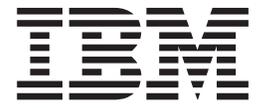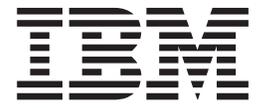z/OS
Cryptographic Services
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Messages

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> **Note!**
>
> Before using this information and the product it supports, be sure to read the general information under "Notices" on page 55.

Fifth Edition (September 2003)

This is a major revision of SA22-7523-03.

This edition applies to Version 1 Release 4 of z/OS (5694-A01) and z/OS.e (5655-G52), and all subsequent releases and modifications until otherwise indicated in new editions.

IBM® welcomes your comments. A form for readers' comments may be provided at the back of this document, or you may address your comments to the following address:

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- Title and order number of this document
- Page number or topic related to your comment

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Contents

About This document

This document supports z/OS (5694-A01) and z/OS.e (5655-G52). It contains messages and their routing and descriptor codes for the Integrated Cryptographic Service Facility (ICSF), program number 5694-A01.

z/OS MVS System Codes, SA22-7626 describes the system completion (abnormal end) code X'18F' for ICSF.

Who Should Use This document

This document is for users who receive messages that have a prefix of *CSFxnnnn*.

This document is also for programmers who intend to alter codes that IBM programming assigns to messages.

How To Use This document

This document contains ICSF messages with their prefixes organized in alphanumeric order.

- Chapter 2, "CSFBnnnn Messages (Build Control Statement Processing)"
- Chapter 3, "CSFCnnnn Messages (Cryptographic Key Data Set Processing)"
- Chapter 4, "CSFEnnnn Messages (Exit Router)"
- Chapter 5, "CSFGnnnn Messages (Key Generator Utility Processing)"
- Chapter 6, "CSFInnnn Messages (Component Trace)"
- Chapter 7, "CSFMnnnn Messages (ICSF Address Space)"
- Chapter 8, "CSFOnnnn Messages (Installation Options Parameter Processing)"
- Chapter 9, "CSFPnnnn Messages (Parse)"
- Chapter 10, "CSFVnnnn Messages (CKDS Conversion Processing)"
- Chapter 11, "CSFYnnnn Messages (I/O Errors)"
- Chapter 12, "ICSF Routing and Descriptor Codes," on page 47 describes the routing and descriptor codes for ICSF messages.
- "Accessibility," on page 53 contains information on accessibility features in z/OS.
- "Notices" on page 55 contains notices and trademarks.

Where To Find More Information

For information about the referenced ICSF documents, see Figure 1 on page vi.

Tasks

z/OS ICSF Overview
SA22-7519

Evaluating
Planning

z/OS ICSF System Programmer's Guide
SA22-7520
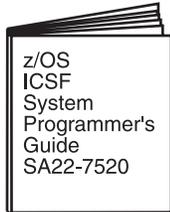
Customizing
Diagnosis
Installing
Operating

z/OS ICSF Application Programmer's Guide
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Application
Programming

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SA22-7523

Administrating
Application Programming
Diagnosis
Operating

z/OS ICSF Administrator's Guide
SA22-7521

Administrating

ISPF Panels (Includes Help)
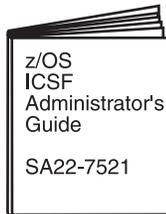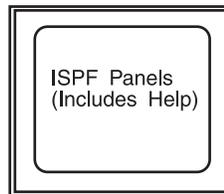
Administrating

Optional Features

z/OS ICSF TKE Workstation User's Guide
SA22-7524
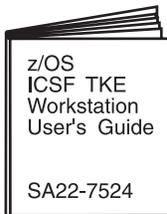
Available with the Trusted Key Entry Workstation (TKE Version 4)

IBM Online Library: z/OS Collection Kit
SK3T-4269

The ICSF Library and the Trusted Key Entry Workstation User's Guide are included on the IBM Online Library: z/OS Collection Kit SK3T-4269

Figure 1. The ICSF Library

Other documents that are referenced in this document are:
- *z/OS DFSMS Macro Instructions for Data Sets*, SC26-7408
- *z/OS DFSMS Access Method Services for Catalogs*, SC26-7394
- *zSeries PR/SM Planning Guide*, SB10-7032
- *Support Element Operations Guide*, SC28-6820
- *z/OS MVS System Codes*, SA22-7626
- *z/OS MVS Programming: Authorized Assembler Services Reference ENF-IXG*, SA22-7610
- *z/OS MVS IPCS User's Guide*, SA22-7596
- *z/OS MVS Diagnosis: Reference*, GA22-7588

- *z/OS DFSMSdfp Diagnosis Reference*, GY27-7618

Using LookAt to look up message explanations

LookAt is an online facility that lets you look up explanations for most messages you encounter, as well as for some system abends and codes. Using LookAt to find information is faster than a conventional search because in most cases LookAt goes directly to the message explanation.

You can access LookAt from the Internet at: http://www.ibm.com/eserver/zseries/zos/bkserv/lookat/ or from anywhere in z/OS or z/OS.e where you can access a TSO/E command line (for example, TSO/E prompt, ISPF, z/OS UNIX System Services running OMVS).

The LookAt Web site also features a mobile edition of LookAt for devices such as Pocket PCs, Palm OS, or Linux-based handhelds. So, if you have a handheld device with wireless access and an Internet browser, you can now access LookAt message information from almost anywhere.

To use LookAt as a TSO/E command, you must have LookAt installed on your host system. You can obtain the LookAt code for TSO/E from a disk on your *z/OS Collection* (SK3T-4269) or from the LookAt Web site's **Download** link.

Accessing z/OS™ licensed documents on the Internet

z/OS licensed documentation is available on the Internet in PDF format at the IBM Resource Link™ Web site at:

```
http://www.ibm.com/servers/resourcelink
```

Licensed documents are available only to customers with a z/OS license. Access to these documents requires an IBM Resource Link user ID and password, and a key code. With your z/OS order you received a Memo to Licensees, (GI10-0671), that includes this key code. [1]

