

License Management System

User/Reference Guide

Release 2.0



COMPUWARE®

Please direct questions about License Management System
or comments on this document to:

LMS Technical Support
Compuware Corporation
One Campus Martius
Detroit, MI 48226-5099
1-800-538-7822

Outside the USA and Canada, please contact
your local Compuware office or agent.

This document and the product referenced in it are subject to the following legends:

Copyright 1999-2004 Compuware Corporation. All rights reserved. Unpublished rights reserved under the Copyright Laws of the United States.

U.S. GOVERNMENT RIGHTS-Use, duplication, or disclosure by the U.S. Government is subject to restrictions as set forth in Compuware Corporation license agreement and as provided in DFARS 227.7202-1(a) and 227.7202-3(a) (1995), DFARS 252.227-7013(c)(1)(ii) (OCT 1988), FAR 12.212(a) (1995), FAR 52.227-19, or FAR 52.227-14 (ALT III), as applicable. Compuware Corporation.

This product contains confidential information and trade secrets of Compuware Corporation. Use, disclosure, or reproduction is prohibited without the prior express written permission of Compuware Corporation. Access is limited to authorized users. Use of this product is subject to the terms and conditions of the user's License Agreement with Compuware Corporation.

IBM® and RACF® are registered trademarks of International Business Machines Corporation.

CA-ACF2® and CA-TOP SECRET® are registered trademarks of Computer Associates International, Inc.

Adobe® Acrobat® Reader copyright © 1987-2003 Adobe Systems Incorporated. All rights reserved. Adobe and Acrobat are trademarks of Adobe Systems Incorporated.

All other company and product names are trademarks or registered trademarks of their respective owners.

Contents

Figures	vii
Summary of Changes	ix
License Management System 2.0	ix
Introduction	xi
What's In Each Chapter?	xi
Screen Conventions	xi
Product Title	xii
Short Message	xii
COMMAND or OPTION Field	xii
SCROLL Field	xii
Screen Title	xii
Function Key Default Definitions	xii
Online Help	xiii
Related Publications	xiii
FrontLine Support Website	xiii
Online Documentation	xiii
World Wide Web	xiii
Online Documentation	xiv
World Wide Web	xiv
Getting Help	xv
Chapter 1. Environment and Concepts Overview	1-1
Environment Overview	1-1
Operating Environment	1-1
LMS Runtime Environment	1-1
Concepts Overview	1-2
The License Management System Process	1-2
Gathering Information	1-2
Receiving the License Certificate	1-2
Installing the License Management System	1-2
The License Management System Functions	1-3
Administering License Management	1-3
Establishing the License Management System Runtime Subsystem	1-3
Validating Product Access Requests during Product Use	1-3
Maintaining Data Integrity	1-4
The License Management System Components	1-4
Certificate Files	1-4
License Certificates	1-4
License File	1-4
License Administration Utility	1-6
LMSINIT – License Management Subsystem Initialization Program	1-6
Your Compuware Product	1-6
Chapter 2. The License Certificate	2-1
Obtaining Your License Certificate	2-1
License Certificate Import Checklist	2-2
Chapter 3. License Administration Utility (LAU)	3-1
Accessing the License Administration Utility	3-1

License Management System Primary Options	3-1
Option 0 – System Parameters	3-2
License File Selection Screen	3-3
Selecting a License File	3-4
Adding a License File	3-4
Removing a License File	3-4
Delete/Define or Initialize License File	3-5
Delete/Define JCL	3-6
Confirm Submission Screen	3-8
Maintain Nodes Table Screen	3-8
Option 1 – Browse & Option 2 – Update	3-10
Updateable Fields	3-10
Browse License File Screen	3-10
Update License File Screen	3-10
Selecting a Site	3-12
Deleting a Site	3-13
Selecting a Product	3-15
Deleting a Product	3-17
Viewing CPUs/LPARs	3-18
Selecting an Option	3-19
Option 3 – IMPORT	3-20
IMPORT License Certificate Screen	3-21
Importing a License Certificate	3-21
Edit Import JCL	3-23
Confirm Submission Screen	3-24
Import Reports	3-24
Preview Mode	3-24
Update Mode	3-25
Option 4 – EXPORT	3-27
EXPORT License Certificates Screen	3-27
EXPORT Dataset Specification Screen	3-28
Exporting a License File	3-29
Export Report	3-30
Option 5 – Reports	3-32
Report Selection Screen	3-32
Generating a Report	3-33
SMF Report Data Source Screen	3-34
Sample Reports	3-35
License Verification Report	3-35
Current Cache Contents Report	3-38
License File Contents Report	3-38
SMF License Records Report	3-39
Product Activity Report	3-39
Activity Extract	3-40
Option 6 – Disaster	3-41
Enable DISASTER Site Screen	3-41
Enabling Disaster Processing	3-42
Option 7 – Emergency Password	3-43
Enable/Disable EMERGENCY Password Screen	3-43
Selecting a Site	3-44
Entering Emergency Password	3-44
Removing Emergency Password	3-45
Chapter 4. Creating Runtime Environment	4-1
LMSINIT	4-1
Subsystem Names	4-3
The Default Subsystem	4-3

- Choosing a Subsystem 4-4
- The DD DUMMY JCL Statement 4-5
- LMSINIT Functions 4-5
- LMSINIT Datasets 4-6
 - Checkpoint Dataset 4-6
 - Input Datasets 4-6
 - SYSIN 4-6
 - Output Datasets 4-6
 - SYSPRINT 4-6
- LMSINIT Parameters 4-8
 - General Rules for Coding 4-13
 - FUNCTION 4-13
 - SITE 4-14
 - SUBSYSTEM_ID 4-14
 - DEFAULT 4-15
 - CHKPT_DSNAME 4-15
 - SERVICE_BUREAU 4-15
 - SMF_ID 4-15
 - GTF_ID 4-16
 - LANGUAGE 4-16
 - EMERGENCY 4-16
 - CHKPT_VOLSER 4-16
 - CHKPT_STORCLASS, CHKPT_DATACLASS, CHKPT_MGMTCLASS . 4-16
 - SITE_WARNING 4-16
 - SUCCESS_CMD, WARNING_CMD, and ERROR_CMD 4-17
 - Optional E-mail Parameters 4-17
 - EMAIL 4-18
 - TCPIP_NAME 4-18
 - TCPIP_USERID 4-19
- License Files 4-20
 - Checking for Multiple License Files 4-21
 - Executing LMSINIT to Create the LMS Subsystem 4-21
 - Shipping License Files to Remote Locations 4-21
 - 14-Day Grace Period 4-21
 - Checkpoint File 4-22
 - Using LMSINIT SYSIN to Define the Checkpoint Dataset 4-22
 - Using JCL to Define the Checkpoint Dataset 4-23
 - Checkpoint Dataset Security 4-23
- Executing LMSINIT 4-24
 - Sample Batch JCL 4-24
 - Sample Started Task JCL 4-24
 - How to Check if LMSINIT was Run 4-25
- Chapter 5. License File Maintenance Batch Jobs 5-1**
 - Batch Facility Jobs 5-1
 - LMBMAINT – Update User-Maintained License File Fields 5-2
 - Overview of LMBMAINT 5-2
 - Executing LMBMAINT 5-3
 - SYSIN Control Statements 5-3
 - Example of a SYSIN File 5-4
 - SYSIN Statement Groups 5-4
 - The Customer Group 5-4
 - Customer Group Operands 5-5
 - The Site Group 5-5
 - Site Group Operands 5-5
 - The Product/Version Group 5-6
 - Product/Version Group Operands 5-6

Appendix A. License Certificate Data Elements	A-1
Overview	A-1
Record Types	A-1
Keywords	A-1
Customer Record	A-1
Other Record Types	A-2
License Certificate Envelope (The Certificate File)	A-2
Customer Record [CUSTOMER]	A-3
Site Record [SITE]	A-4
Product Record [PRODUCT]	A-4
Option Record [OPTION]	A-6
CPU Record [CPU]	A-8
LPAR Record [LPAR]	A-9
Certificate Example	A-10
Appendix B. SMF Log	B-1
Process Flow	B-1
SMF Capture	B-1
IFASMFDP	B-2
LMSMFMT0	B-3
LMSMFMTI	B-4
Appendix C. GTF Trace	C-1
Preparing GTF to Gather LMS Data	C-1
Starting GTF	C-2
Stopping GTF	C-2
Sending GTF Data for Analysis	C-3
Preparing GTF Data for FTP Transmission	C-3
Offloading GTF Data for Magnetic Tape	C-3
Appendix D. FTP to Send File to Compuware	D-1
Appendix E. E-Mail Notification Facility	E-1
Overview	E-1
Notification Frequency	E-1
Notification Options	E-1
Testing the E-Mail Notification Facility	E-2
Examples	E-2
System Requirements	E-3
Appendix F. Service Bureau Environment	F-1
Environment Definition	F-1
License Management System in a Service Bureau	F-1
License Files at the Service Bureau	F-1
LMSINIT at a Service Bureau	F-1
The Run Time Environment	F-2
Appendix G. Compuware Product Codes	G-1
Glossary	GL-1
Index	I-1

Figures

3-1.	Compuware Main License Management Screen	3-1
3-2.	Parameters Option Screen	3-2
3-3.	License File Selection Screen	3-3
3-4.	Delete/Define and Initialize License File Screen	3-5
3-5.	JES2 Edit Delete/Define JCL Screen	3-6
3-6.	JES3 Edit Delete/Define JCL Screen	3-7
3-7.	Confirm Submission Screen	3-8
3-8.	Maintain Nodes Table Screen	3-8
3-9.	Change Description in Maintain Nodes Table Screen	3-9
3-10.	Browse License File Screen	3-10
3-11.	Update License File Screen	3-11
3-12.	Site Specific Update/Browse License File Screen	3-12
3-13.	Delete Site Record Confirmation Screen	3-14
3-14.	Product-Specific Update License File Screen	3-15
3-15.	Delete Product Record Confirmation Screen	3-17
3-16.	Product-Specific Browse License File Screen with CPU/LPAR List	3-18
3-17.	Option-Specific Browse License File Screen	3-19
3-18.	Import License Certification Screen	3-21
3-19.	Second Import License Certificate Screen	3-22
3-20.	Edit Import JCL Screen	3-23
3-21.	Confirm Submission Screen	3-24
3-22.	License File Import Report - Preview Mode	3-25
3-23.	License File Import Report - Update Mode	3-26
3-24.	Export License Certificates Screen	3-27
3-25.	Export License Certificates Screen for Dataset Specification	3-28
3-26.	Export License Certificate Screen - Jobcard	3-30
3-27.	License File Export Report	3-31
3-28.	Report Selection Screen	3-32
3-29.	SMF Report Data Source Screen	3-34
3-30.	License Verification Report (Default)	3-35
3-31.	License Verification Report (Verbose)	3-37
3-32.	Current Cache Contents Report	3-38
3-33.	License File Contents Report	3-38
3-34.	SMF License Records Report	3-39
3-35.	Product Activity Report	3-40
3-36.	Enable Disaster Site Screen	3-41
3-37.	Enable Disaster Site Screen with Disaster Site Processing Specified	3-42
3-38.	Enable/Disable EMERGENCY Password	3-43
3-39.	Site-Specific Emergency Password Screen	3-44
4-1.	SYSPRINT Report from LMSINIT. Example of an LMSINIT Execution.	4-7
4-2.	Sample LMSINIT Parameters Dataset	4-8
4-3.	LMSINIT Batch JCL. Sample JCL to Execute LMSINIT as a Batch job	4-24
4-4.	LMSINIT PROC. Sample JCL to Execute LMSINIT as a Started Task	4-24
5-1.	JCL to Invoke LMBMAINT	5-3
5-2.	Example of a SYSIN File	5-4
A-1.	License Certificate Example	A-10
B-1.	IFASMFDP EXECUTION -- Example of SMF Extract Processing	B-3
B-2.	LMSFMTO EXECUTION -- Example of Extract Dataset Creation	B-3
B-3.	LMSFMTO EXECUTION -- Example of Extract Dataset Creation	B-4
C-1.	Sample JCL for GTF Trace Output Dataset Allocation	C-1
C-2.	Sample Procedure to Invoke JCL	C-1
C-3.	Sample JCL to Reformat the Data	C-3
D-1.	FTP Session Example	D-2
E-1.	E-Mail Example of a License Checkout Failure	E-2
E-2.	E-Mail Example of an Abnormal Termination of License Management System	E-2

Summary of Changes

This section includes brief descriptions of enhancements made to License Management System (LMS) 2.0.

License Management System 2.0

License Management System Release 2.0 includes the following enhancements:

- Enforcement of new Compuware license models on z/900 logical servers executing the z/OS operating system.
- New 14-day grace period allowing Compuware products to run when a logical server exceeds licensed limit or when the name of the logical server doesn't match the name licensed.
- New 14-day grace period allowing Compuware products to run on a new or upgraded CPU that is not yet licensed.
- New/redesigned License Management System reports.
See "Option 5 – Reports" on page 3-32.

Introduction

This manual describes the Compuware License Management System and its use. It includes information on the License Administration Utility and error messages. The Centralized Licensing Facility is described in the *License Management System Centralized Licensing Facility User/Reference Guide*. Please refer to that guide when referencing information about the license certificate for the License Management System, the LMS client/server implementation, or the ISPF interface on the LMS server.

What's In Each Chapter?

The following list briefly describes the contents of each chapter in this manual:

- Chapter 1, “Environment and Concepts Overview” provides an overview of the License Management System and the conceptual and environmental background that helps you determine how to administer and deploy your License Files.
- Chapter 2, “The License Certificate” describes selected procedures that you should follow to administer your Compuware License Management System.
- Chapter 3, “License Administration Utility (LAU)” describes the ISPF application named the *License Administration Utility* used to manage your License Certificates.
- Chapter 4, “Creating Runtime Environment” describes the Compuware license management program that you execute to establish your runtime License Management Subsystems and License File Cache.
- Chapter 5, “License File Maintenance Batch Jobs” provides information on changing your License File with batch jobs rather than the License Administration Utility (LAU).
- Appendix A, “License Certificate Data Elements” describes the data elements of the License Certificate.
- Appendix B, “SMF Log” describes the SMF logging feature available in the License Management System.
- Appendix C, “GTF Trace” describes how to prepare GTF to gather LMS data.
- Appendix D, “FTP to Send File to Compuware” describes how to use FTP to transmit files.
- Appendix E, “E-Mail Notification Facility” describes the automatic notification feature.
- Appendix F, “Service Bureau Environment” describes how the License Management System can be implemented in a service bureau environment.
- Appendix G, “Compuware Product Codes” lists Compuware products and their product codes.

Screen Conventions

This section presents information that is common throughout the License Administration Utility screens.

Product Title

The product title is displayed at the top center of each License Management System screen.

Short Message

The Short Message area is in the right corner of the first line.

COMMAND or OPTION Field

The COMMAND field (command line) is shown on all screens. On some screens, it is named the OPTION field. Use this field to enter primary commands or option selections for License Management System. Primary commands are valid for all screens.

- HELP** Provides tutorial information about the License Management System screens and options.
- END** Takes you to the previous screen.
- EXIT** Takes you to the previous screen.
- UP** Scrolls the display up by the specified amount.
- DOWN** Scrolls the display down by the specified amount.

SCROLL Field

The SCROLL field lets you set the scroll value for screens that permit scrolling. The following positioning commands are used with this field: DOWN and UP. The following values are valid for the SCROLL field:

- CSR** Scrolls based on the cursor's location.
- HALF** Scrolls the display a half screen.
- MAX** Scrolls to the beginning or end of a data area.
- PAGE** Scrolls the display a full screen.
- nnnn** Scrolls *nnnn* lines. Valid entry is from 1 to 9999.

Screen Title

The screen title is usually displayed below the COMMAND or OPTION line. It consists of a short description of the screen's function.

Function Key Default Definitions

The default PF key settings are the following:

Key	Function	Description
PF1/PF13	HELP	Provides tutorial information about the License Management System screens and options.
PF2/PF14	SPLIT	Splits the screen in two. Use this key to run two sessions simultaneously.
PF3/PF15	END	Takes you to the previous screen.

PF9/PF21	SWAP	Switches back and forth between two screens when working in split screen mode.
PF12/PF24	CANCEL	Cancels the current transaction and returns to the previous screen.

You may reset the values assigned to the PF keys with the ISPF command **KEYS**. If your terminal has 24 PF keys, keys 13 through 24 are set to match the values assigned to 1 through 12. You can use the ISPF command **PFSHOW TAILOR** to change the display of valid PF key settings at the bottom of each screen.

Online Help

Online help is available for each function and option in the License Management System providing detailed information on the function, and explaining error conditions. You can access tutorials from any License Management System screen by pressing PF1 (HELP).

Related Publications

The *Enterprise Common Components Installation and Customization Guide* details the installation and customization of the License Management System and other Compuware Common Components.

The *Centralized Licensing Facility User/Reference Guide* details information about the license certificate, including upgrade instructions. It also discusses specifics about client/server processin and ISPF interfaces as they relate to the License Management System and other Compuware software.

For information on your specific Compuware product and its dependency upon the License Management System, refer to that product's technical documentation.

FrontLine Support Website

Access online technical support for Compuware products via our FrontLine support website. View or download documentation, frequently asked questions, and product fixes, or directly e-mail Compuware with questions or comments. To access FrontLine, you must first register and obtain a password at <http://frontline.compuware.com>.

Online Documentation

Documentation for this product is provided on CD-ROM in several electronic formats.

- PDF files can be viewed with the free Adobe Acrobat Reader, available at <http://www.adobe.com>.
- HTML files can be viewed with any standard Web browser.
- BookManager softcopy files can be viewed with any version of IBM BookManager READ or the IBM Softcopy Reader. To learn more about BookManager or download the free Softcopy Reader, go to <http://www.ibm.com>.

World Wide Web

Compuware's site on the World Wide Web provides information about Compuware and its products. The address is <http://www.compuware.com>.

Online Documentation

Documentation for this product is provided on CD-ROM in several electronic formats. PDF files can be viewed with the free Adobe Acrobat Reader, available at <http://www.adobe.com>. HTML files can be viewed with any standard web browser.

World Wide Web

Compuware's site on the World Wide Web provides information about Compuware and its products. The address is <http://www.compuware.com>.

Getting Help

At Compuware, we strive to make our products and documentation the best in the industry. Feedback from our customers helps us to maintain our quality standards.

Questions about the License Management System or comments on this document should be directed to:

Compuware Corporation
One Campus Martius
Detroit, MI 48226-5099
1-800-538-7822

If problems arise, consult this manual or the License Management System technical support representative at your site. If problems persist, please obtain the following information before calling Compuware. This information helps us to efficiently determine the cause of the problem.

1. Obtain your client number and write it in the space below.
Client No. _____
2. If you are experiencing an error message during use of the License Administration Utility, enter **HELP** for an extended explanation of the error.
3. If you are getting a batch error message from License Management System, save the JCL and output.
4. Identify the License Management System release.
5. Determine the product function being used and the sequence of events leading up to the problem.
6. If files are involved, determine the file characteristics.
7. Generate reports with Option 5 of the License Administration Utility that reflect the current status of the License File in use and the current License File Cache in your License Management System runtime environment.
8. Record any ISPF/PDF error messages or operating system messages. If an abend occurs, it is very important that you record the abend and any screen information and save all related dumps.
9. Determine the versions of current operating system components that may have an impact on the problem.

Compuware recommends that you enable the automatic e-mail notification feature (refer to Appendix E, "E-Mail Notification Facility") to expedite your problem resolution.

Chapter 1.

Environment and Concepts Overview

This chapter presents the information required to create your License Management environment. It should be reviewed prior to proceeding with the creation and deployment of your License File(s). After reading this chapter, you should be prepared to set up your License Management System (LMS) to meet your organization's needs. Should you have any questions after reviewing this chapter, contact Compuware (see "Getting Help" on page xv).

Environment Overview

Operating Environment

The License Management System operates under IBM MVS/ESA Release 4.3 and higher, and all OS/390 and z/OS releases.

LMS Runtime Environment

To achieve correct access to your Compuware products, you must establish a License Management System Runtime Subsystem for each operating system image upon which Compuware products execute. To run more than one LMS subsystem on one image, you must use the Subsystem Specification feature of the LMS. For more information regarding LMS subsystem names and selecting a subsystem, please refer to "SUBSYSTEM_ID" on page 4-14.

After receiving your License Certificates, use the LAU to import them to the appropriate License File. See also "License File" on page 1-4 and "License File Deployment" on page 1-5. You may validate the contents of your License File by browsing it with the License Administration Utility (LAU) (see "Option 1 – Browse & Option 2 – Update" on page 3-10), as well as by running the License File Contents Report against each file to which you have imported new License Certificates (see "Option 5 – Reports" on page 3-32).

After the License Certificates have been imported into a License File, you are ready to run LMSINIT to establish your LMS runtime environment (see also "LMSINIT" on page 4-1). You must establish this environment for each operating system image running Compuware products. LMSINIT initializes the subsystem and constructs the License Cache against which runtime product access requests are made.

To validate the contents of the LMS subsystem cache, run the Current Cache Contents report from the LAU (see "Option 5 – Reports" on page 3-32). This report lists each product in the cache. After you validate your License Management System environment set up and install your Compuware product, you can run your Compuware product.

From this point on, your use of the License Management System is transparent to the product. The product requests execution permissions for itself and for each of its licensed options. After it has received these permissions from LMS, the product executes. If these permissions are not granted by LMS, the product does not execute and you must determine the reason for the denial and take appropriate action. Only a change in your environment (such as a CPU upgrade, receipt of a new software release, or the receipt of a new software product) requires you to update your License File.

Concepts Overview

Compuware provides the License Management System (LMS) to help manage access to Compuware's products. The License Management System includes several small components that together allow you to establish, maintain, diagnose, and upgrade your access to the Compuware products licensed by your enterprise.

The License Management System Process

The license management process begins when you acquire a Compuware product through a license agreement, trial agreement, or beta agreement.

Gathering Information

Compuware obtains the relevant information for license management from you at the time of the agreement. Your organization supplies information such as name, the sites and CPUs for which the product has been licensed. Information about the Compuware product licensed, such as product name, product release number, and options licensed, is obtained from your Compuware representative.

Receiving the License Certificate

Upon the completion of an agreement, Compuware creates a License Certificate representing a portion of the information in your agreement. The License Certificate is used by the License Management System to provide access to Compuware products. The License Certificate is *not* your license agreement. You are responsible for abiding by your license agreement. Although this is not the role of the License Management System, the License Management System can help you in that effort.

The License Certificate, the License Management System, and the Compuware product are delivered to you by Compuware. Typically, you receive the License Certificate by electronic mail. However, other methods could be employed, if necessary.

Installing the License Management System

When you receive the License Management System for the first time at your enterprise, you install the License Management System software. Then you set up your License Management System environment, import your License Certificate into a License File, activate the License Management Subsystem, and install your Compuware product. From this point forward, your access to the Compuware product occurs transparently as you use the product.

You do not have to use the License Administration Utility again until you acquire another Compuware product, receive another release of the product you have licensed, or some other license agreement activity occurs. Activities, such as the following, are examples of events that could cause you to use the License Administration Utility after the initial install of the Compuware product.

- Obtaining a new release of the product under the terms of your software maintenance.
- Adding new products through additional license agreements.
- Amending your agreement to include new options.
- Changing the CPUs licensed in your original agreement.

The License Management System Functions

The License Management System comprises four basic functions.

Administering License Management

You create and maintain your License File using the License Administration Utility (LAU) installed with your License Management Software. After you receive License Certificates for Compuware products, your organization's License Administrator must use the LAU to **import** the License Certificates into the License File. Additional features of the LAU assist in the maintenance of your License Files. In addition to browsing the License Certificates in your License File, you may run a number of administrative reports from the LAU. These reports reveal the contents of your License File from a number of perspectives, allowing you to determine the state of the License Certificate for any particular Compuware product release.

Depending on the requirements of your organization, you may have more than one License File. Each License File can be centrally administered from the License Administration Utility. See also "License File Deployment" on page 1-5 for more information. Most installations, however, have only one license file, and license certificates for all Compuware products reside in this single license file. Even multiple releases of the same product can reside in the same file (e.g., Abend-AID Releases 9.2 and 9.3).

The License File (as referenced here) is a VSAM KSDS that is read by the program LMSINIT (see Chapter 4, "Creating Runtime Environment"). Some customers have a need to deploy their License File to remote data processing centers. We support these customers by providing the ability for LMSINIT to read a sequential dataset as well as the VSAM license file. You must create this sequential dataset by running an IDCAMS REPRO against the License File. The sequential dataset created by IDCAMS can be read directly by LMSINIT at your remote sites. This facility removes the requirement that you transport the VSAM file, itself, to the remote centers.

Establishing the License Management System Runtime Subsystem

You use the License File(s) created and maintained by the License Administration Utility as input to a program that establishes your Compuware LMS runtime environment. This program is named LMSINIT. LMSINIT is the License Management System program that reads the License File¹ and constructs the License Cache and License Management System subsystem against which Compuware product runtime license access requests are later made.

Important: You must re-establish your runtime License Management Subsystem at each IPL and whenever you make updates to your License File that must be made available on your operating systems.

Validating Product Access Requests during Product Use

Your access to your Compuware products is validated when you use your Compuware products. The Compuware product makes a request of the License Management System to determine if your site has a valid License Certificate for the product release. The requests are made by the product at various times during its execution depending on the product's needs. The Compuware product accesses the License Management System subsystem established, request License File information and act upon the information. If the License Certificate information is valid, users of the product proceed with their use of the product without disruption. Any abnormal License Management event detected is reported to the product's user and may optionally be reported by e-mail to your

1. LMSINIT can read more than one License File if you are an organization that administers Compuware product access for more than one Compuware customer. It can also read sequential copies of License Files created by IDCAMS REPRO.

organization's License Administrator (see also Appendix E, "E-Mail Notification Facility"). Optionally, these events may also be recorded in SMF Logging.

Maintaining Data Integrity

Your License Management System software provides safeguards to prevent the inadvertent use of invalid data. You may choose to browse your License Certificates, described in the following section, but you must not modify the contents of a License Certificate. Should you ever have reason to question the data in a License Certificate, after a visual scan of your Certificate File, please contact Compuware's Worldwide License Management Department.

The License Management System Components

The following components make up the License Management System.

Certificate Files

Certificate Files contain one or more License Certificates for Compuware product(s) pending import into a License File. They are also called Import Files. They may be delivered by Compuware, or they may have been created by you through a License Administration Utility Export process. Certificate Files always include a Customer License Certificate Record, one or more unique Site License Certificate Records, and Product, Option, and CPU License Certificates Records depending on your license agreements.

You may choose to retain your Certificate Files for your reference after they have been imported with the LAU. Compuware provides no automated facilities to help you retain your Certificate Files.

License Certificates

License Certificates are English-like readable electronic records that contain a portion of the information from your license agreement for a product release's use at a particular site. They are delivered from Compuware. Appendix A, "License Certificate Data Elements" provides a description of the information contained in the License Certificate. License Certificates are created by Compuware's Worldwide License Management Department. Once at your organization, License Certificates must be imported into your License File. An export of the License File contains all of the License Certificates in your existing License File for one or all sites.

For any particular site in your organization, one License Certificate per Compuware product release exists within the License File. Should a change be required to a particular product release's License Certificate, a new License Certificate is delivered that replaces the prior License Certificate for that product release for that site. This new License Certificate must be imported into your License File. Compuware recommends that you create a backup of the License File prior to performing the Import function. At the time of the import, upon your update approval, the new License Certificate for a product release for a site replaces the existing License Certificate information in your License File.

License File

The License File is the dataset containing imported License Certificate information for all licensed releases of Compuware products.¹ This file must exist on storage accessible by each CPU upon which a Compuware product is installed. The License Management System runtime environment is established by running the LMSINIT program, which reads the License File and places it in virtual storage. LMSINIT must be run upon each

1. Your organization may have Compuware product releases delivered prior to the releases that use the License Management System. These prior releases are not reflected in your License file. Refer to that product release's documentation if you have any questions regarding product access.

system where a Compuware product resides. LMSINIT is discussed further in “LMSINIT – License Management Subsystem Initialization Program” on page 1-6.

LMSINIT can read the VSAM License File or it can read a sequential copy of the License File created by an IDCAMS REPRO job.

The License Management System is designed to use a single License File for all Compuware product releases. The use of one file facilitates License Management during CPU upgrades or product release updates. The License Management System software, License Certificates, and their associated Compuware products, may be rolled out in a controlled, staged manner by using multiple License Files. An example of this is the creation of production, test, and quality assurance License Files. Under all circumstances, your organization’s License Administrator should control the allocation and use of the License Files. An uncontrolled proliferation of License Files could cause unnecessary confusion at a time when it is least desired, such as at the time of a CPU upgrade, a product release update, or when troubleshooting a product access problem.

License File Deployment

Depending on your organization’s software administration policies and procedures, you may follow one of two License File deployment methods.

Centralized Deployment

The License Management System provides for the existence of one enterprise License File for central administration and residence of License Certificates for all sites. This dataset is then exported or copied and placed on the storage devices necessary so that it is accessible by each system running Compuware products at each site.

In this deployment method, License Certificates would be administered at the central administration site, and the updated License File, in its entirety, would be distributed to the other sites. Although a copy of the centrally maintained License File could be placed at each site, the LAU should exist at each site. Then the License Administration Utility can create License Management System reports at the site to facilitate troubleshooting. In addition, the LAU should exist at each site to facilitate emergency updates to a License File and disaster recovery processing.

This License File copy that is distributed to your remote sites should be created by executing an IDCAMS REPRO job, which reads the VSAM License File and create a sequential copy of it. LMSINIT can read either the actual VSAM file or the sequential copy.

Note: To minimize virtual storage requirements, only the license certificates for the SITE of the runtime environment are loaded into the cache by LMSINIT.

Decentralized Deployment

You may have multiple unique site License Files for your organization. These site License Files may each be administered individually at one central site and then sent to the site for which the License Certificates are valid, or they may be administered individually at each local site. In either case, Compuware recommends that a copy of the License Administration Utility reside at each site since this would facilitate emergency updates to a file and disaster recovery. In addition, the site’s LAU can be used to create License Management System reports to facilitate troubleshooting at the site.

Tools also exist to provide creation of, and access to, License Files for more than one Compuware customer. You use these tools, if your organization is an independent service bureau, or if you provide third party information services to subsidiary companies. The use of Compuware products by third parties must be covered in your License Agreement. Refer to Appendix F, “Service Bureau Environment” for more information regarding your License Management System environment if this applies to you.

License Administration Utility

The License Administration Utility, or LAU, is the license administration control center for your organization's IT professional who has responsibility for the management of your access to Compuware products. The License Administration Utility is an ISPF application which enables the following:

- Creation of a License File.
- Import of License Certificates into a License File.
- Maintenance and export of a License File.
- Reporting and analysis of your License File and of the License Certificate information in virtual storage.

Your organization's License Administrator also sets up License Management System parameters and system operation options using the LAU.

Multiple Administrators

License administration may be performed by one or more professionals at your organization. If your organization has multiple License Administrators, Compuware recommends that they share the SPF tables that contain the License Management System information such as the License Files and Nodes identified in the LAU.

The License Administration Utility should reside at each site, even if your Licenses are centrally administered. It should be available to facilitate updates to your License File if required for emergency update or disaster recovery processing.

LMSINIT – License Management Subsystem Initialization Program

Your LMS runtime environment is established by executing a program named LMSINIT. LMSINIT, executed in batch JCL or as a started task, must be run once after each system IPL. It can also be run any time your organization makes updates to its License File that should be made available to the current users. The runtime system is an operating system subsystem that uses a cached virtual storage copy of the License File. This cache must be updated when new License Certificates are added to your License File to make the data available when Compuware products are run.

