Migration from CICS/ESA 4.1

Version 2 Release 2
Migration from CICS/ESA 4.1

Version 2 Release 2
Note!

Before using this information and the product it supports, be sure to read the general information under Notices on page 397.

Multi-release Migration Guides

This version of the Migration Guide, which offers you one book rather than several when you are migrating from an older release of CICS, is only available from the CICS Information Center. There is no intention to make it available in other ways.

The chapters of this book have been arranged to incorporate all the information that the several migration guides since CICS/ESA 4.1 provide.

Second edition (October 2002)

This edition applies to Release 2 of CICS Transaction Server for z/OS, Version 2, program number 5697-E93. Make sure you are using the correct edition for the level of the product.

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At the back of this publication is a page entitled “Sending your comments to IBM”. If you want to make comments, but the methods described are not available to you, please address them to:

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Preface

What this book is about

This book is about migration to CICS® Transaction Server for z/OS™ Version 2, providing information for users who plan to migrate from CICS/ESA 4.1. For the purposes of this book, “migration” is generally taken to mean running existing applications at the equivalent level of function provided by the existing release.

Note: Because you are migrating from a release of CICS earlier than CICS TS Version 1 Release 3, you are recommended to read the Release Guide for the intervening releases.

Who should read this book

This book is for those responsible for planning the migration to CICS® Transaction Server for z/OS™.

It describes external interfaces, such as system definitions, resource definitions, and programming interfaces, that have changed or are new, and which may require you to make changes to your existing CICS and CICSPlex® SM setup.

What you need to know to understand this book

This book assumes that you are familiar with CICS and CICSPlex SM, either as a systems administrator, or as a system or application programmer.

You should also have read about the new function in CICS TS Version 2 as described in the CICS Transaction Server for z/OS Release Guide.

Notes on terminology

CICS refers to the CICS element of the CICS Transaction Server for z/OS.

CICS TS, unless stated otherwise, refers to Version 2 Release 2 of CICS Transaction Server for OS/390.

CICSPlex SM refers to the CICSPlex System Manager element of the CICS Transaction Server for z/OS.

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

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

MVS™ is used for the operating system, the Base Control Program (BCP) element of OS/390® and z/OS.
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, “CICS-supplied transactions” on page 17
- Chapter 3, “Resource definition (online) changes” on page 29
- Chapter 4, “Resource definition (macro) changes” on page 53
- Chapter 5, “The application programming interface (API)” on page 63
- Chapter 6, “The system programming interface (SPI)” on page 75
- Chapter 7, “CICS-supplied utility programs” on page 93
- Chapter 8, “The global user exit programming interface” on page 99
- Chapter 9, “The exit programming interface” on page 113
- Chapter 10, “The task-related user-exit programming interface” on page 119
- Chapter 11, “The external CICS interface (EXCI)” on page 123
- Chapter 12, “User-replaceable programs” on page 125
- Chapter 13, “Monitoring and statistics” on page 133
Chapter 1. System initialization parameters

This chapter summarizes the changes to CICS® system initialization parameters.

Obsolete system initialization parameters

Table 1 shows those system initialization parameters that are obsolete.

Remove any of these obsolete parameters from your system initialization table, or from your CICS startup JCL (for example, the SYSIN data set) before migrating.

<table>
<thead>
<tr>
<th>Obsolete keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DBP</td>
<td>The dynamic backout program is obsolete, and all backout is now coordinated by the recovery manager domain.</td>
</tr>
<tr>
<td>DBUFSZ</td>
<td>The dynamic system log buffer is obsolete—all CICS system log output is written directly to the system log stream.</td>
</tr>
<tr>
<td>DCT</td>
<td>The destination control table is no longer supported, and all transient data queues must be defined to CICS in the CSD using the TDQUEUE resource type. You can use the old DFHDCT macros for migration purposes only, to enable you to migrate your DCT entries to the CSD using the DFHCSDUP MIGRATE command.</td>
</tr>
<tr>
<td>DDIR</td>
<td>All these parameters supported the CICS local DL/I interface, which is obsolete.</td>
</tr>
<tr>
<td>DDIRRC</td>
<td></td>
</tr>
<tr>
<td>DLDBRC</td>
<td></td>
</tr>
<tr>
<td>DLIOlim</td>
<td></td>
</tr>
<tr>
<td>DLIRLM</td>
<td></td>
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<tr>
<td>DLLPA</td>
<td></td>
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<td>DLMON</td>
<td></td>
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<td>DLTHRED</td>
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<tr>
<td>DLXCPVR</td>
<td></td>
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<tr>
<td>DMXL</td>
<td></td>
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<tr>
<td>ENQPL</td>
<td></td>
</tr>
<tr>
<td>PISCHD</td>
<td></td>
</tr>
<tr>
<td>PSBPL</td>
<td></td>
</tr>
<tr>
<td>DLI</td>
<td>The DLI parameter is obsolete for both local and remote DL/I support, although CICS continues to support remote DL/I. Remote DL/I support is assumed from the PDIR system initialization parameter specifying a list of program specification blocks—PDIR={YES</td>
</tr>
<tr>
<td>JCT</td>
<td>The CICS log manager does not support journal data sets, making the journal control table obsolete. The CICS system log and journals are mapped to MVS system logger log streams (or, for some journals, to SMF data sets) by means of JOURNALMODEL resource definitions.</td>
</tr>
<tr>
<td>JSTATUS</td>
<td>The CICS log manager does not support journal data sets, on either disk or tape, making these run-time system initialization parameters obsolete.</td>
</tr>
<tr>
<td>SERIES=PURGE</td>
<td>This is replaced by the KEYRING system initialization parameter (see Table 3 on page 7).</td>
</tr>
<tr>
<td>START=LOGTERM</td>
<td></td>
</tr>
<tr>
<td>KEYFILE</td>
<td></td>
</tr>
<tr>
<td>MNEVE</td>
<td>CICS event class monitoring is replaced by support for the MVS workload manager, making MNEVE obsolete.</td>
</tr>
</tbody>
</table>
Table 1. Obsolete system initialization parameters (continued)

<table>
<thead>
<tr>
<th>Obsolete keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSMGSET</td>
<td>There is no need for dynamic storage for temporary storage pointers as a result of the restructure of the temporary storage domain.</td>
</tr>
<tr>
<td>XRFSOFF</td>
<td>Replaced by RSTSIGNOFF.</td>
</tr>
<tr>
<td>XRFSTIME</td>
<td>Replaced by RSTSIGNTIME.</td>
</tr>
</tbody>
</table>

Changed system initialization parameters

Table 2 shows those system initialization parameters that have changed in some way.

Table 2. Changed system initialization parameters

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AILDELAY</td>
<td>{0</td>
<td>hhmmss}</td>
</tr>
<tr>
<td>AIRDELAY</td>
<td>{700</td>
<td>hhmmss}</td>
</tr>
<tr>
<td>AKPFREQ</td>
<td>{4000}number_of_blocks</td>
<td>This parameter now represents the number of write operations to the log stream buffer before an activity keypoint is taken. The range continues to be 0 or 200 through 65536.</td>
</tr>
<tr>
<td>CHKSTSK</td>
<td>{NONE}CURRENT}</td>
<td>The ALL option is obsolete.</td>
</tr>
<tr>
<td>CSDBKUP</td>
<td>CSDFRLOG CSDRECOV</td>
<td>Operands unchanged With DFSMS 1.3 you can define data set recovery attributes in the ICF catalog, in which case CICS takes the values from the catalog and ignores these system initialization parameters.</td>
</tr>
<tr>
<td>FCT</td>
<td>{NO}YES}xx</td>
<td>The default has changed from YES to NO.</td>
</tr>
<tr>
<td>INITPARM</td>
<td>(DFHD2INI=’name’)</td>
<td>The RCT suffix operand is obsolete on the DFHD2INI parameter, which now supports only the DB2® subsystem name.</td>
</tr>
</tbody>
</table>
**Table 2. Changed system initialization parameters (continued)**

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXOPENTCBS</td>
<td>(12</td>
<td>number)</td>
</tr>
<tr>
<td>MNFREQ</td>
<td>(0</td>
<td>hhmmss)</td>
</tr>
</tbody>
</table>
| PDIR           | (NO|YES|xx)   | CICS provides access to DL/I data bases through DBCTL or CICS remote DL/I support only. This means the PSB directory list parameter (PDIR) is needed only for remote DL/I support:  
  - The NO operand is added to the PDIR parameter. It is the default value, and specifies that DBCTL support only is required.  
  - A YES or table suffix (xx) operand specifies that DBCTL and remote DL/I support are required. |
<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCTRxx</td>
<td>(Unchanged)</td>
<td>New domain codes are available for the xx codes in the keyword. The operands are unchanged. The new codes are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>EJ</strong> Enterprise Java™ domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>IE</strong> ECI over TCP/IP domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>II</strong> IIOP domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>LG</strong> Log manager domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>NQ</strong> Enqueue domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OT</strong> Object transaction services domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>PT</strong> Partner management domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RI</strong> Resource manager interface</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RM</strong> Recovery manage domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>RZ</strong> Request streams domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SJ</strong> JVM domain</td>
</tr>
<tr>
<td>SRT</td>
<td>{1$</td>
<td>YES</td>
</tr>
<tr>
<td>START</td>
<td>{AUTO</td>
<td>COLD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unlike a normal cold start, the cold start resulting from START=INITIAL causes CICS to purge the system log as well as the catalog data sets. An INITIAL start is the same as if you started CICS with a new system log and newly defined catalog data sets.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The scope of START=COLD is changed, in that CICS preserves any recovery data in the system log that relates to remote units of work. All local resources are cold-started.</td>
</tr>
<tr>
<td>STNTRxx</td>
<td>(Unchanged)</td>
<td>See SPCTRxx above for details of new domain codes.</td>
</tr>
<tr>
<td>TBEXITS</td>
<td>{name1}[name2][name3] [name4][name5][name6]</td>
<td>name5 and name6 are added, and the other name parameters now refer to different global user exit points.</td>
</tr>
<tr>
<td>TCT</td>
<td>{NO</td>
<td>YES}</td>
</tr>
</tbody>
</table>
Table 2. Changed system initialization parameters (continued)

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRTRANSZ</td>
<td>{number-of-kilobytes}</td>
<td>The default is changed from 40 to 16 kilobytes.</td>
</tr>
</tbody>
</table>

For more information on the changed parameters, see the CICS System Definition Guide.

New system initialization parameters

Table 3 shows new system initialization parameters.

The default values for these parameters are designed to have minimal impact when you are migrating from an earlier release of CICS.

Table 3. New system initialization parameters

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIBRIDGE</td>
<td>(AUTO</td>
<td>YES)</td>
</tr>
<tr>
<td>AICONS</td>
<td>(NO</td>
<td>YES</td>
</tr>
<tr>
<td>BRMAXKEEPTIME</td>
<td>{86400</td>
<td>timeout}</td>
</tr>
<tr>
<td>CSDINTEG</td>
<td>(UNCOMMITTED</td>
<td>CONSISTENT</td>
</tr>
<tr>
<td>CSDRLS</td>
<td>(NO</td>
<td>YES)</td>
</tr>
<tr>
<td>DB2CONN</td>
<td>(NO</td>
<td>YES)</td>
</tr>
<tr>
<td>DBCTLCON</td>
<td>(NO</td>
<td>YES)</td>
</tr>
<tr>
<td>DOCCODEPAGE</td>
<td>{037</td>
<td>number}</td>
</tr>
<tr>
<td>Keywords</td>
<td>Operands</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DSRTPGM</td>
<td>{NONE</td>
<td>DFHDSRP \ program_name</td>
</tr>
<tr>
<td>EJBROLEPRFX</td>
<td>ejbrole-prefix</td>
<td>Specifies a prefix to qualify the security role defined in an enterprise bean's deployment descriptor.</td>
</tr>
<tr>
<td>ENCRYPTION</td>
<td>{NORMAL</td>
<td>STRONG</td>
</tr>
<tr>
<td>FORCEQR</td>
<td>{NO</td>
<td>YES}</td>
</tr>
<tr>
<td>FTIMEOUT</td>
<td>{30</td>
<td>number}</td>
</tr>
<tr>
<td>IIOPLISTENER</td>
<td>{YES</td>
<td>NO}</td>
</tr>
<tr>
<td>KEYRING</td>
<td>keyring_name</td>
<td>Specifies the name of the key ring defined in the security manager's database (for example, as defined by the RACF® RACDCERT ADDRING command).</td>
</tr>
<tr>
<td>LGDFINT</td>
<td>{5</td>
<td>number}</td>
</tr>
<tr>
<td>Keywords</td>
<td>Operands</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MAXHPTCBS</td>
<td>{number}</td>
<td>Specifies the maximum number of H8 mode open TCBs that can exist concurrently in the CICS region. The pool of H8 mode open TCBs is used exclusively by HPJ-compiled Java programs defined with HOTPOOL(YES). number can be any value in the range 1 through 999. In earlier releases, H8 mode TCBs are in the pool of open TCBs controlled by the MAXOPENTCBS system initialization parameter.</td>
</tr>
<tr>
<td>MAXJVMTCBS</td>
<td>{number}</td>
<td>Specifies the maximum number of J8 mode open TCBs that can exist concurrently in the CICS region. The pool of J8 mode open TCBs is reserved exclusively for Java programs defined with JVM(YES). number can be any value in the range 1 through 999.</td>
</tr>
<tr>
<td>MAXOPENTCBS</td>
<td>{number}</td>
<td>Specifies the maximum number of L8 mode open TCBs which are reserved for use by task-related user exits that are enabled with the OPENAPI option. This includes the CICS DB2 adaptor when CICS connects to DB2 Version 6 or later (see “DB2 performance enhancements” on page 209 for information about the L8 mode TCB and DB2). The range is 12 through 2000. See also the new system initialization parameters, MAXHPTCBS and MAXJVMTCBS.</td>
</tr>
</tbody>
</table>
### Table 3. New system initialization parameters (continued)

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXSOCKETS</td>
<td>65535(number)</td>
<td>Specifies the maximum number of IP sockets that can be managed by the CICS sockets domain. Note that the default value, and any explicit value, is conditional upon the authorization of the CICS region user ID. If the user ID is not defined to UNIX® system services as a superuser, the default is restricted to the value specified on the MAXFILEPROC parameter in the BPXPRMxx of SYS1.PARMLIB.</td>
</tr>
<tr>
<td>MQCONN</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>MROFSE</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>NCPLDFT</td>
<td>DFHNC001(name)</td>
<td>Specifies the name of the default named counter pool.</td>
</tr>
<tr>
<td>OFFSITE</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>QUIESTIM</td>
<td>240(number)</td>
<td>Specifies the timeout value for the quiesce dataset operation. number represents seconds in the range 1 through 3600.</td>
</tr>
<tr>
<td>RLS</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>RLSTOLSR</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>
Table 3. New system initialization parameters (continued)

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRMS</td>
<td>{NO}</td>
<td>YES}</td>
</tr>
<tr>
<td>RSTSIGNOFF</td>
<td>{NOFORCE}</td>
<td>FORCE}</td>
</tr>
<tr>
<td>RSTSIGNTIME</td>
<td>{500}</td>
<td>hhmmss}</td>
</tr>
<tr>
<td>RUWAPOOL</td>
<td>{NO}</td>
<td>YES}</td>
</tr>
<tr>
<td>SDTRAN</td>
<td>{CESD</td>
<td>shutdown_transid</td>
</tr>
<tr>
<td>SSLDELAY</td>
<td>{600}</td>
<td>number}</td>
</tr>
<tr>
<td>SSLTCBS</td>
<td>{8}</td>
<td>number}</td>
</tr>
<tr>
<td>STATEOD</td>
<td>{0}</td>
<td>hhmmss}</td>
</tr>
<tr>
<td>STATINT</td>
<td>{030000}</td>
<td>hhmmss}</td>
</tr>
<tr>
<td>Keywords</td>
<td>Operands</td>
<td>Explanation</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>TCPIP</td>
<td>(NO</td>
<td>YES)</td>
</tr>
</tbody>
</table>
| TDINTRA  | (NOEMPTY|EMPTY)            | Specifies whether intrapartition transient data queues are to be purged (empty) at initialization. NOEMPTY means CICS recovers all the intrapartition TD queues to the state they were in at the previous termination of CICS, as in a normal warm or emergency restart. EMPTY means:  
  • CICS initializes with all the intrapartition TD queues empty. This option must be used when CICS is initializing in remote site recovery mode (OFFSITE=YES). It can optionally be used to replace a corrupt TD intrapartition data set.  
  • The option is significant only on warm and emergency restarts—cold starts always initialize with empty queues. Note that the EMPTY option may cause data integrity problems because all in-doubt log records associated with logically recoverable TD queues are discarded.  
  • EMPTY is similar in operation to the obsolete COLD option on the DCT system initialization parameter, with one important difference. The TD queue resource definitions are recovered from the CICS global catalog instead of the DCT. |
| UOWNETQL | user_defined_value    | Specifies a qualifier for the network unit of work id (NETUOWID) of units of work initiated on the local CICS region when the netid cannot be obtained from VTAM.                                                      |
Table 3. New system initialization parameters (continued)

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| WEBDELAY      | (5\text{time\_out}, 60\text{keep\_time}) | Specifies two Web delay periods:  
1. A time-out period. The maximum time, in minutes, that a transaction started through the Web 3270 bridge interface, is allowed to remain in terminal wait state before it is automatically purged by CICS.  
2. The terminal keep time. The time, in minutes, during which state data is kept for a CICS Web 3270 bridge transaction, before CICS performs clean-up. |
| XDB2          | \{\text{NO|name}\}   | Specifies the name of the RACF general resource class for security profiles for DB2 resource security checks.  
\textbf{Note:} There is no default class name for this security parameter, hence the option YES is not provided as on other security system initialization parameters. |
| XEJB          | \{\text{YES|NO}\}    | Specifies whether support of security roles is to be enabled.  
For information about the new function relating to these new system initialization parameters, see the [CICS Transaction Server for z/OS Release Guide](https://www.ibm.com/docs/en/cics-transaction-server). |

System initialization parameters added by service changes

A number of system initialization parameters have been added by service changes for various reasons and at various times. These are changes that ordinarily would be considered outside the scope of this book, because they are not changes introduced within the development of CICS TS, but are included here for completeness. These service changes are summarized in Table 4 on page 14.
Table 4. Service changes to system initialization parameters

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Cause of change</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDSASZE</td>
<td>APARs PN70228 and 88030 on CICS/ESA 4.1. and APARs PN87899 and PQ05543 on CICS TS Release 1</td>
<td>Individual DSA parameters were made obsolete in CICS/ESA 4.1, but reinstated to satisfy customer requirements. The introduction of the new DSALIM and EDSALIM parameters for defining the overall storage requirements was intended to make it unnecessary to define individual DSA sizes. Note, however, that these individual parameters cannot be specified on the DFHSIT macro. Although not included at GA on CICS TS Releases 1 and 2, all these parameters were subsequently added by further APARs.</td>
</tr>
<tr>
<td>ECDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESASDASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EUDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UDSASZE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FSSTAFF</td>
<td>Introduced in CICS/ESA 4.1</td>
<td>This system initialization parameter was introduced in CICS 4.1 to enable you to specify whether you need function-shipped START affinity support to prevent transactions initiated by function-shipped EXEC CICS START requests being started against incorrect terminals.</td>
</tr>
<tr>
<td>LGDFINT</td>
<td>APAR PQ17925 CICS TS 1.1 and 1.2 Oct 1998</td>
<td>Specifies the time interval (the log defer interval), in milliseconds, that the CICS log manager is to wait before invoking the MVS system logger in response to a forced journal write request.</td>
</tr>
<tr>
<td>PSTYPE</td>
<td>APAR PQ01573 CICS/ESA 4.1</td>
<td>This system initialization parameter was introduced in CICS 4.1 to enable you to specify either single-node or multi-node VTAM persistent sessions.</td>
</tr>
<tr>
<td>SYDUMAX</td>
<td>APAR PN64292 on CICS/ESA 4.1</td>
<td>These system initialization parameters were introduced in CICS 4.1 to enable you to control the number of system dumps and transaction dumps, respectively.</td>
</tr>
<tr>
<td>TRDUMAX</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRTRANSZ</td>
<td>APAR PN60636 on CICS/ESA 3.2.1 and 3.3</td>
<td>These system initialization parameters were introduced in earlier releases to enable you to control the size, in kilobytes, of the transaction dump trace table (TRTRANSZ), and the trace entries to be included in a transaction dump (TRTRANSY).</td>
</tr>
<tr>
<td>TRTRANSY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VTPREFIX</td>
<td>Introduced in CICS/ESA 4.1</td>
<td>Added as part of CICS/ESA support for CICS Clients.</td>
</tr>
</tbody>
</table>

Getting started with new and changed system initialization parameters

Here is a simple way of migrating 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 the CICS SDFHLOAD library. You can use this to start a CICS region using the default values—CICS loads DFHSIT by default.

**Use the default system initialization table**

The unsuffixed default system initialization table (DFHSIT) is supplied in the CICS SDFHAUTH library. You can use this to start a CICS region using most of
the default values, and you don’t even have to specify the table in your JCL—CICS loads DFHSIT by default if there is not a SIT parameter in your JCL.

**Use the default system initialization table**
The unsuffixed default system initialization table (DFHSIT) is supplied in the CICS SDFHLOAD library. You can use this to start a CICS region using most of the default values, and you don’t even have to specify the table in your JCL—CICS loads DFHSIT by default if there is not a SIT parameter in your JCL.

**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 testing, avoiding the need to reassemble suffixed system initialization tables. Nearly all system initialization parameters entered at run time are used even on a warm start (the exceptions are the FCT and CSD parameters).

---

**Changes affecting the sample table, DFHSIT6$**

If you customize the CICS-supplied sample table, DFHSIT6$, to create your own system initialization table, and do not modify the CSD recovery parameters to specify no forward recovery, you must define a forward recovery log stream for your CSD.

In earlier releases of CICS, the CSD recovery parameters in DFHSIT6$ (CSDRECOV=ALL and CSDFRLOG=1) mean that forward recovery records are written to the system log. CSDFRLOG=1 does not refer to the system log stream—it specifies a forward recovery log stream referenced by the journal name DFHJ01. If you specify another journal number (CSDFRLOG=nn), the forward recovery log stream is mapped by journal name DFHJnn. (See the [CICS System Definition Guide](#) for information about defining general log streams.) Any attempt to open the CSD (for example, with the CEDA transaction) fails with an error if the required forward recovery log stream does not exist or cannot be created dynamically.

If you are prepared to use the CSD without forward recovery, you can modify the CSDRECOV parameter in DFHSIT6$ to specify NONE or BACKOUTONLY.

---

**Assembling a system initialization table**

You must use ASMA90 to assemble a system initialization table. The number of parameters defined in the DFHSIT macro exceeds the limit (240) supported by the old H Assembler, IEV90. This is one of the reasons that CICS requires the High Level Assembler/MVS & VM & VSE (ASMA90).
Chapter 2. CICS-supplied transactions

This chapter summarizes the changes to CICS-supplied transactions.

New CBAM transaction

CBAM is provided to enable you to browse BTS objects, such as process-types, processes, activities and so on. It is described in CICS Business Transaction Services.

Changes to CDBM

The CICS-DBCTL Operator Transaction panel displayed by the CDBM transaction is enhanced to allow you to store IMS™ commands in a new CICS system data set, DFHDBFK. This is used as the CDBM group command file, in which you can store DBCTL commands.

The group command file, DFHDBFK, is a file-control-managed VSAM® KSDS file, and requires a file resource definition installed from the CSD if you want to use the new function. It also requires either a DD statement in your startup job stream, or the fully-qualified DSNAME specified in the resource definition. See the CICS System Definition Guide for IDCAMS information on how to define the KSDS for DFHDBFK.

Changes to CEBR

The CEBR transaction is enhanced to support 16-character queue names. It also allows the names to be displayed in 32-character hexadecimal format.

Changes to CEDA

The CEDA CHECK function is enhanced to perform consistency checks on DB2 objects in the CSD. The extra checks operate on DB2CONN, DB2ENTRY, and DB2TRAN resource definitions.

The scope of the DELETE and MOVE commands is extended:

* If you delete the last resource from a CSD group, CICS automatically deletes the group. CICS also removes the group from all the lists that contain the deleted group. If the group deleted in this way is the last group to be removed from a list, the list itself is deleted.
  
  This change also applies to the DELETE command of the CSD utility program, DFHCSDUP.

* If you move the last resource from a group to another group, CICS automatically deletes the empty group. CICS also removes the group from all the lists that contain the deleted group. If the group deleted in this way is the last group to be removed from a list, the list itself is deleted.

New transaction (CEDX) for the CICS execution diagnostic facility

The execution diagnostic facility (EDF) is extended to enable you to debug non-terminal transactions. This extension to EDF is provided by the CEDX transaction, which enables you to specify the name of a transaction (instead of a terminal as on CEDF), and gives you the same facilities as the CEDF transaction.
For details of this new transaction, see the CICS Supplied Transactions manual. See also the execution diagnostic facility description in the CICS Application Programming Guide.

Changes to CEMT

Obsolete CEMT commands and options

Table 5 shows those commands and options that are obsolete.

Table 5. Obsolete CEMT commands and options

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE DLIDATABASE</td>
<td>SET DLIDATABASE</td>
<td>These commands were for use with databases managed by CICS local DL/I, which is no longer supported.</td>
</tr>
<tr>
<td>INQUIRE Pitrace</td>
<td>SET Pitrace</td>
<td></td>
</tr>
<tr>
<td>INQUIRE DSNAME</td>
<td>SET DSNAME</td>
<td>These options are removed because backout failures no longer cause the whole data set to be marked as failed. Only the records affected by the unit of work are locked pending recovery.</td>
</tr>
<tr>
<td>INQUIRE IRBATCH</td>
<td></td>
<td>This command, which returns information about batch DL/I and external CICS interface batch jobs (CICS 4.1 only) is renamed INQUIRE EXCI, because batch DL/I is obsolete. (If you specify IRBATCH, CICS interprets it as EXCI.)</td>
</tr>
<tr>
<td>INQUIRE JOURNALNUM</td>
<td>SET JOURNALNUM</td>
<td>These commands operated on journal data sets controlled by the CICS journal control program, which is obsolete. Its replacement, the CICS log manager, does not support journal data sets. It writes log and journal data to MVS log streams instead.</td>
</tr>
<tr>
<td>INQUIRE VOLUME</td>
<td>SET VOLUME</td>
<td></td>
</tr>
<tr>
<td>INQUIRE REQUESTMODEL</td>
<td>OMGINTERFACE</td>
<td></td>
</tr>
<tr>
<td>INQUIRE SYSTEM</td>
<td>ACTOPENTCBS</td>
<td>MAXOPENTCBS</td>
</tr>
<tr>
<td>INQUIRE TASK</td>
<td>RECUNITID</td>
<td>This parameter, which CICS used as a display-only value, is replaced by UOW. Unlike RECUNITID, UOW is an option you can specify on the command.</td>
</tr>
<tr>
<td>INQUIRE TSQUEUE</td>
<td>XTSQUEUE</td>
<td>This hexadecimal option is obsolete. It is not needed because CEMT now supports a PF key function to convert name and ID fields to hexadecimal.</td>
</tr>
</tbody>
</table>
Table 5. Obsolete CEMT commands and options  (continued)

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STATISTICS</td>
<td>DTB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IRCBATCH</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JOURNALNUM</td>
<td></td>
</tr>
</tbody>
</table>

**Changed CEMT commands**

Table 6 shows those CEMT commands that have changed in some way.

**Note:** If you are migrating from CICS TS 2.1, you may find it helpful to read the topic about “New CEMT commands” on page 23 before reading this information because some of those commands that were new in CICS TS 2.1 have been changed.

Table 6. Changed CEMT commands

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE AUTOINSTALL</td>
<td>AIBRIDGE AIBRIDGE</td>
<td>The AIBRIDGE option is added to return a value indicating whether the autoinstall URM is called for bridge facilities.</td>
</tr>
<tr>
<td></td>
<td>CONSOLES</td>
<td>The CONSOLES and ENABLESTATUS options are added to indicate the status of autoinstall for consoles.</td>
</tr>
<tr>
<td></td>
<td>ENABLESTATUS</td>
<td></td>
</tr>
<tr>
<td>INQUIRE CONNECTION</td>
<td>CQP(cvda) CQP(cvda)</td>
<td>The CQP option is added to support APPC quiesce protocol.</td>
</tr>
<tr>
<td></td>
<td>GRNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MEMBERNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NORECOVDATA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNKNOWN REMOTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYSTEM NAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RNETNAME</td>
<td></td>
</tr>
<tr>
<td>INQUIRE CORBASEVER</td>
<td>AUTOPUBLISH AUTOPUBLISH</td>
<td>These options display:</td>
</tr>
<tr>
<td></td>
<td>CLIENTCERT</td>
<td>• The status of autopublishing for enterprise beans</td>
</tr>
<tr>
<td></td>
<td>DJARDIR</td>
<td>• The 255-character name of the deployed JAR file directory</td>
</tr>
<tr>
<td></td>
<td>SSLUNAUTH</td>
<td>• The names of the TCP/IP service definitions referenced by the CorbaServer (named by CLIENTCERT, SSLUNAUTH, and UNAUTH).</td>
</tr>
<tr>
<td></td>
<td>UNAUTH</td>
<td></td>
</tr>
<tr>
<td>INQUIRE DB2CONN</td>
<td>DB2GROUPID</td>
<td>These options are added to display</td>
</tr>
<tr>
<td></td>
<td>RESYNCMEMBER</td>
<td>• The DB2 group ID if CICS is using the DB2 group attach facility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The resynchronization policy to be used for units of work awaiting resolution. The possible values are RESYNC or NORESYNC.</td>
</tr>
</tbody>
</table>

Chapter 2. CICS-supplied transactions 19
<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE DSNAME</td>
<td>AVAILABLE</td>
<td>Options added to return the availability, quiesce state, lost and retained locks state. Also returns information about the forward recovery log.</td>
</tr>
<tr>
<td></td>
<td>UNAVAILABLE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QUIESCED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UNQUIESCED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NOLOSTLocks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMLOSTLocks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RECOVERLocks</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RETAINED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NORETAIRED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FRLOG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FWDRECOVLSN</td>
<td></td>
</tr>
<tr>
<td>INQUIRE EXCI</td>
<td>URID</td>
<td>Option added to display unit of recovery information relating to EXCI clients that are using 2-phase commit mode with RRMS.</td>
</tr>
<tr>
<td>INQUIRE FILE</td>
<td>LOADTYPE</td>
<td>Options added to display information about a coupling facility data table. TABLE now supports the new CF option to indicate a coupling facility data table.</td>
</tr>
<tr>
<td></td>
<td>CFDTPOOL(name)</td>
<td>The RLS</td>
</tr>
<tr>
<td></td>
<td>TABLENAME(name)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPDATEMODEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>KEYLENGTH(length)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RECORDSIZE(size)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TABLE(type)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RLS</td>
<td>NOTRLS</td>
</tr>
<tr>
<td>INQUIRE PROGRAM</td>
<td>JVMPROFILE</td>
<td>The JVMPROFILE option is added to display name of the JVM profile for a Java program.</td>
</tr>
<tr>
<td></td>
<td>CONCURRENCY</td>
<td>The CONCURRENCY option is added to indicate whether the program is threadsafe and can execute concurrently with other user programs, the DYNAMSTATUS option is added to indicate whether, if the program is the subject of a program-link request, the request can be dynamically routed, and the remaining options are added to display information about a Java™ program object and about a program’s runtime environment.</td>
</tr>
<tr>
<td></td>
<td>JAVA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JVMCLASS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JVMDEBUG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RUNTIME</td>
<td></td>
</tr>
<tr>
<td>INQUIRE REQUESTMODEL</td>
<td>BEANNAMEN</td>
<td>CORBASERVER</td>
</tr>
<tr>
<td>INQUIRE SYSTEM</td>
<td>ACTOPENTCBS</td>
<td>Options added to display: The number of open TCBs that are allocated to user tasks, The name of the distributed routing program that is currently active in the region, Whether all user application programs are to be forced to run on the QR TCB, The maximum number of open TCBs that are allowed in the CICS region.</td>
</tr>
<tr>
<td></td>
<td>DSRTPROGRAM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FORCEQR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MAXOPENTCBS</td>
<td></td>
</tr>
<tr>
<td>CEMT command</td>
<td>Option</td>
<td>Explanation</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>INQUIRE SYSTEM</td>
<td>SDTRAN</td>
<td>Options added to return:</td>
</tr>
<tr>
<td></td>
<td>CICSTSLEVEL</td>
<td>• Name of the shut-down transaction</td>
</tr>
<tr>
<td></td>
<td>OSLEVEL</td>
<td>• Release level of CICS TS</td>
</tr>
<tr>
<td></td>
<td>LOGDEFER</td>
<td>• Release level of OS/390.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Log defer interval (added by APAR PQ17925) (see LGDFINT system initialization parameter in Chapter 1, “System initialization parameters” on page 3)</td>
</tr>
<tr>
<td>INQUIRE TASK</td>
<td>BRFACILITY</td>
<td>This option is added to return an 8-byte field containing the facility token for the bridge facility in use by the task.</td>
</tr>
<tr>
<td>INQUIRE TASK</td>
<td>ACTIVITYIITYD</td>
<td>The ACTIVITY, ACTIVITYID, PROCESS and PROCESSTYPE options are added to display details of the CBTS activity and process for which the task is executing.</td>
</tr>
<tr>
<td></td>
<td>BRIDGE</td>
<td>The BRIDGE option returns the name of the bridge monitor transaction.</td>
</tr>
<tr>
<td></td>
<td>IDENTIFIER</td>
<td>The IDENTIFIER options is added to provide information about a task using the 3270 bridge facility.</td>
</tr>
<tr>
<td></td>
<td>HVALUE</td>
<td>The HVALUE option is extended to allow for 16-character resource names.</td>
</tr>
<tr>
<td></td>
<td>PROCESS</td>
<td>The TCB option is added to indicate the mode of TCB under which the task is running.</td>
</tr>
<tr>
<td>INQUIRE TCPIP</td>
<td>ACTSOCKETS</td>
<td>These options are added to return (1) the number of active sockets and (2) the maximum number of TCP/IP sockets that can be managed by the CICS region.</td>
</tr>
<tr>
<td></td>
<td>MAXSOCKETS</td>
<td></td>
</tr>
<tr>
<td>INQUIRE TCPIPSERVICE</td>
<td>ATTACHSEC</td>
<td>These options are added to display (1) security information; (2) the 18-character DNS group name that the TCPIPSERVICE registers with WLM; (3) the current WLM/DNS status; and (4) whether the TCPIPSERVICE is a critical member of the DNS group.</td>
</tr>
<tr>
<td></td>
<td>AUTHENTICATE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CERTIFICATE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DNSGROUP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DNSSTATUS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GROUPCRITICAL</td>
<td></td>
</tr>
<tr>
<td>INQUIRE TDQUEUE</td>
<td>MEMBER</td>
<td>Option added to display the 8-character member name if the queue is a member of a partitioned data set.</td>
</tr>
<tr>
<td>INQUIRE TERMINAL</td>
<td>NETNAME</td>
<td>This option is added to display the 17-character network qualified name of the terminal.</td>
</tr>
<tr>
<td></td>
<td>CONSOLE</td>
<td>Option added to display the MVS console name if the terminal is a console.</td>
</tr>
<tr>
<td>INQUIRE TERMINAL</td>
<td>RTERMINAL</td>
<td>RSESSION</td>
</tr>
<tr>
<td>INQUIRE TRANSACTION</td>
<td>OTSTIMEOUT</td>
<td>This option is added to display the time an OTS transaction in an EJB environment is allowed to run before the initiator takes a syncpoint (or rolls back the OTS transaction).</td>
</tr>
<tr>
<td>INQUIRE TRANSACTION</td>
<td>BREXIT FACILITYLIKE</td>
<td>Options added to provide information about transactions defined as 3270 bridge transactions.</td>
</tr>
<tr>
<td>INQUIRE TRANSACTION</td>
<td>ROUTSTATUS</td>
<td>Option added to indicate whether, if the transaction is the subject of an eligible EXEC CICS START command, the start request can be dynamically routed.</td>
</tr>
<tr>
<td>CEMT command</td>
<td>Option</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>INQUIRE TSQUEUE</td>
<td>ACTION POOLNAME RECOVSTATUS</td>
<td>The ACTION field is a SET option, allowing you to delete a TS queue. POOLNAME enables you to inquire on TS queues in a coupling facility pool. RECOVSTATUS indicates whether the TS queue is recoverable. <strong>Note:</strong> You can also specify INQUIRE TSQNAME, where TSQNAME is an alias for the TSQUEUE keyword, and provides identical information.</td>
</tr>
</tbody>
</table>
| INQUIRE TSQUEUE | LASTUSEDINT SYSID TRANSID | Options added to:  
  - Return the interval (in seconds) since the temporary storage queue was last referenced (this is an output-only keyword).  
  - Specify the SYSID of the TS server to which the INQUIRE command is to be function shipped.  
  - Return the ID of the transaction that created the queue. |
| INQUIRE UOW | OTSTID(value) | This option is added to display the transaction identifier (TID) of the OTS transaction of which the UOW is part. |
| INQUIRE UOW | WAITCAUSE | A new wait cause, RRMS is added. |
| INQUIRE UOWENO | DURATION ENQFAILS ENQSCOPE | New options are added to provide more information about enqueues held by units of work, indicating how long the enqueue has been held; how failed attempts there have been to enqueue on the resource since the enqueue was acquired; and whether the scope is local or sysplex wide. |
| INQUIRE UOWLINK | HOST(name) TYPE(IIOP) | The HOST option is added to display the TCP/IP host name, used to refer to the participant an OTS transaction, when the TYPE option returns IIOP. IIOP is a new value on the TYPE option. |
| INQUIRE UOWLINK | LINK PROTOCOL TYPE | A new LINK value, the CFDT pool name, is returned for a new TYPE value of CFTABLE. A new protocol value, RRMS is added. |
| PERFORM CORBASERVER | SCAN | This option is added to enable you to scan the CorbaServer’s deployed JAR file directory (also known as the pickup directory) for new or updated deployed JAR files. |
| PERFORM SHUTDOWN | SDTRAN(xxxx) | Options added to specify the transaction you want CICS to run at shutdown. |
| PERFORM STATISTICS | CORBASERVER JVMPOOL REQUESTMODEL TCPIP | These options are added to enable you to write statistics for the CORBASERVER, JVMPOOL, REQUESTMODEL, and TCPIP resource types to the SMF data. |
| PERFORM STATISTICS | TCPIPSERVICE | Option added to write TCP/IP service resource statistics to SMF. |
| PERFORM STATISTICS | DB2 JOURNALNAME STREAMNAME ENQUEUE RECOVERY | Options for new statistics resource names to provide statistics for resources managed by the CICS log manager, the enqueue domain, and the recovery manager, and about the DB2 connection, such as call counts, authorization counts, and thread usage. See the **CICS Performance Guide** for details. |
| SET AUTOINSTALL | AIBRIDGE | This option is added to enable you to define whether the autoinstall URM is called for bridge facilities. |
Table 6. Changed CEMT commands (continued)

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET AUTOINSTALL</td>
<td>FULLAUTO PROGAUTO NOAUTO</td>
<td>Options added to specify the level of autoinstall support for consoles.</td>
</tr>
</tbody>
</table>
| SET CONNECTION | ENDAFFINITY COMMIT | BACKOUT | FORCE | RESYNC | Options added to:  
  • End VTAM generic resources affinity on the connection.  
  • Initiate unit of work recovery action for any in-doubt units of work on this connection. |
| SET CORBASERVER | AUTOPUBLISH | | | | This option is added to allow you to set the enterprise beans autopublish option in a CorbaServer. |
| SET DB2CONN | DB2GROUPID RESYNCMEMBER | | | | These options are added to allow you to set DB2 group ID and resynchronization policy for CICS DB2 group attach support. |
| SET DSN | AVAILABLE | UNAVAILABLE | BACKOUT | COMMIT | FORCE | QUIESCED | IMMQUIESCED | UNQUIESCED | RESETLOCKS | RETRY | Options added to change the availability and quiesce states, and to resolve lost and retained locks. |
| SET FILE | CFDTPOOL(name) CONTENTION | LOCKING | KEYLENGTH(length) LOAD | NOLOAD RECORDSIZE(size) TABLENAME(name) | Options added to set changed attributes for a coupling facility data table. |
| SET PROGRAM | JVMCLASS DEBUG NODEBUG JVM NOJVM | Options added to specify the name of the JVM class; the JVM debug option; and whether the program is to execute under the control of a JVM. |
| SET SYSTEM | DSRTPROGRAM FORCE NOFORCE MAXOPENTCBS | Option added to specify the name of the distributed routing program; whether or not the use of the quasireentrant TCB is to forced; and the maximum number of open TCBs. |
| SET TCPIP | MAXSOCKETS | | | | This option is added to enable you to alter the maximum number of TCP/IP sockets allowed in the CICS region. |
| SET TCPIPSERVICE | DNSSTATUS | | | | This option is added to enable you to alter the CICS DNS registration status. |

**New CEMT commands**

Table 7 shows new CICS transactions.

Table 7. New CEMT commands

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISCARD CORBASERVER</td>
<td>Command added to discard installed CORBASERVER resource definitions.</td>
</tr>
<tr>
<td>DISCARD DJAR</td>
<td>Command added to discard installed DJAR resource definitions, together with any associated beans.</td>
</tr>
<tr>
<td><strong>CEMT command</strong></td>
<td><strong>Explanation</strong></td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DISCARD CONNECTION</td>
<td>The list of installed resources that you can discard from a CICS region is extended to include these terminal control, log manager, DB2, and transient data resources.</td>
</tr>
<tr>
<td>DISCARD DB2CONN</td>
<td></td>
</tr>
<tr>
<td>DISCARD DB2ENTRY</td>
<td></td>
</tr>
<tr>
<td>DISCARD DB2TRAN</td>
<td></td>
</tr>
<tr>
<td>DISCARD JMODEL</td>
<td></td>
</tr>
<tr>
<td>DISCARD JOURNALNAME</td>
<td></td>
</tr>
<tr>
<td>DISCARD TDQUEUE</td>
<td></td>
</tr>
<tr>
<td>DISCARD TERMINAL</td>
<td></td>
</tr>
<tr>
<td>INQUIRE BEAN</td>
<td>Command added to display information about a specified bean.</td>
</tr>
<tr>
<td>INQUIRE BRFACILITY</td>
<td>Command added to display information about installed bridge facilities.</td>
</tr>
<tr>
<td>INQUIRE CORBASERVER</td>
<td>Command added to display information about installed CORBASERVER resource definitions in the CICS region.</td>
</tr>
<tr>
<td>INQUIRE DB2CONN</td>
<td>Commands to display information about installed DB2 resources. These commands operate on resources installed from an RCT as well as the named DB2 resources installed from the CSD.</td>
</tr>
<tr>
<td>INQUIRE DB2ENTRY</td>
<td></td>
</tr>
<tr>
<td>INQUIRE DB2TRAN</td>
<td></td>
</tr>
<tr>
<td>INQUIRE DISPATCHER</td>
<td>Command added to display CICS system information used by the CICS dispatcher. Note that this new command includes the ACTOPENTCBS and MAXOPENTCBS options that have been removed from INQUIRE SYSTEM.</td>
</tr>
<tr>
<td>INQUIRE DJAR</td>
<td>Command added to display information about installed DJAR resource definitions in the CICS region.</td>
</tr>
<tr>
<td>INQUIRE JMODEL</td>
<td>CICS log manager commands that display journal model, journal name, and log stream entries installed in a CICS region.</td>
</tr>
<tr>
<td>INQUIRE JOURNALNAME</td>
<td></td>
</tr>
<tr>
<td>INQUIRE STREAMNAME</td>
<td>see the entry for INQUIRE JMODEL in this table.</td>
</tr>
<tr>
<td>INQUIRE JVMPOOL</td>
<td>Command added to display information about the pool of JVMs in the CICS region.</td>
</tr>
<tr>
<td>INQUIRE STREAMNAME</td>
<td></td>
</tr>
<tr>
<td>INQUIRE UOW</td>
<td>Recovery manager command to retrieve information about units of work.</td>
</tr>
<tr>
<td>INQUIRE UOWDSNFAIL</td>
<td>File control command to find all unit of work failures associated with data sets.</td>
</tr>
<tr>
<td>INQUIRE UOWENQ</td>
<td>Recovery manager command to retrieve information about enqueues held by units of work.</td>
</tr>
<tr>
<td>INQUIRE UOWLINK</td>
<td>Recovery manager command to retrieve information about connections involved in units of work.</td>
</tr>
<tr>
<td>PERFORM CORBASERVER</td>
<td>Command added to perform a specified action on the beans in a CORBASERVER resource definition. The action can be either PUBLISH or RETRACT.</td>
</tr>
<tr>
<td>PERFORM DJAR</td>
<td>Command added to perform a specified action on an installed DJAR resource definition. The action can be either PUBLISH or RETRACT.</td>
</tr>
<tr>
<td>PERFORM ENDAFFINITY</td>
<td>Terminal control command to end VTAM generic resources affinity with a connected APPC LU.</td>
</tr>
<tr>
<td>SET BRFACILITY</td>
<td>Command added to enable you to flag the bridge facility for deletion.</td>
</tr>
<tr>
<td>SET CORBASERVER</td>
<td>Command added to enable you to alter the time-out value of the session beans (SESSBEANTIME) in an installed CORBASERVER resource definition in the CICS region.</td>
</tr>
<tr>
<td>SET DB2CONN</td>
<td>Commands to change installed DB2 resource definitions. These commands operate on resources installed from an RCT as well as the named DB2 resources installed from the CSD.</td>
</tr>
<tr>
<td>SET DB2ENTRY</td>
<td></td>
</tr>
<tr>
<td>SET DB2TRAN</td>
<td></td>
</tr>
<tr>
<td>SET DISPATCHER</td>
<td>Command added to enable you to alter the system values used by CICS dispatcher.</td>
</tr>
<tr>
<td>SET JOURNALNAME</td>
<td>CICS log manager command to change status of journal name entries.</td>
</tr>
</tbody>
</table>
### CEMT command | Explanation
---|---
**SET JVMPOOL** | Command added to enable you to enable or disable the JVM pool, or terminate it altogether.
**SET SYSTEM** | New option added to change the log defer interval (added by APAR PQ17925) (see LGDFINT system initialization parameter in Chapter 1, “System initialization parameters” on page 3)
**SET UOW** | Recovery manager command to resolve manually a shunted unit of work.

For detailed information on all the new and changed CEMT transactions and options, see the [CICS Supplied Transactions](#) manual.

#### Changes to the operation of the CEMT INQUIRE command

The operation of the CEMT INQUIRE command is changed to provide a full-screen display of a selected entry.

When you issue a CEMT INQUIRE `resource_name` command CICS displays, in abbreviated form, details of all the resources that match the inquiry. The results are displayed on 1 or 2 lines per entry, depending on the amount of data to be displayed. An example of a CEMT INQUIRE DSNAME command is shown in [Figure 1](#).

```
ing dname
STATUS: RESULTS - OVERTYPE TO MODIFY
 Dsn(CICSTS.CICSH###.DFHOMACD ) Vsa
   Fil(0001) Val Bas Und Und Avu Unq
 Dsn(CICSTS.CICSH###.DFHCSD ) Vsa
   Fil(0001) Val Bas Rec Sta Avu Unq
 Dsn(CICSTS.CICSH761.FILEA ) Vsa
   Fil(0001) Val Bas Rec Sta Avu Unq
```

**Figure 1. Example of an abbreviated INQUIRE DSNAME command**

To expand the details of an entry to a full-screen display, move the cursor to the selected entry and press Enter. For example, if the entry selected is the DFHCSD data set included in [Figure 1](#), CICS displays the full details of the selected data set as shown in [Figure 2 on page 26](#).
To return to the abbreviated (summary) screen from the full-screen display, press Enter.

**REQTEXT**

**REQTEXT:**

*Hexadecimal function key:* The full-screen display provides a hexadecimal function key (PF2), which allows you to see name and identifier character fields, in hexadecimal format.

**Changes to CEOT**

There are new options added to the CEOT transaction that allow you to alter the uppercase translation status (UCTRAN) for your own terminal, for the current session only.

The new keywords are NOUCTRAN, UCTRAN, or TRANIDONLY. These new options enable to switch between the uppercase translation options as required. For example, you might need to switch off uppercase translation temporarily while you use CEDA to define some resource definitions that require mixed-case attribute values.

**Changes to CETR**

The CETR transaction is enhanced to enable you to set special tracing for the following new components:

- **BA** CICS business application manager domain for BTS
- **BR** Bridge domain
- **DH** Document handling domain
- **EJ** Enterprise Java domain
- **EM** Event manager domain for BTS
- **IE** ECI over TCP/IP domain
- **II** IIOP domain
VTAM® dynamic LU alias considerations

If dynamic LU alias is in operation for the CICS region, and you want to use VTAM exit tracing to trace the bind flows for an autoinstalled terminal, the NETNAME you specify on the CETR “Transaction and Terminal Trace” panel should be the real network name. If you use the real network name, and there is more than one network using that name with CICS, VTAM exit tracing is activated for each occurrence of the network name. However, if you want to trace terminal activity after the LU alias name is known, specify the LUALIAS name.

New CIND transaction

The CIND transaction is an in-doubt testing tool that enables you to simulate the various states of distributed units of work.

You can use CIND to:

- Test the effect of in-doubt failures on application programs.
- Produce shunted units of work to test programs that use SPI commands to inquire on, and change the characteristics of, shunted units of work.
- Unshunt units of work that have been shunted using CIND.

Note: For a description of the concepts involved in the synchronization of distributed applications, including in-doubt periods and shunted units of work, see the CICS Intercommunication Guide.

CIND can operate in a standalone system. It provides a way of causing a failure during syncpoint processing in the in-doubt window and of changing the unit of work so that it appears to be distributed.

You can also use CIND to shunt a UOW that is genuinely distributed across multiple CICS systems. It is activated on the CICS system where the syncpoint is initiated, so that it can assume the role of syncpoint initiator and coordinator.

New CREA and CREC transactions

These two new transactions are introduced to assist in the deployment of enterprise beans.

CREA enables you to generate, based on installed DJAR resource definitions, REQUESTMODEL definitions that can be created and installed dynamically in the CICS region, or written to the CSD, or both.
CREC provides a read-only view of the DJAR contents and any related tranids, without the ability to define REQUESTMODELs either to CICS or to the CSD.

For details of these new transactions, see the CICS Supplied Transactions manual.

**CWBC obsolete**

The CICS Web interface transaction, CWBC, is obsolete, together with its associated data set, DFHWBCD. For more information about changes affecting the CICS Web interface, see Chapter 25, “Migration planning for CICS Web support” on page 213.

**Note:** Although this transaction is obsolete, it has been left in the DFHWEB group in the CSD. However, if it is invoked, CICS issues message DFHWB1551. The CWBC Transaction is no longer used to manage CICS Web resources.

**DSNC transaction**

The DSNC command interface becomes a CICS-supplied transaction. CICS supports the full range of DSNC command verbs, and will continue to do so for one more release, after which the MODIFY, STOP, and STRT options will be withdrawn.

For full details of the DSNC transaction, see the CICS DB2 Guide.

**Additions to CICS RACF category 1 transactions**

There are some new CICS internal system transactions added to the list of category one transactions. These are the transactions that need to be defined to RACF, and to which the CICS region user ID must be authorized, to enable CICS to initialize successfully when you are running CICS with security enabled (SEC=YES). The new transactions are:

- CFCL—File control CFDT load
- CFTL—File control SDT load
- CIOD—IIOp ORB function
- CIOF—CORBA GenericFactory
- CIOR—IIOp receiver program
- CIRR—default CICS IIOp request receiver transaction
- CJTR—CICS Object Transaction Service (OTS) resynchronization transaction
- CSHA—CICS BTS scheduler services handle-abend transaction
- CSHQ—Scheduler services domain long running task
- CSOL—CICS sockets listener transaction
- CTSD—TS delete recoverable queue
- CWBG—CICS Web support cleanup transaction
- CWXN—CICS Web support attach transaction.

For a full list of all the CICS category 1 transactions, see the CICS RACF Security Guide. Also see the DFH$CAT1 CLIST, supplied in the SDFHSAMP library.
Chapter 3. Resource definition (online) changes

This chapter summarizes the changes to CICS resource definition parameters for resources defined in the CICS system definition data set (DFHCSD).

For more information about all the new and changed resource definitions, see the CICS Resource Definition Guide.

Obsolete resource definition attributes

Table 8 shows obsolete resource definition attributes:

Table 8. Obsolete resource definition attributes

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Obsolete attributes</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORBASERVER</td>
<td>SSL PORT SSLPORT</td>
<td>These attributes, which relate the CORBASERVER to the associated TCIPIService resources, were introduced in CICS TS 2.1. In CICS TS 2.2 they are superseded by CLIENTCERT, SSLUNAUTH and UNAUTH.</td>
</tr>
<tr>
<td>PROFILE</td>
<td>PROTECT</td>
<td>This parameter is obsolete because CICS no longer supports message protection and logging for VTAM messages. The CSD continues to support the parameter in compatibility mode.</td>
</tr>
<tr>
<td>REQUESTMODEL</td>
<td>OMGINTERFACE OMGMODULE OMGOPERATION</td>
<td>These attributes, which were restricted to 31-characters, 58-characters, and 31-characters respectively, have been replaced by INTERFACE, MODULE, and OPERATION.</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td>INDOUBT</td>
<td>This parameter is replaced by the ACTION, WAIT, and WAITTIME parameters, as part of the support provided by the CICS recovery manager for handling in-doubt units of work. The CSD continues to support the parameter in compatibility mode.</td>
</tr>
<tr>
<td>TYPETERM</td>
<td>XRFSIGNOFF</td>
<td>Replaced by RSTSIGNOFF. See Signon retention with XRF and VTAM persistent sessions for migration impact.</td>
</tr>
</tbody>
</table>

Signon retention with XRF and VTAM persistent sessions

In earlier releases of CICS that support VTAM persistent sessions, CICS recovers only the terminal session, and not the user’s signon status. With signon retention support, CICS catalogs the signon status of every user who signs on, enabling CICS to retain a terminal’s signon in the event of either a CICS or VTAM failure. Thus CICS regions using VTAM persistent sessions have the same signon retention capability as CICS regions using XRF. However, XRF and VTAM persistent sessions are mutually exclusive, and rather than have two parameters to control signon and signoff status, RSTSIGNOFF operates for both functions.

When you upgrade your CSD to the CICS TS 2.2 level, the RSTSIGNOFF attribute becomes effective, and XRFSIGNOFF is retained for compatibility with earlier
releases. If you have TYPETERM definitions specified with XRFSIGNOFF(FORCE) to operate in regions using XRF, these have no effect in a CICS TS 2.2 region, which does not recognize the XRFSIGNOFF attribute. To ensure the same level of support, edit your TYPETERM definitions to specify RSTSIGNOFF(FORCE).

### Changed resource definition attributes

Table 9 shows changes to resource definition attributes.

**Table 9. Changed resource definition attributes**

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Affected attributes</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2CONN</td>
<td>DB2ID</td>
<td>TCBLIMIT and PRIORITY are treated differently, depending on the release of DB2 to which CICS is connected, and DB2ID is mutually exclusive with DB2GROUPID.</td>
</tr>
<tr>
<td></td>
<td>TCBLIMIT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PRIORITY</td>
<td></td>
</tr>
<tr>
<td>DB2ENTRY</td>
<td>PRIORITY</td>
<td>PRIORITY is ignored if CICS is connected to DB2 Version 6 or later.</td>
</tr>
<tr>
<td>Resource type</td>
<td>Affected attributes</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>FILE</td>
<td>BACKUPTYPE</td>
<td>• The maximum key length for a coupling facility data table is 16 bytes.</td>
</tr>
<tr>
<td></td>
<td>DATABUFFERS</td>
<td>• There is a new operand, NOLIMIT, on the MAXNUMRECS option, and the range is extended to 1 through 99 999 999. Also, for a coupling facility data table, this value is used from the file resource definition only once—when the coupling facility data table is being created. Thereafter, it is controlled by the coupling facility data table server. You can use a CFDT server command to change the MAXNUMRECS value dynamically.</td>
</tr>
<tr>
<td></td>
<td>DSNSHARING</td>
<td>• TABLE(CICS) for CICS-maintained data tables is supported for RLSACCESS(NO) files only.</td>
</tr>
<tr>
<td></td>
<td>FWDRECOVLOG</td>
<td>TABLE(USER) for user-maintained data tables is supported for both RLSACCESS(YES) and RLSACCESS(NO) files.</td>
</tr>
<tr>
<td></td>
<td>INDEXBUFFERS</td>
<td>The CF option is added to the TABLE attribute to specify a coupling facility data table.</td>
</tr>
<tr>
<td></td>
<td>JOURNAL</td>
<td>• If the file is defined with RLSACCESS(YES), the file attributes (BACKUPTYPE DATABUFFERS DSNSHARING FWDRECOVLOG INDEXBUFFERS LSRPOOLID PASSWORD RECOVERY and STRINGS) are all ignored. In some cases the information is redundant, and in others the information is obtained in another way, as follows:</td>
</tr>
<tr>
<td></td>
<td>KEYLENGTH</td>
<td>– For STRINGS, RLS access-mode files always have 1024 strings.</td>
</tr>
<tr>
<td></td>
<td>LSRPOOLID</td>
<td>– Recovery attributes (RECOVERY and FWDRECOVLOG), are obtained from the VSAM ICF catalog.</td>
</tr>
<tr>
<td></td>
<td>MAXNUMRECS</td>
<td>– The type of backup (BACKUPTYPE) is determined by the DFSMSdss utility for RLS.</td>
</tr>
<tr>
<td></td>
<td>PASSWORD</td>
<td>• The meanings and operation of the keywords KEYLENGTH RECORDSIZE REMOTENAME and REMOTESYSTEM are unchanged. However, a dual FILE definition that is defined for both local and remote purposes is of little value for RLS access-mode files, and is not recommended.</td>
</tr>
<tr>
<td></td>
<td>RECORDSIZE</td>
<td>With RLS, shared files are defined locally to each AOR instead of to a single FOR, which means that all AORs that are sharing a file can use the same local file resource definition.</td>
</tr>
<tr>
<td></td>
<td>RECOVERY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOTENAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOTESYSTEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STRINGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TABLE</td>
<td></td>
</tr>
</tbody>
</table>
Table 9. Changed resource definition attributes (continued)

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Affected attributes</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| FILE (continued) | • **JOURNAL** and **FWDRECOVLOG**: These parameters no longer refer to CICS journal data sets—CICS uses MVS system logger log streams for all log and journal output. The CICS log manager uses the FWDRECOVLOG and JOURNAL parameters, where applicable, to map recovery log and autojournal names to corresponding MVS log streams. **Note:** JOURNAL(01) and FWDRECOVLOG(01) specify general log streams referenced by the journal name DFHJ01, not the system log.  
• **RECOVERY**, **FWDRECOVLOG**, and **BACKUPTYPE**: If you are using DFSMS 1.3 or later, CICS obtains the values for these recovery attributes from either the ICF catalog entry for the data set referenced by the file, or from the file resource definition, depending on the ICF catalog LOG parameter and also the CICS RLS system initialization parameter. If the value for LOG in the ICF catalog is undefined, CICS uses the values for RECOVERY, FWDRECOVLOG, and BACKUPTYPE from the file resource definition. If RLS=YES is specified as a system initialization parameter, CICS obtains the recovery attributes for a data set from the ICF catalog if LOG(NONE), LOG(UNDO), or LOG(ALL) is specified, as follows:  
  – The CICS RECOVERY attribute is obtained from the LOG parameter:  
    - LOG(NONE) translates as RECOVERY(NONE)  
    - LOG(UNDO) translates as RECOVERY(BACKOUTONLY)  
    - LOG(ALL) translates as RECOVERY(ALL)  
  – FWDRECOVLOG is ignored and CICS obtains the forward recovery log stream name(LSN) from the LOGSTREAMID parameter specified in the ICF catalog.  
  – BACKUPTYPE is obtained from the BWO parameter specified in the ICF catalog, as follows:  
    - BWO(TYPECICS) translates as BACKUPTYPE(DYNAMIC)  
    - BWO undefined, or defined as any value other than BWO(TYPECICS) translates as BACKUPTYPE(STATIC) |
| PROFILE | RTIMOUT | Now, in addition to specifying the terminal read time-out feature as in earlier releases, this also specifies the time-out value for IIOP request processor tasks that are waiting for method requests. |
Table 9. Changed resource definition attributes (continued)

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Affected attributes</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
<td>CONCURRENY JVM</td>
<td>The DEBUG option is removed, leaving YES or NO as the only options. Also, there is a new significance to the CONCURRENY(THREADSAFE) attribute if your transactions invoke task-related user exits that are enabled with the OPENAPI option, such as the CICS DB2 adaptor when connected to DB2 Version 6 or later.</td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td>PORTNUMBER TRANSACTION</td>
<td>The description of the PORTNUMBER attribute has been extended, with information regarding the use of well-known IIOP port numbers and port sharing within an MVS™ image. CIEP, for an ECI over TCP/IP TCPIPSERVICE definition, is added to the CICS transactions you can specify on the TRANSACTION attribute.</td>
</tr>
<tr>
<td>TERMINAL</td>
<td>USERID</td>
<td>The userid parameter now supports two special options for use with the autoinstall for consoles function. You can now specify *FIRST or *EVERY to indicate that CICS is to use the userid passed on the MVS MODIFY command, either once only or every time.</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td>BREXIT</td>
<td>The meaning of this parameter is changed. It now names the default bridge exit to be used by the user transaction and program named on the transaction definition. Note: This change causes an incompatibility when sharing an upgraded CSD with a CICS TS Version 1 Release 2 region. See page 50 for information about a CICS TS Release 2 APAR that fixes this incompatibility.</td>
</tr>
<tr>
<td>TYPETERM</td>
<td>RSTSIGNOFF</td>
<td>Specifies the sign-on characteristics of a group of terminals in the event of a persistent sessions restart or an XRF takeover. RSTSIGNOFF replaces XRFSIGNOFF, which is retained for compatibility purposes with earlier releases.</td>
</tr>
</tbody>
</table>

New resource definition types and new attributes

Table 10 on page 34 shows new resource definition types and new attributes.
<table>
<thead>
<tr>
<th>Resource type</th>
<th>New keywords</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| CONNECTION   | NETNAME           | • The description of the NETNAME option is extended to provide extra information if you are running CICS regions with VTAM dynamic LU alias in operation. Review this new information (see [the CICS Resource Definition Guide](#)) when you implement LU alias support.  
• The XLNACTION option specifies the action to be taken if, during the exchange-lognames process on an IRC or APPC connection, CICS detects that a new log name is being used. This can have one of two effects:  
  – The recovery information is kept, pending some future resolution of the in-doubt units of work  
  – The units of work are backed out or committed, as determined by the ACTION attribute of transaction resource definitions. |
| CORBASERVER  | CERTIFICATE       | CORBASERVER is a new type of resource definition to enable you to define the execution environment (a CorbaServer) for enterprise beans and stateless CORBA objects.  
**Note:** The PORT, SSL, and SSLPORT attributes were introduced in CICS TS 2.1, and superseded by CLIENTCERT, SSLUNAUTH and UNAUTH in CICS TS 2.2. |
|              | CORBASERVER      |                                                                                                                                             |
|              | HOST             |                                                                                                                                             |
|              | JNDIPREFIX       |                                                                                                                                             |
|              | SESSBEANTIME     |                                                                                                                                             |
|              | SHELF            |                                                                                                                                             |
|              | AUTOPUBLISH      |                                                                                                                                             |
|              | DJARDIR          |                                                                                                                                             |
|              | SSLUNAUTH        |                                                                                                                                             |
|              | UNAUTH           |                                                                                                                                             |
| DB2CONN      | All              | DB2CONN, DB2ENTRY, and DB2TRAN are new types of CSD resource definition for defining:  
• A CICS connection with a DB2 subsystem  
• DB2 resources used on a CICS-DB2 connection  
• Additional transactions for DB2ENTRY.  
For details of the DEFINE DB2CONN, DB2ENTRY, and DB2TRAN commands, see the [CICS Resource Definition Guide](#). |
<p>| DB2ENTRY     |                  |                                                                                                                                             |
| DB2TRAN      |                  |                                                                                                                                             |
| DJAR         | CORBASERVER      | DJAR is a new type of resource definition to enable you to define a deployed JAR file.                                                     |
|              | HFSFILE          |                                                                                                                                             |
| DOCTEMPLATE  | TEMPLATENAME     | DOCTEMPLATE is a new type of resource definition to enable you define the names of document templates, and to specify where the templates are stored. |
|              | FILE             |                                                                                                                                             |
|              | TSQUEUE          |                                                                                                                                             |
|              | TDQUEUE          |                                                                                                                                             |
|              | PROGRAM          |                                                                                                                                             |
|              | EXITPGM          |                                                                                                                                             |
|              | DDNAME           |                                                                                                                                             |
|              | MEMBERNAME       |                                                                                                                                             |
|              | APPENDCRLF       |                                                                                                                                             |
| ENQMODEL     | ENQMODEL         | ENQMODEL is a new type of resource definition added to support the CICS sysplex-wide ENQ and DEQ function.                                 |
|              | ENQSCOPE         |                                                                                                                                             |
|              | STATUS           |                                                                                                                                             |
|              | ENQNAME          |                                                                                                                                             |</p>
<table>
<thead>
<tr>
<th>Resource type</th>
<th>New keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE</td>
<td>CFDTPOOL</td>
<td>These file attributes are added for coupling facility data tables:</td>
</tr>
<tr>
<td></td>
<td>LOAD</td>
<td>• CFDTPOOL names the pool in which the CFDT resides</td>
</tr>
<tr>
<td></td>
<td>READINTEG</td>
<td>• LOAD specifies whether the table is initially loaded from a source data set.</td>
</tr>
<tr>
<td></td>
<td>RLSACCESS</td>
<td>• READINTEG specifies the level of read integrity you want CICS to provide for files opened in RLS mode. The options available are CONSISTENT, REPEATABLE, and UNCOMMITTED.</td>
</tr>
<tr>
<td></td>
<td>TABLENAME</td>
<td>• RLSACCESS specifies whether CICS is to open the file in RLS mode. The default is NO, in which case CICS opens the file according to either the LSRPOOLID or the NSRGROUP parameter.</td>
</tr>
<tr>
<td></td>
<td>UPDATEMODEL</td>
<td>• If you specify RLSACCESS(YES), the other access mode attributes are ignored.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> If you need to switch from RLS to non-RLS access and plan to use the system initialization parameter RLSTOLSR(YES), you should keep the existing LSRPOOLID when redefining files from RLSACCESS(NO) to RLSACCESS(YES). You are also recommended to specify LSRPOOL resource definitions explicitly rather than let CICS build the pools dynamically using default values.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• TABLENAME names the table if different from the file name.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• UPDATEMODEL specifies either the locking or contention models.</td>
</tr>
<tr>
<td>JOURNALMODEL</td>
<td>All</td>
<td>JOURNALMODEL is a new type of CSD resource definition for mapping CICS 8-byte journal names to MVS system logger 26-byte log stream names (for TYPE=MVS), or to the SMF data sets (for TYPE=SMF), or to null output (TYPE=DUMMY).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For details of the DEFINE JOURNALMODEL command, see the <a href="#">CICS Resource Definition Guide</a>.</td>
</tr>
<tr>
<td>PROCESSTYPE</td>
<td>STATUS</td>
<td>PROCESSSTYPE is a new type of resource definition for defining a CICS business transaction services (BTS) process-types in the CSD.</td>
</tr>
<tr>
<td></td>
<td>FILE</td>
<td>For details of this new option, see the <a href="#">CICS Resource Definition Guide</a>.</td>
</tr>
<tr>
<td></td>
<td>AUDITLOG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AUDITLEVEL</td>
<td></td>
</tr>
<tr>
<td>PROFILE</td>
<td>FACILITYLIKE</td>
<td>This parameter specifies the name of an existing terminal resource definition to be used as a template for the 3270 bridge facility.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For details of this new option, see the <a href="#">CICS Resource Definition Guide</a>.</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>CONCURRENCY</td>
<td>• The CONCURRENCY option enables you to specify if the program is written to threadsafe or CICS quasi-reentrancy standards.</td>
</tr>
<tr>
<td></td>
<td>DYNAMIC</td>
<td>• The DYNAMIC option enables you to specify whether the program is the subject of a program-link request, that the request can be dynamically routed.</td>
</tr>
<tr>
<td></td>
<td>JVM</td>
<td>• JVM JVMCLASS and options enable you to specify whether the program is a Java program object, and its class name.</td>
</tr>
<tr>
<td></td>
<td>JVMCLASS</td>
<td>• The JVMPROFILE option enables you to specify the name of the JVM profile needed to start a JVM for the program.</td>
</tr>
<tr>
<td></td>
<td>JVMPROFILE</td>
<td></td>
</tr>
<tr>
<td>Resource type</td>
<td>New keywords</td>
<td>Explanation</td>
</tr>
<tr>
<td>----------------</td>
<td>------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>REQUESTMODEL</td>
<td>BEANNAME, CORBASERVER, INTERFACE, INTFACETYPE, MODULE, OPERATION, REQUESTMODEL, TRANSID, TYPE</td>
<td>REQUESTMODEL is a new type of resource definition for mapping an Internet Inter-ORB Protocol (IIOP) inbound request to the name of the CICS transaction that is to be initiated.</td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td>ATTACHSEC, AUTHENTICATE, BACKLOG, CERTIFICATE, DNSGROUP, GRPCRITICAL, IPADDRESS, PORTNUMBER, PROTOCOL, SOCKETCLOSE, STATUS, TCPIPSERVICE, TRANSACTION, TSQPREFIX, URM</td>
<td>TCPIPSERVICE is a new type of resource definition for defining the TCP/IP services that use CICS internal sockets support.</td>
</tr>
<tr>
<td>TDQUEUE</td>
<td>All</td>
<td>TDQUEUE is a new CSD resource definition for defining all types of transient data queue as an alternative to using the DFHDCT macros, which continue to be supported. For details of the DEFINE TDQUEUE command, see the CICS Resource Definition Guide.</td>
</tr>
<tr>
<td>TERMINAL</td>
<td>NETNAME</td>
<td>The description of the NETNAME option is extended to provide extra information if you are running CICS regions with VTAM dynamic LU alias in operation. Review this new information (see the CICS Resource Definition Guide) when you implement LU alias support.</td>
</tr>
</tbody>
</table>
| TRANSACTION    | ACTION, BREXIT, OTSTIMEOUT, ROUTABLE, WAIT, WAITTIME | The BREXIT attribute defines the transaction as a 3270 bridge transaction, specifying the name of the bridge exit to be associated with the transaction.
The OTSTIMEOUT attribute specifies the default time that an Object Transaction Services (OTS) transaction is allowed to execute without the initiator taking a syncpoint.
The ROUTABLE attribute indicates, if the transaction is the subject of an eligible EXEC CICS START request, that the request can be dynamically routed.
The three parameters, WAIT, ACTION and WAITTIME replace the INDOUBT parameter. The effect of these is as follows:
– If WAIT(YES), CICS waits for the time specified on WAITTIME before obeying the ACTION parameter.
– If WAIT(NO), CICS obeys the ACTION parameter immediately when a transaction fails while in the in-doubt state.

The default value for the WAIT parameter is YES, which represents a change from the operation of the old INDOUBT parameter. See “Effect of the in-doubt attribute default values” on page 46. |
Table 10. New resource definition attributes (continued)

<table>
<thead>
<tr>
<th>Resource type</th>
<th>New keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSMODEL</td>
<td>TSMODEL</td>
<td>TSMODEL is a new type of resource definition for defining temporary storage queue attributes in the CSD. This form of definition is now the recommended method, instead of using DFHTST macro definitions to create a temporary storage table. It is also the only way you can define prefixes that are greater than 8 characters. See &quot;Migrating TST entries to the CSD&quot; on page 58 for information about migrating TSTs to the CSD. See also &quot;Change to search order for TS definitions&quot; for information about a change in the search order for TSMODELs compared with TSTs.</td>
</tr>
<tr>
<td></td>
<td>PREFIX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOCATION</td>
<td></td>
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<tr>
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<td>RECOVERY</td>
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<td>POOLNAME</td>
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<tr>
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<td>REMOTESYSTEM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOTEPREFIX</td>
<td></td>
</tr>
</tbody>
</table>

Other resource definition changes

This section describes some other CSD changes affecting IBM-supplied resource definitions. The topics covered are:

- "Change to search order for TS definitions"
- "Additions to IBM-supplied resource definitions"
- "Changes to IBM-supplied resource definitions" on page 43
- "Changes to the INSTALL of terminal control resource definitions" on page 45
- "Effect of the in-doubt attribute default values" on page 46
- "Changes affecting the CONF-DATA and ACTION attributes" on page 47

Change to search order for TS definitions

If you use a temporary storage table to define the attributes of TS queues, CICS searches the TST for the first prefix that satisfies the particular search criteria. For example, if CICS searches for temporary storage queue ABCDEFGH, and the TST contains prefix A followed by prefix AB, A is selected. This "first-match" rule does not apply when you use TSMODEL definitions instead of a TST.

When you use TSMODEL definitions, CICS searches the installed models to find the best match, and uses the TSMODEL with the most specific prefix. For example, if there are installed TSMODEL definitions for DF, DFH, and DFHX, CICS selects the DFHX model for a TS request that specifies the DFHX123 queue, regardless of the order in which the TSMODELs are installed from the CSD.

Additions to IBM-supplied resource definitions

There are new groups of resource definitions added to your CSD when you run the UPGRADE command:

- DFHADET
- DFHADST
- DFHAUGRP for the transaction affinities utility
- DFHBR
- DFHBRCF
- DFHBUT
- DFHBVR
- DFHBRVSL
- DFHBRVSR
- DFHCBS
- DFHCFC
- DFHDCGT for CICS-required transient data queues
- DFHDOC
• DFHEJBU
• DFHEJCF
• DFHEJVR
• DFHEJVS
• DFHIIOP
• DFHINDT for the CICS in-doubt tool (CIND) definitions
• DFHIPECI
• DFHLGMOD for CICS system log journal models
• DFHOTS
• DFHPSSGN
• DFHRP for ONC/RPC inbound request support
• DFHRPF for the ONC/RPC file
• DFHRQS
• DFHTERM
• DFHWEB for the CICS Web interface
• DFH$BR for the 3270 bridge interface.
• DFH$BRLK
• DFH$CBTS
• DFH$CFCS
• DFH$IIOP
• DFH$JAVA
• DFH$JVM
• DFH$SOT

**DFHADET**
The IBM-supplied group DFHADET contains the definitions you need to run the EJB application development tool. The group contains a file definition (for the DFHADEM file) and 15 program definitions.

DFHADET is *not* included in list DFHLIST when you initialize or upgrade the CSD.

**DFHADST**
The IBM-supplied group DFHADST contains the resource definitions needed for the new CREA and CREC transactions.

DFHADST contains the CREA and CREC mapset, two program and two transaction resource definitions, and the group is included in list DFHLIST when you initialize or upgrade the CSD.

**DFHAUGRP**
The new IBM-supplied group DFHAUGRP contains resource definitions for the transaction affinities utility. There is also a new sample group, DFH$AFFY, which contains resource definitions that you can modify to suit your requirements.

The CICS transaction affinities utility, available as a program product for use with earlier releases of CICS, is supplied as part of the CICS base in the CICS TS.

For information about resource definitions for the utility, and about using the utility in general, see the [CICS Transaction Affinities Utility Guide](#).

**DFHBR, DFHBRCF, DFHBRUT, DFHBRVR, DFHBRVSL**
**DFHBRVSR, and DFH$BRLK**
These IBM-supplied groups contain sets of resource definitions for the link 3270 bridge, as follows:
DFHBR
This contains the basic program resource definitions for the link 3270 bridge mechanism. DFHBR is locked and included in DFHLIST when you upgrade the CSD.

DFHBRCF
This group defines the file resource definition required for the bridge number space defined as a coupling facility data table. DFHBRCF is locked and included in DFHLIST when you upgrade the CSD.

DFHBRUT
This group defines the file resource definition required for the bridge number space defined as a user-maintained data table. DFHBRUT is locked and included in DFHLIST when you upgrade the CSD.

DFHBRVR
This group defines the file resource definition required for the bridge number space defined as a VSAM RLS file. DFHBRVR is locked and included in DFHLIST when you upgrade the CSD.

DFHBRVSL
This group defines the file resource definition required for the bridge number space defined as a VSAM local KSDS file. DFHBRVSL is locked and included in DFHLIST when you upgrade the CSD.

DFHBRVSR
This group defines the file resource definition required for the bridge number space defined as a VSAM remote KSDS file. DFHBRVSR is locked and included in DFHLIST when you upgrade the CSD.

DFH$BRLK
This group defines the resource definitions needed for the link 3270 bridge sample application.

DFH$BR
The new IBM-supplied group DFH$BR contains sample resource definitions you need for the 3270 bridge interface. For information about how to use the CICS Web interface, see the CICS External Interfaces Guide.

DFHCBTS and DFH$CBTS
The IBM-supplied group DFHCBTS contains resource definitions for CICS business transaction services (BTS). This group contains the file resource definition for the BTS local request queue data set, DFHLRQ, which is required by scheduler services.

The DFHCBTS group is included in list DFHLIST when you initialize or upgrade the CSD.

Modifying the DFHLRQ file definition: DFHLRQ is a file-control managed VSAM KSDS that CICS opens at the end of initialization. CICS issues the open request for DFHLRQ whether you are using CICS BTS or not. If you are not using CICS BTS, you need not provide a DFHLRQ file. However, the open request for DFHLRQ then fails, and CICS issues error messages, which you can ignore. The messages are from File Control or Scheduler Services, or both; examples of these include:
If the name of the data set is not specified
DFHFC0951-- "OPEN of file DFHLRQ failed. DSNAME not available from JCL or FCT."

If the name of the data set is specified, but that data set is not available
DFHSH0109 -- "date time applid An error has occurred when attempting to access the Local Request Queue data set (DFHLRQ). {The file could not be found. / The file was closed. / The file was disabled. / There was insufficient space. / An I/O error occurred. / The data set is being copied.} The Local Request Queue is now unavailable."

To avoid the resulting error messages, create a DFHLRQ KSDS, and define it to CICS.

To enable you to modify the DFHLRQ file entry in the DFHCBTS group directly, the group is not locked. You cannot overlay the DFHLRQ file definition by installing another definition from another group list defined after DFHLIST, because its status, CLOSED ENABLED, does not permit the definition to be replaced. Being able to modify DFHLRQ directly in group DFHCBTS allows you to use DFHLIST without having to copy and modify it.

Before modifying the DFHLRQ definition, you are recommended to make a backup.

The DFH$CBTS group defines the CICS BTS sample application resources—mapsets, programs, transactions, and the sample order processtype. It is not included in DFHLIST.

DFHCFC and DFH$CFCS
The IBM-supplied group DFHCFC contains the program resource definition for the CICS C++ classes DLL, ICCFCDLL, which is required for CICS object-oriented programming interface support.

The DFHCFC group is included in list DFHLIST when you initialize or upgrade the CSD.

The DFH$CFCS group defines the CICS C++ set of sample applications programs and transactions. It is not included in DFHLIST.

DFHDCTG
The new IBM-supplied group DFHDCTG contains resource definitions for all the CICS-required transient data queues, replacing the DFHDCT2$ sample destination control table.

The TD queues used by CICS sample application programs, previously defined in DFHDCT2$, are added to existing sample groups in the CSD.

For more details, see Chapter 4, “Resource definition (macro) changes” on page 53

DFHDOC
The IBM-supplied group DFHDOC contains the program resource definition for the CICS document handler template reader.

The DFHDOC group is included in list DFHLIST when you initialize or upgrade the CSD.
**DFHEJBU**
The IBM-supplied group DFHEJBU contains the program resource definition needed for the CICS EJB user-replaceable program, DFHEJEP. This program intercepts EJB events for the EJB application development tool.

DFHEJBU is included in list DFHLIST when you initialize or upgrade the CSD.

**DFHEJCF, DFHEJVR, and DFHEJVS**
These IBM-supplied groups contain three versions of the file resource definitions for the EJB request streams directory and the EJB object store for session beans. The three versions are:

- **DFHEJCF**
  File definitions for coupling facility data tables (CFDTs), with TABLE(CF).

- **DFHEJVR**
  File definitions for LSR mode VSAM files, with LSRPOOLID(1).

- **DFHEJVS**
  File definitions for RLS mode VSAM files, with RLS(YES).

These groups of sample definitions are added to the CSD by the DFHCSDUP UPGRADE command, but are *not* included in DFHLIST. The groups are not locked, so that when you have decided which version you want to use, you can modify the data set name and any other attributes you want to change. Add the name of the modified group to your start-up group list if you are using CICS EJB support.

**DFHIIOPE and DFH$IIIOP**
The new IBM-supplied group DFHIIOPE contains resource definitions for IIOP inbound requests.

The DFHIIOPE group is included in list DFHLIST when you initialize or upgrade the CSD.

In addition to some required program and transaction definitions, DFHIIOPE includes one request model. For more information about IIOP inbound to Java applications, and the use of REQUESTMODEL resource definitions, see the CICS Internet Guide.

The DFH$IIIOP group defines a set of IIOP sample client applications. It is not included in DFHLIST.

**DFHINDT**
The new IBM-supplied group, DFHINDT, contains resource definitions for use with the in-doubt tool (CIND). For information about using the CIND transaction to test your application programs in an in-doubt situation, see the CICS Supplied Transactions manual.

**DFHIPEC**
The IBM-supplied group DFHIPEC contains the definitions for the CICS ECI over TCP/IP interface.

This group is locked and included in DFHLIST when you upgrade the CSD.

**DFH$JAVA and DFH$JVM**
The IBM-supplied groups DFH$JAVA and DFH$JVM contain Java sample application programs and transactions. These groups define the same set of sample programs and transactions, the difference being that the set of programs in group DFH$JVM are defined to run as bytecode objects in a JVM, and the DFH$JAVA set
are defined to run as conventional CICS programs. Both these groups refer to the same set of programs supplied in source form in the samples library, SDFHSAMP.

These groups are not included in DFHLIST.

**DFHLMOD**
The new IBM-supplied group DFHLMOD contains resource definitions for JOURNALMODEL resource definitions for the CICS primary (DFHLOG) and secondary (DFHSHUNT) system logs.

**DFHOTS**
The IBM-supplied group DFHOTS contains the program (DFHOTR) and resynchronization transaction (CJTR) resource definitions for CICS Object Transaction Services (OTS) support.

This group is locked and included in DFHLIST when you upgrade the CSD.

**DFHPSSGN**
The IBM-supplied group DFHPSSGN contains the program and transaction resource definitions for CICS VSAM persistent sessions signon retention support.

This group is locked and included in DFHLIST when you upgrade the CSD.

**DFHRP and DFHRPF**
The new IBM-supplied group DFHRP contains the resource definitions you need for support of inbound ONC/RPC requests. DFHRPF contains a file definition for ONC/RPC.

**DFHRQS**
The IBM-supplied group DFHRQS contains the CICS request stream resource definitions.

This group is locked and included in DFHLIST when you upgrade the CSD.

**DFH$SOT**
The IBM-supplied group DFH$SOT contains the following sample TCPIPSERVICE resource definitions:

- HTTPNSSL, a sample CICS Web TCPIPSERVICE with no secure sockets layer (SSL) support.
- HTTPSSL, a sample CICS Web TCPIPSERVICE with SSL support
- IIOPNSSL, a sample IIOP TCPIPSERVICE with no SSL support.

**DFHTERMC**
The IBM-supplied group DFHTERMC contains a TYPETERM resource definition that supports autoinstall for consoles. None of the existing TYPETERM definitions supplied in DFHTYPE support autoinstall for consoles.

The DFHTERMC group is not included in list DFHLIST. If you want to use the TYPETERM in this group for autoinstall for consoles, add the group to one of your own group lists.

**DFHWEB**
The new IBM-supplied group DFHWEB contains the resource definitions you need for the CICS Web interface. For information about how to use the CICS Web interface, see the [CICS Internet Guide](#).
Changes to IBM-supplied resource definitions

Some IBM-supplied resource definitions are changed or obsolete, and are moved to new compatibility groups.

Following the upgrade of your CSD, the resource definitions listed above no longer exist in their old groups, which are removed from DFHLIST. If you plan to share the upgraded CSD with earlier releases of CICS, you must remove the obsolete group names from the group lists you use on the earlier releases, and add groups DFHCOMP5, DFHCOMP6, DFHCOMP7, DFHCOMP8, and DFHCOMP9, (or some of these) in their place. See Chapter 5, "The application programming interface (API)" on page 63.

Moved to group DFHCOMP5

The resource definitions removed, and now in DFHCOMP5 are:

- **The DFHAKP group**
  
  This group is obsolete because the previous activity keypoint mechanism is replaced by new function in the recovery manager domain, which does not require CSD resource definitions. Group DFHAKP comprised the following:
  
  - Program DFHAKP
  - Transaction CSKP

- **The DFHBACK group**
  
  This group is obsolete with the recovery-manager changes to dynamic backout. Group DFHBACK comprised the following dynamic backout programs:
  
  - DFHDBP1$
  - DFHDBP2$

- **The DFHDLI group**
  
  This group is obsolete because of the withdrawal of CICS local DL/I support. Group DFHDLI comprised the following:
  
  - Program DFHBRCPC
  - Program DFHDLG
  - Program DFHDLS
  - Program DFHEBRCT
  - Transaction CBRC
  - Transaction CSGX
  - Transaction CSSX

- **The DFHJRNL group**
  
  This group is obsolete because of the replacement of the CICS journal control programs by the CICS log manager domain. Group DFHJRNL defined the following programs:
  
  - DFHJCBSPDFHJCIOE
  - DFHJCCDFHJCKOJ
  - DFHJCEOVDFFHJCO
  - DFHJCIDFHJCSDJ

- **The DFHRSPLGM group**
  
  This group is obsolete because the response logging function is not required with the withdrawal of CICS message protection support. Group DFHRSPLGM comprised the following:
  
  - Program DFHZRLG
  - Transaction CSLG

Moved to group DFHCOMP6

The content of the DFHDB2 group is changed, see "Changes to the DFHDB2 group" on page 44. The old version of DFHDB2 is preserved in DFHCOMP6 group.
Moved to group DFHCOMP7
The resource definitions removed and now defined in DFHCOMP7 are:

- **From the DFHWEBF group:**
  File definition, DFHWBCD. This file, which is used in earlier releases for recording the CICS Web interface status, is now obsolete. CICS Web support and status is new defined in a TCPIPSERVICE resource definition. DFHWBCD was the only definition in the DFHWEBF group, which is removed from the CSD.

- **From the DFHWWEB group:**
  Program definitions DFHWBM, DFHWBTRU, and DFHWBWB.

- **From the DFH$BR group:**
  All the 3270 bridge transactions—BRG2, BRG3, BRG4, BRG5, BRG6, BRG7, and BRG8.

