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<td>validation requests with</td>
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<td>XFACILIT</td>
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<td>requests with XFACILIT:</td>
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<td>query commands</td>
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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 at 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:

◆ 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 web page at:


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
Conventions used in this document

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

*Italic*  
Used for:
- Titles of publications referenced in text
- Emphasis, for example, a new term

* Courier*  
Used for:
- Command syntax and parameters
- System output, such as messages

* Courier bold*  
Used for user input, for example: Reply CONT.

* Courier italic*  
Used for variables in command/parameter syntax and messages, for example: DISPLAY ccuu

* Courier underline*  
Underline indicates the default value, for example: YES|NO

< >  
Angle brackets enclose variables or explanatory text when it includes multiple words, for example: <list of device numbers>

[]  
Square brackets enclose optional values, for example: DISPLAY [DETAIL]

|  
Vertical bar indicates alternate selections (the bar means “or”), for example: RUN|NORUN

{}  
Braces are used together with the vertical bar (|) to indicate the start and end of alternate selections, for example: {DEV symdv#|CUU ccuu}

...  
Ellipses indicate nonessential information omitted from the example
Where to get help

Product information

For information about Dell EMC products, licensing, and service, go to www.dell.com (registration required).

Technical support

To access the Dell EMC Online Support web site, go to www.dell.com/support and search for your product. You will be redirected to the product support page, offering quick links to Documentation, Downloads, Advisories, and Knowledgebase for your product. The product support page also provides a link to the Service Center where you can create a service request, manage your service requests, and contact Dell EMC Customer Support either through Dell EMC Live Chat or using other options.

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.

eLicensing support

To activate your entitlements and obtain your license files, visit the Service Center as directed on your License Authorization Code (LAC) letter emailed to you.

For help with missing or incorrect entitlements after activation (that is, expected functionality remains unavailable because it is not licensed), contact your Dell EMC Account Representative or Authorized Reseller.

For help with any errors applying license files through Solutions Enabler, contact Dell EMC Customer Support.

If you are missing a LAC letter, or require further instructions on activating your licenses through the Online Support site, contact Dell EMC 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.
- **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.
Data Protector for z Systems (zDP)
Data Protector for z Systems (zDP) is employed with SnapVX and provides application recovery from unintended changes to data.

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 [www.dell.com/support](http://www.dell.com/support). 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

<table>
<thead>
<tr>
<th>Component</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainframe Enablers</td>
<td><em>Mainframe Enablers Installation and Customization Guide</em></td>
</tr>
<tr>
<td></td>
<td><em>Mainframe Enablers Message Guide</em></td>
</tr>
<tr>
<td></td>
<td><em>Mainframe Enablers Release Notes</em></td>
</tr>
<tr>
<td>ResourcePak Base for z/OS</td>
<td><em>ResourcePak Base for z/OS Product Guide</em></td>
</tr>
<tr>
<td>SRDF Host Component for z/OS, including the REXX interface</td>
<td><em>SRDF Host Component for z/OS Product Guide</em></td>
</tr>
<tr>
<td>Consistency Groups for z/OS and AutoSwap for z/OS</td>
<td><em>Consistency Groups for z/OS Product Guide</em></td>
</tr>
<tr>
<td></td>
<td><em>AutoSwap for z/OS Product Guide</em></td>
</tr>
<tr>
<td>TimeFinder SnapVX, zDP</td>
<td><em>TimeFinder SnapVX and zDP Product Guide</em></td>
</tr>
<tr>
<td>TimeFinder/Clone Mainframe Snap Facility</td>
<td><em>TimeFinder/Clone Mainframe Snap Facility Product Guide</em></td>
</tr>
<tr>
<td>TimeFinder/Mirror for z/OS</td>
<td><em>TimeFinder/Mirror for z/OS Product Guide</em></td>
</tr>
<tr>
<td>TimeFinder Utility</td>
<td><em>TimeFinder Utility for z/OS Product Guide</em></td>
</tr>
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CHAPTER 2
Installation

This chapter covers the following topics:

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◆ Installation ........................................................................ 22
◆ Post-installation ............................................................... 32
Pre-installation

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


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 21.

