StorageTek Enterprise Library Software

Installing ELS

Release 7.2 for MSP

E48497-03

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StorageTek Enterprise Library Software Installing ELS, Release 7.2 for MSP

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Contents

3   Installing ELS Maintenance

4   Performing ELS Post Installation Tasks

A ELS Samples, Modules, and Macros

Glossary

Index

List of Examples

List of Tables

Preface

This publication describes how to install Oracle's StorageTek Enterprise Library Software (ELS).

This software solution consists of the following software:

Base software:

- Oracle's StorageTek Storage Management Component (SMC)

  (includes the product formerly known as StorageTek HTTP Server)

- Oracle's StorageTek Host Software Component (HSC)

- Oracle's StorageTek Virtual Tape Control Software (VTCS)

- Oracle's StorageTek Concurrent Disaster Recovery Test (CDRT)

To perform the tasks described in this publication, you should already understand the following:

- MSP/EX operating system

- JES

- Enterprise Library Software (ELS)

Audience

This document is intended for storage administrators, system programmers and operators responsible for installing and configuring their storage environment.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at
http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

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Related Documents

Visit the Oracle Technical Network (OTN) at the following URL to access related documentation for StorageTek libraries, tape drives, and associated software and hardware:

http://docs.oracle.com

Conventions

The following conventions are used in this document:

Text Conventions

Text conventions are as follows:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Control Statement Conventions

The standard syntax conventions for control statements are as follows:

- The only valid control statement information area is from column 1 to column 72. Columns 73-80 are ignored.

- Parameters may be separated by one or more blanks or a comma.

- A value is associated with a parameter by an equal (=) sign or by enclosing the value in parentheses, and concatenating it immediately after the parameter.

- Case (upper or lower) is ignored in actual control statements.

- Continuations are supported by including a plus (+) sign at the end of the line to be continued. A control statement is terminated if the statement is not continued.

- Use /* and */ to enclose comments in the job stream. HSC `PARMLIB` members and definition data sets must specify comments in this format.

  - A comment is not required as the first control statement of any `PARMLIB` member.

  - Comments can be continued over multiple lines, but cannot be nested.

- The maximum length for any control statement is 1024 characters.

1

Preparing for Installation

This chapter describes the ELS installation package and pre-installation requirements. It includes the following topics:

- "Installation Package"
- "Software Requirements"
- "Hardware Requirements"
- "Virtual Storage Requirements"
- "Pre-Installation Considerations"

Installation Package

The ELS installation package includes the following materials:

- ELS installation tape, ZIP file or media (CD-ROM) containing ELS software functions (FMIDs) and the samples used to install them. Software functions are provided for the following software:

  Base software:

  - StorageTek Storage Management Component (SMC)

    (includes the product formerly known as StorageTek HTTP Server)

  - StorageTek Host Software Component (HSC)

  - StorageTek Virtual Tape Control Software (VTCS)

  - StorageTek Concurrent Disaster Recovery Test (CDRT)

- *ELS Read Me First* letter containing important release-specific product information.

As part of the installation, you must obtain and install the latest cumulative maintenance (PTFs and `HOLDDATA`) for ELS 7.2 and for any release of Oracle StorageTek software that coexists with ELS 7.2.

> **Note:** Use the MSP/EX Linkage Editor when installing ELS software and service. Failure to do so may result in link-editing errors.

Download cumulative maintenance from the My Oracle Support (MOS) site:

http://www.myoraclesupport.com

Visit this site frequently for HOLDDATA and PTF updates and install cumulative maintenance updates on a regular schedule. PTFs are released monthly to MOS.

See Chapter 3, "Installing ELS Maintenance" for information about installing ELS cumulative maintenance.

ELS Installation Tape Contents

ELS is available on a standard label 9840B tape with a volume serial number of SEA720. The following table describes the files included on the ELS installation tape:

Table 1–1   ELS 7.2 Installation Tape Contents

File Number	Data Set Name	Description
1	SMPMCS	SMP control statements
2	SEA@720.F1	Compressed file containing ELS products excluding JCL
3	SEA@720.F2	ELS samples
4	SEA@720.F3	ELS macros
5	SEA@720.F4	ELS source modules
6	SEA@720.F5	ELS object modules

ELS Installation ZIP File Contents

ELS is available on a standard CD-ROM, or as a ZIP file download from the Oracle Software Delivery Cloud website. Both options deliver a single ZIP file, SEA@720.zip. You must copy this file to your PC and unzip the file to extract the file contents.

The following table describes the files included in the ELS installation ZIP file:

Table 1–2   ELS 7.2 Installation ZIP File Contents

File Number	Data Set Name	Description
1	SMPMCS	SMP control statements
2	SEA@720.F1	Compressed file containing ELS products excluding JCL samples
3	SEA@720.F2	ELS samples
4	SEA@720.F3	ELS macros
5	SEA@720.F4	ELS source modules
6	SEA@720.F5	ELS object modules

Software Requirements

ELS software requirements include the following:

Operating System

Any Fujitsu supported version of MSP/EX at C08061 or higher and MAF installed (JES environments).

ELS Software

HSC 7.2 and SMC 7.2 are required. VTCS 7.2 is optional.

TCP/IP Communications

Fujitsu TISP V20 or higher is required for TCP/IP communications.

- Fujitsu TISP V20 or higher
- Fujitsu VTAM-G TISP V10 or higher

Sort Software

Fujitsu SORT V12 or higher

HSC Server System Communications

LMU Microcode Release 1.5.x or higher is required for multiple-level host-to-host communications.

Independent Software Vendor Products

Any of the following:

- ASG-Zara
- CA-1
- CA-DYNAM/TLMS
- CA-1®/Copycat Computer Associates International
- CA-Dynam®/TLMS/Copycat Computer Associates International
- CONTROL-M/TAPE
- FATSCopy Innovation Data Processing
- FDR MIM Syncsort
- Sysplex
- Tape/Copy OpenTech Systems, Inc.
- TelTape Cartagena Software Limited

Software Compatibility

All hosts must be at ELS version 7.1 before moving to VSM CDS level H. This requirement does not apply to SMC client LPARs, which are compatible at versions 6.1, 6.2, 7.0, 7.1, and 7.2.

Consider the following product compatibility guidelines:

SMC Compatibility

SMC 7.2 is compatible with the following:

- HSC/VTCS 7.2 on the same host
- HSC/VTCS 6.1, 7.0, 7.1, 7.2, or 7.2 on a different host

HSC/VTCS Compatibility

HSC/VTCS 7.2 is compatible with the following:

- SMC 7.2 on the same host
- SMC 6.1, 7.0, 7.1, or 7.2 on a different host

- ExPR 6.1

VTCS 7.2 requires minimum CDS level F.

Support for 32GB VTVs requires CDS level I.

Hardware Requirements

> **Note:**
>
> - An ACS can contain mixed library transports and media.
>
> - Refer to the ELS publication *Managing HSC and VTCS* for more information about HSC support for the SL8500 and SL3000 libraries.
>
> - Refer to the ELS publication *Configuring HSC and VTCS* for SL8500 and SL3000 configuration information.

ELS hardware requirements include the following:

Processor

Fujitsu or compatible processor running MSP (any Fujitsu-supported version of MSP/EX)

StorageTek Library Storage Modules (LSMs)

- StorageTek SL3000 modular library system
- StorageTek SL8500 modular library system
- StorageTek PowderHorn™ 9310
- StorageTek TimberWolf 9740
- StorageTek WolfCreek 9360
- StorageTek Standard 4410

Transports and Associated Media

- StorageTek T10000A/B/C/D
- StorageTek T9940A/B
- StorageTek T9840A/B/C/D
- StorageTek TimberLine™ 9490EE
- StorageTek TimberLine™ 9490
- StorageTek 4490
- StorageTek 4480
- StorageTek SD3
- HP LTO Generations 2-6
- IBM LTO Generations 2-6

StorageTek Virtual Storage Manager System (VSM)

- All VSM release levels

- For 32GB VTV support, VSM6 minimum microcode level 6.2

> **Note:** T9840A and T9840B transports do not support 32GB VTV migration.

StorageTek Virtual Library Extension (VLE)

- Minimum microcode level 1.4.2 patch A3

- For 32GB VTV support, VLE minimum microcode level 1.5.1

Virtual Storage Requirements

> **Note:**
>
> - An additional amount of ECSA above the line is dynamically acquired and released during operation of the HSC. The actual amount varies with the activity and size of the library, but would rarely, if ever, exceed an additional 10K.
>
> - The actual amount of ECSA varies slightly based on the size of the library and number of transports defined to MSP.
>
> - Additional CSA may be required when installing corrective service tapes, software enhancements, or newer software releases.