Moved to group DFHCOMP8
The resource definitions removed and now defined in DFHCOMP8 are from:

- **Samples group, DFH$SOT:** The resource definitions removed from this group are:
  - The TCP/IP service resource definitions, IIOPNSSL and IIOPSSL.
  - The CICS CORBA IIOP interface program resource definitions, DFHIIOIP and DFHIIOPA.
  - The CICS IIOP transactions, CIOR and CIOD.

Moved to group DFHCOMP9
The following groups, which were introduced in CICS TS 2.1, are obsolete:

- DFHADBD
- DFHADFD
- DFHADPD

The definitions that were in these three groups are all now in the new compatibility group, DFHCOMP9.

Note that, whereas the groups DFHADBD and DFHADFD are unlocked in a CICS TS 2.1 CSD, when you upgrade the CSD using DFHCSDUP, DFHCOMP9 is locked.

Changes to the DFHDB2 group
The content of the DFHDB2 group is changed because of new objects added for the CICS-DB2 interface, and also because of some module name changes (from DSN2xxxx to DFHD2xxx). Group DFHDB2 now comprises the following:

- Program DFHD2CM0
- Program DFHD2CM1
- Program DFHD2CM2
- Program DFHD2CM3
- Program DFHD2EDF
- Program DFHD2EX1
- Program DFHD2EX2
- Program DFHD2INI
- Program DSNCUEXT
- Transaction CDBF
- Transaction CDBQ
- Transaction CEX2
- Transaction DSNC

The old version of DFHDB2 is preserved in DFHCOMP6 group.
Changes to the DFH$IIOP samples group
There are changes to resource definitions defined in the DFH$IIOP samples group, but the definitions that have been removed are not defined in DFHCOMP8. The definitions that have been removed are:

- The definitions for programs DFJ$IIIBS and DFJ$IIHE
- The definition for transaction CIOF
- The definition for request model DFJ$GFAC.

The definitions that are still defined in DFH$IIOP, but have changed in some significant way, are:

- The transactions BNKS and IIHE now invoke a different program, DFJIIRP instead of DFHIIOPA.
- The DFJ$IIIB and DFJ$II RH request model resource definitions. See “Incompatibility of REQUESTMODEL resource definitions” on page 50 for details.

Updating user-modified IBM-supplied definitions
When you run the UPGRADE function of the CSD utility program (DFHCSDUP), ensure that you manually upgrade any IBM-supplied definitions that you may have modified on earlier releases. The safest way to do this is to copy the upgraded IBM-supplied definitions and reapply your modifications. This action is required because the UPGRADE command does not operate on your own groups, or on 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. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and these may be inappropriate for IBM-supplied resource definitions.

If you are not sure whether your CSD contains any modified IBM definitions, use the DFHCSDUP SCAN function to compare the IBM-supplied resource definitions with any user-modified versions.

The SCAN function searches for the IBM-supplied version of a specified resource name of a specific resource type and compares it with any other resource definition of the same name and type. DFHCSDUP reports any differences it finds between the IBM-supplied definition and a user-modified version. If you have copied and changed the name of an IBM-supplied definition, the SCAN command enables you to specify the changed name as an alias.

See the the CICS Operations and Utilities Guide for details of the DFHCSDUP SCAN command.

Changes to the INSTALL of terminal control resource definitions
In earlier releases, CICS terminal control resource definitions are installed online and committed at the group level. This means that all the resources in a group must install successfully, otherwise the whole group is backed out. The failure that causes the backout can be any definition in the group, even if it is not a terminal. Conversely, during a cold start, terminal definitions are installed individually. This means, for example, that a connection can be installed at startup with only one of several sessions definitions that relate to it. The whole group containing the same definitions will not install using the CEDA INSTALL command.

CICS terminal control resource definitions within a CSD group are now committed at the “installable sets” level. An installable set comprises those resources, such as CONNECTION and associated SESSIONS, that are associated in some way.
Committing installed resources at the installable set level rather than the group level means that the backout of an installable set does not cause the whole group to be backed out. Also, because CICS now uses the same policy for GRPLIST install during a cold start and for a CEDA INSTALL command, the results are consistent.

The following types of resource definition are installed in installable sets:

- CONNECTION and associated SESSIONS definitions
- Pipeline terminals—all the terminal definitions in the same CSD group that share the same POOL name

CICS issues message DFHZC6216 identifying the member of an installable set that causes the install of the set to fail and be backed out. On completion of the group, CICS also issues message DFHAM4892 to indicate that the group installed with errors.

The installs of other TERMINAL and TYPETERM resource definitions are now committed by individual resource.

In earlier releases, new terminal resources are often defined twice:
1. In the group included in the GRPLIST installed at a cold start
2. In a new group that you use online to install new definitions dynamically.

With CICS Transaction Server, you can use the CEDA INSTALL command to reinstall the same group used on a cold start. Any new definitions added to the group after the cold start are installed successfully, even if some original definitions are in use and fail to install. This reduces the risk involved with the use of temporary groups—that they can be omitted from the main group used at cold start, causing some terminal definitions to be missing.

If you migrate resource definitions from previous releases of CICS, you should investigate any DFHZC6216 messages that CICS issues during a cold start. This message indicates resources that would previously have partially installed, but now are not installed.

**Effect of the in-doubt attribute default values**

The INDOUBT attribute on transaction resource definitions is obsolete. If you have:

- Allowed the INDOUBT parameter of your distributed transactions to take the default value BACKOUT, or
- Specified BACKOUT explicitly

modify the new in-doubt attributes on your distributed transaction resource definitions to achieve the same effect. This means specifying WAIT(NO) with ACTION(BACKOUT).

If you do not modify your existing transaction resource definitions, they take the default values of the WAIT and WAITTIME parameters, which cause CICS to wait for in-doubt resolution. The defaults of the replacements for the INDOUBT parameter are WAIT(YES) and WAITTIME(00,00,00), which mean “wait indefinitely”. Any active locks held by failed in-doubt units of work are converted into retained locks. See “The API and the recovery manager domain” on page 69 for information about the effect of retained locks on existing application programs.
In earlier releases of CICS, the default value of the INDOUBT parameter (BACKOUT) means that if a transaction fails while in doubt, CICS backs out any changes made to recoverable resources immediately.

**Changes affecting the CONFDATA and ACTION attributes**

The bits used to represent the CONFDATA attribute in transaction definitions in the CSD change between CICS/ESA 4.1 and CICS TS Version 1. After you have used DFHCSDUP to upgrade a CICS/ESA 4.1 CSD to a CICS Transaction Server for z/OS Release 2 level, the CONFDATA and ACTION attributes could be incorrect in your transaction definitions.

DFHCSDUP and the CEDA transaction are changed so that the bits used to represent the CONFDATA attribute in transaction definitions in the CSD are the same in all releases of CICS.

Run the DFHCSDUP UPGRADE REPLACE command to ensure that all CICS-supplied transaction definitions are correct.

For user transaction definitions, a new DFHCSDUP PROCESS APAR command is provided to identify definitions which may be incorrect. See Chapter 7, "CICS-supplied utility programs" on page 93 for details of the command.

**Upgrading the CSD**

There are two main steps to upgrading the CSD:

1. Changing the CSD average and maximum record size
2. Upgrading the IBM®-supplied definitions using the CSD utility UPGRADE command.

When you have successfully upgraded your CSD, you can review the topics "Sharing the CSD between different releases of CICS" on page 49 and "Incompatibility of REQUESTMODEL resource definitions" on page 50 and plan what you need to do to share your CSD.

**Changing the CSD record size**

Before you run the DFHCSDUP utility to upgrade your CSD, first redefine the CSD to VSAM with a new average and maximum record size. The maximum record size has increased, and your CSD must now be defined with RECORDSIZE(200 2000). Here are some suggestions of how you can do this:

- Take a backup, then delete the data set, define a new one with the correct record size, and REPRO the backup into the new data set.
- Rename the old data set as a backup, then create a new data set and REPRO the renamed data set into the new one.
- Define a new data set with the correct record size and other attributes, and then REPRO the old data set into the new one.

Here’s a sample job that implements the second of these methods:
If you fail to redefine the CSD with the correct record size, failures can occur in a number of situations, indicated by the following error messages:

**DFH5117**
This message is issued by DFHCSDUP if you attempt to process a CSD that has the old record size.

**DFHCA5117**
This message is issued by CICS if you attempt to use CEDA against a CSD that is defined with an invalid record length.

**DFHAM4822**
This message is issued during CICS initialization if CICS tries to open the CSD and finds that it is defined with an incorrect maximum record size.

### Running the DFHCSDUP UPGRADE job

When you have redefined your CSD with the correct record size, run the DFHCSDUP utility program, specifying the UPGRADE command, to upgrade the IBM-supplied definitions in your CSD to the latest CICS TS level. You can create a new CSD using the DFHCSDUP INITIALIZE command. For information about running DFHCSDUP with the UPGRADE command, see the CICS Operations and Utilities Guide.
Upgrading other IBM-supplied resource definitions
If you have resource definitions in your CSD that support other IBM products, you may need to upgrade these also. For example, if your Language Environment resource definitions are not at the OS/390 Release 10 level, you are recommended to delete and replace the CSD group containing these.

You can find the Language Environment resource definitions in the SCEESAMP library in member CEECCSD. The following job is an example of how to upgrade the Language Environment resource definitions in your CSD:

```
//CSDUPGRD JOB 1,BELL,MSGCLASS=A,MSGLEVEL=(1,1),
 //CLASS=A,NOTIFY=BELL
//JOBPARM SYSAFF=MV26
/* Remove Old Language Environment group
//CSDUP1 EXEC PGM=DFHCSDUP,REGION=2M,PARM='CSD(READWRITE)'
//STEPLIB DD DSN=CICSTS22.CICS.SDFHLOAD,DISP=SHR
//DFHCSDD DD DSN=CICSTS22.CICSHURS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSSOUT=
//SYSAABOUT DD SYSSOUT=
//SYSSABEND DD SYSSOUT=
//SYSSUDUMP DD SYSSOUT=
//SYSSIN DD *
   DELETE GROUP(CEE)
/*
/*
//CSDUP2 EXEC PGM=DFHCSDUP,REGION=2M,PARM='CSD(READWRITE)'
//STEPLIB DD DSN=CICSTS22.CICS.SDFHLOAD,DISP=SHR
//DFHCSDD DD DSN=CICSTS22.CICSHURS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSSOUT=
//SYSAABOUT DD SYSSOUT=
//SYSSABEND DD SYSSOUT=
//SYSSUDUMP DD SYSSOUT=
//SYSSIN DD DSN=SYS1.OS390210.SCEESAMP(CEECCSD),DISP=SHR
/*
/*
```

Figure 4. Upgrading Language Environment resource definitions

The Language Environment group CEE contains mostly the program resource definitions needed for all high-level language support, but also contains the mapset and transaction definition for the Language Environment CLER transaction.

Sharing the CSD between different releases of CICS
Beginning with CICS/ESA® Version 3, there have been changes in each release of CICS to the IBM-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 you share the CSD between different levels of CICS.

If, after upgrading a CSD, you plan to share the CSD with earlier releases of CICS, include the appropriate DFHCOMP_x compatibility groups in your start-up group list to provide the required support for earlier releases. Table 11 on page 50 shows you which DFHCOMP groups you need to include for the earlier releases. Do not attempt to share a CSD with a CICS region running at a higher level than the CSD.

It is important that you install the compatibility groups in the correct order, as shown in Table 11 on page 50. For example, to run a CICS/ESA® 4.1, with the CSD...
upgraded to CICS TS 2.2, append the compatibility group DFHCOMP9 followed by DFHCOMP8, DFHCOMP7, DFHCOMP6, and DFHCOMP5 at the end of your group list.

**BREXIT APAR:** The change of meaning of the BREXIT parameter on transaction definitions can cause an incompatibility if you edit the BREXIT attribute using CICS TS 1.3. The problem occurs when you use the updated transaction in a CICS TS 1.2 region, in environments where the CSD is shared between CICS TS 1.2 and 1.3 regions. In CICS TS 1.2, a transaction definition that specifies a program name on the BREXIT parameter must leave the PROGRAM parameter blank, identifying the transaction as a 3270 bridge transaction. In CICS TS 1.3, the BREXIT parameter is defined on the definition of a user transaction, and specifies the name of the default bridge exit. To fix this potential incompatibility, apply the PTF for APAR PQ22836 to CICS TS 1.2 only.

<table>
<thead>
<tr>
<th>CICS release the CSD is shared with</th>
<th>The CICS release level of the CSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 2.2</td>
<td>CICS TS 2.1</td>
</tr>
<tr>
<td>DFHCOMP9</td>
<td>None</td>
</tr>
<tr>
<td>CICS TS 2.1</td>
<td>CICS TS 1.3</td>
</tr>
<tr>
<td>DFHCOMP8</td>
<td>Do not share</td>
</tr>
<tr>
<td>CICS TS 1.3</td>
<td>CICS TS 1.2</td>
</tr>
<tr>
<td>DFHCOMP8</td>
<td>Do not share</td>
</tr>
<tr>
<td>CICS TS 1.2</td>
<td>CICS TS 1.1</td>
</tr>
<tr>
<td>DFHCOMP9</td>
<td>DFHCOMP8</td>
</tr>
<tr>
<td>DFHCOMP8</td>
<td>None</td>
</tr>
<tr>
<td>CICS TS 1.1</td>
<td>4.1</td>
</tr>
<tr>
<td>DFHCOMP9</td>
<td>DFHCOMP8</td>
</tr>
<tr>
<td>DFHCOMP8</td>
<td>DFHCOMP7</td>
</tr>
<tr>
<td>DFHCOMP7</td>
<td>None</td>
</tr>
<tr>
<td>4.1</td>
<td>CICS TS 2.2</td>
</tr>
<tr>
<td>DFHCOMP9</td>
<td>DFHCOMP8</td>
</tr>
<tr>
<td>DFHCOMP8</td>
<td>DFHCOMP7</td>
</tr>
<tr>
<td>DFHCOMP7</td>
<td>DFHCOMP6</td>
</tr>
<tr>
<td>DFHCOMP6</td>
<td>DFHCOMP5</td>
</tr>
<tr>
<td>DFHCOMP5</td>
<td>None</td>
</tr>
</tbody>
</table>

**Incompatibility of REQUESTMODEL resource definitions**

The REQUESTMODEL resource definition was introduced in CICS TS 1.3 to support inbound IIOP requests only. The REQUESTMODEL definition now supports both IIOP and EJB requests, and as a result is extended significantly, with many new attributes. At the same time, some of the old attributes are replaced, so that the keywords are meaningful for both EJB and IIOP, and to enable you to specify larger values.

The effect of all the changes is to make CICS TS 1.3 and CICS TS Version 2 REQUESTMODEL definitions incompatible when installing them in a CICS region. In other words, you cannot install a CICS TS 1.3 REQUESTMODEL in a CICS TS Version 2 region, and you cannot install a CICS TS Version 2 REQUESTMODEL in a CICS TS 1.3 region.

To ensure that you install the correct version of REQUESTMODEL resource definition in a CICS region, you are recommended to define the CICS TS 1.3 and CICS TS Version 2 REQUESTMODELS in separate groups in your CSD, and add the groups to the appropriate GRPLIST.
You can continue to update a CICS TS 1.3 REQUESTMODEL from a CICS TS Version 2 region using CEDA (or CEDB) in compatibility mode (using the PF2 function key in the CEDA ALTER panel), but in this mode you can only specify CICS TS 1.3 attributes. For example, if you specify any of the OMG attributes, CICS forces a blank CORBASERVER name. Other validation checks ensure that you cannot perform an invalid update when in compatibility mode. Also, to help ensure that you cannot install an incorrect version of a REQUESTMODEL, CICS rejects the install with an error message if you try to install a REQUESTMODEL with a blank CORBASERVER name in a CICS TS Version 2 region.

**Upgrading your CORBASERVER resource definitions**

The way you specify TC/IP port numbers and SSL authentication in the CORBASERVER resource definition is changed. Instead of specifying an explicit port number and a specific level of authentication, you now specify the name of a TCPIPSERVICE resource definition that defines the required level of authentication and provides the port number. This simplifies resource definition and avoids you having to specify port numbers in two places. This is illustrated in Table 12.

<table>
<thead>
<tr>
<th>CORBASERVER attributes (CICS TS 2.1)</th>
<th>Corresponding TCPIPSERVICE attributes</th>
<th>CORBASERVER attributes (CICS TS 2.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSL(CLIENTCERT) SSLPORT(nnnnn)</td>
<td>TCPIPSERVICE(TCPSERV1)</td>
<td>CLIENTCERT(TCPSERV1) UNAUTH(TCPSERV3)</td>
</tr>
<tr>
<td></td>
<td>SSL(CLIENTAUTH) AUTHENTICATE(NO) PORTNUMBER(nnnnn)</td>
<td></td>
</tr>
<tr>
<td>SSL(YES) SSLPORT(nnnnn)</td>
<td>TCPIPSERVICE(TCPSERV2)</td>
<td>SSLUNAUTH(TCPSERV2) UNAUTH(TCPSERV3)</td>
</tr>
<tr>
<td></td>
<td>SSL(YES) AUTHENTICATE(NO) PORTNUMBER(nnnnn)</td>
<td></td>
</tr>
<tr>
<td>SSL(NO) SSLPORT(nnnnn)</td>
<td>TCPIPSERVICE(TCPSERV3)</td>
<td>UNAUTH(TCPSERV3)</td>
</tr>
<tr>
<td></td>
<td>SSL(NO) AUTHENTICATE(NO) PORTNUMBER(nnnnn)</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The CICS TS 2.2 CORBASERVER resource definition must refer to a TCPIPSERVICE definition that specifies SSL(NO). You do this on the UNAUTH attribute. The other attributes, CLIENTCERT and SSLUNAUTH are optional. Thus each CORBASERVER resource definition can point to one, two, or three TCPIPSERVICE resource definitions, depending on your SSL authentication requirements.

If you have CICS TS 2.1-level CORBASERVER resource definitions in your CSD that want to continue using in CICS TS 2.2, update these with the new attributes that correspond to the required TCPIPSERVICE resource definition. You can leave the old attributes defined for use on your CICS TS 2.1 regions: in common with other obsolete attributes, the old CORBASERVER attributes are ignored by CICS TS 2.1, and the new one are ignored by CICS TS 2.1.

If you try to install in a CICS TS 2.2 region a CICS TS 2.1-level CORBASERVER that does not contain the UNAUTH attribute as a minimum, CICS issues the following error message:

*S Install of CORBASERVER cbs1 failed because it is not a valid CORBASERVER for this level of CICS.*
Chapter 4. Resource definition (macro) changes

This chapter summarizes the changes to the CICS resource definition macros for CICS control tables. It discusses the following topics:

- "Obsolete control tables"
- "Changed control table parameters" on page 55
- "New control table parameters" on page 57
- "Support for temporary storage control tables (TSTs)" on page 57
- "Migrating TST entries to the CSD" on page 58
- "Obsolete sample JCL in REXX for CICS" on page 60
- "Basic mapping support for 3270 bridge facility" on page 60
- "VSAM support withdrawn from DFHFCT macros" on page 60
- "Changes to DFHCNV macro" on page 60
- "Reassembling control tables" on page 61

## Obsolete control tables

Table 13 shows obsolete control tables and parameters.

<table>
<thead>
<tr>
<th>Control table</th>
<th>Macro</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCT</td>
<td>DFHDCT</td>
<td>CICS no longer supports the DCT macro as a means of defining transient data queues. These must be defined in the CSD using the TDQUEUE resource type. See &quot;Migrating DCT entries to the CSD&quot; on page 54 for more information about this change.</td>
</tr>
<tr>
<td>DFHDLDBD</td>
<td>All</td>
<td>This macro is obsolete due to the withdrawal of 1.DFHDLDBD control table, obsolete CICS local DL/I support.</td>
</tr>
<tr>
<td>DFHDLPSB</td>
<td>DLI</td>
<td>DL1</td>
</tr>
<tr>
<td>DFHFCT</td>
<td>SYSTEM option on JID</td>
<td>The SYSTEM operand on the JID parameter is obsolete because CICS does not support autojournaling to the CICS system log.</td>
</tr>
<tr>
<td>DFHJCT</td>
<td>All</td>
<td>The journal control table is obsolete because the CICS log manager uses MVS system logger log streams for CICS system log and journal output.</td>
</tr>
<tr>
<td>RCT</td>
<td>DSNCRCT</td>
<td>CICS no longer supports the DB2 RCT macro as a means of defining DB2 resources to a CICS region. The only way you can define DB2 resources to CICS is through the DB2CONN, DB2ENTRY, and DB2TRAN resource definition types in the CSD. See &quot;Runtime support withdrawn for RCT&quot; on page 54 for more information about this change.</td>
</tr>
</tbody>
</table>
Migrating DCT entries to the CSD

In earlier releases that supported both the DCT and the TDQUEUE resource type, migrating the DFHDCT entries was optional. If you haven’t already done so, you must now migrate DCT entries to the CSD, first reassembling your DCT with the MIGRATE option specified on the TYPE=INITIAL macro, as follows:

```
DFHDCT TYPE=(INITIAL,MIGRATE)
```

Specifying TYPE=(INITIAL,MIGRATE) ensures that the table is assembled and link-edited with AMODE(24), which is required by the MIGRATE function of the DFHCSDUP utility program. If you fail to specify MIGRATE on the TYPE=INITIAL macro, the DFHDCT macro forces AMODE(31), which causes errors when you run DFHCSDUP with the MIGRATE command for the DCT.

Use the DFHCSDUP utility program to migrate DCTs to the CSD, specifying the following command:

```
MIGRATE TABLE(tablename) TOGROUP(groupname)
```

The contents of a DCT are migrated as a single CSD group, or as a set of several groups if you reassemble the table with the group names you want to create. To do this, insert the following macro in front of each group of DCT source entries:

```
DFHDCT TYPE=GROUP,GROUP=groupname
```

See the *CICS Operations and Utilities Guide* for information about migrating destination control tables as groups of resource definitions in the CSD.

Obsolete sample DCT

CICS no longer supplies the sample table, DFHDCT2$. In earlier releases, this table included definitions for all the CICS-required queues, such as CSMT, CSSL, and so on. It also included definitions of the queues needed for some of the sample applications.

All the definitions previously defined in DFHDCT2$ are now defined in the following groups in the CSD:

```
DFHDCGT
```

This group contains all the CICS-required queues. This group is included in the CICS start-up group list, DFHLIST.

```
DFH$FILA
```

This group contains the LOGA and L86O queue definitions used by the FILEA sample application. This group is not included in DFHLIST.

```
DFH$UTIL
```

This group contains the L86P queue definition used by the sample application program, DFH$TDWT, that writes to transient data. This group is not included in DFHLIST.

Runtime support withdrawn for RCT

CICS continues to support the DSNCRCT macros for migration purposes, but runtime support is withdrawn. All DB2 resource definitions must be installed from the CSD or by EXEC CICS CREATE commands.

Migrating RCT entries to the CSD

Before migrating RCT entries to the CSD, first reassemble your RCT using the DSNCRCT macro supplied in the CICS TS SDFHMAC library.
The GROUP and RDONAME options are provided to support the DFHCS DUP MIGRATE command and enable you to migrate your RCT to the CSD.

TYPE=GROUP specifies the CSD group name to which you want to migrate the RCT.

RDONAME specifies the name you want to give to the DB2 resource definition in the CSD for the TYPE=INIT (the DB2CONN name) and for the TYPE=ENTRY (the DB2ENTRY name).

Use the DFHCS DUP utility program to migrate RCTs to the CSD.

See the CICS Resource Definition Guide for information about migrating entries in RCT tables as groups of resource definitions in the CSD.

### Changed control table parameters

Table 14 shows changes to control table parameters.

<table>
<thead>
<tr>
<th>Control table</th>
<th>Changed parameters</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHDLPSB</td>
<td>TYPE=INITIAL DL</td>
<td>DL1</td>
</tr>
<tr>
<td></td>
<td>TYPE=ENTRY SYSIDNT MXSSASZ</td>
<td>The SYSIDNT and MXSSASZ parameters of the TYPE=ENTRY macro are mandatory now that the PDIR supports remote PSBs only.</td>
</tr>
<tr>
<td>Control table</td>
<td>Changed parameters</td>
<td>Explanation</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHFCT JID=NO\nn</td>
<td>File control does not support autojournaling to the system log. You can specify a numeric JID value only, in the range 01 through 99, which CICS uses to generate journal names of the form DFHJnn. CICS maps these journal names to a general log stream.</td>
<td></td>
</tr>
<tr>
<td>DFHTST DATAID= (prefix[,prefix,...])</td>
<td>The DATAID=() option is added to allow an all-generic (null) option, covering all queues that are not more explicitly defined on other DATAIDs. Additionally, the list form of generic queue names, DATAID= (prefix[,prefix,...]), is available on the TYPE=LOCAL and TYPE=REMOTE macros.</td>
<td></td>
</tr>
<tr>
<td>DSNCRCT TYPE=COMD TYPE=POOL TYPE=ENTRY AUTH TXID</td>
<td>You can now specify only one subparameter on the AUTH keyword from the list of {GROUP</td>
<td>SIGNID</td>
</tr>
</tbody>
</table>
New control table parameters

Table 15 shows the new control table parameters.

<table>
<thead>
<tr>
<th>Control table</th>
<th>New keywords</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHTST</td>
<td>MIGRATE</td>
<td>The MIGRATE parameter is added to the TYPE=INITIAL operand to enable you to migrate TST table entries to TSMODEL resource definitions to the CSD. See &quot;Migrating TST entries to the CSD&quot; on page 58 for more information.</td>
</tr>
<tr>
<td>DFHTST</td>
<td>TYPE=SHARED</td>
<td>CICS uses the TYPE=SHARED macro to map remote queues to a temporary storage pool.</td>
</tr>
<tr>
<td></td>
<td>SYSIDNT POOL</td>
<td>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=().</td>
</tr>
<tr>
<td></td>
<td>TYPE=LOCAL</td>
<td>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=().</td>
</tr>
<tr>
<td></td>
<td>DATAID= (prefix[,prefix,...])</td>
<td>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=().</td>
</tr>
<tr>
<td>DSNCRCT</td>
<td>TYPE=GROUP, GROUP TYPE=ENTRY, RDONAME TYPE=INIT, RDONAME</td>
<td>The GROUP and RDONAME options are added to support the MIGRATE command and enable you to migrate your RCT to the CSD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TYPE=GROUP specifies the CSD group name to which you want to migrate the RCT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RDONAME specifies the name you want to give to the DB2 resource definition in the CSD for the TYPE=INIT (the DB2CONN name) and for the TYPE=ENTRY (the DB2ENTRY name).</td>
</tr>
</tbody>
</table>

Support for temporary storage control tables (TSTs)

The replacement CSD resource definition type for TST entries is the TSMODEL, which provides equivalent function for most of the various DFHTST macro types. However, the TSMODEL resource definition does not provide support for the TSAGE parameter, or for application programs that rely on the mapping of SYSIDNTs to SHARED TST entries for queues held in a TS pool. If an application program explicitly specifies a SYSID on a TS queue request for a queue that resides in a TS data sharing pool, it requires the support of a TST. Until an alternative mapping of explicit SYSIDs is provided by a new CSD resource definition type, IBM will continue to support the use of the TST for TYPE=SHARED entries.

This statement is a change from that made in the CICS TS 1.3 Migration Guide, which indicated that CICS TS 1.3 would be the last release to provide run-time support for the TST.

For information about migrating TST entries to the CSD, and about continuing to use a TST to map SYSIDs to a TS data sharing pool, see "Migrating TST entries to the CSD" on page 58.

Chapter 4. Resource definition (macro) changes 57
Migrating TST entries to the CSD

The DFHCSDUP MIGRATE command is enhanced to support migration of temporary storage tables to TSMODEL resource definitions in the CSD.

If you decide to migrate TST entries to the CSD, first reassemble your TST with the MIGRATE option specified on the TYPE=INITIAL macro, as follows:

```
DFHTST    TYPE=(INITIAL,MIGRATE)
```

This ensures that the table is assembled and link-edited with AMODE(24), which is required by the MIGRATE function of the DFHCSDUP utility program. Failing to specify MIGRATE on the TYPE=INITIAL macro causes the DFHTST macro to force AMODE(31), which causes errors when you run DFHCSDUP with the MIGRATE command for the TST.

Use the DFHCSDUP utility program to migrate TSTs to the CSD, specifying the following command:

```
MIGRATE TABLE(tablename) TOGROUP(groupname)
```

Note the following points when migrating from a TST to TSMODELs:

**LOCATION attribute**

The TSMODEL resource definition has a LOCATION attribute, which indicates whether matching TS queues are held in main or auxiliary storage. When your TST entries are migrated to corresponding TSMODEL definitions, the LOCATION attribute is set to AUXILIARY. You can change this is using the ALTER command, through CEDA or DFHCSDUP.

**TYPE=SHARED macro**

The TYPE=SHARED macro in the TST is different from the other types in that it does not have a DATAID parameter on which you can specify a TS queue prefix. Thus, to map a TS request to a TS data sharing pool, CICS requires one of the following being specified in addition to a TYPE=SHARED macro:

- A TYPE=REMOTE macro that specifies a SYSIDNT that matches a SYSIDNT in the corresponding TYPE=SHARED macro.
- A SYSID specified explicitly, either on the TS API command or set by an XTSEREQ global user exit program.

This means that DFHCSDUP cannot migrate a TST TYPE=SHARED entry without its supporting TYPE=REMOTE entry, because it has no means of knowing the DATAID from which to create the corresponding PREFIX attribute in the TSMODEL. The following recommendations are made to help you to migrate your TST to TSMODELs successfully:

- Migrate the TST exactly as it is in the release from which you are migrating. If you are not using TS data sharing, this creates TSMODELs that support remote, recoverable, and secure TS queues exactly as the TST does in your earlier release.

- If you are using TS data sharing, supported by both TYPE=REMOTE and TYPE=SHARED entries, DFHCSDUP migrates these as data sharing TSMODELs with the pool name as the shared attribute. If temporary storage API requests do not specify a SYSID, CICS matches the queue name with PREFIX in the migrated TSMODEL, and shared TS works as in the earlier release.

- If your TST contains some standalone TYPE=SHARED entries, which are referenced by an explicit SYSID on TS API commands, continue to use the
migrated TST in your CICS region to ensure that CICS can map the SYSID
to a TS pool name. Do not add TYPE=REMOTE entries to the TST before
migration to cause DFHCSDUP create TSMODELs, because these will not
be used by CICS to route requests to a TS pool.

**APAR PQ30438**

Potential problems connected with TYPE=SHARED entries are addressed
by the PTF for APAR PQ30438, which adds a new warning message to
DFHCSDUP. This message serves two purposes:

- First, it can be issued to indicate that, while migrating a TST to the
  CSD, a TYPE=SHARED entry has been found without a corresponding
  TYPE=REMOTE entry and could not be migrated as a TSMODEL.
- Second, it can be issued to indicate that a TYPE=SHARED macro had
  a supporting TYPE=REMOTE entry and has been successfully migrated
to a TSMODEL with the POOLNAME shared attribute. However, the
  message is issued because application programs that explicitly specify
  a SYSID, or which rely on a SYSID being specified in a global user exit
  program, may not function as intended with a TSMODEL as they did
  when using a TST. You should check whether the migrated TSMODEL
  for the shared queue works in the same way as the TST.

**Using RDO, or TST, or both**

The default TST=NO system initialization parameter means that CICS initializes
with only RDO support for TS queues.

You can use RDO support for TSODELs and a TST if you use the TST system
initialization parameter to specify a TST suffix. To use a TST as well as RDO,
the specified TST load module must be assembled with the MIGRATE option. If
the TST was not assembled with the MIGRATE option, CICS loads the TST
only and does not provide any RDO support for TS queues, and any attempts
to install TSMODELs are rejected.

If you use both a TST and TSMODELs, the use of the TST is limited to the
following:

- Support for TS data sharing queues that are referenced by an explicit SYSID
  option specified on a TS API command.
- The TSAGE attribute, which is not supported on the TSMODEL definition.

**Switching**

You cannot switch between a TST and RDO for TS queues on a warm restart.
Switching is permitted only on a COLD or INITIAL start.

**CSD target group**

The contents of a TST are migrated as a single CSD group. See the CICS
Resource Definition Guide for more information about migrating temporary
storage tables as resource definitions in the CSD.

**Support for TSTs in future releases**

The replacement CSD resource definition type for TST entries is the TSMODEL,
which provides equivalent function for most of the various DFHTST macro types.
However, the TSMODEL resource definition does not provide support for application
programs that rely on the mapping of SYSIDNTs to SHARED TST entries for
queues held in a TS pool. If an application program explicitly specifies a SYSID on
a TS queue request for a queue that resides in a TS data sharing pool, it requires the support of a TST. Until an alternative mapping of explicit SYSIDs is provided by a new CSD resource definition type, IBM will continue to support the use of the TST for TYPE=SHARED entries.

Obsolete sample JCL in REXX for CICS

The following sample REXX for CICS control table definition jobs are obsolete, because CICS no longer supports either the DCT or RCT:

CICDCT

This sample JCL created a DCT that contained transient data extra partition destinations used by REXX for CICS IMPORT and EXPORT commands.

The DFHDCT entries from job CICDCT are moved to the CICRDOD job as CSD DEFINE statements. The updated CICRDOD job, which runs the CSD utility program, DFHCSDUP, defines the sample transient data extra partition destinations as TDQUEUE resource definitions in the CSD.

CICRCT

This sample JCL created a DB2® RCT that authorized REXX for CICS sample transactions to use the DB2 plan.

The DFHRCT entries from job CICRCT are now moved to the CICRDOR job as CSD DEFINE statements. The CICRDOR job, which runs the CSD utility program, DFHCSDUP, defines the sample DB2CONN, DB2TRAN, and DB2ENTRY resource definitions in the CSD.

Note: The CICRDOR and CICRDOD jobs that are supplied with the REXX for CICS product on the CICS TS installation tape, and installed in the SCICJCL library, do not contain the updated resource definition statements. To obtain the updated CICRDOR and CICRDOD jobs that contain the new DB2CONN, DB2TRAN, and DB2ENTRY definitions, and the new TDQUEUE definitions, apply PTF UW77589 for APAR OW48031.

Basic mapping support for 3270 bridge facility

The mapset load module produced by the BMS macros (DFHMDF, DFHMDI, and DFHMSD) is extended to include an application data structure (ADS) in each map generated. This is done automatically, and there are no new options or extensions in the map definition macros to support this.

VSAM support withdrawn from DFHFCT macros

All VSAM support, including the MIGRATE option, is withdrawn from the DFHFCT macros, which now support BDAM files only. This means that you cannot assemble an FCT for the purpose of migrating the VSAM table entries to the CSD using the DFHCSDUP MIGRATE command.

The DFHCSDUP MIGRATE command now supports the migration of DCTs, RCTs, TCTs, and TSTs only.

Changes to DFHCNV macro

There are changes to the offset and length parameters passed to the DFHUCNV user-replaceable program. The changes to offsets, and the use of fullword instead of halfword values, means that you cannot share the same URM between CICS TS 2.2 regions and regions of an earlier release.
To enable you to maintain and use different versions of DFHUCNV, there is a change to the DFHCNV TYPE=ENTRY macro:

- A program name option is added to the USREXIT parameter, making the syntax: USREXIT=YES|NO|program_name. This allows you to specify a program name different from DFHUCNV, and to keep DFHUCNV as the name of the data conversion URM for CICS TS 2.1 and earlier. If you specify USREXIT=YES, CICS loads DFHUCNV.
- To use your existing version of DFHUCNV with earlier releases of CICS, also continue to use the earlier version of DFHCNV. The CICS TS 2.2 DFHCNV data conversion table macro is not downward compatible.
- To use a CICS TS 2.2 version of DFHUCNV, specify USREXIT=new_ucnv_name.

See Chapter 12, “User-replaceable programs” on page 125.

**Reassembling control tables**

Reassemble all CICS control tables using the CICS TS 2.2 macro libraries, even if there are no changes to the macro externals. This applies also to tables that you are reassembling only to migrate them to the CSD.

**DFHCNV:** The requirement to reassemble your control tables applies also to any DFHCNV data conversion tables that you use. This is because there are changes to the DFHCNV macros (see Changes to DFHCNV macro on page 60), and CICS initialization fails when trying to load DFHCNV tables assembled using macros from an earlier release.

If you use DB2 with CICS, you must also reassemble the CICS-DB2 resource control table (RCT) using the DSNCRCT macro supplied in the CICSTS22.CICS.SDFHMAC library. Do not use the DB2-supplied macro, which is for use only when installing the attachment facility shipped with DB2 on CICS/ESA 3.3 and earlier releases.

**MNOTEs from DSNCRCT on RCT table assembly**

A number of DSNCRCT parameters became either obsolete or were changed when CICS TS added RDO support for DB2 resource definitions. You can reassemble an RCT without changing the source statements, but you can expect MNOTE messages if you do this. For example, obsolete parameters in the RCT macros produce MNOTE 4 warning messages. An MNOTE 5 is a warning that an otherwise unchanged parameter has changed its meaning and should be investigated.
Chapter 5. The application programming interface (API)

This chapter summarizes the changes affecting the CICS application programming interface (API).

Program compatibility

Except for the specific cases described in this chapter, CICS TS provides upward compatibility, at source and object level, for all CICS application programs that are written to the CICS application programming interface, and which execute correctly under the previous release.

For information about CICS support for application programming languages, see Chapter 33, “Compilers and assembler” on page 373.

Although CICS provides API compatibility from release to release, functional changes to some CICS components can affect some of the CICS API commands. The effects of these functional changes are discussed under the following topics:

- “Changes for coupling facility data tables” on page 66
- “Changes to RESP2 values” on page 66
- “Changes to the BMS map generation macro (DFHMSD)” on page 66
- “Change of rules for EXEC CICS SIGNON and SIGNOFF” on page 67
- “The API and CICS log manager domain” on page 68
- “The API and the recovery manager domain” on page 69
- “The API and file control” on page 70
- “The API and terminal control” on page 70
- “The API and interval control” on page 71
- “The API and temporary storage” on page 72
- “The API and 3270 bridge interface” on page 73

Note: In addition to the changes affecting the API, there are extensions to some EXEC CICS commands, and these are described in the CICS Transaction Server for z/OS Release Guide.

Changes for coupling facility data tables

Your application programs can update a coupling facility data table using one of two update models:

- The locking model
- The contention model.

The update model is an attribute of the file resource definition for the coupling facility data table. If you migrate an existing application that currently uses either a VSAM file directly, or a user-maintained data table (UMT), to a coupling facility data table, you need to understand the differences between these two update models, and the likely effect on your application programs.

Effects of the locking model

The locking model ensures that records are locked when they are read for update, so that they cannot be changed by any other units of work until the update request has been completed (by a REWRITE, DELETE, or UNLOCK command for non-recoverable tables, or at syncpoint for recoverable tables). This is the
equivalent of file control locking that applies to VSAM files, and the coupling facility
data tables can be recoverable or nonrecoverable.

In general, the API commands that operate on a coupling facility data table that is
updated using the locking model (either non-recoverable or recoverable) are
upwards compatible with the commands for a user-maintained data table; that is, any
differences from the UMT API should not require existing applications to be
rewritten.

However, there are some minor differences that you need to be aware of:

- The API restrictions on which commands you use while a UMT is being loaded
  are different from those for a coupling facility data table:
  - If loading is still in progress for a user-maintained data table, only non-update
    reads with precise keys are allowed. Also, in the case of a UMT, reads with
    precise keys succeed both for keys that are already loaded and those that are
    not.
  - If loading is still in progress for a coupling facility data table, you can issue
    any file control request that is supported, but your application program
    receives a LOADING condition if it requests a key that is outside the range of
    keys loaded. A REWRITE request for a record key outside the range of the
    records loaded so far receives an INVREQ (because such a request must
    have been preceded by a READ UPDATE, which must have failed with the
    LOADING condition before the REWRITE could be issued.

- If an application program issues an illogical sequence of file control requests, the
  exception condition returned by CICS for a UMT can be different from that
  returned for a coupling facility data table. For example, if an application program
  issues a READ for update request, followed by a WRITE request that specifies
  the same key:
  - For a UMT, CICS returns the DUPREC exception condition, because the
    record already exists.
  - For a CFDT, the coupling facility data table server detects that it is holding a
    lock against the record and that the update request is incomplete, and notifies
    CICS of a self-deadlock. This causes CICS to abend the task immediately
    with an AFCG abend. Note that an AFCG abend raised against a CFDT does
    not wait for timeout.

Clearly, these differences in response for a CFDT do not affect the migration of
application programs that execute correctly when used against a UMT. Differences
in exception condition responses occur only when there are logic
errors in the application program.

**Effects of the contention model**

The contention model means that records are *not* locked when they are read for
update. CICS returns an error on a subsequent REWRITE or DELETE if the record
is changed or deleted by another task after it is read for update. The CFDT must be
non-recoverable (RECOVERY(NONE)) for the contention model, meaning that
updates are not backed out if a unit of work fails.

In general, you are advised to write new application programs to use a coupling
facility data table that uses the contention update model. However, to be fully
compatible with other types of file, new application programs should not be written
in such a way that deadlocks become possible when they access a coupling facility
data table that uses the locking update model.
Changes to exception conditions

There are some changes affecting exception conditions for coupling facility data table support:

- A new CHANGED condition
- Additional meanings for some existing conditions.

CHANGED condition on the REWRITE and DELETE commands

To provide data integrity for the contention model, REWRITE and DELETE requests succeed only if the record remains unchanged since it was read for update. If the record has changed, CICS returns the CHANGED condition.

Additional meanings for some existing conditions

The additional meanings for some existing exception conditions are as follows:

**SYSIDERR**

There are two additional RESP2 values that can be returned with the SYSIDERR condition on coupling facility data tables:

- **131** For a coupling facility data table, the connection to the coupling facility data table server has failed. This could be because the server itself has failed, or the server is available, but CICS has failed to connect to it.
- **132** The command is issued against a coupling facility data table that no longer exists, probably because of a coupling facility failure, in which case the coupling facility data table server also fails.

**IOERR**

For those file control commands that can return IOERR, the reason could be a bad response returned from a coupling facility access.

**NOSPACE**

For those file control commands that can return NOSPACE, the RESP2 value can be 102 for a coupling facility data table and there is a new RESP2 value that can be returned for operations on a coupling facility data table:

- **102** Can occur if the maximum number of records for a coupling facility data table is exceeded.

  For a recoverable coupling facility data table, CICS can return this condition on a WRITE request when the CFDT apparently contains fewer than the maximum number of records specified, if there are uncommitted updates outstanding. The NOSPACE condition with a RESP2 of 102 can also be returned on a REWRITE command to a recoverable coupling facility data table, because this requires an extra record in the CFDT for recovery purposes, until the update has been committed.

- **108** There is insufficient storage in the coupling facility data table pool to perform the request. This can occur on a WRITE or a REWRITE command.

**NOTFND**

The NOTFND condition, when raised on a REWRITE or DELETE request to a CFDT using the contention model, means that the record has been deleted since it was read for update.

**LOCKED**

The LOCKED condition is possible for a READ UPDATE request to a recoverable CFDT if the record to be read is locked by a retained lock.
Changes to RESP2 values

There are some new RESP2 values for:

- "File control RESP2 values"
- "Program control RESP2 values"

These changes are described below.

File control RESP2 values

There are changes to the way RESP2 values are handled by CICS file control for remote files. In earlier releases, RESP2 values are not returned to the application program issuing the request in the AOR. Changes to file control mean that RESP2 values are now always returned by CICS TS Version 2 regions to application programs, for both local and remote files.

If the remote region is running under an earlier release of CICS, only a subset of the RESP2 values are returned.

Program control RESP2 values

There are some new RESP2 values to qualify the INVREQ response to EXEC CICS LINK commands and to qualify the PGMIDERR response to the EXEC CICS LOAD and RELEASE commands.

The new INVREQ RESP2 values are:

41 A LINK has been attempted to JVM program but there is already a JVM program on the link stack (only one JVM program is allowed on the program stack).
43 A LINK has been attempted to a hot-pooled Java program object while there is already a hot-pooled program on the link stack.
44 A LINK has been attempted to a Java program but the JVM pool is disabled.
45 A LINK has been attempted to a JVM program, but the JVM profile cannot be found.
46 A LINK has been attempted to a JVM program, but the JVM profile is not valid.
47 A LINK has been attempted to a JVM program, but the system properties file cannot be found.
48 A LINK has been attempted to a JVM program, but the user class cannot be found.

The new PGMIDERR RESP2 value is:

42 An attempt has been made to LOAD or RELEASE a JVM program. This is not allowed, because Java byte codes programs are not managed by the CICS loader domain.

Changes to the BMS map generation macro (DFHMSD)

CICS provides a sample map generation job, DFHMAPS, for assembling BMS maps defined using the DFHMSD macro. Although this procedure provides an RMODE variable (which defaults to RMODE=24 in earlier releases), RMODE is used only on the LINKMAP job step. This has meant that, in the absence of any
AMODE and RMODE statements explicitly specified in the DFHMSD map source statements, the assembler uses RMODE(24) and AMODE(24) by default. If you invoke DFHMAPS with RMODE=ANY specified, the assembler default values result in the binder reporting a conflict between the AMODE and RMODE values in the LINKMAP step (IEW2646W with condition code 4). To avoid this binder warning message, the DFHMSD macro is changed, together with a corresponding change in the DFHMAPS procedure.

Note: The changes described below are made in response to APAR PQ25976.

The DFHMSD macro is changed to test for the presence of a CSECT statement. If your DFHMSD map source statements do not already include a CSECT, the DFHMSD macro adds the following statements for you:

```
mpsname CSECT  
mpsname AMODE 31  
mpsname RMODE ANY
```

The addition of these statements means that, by default, all maps are generated for use above 16MB, unless you include AMODE and RMODE statements to specify otherwise.

If DFHMSD detects a CSECT statement, it operates as in earlier releases, and does not add the new AMODE(31) RMODE(ANY) statements. If your source maps define a CSECT but not AMODE and RMODE values, you might want to consider changing them to exploit the DFHMSD and DFHMAPS enhancements.

To support the changes to the DFHMSD macro, the following changes are made to the DFHMAPS procedure:

- The default setting for the RMODE variable is changed to RMODE=ANY
- A new AMODE variable is added, specified as AMODE=31
- The LINKMAP job step is changed to include both the &RMODE and &AMODE symbols, as follows:

```sql
//LINKMAP EXEC PGM=IEWL,PARM=('LIST,LET,XREF,RMODE(&RMODE)', 'AMODE(&AMODE)')
```

Change of rules for EXEC CICS SIGNON and SIGNOFF

The SIGNON command enables your application program to associate a new user ID with the current terminal, and SIGNOFF signs off a user ID from a terminal. However, in earlier releases there are some potential inconsistencies in the way the SIGNON and SIGNOFF requests are handled. In CICS TS 1.3 and earlier, CICS recognizes the sign-on immediately, and establishes the specified user’s security and operating attributes for the terminal. The transaction (and any associated task-related user exits, function shipping, or distributed transaction processing) may have invoked other resource managers (for example, IMS, DB2, or VSAM). It is unpredictable whether these other RMs recognize the sign-on before the transaction terminates, and thus you can only be sure that the new user attributes apply for all resource managers invoked by subsequent transactions at the terminal. The unpredictability applies equally to SIGNOFF. To remove this inconsistency, CICS now processes a SIGNON and SIGNOFF command in way that does not affect the current transaction issuing the command.

When you use the SIGNON and SIGNOFF command, the following rules now apply:
• The signon and sign off operations are terminal related only. Signon and signoff continue to have no meaning if the transaction does not have a terminal as its principal facility.

• When you issue an EXEC CICS SIGNON or SIGNOFF command, CICS modifies the state of the terminal that is the principal facility of the transaction that issues the command.

• Signon and signoff do not affect the user ID and security capabilities currently in effect for the transaction issuing the command. This is because:
  – A transaction’s user ID and security capabilities are established at transaction-attach time. It is not possible to modify these subsequently during the life of the transaction.
  – All actions performed by a transaction (whether to a local or remote resource, or to a connected system) take place in the security context established at the time the transaction was attached.

Review the use of SIGNON and SIGNOFF in your application programs, and check to see if they might be affected by the change. If your application programs are using SIGNOFF and SIGNON in a transaction that performs no other significant work (for example, does not access or update recoverable resources, or does not communicate with partner systems) they are unaffected by the changed behavior.

If you have applications that cannot tolerate the change in the SIGNON and SIGNOFF process, CICS provides a new global user exit point (XSNEX) and sample global user exit program that will enable CICS to handle EXEC CICS SIGNON and SIGNOFF as in earlier releases. Note that XSNEX is a migration aid only, and you should consider removing all application dependency on the old behavior. See “DFH$SNEX and DFH$SNPI” on page 112 for details.

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### The API and CICS log manager domain

The CICS journal control program is replaced by the log manager domain, which writes all log, autojournal, and forward recovery records to MVS log streams, and user journal output to either MVS log streams or the SMF dataset. All CICS-managed journal data sets are obsolete. This functional change has the following effect on the CICS API:

**EXEC CICS WAIT JOURNALNUM**

This command continues to be supported for compatibility with earlier releases, but is superseded by the EXEC CICS WAIT JOURNALNAME command, which you are recommended to use instead.

Journal numbers specified on JOURNALNUM correspond to journal names of the form DFHJnn, where journal numbers (nn) in the range 1–99 refer to user journals named DFHJ01 through DFHJ99.

You can wait on the system log only by using the EXEC CICS WAIT JOURNALNAME(DFHLOG) command.

**EXEC CICS WRITE JOURNALNUM**

This command continues to be supported for compatibility with earlier releases, but is superseded by the EXEC CICS WRITE JOURNALNAME command, which you are recommended to use instead.

Journal numbers specified on JOURNALNUM correspond to journal names of the form DFHJnn, where journal numbers (nn) in the range 1–99 refer to user journals named DFHJ01 through DFHJ99.
You can write to the system log only by using the EXEC CICS WRITE JOURNALNAME(DFHLOG) command.

**Note:** The CICS system log stream is intended for recovery information only, and you are recommended not to write user data to the system log, unless it is recovery information for use at the XRCINPT global user exit point during a CICS emergency restart.

EXEC CICS QUERY SECURITY
JOURNALNAME replaces JOURNALNUM as a resource identifier.

JOURNALNAME is also added to the list of RESTYPE values, but JOURNALNUM continues to be supported as a valid RESTYPE for compatibility with earlier releases.

For programming information about enhancements to the CICS API, see the CICS Application Programming Reference manual.

The API and the recovery manager domain

In the event of a failure that prevents a unit of work being completed successfully, the CICS recovery manager ensures that any active locks held for recoverable resources are converted into retained locks. These retained locks are held until the unit of work is successfully committed or is backed out.

One effect of this functional change is to introduce the LOCKED response for those API requests that operate on resources that can have retained locks. These are the commands that operate on such resources:

- Transient data queue commands:
  - DELETEQ TD
  - READQ TD
  - WRITEQ TD

- Temporary storage queue commands:
  - DELETEQ TS
  - WRITEQ TS

- File control commands:
  - DELETE
  - READ (for update, or with read integrity)
  - READNEXT (for update, or with read integrity)
  - READPREV (for update, or with read integrity)
  - REWRITE
  - STARTBR
  - WRITE

The default CICS action for applications that do not handle the LOCKED exception condition, and do not specify HANDLE CONDITION ERROR, is to abend the transaction with an AEX8 abend code. Check existing applications to ensure that they are correctly coded to deal with unexpected conditions. This should be of concern only in those application programs that specify NOHANDLE, or imply NOHANDLE by means of the RESP options.

Ensure that application programs that use NOHANDLE or RESP to deal with exception conditions in their own way are coded to handle unknown conditions, otherwise errors could occur. For example, if an existing application program
contained the following statements, a LOCKED condition would be handled the same as any other known, or unknown, exception conditions that might be returned by CICS:

```cics
EXEC CICS READ UPDATE
   INTO(CUSTREC-LAYOUT)
   FILE(CUST-FILE-NAME)
   LENGTH(READ-LENGTH)
   RIDFLD(CUSTOMER-NUMBER)
   RESP(EXEC-RESPONSE)
END-EXEC.

EVALUATE EXEC-RESPONSE
   WHEN DFHRESP(NORMAL)
      PERFORM NORMAL-PROCESS
   WHEN OTHER
      PERFORM ERROR-RESPONSE
END-EVALUATE.
```

On the other hand, if an application program uses the EVALUATE clause to test for each of a list of known exception conditions, and the WHEN OTHER statement assumes a normal response, the results of a LOCKED condition are unpredictable.

You should review suspect application programs and modify them as necessary.

**The API and file control**

There is a minor change to error reporting on file control commands. In earlier releases, EIBRCODE contains the following values after an ILLOGIC response:

- Byte 0—02 (meaning ILLOGIC)
- Byte 1—the VSAM return code
- Byte 2—the VSAM reason code
- Bytes 3 to 5 —unused (and set to '00').

In practice, this may not be helpful for debugging problems when there is a VSAM error producing an incorrect response. For this reason, CICS file control adds more information to EIBRCODE, using two of the previously unused bytes.

After an ILLOGIC response, EIBRCODE is set as follows:

- Bytes 0 through 2 are unchanged
- Byte 3 contains the VSAM problem determination code
- Byte 4 contains the VSAM component code
- Byte 5 remains unused and set to '00'.

If you have application programs that check the contents of EIBRCODE after an ILLOGIC response, you must check them to see whether they rely on EIBRCODE having zeros in bytes 3 and 4.

**The API and terminal control**

There is a small enhancement to the operation of the EXEC CICS ASSIGN NETNAME command:

- The NETNAME option is supported for remote terminals.

If you are running CICS regions with the VTAM LU alias facility in operation, the NETNAME returned your application program could be an LU alias.

For more information, see the [CICS Transaction Server for z/OS Release Guide](#).
The API and interval control

There are changes to the management of TS queues, both recoverable and non-recoverable, that are used on START commands. A consequence of these changes is a tightening of the rules governing the use of the REQID option for start requests that have associated data.

In earlier releases, if you specify the same REQID on more than one START command, in some circumstances CICS accepts the start request, but this can cause the behavior of subsequent RETRIEVE and CANCEL requests to be unpredictable. In particular, the correspondence between each START and its data is lost.

CICS TS regions always reject with an IOERR any START commands that specify a duplicate REQID.

Changes affecting the restart or retry of started transactions

There are some circumstances in which a started transaction can be retried, or restarted, depending on the RESTART option specified on the transaction resource definition. Some of the rules governing retries and restarts are changed. In this context, the term retry refers only to a started transaction that is started again by the CICS interval control program because the started transaction failed to retrieve the passed data. The term restart refers only to the restart of an abended transaction by the CICS transaction manager when the transaction is defined with RESTART(YES).

The rules governing retries and restarts are summarized in Table 16.

Table 16. Changes affecting retry or restart of started transactions defined with RESTART(YES)

<table>
<thead>
<tr>
<th>Description of START command</th>
<th>Events</th>
<th>CICS/ESA behavior</th>
<th>CICS Transaction Server Release 1 behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>START specifies a terminal, and either recoverable or non-recoverable data.</td>
<td>Started task ends normally, but does not retrieve data.</td>
<td>Retried (by interval control) up to 5 times.</td>
<td>Not retried and the data is discarded.</td>
</tr>
<tr>
<td>START specifies non-recoverable data with or without a terminal.</td>
<td>Started task retrieves data but abends.</td>
<td>Restarted (by transaction manager) up to ( n ) times.</td>
<td>Not restarted (because there is no longer any data to receive).</td>
</tr>
<tr>
<td>START specifies a terminal, and either recoverable or non-recoverable data.</td>
<td>Started task abends without receiving data.</td>
<td>Restarted (by transaction manager) up to ( n ) times. Because the data is still not received after the transaction abends for the ( n )th time, interval control retries the transaction. This entire process (the restarts and retries) is repeated up to a maximum of 5 times.</td>
<td>Restarted (by transaction manager) up to ( n ) times only. It is not retried by interval control if all the restarts fail.</td>
</tr>
</tbody>
</table>
### Table 16. Changes affecting retry or restart of started transactions defined with RESTART(YES) (continued)

<table>
<thead>
<tr>
<th>Description of START command</th>
<th>Events</th>
<th>CICS/ESA behavior</th>
<th>CICS Transaction Server Release 1 behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>START specifies a terminal and recoverable data.</td>
<td>Started task abends after receiving data the data.</td>
<td>Restarted (by transaction manager) up to ( n ) times. Because the data is recoverable, after the transaction abends for the ( n )th time interval control retries the transaction. This entire process (the restarts and retries) is repeated up to a maximum of 5 times.</td>
<td>Restarted (by transaction manager) up to ( n^1 ) times only. It is not retried by interval control if all the restarts fail.</td>
</tr>
</tbody>
</table>

\( n \) is defined in the transaction restart program, DFHREST, where the CICS-supplied default is 20.

For full information about the circumstances in which CICS attempts to restart or retry transactions, see the *CICS Recovery and Restart Guide*.

### The API and temporary storage

There are some changes affecting the API commands that operate on temporary storage queues:

- “Changes to exception conditions”
- “Changes for long TS queue names”
- “TSMODEL resource definitions” on page 73
- “Changes to recovery status of CICS internal TS queues” on page 73

These changes are described below.

#### Changes to exception conditions

There are some changes to exception conditions on temporary storage commands. These are as follows:

- In earlier releases, CICS returns QIDERR if you attempt to delete a TS queue specifying the queue name as all binary zeros. This is changed to INVREQ. If you have application programs rely on the earlier QIDERR response, you will need to modify these appropriately.
- In earlier releases, CICS returns INVREQ if you attempt write to, or delete, a queue name that is locked pending session recovery of a failed unit of work. CICS now returns the LOCKED condition. See *The API and the recovery manager domain* on page 69 for more information about the LOCKED condition.

#### Changes for long TS queue names

To maintain API compatibility, the existing QUEUE option remains as an 8-byte maximum field. To use 16-character queue names, you use the new option, QNAME.

If an application program issues a request to access a remote queue over an MRO link using a 16-character queue name, the 8-character queue name is set to binary
zeros and the long queue name is shipped in a separate 16-character field. CICS returns an INVREQ if the remote region is an earlier release of CICS that cannot handle the 16-character name.

For non-MRO remote requests, CICS ships the request with a 16-character name. If the remote region cannot handle the full 16 characters, the first 8 characters only are used.

**TSMODEL resource definitions**

If CICS finds a matching TSMODEL resource definition when processing an EXEC CICS WRITEQ TS command, an AUXILIARY or MAIN option specified on the command is ignored. The API options are overridden by the LOCATION attribute defined in the TSMODEL resource definition.

**Changes to recovery status of CICS internal TS queues**

There is a change to the way that CICS treats TS queues that it generates internally for START requests that specify the PROTECT option without an explicit REQID. These queues are created with a prefix of X'FC'.

In CICS/ESA 4.1, CICS treats internally generated queues with prefix X'FC' as a special case, and provided there is a TST of any type installed, they are recoverable. However, they are not recoverable if there is no TST installed.

In CICS TS, with the introduction of the temporary storage domain, queues with prefix X'FC' are now always recoverable, regardless of whether there is a TST installed. This is illustrated in the following table:

<table>
<thead>
<tr>
<th>Release</th>
<th>TST installed</th>
<th>Recovery status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS/ESA 4.1</td>
<td>Yes</td>
<td>Recoverable</td>
</tr>
<tr>
<td>CICS/ESA 4.1</td>
<td>No</td>
<td>Non-recoverable</td>
</tr>
<tr>
<td>CICS TS 1.1 and later</td>
<td>No</td>
<td>Recoverable</td>
</tr>
</tbody>
</table>

**The API and 3270 bridge interface**

The symbolic map generated by the BMS macros is also known as the application data structure (ADS).

Physical maps generated by the CICS TS OS/390 Version 1 Release 2 BMS macros have an ADS descriptor included in the output load module. This is provided to allow interpretation of the BMS application data structure (the structure used by the application program for the data in SEND and RECEIVE MAP requests), without requiring your program to include the relevant DSECT or copybook at compile time.

The ADS descriptor increases the size of the output load module, requiring more storage space in the DFHRPL program library into which load maps are stored. This increase in size is estimated at about 20%, dependant upon the number of fields in the map.
Chapter 6. The system programming interface (SPI)

This chapter summarizes the changes affecting the CICS system programming interface (SPI). It covers the following topics:

- "New commands and options"
- "Changed commands and options" on page 78
- "Obsolete commands and options" on page 87
- "Release levels on INQUIRE SYSTEM command" on page 91
- "Module name changes for the CICS-DB2 interface" on page 91

Program compatibility

The system programming commands operate on CICS system resources, such as control blocks and tables of resource definitions (and not on user resources, such as data, on which the API operates).

The SPI is also sensitive to the underlying environment in which it is implemented, and as a consequence upward compatibility cannot be guaranteed.

This chapter describes the effect on the SPI of the functional changes in CICS TS, explaining where incompatibilities exist, to enable you to make programming changes where necessary.

Except for the instances given in this chapter, CICS continues to provide upward compatibility, at source and object level, for application programs that use the unaffected SPI commands.

New commands and options

Table 18 shows the new SPI commands and options.

Table 18. New commands and options

<table>
<thead>
<tr>
<th>Commands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE resource_name</td>
<td>The CREATE command defines and installs the specified resource directly in the CICS region without reference to the CSD. The resource names supported are: CONNECTION ENQMODEL PROFILE TCPIService TRANSACTION CORBASERVER FILE PARTITIONSET PROGRAM TQUEUE REQUESTMODEL TERMINAL TMODEL TYPE TERM</td>
</tr>
<tr>
<td>DISCARD CORBASERVER</td>
<td>Discard an installed CORBASERVER resource definition.</td>
</tr>
<tr>
<td>DISCARD DJAR</td>
<td>Discard an installed DJAR resource definition.</td>
</tr>
<tr>
<td>DISCARD DOCTEMPLATE</td>
<td>Command added to remove installed DOCTEMPLATE resource definitions from the CICS region</td>
</tr>
<tr>
<td>DISCARD ENQMODEL</td>
<td>Command added to remove installed ENQMODEL resource definitions from the CICS region</td>
</tr>
</tbody>
</table>
## Table 18. New commands and options (continued)

<table>
<thead>
<tr>
<th>Commands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISCARD PROCESSTYPE</td>
<td>Command added to remove installed PROCESSTYPE resource definitions from the CICS region</td>
</tr>
<tr>
<td>DISCARD REQUESTMODEL</td>
<td>Command added to remove installed REQUESTMODEL resource definitions from the CICS region</td>
</tr>
<tr>
<td>DISCARD TCPIPSERVICE</td>
<td>Command added to remove installed TCPIPSERVICE resource definitions from the CICS region.</td>
</tr>
<tr>
<td>DISCARD TSMODEL</td>
<td>Command added to remove installed TSMODEL resource definitions from the CICS region.</td>
</tr>
<tr>
<td>INQUIRE BEAN</td>
<td>Return information about an enterprise bean.</td>
</tr>
<tr>
<td>INQUIRE BRFACILITY</td>
<td>Return information about installed bridge facilities.</td>
</tr>
<tr>
<td>INQUIRE CFDTPOOL</td>
<td>Command added to return information about CFDT pools.</td>
</tr>
<tr>
<td>INQUIRE CORBASERVER</td>
<td>Return information about an installed CORBASERVER resource definition.</td>
</tr>
<tr>
<td>INQUIRE DB2CONN INQUIRE DB2ENTRY INQUIRE DB2TRAN</td>
<td>Commands added to return information about installed DB2 resource definitions.</td>
</tr>
<tr>
<td>INQUIRE DISPATCHER</td>
<td>Return CICS dispatcher system information, which includes information about pools of open TCBs.</td>
</tr>
<tr>
<td>INQUIRE DJAR</td>
<td>Return information about an installed DJAR resource definition.</td>
</tr>
<tr>
<td>INQUIRE DOCTEMPLATE</td>
<td>Command added to return information about DOCTEMPLATE resource definitions.</td>
</tr>
<tr>
<td>INQUIRE ENQ</td>
<td>Command added as synonym for INQUIRE UOWENQ.</td>
</tr>
<tr>
<td>INQUIRE ENQMODEL</td>
<td>Command added to return information about installed ENQMODEL resource definitions.</td>
</tr>
<tr>
<td>INQUIRE EXCI</td>
<td>Command added to return information about EXCI jobs, particularly those with an RRS unit of recovery ID.</td>
</tr>
<tr>
<td>INQUIRE JOURNALMODEL</td>
<td>Command added to return information about an installed journal model.</td>
</tr>
<tr>
<td>INQUIRE JOURNALNAME</td>
<td>Command added to return information about an installed journal name.</td>
</tr>
<tr>
<td>INQUIRE JVMPOOL</td>
<td>Return information about the pool of JVMs in a CICS region.</td>
</tr>
<tr>
<td>INQUIRE PROCESSTYPE</td>
<td>Command added to return the attributes of a process type.</td>
</tr>
<tr>
<td>INQUIRE REQUESTMODEL</td>
<td>Command added to return the attributes of a REQUESTMODEL resource definition.</td>
</tr>
<tr>
<td>INQUIRE RRMS</td>
<td>Command added to return information about that state of the CICS region’s registration with RRMS.</td>
</tr>
<tr>
<td>INQUIRE STREAMNAME</td>
<td>Command added to return information about a connected log stream name.</td>
</tr>
<tr>
<td>INQUIRE TCPIP</td>
<td>Command added to return information about the state of CICS TCPIP support.</td>
</tr>
<tr>
<td>INQUIRE TCPIPSERVICE</td>
<td>Command added to return information about TCPIP ports on which CICS TCPIP support is listening.</td>
</tr>
<tr>
<td>INQUIRE TSMODEL</td>
<td>Command added to return information about installed TSMODEL definitions.</td>
</tr>
</tbody>
</table>
### Table 18. New commands and options (continued)

<table>
<thead>
<tr>
<th>Commands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE TSPOOL</td>
<td>Command added to return information about TS pools.</td>
</tr>
<tr>
<td>INQUIRE TSQNAME</td>
<td>Command added to return information about TS queues that have queue names between 8– and 16–bytes</td>
</tr>
<tr>
<td>INQUIRE UOW</td>
<td>Command added to return information about a specified unit of work.</td>
</tr>
<tr>
<td>INQUIRE UOWDSNFAIL</td>
<td>Command added to browse and return information about units of work that are shunted due to a failure associated with a specified data set.</td>
</tr>
<tr>
<td>INQUIRE UOWENQ</td>
<td>Command added to browse and return information about enqueues held by units of work.</td>
</tr>
<tr>
<td>INQUIRE UOWLINK</td>
<td>Command added to return information about a specified connection involved in a distributed unit of work.</td>
</tr>
<tr>
<td>INQUIRE WEB</td>
<td>Command added to return information about CICS Web support in the region.</td>
</tr>
<tr>
<td>PERFORM CORBASERVER</td>
<td>Perform a specified action (PUBLISH, RETRACT or SCAN) on the beans in a CORBASERVER.</td>
</tr>
<tr>
<td>PERFORM DJAR</td>
<td>Perform a specified action (PUBLISH or RETRACT) on a deployed JAR file.</td>
</tr>
<tr>
<td>PERFORM ENDAFFINITY</td>
<td>Command added to enable ending of generic resources affinity.</td>
</tr>
<tr>
<td>SET BRFACILITY</td>
<td>Flag a bridge facility for deletion.</td>
</tr>
<tr>
<td>SET CORBASERVER</td>
<td>Set the time-out value for the session beans in a specified CORBASERVER.</td>
</tr>
<tr>
<td>SET DB2CONN SET DB2ENTRY SET DB2TRAN</td>
<td>Commands added to change installed DB2 resource definitions.</td>
</tr>
<tr>
<td>SET DISPATCHER</td>
<td>Modify some CICS dispatcher system parameters.</td>
</tr>
<tr>
<td>SET ENQMODEL</td>
<td>Command added to change the status of an installed ENQMODEL resource definition.</td>
</tr>
<tr>
<td>SET JOURNALNAME</td>
<td>Command added to enable or disable a CICS journal name.</td>
</tr>
<tr>
<td>SET JVMPOOL</td>
<td>Change the status of the pool of JVMs in a CICS region or to terminate the JVMs in the pool.</td>
</tr>
<tr>
<td>SET PROCESSTYPE</td>
<td>Command added to set the attributes of an installed PROCESSTYPE resource definition.</td>
</tr>
<tr>
<td>SET TCPIP</td>
<td>Command added to specify the state of CICS TCPIP sockets, either open or closed. Note that, to vary this state, CICS TCPIP support must have been requested on the TCPIP system initialization parameter at startup. If this specifies TCPIP=NO, CICS initializes without TCPIP support, and you cannot therefore vary the TCPIP open or closed state.</td>
</tr>
<tr>
<td>SET TCPIPSERVICE</td>
<td>Command added to set attributes of installed TCPIPSERVICE definitions.</td>
</tr>
<tr>
<td>SET TSQUEUE</td>
<td>Command added to specify an action for a TSQUEUE. The only action supported currently is DELETE.</td>
</tr>
<tr>
<td>SET UOW</td>
<td>Command added to specify manually the action you want CICS to take for a specified unit of work.</td>
</tr>
<tr>
<td>SET WEB</td>
<td>Command added to vary the state of CICS Web support.</td>
</tr>
</tbody>
</table>
See the CICS System Programming Reference for more information on the changed and new commands and options.

### Changed commands and options

Table 19 shows the system programming interface commands and options that are changed.

**Table 19. Changed system programming commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECT STATISTICS</td>
<td>CORBASERVER</td>
<td>Options added to retrieve statistics for these resource types.</td>
</tr>
<tr>
<td></td>
<td>ENQUEUE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JOURNALNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JVMPOOL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RECOVERY</td>
<td>STREAMNAME, with a data-value, provides specific statistics for the CICS log manager, see the CICS System Programming Reference manual for details. STREAMNAME, without a data-value, is added to provide global statistics for the CICS log manager.</td>
</tr>
<tr>
<td></td>
<td>REQUESTMODEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STATS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>STREAMNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TCPPIP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TCPIPSERVICE</td>
<td></td>
</tr>
<tr>
<td>COLLECT STATISTICS(continued)</td>
<td>MONITOR(value)</td>
<td>There are changes to DSECTs for these resources:</td>
</tr>
<tr>
<td></td>
<td>TDQUEUE(name)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TDQUEUE TSQUEUE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>MONITOR</strong>: There are new fields in copybook DFHMNTDS, which is incompatible with the DFHMNTDS supplied with earlier releases. Recompile any application program that includes DFHMNTDS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>TDQUEUE(name)</strong>: Copybook DFHA10DS is replaced by DFHTQRD for transient data resource statistics. The new copybook has changes that are incompatible with DFHA10DS. Recompile any application program that includes copybook DFHA10DS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>TDQUEUE</strong>: Copybook DFHA11DS is replaced by DFHTQGD for transient data global statistics. The new copybook is compatible with DFHA11DS (new fields are added at the end of DFHTQGD). Change the copybook name before recompiling any application program that includes copybook DFHA11DS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>TSQUEUE</strong>: Copybook DFHA12DS is replaced by DFHTSGDS for temporary storage global statistics. The new copybook is compatible with DFHA12DS (new fields are added at the end of DFHTSGDS). Change the copybook name before recompiling any application program that includes copybook DFHA12DS.</td>
</tr>
<tr>
<td>Command</td>
<td>Option</td>
<td>Description of change</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CREATE FILE</td>
<td>CFDTPool</td>
<td>These attributes added for CFDT support. In addition, there are some changes to existing attribute values and defaults. See Chapter 3, &quot;Resource definition (online) changes&quot; on page 29 for more details.</td>
</tr>
<tr>
<td></td>
<td>TABLENAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>UPDATEMODEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOAD</td>
<td></td>
</tr>
<tr>
<td>DISABLE PROGRAM</td>
<td>SPI</td>
<td>Option added, for task-related user exits only. Specifies that the task-related user exit should no longer be invoked if an INQUIRE EXITPROGRAM command naming the task-related user exit is issued specifying the CONNECTST or QUALIFIER option or both.</td>
</tr>
<tr>
<td>DISCARD</td>
<td>resource_name</td>
<td>The list of resources that you can discard from a CICS region is extended to include these DB2, terminal control, log manager, and transient data resources.</td>
</tr>
<tr>
<td></td>
<td>CONNECTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DB2CONN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DB2ENTRY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DB2TRAN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JOURNALMODEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JOURNALNAME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TDQUEUE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TERMINAL</td>
<td></td>
</tr>
<tr>
<td>ENABLE PROGRAM</td>
<td>INDOUBTWAIT</td>
<td>INDOUBTWAIT and SPI are added, for task-related user exits only.</td>
</tr>
<tr>
<td></td>
<td>SPI</td>
<td>INDOUBTWAIT specifies that the task-related user exit supports the in-doubt protocol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SPI specifies that the task-related user exit should be invoked if an INQUIRE EXITPROGRAM command naming the task-related user exit is issued specifying the CONNECTST or QUALIFIER option or both.</td>
</tr>
<tr>
<td>INQUIRE AUTOINSTALL</td>
<td>AIBRIDGE</td>
<td>The AIBRIDGE option is added to return a value indicating whether the autoinstall URM is called for bridge facilities. The CONSOLES option is added to return the status of console autoinstall. In addition, the CVDA meanings of the existing ENABLESTATUS option are enhanced to support console autoinstall.</td>
</tr>
<tr>
<td></td>
<td>CONSOLES</td>
<td></td>
</tr>
</tbody>
</table>
Table 19. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE</td>
<td>CQP</td>
<td>• The CQP option is added to return the status of the connection quiesce protocol.</td>
</tr>
<tr>
<td>CONNECTION</td>
<td>CONNECTION</td>
<td>• The GRNAME and MEMBERNAME options are added to return the generic resource name and the member name of an APPC connection that is using VTAM generic resources.</td>
</tr>
<tr>
<td></td>
<td>CONNECTION</td>
<td>• The LINKSYSTEM option is added to return, for a remote or indirect system entry, the connection name of the real link to a remote system.</td>
</tr>
<tr>
<td></td>
<td>CONNECTION</td>
<td>• The NQNAME option is added to return the 17-character network-qualified name for any connection that received an NQNAME from VTAM at bind time.</td>
</tr>
<tr>
<td></td>
<td>CONNECTION</td>
<td>• The RECOVSTATUS option is added to return the recoverability status for the partner on the connection.</td>
</tr>
<tr>
<td></td>
<td>CONNECTION</td>
<td>• The REMOTENAME, REMOTESYSNET, and REMOTESYSTEM options are added to return the remote system attributes for the connection.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>AUTOPUBLISH</td>
<td>Options added to return:</td>
</tr>
<tr>
<td>CORBASERVER</td>
<td>DJARDIR</td>
<td>• The status of autopublishing for enterprise beans</td>
</tr>
<tr>
<td></td>
<td>CLIENTCERT</td>
<td>• The 255-character name of the deployed JAR file directory</td>
</tr>
<tr>
<td></td>
<td>SSLUNAUTH</td>
<td>• The names of the TCP/IP service definitions referenced by the CorbaServer (named by CLIENTCERT, SSLUNAUTH, and UNAUTH).</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>DB2GROUPID</td>
<td>Option added to return the DB2 group ID and resynchronization policy for the CICS DB2 connection.</td>
</tr>
<tr>
<td>DB2CONN</td>
<td>RESYNCMEMBER</td>
<td>Options added for the availability, quiesce state, lost and retained locks state, and the forward recovery log stream name of the data set.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>AVAILABILITY</td>
<td>• The APIST and CONCURRENTST options are added for open transaction environment support, to indicate the concurrency status and whether the exit program supports open API.</td>
</tr>
<tr>
<td>DSNAMES</td>
<td>QUEUESCESTATE</td>
<td>• The CONNECTST, INDOUBTST, QUALIFIER, and SPIST options are added to return the in-doubt and SPI status of a task-related user exit program, and also the entryname qualifier that identifies a particular instance of an RMI connection.</td>
</tr>
<tr>
<td></td>
<td>LOSTLOCKS</td>
<td>You can use CONNECTST to query the connection status of any task-related user exit, (CICS for MVS/ESA 4.1 only supported this for DB2 and DBCTL).</td>
</tr>
<tr>
<td></td>
<td>RETLOCKS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FWDRECOVLSN</td>
<td></td>
</tr>
</tbody>
</table>
Table 19. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE FILE</td>
<td>CFDTPPOOL, LOADTYPE,</td>
<td>• The CFDTPPOOL, LOADTYPE, TABLENAME, and UPDATEMODEL options are added to return information about a file that references a coupling facility data table.</td>
</tr>
<tr>
<td></td>
<td>RLSACCESS, TABLENAME,</td>
<td>• The READINTEG and RLSACCESS options are added for read integrity and RLS access.</td>
</tr>
<tr>
<td></td>
<td>UPDATEMODEL</td>
<td>• There are also changes to CVDA values for some existing options.</td>
</tr>
<tr>
<td></td>
<td>see INQUIRE TERMINAL</td>
<td>see INQUIRE TERMINAL</td>
</tr>
<tr>
<td>INQUIRE PROGRAM</td>
<td>CONCURRENCY,</td>
<td>Options are added to return:</td>
</tr>
<tr>
<td></td>
<td>DYNAMSTATUS,</td>
<td>• The concurrency attribute.</td>
</tr>
<tr>
<td></td>
<td>JVMCLASS,</td>
<td>• Dynamic routing status for DPL requests.</td>
</tr>
<tr>
<td></td>
<td>JVMPROFILE,</td>
<td>• The class name of a JVM program.</td>
</tr>
<tr>
<td></td>
<td>LENGTH, LOADPOINT,</td>
<td>• The name of the JVM profile associated with the specified program.</td>
</tr>
<tr>
<td></td>
<td>RESCOUNT,(runtime,</td>
<td>• The runtime environment of a JVM program.</td>
</tr>
<tr>
<td></td>
<td>USECOUNT)</td>
<td>When used for a JVM program, LENGTH, LOADPOINT, RESCOUNT, and USECOUNT now return either a null pointer (X'FF000000') or minus 1 (-1).</td>
</tr>
<tr>
<td>INQUIRE REQUESTMODEL</td>
<td>BEANNAME, CORBASERVER,</td>
<td>Options added to return information about the enhanced request model resource definition.</td>
</tr>
<tr>
<td></td>
<td>INTERFACE, INFACTETYPE,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MODULE, OPERATION, TYPE</td>
<td></td>
</tr>
<tr>
<td>INQUIRE SYSTEM</td>
<td>ACTOPENTCBS, CICSTSLEVEL,</td>
<td>Options are added to return:</td>
</tr>
<tr>
<td></td>
<td>DSRTPROGRAM, FORCEQR,</td>
<td>• The number of open TCBs currently allocated.</td>
</tr>
<tr>
<td></td>
<td>LOGDEFER, MAXOPENTCBS,</td>
<td>• CICS TS Release level (see Release levels on INQUIRE SYSTEM command on page 91)</td>
</tr>
<tr>
<td></td>
<td>OSLEVEL, RLSSTATUS, SDTRAN</td>
<td>• The name of the active distributed dynamic routing program.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• A FORCEQR CVDA to indicate whether quasi-reentrancy is being forced for all user application programs defined as threadsafe.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Log defer interval (see LGDFINT system initialization parameter in System initialization parameters on page 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• The maximum number of open TCBs allowed in the CICS region.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OS/390 Release level (see Release levels on INQUIRE SYSTEM command on page 91)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RLS status.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Name of the shut-down transaction.</td>
</tr>
<tr>
<td>Command</td>
<td>Option</td>
<td>Description of change</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>INQUIRE TASK</td>
<td>ACTIVITY, ACTIVITYID, BRFACTORY, BRIDGE, IDENTIFIER, INDOUBT, INDOUWAIT, INDOUBTMINS, PROCESS, PROCESSTYPE, RESNAME, TCB</td>
<td>The ACTIVITY, ACTIVITYID, PROCESS, and PROCESSTYPE options are added to return information about the CICS BTS activity and process on behalf of which the task is executing. The BRFACTORY option is added to return an 8-byte field containing the facilitytoken for the bridge facility in use by the task. The BRIDGE option now returns the name of the bridge monitor transaction. The IDENTIFIER option returns user data provided by the bridge exit, if the task was initiated in the 3270 bridge environment, or blanks, otherwise. The in-doubt options, INDOUBT, INDOUWAIT, and INDOUBTMINS, replace the DTB option. They indicate the action CICS is to take for distributed transactions that fail while in doubt (back out or commit), or whether CICS should wait for resynchronization, and the time it should wait. The RESNAME option is added to return the 16-character TS queue resource name (as an alternative to the 8-byte SUSPENDVALUE). The TCB option is added to return information about the TCB under which the task is running.</td>
</tr>
<tr>
<td>INQUIRE TCPIP</td>
<td>MAXSOCKET, ACTSOCKET</td>
<td>Options added to return (1) the maximum number of IP sockets permitted in the CICS region; and (2) the current number of active sockets.</td>
</tr>
</tbody>
</table>
Table 19. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE TCPIPSERVICE</td>
<td>ATTACHSEC, AUTHENTICATE, CERTIFICATE, DNSGROUP, DNSSSTATUS, GRPCRITICAL, PROTOCOL</td>
<td>Options added to return new information about the named TCP/IP service: ATTACHSEC specifies the level of attach-time security required for TCP/IP connections to CICS Clients; AUTHENTICATE specifies the authentication and identification scheme to be used for inbound TCP/IP connections for the HTTP and IIOP protocols; CERTIFICATE is the name of the X.509 certificate that applies to this service; DNSGROUP is the DNS group_name passed on the IWMSRSRG register call to the OS/390® or z/OS workload manager; GRPCRITICAL indicates whether the service is a critical member of the DNS group; PROTOCOL indicates either ECI, HTTP or IIOP as the protocol used on this TCP/IP service.</td>
</tr>
<tr>
<td>INQUIRE TDQUEUE</td>
<td>MEMBER</td>
<td>Option added to return the 8-character member name if the queue is a member of a partitioned data set.</td>
</tr>
<tr>
<td>INQUIRE TERMINAL</td>
<td>CONSOLE, CORRELID, LINKSYSTEM, NQNAME, REMOTESYSNET</td>
<td>The CONSOLE option is added to return the identifier of a console, as a 12-byte string (name_and_id). The CORRELID option is added to return the correlation identifier of an ISC or IRC session. The LINKSYSTEM option is added to return, for a remote or indirect system entry, the connection name of the real link to a remote system. The NQNAME option is added to return the 17-character network-qualified name for any terminal that received an NQNAME from VTAM at logon time. The REMOTESYSNET option is added to return the netname of the owning TOR if the terminal is a remote terminal.</td>
</tr>
<tr>
<td>Command</td>
<td>Option</td>
<td>Description of change</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>TRACETYPE</td>
<td>New codes are added to the list of component ids that you can query: BR Bridge domain, EJ Enterprise Java domain, II IIOP domain, OT Object transaction services domain, PT Partner domain, RZ Request streams domain, SJ JVM domain</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>TRANSACTION</td>
<td>The BREXIT, and FACILITYLIKE options indicate whether the task is using 3270 bridge support. The in-doubt options replace the DTB option. They indicate the action CICS is to take for distributed transactions that fail while in doubt (back out or commit), or whether CICS should wait for resynchronization, and the time it should wait. The OTSTIMEOUT option is added to obtain the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint. The ROUTESTATUS option is added to return the dynamic routing status for START requests.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>TSQUEUE</td>
<td>The LASTUSEDINT option returns the interval (in seconds) since the temporary storage queue was last referenced. The POOLNAME, and RECOVSTATUS options are added to return the TS data sharing pool name (as an alternative to the SYSID option), and the recoverability of the specified TS queue. The SYSID option specifies the SYSID of the TS server to which the INQUIRE command is to be function shipped. The TRANSID option returns the ID of the transaction that created the queue.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>UOW</td>
<td>The OTSTID option is added to obtain the first 128 bytes of the transaction identifier (TID) of the OTS transaction of which the UOW is part. A new CVDA, RRMS, is added to WAITCAUSE to indicate that the UOW is waiting, or is shunted, because communication with RRMS has been lost.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>UOWENQ</td>
<td>Options added to return information about the scope and duration of enqueues held by UOWs.</td>
</tr>
</tbody>
</table>

Table 19. Changed system programming commands (continued)
<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE UOWLINK</td>
<td>HOST PROTOCOL</td>
<td>The HOST option is added to obtain information about the partner in the OTS transaction associated with a distributed unit of work. A new CVDA, RRMS, is added to PROTOCOL to indicate that the UOW is coordinated by RRMS.</td>
</tr>
<tr>
<td>PERFORM CORBASERVER</td>
<td>SCAN</td>
<td>Option added to scan the CorbaServer’s deployed JAR file directory or new or updated deployed JAR files. added</td>
</tr>
<tr>
<td>PERFORM SHUTDOWN</td>
<td>SDTRAN NOSDTRAN</td>
<td>Options added to specify the shut-down transaction you want CICS to run during shutdown.</td>
</tr>
<tr>
<td>PERFORM STATISTICS RECORD</td>
<td>CORBASERVER ENQUEUE JOURNALNAME JVMPOOL RECOVERY REQUESTMODEL STATS STREAMNAME TCPIP TCPIPSERVICE</td>
<td>Options added to write statistics for these new resource types.</td>
</tr>
<tr>
<td>RESYNC ENTRYNAME</td>
<td>PARTIAL</td>
<td>Option added to indicate that CICS is to retain in-doubt resolution data for units of work that are not included in the in-doubt list.</td>
</tr>
<tr>
<td>SET AUTOINSTALL</td>
<td>AIBRIDGE CONSOLES</td>
<td>The AIBRIDGE option is added to enable you to define whether the autoinstall URM is called for bridge facilities. The CONSOLES option is added to set the autoinstall status for consoles.</td>
</tr>
</tbody>
</table>
| SET CONNECTION         | AFFINITY RECOVSTATUS UOWACTION | Options added to:  
  • End any generic resources affinity  
  • Allow you to override recovery status of data  
  • Specify action you want CICS to take for shunted (in-doubt) units of work on this connection |
| SET DB2CONN            | DB2GROUPID RESYNCMEMBER | These options are added to enable you to specify the DB2 group ID and the resynchronization policy for CICS DB2 connection.                        |
Table 19. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
</table>
| SET DSNAME    | AVAILABILITY BUSY QUIESCESTATE UOWACTION ACTION (new CVDAs added) | Options added to:  
|               |                             | • Change the data set’s availability  
|               |                             | • Change the data set’s quiesce state  
|               |                             | • Specify action for shunted in-doubt failed units of work  
|               |                             | The existing ACTION options are extended to allow you to:  
|               |                             | • Retry backout-failed and commit-failed units of work  
|               |                             | • Reset locks for backout-failed and commit-failed units of work  
| SET FILE      | CFDTPPOOL EMPTYSTATUS KEYLENGTH LOADTYPE READINTEG RECORDSIZE RLSACCESS TABLENAME UPDATEMODEL | • The CFDTPPOOL, KEYLENGTH, LOADTYPE, RECORDSIZE, TABLENAME, and UPDATEMODEL options are added to set coupling facility data table attributes.  
|               |                             | • The READINTEG and RLSACCESS options are added to specify the type of file read integrity, and to modify the RLS access status.  
|               |                             | • EMPTYSTATUS is not valid for files opened in RLS mode.  
|               |                             | • There are several new RESP2 values for the INVREQ condition.  
| SET PROGRAM   | JVMCLASS JVMDEBUG RUNTIME STATUS | • The JVMCLASS, JVMDEBUG, and RUNTIME options are added to set the class name, debug status, and runtime environment of a JVM program.  
|               |                             | • The STATUS(ENABLED|DISABLED) option is honored for programs that are invoked through an EXEC CICS LINK program request. The command has no effect on the same programs if they are invoked by Java programs through a method call.  
| SET SYSTEM    | DSRTPROGRAM FORCEQR MAXOPENTCBS | Options added to set the name of the active distributed dynamic routing program, and to specify:  
|               |                             | • Whether you want CICS to force all user application programs specified as CONCURRENCY(THREADSAFE) to run under the CICS QR TCB  
|               |                             | • The maximum number of open TCBs permitted in the CICS region.  
| SET TCPIP     | MAXSOCKETS NEWMAXSOCKETS    | Options added to enable you to set a new maximum number of sockets for the CICS region. If the number is more than the user ID is permitted to specify, the maximum number enforced is returned in NEWMAXSOCKETS. See Table 3 on page 7 for more information about MAXSOCKETS.  