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
<td>All supported PowerMax/VMAX systems.</td>
</tr>
<tr>
<td><strong>Operating environment</strong></td>
<td><strong>PowerMaxOS 5978, HYPERMAX OS 5977, Enginuity 5876</strong></td>
</tr>
<tr>
<td></td>
<td>The following are the minimum levels that are required for the features:</td>
</tr>
<tr>
<td></td>
<td>- PowerMaxOS 5978.444.444 for the following:</td>
</tr>
<tr>
<td></td>
<td>DVE for SRDF/Star and SRDF/SQAR</td>
</tr>
<tr>
<td></td>
<td>zDP enhancements (1024 snaps per volume, on-demand snapsets,</td>
</tr>
<tr>
<td></td>
<td>improved LINK performance, dynamic VDG update)</td>
</tr>
<tr>
<td></td>
<td>- PowerMaxOS 5978 for the following:</td>
</tr>
<tr>
<td></td>
<td>- HYPERMAX OS 5977 for the following:</td>
</tr>
<tr>
<td></td>
<td>Support of 4-byte VMAX device numbers(^a)</td>
</tr>
<tr>
<td></td>
<td>Enhanced asynchronous attention</td>
</tr>
<tr>
<td></td>
<td>128KB FBA track size</td>
</tr>
<tr>
<td></td>
<td>SRDF/A Multi-Cycle Mode</td>
</tr>
<tr>
<td></td>
<td>Support of targetless infrastructure</td>
</tr>
<tr>
<td></td>
<td>Adaptive copy: conversion of ADC-WP to ADC-DISK</td>
</tr>
<tr>
<td></td>
<td>Transition to a single pool type</td>
</tr>
<tr>
<td></td>
<td>Support of multiple user exits</td>
</tr>
<tr>
<td></td>
<td>Multiport group support</td>
</tr>
<tr>
<td></td>
<td>GNS scalability</td>
</tr>
<tr>
<td></td>
<td>SnapVX and zDP features</td>
</tr>
<tr>
<td></td>
<td>Mirror Optimizer</td>
</tr>
<tr>
<td></td>
<td>Enginuity 5876 for the following:</td>
</tr>
<tr>
<td></td>
<td>Virtual Snap improvements</td>
</tr>
<tr>
<td></td>
<td>Multidevice capabilities</td>
</tr>
<tr>
<td></td>
<td>Thin device support</td>
</tr>
<tr>
<td></td>
<td>Cascaded clone support</td>
</tr>
<tr>
<td></td>
<td>Extended address volume support</td>
</tr>
<tr>
<td><strong>Storage system devices</strong></td>
<td>TimeFinder/Clone Mainframe Snap Facility:</td>
</tr>
<tr>
<td></td>
<td>If you are going to use the system for Virtual Snapshot, the system must</td>
</tr>
<tr>
<td></td>
<td>be configured with Virtual and Snap Pool devices.</td>
</tr>
<tr>
<td></td>
<td>TimeFinder/Mirror:</td>
</tr>
<tr>
<td></td>
<td>The system must be configured with BCV volumes.</td>
</tr>
<tr>
<td><strong>Storage system</strong></td>
<td>Consistency Groups:</td>
</tr>
<tr>
<td>configuration parameters</td>
<td>- Prevent auto links recovery after all links failure?: YES</td>
</tr>
<tr>
<td></td>
<td>- Force RAs Links off-line after power-up?: YES</td>
</tr>
<tr>
<td></td>
<td>- Enable page dataset Mode?: YES</td>
</tr>
<tr>
<td></td>
<td>TimeFinder/Mirror (required for SRDF/AR only):</td>
</tr>
<tr>
<td></td>
<td>- Prevent auto links recovery after all links failure?: YES</td>
</tr>
<tr>
<td></td>
<td>- Force RAs Links off-line after power-up?: YES</td>
</tr>
<tr>
<td></td>
<td>- Enable Links Domino: NO</td>
</tr>
</tbody>
</table>

\(^a\) Although Mainframe Enablers 8.4 accepts up to “FFFFFFFF” device numbers, HYPERMAX OS 5977 and PowerMaxOS 5978 can handle only FFFFFF devices.

Table 3 lists the mainframe hardware and software requirements.
### Table 3  Mainframe hardware and software requirements

<table>
<thead>
<tr>
<th>Item</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hardware</strong></td>
<td>• Any system that supports versions of the z/OS operating system that IBM supports.</td>
</tr>
<tr>
<td></td>
<td>• FTP or TSO connection to an open systems host.</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>• Any version of the z/OS operating system that IBM supports.</td>
</tr>
<tr>
<td></td>
<td>For ResourcePak Base:</td>
</tr>
<tr>
<td></td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>Programmer to discuss whether this is available for use.</td>
</tr>
<tr>
<td></td>
<td>• JES2 or JES3 environments.</td>
</tr>
<tr>
<td></td>
<td>• RACF 1.9 or later, or an equivalent SAF compliant security product, must be installed and activated.</td>
</tr>
</tbody>
</table>

**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] DEVCl[ass] DASD DPS Y[es] RESERVE_REL[ease] Y[es]. Attach volumes to the guest.
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.SMFEvrm” as the dataset name prefix if it agrees with the site standards. In this case, for example, the LINKLIB dataset is named “EMC.SMFEvrm.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.SMFEvrm.” 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. *vrm* 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 www.dell.com/support.
   d. Search for Mainframe Enablers in the ‘Enter a Service Tag, Serial Number, Service Request, Model, or Keyword’ field.
      Result: A support 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 Drivers & Downloads on the Mainframe Enablers support page.
      Result: The Downloads for Mainframe Enablers page is displayed.
   f. Click the required product version in the Version field to filter on the version.
   g. Click the Download button for the required 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:
   MFEvrm.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_MFEvrm.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 21.

   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 21.

   For example:

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

   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 RI MLIB 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.SMFEvrm.XMITLIB dataset. The SETUP REXX program prompts you for all of the information that is required to customize JCL, as shown in Figure 1.

2. In the panel, specify values that you determined in “Installation information” on page 21:

   **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 21.

   **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).

---

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

-------------------------- 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.XMITLIB'
Edit macro name ==> XMIT
XMITLIB dsname prefix ==> EMC.SMFEvrm

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)
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.SMFE840.XMITLIB' |
| Edit macro name ==> XMIT |
| XMITLIB dsname prefix ==> EMC.SMFE40 |
| | |
| 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) |

--- Dell EMC JCL Customization Utility ---

| COMMAND ==> _____________________________________________________________ |
| | |
| Type EXEC on the command line and press ENTER to proceed, or PF3 to exit. |
| | |
| CLIST library ==> 'EMC.SMFE840.XMITLIB' |
| Edit macro name ==> XMIT |
| XMITLIB dsname prefix ==> EMC.SMFE40 |
| | |
| 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

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

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.

