone During Non-Business Hours

During non business hours, phone the above numbers and you will receive instructions on how to contact a Technical Support Representative or a Technical Support Manager.

Sending Email

If you have access to the Internet, you can send our technical support staff an email message (support@newera.com).

Your email message will be answered by the next business day. If you have product technical questions or product recommendations, you can send them

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Part I: SAE – What’s It All About?

Overview

Introduction SAE (Stand Alone Environment) is the standard for large system repair and recovery. Worldwide, thousands of technical professionals depend on SAE (and its companion product, IMAGE Focus) as indispensable tools for managing of all levels of z/OS systems (including z/OS & MVS) and Sysplex configurations.

In This Part This part contains the following topics:

Chapter	See Page
The Environment	1-11
The Applications	1-12
System Requirements	1-14

The Environment

Standalone Operation

Perhaps the most unique part of SAE is its fundamental method of operation. Unlike other System Management Tools, SAE runs in a completely standalone mode. This method of operation is so complete that SAE provides its own operating system environment - the SAE environment is completely detached from z/OS and its subsystems.

Key Features

SAE has the following key features:

Feature	Description
Self-loading	SAE requires minimal installation. When IPLed, SAE is active and accessible in seconds. The SAE environment does not depend on any other software or catalogs, and it provides full dataset access.
Complete Security	SAE is functional when normal security systems are not available. As an added safeguard against unwarranted usage, SAE provides integrated multi-level security. Each SAE application and its related functions are password protected. You can log each interaction, from initialization to shutdown, to a completely secure dataset.
Input/Output	SAE controls all I/O requests. This allows SAE applications (like ACTION SERVICES and DASD ERASE) to perform fast I/O while reading and updating files or catalogs. SAE provides console displays and screens for user input/output.
Data Integrity	To ensure another system cannot access an DASD unit during editing, zapping, and catalog alter functions, SAE provides multi-system data integrity by issuing a HARDWARE RESERVE. The DASD unit is always in a RESERVED state when any edit, zap or catalog alter screen displays. The unit is also reserved during several alteration processes (for example, dataset rename). If SAE attempts I/O to a volume that is reserved by another system (Start Pending), an I/O error is reported by SAE. Because SAE does not reserve the volume, you can see the error during a Browse/Verify/Listcat operation.
Full-Screen Interface	SAE controls all interaction using any attached local, non-SNA, 3270 terminal. This full-screen support (modeled after ISPF) results in fast operator start-up with little, if any, need for training. All SAE screens support full-screen operation, so you can modify fields in any order. In addition, SAE supports INSERT, DELETE and ERASE EOF keys, as well as 24 PFkeys.

The Applications

Reasons for Using Applications

Applications that run in the SAE environment are designed:

- to enhance your ability to quickly diagnose, repair and recover from a system failure
- as an alternative to the floor system that is provided at their Disaster Recovery Site

All applications are completely integrated, and exploit the SAE environment's features.

List of Applications

You can access the following applications from the SAE Primary Applications Menu:

Application	Description
ACTION SERVICES	The ACTION SERVICES application provides complete access to all DASD Devices and Datasets. The ACTION SERVICES interface automatically generates a Unit, Volume, or Dataset selection list modeled after ISPF. You can use these lists to locate critical datasets or members, and use specific ACTION SERVICES to make system repairs. The ACTION SERVICES set includes: Edit, Copy, Delete, Save, Undelete, Altercat, ZAP, Rename, and Allocate.
FAST DASD ERASE	Often used in conjunction with disaster recovery testing, Fast DASD Erase offers a cost effective alternative to standard data-erasing utilities. Fast DASD Erase totally erases all user information and produces complete audit reports in the time it would take to reinitialize the VTOC's on all volumes.
RESTORE	RESTORE is the fastest way to restore a single dataset. Unlike other backup and recovery systems that require you to restore a complete volume, RESTORE lets you restore any single dataset or member originally created using IEBCOPY, IEBGENER, DFSMSdss or FDR. RESTORE performs full volume restores from DFSMSdss or FDR if required. <u>Note:</u> SAE does not use FDR or DFSMSdss in processing tapes created by those products. The file format of FDR and DFSMSdss tapes vary and may change from release to release. SAE may not support all current FDR or DFSMSdss formats or the formats of future FDR or DFSMSdss releases.

Continued on next page

The Applications, Continued

List of Applications (continued)

Application	Description
HARDWARE CONFIRMATION	HARDWARE CONFIRMATION inspects your hardware configuration and the accessibility to all I/O devices. HARDWARE CONFIRMATION checks on the status, availability and address of each I/O device.
Image Services	<p>Image Services helps you rapidly repair your z/OS Systems using both INSPECT and BLUEPRINT COMPARISON</p> <p>INSPECT automatically isolates the components that comprise a specific z/OS image. Results are almost instantaneous. They include a log of the steps and results in the validation process, which are then available for review on-line or in hard copy. INSPECT identifies and then accesses only the volumes and datasets for that specific z/OS image under investigation. This powerful application simplifies repairs and ensures that the datasets being analyzed and edited are the ones being used by the failed Image. Installations that maintain multiple z/OS Images will save time during critical system outages because FOCUS will automatically guide users to the specific SYSRES, IODF, CATALOG and/or DATASET(s) that need repair. Concurrently, SAE provides the ACTION SERVICES that are required to complete the job.</p> <p>BLUEPRINT COMPARISON works with the z/OS-based product IMAGE Focus to identify changes that have occurred in system parameter libraries. This allows you to quickly identify the root of any system problem.</p>

System Requirements

**Supported
z/OS ICKDSF
Systems**

SAE supports datasets that reside on z/OS ICKDSF formatted 3390, 3380, 3375, 3350, 3330 or 9345 direct access storage devices. VTOCs in both OS and INDEXED format are supported.

For the newer Extended Address Volumes (EAVs) there are some restrictions. SAE R15 does not support I/O operations into the Cylinder Managed Space but does support I/O operations to the Track Managed Space. This means that for datasets that reside in the Track Managed Space on EAVs, all normal operations are supported. Operations that are at the volume level (copy, restore, etc.) are not supported for EAVs.

Releases of SAE prior to R15 are not “EAV aware” and should not be used with EAV volumes.

Supported CPUs

SAE will run on S/370/XA, S/370/ESA, S/390 and z/Architecture CPUs. SAE automatically determines the CPU's 'microcode' architecture.

**Supported
3278-2 Devices**

SAE supports 3278-2 (24 rows/80 columns) like devices that are locally attached via a 3x74 control.

What's New in Release 15

EAV Support	<p>SAE Release 15 is “Extended Address Volume (EAV) aware” and support some operations on EAV volumes and prevents other operations that could be destructive if used with EAVs.</p> <p>SAE R15 does not support I/O operations into the Cylinder Managed Space but does support I/O operations to the Track Managed Space. This means that for datasets that reside in the Track Managed Space on EAVs, all normal operations are supported. Operations that are at the volume level (copy, restore, etc.) are not supported for EAVs.</p> <p>Releases of SAE prior to R15 are not “EAV aware” and should not be used with EAV volumes.</p>
Parallel Access Volume (PAV) Alias Erase Exclusion	<p>PAV Alias volumes may be excluded from erase</p>
Various Updates	<p>Various improvements throughout the product.</p>

What's New in Release 14

Duplicate Volses Identifier	<p>SAE Release 14 adds the ability to sort the Volume Selection list such that volumes with duplicate volsers are bubbled to the top. This allows duplicate volsers to be easily identified and volumes renamed to eliminate duplicates. The SORTDUP command is used on the Action Services Volume Selection List.</p>
New Installation Process	<p>With SAE Release 14, the installation process has been streamlined to improve the process. SAE may be optionally licensed prior to web download to avoid installation steps.</p>
Restore from DASD	<p>Support for DSS or FDR Restores from DUMP datasets that reside on DASD</p>
Multiple Restores without Tape dismount	<p>Support for multiple DSS or FDR restores from the same tape without dismounting the tape.</p>
Various Updates	<p>Various improvements to Fast DASD Erase and Support for Map command from Device List when volume is unlabeled</p>

Part II: SAE Installation

Overview

Introduction This part of the guide describes how to download and install NewEra Software's SAE.

In This Part This part contains the following chapters:

Chapter	See Page
Introduction	1-19
Installing SAE	2-21
Installing SAE Product Trial	3-27
Licensing SAE	4-31
Customizing SAE	5-33
Preparing SAE for IPL	6-55
Using Audit Control	7-61
Using Backup Control System	8-65

Chapter 1: Introduction

Overview

Introduction	<p>NewEra has revised the SAE installation procedure to provide better SAE management</p> <ul style="list-style-type: none">• A single JCL stream now contains all the SAE components required.• SAE can be pre-licensed prior to web download so that post download licensing steps can be avoided• SAE IPL-able versions are all created from one central location.
SAE Distribution	<p>SAE is distributed in two forms; A complete product distribution file (SAE@FULL_FUNCTION.NEZ or SAE@ERASE_ONLY.NEZ) or a trial product file (SAE@TRIAL.NEZ).</p> <p>Both types of Distribution Files are downloaded over the internet from NewEra.</p> <p>The Product Distribution File contains a complete install of the SAE product which can be configured and placed on DASD or Tape for IPL.</p> <p>The Trial Distribution File is only used to create a tape from which SAE can be IPLed. SAE obtained via this method is a complete product offering but the period of time in which it can be used is limited.</p>
Web Download Files	<p>Both types of Distribution Files require the use of a Windows operating system, which is connected over the network to the z/OS System on which you are going to install SAE.</p>

Continued on next page

Overview, Continued

Initial Installation Steps

Product Distribution File

The initial SAE Installation steps for this form of distribution involve running a single JCL stream that will create the following three datasets on your z/OS System:

- SAE DLIB - SAE Distribution Library
- UTIL.CNTL - PDS containing Utility JCL members
- UTIL.LOAD - PDS containing Utility Load members

The SAE Distribution Library or SAE DLIB is a dataset that contains your master copy of SAE. You can then use the supplied SAE utilities to change the SAE DLIB licensing and option settings.

From the one DLIB, you can then create IPL-able copies of SAE on various devices. This method of product management provides more control, and avoids the need for a copy of SAE on tape during the licensing and option setting procedures. The UTIL.CNTL and UTIL.LOAD datasets provide utilities to let you license, customize and produce IPL-able copies of SAE.

Trial Distribution File

The initial SAE Installation steps for this form of distribution involve running a single JCL stream that will create a IPLable tape containing SAE.

Chapter 2: Installing SAE

Overview

Introduction This chapter contains information about installing SAE (DLIB and Utilities) from the Product Distribution File (SAE@FULL_FUNCTION.NEZ or SAE@ERASE_ONLY.NEZ)

In This Chapter This chapter contains the following topics:

Topic	See Page
Downloading from the Web	2-23
Transferring Files	2-23
Creating the DLIB/CNTL/LOAD Datasets	2-24
Completing the Installation	2-25

Downloading from the Web

Procedure

To download SAE from the NewEra website:

Step	Action
1.	Open www.newera.com.
2.	Follow the Download links to obtain the SAE download file.
3.	Save the download file to a new directory (for example, C:/DOWNLOAD/SAE) on your Windows system.

Transferring Files

Pre-Allocating the Target Datasets

You must pre-allocate the target dataset for the transfer as described below. Using ISPF 3.2 is the easiest way to pre-allocate this dataset.

Source File Name	Target Dataset
SAE@FULL_FUNCTION.NEZ or SAE@ERASE_ONLY	<ul style="list-style-type: none"> • <i>prefix</i>.SAE.R15.SAE.INSTALL • RECFM=FB • LRECL=80 • BLKSIZE=3120 • SPACE=(TRK,(25,5))

Transfer Files to z/OS as Follows

Transfer the file in the following table to your z/OS System.

How you transfer the files depends on the tools available in your installation. Using IND\$FILE is perhaps the most common method.

Note: The transfer must take place without any ASCII to EBCDIC conversion (do not specify ASCII parameter). The transfer is of a binary file.

Transfer the files as follows:

From Windows	To z/OS
SAE@FULL_FUNCTION.NEZ or SAE@ERASE_ONLY	<ul style="list-style-type: none"> • <i>prefix</i>.SAE.R15.SAE.INSTALL

Creating the DLIB/CNTL/LOAD Datasets

Job Streams and Datasets

After the file transfers are complete, the dataset

prefix.SAE.R15.SAE.INSTALL

contains a Job stream. This Job processes the data embedded in the JCL stream and produces the following datasets as output:

- *prefix.SAE.R15.DLIB*
- *prefix.SAE.R15.UTIL.CNTL*
- *prefix.SAE.R15.UTIL.LOAD*.

Procedure

Use the following procedure to create the DLIB/CNTL/LOAD datasets.

Step	Action
1.	Open the <i>prefix.SAE.R15.SAE.INSTALL</i> dataset with ISPF Edit.
2.	Delete the first three records.
3.	Edit the Job Card
4.	Supply the values for the SET statements as described by the comments in the JCL.
5.	Submit the job.
6.	When the job ends, confirm that the return codes for all steps are zero.
7.	View the contents of <i>prefix.SAE.R15.UTIL.CNTL</i> to confirm that the collection of utility jobs exists.

Utility Functions

You can use the utility jobs to:

- Further customize SAE
- Move IPL-able copies to various devices.

Using The Utilities is described on page 5-33.

Completing the Installation

Common Steps	After creating the SAE DLIB dataset (along with the UTIL.CNTL and UTIL.LOAD datasets), you can license, customize and create copies of SAE that you can IPL. The steps required for SAE licensing, customization and the creation of IPL-able copies are the same, regardless of how SAE was delivered (either by Web Download, CD-ROM, or Distribution Tape).
Completing the Installation	To complete the installation, see SAE Licensing (page 4-31), SAE Customization (page 5-33) and SAE IPL Preparation on pages 4-31, 5-33, and 6-55.

Chapter 3: Installing SAE Product Trial

Overview

Introduction This chapter contains information on generating an SAE IPL-able Distribution Tape. (SAE@TRIAL.NEZ)

In This Chapter This chapter contains the following topics:

Topic	See Page
Downloading from the Web	3-28
Transferring Files	3-28
Creating the SAE Distribution Tape	3-29

Downloading from the Web

Procedure

To download SAE from the NewEra website:

Step	Action
1.	Open www.newera.com.
2.	Follow the Download links to obtain the SAE download file.
3.	Save the download file to a new directory (for example, C:/DOWNLOAD/SAE) on your Windows system.

Transferring Files

Pre-Allocating the Target Datasets

You must pre-allocate the target dataset for the transfer as described below. Using ISPF 3.2 is the easiest way to pre-allocate this dataset.

Source File Name	Target Dataset
SAE@TRIAL.NEZ	<ul style="list-style-type: none">• <i>prefix.SAE.R15.SAE.INSTALL</i>• RECFM=FB• LRECL=80• BLKSIZE=3120• SPACE=(TRK,(25,5))

Transfer Files to z/OS as Follows

Transfer the file in the following table to your z/OS System.

How you transfer the files depends on the tools available in your installation. Using IND\$FILE is perhaps the most common method.

Note: The transfer must take place without any ASCII to EBCDIC conversion (do not specify ASCII parameter). The transfer is of a binary file.

Transfer the files as follows:

From Windows	To z/OS
SAE@TRIAL.NEZ	<ul style="list-style-type: none">• <i>prefix.SAE.R15.SAE.INSTALL</i>

Creating the SAE Distribution Tape

Job Streams and Datasets

After the file transfers are complete, the dataset

prefix.SAE.R15.SAE.INSTALL

contains a Job stream. This Job processes the data embedded in the JCL stream and produces an IPL-able SAE Tape.

Procedure

Use the following procedure to create the tape.

Step	Action
1.	Open the <i>prefix.SAE.R15.SAE.INSTALL</i> dataset with ISPF Edit.
2.	Delete the first three records.
3.	Edit the Job Card
4.	Supply the values for the SET statements as described by the comments in the JCL.
5.	Submit the job.
6.	Mount a Non-labeled (NL) tape for use by the Job. The tape must be NL, or the IPL process from the tape will not function correctly.
7.	When the job ends, confirm that the return codes for all steps are zero.

Utility Functions

The Licensing and Utilities described in Chapters 4 & 5 do not apply to SAE Trial.

Limited Use

With the SAE Trail, the tape that is created can be used to directly IPL SAE. The product will function on any processor for a fixed number of days. The number of days is customized by NewEra during the preparation of your SAE@TRIAL.NEZ File.

The tape will also have a permanent expiration date. To take advantage of the full number of days permitted, you must use the Tape immediately.

For more information on how to IPL SAE from tape, see page 9-84.

Chapter 4: Licensing SAE

Licensing Release 15.0

Already-Licensed Customers Licensed SAE customers must follow the instructions in this chapter to authorize SAE for their environment if the product has not been pre-licensed or changes in licensing are required after the product has already been installed.

For the first install of the product, the NEZ File may have been pre-licensed. In these cases, the licensing steps described here do not have to be preformed. If you are unsure if your NEZ File has been pre-licensed, contact your NewEra representative.

SAE Distribution Library The SAE DLIB dataset contains your SAE master copy.

You use utilities to change the licensing and option settings in the SAE DLIB. Then, from the SAE DLIB, you can create IPL-able copies of SAE on various devices. This method of product management provides more control, and avoids the need for a copy of SAE on tape during the licensing and option setting procedures.

CPU Licensing Licensing SAE involves defining the serial numbers for the processors on which you are licensed to run the product and the defining the features of the product for which you are licensed. Your NewEra representative will provide you with Authorization Parameters that represent your licensed SAE processors. These Authorization Parameters are coded in the LICENSE job and must be coded exactly as provided.

LICENSE Job The *prefix.SAE.R15.UTIL.CNTL* dataset contains member LICENSE. This member contains the JCL to run the DLIB@LIC utility. The DLIB@LIC utility reads the control statements that you specify, and updates the DLIB dataset with the authorization settings.

Procedure To license SAE:

Step	Action
1.	Open dataset <i>prefix.SAE.R15.UTIL.CNTL</i> in ISPF Edit, and select member LICENSE.
2.	Follow the instructions contained in the comments at the start of the Job.
3.	Ensure you code the following statements exactly as your NewEra Software Representative provides them: COMPANY= LICCNTL= AUTHxx= SITEAUTH= Note: You will receive either one or more AUTHxx= parameters, or just one SITEAUTH= parameter, depending on the license you purchase.
4.	Submit the Job.

5.	When the Job ends, confirm that the return code is zero.
----	--

**After Running
the LICENSE
Job**

After running the LICENSE job, the SAE DLIB dataset contains a licensed version of SAE.

IPL-able copies of SAE created from the newly authorized SAE DLIB reflect this new authorization.

**New
Authorization
Settings**

If you have previously created IPL-able copies of SAE, you must replace them before new authorization settings come into effect. See ‘SAE IPL Preparation’ on page 6-55 for instructions on creating IPL-able copies of SAE.

For new installs you can customize your SAE options prior to creating IPL-able copies of SAE. See ‘SAE Customization’ on page 5-33 for instructions on how to customize SAE.

**Confirming
Licensing**

To confirm which processors SAE is licensed to operate on, IPL a copy of SAE that was created from the (now-licensed) SAE DLIB.

After IPLing a licensed copy of SAE, a list of licensed processors displays at the bottom of SAE Primary Screen (see page 12-105) when it first appears.

For example:

```
LICENSED= ACF1/2064-1C9 1F8A/9672-R36 1F8A/2064-106 0001/7490-000
          1FC1/9672-Y96 0100/2064-1C6 01CA/9672-RC6 01FA/2064-1C4
```

The screen displays up to eight processors on which SAE is licensed to operate. For each processor, the last four digits of the serial number (for example, ACF1) display, followed by the processor model (in the above example, 2064-1C9).

**Confirming
Licensing for
Other Processors**

You do not have to IPL SAE on each processor to confirm your licensing To confirm that your licensing is correct for your other processors; review the list of licensed processors that display.

**IPLing on an
Unauthorized
Processor**

If you IPL SAE on a unlicensed processor, SAE displays the following prompt:

```
ENTER OVERRIDE      ==>>>
```

```
SAE IS NOT AUTHORIZED (0). IF THIS IS AN EMERGENCY, YOU CAN OBTAIN AN OVERRIDE
CODE THAT WILL ALLOW SAE TO FUNCTION. TO OBTAIN THE CODE, CONTACT NEWERA
SUPPORT STAFF (1-800-421-5035) AND QUOTE THE FOLLOWING NUMBER - xxxxxxxx
```

If this occurs, contact NewEra Software to obtain an Override code that will allow SAE to function. See ‘NewEra Technical Support’ on page 1-2.

Chapter 5: Customizing SAE

Overview

Introduction SAE has several user-definable parameters to control the way it functions in your environment. You can use the procedures in this chapter to customize SAE for your environment.

In This Chapter This chapter contains the following topics:

Topic	See Page
OPTIONS Job	5-34
SAE OPTION Report	5-35
OPTION JOB Input Parameter Keywords	5-38
PASSWORDx= Keyword	5-39
Access Authority Matrix	5-40
CONSOLEx= Keyword	5-42
ERASE= Keyword	5-43
PROTECT= Keyword	5-44
RACFPASS= Keyword	5-45
AUDIT_TYPE= Keyword	5-46
AUDIT_DSN= Keyword	5-47
PRINT_TYPE= Keyword	5-48
PRINT_UNIT= Keyword	5-50
PRINT_VOL= Keyword	5-51
PRINT_DSN= Keyword	5-52
INDEX_DSN= Keyword	5-53
TAPEVOLx= Keyword	5-54

OPTIONS Job

Overview The OPTIONS Job defines parameter settings that influence how SAE operates.

Setting Options The *prefix.SAE.R15.UTIL.CNTL* dataset contains member OPTIONS. The OPTIONS member contains the JCL to run the DLIB@OPT utility. The DLIB@OPT utility reads control statements (that you specify) and updates the DLIB dataset with the options settings.

Options Parameters The OPTIONS Job parameters are defined later in this chapter.

Procedure To define SAE Options:

Step	Action
1.	Open dataset <i>prefix.SAE.R15.UTIL.CNTL</i> using ISPF Edit
2.	Select member OPTIONS
3.	Follow the instructions contained in the comments at the start of the Job
4.	Code the options parameters as required
5.	Submit the job
6.	When the job ends, confirm that the return code is zero

New Copies of SAE Reflect New Settings After running the OPTIONS job, the SAE DLIB dataset contains an updated version of SAE.

All IPL-able copies of SAE that are created from the newly updated SAE DLIB reflect the new options settings that you defined.

Existing Installs vs. New Installs If you have previously created IPL-able copies of SAE, you must now replace them in order to pick up the new options settings. See ‘SAE IPL Preparation’ on pages 4-31, 5-33, and 6-55. for instructions of creating IPL-able copies of SAE.

If this is a new install, you may wish to authorize your copy of SAE if you have not already done so. See ‘SAE Licensing’ on page 4-31 for instructions on licensing SAE

SAE OPTION Report

OPTIONS Job Report Overview

The OPTIONS Job produces a report that shows the before and after OPTIONS settings. This report is useful in confirming your option settings have been configured correctly.

Also, if you are uncertain of the current SAE settings in your SAE DLIB dataset, you can run the OPTIONS job without supplying any parameters and then use the report to view the settings.

Continued on next page

SAE OPTION Report, Continued

Sample OPTIONS Job Report

```
1 *** SAE OPTION UTILITY FOR SAE R15 ***
SAE RELEASE 15.0 AT PATCH LEVEL 0001 - ASM(01/01/07 13.00)
***** SAE OPTION SETTINGS FOR INPUT *****
*
* FAST DASD ERASE = ENABLED -- RESTRICTED CONSOLES -- *
* RACF/PASSWORD = DISABLED CONSOLE 1 = NONE *
* CONSOLE 2 = NONE *
* AUDIT CONTROL = DISABLED (DASD IPL ONLY) CONSOLE 3 = NONE *
* AUDIT DATASET = SYS1.SAE.AUDIT.DYMMDD.THHMM0 CONSOLE 4 = NONE *
* PRINT DATASET = SYS1.SAE.PRINT.DYMMDD.THHMM0 CONSOLE 5 = NONE *
* AUTO PRINT TYPE = OFF UNIT= VOL= CONSOLE 6 = NONE *
* INDEX DATASET = *
* INDEX VOLSER = *
*****
* ----- DEFINED PASSWORDS ----- *
* PASSWORD USERID ACCESS STARTUP PASSWORD: *
* 1 - AMAZING SAELVL2 015 -NOT REQUIRED- - BACKUP MASTER TAPES - *
* 2 - VOL 1 = SAEMT1 VOL2 = SAEMT2 *
* 3 - - ERASE PROTECTED DASD VOLUMES -- *
* 4 - *
* 5 - *
*****
1 *** SAE OPTION UTILITY FOR SAE R15 ***
```

```
SYSIN CONTROL CARDS
PASSWORD1=SECRET,USERID=SUPER,ACCESS=015
PASSWORD SECRET SET (USERID SUPER ACCESS 015)
ERASE=ENABLE
PROCESSING SUCCESSFULLY
AUDIT_TYPE=ENABLE
PROCESSING SUCCESSFULLY
AUDIT_DSN=SYS1
PROCESSING SUCCESSFULLY
PRINT_DSN=SYS1
PROCESSING SUCCESSFULLY
PRINT_TYPE=IPL
PROCESSING SUCCESSFULLY
1 *** SAE OPTION UTILITY FOR SAE R15 ***
```

```
SAE RELEASE 15.0 AT PATCH LEVEL 0001 - ASM(01/01/07 13.00)
***** SAE OPTION SETTINGS FOR OUTPUT *****
*
* FAST DASD ERASE = ENABLED -- RESTRICTED CONSOLES -- *
* RACF/PASSWORD = DISABLED CONSOLE 1 = NONE *
* CONSOLE 2 = NONE *
* AUDIT CONTROL = ENABLED (DASD IPL ONLY) CONSOLE 3 = NONE *
* AUDIT DATASET = SYS1.SAE.AUDIT.DYMMDD.THHMM0 CONSOLE 4 = NONE *
* PRINT DATASET = SYS1.SAE.PRINT.DYMMDD.THHMM0 CONSOLE 5 = NONE *
* AUTO PRINT TYPE = IPL UNIT= VOL= CONSOLE 6 = NONE *
* INDEX DATASET = *
* INDEX VOLSER = *
*****
* ----- DEFINED PASSWORDS ----- *
* PASSWORD USERID ACCESS STARTUP PASSWORD: *
* 1 - SECRET SUPER 015 -REQUIRED- -- BACKUP MASTER TAPES - *
* 2 - VOL 1 = SAEMT1 VOL2 = SAEMT2 *
* 3 - - ERASE PROTECTED DASD VOLUMES - *
* 4 - *
* 5 - *
*****
```

SAE OPTION Report, Continued

Sample OPTIONS Job Report (Continued)

```
***** SAE OPTION SETTINGS FOR OUTPUT *****
*
*   FAST DASD ERASE = ENABLED  -- RESTRICTED CONSOLES -- *
*   RACF/PASSWORD   = DISABLED
CONSOLE 1 = NONE
*
CONSOLE 2 = NONE
*   AUDIT CONTROL   = ENABLED   (DASD IPL ONLY)
CONSOLE 3 = NONE
*   AUDIT DATASET   = SYS1.SAE.AUDIT.DYMMDD.THHMM0
CONSOLE 4 = NONE
*   PRINT DATASET   = SYS1.SAE.PRINT.DYMMDD.THHMM0
CONSOLE 5 = NONE
*   AUTO PRINT TYPE = IPL       UNIT=       VOL=
CONSOLE 6 = NONE
*   INDEX DATASET   =
*   INDEX VOLSER    =
*****
*   ----- DEFINED PASSWORDS -----
*
*   PASSWORD USERID ACCESS   STARTUP PASSWORD:
*   1 - SECRET  SUPER   015     ---REQUIRED---
----- BACKUP MASTER TAPES -----
*   2 - VOL 1 = SAEMT1 VOL2 = SAEMT2
*   3 - ----- ERASE PROTECTED DASD VOLUMES -----
*   4 -
*   5 -
*****
```

OPTION JOB Input Parameter Keywords

Keywords Overview

The DLIB@OPT utility in the OPTIONS Job requires you to provide keywords.

These keywords define the options you will change and the new values for those options. The keywords, their purpose, and their valid settings are described in the following topics.

Specifying Keywords

You specify keywords in the DLIB@OPT utility via OPTIONS Job's SYSIN DD statement.

- Keywords must begin in column one.
 - If a keyword is repeated, options are configured based on the last occurrence.
 - You can specify comment cards by placing an asterisk in column one
-

PASSWORDx= Keyword

Passwords Overview

You can (optionally) control access to SAE and its specific features using passwords. You can configure up to five SAE passwords.

You can define passwords so a prompt occurs on the SAE Logon screen when SAE is first IPLed. This is called the STARTUP password prompt, and is used to control general access to SAE.

You can also define passwords that provide limited access to various SAE features. You can define each password to provide access to any combination of four pre-determined features. Then, when users try to access a feature for which they are not authorized, a password prompt occurs, which allows a user to enter a password with sufficient authority.

Password Criteria

Each password must be unique and must be accompanied by an access authority number and userid. The access authority number defines the functions that a user may access.

SAE uses the userid to:

- update the userid field for member ISPF statistics
 - assist the Audit Control feature (if enabled, see AUDIT_TYPE= on page 5-46).
-

SAE General Access

For general access to SAE, you must define at least one password with an access authority number of zero (0), unless the Audit Control feature is enabled.

If the Audit Control feature is enabled, a Startup password prompt occurs, regardless of the presence of a password with an access authority number of 0.

SAE Features and Associated Authority Numbers

Each of the following SAE features has been assigned a unique access authority number. You can add the numbers together to provide combined access to more than one feature. The access authority number may range from 1 to 15.

Access Authority Number	Provides Access to the Following SAE Feature
1	Non 'SYS' Datasets
2	Fast DASD Erase feature
4	DASD Extent Zap feature
8	RACF/Password commands

One Password Defined

When shipped, SAE has one password defined, with an access authority of 15.

Access Authority Matrix

Combined Access Authority Matrix

Use the following chart to determine the combined access authority number based on a combined access authority number.

Access Authority Number	RACF Password	DASD Extent Zap	Fast DASD Erase	Non "SYS" Dataset Access
1				X
2			X	
3			X	X
4		X		
5		X		X
6		X	X	
7		X	X	X
8	X			
9	X			X
10	X		X	
11	X		X	X
12	X	X		
13	X	X		X
14	X	X	X	
15	X	X	X	X

Password Criteria

- Each password may be one to eight characters long
- Each userid may be one to seven characters long
- Each access authority number may be one to three digits long
- To delete an existing password, specify a password value of NULL
- If no passwords are defined (all deleted), the default userid (SAEDIT) has access authority 15
- The PASSWORD_x= keyword is specified where 'x' is a number from one to five

Keywords

PASSWORD_x=pppppppp, USERID=uuuuuuu, ACCESS=aaa
 PASSWORD_x=NULL

Continued on next page

Access Authority Matrix, Continued

Example

```
* DEFINE GENERAL ACCESS PASSWORD
PASSWORD1= MAGIC,USERID=SYSTEMS,ACCESS=0

* DEFINE NON-SYS, RACF, AND EXTENT ZAP FOR SUPERVISOR PASSWORD2=
LASER,USERID=SUPRV,ACCESS=13

* DEFINE ERASE ACCESS FOR DRP USE ONLY
PASSWORD3= EXPRESS,USERID=DRP,ACCESS=2

* DELETE PREVIOUS PASSWORD # 4
PASSWORD4= NULL
```

No Access to Disabled Features

Access authority to Fast DASD Erase and RACF/Password does not provide access to these features when they are disabled.

Keep a Copy of SAE That Has No Restrictions

Defining passwords restricts who can use SAE.

Although this is probably your intent, NewEra suggests that you keep a copy of SAE available that does not have password restrictions (perhaps on tape, under lock and key). It would be unfortunate, if during an outage, a forgotten password prevents you from using SAE.

CONSOLEx= Keyword

Explicitly Defining Terminal Addresses

After IPLing, SAE uses the first locally attached (non-SNA) display device (terminal) that presents an attention interrupt (Enter Key) as a console.

This is good if the only locally attached terminals are in your operations area. However, you may need to explicitly define the terminal addresses from which SAE can accept an attention interrupt. You may also want to consider defining terminal addresses as a means of physical security of restricting where SAE can be used.

Unsolicited Attention Interrupts

Under some circumstances, certain device types (for example, 7171 and 3088) create unsolicited attention interrupts and accept 3270 data streams. If you do not define console addresses, the console, in these cases, may be assigned to such a device.

Six Console Addresses

You can define up to six (optional) console addresses. After you define console addresses, SAE ignores attention interrupts for all other display devices.

Four Digit Hexadecimal Numbers for Consoles

Each console must have a four digit hexadecimal number. To remove a console definition, code NONE or FFFF for the address. The CONSOLEx= keyword is specified where 'x' is a number from one to six.

Keywords

CONSOLEx=aaaa

CONSOLEx=NONE

Note

Defining console addresses restricts where you can use SAE. Although this is probably your intent, you should still keep a copy of SAE available without such restrictions (perhaps on tape under lock and key). It would be unfortunate if during a system outage, changed terminal addresses prevented the use of SAE.

ERASE= Keyword

Overview

You can enable or disable the Fast DASD Erase feature.

When disabled, SAE does not recognize the ERASE option on the Primary Screen. SAE ships with this option enabled.

For more information, see 'Fast DASD Erase' on page 20-217.

Keywords

ERASE=ENABLE

ERASE=DISABLE

PROTECT= Keyword

10 Protected Volumes	You can explicitly define up to ten volume masks (Volsers) that are protected from the Fast DASD Erase feature. For more information, see 'Fast DASD Erase' on page 20-217.
Not Erasable	Once a volume is protected, no one can select it for erase. The purpose of the protected list is to protect floor system packs at disaster recovery centers. After defining the protected Volsers, you can use the ERASEALL command without concern of erasing the defined packs.
Defining Protected Volumes	You can define protected volumes using the PROTECT= keyword. As each PROTECT= keyword is processed, SAE adds the specified Volser to the end of the list. If there are already ten volumes defined, the first volume is removed when the new volume is added.
Clearing the List	To clear the entire list, code PROTECT=CLEAR.
Wild Carding	To use a wild card, place a * in any position. This implies an "always match" condition. An ending * implies a match in all remaining positions: <ul style="list-style-type: none">• SYS* with match SYSxxx (where xxx is any character)• S*RES* with match SxRESx (where x is any character)
Example	PROTECT=SYSRES PROTECT=SYS*

RACFPASS= Keyword

Overview

You can enable or disable the RACF/Password Bypass commands.

When disabled, SAE does not recognize the following commands on the Dataset Selection Screen:

- SHOWRACF
- NORACF
- RACF
- NOPASSWORD
- PASSWORDW
- PASSWORDRW

For more information, see Dataset RACF and Password Indicators on page 16-163.

Keywords

RACFPASS=ENABLE

RACFPASS=DISABLE

AUDIT_TYPE= Keyword

Overview	<p>The Audit feature provides a record of the SAE user's activities</p> <p>You can enable or disable auditing. Auditing is only available when SAE is IPLed from a DASD device. Audit datasets that contain a record of SAE activity are created on the DASD device from which SAE is IPLed.</p>
Two Settings	<p>There are two possible settings that enable this feature: ENABLE and ATTEMPT.</p>
ENABLE	<p>When you use ENABLE, SAE terminates immediately (wait state A7) when an error occurs that prevents recording of audit records.</p> <p>A typical error that could cause this situation involves a lack of free space on the IPL volume. When this occurs, the copy of SAE on that volume becomes unusable until you resolve the space situation. For this reason, when you are using AUDIT_TYPE=ENABLE you should take special care to ensure that other copies of SAE are maintained (on DASD or tape).</p>
ATTEMPT	<p>When you use ATTEMPT, SAE records audit records just as if AUDIT=ENABLE was coded.</p> <p>However, if an error occurs which prevents recording of audit records, SAE does not terminate and remains useable (but without audit recording).</p>
Password Must Be Defined	<p>To enable the Audit Control feature (ENABLE or ATTEMPT), you must define at least one password (see PASSWORDx= keyword on page 5-39). SAE ships with this option disabled.</p>
Keywords	<p>AUDIT_TYPE=ENABLE</p> <p>AUDIT_TYPE=ATTEMPT</p> <p>AUDIT_TYPE=DISABLE</p>

AUDIT_DSN= Keyword

Overview	<p>You can define a prefix for the audit dataset that SAE allocates.</p> <p>You can define up to 19 prefix characters. The prefix is concatenated to 'SAE.AUDIT.Dyymmdd.Thhms' to form the audit dataset name.</p> <p>SAE ships with the prefix 'SYS1' defined.</p>
Keyword	AUDIT_DSN=
Example	AUDIT_DSN=SYS2.CNTL

PRINT_TYPE= Keyword

Three Choices for Print Output Destination

SAE provides three different choices for the print output destination. Print output may write to a:

- real channel attached printer
- print dataset on DASD
- print dataset on magnetic tape

You can activate PRINT and select a destination after SAE is IPLed by using SAE Option 0 (SAE Settings), sub-option 1 (PRT OPN).

For more information see Printer Control on page 13-111.

Printing to a Real Channel or DASD Print Dataset

If you want to use a real channel attached printer or DASD print datasets, you can pre-define these settings.

At SAE IPL time, SAE defines the print output destination automatically, based on the value set for the PRINT_TYPE= keyword.

Four Settings For Automatic Print Destination

You can select one of four settings for the automatic print destination keyword of PRINT_TYPE= keyword:

Setting	Description
OFF	OFF disables the automatic print destination processing at SAE IPL time. PRINT_UNIT= and PRINT_VOL= are ignored and set to blanks.
REAL	REAL requests automatic print setup to a real channel attached printer. You must define the printer's unit address using the PRINT_UNIT= keyword. At SAE IPL time, SAE directs all print output to the channel attached printer at the specified unit address.
DASD	DASD requests automatic print setup to a print dataset that will be created on a DASD device. For this setting you must code PRINT_UNIT=, or PRINT_VOL=, or both. If you code PRINT_UNIT=, SAE allocates the print dataset on the DASD device at the specified unit address. If you code PRINT_VOL=, SAE searches all unit addresses, looking for the specified DASD Volume. If found, SAE allocates the print dataset on that volume. Depending of the number of devices defined to the system, the search for the specified DASD volume may take several minutes. If you code both PRINT_UNIT= and PRINT_VOL=, SAE inspects the DASD unit at the specified unit address, and allocates the print dataset there, only if the unit's volser matches the value coded for PRINT_VOL=.

Continued on next page

PRINT_TYPE= Keyword, Continued

Four Settings For Automatic Print Destination (continued)

Setting	Description
IPL	IPL requests automatic print setup to a print dataset that will be created on the DASD volume from which SAE is IPLed. If SAE is not IPLed from DASD, this setting is ignored.

Keyword PRINT_TYPE=

Example PRINT_TYPE=OFF
PRINT_TYPE=REAL
PRINT_TYPE=DASD
PRINT_TYPE=IPL

PRINT_UNIT= Keyword

Defines the Print Output Destination PRINT_UNIT defines the print output destination that is to be automatically set up at SAE IPL time.

This keyword value is used when PRINT_TYPE=REAL or PRINT_TYPE=DASD is defined.

The keyword defines a four digit hexadecimal unit address. For more information, see PRINT_TYPE= Keyword on page 5-50.

Keyword PRINT_UNIT=

Example PRINT_UNIT=0345
PRINT_UNIT=A84F

PRINT_VOL= Keyword

**Defines the Print
Output
Destination**

PRINT_VOL defines the print output destination that is to be automatically set up at SAE IPL time.

This keyword value is used when PRINT_TYPE=DASD is defined.

The keyword defines a one to six digit DASD Volser. For more information, see PRINT_TYPE= Keyword on page 5-50.

Keyword

PRINT_VOL=

Example

PRINT_VOL=SAERES

PRINT_VOL=WORK01

PRINT_DSN= Keyword

Defining a DASD Prefix You can define a prefix for the DASD print dataset that is allocated by SAE. The prefix can be up to 19 characters long.

The prefix is concatenated to 'SAE.PRINT.Dyymmdd.Thhmmms' to form the print dataset name. SAE ships with a prefix of 'SYS1' defined.

Keyword PRINT_DSN=

Example PRINT_DSN=SYS2.PRNT

INDEX_DSN= Keyword

If IMAGE Focus is Installed If NewEra Software's IMAGE Focus product is installed then you should pre-define the IMAGE Focus Blueprint Index dataset to SAE.

This allows you to use SAE's Blueprint Comparison feature much more easily. For more information, see 'Inspect Services' on page 21-257.

Defining the IMAGE Focus Index Dataset

Use INDEX_DSN= keyword to define the name of the IMAGE Focus Blueprint Index dataset.

DLIB@OPT determines the volume on which the specified dataset resides and automatically defines the Volser as well.

Keyword

INDEX_DSN=

Example

INDEX_DSN=IMAGEFOC.BLUEPRINT.INDEX

TAPEVOLx= Keyword

Backup Component

SAE Utilities include a backup component that creates dataset backups and maintains a restore index (Backup Master File) on magnetic tape.

SAE uses the Backup Master File to locate the tape volumes required to restore datasets and perform the restore. For more information, see Backup Control System on page 8-66.

Defining the Backup Master File

Use the TAPEVOL1= keyword to define the Backup Master File tape Volser. You can also create a second (backup) copy of the Backup Master, using the TAPEVOL2= keyword to define the tape Volser for it.

Keyword

As shipped, the tape volumes are defined as:
SAEMT1 and SAEMT2

Example

TAPEVOL1=SAEMT1

Chapter 6: Preparing SAE for IPL

Overview

Introduction This chapter describes the steps required to prepare an IPL-able copy of SAE. You can IPL SAE from a:

- DASD volume
- TAPE volume
- CD-ROM or Network File

In This Chapter This chapter contains the following topics:

Topic	See Page
Preparing for DASD IPL	6-56
Preparing for TAPE IPL	6-58
Preparing for CD-ROM/Network IPL	6-59

Preparing for DASD IPL

Overview	The <i>prefix.SAE.R15.UTIL.CNTL</i> dataset contains member TODISK. This member contains the JCL used to run the job that places an IPL-able copy of SAE on a DASD volume.
IPLing SAE From a DASD Unit	You can IPL SAE from a 3390 or 3380 DASD unit. The SAE product occupies the IPL track on the DASD unit, as well as a SAE NUCLEUS dataset. The IPL-able copy of SAE is built from the SAE DLIB dataset.
Prerequisites	Before creating an IPL-able copy of SAE, ensure that you have set any required options and authorization in the SAE DLIB (see ‘SAE Customization’ on page 5-33 and ‘SAE Licensing’ on page 4-31).
What TODISK Does	<p>The TODISK job uses the SAE Utility DLIB@DSK to convert parts of SAE to a format acceptable to the IBM utility ICKDSF. This is so parts of SAE may be written to the IPL track of the DASD volume by ICKDSF.</p> <p>DLIB@DSK also moves part of SAE to the SAE NUCLEUS dataset that the job creates. Note that the TODISK job deletes the previous SAE NUCLEUS dataset if one exists. The DLIB@DSK utility sets the SAE NUCLEUS dataset’s name in the portion of SAE that resides on the DASD volume IPL Track.</p>
Naming the SAE Nucleus Dataset	<p>When naming the SAE NUCLEUS dataset, remember that you must not rename or move the dataset to another unit, because SAE must locate it during the IPL. You do not have to catalog the SAE NUCLEUS dataset.</p> <p>Ensure the SAE NUCLEUS dataset name you select is not eligible for movement by any of your installed DASD management products. If SAE cannot locate and read the NUCLEUS dataset during the SAE DASD IPL, SAE enters a disabled wait state with the error code AA.</p>
Warning	SAE IPL text occupies the same DASD area as z/OS IPL text. When creating an IPL-able copy of SAE on DASD, ensure that the target unit does not already contain required IPL text. Do not move SAE IPL text to your z/OS SYSRES volume.

Continued on next page

Preparing for DASD IPL, Continued

Procedure

To create an IPL-able copy of SAE on DASD:

Step	Action
1.	Using ISPF Edit, open dataset <i>prefix.SAE.R15.UTIL.CNTL</i> .
2.	Select member TODISK.
3.	Follow the instructions contained in the comments at the start of the Job on what values to update in the JCL.
4.	Submit the job.
5.	If IPL text already exists on the volume, reply 'U' to the ICKDSF operator message to permit the IPL text to be written.
6.	When the job ends, confirm that the return code is zero.

For More Information

See 'IPLing SAE' on page 9-79 for information on IPLing SAE.

Preparing for TAPE IPL

What TOTAPE Does The *prefix.SAE.R15.UTIL.CNTL* dataset contains member TOTAPE. This member contains the JCL that runs the job that places an IPL-able copy of SAE on a magnetic tape volume.

IPLing SAE From a Tape Device SAE may be IPLed from any tape device supported by z/OS. The IPL-able copy of SAE is built from the SAE DLIB dataset.

Prerequisites Before creating an IPL-able copy of SAE, ensure that you have set any required options and authorization in the SAE DLIB (see ‘SAE Customization’ on page 5-33 and ‘SAE Licensing’ on page 4-31).

Non-Labeled Tapes The TOTAPE job creates a Non-Labeled (NL) tape.
At IPL time, the processor must find an IPL bootstrap record as the first record on the tape. For this reason the tape must be non-labeled. If the tape is labeled, the first record is a VOL1 record label and is not IPL-able.

