CICS for MVS/ESA

Migration Guide

Version 4 Release 1

GC33-1162-04

CICS for MVS/ESA

Migration Guide

Version 4 Release 1

GC33-1162-04

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page vii.

Third edition (April 1997)

This edition applies to Version 4 Release 1 of the IBM licensed program Customer Information Control System/Enterprise Systems Architecture (CICS/ESA), program number 5655-018, and to all subsequent versions, releases, and modifications until otherwise indicated in new editions. Consult the latest edition of the applicable IBM system bibliography for current information on this product.

This is the third edition of the Migration Guide for CICS/ESA 4.1. It is based on the second edition, GC33-1162-01, which is now obsolete. Changes from the second edition are marked by the ‘+’ sign to the left of the changes. The vertical lines in the left-hand margins indicate changes made between the first and second editions.

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Programming interface information

This book is intended to help you to migrate from an earlier release of CICS to CICS/ESA 4.1.

This book also documents General-use Programming Interface and Associated Guidance Information and Product-sensitive Programming Interface and Associated Guidance Information provided by CICS.

General-use programming interfaces allow the customer to write programs that obtain the services of CICS.

General-use Programming Interface and Associated Guidance Information is identified where it occurs by an introductory statement to a chapter or section.

Product-sensitive programming interfaces allow the customer installation to perform tasks such as diagnosing, modifying, monitoring, repairing, tailoring, or tuning of

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ACF/VTAM				

Preface

What this book is about

This book is about migration to Release 1 of CICS/ESA Version 4, providing information for users who plan to migrate from an earlier release of CICS. For the purposes of this book, migration means to run existing CICS applications on CICS/ESA 4.1 at the same level of function provided by the existing release.

This book is not intended to cover the exploitation of new function. It should be read in conjunction with the *CICS/ESA Release Guide*, which gives detailed descriptions of the new function provided by CICS/ESA 4.1.

Who this book is for

This book is for those responsible for planning the migration to CICS/ESA 4.1.

It describes things such as system definitions, resource definitions and programming interfaces that have changed, which may require you to make changes to your existing CICS set up.

What you need to know to understand this book

The book assumes that you are familiar with CICS, either as a systems administrator, or as a systems or application programmer.

Notes on terminology

"CICS/MVS" is used for Customer Information Control System/Multiple Virtual Storage.

"CICS/ESA" is used for Customer Information Control System/Enterprise System Architecture.

Other abbreviations that may be used for CICS releases are as follows:

For CICS/MVS Version 2 Release 1 and subsequent modification levels	– CICS/MVS 2.1
For CICS/ESA Version 3 Release 3	– CICS/ESA 3.3
For CICS/ESA Version 4 Release 1	– CICS/ESA 4.1

The MVS/Enterprise System Architecture (MVS/ESA) operating system, which is a prerequisite for CICS/ESA 4.1, is generally referred to as "MVS."

Determining if a publication is current

IBM regularly updates its publications with new and changed information. When first published, both hardcopy and BookManager softcopy versions of a publication are in step, but subsequent updates will probably be available in softcopy before they are available in hardcopy.

For CICS books, these softcopy updates appear regularly on the *Transaction Processing and Data Collection Kit* CD-ROM, SK2T-0730-xx. Each reissue of the collection kit is indicated by an updated order number suffix (the -xx part). For

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example, collection kit SK2T-0730-14 is more up-to-date than SK2T-0730-13. The collection kit is also clearly dated on the cover.

Here's how to determine if you are looking at the most current copy of a publication:

- A publication with a higher suffix number is more recent than one with a lower suffix number. For example, the publication with order number SC33-0667-02 is more recent than the publication with order number SC33-0667-01. (Note that suffix numbers are updated as a product moves from release to release, as well as for hardcopy updates within a given release.)
- When the softcopy version of a publication is updated for a new collection kit the order number it shares with the hardcopy version does not change. Also, the date in the edition notice remains that of the original publication. To compare softcopy with hardcopy, and softcopy with softcopy (on two editions of the collection kit, for example), check the last two characters of the publication's filename. The higher the number, the more recent the publication. For example, DFHPF104 is more recent than DFHPF103. Next to the publication titles in the CD-ROM booklet and the readme files, asterisks indicate publications that are new or changed.
- Updates to the softcopy are clearly marked by revision codes (usually a "#" character) to the left of the changes.

Bibliography

CICS/ESA 4.1 library

Evaluation and planning		
Release Guide	GC33-1161	April 1997
Migration Guide	GC33-1162	April 1997
General		
CICS Family: Library Guide	GC33-1226	April 1995
Master Index	SC33-1187	October 1994
User's Handbook	SX33-1188	April 1997
Glossary (softcopy only)	GC33-1189	n/a
Administration		
Installation Guide	GC33-1163	April 1997
System Definition Guide	SC33-1164	April 1997
Customization Guide	SC33-1165	April 1997
Resource Definition Guide	SC33-1166	April 1997
Operations and Utilities Guide	SC33-1167	April 1997
CICS-Supplied Transactions	SC33-1168	April 1997
Programming		
Application Programming Guide	SC33-1169	October 1994
Application Programming Reference	SC33-1170	April 1997
System Programming Reference	SC33-1171	April 1997
Sample Applications Guide	SC33-1173	October 1994
Distributed Transaction Programming Guide	SC33-1174	October 1994
Front End Programming Interface User's Guide	SC33-1175	October 1994
Diagnosis		
Problem Determination Guide	SC33-1176	October 1994
Messages and Codes	GC33-1177	April 1997
Diagnosis Handbook	LX33-6093	October 1994
Diagnosis Reference	LY33-6082	April 1997
Data Areas	LY33-6083	April 1997
Supplementary Data Areas	LY33-6081	October 1994
Closely-Connected Program Interface	LY33-6084	November 1996
Communication		
Intercommunication Guide	SC33-1181	April 1997
Server Support for CICS Clients	SC33-1591	February 1996
CICS Family: Inter-product Communication	SC33-0824	October 1996
CICS Family: Communicating from CICS/ESA and CICS/VSE	SC33-1697	October 1996
Special topics		
Recovery and Restart Guide	SC33-1182	October 1994
Performance Guide	SC33-1183	October 1994
CICS-IMS Database Control Guide	SC33-1184	October 1994
CICS-RACF Security Guide	SC33-1185	October 1994
Shared Data Tables Guide	SC33-1186	October 1994
External CICS Interface	SC33-1390	April 1997
CICS ONC RPC Feature for MVS/ESA Guide	SC33-1119	February 1996
CICS Web Interface Guide	SC33-1892	November 1996

The book that you are reading was republished in hardcopy format in April 1997 to incorporate updated information previously available only in softcopy. The right-hand column in the above table indicates the latest hardcopy editions of the CICS/ESA books available in April 1997. A book with a date earlier than April 1997 remains the current edition for CICS/ESA 4.1. Note that it is possible that other books in the library will be updated after April 1997.

When a new order is placed for the CICS/ESA 4.1 product, the books shipped with that order will be the latest hardcopy editions.

The style of IBM covers changes periodically. Books in this library have more than one style of cover.

For information about the softcopy books, see “Determining if a publication is current” on page ix. The softcopy books are regularly updated to include the latest information.

Other CICS books

- *CICS Application Migration Aid Guide*, SC33-0768
- *CICS Application Programming Primer (VS COBOL II)*, SC33-0674
- *CICS/ESA Facilities and Planning Guide* for CICS/ESA Version 3 Release 3, SC33-0654
- *CICS/ESA XRF Guide* for CICS/ESA Version 3 Release 3, SC33-0661
- *CICS Family: API Structure*, SC33-1007
- *CICS Family: General Information*, GC33-0155
- *IBM CICS Transaction Affinities Utility MVS/ESA*, SC33-1159

CICS Clients

- *CICS Clients: Administration*, SC33-1436
- *CICS Family: Client/Server Programming*, SC33-1435

Summary of changes

+ This book is the third edition of the *Migration Guide* for CICS for MVS/ESA 4.1.

+ Changes for the third edition

+ This third edition contains changes made as a result of APARs and Reader's
+ Comment Forms. Changes made for the second edition are still indicated by
+ vertical bars to the left of the changes. Changes made for this third edition are
+ indicated by the '+' symbol to the left of the changes. Users of the second edition
+ can therefore see what has changed since that second edition was published.

+ Softcopy versions of this book also use this revision indicator and also use the '#'
+ symbol to show further changes since this third hardcopy edition of the book was
+ published.

| Changes for the second edition

| The second edition was issued at General Availability and contained late changes
| following the early edition that was issued for Announcement of CICS for
| MVS/ESA 4.1. Changes made for this second edition are indicated by the '|'
| symbol to the left of the changes. Users of the first edition can therefore see what
| changed since that first edition was published.

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Part 1. General changes to CICS externals

This part of the book deals with all the changes that affect CICS externals, such as system and resource definitions, and programming interfaces. The topics covered are as follows:

- Chapter 1, “System initialization parameters” on page 3
- Chapter 2, “Resource definition (online) changes” on page 11
- Chapter 3, “Resource definition (macro) changes” on page 23
- Chapter 4, “The application programming interface” on page 27
- Chapter 5, “The system programming interface” on page 35
- Chapter 6, “The global user exit programming interface” on page 41
- Chapter 7, “The exit programming interface” on page 49
- Chapter 8, “The task-related user exit programming interface” on page 51
- Chapter 9, “User-replaceable modules” on page 53

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Chapter 1. System initialization parameters

This chapter describes the changes to CICS system initialization parameters—parameters that are obsolete, or changed. It also lists those that are new.

All the changes affecting system initialization parameters are shown in the following tables:

- Obsolete parameters are in Table 1.
- Changed parameters are in Table 2 on page 4.
- New parameters are in Table 3 on page 7.

See "Getting started with new and changed system initialization parameters" on page 9 for some general guidance about system initialization.

Obsolete system initialization parameters

Table 1 shows those system initialization parameters that are withdrawn in CICS/ESA 4.1.

Remove any of these obsolete parameters from your system initialization table, or from your CICS start-up JCL (for example, the SYSIN data set) before migrating to CICS/ESA 4.1.

Table 1 (Page 1 of 2). Obsolete system initialization parameters

Obsolete keywords	Explanation
AMXT	New CICS dispatcher algorithms remove the need to limit the number of active tasks.
+ CSCS	+ You can't specify individual storage cushion sizes. These are managed dynamically by CICS storage manager within the overall storage limit set by the new DSALIMIT parameter. **APAR PN70228** Documentation for PN70228 added on 27 September 1996
CMXT	Replaced by the MAXACTIVE parameter that is provided on the new TRANCLASS resource definition. See Chapter 2, "Resource definition (online) changes" on page 11 for details of TRANCLASS.
CMXTLIM	Replaced by the PURGETHRESH parameter that is provided on the new TRANCLASS resource definition. See Chapter 2, "Resource definition (online) changes" on page 11 for details of TRANCLASS.
# ECSCS # ERSCS # EUSCS	You can't specify individual storage cushions sizes. These are managed dynamically by CICS storage manager within the overall storage limit set by the new EDSALIMIT parameter. **APAR PN88030** Updated for PN88030 on 22 May 1997.
ISRDELAY	This is replaced by the USRDELAY system initialization parameter.

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Table 1 (Page 2 of 2). Obsolete system initialization parameters	
Obsolete keywords	**Explanation**
MAXSMIR	CICS no longer uses suspended (“semi-permanent”) mirrors, therefore this parameter, which defined the maximum number allowed, is redundant.
USCS	You can't specify individual storage cushion sizes. These are managed dynamically by CICS storage manager within the overall storage limit set by the new DSALIMIT parameter. **APAR PN70228** Updated for PN70228 on 27 September 1996

Changed system initialization parameters

Table 2 shows those system initialization parameters that are changed in some way in CICS/ESA 4.1.

SEC=MIGRATE is no longer supported, and must be changed to SEC=YES to continue using an external security manager (ESM) in CICS/ESA 4.1. The remainder of the changed parameters should not affect your migration to CICS/ESA 4.1, and need only be changed when you are ready to take advantage of the new function they provide.

Table 2 (Page 1 of 3). Changed system initialization parameters		
Keywords	**Operands**	**Description**
CDSASZE ECDSASZE ERDSASZE EUDSASZE	{**0K**|number|}	These parameters now specify either a fixed extent for the specified DSA (with a non-zero value) or that the DSA can be dynamically allocated and managed by CICS automatically (with a zero value). **Specifying *xx*DSASZE=0 for dynamic allocation is recommended**. **APAR PN70228/88030** Updated for APARs PN70228 (27 September 1996) and PN88030 (21 May 1997).
GRPLIST	{**DFHLIST**|name| (name[,name2][,name3][, name4])}	You can now specify up to four group lists, and also use generic naming symbols (* and +).
ICVR	{**5000**|number}	There are no changes to the parameter, but it now applies to transactions that specify the new RUNAWAY attribute of the transaction resource definition (when RUNAWAY=SYSTEM). See the ICVR note following this table.

Table 2 (Page 2 of 3). Changed system initialization parameters		
Keywords	**Operands**	**Description**
INITPARM	(pgmname_1='parmstring'[,...])	DB2 Version 3 supports this parameter to allow you to specify the suffix of the resource control table (RCT). For example, `INITPARM=(DSN2STRT='V3')`.
MXT	{**5**|number}	MXT no longer includes CICS system tasks, therefore you can set the maximum number of tasks in the range 1 to 999. The new default is 5.
RAPOOL	{50|value1| (value1,value2),FORCE}	The FORCE option is added to specify whether CICS is to take action if a RECEIVE ANY RPL hang condition occurs. **APAR PQ15635** Information added for November 1998
SEC	{**YES**|NO}	YES or NO are now the only supported security options (SEC=MIGRATE is obsolete).
SPCTRxx	{(1[,2][,3])|ALL|OFF}	The syntax of this system initialization parameter has not changed, but there are additional component codes that you can specify for xx. These are DD, PG, US, XM, and XS.
STNTRxx	{(1[,2][,3])|ALL|OFF}	The syntax of this system initialization parameter has not changed, but there are additional component codes that you can specify for xx. These are DD, PG, US, XM, and XS.
TD	({**3**|number1}[,{**3**|number2}])]	The syntax of this system initialization parameter has not changed, but the maximum number of buffers you can specify is now 32 767.
TS	([COLD][,{0|**3**|value-1}][, {**3**|value-2}])]	The syntax of this system initialization parameter has not changed, but the maximum number of buffers you can specify is now 32 767.

Table 2 (Page 3 of 3). Changed system initialization parameters		
Keywords	**Operands**	**Description**
UDSASZE	{**0K**|number|}	This parameter now specifies either a fixed extent for the UDSA (with a non-zero value) or that it can be dynamically allocated and managed by CICS automatically (with a zero value). **Specifying ESDSASZE=0 for dynamic allocation is recommended**. **APAR PN70228/88030** Updated for PN70228 on 27 September 1996 and modified for PN88030 21 May 1997.

Note about ICVR: In earlier releases, you may have found it necessary to specify an artificially high ICVR value, to allow some processor-intensive transactions to run without being abended as runaway tasks.

In CICS/ESA 4.1, you can specify individual runaway timeout values on the transaction resource definition. This means that you can lower your ICVR value to a realistic limit for the average transactions, and have the definitions for these reference the global ICVR limit by means of the RUNAWAY(SYSTEM) attribute. You can handle processor-intensive transactions individually by specifying RUNAWAY(time) on their resource definitions.

New system initialization parameters

Table 3 on page 7 shows the new system initialization parameters introduced in CICS/ESA 4.1.

The defaults values for these parameters are designed to have minimal impact when you are migrating from an earlier release of CICS. With the exception of three new parameters, omitting the new system initialization parameters should have no effect on your applications when you migrate to CICS/ESA 4.1.

The three parameters that you need to think about and specify before bringing up a CICS/ESA 4.1 region are:

CMDPROT Specify NO if you want CICS to accept references to storage addresses as in earlier releases. You should do this only in the early stages, perhaps when you are running CICS installation verification procedures with some of your own applications. In later testing, prior to entering production, you should let CMDPROT default to YES.

DSALIM The default DSA limit is 5MB. After initial testing, you should specify the storage limit that you need for your CICS region.

EDSALIM The default EDSA limit is 20MB. After initial testing, you should specify the storage limit that you need for your CICS region.

Table 3 (Page 1 of 3). New system initialization parameters		
Keywords	**Operands**	**Explanation**
CMDPROT	{**YES**|NO}	Specifies whether CICS validates addresses of storage referenced by EXEC CICS commands.
DSALIM	{**5M**|*number*}	Specifies the overall storage limit for CICS dynamic storage areas below 16MB.
DTRTRAN	{**CRTX**|*transaction-id*|NO}	Specifies the name of the dynamic routing transaction definition. NO means you don't want dynamic routing invoked automatically when CICS can't find an installed transaction definition.
EDSALIM	{**20M**|*number*}	Specifies the overall storage limit for CICS dynamic storage areas above 16MB.
ESDSASZE	{**0K**|number|}	Specifies either a fixed extent for the ESDSA (with a non-zero value) or that it can be dynamically allocated and managed by CICS automatically (with a zero value). **Specifying ESDSASZE=0 for dynamic allocation is recommended**. **APAR 88030** Updated for PN88030 21 May 1997.
FSSTAFF	{**NO**|YES.}	Specifies whether you need function-shipped START affinity support to prevent transactions initiated by function-shipped EXEC CICS START requests being started against incorrect terminals.
GNTRAN	{**NO**|*transaction-id*}	Specifies the transaction that you want CICS to invoke when a user's terminal-timeout period expires on a VTAM terminal.
GRNAME	*name*	Specifies the VTAM generic resources name, of which this CICS is a member.
LLACOPY	{**YES**|NO|NEWCOPY}	Specifies whether CICS is to use the LLACOPY macro or the BLDL macro for locating modules in the DFHRPL library. (**Note**: This parameter was added to CICS/ESA 3.3 by a service change.)

Table 3 (Page 2 of 3). New system initialization parameters

Keywords	Operands	Explanation
MNCONV	{**NO**|YES}	Specifies separate performance class records for conversational tasks. (Replaces the CONV parameter of the DFHMCT TYPE=INITIAL macro.)
MNFREQ	{**0**|*hhmmss*}	Specifies the interval for producing transaction performance class records for long-running tasks.
MNSUBSYS	{**generic-applid(1st.4-char.)**|*name*}	Specifies the subsystem name for SYSEVENT class records (for MVS systems *not* using goal-oriented workload management).
MNSYNC	{**NO**|YES}	Specifies transaction performance class records when a task takes a syncpoint.
MNTIME	{**GMT**|LOCAL}	Specifies clock values in either GMT or local time.
PGAICTLG	{**MODIFY**|NONE|ALL}	Specifies whether CICS should catalog autoinstalled program definitions.
PGAIEXIT	{**DFHPGADX**|*name*}	Specifies the name of the program autoinstall exit.
PGAIPGM	{**INACTIVE**|ACTIVE}	Specifies the state of the program autoinstall function.
PLTPIUSR	*userid*	Specifies the userid under which PLT initialization programs are to run.
PLTPISEC	{**NONE**|CMDSEC|RESSEC|ALL}	Specifies scope of security for PLT initialization programs.
PSDINT	{**0**|*hhmmss*}	Specifies the VTAM persistent session delay interval.
PSTYPE	{**SNPS**|MNPS}	Specifies whether you want to use VTAM single-node, or multi-node, persistent sessions support. **APAR PQ01573** Documentation for PQ01573 added on 13 March 1997

Table 3 (Page 3 of 3). New system initialization parameters

Keywords	Operands	Explanation
RDSASZE SDSASZE	{**0K**|number}	Specifies either a fixed extent for the specified DSA (with a non-zero value) or that the DSA can be dynamically allocated and managed by CICS automatically (with a zero value). **Specifying *x*DSASZE=0 for dynamic allocation is recommended**. **APARs PN70228/88030** Updated for PN70228 on 27 September 1996 and modified for PN88030 22 May 1997.
SNSCOPE	{**NONE**|CICS|MVSIMAGE|SYSPLEX}	Specifies the signon scope for users.
TCSACTN	{**NONE**|UNBIND|FORCE}	Specifies the action CICS is to take if the terminal control shutdown wait (TCSWAIT) threshold expires. **APAR PQ15635** FORCE option added.
TCSWAIT	{**4**|number|NO|NONE|0}	Specifies, in minutes, the terminal control wait threshold.
TRANISO	{**NO**|YES}	Specifies whether transaction isolation is required.
USRDELAY	{**30**|*minutes*}	Specifies how long remote userids can remain signed on.
XUSER	{**YES**|NO}	Specifies surrogate user checking.

Getting started with new and changed system initialization parameters

Here are some ideas for migrating to CICS/ESA 4.1 with the changes to system initialization parameters described above.

Use the default system initialization table

The unsuffixed default system initialization table (DFHSIT) is supplied in CICS410.SDFHLOAD. You can use this to start a CICS/ESA 4.1 region using most of the default values.

The only system initialization parameters that you can't override are HPO and ESMEXITS, but you can still use the default system initialization table. Redefine these 2 parameters in the source of the default system initialization table (DFHSIT$$) and reassemble it to create your own default table.

Override defaults using the SYSIN data set

To override default values, specify system initialization parameters in a permanent member of a SYSIN data set.

You can vary these easily during CICS/ESA 4.1 testing, avoiding the need to reassemble suffixed system initialization tables. A particular advantage to using system initialization parameters through the SYSIN data set is that you avoid the need for a cold start to change system initialization parameters. Most system initialization parameters entered at run-time are used even on a warm start (the exceptions are the FCT and CSD parameters.)

Chapter 2. Resource definition (online) changes

This chapter describes the changes to CICS resource definition (online) parameters—parameters that are obsolete, changed, or new in the CICS system definition data set (DFHCSD).

All the changes affecting resource definition online are summarized in the following tables:

- Obsolete parameters are in Table 4.
- Changes to parameters are in Table 5.
- New parameters are in Table 6 on page 12.

See “Other resource definition changes” on page 14 for some general guidance about CSD resource changes.

Obsolete resource definition parameters

The obsolete resource definition parameters in CICS/ESA 4.1 are shown in Table 4.

Table 4. Obsolete resource definition parameters

Resource type	Obsolete keywords	Explanation
TRANSACTION	TCLASS	Replaced by the TRANCLASS parameter, supported by the new TRANCLASS resource definition.
CONNECTION (MRO)	SECURITYNAME	This is obsolete on MRO connections. To specify bind-time and link security for MRO connections, you must define appropriate RACF (or another ESM) security profiles.

Changes to resource definition parameters

There are changes affecting the resource definition parameters shown in Table 5.

Table 5 (Page 1 of 2). Changes to resource definition parameters

Resource type	Affected keywords	Explanation
CONNECTION and SESSIONS	PROTOCOL	The scope of this parameter is extended for the external CICS interface (EXCI).
PROGRAM	EXECKEY	The effect of this parameter is extended for transaction isolation. With transaction isolation active, a user-key program has read and write access to the user-key task-lifetime storage of its own task only, and to any shared DSA storage, if its transaction is defined with ISOLATE(YES).

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Table 5 (Page 2 of 2). Changes to resource definition parameters

Resource type	Affected keywords	Explanation
SESSIONS and TYPETERM	RECOVOPTION	The scope of this parameter is extended to cover VTAM persistent sessions. In earlier releases of CICS it was meaningful only for CICS regions running with XRF only.
SESSIONS	RECEIVEPFX SENDPFX	You no longer need to specify send and receive prefixes on MRO sessions definitions. See “Change to generation of session names (TCTTE entries)” on page 17 for more information.
TRANSACTION	RESTART	The RESTART option now governs restart in two separate types of situation. See page 19 for details.
TYPETERM	RECOVNOTIFY	The scope of this parameter is extended to cover VTAM persistent sessions. In earlier releases of CICS it was meaningful only for CICS regions running with XRF only.

New resource definition parameters

There are some new resource definition parameters in CICS/ESA 4.1, as shown in Table 6.

Table 6 (Page 1 of 2). New resource definition parameters

Resource type	New keywords	Options	Description
CONNECTION	CONNTYPE	{**SPECIFIC** | GENERIC}	Indicates the type of connection for the external CICS interface.
	MAXQTIME	{**NO** | time}	Specifies maximum time that queued requests can wait for free sessions on unresponsive connections.
	PSRECOVERY	{SYSDEFAULT | NONE}	Specifies the type of recovery for LU6.2 sessions using VTAM persistent sessions.
	QUEUELIMIT	{**NO** | number}	Specifies the maximum number of allocate requests that CICS is to queue while waiting for free sessions on the connection.
+	USEDFLTUSER	{**NO** | YES}	NO means CICS enforces SNA protocol rules for FMH5 headers. YES means CICS behaves like earlier releases for requests with an FMH5 that does not conform strictly to the rules. See “Addition of USEDFLTUSER parameter” on page 21 for more information.

Table 6 (Page 2 of 2). New resource definition parameters

Resource type	New keywords	Options	Description
TRANSACTION	ISOLATE	{**YES** | NO}	Indicates whether CICS is to isolate the transaction's user-key task-lifetime storage to provide data protection between user transactions.
	RUNAWAY	{**SYSTEM** | number}	Specifies the time limit above which a task is assumed to be in runaway condition (looping).
	SHUTDOWN	{**DISABLED** | ENABLED}	Specifies whether the transaction can run during CICS shutdown.
	STORAGECLEAR	{**NO** | YES}	Specifies whether storage is to be cleared when freed.
	TRANCLASS	name	Specifies the name of the transaction class of which the transaction is a member. See "New CICS-supplied TRANCLASS definitions" on page 16 for more information about transaction classes.
TYPETERM	LOGMODECOM	{**NO** | YES}	Causes LOGMODE(0|name) to work as it did in releases before CICS/ESA 4.1 for non-XRF-capable terminals. See "Explanation of LOGMODECOM parameter change" on page 13 for more information.

Explanation of LOGMODECOM parameter change

This parameter is introduced for CICS/.ESA 4.1 only and is not intended to be available on any later releases.

The reason for introducing this parameter is that, in releases earlier than CICS/ESA 4.1, the TYPETERM LOGMODE(0|name) parameter behaves differently for non-XRF-capable terminals. (An XRF-capable terminal is one with BIT X'01' defined in offset 4 of the incoming CINIT, indicating that the terminal is capable of supporting a backup session. It is an SNA terminal whose boundary network node is a 327x/3745, or equivalent.)

In earlier releases, the LOGMODE(0|name) TYPETERM attribute for a non-XRF-capable terminal causes the terminal control table terminal entry (TCTTE) to be set up from TYPETERM fields such as SENDSIZE, RECEIVESIZE, BRACKETS, and so on, rather than from the specified LOGMODE. XRF-capable terminals, on the other hand, have their TCTTE fields set up from the bind specified in the LOGMODE.

From CICS/ESA 4.1 onwards, both XRF and non-XRF-capable terminals are treated the same, and their TCTTEs are set up from the bind specified in the LOGMODE. However, there are a few isolated cases where the device (or emulator software) does not obey the protocols, with the result that you are unable to change the TYPETERM or VTAM LOGMODE to match each other in such a way that the bind returned by CICS is accepted by the device (or emulator software). The fix for this is the LOGMODECOM parameter, which allows CICS to work as in earlier releases.

The new LOGMODECOM(NO|YES) parameter defaults to NO. If you specifiy
LOGMODECOM(YES), CICS sets up the TCTTE for non-XRF-capable terminals
from the TYPETERM and not from the LOGMODE.

You should use this parameter only for devices that do not obey the protocols, and
where, as a consequence, you are unable to change the TYPETERM or the
LOGMODE to enable the device work with CICS.

Note: LOGMODECOM is introduced as a migration aid on CICS/ESA 4.1 only,
and will *not* be migrated to the later CICS Transaction Server Releases.

Other resource definition changes

This section describes some general changes to resource definitions. The topics covered are:

- Changes to CICS-supplied resource definitions
- Sharing the CSD between different releases of CICS
- New CICS-supplied TRANCLASS definitions
- Changes to generation of session names (TCTTE entries)
- Rejection of duplicate NETNAMEs on MRO connections
- Changes to function of RESTART option on TRANSACTION definition
- Applying fix for APUZ abends

Changes to CICS-supplied resource definitions

Some CICS-supplied resource definitions are changed or obsolete in CICS/ESA 4.1, and are moved to the compatibility group, DFHCOMP4. These are:

+ - The DFHCSSC program definition. This program is replaced by DFHCESC.
  - The DFHCRP program definition. This is replaced by a new CICS transaction routing program, DFHAPRT, which does not require a program definition in the CSD.
  - The DFHNEP program definition.
  - The DFHRTY program definition. This is replaced by a new transaction restart program, DFHREST.
  - The DFHSNT program definition for the CICS signon table. The user signon table is obsolete—you must define user attributes in the CICS segment of RACF (or another equivalent ESM).
  - The CEDF transaction definition with the old TWA size of 272 bytes. The CICS/ESA 4.1 CEDF does not use a TWA.
  - The CLS1 transaction definition that refers to the old program DFHLUP. The CICS/ESA 4.1 CLS1 references DFHZLS1.
  - The CLS3 transaction definition that refers to the old program DFHLUP. The CICS/ESA 4.1 CLS3 references DFHCLS3.
+ - The CSSC transaction definition. This transaction is replaced by CESC.
  - The CSPG transaction definition that refers to the CICS profile DFHCICST.
+ The CICS/ESA 4.1 version refers to a new profile, DFHCICSP. See “Changes
+ affecting BMS paging function” on page 15 for possible effects on existing
+ applications.

- There is a new group, DFHDB2, included in DFHLIST for DB2 resource definitions. This group contains the necessary definitions for the CICS DB2 attachment facility. This group must replace any existing definitions that you may have in your CSD. See Chapter 14, “CICS DB2 attachment” on page 85 for more details.

You must add DFHCOMP4 to any CICS/ESA 3.3 group list if you plan to share the CSD between CICS/ESA 3.3 and CICS/ESA 4.1. Following the upgrade of your CSD to the CICS/ESA 4.1 level, these definitions no longer exist in their old form, and must be reinstated by including DFHCOMP4 in your CICS/ESA 3.3 initialization group lists.

Warning: When you run the UPGRADE function of the CSD utility program (DFHCSDUP), you must ensure that you manually upgrade any IBM-supplied definitions that you may have modified. The safest way to do this is to copy the upgraded IBM-supplied definitions and re-apply your modifications. This action is required because the UPGRADE command does not operate on your own groups, or IBM groups that you have copied.

It is important to upgrade these modified definitions to ensure that they are defined correctly with non-default values for attributes that are new in CICS/ESA 4.1. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and this may be inappropriate for CICS-supplied resource definitions.

Changes affecting BMS paging function

The effect of the CSPG transaction referring to the new profile, DFHCICSP, is that lower case paging commands are no longer ignored for terminals that are defined with UCTRAN(NO). DFHCICSP specifies UCTRAN(YES), causing input for CSPG to be translated to upper case, even though terminal input is not translated.