   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 21:

   **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 21.

   **SMP/E dsname prefix**—Type the SMP/E dataset name prefix that you determined in “Installation information” on page 21.

   **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)zzzzzzzzzzzzzzzzzzzzzzzzz |
+--------------------------------------------------------------------------+
```

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: #07ACCPT
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 www.dell.com/support.
4. Search for Mainframe Enablers in the ‘Enter a Service Tag, Serial Number, Service Request, Model, or Keyword’ field.
Result: A support 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.

5. Click Downloads on the Mainframe Enablers support page.

6. Click the required product version on the left to filter on the version.

7. 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.

8. 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.

MEvrnFIX.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.

9. On the target mainframe, allocate a dataset to which you can upload the MEvrnFIX.BIN file using FTP.

10. Upload the MEvrnFIX.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 MEvrnFIX.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.

11. Use the TSO RECEIVE command to retrieve MEvrnFIX.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:

```bash
gerceive indataset('DS')
```

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

```bash
da('EMC.SMFEvrm.SMPPTFIN')
```

Where:

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

12. On the target mainframe, allocate a dataset to which you can upload the SMPJOB.TXT file using FTP.

13. Upload the SMPJOB.TXT in text (ASCII) format to the mainframe using FTP. The FTP session may look as follows:

```bash
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.

14. Customize SMPJOB JCL for the installation. You can find editing instructions in the Smpjob.txt comments.

15. 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 32.

