CICS Transaction Server for z/OS

Migration from CICS TS for OS/390 1.3

Version 3 Release 1

GC34-6423-09

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Note!
Before using this information and the product it supports, be sure to read the general information under “Notices” on page 253.

This edition applies to Version 3 Release 1 of CICS Transaction Server for z/OS, program number 5655-M15, and to all subsequent versions, releases, and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

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Preface

What this book is about

This book is about migration to CICS® Transaction Server for z/OS® Version 3 Release 1. It provides information for users who plan to migrate from CICS Transaction Server for OS/390® Version 1 Release 3. 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: If you are migrating from a release of CICS earlier than CICS TS Version 1 Release 3, you are recommended to read the *Release Guide* and the *Migration Guide* (where applicable) for the intervening releases.

Note: If you are migrating from a release of CICS earlier than CICS TS Version 2 Release 3, you are recommended to read the *Release Guide* and the *Migration Guide* (where applicable) 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 Version 3 Release 1.

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 3 as described in the 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 z/OS.

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 z/OS.

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Part 1. 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, “Installation changes,” on page 3
- Chapter 2, “System initialization parameters,” on page 5
- Chapter 3, “CICS-supplied transactions,” on page 13
- Chapter 4, “Resource definition (online) changes,” on page 23
- Chapter 5, “Resource definition (macro) changes,” on page 39
- Chapter 6, “The application programming interface (API),” on page 45
- Chapter 7, “The system programming interface (SPI),” on page 53
- Chapter 8, “CICS-supplied utility programs,” on page 63
- Chapter 9, “The global user exit programming interface,” on page 67
- Chapter 10, “The exit programming interface,” on page 73
- Chapter 11, “User-replaceable programs,” on page 75
- Chapter 12, “Monitoring and statistics,” on page 81.

Multi-release Migration Guides

This version of the Migration Guide offers you one book rather than several when you are migrating from an older release of CICS.

The chapters of this book have been arranged to incorporate all the information that the several migration guides since CICS Transaction Server for OS/390, Version 1 Release 3 provide.

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Chapter 1. Installation changes

This chapter summarizes the changes to CICS installation.The topics covered are:

- "Installation process changes"
- "Installation changes for Language Environment"
- "Installation changes for data conversion"

Installation process changes

This release of CICS Transaction Server is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

The process is described in the *CICS TS 3.1 Program Directory*. It is in line with IBM® Corporate Standards, and may be familiar to those who have installed other z/OS products.

The traditional method, DFHISTAR, of installing CICS Transaction Server is still available. The *Program Directory* indicates where information about DFHISTAR may be found in the *CICS Transaction Server for z/OS Installation Guide*.

Authorization routines

In z/OS, do not install SVCs or PC routines that return control to their caller in any authorized mode: that is, in supervisor state, system PSW key, or APF-authorized. Doing so is contrary to the z/OS Statement of Integrity (http://www.ibm.com/systems/z/os/zos/features/racf/zos_integrity_statement.html).

If you invoke such services from CICS, you might compromise your system integrity, and any resultant problems will not be resolved by IBM Service.

Installation changes for Language Environment

With support for the XPLINK compiler option for C and C++ programs, there are changes to the way that the SCEERUN and SCEERUN2 libraries must be defined.

- The library SCEERUN2 must be defined in both the STEPLIB and DFHRPL concatenations, in addition to SCEERUN.
- Both the libraries, SCEERUN and SCEERUN2, must be APF-authorized.

For more information, see in "Installing CICS support for Language Environment®" in the *CICS Transaction Server for z/OS Installation Guide*

Installation changes for data conversion

The CICS installation process does not alter if you have data conversion requirements.

However, to get the benefits of z/OS conversion services, if perhaps your system requires support for the conversion of UTF-8 or UTF-16 data to EBCDIC, you must enable the z/OS conversion services and install a conversion image which specifies the conversions that you want CICS to perform. It is quite likely, for example, that outbound SOAP applications using the SOAP for CICS feature will try to use z/OS conversion services.