In earlier releases, if you enter a lower case paging command, such as `p/l`, and the terminal specifies UCTRAN(NO), the command is not recognized as a BMS page retrieval command. This allows some applications to exploit lower case paging commands, and use character strings such as `p/l` for their own purpose. If you have applications that are using lower case paging commands in this way, you should be aware that the DFHCICSP profile referenced by CSPG ensures that lower case BMS paging commands are translated to upper case. Thus `p/l` is interpreted as `P/L`, and will not work for your applications as in earlier releases.

To make CSPG work as in earlier release, you should create your own copy of the CSPG transaction definition, and change the profile parameter back to DFHCICST.

Sharing the CSD between different releases of CICS

Since the introduction of CICS/ESA, there have been changes to the CICS-supplied groups of resource definitions that are included in the DFHLIST group list. In all cases, the old versions of the CICS resource definitions are retained in compatibility groups, which are needed to support earlier releases.

If, after upgrading a CSD to CICS/ESA 4.1, you plan to share the CSD with earlier releases of CICS, you must include the appropriate DFHCOMP*x* compatibility groups in your startup group list. Table 7 on page 16 shows you which DFHCOMP groups you need to include for the earlier releases.

Note: It is important that you install the compatibility groups in the correct order, as shown in Table 7 on page 16. For example, in a CICS/MVS 2.1.2 region, you must append the compatibility groups DFHCOMP4 followed by DFHCOMP3, DFHCOMP2, and DFHCOMP1, at the end of your group list.

Table 7. Required compatibility groups for earlier releases of CICS

Release the CSD is being shared with	The CICS/ESA release level of the CSD		
	4.1	**3.3**	**3.2.1**
3.3	DFHCOMP4	None	None
3.2.1	DFHCOMP4 DFHCOMP3	DFHCOMP3	None
3.1.1	DFHCOMP4 DFHCOMP3 DFHCOMP2	DFHCOMP3 DFFCOMP2	DFHCOMP2
CICS/MVS 2.1.2	DFHCOMP4 DFHCOMP3 DFHCOMP2 DFHCOMP1	DFHCOMP3 DFHCOMP2 DFHCOMP1	DFHCOMP2 DFHCOMP1

New CICS-supplied TRANCLASS definitions

There is a new CICS-supplied resource definition group, DFHTCL, which is included in the CICS startup group list, DFHLIST. This group includes the default definitions for the transaction classes DFHTCL01 through DFHTCL10.

The old TCLASS numbers correspond to the default transaction class definitions. For compatibility with your old system definitions, you can leave your old transaction definitions as they are, with TCLASS numbers defined, and allow CICS to assign the transactions to the corresponding TRANCLASS names when the transaction definitions are installed. To ensure that the default TRANCLASS names have the same effect as your current TCLASS numbers, you should copy and modify the DFHTCL*nn* definitions, specifying values that correspond to your old system values.

The following example illustrates how to tailor the default classes:

Table 8 (Page 1 of 2). Modifying default DFHTCL transaction classes to match old system values

Obsolete system initialization parameter	TCLASS in existing transaction definitions	Required changes to MAXACTIVE and PURGETHRESH in the transaction class definitions in the DFHTCL group
CMXT=(50, , ,10, ,15)	TCLASS(01)	Change MAXACTIVE in DFHTCL01 from 01 to 50.
	TCLASS(04)	Change MAXACTIVE in DFHTCL04 from 01 to 10.
	TCLASS(06)	Change MAXACTIVE in DFHTCL06 from 01 to 15.

Table 8 (Page 2 of 2). Modifying default DFHTCL transaction classes to match old system values

Obsolete system initialization parameter	TCLASS in existing transaction definitions	Required changes to MAXACTIVE and PURGETHRESH in the transaction class definitions in the DFHTCL group
CMXTLIM=(5, , ,0, ,2)	TCLASS(01)	Change PURGETHRESH in DFHTCL01 from NO to 5.
	TCLASS(04)	Leave PURGETHRESH in DFHTCL04 defined as NO.
	TCLASS(06)	Change PURGETHRESH in DFHTCL06 from NO to 2.

Discarding transaction classes

You can use the EXEC CICS DISCARD or CEMT DISCARD command to remove installed transaction class resource definitions from a CICS address space. Unlike other CICS resources types that begin with DFH, and which cannot be discarded, the default TRANCLASS definitions that begin DFH are an exception and can be discarded.

Change to generation of session names (TCTTE entries)

The generation of session names is changed for both MRO and APPC sessions.

Generation of MRO session names

In CICS/ESA 4.1 you don't have to specify send and receive prefixes when defining SESSIONS resource definitions for MRO connections. If you omit the prefix parameters from the command, or leave them blank on the CEDA define panel, CICS sets a default prefix of a greater-than symbol (>) for send sessions, and a less-than symbol (<) for receive sessions. CICS uses the prefix in conjunction with the send and receive counts to generate the session names.

If you allow the send and receive prefixes to default, CICS creates the last three characters of the session names from the alphanumeric characters A through Z, and 1 through 9. These 3-character identifiers begin with the letters AAA, and continue in ascending sequence until the number of session entries reaches the limit set by the SEND- or RECEIVECOUNT value. This method is the same as that for APPC sessions.

To maintain compatibility with earlier releases, this change is optional. You can continue to define your own prefixes for the send and receive sessions, in which case CICS generates the terminal control table terminal entries (TCTTEs) for session names in the same way as for earlier releases.

For LU6.1 SESSIONS definitions, you continue to define send and receive prefixes as before.

Avoiding naming conflicts

To avoid a conflict between session names and terminal names, you are recommended ***not*** to use the > or < symbols as the first character in your terminal names. This recommendation applies to defining explicit terminal definitions in the CSD and to selecting terminal names in your terminal autoinstall program.

Sharing CICS/ESA 4.1 SESSIONS definitions with earlier releases

MRO SESSIONS definitions with the default prefix cause the generation of duplicate names in earlier CICS releases if you attempt to install more than one CICS/ESA 4.1 SESSIONS definition. The duplicate entries are rejected.

This occurs because CICS/ESA 4.1 manages multiple definitions using the new method, generating unique session names, but earlier CICS releases use the old method, which causes the duplicate session names. However, this not only results in duplicate entries being rejected—interregion communication fails to open, with message DFHIR3780 or DFH3780, depending on the release level of the CICS region. For CICS/ESA Version 3 regions, IRP return code 192 is written to the IRP logon trace entry.

Because earlier CICS releases cannot handle multiple SESSIONS definitions that have the default prefix, you are recommended not to share SESSIONS definitions between CICS/ESA 4.1 and earlier releases.

Generation of APPC session names

In earlier releases, CICS creates session names by appending a 3-character alphanumeric string to the – (minus) symbol. Names begin with 999 and continue in *descending* sequence. In CICS/ESA 4.1 this is changed to ascending sequence, beginning with –AAA.

+ Change to BIND processing at terminal logon

+ **APAR PN83864**

+ Documentation for PN83864 added on 29 August 1996

+ VTAM persistent sessions support in CICS introduces a change in the
+ implementation of CICS BIND image validation in those cases where the
+ LOGMODE is specified as 0 in the CICS typeterm definition.

+ In earlier releases, if you specify LOGMODE(0) on a TYPETERM definition, CICS
+ calls a bind validation service only for a terminal that is XRF-capable. This is
+ changed to enable CICS to support VTAM persistent sessions, and the bind
+ validation service is called also for non-XRF terminals.

+ This change means that terminal logon requests that succeeded on an earlier
+ release can fail, with message DFHZC4929. If you specify LOGMODE(0) on your
+ TYPETERM definitions, ensure that the corresponding VTAM logmode entries for
+ your terminals specify valid session protocols for the LU type, with particular
+ reference to the VTAM COMPROT, PRIPROT, and SECPROT parameters. CICS
+ accepts only those BIND images that conform to the SNA session protocols as

+ defined in the *System Network Architecture: Sessions Between Logical Units*,
+ GC20-1868. See also the sample logon mode table, ISTINCLM, published in the
+ *VTAM Resource Definition Reference*, SC31-6552.

Rejection of duplicate NETNAMEs on MRO connections

In earlier releases, CICS does not reject MRO connections with duplicate netnames when the connections are being installed, nor are the duplicate netnames detected when the CICS region logs on to DFHIRP. You may not be aware that you have installed connections with duplicate netnames. These cause no error messages, and the connections appear normal when you display them with a CEMT INQUIRE CONNECTION command.

The rules governing the specification of the NETNAME parameter are more restrictive in CICS/ESA 4.1 and duplicate MRO netnames are not allowed. As a result, CICS rejects any connection definition with a netname that duplicates an existing MRO netname when connections are being installed. Furthermore, changes to DFHIRP ensure that duplicate netnames are prevented at IRP logon. This can have an affect on CICS regions at an earlier release level.

Effect on earlier CICS releases with CICS/ESA 4.1 DFHIRP.

The changes to DFHIRP in CICS/ESA 4.1 can affect IRC operations in a CICS region at an earlier release level if the CICS/ESA 4.1 DFHIRP is installed in the LPA.

If a pre-CICS/ESA 4.1 region has MRO connections installed with duplicate netnames, and attempts to logon to the CICS/ESA 4.1 DFHIRP, the logon request is rejected.

For CICS/ESA Version 3 regions, IRC fails to open and CICS issues message DFHIR3780 with the IRP return code 268 included in the IRP logon trace entry.

For CICS/MVS regions, IRC also fails to open, but with message DFH3780 only—there is no IRP logon trace entry in CICS/MVS Version 2.

For information about the rules governing netnames on connections, see the *CICS/ESA Resource Definition Guide*.

Changes to function of RESTART option on TRANSACTION definition

In earlier releases of CICS, the RESTART option on transaction resource definitions determines whether or not transactions are “restartable.” RESTART(YES) means that the transaction restart facility is to be used to restart those tasks that terminate abnormally, and are then backed out by the dynamic transaction backout facility.

In CICS/ESA 4.1, the restart option continues to be used for this purpose. It is also used to control whether transactions started by the START command (with a terminal and data specified) are to be restarted if the data is not retrieved.

These two situations are described as follows:

- **Failed tasks backed out by dynamic transaction backout**:

If you specify RESTART(YES), the task that failed is restarted from the beginning of the initial program. (As part of this process, the CICS restart facility invokes the user-replaceable module, DFHREST.)

If dynamic transaction backout fails, or if restart is suppressed dynamically, DFHPEP is invoked in the normal way. The transaction restart facility is especially useful in such situations as a program isolation deadlock, where the task can be restarted automatically rather than resubmitted manually. For background information on dynamic transaction backout, see the *CICS/ESA Recovery and Restart Guide*.

If you specify NO, the restart facility is not required (and DFHREST is not invoked).

- **Started tasks with data not retrieved**:
  In CICS/ESA 4.1, RESTART(YES) also controls restart processing for a transaction started by a START command that has specified a terminal and has passed data. (Data is passed to a started task if one of the FROM, RTRANSID, RTERMID, or QUEUE options is specified.)

  If the data is not retrieved before the task terminates, and RESTART(YES) is specified on the transaction definition, the transaction is automatically restarted and is able to retrieve the outstanding data. If the restarted task fails to retrieve the outstanding data, the transaction is restarted again, up to a maximum of five times, after which the data is discarded. For programming information about the START command, see the *CICS/ESA Application Programming Reference*.

Applying fix for APUZ abends

In earlier releases of CICS, initialization fails with an APUZ abend if you try to install an unknown type of resource definition during a cold start.

For example, CSD definitions for VSAM files, introduced in CICS/ESA Version 3, cause an abend during initialization of a CICS/MVS region if you accidentally include a group containing file definitions in your CICS/MVS startup group list. There is a greater risk of this happening with the introduction of the new TRANCLASS resource definition in CICS/ESA 4.1, because DFHLIST automatically includes an IBM-supplied group of TRANCLASS definitions. To avoid APUZ abends and to enable you to share the new DFHLIST definitions between the different releases, there is a fix available.

PTFs for APAR PN50317 avoiding APUZ abends

To avoid CICS/ESA Version 3 or CICS/MVS regions abending APUZ if they encounter an unknown resource type, you should apply the relevant PTF for APAR PN50317. This APAR applies to the following releases of CICS, and you should apply the PTF appropriate for your release:

+ - For CICS/MVS 2.1.2, apply UN58525
+ - For CICS/ESA 3.2.1, apply UN58470
+ - for CICS/ESA 3.3, apply UN58493

When applied, the PTF causes CICS to ignore any unrecognized resource types during a cold start.

Addition of USEDFLTUSER parameter

APAR PN63960

Documentation for PN63960 added on 19 September, 1996 (Apply PTF UN77613)

In earlier releases, CICS allows attach requests that:

- Specify ATTACHSEC=IDENTIFY and no userid (both MRO and APPC)
- Specify ATTACHSEC=VERIFY with zero length userid and password (APPC only).

In these cases, earlier CICS releases associate the user with the CICS default user. CICS 4.1, however, regards these cases as protocol violations and rejects the incoming attach requests. (See the *CICS/ESA Release Guide* for information about CICS changes to its implementation of the LU6.2 attach-time security in conformance with the SNA architecture.)

To resolve this incompatibility, the CONNECTION resource definition and the LU6.2 TERMINAL definition have the USEDFLTUSER parameter added. The parameter takes the values YES or NO, where NO is the default.

- USEDFLTUSER(NO) means the incoming attach FMH-5 must adhere to the LU6.2 protocols, otherwise the attach request fails.
- USEDFLTUSER(YES) means that, if the attach does not contain the necessary security information, CICS uses the default user's attributes and does not reject the attach. CICS follows the same process as in earlier releases and allows the user to be attached to the system with default security attributes.

To use the USEDFLTUSER parameter with APPC autoinstalled connections, modify resource definitions as follows:

1. If you have copied and customized the default templates CCPS, CBPS, and CBSS supplied in group, DFHAI62, and modified the ATTACHSEC attributes to specify IDENTIFY or VERIFY, change USEDFLTUSER(NO) to YES in the required templates.
2. If you have added other templates based on the default templates CCPS, CBPS and CBSS, modify these, as required, to specify USEDFLTUSER(YES).

Ensure the autoinstall user replacement program DFHZATDY uses the required template. If you change the name of the autoinstall user program, specify the new name on the AIEXIT system initialization parameter.

If you are using the default templates CCPS, CBPS and CBSS in group DFHAI62 unchanged, no changes are required because they use ATTACHSEC(LOCAL), and these attach requests are not affected by the protocol changes described in APAR PN63960.

Chapter 3. Resource definition (macro) changes

This chapter describes the changes to CICS resource definition (macro) parameters—parameters that are obsolete, changed, or new in the CICS control tables. These topics are covered in the following tables:

- Obsolete parameters are in Table 9.
- Changes to parameters are in Table 10 on page 24.
- New parameters are in Table 11 on page 24.

Reassembling tables and migrating VSAM definitions to the CSD

- You must reassemble all CICS control tables using the CICS/ESA 4.1 macro libraries, including those CICS tables where there are no changes to the macro externals in CICS/ESA 4.1. You may also need to reassemble the dummy TCT, DFHTCTDY, supplied with CICS/ESA 4.1 (see "Reassembling DFHTCTDY" on page 25 for details).

  Check the information about changes to control table externals described in this chapter, and then modify your tables as necessary before reassembling ***all*** control tables.

- You cannot install VSAM file definitions from a file control table (FCT). You must migrate your VSAM file definition entries from the FCT to the CSD using the MIGRATE command of the CSD utility program, DFHCSDUP.

  See "Migrating VSAM file definitions to the CSD" on page 26 for more information.

Obsolete control table parameters

Table 9 shows obsolete control table parameters.

Table 9 (Page 1 of 2). Obsolete control table parameters

Control table	Obsolete parameters	Explanation
DFHMCT TYPE=INITIAL	CPU	Measuring CPU time is no longer an option—CICS always measures CPU time in CICS/ESA 4.1.
	CONV	This is obsolete in the monitoring control table, and replaced by the system initialization parameter MNCONV. If your existing MCT specifies CONV=YES, you should remove this and specify MNCONV as a system initialization parameter (or you can set the option dynamically using a CEMT SET MONITOR or EXEC CICS SET MONITOR command).

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Table 9 (Page 2 of 2). Obsolete control table parameters		
Control table	**Obsolete parameters**	**Explanation**
DFHSNT	All	The DFHSNT macro is obsolete and no longer supplied. To define user attributes you must add them to the user profiles maintained by your external security manager. If you are using RACF, you define user attributes in the CICS segment of the user profiles in the RACF database.

Changes to control table parameters

There is a change to the operation of one control table parameter as shown in Table 10.

split=yes.

Table 10. Changes to control table parameters		
Control table	**Changed parameters**	**Explanation**
DFHMCT TYPE=INITIAL	PERFORM(MOVE(n3,n4))	The maximum number of bytes that can be moved by the PERFORM function is increased to 8192 bytes. Also, the maximum size of user data in each performance record is increased to 16 384 bytes.
+ DFHTST[1] + TYPE=LOCAL + TYPE=REMOTE + TYPE=RECOVERY + TYPE=SECURITY	DATAID= (prefix[,prefix,...])|()	The DATAID=() option is added to allow an all-generic (null) option, covering all queues that are not more explicitly defined on other DATAIDs. Also, the list form of generic queue names, DATAID=(prefix[,prefix,...]), is extended to the TYPE=REMOTE macro.

+ [1] These DFHTST changes are shipped in the PTF for APAR PQ00933 (April,
+ 1997).

New resource definition parameters

Table 11 shows the new control table parameter introduced in CICS/ESA 4.1.

Table 11 (Page 1 of 2). New control table parameters		
Control table	**New keywords**	**Description**
+ DFHDCT + (TYPE=INITIAL + and + TYPE=INTRA)	USERID	Specifies the userid to be used for security checking in transactions started by transient data trigger levels.

Table 11 (Page 2 of 2). New control table parameters		
Control table	**New keywords**	**Description**
DFHDCT (TYPE=EXTRA and TYPE=INTRA)	LENGTH	For TYPE=EXTRA only, specifies the record length in bytes of fixed-length records in the queue.
	RMTNAME	Specifies the name by which the queue is known in a remote system.
	SYSIDNT	Specifies the system name of the CICS region that owns the transient data queue.
DFHMCT TYPE=INITIAL	SURROGATE={YES|NO}	Indicates if the TERM field of the performance monitoring record should contain the surrogate terminal ID for a transaction-routed task running in an AOR directly connected to the TOR.
DFHTST[2]	TYPE=LOCAL DATAID= (prefix[,prefix,...])|()	This new macro complements the TYPE=REMOTE macro, making it easier to separate TS queues into local and remote queues when used in conjunction with the special null generic name—DATAID=().

[2] These DFHTST changes are shipped in the PTF for APAR PQ00933 (April, 1997).

Reassembling DFHTCTDY

The dummy TCT supplied with CICS/ESA 4.1 is assembled using the VTAM 3.4.1 macros. If your release of VTAM is earlier than VTAM 3.4.1, you must reassemble the dummy table against your VTAM macros. Failure to do this can lead to problems associated with CICS support for VTAM persistent sessions.

Migrating PPT and PCT table definitions to the CSD

The obsolete DFHPCT and DFHPPT macros are not shipped in CICS/ESA 4.1.

These tables have not been supported since the introduction of CICS/ESA, although in earlier releases the macros were provided for CSD migration purposes.

To migrate the PCT entries of an earlier release to your CSD, you must use the DFHCSDUP migration facility of the earlier release. You can do this before or after you upgrade the CSD using DFHCSDUP UPGRADE command.

For PPT entries, you are recommended not to migrate the definitions, and to use the new autoinstall facility for programs and maps instead.

Migrating VSAM file definitions to the CSD

CICS no longer supports the use of the file control table for VSAM objects—files, data tables, or shared resources pools. Resource definitions for these VSAM objects can be defined in, and installed from, the CICS system definition (CSD) data set only. CICS/ESA 4.1 installs only BDAM files definitions from the FCT during a cold start—for other types of start the FCT is ignored, and file definitions are recovered from the global catalog.

Before migrating your FCT VSAM entries to the CSD, reassemble your FCTs against CICS/ESA 4.1 macro libraries with the MIGRATE=YES option, then migrate the VSAM entries using the DFHCSDUP utility.

After migration, you can continue to use the FCT for BDAM files. You should reassemble your FCTs again, this time specifying the MIGRATE=COMPLETE option to exclude the migrated VSAM definitions from the assembled tables.

Note: At initialization, CICS ignores any VSAM entries that are present in an FCT, but nevertheless you are recommended to remove them by reassembling FCTs with MIGRATE=COMPLETE. Also, specifying MIGRATE=COMPLETE avoids warning messages whenever you reassemble your FCTs for BDAM files.

The SERVREQ=REUSE parameter

The DFHFCT SERVREQ=REUSE parameter is redundant and not supported on CSD file definitions. When you are running the MIGRATE function of the DFHCSDUP utility program, file entries that specify SERVREQ=REUSE are migrated successfuly, and the utility issues a warning message stating that the SERVREQ parameter is ignored.

Migrating DFHSNT entries to RACF

You can migrate user data from an existing signon table (SNT) to the RACF database. CICS provides for this purpose the DFHSNMIG migration utility program. DFHSNMIG generates a CLIST to update the CICS segment of user entries in the RACF database.

See the *CICS/ESA Operations and Utilities Guide* for information about DFHSNMIG.

Chapter 4. The application programming interface

This chapter contains General-use Programming Interface information.

Program compatibility

CICS/ESA 4.1 provides upward compatibility, at source and object level, for all CICS application programs that are written to the application programming interface, and which executed correctly under CICS/ESA 3.3 (except for COBOL programs compiled under old compilers for which execution-time support has been withdrawn).

For information about CICS support for application programming languages, and information about withdrawal of execution-time support for two old COBOL compilers, see “Compilers and assembler” on page 90.

If you are migrating application programs from a release of CICS earlier than CICS/ESA 3.3, you should read the relevant chapters about program compatibility in the *CICS/ESA Migration Guide* for CICS/ESA Version 3 Releases 1 and 2, GC33-0656.

Changes to existing commands and parameters

There are no changed or obsolete parameters to the application programming interface in CICS/ESA 4.1, but there are extensions to some commands in the form of new parameters and these are described in the *CICS/ESA Release Guide*.

The introduction of new parameters has no effect on the migration of your existing application programs.

Although there are no changed or obsolete parameters in CICS/ESA 4.1, there are some changes to the way CICS processes some commands. There are also some additional RESP2 values on exception conditions. These processing changes affect:

- Changes to COMMAREA processing
- Changes to operation of EXEC CICS ASSIGN USERID command
- Clearing the next transaction identifier
- The effect of the RDSA on non-reentrant programs link-edited with the RENT attribute
- Additional RESP2 values for the EXEC CICS ASSIGN command.

Changes to COMMAREA processing

In earlier releases, there are some inconsistencies between the various EXEC CICS commands in the way they perform COMMAREA error checking. The restructure of the program manager domain has removed some of these inconsistencies, and this has resulted in some changes to COMMAREA processing in CICS/ESA 4.1.

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Error checking on all commands

Additional error checking in CICS/ESA 4.1 may cause a LENGERR exception condition when previously the command gave a response of NORMAL. There is also a change to a RESP2 value. These error checking changes are summarized in Table 12.

Table 12. Differences in COMMAREA length error checking on all commands

COMMAREA address	COMMAREA length	In CICS/ESA 3.3		In CICS/ESA 4.1	
		RESP value	RESP2 value	RESP value	RESP2 value
Zero	>0	NORMAL	–	LENGERR	26
Zero	Negative	LENGERR	11	LENGERR	26

Change to COMMAREA processing on a LINK command

Table 13 shows a difference in COMMAREA processing for the LINK command between CICS/ESA 3.3 and CICS/ESA 4.1. This is a result of the more stringent error checking in CICS/ESA 4.1, as described in "Error checking on all commands."

Table 13. Differences in COMMAREA processing between CICS/ESA 3.3 and CICS/ESA 4.1 for LINK commands

COMMAREA attributes			Called program attributes		Effect in CICS/ESA 3.3	Effect in CICS/ESA 4.1
Storage key	Address	Length	Execution key	Data location		
–	Zero	>0	Any	ANY or BELOW	X'FF000000' address	LENGERR

Change to COMMAREA processing on an XCTL command

Table 14 shows the differences in COMMAREA processing for an XCTL command between CICS/ESA 3.3 and CICS/ESA 4.1.

For an explanation of the 'Copied' and 'Not copied' actions, see the note following the table.

Table 14. Differences in COMMAREA processing between CICS/ESA 3.3 and CICS/ESA 4.1 for XCTL commands

COMMAREA attributes			Called program attributes		Effect in CICS/ESA 3.3	Effect in CICS/ESA 4.1
Storage key	Address	Length	Execution key	Data location		
–	Zero	>0	Any	ANY or BELOW	ASRA	LENGERR
Any	>16MB	Zero	Any	BELOW	Copied[1]	Not copied[2]
Non-USER	Any	Zero	USER	ANY	Copied[1]	Not copied[2]
Non-USER	<16MB	Zero	USER	BELOW	Copied[1]	Not copied[2]

Note:

[1] The need for a COMMAREA to be copied is determined by a combination of the attributes of the COMMAREA and the receiving program. In the cases shown in this table, although the COMMAREA is of zero length and therefore not useable, CICS/ESA 3.3 nevertheless 'copies' the COMMAREA. (The GETMAIN CICS issues for this purpose requests only sufficient storage for the leading and trailing check zones, with no user storage.) A called application program receives the address of the copied, zero-length, area.

[2] In CICS/ESA 4.1, CICS detects that the length is zero, and does not attempt the copy. A receiving program is passed the existing address and a zero length. This can lead to unpredictable results if the receiving program uses the storage referenced by the passed address in these situations. This is because the storage is not in the correct storage key, or not in the correct addressing mode.

Changes to COMMAREAs following a RETURN TRANSID

For an explanation of the 'Copied' action, see the note to Table 14 on page 28.

Table 15. Differences in COMMAREA processing between CICS/ESA 3.3 and CICS/ESA 4.1 for RETURN commands

COMMAREA attributes			Receiving program attributes		Effect in CICS/ESA 3.3	Effect in CICS/ESA 4.1
Storage key	**Address**	**Length**	**Execution key**	**Data location**		
Any	Any	Zero	Any	ANY or BELOW	Copied	X'FF000000' address

Summary of COMMAREA processing in CICS/ESA 4.1

The address of a COMMAREA passed to an application program can be above 16MB, below 16MB, or it can be a zero address. A COMMAREA can be in CICS-key storage or USER-key storage (if CICS is running with storage protection), or in read-only storage (possibly obtained using an MVS GETMAIN call). The length of the COMMAREA can be a positive value or zero, but a negative value always results in an error. If necessary, CICS copies the COMMAREA to ensure it is accessible to a application program. The tables shown in this section deal with these various COMMAREA states.

The following sections describe the result of a program passing a COMMAREA from one program to another via an EXEC CICS LINK, XCTL or RETURN TRANSID.

Length error cases

Errors associated with invalid lengths are shown in Table 16.

Table 16. Causes of length errors in CICS/ESA 4.1

Address	Length	RESP value	RESP2 value
Zero	Non-zero	LENGERR	26
Non-zero	Negative	LENGERR	11

COMMAREA processing for a LINK command

For more information about COMMAREA processing summarized in Table 17, see the notes following the table.

Table 17. COMMAREA processing in CICS/ESA 4.1 for a LINK command

COMMAREA attributes			Called program attributes		COMMAREA
Storage key	**Address**	**Length**	**Execution key**	**Data location**	
–	Zero	Zero	CICS	ANY or BELOW	X'FF000000' address
Any	Any	Zero	CICS	ANY	Not copied[1]
Any	<16MB	Zero	CICS	BELOW	Not copied[1]
USER	Any	Zero	USER	ANY	Not copied[1]
USER	<16MB	Zero	USER	BELOW	Not copied[1]
Any	>16MB	Zero	Any	BELOW	Copied[2]
Non-USER	Any	Zero	USER	ANY	Copied[2]
Non-USER	<16MB	Zero	USER	BELOW	Copied[2]
Any	Any	>0	CICS	ANY	Not copied[3]
Any	<16MB	>0	CICS	BELOW	Not copied[3]
USER	Any	>0	USER	ANY	Not copied[3]
USER	<16MB	>0	USER	BELOW	Not copied[3]
Any	>16MB	>0	Any	BELOW	Copied[4]
Non-USER	Any	>0	USER	ANY	Copied[4]
Non-USER	<16MB	≥0	USER	BELOW	Copied[4]

Notes:

[1] There is no need for the COMMAREA to be copied because the receiving program can handle both the storage key and the address, and CICS passes the same address it is given. Even though the length is defined as zero, CICS does not return an error condition, assuming that the receiving program knows the correct length. **This is not recommended: you should always specify the length of a COMMAREA**.

[2] CICS creates a copy of the COMMAREA with a zero-length, and passes the address and zero length to the application program. (See note 1 to Table 14 on page 28 for more information about the 'copying' of zero-length COMMAREAs.) In these cases, the COMMAREA is not valid and must not be used. Unpredictable results can occur if the receiving program uses the storage referenced by the passed address. This is because the storage is not in the correct key or not in the correct addressing mode.

[3] The address and length are valid, and the COMMAREAs do not need to be copied because the receiving program can handle both the storage key and the address.

APAR PN89499

Documentation for PN89499 added on 15 October 1996

[4] CICS copies the COMMAREA to user-key storage either above or below the 16MB line depending on the mode of the receiving program.

COMMAREA processing for an XCTL command

The following table summarizes COMMAREA processing for an XCTL command

Table 18. COMMAREA processing in CICS/ESA 4.1 for an XCTL command

COMMAREA attributes			Called program attributes		COMMAREA
Storage key	**Address**	**Length**	**Execution key**	**Data location**	
–	Zero	Zero	Any	ANY or BELOW	X'FF000000' address
Any	Any	Zero	CICS	ANY	Not copied[1]
Any	<16MB	Zero	CICS	BELOW	Not copied[1]
USER	Any	Zero	USER	ANY	Not copied[1]
USER	<16MB	Zero	USER	BELOW	Not copied[1]
Any	>16MB	Zero	Any	BELOW	Not copied[2]
Non-USER	Any	Zero	USER	ANY	Not copied[2]
Non-USER	<16MB	Zero	USER	BELOW	Not copied[2]
Any	Any	>0	CICS	ANY	Not copied[3]
Any	<16MB	>0	CICS	BELOW	Not copied[3]
USER	Any	>0	USER	ANY	Not copied[3]
USER	<16MB	>0	USER	BELOW	Not copied[3]
Any	>16MB	>0	Any	BELOW	Copied[3]
Non-USER	Any	>0	USER	ANY	Copied[3]
Non-USER	<16MB	>0	USER	BELOW	Copied[3]

Notes:

[1] There is no need for the COMMAREA to be copied because the receiving program can handle both the storage key and the address, and CICS passes the same address it is given. Even though the length is defined as zero, CICS does not return an error condition, assuming that the receiving program knows the correct length. **This is not recommended: you should always specify the length of a COMMAREA**

[2] Either because of its execution key or its data location attribute, the receiving program is unable to handle the address passed. Nevertheless, CICS passes the address it is given. This can lead to unpredictable results if the receiving program uses the storage referenced by the passed address in these situations. This is because the storage is not in the correct storage key, or not in the correct addressing mode.