After you ensure that Mainframe Enablers are correctly installed and functioning
correctly, run the RIMLIB(#08CLEAN) job to delete datasets and DDDEFs 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)
- EHCMSCME (MSC Star)
- EHCGCOPY (MSC Star)
- EHCRCVRY (MSC Star)
- SCFRDFM6 (MSC Star)
- EHCMSCM6 (MSC Star)
- EIPINIT (zDP)
- EIPASAFC (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
   - EHCGCOPY
   - EHCRCVRY
   - 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) */ +
   EHCGCOPY /* (MSC Star) */ +
   EHCRCVRY /* (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) */ +
   SCFRDFME /* (MSC Star) */ +
   EHCMSCME /* (MSC Star) */ +
   EHCGCOPY /* (MSC Star) */ +
   EHCRCVRY /* (MSC Star) */ +
   SCFRDFM6 /* (MSC Star) */ +
   EHCMSCM6 /* (MSC Star) */ +
   EIPINIT /* (z/DP) */ +
   EIPASAFC /* (z/DP) */ +
   )
   /* */
   ```

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.
EHCRCVRY /* (MSC Star) */ +
SCFRDFM6 /* (MSC Star) */ +
EHCMSCM6 /* (MSC Star) */ +
EIPINIT /* (z/DP) */ +
EIPASAFC /* (z/DP) */ +

) */ *
/* */
AUTHCMD NAMES( /* AUTHORIZED PROGRAMS */ +
EMCTF /* (TimeFinder/Mirror) */ +
EMCTFU /* (TimeFinder Utility) */ +
EMCSNAP /* (TimeFinder/Clone Mainframe Snap Facility) */ +
EMCTFA /* (SRDF/AR) */ +
EMCROUP /* (Group Name Services) */ +
EMCQOS /* (Quality of Service) */ +
SCFRDFME /* (MSC Star) */ +
EHCSCMCE /* (MSC Star) */ +
EHGCOPY /* (MSC Star) */ +
EHCRCVRY /* (MSC Star) */ +
SCFRDFM6 /* (MSC Star) */ +
EHCMSCM6 /* (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:

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 21.

Upgrade

To upgrade Mainframe Enablers from version 8.3 to version 8.4, 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 DDDEFs used during the installation process that are no longer needed.

Redefine zDP VDGs (optional)

zDP 8.4 allows up to 1024 snapsets to be created on condition that all devices in the VDG reside on storage systems running PowerMaxOS 5978.0300 and later.

To take advantage of the 1024 snapshot limit, redefine the VDG and set the MAX_SNAPSET parameter to a value above 256.

Note: The TimeFinder SnapVX and zDP Product Guide discusses zDP.
Upgrade
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

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

<table>
<thead>
<tr>
<th>License</th>
<th>Commands included</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoSwap for z/OS</td>
<td>AutoSwap: Not applicable</td>
</tr>
<tr>
<td></td>
<td>Consistency Group: CAX configuration parameters</td>
</tr>
<tr>
<td>z/OS Migrator</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>Startup (EXEC PGM=EFMMMAIN)</td>
</tr>
</tbody>
</table>
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.

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.


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).

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 .................................................................... 66
◆ Restoring Dell EMC-supplied EMCSAFI ............................................ 72
EMCSAFI security interface

Mainframe Enablers security\(^1\) 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

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)

<table>
<thead>
<tr>
<th>Command environment</th>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASY</td>
<td>DISABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ASY</td>
<td>Update</td>
</tr>
<tr>
<td></td>
<td>ENABLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REFRESH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DSE</td>
<td>DISABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DSE</td>
<td>Update</td>
</tr>
<tr>
<td></td>
<td>ENABLE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REFRESH</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6 ResourcePak Base resource validation requests with XFACILIT (page 2 of 3)

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

46  Mainframe Enablers 8.4 Installation and Customization Guide
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.nnnnnnnnnnn

Where nnnnnnnnnnn 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  EMCGQOS resource validation requests with XFACILIT

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>QOS Symmetrix Priority Control</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.QOS-SPC</td>
<td>Read</td>
</tr>
<tr>
<td>QOS Dynamic Cache Partitioning</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.QOS-DCP</td>
<td>Read</td>
</tr>
</tbody>
</table>
The QS#BASE class is available for compatibility reasons.

**Table 8** EMCQOS resource validation requests with QS#BASE

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>QOS Symmetrix Priority Control</td>
<td>QS#BASE</td>
<td>QOS-SPC</td>
<td>Read</td>
</tr>
<tr>
<td>QOS Dynamic Cache Partitioning</td>
<td>QS#BASE</td>
<td>QOS-DCP</td>
<td>Read</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>Command</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>DISABLE MIRO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.MIR</td>
<td>Update</td>
</tr>
<tr>
<td>DISABLE PAVO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISABLE.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>DISPLAY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY</td>
<td>Read</td>
</tr>
<tr>
<td>DISPLAY DEVICE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.PAV</td>
<td>Read</td>
</tr>
<tr>
<td>DISPLAY DEVICE MIRO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.MIR</td>
<td>Read</td>
</tr>
<tr>
<td>DISPLAY DEVICE PAVO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.DISPLAY.PAV</td>
<td>Read</td>
</tr>
<tr>
<td>ENABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>ENABLE MIRO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.MIR</td>
<td>Update</td>
</tr>
<tr>
<td>ENABLE PAVO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.ENABLE.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>HELP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.HELP</td>
<td>Read</td>
</tr>
<tr>
<td>LOG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.LOG</td>
<td>Update</td>
</tr>
<tr>
<td>Optimizer batch interface (ESFOPTBT)*</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.BATCH.DEV.OPTIMIZE</td>
<td>Update</td>
</tr>
<tr>
<td>REFRESH</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.REFRESH</td>
<td>Update</td>
</tr>
<tr>
<td>RESET</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.RESET</td>
<td>Update</td>
</tr>
<tr>
<td>RESUME</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>RESUME MIRO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.MIR</td>
<td>Update</td>
</tr>
<tr>
<td>RESUME PAVO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.RESUME.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>SUSPEND</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.MIR and EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.PAV</td>
<td>Update</td>
</tr>
<tr>
<td>SUSPEND MIRO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.MIR</td>
<td>Update</td>
</tr>
<tr>
<td>SUSPEND PAVO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.DEV.OPTIMIZE.SUSPEND.PAV</td>
<td>Update</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Command</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZDP,CREATE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.CREATE</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,MODIFY,SMF</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.MODIFY</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,PAUSE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.PAUSE</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,RELEASEDEVICELOCK</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.RELDLOCK</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,RESUME</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.RESUME</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,START</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.START</td>
<td>Update</td>
</tr>
<tr>
<td>ZDP,STOP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.STOP</td>
<td>Update</td>
</tr>
</tbody>
</table>

**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>
<thead>
<tr>