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http://www.ibm.com/servers/resourcelink
```

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2. Select **User Profiles** located on the left-hand navigation bar.

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1. z/OS.e™ customers received a Memo to Licensees, (GI10-0684) that includes this key code.

Do You Have Problems, Comments, or Suggestions?

Your suggestions and ideas can contribute to the quality and the usability of this document. If you have problems using this document, or if you have suggestions for improving it, complete and mail the Reader's Comment Form found at the back of the document.

Summary of changes

The document contains information previously presented in *z/OS ICSF Messages*, SA22-7523-03, which supports z/OS Version 1 Release 4.

New information

This revision includes the following new messages:
- CSFM101E
- CSFM416I
- CSFM417I
- CSFM418E
- CSFM419E
- CSFM424I
- CSFM505E
- CSFM507I
- CSFM508I
- CSFV0552

Changed information

This revision includes changes to the following messages:
- CSFC0116
- CSFG0224
- CSFM100E
- CSFM506I

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

The document contains information previously presented in *z/OS ICSF Messages*, SA22-7523-02, which supports z/OS Version 1 Release 3.

New information

This revision includes the following new message:
- CSFM121E
- CSFM506I

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

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Summary of changes
for SA22-7523-02
z/OS Version 1 Release 3

The document contains information previously presented in *z/OS ICSF Messages*, SA22-7523-01, which supports z/OS Version 1 Release 2.

New information

This revision includes the following new messages:
- CSFM011I
- CSFM522E

An appendix with z/OS product accessibility information has been added.

Changed information

This revision includes changes to the following message:
- CSFM401I

Deleted information

The following messages have been deleted:
- CSFM502E - replaced by new message CSFM522E.

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

Starting with z/OS V1R2, you may notice changes in the style and structure of some content in this document—for example, headings that use uppercase for the first letter of initial words only, and procedures that have a different look and format. The changes are ongoing improvements to the consistency and retrievability of information in our documents.

Summary of changes
for SA22-7523-01
z/OS Version 1 Release 2

The document contains information previously presented in *z/OS ICSF Messages*, SA22-7523-00, which supports z/OS Version 1 Release 1.

New information

This revision includes the following new messages:
- CSFM120E
- CSFM409E
- CSFM410E
- CSFM411I
- CSFM412I
- CSFM413E
- CSFM414I

Changed information

This revision includes changes to the following messages:
- CSFC0016
- CSFC0026
- CSFC0036
- CSFC0064
- CSFC0116
- CSFC0156
- CSFC0236

This document contains terminology, maintenance, and editorial changes, including changes to improve consistency and retrievability.

Chapter 1. Introduction

This book describes ICSF messages and their appropriate responses. ICSF writes messages to data sets and consoles. You can view some messages immediately as they appear on the console and you can view messages in data sets.

ICSF writes messages to separate data sets:

- When the ICSF main task ends abnormally, ICSF initialization error messages appear in the CSFLIST data set. These messages relate to running ICSF, input/output errors, and processing parameters.

  The ICSF startup procedure defines the CSFLIST data set. For more information about defining the CSFLIST data set, see *z/OS Cryptographic Services ICSF System Programmer's Guide*.

- KGUP processing messages appear in the KGUP diagnostic data set, CSFDIAG.

  For information about defining the CSFDIAG data set, see *z/OS Cryptographic Services ICSF System Programmer's Guide*.

- Conversion processing messages appear in the conversion program activity report data set, CSFVRPT.

  For information about defining the CSFVRPT data set, see *z/OS Cryptographic Services ICSF System Programmer's Guide*.

ICSF mainline also issues certain messages to the security console and z/OS console. Messages with a routing code of 9 appear on the security console. Messages with a routing code of 1 appear on the console. If a message does not have a routing code, it appears in the CSFLIST data set. Chapter 12, "ICSF Routing and Descriptor Codes," on page 47 describes the routing and descriptor codes for the ICSF mainline messages.

Chapter 2. CSFBnnnn Messages (Build Control Statement Processing)

This section describes messages that ICSF issues while processing the installation options data set or key generator utility program (KGUP) control statements.

CSFB0016   END OF INPUT RECORDS REACHED WHILE IN CONTINUATION STATEMENT.

Explanation: ICSF reached the end of the input file when it expected a continuation to another line.

System Action: Processing ends.

User Response: Do the following:
- Check to see if there were physical records missing from the end of the input file or if a continuation character was misplaced in a previous record.
- Check for stray commas.

CSFB0026   STATEMENT EXCEEDS MAXIMUM LENGTH ALLOWED.

Explanation: The length of the logical record being built exceeds the maximum allowable by the application. The statement that contains the error precedes this message.

System Action: Processing ends.

User Response: Do the following:
- Check to see if a continuation character was entered incorrectly.
- Check application guidelines to find out the maximum logical record length allowable.
- Check for stray commas.

CSFB0034   COMMENT ON RECORD FOR STATEMENT NOT CLOSED. PROCESSING CONTINUES WITH NEXT STATEMENT.

Explanation: A comment was opened (/*) but not closed (*/) on the same physical line.

System Action: Processing of the statement ends. Normal processing of the input file continues.

User Response: Check to see if the close comment delimiter (*/) is specified after column 71. Specify the close comment delimiter on the statement.

CSFB0044   COLUMN 72 NOT BLANK.

Explanation: Column 72 of the input control statement is not blank.

System Action: ICSF ended processing for this control statement. Normal processing of the input file continues.

User Response: Ensure that column 72 is blank.

CSFB0056   INPUT FILE EMPTY.

Explanation: The control statement input file is empty.

System Action: Processing ends.

User Response: Ensure that the input file contains statements for processing.

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Chapter 3. CSFCnnnn Messages (Cryptographic Key Data Set Processing)

This section describes messages that ICSF issues while processing the cryptographic key data set (CKDS) or public key data set (PKDS).

CSFC0016   **ABEND OCCURRED IN** *routine*. **PSW =** *psw*, **COMPLETION CODE =** *code*.

Explanation: The key data set access module *routine* ended abnormally. The variable *psw* is the PSW at the time of the abnormal ending, and *code* is the system completion code.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the system completion code.

Problem Determination: In addition to the action that is specified for the system programmer, the following actions are necessary:

- Make sure that the failing job step includes a SYSUDUMP DD statement.
- Run the EREP service aid for detailed reports of the system's error activity. Save the output.

CSFC0026   *Routine* **UNABLE TO ESTABLISH AN ESTAE.**

Explanation: The key data set access module that is indicated by *routine* could not establish an ESTAE environment.

While the conversion process is running, the system issues message CSFV0026 with a return code of 12 and a reason code of 6028.

System Action: Processing ends.

User Response: Run the job again. If it still fails, contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFC0036   **ALLOCATE FAILED FOR DSNAME** *dsname*, **RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: The key data set was being used by another user. In the message, *dsname* represents the data set name of the key data set. The failed dynamic allocation (SVC99) call returned the *retcode* and *rsncode*.

While the conversion process is running, the system issues message CSFV0026 with a return code of 12 and a reason code of 6032.

System Action: Processing ends.

User Response: Wait until the CKDS is available.

CSFC0046   **UNABLE TO OPEN KEY DATA SET** *dsname*.

Explanation: The key data set, *dsname*, could not be opened.

A VSAM error message that further identifies the problem accompanies this message.

System Action: Processing ends.

User Response: Correct the problem that is identified by the VSAM error message. If you cannot resolve the problem, inform the system programmer.

System Programmer Response: Correct the problem that is identified by the VSAM error message.

CSFC0053   **ROUTINE** *routine* **FAILED. RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: A cryptographic service routine (*routine*) returned with an unexpected return code (*retcode*) and reason code (*rsncode*) combination.

While the conversion process is running, the system issues message CSFV0026 with a return code of 12 and a reason code of 6044.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the return and reason codes. If you cannot resolve the problem, contact the IBM Support Center.

CSFC0064   **UNABLE TO CLOSE KEY DATA SET** *dsname*.

Explanation: The key data set, *dsname*, could not be closed.

A VSAM error message that further identifies the problem accompanies this message.

System Action: Depending on the function that ICSF is performing, normal processing either continues or ends.

User Response: If the function ICSF is performing is not repetitive, no action is required.

If the problem persists, contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFC0072   UNALLOCATE FAILED FOR DSNAME *dsname*, **RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: The CKDS access module could not deallocate the CKDS identified by *dsname*. The failed dynamic allocation (SVC99) call returned the *retcode* and *rsncode*.

While the conversion process is running, the system issues message CSFV0026 with a return code of 12 and a reason code of 6036.

System Action: Depending on the function ICSF is performed, normal processing continues or ends.

User Response: If the function ICSF is performing is not repetitive, no action is needed.

If the problem persists, contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFC0086   SYSTEM *syskey* **RECORD NOT FOUND IN CKT.**

Explanation: Either a system record was not found in the in-storage CKDS table (CKT) or the system MAC generation (MACGEN) key could not be found. *Syskey* is either CONTROL or MACGEN. This error can only occur when a new CKDS is being created from the in-storage image during CKDS creation, re-encipherment, or conversion.

While the conversion process is running, the system issues message CSFV0026 followed by a return code of 12 and a reason code of 6048.

System Action: Processing ends.

User Response: Ensure that the supplied CKDS being processed is valid. If you cannot use the CKDS, contact your system programmer.

System Programmer Response: Either correct the CKDS to be processed or use another CKDS.

CSFC0096   UNABLE TO UPDATE THE CKDS CONTROL RECORD.

Explanation: An I/O error occurred in writing the control record to the CKDS.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Ensure that the IDCAMS services can read the CKDS. If the problem

persists, use a backup CKDS and rerun the job.

CSFC0106   UNABLE TO RETRIEVE SYSTEM *keytype* **RECORD.**

Explanation: A system record of *keytype* is not in the CKDS.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Ensure that the CKDS has system records using IDCAMS services. Either add the system records or use another CKDS and rerun the job.

CSFC0116   CONTROL BLOCK VALIDATION ERROR. RETURN CODE = *retcode*, **REASON CODE =** *rsncode*.

Explanation: The key data set access control block (CACB) is incorrect. The CACB is an ICSF internal control block. In the message, *retcode* indicates the return code, and *rsncode* indicates the reason code.

Return code: 08

Reason Code	Meaning
36	The key data set name is not a valid data set name.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFC0124   *Label-type* BYPASSED PER THE *exit-id* EXIT *routine*.

Explanation: An installation exit bypassed a record in the CKDS. *Label-type* is the CKDS VSAM key value for the bypassed CKDS record, *exit-id* is the installation options exit identifier, and *routine* is the installation exit module name.

System Action: The conversion process bypassed the *Label-type* record, but continued the normal processing of the other records in the file.

User Response: Ensure that the conversion process bypassed the correct record.

CSFC0136   *Exit-id* EXIT *routine* ABENDED. PROCESSING TERMINATED.

Explanation: The installation exit failed, and the conversion program ended processing as requested by the exit. The exit identifier is *exit-id*, and the installation exit module name is *routine.*

If the single-record, read-write installation exit (*exit-id* is CSFSRRW) ends abnormally while the conversion

process is running, ICSF issues message CSFV0026 with a return code of 12 and a reason code of 6020. If the conversion installation exit (*exit-id* is CSFCONV) ends abnormally ends, ICSF issues message CSFV0026 with a return code of 12 and a reason code of 9084.

System Action: Processing ends.

System Programmer Response: Follow local procedures for errors that are detected in the installation exit.

CSFC0142 *Exit-id* **EXIT** *routine* **ABENDED. PROCESSING CONTINUES WITHOUT INVOKING EXIT.**

Explanation: The installation exit failed, and processing continued as requested by the exit. The exit identifier is *exit-id*, and the installation exit module name is *routine.*

System Action: The conversion process does not call the installation exit module from the point of failure.

System Programmer Response: Follow local procedures for errors that are detected in the installation exit.

CSFC0156 **NON-EMPTY DATA SET** *dsname* **CANNOT BE USED AS NEW CKDS.**

Explanation: The output key data set that is identified by *dsname* must be empty.

System Action: Processing ends.

User Response: Use an empty output CKDS.

CSFC0166 *Exit-id* **EXIT** *routine* **CANNOT BE LOADED. RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: The load module that is identified by *routine* cannot be loaded for the *exit-id* exit, where the return code and reason code are one of the following combinations:

Return code: 04

Reason Code	**Meaning**
04	ICSF could not find the installation exit module.

Return code: 08

Reason Code	**Meaning**
08	ICSF found the installation exit module, but could not load it.

If the conversion process cannot load the single-record, read-write installation exit (*exit-id* is CSFSRRW), ICSF issues message CSFV0026 with a return code of 12

and a reason code of 6040. If the conversion process cannot load the conversion installation exit (*exit-id* is CSFCONV), ICSF issues message CSFV0026 with a return code of 12 and a reason code of 9020.

System Action: Processing ends.

System Programmer Response: Ensure that an installation exit module that can be loaded exists in a library directed to by the JCL or link list.

CSFC0172 *Exit-id* **EXIT PROCESSING NOT IN EFFECT.**

Explanation: The required installation exit, *exit-id*, could not be loaded.

System Action: Normal processing continues without calling the installation exit.

System Programmer Response: Follow local procedures for errors that are detected in the installation exit.

CSFC0186 **RETURN CODE** *retcode* **FROM** *exit-id* **EXIT** *routine* **NOT VALID.**

Explanation: The installation exit returned a return code that was not valid. *Exit-id* is the exit identifier, and *routine* is the associated load module name.

If the single-record, read-write installation exit (*exit-id* is CSFSRRW) is called during the conversion process, ICSF issues message CSFV0026 with a return code of 12 and a reason code of 6012. If the conversion installation exit (*exit-id* is CSFCONV) is called, ICSF issues message CSFV0026 with a return code of 12 and a reason code of 9076.

System Action: Processing ends.

System Programmer Response: Follow local procedures for errors that are detected in the installation exit.

CSFC0196 **CONTROL RECORD NOT FOUND ON CKDS** *dsname*.

Explanation: The conversion process did not find the control record in the CKDS identified by *dsname*.

System Action: Processing ends.

User Response: Use a CKDS that has a control record.

CSFC0206 *Exit-id* **EXIT** *routine* **ABENDED. ICSF SHOULD BE TERMINATED.**

Explanation: The installation exit load module, *routine*, failed. The failure option for the *exit-id* exit specified that ICSF should also be ended.

If the single-record, read-write installation exit (*exit-id* is CSFSRRW) is called during the conversion process,

ICSF issues message CSFV0026 with a return code of 12 and a reason code of 6024. If the conversion installation exit (*exit-id* is CSFCONV) is called, ICSF issues message CSFV0026 with a return code of 12 and a reason code of 9080.

