

Expert Library Manager

Installation and Maintenance Guide

Version 6.2

E28094-01



Revision 01

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About this Guide

Oracle's StorageTek Expert Library Manager (ExLM) is MVS host software that manages Nearline real tape volumes (including VSM multi-volume cartridges (MVCs)) and VSM virtual tape volumes (VTVs).

What's New in This Guide?

ExLM 6.2 adds the following features:

- The ExLM Eject Utility function has been replaced with enhancements to Action Eject. The ExLM Eject Utility will be removed after this release.
- New and enhanced ExLM control statements. **Note that:**
 - ExLM 6.2 control statements provide similar function to selected HSC (SLUADMIN) and VTCS (SWSADMIN) utilities.
 - A new form of the Condition clause for volume selection is available where either a value or a range of values works with the condition to select volumes.
 - ExLM 6.2 is updated to issue a warning message when EQ and NE is specified with a field specified for comparison that represents a data set

name and the specified string constant contains wild-card characters. For example:

WHEN(DataSetName EQ 'SYSBACK.')**

WHEN(DataSetName NE 'SYSBACK.')**

A warning message is written to the parameter file listing to document the applied change.

If the comparison operator is LT, LE, GT, or GE, a syntax warning (or error) message is issued because such characters are illegal in a properly formed data set name.

- New volume fields are available. For more information, see *ExLM Quick Reference*.

Table 1. on page iv describes the ExLM 6.2 control statements.

Table 1. ExLM 6.2 Control Statements

ExLM Control Statement	6.2 Status	Corresponding HSC or VTCS Utility
ACTION CONSOLIDATE	Enhanced	SWSADMIN CONSOLIDATE
ACTION EJECT	Enhanced	SLUADMIN EJECT
ACTION EXPORT	Enhanced	SWSADMIN EXPORT
ACTION MIGRATE	Enhanced	SWSADMIN MIGRATE
ACTION MOVE	Enhanced	SLUADMIN MOVE
ACTION RECALL	Enhanced	SWSADMIN RECALL
ACTION RECLAIM	New	SWSADMIN RECLAIM
ACTION SCRATCH	New	SLUADMIN SCRATCH
ACTION UNSCRATCH	New	SLUADMIN UNSCRATCH, SLUADMIN REPLACEALL
DATASET	Enhanced	
LOCATION	Unchanged	
MANAGE PHYSICAL	Unchanged	
MANAGE VIRTUAL	Unchanged	
METHOD	Enhanced	

Table 1. ExLM 6.2 Control Statements

ExLM Control Statement	6.2 Status	Corresponding HSC or VTCS Utility
OPTIONS	Enhanced	
OPTIONS SYNC and SYNCVTV MANAGE PHYSICAL and MANAGE VIRTUAL	Unchanged	SLUCONDB (and SMC equivalent)
PULLLIST	Unchanged	
REPORT CELLCNT	Unchanged	
REPORT CONSOLIDATE	Unchanged	
REPORT DATASET	Unchanged	
REPORT EJECT	Unchanged	
REPORT ENTER	Unchanged	
REPORT EXPORT	Unchanged	
REPORT LSM	Enhanced	
REPORT MIGRATE	Unchanged	
REPORT MULTIPLE	New	SWSADMIN MVC RPT
REPORT NONSCRCNT	Unchanged	
REPORT OPERATOR	Unchanged	
REPORT PHYSICAL	New	SLUADMIN VOLRPT
REPORT RECALL	Unchanged	
REPORT SCRCNT	Unchanged	
REPORT SUMMARY	Unchanged	
REPORT VIRTUAL	New	SWSADMIN VTVRPT
REPORT VOLUME	Enhanced	
SET METHOD	Enhanced	
SUBPOOL	Enhanced	
SUBPOOL and MANAGE PHYSICAL BALSCR	Unchanged	SLUADMIN SCRATCH REDISTRIBUTION
TMS CA1	Enhanced	
TMS COMMON	Enhanced	
TMS CTT	Enhanced	

Table 1. ExLM 6.2 Control Statements

ExLM Control Statement	6.2 Status	Corresponding HSC or VTCS Utility
TMS CUSTOM	Enhanced	
TMS OPEN	Enhanced	
TMS RMM	Enhanced	
TMS TLMS	Enhanced	
UNMANAGED	Enhanced	

- ExLM 6.2 adds the LISTDD and LISTDSN parameters to selected ACTION statements. Specified as an alternative to a WHEN condition, the LISTDD and LISTDSN parameters specify a file containing the list of volsers to use for the statement.
- ExLM 6.2 supports IF REQ statements in PTFs when necessary to identify requisite HSC or VTCS maintenance.
- ExLM 6.2 provides failover capability for ExLM Agent. You can now specify multiple Agent host/port pairs on the AGENT keyword of the TMS statements. The specified host/port pairs are tried in order until a successful connection is made or the list of hosts is exhausted. If none of the Agents can be contacted, a WTOR message says that no Agents can be contacted.

What's New for ExLM Explorer in Version 6.2?

- ExLM Explorer is enhanced to support all new features as described in Table 1. on page iv.
- Additional fields are available for reports and selection criteria.
- You can now specify an external list of items as an alternative to specifying selection rules for Action objects and Custom reports.
- You can now specify multiple hosts for the ExLM Agent. ExLM tries each Agent in the list until a successful connection can be made or the end of the list is reached. This provides a failover capability when ExLM obtains tape management system information from a remote host.
- You can now specify whether volumes ejected from an SL8500 library are ejected in the sequence determined by the hardware to provide for the least robotic motion or in the sequence specified by ExLM.
- Three new Action object types have been added: Action Scratch, Action Unscratch, and Action Reclaim. These replace the SLUADMIN Scratch, SLUADMIN Unscratch, and SWSADMIN Reclaim functions.
- Four new report types have been added: Multiple, MVC_VTV, Physical, and Virtual. These report on MVCs, MVC-VTV combinations, physical volumes in an LSM, and

VTVs, respectively. These replace the SWSADMIN MVCRPT, SLUADMIN VOLRPT, and SWSADMIN VTVRPT functions.

- You can generate text strings in custom report columns and headings based on the run-time evaluation of complex expressions.
- You can now use substrings in comparisons of text fields, such as CreationJobName and DataSetName.