<th>Command</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>#SQ ADC</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.ADC</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ CNFG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.CNFG</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ DSTAT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.DSTAT</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ EPVOL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.EPVOL</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ FAVOL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.FAVOL</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ GLOBAL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.GLOBAL</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ LINK</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.LINK</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ MIRROR</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.MIRROR</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ MSG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.MSG</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ RAID</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.RAID</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ RAID5</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.RAID5</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ RAID6</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.RAID6</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ RAID10</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.RAID10</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ RDFGRP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.RDFGRP</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SRDFA</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.SRDFA</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SRDFA_DSE</td>
<td>XFACILIT</td>
<td>EMCADMIN.CMD.SRDF.SQ.SRDFA_DSE</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SRDFA_VOL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.SRDFA_VOL</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SRDFA_WP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.SRDFA_WP</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SRDFA_WP_VOL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.SRDFA_WP_VOL</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ SSID</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.SSID</td>
<td>Read</td>
</tr>
</tbody>
</table>
Table 11  SRDF Host Component resource validation requests with XFACILIT: query commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>#SQ STATE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.STATE</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ VIEWRA</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.VIEWRA</td>
<td>Read</td>
</tr>
<tr>
<td>#SQ VOL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SQ.VOL</td>
<td>Read</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Command and action</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>#SC CNFG SYNCH_DIRECTION</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.CNFG.SYNCH_DIRECTION</td>
<td>Update</td>
</tr>
<tr>
<td>#SC FAVOL WriteEnable</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.FAVOL.WRITEENABLE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL 4BYTE_ON</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.4BYTE_ON</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL 4BYTE_OFF</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.4BYTE_OFF</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL FBA_DISABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.FBA_DISABLE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL FBA_ENABLE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.FBA_ENABLE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL PARM_REFRESH</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.PARM_REFRESH</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SORT_BY_COMMAND</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_COMMAND</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SORT_BY_MVSCUU</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_MVSCUU</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SORT_BY_SYMDEV</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_SYMDEV</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SORT_BY_VOLSER</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SORT_BY_VOLSER</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SSID_REFRESH</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SSID_REFRESH</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SWAPLOG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SWAPLOG</td>
<td>Update</td>
</tr>
<tr>
<td>#SC GLOBAL SYCH_DIRECTION</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.GLOBAL.SYNCH_DIRECTION</td>
<td>Update</td>
</tr>
<tr>
<td>#SC LINK ONLINE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.LINK.ONLINE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC LINK OFFLINE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.LINK.OFFLINE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC MSG RESET</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.MSG.RESET</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP ADD</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.ADD</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP DELETE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP DELETE(STAR)</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE.STAR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP DELETE(SQAR)</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.DELETE.SQAR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP MODIFY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY</td>
<td>Update</td>
</tr>
</tbody>
</table>
### Table 12: SRDF Host Component resource validation requests with XFACILIT: configuration commands

<table>
<thead>
<tr>
<th>Command and action</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>#SC RDFGRP MODify(START)</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY.START</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP MODify(SQAR)</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.MODIFY.SQAR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RDFGRP SYNCH_DIRECTION</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RDFGRP.SYNCH_DIRECTION</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RECOVER MSC</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RECOVER.MSC</td>
<td>Update</td>
</tr>
<tr>
<td>#SC RECOVER SRDFA</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.RECOVER.SRDFA</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDF_CMPR ACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_CMPR.ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDF_CMPR DEACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_CMPR.DEACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA ACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA CONS_DEACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFACONS_DEACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA DEACT_TO_ADCOPY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.DEACT_TO_ADCOPY</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA DEACT_TO_ADCOPY_DISK</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.DEACT_TO_ADCOPY_DISK</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA DROP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.DROP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA DROP_SIDE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.DROP_SIDE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA PEND_DEACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.PEND_DEACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA PEND_DROP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.PEND_DROP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA SET_CACHE_LIMIT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_CACHE_LIMIT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA SET_DROP_PRIORITY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA.SET_DROP_PRIORITY</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA SET_HOST_THROTTLE</td>
<td>XFACILIT</td>
<td>EMCADMIN.CMD.SRDF.SC.SRDFA.SET_HOST_THROTTLE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA SET_MIN_CYCLE_TIME</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA.SET_MIN_CYCLE_TIME</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA TOL_ON</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA.TOL_ON</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA TOL_OFF</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA.TOL_OFF</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA TRANSMIT_IDLE</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA.TRANSMIT_IDLE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE ACT</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE AUTO_ACT</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.AUTO_ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE DEACT</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.DEACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE THRESHOLD</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.THRESHOLD</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE A400_POOL</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.A400_POOL</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE 3380_POOL</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.3380_POOL</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE 3390_POOL</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.3390_POOL</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_DSE FBA_POOL</td>
<td>XFACILIT</td>
<td>EMC_ADMIN.CMD.SRDF.SC.SRDFA_DSE.FBA_POOL</td>
<td>Update</td>
</tr>
<tr>
<td>Command and action</td>
<td>Class</td>
<td>Resource</td>
<td>Attribute</td>
</tr>
<tr>
<td>-------------------</td>
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</tr>
<tr>
