
Using the Subsystem Logging Facility **AF/OPERATOR®**

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Threaded Environment for AS/400, Patent No. 5,504,898; Data Server with Data Probes Employing Predicate Tests in Rule Statements (Event Driven Sampling), Patent No. 5,615,359; MVS/ESA Message Transport System Using the XCF Coupling Facility, Patent No. 5,754,856; Intelligent Remote Agent for Computer Performance Monitoring, Patent No. 5,781,703; Data Server with Event Driven Sampling, Patent No. 5,809,238; Threaded Environment for Computer Systems Without Native Threading Support, Patent No. 5,835,763; Object Procedure Messaging Facility, Patent No. 5,848,234; End-to-End Response Time Measurement for Computer Programs, Patent No. 5,991,705; Communications on a Network, Patent Pending; Improved Message Queuing Based Network Computing Architecture, Patent Pending; User Interface for System Management Applications, Patent Pending.

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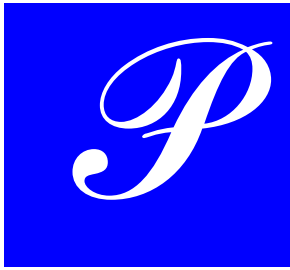
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Preface

Overview

This guide describes the Subsystem Logging Facility (SLF) and includes information about

- customizing and using SLF
- event consolidation and data flow
- archiving, off-line printing, and security

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About This Book

Who should read this book

This guide serves the following audiences:

- Primary Audience
 - system programmers
 - system administrators
 - network administrators
 - operators
- Secondary Audience
 - Candle sales force and field support

Documentation set information

This manual, *Using the Subsystem Logging Facility*, is part of the documentation set for Candle's automation products OMEGACENTER Gateway™ for MVS and AF/OPERATOR®.

Where to look for more information

For more information related to this product, please see the

- technical documentation CD-ROM that came with your product
- technical documentation information available on the Candle Web site at www.candle.com
- online help provided with this product

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You can also send email to UserDoc@candle.com. Please include "AF/OPERATOR: Using the Subsystem Logging Facility V340" in the subject line.

Contents of This Guide

Introduction

This section describes the contents of each major section of this manual.

Use the following table to understand the organization and contents of this guide.

Table 1. Contents of this guide

Chapter name	Content
“Overview of SLF” on page 15	This chapter provides an overview of SLF.
“Local and Remote SLFs” on page 23	This chapter defines the type of connections that you can make for local and remote SLFs.
“Installation and Customization” on page 31	This chapter describes how to install and customize SLF.
“Event Consolidation and SLF Data Flow” on page 49	This chapter describes SLF event consolidation and data flow.
“Using SLF” on page 55	This chapter describes how to use SLF.
“Archiving and Off-line Printing” on page 77	This chapter explains archiving and off-line printing for SLF.
“Command Entry Security” on page 85	This chapter tells you how to implement security for SLF.
“Panel References” on page 91	This chapter shows examples of the new and modified panels for SLF.
“Messages” on page 97	This appendix tells you about the SLF messages.
“Return and Reason Codes” on page 127	This appendix tells you about the SLF return and reason codes.
“Guide to Candle Customer Support” on page 131	This appendix provides information about Customer Support.

Adobe Portable Document Format

Printing this book

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1. Specify the print options for your system. From the Acrobat Reader Menu bar, select **File > Page Setup...** and make your selections. A setting of 300 dpi is highly recommended as is duplex printing if your printer supports this option.
2. To start printing, select **File > Print...** on the Acrobat Reader Menu bar.
3. On the Print pop-up, select one of the **Print Range** options for
 - All
 - Current page
 - Pages from: [] to: []
4. (Optional). Select the Shrink to Fit option if you need to fit oversize pages to the paper size currently loaded on your printer.

Printing problems?

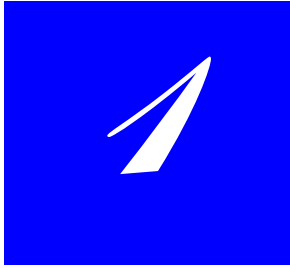
The print quality of your output is ultimately determined by your printer. Sometimes printing problems can occur. If you experience printing problems, potential areas to check are:

- settings for your printer and printer driver. (The dpi settings for both your driver and printer should be the same. A setting of 300 dpi is recommended.)
- the printer driver you are using. (You may need a different printer driver or the Universal Printer driver from Adobe. This free printer driver is available at www.adobe.com.)
- the halftone/graphics color adjustment for printing color on black and white printers (check the printer properties under **Start > Settings > Printer**). For more information, see the online help for the Acrobat Reader.
- the amount of available memory in your printer. (Insufficient memory can cause a document or graphics to fail to print.)

For additional information on printing problems, refer to the documentation for your printer or contact your printer manufacturer.

Contacting Adobe

If additional information is needed about Adobe Acrobat Reader or printing problems, see the Readme.pdf file that ships with Adobe Acrobat Reader or contact Adobe at www.adobe.com.



Overview of SLF

Overview

This chapter provides an overview of the Subsystem Logging Facility (SLF). It includes an introduction, a list of features and functions, and information you need to know before you install SLF.

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Introduction to SLF

Introduction

The Subsystem Logging Facility (SLF) is an operations tool that you can use to record and review events from multiple sources and issue commands against the originating subsystems.

This unit provides an overview of SLF.

OMEGAVIEW interface

SLF works through OMEGAVIEW® to give you access to events and records from multiple sources. OMEGAVIEW accesses data from the local address space and presents this data to you on the SLF console.

Note: *The OMEGAVIEW address space needs to run on the same MVS image as the local SLF address space.*

You can log on to SLF through OMEGAVIEW. See [“Logging on from OMEGAVIEW” on page 57](#) for the specific logon instructions. You can also link directly to SLF from an OMEGAMON II IMS session with the PA3 key. See [“Logging on from an OMEGAMON II IMS Session” on page 58](#).

Centralized event repository

SLF introduces a centralized event repository, called the Gateway repository, that selectively logs all events from multiple sources.

Events refer to messages and commands and include the following:

- IMS, DB2, CICS, VTAM and MVS messages
- OMEGAMON® product messages
- AF/OPERATOR EXEC output
- SLF operator requests
- IMS command responses

Centralized event repository (continued)

AF/OPERATOR routes events to the Gateway repository in either of the following ways:

- adding the JOURNAL keyword to an existing AF/OPERATOR trap
- creating a new AF/OPERATOR trap that specifies criteria for events you want to record

SLF records all data on DASD and makes the data available for archiving and off-line printing.

SLF uses the most efficient architectural approach, Data in Virtual (DIV) backed by a dataspace.

Note: *Candle has taken special consideration to minimize the required working set size.*

Single point of control

SLF provides single point of control by consolidating multiple system and subsystem consoles into a single unit. This allows you to monitor and control sysplex console operations from a single interface.

Automated log archiving

SLF automatically archives all events that it logs in the Gateway repository.

The automatic archiving feature provides a complete and time-synchronized audit trail for a specific problem scenario. This includes archiving all activities that lead you to identify a problem and all steps that you take to resolve the problem.

See [“Archiving” on page 78](#) for more information on the SLF automatic archiving feature.

Performance considerations

For a single system, SLF is capable of processing several thousand events per second. In a single system environment, SLF may be capable of accepting the full capacity of the MVS SYSLOG and other event sources.

When using SLF in a sysplex environment, you will need to consider the following:

- When routing events across system boundaries, you will need to be aware of the speed of data transfer with the cross-system coupling facility (XCF) and TCP/IP.

Note: *SLF uses XCF and TCP/IP for intersystem communications and is dependent upon the limitations of both XCF and TCP/IP. See “Connecting local and remote SLFs,” below.*

- For sysplex event routing, SLF may not be capable of accepting the full capacity of the MVS SYSLOG and other event sources.
- When planning a sysplex implementation to replace event recording systems such as SYSLOG and IMSLOG, you will need to perform individual testing to determine XCF’s intersystem routing capabilities.

Note: *You should complete the testing and develop a performance profile for a specific environment before making a decision to replace an event recording system.*

Connecting local and remote SLFs

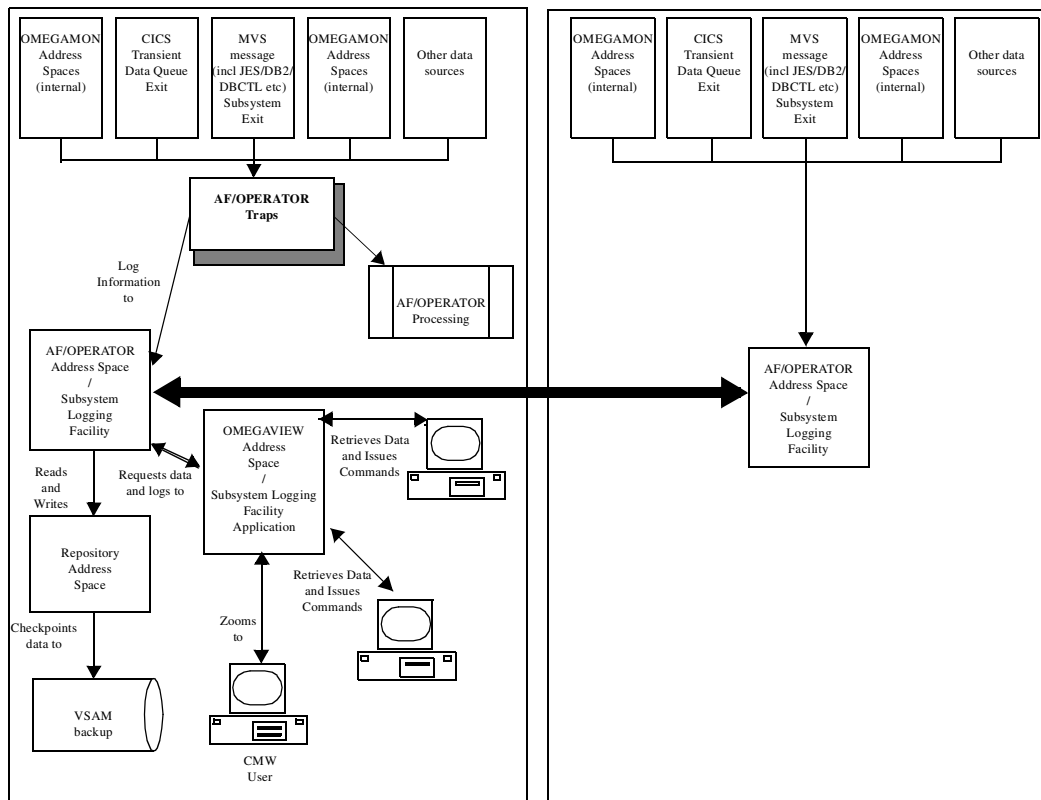
SLF supports the consolidation of events from multiple sources within and outside of a single sysplex environment. A local SLF is the central point where all of the events from multiple sources are collected. One or more remote SLFs collect events from specific sources and then route them to the local SLF.

A remote SLF can be within or outside of the same sysplex as the local SLF. For intersystem communications within a sysplex, SLF implements XCF. For intersystem communications outside of a sysplex, SLF implements TCP/IP.

See [“Local and Remote SLFs” on page 23](#) for more information on local and remote connections. See [“Intersystem Communications” on page 74](#) for more information on the implementation of XCF and TCP/IP.

Connecting local and remote SLFs (continued)

The following diagram illustrates intersystem connectivity.



Features and Functions

Introduction

This section provides a list of the SLF features and functions.

SLF features and functions

SLF provides the following features and functions:

- Serves as a repository for IMS, MVS, VTAM, CICS, DB2, and Candle product messages
- Permits you to enter IMS and MVS commands
- Permits you to enter commands that control the SLF address space
- Permits scheduling of automation EXECs
- Supports log recording using DIV (Data in Virtual)
- Supports customized user profiles for each SLF server
- Supports filtering by system, jobname, and event type
- Permits multi-directional FIND
- Permits 4-way screen scrolling
- Routes EXEC output to log
- Supplies date/time stamps and origin/type/system indicator for events and commands
- Provides automated log archiving
- Supports off-line formatting of archival data
- Supports CCC™ 3270 and CMW™ workstations
- Supports the Sysplex
- Provides intersystem connectivity through XCF and TCP/IP
- Is CUA compliant
- Supports SAF security checking
- Provides hot key access from a monitored IMS session
- Permits you to define your own helps for SLF messages

Storage Requirements

Introduction

This section lists the storage requirements for SLF.

Types of storage and space requirements

You will need to allocate DASD space to allow for SLF event recording. A typical dataset may be between 32 and 64 megabytes.

Note: *Because SLF uses dual logging, storage requirements are doubled.*

There are no additional region requirements for the AF/OPERATOR address space.

Hardware and software requirements

The software requirements for SLF are as follows:

- OMEGAVIEW V300
- AF/OPERATOR - V150 and above
- One or more Candle Command Center™ products - V110 and above
- MVS/ESA™ 4.3 and above

There are no special hardware requirements.



Local and Remote SLFs

Overview

This chapter describes the type of connections that you can define for local and remote SLFs.

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SLF Communications

Introduction

Local and remote SLFs collect events from multiple sources within and outside of one or more sysplexes. The local SLF is the central repository for all of the collected events and is located within a specific sysplex. Remote SLFs collect events and send them to the local SLF.

The three main connections between local and remote SLFs are:

- Connecting local and remote SLFs within a single sysplex
- Connecting remote SLFs outside of a sysplex
- Connecting one or more sysplexes

For communications within a sysplex, SLF implements XCF. For communications outside of a sysplex, SLF implements TCP/IP. An environment can have a combination of both XCF and TCP/IP connections.

XCF connections

Data is transferred through AF/OPERATOR. However, only SLFs in the same sysplex can be connected. An XCF group is used to notify each SLF when another SLF joins or leaves.

TCP/IP connections

As with XCF, data is transferred across TCP/IP connections through AF/OPERATOR. This means you can connect to an SLF outside of a sysplex, and connect SLFs in one or more sysplexes.