LMSINIT must be run on each system image in your organization where Compuware products run. Only the License Certificate information relevant to the site is read into virtual storage. All systems at a particular site use the same site identifier in LMSINIT.

The LMS subsystem and your Compuware product perform product access validation at runtime. The product requests access and the subsystem responds to the product using the contents of the cached License File.

LMSINIT accepts sequential files as input, as well as VSAM files, if you prefer, to facilitate distribution of license files to remote locations. See "Shipping License Files to Remote Locations" on page 4-21 for details.

Your Compuware Product

The Compuware product you licensed is delivered with information regarding its installation and operation. During product execution, it requests access from the License Management System subsystem. It is possible to have more than one License Management System subsystem because of a controlled, staged rollout of software in your organization. In this case, the product specifies a subsystem identifier to the License Management System to guarantee interaction with the intended subsystem. If no specific LMS subsystem is identified for the product, the designated default LMS subsystem is used.

Compatibility

The Compuware product releases must be compatible with the License Management System. The License Management System replaces the Customer Profile Utility that was part of each product. Product releases that still use the Customer Profile Utility are not compatible with the License Management System. Contact Compuware for information on how to update to a compatible product release.

Chapter 2.

The License Certificate

This chapter describes selected procedures that you should follow to administer your Compuware licenses successfully.

Obtaining Your License Certificate

Upon acquisition of a Compuware product, you also receive a license certificate for the product. A license certificate is delivered in each of the following situations:

- The first time you acquire the product.
- Upon delivery of another release of the product.
- Any time your license terms are modified.

In addition to the license certificates associated with your current license agreements, you may have interim license certificates with special temporary access information. These license certificates, which provide access for a limited duration, remedy a software license incompatibility situation that could arise when a change in your computing environment occurs prior to an addendum to the license agreement. You and your Compuware sales representative must report these situations to Compuware's Worldwide License Management department. The special temporary access license certificate is replaced with a license certificate associated with the addendum to the license agreement upon the agreement's completion.

Upon acquisition of your Compuware product, your organization is asked to supply an electronic mail (e-mail) ID. This ID is used as the recipient of the license certificate. If you do not want to receive your license certificate through e-mail, you may request that your license certificates be delivered through another method. Most commonly, the alternate delivery could be accomplished through one of the following:

- FTP site
- 1.44mb floppy disk
- ISO9001 CD

The license certificate, whether attached to your e-mail or delivered on other media, is in a file named `ENVxxxx.txt`. The file is delivered in simple ASCII text file format and must be translated to 80-byte EBCDIC character set format records when transferred to the mainframe. The resulting file on the mainframe is the file that you import into your License Management System.

If your organization or site has a designated License Management Administrator, Compuware can update your organization or site delivery method preference and related information in our records at your request. Doing so upon receipt of your first license certificate and any time the License Management Administrator changes, may accelerate the information gathering steps in future license certificate deliveries. Please contact Compuware's Worldwide License Management Department at the telephone number listed in "Getting Help" on page xvii to communicate your license certificate delivery preferences.

License Certificate Import Checklist

When you receive a license certificate, follow this procedure before installing a new product tape. If you print a copy of this checklist before starting the import procedure, it is easier to follow the procedures without jumping back and forth in the manual.

- _____ 1. Install your License Management System from the ECC tape that came with your Compuware product tape. Refer to the *Enterprise Common Components Installation and Customization Guide* for detailed instructions. This step is only necessary for a first-time installation or when upgrading your License Management System. The ECC tape may contain maintenance to LMS that can benefit you. You should apply any maintenance not previously applied to avoid unnecessary problems.
- _____ 2. Execute the CWLMA CLIST to access the License Administration Utility.
- _____ 3. Specify the Process Dataset Name (your License File) and Nodes (see "Option 0 – System Parameters" on page 3-2).
- _____ 4. Import the Certificate File (see "Option 3 – IMPORT" on page 3-20).
- _____ 5. Browse and update the License File (SMF logging, security dataset) as needed (see "Option 1 – Browse & Option 2 – Update" on page 3-10).
- _____ 6. Submit the JCL to execute LMSINIT for all applicable subsystems (see "LMSINIT" on page 4-1).
- _____ 7. Run the License Verification report for all subsystems (see "Option 5 – Reports" on page 3-32).
- _____ 8. Install the new product tape after the License Management System update (LMSINIT) completes successfully.
- _____ 9. Start and use the new product.
- _____ 10. Verify that the newly installed product can access all of its functions and licensed options.

Chapter 3.

License Administration Utility (LAU)

This chapter highlights the features of the License Administration Utility portion of the License Management System. The License Administration Utility represents your interface to the runtime License Management System (LMSINIT).

Accessing the License Administration Utility

Access the License Administration Utility by performing the following:

1. Under ISPF TSO, invoke the **CWLMA CLIST**.

The Compuware License Management Screen opens (Figure 3-1). The name of the currently selected License File is displayed under “Option 1 – Browse & Option 2 – Update” on page 3-10.

Note: If you have not already selected a License File, you are taken directly to the License File Selection screen (Figure 3-3 on page 3-3). There you can create or select a License File to process.

Figure 3-1. Compuware Main License Management Screen

```

----- Compuware License Management 02.00.00 -----
Option ==>

0) Parameters Specify System Parameters
1) Browse License File - TS0ID01.License.File
2) Update License File
3) IMPORT Import License Certificate
4) EXPORT Export License Certificate
5) Reports Run Reports

6) Disaster Enable Disaster Site
7) Emergency Emergency Password

X) Exit License Management

Copyright (c) 1999 Compuware Corporation. All Rights Reserved.
Unpublished rights reserved under the Copyright Laws of the United States.
Enter HELP for Copyright/Trade Secret Notice information.

```

License Management System Primary Options

Enter one of the option numbers to proceed, or enter X to exit License Management System.

The following options are available on the Compuware License Management main menu (Figure 3-1).

- Option 0** Use the Parameters option to specify parameters that affect the entire License Management System. See "Option 0 – System Parameters" on page 3-2.
- Option 1** Use the Browse option to view license file information regarding customer, product, and product options. See "Option 1 – Browse & Option 2 – Update" on page 3-10.
- Option 2** Use the UPDATE option to update the license file. See "Option 1 – Browse & Option 2 – Update" on page 3-10.
- Option 3** Use the IMPORT option to import a certificate file. See "Option 3 – IMPORT" on page 3-20.
- Option 4** Use the EXPORT option to export a license file to a certificate file. See "Option 4 – EXPORT" on page 3-27.
- Option 5** Use the Reports option to generate license reports. See "Option 5 – Reports" on page 3-32.
- Option 6** Use the Disaster option to activate disaster processing. See "Option 6 – Disaster" on page 3-41.
- Option 7** Use the Emergency Password option to activate emergency processing. See "Option 7 – Emergency Password" on page 3-43.

Option 0 – System Parameters

The Parameters option screen allows you to specify parameters specific to your License Management System installation (Figure 3-2).

Figure 3-2. Parameters Option Screen

```

----- Compuware License Management 02.00.00 -----
Option ==>

  1) Select   License File - TS0ID01.License.File
  2) Node    Specify System Nodes

  X) Exit    Return to previous panel

(C) Copyright 1998, Compuware Corp. All Rights Reserved.

```

Enter one of the following options to proceed:

- 1 Select:** displays the "License File Selection Screen" on page 3-3.
- 2 Node:** displays the "Maintain Nodes Table Screen" on page 3-8.
- X Exit:** returns to the previous panel.

License File Selection Screen

The License File Selection screen appears when you select 1 from the Parameters options screen (Figure 3-3) or when starting the License Management System without a previously selected license file. This screen allows you to select the license file for this session. You can also add or remove a license file from the list on the bottom half of the screen.

Compuware recommends that you keep a backup copy of your current License File.

Figure 3-3. License File Selection Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 2 of 2
Command ==>                                     SCROLL ==> PAGE

                                License File Selection

Current Selection: TS0ID01.License.File
Enter New DSN . . _____
                    (fully qualified without quotes)
Delete/Define . N (Y|N)

OR select below:-

Action      DSN                                     Added by
            TS0ID01.License.File                 TS0ID01  1998-06-17
            TS0ID01.License.File.Old             TS0ID02  1998-05-29
***** Bottom of data *****

```

Current Selection

Displays the currently selected license file. This field is blank if no license file has been selected.

Enter New DSN

Specify the fully qualified dataset name for a new license file to be added to the list. This dataset name must be entered without quotes and must be a VSAM file that is correctly formatted for a license file. Set Delete/Define to Y so that the License Management System generates the JCL to delete, define, and initialize the VSAM file for use as a license file.

Delete/Define

When you specify Y, the DSN you entered in the Enter New DSN field is deleted and the VSAM cluster and all of its related objects is reallocated and initialized in the correct format for a license file.

Action

Allows you to enter a line command to update the list of license files. Valid values are **S** (select this file to be the current file) and **D** (delete this file from the list).

DSN

Displays the license file names that have been added to the License Administration Utility.

Added by

Displays the ID of the person who added the corresponding license file and the date on which it was added.

Selecting a License File

To select a license file:

1. Type **S** in the Action field next to the file you want to use.
2. Press Enter.

The license file name appears in the Current Selection field.

3. Exit to the Parameters selection screen.

The selected license file is now also shown on the main screen next to the Browse option.

Note: The selected license file must be initialized before it can be used (see also “Delete/Define or Initialize License File” on page 3-5).

Adding a License File

To add a license file to the display list, perform the following:

1. Type the name of the file *without quotes* in the Enter New DSN field.
2. Set the Delete/Define field to **Y** only if the New DSN has not been initialized previously.
3. Press Enter.

If you set the Delete/Define field to **N**, the license file name appears in the DSN selection list in the bottom portion of the screen.

If you set the Delete/Define field to **Y**, you continue with “Delete/Define or Initialize License File” on page 3-5.

To select the newly added license file, perform the following:

1. Type **S** in the Action field next to the newly added file.
2. Press Enter.

The license file name appears in the Current Selection field.

3. Exit to the Parameters selection screen.

The selected license file is now also shown on the main screen next to the Browse option.

Removing a License File

To remove a license file from the display list, perform the following:

1. Type **D** in the Action field next to the file you want to remove.
2. Press Enter.

The license file name no longer appears in the DSN selection list in the bottom portion of the screen.

3. Exit to the Parameters selection screen.

Note: If the removed file was the Current Selection file, it remains the Current Selection file until another file is selected from the list.

Delete/Define or Initialize License File

Before a dataset can be used as a license file, it must be defined as a VSAM file and initialized. Perform the following:

1. Type the name of the file *without quotes* in the Enter New DSN field.
2. Set the Delete/Define field to **Y**.
3. Press Enter.

The Delete/Define and Initialize License File screen appears as shown in Figure 3-4.

4. Specify whether you want to edit the JCL (in the Edit JCL field) before submission.
5. Type the information for your jobcard.
6. Select the nodes on which you want the Delete/Define job to run.

Optionally, you can enter an **S** next to each node you want to select.

If no node is selected, the job is submitted without any specific routing. If you are running on only one node, do not make a selection here.

7. Press Enter.

If Edit JCL is **Y**, the Edit JCL screen appears. Otherwise, a confirmation screen appears.

8. Edit the JCL (only if you entered **Y** in the Edit JCL field). See Figure 3-5 on page 3-6 or Figure 3-6 on page 3-7 for a sample JCL screen.
 9. Enter the **END** command to exit the Edit screen.
 10. In the submission confirmation screen (see Figure 3-7 on page 3-8), enter **Y** to submit your delete/define job.
- Or enter **N** in the submission screen to cancel submission.

Upon completion of the Delete/Define job, you receive notification with completion and reason codes.

Figure 3-4. Delete/Define and Initialize License File Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 2 of 2
Command ==>                                SCROLL ==> PAGE
                Delete/Define and Initialize License File

New License File . : TS0ID01.License.File.New

Unit . . . . . : _____ (required for JES3 only)
Volume Serial . . : _____ (blank for system determined volume)

Edit JCL . . . . . Y (Y-Yes,N-No)

                Press END Key to skip this process

Jobcard:
//Job Card information line 1
//Job Card information line 2
//Job Card information line 3
//Job Card information line 4

Select      Node      Description

***** Bottom of data *****

```

Delete/Define JCL

When you specify YES in the Edit JCL field, one of the following two screens (Figure 3-5 or Figure 3-6 on page 3-7) lets you view and edit the JCL for defining and initializing a license file.

Figure 3-5. JES2 Edit Delete/Define JCL Screen

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          SYS98274.T095731.RA000.TS0ID01.R0111344          Columns0000100080
Command ==>                                           Scroll ==>CSR
***** Top of Data *****
000001 //Job Card information line 1
000002 //Job Card information line 2
000003 //Job Card information line 3
000004 //Job Card information line 4
000005 //*
000006 //*****
000007 //*          DELETE/DEFINE COMPUWARE LICENSE FILE
000008 //*
000009 //*          JCL GENERATED BY TS0ID01 ON 1998-11-13 AT 15:22
000010 //*****
000011 //*
000012 //LFDELDEF EXEC PGM=IDCAMS
000013 //*
000014 //SYSPRINT DD  SYSOUT=*
000015 //SYSIN   DD  *
000016 DELETE (TS0ID01.LICENSE.FILE.NEW)
000017 SET MAXCC = 0
000018 DEF CL(NAME(TS0ID01.LICENSE.FILE.NEW) -
000019     IXD -
000020     IMBED -
000021     SPEED -
000022     REPLICATE -
000023     UNIQUE -
000024     VOL(*) -
000025     CYL(1,1) -
000026     FREESPACE(30 20) -
000027     SHR(2,3) -
000028     RECSZ(96 400) -
000029     KEYS(53 0) -
000030     ) -
000031 DATA(NAME(TS0ID01.LICENSE.FILE.NEW.DATA) CISZ(8192)) -
000032 INDEX(NAME(TS0ID01.LICENSE.FILE.NEW.INDEX) CISZ(2048))
000033 /*
000034 /*
000035 //*****
000036 /*          INITIALIZE LICENSE FILE
000037 //*****
000038 /*
000039 //INITLF EXEC PGM=LMAINLF
000040 //STEPLIB DD DSN=LM.LMS100.S1.LOADLIB,DISP=SHR
000041 //        DD DSN=LM.LMS100.S2.LOADLIB,DISP=SHR
000042 /*
000043 //CWLFO000 DD DSN=TS0ID01.LICENSE.FILE.NEW,DISP=SHR,
000044 //          UNIT=(,DEFER)
000045 /*
000046 //SYSABEND DD SYSOUT=*,OUTLIM=999999
000047 //ABNLDUMP DD DUMMY
000048 /*
000049 //
***** ***** Bottom of Data *****

```

Figure 3-6. JES3 Edit Delete/Define JCL Screen

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          SYS98274.T095731.RA000.TS0ID01.R0111344          Columns0000100080
Command ==>                                         Scroll ==>CSR
***** Top of Data *****
000001 //Job Card information line 1
000002 //Job Card information line 2
000003 //Job Card information line 3
000004 //Job Card information line 4
000005 /**
000006 /*******
000007 /**          DELETE/DEFINE COMPUWARE LICENSE FILE
000008 /**
000009 /**          JCL GENERATED BY TS0ID01 ON 2001-03-13 AT 15:22
000010 /*******
000011 /**
000012 //LFDELDEF EXEC PGM=IDCAM5
000013 /**
000014 //SYSPRINT DD  SYSOUT=*
000015 //SYSIN DD *
000016 DELETE (TS0ID01.LICENSE.FILE.NEW)
000017 SET MAXCC = 0
000018 DEF CL(NAME(TS0ID01.LICENSE.FILE.NEW) -
000019     IXD -
000020     IMBED -
000021     SPEED -
000022     REPLICATE -
000023     UNIQUE -
000024     VOL(*) -
000025     CYL(1,1) -
000026     FREESPACE(30 20) -
000027     SHR(2,3) -
000028     RECSZ(96 400) -
000029     KEYS(53 0) -
000030     ) -
000031 DATA(NAME(TS0ID01.LICENSE.FILE.NEW.DATA) CISZ(8192)) -
000032 INDEX(NAME(TS0ID01.LICENSE.FILE.NEW.INDEX) CISZ(2048))
000033 /**
000034 /**
000035 /*******
000036 /**          INITIALIZE LICENSE FILE
000037 /*******
000038 /**
000039 //NULLSTEP EXEC PGM=IEFBR14,COND=(99,NE)
000040 //CWLFO000 DD  DISP=(,CATLG),SPACE(TRK,0),
000041 //            DSN=TS0ID01.LICENSE.FILE.NEW,DISP=SHR,
000042 //            UNIT=3390
000043 /**
000044 //INITLF EXEC PGM=LMAINLF
000045 //STEPLIB DD  DSN=LM.LMS100.S1.LOADLIB,DISP=SHR
000046 //            DD  DSN=LM.LMS100.S2.LOADLIB,DISP=SHR
000047 /**
000048 //CWLFO000 DD  DSN=TS0ID01.LICENSE.FILE.NEW,DISP=SHR,
000049 //            UNIT=(,DEFER)
000050 /**
000051 //SYSABEND DD  SYSOUT=*,OUTLIM=999999
000052 //ABNLDUMP DD  DUMMY
000053 /**
000054 /**
***** Bottom of Data *****

```

Confirm Submission Screen

The Confirm Submission Screen (Figure 3-7) appears whenever the LAU is ready to submit a job.

Figure 3-7. Confirm Submission Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 5 of 6
                                           SCROLL ==> PAGE
C  =====
      Confirm Submission
      Confirm Submission . ._(Y-Yes,N-No)          @ License File
N  =====

Edit JCL . . . . . Y .(Y-Yes,N-No)
***** Bottom of data *****
    
```

Maintain Nodes Table Screen

The Maintain Nodes Table screen appears when you select 2 from the Parameter Options screen (Figure 3-8). This screen allows you to add, change, or remove nodes from the nodes table.

You must specify each node on which you intend to establish an LMS runtime system to run Compuware products.

Figure 3-8. Maintain Nodes Table Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 6 of 6
Command ==>                               SCROLL ==> PAGE

                                Maintain Nodes Table

Enter new node . . . _____
Description . . . . _____

OR

(C-Change,D-Delete)
Action      Node      Description          Added by
-           Node1     Production          TS0ID01  2000-05-06  08:51
-           Node2     MVS Test1          TS0ID01  2000-05-05  10:44
-           Node3     QA Test            TS0ID01  2000-05-22  10:38
***** Bottom of data *****
    
```

Enter New Node

Specify the name of the network node you want to add to the display list. Node can consist of up to eight alphanumeric characters.

Enter the network node name of your installation's JES. This name identifies the local JES in a network of systems or system complexes being used for network job entry (NJE) tasks.

Description

Enter a brief description of the node, up to 20 alphanumeric characters.

Action

Allows you to enter a command to update a node. Valid values are **C** (change the Node Description) and **D** (delete the node from the list).

Node

Displays the existing node ID.

Description

Displays a description of the node.

Added by

Displays the ID of the person who added the corresponding node along with the date and time it was added.

Adding a Node

To add a new node, perform the following:

1. Type the name of the node to be created in the Enter New Node field (maximum of eight characters).
2. Type a brief description in the Description field (maximum of 20 characters).
3. Press Enter.

The new node appears in the selection list on the bottom portion of the screen.

Changing a Node

To change an existing node, perform the following:

1. Type **C** in the Action field next to the node you want to change.
2. Press Enter.
3. Edit the description of the node in the Description field of the Maintain Nodes Table screen (Figure 3-9).

Figure 3-9. Change Description in Maintain Nodes Table Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 6 of 6
Command ==>                                SCROLL ==> PAGE

                                Maintain Nodes Table

Node name . . . . . : Node3
Description . . . . . : QA Test System

```

4. Press Enter.

The updated node description appears in the selection list on the bottom portion of the screen.

Removing a Node

To remove an existing node from the list, perform the following:

1. Type **D** in the Action field next to the node you want to remove.
2. Press Enter.

The node is now removed from the list.

Option 1 – Browse & Option 2 – Update

The Browse option allows you to view license file information regarding customer, product, and product options. You must have a minimum of Read access to the VSAM License File dataset. You may need additional security permissions depending on your License Management installation options.

The Update option allows you to make changes to customer, product, and option data. You must have a minimum of Write access to the VSAM License File dataset. You may need additional security permissions depending on your License Management installation options.

The screens for Update and Browse are similar. The main difference is that Update screens allow you to change certain values while Browse screens are display only.

Updateable Fields

The updateable fields are

- Security DSN
- SMF Logging

Browse License File Screen

The Browse License File screen (Figure 3-10) appears when you select 1 from the Main Options screen. This screen allows you to view information in the currently selected license file that is specific to your customer site(s). For each defined site, you can select and view information specific to each product and option being licensed.

Figure 3-10. Browse License File Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>                                     SCROLL ==> PAGE

                                Browse License File
Process DSN . : TS01D01.License.File

Customer Name : Your Company Name
Number . . . . : 012345
Cert. Version : 01.00.01
Security DSN . :
SMF Logging . : Y
-----
Select Site Id Name
-      001   Headquarter Production
-      002   Application Development
***** Bottom of data *****

```

Because the fields in the Browse and Update options are the same, in most cases this chapter describes the Update options. See “Update License File Screen” below.

Update License File Screen

The Update License File screen (Figure 3-11 on page 3-11) appears when you select 2 from the Main Options screen. This screen updates information specific to your customer site. You can also select and update information specific to each product and option.

Figure 3-11. Update License File Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>

                                Update License File
Process DSN . : TS0ID01.License.File

Customer Name : COMPUWARE CORPORATION
Number . . . . : 111111
Cert. Version : 01.00.01
Security DSN . : _____
SMF Logging . : Y
-----
Select Site Id  Name
-----
-       001    Headquarter Production
-       002    Application Development
***** Bottom of data *****

```

Because the fields in the Browse and Update options are the same, in most cases this chapter describes the Update options.

Process DSN

Displays the name of the license file you are currently browsing. Use “Option 0 – System Parameters” on page 3-2 to select another license file.

Customer Name

Displays the name of the company licensed to use the Compuware product(s).

Number

Displays the Compuware-assigned customer number.

Cert. Version

Displays the version, release, and maintenance level of the License Management System that created the last certificate imported for this product option.

Security DSN

This is an optional dataset name used for security checking (e.g., RACF, ACF/2 or TOPSECRET) in place of the actual License File DSN (the one specified in the Process DSN field). If you leave Security DSN blank, then the actual license file is used for security checking.

SECURITY_DSN is a name that you select as the access entity that helps the License Management System determine if a specific user ID is allowed to check out product and option licenses defined on this certificate. This entity name is defined to the security system (RACF, ACF/2 or TOPSECRET) as if it were a real dataset name (i.e., it must conform to the rules of dataset naming conventions). When the License Management System is invoked to check out a license, a RACROUTE call is made to determine if the user ID from which the License Management System was called has read access to this pseudo dataset name. If so, license checkout proceeds. If not, checkout terminates with an appropriate RETCD/RSNCD combination. If you do not enter a Security DSN, the License Management System uses the real physical dataset name of the license file for the security check.

SMF Logging

Specify whether SMF records are to be logged for all products. This field provides the default for site- and product-specific Log fields. The lower level Site (Figure 3-12 on page 3-12) and Product Log fields (Figure 3-14 on page 3-15) override this general default.

Compuware may ask you to enable logging for troubleshooting purposes, or you may enable logging to gather your own Compuware product use information. See also “SMF License Records Report” on page 3-39.

You must be in **Option 2 Update** to change this field.

Select

Type **S** to select a site to browse or update. When selecting a site, a Browse/Update License File screen, specific to that site, is displayed (see “Selecting a Site”).

Type **D** to delete a Site record from the License File. You must import the valid License Certificate to reinstate a deleted Site record (see “Option 3 – IMPORT” on page 3-20).

You must be in **Option 2 Update** to enter the Delete command.

Site ID

Displays the Compuware-assigned ID code for a site.

Name

Displays the descriptive name for the corresponding site ID.

Selecting a Site

To select a site to browse or update, perform the following:

1. Type **S** in the Select field next to the site ID you want to select.
2. Press Enter.

Another Update/Browse License File screen opens displaying information specific to the site ID selected (Figure 3-12).

Figure 3-12. Site Specific Update/Browse License File Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>                                     SCROLL ==> PAGE

Update License File - TS0ID01.License.File

Site Name. . . : Application Development
Site Id . . . : 002                               Cert. Version : 01.00.01
Security DSN . : _____
SMF Logging . . : Y
Disaster . . . : Y          Started: 2000-11-16 End Date: 2000-11-23

-----
Select      Product      Version      Maint User      Date           Time
-----
-           ABENDAID    10.10       TS0ID01         2000-09-03    7:38:00
-           FAIDIMS     04.06       TS0ID01         2000-09-03    7:40:10
***** Bottom of data *****
    
```

Site Name

Displays the descriptive name of the site ID.

Site ID

Displays the site ID.

Security DSN

Displays the optional dataset name that is used for security checking.

You must be in **Option 2 Update** to change this field.

SMF Logging

Displays whether SMF records are to be logged for this **site**. This field overrides the default specified in the SMF Logging field of the “Browse License File Screen” on page 3-10 shown in Figure 3-10 on page 3-10.

You must be in **Option 2 Update** to change this field.

Cert. Version

Displays the version, release, and maintenance level of the Compuware license certificate generation system that created the last certificate imported for this site.

The display line below the SMF Logging field is normally blank and is reserved for special status Disaster or Emergency only.

Disaster

Displays only when the site is currently running in the Disaster mode.

Started/End Date

Displays the start and end date of the disaster mode (when applicable).

Emergency

Displays only when the site is currently running in the Emergency mode.

Started/End Date

Displays the start and end date of the emergency mode (when applicable).

Select

Type **S** to select a product to browse or update. Once you select a product, a Browse or Update License File screen specific to that product is displayed (Figure 3-14 on page 3-15).

Type **D** to delete a Product record from the License File. You must import a valid License Certificate to reinstate a deleted Product record (see “Option 3 – IMPORT” on page 3-20). See also “Deleting a Product” on page 3-17.

You must be in **Option 2 Update** to enter the **Delete** command.

Product/Version

Displays the Compuware product and version.

Maint User

Displays the ID of the user who last updated the certificate.

Date/Time

Displays the date and time the product was last updated.

Deleting a Site

To delete a Site record from the License File, perform the following:

1. Type **D** in the Select field next to the site ID you want to delete.
2. Press Enter.

The Delete Site from License File screen opens prompting you to confirm your deletion request (Figure 3-13 on page 3-14).

Figure 3-13. Delete Site Record Confirmation Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 1 of 1
Command ==>                                SCROLL ==> PAGE

Delete Site from - TS0ID01.License.File

Site Name. . . : Headquarter Production
Site Id . . . : 001                               Cert. Version : 01.00.01
Security DSN . :
SMF Logging . . :

Confirm DELETE of this SITE . . N (Y|N)

```

Site Name

Displays the descriptive name of the site ID to be deleted.

Site ID

Displays the site ID to be deleted.

Cert. Version

Displays the version, release, and maintenance level of the Compuware license certificate generation system that created the last certificate imported for this site.

Confirm DELETE of this SITE

Type **Y** to confirm your deletion request for the Site record.

Note: You must import the valid License Certificate to reinstate a deleted Site record (see “Option 3 – IMPORT” on page 3-20).

Type **N** to cancel your Site record deletion request.

Selecting a Product

To select a product to browse, perform the following:

1. Type **S** in the Select field next to the product you want to select (Figure 3-12 on page 3-12).
2. Press Enter.

Another Update/Browse License File screen opens displaying information specific to the product selected (Figure 3-14).

Figure 3-14. Product-Specific Update License File Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 1 of 1
Command ==>                                SCROLL ==> PAGE

      Update License File - TS0ID01.License.File

Site . . . : Application Development

Product . : ABENDAID   Version . : 10.10       Cert. Version : 01.00.01
Name . . . : ABENDAID
Cert. Id . : 000000000012                               Log . . . : N
Status . . : LONG_TERM
Auth . . . : 123456789ABCDEFO
Start Date : 2000-08-01
Sp. Start  : 2000-08-09 Sp. End . : 2000-08-19   TEMP

Y Display CPU/LPAR List for base product
-----
Select   Option      Version      Maint User   Date        Time
-----
_        ASSEMBLER   10.10              TS0ID01     2000-09-12  08:52:44
_        COBOL      10.10              TS0ID01     2000-09-03  07:39:40
***** Bottom of data *****

```

Site

Displays the descriptive name of the site ID.

Product

Displays the Compuware-assigned product code.

Version

Displays the product version and release level of the Compuware product being browsed.

Cert. Version

Displays the version, release, and maintenance level of the Compuware license certificate generation system that created the last certificate imported for this product release.

Name

Displays the name of the Compuware product being browsed.

Cert. Id

Displays the Compuware-supplied License Certificate number.

Log

Displays the SMF logging status (Yes or No) for this product record only. A value entered here overrides the inherited entry.

You must be in **Option 2 Update** to change this field.

Status

Displays the type of status granted by the license certificate. Valid values are: BETA, TRIAL, LIMITED_TERM, and LONG_TERM.

Auth

Displays the authorization code provided by Compuware.

Start Date/End Date

Displays the start and end dates of the product license. The start date is the date of the original certificate creation at Compuware for the product release, and the end date is the date the license certificate expires.

Special Access Start/End Date

Displays only when a temporary special access status, such as TEMP, is in effect. It shows the start and end dates of the temporary special access. This is not displayed unless special temporary access has been granted.

Display CPU/LPAR List for base product

Allows you to view the individual CPU/LPAR list. If you enter N (no), the Option list in the bottom portion of the screen contains option names only. If you enter Y (yes), you can view every CPU/LPAR related to this product base (Figure 3-16 on page 3-18).

Select

Allows you to select one of the listed product options to browse. When you enter S to select an option, a Browse License File screen displays the license information specific to that product option (Figure 3-17 on page 3-19).

Option/Version

Displays the Compuware product option and version.

Maint User

Displays the ID of the user who last updated the option information in the license file.

Date/Time

Displays the date and time the license file was last updated for this product option.

Deleting a Product

To delete a Product record from the License File, perform the following:

1. Type **D** in the Select field next to the Product record you want to delete.

You must be in **Option 2 Update** to enter the Delete command.

2. Press Enter.

The Delete Product from License File screen opens, prompting you to confirm your deletion request (Figure 3-15).