Intended Audience

This guide is for StorageTek or customer personnel who are responsible for installing and maintaining ExLM.

Prerequisites

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

- MVS or OS/390 operating system
- System Modification Program Extended (SMP/E)

About the Software

This guide applies to ExLM Version 6.2.

How this Guide is Organized

This guide contains the following sections:

- Chapter 1, “Preparing to Install ExLM 6.2”
- Chapter 2, “Installing ExLM 6.2 from Tape”
- Chapter 3, “Installing ExLM 6.2 from CD-ROM”

Note: Chapter 2, “Installing ExLM 6.2 from Tape” and Chapter 3, “Installing ExLM 6.2 from CD-ROM” now include information on installing ExLM Agent, which was formerly included in the *ExLM System Administrator’s Guide* (now the *ExLM User’s Guide*).

- Chapter 4, “Performing Post-Installation Tasks”
- Appendix A, “ExLM SAMPLIB Members”

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Chapter 1. Preparing to Install ExLM 6.2

This chapter tells how to prepare to install ExLM 6.2. Use the checklist in Table 2 to help plan and verify completion of your ExLM pre-installation tasks.

Table 2. Preparing to Install ExLM

Task	✓ to Verify Completion
“Obtain and Configure ExLM License Keys” on page 2	
“Verify ExLM Software and Hardware Prerequisites” on page 5	

After you complete the tasks in this chapter, depending on the installation media you use, go to one of the following:

- “Installing ExLM 6.2 from Tape” on page 9
- “Installing ExLM 6.2 from CD-ROM” on page 15

Obtain and Configure ExLM License Keys

ExLM 6.2 requires a valid license key for initialization. Product license keys are validated during initialization and immediately after midnight each day.

You can obtain license keys through the StorageTek Customer Resource Center (CRC) at www.support.storagetek.com, or by contacting your StorageTek Software Manufacturing Distribution Representative, Marketing Representative, or Systems Engineer. License Keys are generally issued within 48 hours of receipt of the request.

HSC does license key validation for ExLM. After StorageTek issues you an ExLM license key, you must make the license key information available to the HSC license key validation service as described in “LKEYINFO Control Statement” on page 3.

LKEYINFO Control Statement

The LKEYINFO control statement inputs license key information for ExLM.

Syntax

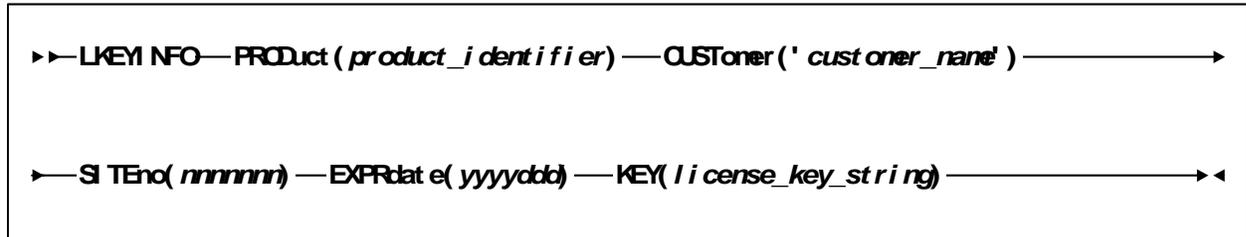


Figure 1. LKEYINFO Syntax

Parameters

Note: You must enter the values for **all** parameters **exactly** as specified in the license key issued to you by StorageTek.

PRODUct

Specifies the product and release to which the license key applies.

product-identifier

The product identifier. The product identifier consists of the ExLM product abbreviation (ExLM) followed by a four-character release id. For example, for EXLM 6.2, the product identifier is EXLM0620.

CUSTomer

Specifies the customer name, which is maximum of 20 characters.

customer-name

The customer name.

SITEno

Specifies the site number.

nnnnnnn

The site number.

EXPRdate

Specifies the expiration date of the license key.

yyyddd

The expiration date.

KEY

Specifies the license key.

license-key-string

The license key string.

Usage

Place the LKEYINFO control statement in data set or PDS member specified by an LKEYDEF control statement in the HSC START procedure. The definition data set can be a fixed length 80-byte sequential data set, or a fixed length 80-byte member of a PDS.

Example

Figure 2 shows an example LKEYINFO statement for ExLM.

```
LKEYINFO PROD(EXLM0620) -  
CUST('your customer name') -  
SITE('your site number') -  
EXPRD('your ExLM expiration date') -  
KEY('your ExLM license key') -
```

Figure 2. Example LKEYINFO Statement for ExLM

Verify ExLM Software and Hardware Prerequisites

ExLM Mainframe Software Requirements

Verify the mainframe software prerequisites for ExLM 6.2 listed in Table 3.

Table 3. ExLM 6.2 Mainframe Software Requirements

Software Description	Minimum Version/Release
Operating System	Minimum z/OS level commonly supported by IBM, 1.6 or above at this release.
Host Software Component	NCS 6.2 or higher. NCS 6.0 and 6.1 are supported with reduced functionality.
Virtual Tape Control Software	VTCS 6.2 or higher. VTCS 6.0 and 6.1 are supported with reduced functionality.
Mainframe TCP/IP	IBM OS/390 eNetwork Communications Server V2R6 or higher or any 100% compatible TCP/IP product.
Supported Tape Management System Software Note: ExLM does not require tape management system software. In this case, specify the NOTMS parameter of the OPTIONS statement as described in <i>ExLM User's Guide</i> .	Any of the following: <ul style="list-style-type: none">• CA-1 (TMS) Releases: 5.0 and higher• CA-DYNAM/TLMS Releases: 5.4 and higher• IBM DFSMSrmm Release 1.1 with PTFs UY95341 and UY97452 If you use other tape management systems, contact your vendor for support information.
Sort software	IBM DF/SORT Release 6 or compatible



Caution: The ExLM 6.2 Load Libraries are in a PDSE format and older libraies cannot be reused as they are in a PDS format.

ExLM Nearline Hardware Requirements

ExLM 6.2 is compatible with all LSMs and transports that NCS 6.0 and above supports. If you are using ExLM to manage VSM multi-volume cartridges, verify the minimum VSM 6.0 and above Nearline hardware requirements listed in Table 4 and Table 5 on page 7.