System Action: Processing ends.

System Programmer Response: Follow local procedures for errors that are detected in the installation exit.

CSFC0216   UNABLE TO FIND RECORD *labelname* **FOR** *action* **ON DSNAME** *dsname*.

Explanation: A record could not be found. The *action* is either READ or DELETE. The *dsname* is either CKDS or PKDS.

System Action: Processing ends.

User Response: Make sure that you specify the labelname that exists for the PKDS/CKDS.

CSFC0236   ATTEMPTED TO READ FROM EMPTY KEY DATA SET *ddname*

Explanation: An empty key data set, *dsname*, was specified for KGUP, a conversion program, or a refresh request. A minimum requirement is an initialized key data set.

System Action: Processing ends.

User Response: Make sure that you are using a fully initialized CKDS before rerunning the job.

CSFC0246   UNABLE TO READ CKDS CONTROL RECORD FOR *dsname*

Explanation: An I/O error occurred trying to read the header record from the specified CKDS.

System Action: Conversion processing ends.

User Response: Verify that the specified CKDS is an ICSF Release 1 (HCRP100) CKDS.

CSFC0254   CKDS NEARLY FULL. REFRESH NEEDED.

Explanation: The space in the CKDS reserved for Key Record Create is 80% full.

System Action: Processing continues.

User Response: Consider requesting the security administrator to do a REFRESH of the CKDS. This restores the full capacity in the CKDS to support the Key Record Create callable service.

CSFC0266   CKDS FULL. NO DYNAMIC CREATES ALLOWED.

Explanation: The space in the CKDS that is reserved for Key Record Create is full.

System Action: Key Record Create callable service fails.

User Response: Request security administrator to do a REFRESH of the CKDS. This restores the full capacity in the CKDS to support the Key Record Create callable service.

Chapter 4. CSFEnnnn Messages (Exit Router)

This section describes messages that ICSF exit router issues.

CSFE001I   **INSTALLATION EXIT** *exit-name* **NOT FOUND.**

Explanation: This is an informational message only.

System Action: Processing continues.

System Programmer Response: Determine if the exit that is named in *exit-name* is valid. Ensure that the name of the installation options data set matches the name in the module. If necessary, restart ICSF.

CSFE002A   **REQUIRED INSTALLATION EXIT** *exit-name* **NOT FOUND.**

Explanation: You specified an exit with a FAIL option for ICSF, and ICSF could not find it.

System Action: ICSF ends.

System Programmer Response: Correct the name of the exit and restart ICSF.

Chapter 5. CSFGnnnn Messages (Key Generator Utility Processing)

This section describes messages that the key generator utility program (KGUP) issues.

CSFG0002 **CRYPTOGRAPHIC KEY GENERATION - END OF JOB. RETURN CODE =** *retcode***.**

Explanation: The key generator utility program completed processing with a return code of *retcode*. The table below lists all known return codes and their meanings.

Note: Not all of the return codes listed below will be communicated via the CSFG0002 message in the CSFDIAG data sets; some will only be generated by the KGUP JCL job.

Return Code	Meaning
00	Successful processing.
04	The key generator utility program encountered warning conditions, but processed all transactions.
08	One or more control statements failed.
12	An error occurred as the key generator utility program was ending. The reason is in the CSFDIAG diagnostic data set.
16	Message queueing failed. The last message cannot be printed.
20	ESTAE macro failure.
24	An abnormal ending occurred in the key generator utility program.
28	ICSF is not active.
36	State of special secure mode on the coprocessor is not the same as the state that is specified in the PARM field of the EXEC JCL statement.
40	Unable to enqueue key generator resources.
44	Unable to run the specified installation exit module with the CSFKGUP exit identifier installation option.
48	EXEC PARM value is not valid. It must be blank, SSM, or NOSSM.
52	Unable to retrieve information from the CALL to the ICSF service routine.
56	Unable to obtain information from the ICSF service routine to issue the ENQ macro.
64	An OPEN error occurred for the CSFVRPT report data set. If you are using a pre-allocated data set, ensure that the record length is correct.
68	An I/O error occurred for the CSFVRPT report data set. An attempt to CLOSE the data set was tried, so check to see if there are meaningful messages in the data set.

System Action: Processing ends.

User Response: Review the return code and messages. A zero (0) return code indicates successful processing and requires no further analysis. If the return code is greater than zero (0), review the previous diagnostic messages for errors. If errors occurred because of control statements that were not valid, make the necessary corrections and rerun the key generator utility program with the correct statements. When errors occurred from other than those on control statements, contact the system programmer.

System Programmer Response: Investigate previous diagnostic error messages and JCL log messages. If you can correct the error condition, rerun the key generator utility program. For problems that you cannot correct, contact the IBM Support Center.

CSFG0014 **SINGLE KEY SUPPLIED WITH TRANSKEY THAT DOES NOT PERMIT SINGLE KEY DECRYPTION.**

Explanation: You supplied a single length key, but the TRANSKEY keyword specified an IMPORTER key that does not allow the decryption of a single length key. The key identifier of the CKDS record for the IMPORTER key must have the NOCV flag bit indicator set to 1 in order for a single length key to be decrypted when imported.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Either supply two key values or change the IMPORTER key to one that can be used to decrypt single length keys.

CSFG0024 NOCV SPECIFIED WITH TWO TRANSKEYS.

Explanation: You cannot specify the NOCV keyword with a TRANSKEY keyword that specifies two keys. The key generation utility program does not support the distribution of EXPORTER or IMPORTER keys that have NOCV capability to two sites.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Either remove the NOCV keyword or remove one of the TRANSKEY values and rerun the key generator utility program.

CSFG0035 ABEND DURING KEY GENERATION - PSW = *psw*, COMPLETION CODE = *code*.

Explanation: An abnormal ending occurred during key generator utility processing, where *psw* specifies the PSW at the time of the failure and *code* indicates the system completion code.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the PSW and the completion code, and any diagnostic messages that may have been issued prior to the abnormal end.

Problem Determination: In addition to the system programmer actions, the following actions are necessary:

- Make sure that the failing job step includes a SYSUDUMP DD statement.
- Run the EREP service aid for detailed reports of the system's error activity. Save the output.

CSFG0056 CKDS CONTROL RECORD NOT FOUND.

Explanation: KGUP could not find the control record for the CKDS.

System Action: Processing ends.

User Response: Ensure that the CKDS is valid. If you cannot use the CKDS, contact your system programmer.

System Programmer Response: Either correct the CKDS or use another CKDS before running the key generator utility program again.

CSFG0064 CONTROL STATEMENT VERB NOT VALID.

Explanation: The control statement verb was not ADD, UPDATE, DELETE, RENAME or SET.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Supply a valid control statement verb of ADD, UPDATE, DELETE, RENAME, or SET and rerun the key generator utility program.

CSFG0074 SYNTAX ERROR IN CONTROL STATEMENT.

Explanation: A control statement was not valid.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Check the syntax of the control statement. Ensure that you specified the statement keywords and values correctly. For example, check for unpaired delimiters and missing or extraneous commas. Rerun the key generator utility program.

CSFG0084 SPECIFIED KEY VALUE IS NOT VALID.

Explanation: The specified value for the KEY keyword was not valid.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Check that the key values that you entered are valid hexadecimal values. The values should contain the characters A through F or the numerals 0 through 9. Rerun the key generator utility program.

CSFG0094 *Keyword1* OR *keyword2* NOT SPECIFIED.

Explanation: The control statement does not contain a required keyword, where *keyword1* and *keyword2* are the keywords.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with the required keyword and rerun the key generator utility program.

CSFG0104 *Keyword1* AND *keyword2* BOTH SPECIFIED.

Explanation: The control statement contains two mutually exclusive keywords, where *keyword1* and *keyword2* are the keywords.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with one of the keywords and rerun the key generator utility program.

CSFG0124   RANGE LABEL PREFIXES NOT EQUAL.

Explanation: The alphabetic prefixes of the starting and ending labels that you specified with the RANGE keyword are not the same.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement by specifying equal prefixes for the starting and ending labels. Rerun the key generator utility program.

CSFG0144   END LABEL SUFFIX NOT GREATER THAN START LABEL SUFFIX FOR RANGE.

Explanation: The arithmetic value of the suffix for the ending label must be greater than the arithmetic value of the suffix for the starting label specified with the RANGE keyword.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement so that the numeric value of the ending label suffix is greater than the numeric value of the starting label suffix. Rerun the key generator utility program.

CSFG0164   SAME KEY LABEL VALUES SPECIFIED FOR TRANSKEY.

Explanation: The TRANSKEY keyword specified two equal values for the key labels. Each key must have unique label values.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with unique key label values and rerun the key generator utility program.

CSFG0174   KEY VALUE AND TWO TRANSKEY LABELS SPECIFIED.

Explanation: You specified the KEY keyword and the TRANSKEY keyword with two labels together. Two TRANSKEY values are valid only when generating keys for distribution, so you cannot specify the KEY keyword in this case.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Either delete the key value or the second TRANSKEY label. Rerun the key generator utility program.

CSFG0204   KEY KEYWORD NOT SPECIFIED WITH KEY TYPE = *type***.**

Explanation: When the key type is PINVER or MACVER, the control statement must contain the KEY keyword and its associated values.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with the KEY keyword and either supply the key values or change the key type. Rerun the key generator utility program.

CSFG0224   *keyword* SPECIFIED WITH TYPE *keytype*.

Explanation: There is a mismatch between *keyword* and *keytype*. *Keyword* values can be NOCV or DES. If NOCV is specified, only key types EXPORTER or IMPORTER are allowed. If DES is specified, only key types EXPORTER, IMPORTER, or DATA are allowed.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Make sure that the keyword is valid for the key type. Rerun the key generator utility program.

CSFG0254   ENTRY *label type* FOUND ON CKDS. *verb* NOT PERFORMED.

Explanation: A CKDS entry with the key index *label type* was already on the CKDS. The key generator utility program could not perform the action (*verb*).

System Action: KGUP bypassed the entry, but processed other valid labels or types on the control statement.

User Response: Correct the label or key type on the control statement and rerun the key generator utility program.

CSFG0264   ENTRY *label type* NOT FOUND ON CKDS. *verb* NOT PERFORMED.

Explanation: A CKDS entry with the key index *label type* was not on the CKDS. KGUP could not perform the (*verb*) action. ICSF issues this message when one of the following conditions occurs:

- An UPDATE, DELETE, or RENAME statement specified a key that did not exist.
- An ADD or UPDATE statement specified a key in the TRANSKEY keyword that did not exist. If you specify the KEY keyword, then the key type of the TRANSKEY will be IMPORTER; otherwise, the key type will be EXPORTER.

System Action: KGUP bypassed the entry, but

processed other valid labels or types on the control statement.

User Response: Correct the label or key type on the control statement and rerun the key generator utility program.

CSFG0272 IMPORTED KEY DOES NOT HAVE ODD PARITY.

Explanation: A key with non-odd or mixed parity was imported.

System Action: Processing continues.

User Response: If your installation allows non-odd or mixed parity keys, no action is required.

Because you are importing the key value, you may need to check the key value for accuracy if you expected or require an odd parity key.

CSFG0284 BOTH TRANSPORT KEYS ARE EXPORTER TYPE WITH NOCV CAPABILITY.

Explanation: Both of the transport keys that you specified as label values with the TRANSKEY keyword are EXPORTER with the NOCV flag set on in the key identifier. The key generator utility program does not support distribution of a key to two sites that only process keys without control vectors.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Change one of the transport keys to one that is used to export keys with control vectors. Rerun the key generator utility program.

CSFG0293 ROUTINE *routine* **FAILED. RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: The cryptographic service routine *routine* returned with a return code of *retcode* and a reason code of *rsncode*, which is an unexpected combination.

System Action: Depending on the severity of the error that caused the failure, KGUP either continues normal processing of the input control statements or ends processing.

This message appears if you are running KGUP on the IBM @server zSeries 990 and try to add a DATAXLAT key. You will get a return code of 8 and a reason code of 61.

User Response: Contact your system programmer.

System Programmer Response: If possible, correct the error that is indicated by the return code and the reason code combination for the cryptographic services. If you cannot correct error, contact the IBM Support Center.

CSFG0302 STATEMENT NOT PROCESSED.

Explanation: This is the final message for a control statement that is not processed. ICSF issued diagnostic messages prior to this that contain specific information regarding the errors that have occurred.

System Action: Depending on the severity of the error that caused the failure, KGUP either continues normal processing of the input control statements or ends processing.

User Response: Investigate the previous diagnostic error messages.

CSFG0313 STATEMENT PARTIALLY PROCESSED.

Explanation: This is the final message for a control statement that KGUP has partially processed. This condition occurs when there is a mixture of unsuccessful and successful processing for control statements that specify more than one key to be processed; for example, RANGE(x,y) or LABEL(l1,l2,...,ln).

System Action: Depending on the severity of the error that caused the failure, KGUP either continues processing of the input control statements or ends processing.

User Response: Investigate the previous diagnostic error messages.

CSFG0321 STATEMENT SUCCESSFULLY PROCESSED.

Explanation: This is the final message for a control statement that is processed completely.

System Action: Normal processing of the input file continues.

User Response: None.

CSFG0385 THE SYSTEM *key-type* **KEY COULD NOT BE RETRIEVED FROM THE CKDS.**

Explanation: The KGUP control statement did not supply either the MAC generation (MACGEN) or MAC verification (MACVER) key.

System Action: Processing ends.

Programmer Response: Check if the CKDS is valid. If it is not, you can use the AMS REPRO command to try to add the missing keys from a sequential data set. Otherwise, use a previous CKDS that has the system keys.

CSFG0395   INSTALLATION EXIT MODULE REQUIRED BUT NOT AVAILABLE.

Explanation: KGUP requires the installation exit module, but has not found it in any library that is specified in either the link list, or on a JOBLIB or STEPLIB DD JCL statement.

System Action: Processing ends.

System Programmer Response: Link the installation exit module in one of the libraries that are designated in the system link list or in the JOBLIB or STEPLIB DD statement. The library must be APF-authorized. Rerun the key generator utility program.

CSFG0402   INSTALLATION EXIT NOT LOADED.

Explanation: An attempt to load the installation exit failed. You specify the load module name in the EXIT statement with the CSFKGUP exit identifier that is processed during ICSF initialization.

System Action: Processing continues normally without calling the installation exit.

System Programmer Response: If the exit is required, specify a valid one.

CSFG0414   STATEMENT REJECTED BY INSTALLATION EXIT.

Explanation: The KGUP installation exit rejected a control statement. The rejected control statement precedes this message.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

System Programmer Response: Determine if the control statement was rejected because of an error or for other reasons. Follow local procedures for errors that are detected by your installation exit. If necessary, correct the error and rerun the job.