Figure 3-15. Delete Product Record Confirmation Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 1 of 1
Command ==>                                SCROLL ==> PAGE

Delete Product - TS0ID01.License.File

Site . . . : Headquarter Production

Product . . : ABENDAID   Version . . : 10.10       Cert. Version : 01.00.01
Name . . . : ABENDAID
Cert. Id . . : 000000000012           Log . . . :
Status . . . : LONG_TERM
Auth . . . . : 123456789ABCDEFO

Confirm DELETE of this Product . . Y (Y|N)

```

Site

Displays the descriptive name of the site ID.

Product

Displays the Compuware-assigned product code.

Version

Displays the product version and release level of the Compuware product being browsed.

Cert. Version

Displays the version, release, and maintenance level of the Compuware license certificate generation system that created the last certificate imported for this product release.

Name

Displays the name of the Compuware product record to be deleted.

Cert. Id

Displays the Compuware-supplied License Certificate number.

Log

Displays the SMF logging status (Yes or No) for this product record only. A value entered here overrides the inherited entry.

Status

Displays the type of status granted by the license certificate. Valid values are: BETA, TRIAL, LIMITED_TERM, and LONG_TERM.

Auth

Displays the authorization code provided by Compuware.

Confirm DELETE of this Product

Type **Y** to confirm your deletion request for the Product record.

Note: You must import a valid License Certificate to reinstate a deleted Product record (see “Option 3 – IMPORT” on page 3-20).

Type **N** to cancel your Product record deletion request.

Viewing CPUs/LPARs

To view all CPUs/LPARs licensed for a product, perform the following:

1. Type **Y** in the Display CPU/LPAR List for Base Product field of the Browse License File screen (Figure 3-10 on page 3-10).
2. Press Enter.

The list of CPUs/LPARs are shown on the bottom portion of the screen (Figure 3-16).

Figure 3-16. Product-Specific Browse License File Screen with CPU/LPAR List

```

----- Compuware License Management 02.00.00 -- Row 3 to 4 of 4
Command ==>                                SCROLL ==> PAGE

Browse License File - TS0ID01.LICENSE.FILE

Site . . . : Application Development

Product . . : FILEAID      Version . . : 08.06      Cert. Version : 02.00.00
Name . . . : FILE-AID FOR OS/390
Cert. Id . . : 000000000012      Log . . . . :
Status . . . : LONG_TERM
Auth . . . . : 123456789ABCDEF0
Start Date : 01-JAN-2000

N Display Product Options List
-----
CPU/LPAR
TESTSYS S=0010 T=CAP      Status . . :
                          Start . . . :           End :
RB4,9672-5E-000270,***   Status . . :
                          Start . . . :           End :
***** Bottom of data *****
    
```

CPU/LPAR

Displays all CPU IDs/LPARs on which the base product is licensed.

Status

Displays the type of status granted by the license certificate. Valid values are: BETA, TRIAL, LIMITED_TERM, and LONG_TERM.

Start Date/End Date

Displays the start and end dates of the product license for each individual CPU/LPAR. These fields are usually blank since their values are inherited from the product dates. They are filled in only when the dates differ.

To return to the options list, type **Y** in the Display Product Options List field of this screen or enter the END or EXIT command on the Command line.

Selecting an Option

To select an option to browse, perform the following in the Product-Specific Browse License File Screen (Figure 3-14 on page 3-15):

1. Type **S** in the Select field next to the product option you want to select.
2. Press Enter.

Another Browse License File screen opens displaying information specific to the option selected (Figure 3-17).

Figure 3-17. Option-Specific Browse License File Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 4 of 4
Command ==>                                     SCROLL ==> PAGE
Browse License File - TS0ID01.LICENSE.FILE

Site . . . : Application Development

Product . . : FILEAID      Version . . : 08.06      Cert. Version : 02.00.00
Option . . : COBOL        Version . . : 08.06
Name . . . : COBOL FOR FILE-AID OS/390
Status . . : LONG_TERM
Auth . . . : 123456789ABCDEFO
Start Date : 01-JAN-2000

-----
CPU/LPAR
RB4,9672-0C-000269,***  Status . . : LIMITED_TERM
                        Start . . : 01-JAN-2001  End : 31-DEC-2001
PRODSYS  S=0015 T=DEF   Status . . : LIMITED_TERM
                        Start . . : 01-JAN-2001  End : 31-DEC-2001
TESTSYS  S=0010 T=CAP   Status . . :
                        Start . . :                End :
RB4,9672-5E-000270,***  Status . . :
                        Start . . :                End :
***** Bottom of data *****

```

Site

Displays the descriptive name of the site ID.

Product

Displays the Compuware-assigned product code.

Version

Displays the product version and release level of the Compuware product being browsed.

Cert. Version

Displays the version, release, and maintenance level of the Compuware license certificate generation system that created the last certificate imported for this option's product release.

Option

Displays the option related to the product.

Version

Displays the version number of the option.

Name

Displays the full name of the product option.

Status

Displays the type of status granted by the license certificate. Valid values are: BETA, TRIAL, LIMITED_TERM, and LONG_TERM.

Auth

Displays the authorization code provided by Compuware for the product option.

Start Date/End Date

Displays the start and end dates of the product option license. The start date is the date of the original certificate creation at Compuware for the product release, and the end date is the date the license certificate expires.

CPU/LPAR

Displays all CPU IDs/LPARs on which the option is licensed. Status, Start and End fields are filled in only if they differ from the product.

Enter the END or EXIT command in the Command line to return to the previous display.

Option 3 – IMPORT

The IMPORT option allows you to import a license certificate sent by Compuware. You receive a license certificate whenever you do any of the following:

- Add a new product or option.
- Upgrade to a new product release.
- Renew or extend your current contract.
- Change the licensed site(s) and/or CPU(s).
- Need to correct corrupted license data.

You must import every new license certificate to include it in your license file. After the import job completes successfully, you must run LMSINIT for all affected subsystems for the updated license file to take effect (see also “LMSINIT” on page 4-1).

IMPORTANT

Compuware recommends that you make a backup copy of your current License File before and after the import.

After following the import instructions below, you can check that your license certificate has been applied correctly by performing the following:

1. After you use the LAU to submit an import batch job that reads the certificate and applies the information on it to your license file, you must check the return code from this job. A return code of 0 (zero) means that the certificate has been successfully applied (imported) with no warning messages. A return code of 4 means that the certificate has been successfully imported, but warning messages have been issued. Any other return code means that the certificate has not been imported successfully.
2. You must then run LMSINIT and must check LMSINIT's return code. A return code of 4 may mean the certificate has been applied successfully, or it may not. The report created by LMSINIT must be checked. A return code of 8 or greater definitely means the license file has not been copied into the system cache. See “Executing LMSINIT” on page 4-24 for more information.

With all the available PTFs applied, a return code of 0 (zero) from both the LAU import job and LMSINIT results in a successful application of the certificate. As long as the license certificate contains the correct CPUs, product release, and options, and it is applied to the active LMS runtime subsystem, you obtain the expected license access.

IMPORT License Certificate Screen

The Import License Certificate screen appears when you select 3 from the Main Options screen. This screen (Figure 3-18) allows you to import a license certificate. You can view the implications of applying the certificate before actually importing it by selecting Preview only.

Figure 3-18. Import License Certification Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>

                                IMPORT License Certificate

Process DSN . . : TS0ID01.License.File
IMPORT From . . ENVxxxx.txt          (fully qualified without quotes)
Preview Only . . Y (Y|N)

```

Process DSN

Displays the name of the license file currently being used.

IMPORT From

Identifies the name of the dataset that contains the license certificate sent by Compuware. The dataset name must be entered *without quotes*. If the dataset is a PDS, you must include the member name in parentheses.

Preview Only

Identifies whether to preview the implications of the Import without actually importing the certificate. If you enter Y (yes), a report is generated outlining the changes to be performed if you import the specified certificate. You can then perform the Import or cancel the operation. If you enter N (no), the preview report and the Import are performed simultaneously. Figure 3-23 on page 3-26 shows an example of the Import report.

Note: If the import job returns an error, the license file is not updated.

Importing a License Certificate

To import a certificate:

1. In the IMPORT From field, type the name of the dataset that contains the certificate sent from Compuware.
2. In the Preview Only field, enter Y or N (depending on whether you want to preview the changes before you import the certificate). The default is No.

Preview set to Y only works if the license file has existing contents. Otherwise, the system may try to find an empty file which results in an error.

Note: If this is the first certificate you are installing, there is no option for preview.

3. Press Enter.

Another Import License Certificate screen opens (Figure 3-19 on page 3-22).

4. Specify whether you want to edit the JCL before submission (in the Edit JCL field).
5. Type the information for your jobcard.
6. Select the nodes on which you want the Import job run.

Optionally, you can do this by entering an **S** next to each node.

If no node is selected, the job is submitted without any specific routing.

Note: If you are running on only one node, do not make a selection here.

7. Press Enter.

If Edit JCL is Y, the Edit JCL screen appears. Otherwise, a confirmation screen appears (Step 10).

8. Edit the JCL (only if you entered Y in the Edit JCL field). See Figure 3-20 on page 3-23 for a sample Import JCL screen.

9. Enter the **END** command to exit the Edit screen.

10. In the submission confirmation screen (Figure 3-21 on page 3-24), enter **Y** if you want to submit your import job.

If you want to make changes to your import information, enter **N** in the submission screen and start again.

When the Import job completes, you receive notification with completion and reason codes and you can view the generated Import Report (see “Import Reports” on page 3-24). The Import Report also includes any applicable error messages if the completion code is not zero. For example, the message **LMA028E AUTHENTICATION CODE INVALID** indicates that the imported value for the AUTH key is in error.

Figure 3-19. Second Import License Certificate Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 5 of 6
Command ==>                                SCROLL ==> PAGE

                                IMPORT License Certificate

Process DSN . : TS0ID01.License.File
IMPORT From . : ENVxxx.txt
Preview Only . : N

Edit JCL . . . . Y (Y-Yes,N-No)

Jobcard:
//Job Card information line 1
//Job Card information line 2
//Job Card information line 3
//Job Card information line 4

Select      Node      Description
-           Node1     Production
-           Node2     MVS Test1
-           Node3     QA Test

***** Bottom of data *****

```

See “IMPORT License Certificate Screen” on page 3-21 for fields not described below:

Edit JCL

Specifies whether you want to edit the JCL before submitting it. Valid values are Y (yes) and N (no).

Jobcard

Fill in your site-specific job card information.

Select

Allows you to select multiple nodes on which to run the import job. If you are running the job on only one node, leave this field blank.

Edit Import JCL

When you specify YES in the Edit JCL field, the following screen (Figure 3-20) lets you view and edit the JCL for importing a license certificate.

Figure 3-20. Edit Import JCL Screen

```

File Edit Confirm Menu Utilities Compilers Test Help
-----
EDIT          SYS98274.T095731.RA000.TS0ID01.R0111344      Columns0000100080
Command ==>                                           Scroll ==>CSR
***** Top of Data*****
000001 //Job Card information line 1
000002 //Job Card information line 2
000003 //Job Card information line 3
000004 //Job Card information line 4
000005//*
000006//*****
000007//*          IMPORT COMPUWARE LICENSE CERTIFICATE
000008//*
000009//*    JCL GENERATED BY TS0ID01 ON 1998-10-0:17
000010//*****
000011//*
000012//IMPORT EXEC PGM=LMAFIM,
000013//  PARM='PREVIEW'
000014//STEPLIB DD DSN=LM.DEVL.LOAD,
000015//          DISP=SHR
000016//*
000017//CWLFO000 DD DSN=LM.DEVL.CERT,
000018//          DISP=SHR
000019//CWLFIIMP DD DSN=TS0ID01.License.File,
000020//          DISP=SHR
000021//*
000022//CWLFPRT DD SYSOUT=*
000023//*
000024//SYSABEND DD SYSOUT=*,OUTLIM=999999
000025//ABNLDUMP DD DUMMY
***** Bottom of Data *****

```

Press PF3 to exit after you finish viewing the screen.

Preview

The import job produces only a preview report.

Update

The import job updates the license file.

Confirm Submission Screen

The Confirm Submission Screen (Figure 3-21) appears whenever the LAU is ready to submit a job.

Figure 3-21. Confirm Submission Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 5 of 6
                                           SCROLL ==> PAGE
C  =====
   Confirm Submission
   Confirm Submission . ._(Y-Yes,N-No)          ificate
P  =====

Preview Only . : Y
***** Bottom of data *****
    
```

Import Reports

Depending on your Preview selection, the import job creates either the Preview Mode or Update Mode import report.

See Appendix A, “License Certificate Data Elements” for descriptions of the imported records and keywords.

Preview Mode

After the import preview job is complete, you can view the preview import report. If the imported certificate causes an error, the error message is displayed in the report.

Figure 3-22 shows an example for Preview Mode with an error message.

Figure 3-22. License File Import Report - Preview Mode

```

Date: 03-APR-2001
Time: 10:43:10
License File DSN: TS0ID01.LMSTEST2.LICENSE

COMPUWARE License Management
License Certificate IMPORT
Preview Mode

*****
WLM662E CERTIFICATE NOT IMPORTED - ERROR MESSAGES ISSUED
*****
CUSTOMER CERTVER<02.00.00> CUSTNUM<000001>
CUSTNAME<COMPUWARE CORPORATION>
SITE CERTVER<02.00.00>
SITE_NAME<FARMINGTON HILLS HEADQUARTERS>
LMA053E SITE_ID TOKEN IS MISSING
PRODUCT CERTVER<02.00.00> SNAME<CICS/FX> VER<04.02>
LNAME<CICS/ABEND-AID/FX>
CERTIFICATE_ID<199908210001>
STATUS<LONG_TERM>
START<14-JUL-1999>
AUTH<3FACD8032D699F13>
CPU CPU_ID<IBM,9672-0C-000268,MVS>
OPTION SNAME<COBOL> VER<04.02>
LNAME<CICS/ABEND-AID/FX COBOL OPTION>
STATUS<LONG_TERM>
START<14-JUL-1999>
AUTH<3FADF26D2D74FEB8>
CPU CPU_ID<***,****-**-000268,***>
LPAR NAME<PRD01> TYPE<DEFINED> MSUS<145>
STATUS<LONG_TERM> START<14-JUL-1999>
LPAR NAME<TEST03> TYPE<DEFINED> MSUS<1234>
STATUS<LONG_TERM> START<18-JUL-1999>
***** Bottom of Data *****

```

Update Mode

After the import job (PREVIEW=NO) is complete, you can view the updated import report. The report shows the status of your license file after the import has completed.

Figure 3-23 shows an example.

Figure 3-23. License File Import Report - Update Mode

```

Date: 03-APR-2001                                COMPUWARE License Management
Time: 10:55:36                                    License Certificate IMPORT
                                                    Update Mode

License File DSN: TS0ID01.LMSTEST2.LICENSE

*****
WLM660I CERTIFICATE IMPORTED - NO ERRORS OR WARNINGS
*****
CUSTOMER CERTVER<02.00.00> CUSTNUM<000001>
CUSTNAME<COMPUWARE CORPORATION>
SITE CERTVER<02.00.00> SITE_ID<001>
SITE_NAME<FARMINGTON HILLS HEADQUARTERS>
PRODUCT CERTVER<02.00.00> SNAME<CICS/FX> VER<04.02>
LNAME<CICS/ABEND-AID/FX>
CERTIFICATE_ID<199908210001>
STATUS<LONG_TERM>
START<14-JUL-1999>
AUTH<3FACD8032D699F13>
CPU CPU_ID<IBM,9672-0C-000268,MVS>

DATE: 03-APR-2001                                COMPUWARE LICENSE MANAGEMENT                                PAGE: 1
TIME: 10:55:38                                    MAINTENANCE RESULTS REPORT
LICENSE FILE DSN: PFHPLM0.LMSTEST2.LICENSE
CUSTOMER: 000001 COMPUWARE CORPORATION
SMF LOGGING: NO SECURITY DSN:
SITE: 001 FARMINGTON HILLS HEADQUARTERS
SMF LOGGING: SECURITY DSN:
DISASTER SWITCH ON: NO
EMERGENCY SWITCH ON: NO
PRODUCT: CICS/FX 04.02 CICS/ABEND-AID/FX
SMF LOGGING: PRODUCT WILL NOT BE LOGGED, DUE TO CUSTOMER SPECIFICATION
AUTH CODE: 3FACD8032D699F13 CERTIFICATE: 199908210001 VERSION: 02.00.00
STATUS: LONG_TERM START: 14-JUL-1999
CPU: IBM,9672-0C-000268,MVS
STATUS:
***** Bottom of Data *****

```

Option 4 – EXPORT

The EXPORT option allows you to export the contents of a license file to an export certificate file. This export certificate file can be used, for example, as input (IMPORT) into a new release of the License Management System, or for diagnostic purposes by Compuware. This option also generates a printable version of the exported certificate.

EXPORT License Certificates Screen

The Export License Certificate screen appears when you select 4 from the Main Options screen (see Figure 3-24). This screen allows you to export contents of a license file to a new or existing dataset.

Figure 3-24. Export License Certificates Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>

                                EXPORT License Certificates

Process DSN . . : TS0ID01.License.File

Customer Name  : COMPUWARE DEVELOPMENT TESTING
Number . . . . : 086980
-----
Select 1 Site only for EXPORT or no selection for all Sites
Select Site Id  Name
-          001   Headquarter Production
-          002   Application Development
***** Bottom of data *****

```

Process DSN

Displays the name of the license file currently being used.

Customer Name

Displays the name of the company licensed to use the Compuware product(s).

Number

Displays the Compuware-assigned customer number.

Select

Allows you to select one site for export. When selecting a site, the export file contains only the certificate information for the selected site.

Leave the Select column blank to select ***all*** sites.

Site ID

Displays the ID code for a site.

Name

Displays the descriptive name for a site.

Note: The export facility processes either all sites or one site at a time. Repeat the export process for each individual site if you do not want all sites included.

EXPORT Dataset Specification Screen

The Export License Certificates Screen appears after you select one or all sites from the EXPORT License Certificates screen (Figure 3-24 on page 3-27). This screen (Figure 3-25) allows you to specify the export dataset and execution method.

Figure 3-25. Export License Certificates Screen for Dataset Specification

```

----- Compuware License Management 02.00.00 -----
Command ==>

                                EXPORT License Certificates

Process DSN . . : TS0ID01.License.File
Site Name . . . : Headquarter Production

EXPORT To DSN . TS0ID01.EXPORT.FILE
                                (fully qualified without quotes)
Member . . . .

New or Existing . . N (N|E)
Generic Unit name .
Unit Type . . . . . _ (T-Tape|D-DASD)
DATACLAS . . . . .
MGMTCLAS . . . . .
STORCLAS . . . . .

```

Process DSN

Displays the name of the license file currently being used.

Site Name

Displays the name of the site you selected for export processing. ALL SITES indicates that you selected all sites.

EXPORT to DSN

Identifies the name of the dataset to which the export license file should be saved. The dataset name must be entered *without quotes*.

Member

Identifies the member name of the existing partitioned dataset to which the license file should be saved.

Note: If you are creating a new dataset, you must leave this field blank; partitioned datasets must already exist.

New or Existing

Specifies whether the dataset already exists. Valid values are **N** (new) and **E** (existing). If **N** is selected, the new dataset is created when the Export is run.

Note: You cannot create a new partitioned dataset.

Generic Unit Name

Enter the name of the generic unit to which the file should be exported.

Unit Type

Identifies the type of media to which the file should be exported. Valid values are **D** (DASD) and **T** (tape).

DATACLAS

Specifies the SMS data class to use for the allocation of the dataset. The data class describes the attributes of the dataset such as RECORG, KEYLEN, KEYOFF, SPACE, etc.

MGMTCLAS

Specifies the SMS management class to use for the allocation of the dataset. The management class describes the migration, backup, and retention for the dataset.

STORCLAS

Specifies the SMS storage class to use for the allocation of the dataset. The storage class describes the hardware requirements for the dataset.

Exporting a License File

To export a license file:

1. In the EXPORT To DSN field, type the name of the dataset to which the file should be saved.
2. Enter the member name, if applicable.
If you are creating a new dataset, you must leave this field blank.
3. Specify whether the dataset exists or if you want to create a new dataset.
4. Specify the Generic Unit Name.
5. Enter the unit type.
6. Enter the DATACLAS, MGMTCLAS, and STORCLAS.
7. Press Enter.

Another Export License Certificate screen opens (Figure 3-26 on page 3-30).

8. Specify whether you want to edit the JCL (in the Edit JCL field) before submission.
9. Type the information for your jobcard.
10. Select the nodes on which you want to run the Export job.

Optionally, you can do this by entering an **S** next to each node.

If no node is selected, the job is submitted without any specific routing. If you are running on only one node, do not make a selection here.

11. Press Enter.

A confirmation screen appears.

12. Enter **Y** if you want to continue with your export.

If you want to make changes to your export information, enter **N** in the submission screen and start again.

13. Edit the JCL (only if you entered **Y** in the Edit JCL field) and exit from the Edit JCL screen.

14. Enter **Y** in the Confirm Submission screen to submit the JCL.

The Export process is complete and a printed version of the exported certificate is generated.

Figure 3-26. Export License Certificate Screen - Jobcard

```

----- Compuware License Management 02.00.00 -- Row 1 to 5 of 6
Command ==>                                SCROLL ==> PAGE

                                EXPORT License Certificates

Process DSN . . : TS0ID01.License.File

EXPORT To DSN : TEST.DSN
Member . . . . :

Edit JCL . . . . N (Y-Yes,N-No)

Jobcard:
//Job Card information line 1
//Job Card information line 2
//Job Card information line 3
//Job Card information line 4

Select      Node      Description
-           Node1     Production
-           Node2     MVS Test1
-           Node3     QA Test

```

Process DSN

Displays the name of the license file currently being used.

EXPORT to DSN

Identifies the name of the dataset to which the export license file should be saved. The dataset name must be entered *without quotes*.

Member

Identifies the member name of the existing partitioned dataset to which the license file should be saved.

Note: If you are creating a new dataset, you must leave this field blank; partitioned datasets must already exist.

Edit JCL

Specifies whether you want to edit the JCL before submitting it. Valid values are **Y** (yes) and **N** (no).

Jobcard

Fill in your site-specific jobcard information so the generated export JCL can execute successfully.

Select

Allows you to select multiple nodes on which to run the export job. If no node is selected, the job is submitted without any specific routing. If you are running the job on only one node, leave this field blank.

Export Report

After the export job is complete, you can view the export report. The report is a printable version of the generated export dataset with the addition of page headers and the name of the license file dataset name from which the export was created.

Figure 3-27 on page 3-31 shows an example. See also Appendix A, "License Certificate Data Elements" for descriptions of the exported records and keywords.

Figure 3-27. License File Export Report

```

Date: 1999-03-16                                COMPUWARE License Management
Time: 16:05:46                                  License Certificate EXPORT
License File DSN: TS0ID01.License.File
CUSTOMER CERTVER<01.00.00> CUSTNUM<086980> LOG<ON>
  CUSTNAME<COMPUWARE DEVELOPMENT TESTING>
  SECURITY_DSN<TS0ID01.SEC.DSN>
SITE CERTVER<01.00.00> SITE_ID<001> LOG<ON>
  SITE_NAME<CW01 FARMINGTON HILLS 001>
  PRODUCT CERTVER<01.00.00> SNAME<ABENDAID> VER<10.10>
    LNAME<ABENDAID>
    CERTIFICATE_ID<0000000000012>
    STATUS<LONG_TERM> LOG<ON>
    START<01-AUG-1998>
    SPECIAL_ACCESS<NONCPU_SPECIFIC>
      SP_START<09-AUG-1998> SP_END<19-AUG-1998>
    AUTH<1234567890123456>
    CPU CPU_ID<AMD,9672-38-001234,MVS>
      STATUS<TRIAL> START<30-AUG-1998> END<27-SEP-1998>
    CPU CPU_ID<IBM,9672-78-000666,MVS>
      STATUS<LONG_TERM> START<08-SEP-1998>
    CPU CPU_ID<IBM,9672-78-003313,MVS>
    CPU CPU_ID<IBM,9672-78-005432,MVS>
    OPTION SNAME<ASSEMBLER> VER<10.10>
      LNAME<ASSEMBLER>
      STATUS<LIMITED_TERM>
      START<01-AUG-1998> END<01-AUG-2000>
      AUTH<1234567890123456>
      CPU CPU_ID<AMD,9672-38-001234,MVS>
      CPU CPU_ID<IBM,9672-78-000666,MVS>
      CPU CPU_ID<IBM,9672-78-003313,MVS>
    PRODUCT CERTVER<01.00.00> SNAME<FAIDIMS> VER<04.06>
      LNAME<FILE-AID FOR IMS>
      CERTIFICATE_ID<0000000000012>
      STATUS<LIMITED_TERM> LOG<ON>
      START<01-AUG-1998> END<01-AUG-2000>
      AUTH<1234567890123456>
      CPU CPU_ID<AMD,9672-38-001234,MVS>
      CPU CPU_ID<IBM,9672-78-000666,MVS>
      CPU CPU_ID<IBM,9672-78-003313,MVS>
      CPU CPU_ID<IBM,9672-78-005432,MVS>
      OPTION SNAME<CICS> VER<04.06>
        LNAME<CICS>
        STATUS<LONG_TERM>
        START<01-AUG-1998>
        AUTH<1234567890123456>
Date: 1999-03-16                                COMPUWARE License Management
Time: 16:05:46                                  License Certificate EXPORT
License File DSN: TS0ID01.License.File
  CPU CPU_ID<AMD,9672-38-001234,MVS>
  CPU CPU_ID<IBM,9672-78-000666,MVS>
  CPU CPU_ID<IBM,9672-78-003313,MVS>
  OPTION SNAME<IMS> VER<04.06>
    LNAME<IMS>
    STATUS<LIMITED_TERM>
    START<01-AUG-1998> END<01-AUG-2000>
    AUTH<1234567890123456>
    CPU CPU_ID<IBM,9672-78-000666,MVS>
    CPU CPU_ID<IBM,9672-78-003313,MVS>
  PRODUCT CERTVER<01.00.00> SNAME<LICMNGMNT> VER<01.00>
    LNAME<LICENSE MANAGEMENT>
    CERTIFICATE_ID<199810050001>
    STATUS<LIMITED_TERM> LOG<OFF>
    START<01-OCT-1998> END<01-OCT-2000>
    AUTH<3FB1D05A2D5C97F0>
    CPU CPU_ID<IBM,9672-0C-010269,MVS>
    CPU CPU_ID<IBM,9672-01-013388,MVS>
Date: 1999-03-16                                COMPUWARE License Management
Time: 16:05:46                                  License Certificate EXPORT
License File DSN: TS0ID01.License.File
SITE CERTVER<01.00.00> SITE_ID<002>
  SITE_NAME<CW04 FARMINGTON HILLS>
  PRODUCT CERTVER<01.00.00> SNAME<FAIDIMS> VER<04.05>
    LNAME<FILE-AID FOR IMS>
    CERTIFICATE_ID<0000000000012>
    STATUS<LONG_TERM> LOG<ON>
    START<01-AUG-1998>
    AUTH<1234567890123456>
***** BOTTOM OF DATA *****

```

Option 5 – Reports

The Report Option allows you to produce different listings that present information about your License Management System.

Report Selection Screen

The Report Selection screen appears when you select 5 from the Main Options screen (Figure 3-28). This screen allows you to generate reports that reflect the current status of your License Management System.

Enter S or D before the report name to select it. S generates a summary (one line per record) report. D generates a detail-level report. Exceptions: S or D generates the same License Verification report and generates no printout for Activity Extract.

Figure 3-28. Report Selection Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 3 of 7
Command ==>                                     SCROLL ==> PAGE
                                     Report Selection
Select "D" for Detail, or "S" for Summary
                                     Expire Date  Process DSN
_ License Verification
_ Current Cache Report
_ VSAM License File
_ SAM License File
_ SMF License Records
_ Product Activity
_ Activity Extract

Edit JCL . . . . N
Jobcard:
//Job Card information line 1
//Job Card information line 2
//Job Card information line 3
//Job Card information line 4

Select      Node      Description
_          Node1     Production
_          Node2     MVS Test1
_          Node3     QA Test

```

Expire Date

If you enter an Expire Date for a selection, the generated report shows only licenses that expire before the entered date. The date has six valid formats:

- YYYYMMDD
- YYYY-MM-DD
- DDMMMYYYY
- DD-MMM-YYYY
- MMDDYYYY
- MM/DD/YYYY

This field is valid only for the Current Cache Contents, the VSAM License File, and SAM License File reports.

Process DSN

If you select VSAM License File or SAM License File, you must enter the dataset name of the license file to be used as input.

License Verification

Generates the License Verification report. See “License Verification Report” on page 3-35 for a sample.

Current Cache Report

Generates the Current Cache Contents report. See “Current Cache Contents Report” on page 3-38 for a sample.

VSAM License File

Generates the License File Report for a VSAM license file. You must enter a Process DSN, which names the VSAM license file to be used as input. Optionally, you may enter an Expire Date. See “License File Contents Report” on page 3-38 for a sample.

SAM License File

Generates the License File Report for a sequential license file. You must enter a Process DSN, which names the sequential license file to be used as input. Optionally, you may enter an Expire Date. See “License File Contents Report” on page 3-38 for a sample.

SMF License Records

Generates a report similar to the License File Report. Before you can submit the request, you must specify the SMF Report Data Source and SMF Record ID on the SMF Report Data Source screen (Figure 3-29 on page 3-34). See “SMF License Records Report” on page 3-39 for a sample.

Product Activity

Generates the Product Activity Report. Before you can submit the request, you must specify the SMF Report Data Source and SMF Record ID on the SMF Report Data Source screen (Figure 3-29 on page 3-34). See “Product Activity Report” on page 3-39 for a sample.

Activity Extract

Generates a sequential file of the SMP product activity records, in comma-separated variable (CSV) format. Before you can submit the request, you must specify the SMF Report Data Source and SMF Record ID, as well as the extract file DSN and disposition on the SMF Report Data Source screen (Figure 3-29 on page 3-34). See “Activity Extract” on page 3-40 for more information.

Edit JCL

Specifies whether you want to edit the JCL before submitting it. Valid values are Y (yes) and N (no).

Jobcard

Fill in your site-specific jobcard information so that the generated report JCL can execute successfully.

Select

Allows you to select multiple nodes on which to run the report job. If you do not select a node, the job is submitted without any specific routing. If you are running the job only on the default node, leave this field blank.

Generating a Report

To generate a report, perform the following:

1. Select one or more report(s).
2. Optionally, enter an Expire Date and/or Process DSN.
3. Fill in the jobcard information.
4. Enter Y in the Edit JCL field if you want to view the JCL.
5. Press Enter.
6. Review the generated JCL and modify as needed.

7. Exit the Edit JCL screen.
8. Enter Y in the confirmation screen to submit the generated JCL.

SMF Report Data Source Screen

The SMF Report Data Source screen, as shown in Figure 3-29, appears when you select SMF License Records, Product Activity, or Activity Extract on the Report Selection screen (Figure 3-28 on page 3-32).

Before you can submit the report, you must specify the SMF datasets and SMF Record ID to generate the reports that were used to collect the SMF data.

Figure 3-29. SMF Report Data Source Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>

                          SMF Report Data Source

SMF Data Set 1 . . _____
                    (fully qualified without quotes)
SMF Data Set 2 . . _____
SMF Data Set 3 . . _____
SMF Data Set 4 . . _____
SMF Data Set 5 . . _____
SMF Data Set 6 . . _____
SMF Data Set 7 . . _____
SMF Data Set 8 . . _____
SMF Data Set 9 . . _____
SMF Data Set 10 . . _____

SMF Record ID . . ____
Extract Start Date . _____ Time . ____
Extract End Date . . _____ Time . ____

Extract File Dsn . . _____
Extract File Disp . _____

```

SMF Data Set 1 through 10

Enter the name of the SMF Data Set(s) from which to collect the License Management log entries for the report.

SMF Record ID

Specify the SMF Record ID number that you chose for the LMS records so that only the LMS records are extracted.

Extract Start Date

Optionally, you can enter a start date for the reports. Records generated before this date are not included on the reports. The only valid format is Julian date (YYYYDDD), the format required by IBM's IFASMFDP program. If you enter a start date, you must also enter an end date.

Extract Start Time

Optionally, you can enter a start time for the reports. Records generated before this time are not included on the reports. The only valid format is 24-hour time (HHMM), the format required by IBM's IFASMFDP program. If you enter a start time, you must also enter an end time.

Extract End Date

Optionally, you can enter an end date for the reports. Records generated after this date are not included on the reports. The only valid format is Julian date

(YYYYDDDD), the format required by IBM's IFASMFDP program. If you enter an end date, you must also enter a start date.

Extract End Time

Optionally, you can enter an end time for the reports. Records generated after this time are not included on the reports. The only valid format is 24-hour time (HHMM), the format required by IBM's IFASMFDP program. If you enter an end time, you must also enter a start time.

Extract File DSN

If you choose to generate an Activity Extract file, enter the dataset name to be generated here.

Extract File Disp

If you choose to generate an Activity Extract file, enter the DISP parameter for the file (including parentheses, if required).

Sample Reports

All reports have a common header in addition to another header that is generated by the License Administration Utility (LAU). All reports can be output to a printer or DASD dataset with printer attributes. The reports are not formatted for screen output, but may be browsed on screen (if sent to a dataset) with the normal ISPF browse scrolling features.