Table 4. VSM 6.0 Nearline Hardware Requirements

Hardware	Requirement
LSMs	Any of the following but 9310, 9740, or SL8500 recommended by StorageTek: 4410, 9310, 9740, 9360, and SL8500
Transports and media	<p>VSM RTDs can be a mixture of 9490 (Timberline), 9490EE (Timberline EE), T9840A, T9840B, T9840C, T9940A, T9940B, and T10000 transports (see Table 5 on page 7). Each VTSS must have a minimum of two library-attached transports for each media type used for MVCs. For example, if your MVCs are STANDARD and ECART, you need a minimum of <i>either</i> two 9490s <i>or</i> two 9490EEs as RTDs. If your MVCs are STANDARD, ECART, ZCART, and STK1R, you need a minimum of two 9490EEs <i>and</i> two 9840s as RTDs.</p> <p>Note: Using T9940s as RTDs requires HSC 4.0.0 and VTCS 4.0.0 with PTF L1H1043 applied.</p> <p>Valid media types for the supported RTDs are:</p> <p>9490: STANDARD, ECART</p> <p>9490EE: STANDARD, ECART, ZCART</p> <p>SD-3: DD3A, DD3B, DD3C</p> <p>9840: STK1R</p> <p>T9940: STK2, STK2P (both currently indicate 60 Gb cartridges)</p>

Table 5. Prerequisites for T10000 Drives as RTDs

Description	Requirement
NCS/VTCS	6.0 with the following PTFs: <ul style="list-style-type: none">• L1H12ZI (SOS6000)• L1H12ZJ (SWS6000) 6.1 with the following PTFs: <ul style="list-style-type: none">• L1H12ZN (SOS6100)• L1H12ZO (SWS6100) 6.2
LSMs	9310 and SL8500 at LMU Compat Level 13
protocol	FICON
VTSSs	VSM4 and VSM5
media	T10000T1 (full capacity 500GB cartridge)

ExLM Explorer PC Hardware and Software Requirements

The ExLM 6.2 Explorer PC component is optional. If you install and use Explorer, verify the PC hardware requirements in Table 6 and the software requirements in Table 7.

Table 6. ExLM Explorer PC Hardware Requirements

Hardware Description	Minimum Requirement	Recommended System
System unit	90 MHz Pentium system unit with mouse	166 MHz Pentium system unit with mouse
Memory	32 MB (64 MB Windows 2000 or Windows XP)	64 MB (128 with Windows 2000, Windows Server 2003, or Windows XP)
Free disk space	10 MB	10 MB
CD-ROM drive	present	present
Monitor	800 x 600 pixels with small fonts	1024 x 768 pixels with 256 colors
network card	present	present

Table 7. ExLM Explorer PC Software Requirements

Software Description	Minimum Requirement
Windowing System	Microsoft Windows 2000 (with SP3 or above) Windows Server 2003, or Windows XP (with SP2 or above), or later, 100% compatible version
PC TCP/IP for communications between Explorer and the ExLM mainframe component	The 32-bit WINSOCK TCP/IP supplied with the Windows versions listed above is required to enable the GUI to transfer configuration data between the workstation and the mainframe. Customers can also transfer configuration data using other facilities (external to the GUI) if desired.

Chapter 2. Installing ExLM 6.2 from Tape

This chapter tells how to install ExLM 6.2 from tape. Use the checklist in Table 8 to help plan and verify completion of ExLM installation from tape.

Note: Make sure you complete all the tasks in Chapter 1, “Preparing to Install ExLM 6.2” on page 1 *before* you start installing ExLM 6.2 from tape!

Table 8. ExLM Tape Installation Summary and Checklist

Task	✓ to Verify Completion
“Verify Installation Materials” on page 10	
“Load the ExLM SAMPLIB Data Set” on page 11	
“Define and Set Up the EXLM SMP/E CSI Environment ” on page 9	
“RECEIVE the ExLM 6.2 FMID” on page 13	
“APPLY CHECK the ExLM 6.2 FMID” on page 13	
“APPLY the ExLM 6.2 FMID” on page 13	
“ACCEPT the ExLM 6.2 FMID” on page 13	
“Install Current ExLM 6.2 Corrective Maintenance” on page 14	

Note: Installing ExLM 6.2 will delete previous versions of ExLM if installed in the same SMP/E zones. StorageTek recommends that you install EXLM Release 6.2 in a new SMP/E CSI as described in the LCMINSTB SAMPLIB member.

Verify Installation Materials

Before installing ExLM, make sure you have the following installation materials:

- ExLM 6.2 Base Tape
- ExLM 6.2 current Corrective Maintenance tape

Note:

- Contact StorageTek Software Support for information about additional PTFs that might be required before installing ExLM. See the *Requesting Help from Software Support* guide for information about contacting StorageTek for technical support and for requesting changes to software products.
- StorageTek recommends that you use the MVS Program Binder when installing ExLM base function and maintenance. Failure to do so may result in link-editing errors.

ExLM 6.2 Base Tape Contents

ExLM 6.2 is distributed on a standard label data cartridge with a volume serial number of LM6200. The distribution tape is in SMP/E RELFILE format and includes the files described in Table 9.

Table 9. ExLM 6.2 Base Tape Contents

File	Data Set Name	Description
1	SMPMCS	SMP/E control statements
2	SLM6200.F1	SLM6200 JCLIN
3	SLM6200.F2	SLM6200 load modules
4	SLM6200.F3	ExLM SAMPLIB in IEBCOPY unload format; for more information, see Appendix A, “ExLM SAMPLIB Members” on page 31.
5	SLM6200.F4	ExLM Explorer install executables in IEBCOPY unload format.

ExLM FMID

The ExLM 6.2 software is packaged in standard SMP/E format. The ExLM 6.2 installation tape includes the following FMID:

SLM6200

ExLM 6.2 load modules

Load the ExLM SAMPLIB Data Set

The ExLM 6.2 SAMPLIB (LCM.LCMSAMP) is SMP/E controlled. You can, however, use the JCL in Figure 3 to load a temporary copy of LCM.LCMSAMP from file 4 of the distribution tape to help install ExLM.