Procedure To create an IPL-able copy of SAE on Tape:

Step	Action
1.	Using ISPF Edit, open dataset <i>prefix.SAE.R15.UTIL.CNTL</i> .
2.	Select member TOTAPE.
3.	Follow the instructions contained in the comments at the start of the Job on what values to update in the JCL.
4.	Submit the job.
5.	When the job ends, confirm that the return code is zero.

For More Information See ‘IPLing SAE’ on page 9-79 for information on IPLing SAE.

Preparing for CD-ROM/Network IPL

IPLing From a Newer Processor

Most new processors support the ability to IPL from a CD-ROM or a Network accessible file. Consult your processor's documentation to determine if your processor supports this type of IPL. SAE has utilities that you can use to convert SAE to a format that can be IPLed from a CD-ROM or a Network accessible file.

Member TOCDROM

The *prefix.SAE.R15.UTIL.CNTL* dataset contains member TOCDROM. This member contains the JCL that runs the job that creates two CD-ROM IPL files. You must move these two files to a Windows PC so that they can be placed on a CD-ROM or moved to a processor-accessible network location.

Prerequisites

Before creating an IPL-able copy of SAE, ensure that you have set any required options and authorization in the SAE DLIB (see 'SAE Customization' on page 5-33 and 'SAE Licensing' on page 4-31).

Converting SAE to an Acceptable Format

The TOCDROM job uses the SAE Utility DLIB@CD. DLIB@CD converts SAE to a format acceptable for processor CD-ROM/Network file IPL. The job creates two datasets, CDFILE1 and CDFILE2. Note that the TOCDROM job deletes the previous SAE CDFILE1 and CDFILE2 datasets if they exist.

Procedure

To create a set of SAE CD-ROM IPL files:

Step	Action
1.	Using ISPF Edit, open dataset <i>prefix.SAE.R15.UTIL.CNTL</i> .
2.	Select member TOCDROM.
3.	Follow the instructions contained in the comments at the start of the Job on what values to update in the JCL.
4.	Submit the job.
5.	When the job ends, confirm that the return code is zero.
6.	File Transfer the two datasets (CDFILE1 and CDFILE2) to your Windows PC. The files must be binary transfers (do not specify ASCII). CDFILE1 must be transferred to a file you name: SAE_CD.IPL CDFILE2 must be transferred to a file you name: SAE_CD.INS
7.	Burn the two files (SAE_CD.IPL and SAE_CD.INS) onto a CD-ROM or move them to a network location that is accessible to the processor on which SAE is to be IPLed.

For More Information

See 'IPLing SAE' on page 9-79 for information on IPLing SAE.

Chapter 7: Using Audit Control

Overview

Introduction SAE's Audit Control feature provides you with a detailed audit trail of all SAE usage. You can only use the Audit Control feature for SAE's DASD IPLs.

Enabling Audit Control To enable Audit Control, use the DLIB@OPTutility. When SAE is IPLed from DASD (and the Audit Control feature is enabled), SAE allocates an audit control dataset on the IPL volume. The dataset name is created using the prefix defined by the DLIB@OPT AUDIT_DSN keyword and the current date and time.

In This Chapter This chapter contains the following topics:

Topic	See Page
Using Audit	7-62
CATAUDIT Job	7-63
RPTAUDIT Job	7-64

Using Audit

How it Works	While SAE is in use, the Audit Control feature places a copy of each displayed screen image in the audit control dataset. For screens on which the user entered data, Audit Control also places an after-image of the screen in the audit control dataset. The result is an exact trace of all SAE activity.
Automatically Allocates New Datasets	When the audit dataset fills, Audit Control obtains additional extents as required. If an audit dataset becomes full, Audit Control allocates another one.
When Encountering Problems	If any problems arise while writing to the Audit Control dataset (for example, an I/O error, or the volume becomes full): <ul style="list-style-type: none">• SAE terminates if you configure the Audit Control feature with DLIB@OPT parameter AUDIT_TYPE=ENABLE.• SAE continues operation (with audit processing suspended), if you configure DLIB@OPT parameter AUDIT_TYPE=ATTEMPT.
Security Precautions	You cannot use SAE to browse, edit, or otherwise alter the contents of an Audit Control dataset. Ensure you implement similar z/OS security measures to limit access to the Audit Control datasets.
Screen I/O Performance Degradation	Activating the Audit Control feature may result in a slight performance degradation to screen I/O. Audit Control does not affect the performance of internal functions.

CATAUDIT Job

Audit Control Datasets are Not Cataloged

The Audit Control datasets (which are allocated by SAE on the IPL volume) are not cataloged.

SAE creates the *prefix.SAE.R15.UTIL.CNTL* dataset during the installation. This dataset contains JCL for job CATAUDIT (Catalog Audit) that you can use to search for and catalog SAE-created audit control datasets.

The CATAUDIT job is provided with a DD for the SAE IPL volume. The utility locates and catalogs any SAE-created audit control datasets that were not cataloged.

Multiple SAE IPL Volumes

If more than one SAE IPL volume exists, you must create multiple steps (one step for each volume). The best way to run this job is to have it run automatically after each z/OS IPL. Then, if SAE was used prior to that z/OS IPL, all audit control datasets are immediately cataloged.

RPTAUDIT Job

**How the Report
Audit Utility
Works**

The RPTAUDIT utility formats an SAE audit control dataset's contents and produces a report that contains each screen image exactly as the image was displayed to the SAE user. If the user enters data on that screen, another screen image appears, showing the data input.

**Before and After
Images**

This provides a 'before' and 'after' screen image report that details all activity. The *prefix.SAE.R15.UTIL.CNTL* dataset, created during installation, contains JCL for job RPTAUDIT.

Chapter 8: Using Backup Control System

Overview

Introduction SAE includes a z/OS-based backup utility. This chapter describes that utility.

In This Chapter This chapter contains the following topics:

Topic	See Page
Backup Control System	8-66
MSTRINIT	8-68
TAPEINIT	8-69
TAPETEST	8-70
Backup Dataset List	8-72
Backup Master Control	8-73
Backup Reporting	8-74

Backup Control System

Introduction

SAE's z/OS Backup Control System may be used to backup datasets that can be later restored using SAE. The SAE Dataset Restore function will restore datasets from tapes containing IEBCOPY and IEBGENER unloaded datasets (for more information, see 'Restore Services' on page 23-277).

The Backup Control System provides for easy backup, optimal tape usage, and maintenance of control information. This control information includes the tape Volser and file sequence number for each backup generation of given datasets. Usage of the Backup Control Utility is not required.

IEBCOPY, IEBGENER, and SORT

Use of the Backup Control System requires IEBCOPY, IEBGENER and SORT.

JCL and load modules required for the Backup Control System ship with the SAE base product and can be found in the *prefix.SAE.R15.UTIL.CNTL* and *prefix.SAE.R15.UTIL.LOAD* datasets created during the installation.

Running the Backup Control System

To run the Backup Control System, the load modules SAEBKUP and SAEBKMST must be APF authorized. You may add the *prefix.SAE.R15.UTIL.LOAD* dataset to the z/OS PROGxx or IEAAPFxx system parameter members, or copy the load modules to an existing APF authorized library, in order to have this module APF authorized.

Three JCL Members

The *prefix.SAE.R15.UTIL.CNTL* dataset contains three JCL members for setting up the Backup Control System:

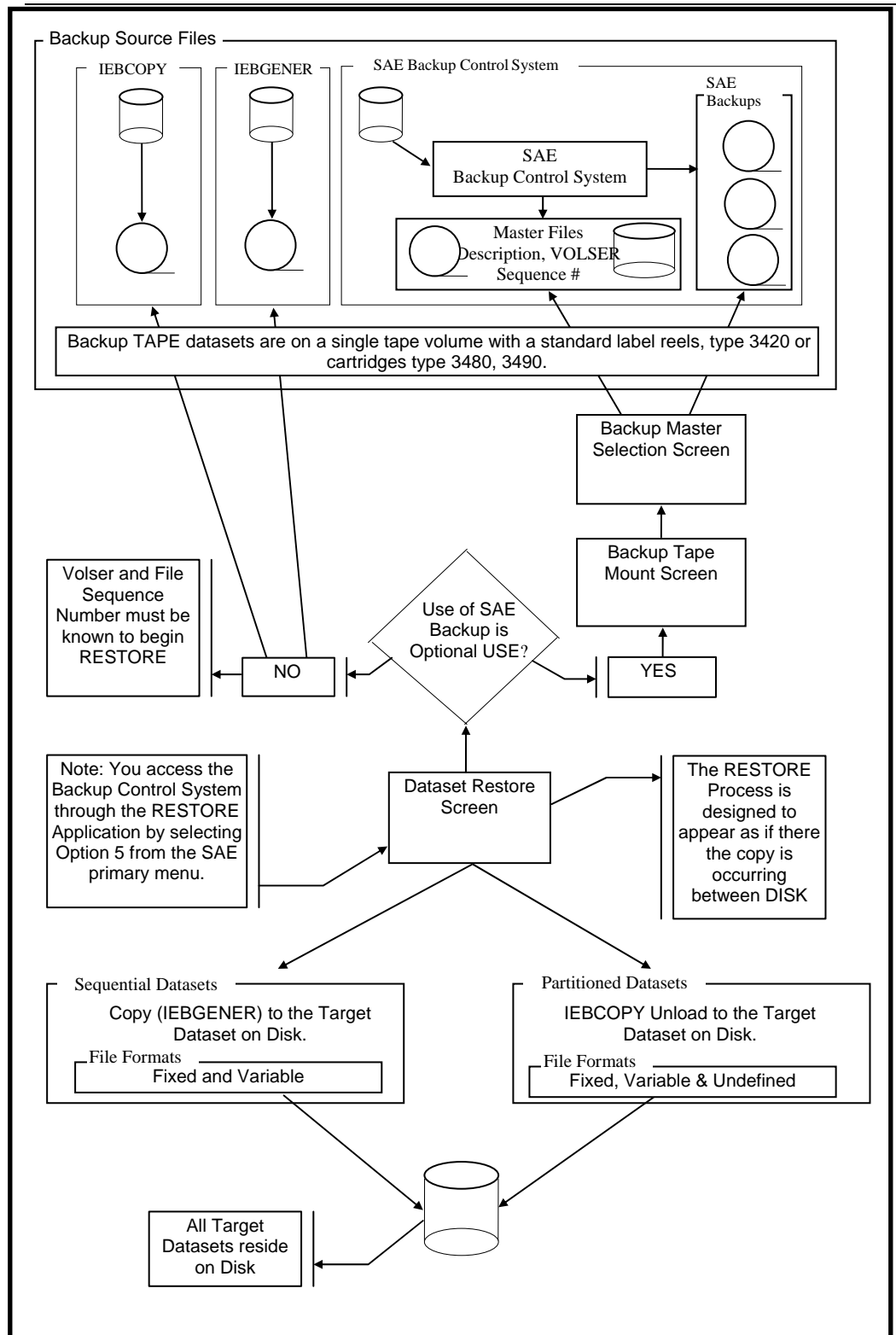
- MSTRINIT
- TAPEINIT
- TAPETEST

These members are discussed in the following topics.

Continued on next page

Backup Control System, Continued

Backup Process The following diagram displays the backup process.



MSTRINIT

Master Init

The MSTRINIT member of the *prefix.SAE.R15.UTIL.CNTL* dataset contains a single step job that allocates and initializes the Backup Master File.

The Backup Master file maintains information on each dataset backup. This includes the time and date of the backup and the tape volume and file sequence number of where the backup resides.

Alter the JCL for the Backup Master

The JCL should be altered to specify a suitable name for the Backup Master file. The DASD unit type and, if required, a specific Volser should also be coded.

When a dataset must be restored, the fastest way to determine the Volser of the required backup tape is to browse the Backup Master file. In creating the Backup Master file, you should give special consideration to its location and name. You should ensure the Backup Master file is not eligible for archiving by your DASD management package.

TAPEINIT

Volser Must be Static

The Dataset Restore function can use a tape copy of the Backup Master file. As the tape copy must be located in a stand-alone environment, the Volser must be static.

Default Tape Volser Names

By default, SAE expects the two tape Volsers to be SAEMT1 and SAEMT2. If you use different Volsers, you must change the default by using the DLIB@OPT utility

Protecting Volsers

Depending on the Volsers you chose, your tape management system might prevent you from writing over the previous copy on each tape. Keep this in mind when choosing the Volsers like SAEMT1 and SAEMT2, which will probably be considered “foreign” by your tape management system and hence not be protected. If using Volsers SAEMT1 and SAEMT2, you will have to label (IEHINITT) the tapes.

TAPEINIT Functionality

Job TAPEINIT is used to create and catalogue the two tape datasets that will be maintained as copies of the Backup Master file. Change the dataset name, unit type and Volser as required.

TAPETEST

Purpose of the Test

The TAPETEST job tests if your tape management system can prevent the writing of a new copy of the Backup Master file. Change the JCL as required in order to allow the tapes to be re-written and test the job. If any JCL changes were required, make the same changes to steps COPY1 and COPY2 in member SAEBKUP

Example

Member SAEBKUP in the *prefix*.SAE.R15.UTIL.CNTL dataset is used to run the Backup Control System.

The PROC SAEBKUP is used, and contains four steps.

- The first step, SAEBKUP, performs the actual backup operation.
- The second step, SAEBKMST, updates the Backup Master file.
- Steps three and four (COPY1 and COPY2) create the two tape copies of the Backup Master file.

```
//SAEBKUP EXEC SAEBKUP,
//          STEPLIB='SYS1.LINKLIB',
//          TAPETYP=3480,
//          TAPENAM='SAEBKUP',
//          MASTER='SAE.BACKUP.MASTER',
//          WRKUNIT=SYSDA,
//          SYSOUT1='*',SYSOUT2='*',
//          TP1DSN=SAE.BACKUP.MASTER.TAPE1,
//          TP2DSN=SAE.BACKUP.MASTER.TAPE2
```

Step Name	Description
STEPLIB	STEPLIB is the dataset name of the APF authorized library that contains the two Backup Control System load modules.
TAPETYP	The Backup Control System should use backup tapes from your normal scratch pool. TAPETYP specifies the unit type of the tapes to be used.
TAPENAM	TAPENAM specifies the starting qualifiers of the dataset name that are given to each backup dataset. You can specify up to 23 characters. SAE adds the date, time and file number appendage to the specified dataset name. The first file on each backup tape is cataloged. This file does not contain backup data; instead it is used to control the tape volume. When a tape volume is no longer required, this dataset is UN-cataloged and the tape can be returned to the scratch pool. Tapes are created with an expiration date of 99000.
MASTER	MASTER is the dataset name of the Backup Master file

Continued on next page

TAPETEST, Continued

Example (continued)

Step Name	Description
WRKUNIT	WRKUNIT is the DASD unit name SAE uses for allocating temporary datasets.
SYSOUT1 and SYSOUT2	SYSOUT1 and SYSOUT2 specify the SYSOUT= value for print datasets. SAE uses SYSOUT1 for Backup Control System reports. SAE uses SYSOUT2 for output from utility programs that are invoked.
TP1DSN and TP2DSN	TP1DSN and TP2DSN are the dataset names of the two tape copies of the Backup Master file.

**Record the
Following
Information**

Once the Backup Control System has been set up, record the following information for future reference:

- BACKUP MASTER FILE NAME
 - TAPE COPY 1 VOLSER
 - TAPE COPY 2 VOLSER
-

Backup Dataset List

List of Datasets to be Backed Up

A list of dataset names that are to be backed up is provided to the Backup Control System. Only partitioned and sequential datasets are supported. You may specify a full dataset name with or without a Volser. The Volser is required only if the dataset is not cataloged on the system that the Backup Control System will run.

Rules

If a Volser is specified, the dataset name must be followed by at least one blank and then the Volser. Multiple dataset names (or names and Volsers) may be specified on the same line, but each must be separated immediately by a comma. The list ends when a dataset name is not followed by a comma. In general, the syntax rules are the same as the z/OS rules for SYS1.PARMLIB members.

PARMLIB Statements

In addition to dataset names, the list may also include one or more PARMLIB= statements. PARMLIB=xxxxxxx may be specified anywhere in the list of dataset names and it specifies the name of a member of SYS1.PARMLIB that is to be used as a list of dataset names to be backed up. This parameter allows members like LNKLSTxx, LPALSTxx and IEFAPFxx to be used as dataset name lists. By using the PARMLIB= parameter, you don't have to maintain an additional list of important datasets. As additional datasets are added to these z/OS parmlib members, they are automatically backed up. Any specified member must exist in the cataloged SYS1.PARMLIB dataset.

Backed Up Only Once

Each unique dataset is only backed up once, even if specified multiple times. The list is specified on the SAEBKUP step SYSIN DD.

Example

```
//SAEBKUP.SYSIN DD *
SYS1.PARMLIB,SYS1.PARMLIB OLDCAT,
SYS1.PROCLIB,
SYS1.LINKLIB,PARMLIB=LNKLST00,
SYS1.LPALIB,PARMLIB=LPALST00,
SYS1.NUCLEUS,
SYS1.SVCLIB,
SYS1.CMDLIB,
SYS1.VTAMLIB,
SYS1.VTAMLST
```

Backup Master Control

amestesl

Backup Reporting

The Dataset Backup Utility Report

The SAEBKUP utility produces the Dataset Backup Utility Report. It indicates the status of each backup request and shows the volume on which the dataset resides, the dataset organization, the utility that was invoked, the start and end times of the utility run, the success of the utility call and the tape/file sequence number location of the backup.

Example

```
MVS SP2.2.0      SAE - DATASET BACKUP UTILITY      DATE - 92045  TIME - 07:27
PAGE - 1

BACKUP OF SYS1.PARMLIB
  DATASET ALLOCATED ON VOLUME MCATB1, DDNAME(SYS00001), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:27 PGM=IEBCOPY
    ENDED AT 07:27 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=2
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE2

BACKUP OF SYS1.PROCLIB
  DATASET ALLOCATED ON VOLUME SYS004, DDNAME(SYS00002), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:27 PGM=IEBCOPY
    ENDED AT 07:28 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=3
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE3

BACKUP OF SYS1.LINKLIB
  DATASET ALLOCATED ON VOLUME XARESB, DDNAME(SYS00003), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:28 PGM=IEBCOPY
    ENDED AT 07:32 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=4
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE4

DATASET LIST FROM SYS1.PARMLIB(LNKLST00)

BACKUP OF GIM.SGIMLMD0
  DATASET ALLOCATED ON VOLUME XARESB, DDNAME(SYS00004), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:32 PGM=IEBCOPY
    ENDED AT 07:33 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=5
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE5

BACKUP OF ISP.V2R3M0.ISPLOAD
  DATASET ALLOCATED ON VOLUME XARESB, DDNAME(SYS00005), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:33 PGM=IEBCOPY
    ENDED AT 07:34 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=6
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE6

BACKUP OF ISR.V2R3M0.ISRLOAD
  DATASET ALLOCATED ON VOLUME XARESB, DDNAME(SYS00006), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:34 PGM=IEBCOPY
    ENDED AT 07:34 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=7
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE7

BACKUP OF PLI.PLICOMP
  DATASET ALLOCATED ON VOLUME SYS004, DDNAME(SYS00007), DS1DSORG=X'0200',
ORGANIZATION PARTITIONED
  UTILITY INVOKED AT 07:34 PGM=IEBCOPY
    ENDED AT 07:35 RC=0
  BACKUP SUCCESSFUL, TAPE VOLUME=M00750, FILE SEQUENCE NUMBER=8
DSN=BACKUPS.SAEBKUP.D92045.T0727.FILE8
```

Continued on next page

Backup Reporting, Continued

Backup Master Update Report

The SAEBKMST utility produces the Backup Master Update Report. It shows which backups are being maintained, the date/time, Volser and file sequence number for each, and which tape volumes are no longer required and, therefore, may be returned to scratch.

Example

```

SAE - BACKUP MASTER UPDATE UTILITY      DATE - 92045  TIME - 08:10  PAGE - 1
SYSIN DATASET PARAMETERS
MAXVOLS=100
GENERATIONS=5
SAE - BACKUP MASTER UPDATE UTILITY      DATE - 92045  TIME - 08:10  PAGE - 2
DATASET NAME                            VOLSER  BACKUP  DATE  TAPE  FILE
ACTION -----
COBOL.PROD.COBLIB                        MCATB1  92045  07:42  M00750 16      ADDED
                                           92044  15:53  M01642 16
                                           92044  15:09  M03349 16
COBOL.PROD.LINKLIB                       MCATB1  92045  07:43  M00750 17      ADDED
                                           92044  15:54  M01642 17
                                           92044  15:10  M03349 17
GIM.SGIMLMD0                             XARESB  92045  07:33  M00750 5       ADDED
                                           92044  15:44  M01642 5
                                           92044  14:59  M03349 5
ISP.V2R3M0.ISPLOAD                       XARESB  92045  07:34  M00750 6       ADDED
                                           92044  15:45  M01642 6
                                           92044  15:00  M03349 6
ISR.V2R3M0.ISRLOAD                       XARESB  92045  07:34  M00750 7       ADDED
                                           92044  15:46  M01642 7
                                           92044  15:00  M03349 7
PLI.PLICOMP                              SYS004  92045  07:35  M00750 8       ADDED
                                           92044  15:46  M01642 8
                                           92044  15:01  M03349 8
PLI.PLILINK                              SYS004  92045  07:36  M00750 9       ADDED
                                           92044  15:47  M01642 9
                                           92044  15:02  M03349 9
SYS1.COMDLIB                             XARESB  92045  07:37  M00750 10      ADDED
                                           92044  15:48  M01642 10
                                           92044  15:03  M03349 10
SYS1.DGTL LIB                             XARESB  92045  07:38  M00750 11      ADDED
                                           92044  15:49  M01642 11
                                           92044  15:04  M03349 11
SYS1.DTSLINK                             MCATB1  92045  07:39  M00750 12      ADDED
                                           92044  15:50  M01642 12
                                           92044  15:05  M03349 12
SYS1.INFO.LINKLIB                        MCATB1  92045  07:40  M00750 14      ADDED
                                           92044  15:52  M01642 14
                                           92044  15:07  M03349 14
SYS1.ISPLLIB                             XARESB  92045  07:41  M00750 15      ADDED
                                           92044  15:52  M01642 15
                                           92044  15:08  M03349 15
SYS1.LINKLIB                             XARESA  92045  07:58  M00750 26      ADDED
                                           92044  16:09  M01642 26
                                           92044  15:26  M03349 26
SYS1.LINKLIB                             XARESB  92045  07:32  M00750 4       ADDED
                                           92044  15:44  M01642 4
                                           92044  14:58  M03349 4
                                           92023  12:50  M01260 4
SAE - BACKUP MASTER UPDATE UTILITY      DATE - 92045  TIME - 08:10  PAGE - 3
DATASET NAME                            VOLSER  BACKUP  DATE  TAPE  FILE  ACTION
-----
SAE - BACKUP MASTER UPDATE UTILITY      DATE - 92045  TIME - 08:10  PAGE - 4

FOLLOWING VOLUMES NO LONGER NEEDED, RETURN TO SCRATCH
M01259  DATASET - BACKUPS.SAEBKUP.D92023.T1236.FILE1  UNCATALOGED

```

Part III: How to IPL SAE

Overview

Introduction This part of the guide describes how to IPL SAE.

In This Part This part contains the following chapters:

Chapter	See Page
IPLing SAE	9-79
Logging On to SAE	10-97
Automatic Printer Output Assignment	11-103
SAE Primary Screen	12-105
SAE	13-109

Chapter 9: IPLing SAE

Overview

Introduction You can IPL SAE from one of the following sources:

- a DASD volume
- a magnetic tape volume
- a CD-ROM/Network file

In This Chapter This chapter contains the following topics:

Topic	See Page
Performing DASD IPL	9-81
Performing TAPE IPL	9-84
Performing a CD-ROM/Network File IPL	9-86
IPLing Under VM	9-89
Preparing for Use Under VM	9-90
TAPE IPL Under VM	9-91
DASD IPL Under VM	9-93
Console	9-95
Establishing a Console Via LOADPARM	9-96

Performing DASD IPL

Procedure

Use the following procedure to IPL from a DASD.

Step	Action
1.	Identify the IPL DASD device.
2.	Initiate Program Load (with a RESET SYSTEM CLEAR option) using the processor service console. <u>Result:</u> After completing Program Load, SAE enters an I/O-enabled wait state.
3.	Press the RESET key and then press the Enter key on the locally attached non-SNA terminal you wish to use. <u>Results:</u> SAE immediately displays the SAE Logon screen. If the screen does not display, press RESET/ENTER again. If the screen again fails to display, follow the instructions under the heading 'Defining a Console via LOADPARM' on page 9-96.

Continued on next page

Performing DASD IPL, Continued

Procedure (continued)

Step	Action
4.	<p>SAE writes messages to the Hardware Service Console during the IPL. You can view the messages to help diagnose problems or determine the SAE IPL status. Message and descriptions are as follows:</p> <p>SAE IPL IN PROGRESS, RELEASE xx.x pppp ssss SAE IPL is in progress. The release (xx.x), maintenance patch level (pppp), and the IPL device's sub-channel number (ssss) all display.</p> <p>IPL COMPLETE, DEV: xxxx LOADPARM: xxxxxxxx SAE IPL has completed. The IPL device number (xxxx) and the specified LOADPARM value display.</p> <p>WAITING FOR CONSOLE SAE is waiting for the console device identification.</p> <p>CONSOLE INTERRUPT DEV: xxxx SUBC: ssss SAE detects an attention interrupt from the device (xxxx) at sub-channel number (ssss).</p> <p>CONSOLE INV xxxx SAE detects the SAExxxx console setting LOADPARM at an invalid specified device address (xxxx). SAE waits for another console to identify itself.</p> <p>CONSOLE RESTRICT SAE detects an attention interrupt from a device but the device is not one of the restricted console addresses defined by the DLIB@OPT utility CONSOLEx= keyword.</p> <p>CONSOLE ERR xxxx SAE detects an attention interrupt from a device (xxxx) but has determined the device is not a console. SAE resumes waiting for another console to identify itself.</p> <p>CONSOLE AT xxxx SAE has established a console at the shown device (xxxx). SAE is now accessible through that console.</p>
5.	<p>If SAE is not authorized for the processor, the SAE Logon screen displays an OVERRIDE CODE prompt. Enter the override code and press Enter. If you do not know the override code, contact NewEra Support to obtain it.</p>
6.	<p>If you have defined a startup password, the SAE Logon screen displays a PASSWORD prompt. Enter the correct password and press Enter.</p>

**Unrecoverable
Errors**

After loading SAE, a disabled wait state PSW displays if there are any unrecoverable errors. See 'Troubleshooting' page 30-347 for more information.

Performing TAPE IPL

Procedure

Use the following procedure to IPL from a TAPE.

Step	Action
1.	Mount the SAE tape and ready the tape drive.
2.	Identify the IPL device and initiate Program Load (with a RESET SYSTEM CLEAR option) using the processor service console. <u>Results:</u> After Program Load is complete; SAE enters an I/O-enabled wait state.
3.	Press the RESET key and then the Enter key on the locally attached non-SNA terminal you wish to use. <u>Results:</u> SAE immediately displays the SAE Logon screen. If the screen does not display, press RESET/ENTER again. If the screen still fails to display, follow the instructions under the heading 'Defining a Console via LOADPARM' in this chapter.

Continued on next page

Performing TAPE IPL, Continued

Procedure (continued)

4.	<p>SAE writes messages to the Hardware Service Console during the IPL. You can view the messages to help diagnose problems or determine the SAE IPL status. Message and descriptions are as follows:</p> <p>SAE IPL IN PROGRESS, RELEASE xx.x pppp ssss SAE IPL is in progress. The release (xx.x), maintenance patch level (pppp), and the IPL device's sub-channel number (ssss) all display.</p> <p>IPL COMPLETE, DEV: xxxx LOADPARM: xxxxxxxx SAE IPL has completed. The IPL device number (xxxx) and the specified LOADPARM value display.</p> <p>WAITING FOR CONSOLE SAE is waiting for the console device identification.</p> <p>CONSOLE INTERRUPT DEV: xxxx SUBC: ssss SAE detects an attention interrupt from the device (xxxx) at sub-channel number (ssss).</p> <p>CONSOLE INV xxxx SAE detects the SAExxxx console setting LOADPARM at an invalid specified device address (xxxx). SAE waits for another console to identify itself.</p> <p>CONSOLE RESTRICT SAE detects an attention interrupt from a device but the device is not one of the restricted console addresses defined by the DLIB@OPT utility CONSOLEx= keyword.</p> <p>CONSOLE ERR xxxx SAE detects an attention interrupt from a device (xxxx) but has determined the device is not a console. SAE resumes waiting for another console to identify itself.</p> <p>CONSOLE AT xxxx SAE has established a console at the shown device (xxxx). SAE is now accessible through that console.</p>
5.	<p>If SAE is not authorized for the processor, the SAE Logon screen displays an OVERRIDE CODE prompt. Enter the override code and press Enter. Contact NewEra Support if you do not know the override code.</p>
6.	<p>If you have defined a startup password, the SAE Logon screen displays a PASSWORD prompt. Enter the correct password and press Enter.</p>

Unrecoverable Errors

After loading SAE, a disabled wait state PSW indicates if there are any unrecoverable errors. See 'Troubleshooting' page 30-347 for more information.

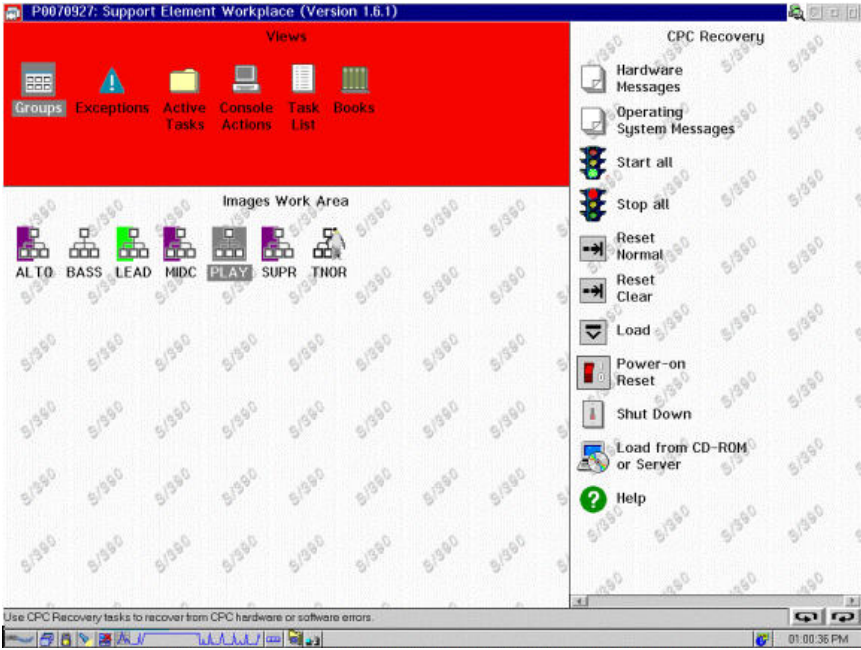
Performing a CD-ROM/Network File IPL

**Consult
Manufacturer's
Documentation**

The actual method of initiating the IPL from CD-ROM or Network File differs depending on your processor model. Consult the manufacturer's documentation on how to perform the Load from CD-ROM/Network File for your specific processor model.

Procedure

To perform the IPL on a IBM MP3000 processor:

Step	Action
<p>1.</p>	<p>Double click the 'Load from CD-ROM or Server' icon.</p> <p>In this example the LPAR being IPLed is already selected and is named 'PLAY'.</p>  <p>The screenshot shows the 'Support Element Workplace (Version 1.6.1)' interface. At the top, there are 'Views' (Groups, Exceptions, Active Tasks, Console Actions, Task List, Books) and an 'Images Work Area' containing LPARs: ALTO, BASS, LEAD, MIDC, PLAY, SUPR, and TNOR. On the right, the 'CPC Recovery' panel is visible, with options: Hardware Messages, Operating System Messages, Start all, Stop all, Reset Normal, Reset Clear, Load, Power-on Reset, Shut Down, Load from CD-ROM or Server, and Help. The 'Load from CD-ROM or Server' option is highlighted.</p>
<p>2.</p>	<p>After completing Program Load, SAE enters an I/O-enabled wait state.</p>
<p>3.</p>	<p>Press the RESET key and then the Enter key on the locally attached non-SNA terminal you wish to use.</p> <p><u>Results:</u> SAE immediately displays the SAE Logon screen. If the screen does not display, press RESET/ENTER again. If the screen still fails to display, follow the instructions under the heading 'Defining a Console via LOADPARM' in this chapter.</p>

Continued on next page

Performing a CD-ROM/Network File IPL, Continued

Procedure (continued)

Step	Action
4.	<p>SAE writes messages to the Hardware Service Console during the IPL. You can view the messages to help diagnose problems or determine the SAE IPL status. Message and descriptions are as follows:</p> <p>SAE IPL IN PROGRESS, RELEASE xx.x pppp ssss SAE IPL is in progress. The release (xx.x), maintenance patch level (pppp), and the IPL device's sub-channel number (ssss) all display.</p> <p>IPL COMPLETE, DEV: xxxx LOADPARM: xxxxxxxx SAE IPL has completed. The IPL device number (xxxx) and the specified LOADPARM value display.</p> <p>WAITING FOR CONSOLE SAE is waiting for the console device identification.</p> <p>CONSOLE INTERRUPT DEV: xxxx SUBC: ssss SAE detects an attention interrupt from the device (xxxx) at sub-channel number (ssss).</p> <p>CONSOLE INV xxxx SAE detects the SAExxxx console setting LOADPARM at an invalid specified device address (xxxx). SAE waits for another console to identify itself.</p> <p>CONSOLE RESTRICT SAE detects an attention interrupt from a device but the device is not one of the restricted console addresses defined by the DLIB@OPT utility CONSOLEx= keyword.</p> <p>CONSOLE ERR xxxx SAE detects an attention interrupt from a device (xxxx) but has determined the device is not a console. SAE resumes waiting for another console to identify itself.</p> <p>CONSOLE AT xxxx SAE has established a console at the shown device (xxxx). SAE is now accessible through that console.</p>
5.	<p>If SAE is not authorized for the processor, the SAE Logon screen displays an OVERRIDE CODE prompt. Enter the override code and press Enter. Contact NewEra Support if you do not know the override code.</p>
6.	<p>If you have defined a startup password, the SAE Logon screen displays a PASSWORD prompt. Enter the correct password and press Enter.</p>

Continued on next page

Performing a CD-ROM/Network File IPL, Continued

Unrecoverable Errors

After loading SAE, a disabled wait state PSW indicates if there are any unrecoverable errors. See 'Troubleshooting' page 30-347 for more information.

IPLing Under VM

Supported Mini-Disks

SAE is designed to examine and alter z/OS volumes and files. SAE cannot access CMS mini-disks, but volumes formatted for virtual machine (VM) may be erased. SAE supports z/OS mini-disks.

Preparing for Use Under VM

Logging Onto the Virtual Machine	The virtual machine (VM) to which you logon must have OPTION ECMODE in its directory entry, or you must issue the #CP SET ECMODE ON command. The command #CP Q SET displays the current ECMODE setting.
CPU Information	SAE only requires one CPU. To use the Fast DASD Erase feature, you must detach all but one CPU from the virtual machine. This ensures that SAE uses I/O ASSIST. The command #CP Q CPUS displays the CPUs and you can use #CP DETACH CPU x to detach any unneeded CPUs.
3270-Type Consoles	SAE expects to use a 3270-type device as a console. To check if your VM has a 3215 or 3270 console, issue the command #CP Q V CON .
Check if your VM is Defined as 3270	<p>If your VM console is not defined as a 3270, you must:</p> <ul style="list-style-type: none">• Have a 3270 terminal dedicated to your virtual machine, or• Attach a 3270 terminal. <p>Check your directory entry to see if DEDICATE is present for a 3270 terminal. If not, attach a 3270 terminal.</p>
Example	<p>For example, if VM has a real 3270 at address 420, you could issue the following commands from the VM operator's console (or from your virtual machine if you are class A):</p> <pre>#CP DISABLE cccc CP ATTACH cccc logonid cccc</pre>
Virtual Address Not Important	The dedicated or attached terminal's virtual address is not important (unless you have defined specific console addresses during installation). SAE uses the first 3270 that presents an attention interrupt.

TAPE IPL Under VM

Procedure

To IPL from TAPE using VM, perform the following procedure:

Step	Action
1.	If a tape drive is not dedicated to your VM, the VM operator must attach a tape drive to your VM using the following command: #CP ATTACH yyyy logonid xxxx
2.	After attaching the tape, mount the SAE tape on the tape drive.
3.	Clear the VM
4.	Initiate Program Load from the IPL device using the following commands: #CP SYS CLEAR # CP IPL xxxx
5.	Press Enter on any terminal that your VM defines as a 3270 terminal. <u>Results:</u> The SAE screen appears on the terminal. If you are using a dedicated or attached 3270, you can optionally disconnect your VM.
6.	When you complete your SAE session, logoff your VM to detach any attached devices. If you issued a #CP DISABLE command for a 3270 terminal, be sure to re-enable it.

Continued on next page

TAPE IPL Under VM, Continued

Procedure (continued)

Step	Action
7.	<p>SAE writes messages to the Hardware Service Console during the IPL. Under VM these messages will be trapped and displayed on the VM Guest Console. You can view the messages to help diagnose problems or determine the SAE IPL status. Message and descriptions are as follows:</p> <p>SAE IPL IN PROGRESS, RELEASE xx.x pppp ssss SAE IPL is in progress. The release (xx.x), maintenance patch level (pppp), and the IPL device's sub-channel number (ssss) all display.</p> <p>IPL COMPLETE, DEV: xxxx LOADPARAM: xxxxxxxx SAE IPL has completed. The IPL device number (xxxx) and the specified LOADPARAM value display.</p> <p>WAITING FOR CONSOLE SAE is waiting for the console device identification.</p> <p>CONSOLE INTERRUPT DEV: xxxx SUBC: ssss SAE detects an attention interrupt from the device (xxxx) at sub-channel number (ssss).</p> <p>CONSOLE INV xxxx SAE detects the SAExxxx console setting LOADPARAM at an invalid specified device address (xxxx). SAE waits for another console to identify itself.</p> <p>CONSOLE RESTRICT SAE detects an attention interrupt from a device but the device is not one of the restricted console addresses defined by the DLIB@OPT utility CONSOLEx= keyword.</p> <p>CONSOLE ERR xxxx SAE detects an attention interrupt from a device (xxxx) but has determined the device is not a console. SAE resumes waiting for another console to identify itself.</p> <p>CONSOLE AT xxxx SAE has established a console at the shown device (xxxx). SAE is now accessible through that console.</p>
8.	<p>If SAE is not authorized for the processor, the SAE Logon screen displays an OVERRIDE CODE prompt. Enter the override code and press Enter. If you do not know the override code, contact NewEra Support to obtain it.</p>
9.	<p>If you have defined a startup password, the SAE Logon screen displays a PASSWORD prompt. Enter the correct password and press Enter.</p>

DASD IPL Under VM

Procedure

To IPL from DASD using VM, perform the following procedure:

Step	Action
1.	Clear the VM.
2.	Initiate Program Load from the IPL device using the following commands: #CP SYS CLEAR # CP IPL xxxx
3.	Press Enter on any terminal that your VM defines as a 3270 terminal. <u>Results:</u> The SAE screen appears on the terminal. If you are using a dedicated or attached 3270, you can optionally disconnect your VM.
4.	When you complete your SAE session, logoff your VM to detach any attached devices. If you issued a #CP DISABLE command for a 3270 terminal, be sure to re-enable it.

Continued on next page

DASD IPL Under VM, Continued

Procedure (continued)

Step	Action
5.	<p>SAE writes messages to the Hardware Service Console during the IPL. Under VM these messages will be trapped and displayed on the VM Guest Console. You can view the messages to help diagnose problems or determine the SAE IPL status. Message and descriptions are as follows:</p> <p>SAE IPL IN PROGRESS, RELEASE xx.x pppp ssss SAE IPL is in progress. The release (xx.x), maintenance patch level (pppp), and the IPL device's sub-channel number (ssss) all display.</p> <p>IPL COMPLETE, DEV: xxxx LOADPARAM: xxxxxxxx SAE IPL has completed. The IPL device number (xxxx) and the specified LOADPARAM value display.</p> <p>WAITING FOR CONSOLE SAE is waiting for the console device identification.</p> <p>CONSOLE INTERRUPT DEV: xxxx SUBC: ssss SAE detects an attention interrupt from the device (xxxx) at sub-channel number (ssss).</p> <p>CONSOLE INV xxxx SAE detects the SAExxxx console setting LOADPARAM at an invalid specified device address (xxxx). SAE waits for another console to identify itself.</p> <p>CONSOLE RESTRICT SAE detects an attention interrupt from a device but the device is not one of the restricted console addresses defined by the DLIB@OPT utility CONSOLEx= keyword.</p> <p>CONSOLE ERR xxxx SAE detects an attention interrupt from a device (xxxx) but has determined the device is not a console. SAE resumes waiting for another console to identify itself.</p> <p>CONSOLE AT xxxx SAE has established a console at the shown device (xxxx). SAE is now accessible through that console.</p>
6.	<p>If SAE is not authorized for the processor, the SAE Logon screen displays an OVERRIDE CODE prompt. Enter the override code and press Enter. If you do not know the override code, contact NewEra Support to obtain it.</p>
7.	<p>If you have defined a startup password, the SAE Logon screen displays a PASSWORD prompt. Enter the correct password and press Enter.</p>

Console

Console Devices Are Required

To communicate with the user, SAE requires a console device. The identification and use of the console does not differ based on the type of IPL you are performing (DASD, Tape, or CD-ROM/Network). You can only establish a console on a local non-SNA display device.

First Attention Becomes Console

Normally, the first display device that presents an attention interrupt (pressing Enter) after completing the IPL is the device SAE uses as a console.

Selecting a Console

After initiating an SAE IPL, press Enter on the console you want to use.

Step	Action
1.	Initiate an SAE IPL.
2.	Press Enter on the console you want to use. <u>Note:</u> If SAE does not respond immediately, that indicates that the IPL process is not yet complete.
3.	If SAE does not respond, press Reset on the console device and then press Enter again

Restrictive Consoles

If you have defined Restrictive Consoles (see 'SAE Customization' on page 5-33) then SAE only responds to the selected console devices.

Specifying a Console

You can use a special LOADPARM value to compel the use of a specific console.

Establishing a Console Via LOADPARM

**When to use
LOADPARM**

If you cannot establish a console, or the console is being established at an undesirable address, you can specify the use of a console at a specific address using a special LOADPARM.

This forces the SAE console to a given address (by bypassing console address definitions) and does not require an attention interrupt (pressing Enter).

**Specified on the
Processor Service
Console**

The LOADPARM parameter is specified on the processor service console (usually next to the IPL device address). SAE obtains the LOADPARM from the service processor at IPL.

To define an SAE console using the LOADPARM, the processor must allow an eight-character parameter. VM users can use the LOADPARM parameter of the IPL statement to specify the LOADPARM.

**Defining a
Console**

To define a console, specify a LOADPARM of 'SAExxxx,' where xxxx is the four-digit device number of the console you want to use, and then IPL SAE per normal procedures.

For example, to have SAE use the console at address 500, specify 'SAE0500'. SAE extracts the LOADPARM and attempts to establish a console at the given address. SAE initiates I/O to the specified console immediately and does not require that the user press Enter. If SAE cannot establish the console at the specified address, or if the address is invalid, SAE waits for another console to identify itself as per normal SAE operation.

Chapter 10: Logging On to SAE

Overview

Introduction This chapter provides information about logging-on to SAE

In This Chapter This chapter contains the following topics:

Topic	See Page
SAE Logon	10-98
Override	10-99
Password	10-100
SAE Logon Screen Information	10-101

SAE Logon

Establishing a Console

Immediately after IPLing SAE, SAE attempts to establish a console so it can communicate with the user.

Establishing a console and the various methods of controlling which console is used are outlined in 'IPLing SAE' on page 8-77 and in 'SAE Customization' on page 5-33.

SAE Logon Screen

After establishing a console, the SAE Logon Screen appears:

```
TYPE : 7060.P30.IBM.02                                IPL ADDR: 0A98
SEQ  : 0000000000070927      SSSSSS   AAAA   EEEEEEE   LOADPARAM: 0A8200
LPAR : PROD                  SS      AA  AA  EE        CONSOLE : 0700
VM   : VM/ESA  2.4.0        SS      AA  AA  EE
GUEST: SAE                  SSSS   AAAAAAA  EEEEE
TAPE EXPIRES: 07.290        SS AA  AA  EE
                                SS AA  AA  EE
                                SSSSSS  AA  AA  EEEEEEE

                                STAND - ALONE - ENVIRONMENT
                                (C) COPYRIGHT NEWERA SOFTWARE INC. 2011
                                RELEASE 15.0  PATCH 0000

TOD DATE = 11/01/01                                SERIAL   = 070927
TOD TIME = 12:01                                    MODEL    = 7060
```

ENTER PASSWORD ==>>>

USE PF1 TO SEE WHAT IS NEW IN THIS RELEASE

SAE Logon Screen Prompts

The SAE Logon Screen controls the initial use of SAE. It may prompt for:

- an OVERRIDE code
- a PASSWORD
- for both
- for neither

If SAE is authorized for the IPL processor, and no start up passwords are defined, the prompt does not appear. If so, then press Enter to continue.

Once all required fields are complete, SAE displays the SAE Primary Screen.