The local SLF starts the TCP/IP server using the command

COMM START *port*

where *port* is the number of the listening port. This is the same port number as supplied on the JOURNAL startup parameter.

A remote SLF defines a TCP/IP link with the command

LINK DEFINE *hostname port*

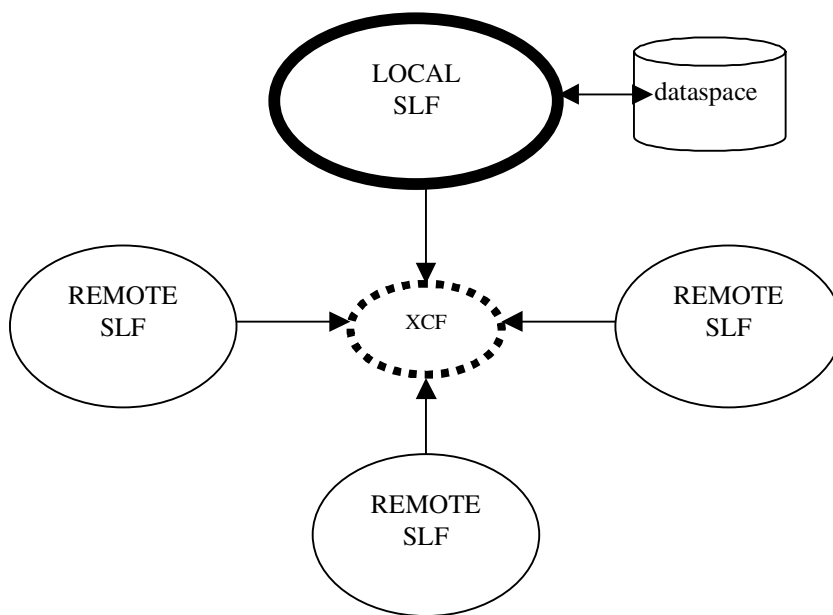
where *port* is the number of the listening port. This information is the same as that supplied for *hostname* and *port* on the JOURNAL startup parameter.

Refer to [“Installation and Customization” on page 31](#) for initiation procedures and details about the JOURNAL startup parameter.

Connecting SLFs Within a Single Sysplex

In a single sysplex connection, the local SLF maintains a list of those systems that are available to receive commands. It ensures that this list does not contain duplicates. The local SLF sends to a remote SLF those commands that are to be performed on the remote system. The remote SLF sends regular system status information to the local SLF. However, there is no connection between remote SLFs (see Figure 1).

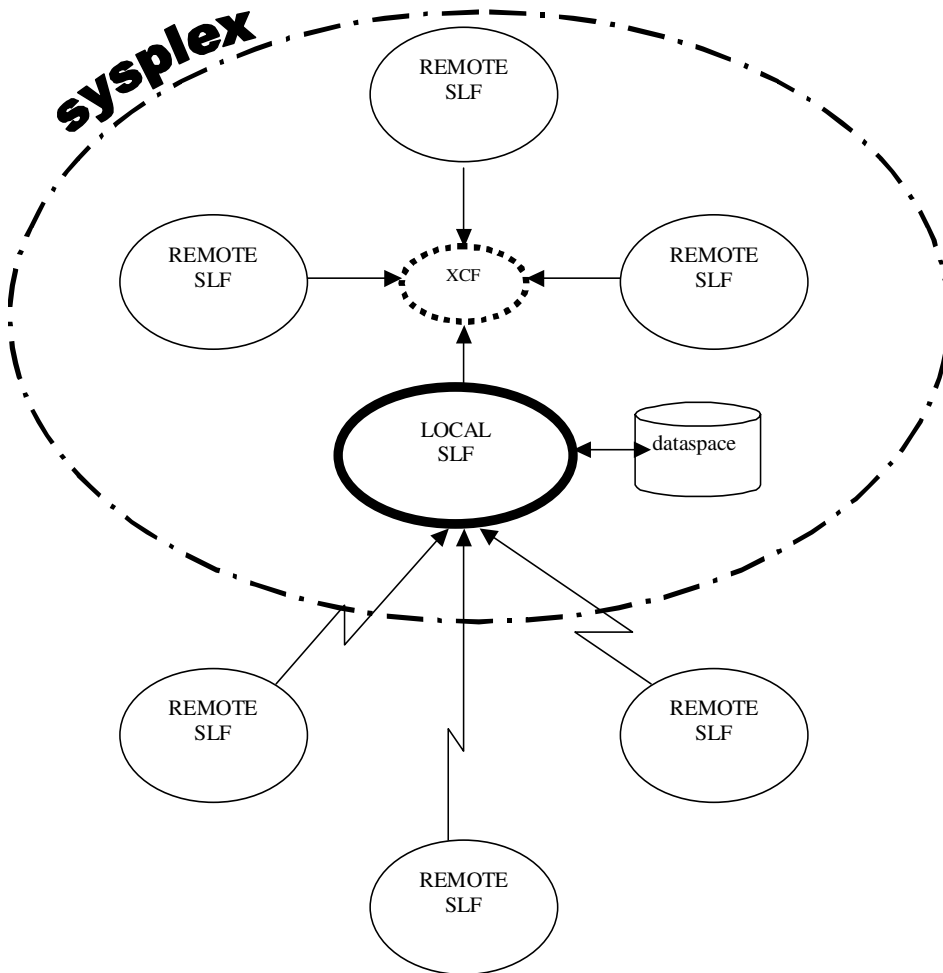
FIGURE 1. Connections within a sysplex



Connecting SLFs Outside of the Sysplex

Remote SLFs can be located within and outside of the same sysplex as the local SLF. Each remote SLF outside of the sysplex connects to the TCP/IP server port opened by the local SLF. These remote SLFs have no connection to an XCF group (see Figure 2).

FIGURE 2. Connections outside of a sysplex



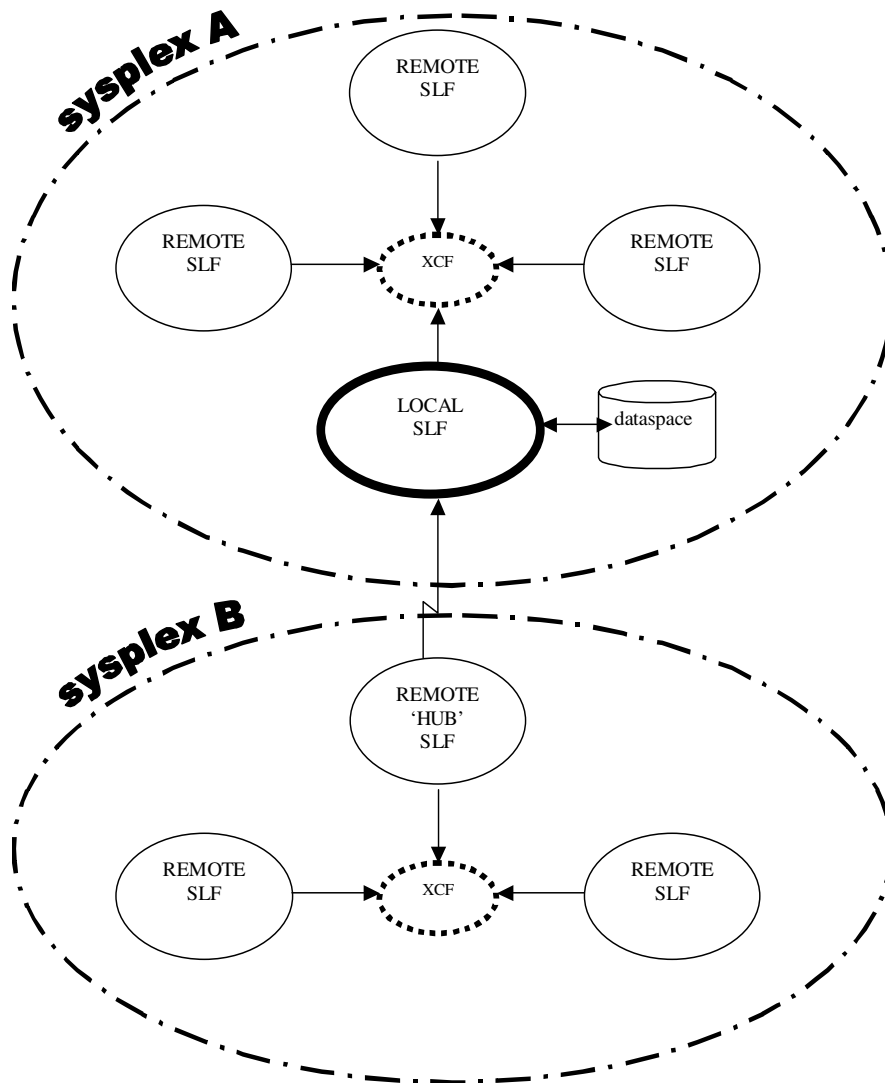
Connecting Multiple Sysplexes

You can connect one or more sysplexes so that remote SLFs, located in a sysplex other than the one containing the local SLF, can send events to the local SLF. To simplify connections, set up one of the remote SLFs as a remote hub. The other remote SLFs, in the same XCF group as the remote hub, send their system status information in the routine manner.

The remote hub maintains the system information as if it were a local SLF. This allows the remote hub to route information and distribute commands throughout the XCF group.

Any commands received by the remote hub from the local SLF are sent to the appropriate remote SLF. All events received by the remote hub from the other remote SLFs are directed to the actual local SLF.

See Figure 3, “Connections between sysplexes,” on page 29.

FIGURE 3. Connections between sysplexes



Installation and Customization

Overview

This chapter describes how to install and customize the Subsystem Logging Facility (SLF).

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Installing SLF

Introduction

This section describes SLF installation.

Installing SLF maintenance PTFs

SLF installation requires PTFs from the following products/FMIDs.

Table 2. SLF installation - products and FMIDs

Product	FMID
Subsystem Logging Facility	AKOG340
OMEGACENTER Gateway	AKOG340
AF/OPERATOR	AKAO340
OMEGAVIEW	AKMV300

Follow the Candle standard CICAT procedures to install the maintenance PTFs.

Note: *The AKOG340 FMID will reside in the OMEGACENTER Gateway CSI. The AKMV300 FMID will reside in the Candle combined CSI.*

Allocating Datasets

Introduction

You must define two VSAM datasets, RKOGSLF0 and RKOGSLF1, in the AF/OPERATOR startup JCL. SLF uses these datasets for checkpointing the dataspace and Gateway repository.

This section describes how to allocate datasets.

Defining VSAM datasets for AF/OPERATOR

The following is an example of the VSAM datasets you need to define in the AF/OPERATOR startup JCL.

```
//DEFINE EXEC PGM = IDCAMS
//SYSPRINT DD SYSOUT = *
//SYSIN DD *
DELETE hilev.RKSLF00 SCRATCH PURGE
DELETE hilev.RKSLF01 SCRATCH PURGE
DEFINE CLUSTER (NAME ('hilev.RKSLF00')
                SHR (1 3)
                CYL (pri sec)
                VOL (volser)
                LINEAR)
DEFINE CLUSTER (NAME ('hilev.RKSLF01')
                SHR (1 3)
                CYL (pri sec)
                VOL (volser)
                LINEAR)
/*
```

Specifying DD Statements in the Started Task

Introduction

In the AF/OPERATOR startup JCL, you must specify DD statements for the RKOGLSLF0 and RKOGLSLF1 VSAM datasets.

Note: Add these statements only to the local SLF.

This section describes how you specify these DD statements.

Specifying DD statements for RKOGLSLF0 and RKOGLSLF1

Specify the DD statements for RKOGLSLF0 and RKOGLSLF1 as follows:

```
//RKOGLSLF0 DD DISP=SHR,DSN=hilev.RKSLF00,DISP=SHR
//RKOGLSLF1 DD DISP=SHR,DSN=hilev.RKSLF01,DISP=SHR
```

Enabling AF/OPERATOR to Log Events in Repository

Introduction

SLF journaling occurs within and across sysplexes by use of:

- Cross-System Coupling Facility (XCF) for journaling within a sysplex
- Transmission Control Protocol/Internet Protocol (TCP/IP) for journaling between sysplexes

To enable AF/OPERATOR to log events in the Gateway repository, you must specify values for:

1. the JOURNAL startup parameter
2. the JOURNAL parameter on CMD, WTO, and xtype trap commands

The following sections of this manual describe how you specify the JOURNAL startup parameter and the keywords used to connect sysplexes using XCF, TCP/IP, or a combination thereof. It also describes values you can specify when using the JOURNAL parameter on trap commands.

For detailed information on the JOURNAL startup parameter, see *AF/OPERATOR Configuration and Customization Manual*. Information on using the JOURNAL parameter on trap commands can be found in the *AF/OPERATOR Command Reference Manual*.

Specifying values for the JOURNAL startup parameter

The syntax for the JOURNAL startup parameter is as follows:

```
JOURNAL { (LOCAL (INTERVAL(n), ARCHIVE(x) PORT (nn))
          REMOTE (LINK (HOSTNAME(xx), PORT(nn) ID(id), HUB))),
          GROUP (slfgroup), MODIFY_ID (slfsubs), SUFFIX(0), DESC(description text) }
```

General parameters required for XCF

If you are connecting a local and remote SLF that are executing within the same sysplex, all of the JOURNAL parameters are optional. If omitted, each parameter has a default value.