LCM.LCMSAMP contains sample JCL members for the ExLM 6.2 installation; see Appendix A, “ExLM SAMPLIB Members” on page 31 for more information.

```
//LCMINSTA JOB
//*****
//*
//* JOB:   LCMINSTA
//*
//* PURPOSE: LOAD A TEMPORARY COPY OF LCM.LCMSAMP INTO DATA SET
//*          LCM.TEMP.ALCMSAMP SO THAT IT CAN BE USED TO ASSIST
//*          IN THE INSTALLATION OF EXLM.
//*
//* CHANGES: O COMPLETE THE JOB STATEMENT.
//*           O AS CODED, LCM.TEMP.ALCMSAMP WILL BE PLACED ON A
//*           STORAGE VOLUME. CHANGE THIS IF DESIRED.
//*
//*****
//S1   EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//ALCMSAMP DD DSN=LCM.TEMP.ALCMSAMP,
//        SPACE=(3120,(250,150,10)),
//        DCB=(RECFM=FB,LRECL=80,BLKSIZE=3120),
//        DISP=(NEW,CATLG,DELETE),UNIT=SYSALLDA
//RELFILE3 DD DSN=SLM6200.F3,DISP=OLD,
//        VOL=SER=LM6200,UNIT=3480,LABEL=(4,SL)
//SYSIN  DD *
COPY   INDD=RELFILE3 ,OUTDD=ALCMSAMP
```

Figure 3. JCL to Unload the ExLM 6.2 SAMPLIB

Note: ExLM installs using standard SMP/E logic and processes. In this section, you load SAMPLIB members into a temporary PDS. These SAMPLIB members include JCL samples for each of the installation steps. You can copy and modify these JCL samples to meet your needs.

Define and Set Up the EXLM SMP/E CSI Environment

You must define and initialize the EXLM62 SMP/E CSI. SAMPLIB member LCMINSTB provides basic JCL and SMP/E control statements for this task. Modify LCMINSTB per the comments and then submit it as a batch job.

Note:

- Ensure that the SMP/E DSSPACE parameter, which specifies the amount of space to be allocated to temporary RELFILE data sets, is set to at least (50,25,50).
- You **must** install EXLM with SMP/E Version 3 Release 1 or higher. For installation from CD-ROM, you **must** have access to USS with “make” and “write” permissions.
- Sun recommends ACCEPTing all EXLM base product components.
- If you install EXLM 6.2 in an SMP/E CSI containing a previous release of ExLM, the previous release is deleted from the target and distribution zones and all SYSMODS for the previous release are deleted from the SMP/E CSI. Sun recommends that you install EXLM 6.2 in a new SMP/E CSI. Products from other vendors should **not** be installed in the same SMP/E CSI as EXLM.

RECEIVE the ExLM 6.2 FMID

Perform the SMP/E RECEIVE of FMID SLM6200 from the Base Tape. SAMPLIB member LCMRCV provides basic JCL and SMP/E control statements for this task.

APPLY CHECK the ExLM 6.2 FMID

Perform the SMP/E APPLY CHECK of the SLM6200 FMID, fix any problems that occur, and rerun the APPLY CHECK until it succeeds. SAMPLB member LCMAPC provides the basic JCL and SMP/E control statements for this task.

APPLY the ExLM 6.2 FMID

Perform the SMP/E APPLY of the SLM6200 FMID. SAMPLIB member LCMAPL provides the basic JCL and SMP/E control statements for this task. When the apply is successful, the SMP/E target libraries contain the data sets described in Table 10.

Table 10. SMP/E Target Library Contents

Data Set Name	Contents
LCM.LCMLINK	Load modules required for ExLM 6.2 execution
LCM.LCMSAMP	Sample material for use with ExLM 6.2.
LCM.LCMGUI	PC workstation self-extracting install executable for ExLM Explorer.

ACCEPT the ExLM 6.2 FMID

Perform the SMP/E ACCEPT of the SLM6200 FMID. This provides the base for future installation of corrective maintenance. SAMPLB member LCMACC provides the basic JCL and SMP/E control statements for this task. When the accept is successful, the SMP/E distribution libraries contain the data sets described in Table 11.

Table 11. SMP/E Distribution Library Contents

Data Set Name	Contents
LCM.ALCMLINK	ExLM 6.2 load modules
LCM.ALCMSAMP	Sample material for use with ExLM 6.2.
LCM.ALICMGUI	PC workstation self-extracting install executable for ExLM Explorer.

Install Current ExLM 6.2 Corrective Maintenance

Perform the SMP/E RECEIVE, APPLY CHECK and APPLY of the accumulated corrective maintenance file (SMPPFTIN) and accumulated external hold data file (HOLDDATA) from the corrective service media shipped with ExLM 6.2 base media **or, preferably, using current PTF and HOLDDATA files for the SLM6200 FMID downloaded from the StorageTek Customer Resource Center website.** SAMPLB member LCMRPTF provides an example of the basic JCL and SMP/E control statements for the receive portion of this task.

Chapter 3. Installing ExLM 6.2 from CD-ROM

This chapter tells how to install ExLM 6.2 from CD-ROM. Use the checklist in Table 12 to help plan and verify completion of ExLM installation from CD-ROM.

Note: Make sure you complete all the tasks in Chapter 1, “Preparing to Install ExLM 6.2” on page 1 *before* you start installing ExLM 6.2 from CD-ROM!

Table 12. ExLM CD-ROM Installation Summary and Checklist

Task	✓ to Verify Completion
“Verify Installation Materials ” on page 16	
“Unload the EXLM Base CD-ROM ” on page 17	
“TSO RECEIVE the LOADSAMP.xmit file ” on page 19	
“RECEIVE the EXLM FMID from USS ” on page 20	
“APPLY CHECK the ExLM 6.2 FMID” on page 15	
“APPLY the ExLM 6.2 FMID” on page 15	
“ACCEPT the ExLM 6.2 FMID” on page 15	
“Unload the Current ExLM 6.2 Corrective Maintenance CD-ROM ” on page 21	
“Install Current ExLM 6.2 Corrective Maintenance” on page 22	

Note: Installing ExLM 6.2 will delete previous versions of ExLM if installed in the same SMP/E zones. StorageTek recommends that you install EXLM Release 6.2 in a new SMP/E CSI as described in the LCMINSTB SAMPLIB member.