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Refer to the instructions in the *z/OS Support for Unicode: Using Conversion Services* manual SA22-7649 to find out the steps needed to set up and configure conversions supported though the operating system services.

- If z/OS conversion services are not enabled, a message is issued by CICS to indicate this. That message can be suppressed if you do not need these services. If the message is encountered when starting a CICS region that is expected to make use of these services, an IPL is necessary to enable the z/OS conversion services.

To discover the status of z/OS conversion services after an IPL, use one of these commands from an MVS console:

/D UNI
To show whether z/OS conversion services were enabled.

/D UNI,ALL
To show whether z/OS conversion services were enabled, and which conversions are supported by the system.

For details of this, see the *z/OS Support for Unicode: Using Conversion Services* manual SA22-7649

Chapter 2. System initialization parameters

This chapter summarizes the changes to CICS system initialization parameters. The topics covered are:

- "Obsolete system initialization parameters"
- "Changed system initialization parameters"
- "New system initialization parameters" on page 7
- "Getting started with new and changed system initialization parameters" on page 11

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 1. Obsolete system initialization parameters

Obsolete keywords	Explanation
DCT	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.
KEYFILE	This is replaced by the KEYRING system initialization parameter (see Table 3 on page 8).
MNEVE	CICS event class monitoring is replaced by support for the MVS workload manager, making MNEVE obsolete.
SSLTCBS	This parameter is now obsolete and is only kept for compatibility. If it is specified, it is rejected with a message and MAXSSLTCBS is assumed.
TCAM	This parameter is now obsolete and is only kept for compatibility. If it is specified, it is rejected with a message and TCAM=NO is assumed. CICS Transaction Server for z/OS, Version 3 Release 1 does not support the TCAM/ACB interface. It supports the TCAM/DCB interface indirectly.
XRFSOFF	Replaced by RSTSIGNOFF.
XRFSTIME	Replaced by RSTSIGNTIME.

Changed system initialization parameters

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

Table 2. Changed system initialization parameters

Keywords	Operands	Explanation
EDSALIM	{**30M**|number}	The default value is now 30M

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Table 2. Changed system initialization parameters (continued)

Keywords	Operands	Explanation
ENCRYPTION	{**STRONG** |*WEAK* |*MEDIUM*}	Specifies the cipher suites that CICS uses for secure TCP/IP connections. For compatibility with previous releases, ENCRYPTION=NORMAL is accepted as an equivalent to ENCRYPTION=MEDIUM. For more information, see the *CICS System Definition Guide*.
LGDFINT	{**5**|number}	The default value is changed from 30 milliseconds to 5.
MAXJVMTCBS	{**5**|number}	specifies the maximum number of open TCBs that CICS can create in the pool of J8- and J9-mode TCBs for use by Java™ programs that run in a JVM (the JVM pool). Within this limit, there are no constraints on how many of the TCBs in the JVM pool are J9 TCBs, and how many are J8 TCBs. For more information, see the *CICS System Definition Guide*.
MAXOPENTCBS	{**12**|number}	In earlier releases, this parameter applies to *all* open mode TCBs controlled by the CICS dispatcher domain. The range is changed to 12 through 2000, and it now applies to L8 mode open TCBs only, 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 also the new system initialization parameters, MAXHPTCBS and MAXJVMTCBS.
MNFREQ	{**0**|hhmmss}	The minimum value time value you can specify is reduced from 15 minutes to one minute, giving a range of 000100-240000 (instead of 001500-240000).