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Table 19. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET TRACETYPE</td>
<td>COMPID</td>
<td>New codes are added to the list of component ids for which you can set special trace on. See INQUIRE TRACETYPE above for details.</td>
</tr>
</tbody>
</table>

See the CICS System Programming Reference manual for information on the changed and new commands and options.

Obsolete commands and options

This chapter describes the system programming interface commands and options that are now obsolete.

Table 20. Obsolete system programming commands and options

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Comments / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECT STATISTICS</td>
<td>DTB IRCBATCH JOURNALNUM</td>
<td>The DTB and IRCBATCH options are obsolete. To provide compatibility with earlier releases, these options continue to be supported by the CICS translator, which issues a warning message. At runtime CICS ignores the option if it is DTB or IRCBATCH, and returns a null address in the SET pointer. JOURNALNUM continues to be supported for compatibility, but with the following differences: • Specifying identifiers in the range 1–99 returns statistics for journal names DFHJ01–DFHJ99, where DFHJ01 is a user journal and not the system log. • The statistics returned are log manager statistics, not journal control statistics. You cannot map the data at the returned address by using the DFHA13DS DSECT supported in earlier releases—this is replaced by the DFHLGRDS log manager DSECT. You must modify any programs that process records obtained by a COLLECT STATISTICS command to use the correct DSECTs for all collected statistics (see Chapter 13, &quot;Monitoring and statistics&quot; on page 133). When making changes to application programs that use JOURNALNUM, you are recommended to use the JOURNALNAME option.</td>
</tr>
<tr>
<td>CREATE CORBASERVER</td>
<td>PORT SSL SSLPORT</td>
<td>These port-related options, introduced in CICS TS 2.1, are obsolete, and at run-time CICS ignores them. If you attempt to translate a program with these options, the translation succeeds, but the CICS translator ignores them with return code 4 and a warning message stating that they are obsolete.</td>
</tr>
<tr>
<td>CREATE TYPETERM</td>
<td>XRFSIGNOFF</td>
<td>This XRF-specific attribute is replaced by RSTSIGNOFF, which acts for either signon retention for VTAM persistent sessions or XRF. See &quot;Signon retention with XRF and VTAM persistent sessions&quot; on page 90 for migration impact.</td>
</tr>
<tr>
<td>Command</td>
<td>Options</td>
<td>Comments / Explanation</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>INQUIRE CORBASERVER</td>
<td>PORT</td>
<td>These options, introduced in CICS TS 2.1, are obsolete, and at run-time CICS always returns the following values:</td>
</tr>
<tr>
<td></td>
<td>SSL</td>
<td>• Zero for both PORT and SSLPORT</td>
</tr>
<tr>
<td></td>
<td>SSLPORT</td>
<td>• SSLNO for SSLPORT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you attempt to translate a program with these options, the translation succeeds, but the CICS translator ignores them with return code 4 and a warning message stating that they are obsolete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INQUIRE DSNAME SET</td>
<td>BKOUTSTATUS</td>
<td>The BKOUTSTATUS option is obsolete. To provide compatibility with earlier releases, BKOUTSTATUS continues to be supported by the CICS translator, which issues a warning message.</td>
</tr>
<tr>
<td>DSNAME</td>
<td></td>
<td>There is no equivalent function for BKOUTSTATUS. SET BKOUTSTATUS(‘NORMALBKOUT’) returns a NORMAL response; other CVDAs return INVREQ (RESP2 46). INQUIRE DSN returns NORMALBKOUT if the data set name block (DSNB) is valid.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INQUIRE JOURNALNUM</td>
<td>All</td>
<td>The switch from CICS-managed journal data sets (on disk or tape) to MVS system logger log streams makes these commands obsolete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The translator continues to support the commands for compatibility with earlier releases of CICS, but issues a warning message.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At run time, CICS returns JIDERR in response to INQUIRE or SET JOURNALNUM commands.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To inquire or set journal name entries, which map to corresponding log streams, use the INQUIRE and SET JOURNALNAME commands.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INQUIRE PROGRAM</td>
<td>JVMDEBUG</td>
<td>The JVMDEBUG option is obsolete and CICS always returns NODEBUG as the CVDA value if JVMDEBUG is specified.</td>
</tr>
</tbody>
</table>
Table 20. Obsolete system programming commands and options (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Comments / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE TASK</td>
<td>DTB RECVUNITID</td>
<td>The DTB and RECVUNITID options are obsolete:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>DTB</strong>: To provide compatibility with earlier releases, this option continues to be supported by the CICS translator (which issues a warning message), but at run time CICS returns the NOTSUPPORTED exception condition. DTB is replaced by a set of new in-doubt options (see changes to INQUIRE TASK in Figure 9 on page 186 for details).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>RECVUNITID</strong>: This keyword is replaced by UOW. To provide compatibility with earlier releases, RECVUNITID continues to be supported by the CICS translator, which accepts RECVUNITID as a synonym for UOW. At run time, CICS interprets RECVUNITID as UOW.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you have any CICS system or application programs that use the obsolete DTB option, you should change them to use the replacement command options.</td>
</tr>
<tr>
<td>INQUIRE TRANSACTION</td>
<td>DTB</td>
<td>The DTB option is obsolete. To provide compatibility with earlier releases, DTB continues to be supported by the CICS translator (which issues a warning message), but at run time CICS returns the NOTSUPPORTED exception condition. DTB is replaced by a set of new in-doubt options (see changes to INQUIRE TRANSACTION in Figure 9 on page 186 for details). If you have any CICS system or application programs that use the DTB option for distributed transactions, you should change these to use the replacement in-doubt options.</td>
</tr>
<tr>
<td>INQUIRE VOLUME</td>
<td>All</td>
<td>The switch from CICS-managed journal data sets (on disk or tape) to MVS system logger log streams makes these commands obsolete.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The translator continues to support the commands for compatibility with earlier releases of CICS, but issues a warning message.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At run time, CICS returns VOLIDERR in response to INQUIRE or SET VOLUME commands.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>To inquire on the status of log streams, use the INQUIRE STREAMNAME command (there is no SET for this command).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>You should remove any of these obsolete journal control commands from your CICS system or application programs and modify your programs as necessary. Review the new INQUIRE and SET commands that operate on the JOURNALNAME and STREAMNAME resource types.</td>
</tr>
</tbody>
</table>
Table 20. Obsolete system programming commands and options (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
<th>Comments / Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORM STATISTICS</td>
<td>DTB IRCBATCH JOURNALNUM</td>
<td>The DTB and IRCBATCH options are obsolete. To provide compatibility with earlier releases, these options continue to be supported by the CICS translator, which issues a warning message. At run time, CICS ignores the DTB and IRCBATCH options and returns a NORMAL response, but JOURNALNUM causes CICS to write JOURNALNAME statistics to SMF.</td>
</tr>
<tr>
<td>RECORD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET JOURNALNUM</td>
<td>All</td>
<td>The switch from CICS-managed journal data sets (on disk or tape) to MVS system logger log streams makes these commands obsolete. The translator continues to support the commands for compatibility with earlier releases of CICS, but issues a warning message. At run time, CICS returns JIDERR in response to INQUIRE or SET JOURNALNUM commands. To inquire or set journal name entries, which map to corresponding log streams, use the INQUIRE and SET JOURNALNAME commands.</td>
</tr>
<tr>
<td>SET VOLUME</td>
<td>All</td>
<td>The switch from CICS-managed journal data sets (on disk or tape) to MVS system logger log streams makes these commands obsolete. The translator continues to support the commands for compatibility with earlier releases of CICS, but issues a warning message. At run time, CICS returns VOLIDERR in response to INQUIRE or SET VOLUME commands. To inquire on the status of log streams, use the INQUIRE STREAMNAME command (there is no SET for this command). You should remove any of these obsolete journal control commands from your CICS system or application programs and modify your programs as necessary. Review the new INQUIRE and SET commands that operate on the JOURNALNAME and STREAMNAME resource types.</td>
</tr>
</tbody>
</table>

Signon retention with XRF and VTAM persistent sessions

In earlier releases of CICS that support VTAM persistent sessions, CICS recovers only the terminal session, and not the user’s signon status. With signon retention support, CICS catalogs the signon status of every user who signs on, enabling CICS to retain a terminal’s signon in the event of either a CICS or VTAM failure. Thus, CICS regions using VTAM persistent sessions have the same signon retention capability as CICS regions using XRF. However, XRF and VTAM persistent sessions are mutually exclusive, and rather than have two parameters to control signon and signoff status, RSTSIGNOFF operates for both functions.

If you have application programs that specify the XRFSIGNOFF(FORCE) attribute on an EXEC CICS CREATE TYPETERM command, this attribute is ignored in a
CICS TS 2.2 region, which does not recognize the XRFSIGNOFF attribute. To ensure such application programs have the same effect as before in CICS regions running with XRF support, modify the EXEC CICS CREATE command to specify RSTSIGNOFF(FORCE).

**Release levels on INQUIRE SYSTEM command**

You are recommended to use the EXEC CICS INQUIRE SYSTEM CICSTSLEVEL(data_area) command to determine the Version and Release number, and hence the function level, of CICS. CICS returns 020200 for CICS TS for z/OS Version 2 Release 2, and returns 010300 for CICS TS for OS/390 Version 1 Release 3. Similarly, use the OSLEVEL option to determine the level of OS/390 or z/OS; CICS returns 021000 for OS/390 Release 10.

To ensure compatibility with previous releases, the CICS base element maintains its own level (identification) number. Each time new function is added to CICS and shipped with the CICS Transaction Server product, the CICS level number is incremented. The CICS level number no longer implies a specific version and release number: CICS is no longer a separate product.

The CICS level number in CICS TS 2.2 is 0620. This number is returned in the RELEASE parameter of the INQUIRE SYSTEM command. The 0620 number also appears in other forms such as 6.2.0 in output from offline utilities such as statistics and dump formatters to identify the level of utility being used, and as the suffix in module names such as DFHPD620.

**Module name changes for the CICS-DB2 interface**

The CICS DB2 attachment facility, which was first supplied on the CICS product tape for CICS/ESA 4.1, became fully integrated as part of CICS in CICS TS OS/390 Version 1 Release 2. As a result of this integration, the module names of the CICS DB2 attachment facility are of the form DFHD2xxx. For example, the CICS DB2 task-related user exit program is named DFHD2EX1, whereas this module is named DSN2EXT1 in CICS TS OS/390 Version 1 Release 1 and CICS 4.1, and DSNCEXT1 in releases earlier than CICS 4.1.

To enable the migration of application programs that specify DSNCEXT1 or DSN2EXT1 on the EXTRACT EXIT command to inquire on the status of the CICS-DB2 interface, CICS automatically substitutes the correct name, DFHD2EX1. CICS does this by setting argument 1 in the parameter list to address the new name and no application program storage is altered.

For more information about the effect of CICS DB2 attachment facility changes on the use of EXTRACT EXIT PROGRAM, see Chapter 24, “Migration planning for the CICS DB2 interface” on page 201.

For information about the new names in IBM-supplied DFHDB2 group list, see “Changes to the DFHDB2 group” on page 44.
Chapter 7. CICS-supplied utility programs

This chapter summarizes changes affecting CICS-supplied utility programs. It covers the following topics:

- "Obsolete utility programs"
- "Changed utility programs"
- "New utility programs" on page 96

Obsolete utility programs

Table 21 shows those programs that are obsolete.

Table 21. Obsolete programs

<table>
<thead>
<tr>
<th>Obsolete programs</th>
<th>Title</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHJACDU</td>
<td>Journal archive control data set utility</td>
<td>All these journal utility programs are obsolete because the CICS log manager does not support CICS journal data sets. All log and journal data is passed to the MVS system logger, for output to a specified log stream.</td>
</tr>
<tr>
<td>DFHJCJFP</td>
<td>Disk journal preformatting program</td>
<td></td>
</tr>
<tr>
<td>DFHFTAP</td>
<td>Tape journal preformatting program</td>
<td></td>
</tr>
<tr>
<td>DFHTEOF</td>
<td>Tape journal end-of-file program</td>
<td></td>
</tr>
<tr>
<td>DFH$INDB</td>
<td>In-doubt resolution program</td>
<td>This sample utility program is obsolete as a result of the full support for two-phase commit provided by the CICS recovery manager. Unless you specify START=INITIAL, CICS always preserves resynchronization information for remote units of work.</td>
</tr>
<tr>
<td>DFH$IWUP</td>
<td>In-doubt window utility program</td>
<td>This sample utility program is obsolete because the CICS recovery manager automatically resolves in-doubt units of work.</td>
</tr>
</tbody>
</table>

Changed utility programs

There are changes to the following utility programs:

- "Changes to the CSD utility program, DFHCSDUP"
- "Changes to the statistics formatting utility program, DFHSTUP" on page 95
- "Changes to the trace formatting utility program, DFHTU620" on page 95
- "Changes to the IPCS dump exit routine, DFHPD620" on page 96
- "Changes to DFH$MOLS and DFH0STAT sample utility programs" on page 96

Changes to the CSD utility program, DFHCSDUP

The CSD utility program is enhanced to support the following new resource types:

- CORBASERVER
- DB2CONN
- DB2ENTRY
- DB2TRAN
- DJAR
- DOCTEMPLATE
• ENQMODEL
• JOURNALMODEL
• PROCESSTYPE
• REQUESTMODEL
• TCPIP SERVICE
• TDQUEUE
• TSMODEL

It is also enhanced to support changes to attributes on existing resource definitions.

The CSD utility program is enhanced also to handle changes to attributes on

See Chapter 3, “Resource definition (online) changes” on page 29 for details of all
the changes to CSD resource definitions that are supported by DFHCSDUP.

### Updating obsolete resource definitions

If you are sharing the CSD with earlier releases of CICS, and want to alter
definitions that are used only on earlier releases, you must use the latest
DFHCSDUP, even if some attributes are obsolete in the latest releases of
CICS. To use the latest DFHCSDUP to update obsolete options on resource
definitions, specify the COMPAT option in the PARM string to indicate that you
want DFHCSDUP to operate in compatibility mode.

### SCAN function added to DFHCSDUP

A new SCAN function is added to DFHCSDUP that enables you to find
user-modified versions of IBM-supplied definitions. When you upgrade your CSD
from release to release, the UPGRADE command operates only on IBM-supplied
resource definitions locked in IBM-supplied groups. If you have copied any
IBM-supplied definitions, the SCAN function finds them and reports whether they
have been modified.

See the *CICS Operations and Utilities Guide* for information on how to use the
SCAN command.

### Scope of DELETE function extended

The scope of the DELETE command and MOVE is extended in DFHCSDUP in the
same way as for the CEDA transaction. If you delete the last resource from a CSD
group, CICS automatically deletes the group. CICS also removes the group from all
the lists that contain the deleted group if you specify the REMOVE option. If the
group deleted in this way is the last group to be removed from a list, the list itself is
deleted.

### New PROCESS APAR command added to DFHCSDUP

A new DFHCSDUP command, PROCESS APAR, is added specifically to handle
APAR PQ 12417, to apply maintenance to a CSD that has been upgraded from
CICS/ESA 4.1 level. The command syntax is:

```
PROCESS APAR(PQ12417)
```

The PROCESS APAR command checks for transaction definitions containing the
CONF DATA and ACTION attributes. For this operation, DFHCSDUP issues
message DFH5298 for each definition that it finds, and which needs to be checked
and amended if necessary.
Changes to the statistics formatting utility program, DFHSTUP

The program is enhanced to format additional statistics reports for the new resource types.

These resource types can be coded on the SELECT TYPE and IGNORE TYPE parameters using the keywords
  • CORBASERVER
  • ENQUEUE
  • JOURNAL
  • JVMPOOL
  • LOGSTREAM
  • RECOVERY
  • REQUESTMODEL
  • TCP/IP
  • TCPIPSERVICE.

There are also changes to statistics data for the following existing resource types:
  TRANSACTIONS
  TDQUEUE
  CONNECTION (modename statistics)
  FILE

The following SELECT TYPE and IGNORE TYPE parameters are obsolete:
  DTB
  IRBATCH
  DLI

See [the CICS Performance Guide](#) for details of statistics data.

Changes to the trace formatting utility program, DFHTU620

The trace formatting utility program is renamed to DFHTU620, where 620 is the level number of CICS. Always ensure you use the trace program with the correct level number for the release of CICS TS that created the trace data set you are formatting.

The program is enhanced to format trace entries written by the new domains and functions. The new identifiers that you can specify to DFHTU620 on the TYPETR parameter for these functional areas are the same as the CETR trace component codes.

See “Changes to CETR” on page 26 for a list of these.

**The SHORT option for DFHTU620**

In earlier releases, you can request either abbreviated or full trace formatting, with the ABBREV and FULL options, respectively. A new option, SHORT, is added to give you abbreviated trace formatting with some additional information.

Trace entries formatted with the SHORT keyword include the interpreted parameter list (as in the full trace) with keywords and values. SHORT format also includes the return address, time, and interval.
Changes to the IPCS dump exit routine, DFHPD620

The dump formatting utility program is renamed to DFHPD620, where 620 is the level number of CICS. Always ensure you use the dump formatting program with the correct level number for the release of CICS TS that created the dump data set you are formatting.

The dump exit routine for formatting CICS system dumps is enhanced to format the control blocks for the new domains. To select or ignore dump data for any domains, specify the dump component keywords for those domains. The dump component keywords for use with the CICS IPCS dump exit routine are the same as the CETR trace component codes. See “Changes to CETR” on page 26 for a list of these.

The TS keyword replaces the TSP keyword supported in earlier releases for the temporary storage program.

Changes to DFH$MOLS and DFH0STAT sample utility programs

DFH$MOLS, the sample program for formatting monitoring data, is enhanced to:
- Handle CICS/ESA Version 3 and Version 4 SMF data records
- Unload performance class records into a flat file (CICS TS OS/390 Version 1 Release 1 only)
- Print an SMF 110 record and monitoring record totals summary page
- Support 4-digit year numbers
- Print the new data from the exception data record
- Provide minor revisions and improvements to the report layout.
- Handle SMF 110 monitoring data records for CICS TS Version 2 in addition to the monitoring data for earlier releases of CICS.

DFH0STAT, the sample statistics utility program, is enhanced to produce additional statistics. There are also changes to the structure and design of this utility program: see the CICS Transaction Server for z/OS Release Guide for details.

New utility programs

Table 22 shows new utility programs.

<table>
<thead>
<tr>
<th>Program</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHBMSUP</td>
<td>BMS macro source</td>
<td>This utility program is provided in support of the 3270 bridge facility. It</td>
</tr>
<tr>
<td></td>
<td>generation utility</td>
<td>scans BMS load modules and generates the original map definition macro</td>
</tr>
<tr>
<td></td>
<td></td>
<td>statements. These can be reassembled to produce new BMS load</td>
</tr>
<tr>
<td></td>
<td></td>
<td>modules that contain the ADS descriptors needed by the 3270 bridge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>facility.</td>
</tr>
</tbody>
</table>
Table 22. New utility programs (continued)

<table>
<thead>
<tr>
<th>Program</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
</table>
| DFHEISUP  | Load module scanner utility     | This utility scans load libraries for the CICS commands in load modules, and identifies which modules contain specific API or SPI commands that you have named. For example, if you know that a particular API or SPI command should be changed to take advantage of a new feature in CICS, you can use the load module scanner to identify all the load modules that contain the command. The load module scanner can look for specific commands, or options on commands, or combinations of options. It can also scan for commands where certain options are not specified. The load module scanner locates all EXEC CICS commands in the load modules in the library you are scanning. It then applies a filter that you have specified, and reports only on the subset of commands that you have listed in the filter tables. CICS provides two sample filter tables, DFHEIDBR and DFHEIDTH, in the SDFHSAMP library:  
  - DFHEIDBR contains the filter set for commands that are not supported by the 3270 bridge.  
  - DFHEIDTH contains the filter set for commands that give access to shared storage. The use of these commands could make a program not threadsafe, unless it has the necessary synchronization logic in place to ensure serialization and prevent concurrent update. This table is particularly intended for use where you plan to ensure your CICS DB2 application programs are threadsafe in order to maximize the benefit of DB2 performance enhancements, see [DB2 performance enhancements](page 209) for more detail. |
| DFHLGCNV  | CICS log stream subsystem interface (SSI) exit routine. | This exit routine is provided for use with any journal utility program, including DFHJUP, that processes CICS log and journal data written to CICS log streams. (There are some restrictions regarding the processing of CICS system log records.) Among other functions, you can specify that you want the new general log formats presented in a format that is compatible with the journal records expected by the journal utility program. (See [Chapter 14, “Migration planning for the log manager” on page 139](page 139) for more information about changed log record formats.)  
The SUBSYS parameter is added to the JCL DD statement to enable you to specify this log stream exit routine by name. The SUBSYS parameter also supports two sets of options for controlling log stream processing: SUBSYS_options1 and SUBSYS_options2.  
CICS provides support for log streams generated by multiple CICS systems. Such log streams can contain log records generated by different releases of CICS.  
In order to ensure downward compatibility for all possible types of CICS log records, make sure that the highest level of DFHLGCNV (and its associated module DFHGTCNV) is referenced by batch jobs run against the log streams. As DFHLGCNV and DFHGTCNV reside in the SDFHLINK library, the MVS linklist should reference the SDFHLINK library of the highest release of CICS on an MVS region so that the batch jobs always use the highest available version of DFHLGCNV and DFHGTCNV.  
**Note:** The CICS log manager supports log records up to 62K, but DFHLGCNV can only handle record sizes up to 32K, and therefore records greater than 32K are truncated. See [the CICS Operations and Utilities Guide](page 97) for details. |
<table>
<thead>
<tr>
<th>Program</th>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
</table>
| DFHLSCU            | CICS log stream and coupling facility sizing utility                     | Using journal data from a CICS/ESA region, this utility provides recommended values for the following attributes:  
  • AVGBUFSIZE  
  • INITSIZE  
  • SIZE  
  • STG_SIZE  
  • LOWOFFLOAD  
You use these values in your jobs to define the coupling facility, log streams, and staging data sets. See the [CICS Operations and Utilities Guide](https://www.ibm.com/support/knowledgecenter/SSLTBW_2.2.3/ippa971674_ippa/index.html) for more information about DFHLSCU. |
| Transaction affinities utility programs | A suite of programs to detect transaction affinities | These utility programs, previously available as a separate program product, are now included in the CICS base. See the [CICS Transaction Affinities Utility Guide](https://www.ibm.com/support/knowledgecenter/SSLTBW_2.2.3/ippa971674_ippa/index.html) for details of how to use these utility programs. |
Chapter 8. The global user exit programming interface

This chapter summarizes changes to the global user exit programming interface. It covers the following topics:

- “Obsolete global user-exit points”
- “Changes to the standard parameter list” on page 101
- “Changes to global user exit points” on page 102
- “New global user exit points” on page 108
- “New sample global user-exit programs” on page 112

See the CICS Customization Guide for information on the changed global user exit points.

Reassembling global user exit programs

The CICS global user exit programming interface is product-sensitive, and is dependent on the implementation of CICS facilities. All global user exit programs must be reassembled against the CICS TS Version 2 Release 2 libraries. You will have to modify some of them for changes to parameters, before they are reassembled.

Note the changes summarized in this chapter and described in detail in the other CICS manuals, and modify your global user exit programs accordingly.

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

Obsolete global user-exit points

Table 23 shows the global user-exit points that are obsolete.

Table 23. Obsolete global user-exit points

<table>
<thead>
<tr>
<th>Exit name</th>
<th>Module or domain</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>XDBDERR</td>
<td>Dynamic transaction backout program</td>
<td>The DTB program drives this exit for an error in local DL/I, which is obsolete.</td>
</tr>
<tr>
<td>XDBFERR</td>
<td>Dynamic transaction backout program</td>
<td>Changes to the way file control handles backout failures make this exit obsolete. File control provides two new global user-exit points, XFCBFFAIL and XFCCLDEL, to replace XDBFERR (see Table 26 on page 108).</td>
</tr>
<tr>
<td>XDBIN</td>
<td>Dynamic transaction backout program</td>
<td>The CICS internal dynamic log is obsolete, removing the need for this exit point. File control provides a new global user exit point, XFCBOUT, to replace XDBIN function for file control backout (see Table 26 on page 108).</td>
</tr>
<tr>
<td>XDBINIT</td>
<td>Dynamic transaction backout program</td>
<td>The DTB program is obsolete.</td>
</tr>
<tr>
<td>Exit name</td>
<td>Module or domain</td>
<td>Reason</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------</td>
<td>--------</td>
</tr>
<tr>
<td>XJCWB</td>
<td>Journal control program</td>
<td>The journal control program is obsolete and is replaced by the CICS log manager domain, which provides a new global user exit (see Table 26 on page 108). <strong>Note:</strong> It is planned that the MVS system logger, in a future release of OS/390, will provide similar function to the obsolete XJCWB global user exit. There are no plans to provide equivalent function for the XJCWR exit. See page 154 for information about remote site recovery.</td>
</tr>
<tr>
<td>XKCREQ</td>
<td>Task control program</td>
<td>Global user exits at this exit point are invoked before ENQUEUE and DEQUEUE requests, which are now handled by the enqueue domain, which has no global user-exit points.</td>
</tr>
<tr>
<td>XRCFCER</td>
<td>File control backout program</td>
<td>This emergency restart exit is driven for an error during backout processing. It is not needed in CICS TS, where emergency restart backout processing is handled by recovery manager and file control in the same way as dynamic backout. This exit is replaced by the XFCBFFAIL and XFCFLDEL exit points (see Table 26 on page 108).</td>
</tr>
<tr>
<td>XRCOPER</td>
<td>File control backout program</td>
<td>This emergency restart exit is driven for a file opening error during emergency restart backout processing. It is not needed in CICS TS, where emergency restart backout processing is handled by recovery manager and file control in the same way as dynamic backout. This exit is replaced by the XFCBFFAIL exit point (see Table 26 on page 108).</td>
</tr>
<tr>
<td>XTSIN</td>
<td>Temporary storage control program</td>
<td>These exits are in the temporary storage control program, which is obsolete and is replaced by the temporary storage domain. There are new exits in the temporary storage domain (see Table 26 on page 108).</td>
</tr>
<tr>
<td>XTSOUT</td>
<td>Temporary storage control program</td>
<td></td>
</tr>
<tr>
<td>XTSREQ</td>
<td>Temporary storage control program</td>
<td></td>
</tr>
</tbody>
</table>
Changes to the standard parameter list

There are changes to the DFHUEPAR standard parameter list, as follows:

- “The amount of storage addressed by UEPXSTOR is increased.”
- “Additional TCB two-character task indicators are provided.”
- “XPI is updated to provide a serialisation function” on page 102
- “Global user exit recovery” on page 102
- “XPCTA global user exit” on page 102

The amount of storage addressed by UEPXSTOR is increased.

UEPXSTOR now points to a 320-byte area of DFHUEH-owned storage that a global user exit program should use when invoking the XPI. This provides up to 256 bytes for the XPI services parameter list, plus an extra 64 bytes for your own purpose.

The global user exit task indicator field is extended

The global user exit task indicator field, addressed by UEPGIND, is extended from one byte to three bytes, the second and third bytes containing a value indicating the TCB mode of the global user exit program’s caller. This is represented in DFHUEPAR as both a two-character code and a symbolic value.

Additional TCB two-character task indicators are provided

The DFHUEPAR standard parameter list of TCB two-character codes and symbolic values addressed by the global user exit task indicator field, UEPGIND, is extended to include

- what was new for CICS TS 1.1 and 1.2 ???
- H8 TCB mode for Java programs that use hot-pooling.
- D2, the CICS–DB2 housekeeping mode TCB.

TCB modes are represented in DFHUEPAR as both a two-character code and a symbolic value; the following table shows the complete list:

<table>
<thead>
<tr>
<th>Symbolic value</th>
<th>2-byte code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEPTQR</td>
<td>QR</td>
<td>The quasi-reentrant mode TCB</td>
</tr>
<tr>
<td>UEPTRO</td>
<td>RO</td>
<td>The resource-owning mode TCB</td>
</tr>
<tr>
<td>UEPTCO</td>
<td>CO</td>
<td>The concurrent mode TCB</td>
</tr>
<tr>
<td>UEPTSZ</td>
<td>SZ</td>
<td>The FEPI mode TCB</td>
</tr>
<tr>
<td>UEPTRP</td>
<td>RP</td>
<td>The ONC/RPC mode TCB</td>
</tr>
<tr>
<td>UEPTFO</td>
<td>FO</td>
<td>The file-owning mode TCB</td>
</tr>
<tr>
<td>UEPTSL</td>
<td>SL</td>
<td>The sockets listener mode TCB</td>
</tr>
<tr>
<td>UEPTSO</td>
<td>SO</td>
<td>The sockets mode TCB</td>
</tr>
<tr>
<td>UEPTS8</td>
<td>S8</td>
<td>The secure sockets layer mode TCB</td>
</tr>
<tr>
<td>UEPTD2</td>
<td>D2</td>
<td>The CICS–DB2 housekeeping mode TCB</td>
</tr>
<tr>
<td>UEPTL8</td>
<td>L8</td>
<td>An open mode TCB</td>
</tr>
<tr>
<td>UEPTH8</td>
<td>H8</td>
<td>A Java hotpooling mode TCB</td>
</tr>
<tr>
<td>UEPTJ8</td>
<td>J8</td>
<td>The JVM mode TCB</td>
</tr>
</tbody>
</table>

Chapter 8. The global user exit programming interface 101
XPI is updated to provide a serialisation function

The XPI is updated to provide serialisation function to make it easier for global user exits to be made threadsafe. See Chapter 9, "The exit programming interface" on page 113 for details the new DFHNQEDX function calls.

Note:

If you have global user exit programs that are frequently invoked by user tasks that run under an open TCB, you are recommended for performance reasons to ensure that the global user exit programs are fully threadsafe. When you are sure that a global user exit program is fully threadsafe, define it as such by specifying CONCURRENCY(THREADSAFE) on the global user exit's program resource definition.

Global user exit recovery

Note that if a global user exit fails while holding an enqueue acquired through the enqueue/dequeue XPI, the enqueue is freed automatically when the acquiring task terminates.

XPCTA global user exit

An XPCTA global user exit program, invoked when a transaction abend occurs, is always invoked under the QR TCB. It allows you to attempt to resume the transaction at a given address, under a given execution key. If that execution key is key 8, CICS switches to base space before resumption.

If a threadsafe program is in control when the transaction abend occurs, and the exit requests that the task be resumed, the XPCTA exit is driven under the QR TCB, but the task is resumed under the TCB under which the failure occurred.

Changes to global user exit points

Table 25 shows those global user exit points that are changed in some way.

<table>
<thead>
<tr>
<th>Exit name</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XALTENF XICTENF</td>
<td>If a request is made for a 3270 bridge facility, these terminal allocation program global user exits are invoked if they are enabled. The 'terminal-not-found' condition is raised because the bridge facility is not a real terminal.</td>
</tr>
<tr>
<td>XDTAD XDTLC XDTRD</td>
<td>Parameter list changes: UEPDTCFLG This 1-byte flag is changed to indicate when the exit is invoked by coupling facility data table support. The new value is UEPDTCFLG(X'10'). There is also a new indicator in UEPDTCFLG to indicate a user-maintained table—UEPDTCFLG X'08'. This is only meaningful if UEPDTSHT is on. The sample global user exit programs, DFH$DTRD, DFH$DTLC, and DFH$DTAD are updated to work with coupling facility data tables.</td>
</tr>
</tbody>
</table>

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Table 25. Changed global user exit points  (continued)

<table>
<thead>
<tr>
<th>Exit name</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XFAINTU</td>
<td>Parameter list change</td>
</tr>
<tr>
<td>UEPFATK</td>
<td>Address of the 8–byte facilitytoken</td>
</tr>
<tr>
<td>UEPFAMCH</td>
<td>Address of a 1-byte value that indicates the mechanism used to start the user transaction using this bridge facility. Possible values are:</td>
</tr>
<tr>
<td>UEPFASTA</td>
<td>Started using START BREXIT.</td>
</tr>
<tr>
<td>UEPFALNK</td>
<td>Started using a link to DFHL3270.</td>
</tr>
<tr>
<td>UEPFAREG</td>
<td>Address of a 1-byte value that indicates whether the region owns the bridge facility or whether it is remote. A bridge facility is owned by the AOR, to which it is local. A bridge facility is remote to a router region. Possible values are:</td>
</tr>
<tr>
<td>UEPFAROU</td>
<td>This region is the router for this bridge facility.</td>
</tr>
<tr>
<td>UEPFAAOR</td>
<td>This region is the AOR for this bridge facility.</td>
</tr>
<tr>
<td>XFCREQ and XFCREQC</td>
<td>There are new bit settings on the EIDOPT6 field to indicate the read integrity options, the NOSUSPEND option, and whether update is specified on READNEXT and READPREV commands. These are defined in the DFHFCEDS DSECT, as follows:</td>
</tr>
<tr>
<td>FC_NRI_X</td>
<td>means no read integrity</td>
</tr>
<tr>
<td>FC_CR_X</td>
<td>means consistent read integrity</td>
</tr>
<tr>
<td>FC_RR_X</td>
<td>means repeatable read integrity</td>
</tr>
<tr>
<td>FC_BRWS_UPD_X</td>
<td>means update on READNEXT and READPREV commands</td>
</tr>
<tr>
<td>FC_NO_SUSPEND</td>
<td>is the NOSUSPEND option</td>
</tr>
<tr>
<td>TOKEN</td>
<td>specified on READNEXT and READPREV commands is addressed by FC_ADDRB.</td>
</tr>
<tr>
<td>Exit name</td>
<td>Description of changes</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td><strong>XFCSREQ</strong></td>
<td><strong>Parameter list changes:</strong></td>
</tr>
<tr>
<td></td>
<td><strong>UEFFRCLG</strong></td>
</tr>
<tr>
<td></td>
<td>This new parameter is added to the file information addressed by UEPINFO. UEFFRCLG is set to nulls in this exit.</td>
</tr>
<tr>
<td></td>
<td><strong>UEPFSREQ</strong></td>
</tr>
<tr>
<td></td>
<td>Some new request types are specified by the two bytes of UEPFSREQ:</td>
</tr>
<tr>
<td></td>
<td>- UEPFSIMM—immediate close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSICP—immediate close pending</td>
</tr>
<tr>
<td></td>
<td>- UEPFSQU—RLS quiesce close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSCAN—cancel close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSNOP—normal open</td>
</tr>
<tr>
<td></td>
<td>- UEPFSOFB—open for backout.</td>
</tr>
<tr>
<td></td>
<td><strong>UERCBYP return code</strong></td>
</tr>
<tr>
<td></td>
<td>This return code, which suppresses the file request, is overridden by CICS if the request is for a file open for backout processing. CICS does not allow such an OPEN request to be suppressed because it would cause a failure in backout processing.</td>
</tr>
<tr>
<td><strong>XFCSREQC</strong></td>
<td><strong>Parameter list changes:</strong> A new parameter UEFFRCLG, is added to the file information addressed by UEPINFO, and the description of the existing UEFFRLOG parameter is changed:</td>
</tr>
<tr>
<td></td>
<td><strong>UEFFRLOG</strong></td>
</tr>
<tr>
<td></td>
<td>A 1-byte field containing the forward recovery log identifier in the range 1—99, taken from the recovery attributes in the CICS file resource definition. This number corresponds to a CICS internal journal name of the form DFHJnn, where nn is the forward recovery log number. CICS maps this journal name to a forward recovery log stream.</td>
</tr>
<tr>
<td></td>
<td>The field is set to zero if the forward recovery log information is taken from the ICF catalog, or if forward recovery is not specified.</td>
</tr>
<tr>
<td></td>
<td><strong>UEFFRCLG</strong></td>
</tr>
<tr>
<td></td>
<td>A 26-byte field containing the name of the forward recovery log stream to be used for forward recovery. Set to blanks if forward recovery is not being used for the file.</td>
</tr>
<tr>
<td></td>
<td><strong>UEPFSREQ</strong></td>
</tr>
<tr>
<td></td>
<td>Some new request types are specified by the two bytes of UEPFSREQ:</td>
</tr>
<tr>
<td></td>
<td>- UEPFSIMM—immediate close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSICP—immediate close pending</td>
</tr>
<tr>
<td></td>
<td>- UEPFSQU—RLS quiesce close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSCAN—cancel close</td>
</tr>
<tr>
<td></td>
<td>- UEPFSNOP—normal open</td>
</tr>
<tr>
<td></td>
<td>- UEPFSOFB—open for backout.</td>
</tr>
<tr>
<td>Exit name</td>
<td>Description of changes</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
</tr>
<tr>
<td>XICEREQ</td>
<td>Two new exit-specific parameters are added to these interval control exit points (initially by APAR PQ26514, October 1999):</td>
</tr>
<tr>
<td></td>
<td><strong>UEPDATE</strong></td>
</tr>
<tr>
<td></td>
<td>Address of a fullword copy of the EIB date value (EIBDATE).</td>
</tr>
<tr>
<td></td>
<td><strong>UEPTIME</strong></td>
</tr>
<tr>
<td></td>
<td>Address of a fullword copy of the EIB time value (EIBTIME).</td>
</tr>
<tr>
<td>XICEREQC</td>
<td></td>
</tr>
<tr>
<td>XMNOUT</td>
<td>Parameter list changes:</td>
</tr>
<tr>
<td></td>
<td><strong>UEPMPREC</strong></td>
</tr>
<tr>
<td></td>
<td>New parameter that addresses the monitoring performance record. This field has meaning only for performance class records. If the monitoring record type is exception class (see the <strong>UEPMRTYP</strong> parameter), this field is set to 0. The performance record addressed by this parameter must be mapped using the DFHMNTDS DSECT, and must not be mapped using the <strong>UEPDICT</strong> and <strong>UEPDICTE</strong> dictionary parameters.</td>
</tr>
<tr>
<td>XNQEREQ</td>
<td>Parameter list change:</td>
</tr>
<tr>
<td></td>
<td><strong>UEPSCOPE</strong></td>
</tr>
<tr>
<td></td>
<td>This new parameter gives the address of the 4-byte area that contains the name of the ENQ scope, which you can change in a global user exit program. For more information about the <strong>ENQSCOPE</strong> attribute, see the CICS Resource Definition Guide for details of the ENQMODEL resource definition.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> To enable an XNQEREQ global user exit program to control the selection of an ENQMODEL, it is invoked before CICS searches the installed ENQMODELS for a matching resource name.</td>
</tr>
<tr>
<td></td>
<td>See <a href="#">DFH$XNQE</a> on page 112 for more information.</td>
</tr>
<tr>
<td>XRCINIT</td>
<td>This CICS restart exit is now driven from the user log record recovery program. It is invoked only when user-written recovery log records are detected on the system log. It is invoked twice, during warm and emergency restarts:</td>
</tr>
<tr>
<td></td>
<td>1. When user log records are about to be delivered to a global user-exit program enabled at the XRCINPT exit point.</td>
</tr>
<tr>
<td></td>
<td>2. When all such user recovery records have been delivered at XRCINPT.</td>
</tr>
<tr>
<td></td>
<td>Parameter list changes:</td>
</tr>
<tr>
<td></td>
<td><strong>UEPTBOTE</strong></td>
</tr>
<tr>
<td></td>
<td>This parameter is obsolete and is removed from the parameter list.</td>
</tr>
<tr>
<td></td>
<td><strong>UEPRSTRT</strong></td>
</tr>
<tr>
<td></td>
<td>New parameter that addresses a 1-byte field indicating the type of restart. The equated values are <strong>UEPRWARM</strong> (warm start) <strong>UEPREMER</strong> emergency start).</td>
</tr>
<tr>
<td>Exit name</td>
<td>Description of changes</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
</tr>
</tbody>
</table>
| XRCINPT   | This CICS restart exit is now driven from the user log record recovery program. It is invoked for each user-written recovery log record found on the system log during a warm and emergency restart. Parameter list changes: **UEPTBOTE**  
  This parameter is obsolete and is removed from the parameter list.  
  **UEPUOWST**  
  New parameter that addresses a 1-byte field containing a value indicating the disposition of the unit of work, which can be:  
  • Activity keypoint record  
  • Unit of work committed  
  • Unit of work backed out  
  • Unit of work was in flight  
  • Unit of work was in doubt.  
  **UEPLGREC**  
  New parameter giving the address of the log record.  
  **UEPLGLEN**  
  New parameter giving the address of a fullword containing the length of the log record.  
  **UEPTAID**  
  New parameter giving the address of a 4-byte field containing the task ID.  
  **UEPTRID**  
  New parameter giving the address of a 4-byte field containing the transaction ID.  
  **UEPTEID**  
  New parameter giving the address of a 4-byte field containing the terminal ID.  
  See the [CICS Customization Guide](#) for more information about the presentation of user log records at this exit, and other recovery-related information.  
  XRCINPT is no longer invoked for backing out file control log records, but this file control function is replaced by XFCBOUT (see Table 26 on page 108). |
<table>
<thead>
<tr>
<th>Exit name</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>XRSINDI</strong></td>
<td>Parameter list change</td>
</tr>
<tr>
<td><strong>UEPIDTYP</strong></td>
<td>The range of equated values in the 1-byte field addressed by UEPIDTYP is extended to cover the install and discard of the new resource types. The additions are:</td>
</tr>
<tr>
<td></td>
<td>• UEIDBEAN EQU 34 Enterprise Bean</td>
</tr>
<tr>
<td></td>
<td>• UEIDCSRV EQU 32 CorbaServer</td>
</tr>
<tr>
<td></td>
<td>• UEIDDJAR EQU 33 DJAR</td>
</tr>
<tr>
<td></td>
<td>• UEIDDCT—A CICS Web document template</td>
</tr>
<tr>
<td></td>
<td>• UEIDJNMD—journalmodel</td>
</tr>
<tr>
<td></td>
<td>• UEIDJNNM—journalname</td>
</tr>
<tr>
<td></td>
<td>• UEIDNQRN—An ENQ model</td>
</tr>
<tr>
<td></td>
<td>• UEIDPRTY—A CICS BTS process type</td>
</tr>
<tr>
<td></td>
<td>• UEIDRQMD—A request model (IIOP)</td>
</tr>
<tr>
<td></td>
<td>• UEIDSTRM—logstream</td>
</tr>
<tr>
<td></td>
<td>• UEIDTCPS—A TCPIP service</td>
</tr>
<tr>
<td></td>
<td>• UEIDTDQU—TD queue.</td>
</tr>
<tr>
<td></td>
<td>• UEIDTSMD—A TS model</td>
</tr>
<tr>
<td><strong>XSNOFF</strong></td>
<td>If the 3270 bridge exit initialize call specifies a USERID, the 3270 bridge facility is signed on, and these CICS user signon global user exits are invoked.</td>
</tr>
<tr>
<td><strong>XSNON</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XSTOUT</strong></td>
<td>A new exit-specific parameter is added:</td>
</tr>
<tr>
<td><strong>UEPSCLD</strong></td>
<td>Address of an 8-byte field containing the statistics collection date, in characters, in the form MMDDYYYY.</td>
</tr>
<tr>
<td><strong>XTCATT</strong></td>
<td>If a 3270 bridge facility is being created or deleted, these CICS terminal control global user exits are not invoked because the bridge facility does not represent a real terminal.</td>
</tr>
<tr>
<td><strong>XTCIN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XTCOUT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XTSREQ</strong></td>
<td>The command-level parameter structure is modified to indicate whether the application program has specified QUEUE or QNAME on the TS request. If QNAME is used, TS_ADDR1 is the address of a 16-byte area containing the name from QNAME. This is indicated by the TS_EIDOPT5 field in the EID, which is set to X’80’.</td>
</tr>
<tr>
<td><strong>XTSREQC</strong></td>
<td><strong>Note:</strong> XTSPTIN and XTSPTOUT: These TS storage domain exits remain unchanged, because the TSPT interface does not support long queue names.</td>
</tr>
<tr>
<td><strong>XTSQRIN</strong></td>
<td><strong>Parameter list change:</strong></td>
</tr>
<tr>
<td><strong>UEP_TS_QUEUE_NAME</strong></td>
<td>The storage addressed by this parameter, which contains the name of the TS queue, is now a 16-byte area to allow for the increase in TS queue names.</td>
</tr>
<tr>
<td><strong>XTSQROUT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XZCATT</strong></td>
<td>If a 3270 bridge facility is being created or deleted, these CICS terminal control global user exits are not invoked because the bridge facility does not represent a real terminal.</td>
</tr>
<tr>
<td><strong>XZCIN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XZCOUT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>XZCOUT1</strong></td>
<td></td>
</tr>
</tbody>
</table>
### New global user exit points

Table 26 shows the new global user-exit points.

**Table 26. New global user-exit points**

<table>
<thead>
<tr>
<th>Module or domain</th>
<th>Exit name</th>
<th>When invoked</th>
</tr>
</thead>
<tbody>
<tr>
<td>3270 bridge facility management program</td>
<td>XFAINTU</td>
<td>Whenever a 3270 bridge facility is created or deleted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>See Table 25 on page 102 for information about the effect of the 3270 bridge facility on some existing global user exits; that is, whether or not they are invoked.</td>
</tr>
<tr>
<td>Enqueue EXEC interface program</td>
<td>XNQEREQ</td>
<td>Before CICS processes an enqueue API request</td>
</tr>
<tr>
<td></td>
<td>XNQEREQC</td>
<td>After an enqueue API request has completed.</td>
</tr>
<tr>
<td>EXEC interface program</td>
<td>XEISPIN</td>
<td>Before the execution of any SPI command except:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- EXEC CICS ENABLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- EXEC CICS DISABLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- EXEC CICS EXTRACT EXIT</td>
</tr>
<tr>
<td></td>
<td>XEISPOUT</td>
<td>After the execution of any SPI command other than the same exceptions as for XEISPIN.</td>
</tr>
<tr>
<td>File control domain</td>
<td>XFCFRIN</td>
<td>For an introduction to XFCFRIN see &quot;XFCFRIN and XFCFROUT global user exits&quot; on page 111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XFCFRIN allows you to:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Monitor file control requests and allow them to continue, to be processed by CICS file control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Intercept file control requests and bypass CICS file control processing altogether</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Redirect the request to a remote region.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For details of these global user exit points see the CICS Customization Guide.</td>
</tr>
<tr>
<td></td>
<td>XFCFROUT</td>
<td>For an introduction to XFCFROUT see &quot;XFCFRIN and XFCFROUT global user exits&quot; on page 111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On completion of requests in the remote region, you can use XFCFROUT, which allows you to monitor the results of completed file control requests.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For details of these global user exit points see the CICS Customization Guide.</td>
</tr>
<tr>
<td>File control quiesce receive program</td>
<td>XFCVSDS</td>
<td>After RLS has informed CICS that processing is required as a result of a data set-related action occurring in the sysplex.</td>
</tr>
<tr>
<td>File control quiesce send program</td>
<td>XFCQUIS</td>
<td>On completion, successful or failed, of a SET DSNAME QUIESCESTATE command.</td>
</tr>
<tr>
<td>Module or domain</td>
<td>Exit name</td>
<td>When invoked</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>File control recovery program</td>
<td>XFCBFAIL</td>
<td>Whenever an error occurs during the backout of a unit of work.</td>
</tr>
<tr>
<td></td>
<td>XFCBOUT</td>
<td>Whenever CICS is about to back out a file update.</td>
</tr>
<tr>
<td></td>
<td>XFCBOVER</td>
<td>Whenever CICS is about to decide not to back out an uncommitted update, because the record could have been updated by a non-RLS batch program. This situation occurs because a batch program has overridden the data set protection normally provided by VSAM RLS retained locks.</td>
</tr>
<tr>
<td></td>
<td>XFCLDEL</td>
<td>Whenever backing out updates to a VSAM ESDS, or a BDAM, data set.</td>
</tr>
<tr>
<td>Loader domain</td>
<td>XLDLOAD</td>
<td>After a program is loaded into storage, and before the program is made available for use.</td>
</tr>
<tr>
<td></td>
<td>XLDELETE</td>
<td>After a program is released by CICS, and before the program is freed from storage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> Both XLDLOAD and XLDELETE are provided for information only, and global user exit programs cannot change parameters or set return codes. You cannot use any of the CICS programming interfaces (API, SPI, or XPI) at these exit points.</td>
</tr>
<tr>
<td>Log manager domain</td>
<td>XLGSTRM</td>
<td>After the CICS log manager detects that a log stream does not exist, and before calling the MVS system logger to define the log stream using a model log stream.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>¹ See the note below for information on how you can pass parameters to an XLGSTRM global user exit program.</td>
</tr>
<tr>
<td>Security manager domain</td>
<td>XSNEX</td>
<td>Introduced to enable you to restore the same behavior for EXEC CICS SIGNON and SIGNOFF commands as in releases of CICS before CICS TS 2.1 (see Change of rules for EXEC CICS SIGNON and SIGNOFF on page 67 for details of the changed behavior).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The intention behind XSNEX, and its supporting sample programs (see DFHSNEX and DFHSNPI on page 112), is to provide a short term migration aid, to give you time to modify affected application programs to work with the new behavior described in Change of rules for EXEC CICS SIGNON and SIGNOFF on page 67.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> The provision of the XSNEX global user exit is planned to be a temporary measure only, to be withdrawn in a later release.</td>
</tr>
</tbody>
</table>
Table 26. New global user-exit points (continued)

<table>
<thead>
<tr>
<th>Module or domain</th>
<th>Exit name</th>
<th>When invoked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporary storage domain</td>
<td>XTSPTIN</td>
<td>Before execution of a CICS internal temporary storage interface request for a CICS internal queue (for example, on behalf of interval control or BMS for their own internal queues).</td>
</tr>
<tr>
<td></td>
<td>XTSPTOUT</td>
<td>After execution of a CICS internal temporary storage interface request for a CICS internal queue (for example, on behalf of interval control or BMS for their own internal queues).</td>
</tr>
<tr>
<td></td>
<td>XTSQRIN</td>
<td>Before execution of a user temporary storage interface request for a user TS queue (for example, a WRITEQ TS, or READQ TS request).</td>
</tr>
<tr>
<td></td>
<td>XTSQROUT</td>
<td>After execution of a user temporary storage interface request for a user TS queue (for example, a WRITEQ TS, or READQ TS request).</td>
</tr>
</tbody>
</table>

1 **Note:** You can use an XLGSTRM global user exit program to vary, in a number of ways, the model log stream name being passed to the system logger. For example, you can use the INITPARM system initialization parameter to specify a parameter string for use by the exit. The parameter can be retrieved, using an EXEC CICS ASSIGN INITPARM command, by the first-phase PLT program that you use to enable the XLGSTRM global user exit program. Having obtained the relevant model log stream information from the INITPARM command, store this in the global work area for use by your XLGSTRM global exit program. First-phase PLT programs can issue ASSIGN INITPARM and EXTRACT EXIT commands, in addition to the ENABLE EXIT command.

See the [CICS Customization Guide](#) for information about writing an XLGSTRM global user exit program, and for information about PLT initialization programs.

Table 27 shows how the new file-control backout exits provide equivalent function to the exits they replace.

Table 27. Comparison of fields in old and new file backout user exits

<table>
<thead>
<tr>
<th>Obsolete exit</th>
<th>Obsolete exit field name</th>
<th>New exit(s)</th>
<th>New field or return code to provide equivalent function</th>
</tr>
</thead>
<tbody>
<tr>
<td>XDBFERR</td>
<td>UEPDLOGR – FC related fields</td>
<td>XFCBFAIL and XFCLDEL</td>
<td>UEPBLOGR, UEPTASK, UEPTRNS, UEPTRMN, UEPASK, UEPFAIL</td>
</tr>
<tr>
<td></td>
<td>UEPDLOGR – transaction ID, terminal ID, task number</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UEFPFCTE</td>
<td></td>
<td>Use EXEC CICS INQUIRE/SET FILE</td>
</tr>
<tr>
<td></td>
<td>UEFPFCSRSP</td>
<td>XFCBFAIL</td>
<td>UEFPFCSRSP</td>
</tr>
<tr>
<td></td>
<td>UEPERR</td>
<td></td>
<td>UEPERR</td>
</tr>
<tr>
<td></td>
<td>UEPFDATA</td>
<td>XFCLDEL</td>
<td>UEPFDATA</td>
</tr>
<tr>
<td></td>
<td>UEPFLEN</td>
<td></td>
<td>UEPFLEN</td>
</tr>
<tr>
<td></td>
<td>UERCNORM</td>
<td>XFCBFAIL</td>
<td>UERCNORM</td>
</tr>
<tr>
<td></td>
<td>UERCBYP</td>
<td></td>
<td>UERCBYP</td>
</tr>
<tr>
<td></td>
<td>UERCRTY</td>
<td>XFCLDEL</td>
<td>UERCLDEL</td>
</tr>
<tr>
<td></td>
<td>UERCNORM</td>
<td></td>
<td>UERCFAIL</td>
</tr>
</tbody>
</table>
### Table 27. Comparison of fields in old and new file backout user exits (continued)

<table>
<thead>
<tr>
<th>Obsolete exit</th>
<th>Obsolete exit field name</th>
<th>New exit(s)</th>
<th>New field or return code to provide equivalent function</th>
</tr>
</thead>
<tbody>
<tr>
<td>XRCFCER</td>
<td>UEPFBOTE</td>
<td>XFCBFAIL</td>
<td>Use EXEC CICS INQUIRE/SET FILE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XFCBFAIL</td>
<td>UEPBLOGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XFCLDEL</td>
<td>UEPTRANS, UEPTRMN, UEPTASK</td>
</tr>
<tr>
<td></td>
<td>UEPLGREC – FC related fields</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UEPLGREC – transaction ID, terminal ID, task number</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UEPFCTE</td>
<td></td>
<td>Use EXEC CICS INQUIRE/SET FILE</td>
</tr>
<tr>
<td></td>
<td>UEPFCRSP</td>
<td>XFCBFAIL</td>
<td>UEPFCRSP</td>
</tr>
<tr>
<td></td>
<td>UEPERR</td>
<td></td>
<td>UEPERR</td>
</tr>
<tr>
<td></td>
<td>UEPFDATA</td>
<td>XFCLDEL</td>
<td>UEPFDATA</td>
</tr>
<tr>
<td></td>
<td>UEPFLEN</td>
<td></td>
<td>UEPFLEN</td>
</tr>
<tr>
<td></td>
<td>UERCNORM</td>
<td>XFCBFAIL</td>
<td>UERCNORM</td>
</tr>
<tr>
<td></td>
<td>UERCBYP</td>
<td></td>
<td>UERCBYP</td>
</tr>
<tr>
<td></td>
<td>UERCRTY</td>
<td>XFCLDEL</td>
<td>UERCRTY</td>
</tr>
<tr>
<td></td>
<td>UERCNORM</td>
<td></td>
<td>UERCNORM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UERCFAIL</td>
</tr>
<tr>
<td>XRCOPER</td>
<td>UEPFBOTE</td>
<td>XFCBFAIL</td>
<td>Use EXEC CICS INQUIRE/SET FILE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>UERCNORM and UERCBYP</td>
</tr>
<tr>
<td>XDBIN</td>
<td>UEPDLOG</td>
<td>XFCBOUT</td>
<td>UEPFLOGR</td>
</tr>
<tr>
<td>XRCINPT</td>
<td>UEPFBOTE</td>
<td>XFCBOUT</td>
<td>Use EXEC CICS INQUIRE/SET FILE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>XFCBOUT</td>
</tr>
</tbody>
</table>

### XFCFRIN and XFCFROUT global user exits

There are changes to file control to permit a CICS system file to be defined as a remote file. For example, the EJB directory data set and the EJB object store data set must both be shared by all the AORs in a logical EJB server. The changes to CICS file control enable this sharing to be managed by a CICS file-owning region (FOR). However, the restructuring of file control to enable this enhancement to CICS remote file support can affect the invocation of the file control EXEC interface API global user exits, XFCREQ and XFCREQC:

- If a file control API request is for a local file, there is no change to the invocation of global user exit programs enabled at the XFCREQ and XFCREQC exit points. In the case of local files, your exits are invoked as in earlier releases of CICS.
- If a file control API request is for a remote file, global user exit programs enabled at the XFCREQ and XFCREQC exit points are not invoked in the FOR.

If you are affected by this change, and still need to intercept the file control request in the file-owning region, you can use the new file control exit, XFCFRIN, which allows you to:

- Monitor file control requests and allow them to continue, to be processed by CICS file control
- Intercept file control requests and bypass CICS file control processing altogether
• Redirect the request to a remote region.

On completion of requests in the remote region, you can use XFCFROUT, which allows you to monitor the results of completed file control requests.

For details of these global user exit points see the CICS Customization Guide.

New sample global user-exit programs

CICS provides sample global user exit programs designed to show you how to use new global user exit points, as follows:

- "DFH$XNQE"
- "DFH$SNEX and DFH$SNPI"

DFH$XNQE

CICS provides a sample global user exit program designed to show you how to use the new UEPSCOPE parameter to change the scope of an ENQ/DEQ request, and to control selection of an ENQMODEL. The program, DFH$XNQE, is supplied in the CICS SDFHSAMP library, and the source program contains comments to help you understand the program’s function.

To find out details of the resource names used in application programs that issue ENQ requests, you can use the CICS affinity utility. You can then use this information to create the necessary ENQMODEL resource definitions to define the scope of ENQ requests that match resource name entries.

DFH$SNEX and DFH$SNPI

In addition to the XSNEX global user exit point, there are also two sample programs provided:

DFH$SNEX

This user exit program is invoked at the XSNEX global user exit point for use when CICS is processing an EXEC CICS SIGNON and SIGNOFF command. The purpose of the exit program is to restore, for SIGNON and SIGNOFF requests, CICS behavior as in CICS TS 1.3 and earlier.

DFH$SNPI

This post-initialization program issues an EXEC CICS ENABLE PROGRAM('DFH$SNEX') EXIT('XSNEX') command to enable the sample user exit program, DFH$SNEX, in the final stages of initialization.

To use this program, add an entry to the first section of your PLTPI table (that is, before the DFHDELIM statement). For example:

DFHPLT TYPE=INITIAL,SUFFIX=SN
DFHPLT TYPE=ENTRY,PROGRAM=DFH$SNPI
DFHPLT TYPE=ENTRY,PROGRAM=DFHDELIM
DFHPLT TYPE=FINAL
END
Chapter 9. The exit programming interface

This chapter summarizes the changes that affect the exit programming interface (XPI).

Reassembling global user exit programs

The previous chapter explains that you must reassemble all global user exit programs for migration to CICS TS 2.2. Changes to the exit programming interface mean that you may also need to make changes to global user exit programs that contain XPI calls. Check whether your global user exit programs are affected by the changes to the XPI, and modify your programs accordingly.

It covers the following topics:

- **“Changes for CICS log manager”**
- “Changes to dispatcher function calls” on page 115
- “Changes to enqueue management function” on page 115
- “Changes to program management function” on page 115
- “Changes for transaction manager” on page 116
- “Change to UEPXSTOR” on page 117

Changes for CICS log manager

There are changes to the DFHJCJCX and DFHSAIQX macro function calls, and DFHLGPAX is added.

Log manager WRITE_JOURNAL_DATA function, DFHJCJCX

There is a change to the WRITE_JOURNAL_DATA macro function call, DFHJCJCX, which is now a log manager function call replacing the journal control program function of earlier releases.

The JOURNALNAME parameter replaces JOURNAL_ID on the DFHJCJCX macro call.

If you want to write records to the same log stream as autojournal or forward recovery log streams specified in file resource definitions as 01, you must use the JOURNALNAME parameter and specify the name as DFHJ01. If you want to write to the system log, you must specify JOURNALNAME(DFHLOG).

**Note:** In releases of CICS before CICS TS it is possible to write autojournal and forward recovery records to the CICS system log by specifying 01 as the journal number. In CICS TS, autojournal and forward recovery logs specified as 01 are written to user journal DFHJ01, not the CICS system log.
The full command syntax is as follows:

```plaintext
WRITE_JOURNAL_DATA
DFHJJCJCX [CALL,]
   [CLEAR,]
   [IN,]
   FUNCTION(WRITE_JOURNAL_DATA),
   FROM(block-descriptor),
   JOURNALNAME(name8 | string | 'string' |)
   JOURNAL_RECORD_ID(name2 | string | 'string'),
   WAIT(YES|NO),
   [RECORD_PREFIX(block-descriptor),]
   [OUT,]
   RESPONSE(name1 | *),
   REASON(name1 | *)
```

The response and reason values for the DFHJJCJCX call are as follows:

RESPONSE|REASON
---|---
OK | None
EXCEPTION | I/O_ERROR
LENGTH_ERROR
JOURNAL_NOT_FOUND
JOURNAL_NOT_OPEN
STATUS_ERROR
DISASTER | None
INVALID_FORMAT,INVALID_FUNCTION
KERNERROR | None
PURGED | None

State data access function, DFHSAIQX

The AKP parameter is removed from the DFHSAIQX INQUIRE_SYSTEM call. It is replaced by the KEYPONT_FREQUENCY parameter on the log manager domain call, DFHLGPAX.

Remove the AKP parameter from any INQUIRE_SYSTEM and SET_SYSTEM calls before reassembling your global user exit programs, otherwise the assembly fails with an MNOTE 8 error message:

8,DFHCDYN: Invalid keyword AKP ignored

Log manager INQUIRE_PARAMETERS function, DFHLGPAX

The INQUIRE_PARAMETERS function enables you to obtain the activity keypoint frequency currently defined for the CICS region.
The syntax of the DFHLGPAX INQUIRE_PARAMETERS call is as follows:

```
INQUIRE_PARAMETERS
DFHLGPAX [CALL,]
    [CLEAR,]
    [IN,
    FUNCTION(INQUIRE_PARAMETERS),]
OUT
    KEYPOINT_FREQUENCY(akpfreq)
RESPONSE(*)
REASON(*)
```

You can use the DFHLGPAX SET_PARAMETERS function to update the activity keypoint frequency.

```
SET_PARAMETERS
DFHLGPAX [CALL,]
    [CLEAR,]
    [IN,
    FUNCTION(SET_PARAMETERS),]
    KEYPOINT_FREQUENCY(akpfreq)
OUT
    RESPONSE(*)
    REASON(*)
```

The only EXCEPTION reason is OUT_OF_RANGE.

**Changes to dispatcher function calls**

The RESOURCE_NAME parameter is changed, from 8 bytes to 16 bytes, on the ADD_SUSPEND, SUSPEND, and WAIT_MVS XPI calls.

**Changes to enqueue management function**

This request is made available on the new XPI DFHNQEDX macro function call to enable an exit program to ensure that it is threadsafe.

**ENQUEUE**

The enqueue management function ENQUEUE enables a global user exit program to enqueue on a named resource.

**DEQUEUE**

The enqueue management function DEQUEUE enables a global user exit program to release an enqueue obtained by the ENQUEUE function.

**Changes to program management function**

New DYNAMIC_STATUS options are added:

**INQUIRE_CURRENT_PROGRAM**

returns a value indicating the dynamic routing status of the currently running program.

**INQUIRE_PROGRAM**

returns a value indicating the dynamic routing status of the specified program.
Changes for transaction manager

The changes to the exit programming interface for the transaction manager are:

- Changes to the DFHXMXDX and DFHXMIQX macros
- Transaction management function, INQUIRE_CONTEXT
- Transaction management function INQUIRE_TRANDEF on page 117
- Transaction management function INQUIRE_TRANSACTION on page 117

Changes to the DFHXMXDX and DFHXMIQX macros

There are changes to the INQUIRE_TRANDEF and INQUIRE_TRANSACTION functions, provided on the DFHXMXDX and DFHXMIQX macro calls, respectively. The meaning of the INDOUBT parameter is changed on both these macro calls, and the INDOUBT_WAIT and INDOUBT_WAIT_TIME parameters are added:

```
INQUIRE_TRANDEF
DFHXMXDX [CALL,]
[CLEAR,]
[IN,
FUNCTION(INQUIRE_TRANDEF)
...
OUT
...
[INDOUBT_WAIT(name1),]
...
[INDOUBT_WAIT_TIME(name4),]
[BREXIT(name8),]
[FACILITYLIKE(name4),]
...
RESPONSE(*)
REASON(*)
```

The syntax of the new parameters is the same for the INQUIRE_TRANSACTION function of the DFHXMIQX macro call. The meanings of the three INDOUBT parameters are as follows:

- **INDOUBT** now indicates the action (BACKOUT or COMMIT) that CICS is to take if a task fails while in an in-doubt state and:
  - INDOUBT_WAIT returns NO, or
  - INDOUBT_WAIT_TIME has expired.
- **INDOUBT_WAIT** indicates whether or not a task should wait for resynchronization if a failure occurs while it is in an in-doubt state.
- **INDOUBT_WAIT_TIME** indicates how long a task should wait for resynchronization if a failure occurs while it is in an in-doubt state.
- **BREXIT** is the name of the bridge exit, returning blanks if there is no bridge exit.
- **FACILITYLIKE** is the name of the default terminal definition to be used as a template for the bridge facility.

Transaction management function, INQUIRE_CONTEXT

A new macro, DFHBRIQX, is added to provide the INQUIRE_CONTEXT function.
The INQUIRE_CONTEXT call returns information about transactions running in a bridge environment.

### INQUIRE_CONTEXT

DFHBRIQX [CALL,]
[CLEAR,]
[IN,
FUNCTION(INQUIRE_CONTEXT),]
[OUT,
[BRIDGE_EXIT_PROGRAM(name8),]
[BRIDGE_TRANSACTION_ID(name4),]
[BFB_TOKEN(name4),]
[BRXA_TOKEN(name4),]
[CONTEXT(bytel),]
[FACILITYTOKEN(name8),]
[START_TYPE(bytel),]
RESPONSE (name1 | *),
REASON (name1 | *)]

- **BFB_TOKEN** returns the address of the bridge facility used by the task.
- **BRIDGE_EXIT_PROGRAM** returns the name of the bridge exit program used by the task (when CONTEXT returns other than NORMAL).
- **BRIDGE_TRANSACTION_ID** returns the name of the bridge monitor transaction.
- **BRXA_TOKEN** returns the address of the bridge exit area (BRXA) used by the task.
- **CONTEXT** returns, in a 1-byte location, the type of environment in which the transaction is running. This can indicate:
  - A user transaction started using a bridge (BRIDGE)
  - A bridge exit program (BREXIT)
  - A transaction that is not running in a bridge environment (NORMAL).
- **FACILITYTOKEN** returns the facility token of the bridge facility.
- **START_TYPE** returns an indicator of how the 3270 bridge was started.

**Transaction management function INQUIRE_TRANDEF**

A new ROUTABLE_STATUS option is added. This returns a value indicating the dynamic routing status for START requests in the specified transaction definition. The value returned is either ROUTABLE or NOT_ROUTABLE.

**Transaction management function INQUIRE_TRANSACTION**

A new ROUTABLE_STATUS option is added. This returns a value indicating the dynamic routing status for START requests for the specified attached transaction (task). The value returned is either ROUTABLE or NOT_ROUTABLE.

**Change to UEPXSTOR**

The parameter UEPXSTOR in the DFHUEPAR standard parameter list now addresses a 320-byte area of storage, instead of 260 bytes as in previous releases.
Chapter 10. The task-related user-exit programming interface

This chapter summarizes the changes that affect the task-related user-exit interface. It covers the following topics:

- Changes for the resource manager interface
- IBM-supplied task-related user exits for DB2 and DBCTL on page 121

Changes for the resource manager interface

There are changes to the resource manager interface (RMI), as follows:

- The task indicator bits are extended
- There are changes that allow you to:
  - Enable a task-related user-exit program to support SPI calls
  - Control RMI tracing
  - Enable a task-related user-exit program to support the in-doubt-wait protocol introduced in CICS TS.

Changes to the task indicator bits, addressed by UEPTIND

The task indicator bits, addressed by UEPTIND, are extended. The UEPTIND parameter now addresses a three byte area instead of one:

- The first byte contains an additional bit setting, X'20' (equated value UEPTUTCB), to indicate an unexpected TCB. This is set after a failure to switch to the TCB expected by the task-related user exit on a syncpoint or end-of-task call only. In these two cases, the task-related user exit is called on the QR TCB with the UEPTUTCB bit set. For all other calls, CICS abends the transaction without invoking the task-related user exit.

- The new second and third bytes addressed by UEPTIND contain a value indicating the TCB mode of the task-related user exit program’s caller. The symbolic values representing the modes are the same as those defined for the UEPGIND parameter (see “Changes to the standard parameter list” on page 101).

SPI support

CICS issues an SPI call in response to an EXEC CICS INQUIRE EXITPROGRAM request that specifies the CONNECTST option, or the QUALIFIER option, or both. You enable your task-related exit program to support an SPI call by:

- Specifying the SPI option of the EXEC CICS ENABLE PROGRAM command
- Dynamically setting the SPI bit-mask in the schedule flag word

The SPI option allows your task-related user-exit program to be invoked to satisfy EXEC CICS INQUIRE EXITPROGRAM commands that query:

- Whether the exit program is connected to its resource manager
- The entryname-qualifier of the exit program

You can disable the support by specifying SPI on the EXEC CICS DISABLE command.

Setting the SPI bit-mask

A task-related user exit can dynamically “express interest” in SPI calls, in the same way as for other calls, by setting the relevant bit in UEPFLAGS; for example:
You can test whether a task-related user exit is enabled for SPI in a similar way as for other calls by testing UERTFID as follows:

```cll
CLI UERTFID,UERTSPI SPI call ?
BE SPIREQ YES BRANCH
```

As with other CICS calls, when invoked for an SPI request, CICS passes the task-related user-exit program an architected parameter list (PLIST) in register 1 (R1). (R1 is obtained from the register save area addressed by UEPHMSA.)

The architected PLIST contains two addresses as follows:

- R1 ------------> Address 1 ----------> 1-byte field
- Address 2 ----------> 8-byte field

**Note:** Address 2 is the last address and has its top bit set to denote end of PLIST.

When invoked for an SPI call, a task-related user exit should set the 1-byte field to either UERTCONN or UERTNCON (equate values supplied by CICS) to say whether the TRUE is connected to its external resource manager. If the TRUE is connected, it should also set the 8-byte field to its qualifier. For example:

```cll
SPIREQ DS 0H TRUE CALLED FROM THE SPI
L R7,UEPHMSA Get pointer to RSA
L R8,24(,R7) Get R1 Value pointing to plist
L R7,0(,R8) Pick up first address in plist
MVI 0(R7),UERTCONN Set connected
LA R8,4(,R8) Bump to next address
L R7,0(,R8) Pick up 2nd address in plist
MVC 0(8,R7),=CL8'JTRUE1QA' return qualifier
```

**Controlling RMI trace**

The UEPTRCE parameter is included in the task-related user-exit parameter list to enable you to determine the level of tracing set for the RMI.

**UEPTRCE**

Address of a 1-byte trace flag indicating whether RMI tracing (the RI trace component) is active.

- **UEPTRLV1 (X'80')**
  - RMI level 1 trace is active.
- **UEPTRLV2 (X'40')**
  - RMI level 2 trace is active.

A task-related user exit could, for example, test this parameter to determine the current level of tracing, and use an EXEC CICS SET TRACETYPE command to reset the level.

**In-doubt support for distributed units of work**

The INDOUBTWAIT keyword is added to the EXEC CICS ENABLE command for task-related user exits that are involved in syncpointing for distributed units of work. Specifying INDOUBTWAIT means that, if CICS is in doubt about the outcome of a unit of work, CICS invokes the TRUE at phase 2 of syncpoint with the UERTWAIT parameter (instead of UERTCOMM or UERTBACK to force commit or backout):

- **UERTWAIT** signifies that CICS does not yet know the outcome of the unit of work. In response to a UERTWAIT call, a task-related user exit should invoke its resource manager to free any task-related resources, such as the thread.
However, the resource manager should maintain any locks held by the unit of work, and record that the unit of work is in doubt.

- When CICS receives the outcome of the unit of work from its coordinator, a resynchronization task is attached to notify the task-related user exit about the outcome of the unit of work.
- If CICS is in doubt about the outcome of a unit of work for which an external resource manager has requested a RESYNC (through the EXEC CICS RESYNC command) CICS does not initiate a CRSY resynchronization task for the unit of work. Instead, CICS waits until the in-doubt situation has been resolved and then initiates a CRSY task.

The effects of not enabling a task-related user exit with the INDOUBTWAIT keyword are:

- If CICS is in doubt about a unit of work, a predefined in-doubt action is taken and the task-related user exit invoked with the specified action (either to back out or to commit).
- If CICS is forced to take a predefined in-doubt action because a task-related user exit is not enabled with INDOUBTWAIT, CICS takes the action for all resources updated by the unit of work even if all the other resources are capable of waiting for in-doubt resolution. This applies to local resources such as files, and also other recovery manager connectors (RMCs) such as LU6.1, LU6.2, and MRO connections to other systems.
- An inbound RESYNC command from a resource manager that requests resynchronization for a unit of work about which CICS is in doubt results in a CRSY task invoking the task-related user exit for that unit of work with a predefined in-doubt decision.

The effects of switching from a version of a TRUE that supports INDOUBTWAIT, back to a version that does not support INDOUBTWAIT are:

- All new in-doubt units of work that arise result in a predefined in-doubt action being taken for the task-related user exit and all resources involved in the unit of work.
- For existing in-doubt units of work, if CICS receives the outcome of the unit of work before the task-related user exit has issued an EXEC CICS RESYNC, CICS does not initiate a CRSY task. The outcome of the unit of work is remembered by the CICS recovery manager, which waits for an in-doubt RESYNC command from the external resource manager.
- An inbound RESYNC command from a resource manager that requests resynchronization for a unit of work about which CICS is in doubt results in a CRSY task invoking the task-related user exit for that unit of work with a predefined in-doubt action. This decision is also forced upon all other resources involved in the unit of work.

**IBM-supplied task-related user exits for DB2 and DBCTL**

The CICS-DB2 and the CICS-DBCTL adaptors supplied with CICS TS support both the SPI and INDOUBTWAIT options. These are enabled automatically when you start the connections to these database managers.
Chapter 11. The external CICS interface (EXCI)

This chapter contains information about the effect of changes to the external CICS interface. It covers the following topics:

- Resource recovery
- Changes for the EXCI options table (DFHXCOPT)

Resource recovery

The external CICS interface (EXCI) is enhanced to provide resource recovery controlled by the batch client program. This new external CICS interface facility uses MVS resource recovery services (RRS), and introduces a number of changes to the EXCI call interface. The changes affect the following parameters:

**DPL-opts**

The value specified can be either X'00' or X'80', to indicate the level of resource recovery required, as follows:

- **X'00'** Indicates that you want the client batch program to control resource recovery, using 2-phase commit protocols supported by MVS RRS. With this option, the CICS server region does not perform a syncpoint when the server program returns control to CICS. Furthermore, the CICS server application program must not take any explicit syncpoints, otherwise it is abended by CICS.

- **X'80'** As in earlier releases, this indicates SYNCONRETURN, which means that the server region is to take a syncpoint on successful completion of the server program. The server application program can also take explicit syncpoints during its execution.

**transid**

When **DPL_opts** specifies X'00', the **transid** specification must be the same for all EXCI calls in the same MVS unit of recovery. If you specify **transid** on the first call, you must specify the same value for **transid** on all calls in the same UR. If you omit **transid** from the first call, omit **transid** from all calls.

**uowid**

This parameter must be omitted when **DPL_opts** specifies X'00'.

**userid**

The **userid** specification must be the same for all EXCI calls in the same MVS unit of recovery when **DPL_opts** specifies X'00'.

There are new reason codes for **DPL_Request** calls that specify X'00' on the **DPL_opts** parameter. These are described in the CICS External Interfaces Guide.

Changes for the EXCI options table (DFHXCOPT)

The parameter SURROGCHK is added to the EXCI options table, DFHXCOPT. This parameter enables you to specify whether you want the EXCI batch region’s userid to be subject to surrogate user checking. The syntax is:

**SURROGCHK={YES|NO}**

The CICS-supplied sample table is assembled with SURROGCHK=YES, which is also the default. Reassemble your DFHXCOPT options table before using it with an external CICS interface batch program.
If you specify SURROGCHK=YES or allow it to default, the external CICS interface calls the external security manager (ESM) to verify that the batch region’s userid is a surrogate of the userid specified on any DPL_request call issued by the client program. The surrogate security check fails unless you:

- Define the appropriate security profiles in the SURROGAT general resource class
- Give the batch region’s userid READ access to the surrogate profiles.

If you plan to migrate existing EXCI client programs, perhaps in a test and development environment before you are ready to set up the required surrogate profiles, modify the DFHXCOPT table to specify SURROGCHK=NO to ensure that the client doesn’t incur security violations.

See the [CICS External Interfaces Guide](#) for more information about defining profiles for surrogate user checking in the external CICS interface.
Chapter 12. User-replaceable programs

This chapter summarizes the changes that affect CICS user-replaceable programs.

Reassembling user-replaceable programs

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

You must reassemble all user-replaceable programs, whether or not you make any changes to them. This includes programs such as your terminal autoinstall control program.

See the CICS Customization Guide for programming information about user-replaceable programs.

It covers the following topics:
• “Obsolete user-replaceable programs”
• “Changes to user-replaceable programs”
• “New user-replaceable programs” on page 130

Obsolete user-replaceable programs

Table 28 shows the obsolete user-replaceable programs.

Table 28. Obsolete user-replaceable programs

<table>
<thead>
<tr>
<th>Module</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHXJCC</td>
<td>These user-replaceable programs are obsolete because the CICS log manager does not support journal data sets. CICS logs and journals are written to MVS log streams managed by the MVS system logger.</td>
</tr>
<tr>
<td>DFHXJCO</td>
<td></td>
</tr>
</tbody>
</table>

Changes to user-replaceable programs

There are changes affecting the following user-replaceable programs:
• “The dynamic and distributed routing programs” (DFHDYP and DFHDSRP)
• “The JVM options override program” on page 126 (DFHJVMAT)
• “The IIOP security program” on page 126 (DFHXOPUS)
• “The program autoinstall program” on page 126 (DFHPGADX)
• “The terminal autoinstall programs” on page 127 (DFHZATDx and DFHZATDY)
• “The node error program” on page 128 (NEP).
• “The transaction restart program, DFHREST” on page 129
• “The user-replaceable data conversion program” on page 129 (DFHUCNV)
• “The 3270 bridge exit (DFH0CBRE)” on page 129

The dynamic and distributed routing programs

• The invocation of DFHDYP is extended to handle the dynamic routing of:
  – Distributed program link (DPL) requests
– Terminal-related start requests (in earlier releases, DFHDYP is invoked for start requests for information purposes only)

- The communications area passed to the dynamic routing program (default name DFHDYP) and the distributed routing program (DFHDSRP) has been changed for scheduler services and request streams, with new codes SH and RZ added to the DYRCOMP field.
- The DFHDYP input parameter DYRTYPE has a new value of 8 for Link3270 messages. A new input parameter, DYRBRTK, is set to the value of the bridge facility token when DYRTYPE= 8, and DYRTRAN contains the name of the target 3270 transaction as it is known in the routing region.

To support these additions to dynamic routing, several new fields are added to the DFHDYP communication area, defined by the DFHDYPDS copybook. Ensure your customized versions of the routing programs are recompiled using the latest DFHDYPDS DSECT supplied in library CICSTS22.CICS.SDFHMAC.

See the CICS Customization Guide for information about the DFHDYP communication area.

The JVM options override program

DFHJVMAT is invoked only for JVMs that are defined with Xresettable=NO. This means that you can use DFHJVMAT to modify initialization options only for JVMs that are used once only, and then destroyed on termination of the Java application for which it was invoked.

The JVM initialization options that you can modify using DFHJVMAT are those supported by IBM Developer Kit, Java 2 Technology Edition, Version 1.3. Review the options that are modified by your customized DFHJVMAT, make any necessary changes, and recompile the program.

For information about how to use a DFHJVMAT user-replaceable program to modify JVM initialization options, see the CICS Customization Guide.

The IIOP security program

The communications area passed to the IIOP security program (DFHXOPUS) is extended. You can now use the security program in connection with incoming requests for EJB objects as well as IIOP objects.

The enhanced communications area is defined by a new DSECT named DFHIIURH, which defines the following control blocks:
- sXOPUS, the security communications area (COMMAREA) header
- The general Inter-ORB Protocol (GIOP) request header

DFHIIURH is supplied in the CICS SDFHC370 library.

For information about how to write an IIOP security program, and for details of the DFHXOPUS sample program, see the CICS Customization Guide.

The program autoinstall program

There is an addition to the parameter list used by the program autoinstall program (default name DFHPGADX) to support the JVM profile option on the program resource definition. PGAC_JVM_PROFID is an 8-byte field that specifies the name of the JVM profile to be used to provide the JVM options for a JVM program.
For information about writing a program autoinstall user-replaceable program, see the CICS Customization Guide.

The terminal autoinstall programs

There are changes that affect the terminal autoinstall programs as a result of CICS support for the VTAM LU alias facility, and the Link3270 bridge.

If your CICS regions are defined, in their VTAM APPL statements, to use the dynamic LU alias facility, review your terminal autoinstall programs to ensure that your program logic is able to handle a dynamic LU alias.

To help you with your review, there is some new sample code in the DFHZATDX and DFHZATDY sample programs. This code extracts the network qualified name from the CINIT or BIND and uses the last character of the NETID and the last three characters of the real network name to provide an alternative terminal ID (termid). Note that this new sample code is included within comments, and is supplied only to illustrate how to extract the required information from the CINIT and BIND ‘0E’ control vectors.

If you specify the new CICS system initialization parameter, AIBRIDGE=YES, the terminal autoinstall user-replaceable program is also called when bridge facilities are created.

For more information, see the CICS Customization Guide.

The terminal autoinstall program

The interface between DFHZATA and the terminal autoinstall user-replaceable program is extended. These changes, which may affect your terminal autoinstall program, are as follows:

- There are new fields in the communications area passed on the INSTALL function for APPC single- and parallel-session connections initiated by a BIND. Most of the new fields are relevant only when both the connected systems are registered as members of VSAM generic resources. They may be members of the same generic resource or of different generic resources (in different sysplexes). The exception to this is NETID, which is set whenever the local system is registered as a generic resource.
- The terminal autoinstall program is now invoked for the DELETE function for APPC single- and parallel-session connections that were initiated by a BIND.
- The terminal autoinstall user program is also invoked for two other new functions:
  1. For shipped terminal definitions or connection definitions to be installed in an AOR.
  2. For the installation and deletion of virtual terminals using the external presentation interface function of the CICS Clients products.

The CICS-supplied DFHZATDY is updated for the APPC generic resources changes and the deletion of APPC sessions, and both DFHZATDX and DFHZATDY are updated for the other changes.

COMMAREA changes for INSTALL of APPC connections initiated by BIND:
The communications area for DFHZATDY is mapped by the DFHTCUDS copybook, which is supplied in the SDFHxxxx library appropriate for the programming language. See the CICS Customization Guide for details of the full parameter list passed in the communications area.
The following fields are added for the INSTALL of APPC connections initiated by BIND requests, and are valid for generic resources only:

**INSTALL_APPC_TEMPLATE_NETNAME_PTR**
A pointer to an 8-byte input/output area that can contain the TEMPLATE_NETNAME.

**INSTALL_APPC_NETNAME2_PTR**
A pointer to an 8-byte input field, NETNAME2, which is the partner’s generic resource name or member name.

**INSTALL_APPC_NETID_PTR**
A pointer to an 8-byte input field containing the network ID of the partner, set whenever the local CICS is registered as a member of a generic resource.

**INSTALL_APPC_GR_TYPE_PTR**
A pointer to a 1-byte field indicating whether this is a connection between generic resources, and if so whether the NETNAME passed is the partner’s generic resource name or its member name.

See the [CICS Customization Guide](#) for full details of the DFHTCUDS copybook.

**The autoinstall user program:**
- The autoinstall user program is now invoked when autoinstalled APPC connections are deleted.
- The communications area passed to the user program at INSTALL is extended with new fields.
- The sample user program, DFHZATDY, has been updated.

For more details, see the [CICS Customization Guide](#).

- "The terminal autoinstall control program (DFHZATDX)"

**The terminal autoinstall control program (DFHZATDX)**
There are changes to the IBM-supplied terminal autoinstall control program. These changes are to support autoinstall for consoles. The changes are made to handle the two new communication areas that CICS passes to the terminal autoinstall control program:
- When the console is to be autoinstalled
- When an autoinstalled console is to be deleted.

The IBM-supplied URMs, DFHZATDX (assembler), DFHZCTDX (COBOL), DFHZPTDX (P/LI), and DFHZDTDX (C) are all modified to support autoinstall for MVS consoles. If you use your own autoinstall program, modify it to include the updated communication area copybooks.

**The node error program**
There is a new action, print NQN, added to the action flags that are set by DFHZNAC. Print NQN causes the network qualified name to be printed after any message that contains this flag. The action flag is TWAOPT1, flag 7, set to X'02'. This can be set and unset in the same way as print TCTTE. Print NQN is added as the default action flag for all the following DFHZN messages:

0125 0131 0144 0145 0146 0147 0148 0149 0150 0155 0156 0157 2117
2400 2401 2403 2404 2407 2408 2409 2410 2411 2416 2417 2418 2419 2420 2421 2423 2424 2425 2435 2443 2444 2446 2448 2449 2452 2456 2457 2460 2462 2467 2468 2470 2471 2490
For details of all the action flags and their meanings, see the **CICS Customization Guide**.

### The transaction restart program, DFHREST

Your transaction restart program may be affected by changes in deadlock detection.

The deadlock abend codes are:

- **ADCD**  
  DBCTL deadlock
- **AFCF**  
  Deadlock detected by CICS file control (non-RLS)
- **AFCW**  
  Deadlock detected by VSAM (RLS-accessed files)

The CICS-supplied transaction restart program, DFHREST, is modified to restart transactions that are abended with one of the above abend codes.

The ADLD abend code, which occurs as a result of a local DL/I program isolation deadlock, is obsolete and is removed from DFHREST.

Note that the TRANSACTION resource definition must specify **RESTART(YES)** to enable DFHREST to restart an abended transaction.

### The user-replaceable data conversion program

There are changes to the parameters passed to the user-replaceable data conversion program (DFHUCNV). Offsets in the DSECT have changed and pointers to halfword length fields are now pointers to fullword length fields.

This change means that you cannot use existing versions of DFHUCNV with CICS TS 2.2 regions without modification; nor can you use the modified version DFHUCNV with older releases of CICS.