Verify Installation Materials

Before installing ExLM, make sure you have the following installation materials:

- EXLM 6.2 base CD-ROM
- ExLM 6.2 current corrective maintenance CD-ROM

Note:

- Contact StorageTek Software Support for information about additional PTFs that might be required before installing ExLM. See the *Requesting Help from Software Support* guide for information about contacting StorageTek for technical support and for requesting changes to software products.
- StorageTek recommends that you use the MVS Program Binder when installing ExLM base function and maintenance. Failure to do so may result in link-editing errors.

EXLM Installation CD-ROM Base Contents

EXLM Release 6.2 is distributed on a single standard CD-ROM. Table 13 lists the files included on this CD-ROM.

Table 13. ExLM 6.2 Installation CD-ROM Contents

File	Data Set Name	Description
1	Documents	The installation documentation for installing EXLM from a CD-ROM
2	EXLM62.gimzip	File containing the complete EXLM product minus samples.
3	EXLM62.pax	Compressed file containing the complete EXLM product suite except ExLM samples are included.
4	Samples	Unix version of EXLM Samples
5	Samples.win	Window version of EXLM Samples (with CR/LF)
6	Start Here.html	HTML starting point to the documents folder

ExLM FMID

The ExLM 6.2 software is packaged in standard SMP/E format. The ExLM 6.2 installation tape includes the following FMID:

SLM6200

ExLM 6.2 load modules

Unload the EXLM Base CD-ROM

The following sections tell how to unload the ExLM base CD-ROM:

- “FTP EXLM62.pax to USS ”
- “Unpack the EXLM62.pax file” on page 18

FTP EXLM62.pax to USS

The EXLM62.pax file contains the ExLM Base and sample JCL.

FTP EXLM62.pax to USS:

1. **Create a USS directory to receive the EXLM62.pax file:**
 - a. Establish network connectivity between your desktop PC and a MVS host and USS.
 - b. Logon to USS by entering OMVS from the TSO READY prompt or enter TSO OMVS from an ISPF command line.
 - c. Use the mkdir command to create a new directory. For example, the mkdir SMPNTS command creates a new directory named SMPNTS. Use the pwd command to show the complete USS path to SMPNTS. Note this path information, which you need in the SMP/E RECEIVE batch job NTSEXLM.
4. **Insert the ExLM 6.2 installation CD into the CD-ROM drive.**
5. **Open a DOS window and cd to your CD-ROM.**
6. **Transfer the EXLM62.pax file, in binary, from the CD to the USS directory using the following FTP commands:**

```
ftp mvshost
user
password
cd /uss/userid/SMPNTS
binary
put EXLM62.pax
quit
```
7. **Watch for FTP messages to ensure the successful transfer of EXLM62.pax to the new directory.**

Note: You can also logon on to USS, change directory (cd) to the SMPNTS directory and then enter the ls command from within the SMPNTS directory. The EXLM62.pax file should be listed.

Unpack the EXLM62.pax file

This section tells how to unpack the EXLM62.pax file.

unpack the EXLM62.pax file:

1. **Log on to USS by entering TSO OMVS from a ISPF command line or OMVS from the TSO READY prompt.**

If you are still logged on to USS and within the SMPNTS directory, go to Step 3. Otherwise, continue with Step 2.

2. **Change directory (cd) to the SMPNTS directory.**

3. **To unpack the EXLM62.pax file.**

```
pax -rv <EXLM62.pax
```

This file will unpack in place and will create the files and directories shown in Table 14 and Table 15.

Table 14. Contents of the EXLM62.gimzip directory

File	Data Set Name	Description
1	GIMPAF.XML	Product attribute file
2	GIMPAF.XSL	Style sheet
3	SMPHOLD	Directory containing SMP/E HOLD data
4	SMPPTFIN	Directory containing SMP/E PTFIN file for each product
5	SMPRELF	Directory containing SMP/E REL files for each product

Table 15. Contents of SMPNTS after unpacking the EXLM62.pax file

File	Data Set Name	Description
1	LOADSAMP.xmit	EXLM Samples formatted for input into the TSO Receive
2	EXLM62.gimzip	Directory Input to the SMP/E Receive process
3	EXLM62.pax	Compressed file FTPed from the install CD

TSO RECEIVE the LOADSAMP.xmit file

After you unpack the EXLM62.pax file, copy the LOADSAMP.xmit file to an MVS PDS data set using the JCL shown in Figure 4.

```
//Your jobcard
/* Turn caps off for this member. Enter CAPS OFF on the command line.
/* Use this JCL member to unload ExLM sample JCL members from USS.
/* You must first FTP the EXLM62.pax file to USS and unpack the file
/* before running this job.
/*
//ALLOCJCL EXEC PGM=IEFBR14,REGION=4000K
//DD1 DD DSN=hlq.EXLM62.SAMPLES,
// DISP=(NEW,CATLG),UNIT=XXXX,VOL=SER=XXXXXX,
// DCB=(LRECL=80,BLKSIZE=27920,RECFM=FB),
// SPACE=(TRK,(9,4,10))
/*
//UNLOAD EXEC PGM=IKJEFT01,COND=(0,NE)
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSTSIN DD DATA

ALLOCATE DD(LOADDD) PATHOPTS(ORDONLY) FILEDATA(BINARY) +
PATH('/uss/userid/SMPNTS/LOADSAMP.xmit')
RECEIVE INDD(LOADDD)

        DSNAME('hlq.EXLM62.SAMPLES) SHR
```

Figure 4. JCL to Copy LOADSAMP.xmit to a PDS

Defining and Setting up the EXLM SMP/E CSI Environment

You must define and initialize the EXLM62 SMP/E CSI. A sample batch job is in hlq.EXLM62.SAMPLES (LCMINSTB). Follow the instructions included in the comments of ALLOCCSI and submit the batch job to define and initialize the SMP/E CSI.

Defining and initializing the SMP/E CSI includes the following steps:

1. Define the required SMP/E data sets.
2. Define the Consolidated Software Inventory (CSI) data set that contains the SMP/E global, target, and distribution zones for this release.
3. Initialize the SMP/E CSI.
4. Add zones, options, utilities, and DDDEF entries to the SMP/E CSI.