ELS virtual storage requirements include the following:

SMC Virtual Storage Requirements

- In JES, approximately 2.8 MB of ECSA above the 16M line for load modules and data structures.

- There are no CSA requirements below the 16M line.

HSC and VTCS Virtual Storage Requirements

- Approximately 215K of ECSA above the 16M line for load modules and data structures.

- Approximately 20K of CSA below the 16M line for some load modules and data structures.

- An additional amount of ECSA above the line is dynamically acquired and released during operation of the HSC. The actual amount varies with the activity and size of the library, but would rarely, if ever, exceed an additional 10K.

- Minimum region size of 6 MB, unless you run utilities or commands that manipulate manifest files, in which case you require the maximum region size your system will support.

> **Note:**
>
> - These requirements also apply to VTCS, as it executes in the HSC address space on MSP.
>
> - Approximately 400 bytes of the below-the-line CSA storage is located in subpool 228 (fixed).

Pre-Installation Considerations

- SMC and HSC are required ELS components and must be installed.

- Contact StorageTek Software Support for information about additional PTFs that might be required before installing the ELS product components.

- If you are migrating from a previous ELS software release, study the appropriate migration and coexistence guidelines in your ELS product publications.

- ELS software is installed with SMP. All installation instructions in this guide are based on SMP.

- Use the MSP/EX Linkage Editor when installing ELS products and maintenance. Failure to do so may result in link-editing errors.

2

Installing ELS Software

This chapter describes the tasks required to install ELS software. It includes the following topics:

- "Installation Checklist"
- "Unloading the SMP JCL Library"
- "Preparing the SMP PRJ Environment"
- "Reviewing the ELS FMIDs"
- "Receiving the ELS Functions"
- "Applying the ELS Functions"
- "Accepting the ELS Functions"

Before installing ELS, verify ELS requirements and review pre-installation considerations. See "Preparing for Installation" for more information.

Installation Checklist

Perform the following steps to verify that you have completed all ELS installation tasks:

> **Note:** Before installing ELS, verify ELS requirements and review pre-installation considerations. See "Preparing for Installation" for more information.

1. Unload the SMP JCL library from tape, ZIP file, or CD-ROM.

   See "Unloading the SMP JCL Library."

2. Define and initialize the SMP PRJ.

   Use sample member `I30CSI`.

   See "Defining and Initializing the ELS Global SMP Project (PRJ)."

3. Allocate the ELS and JES target and distribution library data sets and their required DDDEF entries.

   Use sample member `I40ZON`.

   See "Receiving the ELS Functions."

4. Update the `SYSLIB` concatenation.

   Use sample member `I50LIB`.

See "Updating the SYSLIB Concatenation."

5. Review the ELS FMIDs.

   See "Reviewing the ELS FMIDs."

6. SMP RECEIVE the desired base functions, communication functions, and optionally, the SMC JES function. Use sample member I60RCV.

   See "Receiving the ELS Functions."

7. SMP APPLY the desired base functions, communication functions, and optionally, the SMC JES function.

   Use sample member I70APP.

   See "Applying the ELS Functions."

8. SMP ACCEPT the desired base functions, communication functions, and optionally, the SMC JES function.

   Use sample member I80ACC.

   See "Accepting the ELS Functions."

9. SMP RECEIVE maintenance for the ELS base functions.

   Use sample member MAINTRCF.

   See "SMP RECEIVE Maintenance."

10. SMP APPLY maintenance for the ELS base functions.

    Use sample member MAINTAPF.

    See "SMP APPLY Maintenance."

11. Optionally, SMP ACCEPT maintenance for the base functions.

    Use sample member MAINTACF.

    See "SMP ACCEPT Maintenance."

12. Proceed with ELS post-installation tasks. See Chapter 4, "Performing ELS Post Installation Tasks" for more information.

Unloading the SMP JCL Library

To begin ELS installation, unload the SMP JCL library from the ELS installation tape, ZIP file, or CD-ROM. This library includes JCL sample members used to prepare your installation environment and install the ELS functions and associated maintenance.

The following sample members are included:

- I10JCL

  Unload SMP JCL library from the ELS installation tape.

- I30CSI

  Define and initialize the ELS Global SMP PRJ.

- I40ZON

  Allocate ELS (and optionally, JES) target and distribution data sets and define the appropriate DDDEF entries in the SMP PRJ.

- I50LIB

Add required DDDEF entries and modify the SYSLIB concatenation.

- I60RCV

  SMP RECEIVE ELS and additional functions from the ELS installation tape.

- I70APP

  SMP APPLY ELS and additional functions.

- I80ACC

  SMP ACCEPT ELS and additional functions.

- MAINTACF

  SMP ACCEPT maintenance in a mass mode for specific FMIDs.

- MAINTAPF

  SMP APPLY maintenance in mass mode for specific FMIDs.

- MAINTRCF

  SMP RECEIVE maintenance for a specific FMID.

Unloading the SMP JCL Library from the ELS Installation Tape

To unload the SMP JCL library from file 2 of the ELS installation tape, use the following sample JCL and perform the steps below.

Example 2–1   JCL to Unload SMP JCL Library from the ELS Installation Tape

```
//jobname JOB your jobcard parameters
//*
//UNLOAD EXEC PGM=IEBCOPY
//INDD DD DSN=SEA@720.F1,DISP=SHR,
//   UNIT=tape-unit,VOL=SER=SEA720,LABEL=(2,SL)
//OUTDD DD DSN=your.smp.jcllib,DISP=(NEW,CATLG),
//   UNIT=SYSALLDA,
//   SPACE=(TRK,(5,1,4)),
//   DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
 C I=INDD,O=OUTDD
 E M=SEA@710
 E M=SMZ@710
```

In the JCL examples in this publication and the sample JCL provided on the ELS installation tape, some fields appear in lowercase. You must update these fields to match your installation requirements.

To unload the SMP JCL library from the ELS installation tape:

1. Change the JOB card, specifying values for *jobname* and *your jobcard parameters*.

2. Change tape unit (UNIT=*tape-unit*) as necessary.

3. Change DSN=*your.smp.jcllib* as necessary.

4. Change VOL=SER=SEA720 to the library volser if you have copied the installation tape into a library.

5. Submit the job. A completion code of 0 for all steps indicates successful completion.

Unloading the SMP JCL Library from the ELS Installation ZIP File

To unload the SMP JCL library from the ELS installation ZIP file, use the following sample JCL and perform the following steps:

1. Copy the ZIP file to your PC and extract the file contents. See "ELS Installation ZIP File Contents" for more information.

2. Use the JCL in Example 2–2 to allocate data sets on the MSP system on which you intend to install ELS.

   ■ Change the JOB card, specifying values for *jobname* and *your jobcard parameters*.

   ■ Submit the job. A completion code of 0 for all steps indicates successful completion.

Example 2–2   JCL to Allocate Data Sets

```
//jobname JOB your jobcard parameters
//*
//SMPMCS  EXEC PGM=KDJBR14
//DD1     DD DSN=els_720.SMPMCS,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(5,1),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=23680)
//*
//DD2     DD DSN=els_720.SEA@720.F1.UNLOAD,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(5,1),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=800)
//*
//DD3     DD DSN=els_720.SEA@720.F2.UNLOAD,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(5,1),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=800)
//*
//DD4     DD DSN=els_720.SEA@720.F3.UNLOAD,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(5,1),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=800)
//*
//DD5     DD DSN=els_720.SEA@720.F4.UNLOAD,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(5,1),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=800)
//*
//DD6     DD DSN=els_720.SEA@720.F5.UNLOAD,
//           UNIT=SYSDA,DISP=(,CATLG,DELETE),
//           VOL=SER=volser,SPACE=(CYL,(10,10),RLSE),
//           DCB=(DSORG=PS,RECFM=FB,LRECL=80,BLKSIZE=800)
//*
```

3. Using FTP binary mode, upload the files from your PC to the corresponding mainframe data sets allocated in the above step. The following table shows these data sets:

Table 2–1   PC Files and Corresponding Mainframe Data Sets

PC File Name	Mainframe File Name
SMPMCS	els_720.SMPMCS

Table 2–1   (Cont.) PC Files and Corresponding Mainframe Data Sets

PC File Name	Mainframe File Name
SEA@720.F1	els_720.SEA@720.F1.UNLOAD
SEA@720.F2	els_720.SEA@720.F2.UNLOAD
SEA@720.F3	els_720.SEA@720.F3.UNLOAD
SEA@720.F4	els_720.SEA@720.F4.UNLOAD
SEA@720.F5	els_720.SEA@720.F5.UNLOAD

4. Use the JCL in Example 2–3 to restore the uploaded PS data sets to PO.

- Change the JOB card, specifying values for *jobname* and *your jobcard parameters*.