The following example shows a standard XCF connection between a local and remote SLF:

```
JOURNAL(LOCAL,GROUP(TESTSLF1),SUFFIX(0))
```

and

```
JOURNAL(REMOTE,GROUP(TESTSLF1),SUFFIX(0))
```

If the GROUP and SUFFIX parameters are allowed to default, the example could be written as simply as

```
JOURNAL(LOCAL)
```

and

```
JOURNAL(REMOTE)
```

A more complex example of XCF connectivity is:

```
JOURNAL({LOCAL(INTERVAL(60),ARCHIVE(slffarchi)) | REMOTE},  
GROUP(slffgroup),MODIFY_id(slffsubs),SUFFIX(0),DESC(description))
```

General parameters required for TCP/IP

If you are connecting a local and remote SLF that do not execute within the same sysplex, then the following parameters are required:

- LINK
- PORT
- HOSTNAME
- ID
- HUB

The following example shows a standard TCP/IP connection between a local and remote SLF:

JOURNAL(LOCAL(PORT(1025)))

and

JOURNAL(REMOTE(LINK(HOSTNAME(SYSA),PORT(1025))))

General parameters required for both XCF and TCP/IP

A local SLF can be connected to one or more remote SLFs within the sysplex by using XCF, and to one or more remote SLFs outside the sysplex by using TCP/IP. When you use both types of connections, the following parameters are required:

Local SLF

- PORT
- GROUP

Remote SLF (unless it is a hub)

- GROUP
- LINK

Parameters

LOCAL	The SLF that is the central repository for all of the collected events. This is the default.
REMOTE	An SLF that collects events from specific sources and routes them to the local SLF.

Local SLF suboperands

PORT(nn)	For the local SLF, this is the port number on which the TCP/IP communication server is listening for new client communications. For XCF connections, PORT is used with the GROUP parameter. The PORT number can be any integer greater than or equal to 1025, and less than or equal to 32767.
-----------------	--

INTERVAL(nn) The amount of time in seconds between checkpoint operations for a local system. This causes the data in the dataspace to be physically written to the SLF backup dataset. The valid range is 1 to 3600 seconds, with a default of 60.

ARCHIVE(slfarchi)

A 1-8 character name of the archive procedure that starts automatically when the backup dataset is full. The default archive procedure name is SLFARCHI.

The archive procedure is started with a SUFFIX=nn parameter, where nn equals '00' or '01', indicating which backup dataset is full and requires archiving. These correspond to the RKOGLF0 and RKOGLF1 DD statements in the startup JCL.

S slfarchi,SUFFIX=nn

Remote SLF suboperands

LINK The subparameters of the LINK parameter define the TCP/IP link used to connect the remote SLF to the local SLF.

HOSTNAME (xx)

Used only by the remote SLF to connect to the local SLF. HOSTNAME must be used with the PORT parameter. It has a maximum length of 24 characters, and can be either a dotted decimal IP address or a hostname defined to your network's domain name server. If the remote hostname is a dotted decimal IP address, none of the four numeric levels of the address can exceed 255.

PORT(nn)

Identifies the TCP/IP listening port number of the local SLF. PORT must be used with the HOSTNAME parameter. The port number can be any integer greater than or equal to 1025, and less than or equal to 32767.

ID (id)

Used by the remote SLF to override the default SLF LINKID.

Note: The ID cannot start with the # symbol.

HUB

Indicates that this is a REMOTE SLF. A HUB is only used when connecting multiple sysplexes. The HUB is connected to the local SLF via a TCP/IP link, and also routes data via XCF to and from other remote SLF systems that reside within the same sysplex.

Common suboperands

GROUP(*slfgroup*)

A 1-8 character group name identifier used for intersystem communication. Events on a remote system in this group are routed to the associated local system. The default group name is SLFGROUP.

You associate a remote SLF with a local SLF by using matching GROUP and SUFFIX parameters in the JOURNAL startup parameter.

For example, if you start the local SLF with:

JOURNAL(LOCAL,GROUP(TESTSLF1),SUFFIX(0))

then you connect the remote SLF with:

JOURNAL(REMOTE,GROUP(TESTSLF1),SUFFIX(0))

MODIFY_ID(*slfsubs*)

A 1-8 character task name an operator uses to communicate directly with the SLF journal task. The default journal task name is **SLFsubs**, where *subs* is the subsystem name.

SUFFIX(*nn*)

A numeric value between 0 and 15 used to locate the correct journal dataspace when information is displayed. The default is zero.

DESC(description)

Text that distinguishes between multiple journal dataspace used by multiple products. Text can be up to 25 characters and the default is spaces. If you embed spaces in the text, surround the description with single quotes. For example:

DESC(TESTING)

DESC("TEST SLF")

Commands generated automatically

When you specify the TCP/IP related keywords on the JOURNAL startup parameter, certain AF/OPERATOR commands are generated automatically. These commands establish a TCP/IP connection between local and remote SLF systems.

On the local SLF:

COMM START	Starts the TCP/IP server based on the listening port number specified in this command.
------------	--

On the remote SLF:

LINK DEFINE	Defines a TCP/IP link based on the hostname and port number specified in this command.
LINK START	Issued on a one-minute interval until the previously defined TCP/IP link is activated.

Specifying the JOURNAL parameter for trap commands

The following is an example of specifying the JOURNAL keyword for a WTO trap.

```
TRAP ADD (WTOEXAMPLE) WTO ('TEST WTO*') JOURNAL
TRAP ADD (GMHJOUXX) WTO('*') JOURNAL NOLOG NORET
```

Note: By default, Candle sets the CMD, WTO, and xtype traps to NOJOURNAL.

Determining current JOURNAL settings

You can issue the **AF** command without operands to see the current startup settings. These settings include the current JOURNAL startup settings.

Securing Your TCP/IP Connection

Trusted Hostnames List

To control who has access to a monitored system through a TCP/IP server, you need to define a list of authorized IP addresses that can connect to an SLF. This list is referred to as the Trusted Hostnames List. For more information on this list, including the syntax rules, refer to “Understanding the Communications Environment in the *AF/OPERATOR Command Reference Manual*.

Creating User-defined Helps

Introduction

This section describes how to create a user-defined help for an SLF message.

Guidelines for coding a help member

Use the following guidelines when coding a help member.

- Allocate a PDS library with a fixed block LRECL of 80.
- Add the PDS library to the RKANHENU library concatenation.
- In RKANHENU, create a member that contains the text of the help.
- To activate the help member for a message, specify the name of the help member using the JOURHELP keyword for an AF/OPERATOR trap command.

Writing help text

Use the following control statements when writing user-defined helps.

Table 3. Help text control statements

Help Text Control Statement	Description
)*	Specifies a comment line.
)DEPTH <i>nn</i>	Specifies the depth of the help pop-up window. The depth (<i>nn</i>) must be greater than or equal to 5; the default is 15. Note: <i>If there are more lines than will fit in nn, a scrollable window is created.</i>
)END	Specifies a logical end of file.
)INCLUDE <i>member</i>	Specifies a help member that is to be included in the current help panel. Note: <i>Included members may)INCLUDE other members.</i>
)TITLE ~text~	Specifies the text to be centered on the help panel title line. The actual text will have - Help appended to it.
)WIDTH <i>nn</i>	Specifies the width of the help pop-up window. The width (<i>nn</i>) must be greater than or equal to 20; the default is 55. Note: <i>The text in the member must fit within the window you specify; it does not wrap to fit within the window, but is truncated and will be lost.</i>

Help example

The following is an example of a user-defined help member.

```
) * Help for Customer Support
) depth 10
) width 40
) title ~Customer Support~

Contact the Customer Support Center
with diagnostic information.

) end
```

The following help window appears for this help member.

```
Customer Support - Help

Contact the Customer Support Center
with diagnostic information.

F12=Cancel
```

See [“Viewing User-defined Helps” on page 73](#) for information on viewing a user-defined help.

Extending IMS Support for IMS Commands

Introduction

Candle now supplies a standard Partner Program user exit for IBM IMS/ESA releases 5.1 and up, which extends the functionality of SLF to issue IMS commands.

This section describes how to install the Partner Program user exit.

Installing the Partner Program user exit

Perform the following steps to install the Candle Partner Program user exit.

1. If you already have a DFSPPE0 exit, change the source code for that exit to name the entry point DFSPPE1. If you do not have access to the source code, use Linkage Editor control statements to make this change.

If you need the Candle user exit to call more than one Partner Program user exit, rename the entry points to DFSPPE1, DFSPPE2, DFSPPE3, and (up to) DFSPPE4. The Candle user exit will call these exits in alphabetical order.

When linking the Candle user exit with an existing exit, insert the following statement before the INCLUDE statement for the existing exit.

CHANGE OLDNAME(DFSPPE n)

where OLDNAME is the entry point of the existing exit and n is a number between 1 and 4. This renames the entry point to DFSPPE1 (DFSPPE2, DFSPPE3, or DFSPPE4), so that the Candle exit can also process this exit.

Note: If you do not need the Candle user exit to call an existing DFSPPE0, go to step 3.

2. Use the Assembly and Linkage Editor job stream in *&thilev.TKANSAM* to assemble and link your exits.

You can find the JCL to assemble and link the user exits in the member KSLPPUAL. You can find the JCL to link the user exits with the Candle user exit in KSLPPULK.

Installing the Partner Program user exit (continued)

3. Create a load module called DFSPPEU0 from the load module KSLUExM, where

x=F for IMS 5.1

and

x=G for IMS 6.1

and

x=H for IMS 7.1

KSLUExM (renamed to DFSPPEU0) will call any existing DFSPPEU1, DFSPPEU2, DFSPPEU3, and DFSPPEU4, in this order. If DFSPPEU0 encounters a non-zero return code from any of these calls, it preserves and returns the return code to IMS. For all return codes that are zero, DFSPPEU0 proceeds to provide SLF functionality to issue IMS commands.

Note: *KSLUExM depends on any called DFSPPEUx to save and restore the registers that IMS provides to it. KSLUExM runs in 31 bit addressing mode and may reside above the 16M line.*

4. Copy the module DFSPPEU0, created in step 3, along with all modules starting with KSL, from the &thilev.TKANMOD library into the IMS RESLIB where the exit is to be enabled.



Event Consolidation and SLF Data Flow

Overview

This chapter describes the event consolidation strategy that the Subsystem Logging Facility (SLF) uses and provides a description of SLF data flow.

Chapter Contents

Event Consolidation with SLF	50
SLF Data Flow	52

Event Consolidation with SLF

Introduction

This section describes the event consolidation strategies for SLF.

Event consolidation strategies

Following is a description of the SLF event consolidation strategies.

- You will need to consider the following when setting up AF/OPERATOR traps to capture events that AF/OPERATOR routes to SLF.
 - All data in SLF originates from the AF/OPERATOR traps.
 - Responses to commands that you issue from SLF are visible only within SLF for the AF/OPERATOR traps you have set up.
- Include all sources of events in a set of AF/OPERATOR traps.

For example, IMS writes the bulk of its events to the AOI exit. However, IMS may also write events to the JOBLOG and SYSLOG and to VTAM.

- In a sysplex environment, SLF monitors all participants that issue messages or commands if
 - subsystems communicate with other subsystems on another host
 - work is queued between systems
 - workload balancing across MVS boundaries is in effect

Because of this, you can be certain that SLF will log all pertinent events regardless of their actual origin or destination.

Event consolidation strategies (continued)

- To avoid information overload with SLF
 - do not log events that are usually suppressed from traditional MVS and subsystem consoles
 - log only events that are directly related to the operation of the components
 - do not log information that is only for audit purposes

Note: *You can also review existing automation and message suppression strategies to gain insight into your current policies for message classification.*

SLF Data Flow

Introduction

This section provides a description and graphical representation of SLF data flow.

Data flow description

The following is a description of the flow of data through SLF.

- SLF captures and routes all events passing AF/OPERATOR traps (except TOD traps) to the data server that is active in the Gateway address space.

Note: *Specifying the JOURNAL keyword on trap commands enables this routing.*

- The data server task then performs various indexing schemes on a queued event and writes this information to the SLFSRVR dataspace. SLF periodically checkpoints the SLFSRVR dataspace to the linear VSAM dataset, RKOGLSLF0 or RKOGLSLF1.
- When the SLFSRVR dataspace fills up, SLF closes the dataspace, generates a command for the archive task, and reopens the dataspace with the other DD statement. During this interval, SLF queues all generated events and then writes the events to the SLFSRVR dataspace as soon as it reopens.
- SLF refers to the place where it stores events as the Gateway repository. You access events in the repository by logging on to SLF through OMEGAVIEW or the CMW.

See [“Logon Methods” on page 56](#), for specific instructions on logging on through OMEGAVIEW and the CMW.

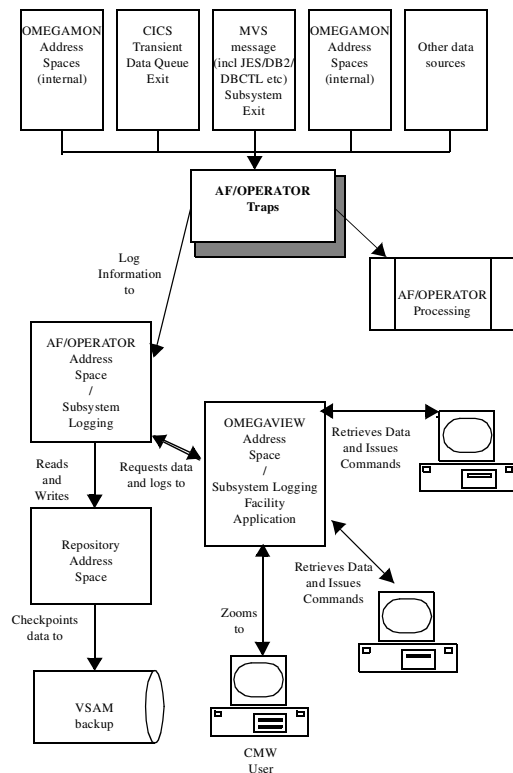
Data flow description (continued)

- After logging on, you select the SLF option. A task in the OMEGAVIEW address space then uses Name/Token services to locate all currently active SLF systems on the same MVS image. After you choose an SLF system, SLF negotiates and establishes a transient connection between your task and the SLF address space.
- To display data or process a command, your SLF user task passes this request to the SLF address space using program callable services. SLF then executes the request and returns the information to your user task.

Note: *The SLF task must be active in the AF/OPERATOR address space for the operational displays within OMEGAVIEW to be functional.*

Data flow diagram

The following diagram graphically illustrates SLF data flow.





Overview

This chapter describes how to use the Subsystem Logging Facility (SLF). It includes information on logon methods, customizing user profiles, navigation tools, command entry, event logging, and intersystem communication.