License Verification Report

The License Verification Report displays the information regarding the License Management System Runtime Subsystem. The default report provides basic license availability information. The expanded report includes information regarding the LMS modules loaded in the subsystem, the license availability information, and additional product license certificate information. To generate the expanded report, enter Y in the EDIT JCL field. You may need to contact LMS Technical Support (see "Getting Help" on page xv) to receive the License Verification Report module offering both formats of the report.

Figure 3-30 on page 3-35 is the default License Verification Report where the parameter selected is 'NOVERBOSE'.

Figure 3-30. License Verification Report (Default)

```

2000/08/18          COMPUWARE CORPORATION LICENSE MANAGEMENT          VER 02.00.00
12:41:23.75          INSTALLATION VERIFICATION                        PAGE    1

PROCESSING STARTED FOR SUBSYSTEM MLMS
PRODUCT AA_ECOMM    VER 01.01
PRODUCT CICS/FX     VER 04.02
OPTION COBOL        VER 04.02
OPTION DB2          VER 04.02
OPTION PL/I         VER 04.02
OPTION PLI          VER 04.02
OPTION REGION       VER 04.02
OPTION TRANSACT     VER 04.02
PRODUCT CICS/FX     VER 04.03
OPTION COBOL        VER 04.03
OPTION DB2          VER 04.03
OPTION E-COMMERCE  VER 04.03
OPTION PL/I         VER 04.03
OPTION PLI          VER 04.03
OPTION REGION       VER 04.03
OPTION TRANSACT     VER 04.03

PROCESSING ENDED FOR SUBSYSTEM MLMS

LMVERIFY ENDED. HIGHEST RETURN CODE WAS 00000

```

Figure 3-31 on page 3-37 is the License Verification Report where the parameter selected is 'VERBOSE'. The additional information included in the verbose report shows the runtime modules with their associated maintenance levels, date and time of assembly, and version number

Figure 3-31. License Verification Report (Verbose)

```

2000/08/10          COMPUWARE CORPORATION LICENSE MANAGEMENT          VER 02.00.00
07:35:37.28                INSTALLATION VERIFICATION                PAGE    1
PROCESSING STARTED FOR SUBSYSTEM 6339
LMSASSYS 00116384 20000414 07.53 VER 01.00.01
LMSAESTA 00118607 20000630 08.16 VER 01.00.01
LMSPCRTN 00116384 20000414 07.55 VER 01.00.01
LMSPCARR 00BASE-- 19990625 11.03 VER 01.00.01
LMSSDUMP 00112309 19991116 12.33 VER 01.00.01
LMSTRACE 00109624 19990807 01.23 VER 01.00.01
LMSGETMS 00113413 20000106 08.48 VER 01.00.01
LMSMSGEN 00116599 20000522 09.29 VER 01.00.01
LMSSMF   00113962 20000117 08.20 VER 01.00.01
LMSSERVR 00116599 20000522 09.34 VER 01.00.01
LMSRACF  00113774 20000106 13.43 VER 01.00.01
LMADTCV  -BASE--- 19990625 10.25
LMACG000 06/25/99 10.22
LMSMSGLT 00116599 20000522 09.32 VER 01.00.01
LMSEMERP 00113413 20000106 09.05 VER 01.00.01
LMSSCOMM 00118457 20000626 07.23 VER 01.00.01
LMSCPUID 00116599 20000524 09.32 VER 01.00.01
LMSRSMGR 00116384 20000414 07.55 VER 01.00.01

PRODUCT OSAA          VER 09.02
ABEND-AID FOR OS/390
STATUS:   LIMITED_TERM START: 27-DEC-1999
                                END: 17-JAN-2001
SITENM:   FARMINGTON HILLS HEADQUARTERS
CERTID:   200021600000 SITENUM: 001
CPU ID:   IBM,9672-OC-110269,MVS
DSNAME:   SYS2.DEFAULT.LICENSE.FILE
CUSTNM:   COMPUWARE CORPORATION
USERID:   EFHAWCO CUSTNUM: 010000

OPTION ASSEMBLER VER 09.02
ABEND-AID/ASSEMBLER
STATUS:   LIMITED_TERM START: 27-DEC-1999
                                END: 17-JAN-2001

OPTION DB2          VER 09.02
ABEND-AID/DB2
STATUS:   LIMITED_TERM START: 27-DEC-1999
                                END: 17-JAN-2001

OPTION IMS          VER 09.02
LMCHKOUT FAILED. R15= 00000008. RETURN-CODE=00000008. REASON-CODE=00000581
WLM001I *****
WLM002I *****
WLM003I *****
WLM004I *****          COMPUWARE CORPORATION          *****
WLM005I *****          LICENSE MANAGEMENT          *****
WLM006I *****          COPYRIGHT (C) 1998, 1999          *****
WLM007I *****          BY COMPUWARE CORPORATION. ALL RIGHTS RESERVED. *****
WLM581E *****          PRODUCT OPTION NOT LICENSED ON SPECIFIED CPU
WLM010I *****          OSAA 09.02 IMS 09.02          ,9672-OC-310269,
WLM011I *****
WLM025I *****          CUSTOMER AND SITE INFORMATION FOLLOWS:
WLM018I *****          COMPUWARE CORPORATION
WLM019I *****          CUSTOMER NUMBER: 010000
WLM020I *****          FARMINGTON HILLS HEADQUARTERS
WLM021I *****          SITE NUMBER: 001
WLM011I *****
WLM026I *****          CURRENT ENVIRONMENTAL INFORMATION FOLLOWS:
WLM022I *****          SYS2.DEFAULT.LICENSE.FILE
WLM023I *****          SUBSYSTEM ID: 6339
WLM024I *****          CERTIFICATE ID: 200021600000
WLM011I *****
WLM012I *****
WLM013I *****          COMPUWARE PRODUCT SUPPORT HOTLINE          *****
WLM014I *****          U.S. AND CANADA...1-800-538-7822          *****
WLM015I *****          ALL OTHER.....1-248-737-8423          *****
WLM016I *****
WLM017I *****

```

Current Cache Contents Report

The Current Cache Contents report, as shown in Figure 3-32, displays the contents of the LM cache except for data used for processing, such as key data. This report displays what is actually in the cache, not what is on the license file. In Summary mode, one line is printed for each license file record in the cache. Detail mode presents more information, in multiple lines per record. You can limit the report to licenses that expire before a specified date.

Figure 3-32. Current Cache Contents Report

```

DATE: 08-FEB-2001          COMPUWARE LICENSE MANAGEMENT          PAGE: 1
TIME: 10:10:48            CURRENT CACHE CONTENTS

SUBSYSTEM: xxxx   SMF LOGGING: NO   ID: xx (999)
LICENSE FILE DSN: customer dsname

CUSTOMER: 999999   customer name
SMF LOGGING: NO   SECURITY DSN: customer dsname

SITE:           999   customer site name
SMF LOGGING: YES SECURITY DSN: customer dsname
DISASTER SWITCH ON: NO
EMERGENCY SWITCH ON: NO

PRODUCT: CICS/FX      04.02   CICS/ABEND-AID/FX
SMF LOGGING:          PRODUCT WILL BE LOGGED, DUE TO SITE SPECIFICATION
AUTH CODE: 0123456789ABCDEF  CERTIFICATE: 200100199999  VERSION: 02.00.00
STATUS: LONG_TERM    START: 14-JUL-1999

CPU:      RB4,9672-5E-001234,***
STATUS:

```

License File Contents Report

The License File Contents report, as shown in Figure 3-33 on page 3-38, displays the contents of a VSAM or sequential license file. It is similar in format to the Current Cache Contents Report, and like that report, you can generate it in Summary (S) or Detail (D) mode. You can limit the report to licenses that expire before a specified date.

Figure 3-33. License File Contents Report

```

DATE: 08-FEB-2001          COMPUWARE LICENSE MANAGEMENT          PAGE 1
TIME: 10:10:48            LICENSE FILE CONTENTS

LICENSE FILE DSN: customer dsname

CUSTOMER: 999999   customer name

SITE:           999   customer site name

PRODUCT: CICS/FX      04.02   CICS/ABEND-AID/FX
CPU:      ***,****-**-001234,***
  LPAR:    LPAR #1    SIZE: 999 MSU'S
  LPAR:    LPAR #2    SIZE: 999 MSU'S
CPU:      RB4,9672-5E-005678,***
OPTION: COBOL         04.02   CICS/ABEND-AID/FX COBOL OPTION
CPU:      ***,****-**-001234,***
  LPAR:    LPAR #1    SIZE: 999 MSU'S
  LPAR:    LPAR #2    SIZE: 999 MSU'S
CPU:      RB4,9672-5E-005678,***
OPTION: DB2          04.02   CICS/ABEND-AID/FX DB2 OPTION
CPU:      ***,****-**-001234,***
  LPAR:    LPAR #1    SIZE: 999 MSU'S

```

SMF License Records Report

The SMF License Records report, as shown in Figure 3-34, displays license records that have been written to an SMF dataset by LMSINIT. Its primary use is intended as a diagnostic tool. You can use it to view what was the contents of a license file at some previous time. In format, it is similar to the License File Report, but prints one additional line per record, showing the last maintenance date and time for each record. When you select this report, the SMF Report Data Source screen is displayed. You must enter the SMF record ID that you use for License Management records and the dataset name(s) of the SMF file(s) to be used as input. Optionally, you can enter a start date and time, and an end date and time for the report.

Figure 3-34. SMF License Records Report

```

DATE: 08-FEB-2001          COMPUWARE LICENSE MANAGEMENT          PAGE 1
TIME: 10:10:48            SMF LICENSE RECORDS

CUSTOMER: 999999 customer name
SMF LOGGING: NO SECURITY DSN: customer dsname
LAST MAINTAINED: user      07-FEB-2001 11:48:23

SITE: 999 customer site name
SMF LOGGING: YES SECURITY DSN: customer dsname
DISASTER SWITCH ON: NO
EMERGENCY SWITCH ON: NO
LAST MAINTAINED: user      07-FEB-2001 11:48:23

PRODUCT: CICS/FX 04.02 CICS/ABEND-AID/FX
SMF LOGGING: PRODUCT WILL BE LOGGED, DUE TO SITE SPECIFICATION
AUTH CODE: 0123456789ABCDEF CERTIFICATE: 200100199999 VERSION: 02.00.00
STATUS: LONG_TERM START: 14-JUL-1999
LAST MAINTAINED: user      07-FEB-2001 11:48:23

CPU: RB4,9672-5E-001234,***
STATUS:
LAST MAINTAINED: user      07-FEB-2001 11:48:23

```

Product Activity Report

The License Management System writes an SMF record whenever a product or option is used by an application (a CHECKOUT record), and whenever an application is finished with a product or option (a CHECKIN record). The Product Activity Report, as shown in Figure 3-35 on page 3-40, is a listing of the CHECKIN and CHECKOUT records. When you select this report, the SMF Report Data Source screen is displayed. You must enter the SMF record ID that you use for License Management records and the dataset name(s) of the SMF file(s) to be used as input. Optionally, you can enter a start date and time, and an end date and time for the report.

Figure 3-35. Product Activity Report

```

DATE: 08-FEB-2001          COMPUWARE LICENSE MANAGEMENT          PAGE    1
TIME: 12:27:24            PRODUCT ACTIVITY REPORT

CUSTOMER: 999999 customer name
SITE:      999 customer site name
PRODUCT: FILE-AID 08.06 FILE-AID/MVS
CPU:      T26,9672-4E-001234,***

CHECKOUT JOB: SY935020 PGM: FILEAID 18-JAN-2001 1:11:22 RETURN: 0000 0000
JOBSTEP: SPLIT PROCSTEP: USERID: userid
LMS SUBSYS IDS: LOCAL: MLMS  SYSPLEX: SYSPLEX MEMBER:

OPTION: FA/XE 08.06 FILE-AID/MVS/XE
CPU:      T26,9672-4E-001234,***

CHECKOUT JOB: SY935020 PGM: FILEAID 18-JAN-2001 1:11:22 RETURN: 0000 0000
JOBSTEP: SPLIT PROCSTEP: USERID: userid
LMS SUBSYS IDS: LOCAL: MLMS  SYSPLEX: SYSPLEX MEMBER:

CHECKIN JOB: SY935020 PGM: FILEAID 18-JAN-2001 1:12:44 RETURN: 0000 0000
JOBSTEP: SPLIT PROCSTEP: USERID: userid
LMS SUBSYS IDS: LOCAL: MLMS  SYSPLEX: SYSPLEX MEMBER:

```

Activity Extract

Not a report at all, this selection generates a file of the License Management CHECKOUT and CHECKIN records, in comma-separated variable (CSV) format. You can use this file as input to many spreadsheet, database, and report-generator programs and thereby generate your own activity reports. When you select this report, the SMF Report Data Source screen is displayed. You must enter the SMF record ID that you use for License Management records and the dataset name(s) of the SMF file(s) to be used as input. In addition, you need to enter a dataset name and disposition for the generated CSV file. Optionally, you can enter a start date and time, and an end date and time for the report.

Option 6 – Disaster

Disaster mode for License Management allows you to run your Compuware products on non-licensed CPUs for up to seven days. It is intended as an interim solution to quickly respond to a “disaster situation” when your licensed CPUs are not operational. Disaster mode can be enabled without a call to Compuware only by using the LAU.

IMPORTANT

After Disaster mode has been enabled for a site, you cannot remove the disaster recovery mode indicator from your license file or enable it again after the disaster period has expired. You also cannot set another disaster indicator to the same license file. Compuware expects you to set the disaster indicator only at your disaster recovery site, which would be using a restored license file. When you return to your own data center, your original copy of the license file does not have disaster set, and you can run as usual.

Disaster recovery mode applies to an entire site, and when the LAU has been directed to apply disaster recovery to a particular site, and LMSINIT has been run, the following rules apply:

- Disaster recovery mode works just like SPECIAL_ACCES(TEMP). Only products and options that are licensed, and have not yet expired, are allowed to execute on any CPU for the duration of the disaster.
- A return code of 4 and a reason code of 566 are generated for any product checkout request.
- A return code of 4 and a reason code of 577 are generated for any option checkout request.
- One e-mail message per site per day is generated reminding you that you are in disaster recovery mode.

The Disaster option enables you to turn disaster processing ON.

Enable DISASTER Site Screen

The Enable DISASTER Site screen appears when you select 6 from the Main Options screen (Figure 3-36). This screen allows you to enable disaster processing.

Figure 3-36. Enable Disaster Site Screen

```

----- Compuware License Management 02.00.00 -----
Command ==>                                     SCROLL ==> CSR

                                Enable DISASTER Site
Process DSN . . : TS0ID01.License.File

Customer Name  : COMPUWARE DEVELOPMENT TESTING
Number . . . . : 086980
-----
Select Site Id  Name
-----
_      001      Headquarter Production
_      002      Application Development
***** Bottom of data *****

```

Process DSN

Displays the name of the license file currently being used.

Customer Name

Displays the name of the company licensed to use the Compuware product(s).

Number

Displays the Compuware-assigned customer number.

Select

Allows you to select a site for DISASTER SITE processing. When selecting a site, an Enable DISASTER Site screen specific to that site is displayed (Figure 3-37).

However, if disaster has already been enabled for the selected site, the message “LMA070E Disaster has been previously set. It cannot be set again.” displays instead.

Site ID

Displays the Compuware ID code for a site.

Name

Displays the descriptive name for the corresponding site ID.

Figure 3-37. Enable Disaster Site Screen with Disaster Site Processing Specified

```

----- Compuware License Management 02.00.00 -----
Command ==>                                SCROLL ==> CSR

                                Enable DISASTER Site
Process DSN . . : TS0ID01.License.File

Number . . . . : 086980
Name . . . . . : COMPUWARE DEVELOPMENT TESTING
Site Id . . . . : 001
Site Name . . . : Headquarter Production

Verify that you want Disaster Site Enabled Y

Disaster Site processing will be enabled for 7 days from 98/11/16.

```

Process DSN

Displays the name of the license file currently selected.

Number

Displays the Compuware-assigned customer number.

Name

Displays the name of the company licensed to use the Compuware product(s).

Site ID

Displays the selected site ID.

Site Name

Displays the descriptive name for the site ID.

Verify that you want Disaster Site Enabled

Specify whether you want disaster enabled. Valid values are Y (yes) and N (no).

Disaster processing is valid for seven days from the day that you enable it. It expires after seven days. You cannot reset (disable) disaster mode.

Enabling Disaster Processing

To enable disaster processing at your site:

1. Select a site (Figure 3-36 on page 3-41)
2. Press Enter.

3. Enter **Y** on the Enable Disaster Site Screen.
4. Press Enter.
Disaster processing is now set in your license file.
5. Execute LMSINIT (see “LMSINIT” on page 4-1) to activate disaster processing for all affected subsystems. When the LMSINIT job completes successfully, disaster processing is enabled at your site. It expires seven days from the day it was enabled in your license file.

Option 7 – Emergency Password

The Emergency Password option allows you to activate Emergency Password processing. When Option 7 is selected, the Enable/Disable EMERGENCY Password screen opens (Figure 3-38).

Enable/Disable EMERGENCY Password Screen

Emergency Password mode for License Management allows you to access your Compuware product(s) for up to fourteen (14) days. It is intended as an interim solution to quickly respond to an “emergency situation” where, for example, your Compuware product license has expired.

Note: You must call Compuware and request an emergency password. You can activate the Emergency Password feature only with a valid password issued by Compuware. The password includes its own expiration date.

Figure 3-38. Enable/Disable EMERGENCY Password

```

----- Compuware License Management 02.00.00 -----
Command ==>

                Enable/Disable EMERGENCY Password

Process DSN . . : TS0ID01.License.File

Name . . . . . : COMPUWARE
Number . . . . . : 111111

Select Site Id  Name
-----
-       001    Headquarter Production
-       002    Application Development
***** Bottom of data *****

```

Process DSN

Displays the name of the license file currently being used.

Name

Displays the name of the company licensed to use the Compuware product(s).

Number

Displays the Compuware-assigned customer number.

Select

Allows you to select a site for EMERGENCY Password processing. When selecting a site, a Enable/Disable EMERGENCY Password screen specific to that site is displayed (see “Selecting a Site” on page 3-12).

Site ID

Displays the ID code for a site.

Name

Displays the descriptive name for the corresponding site ID.

Selecting a Site

To select a site:

1. Type **S** in the Select field next to the site ID you want to select.
2. Press Enter.

Another Enable/Disable EMERGENCY Password screen opens, displaying information specific to the site ID selected (Figure 3-39).

Figure 3-39. Site-Specific Emergency Password Screen

```

----- Compuware License Management 02.00.00 -- Row 1 to 1 of 1
Command ==>                                SCROLL ==> PAGE

                                EMERGENCY Password Maintenance

Process DSN . . : TSOID01.License.File

Name . . . . . : COMPUWARE
Number . . . . . : 111111
Site Id . . . . . : 001
Site Name. . . . : Headquarter Production

Enter or Remove password _____

```

Site Name

Displays the descriptive name of the site ID.

Site ID

Displays the site ID.

Entering Emergency Password

You receive the emergency password over the phone from Compuware's World Wide Licence Management group. You can use one of the following two ways to enter the emergency password, depending on whether your license file is intact or corrupt:

- Through the LAU
- Through LMSINIT

Use the LAU to apply all emergency passwords that are required for licensing reasons. In other words, the LMS programs are running properly, and the license file is intact, but you have a problem that can be solved only by applying an emergency password.

Use LMSINIT to apply the emergency password only when the your license file is corrupt and cannot be repaired. When the EMERGENCY() parameter is displayed in the LMSINIT //SYSIN file, no license files are opened for use, so even the DD statements that define the files can be removed from the execution JCL. This method is a last resort measure to get Compuware products running.

When the LAU is used to apply an emergency password, it is applied to an entire site. When LMSINIT is subsequently run referencing the site on the license file that has had an emergency password applied, the following processing rules take effect:

- Any product or option that could have run (without the emergency password) runs and does not generate any warning messages about the emergency status. Other warning messages that would have been generated anyway, are still generated.
- Any product or option that could not have run (without the emergency password) runs, and generates warning messages indicating that it is executing under an emergency password. The return and reason codes for a product or option executing because of an emergency password are 4 and 602.
- Products and/or options that were not licensed at the site are allowed to execute.
- One e-mail message per site per day is generated reminding the customer that he is executing in emergency mode if e-mail notification has been activated.

When LMSINIT is used to apply an emergency password, again it is applied to an entire site, and the following processing rules take effect:

- All products and all options execute under the emergency password, regardless of whether they could have run without it, and all licensing requests result in a return code of 4 and a reason code of 602.
- Some Compuware products may not behave as they would with their valid license certificates.
- If e-mail notification has been activated, one e-mail message per site per day is generated reminding the customer that he is executing in emergency mode.

Perform the following to enter the emergency password through the LAU:

- Enter the password in the Enter or Remove password field.
- Press Enter.

The LAU includes the emergency password when it prepares the JCL for LMSINIT (see Chapter 4, "Creating Runtime Environment"). You must execute LMSINIT (see "LMSINIT" on page 4-1) to activate emergency processing.

Note: The emergency password expiration date is calculated from the day Compuware issued it.

To activate an emergency password with LMSINIT alone, edit the LMSINIT JCL and add the EMERGENCY() parameter to the //SYSIN data using the emergency password supplied by Compuware.

Removing Emergency Password

Emergency passwords are backed off in a similar way to how they were originally applied:

- If the LAU was used: it must be invoked again, and after choosing the site that has the emergency password applied, the password is simply "blanked" out by the customer. Close the LAU as usual and run LMSINIT on every LMS subsystem where EMERGENCY was activated.
- If LMSINIT alone was used to apply the emergency password: remove the EMERGENCY() parameter from the //SYSIN data and submit LMSINIT on every LMS subsystem where EMERGENCY was activated.
- Processing reverts to the state it was in before the emergency password was applied (after the appropriate steps above for removing the emergency password have been performed).

Chapter 4. Creating Runtime Environment

The License Management System (LMS) employs a scheme of maintaining an in-storage representation of one or more License Files, and Compuware products request information from this in-storage cache of the License File.

In order to maintain the License File cache, an initialization function must be performed on each operating system image where Compuware applications run. ***This initialization must be performed at least once, following each IPL, as well as any time you make changes to your License File that you want to reflect in the License File cache.***

The rest of this chapter discusses the primary components used for establishing your runtime environment.

LMSINIT

LMSINIT is the LMS program that reads the License File and constructs the License File cache against which runtime product access requests are made. LMSINIT must be executed as a batch job or as a started task each time a change to a License File has been made and is to be activated on your CPUs.

You must provide an APF-Authorized Load Library into which you place the modules for LMSINIT since all load modules for LMSINIT **must** reside in an APF-authorized load library. The module named LMSINIT only must be link-edited with AC=1, all other modules, even though they reside in the APF-authorized Load Library, carry the default AC=0 attribute.

Table 4-1, shown below, presents a list of the LMSINIT module names in the APF-authorized datasets. The modules marked with ** require binding with AC=1. All other modules should be bound with AC=0.

Table 4-1. LMS Module Names in the APF-Authorized Datasets

CWFM	LMACG000	LMACPTR	LMADSALC
LMADTCV	LMAKEYT	LMALFAC	LMALFIM
LMAPARS	LMAREPT	LMASFAC	LMATRAC
LMSAESTA	LMSASSYS	LMSCCACH	LMSCESTA
LMSCHECK	LMSCHKPT	LMSCINIT	LMSCMAIN
LMSCPRNT	LMSCPUID	LMSCSCNV	LMSCTCPI
LMSCTERM	LMSCUPLE	LMSDCOMP	LMSDCTLG
LMSDIDCM	LMSDMAIN	LMSDSV99	LMSEMERP
LMSENMGR **	LMSGETCC	LMSGETMS	LMSICRET
LMSIDLET	LMSIDUMP	LMSIESTA	LMSIFRR
LMSILAKC	LMSIMAIN	LMSINIT **	LMSIPARM

Table 4-1. LMS Module Names in the APF-Authorized Datasets

LMSIPRNT	LMSIREAD	LMSISIM	LMSISMF
LMSISRB	LMSIUPDT	LMSMSGEN	LMSMSGLT
LMSMSGSF	LMSPCARR	LMSPCRTN	LMSPRDEX
LMSPUTCC	LMSRACF	LMSRSMGR	LMSSCOMM
LMSSDUMP	LMSSERVER	LMSSMF	LMSTRACE
LMSTSTCK	LMZADLAT	LMZCHKIO	LMZCSCNV
LMZDELAT	LMZDSECT	LMZEMERP	LMZESTAE
LMZGETMS	LMZIMPOR	LMZINIT	LMZLMAKG
LMZLOGCT	LMZLOGGER	LMZLOGIN	LMZLOGPR
LMZLOGTI	LMZLPCAC	LMZLPMGR	LMZMAIN **
LMZMLFIN	LMZMSGEN	LMZPARM	LMZPRFIO
LMZPRINT	LMZRACF	LMZRECV	LMZSDUMP
LMZSEND	LMZTERM	LMZUSMGR	

You can supply the name of this load library in a STEPLIB or JOBLIB statement in the JCL used to initiate LMSINIT, or you can add the name of this load library to your system's LNKSTxx member in SYS1.PARMLIB. By doing so, you eliminate the need for a STEPLIB or JOBLIB DD in the LMSINIT JCL. But you must still APF-authorize this load library (regardless of whether it is in the LINKLST or not), by adding its name to your PROGxx member in SYS1.PARMLIB. Loss of APF authorization causes LMSINIT to fail.

Compuware does not specifically recommend placing the LMS modules in your LINKLST concatenation, but you can do so. Be aware that you may have to refresh your Library Lookaside Address Space (LLA) if you change any LMS modules, and you want these changed modules to be used for LMS execution. Simply link-editing a new module into the load library may not be sufficient for that module to be used.

You may also encounter conflicts at the time that Compuware ships a new version of the LMS programs if you have chosen to use the system LINKLST to contain the load library into which you place the LMS programs. You may probably find it more convenient to maintain multiple APF-Authorized Load Libraries, one for each release of the LMS system. The names of these libraries should contain the VVRRMM associated with the modules contained in them.

IMPORTANT

LMSINIT must be executed once each time an IPL is performed on any system where Compuware products are to run, even if no changes to your License File have occurred.

An IPL re-initializes all of main storage. Therefore, the previously existing LMS subsystem and License File cache are destroyed, and LMSINIT must be executed to re-establish the runtime environment prior to running any Compuware products.

Compuware strongly recommends that your System Administrator establish a procedure in your SYS1.PROCLIB that represents LMSINIT as a started task that is executed automatically during the IPL process.

WARNING: SPECIAL NOTE TO SYSTEM ADMINISTRATOR

The creation of the LMS subsystem and the license cache is completely automatic. DO NOT define the subsystems in the SYS1.PARMLIB IEFSSNxx member. Doing so causes LMSINIT to fail, and it does not load the licensing cache.

When naming your LMS subsystems, create unique names because these names must be unique within each system image. You can use the same LMS subsystem name for different system images, even if these systems are coupled into a parallel sysplex configuration. These names are discussed in detail in “Subsystem Names”.

Subsystem Names

Under most circumstances, you have only one License Management subsystem active on any given system image at any given time. This subsystem is accessed by all Compuware products in order to determine their executability. You should think of this subsystem as the **default** — the one that is normally used by all Compuware products. Specify *DEFAULT(YES)* in the LMSINIT parameters that load this subsystem. See also “The Default Subsystem” on page 4-3.

But the situation can exist when you want a *second* LMS subsystem active on a particular system image. If you want to control your implementation and use of new releases of Compuware products, or new releases of the License Management System, you can activate additional, separately identified LMS subsystems within a single operating system image for this purpose. This way, you can install and test new software, even on the same operating system image, without affecting your existing LMS subsystems.

Each subsystem must have its own unique 4-character subsystem name. Each subsystem must be independently initialized by LMSINIT. You can use the same License File(s) for the test subsystem as you do for your default (or production) subsystem, or different License Files can be used. Enabling Compuware products to use a secondary LMS subsystem is described in “Choosing a Subsystem” on page 4-4.

The Default Subsystem

In the next section “Choosing a Subsystem” on page 4-4, you can read how the License Management System determines which LMS subsystem should be used to process a license request in the case where more than one LMS subsystem is active on the system. This choice involves the concept of a “Default Subsystem.”

When multiple LMS subsystems are used on the same system, *one and only one* may be designated as the **Default** subsystem. This designation is made by specifying *DEFAULT(YES)* as a parameter to LMSINIT. This subsystem is designated as the default subsystem, and the next section discusses how this default is used during license processing. LMSINIT ensures that only one LMS subsystem carries the designation of “default.” If LMSINIT is directed to create or update a second subsystem with the *DEFAULT(YES)* specification, that LMSINIT terminates with error messages specifying that a default subsystem already exists and a second one is not allowed. If you receive these messages, and if you are certain that your new subsystem should be the default, do one of the following two choices:

- Delete the first subsystem and rerun LMSINIT.
- Rerun LMSINIT and change the *DEFAULT* parameter from *DEFAULT(YES)* to *DEFAULT(YES,FORCE)*.

You may need special authority to specify either (YES) or (YES,FORCE). The *FORCE* operand directs LMSINIT to designate the new subsystem as the default and to remove the default status from the old subsystem.

DEFAULT(YES), or *DEFAULT(YES,FORCE)*, can be a restricted parameter within LMSINIT. The reason for this restriction is that in a given customer installation, only a limited number of personnel should be able to load the default subsystem, whereas any number

of personnel should be able to load secondary non-default subsystems. Therefore, a call to the installation's security system via the RACROUTE macro is made to determine if **the user ID under which LMSINIT is executing has specific authority to set the default subsystem.**

If you are not concerned about providing this protection for the DEFAULT(YES) parameter, then **DO NOT** define the FACILITY class entity to your security system. If this entity is not defined, then access to the DEFAULT(YES) and DEFAULT(YES,FORCE) parameters are not restricted and any LMSINIT user can specify them. If, however, the facility class entity **IS** defined, then the access requirements described in the next paragraph apply.

In order for an installation to run LMSINIT with the DEFAULT(YES) parameter and to restrict access, a FACILITY class entity named **CPWR.PRODUCT.LICENSE.LM010001** must be defined to the installation's security system (RACF, TOPSECRET or ACF/2). An invocation of LMSINIT, which specifies DEFAULT(YES), must execute under a user ID that has **READ** access to this Facility class entity. An invocation of LMSINIT, which specifies DEFAULT(YES,FORCE), must execute under a user ID that has **UPDATE** access to this Facility class entity. See the discussion of the DEFAULT() parameter ("DEFAULT" on page 4-15).

Choosing a Subsystem

When a Compuware product requests access permission, the License Management System first determines which LMS subsystem should be used to process the request. The following rules apply in order to make this determination:

- If there is a DD DUMMY JCL statement for the current job running the product that defines a subsystem name, then that subsystem is used for product execution permission. If the subsystem named in the DD DUMMY statement is not active, the license permission request fails. See "The DD DUMMY JCL Statement" on page 4-5.
- If no DD DUMMY JCL statement exists, the following logic is executed:
 - If only one LMS subsystem is active, then that subsystem is used to process the current request regardless of whether it is the *default* subsystem or not.
 - If more than one License Management subsystem is active that is able to process the current request (see versions of License Management later in this section), then the subsystem which has been designated as the *default* subsystem is used.
 - If more than one License Management subsystem is active, but only one of them is able to process the current request then that subsystem is used for the current request.

You may find the above list complicated. It can be simplified this way: When you install License Management for the first time, designate that subsystem as your *default* subsystem. If you want to run a second subsystem concurrently with the default subsystem, be sure to include DD DUMMY JCL statements in any job that accesses the secondary subsystem. In this way, you always use the subsystem you want to use. When you are satisfied that the secondary subsystem is working correctly, simply update the modules in the load library for LMSINIT (if you are testing a new version of License Management), or update your production license files with the new information (if you are testing new license certificates or product releases).

