

Dell EMC™ Mainframe Enablers

Version 8.3

Installation and Customization Guide

REV 01

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PREFACE

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

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

Note: This document was accurate at publication time. New versions of this document might be released in Dell EMC Online Support. Check Dell EMC Online Support to ensure that you are using the latest version of this document.

Audience

This document is intended for use by systems programmers who are responsible for installing and configuring the Mainframe Enablers software.

Coverage

This document describes Mainframe Enablers when used in the following system operating environments supported by Mainframe Enablers 8.3:

- ◆ PowerMaxOS 5978
- ◆ HYPERMAX OS 5977
- ◆ Enginuity™ 5876

Note: See prior versions of the *Mainframe Enablers Installation and Customization Guide* for information pertaining to other Enginuity levels.

Related documentation

To access related documentation, go to the PowerMax™ and VMAX™ All Flash Technical Documentation webpage at:

www.dell EMC.com/en-us/documentation/vmax-all-flash-family.htm

The following documents provide information about Mainframe Enablers:

- ◆ *Mainframe Enablers Release Notes*
- ◆ *Mainframe Enablers Installation and Customization Guide*
- ◆ *Mainframe Enablers Message Guide*
- ◆ *ResourcePak™ Base for z/OS Product Guide*
- ◆ *SRDF™ Host Component for z/OS Product Guide*
- ◆ *AutoSwap™ for z/OS Product Guide*

- ◆ *Consistency Groups for z/OS Product Guide*
- ◆ *TimeFinder™ SnapVX and zDP™ Product Guide*
- ◆ *TimeFinder/Clone Mainframe Snap Facility Product Guide*
- ◆ *TimeFinder/Mirror for z/OS Product Guide*
- ◆ *TimeFinder Utility for z/OS Product Guide*

The following documents provide additional information:

- ◆ *PowerMax Family Product Guide*—Documents the features and functions of the PowerMax storage systems.
- ◆ *PowerMaxOS for PowerMax and VMAX All Flash Release Notes*—Describes new features and any known limitations.
- ◆ *VMAX All Flash Product Guide*—Documents the features and functions of the VMAX All Flash storage systems.
- ◆ *HYPERMAX OS for VMAX All Flash and VMAX3 Family Release Notes*—Describes new features and any known limitations.
- ◆ *VMAX3 Family Product Guide*—Documents the features and functions of the VMAX3 100K, 200K, and 400K storage systems.
- ◆ *VMAX Family Product Guide*—Documents the features and functions of the VMAX 10K, 20K, and 40K storage systems.
- ◆ *E-Lab™ Interoperability Navigator (ELN)*—Provides a web-based interoperability and solution search portal. You can find the ELN at elabnavigator.EMC.com.

Conventions used in this document

Dell EMC uses the following conventions for special notices:

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

IMPORTANT

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

Typographical conventions

Dell EMC uses the following type style conventions in this document:

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

Where to get help

Dell EMC support, product, and licensing information can be obtained on Dell EMC Online Support, as described next.

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

Product information

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

support.EMC.com

Technical support

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Support by Product—Dell EMC offers consolidated, product-specific information at:

support.EMC.com/products

The Support by Product web pages offer quick links to Documentation, White Papers, Advisories (such as frequently used Knowledgebase articles), and Downloads, as well as more dynamic content, such as presentations, discussion, relevant Customer Support Forum entries, and a link to Dell EMC Live Chat.

Dell EMC Live Chat—Open a Chat or instant message session with a Dell EMC Support Engineer.

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If you are missing a LAC letter, or require further instructions on activating your licenses through the Online Support site, contact Dell EMC's worldwide Licensing team at licensing@emc.com or call:

- ◆ North America, Latin America, APJK, Australia, New Zealand: SVC4EMC (800-782-4362) and follow the voice prompts.
- ◆ EMEA: +353 (0) 21 4879862 and follow the voice prompts.

Your comments

Your suggestions will help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to:

VMAXContentFeedback@emc.com

CHAPTER 1

Introduction

This chapter covers the following topics:

- ◆ [Mainframe Enablers software](#) 14
- ◆ [Mainframe Enablers documentation](#)..... 16

Mainframe Enablers software

The Dell EMC Mainframe Enablers are a suite of components that monitor and manage the Dell EMC storage system. Mainframe Enablers components are distributed and installed as a single package. This combined packaging simplifies installation and maintenance, and provides assurance of component compatibility.

Mainframe Enablers components

The Mainframe Enablers include the following software components:

ResourcePak™ Base for z/OS

ResourcePak Base makes communication between mainframe-based applications (provided by Dell EMC or independent software vendors) and a Dell EMC storage system more efficient.

SRDF™ Host Component for z/OS

SRDF Host Component monitors SRDF (Symmetrix Remote Data Facility) status and controls SRDF processes through the use of commands that are executed from a host. SRDF Host Component maintains a real-time copy of data at the logical volume level in multiple storage systems that are located in physically separate sites.

Consistency Groups for z/OS

Consistency Groups (ConGroup) is designed to ensure the consistency of data that the SRDF feature remotely copies in the event of a rolling disaster.

AutoSwap™ for z/OS

AutoSwap handles automatic workload swaps between systems when the AutoSwap software detects an unplanned outage or problem. Although included with ResourcePak Base, AutoSwap is primarily used with Consistency Groups for z/OS.

TimeFinder™/Clone Mainframe Snap Facility

TimeFinder/Clone Mainframe Snap Facility is the software foundation for the following functional local replication products:

- ◆ TimeFinder SnapVX provides a space-efficient method for making volume level snapshots of thin devices and consumes additional storage capacity only when updates are made to the source volume.
- ◆ Data Protector for z Systems (zDP™) is employed with SnapVX and provides application recovery from unintended changes to data.
- ◆ TimeFinder/Clone allows creating point-in-time copies of full volumes or individual datasets.
- ◆ TimeFinder/Snap allows creating pointer-based copies where only the pre-images of changed data are written to the save area.
- ◆ TimeFinder/Consistency Group allows you to perform snap and clone operations on volumes so that the target is dependent write consistent.

TimeFinder/Mirror for z/OS

TimeFinder/Mirror allows you to create Business Continuity Volumes (BCVs) and gives you the ability to ESTABLISH, SPLIT, RE-ESTABLISH, and RESTORE from the source logical volumes.

TimeFinder Utility for z/OS

TimeFinder Utility is used in conditioning SPLIT BCVs by relabeling the volume and (optionally) renaming and re-cataloging datasets. This allows the BCV to be mounted and used.

Additional features

Mainframe Enablers also include additional features that can be enabled by the major components:

Multi-Session Consistency (MSC)

Multi-Session Consistency (MSC) provides consistency across multiple VMAX systems for SRDF/A groups.

SRDF/AR

SRDF/AR (Automated Replication) automates data copying across SRDF links to provide a restartable image of the data at a remote site in the event of a disaster at the production site.

Mainframe Enablers documentation

This *Mainframe Enablers Installation and Customization Guide* and the other manuals for Mainframe Enablers are available on the Dell EMC Online Support website.

Note: As information is added, new versions of these documents may be released to Dell EMC Online Support at support.EMC.com. Check the website to ensure that you are using the latest versions of these documents.

[Table 1](#) lists the documentation for Mainframe Enablers.

Table 1 Mainframe Enablers documentation

Component	Document
Mainframe Enablers	<i>Mainframe Enablers Installation and Customization Guide</i>
	<i>Mainframe Enablers Message Guide</i>
	<i>Mainframe Enablers Release Notes</i>
ResourcePak Base for z/OS	<i>ResourcePak Base for z/OS Product Guide</i>
SRDF Host Component for z/OS, including the REXX interface	<i>SRDF Host Component for z/OS Product Guide</i>
Consistency Groups for z/OS and AutoSwap for z/OS	<i>Consistency Groups for z/OS Product Guide</i>
	<i>AutoSwap for z/OS Product Guide</i>
TimeFinder SnapVX, zDP	<i>TimeFinder SnapVX and zDP Product Guide</i>
TimeFinder/Clone Mainframe Snap Facility	<i>TimeFinder/Clone Mainframe Snap Facility Product Guide</i>
TimeFinder/Mirror for z/OS	<i>TimeFinder/Mirror for z/OS Product Guide</i>
TimeFinder Utility	<i>TimeFinder Utility for z/OS Product Guide</i>

CHAPTER 2

Installation

This chapter covers the following topics:

- ◆ Pre-installation 18
- ◆ Installation..... 21
- ◆ Post-installation 31

Pre-installation

Before you begin installing Mainframe Enablers, complete the following steps:

1. Review the *Mainframe Enablers Release Notes*.
2. Review the interoperability information in the E-Lab™ Interoperability Navigator which can be reached at elabnavigator.EMC.com.
3. Ensure that the system meets the hardware and software requirements that are listed in “[Hardware and software requirements](#)” on page 18.
4. Gather installation information as described in “[Installation information](#)” on page 20.

Hardware and software requirements

This section covers both PowerMax/VMAX system and IBM mainframe requirements.

Note: zBoost™ PAV Optimizer requirements are listed in the *ResourcePak Base for z/OS Product Guide*.

[Table 2](#) lists the PowerMax/VMAX hardware and software requirements.

Table 2 PowerMax/VMAX system requirements (page 1 of 2)

Item	Requirements
Hardware	All supported PowerMax/VMAX systems.
Operating environment	<p>PowerMaxOS 5978, HYPERMAX OS 5977, Enginuity 5876</p> <p>The following are the minimum levels that are required for the features:</p> <ul style="list-style-type: none"> • PowerMaxOS 5978 for the following: <ul style="list-style-type: none"> <i>None</i> • HYPERMAX OS 5977 for the following: <ul style="list-style-type: none"> Support of 4-byte VMAX device numbers^a Enhanced asynchronous attention 128KB FBA track size SRDF/A Multi-Cycle Mode Support of targetless infrastructure Adaptive copy: conversion of ADC-WP to ADC-DISK Transition to a single pool type Support of multiple user exits Multiport group support GNS scalability SnapVX and zDP features Mirror Optimizer SRDF/Star-A • Enginuity 5876 for the following: <ul style="list-style-type: none"> Virtual Snap improvements Multidevice capabilities Thin device support Cascaded clone support Extended address volume support

Table 2 PowerMax/VMAX system requirements (page 2 of 2)

Item	Requirements
Storage system devices	TimeFinder/Clone Mainframe Snap Facility: If you are going to use the system for Virtual Snapshot, the system must be configured with Virtual and Snap Pool devices.
	TimeFinder/Mirror: The system must be configured with BCV volumes.
Storage system configuration parameters	Consistency Groups: <ul style="list-style-type: none"> Prevent auto links recovery after all links failure?: YES Force RAs Links off-line after power-up?: YES Enable page dataset Mode?: YES
	TimeFinder/Mirror (required for SRDF/AR only): <ul style="list-style-type: none"> Prevent auto links recovery after all links failure?: YES Force RAs Links off-line after power-up?: YES Enable Links Domino: NO

a. Although Mainframe Enablers 8.3 accepts up to “FFFFFF” device numbers, HYPERMAX OS 5977 and PowerMaxOS 5978 can handle only FFFFF devices.

Table 3 lists the mainframe hardware and software requirements.

Table 3 Mainframe hardware and software requirements

Item	Requirements
Hardware	<ul style="list-style-type: none"> Any system that supports versions of the z/OS operating system that IBM supports. FTP or TSO connection to an open systems host.
Software	<ul style="list-style-type: none"> Any version of the z/OS operating system that IBM supports. For ResourcePak Base: DIAG must include REUSASID(YES) (use D DIAG to check, and then use SET DIAG=xx where member DIAGxx contains REUSASID(YES)). Contact the Systems Programmer to discuss whether this is available for use. JES2 or JES3 environments. RACF 1.9 or later, or an equivalent SAF compliant security product, must be installed and activated. <p>Note: Mainframe Enablers are not supported in native VM. However, Mainframe Enablers can run on a z/OS guest under VM. VM does not allow volumes that are defined as unsupported to be attached to SYSTEM, or used to perform IPL on a virtual machine. When running on a guest under VM, Mainframe Enablers require special consideration. Define volumes to VM (SET RDEV) as TY[pe] UNSUP[orted] DEVC[lass] DASD DPS Y[es] RESERVE_REL[ease] Y[es]. Attach volumes to the guest.</p>

Installation information

Prior to installing Mainframe Enablers, identify or decide on the following items:

CLIST library and edit macro—Determine a name for the edit macro that the installation dialog creates and a name for the CLIST library that is used to store the edit macro.

Product dataset name prefix—Choose a dataset name prefix for installing Mainframe Enablers.

Names for the product datasets consist of a final qualifier, such as LINKLIB, and a dataset name prefix. It is recommended to use “EMC.SMFE vr m¹” as the dataset name prefix if it agrees with the site standards. In this case, for example, the LINKLIB dataset is named “EMC.SMFE vr m.LINKLIB.”

Note: In this guide, datasets created using this product dataset name prefix are referred to as if they had been created with the recommended prefix “EMC.SMFE vr m.” The actual prefix for the installation may be different.