CSFG0425   KEY GENERATOR TERMINATED BY INSTALLATION EXIT.

Explanation: The key generator utility program ended at the request of the installation exit. The control statement KGUP was processing when this error occurred precedes this message in the diagnostic data set.

System Action: Processing ends.

User Response: Determine if processing ended normally, or because the KGUP installation exit encountered an error condition. If necessary, correct any errors in the control statements and rerun the key generator utility program.

CSFG0435   RETURN CODE *retcode* **FROM INSTALLATION EXIT NOT VALID.**

Explanation: The key generator utility installation exit returned a return code to the key generator utility program that is not valid. The control statement being processed precedes this message.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Check the installation exit to determine if there are problems in the module. Make any necessary corrections and re-link the installation exit.

CSFG0445   INSTALLATION EXIT PREPROCESSING RETURN CODE = *retcode*. **PROCESSING TERMINATED.**

Explanation: The key generator utility program received a non-zero return code during the pre-processing phase of the exit.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Check the installation exit to determine if there are problems in the module. Make any necessary corrections and re-link the installation exit.

CSFG0455   INSTALLATION EXIT POSTPROCESSING RETURN CODE = *retcode*. **PROCESSING TERMINATED.**

Explanation: The key generator utility program received a non-zero return code during the post-processing phase of the exit.

System Action: Processing ends.

User Response: Contact the programmer responsible for the exit.

System Programmer Response: Check the installation exit to determine if there are problems in the module. Make any necessary corrections and re-link the installation exit.

CSFG0465   INSTALLATION EXIT NOT AVAILABLE FOR PROCESSING SET STATEMENT.

Explanation: The installation exit was not available when processing the SET control statement.

System Action: Processing ends.

User Response: If the SET control statement is required, contact the system programmer to make the exit available.

System Programmer Response: Ensure that the installation exit resides in the appropriate library. If

necessary, restart ICSF with the EXIT statement for CSFKGUP that is included in the installation options data set.

CSFG0474   *Keyword* **KEYWORD NOT SPECIFIED.**

Explanation: The control statement does not contain the required keyword, *keyword*.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with the required keyword and rerun the key generator utility program.

CSFG0484   **TWO LABEL VALUES NOT SPECIFIED ON RENAME STATEMENT.**

Explanation: The RENAME control statement does not contain two label values.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with two label values after the LABEL keyword. Rerun the key generator utility program.

CSFG0494   **TOO MANY LABEL VALUES SPECIFIED.**

Explanation: The control statement contains more than 64 labels.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with 1 to 64 label values and rerun the key generator utility program.

CSFG0504   **MORE THAN TWO KEY VALUES SPECIFIED.**

Explanation: The KEY keyword in the control statement contains more than two key values.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with one or two key values and rerun the key generator utility program.

CSFG0514   **DUPLICATE LABEL VALUES SPECIFIED.**

Explanation: The control statement contains duplicate label values for the LABEL keyword.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with

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unique label values and rerun the key generator utility program.

CSFG0524   **MORE THAN TWO TRANSKEY VALUES SPECIFIED.**

Explanation: The control statement contains more than two label values for the TRANSKEY keyword.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with two unique TRANSKEY label values and rerun the key generator utility program.

CSFG0534   *Keyword* **KEYWORD SPECIFIED WITH MISSING OR INCORRECT VALUES.**

Explanation: The control statement specified a keyword with either no value or an incorrect value.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Specify a valid value for the control statement and rerun the key generator utility program.

CSFG0544   **KEY VALUE SPECIFIED NOT 16 CHARACTERS.**

Explanation: The control statement contains a key value for the KEY keyword that is not 16 characters in length.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Specify 16 characters for the key value and rerun the key generator utility program.

CSFG0554   **TWO RANGE VALUES NOT SPECIFIED.**

Explanation: The control statement does not specify two label values with the RANGE keyword.

System Action: Processing ends for this control statement. Normal processing of the input file continues.

User Response: Update the control statement with starting and ending label values and rerun the key generator utility program.

CSFG0575   **CLEAR KEYWORD SPECIFIED WHILE SPECIAL SECURITY MODE DISABLED.**

Explanation: The CLEAR keyword requires special security mode.

System Action: Processing ends.

User Response: Contact your security administrator.

Programmer Response: Make sure that SSM is enabled via the KGUP parameter, the Environment Control Mask, and system options. Then rerun the job.

CSFG0585 KEYS RETURNED FROM INSTALLATION EXIT DO NOT CONTAIN VALID HEXADECIMAL CHARACTERS.

Explanation: The key generator installation exit returned key values that are not valid. The values must be in hexadecimal characters.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Supply the correct hexadecimal values for the keys and re-link the installation exit.

CSFG0604 DOUBLE-LENGTH KEY VALUE IS NOT VALID FOR KEY TYPE *type***.**

Explanation: The control statement specifies KEY(key_value,ikey_value), but TYPE specifies a short key type that can accept only KEY(key_value).

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0614 OUTTYPE OF *outtype* **NOT VALID WITH TYPE** *type***.**

Explanation: The OUTTYPE keyword specifies a key type that is not a valid complementary key type for the key type that is specified on the TYPE keyword. Refer to *z/OS Cryptographic Services ICSF Application Programmer's Guide* and *z/OS Cryptographic Services ICSF Administrator's Guide* for a list of valid TYPE and OUTTYPE combinations.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0624 *Keyword* **NOT VALID BECAUSE TYPE IS NULL.**

Explanation: A keyword other than LABEL or RANGE was found with TYPE(NULL). The statement is not valid.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0634 ONLY DOUBLE LENGTH KEY VALUES ALLOWED FOR KEY TYPES DATAM and DATAMV.

Explanation: The control statement specifies a KEY with either a single-length or triple-length key value, but only a double-length key value is acceptable for the key type specified in the TYPE keyword.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0643 SAME LABEL FOUND ON THE CKDS FOR TYPE *type1***.** *Function* **NOT PERFORMED BECAUSE TYPE** *type2* **REQUIRES A UNIQUE LABEL.**

Explanation: A KGUP control statement specifies ADD or RENAME, so KGUP is trying to place a new label on the CKDS. However, the same label name already exists on the CKDS for another key type (type1). Either the requested key type, or the key type of the existing CKDS entry, or both require a unique label.

System Action: KGUP bypassed processing of the incorrect label. If this is a RANGE statement or a LABEL statement with multiple labels, processing of the other labels continues.

User Response: Correct the KGUP statement.

CSFG0654 *Keyword* **NOT VALID FOR DELETE.**

Explanation: The specified keyword is not valid on a DELETE statement. The only valid keywords on a DELETE statement are TYPE and either LABEL or RANGE.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0664 RANGE LABEL SUFFIXES ARE NOT THE SAME LENGTH.

Explanation: The two RANGE labels you specified do not have the same number of numeric digits after the last nonnumeric character in the label.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0674 RANGE LABEL SUFFIX HAS TOO MANY DIGITS.

Explanation: You specified a RANGE label with more than 4 numeric digits after the last nonnumeric character. The maximum suffix value is 9999.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0684 RANGE LABEL HAS NO NUMERIC SUFFIX.

Explanation: You specified a RANGE label with a nonnumeric character as its last character. A valid RANGE label must end with 1–4 numeric digits, which specifies a suffix value between 0 and 9999.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0704   UPDATE NOT ALLOWED FOR TYPE NULL.

Explanation: An UPDATE statement specifies TYPE(NULL), which is allowed only in an ADD statement or DELETE statement.

System Action: Processing ends.

User Response: Correct the KGUP statement.

CSFG0715   INSTALLATION EXIT CHANGED THE <LABEL|TYPE> FOR *label type***.**

Explanation: The installation exit changed the LABEL or TYPE of *label type* in the exit parameter block, which is not allowed.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Remove changes that the installation exit made to the type or label portion of the key.

CSFG0725   *Keyword* NOT VALID WITH MULTI-PART DATA KEY.

Explanation: KGUP has encountered an ADD or UPDATE statement that contains either a CDMF data key of more than 8 bytes, or a request to generate a CDMF data key of more than 8 bytes.

System Action: Processing ends.

User Response: Correct the KGUP statement so that either the algorithm requested is DES or the key length is 8.

CSFG0735   INCORRECT VALUE OF LENGTH FOR KEY TYPE *type.*

Explanation: The LENGTH keyword on either an ADD or UPDATE statement contained a value greater than the maximum allowable length for the key type. For types MAC, MACVER, and DATAXLAT, the maximum allowable length is 8. For type DATA, the maximum is 24. For all other types, the maximum is 16.

System Action: Processing for the ADD or UPDATE statement ends.

User Response: Correct the KGUP statement so that the value of LENGTH does not exceed the maximum for the key type.

Chapter 6. CSFInnnn Messages (Component Trace)

This section describes diagnostic messages that are issued only in an interactive problem control system (IPCS) environment.

CSFI001E   *Module-name* **INVOKED IN ERROR.**

Explanation: Module *module-name* should not be called more than once because there is only one ICSF component trace buffer to be found.

System Action: ICSF component trace formatting ends.

User Response: Contact the IBM Support Center.

CSFI002E   *Module-name* **IPCS ERROR** *retcode***.**

Explanation: Module *module-name* encountered an IPCS service error. The return code is indicated in *retcode*.

System Action: ICSF component trace formatting or control block formatting ends.

User Response: Check the meaning of the return code in *z/OS MVS Diagnosis: Reference*.

CSFI003E   *Module-name* **UNABLE TO LOCATE** *control-block* **- FOUND** *identifier***.**

Explanation: Either ICSF was not initialized, or module *module-name* was not able to locate the control block that is indicated in *control-block*. Instead, it found the identifier.

System Action: ICSF component trace formatting or control block formatting ends.

User Response: Either use the correct level of the formatter for the dump, take another up-level dump, or contact the IBM Support Center.

CSFI004E   *Module-name* **UNABLE TO USE** *control-block***.**

Explanation: Either module *module-name* was not able to locate the control block following the control block *control-block* because the pointer to it from the *control-block* was zero, or ICSF was not initialized or was not running.

System Action: ICSF component trace formatting or control block formatting ends.

User Response: Either use the correct level of the formatter for the dump, take another up-level dump, or contact the IBM Support Center.

Chapter 7. CSFMnnnn Messages (ICSF Address Space)

This section describes messages that the Integrated Cryptographic Service Facility mainline task issues.

CSFM001I   **ICSF INITIALIZATION COMPLETE.**

Explanation: This is the normal message that is expected in response to a START CSF operator command. However, if ICSF services are not supported because the master key has not been validated yet, message CSFM400I may follow.

System Action: Processing continues.

Operator Response: None.

System Programmer Response: If ICSF services are not available, check to see if the master key has been validated.

CSFM002E   **ICSF STOP REQUEST OVERRIDDEN BY INSTALLATION EXIT** *exit-name*.

Explanation: If installation exit CSFEXIT4 denies or overrides the STOP request, ICSF issues this message in response to an operator requested STOP (P CSF) command. The exit returned a return code of 4. For more information about CSFEXIT4, see the *z/OS Cryptographic Services ICSF System Programmer's Guide*.

The *exit-name* is the name of the routine.

System Action: Processing continues.

Operator Response: If appropriate, contact your system programmer.

System Programmer Response: Determine if the CSFEXIT4 installation exit is working properly.

CSFM003A   **ICSF TERMINATING. ICSF MUST BE RUN AS A STARTED TASK.**

Explanation: ICSF must be started with a START CSF operator command. If ICSF is not a started task (for example, a batch job), this message is issued.

System Action: ICSF ends.

Operator Response: If appropriate, issue the START CSF command.

System Programmer Response: Determine why ICSF was not started as a started task.

CSFM004A   **ICSF TERMINATING.** *ICSF | PCF or CUSP* **IS ALREADY ACTIVE.**

Explanation: This message is issued if you try to start ICSF and one of the following is true:

- You specified COMPAT(YES) mode, and PCF or CUSP is currently active.
- ICSF is currently active.

System Action: If PCF or CUSP is active, ICSF ends. If ICSF is already active, the new call to ICSF ends, and ICSF remains active.

Operator Response: If appropriate, contact your system programmer.

System Programmer Response: If PCF or CUSP is already active, you can start ICSF with either COMPAT(NO) or COMPAT(COEXIST) mode.

CSFM005A   **ICSF TERMINATING. PREREQUISITE SOFTWARE IS NOT INSTALLED.**

Explanation: The prerequisite software is not installed; therefore ICSF cannot be started.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Check the install logic that came with the product tapes or see the *z/OS Cryptographic Services ICSF Overview* document, which documents the prerequisite software.

CSFM006A   **ICSF TERMINATING DUE TO INSTALLATION EXIT** *exit-name*.

Explanation: ICSF issues this message when an installation exit issues a request to stop ICSF. The *exit-name* indicates the name of the exit. CSFEXIT1, CSFEXIT2, CSFEXIT3, and CSFEXIT5 are the possible exits that can issue a request to stop ICSF. For more information about these exits, see the *z/OS Cryptographic Services ICSF System Programmer's Guide*.

System Action: ICSF ends.

Operator Response: If necessary, contact your system programmer.

System Programmer Response: None.

CSFM008I   **AN ABEND OCCURRED IN THE ICSF MAINLINE. PSW =** *psw*, **abend code =** *abend-code*, **reason =** *rsncode*.

Explanation: ICSF issues this message when an abnormal end occurs in the ICSF main task routine. Recovery has received control and taken a system

dump. Depending on where the error occurred, processing continues.

ICSF writes this message to the CSFLIST data set, not to the operator.

See the *z/OS Cryptographic Services ICSF System Programmer's Guide* for more information about formatting the system dumps.

System Action: ICSF ends.

System Programmer Response: Contact the IBM Support Center.

CSFM009I NO ACCESS CONTROL AVAILABLE FOR ICSF SERVICES OR KEYS

Explanation: ICSF issues this message if it is unable to perform RACROUTE REQUEST=LIST for the classes CSFSERV and/or CSFKEYS during initialization.

System Action: Processing continues.

Operator Response: Inform system programmer.

Programmer Response: If the installation is using security exits instead of RACF for ICSF security, ensure that the ICSF OPTIONS data set contains EXIT statements that name those exits.

System Programmer Response: If the installation is using RACF for ICSF security, ensure that the correct level of RACF is installed.

CSFM010E ICSF TERMINATING. PROCESSOR IS UNSUPPORTED.

Explanation: ICSF is being started on hardware that is no longer supported.

System Action: ICSF ends.

Operator Response: Inform your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFM011I FASTAUTH IS NOT SUPPORTED BY THE INSTALLED SECURITY PRODUCT.

Explanation: ICSF issues this message to notify users when it will not be issuing RACROUTE REQUEST=FASTAUTH requests due to the installed security product not supporting those requests.

System Action: ICSF will continue processing. No checking will be performed before accessing ICSF services or the CKDS and PKDS.

Operator Response: Notify your security administrator.

System Programmer Response: Contact your installed security product provider to see if an upgrade is available which supports RACROUTE REQUEST=FASTAUTH.