- Submit the job. A completion code of 0 for all steps indicates successful completion.

Example 2–3   JCL to Restore Uploaded Data Sets to PO

```
//jobname JOB your jobcard parameters
//*
//F1       EXEC PGM=JSGMOVE
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//FROM     DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//TO       DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//SYSIN    DD *
 COPY PDS=els_720.SEA@720.F1.UNLOAD,                                       X
      FROM=SYSDA=volser,TO=SYSDA=volser,                          X
      RENAME=els_720.SEA@720.F1,CATLG
/*
//*
//F2       EXEC PGM=JSGMOVE
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//FROM     DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//TO       DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//SYSIN    DD *
 COPY PDS=els_720.SEA@720.F2.UNLOAD,                                       X
      FROM=SYSDA=volser,TO=SYSDA=volser,                          X
      RENAME=els_720.SEA@720.F2,CATLG
/*
//*
//F3       EXEC PGM=JSGMOVE
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//FROM     DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//TO       DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//SYSIN    DD *
 COPY PDS=els_720.SEA@720.F3.UNLOAD,                                       X
      FROM=SYSDA=volser,TO=SYSDA=volser,                          X
      RENAME=els_720.SEA@720.F3,CATLG
/*
//*
//F4       EXEC PGM=JSGMOVE
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//FROM     DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
```

```
//TO       DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//SYSIN    DD *
 COPY PDS=els_720.SEA@720.F4.UNLOAD,                                X
      FROM=SYSDA=volser,TO=SYSDA=volser,                           X
      RENAME=els_720.SEA@720.F4,CATLG
/*
//*
//F5       EXEC PGM=JSGMOVE
//SYSPRINT DD SYSOUT=*
//SYSUT1   DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//FROM     DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//TO       DD DISP=SHR,UNIT=SYSDA,VOL=SER=volser
//SYSIN    DD *
 COPY PDS=els_720.SEA@720.F5.UNLOAD,                                X
      FROM=SYSDA=volser,TO=SYSDA=volser,                           X
      RENAME=els_720.SEA@720.F5,CATLG
/*
//*
```

5. Use the JCL in tExample 2–4 to unload the install JCL.

   ■ Change the JOB card, specifying values for *jobname* and *your jobcard parameters*.

   ■ Submit the job. A completion code of 0 for all steps indicates successful completion.

Example 2–4   JCL to Unload Install JCL

```
//jobname JOB your jobcard parameters
//S01     EXEC PGM=JSECOPY,REGION=1024K
//SYSPRINT DD  SYSOUT=*
//IN      DD  DISP=SHR,DSN=els_720.SEA@720.F1
//OUT     DD  DISP=(,CATLG,DELETE),DSN=ELSMSP.EDEL720.JCLIN,
//            UNIT=SYSALLDA,VOL=SER=volser,SPACE=(CYL,(2,1,10)),
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120)
//SYSIN   DD  *
 COPY INDD=((IN,R)),OUTDD=OUT
/*
//*
```

Preparing the SMP PRJ Environment

This section describes how to prepare the SMP PRJ environment for installation of the ELS base functions and SMC JES support function. If you are installing service, see Chapter 3, "Installing ELS Maintenance" for more information.

ELS products are installed using SMP. The SMP installation process involves a RECEIVE, APPLY, and ACCEPT job to install functions into the correct SMP target and distribution zones.

SMP Considerations

Note the following SMP considerations:

■ ELS must be installed with SMP. All installation instructions in this guide are based on SMP.

■ SMP V10L10 or higher is required to install ELS.

- Install all ELS 7.2 product components in a new target and distribution SMP PRJ.

- Do not install products from other vendors in the same global SMP PRJ as ELS.

- `SMP ACCEPT` all of your ELS base products.

- Load modules for the TMS (Tape Management System) interface routines (`SLUDRCA1`, `SLUDRRMM`, `SLUDRSMC`, `SLUDRTLM`, and `SLUDRZAR`) are included in the `SEALINK` library generated during ELS installation. These modules are shared among HSC and SMC.

> **Caution:** If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, all SYSMODS for the previous release are deleted from the SMP PRJ. It is recommended that you back up the existing global SMP PRJ before installing the ELS 7.2 product components.

Defining and Initializing the ELS Global SMP Project (PRJ)

Use sample member `I30CSI` (included in your SMP JCL library) to define and initialize the ELS Global SMP Project (PRJ).

This job performs the following actions:

- Defines the required SMP data sets.

- Defines the Project (PRJ) data set that contains the SMP global, target, and distribution zones for this release.

- Initializes the SMP PRJ.

- Adds zones, options, utilities, and DDDEF entries to the SMP PRJ.

To run the `I30CSI` job:

1. Enter Edit mode for member `I30CSI`.

2. Submit the `I30CSI` job.

> **Note:** Follow the instructions in the prologue of the `I30CSI` sample member, edit as needed, and submit the job.

Allocating Target and Distribution Library Data Sets and Required DDDEF Entries

Use sample member `I40ZON` (included in your SMP JCL library) to allocate target and distribution data sets and define the appropriate DDDEF entries in the SMP PRJ. Table 2–2, " ELS Target Library Data Sets" and Table 2–3, " ELS Distribution Library Data Sets" list the target and distribution library data sets for ELS software.

To run the `I40ZON` job:

1. Enter Edit mode for member `I40ZON`.

2. Submit the `I40ZON` job.

Note:

■ Follow the instructions in the prologue of the I40ZON sample member, edit as needed, and submit the job.

■ If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, the SMPPRJ statement must point to the existing global PRJ, the SMPLOG and SMPLOGA statements must point to the global log, and the SMPPTS statement must point to the global SMPPTS.

■ If you are using PDS instead of PDSE (Partitioned Data Set Extended), increase directory blocks for SEAMAC and ASEAMAC to 50.

Target and Distribution Library Data Sets

The following tables list the target and distribution library data sets allocated by the I40ZON job.

Note:

■ *hlq* represents the high-level qualifier for your data sets. Choose a high-level qualifier that conforms to the naming conventions defined for your installation.

■ The numbers listed for directory blocks and blocks are the minimum required for the product.

■ The DDnames required for each DDDEF entry match the last qualifier of the data set name. For example, for data set *hlq*.SEALINK, the corresponding DDname is SEALINK.

■ The SMP DSSPACE parameter, which specifies the amount of space to be allocated to temporary RELFILE data sets, must be set to at least (300,150,270).

The following table lists the target library data sets allocated by the I40ZON job:

Table 2–2   ELS Target Library Data Sets

Data Set Name	Product(s)	DSORG	RECFM	LRECL	BLKSIZE	Blocks (Pri/Sec)	Directory Blocks
hlq.SEALINK	ELS	PO	U	N/A	32760	500/50	99
hlq.SEAMAC	ELS	PO-E	FB	80	27920	20/10	50
hlq.SEASAMP	ELS	PO-E	FB	80	27920	20/10	5

The following table lists the distribution library data sets allocated by the I40ZON job:

Table 2–3   ELS Distribution Library Data Sets

Data Set Name	Product(s)	DSORG	RECFM	LRECL	BLKSIZE	Blocks (Pri/Sec)	Directory Blocks
hlq.ASEALINK	ELS	PO	U	N/A	32760	500/50	999
hlq.ASEAMAC	ELS	PO-E	FB	80	27920	20/10	50
hlq.ASEASAMP	ELS	PO-E	FB	80	27920	20/10	5

Updating the SYSLIB Concatenation

ELS supports different versions of MSP/ESA JES and multiple tape management systems. For example, TLMS and CA-1.

Use sample member `I50LIB` (included in your SMP JCL library) to add required DDDEF entries to the SMP PRJ, and modify the `SYSLIB` concatenation to include the appropriate macro libraries.

To run the `I50LIB` job:

1. Enter Edit mode for member `I50LIB`.

2. Submit the `I50LIB` job.

   The return code must be 4 or less for all steps executed in this job. If you receive a different return code, contact StorageTek Software Support.