Ensure that you have RACF ALTER authority (or the equivalent from another security manager) for the datasets that are created with this prefix.

SMP/E dataset name prefix—Determine a dataset name prefix for the SMP/E datasets into which you install Mainframe Enablers. All components must be installed into the same CSI.

If you have installed another Dell EMC product using SMP/E, install Mainframe Enablers into the same CSI. For example, if you already have SMP/E-maintained Dell EMC products and the SMPLOG dataset is called “EMC.SMPE.SMPLOG,” the SMP/E dataset name prefix must be “EMC.SMPE.”

If you are installing Mainframe Enablers for the first time, it is recommended to use “EMC.SMPE.”

SMP/E dataset volser—Choose a disk volume to install the distribution libraries (required by SMP/E).

It may be the same volume as you use for the product libraries. However, many customer sites prefer to keep SMP/E-related datasets on separate volumes from product libraries. An amount of space similar to that needed for the product libraries is required.

Install-to disk volser—Choose a disk volume to install the product (runtime) libraries.

Disk unit name—Decide on a disk unit name for the disk volumes. Use the name that complies with the site standards. The default value is “SYSDA.”

1. vr m stands for version, release, and modification level of the software.

Installation

Mainframe Enablers use a standard SMP/E installation process with assisted post-installation customization.

To install Mainframe Enablers, complete the following steps:

- ◆ [Step 1: Obtain Mainframe Enablers installation kit](#)
- ◆ [Step 2: Load XMITFILE to mainframe](#)
- ◆ [Step 3: Customize XMITLIB\(#EXTRACT\)](#)
- ◆ [Step 4: Run XMITLIB\(#EXTRACT\)](#)
- ◆ [Step 5: Customize RIMLIB installation jobs](#)
- ◆ [Step 6: Run RIMLIB installation jobs](#)
- ◆ [Step 7: Apply maintenance updates](#)
- ◆ [Step 8: Install license](#)

Step 1: Obtain Mainframe Enablers installation kit

1. Complete the following steps:
 - a. Log in to a privileged account on an open systems host (root on UNIX or administrator on Windows).
 - b. Select a working directory on the open systems host for the installation.
 - c. Log in to support.EMC.com.
 - d. Click **Downloads**, and type **Mainframe Enablers** in the **Find a Product** field.

Result: A page for Mainframe Enablers is displayed.

Note: If you are not able to access this location, you may not have registered the software or registered it incorrectly. Follow the prompts to register the software, correct the registration, or contact Dell EMC in the event of a problem.

- e. Click the required product version on the left to filter on the version.
 - f. Click the Zip file of the Mainframe Enablers electronic distribution kit and download it into the working directory that you selected in step b.
2. If the current host is a Windows system, unzip the file into the working directory. If the current host is a UNIX system, unzip and untar the file into the working directory.

Result: The following Mainframe Enablers installation kit files are now available:

MFEverm.xmitfile—Contains a PDS of TSO TRANSMIT images of files, and the JCL required to perform an SMP/E indirect-library installation of the product.

ReadMe_MFEverm.txt—Provides instructions on how to install Mainframe Enablers.

Step 2: Load XMITFILE to mainframe

To load XMITFILE to the mainframe:

1. On the target mainframe, allocate a dataset to which you can upload MFEvrm.XMITFILE using FTP. Use the product dataset name prefix that you determined in [“Installation information” on page 20](#).

For example, if you want to install the product with the recommended product dataset name prefix of “EMC.SMFEvrm,” name the dataset “EMC.SMFEvrm.XMITFILE.”

Use the following characteristics for the dataset to be allocated:

```
LRECL=80
BLKSIZE=3120
DSORG=PS
SPACE=(CYL,(60,2)) (Assumes a 3390 device.)
```

2. Upload MFEvrm.XMITFILE in binary format (as-is without translation or encoding) to the mainframe using FTP. The FTP session may look as follows:

```
ftp host
(username and password prompts)
cd .
250 "" is working directory name prefix
binary
200 Representation type is image
put MFEvrm.XMITFILE `EMC.SMFEvrm.XMITFILE`
```

Where:

host is the name or IP address of the LPAR to install Mainframe Enablers.

3. Use the TSO RECEIVE command to retrieve EMC.SMFEvrm.XMITFILE and restore the XMITLIB library.

In the `indataset` parameter, specify the dataset that was allocated in step 1 of this procedure. In the `DA` parameter, when prompted, use “XMITLIB” preceded by the product dataset name prefix that you determined in [“Installation information” on page 20](#).

For example:

```
receive indataset(`EMC.SMFEvrm.XMITFILE`)

INMR901I Data Set EMC.SMFEvrm.XMITLIB from user ID on nodename
INMR906A Enter restore parameters or 'DELETE' or 'END' +

DA(`EMC.SMFEvrm.XMITLIB`)
```

Result: The XMITLIB library is now available, which contains the #EXTRACT member that is used to extract other Mainframe Enablers installation files.

Step 3: Customize XMITLIB(#EXTRACT)

The #EXTRACT member of the XMITLIB library extracts the RIMLIB library and SMP/E indirect libraries, creating all the datasets needed for an SMP/E installation.

Customize XMITLIB(#EXTRACT) for the installation either automatically or manually.

To customize XMITLIB(#EXTRACT) automatically:

1. Run the SETUP REXX program in the EMC.SMFEvrn.XMITLIB dataset. The SETUP REXX program prompts you for all of the information that is required to customize JCL, as shown in [Figure 1](#).

```

----- Dell EMC JCL Customization Utility -----
COMMAND ==> _____

Type EXEC on the command line and press ENTER to proceed, or PF3 to exit.

CLIST library          ==> 'EMC.SMFEvrn.XMITLIB'
Edit macro name       ==> XMIT
XMITLIB dsname prefix ==> EMC.SMFEvrn

Install-to disk volser==> _____      Disk unit name ==> SYSDA

Enter your job card below ('%MEMBER%' will be replaced by member name):
=> //EMCX JOB MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
-----

```

Figure 1 Dell EMC JCL Customization Utility panel for XMITLIB(#EXTRACT)

2. In the panel, specify values that you determined in [“Installation information” on page 20](#):

CLIST library—Accept or change the name of the XMITLIB library to store the edit macro that this dialog creates. The default value is suitable for most users and does not need to be changed.

Edit macro name—Accept or change the default name of the edit macro. The edit macro is created in the CLIST or EXEC library from the data that is entered on this panel. The edit macro is applied to all members of XMITLIB that start with a # character. Normally, you do not need to change the default value.

XMITLIB dsname prefix—Type the product dataset name prefix that you determined in [“Installation information” on page 20](#).

Install-to disk volser—Type the six-character volser of the disk volume to which you want to install the Mainframe Enablers libraries. Typically, it is the same as the volser on which the XMITLIB library resides.

Disk unit name—Specify a disk unit name that is appropriate to the site. The default value is SYSDA.

Enter your job card below—Type a job card that is appropriate for the site.

By default, the job card is set to a value which may be suitable for many users. The first seven characters of the job name are your TSO user ID, plus “X.”

You can set the job name to %MEMBER%. %MEMBER% causes the edit macro to set the job name equal to the JCL member name (that is, #EXTRACT).

Do not use any parameter that contains an ampersand (&), such as NOTIFY=&SYSUID. An ampersand in the job card may result in edit macro errors.

An example of the completed panel for user ID “EMC” is shown in [Figure 2](#).

```

----- Dell EMC JCL Customization Utility -----
COMMAND ==> _____

Type EXEC on the command line and press ENTER to proceed, or PF3 to exit.

CLIST library          ==> 'EMC.SMFE810.XMITLIB'
Edit macro name        ==> XMIT
XMITLIB dsname prefix ==> EMC.SMFE810

Install-to disk volser==> #DVT03           Disk unit name ==> 3390

Enter your job card below ('%MEMBER%' will be replaced by member name):
=> //EMCX JOB MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
-----+-----

```

Figure 2 Dell EMC JCL Customization Utility panel for XMITLIB(#EXTRACT)—completed

3. When you are satisfied with the entries, type **EXEC** on the command line and press **Enter**. If the dialog completes successfully, the output is similar to the following:

```

BUILDING AN EDIT MACRO(XMIT) IN 'EMC.SMFEvrm.XMITLIB'
PROCESSING MEMBER: #EXTRACT
***

```

To customize XMITLIB(#EXTRACT) manually, edit it by making the following changes:

1. Change the job card to the one that conforms to the site standards.
2. Globally change the dataset prefix to the XMITLIB library prefix, which must be used as the dataset name prefix for the product libraries.
3. Globally change DVOL to the disk volser onto which you want to place the extracted libraries.
4. Globally change DISK-UNIT to a name that is appropriate for the site.

Result: The #EXTRACT job is customized for the installation and ready to run.

Step 4: Run XMITLIB(#EXTRACT)

Submit the #EXTRACT job.

Step completion codes should be zero (0), except for the DELETE step. DELETE has a step completion code of eight (8) unless the job is a rerun.

Result: The EMC.SMFEvrm.RIMLIB library is now available, as well as some other Mainframe Enablers libraries.

Step 5: Customize RIMLIB installation jobs

The RIMLIB library is a PDS containing JCL to install the product. After you extract RIMLIB, it has the contents as shown in [Table 4](#).

Table 4 RIMLIB members

Member	Description
#U1ALLOC	Allocates target and distribution libraries (for upgrades only).
#U2DFZON	(Placeholder) Job #02 is not used during an upgrade.
#U3REPRO	(Placeholder) Job #03 is not used during an upgrade.
#U4DDDEF	Adds or replaces product library DDDEFS in the SMP/E CSI (for upgrades only).
#01ALLOC	Allocates target and distribution libraries.
#02DFZON	Defines the SMP/E CSI dataset.
#03REPRO	Repro to load the SMP/E CSI dataset.
#04DDDEF	Adds or replaces product library DDDEFS in the SMP/E CSI.
#05RECEV	Receives Mainframe Enablers functionality into the global zone.
#06APPLY	Applies Mainframe Enablers functionality in the target zone.
#07ACCPT	Accepts Mainframe Enablers functionality in the distribution zone.
#08CLEAN	Deletes indirect libraries and DDDEFS used for them.
#90SAFJB	(Optional) JCL to remove EMCSAFI and replace it with EMCSAFD or with your own modified EMCSAFI. (Chapter 5 provides more information.)
#91SNPJB	(Optional) JCL to change the TimeFinder/Clone Mainframe Snap Facility defaults.
#92SAFJB	(Optional) JCL to restore the default EMCSAFI object code (not the SAMPLIB member) to its state when Mainframe Enablers were first installed (including any maintenance updates that were installed at that time).
#93TSDJB	(Optional) JCL to replace the supplied TSDVEXIT with your own modified one.
#94TFMJB	(Optional) JCL to modify the TimeFinder/Mirror default options.
#99MAINT	A sample file for SMP/E RECEIVE and APPLY.
MFEJCL	The REXX program to customize the installation process.
MFEWIN1	Panel that is used when the SETUP REXX program is run.
SETUP	The REXX program to simplify the customization process.

Customize RIMLIB members for the installation.

Note: It is strongly recommended to use the SETUP REXX program in the RIMLIB dataset to customize RIMLIB members. However, you may customize it manually. [ReadMe_MFEvrm.txt](#) provides instructions for manual editing.

To customize RIMLIB members:

1. Run the SETUP REXX program in the EMC.SMFEvrm.RIMLIB dataset. The SETUP REXX program calls the Dell EMC JCL Customization Utility to display prompts for all of the information that is required to customize JCL, as shown in [Figure 3](#).

```

----- Dell EMC JCL Customization Utility -----
COMMAND ==> _____

Type EXEC on the command line and press ENTER to proceed, or PF3 to exit.

CLIST library          ==> 'EMC.SMFEvrm.RIMLIB'
Edit macro name       ==> SMFE
Product dsname prefix ==> EMC.SMFEvrm
SMP/E dsname prefix   ==> EMC.SMPE
SMP/E data sets volser ==> _____
Install-to disk volser==> _____      Disk unit name ==> SYSDA

Enter your job card below ('%MEMBER%' will be replaced by member name):
=> //EMCX JOB MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
-----+-----

```

Figure 3 Dell EMC JCL Customization Utility panel for RIMLIB

2. In the panel, specify values that you determined in [“Installation information” on page 20](#):

CLIST library—Accept or change the name of the RIMLIB library to store the edit macro that this dialog creates. The default value is suitable for most users and does not need to be changed.

Edit macro name—Accept or change the default name of the edit macro. The edit macro is created in the CLIST or EXEC library from the data that is entered on this panel. The edit macro is applied to all members of RIMLIB that start with a # character. Normally, you do not need to change the default value.

Product dsname prefix—Type the product dataset name prefix that you determined in [“Installation information” on page 20](#).

SMP/E dsname prefix—Type the SMP/E dataset name prefix that you determined in [“Installation information” on page 20](#).

SMP/E data sets volser—Type the six-character volser of the disk volume on which you want to allocate the SMP/E distribution libraries for Mainframe Enablers. This volser may be the same as the Install-to disk volser, or you may elect to keep these datasets on a separate volume.