RECEIVE the EXLM FMID from USS

Perform the SMP/E RECEIVE of FMID SLM6200 from USS. SAMPLIB member NTSEXLM provides basic JCL and SMP/E control statements for this task. Before submitting this JCL, modify the following:

- SET NTS= to point to your USS path.
- NTSEXLM to point to EXLM62.gimzip.
- The control statements following the SELECT DD statement allow for the selection of the ExLM FMID as input to the SMP/E RECEIVE process. Do the following to change the job to select this FMID:
 - Delete the SYSMODS ./* use this to select all functions */ statement.
 - Delete the /* statement.
 - Delete the //SELECT DD * Select statement for specific FMIDs. statement.

Completing the SMP/E Installation

Complete the installation of the base product using SMP/E APPLYCHECK, APPLY, and ACCEPT steps as described starting on “APPLY CHECK the ExLM 6.2 FMID” on page 13.

Unload the Current ExLM 6.2 Corrective Maintenance CD-ROM

Use the following procedure to unload COVER Letters, HOLDDATA, PTFs, and SUMMARY data directly from your CD-ROM drive to your MVS host.

Unload the Current ExLM 6.2 Corrective Maintenance CD-ROM:

1. Insert the ExLM 6.2 installation CD into the CD-ROM drive.
2. Open a DOS window and cd to your CD-ROM.
3. Transfer the EXLM62.pax file, in binary, from the CD to the USS directory using the following FTP commands:

```
FTP mvshost User Password quote site QUOTESOVERRIDE quote site  
DATASETMODE
```

```
quote site CYLINDERS **** quote site filetype=SEQ ****
```

```
quote site blksize=0
```

```
****
```

```
quote site recfm=FB
```

```
****
```

```
quote site lrecl=80
```

```
****
```

```
binary
```

```
mput exlm62.cvr
```

```
mput exlm62.hdd
```

```
mput exlm62.ptf
```

```
mput exlm62.smm
```

```
quit
```

Note: The quote site statements can be eliminated if the files are pre-allocated.

Executing this sequence of FTP commands copies the following CD-ROM files...

- exlm62.cvr
- exlm62.hdd
- exlm62.ptf
- exlm62.smm

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

- *hlq*.EXLM62.CVR
- *hlq*.EXLM62.HDD
- *hlq*.EXLM62.PTF
- *hlq*.EXLM62.SMM

Current ExLM 6.2 Corrective Maintenance CD-ROM Contents

EXLM 6.2 Current Corrective Maintenance is distributed on a single standard CD-ROM. Table 16 lists the files included on this CD-ROM.

Table 16. Current ExLM 6.2 Corrective Maintenance CD-ROM Content

File	Data Set Name	Description
1	exlm62.cvr	Cover letters
2	exlm62.hdd	HOLDDATA
3	exlm62.ptf	Cumulative Service PTFs
4	exlm62.smm	Summary

Install Current ExLM 6.2 Corrective Maintenance

Perform the SMP/E RECEIVE, APPLYCHECK and APPLY of the accumulated corrective maintenance file (SMPPFTIN) and accumulated external hold data file (HOLDDATA) from the corrective service media shipped with ExLM 6.2 base media **or, preferably, using current PTF and HOLDDATA files for the SLM6200 FMID downloaded from the StorageTek Customer Resource Center website.** SAMPLB member LCMRPTF provides an example of the basic JCL and SMP/E control statements for the receive portion of this task.

Chapter 4. Performing Post-Installation Tasks

This chapter tells how complete ExLM installation. Use the checklist in Table 17 to help plan and verify completion of your ExLM post-installation tasks.

Table 17. ExLM Post-Installation Checklist

Task	✓ to Verify Completion
“APF Authorize the ExLM 6.2 LINKLIB”	
“Verify the Installation” on page 24	
“Install and Configure ExLM Agent (Optional)” on page 25	
“Install ExLM Explorer (Optional)” on page 29	

APF Authorize the ExLM 6.2 LINKLIB



Caution: Don't forget to do this step, because failing to do so will prevent ExLM from executing!

APF authorize the ExLM LINKLIB by adding it to the ExLM authorized program list (PARMLIB member IEAAPF_{xx}) on your system. For example, if your ExLM LINKLIB is LCM.LCMLINK and is located on volume USR001, SAMPLIB member LCMAPFXX will add this LINKLIB to the authorized program list.

If your installation uses SYS1.PARMLIB member PROG00 to establish APF authorization, use the following statement:

```
APFADD
  DSNAME(LCM.LCMLINK)
  VOLUME(USR001)
```

Use your security system to protect the ExLM LINKLIB by allowing read access to only personnel authorized to manage your ACS.

Exclude the HSC CDSs from EDI

If using the Enhanced Data Integrity (EDI) feature of Z/OS 1.5 or above, all copies of the HSC CDSs must be excluded from EDI processing. For more information, see *DFSMS: Using Data Sets* for the installed version(s) or Z/OS for appropriate entries in the IFGPSEDI PARMLIB member.

Verify the Installation

You can customize ExLM SAMPLIB member LCMRUN and run it to verify ExLM 6.2 installation. LCMRUN runs ExLM with the CHECK option, which prevents ExLM from making any changes to the LSM, the HSC database, or the tape management system files. For more information about the CHECK option, see *ExLM User's Guide*. LCMRUN runs with ExLM default management techniques and default reports.

Before invoking LCMRUN, modify the job as follows:

- Provide the data set name of your system's TMC or VMF.
- Verify that the data set names on the STEPLIB DD statement for ExLM and HSC are correct for your system.
- Supply the name of the parameter file to use for verification. Select the appropriate verification parameter file from the provided SAMPLIB member described Table 18.
- StorageTek recommends that you allocate **at least** 32 MB of region to run effectively. Some larger environments may require a larger region size to be specified.

Table 18. SAMPLIB Member Parameter Files

Tape Management System	SAMPLIB Member
CA-1	LCMVCA1
CA-TLMS	LCMVTLMS
DFSMSrmm	LCMVRMM
TMS CUSTOM	LCMVCUST
TMS COMMON	LCMVCOMM
none	LCMVNTMS

Install and Configure ExLM Agent (Optional)

This section tells how to install and configure ExLM Agent. The ExLM Agent is an MVS started task that can access TMS information from multiple MVS hosts without shared DASD. The base ExLM program executes on the same MVS host as HSC and communicates with an ExLM Agent on each host via TCP/IP. Each instance of an ExLM Agent operates as a started task on the MVS host it is serving.