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Logon Methods

Introduction

You can log on to SLF from OMEGAVIEW or from the Candle Management Workstation (CMW). A hotkey can be used to link directly from an OMEGAMON II for IMS session to the SLF console

This section describes these logon methods.

Logging on from OMEGAVIEW

Use the following procedures to log on to SLF from OMEGAVIEW. Refer to [“Logging on from an OMEGAMON II IMS Session” on page 58](#) for the steps to access SLF from an OMEGAMON II IMS session.

1. Log on to OMEGAVIEW.
2. On the OMEGAVIEW Version 300 panel, open the **CCC - Reports** pull-down.

The system displays the OMEGAVIEW CCC Product Report List.

3. From the OMEGAVIEW CCC Product Report List, move the cursor next to the OMEGAVIEW session for the Subsystem Logging Facility and press **Enter**.

Result:

- If you are using only one SLF server and you have previously logged on to SLF, the system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.
 - If you are using more than one SLF server, the system displays the Subsystem Logging Facility Servers pop-up. Continue with step 4 below.
 - If you are using only one SLF server and this is the first time you are logging on to SLF, the system displays the SLF Command Targets pop-up. Continue with step 5 below.
4. On the Subsystem Logging Facility Servers pop-up, move the cursor next to the **ID** of the server you want to view and press **Enter**.

Result:

- If you have previously logged on to this server, the system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.
- If this is the first time you are logging on to this server, the system displays the SLF Command Targets pop-up. Continue with step 5 below.

5. On the SLF Command Targets pop-up, move the cursor next to the System ID/Job Name you want to issue commands against and press **Enter**.

Result:

- The system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.

Logging on from an OMEGAMON II IMS Session

PA3 is the default hotkey that links directly to the SLF console from an OMEGAMON II IMS session.

1. Log on to OMEGAVIEW.
2. On the System Overview panel, select the status item for the OMEGAMON II IMS session. The system displays the monitored IMS session that you selected.
3. Press PA3 to access the SLF console.

Logging on from the Candle Management Workstation

Use the following procedure to log on to SLF from the CMW.

1. Log on to the CMW.
2. From the CMW main container, double-click the **Administration** icon.
The system displays the Administration container.
3. From the Administration container, right-click the **SLF** icon for your product and then select **SLF for <product>** from the pop-up menu. For example, for CCC for IMSplex you would right-click the **SLF for IMSplex** icon and select **SLF for IMS**.

Result:

- If you are using only one SLF server and you have previously logged on to SLF, the system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.

- If you are using more than one SLF server, the system displays the Subsystem Logging Facility Servers pop-up. Continue with step 4 below.
 - If you are using only one SLF server and this is the first time you are logging on to SLF, the system displays the SLF Command Targets pop-up. Continue with step 5 below.
4. On the Subsystem Logging Facility Servers pop-up, move the cursor next to the ID of the server you want to view and press Enter.

Result:

- If you have previously logged on to this server, the system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.
 - If this is the first time you are logging on to this server, the system displays the SLF Command Targets pop-up. Continue with step 5 below.
5. On the SLF Command Targets pop-up, move the cursor next to the **System ID/Job Name** you want to issue commands against and press **Enter**.

Result:

- The system displays the Subsystem Logging Facility console. You are now ready to begin working with SLF.

Customizing User Profiles

Introduction

You can specify how you want the system to display information on the SLF console, by customizing your user profile.

Note: *SLF allows up to 16 servers and you can specify a different user profile for each server.*

SLF sets up the user profile for a server as follows:

- The first time you log on to an SLF server, the system uses the default filter ALL SYSTEMS and requires you to choose a command target destination.
- When you exit the SLF console, the system saves the last values you specified for filtering and command target destination in your user profile.
- The next time you log on to that SLF server, the system uses the information in your user profile to take you directly to the SLF console.

Note: *You can change your user profile settings for an SLF server at any time while working with SLF.*

This section describes how you can change the command target destination and filter criteria to customize your user profile.

Changing the command target destination

You can use the SLF Command Targets pop-up to change the command target destination.

The following external commands reference the command target destination:

- AF/OPERATOR EXEC invocations
- MVS commands
- IMS commands

To change the command target destination:

1. On the SLF console, move your cursor to the **Command Target** field and press **PF4**.

The system displays the SLF Command Targets pop-up.

2. On the SLF Command Targets pop-up, choose a new command target destination and press **Enter**.

The system redisplay the SLF console with the new profile specifications. To save these specifications in your user profile, you must exit the SLF console.

Note: *When the jobname is the same as the command target destination, the jobname also changes when you change the command target destination.*

Changing filter criteria

You can use the Filter pop-up to change the filter criteria for the data that displays on the SLF console. You can specify the following filter criteria:

- Origin (such as IMS, MVS, LOG, OM, and EXEC)
- Job name
- System ID
- All consoles

Note: Filtering criteria are mutually exclusive. You can request filtering by only one filter criteria.

To change the Filter criteria:

1. On the SLF console, open the **Filter** pull-down.

The system displays the Filter pop-up.

2. On the Filter pop-up, choose a filter and press **Enter**.

Depending on which filter you choose, another pop-up may display for you to enter specific filter criteria.

3. Press **Enter** after specifying your filter criteria.

The system redisplay the SLF console with the new profile specifications. To save these specifications in your user profile, you must exit the SLF console.

Setting Standard Processing Options

Introduction

You can use the Preferences pop-up to set several standard processing options on the SLF console.

This section describes this feature.

Specifying processing options

From the **Options** pulldown, select **Preferences**. The Preferences pop-up menu displays. On it, you can specify the following processing options:

- On/Off flags for mnemonics, beep, panel ID, time/date display, function key area, and implicit action
- National language
- Date and time format of the SLF console display

Using Navigational Commands

Introduction

Navigational commands are commands you can use to move around the SLF console display area.

This section describes these commands.

4-way scrolling

You can scroll in the SLF console display area left, right, up, or down using your scrolling PF keys.

You can scroll to a specific place on the display area using any of the following methods:

Table 4. 4-way scrolling

You can ...	Press ...	The system scrolls ...
place the cursor in the display area where you want to scroll.	one of the scrolling PF keys.	to the position you specified with the cursor.
enter a numeric value on the Command line.	one of the scrolling PF keys.	the number of positions you specified.
type MAX or M on the Command line.	one of the scrolling PF keys.	to the maximum row or column.

Multi-directional FIND

You can search for specific text strings by using the FIND command. The syntax for this command is as follows:

FIND *text_string* FIRST|LAST|PREV|NEXT

Table 5. Multi-directional FIND

Command Parameters	Description
text_string	Any text string, with or without quotes. The text string cannot be longer than a console line. A string with imbedded blanks requires single or double quotes.
FIRST	SLF starts the scan at the first available console line and scans forward through the console lines until the system finds the text or it reaches the last console line.
LAST	SLF starts the scan at the last available console line and scans backward through the console lines until the system finds the text or it reaches the first console line.
PREV	SLF starts the scan at the console line prior to the top line in the current console display area and scans backward through the console lines until the system finds the text or it reaches the first console line.
NEXT	SLF starts the scan at the console line after the top line in the current console display area and scans forward through the console lines until the system finds the text or it reaches the last console line.

If the system does not find the specified text, then the system displays a pop-up message.

Note: The FIND command scans a maximum of 99999 lines at a time.

REPEAT-FIND

You can use the REPEAT-FIND facility to re-execute the last FIND command you entered. The messages for the multi-direction FIND facility also apply to the REPEAT-FIND facility.

If you press PF5, the REPEAT-FIND function key, the system responds as follows:

IF you specified ...	THEN the system assumes the REPEAT-FIND modifier to be
FIRST as a modifier	NEXT
LAST as a modifier	PREV

If you continue to press PF5 (REPEAT-FIND), the system responds as follows:

IF you press the REPEAT-FIND PF Key after reaching the ...	THEN the system displays ...
first console line	last console line
last console line	first console line

LOCATE

You can use the LOCATE command to position the display at a specified line number. The syntax for this command is as follows:

LOCATE <line number>

Line number counting always increments at the beginning of recording. Line 1 is the first line in the currently active dataspace.

DATE and TIME

You can use the DATE and TIME commands to position the display to a specific date or time.

The syntax for the DATE command is as follows:

DATE *mm[:dd:yy]*

The syntax for the TIME command is as follows:

TIME *hh[:mm:ss]*

Using SLF Control Commands

Introduction

SLF control commands are commands that you can use to control the operation of SLF. These commands impact all users.

This section describes these commands.

SLF control commands

SLF supports the following SLF control commands:

Table 6. SLF control commands

Command	Description
INFO	Issues various messages describing information about sysplex connections.
REINIT	Re-initializes processing. SLF abandons all current records in the dataspace and all indexes, and processing restarts with record 1.
SHUTDOWN	Terminates the logger task immediately and properly closes the dataspace. Note: <i>You cannot issue a START command after doing a shutdown; you must recycle the AF/OPERATOR address space.</i>
STATUS	Issues various messages describing the status of the current SLF environment.
SWITCH	Forces a log switch. The current dataspace closes and SLF directs logging to the alternate VSAM dataset. SLF generates a START command for the archival STC automatically.

Note: *Do not use command recognition characters (CRC) with these SLF control commands.*

Using External Commands

Introduction

External commands are commands that involve interaction between SLF and other system components, subsystems, or other Candle products. SLF does not process external commands itself.

This section describes these commands.

External commands and CRCs

You begin each external command with a command recognition character (CRC).

SLF supports the following commands and CRCs.

Table 7. SLF external commands

CRC	Command/Destination
/	IMS command
%	AF/OPERATOR EXEC invocation
>	Manual log entry
+	MVS command
?	IMS transaction

See [“Converting Commands to Resources” on page 88](#) for more information on external commands.

Using Operator Commands

Introduction

Operator commands are commands that you can use to display general information about SLF status and operation.

This section describes these commands.

Operator commands

The syntax for an operator command is as follows:

MODIFY xxxxxxxx,yyyyyyyy

or

F xxxxxxxx,yyyyyyyy

Where:

xxxxxxx is the modify ID that the RKANPAR dataset assigns to SLF.

yyyyyyyy is the name of the command.

Operator commands (continued)

SLF supports the following operator commands.

Table 8. SLF operator commands

Command	Description
INFO	Issues various messages describing information about sysplex connections.
REINIT	Re-initializes processing. SLF abandons all current records in the dataspace and all indexes, and processing restarts with record 1.
SHUTDOWN	Terminates the logger task immediately and properly closes the dataspace. Note: <i>You cannot issue a START command after doing a shutdown; you must recycle the AF/OPERATOR address space.</i>
STATUS	Issues various messages describing the status of the current SLF environment.
SWITCH	Forces a log switch. The current dataspace closes and SLF directs logging to the alternate VSAM dataset. SLF generates a START command for the archival STC automatically.

Logging Events

Introduction

This section describes how you can direct the AF/OPERATOR to log events in the Gateway repository.

Using TRAP commands

You can create and edit AF/OPERATOR trap commands, to specify criteria for events that you want AF/OPERATOR to log in the Gateway repository.

Refer to the “*AF/OPERATOR Command Reference Manual*” for more information on the AF/OPERATOR trap commands.

Viewing User-defined Helps

Introduction

This section explains how you can view a user-defined help.

Accessing a user-defined help

During creation of a user-defined help, you activate the help for one or more messages that you have directed AF/OPERATOR to route to SLF.

When a message with an active help displays in the Subsystem Logging Facility console log, the word **HLP** appears in the column to the left of the actual message text.

To view the user-defined help for a message, position your cursor anywhere on the line for the message and press **F1**.

See [“Creating User-defined Helps” on page 43](#) for information on creating a user-defined help.

Intersystem Communications

Introduction

SLF uses both TCP/IP and XCF for intersystem communications. This section describes the considerations and specifications for implementing communications between SLF systems.

Considerations for implementing intersystem communications

To implement intersystem communications, you need to consider the following:

- Every system that shares the SLF repository must have an active AF/OPERATOR address space.
- Management of the SLF repository is centralized. All accesses to the SLF dataspace are performed by a single AF/OPERATOR address space.
- XCF-based communications are the preferred method of SLF-specific intersystem communications within the same sysplex.

When using XCF-based intersystem communications:

- All AF/OPERATOR systems in a sysplex must be members of the same XCF group.
- Re-routing communications is a simple process that involves setting the GROUP startup parameter to identify the XCF group.

When using TCP/IP-based intersystem communications:

- The AF/OPERATOR system where the SLF repository is located uses the PORT startup parameter. This parameter identifies the TCP/IP port number on which AF/OPERATOR will accept connections from SLF systems wishing to share the repository.
- To share the repository over a TCP/IP connection, an SLF system uses both HOSTNAME and PORT startup parameters. HOSTNAME identifies the system where the SLF repository is located. PORT identifies the TCP/IP port number being used on that system to accept SLF connections.

- The TCP/IP hostname of the LPAR from where an SLF system is attempting to connect must be defined in the Trusted Hostnames List for the AF/OPERATOR where the SLF repository is located.

See [“Securing Your TCP/IP Connection” on page 42](#) for information on defining the Trusted Hostnames List. See the section entitled “Configuration Requirements for Establishing TCP/IP Connections” in the *AF/OPERATOR Command Reference Manual* for more details relating to TCP/IP communications.



Archiving and Off-line Printing

Overview

This chapter provides information about archiving and off-line printing for the Subsystem Logging Facility (SLF).

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Archiving

Introduction

SLF provides a facility for archiving all events that it logs in the Gateway repository.

This section describes this archiving facility.

Log switching

SLF uses dual logging to allow for concurrent logging and archiving of data. SLF initiates log switching between the dual logs in the following ways:

- When a dataspace fills up, SLF automatically issues a log switch command.
- A user can request a log switch by issuing a modify command to the address space or by issuing an SLF interface command.