Install-to disk volser—Type the six-character volser of the disk volume to which you want to install the Mainframe Enablers libraries.

Disk unit name—Specify a disk unit name that is appropriate to the site. The default value is SYSDA.

Enter your job card below—Type a job card that is appropriate for the site.

By default, the job card is set to a value which may be suitable for many users. The first seven characters of the job name are your TSO user ID, plus “X.”

You can set the job name to %MEMBER%. %MEMBER% causes the edit macro to set the job name equal to the JCL member name (that is, #01ALLOC, #02DDDEF, and so on).

Do not use any parameter that contains an ampersand (&), such as NOTIFY=&SYSUID. An ampersand in the job card may result in edit macro errors.

An example of the completed panel for user ID “EMC” is shown in [Figure 4](#).

```

----- Dell EMC JCL Customization Utility -----
COMMAND ==> _____
Type EXEC on the command line and press ENTER to proceed, or PF3 to exit.

CLIST library          ==> 'EMC.SMFEvrm.RIMLIB'
Edit macro name        ==> SMFE
Product dsname prefix ==> EMC.SMFEvrm
SMP/E dsname prefix   ==> EMC.SMPE
SMP/E data sets volser ==> #DVT04
Install-to disk volser==> #DVT04 Disk unit name ==> 3390

Enter your job card below ('%MEMBER%' will be replaced by member name):
=> //EMCX JOB MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
+-----+

```

Figure 4 Dell EMC JCL Customization Utility panel for RIMLIB—completed

3. When you are satisfied with the entries, type **EXEC** on the command line and press **Enter**. If the dialog completes successfully, the output is similar to the following:

```

BUILDING AN EDIT MACRO (PROD) IN 'EMC.SMFEvrm.RIMLIB'
PROCESSING MEMBER: #U1ALLOC
PROCESSING MEMBER: #U2DFZON
PROCESSING MEMBER: #U3REPRO
PROCESSING MEMBER: #U4DDDEF
PROCESSING MEMBER: #01ALLOC
PROCESSING MEMBER: #02DFZON
PROCESSING MEMBER: #03REPRO
PROCESSING MEMBER: #04DDDEF
PROCESSING MEMBER: #05RECEV
PROCESSING MEMBER: #06APPLY
PROCESSING MEMBER: #07ACCPY
PROCESSING MEMBER: #08CLEAN
PROCESSING MEMBER: #90SAFJB
PROCESSING MEMBER: #91SNPJB
PROCESSING MEMBER: #92SAFJB
PROCESSING MEMBER: #93TSDJB
PROCESSING MEMBER: #94TFMJB
PROCESSING MEMBER: #99MAINT
***

```

Result: The RIMLIB jobs are customized for the installation and ready to run.

Step 6: Run RIMLIB installation jobs

Submit the customized jobs in the following order, ensuring that each job completes successfully before submitting the next one:

- ◆ If you install into a new set of SMP/E libraries:
 1. #01ALLOC
 2. #02DFZON
 3. #03REPRO
 4. #04DDDEF
 5. #05RECEV
 6. #06APPLY
 7. #07ACCPT
- ◆ If you install into an old set of SMP/E libraries:
 1. #U1ALLOC
 2. #U4DDDEF
 3. #05RECEV
 4. #06APPLY
 5. #07ACCPT

Job completion codes should be zeros (00), except for #U4DDDEF or #04DDDEF and #07ACCPT, where “04” is acceptable.

Result: The Mainframe Enablers functionality is received, applied, and accepted on the target mainframe.

Step 7: Apply maintenance updates

Install any available maintenance updates for Mainframe Enablers. The latest maintenance updates, as well as current release and service notes, are available on the Downloads page at Dell EMC Online Support.

Note: [Appendix A](#) describes how you can determine the current maintenance level of the Mainframe Enablers produce that is installed at the site.

To apply maintenance updates, complete the following steps:

1. Log in to a privileged account on an open systems host (root on UNIX or administrator on Windows).
2. Select a working directory on the open systems host for the maintenance updates.
3. Log in to support.EMC.com.
4. Click **Downloads**, and type **Mainframe Enablers** in the **Find a Product** field.

Result: A page for the Mainframe Enablers product is displayed.

Note: If you are not able to access this location, you may not have registered the software or registered it incorrectly. Follow the prompts to register the software, correct the registration, or contact Dell EMC in the event of a problem.

5. Click the required product version on the left to filter on the version.
6. Click the Zip file of the Mainframe Enablers maintenance updates, which has a postfix of “_Fixes,” and download it into the working directory that you selected in step 2 of this procedure.
7. If the current host is a Windows system, unzip the file into the working directory. If the current host is a UNIX system, unzip and untar the file into the working directory.

The Mainframe Enablers maintenance updates kit contains:

ReadMe_id_Fixes.txt—Lists the fixes that are included in the release.

Service_Notes_id.txt—Contains the most current information regarding this version of the software.

MEvrmFIX.BIN—The PTF (Program Temporary Fix) used to patch the software.

SMPJOB.TXT—A sample JCL job with instructions on how to customize it for the installation.

8. On the target mainframe, allocate a dataset to which you can upload the MEvrmFIX.BIN file using FTP.
9. Upload the MEvrmFIX.BIN file in binary format (as-is without translation or encoding) to the mainframe using FTP. The FTP session may look as follows:

```
ftp host
(username and password prompts)
cd ..
250 "" is working directory name prefix
    binary
200 Representation type is image
    put MEvrmFIX.BIN 'DS'
```

Where:

- *host* is the name or IP address of the LPAR where Mainframe Enablers are installed.
 - *DS* is the dataset that was allocated in step 8 of this procedure.
10. Use the TSO RECEIVE command to retrieve MEvrmFIX.BIN and restore the SMPPTFIN dataset.

In the *indataset* parameter, specify the dataset that was allocated in step 9 of this procedure. In the *DA* parameter, when prompted, use “SMPPTFIN” preceded with the product dataset name prefix that was used to install Mainframe Enablers.

For example:

```
receive indataset('DS')
```

```
INMR901I Data Set MEvrmFIX from user_ID on nodename
INMR906A Enter restore parameters or 'DELETE' or 'END' +
```

```
DA('EMC.SMFEvrm.SMPPTFIN')
```

Where:

- *DS* is the dataset that was allocated in step 9 of this procedure.

11. On the target mainframe, allocate a dataset to which you can upload the SMPJOB.TXT file using FTP.
12. Upload the SMPJOB.TXT in text (ASCII) format to the mainframe using FTP. The FTP session may look as follows:

```
ftp host
(username and password prompts)
cd ..
250 "" is working directory name prefix
ascii
200 Representation type is Ascii NonPrint
put SMPJOB.TXT 'DS'
```

Where:

- *host* is the name or IP address of the LPAR where Mainframe Enablers are installed.
 - *DS* is the dataset that was allocated in step 11 of this procedure.
13. Customize SMPJOB JCL for the installation. You can find editing instructions in the Smpjob.txt comments.
 14. Submit the #EXTRACT job to receive and apply the maintenance updates. Step completion codes should be zero (0).

Step 8: Install license

Install the license as described in [“Installing/uninstalling licenses”](#) on page 41.

Post-installation

Installation of Dell EMC Mainframe Enablers is now finished. Before you start using Mainframe Enablers, complete configuration and security activities described in the Product Guide for each Mainframe Enablers component and in [Chapter 5, “Security”](#) of this document.

To use the REXX interface, complete the steps that are described in [“Customizing the REXX interface” on page 31](#).

After you ensure that Mainframe Enablers are correctly installed and functioning correctly, run the RIMLIB(#08CLEAN) job to delete datasets and DDDEFSs used during the installation process that are no longer needed.

Note: Mainframe Enablers help displays use square brackets [] to indicate one or more optional parameters in a syntax diagram. To correctly display the square brackets on HELP command output, use IBM code page 1047.

Customizing the REXX interface

If the following programs do not reside in an authorized library, complete the steps to set up the REXX interface environment:

- ◆ EMCTF (TimeFinder/Mirror)
- ◆ EMCTFU (TimeFinder Utility)
- ◆ EMCSNAP (TimeFinder/Clone Mainframe Snap Facility)
- ◆ EMCTFA (SRDF/AR)
- ◆ EMCGROUP (Group Name Services)
- ◆ EMCQOS (Quality of Service)
- ◆ SCFRDFME (MSC Star)
- ◆ EHCMSME (MSC Star)
- ◆ EHCGCOPY (MSC Star)
- ◆ EHCRCVRY (MSC Star)
- ◆ ECORAFIF (MSC Star)
- ◆ SCFRDFM6 (MSC Star)
- ◆ EHCMSM6 (MSC Star)
- ◆ EIPINIT (zDP)
- ◆ EIPASAF (zDP)

1. In SYS1.PARMLIB(IKJTSOxx), add the following program names to the AUTHPGM NAMES, AUTHTSF NAMES, and AUTHCMD NAMES statements:

- EMCTF
- EMCTFU
- EMCSNAP
- EMCTFA
- EMCGROUP
- EMCQOS
- SCFRDFME
- EHCMSCME
- EHCPCOPY
- EHCRCVRY
- ECORAFIF
- SCFRDFM6
- EHCMSCM6
- EIPINIT
- EIPASAFc

2. For these changes to take effect, perform one of the following:

- Use the “PARMLIB” TSO authorize command to dynamically change the IKJTSOxx active member without an IPL.¹
- Perform an IPL of the system.

```

AUTHPGM NAMES( /* AUTHORIZED PROGRAMS */+
EMCTF /* (TimeFinder/Mirror) */ +
EMCTFU /* (TimeFinder Utility) */ +
EMCSNAP /* (TimeFinder/Clone Mainframe Snap Facility) */ +
EMCTFA /* (SRDF/AR) */ +
EMCGROUP /* (Group Name Services) */ +
EMCQOS /* (Quality of Service) */ +
SCFRDFME /* (MSC Star) */ +
EHCMSCME /* (MSC Star) */ +
EHCPCOPY /* (MSC Star) */ +
EHCRCVRY /* (MSC Star) */ +
ECORAFIF /* (MSC Star) */ +
SCFRDFM6 /* (MSC Star) */ +
EHCMSCM6 /* (MSC Star) */+
EIPINIT /* (z/DP) */
EIPASAFc /* (z/DP) */
)
/* */
AUTHTSF NAMES( /* PROGRAMS TO BE AUTHORIZED */+
/* WHEN CALLED THROUGH THE */+
/* TSO SERVICE FACILITY. */+
EMCTF /* (TimeFinder/Mirror) */ +
EMCTFU /* (TimeFinder Utility) */ +
EMCSNAP /* (TimeFinder/Clone Mainframe Snap Facility) */ +
EMCTFA /* (SRDF/AR) */ +
EMCGROUP /* (Group Name Services) */ +
EMCQOS /* (Quality of Service) */ +

```

1. It is recommended that you examine PARMLIB CHECK(xx) (where xx is the member name suffix) to ensure that there are no syntax errors.


```

SCFRDFME /* (MSC Star) */ +
EHCMSME /* (MSC Star) */ +
EHCGCOPY /* (MSC Star) */ +
EHCRCVRY /* (MSC Star) */ +
ECORAFIF /* (MSC Star) */ +
SCFRDFM6 /* (MSC Star) */ +
EHCMSM6 /* (MSC Star) */+
EIPINIT /* (z/DP) */
EIPASAF6 /* (z/DP) */
)
/* */
/* */
AUTHCMD NAMES( /* AUTHORIZED PROGRAMS */+
EMCTF /* (TimeFinder/Mirror) */ +
EMCTFU /* (TimeFinder Utility) */ +
EMCSNAP /* (TimeFinder/Clone Mainframe Snap Facility) */ +
EMCTFA /* (SRDF/AR) */ +
EMCGROUP /* (Group Name Services) */ +
EMCQOS /* (Quality of Service) */ +
SCFRDFME /* (MSC Star) */ +
EHCMSME /* (MSC Star) */ +
EHCGCOPY /* (MSC Star) */ +
EHCRCVRY /* (MSC Star) */ +
ECORAFIF /* (MSC Star) */ +
SCFRDFM6 /* (MSC Star) */ +
EHCMSM6 /* (MSC Star) */+
)

```

Note: The AUTHCMD NAMES entries allow you to perform MSC Auto Recovery procedures.

CHAPTER 3

Upgrade

This chapter covers the following topics:

- ◆ Pre-upgrade..... 36
- ◆ Upgrade..... 36
- ◆ Post-upgrade..... 37

Pre-upgrade

Before you begin upgrading Mainframe Enablers, complete the following steps:

1. Review the Mainframe Enablers Release Notes.
2. Review the interoperability information in the E-Lab™ Interoperability Navigator which can be reached at elabnavigator.EMC.com.
3. Ensure that the system meets the hardware and software requirements listed in “[Hardware and software requirements](#)” on [page 18](#).
4. Gather installation information as described in “[Installation information](#)” on [page 20](#).