<td>#SC SRDFA_WP AUTO_ACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.AUTO_ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP ACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.ACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP DEACT</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.DEACT</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP DSE_THOLD</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.DSE_THOLD</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP MAXDELAY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.MAXDELAY</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP PTYPE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.PTYPE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP STATS_OFF</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.STATS_OFF</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP STATS_ON</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.STATS_ON</td>
<td>Update</td>
</tr>
<tr>
<td>#SC SRDFA_WP THRESHOLD</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.SRDFA_WP.THRESHOLD</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL ADC_MAX</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.ADC_MAX</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL ADCOPY_WP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.ADCOPY_WP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL ADCOPY_DISK</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.ADCOPY_DISK</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CASCRE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CASCRE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CASDEL</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CASDEL</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CASRSUM</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CASRSUM</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CASSUSP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CASSUSP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CASSWAP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CASSWAP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL CREATEPAIR</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.CREATEPAIR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL DELETENW</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.DELETENW</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL DOMINO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.DOMINO</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL HDELETEPAIR</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.HDELETEPAIR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL HMOVEPAIR</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.HMOVEPAIR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL HSWAP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.HSWAP</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL INVALIDATE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.INVALIDATE</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL ITA</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.ITA</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL MOVEPAIR</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.MOVEPAIR</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL NADCOPY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.NADCOPY</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL NDOMINO</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.NDOMINO</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL NITA</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.NITA</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL NRDY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.NRDY</td>
<td>Update</td>
</tr>
<tr>
<td>#SC VOL OFFLINE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.SC.VOL.OFFLINE</td>
<td>Update</td>
</tr>
</tbody>
</table>
### Table 12: SRDF Host Component resource validation requests with XFACILIT: configuration commands

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

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

<table>
<thead>
<tr>
<th>Command and action</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>#HELP CMDLIST</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.HELP.CMDLIST</td>
<td>Read</td>
</tr>
<tr>
<td>#HELP CODES</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.HELP.CODES</td>
<td>Read</td>
</tr>
<tr>
<td>#HELP SYNTAX</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.HELP.SYNTAX</td>
<td>Read</td>
</tr>
<tr>
<td>#TF</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.TF</td>
<td>Update</td>
</tr>
<tr>
<td>#STOP</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.SRDF.STOP</td>
<td>Update</td>
</tr>
</tbody>
</table>

### 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 X FACILIT.

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CREATE.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>ACTIVATE SECURE SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.SECURE</td>
<td>Read</td>
</tr>
<tr>
<td>TERMINATE SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.TERMINATE.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>LINK SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.LINK.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>UNLINK SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.UNLINK.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>RENAME SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.RENAME.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY SNAPSHOT</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.QUERY.SNAPSHOT</td>
<td>Read</td>
</tr>
<tr>
<td>FREE target device tracks</td>
<td>X FACILIT</td>
<td>EMC.ADMIN.CMD.EMCSNAP.FREE</td>
<td>Read</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.START</td>
<td>Update</td>
</tr>
<tr>
<td>Stop</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.STOP</td>
<td>Update</td>
</tr>
<tr>
<td>Pause</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.PAUSE</td>
<td>Update</td>
</tr>
<tr>
<td>Resume</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.RESUME</td>
<td>Update</td>
</tr>
<tr>
<td>Query VDG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.QUERY.VDG</td>
<td>Read</td>
</tr>
<tr>
<td>Query target set</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.QUERY.TGT</td>
<td>Read</td>
</tr>
<tr>
<td>Query status</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.QUERY.STATUS</td>
<td>Read</td>
</tr>
<tr>
<td>Query devices</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.QUERY.DEVICES</td>
<td>Read</td>
</tr>
<tr>
<td>Query snapshot</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.QUERY.SNAPSET</td>
<td>Read</td>
</tr>
<tr>
<td>Define VDG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.DEFINE</td>
<td>Update</td>
</tr>
<tr>
<td>Define target set</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.DEFINE</td>
<td>Update</td>
</tr>
<tr>
<td>Delete VDG</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.DELETE</td>
<td>Update</td>
</tr>
<tr>
<td>Delete target set</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.DELETE</td>
<td>Update</td>
</tr>
<tr>
<td>Add device</td>
<td>XFACILIT</td>
<td>EMC.DEVC.smmserial.ssid.dev# a</td>
<td>Update</td>
</tr>
<tr>
<td>Remove device</td>
<td>XFACILIT</td>
<td>EMC.DEVC.smmserial.ssid.dev# a</td>
<td>Update</td>
</tr>
<tr>
<td>Release device lock</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.RELDLOCK</td>
<td>Update</td>
</tr>
<tr>
<td>Modify options</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.MODIFY.OPTIONS</td>
<td>Update</td>
</tr>
<tr>
<td>Set up SMF recording</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.MODIFY</td>
<td>Update</td>
</tr>
<tr>
<td>Set persistent attribute</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.PERSISTENT</td>
<td>Update</td>
</tr>
<tr>
<td>Make snapshot secure</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.SECURE</td>
<td>Update</td>
</tr>
<tr>
<td>Terminate snapshot</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.TERMINATE</td>
<td>Update</td>
</tr>
<tr>
<td>Terminate snapshot by date/time range</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.TERMINATE.RANGE</td>
<td>Update</td>
</tr>
<tr>
<td>Link snapshot</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.LINK</td>
<td>Update</td>
</tr>
<tr>
<td>Unlink snapshot</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.UNLINK</td>
<td>Update</td>
</tr>
<tr>
<td>Stop freeing on target (STOP_FREE)</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.UNLINK</td>
<td>Update</td>
</tr>
<tr>
<td>Debug</td>
<td>XFACILIT</td>
<td>EMCADMIN.CMD.ZDP.DEBUG</td>
<td>Update</td>
</tr>
<tr>
<td>Link/Restore</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.ZDP.BYPASS-ONLINE-CHECK</td>
<td>Read</td>
</tr>
</tbody>
</table>

a. See “Enhanced device security” on page 57 for information about this resource.
When using zDP ISPF panels, the XFACILIT resources listed in Table 15 are checked and where the user is not authorized, the information may not be displayed or the panel may not open with the appropriate error message, for example:

```
+------------------------------------------------------------------------+
| You do not have the authority for this function. The RACF resource is:  |
| EMC.ADMIN.CMD.ZDP.QUERY.SNAPSET                                       |
+------------------------------------------------------------------------+
```

### TimeFinder/Clone Mainframe Snap Facility

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
<th>Dstyp</th>
<th>Volser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap volume</td>
<td>DASDVOL</td>
<td>Old-volser</td>
<td>Read</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASDVOL</td>
<td>New-volser</td>
<td>Alter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snap dataset</td>
<td>DATASET</td>
<td>Old-dsname</td>
<td>Read</td>
<td>N or V</td>
<td>Volser</td>
</tr>
</tbody>
</table>

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.
Security

**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 000000006185. The SSID is 0C02, and the PowerMax/VMAX device number is 230:

```
EMC.DEVC.000000006185.0C02.0230
```

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

<table>
<thead>
<tr>
<th>Command</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVATE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.ACTIVATE</td>
<td>Read</td>
</tr>
<tr>
<td>CLEANUP</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CLEANUP</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIG</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIG</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL ADD</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.ADD</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL CREATE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.CREATE</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL DELETE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DELETE</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL DISABLE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DISABLE</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL DISPLAY</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DISPLAY</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL DRAIN</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.DRAIN</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL ENABLE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.ENABLE</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL REMOVE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.REMOVE</td>
<td>Read</td>
</tr>
<tr>
<td>CONFIGPOOL UNDRAIN</td>
<td>EMC.ADMIN.CMD.EMCSNAP.CONFIGPL.UNDRAIN</td>
<td>Read</td>
</tr>
<tr>
<td>DEBUG DATASET</td>
<td>EMCADMIN.CMD.EMCSNAP.DEBUG.DATASET</td>
<td>Read</td>
</tr>
<tr>
<td>DEFINE GROUP</td>
<td>EMC.ADMIN.CMD.EMCSNAP.GROUP.DEFINE</td>
<td>Read</td>
</tr>
<tr>
<td>DEFINE SOURCE_VOLUME_LIST</td>
<td>EMC.ADMIN.CMD.EMCSNAP.DEFINE.SRCLIST</td>
<td>Read</td>
</tr>
<tr>
<td>DELETE GROUP</td>
<td>EMC.ADMIN.CMD.EMCSNAP.GROUP.DELETE</td>
<td>Read</td>
</tr>
<tr>
<td>END GROUP</td>
<td>EMC.ADMIN.CMD.EMCSNAP.GROUP.END</td>
<td>Read</td>
</tr>
<tr>
<td>GLOBAL</td>
<td>EMC.ADMIN.CMD.EMCSNAP.GLOBAL</td>
<td>Read</td>
</tr>
<tr>
<td>Perform a group operation</td>
<td>EMCADMIN.CMD.EMCSNAP.GROUP</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY DATASET</td>
<td>EMC.ADMIN.CMD.EMCSNAP.QUERY.DATASET</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY GLOBAL</td>
<td>EMC.ADMIN.CMD.EMCSNAP.QUERY.GLOBAL</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY GROUP</td>
<td>EMC.ADMIN.CMD.EMCSNAP.QUERY.GROUP</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY SNAPPOOL</td>
<td>EMC.ADMIN.CMD.EMCSNAP.QUERY.SNAPPOOL</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY VDEV</td>
<td>EMCADMIN.CMD.EMCSNAP.QUERY.VDEV</td>
<td>Read</td>
</tr>
<tr>
<td>QUERY VOLUME</td>
<td>EMCADMIN.CMD.EMCSNAP.QUERY.VOLUME</td>
<td>Read</td>
</tr>
<tr>
<td>RESET</td>
<td>EMC.ADMIN.CMD.EMCSNAP.RESET</td>
<td>Read</td>
</tr>
<tr>
<td>RESTORE</td>
<td>EMC.ADMIN.CMD.EMCSNAP.RESTORE</td>
<td>Read</td>
</tr>
<tr>
<td>SNAP DATASET</td>
<td>EMC.ADMIN.CMD.EMCSNAP.SNAP.DATASET</td>
<td>Read</td>
</tr>
<tr>
<td>SNAP VOLUME</td>
<td>EMC.ADMIN.CMD.EMCSNAP.SNAP.VOLUME</td>
<td>Read</td>
</tr>
<tr>
<td>STOP SNAP TO DATASET</td>
<td>EMC.ADMIN.CMD.EMCSNAP.STOP.DATASET</td>
<td>Read</td>
</tr>
<tr>
<td>STOP SNAP TO VOLUME</td>
<td>EMC.ADMIN.CMD.EMCSNAP.STOP.VOLUME</td>
<td>Read</td>
</tr>
</tbody>
</table>
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

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

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Query</td>
<td>TF#BASE</td>
<td>QUERY</td>
<td>Read</td>
</tr>
<tr>
<td>Establish</td>
<td>TF#BASE</td>
<td>ESTABLISH</td>
<td>Read</td>
</tr>
<tr>
<td>Re-establish</td>
<td>TF#BASE</td>
<td>RE-ESTABLISH</td>
<td>Read</td>
</tr>
<tr>
<td>Split</td>
<td>TF#BASE</td>
<td>SPLIT</td>
<td>Read</td>
</tr>
<tr>
<td>Restore (incremental)</td>
<td>TF#BASE</td>
<td>PARTIAL-RESTORE</td>
<td>Read</td>
</tr>
<tr>
<td>Restore (incremental)</td>
<td>TF#BASE</td>
<td>PARTIAL-RESTORE-BYPASS-WTOR</td>
<td>Read</td>
</tr>
<tr>
<td>Restore (full)</td>
<td>TF#BASE</td>
<td>FULL-RESTORE</td>
<td>Read</td>
</tr>
</tbody>
</table>
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

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

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

**TimeFinder Utility**

Table 20 summarizes the resource validation requests for TimeFinder Utility features and functions.

**Table 20** TimeFinder Utility resource validation requests

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
<th>Dstyp</th>
<th>Volser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relabel Vol</td>
<td>DASDVOL</td>
<td>Old-volser</td>
<td>Alter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DASDVOL</td>
<td>New-volser</td>
<td>Alter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rename nvsam</td>
<td>DATASET</td>
<td>Old-dsname</td>
<td>Alter</td>
<td>N</td>
<td>Volser</td>
</tr>
<tr>
<td></td>
<td>DATASET</td>
<td>New-dsname</td>
<td>Alter</td>
<td>N</td>
<td>Volser</td>
</tr>
<tr>
<td>Rename cluster</td>
<td>DATASET</td>
<td>Old-dsname</td>
<td>Alter</td>
<td>V</td>
<td><em>Old cat vol</em></td>
</tr>
<tr>
<td></td>
<td>DATASET</td>
<td>New-dsname</td>
<td>Alter</td>
<td>V</td>
<td><em>New cat vol</em></td>
</tr>
<tr>
<td>Rename path</td>
<td>DATASET</td>
<td>Old-pathname</td>
<td>Alter</td>
<td>V</td>
<td><em>Old cat vol</em></td>
</tr>
<tr>
<td></td>
<td>DATASET</td>
<td>New-pathname</td>
<td>Alter</td>
<td>V</td>
<td><em>New cat vol</em></td>
</tr>
</tbody>
</table>
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)

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

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

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.CG.CGTRIP</td>
<td>Update</td>
</tr>
<tr>
<td>#UNPIN</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.CG.CGMANAGE</td>
<td>Update</td>
</tr>
<tr>
<td>VERIFY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.CG.CGMANAGE</td>
<td>Update</td>
</tr>
<tr>
<td>Run Cleanup utility</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.FNC.CG.ECGUTIL</td>
<td>Update</td>
</tr>
<tr>
<td>Run TRIP API</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.FNC.CG.TRIP</td>
<td>Update</td>
</tr>
<tr>
<td>STOP</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.CG.CGSTOP</td>
<td>Update</td>
</tr>
</tbody>
</table>

- 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

<table>
<thead>
<tr>
<th>Function</th>
<th>Class</th>
<th>Resource</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFINE</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.AUTOSWAP</td>
<td>Update</td>
</tr>
<tr>
<td>DELETE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SETSWAP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWAP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VALIDATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISPLAY</td>
<td>XFACILIT</td>
<td>EMC.ADMIN.CMD.AUTOSWAP</td>
<td>Read</td>
</tr>
</tbody>
</table>

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 includes MNOTE statements to identify the RNAME_TBL table. After reviewing this code, comment the MNOTE statements.
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.

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

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

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)

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESS DENIED</td>
<td>The security subsystem has denied access to the resource. Contact your security administrator for proper access.</td>
</tr>
<tr>
<td>SECURITY SUBSYSTEM IS NOT ACTIVE</td>
<td>The security subsystem is not running. Start the security subsystem or run job EMCSAFD from the SCF SAMPLIB to disable the security feature.</td>
</tr>
<tr>
<td>EMCSAFRB ERROR - CLASS NOT SPECIFIED</td>
<td>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.</td>
</tr>
<tr>
<td>EMCSAFRB ERROR - INVALID AUTHORITY LEVEL REQUESTED</td>
<td>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.</td>
</tr>
</tbody>
</table>
Security

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.

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 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.

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMCSAFRB ERROR - RESOURCE NAME NOT SPECIFIED</td>
<td>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.</td>
</tr>
<tr>
<td>EMCSAFRB ERROR - INVALID DSTYPE VALUE SPECIFIED</td>
<td>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.</td>
</tr>
<tr>
<td>EMCSAFRB ERROR - DSTYPE IS NOT M AND VOLSER NOT SPECIFIED</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
- **ESRBDESTY**: M (model profile).
- **ESRBUID**: Set to spaces.
- **ESRGBID**: Set to spaces.

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 (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