Remember: You can execute LMSINIT at any time without regard to the fact that Compuware products may be active on the system image at the time of LMSINIT execution. You do not need to be concerned that by refreshing the cache you may cause executing Compuware products to fail. What you do need to be concerned about is that an update to an existing license file is as you intended it. For this reason Compuware recommends the use of a secondary subsystem for a test environment any time extensive changes to a license file are made.

The DD DUMMY JCL Statement

When you want to use a secondary License Management subsystem in order to test that the subsystem code is working correctly, or that changes made to your license files are accurate, you should direct each Compuware product that you want to test to the secondary subsystem. This is accomplished by including a DD DUMMY JCL statement into that product's execution. If the product is a batch job or a started task, then this DD statement should go with the remaining JCL that executes the product. If the product runs under TSO (e.g., an ISPF application), then this DD statement should go into your TSO LOGON procedure.

The format of the DD statement is as follows:

```
//Cwidssss DD DUMMY
```

where *id* is replaced with the 2-character identification code of the product in question (see Appendix G, "Compuware Product Codes" for a list of these codes), and *ssss* is the four-character name of the subsystem for which you want to process license requests.

Note: The first two characters of the DDNAME are **always** *CW*.

Under TSO, the format of this allocation could be:

```
ALLOC FILE(Cwidssss) DUMMY
```

LMSINIT Functions

Each execution of LMSINIT can perform one of three functions:

- CREATE - Create a new LMS Subsystem
- UPDATE - Update an existing subsystem or create a new LMS Subsystem
- DELETE - Delete an existing LMS Subsystem

Use the CREATE function to verify that a subsystem name does not duplicate any other subsystem on the system image. LMSINIT creates the new subsystem only if no subsystem of the same name exists.

Use the UPDATE function whenever an existing LMS subsystem, including the License File data, is to be changed or when upgrading to a new release. You must first run LMSINIT with FUNCTION(DELETE) followed by a FUNCTION(UPDATE) or FUNCTION(CREATE). FUNCTION(DELETE) is required so that all storage occupied by the previous release of LMS is released before the new version is allowed to execute.

UPDATE also creates a new LMS subsystem if one did not already exist. You must execute LMSINIT specifying FUNCTION(UPDATE) whenever any changes have been made to the License Files or to the LMS system.

Use FUNCTION(DELETE) whenever you want to release all storage occupied by an LMS subsystem, possibly because you want to establish a new subsystem and do not want excessive virtual storage to be allocated. In addition, you must run FUNCTION(DELETE) whenever a new release of LMS is to execute and you want to reuse the same subsystem name as used with the prior version of LMS.

Even after executing LMSINIT with FUNCTION(DELETE), you see a system Subsystem Control Table (SSCT) entry for the subsystem you just deleted. This SSCT entry is purposely left by LMSINIT, and you should not be concerned that it exists. If you subsequently run LMSINIT with FUNCTION(CREATE) or FUNCTION(UPDATE), this same SSCT entry is reused.

LMSINIT Datasets

Zero or more license files can be processed by a single invocation of LMSINIT. The execution where no license files are supplied is intended for when execution options only are to be changed, and no changes to the in-storage license information is needed. These execution options include changing the SMF record type code, changing the GTF identification, or changing the message language.

Checkpoint Dataset

LMSINIT requires one checkpoint dataset for its execution. See “Checkpoint File” on page 4-22 for more information.

Input Datasets

LMSINIT requires one input dataset: DDNAME SYSIN. It contains the control information needed by LMSINIT for its execution. One or more optional license files can be available as input to LMSINIT. Each license file contains the license information for one company (or customer). Most of the sites that run the License Management System, have only one license file, the one that describes the customer owning the site. Some customers are service bureaus who provide computing services for multiple outside companies. These service bureaus would have one license file for each outside company and one license file for the service bureau itself.

SYSIN

The SYSIN dataset is a set of 80-byte records that control the execution of LMSINIT. Figure 4-2 on page 4-8 shows the valid parameters contained in this dataset.

Output Datasets

LMSINIT requires only one output dataset, and that one is named by the DDNAME SYSPRINT. LMSINIT records a complete execution record in this dataset in a format suitable for immediate browsing by appropriate personnel. The next section describes the contents of this dataset.

SYSPRINT

Following is an example of the data written to the SYSPRINT:

Figure 4-1. SYSPRINT Report from LMSINIT. Example of an LMSINIT Execution.

```

DEC 01 1997          COMPUWARE CORPORATION LICENSE MANAGEMENT
15:33:32.22        SYSTEM INITIALIZATION REPORT
LM5004I - SYSIN CONTROL STATEMENTS:
....+....1....+....2....+....3....+....4....+....5....+....6...
*****
**
**          TEST LICENSE INITIALIZATION SYSIN DATA          **
**
*****
FUNCTION(UPDATE)           /* SPECIFY FUNCTION           */
SUBSYSTEM_ID(LNA1)        /* SPECIFY SUBSYSTEM ID       */
SITE(001)                 /* SPECIFY SITE ID           */
DEFAULT(YES)             /* INDICATE DEFAULT          */
LANGUAGE(EN)             /* SPECIFY MESSAGE LANGUAGE   */
CHKPT_DSNAME(MY.DATASET.NAME) /* SPECIFY CHECKPOINT DSNAME */
CHKPT_VOLSER(1232456)    /* SPECIFY CHECKPOINT VOLUME */
SMF_ID(255)              /* SMF_ID(255) IS X'FF'      */
GTF_ID(820)              /* GTF_ID(820) IS X'0334'    */
....+....1....+....2....+....3....+....4....+....5....+....6...
LM5011I - PARSE OF CONTROL CARDS COMPLETE
LM5003I - HIGHEST RETURN CODE = 00000000

```

LMSINIT Parameters

Figure 4-2 shows the valid parameters for LMSINIT execution. Following that is a description of each of the control words used.

Figure 4-2. Sample LMSINIT Parameters Dataset

```

*****
**  LMINPARM - SAMPLE LMSINIT PARAMETER FILE          **
*****
*
*****
**                                                    **
**  The following are REQUIRED parameters for LMSINIT  **
**  execution, preceded by a brief description of valid **
**  entries.                                          **
**                                                    **
**  Consult the ECC: LMS USER REFERENCE GUIDE for a   **
**  more detailed description of these LMSINIT parameters **
*****
**  UPDATE - Creates a new LMS Subsystem and/or      **
**            updates an existing subsystem          **
**  CREATE - Creates a new LMS Subsystem             **
**  DELETE - Deletes an existing LMS Subsystem      **
*****
*
  FUNCTION(UPDATE)          /* CREATE, UPDATE, OR DELETE */
*
*****
**  This number (or numbers) tell LMSINIT which site(s) to
**  load from the license file(s) into the license cache.
**  Site numbers are defined in the license certificates.
**
**  There are three different formats of the SITE operand.
**
**  1. SITE(nnn)
**  2. SITE(ddname,nnn)
**  3. SITE((ddname1,nnn),(ddname2,mmm)....,(ddnamen,ppp))
*****
*
  SITE()                    /* 3 DIGIT SITE NUMBER      */
*
*****
**  The value specified on the SUBSYSTEM_ID operand names
**  the OS/390 subsystem that this invocation of LMSINIT
**  is to process. This value can contain upper and lower
**  case letters and numbers, and any special characters.
**
**  It is necessary to coordinate the use of subsystem
**  identifier, such that no duplicate names exist,
**  either within the set of License Management
**  subsystems, or across all subsystems defined to OS/390.
**  You should check with your systems programmer to ensure
**  that the SUBSYSTEM_ID value you have chosen is not
**  already in use.
*****
*
  SUBSYSTEM_ID()           /* 4 CHARACTER SUBSYSTEM ID */
*
*****
**  This operand defines whether this SUBSYSTEM_ID is to
**  be declared the default subsystem DEFAULT(YES),
**  DEFAULT(YES,FORCE) or is not DEFAULT(NO).
**
**  Default Subsystems require special authority to define.
**
**  See "The Default Subsystem" topic in the ECC: LMS USER
**  REFERENCE GUIDE for a discussion of how this parameter
**  affects license processing.
*****
*
  DEFAULT()                /* "NO" "YES" OR "YES,FORCE" */
*
*****
**  LMS 2.0 requires a checkpoint data set be available to
**  LMSINIT and to certain operating system exits at all
**  times. This data set is created automatically by LMINIT
**  if it does not already exist, or it is updated if it does

```

```

** exist. You must specify the name of this data set,
** either using the parameters described here, or by a
** special DD statement in the LMSINIT JCL.
**
*****
*
*****
*
** CHKPT_DSNAME specifies the 1 to 44 character dsname of
** the LMS 2.0 checkpoint data set. LMSINIT will create this
** data set automatically, if it does not already exist.
** NOTE: The USERID under which LMSINIT is run MUST have
** ALTER access to the security system (RACF, ACF/2,
** TOPSECRET) entity named by this DSNAME. The IDCAMS
** utility is dynamically invoked to define this data set.
** See the other (optional) checkpoint data set parameters
** later in this member.
**
**
*****
*
      CHKPT_DSNAME()
*
*****
** The following are OPTIONAL parameters for LMSINIT      **
** execution, preceded by a brief description of valid    **
** entries.                                               **
**
** Consult the ECC: LMS USER/REFERENCE GUIDE for a more  **
** detailed description of these LMSINIT parameters.     **
*****
** The SERVICE_BUREAU operand controls the use of an     **
** external security manager (RACF, ACF/2, or TOPSECRET) **
** in determining a user's access to licenses in the     **
** cache. This operand is used ONLY for invocations     **
** of LMSINIT that contain multiple //CWLFXxxx DD       **
** statements or specifies multiple SITE values.         **
*****
      SERVICE_BUREAU()          /* "YES" OR "NO" */
*****
** The value specified on the SMF_ID operand defines the
** SMF Record ID number that is to be used on all SMF
** records written by the License Management System.
** The SMF_ID must be a 3 digit number in the range of
** 128 through 255.
*****
      SMF_ID()                  /* 1-3 DIGIT SMF RECORD ID */
*
** The value specified on the GTF_ID operand defines the
** GTF Record ID number that is to be used on all GTF
** records written by the License Management System.
**
** Note: You should not specify a GTF_ID unless your are
** diagnosing a license management program error and are
** directed by Compuware to invoke GTF recording.
*****
      GTF_ID()                  /* 1-5 DIGIT GTF RECORD ID */
*
** The value specified on the LANGUAGE operand specifies
** the language that error messages are to use. This two
** character operand can specify the following languages:
**
** EN - English
**
** If LANGUAGE is not specified,
** then 'EN' (English) is chosen.
*****
      LANGUAGE()                 /* 2 CHAR COUNTRY CODE */
*
** LMSINIT has the ability to load an emergency license
** cache even if the license file is unavailable or has
** become corrupted.
**
** The value required on the EMERGENCY operand is obtained
** by calling the Worldwide Licence Management department

```

```

**      at Compuware, and by requesting an emergency password.
**      This password can also be entered using the License
**      Administration Utility to update the license file.
**
**      If, however, the license file or LAU is not available
**      you can specify the EMERGENCY password in the LMSINIT
**      parameter dataset. Then remove all CWFnnnn DD
**      statements from the LMSINIT execution JCL and submit
**      the JCL.
**
**      When a legitimate emergency password is present in the
**      LMSINIT sysin dataset, all Compuware products will be
**      allowed to execute on the CPUs that LMSINIT established
**      a license cache for.
**
**      The password includes its expiration date.
**      The expiration date can be from 2 to 14 days from the
**      date of issue.
*****
*
*      EMERGENCY()          /* EMERGENCY PASSWORD          */
*
*****
**
**      CHKPT_VOLSER specifies the 6 character volume serial of
**      the DASD volume on which the checkpoint data set is to
**      reside. This parameter is optional. If it does not exist,
**      your system installation defaults for VSAM data sets will
**      be used to determine the placement of this data set. You
**      must insure that any VOLSER you specify is consistent
**      with the SMS class definitions that may also exist.
**
*****
*
*      CHKPT_VOLSER()
*
*****
**
**      CHKPT_STORCLASS, CHKPT_DATACLASS and CHKPT_MGMTCLASS
**      specify the names your installation has chosen to
**      describe the allocation of this VSAM checkpoint data set.
**      These parameters are optional, but if specified, will be
**      used within the IDCAMS DEFINE control statements when
**      the data set is created.
**
*****
*
*      CHKPT_STORCLASS()
*      CHKPT_DATACLASS()
*      CHKPT_MGMTCLASS()
*
*****
**
**      The value specified on the SITE_WARNING parameter
**      specifies whether you want LMSINIT to complete with a
**      return code of 4 whenever SITE records in a license file
**      are skipped (YES), or you want LMSINIT to complete with
**      a return code of 0 (NO). LMS 1.0 always completed with a
**      return code of 4 when LMSINIT detected that there were
**      SITE records in the license file that were not loaded,
**      because their SITE number was not included in the SITE()
**      parameter. If you omit the SITE_WARNING parameter, this
**      behavior will exist in LMS 2.0 as well. But if you know
**      that you are skipping SITE records, and you want a
**      return code of 0 so that your automated operator program
**      will detect this return code, then include the
**      SITE_WARNING parameter and specify a value of NO. If
**      this parameter is omitted SITE_WARNING(YES) is used as a
**      default.
**
*****
*
*      SITE_WARNING()          /* YES or NO          */
*
*****
**
**      The next three LMSINIT parameters define master console
**      commands which can automatically be issued by LMSINIT.
**      LMSINIT can complete with a return code of 0, a return
**      code of 4 or a return code of 8 or greater. Each of
**      these three conditions can have a unique console command
**      associated with it. LMSINIT will issue the command that
**      represents the current return code.
**

```

```

**      Compuware does not supply any procedures to be started
**      by these commands. It is the customer's responsibility
**      to insure that any PROC specified in a command exists in
**      an appropriate procedure library.
**
**      The examples below issue an OS/390 "START" command. But
**      any valid operator command could be issued as well.
**
**      If no command is specified for a particular return code
**      value, then no command is issued when that return code
**      occurs.
**
**      Any, all or none of the three return code conditions
**      can have a command associated with it.
**
**      Commands can be the same or different for each of the
**      three return codes.
**
**      The commands will be issued as if they were entered at
**      the Master Console, and the Security (RACF, ACF/2 or
**      TOPSECRET) USERID will be the USERID under which LMSINIT
**      is running. Insure that this USERID has the appropriate
**      authority to issue Master Console commands, and note well
**      the discussion of the LMS FACILITY class entity which
**      follows:
**
**      The ability to issue operator commands as if they came
**      from the master console is one that must be carefully
**      protected. Therefore, LMS REQUIRES that a FACILITY class
**      entity named CPWR.PRODUCT.LICENSE.LM010001 be defined to
**      your security system (RACF, ACF/2 or TOPSECRET), and that
**      the USERID under which LMSINIT executes be granted at
**      least CONTROL access to this entity. This entity is the
**      same one that is used to grant the ability to specify
**      DEFAULT(YES) or DEFAULT(YES,FORCE) in the LMSINIT parms,
**      but whereas you may choose not to define this entity just
**      to protect the DEFAULT() parameter, you MUST define it
**      in order to issue operator commands. If this entity is not
**      defined, then LMSINIT will not allow operator commands to
**      be specified, and if any is, LMSINIT will terminate with
**      an error return code. Note too, that if any errors occur
**      within the parameter validation routines, that operator
**      commands will not be issued. You will have corrected any
**      specification errors before putting LMSINIT into your
**      production procedure library, and these kinds of errors
**      should not occur in normal use.
**
**      Rules for coding these commands follow:
**
**      If the command contains blanks, then enclose the entire
**      command in single (') or double (") quotes.
**
**      If the command contains blanks and single quotes, then
**      enclose the entire command in double (") quotes.
**
**      If the command contains blanks and double quotes, then
**      enclose the entire command in single (') quotes.
**
**      The single or double quotes will be removed before the
**      command is issued.
**
**      Example:
**
**      SUCCESS_CMD("START someproc,PARM='RC=0'")
**      WARNING_CMD('START othrproc,PARM="RC=4"')
**
*****
*
    SUCCESS_CMD()          /* ISSUED IF RETURN CODE = 0 */
    WARNING_CMD()         /* ISSUED IF RETURN CODE = 4 */
    ERROR_CMD()           /* ISSUED IF RETURN CODE > 4 */
*
*****
**
**      The remaining LMSINIT parameters define the E-mail
**      Notification Facility (ENF).
**
**      If you are not using this facility, you may skip the
**      rest of these parameters.
**
*****
*
*****
**      TCP/IP_NAME specifies the name of the TCP/IP protocol
**      stack that is active on this CPU

```

```

*****
*
*   TCPIP_NAME()           /* NAME OF TCP/IP REGION   */
*
*****
**   The EMAIL() parameter further limits the number of E-MAIL
**   messages that are automatically generated. The defaults
**   are shown below. The values that can be coded in place
**   of "WARN" and "NONE" or "FAIL". "NONE" specifies that no
**   E-MAIL messages are to be generated for the product or
**   the option. "FAIL" specifies that only E-MAIL messages
**   reporting failure conditions (i.e. the product or the
**   option is not allowed to execute) are to be generated.
**   "WARN" specifies that both warning and failure messages
**   are to be generated. E-MAIL messages are still only
**   generated once per product/option per CPU per day, but
**   by specifying the EMAIL parameter, even these messages
**   can be further limited. This parameter does not affect
**   the messages that products display when warning or
**   failure conditions occur. This parameter ONLY limits the
**   generation of E-MAIL messages.
*****
*
*   EMAIL(PRODUCT(WARN),OPTION(WARN)) /* limit E-MAIL */
*
*****
**   For Release 3.4 and above of IBM's TCP/IP only:
**   Specify a USERID that the License Management Run Time
**   Environment is to use.
*****
*
*   TCPIP_USERID()        /* TCP/IP USERID          */
*
*****
**   Specify the name, as defined in the domain name server
**   used by this mainframes TCP/IP, of the gateway host
**   used in your network to access the Internet.
**
**   Note: If you specify INTERNET_GATEWAY_NAME, you cannot
**   specify INTERNET_GATEWAY_ADDR. These two operands are
**   alternate methods for specifying the same resource
**   to LMSINIT. One of these two methods MUST be chosen,
**   but both of them cannot be.
*****
*
*   INTERNET_GATEWAY_NAME() /* NAME OF INTERNET GATEWAY */
*
*****
**   Specify the address (in dotted decimal notation of the
**   form nnn.nnn.nnn.nnn, where n is a decimal number from
**   1 to 255) of the gateway host used in your network to
**   access the Internet.
**
**   Note: If you specify INTERNET_GATEWAY_ADDR, you cannot
**   specify INTERNET_GATEWAY_NAME. These two operands are
**   alternate methods for specifying the same resource
**   to LMSINIT. One of these two methods MUST be chosen,
**   but both of them cannot be.
*****
*
*   INTERNET_GATEWAY_ADDR() /* ADDR OF INTERNET GATEWAY */
*
*****
**   Specify the port number on your Internet gateway host
**   that is used for SMTP traffic destined for the Internet.
**   The default port number that LMSINIT assigns if this
**   operand is omitted is 25, and in all but a very few
**   cases this default is appropriate.
*****
*
*   INTERNET_GATEWAY_PORT() /* PORT NUMBER ON GATEWAY */
*
*****
**   Specify the Internet e-mail address (or name) in the
**   form name@institution.type of the individual
**   (or department) that is to be designated as the sender
**   of e-mail messages. This name will appear as the
**   FROM: name on all e-mails automatically generated by
**   the License Management System.
*****
*
*   MAIL_FROM_NAME()      /* INTERNET E-MAIL FROM NAME */
*
*****
**   Specify the Internet e-mail address (or name) in the

```

```

**      form name@institution.type of the individual
**      (or department) that is to receive all automatically
**      generated e-mail messages relating to product
**      licensing errors.
*****
*
*      MAIL_TO_SEC_NAME()      /* INTERNET E-MAIL TO NAME */
*
*****
**      Specify the Internet e-mail address (or name) in the
**      form name@institution.type of the individual
**      (or department) that is to receive all automatically
**      generated e-mail messages relating to Compuware
**      License Management software errors (program ABENDs).
*****
*
*      MAIL_TO_ABN_NAME()      /* INTERNET E-MAIL TO NAME */
*
*
*      End of Parameter listing
*

```

General Rules for Coding

- The input file allows multiple operand identifiers and their associated values on a single record.
- The operand and its associated value can start in any column and can be continued on more than one statement.
- Columns 1 through 71 are available for use.
- Column 72 is reserved.
- Columns 73 through 80 can be used for sequence numbers. They are ignored by LMSINIT.
- To continue an operand on a second statement, complete the first statement through column 71 and continue the operand on the next statement starting in column 1.
- All operands and their values are converted to uppercase by LMSINIT.
- Only one occurrence of each operand is allowed. If duplicates exist, the last one encountered is used.
- An asterisk '*' in column one makes the entire statement a comment.
- Line level comments are supported using the '/' to start a comment and '*/' to end the comment. Imbedded comments are supported.

FUNCTION

Required operand. The FUNCTION operand specifies one of three values:

- FUNCTION(CREATE)
- FUNCTION(UPDATE)
- FUNCTION(DELETE)

FUNCTION(CREATE)

is used to define a new SUBSYSTEM_ID value for the first time. CREATE specifies that this SUBSYSTEM_ID value should be added to the operating system table of subsystems. LMSINIT will not process a CREATE request if the value specified for SUBSYSTEM_ID already exists in the subsystem table.

FUNCTION(UPDATE)

is used to define a new SUBSYSTEM_ID value for the first time or to change an existing SUBSYSTEM_ID value. Therefore, LMSINIT will process the UPDATE request for both new and existing SUBSYSTEM_ID processing.

FUNCTION(DELETE)

is used to delete an existing SUBSYSTEM_ID value from the table of subsystems. LMSINIT will process the DELETE request only if the SUBSYSTEM_ID value names a subsystem already active in the subsystem table.

SITE

Required operand. The specification of a site number is required for LMSINIT execution. This number (or numbers) tells LMSINIT which site(s) to load from the license file(s) into the license cache.

There are three different formats of the SITE operand.

- SITE(nnn)
- SITE(ddname,nnn)
- SITE((ddname1,nnn),(ddname2,mmm).....,(ddnamen,ppp))

SITE(nnn)

Use this format when only a single site is to be loaded into the cache from one or more license files. DD statements must be included in the LMSINIT JCL named //CWLFXxxx DD, where xxxx can be any alphanumeric characters. One //CWLFXxxx DD statement must exist for each license file to be processed. The site records from all of the license files for the single site number will be loaded into the cache.

SITE(ddname,nnn)

Use this format when only a single site is to be loaded into the cache from a single license file. One DD statement is required with the same name specified in the site operand. The specified site records from this license file will be loaded into the cache.

SITE((ddname1,nnn),(ddname2,mmm).....,(ddnamen,ppp))

Use this format when different site numbers are to be loaded into the cache from one or more license files. One DD statement for each sub-operand in the SITE parameter must be specified in the LMSINIT JCL. Each sub-operand in the SITE parameter specifies a DDNAME and a site number to be loaded from the license file represented by that DDNAME.

Note: If you are using the third format, then the entire SITE operand is enclosed within parentheses, and each sub-operand is enclosed in parentheses as well.

SUBSYSTEM_ID

Required operand. The value specified on the SUBSYSTEM_ID operand names the subsystem that this invocation of LMSINIT will process. This value can contain only uppercase letters and numbers.

Although the operating system allows subsystem names to contain lowercase letters and special characters, LMS does not because the subsystem name may need to be included in the DDNAME of a //CWIDSSSS DD DUMMY statement. Therefore, the value chosen for SUBSYSTEM_ID must also be valid in a DDNAME.

You must coordinate the use of the subsystem identifier, because duplicate names are not allowed, either within the set of License Management subsystems, or across all subsystems defined. Check with your systems programmer to ensure that the SUBSYSTEM_ID value you have chosen is not already in use.

DEFAULT

Required operand. This operand defines whether this SUBSYSTEM_ID will be declared the default subsystem. Your choices are DEFAULT(YES), DEFAULT(NO), or DEFAULT(YES,FORCE).

CHKPT_DSNAME

Required operand. License Management System Release 2.0 requires a checkpoint dataset to be available LMSINIT and to certain operating system exits at all times. This dataset is created automatically by LMSINIT if it does not already exist, or it is updated if it does exist. You must specify the 1- to 44-character name of this dataset, either using the parameters described here, or by a special DD statement in the LMSINIT JCL.

Note: The user ID under which LMSINIT is run must have ALTER access to the security system (RACF, ACF/2, TOPSECRET) entity named by this dataset name. The IDCAMS utility is dynamically invoked to define this dataset.

SERVICE_BUREAU

Optional operand. You may specify SERVICE_BUREAU(YES) or SERVICE_BUREAU(NO). If omitted, the default is SERVICE_BUREAU(YES). This operand controls the use of RACF (ACF/2 or TOPSECRET) when multiple license files are used as input to LMSINIT.

If you have only one License File, you may ignore this operand. In a true service bureau environment [SERVICE_BUREAU(YES)], access to a particular license file cache must be controlled by RACF so that users of Compuware products are restricted to using only the product set validly licensed for them. See the discussion of service bureaus in Appendix F, "Service Bureau Environment".

A non-service bureau customer may want multiple license files but without the associated RACF security checking that would normally occur. By specifying SERVICE_BUREAU(NO), you can process multiple license files as if the data in them were all contained in a single file. That is, the requirement to define the license file names to RACF is eliminated.

SMF_ID

Optional operand. The value specified on the SMF_ID operand defines the SMF Record ID number to be used on all SMF records written by the License Management System. The SMF_ID must be a three-digit number in the range of 128 through 255.

If SMF_ID is not specified, then SMF recording will not take place regardless of the specification on any license file concerning this recording. Therefore, this operand is required before any SMF recording can occur.

You must coordinate the use of SMF identifiers so that no duplicate numbers are defined to any program or system writing SMF records. Check with your systems programmer to ensure that the SMF_ID value you have chosen is not already in use.

Note: Specifying SMF_ID here does not automatically start SMF recording. SMF recording is performed on a product-by-product basis and is activated via an indicator within the file itself (see the descriptions of SMF Logging and Log fields in "Update License File Screen" on page 3-10.) This operand and its value only define which SMF_ID will be used when SMF recording is activated.

LOGALL Subparameter

A subparameter is available for the LMSINIT SMF(nnn) parameter. This parameter can be specified as SMF(nnn,LOGALL).

LOGALL forces all license checkout and checkin to be logged to the SMF datasets regardless of the settings of the SMF_LOG parameters within the license file. This causes the SMF logging indicators in the license file to be ignored.

GTF_ID

Optional operand. The value specified on the GTF_ID operand defines the GTF Record ID number to be used on all GTF records written by the License Management System.

If GTF_ID is not specified, then no GTF tracing will take place.

Note: Do not specify a GTF_ID unless you are diagnosing a license management program error and are directed by Compuware to invoke GTF recording.

You must coordinate the use of GTF identifiers so that no duplicate numbers are defined to any program or system writing GTF records. Check with your systems programmer to ensure that the GTF_ID value you have chosen is not already in use. See also Appendix C, "GTF Trace".

LANGUAGE

Optional operand. The value specified on the LANGUAGE operand designates the language that error messages will use. The only valid value for this 2-character operand is EN (English).

If LANGUAGE is not specified, then EN (English) is selected.

EMERGENCY

Optional operand. LMSINIT has the ability to load an emergency license cache even if the license file is unavailable or has become corrupted. The value required on the EMERGENCY operand is obtained by calling the Worldwide License Management department at Compuware and by requesting an emergency password.

Remove all CWFnnnn DD statements from the LMSINIT execution JCL and submit the JCL.

When a legitimate emergency password is present in the LMSINIT sysin dataset, all Compuware products will be allowed to execute on the system where LMSINIT is run.

The password includes its expiration date. The expiration date can be from 2 to 14 days from the date of issue.

CHKPT_VOLSER

Optional operand. This parameter specifies the 6-character volume serial of the DASD volume on which the checkpoint dataset is to reside. If it does not exist, your system installation defaults for VSAM datasets are used to determine the placement of this dataset. You must ensure that any VOLSER you specify is consistent with the SMS class definitions that may also exist.

CHKPT_STORCLASS, CHKPT_DATACLASS, CHKPT_MGMTCLASS

Optional operands. These parameters specify the names your installation has chosen to describe the allocation of this VSAM checkpoint dataset. If specified, these parameters are used within the IDCAMS DEFINE control statements when the dataset is created.

SITE_WARNING

Optional operand. The value specified on the SITE-WARNING parameter specifies whether you want LMSINIT to complete with a return code of 4 whenever SITE records in

a license file are skipped (YES), or you want LMSINIT to complete with a return code of 0 (NO). LMS 1.0 always completed with a return code of 4 when LMSINIT detected that there were SITE records in the license file that were not loaded because their SITE number was not included in the SITE() parameter. If you omit the SITE_WARNING parameter, this behavior will exist in LMS 2.0 as well. But, if you know that you are skipping SITE records, and you want a return code of 0 so that your automated operator program will detect this return code, then include the SITE_WARNING parameter and specify a value of NO. If this parameter is omitted SITE_WARNING(YES) is used as a default.

SUCCESS_CMD, WARNING_CMD, and ERROR_CMD

Optional operands. These three LMSINIT parameters define master console commands that can automatically be issued by LMSINIT. LMSINIT can complete with a return code of 0, a return code of 4, or a return code of 8 or greater. Each of these three conditions can have a unique console command associated with it. LMSINIT will issue the command that represents the current return code.

Compuware does not supply any procedures to be started by these commands. It is the customer's responsibility to ensure that any PROC specified in a command exists in an appropriate procedure library.

The examples below issue an OS/390 "START" command. But any valid operator command could be issued as well.

- If no command is specified for a particular return code value, then no command is issued when that return code occurs.
- Any, all, or none of the three return code conditions can have a command associated with it.
- Commands can be the same or different for each of the three return codes.
- The commands will be issued as if they were entered at the Master Console, and the Security (RACF, ACF/2 or TOPSECRET) USERID will be the USERID under which LMSINIT is running. Ensure that this USERID has the appropriate authority to issue Master Console commands.

Rules for coding these commands follow:

- If the command contains blanks, then enclose the entire command in single (') or double (") quotes.
- If the command contains blanks and single quotes, then enclose the entire command in double (") quotes.
- If the command contains blanks and double quotes, then enclose the entire command in single (') quotes.
- The single or double quotes will be removed before the command is issued.

Example:

```
SUCCESS_CMD("START someproc,PARM='RC=0'")
WARNING_CMD('START othrproc,PARM="RC=4"')
```

Optional E-mail Parameters

The remaining LMSINIT parameters define the License Management System E-mail Notification Facility (ENF). If you are not using this facility, you may skip the rest of these parameters.

EMAIL

Optional operand. By using this operand, you may further limit the number of automatically generated e-mail messages from the LMS system. You cannot cause LMS to generate more e-mail messages, only fewer messages. This parameter allows you to do the following:

- Eliminate warning e-mail messages for PRODUCTS, but still generate failure e-mail messages.
- Eliminate warning e-mail messages for OPTIONS, but still generate failure e-mail messages.
- Eliminate all e-mail messages for PRODUCTS.
- Eliminate all e-mail messages for OPTIONS.
- Not change the existing limits.

For example:

```
EMAIL(PRODUCT(xxxx),OPTION(yyyy))
```

Where xxxx is one of the following:

NONE

No e-mail messages are generated for any product

WARN

E-mail generated for products that are allowed to run, but a warning condition exists (for example, product within 14 days of expiration).

FAIL

E-mail generated only if the product is not allowed to run.

Where yyyy is one of the following:

NONE

No e-mail messages are generated for any option.