Upgrade

To upgrade Mainframe Enablers from version 8.2 to version 8.3, complete the following steps:

- ◆ Step 1: Obtain Mainframe Enablers installation kit
- ◆ Step 2: Load XMITFILE to mainframe
- ◆ Step 3: Customize XMITLIB(#EXTRACT)
- ◆ Step 4: Run XMITLIB(#EXTRACT)
- ◆ Step 5: Customize RIMLIB installation jobs
- ◆ [Step 6: Run RIMLIB installation jobs](#)
- ◆ Step 7: Apply maintenance updates
- ◆ Step 8: Install license
- ◆ [Step 9: Restart ResourcePak Base](#)

Note: For steps 1 through 5 and 7 through 8, follow the instructions that are provided in [Chapter 2, “Installation.”](#)

Step 6: Run RIMLIB installation jobs

Submit the customized jobs in the following order, ensuring that each job completes successfully before submitting the next one:

1. #U1ALLOC
2. #U4DDDEF
3. #05RECEV
4. #06APPLY
5. #07ACCPT

Job completion codes should be zeros (00), except for #U4DDDEF or #04DDDEF and #07ACCPT, where “04” is acceptable.

Result: The Mainframe Enablers functionality is received, applied, and accepted on the target mainframe.

Step 9: Restart ResourcePak Base

Shut down and restart ResourcePak Base as described in the *ResourcePak Base for z/OS Product Guide*.

Post-upgrade

The upgrade of Dell EMC Mainframe Enablers is now finished. Before you start using Mainframe Enablers, verify configuration and security settings that are described in the Product Guide for each Mainframe Enablers component and in [Chapter 5](#), “[Security](#)” of this document.

After you ensure that Mainframe Enablers are correctly installed and functioning correctly, run the RIMLIB(#08CLEAN) job to delete datasets and DDDEFSs used during the installation process that are no longer needed.

CHAPTER 4

Licensing

This chapter covers the following topics:

- ◆ Overview..... 40
- ◆ Installing/uninstalling licenses..... 41
- ◆ Viewing licenses..... 41

Overview

Mainframe Enablers support Electronic Licensing (eLicensing).

Note: For information about eLicensing, see Dell EMC Knowledgebase article 13866 on the Dell EMC Online Support website.

With the introduction of eLicensing, storage system licensing moved from a host-based model to a storage system-based model, with the majority of licenses now being stored internally on the storage system. However, there are still a number of storage system licenses that remain host-based and use License Feature Codes (LFCs).

To enable any of the Mainframe Enablers' components, except ResourcePak Base (which is a persistent address space running on any z/OS processor on which it is installed), you need the eLicense for that component.

Storage system-based licenses

For information about storage system-based licenses, see one of the following documents:

- ◆ *PowerMax Family Product Guide*
- ◆ *VMAX All Flash Product Guide*
- ◆ *VMAX3 Family Product Guide*
- ◆ *VMAX Family Product Guide*

Host-based licenses

[Table 5](#) lists the host-based licenses that apply regardless of the operating environment level.

Table 5 Host-based licenses regardless of operating environment level

License	Commands included
AutoSwap for z/OS	AutoSwap: Not applicable Consistency Group: CAX configuration parameters
z/OS Migrator	Not applicable Startup (EXEC PGM=EFMMMAIN)

Installing/uninstalling licenses

Storage system-based licenses

See the *Solutions Enabler Installation Guide* and *Unisphere Online Help* for instructions on how to install and uninstall licenses on the storage system.

IMPORTANT

If no open systems host is attached to the storage system, contact your Dell EMC Service Engineer for installation and activation of the license files.

Host-based licenses

Host-based licenses are installed in the form of License Feature Codes (LFCs). You specify LFCs using the SCF.LFC.LCODES.LIST parameter in the ResourcePak base initialization file.

Note: The *ResourcePak Base for z/OS Product Guide* describes the ResourcePak Base initialization file and the SCF.LFC.LCODES.LIST parameter.

Viewing licenses

You can view license information by using eLicensing management commands of Symmetrix Control Facility (SCF):

- ◆ To view a list of licensed features, use the ELM,LIST command of SCF.
- ◆ To check how the licenses are used, use the ELM,QUERY command of SCF.

Note: The *ResourcePak Base for z/OS Product Guide* describes the eLicensing management commands.

To view LFCs, check the SCF.LFC.LCODES.LIST parameter in the ResourcePak Base initialization file (specified using the SCFINI DD statement of the SCF started task).

Note: The *ResourcePak Base for z/OS Product Guide* describes the ResourcePak Base initialization file and the SCF.LFC.LCODES.LIST parameter.

CHAPTER 5

Security

This chapter covers the following topics:

- ◆ EMCSAFI security interface..... 44
- ◆ Classes and resources used in EMCSAFI 45
- ◆ Enabling/disabling EMCSAFI 65
- ◆ Customizing EMCSAFI..... 67
- ◆ Restoring Dell EMC-supplied EMCSAFI 74

EMCSAFI security interface

Mainframe Enablers security¹ is implemented through the EMCSAFI security interface.

To use resources, EMCSAFI uses z/OS SAF calls (RACROUTE) to request authorization. The input to this program is the EMCSAFRB request block. EMCSAFRB describes the authorization.

EMCSAFI requires that RACF version 1.9 or later, or an equivalent SAF-compliant security product is installed and activated.

EMCSAFI is enabled by default. If you do not want to use EMCSAFI, disable it as described in [“Disabling EMCSAFI” on page 65](#).

When EMCSAFI is active, check with your security administrator to ensure that the proper classes are active and the proper resources are defined. [“Classes and resources used in EMCSAFI” on page 45](#) describes the classes and resources that EMCSAFI uses.

1. The platform-specific *Security Configuration Guide* provide a general overview of Mainframe Enablers security controls.

Classes and resources used in EMCSAFI

IMPORTANT

EMCSAFI is affected by changes to some of the defaults for a dynamically defined CDT class. This causes resource classes that are dynamically defined to act differently than if they were created with the ICHERCDE macro. Review the resource names regarding the default values for special characters.

ResourcePak Base

XFACILIT

Table 6 lists the resource validation requests for the ResourcePak Base environment commands.

Update authority to these resources is required to issue commands. If the resource profile is not present, all users are allowed to issue the commands.

Table 6 ResourcePak Base resource validation requests with XFACILIT (page 1 of 3)

Command environment	Function	Class	Resource	Attribute
ASY	DISABLE ENABLE REFRESH SSAR	XFACILIT	EMC.ADMIN.CMD.ASY	Update
DSE	DISABLE ENABLE REFRESH	XFACILIT	EMC.ADMIN.CMD.DSE	Update

Table 6 ResourcePak Base resource validation requests with XFACILIT (page 2 of 3)

Command environment	Function	Class	Resource	Attribute
GPM	ADD ALLOCATE BIND CREATE COMPRESS DECOMPRESS DELETE DISABLE DISPLAY DRAIN ENABLE HALTTASK HDRAIN MOVE PERSIST OFF POOLATTR REBALANCE REBIND REMOVE RENAME UNBIND USR_NRDY USR_RDY	XFACILIT	EMC.ADMIN.CMD.GPM	Update
<p>Note: Only the QUERY GPM command is not RACF-protected. The DISPLAY GPM command is RACF-protected.</p>				
INI	RELOAD SHUTDOWN CSTOP	XFACILIT	EMC.ADMIN.CMD.INI	Update
MSC	ADDDEV DEACT DEACTREFRESH DEACTRESTART DEACTRESTARTTOSEC DEACTRESTARTTOZERO DELDEV DISABLE ENABLE PENDDROP RECOVER REFRESH RESTART RESTARTTOSEC RESTARTTOZERO TAKEOVER VERBOSE	XFACILIT	EMC.ADMIN.CMD.MSC	Update
REC	RELDLOCK	XFACILIT	EMC.ADMIN.CMD.REC	Update

Table 6 ResourcePak Base resource validation requests with XFACILIT (page 3 of 3)

Command environment	Function	Class	Resource	Attribute
SAR	PAUSE RESTART START STOP	XFACILIT	EMC.ADMIN.CMD.SAR.PAUSE EMC.ADMIN.CMD.SAR.RESTART EMC.ADMIN.CMD.SAR.START EMC.ADMIN.CMD.SAR.STOP	Update
SDV	DISABLE ENABLE REFRESH	XFACILIT	EMC.ADMIN.CMD.SDV	Update
THN	DISABLE ENABLE REFRESH	XFACILIT	EMC.ADMIN.CMD.THN	Update
TRU	DISABLE ENABLE HOLD RECLAIM REFRESH RELEASE SCAN START STOP	XFACILIT	EMC.ADMIN.CMD.TRU	Update

Storage system naming feature

ResourcePak Base allows you to assign a name to a storage system. SAF security for the storage system naming feature uses the XFACILIT general resource class. The resource name is:

`EMC . ADMIN . SCF . CTRL . nnnnnnnnnnnn`

Where *nnnnnnnnnnnn* is the 12-character storage system serial number.

Update authority to this resource is required to assign a name to a storage system. If the profile for the resource is not present, all users are allowed to assign names to storage systems.

QOS Utility

QOS supports the use of the XFACILIT class. It is recommended to use XFACILIT for new installations. [Table 7](#) summarizes the resource validation requests for QOS Utility features and functions with XFACILIT.

Table 7 EMCQOS resource validation requests with XFACILIT

Function	Class	Resource	Attribute
QOS Symmetrix Priority Control	XFACILIT	EMC.ADMIN.CMD.QOS-SPC	Read
QOS Dynamic Cache Partitioning	XFACILIT	EMC.ADMIN.CMD.QOS-DCP	Read

The QS#BASE class is available for compatibility reasons.

Table 8 EMCQOS resource validation requests with QS#BASE

Function	Class	Resource	Attribute
QOS Symmetrix Priority Control	QS#BASE	QOS-SPC	Read
QOS Dynamic Cache Partitioning	QS#BASE	QOS-DCP	Read

zBoost PAV Optimizer and Mirror Optimizer

[Table 9](#) summarizes the resource validation requests for zBoost PAV Optimizer and Mirror Optimizer commands with XFACILIT.

Table 9 Optimizer resource validation requests with XFACILIT

Command	Class	Resource	Attribute
DISABLE	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.PAV	Update
DISABLE MIRO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.MIR	Update
DISABLE PAVO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.PAV	Update
DISPLAY	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY	Read
DISPLAY DEVICE	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.PAV	Read
DISPLAY DEVICE MIRO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.MIR	Read
DISPLAY DEVICE PAVO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.PAV	Read
ENABLE	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV	Update
ENABLE MIRO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR	Update
ENABLE PAVO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV	Update
HELP	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.HELP	Read
LOG	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.LOG	Update
Optimizer batch interface (ESFOPTBT) ^a	XFACILIT	EMC.ADMIN.BATCH.DEV.OPTIMIZE	Update
REFRESH	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.REFRESH	Update
RESET	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.RESET	Update
RESUME	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.PAV	Update
RESUME MIRO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.MIR	Update
RESUME PAVO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.PAV	Update
SUSPEND	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.PAV	Update
SUSPEND MIRO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.MIR	Update
SUSPEND PAVO	XFACILIT	EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.PAV	Update

- a. In addition, the user ID is required to either have DATASET 'U'pdate access for each selected dataset or the appropriate DASDVOL access for the volumes.

If Mirror Optimizer or PAV Optimizer is indicated as a parameter on a DEV,OPTIMIZE ENABLE, DISABLE, DISPLAY DEVICE, SUSPEND, or RESUME command, then an additional security level is used (.MIR or .PAV). For example, resource EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR is used to enable Mirror Optimizer and EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV to enable zBoost PAV Optimizer. When a generic command is specified, both resources are verified. For example, if the user has access to the EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR resource but not the EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV resource, only Mirror Optimizer will be enabled after issuing the DEV,OPTIMIZE ENABLE command.

zDP

[Table 10](#) summarizes the resource validation requests for zDP commands with XFACILIT.

Table 10 zDP resource validation requests with XFACILIT

Command	Class	Resource	Attribute
ZDP,MODIFY,SMF	XFACILIT	EMC.ADMIN.CMD.ZDP.MODIFY	Update
ZDP,PAUSE	XFACILIT	EMC.ADMIN.CMD.ZDP.PAUSE	Update
ZDP,RELEASEDEVICELOCK	XFACILIT	EMC.ADMIN.CMD.ZDP.RELDLOCK	Update
ZDP,RESUME	XFACILIT	EMC.ADMIN.CMD.ZDP.RESUME	Update
ZDP,START	XFACILIT	EMC.ADMIN.CMD.ZDP.START	Update
ZDP,STOP	XFACILIT	EMC.ADMIN.CMD.ZDP.STOP	Update

Note: [Table 10](#) includes only resources necessary to perform zDP-related commands from SCF. See [“zDP” on page 56](#) for a complete list of resources that zDP requires.

SRDF Host Component

To set up SRDF Host Component security, use either of the following methods:

- ◆ [XFACILIT](#)

The XFACILIT class resources add the ability to protect specific actions of each SRDF Host Component command individually.

- ◆ [Initialization parameters](#)

This legacy method provides protection at the command level only.

The XFACILIT resources are checked first. If the resource in question is not defined in XFACILIT, then the initialization parameters are checked.

XFACILIT

Query commands

[Table 11](#) summarizes the resource validation requests for SRDF Host Component query commands with XFACILIT.