Override

Obtaining an Override Code

If you IPL SAE on a processor for which it is not licensed, SAE presents the following prompt:

```
ENTER OVERRIDE      ===>

SAE IS NOT AUTHORIZED (0). IF THIS IS AN EMERGENCY, YOU CAN OBTAIN AN OVERRIDE
CODE THAT WILL ALLOW SAE TO FUNCTION. TO OBTAIN THE CODE, CONTACT NEWERA
SUPPORT STAFF (1-800-421-5035) AND QUOTE THE FOLLOWING NUMBER - xxxxxxxx
```

If this occurs, contact NewEra Software to obtain the necessary Override code that allows SAE to function. See 'NewEra Technical Support' on page 1-2.

Password

Password Prompt

If you IPL SAE and you have pre-defined a startup password or you have enabled the audit feature, the following prompt appears:

```
ENTER PASSWORD    ===>
```

You must enter a valid password before being granted access to SAE.

SAE Logon Screen Information

Field Information

The SAE Logon Screen provides information about the product and the processor on which it is running. Not all information fields always display. What displays depends on the environment in which SAE is IPLed, and if a Trial version was used.

Logon Screen Field Descriptions

The following is a list of the various Logon Screen fields and their descriptions:

Field Name	This field provides...
TYPE: 7060.P30.IBM.02	The processor type information as extracted using the STSI instruction (if installed on the processor).
SEQ: 0000000000070927	The processor sequence information as extracted using the STSI instruction (if installed on the processor).
LPAR: PROD	The LPAR name as extracted using the STSI instruction (if installed on the processor).
VM: VM/ESA 2.4.0	(If SAE is running under VM) the level of VM, as extracted using the STSI instruction (if installed on the processor).
GUEST: SAE	(If SAE is running under VM) the name of the VM guest, as extracted using the STSI instruction (if installed on the processor).
TAPE EXPIRES: 11.290	(If SAE was IPLed from a Distribution Tape) the date on which that tape permanently expires. Do not confuse value with the 30 days provided for a trial.
IPL ADDR: 0A98	The device number of the device from which SAE was IPLed.
LOADPARM: 0A8200	The value of the LOADPARM at the time of IPL.
CONSOLE: 0700	The device number of the console currently in use.
SERIAL = 070927	The processor serial number as extracted using the STIDP instruction.
MODEL = 7060	The processor model number as extracted using the STIDP instruction.

Chapter 11: Automatic Printer Output Assignment

Automatic Printer Output Assignment

Automatic Printer Assignment

SAE can automatically assign the printer output at IPL time. You can assign automatic printer output to:

- a real channel attached printer or
- a Print to Disk dataset.

For more information, see 'SAE Customization' on page 5-33.

When Active

If you IPL SAE and Automatic Printer Output Assignment is active, a status screen displays immediately before the SAE Primary Screen first displays.

This Printer Output Status screen provides details on the success or failure of the Automatic Printer Output Assignment.

Printer Output Status Screen

```
AUTOMATIC IPL-TIME PRINTER OUTPUT ASSIGNMENT
```

```
PRINTER_TYPE= DASD  
PRINTER_UNIT=  
PRINTER_VOL= VOL200
```

```
ASSIGNMENT SUCCESSFUL  
DATA SET SAVED
```

```
PRESS ENTER TO CONTINUE
```

Chapter 12: SAE Primary Screen

Overview

In This Chapter This chapter contains the following topics:

Topic	See Page
Functional Description	12-106
Common PF Key Assignments	12-108

Functional Description

SAE's Launching Point

After you gain entry to SAE from the SAE Logon Screen, the SAE Primary Screen appears. The SAE Primary Screen is the launching point for all SAE services.

SAE Primary Screen

```
SERIAL - 000001          SAE          STORAGE - 301.8M
MODEL  - 7490           RELEASE 15.0    TOD DATE - 11/01/01
ARCH   - ESA           PATCH LEVEL 0000  TOD TIME - 12:00
CONSOLE - 0700        LOAPARM - 0A7400M1
                        (C) COPYRIGHT NEWERA SOFTWARE INC. 2011  USERID - SAELVL2
                        ALL RIGHTS RESERVED, USE BY PERMISSION ONLY
```

SELECT OPTION ===>

```
0  SETTING - SAE SETTINGS
1  ACTION  - ACTION SERVICES
2  ERASE   - FAST DASD ERASE
3  CONFIRM - HARDWARE CONFIRMATION
4  INSPECT - INSPECT SERVICES
5  RESTORE - RESTORE SERVICES
X  EXIT    - TERMINATE SAE
```

Continued on next page

Functional Description, Continued

Available Options

Use the Primary Screen to select the required SAE services. Enter the option number and press Enter.

Select Option #	Use to Invoke the Following Services
0 – SETTINGS (see page 13-109)	<ul style="list-style-type: none">• Set SAE IPL Options• Set Printer Output Assignment• Set TOD Clock
1 – ACTION (see page 13-123)	<ul style="list-style-type: none">• Work with DASD Volumes• Work with Datasets• Work with Members• Work with CSECTs• Work with Catalogs
2 – ERASE (see page 20-217)	<ul style="list-style-type: none">• Erase DASD Volumes
3 – CONFIRM (see page 20-244)	<ul style="list-style-type: none">• Work with DASD and non-DASD devices
4 – INSPECT (see page 20-255)	<ul style="list-style-type: none">• Identify z/OS System Images• Compare z/OS System Images save with IFO
5 – RESTORE (see page 22-276)	<ul style="list-style-type: none">• Restore DASD Volumes• Restore Datasets• Restore Members• Copy Volumes• Compare Volumes

Common PF Key Assignments

Overview

The following table contains PF Key assignments.

If the command assigned to a particular PF Key is not applicable to a given screen, its use is processed as if the Enter key was used.

PF Key	Function
PF 1 PF 13	Display Online Help
PF 2 PF 14	CANCEL
PF 3 PF 15	SAVE and END
PF 4 PF 16	SAVE and RETURN
PF 5 PF 17	Repeat FIND
PF 6 PF 18	Repeat CHANGE
PF 7 PF 19	SCROLL UP
PF 8 PF 20	SCROLL DOWN
PF 9 PF 21	Repeat UNDELETE (Member Edit) Next Record (DASD Extend View/Alter)
PF 10 PF 22	SCROLL LEFT
PF 11 PF 23	SCROLL RIGHT
PF 12 PF 24	PRINT Screen Image

Chapter 13: SAE Settings

Overview

Introduction This chapter provides information about configuring SAE.

Navigation To access the SAE Settings Options, select Option 0 from the SAE Primary Screen.

Selecting an Option The SAE Settings Screen is shown below. From this screen you can select options that:

- Set SAE IPL Options (subset of DLIB@OPT utility setting)
- Activate Print Output (Real Printer/Print to Disk/Print to Tape)
- Deactivate Print Output
- Set the Time-of-Day Clock
- Set Volume Selection List Re-Use options

Select an option and press Enter, or use PF3/PF15 to exit.

SAE Settings Screen

```
SAE SETTINGS -----
OPTION ==>

0  SAE      - SET SAE IPL OPTIONS (DASD IPL ONLY)
1  PRT OPN - SET PRINTER OR PRINT-TO-DISK/TAPE
2  PRT CLS - CLOSE PRINT-TO-DISK/TAPE
3  CLOCK   - SET TOD CLOCK
4  RE-USE  - SET VOLUME SELECTION RE-USE
```

In This Chapter This chapter contains the following topics:

Topic	See Page
SAE IPL Options	13-110
Printer Control – Activate Print Output	13-111
Printing to Disk Dataset	13-113
Print to Disk Dataset via Option 0.1	13-114
Printer to Disk Dataset via Other Than Option 0.1	13-115
Print to Disk Dataset - Dataset Allocation	13-116
Printing to a Tape Dataset	13-117
Switching Print Output Direction	13-119
Setting the TOD Clock	13-120
Set Volume Selection Re-Use	13-121

SAE IPL Options

Navigation To configure SAE IPL Options, select option 0 from the SAE Settings Screen.

Only Available for DASD IPL Use the SAE IPL Options Settings Screen to set SAE IPL options. You can only use the IPL Options Screen after IPLing SAE from a DASD volume.

These options are a sub-set of the options you can configure with the DLIB@OPT utility. For detailed information on the keywords and their use see 'SAE Customization' on page 5-33.

Editing Options To change an IPL option:

Step	Action
1.	Type over the field to the right of the displayed keyword
2.	To accept the options, press PF3
3.	To cancel the setting of new options, press PF4

When Edits Take Effect Once changed, SAE writes the specified options into the IPL track of the volume from which SAE was IPLed. These options activate the next time SAE is IPLed from the same DASD volume.

SAE IPL Options Settings Screen

```
SAE IPL OPTIONS SETTING -----
      Changed options effective next IPL

PRINT_DSN=  SYS1.PRT           Print-to Dataset name prefix
PRINT_TYPE=  IPL              Auto print option OFF, REAL, IPL, DASD
PRINT_UNIT=                      Printer or DASD unit address
PRINT_VOL=                      Print-to-Disk Volser

INDEX_VOL=  VOL001            Image Comparison Dataset & Volser
INDEX_DSN=  IMAGEFOC.BLUEPRINT.INDEX

CONSOLE1=  NONE              Restricted Consoles
CONSOLE2=  NONE              - Code Unit Address or NONE
CONSOLE3=  NONE
CONSOLE4=  NONE
CONSOLE5=  NONE
CONSOLE6=  NONE

TAPEVOL1=  SAEMT1            Backup Master Tape Volser
TAPEVOL2=  SAEMT2

Use PF3 to save changes or PF4 to cancel
```

Printer Control – Activate Print Output

Printer Control Screen Functions

You can use the Printer Control Screen to:

- Specify the printer address that SAE will use
- Configure the re-direction of print output to a Disk dataset or Tape Dataset.

Navigation

To access the Printer settings:

- Select Option 1 from the SAE Settings screen.
- Enter the 'Print' command on supported screens.
- Automatic 'Print' command on entry to Fast DASD Erase.

Printer Control Screen

```
PRINTER CONTROL -----  
  
PRINT BANNER PAGE (Y OR N)    ==> N  
  
BANNER PAGE INFORMATION  
  
COMPANY NAME ==>  
USER NAME    ==>  
LOCATION      ==>  
COMMENTS    ==>  
  
PRINT OPTIONS. TO DIRECT PRINT OUTPUT TO:  
- A CHANNEL ATTACHED PRINTER, ENTER A 4 DIGIT PRINTER ADDRESS  
- A DISK DATASET, ENTER DISK  
- A TAPE DATASET, ENTER TAPE  
  
SPECIFY PRINTER OUTPUT OPTION ==> DISK  
  
USE PF3 TO CANCEL
```

Printing a Banner Page

You can configure the Printer Control Screen to print a banner page in front of each SAE report. Type 'Y' next to the prompt if you want a banner page. You can also specify the user information that displays in the banner page.

Directing Printed Output

You can direct printed output to one of the following:

- Channel-attached printer
- Disk dataset
- Tape Dataset

Use the 'SPECIFY PRINTER OUTPUT OPTION' prompt to direct the printer's output.

Printing to Channel-Attached Printer

Print to Channel Attached Printer

To print SAE output to a channel-attached printer, supply the printer's four-digit address. When you press Enter, SAE tests the supplied address by attempting to print a single print line. If successful, the screen exits and SAE uses that printer address for future print operations.

Printing to Disk Dataset

Print to Disk Dataset

To print SAE output directly to a Disk dataset, supply a value of 'DISK'. An SAE screen appears with instructions on how to identify the DASD device on which the Disk Print dataset is to be allocated.

Flushing Buffered Data

Data written to the Print to Disk dataset is buffered and written only when a buffer is full. After you finish producing printer output, you must close the Print to Disk dataset to flush any buffered data.

To do this, select Option 2 on the SAE Settings Screen, or select Option X on the SAE Primary Screen. If the Print to Disk dataset is not closed, you may lose data.

Disk Location Selection

The method of volume selection for Print to Disk changes, depending on the navigation to Printer Control.

Print to Disk Dataset via Option 0.1

Navigation If you enter “Printer Control” via Option 0.1, the Printer Selection Screen displays.

Printer Selection Screen

PRINT TO DISK----- PRINT DATASET LOCATION

USING THE SELECTION LIST THAT FOLLOWS

SELECT THE VOLUME ON WHICH TO ALLOCATE THE PRINT DATASET

(PRESS ENTER TO CONTINUE)

NOTE: PRINT DATASETS WILL NOT BE CATALOGED BY SAE. IT IS SUGGESTED THAT A NON-SMS MANAGED WORK VOLUME BE SELECTED FOR PRINT OUTPUT. ALSO, YOU MAY NOT ERASE A VOLUME THAT CONTAINS AN ACTIVE PRINT DATASET.

Printer Screen Information

The Printer Selection Screen informs you that SAE is going to use the normal Unit Selection and Volume Selection Screens to select the volume on which it is going to allocate the print dataset.

Selecting a Volume

Press Enter and use the Unit Selection and Volume Selection Screens to select a specific volume.

Printer to Disk Dataset via Other Than Option 0.1

Using Another Printer Controller

If you did not enter “Printer Control” using Option 0.1 (for example, from a PRINT command or Erase entry), then the following screen displays.

Optional Printer Control Screen

PRINT TO DISK----- PRINT DATASET LOCATION

SELECT THE VOLUME ON WHICH TO ALLOCATE THE PRINT DATASET

FOR A VOLUME SELECTION LIST, USE 0.1 FROM PRIMARY SCREEN

ENTER THE DASD VOLSER ==>

NOTE: PRINT DATASETS WILL NOT BE CATALOGED BY SAE. IT IS SUGGESTED
THAT A NON-SMS MANAGED WORK VOLUME BE SELECTED FOR PRINT OUTPUT.
ALSO, YOU MAY NOT ERASE A VOLUME THAT CONTAINS AN ACTIVE PRINT DATASET

Optional Printer Control Information

The Optional Printer Control screen informs you that the normal Unit Selection and Volume Selection Screen are not available, and that you must identify (by volume serial number) the volume on which to allocate the print dataset.

Selecting a Volume

Enter the specific volume’s Volser and press Enter.

Print to Disk Dataset - Dataset Allocation

Creating a Dataset Name

After identifying the volume, SAE allocates the print output dataset on that volume.

SAE creates the dataset name using a defined prefix (see DLIB@OPT utility, PRINT_DSN= keyword on page 5-52) and the fixed-print dataset suffix. SAE then writes all print-directed output to the Print to Disk dataset.

The Print to Disk dataset is allocated with RECFM=FBM and LRECL=133. The BLKSIZE is dependent on the device type and is for half-track blocking.

SAE Allocated Print Datasets Not Cataloged

SAE-allocated print datasets are not cataloged.

NewEra suggests that you select a non-SMS managed work or temporary volume for print output. After you finish with SAE you may copy or catalog the print dataset using a z/OS system.

Erasing An Active Print Dataset

You may not erase a volume that contains the active print dataset.

Printing to a Tape Dataset

Procedure

To direct SAE print output to a tape dataset:

Step	Action
1.	<p>In the Printer Control Screen, supply a value of 'TAPE'.</p> <p><u>Results:</u> SAE displays the "Initial Print to Tape" screen, which provides instructions on how to identify the Tape device on which to create the Tape Print dataset. The Print to Tape screen appears:</p> <p><u>Note:</u> The data SAE writes to the Print to Tape dataset is buffered and only writes when the buffer is full. After you finish producing printer output you must close the Print to Tape dataset so that SAE can flush any buffered data and write the tape trailer labels.</p> <p>To close the Print to Tape dataset, select Option 2 on the SAE Settings Screen, or select Option X on the SAE Primary Screen. If you do not close the Print to Tape dataset, you may lose your data.</p> <pre> PRINT TO TAPE----- TAPE DEVICE SELECTION USING THE TAPE MOUNT SCREEN THAT FOLLOWS ENTER THE TAPE DEVICE ADDRESS ON WHICH TO CREATE THE PRINT DATASET (PRESS ENTER TO CONTINUE) IF YOU DO NOT KNOW THE ADDRESSES OF ATTACHED TAPE DRIVES YOU MAY RETURN TO THE PRIMARY SCREEN AND USE OPTION 3. NOTE: THE PRINT TO TAPE DATASET MUST BE CLOSED WHEN YOU HAVE FINISHED USING SAE SO THAT TAPE LABELS CAN BE WRITTEN. SELECT OPTION X FROM THE PRIMARY SCREEN TO CLOSE THE PRINT TO TAPE DATASET. </pre>

Continued on next page

Printing to a Tape Dataset, Continued

Procedure (continued)

Step	Action
2.	<p>After writing to Tape, press Enter to continue</p> <p>Results: The following screen controls the tape mounting:</p> <pre>TAPE MOUNT REQUEST ----- PRINT DATASET LOCATION COMMAND ==> FOR TAPE MOUNT, PROCEED AS FOLLOWS: - MOUNT THE DESIRED TAPE AND READY THE DRIVE - SUPPLIED REQUIRED VALUES - PRESS ENTER TAPE DRIVE UNIT ADDRESS ==> TAPE VOLUME SERIAL NUMBER ==> PRIVATE</pre>
3.	Mount the tape on the tape drive you are going to use, and prepare the drive.
4.	Enter the tape drive address in the Tape Mount Request Screen.
5.	<p>Press Enter.</p> <p>Results: After reading the tape, SAE displays a confirmation screen before creating the tape dataset on the tape.</p> <p>SAE creates a standard labeled tape dataset as the tape's first file. Any previous data on the tape is lost.</p>
6.	<p>To proceed, confirm the use of the tape:</p> <ul style="list-style-type: none"> • If the tape contains Standard Labels (SL), then the new SAE-created tape will have the same Volser as when the tape was mounted • If the tape contains no labels (NL), SAE creates a Standard Labeled tape with a Volser of SAEPRT • The tape dataset's name is formatted as follows: SAE.Dyymmdd.Thhmm. The dataset is created with RECFM=FBM and LRECL=133

Closing the Session

SAE writes to the tape as printed output is produced. Before closing SAE, it is important that you use SAE to close the tape dataset.

When SAE closes the tape dataset, it writes an EOF Tape Mark along with the Trailer labels. If the tape dataset is not closed, the printed output is contained on the tape but the tape may not be accessible using z/OS utilities. To close the tape dataset, exit SAE using Option X from the primary screen or by switching the printed output direction to another device.

Switching Print Output Direction

Procedure

To switch print output direction to another device:

Step	Action
1.	Select Option 0.1 on the SAE Settings Screen.
2.	Specify a new Print Output Direction.
3.	Press Enter. <u>Results:</u> If Print Output Direction is currently active to Disk or Tape, the following Close Confirmation screen displays: <pre>PRINTER OUTPUT IS CURRENTLY BEING DIRECTED TO DISK: DATASET: SYS1.SAE.PRINT.D981007.T14580 VOLUME : TEST01 UNIT : 0131 DO YOU WISH TO CLOSE THIS PRINT OUTPUT DATASET ==> (Y/N)</pre>
4.	To close the current print output dataset select 'Y'. <u>Results:</u> The print dataset closes and if you are using a tape, SAE writes the trailer labels.
5.	You can now define a new print device, or stop the print direction. To stop the print direction, press PF3 to step back through the panels.

Setting the TOD Clock

Overview

You can set the date and time using the TOD (Time of Day) Clock Setting screen.

Procedure

To set the TOD:

Step	Action
1.	<p>Select Option 3 from the SAE Settings Screen</p> <p><u>Result:</u> The TOD Clock Setting screen appears:</p> <pre>TOD CLOCK MAY BE SET (PF3 TO EXIT) SUPPLY DATE AND TIME VALUES, PRESS ENTER AND THEN DEPRESS TOD CLOCK SECURITY SWITCH DATE= 2011.013 CLOCK= 18.18.00 TOD=C72CEA0E3C9A7900</pre>
2.	Enter the required date and time values in the format shown on the screen.
3.	<p>Press Enter.</p> <p><u>Note:</u> Your keyboard remains locked until the clock is configured.</p>
4.	Press the processor's TOD Clock Security Switch when the specified time occurs.
5.	The TOD Clock Setting Screen closes immediately after you set the TOD.

Set Volume Selection Re-Use

Overview

The Volume Selection Re-Use Screen allows you to configure Volume Selection options independent of the non-display option setting.

For more information, see 'Volume Selection Re-use' on page 15-135.

Navigation

To access the Volume Selection Re-Use screen, select Option 4 from the SAE Settings Screen.

Part IV: Action Services

Overview

Introduction This part contains information about SAE's Action Services.

In This Part This part contains the following chapters:

Chapter	See Page
Action Services	14-125
Volume Services	15-131
Dataset Services	16-157
Member Services	17-181
Edit Services	18-193
Zap Services	19-201
Catalog Services	20-207

Chapter 14: Action Services

Overview

Introduction The following topics provide an overview of SAE's Action Services.

In This Part This chapter contains the following topics:

Topic	See Page
What are Action Services	14-126
List of Action Services	14-127
Action Services Overview	14-129

What are Action Services

Provide Complete Access To

The ACTION SERVICES application provides you with complete access to all:

- DASD Devices
 - Datasets
 - Members
 - Load Modules
 - ICF Catalogs
-

Assisting SAE Repairs and Restarting

Due to the nature of problems that result in system outages, NewEra has designed SAE's Action Services to specifically assist the people responsible for repairing and restarting failed systems.

The Action Service's interface and related screens are specifically designed to fit the needs of an experienced ISPF user. The interface and panels are intuitive and usable with a minimum of instruction and/or training for those that have mastered ISPF.

Action Services Makeup

Action Services is a collection of services that are tied together to provide a hieratical view of DASD Volumes and their contents. The user moves through an intuitive interface, starting with DASD Volumes and moving on to Datasets, then Dataset Members, etc.

Inspect

When using SAE to repair a system problem, you should also consider using Inspect (see page 21-258).

Action Services provide access to all of your system's volumes and datasets and leaves the navigation to you. Alternatively, Inspect isolates the datasets being used by a specific z/OS image. The choice is yours.

List of Action Services

Overview Use Action Services to perform these functions:

Volume Services The Volume Services List has the following functions:

Volume Services	Page
Display Volumes	15-132
Initialize Volumes	15-139
Rename Volumes	15-141
Display Volume Information	15-143
Display Volume Map	15-147
Edit Volume Extent	15-152
Print Volume List	15-151
Allocate New Dataset	15-142
Copy Between Datasets	15-140
Select Volume for Dataset Services	15-140

Dataset Services The Dataset Services List has the following functions:

Dataset Services	Page
Display Dataset	16-158
Rename Dataset	16-164
Display Dataset Information	16-165
Print Dataset List	16-160
Change RACF and Password Indicators	16-163
Allocate New Dataset	16-167
Select Catalog for Altercat Services	16-167
Copying Between Datasets	16-172
Select Dataset for Edit Services	15-140
Select Dataset for Zap Services	15-140
Select Catalog for Altercat Services	15-140

Continued on next page

List of Action Services, Continued

Member Services The Member Services List has the following functions:

Member Services	Page
Display Members	17-181
Rename Members	17-186
Delete Members	17-186
Print Member List	17-185
Select Member for Edit/Zap Services	17-186
Select CSECT for Zap Services	17-191

Edit Services The Edit Services List has the following functions:

Edit Services	Page
Display Contents	18-193
Alter Contents	18-197
Print Contents	18-196
Copy Members	18-197
Undelete Member	18-197

Zap Services The Zap Services List has the following functions:

Zap Services	Page
Display Contents	19-201
Alter Contents	19-205

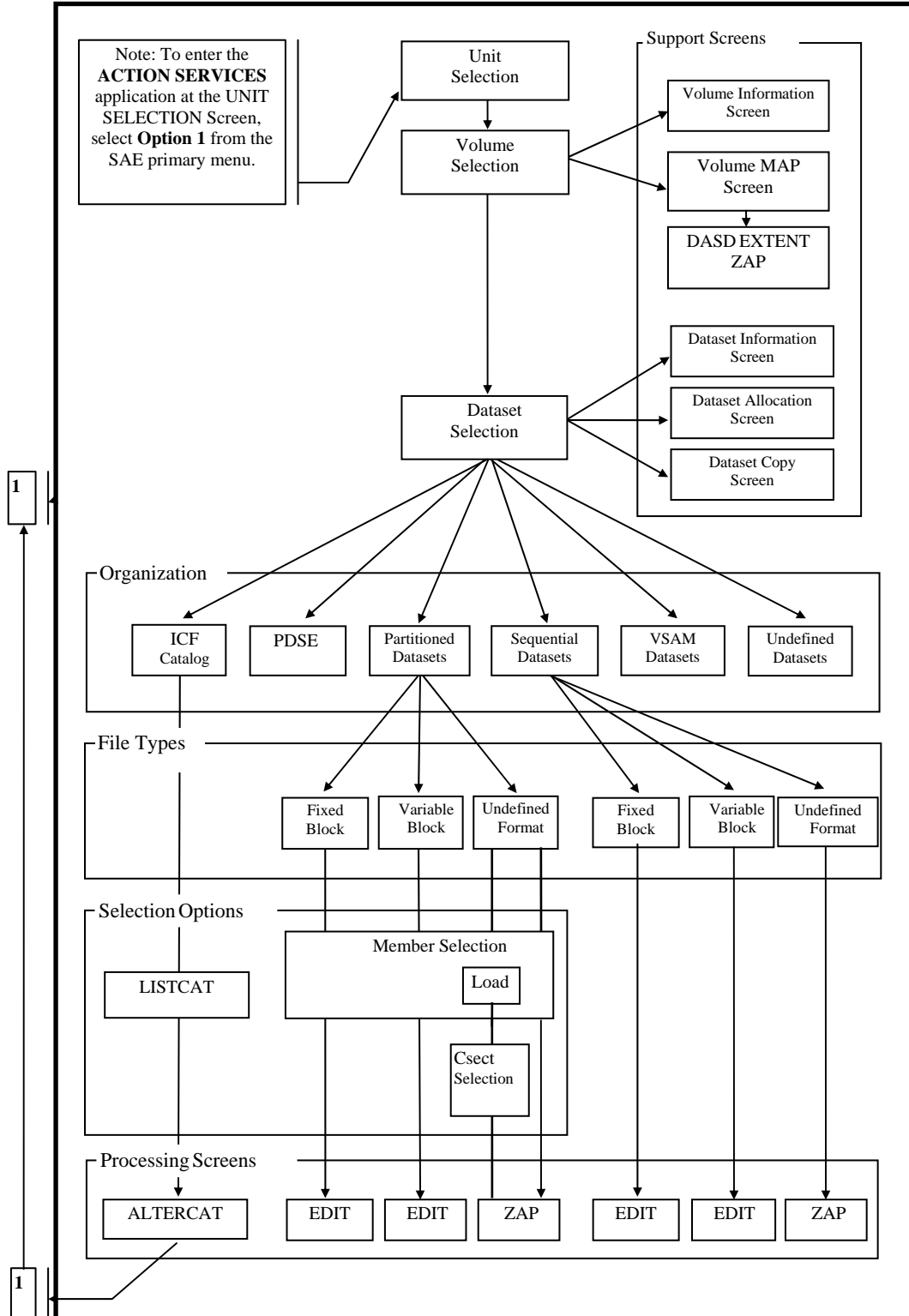
Altercat Services The Altercat Services List has the following functions:

Altercat Services	Page
Display Catalog Entries	20-207
Alter Catalog Entries	20-213
Capture Dataset Volser List	20-214
Locate Dataset and Invoked Dataset Services	20-212

Action Services Overview

Action Services Diagram

The following diagram explains how to navigate through the Action Services process.



Chapter 15: Volume Services

Overview

Introduction Volume Services is an integral component of Action Services. Volume Services provide functions that are directed against DASD Volumes. Volume Services is also the launching point for all other Action Services functions.

In this Chapter This chapter contains the following topics:

Volume Services	Page
Creating a Volume List	15-132

Creating a Volume List

Prerequisites

Before you can perform work using Volume Services, you must create a list of volumes.

Selecting DASD Devices

The Unit Selection Screen controls which DASD devices are selectable for further processing in Volume Services. The Unit Selection Screen provides three criteria for selection:

- Unit Address (UNITS)
- Volser (VOLSER)
- the existence of a specific Dataset (DSN)

A DASD device must meet all of these criteria to be selected.

Navigation

Select Option 1 (Action Services) from the SAE Primary Screen

Unit Selection Screen

```
UNIT SELECTION -----
COMMAND ==>

      ADDRESS RANGES (BLANK FOR ALL UNITS)
UNITS ==>                UNITS ==>                UNITS ==>
UNITS ==>                UNITS ==>                UNITS ==>
UNITS ==>                UNITS ==>                UNITS ==>
(EXAMPLES: 600, 6**, 600-700, E1*-F1*, -A**, -A00-B34)

      VOLSER (BLANK FOR ALL VOLUMES)
VOLSER =>                VOLSER =>                VOLSER =>
VOLSER =>                VOLSER =>                VOLSER =>
VOLSER =>                VOLSER =>                VOLSER =>
(EXAMPLES: SYSRES, WK**P*, -SYS1**)

      INCLUDE PAV ALIAS VOLUMES ==> N

      DATASET SEARCH (FULLY QUALIFIED NAME)
DSN ==>
```

Continued on next page

Creating a Volume List, Continued

Field Descriptions

The following table contains Selection screen field descriptions:

Field Name	Description
Unit Address	<p>Leave all selection criteria blank (on the Unit Selection Screen) to select all DASD Volumes.</p> <p>You can specify up to nine unit addresses. If you do not specify an address, all unit addresses meet the UNITS criteria. Unit address specifications can be a specific:</p> <ul style="list-style-type: none">• address• address range for inclusion or• address or address range for exclusion <p>Exclusion is indicated by prefixing the UNITS specification with a '-' character. If an address is specified for both inclusion and exclusion, SAE excludes the unit. If you only specify exclusion criteria, all other addresses are included. Specify UNITS as follows:</p> <ul style="list-style-type: none">• A complete and explicit 3 or 4 digit unit address, for example, 62C or 102C.• A masked partial 3- or 4-digit unit address. The mask character is an asterisk (*). An asterisk is specified for each wildcard digit, for example, 8** results in a search of units 800-8FF.• A unit address range. The range is specified with two complete 3- or 4-digit unit addresses separated by a dash, for example, 245-560 results in the search of units 245 through 560. Unit address range and masking are mutually exclusive.

Continued on next page

Creating a Volume List, Continued

Field Descriptions (continued)

Field Name	Description
Volser Specifications	<p>You can make up to nine Volser specifications. If you do not make any Volser specifications, then all volumes meet the VOLSER criteria. Volser specifications can be a specific volume or a volume mask. Exclusion is indicated by prefixing the VOLSER specification with a '¬' character. If a volume is specified for both inclusion and exclusion, SAE excludes the volume. If you only specify exclusion criteria, all other volumes are included.</p> <p>Specify a VOLSER as follows:</p> <ul style="list-style-type: none">• A complete 6-character Volser. For example, SYSRES.• A partial masked 6-character Volser. The mask character is an asterisk (*). An asterisk is specified for each wildcard character, For example, SYS*** matches all volumes with Volsers starting with SYS. SYS** matches all volumes with Volsers starting with SYS and ending with a blank.
Parallel Access Volume (PAV) Alias Volumes	<p>You may select whether or not to include PAV Alias volumes in the volume list. If 'Y' is specified, then no PAV volumes are excluded from the volume list. If 'N' is specified, then PAV volumes which are aliases are excluded and will not meet the criteria for inclusion.</p>
Dataset Name	<p>If you specify a fully qualified dataset name (without quotes), volumes meet this criteria only if the dataset exists on the volume.</p>

Unit Search

After defining the criteria for Unit Selection, press Enter to begin the Unit Search. SAE initiates I/O to each possible device on the system (within the unit address criteria if specified) to determine if the device is a DASD Volume. If the device is a DASD Volume, SAE performs further I/O to determine additional information about the volume. Depending on the number of devices defined (IOCP) to the system, and the number of devices that actually exist (DASD or otherwise) the Unit Search process may take several minutes.

As the unit search progresses, a status message displays at the top of the Unit Selection screen. The message updates periodically as the search continues and indicates the number of matches found.

Volume Selection Re-Use Screen

When to Use It After using the Unit Selection Screen to create a Volume Selection List, SAE maintains that list even after exiting from Action Services. The next time you use the Unit Selection Screen, if you specify the same unit selection criteria as were used to create the previous Volume Selection List, SAE displays the Volume Selection Re-Use Screen.

Navigation Displays after Unit Selection Screen

Volume Selection Re-Use Screen

```
VOLUME SELECTION RE-USE -----  
  
THE UNIT SELECTION CRITERIA ENTERED IS THE SAME AS WAS USED TO CREATE THE  
PREVIOUS VOLUME SELECTION LIST. YOU MAY AVOID THE UNIT SEARCH TIME BY  
RE-USING THE PREVIOUS SELECTION LIST.  
  
IF YOU ELECT NOT TO DISPLAY THIS SCEEN AGAIN, THE SETTINGS BELOW WILL BE  
USED FOR THE REMAINDER OF THIS SAE SESSION OR YOU MAY CHANGE THEM USING 0.3  
  
RE-USE PREVIOUS VOLUME SELECTION LIST ==> Y  
DISPLAY THIS SCREEN AGAIN           ==> Y  
  
NOTE: VOLUME COPY OR RESTORE OPERATIONS MAY ALTER VOLSERS. THESE CHANGES  
WILL NOT BE REFLECTED IF THE VOLUME SELECTION LIST IS RE-USED.
```

What It Does The Volume Selection Re-Use Screen specifies whether to re-use the previously created Volume Selection List, or if Unit Selection should create a new list for performing I/O to the specified range of addresses.

Advantages Re-using a previously created Volume Selection List has the advantage of avoiding the end user wait time while SAE performs I/O to each possible address in the specified range (to build a new Volume Selection List). For large installations, the wait time while accessing all devices can be quite long.

Continued on next page

Volume Selection Re-Use Screen, Continued

Disadvantages

The only disadvantage to re-using the Volume Selection List is that you cannot see any changes to volumes that may have occurred since the previous Volume Selection List was created. The previous Volume Selection List might:

- Contain incorrect Volsers if volumes have been renamed by other systems since the previous list was built.
 - Not include volumes that were reserved by other systems while the previous list was being created.
 - Not include the correct Volser for volumes copied or restored using SAE Restore Services.
-

Re-using the Previous Volume Selection Screen

In most cases, re-using the previous Volume Selection List provides quick access without much concern.

To re-use the previously created Volume Selection List, specify 'Y' at the 'RE-USE PREVIOUS VOLUME SELECTION LIST' prompt. To have SAE inspect each unit address and create a new Volume Selection List, specify 'N'.

To Not Show the Volume Re-Use Screen

If you do not want to show the Volume Selection Re-Use Screen again, specify 'N' at the 'DISPLAY THIS SCREEN AGAIN' prompt.

When you specify 'N', each time you use Unit Selection, SAE does not display the screen but continues processing based on the value last specified for the RE-USE prompt. If at sometime during the SAE session you want to change your Re-use options (even if you have not requested a display), you can use SAE Option 0.3.

Volume Selection

Overview The Volume Selection Screen contains a list of DASD Volumes created by Unit Selection.

Navigation Displays following Unit Selection - Option 1 (Action Services) from the SAE Primary Screen

Volume Selection Screen

```

VOLUME SELECTION ----- ROW      1 OF 120
COMMAND ==>  _          SCROLL ==> PAGE
VOLSER RENAME UNIT DEVT CYLS SUBC CHPID
AEAV01          01C0 3390  76K 0010 06 07 1C 1D
AMOD54          01D0 3390  66K 0020 06 07 1C 1D
AMOD27          01E0 3390  33K 0030 06 07 1C 1D
ANC004          0344 3380 2655 0011 03 04 1A 1C
ANC005          0346 3380 2655 0013 03 04 1A 1C
BCKRES          01C2 3390 2226 0035 05 06 1B 1D          IPL=OS/390
CATLOG          01C0 3390 2226 0033 05 06 1B 1D
CICS01          0343 3380 2655 0010 03 04 1A 1C
CICS02          0340 3380 2655 0007 03 04 1A 1C
CICS03          0342 3380 2655 0009 03 04 1A 1C
ONL001          0580 3350  555 0060 01 02          IPL=SAE
OLN002          0580 3350  555 0060 01 02          IPL=DF/DSS
OLN003          0583 3350  555 0063 01 02
SMP001          01C4 3390 2226 0037 05 06 1B 1D
SYSRES          01C1 3390 2226 0034 05 06 1B 1D          IPL=OS/390
SYS001          0742 3380  885 0016 09 0A/07 08
SYS002          0745 3380  885 0019 09 0A/07 08
SYS003          0740 3380  885 0014 09 0A/07 08
USER01          0743 3380  885 0017 09 0A/07 08
    
```

Column Descriptions The information shown for each column is as follows:

Column Name	Description
VOLSER	Volume Serial Number
UNIT	Unit Address
DEVT	Device Type
CYLS	Number of cylinders. When the number of cylinders is 10,000 or more, the number is presented as K (1000s of cylinders) or M (1,000,000s).
SUBC	Sub-channel number
CHPID	Channel Path IDs - Installed, available and operational are shown proceeding a '/'. Installed but not available and/or not operational follow the '/'
IPL=	If the contents of Cylinder 0, Track 0, Record 4 are identifiable as a known IPL-able product, then IPL= is followed by the product name.

Continued on next page

Volume Selection, Continued

Sorting Volume List

To change the sort order of the list, use the following commands:

Command	Description
SORTVOL	Sort list by Volser
SORTDUP	Sort list by Volser but list any duplicate volsers first
SORTUNIT	Sort list by Unit address.
SORTCYL	Sort list by number of cylinders

Scrolling the Device Selection List

SAE supports multiple ways of scrolling up or down the Device Selection List. All scrolling activity is based on a fixed scroll size of one page

Keys	Action
Press PFkeys 7 and 19	Scroll up
Press PFkeys 8 and 20	Scroll down

Scrolling to the Top or Bottom of the Selection List

Type **M** on the command line to use a scroll PFkey (7, 19 or 8, 20) and scroll to the top or bottom of the selection list.

Locating a Volser

If you sort the volume list by Volser, you can specify the locate command, **"L"** on the command line with a full or partial volume name following. After pressing Enter, SAE positions the selection list at the specified volume.

Printing a Volume List

How to Print	To print the Volume Selection List contents, enter PRINT on the Command Line.
Printer Address Not Defined	If you have not defined the printer's address, a prompt appears that allows you to define the printer.

Invoking Services

Introduction To invoke specific Services, you must issue a command or select a volume using a Line Selection character.

Command Line To invoke specific Services via the command line:

Command	Description
S xxxxxx	Select volume (xxxxxx) for Dataset Services (see page 16-157).
COPY	Invoke Dataset Services to copy between two datasets on different DASD volumes (see page 16-172).

Line Selection To invoke specific Services, you must select a volume using a specific line selection character that represents the service.

The Service selection characters are:

Character	Description
S	Volume Selection for Dataset Services (see page 16-157).
R	Volume R ename (see page 15-141).
A	New Dataset A llocation (see page 15-142).
I	Volume I nformation (see page 15-143).
M	Volume M ap (see page 15-147).
V	Volume I nitialization (see page 15-144).

Procedure To process a volume with a Service:

Step	Action
1.	Place your cursor in front of the volume you are going to select.
2.	Type the selection character.

Rename Volumes

Procedure

To rename a volume.

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the volume.
2.	Type “ R ”
3.	Then TAB over and specify the new Volser.

Clipping

Once clipped (renamed), SAE highlights the volume on the Volume Selection Screen.

**Clipping
Multiple
Volumes**

You can clip several volumes concurrently by specifying multiple ‘**R**’ selections and new Volsers before you press Enter.

Dataset Allocation – “A”

Invoking Dataset Allocation You can invoke the Dataset Services function, Dataset Allocation, from the Volume Selection Screen.

Allocating the First Dataset To allocate the first dataset on a volume, you can initiate Dataset Allocation from the Volume Selection List. You cannot select volumes that do not contain any Datasets for Dataset Services.

Procedure To enter the allocation function:

Step	Action
1.	From the Volume Selection Screen, use the NEW LINE key to move the cursor in front of the volume.
2.	Type “A”.

For More Information For more information on ‘Dataset Allocation’, see page 16-167.

Volume Information – “I”

Procedure

You can access detailed device and VTOC information, along with summary allocation and free space information, from the Volume Selection Screen.

To do this:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the volume.
2.	Type “I”.

Volume Selection Screen

```

VOLUME:      EAV001 UNIT:      0AC2 SUBCHANNEL:  0000
CNTLR TYPE:  3990 MODEL CODE:  C2 MODEL/MFG:   C02 IBM
DEVICE TYPE: 3390 MODEL CODE: 0E MODEL/MFG:   A18 IBM
EAV:         YES TOTAL CYLINDERS: 75684

--- TRACK MANAGED SPACE ---
CYLINDERS:   65534 TRACKS: 983010
ALLOCATED TRACKS: 982800   ALLOCATED EXTENTS:      83   DS4DSCYL: FFFE
FREE TRACKS:      0       FREE EXTENTS:      0     DS4DCYL:  000127A4
UNASSIGNED TRACKS  0     UNASSIGNED EXTENTS:    0     RDC_PRM2:  FFFE
LARGEST FREE AREA IN TRACKS: 0       RDC_PRM4:  000127A4
PERCENTAGE ALLOCATED:      99

VTOC ADDRESS:  0000000101
SIZE IN TRACKS: 5
DS0:   153   DS5:   1       SMS MANAGED:   YES
DS1:   77   DS7:   1
DS3:    1   DS8:   8       DUPLEX PAIR:
DS4:    1   DS9:   8       DUPLEX STATUS:
INDEX VTOC:  NONE        PAIRED UNIT:
  
```

Unassigned Space

SAE performs a search for space that is neither assigned to a dataset extent nor assigned as a free space extent. This space is reported as ‘unassigned’. Unassigned space indicates a VTOC problem.

Volume Initialization – “V”

Procedure

To process a volume for initialization:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the volume.
2.	Type “V”. <u>Results:</u> The Volume Initialization Screen displays.

Initializing Different Volumes

You can initialize a 3380, 3390 or 9345 volume from the Volume Initialization Screen. EAV volumes are not supported.

Unlabelled Volumes do not Appear

Unlabelled volumes do not appear on the Action Services Volume Selection Screen.

To initialize a volume that does not already contain a valid volume label:

- Select the volume using ‘V’ from the Hardware Confirmation Volume Selection Screen.

See page 20-254 for more information.

Volume Initialization Screen

```
VOLUME INITIALIZATION -----
UNIT:    0120          CURRENT VOLSER: MVS5R
DEVICE:  3380          CURRENT VTOC ADDRESS: 0456 0000 01
CYLS:    2655

NEW VOLSER: MVS5R
NEW VTOC LOCATION, CYL: 0      TRK: 1
NEW VTOC SIZE (# OF TRACKS): 14

SEARCH FOR EXISTING VTOC: N (REPLY N FOR VTOC CREATE)
VTOC SEARCH RANGE, START CYL: 0      END CYL: 2654

SUPPLY NUMERIC VALUES IN DECIMAL. USE VTOC SEARCH TO RECOVER FROM VOL1
DAMAGE. VTOC SEARCH MAY TAKE SEVERAL MINUTES.

USE PF3 TO CANCEL
```

Initialization Methods

The Volume Initialization Screen allows for two different methods of initialization and VTOC setup.

Continued on next page

Volume Initialization – “V”, Continued

Performing Volume Initialization

If you add new VTOC information (location and size) and then specify ‘N’ to a VTOC search, SAE constructs a new VTOC and writes new volume labels.

Procedure

To perform the volume initialization

Step	Action
1.	Supply the necessary VTOC position and size information (specify ‘N’ for VTOC search).
2.	Press Enter. <u>Result:</u> A confirmation screen displays.
3.	From the confirmation screen, press Enter to proceed with the initialization.
4.	To cancel the initialization, use PF3.

Volume Initialization Output

The volume initialization process creates a new VTOC and volume labels. The device must have been previously initialized using the ICKDSF INSTALL command to write the home address and record 0 on each track. The SAE Volume Initialization is similar in function to running the following ICKDSF command to perform a minimal initialization:

```
INIT          UNIT(uuuu) -
DEVTYPE(ddd) -
VTOC(cccc, hhhh, nnnn) -
VOLID(vvvvvv) -
NOINDEX -
NOVERIFY -
PURGE
```

Old VTOC Search

Occasionally, a volume’s VOL1 label record becomes damaged or the volume is accidentally minimally initialized. If either of these situations occurs, a valid VTOC may still exist on the volume that describes all of the volume’s datasets, but that VTOC is not accessible.

If you specify ‘Y’ for VTOC search, then SAE performs a search of the specified cylinder range looking for possible VTOCs. The VTOC Selection Screen displays if SAE locates one or more possible VTOCs.

VTOC Selection Screen

```
VTOC INSPECT SELECTION ----- SELECT VTOC TO INSPECT
COMMAND ==>                               SCROLL ==> PAGE
POSSIBLE VTOC LOCATIONS
CYL 0000 HEAD 0001
CYL 00C8 HEAD 0001
CYL 0456 HEAD 0000
```

Continued on next page

Volume Initialization – “V”, Continued

Selecting a Possible VTOC

From this selection list you may select a possible VTOC. After you select a VTOC, if it is valid, a Dataset List and/or a Volume Map displays showing the datasets and/or volume layout based on the selected VTOC. Use these displays to determine if the selected VTOC is the VTOC you wish to reinstate.

Accidental Initializations

If the volume has been accidentally initialized, use the volume map display to determine what (if any) data has been destroyed.