[3] The COMMAREA address and length are valid, in both the copied and the not-copied case. CICS only copies the COMMAREA if it is necessary to ensure that it is accessible to the receiving program, in which case CICS always copies the COMMAREA below 16MB in USER key.

COMMAREA processing for a RETURN command with TRANSID

Table 19. COMMAREA processing in CICS/ESA 4.1 for a RETURN command

COMMAREA attributes			Called program attributes		COMMAREA
Storage key	**Address**	**Length**	**Execution key**	**Data location**	
Any	Any	Zero	Any	ANY or BELOW	X'FF000000' address
Any	Any	>0	Any	ANY or BELOW	Copied

Note: When CICS copies a COMMAREA for the next transaction on a RETURN command, it copies it in the appropriate EXECKEY and DATALOCATION for the initial program of the new transaction.

APAR PN92639

Documentation for PN92639 added on 20 February 1997

Change to operation of EXEC CICS ASSIGN command

The non-terminal security enhancements affect the operation of the OPID, OPCLASS, NATLANGINUSE, USERID, USERNAME, and USERPRIORITY options of the EXEC CICS ASSIGN command. For the OPID and USERID options, the command no longer returns an INVREQ exception condition. The remaining four options no longer return the INVREQ condition except when the ASSIGN command is issued by a program invoked by a distributed program link command.

In earlier releases, CICS returns INVREQ if the task does not have an associated terminal.

Clearing the next transaction identifier

The next transaction identifier is cleared in the following circumstances:

- For COMMAREA errors on the final return to CICS
- INPUTMSG errors on the final return to CICS
- On abnormal termination of the transaction.

Effect of RDSA on non-reentrant programs

The read-only dynamic storage area (RDSA), introduced for use by programs link-edited in 24-bit mode with the RENT attribute, can cause migration problems if the programs are not reentrant. The storage for the RDSA (like the ERDSA introduced in CICS/ESA 3.3) is allocated from key-0 non-fetch-protected storage, unless RENTPGM=NOPROTECT is specified a system initialization parameter. If you specify RENTPGM=NOPROTECT, storage for the RDSA is allocated from CICS-key storage. CICS loads application programs link-edited with the RENT attribute into the RDSA, and they will fail with a protection exception if:

+ - The RDSA is allocated from key-0 non-fetch-protected storage and the program is not reentrant.
+ - The RDSA is allocated from CICS-key storage (RENTPGM=NOPROTECT), the program is running in USERKEY, and the program is not reentrant.

+ Ensure that all programs link-edited with the RENT attribute are truly reentrant when you are running CICS with storage protection active.

+ Additional RESP2 values for EXEC CICS ASSIGN command

+ The changes to CICS signon add some new RESP2 values that can be returned on the existing exception conditions.

+ The new INVREQ RESP2 values are:

+ **13** Unknown return code in ESMRESP.
+ **25** Terminal is of an invalid type.
+ **27** The ESM is not active.
+ **28** The required national language is invalid.
+ **29** The user is already signed on.

+ The new NOTAUTH RESP2 values are:

+ **20** The userid's access to the specified group has been revoked.
+ **21** Signon failed during SECLABEL checking.
+ **22** Signon failed because the ESM is not currently accepting signon.
+ **23** The GROUPID is not known to the ESM.
+ **24** The USERID is not contained in the GROUPID.

+ The new USERIDERR RESP2 value is:

+ **30** The USERID is all blanks or nulls.

+ For more details on these and all the RESP2 values returned on EXEC CICS SIGNON, see the *CICS/ESA Application Programming Reference*.

| The EXEC interface stub for COBOL programs

| In CICS/ESA 3.3, the CSECT name of the CICS interface stub for COBOL, DFHECI, was changed to DFHELII, affecting the linkage-editor statements in program compilation jobs. This change was subsequently backed out by PTF UN54096, and also applied to CICS/ESA 4.1. If you did not apply this PTF for any reason, you must modify any linkage-editor INCLUDE and ORDER statements to ensure they reference DFHECI.

New commands

There are two new commands:

- EXEC CICS CHANGE PASSWORD
- EXEC CICS VERIFY PASSWORD

For programming information about these commands, see the *CICS/ESA Application Programming Reference*.

Chapter 5. The system programming interface

This chapter contains General-use Programming Interface information.

Program compatibility

CICS/ESA 4.1 provides upward compatibility, at source and object level for CICS application programs that are written to the system programming interface, and which executed correctly under CICS/ESA 3.3, except where otherwise stated in this chapter.

Also, if you are migrating application programs from a release of CICS earlier than CICS/ESA 3.3, you should read the relevant chapters about program compatibility in the *CICS/ESA Migration Guide* for CICS/ESA Version 3 Releases 1 and 2, GC33-0656.

Creation of the system programming interface

The system programming commands are now recognized as a separate programming interface. As a consequence, a number of changes are made to the interface, as follows:

- The SP translator option required for all SPI commands
- Command security applies to *all* SPI commands
- SPOOL commands remain application programming interface commands.

Note: The *CICS/ESA System Programming Reference* describes the system programming interface commands only, therefore the SPOOL commands are moved to the *CICS/ESA Application Programming Reference*.

SP translator option required for all SPI commands

All the commands described in the *CICS/ESA System Programming Reference*. are defined in the SPI language table, DFHEITBS. This means that you must specify the SP translator option for a CICS application program that contains any of the commands described in the *CICS/ESA System Programming Reference*.

The following commands, which did not require the SP option in earlier releases of CICS, now require the SP option otherwise the translate job step fails:

```
EXEC CICS ENABLE  PROGRAM
EXEC CICS DISABLE PROGRAM
EXEC CICS EXTRACT EXIT
EXEC CICS RESYNC  ENTRYNAME
```

Command security applies to all SPI commands

All the SPI commands are eligible for command security checking by means of the CMDSEC option on the transaction resource definition.

The following commands, which were not eligible for command security in earlier releases of CICS, are now subject to command security in transactions that specify CMDSEC(YES):

- EXEC CICS ENABLE PROGRAM

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- EXEC CICS DISABLE PROGRAM
- EXEC CICS EXTRACT EXIT
- EXEC CICS RESYNC ENTRYNAME

The name of the resource that applies to these commands is EXITPROGRAM. Anyone running transactions that issue these commands requires UPDATE authorization to the EXITPROGRAM resource.

Note: If you are also running with resource security checking active, these commands are also subject to resource security checks. In this case, the resource is the name referenced by the PROGRAM parameter (or by the ENTRYNAME parameter in the case of the RESYNC command).

For more information about command security, see the *CICS/ESA CICS-RACF Security Guide*.

Changes to existing commands and parameters

There are some obsolete parameters to the system programming interface in CICS/ESA 4.1, as shown in Table 20.

Table 20. Obsolete system programming interface parameters

Command	Obsolete parameters	Explanation
INQUIRE SYSTEM SET SYSTEM	CSCS USCS ECSCS ERSCS EUSCS	In CICS/ESA 4.1 the storage cushion sizes are fixed by CICS for all the DSAs except the EUDSA, which does not have a cushion, and therefore the storage cushion size parameters are obsolete. The translator issues a warning message (`'xSCS' IS NO LONGER SUPPORTED ....`) against these obsolete parameters, but translates the command. At run time, CICS returns null values against the storage cushion options on an INQUIRE SYSTEM command.

Changes to the operation of the INQUIRE and SET TCLASS commands

Table 21. Changed system programming commands

Old command	Replaced by	Explanation
INQUIRE TCLASS SET TCLASS	INQUIRE TRANCLASS SET TRANCLASS	In CICS/ESA 4.1, the ten numeric transaction classes of earlier releases, numbered 1–10., are replaced by unlimited transaction classes named with 8-character names. See the note about TCLASS compatibility support.

Note on TCLASS compatibility: CICS continues to support the old TCLASS commands for compatibility purposes, at both source and object level, but the old class numbers are mapped against new default transaction class names, as shown under “Mapping of TCLASS parameters to TRANCLASS parameters” on page 37.

If an application program issues an INQUIRE TCLASS or SET TCLASS command against an old numeric TCLASS number, CICS maps this to the corresponding new TRANCLASS name, and returns (or sets) the values associated with the new TRANCLASS definition.

Mapping of TCLASS parameters to TRANCLASS parameters

The old TCLASS numbers correspond to new CICS-supplied transaction class names of the form DFHTCL*nn*, where *nn* is the number of the old TCLASS. For example, the old TCLASS numbers 01 and 05 equate to DFHTCL01 and DFHTCL05 respectively.

For more information, see “New CICS-supplied TRANCLASS definitions” on page 16.

Change to operation of EXEC CICS PERFORM SECURITY command

There is a change to the way in-storage security profiles are maintained by RACF 2.1, and this is reflected in the operation of the EXEC CICS PERFORM SECURITY REBUILD command for all CICS resource classes.

If your external security manager is RACF 2.1, CICS does *not* refresh the in-storage profiles on the PERFORM SECURITY REBUILD command. This function is managed entirely by RACF, which stores its profiles in RACF global storage in the MVS image. It is the responsibility of the RACF administrator to issue a RACF SETROPTS RACLIST command to refresh the profiles in common storage. This means that CICS no longer needs to RACLIST the profiles into its own address space. The effect on the CICS command in CICS/ESA 4.1 is as follows:

RACF 1.9.2

If RACF 1.9.2 is installed and active, the command functions as in earlier releases, and CICS refreshes the active in-store security profiles in its own address space.

CICS returns a RESP value of NORMAL (0) and RESP2=0 when the command has executed successfully.

RACF 2.1.

If RACF 2.1 is installed and active, CICS detects that the rebuild is not necessary and does not attempt to rebuild the profiles.

CICS returns RESP value of NORMAL (0) and RESP2=4, indicating that the external security manager supports dynamic refresh of active security profiles, and that a CICS rebuild is not necessary.

With RACF 2.1 in operation you refresh profiles for CICS regions by means of the RACF SETROPTS RACLIST(*classname*) REFRESH command.

Change to operation of the EXEC CICS DISCARD PROGRAM command

In earlier releases of CICS/ESA, CICS checks the table of installed transaction definitions and disallows the DISCARD PROGRAM command if the program is the initial program for a transaction.

In CICS/ESA 4.1, this check is not made, and therefore the INVREQ response with a RESP2 value of 12 is no longer returned to an application.

If you discard a program that is referenced by an installed transaction definition, an error results when the relevant transaction is run, indicating that the program can't be found. However, if autoinstall is active, the discarded program is autoinstalled again the first time a transaction needs it.

In CICS/ESA 4.1, the following RESP2 values are not returned on the INVREQ condition:

RESP2	Meaning
12	The program is named in the program control table (PCT)
13	The program is named in the program list table (PLT)
14	CICS is unable to load the PLT
16	The deletion of the program is unsuccessful

If a program deletion fails for reasons other than those listed in the *CICS/ESA System Programming Reference* manual, CICS abends the transaction with an AEXZ abend.

Addition of program load status

When a request is made for a program (for example, a LINK or a LOAD command is issued), CICS searches the DFHRPL concatenation of libraries for the requested program. To remove the need for CICS to repeat time-consuming library searches for programs that are known not to be in the library, CICS maintains a program load status. Program manager checks this load status before searching the library for the requested program.

The load status of a program is maintained in the program's definition as one of the following values:

Status	Meaning
LOADABLE	means that the program has been successfully loaded. (It may no longer be in storage if its use count is zero, but it has at least been loaded once, and is therefore known to be loadable.)
NOT_LOADED	means that the program definition only has been installed, and no attempt has yet been made to load the program.
NOT_LOADABLE	means that the search for the program has failed, and a PGMIDERR condition is returned with EIBRESP2=3. You can reset NOT_LOADABLE to NOT_LOADED by means of a SET PROGRAM(prgmid) NEWCOPY or SET PROGRAM(prgmid) PHASEIN command. When program manager finds the status is NOT_LOADABLE, it rejects the request immediately without calling the loader domain to load the program.

Changes to EXEC CICS SET PROGRAM processing

There are three additional reasons why CICS can raise the INVREQ condition, each with a new EIBRESP2 value, as follows:

Condition	RESP2	Meaning
INVREQ	17	You have specified an invalid option for a remote program. You cannot specify any of the following for a remote program: CEDFSTATUS (or CEDF or NOCEDF); EXECUTIONSET (or DPLSUBSET or FULLAPI); SHARESTATUS (or PRIVATE or SHARED); or COPY (or NEWCOPY or PHASEIN).
INVREQ	18	You have specified an invalid option for a mapset. You cannot specify any of the following for a mapset: CEDFSTATUS (or CEDF or NOCEDF); EXECUTIONSET (or DPLSUBSET or FULLAPI);
INVREQ	19	You have specified an invalid option for a partitionset. You cannot specify any of the following for a partitionset: CEDFSTATUS (or CEDF or NOCEDF); EXECUTIONSET (or DPLSUBSET or FULLAPI);

Changes to EXEC CICS INQUIRE PROGRAM LANGUAGE processing

APAR PN79813

Documentation for PN79813 added on 23 July 1996

On an EXEC CICS INQUIRE PROGRAM LANGUAGE command, the language is the defined language, taken from the resource definition. On an EXEC CICS INQUIRE PROGRAM LANGDEDUCED command, the language is that in which the module is written if known, or the defined language from the resource definition if not. CVDA values returned are:

- COBOL, LE370, C, PLI or PL1, and ASSEMBLER for supported languages
- NOTAPPLIC for remote programs
- NOTDEFINED when the program definition does not specify a language.

If CICS cannot determine a language, it returns the language specified in the program definition. The CVDA values returned are:

- COBOL, LE370, C, PLI or PL1, and ASSEMBLER for supported languages
- NOTAPPLIC for remote programs
- NOTDEFINED when the program definition does not specify a language.

New parameters

There are extensions to the system programming interface in the form of new parameters on existing commands and the addition of some new commands. There are also some extensions to CVDA values.

These are all described in the *CICS/ESA Release Guide*.

Many of the changes are designed to provide access to CICS state data that is no longer available by accessing CICS control blocks. If you have application

programs that rely upon addressability to the CSA or TCA to access CICS data, you must change these programs to use the new INQUIRE commands instead.

Note that CSA and TCA addresses are no longer passed as parameters to global user exit programs; see Chapter 6, “The global user exit programming interface” on page 41 for details.

Chapter 6. The global user exit programming interface

This chapter contains Product-sensitive Programming Interface information.

This chapter deals with the effect of changes to the global user exit programming interface.

Reassembling global user exit programs

The CICS global user exit programming interface is product sensitive, and is dependent on the detailed implementation of CICS/ESA 4.1. All global user exit programs must be reassembled against the CICS/ESA 4.1 libraries after you have modified them for any changes to parameters.

You should note the changes summarized in this chapter and described in detail in the other CICS/ESA 4.1 publications, and modify your global user exit programs accordingly. Note particularly that:

- The **standard** global user exit parameter list is changed for all global user exits.
- The **exit-specific** parameter lists are changed for a number of global user exit points.

When you have completed your program changes, you must reassemble ***all*** global user exit programs.

Changes to the standard parameter list

The standard global user exit parameter list, which is mapped by the DFHUEPAR DSECT and generated by the DFHUEXIT macro, is changed. The UEPCSA and UEPTCA parameters are reserved fields, and are defined as follows:

```
UEPTCA   DS    A           (reserved)
UEPCSA   DS    A           (reserved)
```

These two fields point to fetch-protected storage in all the AP domain global user exit points. Any reference to these fields in AP domain global user exit programs causes an ASRD abend at run time. For all the other domain global user exits, the fields are set to zero values as in earlier releases.

You should re-examine your reasons for using these parameters, and where applicable choose a suitable alternative method to access the information you require.

If you have used the CSA and TCA to gain addressability to other CICS control blocks in order to obtain CICS state data, you must now use an exit-specific parameter or an exit programming interface (XPI) call. CICS/ESA 4.1 provides some new exit-specific parameters. It also provides the following new XPI calls, which are designed to provided access to CICS state data:

INQ_APPLICATION_DATA For inquiring on application data in the AP domain.

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INQUIRE_SYSTEM For inquiring on system data in the AP domain.

INQUIRE_TRANSACTION For inquiring on transaction data in the transaction manager domain.

INQUIRE_CURRENT_PROGRAM For inquiring on program data in the program manager domain.

For programming information about these XPI calls, see the *CICS/ESA Customization Guide*.

Changes to exit-specific parameter lists

There are changes to exit-specific parameter lists at the following global user exit points:

- XDBDERR and XDBFERR (⋆)
  XDBIN and XDBINIT (⋆)
- XEIIN and XEIOUT
- XFCREQ and XFCREQC (⋆)
- XICREQ
- XKCREQ
- XMNOUT
- XPCREQ and XPCREQC (⋆)
- XSTOUT
- XTCATT
- XTSREQ
- XRCFCER and XRCINIT (⋆)
  XRCINPT and XRCOPER (⋆)
- XRMIIN and XRMIOUT

All of the exits marked with (⋆) are EXEC interface-level exits, and these all have the following parameter added to their exit-specific parameter list:

UEPRECUR Address of a half-word binary field containing the usage recursion count.

If you are using API or SPI commands in global user exit programs in any of the EXEC interface-level exit points, you should use the recursion count parameter. See “API and SPI commands in EXEC interface program exits” on page 45 for more information.

The other changes to exit-specific parameter lists are described in the following sections.

Exit-specific parameter list for XEIIN and XEIOUT

The following exit specific parameters are added:

UEPEXECB Address of the EXEC interface block (EIB)

UEPUSID Address of the task userid

UEPPGM Address of 8-byte storage area containing the application program name

UEPLOAD The load address of the application program

UEPRSA Address of the application program's register save area.

For XEIOUT, the exit-specific parameter UEPGROUP is removed.

Exit-specific parameter list for XICREQ

In earlier releases the interval control program exit, XICREQ, does not have any exit specific parameters. The following are added in CICS/ESA 4.1:

UEPICRQ1 Address of a 1-byte field containing a copy of TCAICTR.
UEPICRQ2 Address of a 1-byte field containing a copy of TCAICTR2.

The following exit specific parameters are incorporated into CICS/ESA 4.1, having been added to CICS/ESA 3.3 by PTF UN28246:

UEPICQID Address of request id on the request.
UEPICTID Address of the terminal id on an EXEC CICS START.
UEPICTI Address of the transaction id on an EXEC CICS START.

Exit-specific parameter list for XMNOUT

The following parameter is added to the exit-specific parameter list for XMNOUT:

UEPSRCTK Address of the MVS workload manager service reporting class token for the current transaction.

As a result of the restructure of parts of CICS, the parameters UEPTRANID and UEPUSER are no longer valid at task termination.

Exit-specific parameter list for XPCREQ and XPCREQC

In addition to the UEPRECUR parameter described earlier, the following parameter is also added to the exit-specific parameter list for XPCREQ and XPCREQC:

UEPTSTOK Address of a 4-byte token that is valid throughout the life of a task.

Exit-specific parameter list for XSTOUT

The buffer addressed by the exit-specific parameter, UEPSTATS, now contains one *or more* statistics records:

UEPSTATS Address of a buffer containing one or more statistics records. For unsolicited statistics, the buffer always contains one record; for other types of statistics, it can contain several records.

Change of function for XKCREQ

With the introduction of the transaction manager domain, XKCREQ is changed as follows:

- XKCREQ is now the task control program exit.
- It is not invoked for task attach (this function is replaced by the new transaction manager exit, XXMATT).
- It is invoked only for ENQUEUE and DEQUEUE functions.

  The reason for the invocation is indicated in the new exit-specific parameter, UEPENQFN, with equated values of `UEPENQ` (function is enqueue) and `UEPDEQ` (function is dequeue).

- The exit specific parameter list also includes the address and length of the resource referenced by the enqueue or dequeue function.

Change of function for XXRSTAT

With the introduction of support for VTAM single node persistent sessions, the default system action for the UERCNORM return code is determined by the reason for invoking the XXRSTAT global user exit.

1. **For XRF, in the event of a VTAM failure**: In this case, the system action for UERCNORM is that CICS continues processing as if the exit program had not been invoked.
2. **For VTAM persistent sessions, in the event of a predatory takeover**: In this case, the system action for UERCNORM is that CICS abends without a dump.

See the *CICS/ESA Customization Guide* for information about all the return codes for XXRSTAT.

User domain messages restriction in XMEOUT

There is an added restriction affecting XMEOUT global user exit programs.

Your XMEOUT user exit program must not attempt to reroute console messages produced by the user (US) domain to an intrapartition queue defined with a trigger level (TRIGLEV) value of anything other than zero. If the user domain is performing error recovery processing on behalf of a transaction, and console messages are produced, it is not possible to initiate a trigger level transaction until the error processing is complete.

Intersystem communication global user exits

The XISCONA global user exit provided in CICS/ESA 3.3 to help you manage intersystem queueing is invoked for function shipping requests only. A new exit point, XZIQUE, is invoked for function shipping, transaction routing, and other forms of intercommunication request.

The XISCONA exit continues to be supported for compatibility purposes. However, if you enable both exits, XISCONA and XZIQUE could both be driven for function shipping requests, which is not recommended. You should ensure that only one of these exits is enabled.

You can modify an XISCONA global user exit program, replacing its exit parameter list with the XZIQUE parameter list, for use at the XZIQUE exit point.

CICS provides a simple internal solution based on the values you specify for the QUEUELIMIT and MAXQTIME parameters on the connection definition for a link. These parameters are passed on the exit-specific parameter list to an XZIQUE global user exit program, which can modify any action indicated by these parameters.

The new EXEC interface global user exits

There are three pairs of global user exits introduced in CICS/ESA 4.1 for the CICS application programming interface in the AP domain (the EXEC interface). These are:

Interval control	Exits XICEREQ and XICEREQC
Transient data	Exits XTDEREQ and XTDEREQC
Temporary storage	Exits XTSEREQ and XTSEREQC

You should consider the effects of these global user exits on your existing global user exits.

These EXEC interface user exit points are in addition to the exit points provided on earlier releases of CICS, and do not change the existing user exits. However, user exit programs invoked via the existing user exit points can override changes made within the user exit programs invoked via the new exit points.

Temporary storage exit points, XTSEREQ and XTSEREQC

The temporary global user exit points XTSEREQ and XTSEREQC are designed to enable you to migrate, without application program changes, in a dynamic transaction routing CICSplex. For example, if you have transactions that share temporary storage queues, you can use the new exit points to enable dynamic transaction routing that avoids intertransaction affinity restrictions.

Security considerations

Global user exit programs at the XICEREQ, XTDEREQ, and XTSEREQ exits are invoked before any security checks.

API and SPI commands in EXEC interface program exits

CICS/ESA 4.1 supports the use of most API and all SPI commands in global user exit programs that are invoked at the EXEC interface-level.

The extension of permitted EXEC CICS commands applies to all the new and existing EXEC interface-level global user points, as follows:

- XDBDERR and XDBFERR — Dynamic transaction backout
- XDBIN and XDBINIT — Dynamic transaction backout
- XFCREQ and XFCREQC — File control
- XICEREQ and XICEREQC — Interval control
- XPCREQ and XPCREQC — Program control
- XTDEREQ and XTDEREQC — Transient data
- XTSEREQ and XTSEREQC — Temporary storage
- XRCFCER and XRCINIT — Restart transaction backout
- XRCINPT and XRCOPER — Restart transaction backout
- XRMIIN and XRMIOUT — Resource manager interface

The API commands that are *not* supported are shown in Table 22 on page 46.

Table 22. API commands not supported in global user exits	
Command	**Exit points**
EXEC CICS ABEND	All exits
EXEC CICS RETURN	All exits
All EXEC DLI All EXEC SQL All CALL DLI	XRMIIN and XRMIOUT

Recursion warning: The extension of permitted EXEC CICS commands increases the risk of recursion in your global user exits programs. You must take care when issuing recursive commands not to cause a loop.

To control recursion, you should use the new recursion count parameter, UEPRECUR, which is included in the exit specific parameter list of all EXEC-level exits.

For programming information about global user exits, see the *CICS/ESA Customization Guide*.

The new BMS global user exits

APAR PQ12071

Documentation for PQ12071 added on 9 March 1998.

There are two new BMS global user exits:

XBMIN This exit allows you to intercept a RECEIVE MAP request, after BMS has successfully processed it, if the referenced map contains at least one field that specifies VALIDN=USEREXIT, and at least one USEREXIT field is returned in the inbound data stream.

XBMOUT This exit allows you to intercept a SEND MAP request, after BMS has successfully processed it, or, if cumulative mapping is in progress, on completion of each page of output.

These BMS user exits require BMS maps generated using the modified BMS macros that enable maps to specify VALIDN=USEREXIT. See the *CICS/ESA Application Programming Reference* for details of the VALIDN parameter on the DFHMDF, DFHMSD, and DFHMDI BMS macros.

CICS/ESA 3.3 service changes

A number of other changes to global user exits, applied by service to CICS/ESA 3.3, are incorporated into CICS/ESA 4.1. These are described briefly in the following sections.

Changes to XDLIPRE and XDLIPOST

An additional type-of-request value on the exit-specific parameter, UEPTYPE, was added by PTF UN38433 to exit points XDLIPRE and XDLIPOST. The equated value for the additional type-of-request indicator is:

UEPSHIP The request has been function shipped from another region. When this value is set, restrictions apply to the setting and use of the other exit-specific parameters; programming information about this is in the *CICS/ESA Customization Guide*.

Changes to XTCATT

The following parameter was added to the exit-specific parameter list for XTCATT by PTF UN49322:

UEPTRAN Address of the 4-byte transaction identifier.

Changes to XTSREQ

The following parameter was added to the exit-specific parameter list for XTSREQ by PTF UN23957:

UEPTSDI Address of the 8-byte temporary storage queue name.

Changes to XFCSREQ and XFCSREQC

An additional request indicator was added to the exit-specific parameter list for XFCSREQ and XFCSREQC by PTF UN50065:

UEPFSREQ This indicator, previously a 1-byte field, increased to 2 bytes to provide information about the type of file-close request (in the second byte). The equated values for the second byte are:

UEPFSNC Normal close
UEPFSCP Close pending
UEPFSELM End of load mode close.

New exits

The following new exits were added:

XAKUSER Added by PTF UN44378
XFCNREQ Added by PTF UN46773

Chapter 7. The exit programming interface

This chapter contains Product-sensitive Programming Interface information.

Reassembling global user exit programs

The previous chapter has explained that you must reassemble all global user exit programs for CICS/ESA 4.1. Changes to the exit programming interface means that you may also need to make changes to global user exit programs that contain XPI calls.

Changes to existing XPI macro calls

There is a change to the PROGRAM_TOKEN and NEW_PROGRAM_TOKEN parameters provided on the following DFHLDLDX macro calls to the loader domain:

- DEFINE_PROGRAM
- ACQUIRE_PROGRAM
- RELEASE_PROGRAM

The length of the parameters on these DFHLDLDX macro calls is changed from 8 bytes to 4 bytes. Existing global user exit programs containing these calls with an 8-byte token will assemble, but you are recommended to change to 4-byte tokens. This avoids problems that could arise if tokens are compared, because the last 4 bytes will be undefined.

Note: The change from 8-byte to 4-byte tokens is made to improve the performance of the loader interface.

New parameter on existing XPI functions

There is an additional parameter provided on two of the dispatcher function calls, in support of the MVS workload manager. These are summarized in Table 23.

Table 23. New parameter on dispatcher functions

Macro	Function	Parameter
DFHDSSRX	SUSPEND and WAIT_MVS	WLM_WAIT_TYPE Specifies the reason for suspending the task, or for the wait on an ECB.

New XPI function calls

There are some new function calls provided, summarized in Table 24.

Table 24 (Page 1 of 2). New XPI function calls

Function	Macro	Function call
Kernel domain	DFHKEDSX	START_PURGE_PROTECTION STOP_PURGE_PROTECTION

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Table 24 (Page 2 of 2). New XPI function calls

Function	Macro	Function call
State data access	DFHSAIQX	INQUIRE_SYSTEM SET_SYSTEM
	DFHAPIQX	INQUIRE_APPLICATION_DATA
Storage control	DFHSMMCX	INQUIRE_ELEMENT_LENGTH INQUIRE_TASK_STORAGE
	DFHSMSRX	INQUIRE_SHORT_ON_STORAGE SWITCH_SUBSPACE
Transaction manager	DFHXMSRX	INQUIRE_DTRTRAN INQUIRE_MXT
	DFHXMCLX	INQUIRE_TCLASS
	DFHXMXDX	INQUIRE_TRANDEF
	DFHXMIQX	INQUIRE_TRANSACTION SET_TRANSACTION
Program manager	DFHPGISX	INQUIRE_PROGRAM INQUIRE_CURRENT_PROGRAM SET_PROGRAM START_BROWSE_PROGRAM GET_NEXT_PROGRAM END_BROWSE_PROGRAM
+	DFHPGAQX	INQUIRE_AUTOINSTALL SET_AUTOINSTALL

Chapter 8. The task-related user exit programming interface

This chapter contains General-use Programming Interface information.

This chapter deals with the effect of changes to the task-related user exit interface.

Changes to the standard user exit parameter list, DFHUEPAR

There is one new parameter added to the standard user exit parameter list for task-related user exits—a performance block token for workload management—and two others are withdrawn.

Performance block token added to DFHEUPAR

A new parameter is added to the task-related user exit parameter list, DFHUEPAR, as follows:

UEPPBTOK Address of the performance block token used for workload management, to enable resource managers to relate their own performance blocks for the work request with the original CICS performance block. For example, DBCTL and DB2 need to correlate the work they do on behalf of CICS with the originating CICS task, so that MVS workload manager can measure the performance of the whole CICS task.

CSA and TCA addresses withdrawn from DFHUEPAR

The addresses of the CSA and TCA are withdrawn, and the UEPCSA and UEPTCA parameters are now reserved fields, defined as follows:

```
UEPTCA   DS    A            (reserved)
UEPCSA   DS    A            (reserved)
```

These two fields point to fetch-protected storage and cause an ASRD abend if referenced by a task-related user exit program.

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Chapter 9. User-replaceable modules

This chapter contains Product-sensitive Programming Interface information.

Reassembling user-replaceable modules

There are some changes in this release to the user-replaceable module interface. You should check whether these changes affect your own customized modules, and make any necessary changes.

You must reassemble all user-replaceable modules, whether or not you make any changes to them. This includes modules such as your terminal autoinstall program, which is also affected by the application of PTF UN84399 (for APAR PN73905): see “Autoinstall interface” on page 54 for more information about this APAR.

DFHACEE obsolete

The user-replaceable security identification program, DFHACEE, which is used in earlier releases to obtain an address space's userid, is withdrawn. In CICS/ESA 4.1, most CICS programs that need to know their caller's userid obtain this by invoking the RACROUTE REQUEST=EXTRACT macro. For details of the purposes for which CICS invokes this macro, see the *CICS/ESA CICS-RACF Security Guide*. In those cases where CICS invokes the REQUEST=RACROUTE macro, you can customize the userid by using the MVS security router exit, ICHRTX00, to initialize the relevant ACEE fields.