Table 11 SRDF Host Component resource validation requests with XFACILIT: query commands

Command	Class	Resource	Attribute
#SQ ADC	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.ADC	Read
#SQ CNFG	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.CNFG	Read
#SQ DSTAT	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.DSTAT	Read
#SQ EPVOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.EPVOL	Read
#SQ FAVOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.FAVOL	Read
#SQ GLOBAL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.GLOBAL	Read
#SQ LINK	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.LINK	Read
#SQ MIRROR	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.MIRROR	Read
#SQ MSG	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.MSG	Read
#SQ RAID	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.RAID	Read
#SQ RAID5	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.RAID5	Read
#SQ RAID6	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.RAID6	Read
#SQ RAID10	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.RAID10	Read
#SQ RDFGRP	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.RDFGRP	Read
#SQ SRDFA	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SRDFA	Read
#SQ SRDFA_DSE	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SRDFA_DSE	Read
#SQ SRDFA_VOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SRDFA_VOL	Read
#SQ SRDFA_WP	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SRDFA_WP	Read
#SQ SRDFA_WP_VOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SRDFA_WP_VOL	Read
#SQ SSID	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.SSID	Read

Table 11 SRDF Host Component resource validation requests with XFACILIT: query commands

Command	Class	Resource	Attribute
#SQ STATE	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.STATE	Read
#SQ VIEWRA	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.VIEWRA	Read
#SQ VOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SQ.VOL	Read

Configuration commands

[Table 12](#) summarizes the resource validation requests for SRDF Host Component configuration commands with XFACILIT.

Table 12 SRDF Host Component resource validation requests with XFACILIT: configuration commands

Command and action	Class	Resource	Attribute
#SC CNFG SYNCH_DIRECTION	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.CNFG.SYNCH_DIRECTION	Update
#SC FAVOL WriteEnable	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.FAVOL.WRITEENABLE	Update
#SC GLOBAL 4BYTE_ON	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.4BYTE_ON	Update
#SC GLOBAL 4BYTE_OFF	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.4BYTE_OFF	Update
#SC GLOBAL FBA_DISABLE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.FBA_DISABLE	Update
#SC GLOBAL FBA_ENABLE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.FBA_ENABLE	Update
#SC GLOBAL PARM_REFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.PARM_REFRESH	Update
#SC GLOBAL SORT_BY_COMMAND	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_COMMAND	Update
#SC GLOBAL SORT_BY_MVSCUU	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_MVSCUU	Update
#SC GLOBAL SORT_BY_SYMDEV	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_SYMDEV	Update
#SC GLOBAL SORT_BY_VOLSER	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_VOLSER	Update
#SC GLOBAL SSID_REFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SSID_REFRESH	Update
#SC GLOBAL SWAPLOG	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SWAPLOG	Update
#SC GLOBAL SYNCH_DIRECTION	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SYNCH_DIRECTION	Update
#SC LINK ONLINE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.LINK.ONLINE	Update
#SC LINK OFFLINE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.LINK.OFFLINE	Update
#SC MSG RESET	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.MSG.RESET	Update
#SC RDFGRP ADD	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.ADD	Update
#SC RDFGRP DELETE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE	Update
#SC RDFGRP DELETE(STAR)	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE.STAR	Update
#SC RDFGRP DELETE(SQAR)	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE.SQAR	Update
#SC RDFGRP MODifY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY	Update

Table 12 SRDF Host Component resource validation requests with XFACILIT: configuration commands

Command and action	Class	Resource	Attribute
#SC RDFGRP MODIfy(STAR)	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY.STAR	Update
#SC RDFGRP MODIfy(SGAR)	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY.SGAR	Update
#SC RDFGRP SYNCH_DIRECTION	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RDFGRP.SYNCH_DIRECTION	Update
#SC RECOVER MSC	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RECOVER.MSC	Update
#SC RECOVER SRDFA	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.RECOVER.SRDFA	Update
#SC SRDF_CMPR ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDF_CMPR.ACT	Update
#SC SRDF_CMPR DEACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDF_CMPR.DEACT	Update
#SC SRDFA ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.ACT	Update
#SC SRDFA CONS_DEACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.CONSD_DEACT	Update
#SC SRDFA DEACT_TO_ADCOPY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.DEACT_TO_ADCOPY	Update
#SC SRDFA DEACT_TO_ADCOPY_DISK	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.DEACT_TO_ADCOPY_DISK	Update
#SC SRDFA DROP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.DROP	Update
#SC SRDFA DROP_SIDE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.DROP_SIDE	Update
#SC SRDFA PEND_DEACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.PEND_DEACT	Update
#SC SRDFA PEND_DROP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.PEND_DROP	Update
#SC SRDFA SET_CACHE_LIMIT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_CACHE_LIMIT	Update
#SC SRDFA SET_DROP_PRIORITY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_DROP_PRIORITY	Update
#SC SRDFA SET_HOST_THROTTLE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_HOST_THROTTLE	Update
#SC SRDFA SET_MIN_CYCLE_TIME	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_MIN_CYCLE_TIME	Update
#SC SRDFA TOL_ON	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.TOL_ON	Update
#SC SRDFA TOL_OFF	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.TOL_OFF	Update
#SC SRDFA TRANSMIT_IDLE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA.TRANSMIT_IDLE	Update
#SC SRDFA_DSE ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.ACT	Update
#SC SRDFA_DSE AUTO_ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.AUTO_ACT	Update
#SC SRDFA_DSE DEACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.DEACT	Update
#SC SRDFA_DSE THRESHOLD	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.THRESHOLD	Update
#SC SRDFA_DSE A400_POOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.A400_POOL	Update
#SC SRDFA_DSE 3380_POOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.3380_POOL	Update
#SC SRDFA_DSE 3390_POOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.3390_POOL	Update
#SC SRDFA_DSE FBA_POOL	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_DSE.FBA_POOL	Update

Table 12 SRDF Host Component resource validation requests with XFACILIT: configuration commands

Command and action	Class	Resource	Attribute
#SC SRDFA_WP AUTO_ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.AUTO_ACT	Update
#SC SRDFA_WP ACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.ACT	Update
#SC SRDFA_WP DEACT	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.DEACT	Update
#SC SRDFA_WP DSE_THOLD	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.DSE_THOLD	Update
#SC SRDFA_WP MAXDELAY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.MAXDELAY	Update
#SC SRDFA_WP PTYPE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.PTYPE	Update
#SC SRDFA_WP STATS_OFF	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.STATS_OFF	Update
#SC SRDFA_WP STATS_ON	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.STATS_ON	Update
#SC SRDFA_WP STATS_RESET	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.STATS_RESET	Update
#SC SRDFA_WP THRESHOLD	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.THRESHOLD	Update
#SC VOL ADC_MAX	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.ADC_MAX	Update
#SC VOL ADCOPY_WP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.ADCOPY_WP	Update
#SC VOL ADCOPY_DISK	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.ADCOPY_DISK	Update
#SC VOL CASCRE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CASCRE	Update
#SC VOL CASDEL	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CASDEL	Update
#SC VOL CASRSUM	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CASRSUM	Update
#SC VOL CASSUSP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CASSUSP	Update
#SC VOL CASSWAP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CASSWAP	Update
#SC VOL CREATEPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.CREATEPAIR	Update
#SC VOL DELETEDPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.DELETEDPAIR	Update
#SC VOL DOMINO	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.DOMINO	Update
#SC VOL HDELETEDPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.HDELETEDPAIR	Update
#SC VOL HMOVEPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.HMOVEPAIR	Update
#SC VOL HSWAP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.HSWAP	Update
#SC VOL INVALIDATE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.INVALIDATE	Update
#SC VOL ITA	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.ITA	Update
#SC VOL MOVEPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.MOVEPAIR	Update
#SC VOL NADCOPY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.NADCOPY	Update
#SC VOL NDOMINO	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.NDOMINO	Update
#SC VOL NITA	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.NITA	Update
#SC VOL NRDY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.NRDY	Update
#SC VOL OFFLINE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.OFFLINE	Update

Table 12 SRDF Host Component resource validation requests with XFACILIT: configuration commands

Command and action	Class	Resource	Attribute
#SC VOL ONLINE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.ONLINE	Update
#SC VOL PREFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.PREFRESH	Update
#SC VOL PRE_RSUM	XFACILIT	MC.ADMIN.CMD.SRDF.SC.VOL.PRE_RSUM	Update
#SC VOL R22SWTCH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.R22SWTCH	Update
#SC VOL RDY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RDY	Update
#SC VOL RDF_NRDY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RDF_NRDY	Update
#SC VOL RDF_RSUM	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RDF_RSUM	Update
#SC VOL RDF_SUSP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RDF_SUSP	Update
#SC VOL RDF_WR_ENABLE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RDF_WR_ENABLE	Update
#SC VOL REFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.REFRESH	Update
#SC VOL RESUMEPAIR	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RESUMEPAIR	Update
#SC VOL RFR_RSUM	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RFR_RSUM	Update
#SC VOL RNG_PREFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RNG_PREFRESH	Update
#SC VOL RNG_PRE_RSUM	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RNG_PRE_RSUM	Update
#SC VOL RNG_REFRESH	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RNG_REFRESH	Update
#SC VOL RNG_RSUM	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.RNG_RSUM	Update
#SC VOL R/O	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.R/O	Update
#SC VOL R/W	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.R/W	Update
#SC VOL SEMI-SYNC	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.SEMI-SYNC	Update
#SC VOL SUSP_CGRP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.SUSP_CGRP	Update
#SC VOL SWAP	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.SWAP	Update
#SC VOL SYNC	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.SYNC	Update
#SC VOL USR_NRDY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.USR_NRDY	Update
#SC VOL USR_RDY	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.USR_RDY	Update
#SC VOL VALIDATE	XFACILIT	EMC.ADMIN.CMD.SRDF.SC.VOL.VALIDATE	Update

Miscellaneous commands

Table 13 summarizes the resource validation requests for miscellaneous SRDF Host Component commands with XFACILIT.

Table 13 SRDF Host Component resource validation requests with XFACILIT: miscellaneous commands

Command and action	Class	Resource	Attribute
#HELP CMDLIST	XFACILIT	EMC.ADMIN.CMD.SRDF.HELP.CMDLIST	Read
#HELP CODES	XFACILIT	EMC.ADMIN.CMD.SRDF.HELP.CODES	Read
#HELP SYNTAX	XFACILIT	EMC.ADMIN.CMD.SRDF.HELP.SYNTAX	Read
#TF	XFACILIT	EMC.ADMIN.CMD.SRDF.TF	Update
#STOP	XFACILIT	EMC.ADMIN.CMD.SRDF.STOP	Update

Initialization parameters

To set SRDF Host Component class and resource names, use the SRDF Host Component initialization parameters:

- ◆ SAF_CLASS
- ◆ SAF_PROFILE

Note: The *SRDF Host Component for z/OS Product Guide* provides information about these parameters.

SnapVX

Table 14 summarizes the resource validation requests for SnapVX features and functions with XFACILIT.

Table 14 SnapVX resource validation requests with XFACILIT

Function	Class	Resource	Attribute
CREATE SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.CREATE.SNAPSHOT	Read
ACTIVATE SECURE SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.SECURE	Read
TERMINATE SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.TERMINAT.SNAPSHOT	Read
LINK SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.LINK.SNAPSHOT	Read
UNLINK SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.UNLINK.SNAPSHOT	Read
RENAME SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.RENAME.SNAPSHOT	Read
QUERY SNAPSHOT	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.QUERY.SNAPSHOT	Read
FREE target device tracks	XFACILIT	EMC.ADMIN.CMD.EMCSNAP.FREE	Read

zDP

zDP supports the use of the XFACILIT class. It is recommended to use XFACILIT for new installations. [Table 15](#) summarizes the resource validation requests for zDP features and functions with XFACILIT.