For example, a volume that has its VTOC in the middle of the pack is accidentally initialized to create a VTOC on cylinder 0. The volume labels address the VTOC in cylinder 0, but the original VTOC remains in the middle of the volume. Using VTOC search, SAE locates and selects the VTOC in a middle of the volume. The volume map based on the original VTOC display the dataset(s) (if any) that reside at the location of the new VTOC (Cyl 0). This indicates which dataset(s) have been damaged by the creation of the new VTOC.

Finishing

After you finish viewing the dataset list and/or volume map, use PF3 to close. After using PF3 from the Volume Map Screen, the following screen displays to allow final VTOC selection:

VTOC Selection Screen

```
VTOC ADDRESS: 00C8 0001
PROCESS VOLUME TO USE THIS VTOC: Y
REPLY Y TO HAVE VOLUME USE THE SELECTED VTOC
```

Volume Map – “M”

Procedure

To access a detailed volume map that shows physical dataset and free space locations:

Step	Action
1.	From the Volume Selection Screen, use the NEW LINE key to move the cursor in front of the volume.
2.	Type “M”.

Selecting Extents

From the Volume Map Screen, you can select any extent for DASD Extent Zap.

Navigation

Select Volume using ‘M’ on Volume Selection Screen.

Volume Map Screen

```

MAP OF VOLUME SYSRES (01C1) -----
COMMAND ==> _
DATA SET NAME                EXTENT  CYL   HH  CYL   HH  TRACKS
*** IPL AND LABEL RECORDS ***
SYS1.VTOCIX.SYSRES           01/01   00000-00 00000-00      1
SYS1.ALT.MLPALIB             01/04   00000-05 00000-09      5
SYS1.VVDS.VSYSRES           01/01   00000-10 00000-12      3
SYS3.SYS.PROFILE.DATASET.INDEX 01/01   00000-13 00000-13      1
SYS1.SVCLIB                   02/03   00000-14 00000-14      1
*** OS VTOC ***
SYS3.SYS.SMPCSI.CSI.DATA     01/01   00001-00 00002-14     30
SYS3.SYS.SMPCSI.CSI.INDEX   01/01   00003-00 00005-09     40
SYS3.SYS.SMPCSI.CSI.INDEX   01/01   00005-10 00005-14      5
ISPFYSY.S.CLIST              01/01   00006-00 00012-02     93
ISPFYSY.S.ISPMLIB            01/01   00012-03 00012-06      4
ISPFYSY.S.ISPPLIB            01/01   00012-07 00035-06    345
ISPFYSY.S.ISPSLIB            01/01   00035-07 00056-13   322
ISPFYSY.S.ISPTLIB            01/01   00056-14 00056-14      1
ISPFYSY.S.LOADLIB            01/01   00057-00 00063-01     92
ISPFYSY.S.PIMLIB             01/01   00063-02 00063-07      6
*** FREE SPACE ***
SYS1.PARMLIB                  04/10   00079-02 00079-02      1
SYS3.SYS.SMPSCDS              01/01   00079-03 00079-09      7
SYS3.SYS.SMPMTS               01/01   00079-10 00079-10      1
SYS3.SYS.SMPPTS               01/01   00079-11 00080-10     15
  
```

Descriptions

The following table provides descriptions for the various columns:

Column	Description
EXTENT	Indicates the extent number and the number of extents in the given dataset, for example, the fourth extent of a dataset that is made up of 10 extents is shown as 04/10.
CYL HH	The two CYL HH headings indicate the low and high ranges for the given extent.
TRACKS	Lists the number of tracks in the extent.

Continued on next page

Volume Map – “M”, Continued

Lost Extents

A search is made for space that is neither assigned to a dataset extent nor assigned as a free space extent. These lost extents indicate a VTOC problem and display as '*** UNASSIGNED ***'.

Sorting the Volume Map Extent List

Sorting Volume Map Extent List

To change the sort order of the list, use the following commands:

Command	Description
SORTCYL	Sort list by starting Cylinder number
SORTDSN	Sort list by Dataset Name

Locating an Extent

Finding Extents SAE provides multiple ways of scrolling up or down the Volume Map Extent List. SAE also supports a Locate “L” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Volume Selection List use PFkeys 7 and 19, to scroll down the Volume Selection List use PFkeys 8 and 20.

If you specify “M” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Volume Selection List.

Sorting By Cylinder

To find a specific cylinder (when the extent list was sorted by cylinder):

Step	Action
1.	Type “L” (for Locate) on the command line with a cylinder number following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified cylinder.

Sorting By Dataset Name

To find a specific Dataset (when the extent list is sorted by Dataset Name):

Step	Action
1.	Type “L” (for Locate) on the command line with a full or partial Dataset Name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified Dataset.

Printing the Volume Map List

How to Print

To print the Volume Map Extent Selection List contents, enter the PRINT command on the Command Line.

Defining a Printer

If you have not defined the printer address, a prompt appears, allowing you to define a printer address.

Invoking DASD Extent Services

Invoking Commands

To invoke DASD Extent Services, an extent is selected using a specific line selection character that represents the service.

Selection Character	Description
E	Extent E dit (Zap)
S	Extent Edit (Zap)
B	Extent B rowse (Ver)

Processing an Extent

To process an extent, and.

Step	Action
1.	Move your cursor in front of the extent you want to select.
2.	Type the selection character.

DASD Extent Services

Definition DASD Extent Services allow you to select and alter any DASD record, even if the record is contained within an unsupported dataset structure (for example, VTOC or VSAM).

Two Screens Two screens comprise the DASD Extent Services function: the Cylinder/Head Address screen and the Alter DASD Extent screen.

Cylinder/Head Address Screen You can use the first screen to optionally alter the extent record's starting cylinder/head address.

After you select an extent from the Volume Map Screen, the starting cylinder/head address displays on this screen. If the record you want to view or alter is at another cylinder/head location, you can type over the displayed address and press Enter.

Note To use this feature, the current userid must have access authority number 4.

Navigation Select an Extent using 'S', 'E' or 'B' on the Volume Map Screen.

Cylinder/Head Address Screen

ALTER THE STARTING CYL/HEAD ADDRESS IF DESIRED

CCCCHHHH
00010000

PRESS ENTER TO CONTINUE, PF3 TO END

Alter DASD Extent Screen

You can use the second screen to view or alter the records in the extent.

The data displayed is both the key (if present) and data portion of the DASD record. The record's address displays in the heading (cylinder/head/record), along with the key and data lengths. You can display the next record in the extent by using PF9 or PF21.

View/Alter Screen for DASD Extent Record

Navigation

Select a Extent using 'S', 'E' or 'B' on Volume Map Screen

View/Alter Screen

```
ZAP ---- CYL=0001,HEAD=0000,REC=01,KEYL=2C,DATAL=0060 -----
COMMAND ==> _                               SCROLL ==> PAGE
000000 04040404 04040404 04040404 04040404 *.....*
000010 04040404 04040404 04040404 04040404 *.....*
000020 04040404 04040404 04040404 F4000000 *.....4..*
000050 00000000 00000000 00000000 00000000 *.....*
000060 00000000 00000000 00010000 00000100 *.....*
000070 00000100 00000000 00000000 00000000 *.....*
000080 00000000 00000000 00000000 00000000 *.....*
```

Scrolling Information

SAE supports multiple ways of scrolling up or down the record display, and all scrolling activities are based on a fixed scroll size of one page.

To scroll up the Volume Selection List use PFkeys 7 and 19, to scroll down the Volume Selection List use PFkeys 8 and 20.

If you specify "M" on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Volume Selection List.

Moving to the Next Record

You may move to the next record in the extent by using PF 9 or 21. Note that using PF 9 or 21 (Next Record) also saves the current record if changes have been made.

Altering Record Contents (Alter Only)

To modify the existing contents of the hexadecimal data, you can type new hexadecimal data over the data that is currently displaying. You can also use the Replace command.

Continued on next page

Chapter 16: Dataset Services

Overview

Introduction Dataset Services is an integral component of Action Services. Dataset Services provide functions that are directed against datasets on DASD Volumes. Dataset Services are launched through the selection of a DASD Volume in Volume Services. Dataset Services is also the launching point for Member Services, Edit/Browse Services, ZAP Services, and Catalog Services.

In this Chapter This chapter contains the following topics:

Dataset Services	Page
Dataset Selection	16-158
Locating a Dataset	16-159
Dataset List Print	16-160
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Dataset RACF and Password Indicators	16-163
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Copying Between Datasets	16-172
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Dataset Copy Restrictions	16-179
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Dataset Selection

Definition The Dataset Selection Screen contains a list of Datasets that reside on a DASD Volume.

Navigation Select Volume using 'S' on Volume Selection Screen.

Dataset Selection Screen

```

DATA SETS ON VOLUME SYSRES (0242) ----- ROW 564 OF 623
COMMAND ==> _                               SCROLL ==> PAGE
  DATA SET NAME                               ORG RF LRECL BLKSZ #EX LAST REF
  SYSTEM.CATALOG.ICF.MASTER.SYSA             ICF CATALOG
  SYS1.LINKLIB                                PO U    0 19069  2 90/01/23
  SYS1.LOGREC                                 PO U    0  1944  1 90/01/23
  SYS1.LPALIB                                 PO U    0 13030  1 90/01/23
  SYS1.MACLIB                                 PO FB   80  3120  1 90/01/26
  SYS1.NEW.SMP.CSI                            VS U    0  4096  1
  SYS1.NUCLEUS                                 PO U    0 19069  3 90/01/23
  SYS1.PARMLIB                                 PO FB   80  3120  6 90/02/03
  SYS1.PPMACDEF                               PO FB   80  3120  1 90/01/06
  SYS1.PPOPTION                               PO FB   80  3120  1 90/02/25
  SYS1.PROCLIB                               PO FB   80  3120 10 90/03/04
  SYS1.RMFCLS                                 PO VB  255  3120  1 89/11/04
  SYS1.RMFCLSFB                              PO FB   80  3120  1 90/01/16
  SYS1.RMFMAC01                              PO FB   80  3120  1 90/02/15
  SYS1.RMFMOD01                              PO U    0  6144  1 89/10/28
  SYS1.RMFMSG                                 PO FB   80  3120  1 90/01/09
  SYS1.RMFPNL                                 PO FB   80  3120  1 90/02/21
  SYS1.SAMPLIB                               PO FB   80  3120  1 89/12/06
  SYS1.SBLSCL1V                              PO VB  255  3120  1 90/02/10
  SYS1.SBLSCL1O                              PO FB   80  3120  1 89/11/28
  
```

Descriptions The information shown for each dataset on the Dataset Selection list is as follows:

Column	Description
DATA SET NAME	Dataset name
ORG	Dataset Organization
RF	Record Format
LRECL	Logical Record Length
BLKSZ	Block Size
#EX	Number of Extents
LAST REF	Last Referenced Date

Locating a Dataset

Finding Datasets SAE provides multiple ways of scrolling up or down the Dataset Selection List. SAE also supports a Locate “L” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Volume Selection List use PFkeys 7 and 19, to scroll down the Volume Selection List use PFkeys 8 and 20.

If you specify “M” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Volume Selection List.

Locating a Dataset

To find a specific dataset:

Step	Action
1.	Type “L” (for Locate) on the command line with a full or partial dataset name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified dataset.

Dataset List Print

How to Print

To print the Dataset Selection List contents, enter the PRINT command on the Command Line.

Defining a Printer

If you have not defined the printer address, a prompt appears, allowing you to define a printer address.

Invoking Services

How to Invoke Services

To invoke specific Services, you can use a Line Selection character to issue a command or select a dataset.

Command Line

To invoke specific Services via the command line:

Command	Description
ALLOC	New Dataset Allocation (see page 16-169).
COPY	Invoke Dataset Copy Services (see page 16-172) to copy between two datasets on the same volume.
SHOWRACF	Display RACF & Password settings (see page 16-163)
NORACF	Turn OFF RACF (see page 16-163)
RACF	Turn ON RACF (see page 16-163)
NOPASSWORD	Turn OFF Password required (see page 16-163)
PASSWORDW	Turn ON Write Password (see page 16-163)
PASSWORDRW	Turn ON Read Write Password (see page 16-163)

Line Selection

To invoke specific Services, a dataset is selected using a specific line selection character that represents the service.

Processing Datasets

Datasets with a record format of Undefined (**RECFM=U**) that are selected using 'S', 'E' or 'B' on the Dataset Selection Screen are processed with Zap/Verify instead of Edit/Browse.

Datasets selected using 'Z' on the Dataset Selection Screen are processed with Zap/Verify independent of the record format of the dataset.

Continued on next page

Invoking Services, Continued

Selection Characters

The selection characters for Services are:

Command	Description
For Partitioned Datasets	
R	Dataset R ename (see page 16-164).
I	Dataset I nformation (see page 16-165).
S	Dataset Member Services E dit (see page 17-181).
E	Dataset Member Services E dit (see page 17-181).
B	Dataset Member Services B rowse (see page 17-181).
Z	Dataset Member Services Z ap (see page 17-181).
For Sequential Datasets	
R	Dataset R ename (see page 16-164).
I	Dataset I nformation (see page 16-165).
S	Dataset E dit (see page 18-193).
E	Dataset E dit (see page 18-193).
B	Dataset B rowse (see page 18-193).
Z	Dataset Z ap (see page 19-201).
For ICF Catalogs	
I	Dataset I nformation (see page 16-165).
S	Altercat Services (see page 20-207).
E	Altercat Services (see page 20-207).
B	Listcat Services (see page 20-207).
For Other Dataset Types	
I	Dataset I nformation (see page 16-165).

Processing a Dataset with a Service

To process a dataset with a service, move the cursor in front of the dataset to be selected and type the selection character.

Datasets that do Not Start With SYS

To access datasets with names that do not start with 'SYS', the current userid must have access authority number 1.

Dataset RACF and Password Indicators

Procedure

To use the RACF and Password Indicator commands:

Step	Action
1.	Enter the command on the command line.
2.	Select the dataset for which to apply the command by using the NEW LINE key to move the cursor in front of the dataset name
3.	Type "S".

RACF/Password Must Be Enabled

To use this command set, you must enable the RACF/Password feature (DLIB@OPT utility). Furthermore, the current userid must have access authority number 8.

Descriptions

The following table contains descriptions of the commands:

Command	Description
SHOWRACF	Displays the current RACF and PASSWORD settings for the selected dataset. A message returns indicating the settings (for example, RACF NOPASSWORD indicates that the RACF indicator is on and no PASSWORD is required).
NORACF	Turns OFF the RACF indicator for the selected dataset. RACF uses the RACF indicator to indicate that a discrete dataset profile exists.
RACF	Turns ON the RACF indicator for the selected dataset.
NOPASSWORD	Turns OFF the password required indicator for the selected dataset.
PASSWORDW	Turns ON the password required (WRITE only) indicator for the selected dataset
PASSWORDRW	Turns ON the password required (READ and WRITE) indicator for the selected dataset

Dataset Rename - R

Procedure

To rename a dataset:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the dataset name.
2.	Type “ R ”.
3.	Type the new name over the displayed name.

Rename Function Description

The Rename function is a VTOC dataset rename only, it does not alter any catalog entries.

When used alone, it is useful in swapping two datasets that exist on the same volume (for example. SYS1.NUCLEUS and SYS1.OLD.NUCLEUS).

When used along with the Altercat function, you can rename a dataset and alter an existing catalog entry to point to the volume now containing the renamed dataset. You can only rename one dataset at a time.

Indexed VTOC Record Split

Under certain conditions, when renaming a dataset, an Indexed VTOC record split may be required. In these infrequent cases, SAE renames the dataset in the OS VTOC and disables the index portion of the Indexed VTOC.

z/OS recognizes the new dataset name and acknowledges the index disable by issuing message 'IEC606I VTOC INDEX DISABLED ON ddd,ser,cde'. The next allocate access to the volume by DASDM results in the conversion to an OS VTOC and message 'IEC604I VTOC CONVERT ROUTINE ENTERED ON ddd,ser,cde' being issued. The Indexed VTOC can be rebuilt using normal ICKDSF procedures.

Dataset Information - I

Definition The Dataset Information function provides information on an existing dataset. Dataset Information displays in a format similar to that provided by ISPF 3.2.

Procedure You can access information on existing Datasets from the Dataset Selection Screen by:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the Dataset Name.
2.	Type "I".

Navigation Select Dataset using 'I' on Dataset Selection Screen

Dataset Information Screen

```
----- DATA SET INFORMATION -----
COMMAND ==>
VOLUME SERIAL ==> SYSRES
DEVICE TYPE ==> 3380 UNIT ==> 0345
DSN: SYS1.PARMLIB
SPACE UNIT ==> CYL
PRIMARY QTY ==> 1
SECONDARY QTY ==> 1
DIRECTORY BLKS ==> 90
RECORD FORMAT ==> FB
RECORD LENGTH ==> 80
BLOCK SIZE ==> 3120
ORGANIZATION ==> PO
ALLOCATED TRKS ==> 195
EXT STARTING ENDING
# CCCCHHHH CCCCHHHH
1 06170000 0617000E
2 062D0000 062D000E
3 062E0000 062E000E
4 062F0000 062F000E
5 06300000 0630000E
6 06310000 0631000E
7 06320000 0632000E
8 06330000 0633000E
9 06340000 0634000E
10 06350000 0635000E
11 06360000 0636000E
12 06370000 0637000E
13 06380000 0638000E
```

Dataset Information

The Dataset Information Screen provides the following information:

- The space units
- Primary and secondary space specifications
- Number of directory blocks (zero for non-PDS datasets)
- Record format
- Logical record size
- Block size
- Organization
- Total allocated tracks
- Each Extent's DASD address

Preserving Initial Values

After you view an existing dataset's information, SAE holds the information and uses it as the initial values for the Dataset Allocation function. This allows you to use one dataset's attributes to allocate another dataset (*See Dataset Allocation on page 16-167 for more information*).

Continued on next page

Dataset Information - I, Continued

**Dataset
Information
EMPTY
Command**

The EMPTY command empties a partitioned dataset and rebuilds the directory blocks for an existing dataset. Once issued, all members of the dataset are deleted, and the dataset is emptied.

**When to Use The
EMPTY
Command**

Use this command in situations where you might normally delete and re-allocate prior to copying members from another dataset.

Dataset Allocation - ALLOC

Definition The Dataset Allocation function provides services to allocate partitioned and sequential datasets. The allocation information is specified in a manner similar to ISPF 3.2.

Invoking Dataset Allocation You can invoke the Dataset Allocation function from:

- The Volume Selection Screen, or
- The Dataset Selection Screen.

The volume on which the dataset is to be allocated is determined by which volume is selected on the Volume Selection Screen, or by using the current volume in the case of the Dataset Services

Volume Selection Screen

```
-- ALL VOLUMES ON ALL UNITS ----- ROW 111 OF 120
COMMAND ==> _ SCROLL ==> PAGE
VOLSER RENAME UNIT DEVT CYLS SUBC CHPID
A SYSRES 0345 3380 2655 0012 03 04
```

Invoking from the Volume Selection Screen

To enter the allocation function from the Volume Selection Screen, place an “A” next to the volume name, as shown above.

Dataset Selection Screen

```
DATA SETS ON VOLUME SYSRES (0345) ----- ROW 564 OF 623
COMMAND ==> ALLOC SCROLL ==> PAGE
DATA SET NAME ORG RF LRECL BLKSZ #EX LAST REF
SYS1.PARMLIB PO FB 80 3120 13 90/02/03
```

Invoking from the Dataset Selection Screen

To enter the allocation function from the Dataset Selection Screen, enter “ALLOC” on the Command Line, as shown above.

Continued on next page

Dataset Allocation - ALLOC, Continued

Dataset Information

The Dataset Allocation Screen allows you to enter the name of the dataset to be allocated, along with the dataset's space and allocation attributes.

Navigation

Select volume using "A" on Volume Selection Screen, or
Enter "ALLOC" command on Dataset Selection Screen.

Dataset Allocation Screen

```
----- DATA SET ALLOCATE -----  
COMMAND ==>  
  
    VOLUME SERIAL ==> SYSRES  
    DEVICE TYPE   ==> 3380   UNIT ==> 0345  
  
DSN:  _  
  
    SPACE UNIT    ==> CYLS (CYLS, TRKS, BLKS, BKRD)  
    PRIMARY QTY   ==> 1     CONTIG ==> NO  
    SECONDARY QTY ==> 1  
    DIRECTORY BLKS ==> 90  
    RECORD FORMAT ==> FB  
    RECORD LENGTH ==> 80  
    BLOCK SIZE    ==> 3120
```

Editing Dataset Information

You must enter the dataset name in the DSN field. If you used the Dataset Information function (see page 16-165) to view a dataset's information, that information displays in the space and allocation attribute fields. You can edit this information. Valid specifications are described under 'Valid Dataset Allocation Specifications'.

After editing the desired fields, carefully review the specifications, and if they are correct, press Enter to allocate the dataset. Once the dataset is allocated, SAE invokes the Dataset Information Screen to display the new dataset.

Valid Dataset Allocation Specifications

Descriptions

The Dataset Allocation specifications are as follows:

Command	Description
SPACE UNIT	<p>CYLS Specify the number of cylinders</p> <p>TRKS Specify the number of tracks</p> <p>BLKS Specify the number of blocks, calculates number of TRKS</p> <p>BKRD Specify blocks round, calculates number of CYLS</p>
PRIMARY QTY	Specify the number of space units to use for the primary extent.
CONTIG	<p>Specify if the primary quantity of space must be contiguous or may be obtained over several extents.</p> <ul style="list-style-type: none"> • If you specify 'NO', up to five extents may be used to obtain the primary space unit quantity. • If you specify 'YES', only one extent is used while trying to obtain the primary space unit quantity. <p>In either case, the dataset is allocated even if the full primary space could not be obtained. The CONTIG parameter has no effect other than described above and does not apply to secondary extents. When allocating datasets that must be in a single extent (for example, SYS1.NUCLEUS), 'YES' should be coded along with a secondary space quantity of zero.</p>
SECONDARY QTY	Specify the number of space units used for each secondary extent
DIRECTORY BLKS	<p>Specify the number of directory blocks to create and determine the dataset organization.</p> <p>Specify zero directory blocks to allocate a sequential dataset. Specify a non-zero number of directory blocks to allocate a partitioned dataset. The number of directory blocks may be reduced if the first extent is of insufficient size to accommodate the amount specified</p>

Continued on next page

Valid Dataset Allocation Specifications, Continued

Descriptions (continued)

Command	Description
RECORD FORMAT	F Fixed
	FA Fixed ANSI
	FM Fixed Machine
	FB Fixed Block
	FBA Fixed Block ANSI
	FBM Fixed Block Machine
	V Variable
	VA Variable ANSI
	VM Variable Machine
	VS Variable Spanned
	VB Variable Block
	VBA Variable Block ANSI
	VBM Variable Block Machine
	VBS Variable Block Spanned
	U Undefined
<u>Note</u>	Although you can allocate a Variable Spanned and Variable Block Spanned dataset, SAE does not support these types of datasets for edit, copy or restore.

Continued on next page

Valid Dataset Allocation Specifications, Continued

Descriptions (continued)

Command	Description
RECORD LENGTH	Specify the logical record length in bytes. For variable record format datasets, this value specifies the maximum record length.
BLOCK SIZE	<p>Specify the block size in bytes.</p> <p>For fixed record format datasets, the record length must divide evenly into the block size. For variable record format datasets, the value specifies the maximum block size and must be at least four bytes larger than the record length.</p> <p><u>Note</u> SAE can allocate new datasets but cannot catalog them. If you are allocating a new dataset on a volume that is SMS-managed, the following screen displays. To continue with the allocation, reply 'Y'.</p> <pre> NEW DATASET ALLOCATION WARNING THIS OPERATION MAY CREATE AN UNCATALOGED DATASET ON A SMS MANAGED VOLUME. DATASET: SYS1.SMSTEST VOLUME : SMS001 CONTINUE WITH ALLOCATION ==> (Y/N) </pre>

Copying Between Datasets

Source and Target Datasets	For Dataset Copy, the source ('from' dataset) and target ('to' dataset) datasets may be on the same or different volumes.
SAME vs. DIFFERENT Volumes	To differentiate between “same” and “different” volumes, this topic specifies “SAME VOLUME” or “DIFFERENT VOLUME” in the paragraph title.
Location Determines How Command is Invoked	<p>The location of the source and target datasets determines how SAE invokes the Dataset Copy function.</p> <p>If both datasets reside on the same volume, then you must invoke the Dataset Copy function from the Dataset Selection Screen, active for that volume.</p> <p>If the datasets reside on different volumes, then you must invoke the Dataset Copy function from the Volume Selection Screen. In this case, the volume list active on the Volume Selection Screen must contain both volumes.</p>
Definition	The Dataset Copy function provides services to copy from one dataset to another. Datasets being copied must be of the same organization (partitioned or sequential) and the same record format (fixed, variable, or undefined).
Copying Partitioned Datasets	For partitioned datasets, all or selected members may be copied. SAE supports fixed, variable, or undefined record formats. Partitioned dataset members are always added to the end of the target dataset, acquiring additional extents as necessary
Copying Sequential Datasets	For sequential datasets, SAE supports fixed or variable record formats.
Invoking the Dataset Copy Function	<p>To identify the source and target datasets, the Dataset Copy function presents selection lists.</p> <p>To invoke the Dataset Copy function, enter the COPY command on the command line of either the Volume Selection Screen or the Dataset Selection Screen.</p>

Continued on next page

Copying Between Datasets, Continued

DIFFERENT VOLUMES:

Volume Selection Screen

```

--- ALL VOLUMES ON ALL UNITS ----- ROW 111 OF 120
COMMAND ==> COPY_                    SCROLL ==> PAGE
VOLSER RENAME UNIT DEVT CYLS SUBC CHPID
SYSRES      0345 3380 2655 0012 05 06 1B 1D      IPL=OS/390
OLDRES      0346 3380 2655 0012 05 06 1B 1D      IPL=OS/390
  
```

DIFFERENT VOLUMES:

Invoking Copy for Datasets on Different Volumes

If a copy involves two datasets that reside on different volumes, enter the COPY command on the Volume Selection Screen. Both volumes on which the two datasets reside must be in the current volume list. Once the COPY command is entered, the process of identifying both the source and target datasets begins. The steps involved are:

Step	Action
1.	An instruction screen displays indicating that you must identify the volume containing the source dataset. Press Enter. The Volume Selection Screen displays. Locate and select the volume on which the source dataset resides.
2.	An instruction screen displays, indicating that you have to identify the source dataset. Press Enter. The Dataset Selection Screen displays for the selected source volume. Locate and select the source dataset.
3.	An instruction screen displays indicating that you have to identify the volume containing the target dataset. Press Enter. The Volume Selection Screen displays. Locate and select the volume on which the target dataset resides.
4.	An instruction screen displays, indicating that you have to identify the target dataset. Press Enter. The Dataset Selection Screen displays for the selected target volume. Locate and select the target dataset.
5.	After identifying both the source and target datasets, the Dataset Copy Screen displays.

Continued on next page

Copying Between Datasets, Continued

**SAME
VOLUME:**
**Invoking Copy
for Datasets on
the Same Volume**

```

DATA SETS ON VOLUME SYSRES (0345) ----- ROW 564 OF 623
COMMAND ==> COPY                               SCROLL ==> PAGE
DATA SET NAME                                ORG RF LRECL BLKSZ #EX LAST REF
SYS1.LINKLIB                                PO  U      0 32760  8 92/01/03
SYS1.LINKLIB.OLD                            PO  U      0 32760  6 90/06/03
    
```

**SAME
VOLUME:**
**Copying Between
Two Datasets on
the Same Volume**

To copy between two datasets residing on the same volume, enter the COPY command on the Dataset Selection Screen. Both datasets must be in the current dataset list. After entering the COPY command, you must identify both the source and target datasets. The steps involved are as follows:

Step	Action
1.	An instruction screen displays, indicating that you have to identify the source dataset. Press Enter. The Dataset Selection Screen displays. Locate and select the source dataset.
2.	An instruction screen displays, indicating that you have to identify the target dataset. Press Enter. The Dataset Selection Screen displays. Locate and select the target dataset.
3.	After identifying both the source and target datasets, the Dataset Copy Screen displays.

Continued on next page

Copying Between Datasets, Continued

Reserved Volumes

The Dataset Copy function reserves both the source and target volumes.

Navigation

Enter COPY command on Volume Selection Screen, or
Enter COPY command on Dataset Selection Screen.

Dataset Copy Screen

```
DATASET COPY -----  
COMMAND ==>  
  
COPY FROM:  
      SYS1.PARMLIB  
      SYSRES                DSORG RECFM  LRECL BLKSZ  
      0600                  PO   FB      80  3120  
  
COPY TO:  
      SYS1.PARMLIB.OLD  
      SYSRES                DSORG RECFM  LRECL BLKSZ  
      0600                  PO   FB      80  3120  
  
IF PARTITIONED, COPY ALL MEMBERS          ==> NO  (YES OR NO)  
REPLACE LIKE-NAMED MEMBERS ==> YES (YES OR NO)
```

Dataset Copy Screen Information

The Dataset Copy Screen provides control and confirmation of the Dataset Copy function. For Sequential Datasets, press Enter to begin the copy process.

Copying to a Partitioned Dataset

When you copy to a partitioned dataset, each new member (even if replaced) is written to the end of the dataset and the directory is updated.

Avoiding Out-of-Space Conditions

If you are replacing all the members in the target dataset and you want to avoid out-of-space conditions, you should consider first using the Dataset Information function's EMPTY command on the target dataset. The EMPTY command allows the copy to take place as if the target dataset was newly allocated. See page 16-165 for more information.

Copied Members Replace Like-Named Members

Members copied from the source dataset will, by default, replace any like named members in the target dataset.

If you do not want this to occur, change the 'REPLACE LIKE-NAMED MEMBERS' prompt to 'NO'. All or selected member of the partitioned datasets can be copied.

Continued on next page

Copying Between Datasets, Continued

Copying Selected Members To copy selected members, set the 'COPY ALL MEMBERS' prompt to 'NO' and press Enter. The Member Copy Selection Screen displays, listing the members in the source dataset.

Copying All the Members To copy all of the members from the source dataset to the target dataset, change the 'COPY ALL MEMBERS' prompt to 'YES' and press Enter.
The Dataset Copy Screen displays the name of each member as the member is copied. After the operation is complete, the Member Copy Selection Screen displays, showing the results for each member.

Copying Selected Members

Specifying "No"

When you specify 'NO' for the 'COPY ALL MEMBERS' prompt of the Dataset Copy Screen, the Member Copy Selection Screen displays.

This screen provides for the selection of members that are to be copied from the source dataset to the target dataset. The members listed on the screen are those in the source dataset.

Copying a Member

To copy a Member:

Step	Action
1.	Place an "S" in front of the member name. You can select multiple members at once.
2.	Press Enter.

Dataset Copy Screen

```

COPY --- SYS1.PARMLIB USING SAE----- SELECT COPY MEMBERS
COMMAND ==> _
          NAME      RENAME      VV.MM  CREATED    CHANGED    SIZE  INIT  MOD  ID
ADYSET00
ADYSET01
ADYSET02
COMMNDAB  *COPIED  01.01  89/04/25  90/04/12  16:23   28   26   28  USER4
COMMNDC1  *COPIED  01.00  89/12/04  90/08/02  08:26   23   23    0  USER8
COMMNDHY  *REPL    01.05  86/12/14  87/10/30  09:00   28   18   28  USER2
COMMND00
COMMND01  01.17  89/08/20  90/11/12  21:27   22   28   22  USER4
COMMND41  01.00  88/07/02  90/03/27  19:32   28   28    0  USER2
ERBRMFBU  01.00  89/03/30  89/12/31  17:10   36   36    0  USER1
ERBRMFFE  01.01  90/11/26  90/12/03  16:19    6    6    2  USER8
ERBRMFR1  01.04  89/05/25  90/07/06  09:46   41   42    5  USER4
ERBRMFR2  01.03  88/06/16  89/02/09  09:53   15   15    3  USER2
ERBRMFR3  01.00  89/12/22  89/12/24  16:43   40   40    0  USER4
ERBRMF00  01.04  89/09/17  90/01/17  22:45   34   36    2  USER4
ERBRMF01
ERBRMF02
ERBRMF03
ERBRMF04
ERBRMF05
GIMOPCDE
  
```

Continued on next page

Copying Selected Members, Continued

Copy Status

The status of each member copy request displays to the right of each member name. Possible status values are as follows:

Command	Description
*COPIED	The member was copied successfully.
*REPL	The member was copied successfully and replaced a like-named member that already existed in the target dataset.
*NO-REPL	The member was not copied. A like-named member existed in the target dataset and no replacement was specified.
*ALIAS	The member was not copied. The member is an alias and the main member was not selected. To copy this member, select the main member for 'copy' and its alias members will be automatically be copied.
RD ERROR	The member was not copied. An error occurred while trying to read the member from the source dataset.
DIR FULL	The member was not copied and other copy requests were not processed. The directory of the target dataset is full.
WRTERROR	The member was not copied and other copy requests were not processed. An error occurred while writing the member in the target dataset. The message area will further describe the error.
*NO COPY	The member was selected for copy but was not copied. An error occurred while trying to copy another member; as a result, this copy request was not processed.

Dataset Copy Restrictions

Dataset Copy Restrictions

The Dataset Copy operation has the following restrictions:

- Both the source and target datasets for the copy operations must be of the same organization and record format. The record format restriction applies to the base record format (fixed, variable or undefined) and not variations of the same base record format. For example, datasets of F, FB, FBA or FBM could be copied to one another.
- Datasets with keys, record format variable spanned, or record format variable block spanned, are not supported.

Advance Processing for Alias Members

The Dataset Copy function provides some advanced processing for alias members.

Whenever a member (non-alias) is selected for copy (explicit selection or copy all), SAE makes a search for any alias entries. The alias entries are automatically copied.

Cannot Copy Alias Member by Itself

You cannot select an alias member for copy by itself. It can only be copied as an automatic function of copying the main member.

Additional Restrictions

Depending on the record format, additional restrictions apply.

- For fixed and variable record format datasets, both the source and target datasets must have the same logical record length. Block sizes may differ.
- For undefined record format datasets, the maximum block size of the source dataset cannot exceed the maximum block size of the target dataset.

Where Restrictions Are Enforced

These restrictions are enforced at time of Dataset Copy, and are not considered during selection.

Source and Target Datasets

Overlay Load Modules

Unlike ISPF copy, the SAE Dataset Copy function supports overlay load modules and they may be copied.

Dataset Compression

The Dataset Copy function does not support in place compression of partitioned datasets (for example, for Copy, the source and target dataset cannot be the same). If you must compress a dataset, you can use one of several techniques to achieve the same result.

Step	Action
1.	Use the Dataset Information function to view the dataset that is to be compressed (old dataset).
2.	Use the Dataset Allocate function to allocate a new dataset with the same attributes and size as the old dataset, if possible, on the same volume.
3.	Use the Dataset Copy function to copy from the old dataset to the new dataset. After the copy, the new dataset is a compressed version of the old dataset.
Then to finish the task, follow one of these:	
4.	If both old and new datasets are on the same volume, rename the old dataset and then rename the new dataset to the old dataset's original name. After z/OS operation is restored, delete the old dataset.
5.	If the old and new datasets are on different volumes, rename the old dataset, and then rename the new dataset to the old dataset's original name. Then update the catalog entry for the original dataset to show the location of the renamed new dataset. After z/OS operation is restored, delete the old dataset.
6.	Use the Dataset Information function's EMPTY command to empty the old dataset (effectively delete all and compress), and then copy from the new dataset back to the old dataset. Delete the new dataset after z/OS operation is restored. This method has the disadvantage that the original dataset is altered prior to the restoration of the z/OS system.

Chapter 17: Member Services

Overview

Introduction Member Services is an integral component of Action Services. Member Services provide functions that are directed against members of partitioned datasets on DASD Volumes.

You can launch Member Services by selecting a Partitioned Dataset in Dataset Services. Member Services is also the launching point for Edit/Browse Services.

In this Chapter This chapter contains the following topics:

Member Services	Page
Member Selection – Edit/Browse	17-182
Member Selection – Zap/Verify	17-183
Locating a Member	17-184
Print Member List	17-185
Invoking Services	17-186
Empty Datasets and New Member (Edit Only)	17-187
Member Create (Edit Only)	17-188
Member Rename (Edit or Zap Only)	17-189
Member Delete (Edit or Zap Only)	17-190
CSECT Selection – ZAP/Verify	17-191
Selecting a CSECT	17-192

Member Selection – Edit/Browse

Overview

The Member Selection Screen contains a list of members within a partitioned dataset. If the partitioned dataset that was selected from the Dataset Selection Screen has a Record Format of Fixed or Variable (RECFM=FB/VB) then the Edit/Browse form of the Member Selection Screen is used.

Edit/Browse Member Selection List

From the Edit/Browse Member Selection List, you can rename, delete, or select members for Edit/Browse. You can also create new members.

Navigation

Select partitioned dataset using ‘S’ on Dataset Selection Screen.

Member Selection Screen

```
EDIT --- SYS1.PARMLIB USING SAE----- ROW 1 OF 234
COMMAND ==> _ SCROLL ==> PAGE
NAME RENAME VV.MM CREATED CHANGED SIZE INIT MOD ID
ADYSET00 01.04 84/03/10 90/10/23 08:43 10 10 5 USER2
ADYSET01
ADYSET02
COMMNDAB 01.01 89/04/25 90/04/12 16:23 28 26 28 USER4
COMMNDC1 01.00 89/12/04 90/08/02 08:26 23 23 0 USER8
COMMNDHY 01.05 86/12/14 87/10/30 09:00 28 18 28 USER2
COMMND00 01.17 87/05/25 91/01/01 12:17 28 19 12 USER2
COMMND01 01.17 89/08/20 90/11/12 21:27 22 28 22 USER4
COMMND41 01.00 88/07/02 90/03/27 19:32 28 28 0 USER2
ERBRMFBU 01.00 89/03/30 89/12/31 17:10 36 36 0 USER1
ERBRMFFE 01.01 90/11/26 90/12/03 16:19 6 6 2 USER8
ERBRMFR1 01.04 89/05/25 90/07/06 09:46 41 42 5 USER4
ERBRMFR2 01.03 88/06/16 89/02/09 09:53 15 15 3 USER2
ERBRMFR3 01.00 89/12/22 89/12/24 16:43 40 40 0 USER4
ERBRMF00 01.04 89/09/17 90/01/17 22:45 34 36 2 USER4
ERBRMF01
ERBRMF02
ERBRMF03
ERBRMF04
ERBRMF05
GIMOPCDE
```

Screen Contents

The Member Selection Screen displays each member name and any associated SPF information that may exist.

Member Selection – Zap/Verify

Overview

If the partitioned dataset that was selected from the Dataset Selection Screen has a Record Format of Undefined (RECFM=U), then the Zap/Verify form of the Member Selection Screen is used. The Member Selection Screen contains a list of members within a partitioned dataset.

Zap/Verify Member List Functionality

From the Zap/Verify Member List, you can rename, delete, or select members for Zap/Verify. You cannot create new members for undefined record format datasets.

Navigation

Select partitioned dataset using ‘S’ on Dataset Selection Screen

Member Selection Screen

```
ZAP ---- SYS1.LPALIB USING SAE ----- ROW 341 OF 2489
COMMAND ==> SCROLL ==> PAGE
      NAME      RENAME      SIZE  ENTRY  TTR    ALIAS-OF
      IEFBB410      05F460 034590 005646 IEFW21SD
      IEFBR14        000008 000000 004E10
      IEFDB4D0      002410 000000 004E18
      IEFDB401      000020 000000 004E21
      IEFDB475      004F00 000240 004E29
      IEFDB476      004F00 000968 004E29 IEFDB475
      IEFEB4UV      001218 000000 004F04
      IEFENFNM      000F38 000000 004F0D
      IEFGB4DC      05F460 006880 005646 IEFW21SD
      IEFGB4UV      001218 000FC8 004F04 IEFEB4UV
      IEFGB400      000130 000070 004F15
      IEFIB650      008A10 000FB0 005215 IEFSD060
      IEFIC         008A10 000000 005215 IEFSD060
      IEFIRECM      000750 000000 004F1D
      IEFJDSNA      0000D8 000000 005005
      IEFJDT01      000040 000000 00500D
      IEFJDT02      002A38 000000 005015
      IEFJDT03      001670 000000 00501D
      IEFJDT04      0011B0 000000 005025
      IEFJJTRM      0000A0 000000 00502D
      IEFJRASP      000928 000000 005108
```

Member Selection Screen Description

The Member Selection Screen displays the size, entry point, and any alias for each load module.

The TTR value displays for all members. You can use the TTR value to validate the alias name that is taken from the directory.

Locating a Member

Finding Members

SAE provides multiple ways of scrolling up or down the Member Selection List. SAE also supports a Locate “L” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Member Selection List use PFkeys 7 and 19, to scroll down the Member Selection List use PFkeys 8 and 20.

If you specify “M” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Member Selection List.

Locating Member

To find a member:

Step	Action
1.	Type “L” (for Locate) on the command line with a full or partial member name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified member.

Print Member List

How to Print

To print the Member Selection List contents, enter the PRINT command on the Command Line.

Defining a Printer

If you have not defined the printer address, a prompt appears, allowing you to define a printer address.

Invoking Services

How to Invoke Services To invoke specific Services, a command is issued or a member is selected using a Line Selection character.

Command Line To invoke specific Services via the command line:

Command	Description
S xxxxxxxx	Create new member or select an existing one (xxxxxxx) (Edit only) (see pages 17-188, 18-193, and 19-201)
RENAME old new	Rename member (old name to new name)
DELETE xxxxxxxx	Delete member (xxxxxxx)

Line Selection To invoke specific Services, a member is selected using a specific line selection character that represents the service.

The selection characters for Services are:

Command	Description
R	Member R ename (see page 17-189)
S	Member S elect (Edit/Browse/Zap/Verify)

Processing a Dataset To process a dataset with a service, move the cursor in front of the dataset you want to select and type the selection character.

Empty Datasets and New Member (Edit Only)

Creating a Temporary Member

If the partitioned dataset you select for edit contains no members, SAE bypasses the Member Selection Screen and invokes edit with the member name 'TEMPNAME'.

If you edit and save TEMPNAME, the Member Selection Screen then displays and you can rename the member.

Member Create (Edit Only)

Procedure

To create a new member:

Step	Action
1.	Type “ S ” on the Command Line, followed by the new member name. <u>Results:</u> The Edit Screen displays, showing the empty member.
2.	You can now edit and save the member. The member is actually created at edit save time; therefore, if it is not saved, the member will not exist.

Member Rename (Edit or Zap Only)

Renaming a Member

To rename a member do one of the following:

- Type RENAME on the Command Line, followed by the existing name and the new name.
- Use the NEW LINE key to move the cursor in front of the member and type “R”. Then TAB over and specify the new name. You can only rename one member at a time this way.

The member is renamed and the member selection list re-positioned to the newly renamed member.

For ZAP Only

As is the case with SPF, renaming a member with SAE does not affect any aliases. The connection between a member and its alias is via TTR and not the name displayed in the ALIAS-OF field.

Member Delete (Edit or Zap Only)

Deleting a Member

To delete an existing member:

- Type DELETE on the Command Line, followed by the name of the member you want to delete.

The member selection list re-displays after the deletion is complete.

CSECT Selection – ZAP/Verify

Selecting a Load Module

When you select a member of a partitioned dataset for the Member Selection Screen and that member is a Load Module, the CSECT Selection Screen displays.

You can use the CSECT Selection Screen to select the Control Section (CSECT) from within the Load Module.

Navigation

Select Load Module member using ‘S’ on Member Selection Screen.

CSECT Selection Screen

```
CSECTS IN LOAD MODULE IEFBB410 -----
COMMAND ==>                                SCROLL ==>> PAGE

      NAME      ORIGIN  LENGTH
IEEAB400      3EFD8     398
IEEAB401      3F370     4A8
IEEMB848      EA18      600
IEFAB4A0      38598     ED0
IEFAB4A2      39468     2258
IEFAB4A3      3F818     488
IEFAB4A4      3CE80     1268
IEFAB4A6      3E0E8     8D8
IEFAB4A8      3E9C0     618
IEFAB4B0      3FCA0     4D8
IEFAB4B2      40178     500
IEFAB4C2      40678     4A8
IEFAB4C4      40B20     438
IEFAB4DD      40F58     668
IEFAB4DE      415C0     4B8
IEFAB4EA      41A78     290
IEFAB4EB      41D08     1D8
IEFAB4EC      37CE0     8B8
IEFAB4ED      41EE0     1328
IEFAB4EE      43208     5E0
IEFAB4EF      437E8     650
```

Selecting a CSECT

Two Methods to Select

You can select a Control Section (CSECT) for Zap/Verify in one of two ways:

- Type “S” on the Command Line, followed by the CSECT name.
- Move the cursor in front of the CSECT name and type “S”.

Result: After you have selected a CSECT, the Zap or Verify Screen displays.

After Selection

After selecting a CSECT, SAE checks to determine if the CSECT contains all printable characters. If so, the following screen displays.

```
DO YOU WISH TO PROCESS THIS CSECT AS TEXT DATA ==> (Y/N)
```

This screen gives you to option of using Edit/Browse for the CSECT instead of Zap/Verify. Certain CSECTs (like MSTJCL00) are much easier to work with in an Edit/Browse format than hexadecimal.

CSECT Edit provides for text type-over editing. Other commands like line repeat, delete, or insert are not permitted.

To process the CSECT with Edit/Browse reply ‘Y’.

Chapter 18: Edit Services

Overview

Introduction

Edit Services is an integral component of Action Services. Edit Services provide functions that are directed against the contents of datasets (sequential) or dataset members.