CSFM020I AN ABEND OCCURRED IN CSFMLFDT. PSW *psw* **COMPLETION CODE** *abend-code***, REASON =** *rsncode***.**

Explanation: This message is issued when an abnormal end occurs in the look for disabled cryptographic feature (MLFDT) sub-task routine. Recovery has received control and taken a system dump.

System Action: The sub-task routine ends.

System Programmer Response: Contact the IBM Support Center.

CSFM021I CSFMLFDT WAS UNABLE TO ESTABLISH RECOVERY. RETURN CODE *return-code* **FROM THE ESTAE MACRO.**

Explanation: ICSF issues this message when it receives a nonzero return code from the ESTAE macro.

System Action: Processing continues without recovery.

System Programmer Response: For more information about the return code, see the *z/OS MVS Programming: Authorized Assembler Services Reference ENF-IXG*.

If the problem is not resolved, check the CSFLIST data set before contacting the IBM Support Center.

CSFM100E CRYPTOGRAPHIC KEY DATA SET, *dsname* **IS NOT INITIALIZED.**

Explanation: ICSF detected a master key authentication pattern that was not valid on the cryptographic key data set (CKDS). Either the CKDS was not initialized, the CKDS is not valid for this system, or the CKDS is unusable for this system. If the CKDS is initialized on an IBM @server zSeries 990, it is unusable on a CCF system.

It is normal to see this message the first time ICSF starts, as the CKDS has yet to be initialized.

System Action: If the CKDS was not initialized, processing continues but cryptographic services are not enabled.

If the CKDS is unusable for the system, ICSF terminates.

Operator Response: Contact your system programmer.

System Programmer Response: If the CKDS was not initialized, initialize the CKDS through the ICSF panels. You may need to load the master key into the new master key register.

If the CKDS is unusable for the system, update the installation options data set with the correct CKDS and restart ICSF.

CSFM101E   PKA KEY DATA SET, *dsname***, IS NOT INITIALIZED.**

Explanation: ICSF detected a master key hash pattern that was not valid on the PKA data set (PKDS). Either the PKDS was not initialized or the PKDS may not be valid for this system. It is normal to see this message the first time ICSF starts.

System Action: The system continues processing but the PKA callable services are not enabled.

Operator Response: None

System Programmer Response: The system administrator should enter the correct PKA master key and initialize the PKDS.

CSFM105E   CRYPTOGRAPHY - DOMAIN '*domain***' IS NOT ACCESSIBLE.**

Explanation: The value of the DOMAIN parameter in the installation options file has specified a cryptographic domain that this operating system cannot access. Either the number was incorrect, or the PR/SM definition tables do not allow access.

For more information about the number of domains that your processor supports, see either the *zSeries PR/SM Planning Guide* or the *IBM ES/9000 and ES/3090 Processor Complex PR/SM Planning Guide*.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Ensure that the specified DOMAIN is valid for your processor. If you are running in logically partitioned (LPAR) mode, ensure that the DOMAIN has been assigned to your LPAR mode. If neither of these conditions resolve the problem, contact the IBM Support Center.

CSFM106A   CRYPTOGRAPHY - PKA MASTER KEYS ARE NOT VALID.

Explanation: One or both of the PKA master keys are not valid. This occurs if a PKA master key is not installed in all cryptographic units, or if the PKA master keys on all the cryptographic units are not the same. It is normal to see this message the first time ICSF starts.

System Action: Processing continues, but PKA callable services are not enabled.

Operator Response: Notify your security administrator to install the PKA master keys.

System Programmer Response: None.

CSFM107E   CRYPTOGRAPHY - CRYPTO UNITS CONFIGURED DIFFERENTLY.

Explanation: The Cryptographic Configuration Control (CCC) installed on the cryptographic units is not the same. The Processor Controller installs the CCC from the Cryptographic Configuration diskette.

System Action: ICSF abends.

Operator Response: Notify your system programmer.

System Programmer Response: Verify that the correct Cryptographic Configuration diskettes were used to initialize the cryptographic units and that the Processor Controller initialization completed successfully. If the diskettes are incorrect, contact IBM.

CSFM113E   CRYPTOGRAPHY *cryptographic_module_id* **MODULE NOT INITIALIZED.**

Explanation: The cryptographic module that the message identifies has not been initialized.

System Action: If neither cryptographic module has been initialized, then ICSF ends; no cryptographic function is possible. If either cryptographic module has been successfully initialized, ICSF continues initialization processing.

Operator Response: Notify your system programmer.

System Programmer Response: The Service Processor needs to initialize the cryptographic module from a diskette. Use the cryptographic module identifier in the message to identify the correct diskette to use. The restart ICSF.

CSFM114E   CRYPTOGRAPHY - ALL ASYNCHRONOUS COPROCESSORS NOT AVAILABLE.

Explanation: The processing that is required to pass work to the asynchronous coprocessor is not available.

System Action: Processing continues, but services that are using the asynchronous coprocessor will not function.

Operator Response: Notify your system programmer.

System Programmer Response: Check that the proper domain is specified in the Installation Options Data Set. The domain must agree with the PR/SM usage domain specification. If you cannot resolve the problem, contact the IBM Support Center.

CSFM115E CRYPTOGRAPHY -
cryptographic_module_id **RANDOM NUMBER GENERATOR NOT INITIALIZED.**

Explanation: The random number generator of the cryptographic module that the message identifies has not been initialized.

System Action: This is most likely a hardware error. If the random number generator has not been initialized on either cryptographic module, ICSF ends; no cryptographic function is possible. If the random number generator on either cryptographic module has been successfully initialized, ICSF continues the initialization processing.

Operator Response: Notify your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFM116I BOTH MASTER KEYS CORRECT ON PCI CRYPTOGRAPHIC COPROCESSOR *Ppp*, **SERIAL NUMBER** *nn-nnnn*.

Explanation: The PCI cryptographic coprocessor with serial number *nn-nnnn* is online and operational. It is installed at position *pp*.

System Action: The system will use the PCI cryptographic coprocessor for cryptographic operations.

CSFM117I PCI CRYPTOGRAPHIC COPROCESSOR *Ppp*, **SERIAL NUMBER** *nn-nnnn*, **OFFLINE.**

Explanation: The PCI cryptographic coprocessor with serial number *nn-nnnn* is offline and cannot be used for any operation. It is installed at position *pp*.

System Action: The system will not use the PCI cryptographic coprocessor for cryptographic operations.

System Programmer Response: Have the PCI cryptographic coprocessor brought online.

CSFM118E PCI CRYPTOGRAPHIC COPROCESSOR *Ppp*, **SERIAL NUMBER** *nn-nnnn*, **FAILED.**

Explanation: The PCI cryptographic coprocessor with serial number *nn-nnnn*, installed at position *pp*, has failed and cannot be used for any operation.

System Action: The system will not use the PCI cryptographic coprocessor for cryptographic operations.

System Programmer Response: Have the PCI cryptographic coprocessor removed or replaced by your IBM Customer Engineer.

CSFM119E INCORRECT MASTER KEY *mk* **ON PCI CRYPTOGRAPHIC COPROCESSOR** *Ppp*, **SERIAL NUMBER** *nn-nnnn*.

Explanation: The PCI cryptographic coprocessor with serial number *nn-nnnn*, installed at position *pp*, has an incorrect master key. The variable *mk* will specify either SYM-MK or ASYM-MK or BOTH. This message may be issued at initialization or when a new PCI cryptographic coprocessor unit comes online.

System Action: The system will not use the PCI cryptographic coprocessor for cryptographic operations until the security administrator changes its master key.

System Programmer Response: Have the system adminstrator enter the correct master key.

CSFM120E PUBLIC KEY SECURE CABLE (PKSC) FACILITY IS NOT ENABLED.

Explanation: There are several functions that must be enabled on the PR/SM definition. They are Enable cryptographic functions and Enable public key secure cable (PKSC) and integrated cryptographic service facility (ICSF). These boxes must be checked on the Crypto page of the **Customize/Delete Activation Profiles** notebook. *These options are selected on the Support Element panels.*

See *PR/SM Planning Guide*.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Update the PR/SM panels and restart ICSF.

CSFM121E CRYPTO MODULES HAVE NOT BEEN INITIALIZED

Explanation: The Cryptographic Configuration Control (CCC) has not been installed on the cryptographic units. The Processor Controller installs the CCC from the Crytographic Configuration diskettes.

System Action: ICSF terminates.

Operator Response: Notify your system programmer.

System Programmer Response: Ensure the Processor Controller installation of the CCC is successful.

CSFM200I INSTALLATION SERVICE *service-name* **NOT FOUND.**

Explanation: This is an informational message only.

System Action: Processing continues.

System Programmer Response: Determine if the name of the service that is indicated in *service-name* is valid. If it is wrong, correct it and restart ICSF.

CSFM201A REQUIRED INSTALLATION SERVICE *service-name* **NOT FOUND.**

Explanation: You specified a service with option FAIL(ICSF) in the installation options data set, and ICSF could not find the service.

System Action: ICSF ends.

System Programmer Response: Correct the name of the service and restart ICSF.

CSFM224I PCI CRYPTOGRAPHIC COPROCESSOR *Ppp*, **SERIAL NUMBER** *nn-nnnn*, **BUSY.**

Explanation: This state may occur when the PCI cryptographic coprocessor is first brought online and is going through power-on reset. The PCI cryptographic coprocessor may also be in this state when new licensed internal code is being loaded or when the unit is going through recovery processing.

System Action: The system will retry the PCI cryptographic coprocessor until it is no longer busy.

CSFM300I CKDS KEY '*key-name key-type*' **AUTHENTICATION FAILED.**

Explanation: A message authentication code (MAC) verification for a CKDS key entry failed. If a system key (key with a label name of 64 bytes of X'00') fails authentication, the *key-name* field in the above message has the constant SYSTEM_Key.

System Action: Processing continues.

System Programmer Response: Investigate the key entry to determine why the MAC verification failed.

CSFM400I CRYPTOGRAPHY - SERVICES ARE NOW AVAILABLE.

Explanation: This is an informational message. ICSF is up and ready for work and remains started. Application services are available.

System Action: Processing continues.

Operator Response: None.

System Programmer Response: None.

CSFM401I CRYPTOGRAPHY - SERVICES ARE NO LONGER AVAILABLE.

Explanation: Either ICSF is stopping, or access to a cryptographic unit is no longer possible. For example, the last unit is in a 'DISABLED' state.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Investigate the sequence of error messages prior to this message to

help you resolve the problem.

CSFM402I DOMAIN INDEX IN THE OPTIONS DATA SET WAS IGNORED.

Explanation: ICSF detected a changed domain parameter in the options data set and COMPAT(YES) was specified, but there was no intervening IPL. The specified index in the domain installation option was ignored. The index was set to the value that was stored in the cryptographic communications vector table (CCVT) when ICSF was last started.

System Action: Processing continues.

Operator Response: Contact your system programmer.

System Programmer Response: If the cryptographic domain index needs to be changed, re-IPL the system.

CSFM403I CSFMIOST WAS UNABLE TO ESTABLISH RECOVERY. RETURN CODE *return_code* **FROM THE ESTAE MACRO.**

Explanation: ICSF issues this message when the ESTAE macros issues a nonzero return code.

System Action: Processing, including CSF I/O sub-task action, continues without recovery.

User Response: Investigate the return code from the ESTAE macro.

System Programmer Response: For more information about the return code, see the *z/OS MVS Programming: Authorized Assembler Services Reference ENF-IXG*.

If the problem is not resolved, check the CSFLIST data set before contacting the IBM Support Center.

CSFM404A PKA HASH PATTERN IN PKDS HEADER RECORD DOES NOT MATCH SYSTEM PKA HASH PATTERN.

Explanation: The PKA Hash Pattern, which is part of the PKDS header record, does not match the PKA Hash Pattern currently in use by ICSF. This can occur if the PKA master keys are changed and ICSF is ended before writing any PKDS records. In this situation, the PKDS header record is not updated. When ICSF is restarted it detects a mismatch in the PKDS header record. This can also occur if the PKDS being used is not associated with the ICSF being started or the PKDS is back level or empty.

System Action: ICSF continues the initialization process, but marks the PKDS services as unavailable.

User Response: None.

System Programmer Response: If the PKDS is usable, use the ICSF panels to invoke the User Control

functions and enable PKDS Read Access and PKDS Write, Create, and Delete Access. If the PKDS is unusable, correct the condition (if possible), stop ICSF, and restart with appropriate or fixed PKDS.

CSFM405A   AUTHENTICATION CODE IN PKDS HEADER RECORD DOES NOT MATCH THE COMPUTED VALUE.

Explanation: The authentication code is a hash value computed using all the data in the record. It is stored in the header record when it is written, and is used as an integrity check. Subsequently, when ICSF read the record and recomputed the authentication code, it did not match the one in the record. This means that the record has been altered since it was written to the PKDS.

System Action: ICSF continues the initialization process, but marks the PKDS services as unavailable.

User Response: None.

System Programmer Response: If the PKDS is usable, use the ICSF panels to invoke the User Control functions and chose the options to allow PKDS Read Access and PKDS Write, Create, and Delete Access. If the PKDS is unusable, correct the condition (if possible), stop ICSF, and restart with fixed or empty PKDS.

CSFM406A   UNEXPECTED ERROR PROCESSING PKDS HEADER RECORD. FUNCTION = *function,* RETURN CODE = *rc,* REASON CODE = *rs.*

Explanation: An error occurred when process the PKDS during initialization of ICSF. This may have occurred during allocation, open, read or write. The *function* will be either READ (if the PKDS has not been allocated or opened and the header record exists) or WRITE (if the header record is being written to an empty PKDS).

For an explanation of the *rc* and *rs* values, refer to the Return and Reason Code Appendix in *z/OS Cryptographic Services ICSF Application Programmer's Guide*. If the error occurred during data set allocation, the reason code is a combination of the dynamic allocation error code and an ICSF-assigned reason code for dynamic allocation error. Message CSFC0036 precedes this message and gives more useful information in this case.

System Action: The initialization of ICSF does not continue, and ICSF processing ends. ICSF also issues message CSFM407A.

User Response: None.

System Programmer Response: Correct the problem as appropriate for any error messages that precede this one.

Start ICSF again with an empty or error-free PKDS.

CSFM407A   PKDS *dsname* IS UNAVAILABLE.

Explanation: ICSF issues this message after issuing one or more messages that state the reason the PKDS has been marked unavailable.

System Action: The initialization of ICSF does not continue, and ICSF processing ends.

User Response: None.

System Programmer Response: Follow the directions that are given in the responses to the previous messages.

CSFM408A   NO PKDS NAME WAS SPECIFIED IN THE OPTIONS DATA SET.

Explanation: With OS/390 R9, PKDS is a required data set.

System Action: ICSF processing ends.

User Response: None.

System Programmer Response: Allocate a PKDS and specify its name in the options data set.

CSFM409E   MULTIPLE DOMAINS AVAILABLE. SELECT ONE IN OPTIONS DATA SET.

Explanation: Multiple domains are available for this LPAR or native system. Select the domain using the DOMAIN parameter in the options data set.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Add the Domain parameter to the options data set and restart ICSF.

CSFM410E   ERROR IN OPTIONS DATA SET.

Explanation: Some keywords or parameters are not valid in the options data set. Check the CFLIST data set for the specific error messages.

System Action: ICSF ends.

Operator Response: Contact your system programmer.

System Programmer Response: Correct the error in the options data set and restart ICSF.

CSFM411I   PCI CRYPTOGRAPHIC ACCELERATOR *Aaa* IS ACTIVE.

Explanation: The PCI cryptographic accelerator is online and operational. It is installed at position *aa*.

System Action: The system will use the PCI cryptographic accelerator.

CSFM412I   PCI CRYPTOGRAPHIC ACCELERATOR
***Aaa* IS OFFLINE.**

Explanation: The PCI cryptographic accelerator is offline. It is installed at position *aa*.