   Note:

   - Follow the instructions in the prologue of the `I50LIB` sample member, edit as needed, and submit the job.

   - If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, the `SMPPRJ` statement must point to the existing global PRJ.

Reviewing the ELS FMIDs

ELS is packaged in standard SMP format, and is delivered as multiple function SYStem MODifications (SYSMODs) identified by the `SEA@720` FMID.

The `SEA@720` FMID includes HSC, SMC, VTCS and CDRT load modules, distributed macros, and samples.

Receiving the ELS Functions

You must issue the SMP `RECEIVE` command to receive the functions you want to install into the target and distribution zones.

Note:

- If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, all SYSMODS for the previous release are deleted from the SMP PRJ.

- It is recommended that you back up the existing global SMP PRJ before installing the ELS 7.2 product components.

- The `SMPPRJ` statement must point to the existing global PRJ.

Use the `I60RCV` sample member provided in your SMP JCL library to `SMP RECEIVE` the functions you want to install. See "Reviewing the ELS FMIDs" for a list of ELS SMP FMIDs.

To run the `I60RCV` job:

1. Enter Edit mode for member `I60RCV`.

2. Submit the `I60RCV` job.

The return code must be 4 or less for all steps executed in this job. If you receive a different return code, contact StorageTek Software Support.

> **Note:** Follow the instructions in the prologue of the I60RCV sample member, edit as needed, and submit the job.

> **Caution:** If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, the SMPPRJ statement must point to the existing global PRJ.

Applying the ELS Functions

Use the I70APP sample member provided in your SMP JCL library to install the ELS functions into the appropriate target zone.

To run the I70APP job:

1. Enter Edit mode for member I70APP.

2. Submit the I70APP job.

The return code must be 4 or less for all steps executed in this job. If you receive a different return code, contact StorageTek Software Support.

> **Note:**
>
> ■ Follow the instructions in the prologue of the I70APP sample member, edit as needed, and submit the job.
>
> ■ You can use the APPLY CHECK option as often as necessary to identify SMP processing problems before the actual APPLY process. All SMP detected problems must be resolved before the base functions can be successfully installed.

> **Caution:** If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, the SMPPRJ statement must point to the existing global PRJ.

Accepting the ELS Functions

Use the I80ACC sample member provided in your SMP JCL library to accept the ELS functions in the appropriate target zone.

To run the I80ACC job:

1. Enter Edit mode for member I80ACC.

2. Submit the I80ACC job.

The return code must be 4 or less for all steps executed in this job. If you receive a different return code, contact StorageTek Software Support.

Note:

- Follow the instructions in the prologue of the `I80ACC` sample member, edit as needed, and submit the job.

- You can use the `ACCEPT CHECK` option as often as necessary to identify SMP processing problems before the actual `ACCEPT` process. All SMP detected problems must be resolved before the base functions can be successfully installed.

Caution: If you install an ELS 7.2 product component in an existing global SMP PRJ containing a previous release of that product, the `SMPPRJ` statement must point to the existing global PRJ.

3

Installing ELS Maintenance

This chapter describes how to install ELS maintenance. It includes the following topics:

- "Maintenance Installation Data Sets."
- "ELS Cumulative Service Contents."
- "Unloading the ELS Maintenance SMP JCL Samples."
- "Unloading Cumulative Maintenance."
- "SMP RECEIVE Maintenance."
- "SMP APPLY Maintenance."
- "SMP ACCEPT Maintenance."
- "Separate Held ELS PTFs."

You must obtain and install the latest cumulative maintenance (PTFs and `HOLDDATA`) for ELS 7.2 and for any release of Oracle StorageTek software that coexists with ELS 7.2. Download cumulative maintenance from the My Oracle Support (MOS) site:

`http://www.myoraclesupport.com`

Visit this site frequently for `HOLDDATA` and PTF updates and install cumulative maintenance updates on a regular schedule. PTFs are released monthly to MOS.

Before attempting to install maintenance, contact Oracle Global Customer Services for information about the latest maintenance available. See "Preface" for information about contacting Oracle for assistance.

Note:

- PTFs and `HOLDDATA` may not exist at ELS release launch but will follow in time and are released monthly to MOS.

- Use the MSP/EX Linkage Editor when installing ELS products and maintenance. Failure to do so may result in link-editing errors.

Maintenance Installation Data Sets

ELS maintenance is installed with SMP. Thus, the SMP target and distribution libraries used for installation of the ELS base products are required. See "Allocating Target and Distribution Library Data Sets and Required DDDEF Entries" for more information about these libraries.

ELS Cumulative Service Contents

ELS cumulative maintenance is distributed in a ZIP file. The following table describes the files included in the ZIP file:

Table 3–1   ELS 7.2 Cumulative Service Contents (Code Directory)

File Number	Data Set Name	Description
1	els72.cvr	PTF cover letters and JCL samples
2	els72.hdd	SMP HOLDDATA
3	els72.ptf	Service PTFs
4	els72.smm	Summary data

Unloading the ELS Maintenance SMP JCL Samples

Sample JCL members for installing ELS maintenance were unloaded from the ELS installation tape during the ELS installation process. See "Unloading the SMP JCL Library" for more information.

You can use these JCL samples to process maintenance in mass mode, or by individual SYSMOD.

Unloading Cumulative Maintenance

Perform the following steps to unload cover letters, HOLDDATA, PTF, and SUMMARY data:

1. Pre-allocate the following FTP receiving data sets as shown in the following example. Change *hlq* to your high-level-qualifier; change *vr* to 72.

   ```
   Data Set Name  . . . :hlq.ELSvr.HDD - HOLDDATA
   //  RECFM=FB,LRECL=80,SPACE=(27920,(30,30))

   Data Set Name  . . . :hlq.ELSvr.PTF - PTFs
   //  RECFM=FB,LRECL=80,SPACE=(27920,(13000,300))

   Data Set Name  . . . :hlq.ELSvr.CVR - Cover Letters
   //  RECFM=FB,LRECL=80,SPACE=(27920,(30,30))

   Data Set Name  . . . :hlq.ELSvr.SMM - Summary
   //  RECFM=FB,LRECL=80,SPACE=(27920,(30,30))
   ```

2. Open a DOS window and use the cd (change directory) command to go to the directory that contains the downloaded cumulative maintenance files.

3. Enter the following commands:

   ```
   FTP msphost
   (Supply your user and password credentials.)

   binary

   mput els72.cvr
   mput els72.hdd
   mput els72.ptf
   mput els72.smm
   ```

```
quit
```

Running this sequence of `mput` commands copies the following files:

- `els72.cvr`

- `els72.hdd`

- `els72.ptf`

- `els72.smm`

...to the following data sets on your MSP system:

- `hlq.ELS72.CVR`

- `hlq.ELS72.HDD`

- `hlq.ELS72.PTF`

- `hlq.ELS72.SMM`

where `hlq` is your high-level qualifier.

SMP RECEIVE Maintenance

Sample member `MAINTRCF` provides sample JCL to `SMP RECEIVE` maintenance by specific FMID.

Modify this sample member as follows:

- Modify the `SMPPTFIN` DD statement to point to the `hlq.ELS72.PTF` data set.

- Modify the `SMPHOLD` DD statement to point to the `hlq.ELS72.HDD` data set.

Follow the instructions in the prologue of the sample member and submit the job to receive maintenance.

The return code must be zero (0) for all steps executed in this job. If you receive a different return code, contact StorageTek Software Support.

SMP APPLY Maintenance

Sample member `MAINTAPF` provides sample JCL used to `SMP APPLY` maintenance by specific FMID.

Follow the instructions in the prologue of the sample member for necessary modifications and procedures for performing an `SMP APPLY CHECK` followed by an actual `SMP APPLY`. Submit the job to apply maintenance.

> **Note:** You must specify the `ASSEM` option on the `APPLY` command in the sample JCL when the SMC JES FMID is included in the `APPLY`.

SMP ACCEPT Maintenance

> **Note:** Performing an `SMP ACCEPT` for maintenance is optional.

Sample member `MAINTACF` provides sample JCL to `SMP ACCEPT` maintenance by specific FMID.

Follow the instructions in the prologue of the sample member for necessary modifications and procedures for performing an SMP ACCEPT CHECK followed by an actual SMP ACCEPT. Submit the job to apply maintenance.