Exceptions to the use of the RACROUTE REQUEST=RACROUTE macro are the CICS interregion communication program (DFHIRP) and the external CICS interface (EXCI) program request handler (DFHXCPRH). Because of performance or authorization considerations, both DFHIRP and DFHXCPRH obtain their caller's userid directly from the appropriate accessor environment element (ACEE). Thus for MRO logon, bind, and link security signon functions, you cannot “customize” the CICS region userid, as you can in earlier releases using DFHACEE. This change affects those CICS regions running under an earlier release that rely DFHACEE to simulate “equivalent systems” in an MRO environment. This inability to specify equivalent systems by customizing userids affects only earlier releases of CICS that communicate through the CICS/ESA 4.1 DFHIRP. CICS/ESA 4.1 regions can specify the region userid parameter on the SESSIONS resource definition to define equivalent systems; see the *CICS/ESA CICS-RACF Security Guide* for more information about MRO security and equivalent systems definition.

Note: Earlier releases of CICS continue to use DFHACEE for purposes other than MRO, therefore do not delete from your libraries versions of the DFHACEE module needed for earlier releases of CICS.

Note also that to use the shared data table facility to access data owned by a CICS/ESA 3.3 FOR, a CICS/ESA 4.1 AOR must be able to invoke the CICS 3.3 version of DFHACEE. The simplest way to ensure this is to install DFHACEE in an APF-authorized library in the MVS link list. Installing DFHACEE in an authorized link-list library is also necessary, in earlier releases of CICS, to use the CICS DL/I shared database facility.

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The system authorization facility (SAF) and the SAF router are present on all MVS systems, even if RACF is not installed. Although the SAF router is not part of RACF, many system components and programs, such as CICS, invoke RACF through the RACROUTE macro and the SAF. Therefore, installations can modify RACF parameter lists and customize security processing within the SAF router. For information about how to code a SAF router exit, see the *External Security Interface (RACROUTE) Macro Reference (MVS and VM)* manual, GC28-1366.

Autoinstall interface

APAR PN73905

Documentation for PN73905 added on 30 July 1996

The autoinstall interface is affected by changes to the communications area (COMMAREA) and also by the application of PTF UN84399 for APAR PN73905.

Changes to the COMMEREA

The communications area (COMMAREA) passed to an autoinstall user-replaceable module is extended to support autoinstall for APPC connections.

The assembler copybook, DFHTCUDS, which provides the DSECT to map the COMMAREA, is changed to include the parameters for the new APPC functions. This updated copybook, supplied in CICS410.SDFHMAC, is included in 2 CICS autoinstall user-replaceable modules:

DFHZATDX The default assembler program for autoinstalling terminals only. Although this includes the new copybook, DFHZATDX does not use the new functions and the logic is unchanged from CICS/ESA 3.3.

DFHZATDY The default assembler program for autoinstalling terminals *and* APPC connections. DFHZATDY is a modified version of DFHZATDX, and includes logic to use the new APPC autoinstall function.

The COBOL, PL/I, and C versions of DFHTCUDS are unchanged, and support the basic autoinstall for terminals only.

APAR PN73905

Applying PTF UN84399 for APAR PN73905 requires changes to the autoinstall user replaceable module. The effects of applying the PTF for this APAR are as follows:

- The autoinstall program is now executed when shipped terminals and APPC definitions are installed and deleted. Changes are made to the sample program to give you the opportunity to perform processing when shipped terminal definitions and APPC definitions are installed or deleted.
- Transaction routing might fail with abend AZVR. This can happen if your terminal autoinstall user program has not been re-assembled.
- Transaction routing failures can also occur if code changes made to the sample autoinstall program DFHZATDX are not incorporated into your customized version of the program.

+ Review the changes made by PTF UN84399, make any necessary changes to your
+ auotinstall program and reasssemble and link-edit it.

The program error program (PEP) interface

The COMMAREA passed to DFHPEP is extended to include information from the task abend control block (TACB) for errors that relate to transaction isolation.

The COMMAREA, which is mapped by the DFHPCOM DSECT, includes some new EQUATE values for the storage areas affected in ASRA abends. The new EQUATES are as follows:

```
*
PEP_COM_STORAGE_HIT           DS     X         storage type referenced
*                                              in abend (ASRA only)
 .
PEP_COM_RDSA_HIT              EQU    4         RDSA hit
PEP_COM_EUDSA_HIT             EQU    5         EUDSA hit
PEP_COM_UDSA_HIT              EQU    6         UDSA hit
```

The COMMAREA also includes a new field, with associated EQUATES, to indicate whether the abending task was executing in the base space or a subspace. The details of this, mapped by DFHPCOM, are as follows:

```
*
PEP_COM_SPACE                 DS     X
*
PEP_COM_NOSPACE               EQU     0
PEP_COM_SUBSPACE              EQU    10
PEP_COM_BASESPACE             EQU    11
*
```

For ASRA, ASRB, AICA, and AEYD abends, PEP_COM_SPACE is always PEP_COM_BASESPACE if transaction isolation is not active. For all other abends, PEP_COM_SPACE is always PEP_COM_NOSPACE.

The transaction restart interface

The transaction retry program, DFHRTY, is obsolete in CICS/ESA 4.1 and is replaced by a new user-replaceable module, DFHREST. If you have a customized version of DFHRTY, and you want to continue using similar function in CICS/ESA 4.1, you must replace your DFHTRY with a customized version of DFHREST. DFHREST is introduced as part of the transaction manager restructure, and is invoked by the transaction manager domain.

The source of the default transaction restart program, DFHREST, is supplied in assembler language only, in the CICS410.SDFHSAMP library. The assembler copybook for mapping the COMMAREA, DFHXMRSD, is provided in the CICS410.SDFHMAC library.

Note: Although the default transaction restart module is supplied in assembler only, you can write your transaction restart program in any of the supported languages. The COMMAREA structures for the other supported languages are supplied in the copybooks DFHXMRSH (C), DFHXMRSO (COBOL), and DFHXMRSP (PL/I).

The dynamic transaction routing interface

The user-replaceable dynamic transaction routing program is invoked by a new CICS relay program, DFHAPRT, which replaces DFHCRP. The dynamic transaction routing mechanism is enhanced to enable your dynamic transaction routing program to maintain more information about the state of routed transactions.

There are no changes to the default user-replaceable module, DFHDYP, but the dynamic transaction routing COMMAREA is extended in CICS/ESA 4.1. DFHAPRT passes information to your dynamic transaction routing program through this enhanced COMMAREA. The new parameters are:

DYRABCDE The abend code returned when a remote a or local routed transaction abends.

DYRCABP Indicates whether or not you want CICS to continue standard abend processing.

DYRDTRRJ Reject or accept indicator for a transaction that is running under the DTRTRAN transaction resource definition.

DYRDTRXN Indicates whether the transaction is running under the DTRTRAN transaction resource definition.

DYRLPROG The name of the initial program to be invoked for the transaction if the transaction is to be run in the local region (the terminal-owning region).

DYRNETNM The NETNAME of the CICS region identified by DYRSYSID.

DYRPRTY The dispatch priority of the transaction to be routed.

DYRRTPRI Indicates whether to pass the transaction's priority to the application-owning region.

DYRSRCTK The MVS workload manager service and reporting class token for the transaction to be routed.

DYRUSER A 128-byte user area.

DYRVER The version number of the dynamic transaction routing interface.

If you plan to stop using transaction definitions in your terminal-owning regions, and use the dynamic routing transaction definition instead, your dynamic transaction routing program must reset the new DYRDTRRJ parameter to allow transactions to be routed.

In addition to the new parameters passed on the dynamic transaction routing COMMAREA, there are some new values passed on the existing parameters DYRRETC and DYRERROR. You should check the logic of your dynamic transaction routing program with regard to these new values and ensure that your program handles them correctly.

Changes to the dynamic transaction routing program invocation

The dynamic transaction routing program is called in the following situations:

- When a transaction defined with the value DYNAMIC=YES is initiated.
- Before routing a terminal-oriented, remote, automatically-initiated (by ATI), transaction.

- When an error occurs in route selection.
- When a routed transaction terminates, if the initial invocation requests re-invocation at termination.
- When a routed transaction abends, if the initial invocation requests re-invocation at termination. This re-invocation of a response is returned to the CICS transaction manager to indicate that an abend occurred.

Note: A CICS/ESA 4.1 dynamic transaction routing program can route to earlier releases of CICS.

See the *CICS/ESA Customization Guide* for programming information about user-replaceable modules.

Part 2. Migration considerations for changed function

This part of the book deals with migration considerations for each of the main items of changed function in CICS/ESA 4.1. The topics covered are as follows:

- Chapter 10, “Dynamic storage management” on page 61
- Chapter 11, “Multiregion operation (MRO)” on page 67
- Chapter 12, “Security” on page 71
- Chapter 13, “Monitoring and statistics” on page 79
- Chapter 14, “CICS DB2 attachment” on page 85
- Chapter 15, “Prerequisite program products” on page 89

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Chapter 10. Dynamic storage management

This chapter deals with aspects of migration relating to CICS dynamic storage management.

Specifying CICS dynamic storage

The transaction isolation facility is designed to enable you to migrate your applications to CICS/ESA 4.1 and, without any application changes, obtain the benefit of the new function. If you have the required hardware and software installed, the supplied defaults ensure that transactions are automatically protected (ISOLATE(YES) is the default on transaction resource definitions).

However, until you are ready to use transaction isolation, you should migrate with TRANISO=NO defined as a system initialization parameter. Initially, this makes it easier to estimate the storage allocations you need for CICS dynamic storage areas. The CICS dynamic storage discussions in this chapter assume TRANISO=NO.

Estimating the EDSALIMIT

This section discusses two possible methods for calculating the EDSALIMIT if you are migrating from CICS/ESA 3.3.

Note: Given that it is probably impossible to calculate an exact figure for this storage limit, you are recommended always to err on the high side and use a too high a value, rather than too small. You can always reduce the limit while CICS is running using either the CEMT SET SYSTEM command or the SPR equivalent. If you set too low a value initially, CICS could get into so severe a short-on-storage condition that you may not be able to run CEMT in order to increase the storage limit. The first method is a simple method that involves little effort, and gives you an estimate that generally errs on the high side. It assumes that you are migrating from CICS/ESA 3.3, and is based on the values you specify on the ECDSA, ERDSA, and EUDSA system initialization parameters.

The second method is based on actual usage of storage, obtained from storage manager statistics, instead of the ECDSA, ERDSA, and EUDSA system initialization parameters, and is intended to keep the EDSALIMIT estimate as low as possible.

In each of the two methods discussed, we use two constants—one for task-lifetime storage and the other for kernel stack storage:

- Without transaction isolation, CICS allocates user-key task-lifetime storage above 16MB in multiples of 64KB, and each of the following methods assumes that the initial allocation of 64KB is sufficient for most tasks.

  Note: The allocation of task-lifetime storage for user transactions should not be confused with the preallocation of the individual dynamic storage areas within the EDSALIMIT. CICS preallocates all EDSA extents in multiples of 1MB.

- CICS acquires about 100K of non-DSA storage for kernel stack storage above 16MB early in initialization. The remainder of kernel stack storage is allocated

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from CICS dynamic storage, and requires 12KB per task (see “Change to allocation of kernel stack segments” on page 64 for more information).

Method 1: The following formula uses your existing ECDSA, ERDSA, EUDSA, and MXT system initialization parameters, plus the constants for task-lifetime storage and kernel stack storage:

```
EDSALIMIT = (ECDSA value) + (ERDSA value) + (EUDSA value) +
              (64KB × MXT)  + (12KB × MXT)
```

Method 2: The following steps are a guide to calculating the EDSALIMIT using storage manager statistics:

1. For task-lifetime storage for user tasks, multiply 64KB by the maximum number of tasks you specify on the MXT system initialization parameter, and include the result in your calculation.
2. For kernel stack storage, multiply the MXT value by 12KB and include the result in your calculation.
3. Obtain the storage manager statistics from the CICS/ESA 3.3 region that you are migrating, and include the relevant peak storage figures in your calculation.
4. Use the values obtained from steps 1–3 in the following formula:

   ```
   EDSALIMIT = ( (Peak ECDSA used) + (Peak ERDSA used) + (Peak EUDSA used) )
               – (EUDSA Peak page storage in task subpools)
               + ( (64KB × MXT)  + (12KB × MXT) )
   ```

   Note: The allocation of task-lifetime storage, in multiples of 64KB per task, is different in this release. Hence the formula subtracts actual usage (“peak page storage in task subpools”) at the CICS/ESA 3.3 values, and adds the CICS/ESA 4.1 value (64KB × MXT). If your MXT value is much higher than it needs to be, you can substitute the “Peak number of tasks” value from the CICS statistics for the task-lifetime storage.

Estimating the DSALIMIT

When estimating the value for DSALIMIT, you have to consider how much storage is available in the private storage area below 16MB. The total storage available below 16MB has to satisfy two main requirements:

1. Storage from which CICS can allocate 4 dynamic storage areas
2. Storage to satisfy requests for non-DSA storage.

CICS acquires about 20KB only of non-DSA storage for kernel stack storage below 16MB early in initialization, the rest being acquired from CICS dynamic storage area subpools. Thus most of the allowance you made for kernel stack storage outside the DSAs in CICS/ESA Version 3 must now be added to your DSALIMIT estimate. (See “Change to allocation of kernel stack segments” on page 64.)

One method you can use to convert your CICS/ESA 3.3 DSA system initialization parameters to a DSALIMIT value is to take the sum of the CDSASZE and UDSASZE parameters and add to this an allowance for kernel stack storage, as follows:

```
DSALIMIT = (CDSASZE value) + (UDSASZE value) + (2KB × MXT)
```

Note: Without transaction isolation, CICS allocates storage for each of the DSAs below 16MB in 256KB increments, therefore you should round up your DSALIMIT parameter to a multiple of 256KB.

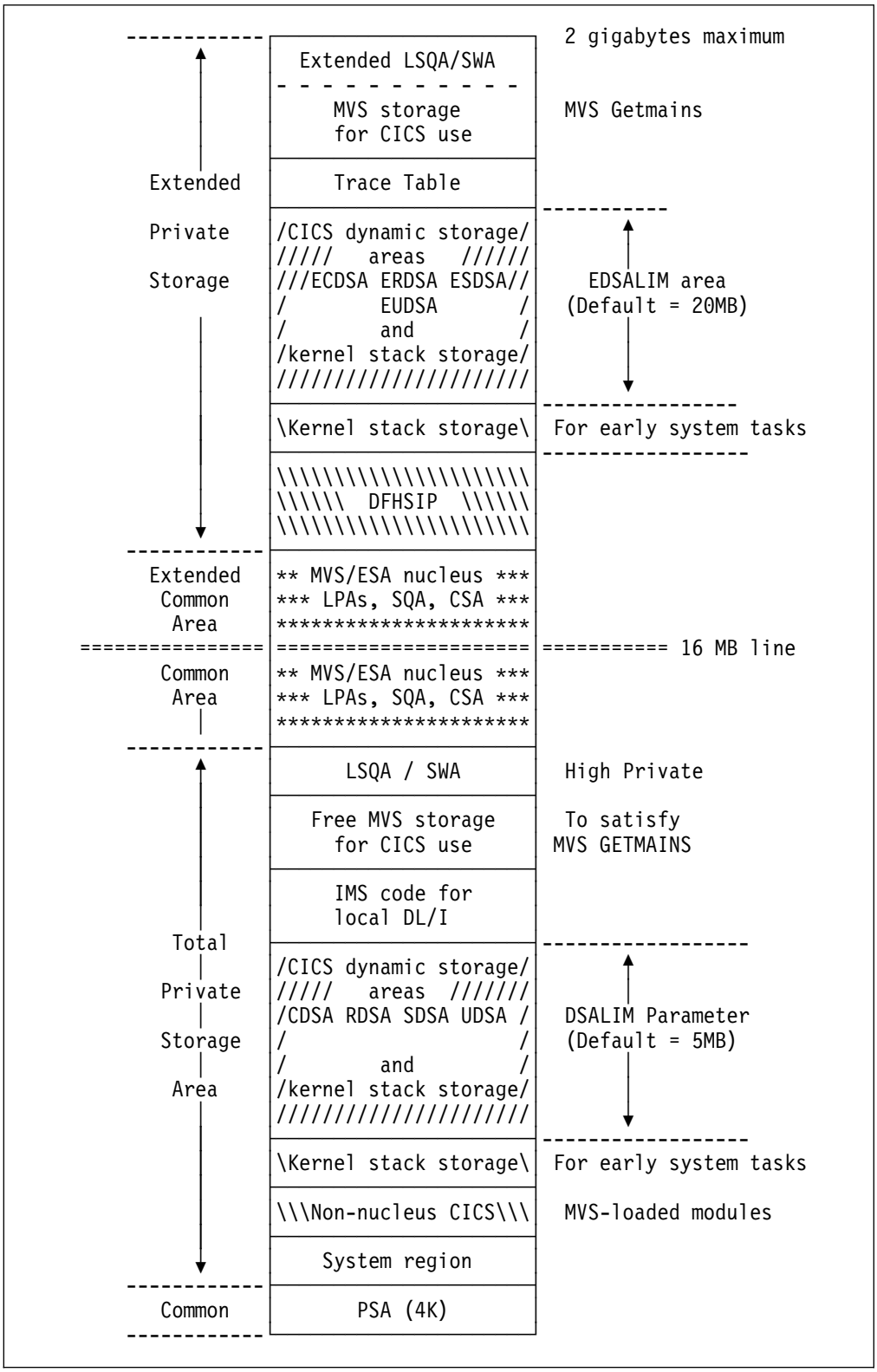

Figure 1. Conceptual view of main storage elements in CICS address space

Change to allocation of kernel stack segments

In earlier releases of CICS/ESA, the kernel domain obtained storage outside the CICS dynamic storage areas, both below and above 16MB, for use in controlling user and system tasks.

In CICS/ESA 4.1, storage allocations for kernel stack segments are changed significantly, both in size and location.

Storage for CICS system tasks

Kernel storage for CICS system tasks is allocated in two different ways:

1. Early in CICS system initialization, kernel stack storage is acquired for 8 system tasks from non-DSA storage above and below 16MB. This storage is preallocated and not freed.
2. The remainder of kernel storage is acquired from the CICS dynamic storage areas, below and above 16MB. This allocation of storage for system tasks is generally allocated dynamically when required, and freed on task termination.

   However, although this storage is dynamically managed, there could be up to 15 of these CICS tasks running at any one time. You should therefore allow for this number when calculating the dynamic storage limits.

Storage for user tasks

Unlike storage for system tasks, kernel stack storage for user tasks is not acquired dynamically—it is preallocated, from the dynamic storage areas. The number of kernel stack segments allocated corresponds to the maximum number of tasks specified on the MXT system initialization parameter.

Unlike earlier releases, however, storage is freed if the MXT limit is reduced.

Size of kernel stack segments

The size of the kernel stack storage segments is the same for both CICS system tasks and user tasks.

The storage per task below 16MB is 2KB, compared with 5KB in CICS/ESA Version 3.

The storage per task above 16MB is 12KB, compared with 8KB in CICS/ESA Version 3.

You should allow for this change when estimating the dynamic storage area limits.

The MVS REGION parameter

An important storage consideration when you set TRANISO=YES as a system initialization parameter is to ensure you specify enough user-key dynamic storage for the transaction isolation function. If you need to increase significantly the amount of storage you need for CICS dynamic storage areas, remember to check the REGION parameter in your CICS startup JCL.

You should specify a REGION parameter that gives you a large enough address space for CICS storage manager to satisfy all demands for storage.

Application development considerations

You need to consider some attributes of transactions and programs before deciding whether they can run with the default values on the resource definitions:

- Inter-transaction affinity

  If two transactions have an affinity by virtue of sharing task lifetime storage, they must either be defined as ISOLATE(NO), or the programs defined as EXECKEY(CICS). The first of these is the recommended option, because CICS system code and data is still protected.

- MVS macros

  MVS supports the use of only a small subset of its services for programs running in user key. Application programs that cannot be rewritten to remove these calls should execute in CICS key, which removes the benefit of CICS storage protection.

- CICS control block access

  If a transaction must have write access to CICS-key storage it also must be defined as EXECKEY(CICS).

Chapter 11. Multiregion operation (MRO)

This chapter covers migration to CICS/ESA 4.1 for MRO users, and the changes introduced by cross-system MRO (XCF/MRO). It covers the following topics:

- XCF/MRO
- Migrating to the CICS/ESA 4.1 interregion communication program (IRP)
- Security considerations
- Performance considerations.

XCF/MRO

There are no migration impacts with XCF/MRO.

Your existing resource definitions continue to work whether the MRO partner regions are in the same MVS image, or in different MVS images.

XCF/MRO works automatically when CICS/ESA 4.1 is installed in an MVS/ESA 5.1 environment, and the MVS images in which the various CICS MRO regions reside are established in a sysplex.

See *MVS/ESA SP V5 Setting Up a Sysplex*, GC28-1449, for more information about creating a sysplex.

Migrating to the CICS/ESA 4.1 DFHIRP

The CICS/ESA 4.1 DFHIRP is downwards compatible, and designed to work with all releases of CICS.

The following steps are a guide to migrating to CICS/ESA 4.1 MRO, with the latest DFHIRP and DFHCSVC modules installed in the MVS link pack area (LPA). For information about how to perform some of these steps, such as installing the SVS or IRP modules in the LPA, see the *CICS/ESA Installation Guide*. Note that these steps assume that RACF is your external security manager (ESM).

1. Install the CICS SVC
Install the CICS/ESA 4.1 CICS SVC routine, DFHCSVC, in the LPA, and specify a new CICS SVC number for this routine in the MVS SVCPARM table.

2. Test the CICS SVC
Test the new SVC on CICS/ESA 4.1 stand-alone regions, without using any MRO. You can do this running the CICS IVP, DFHIVPOL.

3. Install the IRP
Install the CICS/ESA 4.1 interregion communication program, DFHIRP, in a suitable LPA library, and IPL MVS (with the CLPA option).

4. Test current production release
Test your production MRO CICS regions, under your existing release of CICS, but using the new SVC number and DFHIRP. For this test, run without any logon or bind-time security checking—that is, do not define any RACF FACILITY class profiles.

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5. Define RACF FACILITY resource class profiles

Define the required DFHAPPL.*applid* profiles in the RACF FACILITY general resource class. When the profiles are ready for all the MRO regions, test the production regions again with the new SVC and DFHIRP, this time using the FACILITY class profiles for logon and bind-time security checking.

See “Security considerations” for information about security changes.

6. Cutover to production with the new IRP

If the production MRO regions successfully logon to the new IRP with the new SVC, and bind-time security checking works successfully, use the new DFHIRP and SVC for the production systems.

7. Test MRO with CICS/ESA 4.1 regions

With the production regions running successfully under the CICS/ESA 4.1 SVC and IRP, you can initialize and test some CICS/ESA 4.1 regions using MRO. These test regions can coexist in the same MVS image as the production regions, all using the same SVC and IRP.

Security considerations

The steps you take to migrate to CICS/ESA 4.1 MRO with logon and bind-time security checking depends on your ESM.

The security considerations described here assume that you are using RACF.

SECURITYNAME obsolete

The SECURITYNAME parameter on the MRO CONNECTION resource definition is obsolete, and the internal CICS MRO bind-time security check is replaced by two new MRO security checks. These both involve calls to the ESM, the first for logon to IRP, and the second for the bind to the partner CICS.

These security checks require DFHAPPL.*applid* profile definitions in the RACF FACILITY general resource class. These are described in the *CICS/ESA CICS-RACF Security Guide*.

Note: These definitions are identical to those needed for bind-time security when using CICS shared data tables support. See the Shared Data Tables Guide for information about the security requirements for shared data tables.

You do not need to remove the SECURITYNAME operand from your MRO connection definitions—they are ignored by CICS.

You should review your use of the SECURITYNAME parameter on all regions that are communicating through MRO links using the CICS/ESA 4.1 version of DFHIRP, for all MRO access methods (IRC, XM, and XCF). If you do not want to use IRP logon or bind-time security, do not define any DFHAPPL definitions. If the required profiles are not found, the logon and bind security checks succeed.

External security applies to all regions using the new DFHIRP

Once you install the CICS/ESA 4.1 DFHIRP into MVS, the external security mechanisms apply to all CICS regions using MRO, regardless of the release of CICS under which the regions are running.

Link security

Link security is also affected by the SECURITYNAME parameter being obsolete, and also by the withdrawal of DFHACEE, the user-replaceable module. Link security is controlled either by the link userid specified on the MRO SESSIONS definition, or by the CICS region userids that are used for bind-time security checking.

For information about the changes to link security, see Chapter 12, “Security” on page 71. See also Chapter 9, “User-replaceable modules” on page 53 for information about the effect of the withdrawal of DFHACEE.

DFHACEE obsolete

The user-replaceable MRO security identification program, DFHACEE, is withdrawn (although your earlier CICS releases may still need their version of DFHACEE for non-MRO security purposes). See Chapter 9, “User-replaceable modules” on page 53 for details.

Performance considerations

CICS no longer uses suspended (that is, semi-permanent) mirror transactions for MRO function-shipped requests, as in earlier releases, and therefore the MAXSMIR system initialization parameter is obsolete. You should consider the performance implications of this change on function shipping operations.

If you have file-owning regions that use semi-permanent mirrors (MAXSMIR≥1), but not long-running mirrors (MROLRM=NO), you should consider using permanent mirror transactions instead. Specifying MROLRM=YES ensures that mirror transactions remain attached to an MRO session until completion of the unit of work—that is, from the first function-shipped request until the calling transaction reaches a syncpoint. Long running mirrors avoid the overhead of re-establishing communication with the mirror transaction.

If you continue running with MROLRM=NO you may find, depending on the type of function-shipping requests being initiated by calling transactions, that performance is degraded. As a general rule, if your performance is better with semi-permanent mirrors (MAXSMIR≥1) you should specify MROLRM=YES.

See the *CICS/ESA Performance Guide* for more information about using long-running mirrors.

Chapter 12. Security

This chapter deals with aspects of migration relating to the changes in security. It covers the following topics:

- Changes to system initialization
- Changes affecting security of CICS system transactions
- Changes affecting non-terminal security
- Changes affecting user signon in remote MRO regions
- Changes affecting MRO security
- Changes affecting temporary storage security
- Changes affecting console operators
- Changes affecting LU6.2 security
- Changes affecting the rebuild of security profiles
- Change affecting resource security checking for application programs.

Note: This chapter assumes that the external security manager (ESM) is the IBM Resource Access Control Facility (RACF).

Changes to system initialization

The default system initialization parameter for security is SEC=YES, and all the security profile parameters, except XAPPC, also default to YES. This means that, unless you take specific action to authorize all users to the appropriate resources, or set security off, the only security authorities granted are those of the CICS default user. This could mean that most security authorizations will fail.

You must check all your security requirements, consult with your security administrator, and ensure that the necessary security profiles are defined to the external security manager.

SEC=MIGRATE removed

If you rely on SEC=MIGRATE to ensure that CICS security checks do not distinguish between READ and UPDATE intent, you must review users' access authorities.

You must grant UPDATE authority to users of transactions that update resources, otherwise transactions that run successfully under your current release (with SEC=MIGRATE) will fail in CICS/ESA 4.1.

Changes affecting security of CICS system transactions

Transaction-attach security checking is extended in CICS/ESA 4.1 and now includes the system tasks that CICS creates when attaching its category 1 transactions. These are exempt in earlier releases.

With the system initialization parameters SEC=YES and XTRAN=YES|*classname* specified, CICS issues a security check against a userid for *all* transactions (except for the special category 3 exempt transactions) at transaction-attach. For the CICS category 1 transactions, the security checks are performed early during CICS initialization against the CICS region userid. You must ensure that the userids under which you start your CICS regions are authorized to all the CICS

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transactions that CICS attaches as system tasks, otherwise system initialization fails.

Sample CLISTs for RACF definitions: To simplify the task of defining RACF transaction profiles for category 1 and category 2 system transactions, CICS provides two CLISTs, DFH$CAT1 and DFH$CAT2. These are supplied in CICS410.SDFHSAMP.

The security categories of CICS-supplied transactions are described in the *CICS/ESA CICS-RACF Security Guide*.

Changes affecting non-terminal security

Attach authority is required for non-terminal related transactions.

CICS/ESA 4.1 introduces transaction-attach security for non-terminal transactions. This means that when transaction security is active (with system initialization parameters SEC=YES and XTRAN=YES|*classname* specified), CICS always checks the authority of a userid when attaching a transaction, even when the transaction is not associated with a terminal. This extension to CICS transaction-attach security checking applies to:

- Transactions started when intrapartition transient data queues reach a trigger level
- Transactions started by an EXEC CICS START command.

Trigger-level transactions: If you migrate existing destination control tables that do not specify a userid for trigger-level transactions, CICS issues the transaction-attach security check against the CICS default userid.

Started transactions: Transactions started by the EXEC CICS START TRANSID command (without specifying a TERMID or USERID) inherit the userid associated with the initiating transaction.

The inherited userid must be authorized to attach the started transaction. This means you must authorize userids to attach started transactions, when previously they only needed authorization to issue the start command for the transaction (in the XPCT class).

Alternatively, you can customize RACF so that the transaction-attach check is always successful for non-terminal transactions, as described in the *CICS/ESA CICS-RACF Security Guide*

Specifying RESSEC and CMDSEC for non-terminal transactions

The RESSEC and CMDSEC options on transaction resource definitions control resource and command security checking on all transactions, including transactions that are attached without an associated terminal. The changes for non-terminal transactions are as follows:

- In earlier releases, if you specify resource or command security for a non-terminal transaction, the security check always fails because of the absence of a userid.

- In CICS/ESA 4.1, if you specify resource or command security checking for a non-terminal transaction, the security check succeeds or fails depending on the access authority of the user associated with the transaction.

CICS surrogate users

To control non-terminal security, and the use of the CEDA INSTALL command for the installation of terminals with a preset userid, CICS uses the surrogate user checking facility provided by RACF.

CICS uses this RACF facility to verify the authority of one user (the surrogate user) to submit a transaction, or install a preset terminal, on behalf of another user.

CICS performs surrogate user checks for:

- Non-terminal started transactions (that is, transactions initiated by an EXEC CICS START command that do not have an associated terminal).
- The install of DCT entries during CICS initialization, for transactions initiated by a trigger level that do not have an associated terminal. A surrogate check is also performed if a userid is dynamically set for a trigger-level DCT entry.
- The install of program list tables at CICS initialization (PLTPI tables).
- The install of terminals and sessions with preset security using the CEDA INSTALL command.

You do not have to extend your CICS security to use the surrogate user security checks, but if you do, you must ensure that the surrogate user profiles are defined for the appropriate userids. You enable surrogate user checking for non-terminal transactions, and for program list tables at initialization, by specifying XUSER=YES as a system initialization parameter. This is the default. To inhibit surrogate user checking, specify XUSER=NO.