System Action: The system will not use the PCI cryptographic accelerator.

System Programmer Response: Have the PCI cryptographic accelerator brought online.

CSFM413E   PCI CRYPTOGRAPHIC ACCELERATOR
***Aaa* FAILED.**

Explanation: The PCI cryptographic accelerator installed at position *Aaa* has failed.

System Action: The system will not use the PCI cryptographic accelerator.

System Programmer Response: Have the PCI cryptographic accelerator removed or replaced by your IBM Customer Engineer.

CSFM414I   PCI CRYPTOGRAPHIC ACCELERATOR
***Aaa* IS BUSY.**

Explanation: This state may occur when the PCI cryptographic accelerator is first brought online and is going through power-on reset. The PCI cryptographic accelerator may also be in this state when new licensed internal code is being loaded or when the unit is going through recovery processing.

System Action: The system will retry the PCI cryptographic accelerator until it is no longer busy.

CSFM416I   BOTH MASTER KEYS CORRECT ON
PCI X CRYPTOGRAPHIC
COPROCESSOR *Xpp*, SERIAL NUMBER
nn-nnnn.

Explanation: The PCI X Cryptographic Coprocessor with serial number *nn-nnnn* is online and operational. It is installed at position *pp*.

System Action: The system will use the PCI X Cryptographic Coprocessor for cryptographic operations

Operator Response: None

System Programmer Response: None

CSFM417I   PCI X CRYPTOGRAPHIC
COPROCESSOR *Xpp*, SERIAL NUMBER
nn-nnnn, OFFLINE.

Explanation: The PCI X Cryptographic Coprocessor with serial number *nn-nnnn* is offline and cannot be used for any operation. It is installed at position *pp*.

System Action: The system will not use the PCI X Cryptographic Coprocessor for cryptographic operations

Operator Response: None

System Programmer Response: Have the PCI X Cryptographic Coprocessor brought online.

CSFM418E   PCI X CRYPTOGRAPHIC
COPROCESSOR *Xpp*, SERIAL NUMBER
nn-nnnn, FAILED.

Explanation: The PCI X Cryptographic Coprocessor with serial number *nn-nnnn* has failed and cannot be used for any operation. It is installed at position *pp*.

System Action: The system will not use the PCI X Cryptographic Coprocessor for cryptographic operations

Operator Response: None

System Programmer Response: Have the PCI X Cryptographic Coprocessor removed or replaced by your IBM customer engineer.

CSFM419E   INCORRECT MASTER KEY *mk* ON PCI
X CRYPTOGRAPHIC COPROCESSOR
***Xpp*, SERIAL NUMBER *nn-nnnn*.**

Explanation: The PCI X Cryptographic Coprocessor with serial number *nn-nnnn*, installed at position *pp*, has an incorrect master key. The variable *mk* will specify SYM, ASYM, or BOTH. This message may be issued at initialization or when a new cryptographic coprocessor unit comes online.

System Action: If the SYM-MK is valid, then the PCI X Cryptographic Coprocessor may be used for DES operations, else the system will not use the PCI X Cryptographic Coprocessor for cryptographic operations until the security administrator has changed its master keys.

Operator Response: None

System Programmer Response: Have the security administrator enter the correct master key.

CSFM424I   PCI X CRYPTOGRAPHIC
COPROCESSOR *Xpp*, SERIAL NUMBER
nn-nnnn, IS BUSY.

Explanation: This state may occur when the PCI X Cryptographic Coprocessor is first brought online and is going through power-on reset. The PCI X Cryptographic Coprocessor may also be in this state when new licensed internal code is being loaded or when the unit is going through recovery processing.

System Action: The system will retry the PCI X Cryptographic Coprocessor until it is no longer busy.

Operator Response: None

System Programmer Response: None

**CSFM501E   CRYPTOGRAPHY - HARDWARE
             FAILURE ON COPROCESSOR**
             coprocessor-id, **CPU** *cpu-id*.

Explanation: A cryptographic instruction has ended,
indicating a cryptographic hardware failure. ICSF
disables the failing CPU for cryptographic operations.
An SMF82 record is written.

System Action: The CPU is disabled for cryptography.

Operator Response: Contact your system
programmer.

System Programmer Response: Contact the IBM
Support Center.

**CSFM503E   CRYPTOGRAPHY - TAMPERING
             DETECTED ON COPROCESSOR**
             coprocessor-id, **CPU** *cpu-id*.

Explanation: A tamper condition occurred. The
cryptographic feature has zeroed the master key
registers in the indicated *coprocessor-id* and *cpu-id*.

System Action: The CPU alarm sounds. The CPU is
disabled for cryptography. ICSF generates an SMF type
82 record.

Operator Response: See *Support Element
Operations Guide*.

System Programmer Response: Contact the IBM
Support Center.

**CSFM504E   CRYPTOGRAPHY - THERE ARE NO
             ONLINE CPUS WITH ACCESS TO A
             COPROCESSOR.**

Explanation: A sequence of error messages has
resulted in the disabling of all cryptographic CPUs.

System Action: The CPU is disabled for cryptographic
services. They will be restored when at least one CPU
is made available for cryptographic functions.

System Programmer Response: Investigate the
sequence of error messages prior to this message to
help you resolve the problem.

If you cannot resolve the problem, contact the IBM
Support Center.

**CSFM505E   CRYPTOGRAPHY - THERE ARE NO
             ACTIVE CRYPTOGRAPHIC
             COPROCESSORS**

Explanation: One or more errors or user actions has
resulted in the disabling of all cryptographic
coprocessors.

System Action: The system continues processing.
The system will not be able to use a PCI X
Cryptographic Coprocessor for cryptographic operations
until a coprocessor is activated.

Operator Response: Investigate the problem. Contact
the system administrator to enter the master keys for
any online coprocessors or to bring a new cryptographic
coprocessor online (if one is available).

System Programmer Response: None.

**CSFM506I   THERE IS NO ACCESS TO ANY
             CRYPTOGRAPHIC COPROCESSORS
             OR ACCELERATORS**

Explanation: ICSF does not have access to any
cryptographic coprocessors or accelerators. This
message is issued in the following situations:

- Domain is not specified on the LPAR activation panel.
- Domain in the ICSF options data set does not match
  the usage domain on the Support Element LPAR
  activation panel.
- There are no coprocessors defined in LPAR
  candidates lists.

It is a normal message if only the CP assist instructions
are being exploited. If cryptographic coprocessors are
required, then update the Options Data Set or
reconfigure the partition correctly and restart ICSF.

System Action: The system continues processing and
only a limited subset of ICSF services are available.

Operator Response: Contact your system
programmer; this may be an error.

System Programmer Response: The Options Data
Set may need to be updated.

**CSFM507I   CRYPTOGRAPHY - THERE ARE NO PCI
             X CRYPTOGRAPHIC COPROCESSORS
             ONLINE**

Explanation: During ICSF initialization, there were no
online PCI X Cryptographic Coprocessors detected.
This may be the desired configuration.

System Action: The system continues processing.

Operator Response: None.

System Programmer Response: None.

**CSFM508I   CRYPTOGRAPHY - THERE ARE NO
             CRYPTOGRAPHIC ACCELERATORS
             ONLINE**

Explanation: During ICSF initialization, there were no
online cryptographic accelerators detected. This may be
the desired configuration.

System Action: The system continues processing.

Operator Response: None.

System Programmer Response: None.

CSFM510E CRYPTOGRAPHY - VERIFICATION
FAILED ON COPROCESSOR
coprocessor-id, **CPU** *cpu-id*.

Explanation: The master key authentication pattern is not valid.

System Action: The CPU is disabled for cryptography.

Operator Response: Contact your system programmer.

System Programmer Response: Ensure that the CKDS is valid for the master key that is installed for that CPU.

CSFM511E CRYPTOGRAPHY - MASTER KEY ON
COPROCESSOR *coprocessor-id*, **CPU**
cpu-id **IS NOT VALID.**

Explanation: The cryptographic unit has a zero master key.

System Action: The CPU is disabled for cryptography.

System Programmer Response: Determine why the master key is zeroed. You need to re-install the correct key before using the CPU for cryptographic services. If you cannot resolve the problem, contact the IBM Support Center. It is normal to see this message the first time ICSF starts.

CSFM512E CRYPTOGRAPHY - PKA MASTER
KEYS ON COPROCESSOR
coprocessor-id **ARE NOT VALID**

Explanation: A new cryptographic unit has come online, but the PKA master key is not valid or does not agree with the PKA master key of the cryptographic unit already online.

System Action: Processing continues, but PKA callable services are not enabled on the new unit.

Operator Response: Notify your security administrator to install the correct PKA master key on the new unit.

System Programmer Response: None.

CSFM522E CRYPTOGRAPHY - COPROCESSOR
coprocessor-id, **CPU** *cpu-id* **IS**
DISABLED

Explanation: Cryptographic functions are disabled in the Environment Control Mask (ECM). This can only be done from the TKE workstation.

System Action: The CPU is disabled for cryptography.

System Programmer Response: Enable cryptographic functions for the cryptographic unit in the ECM using the TKE workstation.

Chapter 8. CSFOnnnn Messages (Installation Options Parameter Processing)

These messages go to the CSFLIST data set that is specified in the ICSF startup procedure.

CSFO0016   ERROR OCCURRED OPENING OPTIONS FILE.

Explanation: ICSF could not open the options parameter file that is specified on the CSFPARM DD statement in the JCL.

System Action: Processing ends.

User Response: Ensure that the options parameter file that is defined by the DD statement is valid. Correct the DD statement and restart ICSF.

CSFO0026   ERROR OCCURRED CLOSING OPTIONS FILE.

Explanation: ICSF could not close the options parameter file.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Check other messages. If you cannot correct the error, contact the IBM Support Center.

CSFO0036   SYNTAX ERROR IN OPTION STATEMENT.

Explanation: The statement that immediately precedes this message has at least one syntax error.

System Action: Processing ends.

User Response: Check the syntax of the option statement. Check for unpaired delimiters and missing or extraneous commas and ensure that the statement does not exceed position 71. Correct the error and restart ICSF.

CSFO0046   PARTITIONED DATA SET NOT ALLOWED FOR THE CKDS OR PKDS.

Explanation: The CKDSN or PKDSN keyword on an option statement specified a member name for a data set. The CKDS or PKDS must be a VSAM data set.

System Action: Processing ends.

User Response: Correct the CKDSN value and restart ICSF.

CSFO0056   CKDS DSNAME MISSING.

Explanation: The options parameter file did not include a statement that contains the CKDSN keyword and value.

System Action: Processing ends.

User Response: Ensure that the options parameter file contains a statement with the CKDSN keyword and its value, and restart ICSF.

CSFO0066   *Keyword* VALUE NOT IN RANGE.

Explanation: The specified value for the keyword is not within the allowable range. *z/OS Cryptographic Services ICSF System Programmer's Guide* describes the allowable range for the keyword. The statement that contains the error precedes this message.

System Action: Processing ends.

User Response: Specify an allowable range for the keyword and restart ICSF.

CSFO0076   *Keyword* KEYWORD SPECIFIED WITH MISSING VALUE.

Explanation: A keyword value is missing for the *keyword* variable. The statement that contains the error precedes this message.

System Action: Processing ends.

User Response: Specify a value for the keyword and restart ICSF.

CSFO0086   EXIT IDENTIFIER *exit-id* NOT VALID.

Explanation: The specified exit identifier for the EXIT keyword is not valid. The statement that contains the error precedes this message.

System Action: Processing ends.

User Response: Specify a valid exit identifier and restart ICSF.

CSFO0096   SERVICE NUMBER VALUE NOT IN RANGE.

Explanation: The specified service number for the SERVICE and UDX keywords must be from 1 to 32767. The statement containing the error precedes this message.

System Action: Processing ends.

User Response: Specify a service number value between 1 and 32767 and restart ICSF.

CSFO0106 *Keyword* **KEYWORD AND VALUE MISSING.**

Explanation: The *keyword* keyword and its value are missing from the option statement. The statement that contains the error precedes this message.

System Action: Processing ends.

User Response: Specify the keyword and its value and restart ICSF.

CSFO0116 **ERROR OCCURRED FREEING OPTIONS FILE.**

Explanation: After processing the options parameter file, ICSF could not deallocate the data set.

System Action: Processing continues.

User Response: If you need the file for other processing, contact your system programmer.

System Programmer Response: Check the other messages. If you cannot correct the error, contact IBM Support Center.

CSFO0126 **ERROR OCCURRED OPENING WAITLIST FILE.**

Explanation: ICSF could not open the Wait List file specified by the WAITLIST parameter in the ICSF Installation Options data set.

System Action: Processing continues. The ICSF default CICS Wait List file will be used.

User Response: Contact your system programmer.

System Programmer Response: Ensure that the Wait List file specified in the Installation Options data set is valid.

CSFO0136 **ERROR OCCURRED CLOSING WAITLIST FILE.**

Explanation: ICSF could not close the Wait List file specified by the WAITLIST parameter in the ICSF Installation Options data set.

System Action: Processing continues.

User Response: Contact your system programmer.

System Programmer Response: Check for other messages. If you cannot correct the error, contact the IBM Support Center.

CSFO0146 **ERROR OCCURRED ALLOCATING WAITLIST FILE.**

Explanation: ICSF could not allocate the Wait List file specified by the WAITLIST parameter in the ICSF Installation Options data set.

System Action: Processing continues. The ICSF default CICS Wait List will be used.

User Response: Contact your system programmer.

System Programmer Response: Ensure that the Wait List file specified in the Installation Options data set is valid.

CSFO0156 **ERROR OCCURRED FREEING WAITLIST FILE.**

Explanation: ICSF could not deallocate the Wait List file specified by the WAITLIST parameter in the ICSF Installation Options data set.

System Action: Processing continues.

User Response: Contact your system programmer.

System Programmer Response: Check other messages. If you cannot correct the error, contact the IBM Support Center.

CSFO0166 **DEFAULT CICS WAITLIST WILL BE USED**

Explanation: The default ICSF CICS Wait List file will be used for ICSF processing because of one of the following:

1. There was no Wait List file specified in the Installation Options data set.
2. ICSF could not open or allocate the Wait List file specified.
3. The specified Wait List file contained more entries than allowed.

System Action: Processing continues. The default ICSF CICS Wait List file will be used during ICSF processing.

User Response: Contact your system programmer.

System Programmer Response: If use of the ICSF default CICS Wait List file is the desired ICSF processing option, no action is required. Otherwise, ensure that the Wait List file specified in the Installation Options data set is valid.

CSFO0176 **SERVICE NAME &ROUTINE NOT VALID AND WILL BE SKIPPED**

Explanation: The service name specified, which is contained in the Wait List file, is not a valid name of an ICSF service or of an installation-defined service. The specified service name will not be placed in the Wait List.

System Action: Processing continues. The specified service name will not be placed in the Wait List.

User Response: Contact your system programmer.

System Programmer Response: Check the contents of the Wait List file specified by the WAITLIST option of the Installation Options data set. Check the spelling of the service names in the file. Each record must be the name of an ICSF service or of a current installation-defined service or UDX service. Syntax rules for the CICS Wait List file are discussed in *z/OS Cryptographic Services ICSF System Programmer's Guide*.

CSFO0186   NUMBER OF WAIT LIST ENTRIES EXCEEDS MAXIMUM ALLOWED

Explanation: The number of entries in the Wait List file exceeds the allowable maximum. The allowable maximum is the sum of the number of ICSF services and the number of current installation-defined services and UDX services.

System Action: Processing continues. The ICSF default CICS Wait List will be used.

User Response: Contact your system programmer.

System Programmer Response: Examine the entries in the Wait List file you specified by the WAITLIST option of the Installation Options data set. Remove any invalid service names from the list. If this does not solve the problem, contact the IBM Support Center.

Chapter 9. CSFPnnnn Messages (Parse)

This section describes messages that the parse service issues.

**CSFP0016   COULD NOT CREATE PARSE
              ENVIRONMENT.**

Explanation: ICSF or the key generator utility program initialization process could not create an environment suitable for parsing of the options parameter statements or the key generator control statements.

System Action: Processing ends for this request.