Table 15 zDP resource validation requests with XFACILIT

Function	Class	Resource	Attribute
Start	XFACILIT	EMC.ADMIN.CMD.ZDP.START	Update
Stop	XFACILIT	EMC.ADMIN.CMD.ZDP.STOP	Update
Pause	XFACILIT	EMC.ADMIN.CMD.ZDP.PAUSE	Update
Resume	XFACILIT	EMC.ADMIN.CMD.ZDP.RESUME	Update
Query VDG	XFACILIT	EMC.ADMIN.CMD.ZDP.QUERY.VDG	Read
Query target	XFACILIT	EMC.ADMIN.CMD.ZDP.QUERY.TGT	Read
Query status	XFACILIT	EMC.ADMIN.CMD.ZDP.QUERY.STATUS	Read
Query devices	XFACILIT	EMC.ADMIN.CMD.ZDP.QUERY.DEVICES	Read
Query snapset	XFACILIT	EMC.ADMIN.CMD.ZDP.QUERY.SNAPSET	Read
Define VDG	XFACILIT	EMC.ADMIN.CMD.ZDP.DEFINE	Update
Define target	XFACILIT	EMC.ADMIN.CMD.ZDP.DEFINE	Update
Delete VDG	XFACILIT	EMC.ADMIN.CMD.ZDP.DELETE	Update
Delete target	XFACILIT	EMC.ADMIN.CMD.ZDP.DELETE	Update
Add device	XFACILIT	EMC.DEVC.12digitserialnumber.ssid.dev# ^a	Update
Remove device	XFACILIT	EMC.DEVC.12digitserialnumber.ssid.dev# ^a	Update
Release device lock	XFACILIT	EMC.ADMIN.CMD.ZDP.RELDLOCK	Update
Modify options	XFACILIT	EMC.ADMIN.CMD.ZDP.MODIFY.OPTIONS	Update
Set up SMF recording	XFACILIT	EMC.ADMIN.CMD.ZDP.MODIFY	Update
Set persistent attribute	XFACILIT	EMC.ADMIN.CMD.ZDP.PERSISTENT	Update
Make snapset secure	XFACILIT	EMC.ADMIN.CMD.ZDP.SECURE	Update
Terminate snapset	XFACILIT	EMC.ADMIN.CMD.ZDP.TERMINATE	Update
Terminate snapset by date/time range	XFACILIT	EMC.ADMIN.CMD.ZDP.TERMINATE.RANGE	Update
Link snapset	XFACILIT	EMC.ADMIN.CMD.ZDP.LINK	Update
Unlink snapset	XFACILIT	EMC.ADMIN.CMD.ZDP.UNLINK	Update
Debug	XFACILIT	EMC.ADMIN.CMD.ZDP.DEBUG	Update
Link/Restore	XFACILIT	EMC.ADMIN.CMD.ZDP.BYPASS-ONLINE-CHECK	Read

a. See [“Enhanced device security” on page 57](#) for information about this resource.

TimeFinder/Clone Mainframe Snap Facility

Table 16 summarizes the basic resource validation requests for TimeFinder/Clone Mainframe Snap Facility features and functions.

Table 16 TimeFinder/Clone Mainframe Snap Facility resource validation requests

Function	Class	Resource	Attribute	Dstyp	Volser
Snap volume	DASDVOL	<i>Old-volser</i>	Read		
	DASDVOL	<i>New-volser</i>	Alter		
Snap dataset	DATASET	<i>Old-dsname</i>	Read	N or V	Volser
	Normal z/OS security processing is performed for output dataset.				

Enhanced device security

EMCSAFI supplies additional security checks for environments where multiple groups of users are using different devices on a single storage system. These security checks are provided through the SYMDV# parameter. When you use SYMDV#, TimeFinder/Clone Mainframe Snap Facility now checks to ensure that devices are logically only available to an authorized user.

For example, if you specify VDEV(FREE) within TimeFinder/Clone Mainframe Snap Facility, the software checks that the assigned device is logically accessible by a particular user. Or, if a SNAP VOLUME occurs, TimeFinder/Clone Mainframe Snap Facility checks to ensure both the source and target devices are logically accessible only by a particular user.

To implement this check at the PowerMax/VMAX device number level, the SAF check that is provided by ResourcePak Base supports the XFACILIT resource name.

The requested access authority is READ for source devices and UPDATE for target devices. The format of the SAF request is as follows:

```
EMC.DEVC.12digitserialnumber.ssid.dev#
```

Where:

12-digitserialnumber

The 12-digit serial number of the storage system.

ssid

The subsystem ID.

dev#

The PowerMax/VMAX device number.

- For devices with numbers up to FFFF, specify 4-digit device numbers in the RACF profile.
- For devices with numbers greater than FFFF, specify 8-digit device numbers.

The following example identifies a storage system with serial number 00000006185. The SSID is 0C02, and the PowerMax/VMAX device number is 230:

```
EMC.DEVC.00000006185.0C02.0230
```

You can use an asterisk (*) to specify a mask. For example, the following statement protects an entire SSID:

```
EMC.DEVC.000000006185.0C02.*
```

The following statement protects the entire storage system:

```
EMC.DEVC.000000006185.*
```

Enhanced group security

You can control who may modify, display, and use groups with the XFACILIT resource class. The requested authority for all commands that reference a group is READ. The requested authority for commands that define or delete groups is UPDATE. The format for the SAF resource name is:

```
EMC.ADMIN.GROUP.EMCSNAP.groupname
```

Where:

groupname

Specifies the group name.

Enhanced pool security

You can control who may modify, display, and use pools through the XFACILIT resource class. The requested authority for all commands that reference a pool is READ. The requested authority for all CONFIGPOOL commands is UPDATE. The format for the SAF resource name is:

```
EMC.ADMIN.POOL.EMCSNAP.poolname
```

Where:

poolname

Specifies the pool name.

Note: The *ResourcePak Base for z/OS Product Guide* provides more information about the CONFIGPOOL commands.

Enhanced command security

You may also control who can issue commands through the XFACILIT resource class. The requested authority for all commands is READ. [Table 17](#) shows the format for the SAF resources.

Table 17 Command resources with XFACILIT (page 1 of 2)

Command	Resource
ACTIVATE	EMC.ADMIN.CMD.EMCSNAP.ACTIVATE
CLEANUP	EMC.ADMIN.CMD.EMCSNAP.CLEANUP
CONFIG	EMC.ADMIN.CMD.EMCSNAP.CONFIG
CONFIGPOOL ADD	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.ADD
CONFIGPOOL CREATE	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.CREATE

Table 17 Command resources with XFACILIT (page 2 of 2)

Command	Resource
CONFIGPOOL DELETE	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DELETE
CONFIGPOOL DISABLE	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DISABLE
CONFIGPOOL DISPLAY	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DISPLAY
CONFIGPOOL DRAIN	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DRAIN
CONFIGPOOL ENABLE	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.ENABLE
CONFIGPOOL REMOVE	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.REMOVE
CONFIGPOOL UNDRAIN	EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.UNDRAIN
DEBUG DATASET	EMC.ADMIN.CMD.EMCSNAP.DEBUG.DATASET
DEFINE GROUP	EMC.ADMIN.CMD.EMCSNAP.GROUP.DEFINE
DEFINE SOURCE_VOLUME_LIST	EMC.ADMIN.CMD.EMCSNAP.DEFINE.SRCLIST
DELETE GROUP	EMC.ADMIN.CMD.EMCSNAP.GROUP.DELETE
END GROUP	EMC.ADMIN.CMD.EMCSNAP.GROUP.END
GLOBAL	EMC.ADMIN.CMD.EMCSNAP.GLOBAL
Perform a group operation	EMC.ADMIN.CMD.EMCSNAP.GROUP
QUERY DATASET	EMC.ADMIN.CMD.EMCSNAP.QUERY.DATASET
QUERY GLOBAL	EMC.ADMIN.CMD.EMCSNAP.QUERY.GLOBAL
QUERY GROUP	EMC.ADMIN.CMD.EMCSNAP.QUERY.GROUP
QUERY SNAPPPOOL	EMC.ADMIN.CMD.EMCSNAP.QUERY.SNAPPPOOL
QUERY VDEV	EMC.ADMIN.CMD.EMCSNAP.QUERY.VDEV
QUERY VOLUME	EMC.ADMIN.CMD.EMCSNAP.QUERY.VOLUME
RESET	EMC.ADMIN.CMD.EMCSNAP.RESET
RESTORE	EMC.ADMIN.CMD.EMCSNAP.RESTORE
SNAP DATASET	EMC.ADMIN.CMD.EMCSNAP.SNAP.DATASET
SNAP VOLUME	EMC.ADMIN.CMD.EMCSNAP.SNAP.VOLUME
STOP SNAP TO DATASET	EMC.ADMIN.CMD.EMCSNAP.STOP.DATASET
STOP SNAP TO VOLUME	EMC.ADMIN.CMD.EMCSNAP.STOP.VOLUME

TimeFinder/Mirror

TimeFinder/Mirror supports the use of the XFACILIT class. It is recommended to use XFACILIT for new installations.

[Table 18](#) summarizes the resource validation requests for TimeFinder/Mirror features and functions with XFACILIT.

Table 18 TimeFinder/Mirror resource validation requests with XFACILIT

Function	Class	Resource	Attribute
Query	XFACILIT	EMC.ADMIN.CMD.TF.QUERY	Read
Establish	XFACILIT	EMC.ADMIN.CMD.TF.ESTABLISH	Update
Re-establish	XFACILIT	EMC.ADMIN.CMD.TF.RE-ESTABLISH	Update
Split	XFACILIT	EMC.ADMIN.CMD.TF.SPLIT	Update
Restore (incremental)	XFACILIT	EMC.ADMIN.CMD.TF.PARTIAL-RESTORE	Update
Restore (incremental)	XFACILIT	EMC.ADMIN.CMD.TF.PARTIAL-RESTORE-BYPASS-WTOR	Update
Restore (full)	XFACILIT	EMC.ADMIN.CMD.TF.FULL-RESTORE	Update
Restore (full)	XFACILIT	EMC.ADMIN.CMD.TF.FULL-RESTORE-NOVERIFY	Update
Restore (full)	XFACILIT	EMC.ADMIN.CMD.TF.FULL-RESTORE-BYPASS-WTOR	Update
Config	XFACILIT	EMC.ADMIN.CMD.TF.CONFIG	Update
SRDF/AR ADD	XFACILIT	EMC.ADMIN.CMD.TF.SAR-ADD	Update
SRDF/AR DELETE	XFACILIT	EMC.ADMIN.CMD.TF.SAR-DELETE	Update
SRDF/AR START	XFACILIT	EMC.ADMIN.CMD.TF.SAR-START	Update
SRDF/AR STOP	XFACILIT	EMC.ADMIN.CMD.TF.SAR-STOP	Update
Site options	XFACILIT	EMC.ADMIN.CMD.TF.SITE-OPTIONS-OVERRIDE	Update
SRDF/AR MODIFY	XFACILIT	EMC.ADMIN.CMD.TF.SAR-MODIFY	Update
All functions	XFACILIT	EMC.ADMIN.CMD.TF.BYPASS-ONLINE-CHECK	Update

The TF#BASE class is available for compatibility reasons. [Table 19](#) summarizes the resource validation requests for TimeFinder/Mirror features and functions with TF#BASE.

Table 19 TimeFinder/Mirror resource validation requests with TF#BASE

Function	Class	Resource	Attribute
Query	TF#BASE	QUERY	Read
Establish	TF#BASE	ESTABLISH	Read
Re-establish	TF#BASE	RE-ESTABLISH	Read
Split	TF#BASE	SPLIT	Read
Restore (incremental)	TF#BASE	PARTIAL-RESTORE	Read
Restore (incremental)	TF#BASE	PARTIAL-RESTORE-BYPASS-WTOR	Read
Restore (full)	TF#BASE	FULL-RESTORE	Read

Table 19 TimeFinder/Mirror resource validation requests with TF#BASE

Function	Class	Resource	Attribute
Restore (full)	TF#BASE	FULL-RESTORE-NOVERIFY	Read
Restore (full)	TF#BASE	FULL-RESTORE-BYPASS-WTOR	Read
Config	TF#BASE	CONFIG	Read
SRDF/AR ADD	TF#BASE	SAR-ADD	Read
SRDF/AR DELETE	TF#BASE	SAR-DELETE	Read
SRDF/AR START	TF#BASE	SAR-START	Read
SRDF/AR STOP	TF#BASE	SAR-STOP	Read
SRDF/AR MODIFY	TF#BASE	SAR-MODIFY	Read
Site options	TF#BASE	SITE-OPTIONS-OVERRIDE	Read
All functions	TF#BASE	BYPASS-ONLINE-CHECK	Read

Enhanced device security

EMCSAFI supplies additional security checks for environments where multiple groups of users are using different devices on a single storage system. These security checks are provided through the SYMDV# parameter. When you use SYMDV#, TimeFinder/Mirror checks to ensure that devices are logically only available to an authorized user.

To implement this check at the PowerMax/VMAX device number level, the SAF check that is provided by ResourcePak Base supports the XFACILIT resource name.

The requested access authority is READ for source devices and UPDATE for target devices. The format of the SAF request is as follows:

```
EMC.DEVC.12digitserialnumber.ssid.dev#
```

Where:

12-digitserialnumber

The 12-digit serial number of the storage system.

ssid

The subsystem ID.

dev#

The PowerMax/VMAX device number.

- For devices with numbers up to FFFF, specify 4-digit device numbers in the RACF profile.
- For devices with numbers greater than FFFF, specify 8-digit device numbers.

The following example identifies a storage system with serial number 00000006185. The SSID is 0C02, and the PowerMax/VMAX device number is 230:

```
EMC.DEVC.00000006185.0C02.0230
```

You can use an asterisk (*) to specify a mask. For example, the following statement protects an entire SSID:

```
EMC.DEVC.000000006185.OC02.*
```

The following statement protects the entire storage system:

```
EMC.DEVC.000000006185.*
```

TimeFinder Utility

[Table 20](#) summarizes the resource validation requests for TimeFinder Utility features and functions.