```plaintext
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'

**ESRBACEE**

IF ESRBUTOK POINTS TO UTOKEN

**RESOURCE INFORMATION**

**ESRBCLAS DS CL8**

RESOURCE CLASS

**ESRBNAM DS CL44**

RESOURCE NAME

**ESRBVSER DS CL6**

VOLSER (IF CLASS=DATASET)

**ESRBDSY DS CL1**

DSTYPE: (IF CLASS=DATASET)

* N - NONVSAM
* V - VSAM
* M - MODEL PROFILE
* T - TAPE

DS CL5

.. OPEN..

**RETURN CODES**

**ESRBRET DS F**

RETURN CODE FROM RACROUTE

**ESBBRSET DS F**

RACF RETURN CODE

**ESBBRREA DS F**

RACF REASON CODE

**ESRSSRET DS F**

SAF RETURN CODE

**ESRSSREA DS F**

SAF REASON CODE

**ERROR MESSAGE**

**ESRBMSG DS CL100**

AREA FOR MESSAGE RETURN

**ESRBMSG**

ARE FOR ADDITIONAL PARAMETERS. NOTE THAT THESE PARAMETERS WILL BE OVERLayed ON RETURN FROM EMCSAFI.

ORG ESRBMSG

**ESRBP1 DS XL4**

OPTIONAL PARAMETERS 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

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

**Table 25** Authority level

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| ESRBATTR | 1-byte field describing the level of access required. Valid values are:  
  - 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

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESRBUID</td>
<td>8-byte field containing the user ID of the user requesting access. If ESRBACEE is specified, this field is ignored.</td>
</tr>
<tr>
<td>ESRBGID</td>
<td>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.</td>
</tr>
<tr>
<td>ESRBACEE</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Table 27** Resource information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESRBCLAS</td>
<td>8-byte field containing the class name.</td>
</tr>
<tr>
<td>ESRBRNAM</td>
<td>44-byte field containing the resource name.</td>
</tr>
<tr>
<td>ESRBVSER</td>
<td>Volume serial. Used only when ESRBCLAS=DATASET and ESRBDSTY is not equal to “M.”</td>
</tr>
</tbody>
</table>
| ESRBDSTY | Dataset type when ESRBCLAS=DATASET. Valid values are:  
  - N—Non-VSAM  
  - V—VSAM  
  - M—Model profile  
  - T—Tape dataset |

**Table 28** Return codes

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESRBR15</td>
<td>On return, contains the return code from the RACROUTE macro.</td>
</tr>
<tr>
<td>ESRBRRET</td>
<td>On return, contains the RACF return code.</td>
</tr>
<tr>
<td>ESRBRREA</td>
<td>On return, contains the RACF reason code.</td>
</tr>
<tr>
<td>ESRBSRET</td>
<td>On return, contains the SAF return code.</td>
</tr>
<tr>
<td>ESRBSREA</td>
<td>On return, contains the SAF reason code.</td>
</tr>
</tbody>
</table>

**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*. 
Security

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

- ResourcePak Base ................................................................. 74
- SRDF Host Component .......................................................... 75
- TimeFinder/Clone Mainframe Snap Facility .............................. 76
- TimeFinder/Mirror ............................................................... 76
- ConGroup ............................................................................. 77
- AutoSwap ............................................................................. 77
ResourcePak Base

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

SCF0100I Symmetrix Control Facility version vrm now active
(newlvl,highlvl)

This message reports:

◆ vrm—ResourcePak Base release information:
  ♦ v—Version
  ♦ r—Release
  ♦ m—Modification level

◆ (newlvl,highlvl)—The most recent SCF (SSCF) PTF maintenance level number (newlvl) followed by the highest PTF number applied (highlvl).

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 SNAPPOOL TASK STARTED - SCFMNLOG-mm/dd/yy-hh.mm-Vv.r.m(nn)
SCP1100I DSE MONITOR DSEPOOL TASK STARTED - ESFMDSE-mm/dd/yy-hh.mm-Vv.r.m(nn)

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

```
SCF1315I MSC MODULE=EHCMSMCMA VER=Vv.r.m PATCH=SRvrmmn
SCF1315I MSC MODULE=EHCMSMCMB VER=Vv.r.m PATCH=SRvrmmn
SCF1315I MSC MODULE=EHCMSMCMD VER=Vv.r.m PATCH=SRvrmmn
SCF1315I MSC MODULE=EHCMSMCMB VER=Vv.r.m PATCH=SRvrmmn
```

This message reports:

- **VER= Vv.r.m**—SRDF Host Component release information:
  
  - v—Version
  - r—Release
  - m—Modification level

- **PATCH= SRvrmmn**—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 that is 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.
Maintenance Levels