The userids that must be authorized as surrogate users are:

CICS region userids
The CICS region userid must be authorized as a surrogate user of the following userids:

- All the userids specified on USERID parameters on DFHDCT TYPE=INITIAL and TYPE=INTRA macros for trigger-level transactions
- The CICS default userid for trigger-level transactions that do not specify a userid
- The userid specified on the PLTPIUSR system initialization parameter.

Userids of transactions that initiate START commands
Any user that runs a transaction that issues an EXEC CICS START command, without an associated terminal, must be authorized as a surrogate of the userid specified on the start command.

Userids of transactions that specify ATIUSERIDs
Any user of a transaction that issues an EXEC CICS SET TDQUEUE command to set a userid for DCT trigger-level transactions must be authorized as a surrogate of the userid specified on the ATIUSERID parameter.

Userids of users of some CEDA INSTALL commands

Any user that uses the CEDA INSTALL command to install terminals or sessions that have preset security must be authorized as a surrogate of the userids specified on the terminal or sessions definitions.

This function is controlled in previous releases by granting ALTER authority to the TERMINAL resource in the CCICSCMD general resource class.

Achieving compatibility with earlier releases

Because of the extent of the changes, you might need time to migrate gradually to the new security facilities offered by surrogate user checking. One option is to set up your security in a way that achieves compatibility with earlier releases. You can do this by defining suitable generic *userid*.DFHINSTL and *userid*.DFHSTART profiles in the RACF SURROGAT general resource class.

For example:

- You can initially ensure that all surrogate checks succeed on START commands by defining a profile for *.DFHSTART with UACC(READ), and progressively build profiles for specific users as required.
- You can ensure that no-one, unless properly authorized, can install terminals with preset security, by defining a profile for *.DFHINSTL with UACC(NONE). You should then authorize only those users that currently have ALTER authority to the appropriate TERMINAL class profiles.

+ ***Defining GENERIC profiles:*** To define generic profiles for the SURROGAT
+ general resource class you must first enable generic names for the class by issuing
+ the SETROPTS GENERIC(class_name).

+ For more information about defining profiles for resource classes used by CICS,
+ see the *CICS/ESA CICS-RACF Security Guide*.

Changes affecting user signon in remote MRO regions

There is a change to the way CICS signs on userids in remote regions, for MRO transaction routing and function shipping requests, where the connection specifies ATTACHSEC(IDENTIFY).

In earlier releases, a remote region passes its own specific APPLID to RACF when requesting authentication of the user signon. This requires that users must not only be authorized to the APPL profile of the terminal-owning region but also to the APPL profiles of any other CICS region to which their userid might be passed—on transaction-routing or function-shipping requests.

In CICS/ESA 4.1, all connected MRO regions pass to RACF the APPL profile name received from the local CICS region to which the terminal end user is signed on—the terminal-owning region. Thus users authorized to the APPL profile of the terminal-owning region to which they sign on are automatically authorized to all the MRO-connected regions in a CICSplex.

No change for APPC

Note that this change does not apply to transaction routing and function requests that are passed over APPC links (that is, LU6.2 ISC links). For users of APPC connections, userids are signed on as in earlier releases, and must therefore be authorized to the APPL profile of the receiving region.

The APPL profile name for terminal-owning regions

As part of the change to ensure users are automatically authorized to all the regions in the CICSplex, and to minimize security administration, a terminal-owning region uses either the VTAM generic resources name, or its generic APPLID if the system initialization parameter GRNAME is not specified. Thus if you are using a VTAM generic resources name in a CICSplex that has multiple terminal-owning regions, you need define only one APPL profile to RACF, and authorize all users of the CICSplex to that single APPL profile.

Changes affecting MRO security

There are changes that affect two areas of MRO security:

- MRO bind security
- MRO link security.

Changes to MRO bind security

The SECURITYNAME parameter is no longer used for MRO bind-time security checking, nor is it used for any other security purpose on MRO links. The old CICS internal bind-time security mechanisms are replaced by calls to an external security manager via the MVS SAF interface.

The CICS interregion communication program also uses the external security manager to check that CICS regions logging on to IRC are the regions they claim to be.

This change to MRO logon and bind-time security also applies to earlier releases of CICS that use the CICS/ESA 4.1 interregion communication program, DFHIRP. As soon as the CICS/ESA 4.1 DFHIRP is installed in the LPA, the ESM is used for bind security on all releases of CICS, even if no CICS/ESA 4.1 regions are active in the MVS image.

Changes to MRO link security

The SECURITYNAME parameter is obsolete for MRO connections. In CICS/ESA 4.1, the primary method for specifying the userid to be used for link security is the USERID parameter on the MRO SESSIONS definition.

To establish whether you want link security checking, or whether it is to be bypassed, CICS compares its *own* region userid with the link userid specified on the SESSIONS definition:

- If the userids are the same, link security checking is bypassed.
- If they are different, CICS “signs on” on the link userid specified on the SESSIONS definition, and uses this on all link security checks.

The default link userid: If you do not specify a link security userid on the SESSIONS definition, CICS uses the region userid of its partner as the default link userid. To establish whether you want link security checking, or whether it is to be bypassed, CICS compares its *partner's* userid with *own* region userid:

- If the userids are the same, link security checking is bypassed.
- If they are different, CICS "signs on" on its partner's region userid as the link userid and uses this for all link security checks.

When link security checking is bypassed, security checking is determined by the ATTACHSEC parameter on the connection definition. For information about the effect of the ATTACHSEC parameter, see Table 25.

Table 25. MRO Security Options

Link Security	ATTACHSEC	
	LOCAL	**IDENTIFY**
Yes	CICS ignores the userid associated with the transaction, and issues all security checks against the link userid only.	CICS issues two security checks: 1. Against the userid associated with the transaction 2. Against the link userid, ensuring that the transaction cannot access resources not authorized for the link.
Bypassed	CICS issues all security checks against the CICS default userid (the userid specified on the DFLTUSER system initialization parameter)	CICS issues security checks against the userid associated with the transaction.

See the *CICS/ESA CICS-RACF Security Guide* for recommendations for MRO link security.

+ **APAR PN63960**

+ Documentation for PN63960 added on 19 September 1996

+ ***Protocol changes affecting attach-time security:*** Some changes to CICS
+ implementation of the LU6.2 attach-time security, in conformance with the SNA
+ architecture, are applied also to MRO. (See the *CICS/ESA Release Guide* for
+ information about these changes.)

+ In particular, when an attach FMH-5 is received by CICS/ESA 4.1 over an
+ ATTACHSEC IDENTIFY link on an MRO connection, and the FMH5 does not
+ contain the expected userid, the result could be an abend ATCY. On earlier
+ releases:

+ - ATTACHSEC=IDENTIFY and no userid causes CICS to associate the user with
+ the CICS default userid.

+ To resolve this situation, the CONNECTION definition and (for APPC) the LU6.2
+ TERMINAL definition are changed to include a new parameter USEDFLTUSER.

+ See Chapter 2, “Resource definition (online) changes” on page 11 for details of the
+ USEDFLTUSER parameter.

+ Changes affecting temporary storage security

+ There is a change in the resource profile name that CICS passes to RACF for TS
+ queues defined with security.

+ If resource security is active for temporary storage queues, CICS passes the full
+ temporary storage queue name to the security manager. In previous releases,
+ CICS passes only the value specified on the DATAID parameter on the DFHTST
+ TYPE=SECURITY macro instruction. This change means that you should review
+ the profiles defined in the SCICSTST or UCICSTST resource classes and update
+ these definitions as necessary to account for the full temporary storage queue
+ name.

| Changes affecting console operators

| CICS/ESA 4.1 passes the console name to RACF as the “port-of-entry” name at
| signon. Users who need to signon to CICS from MVS consoles must be given
| READ access to a CONSOLE class profile of the same name as the console name.

| Changes affecting LU6.2 security

| The BINDPASSWORD option on connection resource definitions is obsolete in
| CICS/ESA 4.1, and is not available for bind security with CICS/ESA 4.1 regions. If
| you want to continue using bind security for LU6.2 connections, you must change
| to using the facilities provided by the APPCLU general resource class. To use this
| you must specify XAPPC=YES as a system initialization parameter, and define the
| appropriate APPCLU profiles to RACF.

| See the *CICS/ESA CICS-RACF Security Guide* for information about LU6.2 bind
| security using APPCLU profiles.

| Changes affecting the rebuild of security profiles

| You cannot use the EXEC CICS PERFORM SECURITY REBUILD or CEMT
| PERFORM SECURITY REBUILD commands to refresh RACF profiles in a
| CICS/ESA 4.1 region if RACF 2.1 is your ESM. For CICS/ESA 4.1 regions,
| refreshing profiles becomes a function of RACF, for which you use the RACF
| command `SETROPTS RACLIST(classname)` to update the profiles in RACF global
| storage.

| All CICS/ESA 4.1 regions begin using the refreshed profiles immediately the RACF
| command has been executed.

| For information about the effect this change has on the PERFORM SECURITY
| REBUILD SPI command, see “Change to operation of EXEC CICS PERFORM
| SECURITY command” on page 37.

Change affecting resource security checking for application program

In CICS/ESA 4.1, CICS does not perform the security check in the case of a distributed program link command, even when program resource checking is active. If CICS finds that a program referenced on an EXEC CICS LINK command is a remote program, it does not perform the security check in the local region. The security check is performed only in the CICS region in which the linked-to program executes.

For example, if CICSA function ships a DPL command to CICSB, where the program then executes, CICSB issues the security check. If the DPL request is function shipped again to CICSC for execution, it is CICSC that issues the security check.

Chapter 13. Monitoring and statistics

This chapter deals with aspects of migration relating to the changes to monitoring and statistics in CICS/ESA 4.1. It covers the following topics:

- Formats of the CICS/ESA SMF 110 records
- Monitoring and MVS workload management
- System initialization
- Statistics utility program

Formats of the CICS/ESA SMF 110 records

There are changes to CICS monitoring and statistics data for which you must plan when migrating to CICS/ESA 4.1. The CICS SMF 110 records have several new job-related fields (such as jobname), which are added to the SMF product section.

The changes to the CICS SMF 110 record formats could present migration implications for user- and vendor-written utilities that analyze and print the monitoring and statistics SMF records. The impact of the changes depends on how your utilities handle the SMF 110 records. If they use the offsets to CICS data sections correctly (the SMF triplets) the CICS/ESA 4.1 110 records are compatible with earlier releases. All the new fields are added to the end of the product section.

You should check any user-written utility programs that process CICS SMF records, to ensure that they can process the CICS/ESA 4.1 110 records correctly. If you have utility programs provided by independent software vendors, you should ensure that these also are able to handle CICS/ESA 4.1 110 records. To use the data extensions, utilities must be modified in all cases.

You can identify SMF 110 records from different releases by using the record-version field in the SMF product section. The CICS/ESA 4.1 positioning of this field is compatible with all previous releases of CICS/ESA.

SMF header and SMF product section

The SMF header describes the system that created the SMF data. The SMF product section identifies the subsystem to which the monitoring data relates, which, in the case of CICS monitoring (and also of CICS statistics), is the CICS region. Both the SMF header and the SMF product section can be mapped by the DSECT DFHSMFDS, which you can generate using the DFHMNSMF macro as follows:

```
DFHSMFDS DFHMNSMF PREFIX=SMF
```

The label 'DFHSMFDS' is the default DSECT name, and SMF is the default prefix value, so you could also generate the DSECT simply by coding:

```
DFHSMFDS
```

The DFHSMFDS DSECT has the format shown in Figure 2 on page 80.

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```
DFHSMFDS DSECT
SMFLEN   DS    XL2                Record length
SMFSEG   DS    XL2                Segment descriptor
SMFFLG   DS    X                  Operating system indicator
SMFESA   EQU   X'C0'               MVS/ESA fixed indicators
SMFRTY   DC    X'6E'              Record type 110 for CICS
SMFTME   DS    XL4                Time record moved
SMFDTE   DS    XL4                Date record moved (00YYDDD+)
SMFSID   DS    XL4                System identification
SMFSSI   DC    CL4'CICS'          Sub-system identification
SMFSTY   DS    XL2                Record subtype
SMFJCSTY EQU   X'0000'             - X'0000' For journaling
SMFMNSTY EQU   X'0001'             - X'0001' For monitoring
SMFSTSTY EQU   X'0002'             - X'0002' For statistics
SMFTRN   DS    XL2                Number of triplets in record
         DS    XL2                Reserved
SMFAPS   DS    XL4                Offset to CICS product section
SMFLPS   DS    XL2                Length of CICS product section
SMFNPS   DS    XL2                Number of CICS product sections
SMFASS   DS    XL4                Offset to CICS data section
SMFASL   DS    XL2                Length of CICS data section
SMFASN   DS    XL2                Number of CICS data sections
*        End of SMF-Header.

*        Start of JC SMF Product-section.
SMFPSRVN DS    XL2                Record version - see Note.
SMFPSPRN DS    CL8                Product name (Generic APPLID)
SMFPSSPN DS    CL8                Specific APPLID
SMFPSMFL DS    XL2                Record maintenance indicator
         DS    XL2                Reserved
SMFPSRSN DS    PL4                Record-number within Journal
SMFPSJID DS    X                  Journal identifier
SMFPSBKN DS    PL3                Record-number within Data Set
SMFPSLBW DS    XL4                Last-record address                +
                                   (Format is TTR0 under MVS)
SMFPSBAL DS    AL2                Track balance in BYTES
         DS    XL46               Reserved
SMFPSJBN DS    CL8                Jobname
SMFPSRSD DS    XL4                Job date
SMFPSRST DS    XL4                Job time
SMFPSUIF DS    CL8                User identification
SMFPSPDN DS    CL8                Operating system product level
SMFJCIDA EQU   *
         ORG   ,
*        End of JC SMF Product-section.
*        Start of MN SMF Product-section.
         ORG   SMFPSRVN
SMFMNRVN DS    XL2                Record version - see Note.
SMFMNPRN DS    CL8                Product name (Generic APPLID)
SMFMNSPN DS    CL8                Specific APPLID
SMFMNMFL DS    XL2                Record maintenance indicator
         DS    XL2                Reserved
SMFMNCL  DS    XL2                Class of data
SMFMNDCA DS    XL4                Offset to CICS field connectors
```

Figure 2 (Part 1 of 2). The format of the DFHSMFDS DSECT.

```
SMFMNDCL DS    XL2                 Length of each CICS field connectors
SMFMNDCN DS    XL2                 Number of CICS field connectors
SMFMNDRA DS    XL4                 Offset to first CICS Data record
SMFMNDRL DS    XL2                 Length of each CICS Data record
SMFMNDRN DS    XL2                 Number of CICS data records
         DS    XL20                Reserved
SMFMNTAD DS    XL4                 Local TOD clock adjustment
SMFMNLSO DS    XL8                 Leap-second offset - TOD format
SMFMNDTO DS    XL8                 Local time/date offset
         DS    XL2                 Reserved
SMFMNJBN DS    CL8                 Jobname
SMFMNRSD DS    XL4                 Job date
SMFMNRST DS    XL4                 Job time
SMFMNUIF DS    CL8                 User identification
SMFMNPDN DS    CL8                 Operating system product level
SMFMNIDA EQU   *
         ORG   ,
*        End of MN SMF Product-section.
*        Start of ST SMF Product-section.
         ORG   SMFPSRVN
SMFSTRVN DS    XL2                 Record version - See Note.
SMFSTPRN DS    CL8                 Product name (Generic APPLID)
SMFSTSPN DS    CL8                 Specific APPLID
SMFSTMFL DS    XL2                 Record maintenance indicator
         DS    XL2                 Reserved
         DS    XL2                 Reserved
SMFSTDTK DS    XL4                 Domain token
SMFSTDID DS    CL2                 Domain ID
SMFSTRQT DS    CL3                 USS/EOD/REQ/INT/RRT Stats type
SMFSTICD DS    CL3                 YES if incomplete data recorded
+
SMFSTDAT DS    CL8                 Collection date MMDDYYYY
SMFSTCLT DS    CL6                 Collection time HHMMSS
SMFSTINT DS    CL6                 Interval HHMMSS
SMFSTINO DS    XL4                 Interval NUMBER
SMFSTRTK DS    XL8                 Request token
SMFSTLRT DS    CL6                 Last reset time HHMMSS
SMFSTCST DS    XL8                 CICS start time STCK
SMFSTJBN DS    CL8                 Jobname
SMFSTRSD DS    XL4                 Job date
SMFSTRST DS    XL4                 Job time
SMFSTUIF DS    CL8                 User identification
SMFSTPDN DS    CL8                 Operating system product level
SMFSTIDA EQU   *
         ORG   ,
*        End of ST SMF Product-section.
```

Figure 2 (Part 2 of 2). Format of the SMF header and SMF product section

Note: The record version field is in the format X'0vrm' where ‘vrm’ have the following meanings:

```
v = Version
r = Release
m = Modification
```

New values in DFHSTIDS (statistics record identifiers)

This is the revised list of the five part header from DFHSTIDS report.

STID Symbolic name	STID Value	Copy book	Type of record
STISMDSA	2	DFHSMSDS	Storage manager DSA id
STISMD	5	DFHSMDDS	Storage manager domain subpool id
STISMT	6	DFHSMTDS	Storage manager task subpool id
STIXMG	10	DFHXMGDS	Transaction manager (global) id
STIXMR	11	DFHXMRDS	Transaction manager (Trans) id
STIXMC	12	DFHXMCDS	Transaction manager (Tclass) id
STIFEPIP	16	DFHA22DS	FEPI pool id
STIFEPIC	17	DFHA23DS	FEPI connection id
STIFEPIT	18	DFHA24DS	FEPI target id
STIVT	21	DFHA03DS	VTAM stats id
STIAUSS	22	DFHAUSDS	Terminal Autoinstall USS id
STIPAUTO	23	DFHPGGDS	Program Autoinstall id
STIAUTO	24	DFHA04DS	Terminal Autoinstall stats id
STILDR	25	DFHLDRDS	Loader (Resid) id
STIDBUSS	28	DFHDBUDS	DBCTL USS id
STILDG	30	DFHLDGDS	Loader (global) id
STIDTB	33	DFHA05DS	DTB statistics id
STITCR	34	DFHA06DS	Terminal control (resid) id
STILSRR	39	DFHA08DS	LSRPOOL pool stats (resid) id
STILSRFR	40	DFHA09DS	LSRPOOL File statistics (by file)
STITDQR	43	DFHA10DS	TDQUEUE (Resid) id
STITDQG	45	DFHA11DS	TDQUEUE (global) id
STITSQ	48	DFHA12DS	TSQUEUE statistics id
STIJCR	49	DFHA13DS	Journal control (Resid) id
STICONSR	52	DFHA14DS	ISC/IRC system entry (resid) id
STICONSS	54	DFHA21DS	ISC connection - system security
STIDS	56	DFHDSGDS	Dispatcher stats id
STIUSG	61	DFHUSGDS	User domain stats id
STITM	63	DFHA16DS	Table manager statistics id
STIST	66	DFHSTGDS	Statistics statistics id
STIFCR	67	DFHA17DS	File Control (resid) id
STIDLIG	72	DFHA25DS	DL/I (global) id
STIDLIR	73	DFHA18DS	DL/I (Resid) id
STIIRCB	75	DFHA19DS	IRC Batch statistics id
STICONMR	76	DFHA20DS	ISC/IRC mode entry (resid) id
STIMNR	80	DFHMNTDS	Monitoring stats (Resid) id
STIM	81	DFHMNGDS	Monitoring stats (global) id
STITDR	85	DFHTDRDS	Transaction dump (resid) id
STITDG	87	DFHTDGDS	Transaction dump (global) id
STISDR	88	DFHSDRDS	System dump (resid) id
STISDG	90	DFHSDGDS	System dump (global) id

Figure 3. Statistics data record copy books related to STID name and value

Monitoring and MVS workload management

If you are running CICS in an MVS/ESA 5.1 workload management environment, CICS supports MVS SYSEVENT monitoring by default, regardless of the status of CICS monitoring options. You do not need to set monitoring and event monitoring on (with MN=ON and MNEVE=ON respectively), and you incur unnecessary overhead if you do.

You continue to specify performance and exception monitoring classes as in earlier releases.

System initialization

A number of monitoring options, which in previous releases were specified in the monitoring control table (MCT), are now controlled by system initialization parameters.

See Chapter 1, “System initialization parameters” on page 3 and Chapter 3, “Resource definition (macro) changes” on page 23.

Statistics utility program

There are numerous changes to CICS statistics records, generally as a result of the new domains created in CICS/ESA 4.1, such as the transaction manager domain. As a result, a number of statistics DSECTs, previously supplied as copybooks, are obsolete and withdrawn. These are:

Copybook	Covering
DFHA01DS	Task control statistics, replaced by the transaction manager global statistics in copybook DFHXMGDS.
DFHA02DS	Transaction statistics, replaced by the transaction manager resource statistics in copybook DFHXMRDS.
DFHA15DS	Tclass statistics, replaced by the transaction manager transaction class statistics in copybook DFHXMCDS.
DFHDMGDS	This domain statistic copybook is redundant and is not replaced.
DFHDMRDS	This domain statistic copybook is redundant and is not replaced.

There are some instances where these changes affect the way information is reported by DFHSTUP. For example, in the old task control statistics, DFHSTUP used a field that was not part of an interval statistics control block, and therefore was never reset. As a result, this field was cumulative for the duration of a CICS run, providing “Accumulated tasks so far” in a DFHSTUP report.

The equivalent data provided by transaction manager global statistics is now reset at the end of each interval, and DFHSTUP does not report the accumulated tasks so far as in earlier releases.

| However, you can obtain the accumulated tasks so far from the DFHXMGDS fields
| XMGNUM and XMGTNUM. These fields contain the following data:

| **XMGNUM** The total number of tasks attached during this statistics interval. This
| value is reset at the end of each interval.

| **XMGTNUM** The accumulated total of tasks attached up to the end of the *previous*
| interval. This value is set at the end of each interval by adding the
| values of XMGNUM and XMGTNUM as **at the end of the previous
| interval**. To obtain the accumulated total of tasks up to the end of
| the current interval, add XMGNUM and XMGTNUM.

| For example, if 50, 35, and 55 tasks were attached in the first three intervals,
| XMGTNUM and XMGTNUM would contain the following values:

	Int.	Int.	Int.
	1	2	3
XMGNUM	50	35	55
XMGTNUM	0	50	85

| For details of all the statistics provided in CICS/ESA 4.1, and all the supporting
| copybooks, see the *CICS/ESA Performance Guide*.

| See the *CICS/ESA Operations and Utilities Guide* for information about running the
| DFHSTUP utility program.

Additional data set for DFHSTUP

You need to supply an additional temporary dataset, with a DDNAME of DFHSTWRK, for use by the statistics utility program, DFHSTUP.

+ Change of data in the TERMID field for MRO-linked AORs

+ There is a change in the use of the TERMID field in monitoring performance data
+ written by an AOR that runs transactions routed from a TOR. The TERMID field,
+ which in earlier releases contains the termid of the real or surrogate terminal, now
+ contains the session id of the link between the AOR and the TOR. A new
+ parameter, SURROGATE=YES|NO is added to the DFHMCT TYPE=INITIAL macro
+ to enable you specify whether you want TERMID to hold the surrogate termid as in
+ earlier releases. See the *CICS/ESA Performance Guide* for more information about
+ the contents of the TERMID field, and the effect of specifying SURROGATE=YES.

Chapter 14. CICS DB2 attachment

This chapter deals with aspects of migration relating to the new CICS DB2 attachment facility.

The new CICS DB2 attachment

The CICS DB2 attachment facility shipped with CICS/ESA 4.1 is designed to work with either DB2 Version 2 Release 3 or DB2 Version 3.

The CICS DB2 attachment facility shipped with CICS/ESA 4.1 is designed to work only with CICS/ESA 4.1. For migration purposes, an attachment facility that is compatible with earlier releases of CICS is included on the DB2 product tape.

To help avoid confusion if you have two levels of the attachment facility coexisting, the initial characters of the DB2 module names supplied with CICS/ESA 4.1 are changed from DSNC to DSN2. The resource control table is changed from DSNCRCTx to DSN2CTxx.

Migration checklist

To migrate to CICS/ESA 4.1 with the CICS DB2 attachment facility:

+ • Change your resource control table (RCT) assembly JCL to ensure the
+ CICS-supplied RCT macros are used in the assembly.

• Ensure that your startup JCL has the CICS/ESA 4.1 libraries concatenated *before* DB2 libraries.

For example, the DSN310.SDSNLOAD library must be specified **after** the CICS410.SDFHAUTH in the STEPLIB concatenation of your CICS startup JCL. The STEPLIB statement should also include the library that contains the resource control table.

+ **APAR PN88915**

+ Documentation for PN88915 added on 24 October 1996

+ Generally, you do not need to include any DB2 libraries in the DFHRPL DD
+ statement. If you do need DB2 libraries in the DFHRPL concatenation for an
+ application, they should be placed after the CICS libraries. For example, you
+ need SDSNLOAD in the DFHRPL to support those applications that issue
+ dynamic calls to the DB2 message handling module, DSNTIAR

• Change application programs that link to program DSNCCOM1 to link to DSN2COM1 instead.

• DB2 CSD definitions are provided by CICS/ESA 4.1 in the DFHDB2 group.

Remove the group that contains your definitions for the DB2 attachment supplied by DB2.

See also “Sharing a CSD between CICS/ESA 4.1 and CICS/ESA 3.3” on page 86.

• If you have any PLT programs, change them to link to DSN2COM0 for PLT
| processing at startup, and DSN2COM2 for PLT processing at shutdown.

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- Reassemble the DSN2CTxx table to generate a DSN2CTxx load module. Note that you do not have to modify the resource control table source in any way unless you want to use the new 2-character RCT suffix, or use new parameters (see “New resource control table parameters” on page 86)

Specifying the resource control table suffix

You cannot specify the RCT using the DSNCRCTx parameter in the PARM statement of the CICS startup JCL. You should use the DSN2STRT parameter in the INITPARM system initialization parameter to specify the RCT suffix and the DB2 subsystem id, or use the DSNC transaction. For example:

```
INITPARM=(DSN2STRT='xx,yyyy')   where xx is the RCT suffix and
                                      yyyy is the DB2 subsystem id
or

DSNC STRT xx,yyyy
```

Sharing a CSD between CICS/ESA 4.1 and CICS/ESA 3.3

If you want to share your CICS/ESA 4.1 CSD with a CICS/ESA 3.3 or earlier region, the CICS/ESA 3.3 DB2 definitions must be in a separate list from the CICS/ESA 4.1 definitions. Figure 4 shows an example in which C33LIST is used for a CICS/ESA 3.3 system, and C41LIST is used for a CICS/ESA 4.1 system:

```
APPEND LIST(DFHLIST) TO(C33LIST)
APPEND LIST(DFHLIST) TO(C41LIST)
APPEND LIST(SHRLIST) TO(C33LIST) <-- common definitions
APPEND LIST(SHRLIST) TO(C41LIST) <-- common definitions
ADD    GROUP(DB2) LIST(C33LIST)  <-- OLD DSNC definitions
```

Figure 4. DB2 definitions for shared CSD

Make sure that

```
ADD GROUP(DB2)
```

is after

```
APPEND LIST(DFHLIST) TO (C33LIST)
```

New resource control table parameters

The following parameters are added to the resource control table:

- PLANI specifies a default plan name
- PURGEC specifies the cycle time for protected threads
- TXIDSO specifies whether an authorization check is to be done.

For information on these and other resource control table parameters, see the *IBM DB2 Administration Guide*, SC26-4888.

Application programming

The CICS DB2 attachment facility enables the task-related user exit interface using the LINKEDITMODE option, and the task-related user exit interface is link-edited as AMODE(31), enabling it and its control blocks and programs to reside above 16MB.

Application programs can link to DSN2COM0 to enable the CICS DB2 attachment facility and connect CICS to DB2, and can link to DSN2COM2 to disable the CICS DB2 attachment facility and disconnect CICS from DB2. DSN2COM0 and DSN2COM2 can be added to PLT tables to allow connection and disconnection during PLTPI and PLTSD processing. This means that DSN2COM0 and DSN2COM2 can be linked to at any time, by the PLT or by online applications.

System programming

APAR PN78614

Documentation for PN78614 added on 7 November 1996

The name of the DB2 attachment facility task-related exit program is changed from DSNCEXT1 to DSN2EXT1. However, so that you don't have to modify programs that issue an EXTRACT EXIT PROGRAM('DSNCEXT1') ENTRY('DSNCSQL') command, the CICS DFHUEM module has been changed to replace DSNCEXT1 with DSN2EXT1 automatically. This change is implemented by the PTF for APAR PN78614.

However, a better way to determine whether the DB2 attachment facility started is to use the new INQUIRE EXITPROGRAM command.

Checking DB2 connections using INQUIRE EXITPROGRAM

The EXTRACT EXIT command can only determine whether the CICS DB2 attachment facility has been enabled, and thus it is possible to receive AEY9 abends if the response from this command is normal but the CICS DB2 attachment facility has not yet been started. CICS/ESA 4.1 provides the INQUIRE EXITPROGRAM command, which can determine whether the attachment facility is enabled and started and ready for use, as shown in the following example:

```
DCL RESPONSE  BINARY(31);               /* RESPONSES TO CICS CMDS   */

DCL EXITNAME  CHAR(8) CONSTANT('DSN2EXT1'); /* NAME OF DB2 TRUE     */

DCL ENTRYNAME CHAR(8) CONSTANT('DSNCSQL');  /* ENTRY POINT OF TRUE  */

DCL CONN_STATUS FIXED(31);                  /* CVDA FOR TRUE STATUS */

⋮
   EXEC CICS INQUIRE EXITPROGRAM(EXITNAME)  ENTRYNAME(ENTRYNAME)
                     CONNECTST(CONN_STATUS) NOHANDLE;