Table 20 TimeFinder Utility resource validation requests

Function	Class	Resource	Attribute	Dstyp	Volser
Relabel Vol	DASDVOL	Old-volser	Alter		
	DASDVOL	New-volser	Alter		
Rename nvsm	DATASET	Old-dsname	Alter	N	<i>Volser</i>
	DATASET	New-dsname	Alter	N	<i>Volser</i>
Rename cluster	DATASET	Old-dsname	Alter	V	<i>Old cat vol</i>
	DATASET	New-dsname	Alter	V	<i>New cat vol</i>
Rename path	DATASET	Old-pathname	Alter	V	<i>Old cat vol</i>
	DATASET	New-pathname	Alter	V	<i>New cat vol</i>

ConGroup

[Table 21](#) summarizes the resource validation requests for ConGroup features and functions.

XFACILIT is the default SAF class. EMC.ADMIN.CMD.CG is the default SAF profile. You can localize both in the ConGroup global initialization parameters.

It is strongly recommended to use the default Class/Resource names for Mainframe Enablers 8.1 and later. However, both 8.1 and pre-8.1 names may be used until pre-8.1 names support is withdrawn.

The following does not apply if initialization parameters are used to override the defaults (listed in [Table 21](#)): if a SAF validation request is made and the corresponding default 8.1 Resource/Class set is NOT DEFINED, ConGroup tries to validate using the previous default Resource/Class definitions. See the *Mainframe Enablers Installation and Customization Guide* for the release you are upgrading from for more information.

Table 21 ConGroup resource validation requests (page 1 of 2)

Function	Class	Resource	Attribute
ADD	XFACILIT	EMC.ADMIN.CMD.CG.ADDDEL	Update
#ADD CONTROLLER	XFACILIT	EMC.ADMIN.CMD.CG.ADDDEL	Update
CANCEL	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
DAS ^a	n/a	n/a	n/a
DELETE	XFACILIT	EMC.ADMIN.CMD.CG.ADDDEL	Update
#DELETE CONTROLLER	XFACILIT	EMC.ADMIN.CMD.CG.ADDDEL	Update
DISABLE	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
DISPLAY CONGROUP	XFACILIT	EMC.ADMIN.CMD.CG.CGDISP	Read
DISPLAY ENVIRONMENT	XFACILIT	EMC.ADMIN.CMD.CG.CGDISP	Read
#DISPLAY GATEKEEPER	XFACILIT	EMC.ADMIN.CMD.CG.CGDISP	Read
ENABLE	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
HELP ^b	n/a	n/a	n/a
LA ^b	n/a	n/a	n/a
MOVEOWNER	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
#PIN	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
QUERY CONGROUP	XFACILIT	EMC.ADMIN.CMD.CG.CGDISP	Read
REFRESH	XFACILIT	EMC.ADMIN.CMD.CG.CGREFR	Update
REMSPLIT	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
RESET	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
RESUME	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
SET VERIFY_INTERVAL	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
TAKEOVER	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update

Table 21 ConGroup resource validation requests (page 2 of 2)

Function	Class	Resource	Attribute
TRIP	XFACILIT	EMC.ADMIN.CMD.CG.CGTRIP	Update
#UNPIN	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
VERIFY	XFACILIT	EMC.ADMIN.CMD.CG.CGMANAGE	Update
Run Cleanup utility	XFACILIT	EMC.ADMIN.FNC.CG.ECGUTIL	Update
Run TRIP API	XFACILIT	EMC.ADMIN.FNC.CG.TRIP	Update
STOP	XFACILIT	EMC.ADMIN.CMD.CG.CGSTOP	Update

- a. ConGroup does not check SAF but passes the command directly to AutoSwap. See [Table 22](#) for AutoSwap SAF requirements.
- b. No SAF checking is performed.

AutoSwap

[Table 22](#) summarizes the resource validation requests for AutoSwap features and functions.

Table 22 AutoSwap resource validation requests

Function	Class	Resource	Attribute
DEFINE DELETE SET SETSWAP SWAP VALIDATE	XFACILIT	EMC.ADMIN.CMD.AUTOSWAP	Update
DISPLAY	XFACILIT	EMC.ADMIN.CMD.AUTOSWAP	Read

Message ESWP633I indicates the status of resource checking.

Enabling/disabling EMCSAFI

Enabling EMCSAFI

EMCSAFI is enabled by default.

Disabling EMCSAFI

Member EMCSAFD in the Mainframe Enablers SAMPLIB contains assembler source code that you can use to disable EMCSAFI. Use member #90SAFJB in Mainframe Enablers RIMLIB to assemble and link the modules.

This source replaces CSECT EMCSAFI with a routine that returns a return code of zero (0) or four (4), depending on the content in RNAME_TBL. Entries in RNAME_TBL return 4. No attempt to call RACF is made and the following message is placed in ESRBMSG:

```
EMC SAF INTERFACE IS DISABLED
```

Note: The ESRBMSG message field is part of the EMCAFRB structure. See the ESRBMSG area for EMCSAFT routine-related messages.

#90SAFJB assembles the EMCSAFD exit and links it to all products. If the SAF interface is to be disabled in selected products, the link edit control statements are to be removed for the products that still use the SAF security process. (See the instructions included with #90SAFJB in the RIMLIB library.)

To disable the Dell EMC SAF interface for any of the Mainframe Enablers:

1. Read the instructions in the #90SAFJB and ensure that the SAF security process is disabled in the intended products.
2. Change the JCL to conform to the installation standards.
3. Run the job.

This relinks the component program.

The sample EMCSAFD (Figure 5 on page 66) includes MNOTE statements to identify the RNAME_TBL table. After reviewing this code, comment the MNOTE statements.

```

**
* IF THE SUPPLIED RESOURCE NAME MATCHES AN ENTRY IN THE RNAME_TBL,
* RETURN WITH RC 4.
**

MNOTE 12,'*-----*'
MNOTE 12,'* Please review the new functionality added with  *'
MNOTE 12,'* the RNAME_TBL. A rc 4 will be returned for    *'
MNOTE 12,'* each resource name in the table, allowing for  *'
MNOTE 12,'* protection of these functions when a full SAF *'
MNOTE 12,'* interface is not desired.                    *'
MNOTE 12,'*
MNOTE 12,'* To run without this enhancement, replace the  *'
MNOTE 12,'* first character of the first entry in the table *'
MNOTE 12,'* with a hex FF.                                *'
MNOTE 12,'*
MNOTE 12,'* Before submitting this module for assembly,   *'
MNOTE 12,'* delete or comment these MNOTE statements.     *'
MNOTE 12,'*-----*'
LA      R2,RNAME_TBL                                PRIME POINTER TO RNAME TBL

```

Figure 5 Sample EMCSAFD

Customizing EMCSAFI

Member EMCSAFI in the Mainframe Enablers SAMPLIB contains assembler source code for the security interface. The source code included in the Mainframe Enablers SAMPLIB is the code that is linked with the other mainframe components. This source allows you to customize the behavior of the security code to match the site requirements.

Use member #90SAFJB in the Mainframe Enablers RIMLIB to assemble and link the modules, making sure to change all occurrences of literal *SAFMBR* to EMCSAFI.

IMPORTANT

EMCSAFI is affected by changes to some of the defaults for a dynamically-defined CDT class. This causes resource classes that are dynamically defined to act differently than if they were created with the ICHERCDE macro. Review the resource names regarding the default values for special characters.

To customize the interface:

1. Change the JCL to conform to the site standards.
2. Change the source for EMCSAFI as required.
3. Run the job.

This relinks the component.

Note: Only experienced systems programmers who have extensive knowledge of the assembler language and standard linkage conventions, and who understand the RACF RACROUTE interface, should customize the EMCSAFI routine. Normal precautions must be taken to test changes in an isolated environment, and to protect the working production code.

On entry to EMCSAFI, R1 points to a full word containing the address of the EMCSAFRB. The information in this request block is used to build a RACROUTE request.

On return, R15 contains one of the following return codes:

- | | |
|----|-----------------------------------------------------------------------------------------|
| 0 | For ESRBATTR = T: Security subsystem is active.
For ESRBATTR ≠ T: Access is allowed. |
| 8 | Access is denied. |
| 12 | EMCSAFRB failed validation. |
| 16 | RACF is not active. |

Note: Take care when customizing EMCSAFI to maintain re-entrancy.

Zero return code

If the return code is zero, then field ESRBMSG contains one of the messages that are listed in [Table 23](#).

Table 23 EMCSAFI routine: zero return code

Message	Description
ACCESS ALLOWED	Access to the requested resource is allowed.
ACCESS ALLOWED - (WARN MODE)	Access to the requested resource would have been denied. However, warn mode is in effect, so access is allowed.
ACCESS ALLOWED - CLASS NOT ACTIVE	The requested class is not defined, and PROTECT ALL is not in effect.
ACCESS ALLOWED - RESOURCE NOT PROTECTED	The requested resource is not defined, and PROTECT ALL is not in effect.
SECURITY SUBSYSTEM IS ACTIVE	The request was to determine if the security subsystem is active and it is.

Non-zero return code

If the return code is non-zero, then field ESRBMSG contains one of the messages that are listed in [Table 24](#).

Table 24 EMCSAFI routine: non-zero return code (page 1 of 2)

Message	Description
ACCESS DENIED	The security subsystem has denied access to the resource. Contact your security administrator for proper access.
SECURITY SUBSYSTEM IS NOT ACTIVE	The security subsystem is not running. Start the security subsystem or run job EMCSAFD from the SCF SAMPLIB to disable the security feature.
EMCSAFRB ERROR - CLASS NOT SPECIFIED	The EMCSAFRB control structure that was passed to the security interface is in error. Field ESRBCLAS is not filled in. If you have customized the SAF interface, review the changes for errors. If you have not customized the SAF interface, contact Dell EMC Customer Support.
EMCSAFRB ERROR - INVALID AUTHORITY LEVEL REQUESTED	The EMCSAFRB control structure that was passed to the security interface is in error. Field ESRBATTR has an invalid value. If you have customized the SAF interface, review the changes for errors. If you have not customized the SAF interface, contact Dell EMC Customer Support.

Table 24 EMCSAFI routine: non-zero return code (page 2 of 2)

Message	Description
EMCSAFRB ERROR - RESOURCE NAME NOT SPECIFIED	The EMCSAFRB control structure that was passed to the security interface is in error. Field ESRBRNAM is not filled in. If you have customized the SAF interface, review the changes for errors. If you have not customized the SAF interface, contact Dell EMC Customer Support.
EMCSAFRB ERROR - INVALID DSTYPE VALUE SPECIFIED	The EMCSAFRB control structure that was passed to the security interface is in error. Field ESRBDSTY has an invalid value. If you have customized the SAF interface, review the changes for errors. If you have not customized the SAF interface, contact Dell EMC Customer Support.
EMCSAFRB ERROR - DSTYPE IS NOT M AND VOLSER NOT SPECIFIED	The EMCSAFRB control structure that was passed to the security interface is in error. Field ESRBDSTY has an invalid value. The value is not M, and field ESRBVSER is not filled in. If you have customized the SAF interface, review the changes for errors. If you have not customized the SAF interface, contact Dell EMC Customer Support.

Customizing EMCSAFRB

The EMCSAFRB macro describes the resource access request and is built by the caller and passed to the EMCSAFI routine. The macro is included in the Mainframe Enablers SAMPLIB, and is also shown in [Figure 6 on page 71](#).

XFACILIT class

When the class name is XFACILIT, the following statements are true:

- ◆ ESRBP1 contains two halfword values. The first halfword is the SSID of the device. The second halfword is the SYMDV# of the device.
- ◆ There are situations where the first halfword may be zero because internal processing has not yet progressed to the point of determining the SSID.

Depending on the specified action, some fields may not be filled in. These fields can be used to customize the security exit.

QS#BASE class

When the class name is QS#BASE, the following statements are true:

- ◆ ESRBP1 contains the cuir in the first halfword and cuus in the second halfword.
- ◆ ESRBP2 contains the Primary PowerMax/VMAX device number in the first halfword and the Secondary PowerMax/VMAX device number in the second halfword.

Depending on the specified action, some fields may not be filled in. You can use these unused fields to customize the security exit.

DATASET class (ConGroup)

When the class name is DATASET (or the class name that is specified in the initialization parameters of ConGroup), the following are true:

ESRBCLAS	Set the class name (QNAME).
ESBRNAM	Set to the resource name (RNAME).
ESRBATTR	U (update) or R (read).
ESRBUTOK	Security token supplied in the CIB representing the operator command.
ESRBDSTY	M (model profile).
ESRBUID	Set to spaces.
ESRBGID	Set to spaces.

Depending on the specified action, some fields may not be filled in. You can use these fields to customize the security exit.

DATASET class (SRDF Host Component)

When the class name is DATASET, the following statements are true:

- ◆ ESRBP1 contains the cuup in the first halfword and cuus in the second halfword.
- ◆ ESRBP2 contains the Primary PowerMax/VMAX device number in the first halfword and the Secondary PowerMax/VMAX device number in the second halfword.

Depending on the specified action, some fields may not be filled in. You can use these unused fields to customize the security exit.

TF#BASE class

When the class name is TF#BASE, the following statements are true:

- ◆ ESRBP1 contains the cuur in the first halfword and cuus in the second halfword.
- ◆ ESRBP2 contains the Primary PowerMax/VMAX device number in the first halfword and the Secondary PowerMax/VMAX device number in the second halfword.