The format for the log switch command is:

S JRNLTASK, SUFFIX=XX

Command Parameters	Description
JRNLTASK	The name of the STC that you specified in OGPARMS for the JRNLTASK subparameter of the JOURNAL command.
XX	Indicates dataspace is full; it is either 00 or 01.

Log switching (continued)

You must set up a procedure similar to the following, to perform the archival process of copying data from the Gateway repository to the archival files.

```
// COPY      PROC  SUFFIX=
// COPYN     EXEC  PGM=IDCAMS
// SYSPRINT  DD   SYSOUT=*
// ARCHIN    DD   DSN=&hilev.RKSLF&SUFFIX ,DISP=SHR
// ARCHOUT   DD   DSN=&hilev.SLF.ARCH.LOG (+1) ,DISP=( ,CATLG,DELETE) ,
//           UNIT=3480X ,
//           TRTCH=COMP ,
//           VOL= (PRIVATE,RETAIN) ,
//           LABEL= (1,EXPDT=99365)
// SYSIN     DD   *
REPRO      INFILE (ARCHIN)      OUTFILE (ARCHOUT)
//
```

Note: When the logger task detects two log switches occurring in quick succession without the archival process completing, the system issues a warning message, attempts to queue writes (but may lose events), and retries the request every 30 seconds.

Off-line Printing

Introduction

SLF provides a utility program that you can use to extract data from the Gateway repository and produce off-line reports.

This section describes off-line printing.

Generating reports

SLF uses the KSLAPAM utility program to extract data from the Gateway repository and produce off-line reports. KSLAPAM reads data from a VSAM cluster.

Following is the JCL to REPRO the archival data from a generation data group to a VSAM cluster.

```
// DEFINE      EXEC  PGM=IDCAMS
// SYSPRINT    DD  SYSOUT=*
// SYSIN       DD  *
//             DEFINE      CLUSTER(NAME ('&hilev.OGSLFBKP.VSAM.CLUSTER') -
//                           SHR (1,3 ) -
//                           CYL (pri  sec ) -
//                           VOL (volser) -
//                           LINEAR)
//
// REPRO        EXEC  PGM=IDCAMS
// SYSPRINT     DD  SYSOUT=*
// GDGIN        DD  DSN = &hilev.SLF ARCH.LOG (- 1) , DISP=SHR
// GDGOUT       DD   DSN = &hilev.OGSLFBKP.VSAM.CLUSTER, DISP=SHR
// SYSIN        DD  *
//             REPRO      INFILE (GDGIN)  OUTFILE (GDGOUT)
//
```


Generating reports (continued)

Following is the JCL for running KSLAPAM to extract data from the REPRO archival data.

```
// SLFJCLA    EXEC   PGM=KSLAPAM
// STEPLIB   DD    DSN=&rhilev.TKOGLOAD,DISP=SHR
// SYSPRINT  DD    SYSOUT= *
// SLFRPT    DD    SYSOUT = *
// RKOGLF    DD    DSN=&hilev.OGSLFBKP.VSAM.CLUSTER , DISP=SHR
// SLFEXT     DD    DSN=&hilev.SLF.FLATFILE, DISP=(,CATLG, DELETE)
//           UNIT = SYSDA
//           SPACE = (CYL , (1 , 1 )
// SYSIN      DD    *
PRINT
/*
//
```

Note: Control statements in the input stream control KSLAPAM operation.

SLF supports the following two control statements.

Statement	Description
EXTRACT	Extracts a subset or the complete contents of the dataspace to a sequential file found under the SLFEXT statement.
PRINT	Generates a printed report of a subset or the complete dataspace to the SLFRPT DD statement.

You can use a number of parameters with each of these control statements to indicate additional extraction and off-line printing specifications.

Generating reports (continued)

SLF supports the following parameters for the PRINT and EXTRACT control statements.

Parameter	Description
SDATE	Start date is in the form YYYYDDD.
EDATE	End date is in the form YYYYDDD.
STIME	Start time is in the form HHMMSS.
ETIME	End time is in the form HHMMSS.
SLINE	Start line is in the range 1-99999999.
ELINE	End line is in the range 1-99999999.
ORIGIN	1-8 character origin of event; wildcards are supported.
SYSTEM	1-8 character system identifier; wildcards are supported.
TYPE	One of following 1-6 character type designators: <ul style="list-style-type: none"> ■ EXEC ■ IMSMSG ■ IMSCMD ■ LOG ■ MVSMSG ■ MVSCMD ■ OM

Use the following guidelines when issuing control statements:

- Separate parameters by commas.
- Use a space to indicate the end of the control statement.
- Use an asterisk (*) in column one to indicate comment lines.

Note: SLF interprets all parameters following a space as comments.

Generating reports (continued)

Following is an example of a control statement:

PRINT SDATE=2001157,EDATE=2001157,TYPE=IMSMG

This indicates that SLF will print a report for all IMS messages for June 6, 2001.



Command Entry Security

Overview

This chapter describes how to implement command entry security for the Subsystem Logging Facility (SLF) through OMEGAVIEW.

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Converting Commands to Resources	88

Defining a Command Resource Class

Introduction

To use an external security system to validate commands that you enter through an SLF console, you must define a command resource class to the OMEGAVIEW address space.

To define a command resource class, modify the Network Access Manager (NAM) security parameters as follows:

1. Create a command resource class name table.
2. Specify the command resource class name table to the OMEGAVIEW address space.

Note: To make these changes take effect, stop/restart the OMEGAVIEW address space.

This section describes each of these steps.

Creating a command resource class name table

Use the following procedure to create the command resource class name table.

1. Edit *rhilev.RKANPAR*(xxxxxxxx).

Substitute any valid member name for xxxxxxxx. Candle recommends KMVSLFCL.

2. Insert the following line:

SLFCMD EXTERNAL=yyyyyyyy

where yyyyyyyy is the command resource class name you use to define your external security system for SLF command resources.

3. Save the member.

Specifying the command resource class name table

Use the following procedure to specify the command resource class name table to OMEGAVIEW.

1. Edit *rhilev.RKANPAR(KMVINNAM)*. Add the following line:

CLASSES=xxxxxxx

where xxxxxxxx is the name of the *rhilev.RKANPAR* member you specified when you created a command resource class name table.

Note #1: This specification is a continuation of the previous one. You must add a “-” to the previous specification.

Note #2: Set the security specification in *KMVINNAM* to *SAF*.

2. Save *KMVINNAM*.

Converting Commands to Resources

Introduction

Use the following guidelines when converting commands to resources:

- To give a user access to SLF, you must set the access authority to all resources to READ.
- If you are using SAF security and you have not explicitly defined the resource, the default access authority depends on the settings of the security package you are using.

For example, under RACF the system disallows access by default unless a return code of 0 is specified as override in the CDT (DFTRETC keyword on ICHERCDE macro).

- The class that you use for SLF should have the following properties:
 - You must define the first and all other resource name characters as alphanumeric or any special character.
 - You should set the maximum resource length to a minimum of 64 characters. The resource length depends on the maximum length of commands and parameters. SLF supports a maximum resource length of up to 246 characters.

This section describes how SLF converts commands to resources.

How SLF converts commands to resources

SLF takes the command you enter and converts it to a resource name as follows:

high-level node The internal SLF command recognition character converts to the high-level node. For example:

IF the first character of the command is ...	THEN SLF converts it to ...
Plus (+)	MVSCMD
Slash (/)	IMSCMD
Percent (%)	AFEXEC
Greater than (>)	LOGMSG
Question (?)	IMSTRN
All other characters	SLFCMD

second node The system name
third node The job name
fourth node The first node of the command
fifth node The second node of the command

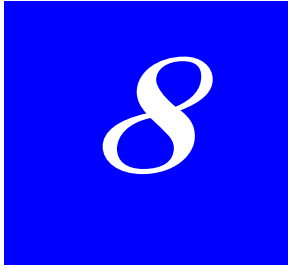
How SLF converts commands to resources (continued)

For a target system of SYSG and a target job of IMS410AC, the following table shows examples of commands and the SLF converted resource name.

Table 9. Commands to resources conversion - example

Command	Resource Name
/DIS A	IMSCMD.SYSG.IMS410AC.DIS.A
+ 110/DIS A	MVSCMD.SYSG.IMS410AC.R.A
+ R 110, /DIS A	MVSCMD.SYSG.IMS410AC.R./DIS
% STOPPYRL	AFEXEC.SYSG.IMS410AC.STPPYRL
> HELLO WORLD	LOGMSG.SYSG.IMS410AC.HELLO.WORLD
STATUS	SLFCMD.SYSG.IMS410AC.STATUS
? STOPPYRL	IMSTRN.SYSG.IMS410AC.STOPPYRL
+ * D41A STOP DB2	MVSCMD.SYSG.IMS410AC.8D41A.STOP
+ %STOP DB2	MVSCMD.SYSG.IMS410AC.5STOPDB2

Note: In the resource name, all asterisks (*) translate to eight (8) and all percent signs (%) translate to five (5).



Panel References

Overview

This chapter shows examples of each of the Subsystem Logging Facility (SLF) panels and modifications to OMEGAVIEW and CMW panels for SLF.

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OMEGAVIEW CCC Product Report List Panel

Introduction

SLF adds an entry to the OMEGAVIEW CCC Product Report List panel, where you choose the Subsystem Logging Facility.

Example

This example shows you the modifications to the OMEGAVIEW CCC Product Report List panel.

KMVOCMAI OMEGAVIEW CCC Product Report List

Move cursor next to session, then press Enter.

<u>Session</u>	<u>Type</u>	<u>Status</u>
OS	CCC Reports for Sysplex	Not Installed
CP	CCC Reports for CICS	Not Installed
IP	CCC Reports for IMSplex	Available
DP	CCC Reports for DB2plex	Not Installed
MQ	CCC Reports for MQSeries	Not Installed
MV	Subsystem Logging Facility	Available

F1=Help **=Bkwd **=Fwd F12=Cancel F14=Find

Subsystem Logging Facility Servers Pop-up

Introduction

SLF includes the Subsystem Logging Facility Servers pop-up, where you choose the SLF console you want to view.

Example

This example shows you the Subsystem Logging Facility Servers pop-up.

KMVSLF00 Subsystem Logging Facility Servers

Move cursor next to selection, then press Enter.

<u>ID</u>	<u>Description</u>
01	Candle Prod SLF
02	Candle Test SLF

F1=Help F12=Cancel

Note: The description on the Subsystem Logging Facility Servers pop-up comes from the description in OGPARDS.

Administration Container

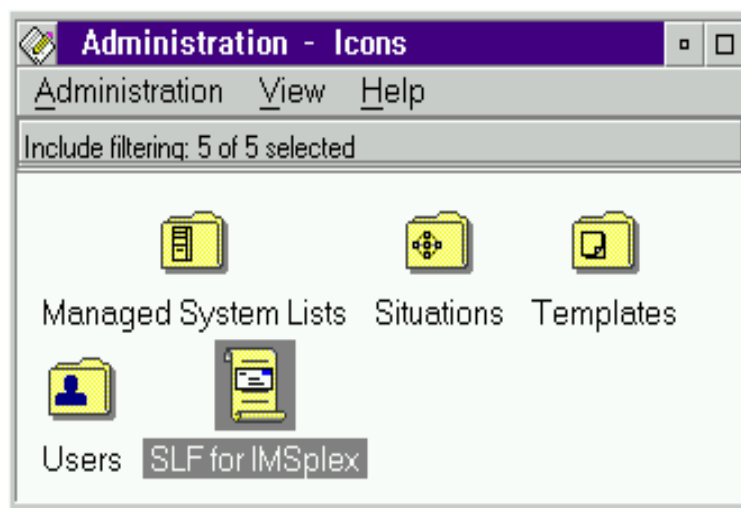
Introduction

SLF adds icon(s) to the CMW Administration container, where you choose the SLF product you want to view.

Note: To use SLF, you must have OMEGAVIEW zoom capability from the CMW.

Example

This example shows you the modifications to the CMW Administration container for the SLF for IMSplex product.



Subsystem Logging Facility Console

Introduction

SLF includes the Subsystem Logging Facility console, where you can review events and issue commands against the originating subsystems.

Example

This example shows you the Subsystem Logging Facility console.

OptionsFilterHelp

11/30/0015:29:15

KMVSLFCNSubsystem Logging Facility for System ID: SYSG

Command Target: SYSGIMS610AC+

Line 60518 of 60809Columns 1 to 66

***** Top of Log *****

09/13/0010:21:52AM AFOG026L AF EXEC ONLINE LOG NOW OPENED ON

09/13/0010:21:52AM AFOG027L AF EXEC HLP IEF4031 AFOG0271 - START

09/13/0010:21:53AM AFOG027L AF EXEC ONLINE LOG NOW OPENED ON

09/13/0010:21:54AM AFOG027L AF EXEC HLP IEF4031 AFOG0271 - STOP

09/13/0010:21:54AM AFOG028L AF EXEC ONLINE LOG NOW OPENED ON

09/13/0010:21:54AM AFOG029L AF EXEC HLP IEF4031 AFOG0271 - START

09/13/0010:21:56AM AFOG029L AF EXEC ONLINE LOG NOW OPENED ON

09/13/0010:21:58AM AFOG029L AF EXEC HLP IEF4031 AFOG0271 - STOP

09/13/0010:21:58AM AFOG030L AF EXEC ONLINE LOG NOW OPENED ON

09/13/0010:21:58AM AFOG031L AF EXEC HLP IEF4031 AFOG0271 - START

***** Bottom of Log *****

Command ==>

F1=Help F2=Keys F3=Exit F4=Prompt F5=Rfind F7=Bkwd F8=Fwd
F9=Retrieve F10=Action Bar F19=Left F20=Right

SLF Command Targets Pop-up

Introduction

SLF includes the SLF Command Targets pop-up, where you choose the system/job that you want to issue commands against.

To access this pop-up, on the Subsystem Logging Facility Console move your cursor next to the current command target and press F4.

Example

This example shows you the SLF Command Targets pop-up.