   IF CONN_STATUS = DFHVALUE(CONNECTED)
      THEN ...             /* the attachment facility is started */
```

Chapter 15. Prerequisite program products

This chapter lists the program products that you need with CICS, and describes some changes to the support for some program products in CICS/ESA 4.1.

Minimum prerequisite software for CICS/ESA 4.1

The following list summarizes the *minimum* release levels of the program products that you need to run CICS/ESA 4.1:

Product	Version
OS/390 or **MVS/SP**	
	For OS/390, you can use any release. For MVS/ESA, you need JES2, or JES3, Version 3 Release 1.3
DFSMS or **MVS/DFP**	
	For DFSMS, you can use any release. For MVS/DFP, you need Version 3 Release 1
SMP/E	Version 1 Release 7 plus required PTFs, or Version 1 Release 8.
	The PTFs required on SMP/E 1.7 are:
	UR40251 for FMID HMP1701 and UR40252 for FMID JMP1701 for the English language feature, or UR40255 for FMID JMP1711 for the Japanese language feature.
	These PTFs are required to enable SMP/E to use the RFDSNPFX parameter for RELFILE names that are prefixed with a high-level qualifier of “IBM.”
ACF/VTAM	Version 3 Release 4.1

If your terminal network includes TCAM devices:

Product	Version
ACF/TCAM (DCB)	Version 2 Release 2

If you operate your CICS regions with RACF as your external security manager (ESM):

Product	Version
RACF	Version 1 Release 9.0 plus required PTFs, or Version 1Release 9.2
	The PTFs required on RACF 1.9.0 are OY42716 and OY47909. These are required to correct errors in the mapping of CICS segment data.

If you have CICS-DL/I applications:

Product	Version
IMS/ESA DM	Version 3 Release 1

If you have CICS-DB2 applications:

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Product	Version
DB2	Version 2 Release 3

If you use CICSVR as your VSAM forward recovery and batch backout utility:

Product	Version
CICSVR	Version 2 Release 1

If you use GDDM with your CICS applications:

Product	Version
GDDM	Version 2 Release 3

If you use Transmission Control Protocol/Internet Protocol (TCP/IP) attached systems or workstations to communicate with CICS using the CICS basic TCP/IP sockets feature of TCP/IP for MVS:

Product	Version
TCP/IP	Version 3 Release 1

Compilers and assembler

CICS/ESA 4.1 supports the following assembler, COBOL, PL/I and C/370 compilers:

- High Level Assembler/MVS & VM & VSE Version 1 Release 1 (5696-234) or later

  Note: High Level Assembler replaces MVS Assembler H Version 2 (5668-962), which is out-of-service since CICS/ESA 4.1 became generally available in October 1994.

- VS COBOL II (5668-958 and 5688-023). Requires PTF for APAR PN43097—see “PTFs for APAR PN43097” on page 91. below for details.
- OS PL/I Optimizing Compiler Version 1 Release 5.1 (5734-PL1)
- OS PL/I Optimizing Compiler Version 2 Release 1 (5668-910) or later
- C/370 (5688-040).

CICS/ESA 4.1 also supports IBM SAA AD/Cycle Language Environment/370 run-time environment (5688-198), with the following COBOL, C/370, and PL/I SAA AD/Cycle compilers:

- SAA AD/Cycle COBOL/370 (5688-197)
- SAA AD/Cycle C/370 (5688-216)
- SAA AD/Cycle PL/I (5688-235)

PL/I execution-time support

For PL/I run-time support of a CICS application program compiled with any PL/I compiler, CICS/ESA 4.1 requires the run-time library from OS PL/I Version 2 Release 3 (5668-910 or 5668-911) or later.

Alternatively, you can use run-time libraries supplied with Language Environment/370 to support run-time execution of programs written in PL/I. The minumum level of Language Environment is Version 1 Release 2. However, to run

+ PL/I programs under Language Environment/370, programs must be link-edited with
+ the linkage editor control statement `REPLACE PLISTART` included.

+ This applies both to new programs, and to old programs which must be
+ re-linkedited in order to remove PLISTART.

PTFs for APAR PN43097

To prevent 0C4 abends caused by IGZECIC returning to CICS with an incorrect mode, you must apply the requisite PTFs for APAR PN43097. These are as follows:

PTF UN48282 for FMID JCL1331
PTF UN48283 for FMID JCL1341
PTF UN48284 for FMID JCL1403

CICS support for unsupported COBOL compilers

+ CICS/ESA 4.1 retains translation and execution-time support for application programs compiled by the following unsupported COBOL compilers:

- Full American National Standard COBOL Version 4 (5734-CB2)
- OS/VS COBOL (5740-CB1)

+ You are recommended to migrate your COBOL applications to a supported release
+ of the compiler.

Execution-time support is withdrawn for application programs compiled by the old OS/VS COBOL compilers 360S-CB-545 and 5734-CB1.

+ ***Storage protection—OS/VS COBOL programs:*** If you migrate OS/VS
+ application programs from a pre-CICS/ESA 3.3 environment, be aware of possible
+ storage protection exceptions.

+ Restricted OS/VS COBOL language statements that result in a call to MVS
+ GETMAIN services, but which worked on earlier releases, might not work when
+ CICS storage protection is active. For example, if a CICS application program
+ written in OS/VS COBOL is defined with EXECKEY(USER), and it issues a
+ restricted COBOL verb that results in an MVS GETMAIN, it abends with an 0C4
+ abend. In these cases it is not the application program itself that appears to cause
+ the 0C4, but the OS/VS COBOL routines that execute statements such as
+ INSPECT.

CICS local DL/I support

IMS Version 2 Release 2 is not supported by CICS/ESA 4.1.

CICS local DL/I support is now limited to two releases only of IMS:

- IMS/ESA Version 3 Release 1
- IMS/ESA Version 4 Release 1

Table 26 on page 92 shows the supported levels of local DL/I and DBCTL in the current releases of CICS.

Table 26. Supported releases of IMS for local DL/I and DBCTL

CICS Releases	Local DL/L	DBCTL
CICS/MVS 2.1.2	IMS/VS 2.2 IMS/ESA 3.1 IMS/ESA 4.1	Not supported
CICS/ESA 3.3	IMS/VS 2.2 IMS/ESA 3.1 IMS/ESA 4.1	– IMS/ESA 3.1 IMS/ESA 4.1
CICS/ESA 4.1	IMS/ESA 3.1 IMS/ESA 4.1	IMS/ESA 3.1 IMS/ESA 4.1

To migrate from an earlier release of CICS and IMS 2.2, you are recommended to migrate first to a level of IMS that is supported by CICS/ESA 4.1, and then migrate to CICS/ESA 4.1.

| CICS/ESA 4.1 and IMS/ESA 4.1 are to be the last releases that support local DL/I.

Part 3. CICS messages and codes

This part of the book contains information about changes to CICS messages and abend codes:

- Chapter 16, “Messages and Codes” on page 95

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Chapter 16. Messages and Codes

This chapter lists messages and abend codes that are added, changed, deleted, or converted in CICS/ESA 4.1. See the *CICS/ESA Messages and Codes* for a definitive description of CICS messages.

New messages

The following messages are introduced in CICS/ESA 4.1:

DFH5173 **SERVREQ=REUSE IS IGNORED IN THE DEFINITION OF FILE** *filename* **BECAUSE IT IS NOT SUPPORTED BY RDO.**

DFH5259 W **UNRECOGNIZED RESOURCE TYPE FOUND IN THE CSD FILE AND HAS BEEN IGNORED.**

DFH5535 E **COMMAND NOT EXECUTED.** *restype* **NAME** *resname* **IS RESERVED BY CICS.**

DFH5536 W *keyword1* **AND** *keyword2* **ATTRIBUTES ARE INCONSISTENT IF DEFINITION IS BEING SHARED WITH A BACK LEVEL RELEASE.**

DFH5537 W **NULL VALUE ACCEPTED FOR SEND OR RECEIVE PREFIX. CICS WILL GENERATE SESSION NAMES FOR IRC SESSIONS ONLY. LU6.1 SESSIONS WILL NOT BE INSTALLED.**

DFH5538 W **SEND OR RECEIVE PREFIX MAY BE REJECTED AT INSTALLATION TIME IF THIS IS AN IRC SESSION.**

DFHAC2050 *time applid* **An invalid function management header (FMH) has been supplied by node** *netname***.**

DFHAC2051 *date time applid* **An invalid Function Management Header (FMH) has been supplied by node** *netname***.**

DFHAC2052 *time applid* **While performing an attach for node** *netname* **a security violation was detected.**

DFHAC2053 *date time applid* **While performing an attach for node** *netname* **a security violation was detected.**

DFHAC2054 *time applid* **You are not authorized to access this system.**

DFHAC2055 *date time applid* **An attach request from node** *netname* **has sent BIND/FMH5 security data that is invalid.**

DFHAC2056 *time applid* **You are not authorized to access this system.**

DFHAC2057 *date time applid* **While performing an attach for node** *netname* **a security violation was detected.**

+ **DFHAM4849 W Netname** *netname* **of** *{CONNECTION] TERMINAL} rsrcname1* **in group** *grpname1* **duplicates that of**
+ *{CONNECTION] TERMINAL} rsrcname2* **in group** *grpname2***.**

DFHAM4884 S *restype* **name** *resname* **is reserved by CICS.**

DFHAM4886I *applid* **Installing list** *listname* **which matches specified generic list** *genlist***.**

DFHAM4887 I *applid* **Unrecognized resource type found in the CSD file and has been ignored.**

DFHAP0601 *applid* **Force purge of transaction id** *tranid* **transaction number** *trannum* **has been deferred because the transaction is executing post commit syncpoint processing.**

DFHAP0602 *applid* **Force purge of transaction id** *tranid* **transaction number** *trannum* **has been deferred because the transaction is executing transaction backout.**

DFHAP0603 *applid* **Forcepurge of transaction ID** *tranid* **transaction number** *trannum***. Recovery token** *X'rtoken'* **has been deferred because the transaction is waiting for a DLI request in DBCTL to complete.**

DFHAP0706 *applid* **A probable loop has been detected in task related user exit program** *progname***.**

DFHAP0707 *applid* **An abend (code** *abcode***) has occurred in task related user exit program** *progname***.**

DFHAP1212I *applid* **The program** *progname* **was defined as** *language1* **but CICS has redefined it as** *language2***.**

DFHAP1213 *applid* **An unexpected error has occurred during language initialization.**

DFHCE3506 **Your groupid must be 1-8 characters. Sign-on is terminated.**

DFHCE3507 **Your language code must be three characters. Sign-on is terminated.**

DFHCE3539 **Please reenter the new password for verification.**

DFHCE3551 *date time applid termid* **DFHSNP has detected an invalid COMMAREA. It has been ignored. The data is lost.**

DFHCE3570 **Your groupid is invalid. Please retype.**

DFHCE3571 **Your groupid is invalid. Please retype==>**

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DFHCE3588 **You are already signed on at another terminal. Signon cannot be performed.**

DFHCE3589 **The external security manager is inactive. Signon cannot be performed.**

DFHDB8199 **E GETMAIN REQUEST FOR CICS-DBCTL CONTROL WORK ELEMENT (CWE) HAS FAILED.**

DFHDB8228 **The period (.) and subsequent characters have been removed.**

DFHDB8229 **Spaces immediately after the CRC (/) have been removed.**

DFHDB8230 **The key that you pressed has no meaning on this panel.**

DFHDB8231 **FORCE IMS LOG END OF VOLUME was not set to 1 or 2.**

DFHDB8232 **Initial CRC (/) was not found. Reenter the IMS command.**

DFHDB8233 **A second CRC (/) was found. Reenter the IMS command.**

DFHDB8234 **An invalid wildcard was found. Reenter the IMS command.**

DFHDB8235 **Incorrect wildcard position. Reenter the IMS command.**

DFHDB8236 **Invalid IMS command verb. Reenter the IMS command.**

DFHDB8237 **Command not allowed. Enter a valid IMS command.**

DFHDB8238 **Command not authorized. Enter a valid IMS command.**

DFHDB8239 **Transaction unsuccessful, AIB Return (***X'aaaa'***) Reason (***X'bbbb'***).**

DFHDB8240 **DBCTL not connected. Run CDBC to connect.**

DFHDB8241 **PSB schedule unsuccessful, IMS Return code (***X'aaaa'***).**

DFHDB8242 **Command in progress. Issue /DISPLAY command for status.**

DFHDB8297 *applid* **CICS/DBCTL CONNECTION BEING ATTEMPTED**

DFHDD0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset X'***offset***' in module** *modname***.**

DFHDD0002 *applid* **A severe error (code X'***code***') has occurred in module** *modname***.**

DFHDM0107 *applid* **MXT has been reduced from** *old_value* **to** *new_value* **to allow orderly shutdown to proceed.**

DFHDU0103 *applid* **An abend has occurred during initialization of dump domain in module DFHDUDM.**

DFHDU0211 *applid* **THE XDUREQ USER EXIT IS NOT CALLED FOR DUMPCODE** *dumpcode***.**

DFHDU0212 *applid* **Requested Transaction dump code** *dumpcode* **is invalid.**

DFHDU0213 **REMOTE SDUMPX REQUEST FAILED -** *reason***.**

DFHDU0214 **DFHDUMPX IS ABOUT TO REQUEST A REMOTE SDUMP.**

DFHDU0215 **DFHDUMPX IS ABOUT TO SUPPRESS A REMOTE SDUMPX.**

\+ **DFHDU1610** **DUMP FORMATTING HAS ENCOUNTERED AN INVALID TRACE BLOCK. TRACE ENTRIES MAY BE LOST.**

\+ **DFHDU1611** **FILE ERROR, FULL TRACE FAILED. DUMP FORMATTING WILL CONTINUE WITH ABBREVIATED TRACE.**

DFHER5763 *applid* **Message and ISC state recovery failed. CICS logic error.**

DFHEX0001 *applid* **AN ABEND (CODE** *aaa/bbbb***) HAS OCCURRED IN MODULE** *modname***.**

DFHEX0002 *applid* **A SEVERE ERROR (CODE X'***code***') HAS OCCURRED IN MODULE** *modname***.**

DFHEX0003 *applid* **A GETMAIN REQUEST IN MODULE** *modname* **(CODE X'***code***') HAS FAILED. REASON X'***rc***'.**

\# **DFHEX0004** **JOBNAME:** *jobname***, STEPNAME:** *stepname***,PROCNAME:** *procname* **SYSID IN SMF:** *sysid***, APPLID:** *applid*

DFHEX0100 **The installed level of CICS SVC does not support the EXCI call.**

DFHEX0101 **Unable to start interregion communication because DFHIRP services are down level.**

DFHEX0110 **EXCI SDUMP has been taken. Dumpcode:** *dumpcode***, Dumpid:** *dumpid***.**

DFHEX0111 **EXCI SDUMP attempted but SDUMP is busy - will retry every five seconds for** *nnnn* **seconds.**

DFHEX0112 **SDUMP request failed -** *reason X'nn'***.**

DFHEX0113 **EXCI trace Initialization has failed.**

DFHEX0114 **Incorrect data has been passed for EXCI tracing causing a program check in DFHXCTRP.**

DFHEX0115 **EXCI trace services have been disabled due to a previous error.**

DFHEX0116 **Program check occurred within global trap exit - DFHXCTRA now marked unusable.**

\+ **DFHFC0206** *date time applid terminal userid tranid* **AFCT entry for filename has been added.**

\+ **DFHFC0207** *date time applid terminal userid tranid* **AFCT entry for filename has been deleted.**

DFHFC0484 *applid* **Shared data tables support is not available. The shared data tables initialization module cannot be loaded.**

DFHFC0937 *applid* **OPEN of** *name1* **as a data table was not possible. The file has been opened and will use data table** *name2* **which has the same source.**

DFHFC0988 *applid* **Open of file** *filename* **failed. This data set type is not supported by CICS.**

DFHFC0989I *applid* **Open of file** *filename* **will be delayed because the associated data set** *dataset* **is being recalled.**

DFHFC0998 *applid* **User exit XFCNREC is causing file** *filename* **to be opened even though a file recovery inconsistency of type X'** *code***' exists. CICS cannot guarantee data integrity for base data set** *dsname***.**

+ **DFHFC5820** *applid* **Any files that are still open against the base data set may need to be closed. file** *filename***, data set**
+ *dsname***.**

DFHIC0002 *applid* **A severe error (code X'***code***') has occurred in module** *modname***.**

DFHIC0200 *date time applid* **Automatic transaction restart for transaction** *tranid* **has failed.**

DFHIC0360 *date time applid* **An attempt to establish security for userid** *userid* **has failed. Transaction** *tranid* **cannot be started without a terminal. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHIR2321 *applid* **MRO/IRC Communication being Terminated. Session(s) with the following Netname(s) are still Active:**

DFHIR3747 *applid* **CONNECTION** *connid* **with protocol(EXCI) has been connected to by a NON-BATCH system. Connection set out of service.**

DFHIR3750 *applid* **Unable to stop interregion communication session during startup recovery.**

DFHIR3799 *applid* **Unable to start interregion communication because DFHIRP services are down level.**

DFHJC4571 **AN ERROR (CODE** *X'code'***) HAS OCCURRED IN THE USER EXIT PROGRAM.**

DFHKE0401 *applid* **CICS REGISTER CALL TO XCF RESTART SERVICE FAILED (RETURN CODES** *X'resp'*, *X'reason'***).**

DFHKE0402 *applid* **CICS DEREGISTER CALL TO XCF RESTART SERVICE FAILED (RETURN CODES** *X'resp'*, *X'reason'***).**

DFHKE0403 *applid* **CICS WAITPRED call to XCF Restart Service failed (return codes X'***resp***',X'***reason***').**

DFHKE0404 *applid* **CICS READY call to XCF Restart Service failed (return codes X'***resp***',X'***reason***').**

DFHKE0405 *applid* **CICS WAITPRED call to XCF Restart Service timed out (return codes X'***resp***',X'***reason***').**

DFHKE0406 I *applid* **CICS is about to wait for predecessors in its XCF Restart Service policy.**

DFHKE0407 *applid* **XRF IS INCOMPATIBLE WITH XCF RESTART SERVICE. CICS IS TERMINATING.**

DFHKE0408D *applid* **PLEASE SPECIFY START TYPE, 'COLD' or 'AUTO'.**

+ **DFHKE0409** *applid* **CICS REGISTER CALL TO AUTOMATIC RESTART MANAGER FAILED BECAUSE THE COUPLE DATA**
+ **SET IS NOT DEFINED.**

+ **DFHKE0410** *applid* **CICS REGISTER CALL TO AUTOMATIC RESTART MANAGER FAILED BECAUSE THE JOB TYPE IS**
+ **INVALID.**

DFHLD0108I *applid* **The maximum of 32767 entries that CICS allows on a BLDL has been exceeded.**

DFHMC4001 *date time applid* **Error purge delay inoperative because of** *{transid | invalid req | unexpected}* **error.**

DFHME0120I *applid* **Message** *msgno* **has been rerouted to its original destination.**

DFHME0135 *applid* **The default language** *language* **specified in the SIT NATLANG parameter is invalid. It has been defaulted to E.**

DFHME0136 *applid* **Message** *msgno* **is missing from national language module** *modname***. Searching the English message table for the message text.**

+ **DFHME0137** *applid* **Message** *msgno* **cannot be rerouted to a transient data destination by the message user exit XMEOUT.**

DFHME9996I MESSAGE PARAMETER LIST ERROR - CHECK PLIST.

DFHME9997I MESSAGE FIND ERROR - CHECK THE MESSAGE MODULE.

DFHME9998I MESSAGE NUMBERS GREATER THAN 9999 ARE INVALID.

DFHME9999I THE MESSAGE INDEX MODULE 'DFHMGT' IS MISSING.

DFHMN0216 S Invalid parameter. JOBNAME must be eight characters or less.

DFHMN0217 S Invalid parameter. JOBDATE must be of format yyddd.

DFHMN0218 S Invalid parameter. JOBTIME must be of format hhmmss.

DFHMN0219 S Invalid parameter. USERID must be eight characters or less.

DFHMN0220 S DFHMNDUP CANNOT OPEN THE SYSPRINT FILE.

DFHMN0221 S DFHMNDUP CANNOT OPEN THE SYSIN FILE.

DFHMU0102 SOURCE DATA FILE NOT FOUND, OR RECORD FORMAT OR LENGTH NOT VALID.

DFHMU0103 UNRECOGNIZED CONTROL WORD ON INPUT DATA RECORD.

DFHMU0104 MISPLACED INPUT RECORD IN DATA SEQUENCE.

DFHMU0105 PREMATURE END OF FILE REACHED IN 'SCANPARAMS' DATA SEQUENCE.

DFHMU0106 PREMATURE END OF FILE REACHED IN 'MEMBERLIST' DATA SEQUENCE.

DFHMU0107 PREMATURE END OF FILE REACHED IN 'GLOBALS' DATA SEQUENCE.

DFHMU0108 MESSAGE *msgno*: PREMATURE END OF FILE REACHED IN 'MSGDEF' DATA SEQUENCE.

DFHMU0109 NEXT LINE IS INCORRECT. IT MUST BE 'MEMBERLIST', 'SCANPARAMS', 'GLOBALS', OR 'MSGDEF'.

DFHMU0110 MISPLACED RECORD IN 'SCANPARAMS' SEQUENCE.

DFHMU0111 INCORRECT INPUT RECORD FOUND WHEN 'MEMBER' EXPECTED.

DFHMU0112 MISPLACED RECORD IN 'GLOBALS' SEQUENCE.

DFHMU0113 MISPLACED RECORD IN 'MSGDEF' SEQUENCE.

DFHMU0114 NUMBER OF MEMBERS IN MEMBERLIST EXCEEDS MAXIMUM ALLOWED.

DFHMU0115 MESSAGE *msgno*: TOO MANY SOURCE LINES.

DFHMU0116 'MEMBER' RECORD IS NOT A VALID 2-CHARACTER MESSAGE COMPONENT IDENTIFIER.

DFHMU0117 VALUE MISSING FOR KEYWORD ON GLOBAL OR PARAMETER RECORD.

DFHMU0118 MESSAGE *msgno*: NO DATA DEFINED BETWEEN 'MSGDEF' AND 'ENDMSG'.

DFHMU0119 MESSAGE *msgno*: INVALID KEYWORD FOUND ON 'MSGDEF' DATA RECORD.

DFHMU0120 MESSAGE NUMBER IS MISSING OR NOT A VALID 4-DIGIT NUMBER.

DFHMU0121 MESSAGE *msgno*: DESTINATION NAME MISSING FROM 'DEST' RECORD.

DFHMU0122 MESSAGE *msgno*: NO DELIMITERS FOUND FOR TEXT STRING.

DFHMU0123 MESSAGE *msgno*: AN OPENING OR CLOSING DELIMITER IS MISSING FROM A TEXT STRING.

DFHMU0124 MESSAGE *msgno*: SUFFIX FOR 'INS#NN','REPLY#NN' OR 'VALUE#NN' IS INCORRECT. 'NN' MUST BE IN RANGE 1 TO 10.

DFHMU0125 MESSAGE *msgno*: INSERT DATA RECORD HAS 'FORMAT' KEYWORD MISPLACED OR MISSPELLED.

DFHMU0126 MESSAGE *msgno*: INVALID FORMAT TYPE. FORMAT MUST BE CHAR, HEX, DEC, TIME, OR DATE.

DFHMU0127 MESSAGE *msgno*: 'FORMAT' OPERAND IS INCOMPLETE. 'FORMAT' MUST BE CHAR, HEX, DEC, TIME, OR DATE.

DFHMU0128 MESSAGE *msgno*: VALUE#*nn* KEYWORD INCORRECT OR MISSING ON INS#*nn* DATA RECORD.

DFHMU0129 MESSAGE *msgno*: INVALID KEYWORD *keyword* ON 'SPECIAL_INSERT/TIMESTAMP' CARD.

DFHMU0130 MESSAGE *msgno*: INTERNAL LOGIC ERROR CONVERTING FULLWORD TO CHARACTER FORMAT.

DFHMU0131 MESSAGE *msgno*: DESTINATION IS NOT VALID.

DFHMU0132 MESSAGE *msgno*: ONE OR MORE SHIFT-OUT OR SHIFT-IN SYMBOLS MISPLACED OR MISSING.

DFHMU0133 INVALID VALUE FOR GLOBAL FORMAT DEFINITION.

DFHMU0134 MESSAGE *msgno* IS OUT OF SEQUENCE IN SOURCE FILE.

DFHMU0135 MESSAGE *msgno*: DUPLICATE MESSAGE NUMBER IN SOURCE FILE.

DFHMU0136 MESSAGE *msgno*: PREMATURE END OF FILE IN 'SYMDEF' DATA SEQUENCE.

DFHMU0137 MESSAGE *msgno*: UNRECOGNIZED SYMPTOM KEYWORD.

DFHMU0138 MESSAGE *msgno*: MISSING SYMPTOM ARGUMENT.

DFHMU0139 MESSAGE *msgno*: INVALID SYMPTOM ARGUMENT: INS#*n* | SPECIAL_INSERT | TEXT STRING.

DFHMU0140 MESSAGE *msgno*: UNDEFINED INSERT IN SYMPTOM OR EXIT RECORD.

DFHMU0141 MESSAGE *msgno*: SYMPTOM DATA ARGUMENT IS NOT VALID.

DFHMU0142 MESSAGE *msgno*: SPECIAL INSERT IS NOT VALID AS A SYMPTOM ARGUMENT.

DFHMU0143 MESSAGE *msgno*: TEXT SYMPTOM ARGUMENT CONTAINS INVALID CHARACTERS.

DFHMU0144 MESSAGE *msgno*: NO ROUTECODES SPECIFIED. DEFAULTING TO 2 AND 11.

DFHMU0145 MESSAGE *msgno*: INVALID DESTINATION KEYWORD. IT SHOULD BE x.

DFHMU0146 MESSAGE *msgno* ROUTECODE *x* IS OUT OF RANGE. VALID RANGE IS >0 TO <=*n*.

DFHMU0147 **MESSAGE** *msgno*: **TRANSIENT DATA QUEUE** *qname* **IS NOT VALID.**

DFHMU0148 **MESSAGE** *msgno*: **THE VALUE** *x* **IS NOT VALID. IT MUST BE NUMERIC.**

DFHMU0149 **MESSAGE** *msgno*: **INVALID ARGUMENT GIVEN FOR EXIT PARAMETER** *n*.

DFHMU0150 **MESSAGE** *msgno*: **EXIT PARAMETER** *n* **SPECIFIES AN INSERT NOT IN THE MESSAGE DEFINITION.**

DFHMU0151 **MESSAGE** *msgno*: **NO EXIT PARAMETERS HAVE BEEN SPECIFIED.**

DFHMU0152 **MESSAGE** *msgno*: **EXIT PARAMETER** *n* **IS MISSING.**

DFHMU0153 **MESSAGE** *msgno*: **EXIT PARAMETER NUMBER IS NOT VALID. IT MUST BE GREATER THAN ZERO.**

DFHMU0154 **MESSAGE** *msgno*: **INSERT** *n* **DOES NOT HAVE AN EXIT PARAMETER.**

DFHMU0155 **MESSAGE** *msgno*: **QUEUE NAME MISSING FROM TDQ DESTINATION.**

DFHMU0156 **MESSAGE** *msgno*: **'QUEUES' KEYWORD IS MISSING.**

DFHMU0157 **MESSAGE** *msgno*: **KEYWORD** *keyword* **HAS ALREADY BEEN SPECIFIED.**

DFHMU0158 **MESSAGE** *msgno*: **TOO MANY INSERTS ON SPECIAL INSERT LINE.**

DFHMU0159 **MESSAGE** *msgno*: **DESTINATION** *destid*: **TDQ NAME OR ROUTE CODE** *destname* **IS REPEATED.**

DFHMU0160 **MESSAGE** *msgno*: **INSERT** *n* **HAS ALREADY BEEN SPECIFIED.**

DFHMU0162 **'MEXDEF' KEYWORD IS MISSING OR MISPLACED.**

DFHMU0163 **MESSAGE** *msgno*: **'MEXDEF' IS SPECIFIED BUT NO INSERTS EXIST IN THE MESSAGE DEFINITION.**

DFHMU0164 **MESSAGE** *msgno*: **THE PUBSCHAR STRING** *x* **IS TOO LONG. THE MAXIMUM IS** *n*.

DFHMU0165 **MESSAGE** *msgno*: **'MEXDEF' SPECIFIED FOR A MESSAGE THAT IS NEITHER CONSOLE NOR TDQ.**

DFHMU0166 **MESSAGE** *msgno*: **USER EXIT DATA SPECIFIED FOR A BOOKONLY OR OFFLINE MESSAGE.**

DFHMU0167 **MESSAGE** *msgno*: **'ROUTECODES' OR 'QUEUES' KEYWORD IS OUT OF SEQUENCE.**

DFHMU0168 **MESSAGE** *msgno*: **'PUBSCHAR' KEYWORD MISSING OR MISSPELLED.**

DFHMU0169 **MESSAGE** *msgno*: **'APPLID' SPECIAL INSERT MISSING ON CONSOLE MESSAGE.**

DFHMU0170 **MESSAGE** *msgno*: **DATE, TIME, OR APPLID SPECIAL INSERTS MISSING OR INCORRECT ON TDQ MESSAGE.**

DFHMU0999 **INTERNAL LOGIC ERROR: NO MESSAGE FOR ERROR CODE** *code*.

DFHPA1108 *applid* **DFHSIT***xx* **HAS BEEN LOADED. (GENERATED AT MM/DD=** *mm/dd* **HH:MM=** *hh:mm*).

DFHPA1932I *applid* **A PSDINT VALUE GREATER THAN ZERO WAS SPECIFIED WITH XRF=YES. PSDINT HAS BEEN RESET TO 0.**

DFHPA1934I *applid* **START TYPE CHANGED TO** *type*.

DFHPA1935 *applid keyword* **IS A SECURITY KEYWORD. THIS KEYWORD AND ALL SUBSEQUENT KEYWORDS ON THIS LINE ARE IGNORED.**

DFHPA1936 *applid* **A VALUE WAS SPECIFIED FOR GRNAME WITH XRF=YES. GRNAME HAS BEEN RESET TO BLANKS.**

DFHPA1937 *applid* **GRNAME SPECIFIED WITH SPECIFIC AND GENERIC APPLIDS. THE GENERIC APPLID HAS BEEN SET EQUAL TO THE SPECIFIC.**

DFHPA1938 *applid* **GRNAME AND APPLID ARE THE SAME. GRNAME RESET TO BLANKS.**

DFHPC0402 *applid* **Error with kernel error code** *errorcode* **has occurred while processing transaction abend** *abcode* **in transaction** *tranid*

DFHPD0130 **Keyword** *keyword1* **is no longer valid. Replace with keyword** *keyword2*.

DFHPD0131 **CICS job** *jobname* **is for CICS version** *release1*. **CICS IPCS exit is for version** *release2*

DFHPG0001 *applid* **An abend (code** *aaa/bbbb*) **has occurred at offset X'***offset*' **in module** *modname*.

DFHPG0002 *applid* **A severe error (code X'***code*') **has occurred in module** *modname*.

DFHPG0004 *applid* **A possible loop has been detected at offset X'** *offset*' **in module** *modname*.

DFHPG0101 *date time applid terminal userid tranid* **PPT entry for** *progname* **has been added.**

DFHPG0102 *date time applid terminal userid tranid* **PPT entry for** *progname* **has been deleted.**

DFHPG0103 *date time applid terminal userid tranid* **PPT entry for** *progname* **has been replaced.**

DFHPG0104 *date time applid* **Program** *progname* **is defined with DATALOCATION(ANY) but is linkedited with AMODE(24).**

DFHPG0201 *date time applid termid userid tranid* **Program autoinstall exit** *urmname* **indicated that program** *progname* **should not be added to the PPT.**

DFHPG0202 *date time applid termid userid tranid* **Program autoinstall exit** *urmname* **abend code** *abcode***. The program autoinstall function has been disabled.**

DFHPG0203 *date time applid termid userid tranid* **Program autoinstall exit** *urmname* **failed, reason:** *reason***. The program autoinstall function has been disabled.**

DFHPG0204 *date time applid termid userid tranid* **Program autoinstall model** *progname* **not defined.**

DFHPG0205 *date time applid termid userid tranid* **Invalid value:** *value* **returned by program autoinstall exit** *urmname* **for field** *fieldname***.**

DFHPG0206 *date time applid termid userid tranid* **Autoinstall for program** *progname* **failed. Programs starting with 'DFH' cannot be defined as remote programs.**

DFHPG0207 *date time applid termid userid tranid* **Autoinstall for program** *progname* **failed. The program name is not valid.**

DFHPG0208 *date time applid termid userid tranid* **Autoinstall for program** *progname* **failed.**

DFHPG0209 *date time applid terminal userid tranid* **PPT entry for** *progname* **has been autoinstalled using model** *modelname***.**

DFHPG0210 *date time applid terminal userid tranid* **PPT entry for** *progname* **has been system autoinstalled.**

DFHPG0211 *date time applid terminal userid tranid* **Autoinstall for program** *progname* **failed. Program autoinstall model** *modelname* **is disabled.**

DFHRD0109I *date time applid termid opid tranid* **INSTALL TRANCLASS(***tranclassid***)**

DFHRU2830 *applid* **Unable to find the start of unit of work record on the system log for task** *taskid***, transaction** *tranid* **on terminal** *termid***.**

DFHRU2831 *applid* **Unable to find the committed output message record on the system log for terminal** *termid***.**

DFHRU2839D *applid* **Emergency restart failed to complete. Do you wish to continue? Reply 'Yes' or 'No'.**

DFHSI1536D *applid* **GRPLIST** *grplist* **does not exist. Enter alternative name, 'GO' or 'CANCEL'.**

DFHSI1539 *applid* **Error attaching the CESC (Terminal Timeout) transaction.**

DFHSI1550 *applid* **A severe error has occurred while making a** *domain* **domain call with response (***X'response'***) and reason (***X'reason'***).**