To modify an existing version of DFHUCNV, first copy and rename the source to distinguish it from the earlier DFHUCNV. Make the changes to your renamed program for the new parameters, which are described by the DSECT in DFHCNV. Specify the name of your modified program on the **USREXIT** parameter in the DFHCNV **TYPE=ENTRY** macro, to distinguish it from the DFHUCNV program of earlier releases. See "Changes to DFHCNV macro" on page 60 for details of the change to the DFHCNV macro.

See **CICS Family: Communicating from CICS on System/390** for details of all the DFHUCNV parameters.

### The 3270 bridge exit (DFH0CBRE)

The BRXA interface to the 3270 bridge exit user-replaceable program is changed to support the enhancements to the 3270 bridge. The bridge exit is no longer invoked to handle terminal API requests. Instead, these requests are passed to a new user-replaceable program known as the formatter, which is named on the **BRXA_FORMATTER** parameter in the BRXA interface.
New user-replaceable programs

The following user-replaceable programs are added:
- "DFHDSRP" for distributed dynamic routing
- "DFHEJDNX"
- "DFHEJEP"
- "DFHSJJ8O" on page 131
- "DFH0CBRF" on page 131 for 3270 bridge formatting.

DFHDSRP

A new user-replaceable program, DFHDSRP, is added to support the dynamic routing of:
- Non-terminal-related start requests
- Transactions that implement CICS business transaction services (BTS) activities

This URM uses the same communication area as the dynamic transaction routing program, DFHDYP.

DFHEJDNX

This new user-replaceable program is a CICS command-level API program that you can use to obtain a string representation of the distinguished name of an EJB client, when the client has not presented an X.509 certificate containing a name.

You can customize this user-replaceable program, and write it in any of the CICS-supported languages (except Java), but its name must be DFHEJDNX.

For information about user-replaceable program DFHEJDNX, see the CICS Customization Guide.

DFHEJEP

This new user-replaceable program enables you to monitor certain EJB-related events in a CICS region. The program is invoked for CORBASERVER, DJAR, and bean events.

There are three types of EJB events: error, information, and warning. All the events are identified by an event code and an event type. For example, event code 001 is an information event type and is described as:
- DJAR resource installed (but not yet resolved).

The default implementation of DFHEJEP is provided to support the EJB application development tool. It is intended for use in CICS application development regions, and you are recommended to install the default program in your development regions. Although the supplied version of DFHEJEP is written in C only, you can write this user-replaceable program in any of the CICS-supported languages; there are COMMAREA copybooks for each of the languages.

For more information about user-replaceable program DFHEJEP, and details of all the event codes, see the CICS Customization Guide.
DFHSJJ8O

This new user-replaceable program specifies the run-time options that are used to create the environment (the Language Environment® enclave) in which the JVM runs. It defines storage allocation parameters for heap and stack and a number of other options. The DFHSJJ8O URM:

- Is invoked during the CEEPIPI preinitialization phase of each Language Environment enclave that is created for a JVM
- Allows you to alter the default Language Environment run-time options
- Must be written in assembler language.

For information about this new user-replaceable program, see the CICS Customization Guide.

DFH0CBRF

The function and design of the 3270 bridge exit program, DFH0CBRE, introduced in CICS TS Release 2, is now divided between two programs—the bridge exit itself and the new (optional) formatter, DFH0CBRF. The name of the formatter is specified in the bridge exit communication area (BRXA) in field BRXA_FORMATTER. Splitting the function in this way simplifies the design and coding of the bridge exit, whilst still supporting the old form that performs all functions.

The sample bridge exit program DFH0CBRE is modified to specify DFH0CBRF for the formatting function.

See the CICS External Interfaces Guide for information about coding a bridge exit and formatter.
Chapter 13. Monitoring and statistics

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

• “Changes to monitoring and statistics data in SMF 110 records”
• “Changes to resource definition”
• “Changes to statistics records”
• “Obsolete emergency restart statistics” on page 136

Changes to monitoring and statistics data in SMF 110 records

There are changes to CICS monitoring and statistics data that could affect user- and vendor-written utilities that analyze and print CICS SMF monitoring and statistics records.

Check your utility programs that process CICS SMF records to ensure that they can process the SMF 110 records correctly. If you have utility programs provided by independent software vendors, you should ensure that these also are able to handle the SMF 110 records correctly.

You can identify SMF 110 records from different releases by using the record-version field in the SMF product section.

Increase in performance class data record length

A large number of performance data fields are added to performance class data records. The result of all these additions is that record length of performance class data records has increased significantly, with the maximum record length now up to 1620 bytes per record.

To avoid flooding your SMF data sets with unwanted data, and consequently filling them too quickly, you can reduce the amount of data written to SMF by using a monitoring control table (MCT) to selectively include or exclude specified fields. See the CICS Resource Definition Guide for information about coding an MCT to control data recording using the DFHMCT TYPE=RECORD macro.

Changes to resource definition

The monitoring control table sample copybook, DFH$MCTL, which defines the user event monitoring points used by the CICS-DL/I interface, is obsolete. If your DFHMCT macros include the DFH$MCTL copybook, remove the copy statement before reassembling your tables. See Chapter 4, “Resource definition (macro) changes” on page 53 for information about reassembling control tables.

The sample monitoring control table, DFHMCT2$, includes definitions for DBCTL only.

Changes to statistics records

There are changes to CICS statistics records, generally because of the new domains. Other changes are a result of enhancements to CICS support for the Java™ Virtual Machine (JVM), CICS exploitation of TCP/IP, and the CICS DB2 enhancements. As a result, a number of statistics DSECTs, previously supplied as copybooks, are obsolete and withdrawn. These are:
The terminal autoinstall unsolicited statistics, replaced by the terminal resource statistics in copybook DFHA06DS.

The DTB global statistics copybook, now obsolete.

Transient data statistics, replaced by the transient data resource statistics in copybook DFHTQRDS.

Transient data statistics, replaced by the transient data global statistics in copybook DFHTQGDS.

Temporary storage statistics, replaced by the temporary storage global statistics in copybook DFHTSGDS.

Journal statistics, replaced by the journalname resource statistics in copybook DFHLGRDS.

The DL/I resource statistics copybook, now obsolete.

The IRC batch global statistics copybook, now obsolete.

The DL/I global statistics copybook, now obsolete.

Also, a number of other statistics DSECTs have new or changed fields. The changed DSECTs are:

For functional area

Terminal resource statistics.

ISC/IRC system entry resource statistics.

File resource statistics.

ISC/IRC mode entry resource statistics.

CICS DB2 connection global statistics.

CICS DB2 entry resource statistics.

Dispatcher global statistics.

Enterprise Java CorbaServer resource statistics.

Log stream resource statistics.

Transaction performance monitoring resource statistics.

Enqueue global statistics.

TCP/IP service resource statistics.

Statistics domain global statistics.

Transient data resource statistics.

Transaction resource statistics.

Existing application programs are unaffected by the changes if they use the old versions of the following changed DSECTS:

DFHA06DS
DFHA14DS
DFHA17DS
DFHA20DS
DFHD2GDS
DFHD2RDS

DFHDSGDS
DFHEJRDS
DFHLGSDS
DFHMNTDS
DFHNQGDS
DFHSORDS
DFHSTGDS
DFHTQRDS
DFHXMRDS

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This is because the new fields are added to the end and do not affect the offsets of
the unchanged fields.

The changes to DFHMNTDS, DFHDSGDS, and DFHNQGDS are such that the old
DSECTs are not compatible with the new DSECT, and application programs using
these DSECTs must be recompiled.

New and revised values in DFHSTIDS (statistics record identifiers)

The revised list of the statistics record identifiers, as described in the common
statistics record copybook, DFHSTIDS, is shown in Figure 5 on page 136.
Obsolet emergency restart statistics

The statistics produced by DFHRUP during emergency restart, and written to transient data destination CSSL, are obsolete and have been removed.

For details of all the statistics, and all the supporting copybooks, see the CICS Performance Guide.
Part 2. Migration planning considerations

This part of the book deals with migration planning for some specific functional areas where there may be a need for special considerations. These are:

- Chapter 14, “Migration planning for the log manager” on page 139
- Chapter 15, “Migration planning for the recovery manager” on page 155
- Chapter 16, “Migration planning for VSAM record-level sharing (RLS)” on page 169
- Chapter 17, “Migration planning for temporary storage data sharing” on page 179
- Chapter 18, “Migration planning for VTAM generic resources” on page 183
- Chapter 19, “Migration planning for multiregion operation (MRO)” on page 185
- Chapter 20, “Fallback planning considerations” on page 189
- Chapter 21, “Migration planning for the integrated translator” on page 195
- Chapter 22, “Migration planning for application development” on page 197
- Chapter 23, “Migration planning for DL/I databases” on page 199
- Chapter 24, “Migration planning for the CICS DB2 interface” on page 201
- Chapter 25, “Migration planning for CICS Web support” on page 213
Chapter 14. Migration planning for the log manager

This chapter discusses planning for migration from the journal control program of earlier releases, to the CICS log manager domain, which uses the MVS system logger. It covers the following topics:

- "Introduction to the CICS log manager"
- "Using coupling facilities on page 146"
- "Using DASD-only log streams on page 150"
- "Setting up the logger environment on page 151"
- "Writing user records to forward recovery logs on page 152"
- "Log manager record formats on page 153"
- "Fallback planning on page 154"
- "Remote site recovery on page 154"

Introduction to the CICS log manager

CICS log streams, in particular the system log, are among the most important resources in CICS because they are the key to maintaining the integrity of the other resources. Without a system log, in-flight transactions cannot be backed out to maintain integrity, nor can CICS support other recovery processes, such as VSAM RLS lost locks recovery. Forward recovery log streams protect against the failure of VSAM data sets.

Reliability of log streams is essential if they are to protect the other CICS resources.

In earlier releases of CICS, this reliability is based on the alternate use of two sequential data sets, supported by an automatic archiving facility, and the optional use of dual copy DASD devices.

The CICS log manager uses the MVS system logger for all system logs and general logs. Both the MVS system logger and CICS log manager have extensive recovery procedures to prevent errors from causing the loss of logged data and, should data loss occur, to minimize the impact on the integrity of the affected CICS region.

If you are using a coupling facility for your log streams, maximizing reliability depends on providing the correct coupling facility environment. This can involve trade-offs between the desired level of reliability, the availability of resources, and system performance.

Choosing between DASD-only logging and a coupling facility

There are several factors to consider when choosing between logging and journaling to a coupling facility and logging and journaling to DASD only.

Coupling facility

The main advantage is that you can use all the function of the MVS system logger, including unrestricted merging of general log stream output written by CICS regions running in different MVS images. Coupling facility log streams (without staging data sets) offer better performance than DASD-only log streams.

On the other hand, the coupling facility requires extra administrative effort, to calculate structure sizes, and to define and manage the logger environment.

For information about using a coupling facility for your CICS logging and journaling requirements, see "Using coupling facilities on page 146".
DASD-only logging
The main advantage is that you do not need one or more coupling facilities, and definition and administration is simpler.

On the other hand, general log streams can be merged only within a single MVS. CICS regions cannot connect to a log stream already in use by another MVS.

For information about using only DASD for your CICS logging and journaling requirements, see "Using DASD-only log streams" on page 150.

Types of storage used by the system logger
For both coupling facility and DASD only logging, each log stream is processed as a sequence of blocks of data, which the MVS system logger internally partitions over three different types of storage:

1. **Primary storage**, which holds the most recent records written to the log stream. Primary storage can consist of either:
   - A structure within a coupling facility. Log data written to the coupling facility is also copied to either a data space or a staging data set, depending on the log stream definition.
   - A data space in the same MVS image as the system logger. Log data written to the data space is also copied to a staging data set. This primary storage environment is for DASD-only log streams.

2. **Secondary storage**—when the primary storage for a log stream becomes full, the older records automatically spill onto secondary storage, which consists of data sets managed by the storage management subsystem (SMS). Each log stream, identified by its log stream name (LSN), is written to its own log data sets. For information about managing secondary storage, see the CICS Transaction Server for z/OS Installation Guide.

3. **Tertiary storage**—a form of archive storage, used as specified in your hierarchical storage manager (HSM) policy. Optionally, older records can be migrated to tertiary storage, which can be either DASD data sets or tape volumes.

For more information about storage usage, see the CICS Transaction Server for z/OS Installation Guide.

Converting from DASD-only to coupling facility log streams
You can upgrade a DASD-only log stream to use a coupling facility structure, without having to delete and redefine the log stream. To do this:

1. Make sure that there are no connections, active or failed, to the log stream.
2. Use the UPDATE option of the MVS IXCMIA PU utility, specify the STRUCTNAME keyword, and let the DASDONLY keyword default to NO.

You cannot use UPDATE LOGSTREAM to convert a log stream from a coupling facility structure to a DASD-only log stream. To do this, you must delete and redefine the log stream.

For more information on this topic, and for a sample IXCMIA PU job to convert from DASD-only to a coupling facility log stream, see the CICS Transaction Server for z/OS Installation Guide.

Log stream naming and usage recommendations
CICS supports two categories of log stream:
1. System log streams, needed by CICS for transaction backout and emergency restart
2. General log streams, needed for user journals, autojournals, and forward recovery logs.

System logs
Consider the following when planning your CICS system log streams:

- A CICS system log (which comprises two physical log streams) is unique to the region and cannot be used by any other CICS region. The default log stream names for CICS system log streams, region_userid.applid.DFHLOG and region_userid.applid.DFHSHUNT are designed to ensure unique names. If you define JOURNALMODEL resource definitions to define your own log stream names for DFHLOG and DFHSHUNT, ensure that the resulting log stream names are unique. If you have some CICS regions that use the same applid, you must use some other qualifier in the log stream name to ensure uniqueness.

- If you use JOURNALMODEL resource definitions for the system log, these resource definitions must be defined and added to the appropriate group list (using the CSD utility program, DFHCSDUP) before an initial start of CICS.

- You might want to use journal models for system logs if the CICS region user ID changes between runs (for example, where a test CICS region is shared between application developers). It would be wasteful to create log streams with a different high-level qualifier for each user. Using the same system log stream regardless of which programmer userid starts up the CICS region keeps the number of log streams to a minimum. The following example uses a specific JOURNALNAME, with symbols in the STREAMNAME, making this an explicit model for the primary log stream.

  DEFINE GROUP(TEGlST) DESC('System logs for test CICS regions')
  JOURNALMODEL(DFHLOG) JOURNALNAME(DFHLOG) TYPE(MVS)
  STREAMNAME(TEGlSTCICS. &APPLID. &JNAME)

- System logs cannot be TYPE(SMF).

- DFHLOG can be TYPE(DUMMY), but you can use this only if you always INITIAL start your CICS regions and there are no recoverable resources requiring transaction backout. CICS cannot perform a warm restart if TYPE(DUMMY) is specified on the JOURNALMODEL definition.

- DFHSHUNT can be TYPE(DUMMY) but it is not recommended because it impairs the ability of CICS to manage the system log.

- Review the activity keypoint frequency (AKPFREQ) defined for each CICS region. The larger the value, the more primary storage space you need for the system logs, but you should not set AKPFREQ too low so that transactions last longer than an activity keypoint interval.

- CICS manages the system log by deleting, from primary storage, records for completed units of work during activity keypoint processing (log-tail deletion). The CICS system log should be used only for short-lived data required for recovery purposes. With an appropriately sized log stream, the system log data remains in primary storage, avoiding the overhead of data spilling to DASD.

You should not write general user data to the system log. However, if you have old applications that use the system log for such things as audit trails, you may need to preserve system log data beyond the time it would normally be deleted by CICS. If you are running OS/390 Release 3 or later, use the MVS RETPD parameter to preserve system log data. Define the DFHLOG and DFHSHUNT log streams with AUTODELETE(NO) and RETPD(ddd), where dddd is a number of days. (The default values are AUTODELETE(NO) and RETPD(0).) Specifying AUTODELETE(NO) means that CICS, rather than MVS, retains control of the
log-tail trimming process; \textit{ddddd} is the number of days for which data is to be retained. This causes the MVS logger to physically delete an entire log data set when all the data in the data set:

1. Has been marked for deletion by the CICS log-tail trimming process
2. Is older than the retention period specified for the log stream.

**User journals and autojournals**

Consider the following when planning the general log streams for your user journals and autojournals:

- If you are running multiple cloned copies of your application-owning regions (AORs) it is probable that the logged data is common and that you would want to merge the data from all of the AORs to the same log stream. For example, the following JOURNALMODEL resource definition maps CICS journals of the same journal ID to a shared log stream:

  ```
  DEFINE GROUP(MERGE) DESC('Merge journals across cloned CICS regions')
  JOURNALMODEL(JRNLS) JOURNALNAME(DFHJ*) TYPE(MVS)
  STREAMNAME(&USERID..SHARED..&JNAME.)
  ```

  In this example, the literal SHARED is used in place of the default CICS applid, which would require a unique log stream for each region.

- The last qualifier of the stream name is used as the CICS resource name for dispatcher waits, therefore if it is self-explanatory it can be helpful when interpreting monitoring information and CICS trace entries.

- You might want to use journal models to map journals to log streams if the CICS region user ID changes between runs. This could be the case, for example, where CICS test regions are shared between groups of developers. It would be wasteful to create log streams with a different high-level qualifier for each user and you might prefer to use the same log streams regardless of which developer starts up a CICS region. For example, the following generic JOURNALMODEL definition maps all journals not defined by more explicit definitions to the same log stream. It uses the symbols \textit{applid} and \textit{jname}:

  ```
  DEFINE GROUP (TEST) DESC('Journals for test CICS regions')
  JOURNALMODEL(JRNLS) JOURNALNAME(*) TYPE(MVS)
  STREAMNAME(TESTCICS.applid.jname)
  ```

- You might want to merge data written by CICS regions using different journal names to a single log stream.

  ```
  DEFINE GROUP (TEST) DESC('Merging journals 10 to 19')
  JOURNALMODEL(J10TO19) JOURNALNAME(DFHJ1*) TYPE(MVS)
  STREAMNAME(&USERID..MERGED..JNLS)
  ```

  ```
  DEFINE GROUP (TEST) DESC('Merging journalnames JNLxxxxx')
  JOURNALMODEL(JNLXXXXX) JOURNALNAME(JNL*) TYPE(MVS)
  STREAMNAME(&USERID..MERGED..JNLS)
  ```

- Redundant data should be deleted from log streams periodically to control the number of data sets managed in the system logger inventory. For CICS regions running under OS/390 Release 3 and later, there is no practical limit to the number of data sets supported. You can cause redundant data to be deleted from log streams automatically, after a specified period. To arrange this for general log streams, define the log streams with AUTODELETE(YES) and RETPD(dddd).

  In OS/390 Release 2 and earlier, there is a limit of up to 168 log stream data sets. Redundant data must be deleted from log streams before this limit is exceeded. If you size data sets to contain about one day’s worth of data, you can keep about six months’ data on a log stream (allowing for lower activity on weekends and holidays). If you need to keep data for longer than this, archive periodically (perhaps monthly) the oldest log stream data sets to alternative
storage before deleting the log stream data. Deleting data enables the system logger to delete automatically the log stream data sets that no longer contain data. If your retention requirements are for short periods, you can periodically delete the redundant data without archiving it first.

- Although 8-character journal names offer considerable flexibility compared with the DFHJnn name format of previous releases, you are recommended not to create large numbers of journals (for example, by using the terminal name or user ID as part of a program-generated name).
- Avoid using the WAIT option when using a WRITE JOURNALNAME (or JOURNALNUM) command, unless the logic of your application and the importance of the data requires that the data must be written before your transaction ends. Without WAIT, CICS does not write data to the log stream until it has a full buffer of data, thus reducing the number of I/O operations. Also, using WAIT makes it more difficult to calculate accurately log structure buffer sizes, which could lead to inefficient use of storage if the log stream resides in a coupling facility.

**Forward recovery log streams**

CICS does the forward recovery logging for both RLS and non-RLS data sets. You can share a forward recovery log stream between multiple data sets—you do not have to define a log stream for each forward-recoverable data set. Your decision is a trade off between transaction performance, fast recovery, and having a large number of log streams to manage.

There are various considerations:

- All data sets used by one transaction should use the same log stream (to reduce the number of log streams written to at syncpoint).
- A good starting point is to use the same forward recovery log ID that you use in the earlier CICS release.
- Share a forward recovery log stream between data sets that:
  - Have similar security requirements
  - Have similar backup frequency
  - Are likely to need restoring in their entirety at the same time
- Log stream names should relate to the data sets. For example, PAYROLL.data_sets could be mapped to a forward recovery log named PAYROLL.FWDRECOV.PAYLOG.
- The last qualifier of the stream name is used as the CICS resource name for dispatcher waits, therefore if it is self-explanatory it can be helpful when interpreting monitoring information and CICS trace entries.
- Don’t mix high-update frequency data sets with low-update frequency data sets, because this causes a disproportionate amount of unwanted log data to be read during recovery of low frequency data sets.
- Don’t put all high-update frequency data sets on a single log stream because you could exceed the throughput capacity of that log stream.
- If you define too many data sets to a single log stream, you could experience frequent structure-full, or staging-data-set-full, events when the log stream can’t keep up with data flow. (See the CICS Performance Guide for information about monitoring CICS logging and journaling.)
- Redundant data should be deleted from log streams periodically so that the system logger inventory entry does become excessively large. Typically, for a forward recovery log, deletion of old data is related to the data backup frequency. For example, you might keep the four most recent generations of backup, and when you delete a redundant backup generation you should also delete the
corresponding redundant forward recovery log records. These are the records older than the redundant backup because they are no longer needed for forward recovery. See "the redundant data list item" on page 142 for information about using a retention period on log stream data sets.

**Log of logs (DFHLGLOG)**
The log of logs is written by CICS to provide information to forward recovery programs such as CICS VSAM Recovery (CICSVR). The log of logs is a form of user journal containing copies of the tie-up records written to forward recovery logs. Thus it provides a summary of which recoverable VSAM data sets CICS has used, when they were used, and to which log stream the forward recovery log records were written.

If you have a forward recovery product that can utilize the log of logs, you should ensure that all CICS regions sharing the recoverable data sets write to the same log of logs log stream.

```
DEFINE GROUP(JRNL) DESC('Merge log of logs')
  JOURNALMODEL(DFHLGLOG) JOURNALNAME(DFHLGLOG) TYPE(MVS)
  STREAMNAME(&USERID..CICSVR.DFHLGLOG)
```

If you don't have a forward recovery product that can utilize the log of logs you can use a dummy log stream:

```
DEFINE GROUP(JRNL) DESC('Dummy log of logs')
  JOURNALMODEL(DFHLGLOG) JOURNALNAME(DFHLGLOG) TYPE(DUMMY)
```

Do not share the log of logs between test and production CICS regions, because it could be misused to compromise the contents of production data sets during a restore.

**Defining log streams and log stream models**
All log streams must be defined to the MVS logger before CICS can use them. You can either define the log streams explicitly, using the IXCMIAPU utility, or you can let CICS create the log streams dynamically when they are first used. To create a log stream dynamically, CICS must specify to the MVS system logger all the log stream attributes needed for a new log stream. To determine these otherwise unknown attributes, CICS requests the MVS system logger to create the log stream using attributes of an existing model log stream definition. If you decide to allow CICS to create log streams dynamically, you are responsible for creating the required model log stream definitions to ensure that dynamic creation succeeds.

It is generally worthwhile setting up model log streams only if:
- Each model log stream will be used to create several log streams
- Each log stream created using a model log stream has similar characteristics; for example, consistent with the use of the same coupling facility structure
- You don't know in advance what journal names will be used by the CICS applications.

Otherwise, it is probably less work to define the log streams explicitly using IXCMIAPU.

The model log stream names that CICS uses for its system log streams are of the form `sysid.DFHLOG.MODEL` and `sysid.DFHSHUNT.MODEL`. See the CICS Transaction Server for z/OS Installation Guide for sample IXCMIAPU jobs to create a explicit and model log streams for CICS system logs.
You can also write an XLGSTRM global user exit program to determine log stream attributes. CICS invokes the XLGSTRM exit immediately before calling the MVS system logger to create a log stream.

**Sizing calculations**

If you are migrating from CICS Version 4 or Version 3, and have experience of journal data, you are strongly recommended to use the DFHLSCU utility which provides recommended values for:

- **AVGBUFSIZE**
- **INITSIZE**
- **SIZE**
- **STG_SIZE**
- **LOWOFFLOAD**

You use these values in your jobs to define coupling facility structures, log streams, and staging data sets. See the *CICS Operations and Utilities Guide* for more information about this utility.

**Using DFHLSCU to size the CSD forward recovery log data**

CICS Transaction Server holds CSD forward-recovery data in a user journal rather than in the system log DFHJ01 which is (by default) used in earlier releases. When migrating to CICS Transaction Server from CICS/ESA 4.1 or 3.3, you might need size estimates when allocating the log streams that will hold CSD forward-recovery data.

The DFHLSCU utility can assist in this task. The utility can be run against the system log from a CICS/ESA system using the SYSIN control statement FWDREC to indicate that the utility is to process only that data which represents a forward recovery log.

If the CSD is the only file for which forward recovery data is being recorded in the system log of the earlier release, the statistics reported by DFHLSCU relate to CSD recovery data only. If, however, in the earlier release:

- many files are using the system log for forward recovery data
- or the SIT parameter CSDFRLOG=nn is being used to direct CSD forward recovery data to another log,
- and the CICS TS use of log streams is not going to parallel the previous arrangement,

it may be necessary to re-arrange the specification of forward recovery logs on the CICS/ESA system for a trial period in order to gather suitable representative data against which DFHLSCU can later be run.

For example:

If the 4.1 system log is collecting forward recovery data for the CSD and several user files, and you want to get an estimate of sizing for the CSD alone:

- specify, on your 4.1 system, the SIT parameter CSDFRLOG=nn, with nn set to a value other than 01, that is unique to the CSD (for example CSDFRLOG=77).

You could then use DFHLSCU to size DFHJ77

DFHLSCU is described in the *CICS Transaction Server for z/OS Installation Guide*.

For information about the calculation of storage required for CICS log streams, see the *CICS Transaction Server for z/OS Installation Guide*. 

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Log stream data sets
Log stream data set sizing generally relates to the retention period of the data and
the availability of DASD. One method is to estimate the size of the total daily output
to a log stream by all the CICS regions, and use that as the data set size. You can
adjust this as necessary based on experience, ensuring that you contain the total
volume of data to keep within the constraints imposed by the availability of DASD,
by specifying appropriate retention periods using the MVS RETPD parameter. See
“the redundant data list item” on page 142 for more information.

Using coupling facilities
If you are running under OS/390 Release 3 or earlier, the MVS system logger
requires at least one coupling facility, even when running in a single-system
sysplex. The coupling facility control code must be CFLEVEL=1 or higher.

If you plan to use a coupling facility, the remainder of this section discusses various
coupling facility options.

Dedicated coupling facilities
Ideally, the best environment is provided by two or more non-volatile coupling
facilities that are failure-independent from any of the exploiting MVS images, using
dedicated processor resources. There are two kinds of dedicated coupling facility:

- The standalone model S/390 9674 Coupling Facility, a member the S/390
  microprocessor family of products that can run only the coupling facility.
- A CPC in the S/390 microprocessor cluster (for example, the 9672 Parallel
  Transaction Server) that allows you the option to dedicate the CPC to only the
  coupling facility.

If one dedicated coupling facility fails or requires maintenance, the system logger
can rebuild its data in another coupling facility and continue with only temporary
impact on the CICS regions.

A coupling facility LPAR sharing resources with other LPARs
You can define the coupling facility logical partition to run on a CPC that is also
running MVS in other LPARs, but this means they are not in a failure-independent
domain. The CPCs can be one of the following:

- A 9672 in the S/390 microprocessor cluster
- An ES/9000 9021 711-based model
- An ES/9000 9121 511-based model (see note)

The CPC in the S/390 microprocessor cluster and the 9021 711-based models
allow you to use coupling facility channels to connect the coupling facility LP to
MVS images on the same processor or on other processors that are capable of
connecting to the coupling facility.

Note: On 9121 511-based models you must use the integrated coupling migration
facility (ICMF) to define a coupling facility LPAR. ICMF simulates the
coupling facility channels required to connect to other LPARs running MVS in
the same machine. ICMF does not support connectivity to an MVS running in
other CPCs.

Mixing types of coupling facility
As an alternative to using two dedicated coupling facilities, you can use one
dedicated coupling facility for normal logger and lock structure usage plus a
coupling facility LPAR. This configuration also provides the ability for rebuilding coupling facility structures, with minimal impact on CICS regions. Furthermore, MVS detects that the LPAR coupling facility is not in a failure-independent domain, and causes the system logger to write log stream data to staging data sets for extra security. (You could use more than one LPAR but unless they are installed in separate machines you do not gain any significant level of reliability over a single coupling facility.)

**Single coupling facility considerations**

A single coupling facility of any kind is not recommended because it is a single point of failure, and without a coupling facility the MVS system logger and any other users are unable to continue normal operations until the coupling facility is restored. Without access to its system log a CICS region is unusable. Unless you specify that the system logger is to use staging data sets, the recovery of log stream data depends on the MVS images remaining active so that the system loggers can use copies of log records held in storage to repopulate the coupling facility when it becomes available again. If you must run with a single coupling facility, you are recommended to specify DUPLEXMODE(UNCOND) to force the use of staging data sets.

**Defining coupling facility structures**

You define structures in the MVS system logger LOGR policy, within the system logger couple data sets, using the DEFINE STRUCTURE specification on the IXCMIAPU utility.

Coupling facility space is divided into structures using the coupling facility resource management (CFRM) policy, which allows you to define how MVS is to manage coupling facility resources. You can define more than one structure for the MVS system logger, with each structure holding the data for one or more log streams.

Each log stream is allocated a proportion of the structure space based on the number of connected log streams. For example, you could define a structure to contain a maximum of 30 log streams. (This limits the number of log streams, which reference that structure name, that can be defined to the system logger inventory.) If only 10 of the 30 log streams are connected, each log stream is able to use one tenth of the space in the structure. As log streams are connected and disconnected, the system logger adjusts the proportion of space available to each log stream.

The different types of log streams used by CICS have different attributes, such as:

- How big the average block written can be
- How long the data should be retained in the coupling facility structure to improve CICS performance.

Because of their different characteristics, you should define, to CFRM and the system logger, different structures for CICS system logs and CICS general logs.

**Log structure naming conventions**

You specify the structure name on the STRUCTNAME parameter. There are few restrictions on the names of structures used for log streams, but you are recommended to adopt a convention that helps to identify what the structure is used for without being too specific. For example, a name format such as LOG_purpose_nnn, where purpose identifies the type of usage, and nnn is a sequence number to allow for more than one structure for each purpose.

*Examples based on the log structure naming convention:*
LOG_DFHLOG_001
This structure is allocated for CICS primary system log streams. This should be a large structure to ensure that the data does not spill to DASD. The average buffer size will tend to be small.

LOG_DFHSHUNT_001
This structure is allocated for CICS secondary system log streams. The structure can be small, because data is written to CICS secondary log streams infrequently. CICS copies from the primary system log to secondary log streams:
- The data relating to units of work that are pending completion following some form of failure
- The data relating to long-running units of work that span at least two activity keypoints without writing to the system log.

LOG_USERJRNL_001
User journals where block writes are never forced (by means of the WAIT option on a WRITE JOURNALNAME command or an EXEC CICS WAIT command). For these log streams, the average and maximum buffer sizes are the same.

LOG_GENERAL_001
Forward recovery logs and user journals where blocks are forced to the log periodically.

Others
LOG_OPERLOG_001, LOG_LOGREC_001, and so on, for non-CICS use of the MVS system logger.

Planning considerations for the number of log structures
When you are deciding on the number of structures to allocate, consider the following:
- The CFRM policy allows a maximum of 255 structures for all purposes.
- Smaller structures can be allocated, rebuilt, and recovered faster than larger ones.
- You should plan to define a maximum of 20 log streams per structure, but if this would result in an excessive number of structures (>30) you may need to define more streams per structure.
- You should keep CICS test and development regions not in regular use in separate structures so that their use of the structure does not interfere with space tuning for production CICS systems.
- Sharing structures between MVS images offers recovery advantages. If an MVS image or logger address space fails, another surviving MVS image using the same log stream structures (not necessarily the same log streams) is notified of the failure and can start immediate log stream recovery for the log streams used by the failing MVS. Otherwise, recovery is delayed until the next time a system connects to a log stream in the affected structures, or until the failed system logger address space restarts.

For example, in a 4-way sysplex comprising MVSA, MVSB, MVSC, and MVSD, you might have the CICS regions that normally run on MVSA and MVSB use structure LOG_DFHLOG_001, and the regions that run on MVSC and MVSD use structure LOG_DFHLOG_002. Thus each MVS image has a partner to recover its log streams in the event of an MVS failure. If a structure fails, the two MVS images using the other structure can take over the workload. Also, if you have
When using more than one coupling facility, allocate the system log structures to different coupling facilities. See Figure 6 for an illustration of this example.

Figure 6. Sharing system logger structures between MVS images

- Use an accurate average buffer size (AVGBUFSIZE). It is important that the average buffer size defined for a structure is close to the actual size of the data blocks written to the log streams using the structure (and preferably slightly under-estimated rather than over-estimated), otherwise a log stream can run out of usable space long before the structure is actually full.
- Set the maximum buffer size (MAXBUFSIZE) to slightly less than 64K (for example, 64000). This allows CICS to write out the maximum size user record (62K) but enables the coupling facility storage to be allocated in 256-byte elements. If you let MAXBUFSIZE default, the coupling facility storage is allocated using 512-byte elements, which is more wasteful. There is no advantage in setting MAXBUFSIZE to less than 64000, because this will limit the maximum record size that can be written without improving storage utilization. See OS/390 MVS Setting Up a Sysplex, GC28-1779, for information about the IXCMIAPU utility and the DEFINE STRUCTURE keywords defining a coupling facility structure in the LOGR policy.
- Set a low value for the REBUILDPERCENT parameter in the CFRM policy for log structures used for CICS system logs. See OS/390 MVS Setting Up a Sysplex for information about CFRM policy definitions.

**Staging data sets for coupling facility log streams**

MVS normally keeps a second copy of the data written to the coupling facility in a data space, for use when rebuilding a coupling facility log structure in the event of an error.

This is satisfactory if the coupling facility is in a failure-independent domain from the exploiting MVS images. That is, the coupling facility is in a separate CPC and its storage is non-volatile. However, if the coupling facility is in the same CPC, or uses volatile storage, the MVS system logger supports staging data sets for copies of log stream data that would otherwise be vulnerable to failures that impact both the coupling facility and the MVS images.
Consider the following when deciding whether to use staging data sets for your log streams:

- You should define STG_DUPLEX(YES) and DUPLEXMODE(COND) for all vital log streams, such as system log streams. This ensures that the system logger automatically copies to staging data sets if it detects that the coupling facility is not failure independent.
- If you only have a single coupling facility, even with non-volatile storage, define log streams with STG_DUPLEX(YES) DUPLEXMODE(UNCOND).
- If you are not using STG_DUPLEX(YES) for forward recovery logs, and a failure causes loss of data on a forward recovery log stream, you must take a new image copy of the associated VSAM data sets to ensure that forward recovery is possible. In this situation, while the new image copy is being taken, there is a period when the data set is not fully protected.
- Whether you use staging data sets for user journals and autojournals depends on how important the data is to the application using the data.
- If you normally use a non-volatile stand-alone coupling facility for normal logging, with an ICMF for backup, you are recommended to specify STG_DUPLEX(YES) and DUPLEXMODE(COND) for all log streams.
- The size of each staging data set should be at least as big as the portion of the coupling facility structure used by the corresponding log stream, but with the average block size rounded up to 4K instead of to 256 bytes.

**Note:** Startup may take longer than you experienced when using earlier releases. This is due in part to the allocation and formatting of the staging data sets. The increased time that startup takes is dependent on such things as:

- Size of staging data set (STG_SIZE)
- DASD speed
- DASD contention

---

**Using DASD-only log streams**

If you are running CICS TS OS/390 Version 1 Release 2 under OS/390 Release 4 or later, you can use the MVS system logger support for DASD-only logging, as an alternative to using a coupling facility. The DASD-only option extends system logger support to sysplexes that:

- Do not include a coupling facility (*non-parallel sysplex*)
- Consist of a single MVS image (*single-system sysplex*)

**Note:** The MVS system logger uses XCF services, which means that even a single MVS image must be configured as a sysplex to ensure these services are available.

You might also decide to use DASD-only logging, even when you have a coupling facility—for example, to preserve space in the coupling facility for other purposes, or because there is no need to share general log streams across MVS images.

**Defining DASD-only log streams**

You define DASD-only log streams, in much the same way as for a coupling facility log stream, using the IXCMIAPI utility. You can define the log streams explicitly, or define models and have them created dynamically. See the [CICS Transaction Server for z/OS Installation Guide](#) for information and sample jobs to define DASD-only log streams.
When using a model log stream for a coupling facility, all log streams created dynamically using that model are assigned to the same log structure. When using a model log stream for a DASD-only log stream all log streams created from the model are given the same-sized staging data set if you specify a STG_SIZE on the model definition.

**Sizing considerations**
The following are some factors to consider when planning your DASD-only log streams:

- For system logs:
  - Minimize the amount of data that is offloaded to secondary storage by defining a correctly-sized staging data set.
  - Avoid “staging-data-set-full” events, which occurs if a log stream’s staging data set becomes full before the offloading of data has completed.
- For general logs, avoid staging-data-set-full-events. CICS does not delete data from these log streams, and offloading data to secondary storage is normal, but you should avoid a staging data set being filled before offloading is completed.
- Startup may take longer than you experienced when using earlier releases. This increase can be reduced by avoiding the use of unnecessarily large staging data sets.

Use the CICS log stream sizing utility program, DFHLSCU, to help you calculate appropriate sizes for logs and journals you are migrating from an earlier release of CICS. See the *CICS Operations and Utilities Guide* for information about the DFHLSCU utility program.

If DFHLSCU is not appropriate for your situation, use the formulae given in the *CICS Transaction Server for z/OS Installation Guide*.

---

### Setting up the logger environment

For detailed information about the various setup tasks summarized here, see the *OS/390 MVS Setting Up a Sysplex* book, GC28-1779, and the *OS/390 MVS Programming: Assembler Services Guide* GC28-1762.

1. Review the CICS logging environment:
   - Number of CICS regions
   - Number of user and autojournals
   - Number of forward recovery logs
   - Expected average buffer sizes and transaction rates.
2. Based on the review of your CICS logging requirements, plan the:
   - Number and sizes of coupling facility structures needed
   - Number of model log streams.
3. Define the log stream couple data sets (or verify their sizes if they already exist).
4. Define log structures to CFRM and activate policy.
5. Define log structures to the MVS system logger.
6. Define SMS storage management and data classes for log stream data sets. Optionally, create automatic class selection (ACS) routines so that log stream data sets don’t have to be specified explicitly.
7. Define profiles in the RACF LOGSTRM general resource class to allow CICS access to the required log streams.
8. Define specific log streams or model log streams to the MVS system logger.
9. Define in the CSD the required journal model resource definitions for CICS system logs, and add the definitions to the startup group list.

10. Remove all JCT system initialization parameters, and DD statements for CICS journal data sets, from CICS startup JCL.

11. Modify batch jobs that process CICS logs to include the SUBSYS keyword.

For more information, see the CICS Transaction Server for z/OS Installation Guide

**Writing user records to forward recovery logs**

When the forward recovery log stream name is defined in the VSAM ICF catalog, it overrides any forward recovery log identifier that might be defined in a CICS file resource definition. In this case, CICS does not have a journal name associated with the forward recovery log stream, which means it is not possible to write directly any user records to the same forward recovery log stream. (Although you would not normally want to write user records to forward recovery logs, it may be justified in cases where information is needed for a forward recovery product.)

The following example code shows how you could associate a journal name with the forward recovery log stream.

```cics
EXEC CICS INQUIRE DSNAME('data-set-name') FWDRECOVLSN(FWDRECLSN) END-EXEC

EXEC CICS INQUIRE JOURNALNAME('FWDLOG')
  STREAMNAME(CURRENTLSN)
  RESP(EIB-RESPONSE)
END-EXEC.

* Test if journal name found
IF EIB-RESPONSE(NOTFOUND) THEN
* No journal name currently exists
  EXEC CICS CREATE JOURNALMODEL('FWDLOG') ATTRLEN('length')
    ATTRIBUTES(JOURNALNAME('FWDLOG') TYPE(MVS) STREAM(FWDRECLSN))
END-EXEC
ELSE
  IF CURRENTLSN NOT EQUAL FWDRECLSN THEN
* Recreate journal because log stream name is wrong
    EXEC CICS DISCARD JOURNALNAME('FWDLOG')
    END-EXEC.
    EXEC CICS CREATE JOURNALMODEL('FWDLOG') ATTRLEN('length')
      ATTRIBUTES(JOURNALNAME('FWDLOG') TYPE(MVS) STREAM(FWDRECLSN))
    END-EXEC
  END-IF
END-IF.

* Journal name FWDLOG now associated with fwdrecov log stream
EXEC CICS WRITE JOURNALNAME(FWDLOG) ...

EXEC CICS DISCARD JOURNALMODEL('FWDLOG') !Optional cleanup
END-EXEC.
EXEC CICS DISCARD JOURNALNAME('FWDLOG')
END-EXEC.

**Note:** You could also define the required JOURNALMODEL resource definition in the CSD and install it in the usual way, but the above method shows how you can achieve the required result dynamically within an application program. Also, this method guarantees that your application program references the correct forward recovery log stream defined for the data set, as defined to VSAM.
Log manager record formats

All record formats written by the CICS log manager are different from the record formats written by the CICS journal control program of earlier releases.

You can continue to use either the CICS-supplied utility program (DFHJUP) or your own utility programs to process journal records written to MVS logger log streams. To enable you to do this, DFHLG510, the CICS-supplied subsystem interface exit routine for the system logger, provides a compatibility option. If you specify the COMPAT41 option, DFHLG510 converts log stream records into the same format as records written by the CICS journal control program of earlier releases.

Data for some of the old-format fields does not exist in the new record formats (such as volume creation date) and therefore is not available for conversion. These fields are presented as X’00’ values, and are shown in Table 29. There are also some equated values for flag bytes that are obsolete.

Table 29. Obsolete fields absent from converted journal records

<table>
<thead>
<tr>
<th>Field name</th>
<th>Field description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCLRFID</td>
<td>Journal file ID</td>
<td>The journal control label prefix</td>
</tr>
<tr>
<td>JCLRVCD</td>
<td>Volume creation date</td>
<td></td>
</tr>
<tr>
<td>JCLRVSNU</td>
<td>Volume sequence number</td>
<td></td>
</tr>
<tr>
<td>JCLRBW</td>
<td>Disk address of last block</td>
<td></td>
</tr>
<tr>
<td>JCLRTABL</td>
<td>Track balance</td>
<td></td>
</tr>
<tr>
<td>JCSPFS</td>
<td>Flag bytes, of which the following are obsolete:</td>
<td>The system prefix part of the record</td>
</tr>
<tr>
<td></td>
<td>JCSPDSP</td>
<td>DL/I checkpoint.</td>
</tr>
<tr>
<td></td>
<td>JCSPEMER</td>
<td>Written by EMER restart.</td>
</tr>
<tr>
<td></td>
<td>JCSPMIDT</td>
<td>Output-message in doubt.</td>
</tr>
<tr>
<td></td>
<td>JCPRRIF</td>
<td>DFHRUP record in-flight.</td>
</tr>
</tbody>
</table>

SMF format journal records

If you have application programs that write CICS journal records as SMF type 110 records to the SMF data sets, these are also written in a new format.

If you have utility programs that process journal data extracted from the SMF data sets, they must be modified to handle the new SMF type 110 (subtype 0) records written by the CICS log manager.

The two record sections can be mapped as follows:

DFHSMFDS

Use this copybook to map the SMF header and product sections. The copybook has minor modifications from the version supplied with the previous release. Reassemble your utility programs using the CICS SDFHMAC library to ensure that your program includes the correct version.

DFHLGGFD

This is the copybook for the record header and user header portions of journal records within the CICS data section. The format of these portions of the CICS data section is incompatible with earlier releases, and you must modify your utility programs to handle correctly the new records.
Fallback planning

Before you migrate a production region, you should prepare a plan for reverting to your earlier release level if, for reasons connected with the MVS system logger or RLS, you are unable to continue. Some considerations for such fallback planning are discussed in Chapter 20, “Fallback planning considerations” on page 189.

Remote site recovery

A consequence of CICS using the MVS system logger is that some earlier methods of disaster recovery must change. New products are available that increase the options for disaster recover.

The CICS log manager and disaster recovery

The CICS Recovery and Restart Guide discusses a blueprint for disaster recovery planning, which outlines a scheme consisting of six tiers of recoverability. Tiers 1-6 all work for CICS 4.1 and earlier releases. However, disaster recovery methods that rely on transmitting forward recovery or system log records to a remote site are affected by CICS log manager and its dependence on the MVS system logger.

Exit changes

The XJCWB exit, which is used by disaster recovery products to intercept log records for transmission to a remote site, is withdrawn. The function available in XJCWB is now provided by MVS system logger export/import services in z/OS.

MVS system logger recovery support

The MVS system logger provides support that enables a recovery resource manager to be associated with a log stream (that is, a local recovery resource manager operating on behalf of a remote site). The name of the recovery resource manager is specified when a new log stream definition is created or an existing log stream definition is updated. When a recovery resource manager connects to the log stream, through the IXGCONN service, it requests that a resource manager-owned exit be given control when specified events occur. When the specified events occur, the MVS system logger invokes the resource manager-specified exit and passes it details of the event. It is then the responsibility of the recovery resource manager to transmit log records to a remote site.

The remote site needs the ability to import log streams that are transmitted by the recovery resource manager, and this import service is also being provided by MVS system logger services. Importation is the process whereby log blocks resident in one log stream (the source log stream) are created in (or copied into) another log stream (the target log stream) while maintaining (in the target log stream) the same MVS system logger-assigned log block id and GMT time stamp that is assigned to the source log stream. The result of a log stream import is a copy of the source log stream in the target log stream.

For more information about disaster recovery, see the CICS Recovery and Restart Guide.
Chapter 15. Migration planning for the recovery manager

This chapter discusses some changes introduced by the CICS recovery manager that could affect your migration. It covers the following topics:

- "Recoverable resources and shunted units of work"
- "Changes affecting the CICS catalog" on page 160
- "Changes to the startup process" on page 163
- "Terminal control changes to installing pipelines" on page 165
- "Changes to shutdown" on page 166
- "Changes to actions taken at transaction failure" on page 167

Recoverable resources and shunted units of work

One of the most significant changes introduced by the CICS recovery manager is the way that CICS manages unit of work failures that occur during the syncpoint process.

If a unit of work that has updated recoverable resources fails in-flight, CICS recovery manager automatically backs out the changes, restoring the resources to the state they were in at the start of the unit of work, just as in earlier releases. However, if the unit of work fails sometime during the syncpoint process (or during backout or commit processing) the CICS recovery manager shunts the unit of work, in which state it waits until the syncpoint can be completed successfully.

The CICS recovery manager provides a number of benefits in the management of units of work, and unit of work recovery, see "Benefits of the CICS recovery manager" However, you need to understand the concept of shunting, and the consequent locking of recoverable resources, in order to minimize the migration impact.

Benefits of the CICS recovery manager

The CICS Transaction Server for OS/390 Release Guide for releases 1 and 2 describes these as:

- Complete coordination of updates between multiple file-owning regions or between a file-owning region and a database manager, such as DB2.
- Full two-phase commit protocols to ensure that in-doubt failures are always resolved correctly across an LU6.2 network.
- The ability to develop distributed applications without the need to write additional application code to deal with update synchronization and in-doubt problems.
- Reduced system log I/O and improved performance through the use of "presumed abort" protocols for LU6.2 and MRO.
- Improved restart times resulting from parallel backout during emergency restart.
- Online resolution of file backout failures. Transactions can access all but the directly affected records, allowing the option of continuing to use the file if the damage is localized. Transient or easily remedied failures can be resolved without taking the file offline.
- New operator and administrator interfaces for displaying and manipulating the state of transactions that own locked resources.
- Improved trace, dump, messages, and serviceability features.
Shunted units of work

A shunted UOW is one that is awaiting resolution of an in-doubt failure, or a commit failure, or a backout failure. Shunting means that CICS retains information on the system log about the UOW failure. CICS recovery manager uses this information when it attempts to complete a shunted UOW (for example, during the next restart of the CICS region) when the cause of the failure that caused it to be shunted may have been resolved.

A UOW can be unshunted and then shunted again (in theory, any number of times).

One of the main consequences of a UOW failure is that any locks held by that UOW against recoverable resources, by either CICS or SMSVSAM, are converted into retained locks. The locks are converted to ensure that other units trying to access the recoverable resources do not wait. (An important characteristic of active and retained locks is that they determine whether or not a task must wait for a lock. A request for a lock is rejected immediately (with a LOCKED condition) if there is a retained lock against the requested resource. In the case of an active lock, another task can wait for the lock until the first task releases the lock.)

The commonest type of shunted unit of work is likely to be an indoubt-failed unit of work, caused by a loss of connectivity resulting from either the failure of a CICS region, or a network failure. Note that when a unit of work fails while in the in-doubt state, it is shunted to wait for resolution of the in-doubt failure only if the transaction resource definition indoubt attributes specify WAIT(YES). When you specify the indoubt attributes for a transaction, you make a choice between data integrity and resource availability:

- If you specify that a unit of work must wait for resynchronization with the coordinator, data integrity is preserved, but resources are locked and unavailable to other transactions.
- If you specify that a unit of work is not to wait, or is to wait only for a defined period, you must also specify whether CICS is to back out or commit the changes, to enable the unit of work to complete, with a possible loss of data integrity. Whatever you specify as the action CICS is to take, there is always a risk that it will be inconsistent with the coordinator's decision.

See [Effect of the in-doubt attribute default values” on page 46](#) for more information.

The following topics about unit of work failures deal with:

- In-doubt resolution
- Notification of shunted units of work

In-doubt resolution

In earlier CICS releases, if a transaction that fails while in doubt is defined with INDOUBT(WAIT), its recoverable resources wait for, and comply with, the failed partner’s resolution, only if all the following apply:

- The transaction (rather than its remote partner) has issued the syncpoint request (through either an EXEC CICS SYNCPPOINT or an EXEC CICS RETURN command).
- The transaction has only one intercommunication session active at the time of the syncpoint.
- That session is LU6.1 or LU6.2 (not MRO).
- The recoverable resources are temporary storage queues.
Now, all recoverable resources can wait for in-doubt resolution, except when:

- The transaction definition specifies WAIT(NO).
- The transaction has subordinate MRO sessions to back-level regions.
- The transaction has LU6.1 subordinate sessions. (Note that, in this context, LU6.1 IMS sessions are not subordinates.)
- The transaction involves task-related user exits that are not enabled to support the new in-doubt wait protocols.
- The unit of work has updated a recoverable transient data destination that is defined with WAIT(NO).
- The recoverable resources are managed by a resource manager that does not support waiting for in-doubt resolution. This means any resource manager except the following:
  - CICS file control
  - DBCTL
  - DB2
  - Temporary storage domain
  - CICS transient data program
  - MQSeries for MVS/ESA

See the CICS Intercommunication Guide for information about recovery from communication failures and in-doubt units of work.

See also the CICS Recovery and Restart Guide for an example of how to investigate shunted in-doubt units of work using the CICS system programming interface.

**Notification of shunted units of work**

CICS issues a message whenever a unit of work is shunted. Then at shutdown, CICS provides information about shunted units of work in a summary, produced by the CICS shutdown-assist transaction, CESD.

At startup, CICS retries any backout-failed or commit-failed shunted units of work automatically, and if they fail again (perhaps because the original cause of the failure has not been resolved), CICS issues the appropriate messages. Shunted in-doubt units of work are retried only when CICS reacquires the connection to the coordinator and the decision whether to commit or back out is determined.

In the following examples, the backout failures occurred when some new records added to an ESDS data set had to be backed out. Because the access method does not support the physical deletion of data, CICS tries to invoke an XFCLDEL global user exit program to mark the records as logically deleted. If CICS finds that there is no program enabled at this exit point to handle the logical deletion, it shunts the unit of work as backout-failed.

The first example shows the summary information provided at shutdown by CESD, the CICS-supplied shutdown-assist transaction:
The next example shows the information provided by file control as a result of the backout failure on an ESDS:

```
CICSHT61 CICS for MVS/ESA is being quiesced by userid BELL in transaction SHUT
I  CICSHT61 CICS is quiescing.
I  CICSHT61 All non-system tasks have been successfully terminated.
CICSHT61 SHUTDOWN ASSIST TRANSACTION CESD STARTING. SHUTDOWN IS NORMAL.
CICSHT61 LIST OF SHUNTED UNITS OF WORK IN THE SYSTEM FOLLOWS.
CICSHT61 SHUNTED TRANSACTION CECI, TERMID 944D, UNIT OF WORK AC41A8B73730204
CICSHT61 SHUNTED TRANSACTION CECI, TERMID 944D, UNIT OF WORK AC41A8AFDF433405
I  CICSHT61 Termination of VTAM sessions beginning
CICSHT61 VTAM ACB is closed
CICSHT61 There are 0 indoubt, 0 commit-failed and 2 backout-failed UOWs
CICSHT61 Recovery manager has successfully quiesced.
```

You should develop procedures for handling the kinds of failures that cause shunted units of work, so that you minimize the impact of recoverable resources being unavailable to other transactions because of retained locks.

You also need to be aware that, if a transaction attempts to access a resource that is protected by a retained lock, CICS returns the LOCKED condition, which your transactions may not be capable of handling. See "The API and the recovery manager domain" on page 69 for more information about the locked condition.

### Connected systems

The introduction of the CICS recovery manager affects interconnected systems and intersystem communication, with changes to:

- CICS bind and resynchronization protocols
- The exchange lognames process
- The resource manager interface (RMI).

### CICS bind and resynchronization protocols

The support for in-doubt units of work introduces changes to the bind and resynchronization protocols used by the MRO and LU6.2 communications managers to communicate with connected systems.

These changes are designed to enable connected systems to switch between old and new protocols across restarts. For example, if CICSA and CICSB are both CICS TS regions, CICSB can be shut down and can perform a cold start using an earlier release. In this case, CICSA reverts to using the old bind and resynchronization protocols. CICSB can then be shut down again and can perform an initial start using CICS TS, whereupon the new protocols are resumed. In this scenario, resynchronization information about in-doubt units of work in CICSB is lost on each restart.

LU6.1 protocols are not changed by the enhanced in-doubt support. Therefore, there are no new restrictions on the release levels and capabilities of connected LU6.1 systems.
The exchange lognames process
Lognames are used by CICS to verify the resynchronization process when CICS systems reconnect. An exchange lognames failure in a CICS TS region can occur for one of the following reasons:

- A cold start of a CICS region at an earlier release level that is connected to the local CICS TS region (known as a “cold/hot” log mismatch).
- An initial start of a CICS TS region that is connected to another CICS TS region (also known as a “cold/hot” log mismatch).

**Note:** A cold start of a CICS TS region preserves resynchronization information (including the logname token) and does not, therefore, cause exchange logname failure with another connected CICS TS region.

- Use of the CEMT SET CONNECTION NORECOVDAT command.

In earlier releases of CICS, an exchange lognames failure for an APPC connection prevents further synclevel 2 work until the connection is set NOTPENDING. The setting of the connection NOTPENDING has the effect of deleting any outstanding resynchronization information.

There are important differences in the exchange lognames process in CICS Transaction Server, described in the following sections:

**Exchange lognames for MRO:** The process is extended to MRO connections but with one important difference to the process used for APPC connections: after a lognames mismatch, MRO connections can continue to be used fully.

**Setting a connection NOTPENDING:** The effect of setting a connection NOTPENDING is more significant than in earlier releases. Earlier releases of CICS do not support shunting. Therefore, the resynchronization information that was lost as a result of setting a connection NOTPENDING is limited to decisions that have already been made on whether to commit or back out particular UOWs. Resynchronization information can include shunted in-doubt UOWs. The effect of setting a connection NOTPENDING is to force these in-doubt UOWs to commit or back out.

**The new exchange logname action option (XLNACTION):** The XLNACTION option on the CONNECTION definition is introduced to specify what action CICS is to take when a new logname is received from a partner system. It is possible to keep resynchronization information by specifying XLNACTION(KEEP). The alternative is to delete the information and take predefined decisions for in-doubt UOWs by specifying XLNACTION(FORCE).

The choice of XLNACTION is a trade-off between data integrity and resource availability. An XLNACTION of KEEP allows in-doubt UOWs to be investigated following an exchange lognames failure, so that manual decisions can be taken on whether to commit or back out in-doubt resources. (See the CICS Intercommunication Guide for an example of how to investigate an exchange lognames failure.) However, recoverable resources remain locked until manual intervention is taken and APPC connections are not available until the connection is set NOTPENDING.

An XLNACTION of FORCE may not preserve data integrity following an exchange log names failure but it does free the indoubt resources immediately and allow new work to start on an APPC connection.
The use of XLNACTION(FORCE) is an alternative to the method of using an automated operator for setting connections NOTPENDING.

Cold/hot log mismatches can mostly be avoided by having sensible CICS shutdown and startup procedures. In particular, you should avoid:

- Cold-starting earlier CICS regions when they have outstanding resynchronization information for partner CICS TS regions
- Initial-starting CICS TS regions when they have outstanding resynchronization information for partner systems
- Uncontrolled use of the SET CONNECTION NORECOVDATA command.

For more information about the exchange log names process, see the CICS Intercommunication Guide.

The resource manager interface (RMI)
The RMI is enhanced to exploit the new in-doubt support provided by CICS. The enhancement allows CICS to notify the resource manager to wait for in-doubt resolution in the event of a unit of work failure.

Resource managers that do not use the new RMI support are treated as in earlier releases, which means that the decision on the action be taken in an in-doubt situation has been predefined. A consequence of this is that if a UOW accesses a resource manager through the RMI, and that resource manager’s adapter does not use the CICS RMI in-doubt support, the predefined decision is applied to all resources (both local and remote) for that UOW.

Changes to the RMI architecture enable task-related user exits to switch between the old and new protocols for the purpose of fallback. This enables you to revert to an earlier version of an external resource manager, and its adapter, that does not support the INDOUBTWAIT option, having previously run with an adapter that does support INDOUBTWAIT.

Changes affecting the CICS catalog

There is a change to the management of the CICS global catalog data set.

With the introduction of the CICS recovery manager, the global catalog is essential for recovery purposes. Failures that in earlier releases might have resulted in only a warning message cause CICS to terminate. Define your global catalog with enough space, and with secondary extents, to ensure it won’t fill.

Initializing the global catalog data set

There is a change to the way you must initialize the global catalog data set (GCD) if you are running CICS with either START=COLD or START=AUTO. When you have defined a new GCD, initialize it using the recovery manager utility program, DFHRMUTL, and use the SET_AUTO_START parameter to specify an initial start with the AUTOINIT option. An initial start is the only kind of start you can perform with a newly-defined GCD.

The following are some of the results of trying to start CICS without initializing the GCD with DFHRMUTL:

- If you try to start CICS with a newly-defined GCD that is empty, for all types of start (WARM, COLD, or INITIAL) CICS issues message DFHCC0100 stating there is a global catalog initialization failure, and abends.
If you initialize the global catalog with a low-values record as in earlier releases, and try to start CICS with START=AUTO, CICS issues message DFHRM0134 stating that it can’t find the recovery manager control record, and abends.

In earlier releases, initializing the GCD with a low-values record causes CICS to force a cold start.

If you initialize the global catalog with a low-values record as in earlier releases, and try to start CICS with START=COLD, CICS issues message DFHRM0146 stating that the GCD recovery data is not found, and that system log data will be lost. This write-to-operator-with-reply (WTOR) message prompts the operator for a GO or CANCEL reply. If the reply is GO, CICS forces an initial start.

If you initialize the global catalog with a low-values record, as in earlier releases, and start CICS with START=INITIAL, CICS performs an initial start. However, this requires you to change your START parameter in your JCL if subsequently you want to run CICS with START=AUTO.

The recommended method for starting production CICS regions is to specify START=AUTO as a system initialization parameter in the SYSIN data set (or in the startup JCL), and use DFHRMUTL to specify an initial (or cold) start when necessary.

See Figure 7 on page 162 for some sample JCL that you can use to create your catalog data sets.
DELETE EXEC PGM=IDCAMS,REGION=1M  
SYSPRINT DD SYSOUT=*
SYSIN DD *
DELETE CICS510.CICSHT61.DFHGCD
DELETE CICS510.CICSHT61.DFHLCD
/*
DEFINE EXEC PGM=IDCAMS,REGION=1M  
SYSPRINT DD SYSOUT=*
SYSIN DD *
/*
/* DEFINE A CICS GLOBAL CATALOG */
/*
DEFINE CLUSTER(NAME('CICS510.CICSHT61.DFHGCD')-  
   INDEXED -  
   CYL(1 1)-  
   SHR(2)-  
   FREESPACES(10 10)-  
   REUSE -  
   VOLUMES(SYSDA)) -  
   DATA(NAME('CICS510.CICSHT61.DFHGCD.DAT')-  
   CISZ(8192)-  
   KEYS(28 0)) -  
   INDEX(NAME('CICS510.CICSHT61.DFHGCD.INDEX')-  
   IMBED -  
   REPLICATE)
/*
/* DEFINE A CICS LOCAL CATALOG */
/*
DEFINE CLUSTER(NAME('CICS510.CICSHT61.DFHLCD')-  
   INDEXED -  
   TRK(5 1)-  
   SHR(2)-  
   FREESPACES(10 10)-  
   REUSE -  
   VOLUMES(SYSDA)) -  
   DATA(NAME('CICS510.CICSHT61.DFHLCD.DAT')-  
   KEYS(28 0)-  
   RECORDSIZE(90 250)-  
   CISZ(2048)) -  
   INDEX(NAME('CICS510.CICSHT61.DFHLCD.INDEX')-  
   IMBED -  
   REPLICATE)
/*

Figure 7. Sample job for defining and initializing catalog data sets (Part 1 of 2). Using this job enables CICS to perform an INITIAL start, even with START=AUTO specified.
Modifying the type of start

The DFHRMUTL utility program enables you to modify the effect of START=AUTO by setting an appropriate value in an autostart record in the CICS global catalog. This autostart record has the effect of overriding the type-of-start indicator in the recovery manager’s control record when START=AUTO is specified. You can specify the following values on the SET_AUTO_START parameter:

- **AUTOINIT**
  Specifies an initial start. All cataloged data and system log data from a previous run is lost.

- **AUTOCOLD**
  Specifies a cold start. All resource definitions are reinstalled from the CSD and control tables (if any).

- **AUTOASIS**
  Specifies that CICS is to start according to the recovery manager’s control record.

If you specify SET_AUTO_START=AUTOCOLD, you can also specify the COLD_COPY option to indicate that you want the utility program to delete all unwanted resource definition records from the global catalog. COLD_COPY retains only those records needed for resynchronization with remote partners, and purges all other data. This improves cold start times by ensuring that CICS does not have to purge all unwanted records during initialization before performing the cold start. Note that the advice given in the Performance Guide for earlier releases, that you should delete and reinitialize the catalog data sets to improve cold start times, is obsolete. Do not delete and reinitialize a global catalog to perform a cold start.

See the [CICS Operations and Utilities Guide](#) for information about the DFHRMUTL recovery manager utility program.

Changes to the startup process

There are changes to the startup processes in CICS, with the introduction of a new startup option, INITIAL, and changes to cold, auto, and emergency starts. Also, the resolution of an autostart can be modified by running the DFHRMUTL utility program.
Initial starts

You can specify an initial start in one of two ways:
1. As a system initialization parameter using the START=INITIAL parameter
2. As an autostart override, specifying the AUTOINIT parameter to DFHRMUTL.

There are two situations in which you would specify an initial start:
1. When starting a new CICS region for the first time, with a new system log and
   new catalog data sets.
   In this situation:
   a. Define the new system log.
   b. Define the catalog sets.
   c. Initialize the local catalog using DFHCCUTL.
   d. Initialize the global catalog with AUTOINIT specified to DFHRMUTL.
   e. Specify START=AUTO as a system initialization parameter.

2. When some kind of severe and unrecoverable error affects either the system
   log or one of the catalog data sets.
   In this situation, you need to:
   • Investigate the problem with the system log, redefining it if necessary.
   • Investigate the problem with the catalogs, redefining them if necessary.
   • Run DFHRMUTL, specifying SET_AUTO_START=AUTOINIT.

   If the system log and catalog data sets are not damaged, and the problem is
   caused by unrecoverable data errors, you need only run DFHRMUTL to specify
   an initial start. You do not need to redefine the data sets or log stream.

Cold starts

In a cold start, some information from the previous run is preserved in both the
global catalog and the system log. The purpose of the change is to allow a local
CICS region to perform a cold start with regard to all local resources, while at the
same time appearing to perform a warm start to any remote partners to which it
was connected during the previous run. This means that during a cold start CICS
preserves all the information needed for resynchronization with its remote partners.

START=COLD now means that:
• CICS initializes using resource definitions from the CSD, as specified on the
  GRPLIST system initialization parameter, ignoring any previously installed
  resource definitions saved in the global catalog, and ignoring any warm keypoint
  information in the system log. CICS also installs the control tables specified by
  system initialization parameters.

• Recovery information relating to remote systems or to RMI-connected resource
  managers is preserved. CICS scans the system log during startup, and any
  information regarding unit of work obligations to remote systems, or to non-CICS
  resource managers (such as DB2) connected through the RMI, is preserved.
  (That is, any decisions about the outcome of local UOWs, needed to allow
  remote systems or RMI resource managers to resynchronize their resources, are
  preserved.) However, the following are not preserved:
  – Updates to local resources that were not fully committed or backed out during
    the previous execution of CICS. In particular, although remote systems may
    resynchronize their units of work successfully, local resources updated in
    those distributed units of work are not recovered at a cold start, even if the
    updates were part of a distributed unit of work.
  – Recovery information for remote systems connected by LU6.1 links, or for
    CICS regions at an earlier release level that are connected by MRO links.
For more information about performing a cold start, and when it is safe to do so, see the CICS Intercommunication Guide.

Autostarts

Another consequence of the changes to CICS startup is the effect on START=AUTO. If you have newly-created catalog data sets, you must use DFHRMUTL to initialize the global catalog. If you initialize the GCD as in earlier releases with a low-values record, CICS abends during initialization if you specify START=AUTO. For more information, see “Initializing the global catalog data set” on page 160.

In earlier releases, CICS determines the type of start to perform when you specify START=AUTO by reference to the control record in the global catalog. The state of this record, now the recovery manager’s control record, can be overridden by running DFHRMUTL, specifying the SET_AUTO_START parameter. This means that you do not need to modify your JCL to change the CICS START system initialization parameter. You can leave system initialization parameter set as START=AUTO, and use DFHRMUTL whenever you need to override the start type. See “Modifying the type of start” on page 163.

Emergency starts

CICS shunts the units-of-work of transactions that fail in-flight as a result of an immediate or abnormal termination of CICS. The way recovery manager handles the backout of these shunted UOWs during an emergency restart is different from earlier releases.

When CICS has completed its emergency restart, recovery manager unshunts the failed UOWs, and reattaches new tasks to perform any necessary backout. This work takes place after CICS has issued message DFHSI1517 (Control is being given to CICS), which means that backout occurs concurrently with any new work that arrives in the region. Thus, there is no distinction between dynamic transaction backout and transaction backout that occurs during a CICS emergency restart—all transaction backout is handled in the same way by recovery manager.

Restart data set, DFHRSD, obsolete

During an emergency restart, recovery manager retrieves the shunted UOWs directly from the system log, and does not need an intermediate data set, such as the restart data set (DFHRSD). This means the DFHRSD data set is redundant, and is not required in CICS TS.

Terminal control changes to installing pipelines

A pipeline and its related terminals are treated as a logical set of resources while they are being installed or deleted. However, for compatibility with earlier CICS releases, pipeline terminals are treated differently for the discard and reinstall operations, as follows:

- An install of a pipeline terminal that names a pipeline that already exists causes both the old pipeline and all its related terminals to be deleted before the new definitions are installed.
- If the terminal that is defined as owning the existing pipeline is discarded, the existing pipeline and all its related terminals are deleted.
- If a terminal that is not the pipeline owner is discarded or changed to a different pipeline, or to a non-pipeline terminal, the rest of the pipeline definition is unchanged.
You cannot change a terminal in an existing pipeline to a non-pipeline terminal, or change it to a new pipeline, if the old pipeline is also being reinstalled in the same group. To do this you must perform the install in two stages. In this case, when installing the group twice, remember to set the relevant terminals out of service in the meantime.

**Notes:**

1. Terminals are related to a pipeline by:
   a. A TYPETERM resource definition that specifies SESSIONTYPE(PIPELINE) and DEVICE(3600) or DEVICE(3650) to indicate a pipeline device.
   b. A TERMINAL resource definition that specifies the pipeline name on the POOL attribute.

2. The owning terminal of a pipeline is the first terminal installed in the pipeline group. This is the terminal with the first name in alphanumeric sequence that is related to the pipeline in the CSD group from which the pipeline was installed.

### Changes to shutdown

There are changes to CICS shutdown whereby you can specify on the SDTRAN system initialization parameter a transaction to assist with the shutdown process. The default is a CICS-supplied transaction called CESD.

The CICS shutdown-assist transaction is designed to make normal shutdown quicker and more likely to succeed than in earlier releases, where long-running (or hung) transactions can prevent shutdown completing normally. You are recommended to use a normal shutdown as far as possible. The need for an immediate shutdown is reduced because of the actions taken by CESD, which ensures that a normal shutdown succeeds.

An immediate shutdown (PERFORM SHUT IMMEDIATE) can be appropriate in the case where you need VTAM persistent sessions support. For example, if you have a large number of users logged on, and you need to stop and restart CICS, terminal sessions are preserved if you perform an immediate shutdown, but not for a normal shutdown. An immediate shutdown may also be slightly quicker than a normal shutdown using CESD.

The new shutdown process reduces the risk of locks being retained, because CICS backs out any in-flight tasks.

You are recommended *not* to terminate CICS by using the MVS CANCEL command, because this does not allow the CICS recovery manager to back out in-flight units of work. A consequence of cancelling a CICS region is that active locks held by in-flight tasks at the time of the CANCEL are converted into retained locks. In an RLS environment, this not only prevents other CICS regions from accessing the locked data, but also prevents batch jobs from opening the data sets affected by retained locks.

See the [CICS Operations and Utilities Guide](#) for information about the assisted-shutdown process provided by transaction CESD.
Changes to actions taken at transaction failure

There is a change to the way in which the user-replaceable program error program, DFHPEP, is called. In CICS/ESA 4.1 and earlier, DFHPEP is given control through a LINK from the CICS abnormal condition program. This occurs after all program-level abend exit code has been executed by the task that abnormally terminates, and after dynamic transaction backout (if any) has been performed.

With the introduction of the CICS recovery manager, this is changed. DFHPEP is now called from the transaction failure program, DFHTFP, and the call occurs after all program-level abend exit code has been executed by the task that abnormally terminates, but before any dynamic backout takes place. The change to calling DFHPEP before dynamic transaction backout has taken place could affect the operation of a user-written DFHPEP. Review the logic of your customized DFHPEP and modify it to handle this change.
Chapter 16. Migration planning for VSAM record-level sharing (RLS)

This chapter discusses planning for migration from a CICS configuration that uses one or more CICS file-owning regions (FORs) in order to share VSAM files, to a VSAM record-level sharing environment. It covers the following topics:

- Requirements for RLS
- Data set eligibility
- Read integrity on page 170
- The LOCKED exception condition on page 170
- Controlling switching between RLS mode and non-RLS mode access on page 171
- Defining the coupling facility structures on page 172
- Defining the sharing control data sets on page 173
- Defining SMS storage classes on page 173
- Defining IGDSMSxx parameters in SYS1.PARMLIB on page 174
- Changes to deadlock detection on page 174
- Defining recovery attributes on page 174
- Planning migration and coexistence on page 176
- Fallback planning on page 177

Requirements for RLS

There are minimum coupling facility and software requirements for RLS.

Coupling Facility Requirements

VSAM record-level sharing requires a coupling facility running coupling facility control code (CFCC) at CFLEVEL=2.

For information about the coupling facility and CFLEVEL, see the PR/SM Planning Guide.

DFSMS/MVS

You need DFSMS/MVS Version 1 Release 3 for VSAM record-level sharing.

Data set eligibility

Any VSAM data set supported and managed by CICS file control is eligible to be opened in RLS mode, including the CICS system definition (CSD) data set, subject to the restrictions described under Restrictions for data sets defined with IMBED.

This includes data sets that have an associated user-maintained shared data table, but not CICS-maintained shared data tables.

The CICS auxiliary temporary storage data set (DFHTEMP) and the CICS transient data intrapartition data set (DFHINTRA) are not eligible for RLS-mode access.

Restrictions for data sets defined with IMBED

You cannot specify RLS access for data sets defined with the IMBED option. If you have data sets that are defined with IMBED, and you want to use them in RLS access mode, you must:

1. Redefine the data sets without the IMBED option
2. Copy the old data set to the new using the IDCAMS REPRO function.
You can then use the new data set in RLS mode.

When reviewing your data sets for RLS eligibility, you should also reconsider the use of the REPLICATE option. Although REPLICATE is supported by RLS, it does not provide any performance benefit, and can be omitted without penalty. Not using replication should save a little space on DASD.

Choosing between RLS-mode and non-RLS mode

You should specify RLSACCESS(YES) on resource definitions only when you need to share the referenced data set between more than one CICS region.

The following are some considerations you should think about when you are deciding whether data sets are good candidates for RLS access:

- If you have data sets that are used within a single MVS image, and whose access characteristics make them suitable for use as shared data tables, CICS shared data table support will give you the greatest benefit. (See the CICS Shared Data Tables Guide.)
- If you have data (primarily read-only) that you want to access from multiple MVS images in a sysplex, you might be able to exploit some of the benefits of shared data tables support by replicating user-maintained data tables across the sysplex. (See the CICS Shared Data Tables Guide.)
- If you have data sets that are referenced by file definitions in only one CICS region, you should continue to use those data sets in non-RLS access mode.
- If you have data sets accessed through an FOR, to which you function ship requests from multiple AORs in the same sysplex, you should switch to RLS access mode, making the FOR redundant.
- If you are moving to a parallel environment, and want to create many instances of a CICS region that is currently an AOR/FOR, you should switch to RLS access mode to enable the multiple AORs to share the data without the need for an FOR.

Read integrity

You can specify read integrity options for READ-only requests, either on the READ command or on the file control resource definition.

You are recommended to specify repeatable and consistent READs in your applications only when they cannot tolerate “dirty” data. This is to avoid the potential locking overhead with the consequent increase in locking needed to ensure read integrity.

Before introducing read integrity, review your applications to see if read integrity is likely to introduce new deadlocks. See the CICS Application Programming Guide for information about the increased risk of deadlocks, particularly when defining read integrity on file resource definitions.

The LOCKED exception condition

Check your application programs to ensure that they can handle the retained lock exception condition (LOCKED). The default action by CICS for application programs that do not handle the LOCKED condition is to abend the task with an AEX8 abend code. However, it is possible that CICS could return the LOCKED condition but the...
task still not abend. This might be because it is not written correctly to handle
unknown or unexpected exception conditions, in which case the results could be
unpredictable.

See "The API and the recovery manager domain" on page 69 for more information
about how the locked condition could affect application programs.

**PLTPI programs and the LOCKED condition**

Program list table post initialization (PLTPI) programs that execute during the final
stages of CICS initialization can also be affected by the LOCKED condition. PLT
programs are no different from application programs if they attempt to access
resources protected by a retained lock. If the program is not written to handle a
LOCKED response, it abends AEX8. In this situation, a cold start may be required
to cause locks to be released and enable the PLT program to complete
successfully. CICS does not attempt to free retained locks until recovery manager
drives backout processing during the second phase of emergency restart, which
occurs concurrently with any new work in the region after control is given to CICS.

If successful completion of PLT processing is critical to the running of your CICS
applications, you may need to find an alternative way of completing the failed PLT
processing after emergency restart recovery is finished and locks have been
released.

See the [CICS Customization Guide](#) for information about possible solutions.

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**Controlling switching between RLS mode and non-RLS mode access**

VSAM allows a data set that is open in RLS mode to be opened in one of the
existing VSAM modes (NSR, LSR, and GSR), for [read-only](#) operations by another
user (mixed-mode access). However, although VSAM allows access in different
modes by different users, there are some restrictions within a CICS region. You can
open a file in RLS mode or non-RLS mode in a CICS region when the referenced
data set is already open in a different mode by another user (CICS region or batch
job), subject to VSAMs rules, but a data set cannot be open in different modes
concurrently within the same CICS region. This ensures that CICS maintains a
consistent view of data within the CICS region.

**Note:** Mixed-mode access was not supported in the GA version of DFSMS. To add
support for mixed-mode operation, apply the DFSMS PTFs for APARs
OW25251 and OW25252.

**General rule about switching opening modes**

As a general rule, you are recommended not to switch between RLS and non-RLS
within CICS. After a data set is accessed in RLS mode by CICS, it should always
be accessed in RLS mode by CICS. If you need to switch to non-RLS mode for
batch update processing, use the QUIESCE function. When you issue the
QUIESCE command in one CICS region, it is propagated throughout the CICSplex,
causing all CICS regions to close their RLS ACBs. When the quiesce operation is
completed by all CICS regions, you can run the non-RLS batch jobs (unless there
are retained locks; see [Resolving retained locks](#)).

**Switching modes exception for read-only operations**

There is an exception to the general rule about not switching between RLS and
non-RLS within CICS. You can switch to non-RLS access on a data set that is
normally opened in RLS mode provided access is restricted to read-only operations. You might want to do this, for example, to allow continued access for read-only transactions while the data set is being updated by a batch job. CICS and VSAM permit quiesced data sets to be opened in non-RLS mode, but you must ensure that CICS transactions do not update a data set that is being updated concurrently by a batch program.

The recommended procedure for providing CICS read access to a recoverable data set while it is being updated by a batch job is:

1. Resolve retained locks.
2. Quiesce the data sets.
3. Redefine the files as non-RLS and read-only mode in all relevant CICS regions. You can do this using the CEMT, or EXEC CICS, SET FILE command.

   **Note:** If your file definitions specify an LSRPOOLID that is built dynamically by CICS, consider using the RLSTOLSR system initialization parameter.

4. Open the files non-RLS read-only mode in CICS.
5. Concurrently, run batch non-RLS.
6. When batch work is finished:
   a. Close the read-only non-RLS mode files in CICS.
   b. Redefine the files as RLS mode and with update operations. You can do this using the CEMT, or EXEC CICS, SET FILE command.
   c. Unquiesce the data sets.
   d. Open the files in CICS, if not using open on first reference.
   e. Resume normal running.

You should also take data set copies for recovery purposes before and after a batch run as you would normally, regardless of whether you are switching from RLS to non-RLS access mode.

### Resolving retained locks

VSAM ensures that quiesced data sets can be opened only in non-RLS mode, but the quiesce operation does not guarantee that quiesced data sets can be opened by batch programs. If VSAM is holding any retained locks for a data set that is required by a batch program, the data set open request fails. CICS provides support to help you to resolve retained locks, in the form of SPI commands, and a suite of sample application programs that uses these commands.

You should set up your own procedures for dealing with retained locks, based on the procedures described in the [CICS Recovery and Restart Guide](#).

### Defining the coupling facility structures

You must define the structures required by VSAM in the coupling facility before you can use RLS. These are:

- Cache structures and cache sets
- Lock structure
- Structures for use by the CICS log manager

### Defining the cache structures and cache sets

When you are converting data sets to RLS access mode, you need to define cache structures in the coupling facility. You should define the size of each coupling facility
cache structure to provide approximately the same amount of space as that provided by the LSR pools and hiperspace used by the data sets that reference the cache structure. The structure should be at least large enough so that the coupling facility cache directory contains an entry for each of the RLS local buffers across all systems.

If you are using RLS to replace more than one file-owning region, the size of the cache should be at least as large as the sum of all the LSR pools being replaced.

You can have more than one cache structure defined within a cache set. This is of benefit because it can allow data sets to be reassigned to another cache in the event of a failure of the original cache.

For information about defining cache structures, see the DFSMS/MVS DFSMSdfp Storage Administration Reference SC26-4920.

Defining the lock structure

To use VSAM RLS, you must define a single, non-volatile, master coupling facility lock structure. This lock structure is used to maintain the record-level locks for all data sets accessed by CICS in RLS mode. You should ensure that the coupling facility lock structure is accessible from all MVS images in the sysplex that need to support VSAM RLS.

The coupling facility master lock structure is named IGWLOCK00. Use the XES coupling definition process to define it. To define the size of the coupling facility master lock structure, use the formula provided by VSAM in the DFSMS/MVS DFSMSdfp Storage Administration Reference.

Defining structures for use by the CICS log manager

When you move to an RLS environment from an environment in which multiple AORs have been accessing data sets in an FOR, the logging activity of the FOR is distributed across the AORs. The coupling facility structure size required by each AOR increases as a consequence of this. See the CICS Transaction Server for z/OS Installation Guide for details on how to calculate the increased structure space required by an AOR on such a move to RLS.

Defining the sharing control data sets

You must define at least two active sharing control data sets and one spare sharing control data set.

See the CICS Transaction Server for z/OS Installation Guide for information about defining these data sets.

Defining SMS storage classes

All data sets accessed in RLS mode must reside on SMS managed storage. Define the appropriate SMS storage classes for the data sets that you want to access in RLS mode.

For information about defining storage classes for VSAM RLS, see the DFSMS/MVS DFSMSdfp Storage Administration Reference.
Defining IGDSMSxx. parameters in SYS1.PARMLIB

You need to review the IGDSMSxx member on SYS1.PARMLIB and set appropriate values for the DEADLOCK_DETECTION, SMF_TIME, and CF_TIME parameters.

Changes to deadlock detection

For files opened in RLS mode, VSAM, and not CICS, is responsible for detecting deadlocks and timeout conditions, and for providing associated diagnostic information.

- VSAM detects and resolves deadlocks between RLS requests. A VSAM-detected deadlock causes CICS to abend the transaction with an AFCW abend code.
- VSAM detects timeouts that may have been caused by deadlocks between RLS and other resource managers, or caused by a single transaction holding a lock for an excessive amount of time.

For its timeout mechanism, VSAM uses a timeout interval value passed by CICS on the file request. VSAM returns a “timed-out” condition on any requests that wait for a lock for more than the timeout interval, causing CICS to abend the user task with an AFCV abend.

Although it is VSAM that implements the timeout mechanism, you define the timeout value to CICS. You do this using either:

- The DTIMOUT parameter on transaction resource definitions, or
- The CICS system initialization parameter, FTIMEOUT, to provide a global value for the CICS region.

A DTIMOUT value takes precedence over the global value.

Defining recovery attributes

To support RLS access, VSAM provides some new data set attributes for defining whether the data set is recoverable or non-recoverable. You specify these when you define (or alter) the data set cluster, and these attributes are stored in the ICF catalog. You can also define backup-while-open (BWO) and forward recovery options in the ICF catalog. For data sets that are being accessed in RLS mode, the recovery and BWO attributes must be defined in the ICF catalog. If any of the new ICF attributes are also defined in the CICS file resource definition, they are ignored.

You can also use the ICF catalog to specify the recovery attributes for non-RLS files, in which case any equivalent information in CICS file resource definitions is ignored.

For large numbers of VSAM data sets, where some are accessed in RLS mode and some non-RLS, defining recovery attributes in two different places may add to the difficulty of data administration. In this case, you might want to keep things simple and define the recovery attributes for all files—RLS and non-RLS—in the ICF catalog.

The recovery-related parameters are:

- LOG((NONE|UNDO|ALL)), to specify whether the data set is not recoverable, backward recoverable, or backward and forward recoverable.
- LOGSTREAMID(name) to specify the forward recovery log stream name for data sets defined with LOG(ALL).
• BWO(TYPECICS) to specify BWO support.

For information about these parameters, which are available on the access method services DEFINE CLUSTER and ALTER commands, see *DFSMS/MVS Access Method Services for ICF* SC26-4906.
Planning migration and coexistence

You do not have to change your FOR for SMSVSAM, and migrate all your CICS/ESA 4.1 regions to CICS Transaction Server regions, all at the same time. You can migrate progressively, especially during the test and development phases before cut-over into production.

For example, if you currently have a number of CICS/ESA 4.1 regions that access their VSAM files through a CICS/ESA 4.1 file-owning region, one migration approach is as follows:

1. Begin by migrating the FOR to a CICS Transaction Server region.
2. Leave the AORS at the CICS 4.1 level, continuing to function ship file control requests to the new FOR. Initially, the new FOR can continue using VSAM files in non-RLS mode.
3. When you are satisfied that the CICS Transaction Server region is functioning correctly in this mode, redefine the files as RLSACCESS(YES). The AORs continue to function ship their file requests, but the FOR actually uses SMSVSAM to access the data sets.
4. You can now progressively migrate the AORs to CICS Transaction Server for OS/390 Release 1, changing the remote file definitions to local file definitions, and changing the RLSACCESS(NO) attribute to RLSACCESS(YES).

This gradual migration process is illustrated in Figure 8 on page 177. The diagram shows the point in the migration process when two of the AORS remain at the CICS/ESA 4.1 level and two are migrated to CICS Transaction Server. The VSAM files in the CICS/ESA 4.1 regions are defined as remote and file requests continue to be function shipped to the FOR. The AORs running under CICS Transaction Server access files directly in RLS mode through the services of SMSVSAM.

If you choose to migrate your CICS regions progressively along the lines discussed above, you are recommended to migrate the FOR before migrating the MRO-connected AORs. If you migrate the AORs first, and continue using the MRO-connected FOR at the old release level, you could incur significant additional overhead. This is because of extra logging that can occur in the AORs, depending on the nature of the units of work. You avoid this risk of increased overhead:

- If you migrate the FOR first
- If you migrate the FOR at the same time as the AORs
- If you use ISC links instead of MRO links.
Before you migrate a production region you should prepare a plan for reverting to your earlier release level if, for reasons connected with RLS or the MVS system logger, you are unable to continue. Some considerations for such fallback planning are discussed in Chapter 20, “Fallback planning considerations” on page 189.
Chapter 17. Migration planning for temporary storage data sharing

This chapter discusses some considerations for CICS temporary storage (TS) data sharing across the sysplex using TS data sharing servers. It covers the following topics:

- Overview
- "TS pools and the coupling facility"
- "The TS data sharing server" on page 180
- "Security" on page 180

Overview

CICS temporary storage data sharing provides multiregion access to nonrecoverable temporary storage queues. TS data sharing allows your CICS applications to access nonrecoverable TS from multiple CICS regions running on any MVS image within a sysplex. The ability to share TS queues within a sysplex simplifies the migration of existing CICS applications to a Parallel Sysplex environment.

You do not need to change your application programs to exploit TS data sharing. The TS data sharing facility is available through the CICS application programming interface (API) for temporary storage.

CICS uses the coupling facility to provide temporary storage data sharing.

TS pools and the coupling facility

CICS stores a set of TS queues that you want to share in a TS pool. Each TS pool corresponds to a coupling facility list structure defined in the CFRM policy.

You can create a single TS pool or multiple TS pools within the sysplex, to suit your requirements. For example:

- You can create separate pools for specific purposes—such as a TS pool for production, or a TS pool for test and development.
- You can create more than one production pool, particularly if you have more than one coupling facility and you want to allocate TS pool list structures to each coupling facility.

Defining shared TS queues

The addition of TS data sharing means there are now three types of TS queue. You can define your temporary storage queues as:

- Local queues
- Remote queues
- Shared queues.

All these types of TS queue can be supported concurrently.

You specify the pool for a set of remote TS queues in a CICS temporary storage table (TST) using the DFHTST TYPE=SHARED macro. The TYPE=SHARED entry in the TST maps a remote SYSIDNT specified in a TYPE=REMOTE entry to a TS
pool name. Thus, if a TS queue is defined as a remote queue in the temporary storage table, CICS checks for a corresponding SYSIDNT in a TYPE=SHARED entry to determine the TS pool name.

See the [CICS Resource Definition Guide](#) for information on how to define shared TS queues.

### The TS data sharing server

Access to a TS pool by CICS transactions running in an AOR is through a TS data sharing server that supports a named pool. In each MVS image in the sysplex, start one TS server for each pool that can be accessed from that MVS image. See the [CICS System Definition Guide](#) for information about how to set up and start TS servers.

All TS pool access is performed by cross-memory calls to the TS server for the named pool. An AOR can access more than one TS server concurrently. This multi-server access is required if you create multiple pools, because each TS server provides access to only one pool of TS queues.

The methods for specifying a TS pool make it easy to migrate queues from a QOR to a TS data-sharing pool. If you have a TYPE=REMOTE entry in the TST that specifies the SYSIDNT of a QOR, add a TYPE=SHARED entry, specifying a corresponding SYSIDNT and the name of the TS pool in which the queue resides.

You can also use the TS global user exit, XTSEREQ, to modify the SYSID on a TS request so that it references a TS data sharing pool. See the [CICS Customization Guide](#) for information about CICS temporary storage global user exits.

### The subsystem interface

CICS regions use MVS cross-memory connection services to access the TS data sharing servers. These services (authorized cross-memory (AXM) server environment services) are defined using the MVS subsystem interface (SSI). AXM uses the SSI definition to schedule initialization in the master scheduler address space. The MVS subsystem interface for AXM is not activated or used.

The AXM subsystem is normally defined in the IEFSSNxx member of SYS1.PARMLIB. This ensures that AXM system services are made available automatically at IPL.

See the [CICS System Definition Guide](#) for more information about setting up and starting TS servers.

### Security

Access to TS pools by CICS regions is controlled by an external security manager, which can be the OS/390 Security Server, RACF, or an external security manager that provides equivalent function.

The security checks are to ensure that:

- The TS server is authorized to access the TS pool structure in the coupling facility.
- The TS server is authorized to act as a server for the TS pool.
- The AOR issuing the request is authorized to attach to the TS server.
See the *CICS RACF Security Guide* for information about authorizing access to TS servers and TS pools.

The TS server does not perform security checks on individual requests. The AOR continues to be responsible for resource security checks if you need to control user access to temporary storage queues.
Chapter 18. Migration planning for VTAM generic resources

This chapter discusses planning for migration to the use of VTAM generic resources for APPC connections. It covers the following topics:

- Overview of changes to generic resource support
- Migrating from CICS for MVS/ESA 4.1 to CICS TS

Overview of changes to generic resource support

Support for VTAM generic resources was introduced in CICS for MVS/ESA 4.1. The changes in CICS TS are aimed mainly at improving the usability of generic resources with APPC (LU6.2) connections. The changes mean that:

- There is more flexibility in communicating by APPC links between generic resources in partner sysplexes:
  - Routing of connections between sysplexes is now controlled by CICS. This means that (for communication between generic resources):
    - There is no need to use “hubs”. (The use of hubs is described in the CICS Intercommunication Guide)
    - There is no need to code a generic resource resolution exit.
  - You can inquire on an APPC connection between generic resource sysplexes to see which member of the remote generic resource a local CICS TOR is in session with. The member name and generic resource name of the partner are displayed.

  Note that CICS has no direct knowledge of whether the partner system is a generic resource. It infers this from the two NETNAMEs that are sent with a BIND. If they are different, CICS treats the partner as a generic resource. Different names are also sent (and displayed) if the partner uses XRF.

- APPC connections to a generic resource that are initiated by the partner can log on using a member name, provided that the partner is always the primary on these sessions.

- Generic resource members can now use APPC, as well as MRO, connections within the CICSplex.

- You can explicitly end associations between a generic resource member and a partner LU that are not ended implicitly by VTAM.

  In CICS for MVS/ESA 4.1, after an APPC sync-level 2 limited resources, or LU6.1, connection to a generic resource member has been established, later reconnections are always routed back to the same TOR. It is not possible to remove one of these associations (or affinities) without rebuilding the ISTGENERIC table within the coupling facility. This is because VTAM does not end the affinity if there is a possibility that resynchronization data might be present. CICS TS allows you to end these affinities explicitly.

Migrating from CICS for MVS/ESA 4.1 to CICS TS

When you migrate a generic resource from CICS for MVS/ESA 4.1 to CICS TS, consider the following:

- None of the members of a generic resource benefit from the enhanced function of CICS TS until all members have been upgraded to CICS TS. In particular, until this is done, they have (as in CICS for MVS/ESA 4.1) to use a “hub” to communicate with generic resources in partner sysplexes.
• You may need to recode and recompile your autoinstall user program. For information about the new fields in the user program’s communications area, see the [CICS Customization Guide](#).

• The AIRDELAY and AILDELAY system initialization parameters now apply to APPC connections, as well as to terminals.

• You may need to code a batch program to end affinities owned by generic resource members that are out of service. For guidance on how to do this, see the [CICS Intercommunication Guide](#).

• Operators must be trained in the use of the new commands to end affinities between CICS systems. Operators should be made aware that:
  – There is no way of inquiring on affinities, and so it is not possible to be sure that affinities exist; but message DFHZC0177 is issued whenever there is a possibility that an affinity owned by CICS may have been created.
  – It is possible for an affinity to persist even after a connection has been deleted.
  – If a connection that owns an affinity is discarded, the affinity must be remembered because CICS does not keep a record.
  – The SET CONNECTION ENDAFFINITY command allows the affinity to be ended if the connection exists.
  – The PERFORM ENDAFFINITY command allows the affinity to be ended if the connection has been deleted, or if the NETID of the partner is not present in the connection.

Coexistence

In CICS TS it is possible for two sysplexes that both use generic resources to communicate over an APPC link without using “hubs” or coding a generic resource resolution exit. However, these solutions are still needed for other types of connection, or for communicating with back-level systems. See the [CICS Intercommunication Guide](#) for more information.
Chapter 19. Migration planning for multiregion operation (MRO)

This chapter covers migration for MRO users. It covers the following topics:

- "DFHIRP coexistence"
- "Migrating to the latest DFHIRP"
- "End-of-memory clean-up routine" on page 187

DFHIRP coexistence

To use CICS multiregion operation (MRO) support, install DFHIRP in the link pack area (LPA). DFHIRP can only be used from the LPA. This means that in an MVS image there can only be one version of the module named DFHIRP, which must be at the highest release level of the CICS regions that run in that MVS image.

Within a Parallel Sysplex®, where MRO communication between MVS images is through XCF/MRO, the DFHIRP programs installed in the different MVS images can be at different release levels. However, the DFHIRP in an MVS image must be installed from the highest release of CICS running in that MVS image. For example, a CICS/ESA Version 4 DFHIRP can communicate with a CICS Transaction Server DFHIRP across XCF/MRO, but the CICS regions running in the MVS with the Version 4 DFHIRP cannot be later than CICS/ESA Version 4. See Figure 9 on page 186 for an illustration of valid configurations for MRO with different levels of DFHIRP installed in the sysplex.

Migrating to the latest DFHIRP

The CICS TS DFHIRP is downward compatible, and designed to work with all releases of CICS.

The following steps are a guide to migrating to 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 SVC or IRP modules in the LPA, see the CICS Transaction Server for z/OS Installation Guide. Note that these steps assume that RACF® is your external security manager (ESM).

1. Install the CICS SVC
   Install the CICS TS SVC routine, DFHCSVC, in the LPA, and specify a new CICS SVC number for this routine in the MVS SVCPARM table. (If the new DFHCSVC has to coexist with an older version, rename one of them so that both versions can be installed in the LPA. However, this is not recommended or necessary: DFHCSVC is downward compatible and the latest CICS TS version supports all the earlier releases of CICS.)

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

3. Install the IRP
   Install the CICS TS 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 the new DFHIRP. For this test, run without any logon or bind-time security checking—that is, do not define any RACF FACILITY class profiles.

5. Define RACF FACILITY resource class profiles
Define the required DFHAPPL_appid 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.

6. Cutover to production with the new IRP
If the production MRO regions successfully log on to the new IRP with the new SVC, and bind-time security checking works successfully, use the new DFHIRP and SVC for the production regions.

7. Test MRO with CICS TS regions
With the production regions running successfully under the CICS TS SVC and IRP, you can initialize and test some CICS Transaction Server regions using MRO. These test regions can coexist in the same MVS image as the production regions, all using the same SVC and IRP.

**Note:** All the CICS regions in SYSPLEX1 shown in Figure 9 can communicate across MRO links, because the DFHIRP in each MVS supports XCF/MRO.
- In MVSA, DFHIRP must be at the CICS TS 2.2 level, because CICS TS 2.2 is the latest release in this MVS image.
- In MVSB, DFHIRP must be at the CICS TS 1.3 level, because CICS TS 1.3 is the latest release in MVSB.
- MVSC is running with the CICS/ESA 4.1 DFHIRP installed, because CICS/ESA 4.1 is the latest release of CICS MVSC.

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**Figure 9. Illustration of valid configurations using DFHIRP in a sysplex**
End-of-memory clean-up routine

An MRO end-of-memory clean-up routine, which is also used by console message-handling support, is no longer needed in DFHIRP. Because of this change in MRO, DFHSSEN, which is an alias of DFHIRP in earlier releases, is supplied as a separate module. Installing DFHSSEN in the LPA continues to be required for console message-handling support.

See the CICS Transaction Server for z/OS Installation Guide for more information about requirements for CICS console message-handling support.
Chapter 20. Fallback planning considerations

This chapter describes some procedures that you can adopt if you decide to convert a CICS TS region back to a previous release—a process referred to as "fallback". This discussion is about falling back from CICS TS to CICS 4.1, but similar considerations apply to falling back from CICS TS to any previous release.

It is assumes that, if fallback becomes necessary, it will take place during the migration phase, and that no new applications will have been written to use the new CICS facilities provided by CICS TS. If you have made application changes, you will have to consider backing off these changes as part of the fallback operation.

When planning for fallback, you should take the following factors into account:

- The log record formats are not compatible:
  - CICS for MVS/ESA 4.1 cannot read system log records written by a CICS TS region.
  - Forward recovery log records and autojournal records have a different format after the fallback from before.
- Log stream definitions need to be replaced by journal definitions.
- There are some CICS resource definition changes in CICS TS.
- CICS 4.1 does not support RLS.
- When a CICS TS region terminates it can leave on the system log not only in-flight units of work, but also shunted units of work (as a result of in-doubt failures, backout failures, and commit failures).

The topics covered are:
- "Suggested procedure for fallback"
- "Dealing with problems after following the recommended procedure" on page 192
- "Restrictions affecting fallback from DFSMS 1.3 to DFSMS 1.2" on page 192

Suggested procedure for fallback

This section describes the steps that you should take to fall back to CICS 4.1.

1. Resolve shunted units of work

   Ensure that there are no shunted units of work before you shut down a CICS TS region. Use the CEMT (or EXEC CICS) commands INQUIRE UOW, INQUIRE UOWDSNFAIL, and INQUIRE UOWLINK to find out whether there are any such units of work, and then take actions to resolve them, as follows:

   **Commit-failed units of work**

   The only resources in a CICS TS region that can be affected by a commit failure are VSAM data sets accessed in RLS mode. The failure is caused by an error when attempting to release RLS locks. The most likely reason for such an error is that the SMSVSAM server is unavailable (although it is in theory possible for the error to occur as a result of some more serious problem). The server normally restarts automatically, but if it does not you may need to take action to restart it. When the server becomes available again, CICS automatically retries the units of work, and the commits should succeed.

   **Backout-failed units of work**

   The only resources in a CICS TS region that cause a shunted backout-failed UOW are VSAM data sets. Before proceeding to fall back to
the earlier release of CICS, release the retained locks associated with any backout-failed UOWs. See the [CICS Recovery and Restart Guide](#) for information about resolving data set failures. The following are the possible consequences of not resolving data set backout failures:

- If none of the backout failures are for data sets opened in RLS access mode, you can start the CICS 4.1 region, but you lose the knowledge that the data set contained backout-failed updates, and your data is not consistent.

- If there are backout failures for data sets opened in RLS mode, SMSVSAM holds RLS retained locks associated with the data sets. By default, VSAM does not allow data sets to be opened for update by CICS 4.1 in non-RLS mode.

If you cannot resolve the failures without losing data integrity, you are recommended to use the CEMT (or EXEC CICS) SET DSNAME RESETLOCKS command before falling back to CICS 4.1. By using the SET DSNAME RESETLOCKS command, you get some diagnostic messages that CICS provides to help you to correct the data set. It also ensures that, for data sets accessed in RLS mode, SMSVSAM releases the RLS retained locks.

**In-doubt failed units of work**

Shunted in-doubt units of work are more likely than either backout-failed or commit-failed units of work. You should, if possible, resynchronize these units of work by resolving the connection or other failure that has caused them. See the [CICS Recovery and Restart Guide](#) for information about resolving in-doubt failures.

CICS 4.1 cannot reconstruct the units of work from the system log. Therefore, if you do not resolve all the in-doubt units of work, they become in effect committed, even if the correct decision for some of them was to back out. For this reason, you are recommended to force UOWs before shutting down the CICS TS region and falling back, especially if the units of work had updated any files. This action provides diagnostic messages, and ensures that any RLS retained locks are released.

**Outstanding units of work on the resource manager interface**

There could be units of work on resource manager interface (RMI) links (for example, with DBCTL, DB2, MQ, and so on) that are in commit, waiting, or backout-waiting states with a WAITCAUSE of WAITRMI. Use a CEMT, or EXEC CICS, INQUIRE UOWLINK command to show the RMI links that are outstanding. These UOWs have been resolved, but CICS cannot complete them because the resource manager is not available. You should reconnect CICS to the appropriate resource manager so that CICS can notify its RMI partner of the outcome and enable the partner to resolve any units of work about which it is in doubt.

For example, if it is a DB2 link that has failed, DB2 is probably in doubt about the waiting units of work that CICS is holding. Reconnecting to DB2 causes resynchronization and both CICS and DB2 can complete the UOW.

There could also be units of work about which both CICS and its RMI partners are in doubt, because of a lost link to a coordinator system. In this case, if the link to the coordinator is recovered, CICS will unshunt the units of work, resynchronize with its partners and the units of work will be resolved.
2. Shut down a CICS TS region normally
Shut down a CICS TS region with a normal shutdown. If a CICS TS region terminates abnormally, do not revert to CICS 4.1 immediately. Instead, attempt to:
1. Emergency restart the CICS TS region.
2. Carry out the procedures described in step 1. on page 189.
3. Perform a normal shutdown before falling back to CICS 4.1.

If you do not achieve a normal shutdown before falling back to the earlier release, you lose data integrity for any work that was either in-flight or shunted at the time of the abnormal termination.

3. Take backups of data sets
You should take backup copies of all your important data sets. This is not strictly necessary if you use CICSVR for forward recovery, because CICSVR can forward recover using both CICS TS and CICS 4.1 log record formats. However, it is always advisable to establish a new forward recovery point before a major system change.

4. Prepare for CICS 4.1
Prepare the CICS infrastructure for CICS 4.1:
- Recreate CICS 4.1 system log and journal data sets.
- Ensure that you have a CICS 4.1 SIT and that there are no CICS TS-only system initialization parameters in your CICS JCL.
- Reinitialize the CICS catalog data sets—DFHGCD and DFHLCD.
- Ensure that your CSD is CICS 4.1-compatible:
  - Any CICS resource definition attributes that are new in CICS TS (such as RLSACCESS and the read integrity options for files) are ignored by CICS 4.1. You may need to reinstate some CICS attributes that became obsolete in CICS TS.
  - For files that are recoverable, you must ensure that recovery attributes are specified on the file definition, because CICS 4.1 does not obtain them from the VSAM catalog.
  - For files that are forward recoverable, you must ensure that this is specified on the file definition, and also the forward recovery log journal identifier.
  - Ensure that any CICS resources that you defined in the CSD using CICS TS, for which there is no RDO support in CICS 4.1, are defined by control tables; for example, transient data queues must be defined in the DCT.

The recommendation for upgrading a CSD that is shared between different releases of CICS is to do so from the highest release level; therefore, make any changes using the latest CICS TS version of DFHCSDUP, and use the COMPAT option as necessary.

5. Start on CICS 4.1
Start the CICS region using the CICS 4.1 libraries, resource definitions, and JCL, specifying START=AUTO (or COLD). AUTO resolves to a cold start with a newly initialized global catalog, and if your normal practice is to specify AUTO, specifying this from the beginning means you don’t have to change your JCL afterwards.
Dealing with problems after following the recommended procedure

This section deals with possible problems that might occur even after you have followed the suggested procedure for fallback. It covers two types of possible problem:
- Persistent shunted units of work that you cannot force to complete
- Failure to shut down a CICS TS region normally

Persistent shunted units of work

It is possible that when you shut CICS down normally, some shunted units of work still remain. You can deal with these as follows:

Commit-failed units of work
This means that RLS locks have not been released for committed updates. Your data integrity is therefore not lost, but the retained RLS locks will prevent you from opening the data sets in CICS 4.1. You can resolve this by issuing the Access Method Services (AMS) SHCDS command PERMITNONRLSUPDATE for the affected data sets. This allows the data set to be opened for update in non-RLS mode despite the retained locks. The locks remain in SMSVSAM, but they do not affect the CICS 4.1 region.

Backout-failed UOWs
If none of the backout failures were for data sets opened in RLS access mode, the result is a loss of data integrity. If some of the backout failures were for data sets opened in RLS mode, you can use the SHCDS PERMITNONRLSUPDATE command to open the data set in CICS 4.1.

In-doubt failed UOWs
This causes loss of data integrity for some units of work, the exceptions being those for which commit would have been the correct resolution of the in-doubt UOW. For updates to RLS files, there is the problem of retained RLS locks, which can only be circumvented using the SHCDS PERMITNONRLSUPDATE command.

Failure to shut down a CICS TS region normally

It is possible that you may be unable to restart a CICS TS region after it has terminated abnormally. In this case, you can only cold start the region using CICS 4.1. This means there will be a loss of data integrity, because in-flight units of work are not backed out. If there were also shunted units of work, the considerations described above also apply.

You must decide whether to go back to an earlier backup of your data sets, or to continue with more recent, but possibly inconsistently committed data.

Restrictions affecting fallback from DFSMS 1.3 to DFSMS 1.2

The previous sections have described reverting to an earlier release of CICS. If you also decide to revert to an earlier release of DFSMS after using CICS 5.1 with DFSMS 1.3, there is a restriction affecting data sets that have been defined with recovery attributes under DFSMS 1.3.

Before CICS can revert to accessing data sets in non-RLS mode with, say, DFSMS 1.2, you must first take steps to enable data sets to be opened in non-RLS mode. This is necessary because the catalog entry for data sets defined with recovery attributes is incompatible with releases of DFSMS earlier than DFSMS 1.3:
1. Redefine all data sets that have been defined with recovery attributes, either by using the earlier release of DFSMS, or omitting the recovery attributes if you use DFSMS 1.3.

2. Copy the data from the affected data sets to the new data sets using AMS REPRO.

3. Make sure that the CICS file resource definitions have the correct recovery attributes defined for non-RLS access.
Chapter 21. Migration planning for the integrated translator

The CICS language translator is provided as an integral part of the following programming language compilers:

- IBM COBOL for OS/390 & VM, Version 2 Release 2, program number 5648-A25, with the appropriate PTF (UQ52879, UQ52880, or UQ52881) for APAR PQ45462, and also the PTF for APAR PQ55290.

- IBM VisualAge® PL/I for OS/390, Version 2 Release 2.1, program number 5655-B22, with PTF UQ53116 for APAR PQ45562. Also, to fix problems with compiler listings, you need PTF UQ57194 for APAR PQ51233.

To install application programs into CICS libraries using the above compilers, you can use one of the new CICS-supplied procedures for use with the integrated translator. Note that the new procedures, DFHZITCL (for COBOL) and DFHZITPL (for PL/I), include the CICS load library SDFHLOAD in STEPLIB, which is necessary for the compilers to load the translation tables. Also, if you are using the PL/I procedure, the SYSLMOD DD statement in the binder step must refer to a PDSE (not a PDS as for the older PL/I compilers). See "Translator support for high-level languages" on page 197 for a list of all the procedures supplied for assembling and compiling application programs.

To use the new procedures DFHZITCL or DFHZITPL to invoke the integrated translator, add the required language options to indicate that you want the compiler to invoke the translator:

- To invoke the PL/I compiler and the integrated translator, specify the PL/I compiler preprocessing option (PP); for example,