WARN

E-mail generated for options that are allowed to run, but a warning condition exists (for example, option within 14 days of expiration).

FAIL

E-mail generated only if the option is not allowed to run.

The EMAIL parameter only affects automatically generated e-mail messages. It does NOT affect messages displayed by Compuware products.

CAUTION

This parameter DOES affect the generation of e-mail messages regarding DISASTER MODE and/or EMERGENCY PASSWORD MODE. If you eliminate warning messages for products, you will not see e-mail messages about DISASTER or EMERGENCY.

TCPIP_NAME

Optional operand. By including this operand, you indicate that you want to activate the automatic e-mail notification facility. See Appendix E, "E-Mail Notification Facility" before coding these LMSINIT operands.

TCPIP_NAME specifies the name of the TCP/IP protocol stack that is active on this CPU:

- If you are using IBM's TCP/IP (release 3.2, 3.4 and above), then this name must match the name specified as TCPIPJOBNAME in the TCPDATA member of the TCPPARMS dataset used to initialize TCP/IP. If you do not know what this name is, your mainframe network administrator will be able to find this name and tell you what it is.
- If you are using the Interlink Corporation's TCPAccess TCP/IP (release 4.1 and above), then this name must match the SSN= operand on the EXEC statement in the procedure used to invoke the TCPAccess TCP/IP. If you do not know what this name is, your mainframe systems programmer will be able to find the TCPAccess procedure in the system PROCLIB and tell you what is coded on the SSN= operand.

TCPIP_USERID

Optional operand. Specify a user ID that the License Management Run Time Environment will use when accessing Release 3.4 and above of IBM's TCP/IP. If you are using IBM's TCP/IP release 3.2, or if you are using any release of the Interlink Corporation's TCP access, then you must omit this operand. And, if you omit this operand, then the Run Time Environment will simply connect with TCP/IP under the user ID that initially invoked the Compuware product.

Starting with Release 3.4 of TCP/IP, IBM has intertwined TCP/IP with the OS/390 UNIX SYSTEM SERVICES. This interrelationship requires that your systems programming staff provide one of the following environments:

- A default UNIX SYSTEM SERVICE user definition that has the authority to issue TCP/IP calls.
- A specific user ID that has this authority.
- An environment where all user IDs have the UNIX SYSTEM SERVICE authority to connect with and use TCP/IP.

For the first and third environments above, you need not concern yourself with this operand. If, however, your systems staff has designated only a limited number of user IDs as being defined to UNIX SYSTEM SERVICES, then you must specify one of those user IDs on this LMSINIT operand.

The following operands describe how e-mail messages are routed.

INTERNET_GATEWAY_NAME

Optional operand. Although this operand is named INTERNET_GATEWAY_NAME, the value you specify must be the name (known to the domain name server for your OS/390 host) of your mail server. In many instances, the mail server host name is the same as the Internet gateway host name, but it need not be. The host, represented by this name, must be the one capable of receiving and forwarding Simple Mail Transport Protocol (SMTP) mail message for your enterprise. If you include this operand, do not also specify INTERNET_GATEWAY_ADDR.

INTERNET_GATEWAY_ADDR

Optional operand. Although this operand is named INTERNET_GATEWAY_ADDR, the value you specify must be the IP address (in dotted decimal notation) of your mail server. In many instances, the mail server host address is the same as the Internet gateway host address, but it need not be. The host represented by this name must be the one capable of receiving and forwarding Simple Mail Transport Protocol (SMTP) mail messages for your enterprise. If you include this operand, do not also specify INTERNET_GATEWAY_NAME.

Note: You cannot specify both INTERNET_GATEWAY_ADDR and INTERNET_GATEWAY_NAME. These two operands are alternate methods for specifying the same resource to LMSINIT. One of these two methods **MUST** be chosen, but both of them cannot be.

INTERNET_GATEWAY_PORT

Optional operand. Although this operand is named INTERNET_GATEWAY_PORT, the value you specify must be the port number that your mail server listens on to receive Simple Mail Transport Protocol (SMTP) mail messages. In many instances, the Internet gateway host port is also the mail server host port, but it need not be. If you omit this operand, a default value of 25 is used by LMS.

MAIL_FROM_NAME

Required operand for the e-mail notification facility. Specify the Internet e-mail address (or name) in the form *name@institution.type* of the individual (or department) designated as the *sender* of e-mail messages. This name will appear as the FROM: name on all e-mails automatically generated by the License Management System and will receive a copy of all e-mail messages generated.

MAIL_TO_SEC_NAME

Required operand for the e-mail notification facility. Specify the e-mail address (or name) that will receive all automatically generated e-mail messages relating to product licensing errors.

This address (or name) can be the name of an individual (or department) within your organization. (You must still define the Internet gateway host by its name or its address because all messages will be sent to this host, which will route them right back into your network if they are not to be sent to the Internet). Even if this name is of an individual (or department) within your organization, you must specify this name in the Internet format, not in a format used locally by your institution.

MAIL_TO_ABN_NAME

Required operand for the e-mail notification facility. Specify the e-mail address (or name) that will receive all automatically generated e-mail messages relating to Compuware License Management software errors (program ABENDs). This address (or name) can be the name of an individual (or department) within your organization. (You must still define the Internet gateway host by its name or its address because all messages will be sent to this host, which will route them right back into your network if they are not to be sent to the Internet). Even if this name is of an individual (or department) within your organization, you must specify this name in the Internet format, not in a format used locally by your institution.

Note: Entering an Internet address instructs LMS to send an e-mail to this address for every LMS abend encountered. For Domestic U.S. customers only, enter CSS@COMPUWARE.COM if you want to send these e-mails directly to Compuware License Management System product support.

License Files

Zero or more license files can be used as input to LMSINIT. Each file is described by a *//CWLfnnnn* DD statment, where nnnn are any letters of numbers you choose. The remainder of the DD statement describes the name and disposition of one licesnse file.

If LMSINIT executes with only a *//SYSIN* DD statement, a *//SYSPRINT* DD statement, and a checkpoint dataset statement (i.e., no *//CWLfnnnn* DD statements), the functions are perormed as follows:

- **CREATE**—A new subsystem will becreated, but without any license information. The SMF_ID, GTF_ID, LANUGUAGE, and all TCP/IP parameters are processed and stored.
- **UPDATE**—A new subsystem will be created if one did not already exist, but without any license information. If the subsystem already exists, license file data will not be

altered and the current in-storage profile will remain in effect. The SMF_ID, GTF_ID, LANGUAGE, and all TCP/IP parameters replace any existing values.

- DELETE—An existing subsystem will be deleted.

This list of items is intended only to document the execution of LMSINIT when no license files are supplied, but license datasets are required prior to the execution of any Compuware product.

Checking for Multiple License Files

If you try to load a system cache from more than one license file, you will be required to add the RACF dataset entity that is either the name of the license file itself, or the name supplied via the LAU described as SECURITY DSNNAME unless you also specify SERVICE_BUREAU(NO). See Appendix F, “Service Bureau Environment”.

If you receive RACF messages, or if a product reports a return code of 8 and a reason code of 560 and if message WLM560 (REQUESTING USER IS NOT AUTHORIZED TO ACCESS LICENSE FILES) is displayed, then you have loaded more than one license file into your system cache, but have failed to follow the documentation concerning RACF requirements for multiple license files, or you have failed to specify SERVICE_BUREAU(NO).

Executing LMSINIT to Create the LMS Subsystem

You can create a PROC in your procedure library that invokes LMSINIT, and you can specify a START command in the COMMNDxx member of SYS1.PARMLIB. The operating system will issue this command automatically at each IPL.

Shipping License Files to Remote Locations

LMSINIT supports sequential and VSAM files as input to allow customers to ship the contents of their license files to remote locations. If you choose to use sequential files, you may need to ability to update the files. The License Management System only acts upon the VSAM license file. See “LMBMAINT – Update User-Maintained License File Fields” on page 5-2 to update sequential license files.

DD statements can define VSAM or sequential files. These sequential files must be IDCAMS REPRO files of a VSAM license file or the equivalent. These sequential files are, in effect, just a copy of the VSAM license file, and they must have the following DCB characteristics:

```
(RECFM=VB,LRECL=404,BLKSIZE=nnnnn)
```

where nnnnn is any convenient blocksize. One invocation of LMSINIT can contain a mixture of VSAM and sequential files, each being defined by its own DD statement. Any number of VSAM and/or sequential files can be read by one invocation of LMSINIT.

14-Day Grace Period

New with LMS 2.0 is support for a 14-day grace period that allows you to execute any Compuware product for which you have a valid license on CPUs and LPARs that are not specifically included on any license certificate that you possess. Four new grace periods are now supported:

- CEC serial number not specified in a CPU_ID<> parameter of a license certificate. You may have installed a new computer in your installation, but have not yet received a license certificate that includes the new serial number. Or you may have received a license certificate that specifies the wrong serial number. In either case, you will be allowed to run any Compuware product for which you are licensed on the new serial

number for 14 days, starting from the day LMSINIT is first run on the new serial number.

- CEC model name not specified in a CPU_ID<> parameter of a license certificate. You may have upgraded a computer in your installation (which changes the external model name), but you have not yet received a license certificate that includes the new model name. Or you may have received a license certificate that specifies the wrong model name. In either case, you will be allowed to run any Compuware product for which you are licensed on the new model name for 14 days, starting from the day LMSINIT is first run on the new CEC model, or starting from the day the upgrade occurred if the upgrade was performed dynamically (G5, G6 and z/900 systems only).
- LPAR name not specified in an LPAR NAME<> parameter of a license certificate. You may have initialized a new LPAR on an existing CEC, but have not yet received a license certificate that includes the new LPAR name. Or you may have received a license certificate that specifies the wrong name. In either case, you will be allowed to run any Compuware product for which you are licensed on the new LPAR for 14 days, starting from the day LMSINIT is first run on the new LPAR.
- LPAR size (MSUS<>) on a license certificate is smaller than the currently defined LPAR limit. You may have increased the size of the LPAR dynamically, and you will be allowed to run any Compuware product for which you are licensed on the bigger LPAR for 14 days, starting with either the first time LMSINIT is run on the larger LPAR, or the time the dynamic upgrade occurred.

Checkpoint File

LMS requires the requirement that a VSAM KSDS checkpoint file be available to every operating system image. This file contains the information needed to support the 14-day grace period implemented with LMS 2.0. The checkpoint file is managed locally by each system that uses it. It is allocated automatically (when it doesn't already exist) by LMSINIT and records are added and deleted automatically. You do not need to concern yourself with the contents of this file, and you do not need to include it in any transmission facility you may use for sending your license files from a central location to your remote sites.

One checkpoint file can be used for any number of operating system images, and for any number of LMS subsystems on these images. Or you can define a different file for each image and/or subsystem. The DASD on which the checkpoint file resides must be available to LMS at all times, starting with LMSINIT throughout the life of the system IPL. This dataset is accessed by only LMSINIT and by LMS exit programs that are invoked by the operating system whenever a CPU Upgrade on Demand or an LPAR defined capacity change occurs. Only IBM processor models G5, G6 and z/900 support these two dynamic upgrade events, but the checkpoint file is still required for older processors when LMS 2.0 is installed.

You tell LMS where to allocate the checkpoint file by one of two methods:

- New parameters within the LMSINIT SYSIN dataset.
- A new DD statement within the LMSINIT execution JCL.

One of these two methods must be employed in order that LMSINIT can know where to allocate the checkpoint dataset.

Using LMSINIT SYSIN to Define the Checkpoint Dataset

If the LMSINIT SYSIN parameter method is used, then you can include the following new parameter values in the SYSIN dataset. Note that only CHKPT_DSNAME is required. The other four new parameters are optional:

- CHKPT_DSNAME
- CHKPT_VOLSER

- CHKPT_STORCLASS
- CHKPT_MGMTCLASS
- CHKPT_DATACLASS

Using JCL to Define the Checkpoint Dataset

You can use JCL to define the checkpoint dataset if you don't want to include any CHKPT_xxxxx parameters in the LMSINIT SYSIN dataset. JCL has the advantage of supporting symbolic parameters that can be dynamically assigned at LMSINIT runtime.

If you want to use JCL, include the following DD statement in the LMSINIT execution job:

```
//LMSCHKPT DD DSN=***your_data_set_name**,DISP=(MOD,KEEP,KEEP),
//          SPACE=(TRK,0),UNIT=**unitname**,VOL=SER=**volser**
```

Replace the DSN= with the fully qualified name you want the checkpoint dataset to have. Replace the UNIT= with the DASD unit name appropriate for the volume on which you are allocating the checkpoint dataset, and replace the VOL=SER= with the DASD volume serial number. This DD statement can exist in the LMSINIT job in order to allocate the checkpoint dataset, and it can remain there even if the checkpoint dataset is allocated. Do not change the DISP= or the SPACE= parameters. The DDNAME must be LMSCHKPT.

Checkpoint Dataset Security

You must ensure that the checkpoint dataset is appropriately protected by your installation's security system (RACF, ACF/2, and TOPSECRET).

Because LMSINIT and the exit programs that create and update the checkpoint dataset are APF-authorized routines, they must issue their own calls to the Security Access Facility (SAF) interface to ensure that the user ID under which they are running has the appropriate access to create and/or update the checkpoint dataset.

The user ID under which LMSINIT runs must have ACCESS(ALTER) if the checkpoint dataset does not exist, and it must have ACCESS(Control) if the dataset already exists.

The system exits run under the user ID of the last LMSINIT job that ran for the subsystem in question.

You may define generic or discrete profiles for the checkpoint dataset, but generic profiles are generally easier to handle.

Executing LMSINIT

Submit JCL to execute LMSINIT.

Sample Batch JCL

The following JCL shows a sample stream that can be used to execute LMSINIT as a batch job.

Figure 4-3. LMSINIT Batch JCL. Sample JCL to Execute LMSINIT as a Batch job.

```
//LMSINIT JOB (accounting_info),'programmer',CLASS=A
//LMSSTEP EXEC PGM=LMSINIT,PARM='LANGUAGE=EN'
//STEPLIB DD DSN=user.LMS.AUTHLOAD,DISP=SHR
//CWLfnnn DD DSN=user.license.file,DISP=SHR
/**optional checkpoint dataset definition
//SYSPRINT DD SYSOUT=A
//SYSIN DD *
*****
**
** SYSIN CONTROL STATEMENTS FOR LMSINT REPLACE THIS COMMENT. **
**
*****
```

Note: The two datasets named in the above JCL should be changed to the appropriate dataset names for your site.

The PARM= operand on the EXEC statement contains only one operand — the specification of what language LMSINIT will use to write error messages. LANGUAGE=EN specifies English as this language, and this specification is the default.

Sample Started Task JCL

The following shows a sample PROC which can be used to execute LMSINIT as a Started Task.

Figure 4-4. LMSINIT PROC. Sample JCL to Execute LMSINIT as a Started Task.

```
//IEFPROC PROC
//LMSSTEP EXEC PGM=LMSINIT,PARM='LANGUAGE=EN'
//STEPLIB DD DSN=user.LMS.AUTHLOAD,DISP=SHR
//CWLfnnn DD DSN=user.license.file,DISP=SHR
/**optional checkpoint dataset definition
//SYSPRINT DD SYSOUT=A
//SYSIN DD DSN=user.LMS.PARMLIB(LMSINIT),DISP=SHR
```

Note: The three datasets named in the above JCL should be changed to the appropriate dataset names for your site. The member LMSINIT in dataset user.LMS.PARMLIB would contain the SYSIN data as described below.

The PARM= operand on the EXEC statement contains only one operand — the specification of what language LMSINIT will use to write error messages. LANGUAGE=EN specifies English as this language, and this specification is the default.

How to Check if LMSINIT was Run

If any product reports a return code of 16 and a reason code in the range of 33 through 38, then you can be fairly certain that LMSINIT was not run. Each of these reason codes will be accompanied by messages that LMS displays on the master console describing the error fully. These messages are numbered LM0001E through LM0005E. These messages are not contained within the normal “flower box”, but are simply one line messages displayed on the console. You may or may not see these messages on your TSO terminals as well.

Products reporting a return code of 16 and a reason code in the range of 30 through 50 are experiencing problems with LMSSTUB. Reason codes 30 through 32 and 39 through 50 are errors that should occur very rarely, and these should be referred to the Compuware technical support.

Compuware will ask you to run LMVERIFY and check the results it generates. See “License Verification Report” on page 3-35 for more information. See “Option 5 – Reports” on page 3-32 for information on how to create the report.

You can automate the process of checking that LMSINIT was successful by directing your automated program operator to search for one of three messages that LMSINIT will display on the master console. These three messages are:

```
LM5100I  JOB  JOBn/STEPnn/PROCnn COMPLETED. RETURN CODE = 00 00
LM5101I  JOB  JOBn/STEPnn/PROCnn COMPLETED. RETURN CODE = 04 nnnn
LM5102E  JOB  JOBn/STEPnn/PROCnn COMPLETED. RETURN CODE = 08 nnnn
```

Message LM5100I always indicates completely successful execution.

Message LM5101I indicates conditionally successful execution (return code = 4).

Message LM5102E always indicates unsuccessful execution (return code = 8).

Your automated program operator can check for one of these messages and can take appropriate action.

Chapter 5.

License File Maintenance Batch Jobs

The batch facility for maintaining the license file consists of a set of batch jobs with each job providing one of the major functions of the LAU. These jobs are:

- LMDELDEF** Deletes, defines and initializes a VSAM license file.
- LMIMPORT** Imports a certificate into a license file.
- LMEXPORT** Exports license information from a license file.
- LMBMAINT** Provides update capabilities for user-maintained license file fields.
- LMCCRPT** Creates a report consisting of the license data currently residing in a subsystem cache.
- LMLFCRPT** Creates a report consisting of the license data currently residing in a particular license file.
- LMVERIFY** Creates a report that verifies each of the licenses residing in a subsystem cache.

Following is a description of each of these jobs.

Note: By using the batch facility, you can completely maintain a license file without requiring local access to the file and without requiring use of the ISPF-based facility.

Batch Facility Jobs

The JCL for the following features can be found in the SLMSCNTL library.

LMDELDEF – Delete/Define License File

You may use this batch facility will invoke IDCAMS to delete an existing license file (optional), define a new license file, and execute the LMS program which initializes the license file.

LMIMPORT – Import a License Certificate

You may use this batch facility to import a license certificate.

LMEXPORT – Export a License Certificate

You may use this batch facility to export a license certificate.

LMCCRPT – Print a Cache Report

You may use this batch facility to print a cache report.

LMLFCRPT – Print License File Report

You may use this batch facility to print a license file report.

LMVERIFY – Verify Contents of License Cache

You may use this batch facility to verify the contents of a license cache.

LMBMAINT – Update User-Maintained License File Fields

Compuware's License Management System (LMS) provides two separate methods for applying changes to the License File:

- The ISPF-based License Administration Utility (LAU)
- A batch facility

LMBMAINT provides the capability for maintaining those fields in a license file that the user may modify from a batch job. LMBMAINT reads a set of control statements from the DD named SYSIN and performs the update functions described in those control statements. A report is printed to the DD named SYSPRINT.

License file fields that can be altered by LMBMAINT are:

- The Security DSN at the customer level and/or the site level.
- SMF Logging at the customer, the site, and/or the product level.
- Emergency passwords at the site level.
- Disaster mode invocation at the site level.

Overview of LMBMAINT

LMBMAINT can update VSAM and sequential copies of VSAM license files (created via IDCAM REPRO). Any number of VSAM or sequential license files can be updated in a single execution of LMBMAINT, and these files can be intermixed in a single LMBMAINT execution. These files can be allocated by the user via normal DD statements, or LMBMAINT can allocate them.

Two modes of execution exist for LMBMAINT, chosen via the PARM operand on the EXEC statement that invokes LMBMAINT:

- PREVIEW MODE performs all syntax and semantics checking on the SYSIN control statements but does not actually update the license file(s).
- UPDATE MODE performs all syntax and semantics checking on the SYSIN control statements and updates the license file(s).

Either PREVIEW or UPDATE mode may be chosen for an LMBMAINT execution: These modes cannot be mixed within a single execution. It is anticipated that if you want to submit batch JCL to update a license file (perhaps at a remote data center) you will execute LMBMAINT twice in a single job. The first time you will specify PREVIEW MODE, and the second time you will specify UPDATE MODE. And the second execution of LMBMAINT would be made only upon the successful completion of the first execution (using the COND= operand on the EXEC statement. Because LMBMAINT updates its files "in place", a partially updated file (due to LMBMAINT detecting an error after some of the updates had been done), could render the file unusable. Thus, executing LMBMAINT in PREVIEW MODE first is recommended to eliminate this possibility. You will also want to ensure that you have a backup copy of your license file prior to updating the file.

Executing LMBMAINT

Use the following JCL to invoke (execute) LMBMAINT:

Figure 5-1. JCL to Invoke LMBMAINT

```
//*
//* YOUR JOBCARD GOES HERE
//*
/*****
//*
/*****
//*
//MAINT EXEC PGM=LMBMAINT,
//          PARM=' LANGUAGE=XX,MODE=MMMMMM'          <==== CHECK PARMS
//STEPLIB DD DISP=SHR,DSN=LMHLQ.SLMSLOAD           <==== CHECK DSN
//SYSPRINT DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN DD *
<INSERT LMBMAINT CONTROL STATEMENTS HERE>
/*
```

Explanation

The PARM= operand on the EXEC statement must be coded exactly as shown. Replace “xx” with the two-character language code for your country (only LANGUAGE=EN is currently supported). Replace “MMMMMM” with either “PREVIEW” (e.g., MODE=PREVIEW) or “UPDATE” (e.g., MODE=UPDATE).

SYSIN Control Statements

Control statements provided via the SYSIN DD statement have the following characteristics:

- The SYSIN file defines an 80-character fixed-blocked dataset.
- Only upper case is supported.
- Data can be coded in positions 1 through 72 of each statement only. Positions 73 through 80 are ignored.
- Operands must be contained on a single statement. They may not be continued from one statement to the next.
- Statements that are entirely blank (i.e. positions 1 through 72 contain only blanks) and statements that contain “**” in positions 1 and 2 are comments and are ignored.
- Operand names and values can begin in any position on a control statement, but no blanks are allowed within the operand name nor within its value, nor between the operand name and its value.

Example of a SYSIN File

Figure 5-2. Example of a SYSIN File

```
*****
**          SYSIN CONTROL STATEMENTS FOR LMBMAINT          **
*****
DDNAME<CWLFO000>
    DSNAME<CUST.VSAM.LICENSE.FILE>
    SECURITY_DSN<CUST.RACF.LICENSE.FILE>
    SMF_LOGGING<>
SITE_ID<001>
    SECURITY_DSN<SITE.RACF.LICENSE.FILE>
    SMF_LOGGING<>
    DISASTER<N>
    EMERGENCY<N>
PRODUCT_SNAME<OSAA>      VER<09.02>
    SMF_LOGGING<Y>
PRODUCT_SNAME<FILE-AID>  VER<08.06>
    SMF_LOGGING<Y>
SITE_ID<002>
    SECURITY_DSN<SITE.RACF.LICENSE.FILE>
    SMF_LOGGING<Y>
    DISASTER<Y>
    EMERGENCY<N>
PRODUCT_SNAME<XPED/TSO>  VER<07.02>
    SMF_LOGGING<N>
DDNAME<CWLFO001>
    DSNAME<CUST.QSAM.LICENSE.FILE>
    SECURITY_DSN<CUST.RACF.LICENSE.FILE>
    SMF_LOGGING<Y>
SITE_ID<001>
    SECURITY_DSN<SITE.RACF.LICENSE.FILE>
    SMF_LOGGING<>
PRODUCE_SNAME<OSAA>      VER<09.02>
    SMF_LOGGING<Y>
```

SYSIN Statement Groups

There are three groups of control statements:

- The Customer Group defined by the presence of a DDNAME<> statement.
- The Site Group defined by the presence of a SITE_ID<> statement.
- The Product/Version group defined by the presence of a PRODUCT_SNAME<> statement.

Operand names and values belonging to a particular group must follow that group name. Multiple occurrences of each group are allowed, but the entire set of groups is hierarchical such that a DDNAME<> group must be followed by the customer level operands and values. These must be followed by site level operands and values. These can be followed by product level operands and values. Multiple products can be specified within a single site. Multiple sites can be specified within a single DDNAME and multiple DDNAMES can be specified within a single SYSIN control dataset.

The Customer Group

The Customer Group is defined by the presence of a DDNAME<> operand and value (the word CUSTOMER, if allowed, would be redundant and is, therefore, not used). Whenever LMBMAINT encounters a DDNAME<> operand, all processing for the previous

DDNAME<> is completed, the previous file is closed (and optionally deallocated), and the next file is started.

The value specified for DDNAME is either the name of a DD statement allocated with the JCL, or it is the name that LMBMAINT will use if it is to allocate the dataset. The next operand, DSNNAME<> defines how dataset allocation is to occur.

If the DSNNAME<> operand is specified, it indicates that LMBMAINT is to allocate the dataset whose name is specified. If the DSNNAME<> operand is specified the dataset must not be allocated via a DD statement in the execution JCL. If the DSNNAME<> operand is not specified, then the dataset must be allocated via a DD statement in the execution JCL.

Customer Group Operands

Two operands are allowed within a Customer Group. These are optional, and either both, none or one can be specified. These operands are:

- SECURITY_DSN<>
- SMF_LOGGING<>

SECURITY_DSN<>

value contains the name that LMS will use when it chooses a license file to be used for a particular license execution request. This value must be in valid OS/390 dataset name format, but does not represent a “real” dataset. It can be generic although the name specified here must not contain any generic indicator characters (“*” or “%”). The definition of this name to RACF can be generic, however.

SMF_LOGGING<>

value must be either <Y> to apply SMF logging to all licensing events for this customer, <N> to disallow SMF logging for this customer, or <> (value omitted, but opening “<” and closing “>” must exist) to allow later SMF_LOGGING operands to define the processing.

The Site Group

The Site Group is defined by the presence of a SITE_ID<> operand and value. The value specified for SITE_ID must be the same as a site number in your license file.

Site Group Operands

Four operands are allowed within a Site Group. All of these are optional, and any or all can be included or omitted. These operands are:

- SECURITY_DSN<>
- SMF_LOGGING<>
- DISASTER<Y>
- EMERGENCY<>

SECURITY_DSN<>

Value contains the name that LMS will use when it chooses a license file to be used for a particular license execution request. This value must be in valid OS/390 dataset name format, but does not represent a “real” dataset. It can be generic although the name specified here must not contain any generic indicator characters (“*” or “%”). The definition of this name to RACF can be generic, however.

SMF_LOGGING<>

Value must be either <Y> to apply SMF logging to all licensing events for this site, <N> to disallow SMF logging for this site, or <> (value omitted, but opening

"<" and closing ">" must exist) to allow later SMF_LOGGING operands to define the processing.

DISASTER<Y>

Can only be specified with a value of "Y" within the <>. You can only set disaster mode on, when the license file is not already set to disaster mode processing. That is, you can only specify DISASTER<Y> once. After that, you must restore the license file from a backup, or from the file that resides at your central site. You cannot specify DISASTER<N>, nor DISASTER<>.

Note: After disaster mode processing has been set on, it cannot be set off again. The file must be restored or recreated.

EMERGENCY<>

Operand can be used to turn emergency mode on and off. When you want to turn emergency mode on, you must obtain a valid emergency password from Compuware. Code the password between the <> exactly as you received it from Compuware. When you want to return to non-emergency password mode, code EMERGENCY<> (with nothing between the <>). Emergency password processing mode will be terminated.

The Product/Version Group

The Product/Version group is defined by the presence of two operands: PRODUCT_SNAME<> and VER<>. No other operands can be placed between these two. The PRODUCT_SNAME value must be the same 1- to 10-character name that identifies the product you want to affect. This name can be obtained from the license certificate. The VER value must be the same 5 character VV.RR value that identifies the version of the product you wish to affect. This name can be obtained from the license certificate.

Product/Version Group Operands

Only the following operand is allowed within a Product/Version group.

SMF_LOGGING<>

Value must be either <Y> to apply SMF logging to all licensing events for this product version, <N> to disallow SMF logging for this product, or <> (value omitted, but opening "<" and closing ">" must exist).

Appendix A.

License Certificate Data Elements

Overview

The License Certificate File in the customer location is composed of License Certificate data elements and other control information, the latter of which is used internally by the Runtime License Management System and is not accessible by the customer.

Record Types

The License Certificate data elements are contained within six record types:

- Customer License Certificate Record
- Site License Certificate Record
- Product License Certificate Record
- Option License Certificate Record
- CPU Record for product or option
- LPAR Record for product or option

Keywords

Each record type is composed of keyword fields with associated data values enclosed in less than (<) and greater than (>) signs.

There is no length limit to any record type. The entire License Certificate (all record types) must use the EBCDIC character set. License Certificates data may be entered in columns 1 through 80. Data is not case sensitive (i.e. all data is treated as upper case even when entered in mixed case). Although a record type can span multiple 80-byte physical records, a data element (i.e. a keyword and its data value) cannot be split between 80-byte physical records. One additional record type, which is not a License Certificate Record type, is a comment record (indicated by *). Each physical record that is part of a comment must have * in the first two bytes of the record.

Customer Record

There is one Customer record per License Certificate file. In a service bureau enterprise, this means that separate files must exist for each company that has Compuware licenses. In an enterprise with a single customer, depending on the number of sites and operating environments, there will be one or more License Certificate files for all of the products licensed. In this type of enterprise, the customer has a choice whether to have one centrally maintained License Certificate file, which is replicated to each operating environment, or to administer decentralized License Certificate files for each site. With decentralized files, each will have the same Customer License Certificate Record.

Other Record Types

In addition to a Customer record, a License Certificate file must have one or more Site records. Each Site record must have one or more Product records, which must immediately follow the Site record with which they are associated. Each Product record may have zero, one, or more than one CPU records, which must immediately follow the product with which they are associated. Each Product record may have zero, one, or more than one Option records, which must immediately follow the Product record with which they are associated, or the last of the Product’s CPU records if they exist. Each Option record may have zero, one, or more than one CPU records, which must immediately follow the Option record with which they are associated. LPAR records may follow any CPU record.

License Certificate Envelope (The Certificate File)

A Certificate Envelope is the name used to identify a delivery package of License Certificates. This section describes the general structure of the Certificate Envelope. Please note that the indentation used in the format illustration below is for defining the structure, the actual License Certificates need not use indentation. Blank spaces and blank lines may be used to improve readability in the License Certificate Envelope, as they are ignored when the License Certificates are imported into the License Certificate File.

Customer Record

Site Record

Product Record

CPU Record

LPAR Record

LPAR Record

CPU Record

Option Record

CPU Record

LPAR Record

LPAR Record

CPU Record

Option Record

Product Record

Site Record

|
|

|
|

Customer Record [CUSTOMER]

One Customer record per License Certificate Envelope and per License Certificate File.
Table A-1 lists the keywords for the CUSTOMER record.

Table A-1. CUSTOMER Record

Keyword Name	Field Length	Data Type	Description
CERTVER	8 bytes	Alphanumeric <i>vv.rr.mm</i>	CERTVER is the version, release, and maintenance level of License Management System for this CUSTOMER record when the License Certificate was created.
CUSTNAME	56 bytes (max)	Alphanumeric	CUSTNAME is the name of the company that is licensing the Compuware product(s). The name is used identically as stored in the Client Database.
CUSTNUM	6 bytes	Alphanumeric	CUSTNUM is the Compuware client number assigned to the company as found in the Client Database.
SECURITY_DSN	44 bytes	Alphanumeric - follows MVS dataset naming conventions	SECURITY_DSN is a name that the customer chooses as the access entity that facilitates Runtime License Management System, determining if a specific user ID is allowed to check out product and option licenses defined on this certificate. This entity name is defined to the security system (RACF, ACF/2 or TOPSECRET) as if it were a real dataset name (i.e. it must conform to the rules of dataset naming conventions). (After the customer provides a data value, this keyword will be displayed on the License Certificates <i>exported</i> from a License Certificate File.)
LOG	3 bytes (max)	Alphanumeric	LOG indicates whether SMF records will be logged for all products. Valid values are ON or OFF. This field may be overridden by the LOG value specified on the SITE or PRODUCT records. If Site and Product LOG values are null, the Customer record LOG value will dictate logging at those levels. (After the customer provides a data value, this keyword will be displayed on the License Certificates <i>exported</i> from a License Certificate File.)