Edit Services are launched by selecting:

- A sequential dataset in Dataset Services or
- A partitioned dataset member in Member Services.

Processing Datasets

- Datasets with a record format of Undefined (RECFM=U) that are selected using 'S', 'E' or 'B' on the Dataset Selection Screen are processed with Zap/Verify instead of Edit/Browse.
- Datasets that are selected using 'Z' on the Dataset Selection Screen are processed with Zap/Verify, independent of the record format of the dataset.

In this Chapter

This chapter contains the following topics:

Edit Services	Page
Edit/Browse	18-194
Positioning	18-195
Printing	18-196
Altering Contents	18-197
Member Undelete (Edit Only)	18-199

Edit/Browse

Functionality

The Edit Processing Screen allows the contents of a member or sequential dataset to be modified and 'saved' back on DASD.

Navigation

- Select partitioned dataset member using 'S' on Member Selection Screen
- or
- Select sequential dataset using 'S', 'E', or 'B' on Dataset Selection Screen
-

Processing Screen

```
EDIT --- SYS1.PARMLIB(IEASYS00) USING SAE ----- COLUMNS 001 072
COMMAND ==> _                               SCROLL ==> PAGE
***** ***** TOP OF DATA *****
000001 MLPA=(00,NOPROT),      ADDITIONAL REENTRANT MODULES
000002 LPA=00,                INCLUDE PROGRAM PRODUCTS LPALIB
000003 APF=00,                AUTHORIZATION LIST
000004 CMB=(COMM,8),         CHANNEL MEASUREMENT BLOCKS
000005 CMD=00,                AUTOMATIC START UP COMMANDS
000006 APG=07,                AUTOMATIC PRIORITY GROUP IS 7 DEFAULT
000007 CSA=(3072,3072),      CONSIDER SETTING TO LIMIT USER REG TO 8 MEG
000008 CVIO,                  CLEAR OUT VIO DATA SETS
000009 DUMP=DASD,            PLACE SVC DUMPS ON SYS1.DUMPXX
000010 FIX=(00,NOPROT),      FIX MODULES SPECIFIED IN BASE AND TSO LIST
000011 GRS=NONE,             NO GRS AT THIS TIME
000012 HARDCPY=(SYSLOG,      HARDCOPY LOG IS SYSTEM LOG(SYSLOG)
000013     ALL,                RECORD ALL WTO/WTOR WITH ROUTE CODES
000014     STCMDS),            OPR & SYSTEM CMDS, STATIC STATUS DISPLAYS
000015 ICS=00,                SELECT  INSTALL CNTL SPECS <=====
000016 IPS=00,                SELECT  INSTALL PERF SPECS <=====
000017 LNK=(00,L),           SPECIFY LNKLST00 AS LINK LIST
000018 LOGCLS=0,             WILL BE PRINTED BY DEFAULT
000019 LOGLMT=020000,        MUST BE 6 DIGITS, MAX WTL MESSAGES
000020 MAXUSER=250,          (SYS TASKS + INITS + TSOUSERS) <250
000021 PAGNUM=(6,3),         ALLOW ADDITION OF 6 PAGE D/S & 3 SWAP D/S
```

Positioning

Scrolling

SAE provides multiple ways of scrolling up or down the Edit/Browse Screen.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Edit/Browse Screen use PFkeys 7 and 19, to scroll down the Edit/Browse Screen use PFkeys 8 and 20.

If you specify “**M**” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Edit/Browse Screen.

Printing

How to Print

To print the dataset or member contents, enter the PRINT command on the Command Line.

Defining a Printer

If you have not defined the printer address, a prompt appears, allowing you to define a printer address.

Altering Contents

Modifying Existing Contents

To modify the existing contents of the displayed dataset or member, type the new data over the displayed data. SAE does not update or insert sequence numbers.

SAE Ignores Data Longer than 72 Characters

In cases where the logical record length of the member is less than the screen width (72 characters), the entire screen width remains an unprotected field; however, SAE ignores any data you enter on the screen that is past the end of the record.

SAE provides three line commands that allow you to insert, repeat, or delete lines from the dataset.

Edit Processing Commands

Certain commands that are entered on the Command Line are accessed only through the Edit Processing Screen and function only with respect to Datasets and Members. These commands are:

Command	Description
CAN	Do not save the dataset and return to the previous screen.
SAVE	Save the dataset and return to the previous screen.
INPLACE	Save the member over the original member.
COPY mmmmmmmm	Copy the specified member from the same partitioned dataset into the member that is currently being edited. Use the 'A' line command to specify the location the incoming member is to be placed after.
UNDELETE	Locate and copy in the next orphaned member. See page 18-199 for more information.
F text/'text' (Find Command)	Locates the specified text in the current dataset starting with the first displayed record.
C text/'text' text/'text'	Locates the first operand text in the current dataset starting with the first displayed record and changes that text to the second operand text. Operand lengths must be equal.
CAPS ON	Turn on automatic lowercase to uppercase character conversion
CAPS OFF	Turn off automatic lowercase to uppercase character conversion

Continued on next page

Altering Contents, Continued

Line Commands Certain commands that are entered as line commands are accessed through the Edit/Browse Selection Screen. These commands are:

Command	Description
I	INSERT a blank logical record.
R	REPEAT logical record.
D	DELETE logical record.
A	AFTER - places the copied member after a line.

Member Undelete (Edit Only)

Creating and Recovering Orphaned Members

When a member is updated in a PDS, the member is written to the end of the dataset and then updates the directory to point to the new member. The old version of the member still resides in the dataset, but without a pointer in the directory, it is left orphaned.

When a member is deleted, the pointer in the directory is removed; therefore, like the old version of a member, it also is left orphaned.

In both cases, the old versions and deleted members continue to exist in the dataset until it is compressed.

SAE provides a facility to access these orphaned members. For each orphaned member, there is no way of knowing the member name under which it once existed. The data in each orphaned member is your only guide. The Undelete facility accesses the orphaned members in order, from the end of the dataset to the beginning. You will therefore see the most recently orphaned member first.

Procedure

To Undelete members:

Step	Action
1.	Open the Edit Screen.
2.	Enter UNDELETE on the Command Line. <u>Result:</u> The UNDELETE command copies the most recently updated orphaned member into the current member.
3.	If this happens to be the orphaned member for which you were looking to re-establish, edit it further (if necessary), then Save.
4.	If it is not the correct member, enter UNDELETE again (or use PF9). <u>Results:</u> SAE copies the next previous orphaned member into the current member, replacing the one that was displayed.
5.	Continue until you locate the member for which you were looking.

Accessing Deleted Member and Previous Versions

You can only access deleted members and previous versions of a member using the Edit Screen's UNDELETE command.

To use the UNDELETE command:

- Select a new member (see 'Creating a new member'). Once the Edit Screen displays for the new member, you can use the UNDELETE command. The UNDELETE command is described in the Edit Screen Section.

Chapter 19: Zap Services

Overview

Introduction

Zap Services is an integral component of Action Services. Zap Services provide functions that are directed against the contents of datasets (sequential) or dataset members where the data contains non-displayable hexadecimal data.

You can launch Zap Services by selecting:

- A sequential dataset in Dataset Services, or
- A partitioned dataset member in Member Services.

Selecting Datasets

Datasets with a record format of Undefined (RECFM=U) that are selected using 'S', 'E' or 'B' on the Dataset Selection Screen are processed with Zap/Verify instead of Edit/Browse.

Datasets selected using 'Z' on the Dataset Selection Screen are processed with Zap/Verify independent of the record format of the dataset.

In this Chapter

This chapter contains the following topics:

Zap Services	Page
ZAP/Verify	19-202
Positioning	19-203
Command Line Commands	19-204
Altering Contents	19-205
ZAP Saving a Zapped Dataset	19-206

ZAP/Verify

Zap/Verify Overview

The Zap/Verify Screen allows the hexadecimal contents of a load module CSECT, a member, or sequential dataset to be modified and 'saved' back on DASD.

Navigation

- Select a partitioned dataset member using 'S' on the Member Selection Screen, or
- Select a sequential dataset using 'S', 'E', 'B' or 'Z' on the Dataset Selection Screen

Zap/Verify Screen

```
ZAP ---- IEFBB410 CSECT IEEAB400 -----
COMMAND ==>                                     SCROLL ==> PAGE
000000 47F0F024 003016C9 C5C5C1C2 F4F0F040 *.00....IEEAB400 *
000010 F8F5F1F6 F240D1C2 C2F2F2F2 F00047F0 *85162 JBB2220..0*
000020 F0060050 90ECD00C 05C04AF0 F00407FF *0..&...}{600...*
000030 5800C35A B20B0000 B20A0010 5800C35A *.C!.....C!*
000040 181D58F0 C02605EF 47F0C03A 47F0C02E *...0{...0{..0{*
000050 000016A0 00001744 0A0A120E 58F0C02A *.....0{*
000060 4770C01C 18B19200 B09947F0 C05C5800 *..{...k..r.0{*..*
000070 C35AB20B 0000B20A 00104510 C0540A0A *C!.....{...*
000080 18B19201 B09950D0 B0044220 B098B20A *.k..r&}....q...*
000090 20009802 D01450B0 D00818DB B20A0000 *..q.}.&}.....*
0000A0 D207B048 1000B20A 00105850 B0485890 *K.....&....*
0000B0 500058F0 B04C58A0 F00045E0 C1341FFF *&..0.<..0..A...*
0000C0 194F4770 C0F459F0 A1604770 C0AC45E0 *.|..{4.0~..{..\*
0000D0 C1B447F0 C0EC5880 A16048F0 80004BF0 *A..0{...~..0...0*
0000E0 80024120 00111F33 43309001 1E2319F2 *.....2*
0000F0 47B0C0EC 96808006 181A9500 B0994770 *..{.o....n..r..*
000100 C0E258F0 C35E05EF 47F0C0E8 58F0C362 *{S.0C;...0{Y.0C.*
000110 05EF45E0 C1E245E0 C20645E0 C2C44320 *...\AS.\B..\BD..*
000120 B09858D0 D0045800 C35A181B 9500B099 *.q.}}...C!..n..r*
000130 4770C128 5800C35A 58F0C11E 070005EF *.A...C!.0A....*
000140 47F0C124 47F0C122 000017F0 0A0A47F0 *.0A..0A...0...0*
000150 C12A0A0A B20A2000 98ECD00C 07FE9180 *A.....q.}...j.*
```

Alter/Verify CSECT or Dataset Contents

You can use the Zap Processing Screen to alter/verify the contents of a load module CSECT or a dataset.

- For a load module CSECT, the data displays for the length of the selected CSECT only.
- For a dataset or dataset member, all of the data displays and there is no indication of logical records or physical blocks.

Positioning

Scrolling

SAE provides multiple ways of scrolling up or down the Zap/Verify Screen.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Zap/Verify Screen use PFkeys 7 and 19, to scroll down the Zap/Verify Screen use PFkeys 8 and 20.

If you specify “**M**” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Zap/Verify Screen.

Command Line Commands

List of Commands

The following table lists the ZAP commands:

Command	Description
VER (Verify Command)	See Altering contents.
REP (Replace Command)	See Altering contents.
F text/'text' (Find Command)	Find the specified data within the currently selected DASD extent. Character data must be entered in quotes, and hexadecimal data entered without quotes. For example: F 'ABC' F C1C2C3
CAN	Do not save the dataset and return to the previous screen.

Altering Contents

Modifying Existing Contents

To modify the existing contents of the displayed dataset, member, or CSECT, type the new hexadecimal data over the displayed hexadecimal data.

Alternatively, you can also use the VER and REP commands to locate and verify (VER) or replace (REP) data.

VER Command

To position the displayed text at a specific offset, use the VER command.

You enter the VER command on the Command Line. The first operand is a one to six digit hexadecimal offset at which the screen is to be positioned. A hexadecimal or character data, to be verified at the given offset, may be entered as an optional second operand.

- For hexadecimal data, two to sixteen hexadecimal characters are entered (without quotes) which represent one to eight bytes of data.
- For character data, one to sixteen characters can be specified in quotes.

The specified data is compared to the existing data at the given offset. If the entered data does not match the existing data, SAE issues a message.

Examples of the VER command are:

```
VER    12A
VER    12A C1C2C3C4C5
VER    12A 'ABCDE'
```

REP Command

Use the REP command to replace the contents, at the supplied offset, with the supplied data. Character data must be entered in quotes, and hexadecimal data entered without quotes.

```
REP    12A C1C2C3C4C5
REP    12A 'ABCDE'
```

ZAP Saving a Zapped Dataset

How to Save and Exit

SAE perform a save operation only if the contents have been modified and you request a save.

- To request a Save operation, use PFkeys 3/15, or 4/16.
 - To exit the Zap Processing Screen without saving the dataset, use PFkeys 2/14 or type CAN on the Command Line. SAE returns to the previous screen without writing the dataset to disk.
-

Chapter 20: Catalog Services

Overview

Introduction Catalog Services is an integral component of Action Services. Catalog Services provides:

- Functions that are directed against ICF Catalogs.
- The ability to locate a dataset and process it directly in Dataset Services.

To launch Catalog Services, select an ICF Catalog in Dataset Services.

Commands ICF Catalogs selected using ‘S’, ‘E’ or ‘B’ on the Dataset Selection Screen are processed with Altercat/Listcat instead of Edit/Browse.

In this Chapter This chapter contains the following topics:

Catalog Services	Page
Catalog Selection	20-208
Altercat/Listcat	20-209
Catalog Types	20-210
Locating a Catalog Entry	20-211
Invoking Dataset Services	20-212
Altering a Catalog Entry	20-213
Capturing Tape Column Serial Numbers	20-214
Circumventing Uncataloged Dataset Problems	20-215

Catalog Selection

Limiting The Amount of Displayed Data

The Altercat/Listcat Control Screen provides the means of limiting the amount of data displayed for the selected catalog.

Listcat Control Screen

```
LISTCAT -- SYSTEM.CATALOG.ICF.MASTER.SYSA -----  
  
LEAVE FIELDS BLANK FOR A FULL CATALOG LISTING  
  
THE LISTING MAY BE LIMITED TO CATALOG ENTRIES FOR SPECIFIC  
DATASETS BY USING DSNAME LEVEL AND/OR DATASETS CATALOGED ON A  
SPECIFIC VOLUME BY USING VOLUME SERIAL  
  
DSNAME LEVEL ==>  
VOLUME SERIAL ==>
```

Limiting The Catalog Display List

You can limit the catalog display list based on dataset name and/or cataloged volume serial.

- By specifying a partial dataset name, SAE only selects matching catalog entries for display. For example, if you specify SYS1 in the dataset name field, only catalog entries that start with SYS1 display.
- If you specify a complete volume serial number, only catalog entries having that volume display.

Volume Serial Field

The volume serial field is useful when a DASD volume has been lost (for example, a hardware failure). By using Volser limiting on the master catalog, you can determine what, if any, IPL-critical datasets were lost.

Full Catalog List

For a full catalog list, leave both the dataset name level and Volser serial fields blank.

Altercat/Listcat

Altercat Functionality

The Altercat Processing Screen displays the contents of the selected ICF Catalog. From the Altercat Screen, you can alter the cataloged Volser and device type for a NONVSAM dataset.

Navigation

Select ICF Catalog using 'S', 'E' or 'B' on Dataset Selection Screen.

Altercat/Listcat Screen

```
ALTERCAT -- SYSTEM.CATALOG.ICF.MASTER.SYSA ----- ROW 266 OF 928
COMMAND ==> SCROLL ==> PAGE
DATA SET NAME ENTRY TYPE VOLSER DEVICE
SYSTEM.CATALOG.ICF.USERCAT5 USERCAT CAT001 3380
SYS1.LINKLIB NONVSAM SYSRES 3390
SYS1.LOGREC NONVSAM SYSRES 3390
SYS1.LPALIB NONVSAM SYSRES 3390
SYS1.MACLIB NONVSAM SYSRES 3390
SYS1.MAN1 CLUSTER SYSRES 3390
SYS1.MAN2 CLUSTER SYSRES 3390
SYS1.MAN3 CLUSTER SYSRES 3390
SYS1.MODGEN NONVSAM SYSRES 3390
SYS1.NUCLEUS NONVSAM SYSRES 3390
SYS1.PARMLIB NONVSAM SYSRES 3390
SYS1.PPMACDEF NONVSAM SYSRES 3390
SYS1.PPOPTION NONVSAM SYSRES 3390
SYS1.PROCLIB NONVSAM SYSRES 3390
SYS1.RMFCLS NONVSAM SYSRES 3390
SYS1.RMFAC01 NONVSAM SYSRES 3390
SYS2.SYSA.SYSLOG GDG BASE 015634 3480
SYS2.SYSA.SYSLOG.G2165V00 GDG 043582 3480 >
SYS2.SYSA.SYSLOG.G2166V00 GDG 024637 3480 >
SYS2.SYSA.SYSLOG.G2167V00
SYS3 SYSTEM.CATALOG.ICF.USERCAT1 ALIAS
```

Catalog Types

Catalog Entry Types

You can display five different catalog entry types:

Type of Entry	Displays...
ALIAS	The associated catalog
CLUSTER	The associated volume/device type
USERCAT	The associated volume/device type
GDG	The GDG base entry, followed by any GDG dataset entries and their associated Volser/device type
NONVSAM	The associated volume/device type

Screen Navigation

- If more than one Volser is associated with a NONVSAM or GDG entry, a '>' character appears to the right of the Volser.
 - You can view any additional Volsers (up to seven) one at a time by using PF11/PF23 (Scroll Right).
 - Use PF10/PF22 (Scroll Left) to return to a previous Volser.
 - The column heading of 'VOLSER' is replaced with 'VOL +x' where x is a number '1' through '9' to indicate the current relative position of the displayed Volser.
-

Locating a Catalog Entry

Finding Catalog Entry

SAE provides multiple ways of scrolling up or down the Altercat Selection Screen. SAE also supports a Locate “L” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Altercat Selection Screen use PFkeys 7 and 19, to scroll down the Altercat Selection Screen use PFkeys 8 and 20.

If you specify “M” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Altercat Selection Screen.

Locating by Catalog Entry

To find a specific entry name:

Step	Action
1.	Type “L” (for Locate) on the command line with a full or partial entry name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified entry name.

Invoking Dataset Services from Catalog Services

Procedure

You can select a Catalog entry for a NONVSAM dataset for processing with Dataset Services.

To select the entry:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the dataset name.
2.	Type "S". Catalog Services extracts the Volser from the catalog entry and then searches the DASD Units on the system for that volume. After locating the volume, Dataset Services processes the volume. <u>Results:</u> The Dataset Selection Screen displays positioned at the selected dataset.

Altering a Catalog Entry

Procedure

You can alter a NONVSAM dataset entry to specify a new volume serial number and/or device type.

To alter the entry:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the dataset name.
2.	Type "A".
3.	Type the new Volser and/or device type over the displayed values. <u>Results:</u> The catalog entry is altered immediately after you press Enter.

Changing Device Types

You can change device types to any of the following types. They must be specified exactly as shown.

3330 3350 3375 3380 3390 9345
3400-3 3400-5 3400-6
3480 3480X 3490E 3590
0000

The device type of '0000' is typically only used for datasets cataloged to Volser '*****' (system residence volume serial number).

Capturing Tape Column Serial Numbers

Procedure

The tape volume serial numbers on which a dataset is cataloged may be captured for use in Restore Services. This allows the Volsers required for a restore to be determined via the catalog.

To capture the volume serial numbers for a cataloged tape dataset:

Step	Action
1.	Use the NEW LINE key to move the cursor in front of the dataset name.
2.	Type "C".

For More Information

For more information on using the captured tape Volsers in Restore Services, see page 20-254.

Circumventing Uncataloged Dataset Problems

Work-arounds

Although you cannot use Altercat to catalog a dataset, there are other ways to circumvent problems that are caused by uncataloged datasets.

- You can determine a given dataset's location using the dataset search facility (see page 15-132).
 - In most cases, the JCL involved can then be edited to specify the UNIT and VOL=SER parameters.
 - If the uncataloged dataset is referenced by the Master JCL, the MSTJCL00 member of SYS1.LINKLIB can be zapped to add the UNIT and VOL=SER parameters.
-

Part V: Fast DASD Erase

Overview

Introduction You can use the Fast DASD Erase function to completely erase 3380, 3390, or 9345 volumes. For EAVs, SAE R15 only supports the erasing of the Track Managed Space.

In This Part This part contains the following topics:

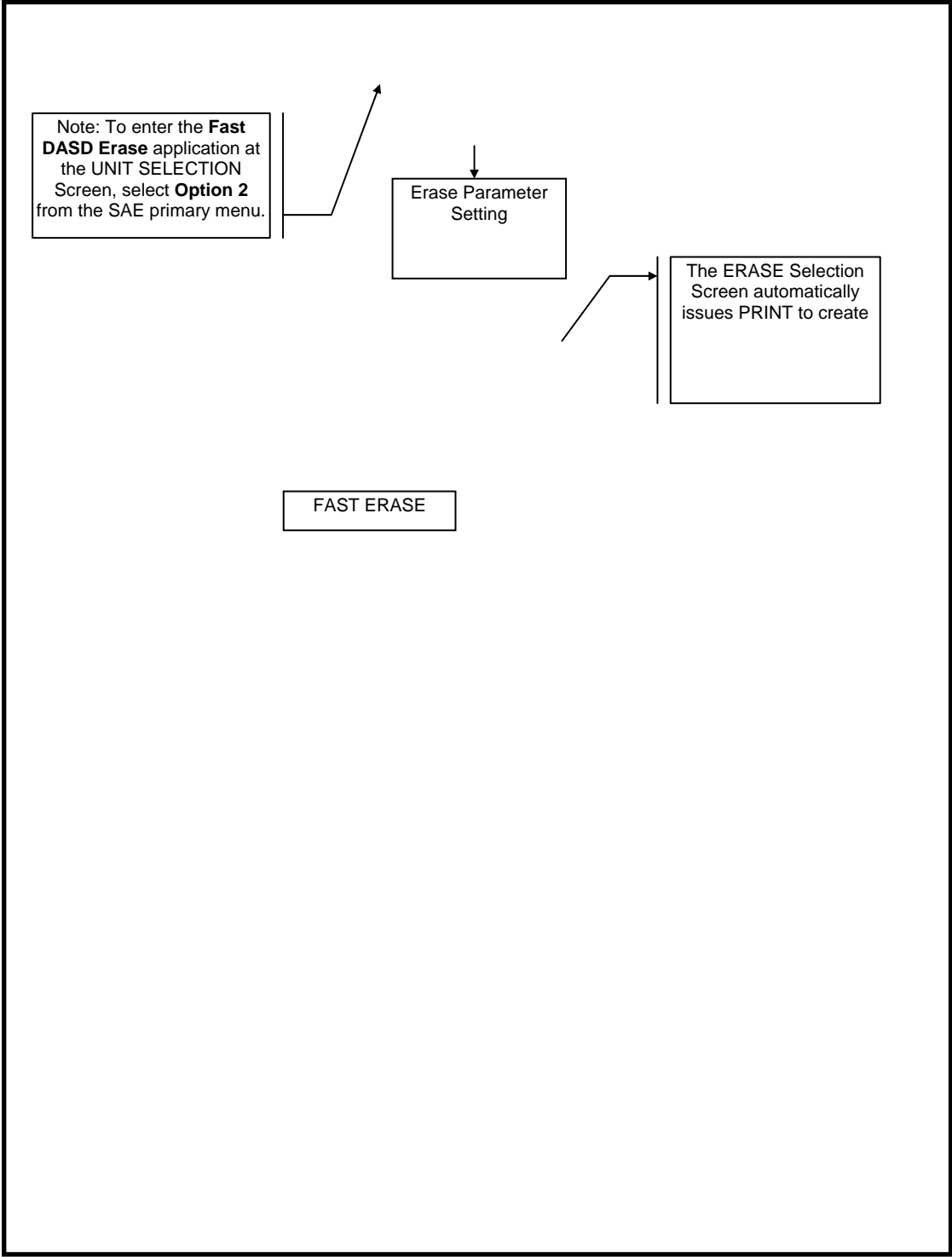
Chapter	See Page
Fast DASD Erase Overview	20-219
Unit Selection	20-221
EAV Erase Setting	20-221
Erase Parameter Setting	20-223
Erase Reports	20-226
Sorting Volume List	20-228
Locating a Volume	20-229
Printing a Volume List	20-230
Erase Commands	20-231
Starting an Erase	20-233
Erase Status	20-235
Fast DASD Erase Monitoring	20-236
DRPCLIP Command	20-237
Erase Summary Report	20-238
Erase Failure	20-240
No Response Conditions	20-243

Fast DASD Erase Overview

Prerequisites	To use Fast DASD Erase: <ul style="list-style-type: none">• The Fast DASD Erase feature must be enabled (DLIB@OPT).• The current userid must have access authority number 2.
What Fast DASD Erase Does	You can use the Fast DASD Erase function to completely erase 3380, 3390, or 9345 volumes (For EAVs, SAE R15 only supports the erasing of the Track Managed Space.). You can also optionally perform a quick initialize (QUICK INIT).
Useful After Disaster Recovery	Fast DASD Erase is useful at the completion of Disaster Recovery testing, when you do not want to leave ANY data behind at a hot site. It is also good to use before releasing Storage hardware to a third party.
QUICK INIT	QUICK INIT is useful when data security is considered to have lesser importance.
Advantages	<p>Although the time taken by FAST ERASE or QUICK INIT to function against a single volume is considered fast, their real advantage is in performing many erases or initializations concurrently.</p> <p>Fast DASD Erase is designed to perform highly optimized I/O, which results in a relatively small utilization of available paths per device. Devices on different paths can be erased with little or no effect on the performance. For devices on same paths, each additional concurrent erase will result in a minimal increase in erase time. Even at total path utilization, the total saving in erase or initialization time is substantial.</p>
Not Recommended Under VM	Generally, use of Fast DASD Erase is not recommended under VM. VM may report missing interrupts and affect SAE and other VM guests. Native use of SAE is preferable over VM use. However, if VM use is the only option, the virtual machine must have only one attached CPU. If more than one CPU is present, VM I/O ASSIST will be disabled and cause unpredictable results.
Erase Failures	<p>To prevent failures, all volumes being erased must be off-line to all other systems. If another system accesses a volume that is being erased, the erase will fail.</p> <p>Erase failures can also occur for volumes attached via a 3990 control unit if another system, that is also connected to the same control unit, is IPLed (system reset notification) during the erase.</p>

Continued on next page

Fast DASD Erase Overview, Continued



Unit Selection

Process

Fast DASD Erase uses the same Unit Selection process as Action Services. You can control the list of volumes that can be selected for erase using the Unit Selection Screen.

For more information on Unit Selection and Volume Selection Re-use, see page 15-132 in the Action Services section of this manual.

Parallel Access Volume (PAV) Alias Volumes

One the the selection criteria available for Unit Selction (see page 15-132) that is of particular interest when erasing volumes is PAV Alias selection. When erasing a primary PAV volume, you may wish to avoid directly erasing its aliases volumes. You may exclude PAV Alias volumes from the volume selection list by using this selection criteria.

EAV Erase Setting

Navigation

After processing the DASD Erase Parameter Setting Screen, if any EAV volumes are present in the volume list, the following screen is presented.

EAV Erase Settings

```
EXTENDED ADDRESS VOLUMES (EAVs) ARE PRESENT IN THE VOLUME SELECTION LIST

EAVs ARE NOT FULLY SUPPORTED FOR ERASE IN THIS RELEASE

HOWEVER, YOU MAY CHOOSE TO ERASE THE TRACK MANAGED SPACE ON THESE VOLUMES.

IF YOU REPLY Y, SAE WILL ERASE THE FIRST 65,520 CYLS (TRACK MANAGED SPACE) ON
THESE VOLUMES AND CREATE A STANDARD VTOC ON EACH EAV VOLUME. DATA IN THE
CYLINDER MANAGED SPACE WILL NOT BE ERASED BUT WILL NOT BE READILY ACCESSIBLE.

IF YOU REPLY N, SAE WILL NOT ALLOW EAVs TO BE SELECTED FOR ERASE AND ALL DATA
ON THOSE VOLUMES WILL REMAIN UNTOUCHED.

ERASE TRACK MANAGED SPACE ON EAVs ==> (Y/N)
```

Erasing Track Managed Space

SAE R15 does not fully support the erasing of EAVs. Track Managed Space may be erased but Cylinder Managed Space may not.

You may choose to not erase the EAV volumes at all (select 'N') in which case any EAVs in the list will not be selectable for erase.

Or you may choose to erase the Track Managed Space (cylinders 65520 and below) on the volumes (select 'Y'). If you elect to erase the Track Managed Space, EAV volumes will be selectable for erase and if selected, SAE will erase the Track Managed Space cylinders and create a standard VTOC on the volume. The VTOC will describe both the Track Managed and Cylinder Managed Space and any VTOC information regarding the contents of the Cylinder Managed Space will have been erased, but the actual contents of the Cylinder Managed Space will have not been changed.

If EAVs are erased, a message will appear in the report indicating that Cylinder Managed Space was not erased.

“WARNING - EAV CYLINDER MANAGED SPACE NOT ERASED”

Additionally, the report will show EAV volumes as having only 65,534 cylinders.

Erase Parameter Setting

Navigation

After the processing of Unit Selection, Fast DASD Erase displays the DASD Erase Parameter Setting Screen. You can use this screen to set various Fast DASD Erase options.

DASD Erase Parameter Setting Screen

```

DASD ERASE PARAMETER SETTING -----
Change the following values as required - PF1 for Help

Full Volume Erase                ==> Y (Y/N) Use N for Quick Init
Disable 3990 CACHE                ==> N (Y/N) If Y, use 'CACHE ON' after erase
Erase Alternate Tracks            ==> N (Y/N)
Maximum Auto-restarts per unit   ==> 50
Restarts for same cylinder       ==> 1
Erase method                     ==> B (S - Sustained, B - Burst)
Erasure Data Pattern             ==> 00 (00 or suggestions: 55, AA, or FF)

The following may only be changed on advice of Customer Support

Progress reporting Cyl Interval ==> 25
No response time (min)         ==> 25
Terminate no response (min)    ==> 45
Produce Diagnostic Reports      ==> Y
Restart/Resume monitor interval ==> 5
Auto screen refresh interval    ==> 300
    
```

Parameter	Description
Full Volume Erase (with Y)	<p>If you specify 'Y', SAE erases the entire DASD unit.</p> <p>Full Volume Erase writes binary zeros (or if specified some other byte value) on all tracks except cylinder 0, track 0. On track 0, the volume label record is changed to Volser ERASED and the remainder of the track is erased. If the volume contained a valid VTOC prior to erase, then a new one track VTOC is created on track 1.</p> <p>After the erase, the volume will be clipped to ERASED.</p>
Full Volume Erase (with N)	<p>If you specify 'N', then all volumes are processed with Quick Initialization only.</p> <p>You can request that QUICK INIT creates a new one track VTOC on the volume, but does not erase the remaining tracks. The QUICK INIT process is very fast and an alternative to a total erasure when data security is a secondary consideration. Using QUICK INIT, data is not erased; however, the new VTOC limits access.</p> <p>After creating the one track VTOC, the Quick Initialization function will clip the volume to VTINIT and the STATUS field will show *INIT.</p>

Continued on next page

Erase Parameter Setting, Continued

DASD Erase Parameter Setting Screen (continued)

Parameter	Description
Disable 3990 Cache	<p>If you specify 'Y', Fast DASD Erase deactivates the Cache for each DASD volume on the volume selection list that is attached to a 3990 controller with cache support.</p> <p>The operation is deemed to be successful when the device accepts the command. De-staging of data may continue for some time after the operation has indicated success. Disabling 3990 Cache improves erase performance for real 3990-3 and 3990-6 controllers. However, most emulated 3990 controllers (for example, SCSI RAID) ignore cache deactivation requests. If 3990 Cache is disabled, it must be manually enabled after the erase using the CACHE ON command.</p>
Erase Alternate Tracks	<p>If you specify 'Y', Fast DASD Erase operations attempt to erase alternate and defective tracks. As alternate tracks are assigned and unassigned, data may remain on alternate and defective tracks. An attempt to erase each alternate track (or if an alternate track is assigned, the defective track that it replaced) is made when the erase operation is started for a volume.</p> <p>In the case of defective tracks, the erase may be unsuccessful, depending on the seriousness of the defect. Specifying 'N' is recommended.</p>
Maximum Auto-restarts per unit	<p>Specify the maximum number of times that an automatic restart should be attempted on a volume. An automatic restart is the restarting of an erase that has failed. You can set a value between 0 and 255.</p>
Restarts for same cylinder	<p>Specify the number of times that a restart operation should try to erase a failing cylinder before skipping it. You can select a value between 0 and 255.</p> <ul style="list-style-type: none">• To never skip over a failing cylinder, set Restarts for same cylinder to the same value as Maximum Auto-restarts per unit.• To always skip over a failing cylinder without a retry, set Restarts for same cylinder to zero.

Continued on next page

Erase Parameter Setting, Continued

DASD Erase Parameter Setting Screen (continued)

Parameter	Description
Erase Method	<p>Specify the erase mode for Fast DASD Erase to use. Two choices are available: Burst or Sustained.</p> <ul style="list-style-type: none">• Burst – This mode is recommended for new technology RAID devices that emulate 3380 or 3390 devices.• Sustained – This mode is recommended for legacy equipment. Use this method if the devices you are erasing are real 3380s or 3390s behind real 3990 controls. <p>Prior to SAE Release 11, only the Sustained mode was available. The Burst mode was introduced with SAE Release 11 and is the default.</p>
Erasure Pattern	<p>Specify the hexadecimal value to be written on each byte of the DASD track.</p> <ul style="list-style-type: none">• 00 - An erase of zero has special significance and provides the greatest performance. This is the default.• xx - A value other than 00 (hexadecimal values 01-FF) require the movement of 47K of data across the channel for each track on each DASD unit being erased and as a result will effect erase performance. A non-zero erasure pattern is only supported for ECKD 3390 devices. Other devices such as 3380s or 9345s will be erased with a zero erasure pattern, independent of the value specified. Some suggested bit patterns are: x'55' = 01010101, x'AA' = 10101010 and x'FF' = 11111111.

Additional Settings

The Fast DASD Erase Parameter Setting Screen also contains additional parameters for Customer Support Staff to use when diagnosing problem situations. These parameters are normally protected from change. Do not alter them without first consulting NewEra Customer Support Staff.

Erase Reports

Automatic Reports

SAE's Fast DASD Erase produces several reports that provide documentation of:

- what was erased
- what errors occurred
- what erase performance was achieved

These reports are produced automatically if printing is active. Prior to displaying the Erase Volume Selection screen, the following screen displays (if printing is not active).

Fast DASD Erase Screen

FAST DASD ERASE -----

FAST DASD ERASE AUTOMATICALLY CREATES REPORTS FOR YOUR FUTURE REFERENCE.
THESE REPORTS INCLUDE:

- ERASE SUMMARY REPORT
- DETAIL VOLUME LIST (BEFORE & AFTER ERASE)
- ENVIRONMENT REPORT (TECHNICAL DETAILS ON EACH VOLUME)
- DIAGNOSTIC REPORT (DETAILS ON ANY ERASE FAILURES)

THESE REPORTS ARE ONLY CREATED AUTOMATICALLY IF YOU HAVE PRINTING ACTIVE.
YOU MAY DIRECT PRINT OUTPUT TO A CHANNEL ATTACHED PRINTER OR HAVE IT
CAPTURED TO A DISK OR TAPE DATASET.

PRESS ENTER TO CONTINUE

Directing SAE Print Output to a Tape Dataset

In the case of DRP Hot Site testing, you may wish to direct your SAE print output to a Tape dataset. This allows you to easily take reports with you at the conclusion of your DRP test and perform the actual printing to hardcopy at your own installation.

Fast DASD Erase/QUICK INIT Selection

Using the Erase Selection Screen

You can use the Unit Selection Screen to control which devices are selectable for erase processing. Use the Erase Selection Screen to select one or more volumes for erasing or initialization.

Erase Selection Screen

```

ERASE SELECTION -- 0 ACT 0 NRSP 0 RSTR----- ROW 1 OF 120
COMMAND ==> _ SCROLL ==> PAGE
VOLSER STATUS UNIT DEVT CYLS INFO CHPID
CATLOG 01C0 3390 2226 B 05 06 1B 1D
SYSRES 01C1 3390 2226 B 05 06 1B 1D
BCKRES 01C2 3390 2226 B 05 06 1B 1D
SMP001 01C4 3390 2226 B 05 06 1B 1D
EAVSD2 01D0 3390 76K B 04 1A 1C 1E
ACC003 0341 3380 2655 B 03 04 1A 1C
CICS03 0342 3380 2655 B 03 04 1A 1C
CICS01 0343 3380 2655 B 03 04 1A 1C
ACC004 0344 3380 2655 B 03 04 1A 1C
ACC001 0345 3380 2655 B 03 04 1A 1C
ACC005 0346 3380 2655 B 03 04 1A 1C
ACC002 0347 3380 2655 B 03 04 1A 1C
OLN002 0580 3350 555 B 01 02
ONL001 0582 3350 555 B 01 02
OLN003 0583 3350 555 B 01 02
SYS003 0740 3380 885 B 09 0A/07 08
SYS001 0742 3380 885 B 09 0A/07 08
USER01 0743 3380 885 B 09 0A/07 08
SYS002 0745 3380 885 B 09 0A/07 08
    
```

Automatic Printing

The Erase Selection Screen automatically issues a **PRINT** command. If you have not defined a printer address, a prompt appears allowing you to do so. The PRINT command is again automatically issued when leaving the Erase Selection Screen. This provides a before and after listing of the volumes that were erased or initialized.

Volume Selection List Descriptions

The Erase Selection Screen displays the volumes sorted by unit address. The information shown for each volume on the Volume Selection list is as follows:

Command	Description
VOLSER	Volume Serial Number
UNIT	Unit Address
DEVT	Device Type
CYLS	Number of cylinders
SUBC	Sub-channel number
CHPID	Channel Path IDs - Installed, available and operational are shown preceding a '/'. Installed but not available and/or not operational follow the '/'

Sorting Volume List

Changing the Sort Order

Use the following commands to change the list's sort order:

Command	Description
SORTVOL	Sort list by Volser
SORTDUP	Sort list by Volser but list duplicate volsers first
SORTUNIT	Sort list by Unit address
SORTCYL	Sort list by number of cylinders

Locating a Volume

Finding Volumes SAE provides multiple ways of scrolling up or down the Erase Selection List. SAE also supports a Locate “**L**” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Erase Selection List use PFkeys 7 and 19, to scroll down the Erase Selection List use PFkeys 8 and 20.

If you specify “**M**” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Erase Selection List.

Locating a Volume

To find a specific volume (when the volume list was sorted by Volser):

Step	Action
1.	Type “ L ” (for Locate) on the command line with a full or partial volume name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified column.

Printing a Volume List

How to Print

To print the contents of the Erase Selection List, enter the PRINT command on the Command Line.

Defining a Printer

If you have not defined the printer address, a prompt appears, allowing you to define a printer address.

Erase Commands

Overview To invoke specific functions, a command is issued or a volume is selected using a Line Selection character.

Command Line To invoke specific functions via the command line:

Command	Description
ERASEALL	Select all volumes for Erase (see page 20-233)
DRPCLIP	Rename all volumes uniquely (see page 20-237)
RESTART	Select for erase restart all volumes on which an erase operation has failed and reset the automatic restart counts.
KILLALL	Stop all active erase operations and do not restart them automatically.

Seldom Used Commands The following ERASE commands are not used frequently.

Command	Description
ECKD	Enable the use of ECKD channel programs for erase operations (Default setting).
CKD	Disable the use of ECKD channel programs for erase operations.
ENVIRON	Use this command primarily for diagnostic purposes. It produces a report that shows detailed internal device information for devices that have reported failures.
DIAGNOSE	Produce Diagnostic Reports for all volumes with currently active or failed erase operations.

Continued on next page

Erase Commands, Continued

Line Selection

To invoke a specific function, select a volume using a specific line selection character that represents the service.

The selection characters for Services are:

Command	Description
E	Select a volume for Erase (See page 20-233)
F	Select a DASD String for ERASE processing (see page 20-233).
U	UN-select a volume for ERASE processing (see page 20-233).
K	Stop the erase operation and do not automatically restart

Processing a Volume With a Selection

To process a volume with a selection:

- Move the cursor in front of the volume to be selected
 - Type the selection character.
-

Starting an Erase

Recommendation Fast DASD Erase can be directed at some or all of the volumes listed on the Erase Selection Screen. NewEra recommends that you use Volser and/or unit masking or range on the Unit Selection Screen to limit the volumes displayed, and to be as close as possible to the volumes that are to be erased.

Select Volumes Twice To start erasing a volume, the volume must be selected twice. Double selection is a safeguard against erasing the wrong volumes. When you use the selection commands the first time, you can see what will be erased when you repeat the commands.

First Selection The first time you select the volume, it enters a 'pending erase' status. For a volume that is in 'pending erase' status, the screen is updated with '*CNFRM' (as shown below) to indicate that confirmation is required prior to the beginning of the actual erase.

Updated Screen

```
VOLSER STATUS UNIT DEVT CYLS SUBC CHPID
ACC001 *CNFRM 0345 3380 2655 0012 03 04
```

Second Selection The second time you select the volume, the actual erase starts.

Erasing Methods Any number of volumes may be selected for erase by using one of three methods:

To select	Then...
An individual volume for erase	Place an "E" in front of the volume.
An entire string for erase	Place an "F" in front of the first volume on the string (address must be xxx0). All units xxx0 through xxxF are selected. Use of the SORTUNIT command may be of assistance for this type of selection.
All the volumes in the volume selection list	Enter the ERASEALL command on the command line. The ERASEALL command does not start the devices in numerical order so that the Erase starts are spread across all controllers.

Continued on next page

Starting an Erase, Continued

UN-selecting a Volume	To UN-Select Volumes for erase (removed from awaiting confirmation status) place a “U” in front of the volume.
Erasing Volumes	<p>When a large number, but not all, of the volumes listed are to be erased, the ERASEALL command can still be of use.</p> <p>By issuing the ERASEALL command, all volumes are placed in erase confirmation status. You can then use the UN-select line command (U) to UN-select the volumes that should not be erased. By issuing the ERASEALL command again, all volumes awaiting confirmation begin erasure, and the previously UN-selected volumes enter confirmation status.</p>
Delays in Updating	During the period when many erase operations are starting, the Erase Selection Screen may not update for several minutes. During this period, a message displays for each volume as its erase operation initializes.

Erase Status

Updated Fields

When the erase is in progress, SAE updates the “STATUS” and “INFO” fields:

- The “Status” field changes to *ERASE.
- The “INFO” field updates with a combination of the following field codes:

Column	Info Field Code
1	C or E for CKD/ECKD
2	B or S for Burst/Sustained mode
3	O or F for CACHE ON/OFF
4	R if a RAMAC device

Sample Screen

```
VOLSER STATUS UNIT DEVT CYLS INFO CHPID
ACC001 *ERASE 0345 3380 2655 CB 03 04
```

Status Line

While in erase mode, a status line appears on the top on the screen. This line shows the number of:

- active erases (ACT)
- erases in a no-response state (NRSP)
- erases that have been re-started (RSTR)

A sample display is shown below:

Erase Selection Screen

```
ERASE SELECTION -- 1 ACT 0 NRSP 0 RSTR ----- ROW 1 OF 120
COMMAND ==> _ SCROLL ==> PAGE
VOLSER STATUS UNIT DEVT CYLS INFO CHPID
CATLOG 01C0 3390 2226 05 06 1B 1D
SYSRES 01C1 3390 2226 05 06 1B 1D
BCKRES 01C2 3390 2226 05 06 1B 1D
SMP001 01C4 3390 2226 05 06 1B 1D
```

Fast DASD Erase Monitoring

Monitoring the Erase Status

After initiating the Fast DASD Erase operation, you can monitor the Erase status by viewing several fields on the screen. The number of cylinders displayed for the volume decrements to indicate the number of cylinders yet to be erased.

Based on the cylinders erased up to that point, SAE calculates and displays the number of cylinders erased per minute. This is useful in comparing the erase performance of the volumes being erased.

Differences in device type, controller types, the number of paths to each controller, the number of devices behind each controller, and hardware servicing of requests all affect the erase performance of each device. The number of minutes the Fast DASD Erase operation has been running also displays.

Sample Screen

VOLSER	STATUS	UNIT	DEVT	CYLS	INFO	CHPID
ACC001	*ERASE	0345	3380	2050		03 04
						CYL/MIN=222 MN= 2

An Estimate of Time Remaining

In addition to the individual cylinder per minute displays, an estimate of the number of minutes required to complete the erase is displays in the message area.

This rough estimate is based on the device with the largest number of cylinders still to be erased and its most recent cylinder per minute rate. As erases end for some devices, others receive more service, so, in general, the erase operation should complete sooner than the estimate displayed.

Refreshed Information

The monitoring information is re-calculated and the screen updated once a minute (auto screen re-fresh), or when the Enter key is used.

After Completion

Once the Fast DASD Erase operation completes, the Volser field shows the new Volser of the erased unit as ERASED and the final erase rate (cylinders per minute). If you used QUICK INIT, all initialized volumes have Volsers of VTINIT.

Sample Screen

VOLSER	STATUS	UNIT	DEVT	CYLS	INFO	CHPID
ERASED		0345	3380	2655		03 04
						CYL/MIN=220 MN= 12

Amount of Time Required

The amount of time required to complete the erase depends on the device type, configuration, and the number of erase operations active against devices on the same paths.