Table 2. Changed system initialization parameters (continued)

Keywords	Operands	Explanation
SPCTR*xx*	(Unchanged)	New domain codes are available for the *xx* codes in the keyword. The operands are unchanged. The new codes are: **EJ** Enterprise Java domain **IE** ECI over TCP/IP domain **II** IIOP domain **OT** Object transaction services domain **PT** Partner management domain **RZ** Request streams domain **SJ** JVM domain see further information in the entry for 7
STNTR*xx*	(Unchanged)	See the entry for 7 for details of new domain codes, and see additional information in the entry for 7
STNTR, STNTRxx, SPCTR and SPCTRxx	{level numbers}	The SJ component (JVM domain) now has trace levels 29–32, that are reserved to indicate the JVM trace levels 0, 1, and 2, plus a user-definable JVM trace level. You are recommended to use only the SPCTRSJ system initialization parameter to activate JVM tracing, so that it is only activated for *special* transactions. Selecting tracing levels 29, 30, 31, 32 or ALL for *standard* tracing for the JVM domain (SJ) component (using the STNTR or STNTRSJ system initialization parameters) is not recommended, because JVM trace can produce a large amount of output. For more information, see the *CICS System Definition Guide*.

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

New system initialization parameters

Table 3 on page 8 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

Keywords	Operands	Explanation
AIBRIDGE	{**AUTO**|YES}	Specifies whether the autoinstall user-repaceable program (URM) is called for bridge facilities (YES) or whether they are defined automatically by CICS (AUTO).
BRMAXKEEPTIME	{**86400**|*timeout*}	Specifies the maximum time in seconds that bridge facilities are kept when unused, with a default value (and upper limit) of 24 hours.
CLINTCP	{**437**|codepage}	Specifies the default client code page to be used by the DFHCNV data conversion table but only if the CLINTCP parameter in the DFHCNV macro is set to SYSDEF. For more information, see the *CICS System Definition Guide*.
CRLSERVER	*servername: portnumber*	Specifies the name of the LDAP server and the port number that contains the certification revocation lists (CRLs). Specifying this parameter means that CICS checks each client certificate during the SSL negotiation for a revoked status. If the certificate is revoked, CICS closes the connection immediately. For more information, see the *CICS System Definition Guide*.
DEBUGTOOL	{**NO**|YES}	Specifies whether debugging profiles will be used to select programs that will run under the control of a debugging tool. For more information, see the *CICS System Definition Guide*
EJBROLEPRFX	*ejbrole-prefix*	Specifies a prefix to qualify the security role defined in an enterprise bean's deployment descriptor.
IIOPLISTENER	{**YES**|NO}	Specifies whether the CICS region is to function as an IIOP listener region.

Table 3. New system initialization parameters (continued)

Keywords	Operands	Explanation
INFOCENTER	{infocenter_url }	Specifies the Universal Resource Locator (URL) of the root of the CICS Information Center directory structure. For more information, see the *CICS System Definition Guide*
JVMCCPROFILE	{**DFHJVMCC**|*profile*}	Specifies the JVM profile to be used for the master JVM that initializes the shared class cache. For more information, see the *CICS System Definition Guide*.
JVMCCSIZE	{**24M**|number}	Specifies the size of the shared class cache on an initial or cold start of CICS. For more information, see the *CICS System Definition Guide*.
JVMCCSTART	{**AUTO**|YES|NO}	Determines whether or not the shared class cache is started during CICS initialization, and sets the status of autostart for the shared class cache. For more information, see the *CICS System Definition Guide*.
JVMLEVEL0TRACE, JVMLEVEL1TRACE, JVMLEVEL2TRACE, JVMUSERTRACE	{*option*}	Specify the default options for the JVM trace levels. For more information, see the *CICS System Definition Guide*.
JVMPROFILEDIR	{**/usr/lpp/cicsts/ cicsts31/ JVMProfiles**| *directory*} (Take note that the operand above is entered without spaces, or line breaks.)	Specifies the name of an HFS directory that contains the JVM profiles for CICS. For more information, see the *CICS System Definition Guide*.
KEYRING	*keyring_name*	Specifies the name of the key ring defined in the security manager's database (for example, as defined by the RACF® RACDCERT ADDRING command).