Site Record [SITE]

This record type conveys the information regarding which Customer Site has licensed Compuware's products. There must be at least one Site record per License Certificate File. Table A-2 lists the keywords for the SITE record.

Table A-2. SITE Record

Keyword Name	Field Length	Data Type	Description
CERTVER	8 bytes	Alphanumeric <i>vv.rr.mm</i>	CERTVER is the version, release, and maintenance level of License Management System for this SITE record when the License Certificate was created.
SITE_NAME	56 bytes (max)	Alphanumeric	SITE_NAME is the name associated with the customer site as defined in the Client Database. If SITE_NAME in the client database is blank, the Customer Name will be used instead. SITE_NAME must correspond with SITE_ID.
SITE_ID	3 bytes	Numeric	SITE_ID is the Compuware Site number assigned as the identifier for the site. It is used identically as found in the Client Database. SITE_ID must correspond with SITE_NAME.
SECURITY_DSN	44 bytes	Alphanumeric - follows MVS dataset naming conventions	SECURITY_DSN is a name that the customer chooses as the access entity which facilitates Runtime License Management System, determining if a specific user ID is allowed to check out product and option licenses defined on this certificate. This entity name is defined to the security system (RACF, ACF/2 or TOPSECRET) as if it were a real dataset name (i.e. it must conform to the rules of dataset naming conventions). (After the customer provides a data value, this keyword will be displayed on the License Certificates <i>exported</i> from a License Certificate File.)
LOG	3 bytes (max)	Alphanumeric	LOG indicates whether SMF records will be logged for all products for this site. Valid values are ON or OFF. This field may be inherited from the Customer record LOG value if left null at the Site level. This field may be overridden by the LOG value specified on the PRODUCT records. (After the customer provides a data value, this keyword will be displayed on the License Certificates <i>exported</i> from a License Certificate File.)

Product Record [PRODUCT]

This record type represents the Compuware product licensed by the Customer at the Site. Multiple Product records for multiple products may exist. Each Product record represents a particular Compuware Product Version Release. Within a single Site, multiple records may exist for the same product, but each must have a unique *vv.rr* in the Product record's VER keyword. Table A-3 lists the keywords for the PRODUCT record.

Table A-3. PRODUCT Record

Keyword Name	Field Length	Data Type	Description
CERTVER	8 bytes	Alphanumeric <i>vv.rr.mm</i>	CERTVER is the version, release, and maintenance level of License Management System for this PRODUCT record when the License Certificate was created.
SNAME	10 bytes (max)	Alphanumeric	SNAME is the 10-character Compuware product name. SNAME has a one-to-one relationship with its LNAME value in the Client Database and in the License Certificate. SNAME is further defined by the VER value, which must be valid for the SNAME in the Client Database.
LNAME	40 bytes (max)	Alphanumeric	LNAME is the 40-character Compuware product name. LNAME has a one-to-one relationship with its SNAME value in the Client Database and in the License Certificate. LNAME is further defined by the VER value, which must be valid for the LNAME in the Client Database.

Table A-3. PRODUCT Record

Keyword Name	Field Length	Data Type	Description
VER	5 bytes	Alphanumeric (vv.rr)	VER indicates the version and release level of the licensed product. It is in the form of vv.rr, where vv is the version level and rr is the release level. VER is related to SNAME and LNAME and must be valid for the product in the Client Database.
CERTIFICATE_ID	1-12 bytes	Numeric	CERTIFICATE_ID indicates the serial number of the license record. It is a unique number used to identify Product records and their Options and CPUs during communication between the customer and the License Management department.
START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the Product License Certificate Record. The Product START date must be earlier than or equal to the Product END date. The Product START date has a one-to-one relationship with the Product STATUS.
END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	END indicates the date the Product License Certificate Record expires. It is displayed when Product STATUS is LIMITED_TERM, BETA, or TRIAL. It is not displayed when Product STATUS is LONG_TERM. The Product END date must be later than or equal to the Product START date. The Product END date has a one-to-one relationship with the Product STATUS for LIMITED_TERM, BETA, and TRIAL.
STATUS	1 to 12 bytes	Alphanumeric (BETA, TRIAL, LIMITED_TERM, LONG_TERM)	STATUS provides the value that represents the type of access granted by the License Certificate. Product STATUS has a one-to-one relationship with Product START date. Product STATUS has a one-to-one relationship with Product END date for Product STATUS values of LIMITED_TERM, BETA, TRIAL.
SPECIAL_ACCESS	1 to 15 bytes	Alphanumeric	SPECIAL_ACCESS is an indicator that temporary special access is in effect. This is not displayed unless temporary special access has been granted. Product SPECIAL_ACCESS has a one-to-one relationship with Product SP_START and Product SP_END, and it is not valid if Product SP_START and Product SP_END are not present.
SP_START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the temporary special access granted to the customer. The Product SP_START date has a one-to-one relationship with the Product SPECIAL_ACCESS. The Product SP_START date must be earlier than or equal to the Product SP_END date. Product SP_START date must be greater than or equal to Product START date. Product SP_START date must be earlier than or equal to Product END date.
SP_END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	SP_END indicates the end date of the temporary special access granted to the customer. Only included on the License Certificate when the Special Access keyword is displayed on the License Certificate. Product SP_END date must be greater than or equal to Product SP_START date. Product SP_END date must be greater than or equal to Product START date. Product SP_END date must be less than or equal to Product END date.
LOG	3 bytes (max)	Alphanumeric	LOG indicates whether SMF records will be logged for this product version release. Valid values are ON or OFF. This field may be inherited from the Customer or Site record LOG values if left null at the Product record level. (After the customer provides a data value, this keyword will be displayed on the License Certificates <i>exported</i> from a License Certificate File.)
AUTH	16 bytes	Alphanumeric (Hexadecimal characters: A through F and 0 through 9 in each byte.)	AUTH is a keyword specifying the data value used to authenticate the License Certificate. The data value is the result of "hashing" the other secured data values from the License Certificate. Corresponds to all of the fields on the Product record and its CPU records that are used for the generation of AUTH key.

Option Record [OPTION]

This record type represents the Options licensed by the customer for a particular Compuware product licensed by the Customer at the Site. Multiple Option records per Product Version Release may exist. Table A-4 lists the keywords for the OPTION record.

Table A-4. OPTION Record

Keyword Name	Field Length	Data Type	Description
SNAME	10 bytes (max)	Alphanumeric	SNAME is the 10-character Compuware product name. SNAME has a one-to-one relationship with its LNAME value in the Client Database and in the License Certificate. SNAME is further defined by the VER value, which must be valid for the SNAME in the Client Database.
LNAME	40 bytes (max)	Alphanumeric	LNAME is the 40-character Compuware product name. LNAME has a one-to-one relationship with its SNAME value in the Client Database and in the License Certificate. LNAME is further defined by the VER value, which must be valid for the LNAME in the Client Database.
VER	5 bytes	Alphanumeric (vv.rr)	VER indicates the version and release level of the licensed product option. It is in the form of vv.rr, where vv is the version level and rr is the release level. VER is related to SNAME and LNAME and must be valid for the product option in the Client Database.
START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the Product Option License Certificate Record. The Product Option START date must be earlier than or equal to the Product Option END date. Product Option START date must be greater than or equal to the Product START date and less than or equal to the Product END date. The Product Option START date has a one-to-one relationship with the Product Option STATUS.
END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	END indicates the date the Product Option License Certificate Record expires. It is displayed when Product Option STATUS is LIMITED_TERM, BETA, or TRIAL. It is not displayed when Product Option STATUS is LONG_TERM. The Product Option END date must be later than or equal to the Product Option START date. The Product Option END date has a one-to-one relationship with the Product Option STATUS for LIMITED_TERM, BETA, and TRIAL. Product Option END date must be greater than or equal to the Product START date and less than or equal to the Product END date.
STATUS	1 to 12 bytes	Alphanumeric (BETA, TRIAL, LIMITED_TERM, LONG_TERM)	STATUS provides the value that represents the type of access granted by the License Certificate. Product Option STATUS has a one-to-one relationship with Product Option START date. Product Option STATUS has a one-to-one relationship with Product Option END date for Product Option STATUS values of LIMITED_TERM, BETA, TRIAL.
SPECIAL_ACCESS	1 to 15 bytes	Alphanumeric	SPECIAL_ACCESS is an indicator that temporary special access is in effect. This is not displayed unless temporary special access has been granted. Product Option SPECIAL_ACCESS has a one-to-one relationship with Product Option SP_START and Product Option SP_END, and it is not valid if Product Option SP_START and Product Option SP_END are not present.
SP_START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the temporary special access granted to the customer. The Product Option SP_START date has a one-to-one relationship with the Product Option SPECIAL_ACCESS. The Product Option SP_START date must be earlier than or equal to the Product Option SP_END date. Product Option SP_START date must be greater than or equal to Product Option START date. Product Option SP_START date must be earlier than or equal to Product Option END date.

Table A-4. OPTION Record

Keyword Name	Field Length	Data Type	Description
SP_END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	SP_END indicates the end date of the temporary special access granted to the customer. Only included on the License Certificate when the Special Access keyword is displayed on the License Certificate. Product Option SP_END date must be greater than or equal to Product Option SP_START date. Product Option SP_END date must be greater than or equal to Product Option START date. Product Option SP_END date must be less than or equal to Product Option END date.
AUTH	16 bytes	Alphanumeric (Hexadecimal characters: A through F and 0 through 9 in each byte.)	AUTH is a keyword specifying the data value used to authenticate the License Certificate. The data value is the result of "hashing" the other secured data values from the License Certificate. Corresponds to all of the fields on the Product Option record and its CPU records that are used for the generation of AUTH key.

CPU Record [CPU]

The CPU record represents the CPU upon which the Compuware Product or Option for the Customer at the Site is licensed. All CPU records are associated with the immediately preceding PRODUCT or OPTION record. Data values from the CPU record are included in the AUTH keyword data value calculation for that PRODUCT or OPTION record. Any CPU record associated with an OPTION must also be present as a CPU record associated with the PRODUCT level of the OPTION. Table A-5 lists the keywords for the CPU record.

Table A-5. CPU Record

Keyword Name	Field Length	Data Type	Description
CPU_ID	22 bytes	Model(3 bytes Alphabetic) type (4 bytes Hexadecimal) dash (1 byte Alphabetic) version (2 bytes Hexadecimal or zeros) dash (1 byte Alphabetic) CPU serial number (6 bytes Hexadecimal) comma (1 byte Alphabetic) operating system code (3 bytes Alphabetic or asterisks)	CPU_ID identifies a specific CPU that a product or option is licensed upon. The identifier is composed of the manufacturer, serial number, and the operating system. CPU_IDs at Option record must also be present at the Product record. Newer License Certificates contain the external CPU model number in the CPU_ID fields previously defined as MFG (Manufacturer) and OPS (Operating System). Asterisks may exist within these fields as well.
STATUS	1 to 12 bytes	Alphanumeric (BETA, TRIAL, LIMITED_TERM, LONG_TERM)	STATUS provides the value that represents the type of access granted by the License Certificate. If this field is omitted from the CPU record, it will inherit its value from the Product or Option record with which it is associated. This field provides the opportunity to override the STATUS data value at the Product or Option level for a particular CPU. CPU STATUS has a one-to-one relationship with CPU START date. CPU STATUS has a one-to-one relationship with CPU END date for CPU STATUS values of LIMITED_TERM, BETA, TRIAL.
START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the CPU License Certificate Record. The CPU START date must be earlier than or equal to the CPU END date. CPU START date must be greater than or equal to the Product and/or OPTION START date and less than or equal to the Product and/or OPTION END date. The CPU START date has a one-to-one relationship with the CPU STATUS.
END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	END indicates the date the product or option License Certificate expires for a particular CPU. It is displayed when CPU STATUS is LIMITED_TERM, BETA, or TRIAL. It is not displayed when CPU STATUS is LONG_TERM. The CPU END date must be later than or equal to the CPU START date. The CPU END date has a one-to-one relationship with the CPU STATUS for LIMITED_TERM, BETA, and TRIAL. CPU END date must be greater than or equal to the Product and/or Option START date and less than or equal to the Product and/or Option END date.

LPAR Record [LPAR]

The LPAR record represents the LPAR within the CPU upon which the Compuware Product or Option for the Customer at the Site is licensed. All LPAR records are associated with the immediately preceding CPU record. Data values from the LPAR record are included in the AUTH keyword data value calculation for that PRODUCT or OPTION record. Table A-6 lists the keywords for the LPAR record.

Table A-6. LPAR Record

Keyword Name	Field Length	Data Type	Description
NAME	8 bytes	Alphanumeric	NAME indicates a unique name for a defined LPAR on a particular CPU. It can be present only for an associated CPU. It must have associated TYPE and MSUS values.
TYPE	8 bytes	Alphabetic	TYPE defines the type of the named LPAR on a particular CPU. It can be present only for an associated CPU. It must have associated NAME and MSUS values. Its only valid values are CAPPED and DEFINED.
MSUS	7 bytes	Numeric	MSUS defines the size of the named LPAR on a particular CPU. It can be present only for an associated CPU. It must have associated NAME and TYPE values.
STATUS	1 to 12 bytes	Alphanumeric (BETA, TRIAL, LIMITED_TERM, LONG_TERM)	STATUS provides the value that represents the type of access granted by the License Certificate. If this field is omitted from the LPAR record, it will inherit its value from the associated CPU record. STATUS corresponds to START and END dates displayed on the CPU License Certificate Record. It corresponds to STATUS on the CPU License Certificate Record. If STATUS is LONG_TERM, it must also be LONG_TERM for the CPU with which it is associated.
START	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	START indicates the start date of the LPAR License Certificate Record. It corresponds to END date displayed on LPAR License Certificate Record, and START and END dates on CPU License Certificate Records with which it is associated.
END	11 bytes	Alphanumeric (date format: dd-mmm-yyyy)	END indicates the date the LPAR License on the CPU Certificate Record expires. It corresponds to START date displayed on LPAR License Certificate Record, and START and END dates on the CPU License Certificate Records with which it is associated. For STATUS of LONG_TERM, the value is not displayed.

Certificate Example

Figure A-1 is an example of a license certificate.

Figure A-1. License Certificate Example

```
CUSTOMER
  CERTVER<01.00.02>
  CUSTNAME<COMPUWARE CORPORATION>
  CUSTNUM<010000>
SITE
  CERTVER<01.00.02>
  SITE_NAME<HEADQUARTERS>
  SITE_ID<001>
PRODUCT
  CERTVER<02.00.00>
  SNAME<OSAA>
  VER<09.03>
  LNAME<ABEND-AID FOR OS/390>
  CERTIFICATE_ID<200103210001>
  AUTH<1234567890ABCDEF>
  STATUS<LIMITED_TERM>
  START<29-FEB-2000> END<31-DEC-2002>
CPU CPU_ID<P30,7060-00-010E9D,***>
CPU CPU_ID<T26,9672-00-000107,***>
OPTION
  SNAME<COBOL>
  VER<09.03>
  LNAME<COBOL OPTION FOR ABEND-AID OS/390>
  AUTH<1234567890ABCDEF>
  STATUS<LIMITED_TERM>
  START<29-FEB-2000> END<31-DEC-2002>
CPU CPU_ID<***,***-00-010E9D,***>
LPAR NAME<DEVASYS> TYPE<DEFINED> MSUS<150>
LPAR NAME<DEVBSYS> TYPE<DEFINED> MSUS<45>
LPAR NAME<DEVCSYS> TYPE<DEFINED> MSUS<45>
CPU CPU_ID<T26,9672-00-000107,***>
OPTION
  SNAME<DB2>
  VER<09.03>
  LNAME<DB2 OPTION FOR ABEND-AID OS/390>
  AUTH<1234567890ABCDEF>
  STATUS<LIMITED_TERM>
  START<29-FEB-2000> END<31-DEC-2002>
CPU CPU_ID<***,***-00-010E9D,***>
LPAR NAME<DEVCSYS> TYPE<DEFINED> MSUS<45>
CPU CPU_ID<T26,9672-00-000107,***>
```

Appendix B.

SMF Log

License Management System can be directed to write SMF records which contain information related to the use of Compuware products in your environment. You have the opportunity to select the SMF record identification, such that the License Management records do not conflict with any other SMF records.

You can run reports against these records for your own analysis of Compuware product use, and the raw data can be sent to Compuware for analysis.

A set of batch programs are shipped with License Management which aid in selecting and reporting data from the SMF system.

This appendix describes these programs, and provides the documentation you need to extract and report this SMF data and prepare a dataset for transmission to Compuware.

Process Flow

This section describes the flow of the SMF data records from the initial capture by the MVS SMF routines to the final printing of the SMF report, either at your location or at Compuware.

SMF Capture

SMF records are written at the following times:

- From LMSINIT when a new license policy is added to the license file or an existing policy is updated.
- From the runtime environment when a license check-out is attempted whether or not the checkout was successful.
- From the runtime environment when error messages are retrieved.
- From the runtime environment when a license is checked in.
- From the runtime environment when a task terminates and that task had one or more licenses checked out.

The following information is captured in each SMF record:

- Date and time the record was written. The time is local time for your site.
- The name you assigned to the MVS image.
- The name you assigned to the LMS SUBSYSTEM.
- The CPU address and identification.
- The job name, step name and proc name of the user program.
- The MVS Job Identifier for the user program.
- The LPAR identification and capacity.
- The security system user ID under which the user program is running.
- The version and release of the LMS system.

- A function code indicating “checkout”, “checkin”, “return msg” or “forced checkin”.
- A sequence number which is incremented each time an LMS call is made to ensure that no SMF records have been lost.
- The customer name and number.
- The product name, product code and version.
- The option name and version.
- The product install date and expiration date.
- The option install date and expiration date.
- The return code and reason code resulting from the current LMS function.
 - For “checkin” and “forced checkin” the following is collected:
 - CPU time consumed at the time the license was checked out.
 - CPU time consumed at the time the license was checked in.
 - Clock time when the license was checked out.
 - Clock time when the license was checked in.
 - For “forced checkin” only the TCB completion code indicating the reason the task ended following is collected.

SMF data is collected in MVS system-maintained datasets and is extracted by an IBM utility named IFASMFDP.

IFASMFDP

You probably execute IFASMFDP for your own purposes on a regular basis in order to release the DASD used by SMF records to ensure that no records are lost due to the datasets filling to capacity.

IFASMDSP extracts SMF records from the system dataset based upon control cards supplied by you. Compuware recommends that the SMF record identification number that you chose for the LMS records to IFASMFDP so that only the LMS records are extracted.

Output from IFASMFDP is a sequential dataset with the following DCB characteristics:

- RECFM=VBS
- LRECL=32756
- BLKSIZE=nnnn, where the customer chooses the value for nnnn

An example of IFASMFDP execution follows:

Figure B-1. IFASMFDP EXECUTION -- Example of SMF Extract Processing

```
//DUMPSMF JOB ('accounting'),'programmer',CLASS=A,MSGCLASS=R,
//          MSGLEVEL=(1,1),REGION=32M
//DUMP EXEC PGM=IFASMFDP
//SYSPRINT DD SYSOUT=*
//INDD1 DD DSN=SYS1.MANA,DISP=SHR
//INDD2 DD DSN=SYS1.MANB,DISP=SHR
//INDD3 DD DSN=SYS1.MANC,DISP=SHR
//OUTDD DD DSN=UNLOADED.SMFDATA,DISP=(,CATLG),UNIT=SYSDA,
//          SPACE=(TRK,(150,150),RLSE),
//          DCB=(RECFM=VBS,BLKSIZE=4096,LRECL=32756,DSORG=PS)
//SYSIN DD *
INDD(INDD1,OPTIONS(DUMP))
INDD(INDD2,OPTIONS(DUMP))
INDD(INDD3,OPTIONS(DUMP))
OUTDD(OUTDD,TYPE(1:255))
/*
```

You can run the LMS reports that are based on SMF data (the Activity Report and the Maintenance Report), using the file generated by IFASMFDP as input.

LMSMFMTO

The file generated by IFASMFDP is not suitable for FTP transmission. To prepare a file that you can transmit to Compuware, use the LMS utility LMSMFMTO.

LMSMFMTO reads the SMF extract dataset as input and produces an output dataset with the following characteristics:

- RECFM=F
- LRECL=4160
- BLKSIZE=4160

This dataset contains only the LMS SMF records. These records are processed in the following manner:

- They are compressed to facilitate transmission.
- They are encoded to protect customer proprietary information.
- They are packed into fixed-length blocks to allow transmission of the dataset via FTP over the Internet to Compuware's FTP site.

Following is an example of LMSMFMTO execution:

Figure B-2. LMSMFMTO EXECUTION -- Example of Extract Dataset Creation

```
//ENCODE JOB ('accounting'),'programmer',CLASS=A,MSGCLASS=R,
//          MSGLEVEL=(1,1),REGION=32M
//ENCODE EXEC PGM=LMSMFMTO
//STEPLIB DD DSN=USER.LMS.LOAD,DISP=SHR
//SMFIN DD DSN=UNLOADED.SMFDATA,DISP=SHR
//SMFOUT DD DSN=ENCODED.SMFDATA,DISP=(,CATLG),UNIT=SYSDA,
//          SPACE=(TRK,(150,150),RLSE),
//          DCB=(RECFM=F,LRECL=4160,BLKSIZE=4160,DSORG=PS)
```

Appendix D, “FTP to Send File to Compuware” contains a description of the steps necessary to send this dataset to Compuware via FTP.

LMSMFMTI

LMSMFMTI reads as input the output from LMSMFMTO and creates a dataset that has the following characteristics:

- RECFM=VB
- LRECL=32756
- BLKSIZE=32760

Following is an example of LMSMFMTI processing:

Figure B-3. LMSMFMTI EXECUTION -- Example of Extract Dataset Creation

```
//DECODE JOB ('accounting'),'programmer',CLASS=A,MSGCLASS=R,  
//          MSGLEVEL=(1,1),REGION=32M  
//DECODE EXEC PGM=LMSMFMTI  
//STEPLIB DD DSN=USER.LMS.LOAD,DISP=SHR  
//SMFIN DD DSN=ENCODED.SMFDATA,DISP=SHR  
//SMFOUT DD DSN=DECODED.SMFDATA,DISP=(,CATLG),UNIT=SYSDA,  
//          SPACE=(TRK,(150,150),RLSE),  
// DCB=(RECFM=VB,LRECL=32756,BLKSIZE=32760,DSORG=PS)
```

You will probably not find a need for the LMSMFMTI utility at your site.

Appendix C. GTF Trace

This Appendix describes how to use GTF to collect LMS data.

Preparing GTF to Gather LMS Data

The following steps should be followed to prepare to use GTF to gather LMS data:

1. Allocate a dataset to contain the GTF trace output.
2. Create a SYS1.PROCLIB procedure to invoke GTF pointing to the dataset just created.
3. Create a SYS1.PARMLIB member to contain the GTF execution time parameters.

Figure C-1 shows an example of a job that allocates a dataset to receive the GTF trace data:

Figure C-1. Sample JCL for GTF Trace Output Dataset Allocation

```

/**
/** PLACE YOUR JOB CARD HERE
/**
//ALLOC EXEC PGM=IEFBR14
//GTFDATA DD DSN>**HLQ** .GTFTRACE.DATA,DISP=(,CATLG),UNIT=SYSDA,
//          SPACE=(CYL,(4),,CONTIG),VOL=SER=volser,
//          DCB=(RECFM=VB,LRECL=8232,BLKSIZE=8236,DSORG=PS)

```

Each installation should choose an appropriate dataset name and volume serial number for this dataset. Code the DCB parameters exactly as shown. Figure C-2 displays an example of a procedure to invoke GTF:

Figure C-2. Sample Procedure to Invoke JCL

```

//GTF LMS PROC MEMBER=GTF LMS
//IEFPROC EXEC PGM=AHLGTF,PARM='MODE=EXT,DEBUG=NO,TIME=YES',
//          REGION=2280K,DPRTY=(15,15)
//IEFRD DD DSNAME>**HLQ** .GTFTRACE.DATA,DISP=SHR
//SYSLIB DD DSNAME=SYS1.PARMLIB(&MEMBER),DISP=SHR

```

Associated with the GTF procedure, is a SYS1.PARMLIB member. An example of this member is shown below: This member is named GTF LMS in this example:

```

TRACE=USRP
USR=(nnn)
END

```

The value to be substituted for *nnn* in the SYS1.PARMLIB member must be the same value you specified in the LMSINIT execution parameters in the GTF(dddd) operand except that *nnn* in the SYS1.PARMLIB member is represented in hexadecimal and the *dddd* value

in the LMSINIT parms is the same number represented in decimal. For example: If you coded the LMSINIT parm to be GTF(820), you would code the SYS1.PARMLIB parm to be USR=(334). Decimal 820 is hexadecimal 334.

Starting GTF

Start the GTF procedure by entering a command on the system console, or from an SDSF panel. An example of this command is shown below:

```
START GTFLMS.GTF
```

The GTF program displays startup information, including a listing of the parameters that are used for this invocation. If its initialization is successful, GTF requests that the operator confirm the startup parameters by replying to an outstanding WTOR. This message is shown below:

```
*nn AHL125A RESPECIFY TRACE OPTIONS OR REPLY U
```

Using the reply number nn, the operator should enter the following on the system console or on an SDSF panel:

```
Rnn,U
```

GTF displays more diagnostic information, finished by the following message:

```
AHL031I GTF INITIALIZATION COMPLETE
```

Note: When GTF has started successfully, actual tracing to the GTF dataset does not occur until a Compuware product requests services from LM10. Be sure, therefore, that you have run LMSINIT with the GTF(nnn) parameter, and that you have started your GTF procedure before executing the Compuware product for which you want to capture trace data.

Stopping GTF

GTF is stopped by entering the following command on the system console or from an SDSF panel:

```
P GTF
```

GTF responds with the following message:

```
AHL006I GTF ACKNOWLEDGES STOP COMMAND
```

Then MVS reports that GTFLMS has ended.

Sending GTF Data for Analysis

The contents of the GTF dataset can be reformatted into a dataset that is appropriate for FTP transmission to Compuware's FTP site, or placed onto magnetic tape to be mailed.

Preparing GTF Data for FTP Transmission

In order to send the GTF data via FTP, it is necessary to reformat the data. An example of the JCL to perform this reformat is shown in Figure C-3:

Figure C-3. Sample JCL to Reformat the Data

```
/**
/** PLACE YOUR JOB CARD HERE
/**
//UNLOAD EXEC PGM=LMSSUNLD
//STEPLIB DD DSN=users.LMS.loadlib,DISP=SHR
//LMSINDD DD DSN=**HLQ**.GTFTRACE.DATA,DISP=SHR
//LMSOUTDD DD DSN=**HLQ**.GTFTRACE.TRAN,DISP=(,CATLG),
// UNIT=SYSDA,SPACE=(TRK,(15,15),RLSE,CONTIG)
//SYSUDUMP DD SYSOUT=*
```

After the GTF data has been successfully unloaded, the unloaded dataset can be transmitted via FTP to Compuware's FTP site. The same FTP commands as documented for sending SMF data to Compuware are used for sending GTF data.

Offloading GTF Data for Magnetic Tape

If the TCP/IP file transmission facility is not available, the GTF data can be sent on magnetic tape to Compuware. Use the GTF unload JCL with appropriate tape unit parameters for the LMSOUTDD statement. No DCB parameters need to be specified.

Appendix D.

FTP to Send File to Compuware

This appendix describes a sample FTP session from a customer's mainframe to Compuware's FTP site. It is assumed that FTP is available on the customer's host.

The initial commands to start the FTP client program and to access Compuware's FTP site are not shown. The reason is because each customer might have (or not have) a firewall site that imposes restrictions on what can be sent through the Internet and dictates the format of the commands to initially access Internet sites.

All command entries in Figure D-1 are shown in bold and marked with an arrow (==>).

Assuming a host-based TCP/IP, and no firewall, the user would enter the following command on any ISPF panel:

Figure D-1. FTP Session Example

```

====> TSO FTP FTP.COMPUWARE.COM

220 WWW Windows NT FTP server
Command:
====> user anonymous

>>>User anonymous
331 anonymous access allowed, send identity (e-mail name)
as password.
Password:

>>>Pass *****
230 anonymous user logged in as anonymous (guest access)
Command:
====> cd pub/lms/incoming

>>>CWD pub/lms/incoming
250 CWD command successful
Command:
====> mkdir *** enter your customer name ***

>>>MKD * customer_name *
257 MKD command successful
Command:
====> cd * customer_name *

>>>CWD * customer_name
230 command successful
Command:
====> bin

>>>BIN
200 Type set to 1
Command:
====> put 'ENCODED.SMFDATA' smftran.dat

>>>PUT
226 Transfer Complete
Command:
====> quit

```

Notes on FTP example:

When the directory has been successfully changed to **pub/lms/incoming** the attempt to create a new directory with the company name may fail with a reject message saying that you "...cannot create a file when that file already exists". This message indicates that the directory has been created already. This message can be ignored, and the CD command to enter this directory can be issued instead.

Be sure to set the transfer type to **BIN** (binary).

Appendix E.

E-Mail Notification Facility

Overview

The License Management System E-mail Notification Facility provides the ability to notify key personnel whenever a License Management System event error occurs (e.g., product access has been requested on a CPU not listed in the License Certificate for the product release). The E-Mail Notification Facility is the automatic creation and transmission of an e-mail message which describes the error completely in such a way that further investigation to determine what occurred should not be necessary.

Notification Frequency

The E-Mail Notification Facility maintains status of licensing errors such that only one e-mail message per CPU per product per day is generated and sent. This prevents duplicate messages from being generated. Because the e-mail message status information is saved with the License Cache, if LMSINIT is rerun on any CPU, then a second message could be generated on a single day for each License Management System event.

License checkout warnings also cause e-mail notification messages to be sent. As with failures, only one warning message per product or option per day per OS/390 image is sent. Even if a warning message has been sent for a particular product or option, one failure message for the same product or option may be sent as well.

Notification Options

You control the execution of the E-Mail Notification Facility including disabling it completely, specifying who should receive the e-mail message, and specifying what address is to be used as the sender. The following two options exist:

- Generate no e-mail messages at all.
- Generate License System error messages and send them to an administrator within your company.

Option 1 If option 1 is selected, you will not employ the E-Mail Notification Facility. Should a License Management System event occur, electing not to use the E-Mail Notification Facility may result in a resolution delay that could have been avoided.

Option 2 If option 2 is selected, then the E-Mail Notification Facility sends e-mail messages to an administrator within your company who can analyze the problem and determine whether Compuware should be notified. This administrator can manually forward the message to Compuware if necessary.

In addition to License Management System events, the E-Mail Notification Facility can report software errors (program abends) that occur within License Management via an e-mail. With the E-Mail Notification Facility active, you may not have to provide a dump.

Testing the E-Mail Notification Facility

You may test the E-Mail Notification Facility by generating the License Verification Report and selecting Y on the Edit JCL field. Change the parameter value to E-MAILTEST.

Examples

Figure E-1 shows a sample e-mail triggered by a license checkout failure.