DRPCLIP Command

Overview	<p>You can use the DRPCLIP command to change all ERASED volumes to unique volume serial numbers.</p> <p>When issued on the Command Line of the Erase Selection Screen, all volumes with Volsers of ERASED or VTINIT are renamed to a Volser that is made up of the unit address.</p>
Identifying Duplicate Volsers	<p>After the Fast DASD Erase operation has completed, all erased volumes have Volsers of ERASED. If you used QUICK INIT, all initialized volumes have Volsers of VTINIT. This makes it easy to confirm which volumes have been erased or initialized. The duplicate Volsers are inconvenient for other operations like IPLing z/OS.</p>
Three Character Operand	<p>You can issue the command with or without a three-character operand.</p> <p>If you specify an operand, SAE uses the value as the first three characters of the new Volsers. The last three characters are the unit address of the device. For example, if the volume serial at unit address 385 was ERASED, the command 'DRPCLIP CLR' would result in the volume being clipped to CLR385.</p> <p>If you issue the command without an operand, the first three characters are also the unit address. For example, if the volume serial at unit address 385 was ERASED, the command 'DRPCLIP ' would result in the volume being clipped to 385385.</p>
Four Digit Unit Addresses Supported	<p>DRPCLIP also supports devices with four digit unit addresses where the first digit is non-zero.</p> <p>For example:</p> <ul style="list-style-type: none">• 'DRPCLIP CLR' will re-name unit 385 to CLR385 but unit 1385 to Volser CL1385.• 'DRPCLIP' without an operand will re-name unit 385 to 385385 but unit 1385 to 001385.
Does not Affect Active Volumes	<p>You can issue the DRPCLIP command from the Erase Selection Screen at any time but it does not affect volumes being actively erased.</p>

Erase Summary Report

Printing a Report When you exit the Erase Volume Selection screen, SAE automatically produces an Erase Summary Report.

This report groups devices that:

- are of the same device type
- attached to the same control unit
- reports erase summary information for each device group.

The report includes 'real' device types that enable the identification of the actual device (for example, RAMAC, RAMAC RVA, etc.) that was erased.

The Erase Summary Report will be displayed for online viewing. If a printer has been defined, the report is also automatically printed.

Send Us a Copy of Your Erase Reports

NewEra would like a copy of your Erase Reports. Having these reports allows us to monitor the performance of Fast DASD Erase in a variety of configurations, and allows us to update the benchmarks. Our mailing address is:

155 East Main Avenue
Suite 130
Morgan Hill, CA 95037

Erase Summary Report

The following pages contain a sample of the Erase Summary Report:

```

*
11/05/20 20:05 SAE 15.0(A008)ERASE SUMMARY REPORT
SERIAL - 000000 MODEL - 2064-108 ARCH - ZAR STORAGE - 1152.0M PAGE - 1 *
----- E R A S E -----
ADDRESS QTY PA DEV DEV ----- E R A S E ----- BEST WORST AVG BEST WORST AVG ERASED VEN -DEVICE- ---- CONTROLLER ----
RANGE TH TYPE CYLS START RESTR FAIL OK CYL/M CYL/M CYL/M TIME TIME TIME GB DOR TYPE MOD TYPE MOD SEQUENCE
-----
7000-7007 8 4 3390 3339 8 0 0 8 20 18 18 172 187 181 21.93 HTC 3390 A38 3990 006 000000012345
HTC 3390 AX8 3990
7008-701F 24 4 3390 3339 24 0 0 24 21 18 19 159 187 176 65.81 HTC 3390 B3C 3990 006 000000012345
HTC 3390 AX8 3990
7020-7027 8 4 3390 3339 8 0 0 8 21 19 19 163 184 172 21.93 HTC 3390 A38 3990 006 000000012345
HTC 3390 AX8 3990
7028-703F 24 4 3390 3339 24 0 0 24 21 18 19 162 189 179 65.81 HTC 3390 B3C 3990 006 000000012345
HTC 3390 AX8 3990
7040-7047 8 4 3390 3339 8 0 0 8 20 18 19 168 190 178 21.93 HTC 3390 A38 3990 006 000000012345
HTC 3390 AX8 3990
7048-705F 24 4 3390 3339 24 0 0 24 23 18 19 151 190 177 65.81 HTC 3390 B3C 3990 006 000000012345
HTC 3390 AX8 3990
7060-7067 8 4 3390 3339 8 0 0 8 22 18 19 156 187 179 21.93 HTC 3390 A38 3990 006 000000012345
HTC 3390 AX8 3990
7068-707F 24 4 3390 3339 24 0 0 24 24 18 19 144 190 176 65.81 HTC 3390 B3C 3990 006 000000012345
HTC 3390 AX8 3990
7080-7087 8 4 3390 3339 8 0 0 8 20 18 18 174 188 181 21.93 HTC 3390 A38 3990 006 000000012345
HTC 3390 AX8 3990

```

7088-709F	24	4	3390	3339	24	0	0	24	22	18	19	153	191	178	65.81	HTC	3390	B3C	3990	006	000000012345
HTC 3390 AX8 3990																					
70A0-70A7	8	4	3390	3339	8	0	0	8	22	18	19	152	187	176	21.93	HTC	3390	A38	3990	006	000000012345
HTC 3390 AX8 3990																					
70A8-70BF	24	4	3390	3339	24	0	0	24	21	18	19	164	189	176	65.81	HTC	3390	B3C	3990	006	000000012345
HTC 3390 AX8 3990																					
70C0-70C5	6	4	3390	3339	6	0	0	6	20	18	19	171	189	181	16.45	HTC	3390	A38	3990	006	000000012345
HTC 3390 AX8 3990																					
70D0-70DF	16	4	3390	10017	16	0	0	16	40	39	39	255	259	257	131.62	HTC	3390	B9C	3990	006	000000012345
HTC 3390 AX8 3990																					
70E0-70E7	8	4	3390	10017	8	0	0	8	40	39	39	251	258	255	65.81	HTC	3390	A98	3990	006	000000012345
HTC 3390 AX8 3990																					
70E8-70FF	24	4	3390	10017	24	0	0	24	40	39	39	253	258	256	197.43	HTC	3390	B9C	3990	006	000000012345
HTC 3390 AX8 3990																					
7200-7207	8	4	3390	3339	8	0	0	8	20	18	18	167	188	180	21.93	HTC	3390	A38	3990	006	000000012345
HTC 3390 AX8 3990																					

11/05/20 20:05 SAE 15.0(A008)ERASE SUMMARY REPORT PAGE - 5
 SERIAL - 000000 MODEL - 2064-108 ARCH - ZAR STORAGE - 1152.0M

ADDRESS RANGE	QTY	PA TH	DEV TYPE	DEV CYLS	START	RESTR	ERASE FAIL	OK	BEST CYL/M	WORST CYL/M	AVG CYL/M	BEST TIME	WORST TIME	AVG TIME	ERASED GB	VEN DOR	DEVICE TYPE	MOD TYPE	CONTROLLER MOD	SEQUENCE	
76C0-76C7	8	4	3390	3339	8	0	0	8	18	16	16	186	215	205	21.93	HTC	3390	A38	3990	006	000000012345
HTC 3390 AX8 3990																					
76C8-76DF	24	4	3390	3339	24	0	0	24	19	16	16	181	216	203	65.81	HTC	3390	B3C	3990	006	000000012345
HTC 3390 AX8 3990																					
76E0-76E7	8	4	3390	3339	8	0	0	8	18	16	16	194	215	206	21.93	HTC	3390	A38	3990	006	000000012345
HTC 3390 AX8 3990																					
76E8-76F0	9	4	3390	3339	9	0	0	9	19	16	16	180	215	202	24.67	HTC	3390	B3C	3990	006	000000012345
HTC 3390 AX8 3990																					
7000-76F0	977				977	0	0	977	40	10	19	15	259	189	2974.54						

WARNING - EAV CYLINDER MANAGED SPACE NOT ERASED

```

THE FIRST ERASE OPERATION WAS STARTED AT : 15:32
THE LAST ERASE OPERATION WAS STARTED AT : 15:33
THE LAST ERASE OPERATION ENDED AT : 19:52
VOLUMES ERASED : 977
GIGABYTES ERASED : 2974.54
ERASE ELAPSED MINIUTES : 259
NUMBER OF UNITS WITH CNTLR CACHE ON : 977
NUMBER OF UNITS WITH CNTLR CACHE OFF : 0
NUMBER OF UNITS WITHOUT CNTLR CACHE : 0

FULL VOLUME ERASE : Y
ERASE ALTERNATE TRACKS : N
PROGRESS REPORTING CYL INTERVAL : 25
NO RESPONSE TIME (MIN) : 25
TERMINATE NO RESPONSE (MIN) : 45
ERASE METHOD : B (SUSTAINED/BURST)
ERASURE PATTERN : 00

PROCESSOR TYPE : 2064.108.IBM.02
PROCESSOR SEQ : 0000000000000000
LPAR NAME : SYS1
VM LEVEL :
VM GUEST ID :
```

Note: As per new international standards, a GB is now represents 1000x1000x1000 bytes. Releases prior to R14 used GB to represent 1024x1024x1024 bytes.

Erase Failure

I/O Errors May Cause Failure

If an I/O error occurs during an erase operation, the device information is updated with 'FAILED' and may include the Device and Subchannel status (ST=) and sense bytes (SENSE=).

If SAE has a valid printer address, diagnostic reports are automatically produced (if enabled) that document the error's cause. Retain these reports for analysis.

ST= Value

The ST=xyxy value represents the Device and Subchannel status:

Device (xx)	Subchannel (yy)
80 Attention	80 Program-controlled int
40 Status modifier	40 Incorrect length
20 Control-unit end	20 Program check
10 Busy	10 Protection check
08 Channel end	08 Channel-data check
04 Device end	04 Channel-control check
02 Unit check	02 Interface-control check
01 Unit exception	01 Chaining check

Continued on next page

Erase Failure (continued)

Bit Settings

Some of the more common bit settings for sense data (SENSE=) are:

Byte	Bits	Meaning
0	0	Command Reject
	1	Intervention Required
	2	Bus Out Parity Check
	3	Equipment Check
	4	Data Check
	5	Overrun
	6	
	7	Incomplete Domain
1	0	Permanent Error
	1	Invalid Track Format
	2	End-of-Cylinder
	3	Message to Operator
	4	No Record Found
	5	File Protected
	6	Write Inhibited
	7	Imprecise Ending
2	0	Request Inhibit Write
	1	Correctable (data check)
	2	First Logged Error
	3	Environmental-Data Present
	4	
	5	Imprecise Ending
	6	
	7	

Continued on next page

Erase Failure (continued)

Restarting Failed Erase Operations

Failed erase operations are automatically restarted. If the maximum number of restarts for a particular volume is reached but additional restarts are desired, you can use the **RESTART** command to reset the restart count for volumes in 'FAILED' status and to resume restart operations.

No Response Conditions

No Response Situations

If a volume that is being erased does not post an interrupt for an extended period of time, the '*ERASE' indicator change to '*NORSP' (no response).

If a printer address was supplied to SAE, a diagnostic report is automatically produced (if enabled), that documents the last interrupt received.

Retain these reports for analysis.

A 'no response' condition may clear, but if it is persistent, it may be a sign that the erase has failed without host notification. After a second time period has elapsed, the I/O to the device is cleared and a restart is attempted.

Part VI: Hardware Confirmation

Overview

Introduction Hardware Confirmation uses Device Services to inspect hardware configurations and the accessibility to ALL I/O devices. It checks a device's status, availability, and address.

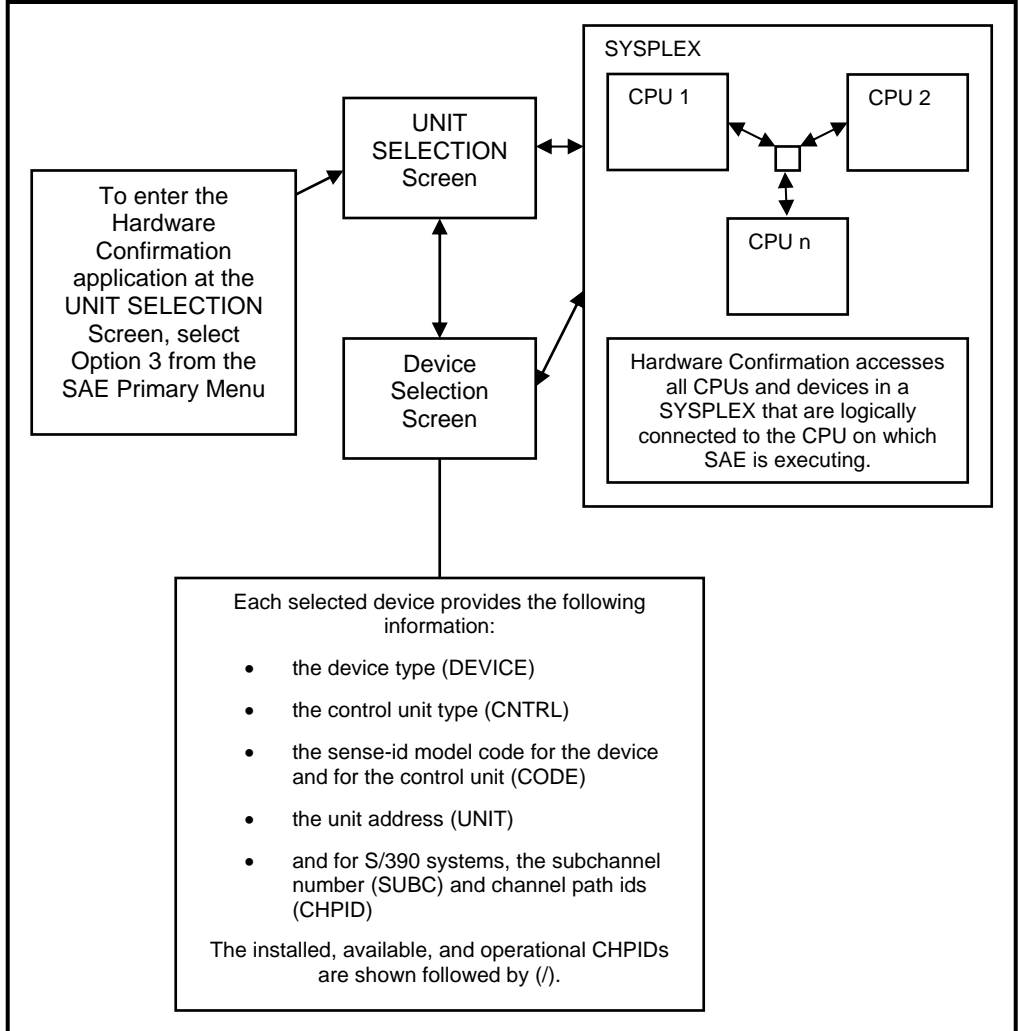
In This Part This part contains the following topics:

Chapter	See Page
Hardware Confirmation Process Diagram	20-245
Device Services	20-246
Device Selection	20-249
Sorting a Device List	20-251
Locating a Device	20-252
Printing a Device List	20-253
Invoking Services	20-254

Hardware Confirmation Process Diagram

Hardware Confirmation Process Diagram

The following diagram shows how the Hardware Confirmation Process takes place:



Device Services

Identifying Hardware

Device Services provide functions that you can use to identify any and all hardware devices.

Creating a Device List

You can use the Unit Selection Screen to control which devices are selectable for further processing in Device Services.

The Unit Selection Screen provides two criteria for selection: Unit Address and Device Type. For a device to be considered selected, it must meet all the specified criteria.

Navigation

Select Option 3 (Confirm) from the SAE Primary Screen

Unit Selection Screen

```
UNIT SELECTION -----
COMMAND ==> _
ADDRESS RANGES (BLANK FOR ALL UNITS)
UNITS ==>          UNITS ==>          UNITS ==>
UNITS ==>          UNITS ==>          UNITS ==>
UNITS ==>          UNITS ==>          UNITS ==>
(EXAMPLES: 600, 6**, 600-700, E1*-F1*, -A**, -A00-B34)

DEVICE (BLANK FOR ALL DEVICE TYPES)
DEVTYP =>          DEVTYP =>          DEVTYP =>
DEVTYP =>          DEVTYP =>          DEVTYP =>
DEVTYP =>          DEVTYP =>          DEVTYP =>
(EXAMPLES: 3390, 33*0, -3480)
```

Selecting All Devices

To select all devices, leave all selection criteria on the Unit Selection Screen blank

Continued on next page

Device Services, Continued

Unit Address You can make up to nine unit-address specifications. If no unit address specifications are made, all unit addresses meet the UNITS criteria.

Unit Address Specifications Unit address specifications can be either:

- A specific address or address range for inclusion
- A specific address or address range for exclusion

To indicate exclusion, prefix the UNITS specification with a ‘¬’ character.

- If an address is specified for both inclusion and exclusion, the unit is excluded.
- If the address is only specified for exclusion, all other addresses are included.

Specifying UNITS You can specify UNITS as follows:

- A complete and explicit 3- or 4-digit unit address, for example, 62C or 102C.
- A masked partial 3- or 4-digit unit address. The mask character is an asterisk (*). An asterisk is specified for each wildcard digit (for example, 8** results in a search of units 800-8FF).
- A unit address range. The range is specified with two complete 3- or 4- digit unit addresses separated by a dash (for example, 245-560 results in the search of units 245 through 560).

Unit address range and masking are mutually exclusive.

Continued on next page

Device Services, Continued

Device Type	You can make up to nine device-type specifications. If no device-type specifications are made, all devices meet the DEVTYP criteria.
Device Type Specifications	<p>Device type specifications can be either</p> <ul style="list-style-type: none">• A specific device type• A device type mask <p>To indicate exclusion prefix the DEVTYP specification with a ‘¬’ character.</p> <ul style="list-style-type: none">• If a device type is specified for both inclusion and exclusion, the device type is excluded.• If the device type is only specified for exclusion, all other device types are included.
Specifying Device Types	<p>You can specify DEVTYP as follows:</p> <ul style="list-style-type: none">• A complete 4 digit device type (for example, 3390)• A partial masked 4-digit device type.• The mask character is an asterisk (*). An asterisk is specified for each wildcard character (for example, 33** would match all device types starting with 33)
Determining the Device Type	The device type of any given device is determined by using the SENSE ID channel command. Some devices may not support SENSE ID, some may return a device type other than expected.

Device Selection

Device Selection Screen

The Device Selection Screen provides information on all device types:

```

DEVICE LIST ----- ROW      1 OF 641
COMMAND ==> _          SCROLL ==> PAGE
  DEVICE CNTRL  CODE  UNIT  SUBC  CHPID          ADDITIONAL INFORMATION
  3380  3880  1E33  031D  0012  03 04 1A 1C          VOL=SYSRES
  3380  3880  1E33  031E  0013  03 04 1A 1C          VOL=OLDRES
  3490  3490  0402  0400  0062  05 06
  3490  3490  0402  0401  0063  05 06
  3490  3490  0402  0402  0064  05 06
  3490  3490  0402  0403  0065  05 06
  3390  3990  0ACC  0440  0034  07 08 1D 1E          LABEL=CMS
  3390  3990  0ACC  0441  0035  07 08 1D 1E          LABEL=CMS
  3390  3990  0ACC  0442  0036  07 08 1D 1E          LABEL=CMS
  3390  3990  0ACC  0443  0037  07 08 1D 1E          LABEL=CMS
  0000  0000  0000  0500  0022  09 0A          SENSE-ID FAILED
  3390  3990  0ACC  0600  0040  0B 0C 1B 1C          VOL=CICS01
  3390  3990  0ACC  0601  0041  0B 0C 1B 1C          VOL=TSO001
  3390  3990  0ACC  0602  0042  0B 0C 1B 1C          VOL=WORK01
  3390  3990  0ACC  0603  0043  0B 0C 1B 1C          VOL=TSO002
  3390  3990  0ACC  0604  0044  0B 0C 1B 1C          VOL=CICS03
  3390  3990  0ACC  0605  0045  0B 0C 1B 1C          VOL=CICS02
  3390  3990  0ACC  0606  0046  0B 0C 1B 1C          VOL=WORK04
  3390  3990  0ACC  0607  0047  0B 0C 1B 1C          VOL=TSO003
  3390  3990  0ACC  0608  0048  0B 0C 1B 1C          VOL=CICS05

```

Parameter Descriptions

The information shown for each device on the Device Selection list is as follows:

Parameter	Description
DEVICE	Device Type
CNTRL	Controller Type
CODE	Device Type code followed by Controller type code
UNIT	Unit Address
SUBC	Sub-channel number
CHPID	Channel Path IDs - Installed, available and operational are shown preceding a '/'. Installed but not available and/or not operational follow the '/'

Additional Label Information

If SAE can read the volume label of a DASD unit, the following information also displays:

LABEL=

VOL=

Continued on next page

Device Selection, Continued

**SENSE ID
Channel
Command**

SAE uses the SENSE ID channel command to determine any given device's device type.

However, some devices may not support SENSE ID, and others may return an unexpected device type.

Sorting a Device List

Changing the Sort Order

Use the following commands to change the list's sort order:

Command	Description
SORTDEV	Sort list by Device Type
SORTUNIT	Sort list by Unit address

Locating a Device

Finding Devices SAE provides multiple ways of scrolling up or down the Device Selection List. SAE also supports a Locate “**L**” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Device Selection List use PFkeys 7 and 19, to scroll down the Device Selection List use PFkeys 8 and 20.

If you specify “**M**” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Device Selection List.

Locating a Device

To find a specific device:

Step	Action
1.	Type “ L ” (for Locate) on the command line with a device number following.
2.	Press Enter. <u>Result:</u>

Printing a Device List

How to Print	To print the Device Selection List contents, enter PRINT on the Command Line.
---------------------	---

Printer Address Not Defined	If you have not defined the printer's address, a prompt appears that allows you to define the printer.
------------------------------------	--

Invoking Services

Invoking Specific Services To invoke specific Services, you can use a Line Selection character to issue a command or select a device.

Command Line Use the following command to invoke Services via the command line:

Command	Description
VTQUICK	Performs Volume Initialization for all DASD volumes in the current Device Selection List. VTQUICK works as if the 'V' line selection was made for each DASD device. Use Unit Selection to limit the list to only DASD devices you want to initialize, then use VTQUICK.

Line Selection To invoke specific Services, a volume is selected using a specific line selection character that represents the service.

The selection characters for Services are:

Character	Description
S	Select DASD device for Dataset Services (see page 16-157).
	Select Tape device for Restore Tape Scan (see page 25-297).
I	Select DASD device for Volume Information (see page 15-143).
M	Select DASD device for Volume Map (see page 15-147).
V	Select DASD device for Volume Initialization (see page 15-144). Unlike, Action Services, you may use 'V' from the Hardware Confirmation Selection Screen to select a volume for initialization that does not contain a valid volume label. Unlabelled volumes do not appear on the Action Services Volume Selection Screen.

Processing a Device With a Service

To process a device with a Service:

Step	Action
1.	Move your cursor in front of the volume you want to select
2.	Type the selection character from the above list

Part VII: Inspect Services

Overview

Introduction The Inspect Services part of this document describes the two separate Inspect Services functions (Inspect and Blueprint Comparison) you can use to identify and correct z/OS system problems.

Inspect You can use Inspect to isolate a z/OS system's critical components and provide easy access to those components using SAE's Action Service.

Blueprint Comparison Blueprint Comparison uses "Blueprints" produced by NewEra's IMAGE Focus product, to provide detection and identification of changes made to system parameters.

Image Services Application Selection Screen

```
IMAGE SERVICES -----  
OPTION ==>  
  
1  INSPECT      -  INSPECT CURRENT SYSTEM PARAMETERS  
2  BLUEPRINT    -  COMPARE CURRENT SYSTEM PARAMETERS AGAINST SAVED BLUEPRINTS
```

In This Part This part contains the following chapters:

Chapter	See Page
Inspect	21-257
Blueprint Comparison Overview	22-270

Chapter 21: Inspect

Overview

Introduction

It is common for z/OS installations to maintain several Systems. Often these Systems and Images exist across shared DASD, and may actually use shared parmlib datasets. Their maintenance, as well as their repair and restoration during a z/OS system outage, has become increasing complex.

Inspect

In a repair and recovery situation, difficulties often arise during the problem analysis phase. Frequently, identically named datasets and identically named members, with different contents, have been used to define various system images.

In the case of z/OS systems, parameters may be contained in several concatenated parmlib datasets and controlled by filtering parameters in a single LOADxx member. During an outage, the systems programmer is faced with a complex task of determining which datasets and members a z/OS image is using. If the wrong member is edited, time is lost in the recovery and the repair is complicated by a newly introduced error.

In addition, the Load Parm member will reference any number of additional resource members. Therefore the complexity of the repair and restoration process is apparent.

In This Part

This part contains the following chapters:

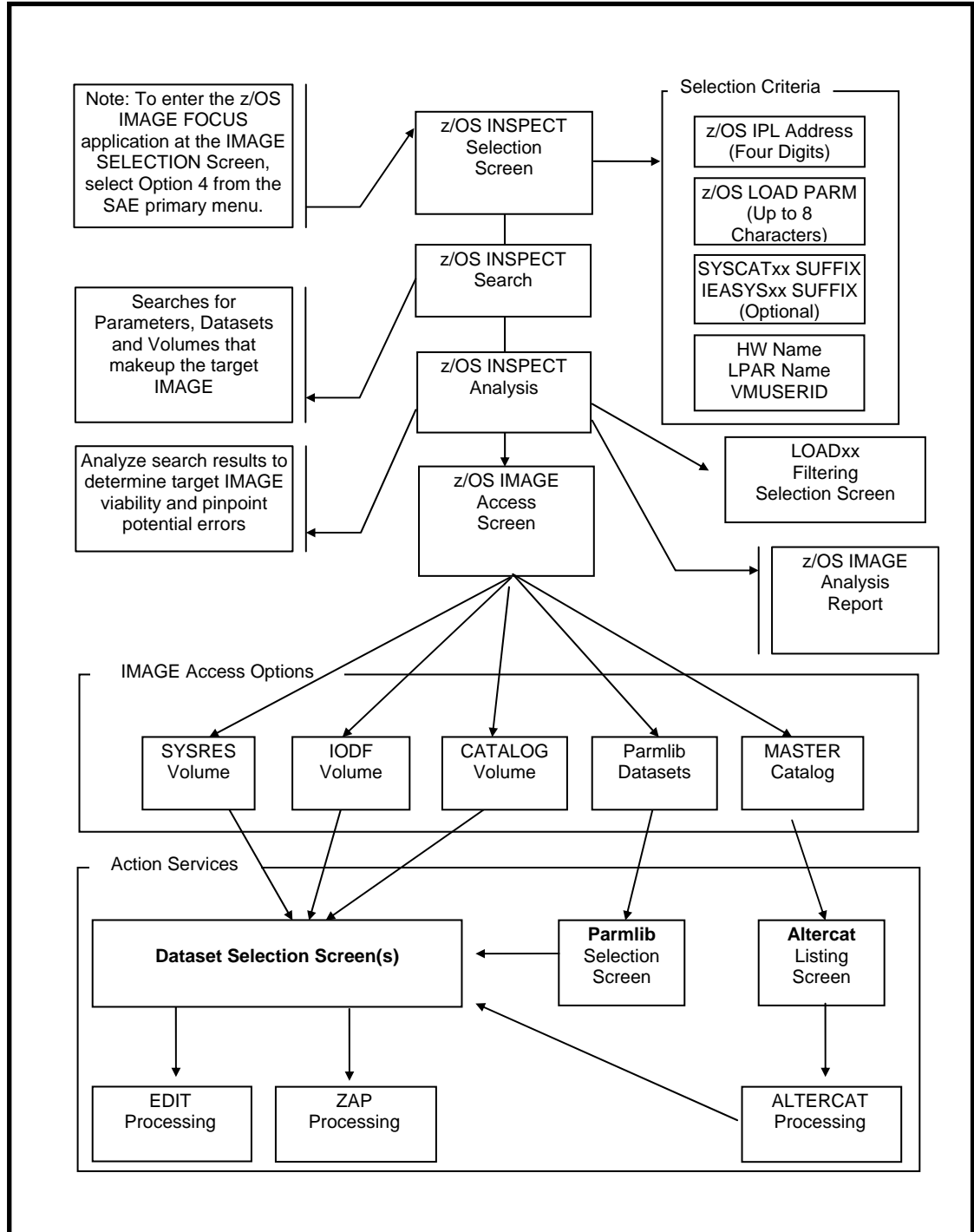
Chapter	See Page
Inspect	21-258
Inspect Overview	21-259
Inspect Functions	21-260
Using Inspect	21-261
LOADxx Filtering	21-263
Analysis	21-264
z/OS IMAGE Access	21-267

Inspect

Introduction	SAE helps to resolve image complexity with Inspect. This integrated application is built on the SAE Stand Alone Environment and uses SAE Application functionality
Accesses All DASD Devices	The SAE Environment affords Inspect the ability to access all attached DASD devices and search these devices for a particular dataset.
Display Selection List	SAE Applications afford Inspect the ability to display selection list (for example, the Dataset Selection List) and assemble the Action Services needed for specific repairs.

Inspect Overview

Inspect Diagram The following diagram is an overview of how Inspect functions and interfaces with SAE ACTION SERVICES.



Inspect Functions

Overview

The following table lists the Inspect Functions and their descriptions:

Function	Description
Selection	SAE selects the targeted z/OS Image using <i>ONLY</i> the parameters that would be used to IPL the actual z/OS system.
Search	SAE performs a search, based on the provided z/OS IPL and Load Parm values, to determine which libraries, members and parameters would be used to IPL the system.
Analysis	As search results are obtained, SAE runs an analysis to determine the integrity of the parameters, datasets and volumes that make up the targeted z/OS Image. SAE then generates a detailed report of each step in this analysis.
Access	SAE provides focused access to the volumes and datasets that comprise the targeted z/OS Image. When you need to change or repair a z/OS system, Image eliminates the need for guesswork with focused access to the datasets for the failing image only.

Using Inspect

Image Selection Screen

```
z/OS IMAGE SELECTION-----  
  
THIS FUNCTION WILL INSPECT THE PROCESS OF A z/OS IPL BY  
DETERMINING WHICH LIBRARIES, MEMBERS AND PARAMETERS WILL BE  
USED FOR A GIVEN IPL ADDRESS AND LOAD PARAMETER. AFTER THE  
ANALYSIS, YOU MAY ACCESS DATASETS FOR THE IDENTIFIED z/OS IMAGE  
  
z/OS IPL ADDRESS ==> (FOUR DIGITS)  
z/OS LOAD PARM ==> (UP TO EIGHT CHARACTERS)  
SYSCATxx SUFFIX ==> (IEA347A SPECIFY MASTER CATALOG PARAMETER)  
IEASYSxx SUFFIX ==> (IEA101A SPECIFY SYSTEM PARAMETERS)  
HARDWARE NAME ==>  
LPAR NAME ==>  
VMUSERID ==>  
  
SYSCATXX/IEASYSXX SUFFIX VALUES WILL ONLY BE USED AS REQUIRED
```

How to Use the Image Selection Screen

Use the Image Selection Screen to supply the z/OS IPL address and z/OS Load Parm values of the z/OS image you wish to target.

The values you provide should be the same z/OS IPL address and z/OS Load Parm values that you would use if you were actually IPLing the target z/OS System.

If Filtering is Implemented

If LOADxx/IEASYMxx filtering is implemented, you must also supply these as required:

- the Hardware Name
- LPAR name
- VM User ID

that is present for the system when actually IPLing the target z/OS. Inspect uses these values to determine which volumes, datasets and parameters it will use during its search and analysis.

Continued on next page

Using Inspect, Continued

z/OS Image Selection Input Fields

The z/OS Image Selection is made by entering values (as you would normally do so when IPLing z/OS) for the following fields.

Name	Description
z/OS IPL ADDRESS	The four-digit device address of the z/OS IPL device.
z/OS LOAD PARM	The one- to eight-character Load Parm value. When the z/OS Image Selection Screen first displays (at the beginning of each new session), the z/OS Load Parm of the processor on which SAE is IPLed displays as the default value for this field.
SYSCATxx SUFFIX	If you configure the z/OS System to prompt for the Master Catalog Parameter, enter the value that is normally specified as the SYSCATxx SUFFIX. If you configure the z/OS system not to prompt for Master Catalog Parameter, this field is ignored.
IEASYSxx SUFFIX	If you configure the z/OS System to prompt for System Parameters, enter the value normally specified as the IEASYSxx SUFFIX. If you configure the z/OS system not to prompt for System Parameters, this field is ignored.
HARDWARE NAME	The one to eight-character Hardware Name. If the LOADxx and IEASYMxx members use filtering based on the Hardware Name (HWNAME), you must specify the Hardware Name of the system on which the z/OS system is normally IPLed.
LPAR NAME	The one to eight-character LPAR Name. If the LOADxx and IEASYMxx members use filtering based on the LPAR Name (LPARNAME), you must specify the name of the LPAR on which the z/OS system is normally IPLed.
VMUSERID	The one to eight-character VM Userid. If the LOADxx and IEASYMxx members use filtering based on the VM Userid (VMUSERID), you must specify the VM Userid under which the z/OS system is normally IPLed.

Image Selection Complete

When you finish entering the Image selection information, press Enter.

Image immediately begins its search and analysis. The Image Selection Screen updates with a message indicating the processing analysis step being performed.

LOADxx Filtering

New LOADxx Keywords to Control Initialization

Several new LOADxx keywords were introduced in z/OS V1.2 (MVS SP6.0.2). These keywords allowed for the filtering of LOADxx statements based on:

- Hardware name
- LPAR name
- VM Userid

Using these new parameters (HWNAME, LPARNAME & VMUSERID) a single LOADxx member can control the initialization of several different images with customization for each image based on the environment in which the IPL is taking place.

Analyzing Images

With Inspect you can analyze any image independent of the environment in which SAE is operating.

Specify the values for HWNAME, LPARNAME and/or VMUSERID on the Image Selection Screen, and SAE performs the Inspect independent of the real Hardware name, LPAR name and/or VM Userid on which SAE is running.

Filtering Keywords

When filtering keywords are present, the Inspect Report shows the member contents before and after filtering.

Analysis

Inspect Analysis Report

After selecting the targeted image, Inspect searches for and analyzes the parameters, datasets and volumes that make up that z/OS image.

Once the search and analysis are complete, the Inspect Analysis Report displays. The Report shows how the system components were identified and if any errors were encountered.

Report Uses

You can use the Report to:

- Determine what parameters, datasets and volumes the z/OS Image uses.
 - Determine the nature of any errors that may have been found
-

Scrolling or Printing the Report

Use PF7 or PF8 to scroll the full report.

To print the report, enter PRINT on the Command Line. If you have not defined a default printer, the Printer Specification displays.

After completing your review, use PF3 to continue.

Continued on next page

Sample z/OS
Inspect Report

```
BROWSE - IMAGE.ANALYSIS.REPORT USING SAE ----- COLUMNS 001 072
COMMAND ==>                                SCROLL ==> PAGE
*****
000001 IPL ADDRESS: 0A80 VOLSER: OS39R8
000002 HWNAME: SYS1 LPARNAME: LPAR1 VMUSERID:
000003
000004 INSPECTING IPL TEXT
000005 IPL TEXT VALIDATED AS IEA IPL00 08/05/99 UW61972
000006
000007 DETERMINING z/OS LEVEL
000008 SYS1.NUCLEUS CONTAINS THE FOLLOWING NUCLEUS MEMBERS:
000009 IEANUC01
000010 IEANUC06
000011 z/OS SOFTWARE LEVEL IS SP6.0.8 HBB6608 IBM CORP OS/390
000012
000013 SUPPLIED LOAD PARM VALUE IS 0A8212
000014 IODF ADDRESS SPECIFICATION IS: 0A82
000015 LOADXX SUFFIX SPECIFICATION IS: 12
000016 MESSAGE PROCESSING SPECIFICATION IS:
000017 IEANUCOX SUFFIX SPECIFICATION IS:
000018
000019 SEARCHING FOR LOAD12 MEMBER
000020 IODF ADDRESS: 0A82 VOLSER: OS39M1
000021 VOLUME OS39M1 CONTAINS PARMLIB DATASET: SYS1.IPLPARM
000022 LOAD12 MEMBER CONTENTS ARE AS FOLLOWS:
000023 ***** TOP OF MEMBER *****
000024 HWNAME SYS1
000025 LPARNAME LPAR1
000026 IODF 02 SYS1
000027 SYSCAT OS39M1113CCATALOG.OS390.MASTER
000028 SYSPARM 00
000029 IEASYM 00
000030 INITSQA 0000K 0500K
000031 PARMLIB SDSCMC.$PARMLIB SDCS01
000032 PARMLIB SDSCMC.PARMLIB SDCS01
000033 PARMLIB SYS1.ADCD08.PARMLIB OS39R8
000034 PARMLIB SYS1.PARMLIB OS39M1
000035 NUCLEUS 1
000036 LPARNAME LPAR2
000037 IODF 02 SYS3
000038 SYSCAT OS39M1113CCATALOG.OS390.MASTER
000039 SYSPARM 03
000040 IEASYM 03
000041 INITSQA 0000K 0500K
000042 PARMLIB SYS1.ADCD08.PARMLIB OS39R8
000043 PARMLIB SYS1.PARMLIB OS39M1
000044 NUCLEUS 1
000045 ***** BOTTOM OF MEMBER *****
000046
000047 PROCESSING FILTERS IN LOAD12 MEMBER
000048 IMAGE ANALYSIS FOR HWNAME: SYS1
000049 IMAGE ANALYSIS FOR LPARNAME: LPAR1
000050 IMAGE ANALYSIS FOR VMUSERID:
000051 LOAD12 MEMBER CONTENTS AFTER FILTERING ARE:
000052 ***** TOP OF MEMBER *****
000053 HWNAME SYS1
000054 LPARNAME LPAR1
000055 IODF 02 SYS1
000056 SYSCAT OS39M1113CCATALOG.OS390.MASTER
000057 SYSPARM 00
000058 IEASYM 00
000059 INITSQA 0000K 0500K
000060 PARMLIB SDSCMC.$PARMLIB SDCS01
000061 PARMLIB SDSCMC.PARMLIB SDCS01
000062 PARMLIB SYS1.ADCD08.PARMLIB OS39R8
000063 PARMLIB SYS1.PARMLIB OS39M1
000064 NUCLEUS 1
000065 ***** BOTTOM OF MEMBER *****
```

Continued on next page

Analysis, Continued

Sample z/OS Inspect Report

```
000066
000067 VALIDATING LOAD12 MEMBER KEYWORDS
000068
000069 DETERMINING IODF DATASET
000070 z/OS WOULD OPEN IODF: SYS1.IODF02
000071
000072 DETERMINING NUCLEUS MEMBER SELECTION
000073 NUCLEUS MEMBER IEANUC01 SELECTED
000074
000075 DETERMINING MASTER CATALOG NAME/VOLSER
000076 MASTER CATALOG DETERMINED BY LOAD12 SYSCAT STATEMENT
000077 MASTER CATALOG VOLSER=OS39M1 DSN=CATALOG.OS390.MASTER
000078
000079 OPENING MASTER CATALOG
000080 PARMLIB CATALOGED ON OS39M1, DSN=SYS1.PARMLIB
000081
000082 OPENING PARMLIB DATASET(S)
000083 VOL=SDCS01 DSN=SDCSMC.$PARMLIB
000084 OPEN SUCCESSFUL ON SDCS01 AT UNIT 0A90
000085 VOL=SDCS01 DSN=SDCSMC.PARMLIB
000086 OPEN SUCCESSFUL ON SDCS01 AT UNIT F0C1
000087 VOL=OS39R8 DSN=SYS1.ADCD08.PARMLIB
000088 OPEN SUCCESSFUL ON OS39R8 AT UNIT 0A80
000089 VOL=OS39M1 DSN=SYS1.PARMLIB
000090 OPEN SUCCESSFUL ON OS39M1 AT UNIT 0A82
000091 VOL=OS39M1 DSN=SYS1.PARMLIB
000092 OPEN SUCCESSFUL ON OS39M1 AT UNIT 0A82
000093
000094 PARMLIB DATASET(S) TO BE USED ARE:
000095 SDCSMC.$PARMLIB SDCS01 0A90
000096 SDCSMC.PARMLIB SDCS01 0A90
000097 SYS1.ADCD08.PARMLIB OS39R8 0A80
000098 SYS1.PARMLIB OS39M1 0A82
000099 SYS1.PARMLIB OS39M1 0A82
000100
000101 MEMBER IEASYM00 FOUND IN DSN=SYS1.ADCD08.PARMLIB
000102 IEASYM00 MEMBER CONTENTS ARE AS FOLLOWS:
000103 ***** TOP OF MEMBER *****
000104 SYSDEF
000105 SYMDEF(&SYSR2.='OS3R8A')
000106 ***** BOTTOM OF MEMBER *****
000107
000108
000109 ALL IEASYM MEMBER CONTENTS AFTER FILTERING ARE:
000110 ***** TOP OF MEMBER *****
000111 SYSDEF
000112 SYMDEF(&SYSR2.='OS3R8A')
000113 ***** BOTTOM OF MEMBER *****
000114 STATIC SYSTEM SYMBOL LISTING
000115 &SYSR1. = "OS39R8"
000116 &SYSALVL. = "1"
000117 &SYSPLX. = "LOCAL"
000118
000119 MEMBER IEASYS00 FOUND IN DSN=SDCSMC.$PARMLIB
000120 SYSTEM NAME=S390
000121
000122 SYSTEM IMAGE COMPONENTS SUCCESSFULLY IDENTIFIED
```

z/OS IMAGE Access

Component Names Display

After SAE identifies the components that comprise a given z/OS Image, the component names display on the five options available from the z/OS IMAGE Access Screen.

In this way, you have direct access to the following:

- The System Resident volume
- The IODF volume
- The Master Catalog volume
- The Parmlib Dataset(s)
- The Master Catalog

z/OS IMAGE Access Screen

```
z/OS IMAGE ACCESS -----  
  
      SELECT OPTION ===>  
  
      1  SYSRES  - ACCESS SYSTEM RES VOLUME (MVS5R/0120)  
      2  IODF   - ACCESS IODF VOLUME (SCPMV5/0122)  
      3  CATALOG - ACCESS CATALOG VOLUME (SCPMV5/0122)  
      4  PARMLIB - ACCESS PARMLIB DATASET(S)  
      5  DATASETS - ACCESS DATASETS CATALOGED IN MASTER CATALOG:  
                    MVS5.MASTER.CATALOG  
  
      LOAD00 MEMBER FOUND ON SCPMV5 IN SYS1.IPLPARM
```

Options 1, 2, or 3 Display the Dataset Selection List

Select Options 1, 2, or 3 to display the Dataset Selection List for the specific volume. You can then perform all normal SAE Action Services against datasets on that volume (See Dataset Services on page 16-157).

Option 4: Enter the Parmlib Selection List

Select Option 4 to enter the Parmlib Selection List, where you can select a parmlib dataset. Once a parmlib dataset is selected, the Dataset Selection List displays for the volume containing that parmlib. The Parmlib Selection List does not display if the list contains a single parmlib dataset. In that case, selecting option 4 moves you directly to the Dataset Selection List.

From the Dataset Selection List you can perform all normal SAE ACTION Services against the parmlib dataset (See Dataset Services on page 16-157).

Note: Parmlib datasets are defined by LOADxx PARMLIB keywords and SYS1.PARMLIB.

Option 5: Enter the Altercat Processing

Select Option 5 to enter Altercat processing for the Master Catalog (See Catalog Services on page 20-207). Once you are in the Altercat list, you can select Non-VSAM datasets using line selection 'S'. SAE searches and locates the volume on which the dataset is cataloged, and displays the Dataset Selection List for the volume with the list positioned at the selected dataset. You can then perform all normal SAE Action Services against that dataset or other datasets on that volume.

Chapter 22: Blueprint Comparison

Overview

Introduction This chapter describe SAE's Blueprint Comparison feature.

In This Part This chapter contains the following topic:

Topic	See Page
Blueprint Comparison Overview	22-270

Blueprint Comparison Overview

Creating Blueprints

NewEra's z/OS based IMAGE Focus product collects the contents of each member as it is processed during an Image Inspection. The result of this collection process is called a "Blueprint". These Blueprints are automatically cataloged and stored for future use as "Blueprint Files" and may be browsed, compared, or processed by IMAGE Focus product Applications.

How Blueprints Work

The "Blueprints" created by the IMAGE Focus product contain all of the system parameters used by a z/OS system during an IPL. Each "Blueprint" is a snapshot at a specific time and date of all of the IPL parameters used by a z/OS system. SAE's Blueprint Comparison application compares the contents of the current system parameter libraries with those contained within a "Blueprint" created by the IMAGE Focus product. This comparison results in the identification of any changes that may have occurred and are perhaps the cause of system IPL problems.

Blueprint Index

The IMAGE Focus product maintains an index for accessing "Blueprints". The index is a PDS (Partitioned Dataset) and has one member for each unique image name. Each member contains a record that describes the name and location of a Blueprint PDS.

Blueprint Name

The Blueprint PDS contains one member for each collection of system parameters collected or "Blueprint". Blueprints are stored using a member name of Dmmddy, where mmddy is the date in month/day/year format. (Note that later releases of Image Focus may also use member names in the form Emmddy and Fmmddy).

Specifying Blueprint Index Dataset Information

For SAE to perform the Blueprint Comparison function, it must be told the name and location of the Blueprint index dataset. The name and location of the Blueprint index dataset may be specified on the Blueprint Comparison screen or pre-defined using the DLIB@OPT utility and the INDEX_DSN= keyword (see page 5-33 for more information on DLIB@OPT).