```plaintext
PP('CICS('opt1 opt2 optn ...'))
```

- To invoke the COBOL compiler and the integrated translator, specify CICS as a COBOL compiler option; for example, in the PARM string, as follows:

```plaintext
PARM='NODYNAM,LIB,OBJECT,RENT,MAP,XREF,CICS(''COBOL3,SP'')
```

Note: If you specify CICS translator options for the integrated translator in the PARM string, you need double apostrophes as shown in this example. If, however, you specify the options in your source program, you need single apostrophes (for example, you might have `CBL CICS(''COBOL3,SP'') APOST` as the CBL statement in your source program.

Note that the COBOL compiler recognizes only the keyword CICS for defining translator options, not the alternative options XOPT or XOPTS as in the case of the stand-alone translator supplied with CICS TS.

Nested COBOL program considerations

If you are compiling a COBOL application program that contains nested programs, the rules regarding the use of DFHEIBLK and DFHCOMMAREA, described in the CICS Application Programming Guide, apply only when you are using the CICS stand-alone translator.

When you use the integrated translator to compile nested programs, observe the following rules:

- You no longer need to code explicitly DFHEIBLK and DFHCOMMAREA on the USING phrase when calling a nested program, or on the PROCEDURE DIVISION USING phrase in the nested program, and they must be omitted.
Because DFHCOMMAREA is not generated in a nested program, it cannot be REDEFINED as with the stand-alone translator. DFHCOMMAREA can be redefined with the global attribute in the outer-most (containing) program, and accessed from nested (contained) programs.

If you are unable to apply these rules for existing programs that you are modifying (including using COPY members to redefine DFHCOMMAREA in nested programs), continue using the stand-alone translator.
Chapter 22. Migration planning for application development

This chapter discusses changes to CICS translator support for high-level language compilers. It covers the following topics:

- Translator support for high-level languages
- Run-time support

Translator support for high-level languages

CICS translator support for pre-Language Environment compilers is withdrawn. These are:

- OS/VS COBOL (5740-CB1, 5740-LM1, and 5734-CB4)
- VS COBOL II (5668-958 and 5688-023)
- OS PL/I Version 1 (5734-PL1)
- OS PL/I Version 2 (5668-910 and 5668-909)
- SAA AD/Cycle C/370 (5688-216)

CICS now supports only the Language Environment-conforming compilers for application program development. For details of the supported compilers, see Chapter 33, “Compilers and assembler” on page 373.

The following JCL procedures that are supplied in earlier releases for translating, compiling, and link-editing using the unsupported compilers are also withdrawn:

- COBOL: The DFHEITVL, DFHEXTVL, DFHEBTVL, DFHEITCL, and DFHEXTCL procedures.
- PL/I: The DFHEITPL, DFHEXTPL, and DFHEBTPL procedures.
- C: The DFHEITDL and DFHEXTDL procedures.

CICS now supplies the following procedures only, for use with Language Environment-conforming compilers:

<table>
<thead>
<tr>
<th>Language</th>
<th>CICS-online</th>
<th>EXCI</th>
<th>Integrated translator</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>DFHYITDL</td>
<td>DFHYXTDL</td>
<td>—</td>
</tr>
<tr>
<td>C++</td>
<td>DFHYITEL</td>
<td>DFHYXTEL</td>
<td>—</td>
</tr>
<tr>
<td>COBOL</td>
<td>DFHYITVL</td>
<td>DFHYXTVL</td>
<td>DFHYZTCL</td>
</tr>
<tr>
<td>PL/I</td>
<td>DFHYITPL</td>
<td>DFHYXTPL</td>
<td>DFHYZTPL</td>
</tr>
</tbody>
</table>

The following CICS translator options, which all relate to the unsupported compilers, are obsolete:

- COBOL2
- ANSI85
- LANGLVL
- FE

The CICS translators ignore these and issue a return code 4 warning message.
Run-time support

Although application program development support for old, obsolete compilers is withdrawn, CICS continues to provide run-time support for your existing application programs that were developed using these old compilers. However, to apply maintenance to these application programs, you should use one of the supported Language Environment-conforming compilers.

You are recommended to use the Language Environment run-time libraries for all CICS application programs, including those that were generated using the unsupported compilers. See the CICS System Definition Guide for examples of the DD statements you need in your JCL for the Language Environment libraries.
Chapter 23. Migration planning for DL/I databases

This chapter discusses planning for migration from a CICS region with local DL/I support to a CICS that uses IMS Database Control (DBCTL) to access DL/I databases. It covers the following topics:

- "Migrating to DBCTL"

Migrating to DBCTL

CICS/ESA 4.1 is the last release to support local DL/I and CICS shared database through the CICS batch region controller. CICS TS does not support either of these DL/I database access methods.

Online access to DL/I databases from CICS TS regions

If you plan to migrate applications that use obsolete methods, you have two options:

- Migrate to DBCTL
- Use CICS TS remote DL/I support to function ship DL/I requests to a CICS region running under an earlier CICS release that supports local DL/I, or which has already migrated to DBCTL.

These are the only two methods of DL/I database access supported by CICS TS.

For this release of CICS TS you need IMS Database Manager Version 5 Release 1 or later.

For information about migrating to DBCTL, see the CICS IMS Database Control Guide.

Migrating DL/I batch programs

CICS shared database support is obsolete in CICS TS because the batch-region controller works through a CICS region with local DL/I support. Convert your CICS batch shared database application programs to IMS batch message programs (BMPs) to access DL/I databases directly through DBCTL.
Chapter 24. Migration planning for the CICS DB2 interface

This chapter discusses CICS database management with IBM DATABASE 2™. It covers the following topics:

- "DB2 migration"
- "RDO for DB2 resource definitions"
- "DB2 group attach facility" on page 207
- "Enhancement to INQUIRE DB2TRAN" on page 209
- "DB2 performance enhancements" on page 209
- "Change of DSNCLI ownership" on page 210

DB2 migration

CICS supports the following releases of DB2:

- DB2 Server for OS/390 Version 5.1 (5655-DB2), with APAR PQ56653
- DB2 Universal Database Server for OS/390 Version 6.1 (5645-DB2), with APAR PQ56654
- DB2 Universal Database Server for OS/390 Version 7.1 (5675-DB2), with APAR PQ56655

CICS provides a CICS-DB2 attachment facility (the CICS-DB2 adaptor) that works with all supported releases of DB2. The CICS-DB2 attachment facility is shipped on the CICS Transaction Server for z/OS product tape, and you must use this version of the adaptor to connect a CICS TS region to DB2.

The CICS-DB2 adaptor has been supplied by CICS since CICS/ESA 4.1. Always use the correct CICS-DB2 adaptor for the release of CICS under which a region is running—the CICS TS Release 3 adaptor for a CICS TS Release 3 region, the CICS 4.1 adaptor for a CICS 4.1 region, and so on.

The DB2 program product, Version 5, continues to supply the earlier version of the CICS attachment facility to support DB2 connections with releases of CICS earlier than CICS 4.1. From DB2 Version 6 onward, it is not supplied.

The CICS-DB2 adaptor and the DSNCRCT macro are now wholly owned by and incorporated in, CICS. For information about this and other changes, see “RDO for DB2 resource definitions”.

Withdrawal of runtime support for RCT

CICS TS introduced RDO support for DB2 resource definitions in CICS TS Release 2, while continuing to support the DB2 resource control table (RCT). CICS TS has now withdrawn runtime support for the RCT, supplying the RCT macro for migration purposes only. See Chapter 3, “Resource definition (online) changes” on page 29 for details of the MIGRATE support provided for the RCT.

RDO for DB2 resource definitions

Define DB2 resource definitions in the CSD instead of assembling a DB2 resource control table. CICS continues to support the RCT, but only to prepare definitions for migration.
**Effect on application programs**

The use of the DB2 resource definitions from the CSD means that application programs cannot access the RCT load module to obtain information about the connection.

Application programs running in earlier releases of CICS can find the address of the RCT by means of an EXEC CICS EXTRACT EXIT command that specifies the DB2 task-related user exit on the PROGRAM option, and specifies the GASET(ptr_ref) option to get the address of the global work area (GWA). The address of the RCT is stored by earlier releases of the attachment facility at offset 8 in the GWA. Because the RCT is no longer available, the CICS DB2 attachment facility now sets offset 8 in the GWA to the address of fetch-protected storage, causing programs that use this address to fail with an ASRE abend. CICS issues message DFHSR0619 to the console and transient data queue CDB2 when an ASRE abend occurs.

You can use the DISMACP system initialization parameter to disable transactions that abend with an ASRE abend.

**Migration using RDO for DB2 resource definition**

Migrate your existing RCT load modules into the CSD using the DFHCSDUP MIGRATE command. After migration, maintain the CSD definitions using RDO. To use the new CSD definitions, install the DB2 RDO definitions before the CICS DB2 attachment facility is actually started. You can modify dynamically most parameters of the DB2 resource definitions, and you can add new DB2ENTRY and DB2TRAN definitions while the CICS DB2 attachment facility is active.

The minimum migration requirements are:

1. Reassemble your existing RCTs with the DSNCRCT macro from CICSTS22.CICS.SDFHMAC.
2. Migrate the reassembled RCTs to the CSD using DFHCSDUP.
3. Add the migrated GROUPs to a suitable list specified on the GRPLIST system initialization parameter.
4. If you used an INITPARM system initialization parameter to pass parameters to the CICS DB2 attachment facility when you used an RCT, there are two steps needed to achieve the same results with CSD definitions:
   a. If you used a common RCT for connecting to more than one DB2, and use INITPARM to override the SUBID, use the CSD ALTER command to change the DB2ID parameter in the DB2CONN definition (migrated from the RCT) to blank (spaces).
      With a DB2CONN installed from the CSD, you can override the DB2 subsystem name from INITPARM only when the DB2ID parameter is blank (unlike an RCT, which allowed you to override a specific (non-blank) SUBID.) If DB2ID on the DB2CONN definition specifies a non-blank value, the INITPARM subsystem parameter is ignored.
   b. Change the DB2 module name from DSN2STRT or DSNCSTRT to the new module name, DFHD2INI. For example, INITPARM=(DFHD2INI=,yyyy') where yyyy is the (optional) DB2 subsystem identifier. Note that the comma preceding the subsystem id is required.
5. UPGRADE the CSD by running a DFHCSDUP job to upgrade the CICS DB2 definitions in the IBM-supplied group, DFHDB2. If you are migrating from CICS/ESA Version 3 or earlier, ensure that any previous user-defined group of CICS DB2 attach definitions are not installed—use the IBM-supplied group DFHDB2.
6. Change and reassemble the PLTPI table to specify program DFHD2CM0. This module replaces the DSN2COM0 or DSNCCOM0 modules used in earlier releases to connect CICS to DB2 during startup. Alternatively, avoid specifying DFHD2CM0 in a PLTPI table altogether by specifying system initialization parameter DB2CONN=YES. This causes CICS to invoke the CICS DB2 adaptor facility startup module automatically without requiring an entry in the PLTPI for the CICS DB2 adaptor module.

7. Change the PLTSD table to remove either DSN2COM2 or DSNCCOM2, the modules used in earlier releases to disconnect CICS from DB2 during warm shutdown. The CICS DB2 attachment facility now uses the RMI shutdown function, meaning that it is called automatically to shut down the interface when CICS is shut down, as follows:
   • The CICS DB2 interface is closed normally during a warm shutdown of CICS.
   • The CICS DB2 interface is force closed during an immediate shutdown of CICS.
   • Shutdown of the CICS DB2 interface is not initiated if CICS is cancelled or terminates abnormally.

8. Change application programs that start or stop the DB2 connection by linking to DSN2COM0 or DSNCCOM0 (start) or DSN2COM2 or DSNCCOM2 (stop). To start the CICS DB2 connection, change application programs to either:
   • Issue an EXEC CICS SET DB2CONN CONNECTED command (this is the recommended programming interface)
   • Link to DFHD2CM0 instead of DSN2COM0 or DSNCCOM0

Migrating RCTs to the CSD
Migrate existing RCTs to the CSD with the DFHCSDUP MIGRATE option using the following conventions:
   • The utility migrates DSNCRCT TYPE=INIT, TYPE=POOL, and TYPE=COMD macro definitions to a DB2CONN definition with a default name of “RCTxx” where xx is the value of the SUFFIX= parameter. You can override the default DB2CONN name (RCTxx) by specifying your own name on the RDONAME parameter on the DSNCRCT TYPE=INIT macro definition. If RDONAME is specified on the TYPE=INIT macro, the DB2CONN is named by the RDONAME value.
   • The utility migrates RCT TYPE=ENTRY to a DB2ENTRY definition named by the first non-generic transaction identifier on the TXID parameter. You can override the default DB2ENTRY name by specifying your own name on the RDONAME parameter on the TYPE=ENTRY macro definition. If RDONAME is specified on the TYPE=ENTRY macro, the DB2ENTRY is created with the RDONAME value.
   • The utility creates a DB2TRAN definition that references the DB2ENTRY for each additional transaction identifier specified on the TXID parameter, using the TXID as the name of the DB2TRAN. You can override the default DB2TRAN name by specifying your own name on the RDONAME parameter on the TYPE=ENTRY macro definition. If the RDONAME is present on the TYPE=ENTRY and there is only one transid specified for that entry, the DB2TRAN is created with the RDONAME value.
   • You can change the RCT source statements to define transaction ids with generic names, using wildcard characters—the asterisk (*) and plus (+) symbols. However, CSD objects cannot have names that contain these generic symbols, so you must ensure that:
– Each generic TXID is defined on a separate TYPE=ENTRY macro
– The RDONAME parameter is specified to supply a valid CSD object name.

For example, if you define:

```
DSNCRCT TYPE=ENTRY,TXID=J+++ ,RDONAME=J
DSNCRCT TYPE=ENTRY,TXID=D*,RDONAME=D
DSNCRCT TYPE=ENTRY,TXID=(ANDY,BILL, CARL), RDONAME=A
```

the following equivalent RDO definitions are generated:

```
DB2ENTRY(J)
DB2TRAN(J) TRANSID(J+++) DB2ENTRY(J)
DB2ENTRY(D)
DB2TRAN(D) TRANSID(D*) DB2ENTRY(D)
DB2ENTRY(A)
DB2TRAN(ANDY) TRANSID(ANDY) DB2ENTRY(A)
DB2TRAN(BILL) TRANSID(BILL) DB2ENTRY(A)
DB2TRAN(CARL) TRANSID(CARL) DB2ENTRY(A)
```

You cannot define multiple generic transids referring to the same entry in the DSNCRCT macro, and these must be defined explicitly in the CSD using the DEFINE command.

- You can edit the DSNCRCT source macros to include a TYPE=GROUP, GROUP=groupname, to specify the group in which the utility should create the DB2 objects. All objects are created in the specified group until another TYPE=GROUP is encountered. If you omit the GROUPNAME parameter, DFHCSDUP uses a default group name of RCTxx where xx is the 1 or 2 character RCT suffix.

**Changed defaults**
The defaults for many of the new DB2 resource definition parameters are different from the defaults of their macro equivalents.

**CICS DB2 attachment operations with the CSD**
Changes to the CICS DB2 attachment facility affect the operation of the facility in the following ways:

**Attachment startup and shutdown**
You can use the DSNC STRT command, but without a suffix, to start the CICS DB2 attachment facility when the DB2 connection is defined using a DB2CONN installed from the CSD.

If you specify a suffix on the DSNC STRT command when a DB2CONN is installed, CICS issues error message DFHDB2206. You can also specify the DB2 subsystem id on the DSNC command, but it must include the comma that normally separates the suffix from the id (for example, DSNC STRT ,DB3A).

CICS determines which DB2 subsystem id to use from one of the following sources, in the order shown:
1. The DSNC STRT command, if specified
2. The DB2CONN resource definition, if DB2ID is specified
3. The INITPARM system initialization parameter, if specified (and DB2ID is blank in DB2CONN)
4. The default subsystem id of DSN.

You can use the DSNC STOP <QUIESCE|FORCE> command to stop the CICS DB2 attachment facility. The QUIESCE option now waits for all tasks to complete. In earlier releases, a quiesce waits only for current units of work to complete.
During shutdown of the CICS DB2 attachment facility initiated by DSNC STOP, the terminal remains locked until the stop is complete, when message DFHDB2025 is issued.

As an alternative to the DSNC command, you can start and stop the CICS DB2 attachment facility using the EXEC CICS SET DB2CONN CONNECTED|NOTCONNECTED commands. You can also stop the CICS DB2 attachment facility by starting the CICS-supplied transactions CDBQ and CDBF from an application program, using an EXEC CICS START command. CDBQ causes a quiesce close and CDBF causes a force close.

**CICS DB2 attachment facility command changes**

The pool section of the DB2CONN resource definition does not have a TXID parameter associated with it. To modify the number of threads allowed on the pool, use reserved name CEPL on the DSNC MODIFY TRANS command. For example, issue the command:

```
DSNC MODIFY TRANS CEPL n
```

where \( n \) is the new number of threads.

The DSNC DISP TRAN \( tttt \) command now displays all threads running for a particular transid, instead of all the transactions associated with an RCT entry. In earlier releases, CICS uses the \( tttt \) operand to locate an RCT entry and then displays all the threads for that entry.

When you use the DSNC DISP STAT command, CICS displays statistics for DSNC commands on a line beginning ‘*COMMAND’. Pool thread statistics are displayed on a line beginning ‘*POOL’.

When modifying an RCT entry using the DSNC MODIFY TRANS \( tttt \) command, specify \( tttt \) exactly as it was defined in the RCT. If you defined a generic TXID, you must refer to the generic name when modifying it with a DSNC command. For example, if you have transactions called TAB and TAC, but they are defined generically as TA*, you can modify these on a DSNC command only by their generic name:

```
DSNC MODIFY TRANS TA*
```

and not by their specific names TAB and TAC.

**SQL processing**

User application programs do not need to be reassembled or rebound.

**Dynamic plan exits**

Dynamic plan exits can run unchanged and they do not need to be reassembled. The parameters passed to the exits are unchanged. However, you should be aware that dynamic plan switching can occur in new circumstances, and this could affect the operation of your dynamic plan exits.

A dynamic plan exit is invoked to determine which plan to use at the start of the first unit-of-work (UOW) of the transaction. This is referred to as ‘dynamic plan selection’.

A dynamic plan exit can also be invoked at the start of a subsequent UOW within the same transaction (provided the thread was released at syncpoint) to determine what plan to use for the next UOW. The plan exit can then decide to use a different plan. For this reason, this is referred to as ‘dynamic plan switching’.
In earlier releases of CICS, dynamic plan switching can occur only for the pool, or for RCT entries defined with THRDA (threadlimit) specified as zero; that is, overflowed to the pool. A consequence of using DSNC MODIFY to modify THRDA to zero is that it makes dynamic plan switching effective. An RCT with THRDA greater than 0 is not capable of dynamic plan switching in earlier releases, and the plan selected for the first UOW is used for all subsequent UOWs of the transaction.

In CICS TS OS/390 Version 1 Release 2, dynamic plan switching can occur for both RCT entries as well as the pool, irrespective of the THRDA parameter. If you have coded your own dynamic plan exit, check that the logic can handle subsequent invocations for the same task. Your user application program, or the dynamic plan exit, must be written to tolerate consequences of additional calls to the exit. If the dynamic plan exit would change the plan when you don’t want it to, the application program can avoid this by ensuring the thread is not released at syncpoint. However, the recommended method is to release the thread and ensure that the dynamic plan exit provides the correct plan for the new circumstances in which it is called.

Messages
The CICS message domain processes all attachment message requests. As a result, all previous DSNC messages now have the form DFHDB2nnn. You can use the DB2CONN MSGQUEUE1, MSGQUEUE2, and MSGQUEUE3 parameters to specify where the messages should be sent. This may have an impact on automation products, such as NetView.

Protected threads
If you use protected threads on DB2ENTRYs, note that a thread is no longer flagged as protected for its lifetime. Instead, a thread is protected only while it is not being used. If a new transaction reuses the thread, the thread is in use, and no longer requires protection. Therefore, the current number of protected threads for that DB2ENTRY is decremented. This allows for more effective protection of threads for a DB2ENTRY.

Changes to CICS security for DB2
There are changes and extensions to CICS security checks for DB2 in the areas of:
• Resource security
• Command security
• Surrogate security.

These aspects of DB2 security are covered only briefly in the following topics. For full details of these extensions to CICS security, see the CICS DB2 Guide.

Resource security checking
CICS resource security checking is controlled globally in a CICS region by the Xrrr system initialization parameter, where rrr is the abbreviation for the CICS resource (for example, XFCT for file control resources). A new system initialization parameter, XDB2, is introduced to enable you to specify the name of the RACF general resource class for DB2 resource security checks. Resource security checking for DB2 is applied to transactions that reference DB2ENTRY resource definitions, and also to any associated DB2TRANs.

Command security checking
CICS command security checking is controlled globally in a CICS region by the XCMD system initialization parameter. Command security is extended to control access, through the system programming interface, to the new DB2CONN, DB2ENTRY, and DB2TRAN resource types. If you operate CICS with command
security active, ensure that you authorize users of transactions that issue SPI commands against these DB2 resource types. Depending on the SPI command, users need either READ, UPDATE, or ALTER authority.

**Surrogate security checking**
CICS surrogate user checking is controlled globally in a CICS region by the XUSER system initialization parameter. CICS surrogate security checking is extended to protect access to DB2 authorization ids specified on the AUTHID and COMMAUTHID parameters. Users requiring access to these parameters must be properly authorized to appropriate profiles defined in the SURROGAT general resource class.

CICS also controls access to the AUTHTYPE and COMMAUTHTYPE parameters. Although this form of security check is not a surrogate security check, it is globally controlled by the XUSER system initialization parameter. Users requiring access to these parameters must be properly authorized to appropriate profiles defined in the FACILITY general resource class. For this purpose, you define profiles with names of the form DFHDB2.AUTHTYPE.authname.

**DB2 group attach facility**
You can now use the group attach facility of DB2 with CICS. Instead of a specific DB2 subsystem, you can specify a DB2 group ID on the DB2CONN resource definition. With a DB2GROUPID specified, the group attach facility chooses any member of the group that is active on the local MVS image for the connection to CICS (members that are active on other MVS images are not eligible for selection).

**Specifying DB2 IDs**
There are some restrictions regarding the use of the DB2ID and DB2GROUPID attributes:
- You cannot specify both DB2ID and DB2GROUPID in the same DB2CONN resource definition:
  - If you attempt to set both on the same CEDA panel, the DB2ID takes precedence and the DB2GROUPID is ignored.
  - If you attempt to set both attributes on a CEDA, or DFHCSDUP, DEFINE command line, an error message is issued and the last-named attribute is accepted.
  - If you attempt to set both on an EXEC CICS CREATE or SET command, the command fails with an INVREQ response.

If an installed DB2CONN definition specifies a DB2ID, and you want to override this and switch to the group attach facility:
- Specify a DB2GROUPID using the CEMT, or EXEC CICS, SET DB2CONN command
- Specify a DB2GROUPID using the CEDA command to alter the CSD resource definition, and reinstall the DB2CONN.

If an installed DB2CONN definition specifies a DB2GROUPID, and you want to override this and switch off the group attach facility, you can:
- Specify a DB2ID on the DSNC STRT command.
- Specify a DB2ID (or blank-out the DB2GROUPID) using the CEMT, or EXEC CICS, SET DB2CONN command.
• Specify a DB2ID (or blank-out the DB2GROUPID) using the CEDA command to alter the CSD resource definition, and reinstall the DB2CONN.

The INITPARM system initialization parameter method of specifying a DB2ID (INITPARM=(DFHD2INI=db2id)) continues to be supported, but is effective only if both the DB2GROUPID and DB2ID attributes are blank in the DB2CONN resource definition. If a DB2CONN specifies a DB2ID or a DB2GROUPID, INITPARM is ignored.

Note that, if you issue an INQUIRE DB2CONN command, or look at the statistics output, you might sometimes see both a DB2GROUPID and a DB2ID. This happens under the following circumstances:

• You are using group attach, and CICS is connected to the DB2 shown in the DB2ID field at the time of the inquiry, or at the time the statistics were taken.

• You are using group attach and CICS is waiting to reconnect to a specific DB2 subsystem, because RESYNCMEMBER(YES) is specified and the DB2 subsystem for which CICS is holding outstanding units of work is unavailable. In this case, the DB2ID of the DB2 for which CICS is waiting is shown, with the status CONNECTING.

Indoubt resolution of units of work (UOWs)

You need to consider the resolution of indoubt units of work when you are using the group attach facility. CICS maintains a history of the last DB2 data sharing group member to which it connected, which is cataloged and maintained across warm, emergency and cold starts (but not initial starts). During connection to DB2, the CICS DB2 attachment facility checks this history to see if any outstanding UOW information is being held for the last DB2 data sharing group member to which it connected. If no outstanding UOW information is being held, the group attach facility operates normally and can choose any active member of the data sharing group for the connection. However, if there are outstanding units-of-work involving a specific DB2 member, the connection process depends on the value specified for the new RESYNCMEMBER attribute of the DB2CONN resource definition. The new RESYNCMEMBER attribute on the DB2CONN resource definition gives you some control over a connection when there are outstanding UOWs, and operates as follows:

• If RESYNCMEMBER(YES), CICS ignores the group attach facility and waits until it can reconnect to the DB2 data sharing group member it needs to resolve the indoubt units of work.

• If RESYNCMEMBER(NO), CICS makes one attempt to reconnect to the last recorded DB2 data sharing group member. If this attempt is successful, the indoubt units of work can be resolved. If it is unsuccessful, CICS uses group attach to connect to any active member of the DB2 data sharing group, and issues the warning message DFHDB2064 stating that there may be unresolved indoubt units of work with the last recorded member. If you specify RESYNCMEMBER(NO) when you are using group attach, CICS could connect to a DB2 data sharing group member that is not the one for which it had outstanding units of work. In this case, any outstanding UOWs remain unresolved until CICS can connect to the original DB2 subsystem to which the UOWs relate.
Enhancement to INQUIRE DB2TRAN

In earlier releases of CICS, you have to make two separate inquiries to find out which plan is used by a specified transaction or set of transactions. This is because the transaction ID is part of the DB2TRAN definition, but the plan name or plan exit name is part of the DB2ENTRY definition. Enhancements to the INQUIRE DB2TRAN command mean you can now use a single INQUIRE DB2TRAN command to find out which plan is used by a specified transaction or set of transactions, or which transactions use a specified plan (see "Changed CEMT commands" on page 19 and Chapter 6, "The system programming interface (SPI)" on page 75 for details of the changes to the commands).

Note that there is still a restriction on finding information for individual transaction IDs if a DB2TRAN is defined with a wildcard character in the TRANSID. See the CICS Resource Definition Guide for information about the use of wildcard characters.

DB2 performance enhancements

The CICS DB2 adapter is enhanced to improve the performance of user transactions that issue DB2 requests. This improvement is achieved by exploiting the open transaction environment (OTE) to minimize (or avoid altogether) TCB switching for DB2 requests. Instead of the CICS DB2 adapter having to manage its own private pool of TCBs, CICS provides an L8 mode open TCB (see the MAXOPENTCBS system initialization parameter in the CICS System Definition Guide). Exploiting OTE is particularly important for enterprise beans that make DB2 requests, as it means they need only two, rather than four, TCB switches to process a DB2 request.

To obtain the performance benefits for CICS DB2 applications, CICS must be connected to DB2 Version 6 or above, and the user application programs must be threadsafe.

- If these conditions are fulfilled, no TCB switches are needed until the task terminates, unless it issues a non-threadsafe CICS request.
- If CICS is connected to DB2 Version 5, or the user application programs are not threadsafe, TCB switching occurs, as in earlier releases, for every DB2 request.

You can use the CICS-supplied utility DFHEISUP to assist you in determining if an application program is threadsafe. See "New utility programs" on page 96 for a summary of DFHEISUP, or the CICS Operations and Utilities Guide for more information about it.

When you connect to DB2 Version 6 or later, the OPENAPI option for the DB2 task-related user exit is set by CICS automatically. See the CICS System Programming Reference manual for information about the OPENAPI option.

Effect on some external interfaces

The introduction of the L8 mode TCB for the DB2 task-related user exit program affects the following external interfaces:

- CSD resource definitions for DB2
- INQUIRE DB2CONN TCBS command
- Statistics
CSD resource definitions for DB2
When you connect to DB2 Version 6 or later, the interpretation of TCBLIMIT and PRIORITY on the DB2CONN resource definition, and PRIORITY on the DB2ENTRY definition is changed when CICS is connected to DB2 Version 6 or above. The changes in meanings are summarized as follows:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>DB2 Version 5</th>
<th>DB2 Version 6 or later</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCBLIMIT (on DB2CONN)</td>
<td>Specifies the number of subtask TCBs that CICS can create to process DB2 requests.</td>
<td>Specifies the number of L8 mode TCBs that can be used to process DB2 requests. The L8 mode TCBs are allocated from the pool of open TCBs up to the maximum set by the MAXOPENTCBS system initialization parameter.</td>
</tr>
<tr>
<td>PRIORITY (on DB2CONN)</td>
<td>Priority of the pool thread subtask TCBs relative to the CICS QR TCB.</td>
<td>Ignored, because L8 mode TCBs have the same priority as the QR TCB. However, this option is maintained in case CICS connects to an earlier version of DB2.</td>
</tr>
<tr>
<td>PRIORITY (on DB2ENTRY)</td>
<td>Priority of the thread subtasks for this DB2ENTRY relative to the CICS QR TCB</td>
<td>Ignored, because L8 mode TCBs have the same priority as the QR TCB. However, this option is maintained in case CICS connects to an earlier version of DB2.</td>
</tr>
</tbody>
</table>

INQUIRE DB2CONN TCBS command
The interpretation of the number of TCBs returned on the CEMT, or EXEC CICS, INQUIRE DB2CONN command depends on whether the CICS DB2 adapter is connected to DB2 Version 5 or DB Version 6 (or later):

Connected to DB2 Version 5
The subtask TCBs are created and managed by the CICS DB2 adapter to service DB2 requests, and remain permanently associated with a DB2 connection (a command, pool or DB2ENTRY thread). In this case, the TCBS option returns the high-water mark of TCBs created to access DB2.

Connected to DB2 Version 6 or later
The L8 mode subtask TCBs are allocated by CICS from the pool of open TCBs. In this case, a DB2 connection is not permanently assigned to the same L8 TCB, and between CICS tasks can move from one L8 mode TCB to another. In this environment, the TCBS option returns the number of L8 mode TCBs that are using a DB2 connection at the time of the inquiry, and this value varies depending on workload.

Statistics
Some of the TCB-related CICS DB2 statistics have a different meaning when CICS is connected to DB2 Version 6 or later. For example, the statistics fields D2G_POOL_PRIORITY and D2R_PRIORITY are reported as 'N/A'. See Changes to statistics records on page 133 for details.

Change of DSNCLI ownership
DSNCLI is the CICS-DB2 Language Interface module. With effect from DB2 Version 6, DSNCLI, is no longer shipped by the DB2 product.

DSNCLI is supplied as part of CICS and is installed in the SDFHLOAD library when you install CICS TS. Note that DSNCLI is an alias of DFHD2LI.
DSNCLI is also installed in the SDFHAUTH APF-authorized library. In this library, DSNCLI is an alias of DFHD2LIX.
Chapter 25. Migration planning for CICS Web support

This chapter covers migration for users of CICS Web support. The changes made to CICS Web support should not prevent CWI (CICS Web Interface) applications that work today from continuing to work without changes to the application. However, it may be necessary to recompile those programs that use programming interfaces that have changed, such as converter programs and analyzer exits.

The chapter covers the following topics:

- "Initializing CICS Web support"
- "Changes affecting the CICS Web analyzer"
- "Changes affecting the CICS Web converter" on page 214
- "Changes to HTML template support" on page 215
- "Changes affecting Web application programs" on page 215
- "Changing Web Interface application programs" on page 215
- "Connection manager transaction CWBC obsolete" on page 216
- "The business logic interface renamed" on page 216
- "Effect of secure sockets layer support" on page 216
- "Authorizing CICS region userid to OpenEdition MVS" on page 217

Initializing CICS Web support

Two system initialization parameters are introduced for CICS Web support.

The first, WEB={NO|YES}, controls whether CICS Web support is initialized during CICS startup. Earlier releases of CICS that support the Web initialize Web support automatically. Note that the default is NO, so specify WEB=YES if you want to use any CICS-supported Web function. For example, specify WEB=YES to enable the use of the CWBC transaction to start Web interface connection with TCP/IP, or to use the CICS Gateway for Java (MVS), or any business logic interface application.

The second system initialization parameter, WEBDELAY=(5|time_out,60|keep_time), controls (1) the transaction timeout period in minutes, and (2) the keep-time, in minutes, for the state data. These time intervals both relate to transactions using the 3270 bridge interface through the Web.

Changes affecting the CICS Web analyzer

The user-replaceable module interface to the CWI analyzer is changed in a number of ways. These are:

- A change to the invocation of the analyzer
- A change to the default action for escaped characters
- "Changes to the analyzer parameter list" on page 214
- "Change to operation of codepage conversion" on page 214

Change to the invocation of the analyzer

The analyzer user-replaceable module (URM) is invoked in a different context. In earlier releases, the analyzer can be a potential bottleneck because it is invoked by the long-running server controller transaction, which handles all incoming requests. Because of this, you were discouraged from carrying out performance-sensitive tasks at this point. This restriction is removed, because the analyzer is invoked by a new CICS task that is invoked to process the incoming request. This change means that the analyzer can now be invoked concurrently by multiple tasks. In earlier
releases, only one task executes the analyzer URM. Check your analyzer code to
ensure there are no reentrancy or concurrency issues arising from the new context
in which the analyzer is invoked. It may be necessary to use enqueue/dequeue
techniques to ensure integrity.

Change to default action for escaped characters

HTTP requests can contain escaped characters. These characters can be in the
destination URL itself, or in data generated from HTML forms. Escaped characters
conform to the HTTP architecture for the coding of HTTP requests, which are
generally encoded using the escaping scheme described in the URL specification.
The escaping scheme specifies that escaped characters are represented by a %
(percent sign) followed by 2 hexadecimal digits (%xx, where xx is the hexadecimal
representation of the ASCII encoding of an original data character).

The default CICS action for escaped HTTP data is now to pass the data to the
application in its escaped form (in earlier releases, the default is to “unescape” the
data before passing it to the application program). If you want to ensure that
escaped characters are unescaped before passing them to your application
program, either:

- Link to the new CICS-supplied program DFHWBUN, passing it the data to be
  unescaped (the unescaping is performed by the CICS-supplied analyzer,
  DFHWBADX)

or

- Update the WBRA_UNESCATE field in the analyzer parameter list to
  WBRA_Unescate_REQUIRED. This tells CICS to unescape the data on behalf
  of the application.

Changes to the analyzer parameter list

The parameter list to the analyzer is changed. Modify your analyzer program
accordingly and recompile them.

Also, the field WBRA_USERID in the parameter list of the user-replaceable
analyzer program is changed from an output only field to an input/output field.
When modifying your analyser program, make sure it cannot inadvertently overlay
the userid deduced from the client certificate when CICS is running with SSL
support. For more information about WBRA_USERID and the effect of SSL support,
see the [CICS Internet Guide](#).

Change to operation of codepage conversion

If your Web application program is specifying codepage conversion keywords on
Web and document-related API commands, any DFHCNV conversion key returned
by the analyzer in WBRA_DFHCNV_KEY is overridden by the codepage specified
on the API command.

Changes affecting the CICS Web converter

The parameter list to the converter is changed. The function code is now a halfword
instead of a fullword. Modify your converter programs for the new parameter list and
recompile them. Note that the changed and recompiled converter programs are
useable on earlier releases of CICS that provide Web support.
Changes to HTML template support

Use of the new document and Web API commands removes the need to invoke DFHWBTL to use HTML templates. DFHWBTL is still supported for compatibility with earlier releases.

In earlier releases, templates used by DFHWBTL are stored in the MVS partitioned dataset specified on the DFHHTML DD statement in the CICS startup JCL. You can now specify different repositories (CICS files, TS queues, TD queues, load module, or PDS members in other data sets) in which you want to store templates, using the DOCTEMPLATE resource definition, or the name of an exit program to be invoked to satisfy a request for a template. If there is no DOCTEMPLATE defined for a template being used through the CICS template manager, DFHWBTL, CICS dynamically creates a DOCTEMPLATE resource definition for the requested template, specifying that the template is in the DFHHTML dataset. DFHWBTL uses templates in the new repositories provided that:

- The template name is not greater than 8 characters
- The template resource definition is installed before you call DFHWBTL.

If you want to continue using DFHWBTL to manage existing templates, ensure there is a DD statement for DFHHTML in the CICS startup JCL.

If you want to use the new document API to access existing templates, create a DOCTEMPLATE definition for each template, specifying that they can be found in the DFHHTML dataset. Add these definitions to your startup group list.

Changes affecting Web application programs

With the introduction of a set of EXEC CICS WEB API commands, you can now write applications using one of two methods.

You are recommended not to create application programs that mix the two methods, where one part of the application relies on the old communications area (COMMAREA) technique for CWI programming, and the other uses the new API. Your application programs should use either one or the other.

Changing Web Interface application programs

There are changes to the Web business logic interface that affect existing application programs:

- URL-encoded fields may be passed to application programs in the form of escape characters
- A new parameter is added to the communications area parameter list
- Storage acquired by CICS is freed automatically.

URL-encoded fields

HTTP requests that contain escaped characters from URL-encoded fields are passed unconverted to user decode routines. These fields can be the destination URL itself, or query data generated from HTML forms. This is a change from earlier releases of the Web Interface, which attempted to decode escaped characters before passing on the HTTP request. These escaped characters conform to the HTTP architecture for the coding of HTTP requests, which are generally encoded using the escaping scheme described in the URL specification.
The escaping scheme specifies that escaped characters are represented by a % (percent sign) followed by 2 hexadecimal digits (in ASCII code).

The encoded characters are not converted by the CICS decode function, and either your own decode routine, or user application program, must be capable of recognizing and interpreting escaped characters.

The encoded characters are translated by the CICS template manager, and by the BMS and 3270 terminal emulators.

Re-compiling application programs for the new parameter

A new parameter is added to the CICS business logic interface communications area, which is mapped by one of the CICS-supplied copybooks, DFHWBA1x (where x represents the programming language). Reassemble, or recompile, any CICS application programs that use the Web business logic interface, to ensure they correctly map the communications area. The new parameter defines the length (wba1_client_address_length) of the existing wba1_client_address_string parameter.

Freeing CICS storage

CICS storage management for applications programs that use the business logic interface is changed. Storage acquired by CICS in an application program is freed automatically by CICS at program termination.

Connection manager transaction CWBC obsolete

The CWBC transaction and its associated data set, DFHWBCD, are obsolete, and their function is replaced by a new resource type defined in the CSD. Migrate the existing definitions from the DFHWBCD data set to the CSD, using the DEFINE TCPIPSERVICE command. If you currently automate startup with a post-initialization program list table (PLTPI) that specifies the CWBC program, DFHWBC00, remove this from your table and add the relevant TCPIPSERVICE definitions to your startup group list.

See Chapter 3, “Resource definition (online) changes” on page 29 for details of the new resource definitions for CICS Web support.

The business logic interface renamed

The preferred name for the business logic interface is DFHWBBLI instead of DFHWBA1. The format of the parameter list for DFHWBBLI is different from that for DFHWBA1. CICS continues to support DFHWBA1, which is available with its original parameter list, but its only purpose is to link to DFHWBBLI. You are recommended to use DFHWBBLI instead of DFHWBA1.

Effect of secure sockets layer support

If the system initialization parameter KEYFILE is left to default to a null value, there are no migration impacts by caused by CICS secure sockets layer (SSL) support.

To exploit SSL, ensure that:

- A keyring file is correctly created and initialized with the mkkf utility.
- The CICS region userid is authorized to read the keyring file specified in KEYFILE.
• System initialization parameters KEYFILE, ENCRYPTION, and SSLDELAY are set to the required values.
• A TCP/IP port is activated for SSL use, either with or without client authentication.
• Application programs are inspected to discover whether they can exploit the EXEC CICS EXTRACT CERTIFICATE command.

---

**Authorizing CICS region userid to OpenEdition MVS**

The CICS Web Interface now uses the OpenEdition sockets API, in preference to the TCP/IP sockets library. This change means that CICS regions using the Web Interface must be authorized to access the OpenEdition sockets libraries to ensure the Web Interface can resolve OpenEdition sockets API calls.

Authorize your CICS regions by including an OpenEdition MVS (OMVS) segment in the CICS region’s user profile, specifying the UID parameter. In the OMVS segment, UID specifies the numeric user identifier.

For example:

```
ALTUSER CICSHAA1 OMVS( UID(4127) )
```

where CICSHAA1 is the CICS region userid of a CICS AOR that is initialized with Web Interface support, and 4127 is the OpenEdition numeric user identifier assigned for this CICS AOR.

For information about defining OMVS segment parameters in a user profile, see the *OS/390 Security Server (RACF) Command Language Reference*, SC28-1919. For information about changing the access permissions, or modes, of OpenEdition files (modes determine who can read, write, or execute a file), see the `chmod` command in the *OS/390 OpenEdition Command Reference*, SC28-1892.
Part 3. Changes to CICSPlex SM

This part of the book contains information about migrating to CICS TS CICSPlex®SM from an earlier release:

- Chapter 26, “Operations views changes” on page 221
- Chapter 27, “Monitor view changes” on page 225
- Chapter 28, “Business Application Services changes” on page 227
- Chapter 29, “The CICSPlex SM API” on page 231
- Chapter 30, “Migrating to CICS TS 2.2 CICSPlex SM” on page 235
Chapter 26. Operations views changes

This chapter summarizes the changes to CICSPlex SM operations views.

Changed operations views

A number of operations views have changed as shown in Table 31.

Table 31. Changed operations views

<table>
<thead>
<tr>
<th>Operations view</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICSRGN</td>
<td>New attributes added are: ACTHPTCBS, ACTJVMTCBS, MAXHPTCBS, MAXJVMTCBS, SUBTASKS</td>
</tr>
<tr>
<td>CICSRGND</td>
<td>RRMS status is a new field, added for EXCI enhancements. Dst Route Pgm is a new field, added for dynamic routing enhancements.</td>
</tr>
<tr>
<td>CICSRGN2</td>
<td>Force QR, and Max open TCBs are new fields, added to support the open transaction environment (OTE).</td>
</tr>
<tr>
<td>CMAS</td>
<td>FEEDBACK error codes</td>
</tr>
<tr>
<td>CMDTD</td>
<td>The following are new fields: CFDT pool, Table name, Load type, Table information, Dataset information, added for coupling facility data tables.</td>
</tr>
<tr>
<td>DB2CONN</td>
<td>New attributes added: DB2GROUPID and RESYNCMEMBER</td>
</tr>
<tr>
<td>DB2TRAN</td>
<td>New attributes added: PLAN and PLANEXITNAME</td>
</tr>
<tr>
<td>EXITTRUE</td>
<td>New attribute added: PURGEABLEST</td>
</tr>
<tr>
<td>LOCTRAND</td>
<td>Routing status is a new field added for dynamic routing enhancements.</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>New attributes added: HOTPOOLING and JVMPROFILE</td>
</tr>
<tr>
<td>PROGRAMD</td>
<td>Concurrency is a new field added for the OTE enhancements. Dynam status is a new field added for dynamic routing enhancements. JVM class, JVM debug, and Runtime are new fields added to support Java Virtual Machine (JVM).</td>
</tr>
<tr>
<td>RQMODEL</td>
<td>New attributes added: CORBASERVER, RTYPE, INTFACETYPE, BEANNNAME, MODULE, INTERFACE, and OPERATION</td>
</tr>
<tr>
<td>TCPIPS</td>
<td>New attributes added: ATTACHSEC, AUTHENTICATE, CERTIFICATE, PROTOCOL, DNSGROUP, DNSSTATUS, and GRPCRITICAL</td>
</tr>
<tr>
<td>TERMINL</td>
<td>New attribute added: NQNAME</td>
</tr>
<tr>
<td>UOW</td>
<td>New attribute added: OTSTID</td>
</tr>
<tr>
<td>UOWENQ</td>
<td>ENQSCOPE is a new field added for the CICS sysplex enqueue/dequeue function.</td>
</tr>
<tr>
<td>UOWLINK</td>
<td>New attributes added: RRMSURID and HOST</td>
</tr>
</tbody>
</table>
### Table 31. Changed operations views (continued)

<table>
<thead>
<tr>
<th>Operations view</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>UOWLINKD</td>
<td>Protocol is a new field added for EXCI enhancements.</td>
</tr>
</tbody>
</table>

A number of operations views have changed in the way they present information. The fields are either presented in a different order, or some fields have moved onto new screens. The views that have changed in these ways are shown in [Table 32](#).

### Table 32. Changed operations views

<table>
<thead>
<tr>
<th>Operations view</th>
<th>What has changed</th>
</tr>
</thead>
</table>
| CMDTD           | The data presented has been reorganized and extended so that it is presented over the following screens:  
|                 | - CMDTD          |
|                 | - CMDT2          |
|                 | - CMDT3          |
| TASKD           | The detailed task information has been reorganized and extended so that it is presented over the following screens:  
| TASK2           | - TASKD          |
| TASK3           | - TASK2          |
|                 | - TASK3          |
|                 | - TASK4          |
|                 | - TASK5          |
|                 | - TASK6          |
|                 | - TASK7          |
|                 | - TASK8          |
|                 | - TASK9          |
|                 | TASK4, TASK5, TASK6, TASK7, TASK8 and TASK9 are new views. |

FEPI resources can no longer be installed from operations views and the install action has been removed from the FEPI operations views.

### New operations views

[Table 33](#) shows new operations views.

### Table 33. New operations views

<table>
<thead>
<tr>
<th>Operations view</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFDTPOOL</td>
<td>General view of installed coupling facility data tables pools.</td>
</tr>
<tr>
<td>CFDTPOOS</td>
<td>Summary information relating to coupling facility data table pools.</td>
</tr>
<tr>
<td>CICSRSGN4</td>
<td>Detailed information relating to the tasks in a CICS system.</td>
</tr>
<tr>
<td>CMDT2</td>
<td>Detailed information about a CICS- or user-maintained data table, or a coupling facility data table.</td>
</tr>
<tr>
<td>CMDT3</td>
<td>Statistical information relating to a data table file.</td>
</tr>
<tr>
<td>DOCTEMP</td>
<td>General view of installed document templates.</td>
</tr>
</tbody>
</table>
### Table 33. New operations views (continued)

<table>
<thead>
<tr>
<th>Operations view</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCTEMPD</td>
<td>Detailed information about a currently installed document template.</td>
</tr>
<tr>
<td>DOCTEMPS</td>
<td>Summary information about currently installed document templates.</td>
</tr>
<tr>
<td>EJCOSE</td>
<td>A CICS resource that describes a CorbaServer object being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJDJAR</td>
<td>A CICS resource that describes a CICS-deployed JAR file object being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJCOBEAN</td>
<td>A CICS resource that describes an Enterprise Bean object in a CorbaServer being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJDJBEAN</td>
<td>A CICS resource that describes an Enterprise Bean object in a CICS–deployed JAR FILE being managed by CICSPlex SM</td>
</tr>
<tr>
<td>ENQMDL</td>
<td>General view of installed enqueue models.</td>
</tr>
<tr>
<td>ENQMDLD</td>
<td>Detailed information about the enqueue model entries defined within the sysplex.</td>
</tr>
<tr>
<td>ENQMDLS</td>
<td>Summary information about the enqueue model entries defined within the sysplex.</td>
</tr>
<tr>
<td>JVMPOOL</td>
<td>A CICS resource that provides information about the pool of JVMs in the CICS address space</td>
</tr>
<tr>
<td>PROCTYP</td>
<td>General view of installed process types and their attributes.</td>
</tr>
<tr>
<td>PROCTYPD</td>
<td>Detailed information relating to a process type.</td>
</tr>
<tr>
<td>PROGRAMJ</td>
<td>Information showing the JVM class value for the current program.</td>
</tr>
<tr>
<td>RQMODEL</td>
<td>General view of installed request models.</td>
</tr>
<tr>
<td>RQMODELD</td>
<td>Detailed information about a currently installed request model.</td>
</tr>
<tr>
<td>RQMODELS</td>
<td>Summary information about currently installed request models.</td>
</tr>
<tr>
<td>TASK4</td>
<td>Detailed information about request counts.</td>
</tr>
<tr>
<td>TASK5</td>
<td>Detailed information about storage usage.</td>
</tr>
<tr>
<td>TASK6</td>
<td>Detailed information about communications requests.</td>
</tr>
<tr>
<td>TASK7</td>
<td>Statistical information about the CICS business transaction services issued by a task.</td>
</tr>
<tr>
<td>TASK8</td>
<td>Statistical information about the usage of TCP/IP services and activities issued by a task.</td>
</tr>
<tr>
<td>TASK9</td>
<td>Statistical information about CPU usage of a task.</td>
</tr>
<tr>
<td>TCPIPGBL</td>
<td>A CICS resource that provides information about TCP/IP sockets support</td>
</tr>
<tr>
<td>TCPIPS</td>
<td>General view of installed TCP/IP service definitions.</td>
</tr>
<tr>
<td>TCPIPSD</td>
<td>Detailed information relating to a TCP/IP service definition.</td>
</tr>
<tr>
<td>TCPIPSS</td>
<td>Summary information relating to installed TCP/IP service definitions.</td>
</tr>
<tr>
<td>TSMODEL</td>
<td>General view of installed temporary storage models.</td>
</tr>
<tr>
<td>TSMODELD</td>
<td>Detailed information relating to a temporary storage model.</td>
</tr>
</tbody>
</table>
Table 33. New operations views (continued)

<table>
<thead>
<tr>
<th>Operations view</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSMODELS</td>
<td>Summary information relating to installed temporary storage models.</td>
</tr>
<tr>
<td>TSPOOL</td>
<td>General view of installed temporary storage pools.</td>
</tr>
<tr>
<td>TSQNAME</td>
<td>General view of non-shared temporary storage queues.</td>
</tr>
<tr>
<td>TSQNAMED</td>
<td>Detailed view of a non-shared temporary storage queue.</td>
</tr>
<tr>
<td>TSQNAMES</td>
<td>Summary view of non-shared temporary storage queues.</td>
</tr>
<tr>
<td>TSQSHR</td>
<td>General view of shared temporary storage queues.</td>
</tr>
<tr>
<td>TSQSHRD</td>
<td>Detailed information relating to a shared temporary storage queue.</td>
</tr>
<tr>
<td>TSQSHRS</td>
<td>Summary information relating to shared temporary storage queues.</td>
</tr>
</tbody>
</table>
Chapter 27. Monitor view changes

This chapter summarizes the changes to CICSPlex SM monitor views.

Changed monitor view

Some monitor views have changed in the way they present information. The fields are either presented in a different order, or some fields have moved onto new screens. The views that have changed in these ways are shown in Table 34.

Table 34. Changed monitor view

<table>
<thead>
<tr>
<th>Monitor view</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLOCTRAD</td>
<td></td>
</tr>
<tr>
<td>MLOCTRA2</td>
<td></td>
</tr>
<tr>
<td>MLOCTRA3</td>
<td></td>
</tr>
<tr>
<td>MLOCTRA4</td>
<td></td>
</tr>
<tr>
<td>MTERMNL</td>
<td>New attribute added: ACQSTATUS</td>
</tr>
</tbody>
</table>

The data presented has been reorganized and extended. It now extends to a new view, MLOCTRA4.

New monitor views

Table 35 shows the new monitor view.

Table 35. New monitor view

<table>
<thead>
<tr>
<th>Monitor view</th>
<th>What it shows</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLOCTRA4</td>
<td>Detailed information about a local transaction, additional to the details shown in MLOCTRA2 and MLOCTRA3.</td>
</tr>
</tbody>
</table>
Chapter 28. Business Application Services changes

This chapter summarizes the changes to Business Application Services (BAS) definition objects.

New BAS definition objects

Table 36 shows the new BAS definition objects.

<table>
<thead>
<tr>
<th>BAS object</th>
<th>What is it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOCDEF</td>
<td>CICS definition that describes a document template.</td>
</tr>
<tr>
<td>EJCINGRP</td>
<td>BAS definition that describes the membership of a CorbaServer definition (EJCODEF) in a resource group.</td>
</tr>
<tr>
<td>EJCODEF</td>
<td>CICS definition that describes a CorbaServer.</td>
</tr>
<tr>
<td>EJDINGRP</td>
<td>BAS definition that describes the membership of a CICS-deployed JAR file definition (EJDJDEF) in a resource group.</td>
</tr>
<tr>
<td>EJDJDEF</td>
<td>CICS definition that describes a CICS-deployed JAR file.</td>
</tr>
<tr>
<td>ENQMDEF</td>
<td>CICS definition that describes an ENQ/DEQ model.</td>
</tr>
<tr>
<td>FENODDEF</td>
<td>CICS definition that describes a FEPI node.</td>
</tr>
<tr>
<td>FEPOODEF</td>
<td>CICS definition that describes a FEPI pool.</td>
</tr>
<tr>
<td>FEPRODEF</td>
<td>CICS definition that describes a FEPI property set.</td>
</tr>
<tr>
<td>FETRGDEF</td>
<td>CICS definition that describes a FEPI target.</td>
</tr>
<tr>
<td>PROCDEF</td>
<td>CICS definition that describes a process type.</td>
</tr>
<tr>
<td>RQMDEF</td>
<td>CICS definition that describes a request model.</td>
</tr>
<tr>
<td>TCPDEF</td>
<td>CICS definition that describes a TCP/IP service.</td>
</tr>
<tr>
<td>TSMDEF</td>
<td>CICS definition that describes a temporary storage model.</td>
</tr>
</tbody>
</table>

Changed BAS definition objects

Table 37 shows the changes to existing BAS definition objects.

<table>
<thead>
<tr>
<th>BAS object</th>
<th>Affected attribute</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2CDEF</td>
<td>DB2GROUPID</td>
<td>New attributes added</td>
</tr>
<tr>
<td></td>
<td>RESYNCMEMBER</td>
<td></td>
</tr>
</tbody>
</table>
Table 37. Changed BAS definition object (continued)

<table>
<thead>
<tr>
<th>BAS object</th>
<th>Affected attribute</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILEDEF</td>
<td>KEYLENGTH</td>
<td>These attributes are changed to support coupling facility data table files:</td>
</tr>
<tr>
<td></td>
<td>TABLE</td>
<td>• KEYLENGTH: If the table is defined with TABLE(CF), the length of the logical key must be in the range 1 through 16 bytes.</td>
</tr>
<tr>
<td></td>
<td>MAXNUMRECS</td>
<td>• TABLE: You can indicate whether a coupling facility data table is required for the file.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MAXNUMRECS: The range permitted is now 1 through 99 999 999, and you can also specify NOLIMIT.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The FILEDEF creation screens have been amended and reorganized so that they now occupy 6 screens.</td>
</tr>
<tr>
<td>RQMDEF</td>
<td>BEANNAME</td>
<td>New attributes added.</td>
</tr>
<tr>
<td></td>
<td>CORBASERVER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERFACE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTFACETYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MODULE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPERATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RTYPE</td>
<td></td>
</tr>
<tr>
<td>RESDESC</td>
<td>EJCDEFRG</td>
<td>New attributes added.</td>
</tr>
<tr>
<td></td>
<td>EJCDEFRS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EJCDEFTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EJDDEFRG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EJDDEFRS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EJDDEFTS</td>
<td></td>
</tr>
<tr>
<td>TCPDEF</td>
<td>ATTACHSEC</td>
<td>New attribute added:</td>
</tr>
<tr>
<td>TYPTMDEF</td>
<td>RSTSIGNOFF</td>
<td>New attribute added:</td>
</tr>
</tbody>
</table>
New BAS definition attributes

There are a number of new BAS attributes in existing BAS definition objects. These are listed in Table 38.

Table 38. New BAS definition attributes

<table>
<thead>
<tr>
<th>BAS object</th>
<th>New attribute</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| FILEDEF    | CFDTPOOL      | These attributes are introduced to support coupling facility data table files:  
  - CFDTPOOL: If the table is defined with TABLE(CF), you must specify the name of the coupling facility data table pool containing the coupling facility data table to which the file refers.  
  - TABLENAME: You can specify the name of the coupling facility data table accessed through the file definition.  
  - UPDATEMODEL: You can specify the type of locking model to be used for a coupling facility data table.  
  - LOAD: You can specify whether the coupling facility data table is to be loaded from a source data set when first opened. |
|            | TABLEMNAME    |             |
|            | UPDATEMODEL   |             |
|            | LOAD          |             |
| PROGDEF    | CONCURRENCY   | This attribute is introduced to support the open transaction environment (OTE):  
  - CONCURRENCY: You can specify whether a program has been written to threadsafe standards, or is only quasi-reentrant.  
  - DYNAMIC: You can specify whether an EXEC CICS LINK to the program may invoke dynamic routing.  
  - JVM: You can specify whether a program is to operate under the control of a JVM and whether the JVM should operate in debugging mode.  
  - JVMClass: You can specify the main class in the CICS Java program to be executed by a JVM. |
|            | DYNAMIC       |             |
|            | ROUTABLE      |             |
| TRANDEF    | DYNAMIC       | These attributes are introduced to support the extensions to the dynamic routing program:  
  - DYNAMIC: You can specify whether the transaction is eligible for routing.  
  - ROUTABLE: You can specify whether the transaction, when invoked using an EXEC CICS START TERMID TRANSID command, is eligible for shipping to the TOR for dynamic routing. |
|            | ROUTABLE      |             |
Chapter 29. The CICSPlex SM API

This chapter summarizes changes to the CICSPlex SM API.

Change to FEPI operations views

The FEPOOL, FENODE, and FETRGT FEPI resources can only be installed from the BAS FEPI resource definitions and not from the FEPI operations views. That is, the INSTALL action is no longer valid for these operations views.

New resource tables

Table 39 shows new resource tables.

<table>
<thead>
<tr>
<th>Resource table</th>
<th>What is it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFDTPOOL</td>
<td>CICS resource describing a coupling facility data table pool in an active CICS system being managed by CICSPlex SM</td>
</tr>
<tr>
<td>CRESDOCT</td>
<td>CICSPlex SM topology manager object describing an instance of a document template within a CICS system.</td>
</tr>
<tr>
<td>CRESENQM</td>
<td>CICSPlex SM topology manager object describing an instance of an ENQ/DEQ model within a CICS system.</td>
</tr>
<tr>
<td>CRESPRTY</td>
<td>CICSPlex SM topology manager object describing an instance of a process type within a CICS system.</td>
</tr>
<tr>
<td>CRESRQMD</td>
<td>CICSPlex SM topology manager object describing an instance of a request within a CICS system.</td>
</tr>
<tr>
<td>CRESTCPS</td>
<td>CICSPlex SM topology manager object describing an instance of a TCP/IP Service within a CICS system.</td>
</tr>
<tr>
<td>CRESTSMD</td>
<td>CICSPlex SM topology manager object describing an instance of a temporary storage queue within a CICS system.</td>
</tr>
<tr>
<td>DOCDEF</td>
<td>CICS definition describing a document template.</td>
</tr>
<tr>
<td>DOCINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a document template definition in a resource group.</td>
</tr>
<tr>
<td>DOCTEMP</td>
<td>CICS resource describing a document template in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>EJCINGRP</td>
<td>EJCODEF in resource group</td>
</tr>
<tr>
<td>EJCObEAN</td>
<td>Enterprise bean in CorbaServer</td>
</tr>
<tr>
<td>EJCODEF</td>
<td>CorbaServer definition</td>
</tr>
<tr>
<td>EJC0SE</td>
<td>CorbaServer</td>
</tr>
<tr>
<td>EJDINGRP</td>
<td>EJDJDEF in resource group</td>
</tr>
<tr>
<td>EJDJAR</td>
<td>CICS-deployed JAR file</td>
</tr>
<tr>
<td>EJDJBEAN</td>
<td>Enterprise bean in CICS-deployed JAR</td>
</tr>
<tr>
<td>EJDJDEF</td>
<td>CICS-deployed JAR file definition</td>
</tr>
<tr>
<td>ENQINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of an ENQ/DEQ model definition in a resource group.</td>
</tr>
<tr>
<td>ENQMDEF</td>
<td>CICS definition describing an ENQ/DEQ model.</td>
</tr>
<tr>
<td>Resource table</td>
<td>What is it?</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>ENQMODEL</td>
<td>CICS resource describing an ENQ/DEQ model in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>ERMDOCT</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when a document template resource map is changed.</td>
</tr>
<tr>
<td>ERMCENQM</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when an ENQ/DEQ resource map is changed.</td>
</tr>
<tr>
<td>ERMCPRTY</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when a process type resource map is changed.</td>
</tr>
<tr>
<td>ERMCRQMD</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when a request resource map is changed.</td>
</tr>
<tr>
<td>ERMCTCPS</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when a TCP/IP Service resource map is changed.</td>
</tr>
<tr>
<td>ERMCTSMD</td>
<td>CICSPlex SM notification resource, emitted by a topology control object when a temporary storage queue resource map is changed.</td>
</tr>
<tr>
<td>FENODDEF</td>
<td>CICS definition describing a FEPI node.</td>
</tr>
<tr>
<td>FEPOODEF</td>
<td>CICS definition describing a FEPI pool.</td>
</tr>
<tr>
<td>FEPRODEF</td>
<td>CICS definition describing a FEPI property set.</td>
</tr>
<tr>
<td>FETRGDEF</td>
<td>CICS definition describing a FEPI target.</td>
</tr>
<tr>
<td>FNOINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a FEPI node definition in a resource group.</td>
</tr>
<tr>
<td>FPOINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a FEPI pool definition in a resource group.</td>
</tr>
<tr>
<td>FPRINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a FEPI property set definition in a resource group.</td>
</tr>
<tr>
<td>FTRINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a FEPI target definition in a resource group.</td>
</tr>
<tr>
<td>JVMPOOL</td>
<td>JVMs in the CICS address space</td>
</tr>
<tr>
<td>PRCINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a process type definition in a resource group.</td>
</tr>
<tr>
<td>PROCDEF</td>
<td>CICS definition describing a process type.</td>
</tr>
<tr>
<td>PROCTYP</td>
<td>CICS resource describing a process type in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>RQMDEF</td>
<td>CICS definition describing a request model.</td>
</tr>
<tr>
<td>RQMINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a request model definition in a resource group.</td>
</tr>
<tr>
<td>RQMODEL</td>
<td>CICS resource describing a request type in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>TCPDEF</td>
<td>CICS definition describing a TCP/IP Service.</td>
</tr>
<tr>
<td>TCPINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a TCP/IP Service definition in a resource group.</td>
</tr>
<tr>
<td>TCPIPGBL</td>
<td>CICS internal TCP/IP sockets support</td>
</tr>
<tr>
<td>TCPIPS</td>
<td>CICS resource describing a TCP/IP Service in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>TSMDEF</td>
<td>CICS definition describing a temporary storage model.</td>
</tr>
</tbody>
</table>
Table 39. New resource tables (continued)

<table>
<thead>
<tr>
<th>Resource table</th>
<th>What is it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSMINGRP</td>
<td>CICSPlex SM BAS definition describing the membership of a temporary storage model definition in a resource group.</td>
</tr>
<tr>
<td>TSMODEL</td>
<td>CICS resource describing a temporary storage model in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>TSPOOL</td>
<td>CICS resource describing a temporary storage pool in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>TSQNAME</td>
<td>CICS resource describing a temporary storage queue in an active CICS system being managed by CICSPlex SM.</td>
</tr>
<tr>
<td>TSQSHR</td>
<td>CICS resource describing a temporary storage queue in a pool in an active CICS system being managed by CICSPlex SM.</td>
</tr>
</tbody>
</table>

Changed resource tables

The following resource tables have been changed. Review these resource tables for possible impact on any real-time analysis (RTA) evaluation definitions (EVALDEF) or application programming interface (API) programs you may be using.

- CICSRGN
- CMAS
- CMDT
- CONNECT
- CPLEXDEF
- CPLXCMAS
- DB2CDEF
- DB2CONN
- DB2TRAN
- D2CINGRP
- D2EINGRP
- D2TINGRP
- EXITTRUE
- FEPIPOOL
- FEPIPROP
- FILEDEF
- MAS
- MCMDT
- MCONNECT
- MLOCTRAN
- MTASK
- MTERMNL
- NTERMNL
- PROGDEF
- PROGRAM
- RESDESC
- ROMDEF
- RQMODE
- MQ
- STREAMNM
- TASK
- TCPDEF
- TCPIPS
- TERMDEF
- TERMNL
- TRANDEF
- TRANGROUP
- TRANSVAL
- TSQUEUE
- TYPTMDEF
- UOWENQ
- UOWLINK
- UOW
- WLMTAFF
- WLMTGRPF
- WLMAWDEF
- WLMAWDF
- WLMAWORK
- WLMDM
- WLMSPEC
Chapter 30. Migrating to CICS TS 2.2 CICSPlex SM

This chapter presents information about the compatibility of previous releases of CICSPlex SM and CICS TS Version 2.2 CICSPlex SM.

Notes on terminology
Throughout this chapter, CICSPlex SM releases are referred to as follows:

**Version 2.2**
- Version 2 Release 2 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 2 Release 2)

**Version 2.1**
- Version 2 Release 1 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 2 Release 1)

**Release 4**
- Version 1 Release 4 (the CICSPlex SM element of CICS Transaction Server for OS/390 Release 3)

**Release 3**
- Version 1 Release 3

**Release 2**
- Version 1 Release 2

The CICSPlex SM elements of CICS Transaction Server for z/OS, Version 2 Release 2 and CICS Transaction Server for z/OS Version 2 Release 1 are not available as a separate product.

Sections in this chapter describe:
- “Running CICSPlex SM Version 2.2 and an earlier release concurrently”
- “Performing migration procedures” on page 237
- “A phased migration scenario” on page 243
- “Management of unsupported CICS regions” on page 253

MASs running the following CICS releases are directly-connectable to CICSPlex SM Version 2.2:
- CICS Transaction Server for z/OS, Version 2 Release 2
- CICS Transaction Server for z/OS Version 2 Release 1
- CICS Transaction Server for OS/390 Version 1 Release 3
- CICS Transaction Server for OS/390 Version 1 Release 2
- CICS Transaction Server for OS/390 Version 1 Release 1
- CICS for MVS/ESA™ Version 4.1
- CICS OS/2™ Versions 3.0 and 3.1

Running CICSPlex SM Version 2.2 and an earlier release concurrently

You can run CICSPlex SM Version 2.2, Release 4, Release 3, and Release 2 at the same time, with interconnected CMASs at different levels. The ability to do this allows gradual migration of the environment from Release 2, Release 3, and Release 4 to Version 2.2. However, there are some conditions for running Version 2.2 with Release 4, Release 3 or Release 2 that you should understand. Read the following section “Conditions for running CICSPlex SM Version 2.2 and earlier releases concurrently” on page 236 then read “Performing migration procedures” on page 237 to...
understand how to migrate your supported releases before attempting the extra
migration steps. If you then need to perform the extra steps to continue the
management of unsupported CICS regions, see “Management of unsupported CICS
regions” on page 253.

Conditions for running CICSPlex SM Version 2.2 and earlier releases concurrently

The following conditions apply to environments in which CICSPlex SM Version 2.2
and earlier releases of CICSPlex SM are running concurrently:

- The APARs in the following lists must be applied to the earlier release, whether it
  be Release 3 or Release 2, or both:

  **Apply to Release 2 only**
  - PQ53155
  - PQ05976

  **Apply to Release 3 only**
  - PQ09511
  - PQ20539
  - PQ21143
  - PQ21798
  - PQ23062

  **Apply to Releases 2 and 3**
  - PQ11318
  - PQ13281
  - PQ14319
  - PQ15180
  - PQ16586
  - PQ16588
  - PQ17747
  - PQ23016
  - PQ23027
  - PQ46169

  **Apply to Release 4 only**
  - PQ46169
  - PQ54384

  **Apply to Release 4 and Version 2.1**
  - PQ54004

  **Apply to Version 2.1 only**
  - PQ53155
Latest information:
The lists above were correct at the time of publication, but you should expect changes to be made as APARs are answered. The Preventive Service Planning section (3.2) of the CICS Transaction Server for z/OS Program Directory advises you to review the current PSP information for the most up-to-date details, and tells you how to obtain this information.

• In order for a CAS, a CMAS, and a MAS (including those MASs that act as Web User Interface servers), to communicate, they must all be running the same release of CICSPlex SM. That is:
  – A CMAS must be connected to a CAS running at the same release as the CMAS. You can access a CMAS directly only through a CAS running at the same release level. This is true both when the context is a CMAS and when the context is a CICSpex that is connected to the CMAS.
  – A MAS (including those MASs that act as Web User Interface servers) must be connected to a CMAS running at the same release of CICSPlex SM as the MAS.
• A CAS running at Version 2.2 cannot be connected to a CAS running at Release 4, Release 3 or Release 2.
• A CMAS running at Version 2.2 can be connected to a CMAS running at Release 4, Release 3 or Release 2. However:
  – In a CICSpex that consists of CMASs at the Version 2.2 level and the Release 4, Release 3 or Release 2 level, the maintenance point CMAS must be at the Version 2.2 level. That is, when a CICSpex contains CMASs at both levels, the first CMAS converted to Version 2.2 must be the maintenance point.
  – If you are using the API, EUI, or Web User Interface to manage MASs connected to a CMAS at an earlier release, you must ensure that the MASs are managed indirectly from the Version 2.2 CMAS. You must ensure that:
    - All API programs run so that they are connected to the Version 2.2 CMAS.
    - All TSO EUI sessions connect to the Version 2.2 CAS.
    - All Web User Interface servers connect to the Version 2.2 CMAS.
  – When multiple CMASs at different CICSPlex SM release levels are running on the same MVS/ESA image, you must run a CAS for each release of the CMASs running on that MVS/ESA image. CASs running at different CICSPlex SM release levels cannot communicate directly.

Performing migration procedures

The migration from a previous release of CICSPlex SM to CICS TS Version 2.2 CICSPlex SM for a CMAS and all MASs (including those MASs that act as Web User Interface servers) that are connected to it, as well as for the CAS to which the CMAS is connected, should be completed before CICSPlex SM is restarted. When other CMASs at the previous release level are not migrated to this release, a separate CAS running at the previous release level must be provided to which the other CMASs can now connect. This is so that you can access the EUI at the other CMASs.

Several skeleton post-installation members are distributed with CICSPlex SM. You should generate these post-installation members for use during the migration. (For information about generating the post-installation members, see the CICS Transaction Server for z/OS Installation Guide.)
To enable you to revert to the previous release of CICSPlex SM if you encounter problems during the migration to CICS TS Version 2.2 CICSPlex SM, you should take back-up copies of the previous release components such as JCL, CLISTs, CICS tables, and CMAS data repositories before you start the migration process.

**Note:** You can use the procedures in this section to migrate from Release 4, Release 3 and Release 2 of CICSPlex SM to CICS TS Version 2.2 CICSPlex SM.

### Converting a CAS to Version 2.2

In order to provide for concurrent previous release and Version 2.2 CASs you must create a separate Version 2.2 CAS environment.

To convert a CAS from Release 4, Release 3 or Release 2 to Version 2.2, you will need to do the following:

- Review the IEASYSxx member in the SYS1.PARMLIB library. The NSYSLX value may need to be increased. (For information about the NSYSLX value for CICSPlex SM, see the [CICS Transaction Server for z/OS Installation Guide](#).)

- Authorize the new Version 2.2 libraries. (For information about how to do this, see the [CICS Transaction Server for z/OS Installation Guide](#).)

- (Only when running both a previous release and Version 2.2.) Define the VTAM requirements for the Version 2.2 CAS. You must perform the following steps:
  - Create a VTAM application definition
  - Update the configuration list
  - Activate the major nodes

When the Version 2.2 CAS is going to communicate with another Version 2.2 CAS on a system that also is running multiple releases of CICSPlex SM, you must also define the cross-domain resources. (For information about performing these steps, see the [CICS Transaction Server for z/OS Installation Guide](#).)

- Review the JCL in the EYUDEFDS member generated by the EYUISTAR job to ensure that the following steps were generated when the post-installation jobs were created:
  - IPRMDEL
  - IPRMALOC

Then run the job to create a new BBIPARM parameter repository data set for the Version 2.2 CAS.

If you are running both Release 4 and Version 2.2 and your Release 4 CASs currently share a single BBIPARM data set, your Version 2.2 CASs can share the same BBIPARM data set. However, a Release 3 or a Release 2 CAS and a Version 2.2 CAS cannot share the same BBIPARM data set. You must create a new, separate BBIPARM data set for Version 2.2. (For information about using EYUDEFDS, see the [CICS Transaction Server for z/OS Installation Guide](#).)

- Update your TSO sign-on procedure to use the Version 2.2 data sets. Use generated member EYUTSODS to temporarily allocate the libraries. (For information about updating your TSO sign-on procedure, see the [CICS Transaction Server for z/OS Installation Guide](#).)

- Review the changes made to the CICSPlex SM global security parameters for Version 2.2. Make sure the BBACTDEF DD statement in the CAS startup procedure references a data set containing the BBMTSS member distributed with Version 2.2. (For information about this member, see the [CICS Transaction Server for z/OS Installation Guide](#).)
Use the JCL procedure in the EYUCAS member to start the CAS, verifying the SSID and the DD statements for the Version 2.2 data sets. If you are running both a previous release of CICSplex SM and Version 2.2, the SSIDs for the two CASs must be different. (For information about the JCL in EYUCAS, see the CICS Transaction Server for z/OS Installation Guide).

The Version 2.2 CAS is now ready for use.

Converting a CMAS to Version 2.2

You need to do the following:

- Review the IEASYSxx member in the SYS1.PARMLIB library.

  Note: Some of the parameters in the IEASYSxx member may need to be modified when you are running both a previous release and Version 2.2 of CICSplex SM, because an Environment Services System Services (ESSS) space will be started for each release. (For information about NSYSLX and the ESSS, see the CICS Transaction Server for z/OS Installation Guide.)

- Authorize the Version 2.2 libraries. (For information about how to do this, see the CICS Transaction Server for z/OS Installation Guide.)

- Update the MVS link list with the Version 2.2 library. (For information about this step, see the CICS Transaction Server for z/OS Installation Guide.)

- Update the CSD file with the Version 2.2 group of resource definitions and CICS startup group list. (For information about how to do this, see the CICS Transaction Server for z/OS Installation Guide.)

- Update the CICS SIT GRPLIST parameter to reference the CICSPlex SM Version 2.2 group list EYU220L0. (For information about the CICS SIT parameters, see the CICS Transaction Server for z/OS Installation Guide.)

- Reassemble the CICS resource definition table load modules. Reference the library containing the Version 2.2 resource entry copy books to update the resource tables with the newest entries. (For information about assembling the resource definition table load modules, see the CICS Transaction Server for z/OS Installation Guide.)

- Convert the data repository to Version 2.2. (For information about how to convert the data repository, see the CICS Transaction Server for z/OS Installation Guide.)

  Note: The conversion utility migrates the contents of the existing data repository to a newly allocated data repository. The existing data repository is not modified.

- Edit the JCL you use to start the CMAS, changing the CICSplex SM library names and the DD statements to the Version 2.2 names. If you are running an earlier version of EYUCMAS, you should add the following DD statement:

  //BBIPARM DD DISP=SHR,DSN=CICSTS22.CPSM.EYUIPRM

  (For information about the CMAS startup JCL, see the CICS Transaction Server for z/OS Installation Guide.)

- Verify the CICSplex SM system parameters referenced by the EYUPARM DD statement. Ensure that the SSID value is the same as the value used to start the CAS to which this CMAS connects. (For information about these parameters, see the CICS Transaction Server for z/OS Installation Guide.)

The CMAS is ready to be cold started.
When you have successfully migrated all your systems to CICSPlex SM Version 2.2 you can delete the previous release groups and group lists from each CMAS’s CSD. (For information about how to do this, see "Deleting the previous release definitions from CSD files" on page 242.)

Converting a MAS to Version 2.2

To convert a MAS to Version 2.2, you need to do the following:

- Authorize the Version 2.2 libraries. (For information about doing this, see the CICS Transaction Server for z/OS Installation Guide.)
- Reassemble the CICS resource definition table load modules. Reference the library containing the Version 2.2 resource entry copy books to update the resource tables with the newest entries. (For information about updating the resource definition table load modules for a MAS, see the CICS Transaction Server for z/OS Installation Guide.)
- Update the CSD file with the Version 2.2 group of resource definitions. At Version 2.2, this group is EYU220G1. (For information about updating the CSD file for a MAS, see the CICS Transaction Server for z/OS Installation Guide.)
- If all MASs that use the same CSD and group list are being migrated at the same time, update the CSD to add the Version 2.2 group to, and remove the previous release group from the group list. However, if the same CSD and group list are being used by MASs that will run multiple releases of CICSPlex SM concurrently, create a new group list in the CSD by performing the following steps:
  - APPEND the old group list to a new group list name.
  - Update the CSD to add the Version 2.2 MAS group.
  - Add the Version 2.2 MAS group to the new group list.
  - Remove the previous release MAS group from the new group list.

For more information about adding a (new release) group to the group list in the CSD, see the CICS Transaction Server for z/OS Installation Guide.

To create a new group list in the CSD, use a statement of the following form as input to DFHCSDUP:

```
APPEND LIST(old_list) TO(new_list)
```

To remove a previous release group from a group list, use a statement of the following form as input to DFHCSDUP:

```
REMOVE LIST(new_list) GROUP(old_group)
```

where new_list is the group list used by the MAS and old_group is the previous release group to be removed. The old_group name depends on the type of MAS and whether CICSPlex SM code is used from the LPA. Table 40 lists the release group names for each environment.

<table>
<thead>
<tr>
<th>Environment</th>
<th>Release 2 Group</th>
<th>Release 3 Group</th>
<th>Release 4 Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local MAS – USELPACOPY(NO)</td>
<td>EYU120G1</td>
<td>EYU130G1</td>
<td>EYU140G1</td>
</tr>
<tr>
<td>Remote MAS – USELPACOPY(NO)</td>
<td>EYU120G2</td>
<td>EYU130G2</td>
<td>EYU140G2</td>
</tr>
<tr>
<td>Local MAS – USELPACOPY(YES)</td>
<td>EYU120GB</td>
<td>EYU130GB</td>
<td>EYU140GB</td>
</tr>
<tr>
<td>Remote MAS – USELPACOPY(YES)</td>
<td>EYU120GC</td>
<td>EYU130GC</td>
<td>EYU140GC</td>
</tr>
</tbody>
</table>

Table 40. MAS CSD groups for previous releases of CICSPlex SM
If a new group list is created, the GRPLIST CICS system initialization parameter for the MAS, in the SIT or in startup overrides, should be changed to specify the name of the new group list.

- When previous release modules are in the link pack area (LPA), you must ensure the Version 2.2 modules are used in place of the previous release modules. (For information about how to do this, see the CICS Transaction Server for z/OS Installation Guide.)
- Edit the JCL used to start the MAS changing the previous release of CICSPlex SM library names to the Version 2.2 names. (For information about the MAS startup JCL, see the CICS Transaction Server for z/OS Installation Guide.)

The MAS is ready to be cold started.

When you have successfully migrated all your systems to CICSPlex SM Version 2.2 you can delete the previous release groups from each MAS’s CSD. (For information about how to do this, see Deleting the previous release definitions from CSD files.)

Workload management
If you use the workload management functions of CICSPlex SM and you use your own version of the CICSPlex SM user-replaceable Workload Routing Action Module, EYU9WRAM, you must recompile and link-edit your version of EYU9WRAM using the Version 2.2 libraries. For information on how to do this, see the description of customizing the dynamic transaction routing program in the CICSPlex System Manager Managing Workloads manual.

Application programming interface
CICSPlex SM API programs written to run in a previous release MAS can be run in a Version 2.2 MAS. You can either continue to access the data provided by the previous release or access the new data available from Version 2.2. For a discussion of the compatibility between releases of the API, see the CICSPlex System Manager Application Programming Guide.

Converting a Web User Interface Server to Version 2.2
You should consider migrating a Web User Interface server after you migrate the CMAS to which it connects and before migrating any MASs.

As the CICS system that acts as your Web User Interface server is a local MAS, all the considerations that apply to a local MAS also apply to a Web User Interface server.

To convert a Web User Interface server to Version 2.2 you should:
- Migrate the MAS that acts as your Web User Interface server.
- Update the CSD file with the Version 2.2 Web User Interface group of definitions. At Version 2.2, this group is EYU220GW.
- Migrate the contents of the Web User Interface server repository (EYUWREP).

Migrating the MAS and updating the Web User Interface CSD group
To migrate the MAS and update the Web User Interface CSD group you should follow the instructions for converting a MAS as described in “Converting a MAS to Version 2.2” on page 240. You must also replace the CSD group EYU140GW with EYU220GW in the group list used by the Web User Interface server or create a new group list containing EYU220GW.
EYU220GW is included in the CSD when the CSD file is updated with the Version 2.2 group of resource definitions (EYU9nnG1).

**Migrating the contents of the Web User Interface server repository (EYUWREP)**

To migrate the Web User Interface server repository to Version 2.2:

- Export your view set and menu definitions with your Web User Interface server still running at your current release. It is not necessary for the Web User Interface server to be connected to a CMAS to do this. For information about exporting definitions see the [CICSplex System Manager Web User Interface Guide](#).
- Create a new Web User Interface server repository for Version 2.2 using the JCL described in the [CICSplex System Manager Web User Interface Guide](#).
- Start the Web User Interface server at the new release using the new Web User Interface server repository.
- Import the new starter set definitions (the supplied set of view set and menu definitions with names beginning EYUSTART).
- Import your previous release view set and menu definitions, specifying the SKIP option on the Duplicate Names field of the COVC panel. This prevents the new starter set definitions being overwritten by starter set definitions exported from a previous release.

**Note:** If you do accidentally overwrite the new starter set definitions with starter set definitions exported from a previous release, you can re-import the new starter set definitions specifying the OVERWRITE option on the Duplicate Names field of the COVC panel.

For information about importing view set and menu definitions see the [CICSplex System Manager Web User Interface Guide](#). For information about the starter set see the [CICSplex System Manager Web User Interface Guide](#).

You do not need to make any changes to existing customized views and menus you may have created but you can consider modifying or creating view sets to take into account the new attributes and resources.

**Notes:**

1. You can import into a Version 2.2 Web User Interface server repository Release 4 view set and menu definitions.
2. You can import view set and menu definitions exported by a Version 2.2 Web User Interface server into a Release 4 Web User Interface server repository. However, any new attributes or resources introduced in Version 2.2 are not accessible in the Release 4 Web User Interface server. You may wish to remove these attributes and view sets using the View Editor. For information about the View Editor see the [CICSplex System Manager Web User Interface Guide](#).

**Deleting the previous release definitions from CSD files**

When you have successfully migrated all your systems to CICSplex SM Version 2.2, you can delete the previous release definitions from each CMAS’s and MAS’s CSD. This can be done by upgrading each CSD using module EYU9R120 (for Release 2), EYU9R130 (for Release 3), or EYU9R140 (for Release 4), which are supplied in CICSTS22.CPSM.SEYULOAD.
When this JCL is run, EYU9R120 attempts to delete all Release 2 groups and group lists from the CSD; EYU9R130 attempts to delete all Release 3 groups and group lists from the CSD; EYU9R140 attempts to delete all Release 4 groups and group lists from the CSD. However, because not all of the items the job attempts to delete are actually defined in the CSD, DFHCSDUP gives a return code of 04. The DFHCSDUP SYSPRINT output lists those items that were deleted and those that were not found. For further information about updating the CSD, see the CICS Transaction Server for z/OS Installation Guide.

Figure 10. JCL to delete previous release groups and group lists from the CSD

When this JCL is run, EYU9R120 attempts to delete all Release 2 groups and group lists from the CSD; EYU9R130 attempts to delete all Release 3 groups and group lists from the CSD; EYU9R140 attempts to delete all Release 4 groups and group lists from the CSD. However, because not all of the items the job attempts to delete are actually defined in the CSD, DFHCSDUP gives a return code of 04. The DFHCSDUP SYSPRINT output lists those items that were deleted and those that were not found. For further information about updating the CSD, see the CICS Transaction Server for z/OS Installation Guide.

A phased migration scenario

Figure 11 on page 244, Figure 12 on page 245, Figure 13 on page 248, and Figure 14 on page 251 and the discussions that accompany them show a CICSPlex SM environment at an earlier release and the steps you would take to convert that environment to Version 2.2. Note that this scenario presents one way you might perform the migration; you might find another set of procedures to be more appropriate to your own environment.
The environment

Figure 11 shows a CICSPlex SM environment that is made up of the following components:

- 3 MVS systems (System A, System B, System C)
- 1 CICS for OS/2 system (System D)
- 3 CASs
  - All interconnected
- 3 CMASs
  - All interconnected
  - CMAS A connects to CAS A (both are in System A)
    - (This is the maintenance point CMAS.)
  - CMAS B connects to CAS B (both are in System B)
  - CMAS C connects to CAS C (both are in System C)
- 1 CICSpIex
  - CMAS A is the maintenance point
- 7 CICS regions
  - 6 local MASs
    - MAS A1 and MAS A2 connect to CMAS A (all are in System A)
Objective 1: Convert MP CMAS to Version 2.2

As shown in Figure 12, when you complete Objective 1 the connections from CAS A to CAS B and from CAS A to CAS C will be removed.

The conversion of the maintenance point CMAS A to Version 2.2 requires conversion to Version 2.2 for the following:
- MVS System A CICSPlex SM TSO users
- CAS A
- CMAS A
- MAS A1
- MAS A2
Step 1: Terminate executing regions that are to be converted

- If the following systems are in execution, terminate them:
  - CAS A
  - CMAS A
  - MAS A1
  - MAS A2

Step 2: Convert MVS System A CICSPlex SM TSO users to Version 2.2

- Create the appropriate data set allocations to point to Version 2.2 data sets. This must not affect the allocations for TSO users on MVS Systems B and C, which are still at the previous level.

Step 3: Convert CAS A to Version 2.2

- Ensure that CAS B and CAS C are started.
- Remove the CAS A links to CAS B and to CAS C. Depending upon whether the CASs share the BBIPARM data set, you must do one of the following:
  - If CAS B and CAS C share the BBIPARM data set:
    - From the CAS B CASDEF view:
      - Issue the EDIT action command to provide editing access to the BBIPARM data set.
      - Issue the DELETE action command to delete the entry for CAS A.
      - Issue the SAVE command to save the changes in the BBIPARM data set.
  - If CAS B and CAS C do not share the BBIPARM data set:
    - From the CAS B CASDEF view, DELETE the entry for CAS A, as described above.
    - From the CAS C CASDEF view, DELETE the entry for CAS A, as described for the CAS B view.
- Change the appropriate IEAAPFx member of the SYS1.PARMLIB library to authorize the CICSTS22.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS A to point to the Version 2.2 data sets.

Note: The BBIPARM data set must not contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS A is first started. The new member will be reused when CAS A is subsequently restarted.

- Start CAS A.
- From the CAS A CASDEF view:
  - Issue the CHANGE action command to modify the VTAM APPL name for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INSTAll action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.

Step 4: Convert CMAS A to Version 2.2

- Ensure that modules EYU9A220 and EYU9X220 in the CICSTS22.CPSM.SEYULINK data set are in the MVS link-list concatenation.
- Update the CMAS A CSD file, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS A.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS A to Version 2.2.
**Note:** After converting the EYUDREP data set for CMAS A, the next time CMAS A is started it must point to the converted EYUDREP data set. If it does not, data repository updates may be lost. This can lead to invalid results, which can include other CMAS’s isolating themselves when they connect to this CMAS.

- Update the JCL used to start CMAS A to point to the Version 2.2 data sets and to connect to the correct CASNAME.
- Ensure that the startup JCL for the CMAS includes the following statement:
  
  ```
  //BBIPARM DD DISP=SHR,DSN=bbiparm.data.set
  ```
  
  The file should point to the same data set allocated to the BBIPARM file in the CAS to which this CMAS connects.

**Note:** This statement is not required prior to CICSPlex SM Release 4.

**Step 5: Convert MAS A1 and MAS A2 to Version 2.2**

- Update the MAS A1 and MAS A2 CSD files, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
- Update the CICS group lists for MAS A1 and MAS A2.
- Update the JCL used to start MAS A1 and for MAS A2 to point to the Version 2.2 data sets.
- Start MAS A1 and MAS A2.
Objective 2: Convert CMAS B to Version 2.2

As shown in Figure 13, when you complete Objective 2 the connection from CAS A to CAS B will be reestablished and the connection from CAS B to CAS C will be removed. The conversion of CMAS B to Version 2.2 requires conversion to Version 2.2 for the following:

- MVS System B CICSPlex SM TSO users
- CAS B
- CMAS B
- MAS B1
- MAS B2

Step 1: Terminate executing regions that are to be converted

- IF THE FOLLOWING SYSTEMS ARE IN EXECUTION, TERMINATE THEM:
  - CAS B
  - CMAS B
  - MAS B1
  - MAS B2
Step 2: Convert MVS System B CICSPlex SM TSO users to Version 2.2

- Create the appropriate data set allocations to point to Version 2.2 data sets. This must not affect the allocations for TSO users on MVS System C, which is still at the previous level.

Step 3: Convert CAS B to Version 2.2

- Ensure that CAS A and CAS C are started.
- Remove the link from CAS B to CAS C.
  - Bring up CAS C.
  - From the CAS C SYSTEMS view, DELETE the entry for CAS B.
- Change the appropriate IEAAPFxx member of the SYS1.PARMLIB library to authorize the CICSTS22.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS B to point to the Version 2.2 data sets.

Note: If CAS A and CAS B are not going to share the BBIPARM data set, then the BBIPARM data set for CAS B must not contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS B is first started. The new member will be reused when CAS B is subsequently restarted.

- Start CAS B.
- From the CAS B CASDEF view:
  - Issue the CHANGE action command to modify the VTAM ApplName for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INStall action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.

- Link CAS B to CAS A. The procedure for doing this depends upon whether the CASs share the BBIPARM data set.
  If CAS A and CAS B share the BBIPARM data set:
    - From the CAS A CASDEF view, issue the INStall action to install the definition for B.
  If CAS A and CAS B do not share the BBIPARM data set:
    - From the CAS A CASDEF view:
      - Issue the ADD action command to add a definition for CAS B.
      - Issue the INStall action command to install the new definition.
      - Issue the SAVE action command to save the changes in the BBIPARM data set.
    - From the CAS B CASDEF view:
      - Issue the ADD action command to add a definition for CAS A.
      - Issue the INStall action command to install the new definition.
      - Issue the SAVE action command to save the changes in the BBIPARM data set.
**Step 4: Convert CMAS B to Version 2.2**

- Ensure that modules EYU9A220 and EYU9X220 in the CICSTS22.CPSM.SEYULINK data set is in the MVS link-list concatenation.
- Update the CMAS B CSD file, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS B.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS B to Version 2.2.

**Note:** After converting EYUDREP data set for CMAS B, the next time CMAS B is started, it must point to the converted EYUDREP data set. If it does not, data repository updates may be lost. This can lead to invalid results, which include other CMAS’s isolating themselves when they connect to this CMAS.

- Update the JCL used to start CMAS B to point to the Version 2.2 data sets.
- Ensure that the startup JCL for the CMAS includes the following statement:
  ```
  //BBIPARM DD DISP=SHR,DSN=bbiparm.data.set
  ```
  The file should point to the same data set allocated to the BBIPARM file in the CAS to which this CMAS connects.

**Note:** This statement is not required prior to CICSPlex SM Release 4.
- Start CMAS B.

**Step 5: Convert MAS B1 and MAS B2 to Version 2.2**

- Update the MAS B1 and MAS B2 CSD files, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
- Update the CICS group lists for MAS B1 and MAS B2.
- Update the JCL used to start MAS B1 and for MAS B2 to point to the Version 2.2 data sets and to connect to the correct CASNAME.
Objective 3: Convert CMAS C to Version 2.2

As shown in Figure 14, when you complete Objective 3 the connections from CAS C to CAS B and from CAS C to CAS A will be reestablished.

The conversion of CMAS C to Version 2.2 requires conversion to Version 2.2 for the following:
- MVS System C CICSPlex SM TSO user
- CAS C
- CMAS C
- MAS C1
- MAS C2
- MAS D

Step 1: Terminate executing regions that are to be converted
- If the following systems are in execution, terminate them:
  - CAS C
  - CMAS C
  - MAS C1

Figure 14. Converting CMAS C to Version 2.2
Step 2: Convert MVS System C CICSPlex SM TSO users to Version 2.2
- Create the appropriate data set allocations to point to Version 2.2 data sets.

Step 3: Convert CAS C to Version 2.2
- Ensure that CAS A and CAS B are started.
- Change the appropriate IEAAPFx members of the SYS1.PARMLIB library to authorize the CICSTS22.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS C to point to the Version 2.2 data sets.

Note: If CAS C is not going to share the BBIPARM data set with CAS A and CAS B, then the BBIPARM data set for CAS C must not contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS C is first started. The new member will be reused when CAS C is subsequently restarted.

- Start CAS C.
- From the CAS C CASDEF view:
  - Issue the CHANGE action command to modify the VTAM ApplName for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INStall action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.
- Link CAS C to CAS A and to CAS B. The procedure for doing this depends upon whether the CASs share the BBIPARM data set.
  If the CASs share the BBIPARM data set:
  - From the CAS A CASDEF view, issue the INStall action to install the definition for CAS C.
  - From the CAS B CASDEF view, issue the INStall action to install the definition for CAS C.
  If the CASs do not share the BBIPARM data set:
  - From the CAS A CASDEF view:
    - Issue the ADD action command to add a definition for CAS C.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.
  - From the CAS B CASDEF view:
    - Issue the ADD action command to add a definition for CAS C.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.
  - From the CAS C CASDEF view:
    - Issue the ADD action command to add a definition for CASs A and B.
    - Issue the INStall action command to install the new definitions.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.

Step 4: Convert CMAS C to Version 2.2
• Ensure that modules EYU9A220 and EYU9X220 in the CICSTS22.CPSM.SEYULINK data set are in the MVS link-list concatenation.
• Update the CMAS C CSD file, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
• Update the CICS group list for CMAS C.
• Run EYU9XDUT to convert the EYUDREP data set for CMAS C to Version 2.2.

Note: After converting EYUDREP data set for CMAS C, the next time CMAS C is started, it must point to the converted EYUDREP data set. If it does not, data repository updates may be lost. This can lead to invalid results, can which include other CMAS’s isolating themselves when they connect to this CMAS.
• Update the JCL used to start CMAS C to point to the Version 2.2 data sets and to connect to the correct CASNAME.
• Ensure that the startup JCL for the CMAS includes the following statement:
  
  //BBIPARM DD DISP=SHR,DSN=bbiparm.data.set

  The file should point to the same data set allocated to the BBIPARM file in the CAS to which this CMAS connects.

Note: This statement is not required prior to CICSPlex SM Release 4
• Start CMAS C.

Step 5: Convert MAS C1 and MAS C2 to Version 2.2
• Update the MAS C1 and MAS C2 CSD files, using the resource definitions supplied in the CICSTS22.CPSM.SEYULOAD data set.
• Update the CICS group lists for MAS C1 and MAS C2.
• Update the JCL used to start MAS C1 for MAS C2 to point to the Version 2.2 data sets.
• Start MASs C1 and C2.

Management of unsupported CICS regions

Where it is not currently possible to migrate a CICS region to a level that is supported by IBM Service (for example, your CICSpex may contain many MASs running unsupported releases of CICS and the resources required to migrate them all to a supported release may not yet be available to you), you may still manage it indirectly but you must use the end user interface (EUI), the application programming interface (API), business application services (BAS), and the real-time analysis (RTA) services provided in CICS TS Version 2.2 CICSpex SM to do so.

Failure to use the interfaces provided at this release to manage indirectly those MASs running unsupported releases of CICS may give rise to unpredictable results, such as the inability to install resources, incorrect data being supplied to monitor and operations views, and existing data being unavailable.

Your enterprise may also have specific business—related reasons to postpone the migration of all systems to this release until a later point. For example, your CICSpex, situated on one continent but managed by you from another continent, may comprise many Release 3 CMASs managing many MASs running supported and unsupported releases of CICS. The resources required to migrate all Release 3 CMASs to this release may not yet be available to you at this site. You must, however, manage this CICSpex using the interfaces available at this release — you
must, therefore, migrate the maintenance point CMAS and the CAS to which it connects to Version 2.2 (that is, the latest level).

**Migration steps for the management of unsupported CICS releases**

Figure 15 on page 255 is an example of such an environment where unsupported releases are being managed in the CICSpex. The example illustrated shows a Release 3 CMAS but this could equally be a Release 2 CMAS and the connected MAS might be running CICS Transaction Server for OS/390 Version 1 Release 1.

This example assumes Release 4 to be the latest release, however, you can apply the same scenario to Version 2.2, if that is your latest level.

Table 41 shows which CICS systems may be directly connected to which releases of CICSpex SM.

<table>
<thead>
<tr>
<th>CICS system</th>
<th>CICSpex SM component of CICS TS 2.2</th>
<th>CICSpex SM component of CICS TS 1.3</th>
<th>CICSpex SM 1.3</th>
<th>CICSpex SM 1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 2.2</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.3</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS/ESA 4.1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS/ESA 3.3</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS 2.1.2</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for OS/2™ 3.1</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CICS for OS/2 3.0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS/OS2 2.0.1</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
In this situation, you must perform the following steps to convert your Release 3 or Release 2 CMAS to a CMAS that permits the indirect management of its connected unsupported (by IBM Service) MASs (MAS 3 in this example) by a Version 2.2 CMAS:

1. Recreate every CMAS at Release 3 or Release 2 which has unsupported CICS regions connected to it.
   - Create a new CMAS at the Release 3 or Release 2 level. See Figure 16 on page 256; in this example, the new CMAS created at the earlier release is CMAS 2.
   - See the chapter “Setting up a CICSPlex SM Address Space (CMAS)” in the Setup manual in the library appropriate to the release of the CMAS.

2. Connect the CMAS to the CICSPlex. See the chapter “Configuring a CMAS” in the Setup manual in the library appropriate to the release of the CMAS for information on how to do this.
3. Shut down and restart the MASs running those unsupported releases of CICS (MAS 3 in this example) that you need to manage from Version 2.2. Ensure that they connect to this new CMAS (CMAS 2 in this example) by specifying its SYSID in the CMASSYSID(name) CICSPlex SM system parameter in the EYUPARM definitions for each connecting MAS. See Figure 17 on page 257.

Figure 16. Recreate the CMAS at the previous release and connect it to the CICSp lex
4. If you need to maintain the new CMAS’s communications links (either CMAS–to–CMAS links, or CMAS–to–RMAS links), you must also recreate the earlier release CAS and connect this new CMAS to it. Create this CAS before you perform the phased migration. Ensure that this CAS (in this example, it is CAS 2) has its own BBIPARM data set. See Figure 18 on page 258.

Figure 17. Connect the unsupported MASs to this new CMAS
All management of MASs must be performed via the CAS at the latest level. The new CAS (CAS 2 in the example) must only be used to perform maintenance operations on the new CMAS (CMAS 2 in the example). Do not use this CAS to manage any MASs, including the unsupported MASs.

5. Perform a phased migration of the rest of the CICSplex. See “A phased migration scenario” on page 243 for a description of this process. In this example, the systems to be migrated in the phased migration process are CAS 1, CMAS 1, MAS 1, and MAS 2.

Do not migrate the new CMAS (CMAS 2 in the example) and CAS (CAS 2 in the example) as part of this process.

Having completed these steps, you must use the latest level EUI, API, RTA and BAS services to manage the unsupported CICS regions connected to this CMAS. Figure 19 on page 259 shows the scenario after these migration steps have been successfully implemented.
Migrating application programs in this environment

You can continue to run your application programs without amendment in this environment where you are indirectly managing from Version 2.2 CICSPlex SM those MASs that are directly connected to a Release 4, Release 3 or Release 2 CMAS. However, should you wish to exploit the new features and function available at this release, you should consider reviewing the code in your application programs.

To access the most up-to-date resource tables, you should recompile your programs with CONNECT VERSION(0nnn) coded, where nnn is the latest version of CICSPlex SM. To avoid, however, the unpredictable problems that may occur in this environment, you should ensure that the application environment used by your programs is at the highest available level.

Providing a Version 2.2 application environment: To ensure that your existing application programs can exploit the new function available at this release, continue to run successfully, and avoid the unpredictable problems that may occur in this environment, take the following steps:

- Batch application programs
  - Use the runtime module, EYU9AB00, supplied in CICSTS22.CPSM.SEYUAUTH
  - Recompile and re-linkedit, using the stub routine module, EYU9ABSI supplied in CICSTS22.CPSM.SEYUAUTH.
- CICS application programs
− Connect the MAS on which this application runs to a Version 2.2 CMAS so that it can use its runtime module.
− Recompile and re-linkededit the program using the stub module, EYU9AMSI, supplied in CICSTS22.CPSM.SEYULOAD
Part 4. CICS messages and codes

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

• Chapter 31, “Messages and codes” on page 263
Chapter 31. Messages and codes

This chapter contains information about changes to CICS messages and abend codes.

- Changes to messages and codes

Changes to messages and codes

This section lists CICS messages and abend codes that are added, changed, or deleted.

See the CICS Messages and Codes manual for a full description of CICS messages.

- New CICS messages
  - Changed CICS messages on page 360
  - Deleted messages on page 362
  - New abend codes on page 364
  - Deleted abend codes in CICS on page 367

New CICS messages

In the following new messages, condmsg indicates that, where possible, a conditional message from the linked system is appended to this message.

Note: Many of these new messages are issued by CICS components with the following component codes:

- AD Application deployment
- EJ The Enterprise Java domain
- IE ECI over TCP/IP
- II The IIOP domain
- OT Object transaction services domain
- PT Partner domain
- RZ The request streams domain
- SJ The CICS JVM domain

AXMER0001 - AXMXM0022, Messages with the prefix AXM are issued by the authorized cross-memory (AXM) server environment. These messages are not issued by a CICS region and hence do not use the CICS message domain. They cannot be viewed with the CMAC transaction, suppressed with the XMEOUT user exit, or changed with the message editing utility. See the CICS Messages and Codes book for a description of these messages.

DFH5139 W CONSIDER IMPLICATIONS OF MIGRATING TYPE=SHARED ENTRIES.

DFH5150 W xxxxxxxx OPTION CONFLICTS WITH yyyyyyy OPTION AND IS IGNORED FOR restype resname

DFH5151 I RESOURCE NOT ALTERED. xxxxxxxx IS IBM-PROTECTED.

DFH5155 W [TDQUEUE] xxxxxxxx HAS SAME NAME AS AN IBM SUPPLIED DEFINITION IN GROUP grpname.
DFH5156 W (TDQUEUE) DID NOT MIGRATE. ITS PROPERTIES MATCH AN IBM-SUPPLIED DEFINITION IN GROUP grpname.

DFH5161 S TABLE table MUST BE LINK-EDITED WITH AMODE(24) RMODE(24).

DFH5218 I ALTERING Resourcetype Resourcename IN GROUP Groupname

DFH5219 W NO MATCH FOUND ON CSD FILE FOR Resourcetype Resourcename IN Groupname

DFH5250 E TO(groupname) CONTAINS TOO MANY NON CONTIGUOUS ‘*’

DFH5260 E LENGTH OF ‘TO’ SUFFIX MUST BE EQUAL TO LENGTH OF ‘GROUP’ SUFFIX.

DFH5290 W TABLE tabtype MACRO mactype=value IS NOT SUPPORTED. VALUE IS CHANGED TO newvalue.

DFH5291 E UNABLE TO DEFINE OBJECT object IN GROUP group. MIGRATION IS TERMINATED.

DFH5292 W OBJECT object NOT DEFINED FOR TABLE ITEM name DUE TO PREVIOUS ERROR. MIGRATION CONTINUES.

DFH5293 W TOTAL object DEFINITIONS SKIPPED DUE TO ERROR: number

DFH5294 E number object-1 WERE NOT MATCHED WITH A CORRESPONDING object-2.

DFH5296 W TABLE tabtype TYPE=mactype parameter DOES NOT SUPPORT MULTIPLE VALUES.

DFH5508 E COMMAND NOT EXECUTED. xxxxxxx VALUE MUST BE LESS THAN OR EQUAL TO yyyyyyy VALUE.

DFH5539 S keyword IS NOT VALID BECAUSE IT STARTS WITH THE RESERVED CHARACTER OR STRING string.

DFH5540 W xxxxxxx VALUE IS GREATER THAN yyyyyyy VALUE. THE LOWER VALUE TAKES PRECEDENCE.

DFH5541 E PROGRAM, REMOTESYSTEM OR BREXIT MUST BE SPECIFIED.

DFH5544 E COMMAND NOT EXECUTED. xxxxxxx MUST BE SPECIFIED AS yyyyyyy BECAUSE A PREVIOUS VALUE IS GENERIC.

DFH5545 W PROGRAM SHOULD BE SPECIFIED WITH BREXIT.

DFH5546 E COMMAND NOT EXECUTED. xxxxxxx IS NOT VALID AS A TYPE yyyyyyy PARAMETER.

DFH5547 E COMMAND NOT EXECUTED. xxxxxxx VALUE yyyyyyy IS INVALID.

DFH5548 E COMMAND NOT EXECUTED. xxxxxxx IS NOT VALID AS A TYPE yyyyyyy PARAMETER.

DFH5549 E COMMAND NOT EXECUTED. xxxxxxx VALUE IS INVALID.

DFH5550 E COMMAND NOT EXECUTED. xxxxxxx VALUE MUST NOT BE THE SAME AS yyyyyyy VALUE.

DFH55604 E UNABLE TO OBTAIN STORAGE FOR THE CROSS-REFERENCE TABLE NAMED table.

DFH55630 W NO IBM SUPPLIED DEFINITION FOUND FOR resourcetype resourcename.

DFH55631 I resourcetype resourcename IN GROUP groupname1 MATCHES THE IBM SUPPLIED DEFINITION IN GROUP groupname2.

DFH55632 I resourcetype resourcename IN GROUP groupname1 DOES NOT MATCH THE IBM SUPPLIED DEFINITION IN GROUP groupname2.

DFH55633 I resourcetype resourcename FOUND IN GROUP groupname.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFH5634 W</td>
<td>Resource type resource name NOT FOUND in user groups.</td>
</tr>
<tr>
<td>DFHAC2031</td>
<td>Date time applid Automatic signon of operator of console consname has failed.</td>
</tr>
<tr>
<td>DFHAC2032</td>
<td>Date time applid CICS autoinstall for console consname has failed.</td>
</tr>
<tr>
<td>DFHAC2045</td>
<td>Date time applid CICS autoinstall for console consname was rejected by the autoinstall control program.</td>
</tr>
</tbody>
</table>
| DFHAC2201   | Time applid Transaction tranid has lost contact with its coordinator system during syncpoint processing and has abended with code ASP1. The unit of work is shunted until contact is restored. 

**condmsg**  

DFHAC2202 | Time applid Transaction tranid has lost contact with its coordinator system during syncpoint processing and has abended with code ASP0. All updates will be unilaterally committed. 

**condmsg**  

DFHAC2203 | Time applid Transaction tranid has lost contact with its coordinator system during syncpoint processing and has abended with code ASPP. All updates will be unilaterally backed out. 

**condmsg**  

DFHAC2204 | Time applid A commit failure has occurred during syncpoint processing for transaction tranid. 

**condmsg**  

DFHAC2205 | Time applid A backout failure has occurred during syncpoint processing for transaction tranid. 

**condmsg**  

DFHAC2215 | Time applid A CICS-generated syncpoint request has failed because a connected system has requested that the UOW be rolled back. Transaction tranid has been abnormally terminated with code ASPF. 

**condmsg**  

DFHAC2216 | Time applid Transaction termination processing has failed because a connected system has requested that the UOW be rolled back. Transaction tranid has been abnormally terminated with code ASPN. 

**condmsg**  

DFHAC2217 | Time applid Transaction tranid has requested rollback, but was using a type of processing for which rollback is not supported. The transaction has been abnormally terminated with code ASP8. 

**message**  

DFHAC2218 | Time applid Transaction tranid has failed with abend ASP7 following the failure of a local resource owner in the prepare phase of syncpoint. Updates will be backed out. 

**condmsg**  

DFHAC2219 | Time applid Transaction tranid has failed with abend ASP7 following the failure of a remote system in the prepare phase of syncpoint. Updates will be backed out. 

**condmsg**  

DFHAC2220 | Time applid The coordinator system has indicated that the current unit of work is to be backed out. Transaction tranid has been abnormally terminated with abend ASP3. 

**condmsg**  

DFHAC2221 | Time applid Transaction tranid has failed with abend ASPQ. Syncpoint commit processing has failed while communicating with a remote system. 

**condmsg**  

DFHAC2222 | Time applid Transaction tranid has lost contact with its coordinator system during syncpoint processing. No updates have been performed by this system; it has abended with code ASPR. 

**condmsg**  

DFHAC2223 | Time applid Transaction tranid has failed with abend ASP2 due to the links to the remote systems being in an invalid state. Updates will be backed out. 

**condmsg**  

DFHAC2231 | Date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint and has abended with code ASP1. The unit of work is shunted until contact is restored. 

**condmsg**  

EXCl job = }exci_id
DFHAC2232  date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint and has abended with code ASPO. All updates will be unilaterally committed. EXCI job = {exci_id. condmsg

DFHAC2233  date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint and has abended with code ASPP. All updates will be unilaterally backed out. EXCI job = {exci_id. condmsg

DFHAC2234  date time applid A commit failure has occurred during syncpoint processing for transaction tranid running program program name term termid. The transaction will be allowed to complete normally. EXCI job = {exci_id. condmsg

DFHAC2235  date time applid A backout failure has occurred during syncpoint processing for transaction tranid running program program name term termid. The transaction will be allowed to complete normally. EXCI job = {exci_id. condmsg

DFHAC2245  date time applid A CICS-generated syncpoint request could not be completed normally because a connected system has requested that the unit of work be rolled back. Transaction tranid running program program name term termid has been abnormally terminated with code ASPF. EXCI job = {exci_id. condmsg

DFHAC2246  date time applid Transaction termination processing could not be completed normally because a connected system has requested that the unit of work be rolled back. Transaction tranid running program program name term termid has been abnormally terminated with code ASPN. EXCI job = {exci_id. condmsg

DFHAC2247  date time applid Transaction tranid running program program name term termid has requested rollback, but was using a type of processing for which rollback is not supported. The transaction has been abnormally terminated with code ASP8. EXCI job = {exci_id. condmsg

DFHAC2248  date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint and has abended with code ASPO. All updates will be unilaterally committed. EXCI job = {exci_id. condmsg

DFHAC2249  date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint and has abended with code ASPP. All updates will be unilaterally backed out. EXCI job = {exci_id. condmsg

DFHAC2250  date time applid The coordinator system has indicated that the current unit of work is to be backed out. Transaction tranid running program program name term termid has been abnormally terminated with abend ASP3. EXCI job = {exci_id. condmsg

DFHAC2251  date time applid Transaction tranid running program program name term termid has failed with abend ASPQ. Syncpoint commit processing has failed while communicating with a remote system. EXCI job = {exci_id. condmsg

DFHAC2252  date time applid Transaction tranid running program program name term termid has lost contact with its coordinator system during syncpoint processing. No updates have been performed by this system; it has abended with code ASPR. EXCI job = {exci_id. condmsg

DFHAC2253  date time applid Transaction tranid running program program name term termid has failed with abend ASP2 due to the links to the remote systems being in an invalid state. Updates will be backed out. EXCI job = {exci_id. condmsg

DFHAD0001  applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.
DFHAD0201 Enter a user ID.

DFHAD0202 Enter a password.

DFHAD0203 User ID must be \textit{minimum\_length} to \textit{maximum\_length} characters in length.

DFHAD0204 Passwords must be \textit{minimum\_length} to \textit{maximum\_length} characters in length.

DFHAD0205 Invalid characters in user ID.

DFHAD0206 Invalid characters in password.

DFHAD0207 Browser session timed out.

DFHAD0208 Specified DJAR is in the UNUSABLE state and cannot be used.

DFHAD0209 Fatal error occurred whilst reading shelf copy of specified DJAR.

DFHAD0210 Specified DJAR could not be found on the shelf.

DFHAD0211 Shelf file for specified DJAR was not a valid JAR file.

DFHAD0212 No JNDI name was supplied for bean lookup.

DFHAD0213 TSQueue full error when retrieving information from specified DJAR.

DFHAD0214 The specified DJAR contains no session beans.

DFHAD0215 The specified DJAR contains session beans with invalid lengths.

DFHAD0216 An error occurred with the Java classloader when reading the DJAR.

DFHAD0231 Press Enter to confirm the change of DJAR or another key to revert.

DFHAD0232 Unable to change to deployment base directory \textit{(target\_directory\_name)} on server \textit{(server\_name)}.

DFHAD0261 Could not read deployment configuration file specified by \textit{‘configDefLoc’} init parameter value \textit{(configDefLoc\_value)}.

DFHAD0262 Trace logging is not available.

DFHAD0263 Message logging is not available.

DFHAD0264 The following JAR files required for the servlet were not found: \textit{JAR\_file\_names}

DFHAD0265 Closing the active browser window, using the browser navigation functions or changing the URL will prevent the display of the results.

DFHAD0266 Please specify a valid CSD group name.

DFHAD0267 A duplicate REQUESTMODEL is already installed.

DFHAD0268 A duplicate REQUESTMODEL already exists in the CSD.

DFHAD0269 An error occurred whilst discarding a duplicate REQUESTMODEL.

DFHAD0270 An error occurred whilst replacing a duplicate REQUESTMODEL.

DFHAD0271 Error trying to delete a duplicate REQUESTMODEL from the CSD.

DFHAD0272 No name could be generated for this REQUESTMODEL. Range exceeded.

DFHAD0273 Please specify a valid name for this REQUESTMODEL.

DFHAM4822 S \textit{applid} Unable to perform request - DFHCSD data set is invalid.

DFHAM4832 E \textit{applid} Unable to open TDQUEUE \textit{tdqname} because the DFHINTRA data set is not open.
DFHAM4833 E applid A security error has occurred while attempting to install TDQUEUE tdqname. The definition has not been installed.

DFHAM4834 E applid Install of TDQUEUE tdqname failed because the queue is not disabled.

DFHAM4835 E applid Install of TDQUEUE tdqname failed because the queue has already been defined to the system, and initialization is still in progress.

DFHAM4836 E applid Install of DB2CONN db2conn-name failed because a DB2CONN is already installed and is in use.

DFHAM4837 E applid Install of { DB2ENTRY | DB2TRAN } name failed because a DB2CONN is not installed.

DFHAM4838 E applid Install of DB2ENTRY db2entry-name failed because an existing definition could not be deleted. The existing definition is not disabled.

DFHAM4839 E applid Install of { TSMODEL | ENQMODEL } rsrce-name1 failed because {PREFIX | ENQNAME} attribute-name already exists in { TSMODEL | ENQMODEL } rsrce-name2.

DFHAM4888 I Group groupname removed from list listname.

DFHAM4889 E applid Install of JOURNALMODEL jmodelname failed because attribute attname is invalid.

DFHAM4890 E applid Install of TDQUEUE tdqname failed because the TYPE has not been specified.

DFHAM4891 W restype name resname begins with 'C'. Such names are reserved and may be redefined by CICS.

DFHAM4892 W date time applid Install for group grpname has completed with errors.

DFHAM4893 I date time applid Install for group grpname has completed successfully.

DFHAM4894 E applid Install of {ENQMODEL} rsrce-name1 failed because installed {ENQMODEL} rsrce-name2 is not disabled.

DFHAM4895 E applid Install of TSMODEL resourcename in group groupname failed because TS was started using an assembled TST without the MIGRATE option.

DFHAM4896 E applid Install of TDQUEUE tdqname failed because the existing definition is for a different queue type.

edit after here, MJW
DFHAM4901 E  applid Install of REQUESTMODEL resourcename1 failed because a duplicate pattern already exists in resourcename2. Current patterns are:
OMGMODULE: Omgmodule
OMGINTERFACE: Omginterface
OMGOPERATION: Omgoperation
TRANID: Tranid.

DFHAM4902 E  applid Install of REQUESTMODEL resourcename failed because it is not a valid REQUESTMODEL for this level of CICS.

DFHAM4903 E  applid Install for TCPIPSERVICE tcpipservice has failed because the service is open.

DFHAM4904 W  applid Opening TCPIPSERVICE tcpipservice has failed because port portno is already in use.

DFHAM4905 E  applid Install failed for resource. Option opt is not available on this system.

DFHAM4906 W  applid Opening TCPIPSERVICE tcpipservice has failed because port portno is not authorized.

DFHAM4907 W  applid Opening TCPIPSERVICE tcpipservice has failed because the IP address is not known.

DFHAM4908 E  applid Install of DOCTEMPLATE doctemplate1 failed because TEMPLATENAME(template) already exists in DOCTEMPLATE doctemplate2.

DFHAM4909 E  applid Install of DOCTEMPLATE doctemplate failed. DDNAME(ddname) not found.

DFHAM4910 E  applid Install of DOCTEMPLATE doctemplate failed. MEMBER(membername) not found in datasetname.

DFHAM4911 W  applid Transaction tranid installed but at least one of ALIAS, TASKREQ or XTRANID failed to be replaced because it exists as a primary transaction.

DFHAM4915 E  applid Install of resource type resourcename failed. Open for data set dsname has abended.

DFHAM4916 E  applid TCPIPSERVICE tcpipservice has not been opened because the MAXSOCKETS limit has been reached.

DFHAM4920 E  applid The installation of CORBASERVER cname has failed because the specified {CORBASERVER | STATE | SESSBEANTIME | CERTIFICATE | HOST | PORT | SSL | SSLPORT | SHELF | JNDIPREFIX} is not valid.

DFHAM4921 E  applid The installation of CORBASERVER cname has failed because it is a duplicate of one which already exists.

DFHAM4922 E  applid The installation of CORBASERVER cname has failed because the specified {CORBASERVER | STATE | HFSFILE | DJAR} is not valid.

DFHAM4923 E  applid The installation of DJAR dname has failed because the specified CORBASERVER cname does not exist.

DFHAM4924 E  applid The installation of DJAR dname has failed because the specified {CORBASERVER | STATE | HFSFILE | DJAR} is not valid.

DFHAM4925 E  applid The installation of CORBASERVER cname has failed because the specified CERTIFICATE cert_name is not known to ESM.

DFHAM4926 E  applid The installation of DJAR dname has failed because the specified CORBASERVER cname is not in a valid state.

DFHAP0604 applid Forcepurge of transaction ID tranid, transaction number trannum, recovery token X'token' has been deferred because the transaction is on a CICS-DB 2 ready queue waiting for a thread or TCB to become available.
DFHAP1006 applid Resource definition recovery has failed with code X'code' in module modname.

DFHAP1007 applid A GETMAIN has failed for a resource definition control block code X'code' in module modname.

DFHAP1214 applid Language Environment/370 global ENVAR option defined with invalid CICS program options.

DFHAP1215 applid Invalid CICS program options found in ENVAR string in program pgmname.

DFHAP1216 date time applid Attempt to change the HFS working directory to pathname has failed. Runtime error message is errmsg

DFHAP1217 date time applid Attempt to fetch user replaceable module DFHJVMAT has failed.

DFHAP1218 date time applid JVM failed to find the CICS Wrapper class classname

DFHAP1219 date time applid edcmsg

DFHAP1220 date time applid CICS HotPooling could not load or execute the program called dllname.

DFHAP1221 date time applid methodname could not be found in DLL or class dllname.

DFHAP1222 date time applid The method methodname in the DLL or class dllname was executed. However, the method returned an error response of jret.

DFHAP1223 date time applid HotPooling can not call the main method in class classname.

DFHAP1224 I date time applid CEEPIPI not available, HotPooling cannot be used.

DFHAP1225 date time applid CEEPIPI function pipifn failed with return code r15rc.

DFHAP1300 date time applid The JVM at address X'jvm_anchor' on thread X'thread_anchor' has encountered an error (reason code: X'reason_code') and has requested further diagnostic data from CICS. More information may be found in the stderr file: stderr.

DFHAU2101 date time applid CAFF CANNOT START BECAUSE IT IS ALREADY IN USE.

DFHAU2102 date time applid DETECTOR IS NOT state.

DFHAU2103 date time applid DETECTOR IS ALREADY STOPPED.

DFHAU2104 INVALID KEY PRESSED.

DFHAU2105 date time applid CAFF SESSION HAS ENDED.

DFHAU2106 OPTION MUST BE Y(YES) OR N(NO).

DFHAU2107 DATASPACE SIZE MUST BE AN INTEGER (10 TO 2000MB).

DFHAU2110 NO AMENDMENTS WERE ENTERED.

DFHAU2111 date time applid CAFF OPTIONS UPDATED.

DFHAU2114 RECORDS RESTORED.

DFHAU2115 date time applid AFFINITY FILES EMPTIED.

DFHAU2116 DATASPACE IS TOO LARGE. NO STORAGE IS AVAILABLE.

DFHAU2117 DATASPACE IS TOO LARGE. IEFUSI LIMIT REACHED.

DFHAU2118 NO RECORDS RESTORED.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAU219</td>
<td><strong>date time applid</strong> CICS IS TERMINATING.</td>
</tr>
<tr>
<td>DFHAU220</td>
<td><strong>date time applid</strong> PRESS F5 TO CONFIRM START WITH DATA RESTORE.</td>
</tr>
<tr>
<td>DFHAU221</td>
<td><strong>date time applid</strong> PRESS F5 TO CONFIRM START WITHOUT DATA RESTORE.</td>
</tr>
<tr>
<td>DFHAU222</td>
<td><strong>date time applid</strong> PRESS F6 TO CONFIRM STOP DETECTOR.</td>
</tr>
<tr>
<td>DFHAU225</td>
<td><strong>applid</strong> CAFF CANNOT START WITHOUT DETECTOR ACTION.</td>
</tr>
<tr>
<td>DFHAU227</td>
<td><strong>date time applid</strong> EMBEDDED BLANK IN TRANSID PREFIX IS INVALID.</td>
</tr>
<tr>
<td>DFHAU2210</td>
<td><strong>date time applid</strong> VSAM FILETYPE FILENAME COMMAND FAILED. RESP eibresp RESP2 eibresp2 RCODE eibrcode</td>
</tr>
<tr>
<td>DFHAU2203</td>
<td><strong>date time applid</strong> INTERNAL ERROR DETERMINING STATE IN TRANSACTION PROGRAM program.</td>
</tr>
<tr>
<td>DFHAU2204</td>
<td><strong>date time applid</strong> CAFF IS BEING USED BY USER userid.</td>
</tr>
<tr>
<td>DFHAU2205</td>
<td><strong>date time applid</strong> FILE FILENAME CANNOT BE USED BY THIS CICS SYSTEM.</td>
</tr>
<tr>
<td>DFHAU2206</td>
<td><strong>date time applid</strong> CICS COMMAND PROGRAM PROGRAM FAILED. RESP eibresp RCODE eibrcode</td>
</tr>
<tr>
<td>DFHAU2211</td>
<td><strong>date time applid</strong> CAUTABM CREATE TABLE FAILED. REASON reason_code TABLE table_number</td>
</tr>
<tr>
<td>DFHAU2224</td>
<td><strong>date time applid</strong> ERROR CALCULATING SPACE UTILIZATION.</td>
</tr>
<tr>
<td>DFHAU2225</td>
<td><strong>date time applid</strong> UNSUPPORTED TYPE OF CAFF TASK INITIATION.</td>
</tr>
<tr>
<td>DFHAU2226</td>
<td><strong>date time applid</strong> INCORRECT CAFF ACTION.</td>
</tr>
<tr>
<td>DFHAU2227</td>
<td><strong>date time applid</strong> NONTERMINAL CAFF TASK INITIATING.</td>
</tr>
<tr>
<td>DFHAU2228</td>
<td><strong>date time applid</strong> CAUTABM REPLACE ELEMENT FAILED. REASON reason_code TABLE table_number</td>
</tr>
<tr>
<td>DFHAU2229</td>
<td><strong>date time applid</strong> UT/TT TABLE UPDATE FAILED. FUNCTION function_code REASON reason_code TABLE table_number</td>
</tr>
<tr>
<td>DFHAU2230</td>
<td><strong>date time applid</strong> VSAM AFFINITY FILE FILENAME HEADER READ FAILED. RESP eibresp RESP2 eibresp2</td>
</tr>
</tbody>
</table>
DFHAU2231  date time applid  NUMBER OF RECORDS RESTORED IS count.

DFHAU2233  date time applid  CAUCAFDT CALL FAILED. REASON reason_code.

DFHAU2234  date time applid  CAFF FAILED TO OBTAIN THE TRACE TABLE.

DFHAU2235  date time applid  CAFF FAILED TO RELEASE THE TRACE TABLE.

DFHAU3301  date time applid  CAFB TASK INITIATING.

DFHAU3302  date time applid  CAFB RECEIVED AN INVALID REQUEST.

DFHAU3303  date time applid  CAFB HAS ABENDED abcode IN PROGRAM program.

DFHAU3304  date time applid  CAFB ABENDING. SYSTEM ERROR ELSEWHERE IN DETECTOR.

DFHAU3305  date time applid  CAFB SAVE STARTED BECAUSE OF {STOP | TIME | TRIGGER | PAUSE}.

DFHAU3306  date time applid  CAFB SAVE ENDED. count RECORDS SAVED.

DFHAU3307  date time applid  CAFB TERMINATED. THE DETECTOR IS STOPPING.

DFHAU3308  date time applid  MESSAGE RECEIVED FROM PROGRAM program.

DFHAU3310  date time applid  INVALID FILE NUMBER FOR TABLE IN GWA.

DFHAU3311  date time applid  TRANSACTION CAFB MUST BE INITIATED BY TRANSACTION CAFF.

DFHAU3312  date time applid  CAFB ABENDING. CICS IS TERMINATING.

DFHAU3313  date time applid  INVALID ADDRESS FOR program IN THE GWA.

DFHAU3314  date time applid  CAUTABM CALL FAILED. FUNCTION function_code REASON reason_code TABLE table_number

DFHAU3315  date time applid  FILE filename IS FULL.

DFHAU4100  date time applid  CAUTABM CALL FAILED. FUNCTION function_code REASON reason_code TABLE table_number

DFHAU4200  date time applid  DATASPACE IS FULL.

DFHAU5000  FUNCTION CALL number IS INVALID FOR MODULE module.

DFHAU5001  FILE filename DOES NOT CONTAIN A CONTROL RECORD. RUN TERMINATED.

DFHAU5002  AFFINITY FILES ARE NOT FOR THE SAME CICS APPLID. RUN TERMINATED.

DFHAU5003  UNABLE TO OPEN FILE filename. RC return_code REASON reason_code

DFHAU5004  GENCB FAILED FOR FILE filename. CB control_block RC return_code REASON reason_code

DFHAU5005  FILE NUMBER filenum IS INVALID.

DFHAU5006  ATTEMPTING TO {READ FROM | WRITE TO} THE {OUTPUT | INPUT} FILE filename.

DFHAU5007  RPL NUMBER rplnum IS INVALID FOR FILE filename.

DFHAU5008  TABLE NUMBER table_number IS INVALID.

DFHAU5009  COMMAND command FAILED FOR FILE filename. RPL rplnum RC returncode REASON reason_code
DFHAU5010 INVALID ATTEMPT TO POSITION A NON-VSAM FILE.

DFHAU5011 NO TRANSACTION ENTRIES FOR TRANGROUP trangroup. REPORT INCOMPLETE.

DFHAU5012 INVALID PARM SPECIFIED. $SUMMARY ASSUMED.

DFHAU5013 (GETMAIN | FREEMAIN) HAS FAILED. RETURN CODE return_code

DFHAU5014 INVALID PARM KEYWORD SPECIFIED. CORRECT AND RERUN.

DFHAU5015 INVALID (MATCH | STATE | CONTEXT) VALUE SPECIFIED. CORRECT AND RERUN.

DFHAU5016 DSPSIZE VALUE IS NOT NUMERIC. CORRECT AND RERUN.

DFHAU5017 DSPSIZE IS INVALID. IT MUST BE BETWEEN 2 AND 2000.

DFHAU5018 LOAD OF CAUTABM HAS FAILED. AC abcode RC reason_code

DFHAU5019 DATASPACE IS TOO LARGE. NO STORAGE AVAILABLE.

DFHAU5020 DATASPACE IS TOO LARGE. IEFUSI LIMIT REACHED.

DFHAU5021 CAUTABM CREATE DATASPACE FAILED. REASON reason_code ERROR error_code

DFHAU5022 CAUTABM CREATE TABLE FAILED. REASON reason_code TABLE table_number

DFHAU5023 KEYWORD keyword IS INVALID OR UNEXPECTED.

DFHAU5024 KEYWORD keyword IS MISSING.

DFHAU5025 A VALUE OF value IS INVALID FOR KEYWORD keyword.

DFHAU5026 INVALID CREATE TYPE.

DFHAU5027 INCORRECT NUMBER OF BRACKETS.

DFHAU5028 MISSING SEMICOLON.

DFHAU5029 KEYWORD keyword IS DUPLICATED.

DFHAU5030 NO VALID STATEMENTS IN REPGRPS. PROCESSING TERMINATED.

DFHAU5031 CAUTABM ERROR function ELEMENT. TABLE table_number REASON reason_code MODULE pro_name

DFHAU5032 NO HEADER RECORD FOUND. STATEMENT IGNORED.

DFHAU5033 DUPLICATE TRANGRP NAME.

DFHAU5034 TRANGRP DOES NOT ALREADY EXIST.

DFHAU5035 AFFINITY DATA MAY BE INCOMPLETE BECAUSE OF (DETECTOR | UNKNOWN) ABEND.

DFHAU5036 DATASPACE IS FULL.

DFHAU5037 NO VALID TRANSIDS IN REPGRPS. PROCESSING TERMINATED.

DFHAU5038 INVALID AFFLIFE FOR AFFINITY.

DFHAU5039 PARM KEYWORD IS DUPLICATED. CORRECT AND RERUN.

DFHAU5040 INVALID REMOVE TYPE.

DFHAU5041 CAUCAFDT CALL FAILED. REASON reason_code.

DFHBA0001 applid An abend (code code) has occurred at offset X‘offset’ in module module.
DFHBA0002  applid A severe error (code X'code') has occurred in module module.

DFHBA0101  date time applid An error has occurred while writing an auditlog record to log logname. Logging has been suspended.

DFHBA0102  date time applid Auditlog writing to log logname has been successfully resumed.

DFHBA0103  date time applid terminal userid tranid processtype definition entry processtype has been deleted.

DFHBA0104  date time applid The root activity of process processname of processtype processtype has completed status ABENDED, code abendcode. TRANSID(transid) USERID(userid).

DFHBA0201  Module module load of DFHMEBM failed, reason code X'rcode' system code X'scode'.

DFHBA0202  Module module load of modname failed, reason code X'rcode' system code X'scode'.

DFHBA0203  Error opening SYSPRINT in module module.

DFHBA0204  Module module exec parameter error, missing open bracket at position position(+).

DFHBA0205  Module module exec parameter error, missing close bracket at position position(+).

DFHBA0206  Module module exec parameter error, invalid keyword at position position.

DFHBA0207  Module module exec parameter error, invalid translate field at position position.

DFHBA0208  Module module exec parameter error, duplicate translate keyword at position position.

DFHBA0209  Module module exec parameter error, invalid pagesize field at position position.

DFHBA0210  Module module exec parameter error, duplicate pagesize keyword at position position.

DFHBA0211  Module module exec parameter error, invalid NATLANG field at position position.

DFHBA0212  Module module exec parameter error, duplicate NATLANG keyword at position position.

DFHBA0213  Open of SYSIN failed in module module.

DFHBA0214  Module module invalid keyword at position position.

DFHBA0215  Module module invalid keyword field length at position position.

DFHBA0216  Module module invalid keyword field at position position.

DFHBA0217  Module module unexpected keyword at position position.

DFHBA0218  Module module duplicate auditlog keyword at position position.

DFHBA0219  Module module continuation not allowed.

DFHBA0220  Module module unexpected end of file.

DFHBA0221  Error opening file in module module.

DFHBA0222  Module module terminated because of errors, check SYSPRINT for details.

DFHBA0223  Module module terminated because of errors, check previous console messages for details.
DFHBA0224  Gendcb failed in module module. R15 = X'r15val' R0 = X'r0val'.

DFHBA0225  Modcb failed in module module. R15 = X'r15val' R0 = X'r0val'.

DFHBA0226  Showcb failed in module module. R15 = X'r15val' R0 = X'r0val'.

DFHBA0227  Error opening file in module module. R15 = X'r15val' reason code = X'reasval'.

DFHBA0228  Error closing file in module module. R15 = X'r15val' reason code = X'reasval'.

DFHBA0229  Get for file failed in module module. R15 = X'r15val' reason code = X'reasval'.

DFHBA0230  Point for file failed in module module. R15 = X'r15val' reason code = X'reasval'.

DFHBA0231  The set of records associated with the activity or process being read are not complete.

DFHBA0232  No records selected by module module.

DFHBA0233  Module module has completed processing.

DFHBA0234  Module module has a duplicate repository keyword at position position.

DFHBR0205  date time applid userid tranid Bridge facility autoinstall URM urmname returned an invalid termid name termid. The name contains invalid characters.

DFHBR0206  date time applid userid tranid Bridge facility autoinstall URM urmname returned an invalid netname netname. The name contains invalid characters.

DFHBR0207  date time applid userid tranid Bridge facility autoinstall URM urmname returned termid termid netname netname.

DFHBR0208  date time applid userid tranid Bridge facility autoinstall URM urmname could not be linked. The autoinstall function has been disabled.

DFHBR0403  date time applid Transaction tranid definition conflicts with Bridge Link3270 routing requirements.

DFHBR0410  date time applid Dynamic transaction routing program prog has abended with abend abend.

DFHBR0411  date time applid Dynamic transaction routing program prog must be AMODE=31.

DFHBR0412  date time applid Dynamic transaction routing program prog PPT entry not found.

DFHBR0413  date time applid Dynamic transaction routing program prog fetch failed.

DFHBR0414  date time applid Dynamic transaction routing program prog is disabled.

DFHBR0415  date time applid Dynamic transaction routing program prog is defined as remote.

DFHBR0427  date time applid The Bridge Link3270 connection for transaction tranid to system sysid has failed.
Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system could not be found in the intersystem table.

Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system was out of service.

Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the session allocation was rejected.

Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system did not support the function.

Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8 on the first route selection call.

Routing of the Bridge Link3270 request for transaction tranid to system sysid failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system and netnames do not match.

Routing of the Bridge Link3270 request for transaction tranid to system netname netname' failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system and netnames do not match.

Routing of the Bridge Link3270 request for transaction tranid to system sysid netname netname' failed. The dynamic transaction routing program completed with return code 8. Last attempt to route request failed because the remote system and netnames do not match.

File filename is not available. (The file is disabled | The file is not open | The file was not found | SMVSAM server is not available | CFDT server is not available | The dataset is being copied | An IO error occurred | The file is defined as recoverable).

Not authorized to access file filename.

File filename is full.

File filename record has been suppressed by user exit.

Bridge facility ranges have reached percent percent of total allocation.

Bridge facility ranges have reduced below percent percent of total allocation.

All Bridge facility ranges have been allocated.

File filename is not available. Sysid sysid error.

Bridge Link3270 security error. User userid1 attempting to use facility allocated to userid2.

Severe error in module modname. Abend code: abcode

Severe error in module modname. Abend code: abcode

Command command executed successfully.
Warning message(s) issued while processing command command.

Error(s) occurred while processing command command.

Subsequent commands (except LIST) are not executed because of error(s) above.

command command not executed because of previous error(s).

Commands executed successfully: ns
Commands giving warning(s): nw
Commands in error: ne

Commands not executed after error(s): nn

End of DFHCSDUP utility job. Highest return code was: retcode

Error found in 'PARM=' parameter data on EXEC job step. This data is ignored.

The csdtype CSD has not been initialized.
Command not executed.

The primary CSD is already initialized.
Command not executed.

The primary CSD has been defined with an invalid key length. Processing is terminated.

The primary CSD has been defined with an invalid record size. Processing is terminated.

Unable to locate module DFHCICS. Primary CSD not initialized.

Unable to create list listid

Processing terminated. Corrupted csdtype CSD control record detected while closing CSD; ddname: ddname

Error occurred while closing csdtype CSD. File is full; ddname: ddname

I/O error while closing csdtype CSD; ddname: ddname

VSAM error while closing csdtype CSD; ddname: ddname

Processing terminated. csdtype CSD accessed by another user and could not be shared. ddname: ddname

Unable to locate module DFHCICS. Primary CSD not initialized.

List listid created.

Unable to create list listid

CSD opened; ddname: ddname

I/O error while opening csdtype CSD; ddname: ddname

VSAM error while opening csdtype CSD; ddname: ddname

Error found in 'PARM=' parameter data on EXEC job step. This data is ignored.

Unable to create list listid

CSD opened; ddname: ddname

I/O error while opening csdtype CSD; ddname: ddname

VSAM error while opening csdtype CSD; ddname: ddname

Processing terminated. Corrupted csdtype CSD control record detected while closing CSD; ddname: ddname

Error occurred while closing csdtype CSD. File is full; ddname: ddname

I/O error while closing csdtype CSD; ddname: ddname

VSAM error while closing csdtype CSD; ddname: ddname

Processing terminated. csdtype CSD accessed by another user and could not be shared. ddname: ddname

Unable to locate module DFHCICS. Primary CSD not initialized.

List listid created.

Unable to create list listid

CSD opened; ddname: ddname

I/O error while opening csdtype CSD; ddname: ddname

VSAM error while opening csdtype CSD; ddname: ddname

Error found in 'PARM=' parameter data on EXEC job step. This data is ignored.

Unable to create list listid

CSD opened; ddname: ddname

I/O error while opening csdtype CSD; ddname: ddname

VSAM error while opening csdtype CSD; ddname: ddname

Processing terminated. Corrupted csdtype CSD control record detected while closing CSD; ddname: ddname

Error occurred while closing csdtype CSD. File is full; ddname: ddname

I/O error while closing csdtype CSD; ddname: ddname

VSAM error while closing csdtype CSD; ddname: ddname

Processing terminated. csdtype CSD accessed by another user and could not be shared. ddname: ddname
<table>
<thead>
<tr>
<th>Code</th>
<th>Date Time Applid Netname Tranid</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHCA5134 S</td>
<td>date time applid netname tranid</td>
<td>Error occurred while adding group <strong>grpname</strong> to list <strong>listid</strong></td>
</tr>
<tr>
<td>DFHCA5135 I</td>
<td>date time applid netname tranid</td>
<td>Group <strong>grpname</strong> added to list <strong>listid</strong></td>
</tr>
<tr>
<td>DFHCA5136 W</td>
<td>date time applid netname tranid</td>
<td>Group <strong>grpname</strong> is already a member of list <strong>listid</strong></td>
</tr>
<tr>
<td>DFHCA5139 W</td>
<td>date time applid netname tranid</td>
<td>Consider implications of migrating <strong>TYPE=SHARED</strong> entries.</td>
</tr>
<tr>
<td>DFHCA5140 I</td>
<td>date time applid netname tranid</td>
<td>Total <strong>xxxxxxxx</strong> definitions created: <strong>nn</strong></td>
</tr>
<tr>
<td>DFHCA5141 S</td>
<td>date time applid netname tranid</td>
<td>Unable to create new group <strong>grpname</strong></td>
</tr>
<tr>
<td>DFHCA5142 E</td>
<td>date time applid netname tranid</td>
<td>Command not executed. <strong>lgname</strong> was not updated because of a previous update failure.</td>
</tr>
<tr>
<td>DFHCA5143 I</td>
<td>date time applid netname tranid</td>
<td>Group <strong>grpname</strong> created.</td>
</tr>
<tr>
<td>DFHCA5144 E</td>
<td>date time applid netname tranid</td>
<td>Command not executed. <strong>lgname</strong> has been locked by applid: <strong>applid opid</strong>: <strong>opid</strong> to prevent updating.</td>
</tr>
<tr>
<td>DFHCA5145 E</td>
<td>date time applid netname tranid</td>
<td>Command not executed. <strong>lgname</strong> is currently being updated by applid: <strong>applid opid</strong>: <strong>opid</strong></td>
</tr>
<tr>
<td>DFHCA5146 E</td>
<td>date time applid netname tranid</td>
<td>Command not executed. <strong>lgname</strong> already exists as a group-or-list</td>
</tr>
<tr>
<td>DFHCA5147 E</td>
<td>date time applid netname tranid</td>
<td>Unable to get storage for tabletype <strong>table</strong> named <strong>table</strong></td>
</tr>
<tr>
<td>DFHCA5148 E</td>
<td>date time applid netname tranid</td>
<td>Command not executed. <strong>xxxxxxxx</strong> is IBM-protected.</td>
</tr>
<tr>
<td>DFHCA5151 I</td>
<td>date time applid netname tranid</td>
<td>Resource not altered. <strong>xxxxxxxx</strong> is IBM-protected.</td>
</tr>
<tr>
<td>DFHCA5155 W</td>
<td>date time applid netname tranid</td>
<td>Group <strong>tdqueue xxxxxxxx</strong> has same name as an IBM-supplied definition in group <strong>grpname</strong></td>
</tr>
<tr>
<td>DFHCA5156 W</td>
<td>date time applid netname tranid</td>
<td><strong>TDqueue xxxxxxxx</strong> did not migrate. Its properties match an IBM-supplied definition in group <strong>grpname</strong></td>
</tr>
<tr>
<td>DFHCA5159 I</td>
<td>date time applid netname tranid</td>
<td><strong>resource object</strong> defined in group <strong>grpname</strong></td>
</tr>
<tr>
<td>DFHCA5161 S</td>
<td>date time applid netname tranid</td>
<td><strong>Table</strong> <strong>table</strong> must be link-edited with <strong>AMODE(24) RMODE(24)</strong></td>
</tr>
<tr>
<td>DFHCA5164 W</td>
<td>date time applid netname tranid</td>
<td>No definition of <strong>resource object</strong> created. This duplicates an existing definition in group <strong>grpname</strong></td>
</tr>
<tr>
<td>DFHCA5165 S</td>
<td>date time applid netname tranid</td>
<td>Processing is terminated. An error occurred while writing <strong>resource object</strong> to the CSD.</td>
</tr>
<tr>
<td>DFHCA5166 E</td>
<td>date time applid netname tranid</td>
<td>Disallowed character in <strong>resource name</strong> object</td>
</tr>
<tr>
<td>DFHCA5167 S</td>
<td>date time applid netname tranid</td>
<td>The CSECTs in table <strong>table</strong> have been link-edited in the wrong order.</td>
</tr>
<tr>
<td>DFHCA5168 S</td>
<td>date time applid netname tranid</td>
<td>Table <strong>table</strong> loaded from library member <strong>table</strong> is not a valid tabletype.</td>
</tr>
<tr>
<td>DFHCA5169 S</td>
<td>date time applid netname tranid</td>
<td>Processing is terminated. Table <strong>table</strong> was assembled for CICS release <strong>rrr</strong>. Reassemble for release <strong>sss</strong>.</td>
</tr>
<tr>
<td>DFHCA5174 S</td>
<td>date time applid netname tranid</td>
<td>Processing is terminated. Command cannot be executed because 'PARM=CSD(READONLY)' was specified.</td>
</tr>
</tbody>
</table>
Chapter 31. Messages and codes

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DFHCA5201 S  date time applid netname tranid  
'command' command is not valid.  
Command not executed.

DFHCA5202 S  date time applid netname tranid  
Incorrect syntax for 'command' command. Command not executed.

DFHCA5203 W  date time applid netname tranid  
Right parenthesis assumed after the value of  
'xxxx'.

DFHCA5204 E  date time applid netname tranid  
Command not executed. 'xxxx' keyword is not valid.

DFHCA5205 E  date time applid netname tranid  
Command not executed. No value was specified for 'xxxx'.

DFHCA5206 E  date time applid netname tranid  
Command not executed. Duplicate specification of 'xxxx'.

DFHCA5207 E  date time applid netname tranid  
Command not executed. 'xxxxxxxx' does not require a value.

DFHCA5210 E  date time applid netname tranid  
Command not executed. Invalid value was specified for 'xxxx'.

DFHCA5211 E  date time applid netname tranid  
Command not executed. Operand delimiter 'x' was misplaced.

DFHCA5212 E  date time applid netname tranid  
Command not executed. comptype 'string' is not uniquely identifiable.

DFHCA5213 E  date time applid netname tranid  
Specified input could be interpreted as match1 or match2

DFHCA5214 W  date time applid netname tranid  
Keyword is an obsolete keyword. It is ignored.

DFHCA5215 E  date time applid netname tranid  
Command not executed. A closing parenthesis has been omitted from a  
null value specified on an ALTER command.

DFHCA5216 E  date time applid netname tranid  
restype resname is not in group group

DFHCA5217 E  date time applid netname tranid  
Command not executed. A closing  
bracket has been omitted from a description keyword.

DFHCA5218 I  date time applid netname tranid  
Altering Resourcetype Resourcename in  
group Groupname

DFHCA5219 W  date time applid netname tranid  
No match found on CSD file for  
Resourcetype Resourcename group  
Groupname

DFHCA5220 S  date time applid netname tranid  
Command not executed. 'xxxxxxxx' must be the first command.

DFHCA5222 E  date time applid netname tranid  
Command not executed. 'xxxxxxxx' keyword was omitted or specified  
correctly.

DFHCA5223 E  date time applid netname tranid  
Command not executed. 'xxxxxxxx' keyword conflicts with 'xxxxxxxx'  
keyword.

DFHCA5224 E  date time applid netname tranid  
Command not executed. The value of operand is outside the valid range for  
keyword.

DFHCA5225 E  date time applid netname tranid  
Command not executed. Same name specified for 'xxxxxxxx' and 'xxxxxxxx'.

DFHCA5227 E  date time applid netname tranid  
Command not executed. Use of generic name conflicts with 'xxxxxxxx'  
option.

DFHCA5228 E  date time applid netname tranid  
Command not executed. Only one  
resource-type keyword may be specified.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHCA5229 E</td>
<td>Command not executed. 'xxxxxxxxx' is invalid because a resource-type keyword was specified.</td>
</tr>
<tr>
<td>DFHCA5230 I</td>
<td>ERASE command is obsolete. Use the DELETE command.</td>
</tr>
<tr>
<td>DFHCA5231 E</td>
<td>Command not executed. 'xxxxxxxxx' is incompatible with the MIGRATE command for tabletype tables.</td>
</tr>
<tr>
<td>DFHCA5232 E</td>
<td>Command not executed. 'tabletype' parameter must not begin with 'DFH'.</td>
</tr>
<tr>
<td>DFHCA5233 E</td>
<td>Command not executed. 'tabletype' table type is not supported by RDO.</td>
</tr>
<tr>
<td>DFHCA5234 E</td>
<td>Command not executed. 'command' command is not supported.</td>
</tr>
<tr>
<td>DFHCA5235 E</td>
<td>Command not executed. Group or list must be specified.</td>
</tr>
<tr>
<td>DFHCA5236 I</td>
<td>A user-exit program has been specified on the entry linkage and on the userprogram keyword. The program specified on the entry linkage has been ignored.</td>
</tr>
<tr>
<td>DFHCA5240 S</td>
<td>Processing terminated. Error occurred while input utility command was being read.</td>
</tr>
<tr>
<td>DFHCA5241 S</td>
<td>Processing terminated. Invalid record length on utility command data stream.</td>
</tr>
<tr>
<td>DFHCA5242 E</td>
<td>Command not processed. Too many continuation records for input utility command.</td>
</tr>
<tr>
<td>DFHCA5250 E</td>
<td>TO(groupname) contains too many non contiguous '*'</td>
</tr>
<tr>
<td>DFHCA5251 I</td>
<td>resource object in group grpname is replaced.</td>
</tr>
<tr>
<td>DFHCA5252 I</td>
<td>resource object copied to group grpname</td>
</tr>
<tr>
<td>DFHCA5253 E</td>
<td>Group grpname not found in CSD file - ddname: ddname</td>
</tr>
<tr>
<td>DFHCA5254 E</td>
<td>resource object already exists in the target group.</td>
</tr>
<tr>
<td>DFHCA5255 E</td>
<td>List xxxxxxxxx not found in CSD file - ddname: ddname</td>
</tr>
<tr>
<td>DFHCA5256 E</td>
<td>No resources defined in group grpname</td>
</tr>
<tr>
<td>DFHCA5257 E</td>
<td>Length of 'TO' prefix must be less than or equal to length of 'GROUP' prefix.</td>
</tr>
<tr>
<td>DFHCA5258 I</td>
<td>Copying group grpname1 to grpname2</td>
</tr>
<tr>
<td>DFHCA5259 I</td>
<td>Unrecognized resource type found in the CSD file and has been ignored.</td>
</tr>
<tr>
<td>DFHCA5260 E</td>
<td>Length of 'TO' suffix must be equal to length of 'GROUP' suffix.</td>
</tr>
<tr>
<td>DFHCA5261 W</td>
<td>RDT is empty. No VTAM resources in assembled table.</td>
</tr>
<tr>
<td>DFHCA5262 S</td>
<td>Insufficient storage to build types-matching chain.</td>
</tr>
<tr>
<td>DFHCA5263 S</td>
<td>Error in input RDT. Incorrect sequence of commands.</td>
</tr>
<tr>
<td>Code</td>
<td>Message</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHCA5264 W</td>
<td>date time applid netname tranid Resource object not defined. Group grpname not available.</td>
</tr>
<tr>
<td>DFHCA5265 W</td>
<td>date time applid netname tranid Action required to find a suitable typeterm for terminal termid.</td>
</tr>
<tr>
<td>DFHCA5266 W</td>
<td>date time applid netname tranid Sessions sessions not defined, because of error in associated connection.</td>
</tr>
<tr>
<td>DFHCA5270 I</td>
<td>date time applid netname tranid group-or-list xxxxxxxx deleted from the CSD .</td>
</tr>
<tr>
<td>DFHCA5271 S</td>
<td>date time applid netname tranid Unable to delete group-or-list xxxxxxxx from the CSD .</td>
</tr>
<tr>
<td>DFHCA5272 I</td>
<td>date time applid netname tranid resource object deleted from group grpname</td>
</tr>
<tr>
<td>DFHCA5273 W</td>
<td>date time applid netname tranid resource object is not in group grpname</td>
</tr>
<tr>
<td>DFHCA5274 W</td>
<td>date time applid netname tranid resource object not defined. Group grpname not available.</td>
</tr>
<tr>
<td>DFHCA5275 E</td>
<td>date time applid netname tranid Group grpname is not a member of list listname</td>
</tr>
<tr>
<td>DFHCA5276 I</td>
<td>date time applid netname tranid Group grpname removed from list listname</td>
</tr>
<tr>
<td>DFHCA5277 I</td>
<td>date time applid netname tranid List list deleted from CSD .</td>
</tr>
<tr>
<td>DFHCA5280 I</td>
<td>date time applid netname tranid Processing definitions from library member xxxxxxxxxx</td>
</tr>
<tr>
<td>DFHCA5281 S</td>
<td>date time applid netname tranid Data loaded from library member xxxxxxxxxx is invalid</td>
</tr>
<tr>
<td>DFHCA5282 E</td>
<td>date time applid netname tranid Unable to get storage for library member xxxxxxxxxx</td>
</tr>
<tr>
<td>DFHCA5283 S</td>
<td>date time applid netname tranid RDL subcommand exceeds 1024 bytes: xxxxxxxxxx....</td>
</tr>
<tr>
<td>DFHCA5284 E</td>
<td>date time applid netname tranid Error analyzing RDL subcommand: xxxxxxxxxx....</td>
</tr>
<tr>
<td>DFHCA5285 E</td>
<td>date time applid netname tranid Invalid verb in RDL subcommand: xxxxxxxxxx....</td>
</tr>
<tr>
<td>DFHCA5286 E</td>
<td>date time applid netname tranid Unable to create resource definition on CSD file: xxxxxxxxxx....</td>
</tr>
<tr>
<td>DFHCA5287 E</td>
<td>date time applid netname tranid Extract terminated at user’s request. RC=retcode</td>
</tr>
<tr>
<td>DFHCA5290 W</td>
<td>Table tabtype macro mactype=value is not supported. Value is changed to newvalue.</td>
</tr>
<tr>
<td>DFHCA5291 E</td>
<td>Unable to define object object in group group. Migration is terminated.</td>
</tr>
<tr>
<td>DFHCA5292 W</td>
<td>Object object not defined for table item name due to previous error. Migration continues.</td>
</tr>
<tr>
<td>DFHCA5293 W</td>
<td>Total object definitions skipped due to error: number</td>
</tr>
<tr>
<td>DFHCA5294 E</td>
<td>number object-1 were not matched with a corresponding object-2.</td>
</tr>
<tr>
<td>DFHCA5296 W</td>
<td>Table tabtype TYPE=mactype parameter does not support multiple values.</td>
</tr>
<tr>
<td>DFHCA5501 E</td>
<td>date time applid netname tranid Command not executed. keyword must be specified.</td>
</tr>
</tbody>
</table>
DFHCA5502 W  date time applid netname tranid
xxxxxxx implies yyyyyyy.

DFHCA5503 E  date time applid netname tranid
Command not executed. xxxxxxx option conflicts with yyyyyyy option and is ignored.

DFHCA5504 E  date time applid netname tranid
Command not executed. Use of xxxxxxx option implies yyyyyyy option must be specified.

DFHCA5505 W  date time applid netname tranid
Program DFHMSM requires a TWASIZE of at least 528.

DFHCA5506 E  date time applid netname tranid
Command not executed. For xxxxxxx many options, including yyyyyyy, are meaningless.

DFHCA5507 E  date time applid netname tranid
Command not executed. xxxxxxx value must be greater than yyyyyyy value.

DFHCA5508 E  date time applid netname tranid
Command not executed. xxxxxxx value must be less than or equal to yyyyyyy value.

DFHCA5509 E  date time applid netname tranid
Command not executed. xxxxxxx name must not be the same as yyyyyyy name.

DFHCA5510 W  date time applid netname tranid
xxxxxxx names beginning with yyyyyyy are reserved and may be redefined by CICS.

DFHCA5511 W  date time applid netname tranid
xxxxxxx name yyyyyyy is reserved and may be redefined by CICS.

DFHCA5512 W  date time applid netname tranid
Program name begins with 'DFH' but transaction name does not begin with 'C'.

DFHCA5513 E  date time applid netname tranid
Command not executed. The second value of xxxxxxx must not be greater than the first.

DFHCA5514 E  date time applid netname tranid
Command not executed. With SESSNAME there can only be one COUNT and its value must be 1.

DFHCA5515 W  date time applid netname tranid
AUTOPAGE(NO) has been specified for a 3270 print device.

DFHCA5516 W  date time applid netname tranid
The values of DEVICE and SESSIONTYPE are equivalent to DEVICE(devtype) and have been replaced.

DFHCA5517 E  date time applid netname tranid
Command not executed. prefix and COUNT together make more than four characters.

DFHCA5518 W  date time applid netname tranid
XTRANIDS xxxxxxx are reserved and may be redefined by CICS.

DFHCA5519 E  date time applid netname tranid
Command not executed. xxxxxxx value contains an invalid y.

DFHCA5520 W  date time applid netname tranid
The value of DEVICE is equivalent to xxxxxxx and has been replaced.

DFHCA5521 E  date time applid netname tranid
Command not executed. xxxxxxx value yyyyyyy is invalid.

DFHCA5522 E  date time applid netname tranid
Command not executed. Length of xxxxxxx value is more than allowed.

DFHCA5523 E  date time applid netname tranid
Command not executed. File DHHCSD must be defined in the SIT and not the CSD.

DFHCA5524 W  date time applid netname tranid
BMS route for console may cause unpredictable results if maps or TEXT(ACCUM) used on device.

DFHCA5525 W  date time applid netname tranid
xxxxxxx value is not valid, yyyyyyy has been assumed.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHCA5526 E</td>
<td>Date time applid netname tranid must have rows and columns specified.</td>
</tr>
<tr>
<td>DFHCA5527 E</td>
<td>Date time applid netname tranid Command not executed. Remote options are ignored for programs starting with DFH.</td>
</tr>
<tr>
<td>DFHCA5528 E</td>
<td>Date time applid netname tranid Command not executed. Value of keyword is out of valid range.</td>
</tr>
<tr>
<td>DFHCA5529 E</td>
<td>Date time applid netname tranid keyword or keyword must be specified.</td>
</tr>
<tr>
<td>DFHCA5530 W</td>
<td>Date time applid netname tranid XTRANIDS ending with string are reserved and may be redefined by CICS.</td>
</tr>
<tr>
<td>DFHCA5531 W</td>
<td>Date time applid netname tranid XTRANIDS beginning with string are reserved and may be redefined by CICS.</td>
</tr>
<tr>
<td>DFHCA5532 E</td>
<td>Date time applid netname tranid Command not executed. An invalid combination of rows and columns has been specified for ALTSCREEN.</td>
</tr>
<tr>
<td>DFHCA5533 W</td>
<td>Date time applid netname tranid Specified keyword1 value is less than keyword2 value. The default value has been assumed.</td>
</tr>
<tr>
<td>DFHCA5534 W</td>
<td>Date time applid netname tranid When you change the value of DEVICE many other values may be changed for you.</td>
</tr>
<tr>
<td>DFHCA5535 E</td>
<td>Date time applid netname tranid Command not executed. restype name resname is reserved by CICS.</td>
</tr>
<tr>
<td>DFHCA5536 W</td>
<td>Date time applid netname tranid keyword1 and keyword2 attributes are inconsistent if definition is being shared with a back-level release.</td>
</tr>
<tr>
<td>DFHCA5537 W</td>
<td>Date time applid netname tranid Prefix allowed to default. Use of defaults is recommended for MRO sessions only.</td>
</tr>
<tr>
<td>DFHCA5538 W</td>
<td>Date time applid netname tranid resource names starting with x may conflict with system sessions names.</td>
</tr>
<tr>
<td>DFHCA5539 S</td>
<td>Date time applid netname tranid keyword is not valid because it starts with the reserved character or string string.</td>
</tr>
<tr>
<td>DFHCA5540 W</td>
<td>Date time applid xxxxxxxx value is greater than yyyyyyyy value. The lower value takes precedence.</td>
</tr>
<tr>
<td>DFHCA5542 E</td>
<td>Date time applid netname tranid Command not executed. xxxxxxxx and yyyyyyy must be the same length.</td>
</tr>
<tr>
<td>DFHCA5543 E</td>
<td>Date time applid netname tranid Command not executed. Generic characters must be in the same position in xxxxxxxx and yyyyyyy.</td>
</tr>
<tr>
<td>DFHCA5544 E</td>
<td>Date time applid Command not executed. xxxxxxxx must be specified as yyyyyyy because a previous value is generic.</td>
</tr>
<tr>
<td>DFHCA5546 E</td>
<td>Date time applid Command not executed. xxxxxxxx is not valid as a type yyyyyyy parameter.</td>
</tr>
<tr>
<td>DFHCA5547 E</td>
<td>Date time applid netname tranid Command not executed. xxxxxxxx value yyyyyyy is invalid.</td>
</tr>
<tr>
<td>DFHCA5548 E</td>
<td>Date time applid Command not executed. xxxxxxxx option is invalid for a back level REQUESTMODEL.</td>
</tr>
<tr>
<td>DFHCA5549 E</td>
<td>Date time applid Command not executed. xxxxxxxx value must not be the same as yyyyyyy value.</td>
</tr>
<tr>
<td>DFHCA5600 E</td>
<td>Date time applid netname tranid Unable to get storage for module DFHCICS. Primary CSD not initialized.</td>
</tr>
<tr>
<td>DFHCA5601 E</td>
<td>Date time applid netname tranid Unable to load the tabletype table named table.</td>
</tr>
</tbody>
</table>
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DFHCA5602 E  date time applid netname tranid
Unable to unload the tabletype table
named table.

DFHCA5603 E  date time applid netname tranid
Unable to locate the tabletype table
named table.

DFHCA5604 E  date time applid netname tranid
Unable to obtain storage for the
cross-reference table named table.

DFHCA5605 E  date time applid netname tranid
Disallowed character in group or list
name object.

DFHCA5606 S  date time applid netname tranid
Command is not executed. Unable to
load the service module progname.

DFHCA5607 S  date time applid netname tranid
Command is terminated. An error
occurred while reading the first
secondary CSD record.

DFHCA5608 S  date time applid netname tranid
Command is terminated. Error
occurred while reading a secondary
CSD record.

DFHCA5609 S  date time applid netname tranid
Command is terminated. Error
occurred while writing a primary CSD
record.

DFHCA5611 E  date time applid netname tranid
Command not executed. 'parameter' parameter must begin with 'DFH'.

DFHCA5612 I  date time applid netname tranid
resource object in group grpname is unchanged.

DFHCA5613 E  date time applid netname tranid
Unable to locate the library member
member.

DFHCA5614 E  date time applid netname tranid
Unable to load the library member
member.

DFHCA5617 S  date time applid netname tranid
Command is terminated. Unrecognised
type of record encountered while
secondary CSD was being read.

DFHCA5618 I  date time applid netname tranid
An attention interrupt was requested
during DFHCSDUP execution.

DFHCA5619 W  date time applid netname tranid
An invalid value of the PAGESIZE
parameter has been specified. The
default value of 60 lines per page will
be used.

DFHCA5620 E  date time applid netname tranid
An illegal return code (RC=ret-code) has
been returned from the exit exit.

DFHCA5621 E  date time applid netname tranid
A non-zero return code has been
returned from the put-message exit.

DFHCA5622 S  date time applid netname tranid
The secondary CSD has been closed
during clean-up processing following
the interception of an abend.

DFHCA5623 S  date time applid netname tranid
The primary CSD has been closed during
clean-up processing following the
interception of an abend.

DFHCA5624 S  date time applid netname tranid
The extract exit program has been
unloaded during clean-up processing
following the interception of an abend.

DFHCA5630 W  date time applid
No IBM supplied
definition found for resource
type resourcename.

DFHCA5631 I  date time applid resource
type resourcename in group groupname1
matches the IBM supplied definition in
group groupname2.

DFHCA5632 I  date time applid resource
type resourcename in group groupname1
does not match the IBM supplied
definition in group groupname2.
DFHCA5633 I  date time applid resourcetype resourcename found in group groupname.

DFHCA5634 W  date time applid resourcetype resourcename not found in user groups.

DFHCC0102  applid Global Catalog data set is already in use.

DFHCC0103 LOCAL CATALOG DATA SET IS ALREADY IN USE.

DFHCC0104 AN ABEND HAS OCCURRED DURING INITIALIZATION OF CATALOG DOMAIN IN MODULE DFHCCDM.

DFHCC0203 applid The {local | global} catalog is full.

DFHCE3587 You cannot signon at this terminal at this time.

DFHCF0101I CF data table server initialization is in progress.

DFHCF0102I CF data table server for pool poolname is now active.

DFHCF0103 CF data table server initialization failed because the POOLNAME parameter was not specified.

DFHCF0104 CF data table server initialization failed because program DFHCFMN is not APF authorized.

DFHCF0111I CF data table server for pool poolname is terminating.

DFHCF0112I CF data table server has terminated, return code retcode, reason code rsncode.

DFHCF0113 CF data table server completion code is cmpcode, reason code rsncode.

DFHCF0121I Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

DFHCF0122 IXCARM REQUEST=reqtype failed, return code retcode, reason code rsncode.

DFHCF0201I Processing type parameters

DFHCF0202 Unknown parameter keyword: keyword

DFHCF0203 Value value for parameter keyword is incorrect. It must be a name of up to 8 characters.

DFHCF0204 Value value for parameter keyword is incorrect. It must be a decimal number.

DFHCF0205 Value value for parameter keyword is greater than the maximum allowed value maximum.

DFHCF0206 Value value for parameter keyword is less than the minimum allowed value minimum.

DFHCF0207 Value value for parameter keyword is incorrect. It should be a time hh:mm:ss or hh:mm or a number of seconds.

DFHCF0208 Parameter keyword keyword is not supported for command.

DFHCF0209 Parameter text contains invalid character: text

DFHCF0210 Parameter keyword keyword should not have a value for command.

DFHCF0211I Parameter value: keyword=value

DFHCF0212 Value value for parameter keyword is incorrect. It must be one of validlist.

DFHCF0213 Value for parameter keyword is missing. The correct form is keyword=value.

DFHCF0214 Value value for parameter keyword is incorrect. Pattern matching is not supported in this context.
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DFHCF0215 Value value for applid.uowid parameter keyword is incorrect. The APPLID part should be a name of up to 8 characters.

DFHCF0216 Value value for applid.uowid parameter keyword is incorrect. The UOWID part should be 16 hexadecimal digits or "*".

DFHCF0217 Parameter keyword keyword requires a table name. It should be preceded by TABLE=name in the same command line.

DFHCF0218 TABLE=table was specified without any table-related parameter.

DFHCF0301I Console operator consname issued command: command

DFHCF0321 Pool state error, reason code reason, processing request request for table table, key key, task task, region region.

DFHCF0331I Table table maximum records limit now set to maxrec (was oldmax). Current number of records is records.

DFHCF0332I Table table was not found.

DFHCF0333 Pool state error, reason code reason, processing SET command for table table.

DFHCF0334 Table table status could not be modified, CF access error.

DFHCF0335I Table table is now marked as available.

DFHCF0336I Table table is now marked as unavailable.

DFHCF0337I Table table was already marked as available.

DFHCF0338I Table table was already marked as unavailable.

DFHCF0341I Server request statistics for table table:

DFHCF0342I Server request statistics for all tables:

DFHCF0343I The number of recently accessed tables matching table is number.

DFHCF0351I Connection: Job jobname Applid applid Idle idletime

DFHCF0352I Total connections to this server: connections.

DFHCF0361I Table names: table1 table2 table3 table4 table5

DFHCF0362I The total number of tables in the pool is tables.
Details for table table:

No table was found matching table.

The number of tables in the pool matching table is tables.

Table table users: region1 region2 region3 region4

Table table is being loaded by region.

The number of regions using table table is users.

Table table has now been deleted.

Table table was not found.

Table table cannot be deleted because it is in use.

Table table could not be deleted, CF access error.

APPLID applid is connected on system.

APPLID applid is not currently connected.

APPLID applid total connections: applids.

APPLID applid UOW status: indoubts in doubt, commits in commit, backouts in backout, active on system

APPLID applid UOW status: indoubts in doubt, commits in commit, backouts in backout, not active