Install ExLM base as described this guide *before* you install and configure ExLM Agent. For information on ExLM Agent commands, see *ExLM User's Guide*.



Caution: The host running the ExLM batch job **must be** at the same version as the hosts running the ExLM Agent. ExLM Agent on hosts with ExLM 4.0 installed are incompatible with batch jobs run on hosts with ExLM 5.0.0 and above installed.

Use the following procedure to install and configure ExLM Agent.

install and configure ExLM Agent:

1. **For OS/390 eNetwork Communications Server V2R6 or higher and above, ensure that the OpenEdition root file system is installed.**

The ExLM Agent requires the OpenEdition root file installed in full-function mode. See *IBM Open Edition Planning Guide* for more information about creating an HFS root file, modifying the BPXPRMxx PARMLIB member, and creating the root file system directories.

2. **Create the ExLM Agent access codes data set by customizing SAMPLIB member LCMCODES.**

Ensure that the access codes data set specifies a list of hosts authorized to retrieve information for each defined access code. After creating the ExLM Agent access code data set, populate the data set with a string of random characters that will be used for the access codes. Also ensure that the access codes data set specifies a list of hosts authorized to retrieve information for each defined access code. An exact copy of this data set should exist on both the ExLM Agent host and the host running the ExLM batch job. The ExLM batch job will use the access codes when communicating with the ExLM Agent. If the access codes being used on both sides do not match, access to the remote TMS information will be denied by the ExLM Agent.

3. **Use your system security software (such as RACF, ACF-2, or TopSecret) to give READ access to referenced data sets to the user ID associated with an ExLM Agent started task.**

These data sets include the ExLM Agent access codes data set you created in Step 2 and any TMCs that the ExLM Agent accesses.

Also use your system security software to give:

- WRITE access to the access codes data set to personnel who maintain access codes.
- READ access to the access codes data set to ExLM jobs.

4. **Create an ExLM Agent started task procedure by customizing SAMPLIB member LCMAGENT.**

For more information, see “ExLM Agent Started Task Parameters” on page 28.

Note:

- You must specify the security code data set (DDname LCMSECUR) in the JCL for both the ExLM Agent started task and the batch job for base ExLM. For example:
//LCMSECUR DD DSN=<agent access code file>,DISP=SHR
 - If you use the custom TMS module interface, include the correct load module containing the custom TMS module in the STEPLIB ddname.
 - When starting more than one Agent in a shared environment, each Agent should have its own uniquely named dump dataset.
5. **Install the agent started task procedure in your system PROCLIB.**
 6. **To connect the ExLM batch job to an ExLM Agent, do one of the following:**
 - Specify the following TMS statement parameters in the ExLM job:
 - For CA1, use TMCDSN to identify the data set name of the ExLM Agent's TMS catalog.
 - For TLMS, use VMFDSN to identify the data set name of the ExLM Agent's TMS catalog.
 - For all other TMS types, use DSN to identify the data set name of the ExLM Agent's TMS catalog.
 - In Explorer, use the Access tab of the TMS property sheet.
 7. **If you specified a value other than the default port (3002) in Step 6, insert a service entry (“exlm-agent”) for this port number in your TCP/IP ETC.SERVICES file.**

For example:

```
exlm-agent 4096/tcp # ExLM Agent
```

8. Optionally, you can reserve the ExLM Agent's TCP/IP port for the ExLM Agent's exclusive use with the PORT statement in your TCP/IP configuration profile.

StorageTek recommends doing so to avoid port conflicts. In the following example, the first column is the PORT number:

```
PORT
7 UDP MISC SERV ; Miscellaneous Server
.
3002 TCP LCMAGENT ; ExLM Agent ***** ADD THIS LINE **
```

Note: You must restart your TCP/IP address space or use the OBEYFILE command or the MVS VARY TCPIP command to force a running TCP/IP address space to reserve the added port number.

9. Optionally, you can have the TCP/IP address space monitor the ExLM Agent.

StorageTek recommends doing so, because this configuration causes the ExLM Agent started task to automatically start or stop when the TCP/IP address space starts or stops. In addition, the TCP/IP address space periodically queries the state of ExLM Agent, and restarts it if not active. You can set up this configuration in the AUTOLOG statement in the TCP/IP configuration profile.

For example:

```
AUTOLOG
FTP SERVE ; FTP Server
LP SERVE ; LPD Server
NAME SRV ; Domain Name Server
NC PROUT ; NCPROUTE Server
PORT MAP ; Portmap Server
ROUTE D ; Routed Server
RX SERVE ; Remote Execution Server
SMTP ; SMTP Server
SNMP D ; SNMP Agent Server
SNMP QE ; SNMP Client
MISC SERV ; Miscellaneous Server
LCMAGENT ; ExLM Agent *****ADD THIS LINE *****
ENDAUTOLOG
```

ExLM Agent Started Task Parameters

The following list describes the execution parameters you can specify in the ExLM Agent started task JCL via PARM=' ' on the EXEC statement.

PORT

specifies the port number for client connections. The default is 3002.

UPPERCASE

specifies that messages are in uppercase.

MODLEVEL

displays the service level for the ExLM Agent.

MAXCONN

specifies the maximum number of concurrent client connections. The default is 50.

LOG(SYSTEM|DD)

specifies the routing for messages.

SYSTEM

routes messages to the system console.

DD

routes messages to the ddname LWSLOG (the default).

SWAPpable

specifies that the ExLM Agent is swappable during idle periods. The default is non-swappable.

OPTFILE('filename') or OPTFILE(DD:ddname)

Specifies a fully qualified MVS dataset or MVS ddname that contains execution parameters for the ExLM Agent. This statement allows you to bypass the JCL parameter length limitations when coding a large number of execution parameters. If coding a ddname instead of dataset name, you must prefix it with "DD:". For example: OPTFILE(DD:LCMOPTS).