User Response: Contact your system programmer.

System Programmer Response: Ensure that there is enough space to create parse related control blocks. Check if the valid level of TSO/E is installed in accordance with the installation instructions in the OS/390 Program Directory. If it is valid, contact the IBM Support Center.

Chapter 10. CSFVnnnn Messages (CKDS Conversion Processing)

This section describes messages that ICSF issues during the cryptographic key data set (CKDS) conversion process.

CSFV0012   **CONVERSION PROCESSING COMPLETED. RETURN CODE =** *retcode*.

Explanation: The CUSP/PCF CKDS to ICSF CKDS conversion program has completed successfully.

System Action: Processing ends.

User Response: Review the return codes and their meanings below.

Return Code	Meaning
00	Successful processing.
04	The conversion process encountered warning conditions, but completed processing of all transactions. Review preceding messages for the warning conditions.

CSFV0026   **CONVERSION TERMINATED. RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: An error occurred in the conversion program that caused ICSF to end processing. See the list of return and reason codes below to determine the cause of the error.

Return code: **12**

Reason Code	Meaning
6004	The conversion program selected a CKDS access function that is not valid. The valid CKDS access functions are: • READ • READUP • WRITE • REWRITE
6008	A service routine failed. ICSF sets the reason code after issuing message CSFG0293. The service routines are: • CSFMGN • CSFMVR • CSFMKVR
6012	The installation exit returned a return

code greater than 4. ICSF sets the reason code after issuing message CSFC0186.

6016	A failure or error occurred in an I/O routine. ICSF sets the reason code after the I/O routine issues a CSFYnnnn message.
6020	The installation exit ended abnormally and the service processing has ended. ICSF sets the reason code after issuing message CSFC0136.
6024	The installation exit ended abnormally and the service processing has ended. ICSF sets the reason code after issuing message CSFC0206.
6028	An ESTAE environment could not be established. ICSF sets the reason code after issuing message CSFC0026.
6032	The dynamic allocation for the supplied CKDS failed. ICSF sets the reason code after issuing message CSFC0036.
6036	The dynamic unallocation for the supplied CKDS failed. ICSF sets the reason code after issuing message CSFC0076.
6040	The required installation exit could not be loaded to be run. ICSF sets the reason code after issuing message CSFC0166.
6044	A call to CSFINF1 failed, and the error was not caused by ICSF not being active. ICSF sets the reason code after issuing message CSFC0053.
6048	ICSF could not find the system keys while attempting to write a complete CKDS. ICSF sets the reason code after issuing message CSFC0086.
9000	The IMPORTER label that is specified for the PARM keyword of the EXEC JCL statement is not valid. The length of the label must be eight characters or less, all non-blank character must be alphanumeric, and the first character must be alphabetic. ICSF

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sets the reason code after issuing message CSFV0036.

9004 ICSF could not find the IMPORTER record on the supplied ICSF CKDS for the label that is specified with the PARM keyword on the EXEC JCL statement. ICSF sets the reason code after issuing message CSFV0046.

9008 The CUSP/PCF CKDS that was input to the conversion process is not valid. ICSF sets the reason code after issuing message CSFV0056.

9016 The conversion process attempted to use a non-empty output ICSF CKDS. The output ICSF CKDS that is specified by DD statement CSFVNEW must be empty when running the conversion process. ICSF sets the reason code after issuing message CSFV0056.

9020 The required conversion installation exit could not be loaded. This may be caused by one of the following conditions. The EXIT keyword in the options file specifies an incorrect load module name. The load module does not exist in any library in the link list being used. The load module does not exist in the library specified in a JOBLIB or STEPLIB DD statement. ICSF sets the reason code after issuing message CSFC0172.

9024 The record type of a source CUSP/PCF CKDS entry is not valid. The record type must be either LOCAL, REMOTE, or CROSS. ICSF sets the reason code after issuing message CSFV0266.

9028 The conversion program encountered a second explicit override entry when an explicit override entry already pertains to all types within the label. ICSF sets the reason code after issuing message CSFV0256.

9032 The conversion program encountered a third global override entry. The conversion process allows for a total of two global override entries as input. ICSF sets the reason code after issuing message CSFV0276.

9036 The conversion program encountered a second global override entry when the first global override entry pertains to all types. ICSF sets the reason code after issuing message CSFV0286.

9040 An override entry consists of all blanks.

9044 An override entry is out of sequence. The override entries should be in sequence by LABEL and OLD_TYPE. ICSF sets the reason code after issuing message CSFV0316.

9048 An override entry duplicates another override entry within LABEL and OLD_TYPE. ICSF sets the reason code after issuing message CSFV0326.

9056 An override entry's NEW_TYPE is not valid. If the OLD_TYPE is LOCAL, the NEW_TYPE must be EXPORTER, OPINENC, or blank. If the OLD_TYPE is REMOTE, the NEW_TYPE must be IMPORTER, IPINENC, or blank. ICSF sets the reason code after issuing message CSFV0346.

9060 An override entry's OLD_TYPE is not valid. The OLD_TYPE must be LOCAL, REMOTE, or blank. ICSF sets the reason code after issuing message CSFV0356 or CSFV0366.

9064 An override entry's BYPASS_FLAG is not valid. The BYPASS_FLAG must be Y, N, or blank. Blank is equivalent to N. ICSF sets the reason code after issuing message CSFV0376.

9068 The pre-processing installation exit call has failed with a return code greater than 8. ICSF sets the reason code after issuing message CSFV0506. Follow local procedures for installation exit problems.

9072 The post-processing installation exit call has failed with a return code greater than 8. ICSF sets the reason code after issuing message CSFV0516. Follow local procedures for installation exit problems.

9076 The record processing installation exit call has failed with a return code greater than 8. ICSF sets the reason code after issuing message CSFC0186. Follow local procedures for installation exit problems.

9080 The installation exit has ended abnormally, and ICSF should be stopped. ICSF sets the reason code after issuing message CSFC0206. Check the installation exit for errors.

9084 The installation exit has ended abnormally, and the conversion process has ended. ICSF sets the

reason code after issuing message CSFC0136. Check the installation exit module for errors.

9088   The installation exit has requested the ending of the conversion process. ICSF sets the reason code after issuing message CSFV0546.

9092   A data set that was input to the conversion process is not a valid ICSF/MVS Version 1 Release 1 CKDS. ICSF sets the reason code after issuing message CSFV0066.

9096   ICSF detected a duplicate label that is not valid. Processing would have resulted in more than one key on the target CKDS with the same label. This condition is not valid when one of the keys is a DATA, MAC, MACVER, DATAXLAT, or NULL key. ICSF sets the reason code after issuing message CSFV0396.

Return code: 16

Reason Code	Meaning
0000	Could not open the output report data set. Ensure that a JCL DD statement exists for the CSFVRPT report data set in the conversion process jobstream. If you cannot resolve the problem, see your system programmer.

Return code: 20

Reason Code	Meaning
0000	Could not establish an ESTAE recovery environment. Attempt to run the job again. If it still fails, contact the IBM Support Center.

Return code: 24

Reason Code	Meaning
0000	An abnormal ending has occurred. Respond to the problem that is identified in the associated error message.

Return code: 64

Reason Code	Meaning
0000	An OPEN error occurred for the CSFVRPT report data set. If it is a pre-allocated data set, ensure that the record length is correct.

Return code: 68

Reason Code	Meaning
0000	An I/O error occurred for the CSFVRPT report data set. An attempt to CLOSE the data set was tried, so check to see if there are meaningful messages in the data set.

System Action: Processing ends.

User Response: Determine the cause of the error, correct the problem, and rerun the conversion program. If you cannot resolve the problem, contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the return and reason codes. Rerun the conversion program.

CSFV0036   IMPORTER KEY LABEL NOT VALID.

Explanation: The IMPORTER key label that is specified with the PARM keyword on the EXEC JCL statement is not valid. The label must be 64 or fewer characters in length.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9000. Processing ends.

User Response: Ensure that the label that is specified is correct and matches the IMPORTER label on the supplied ICSF CKDS. Rerun the conversion program.

CSFV0046   *label* IMPORTER KEY NOT FOUND ON INPUT ICSF CKDS.

Explanation: The conversion program could not find the record for the IMPORTER key with the *label* label in the supplied ICSF CKDS. The label was specified with the PARM keyword on the EXEC JCL statement.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9004. Processing ends.

User Response: Ensure that the specified *label* is correct or that the IMPORTER label in the supplied ICSF CKDS is correct. Rerun the conversion program.

CSFV0056   CSFVSRC DATA SET NOT A CUSP OR PCF CKDS.

Explanation: The data set that is named in the CSFVSRC DD statement is not a CUSP/PCF CKDS.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9008. Processing ends.

User Response: Ensure that the CSFVSRC DD statement specifies the correct data set name for a CUSP/PCF CKDS. Rerun the conversion program.

CSFV0066   CSFVSRC DATA SET NOT AN ICSF RELEASE 1 CKDS.

Explanation: The data set that is named in the CSFVSRC DD statement is not an ICSF/MVS Version 1 Release 1 CKDS.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9092. Processing ends.

User Response: Ensure that the CSFVSRC DD statement specifies the correct data set name for an ICSF/MVS Version 1 Release 1 CKDS. Rerun the conversion program.

CSFV0152   TYPE FOR ALL *type* **KEY ENTRIES CONVERTED TO** *new-type***.**

Explanation: A global override entry specified that all *type* key entries on the CUSP/PCF CKDS are to be converted to *new-type* key entries on the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0172   ALL *type* **KEY ENTRIES BYPASSED.**

Explanation: A global override entry specified to bypass all entries on the CUSP/PCF CKDS with a type of *type*.

System Action: Processing continues.

User Response: None.

CSFV0182   INSTALLATION DATA FOR ALL *type* **KEY ENTRIES SET TO** *installation-data***.**

Explanation: A global override entry specified that all key entries in the CUSP/PCF CKDS with a type of *type* are to have the value *installation-data* set in the INSTALLATION_DATA field of the entries on the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0192   TYPE FOR KEY ENTRY *label type* **CONVERTED TO** *new-type***.**

Explanation: An override entry specified that the type for the key entry in the CUSP/PCF CKDS identified as *label type* is to be changed to *new-type* on the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0212   KEY ENTRY *label type* **BYPASSED.**

Explanation: An override entry specified to bypass the key entry in the CUSP/PCF CKDS identified as *label type* and not include it in the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0222   KEY ENTRY *label type* **NOT BYPASSED.**

Explanation: An override entry specified not to bypass the key entry in the CUSP/PCF CKDS identified as *label type* and to include it in the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0232   INSTALLATION DATA FOR KEY ENTRY *label type* **SET TO** *installation-data***.**

Explanation: An override entry specified that the INSTALLATION_DATA for the key entry in the CUSP/PCF CKDS identified as *label type* is to be set to *installation-data* on the new ICSF CKDS.

System Action: Processing continues.

User Response: None.

CSFV0256   OVERRIDE ENTRY FOR KEY ENTRY *label* **NOT VALID. PREVIOUS OVERRIDE ENTRY HAD BLANK OLD_TYPE.**

Explanation: An override entry specified the same key label (*label*) as a previous override entry, which had a blank OLD_TYPE specified. Only one override entry is allowed with a blank OLD_TYPE because it applies to all entries with a matching label.

System Action: The system issues message CSFV0026 with return code of 12 and a reason code of 9028. Processing ends.

User Response: Either remove the second override entry from the override data set or ensure that the first override entry has a value for OLD_TYPE. Rerun the conversion program.

CSFV0266   CUSP/PCF KEY ENTRY *label* **TYPE NOT VALID.**

Explanation: The CUSP/PCF CKDS entry with LABEL *label* has a type that is not LOCAL, REMOTE, or CROSS.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9024. Processing ends.

User Response: Specify LOCAL, REMOTE, or

CROSS for the CUSP/PCF CKDS entry type. Rerun the conversion program.

CSFV0276   MORE THAN TWO GLOBAL OVERRIDE ENTRIES SPECIFIED.

Explanation: The override data set contains more than two global entries. The maximum number of global entries is two; one for each type, LOCAL and REMOTE.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9032. Processing ends.

User Response: Remove the extraneous global override entries. Rerun the conversion program.

CSFV0286   GLOBAL OVERRIDE ENTRY NOT VALID. PREVIOUS GLOBAL OVERRIDE ENTRY HAD BLANK OLD_TYPE.

Explanation: A second global override entry was present when the first global override entry had no value specified for OLD_TYPE. Because the first global override entry is to be applied to all entries, the second global override entry is redundant.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9036. Processing ends.

User Response: Ensure that the override data set contains the proper global override entries. Rerun the conversion program.

CSFV0292   NO KEY ENTRY FOUND FOR *label type***.**

Explanation: An override entry specified a key entry of *label type* that was not present in the CUSP/PCF CKDS. The conversion program ignored the override entry.

System Action: Processing continues.

User Response: If the *label type* specification was incorrect, change it. A global override entry may be required to bypass all entries on the CUSP/PCF CKDS. Rerun the conversion program.

CSFV0306   BLANK OVERRIDE ENTRY.

Explanation: The override data set contains an entry that is all blanks, which is not valid.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9040. Processing ends.

User Response: Remove the blank override entry and rerun the conversion program.

CSFV0316   OVERRIDE ENTRY NOT IN SEQUENCE.

Explanation: The override data set has an entry that is not in ascending sequence on LABEL and OLD_TYPE.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9044. Processing ends.

User Response: Ensure that the override data set is in ascending sequence on LABEL and OLD_TYPE. Rerun the conversion program.

CSFV0326   DUPLICATE OVERRIDE ENTRY FOR KEY ENTRY *label type***.**

Explanation: The override data set contained an entry that specified the same key entry (*label type*) as a previous override entry.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9048. Processing ends.

User Response: Remove one of the duplicate override entries. Rerun the conversion program.

CSFV0346   CANNOT CHANGE TYPE TO *new-type* **FOR KEY ENTRY** *label type***.**

Explanation: An override entry specified that the type for the key entry *label type* in the CUSP/PCF CKDS be converted to *new-type* in the new ICSF CKDS. This is not valid. If the source type is LOCAL, the new type must be EXPORTER or OPINENC. If the source type is REMOTE, the new type must be IMPORTER or IPINENC.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9056. Processing ends.

User Response: Either change the new type or delete the override entry. Rerun the conversion program.

CSFV0356   OLD_TYPE REQUIRED WHEN NEW_TYPE SPECIFIED ON OVERRIDE ENTRY.

Explanation: An override entry specified a value for NEW_TYPE, but did not specify a value for OLD_TYPE.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9060. Processing ends.

User Response: Either specify a value for the OLD_TYPE or remove the supplied NEW_TYPE. Rerun the conversion program.

CSFV0366 OLD_TYPE *type* **SPECIFIED ON OVERRIDE ENTRY NOT VALID.**

Explanation: An override entry specified an old type of *type*, which is not valid. The OLD_TYPE must be LOCAL, REMOTE, or blank.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9060. Processing ends.

User Response: Specify LOCAL, REMOTE, or blank for the OLD_TYPE field. Rerun the conversion program.

CSFV0376 BYPASS_FLAG VALUE SPECIFIED ON OVERRIDE ENTRY NOT VALID.

Explanation: An override entry specified a value in the BYPASS_FLAG field that is not valid. The valid values are Y, N, or blank. Blank is equivalent to N.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9064. Processing ends.