Locating the Dataset

If you must enter the Blueprint index dataset name at run time and know the name of the dataset but not its location (Volser), you may use Action Services and specify the dataset name on the Unit Selection screen in order to have the dataset located (see page 15-132 for more information).

Continued on next page

Blueprint Comparison Overview, Continued

Blueprint Comparison Screen

```
BLUEPRINT COMPARISON -----
BLUEPRINT COMPARISON WILL COMPARE THE CONTENTS OF THE CURRENT SYSTEM PARAMETER
LIBRARIES WITH THOSE THAT WERE PREVIOUSLY USED/SAVED.

IN ORDER TO PERFORM THE BLUEPRINT COMPARISON, IMAGE BLUEPRINTS MUST HAVE BEEN
PREVIOUSLY CREATED BY IMAGE FOCUS RUNNING ON z/OS. FURTHERMORE, THE NAME
AND LOCATION OF THE IMAGE BLUEPRINT INDEX DATASET MUST HAVE BEEN DEFINED
DURING INSTALLATION OR BE SUPPLIED.

IMAGE BLUEPRINT INDEX DATASET ==> IMAGEFOC.BLUEPRINT.INDEX
VOLSER ==> STR001

USING THE SELECTION LISTS THAT FOLLOW, SELECT THE SYSTEM IMAGE BY NAME AND
THEN SELECT THE DATE OF THE IMAGE BLUEPRINT FOR WHICH TO PERFORM THE COMPARE.
```

Definition

The Blueprint Comparison Screen defines or confirms the dataset name of the IMAGE Focus created Blueprint Index dataset and the Volser on which it resides.

Blueprint Comparison Image Selection Screen

```
SELECT - IMAGEFOC.BLUEPRINT.INDEX USING SAE ----- ROW 1 OF 4
COMMAND ==> SCROLL ==> PAGE
NAME          VV.MM  CREATED    CHANGED    SIZE  INIT  MOD  ID
PROD
SYSA
SYSB
TESTSYS
**END**
```

Selecting an Image for Image Comparison

Once you locate and open the IMAGE Focus-created Blueprint Index dataset, Blueprint Comparison displays the Blueprint Comparison Image Selection Screen. Using this screen

- Move the cursor in front of the member
- Press 'S' to select the Image on which to perform the Image Comparison

Blueprint Comparison Selection Screen

```
SELECT - IMAGEFOC.BLUEPRINT.PROD USING SAE ----- ROW 1 OF 8
COMMAND ==> SCROLL ==> PAGE
MMDDYY          VV.MM  CREATED    CHANGED    SIZE  INIT  MOD  ID
D000000
D010101
D052300
D060100
D060200
D060300
D062100
D070500
**END**
```

Blueprint Comparison Extracts Information

After you select an Image, Blueprint Comparison extracts the name and location of the Blueprint dataset for the Image from the Blueprint Index dataset.

The Blueprint dataset contains members that are named using the form Dmmddy. (Note that later releases of Image Focus may also use member names in the form Emmddy and Fmmddy). These members contain all of the system parameters on the identified date for the Image.

Continued on next page

Blueprint Comparison Overview, Continued

Procedure

Enter 'S' to select the date for which the Blueprint Comparison is to be performed.

Blueprint Comparison Confirmation Selection Screen

```
BLUEPRINT COMPARISON CONFIRMATION -----
BLUEPRINT COMPARISON WILL NOW COMPARE THE CONTENTS OF THE CURRENT SYSTEM'S
PARAMETER LIBRARIES WITH THOSE IN USE ON 07/05/00 WITH IPL PARAMETERS:

IMAGE NAME:          PROD
IPL ADDRESS:         0A80
LOAD PARM:           0A8200..
SYSCATxx SUFFIX:
IEASYSxx SUFFIX:
HWNNAME:
LPARNAME:
VMUSERID:

IF IPL PARAMETERS ARE BEING USED THAT ARE DIFFERENT THEN THOSE ABOVE, THEY
MAY BE THE CAUSE OF DIFFERENCES THAT THIS COMPARISON WILL NOT DETECT.

PRESS ENTER TO BEGIN THE COMPARISON
```

Performing the Comparison

The Blueprint Comparison Confirmation Screen displays the IPL parameters that were being used for the selected Image on the selected date.

Compare the value of these IPL parameters to the values being used to currently IPL the Image. If differences exist, this may be the cause of differences between the current system and the system IPLed previously. If the IPL parameters have not changed, proceed with the comparison to determine if other differences exist.

Continued on next page

Blueprint Comparison Overview, Continued

Blueprint Comparison Report

```

BROWSE - IMAGE.COMPARISON.REPORT USING SAE ----- COLUMNS 001 072
COMMAND ==>                                     SCROLL ==> PAGE
***** ***** TOP OF DATA *****
000001 BLUEPRINT COMPARISON OF THE CONTENTS OF THE CURRENT SYSTEM'S PARAMETER
000002 LIBRARIES WITH THOSE IN USE ON 07/05/00 WITH IPL PARAMETERS:
000003
000004 IMAGE NAME:          PROD
000005 IPL ADDRESS:         0A80
000006 LOAD PARM:          0A8200..
000007 SYSCATxx SUFFIX:
000008 IEASYSxx SUFFIX:
000009 HWNAME:
000010 LPARNAME:
000011 VMUSERID:
000012
000013 ***** MEMBER COMPARISON SUMMARY REPORT *****
000014
000015 MEMBER          STATUS          VOLSER  DATASET
000016 -----
000017 LOAD00           SAME            OS39M1  SYS1.IPLPARM
000018 IEASYM00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000019 IEASYS00        SAME            SDCS01  SDCSMC.PARMLIB
000020 IEASVC00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000021 PROG00        SAME            SDCS01  SDCSMC.PARMLIB
000022 IEAFIX00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000023 IEALPA00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000024 IEAPAK00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000025 LPALST00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000026 DIAG00         SAME            OS39R8  SYS1.ADCD08.PARMLIB
000027 IEAABD00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000028 IEADMP00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000029 IEADMR00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000030 CLOCK00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000031 COUPLE00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000032 GRSCNF00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000033 IGDSMS00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000034 IFAPRD00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000035 CONSOL00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000036 IEFSSN02        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000037 IEFSSN00        SAME            SDCS01  SDCSMC.PARMLIB
000038 MSTJCL00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000039 IEACMD00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000040 COMMND00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000041 SCHED00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000042 VATLST00        SAME            SDCS01  SDCSMC.PARMLIB
000043 BPXPRM00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000044 IKJTSO00        SAME            SDCS01  SDCSMC.PARMLIB
000045 SMFPRM00        SAME            SDCS01  SDCSMC.PARMLIB
000046 IEAAP00         SAME            OS39R8  SYS1.ADCD08.PARMLIB
000047 IEAOPT00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000048 IEAICS00        SAME            OS39R8  SYS1.ADCD08.PARMLIB
000049 IEAIPS00        SAME            OS39R8  SYS1.ADCD08.PARMLIB

```

Continued on next page

Blueprint Comparison Overview, Continued

Blueprint Comparison Report Summary

Once the Image Comparison process has compared all of the system parameters from the selected date with those found in the current system parameter libraries, the Blueprint Comparison Report displays. A summary section lists all of the members compared and the status of the compare. Possible compare status values are:

Status	Description
SAME	Current and saved members are the same
DIFFERENT	Current and saved members are different
ERROR	Current member could not be processed

DIFFERENT or ERROR Status

If a compare has a status of DIFFERENT or ERROR, a more detailed section of the report provides additional information. Below are examples of members with a status of ERROR and DIFFERENT.

Blueprint Comparison Report with Errors

```

BROWSE - IMAGE.COMPARISON.REPORT USING SAE ----- COLUMNS 001 072
COMMAND ==>                                     SCROLL ==> PAGE
***** TOP OF DATA *****
000051 ***** MEMBER DIFFERENCE DETAILED REPORT *****
000052
000053 MEMBER=LOAD99 VOL=OS39M1 DSN=SYS1.IPLPARM
000054 ERROR=MEMBER NOT FOUND IN DATASET
000055
000056 MEMBER=IEASYM00 VOL=OS39R8 DSN=SYS9.ADCD08.PARMLIB
000057 ERROR=DATASET NOT FOUND ON VOLUME
000058
000059 MEMBER=IEASYS00 VOL=OLDRES DSN=SDCSMC.PARMLIB
000060 ERROR=VOLUME MOUNT FAILED
000061
000062 MEMBER=PROG00 VOL=SDCS01 DSN=SDCSMC.PARMLIB
000063 ID SOURCE LINES
000064 ---+---1---+---2---+---3---+---4---+---5---+---6---+---
000065
000066 I - DSNAME(CPAC.LINKLIB) VOLUME(OS39
000067 D - DSNAME(CPAC.LINKLIB.NEW) VOLUME(OS39
000068
000069 D - DSNAME(xPAC.LINKLIB) VOLUME(OS39
000070 D - APF ADD
000071

```

If There is an Error

If ERROR or DIFFERENT status appears, this screen displays information indicating how today's IPLed Image differs from the IPLed Image on the selected date. Further examination of the system parameters and the effect of the differences or errors should be performed.

Caution

SAE's Blueprint Comparison function only compares the system parameters previously used to the system parameters found in the same datasets under the same member names. One difference may invalidate other differences.

Part VIII: Restore Services

Overview

Introduction This part discusses SAE's Restore Services in detail.

In This Part This part contains the following chapters:

Chapter	See Page
Restore Services	23-277
IEB Restore	24-279
Tape Scan	25-297
DFSMSdss (DF/DSS) Restore	26-301
FDR/DSF Restore	27-305
DSS or FDR Restore	28-309
Performing a Volume Copy	29-337
Performing a Volume Compare	30-341

Chapter 23: Restore Services

Overview

SAE's Restore Services are a comprehensive collection of tools that allow a stand alone restore of a dataset or an entire volume.

This type of restore is a departure from other stand alone restore products which provide for the stand alone restore of a full volume (or selected absolute tracks) only. In many recovery situations, restoring a complete DASD volume is not required and may also regress other changes that would further complicate the recovery process.

SAE's ability to restore a single dataset, combined with its ability to allocate and copy datasets, provides a much more flexible restore capability.

Also, SAE's support of restore from DFSMSdss (DF/DSS) or FDR volume dumps means that you can use SAE's restore capabilities without having to change or add to your existing backup processes.

Dataset Restore From Three Backup Sources

Restore Services provide for a stand alone dataset restore from three backup sources:

- IEBCOPY or IEBGENER unloaded dataset tapes.
 - DFSMSdss (DF/DSS) Full volume or Dataset dump tapes.
 - FDR Full volume or DSF Dataset dump tapes.
-

Full Volume Restore From Two Backup Sources

Restore Services provide for a stand alone full volume restore from two backup sources:

- DFSMSdss (DF/DSS) Full volume tapes.
 - FDR Full volume dump tapes.
-

FDR and DFSMSdss

SAE does not use FDR or DFSMSdss in processing tapes created by those products. The file format of FDR and DFSMSdss tapes vary and may change from release to release. SAE may not support all current FDR or DFSMSdss formats, nor future formats of FDR or DFSMSdss releases.

Tape Scan and Full Volume Disk-to-Disk Compare and Copy Utilities

In addition to restore options, Restore Services provides a tape scan utility and full volume disk-to-disk compare and copy utility.

- You can use the tape scan utility to identify tape contents and volume sequence numbers.
 - You can use the full volume compare utility to determine if differences exist between two volumes. You can also use the full volume copy utility to create mirror images of a DASD volume.
-

Continued on next page

Blueprint Comparison Overview, Continued

Navigation

Use the Restore Selection Screen to invoke a specific restore service.

Select option 5 from the SAE primary menu. The Restore Services Selection Screen appears.

Restore Services Selection Screen

```
SAE RESTORE SERVICES -----
OPTION ===>

1  IEB RESTORE      - SAE RESTORE USING IEBCOPY/IEBGENER TAPE BACKUPS
2  TAPE SCAN SHORT - SCAN TAPE TO FIRST FILE
3  TAPE SCAN FULL  - SCAN ENTIRE TAPE

4  DFSMSdss INSPECT - LIST DATASETS IN A DSS DUMP BACKUP
5  DFSMSdss DATASET - RESTORE A DATASET FROM A DSS DUMP BACKUP
6  DFSMSdss VOLUME  - RESTORE A VOLUME FROM A DSS DUMP BACKUP

7  FDR INSPECT     - LIST DATASETS IN A FDR DUMP BACKUP
8  FDR DATASET     - RESTORE A DATASET FROM A FDR DUMP BACKUP
9  FDR VOLUME      - RESTORE A VOLUME FROM A FDR DUMP BACKUP

10 VOLUME COPY     - COPY ONE DASD VOLUME TO ANOTHER
11 VOLUME COMPARE  - COMPARE ONE DASD VOLUME TO ANOTHER
NOTE: DFSMSdss IS A COPYRIGHTED PRODUCT OF IBM CORP. FDR IS A COPYRIGHTED
      PRODUCT OF INNOVATION DATA PROCESSING. SAE DOES NOT USE THESE PRODUCTS
      IN PROCESSING TAPES CREATED BY THEM.
```

Chapter 24: IEB Restore

Overview

Introduction This chapter discusses SAE's IEB Restore in detail.

In This Part This chapter contains the following topics:

Topic	See Page
IEB Restore Overview	24-280
Restoring Datasets with IEB Restore	24-284
IEB Restore Dataset Restrictions	24-285
IEB Restore Target Dataset Selection	24-286
IEB Restore Using the Backup Master from Tape	24-287
IEB Restore Backup Master Selection	24-289
IEB Restore Backup Master Selection Commands	24-291
IEB Restore Backup Tape Mount	24-292
IEB Restore Advanced Processing	24-296

IEB Restore Overview

Restore Functions

You can use the IEB Restore function to:

- Restore a partitioned dataset (or selected members of a partitioned dataset) from a tape containing an IEBCOPY unloaded partitioned dataset or
 - Restore a sequential dataset from an IEBGENER unloaded sequential dataset.
-

Restoring to a Different Device Type

The restore may be made to an unlike device type (for example, 3380 backup restored to 3390). The target dataset for the restore must already exist. You can use SAE's dataset allocation function to allocate the target dataset if it does not already exist (see page 15-132 for more information).

Target Dataset Too Small

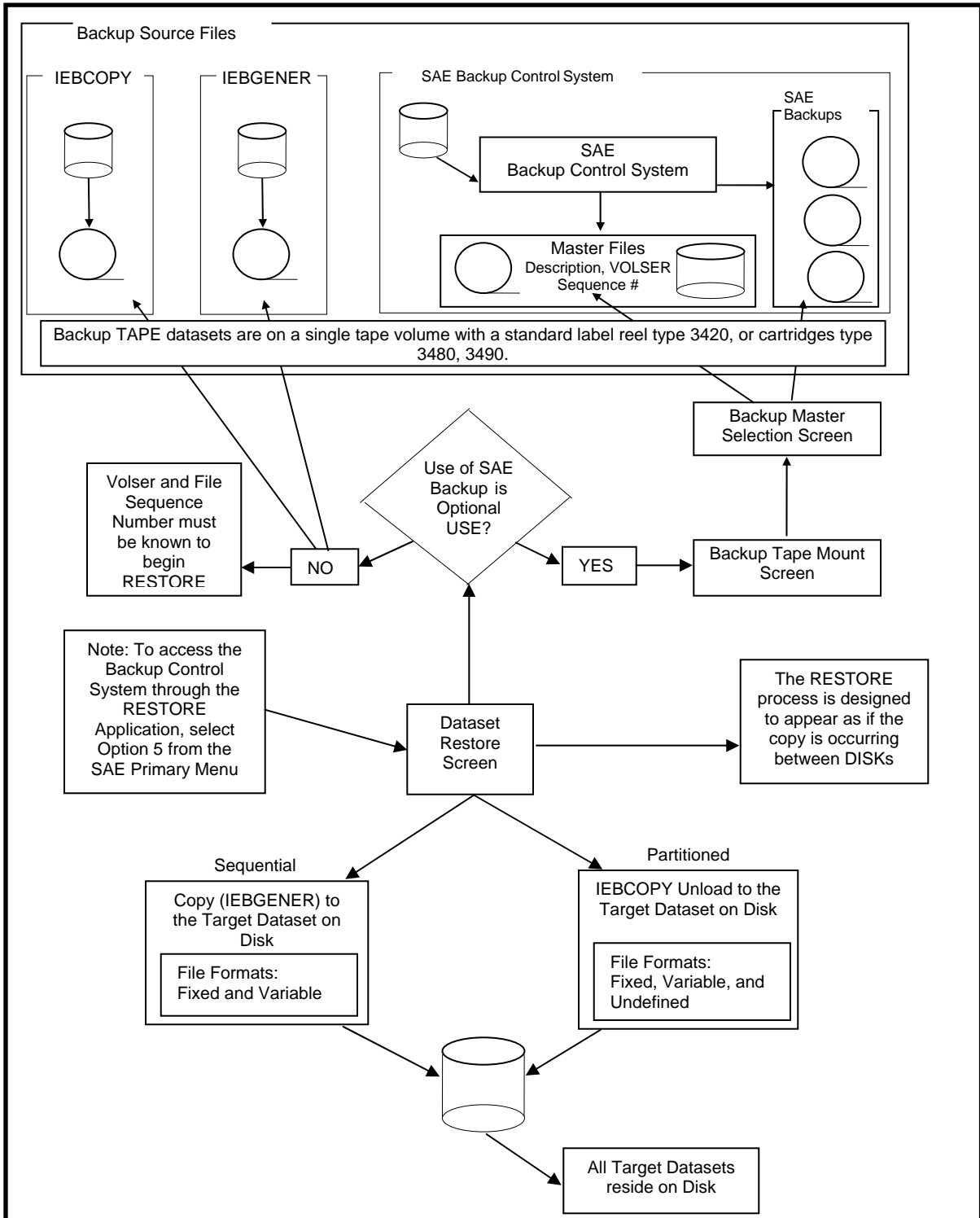
If the target dataset is smaller than the dataset being restored, SAE will allocate additional extents to accommodate the restore.

Continued on next page

IEB Restore Overview, Continued

Diagram

The following diagram displays the IEB Restore process:



Continued on next page

IEB Restore Overview, Continued

Required Information

To restore a dataset from tape, you must know:

- The tape Volser and
 - The file sequence number of the backup dataset.
-

SAE Backup Control Part of the SAE Utilities

To aid in taking the backups and determining the required restore information (the Volser and file sequence number), NewEra ships the SAE Backup Control System as part of the SAE Utilities (see page 8-65 for more information).

Backup Master File Contents

Besides taking the backups of selected datasets, the SAE Backup Control System maintains a Backup Master File that describes:

- the dataset that was backed up,
- the tape Volser on which the backup resides and
- the file sequence number of the backup dataset on that tape.

The Backup Master file is maintained on DASD and two copies can be maintained on tape. If you maintain tape copies of the Backup Master file, the copies are always written to the same two tape Volsers that you define during SAE during installation.

If a restore is required and the DASD copy of the Backup Master File is unavailable, SAE can request the mount of one of the Backup Master file tapes. From the Backup Master file tape, the correct location (Volser and file sequence number) of the required backup can be determined.

Continued on next page

IEB Restore Overview, Continued

Three Methods to Determine the Correct Backup Volser

By using the Backup Control System, you can determine the correct backup Volser and file sequence number by one of three methods:

Method 1: If You Know the Name

If you know the name of the Backup Master file on DASD, you can use SAE dataset search to locate it (see page 15-132 for more information). After you locate the Backup Master file you can browse it. By viewing the file you can determine the tape Volser and file sequence number of the required backup. This information can be supplied once the Dataset Restore function has been invoked.

Method 2: If you Keep Tape Copies

If you maintain tape copies of the Backup Master file, you can use a service of the IEB Restore function to read the tape copy of the Backup Master file and display a selection list of all backups. You can then select the appropriate backup from the list, and IEB Restore function discovers the Volser and file sequence number information.

Method 3: Backup Control System Listings

You can use the Backup Control System listings to determine the tape Volser and file sequence number of the required backup. This information can be supplied once the IEB Restore function has been invoked.

Backup Control System is Optional

Using the Backup Control System is completely optional; it is not required to create backups that are acceptable to the IEB Restore function. You can use any IEBCOPY or IEBGENER job to make backups that are acceptable to IEB Restore.

Advantages

Advantages of the Backup Control System are:

- you can easily make backups
 - you can minimize tape usage
 - you can maintain vital restore information with availability in a stand alone environment in mind.
-

Restoring Datasets with IEB Restore

Restore both Sequential and Partitioned Datasets

The IEB Restore function can restore sequential and partitioned datasets from a tape backup.

- For sequential datasets, the tape backup is a copy (IEBGENER) of the disk dataset.
- For partitioned datasets, the tape backup must be created by an IEBCOPY unload of the disk PDS.

Backup datasets must be on standard labeled tape reels (3420 type) or tape cartridges (3480, 3490, 3590 types). The backup dataset must be contained on a single tape volume; multi-volume datasets are not supported.

Restore Definition

The term 'restore' describes a copy process from tape. NewEra designed the IEB Restore function to appear similar to a copy between two disk datasets.

The description of restore involves three datasets:

- the original dataset that was backed up (called the 'source dataset')
 - the backup dataset on tape (called the 'tape dataset')
 - the dataset being restored (called the 'target dataset')
-

Restoring a Dataset from Tape

To restore a dataset from tape you must know the tape Volser and the file sequential number of the backup tape dataset.

If you are using the SAE Backup Control System, the Backup Master File will contain that information. For more information see 'Backup Control System' page 8-65.

Restoring from Partitioned Datasets

You can restore all or selected members from partitioned datasets.

The source dataset (original dataset that was backed up) must have had the same organization (partitioned or sequential) and the same record format (fixed, variable, or undefined) as the dataset being restored. The tape dataset does not have to have been created from the dataset that is being restored. For example, several members from a backup of SYS1.LINKLIB could be restored to dataset SYS1.LPALIB.

For partitioned datasets, the record format can be fixed, variable, or undefined. Partitioned dataset members are always added to the end of the target dataset, acquiring additional extents as necessary.

For sequential datasets, a record format can be fixed or variable.

IEB Restore Dataset Restrictions

**Source and
Target Datasets
Must Have Same
Organization and
Record Format**

As previously mentioned, both the source dataset (original dataset that was backed up) and the target dataset for the restore operation must be of the same organization and record format.

The record format restriction applies to base record format (fixed, variable or undefined) and not variations of the same base record format. For example, datasets of F, FB, FBA or FBM could be restored to one another.

Additional Rules

Additionally, datasets with keys, record format variable spanned, or record format variable block spanned, are not supported. Depending on the record format, additional restrictions apply.

Block Sizes

- For fixed and variable record format datasets, both the source and target datasets must have the same logical record length. Block sizes may differ.
 - For undefined record format datasets, the maximum block size of the source dataset cannot exceed the maximum block size of the target dataset.
-

IEB Restore Target Dataset Selection

Identify the Target Dataset

Once invoked, the IEB Restore function requires that you identify the target dataset (the dataset in which the restore operation will write data).

You can identify the target dataset using the normal Unit Selection, Volume Selection and Dataset selection screens. Instructional screens display to remind you of the purpose of the selection (in this case, target dataset).

For more information on the Unit Selection, Volume Selection and Dataset Selection screens, see Actions Services, page 14-125.

IEB Restore Using the Backup Master from Tape

Data Restore Screen

Once you select the dataset you want to restore, the Dataset Restore screen appears. This screen controls whether or not a tape copy of the Backup Master file is to be used in identifying the Volser and dataset file sequence number of the backup tape.

Backup Master File Usage Screen

```
DATASET RESTORE -----
```

```
IN ORDER TO PERFORM THE RESTORE, THE TAPE VOLSER AND DATASET  
FILE SEQUENCE NUMBER OF THE BACKUP MUST BE KNOWN. IF THE TAPE  
WAS CREATED USING THE SAE BACKUP CONTROL SYSTEM, THE BACKUP  
MASTER FILE (TAPE VOLUME SAEMT1 OR SAEMT2) WILL CONTAIN  
THAT INFORMATION.
```

```
ACCESS THE SAE BACKUP MASTER FILE ==> YES (YES OR NO)
```

```
IF NO, THE VOLSER AND FILE SEQ # OF THE BACKUP MUST BE KNOWN  
IF YES, A TAPE COPY OF THE BACKUP MASTER MUST BE AVAILABLE
```

Known Volser and File Sequence Number

If you know the Volser and the file sequence number, then reply 'NO' to the 'ACCESS THE SAE BACKUP MASTER FILE' prompt. The process of using the Backup Master file is then bypassed.

See 'IEB Backup Tape Mount' for instructions on how to continue.

If You Do Not Know the Volser and File Sequence Number

If you need to determine the Volser and file sequence number of the backup tape using a tape copy of the Backup Master file, then reply 'YES'.

If you specify 'YES', you must have a tape copy of the Backup Master file available.

Backup Tape Mount Screen

You can use the Backup Tape Mount screen to specify the volume and file sequence number of the backup tape dataset to be used, and the tape drive on which it is to be mounted.

If you selected a dataset from the Backup Master Selection screen, then the Volser and file sequence number display. If not, these values must be supplied.

Continued on next page

IEB Restore Using the Backup Master from Tape, Continued

Accessing the Backup Master File

If you have to access the Backup Master file, the Backup Master Tape Mount Screen appears.

- The first Volser defined at installation as containing a tape copy of the Backup Master file is displayed.
- The second Volser is identified in the message area.

Procedure

To process the tape mount:

Step	Action
1.	Locate the tape.
2.	Mount it on the tape drive you are going to use.
3.	Once the tape is mounted and the drive is ready, specify the tape drive address on the screen.
4.	Press Enter. <u>Result:</u> After SAE reads the tape and determines the tape dataset attributes, the Backup Master Selection Screen appears.

Backup Master Tape Mount Screen

```
TAPE MOUNT REQUEST -----OPTIONALLY USE SAEMT2 FOR MASTER  
COMMAND ==>
```

```
FOR TAPE MOUNT, PROCEED AS FOLLOWS:  
- MOUNT THE DESIRED TAPE AND READY THE DRIVE  
- SUPPLIED REQUIRED VALUES  
- PRESS ENTER
```

```
TAPE DRIVE UNIT ADDRESS ==>
```

```
TAPE VOLUME SERIAL NUMBER ==> SAEMT1  
DATASET'S FILE SEQ NUMBER ==> 1
```

IEB Restore Backup Master Selection

Contents of the Backup Master Selection Screen

The Backup Master Selection Screen lists the contents of the Backup Master file that was on the mounted tape.

The following information appears on the Backup Master Selection Screen:

- the name and original location (volume) of the backed up dataset
- the time and date of when the backup took place
- the tape volume and file sequence number of the backup dataset

After selecting a dataset backup, the Volser and file sequence number for that backup are reflected on the Backup Tape Mount Screen.

Backup Master Selection Screen

```
BACKUP MASTER FILE----- ROW 85 OF 115
COMMAND ==>                SCROLL ==> PAGE
BACKED UP DATASETS          VOLSER DATE   TIME  TAPE   FILE
SYS1.CMDLIB                 SJ3RES 92030 13:11 T00109 78
SYS1.CMDLIB                 S1ARJ2 92030 10:19 T00109 7
SYS1.CMDLIB                 S1ARJ2 92023 15:39 T00030 8
SYS1.CMDLIB                 S1ARJ2 92023 12:32 T00195 5
SYS1.JES3LIB                SJ3RES 92030 13:15 T00109 79
SYS1.LINKLIB                SJ3RES 92030 13:33 T00109 81
SYS1.LINKLIB                S1ARJ2 92030 10:16 T00109 3
SYS1.LINKLIB                S1ARJ2 92023 15:29 T00030 4
SYS1.LINKLIB                S1ARJ2 92023 12:46 T00195 10
SYS1.LPALIB                 SJ3RES 92030 13:21 T00109 80
SYS1.LPALIB                 S1ARJ2 92030 10:24 T00109 11
SYS1.LPALIB                 S1ARJ2 92023 15:48 T00030 12
SYS1.PARMLIB                S1ARJ2 92036 13:10 T00087 2
SYS1.PARMLIB                S1ARJ2 92034 12:03 T00027 2
SYS1.PARMLIB                S1ARJ2 92034 11:59 T00098 2
SYS1.PARMLIB                S1ARJ2 92023 15:09 T00030 2
SYS1.PARMLIB                S1ARJ2 92023 12:47 T00195 11
SYS1.PROCLIB                S1ARJ2 92030 13:54 T00109 86
SYS1.PROCLIB                S1ARJ2 92023 15:09 T00030 3
SYS1.PROCLIB                S1ARJ2 92023 12:48 T00195 12
SYS1.SVCLIB                 S1ARJ2 92030 13:52 T00109 85
```

Continued on next page

IEB Restore Backup Master Selection, Continued

Finding Backup Dataset

SAE provides multiple ways of scrolling up or down the Backup Master Selection List. SAE also supports a Locate “**L**” command.

Scrolling Information

All scrolling activities are based on a fixed scroll size of one page.

To scroll up the Backup Master Selection List use PFkeys 7 and 19, to scroll down the Backup Master Selection List use PFkeys 8 and 20.

If you specify “**M**” on the command line, the scroll PFkey (7, 19 or 8, 20) scrolls to the top or bottom of the Backup Master Selection List.

Locating Backup Dataset

To find a specific Backup Dataset (when the extent list was sorted by cylinder):

Step	Action
1.	Type “ L ” (for Locate) on the command line with a full or partial dataset name following.
2.	Press Enter. <u>Result:</u> SAE positions the selection list at the specified dataset.

Selecting a Backed Up Dataset for Restore

You can select a backed up dataset for restore by using the NEW LINE key to move the cursor in front of the dataset name and typing “**S**”.

IEB Restore Backup Master Selection Commands

**From the
Command Line**

You can use the following commands at the Command Line:

L dataset - Positions at the specified dataset.

M - Use PFkeys to position at the top or bottom of list.

Line Commands

The following Line Command is available:

S - Select a backed up dataset for restore.

IEB Restore Backup Tape Mount

Using the Backup Tape Mount Screen

Use the Backup Tape Mount Screen to specify the volume and file sequence number of the backup tape dataset to be used, and the tape drive on which it is to be mounted.

If a dataset was selected from the Backup Master Selection Screen, then the Volser and file sequence number already displays on this screen. If not, you must supply these values.

Procedure

To process the backup tape mount:

Step	Action
1.	Locate the tape.
2.	Mount it on the tape drive you are going to use.
3.	Once the tape is mounted and the drive is ready, specify the tape drive address on the screen.
4.	Press Enter. <u>Results:</u> After SAE reads the tape and determines the tape dataset attributes, the Dataset Restore Screen appears.

IEB Backup Tape Mount Screen

```
TAPE MOUNT REQUES----- SOURCE FOR DATASET RESTORE  
COMMAND ==>
```

```
FOR TAPE MOUNT, PROCEED AS FOLLOWS:  
- MOUNT THE DESIRED TAPE AND READY THE DRIVE  
- SUPPLIED REQUIRED VALUES  
- PRESS ENTER
```

```
TAPE DRIVE UNIT ADDRESS ==>
```

```
TAPE VOLUME SERIAL NUMBER ==>  
DATASET'S FILE SEQ NUMBER ==>
```

Continued on next page

IEB Restore Backup Tape Mount, Continued

Dataset Restore Function

The Dataset Restore Screen provides control and confirmation for the Dataset Restore function.

For sequential datasets, press Enter to begin the restore process.

IEB Dataset Restore Screen

```

DATASET RESTORE -----
COMMAND ==>

RESTORE FROM:
      92036.H1310.FILE2
      T00087                DSORG RECFM  LRECL BLKSZ
      0301                  PO    FB      80  3120

RESTORE TO:
      SYS1.PARMLIB
      SYSRES                DSORG RECFM  LRECL BLKSZ
      0600                  PO    FB      80  3120

IF PARTITIONED, RESTORE ALL MEMBERS      ==> NO (YES OR NO)
REPLACE LIKE-NAMED MEMBERS ==> YES (YES OR NO)
  
```

Restoring to a Partitioned Dataset

When restoring to a partitioned dataset, each new member (even if replaced) is written to the end of the dataset and the directory is updated.

Avoiding Out-of-Space Conditions with EMPTY

To avoid out-of-space conditions, if you are replacing all of the target dataset members, consider using the Dataset Information function's EMPTY command on the target dataset first (see page 16-165 for more information). This command will allow the restore to take place as if the target dataset was newly allocated.

Restored Members Replace Like-Named Members

By default, members restored from the source dataset replace any like-named members in the target dataset.

If you do not want this to occur, change the 'REPLACE LIKE-NAMED MEMBERS' prompt to 'NO'. All or selected members of the partitioned datasets can be restored.

Procedure

To restore selected members:

Step	Action
1.	Leave the 'RESTORE ALL MEMBERS' prompt at 'NO'.
2.	Press Enter. <u>Results:</u> The Member Restore Selection Screen appears, listing the members in the source dataset.

Continued on next page

IEB Restore Backup Tape Mount, Continued

Procedure To restore all the members from the backup tape dataset to the target dataset:

Step	Action
1.	Change the 'RESTORE ALL MEMBER' prompt to 'YES'
2.	Press Enter. <u>Results:</u> The Dataset Restore Screen updates with the name of each member as it is restored. When the operation is complete, the Member Restore Selection Screen appears, showing each member's results.

Restore Selected Members If you specify 'NO' to the 'RESTORE ALL MEMBERS' prompt on the Dataset Restore Screen, the Member Copy Selection Screen appears.

This screen allows you to select the members to copy from the backup tape to the target dataset. The members listed on the screen are those on the backup tape.

Procedure To copy a member:

Step	Action
1.	Place an "S" in front of the member name.
2.	Press Enter. <u>Note</u> You can select several members at once.

Member Copy Selection Screen

```

COPY --- 91360.H1548.FILE2 USING SAE----- SELECT COPY MEMBERS
COMMAND ==== _                               SCROLL ==== PAGE
NAME      RENAME      VV.MM  CREATED    CHANGED    SIZE  INIT  MOD  ID
ADYSET00                                     01.04  84/03/10  90/10/23  08:43   10   10   5  USER2
ADYSET01
ADYSET02
COMMNDAB  *COPIED  01.01  89/04/25  90/04/12  16:23   28   26   28  USER4
COMMNDC1  *COPIED  01.00  89/12/04  90/08/02  08:26   23   23    0  USER8
COMMNDHY  *REPL    01.05  86/12/14  87/10/30  09:00   28   18   28  USER2
COMMND00  01.17  87/05/25  91/01/01  12:17   28   19   12  USER2
COMMND01  01.17  89/08/20  90/11/12  21:27   22   28   22  USER4
COMMND41  01.00  88/07/02  90/03/27  19:32   28   28    0  USER2
ERBRMFBU  01.00  89/03/30  89/12/31  17:10   36   36    0  USER1
ERBRMFFE  01.01  90/11/26  90/12/03  16:19    6    6    2  USER8
ERBRMFR1  01.04  89/05/25  90/07/06  09:46   41   42    5  USER4
ERBRMFR2  01.03  88/06/16  89/02/09  09:53   15   15    3  USER2
ERBRMFR3  01.00  89/12/22  89/12/24  16:43   40   40    0  USER4
ERBRMF00  01.04  89/09/17  90/01/17  22:45   34   36    2  USER4
ERBRMF01
ERBRMF02
ERBRMF03
ERBRMF04
ERBRMF05
GIMOPCDE
    
```

Continued on next page

IEB Restore Backup Tape Mount, Continued

Column Descriptions

The status of each member restore copy request is shown to the right of each member name.

Value	Description
*COPIED	Member was copied successfully
*REPL	Member was copied successfully and replaced a like-named member that already existed in the target dataset.
*NO-REPL	The member was not copied. A like-named member existed in the target dataset and no replace was specified.
*ALIAS	The member was not copied. The member is an alias and the main member was not selected. To copy this member, select the main member for copy, and alias members will automatically be copied as well.
RD ERROR	The member was not copied and other copy requests were not processed. An error occurred while trying to read the member from the backup tape.
DIR FULL	The member was not copied and other copy requests were not processed. The directory of the target dataset is full.
WRERROR	The member was not copied and other copy requests were not processed. An error occurred while writing the member in the target dataset. The message area will further describe the error.
*NO COPY	The member was selected for copy but was not copied. An error occurred while trying to copy another member and, as a result, this copy request was not processed.

IEB Restore Advanced Processing

Alias Members

The Dataset Restore function provides some advanced processing for alias members.

Whenever you select a member (non-alias) for restore (explicit selection or copy all), SAE makes a search for any alias entries. All alias entries are automatically restored.

An alias member cannot be selected for restore by itself, it can only be restored as an automatic function of restoring the main member.

Overlay Load Modules Supported

The Dataset Restore function also supports restoring overlay load modules.

Chapter 25: Tape Scan

Overview

Introduction This chapter discusses SAE's Tape Scan feature in detail.

In This Part This chapter contains the following topics:

Chapter	See Page
Tape Scan Overview	25-298
Tape Scan	25-299

Tape Scan Overview

Tape Scan Short and Tape Scan Full

Both Tape Scan Short and Tape Scan Full can read and display a tape's contents.

Tape Scan Short reads the tape until the first block of the first data file is read.

Tape Scan Short

For a standard labeled tape, Tape Scan Short displays label information from the volume and the first dataset, as well as displaying the first block of data from the first dataset (Tape Scan Full reads the tape until an End-of-File is encountered).

NewEra recommends Tape Scan Short when only information on the volume and/or the first dataset is required.

Tape Scan Full

For a standard labeled tape, Tape Scan Full displays label information from the volume and all datasets as well as displaying the first block of data from the each dataset and the number of blocks in each dataset.

As Tape Scan Full must read the entire tape, it can take several minutes to complete.

Stand Alone Restores

When performing a stand alone restore, using either SAE or another (DFSMSdss or FDR) stand alone restore utility, you must mount the backup volumes in the correct order.

You can use SAE's Tape Scan utility to quickly determine the volume order by displaying each tape's volume sequence number.

Tape Scan

Opening the Tape Mount Request Screen

Selection of Tape Scan Short or Tape Scan Full will both display the Tape Mount Request Screen.

You must supply the unit address of the tape drive to be used, and the Volser of the tape to be scanned.

Automatically Filling the Device Address

Selecting a tape device from the Device List presented via Hardware Confirmation invokes Tape Scan Short and fills in the device address automatically (see 20-254 for more information).

Tape Scan Tape Mount Screen

```
TAPE MOUNT REQUEST ----- TAPE TO BE SCANNED
COMMAND ==>
```

```
FOR TAPE MOUNT, PROCEED AS FOLLOWS:
- MOUNT THE DESIRED TAPE AND READY THE DRIVE
- SUPPLIED REQUIRED VALUES
- PRESS ENTER
```

```
TAPE DRIVE UNIT ADDRESS ==> 570
```

```
TAPE VOLUME SERIAL NUMBER ==> NES737
```

Tape Scan Short

After the Tape Scan Short function has scanned a tape, the results appear. You may use all of the Browse functions to view the tape scan output.

Label records are displayed, followed by an interpretation of the contents of the label. For the first dataset on the tape, a portion of the first block is displayed in EBCDIC and in Hex, followed by the block length.

Tape Scan Short Report

```
BROWSE - TAPESCAN.OF.VOLUME.NES737 USING SAE ----- COLUMNS 001 072
COMMAND ==>                                     SCROLL ==> PAGE
***** ***** TOP OF DATA *****
000001 VOLINES737
000002 *** VOLUME SERIAL ----- NES737
000003 HDR15.BACKUP.SEPT0996NES73700010001      96253000000000000000IBM OS/VS 37
000004 *** DATASET ID ----- 5.BACKUP.SEPT0996
000005 *** VOLUME SEQUENCE #--- 0001
000006 *** DATASET SEQUENCE #-- 0001
000007 *** CREATION DATE ----- 96253
000008 *** EXPIRATION DATE ---- 000000
000009 *** SECURITY FLAG ----- 0 (NONE)
000010 HDR2U0000000000000P390BC2 /SCPMV5      54800
000011 *** RECORD FORMAT ----- U
000012 *** BLOCK LENGTH ----- 00000
000013 *** RECORD LENGTH ----- 00000
000014 *** CREATE JOB/STEP ---- P390BC2 /SCPMV5
000015 *****-TAPEMARK-*****
000016 .....0..SCPMV5i.o.....
000017 000000418800000020002000E00FF00ECDDEF8092314203120020600311020003000300
000018 0011108000000002E002E0E6A0FF0002374559065F0254000E0137008541E1020002100
000019 *** FIRST BLOCK SHOWN ABOVE, SIZE IS 00072.
***** ***** BOTTOM OF DATA*****
```

Continued on next page

Tape Scan, Continued

Tape Scan Full

After the Tape Scan Full function has scanned a tape, the results appear. You may use all of the Browse functions to view the tape scan output.

Label records display, followed by an interpretation of the contents of the label. For each dataset on the tape, a portion of the first block displays in EBCDIC and in Hex, followed by the block length and the number of blocks in the dataset.

Tape Scan Full Display

```
BROWSE - TAPESCAN.OF.VOLUME.NES737 USING SAE ----- COLUMNS 001 072
COMMAND ==>                                     SCROLL ==> PAGE
000004 *** DATASET ID ----- 5.BACKUP.SEPT0996
000005 *** VOLUME SEQUENCE #--- 0001
000006 *** DATASET SEQUENCE #-- 0001
000007 *** CREATION DATE ----- 96253
000008 *** EXPIRATION DATE ---- 000000
000009 *** SECURITY FLAG ----- 0 (NONE)
000010 HDR2U000000000000P390BC2 /SCPMV5          54800
000011 *** RECORD FORMAT ----- U
000012 *** BLOCK LENGTH ----- 00000
000013 *** RECORD LENGTH ----- 00000
000014 *** CREATE JOB/STEP ---- P390BC2 /SCPMV5
000015 *****-TAPEMARK-*****
000016 .....0..SCPMV5i.o.....
000017 00000418800000020002000E00FF00ECDDEF8092314203120020600311020003000300
000018 0011108000000002E002E0E6A0FF0002374559065F0254000E0137008541E1020002100
000019 *** FIRST BLOCK SHOWN ABOVE, SIZE IS 00072.
000020 *** FILE CONTAINS 04465 BLOCKS
000021 *****-TAPEMARK-*****
000022 EOVL5.BACKUP.SEPT0996NES73700010001      962530000000004465IBM OS/V5 37
000023 EOVL2U000000000000P390BC2 /SCPMV5          54800
000024 *****-TAPEMARK-*****
***** ***** BOTTOM OF DATA *****
```

Chapter 26: DFSMSdss (DF/DSS) Restore

Overview

Introduction This chapter discusses SAE's DSS Restore in general.

In This Part This chapter contains the following topics:

Topics	See Page
DFSMSdss (DF/DSS) Dataset Restore Overview	26-302
DSS Dataset Restore Restrictions	26-303

DFSMSdss (DF/DSS) Dataset Restore Overview

How DFSMSdss Dataset Restore Works

You can use the DFSMSdss (DF/DSS) Dataset Restore function to restore a partitioned or sequential dataset from a DFSMSdss (DF/DSS) FULL or DATASET backup.

The restore must be made to a like device type (for example, a 3390 backup restored to 3390), but the number of cylinders on the device need not be the same. If necessary, you can use SAE's Copy function after the restore to copy the dataset to a different device type. The target dataset for the restore must already exist. You can use SAE's Dataset Allocation function to allocate the target dataset if it does not already exist (see page 16-169 for more information).

The volume from which the DFSMSdss (DF/DSS) backup was created does not have to be the volume on which the dataset is restored. If the target dataset is smaller than the dataset being restored, SAE allocates additional extents to accommodate the restore.

Volsers and Volume Restrictions

To restore a dataset from a DFSMSdss (DF/DSS) backup, the tape Volsers of the backup must be known and the tape volumes must be mounted in the correct order.

SAE's LISTCAT/ALTERCAT function supports the extraction of the tape volumes on which a cataloged dataset resides. If the DFSMSdss (DF/DSS) backup dataset is cataloged, you can use this feature to automatically determine the required volumes and their sequence (see page 20-214 for more information).

DFSMSdss Restore and FDR/DSF Restore

The User Interface for performing a DFSMSdss (DF/DSS) restore is the same as for performing a FDR/DSF restore. For this reason, both types of restore are described together. From this point on, both DFSMSdss (DF/DSS) FULL and DATASET backups are referred to as DSS.

DSS Dataset Restore Restrictions

Supported Backups

SAE supports both DFSMSdss and DF/DSS backups. The supported backup types are FULL and DATASET for dataset restore:

- A DSS FULL backup is that of an entire DASD volume.
- A DSS DATASET backup is that of selective datasets on a DASD volume.

COMPRESS Not Supported

SAE does not support DSS backups created with the COMPRESS keyword. The COMPRESS keyword instructs DSS to software compress each track image before writing it to tape. The compression algorithm is unpublished and proprietary to IBM, so SAE is not capable of de-compressing the track images.

Hardware Compression

Do not confuse this type of software compression with hardware compression like IDRC. SAE will restore from IDRC compressed tapes (provided they are mounted on IDRC capable drives). With most installations having IDRC-capable tape drives and doing hardware compression, NewEra recommends that you do not use the DSS Software Compression for DSS backups. This allows your DSS backups to be used for stand alone restores using SAE.

Not Accurate for DSS DATASET Backups

DSS DATASET backups include a copy of the entire VTOC and not just the VTOC Format-1 DSCBs for the actual datasets contained in the backup. For this reason, the Dataset Selection Screen that lists the datasets contained within a backup is not accurate for DSS DATASET backups and may list datasets that are not contained within the backup.