Separate Held ELS PTFs

Examine the output from the APPLY in the previous section to identify those PTFs that failed to be applied due to HOLDSYSTEM exception data. Examine the cover letters for those PTFs to determine if the PTFs are applicable to your environment. Generally, ELS SYSMODS with HOLDSYSTEM fall into two categories:

- SYSMODS that update the tape management system scratch conversion modules (SLUDRCA1, SLUDRRMM, SLUDRSMC, SLUDRTLM, and SLUDRZAR).

- Those SYSMODS that have dependencies beyond control of the ELS SMP environment. For example, certain ELS PTFs may require a particular MSP PTF to be applied or you may need to update an automated operations package.

From the examination of the SYSMODS that were not applied due to HOLDSYSTEM exception data, create four lists of PTFs as follows:

- list 1

  Includes tape management system PTFs for a tape management system that is not installed at your site.

- list 2

  Includes tape management system PTFs where the tape management system is installed at your site and modification of the source is necessary.

- list 3

  Includes non-tape management system PTFs that cannot be applied because your site does not meet the conditions defined in the PTF cover letters.

- list 4

  Includes all other PTFs held for HOLDSYSTEM exception data. These are held PTFs that are applicable to your installation. Included are tape management system PTFs where the tape management system is installed at your site and you do not need to modify the source code.

APPLY Applicable ELS HOLDSYSTEM SYSMODS

Use the sample JCL provided in the following example to SMP APPLY applicable HOLDSYSTEM SYSMODS:

Example 3–1   JCL to SMP APPLY HOLDSYSTEM SYSMODS

```
//jobname  JOB .....
//S1       EXEC smp-proc
//SMPCNTL  DD  *
   SET BDY(target-zone) .
   APPLY PTFS
        EXCLUDE(ptf1,ptf2,........ptfn)
        GROUPEXTEND
        FORFMID(
            /* FMID-id  */
                )
        BYPASS(HOLDSYSTEM)
         ASSEM
```

.

```
/*
```

> **Note:**
>
> - PTFs listed in the `EXCLUDE` statement should consist of all PTFs in List 1, List 2, and List 3. See "Separate Held ELS PTFs."
> - See "Reviewing the ELS FMIDs" for a list of FMIDs.

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4

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Performing ELS Post Installation Tasks

This chapter describes ELS post-installation tasks. The following topics are included:

- "ELS Load Library Authorization"
- "Performing SMC Post-Installation Tasks"
- "Performing HSC Post-Installation Tasks"

Before proceeding, verify that you have completed the installation tasks. See "Installing ELS Software" for more information.

There are no specific post-installation tasks for VTCS. Refer to the ELS publication *Configuring HSC and VTCS* for required VTCS configuration tasks.

ELS Load Library Authorization

SMC, HSC, and VTCS must run as authorized programs in MSP. Therefore, you must perform the following steps to APF authorize the ELS load library:

1. Add the ELS load library to the `KAAAPFzz` member of `SYS1.PARMLIB`.
2. Issue the commands described in "Authorizing the ELS Load Library" to authorize the load library.

Adding the ELS Load Library to the KAAAPFzz Member

Add the following entry to the `KAAAPFzz` member to authorize the ELS load library:

your.SEALINK volser,

Before adding this entry to your authorized program list, edit the high level qualifier and *volser* with appropriate values for your system.

If there are multiple entries in the `KAAAPFzz` member, each entry (except the last) must end with a comma to indicate continuation. Omit the comma on the last entry.

> **Note:** If the ELS load library resides on an SMS-managed volume, you do not need to specify a volume in the authorized library entry. In this case, specify nothing after the library name, to indicate that SMS is managing the library. If you specify the wrong volume, the library cannot be authorized.

Authorizing the ELS Load Library

Adding an entry to the `KAAAPFzz` member is necessary so that the library will be authorized in event of an IPL.

In the meantime, dynamically authorize the library on your running system by issuing one of the following MSP system commands:

If the library is SMS managed, issue the following command:

```
SETPROG APF,ADD,DSN=your.SEALINK,SMS
```

If the library is not SMS managed, issue the following command:

```
SETPROG APF,ADD,DSN=your.SEALINK,volser
```

Edit the high level qualifier and `volser` with appropriate values for your system.

Performing SMC Post-Installation Tasks

This section describes required SMC post-installation tasks. The following topics are included:

- "Defining SMC as an MSP Subsystem."
- "Adding SMC to the MSP Program Properties Table."
- "SMC Data Space Considerations."

Defining SMC as an MSP Subsystem

SMC executes as a dynamically defined MSP subsystem. It can either run under the master MSP subsystem, or as a secondary subsystem under the primary Job Entry Subsystem.

Because SMC is dynamically defined, for many installations, it does not need to be added to the MSP subsystem name table.

However, under any of the following conditions, you must add SMC to the MSP subsystem name table (`SYS1.PARMLIB` member `SUBSYSzz`) as required.

- If you run SMC and the Unicenter CA-MIA product on the same host, add both Unicenter CA-MIA and the SMC to the subsystem name table to ensure the correct order of EDL processing. See "Unicenter CA-MIA Interaction and the Subsystem Name Table."
- If you run SMC, a tape management system, and the Unicenter CA-MIA product on the same host, add all three products to the subsystem name table. See "SMC, TMS, and Unicenter CA-MIA Interaction and the Subsystem Name Table."
- To run the SMC under the master MSP subsystem (rather than under the primary Job Entry Subsystem), add the SMC to the subsystem name table. See "Running SMC under MSTR and the Subsystem Name Table."

  In addition, the `PROCLIB` containing the `SMC START` procedure must be present in the `PROCLIB` concatenation for the master address space. This concatenation is defined in `SYS1.PARMLIB(MSTJCLzz)`, under `DD IEFPDSI`.

Tape Management System Interaction and the Subsystem Name Table

If you run a Tape Management System (TMS), you must ensure that it processes MSP mount messages before the SMC. Add both the tape management system and the SMC to the subsystem name table with the (TMS) entry preceding the SMC entry. The following example shows entries for CA-1 Release 5.1 and above, and SMC.

```
SUBSYS SUBNAME(JES) PRIMARY(YES) START(NO)
SUBSYS SUBNAME(TMS)
SUBSYS SUBNAME(SMC0) INITRTN (SMCBPREI)
```

In installations with tape management systems executing on the same host, it is recommended that you always add both the tape management system and the SMC to the subsystem name table.

The following are possible subsystem name definition scenarios for a tape management system and SMC when both are dynamic subsystems:

- Scenario 1

  In this scenario, both SMC and the TMS are defined in the subsystem name table. This scenario is supported and recommended. The TMS must precede the SMC in the table.

- Scenario 2

  In this scenario, SMC is defined in the subsystem name table, while the TMS is not. This scenario is not supported. The TMS cannot process MSP mount messages before the SMC.

- Scenario 3

  In this scenario, the TMS is defined in the subsystem name table, while SMC is not. This scenario is supported but not recommended. You must ensure that the SMC is started after the TMS.

> **Note:** See "Modifying the Subsystem Name Table for SMC."

Unicenter CA-MIA Interaction and the Subsystem Name Table

If you run the Unicenter CA-MIA product, Computer Associates recommends that you add both SMC and Unicenter CA-MIA to the subsystem name table with the SMC entry preceding the entry for Unicenter CA-MIA.

The following example shows entries for SMC and Unicenter CA-MIA:

```
SUBSYS SUBNAME(JES) PRIMARY(YES) START(NO)
SUBSYS SUBNAME(SMC0) INITRTN(SMCBPREI)
SUBSYS SUBNAME(MIA)
```

Unicenter CA-MIA compatibility also requires that the `ALLOCDEF MIACOMPAT(ON)` option be specified in SMC. Refer to the *ELS Command, Control Statement, and Utility Reference* for information about the `ALLOCDEF` command.

> **Note:** See "Modifying the Subsystem Name Table for SMC."

SMC, TMS, and Unicenter CA-MIA Interaction and the Subsystem Name Table

If you run SMC, a Tape Management System (TMS), and Unicenter CA-MIA all on the same host, add all three products to the subsystem name table in the order indicated in the following example:

```
SUBSYS SUBNAME(JES) PRIMARY(YES) START(NO)
SUBSYS SUBNAME(TMS)
SUBSYS SUBNAME(SMC0) INITRTN(SMCBPREI)
SUBSYS SUBNAME(MIA)
```

Unicenter CA-MIA compatibility also requires that the `ALLOCDEF MIACOMPAT(ON)` option be specified in SMC. Refer to the *ELS Command, Control Statement, and Utility Reference* for information about the `ALLOCDEF` command.