Depending on the specified action, some fields may not be filled in. You can use these unused fields to customize the security exit.

Sample EMCSAFRB macro

Figure 6 on the following pages shows a sample EMCSAFRB macro.

```

MACRO
*****
*
* EMCSAFRB
*
* STRUCTURE PASSED AS INPUT TO THE EMCSAFI SECURITY INTERFACE
* ROUTINE.
*
* -----
* CHANGE LOG:
*
*   02/09/08 BASE
*   09/28/08 ADD OPTIONAL PARMS
*
*****
EMCSAFRB
EMCSAFRB DSECT
*
*****
*
* AUTHORITY LEVEL
*
*****
ESRBATTR DS      CL1                                REQUEST AUTHORITY LEVEL
*
*                                                    T - TEST RACF ACTIVE
*                                                    R - READ
*                                                    U - UPDATE
*                                                    A - ALTER
*                                                    C - CONTROL
*
* DS      CL3                                .. OPEN ..
*****
*
* REQUESTOR INFORMATION
*
*****
* SET ESRBUID AND ESRBGID TO BLANK UNLESS 3RD PARTY AUTHORIZATION
* CHECKING IS TO BE USED
*
ESRBUID DS      CL8                                USERID OR BLANK
ESRBGID DS      CL8                                GROUPID OR BLANK
ESRBACEE DS      A                                  | 0 OR ADDR OF ACEE OR 4X'FF'
*                                                    | IF ESRBUTOK POINTS TO UTOKEN
*

```

Figure 6 Sample EMCSAFRB macro

```

*****
*                               RESOURCE INFORMATION                               *
*****
ESRBCLAS DS      CL8                RESOURCE CLASS
ESRBRNAM DS      CL44               RESOURCE NAME
ESRBVSER DS      CL6                VOLSER  (IF CLASS=DATASET)
ESRBDSTY DS      CL1                DSTYPE: (IF CLASS=DATASET)
*                               N - NONVSAM
*                               V - VSAM
*                               M - MODEL PROFILE
*                               T - TAPE
                               DS      CL5                | .. OPEN ..
*****
*                               RETURN CODES                                   *
*****
ESRBR15  DS      F                  RETURN CODE FROM RACROUTE
ESRBRRET DS      F                  RACF RETURN CODE
ESRBRREA DS      F                  RACF REASON CODE
ESRBSRET DS      F                  SAF RETURN CODE
ESRBSREA DS      F                  SAF REASON CODE
*****
*                               ERROR MESSAGE                                 *
*****
ESRBMSG  DS      CL100              AREA FOR MESSAGE RETURN
*****
* REUSE ERROR MESSAGE AREA FOR ADDITIONAL PARAMETERS.  NOTE THAT          *
* THESE PARAMETERS WILL BE OVERLAYED ON RETURN FROM EMCSAFI.              *
*****
                               ORG      ESRBMSG
ESRBP1   DS      XL4                | OPTIONAL PARAMTERS PASSED
ESRBP2   DS      XL4                | . BY APPLICATION
ESRBP3   DS      XL4                | . . .
ESRBP4   DS      XL4                | . . .
ESRBUTOK DS      XL4                | A(USER TOKEN)
                               ORG      ESRBMSG+L'ESRBMSG
EMCSAFRL EQU      *-EMCSAFRB        AREA LENGTH
                               MEND

```

Figure 6 (continued) Sample EMCSAFRB macro

Tables 25 through 28 describe the fields in the EMCSAFRB structure.

Table 25 Authority level

ESRBATTR	1-byte field describing the level of access required. Valid values are: <ul style="list-style-type: none"> • T—Tests whether the security interface is active. A return code of zero indicates that it is active, a non-zero return code indicates that it is not active. • R—Requests READ access to the resource. • U—Requests UPDATE access to the resource. • A—Requests ALTER access to the resource. • C—Requests CONTROL access to the resource.
----------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 26 Requestor information

ESRBUID	8-byte field containing the user ID of the user requesting access. If ESRBACEE is specified, this field is ignored.
ESRBGID	8-byte field containing the group ID of the user requesting access. If this field is blank and the ESRBUID field is specified, the default group for the user ID is used. If ESRBUID is blank or ignored, this field is ignored.
ESRBACEE	8-byte field containing the address of a valid ACEE for the user requesting access. If this field is zero and ESRBUID is blank, the ACEE associated with the current address space is used.

Table 27 Resource information

ESRBCLAS	8-byte field containing the class name.
ESRBRNAM	44-byte field containing the resource name.
ESRBVSER	Volume serial. Used only when ESRBCLAS=DATASET and ESRBDSTY is not equal to "M."
ESRBDSTY	Dataset type when ESRBCLAS=DATASET. Valid values are: <ul style="list-style-type: none"> • N—Non-VSAM • V—VSAM • M—Model profile • T—Tape dataset

Table 28 Return codes

ESRBR15	On return, contains the return code from the RACROUTE macro.
ESRBRRET	On return, contains the RACF return code.
ESRBRREA	On return, contains the RACF reason code.
ESRBSRET	On return, contains the SAF return code.
ESRBSREA	On return, contains the SAF reason code.

Note: The RACROUTE, RACF, and SAF return codes and reason codes are documented in the IBM publication, *External Security Interface (RACROUTE) Macro Reference for MVS and VM*, or, in later releases, *SecureWay Security Server RACROUTE Macro Reference*.

Restoring Dell EMC-supplied EMCSAFI

Use member #92SAFJB in the Mainframe Enablers RIMLIB to restore the Dell EMC-supplied SAF interface.

Take the following steps for all of the Mainframe Enablers components:

1. Read the instructions in #92SAFJB and ensure that the SAF security process is reenabled in the intended products.
2. Change the JCL to conform to the site standards.
3. Run the job.
4. Restart all Mainframe Enablers components.

APPENDIX A

Maintenance Levels

This chapter discusses how to determine maintenance levels of Mainframe Enablers components:

◆ ResourcePak Base	76
◆ SRDF Host Component.....	77
◆ TimeFinder/Clone Mainframe Snap Facility	78
◆ TimeFinder/Mirror.....	78
◆ ConGroup	79
◆ AutoSwap	79

ResourcePak Base

To determine the latest maintenance level that has been applied to ResourcePak Base, review the header of the initial task startup message:

```
SCF0100I EMC SYMMETRIX CONTROL FACILITY VERSION vrm NOW ACTIVE (nn)
```

This message reports:

- ◆ **VERSION *vrm***—ResourcePak Base release information:
 - v*—Version
 - r*—Release
 - m*—Modification level
- ◆ (*nn*)—The last two digits of the latest Dell EMC PTF maintenance update that was applied to ResourcePak Base. If no maintenance updates have been applied, the PTF value is 00.

GNS

To determine the latest maintenance level that has been applied to the GNS module, review the initial task startup message:

```
SCF0890I SCFGNST - GNS task is now active. SCFGNST-mm/dd/yy-hh.mm-Vvrm-SFvrmnn-SSCF
```

This message reports:

- ◆ **ResourcePak Base release information:**
 - v*—Version
 - r*—Release
 - m*—Modification level
 - nn*—The latest Dell EMC PTF maintenance update that was applied to ResourcePak Base.
- ◆ The date, hour, and minute the latest module was assembled is also provided.

SDV and DSE Monitors

To determine the latest maintenance level that has been applied to the SDV and DSE Monitors, review the initial task startup messages:

```
SCF1100I SDV MONITOR SNAPPOL TASK STARTED - SCFMNLOG-mm/dd/yy-hh.mm-Vv.r.m(nnn)
SCF1100I DSE MONITOR DSEPOOL TASK STARTED - ESMNDSE-mm/dd/yy-hh.mm-Vv.r.m(nnn)
```

This message reports:

- ◆ *mm/dd/yy-hh.mm*—The date, hour, and minute the latest module was assembled.
- ◆ ***Vv.r.m***—ResourcePak Base release information:
 - v*—Version
 - r*—Release
 - m*—Modification level
- ◆ (*nnn*)—The latest Dell EMC PTF maintenance update that was applied to ResourcePak Base.

MSC

To determine the latest maintenance level that has been applied to the MSC modules, review the initial task startup messages:

```
SCF1315I MSC MODULE= EHCMSCMA VER= Vv.r.m PATCH= SRvrmnn
SCF1315I MSC MODULE= EHCMSCMB VER= Vv.r.m PATCH= SRvrmnn
SCF1315I MSC MODULE= EHCMSCMC VER= Vv.r.m PATCH= SRvrmnn
SCF1315I MSC MODULE= EHCMSCMD VER= Vv.r.m PATCH= SRvrmnn
SCF1315I MSC MODULE= EHCMSCM8 VER= Vv.r.m PATCH= SRvrmnn
```

This message reports:

- ◆ VER= Vv.r.m—SRDF Host Component release information:
 - v—Version
 - r—Release
 - m—Modification level
 - ◆ PATCH= SRvrmnn—The latest Dell EMC maintenance update that was applied to SRDF Host Component (PATCH):
 - v—Version
 - r—Release
 - m—Modification level
- nn*—The latest Dell EMC PTF maintenance that was applied to ResourcePak Base. If no maintenance updates have been applied, the PTF value is 00.

SRDF Host Component

To determine the latest maintenance level that has been applied to SRDF Host Component, issue the #SQ GLOBAL command.

Note: The *SRDF Host Component for z/OS Product Guide* describes the #SQ GLOBAL command and provides an example of its output.

The command output displays the following:

- ◆ SRDF Host Component version information (HC-VERSION).
- ◆ The last four digits of the latest Dell EMC maintenance update applied to SRDF Host Component (HC-PTF).
- ◆ ResourcePak Base version information (SCF-VERSION).
- ◆ The last four digits of the latest Dell EMC maintenance update applied to ResourcePak Base (SCF-PTF).

If no maintenance updates have been applied, the PTF value is 0000.

TimeFinder/Clone Mainframe Snap Facility

To determine the latest maintenance level that has been applied to the high-level TimeFinder/Clone Mainframe Snap Facility module, review the header of the initial task startup message:

```
SCF2023I SCFGBLSN MODULE FOUND, LFC WAS SPECIFIED, SNAP Vv.r ACTIVE
```

This message reports:

- ◆ SNAP module release information:
 - v—Version
 - r—Release

TimeFinder/Mirror

To determine the maintenance level that has been applied to TimeFinder/Mirror, review the header of the application batch report:

```
hh:mm:ss BCVM046I *** EMC TimeFinder Vv.r.m (nn) - SCF Vv.r.m (nn) *** mm/dd/yyyy
```

This message reports:

- ◆ *hh:mm:ss*—The hour, minute, and second in *hh:mm:ss* format.
- ◆ *Vv.r.m*—TimeFinder release information:
 - v—Version
 - r—Release
 - m—Modification level
- ◆ *(nn)*—The last two digits (in parentheses) of the latest Dell EMC maintenance update (PTF) that was applied to TFCMSF. If no maintenance updates have been applied, the value is (00).
- ◆ *SCF Vv.r.m*—SCF (ResourcePak Base) release information:
 - v—Version
 - r—Release
 - m—Modification level
- ◆ *(nn)*—The last two digits of the latest Dell EMC maintenance update (PTF) that was applied to SCF. If no maintenance updates have been applied, the value is (00).
- ◆ *mm/dd/yyyy*—The month, day, and year when the maintenance update was built. If no maintenance updates have been applied, the date is the build date of the module.

ConGroup

To determine the latest maintenance level that has been applied to ConGroup, review the initial task startup message:

```
CGRP000I ConGroup Vv.r (mm/dd/yy-hh.mm congroup_module-ptf) Initializing
```

This message reports:

- ◆ *Vv.r*—ConGroup release information:
 - v*—Version
 - r*—Release
- ◆ *mm/dd/yy-hh.mm*—The date, hour, and minute of the build. If there is no PTF, the build date-time shows the build date-time of the ConGroup main module. If there is a PTF, the build time is the build date-time is that of the PTF.
- ◆ *congroup_module*—The name of the ConGroup module, including the version, release, and modification level.
- ◆ *ptf*—The full name of the PTF (for example, SC64001). If no maintenance updates have been applied, the name of the PTF contains multiple zeros.

Note: You can also find the information in CGRP281I, a message that documents the data on which the most recently assembled module (or PTF) was assembled. The *Mainframe Enablers Message Guide* provides information about CGRP281I.

AutoSwap

To determine the latest maintenance level that has been applied to AutoSwap, review the initial task startup message:

```
SCFS234I AutoSwap version v.r.m, level xxx (SFVRmnn mm/dd/yy)
```

This message reports:

- ◆ *Vv.r.m*—AutoSwap release information:
 - v*—Version
 - r*—Release
 - m*—Modification level
- ◆ *level xxx*—An additional release level.
- ◆ *SF VRmnn*—ResourcePak Base release information:
 - v*—Software version
 - r*—Software release level
 - m*—Software modification level
 - nn*—The latest Dell EMC PTF maintenance update that was applied to ResourcePak Base.
- ◆ *mm/dd/yy*—The date the latest module was assembled.