Install ExLM Explorer (Optional)

ExLM Explorer is provided in member LCMXPLR of the LCMGUI data set. Updates to the ExLM Explorer are distributed as PTFs that replace this member. You can determine the build level of ExLM Explorer that is installed on a workstation by viewing the “About ExLM Explorer” item in its Help menu.

update ExLM Explorer on a workstation:

1. **Install the ExLM PTF that contains the Explorer update on an MVS host running ExLM.**
2. **FTP a copy of the LCMXPLR member of the LCMGUI data set to each PC running Explorer and rename the member to EXLMINST.EXE as follows:**

```
ftp <host name>
User: <userid>
Password: <password>
ftp> binary
ftp> get 'LCM.LCMGUI(LCMXPLR)' EXLMINST.EXE
ftp> quit
```

3. **On each workstation run EXLMINST.EXE and follow the instructions in the setup wizard.**

Allocate the Explorer Configuration File Library

ExLM Explorer produces a configuration file that must reside on the MVS host used to execute ExLM runs. The library used to store configuration files should be a PDS. Allocation information can be found in the SAMPLIB member LCMINSTH.

Install the JCL Procedure for Jobs Submitted by the Explorer

ExLM Explorer 6.2 can submit ExLM batch jobs. This function requires that you place a cataloged procedure to invoke ExLM in SYS1.PROCLIB or another suitable location such as a private JCLLIB. SAMPLIB member LCMEXEC contains a sample JCL procedure.

Note: The JCL contained in the cataloged procedure in SYS1.PROCLIB (LCMEXEC) must contain the same DD statements that are necessary to run the batch ExLM application. This includes, but is not limited to, such DD statements as LCMTMSDB (tape management system catalog), LCMSECUR (ExLM Agent access code file), and, if you are using the SMC 6.2 UUI, the SMCLINK DD card (points to the SMC 6.2 libraries).

Appendix A. ExLM SAMPLIB Members

The ExLM SAMPLIB member LCMINDEX contains the members described in Table 19.

Table 19. ExLM SAMPLIB Members

Member	Description
LCMAACC	Sample control statement for SMP/E ACCEPT.
LCMAGENT	Sample ExLM Agent started task procedure.
LCMAPC	Sample control statement for SMP/E APPLY CHECK.
LCMAPFXX	Sample ExLM authorized library list entry.
LCMAPL	Sample control statement for SMP/E APPLY.
LCMCGI	Sample CGI script for TMS OPEN host.
LCMCHGS	Cumulative documentation changes for the release as PTFs are applied
LCMCODES	Sample ExLM Agent access code file.
LCMEJECT	Sample JCL procedure for the ExLM eject utility.
LCMEEXEC	<p>Sample JCL procedure for use with jobs submitted by the ExLM Explorer, as well as other ExLM jobs submitted by an installation. LCMEEXEC pre-defines certain items that are common to all ExLM runs at the installation.</p> <p>For example, if ExLM is installed in a library that is not included in the linklist or LPA list, LCMEEXEC should have a STEPLIB pointing to the production ExLM load library.</p> <p>DD statements that are dynamically allocated by most ExLM jobs or are different from one ExLM job to the next should not be in LCMEEXEC.</p>
LCMINSTx	<p>Sample jobs that can be used to install ExLM in its own set of SMP/E zones and data sets.</p> <p>Note: Use of the LCMINSTx jobs is optional, and they are provided for user convenience in performing the necessary SMP/E functions associated with the installation of this version of ExLM. Care should be taken that neither the documented SMP/E installation steps nor local installation procedures are bypassed when using these jobs.</p>
LCMKST	<p>Documents the key values for each extended field. LCMKST contains a list of equates for all extended fields. All extended fields will have a key greater than 0 associated with them. For more information, see “Guidelines for Producing TMCI Records” in Appendix C. Data Areas of <i>ExLM User’s Guide</i>.</p>
LCMMTHF	<p>Macro for defining the layout of a method file record. For more information, see “METHODFILE Record” in Appendix C. Data Areas of <i>ExLM User’s Guide</i>.</p>
LCMRVCV	Sample control statement for SMP/E RECEIVE.
LCMRPTF	Sample JCL to receive PTFs from a PUT tape.

Table 19. ExLM SAMPLIB Members

LCMRUN	Sample JCL to run ExLM.
LCMSMPE	Sample SMP/E JCL procedure used with LCMINSTx jobs.
LCMTIDR	Sample TMS Interface Definition Response xml document.
LCMTMCI	Macro for defining the layout of an ExLM TMC information record.
LCMTTIR	Sample TMS Tape Information Response xml document.
LCMUX01P	Macro for defining the parameter list used by the ExLM TMS CUSTOM interface. For more information, see “TMS CUSTOM Interface Module Parameters” in Chapter 3 of the <i>User’s Guide</i> .
LCMUX01S	Sample assembler program for use with the ExLM TMS CUSTOM interface.
LCMVAUTM	ExLM parameter file for IVP with Automedia.
LCMVCA1	ExLM parameter file for IVP with CA-1.
LCMVCOMM	ExLM parameter file for IVP with common-format TMS extract files.
LCMVCONT	ExLM parameter file for IVP with Control-T
LCMVCUST	ExLM parameter file for IVP with ExLM custom tape management system interfaces (a tape management system vendor supplied user exit is required).
LCMVNTMS	ExLM parameter file for IVP without a TMS.
LCMVRMM	ExLM parameter file for IVP with DFSMSrmm.
LCMVTLMS	ExLM parameter file for IVP with CA-TLMS.
LCMXDMD	ExLM parameter file for demand (or shift) run.
LCMXDVLD	ExLM parameter file for vaulting run with special data sets.
LCMXDVLS	ExLM parameter file for vaulting run with multiple subpools.
LCMXDVLT	ExLM parameter file for daily vaulting run
LCMXRAC1	ExLM parameter file for a post action report.
LCMXREJ1	ExLM parameter file for an eject report that includes data set name.
LCMXREJ2	ExLM parameter file for a report of volumes ejected for need by data set name.
LCMXREN1	ExLM parameter file for a report of volumes on a Pull List that were not already in an LSM.
LCMXRMT1	ExLM parameter file for a summary report with counts of several methods.
LCMXRSM1	ExLM parameter file for an LSM summary report.
LCMXRSR1	ExLM parameter file for a non-LSM scratch list report.

Table 19. ExLM SAMPLIB Members

LCMXRVR1	ExLM parameter file for a report of all volumes with HSC and TMS information.
LCMXSYNC	ExLM parameter file for scratch synchronization
LCMXTMUL	Sample source for the built in REPORT MULTIPLE template.
LCMXTPHY	Sample source for the built in REPORT PHYSICAL template.
LCMXTVIR	Sample source for the built in REPORT VIRTUAL template.