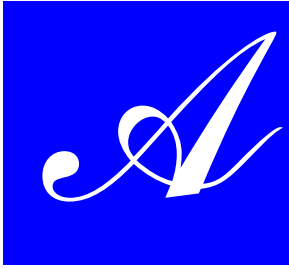
SLF Command Targets

Move cursor next to selection, then press Enter.

<u>System ID</u>	<u>Job Name</u>
SYSG	IMS610AC
SYSG	IMS410AC
SYSG	SYSG

F1=Help F12=Cancel

Note: If you select F12 from this panel, the system displays the SLF console. However, you will not be able to issue commands from the SLF console unless you specify a system or job on the SLF Command Targets panel.



Messages

Overview

This appendix contains messages for the Subsystem Logging Facility (SLF).

SLF Messages Table

The following table contains the messages for SLF.

Table 10. SLF messages

Message ID	Message Text	Description	System Action/ User Response
KSLBMP10	ATTACH DFSRRC00 FAILED RC=xxxxxxx PARM=cccccccccccccccccccc	The SLF ITASK failed when attempting to attach the IMS Transaction Services BMP internally within the executing address space.	System: IMS transaction services are not available. User: Check other messages for failure reasons.
KSLBMP11	BMP ccccccc STARTUP TERMINATED	The IMS Transaction Services BMP startup terminated.	System: IMS transaction services are not available. User: Check other messages for start time-out reasons. Also, check the KSLBLTBL macro TIMEOUT keyword for a valid time-out value.
KSLBMP12	KSLIMBMP ESTAEX FAILED FOR ccc RC=xxxxxxx	The attempt by the IMS Transaction Services BMP or API to establish a ESTAEX recovery environment failed.	System: IMS transaction services are not available. User: Check return code value for ESTAEX in <i>MVS Assembler Services Guide</i> . ccc will be API or BMP.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
KSLBMP14	ENQ QNAME=ssssiiii RNAME=KSLBMBLKxxxxxxxx FAILED RC=xxxxxxxx	The attempt by the IMS Transaction Services BMP to define a unique resource to MVS failed for the ENQ macro instruction.	System: IMS transaction services are not available. User: Check return code value for ENQ macroinstruction in <i>MVS Assembler Services Guide</i> . ssss is the SMFID of the MVS system and iiii is the IMSID.
KSLBMP15	ALTERNATE PCB NOT AVAILABLE BMP STARTUP FAILED	The IMS Transaction Services BMP detected that an alternate PCB was not defined for the installation specified TRANCODE.	System: IMS transaction services are not available. User: Validate customization and configuration steps.
KSLBMP16	BMP cccccccc STARTED IMSID=cccc VRM=nnnn PSBNAME=cccccccc TRANCODE=cccccccc	The IMS Transaction Services BMP started successfully. This is an information message.	System: IMS transaction services are not available. User: None.
KSLBMP17	AIB INQY ENVIRONMENT FUNCTION FAILED RC=xxxxxxxx RS=xxxxxxxx TPCBSTAT=cc	The IMS Transaction Services BMP failed after issuing a DLI INQY function.	System: IMS transaction services are not available. User: Check DLI return code value for INQY function.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
KSLBMP18	APARM NOT FOUND TO IN BMP STARTUP PARAMETERS	The IMS Transaction Services BMP failed when it did not find any data specified for APARM at attach.	System: IMS transaction services are not available. User: Gather diagnostics and contact Candle Technical support.
KSLBMP19	UNABLE TO LOAD MODULE ccccccc RC=xxxxxxxx	The IMS Transaction Services BMP or API failed after issuing a LOAD macro instruction.	System: IMS transaction services are not available. User: Check return code value for LOAD in <i>MVS Assembler Services Guide</i> . Check configuration and customization.
KSLBMP20	ABEND Sxxx Uxxxx HAS BEEN DETECTED	An abend occurred in the IMS Transaction BMP or API.	System: KSLIMBMP will attempt to recover from the ABEND if possible. User: Gather diagnostics and contact Candle Technical Support.
KSLBMP21	ABEND RETRY COUNT EXCEEDED. BMP TASK TERMINATING	The IMS Transaction Services BMP detected an abend. The number of abends specified in the MAXABEND keyword in KSLBLTBL has been exceeded.	System: KSLIMBMP task terminates. User: Gather diagnostics and contact Candle Technical Support. Check the MAXABEND keyword in KSLBLTBL.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
KSLBMP22	BMP TASK TERMINATED NORMALLY ABNORMALLY	The IMS Transaction Services BMP has terminated. This is an information message.	System: IMS transaction services are not available. User: None.
KSLBMP23	DLI cccc FUNCTION FAILED TPCBSTAT=cc FOR TRANCODE=cccccccc RC=xxxxxxxx	The IMS Transaction Services BMP failed after issuing a DLI function call.	System: The transaction the BMP task was attempting to execute fails. User: Check DLI function TPCBSTAT and return code values.
KSLBMP24	AIB CHKP KSLICHPT FAILED RC=xxxxxxxx RS=xxxxxxxx TPCBSTAT=cc	The IMS Transaction Services BMP failed after issuing a simple checkpoint.	System: IMS checkpoint fails. User: Check DLI return code value.
KSLBMP25	SDUMPX FAILED DURING ESTAEX PROCESSING. SVCDUMP DIAGNOSTICS UNAVAILABLE	The IMS Transaction Services BMP or API failed after issuing an SDUMPX macro instruction, because the MVS asynchronous DUMP task was not accepting requests or was currently busy.	System: No SVCDUMP is taken. User: None.
KSLBMP26	START BMP FAILED RC=xxxxxxxx CMDTEXT=cccccccccccccccccc	The IMS Transaction Services API failed after issuing a MVS START command to start an external mode BMP.	System: IMS transaction services are not available. User: Validate CMDTEXT. Reply to KSLBMP27 message following.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
KSLBMP27	START ccccccc IMSID=cccc TIMEOUT REPLY WAIT START CANCEL	The IMS Transaction Services API is requesting operator input regarding actions, in reply to message KSLBMP26.	System: The system waits for operator reply. User: Reply as follows: WAIT - Wait again for BMP startup to complete START- Issue START BMP command again CANCEL - Cancel BMP startup
KSLBMP28	RACROUTE TOKENXTR FAILED RC=xxxxxxxx	The IMS Transaction Services API failed after issuing a RACROUTE macro instruction to extract the RACF security token required for the MVS START. This is an information message.	System: The START BMP continues without a security token available. User: None.
SLC1060E	IMS TRANSACTION INTERFACE FAILED FOR ccccccc RC=xxxxxxxx RS=xxxxxxxx	The SLF ITASK failed after issuing an IMS Transaction Services API request.	System: IMS transaction services are not available. User: Check BMP return and reason codes.
SLC1070E	IMS TRANSACTION SERVICES ARE NOT AVAILABLE	The SLF ITASK determined that the IMS Transaction Services cannot be started or have failed.	System: IMS transaction services are not available. User: Check other messages for details.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLC1071E	IMS TRANSACTION INTERFACE FAILED TO START RC=xxxxxxx RS=xxxxxxx	The SLF ITASK was unable to start the IMS Transaction Services BMP.	System: IMS transaction services are not available. User: Check BMP return and reason codes.
SLC1072E	IMS TRANSACTION EXECUTION FAILED RC=xxxxxxx RS=xxxxxxx DATA=ccccccc	The SLF ITASK failed after issuing an IMS Transaction Services API call.	System: The IMS transaction does not execute. User: Check BMP return and reason codes.
SLF1000E	TIMER SERVICES INTERNAL ERROR	A timer routine in SLF was unable to locate the SLF main control block.	System: SLF is aborted with a userabend 100. User: Contact the Candle Support Center with accompanying documentation.
SLF1010E	INVALID OR NO REQUEST - U101 FOLLOWS	During request processing, SLF determined a request that it could not identify. This may be a sign of storage corruption.	System: SLF terminates with a user 101abend. User: Contact the Candle Support Center with accompanying documentation.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1020E	INVALID REQUEST QUEUE CHAIN - ABEND 102 FOLLOWS	During request processing, SLF determined that more than the maximum number of possible requests had been queued. This should never happen.	System: SLF terminates with a user abend 102. User: Contact the Candle Support Center with accompanying documentation.
SLF1030E	REQUEST QUEUE RECURSIVE CHAIN - EVENTS MAY BE LOST	During request processing, SLF determined a circular chain of requests. This may be a sign of storage corruption.	System: SLF truncates the requests at the offending control block. Some requests may be lost. User: Contact the Candle Support Center with a dump of the SLF address space.
SLF1040E	UNKNOWN VERSION ID WITHIN ADD REQUEST	During processing for an ADD request, SLF did not recognize the SLF version identifier of the request	System: The request is not processed. Data is not added to the repository. User: Determine the version of all connected SLF systems. It is likely that a remote SLF is at a higher level than the local SLF. Contact the Candle Support Center to see if toleration maintenance is required or if further diagnostics are needed.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1200E	SLF1200E SLF INTERNAL PROCESSING ERROR ABEND 1200 FOLLOWS	SLF detected an unrecoverable internal index structure error for the data repository. Possible data corruption has occurred.	System: SLF terminates with a user abend 1200. User: Contact the Candle Support Center.
SLF1300W	INVALID OR UNRECOGNIZED COMMAND	An operator command was issued against SLF that could not be interpreted and executed.	System: The command is ignored. User: Please refer to the documentation for a list of valid operator commands.
SLF1310E	ERROR FREEING COMMAND	After processing an operator command, SLF attempted to free the associated CIB. The return code from the QEDIT macro indicated that this request was unsuccessful.	System: Processing continues. The storage is not freed and subsequent commands might not be recognized or executed. User: Determine the cause of the problem, and then contact the Candle Support Center with a dump of the address space.
SLF1405E	REPOSITORY DD STATEMENT MISSING	The RKOGLSLF0 and RKOGLSLF1 DD statements are missing from the JCL for the jobstep where you are attempting to execute SLF.	System: SLF initialization is aborted. User: Add the appropriate DD statements.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1410E	UNABLE TO CREATE DATASPACE	During initialization or dataspace switch, SLF detected the failure of a DSPSERV CREATE macro.	System: SLF initialization is aborted. User: Examine the accompanying message for register contents and determine the reason for the failure.
SLF1420E	UNABLE TO ADD DATASPACE ALET	During initialization or dataspace switch, SLF detected a failure while adding the token for the dataspace to its access list (ALESERV ADD).	System: SLF initialization is aborted. User: Examine the accompanying message for register contents and determine the reason for the failure.
SLF1425E	UNABLE TO GENERATE VSAM ACB	During initialization or dataspace switch, SLF was unable to generate a VSAM ACB for repository access.	System: SLF initialization is aborted. User: Examine the accompanying message for register contents and determine the reason for the failure.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1430E	UNABLE TO OPEN REPOSITORY	During initialization or dataspace switch, SLF determined that it was unable to open the repository. This situation may occur when a dataspace switch occurs in rapid succession, due to an insufficient repository size.	System: SLF initialization is suspended. User: Check that the repository dataset is allocated to the archive job. Make sure the dataset is not in use by any other job in the system. Increase the size of the repository if necessary.
SLF1435E	ERROR DURING VSAM SHOWCB	A VSAM SHOWCB macro failed during dataspace initialization or switch. An accompanying message details the register contents.	System: SLF initialization is aborted. User: Determine the cause of the problem and restart SLF.
SLF1440E	REPOSITORY IS NOT A VSAM LDS	During initialization or dataspace switch, SLF determined that the dataset allocated under the OGSLFxx (OG120) or RKOGLFxx (OG150) DD statement was not defined as a VSAM linear dataset.	System: SLF initialization is aborted. User: Refer to the documentation about defining the repository. Restart SLF after defining the datasets properly.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1445E	ERROR CLOSING REPOSITORY	During initialization or dataspace switch, an error occurred when closing the repository dataset. An accompanying message details the register contents at time of failure.	System: SLF initialization is aborted. User: Determine the cause of the problem and restart SLF.
SLF1450E	UNABLE TO IDENTIFY REPOSITORY OBJECT	During initialization or dataspace switch, SLF issues a DIV IDENTIFY macro against the repository DD statement. This macro failed and an accompanying message details the register contents.	System: SLF initialization is aborted. User: Determine the cause of the problem and restart SLF.
SLF1455I	REPOSITORY SPACE AVAILABLE IS XXXXXXXX KBYTES	During initialization, SLF examines the size of the repository datasets to determine how to format them. This message details the actual space available in the current dataset.	System: SLF initialization continues. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1460E	UNABLE TO ACCESS REPOSITORY OBJECT	During initialization or dataspace switch, SLF issues a DIV ACCESS macro against the repository DD statement. This macro failed and an accompanying message details the register contents.	System: SLF initialization is aborted. User: Determine the cause of the problem and restart SLF.
SLF1470E	UNABLE TO MAP REPOSITORY OBJECT	During initialization or dataspace switch, SLF issues a DIV MAP macro against the repository DD statement. This macro failed and an accompanying message details the register contents.	System: SLF initialization is aborted. User: Determine the cause of the problem and restart SLF.
SLF1490I	SUSPENDING FOR 15 SECONDS AND RETRYING	During initialization or dataspace switch, SLF determined that it was unable to access the repository. This might happen if a conflict with the archival task exists. SLF will continue to retry to open the repository every 15 seconds.	System: Requests for SLF will continue to be queued. Once the queue fills up events will be lost. User: Determine the cause for the failure. Make the repository available to SLF.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF1800I	DATASPACE SWITCH IS IN PROGRESS	SLF either determined that the current repository is full or reacted in response to an explicit SWITCH command.	System: SLF will close the current repository and continue recording on the alternate. User: None.
SLF1810E	ERROR DURING DATASPACE CLOSE - U1810 FOLLOWS	SLF encountered an error during dataspace switch processing.	System: SLF will terminate with a user abend 1810. User: Investigate accompanying messages for reasons of the failure and correct.
SLF1820I	DATASPACE LOG SWITCHED TO SUFFIX XX	SLF successfully switched event recording to the repository with the given suffix.	System: SLF continues recording on the shown repository. User: None.
SLF1900I	OPERATOR REQUESTED SUBSYSTEM LOG SWITCH	This message is issued in response to an operator SWITCH command.	System: SLF will close the current repository and continue recording on the alternate repository. User: None.
SLF1910W	LOG SWITCH INVALID FOR REMOTE SYSTEM	This message is issued in response to an operator SWITCH command.	System: The repository is owned by the local SLF and therefore cannot be switched on the remote SLF. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2000I	SUBSYSTEM LOG FACILITY INITIALIZATION COMPLETE	SLF has properly initialized and is accepting requests.	System: None. User: None.
SLF2010I	SUBSYSTEM LOG FACILITY TERMINATION IN PROGRESS	SLF shutdown processing has been initiated.	System: None. User: None.
SLF2030E	ERROR DURING SUBSYSTEM FACILITY INITIALIZATION	During initialization, SLF encountered an unrecoverable error. Accompanying messages detail the nature of the problem.	System: SLF initialization is aborted User: Determine the cause of the failure and restart SLF.
SLF2040E	SUBSYSTEM LOG FACILITY SERVER ALREADY ACTIVE	During initialization, SLF determined that another SLF system with an identical suffix was already active on the MVS image where you were attempting to start it. Only one SLF per suffix may be started at any given time on one MVS.	System: SLF initialization is aborted. User: Determine why another SLF is active and take corrective action.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2040W	INVALID ENVIRONMENT FOR IMS COMMAND	SLF received a request for the execution of an IMS command, but was unable to locate the AF/OPERATOR system work area which is necessary for the execution of IMS commands.	System: The request is ignored. User: This should not occur. Contact the Candle Support Center.
SLF2060W	AF INTERFACE FOR REQUESTED IMS NOT LOCATED	SLF received a request for the execution of an IMS command, but was unable to locate the AF interface for the specified IMS.	System: The request is ignored. User: Make sure the interfaces for all IMS systems that you want to control using SLF are started by AF/OPERATOR.
SLF2200I	SUBSYSTEM LOG INFORMATION FOLLOWS	This message is issued in response to an operator STATUS command.	System: None. User: None.
SLF2205I	REPOSITORY WILL BE REINITIALIZED	This message is issued in response to an operator REINIT command.	System: SLF abandons all current records in the dataspace and all indexes. Processing restarts with record 1. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2210I	SLF2210I SUBSYSTEM LOG FACILITY STARTED AT XX:XX:XX ON XXX-XX-XXXX	This message is issued in response to an operator STATUS command. It shows the time and date the currently active SLF was initialized.	System: None. User: None.
SLF2220I	DATASPACE ALLOCATION IS XXXXXXXX KBYTES	This message is issued in response to an operator STATUS command. It shows the amount of space available and partially used in the currently active repository.	System: None. User: None.
SLF2230I	LOG SUFFIX IS XX	This message is issued in response to an operator STATUS command. It shows the suffix of the repository where recording is currently active.	System: None. User: None.
SLF2235I	SYS SUFFIX IS XX	This message is issued in response to the STATUS operator command and describes the system suffix (specified on the start-up parameters) that the current SLF is using.	System: None User: None