Figure E-1. E-Mail Example of a License Checkout Failure

```

Subject: SECURITY ALERT: CUSTOMER_NAME
Date: Sun, 25 Oct 1998 09:16:26 -0500
From: LICENS_ADMN@CUSTOMER.COM

SECURITY ALERT AT: (111111) CUSTOMER_NAME
SITE NAME: (006) BALTIMORE NORTHEAST DATA CENTER
DATE: 25-OCT-1998 TIME: 14:13:01.123834 GMT SYSTEM: SS06
OS/390 INFORMATION: SP6.0.5 /HBB6605 /038
JOB: TSOID01M STEP: EXEC PROC: USER: TSOID01
SUBSYSTEM: 6339 LICENSE FILE: LM.LMS100.S1.LICENSE
DDNAME CWXX6339 IS NOT ALLOCATED

LICENSE CHECKOUT FAILURE 8 563
WLM563E THE REQUESTED PRODUCT LICENSE HAS EXPIRED
CERTIFICATE ID: 000002164509 LM10 VERSION: 01.00.00
CPU ID: IBM,9672-33-060270,MVS
PRODUCT NAME: (UNIFACE ) UNIFACE LONG PRODUCT NAME
PRODUCT VERSION: 07.02
PRODUCT STATUS: SHORT_TERM
PRODUCT START DATE: 01-FEB-1998 END DATE: 30-JUN-1998

```

Figure E-2 shows a sample e-mail triggered by an abnormal termination of the License Management System.

Figure E-2. E-Mail Example of an Abnormal Termination of License Management System

```

Subject: LM10 PROGRAM ABEND SOC1 AT CUSTOMER_NAME
Date: Sun, 25 Oct 1998 09:16:33 -0500
From: LICENS_ADMN@CUSTOMER.COM

LM10 PROGRAM ABEND SOC1 AT CUSTOMER_NAME
SITE NAME: (006) BALTIMORE NORTHEAST DATA CENTER
DATE: 25-OCT-1998 TIME: 14:13:08.121532 GMT SYSTEM: SS06
OS/390 INFORMATION: SP6.0.5 /HBB6605 /038
JOB: TSOID01M STEP: EXEC PROC: USER: TSOID01
SUBSYSTEM: 6339 LICENSE FILE: LM.LMS100.S1.LICENSE

LM10 LOAD MODULE: LMSSVRV ENTRY: 01D759E8 OFFSET: 00000456
LMSSVRV 00000001 19981025 08.57 VER 01.00.00
PSW AT TIME OF ERROR: 070C0000 81D75E3E 00020001 00898000
GPR 0-3: 00000000 0805F298 00000000 00000000
GPR 4-7: B1416F54 26DDC400 080392D0 0670E0F0
GPR 8-11: 06740090 0673B050 06711000 01D759E8
GPR 12-15: 01D43B10 0805F250 81D75E3C 00000000

```

System Requirements

Following are the E-Mail Notification Facility system requirements:

- TCP/IP running on any CPU that is to generate the e-mail messages
- IBM's TCP/IP versions 3.2, 3.4, 3.5 and up; or, Interlink Corporation's TCP/IP, TCPAccess, versions 4.1 and 5.2

Note: There is no support for IBM's TCP/IP version 3.3.

- Connectivity between your CPUs and your SMTP mail server
- Optionally, a Domain Name Server available to the host TCP/IP, if you want to address the mail server via a name rather than via an IP address

Further information on the parameters required to control the E-Mail Notification Facility is given in "Optional E-mail Parameters" on page 4-17.

Appendix F.

Service Bureau Environment

This appendix describes how the License Management System can be implemented successfully in a service bureau environment.

Environment Definition

For the purposes of Compuware License Management, a Service Bureau is defined as a company that provides a mainframe computing environment for other customers. The Service Bureau may license Compuware products for its own use, and the Service Bureau's customers may license Compuware products for their use.

License Management System in a Service Bureau

Prior to the License Management System, it was difficult for a Service Bureau to administer Compuware products so that both the Service Bureau and its customers were allowed access only to the Compuware products to which they were legitimately entitled. The Compuware License Management System improves this administration significantly.

License Files at the Service Bureau

As with License Files used at non-Service Bureaus, each License File at a Service Bureau contains license information for one and only one customer. The Service Bureau, itself, may have a license file which contains the license information for those products purchased by the Service Bureau for use by Service Bureau personnel.

Each customer of the Service Bureau (that has purchased Compuware product licenses) has its own separate license file. RACF security policies dictate that these files be separate and that one customer must not be allowed access to another customer's files. If the Service Bureau provides the administrative functions of license administration, then the Service Bureau must access all of its customers' license files.

LMSINIT at a Service Bureau

LMSINIT can create the runtime environment from one or more License Files. At a Service Bureau, LMSINIT would be configured to read the license files for *every customer who is going to run jobs on the system on which LMSINIT is executing*. Thus the license cache in this environment contains license information for each of the customers of the Service Bureau, as well as license information for the Service Bureau itself. LMSINIT is directed to read multiple files by including a `//CWLFnnnn DD` statement for *each* license file to be processed. Since the *'nnn'* suffix to the `//CWLF DDNAME` can be alpha or numeric, the limit to the number of files processed by LMSINIT is great indeed. The license cache information created by LMSINIT is kept separate in virtual storage in such a way that the Run Time Environment can determine from which license file each product version and option version record came.

The Run Time Environment

The challenge the Run Time Environment has is to choose *which* product version information to use for any given request from a Compuware product for license approval. This choice is made based on the RACF (ACF/2 or TOPSECRET) user ID under which the Compuware product is executing at the time the product makes a license request of the Run Time Environment.

Two implementation choices are available to the Service Bureau that allow RACF to aid in this determination.

1. The Service Bureau can grant license file “READ” access to each user ID owned by the customer. Presumably, the Service Bureau has established RACF GROUPS, one for each customer, so that only the GROUP for a given customer needs to be granted “READ” access, rather than each individual user ID.
2. If allowing customers to read the license files, themselves, is not acceptable to the Service Bureau, then another RACF entity (CLASS DATASET) can be created, one for each license file with “READ” access granted to this alternative entity. This entity name (Security DSN) is entered in the “Update License File Screen” on page 3-10 of the License Administration Utility. If no entity name is entered, then the dataset name of the license file is used. If an entity name is entered, then this entity name is used. The Service Bureau may have a license file, and user IDs belonging to the Service Bureau require “READ” access to their own license file (or to the entity name that represents the file).

When the Run Time Environment detects that it is executing in a Service Bureau environment, it makes a call to RACF (via RACROUTE) to determine *which license file (or entity name) the current user ID has access to*. When RACF returns a status indicating that the user ID has “READ” access to a particular license file, then that file’s cache is used to process the license request.

It is, of course, very important to ensure that any single user ID (or GROUP) has access to **one and only one license file** (or entity name). This works for Service Bureau customers, but there are personnel working for the Service Bureau who have access to *all* files in the Service Bureau’s environment. In order for these people to access only the Service Bureau’s license cache when they are executing Compuware products, it is necessary for the Service Bureau to place the `//CWLFnnnn DD` statement for its license file **FIRST**, before any `//CWLFnnnn DD` statements for the Service Bureau’s customers’ license files.

Appendix G. Compuware Product Codes

This appendix lists the two-digit Compuware product identification code that the License Management System uses in “The DD DUMMY JCL Statement” on page 4-5 to direct the product to a secondary LMS subsystem.

Code	Product Name
AA	Abend-AID for MVS
AF	Fault Manager
CF	CICS Abend-AID/Fault XPERT (CICS Abend-AID/FX)
CP	QAPlayback
DA	File-AID/Data Ager
DB	DBA-XPERT for DB2
EB	Abend-AID for WebSphere MQ
FA	File-AID for MVS (/Batch, /SPE, /XE)
FC	File-AID Conversion-XPERT
FD	File-AID for DB2
FE	File-AID Express for MVS
FR	File-AID/Related Data XPERT (File-AID/RDX)
FI	File-AID for IMS
QB	QABatch
SB	Strobe MVS for Sysplex
UM	UNIFACE for MVS
YN	QAHiperstation
XD	XPEDITER/CICS
YO	XPEDITER/Xchange
XT	XPEDITER/TSO (and XPEDITER/IMS)
XV	XPEDITER/Code Coverage
XW	XPEDITER+/WIN

Glossary

Abend-AID. The Compuware product for fault diagnosis that provides an immediate, detailed analysis of application program failures in a comprehensive report format.

Abend-AID for CICS. The Compuware product for fault diagnosis that provides a full range of analysis functions for managing abnormal CICS transaction terminations (abends) and CICS region outages.

Abend-AID products. A generic name for the Abend-AID product family.

Abend-AID Report. (1) A set of records containing data extracted at abend time from the affected MVS region and associated control blocks that are stored in the Abend-AID DDIO report file. (2) A readable report produced by CWDDSUTL at view time using the records stored in the Abend-AID DDIO report file.

Abend time. The time when an abend occurs and Abend-AID products perform their analyses.

Allocation group. A set of blocks assigned to a DDIO file member when the member requires additional storage.

APF Authorization. APF can be used to restrict access to system functions and can require that all modules loaded by an authorized program be loaded from an authorized load library. All modules loaded by LMSINIT must be loaded from authorized load libraries or LMSINIT will fail. Only individuals with proper RACF authority will have permission to update authorized load libraries.

Assembler Language Processor. One of four language processors provided by Compuware. This language processor accepts Assembler output, builds sort work records, sorts and merges the records, and merges the records with the listing to produce Processor control blocks that can then be used as input to other Compuware products.

Automatic lock. Automatic locks are created whenever a member is added to a DDIO file format using the AUTODELETE=DUPS or AUTODELETE=STAGED option. The most recent member is automatically locked. See also **manual lock**.

AUTODELETE. An attribute of a DDIO file, specified during formatting of the file, that determines

the action to be taken when the file becomes full and an attempt is made to add a new member to the file.

Base Services. Provides basic viewing server-related services. It enables Distributed Viewing Support.

Batch File Utility. A CSS utility used to prepare and manipulate DDIO files.

CEC. Central Electronic Complex designates the physical computer which can contain one or more LPARs. CECs can be of the older type designated as G1 through G6 or can be the new z/800 or z/900.

CEC Licensing. The number of MSUs provided by that CEC across all LPARs.

CGI. Common Gateway Interface. A way of interfacing computer programs with HTTP or WWW servers, so that a server can offer interactive sites instead of just static text and images.

CGI-bin. Common Gateway Interface-BINaries. A special directory where common gateway interface (CGI) scripts are kept.

C Language Processor. One of four language processors provided by Compuware. This language processor accepts C compiler output, builds sort work records, sorts and merges the records, and merges the records with the listing to produce processor control blocks that can then be used as input to other Compuware products.

COBOL Language Processor. One of four language processors provided by Compuware. This language processor accepts COBOL compiler output, builds sort work records, sorts and merges the records, and merges the records with the listing to produce processor control blocks that can then be used as input to other Compuware products.

Compuware Shared Services (CSS). A set of components used by several Compuware products to provide storage, retrieval, and maintenance for source listings and diagnostic reports.

Compuware Viewing Facility (Compuware/VF). The function of CWDDSUTL that allows the viewing, printing, locking, unlocking, and deleting of DDIO file members online.

Customer Modification Facility (CMF). This facility allows you to migrate from a previous release of CSS to CSS 7.4 or higher if you are using

any site-restricted zaps. This facility can retrofit your zaps to the SMP/E environment.

Customized Translation Table. An optional table provided by Compuware customers for translating non-printable characters. It is used by the batch file utility and Compuware/VF for printing or displaying lines containing storage displayed by Abend-AID products at abend time.

CWAASDUT. The batch file utility used by Abend-AID shared directories and report databases. CWAASDUT allows you to manage the files used by an Abend-AID shared directory and its associated abend report files. The shared directory is used to process all directory requests related to an abend report file.

CWASSECU. The name of the user-coded Security Exit program.

CWDDLPUT. The batch file utility program used by the language processor for C language, VisualAge PL/I, and Enterprise PL/I processing if using LONGNAME compiler support.

CWDDSUTL. The program for Compuware/VF and the batch file utility used by Abend-AID, XPE-DITER/CICS, and XPEDITER/TSO. CWDDSUTL allows you to print, delete, lock, unlock, copy, move, import, and export DDIO file members, and to list DDIO file directory entries. It also allows you to initially format a DDIO file

CWFXSDUT. The batch file utility used by Abend-AID for CICS. CWFXSDUT allows you to manage the files used by a shared directory and its associated transaction databases. The shared directory is used to process all directory requests related to a transaction database.

CWPPRMO. A language processor input dataset that contains all of the language processor options.

DBMODEL. The name of an OBJECT used to define all of the specifications needed to define a new source listing database during “dynamic database creation.” The information is stored in the Source Listing Shared Directory specified. It is used to build the dynamic source listing database define and format functions when the dynamic database creation process is invoked during the C Language Processor source member create.

DDIO (Dump Dataset Input Output). A Compuware proprietary file access method. The CSS language processors analyze the output from a compiler or assembler execution and store that information in a source listing DDIO file. CSS DDIO files are used to store diagnostic reports, transaction reports, and source listings. The term

DDIO file is a generic term used to refer to datasets that store the reports and listings from Compuware products that use CSS.

DDIO File. A generic name for a report file or source listing file.

DDIO File Member. A generic name for an diagnostic report in a report file, a source listing in a source listing file, or a transaction report in a transaction database.

Directory entry. A record in the fixed portion of the DDIO file (Directory) that contains information specific to a member. Each member has a corresponding directory entry. The number of directory entries is specified during formatting of the DDIO file and cannot be changed without reformatting the file.

DIRX Report. A report produced by the DIRX command of the batch file utility.

Distributed Viewing Support (DVS). Allows Abend-AID (version 9.0 and more recent) Abend-AID for CICS (version 4.4 and more recent) users to view both merged and base reports, where either the base report or listing file resides on a remote system. Abend-AID users can have source support across remote MVS systems that don't share DASD.

DYNCREATE. A term used to denote the “dynamic database creation” process that can be invoked when using the C Language Processor shared directory and source listing databases for its compiler output (CWPDDIO). A DBMODEL must first be defined in the desired Source Listing Shared Directory using the batch utility CWD-DLPUT with DYNCREATE=YES specified to allow invoking of the dynamic database creation process. The CWPDDIO must specify the Source Listing Shared Directory DSN name. If not enough space is found in any of the attached source listing databases, and DYNCREATE=YES, then the dynamic database creation process is invoked, the new source listing database is created and attached, and the new source member is created.

Enhanced Listing. A convenient source of quick reference information and program documentation that merges DMAP and CLIST information, in addition to error and diagnostic messages, with a COBOL source listing.

Enterprise Common Components (ECC). ECC is the packaging method for the following Compuware facilities:

- Compuware Shared Services (CSS)
- License Management System (LMS)
- Base Services

- Host Communications Interface (HCI)

Entry. A generic name for a transaction diagnostic report in a transaction database for Abend-AID for CICS.

Formatting a DDIO File. The preparation of an allocated file to be used as a DDIO file.

Full DDIO File. A DDIO file for which all allocation groups and/or all directory entries are allocated to members.

Host Communications Interface (HCI). A facility that provides connectivity between mainframe-based programmer productivity software and peer node software running on other platforms in a network. It allows application programs to communicate over any one of several protocols without knowledge of which protocol is in use at any given time.

Installation JCL Customization Facility. A CSS facility consisting of a set of screens that prompt you to enter installation information. This information is used to build the jobs necessary to perform the CSS SMP/E installation.

Language Processor (LP). A processor that converts assembler or compiler output into input for other Compuware products.

License Administration Utility (LAU). The LAU is the license administration control center for your organization's IT professional who is responsible for managing your access to Compuware products. The LAU is an ISPF application that enables

- the creation of a License File
- the import of License Certificates into a License File
- the maintenance and export of a License File
- the reporting and analysis of your License File and License Certificate information in virtual storage

Your organization's License Administrator will also set up License Management System parameters and system operation options using the LAU.

License Certificate. English-like readable electronic records that contain a portion of the information from your license agreement for a product release's use at a particular site. The License Certificate is used to update your License File.

License File. Dataset containing imported License Certificate information for all licensed releases of Compuware products. This file is in ASCII text format.

License Management System (LMS). Facility that enables you to centrally administer Compuware product License Certificates and manage access to Compuware products at your site. The LMS includes several components that together enable you to establish, maintain, diagnose, and upgrade access to the Compuware products licensed by your enterprise. The LMS replaces the customer profile utility provided with earlier versions of Compuware mainframe products.

Line command. A command entered next to the line to be processed. A line command is executed only for the specified member.

LMVERIFY. See **Verification Report**.

Locked member. A DDIO file member that was manually locked using the batch file utility or Compuware/VF, or automatically locked as a result of AUTODELETE=DUPS or AUTODELETE=STAGED processing. A manually locked member is identified by an M in the directory report or directory screen while an automatically locked member is identified by an L in the directory report or directory screen. When manually locked, a member cannot be automatically deleted when the DDIO file becomes full.

LPAR. Logical Partition is one operating system image, such as OS/390, z/OS, or z/OS-e.

LPAR Licensing. Refers to the defined capacity or "capped capacity" of the LPAR itself.

Manual lock. A member that was locked using the L line command in Compuware/VF or by using the LOCK batch command. Members that have been manually locked retain their locks during the autodeletion process. See also **automatic lock**.

MIPS. Millions of Instructions per Second. A unit of measure of processing performance equal to one million instructions per second.

MSU. Millions of Service Units per Hour.

Oldest member. (1) For report files, the diagnostic report with the earliest abend date and time. (2) For source listing files, the program with the earliest compile date and time.

PL/I Language Processor. One of four language processors provided by Compuware. This language processor accepts PL/I compiler output, builds sort work records and an incore symbol table of all of the identifiers, and produces Processor control blocks that can then be used as input to other Compuware products.

Primary Command. A command entered in the COMMAND INPUT field.

Problem Documentation Utility. A CSS utility that captures the documentation needed by Compuware for resolving technical issues and problems. This utility allows you to collect the documentation — such as copybooks, SYSPRINT, and DDIO members — that CSS Technical Support requires for problem resolution.

Report File. A file containing diagnostic reports that is accessed by DDIO.

Security Exit Program. A user-coded program that allows or denies execution of a requested command for a selected member by a specific user against particular DDIO files.

Server Grace. The amount of time an LPAR can run without being connected to the server.

Shared Directory. A variable-length record VSAM RRDS that contains Abend-AID for CICS directory records for each region and transaction dump known to a server, or contains Source Listing Shared Directory records necessary to process Source Listing Database members.

SMP/E. System Modification Program/Extended is IBM's standard facility for installing and maintaining software modifications in the MVS environment.

Source Listing. A compiled listing and other information about a program stored in a source listing file.

Source Listing Database. A specially formatted source listing file, owned and managed by a shared directory, that is used by the C Language Processor for C LONGNAME support.

Source Listing File. A file containing source listings that is accessed by DDIO.

STROBE. The STROBE MVS Application Performance Measurement System is a product that determines where and how application time is spent in online regions and batch processing programs and how system resources are used. STROBE collects several types of data as it tracks activity within an MVS environment and produces a collection of reports that helps you determine where to revise applications to improve their performance.

Suppressed statements. Statements that are not displayed in the compiler listing. Suppressed statements in a DDIO source member contain an internal flag that the XPEDITER/TSO product can use to display or suppress source statements using the GEN command.

Transaction Database. A DDIO file, containing transaction reports, that is managed by a shared directory in Abend-AID for CICS. Multiple transaction reports are stored in a single transaction database.

Transaction Report. A Abend-AID for CICS report created from CICS transaction terminations that is stored in a DDIO file.

Unlocked Member. A DDIO file member that is not currently locked. The locked member can be unlocked either manually, using the batch file utility or Compuware/VE, or automatically as a result of AUTODELETE=DUPS or AUTODELETE=STAGED processing. An unlocked member in a full DDIO file formatted with AUTODELETE=YES, AUTODELETE=DUPS, or AUTODELETE=STAGED can be automatically deleted when another member is added to the file.

Verification Report (LMVERIFY). Displays the result of a verification program that checks out each product version in cache. This data is exactly what a product would receive when it runs. Running this report will prove that the License Management System environment is properly set up for the customer.

View time. The time when an diagnostic report or source listing is presented in a readable format for viewing online or printing.

Index

Numerics

14-day grace period, 4-21
 checkpoint file, 4-22

A

abend time, GL-1
 Abend-AID, GL-1
 Abend-AID for CICS, GL-1
 Abend-AID products, GL-1
 Acrobat PDF online documentation, xiii–xiv
 adding a license file, 3-4
 administering LMS, 1-3
 administrator
 multiple administrators, 1-6
 allocation group, GL-1
 APF authorization
 definition, GL-1
 Assembler Language Processor, GL-1
 AUTODELETE, GL-1
 automatic lock, GL-1

B

batch file utility
 definition, GL-1
 BookManager softcopy documentation, xiii
 browse license file screen, 3-10
 browse option
 selecting a site, 3-12
 updatable fields, 3-10

C

C Language Processor, GL-1
 CEC, GL-1
 licensing, GL-1
 certificate
 example, A-10
 CGI, GL-1
 changes, summary of, ix
 checkpoint file, 4-22
 security, 4-23
 COBOL Language Processor, GL-1
 commands
 DOWN, xii
 EXIT, xii
 HELP, xii
 scroll commands, xii

UP, xii
 compatibility
 license management system and Compuware product releases, 1-7
 Compuware Shared Services
 definition, GL-1
 Compuware/VF
 definition, GL-1
 concepts overview, 1-2
 confirm submission screen, 3-8, 3-24
 CPUs, viewing, 3-18
 creating runtime environment, 4-1
 Current Cache Contents Report, 3-38
 Customer Modification Facility
 definition, GL-1
 customer support web site, xiii
 customized translation table, GL-2
 CWAASDUT, GL-2
 CWASSECU, GL-2
 CWDDLPUT, GL-2
 CWDDSUTL, GL-2
 CWFXSUTL, GL-2
 CWPPRMO, GL-2
 CYNCREATE, GL-2

D

DBMODEL, GL-2
 DD Dummy JCL statement, 4-5
 DDIO, GL-2
 DDIO file, GL-2
 DDIO file member, GL-2
 delete/define JCL, 3-6
 deleting a product, 3-17
 deleting a site, 3-13
 directory entry, GL-2
 DIRX report, GL-2
 disaster option, 3-41
 disaster processing
 enabling, 3-42
 DOWN command, xii

E

e-mail
 notification frequency, E-1
 notification options, E-1
 e-mail notification, E-1
 edit
 import JCL, 3-23
 EMERGENCY Password
 selecting a site, 3-44
 emergency password, 3-43
 entering, 3-44
 removing, 3-45
 EMERGENCY Password Screen
 enabling/disabling, 3-43
 enable disaster site, 3-41
 ENF (e-mail notification facility)
 system requirements, E-3

enhanced listing, GL-2
 enhancements, Release 2.0, ix
 entry, GL-3
 environment overview, 1-1
 establishing the LMS runtime environment, 1-3
 EXIT command, xii
 Export Dataset Specification screen, 3-28
 export option, 3-27
 Export report, 3-30
 exporting a license file, 3-29

F

file transfer, FTP, D-1
 formatting
 DDIO file, GL-3
 FrontLine support web site, xiii
 FTP, D-1
 full DDIO file, GL-3
 function keys, xii

G

grace period, 14-day, 4-21
 checkpoint file, 4-22
 GTF
 preparing, C-1
 preparing data for FTP transmission, C-3
 putting data on tape, C-3
 sending data for analysis, C-3
 starting, C-2
 stopping, C-2
 GTF Trace, C-1

H

help, xiii
 HELP command, xii
 help, getting, xv
 Host Communications Interface, GL-3
 HTML documentation, xiii-xiv

I

IFASMFDP, B-2
 import JCL
 editing, 3-23
 import license certificate screen, 3-21
 import option, 3-20
 import reports, 3-24
 importing license certificates, 3-21
 Installation JCL Customization Facility, GL-3
 installing LMS, 1-2
 Internet, Compuware WWW address, xiii-xiv

L

Language Processor (LP), GL-3

LAU, 1-6, GL-3
 about, 3-1
 accessing, 3-1
 browse option, 3-10
 confirming submission screen, 3-8
 CPUs
 viewing, 3-18
 delete/define JCL, 3-6
 disaster option, 3-41
 emergency password, 3-43
 export option, 3-27
 generating reports, 3-33
 import option, 3-20
 license file
 adding, 3-4
 define, 3-5
 exporting, 3-29
 initialize, 3-5
 removing, 3-4
 selecting, 3-4
 maintain nodes table screen, 3-8
 multiple administrators, 1-6
 nodes
 adding, 3-9
 changing, 3-9
 removing, 3-9
 options
 parameters, 3-2
 reports, 3-32
 selecting, 3-19
 sample reports, 3-35
 License Administration Utility. *See* LAU
 license certificate, GL-3
 14-day grace period, 4-21
 CPU record, A-8-A-9
 customer record, A-1, A-3
 example, A-10
 exporting, 3-27
 import checklist, 2-2
 importing, 3-20-3-21
 LPAR record, A-9
 obtaining, 2-1
 option record, A-6
 product record, A-4
 receiving, 1-2
 record type keywords, A-1
 record types, A-1
 site record, A-4
 license certificate data elements, A-1
 License Expiration Report, 3-38
 license file, GL-3
 exporting, 3-29
 selection screen, 3-3
 license file deployment
 centralized, 1-5
 decentralized, 1-5
 license files
 shipping to remote locations, 4-21
 License Management System, ix, GL-3
 compatibility, 1-7
 License Verification Report, 3-35
 line command, GL-3
 LMBCACHE, Print a Cache Report, 5-1
 LMBDELDF
 delete/define license file, 5-1
 LMBFILEP, Print License File Report, 5-1
 LMBMAINT, 5-1
 executing, 5-3

LMBCACHE, Print a Cache Report, 5-1
 LMBDELDF
 delete/define license file, 5-1
 LMBFILEP, Print License File Report, 5-1
 LMBMPORT
 import license certificate, 5-1
 LMBXPORT
 export license certificate, 5-1
 LMVERIFY, Verify Contents of License Cache, 5-1
 overview, 5-2
 SYSIN control statements, 5-3
 SYSIN file example, 5-4
 SYSIN statement groups, 5-4
 customer group, 5-4
 customer group operands, 5-5
 product/version group, 5-6
 product/version group operands, 5-6
 site group, 5-5
 site group operands, 5-5
 update user-maintained license file fields, 5-2
 LMBMPORT
 import license certificate, 5-1
 LMBXPORT
 export license certificate, 5-1
 LMS
 administering, 1-3
 components
 certificate files, 1-4
 license certificates, 1-4
 license file, 1-4
 establishing runtime environment, 1-3
 functions, 1-3
 installing, 1-2
 primary options, 3-1
 process, 1-2
 product codes, G-1
 runtime environment, 1-1
 service bureau environment, F-1
 LMSINIT, 1-6, 4-1
 14-day grace period, 4-21
 CHKPT_DSNAME parameter, 4-15–4-16
 CHKPT_VOLSER parameter, 4-16
 creating LMS subsystem, 4-21
 creating runtime environment, 4-1
 datasets, 4-6
 DEFAULT parameter, 4-15
 EMERGENCY parameter, 4-16
 executing, 4-24
 check if run, 4-25
 sample batch JCL, 4-24
 sample started task JCL, 4-24
 FUNCTION parameter, 4-13
 functions, 4-5
 general coding rules, 4-13
 GTF_ID parameter, 4-16
 INTERNET_GATEWAY_ADDR parameter, 4-19
 INTERNET_GATEWAY_NAME parameter, 4-19
 INTERNET_GATEWAY_PORT parameter, 4-20
 LANGUAGE parameter, 4-16
 MAIL_FROM_NAME parameter, 4-20
 MAIL_TO_ABN_NAME parameter, 4-20
 MAIL_TO_SEC_NAME parameter, 4-20
 optional e-mail parameters, 4-17
 output datasets, 4-6
 parameters, 4-8
 CHKPT_STORCLASS
 CHKPT_DATACLASS

CHKPT_MGMTCLASS, 4-16

service bureau environment, F-1
 SERVICE_BUREAU parameter, 4-15
 SITE parameter, 4-14
 SMF_ID parameter, 4-15
 LOGALL subparameter, 4-15
 SUBSYSTEM_ID parameter, 4-14
 SYSPRINT data, 4-6
 TCPIP_NAME parameter, 4-18
 TCPIP_USERID parameter, 4-19
 LMSINIT datasets
 checkpoint file, 4-22
 input datasets, 4-6
 SYSIN, 4-6
 LMSMFMTI, B-4
 LMSMFMTO, B-3
 LMVERIFY, GL-3
 LMVERIFY, Verify Contents of License Cache, 5-1
 locked member, GL-3
 LPAR, GL-3
 licensing, GL-3

M

maintaining data integrity, 1-4
 manual lock, GL-3
 MIPS, GL-3
 multiple license files
 checking for, 4-21

N

nodes table screen, 3-8

O

oldest member, GL-3
 operating environment, 1-1
 Option 0 - parameters option, 3-2
 Option 3 - import option, 3-20
 Option 4 - export option, 3-27
 Option 5 - reports option, 3-32
 Option 6 - disaster option, 3-41
 Option 7 - emergency password, 3-43

P

parameters option, 3-2
 PDF documentation, xiii–xiv
 PF keys, xii
 PL/I Language Processor, GL-3
 preview mode
 import reports, 3-24
 primary command, GL-3
 primary commands, xii
 primary options
 LMS, 3-1
 Problem Documentation Utility, GL-4
 product

- browsing, 3-15
- selecting, 3-15
- updating, 3-15
- product codes, G-1
- product record
 - deleting, 3-17
- product support, xv

R

- receiving the license certificate, 1-2
- related publications, xiii
- Release 2.0 enhancements, ix
- removing a license file, 3-4
- report file, GL-4
- reports
 - Current Cache Contents Report, 3-38
 - export, 3-30
 - generating, 3-33
 - import
 - preview mode, 3-24
 - update mode, 3-25
 - License Expiration Report, 3-38
 - License Verification Report, 3-35
 - sample reports, 3-35
 - SMF data source screen, 3-34
 - SMF Report, 3-39–3-40
- reports option, 3-32
- reports screen, 3-32
- revisions, changes in each, ix
- runtime environment, 1-1

S

- screen conventions, xi–xiii
- screens
 - enable disaster site, 3-41
 - Enable/Disable EMERGENCY Password Screen, 3-43
- SCROLL field, xii
- security
 - checkpoint dataset, 4-23
- Security Exit Program, GL-4
- selecting a license file, 3-4
- selecting a site, 3-12
- selecting an option, 3-19
- server grace, GL-4
- service bureau environment
 - definition, F-1
 - implement LMS, F-1
 - license file(s), F-1
 - LMS, F-1
 - LMSINIT, F-1
 - runtime environment, F-2
 - security, F-2
- shared directory, GL-4
- shipping license files to remote locations, 4-21
- site ID
 - browsing, 3-12
 - deleting, 3-13
 - selecting, 3-12
 - updating, 3-12
- SMF
 - capture, B-1

- data source screen, 3-34
- IFASMFDP, B-2
- LMSMFMTI, B-4
- LMSMFMTTO, B-3
- log, B-1
- process flow, B-1
- smf
 - report option, 3-32
- SMF Report, 3-39–3-40
- softcopy documentation, xiii
- source listing, GL-4
- source listing database, GL-4
- source listing file, GL-4
- STROBE, GL-4
- subsystems
 - choosing, 4-4
 - default subsystem, 4-3
 - subsystem names, 4-3
- summary of changes, ix
- suppressed statements, GL-4

T

- technical support, xv
- transaction database, GL-4
- transaction report, GL-4
- tutorials, xiii

U

- unlocked member, GL-4
- UP command, xii
- update
 - import report, 3-25
- update license file screen, 3-10
- update mode, 3-25
- update option
 - updatable fields, 3-10

V

- verification report (LMVERIFY), GL-4
- view time, GL-4
- viewing CPUs, 3-18

W

- World Wide Web, Compuware address, xiii–xiv