DFHSI1551 *applid* **The CICS region userid** *userid* **is not authorized to use the PLTPIUSR parameter userid** *userid***. Initialization cannot continue, so CICS is terminated.**

DFHSI1552 *applid* **Userid** *userid* **specified for the PLTPIUSR parameter has not been defined correctly to the external security manager (ESM). SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSI1580 *applid* **PLTPI program** *program-name* **has abended, code** *abcode***. CICS initialization continues**

DFHSI1581 *applid* **Journaling specified, but initialization programs not present**

DFHSI2810 *applid* **CANCEL reply received. CICS is terminating.**

DFHSM0122I *applid* **Limit of DSA storage below 16MB is** *dsalimit* **K.**

DFHSM0123I *applid* **Limit of DSA storage above 16MB is** *edsalimit* **M.**

DFHSM0124 *applid* **Transaction isolation was requested but the support is not available or storage protection is not active. Transaction isolation is not active.**

DFHSM0125I *applid* **Transaction isolation is active.**

DFHSM0126I *applid* **Transaction isolation is not active.**

DFHSM0127 *applid* **Insufficient storage to allocate requested size for DSA limit storage below 16MB (***dsalimit***K).**

DFHSM0128 *applid* **Insufficient storage to allocate requested size for DSA limit storage above 16MB (***dsalimit***M).**

DFHSM0129 *applid* **Insufficient storage to allocate default size for DSA limit storage below 16MB (***dsalimit***K).**

DFHSM0130 *applid* **Insufficient storage to allocate default size for DSA limit storage above 16MB (***dsalimit***M).**

DFHSM0131 *applid* **CICS is under stress (short on storage below 16MB).**

DFHSM0132 *applid* **CICS is no longer short on storage below 16MB.**

DFHSM0133 *applid* **CICS is under stress (short on storage below 16MB).**

DFHSM0134 *applid* **CICS is no longer short on storage above 16MB.**

APAR PN88030

Messages 0135 and 0136 added by PN88030 on 22 May 1997

DFHSM0135 *applid* **Insufficient storage to allocate the requested size of** *dsasizeK* **for the** *dsaname*

DFHSM0136I *applid* **The size of the** *dsaname* **was specified as** *dsasizeK*

APAR PQ07674

Messages SM0300 added by PN07674 November 1998

DFHSM0300 **DFHSMUTL REPORT**

DFHSN0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset X'***offset***' in module** *modname***.**

DFHSN0004 *applid* **A possible loop has been detected at offset X'** *offset***' in module** *modname***.**

DFHSN1100 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **in group** *groupid* **is complete.**

DFHSN1101 *date time applid* **Signon at** *{netname | console | terminal }portname* **has failed. User** *userid* **not recognized.**

DFHSN1102 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed. Password not recognized.**

DFHSN1103 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed. OID card damaged or not authorized.**

DFHSN1104 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed. New password not allowed.**

DFHSN1105 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **requires a password.**

DFHSN1106 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **requires a new password.**

DFHSN1107 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **requires an OID card.**

DFHSN1108 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1112 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because the terminal has preset security.**

DFHSN1113 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because the terminal was already signed on.**

DFHSN1114 *date time applid* **Signon by user** *userid* **has failed because there is no terminal associated with the requesting task.**

DFHSN1115 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because it was transaction routed, but not by use of the CRTE transaction.**

DFHSN1116 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because the national language to be used is not supported in this run of CICS.**

DFHSN1117 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because an invalid national language was selected.**

DFHSN1118 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because user not authorized to use the terminal.**

DFHSN1119 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because user not authorized to use the application.**

DFHSN1120 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because the** *{userid | group access}* **has been revoked.**

DFHSN1129 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because the user is already signed on elsewhere.**

DFHSN1130 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **failed because the userid was not found in the specified group.**

DFHSN1131 *date time applid* **Signon at** *{netname | console | terminal }portname* **by user** *userid* **has failed because security is not active in this CICS region.**

DFHSN1132 *date time applid* **Signon at terminal** *termid* **by user** *userid* **has failed because the terminal is a session.**

DFHSN1150 *date time applid* **Signon at TCAM pool by user** *userid* **in group** *groupid* **is complete.**

DFHSN1200 *date time applid* **Signoff at** *{netname | console | terminal }portname* **by user** *userid* **is complete.** *tt* **transactions entered with** *nn* **errors.**

DFHSN1211 *date time applid* **Signoff at terminal** *termid* **has failed because the terminal is a session.**

DFHSN1212 *date time applid* **Signoff at** *{netname | console | terminal }portname* **has failed because the terminal has preset security.**

DFHSN1213 *date time applid* **Signoff at** *{netname | console | terminal }portname* **has failed because the terminal was not signed on.**

DFHSN1214 *date time applid* **An attempted signoff has failed because there was no terminal associated with the requesting task.**

DFHSN1215 *date time applid* **Signoff at** *{netname | console | terminal }portname* **failed because it was transaction routed, but not by use of the CRTE transaction.**

DFHSN1250 *date time applid* **Signoff at TCAM pool is complete.**

DFHSN1300 *date time applid* **An attempt to reschedule BMS pages for operator** *opid* **at** *{netname | console | terminal }portname* **has failed following a timeout. Pages on temporary storage queue** *X'hexqueueid'* **may require cleanup.**

DFHSN1400 *date time applid* **Session signon for session** *session* **by user** *userid* **is complete.**

DFHSN1401 *date time applid* **Session signon for session** *session* **by user** *userid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1410 *date time applid* **Session signon for session** *session* **with default security attributes is complete.**

DFHSN1500 *date time applid* **Session signoff for session** *session* **is complete.** *tt* **transactions entered with** *nn* **errors.**

DFHSN1501 *date time applid* **Session signoff for session** *session* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1604 *date time applid* **Attach header signon at terminal** *termid* **by user** *userid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1605 *date time applid* **Attach header signon at terminal** *termid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1606 *date time applid* **Attach header signoff at terminal** *termid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1800 *date time applid* **Signon at** *{netname | console | terminal }portname* **by preset user** *userid* **in group** *groupid* **is complete.**

DFHSN1801 *date time applid* **Signon at** *{netname | console | terminal }portname* **by preset user** *userid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHSN1850 *date time applid* **Signoff at preset** *{netname | console | terminal }portname* **is complete.**

DFHSN1851 *date time applid* **Signoff at preset** *{netname | console | terminal }portname* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHST0217 S An attempt to open the DFHSTWRK data set has failed.

DFHST0218 S A write error has occurred on the DFHSTWRK data set.

DFHST0219 S A read error has occurred on the DFHSTWRK data set.

DFHST0220 S An attempt to open the DFHSTWRK data set has failed.

DFHST0221 S A write error has occurred on the DFHSTWRK data set.

DFHST0222 S A read error has occurred on the DFHSTWRK data set.

DFHST0222 S A read error has occurred on the DFHSTWRK data set.

DFHST0223 I There are no data table statistics to report.

DFHTD0183 *applid* **Unexpected response (code** *X'response'***) and reason (code** *X'reason'***) from a** *dfhxxyym* **call during processing of intrapartition queue** *queue***.**

DFHTD0343I E *date time applid* **Automatic transaction restart for transaction** *transaction-id* **processing TD queue** *queue-name* **has failed.**

DFHTD1278 *applid* **An error occurred during initialization of intrapartition queue** *queuename* **for userid** *userid***. ATI for non-terminal transactions has been deactivated for this queue.**

DFHTD1279 *applid* **Unexpected response (code** *X'response'***) and reason (code** *X'reason'***) from a** *dfhxxyym* **call.**

DFHTD1280 *applid* **An attempt to establish security has failed for userid** *userid***. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHTF0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset X'***offset***' in module** *modname***.**

DFHTF0002 *applid* **A severe error (code X'***code***') has occurred in module** *modname***.**

DFHTF0100 *date time applid nnnn* **AIDs cancelled for terminal** *termid***.** *nnnn* **AIDs remain.**

DFHTF0101 *date time applid nnnn* **AIDs {cancelled | force-cancelled} for connection** *conname***.** *nnnn* **AIDs remain.**

applid product **is being terminated by userid** *userid* **in transaction** *tranid{at netname | at terminal }terminal***.**

DFHTM1703 *applid product* **is being terminated by userid** *userid* **in transaction** *tranid{at netname | at terminal }terminal***.**

DFHTM1715 *applid product* **is being quiesced by userid** *userid* **in transaction** *tranid{at netname | at terminal }terminal***.**

DFHTM1783 *applid* **CICS shutdown cannot complete because a system task which prevents normal shutdown has not terminated.**

DFHTO6022 E *applid* **TERMINAL** *termdef* **specifies DCEATTACHSEC ACCEPTED or REQUIRED but TYPETERM** *termtype* **does not specify RECOVOPTION=NONE.**

DFHTO6024 E *applid* **The definition for IRC SESSIONs** *sesdef* **specifies a send or receive prefix starting with '<' or '>'.**

DFHTO6025 E *applid* **The definition for LU6.1 SESSIONs** *sesdef* **specifies a send count with no send prefix or a receive count with no receive prefix.**

DFHTS1315 *applid* **The temporary storage data set has exceeded the maximum number of control intervals supported.**

DFHTS1380 *applid* **Severe error occurred while waiting for I/O to the temporary storage data set to complete.**

DFHTR2005 THE LOAD FAILED FOR LOAD MODULE *modname***. PLACE MODULE IN THE LINK LIST AND TRY AGAIN.**

DFHUS0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset X'***offset***' in module** *modname***.**

DFHUS0002 *applid* **A severe error (code X'***code***') has occurred in module** *modname***.**

DFHUS0004 *applid* **A possible loop has been detected at offset X'** *offset***' in module** *modname***.**

DFHUS0006 *applid* **Insufficient storage to satisfy Getmain (code X'** *code***') in module** *modname***. MVS code** *mvscode***.**

DFHUS0050 *applid* **The default userid** *userid1* **cannot be used by this CICS job with job step userid** *userid2***.**

DFHUS0150 *date time applid* **An attempt to establish security has failed for userid** *userid* **in group** *groupid***,** *{no terminal, | netname | console }portname* **applid** *applid***. Unable to initialize the transaction** *tranid***. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHUS0200 *date time applid* **User** *userid* **in group** *groupid{ at terminal | at console | ,}portname* **has been timed out.**

DFHXM0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset X'***offset***' in module** *modname***.**

DFHXM0002 *applid* **A severe error (code X'***code***') has occurred in module** *modname***.**

DFHXM0004 *applid* **A possible loop has been detected at offset X'** *offset***' in module** *modname***.**

DFHXM0101 *date time applid termid userid tranid* **Transaction definition entry for** *transname* **has been added.**

DFHXM0103 *date time applid termid userid tranid* **Transaction definition entry for** *transname* **has been deleted.**

DFHXM0105 *date time applid termid userid tranid* **Transaction definition entry for** *transname* **has been replaced.**

DFHXM0110 *date time applid* **Transaction definition** *transid1* **has been installed with the same remote_name and remote_system as existing definition** *transid2***.**

DFHXM0111 *date time applid* **Catalog failure while processing { install | set | discard} request for transaction definition** *transid***.**

DFHXM0112 *date time applid* **The install of transaction definition** *transid1* **has removed ALIAS** *alias* **of** *transid2***.**

DFHXM0113 *date time applid* **The install of transaction definition** *transid1* **has removed TASKREQ** *taskreq* **of** *transid2***.**

DFHXM0114 *date time applid* **The install of transaction definition** *transid1* **has removed XTRANID X'***xtranid***' of** *transid2***.**

DFHXM0115 *date time applid* **The install of transaction definition** *transid1* **has removed TPNAME** *tpname* **of** *transid2***.**

DFHXM0116 *date time applid* **PROGRAM parameter missing from transaction definition** *transid***. PROGRAM is required because REMOTESYSTEM is the same as the local system.**

DFHXM0201 *date time applid termid userid tranid* **Tranclass definition entry for** *tranclassname* **has been added.**

DFHXM0203 *date time applid termid userid tranid* **Tranclass definition entry for** *tranclassname* **has been deleted.**

DFHXM0205 *date time applid termid userid tranid* **Tranclass definition entry for** *tranclassname* **has been replaced.**

DFHXM0211 *date time applid* **Catalog failure while processing { install | set | discard} request for tranclass definition** *tranclassname***.**

DFHXM0212 *date time applid* **Transaction** *transid* **has been attached with unknown tranclass** *tranclassname***.**

DFHXM0213 *date time applid* **Insufficient storage for system attach of transaction** *transid***.**

DFHXM0301 *date time applid* **An attempt to link to the user-replaceable transaction restart program (DFHREST) has failed for task number** *tasknum***. Transaction restart is not performed for transaction** *tranid***.**

DFHXM0302 *applid* **An abend** *abcode* **occurred in the user-replaceable transaction restart program (DFHREST) under task number** *tasknum***. Transaction restart is not performed for transaction** *tranid***.**

DFHXM0303 *applid* **A severe error (code** *X'code'***) has occurred while initializing task number** *tasknum* **with transaction identifier** *tranid***. Terminal** *termid* **has not been released. The task is suspended indefinitely.**

DFHXM0304 *applid* **A severe error (code** *X'code'***) has occurred while initializing task number** *tasknum* **with transaction identifier** *tranid***. Transient data queue** *tdqueue* **has not been released. The task is suspended indefinitely.**

DFHXM0305 *applid* **A severe error (code X'***code***') has occurred while initializing task number** *tasknum* **with transaction identifier** *tranid***. The interval control element has not been released. The task is suspended indefinitely.**

DFHXM0306 *applid* **A severe error (code X'***code***') has occurred while initializing task number** *tasknum* **with transaction identifier** *tranid***. The task is suspended indefinitely.**

DFHXM0307 *applid* **A severe error (code X'***code***') has occurred while terminating task number** *tasknum* **with transaction identifier** *tranid***. The terminal** *termid* **has not been released. The task is suspended indefinitely.**

DFHXM0308 *applid* **A severe error (code X'***code***') has occurred while terminating task number** *tasknum* **with transaction identifier** *tranid***. The transient data queue** *tdqueue* **has not been released. The task is suspended indefinitely.**

DFHXM0309 *applid* **A severe error (code X'***code***') has occurred while terminating task number** *tasknum* **with transaction identifier** *tranid***. The interval control element has not been released. The task is suspended indefinitely.**

DFHXM0310 *applid* **A severe error (code X'***code***') has occurred while terminating task number** *tasknum* **with transaction identifier** *tranid***. If the task had a principal facility, it has been released. The task is suspended indefinitely.**

DFHXM0501 *applid* **CICS cannot satisfy request for MAXTASKS. Value** *mxtvalue* **has been used instead.**

DFHXM0502 *applid* **A catalog failure has occurred while saving the MXT setting.**

DFHXM0503 *applid* **CICS cannot support minimum MAXTASKS value of** *minmxt***. CICS is terminated.**

DFHXS0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHXS0002 *applid* **A severe error (code** *X'code'***) has occurred in module** *modname***.**

DFHXS0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname***.**

DFHXS0006 *applid* **Insufficient storage to satisfy Getmain (code** *X'code'***) in module** *modname***. MVS code** *mvscode***.**

DFHXS1100I *applid* **Security initialization has started.**

DFHXS1101I *applid* **Security initialization has ended.**

DFHXS1102I *applid* **Security is inactive.**

DFHXS1103I *applid* **Default security for userid** *dfltuser* **has been established.**

DFHXS1104 *applid* **Default security could not be established for userid** *dfltuser***. The security domain cannot continue, so CICS is terminated. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHXS1105 *applid* **Resource profiles for class** *classname* **have been built.**

DFHXS1106 *applid* **Resource profiles could not be built for class** *classname***. CICS is terminated. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHXS1107 *applid* **Partner-LU profiles for class APPCLU have been built.**

DFHXS1108 *applid* **An error has occurred in the External Security Manager during a RACROUTE REQUEST=LIST operation. SAF codes: X'***xxxx* **'/X'***yyyy***'. ESM codes: X'***zzzz***'/X'***aaaa***'.**

DFHXS1109 *applid* **APPC PROFILE** *profile* **COULD NOT BE AUDITED. SAF CODES ARE (***X'safresp'***,***X'safreas'***). ESM CODES ARE (***X'esmresp'***,***X'esmreas'***).**

DFHXS1110 *applid* **Security is requested, but the external security manager is inactive.**

DFHXS1111 *date time applid* **Security violation by user** *userid{ at netname | at console }portname* **for resource** *resource* **in class** *classname***. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHXS1112 *applid* **The CICS region userid and groupid could not be determined. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHXS1113 *applid* **The region userid cannot access system transaction** *tranid***. CICS will terminate. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHXS1201 *date time applid* **The password supplied in the verification request for userid** *userid* **was invalid. The violation occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1202 *date time applid* **The password supplied in the verification request for userid** *userid* **has expired. The problem occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1203 *date time applid* **The userid supplied in the verification request for userid** *userid* **is revoked. The problem occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1205 *date time applid* **The userid** *userid* **supplied in a verification request is not defined in the ESM. This occurred in transaction** *tranid* **at netname** *netname***.**

DFHXS1211 *date time applid* **The password supplied in a change password request for userid** *userid* **was invalid. The violation occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1213 *date time applid* **The userid supplied in a change password request for userid** *userid* **is revoked. The problem occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1214 *date time applid* **The new password supplied in a change password request for userid** *userid* **was not accepted. The problem occurred in transaction** *tranid* **when userid** *userid* **was signed on at netname** *netname***.**

DFHXS1215 *date time applid* **The userid** *userid* **supplied in a change password request is not defined in the ESM. This occurred in transaction** *tranid* **at netname** *netname***.**

DFHXS1216 *date time applid* **The userid** *userid* **supplied in a change password request has a revoked connection to the default group in the ESM. This occurred in transaction** *tranid* **at netname** *netname***.**

DFHZC0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHZC0002 *applid* **A severe error (code** *X'code'***) has occurred in module** *modname***.**

DFHZC0003 *applid* **Insufficient storage (code** *X'code'***) in module** *modname***.**

DFHZC0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname***.**

DFHZC0101I *date time applid* **A predatory takeover has forced VTAM to allow another application to open the ACB which CICS was using.**

DFHZC0110 *date time applid* **The LU6.2 NIB and the TCTTE/BIND data for session** *sessid* **did not match during a persistent sessions restart. Reason code** *X'n'***.**

DFHZC0111 *date time applid* **No session TCTTE is available to match sysid** *sysid* **for modename** *modename* **because VTAM has returned more NIBs than the CNOS session limit values require.**

DFHZC0112 *date time applid* **No TCTME was found for sysid** *sysid* **modename** *modename* **during a persistent sessions restart.**

DFHZC0120I *applid* **VTAM sessions persisted for a COLD start. Sessions terminated. Inquires issued** *icount***, sessions persisting.**

DFHZC0121I *applid* **VTAM sessions persisted for a WARM start. Sessions terminated. Inquires issued** *icount***, sessions persisting** *spcount***, sessions terminated** *stcount***.**

DFHZC0122I *applid* **VTAM sessions persisted for an EMERGENCY, XRF=YES start. Sessions terminated. Inquires issued** *icount***, sessions persisting** *spcount***, sessions terminated** *stcount***.**

DFHZC0123I *applid* **VTAM sessions persisted when OPEN VTAM ACB issued. Sessions terminated. Inquires issued** *icount***, sessions persisting** *spcount***, sessions terminated** *stcount***.**

DFHZC0124I *applid* **VTAM sessions persisted for an EMERGENCY start. Inquires issued** *icount***, sessions persisting** *spcount***, sessions terminated** *stcount***, sessions OPNDSTed** *socount***, sessions in error** *secount***.**

DFHZC0125 I *date time applid netname* **persistent session will be terminated. ((***instance***) Module name: {DFHZGRP})**

DFHZC0126 *applid* **No VTAM sessions persisted for an EMERGENCY restart.**

DFHZC0127 *applid* **Cannot re-establish persisting sessions - VTAM ACB closed. Code:** *X'code'***. Module ID:** *module*

DFHZC0128 *applid* **Cannot reestablish persisting sessions - VTAM not responding. Module name: module.**

DFHZC0129 *applid* **VTAM OPNDST RESTORE failed. All sessions in the NIBLIST will be terminated instead. RTNCD,FDB2:** *X'rc'***,***X'fd'***. Code:** *X'code'***.**

DFHZC0130 *applid* **VTAM INQUIRE PERSESS failed. Cannot restore any persisting sessions. RTNCD,FDB2:** *X'rc'***,***X'fd'***. Code:** *X'code'***.**

DFHZC0131 I *date time applid netname termid* **VTAM OPNDST RESTORE failed.**

DFHZC0132 *applid* **VTAM INQUIRE PERSESS failed. Cannot restore some persisting sessions. Network only partially restored. RTNCD,FDB2:** *X'rc'***,***X'fd'***. Code:** *X'code'***.**

DFHZC0133A *applid* **Persistent session recovery failed.**

DFHZC0136 *applid* **PSDI value indicated persistence but the run time VTAM does not support persistent sessions.**

DFHZC0137 *applid* **PSDI value indicated persistence but the TCT assemble time VTAM does not support persistent sessions.**

DFHZC0140 *applid* **SETLOGON PERSIST failed. RTNCD,FDB2:** *X'rc'***,***X'fd'***. Code:** *X'code'***.**

DFHZC0144 *date time applid* **Synclevel 2 conversation started by** *netname* **before Exchange Lognames, and following a persistent sess ions restart.** *sense* **((***instance***) Module name: {DFHZGDA}).**

DFHZC0145 *date time applid netname termid* **Synclevel 2 APPC conversation started before Exchange Lognames completed. Error occurred executing Deallocate(Abend).** *sense* **((** *instance***) Module name: {DFHZGDA}).**

DFHZC0146 *date time applid* **VTAM session for** *termid* **successfully recovered following a persistent sessions restart** *sense* **((***instance***) Module name: {DFHZXRC}).**

DFHZC0147 *date time applid* **Error occurred recovering persisting session for** *termid***. Reason Code** *xx sense* **((***instance***) Module name: {DFHZGDA}).**

DFHZC0148 *date time applid* **VTAM send or receive failed during persistent sessions recovery for** *termid sense* **((***instance***) Module name: {DFHZGDA}).**

DFHZC0149 *date time applid termid* **Connection failure occurred during a persistent sessions restart** *sense* **((***instance***) Module name: {DFHZNSP}).**

DFHZC0150 *date time applid termid* **Error processing the session state data returned after a persistent sessions restart. Reason code xx** *sense* **((***instance***) Module name: {DFHZXRC}).**

DFHZC0155 *date time applid sysid termid* **Error occurred during processing of session state data returned after restart of persisting session.** *sense* **((***instance***) Module name: {DFHZXPS}).**

DFHZC0156 *date time applid sysid* **VTAM APPC session** *termid* **successfully recovered following a persistent sessions restart.** *sense* **((***instance***) Module name: {DFHZXPS}).**

DFHZC0160 *date time applid tranid* **CNOS changes for modename** *modename* **to node** *netname* **connection** *sysid* **are incomplete.**

DFHZC0161 *date time applid tranid* **CNOS command for modename** *modename* **to node** *netname* **connection** *sysid* **has failed with code** *X'code'***.**

DFHZC0162 *date time applid tranid* **CNOS transaction for connection** *sysid* **has failed with code** *X'code'* **subcode** *X'subcode'***.**

DFHZC0170I *applid* **CICS registered successfully to VTAM generic resource name** *grname***.**

DFHZC0171 *applid* **CICS registration as a VTAM generic resource in the group** *grname* **failed. VTAM return code:** *X'rc'***. FDB2:** *X'fd'***.**

DFHZC0172I *applid* **CICS deregistered successfully from VTAM generic resource name** *grname* **prior to ACB closure.**

DFHZC0173 *applid* **CICS deregistration from VTAM generic resource name** *grname* **failed. VTAM return code:** *X'rc'***. FDB2:** *X'fd'***.**

DFHZC0174 *applid* **Control block initialization has failed. Generic resource registration or deregistration will not be attempted. Return codes** *r15***,***r0***.**

DFHZC0175 *applid* **A value was specified for GRNAME but the assemble time or run time VTAM does not support generic resource registration.**

DFHZC0199 **CICS/ESA has recovered after a system failure. Execute recovery procedures.** *{ Already signed on. | Please sign on.}*

DFHZC0200 *applid* **An attempt by the COVR transaction to OPEN VTAM has failed with return code** *X'retcode'***; CICS will retry.**

DFHZC0201 *applid* **An attempt by the COVR transaction to OPEN VTAM has failed with return code** *X'retcode'***; the COVR transaction will terminate.**

DFHZC2114 E *date time applid termid tranid* **A SEND response failed during receive-any processing.** *sense* **((***instance***) Module name: {DFHZRAC})**

DFHZC2115 *applid termid* **Potential CICS hang detected following a SEND to node** *netname***, CID** *X'cid'***. Investigation is required. ((***instance***) Module name: {DFHZRAC})**

DFHZC2300 *applid* **Recovery action requested for connection** *sysid***.**

DFHZC2301I *applid* **Connection** *sysid* **operating normally following recovery action.**