User Response: Specify Y, N, or blank for the BYPASS_FLAG field. Rerun the conversion program.

CSFV0382 ADD/CHANGE SPECIFICATIONS IGNORED ON OVERRIDE ENTRY. BYPASS_FLAG VALUE IS ″Y″.

Explanation: An override entry specified a value of Y in the BYPASS_FLAG field. This caused the conversion program to bypass the CUSP/PCF CKDS entry. However, the override entry had non-blank values specified in one or more of the fields that are used to specify additions or changes to the new ICSF CKDS entry. The conversion program did not apply thes non-blank values because it pypassed the CUSP/PCF CKDS entry.

System Action: Processing continues.

User Response: If you do not want the conversion program to bypass the CUSP/PCF CKDS entry, change the value in the BYPASS_FLAG field to N or blank. It may require the use of a global override entry to bypass all entries on the CUSP/PCF CKDS. Rerun the conversion program.

CSFV0396 UNIQUE *label type* **FOUND ON INPUT ICSF/MVS CKDS. CANNOT CONVERT** *label* **RECORD FROM PCF/CUSP SOURCE.**

Explanation: The conversion program detected a duplicate label that is not valid. The CUSP/PCF label was the same as a label on the target ICSF CKDS and processing would have resulted in more than one key on the target CKDS with the same label. This condition is not valid for keys that require unique labels (DATA, DATAXLAT, MAC, MACVER, or NULL keys).

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9096. Processing ends.

User Response: Resolve the label conflict in the input, merged, and target CKDS, or update the conversion override file to bypass conversion of *label* from the input PCF/CUSP CKDS. Then rerun the conversion program.

CSFV0402 *label.qualifier type* **CREATED FROM A RELEASE 1 RECORD WITH A NON-ZERO QUALIFIER FIELD.**

Explanation: The ICSF/MVS Version 1 Release 1 conversion program encountered a Release 1 key record with a nonzero qualifier field. The resulting converted key label includes the qualifier information that is preceded by a period.

System Action: None.

User Response: Depending on your installation, you may need to rename the new key or change applications that access the new key.

CSFV0506 CONVERSION INSTALLATION EXIT PREPROCESSING FAILED. RETURN CODE = *retcode***.**

Explanation: The pre-processing installation exit has failed with a return code of *retcode*.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9068. Processing ends.

System Programmer Response: Follow local procedures for correcting errors that are found in the installation exit. Rerun the conversion process.

CSFV0516 CONVERSION INSTALLATION EXIT POSTPROCESSING FAILED. RETURN CODE = *retcode***.**

Explanation: The post-processing installation exit has failed with a return code of *retcode*.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9072. Processing ends.

System Programmer Response: Follow local procedures for correcting errors that are found in the installation exit. Rerun the conversion process.

CSFV0522 CONVERSION INSTALLATION EXIT ATTEMPT TO CHANGE LABEL OR TYPE IGNORED.

Explanation: The record processing installation exit has attempted to change the LABEL or TYPE key entry, which is not allowed. The conversion program ignored the attempt.

System Action: Processing continues.

System Programmer Response: Follow local procedures for correcting errors that are found in the installation exit. Rerun the conversion program.

CSFV0546   *exit-id* **INSTALLATION EXIT** *routine* **REQUESTED TERMINATION OF PROCESSING.**

Explanation: The *exit-id* installation exit and the *routine* load module requested that the conversion program be ended.

System Action: The system issues message CSFV0026 with a return code of 12 and a reason code of 9088. Processing ends.

System Programmer Response: Follow local procedures for the installation exit termination request.

CSFV0552   **KEY ENTRY** *label* **WILL BE CONVERTED BUT MAY NOT BE USABLE IN ICSF SERVICES.**

Explanation: The first character of the *label* is not a valid character for ICSF labels. ICSF services will not accept labels formed incorrectly.

System Action: Processing continues.

User Response: Notify the security administrator of the error so corrective action can be taken.

Chapter 11. CSFYnnnn Messages (I/O Errors)

This section describes messages that the ICSF Input/Output (I/O) routine issues.

CSFY0016   **CONTROL BLOCK VALIDATION ERROR. RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: The input/output control block (IOCB) is incorrect. The IOCB is an ICSF internal control block. *Retcode* indicates the return code, and *rsncode* indicates the reason code.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFY0026   **ERROR OCCURRED PROCESSING DD** *ddname*. **RETURN CODE =** *retcode*, **REASON CODE =** *rsncode*.

Explanation: *Ddname* indicates the DD statement for the data set that was being processed when the error occurred. *Retcode* indicates the return code, and *rsncode* indicates the reason code. See the list of return and reason codes below to determine the cause of the error.

For QSAM files:
Return code: **04**

Reason Code	Meaning
128	An error occurred closing the data set. No action is necessary. The data set will close when the job ends.

Return code: **12**

Reason Code	Meaning
100	Could not acquire the storage that the DCB and I/O buffers require. Increase the region size.
104	Logical record length for the data set is incorrect. If pre-allocated, redefine with the correct record length. If defined on a DD statement, correct the LRECL value.
108	An error occurred while running SYNADAF. A message is printed, but some information may be missing. Asterisks represent the missing information.
112	An error occurred while running SYNADRLS. No action is necessary. The macro releases the space when

the job ends. Register 13 will not point to the save area the SYNADAF macro provided, resulting in an improper chaining of the save areas. Further errors may result.

116	An error occurred opening the data set. Ensure that the JCL DD statement for the data set is present and that it defines the correct data set.

For VSAM files:
Return code: **04**

Reason Code	Meaning
196	An error occurred closing the data set. Run an IDCAMS verify to reset the data set's catalog pointers.

Return code: **12**

Reason Code	Meaning
160	Could not acquire the storage the I/O buffer requires. Increase the region size.
164	Could not generate the exit list.
168	Could not generate the access control block (ACB).
172	An error occurred running an AMS SHOWCB macro.
176	Could not generate the request parameter list (RPL).
180	The supplied logical record length does not agree with the record length that is defined for the data set. Redefine the data set with the correct record length.
184	An error occurred running an AMS MODCB macro.
192	An error occurred opening the file. Ensure that the JCL DD statement for the data set is present and that it defines the correct data set.
200	An error occurred attempting to change the RPL for keyed access.
204	An error occurred attempting to change the RPL for update access.

208	An error occurred attempting to change the RPL for non-update access.
316	A VSAM logical error occurred. Message CSFY0076 shows the ddname for the data set and the VSAM feedback code. For more information, see *MVS/DFP Managing VSAM Data Sets*.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the return and reason codes. If you cannot resolve the problem, contact the IBM Support Center.

CSFY0036   Synad message (for VSAM or non-VSAM file).

Explanation: A physical error occurred while processing a VSAM or QSAM file.

For a QSAM file, the format and explanation of the message is in the SYNADAF macro instruction description in the *MVS/ESA Data Administration: Macro Instruction Reference*.

For a VSAM file, the format and explanation of the message is in the Physical-Error Message Format figure in the *MVS/DFP Managing VSAM Data Sets*.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: See the appropriate document for the explanation of the message. Correct the problem and rerun the job. If you cannot resolve the problem, contact the IBM Support Center.

CSFY0046   ABEND OCCURRED. PSW = *psw*,
COMPLETION CODE = *code*.

Explanation: ICSF I/O processing ended abnormally. The *psw* indicates the PSW at the time the abnormal ending occurred, and the *code* indicates the system completion code.

System Action: Processing ends.

User Response: Contact your system programmer.

System Programmer Response: Respond to the problem that is identified by the system completion code. If you cannot resolve the problem, contact the IBM Support Center.

CSFY0056   I/O ROUTINE UNABLE TO ESTABLISH AN ESTAE.

Explanation: The ICSF I/O routine could not establish an ESTAE environment.

System Action: Processing ends.

User Response: Attempt to run the job again. If it still fails, contact your system programmer.

System Programmer Response: Contact the IBM Support Center.

CSFY0066   I/O ROUTINE UNABLE TO LOAD MODULE *routine*.

Explanation: The I/O routine could not load module *routine*, which is either CSFIO002 or CSFIO003.

System Action: Processing ends.

User Response: Ensure that the load module is in a library that the link list specifies. Alternatively, if the load module is present in the JCL, ensure that load module is in the data set that is specified by a JOBLIB or STEPLIB DD statement. If you cannot resolve the problem, contact your system programmer.

System Programmer Response: If the load module is not available, contact the IBM Support Center.

CSFY0076   VSAM ERROR OCCURRED PROCESSING DD *ddname*. **VSAM FEEDBACK CODE =** *fdbkcode*.

Explanation: A VSAM logical error occurred while processing the data set that is specified by the *ddname* DD statement. The VSAM feedback code *fdbkcode* indicates which error occurred.

System Action: Processing ends.

User Response: Check the VSAM feedback code as documented in the *z/OS DFSMSdfp Diagnosis Reference*. If you cannot correct the error, contact your system programmer.

System Programmer Response: If you cannot resolve the error, contact the IBM Support Center.

Chapter 12. ICSF Routing and Descriptor Codes

This section describes the routing and descriptor codes that IBM assigns to messages issued by ICSF. Routing and descriptor codes are specified in the ROUTCDE and DESC parameters, respectively, of the WTO macro instruction.

- Routing code

  The routing code identifies where a message will be displayed. For ICSF mainline (address space) messages, the routing code is 1 or 9. A routing code of 1 indicates that there was a change in the system status. It demands action by the master console operator. A routing code of 9 indicates that the message gives information about system security checking.

- Descriptor code

  The descriptor code identifies the significance of messages. For ICSF mainline (address space) messages, the descriptor code is always 4, which indicates the status of a system task or of a hardware unit.

Table 1 lists the message IDs in alphanumeric order and their routing and descriptor codes. If a message ID does **not** have a routing and descriptor code, the table lists the name of the data set or file where the message appears.

The possible data sets are CSFDIAG, CSFLIST, and CSFVRPT. The component trace messages, CSFInnnn, are issued only in an interactive problem control system (IPCS) environment. These messages are routed to the IPCS print file, IPCSPRNT.

Table 1. ICSF Routing and Descriptor Codes

Message ID	Descriptor Code	Routing Code	Data Set or File
CSFB0016	--	--	CSFDIAG
CSFB0026	--	--	CSFDIAG
CSFB0026	--	--	CSFDIAG
CSFB0034	--	--	CSFDIAG
CSFB0044	--	--	CSFDIAG
CSFB0056	--	--	CSFDIAG
CSFC0016	--	--	CSFDIAG or CSFVRPT
CSFC0026	--	--	CSFDIAG or CSFVRPT
CSFC0036	--	--	CSFDIAG or CSFVRPT
CSFC0046	--	--	CSFDIAG or CSFVRPT
CSFC0053	--	--	CSFDIAG or CSFVRPT
CSFC0064	--	--	CSFDIAG or CSFVRPT
CSFC0072	--	--	CSFDIAG or CSFVRPT
CSFC0086	--	--	CSFDIAG or CSFVRPT
CSFC0096	--	--	CSFDIAG or CSFVRPT
CSFC0106	--	--	CSFDIAG or CSFVRPT
CSFC0116	--	--	CSFDIAG or CSFVRPT
CSFC0124	--	--	CSFDIAG or CSFVRPT
CSFC0136	--	--	CSFDIAG or CSFVRPT
CSFC0142	--	--	CSFDIAG or CSFVRPT
CSFC0156	--	--	CSFDIAG or CSFVRPT
CSFC0166	--	--	CSFDIAG or CSFVRPT
CSFC0172	--	--	CSFDIAG or CSFVRPT
CSFC0186	--	--	CSFDIAG or CSFVRPT
CSFC0196	--	--	CSFDIAG or CSFVRPT
CSFC0206	--	--	CSFDIAG or CSFVRPT

Table 1. ICSF Routing and Descriptor Codes (continued)

Message ID	Descriptor Code	Routing Code	Data Set or File
CSFC0236	--	--	CSFDIAG or CSFVRPT
CSFC0254	--	--	CSFDIAG or CSFVRPT
CSFC0266	--	--	CSFDIAG or CSFVRPT
CSFC0306	--	--	CSFVRPT
CSFE001I	--	--	CSFLIST
CSFE002A	--	--	CSFLIST
CSFG0002	--	--	CSFDIAG
CSFG0014	--	--	CSFDIAG
CSFG0024	--	--	CSFDIAG
CSFG0035	--	--	CSFDIAG
CSFG0056	--	--	CSFDIAG
CSFG0064	--	--	CSFDIAG
CSFG0074	--	--	CSFDIAG
CSFG0084	--	--	CSFDIAG
CSFG0094	--	--	CSFDIAG
CSFG0104	--	--	CSFDIAG
CSFG0124	--	--	CSFDIAG
CSFG0144	--	--	CSFDIAG
CSFG0164	--	--	CSFDIAG
CSFG0174	--	--	CSFDIAG
CSFG0204	--	--	CSFDIAG
CSFG0224	--	--	CSFDIAG
CSFG0272	--	--	CSFDIAG
CSFG0284	--	--	CSFDIAG
CSFG0293	--	--	CSFDIAG
CSFG0302	--	--	CSFDIAG
CSFG0313	--	--	CSFDIAG
CSFG0321	--	--	CSFDIAG
CSFG0385	--	--	CSFDIAG
CSFG0395	--	--	CSFDIAG
CSFG0402	--	--	CSFDIAG
CSFG0414	--	--	CSFDIAG
CSFG0425	--	--	CSFDIAG
CSFG0435	--	--	CSFDIAG
CSFG0445	--	--	CSFDIAG
CSFG0455	--	--	CSFDIAG
CSFG0465	--	--	CSFDIAG
CSFG0474	--	--	CSFDIAG
CSFG0484	--	--	CSFDIAG
CSFG0494	--	--	CSFDIAG
CSFG0504	--	--	CSFDIAG
CSFG0514	--	--	CSFDIAG
CSFG0524	--	--	CSFDIAG
CSFG0534	--	--	CSFDIAG
CSFG0544	--	--	CSFDIAG
CSFG0554	--	--	CSFDIAG
CSFG0575	--	--	CSFDIAG
CSFG0585	--	--	CSFDIAG
CSFG0595	--	--	CSFDIAG
CSFG0604	--	--	CSFDIAG
CSFG0614	--	--	CSFDIAG
CSFG0624	--	--	CSFDIAG

Table 1. ICSF Routing and Descriptor Codes (continued)

Message ID	Descriptor Code	Routing Code	Data Set or File
CSFG0643	--	--	CSFDIAG
CSFG0654	--	--	CSFDIAG
CSFG0664	--	--	CSFDIAG
CSFG0674	--	--	CSFDIAG
CSFG0684	--	--	CSFDIAG
CSFG0704	--	--	CSFDIAG
CSFG0715	--	--	CSFDIAG
CSFI001E	--	--	IPCSPRNT
CSFI002E	--	--	IPCSPRNT
CSFI003E	--	--	IPCSPRNT
CSFI004E	--	--	IPCSPRNT
CSFM001I	4	1,9	--
CSFM002E	4	1,9	--
CSFM003A	4	1,9	--
CSFM004A	4	1,9	--
CSFM005A	4	1,9	--
CSFM006A	4	1,9	--
CSFM008I	4	1,9	--
CSFM009I	4	1,9	--
CSFM010E	4	1,9	--
CSFM011I	4	1,9	--
CSFM020I	4	1,9	--
CSFM021I	4	1,9	--
CSFM100E	4	1,9	--
CSFM101E	4	1,9	--
CSFM105E	4	1,9	--
CSFM106A	4	1,9	--
CSFM107E	4	1,9	--
CSFM113E	4	1,9	--
CSFM114E	4	1,9	--
CSFM115E	4	1,9	--
CSFM116I	4	1,9	--
CSFM117I	4	1,9	--
CSFM118E	4	1,9	--
CSFM119E	4	1,9	--
CSFM120E	4	1,9	--
CSFM121E	4	1,9	--
CSFM200I	--	--	CSFLIST
CSFM201A	--	--	CSFLIST
CSFM224I	4	1,9	--
CSFM300I	4	9	--
CSFM400I	4	1,9	--
CSFM401I	4	1,9	--
CSFM402I	--	--	CSFLIST
CSFM403I	4	1,9	--
CSFM404A	4	1,9	--
CSFM405A	4	1,9	--
CSFM406A	4	1,9	--
CSFM407A	4	1,9	--
CSFM408A	4	1,9	--
CSFM409E	4	1,9	--
CSFM410E	4	1,9	--

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Table 1. ICSF Routing and Descriptor Codes (continued)

Message ID	Descriptor Code	Routing Code	Data Set or File
CSFM411I	4	1,9	--
CSFM412I	4	1,9	--
CSFM413E	4	1,9	--
CSFM414I	4	1,9	--
CSFM416I	4	1,9	--
CSFM417I	4	1,9	--
CSFM418E	4	1,9	--
CSFM419E	4	1,9	--
CSFM424I	4	1,9	--
CSFM501E	4	1,9	--
CSFM503E	4	1,9	--
CSFM504E	4	1,9	--
CSFM505E	4	1,9	--
CSFM506I	4	1,9	--
CSFM507I	4	1,9	--
CSFM508I	4	1,9	--
CSFM510E	4	1,9	--
CSFM511E	4	1,9	--
CSFM512E	4	1,9	--
CSFM522E	4	1,9	--
CSFO0016	--	--	CSFLIST
CSFO0022	--	--	CSFLIST
CSFO0036	--	--	CSFLIST
CSFO0046	--	--	CSFLIST
CSFO0056	--	--	CSFLIST
CSFO0066	--	--	CSFLIST
CSFO0076	--	--	CSFLIST
CSFO0086	--	--	CSFLIST
CSFO0096	--	--	CSFLIST
CSFO0106	--	--	CSFLIST
CSFO0116	--	--	CSFLIST
CSFO0126	--	--	CSFLIST
CSFO0136	--	--	CSFLIST
CSFO0146	--	--	CSFLIST
CSFO0156	--	--	CSFLIST
CSFO0166	--	--	CSFLIST
CSFO0176	--	--	CSFLIST
CSFO0186	--	--	CSFLIST
CSFP0016	--	--	CSFDIAG
CSFV0012	--	--	CSFVRPT
CSFV0026	--	--	CSFVRPT
CSFV0036	--	--	CSFVRPT
CSFV0046	--	--	CSFVRPT
CSFV0056	--	--	CSFVRPT
CSFV0152	--	--	CSFVRPT
CSFV0172	--	--	CSFVRPT
CSFV0182	--	--	CSFVRPT
CSFV0192	--	--	CSFVRPT
CSFV0212	--	--	CSFVRPT
CSFV0222	--	--	CSFVRPT
CSFV0232	--	--	CSFVRPT

Table 1. ICSF Routing and Descriptor Codes (continued)

Message ID	Descriptor Code	Routing Code	Data Set or File
CSFV0256	--	--	CSFVRPT
CSFV0266	--	--	CSFVRPT
CSFV0276	--	--	CSFVRPT
CSFV0286	--	--	CSFVRPT
CSFV0306	--	--	CSFVRPT
CSFV0316	--	--	CSFVRPT
CSFV0326	--	--	CSFVRPT
CSFV0346	--	--	CSFVRPT
CSFV0356	--	--	CSFVRPT
CSFV0366	--	--	CSFVRPT
CSFV0376	--	--	CSFVRPT
CSFV0382	--	--	CSFVRPT
CSFV0506	--	--	CSFVRPT
CSFV0522	--	--	CSFVRPT
CSFV0546	--	--	CSFVRPT
CSFV0552	--	--	CSFVRPT
CSFY0016	--	--	CSFDIAG or CSFVRPT
CSFY0026	--	--	CSFDIAG or CSFVRPT
CSFY0036	--	--	CSFDIAG or CSFVRPT
CSFY0046	--	--	CSFDIAG or CSFVRPT
CSFY0056	--	--	CSFDIAG or CSFVRPT
CSFY0066	--	--	CSFDIAG or CSFVRPT
CSFY0076	--	--	CSFDIAG or CSFVRPT

Appendix. Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen-readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using assistive technologies

Assistive technology products, such as screen-readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. Refer to *z/OS TSO/E Primer*, *z/OS TSO/E User's Guide*, and *z/OS ISPF User's Guide Volume I* for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

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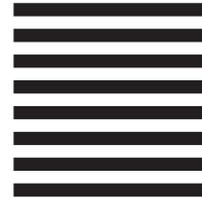Company or Organization _____

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