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2240I	REQUESTS QUEUED: XXXXX	This message is issued in response to an operator STATUS command. It details the number of queued requests.	System: None. User: None.
SLF2250I	KBYTES REMAINING IN CURRENT LOG: XXXXXXXX	This message is issued in response to an operator STATUS command. It details the amount of free space in the current repository.	System: None. User: None.
SLF2260I	FRAGMENTATION IS XXXXX BLOCKS	This message is issued in response to an operator STATUS command. It details the number of blocks in existence in the current repository. This number will grow as the repository fills up.	System: None. User: None.
SLF2270I	TOTAL RECORDS IN LOG: XXXXXXXX	This message is issued in response to an operator STATUS command. It shows the number of records currently maintained in the active repository.	System: None. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2280I	NUMBER OF INDEX LEVELS: X	This message is issued in response to an operator STATUS command. It shows how many index levels are in use for the main record index.	System: None. User: None.
SLF2290I	FIELD INFORMATION FOLLOWS:	This message is issued in response to an operator STATUS command. It precedes information on the data structure of the current repository.	System: None. User: None.
SLF2300I	NAME LENGTH VAR NDX UNIQUE	This message is issued in response to an operator STATUS command. It precedes information on the data structure of the current repository.	System: None. User: None.
SLF2310I	-----	This message is issued in response to an operator STATUS command. It precedes information on the data structure of the current repository.	System: None. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2325I	THIS IS A xxx SLF (where xxx is the type)	<p>This message is issued in response to an operator STATUS command, and contains the type of SLF that was started. The types of SLFs are:</p> <p>MASTER - Local* SLAVE - Remote SLAVE ROUTING - Remote hub</p> <p>*Only a local SLF can own the repository.</p>	<p>System: None. User: None.</p>
SLF2700E	ERROR SAVING DATA TO REPOSITORY	<p>During dataspace close, SLF tried to flush the contents of the dataspace out to disk using the DIV SAVE macro. It received a return code indicating unsuccessful completion of this request. An accompanying message details the contents of the registers at the time of the error.</p>	<p>System: Dataspace close continues. User: Analyze the accompanying message detailing register contents.</p>

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2720E	NO SLF HANDLER FOR MVS COMMAND REQUEST	While processing an MVS command request, SLF determined that no connection to the requested MVS target system exists.	System: The command is ignored. User: Verify that an SLF system is active on the desired MVS.
SLF2725E	NO SLF HANDLER FOR EXEC COMMAND REQUEST	SLF attempted to execute an AF/OPERATOR command, but determined that no valid environment for the execution of this command exists. (AF main control block was not located.)	System: The command is ignored. User: This situation should not occur. Contact the Candle Support Center.
SLF2740E	NO SLF HANDLER FOR IMS COMMAND REQUEST	While processing an IMS command request, SLF determined that no connection to the requested MVS target system exists on which the specified IMS is active.	System: The command is ignored. User: Verify that an SLF system is active on the desired MVS system, where the requested IMS may be found.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF2900I	CONNECTION INFORMATION FOLLOWS:	This message is issued in response to the INFO operator command, and precedes information about the MVS and subsystem connections from the current SLF.	System: None. User: None.
SLF2920I	NAME TYPE LOCATION SSID	This message is issued in response to the INFO operator command, and precedes information about the MVS and subsystem connections from the current SLF.	System: None. User: None.
SLF2925I	REINITIALIZATION INVALID FOR REMOTE	This message is issued in response to an operator REINIT command.	System: The local SLF owns the repository and therefore cannot be reinitialized by the remote SLF. User: None.
SLF2930I	INFORMATION ONLY AVAILABLE FOR THIS SYSTEM	The INFO operator command was issued against a remote SLF. Remote SLFs only maintain information about the current MVS image and not the MVS systems they connect to.	System: None. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF5010I	SLF ERROR RECOVERY ENTERED	SLF error recovery was entered during processing.	System: Depends on the type of encountered error. User: Investigate as indicated by accompanying messages.
SLF5020I	SLF WILL ATTEMPT TO RECOVER	During error recovery processing, SLF determined that the type of error encountered was recoverable.	System: SLF will attempt to recover. User: Investigate as indicated by accompanying messages.
SLF5030I	SLF DIAGNOSTIC INFORMATION BEING WRITTEN	During SLF error recovery, a minimum of one software record is being written. In most situations, a dump will also be generated to aid problem diagnosis.	System: Diagnostic information is generated. User: Investigate as indicated by accompanying messages. Contact the Candle Support Center with the generated information.
SLF5040E	SLF MAIN DRIVER ABENDED	SLF entered error recovery processing for a problem that its main driver encountered. This type of error is not recoverable.	System: SLF will terminate. User: Contact the Candle Support Center with diagnostic information.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF5050E	SUBSYSTEM LOG FACILITY WILL TERMINATE	During error recovery processing, SLF encountered a situation from which it could not recover.	System: SLF will terminate. User: Contact the Candle Support Center with diagnostic information.
SLF6000E	SUBSYSTEM LOG FACILITY IS NOT AUTHORIZED	During initialization, SLF determined that the libraries in the STEPLIB concatenation of the invoking jobstep were not all authorized.	System: SLF initialization is aborted. User: APF authorize all libraries in the STEPLIB or JOBLIB concatenation.
SLF6010E	ATTACH FAILED FOR KSLMAAM	During initialization, SLF was unable to attach its main driver module.	System: SLF initialization is aborted. User: Ensure that the proper libraries are allocated to the STEPLIB/JOBLIB of the jobstep in question. Make sure that a module called KSLMAAM is in this concatenation.
SLF6020E	ERROR DURING INITIALIZATION	During initialization, SLF encountered an error. A preceding message details the nature of this error.	System: SLF initialization is aborted. User: Examine accompanying messages, take proper corrective action, and then restart SLF.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF6025E	MVS ESA V 4.5 AND ABOVE REQUIRED	The minimum system requirements to use SLF have not been met.	System: SLF initialization is aborted. User: SLF cannot be initialized on this system.
SLF6200E	ERROR LOADING KSLDAAM - U620 FOLLOWS	During initialization, SLF was unable to load a required module.	System: SLF initialization aborts with a user abend 620. User: Ensure that the proper libraries are present in the STEPLIB concatenation where SLF should start.
SLF6210I	SUBSYSTEM LOG FACILITY XX STARTUP AT YY:YY:YY ON ZZ-ZZZ-ZZ	This is an informational message issued during SLF startup. XX describes the SLF suffix being used; YY:YY:YY is the time and ZZ-ZZZ-ZZ is the date.	System: Initialization continues. User: None.
SLF6300I	TERMINATION IS IN PROGRESS	SLF termination has been initiated.	System: SLF continues termination processing. User: None.
SLF6400I	SLF WAITING FOR SUBTASK(S) TO TERMINATE	SLF determined that subtasks were active.	System: SLF will attempt to terminate these subtasks. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF7030E	UNABLE TO LOAD REQUEST CONTROL TABLE	During initialization, SLF determined that it was unable to load the module KSLRTAM.	System: SLF initialization is aborted. User: Make sure the proper libraries are concatenated under the STEPLIB/JOBLIB DD statement and no modules have been removed.
SLF7040I	UNABLE TO ESTABLISH MODIFY ID	During initialization, SLF requested a CSCB/CSCX control block from the operating system. This request failed.	System: SLF initialization continues. Operator commands will not be processed. User: Determine the cause of the failure and restart SLF. Contact the Candle Support Center if unable to do so.
SLF7080E	ERROR ISSUING QEDIT	During initialization, SLF issued a QEDIT macro while attempting to establish its operator interface . The return code from this macro indicated a failure.	System: SLF initialization continues. Operator commands will not be processed. User: Determine the cause of the failure and restart SLF. Contact the Candle Support Center if unable to do so.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF7090E	ERROR PUBLISHING CONNECTION INFO, RC=XXXX	During initialization, SLF used MVS name/token services to publish information about its availability. In doing so it called IEANTCR and received the indicated return code.	System: SLF initialization is aborted. User: Determine the cause of the failure and restart SLF. Contact the Candle Support Center if unable to do so.
SLF7090E	ERROR JOINING XCF GROUP XXXXXXXX, RET=XX, RSN=XXX	During initialization, SLF attempts to join an XCF group defaulted to, or specified through parameters in OGPARDS. The IXCJOIN macro failed with the supplied return and reason codes.	System: SLF initialization is aborted. User: Determine the nature of the failure, make the correction, and then restart SLF.
SLF7100I	XCF GROUP SUCCESSFULLY JOINED	This is an informational message. During initialization, SLF joined the defaulted or user-specified XCF group.	System: SLF initialization continues. User: None.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF7110E	ERROR ISSUING XCF QUERY, RET=XX, RSN=XXX	During initialization, a remote SLF attempted to determine the availability of the LOCAL SLF. In doing so it issues an IXCQUERY macro. Execution of this macro failed with the return and reason codes shown.	System: SLF initialization is aborted. User: Determine the nature of the failure, make the correction, and then restart SLF.
SLF7120I	XCF CONNECTION TO LOCAL ESTABLISHED	During initialization, a remote SLF determined that the LOCAL SLF was already active and accepting requests.	System: SLF initialization continues. User: None.
SLF7280W	ERROR SENDING TO LINK XXXXXXXX R15 = XXXXXXXX	This message details the LINK identifier and the hexadecimal return code from the AF communications server \$CMSDRCV macro.	System: The request is discarded and the associated function may not be complete. User: Check the status of the link and determine the cause of failure. If unable to correct, contact the Candle Support Center.

Table 10. SLF messages (continued)

Message ID	Message Text	Description	System Action/ User Response
SLF7290E	ERROR SENDING TO MEMBER XXXXXXXX, RET=XX, RSN=XXX	SLF encountered an error transmitting data to another SLF system. The message details the return and reason codes from the IXCMGO macro.	System: The request is discarded and the associated function may not complete. User: Determine the cause of the failure and correct.
SLF7390E	ERROR RECEIVING MESSAGE, RET=XX, RSN=XXX	SLF encountered an error during XCF message receive processing. The return and reason codes for the failing IXCMGSI macro are shown.	System: SLF will ignore the message; possible events or requests may be lost. User: Determine the cause of the failure.
SLF7900I	R15: XXXXXXXX, R0: XXXXXXXX, R1: XXXXXXXX	This message accompanies other messages detailing macro failures. It may aid in diagnosing the cause of the macro failures.	System: None. User: Review the accompanying messages and take corrective action as indicated.



Return and Reason Codes

Overview

This appendix contains return and reason codes for the Subsystem Logging Facility (SLF).

SLF Return and Reason Codes

Introduction

This section describes the return and reason codes for SLF.

Messages

The following table contains the return and reason codes for SLF.