Table 3. New system initialization parameters (continued)

Keywords	Operands	Explanation
LOCALCCSID	{**037**|CCSID}	Specifies the default CCSID for the local region. The CCSID is a value of up to 8 characters. If CCSID value is not specified, the default LOCALCCSID is set to 037. For more information, see the *CICS System Definition Guide*.
MAXJVMTCBS	{**5**|*number*}	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.
MAXSOCKETS	{**65535**|*number*}	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 BPXPRM*xx* of SYS1.PARMLIB.
MAXSSLTCBS	{**8**|*number*}	Specifies the maximum number of S8 TCBs that can run in the SSL pool. The default is 8, but you can specify up to 1024 TCBs. For more information, see the *CICS System Definition Guide*.
MAXXPTCBS	{**5**|*number*}	Specifies the maximum number, in the range 1 through 999, of open X8 and X9 TCBs that can exist concurrently in the CICS region. For more information, see the *CICS System Definition Guide*.
MNRES	{**OFF**|ON}	Specifies whether transaction resource monitoring is to be made active during CICS initialization.

Table 3. New system initialization parameters (continued)

Keywords	Operands	Explanation
RSTSIGNOFF	{**NOFORCE**|FORCE}	Specifies whether all users signed on to a CICS region are allowed to remain signed on following a persistent sessions restart or an XRF takeover (XRFSOFF is obsolete).
RSTSIGNTIME	{**500**|hhmmss}	Specifies the time-out delay interval for signon retention during a persistent sessions restart or an XRF takeover (XRFSTIME is obsolete).
SRVERCP	{**037**|codepage}	Specifies the default server code page to be used by the DFHCNV data conversion table but only if the SRVERCP parameter in the DFHCNV macro is set to SYSDEF. For more information, see the *CICS System Definition Guide*.
SSLCACHE	{**CICS**| SYSPLEX}	Specifies whether SSL is to use the local or sysplex caching of session ids. For more information, see the *CICS System Definition Guide*.
STATEOD	{**0**|hhmmss}	Specifies the end-of-day time for interval statistics collection.
STATINT	{**030000**|hhmmss}	Specifies the interval for statistics collection.
XEJB	{**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*.

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 SDFHAUTH library. You can use this to start a CICS region using the default values — 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).

Chapter 3. CICS-supplied transactions

This chapter summarizes the changes to CICS-supplied transactions.

The topics covered are:

- "New transaction CCRL"
- "New transaction CWXU" on page 14
- "Changes to CEBR" on page 14
- "Changes to CEMT" on page 14
- "Changes to CEOT" on page 20
- "Changes to CETR" on page 20
- "New CREA and CREC transactions" on page 21
- "Changes to transaction CWXN" on page 21
- "Additions to CICS RACF category 1 transactions" on page 22

New transaction CCRL

Use the CCRL, the certificate revocation lists transaction, to create and update the certificate revocation lists (CRLs) that are stored in an LDAP server. You only need to use CCRL if you are implementing SSL in your CICS regions and want each connection checked for a revoked certificate during the SSL handshake.

The CCRL transaction specifies the location of CRL repositories on the world wide web. CICS downloads the lists from the CRL repository at the specified URL and stores it in the LDAP server. You can specify more than one URL if you need to access multiple CRL repositories.

Before you run the CCRL transaction, you must have the following set up in CICS:

- An LDAP server that is set up and configured to store the certificate revocation lists.
- The CRLPROFILE system initialization parameter is defined with the name of the profile that authorizes CICS to access the certificate revocation lists on the LDAP server.

You can run the CCRL transaction from a terminal or from a START command. If you want to schedule regular updates, use the START command option.

To run the transaction from a terminal, enter the following command: `CCRL` *`url-list`* where *url-list* is a space-delimited list of URLs that contain the certificate revocation lists that you want to download.