VTOC Free Space Invalid

Restoring a smaller volume to a device with larger capacity invalidates the VTOC free space information. The VTOC free space information is rebuilt when the next dataset allocation takes place on the volume using z/OS.

Unlabelled Volumes

Unlabelled volumes do not appear on the Restore Volume Selection Screen. To perform a full volume restore to a volume that does not already contain a valid volume label, first initialize the volume using 'V' from the Hardware Confirmation Volume Selection Screen (see page 20-254 for more information).

Not All DFSMSdss Formats Supported

SAE does not use DFSMSdss in processing tapes created by that product. The file format of DFSMSdss tapes varies and may change from release to release. SAE may not support all current DFSMSdss formats or the formats of future DFSMSdss releases.

Chapter 27: FDR/DSF Restore

Overview

Introduction This chapter discusses SAE's Tape Scan feature in general.

In This Part This chapter contains the following topics:

Topics	See Page
FDR/DSF Dataset Restore Overview	27-306
FDR Dataset Restore Restrictions	27-307

FDR/DSF Dataset Restore Overview

Using FDR Dataset Restore

You can use the FDR Dataset Restore function to restore a partitioned or sequential dataset from a FDR or DSF backup.

You must make the restore to a like device-type (for example, a 3390 backup restored to 3390), but the number of cylinders on the device need not be the same.

If necessary, you can use SAE's Copy function after the restore to copy the dataset to a different device type. The target dataset for the restore must already exist.

You can use SAE's dataset allocation function to allocate the target dataset if it does not already exist. The volume from which the FDR or DSF backup was created does not have to be the volume on which the dataset is restored. If the target dataset is smaller than the dataset being restored, SAE allocates additional extents to accommodate the restore.

Restoring a Dataset from FDR or DSF Backup

To restore a dataset from an FDR or DSF backup, you must know the tape Volumes of the backup, and the tape volumes must be mounted in the correct order.

SAE's LISTCAT/ALTERCAT function supports the extraction of the tape volumes on which a cataloged dataset resides. If the FDR or DSF backup dataset is cataloged, you can use this feature to automatically determine the required volumes and their sequence (see page 20-214 for more information).

FDR and DSF User Interface

The user interface for performing an FDR or DSF restore is the same as for performing a DSS restore. For this reason, both types of restore are described together. The sample screens shown are for DSS but the corresponding FDR screens are very similar. From here on, both FDR and DSF backups are referred to as FDR.

FDR Dataset Restore Restrictions

FDR and DSF Backups	<p>SAE supports both FDR and DSF (see restrictions below) backups for dataset restore.</p> <ul style="list-style-type: none">• A FDR backup is that of an entire DASD volume.• A DSF backup is that of selective datasets on a DASD volume.
COMPRESS Not Supported	<p>SAE does not support FDR or DSF backups created with the COMPRESS keyword. The COMPRESS=keyword parameter instructs FDR to software compress each track image before writing it to tape. The compression algorithm is unpublished and proprietary to Innovative Data Processing, so SAE is not capable of de-compressing the track images.</p>
Hardware Compression	<p>Do not confuse this type of software compression with hardware compression like IDRC. SAE will restore from IDRC compressed tapes (provided they are mounted on IDRC capable drives). With most installations having IDRC-capable tape drives and doing hardware compression, NewEra recommends that you do not use the FDR Software Compression for FDR backups. This allows your DSS backups to be used for stand alone restores using SAE.</p>
DSF Backups With VTOC Supported	<p>SAE only supports DSF backups that include the VTOC.</p> <p>The VTOC is included for DSF backups that specify the DSN=VTOC specification. NewEra recommends that all DSF backups of system datasets include the TYPE=DSF,DSN=VTOC specification so you can use these backups for stand alone dataset restores using SAE.</p>
VTOC Free Space Invalid	<p>Restoring a smaller volume to a device with larger capacity invalidates the VTOC free space information. The VTOC free space information is rebuilt when the next dataset allocation takes place on the volume using z/OS.</p>
Unlabelled Volumes	<p>Unlabelled volumes do not appear on the Restore Volume Selection Screen. To perform a full volume restore to a volume that does not already contain a valid volume label, first initialize the volume using 'V' from the Hardware Confirmation Volume Selection Screen (see page 20-254 for more information).</p>
Not All FDR Formats Supported	<p>SAE does not use FDR in processing tapes created by that product. The file format of FDR tapes varies and may change from release to release. SAE may not support all current FDR formats or the formats of future DFSMSdss releases.</p>

Chapter 28: DSS or FDR Restore

Overview

Introduction This chapter discusses SAE's Tape Scan feature in detail.

In This Part This chapter contains the following topics:

Chapter	See Page
Preparing for a DSS or FDR Restore	28-310
Full Volume Restore Requirements	28-311
Obtaining Backup Tape Volumes	28-312
Obtaining Tape Drive Unit Addresses	28-314
Obtaining Dataset Information	28-315
INSPECT	28-316
Performing a DSS or FDR Restore	28-319
Full Volume Restore Target Identification	28-320
Identifying the Tape Volumes	28-321
Tape Mount Options	28-322
First Volume Mount	28-324
Backup Information	28-325
Dataset Restore Source Dataset Selection	28-326
Restore Confirmation	28-327
Restore Time	28-329
Performing a DSS or FDR Compare	28-331
Full Volume DSS/FDR Compare	28-332
DSS/FDR Dataset Compare	28-334

Preparing for a DSS or FDR Restore

Dataset Restore Requirements

To perform a stand alone dataset restore from a DSS or FDR backup using SAE, the following are required:

- Tape Volsers of the DSS or FDR backup tapes, and their correct sequence.
 - Unit addresses of the tape drives to be used.
 - The name and location (volume) of the existing target dataset.
 - Dataset name of the source dataset (dataset that was backed up).
-

Determining the Requirements

SAE contains several functions that help you to determine these requirements. These functions are described in the following sections. If you have all the required information, you may skip over these sections.

Full Volume Restore Requirements

Full Volume Restore Requirements

To perform a stand alone full volume restore from a DSS or FDR backup using SAE, the following are required:

- Tape Volsers of the DSS or FDR backup tapes and their correct sequence.
 - Unit addresses of the tape drives to use.
 - The Volser or unit address of the volume to be restored.
-

Determining the Requirements

SAE contains several functions that help you to determine these requirements. These functions are described in the following sections. If you have all the required information, you may skip over these sections.

Obtaining Backup Tape Volsers

Extracting Required Volsers

If you do not know the volume serial numbers of the DSS or FDR backup that you wish to use, but you have cataloged your backup datasets, you can use the Action Services LISTCAT/ALTERCAT Capture command to extract the required Volsers (see page 20-214 for more information). You must know at least the high level prefix of the cataloged backup datasets.

The LISTCAT/ALTERCAT Capture command can be useful in determining the correct backup tapes, even if you are performing a full volume restore with another stand alone restore utility.

Searching for the Volume

If you know the name of the z/OS Catalog under which your backup datasets are cataloged, you can have the Action Services Unit Selection Screen search for the volume that contains the catalog:

Step	Action
1.	Select the volume from the Volume Selection Screen.
2.	On the Dataset Selection List, locate and select the Catalog.
3.	On the ALTERCAT selection list, locate the backup tape dataset you want to use.
4.	Next to the backup tape dataset, place the line command 'C'.
5.	Press Enter.

Action Services Unit Selection Screen

```
LISTCAT --- MVSV5.MASTER.CATALOG ----- ROW 392 OF 1420
COMMAND ==>                                SCROLL ==>> PAGE
      DATA SET NAME                        ENTRY TYPE    VOLSER DEVICE
c P390.MVSV5R.BACKUP.OCT1096                NONVSAM         NES591 3480 >
```

Volume Serial Numbers

SAE captures and displays the volume serial numbers of the associated tapes later in the restore process.

Using the Master Catalog

If you do not know the name of the z/OS Catalog under which your backup datasets are cataloged, you must follow the alias entries from your Master Catalog.

- If you do not know the name and location of your Master Catalog, use the z/OS Inspect application to access the Master Catalog.
- If you know the name and location of the Master Catalog, then use Action Services to get to the ALTERCAT Selection list for the Master.

Continued on next page

Obtaining Backup Tape Volumes, Continued

Locating the Backup Datasets

When you are in the ALTERCAT selection list for the Master Catalog, perform a locate on the high level prefix for your backup dataset names.

If you find the backup datasets cataloged in the Master Catalog, you can use the 'C' capture command as described above.

If, however, you find the high level prefix is an alias entry, then note the name of the associated User Catalog and do a locate on that name. You will see the User Catalog entry and the volume on which it resides. You now know the name and location of the catalog in which your backup datasets are cataloged and can proceed as described above.

Obtaining Tape Drive Unit Addresses

Hardware Confirmation Application

If you do not know the addresses of the tape drives attached to the system on which SAE is running, you can use the Hardware Confirmation application to list them (see page 20-244 for more information).

Procedure

Using the Hardware Confirmation application, enter only the appropriate device types (for example, 3480, 3490, 3590) on the Unit Selection screen, and press Enter. The resulting Device Selection Screen lists all attached devices that meet your specification.

Running Tape Scan

If you run Tape Scans to determine the contents or volume sequence numbers of tapes, select a tape drive from the Device Selection Screen and you are taken directly into the Tape Scan with the tape device address already copied over.

Obtaining Dataset Information

Dataset Restore For dataset restore, if the target dataset already exists, you can use normal Action Services to locate the dataset.

If you need to allocate a new dataset as the target dataset for the restore, you may require dataset information (DCB) about the source dataset. You can use the DSS INSPECT and FDR INSPECT functions to view the Dataset Information Screen for a Dataset contained within a DSS or FDR Backup. See the description of the Inspect functions for more information.

INSPECT

Using DSS INSPECT

You can use the DSS INSPECT and FDR INSPECT functions to display information about:

- a backup and the datasets contained within.
- the type of backup.
- the date when it was taken.
- a list of the datasets contained within the dump (see DSS Dataset Backup restrictions).

You can select datasets to display the Dataset Information Screen that shows DCB characteristics and the physical position of the dataset's extents on the original volume.

Opening the Inspect Tape Mount Screen

When you select Option 4 (DSS Inspect) or Option 7 (FDR Inspect) from the Restore Services Selection Screen, the Inspect Tape Mount Screen appears.

If you use the LISTCAT/ALTERCAT Capture command, the Volser field is filled with the first Volser of the backup.

Inspect Tape Mount Screen

```
TAPE MOUNT REQUEST ----- MOUNT FIRST DSS BACKUP VOLUME  
COMMAND ==>
```

```
FOR TAPE MOUNT, PROCEED AS FOLLOWS:  
- MOUNT THE DESIRED TAPE AND READY THE DRIVE  
- SUPPLIED REQUIRED VALUES  
- PRESS ENTER
```

```
TAPE DRIVE UNIT ADDRESS ==>
```

```
TAPE VOLUME SERIAL NUMBER ==> NES591  
DATASET'S FILE SEQ NUMBER ==> 1
```

Continued on next page

INSPECT, Continued

Procedure

Mount the required volume and identify the tape device, then press Enter to continue. If the tape contains a valid backup for the selected Inspect (DSS or FDR), the Inspect Backup Information Screen appears.

Inspect Backup Information Screen

```
DFSMSdss BACKUP INFORMATION -----
COMMAND ==>

TAPE INFORMATION
TAPE VOLSER:  NES591           VOLUME SEQ NUMBER:    1
DATASET NAME:  5R.BACKUP.OCT1096  DATASET SEQ NUMBER:    1

BACKUP INFORMATION
DUMP TYPE:     FULL           DFSMSdss VER:  V1R3.0
BACKUP DATE:   96/10/11      TIME: 14:04
SOURCE VOLUME: MVSV5R        DEVICE TYPE: 3380  CYLS: 2655

PRESS ENTER TO CONTINUE
```

Continuing the Procedure

To continue and have the Dataset Selection List displayed for the backup, press Enter. To end, use PF3.

Inspect Dataset Selection Screen

```
DATA SETS ON VOLUME MVSV5R (=DSS) -----ROW 562 OF 625
COMMAND ==>                                SCROLL ==> PAGE
DATA SET NAME                                ORG RF LRECL BLKSZ #EX LAST REF
SYS1.LPALIB                                  PO  U    0 32760  5 96/07/12
SYS1.MACLIB                                  PO  FB   80 23440  2 96/09/18
SYS1.MIGLIB                                  PO  U    0 32760  1 96/09/21
SYS1.MODGEN                                  PO  FB   80 23440  1 96/09/18
SYS1.MSGENP                                  PO  VB  259 23476  1 95/10/26
SYS1.MSGENU                                  PO  VB  259 23476  1 95/10/26
SYS1.NUCLEUS                                 PO  U    0 32760  1 96/09/21
SYS1.NVULIB                                  PO  U    0 32760  3 95/10/26
SYS1.OVERLIB                                  PO  VB  8205 23476  1 95/10/26
SYS1.PDEFLIB                                  PO  VB  8205 23476  1 95/10/26
SYS1.PSEGLIB                                  PO  VB  8205 23476  1 95/10/26
SYS1.README                                  PO  FB   80 23440  1 95/10/31
SYS1.SADMMAP                                  PO  FB  400 23200  1 95/10/26
SYS1.SADMMOD                                  PO  U    0 32760  1 96/09/21
SYS1.SADMPCF                                  PO  FB  400 23200  1 95/10/26
SYS1.SADMSYM                                  PO  FB  400 23200  1 95/10/26
SYS1.SAFHFORT                                 PO  U    0 32760  1 95/10/26
SYS1.SAMPLIB                                  PO  FB   80 23440  4 96/09/21
SYS1.SANRHLP                                  PO  FB   80 23440  1 95/10/26
SYS1.SANRMSG                                  PO  FB   80 23440  1 95/10/26
```

Displaying the Dataset Information Screen

The Inspect Dataset Selection list displays the datasets that are contained within the backup. The unit address field for the DASD volume displays as =DSS or =FDR to indicate the volume is contained within a backup.

To display the Dataset Information Screen for a dataset, select it with the 'S' or 'I' line command.

Continued on next page

INSPECT, Continued

Inaccurate Contents

The Dataset Selection list may not accurately reflect the datasets contained within the backup for DSS DATASET Backups.

See DSS Restrictions (page 26-303) for more information.

DSS or FDR Dataset Information Screen

```
----- DATA SET INFORMATION ----- UNDER SMS CONTROL
COMMAND ==>

      VOLUME SERIAL ==> MVS5R
      DEVICE TYPE   ==> 3380   UNIT ==> =DSS

DSN: SYS1.LPALIB

      SPACE UNIT    ==> CYLS
      PRIMARY QTY   ==> 42
      SECONDARY QTY ==> 4
      DIRECTORY BLKS ==> ??????
      RECORD FORMAT ==> U
      RECORD LENGTH ==> 0
      BLOCK SIZE    ==> 32760

      ORGANIZATION ==> PO
      ALLOCATED CYLS ==> 58

      EXT STARTING  ENDING
      #  CCCCHHHH  CCCCHHHH
      1  094E0000  0977000E
      2  09780000  097B000E
      3  097C0000  097F000E
      4  09800000  0983000E
      5  05780000  057B000E
```

Dataset Information Screen Contents

The Dataset Information Screen displays the attributes of the dataset that is contained within the backup.

The unit address field for the DASD volume displays as =DSS or =FDR to indicate the volume is contained within a backup. This information is extracted from the VTOC that is contained within the backup. The VTOC does not contain information on the number of directory blocks within a PDS. For this reason, a value of ?????? displays for the directory blocks field.

Directory Blocks are Overwritten

If you are using the Dataset Information to allocate the target dataset, do not be concerned with the number of directory blocks. The restore completely overwrites the target dataset, therefore, the number of directory blocks in the target dataset prior to the restore is of no consequence.

Determining the Extent's Physical Location

You can use the dataset extent layout (shown on the right side of the display) to determine the physical location of the dataset's extents on the original volume.

Performing a DSS or FDR Restore

Dataset Restore Target Identification

If you perform a Dataset restore (Option 5 - DSS Dataset or Option 8 -FDR Dataset), the first thing to do is identify the target dataset (that the restore process overwrites).

The target dataset must exist before you can perform the restore. If the target dataset does not exist, you may use the Inspect function to determine the dataset characteristics of the source dataset, and then use SAE's Dataset Allocation to create the target dataset.

See 'Preparing for a DSS or FDR Restore' for more information.

Identifying the Target Dataset

You can identify the target dataset with the normal Unit Selection, Volume Selection and Dataset Selection Screens. Instructional screens appear to remind you of the purpose of the selection (in this case, target dataset selection).

For more information on the Unit Selection, Volume Selection and Dataset Selection screens, see Actions Services.

Full Volume Restore Target Identification

Full Volume Restore

If you perform a Full Volume Restore (Option 6 - DSS Volume or Option 9 - FDR Volume), the first thing to do is identify the target volume, which the restore process then overwrites.

Identifying the Target Volume

You can identify the target volume with the normal Unit Selection and Volume Selection Screens. Instructional screens appear to remind you of the purpose of the selection (in this case, target dataset selection).

For more information on the Unit Selection and Volume Selection screens, see Actions Services.

Identifying the Tape Volumes

Tape List Screen Overview

After you identify the target dataset, the Tape List Screen displays.

The Tape List Screen lists the DSS or FDR backup tape volumes, and tape units that will be used for the restore. If you use the LISTCAT/ALTERCAT Capture command to extract the tape volume serial numbers for a cataloged backup dataset, then those Volsers automatically appear on the Tape List Screen. The Tape List Screen provides the ability to associate a tape volume with a tape device and, with tape volume pre-mounting, avoids any delays and requirements for manual intervention during the restore.

Optional

The use of the Tape List Screen is optional; if you leave it blank (or cleared with the CLEAR command), you must then enter the tape unit address and tape volume serial information individually each time a mount is required.

Tape List Screen

```
TAPE LIST ----- LIST REQUIRED DSS TAPES  
COMMAND ==>
```

```
VOLUME LIST FOR DATASET: P390.MVSV5R.BACKUP.OCT1096  
DEVICE TYPE: 3480
```

```
VOLSER UNIT          THE TAPE LIST IS USED TO PROVIDE THE LIST OF  
1. NES591            REQUIRED VOLUMES. YOU MAY ASSOCIATE A VOLUME  
2. NES618            WITH A TAPE DRIVE AND PRE-MOUNT TAPES TO SPEED  
3. NES763            UP MOUNT PROCESSING. SUPPLIED VALUES WILL BE  
4. NES432            SUBSTITUTED WHEN A TAPE MOUNT IS REQUESTED.  
5. NES827  
6.  
7.                  USING THE 'C' LINE COMMAND IN LISTCAT WILL  
8.                  CAPTURE THE VOLUME LIST FOR A CATALOGED TAPE  
9.                  DATASET AND AUTOMATICALLY FILL IN THE VOLUMES.  
10.                 ENTER COMMAND 'CLEAR' TO CLEAR ENTRIES.  
                   USE IS OPTIONAL, CLEAR ENTRIES TO AVOID USE.
```

```
PRESS PF3 TO CONTINUE
```

Up to Ten Tape Volumes

The Tape List Screen provides for the identification of up to ten tape volumes.

If you use the LISTCAT/ALTERCAT Capture command, the Tape List Screen already contains the list of required volumes. If you did not use the Capture command, you must enter the required volumes, in volume sequence order, on the Tape List Screen.

Associated Tape Unit Addresses

The Tape List Screen also has ten input fields for the tape unit addresses associated with each tape volume. The Tape Mount processing during the restore is affected by the values supplied in the Unit field on the Tape List Screen. See Tape Mount Options for a list of the various options.

Tape Mount Options

Complete Pre-mount - Fastest and No Intervention

If you have a sufficient number of tapes drives available to pre-mount each tape volume, then you can avoid any manual intervention as each tape is required.

Mount each volume on a Tape Drive and then specify in the Unit field associated with each volume the Tape Drive Unit Address that was used. SAE processes each volume sequentially; and on volume switch, SAE attempts to read from the specified Tape Unit. If the tape is pre-mounted and the Volser correct, SAE continues processing without any manual intervention.

```
VOLSER UNIT
1. NES591 570
2. NES618 571
3. NES763 572
4. NES432 573
5. NES827 574
```

Two Drive Swap - Fastest But Intervention

If you have two tape drives available, you can ensure that the next tape is always 'pre-mount'.

In the Unit field associated with each volume, specify one of the two Tape Drive Unit Addresses, alternating between them. Mount the first two tapes on the available drives and as each tape unloads, mount the next one. This technique allows SAE to continue with the next tape immediately, without having to wait for tape rewind and unload. SAE processes each volume sequentially, and on volume switch, SAE attempts to read from the specified Tape Unit. If the tape is pre-mounted and the Volser correct, SAE continues processing without any manual intervention.

```
VOLSER UNIT
1. NES591 570
2. NES618 571
3. NES763 570
4. NES432 571
5. NES827 570
```

Continued on next page

Tape Mount Options, Continued

Single Drive with Cartridge Loader - Slower But No Intervention

If you only have a single tape drive available (which has a cartridge loader), then you can use it to perform the tape mounts.

Enter the cartridges in the correct order into the Cartridge Loader and ensure the loader is not in Manual Mode. Specify the Tape Drive Unit Address in the Unit field associated with first volume. You may leave the other Unit fields blank.

This technique avoids manual intervention, but requires SAE to wait for rewind/unload before the next tape can begin processing. When SAE completes the processing of one volume on a Tape Unit that has an installed Cartridge Loader and the next volume's field is blank, SAE waits a preset number of seconds (to allow for the cartridge to auto load) then attempts to read from the specified Tape Unit. If the tape is mounted and the Volser correct, SAE continues processing without any manual intervention.

```
VOLSER UNIT
1. NES591 570
2. NES618
3. NES763
4. NES432
5. NES827
```

Single Drive – Slowest, With Intervention

If you only have a single tape drive available, you may choose either to enter the same tape drive unit address for each tape or leave the fields blank.

In either case, you must manually mount the next tape volume after unloading the previous volume. When the Tape Mount Screen appears, you must enter the unit address (if blank) and press Enter for each mount operation.

```
VOLSER UNIT
1. NES591
2. NES618
3. NES763
4. NES432
5. NES827
```

To Continue

After supplying the Tape List Screen values, use PF3 to continue.

First Volume Mount

First Tape Required

When you have completed identifying the Target and processing the Tape List, the restore process requires the first tape of the DSS or FDR backup. A Tape Mount Screen appears.

Tape Mount Screen

```
TAPE MOUNT REQUEST ----- MOUNT FIRST DSS BACKUP VOLUME  
COMMAND ==>
```

```
FOR TAPE MOUNT, PROCEED AS FOLLOWS:  
- MOUNT THE DESIRED TAPE AND READY THE DRIVE  
- SUPPLIED REQUIRED VALUES  
- PRESS ENTER
```

```
TAPE DRIVE UNIT ADDRESS ==> 570
```

```
TAPE VOLUME SERIAL NUMBER ==> NES591  
DATASET'S FILE SEQ NUMBER ==> 1
```

Tape List Screen Information Substituted

SAE substitutes the first tape volume and its associated unit address from the Tape List Screen in the Tape Mount Screen.

Procedure

If one or both of these values were not entered on the Tape List Screen:

Step	Action
1.	Enter the required Unit Address and/or Tape Volume Serial Number values on the Tape Mount Screen.
2.	Press Enter after the volume has been mounted and the tape device is ready.

Backup Information

Backup Information Screen Overview

If the tape contains a valid backup for the selected Restore (DSS or FDR), the Backup Information Screen appears

Backup Information Screen

```
DFSMSdss BACKUP INFORMATION -----  
COMMAND ==>  
  
TAPE INFORMATION  
  TAPE VOLSER:  NES591          VOLUME SEQ NUMBER:  
  DATASET NAME: 5R.BACKUP.OCT1096  DATASET SEQ NUMBER:   1  
  
BACKUP INFORMATION  
  DUMP TYPE:     FULL          DFSMSdss VER: V1R3.0  
  BACKUP DATE:  96/10/11      TIME: 14:04  
  SOURCE VOLUME: MVS5R        DEVICE TYPE: 3380   CYLS:  2655  
  
RESTORE TARGET INFORMATION  
  TARGET VOLUME: MVS5R        DEVICE TYPE: 3380   CYLS:  2655  ADDR: 2C0  
  TARGET DATASET SYS1.LPALIB  
  
PRESS ENTER TO CONTINUE
```

Screen Information

This screen shows:

- Information on the type of backup
- When the backup was taken
- Restore target information

Press Enter to continue.

Dataset Restore Source Dataset Selection

Select the Source Dataset

If you are performing a dataset restore, then after the DSS or FDR backup dataset opens and the Backup Information Screen displays, you must select the source of the restore operation.

The source dataset is the dataset you want to restore from a backup. You must use the Restore Dataset Selection Screen to select the dataset to restore.

Restore Dataset Selection Screen

```
DATA SETS ON VOLUME MVS5R (=DSS) ----- SELECT RESTORE FROM DATASET
COMMAND ==>                                SCROLL ==> PAGE
DATA SET NAME                               ORG RF LRECL BLKSZ #EX LAST REF
SYS1.LPALIB                                 PO  U   0 32760  5 96/07/12
SYS1.MACLIB                                 PO  FB  80 23440  2 96/09/18
SYS1.MIGLIB                                 PO  U   0 32760  1 96/09/21
SYS1.MODGEN                                 PO  FB  80 23440  1 96/09/18
SYS1.MSGENP                                 PO  VB 259 23476  1 95/10/26
SYS1.MSGENU                                 PO  VB 259 23476  1 95/10/26
SYS1.NUCLEUS                                PO  U   0 32760  1 96/09/21
SYS1.NVULIB                                 PO  U   0 32760  3 95/10/26
SYS1.OVERLIB                                PO  VB 8205 23476  1 95/10/26
SYS1.PDEFLIB                                PO  VB 8205 23476  1 95/10/26
SYS1.PSEGLIB                                PO  VB 8205 23476  1 95/10/26
SYS1.README                                 PO  FB  80 23440  1 95/10/31
SYS1.SADMAMP                                 PO  FB 400 23200  1 95/10/26
SYS1.SADMMOD                                 PO  U   0 32760  1 96/09/21
SYS1.SADMPCF                                 PO  FB 400 23200  1 95/10/26
SYS1.SADMSYM                                 PO  FB 400 23200  1 95/10/26
SYS1.SAFHFORT                               PO  U   0 32760  1 95/10/26
SYS1.SAMPLIB                                PO  FB  80 23440  4 96/09/21
SYS1.SANRHP                                  PO  FB  80 23440  1 95/10/26
SYS1.SANRMSG                                PO  FB  80 23440  1 95/10/26
```

Unit Address Field

The DASD volume's unit address field displays as =DSS or =FDR to indicate if the volume is contained within a backup.

To select the Dataset you want to restore, use the 'S' line command.

List May Not be Accurate

The Dataset Selection list may not accurately reflect the datasets contained within the backup for DSS DATASET Backups.

See DSS Restrictions (page 26-303) for more information.

Restore Confirmation

Overview

Before starting a restore operation, the Restore Confirmation Screen displays.

Restore Confirmation Screen

```
DFSMSdss DATASET RESTORE -----  
COMMAND ==>  
  
TAPE INFORMATION  
  TAPE VOLSER:  NES591                VOLUME SEQ NUMBER:    1  
  DATASET NAME: 5R.BACKUP.OCT1096     DATASET SEQ NUMBER:    1  
  
BACKUP INFORMATION  
  DUMP TYPE:     FULL                DFSMSdss VER: V1R3.0  
  BACKUP DATE:   96/10/11            TIME: 14:04  
  SOURCE VOLUME: MVS5R                DEVICE TYPE: 3380    CYLS: 2655  
  SOURCE DATASET SYS1.LPALIB  
  
RESTORE TARGET INFORMATION  
  TARGET VOLUME: MVS5R                DEVICE TYPE: 3380    CYLS: 2655  ADDR: 2C0  
  TARGET DATASET SYS1.LPALIB  
  
RESTORE WILL OVER WRITE TARGET DATASET  
PRESS ENTER TO RESTORE, PF3 TO CANCEL
```

Carefully Review Before Proceeding

Carefully review the source and target selections:

- For full volume restore, SAE overwrites the entire target volume.
- For dataset restore, SAE overwrites the entire target dataset.
- If necessary, SAE increases the size of the Target dataset. At the end of the restore, the Target dataset will have the source dataset's DCB characteristics.
- SAE uses the physical extents of the target dataset to hold the restored source dataset.

To proceed with the restore operation, press Enter. To cancel the restore operation, press PF3.

Restore Status Messages

During the restore operation, the Restore Confirmation Screen remains visible, but the confirmation messages on the lower portion are replaced by restore status messages.

Dataset Restore Status Messages

For Dataset restore, these messages indicate:

- the number of tracks to be restored,
- the number that have been restored,
- the next source DASD cylinder that is required and
- the current DASD cylinder that is being extracted from the backup dataset.

```
RESTORED    15 OF    870 TRACKS  
WORKING...SEARCHING TAPE FOR CYL 094F, CURRENTLY AT 094E
```

Full Volume Restore Message

For Full Volume restore, the message indicates the number of the cylinder that is being restored.

```
RESTORING CYLINDER    834
```

Continued on next page

Restore Confirmation, Continued

End-of-Volume When SAE encounters an End-of-Volume on a backup tape, the Tape Mount Screen appears.

If the tape volume is pre-mounted or you are using a Cartridge Loader, the Tape Mount screen appears for a few seconds with input inhibited, and then it returns to the Restore Confirmation Screen. If the process requires intervention, the Tape Mount Screen displays and, depending on the information supplied on the Tape List Screen, may require input values.

After mounting the next tape and supplying any necessary input values, press Enter to continue processing.

Restore Time

Physical Dumps The backups created by DFSMSDss (DF/DSS) and FDR/DSF are physical dumps of DASD volumes. This means that the DASD Tracks are dumped to tape in an order that is consistent with their location on the DASD volume, and with little regard to which tracks make up a particular dataset.

Restoring a Single Dataset Datasets are made up of extents, with each extent being a group of one or more tracks somewhere on the DASD volume.

To perform a single dataset restore from a physical DASD backup, you must restore each track from each extent. However, the tracks contained within a physical dump backup dataset are dumped from the low DASD track address (for example, CYL 0000 TRACK 0000) to the high DASD track address.

Sequential Media Tape is a sequential media. This means that to read the highest track dumped within a backup requires that SAE reads all the dumped tracks. The amount of time required to restore a single dataset from a physical dump varies greatly depending on the location of the datasets extents relative to the start of the volume.

Example Consider the following examples:

SYS1.TEST1			SYS1.TEST2		
EXT	STARTING	ENDING	EXT	STARTING	ENDING
	CCCCHHHH	CCCCHHHH		CCCCHHHH	CCCCHHHH
1	00700000	00A4000E	1	004E0000	004E000E
2	00B20000	00E2000E	2	09780000	0978000E
3	00600000	0060000E	3	00200000	0020000E
4	00610000	0061000E			
5	00620000	0062000E			

Total tracks: 128

Total tracks: 45

Dataset SYS1.TEST1 is much larger and is in many more extents than dataset SYS1.TEST2. It will be restored much faster because restoring the second extent of dataset SYS1.TEST2 requires Cylinder x'0978' (2424) and this high addressed track is close to the end of the backup tape(s). All of dataset SYS1.TEST1 can be restored by processing the backup tape(s) to Cylinder x'00B2' (178).

Inspect Function You can use the Inspect function to view the Dataset Information for a dataset within the backup and see its extent layout. This provides an idea of how much data must be read before you can completely restore the dataset.

Continued on next page

Restore Time, Continued

**Dataset Backups
Contain Less
Data**

Dataset backups (DSS DATASET and DSF) will, in most cases, contain less data than a full volume dump, because only the tracks required for the selected datasets are dumped. Restore operations from these types of dumps take less time versus full volume dumps.

Closer is Faster

The closer the entire dataset is to the beginning of the volume, the quicker the single dataset restore runs.

Performing a DSS or FDR Compare

DASD Track and Tape Records

DASD tracks contained within a DSS or FDR backup dataset may be broken into several tape records or one tape record may contain several DASD tracks.

SAE must extract and re-construct these track images to perform the restore. Since SAE is not used to create these backup datasets, changes in the way DFSMSdss (DF/DSS) or FDR/DSF create these backup tapes may affect SAE's ability to properly re-construct each track image.

Compare Function

SAE provides a DSS and FDR Full Volume and Dataset Compare function to test SAE's support of backup tapes created by DFSMSdss (DF/DSS) and FDR/DSF.

These Compare functions are similar to restore in that each track image is extracted and re-constructed from the backup tape. Unlike Restore, however, the Compare function reads the corresponding track from the target volume and compares the two. No writes are performed to the target volume or dataset.

The idea behind the Compare functions is that a DSS or FDR backup is taken of a DASD Volume or dataset and then SAE is used to compare the contents of the backup to the original. Of course, you must ensure that the volume or dataset cannot be altered between the time of the backup and the time of the compare. If SAE finds no differences, you can be confident that SAE is capable of extracting and re-constructing track images from your current release of DSS or FDR.

Full Volume DSS/FDR Compare

Overview

With the Full Volume Compare, SAE compares each DASD track contained within a backup to the corresponding absolute track on the target volume.

For the test to be meaningful, the target volume must be the same volume from which the backup was made and the volume must not have been altered in any way since the backup was made.

Setting Up a Compare Test

In setting up a compare test, select a DASD volume that is not in use (for example, an old SYSRES volume) or a volume for which you can ensure there is currently no write activity (your DLIB volume perhaps).

Perform your normal full volume dump (DSS or FDR) and then perform the Full Volume Compare.

Invoking the Full Compare

To invoke the Full Volume Compare, follow the same steps as if you were going to perform a DSS or FDR restore, but stop at the Backup Information Screen.

These steps include:

Step	Action
1.	Select the target volume (the one that was just backed up) and a target dataset. For the Full Volume Compare, the target dataset is ignored, so select any dataset on the volume.
2.	Identify the required backup volumes and tape drives on the Tape List Screen.
3.	Proceed with the first volume mount.
4.	When the Backup Information Screen appears, enter 'COMPARE' on the Command Line. DFSMSdss BACKUP INFORMATION ----- COMMAND ==> COMPARE
5.	Press Enter.

CAUTION

Pressing Enter without entering the 'COMPARE' command restores the volume.

Continued on next page

Full Volume DSS/FDR Compare, Continued

If SAE Finds a Difference

This invokes the Full Volume Compare function. SAE updates the status line as each track from the backup tape is compared to the corresponding absolute track on the target volume. SAE stops if it finds a difference.

In this case, press:

- Enter to continue,
 - PF3 to stop the compare process, or
 - PF1 to display the Track Compare Report.
-

Track Compare Report

If a difference is found and you are sure that updates to the volume have not been made since the backup was taken, use PF1 to display the Track Compare Report.

When the report displays, use the Browse PRINT command to print the Track Compare Report. NewEra support staff requires this report to investigate the problem.

DSS/FDR Dataset Compare

Overview

With Dataset Compare, SAE compares each DASD track of the source dataset contained within a backup tape to the corresponding relative track in the target dataset.

As the Dataset Compare function compares relative tracks within the datasets (unlike the Full Volume Compare which compares absolute tracks), the source and target datasets do not have to be on the same volume or at the same location on a volume.

For the test to be meaningful, the target dataset must be the same dataset from which the backup was made, and the dataset must not have been altered in any way since the backup was made. If the target dataset is smaller than the source dataset, its size will be increased prior to the compare.

Comparing Datasets

You can use Dataset Compare to compare a dataset within the backup to the original dataset or to compare it to a dataset restored from the backup under z/OS using DSS or FDR.

No Write Activity

In setting up a Compare test, select a dataset for which you can ensure that there is currently no write activity.

Invoking Dataset Compare

To invoke Dataset Compare, follow the same steps as if you were going to perform a DSS or FDR restore, but stop at the Restore Confirmation Screen.

These steps include:

Step	Action
1.	Select the target volume and a target dataset.
2.	Identify the required backup volumes and tape drives on the Tape List Screen.
3.	Proceed with the first volume mount.
4.	Press Enter when the Backup Information Screen displays.
5.	Select the dataset from within the backup that is to be compared.
6.	Enter COMPARE on the command line when the Restore Confirmation Screen displays. <pre>DFSMSdss DATASET RESTORE ----- COMMAND ==> COMPARE</pre>
7.	Press Enter. This invokes the Dataset Compare function.

CAUTION

Pressing Enter without entering the 'COMPARE' command restores the dataset.

Continued on next page

DSS/FDR Dataset Compare, Continued

Status Line Updates

SAE updates the status line as it compares each track from the backup source dataset to the corresponding relative track of the target dataset.

In this case, press:

- Enter to continue,
 - PF3 to stop the compare process, or
 - PF1 to display the Track Compare Report.
-

Printing the Track Compare Report

If a difference is found and you are sure that updates to the dataset have not been made since the backup was taken, use PF1 to display the Track Compare Report.

Once the report displays, use the Browse PRINT command to print the Track Compare Report. NewEra support staff requires this report to investigate the problem.

Chapter 29: Performing a Volume Copy

Overview

Introduction This chapter discusses SAE’s Volume Copy feature in detail.

In This Part This chapter contains the following topics:

Chapter	See Page
Volume Copy Overview	29-338
Volume Copy Source and Target Identification	29-339
Copy Confirmation	29-340

Volume Copy Overview

Overview

You can use the Volume Copy function to copy an entire DASD volume from one volume to another.

- The copy must be made between like device types (for example, 3390 to 3390).
 - The number of cylinders on the target device must be equal to or greater than the number of cylinders on the source device.
-

Copying a Smaller Volume

When you copy a smaller volume to a device with larger capacity, the VTOC free space information becomes invalid. The VTOC free space information is rebuilt when the next dataset allocation takes place on the volume using z/OS.

Volume Copy Source and Target Identification

Identify the Source Volume

If you perform a Volume Copy (Option 10 - Volume Copy), the first required action is the identification of the source volume (the volume to be copied).

The identification of the source volume is performed with the normal Unit Selection and Volume Selection Screens. An instructional screen appears to remind you of the purpose of the selection (in this case, source volume selection).

For more information on the Unit Selection and Volume Selection screens, see Actions Services.

Identify the Target Volume

After identifying the source volume, you must then identify the target volume (the volume that is overwritten by the copy process).

The identification of the target volume is performed with the normal Unit Selection, and Volume Selection Screens. An instructional screen appears to remind you of the purpose of the selection (in this case, target volume selection).

Copy Confirmation

Overview

Prior to starting the Copy operation, the Copy Confirmation Screen appears.

Copy Confirmation Screen

```
SAE VOLUME INFORMATION -----  
COMMAND ==>  
  
SOURCE VOLUME INFORMATION  
VOLUME: MVS5R  DEVICE TYPE: 3380  CYLS:  2655  ADDR: 02CA  
  
TARGET VOLUME INFORMATION  
VOLUME: SPARE1  DEVICE TYPE: 3380  CYLS:  2655  ADDR: 02F8  
  
COPY WILL OVER WRITE TARGET DATASET  
PRESS ENTER TO COPY, PF3 TO CANCEL
```

Review Source and Target

Carefully review the source and target selections, as the entire target volume is completely overwritten during a Copy.

To proceed with the copy operation, press Enter; to cancel, press PF3.

Confirmation Messages

During the copy operation, the Copy Confirmation Screen remains visible, but the confirmation messages on the lower portion are replaced by a copy status message that indicates the cylinder number that is being copied.

For example:

```
COPYING CYLINDER  834
```

Chapter 30: Performing a Volume Compare

Overview

Introduction This chapter discusses SAE's performing a Volume Compare.

In This Part This chapter contains the following topics:

Chapter	See Page
Volume Compare Overview	30-342
Volume Compare Source and Target Identification	30-343
Compare Confirmation	30-344

Volume Compare Overview

Overview

The Volume Compare function compares an entire DASD volume to another.

The compare must be made between like device types (for example, 3390 to 3390), and the number of cylinders on the target device must be equal to or greater than the number of cylinders on the source device.

Track Level Compare

The Volume Compare performs a track level compare.

The primary purpose of a track level compare is to validate the volume copy operations (for example, Snap Shot). It is not practical to use Volume Compare to determine differences in logical records within datasets.

Volume Compare Source and Target Identification

Identify the Source Volume

When you perform a Volume Compare (Option 11 - Volume Compare), you must first identify the source volume (the first of the two volumes that are compared).

To identify the source volume, use the normal Unit Selection and Volume Selection Screens. An instructional screen appears to remind you of the purpose of the selection (in this case, source volume selection).

For more information on the Unit Selection and Volume Selection screens, see Actions Services.

Identify the Target Volume

After identifying the source volume, you must identify the target volume (the second of the two volumes that are compared).

To identify the target volume, use the normal Unit Selection and Volume Selection Screens. An instructional screen appears to remind you of the purpose of the selection (in this case, target volume selection).

Compare Confirmation

Overview

Prior to starting the compare operation, the Compare Confirmation Screen appears.

Compare Confirmation Screen

```
SAE VOLUME INFORMATION -----  
COMMAND ==>  
  
SOURCE VOLUME INFORMATION  
VOLUME: MVS5R  DEVICE TYPE: 3380  CYLS:  2655  ADDR: 02CA  
  
TARGET VOLUME INFORMATION  
VOLUME: SPARE1  DEVICE TYPE: 3380  CYLS:  2655  ADDR: 02F8  
  
PRESS ENTER TO CONTINUE
```

To Proceed

To proceed with the compare operation, press Enter; to cancel, press PF3.

Compare Status Message

During the compare operation, the Compare Confirmation Screen remains visible, but the confirmation messages on the lower portion are replaced by a compare status message that indicates the number of the track that have been compared.

For example:

```
WORKING...COMPARING TRACK 0000 0000
```

Continued on next page

Part IX: Troubleshooting

Overview

Introduction The Troubleshooting part of this document describes solutions to commonly-reported SAE issues

In This Part This part contains the following chapters:

Chapter	See Page
Wait State Codes	30-348
Stand Alone Dump	30-350
I/O Errors	30-351

Wait State Codes

Wait State Descriptions

During normal operation, SAE indicates certain states by loading an enabled wait state PSW. The following list identifies the state that corresponds to the low order three bytes of the wait state PSW:

Wait State	Description
FF0000	Initial wait state after SAE has been successfully loaded. It indicates that SAE is waiting for an interrupt from the 3278-2 type device which will be used as a console
FF0xxx	The normal wait state when waiting for an I/O interrupt from device xxx. When no operations are active, xxx is the console address.

Continued on next page

Wait State Codes, Continued

Error Condition Description

SAE indicates certain error conditions by loading a disabled wait state PSW. For disabled wait states, most processors display the wait state PSW on the processor system console and signal the condition with an audible alarm. The following list identifies the conditions that correspond to the low order three bytes of the disabled wait state PSW:

Note: In each case, the low order three bytes of the PSW are for xxDEAD, where xx is the specific error code.

Error Condition	Description
37	An attempt was made to use SAE on a processor in S/370 mode. You can only use SAE version 10 and higher with processors in XA, ESA, S/390 or z/Architecture mode. If the processor only supports S/370 mode, you must use SAE Release 9.9.
A0	A PSW restart has been attempted or SAE termination was requested.
A1	SAE detected a machine check interrupt.
A3	SAE detected an error for the console device. Re-IPL SAE and use a different console. If the problem persists, take a stand-alone dump and contact NewEra Technical Support staff.
A4	The time of day (TOD) clock is in an error, stopped, or not-operational state
A5	Indicates an internal stack error. Take a stand-alone dump and contact NewEra Technical Support staff.
A6	An I/O error occurred during tape IPL. The tape may contain a data check or the tape was incorrectly created.
A7	An error occurred that prevented an audit record from being written to the audit control dataset, so the audit was enabled with AUDIT_TYPE=ENABLE
A8	Indicates an internal GET/FREE control block error.
A9	Indicates an internal FREE MAIN error.
AA	While IPLing SAE from DASD, the SAE NUCLEUS dataset could not be found or read.
By	An authorization error. Contact NewEra Technical support staff.
Cy	Indicates a program check has occurred. If console I/O is still possible, a message appears indicating the interrupt code and address. Take a stand-alone dump and contact NewEra support staff.

Stand Alone Dump

SAE Stand Alone Dump If a problem occurs, it is often necessary to take a Stand Alone Dump of SAE to help the NewEra Technical Support Staff in diagnosing the problem.

Procedure To take the Stand Alone Dump:

Step	Action
1.	Perform a STORE STATUS for the CP on which SAE is running.
2.	IPL from the unit containing SADMP.
3.	Perform normal SADMP procedures as if z/OS was being dumped (tape output is recommended). <u>Result:</u> SADMP should indicate that all real storage was dumped, but virtual storage was not.

I/O Errors

I/O Error Screen If an I/O error occurs during a SAE operation, an I/O Error Screen displays over the current screen. The I/O Error screen gives specific information on the I/O error and may be helpful in determining the cause.

Screen Print Use screen print (PF12/PF24) to permanently record the I/O Error Screen contents.

**Sample I/O
Error Screen**

```
***** I/O ERROR *****
*   UNIT: 0192 ERROR: UNIT CHECK           COMMAND REJECT   *
*   DEVICE STATUS: 02 CHANNEL STATUS: 00 BYTE COUNT: 0000   *
*   CCW CHAIN ADDR: 00008C60 FAILING CCW ADDR: 00008C60     *
*   FAILING CCW: B400098420000018 DATA: 0000000000000000   *
*   SENSE: 80000000000001010000000000000000               *
*   000000000000000000000000000000000000000000000000000   *
*   ENTER TO CONTINUE OR PF12 TO PRINT                       *
*****
```


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