UOWID applid.uowid is in doubt.

UOWID applid.uowid is being committed.

UOWID applid.uowid is being backed out.

UOWID applid.uowid was not found.

UOWID applid.uowid total matching entries: uowids

APPLID applid does not have any unresolved units of work.

APPLID applid recovery status cannot be modified while it is connected.

APPLID applid recovery status cannot be modified because connection restart failed with reason code reason.

APPLID applid.uowid is not in doubt.

APPLID applid now has no unresolved units of work.

APPLID applid units of work remaining in doubt: indoubts.

APPLID applid units of work now committed: commits.

APPLID applid units of work now backed out: backouts.

UOWID applid.uowid syncpoint failed, reason code reason.

Connected to CF structure strname.

CF structure strname was allocated by this connection.

Connection to CF structure strname failed, IXLCONN return code retcode, reason code rsncode.

CF structure strname cannot be used because it has been allocated with attribute attribute.
DFHCF0405 CF structure *strname* element size `elemsize` is incorrect. It should be a power of 2 in the range 256 to 4096.

DFHCF0406 Initialization failed for CF structure *strname* with response `response`.

DFHCF0407 CF structure *strname* is not available for shared use.

DFHCF0408 CF structure *strname* is not available for exclusive use.

DFHCF0409 CF structure *strname* could not be allocated in facility *cfname*, reason code `rsncode`.

DFHCF0410 CF structure *strname* cannot be used, coupling facility maintenance level is too low.

DFHCF0411 CF structure *strname* now has `percentage`% of entries in use.

DFHCF0412 CF structure *strname* now has `percentage`% of elements in use.

DFHCF0413 Issuing alter request to adjust CF structure *strname* entry/element ratio to `entries/elements`.

DFHCF0414 Alter request successfully started for CF structure *strname*.

DFHCF0415 Alter request rejected for CF structure *strname*, another alter request for this structure is already active.

DFHCF0416 Alter request failed for CF structure *strname*, IXLALTER return code `retcode`, reason code `rsncode`.

DFHCF0417 Alter request completed normally for CF structure *strname*.

DFHCF0418 Alter request ended abnormally for CF structure *strname* with status `status`.

DFHCF0419 Alter request ended normally for CF structure *strname* but target was not attained.

DFHCF0424 Connectivity has been lost to CF structure *strname*. The CF data table server cannot continue.

DFHCF0425 CF structure *strname* has failed. The CF data table server cannot continue.

DFHCF0431 Access statistics for CF structure *strname*:

DFHCF0432 Table pool statistics for CF structure *strname*:

DFHCF0441 CF structure *strname* request failed, IXLLIST return code `retcode`, reason code `rsncode`.

DFHCF0442 CF structure *strname* request failed, structure is full.

DFHCF0443 CF structure *strname* request failed, all lists are in use.

DFHCF0444 CF request has been suspended to await structure alter completion.

DFHCF0445 CF request is being retried after structure alter completion.

DFHCF0446 CF structure *strname* free space is below reserve level. New records will be rejected.

DFHCF0447 CF structure *strname* free space is no longer below reserve level.

DFHCF0451 Purge for CF structure *strname* failed, IXLPURGE return code `retcode`, reason code `rsncode`.

DFHCF0461 Disconnected from CF structure *strname*.

DFHCF0462 Disconnect from CF structure *strname* failed, IXLDISC return code `retcode`, reason code `rsncode`.

DFHCF0471 CF structure *strname* already has the maximum of `maxconn` servers active.
DFHCF0481I Waiting for structure *strname* to become available.

DFHCF0482I Retrying connection to structure *strname*.

DFHCF0491I ENFREQ ACTION=action failed, return code retcode.

DFHCF0501I External security manager was not found, table security cannot be supported.

DFHCF0502I External security manager is inactive, table security cannot be supported.

DFHCF0503I External security manager does not support global in-storage profiles, table security cannot be supported.

DFHCF0504I External security manager does not support cross-memory mode, table security cannot be supported.

DFHCF0505I RACROUTE REQUEST=EXTRACT gave R15=rc, SAFPRRET=retcode, SAFPRREA=rsncode.

DFHCF0506I Security EXTRACT function failed, table security cannot be supported.

DFHCF0507I RACROUTE REQUEST=LIST, ENVIR=CREATE, CLASS='class' gave R15=rc, SAFPRRET=retcode, SAFPRREA=rsncode.

DFHCF0508I Security LIST function failed, table security cannot be supported.

DFHCF0509I RACROUTE REQUEST=FASTAUTH for resource *resource* gave R15=rc, SAFPRRET=retcode, SAFPRREA=rsncode.

DFHCF0511I Attempt to open table *table* was rejected by the external security manager.

DFHCF0521I RACROUTE REQUEST=LIST, ENVIR=DELETE, CLASS='class' gave R15=rc, SAFPRRET=retcode, SAFPRREA=rsncode.

DFHCF0601I Starting statistics collection for interval since lasttime.

DFHCF0602I Statistics collection completed, reset performed.

DFHCF0603I Statistics collection completed.

DFHCF0604I Timer SET failed, return code retcode, reason code rsncode.

DFHCF0605I Timer CANCEL failed, return code retcode, reason code rsncode.

DFHCF0606I Statistics collection function is no longer available.

DFHCF0610I Statistics written to SMF, return code was retcode.

DFHCF0651I Restart processing cannot open table *table*, reason code reason.

DFHCF0652I Pool state error, reason code reason, processing function request for UOWID uowid, task task, region region.

DFHCF0701I CF data table pool *poolname* is to be unloaded.

DFHCF0702I CF data table pool *poolname* has been successfully unloaded.

DFHCF0703I Number of unloaded tables: tables.

DFHCF0704I DFHCFUL data set for unload could not be opened.
DFHCF0705 Unload access to CF structure *strname* failed with response *response*.

DFHCF0706 Unload for CF data table pool *poolname* was unsuccessful.

DFHCF0721 CF data table *table* has been successfully unloaded, *records* records.

DFHCF0731 *uowids* units of work were unloaded for recoverable connection *applid*.

DFHCF0801I CF data table pool *poolname* is to be reloaded.

DFHCF0802I CF data table pool *poolname* has been successfully reloaded.

DFHCF0803I Tables reloaded: *tables*. Tables bypassed: *duplicates*. Blocks read: *blocks*.

DFHCF0804 DFHCFRL data set for reload could not be opened.

DFHCF0805 Reload access to CF structure *strname* failed with response *response*.

DFHCF0806 Unexpected end of file encountered on reload data set.

DFHCF0807 Reload data set contains incorrect data near block *block*, offset *offset*.

DFHCF0808 Unload access to CF data table pool *poolname* was unsuccessful.

DFHCF0809 Reload for CF structure *strname* failed, structure is full.

DFHCF0810 Reload for CF structure *strname* failed, all lists are in use.

DFHCF0821 CF data table *table* has been successfully reloaded, *records* records.

DFHCF0822 CF data table *table* is already defined, reloading has been bypassed.

DFHCF0831 *uowids* units of work were reloaded for recoverable connection *applid*.

DFHCF0832 *uowids* duplicate units of work were skipped for recoverable connection *applid*.

DFHCF0911I R12=prv RQ Entry function *Table=table Task=tasknum region*.

DFHCF0912I R12=prv RQ Exit response *Table=table Task=tasknum region*.

DFHCF0913I R12=prv RQ Lock status *Table=table Task=tasknum region*.

DFHCF0921I R12=prv IQ Entry function *Table=table Task=tasknum region*.

DFHCF0922I R12=prv IQ Exit response *Table=table Task=tasknum region*.

DFHCF0931I R12=prv OC Entry function *Table=table Task=tasknum region*.

DFHCF0932I R12=prv OC Exit response *Table=table Task=tasknum region*.

DFHCF0933I R12=prv OC Closing table *table* for *region* on *system*.

DFHCF0941I R12=prv CF Entry request options modifiers R1=parmlst table.

DFHCF0942I R12=prv CF IXLLIST *Req=request Adj=adjarea Buf=buffer List=listnum Rsn=rsncode*.

DFHCF0943I R12=prv CF IXLLIST keyword=value.

DFHCF0944I R12=prv CF Exit response *table*.

DFHCF0951I R12=prv SP Entry function UOWID=uowid Task=tasknum region.

DFHCF0952I R12=prv SP Exit response UOWID=uowid Task=tasknum region.
DFHC0953 | R12=prv SP Lock action UOWID=uowid
Task=tasknum region

DFHC0954 | R12=prv SP UOW status UOWID=uowid
Task=tasknum region

DFHC0955 | R12=prv SP Table table UOWID=uowid
Task=tasknum region

DFHC0956 | R12=prv SP Record state action
UOWID=uowid Task=tasknum region

DFHC0999 | Trace text

DFHCZ0105 | date time applid userid termid tranid
program name class::method This
CICS event summary:
condition=X'resp'
(resptext)
minor=X'resp2'

DFHCZ0106 | date time applid userid termid tranid
program name class::method This
CICS exception summary:
exceptno class::method
summary: type=type.

DFHCZ0108 | date time applid userid termid tranid
program name class::method This
CICS event summary:
condition=X'resp'
(resptext)
minor=X'resp2'

DFHCZ0109 | date time applid userid termid tranid
program name class::method This
CICS event summary:
condition=X'resp'
(resptext)
minor=X'resp2'

DFHCZ0110 | date time applid userid termid tranid
program name class::method This
CICS exception summary:
exceptno class::method
summary: type=type.

DFHCZ0111 | date time applid userid termid tranid
program name class::method This
CICS exception summary:
exceptno class::method
summary: type=type.

DFHCZ0112 | date time applid userid termid tranid
program name class::method This
CICS exception summary:
exceptno class::method
summary: type=type.

DFHCZ0113 | date time applid userid termid tranid
program name class::method This
method failed because the system is configured with CICS family subset
enforcement.

DFHCZ0114 | date time applid userid termid tranid
program name class::method This
method failed because the object being accessed was incomplete.

DFHCZ0115 | date time applid userid termid tranid
program name class::method This
method failed because the object being accessed had a reference to an input
message while the program was invoked via the remote program link.

DFHCZ0116 | date time applid userid termid tranid
program name class::method This
method failed because the object being accessed was not one of the
supported classes.

DFHCZ0117 | date time applid userid termid tranid
program name class::method This
method failed because the object being accessed did not have a reference for
the resource resource.

DFHCZ0118 | date time applid userid termid tranid
program name class::method This
method failed because the call is invalid for the object being accessed.
The resource type of the object is resource_type.

DFHCZ0119 | date time applid userid termid tranid
program name class::method This
method failed because the call is invalid for the object being accessed.
The resource type of the object is resource_type.

DFHCZ0120 | date time applid userid termid tranid
program name class::method This
method failed because the current number of nested program calls made
using this method is already at the maximum of max.

DFHCZ0121 | date time applid userid termid tranid
program name class::method This
method failed because the call is invalid for the object being accessed.
The resource type of the object is resource_type.

DFHCZ0122 | date time applid userid termid tranid
program name class::method This
method failed because the optional parameter named parameter was set,
which is invalid for the current environment of env.
DFHCZ0123  date time applid userid termid tranid program name class::method This method failed because the optional parameter named pname was set, which is invalid because the system is configured with CICS family subset enforcement.

DFHCZ0125  date time applid userid termid tranid program name class::method This method failed because the object being accessed had a buffer containing function management headers (FMHs), which is invalid for the current environment of env.

DFHCZ0126  date time applid userid termid tranid program name class::method This method failed because the object being accessed had a buffer containing function management headers (FMHs), which is invalid because the system is configured with CICS family subset enforcement.

DFHCZ0127  date time applid userid termid tranid program name class::method This method failed because the value of the parameter named pname, specified as length, was not within the range 1 to max.

DFHCZ0128  date time applid userid termid tranid program name class::method This method failed because the length of the parameter named pname, specified as length, was not within the range 1 to max.

DFHCZ0129  date time applid userid termid tranid program name class::method This method detected an exception which resulted in data being truncated.

DFHCZ0130  date time applid userid termid tranid program name class::method This method/operator failed because the parameter pname contained a string of length length, while the maximum allowed is max.

DFHCZ0131  date time applid userid termid tranid program name class::method This constructor failed to create an object because a parameter of type string contained a value that was too long. It was set to 'stringvalue...' while the maximum length allowed is maxstringlength.

DFHCZ0132  date time applid userid termid tranid program name class::method This constructor failed to create an object because the parameter named pname contained an invalid string of length plength while the maximum length allowed is pmaxlength.

DFHCZ0134  date time applid userid termid tranid program name class::method This method failed because the parameter named pname contained an invalid value.

DFHCZ0136  date time applid userid termid tranid program name class::method This method failed because the parameter named param_name contained conflicting flags specified as flag1 and flag2.

DFHCZ0137  date time applid userid termid tranid program name class::method This constructor failed to create an object because the parameter named pname contained an invalid value of pvalue.

DFHCZ0138  date time applid userid termid tranid program name class::method This method failed because the parameter named pname contained an invalid value of pvalue.

DFHCZ0140  date time applid userid termid tranid program name class::method This constructor failed to create an object because it is a singleton class which already exists.

DFHCZ0141  date time applid userid termid tranid program name class::method This method failed to create the object object because the CICS task did not have a terminal as its principal facility.
DFHCZ0142  date time applid userid termid tranid  
program name class::method This  
method failed to create an object of type object because the CICS task did not have a session as its principal facility.

DFHCZ0143  date time applid userid termid tranid  
program name class::method This  
method failed because the CICS task did not have a session as its principal facility.

DFHCZ0150  date time applid userid termid tranid  
program name class::method This  
method has not been implemented by the derived class.

DFHCZ0151  date time applid userid termid tranid  
program name class::method This  
method failed because it is not supported to run on a CICS z/OS region.

DFHCZ0152  date time applid userid termid tranid  
program name class::method This  
method failed because no backend systems have been configured.

DFHCZ0153  date time applid userid termid tranid  
program name class::method This  
method failed because no storage area was provided by the caller to hold the requested system list.

DFHCZ0154  date time applid userid termid tranid  
program name class::method This  
method failed because, either the commarea data length of commareaDataLen, or commarea buffer length of commareaBuffLen, is greater than the maximum commarea length of maxCommareaLen.

DFHCZ0155  date time applid userid termid tranid  
program name class::method This  
method failed because the commarea of length commareabufflen, is too small to hold the requested status data of length statusdatalen.

DFHCZ0156  date time applid userid termid tranid  
program name class::method This  
method failed because it was passed an invalid ECI call_type of callType.

DFHCZ0157  date time applid userid termid tranid  
program name class::method This  
method failed because the user ID passed in (userid) is not the same as the current user ID (userid).

DFHCZ0158  date time applid userid termid tranid  
program name class::method This  
method failed because a call to CICS (cicscall) returned an abnormal response of resp and a reason of resp2.

DFHCZ0159  date time applid userid termid tranid  
program name class::method This  
method failed because a call to the JNI function jnicall returned an abnormal return code of retcode.

DFHCZ0200  date time applid userid termid tranid  
program name JNI call  'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0201  date time applid userid termid tranid  
program name JNI call  'GetStringUTFChars(envp, profile)' in module failed.

DFHCZ0202  date time applid userid termid tranid  
program name JNI call  'GetStringUTFChars(envp, process)' in module failed.

DFHCZ0203  date time applid userid termid tranid  
program name The process name passed to the CONNECT_PROCESS method in module was invalid.

DFHCZ0204  date time applid userid termid tranid  
program name JNI call 'GetFieldID() for DataHolder.value' in module failed.

DFHCZ0205  date time applid userid termid tranid  
program name An unexpected value for the control parameter was passed to the ISSUE_CONTROL() method in module.
An attempt to issue an ASSIGN ABCODE command in module has failed.

JNI call 'FindClass()' in module failed.

JNI call 'GetFieldID()' in module failed.

JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

JNI call 'GetStringUTFChars(envp, fileName, NULL)' in module failed.

A NULL filename has been passed to a native method in module.

JNI call 'GetStringUTFChars()' in module failed.

A NULL filename has been passed to a native method in module.

JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

An attempt in module to delete records from a RRDS has failed.

JNI call 'GetFieldID()' in module.

JNI call 'GetStringUTFChars()' in module failed.

A NULL filename has been passed to a native method in module.

JNI call 'GetStringUTFChars()' in module failed.

A NULL key has been passed to a native method in module.

JNI call 'GetByteArrayElements()' in module failed.

A NULL filename has been passed to a native method in module.

JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

A NULL filename has been passed to a native method in module.

A relative record number greater than 32767 has been specified on a DELETE command in module.
DFHCZ0229  date time applid userid termid tranid
program name JNI call
'GetByteArrayElements()' in module
failed.

DFHCZ0230  date time applid userid termid tranid
program name An attempt to allocate
storage in module failed.

DFHCZ0231  date time applid userid termid tranid
program name JNI call
'GetStringUTFChars(envp, SysId)' in
module failed.

DFHCZ0232  date time applid userid termid tranid
program name JNI call
'GetStringUTFChars()' in module
failed.

DFHCZ0233  date time applid userid termid tranid
program name A NULL filename has
been passed to a native method in
module.

DFHCZ0234  date time applid userid termid tranid
program name JNI call
'GetStringUTFChars(envp, SysId)' in
module failed.

DFHCZ0235  date time applid userid termid tranid
program name JNI call
'GetStringUTFChars(envp, TransId)' in
module failed.

DFHCZ0236  date time applid userid termid tranid
program name JNI call
'GetStringUTFChars(envp, SysId)' in
module failed.

DFHCZ0237  date time applid userid termid tranid
program name JNI call
'GetComponentID()' for
'DataLength.Length' in module failed.

DFHCZ0238  date time applid userid termid tranid
program name JNI call
'FindClass()' in module failed.

DFHCZ0239  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0240  date time applid userid termid tranid
program name JNI call
'FindClass()' in module failed.

DFHCZ0241  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0242  date time applid userid termid tranid
program name JNI call
'FindClass()' in module failed.

DFHCZ0243  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0244  date time applid userid termid tranid
program name A 'malloc' in
module failed.

DFHCZ0245  date time applid userid termid tranid
program name JNI call
'FindClass()' in module failed.

DFHCZ0246  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0247  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0248  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0249  date time applid userid termid tranid
program name JNI call
'FindClass(envp, classname)' in module
failed.

DFHCZ0250  date time applid userid termid tranid
program name JNI call
'ThrowNew()' in module failed.

DFHCZ0253  date time applid userid termid tranid
program name JNI call
'NewByteArray()' in module failed.

DFHCZ0254  date time applid userid termid tranid
program name JNI call
'FindClass()' in module failed.
Chapter 31. Messages and codes
DFHCZ0281  date time applid userid termid tranid
program name JNI call 'GetMethodID()' in module failed.

DFHCZ0282  date time applid userid termid tranid
program name JNI call 'FindClass()' in module failed.

DFHCZ0283  date time applid userid termid tranid
program name JNI call 'FindClass()' in module failed.

DFHCZ0284  date time applid userid termid tranid
program name JNI call 'GetMethodID()' in module failed.

DFHCZ0285  date time applid userid termid tranid
program name JNI call 'GetMethodID()' in module failed.

DFHCZ0286  date time applid userid termid tranid
program name JNI call 'NewObject()' in module failed.

DFHCZ0287  date time applid userid termid tranid
program name An attempt to allocate storage in module failed.

DFHCZ0288  date time applid userid termid tranid
program name An attempt to allocate storage in module failed.

DFHCZ0289  date time applid userid termid tranid
program name An attempt to allocate storage in module failed.

DFHCZ0290  date time applid userid termid tranid
program name An attempt to allocate storage in module failed.

DFHCZ0291  date time applid userid termid tranid
program name JNI call 'GetMethodID()' in module failed.

DFHCZ0292  date time applid userid termid tranid
program name JNI call 'FindClass()' in module failed.

DFHCZ0293  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0294  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0295  date time applid userid termid tranid
program name JNI call 'GetObjectClass()' in module failed.

DFHCZ0296  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0297  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0298  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0299  date time applid userid termid tranid
program name JNI call 'NewObject()' in module failed.

DFHCZ0300  date time applid userid termid tranid
program name JNI call 'GetMethodID()' in module failed.

DFHCZ0301  date time applid userid termid tranid
program name JNI call 'FindClass()' in module failed.

DFHCZ0302  date time applid userid termid tranid
program name JNI call 'GetFieldID()' in module failed.

DFHCZ0303  date time applid userid termid tranid
program name JNI call 'GetObjectClass()' in module failed.

DFHCZ0304  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, abcode)' in module failed.

DFHCZ0305  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0306  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0307  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0308  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0309  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0310  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0311  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0312  date time applid userid termid tranid
program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.
DFHCZ0313  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0314  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0315  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0316  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0317  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0318  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0319  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0320  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0321  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0322  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0323  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0324  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0325  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0326  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0327  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0328  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0329  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0330  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0331  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0332  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0333  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0334  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0335  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0336  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0337  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0338  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0339  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0340  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.

DFHCZ0341  date time applid userid termid tranid
           program name JNI call 'GetStringUTFChars(envp, queueName, NULL)' in module failed.
DFHCZ0342  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0345  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars()' in module failed.

DFHCZ0347  date  time applid userid  termid tranid  program  name JNI call 'GetByteArrayElements()' in module failed.

DFHCZ0348  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars(envp, terminal)' in module failed.

DFHCZ0349  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars(envp, SysId)' in module failed.

DFHCZ0350  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars()' in module failed.

DFHCZ0351  date  time applid userid  termid tranid  program  name JNI call 'GetStringUTFChars(envp, terminal)' in module failed.

DFHCZ0352  date  time applid userid  termid tranid  program  name JNI call 'GetByteArrayElements()' in module failed.

DFHCZ0353  date  time applid userid  termid tranid  program  name JNI call 'GetByteArrayElements()' in module failed.

DFHCZ0354  date  time applid userid  termid tranid  program  name JNI call 'GetByteArrayElements()' in module failed.

DFHCZ0355  date  time applid userid  termid tranid  program  name JNI call 'NewByteArray(envp, Length)' in module failed.

DFHCZ0356  date  time applid userid  termid tranid  program  name non-CICS security manager of class className installed.

DFHCZ0357  date  time applid userid  termid tranid  program  name Uncaught exception from application.

DFHCZ0358  date  time applid userid  termid tranid  program  name Exception exception occurred invoking main method in class className.

DFHCZ0359  date  time applid userid  termid tranid  program  name Exception exception occurred creating object reference for class className.

DFHCZ0360  date  time applid userid  termid tranid  program  name Class name className is invalid.

DFHCZ0361  date  time applid The CICS Java Wrapper class failed to find the requested plugin plugin.

DFHCZ0362  date  time applid The CICS Java Wrapper plugin plugin has thrown exception exception.

DFHCZ0399  termid tranid date  time COM.IBM.CICS.SERVER.WRAPPER - UNSATISFIEDLINKERROR LOADING library.

DFHDB2001  date  time applid CICS-DB2 resynchronization with db2id for unit of work X'uowid' cannot take place due to initial start of CICS.

DFHDB2003  date  time applid The CICS-DB2 attachment facility is already active.

DFHDB2004  date  time applid No threads were found for plan plan-name

DFHDB2005  date  time applid RCT does not contain transaction tran

DFHDB2006  date  time applid The dest destination ID is invalid.
<table>
<thead>
<tr>
<th>Code</th>
<th>Date Time Applid</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHDB2007</td>
<td></td>
<td>The command verb is missing or invalid.</td>
</tr>
<tr>
<td>DFHDB2008</td>
<td></td>
<td>Keyword missing or invalid.</td>
</tr>
<tr>
<td>DFHDB2009</td>
<td></td>
<td>The value in the command is invalid.</td>
</tr>
<tr>
<td>DFHDB2010</td>
<td></td>
<td>Transaction abended because DB2 thread tcbs are unavailable.</td>
</tr>
<tr>
<td>DFHDB2011</td>
<td></td>
<td>Transaction abended because threads are unavailable for resource resname</td>
</tr>
<tr>
<td>DFHDB2012</td>
<td></td>
<td>Stop quiesce of the CICS-DB2 attachment facility from DB2 subsystem db2-id is proceeding.</td>
</tr>
<tr>
<td>DFHDB2013</td>
<td></td>
<td>Display report follows for threads accessing DB2 db2-id</td>
</tr>
<tr>
<td>DFHDB2014</td>
<td></td>
<td>Statistics report follows for db2conn-name accessing DB2 db2-id</td>
</tr>
<tr>
<td>DFHDB2015</td>
<td></td>
<td>The CICS-DB2 attachment facility is in standby for DB2 subsystem db2-id</td>
</tr>
<tr>
<td>DFHDB2016</td>
<td></td>
<td>The connection of CICS to db2-id failed with reason X'reason-code'</td>
</tr>
<tr>
<td>DFHDB2018</td>
<td></td>
<td>DB2 subsystem is not active.</td>
</tr>
<tr>
<td>DFHDB2019</td>
<td></td>
<td>The modify command is complete.</td>
</tr>
<tr>
<td>DFHDB2020</td>
<td></td>
<td>The display command is complete.</td>
</tr>
<tr>
<td>DFHDB2021</td>
<td></td>
<td>The disconnect command is complete.</td>
</tr>
<tr>
<td>DFHDB2022</td>
<td></td>
<td>Stop force of the CICS-DB2 attachment facility from db2-id is proceeding.</td>
</tr>
<tr>
<td>DFHDB2023I</td>
<td></td>
<td>The CICS-DB2 attachment has connected to DB2 subsystem db2-id</td>
</tr>
<tr>
<td>DFHDB2025I</td>
<td></td>
<td>The CICS-DB2 attachment has disconnected from DB2 subsystem db2-id</td>
</tr>
<tr>
<td>DFHDB2027</td>
<td></td>
<td>Transaction is shutting down. DSNC DB2 commands may not be entered.</td>
</tr>
<tr>
<td>DFHDB2028</td>
<td></td>
<td>The user is not authorised to issue DB2 commands via DSNC.</td>
</tr>
<tr>
<td>DFHDB2029</td>
<td></td>
<td>DB2 command failed with IFCARC1=rc, IFCARC2=X'reason-code'</td>
</tr>
<tr>
<td>DFHDB2031</td>
<td></td>
<td>The command is invalid. No DB2CONN is installed.</td>
</tr>
<tr>
<td>DFHDB2032</td>
<td></td>
<td>Alternate destination display command complete.</td>
</tr>
<tr>
<td>DFHDB2033</td>
<td></td>
<td>Terminal termid is not supported by BMS or is invalid.</td>
</tr>
<tr>
<td>DFHDB2035</td>
<td></td>
<td>Indoubt resolution for Unit of Work X'uowid' is incomplete for DB2 subsystem db2id</td>
</tr>
<tr>
<td>DFHDB2037</td>
<td></td>
<td>DB2 subsystem is not active. The CICS-DB2 attachment facility is waiting.</td>
</tr>
<tr>
<td>DFHDB2038</td>
<td></td>
<td>The command is invalid while waiting for db2id</td>
</tr>
<tr>
<td>DFHDB2039</td>
<td></td>
<td>The error destinations are: dest1 dest2 dest3.</td>
</tr>
<tr>
<td>DFHDB2040</td>
<td></td>
<td>Module modname could not be found.</td>
</tr>
<tr>
<td>DFHDB2041</td>
<td></td>
<td>No active threads found.</td>
</tr>
</tbody>
</table>
DFHDB2042  date time applid Connection not authorized to db2-id

DFHDB2044  date time applid Authorization parameters for resname have been corrupted.

DFHDB2045  date time applid Resource Manager rmi-name is unknown to the CICS-DB2 Attachment facility.

DFHDB2047  date time applid The CICS-DB2 Attachment cannot find DB2 (subsystem | group) id

DFHDB2048  date time applid Unable to interpret SQL call while formatting an EDF display for transaction transid task taskid

DFHDB2049  date time applid CICS-DB2 resynchronization for db2-id Unit of Work X'uowid' failed with reason code X'reason-code'

DFHDB2050  date time applid tranid termid Abend abcode has occurred in dynamic plan exit program progsname

DFHDB2051  date time applid tranid termid Abend abcode in DFHD2EX1 - Dynamic plan exit program progsname must be AMODE 31.

DFHDB2053  date time applid tranid termid Abend abcode in DFHD2EX1 - Dynamic plan exit program progsname is disabled.

DFHDB2054  date time applid tranid termid Abend abcode in DFHD2EX1 - Link to the dynamic plan exit progsname failed.

DFHDB2055  date time applid Single phase commit failed with reason code X'reason-code' for transaction transid task taskid

DFHDB2057  date time applid tranid termid Abend abcode in DFHD2EX1 - PPT entry for dynamic plan exit program progsname was not found.

DFHDB2058  date time applid tranid termid Abend abcode in DFHD2EX1 - Fetch for dynamic plan exit program progsname failed.

DFHDB2061  date time applid The INITPARM specified for the CICS-DB2 attachment is invalid. The attachment facility cannot start.

DFHDB2063  date time applid Authorization failure starting the CICS-DB2 attachment with RESP=xxxx and RESP2=yyyy

DFHDB2064  date time applid Resynchronization outstanding for subsystem db2id after DB2 Group Attach has connected to subsystem db2id2

DFHDB2065  INVALID LENGTH. DATA NOT DISPLAYABLE.

DFHDB2066  date time applid tranid termid Abend abcode in DFHD2EX1 - PPT entry for dynamic plan exit program progsname defines the program as remote.

DFHDB2067  date time applid The CICS-DB2 attachment facility is already inactive.

DFHDB2068  applid Send text command to terminal termid failed with eibresp X'eibresp'.

DFHDB2069  applid Send page command to terminal termid failed with eibresp X'eibresp'.

DFHDB2070  date time applid Syncpoint rollback failed for transaction transid with eibresp2 X'eibresp2'.

DFHDB2071  date time applid The first error destination cannot be null.

DFHDB2072  date time applid Transaction transid task tasknum has been directed to the pool as DB2ENTRY db2ename is disabled.

DFHDB2073  date time applid Transaction transid has been directed to the pool as DB2TRAN db2tname refers to DB2ENTRY db2ename which is not installed.
DFHDB2074  date time applid CICS-DB2 Attachment facility startup cannot proceed as the currently installed DB2CONN is not usable.

DFHDB2100  applid Program DFHD2RP cannot be found.

DFHDB2101  date time applid terminal userid tranid DB2CONN db2conn-name has been added.

DFHDB2102  date time applid terminal userid tranid DB2CONN db2conn-name has been replaced.

DFHDB2103  date time applid terminal userid tranid DB2CONN db2conn-name has been deleted.

DFHDB2104  date time applid terminal userid tranid DB2ENTRY db2entry-name has been added.

DFHDB2105  date time applid terminal userid tranid DB2ENTRY db2entry-name has been replaced.

DFHDB2106  date time applid terminal userid tranid DB2ENTRY db2entry-name has been deleted.

DFHDB2107  date time applid terminal userid tranid DB2TRAN db2tran-name has been added.

DFHDB2108  date time applid terminal userid tranid DB2TRAN db2tran-name has been replaced.

DFHDB2109  date time applid terminal userid tranid DB2TRAN db2tran-name has been deleted.

DFHDB2207  date time applid Load error rc abend-code for module modname

DFHDB2208  date time applid Delete error rc for module modname

DFHDB2210  date time applid DB2 subsystem id db2-id contains invalid characters. The CICS-DB2 Attachment facility is not started.

DFHDB2211  date time applid Maxopentcbs setting of xxx in the SIT conflicts with the tcblimit setting of yyy in the DB2CONN definition.

DFHDB2300  date time applid tranid DB2 command output truncated (fcabnm bytes not shown).

DFHDB2301  date time applid tranid DB2 command complete.

DFHDB8122I  applid CICS is about to disconnect from DBCTL for CICS shutdown.

DFHDB8243  No match has been found for wildcard (aaaaaaaa).

DFHDB8244  The requested command cannot be found in the command file.

DFHDB8245  The command file, DFHDBFK, cannot be opened.

DFHDB8246  An error has occurred reading the command file, DFHDBFK.

DFHDB8247  Record not found.

DFHDB8248  End of file reached during browse. Press enter to wrap.

DFHDB8249  A record already exists for this command in this group.

DFHDB8250  A record must be read before updating.

DFHDB8251  A record must be read before deletion.

DFHDB8252  Group and command must not be altered. Record not updated.
DFHDB8253 Group and command must not be altered. Record not deleted.

DFHDB8254 Cannot update during browse. Read record to update.

DFHDB8255 Cannot delete during browse. Read record to delete.

DFHDB8256 Both group and command must be specified.

DFHDB8257 Function invalid. Must be A, B, D, R or U.

DFHDB8258 File (write | rewrite | delete | read | browse) failure. EIBRESP=eibresp, EIBRESP2=eibresp2.

DFHDB8259 Group command, group command, (added | updated | deleted | read | browsed).

DFHDB8260 Record length exceeds screen size.

DFHDB8298 applid An attempt has been made to connect to DBCTL via PLT phase 1. The request has been rejected.

DFHDH0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHDH0002 applid A severe error (code X'code') has occurred in module modname.

DFHDH0004 applid A possible loop has been detected at offset X'offset' in module modname.

DFHDH0005 applid Document domain initialization has started.

DFHDH0011 applid Document domain initialization has ended.

DFHDH0105 date time applid Document template definition doctemplate has been added as PDS-MEMBER | FILE | PROGRAM | TSQUEUE | TDQUEUE | EXITPGM(resourcename) with template name templatename.

DFHDH0106 date time applid Document template definition doctemplate has been deleted.

DFHDH01071 date time applid DD statement ddname not found. DOCTEMPLATE doctemplate is not installed.

DFHDH0108I date time applid Member member not found in dsname. DOCTEMPLATE doctemplate is not installed.

DFHDU0310 applid XDUCLSE auto-switch request overridden. Transaction dump data sets are too small.

DFHEJ0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHEJ0002 applid A severe error (code X'code') has occurred in module modname.

DFHEJ0004 applid A possible loop has been detected at offset X'offset' in module modname.

DFHEJ0101 applid Enterprise Java domain initialization has started. Java is a trademark of Sun Microsystems, Inc.

DFHEJ0102 applid Enterprise Java domain initialization has ended.

DFHEJ0103 applid Enterprise Java domain initialization has failed.

DFHEJ0501A applid The file definition for DFHEJDIR does not specify RECOVERY(BACKOUTONLY). File open request failed.

DFHEJ0601 date time applid JRAS_informational_message

DFHEJ0602 date time applid JRAS_warning_message

DFHEJ0604 date time applid JRAS_error_message
DFHEJ0701 date time applid CorbaServer
CorbaServer_name has been created.

DFHEJ0702 date time applid CorbaServer
CorbaServer_name has not been created.

DFHEJ0706 date time applid The EJ Resolution Transaction transaction_name did not attach.

DFHEJ0711 date time applid CorbaServer
CorbaServer_name has been deleted.

DFHEJ0723 date time applid CorbaServer
CorbaServer_name has failed Resolution during Shelf creation.

DFHEJ0724 date time applid Catalog read for update during Resolution processing for CorbaServer CorbaServer_name failed.

DFHEJ0725 date time applid Catalog Resolution processing for CorbaServer CorbaServer_name returned bad data.

DFHEJ0726 date time applid Catalog Resolution processing for CorbaServer CorbaServer_name returned an invalid CorbaServer.

DFHEJ0729 date time applid State updating failed while creating the shelf during Resolution processing for CorbaServer CorbaServer_name.

DFHEJ0736 date time applid Resolution for CorbaServer CorbaServer_name (related to Object Store operations on file file_name as store store_name) failed.

DFHEJ0739 date time applid State updating failed while opening the Object Store during Resolution processing for CorbaServer CorbaServer_name.

DFHEJ0745 date time applid userid Error found during install of CorbaServer CorbaServer_name because TCPIPSERVICE tcpipservice named in the CorbaServer does not have a matching AUTHENTICATE parameter.

DFHEJ0746 date time applid userid Error found during install of CorbaServer CorbaServer_name because TCPIPSERVICE tcpipservice named in the CorbaServer for SSLUNAUTH has SSL(NO) set. SSL(YES)(CLIENTAUTH) should be set.

DFHEJ0747 date time applid CorbaServer CorbaServer_name has failed Resolution during Shelf creation.

DFHEJ0748 date time applid CorbaServer CorbaServer_name has failed Resolution during Shelf creation.

DFHEJ0749 date time applid CorbaServer CorbaServer_name has failed Resolution during Shelf creation.

DFHEJ0751 About to wait for the availability of CorbaServer CorbaServer_name.

DFHEJ0752 date time applid CorbaServer CorbaServer_name availability wait ended in error as the CorbaServer was not defined.

DFHEJ0753 date time applid CorbaServer CorbaServer_name availability wait ended successfully.

DFHEJ0754 date time applid CorbaServer CorbaServer_name availability wait ended in error because the CorbaServer was in the UNUSABLE state.

DFHEJ0755 date time applid CorbaServer CorbaServer_name availability wait ended in error because the CorbaServer was in the UNRESOLVED state.

DFHEJ0756 date time applid CorbaServer CorbaServer_name availability wait ended in error because an error occurred during the wait.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHEJ0901</td>
<td>date time applid DJar DJar_name within CorbaServer CorbaServer_name has been created.</td>
</tr>
<tr>
<td>DFHEJ0902</td>
<td>date time applid DJar DJar_name within CorbaServer CorbaServer_name was not created.</td>
</tr>
<tr>
<td>DFHEJ0906</td>
<td>date time applid The EJ Resolution Transaction transaction_name did not attach.</td>
</tr>
<tr>
<td>DFHEJ0921</td>
<td>date time applid DJar DJar_name within CorbaServer CorbaServer_name was successfully deleted.</td>
</tr>
<tr>
<td>DFHEJ0934</td>
<td>date time applid DJar DJar_name within CorbaServer CorbaServer_name has failed Resolution while it was being copied to the Shelf.</td>
</tr>
<tr>
<td>DFHEJ0935</td>
<td>date time applid Catalog read for update during Resolution processing for DJar DJar_name failed.</td>
</tr>
<tr>
<td>DFHEJ0936</td>
<td>date time applid DJar DJar_name Catalog Resolution processing returned bad data.</td>
</tr>
<tr>
<td>DFHEJ0937</td>
<td>date time applid DJar DJar_name Catalog Resolution processing returned an invalid DJar.</td>
</tr>
<tr>
<td>DFHEJ0940</td>
<td>date time applid State updating failed while copying the DJar to the shelf during Resolution processing for DJar DJar_name.</td>
</tr>
<tr>
<td>DFHEJ0946</td>
<td>date time applid The Beans contained within DJar DJar_name within CorbaServer CorbaServer_name were not correctly confirmed during Bean Resolution.</td>
</tr>
<tr>
<td>DFHEJ0947</td>
<td>date time applid Beans contained within DJar DJar_name within CorbaServer CorbaServer_name are invalid and unusable.</td>
</tr>
<tr>
<td>DFHEJ0948</td>
<td>date time applid Deletion of Beans contained within DJar DJar_name within CorbaServer CorbaServer_name succeeded.</td>
</tr>
<tr>
<td>DFHEJ0949</td>
<td>date time applid Deletion of Beans contained within DJar DJar_name within CorbaServer CorbaServer_name failed.</td>
</tr>
<tr>
<td>DFHEJ0951</td>
<td>date time applid State updating failed while loading Beans from the DJar during Resolution processing for DJar DJar_name.</td>
</tr>
<tr>
<td>DFHEJ0961</td>
<td>date time applid About to wait for the availability of DJar DJar_name.</td>
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<tr>
<td>DFHEJ0962</td>
<td>date time applid DJar DJar_name availability wait ended in error because the DJar was not defined.</td>
</tr>
<tr>
<td>DFHEJ0963</td>
<td>date time applid DJar DJar_name availability wait ended successfully.</td>
</tr>
<tr>
<td>DFHEJ0964</td>
<td>date time applid DJar DJar_name availability wait ended in error because the DJar was in the UNUSABLE state.</td>
</tr>
<tr>
<td>DFHEJ0965</td>
<td>date time applid DJar DJar_name availability wait ended in error because the DJar was in the UNRESOLVED state.</td>
</tr>
<tr>
<td>DFHEJ0966</td>
<td>date time applid DJar DJar_name availability wait ended in error because an error occurred during the wait.</td>
</tr>
<tr>
<td>DFHEJ0971</td>
<td>date time applid About to wait for the availability of all Beans contained within DJars associated with CorbaServer CorbaServer_name.</td>
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<tr>
<td>DFHEJ0972</td>
<td>date time applid All Beans contained within DJars associated with CorbaServer CorbaServer_name are now available for use.</td>
</tr>
<tr>
<td>DFHEJ0973</td>
<td>date time applid Bean wait for DJars associated with CorbaServer CorbaServer_name failed.</td>
</tr>
<tr>
<td>DFHEJ1101</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the CorbaServer is absent.</td>
</tr>
<tr>
<td>Code</td>
<td>Text</td>
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<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHEJ1102</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the CorbaServer is not in the correct state.</td>
</tr>
<tr>
<td>DFHEJ1103</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the DJar is absent.</td>
</tr>
<tr>
<td>DFHEJ1104</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the DJar is not in the correct state.</td>
</tr>
<tr>
<td>DFHEJ1105</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the Bean is already present.</td>
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<tr>
<td>DFHEJ1106</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the Bean is already present in the namespace of the CorbaServer.</td>
</tr>
<tr>
<td>DFHEJ1107</td>
<td>date time applid Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created.</td>
</tr>
<tr>
<td>DFHEJ1301</td>
<td>date time applid The elements portion of the Enterprise Java Domain did not initialize. Enterprise Java function is unavailable.</td>
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<tr>
<td>DFHEJ1302</td>
<td>date time applid The elements portion of the Enterprise Java Domain successfully initialized.</td>
</tr>
<tr>
<td>DFHEJ1510</td>
<td>date time applid CorbaServer CorbaServer_name previously failed Resolution and was found in the INITING state.</td>
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<tr>
<td>DFHEJ1513</td>
<td>date time applid CorbaServer CorbaServer_name previously failed Resolution and was found in the RESOLVING state.</td>
</tr>
<tr>
<td>DFHEJ1518</td>
<td>date time applid CorbaServer CorbaServer_name is UNUSABLE.</td>
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<tr>
<td>DFHEJ1520</td>
<td>date time applid CorbaServer CorbaServer_name is now accessible.</td>
</tr>
<tr>
<td>DFHEJ1521</td>
<td>date time applid CorbaServer CorbaServer_name is UNRESOLVED.</td>
</tr>
<tr>
<td>DFHEJ1530</td>
<td>date time applid DJar DJar_name previously failed Resolution and was found in the INITING state.</td>
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<tr>
<td>DFHEJ1533</td>
<td>date time applid DJar DJar_name previously failed Resolution and was found in the RESOLVING state.</td>
</tr>
<tr>
<td>DFHEJ1538</td>
<td>date time applid DJar DJar_name and the Beans it contains are UNUSABLE.</td>
</tr>
<tr>
<td>DFHEJ1540</td>
<td>date time applid DJar DJar_name and the Beans it contains are now accessible.</td>
</tr>
<tr>
<td>DFHEJ1541</td>
<td>date time applid DJar DJar_name and the Beans it contains are UNRESOLVED.</td>
</tr>
<tr>
<td>DFHEJ1801</td>
<td>date time applid userid The EJ domain is unable to run the Enterprise Java event URM: module. Reason(X’reason’)</td>
</tr>
<tr>
<td>DFHEJ5001</td>
<td>date time applid The HFS file hfs_name for DJar DJar_name could not be found.</td>
</tr>
<tr>
<td>DFHEJ5002</td>
<td>date time applid Unable to delete JAR file DJar_file_name from the Shelf directory shelf_partition.</td>
</tr>
<tr>
<td>DFHEJ5003</td>
<td>date time applid CICS is unable to write to the destination file hfs_file_name while installing DJar djar_name.</td>
</tr>
<tr>
<td>DFHEJ5004</td>
<td>date time applid The container encountered problems processing the contents of the HFS file referred to by DJar DJar_name.</td>
</tr>
</tbody>
</table>
DFHEJ5005  date time applid Unable to obtain the remotable reference for bean bean_name from the container.

DFHEJ5006  date time applid Creating new JNDI subcontext jndi_subcontext.

DFHEJ5007  date time applid Destroying empty JNDI subcontext jndi_subcontext.

DFHEJ5008  date time applid Unable to write home IOR for bean bean_name to the Shelf directory shelf_partition.

DFHEJ5009  date time applid Published bean bean_name to JNDI server jndi_server at location jndi_location.

DFHEJ5010  date time applid Publishing bean bean_name in the Shelf directory shelf_partition as file file_name.

DFHEJ5011  date time applid Retracted bean bean_name from JNDI server jndi_server at location jndi_location.

DFHEJ5012  date time applid Retracting bean bean_name from the Shelf directory shelf_partition, file file_name.

DFHEJ5013  date time applid Bean bean_name cannot be retracted from JNDI as it cannot be found at location jndi_location.

DFHEJ5014  date time applid The HFS file hfs_name for DJar DJar_name exists but could not be opened for reading by CICS.

DFHEJ5015  date time applid Unable to delete HFS file hfs_file_name which exists on the shelf while installing DJar djar_name.

DFHEJ5016  date time applid IO exception while attempting to read hfs_file_name during install of DJar djar_name.

DFHEJ5017  date time applid IO exception while attempting to write hfs_file_name to the shelf during install of DJar djar_name.

DFHEJ5018  date time applid EJB Classloader unable to locate class class_name.

DFHEJ5019  date time applid DJar djar_name contains a bean whose name contains one or more invalid characters.

DFHEJ5020  date time applid A bean installed in CORBASERVER corbaserver has been incorrectly deployed for use in CICS.

DFHEJ5021  date time applid Failed to publish bean bean_name to JNDI server jndi_server at location jndi_location.

DFHEJ5023  date time applid userid Scan for CorbaServer CorbaServer failed, the djardir djardir is not a valid HFS directory.

DFHEJ5024  date time applid userid Scan commencing for CorbaServer CorbaServer, directory being scanned is djardir.

DFHEJ5025  date time applid userid Scan completed for CorbaServer CorbaServer, newdjarcount DJars created, upddjarcount DJars updated.

DFHEJ5026  date time applid userid Scan for CorbaServer CorbaServer is ignoring subdirectory subdir which was found to exist in the djardir djardir.

DFHEJ5027  date time applid userid Scan for CorbaServer CorbaServer is ignoring the file file found in the djardir djardir because it has an incorrect file suffix.

DFHEJ5028  date time applid userid Scan for CorbaServer CorbaServer is ignoring the file file found in the djardir djardir because the filename is too long.

DFHEJ5029  date time applid userid Scan for CorbaServer CorbaServer is ignoring the file file found in the djardir djardir because the filename contains invalid characters.
DFHEJ5030  date time applid userid 
New DJar Djar is being created during a scan against CorbaServer CorbaServer.

DFHEJ5031  date time applid userid 
DJar Djar is being updated during a scan against CorbaServer CorbaServer.

DFHEJ5032  date time applid userid 
DJar Djar is having its contents automatically published to the namespace.

DFHEJ5034  date time applid userid 
Scan completed for CorbaServer CorbaServer, no Djars created, no DJars updated.

DFHEJ5035  date time applid userid 
The pickup directory for CorbaServer CorbaServer could not be read.

DFHEJ5036  date time applid userid 
Scan for CorbaServer CorbaServer is ignoring a jar file found on djardir djardir because the file basename is blank.

DFHEJ5037  date time applid userid 
An exception occurred while parsing the deployment descriptor for jarFileName at Line: line, Column: col

DFHEJ5038  date time applid userid 
The LDAP service provider is being configured to initialize to context ldap_context on the nameserver ldap_server.

DFHEJ5039  date time applid userid 
Unable to publish bean bean_name to JNDI server jndi_server at location jndi_location because a JNDI context exists at that location.

DFHEJ5040  date time applid userid 
Unable to retract bean bean_name from JNDI server jndi_server at location jndi_location because a JNDI context exists at that location.

DFHEJ5041  date time applid userid 
Djar (djar_name) is not being installed. It contains a bean (bean_name) whose method (method_name) has no transaction attribute specified in the deployment descriptor.

DFHEJ5030  date time applid userid 
Cannot activate bean class exception.

DFHEJ5031  date time applid userid 
Cannot passivate bean class exception.

DFHEJ5032  date time applid userid 
Unable to passivate enterprise bean bean class exception.

DFHEJ5034  date time applid userid 
Exception thrown by discard strategy element exception.

DFHEJ5035  date time applid userid 
Encountered a failure in the fireAlarm method exception.

DFHEJ5036  date time applid userid 
Failed to get the wrapper for home: exception.

DFHEJ5037  date time applid userid 
LRU thread was interrupted. Terminating. exception.

DFHEJ5038  date time applid userid 
Caught an exception during LRU sweep class exception.

DFHEJ5039  date time applid userid 
Coordinator was not available exception.

DFHEJ5037  date time applid userid 
Bean bean_name has an incomplete EJB Reference. Reference is reference.

DFHEJ5038  date time applid userid 
Bean bean_name has an incomplete EJB Resource Reference specified. Resource Reference is reference.

DFHEJ5039  date time applid userid 
Bean bean_name has an EJB environment entry with an invalid value specified. Environment entry is env_entry.

DFHEJ5039  date time applid userid 
Unexpected naming problem occurred: message

DFHEJ5039  date time applid userid 
The class com.ibm.ejs.ns.jndi.CNInitialContextFactory has been deprecated as the CICS initial context factory. It has been replaced by com.ibm.websphere.naming.WsnInitialContextFactory.
The CICS EJB container failed to find the requested plugin.

The CICS EJB container plugin has thrown an exception.

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

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

Event Manager initialization has started.

Event Manager initialization has ended.


Insufficient storage to satisfy GETMAIN request in module modname.

The load of callable service IGWARLS has failed with return code X'eeee'.

System initialization parameter requesting RLS support has been ignored because the level of VSAM does not support RLS.

An attempt to release locks for unit of work X'uowid' failed. VSAM return code X'rrrr' reason code X'cccc'.

An attempt to retain locks for unit of work X'uowid' failed. VSAM return code X'rrrr' reason code X'cccc'.

An attempt to retain locks for data set within unit of work X'uowid' failed. VSAM return code X'rrrr' reason code X'cccc'.

The previous instance of the SMSVSAM server has failed. File control RLS access is being closed down.

A failure to reset the PERMITNONRLSUPDATE state has occurred. Vsam return code X'rrrr' reason code X'cccc'.

An I/O error has occurred on base data set dsname accessed via file filename component code X'code'.

A request issued to cold start the RLS subsystem has failed. VSAM return code X'rrrr' reason code X'cccc'.

An attempt to notify VSAM that CICS has completed lost locks processing for a data set has failed. VSAM return code X'rrrr' reason code X'cccc'.

Inquire recovery has failed. VSAM return code X'rrrr' reason code X'cccc'.

A VSAM data cache has failed.

Connectivity to a VSAM RLS data cache has been lost.

An attempt to notify VSAM that CICS has completed lost locks processing for a data set has failed. VSAM return code X'rrrr' reason code X'cccc'.

VSAM RLS has detected a deadlock. There are nn transactions in the deadlock chain.
Chapter 31. Messages and codes
DFHFC0501 applid RLS OPEN of file filename failed. VSAM has returned code 16 in R15. RLS access has been disabled.

DFHFC0510 applid (RLS | Non-RLS) OPEN of file filename failed because the data set is unavailable. Module module.

DFHFC0520 applid (RLS | Non-RLS) OPEN of file filename failed. IGWARLS call returned codes X'r111', X'cccc' and problem determination X'ddddddd' to module module.

DFHFC0521 applid RLS OPEN of file filename failed. Undefined LOG parameter is invalid for an RLS file with update type SERVREQs.

DFHFC0522 applid (RLS | Non-RLS) OPEN of file filename failed. IGWARLS call has returned that the LOG parameter is set to ALL but LOGSTREAMID has not been specified. Module module.

DFHFC0523 applid RLS OPEN of file filename failed. The LOGSTREAMID for forward recovery is the same as the system log. Module module.

DFHFC0524 applid An attempt to write a log record failed because the record length was greater than the maximum supported by that log. Module module. An attempt to write a log record, as part of a file update operation, has failed because the length of the data in the record was greater than the maximum supported by the associated log stream.

DFHFC0525 applid (RLS | Non-RLS) OPEN of file filename failed because the forward recovery log stream could not be opened. Module module.

DFHFC0526 applid An error occurred on the request to the CICS log manager to close the forward recovery log stream for file filename. Module module.

DFHFC0527 applid Recovery attributes for file filename have been overridden by new settings found on the catalog.

DFHFC0528 applid RLS OPEN of file filename failed. Recovery attributes on the catalog have changed while there are other files still open for the sphere.

DFHFC0529 applid Recovery attributes for file filename have been reset as there has been a switch of access type. Module module.

DFHFC0530 applid (RLS | Non-RLS) OPEN of file filename failed. The automatic journal is the same stream as the system log. Module module.

DFHFC0531 date time applid Automatic journal journalname journalname, opened for file filename is not of type MVS. Module module.

DFHFC0532 applid (RLS | Non-RLS) OPEN of file filename failed because the automatic journal could not be opened. Module module.
DFHFC0533    applid  An error occurred on the request to the CICS log manager to close the automatic journal for file filename. Module module.

DFHFC0534    applid  Recovery attributes for file filename previously taken from the VSAM catalog have been overridden by new settings from the FCTE. Module module.

DFHFC0535    applid  Recovery attributes for file filename previously taken from the VSAM catalog have been overridden by new settings from the VSAM catalog. Module module.

DFHFC0536    applid  Recovery attributes for file filename previously taken from the FCTE have been overridden by new settings from the VSAM catalog. Module module.

DFHFC0537    applid  OPEN of file filename failed. The request to write a tie up record for the OPEN failed.

DFHFC0539    applid  (RLS | Non-RLS) OPEN of file filename failed. IGWARLS call has returned that the LOG parameter is not set to ALL but the BWO setting has been defined as TYPECICS. Module module.

DFHFC0540    applid  The BWO setting for file filename has not been explicitly set to NO or TYPECICS and is assumed to be BWO(NO). Module module.

DFHFC0541    applid  RLS OPEN of file filename failed. RLS is not supported.

DFHFC0542    date time applid  Forward recovery log ID fwdrecovlog, journalname journalname opened for file filename is not of type MVS. Module module.

DFHFC0555    applid  One or more data sets are in lost locks status. CICS will perform lost locks recovery. CICS had one or more data sets open in RLS access mode at the time of a failure of the coupling facility lock structure from which SMSVSAM was not able to recover transparently. As a result, the RLS locks held by CICS for those data sets have been lost.

DFHFC0556    applid  Unexpected notification of completion of lost locks recovery for data set dsname.

DFHFC0560    applid  The register of the RLS control ACB has failed because the SMSVSAM server is not available. VSAM macro IDAREGP return code X'rrrr', reason code X'cccc'.

DFHFC0562    applid  The RLS control ACB has been successfully registered by CICS.

DFHFC0563    applid  The RLS control ACB has been successfully unregistered by CICS.

DFHFC0564    applid  The register of the RLS control ACB has failed. VSAM macro IDAREGP return code X'rrrr', reason code X'cccc', error data X'dddd'.

DFHFC0565    applid  The unregister of the RLS control ACB has failed. VSAM macro IDAUNRP return code X'rrrr', reason code X'cccc', error data X'dddd'.

DFHFC0566    applid  The register of the RLS control ACB has failed. VSAM macro IDAREGP return code X'rrrr', reason code X'cccc'.

DFHFC0567    applid  The unregister of the RLS control ACB has failed. VSAM macro IDAUNRP return code X'rrrr', reason code X'cccc'.

DFHFC0568I   applid  File control dynamic RLS restart has started.

DFHFC0569I   applid  File control dynamic RLS restart has ended.
DFHFC0570  applid File control RLS access has been enabled.

DFHFC0571  applid RLS access cannot be restarted.

DFHFC0574  applid RLS offsite recovery will be performed. Normal RLS access is not allowed.

DFHFC0575D applid Reply 'GO' only after all CICS regions have completed offsite recovery and issued this message.

DFHFC0577  applid RLS offsite recovery is now complete. RLS access is allowed.

DFHFC0949  date time applid CICS shared data table table load has terminated abnormally. A call to DFHXMIG to retrieve the parameters for the load transaction has failed with response code = n.

DFHFC0997I applid RLS OPEN of file filename is delayed because the associated data set dsname is being recalled.

DFHFC0999  applid RLS OPEN of file filename failed. RLS access is disabled.

DFHFC3001  date time applid Record not backed out because it may have been overridden by a non-RLS batch job. Diagnostic information follows in message DFHFC3010. The record was updated by unit of work X'local-uowid' for file filename, base data set data-set-name

DFHFC3002  date time applid Record backed out at request of user exit although it may have been overridden by a non-RLS batch job. Diagnostic information follows in message DFHFC3010. The record was updated by unit of work X'local-uowid' for file filename, base data set data-set-name

DFHFC3003  date time applid Record not backed out because locks for a backout-failed data set have been reset. Diagnostic information follows in message DFHFC3010. The record was updated by unit of work X'local-uowid' for file filename, base data set data-set-name

DFHFC3004  date time applid Record backed out because of the forced back out of an in-doubt unit of work. Diagnostic information follows in message DFHFC3010. The record was updated by unit of work X'local-uowid' for file filename, base data set data-set-name

DFHFC3010  date time applid Diagnostic information for unit of work X'local-uowid' and file filename. Update was a (read-update | write-add) made by transaction tranid at terminal termid under task number tasknum. Key length key-length, data length data-length, base ESDS RBA X'base-RBA-or-zero', record key X'record-key'

DFHFC4700  applid (An unexpected | A VSAM | A length | A lock | A timeout | An unexpected delete) error has occurred during file backout. (Module DFHFCFR has returned reason code (X'xx'), access method code (X'cccccccc') and length error code (X'yy').)

DFHFC4701  date time applid Backout failed for transaction tranid, VSAM file filename, unit of work X'local_uowid', task task_number, base base_dsname, path path_dsname, failure code X'bfail_code'.

DFHFC4702  date time applid Backout failed for transaction tranid, BDAM file filename, unit of work X'local_uowid', task task_number.

DFHFC4800  date time applid A failure has been detected on forward recovery log stream log_stream. The associated RLS data set has been quiesced. Data set dsname

DFHFC4801  date time applid A failure has been detected on forward recovery log stream log_stream. The associated non-RLS data set has been set unavailable and its files closed. Data set dsname

DFHFC4802  date time applid A failure has been detected on auto journal journal_name. The associated file file_name has been closed.
**DFHFC5814** applid  An error (code X'code') has occurred while inquiring on VSAM data set attributes in the ICF catalog. {SHOWCAT | LOCATE} return code X'rrrr'. Data set dsname.

**DFHFC5815** applid  An error has occurred while inquiring on VSAM data set attributes in the ICF catalog. VSAM RLS codes X'rrrr', X'cccc'. Problem determination: X'dddddddd'. Data set dsname.

**DFHFC6000** date time applid  About to {quiesce | unquiesce} data set dsname

**DFHFC6001** date time applid  Data set successfully {quiesced | unquiesced} by {CICS |user}. Data set dsname

**DFHFC6003** date time applid  Attempt by {CICS |user} to {quiesce | unquiesce} a data set has been rejected because {quiesce | unquiesce} | non-BWO backup | BWO backup | unknown event} is in progress. Data set dsname

**DFHFC6005** date time applid  Attempt by {CICS |user} to quiesce a data set has failed. Quiesce was cancelled. Data set dsname

**DFHFC6007** date time applid  Attempt by {CICS |user} to {quiesce | unquiesce} a data set failed because the SMSVSAM server is not available. Data set dsname

**DFHFC6008** date time applid  Attempt by {CICS |user} to {quiesce | unquiesce} a data set has failed. VSAM RLS codes X'rrrr', X'cccc'. Data set dsname

**DFHFC6009** date time applid  Attempt by {CICS |user} to {quiesce | unquiesce} a data set has failed because it is not a VSAM data set known to DFSMS. Data set dsname

**DFHFC6010** date time applid  Attempt by {CICS |user} to {quiesce | unquiesce} a data set has failed because it has been migrated. Data set dsname

**DFHFC6015** date time applid  About to cancel {non-BWO | BWO} backup of data set dsname

**DFHFC6016** date time applid  (Non-BWO | BWO) backup of a data set cancelled by CICS. Data set dsname

**DFHFC6017** date time applid  Attempt by CICS to cancel a {non-BWO | BWO} backup of a data set has been rejected because a cancel is already underway. Data set dsname

**DFHFC6018** date time applid  Attempt by CICS to cancel a {non-BWO | BWO} backup of a data set failed because the SMSVSAM server is not available. Data set dsname

**DFHFC6019** date time applid  Attempt by CICS to cancel a {non-BWO | BWO} backup of a data set has failed. VSAM RLS codes X'rrrr', X'cccc'. Data set dsname

**DFHFC6020** date time applid  Timeout has occurred while quiescing a data set. Quiesce will be cancelled. Data set dsname

**DFHFC6021** date time applid  An error has occurred while notifying VSAM RLS of the completion of CICS processing for a data set quiesce or backup. VSAM RLS codes X'rrrr', X'cccc'. Data set dsname

**DFHFC6022** STORAGE OBTAIN macro failure in CICS RLS quiesce exit. MVS code X'rrrr'

**DFHFC6023** date time applid  The quiesce of a data set has been suppressed by user exit XFCVSDS. Quiesce will be cancelled. Data set dsname

**DFHFC6024** date time applid  The quiesce of a data set has been suppressed by user exit XFCREQ. Quiesce will be cancelled. Data set dsname

**DFHFC6025** date time applid  (Non-BWO | BWO) backup of a data set has been suppressed by user exit XFC VSDS. Backup will be cancelled. Data set dsname
DFHFC6026  date time applid An error has occurred while notifying VSAM RLS of the completion of CICS processing for a data set quiesce or backup. The SMSVSAM server is not available. Data set dsname

DFHFC6027  date time applid VSAM RLS has been notified of the completion of CICS processing for a quiesce or backup of data set dsname

DFHFC6028  date time applid File Control RLS quiesce system transaction transid has started.

DFHFC6029  date time applid File Control RLS quiesce system transaction transid has failed. Reattach will be attempted.

DFHFC6030  date time applid The CICS RLS quiesce exit was unable to process data set operation request X’type’ for {data set | cache} name

DFHFC7000  applid The maximum records parameter(rrrr) specified on OPEN of coupling facility data table dddd, poolname pppp, for file filename, differs from the current maximum records parameter(ssss) for the table.

DFHFC7002  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because access is not allowed.

DFHFC7003  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because the table is not currently available for access.

DFHFC7004  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because the table is not yet loaded.

DFHFC7005  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because of a shared access conflict.

DFHFC7006  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because of an exclusive access conflict.

DFHFC7007  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because one or more attributes on the file definition are incompatible with those that were set for the table when it was created.

DFHFC7010  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because recovery is not enabled.

DFHFC7012  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because there is no space in the pool.

DFHFC7013  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because there are too many users.

DFHFC7015  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because the table has been destroyed.

DFHFC7018  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because the table requires loading.

DFHFC7019  applid OPEN of coupling facility data table dddd for file filename, pool poolname, has failed because the table requires loading but the supplied data set is not KSDS.

DFHFC7032  applid CLOSE of coupling facility data table dddd for file filename, pool poolname, has failed because the table has been destroyed.
A request to inquire on which attributes of coupling facility data table ddd, file filename, pool poolname, are incompatible has failed because the table could not be found.

The request to set shared access for coupling facility data table ddd, file filename, pool poolname, at the end of a successful table load, has failed because access is not allowed.

The request to set shared access for coupling facility data table ddd, file filename, pool poolname, at the end of a successful table load, has failed because the table cannot be found.

The request to set shared access for coupling facility data table ddd, file filename, pool poolname, at the end of a successful table load, has failed because the table has been destroyed.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the key length or record length parameter on the file definition is inconsistent with the equivalent for the source data set.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the key length or record length parameter for the source data set is greater than the supported maximum.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the {keylength │ recordsize} of the source data set is greater than the supported maximum.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the value already set for the table.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the table cannot be found.

On a request to process {OPEN │ CLOSE │ EXTRACT STATISTICS} for coupling facility data table ddd for file filename, it has been found that the server for coupling facility data table pool poolname, is down. The server should be restarted.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the table cannot be found.

OPEN of coupling facility data table ddd for file filename, pool poolname, has failed because the table has been closed.

OPEN of coupling facility data table ddd for file filename, pool poolname, reason code = X'xx'.

OPEN of coupling facility data table ddd for file filename, pool poolname, reason code = X'xx'.

OPEN of coupling facility data table ddd for file filename, pool poolname, has completed successfully for data table ddd, file filename, pool poolname.
DFHFC7096  date time applid  CICS has successfully performed the first connection to the Coupling Facility Data Table Server for pool pool.

DFHFC7097  date time applid  CICS has successfully reconnected to the Coupling Facility Data Table Server for pool pool.

DFHFC7100  date time applid  CICS data table load has terminated abnormally for coupling facility data table name, file filename, pool poolname, a call to FCFR to BROWSE the source data set has failed for reason code = n.

DFHFC7101  date time applid  CICS data table load has failed to close coupling facility data table dddd, file filename, pool poolname, a call to FCFS has failed for reason code = n.

DFHFC7103  date time applid  CICS data table load has terminated abnormally for coupling facility data table dddd, file filename, pool poolname.

DFHFC7104  date time applid  CICS data table load has terminated abnormally for coupling facility data table dddd, file filename, pool poolname, a call to FCFR to WRITE a record has failed for reason code = n.

DFHFC7110  applid  An attempt to connect to coupling facility data table pool poolname, issued by module modulename, has failed.

DFHFC7111  applid  An attempt to disconnect from the coupling facility data table server for pool poolname for connection token X’connecttoken’, issued by module modulename, has failed.

DFHFC7112  applid  Resynchronization of coupling facility data table pool poolname issued from module modulename has failed.

DFHFC7113  applid  An attempt to retry resynchronization of coupling facility data table pool poolname issued from module modulename has failed.

DFHFC7114  applid  Force purge of transaction trannum which made recoverable updates to coupling facility data table pool poolname has failed.

DFHFC7115  applid  The coupling facility data table server for pool poolname has failed and restarted. One or more in-flight transactions which had made recoverable updates to coupling facility data tables residing in the pool will be abended.

DFHFC7120  applid  The coupling facility data table pool poolname has an unresolved unit of work X’UOWid’ for this CICS region of which CICS has no knowledge.

DFHFC7121  applid  CICS coupling facility data table load has terminated abnormally. A call to DFHLMIQ to retrieve the parameters for the load transaction has failed with response code = n.

DFHFC7130  date time applid tranid trannum termid userid. Unit of work X’uowid’ running in region owner-applid in MVS system MVSid holds a lock on key X’keyid’ in coupling facility data table tablename in pool CFDTpool, which caused this request to wait.

DFHIE0361  date time applid  A security error has been detected whilst processing an attach from a TCP/IP attached client.

DFHIE0998  date time applid  Mirror transaction processing ECI request from TCP/IP connected client has abended with code abcode.

DFHIE1001  date time applid client_ip_addr tcpipservice Data received from the client violated the bracket protocol.

DFHIE1002  date time applid client_ip_addr tcpipservice Data received from the client violated the chaining protocol.

DFHIE1003  date time applid client_ip_addr tcpipservice Connection to client lost during conversation.
<table>
<thead>
<tr>
<th>Message ID</th>
<th>Date Time</th>
<th>Applid</th>
<th>Client IP Addr</th>
<th>TCP/IP Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHIE1004</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Data received from the client had an invalid length field.</td>
</tr>
<tr>
<td>DFHIE1005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ECI client install failed.</td>
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<tr>
<td>DFHIE1006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ECI request received before install.</td>
</tr>
<tr>
<td>DFHIE1007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Invalid install request.</td>
</tr>
<tr>
<td>DFHIE1008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Install request received from unsupported version of the client.</td>
</tr>
<tr>
<td>DFHIE1009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unsupported codepage specified in client install.</td>
</tr>
<tr>
<td>DFHIE1010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Data arrived when CICS in SEND state.</td>
</tr>
<tr>
<td>DFHIE1011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Invalid data received from client.</td>
</tr>
<tr>
<td>DFHIE1012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Install request from the client did not contain the client codepage.</td>
</tr>
<tr>
<td>DFHIE1013</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unexpected connection level PING reply received.</td>
</tr>
<tr>
<td>DFHIE1014</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error attempting socket receive from ECI client.</td>
</tr>
<tr>
<td>DFHIE1015</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error attempting socket send to ECI client.</td>
</tr>
<tr>
<td>DFHIE1016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error attempting to wait for client data.</td>
</tr>
<tr>
<td>DFHIE1017</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error freeing IE domain storage. Task terminated.</td>
</tr>
<tr>
<td>DFHIE1018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error attaching mirror transaction id transid.</td>
</tr>
<tr>
<td>DFHIE1019</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ECI request timed out. Abnormal termination initiated.</td>
</tr>
<tr>
<td>DFHIE1020</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Error freeing IE domain storage. Task terminated.</td>
</tr>
<tr>
<td>DFHIE1021</td>
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<td>Error attaching mirror transaction id transid.</td>
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<tr>
<td>DFHIE1022</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mirror transaction id transid not found.</td>
</tr>
<tr>
<td>DFHIE1023</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mirror transaction id transid has been disabled because CICS is shutting down.</td>
</tr>
</tbody>
</table>
DFHIE1209 date time applid client_ip_addr tcpipservice Error assigning termid to mirror task.

DFHIE1210 date time applid client_ip_addr tcpipservice ECI request timed out. Client says conversation not known.

DFHIE1211 date time applid client_ip_addr tcpipservice ECI request mirror task abended because of read time out or earlier error.

DFHIE1212 date time applid client_ip_addr tcpipservice Unexpected user data received from TCP/IP connected client.

DFHIE1213 date time applid client_ip_addr tcpipservice Client has encountered an error during ECI processing. FMH7 sense sense received from client.

DFHII0001 applid An abend (code aaa/bbbb) has occurred at offset 'X'offset' in module modname.

DFHII0002 applid A severe error (code X'code') has occurred in module modname.

DFHII0004 applid A possible loop has been detected at offset 'X'offset' in module modname.

DFHII0100 date time applid client_ip_addr tcpipservice The request receiver invoked the security URM urmname which denied permission for the request.

DFHII0101 date time applid client_ip_addr tcpipservice The request receiver received a request with an invalid object key.

DFHII0102 date time applid client_ip_addr tcpipservice The request receiver is unable to send a request to the request processor.

DFHII0103 date time applid client_ip_addr tcpipservice The request receiver is unable to receive a reply from the request processor.

DFHII0104 date time applid client_ip_addr tcpipservice The request receiver received a request on a connection whose TCPIPSERVICE specified AUTHENTICATE(CERTIFICATE) but no CERTIFICATE_USERID is available.

DFHII0105 date time applid client_ip_addr tcpipservice The request receiver received a request but the userid userid supplied by the URM urmname is not authorised.

DFHII0106 date time applid client_ip_addr tcpipservice The request receiver find request stream failed.

DFHII0107 date time applid client_ip_addr tcpipservice The request receiver is unable to receive a reply from the request processor. Request ID: req_id

DFHII0108 date time applid client_ip_addr tcpipservice The request receiver was notified that a reply could not be delivered for requestId req_id. Reason: (Request Processor ABEND. | Request Stream closed. | Timeout.)

DFHII0109 date time applid client_ip_addr tcpipservice The request receiver received a request with an OTS PropagationContext with a null coordinator.

DFHII0200 date time applid client_ip_addr tcpipservice The request receiver SOCB notify gate is unable to attach transaction transaction.

DFHII0201 date time applid client_ip_addr tcpipservice The request receiver received an invalid GIOP header.

DFHII0202 date time applid client_ip_addr tcpipservice The request receiver received a GIOP header for an unsupported version.

DFHII0203 date time applid client_ip_addr tcpipservice The request receiver was expecting to receive a fragment but did not.
DFHII0204  date time applid client_ip_addr
tcipservice The request receiver
received a fragment when none was
expected.

DFHII0205  date time applid client_ip_addr
tcipservice The request receiver
received a messageType of
messageError.

DFHII0206  date time applid client_ip_addr
tcipservice The request receiver
received a messageType of reply or
locateReply which is not supported.

DFHII0207  date time applid client_ip_addr
tcipservice The request receiver
received a GIOP header with an invalid
messageType.

DFHII0208  date time applid client_ip_addr
tcipservice The request receiver
is unable to parse a request header.

DFHII0209  date time applid client_ip_addr
tcipservice The request receiver
received a GIOP header with an invalid
messageType.

DFHII0210  date time applid client_ip_addr
tcipservice The request receiver
is unable to run the security URM:
module. Reason(X’reason’)

DFHII0211  date time applid client_ip_addr
tcipservice The request receiver
received an invalid GIOP header when
expecting a fragment.

DFHII0212  date time applid client_ip_addr
tcipservice The request receiver socket
receive timed out. n request stream
replies are outstanding.

DFHII0213  date time applid client_ip_addr
tcipservice The request receiver request streams notify gate was driven
but the task no longer exists for
request_id X’req_id’.

DFHII0214  date time applid client_ip_addr
tcipservice The request receiver request streams notify gate was driven
but the resume for the task failed for
request_id X’req_id’.

DFHII0215  date time applid client_ip_addr
tcipservice The request receiver socb_notify_gate was driven but the
resume for the task failed.

DFHII0217  date time applid client_ip_addr
tcipservice The request receiver received a GIOP header with an invalid
length.

DFHII0218  date time applid client_ip_addr
tcipservice The request receiver socket
first receive timed out.

DFHII0219  date time applid client_ip_addr
tcipservice The request handler is
unable to create or join a request
stream because it is unable to reach
the target for transaction tranid.

DFHII0220  date time applid client_ip_addr
tcipservice The request handler is
unable to create or join a request
stream because remote system
specified in transaction tranid cannot
be reached.

DFHII0221  date time applid client_ip_addr
tcipservice The Request Receiver
failed to receive a request due to a
socket client error.

DFHII0222  date time applid client_ip_addr
tcipservice The Request Receiver
received a request which indicated that
a fragment is expected. This is not
supported for GIOP 1.1 and earlier.

DFHII0223  date time applid client_ip_addr
tcipservice The Request Receiver is
unable to obtain storage.

DFHII0224  date time applid client_ip_addr
tcipservice The Request Receiver
received a request. Processing cannot
continue because a security check has
failed.

DFHII0225  date time applid client_ip_addr
tcipservice The Request Receiver
received a request without a valid
security context for TCPIPSERVICE
AUTHENTICATION({none | basic | asserted | kerberos | certificate }).
The Request Receiver is unable to send a reply to the client.

The request processor request streams notify gate was driven but the task no longer exists.

The request processor request streams notify gate was driven but the resume for the task failed.

The request processor is unable to receive a request from the request receiver.

The request processor is unable to receive a reply from a target ORB.

The request processor is unable to send a reply to the request receiver.

The request processor is unable to send a request to a target ORB.

The request processor is unable to receive a reply or a request from a target ORB or the request receiver.

The request handler is unable to create or join a request stream because transaction tranid is not installed.

The request processor received a request with an invalid header.

A request processor request does not contain a valid cicsTaskTrackingContext.

The request processor received a reply with an invalid header.

The request processor received a reply fragment with an invalid header.

The request processor did not receive a reply fragment.

The request processor received a messageError reply.

The request processor received an invalid GIOPMessageType.

The request processor received an unknown GIOPMessageType.

The request processor received an unexpected GIOPFragment.

The request processor did not receive a reply fragment.

The request processor received a reply which indicated that a fragment is expected. This is not supported for GIOP 1.1 and earlier.

The CICS ORB failed to find the requested plugin plugin.

The CICS ORB plugin plugin has thrown exception exception.

REQUESTMODEL rqmodelname has been installed.

REQUESTMODEL rqmodelname has been discarded.

The request receiver received a request with a basic authentication security context. The request is rejected because (the userid is too long | the password is too long | of an invalid msgType | the sessionId already exists | the sessionId is not found | of a malformed context | of an internal error with the Kerberos Principal name | the version is invalid).
DFHII0602  date time applid The request receiver received a request with a basic authentication security context. The request is rejected because [the ESM inactive | CICS security is inactive | of an unknown ESM error | the command is not authorised | the password is not authorised | the userid is undefined | the password has expired | the userid has been revoked | of a userid format error | the applid is not authorised | of an unexpected return code].

DFHII0603  date time applid The request receiver received a request with an asserted identity security context. The request is rejected because [of an invalid msgType | the userid is too long | of an invalid credType | it contains an invalid length | the version is invalid].

DFHII0604  date time applid The request receiver received a request with an asserted identity security context. The request is rejected because [CICS security is inactive | the userid is undefined | the userid is not determined | the ESM is inactive | the ESM is not present | the command is not authorised | the ESM resource is not found | the XSRC class is not found | the XSRC resource name is invalid | the USAD reason is not expected | the XSRC reason is not expected].

DFHII0605  date time applid The request receiver received a request with a Kerberos security context. The request is rejected because [it contains an invalid length | of a duplicate sessionID | a sessionID is not found | of an internal error with the Kerberos Principal name | the version is invalid].

DFHII0606  date time applid The request receiver received a request with a Kerberos security context. The request is rejected because [the ESM is inactive | the KDC is inactive | the KDC is busy | an unknown ESM error | the command is not authorised | this is not a Kerberos region | the ticket has expired | the userid has been revoked | an invalid principal name | an invalid GSSAPI token | the XSKR reason is not expected].

DFHII1000  date time applid className methodName internal error desc.

DFHII1001  date time applid Severe error: desc, resulting from: th.

DFHII1002  date time applid Failure e obtaining data for LogicalServer serverName.

DFHII1003  date time applid LogicalServerPlugin load failure e for class className.

DFHII1004  date time applid Exception e creating object of class javaClassName for OMG interface interfaceName.

DFHII1005  date time applid Exception e creating object of class className.

DFHII1006  date time applid Exception e writing IOR file fileName.

DFHII1007  date time applid Unknown object adapter oa in object key.

DFHII1008  date time applid Exception e creating UserKey.

DFHII1009  date time applid Failure dr issuing IIRP invoke.

DFHII1010  date time applid Failure dr receiving request from IIRP.

DFHII1011  date time applid Failure dr sending a reply to IIRP.

DFHII1012  date time applid Failure dr receiving reply from IIRP.

DFHII1013  date time applid Failure dr establishing connection to host host port port.

DFHII1014  date time applid Invalid SSL type connSsl used for connection to CORBASERVER serverName, with sslType serverSsl.
<table>
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<th>date time applid Invalid port number connPort used for sslType connection to CORBASERVER serverName, with port port, sslPort sslPort.</th>
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<td>DFHI1016</td>
<td>date time applid Failure obtaining JNDI context for CORBASERVER serverName, prefix jndiPrefix at level prefixPart. Exception exc was received.</td>
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<td>date time applid Failed to bind CORBA stateless GenericFactory for CORBASERVER serverName to JNDI subcontext jndiPrefix as jndiName. Exception exc was received.</td>
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<td>DFHI1019</td>
<td>date time applid CORBA stateless GenericFactory for CORBASERVER serverName bound to JNDI subcontext jndiPrefix as jndiName.</td>
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<td>date time applid Failed to create HFS shelf shelfName for CORBASERVER serverName.</td>
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<td>date time applid Failed to delete HFS shelf shelfName for CORBASERVER serverName.</td>
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<td>DFHI1026</td>
<td>date time applid CORBASERVER serverName not installed.</td>
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<td>DFHI1027</td>
<td>date time applid CORBA stateless GenericFactory for CORBASERVER serverName written to the shelf as fileName.</td>