> **Note:** See "Modifying the Subsystem Name Table for SMC."

Running SMC under MSTR and the Subsystem Name Table

To run the SMC under the `MSTR` subsystem rather than under the primary Job Entry Subsystem, you must add the following entry to the subsystem name table to identify the SMC subsystem name:

```
SUBSYS SUBNAME(SMC0)
```

If your primary Job Entry Subsystem is JES, then the SMC cannot run under `MSTR`, but must be executed under JES.

If the SMC subsystem is to execute under `MSTR`, you must also include the `MSTR` option on the `PARM` parameter in the `SMC START` procedure. Refer to the ELS publication *Configuring and Managing SMC* for information about creating the `SMC START` procedure.

An alternative to adding the SMC to the subsystem name table to execute under `MSTR` is to start the SMC subsystem with the `SUB=MSTR` parameter on the MSP `Start` command. Refer to the ELS publication *Configuring and Managing SMC* for information about executing the SMC start procedure.

Modifying the Subsystem Name Table for SMC

If you choose to modify the subsystem name table for SMC, use the following guidelines:

■ The `SUBNAME(`*name*`)` parameter specifies a 1-4 character name that corresponds to the `SMC START` procedure name. If the SMC subsystem name you define using the `SUBNAME(`*name*`)` parameter does not match the `SMC START` procedure name, you must include the `SYSS` option on the `PARM` parameter in the `START` procedure. Refer to the ELS publication *Configuring and Managing SMC* for information about creating the `SMC START` procedure.

■ You must use the keyword format of the `SUBSYS` command rather than the positional format. Refer to your Fujitsu MSP/EX publications for more information about defining subsystem names.

■ If you are not defining the subsystem name dynamically, you must perform an IPL of the MSP host system before the SMC subsystem name entry takes effect.

■ If you have added the Unicenter CA-MIA subsystem name to the subsystem name table, one of the following is required:

– The started task that uses this subsystem must be present in the `PROCLIB` concatenation for the master address space. This concatenation is defined in `SYS1.PARMLIB(MSTJCLzz),` under `DD IEFPDSI`.

– The `Start` command for Unicenter CA-MIA must specify the `SUB=JES` parameter.

For example, `S CAMIA,SUB=JES`.

Adding SMC to the MSP Program Properties Table

You must modify the MSP Program Properties Table (PPT) to include an entry for the SMC subsystem.

Add the following entry to member `PPTPRMzz` of `SYS1.PARMLIB`:

```
PPT PGMNAME(SMCBINT),PRIV,SYST,KEY(3)
```

Note:

- The SMC must run in a low key (from 1-7). The examples in this section use key 3. Using keys 8-15 causes unpredictable results.

- After modifying the `PPTPRMzz` member, you must perform an IPL or dynamic update.

SMC Data Space Considerations

SMC uses a data space with `SCOPE=COMMON` to perform its inter-address space communications.

Performing HSC Post-Installation Tasks

This section describes required HSC post-installation tasks. The following topics are included:

- "Defining HSC as an MSP Subsystem."

- "HSC User Exit Library Authorization."

- "Copying or Moving the SLSBPREI Module to an MSP LINKLIST Library."

- "Adding HSC to the MSP Program Properties Table."

- "Adding SMF Parameters for HSC and VTCS."

- "Re-assembling the TMS Interface (SLUDR*) Routines."

Defining HSC as an MSP Subsystem

HSC can either run under the master MSP subsystem, or as a secondary subsystem under the primary Job Entry Subsystem.

- If you run HSC under the master MSP subsystem, you must add a line to your subsystem name table (`SYS1.PARMLIB` member `SUBSYSzz`) to identify the subsystem name. This is a one- to four-character name that corresponds to the procedure name for the HSC started task procedure.

- If you run HSC as a secondary MSP subsystem, you must add a line to your subsystem name table (`SYS1.PARMLIB` member `SUBSYSzz`) to identify the following:

  – The subsystem name. This is a one- to four-character name that corresponds to the `HSC START` procedure name.

  – The HSC subsystem initialization routine name, which must be `SLSBPREI`.

Assuming your HSC subsystem name is SLS0, the following lines correctly add HSC to your subsystem name table when running HSC under the master MSP subsystem, or as a secondary MSP subsystem:

```
SUBSYS SUBNAME(SLS0) /* keyword format */
```

> **Note:**
>
> - If the HSC subsystem name you define in the subsystem name table does not match the `HSC START` procedure name, you must include the `SYSS` option on the `PARM` parameter in the `START` procedure. Refer to the ELS publication *Configuring HSC and VTCS* for information about creating an HSC startup procedure.
>
> - HSC no longer interacts with tape management systems in processing MSP messages. Therefore, the order of definition of the HSC subsystem and a tape management subsystem is irrelevant. However, the SMC subsystem definition, if specified, must follow the tape management system entry.
>
> - Refer to your Fujitsu MSP/EX publications for more information about defining subsystem names.

HSC User Exit Library Authorization

The HSC user exit library can either be the same as the HSC load library, or a separate library. If the HSC user exit library is a separate library, you must perform the following steps to APF authorize the user exit load library:

1. Add the HSC user exit load library to either the `KAAAPFzz` member of `SYS1.PARMLIB`.

2. Issue the commands described in "Authorizing the HSC User Exit Load Library" to authorize the load library.

Adding the HSC User Exit Load Library to the IEAAPFzz Member

Add the following entries to the `KAAAPFzz` member to authorize the HSC user exit load library:

```
your.SEALINK      volser
your.HSC_USEREXIT.LOAD    volser
```

Before adding these entries to your authorized program list, edit the high level qualifier and *volser* with appropriate values for your system.

If there are multiple entries in the `KAAAPFzz` member, each entry (except the last) must end with a comma to indicate continuation. Omit the comma on the last entry.

> **Note:** If the HSC user exit load library resides on an SMS-managed volume, you do not need to specify a volume in the authorized library entry. In this case, specify nothing after the library name, to indicate that SMS is managing the library. If you specify the wrong volume, the library cannot be authorized.

Authorizing the HSC User Exit Load Library

Adding an entry to the `KAAAPFzz` member is necessary so that the library will be authorized in event of an IPL. In the meantime, dynamically authorize the library on your running system by issuing one of the following MSP system commands:

If the library is SMS managed:

```
SETPROG APF,ADD,DSN=your.HSC_USEREXIT.LOAD,SMS
```

If the library is not SMS managed:

```
SETPROG APF,ADD,DSN=your.HSC_USEREXIT.LOAD,volser
```

In both commands, edit the high level qualifier and *volser* with appropriate values for your system.

Copying or Moving the SLSBPREI Module to an MSP LINKLIST Library

The HSC subsystem pre-initialization routine module (`SLSBPREI`), which resides in the `SEALINK` library, must also reside in an `MSP LINKLIST` library if you run the HSC as a secondary MSP subsystem. You can copy or move the `SLSBPREI` module from `SEALINK` to a `LINKLIST` library.

The `SLSBPREI` pre-initialization routine module is functionally compatible between HSC releases. For future compatibility, however, use the most current release of the `SLSBPREI` pre-initialization module.

Adding HSC to the MSP Program Properties Table

You must modify the MSP Program Properties Table (PPT) to include an entry for the HSC subsystem.

Add the following entry to member `PPTPRMzz` of `SYS1.PARMLIB`:

```
PPT PGMNAME(SLSBINIT),PRIV,SYST,KEY(3)
```

> **Note:** The HSC must run in a low key (from 1-7). The examples in this section use key 3. Using keys 8-15 causes unpredictable results including `SOC1` and `SOC4` abends.

Adding SMF Parameters for HSC and VTCS

HSC can produce SMF record subtypes for HSC and VTCS events. To produce these record subtypes, you must add two lines to your System Management Facility (SMF) parameters in `SYS1.PARMLIB` member `SMFPRMzz` to specify the following:

- HSC subsystem name
- HSC recording interval, specified as `INTERVAL(hhmmss)`.

  The smaller the number, the more often data is recorded.

  A minimum of 15 minutes (001500) is strongly recommended to avoid impacts to library performance. For HSC systems that do not support VSM, an interval of one hour (010000) is recommended.

- HSC SMF record type
- HSC/VTCS SMF record subtypes to be recorded.

  Refer to the *ELS Programming Reference* for more information about the subtypes that HSC and VTCS can generate.