Table 11. SLF return and reason codes

Return Code	Description	
X'00000000'	Operation completed successfully.	
X'00000004'	Request was invalid.	
X'00000008'	Request failed.	
X'0000000C'	Request abended.	
	Reason Code	Description
	Abend Code	Bytes 0 and 1 are the system abend code. Bytes 2 and 3 are the user abend code.
X'00000001'	KSLNOBMP DD card found in IMS control region JCL.	
X'00000002'	IMSID not provided for request.	
X'00000003'	Invalid request code.	
X'00000004'	Unable to locate KSLBMBLK data area.	
X'00000005'	BMP is currently active.	
X'00000006'	Load failed for KSLBLAM table module.	
X'00000007'	IMSID invalid for request.	
X'00000008'	Startup of BMP failed.	
X'00000009'	Startup of BMP was terminated.	
X'0000000A'	BMP is not currently active.	
X'0000000B'	RQE is invalid.	

Table 11. SLF return and reason codes

Return Code	Description
X'0000000C'	ESTAEX failed.
X'0000000D'	Insufficient storage available for requests.
X'0000000E'	Transaction code is invalid for request.
X'0000000F'	DL/I CHNG request failed.
X'00000010'	DL/I ISRT request failed.
X'00000011'	DL/I PURG request failed.
X'00000012'	APF authorization failed.
X'00000013'	Cross memory post failed.



Guide to Candle Customer Support

Introduction

Candle Corporation is committed to producing top-quality software products and services. To assist you with making effective use of our products in your business environment, Candle is also committed to providing easy-to-use, responsive customer support.

Precision, speed, availability, predictability—these terms describe our products and Customer Support services.

Included in this Guide to Candle Customer Support is information about the following:

Base Maintenance Plan	132
– Telephone Support	
– eSupport	
– Description of Severity Levels	
– Service-level objectives	
– Recording and monitoring calls for quality purposes	
– Customer Support Escalations	
– Above and Beyond	
Enhanced Support Services	136
– Assigned Support Center Representative (ASCR)	
– Maintenance Assessment Services (MAS)	
– Multi-Services Manager (MSM)	
Customer Support Contact Information	138
– Link to Worldwide Support Telephone and E-mail information	

Base Maintenance Plan

Overview

Candle offers a comprehensive Base Maintenance Plan to ensure that you realize the greatest value possible from your Candle software investments. We have more than 200 technicians providing support worldwide, committed to being responsive and to providing expedient resolutions to support requests. Technicians are available worldwide at all times during the local business day. In the event of an after-hours or weekend emergency, our computerized call management and forwarding system will ensure that a technician responds to Severity One situations within one hour. For customers outside of North America, after-hours and weekend support is provided in English language only by Candle Customer Support technicians located in the United States.

Telephone support

Candle provides consistently reliable levels of service—thanks to our worldwide support network of dedicated experts trained for specific products and operating systems. You will always work with a professional who truly understands your problem.

We use an online interactive problem management system to log and track all customer-reported support requests. We give your support request immediate attention by routing the issue to the appropriate technical resource, regardless of geographic location.

Level 0 Support is where your call to Candle Customer Support is first handled. Your support request is recorded in our problem management system, then transferred to the appropriate Level 1 support team. We provide Level 0 manual interaction with our customers because we support more than 170 products. We feel our customers would prefer personal interaction to a complex VRU or IVR selection menu.

Level 1 Support is the service provided for initial support requests. Our Level 1 team offers problem determination assistance, problem analysis, problem resolutions, installation assistance, and preventative and corrective service information. They also provide product usage assistance.

Level 2 Support is engaged if Level 1 cannot provide a resolution to your problem. Our Level 2 technicians are equipped to analyze and reproduce errors or to determine that an error is not reproducible. Problems that cannot be resolved by Level 2 are escalated to Candle’s Level 3 R&D support team.

Level 3 Support is engaged if a problem is identified in Candle product code. At Level 3, efforts are made to provide error correction, circumvention or notification that a correction or circumvention is not available. Level 3 support provides available maintenance modifications and maintenance delivery to correct appropriate documentation or product code errors.

eSupport

In order to facilitate the support process, Candle also provides **eSupport**, an electronic full-service information and customer support facility, via the World Wide Web at www.candle.com/support/. **eSupport** allows you to open a new service request and update existing service requests, as well as update information in your customer profile. New and updated service requests are queued to a support technician for immediate action. And we can respond to your request electronically or by telephone—it is your choice.

eSupport also contains a continually expanding knowledge base that customers can tap into at any time for self-service access to product and maintenance information.

The Candle Web Site and **eSupport** can be accessed 24 hours a day, 7 days a week by using your authorized Candle user ID and password.

Description of Candle severity levels

Responses to customer-reported product issues and usage questions are prioritized within Candle according to Severity Code assignment. Customers set their own Severity Levels when contacting a support center. This ensures that we respond according to your individual business requirements.

Severity 1 Crisis	A crisis affects your ability to conduct business, and no procedural workaround exists. The system or application may be down.
Severity 2 High	A high-impact problem indicates significant business effect to you. The program is usable but severely limited.

Severity 3 Moderate	A moderate-impact problem involves partial, non-critical functionality loss or a reasonable workaround to the problem. A “fix” may be provided in a future release.
Severity 4 Low	A low-impact problem is a “how-to” or an advisory question.
Severity 5 Enhancement Request	This is a request for software or documentation enhancement. Our business units review all requests for possible incorporation into a future release of the product.

Candle has established the following service-level objectives:

Call Status	Severity 1 Goal	Severity 2 Goal	Severity 3 Goal	Severity 4 Goal	Severity 5 Goal
First Call Time to Answer	90% within one minute				
Level 1 Response (Normal Business Hours)	90% within 5 minutes	90% within one hour			
Level 2 Response (Normal Business Hours)	Warm Transfer	90% within two hours	90% within eight hours		
Scheduled follow-up (status update)	Hourly or as agreed	Daily or as agreed	Weekly or as agreed		Notification is made when an enhancement is incorporated into a generally available product.
	Notification is made when a fix is incorporated into a generally available product.				

The above information is for guideline purposes only. Candle does not guarantee or warrant the above service levels. This information is valid as of October 1999 and is subject to change without prior notice.

Recording and Monitoring Calls for Quality Purposes

Candle is committed to customer satisfaction. To ensure that our customers receive high levels of service, quality and professionalism, we'll monitor and possibly record incoming and outgoing Customer Support calls. The information gleaned from these calls will help us serve you better. If you prefer that your telephone call with Candle Customer Support in North America not be monitored or recorded, please advise the representative when you call us at **(800) 328-1811** or **(310) 535-3636**.

Customer Support Escalations

Candle Customer Support is committed to achieving high satisfaction ratings from our customers. However, we realize that you may occasionally have support issues that need to be escalated to Candle management. In those instances, we offer the following simple escalation procedure:

If you experience dissatisfaction with Candle Customer Support at any time, please escalate your concern by calling the Candle support location closest to you. Ask to speak to a Customer Support manager. During standard business hours, a Customer Support manager will be available to talk with you or will return your call. If you elect to hold for a manager, you will be connected with someone as soon as possible. If you wish a return call, please tell the Candle representative coordinating your call when you will be available. After contacting you, the Customer Support manager will develop an action plan to resolve your issue. All escalations or complaints received about support issues are logged and tracked to ensure responsiveness and closure.

Above and Beyond

What differentiates Candle's support services from our competitors? We go the extra mile by offering the following as part of our Base Maintenance Plan:

- Unlimited multi-language defect, installation and operations support
- eSupport using the World Wide Web
- Regularly scheduled product updates and maintenance provided at no additional charge
- Over 200 specialized technicians providing expert support for your Candle products

Enhanced Support Services

Overview

Our Base Maintenance Plan provides a high level of software support in a packaged offering. However, in addition to this plan, we have additional fee-based support services to meet unique customer needs.

The following are some examples of our added-value support services:

- **Assigned Support Center Representative Services (ASCR)**
 - An assigned focal point for managing support escalation needs
 - Proactive notification of available software fixes
 - Proactive notification of product version updates
 - Weekly conference calls with your ASCR to review active problem records
 - Monthly performance reviews of Candle Customer Support service levels
 - Optional on-site visits (extra charges may apply)
- **Maintenance Assessment Service (MAS)**
 - On-site assessment services
 - Advice about product maintenance and implementation
 - Training your staff to develop efficient and focused procedures to reduce overall cost of ownership of your Candle software products
 - Analysis of your Candle product environment: versions, updates, code correction history, incident history and product configurations
 - Reviews to ensure that purchased Candle products and solutions are used effectively
- **Multi-Services Manager (MSM)**

Multi-Services Manager provides highly valued services to customers requiring on-site full time expertise to complement their technical resources.

 - Dedicated on-site Candle resource (6 months or one year) at your site to help ensure maximum use and effectiveness of your Candle products

- Liaison for all Candle product support activities, coordination and assistance with implementation of all product updates and maintenance releases
- Works with your staff to understand business needs and systems requirements
- Possesses technical and systems management skills to enhance your staff's knowledge and expertise
- Other projects as defined in Statement of Work for MSM services

Customer Support Contact Information

Link to Worldwide Support Telephone and E-mail information

To contact Customer Support, the current list of telephone numbers and e-mail addresses can be found on the Candle Web site, www.candle.com/support/.

Select **Support Contacts** from the list on the left of the page.

This appendix provides information on Customer Support.

Using Candle Customer Support

Introduction

Candle Corporation offers a comprehensive maintenance and support plan to ensure you realize the greatest value possible from your Candle software investments. We have more than 200 technicians worldwide, committed to providing you with prompt resolutions to your support requests.

Customer Support hours of operation are from 5:30 A.M. – 5:00 P.M., Pacific Time. In the event of an after-hours or weekend emergency, Candle's computerized call management system ensures that a technician will return your call within one hour. For customers located outside of North America, after-hours and weekend support is provided by Candle Customer Support locations in the United States.

Electronic support

Candle provides information and support services through

- Candle's home page at www.candle.com. You can use the Candle Worldwide Web Site to
 - open problem records
 - access maintenance information
 - order products or maintenance
 - access IBM compatibility information
 - download fix packs for distributed products
 - read news and alerts
 - scan a list of scheduled Candle education classes
- Candle Electronic Customer Support (CECS), an electronic customer support facility. You can access this facility using the IBM Global Network. You can use CECS to:
 - open problem records
 - search our database for solutions to known problems
 - look for answers to commonly asked questions
 - read news and alerts
 - scan a list of scheduled Candle education classes

Both CECS and the Candle Worldwide Web Site are available 24 hours a day, 7 days per week.

Telephone support

Our support network consists of product specialists who work with you to solve your problem.

Candle uses an on-line problem management system to log and track all support requests. Your support request is immediately routed to the appropriate technical resource.

When you call to report a problem, please have the following information:

- your Candle personal ID (PID) number
- the release level of the Candle product
- the release level of IBM or other vendor software
- identifying information and dates of recently applied maintenance to your Candle product or IBM product
- a detailed description of the problem (including the error message) and the events preceding the problem
- a description of any unusual events that occurred before the problem

Customer support locations and numbers

To contact a Customer Support representative, refer to the following list. While these phone numbers were accurate at the time this document was published, the current numbers can be found on the Candle Web site, www.candle.com, under Customer Support.

Table 12. Customer Support phone numbers

Office	Telephone	FAX
North America	(800) 328-1811 (310) 535-3636	(310) 727-4204
Europe		
Belgium/Luxembourg	+32 (0) 3 270 95 60	+32 (0) 3 270 95 41
France	+33 (0) 1 53 61 60 60	+33 (0) 1 53 61 06 16
Germany/Switzerland/ Austria	+49 (0) 89 54 554 333	+49 (0) 89 54 554 170
Italy – Freephone	800 780992	

Office	Telephone	FAX
Netherlands	+31 (0) 30 600 35 50	+31 (0) 30 600 35 10
Scandinavia	+46 (0) 8 444 5940	+46 (0) 8 623 1855
United Kingdom	+44 (0)161 437 5224	+44 (0)161 437 5225
(Southern Europe, Middle East and South Africa Agents call United Kingdom)		
Asia Pacific – English Hub		+61 2 9954 1818
Australia	+61 2 8912 9898	
Hong Kong	800 908 457	
India	+61 2 8912 9898	
Indonesia	0018 03061 2061	
Malaysia	1800 803 459	
New Zealand	0800 449 596	
Philippines	1800 1612 0096	
Singapore	800 616 2075	
Thailand	0018 00612 1045	
Asia Pacific – Japanese Hub	+81 3 3595 7150	+81 3 3595 7110
Asia Pacific – Korean Hub	+82 2 552 8744	+82 2 552 8746
Asia Pacific – Mandarin Hub	+88 62 2739 3223	+88 62 2378 5993
Asia Pacific – e-mail address: ap_support@candle.com		

When your local support office is unavailable, you can contact Candle's North America support center. If USADirect® service is available in your country, use the 800 telephone number. If USADirect® service is not available, ask your international operator for assistance in calling Candle's local (310) number.

Incident documentation

You may be asked to send incident documentation to the Candle Customer Support Center. On the outside of all packages you send, please write the incident number given to you by the Customer Support representative.

Send tapes containing the incident information to the following address, unless directed otherwise by your Customer Support representative:

Candle Customer Support
Candle Support Center, Incident number
201 North Douglas Street
El Segundo, California 90245

Send all other relevant documentation, such as diskettes or paper documentation, to the address provided by your Customer Support representative.

Ensuring your satisfaction with customer support

Candle Customer Support is committed to achieving high customer satisfaction ratings in all areas. These include

- connecting you to a support representative promptly
- providing you with the appropriate fixes
- answering support questions
- filling your shipping orders
- supplying documentation

If you have a concern that has not been resolved to your satisfaction, you can open a complaint ticket. All tickets are logged and tracked to ensure responsiveness and closure. Using the ticket information, a manager will contact you promptly to resolve your problem.

Numerics

4-way screen scrolling [20](#), [64](#)

A

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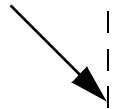


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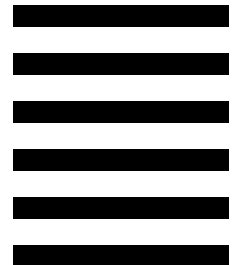
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