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<td>DFHI1028</td>
<td>date time applid Name server not defined for CORBASERVER serverName being initialized for PROGRAM pgmName.</td>
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<td>DFHI1029</td>
<td>date time applid CORBA stateless GenericFactory file fileName deleted from the shelf of CORBASERVER serverName.</td>
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<td>DFHI1030</td>
<td>date time applid CORBA stateless GenericFactory for CORBASERVER serverName not found at JNDI subcontext jndiPrefix.</td>
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<td>DFHI1031</td>
<td>date time applid Unable to obtain JNDI InitialContext jndiPrefix for CORBASERVER serverName.</td>
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<td>DFHI1032</td>
<td>date time applid JNDI subcontext subContext created during processing of CORBASERVER serverName.</td>
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<td>DFHI1033</td>
<td>date time applid JNDI subcontext subContext for CORBASERVER serverName not found during RETRACT.</td>
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<td>date time applid No write access to file fileName for creation of shelf shelfName.</td>
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<td>DFHI1035</td>
<td>date time applid GenericFactory IOR file fileName not found on the shelf of CORBASERVER serverName.</td>
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<td>DFHI1036</td>
<td>date time applid Unexpected ORB creation within the scope of CORBASERVER serverName for PROGRAM pgmName.</td>
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DFHLG0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHLG0002 applid A severe error (code X'code') has occurred in module modname.

DFHLG0003 applid Insufficient storage to satisfy GETMAIN (code X'code') in module modname.

DFHLG0004 applid A possible loop has been detected at offset X'offset' in module modname.

DFHLG0006 applid Insufficient storage to satisfy GETMAIN (code X'code') in module modname. MVS code mvscode.

DFHLG0101I applid Log manager domain initialization has started.

DFHLG0102I applid Log manager domain initialization has ended.

DFHLG0103I applid System log (journalname) initialization has started.

DFHLG0104I applid System log (journalname) initialization has ended.

DFHLG0191 subsys-name {CONVERTER | ALLOCATION} VERIFICATION HAS FAILED BECAUSE OF A {SEVERE ERROR | SYNTAX ERROR | MUTUAL EXCLUSION FAILURE}

DFHLG0192 ERROR IN MVS LOGGER MACRO macro_name FOR REQUEST request_type. MVS LOGGER CODES X'X'return-code' X'X'reason-code'

DFHLG0193 log-stream-name Names log stream referred to in previous message. See message DFHLG0192.

DFHLG0301 date time applid An error has been detected for log stream stream for journal name journalname. The journal status has been set to FAILED.

DFHLG0302 date time applid Journal name journalname has been installed. Journal type: {MVS | SMF |DUMMY}stream.

DFHLG0303 date time applid An error has been detected while connecting to log stream stream for journal name journalname. The journal status has been set to FAILED.

DFHLG0304 date time applid An error has been detected writing the catalog entry for journal name journalname.

DFHLG0305 date time applid An error has been detected deleting the catalog entry for journal name journalname.

DFHLG0306 date time applid Journal name journalname has been discarded.

DFHLG0401 date time applid Journal model resource journalmodel has been installed.

DFHLG0402 date time applid An error has been detected writing the catalog entry for journal model journalmodel.

DFHLG0403 date time applid An error has been detected deleting the catalog entry for journal model journalmodel.

DFHLG0404 date time applid Journal model journalmodel has been replaced by journalmodel2.

DFHLG0405 date time applid Journal model journalmodel has been discarded.

DFHLG0501 date time applid Log stream definition for stream suppressed by XLGSTRM user exit.

DFHLG0502 date time applid Log stream stream defined to MVS using model stream model.

DFHLG0503 date time applid Log stream stream, using model stream model, not defined to MVS for reason X'rc1X'reason'.
DFHLG0504 date time applid Log stream stream
using model stream model not defined
to MVS due to insufficient authority.

DFHLG0505 date time applid Log stream stream
using model stream model not defined
to MVS because of an invalid HLQ
parameter.

DFHLG0506 date time applid Log stream stream
using model stream model not defined
to MVS because of insufficient LOGR
couple data set space.

DFHLG0507 date time applid Log stream stream
not defined to MVS because model stream
model does not exist.

DFHLG0508 date time applid Log stream stream
not defined to MVS because model stream
model not defined to MVS. Maximum number of streams
reached.

DFHLG0509 date time applid Log stream stream
using model stream model not defined
to MVS because of an invalid structure
name.

DFHLG0510 date time applid Log stream stream
using model stream model not defined
to MVS because of an invalid stream
name.

DFHLG0511 date time applid Log stream stream
using model stream model not defined
to MVS because STRUCTNAME
parameter missing in model.

DFHLG0512 date time applid Log stream stream
cannot be used as both a system log
and a general log.

DFHLG0513 date time applid Log stream stream
has failed and new connections cannot be
accepted.

DFHLG0514 date time applid Log stream stream is in
use by another CICS system.

DFHLG0730 applid A severe error (code X'code') has
occurred while opening the system log
(journalname). CICS will be terminated.

DFHLG0731 applid A failure has occurred while
opening the system log (journalname).
CICS will be terminated.

DFHLG0733 applid A log stream type of SMF has
been requested for the system log
(journalname). This is not allowed.

DFHLG0734 applid A severe error (code X'code') has
occurred while accessing the CICS
system log. CICS will be terminated.

DFHLG0735 applid A failure has occurred while
writing to | reading from) the system log
(journalname). Access to the system log
has been lost. CICS will be terminated.

DFHLG0736 applid A failure has occurred while
reading from the system log (journalname). The requested data
could not be found. CICS will be
quiesced so inflight tasks can
complete. Next CICS start will be
INITIAL.

DFHLG0737 applid A failure has occurred while
writing to the system log (journalname).
A log record was longer than the
maximum block size for the MVS log
stream. CICS will be terminated.

DFHLG0738 applid A failure has occurred while
reading the system log (journalname).
The requested data could not be
found. CICS will be terminated. Next
CICS start will be INITIAL.

DFHLG0739 applid An attempt to start transaction
CSQC to perform a normal shutdown
of CICS has failed. Perform a normal
shutdown of CICS manually.

DFHLG0740 applid While writing data to the system
log (journalname), a lost data warning
was received. CICS will be quiesced so
inflight tasks can complete. Next CICS
start will be INITIAL.

DFHLG0741 applid A failure to read data from the
system log during dynamic backout
has caused task tasknum to be
suspended indefinitely. Tranid tranid,
termid termid.
DFHLG0742  date time applid Log record too long for block. Record size rsize bytes. Block size bsize bytes. (MVS log stream | SMF journal name).

DFHLG0743  date time applid Tail of log stream lsn deleted after block id X'blockid'.

DFHLG0744  date time applid All records in log stream lsn have been deleted.

DFHLG0745I  applid System log full scan has started.

DFHLG0746  date time applid System log scan trim record found. Primary logstream block id X'pblock', secondary logstream block id X'sblock'.

DFHLG0747I  applid System log scan continuing, count records processed.

DFHLG0748I  applid System log selective scan has started.

DFHLG0749I  applid System log scan has completed.

DFHLG0750  applid Transaction CSQC has failed to perform a normal shutdown of CICS. Perform a normal shutdown of CICS manually.

DFHLG0760  date time applid Log stream lsn not trimmed by keypoint processing. Number of keypoints since last trim occurred: trimnum.

DFHLG0770  applid A severe error has occurred while writing to the SMF log, which was accessed via journal jname. SMF response X'resp'.

DFHLG0771  date time applid A temporary error condition occurred during MVS logger operation (IXGCONN | IXGWRITE | IXGBRWSE | IXGDELET | CONNECT | DISCONNECT | START | READCURSOR | READBLOCK | END | ALL | RANGE) for log stream lsn. MVS logger codes: X'ret', X'rsn'.

DFHLG0772  applid An error has occurred during MVS logger operation (IXGCONN | IXGWRITE | IXGBRWSE | IXGDELET | CONNECT | DISCONNECT | START | READCURSOR | READBLOCK | END | ALL | RANGE) for log stream lsn. MVS logger codes: X'ret', X'rsn'.

DFHLG0773  applid A severe error (code X'code') has occurred while accessing (IXGCONN | IXGWRITE | IXGBRWSE | IXGDELET | CONNECT | DISCONNECT | START | READCURSOR | READBLOCK | END | ALL | RANGE) for log stream lsn. MVS logger codes: X'ret', X'rsn'.

DFHLG0774  applid The MVS logger has returned an alert during operation (IXGCONN CONNECT | IXGWRI TE | for log stream lsn. The log stream data set directory is full. MVS logger codes: X'ret' X'rsn'.

DFHLG0775  applid The MVS logger has returned an alert during operation (IXGCONN CONNECT | IXGWRITE | for log stream lsn. The log stream writer offload task is failing. MVS logger codes: X'ret' X'rsn'.

DFHLG0776  applid The MVS logger has returned an alert during operation IXGWRITE for log stream lsn. The log stream staging data set has failed. MVS logger codes: X'ret' X'rsn'.

DFHLG0777  applid A temporary error condition occurred during MVS logger operation (IXGCONN | IXGWRITE | IXGBRWSE | IXGDELET | CONNECT | DISCONNECT | START | READCURSOR | READBLOCK | END | ALL | RANGE) for log stream lsn. MVS logger codes: X'ret', X'rsn'.

DFHLG0778  applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. CICS does not have authority to perform this operation. MVS logger codes: X'ret' X'rsn'.

DFHLG0779  applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. The log stream is being deleted by another program. MVS logger codes: X'ret' X'rsn'.
DFHLG0780 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. Some data previously written to this log stream has been lost. MVS logger codes: X'ret' X'rsn'.

DFHLG0781 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. The maximum number of log stream connections that the MVS logger can support has been reached. MVS logger codes: X'ret' X'rsn'.

DFHLG0782 applid The MVS logger has returned an error during operation IXGCONN CONNECT | IXGWRITE for log stream lsn. The MVS logger does not have authority to access the log stream structure. MVS logger codes: X'ret' X'rsn'.

DFHLG0783 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. You cannot connect to a DASDONLY log stream that is already connected to another MVS image. MVS logger codes: X'ret' X'rsn'.

DFHLG0784 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. This is a DASDONLY log stream, which is not supported by the current system release level. MVS logger codes: X'ret' X'rsn'.

DFHLG0785 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. The MVS logger failed to find a suitable coupling facility for the log stream structure. MVS logger codes: X'ret' X'rsn'.

DFHLG0786 applid The MVS logger has returned an error during operation IXGCONN CONNECT for log stream lsn. Some data previously written to this log stream has been lost. MVS logger codes: X'ret' X'rsn'.

DFHLG0787 applid CICS is attempting to read a blockid that does not belong to the current chain. Read blockid: X'blkid1'; Chain History Point: X'blkid2'.

DFHLG0788 applid The System Log journals DFHLOG and DFHSHUNT have been defined on the same MVS logstream (logstream). This is invalid. CICS will terminate.

DFHLG0800 applid The MVS logger failed to locate a blockid requested by the CICS log manager. Missing blockid: X'blkid1'; Chain History Point: X'blkid2'.

DFHME0138 Message msgno not issued by module because MVS WTO is short on storage

DFHMS0101 INCORRECT NUMBER OF RUNTIME PARAMETERS SUPPLIED.

DFHMS0102 PRIMARY PARAMETER PARAMETER WAS NOT RECOGNIZED.

DFHMS0103 SECONDARY PARAMETER PARAMETER WAS NOT RECOGNIZED.

DFHMS0104 UNABLE TO OPEN INPUT FILE LIST FILELIST.

DFHMS0105 CONVERT OF DD TO FULLY QUALIFIED DSNAME FAILED.

DFHMS0106 FAILED TO OPEN PDS DURING DD CONVERT.

DFHMS0107 PDS, MALLOC FAILED FOR N BYTES.

DFHMS0108 PDS, FAILED TO OPEN PDS: PDS.

DFHMS0109 PDS, FAILED TO READ PDS.

DFHMS0110 UNABLE TO OPEN THE FILTER INPUT DATASET: FILTER.

DFHMS0111 FILTER VALIDATION HAS WARNINGS ABOUT FILTERLINE. THE FOLLOWING WARNINGS APPLY: WARNINGS.
DFHMS0112 FILTER VALIDATION HAS FAILED TO VALIDATE FILTERLINE. THE FOLLOWING PROBLEMS WERE FOUND: PROBLEMS.

DFHMS0113 UNEXPECTED VERB VERB WITH NO PARAMETERS FOUND.

DFHMS0114 INSUFFICIENT STORAGE SCANNING MODULE, NUMBER SCANNED.

DFHMU0171 MESSAGE: msgno RESP2 VALUE IS TOO LONG. THE MAXIMUM IS 4 DIGITS.

DFHNC0101I Named counter server initialization is in progress.

DFHNC0102I Named counter server for pool poolname is now active.

DFHNC0103Named counter server initialization failed because the POOLNAME parameter was not specified.

DFHNC0104 Named counter server initialization failed because program DFHNCMN is not APF authorized.

DFHNC0111I Named counter server for pool poolname is terminating.

DFHNC0112I Named counter server has terminated, return code retcode, reason code rsncode.

DFHNC0113 Named counter server completion code is cmpcode, reason code rsncode.

DFHNC0121I Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

DFHNC0122 IXCARM REQUEST=reqtype failed, return code retcode, reason code rsncode.

DFHNC0201I Processing type parameters

DFHNC0202 Unknown parameter keyword: keyword

DFHNC0203 Value value for parameter keyword is incorrect. It must be a name of up to 8 characters.

DFHNC0204 Value value for parameter keyword is incorrect. It must be a decimal number.

DFHNC0205 Value value for parameter keyword is greater than the maximum allowed value maximum.

DFHNC0206 Value value for parameter keyword is less than the minimum allowed value minimum.

DFHNC0207 Value value for parameter keyword is incorrect. It should be a time hh:mm:ss or hh:mm or a number of seconds.

DFHNC0208 Parameter keyword keyword is not supported for command.

DFHNC0209 Parameter text contains invalid character: text

DFHNC0210 Parameter keyword keyword should not have a value for command.

DFHNC0211I Parameter value: keyword=value

DFHNC0212 Value value for parameter keyword is incorrect. It must be one of validlist.

DFHNC0213 Value for parameter keyword is missing. The correct form is keyword=value.

DFHNC0301I Console operator consname issued command: command

DFHNC0302I command command ignored because no valid parameters were given.

DFHNC0303I command command has been processed.
STOP command is waiting for connections to be closed. Number of active connections = connections.

STOP command has been processed.

Named counter server does not support this command: command

CANCEL command has been processed. Number of active connections = connections.

Named counter server does not support CICS commands. To close it down, you can use the STOP command.

Parameter parm on CANCEL command is incorrect. The only valid parameters are RESTART= YES or RESTART=NO.

Parameter parm on STOP command is incorrect. No parameters should be specified.

Connection: Job jobname Applid applid Idle idletime

Total connections to this server: connections.

Counter names: counter1 counter2

The total number of named counters in the pool is counters.

Details for named counter counter:

No named counter was found matching counter.

The number of named counters in the pool matching counter is counters.

Connected to CF structure strname.

CF structure strname was allocated by this connection.

Connection to CF structure strname failed, IXLCONN return code retcode, reason code rsncode.

CF structure strname cannot be used because it has been allocated with attribute attribute.

Initialization failed for CF structure strname with response response.

CF structure strname is not available for shared use.

CF structure strname is not available for exclusive use.

CF structure strname could not be allocated in facility cfname, reason code rsncode.

CF structure strname now has percentage% of entries in use.

Alter request completed normally for CF structure strname.

Alter request ended abnormally for CF structure strname with status status.

Alter request ended normally for CF structure strname but target was not attained.

Connectivity has been lost to CF structure strname. The named counter server cannot continue.

CF structure strname has failed. The named counter server cannot continue.

Access statistics for CF structure strname:

Pool statistics for CF structure strname:

CF structure strname request failed, IXLLIST return code retcode, reason code rsncode.
DFHNC0442 CF structure strname request failed, structure is full.

DFHNC0451 Purge for CF structure strname failed, IXLPURGE return code retcode, reason code rsncode.

DFHNC0461I Disconnected from CF structure strname.

DFHNC0462 Disconnect from CF structure strname failed, IXLDISC return code retcode, reason code rsncode.

DFHNC0481I Waiting for structure strname to become available.

DFHNC0482I Retrying connection to structure strname.

DFHNC0491 ENFREQ ACTION=action failed, return code retcode.

DFHNC0601I Starting statistics collection for interval since lasttime.

DFHNC0602I Statistics collection completed, reset performed.

DFHNC0603I Statistics collection completed.

DFHNC0604 Timer SET failed, return code retcode, reason code rsncode.

DFHNC0605 Timer CANCEL failed, return code retcode, reason code rsncode.

DFHNC0606 Statistics collection function is no longer available.

DFHNC0610I Statistics written to SMF, return code was retcode.

DFHNC0701I Named counter pool poolname is to be unloaded.

DFHNC0702I Named counter pool poolname has been successfully unloaded.

DFHNC0703I Number of unloaded counters: counters. Blocks written: blocks.

DFHNC0704 DFHNCUL data set for unload could not be opened.

DFHNC0705 Unload access to CF structure strname failed with response response.

DFHNC0706 Unload for named counter pool poolname was unsuccessful.

DFHNC0801I Named counter pool poolname is to be reloaded.

DFHNC0802I Named counter pool poolname has been successfully reloaded.


DFHNC0804 DFHNCRL data set for reload could not be opened.

DFHNC0805 Reload access to CF structure strname failed with response response.

DFHNC0806 Unexpected end of file encountered on reload data set.

DFHNC0807 Reload data set contains incorrect data near block block, offset offset.

DFHNC0808 Reload for named counter pool poolname was unsuccessful.

DFHNC0809 Reload for CF structure strname failed, structure is full.

DFHNC0911I R12=prv RQ Entry function
   Name=counter Job=region Task=task

DFHNC0912I R12=prv RQ Exit response
   Name=counter Job=region Task=task

DFHNC0913I R12=prv RQ parameter Hex=hex
   Dec=decimal
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**DFHC0914I** R12=prv RQ Options options

**DFHC0944I** R12=prv CF Exit response Name=counter

**DFHC0943I** R12=prv CF IXLLIST keyword=value

**DFHC0942I** R12=prv CF IXLLIST REQUEST=request REASON=rsncode

**DFHC0941I** R12=prv

**DFHNC0999I** Trace text

**DFHNQ0001** applid An abend (code aaa/bbbb) has occurred at offset X’offset’ in module modname.

**DFHNQ0002** applid A severe error (code X’code’) has occurred in module modname.

**DFHNQ0004** applid A possible loop has been detected at offset X’offset’ in module modname.

**DFHNQ0101** date time applid ENQMODEL model has been installed.

**DFHNQ0102** date time applid ENQMODEL model has been discarded.

**DFHNQ0103** date time applid The limit for the number of concurrent sysplex resource ENQ requests has been reached. Transaction tran detected return code X’code’ from MVS ENQ.

**DFHNQ0104** applid MVS returned code X’code’ when transaction tran attempted to enqueue on a sysplex-wide resource. This indicates that an unexpected environmental error has been detected.

**DFHNQ0105** date time applid ENQMODEL model was either disabled or in the waiting state when transaction tran attempted to enqueue on a matching resource name.

**DFHNQ0106** date time applid ENQMODEL model has been replaced.

**DFHNQ0107** date time applid ENQMODEL model1 must be disabled before enabling ENQMODEL model2.

**DFHOT0001** applid An abend (code aaa/bbbb) has occurred at offset X’offset’ in module modname.

**DFHOT0002** applid A severe error (code X’code’) has occurred in module modname.

**DFHOT0011** applid A severe error has occurred. The description is ‘description’. The error occurred in class classname/methodname.

**DFHOT0102** applid Task running transaction tranid could not be purged for OTS timeout. Transaction token: X’tran_token’.

**DFHOT0103** applid A system exception has occurred whilst processing a GIOP request. The client that sent the request can be identified by the following IOR - IOR.

**DFHOT0105** applid Task running transaction tranid has been purged as it exceeded its specified OTS timeout. Transaction token: X’tran_token’.

**DFHPA1100** applid OVERRIDE PARAMETERS FROM JCL EXEC STATEMENT: parm

**DFHPA1940** applid CSDINTEG=CONSISTENT AND CSDINTEG=REPEATABLE REQUIRE CSDRLS=YES. CSDINTEG HAS BEEN SET TO UNCOMMITTED.

**DFHPA1941** applid VTAM=NO HAS BEEN SPECIFIED BUT NO UOWNETQL PARAMETER HAS BEEN SPECIFIED. A DEFAULT UOWNETQL WILL BE USED.

**DFHPA1942** applid CSDRLS=YES BUT RLS=NO. CSDRLS=NO WILL BE USED.
DFHPA1943 applid START=COLD CANNOT BE SPECIFIED WITH OFFSITE=YES. CICS IS TERMINATED.

DFHPA1944 applid CSDRECOV=ALL CANNOT BE SPECIFIED WITHOUT A CSDFRLOG IF CSDRLS=NO. CICS IS TERMINATED.

DFHPA1945 applid sitname MUST BE LINKEDITED WITH THE NORENT OPTION. CICS IS TERMINATED.

DFHPD0133 Specified task not found.

DFHPD0134 Link to module CEEERRIP has failed.

DFHPD0135 Program check occurred with CEEERRIP in control.

DFHPT0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHPT0002 applid A severe error (code X'code') has occurred in module modname.

DFHRD0109 date time applid terminal userid tranid INSTALL TDQUEUE(tdqueueid)

DFHRD0110 date time applid terminal userid tranid INSTALL JOURNALMODEL(journalmodelid)

DFHRD0111 date time applid terminal userid tranid INSTALL DB2CONN(db2conn-name)

DFHRD0112 date time applid terminal userid tranid INSTALL DB2ENTRY(db2entry-name)

DFHRD0113 date time applid terminal userid tranid INSTALL DB2TRAN(db2tran-name)

DFHRD0114 date time applid terminal userid tranid INSTALL PROCESSTYPE(processstype-name)

DFHRD0115 date time applid terminal userid tranid INSTALL TSMODEL(tsmodel-name)

DFHRD0117 date time applid terminal userid tranid INSTALL ENQMODEL(enqmodel-name)

DFHRD0118 I date time applid terminal userid tranid INSTALL REQUESTMODEL(rqmodel-name)

DFHRD0119 I date time applid terminal userid tranid INSTALL DOCTEMPLATE(doctemplate-name)

DFHRD0120 I date time applid terminal userid tranid INSTALL TCPIPIService(tcpipservice-name)

DFHRD0121 I date time applid terminal userid tranid INSTALL CORBASERVER(corbaserver-name)

DFHRD0122 I date time applid terminal userid tranid INSTALL DJAR(djar-name)

DFHRM0001 applid An abend (code code) has occurred at offset X'offset' in module module.

DFHRM0002 applid A severe error (code X'code') has occurred in module module.

DFHRM0104 date time applid Intersystem session failure. Resource updates are being committed. Local resources may be out of sync with those on the remote system. Failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0105 date time applid Intersystem session failure. Resource updates are being backed out. Local resources may be out of sync with those on the remote system. Failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.
DFHRM0106  date time applid Intersystem session failure. Resource updates will not be committed or backed out until session recovery. Failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0107  date time applid Intersystem session failure. Resource updates may be out of sync. Failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0108  date time applid Intersystem session recovery. Suspended resource updates now being committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0109  date time applid Intersystem session recovery. Suspended resource updates now being backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0110  date time applid Intersystem session recovery. Unit of work found to be synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0111  date time applid Intersystem session recovery. Distributed unit of work found to be not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0112  date time applid Intersystem session recovery. The remote system has reinitialized. The unit of work will be committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0113  date time applid Intersystem session recovery. The remote system has reinitialized. Resource updates will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0114  date time applid Intersystem session recovery. The remote system has reinitialized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0115  date time applid Intersystem session recovery. The remote system sent mixed heuristic outcome. Resource updates will be committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0116  date time applid Intersystem session recovery. The remote system sent mixed heuristic outcome. The unit of work will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0117  date time applid Intersystem session recovery. The remote system sent mixed heuristic outcome. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Application ID</th>
<th>Intersystem Session Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHRM0118</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. Resynchronization information from the remote system was not sufficient to determine the outcome of the unit of work. Resource updates will be committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0119</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. Resynchronization information from the remote system was not sufficient to determine the outcome of the unit of work. Resource updates will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0120</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. Resynchronization information from the remote system was not sufficient to determine the outcome of the unit of work. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0121</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. A protocol violation was detected during resynchronization with the remote system. Resource updates will be committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0122</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. A protocol violation was detected during resynchronization with the remote system. Resource updates will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0123</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. A protocol violation was detected during resynchronization with the remote system. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0124</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem session recovery. Resource updates are out of sync. network UOW netuowid remote system netname.</td>
</tr>
<tr>
<td>DFHRM0125</td>
<td></td>
<td>Date Time Applid</td>
<td>Clear pending issued. The connection to the remote system has been set NOTPENDING. Resource updates will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0126</td>
<td></td>
<td>Date Time Applid</td>
<td>Clear pending issued. The connection to the remote system has been set NOTPENDING. Resource updates will be backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0127</td>
<td></td>
<td>Date Time Applid</td>
<td>Clear pending issued. The connection to the remote system has been set NOTPENDING. Resource updates will be committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
<tr>
<td>DFHRM0128</td>
<td></td>
<td>Date Time Applid</td>
<td>Interesystem communication failure. Resource updates are being committed. Local resources may be out of sync with those on the remote system. Failure date mm/dd/yy failure time hh:mm:ss remote system name transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.</td>
</tr>
</tbody>
</table>
DFHRM0129  applid Recovery manager has successfully quiesced.

DFHRM0130  applid Recovery manager autostart override record is not present. Normal processing continues.

DFHRM0131  applid Recovery manager autostart next field found to be: 'autofield', and this is not a valid value. AUTOASIS is assumed instead.

DFHRM0132  applid Recovery manager autostart override record is invalid. 'AUTOASIS' is assumed.

DFHRM0133  applid Recovery manager catalog record indicates that no recovery is possible. An initial start is required.

DFHRM0134  applid Recovery manager does not recognize the form of start requested by SIT parameters and overrides.

DFHRM0135  applid Global catalog data set recovery data not found. System log data will be lost. Reply 'GO' or 'CANCEL'.

DFHRM0136  applid The applid has changed from new_applid to old_applid. Recovery cannot continue.

DFHRM0137  applid Recovery of local logname failed. Recovery cannot continue.

DFHRM0138  applid Recovery manager Auto Start Next record will be deleted after a successful start. Recovery manager has found an Auto Start Next record in the global catalog data set. It is deleted from the catalog if the current start is successful.

DFHRM0139  applid Diagnostic run due to AUTODIAG override is finished. CICS will now terminate.

DFHRM0140  applid Diagnostic run is initiated. A simulated AUTO start is performed for diagnostic purposes only.

DFHRM0141  applid Recovery manager autostart override record is set to AUTODIAG.
DFHRM0154 applid Uncommitted local resource updates found on the System Log. COLD start is NOT preserving data integrity.

DFHRM0156 applid This COLD start will NOT cause any damage to local resources.

DFHRM0200 applid indoubt_uows in-doubt UOWs were reconstructed.

DFHRM0201 date time applid bfail_uows commit-failed and cfail_uows UOWs were reconstructed.

DFHRM0202 date time applid inflight_uows inflight UOWs were reconstructed.

DFHRM0203 applid There are indoubt_uows in doubt, cfail_uows commit-failed and bfail_uows backout-failed UOWs.

DFHRM0204 applid There are no in-doubt, commit-failed or backout-failed UOWs.

DFHRM0205 date time applid An activity keypoint has been successfully taken.

DFHRM0208 date time applid Intersystem session recovery. A unit of work recovered only for remote resynchronization is now being committed. Local resources are not synchronized with the unit of work. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.

DFHRM0212 date time applid Intersystem session recovery. The remote system has reinitialized. The unit of work is treated as committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.

DFHRM0213 date time applid Intersystem session recovery. The remote system has reinitialized. The unit of work is treated as backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.

DFHRM0214 date time applid Intersystem session recovery. The remote system has reinitialized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.

DFHRM0215 date time applid Intersystem session recovery. The remote system sent mixed heuristic outcome. The unit of work is treated as committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.

DFHRM0216 date time applid Intersystem session recovery. The remote system sent mixed heuristic outcome. The unit of work is treated as backed out. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X’localuowid’.
DFHRM0218  date time applid Intersystem session recovery. Resynchronization information from the remote system was not sufficient to determine the outcome of the unit of work. Local resources are not synchronized. The distributed unit of work is committed. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW uowid local UOW X'localuowid'.

DFHRM0219  date time applid Intersystem session recovery. Resynchronization information from the remote system was not sufficient to determine the outcome of the unit of work. The distributed unit of work is backed out. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0220  date time applid Intersystem session recovery. A protocol violation was detected during resynchronization with the remote system. The distributed unit of work is treated as committed. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0221  date time applid Intersystem session recovery. A protocol violation was detected during resynchronization with the remote system. The distributed unit of work is treated as backed out. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0222  date time applid Intersystem session recovery. A protocol violation was detected during resynchronization with the remote system. The distributed unit of work is treated as backed out. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0223  date time applid Intersystem session recovery. The connection to the remote system has been set NOTPENDING. The distributed unit of work is treated as committed. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0225  date time applid Clear pending issued. The connection to the remote system has been set NOTPENDING. The distributed unit of work is treated as committed. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0226  date time applid Clear pending issued. The connection to the remote system has been set NOTPENDING. The distributed unit of work is treated as backed out. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0227  date time applid Clear pending issued. The connection to the remote system has been set NOTPENDING. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.
DFHRM0228 applid indoubt_uows in-doubt UOWs have been recovered for the purpose of remote resynchronization. Local resources are not synchronized with these UOWs.

DFHRM0229 date time applid bfail_uows backout-failed and cfail_uows commit-failed UOWs have been recovered for the purpose of remote resynchronization. Local resources are not synchronized with these UOWs.

DFHRM0230 date time applid inflight_uows inflight UOWs have been recovered for the purpose of remote resynchronization. Local resources are not synchronized with these UOWs.

DFHRM0235 date time applid Intersystem session recovery. Local resources are not synchronized. Original failure date mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum terminal termid user userid network UOW netuowid local UOW X'localuowid'.

DFHRM0300 KEYWORD keyword IS INVALID.

DFHRM0301 applid Force purge of transaction ID tranid task number taskno has been deferred because unit of work X'uowid' is in post commit syncpoint processing.

DFHRM0302 ERROR {OPENING | READING | WRITING | CLOSING} the {DFHGCD |NEWGCD} DATA SET RETURN CODE: X'vsam_retcode', REASON: X'vsam_reason'.

DFHRM0303 ERROR {OPENING | READING | WRITING} the {SYSIN | SYSPRINT} DATA SET.

DFHRM0304 INVALID OR MISSING {APPLID | SET_AUTO_START} PARAMETER.

DFHRM0305 APPLID DOES NOT MATCH THE GCD RECORD.

DFHRM0307 KEYWORD keyword IS REPEATED IN THE SYSIN DATA SET.

DFHRM0308 SET_AUTO_START=AUTOASIS INVALID. GCD HAS BEEN COLD_COPIED SINCE LAST CICS EXECUTION

DFHRM0309 SET_AUTO_START=AUTOCOLD IS INVALID. GCD HAS NOT BEEN USED BY CICS, OR CICS START IS INITIAL.

DFHRM0310 SET_AUTO_START=AUTOINIT - ALL RECOVERY RECORDS WILL BE PURGED IF START=AUTO IS USED ON NEXT CICS STARTUP.

DFHRM0311 COLD_COPY KEYWORD INVALID WITH SET_AUTO_START=AUTOASIS.

DFHRM0312 AUTODIAG WITH COLD_COPY NOT ALLOWED.

DFHRM0313 AUTODIAG CANNOT BE USED.

DFHRM0400 applid A unit of work was incompletely reconstructed from the system log.

DFHRM0401 applid There is no system log or an empty system log has been detected.

DFHRP0102 - DFHRP2000: Messages in this range are issued by CICS ONC RPC. See the CICS Messages and Codes for a description of these messages.

DFHRS2110 date time applid Abnormal reply to exchange log name request received from system sysid, netname netname, protocol protocol.

DFHRS2111 date time applid Cold/Warm restart mismatch with system sysid, netname netname, protocol protocol.

DFHRS2112 date time applid Log name mismatch with system sysid, netname netname, protocol protocol. Expected LUNAME.LOGNAME local_logname Received LUNAME.LOGNAME remote_logname.
DFHRS2113  date time applid Log name mismatch with system sysid, netname netname, protocol protocol, local LOGNAME local_logname, received LOGNAME remote_logname.

DFHRS2114  date time applid Abnormal termination of exchange log names sequence received from system sysid, netname netname, protocol protocol.

DFHRS2115  date time applid protocol protocol support mismatch with system sysid, netname netname. Expected support byte X'ww', received support byte X'xx', expected extended support bytes X'yyyy', received extended support bytes X'zzzz'.

DFHRS2116  date time applid Abnormal termination of exchange log names sequence received from system sysid, netname netname, protocol protocol. The connection was in a cold state.

DFHRS2117  date time applid Abnormal reply to exchange log names received from system sysid, netname netname, protocol protocol. The connection on this system was in a cold state.

DFHRS2118  date time applid Abnormal termination of exchange log names sequence received from system sysid, netname netname, protocol protocol. There has been previous contact with that system.

DFHRS2119  date time applid An error has occurred while sending an exchange log names request on session sessid to remote system sysid, netname netname, protocol protocol.

DFHRS2120  date time applid An error has occurred while sending a compare states request on session sessid to remote system sysid, netname netname, protocol protocol.

DFHRS2121  date time applid An error has occurred while receiving an exchange log names reply on session sessid from remote system sysid, netname netname, protocol protocol.
DFHRS2146 date time applid Invalid compare states data has been received on session sessid from remote system sysid, netname netname, protocol protocol.

DFHRS2147 date time applid Unrecognized data was received following transmission of an exchange log names reply on session sessid to remote system sysid, netname netname, protocol protocol.

DFHRS2148 date time applid Resynchronization with system sysid, netname netname, protocol protocol was attempted but was terminated because no partner log name was found.

DFHRS2149 date time applid Resynchronization/Exchange log names with system netname (protocol protocol) could not be executed because no suitable connection entry was found.

DFHRS2150 date time applid Invalid data has been received during the resynchronization sequence on session sessid from remote system sysid, netname netname, protocol protocol.

DFHRS2151 date time applid Invalid data has been received during the resynchronization sequence on session sessid from remote system sysid, netname netname, protocol protocol.

DFHRS2152 date time applid A conversation error has occurred during resynchronization sequence on session sessid to remote system sysid, netname netname, protocol protocol.

DFHRS2153 date time applid An error has occurred while sending a system_restart request on session sessid to remote system sysid, netname netname, protocol protocol.

DFHRS2154 date time applid A logic error has occurred during resynchronization with system sysid, netname netname.

DFHRS2155 date time applid Affinity changed by partner resource known as connection sysid, netname netname. Old LUNAME was old-luname, new LUNAME is new-luname.

DFHRS2156 date time applid A logic error occurred during resynchronization with system sysid, netname netname.

DFHRS2157 date time applid A logic error has occurred during resynchronization with system sysid, netname netname.

DFHRS2158 date time applid A logic error has occurred during resynchronization with system sysid, netname netname.

DFHRT0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHRT0002 applid A severe error (code X'code') has occurred in module modname.

DFHRT4422 time applid The connection to system sysid does not support transaction routing. Please check that you have used the correct system name.

DFHRT4423 date time applid An error has occurred while attempting to invoke the distributed routing program.

DFHRX0001 applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHRX0002 applid A severe error (code X'code') has occurred in module modname.

DFHRX0100I applid RX domain initialization has started.

DFHRX0101I applid RX domain initialization has ended.

DFHRX0102I applid RX domain initialization has ended.

DFHRX0102 applid Errors were encountered during initialization of the RX domain. Domain initialization has ended.
DFHRX0103 applid An unexpected return code X'rc' was received from RRMS service xxxxxxxx.

DFHRX0104I applid The Resource Recovery Services (RRS) exit manager aaaaaaaaaaaaaaa is now available.

DFHRX0105I applid The Resource Recovery Services (RRS) exit manager aaaaaaaaaaaaaaa is now unavailable.

DFHRX0106I applid Restart processing with Resource Recovery Services (RRS) is beginning.

DFHRX0107I applid Restart processing with Resource Recovery Services (RRS) has ended.

DFHRX0108 date time applid Log name mismatch with Resource Recovery Services. Expected Log name logname. Received Log name logname.

DFHRX0109 date time applid Invalid pass token received on connection sysid session termid.

DFHRX0110 applid Restart processing with Resource Recovery Services (RRS) was attempted on the wrong system.

DFHRZ0001 applid An abend (code code) has occurred at offset X'offset' in module modname.

DFHRZ0002 applid A severe error (code X'code') has occurred in module module.

DFHRZ0103 date time applid The call to invoke the Distributed Routing Program, program, has failed. The Distributed Routing Program has abnormally terminated with abend Code abcode.

DFHRZ0104 date time applid The call to invoke the Distributed Routing Program, program, has failed due to an invalid AMODE.

DFHRZ0105 date time applid The call to invoke the Distributed Routing Program, program, has failed. The program was not loadable.

DFHS0001 applid An abend (code code) has occurred at offset X'offset' in module module.

DFHS0002 applid A severe error (code X'code') has occurred in module module.

DFHS0101 date time applid The call to invoke the Distributed Routing Program, program, has failed. Refer to message DFHS0105.

DFHS0102 date time applid The Distributed Routing Program, program, has returned a bad response. See following message DFHS0105.

DFHS0103 date time applid The call to invoke the Distributed Routing Program, program, has failed due to an invalid AMODE.

DFHS0104 date time applid The call to invoke the Distributed Routing Program, program, has failed due to an invalid AMODE.

DFHS0105 date time applid Request (Id: requestid, Processtype: procsstype, Processname: processname, Activityname: activitname, Transaction: tranid) cannot be serviced. It will be retried every minute and will be purged after 24 hours if not serviced then.
DFHSH0106  date time applid Request (Id: requestid, ProcessType: processname, Processname: processname, Activityname: activityname, Transaction: tranid) still cannot be serviced. It will be retried every minute and will be purged after hours hours if not serviced successfully.

DFHSH0107  date time applid Request (Id: requestid, ProcessType: processname, Processname: processname, Activityname: activityname, Transaction: tranid) has remained unserviceable for 24 hours and has now been purged.

DFHSH0108  date time applid Previously unserviceable request (Id: requestid, ProcessType: processname, Processname: processname, Activityname: activityname, Transaction: tranid) has now been successfully serviced.

DFHSH0109  date time applid An error has occurred when attempting to access the Local Request Queue data set (DFHLRQ). (The file could not be found. | The file was closed. | The file was disabled. | There was insufficient space. | An I/O error occurred. | The data set is being copied.) The Local Request Queue is now unavailable.

DFHSH0110  date time applid The Local Request Queue data set (DFHLRQ) is now available.

DFHSH0111  date time applid tranid trannum userid An error has occurred in Scheduler Services during the prepare phase of syncpoint.

DFHSI1542  applid Takeover by the CICS alternate system has failed. Emergency restart could not be performed.

DFHSI1547  applid Notification of a default qualified LUNAME to the recovery manager domain has failed.

DFHSI1548  applid After opening the VTAM ACB, CICS has failed to transfer the fully qualified LUNAME to the recovery manager domain.

DFHSI1553  applid The unit of work network qualifier specified via the UOWNETQL parameter contains invalid characters or begins with a number. A dummy qualifier is substituted.

DFHSI1582  applid Local DLI PSBs present in the PDIR. CICS does not support local DLI.

DFHSI1784  applid The user shutdown assist transaction tranid has not been defined as a shutdown enabled local transaction.

DFHSI8440I  applid Initiating connection to resmanager.

DFHSI8441I  applid Connection to resmanager qualifier successfully completed.

DFHSI8442  applid Connection to resmanager has failed.

DFHSI8443  applid Connection to resmanager not completed. Adapter is awaiting initialization of resmanager.

DFHSI8444  applid Unable to initiate the Enterprise Java Resolution transaction CEJR. EJ resolution will not occur.

DFHSJ0001  applid An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.

DFHSJ0002  applid A severe error (code X'xcode') has occurred in module module.

DFHSJ0201  date time applid A call to CEEPIPI with function code INIT_SUB_DP has failed. (Return code was - X'rc').

DFHSJ0202  date time applid A call to CEEPIPI with function code TERM has failed. (Return code was - X'rc').

DFHSJ0203  date time applid A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').
A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').

A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').

An attempt to obtain the CICS Wrapper class wrapper_name using the JNI function 'FindClass' has failed.

Attempt to change the HFS working directory to pathname has failed. Runtime error message is errmsg.

Attempt to load DLL dllname has failed. Runtime error message is errmsg.

Invalid profile sdata specified.

Attempt to open jvmprofile filename has failed. Runtime error message is errmsg.

The environment variable env_var found in JVM Profile JVMprof is not recognized.

The option option is not recognized, and has been ignored.

Option option in member JVMProf has been ignored.

Attempt to open JVM system properties file filename has failed. Runtime error message is errmsg.

Attempt to fetch user-replaceable module DFHJVMAT has failed.

Attempt to open filename in work directory dirname for output has failed. Runtime error message is errmsg.

Unexpected end of file whilst concatenating lines in system properties file.

Unable to build trusted middleware classpath: option.

Problem encountered on line line_number of the JVM profile: reason.

Problem encountered on line line_number of the JVM system properties file: reason.

Required environment variable env_var is missing from JVM Profile JVMprof.

Insufficient storage to allocate the requested size of dsasizeK for the dsaname.

The size of the dsaname was specified as dsasizeK.

Sockets domain initialization has started.

Sockets domain initialization has ended.

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

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

A possible loop has been detected at offset X'offset' in module modname.

Sockets domain initialization has started.

Sockets domain initialization has ended.
An OpenEdition Assembler Callable Service error (code X'code') has occurred on receipt of a severe TCP/IP return code; the TCPIPSERVICE tcpipservice on port portnumber at IP address ipaddress will be closed.

The address ip_address cannot be resolved to a host name by the gethostbyaddr function.

The socket listener cannot attach the transaction transaction, the TCPIPSERVICE tcpipservice will be closed.

CICS has registered the group name groupname with Work Load Manager. The TCP/IP host name genericname will become available for DNS connection optimization.

CICS has deregistered the group name groupname with Work Load Manager.

Unable to determine the TCP/IP host name. OpenEdition return code X'retcode', reason code X'rc': TCP/IP services are unavailable.

Unable to register service servicename for WLM DDNS on host hostname.

TCBs are initialized for SSL processing.

No TCBs have been initialized for SSL processing. Secure Sockets Layer has been deactivated.

SSL request from ipaddr on TCPIPSERVICE(service) rejected because of insufficient TCBs.
DFHSO0123  date time applid Return code rc received from function '{gsk_initialize |
gsk_get_cipher_info |
gsk_get_dn_by_label |
gsk_secure_soc_init |
gsk_secure_soc_read |
gsk_secure_soc_write |
gsk_secure_soc_close}’ of System SSL.
Reason: {Unrecognized return code |Key database not found | Key database access not authorized | Invalid password for key database | Expired password for key database | Stashed password file not found | Session timeout value is invalid | An I/O error occurred | An unknown error occurred | Invalid distinguished name | No common ciphers negotiated | No certificate available | Server certificate rejected by client | Root certificate authority not supported | Unsupported operation | Invalid certificate signature | Peer system not recognized | Session timeout value is invalid}
Client: clientaddr.
TCPIPSERVICE: tcpipservice.

DFHSV0124  applid The MAXSOCKETS system initialization parameter has a value of mmmm which exceeds the MAXFILEPROC value of nnnnn. The MAXSOCKETS value has been set to the lower value.

DFHSV0125  applid The MAXSOCKETS parameter retrieved from the catalog has a value of mmmm which exceeds the MAXFILEPROC value of nnnnn. The MAXSOCKETS value has been set to the lower value.

DFHSV0126 W  applid One or more recovered TCPIPSERVICE definitions has not been opened because the MAXSOCKETS limit has been reached.

DFHSV0127  applid MAXPROCUSER exceeded while executing ’service-routine’.

DFHSV0619  date time applid An illegal reference to the RCT has caused the abend which follows.

DFHSV0224 I  There are no intrapartition queues to report.

DFHSV0225 I  There are no extrapartition queues to report.

DFHSV0226 I  There are no indirect queues to report.

DFHSV0227 I  There are no remote queues to report.

DFHSV0228 An invalid extract parameter ( ) has been specified for the DFHSTUP utility.

DFHSV0229 Unable to locate the extract library member member.

DFHSV0230 Unable to load the extract library member member.

DFHSV0231 The extract exit program has been unloaded during clean-up processing following the interception of an abend.

DFHTC1004 applid Program DFHTORP cannot be found. Typeterms cannot be initialized

DFHTC1014 date time applid Communication resource definition for (resname) was not restored from the catalog because the resource definition for (highname) was not installed.

DFHTD0105I  applid Transient Data intrapartition queues will be initialized empty as EMPTY was specified on the TDINTRASIT parameter.

DFHTD0170 applid The intrapartition data set has been corrupted.

DFHTD0245 applid NOSPACE condition on a PUT to the intrapartition data set (DD name ddname). The RBA of the next CI would have exceeded 2 gigabytes.

DFHTD0250 applid Dynamic allocation of queue queue failed. Return code X'rrrr',X'cccc' in module module.

DFHTD0252  applid Open of queue queue failed. DSNAME not available from JCL or DCTE. Module module.

DFHTD0401  date time applid terminal userid tranid TDQUEUE entry for queueiname has been deleted.

DFHTD0402  date time applid terminal userid tranid TDQUEUE entry for tdqueueiname has been added.

DFHTD0403  date time applid terminal userid tranid TDQUEUE entry for tdqueueiname has been replaced.

DFHTD1217 applid Unable to install entry xxxx into the DCT.

DFHTM1784 applid The user shutdown assist transaction tranid cannot be started.

DFHTM1785 date time applid The user shutdown assist transaction tranid cannot be started.

DFHTO6023 E date time applid Connection definition @BCH detected. Batch shared database connections are not supported.

DFHTR5001 THE LOAD FOR A FEATURE PROGRAM HAS FAILED.

DFHTR5002 FEATURE FORMATTING PROGRAM HAS FAILED.

DFHTS0001 applid An abend (code aaa/bbbb) has occurred at offset ’X’offset’ in module modname.

DFHTS0002 applid A severe error (code X’code’) has occurred in module modname.

DFHTS0101I applid Temporary Storage initialization has started.

DFHTS0101 applid Temporary Storage initialization has ended.

DFHTS0102I applid About to format the temporary storage data set (numcis control intervals).

DFHTS0103 applid Invalid attempt to switch between a TST and RDO for Temporary Storage. The attempt is ignored.

DFHTS0104 date time applid terminal userid tranid TSMODEL entry for tsmodelname has been added.

DFHTS0105 date time applid terminal userid tranid TSMODEL entry for tsmodelname has been replaced.

DFHTS0106 date time applid terminal userid tranid TSMODEL entry for tsmodelname has been discarded.

DFHTS1390 date time applid TSQUEUE name (X’hexval’) not recovered. Time last referenced: hh:mm:ss mm/dd/yy. TSAGE: tsage

DFHUS0120 applid An error occurred when performing SNSCOPE checking for a signon request.

DFHWB0001 applid An abend (code aaa/bbbb) has occurred at offset ’X’offset’ in module modname.

DFHWB0002 applid A severe error (code X’code’) has occurred in module modname.

DFHWB0004 applid A possible loop has been detected at offset ’X’offset’ in module modname.

DFHWB0006 applid Insufficient storage to satisfy Getmain (code X’code’) in module modname. MVS code mvscode.

DFHWB0100 date time applid tranid The CICS Web Interface program cannot link to program DFHWBA1. EIBRESP: eibresp EIBRESP2: resp2val Host IP address: hostaddr. Client IP address: clientaddr.
DFHWB0101 date time applid tranid The CICS Web Interface alias program DFHWBA detected a failure in program DFHWBA1. Host IP address: hostaddr. Client IP address: clientaddr.

DFHWB0102 date time applid tranid The CICS Web Interface alias program has received an incorrect response on a call made to CICS during alias initialization. EIBRESP: eibresp EIBRESP2: resp2val.

DFHWB0103 date time applid tranid The CICS Web Interface alias program has received an incorrect response on a call made to CICS during alias initialization. EIBRESP: eibresp EIBRESP2: resp2val.

DFHWB0106 date time applid tranid The CICS Web Interface program DFHWBA has detected an error.

DFHWB0108 date time applid tranid The CICS Web Interface alias program has detected an abend. Host IP address: hostaddr. Client IP address: clientaddr.

DFHWB0109I applid Web domain initialization has started.

DFHWB0110I applid Web domain initialization has ended.

DFHWB0111 applid WB Domain initialization failed. Reason Code: X'rc'.

DFHWB0114 date time applid tranid A non-HTTP request has been received by an HTTP service. The request has been rejected. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

DFHWB0117 date time applid tranid The CICS Web Interface program DFHWBBLI has received a corrupt parameter list from the converter program program_name during (Decode | Encode) processing. TCPIPSERVICE: tcpipservice

DFHWB0118 date time applid tranid The CICS Web Interface program DFHWBBLI has detected an error. TCPIPSERVICE: tcpipservice

DFHWB0119 date time applid tranid The CICS Web Interface program DFHWBBLI has been started incorrectly. TCPIPSERVICE: tcpipservice

DFHWB0120 date time applid tranid The CICS Web Interface program DFHWBA1 cannot link to program program_name. EIBRESP: eibresp EIBRESP2: resp2val.

DFHWB0121 date time applid tranid The CICS Web Interface program DFHWBA1 encountered an error during Decode processing in the converter program. Error code: X'errorid'.

DFHWB0122 date time applid tranid The CICS Web Interface program DFHWBA1 encountered an error during Encode processing in the converter program. Error code: X'errorid'.

DFHWB0123 date time applid tranid The CICS Web Interface program DFHWBA1 has detected an error.

DFHWB0124 date time applid tranid The CICS Web Interface program DFHWBA1 has been started incorrectly.

DFHWB0125 date time applid tranid The CICS Web Interface program DFHWBA1 has detected an abend issued by the program program.

DFHWB0126 date time applid tranid The CICS Web Interface program DFHWBA1 has detected an abend issued by Encode in converter program program.

DFHWB0127 date time applid tranid The CICS Web Interface program DFHWBA1 has detected an abend issued by Decode in converter program.

DFHWB0128 date time applid tranid An error has been detected by program program.

DFHWB0130 date time applid termid No state token passed to program DFHWBBLT.
DFHWB0131  date time applid tranid termid An error code X'code' occurred accessing the Web state data for this transaction.

DFHWB0132  date time applid tranid termid Program DFHWBLT terminated due to storage problems.

DFHWB0133  date time applid tranid Error X'code' occurred starting the CICS Web Bridge transaction

DFHWB0134  date time applid tranid Error X'code' occurred resolving the AID from HTTP forms data in the CICS Web terminal translation application.

DFHWB0135  date time applid tranid Error X'code' occurred resolving the next transaction identifier from HTTP forms data in the CICS Web terminal translation application.

DFHWB0136  date time applid tranid termid An error code X'code' has occurred as a result of the Web State Garbage Collection process.

DFHWB0137  date time applid tranid Error X'code' occurred in DFHWBTTA while accessing the Web state data for this transaction.

DFHWB0138  date time applid tranid The CICS HTML template manager could not locate template template_name in the HTML template data set.

DFHWB0139  date time applid tranid The CICS Web Interface 3270 emulation code was unable to process the data it was passed.

DFHWB0363  date time applid tranid A client certificate that maps to a valid userid is required. Host IP address: hostaddr. Client IP address: clientaddr. TCPIService: tcpipservice.

DFHWB0500I  date time applid tranid CICS Web Interface enable processing is complete. Host IP address: hostaddr.

DFHWB0551  date time applid tranid The CICS Web Interface server controller detected an abend ACN1 processing a request from client clientaddr. Host IP address: hostaddr.


DFHWB0724  date time applid tranid CICS Web attach processing detected an error linking to the codepage conversion module DFHCCNV. Host IP address: hostaddr. Client IP address: clientaddr. TCPIService: tcpipservice.

DFHWB0725  date time applid tranid CICS Web attach processing detected an error linking to the analyzer user replaceable module progname. Host IP address: hostaddr. Client IP address: clientaddr. TCPIService: tcpipservice.

DFHWB0726  date time applid tranid CICS Web attach processing cannot link to the analyzer user replaceable program. No analyzer specified. Host IP address: hostaddr. Client IP address: clientaddr. TCPIService: tcpipservice.


DFHWB0728  date time applid tranid CICS Web attach processing detected a storage error within the Web receive module DFHWBSR. Host IP address: hostaddr. Client IP address: clientaddr. TCPIService: tcpipservice.
DFHWB0729 date time applid tranid CICS Web attach processing detected an abend in the analyzer user replaceable module progname. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

An abend in the analyzer user replaceable module.

DFHWB0730 date time applid tranid CICS Web attach processing encountered an internal error while processing a client request. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

DFHWB0731 date time applid tranid CICS Web attach processing detected an HTTP header longer than 32767 bytes. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

DFHWB0732 date time applid tranid CICS Web attach processing encountered a sockets I/O error while receiving a client request. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

DFHWB0733 date time applid tranid CICS Web attach processing failed because there were no available SSL TCBs. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

A Secure Sockets Layer connection from a client with address

DFHWB1007 applid Initializing CICS Web environment.

DFHWB1008 applid CICS Web environment initialization is complete.

DFHWB1009 applid CICS Web environment initialization failed. Reason Code: X'rc'.

DFHWB1020 date time applid tranid CICS Web State Manager could not find state data for state token stoken in order to perform the {initialize partnership | make partnership | break partnership | trigger partner | wait for partner | query partner | terminate partnership} request for task number taskid, CICS unit of work id cuowid.

DFHWB1100 E date time applid The CICS Web Interface received data from the user application that is longer than expected.

DFHWB1200 date time applid tranid The CICS Web Interface analyzer program set parameter WBRA_USER_DATA_LENGTH to more than the maximum. Program name: progname. RESPONSE: response. REASON: reason. Host IP address: hostaddr. Client IP address: clientaddr. TCPIPSERVICE: tcpipservice

DFHWB1525 date time applid tranid The CICS Web Interface connection manager received an unexpected response from CICS.

DFHWB1551 date time applid The CWBC Transaction is no longer used to manage CICS Web resources.

DFHXM0311 applid A severe error (code X'code') has occurred while initializing task number tasknum with transaction identifier tranid. Scheduler resources associated with the task have not been released. The task is suspended indefinitely.

DFHXQ0101I Shared TS queue server initialization is in progress.

DFHXQ0102I Shared TS queue server for pool poolname is now active.

DFHXQ0103 The pool name parameter is missing.
DFHXQ0104  Shared TS queue server initialization failed because program DFHXQMN is not APF authorized.

DFHXQ0111I Shared TS queue server for pool poolname is terminating.

DFHXQ0112I Shared TS queue server has terminated, return code retcode, reason code rsncode.

DFHXQ0113 Shared TS queue server completion code is cmpcode, reason code rsncode.

DFHXQ0121I Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

DFHXQ0122I IXCARM REQUEST=reqtype failed, return code retcode, reason code rsncode.

DFHXQ0201I Processing type parameters

DFHXQ0202 Unknown parameter keyword: keyword

DFHXQ0203 Value value for parameter POOLNAME is incorrect. It must be a 1 to 8 character name.

DFHXQ0204 Value value for parameter keyword is incorrect. It must be a decimal number.

DFHXQ0205 Value value for parameter keyword is greater than the maximum allowed value maximum.

DFHXQ0206 Value value for parameter keyword is less than the minimum allowed value minimum.

DFHXQ0207 Value value for parameter keyword is incorrect. It should be a time hh:mm:ss or hh:mm or a number of seconds.

DFHXQ0208 Parameter keyword keyword is not supported for command.

DFHXQ0209 Parameter text contains invalid character: text

DFHXQ0210 Parameter keyword keyword should not have a value for command.

DFHXQ0211I Parameter value: keyword=value

DFHXQ0212 Value value for parameter keyword is incorrect. It must be one of validlist.

DFHXQ0213 Value for parameter keyword is missing. The correct form is keyword=value.

DFHXQ0301I Console operator consname issued command: command

DFHXQ0302I command command ignored because no valid parameters were given.

DFHXQ0303I command command has been processed.

DFHXQ0304I STOP command is waiting for connections to be closed. Number of active connections = connections.

DFHXQ0305I STOP command has been processed.

DFHXQ0306 Shared TS queue server does not support this command: command

DFHXQ0307I CANCEL command has been processed. Number of active connections = connections.

DFHXQ0308 Parameter parm on CANCEL command is incorrect. The only valid parameters are RESTART=YES or RESTART=NO.

DFHXQ0310 Parameter parm on STOP command is incorrect. No parameters should be specified.

DFHXQ0351I Connection: Job jobname Appl applid Idle idletime

DFHXQ0352I Queue pool poolname total active connections: connections.
DFHXQ0401I Connected to CF structure \textit{strname}.

DFHXQ0402I CF structure \textit{strname} was allocated by this connection.

DFHXQ0403 Connection to CF structure \textit{strname} failed, IXLCONN return code \textit{retcode}, reason code \textit{rsncode}.

DFHXQ0404 CF structure \textit{strname} cannot be used because it has been allocated with attribute \textit{attribute}.

DFHXQ0405 CF structure \textit{strname} element size \textit{elemsize} is incorrect. It should be a power of 2 in the range 256 to 4096.

DFHXQ0406 Initialization failed for CF structure \textit{strname} with response \textit{response}.

DFHXQ0407 CF structure \textit{strname} is not available for shared use.

DFHXQ0408 CF structure \textit{strname} is not available for exclusive use.

DFHXQ0409 CF structure \textit{strname} could not be allocated in facility \textit{cfname}, reason code \textit{rsncode}.

DFHXQ0410 CF structure \textit{strname} cannot be used, coupling facility maintenance level is too low.

DFHXQ0411I CF structure \textit{strname} now has \textit{percentage}\% of entries in use.

DFHXQ0412I CF structure \textit{strname} now has \textit{percentage}\% of elements in use.

DFHXQ0413I Starting ALTER to adjust CF structure \textit{strname} entry/element ratio to \textit{entries/elements}.

DFHXQ0414I ALTER started for CF structure \textit{strname}.

DFHXQ0415I ALTER rejected for CF structure \textit{strname}, ALTER already active.

DFHXQ0416 ALTER request failed for CF structure \textit{strname}, IXLALTER return code \textit{retcode}, reason code \textit{rsncode}.

DFHXQ0417I ALTER completed normally for CF structure \textit{strname}.

DFHXQ0418I ALTER ended abnormally for CF structure \textit{strname} with status \textit{status}.

DFHXQ0419I ALTER ended normally for CF structure \textit{strname} but target was not attained.

DFHXQ0420 Connectivity has been lost to CF structure \textit{strname}. The shared TS queue server cannot continue.

DFHXQ0421 CF structure \textit{strname} has failed. The shared TS queue server cannot continue.

DFHXQ0424 Access statistics for CF structure \textit{strname}:

DFHXQ0425 Queue pool statistics for CF structure \textit{strname}:

DFHXQ0441 CF structure \textit{strname} request failed, IXLLIST return code \textit{retcode}, reason code \textit{rsncode}.

DFHXQ0442 CF structure \textit{strname} request failed, structure is full.

DFHXQ0443 CF structure \textit{strname} request failed, all lists are in use.

DFHXQ0444I CF request has been suspended to await ALTER completion.

DFHXQ0445I CF request is being retried after ALTER completion.

DFHXQ0451 Purge for CF structure \textit{strname} failed, IXLPURGE return code \textit{retcode}, reason code \textit{rsncode}.

DFHXQ0461I Disconnected from CF structure \textit{strname}.
DFHXQ0462 Disconnect from CF structure strname failed, IXLDISC return code retcode, reason code rsncode.

DFHXQ0481I Waiting for structure strname to become available.

DFHXQ0482I Retrying connection to structure strname.

DFHXQ0491 ENFREQ ACTION=action failed, return code retcode.

DFHXQ0501 Insufficient storage, only actual of requested data buffers allocated.

DFHXQ0511I Queue index buffer pool statistics:

DFHXQ0601I Starting statistics collection for interval since lasttime.

DFHXQ0602I Statistics collection completed, reset performed.

DFHXQ0603I Statistics collection completed.

DFHXQ0604 Timer SET failed, return code retcode, reason code rsncode.

DFHXQ0605 Timer CANCEL failed, return code retcode, reason code rsncode.

DFHXQ0606 Statistics collection function is no longer available.

DFHXQ0610I Statistics written to SMF, return code was retcode.

DFHXQ0701I Shared TS queue pool poolname is to be unloaded.

DFHXQ0702I Shared TS queue pool poolname has been successfully unloaded.

DFHXQ0703I Number of unloaded queues: queues. Blocks written: blocks.

DFHXQ0704I DFHXQUL data set for unload could not be opened.

DFHXQ0705I DFHXQUL data set for unload could not be opened.

DFHXQ0706I DFHXQUL data set for unload could not be opened.

DFHXQ0707I DFHXQUL data set for unload could not be opened.

DFHXQ0708I DFHXQUL data set for unload could not be opened.

DFHXQ0709I DFHXQUL data set for unload could not be opened.

DFHXQ0710I DFHXQUL data set for unload could not be opened.

DFHXQ0801I Queue index buffer pool statistics:

DFHXQ0802I Queue index buffer pool statistics:

DFHXQ0803I Queue index buffer pool statistics:

DFHXQ0804I Queue index buffer pool statistics:

DFHXQ0805I Queue index buffer pool statistics:

DFHXQ0806I Queue index buffer pool statistics:

DFHXQ0807I Queue index buffer pool statistics:

DFHXQ0808I Queue index buffer pool statistics:

DFHXQ0809I Queue index buffer pool statistics:

DFHXQ0810I Queue index buffer pool statistics:

DFHXQ0911I R12=prv RQ Entry function Len=len Item=itemnum Q=qname Task=tasknum region

DFHXQ0912I R12=prv RQ Exit response Len=len Item=itemnum Q=qname Task=tasknum region
DFHXQ0913I  R12=prv RQ Qname hex qname

DFHXQ0921I  R12=prv IQ Entry INQUIRE browsetype Q=qname Task=tasknum region

DFHXQ0922I  R12=prv IQ Exit response Q=qname Task=tasknum region

DFHXQ0923I  R12=prv IQ Qname hex qname

DFHXQ0924I  R12=prv CF Entry request optflgs modflgs BD=bufdesc Item=itemnum Q=qname

DFHXQ0925I  R12=prv CF IXLLIST Cmd=cmdcode Flg=shlfils List=listnum Rsn=reason

DFHXQ0926I  R12=prv CF Exit response Items=items Item=itemnum Q=qname

DFHXQ0927I  R12=prv CF Qname hex qname

DFHXQ0999I  Trace text

DFHXS1114  date time applid User userid is not authorized to invoke method methodName(signature) from bean beanName in CORBAServer corbaServer.

DFHXS1115  applid USER userid IS NOT AUTHORIZED TO INVOKE {HOME | REMOTE} METHOD method-name FROM BEAN bean-name {FOR APPLICATION application-name} IN CORBASERVER cs-name. USER HAS NO ACCESS TO ANY OF THESE ROLES {FOR METHOD(*)}: role-name-list

DFHXS1217  date time applid A client certificate has been successfully registered for user userid.

DFHXS1218  applid The CICS region userid userid is not authorized to access key ring keyring.

DFHZC0152  date time applid termid Signon of user at termid termid failed following a persistent sessions restart. Return code rc was received from the user domain.

DFHZC0153  date time applid A catalog write failed in the restart timer program.

DFHZC0154  date time applid Timed start or cancellation of the restart timer program failed.

DFHZC0157  date time applid sysid VTAM APPC session termid could not be recovered following a persistent sessions restart. The session will be unbound. sense ((instance) Module name: (DFHZXPS))

DFHZC0158  date time applid Persistent sessions signon data for terminal termid could not be written to the catalog.

DFHZC0163  date time applid termid User signed on successfully at termid termid following a persistent sessions restart.

DFHZC0164  date time applid termid Terminal termid was timed out by CICS following a persistent sessions restart.

DFHZC0165  date time applid termid Termid termid was timed out after a multinode persistent sessions restart. The terminal has been signed off.

DFHZC0167  date time applid termid An attempt to sign off a user at termid termid failed following a multinode persistent sessions restart. Response code rc1 and reason code rc2 were received.

DFHZC0176  date time applid VTAM was unable to execute a CHANGE OPTCD=ENDAFFIN macro to end an affinity between this application, which is a member of generic resource grname, and a remote LU with netid netid netname. VTAM return code: X'rc', FDB2: X'fd', R15: X'r15'.

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DFHZC0177  date time applid Connection sysid has created an affinity between this application, which is a member of generic resource grname, and a remote LU with netid netid netname netname.

DFHZC0178  date time applid An attempt to end an affinity between this application, which is a member of generic resource grname, and a remote LU with netid netid netname netname was rejected by VTAM. VTAM return code: X'rc'. FDB2: X'id'.

DFHZC0179  date time applid Connection sysid netname netname is a link to generic resource grname member membername.

DFHZC0180  date time applid An affinity between this application, which is a member of generic resource grname, and a remote LU with netid netid netname netname has ended successfully.

DFHZC0181  date time applid No affinity exists between this application, which is a member of generic resource grname, and a remote LU with netid netid netname netname. VTAM return code: X'14', FDB2: X'88'.

DFHZC0182  date time applid VTAM was unable to execute an INQUIRE OPTCD=NQN macro to determine the network qualified netname of logical unit luname. VTAM return code: X'rc', FDB2: X'id', R15: X'r15'.

DFHZC0183  date time applid An attempt to determine the network qualified name of logical unit luname was rejected by VTAM. VTAM return code: X'rc'. FDB2: X'id'.

DFHZC0184  date time applid VTAM was unable to execute an INQUIRE OPTCD=SESSNAME macro to determine the member of generic resource set grname to which logical unit netid luname is logged on. VTAM return code: X'rc', FDB2: X'id', R15: X'r15'.

DFHZC0185  date time applid An attempt to determine the member of generic resource set grname to which logical unit netid luname is logged on was rejected by VTAM. VTAM return code: X'rc'. FDB2: X'id'.

DFHZC0186  date time applid Connection sysid which is a member of generic resource grname has a duplicate remote LU netid netname netname. sense ((instance) Module name: (DFHZOPN))

DFHZC0187  date time applid Reset of connection sysid failed following the ending of an affinity between this application and a remote LU with generic resource name grname member name applid. The connection was locked by task taskid, transaction tranid.

DFHZC2109  E  date time applid Unexpected response from Recovery Manager following resynchronization of LU6.1 session termid with remote system sysid.

DFHZC2116  E  date time applid Resynchronization of LU6.1 session termid with remote system sysid failed.

DFHZC2117  E  date time applid termid tranid Data received on pipeline session exceeds RAIA size. (instance) Module name: (DFHZRAC)

DFHZC2118  applid Receive Any stall for netname netname.

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.
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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.

DFHZC3232 E  date time applid Transaction CCIN -
VTAM netname netname. The client
header data contains an invalid version
number.

DFHZC3233 E  date time applid Transaction CCIN -
VTAM netname netname. CICS has
received a client request on an
unsupported sync level.

DFHZC3234 E  date time applid Transaction CCIN -
VTAM netname netname. The client
data is longer than expected.

DFHZC3235 E  date time applid Transaction CCIN -
VTAM netname netname. The client
header data contains an invalid group.

DFHZC3236 E  date time applid Transaction CCIN -
VTAM netname netname. The client
header data contains an invalid function.

DFHZC3237 E  date time applid Transaction CCIN -
VTAM netname netname. The capabilities parameter has not been
specified.

DFHZC3238 E  date time applid Transaction CCIN -
VTAM netname netname. CICS cannot attach the CDTS transaction.

DFHZC3239 E  date time applid Transaction CCIN -
VTAM netname netname. The CCIN transaction has
timed out waiting for CDTS to run.

DFHZC3240 E  date time applid Transaction CCIN -
VTAM netname netname. The surrogate TCTTE is in
use and cannot be deleted.

DFHZC3241 E  date time applid Transaction CCIN -
VTAM netname netname. CICS has
received invalid data from the client.

DFHZC3242 E  date time applid Transaction CCIN -
VTAM netname netname. CICS has
received a client request on an
unsupported sync level.

DFHZC3243 E  date time applid Transaction CCIN -
VTAM netname netname. The client
header data contains an invalid group.

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 client
data is longer than expected.

DFHZC3246 E  date time applid Transaction CCIN -
VTAM netname netname. The client
header data contains an invalid group.

DFHZC3247 E  date time applid Transaction CCIN -
VTAM netname netname. The CCIN transaction has
timed out waiting for CDTS to run.

DFHZC3248 E  date time applid Transaction CCIN -
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.

DFHZC4949 E  date time applid termid tranid netname
Receive Any stall - (data lost. | response lost. | command lost.) CLSDST
return code X'rc' sense ((instance) Module name: (DFHZRAC))

DFHZC4950 E  date time applid An error has
occurred when attempting to attach the
outbound Connection Quiesce
Protocol transaction CQPO on session
termid. Release of connection sysid is
continuing. ((instance) Module name: (DFHZCLS))

DFHZC4951 E  date time applid An error has been
detected when processing an (unknown |
inbound | outbound) Connection
Quiesce Protocol request. Transaction
tranid is (continuing | terminating. | terminating abnormally.) Error code:
X'xxxxx' Connection: yyyy

DFHZC5930 E  date time applid Remote connection
(sysid) could not be deleted because it
was in use by number sessions.

DFHZC5942 E  date time applid Node nodeid was not
installed. The addition of key key to
table tablename failed. RC=X'return'.
Module(modname).
DFHZC5943 E  date time applid MRO connection conname could not be deleted because IRC is open.

DFHZC5944 E  date time applid Install for type(id) has failed. It would make a loop of connection definitions. Module(modname).

DFHZC5965 date time applid Pool delete for pool poolid failed. Terminal termid was being replaced at the same time.

DFHZC5984 E  date time applid The installation or deletion of restype1 resname1 has failed. Task taskname taskid is updating related system definition sysname. Module modname.

DFHZC5987 E  date time applid The install or delete of restype1 resname1 has failed. Task taskname taskid is changing a definition which uses the restype2 resname2. Module modname.

DFHZC6201 E  applid CICS table builder services has detected a severe error in module modname code X'code'.

DFHZC6208 E  date time applid CICS table builder services has detected a severe error in module modname, code(X'code').

DFHZC6210 E  date time applid Table builder could not obtain storage for control block code X'code', module modname.

DFHZC6216 E  date time applid Install for restype1 (resname1) failed and caused the backout of the whole set of RDO resources for restype2 (resname2).

DFHZC6307 E  date time applid Install for connection cccc failed. Netname netname is the same as the generic resource name.

DFHZC6308 E  date time applid Restore for connection cccc failed. Netname netname is the same as the generic resource name.

DFHZC6334 E  date time applid Install for connection tttt failed. A session with the same name already exists.

DFHZC6380 E  date time applid Install for connection cccc failed. Netname netname is the same as the member name of a generic resource connection grcon which is already in use.

DFHZC6907 I  date time applid Autoinstall starting for netname netname. Network qualified name is netid.realnet.

DFHZC6915 E  date time applid Unable to sign off remote terminal termid. Bad Return Code (RC = X’SNU’RESPONSE”) from signon domain call.

DFHZC6948 W date time applid Delete for connection sysid, NETNAME netname failed due to CATD initiation failure. Module module.

DFHZN2130 date time applid A unit of work has been shunted but the connection with the remote system does not support the shunt protocols. Resources on the remote system may be out of sync with those on this CICS after the UOW is resynchronized. mm/dd/yy failure time hh:mm:ss remote system netname transaction tranid task number trannum operator terminal termid userid userid UOW ID X'uowid'.
Changed CICS messages

The following is a list of the changed messages. Either the actual message text, or any of the supporting explanatory text, may have changed:

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Deleted messages

The following is a list of the messages deleted:

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Chapter 31. Messages and codes

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DFHJC2923  DFHJC4554  DFHRU2802
DFHJC2924  DFHJC4555  DFHRU2803
DFHJC2925  DFHJC4556  DFHRU2804
DFHJC2926  DFHJC4559  DFHRU2805
DFHJC2927  DFHJC4560  DFHRU2806
DFHJC2928  DFHJC4561  DFHRU2807
DFHJC4500  DFHJC4562  DFHRU2808
New abend codes

The following is a list of the new abend codes added to CICS:

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Deleted abend codes in CICS

The following is a list of the abend codes deleted from CICS:

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Part 5. Prerequisite program products

This part of the book contains information about prerequisite software needed to run CICS Transaction Server for z/OS, Version 2 Release 2.

- Chapter 32, “Minimum prerequisite software” on page 371
- Chapter 32, “Minimum prerequisite software” on page 371
Table 42. Minimum releases of software needed to support CICS TS Version 2 Release 2

<table>
<thead>
<tr>
<th>Product</th>
<th>Minimum Version and Release level.</th>
</tr>
</thead>
</table>
| OS/390                           | Version 2 Release 10  
Note: OS/390 includes, as base elements, many of the products required by CICS TS, such as MVS™, DFSMS™, VTAM, TCP/IP, and Language Environment®, therefore these are not listed separately. CICS requires the Language Environment library SCEERUN at run-time, and must be included in either the CICS STEPLIB concatenation or the LNKLIST. |
| ACF/TCAM (DCB)                   | Version 2 Release 4  
TCAM is required only if your terminal network includes TCAM devices. |
| CICSVR                           | Version 2 Release 3 if you use IBM CICS VSAM Recovery (CICSVR) as your VSAM forward recovery utility. |
| IBM Developer Kit for OS/390, Java 2 Technology Edition, | Version 1.3 if you use Java bytecode application programs and enterprise beans. This product (5655-D35), together with a special enhancement, provides the software development environment and Java compiler, and the Java run-time environment, which includes the persistent, reusable JVM. |
| IBM DATABASE 2™                  | Version 5 Release 1 if you have CICS-DB2 applications.                                             |
| IMS/ESA® DM                      | Version 5 Release 1 DBCTL if you have CICS-DL/I applications.                                       |
Chapter 33. Compilers and assembler

CICS recommends that you use the IBM Language Environment for MVS and VM run-time environment, 5688-198, which provides a common run-time environment for IBM implementations of assembler and those high-level languages (HLLs) supported by CICS, namely COBOL, PL/I, C, and C++.

The [CICS Application Programming Guide](#) assumes that your CICS regions use the services of Language Environment, and no guidance is provided about the old non-Language Environment-conforming compilers and run-time libraries. Program development and run-time support is provided for the following Language Environment-conforming compilers:

- IBM COBOL for MVS & VM (5688–197)
- SAA AD/Cycle COBOL/370™ (5688-197)
- OS/390 C/C++
- C/C++ for MVS/ESA (5655–121)
- AD/CYCLE C/370™(5688-216)
- IBM PL/I for MVS & VM (5688–235)
- AD/CYCLE PL/I for MVS & VM(5688-235)
- IBM VisualAge PL/I for OS/390, Version 2 (5655–B22)

**Note:** For the specific requirement for the integrated CICS translator using COBOL, see Chapter 21, “Migration planning for the integrated translator” on page 195

- IBM COBOL for MVS & VM (5688–197)
- SAA AD/Cycle COBOL/370™ (5688-197)
- OS/390 C/C++
- C/C++ for MVS/ESA (5655–121)
- AD/CYCLE C/370™(5688-216)
- IBM PL/I for MVS & VM (5688–235)
- AD/CYCLE PL/I for MVS & VM(5688-235)
- IBM VisualAge PL/I for OS/390, Version 2 (5655–B22)

**Note:** For the specific requirement for the integrated CICS translator using PL/I, see Chapter 21, “Migration planning for the integrated translator” on page 195

CICS provides program development and run-time support for assembler programs using the following:

- High Level Assembler/MVS & VM & VSE Version 1.1 (5696-234)

CICS provides run-time only support for applications developed using the following compilers and assembler; no program development support is provided:

- OS PL/I Optimizing Compiler Version 2 Release 1 (5668-910)
- OS PL/I Optimizing Compiler Version 1 Release 5.1 (5734-PL1), or later
- VS COBOL II (5668-958 and 5688-023)
- C/370 (5688-040 and 5688-187).
- Full American National Standard COBOL Version 4 (5734-CB2)
- OS/VS COBOL (5740-CB1)
- MVS Assembler H Version 2 (5668-962).

The COBOL3 translator option

The COBOL3 translator option is assumed by default. The COBOL2 and ANSI85 translator options are withdrawn.
Part 6. Appendixes
### Bibliography

#### CICS Transaction Server for z/OS

- CICS Transaction Server for z/OS Migration Guide [GC34-5984]
- CICS Transaction Server for z/OS Installation Guide [GC34-5985]
- CICS Transaction Server for z/OS Program Directory [GC34-5985]
- CICS Transaction Server for z/OS Licensed Program Specification [GC34-5987]

The above titles are the only books provided automatically in hardcopy with CICS Transaction Server for z/OS, Version 2 Release 2. Several other books are available to order in hardcopy. Further information about the forms in which the published information for CICS is delivered may be found in CICS Transaction Server for z/OS Release Guide, or CICS Transaction Server for z/OS Installation Guide.

#### CICS books for CICS Transaction Server for z/OS

**General**
- CICS User's Handbook [SC34-5986]
- CICS Transaction Server for z/OS Glossary [GC34-5696]

**Administration**
- CICS System Definition Guide [SC34-5988]
- CICS Customization Guide [SC34-5989]
- CICS Resource Definition Guide [SC34-5990]
- CICS Operations and Utilities Guide [SC34-5991]
- CICS Supplied Transactions [SC34-5992]

**Programming**
- CICS Application Programming Guide [SC34-5993]
- CICS Application Programming Reference [SC34-5994]
- CICS System Programming Reference [SC34-5995]
- CICSFront End Programming Interface User's Guide [SC34-5996]
- CICS C++ OO Class Libraries [SC34-5997]
- CICS Distributed Transaction Programming Guide [SC34-5998]
- CICS Business Transaction Services [SC34-5999]
- Java Applications in CICS [SC34-6000]

**Diagnosis**
- CICS Problem Determination Guide [SC34-6002]
- CICS Messages and Codes [GC34-6003]
- CICS Diagnosis Reference [LY33-6099]
- CICS Data Areas [LY33-6100]
- CICS Trace Entries [SC34-6004]
- CICS Supplementary Data Areas [LY33-6101]

**Communication**
- CICS Intercommunication Guide [SC34-6005]
- CICS Family: Interproduct Communication [SC34-6030]
- CICS Family: Communicating from CICS on System/390 [SC34-6031]
- CICS External Interfaces Guide [SC34-6006]
- CICS Internet Guide [SC34-6007]

**Special topics**
- CICS Recovery and Restart Guide [SC34-6008]
- CICS Performance Guide [SC34-6009]

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CICSPlex SM books for CICS Transaction Server for z/OS

General
- CICSPlex SM Concepts and Planning
- CICSPlex SM User Interface Guide
- CICSPlex SM Commands Reference Summary
- CICSPlex SM Web User Interface Guide

Administration and Management
- CICSPlex SM Administration
- CICSPlex SM Operations Views Reference
- CICSPlex SM Monitor Views Reference
- CICSPlex SM Managing Workloads
- CICSPlex SM Managing Resource Usage
- CICSPlex SM Managing Business Applications

Programming
- CICSPlex SM Application Programming Guide
- CICSPlex SM Application Programming Reference

Diagnosis
- CICSPlex SM Resource Tables Reference
- CICSPlex SM Messages and Codes
- CICSPlex SM Problem Determination

Other CICS books
- Designing and Programming CICS Applications
- CICS Application Migration Aid Guide
- CICS Family: API Structure
- CICS Family: Client/Server Programming
- CICS Transaction Gateway for OS/390 Administration
- CICS Family: General Information
- CICS 4.1 Sample Applications Guide
- CICS/ESA 3.3 XRF Guide

Note: The CICS Transaction Server for OS/390: Planning for Installation book that was part of the library for CICS Transaction Server for OS/390, Version 1 Release 3, is now merged with the CICS Transaction Server for z/OS Installation Guide. If you have any questions about the CICS Transaction Server for z/OS library, see CICS Transaction Server for z/OS Installation Guide, which discusses both hardcopy and softcopy books and the ways that the books can be ordered.
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 usually in step. However, due to the time required to print and distribute hardcopy books, the BookManager version is more likely to have had last-minute changes made to it before publication.

Subsequent updates will probably be available in softcopy before they are available in hardcopy. This means that at any time from the availability of a release, softcopy versions should be regarded as the most up-to-date.

For CICS Transaction Server 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 example, collection kit SK2T-0730-06 is more up-to-date than SK2T-0730-05. The collection kit is also clearly dated on the cover.

Updates to the softcopy are clearly marked by revision codes (usually a # character) to the left of the changes.
Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

You can perform most tasks required to set up, run, and maintain your CICS system in one of these ways:

• using a 3270 emulator logged on to CICS
• using a 3270 emulator logged on to TSO
• using a 3270 emulator as an MVS system console

IBM Personal Communications (Version 5.0.1 for Windows® 95, Windows 98, Windows NT® and Windows 2000; version 4.3 for OS/2) provides 3270 emulation with accessibility features for people with disabilities. You can use this product to provide the accessibility features you need in your CICS system.
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