Assuming your HSC subsystem name is `SLS0`, the following example shows the lines that add HSC and VTCS record subtypes:

```
SUBSYS(SLS0,INTERVAL(001500),TYPE(255))
SUBPARM(SLS0(SUBTYPE,
(1-8,10,11,13,14,15,16,17,18,19,20,21,25,26,27,28,29,30,31)))
```

> **Note:** If you do not specify the SUBTYPE parameter in your SMF options, HSC generates subtypes 1 through 6. You must code a SUBPARM parameter and include subtypes 7 and 8 to generate cartridge move and view records.

Re-assembling the TMS Interface (SLUDR*) Routines

Depending on your tape management system and its associated release level, you may need to re-assemble the TMS (Tape Management System) interface (SLUDR*) routines called by the HSC SLUCONDB utility and SMC SMCUDBX utility. This is also necessary if local modifications are made to these routines. These routines are included in the SEALINK library generated during ELS installation.

> **Note:**
>
> - The source of the TMS interface routines changed for ELS 7.0. If you have local modifications to any module with a name matching SLUDR*, you must modify the ELS 7.0/7.1/7.2 source with your local changes and re-assemble. Older versions of the SLUDR* modules are not compatible with the ELS 7.0/7.1/7.2 versions of SLUCONDB.
>
> - Refer to the *ELS Command, Control Statement, and Utility Reference* for more information about the SLUCONDB and SMCUDBX utilities, and the TMS interface routines.
>
> - Refer to the ELS publication *Managing HSC and VTCS* for more information about Scratch Conversion (SLUCONDB) utility re-assembly requirements.

A

ELS Samples, Modules, and Macros

This appendix lists samples, source code modules load modules, and macros included in the ELS package. The following topics are included:

> **Note:** See "Unloading the SMP JCL Library" for information about JCL samples used for ELS installation.

ELS Samples, Source Code Modules, and Macros

This section describes ELS samples, source code modules and macros contained on the ELS installation CD-ROM.

ELS Samples

The following table describes ELS sample members:

Table A–1   ELS Samples

Member Name	Description
GTFEXTR	Sample extract for SMC trace of a single job
GTFLMU	Sample MSP 2.X PARMLIB member to trace LMU requests
GTFPARMS	Sample GTF parameters for SMC trace
GTFPROC	Sample GTF startup JCL
KAAAPFZZ	Sample SMC APF list entries
SUBSYSzz	Sample SMC subsystem name table entry
INSTUXIT	Sample SMP for installing SMP managed user exits
LIBGNJCL	Sample JCL to assemble and link a LIBGEN source file
MSGMPFUX	Sample MPF user exit
POLCVT01	Sample POLCVT member
POLCVT02	Sample POLCVT REXX data set program
PROGZZ	Sample ELS APF list entries
PPTPRMzz	Sample MSP Program Properties Table (PPT) entry for ELS
SENDEL	Sample SEN macro interface program
SENDISA	Sample SEN macro interface program

ELS Source Code Modules

The following table describes ELS source code module members:

Table A–2   ELS Source Code Modules

Member Name	Description
SENENA	Sample SEN macro interface program
SENEXIT	Sample SEN user exit
SENRQST	Sample SEN macro interface program
SLSSYS00	Sample HSC startup parameter file
SLSUX03	Default scratch subpool user exit
SLSUX05	Default programmatic interface (PGMI) user exit
SLSUX06	Default database insert/delete user exit
SLSUX14	Default volume access user exit
SLSUX15	Default command authority user exit
SLUCONDB	Source code for Scratch Conversion Utility
SMCCMDS	Sample command file for the SMCCMDS DD statement
SMCPARMS	Sample parameter file for SMCPARMS DD statement
SMCPROC	Sample startup JCL
SMFPRMXX	Sample PARMLIB definitions for HSC SMF record subtypes
UX06SAM1	Sample HSC User Exit 06 interface to a tape management system

ELS Macros

The following table describes ELS macros:

Table A–3   ELS Macros

Member Name	Description
ACSRQ	format a parameter list for an ACS request
NCSCOMM	NCSCOMM parameter list
NCSUUII	NCS UUI call service
NUUIIA	NCS UUI interface area
SLSUX01P	HSC format User Exit 01 parameter list
SLSUX02P	HSC format User Exit 02 parameter list
SLSUX04P	HSC format User Exit 04 parameter list (JES only)
SLSUX08P	HSC format User Exit 08 parameter list
SLSUX09P	HSC format User Exit 09 parameter list
SLSUX10P	HSC format User Exit 10 parameter list
SLSUX11P	HSC format User Exit 11 parameter list (JES only)
SLSUX12P	HSC format User Exit 12 parameter list (JES only)
SLSUX13P	HSC format User Exit 13 parameter list (JES only)
SLIACS	LIBGEN SLIACS macro

Table A–3   (Cont.) ELS Macros

Member Name	Description
SLIALIST	LIBGEN SLIALIST macro
SLICOV	Global configuration constants & variables
SLIDLIST	LIBGEN SLIDLIST macro
SLIDRIVS	LIBGEN SLIDRIVS macro
SLIENDGN	LIBGEN SLIENDGN macro
SLIERMSG	LIBGEN error message macro
SLILBACS	LIBGEN ACS area
SLILBALS	LIBGEN ACLIST area
SLILBDLS	LIBGEN DRIVELST area
SLILBDRV	LIBGEN DRIVES area
SLILBEND	LIBGEN ENDGEN area
SLILBLIB	LIBGEN LIBRARY area
SLILBLSM	LIBGEN LSM area
SLILBREC	LIBGEN RECOVERY area
SLILBSTA	LIBGEN STATION area
SLILCV	Installation LCT constants - variables
SLILIBRY	LIBGEN LIBRARY macro
SLILSM	LIBGEN LSM macro
SLIPTPCK	LIBGEN SLIPTPCK macro
SLIRCVRY	LIBGEN RECOVERY macro
SLISTATN	LIBGEN STATION macro
SLSDILLT	LIBGEN LOCATION type
SLSDVAR	Distributed volume attribute record length
SMCEHOOK	SMC Type 1 modification macro (JES only)
SMCEMFLD	JES macro field resolution block (used by SMCERSLV) (JES only)
SLSSBLOG	INIT/TERM LOGREC record
SLSSBLOS	LSM operations statistics data area
SLSSCAPJ	CAP SMF EJECT record
SLSSCAPN	CAP SMF ENTER record
SLSSDJLR	Database journalling LOGREC map
SLSSFHDR	SMF record header
SLSSHLG1	Host communications LOGREC format 1
SLSSLHDR	LOGREC record header map
SLSSLLG1	LMU driver LOGREC format ONE
SLSSLLG2	LMU driver LOGREC format two
SLSSLLG3	LMU driver LOGREC format three
SLSSLLG4	LMU driver LOGREC format four

Table A–3   (Cont.) ELS Macros

Member Name	Description
SLSSLLG5	LMU driver LOGREC format five
SLSSLLG6	LMU driver LOGREC format six
SLSSLSB	LMU ATHS statistics buffer
SLSSMF07	HSC format 7 SMF record
SLSSMF08	HSC format 8 SMF record
SLSSMF09	HSC format 9 SMF record
SLSSMF10	HSC format 10 SMF record
SLSSMF11	HSC format 11 SMF record
SLSSMF12	HSC format 12 SMF record
SLSSMF13	HSC format 13 SMF record
SLSSMF14	HSC format 14 SMF record
SLSSMF15	HSC format 15 SMF record
SLSSMF16	HSC format 16 SMF record
SLSSMF17	HSC format 17 SMF record
SLSSMF18	HSC format 18 SMF record
SLSSMF19	HSC format 19 SMF record
SLSSMF20	HSC format 20 SMF record
SLSSMF21	HSC format 21 SMF record
SLSSMF22	HSC format 22 SMF record
SLSSMF23	HSC format 23 SMF record
SLSSMF24	HSC format 24 SMF record
SLSSMF25	HSC format 25 SMF record
SLSSMF26	HSC format 26 SMF record
SLSSMF27	HSC format 27 SMF record
SLSSMF28	HSC format 28 SMF record
SLSSMF29	HSC format 29 SMF record
SLSSMF30	HSC FORMAT 30 SMF record
SLSSMLSM	Modify LSM SMF record subtype map
SLSSPSWI	Primary/shadow switch LOGREC record
SLSSRL00	Recovery ERDS record 0
SLSSRL01	Recovery ERDS record 1
SLSSVLG1	VOL/CELL force unselect record
SLSSVSTA	VARY station SMF record subtype map
SLSUREQ	Batch API request processor
SLSSUREQM	Batch API interface mapping macro
SLSUX03P	HSC User Exit 03 parameter list
SLSUX05P	HSC User Exit 05 parameter list