DFHZC2302 *applid* **SETLOGON start command rejected.**

DFHZC2303 *applid* **No storage available when initiating RECEIVE-ANY's. Code:** *X'code'***.**

DFHZC2304 *applid* **RECEIVE-ANY command rejected. Code:** *X'code'***.**

DFHZC2307 *applid* **CICS VTAM ABNORMALLY QUIESCING (***modname***).**

DFHZC2308 *applid* **TCP Task WAIT failed. Unexpected response from DSSR WAIT_OLDW call (RESPONSE** *X'xx'***, REASON** *X'yy'***).**

DFHZC2309 *applid* **Recovery action requested for connection** *sysid* **using mode group** *modename***.**

DFHZC2310I *applid* **Connection** *sysid* **using mode group** *modename* **operating normally following recovery action.**

DFHZC2312 ***** WELCOME TO CICS/ESA *****

DFHZC2320 **CORRUPTED TCTTE ADDRESS FOUND DURING SHUTDOWN.**

DFHZC2350A *date time applid* **CICS Terminal Control shutdown threshold (***mm* **minutes) exceeded. Sessions still active:** *sesslist* **((***instance***) Module name: {DFHZSHU}**

DFHZC2351 *date time applid termid netname* **Session still active after TC shutdown threshold expired. Reason:** *{01 Request in progress | 02 Task still active | 03 Waiting for SHUTC | 04 Waiting for BIS | 05 Waiting for UNBIND | 06 Waiting*

for RTR | 07 BID in progress | 08 Other TC work pending | 99 Undetermined} sense **((***instance***) Module name: {DFHZSHU})**

DFHZC2352 *date time applid sysid netname* **Intersystem parallel connection still active after TC shutdown threshold expired. ((***instance***) Module** *{DFHZSHU})* **).**

+ **DFHZC3202 E** *date time applid* **Transaction CCIN - VTAM netname** *netname***. The value** *codepage* **in the codepage parameter is not supported.**

+ **DFHZC3203 E** *date time applid* **Transaction CCIN - VTAM netname** *netname***. The capabilities parameter is not valid.**

+ **DFHZC3204 E** *date time applid* **Transaction CCIN - VTAM netname** *netname***. The codepage parameter has not been specified.**

+ **DFHZC3205 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. CICS cannot support the** *{n.a. | n.a. | n.a | combination of client and virtual terminal codepage. | client codepage. | virtual terminal codepage.}*

+ **DFHZC3206 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The client's terminal install limit has been exceeded.**

+ **DFHZC3207 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. The request has failed because CCIN has not been run.**

+ **DFHZC3208 E** *date time applid* **Transaction CTIN - virtual terminal** *termid***. VTAM netname** *netname***. Model** *modelid* **cannot be found.**

+ **DFHZC3209 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. CICS cannot supply a terminal name because all available names are in use.**

+ **DFHZC3210 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. CICS cannot attach the CITS transaction.**

+ **DFHZC3211 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The NetName parameter starts with an invalid character.**

+ **DFHZC3212 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The transaction has timed out waiting for CITS to run.**

+ **DFHZC3213 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. CICS cannot attach the CDTS transaction.**

+ **DFHZC3214 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The CTIN transaction has timed out waiting for CDTS to run.**

+ **DFHZC3215 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The terminal is in use by another transaction**

+ **DFHZC3216 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. CICS cannot find the terminal**

+ **DFHZC3217 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. The specified function is not valid**

+ **DFHZC3218 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. A resource with the same name as the terminal is already installed.**

+ **DFHZC3219 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The terminal is already in use**

+ **DFHZC3220 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The terminal has already been installed.**

+ **DFHZC3221 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The name specified is already in use by another CICS resource.**

+ **DFHZC3222 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The CITS task has terminated abnormally.**

+ **DFHZC3223 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The surrogate TCTTE is in use and cannot be deleted.**

+ **DFHZC3224 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. The terminal specified for deletion cannot be found.**

+ **DFHZC3225 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. The terminal cannot be deleted because the NetName parameter is missing.**

+ **DFHZC3226 E** *date time applid* **Transaction CTIN - virtual terminal** *termid* **VTAM netname** *netname***. CICS cannot access the builder parameter set.**

+ **DFHZC3227 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. The client data is longer than expected**

+ **DFHZC3228 E** *date time applid* **Transaction CTIN - VTAM netname** *netname***. The client header data contains an invalid group.**

+ **DFHZC3229 E** *date time applid* **Transaction CTIN - VTAM netname** *netname*. **CICS has received invalid data from the client.**

+ **DFHZC3230 E** *date time applid* **Transaction CTIN - VTAM netname** *netname*. **CICS has received a client request on an** + **unsupported sync level.**

+ **DFHZC3231 E** *date time applid* **Transaction CTIN - VTAM netname** *netname*. **The client header data contains an invalid** + **version number.**

+ **DFHZC3240 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **CICS has received a client request on an** + **unsupported sync level.**

+ **DFHZC3241 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **The client data is longer than expected.**

+ **DFHZC3242 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **The client header data contains an invalid** + **group.**

+ **DFHZC3243 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **The client header data contains an invalid** + **version number.**

+ **DFHZC3244 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **The client header data contains an invalid** + **function.**

+ **DFHZC3245 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **The capabilities parameter has not been** + **specified.**

+ **DFHZC3246** *date time applid* **Transaction CCIN - virtual terminal** *termid* **VTAM netname** *netname*. **CICS cannot attach the** + **CDTS transaction.**

+ **DFHZC3247** *date time applid* **Transaction CCIN - virtual terminal** *termid* **VTAM netname** *netname*. **The CCIN transaction** + **has timed out waiting for CDTS to run.**

+ **DFHZC3248 E** *date time applid* **Transaction CCIN - virtual terminal** *termid* **VTAM netname** *netname*. **The surrogate TCTTE is** + **in use and cannot be deleted.**

+ **DFHZC3249 E** *date time applid* **Transaction CCIN - VTAM netname** *netname*. **CICS has received invalid data from the client.**

DFHZC4923 *date time applid termid tranid* **Invalid or unsupported BIND for logmode** *logmode*. **Response X'***response* **', Reason X'***reason*' **((***instance***) Module: { DFHZOPN}).**

DFHZC4929 *date time applid termid tranid* **Invalid or unsupported BIND for logmode** *logmode*. **Response** *X'response'*, **Reason** *X'reason'* **((***instance***) Module:** *{DFHZOPN}***).**

DFHZC4948 E *date time applid* **An error has been detected when processing an***{ unknown | inbound | outbound}{ request. | Persistent Verify Signoff request. | Persistent Verify Timeout request. | DCE Signoff request.}* **Transaction** *tranid* **is***{ continuing. | terminating. | terminating abnormally.}* **Error code:** *X'xxxxx'* **Connection:** *yyyy*.

DFHZC5909 E *date time applid* **Install of resource** *resource* **failed. Call to DFHIRP** *irp_function X'Return_code'* **did not succeed, See DFHIRSDS for return code.**

DFHZC6305 E *date time applid* **Install for EXCI generic connection** *cccc* **failed. Duplicate EXCI generic connection** *rrrr* **found.**

DFHZC6341 E *date time applid* **Loop or ABEND has been detected in** *inmodule* **by module** *bymodule*.

DFHZC6350 I *date time applid* **The** *type* **session name BITMAP was corrupt and has been rebuilt. Error code: AP FB05.**

DFHZC6361 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the preset userid is invalid.**

DFHZC6362 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the preset userid has been revoked.**

DFHZC6363 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the preset userid's group access has been revoked.**

DFHZC6364 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the ESM returned an unrecognized response.**

DFHZC6365 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the external security manager is inactive.**

DFHZC6366 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the userid is not authorized to access this CICS system.**

DFHZC6367 E *date time applid* **Install for** *{netname | console | terminal }termid* **with userid** *userid* **failed because the SECLABEL check failed.**

DFHZC6368 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the external security manager is quiesced.**

DFHZC6369 E *date time applid* **Install for** *{netname | console | terminal }portname* **failed because national language** *langcode* **is invalid.**

DFHZC6370 E *date time applid* **Install for** *{netname | console | terminal }portname* **failed because national language** *langcode* **is unavailable.**

DFHZC6371 E *date time applid* **Install for** *{netname | console | terminal }portname* **with userid** *userid* **failed because the userid is not authorized to use this portname.**

DFHZC6914 E *date time applid* **Autoinstall for Terminal** *termid***, Netname** *netname* **failed. Bad Return Code (RC =** *X'retcode'* **) from internal function call.**

DFHZC6920 E *date time applid* **APPC autoinstall for NETNAME** *netname* **failed. RC** *x*

DFHZC6921 W *date time applid* **Autoinstall for NETNAME** *netname* **has been disallowed by the autoinstall control program. Code X'***code* **'**

DFHZC6922 E *date time applid* **Parameter list error during autoinstall for NETNAME** *netname***. Code X'***code***'**

DFHZC6923 E *date time applid* **Unacceptable bind parameter during autoinstall for NETNAME** *netname***. Code X'***code***'**

New abends

The following abends are introduced:

	Abend	Module	Explanation
	AAM1	DFHALP	Unexpected response from DFHXMCL during install of TRANCLASS
	AAM2	DFHALP	Unexpected response from DFHXMXD during transaction definition install
	ACHR	DFHCHS	Failure of the CICS/CMS remote server transaction (CEHS)
	ACHS	DFHCHS	Failure of the CICS/OS2 remote server transaction (CEHP)
+	ACN4	DFHCCNV	An unrecognized format of a DFHCNV table has been encountered.
+	ACN5	DFHCCNV	An unrecognized override for the default client code page has been received.
+	ACN6	DFHCCNV	Conversion between client and server code pages not supported by CICS/390.
+	ACN7	DFHCCNV	An unrecognized override for the default binary format has been received.
+	ACN8	DFHCCNV	CICS data conversion is processing a FIELD defined as containing graphic characters.
	ACRK	DFHAPRT	Relay program invoked with no address for principal facility
	ACRL	DFHAPRT	The task does not own the facility
	ACRM	DFHAPRT	Dynamic routing program INITIAL_LINK failure
	ADEF	DFHCLS3	Severe error executing transaction CLS3
	AEDA	DFHEDFX	CEDF started with invalid start code
	AEDB	DFHEDFX	DFHEDFP passed invalid EDFXA
	AEDC	DFHEDFX	EDF GETMAIN request failed
	AEDD	DFHEDFX	EDF attach failed
	AEDE	DFHEDFX	EDF suspend failed
	AEDH	DFHEDFX	Failure of call to program manager
	AETC	DFHERM	Command issued with invalid TRUE
	AETF	DFHERM	Task purged before completion of storage manager request
	AETG	DFHERM	Error on call to storage manager
	AETH	DFHERM	Task purged before completion of storage manager request
	AETI	DFHERM	Error on call to storage manager
	AEX7	DFHEIP	NETNAMEIDERR condition not handled
	AEYD	DFHSRP	Storage violation by CICS
+	AFCN	DFHDMPCA	File control tried to write a journal record that is too large for journal.
	AICK	DFHEIIC	Invalid response from resource level security check
	AICL	DFHEIIC	Invalid function code in the command level parameter list
	AICO	DFHICXM	Unexpected EXCEPTION response on call to user domain
	AICR	DFHCRR	Failure of DFHTC write request for IRC
	AKC0	DFHAPATT	Attempt to run CSSY as user transaction
	AKED	DFHKEEDA	Deferred abend request in kernel domain
	AKEZ	DFHKETA	Failure of user attach - insufficient kernel tasks
	ALIA	DFHAPLI	OS/VS COBOL GETMAIN failure - insufficient storage
	ALIB	DFHAPLI	C/370 GETMAIN failure - insufficient storage
	ALIC	DFHAPLI	LE/370 GETMAIN failure (above 16MB) - insufficient storage
	ALID	DFHAPLI	LE/370 GETMAIN failure (below 16MB) - insufficient storage
	ALIE	DFHAPLI	C/370 GETMAIN failure - insufficient storage
	ALIF	DFHAPLI	LE/370 GETMAIN failure - insufficient storage
	ALIG	DFHAPLI	Failure to determine language of application program
+	APCZ	DFHAPLI	Storage exception caused by non-reentrant application program
	APC0	DFHPCP	Serious error on call to program manager domain
	APTI	DFHPSPST	Task purged before GETMAIN request to storage manager completed
	APTJ	DFHPSPST	Error on call to storage manager domain
	ASFC	DFHSFP	Attempt to execute CICS signoff program against APPC session

	Abend	Module	Explanation
	ASIB	DFHSIPLT	Invalid attempt to run CICS internal task CPLT as user transaction
	ASRK	DFHSR1	DFHSR1 unable to call system recovery program (DFHSRP)
	ATCZ	DFHZSLS	Error in call to security domain
	ATOA	DFHCESC	Invalid attempt to invoke CESC with terminal as principal facility
	ATOB	DFHCESC	Abnormal response from EXEC CICS START TRANSACTION(CESC)
	ATOC	DFHCESC	Failure of a DFHZCUT timeout request
	ATOD	DFHCESC	Abnormal response from EXEC CICS CANCEL TRANSACTION(CESC)
	ATOE	DFHCESC	Cannot determine time XRF takeover began
	ATOF	DFHCESC	Abnormal response from EXEC CICS DELAY TRANSACTION(CESC)
	ATOG	DFHCESC	Abnormal response from EXEC CICS START TRANSACTION(CEGN)
	ATOH	DFHCESC	Failure of CESC due to an invalid function code
	ATOT	DFHCEGN	CEGN RETRIEVE failure
	ATOU	DFHCEGN	CEGN RETURN failure
	ATOV	DFHCEGN	CEGN GETMAIN, ASSIGN or SEND failure
	AWKY	DFHWKP	Failure of global catalog request during warm keypointing
	AWKZ	DFHWKP	Failure of keypoint request for automatic AIDs chain
	AXMA	DFHxxx	Error obtaining a lock in transaction manager domain For module list,see *CICS/ESA Messages and Codes*
	AXMB	DFHxxx	Error releasing a lock in transaction manager domain For module list,see *CICS/ESA Messages and Codes*
	AXMC	DFHXMAT DFHXMXE	Severe error allocating unique transaction number to a new transaction
	AXMD	DFHXMAB	Invalid attempt to run CICS internal task CSXM
	AXMY	DFHXMAT	Error obtaining transaction class membership
	AXMZ	DFHXMTA	Severe error detected by the transaction manager domain
+	AXTQ	DFHXTP	Transaction routing error during conversion from EBCDIC to ASCII
+	AXTR	DFHXTP	Error trying to load DFHCCNV in transaction routing function
+	AZAD	DFHZCN1	DFHZCN1 has been started by an unexpected system
+	AZAE	DFHZCN1	DFHZCN1 has been started by a terminal that is not an LU6.2 session
+	AZAF	DFHZCN1	DFHZCN1 started with wrong environment or client architecture violated.
+	AZAG	DFHZCT1	DFHZCT1 has been started from an unexpected system
+	AZAH	DFHZCT1	DFHZCT1 has been started by a terminal that is not an LU6.2 session
+	AZAI	DFHZCT1	DFHZCT1 started with wrong environment or client architecture violated.
+	AZAJ	DFHZCN1	CCIN must be a local transaction runing on a CICS region directly connected to a client.
+	AZAK	DFHZCT1	CTIN must be a local transaction runing on a CICS region directly connected to a client.
	AZCU	DFHZCOVR	Invalid attempt to start COVR transaction
	AZCV	DFHZCOVR	Logic error in COVR transaction connecting to VTAM
	AZCW	DFHZCSTP	Invalid attempt to run CICS internal task CSTP
	AZT3	DFHZTSP	Task is being routed back to region from where it came
	AZVM	DFHZATMF	Error in DFHZATMF
	AZVN	DFHZATMF	CRMF started directly from terminal
	AZVO	DFHZATMD	CRMD started directly from terminal
	AZVP	DFHZATMD	Error in DFHZATMD
+	AZVQ	DFHZATS	Shipped terminal install request rejected by user autoinstall program
+	AZVR	DFHZATS	Shipped terminal install request failed—invalid return code
+	AZVR	DFHZATS	Shipped terminal install request failed—error in user autoinstall program
	0401	DFHXCSTB	EXCI call made in AMODE 24
	0402	DFHXCPRH	Nonzero return code following MVS ESTAE issued by DFHXCPRH
	0403	DFHXCPRH	Nonzero return code following MVS GETMAIN request by DFHXCPRH
	0404	DFHXCPRH	EXCI dump services not available to take MVS SDUMP
	0405	DFHXCPRH	Failure of SSI VERIFY request by DFHXCPRH
	0406	DFHXCPRH	Failure of CICS SVC call during EXCI initialization
	0407	DFHXCPRH	CICS SVC at the wrong level for EXCI
	0408	DFHXCPRH	Failure of MVS GETMAIN request by DFHXCPRH for working storage
	0409	DFHXCPRH	Failure of MVS GETMAIN request by DFHXCPRH for SSI VERIFY
	0410	DFHXCPRH	Failure of MVS GETMAIN request by DFHXCPRH for XCUSER block
	0411	DFHXCDMP	Failure of CICS SVC call by DFHXCDMP
	0412	DFHXCEIP	Invalid function in EXEC parameter list of EXCI EXEC API request
	0413	DFHEIP	Error in EXEC parameter list of EXCI EXEC API request
	0414	DFHXCEIP	Nonzero return code following MVS ESTAE issued by DFHXCEIP
	0415	DFHXCEIP	Error in EXCI initialization detected by DFHXCEIP

Changed information

The following messages have been changed in CICS/ESA 4.1:

+ DFHAC2004
+ DFHAC2036
DFHAC2044
+ DFHAC2236
+ DFHAC2237
DFHCP0756
DFHCR4310
DFHCR4311
DFHDL3909
DFHDL3945
DFHFC0202
DFHFC0203
DFHFC0204
DFHFC0205
DFHFC0940
DFHFC0941
DFHFC0942
DFHFC0943
DFHFC0945
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DFHFC0948
DFHFC0987
DFHFC0990
DFHFC0991
DFHFE3310
DFHIR3780
DFHIR3788
DFHJC4564
DFHKC0102
DFHKC0104
DFHKC0106
DFHKC0301
DFHKE0999
+ DFHMN0206
+ DFHMN0217
DFHPA1926
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+ DFHTR1001
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DFH5621
DFH5622
DFH5623
DFH5624
DFH7075
DFH7259
DFH7261
DFH7262

Deleted information

This section lists messages that are deleted in CICS/ESA 4.1. Note that deleted messages of the old style (DFH*nnnn*) may have been replaced by messages of the same number with a component code added, to become DFH*ccnnnn* messages. See “Converted messages” on page 116 for a list of replaced messages.

DFHAC2046
DFHAC2049
DFHAC2210
DFHAC2211
DFHAC2212
DFHAC2213
DFHAC2214
DFHAC2240
DFHAC2241
DFHAC2242
DFHAC2243
DFHAC2244
DFHAP0400
DFHAP1210
DFHBP6803
DFHBP6804
DFHCE3505
DFHCR4313
DFHDS0102
DFHFC0404
DFHFC0992
DFHFC0993
DFHFC0994
DFHIW4923
DFHKC0101
DFHKC0103
DFHKC0105
DFHKC0306
DFHPA1925
DFHPC0101
DFHPC0102
DFHPC0103
DFHPC0406
DFHSI1557
DFHSM0112
DFHSM0116
DFHSM0117
DFHSM0118
DFHSM0121
DFHSN0005
DFHSN0100
DFHSN0101
DFHSN0102
DFHSN0103
DFHSN0104
DFHSN0105
DFHSN0106
DFHSN0107
DFHSN0108
DFHSN0109
DFHSN0112
DFHSN0113
DFHSN0114
DFHSN0115
DFHSN0117
DFHSN0118
DFHSN0119
DFHSN0120
DFHSN0200
DFHSN0212
DFHSN0213
DFHSN0214
DFHSN0215
DFHSN0400
DFHSN0401
DFHSN0500
DFHSN0604
DFHSN0605
DFHSN0606
DFHSN0607
DFHSN0608
DFHSN0609
DFHSN0700
DFHSN0701
DFHSN0800
DFHSN0801
DFHSN0802
DFHSZ9999
DFHTM1701
DFHTM1702
DFHTM1713
DFHTM1714
DFHXS0100
DFHXS0101
DFHXS0205
DFHXS0206
DFHXS0207
DFHXS3604
DFHXS3605
DFHXS3606
DFHZC2306
DFHZC3473
DFHZC5935
DFHZC6486
DFHZE2603
DFHZE2605
DFHZE2606
DFH0302
DFH0308
DFH0310
DFH0401
DFH0405
DFH0407
DFH0408
DFH0409
DFH0801
DFH0802
DFH1001
DFH1003
DFH1011
DFH1012
DFH1013
DFH1022
DFH1023
DFH1024
DFH1034
DFH1035
DFH1036
DFH1040
DFH1041
DFH1042
DFH1043
DFH1044
DFH1045
DFH1046
DFH1047
DFH1060
DFH1305
DFH1308
DFH1312
DFH1516
DFH1520
DFH1529
DFH1575
DFH1585
DFH1586
DFH1601
DFH1602
DFH1603
DFH1604
DFH1609
DFH1708
DFH2101
DFH2102
DFH2103
DFH2104
DFH2105
DFH2106
DFH2107
DFH2108
DFH2110
DFH2111
DFH2112
DFH2122
DFH2123
DFH2124
DFH2302
DFH2303
DFH2304
DFH2305
DFH2306
DFH2307
DFH2308
DFH2312
DFH2316
DFH2318
DFH2319
DFH2320
DFH2800
DFH2801
DFH2802
DFH2803
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DFH2927

DFH2928
DFH3106
DFH3107
DFH3700
DFH3701
DFH3702
DFH3703
DFH3704
DFH3705
DFH3706
DFH3707
DFH3708
DFH3709
DFH3710
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DFH3785
DFH3793
DFH3795
DFH3797
DFH3900
DFH3911
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DFH4000
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DFH4700
DFH4702
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DFH4720
DFH4923
DFH5144
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DFH5162
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DFH5604
DFH5704
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DFH6110
DFH6111
DFH6199
DFH6215
DFH6400
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DFH6649
DFH6650
DFH6651
DFH6680
DFH6681
DFH6682
DFH6683
DFH6700
DFH6702
DFH6703
DFH6704
DFH6705
DFH6706
DFH6707
DFH6708
DFH6709
DFH6710
DFH6711
DFH6712
DFH6720
DFH6721
DFH8300
DFH8301
DFH8302
DFH8303
DFH8304

The following abends have been deleted.

ADLI
ADCN
AEC4
AEDF
AETD

AETE
AEXA
AEXB
AEXD
AEXE

APCA
APCB
APCC
APCD
APCM

APCN
APCP
APCQ
APCR
APCU

APTA
APTB
AXSB
AZT2

Converted messages

The process of converting messages to the component-id format for those messages handled by the CICS message domain, begun in CICS/ESA Version 3, is continued in CICS/ESA 4.1. Converted messages retain the numeric part of their identifier, preceded by a 2-character component identifier. The following lists of messages show the old message on the left, with the corresponding new message on the right:

Old message	New message	Old message	New message	Old message	New message
DFH0302	DFHKC0302	DFH1034	DFHTC1034	DFH1586	DFHSI1586
DFH0308	DFHKC0308	DFH1035	DFHTC1035	DFH1601	DFHDU1601
DFH0310	DFHIC0310	DFH1036	DFHTC1036	DFH1602	DFHDU1602
DFH0401	DFHPC0401	DFH1040	DFHTC1040	DFH1603	DFHDU1603
DFH0405	DFHPC0405	DFH1041	DFHTC1041	DFH1604	DFHDU1604
DFH0407	DFHPC0407	DFH1042	DFHTC1042	DFH1609	DFHDU1609
DFH0408	DFHPC0408	DFH1043	DFHTC1043	DFH2302	DFHZC2302
DFH0409	DFHPC0409	DFH1044	DFHTC1044	DFH2303	DFHZC2303
DFH0801	DFHIC0801	DFH1045	DFHTC1045	DFH2304	DFHZC2304
DFH0802	DFHIC0802	DFH1046	DFHTC1046	DFH2305	DFHZC2305
DFH1001	DFHTC1001	DFH1047	DFHTC1047	DFH2307	DFHZC2307
DFH1002	DFHTC1002	DFH1060	DFHTC1060	DFH2308	DFHZC2308
DFH1003	DFHTC1003	DFH1305	DFHRS1305	DFH2312	DFHZC2312
DFH1011	DFHTC1011	DFH1308	DFHRS1308	DFH2320	DFHZC2320
DFH1012	DFHTC1012	DFH1312	DFHRS1312	DFH2800	DFHRU2800
DFH1013	DFHTC1013	DFH1516	DFHSI1516	DFH2801	DFHRU2801
DFH1015	DFHTC1015	DFH1529	DFHSI1529	DFH2802	DFHRU2802
DFH1022	DFHTC1022	DFH1581	DFHSI1581	DFH2803	DFHRU2803
DFH1023	DFHTC1023	DFH1584	DFHSI1584	DFH2804	DFHRU2804
DFH1024	DFHTC1024	DFH1585	DFHSI1585	DFH2805	DFHRU2805

Old message	New message
DFH2806	DFHRU2806
DFH2807	DFHRU2807
DFH2808	DFHRU2808
DFH2809	DFHRU2809
DFH2811	DFHRU2811
DFH2812	DFHRU2812
DFH2813	DFHER2813
DFH2814	DFHRU2814
DFH2815	DFHRU2815
DFH2816	DFHRU2816
DFH2820	DFHRU2820
DFH2821	DFHRU2821
DFH2900	DFHJC2900
DFH2901	DFHJC2901
DFH2902	DFHJC2902
DFH2903	DFHJC2903
DFH2904	DFHJC2904
DFH2905	DFHJC2905
DFH2906	DFHJC2906
DFH2907	DFHJC2907
DFH2908	DFHJC2908
DFH2909	DFHJC2909
DFH2910	DFHJC2910
DFH2911	DFHJC2911
DFH2912	DFHJC2912
DFH2913	DFHJC2913
DFH2914	DFHJC2914
DFH2915	DFHJC2915
DFH2916	DFHJC2916
DFH2917	DFHJC2917
DFH2918	DFHJC2918
DFH2919	DFHJC2919
DFH2920	DFHJC2920
DFH2921	DFHJC2921
DFH2922	DFHJC2922
DFH2923	DFHJC2923
DFH2924	DFHJC2924
DFH2925	DFHJC2925
DFH2926	DFHJC2926
DFH2927	DFHJC2927
DFH2928	DFHJC2928
DFH3106	DFHAK3106
DFH3107	DFHAK3107
DFH3700	DFHIR3700
DFH3701	DFHIR3701
DFH3702	DFHIR3702
DFH3703	DFHIR3703
DFH3704	DFHIR3704
DFH3705	DFHIR3705
DFH3706	DFHIR3706
DFH3707	DFHIR3707
DFH3708	DFHIR3708
DFH3709	DFHIR3709
DFH3710	DFHIR3710
DFH3711	DFHIR3711
DFH3712	DFHIR3712
DFH3713	DFHIR3713
DFH3714	DFHIR3714
DFH3715	DFHIR3715
DFH3716	DFHIR3716
DFH3717	DFHIR3717
DFH3718	DFHIR3718
DFH3719	DFHIR3719
DFH3720	DFHIR3720
DFH3721	DFHIR3721
DFH3722	DFHIR3722
DFH3723	DFHIR3723
DFH3724	DFHIR3724
DFH3725	DFHIR3725
DFH3726	DFHIR3726
DFH3727	DFHIR3727
DFH3728	DFHIR3728
DFH3729	DFHIR3729
DFH3730	DFHIR3730
DFH3731	DFHIR3731
DFH3732	DFHIR3732
DFH3733	DFHIR3733
DFH3734	DFHIR3734
DFH3735	DFHIR3735
DFH3736	DFHIR3736
DFH3737	DFHIR3737
DFH3738	DFHIR3738
DFH3739	DFHIR3739
DFH3740	DFHIR3740
DFH3741	DFHIR3741
DFH3742	DFHIR3742
DFH3743	DFHIR3743
DFH3744	DFHIR3744
DFH3745	DFHIR3745
DFH3746	DFHIR3746
DFH3765	DFHIR3765
DFH3782	DFHIR3782
DFH3785	DFHIR3785
DFH3795	DFHIR3795
DFH3797	DFHIR3797
DFH3900	DFHDL3900
DFH3911	DFHDL3911
DFH3913	DFHDL3913
DFH3914	DFHDL3914
DFH3915	DFHDL3915
DFH3916	DFHDL3916
DFH3917	DFHDL3917
DFH3918	DFHDL3918
DFH3919	DFHDL3919
DFH3922	DFHDL3922
DFH3924	DFHDL3924
DFH3926	DFHDL3926
DFH3928	DFHDL3928
DFH3929	DFHDL3929
DFH3930	DFHDL3930
DFH3931	DFHDL3931
DFH3932	DFHDL3932
DFH3936	DFHDL3936
DFH3940	DFHDL3940
DFH3941	DFHDL3941
DFH3942	DFHDL3942
DFH3943	DFHDL3943
DFH4000	DFHMC4000
DFH4500	DFHJC4500
DFH4501	DFHJC4501
DFH4502	DFHJC4502
DFH4503	DFHJC4503
DFH4504	DFHJC4504
DFH4505	DFHJC4505
DFH4506	DFHJC4506
DFH4507	DFHJC4507
DFH4508	DFHJC4508
DFH4509	DFHJC4509
DFH4510	DFHJC4510
DFH4511	DFHJC4511
DFH4514	DFHJC4514
DFH4516	DFHJC4516
DFH4519	DFHJC4519
DFH4521	DFHJC4521
DFH4522	DFHJC4522
DFH4523	DFHJC4523
DFH4524	DFHJC4524
DFH4525	DFHJC4525
DFH4526	DFHJC4526
DFH4527	DFHJC4527
DFH4528	DFHJC4528
DFH4529	DFHJC4529
DFH4530	DFHJC4530
DFH4531	DFHJC4531
DFH4532	DFHJC4532
DFH4533	DFHJC4533
DFH4534	DFHJC4534
DFH4536	DFHJC4536
DFH4559	DFHJC4559
DFH4560	DFHJC4560
DFH4561	DFHJC4561
DFH4562	DFHJC4562
DFH4563	DFHJC4563
DFH4565	DFHJC4565
DFH4580	DFHJC4580
DFH4582	DFHJC4582
DFH4583	DFHJC4583
DFH4584	DFHJC4584
DFH4585	DFHJC4585
DFH4586	DFHJC4586
DFH4588	DFHJC4588
DFH4592	DFHJC4592
DFH4593	DFHJC4593
DFH4594	DFHJC4594
DFH4596	DFHJC4596
DFH4597	DFHJC4597
DFH4598	DFHJC4598
DFH4599	DFHJC4599
DFH4700	DFHVC4700
DFH4702	DFHVC4702
DFH4710	DFHVC4710
DFH4720	DFHVC4720
DFH4923	DFHZC4923
DFH5724	DFHER5724
DFH5725	DFHER5725
DFH5730	DFHER5730
DFH5731	DFHER5731
DFH5732	DFHER5732
DFH5750	DFHER5750
DFH5751	DFHER5751

Old message	New message
DFH5752	DFHER5752
DFH5760	DFHER5760
DFH5761	DFHER5761
DFH5762	DFHER5762
DFH5802	DFHAK5802
DFH5803	DFHAK5803
DFH6100	DFHJC6100
DFH6101	DFHJC6101
DFH6102	DFHJC6102
DFH6103	DFHJC6103
DFH6104	DFHJC6104
DFH6105	DFHJC6105
DFH6107	DFHJC6107
DFH6110	DFHJC6110
DFH6111	DFHJC6111
DFH6199	DFHJC6199
DFH6215	DFHXG6215
DFH6400	DFHXG6400
DFH6401	DFHXG6401
DFH6402	DFHXG6402
DFH6403	DFHXG6403
DFH6404	DFHXG6404
DFH6405	DFHXG6405
DFH6406	DFHXG6406
DFH6407	DFHXG6407
DFH6408	DFHXG6408
DFH6409	DFHXG6409
DFH6410	DFHXG6410
DFH6411	DFHXG6411
DFH6415	DFHXG6415
DFH6417	DFHXG6417
DFH6422	DFHXG6422
DFH6423	DFHXG6423
DFH6427	DFHXG6427
DFH6429	DFHXG6429
DFH6440	DFHXG6440
DFH6441	DFHXG6441
DFH6442	DFHXG6442
DFH6443	DFHXG6443
DFH6444	DFHXG6444
DFH6445	DFHXG6445
DFH6446	DFHXG6446
DFH6447	DFHXG6447
DFH6450	DFHXG6450
DFH6451	DFHXG6451
DFH6452	DFHXG6452
DFH6453	DFHXG6453
DFH6454	DFHXG6454
DFH6475	DFHXG6475
DFH6476	DFHXG6476
DFH6477	DFHXG6477
DFH6479	DFHXG6479
DFH6480	DFHXG6480
DFH6482	DFHXG6482
DFH6483	DFHXG6483
DFH6484	DFHXG6484
DFH6485	DFHXG6485
DFH6486	DFHXG6486
DFH6487	DFHXG6487
DFH6489	DFHXG6489
DFH6490	DFHXG6490
DFH6491	DFHXG6491
DFH6492	DFHXG6492
DFH6493	DFHXG6493
DFH6494	DFHXG6494
DFH6500	DFHXG6500
DFH6501	DFHXG6501
DFH6502	DFHXG6502
DFH6503	DFHXG6503
DFH6507	DFHXG6507
DFH6511	DFHXG6511
DFH6512	DFHXG6512
DFH6513	DFHXG6513
DFH6514	DFHXG6514
DFH6516	DFHXG6516
DFH6517	DFHXG6517
DFH6519	DFHXG6519
DFH6520	DFHXG6520
DFH6521	DFHXA6521
DFH6522	DFHXG6522
DFH6523	DFHXG6523
DFH6524	DFHXG6524
DFH6526	DFHXA6526
DFH6528	DFHXA6528
DFH6530	DFHXA6530
DFH6539	DFHXG6539
DFH6540	DFHXA6540
DFH6541	DFHXA6541
DFH6560	DFHXA6560
DFH6561	DFHXA6561
DFH6563	DFHXA6563
DFH6564	DFHXA6564
DFH6566	DFHXA6566
DFH6567	DFHXA6567
DFH6568	DFHXA6568
DFH6569	DFHXA6569
DFH6570	DFHXA6570
DFH6571	DFHXA6571
DFH6572	DFHXA6572
DFH6573	DFHXA6573
DFH6574	DFHXA6574
DFH6575	DFHXA6575
DFH6576	DFHXA6576
DFH6577	DFHXA6577
DFH6578	DFHXA6578
DFH6580	DFHXA6580
DFH6581	DFHXA6581
DFH6582	DFHXA6582
DFH6583	DFHXA6583
DFH6596	DFHXG6596
DFH6600	DFHXC6600
DFH6601	DFHXC6601
DFH6602	DFHXC6602
DFH6603	DFHXC6603
DFH6604	DFHXC6604
DFH6605	DFHXC6605
DFH6606	DFHXC6606
DFH6607	DFHXC6607
DFH6608	DFHXC6608
DFH6609	DFHXC6609
DFH6610	DFHXC6610
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