Table A–3   (Cont.) ELS Macros

Member Name	Description
SLSUX06P	HSC User Exit 06 parameter list
SLSUX14P	HSC User Exit 14 parameter list
SLSUX15P	HSC User Exit 15 parameter list
SLSXB2X	Translate 8 bits to a hexadecimal byte
SLSSWMSG	Map logrec records written for WTO-type messages issued by HSC
SLSXREQ	Issue an ACS request
SLSXREQM	ACS user interface mapping macro
SLSXSEN	HSC Significant Event Notification (SEN) request
SLSXSENM	Significant Event Notification (SEN) request parm list map
SLUDRINF	TMS DB Read parameter list
SLUVADAT	Flat file ACS/LSM information DSECT
SLUVCDAT	Flat file static configuration data DSECT
SLUVDDAT	QCDS drive information DSECT
SLUVHDAT	Flat file host information DSECT
SLUVIDAT	Flat file CDS information DSECT
SLUVMDAT	Flat file MVC data DSECT
SLUVPDAT	QCDS CAP information DSECT
SLUVSDAT	Flat file ACS station address DSECT
SLUVTDAT	Flat file VTV data DSECT
SLUVVDAT	Flat file volume data DSECT
SLX	HSC external interface reply
SWSPGMIA	VTCS PGMI interface area (VTCS only)

Glossary

4410

Oracle's StorageTek standard Library Storage Module (LSM).

4480

Oracle's StorageTek 18-track 1/2-inch cartridge transport.

4490

Oracle's StorageTek 36-track long-tape cartridge transport with ESCON support. Also known as Silverton.

9310

Oracle's StorageTek Library Storage Module (LSM), a high-performance version of the standard 4410 LSM. Also known as PowderHorn.

9360

Oracle's StorageTek Library Storage Module (LSM). Also known as WolfCreek.

9740

Oracle's StorageTek Library Storage Module (LSM). Also known as TimberWolf.

access method

A technique for moving data between processor storage and I/O devices.

ACS

Automated Cartridge System, a fully-automated, cartridge storage and retrieval library subsystem consisting of one or more Library Storage Modules (LSMs) connected by pass-thru ports.

APF

Authorized Program Facility, an installation security facility used to identify and authorize programs for use.

Authorized Program Facility (APF)

See **APF**.

Automated Cartridge System (ACS)

See **ACS**.

CDRT

Concurrent Disaster Recovery Test, Oracle's StorageTek software that streamlines disaster recovery testing in the tape storage environment.

Concurrent Disaster Recovery Test (CDRT)

See **CDRT**.

FMID

Function Modification Identifier, used to represent function SYStem MODifications (SYSMODs) used in software installation.

Functional Modification Identifier (FMID)

See **FMID**.

Host Software Component (HSC)

See **HSC**.

HSC

Host Software Component, Oracle's StorageTek software running on the Library Control System processor that controls the functions of the ACS.

JCL

A problem oriented language designed to describe a job's processing requirements to an operating system.

JES

An MSP subsystem that receives jobs into the system, converts them to internal format, selects them for execution, processes their output, and purges them from the system. In an installation with more than one processor, each JES processor independently controls its job input, scheduling, and output processing.

Job Control Language (JCL)

See **JCL**.

Library Storage Module (LSM)

See **LSM**.

LSM

Library Storage Module, a library storage structure with cartridge storage space, also including a free-standing, vision-assisted robot that moves the cartridges between their storage cells and attached transports.

operating system

Software that controls the execution of programs that facilitate overall system operation.

Program Temporary Fix (PTF)

See **PTF**.

PTF

Program Temporary Fix, a software release designed to remedy one or a series of defects.

SD-3

Oracle's StorageTek helical cartridge transport. Also known as RedWood.

SL3000

Oracle's StorageTek SL3000 modular library offers mixed media, logical and physical partitioning capabilities, advanced management, and high availability. It supports mixed environments, including mainframe and open systems, and is scalable from 200 to just under 6,000 cartridge slots.

SL8500

Oracle's StorageTek SL8500 modular library offers mixed media, logical and physical partitioning capabilities, advanced management, and high capacity and availability. It supports mixed environments, including mainframe and open systems, and is scalable from the standard 1,450 cartridge slots to 100,880 cartridge slots in a complex configuration.

SMC

Storage Management Component, Oracle's StorageTek software interface between the MSP/EX operating system and Oracle StorageTek real and virtual tape hardware. SMC performs the allocation processing, message handling, and SMS processing for the ELS solution.

SMP

System Modification Program.

SMS

System Managed Storage.

Storage Management Component (SMC)

See SMC.

sysplex

A set of MSP/EX systems communicating and cooperating with each other through certain multisystem hardware components and software services to process customer workloads.(I)

T9840A

Oracle's StorageTek access-centric cartridge transport capable of reading and writing 9840A cartridges.

T9840B

Oracle's StorageTek access-centric cartridge transport capable of reading and writing T9840B cartridges.

T9840C

Oracle's StorageTek access-centric cartridge transport capable of reading and writing T9840C cartridges.

T9840D

Oracle's StorageTek access-centric cartridge transport capable of reading and writing T9840D cartridges.

T9940A

Oracle's StorageTek capacity-centric cartridge transport capable of reading and writing 60GB T9940A cartridges.

T9940B

Oracle's StorageTek capacity-centric cartridge transport capable of reading and writing 200GB T9940B cartridges.

T10000A

Oracle's StorageTek T10000 A high-capacity cartridge transport capable of reading and writing 120GB or 500GB T10000A cartridges.

T10000B

Oracle's StorageTek T10000 B high-capacity cartridge transport capable of reading and writing 240GB or 1TB T10000B cartridges

T10000C

Oracle's StorageTek T10000 C high speed/capacity tape drive, delivering up to 252 MB/sec and 5 TB, native, making it ideal for data center operations with growing data volumes.

T10000D

Oracle's StorageTek T10000D high speed/capacity tape drive, delivering up to 252 MB/sec and 8.5 TB native capacity, making it ideal for data center operations with growing data retention requirements.

Tape Management Catalog (TMC)

See **TMC**.

TCP

Transmission Control Protocol, an inter-network standard protocol that provides a full-duplex stream service.

TCP/IP

Transmission Control Protocol/Internet Protocol.

TMC

Tape Management Catalog. A data set used by the CA-1 Tape Management System to record an inventory of the tape library.

transport

An electro-mechanical device used to thread, position, and read or write from a tape.

Transmission Control Protocol (TCP)

See **TCP**.

virtual storage

A feature of the operating system where main storage requirements are allocated by segments (or pages) as needed by programs, thus creating the apparent existence of unlimited or virtual storage.

Virtual Storage Manager (VSM)

See **VSM**.

Virtual Tape Control System (VTCS)

See **VTCS**.

Virtual Tape Storage Subsystem (VTSS)

See **VTSS**.

Virtual Telecommunications Access Method (VTAM)

See **VTAM**.

VMF

Volume Master File. A data set used by the CA-TLMS tape management system to record an inventory of the tape library.

VOLSER

Volume Serial Number, an identifier of a physical volume.

volume

A tape cartridge (data carrier) that is mounted or dismounted as a unit.

Volume Master File (VMF)

See **VMF**.

Volume Serial Number (VOLSER)

See **VOLSER**.

VSM

Virtual Storage Manager, Oracle's StorageTek storage solution that virtualizes volumes and transports in a VTSS buffer to improve media and transport use. The hardware includes VTSS, which is the DASD buffer, and RTDs. The software includes VTCS, an HSC–based host software, and VTSS microcode

VTAM

Virtual Telecommunications Access Method, IBM host-resident communications software that serves as a common interface for communications.

VTCS

Virtual Tape Control System, the primary host code that controls activity and information about VTSSs, VTVs, RTDs, and MVCs.

VTSS

Virtual Tape Storage Subsystem, the DASD buffer containing virtual volumes (VTVs) and virtual drives (VTDs). The VTSS is a STK RAID 6 hardware device with microcode that enables transport emulation. The RAID device can read and write "tape" data from/to disk, and can read and write the data from/to an RTD.

Index