To run the transaction from a START command, using the following syntax:

```
EXEC CICS START TRANSID(CCRL) FROM (url-list)
LENGTH (url-list-length) [INTERVAL(hhmmss)|TIME(hhmmss)]
```

where *url-list* is a space-delimited list of URLs that contain the certificate revocation lists that you want to download, *url-list-length* is the length of the URL list, and *hhmmss* is the interval or expiration time at which the CCRL transaction is scheduled to run.

If you enter an invalid URL, you will receive an error message.

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New transaction CWXU

In CICS Transaction Server for z/OS, Version 3 Release 1, processing for HTTP requests and processing for non-HTTP requests are kept separate. This ensures that CICS can perform basic acceptance checks on HTTP requests and responses, and that non-HTTP requests are not subjected to these checks. Processing for non-HTTP requests must now be carried out under the user-defined (USER) protocol, which is specified on the TCPIPSERVICE definition for the port that receives the requests.

The new CICS-supplied transaction CWXU, the CICS Web user-defined protocol attach transaction, is the default when the protocol is defined as USER. CWXU executes the CICS program DFHWBXN. The DFHCURDI sample includes a sample definition for CWXU. An alternative transaction that executes DFHWBXN may be used, with the exception of the other default transactions that are defined for protocols on the TCPIPSERVICE resource definition.

CWXU is a RACF Category 1 transaction.

Changes to CEBR

The CEBR transaction is changed to permit the entry of lower case and mixed case queue names. This applies equally to the queue name used on the CEBR command, and to overtyping a queue name on the displayed CEBR panel. To enter a queue name which includes lower case characters, first ensure that upper case translation is suppressed for the terminal you are using, and then enter the case-sensitive queue name.

Changes to CEMT

Obsolete CEMT commands and options

Table 4 shows those commands and options that are obsolete.

Table 4. Obsolete CEMT commands and options

CEMT command	Option	Comment
INQUIRE CORBASERVER	PORT SSLPORT SSLTYPE	These port-related options, introduced with the new CORBASERVER command in CICS TS 2.1, are no longer required, because CICS now obtains TCP/IP port information from the TCPIPSERVICE resource definition used by the CorbaServer.
INQUIRE DISPATCHER	ACTHPTCBS MAXHPTCBS	ACTHPTCBS displayed the number of H8 mode open TCBs that were active, and MAXHPTCBS displayed the number that CICS was allowed to attach. H8 mode open TCBs no longer exist.
INQUIRE PROGRAM	HOTPOOLING HOTPOOL NOTHOTPOOL	The values Hotpool and Nothotpool were used to show whether or not the Java program object was to be run in a preinitialized Language Environment enclave.

Table 4. Obsolete CEMT commands and options (continued)

CEMT command	Option	Comment
INQUIRE REQUESTMODEL	OMGINTERFACE OMGMODULE OMGOPERATION	These options, which returned 31-character, 58-character, and 31-character values respectively, are obsolete and replaced by INTERFACE, MODULE, and OPERATION, each of which returns 255-character values. See Table 8 on page 24 for details of all the changes to the REQUESTMODEL resource definition.
INQUIRE SYSTEM	ACTOPENTCBS MAXOPENTCBS	These options are now included in the new INQUIRE DISPATCHER command, together with the other open TCB options.
SET DISPATCHER	MAXHPTCBS	This option used to specify the maximum number of H8 mode open TCBs that CICS was allowed to attach. H8 mode open TCBs no longer exist.
SET PROGRAM	HOTPOOL NOTHOTPOOL	The values Hotpool and Nothotpool were used to show whether or not the Java program object was to be run in a preinitialized Language Environment enclave.

New CEMT commands

Table 5 shows new CICS transactions.

Table 5. New CEMT commands

CEMT command	Explanation
DISCARD CORBASERVER	Command added to discard installed CORBASERVER resource definitions.
DISCARD DJAR	Command added to discard installed DJAR resource definitions, together with any associated beans.
DISCARD PIPELINE	Use the command to remove a PIPELINE from the CICS system and the CICS catalog.
DISCARD URIMAP	Use the command to remove a URIMAP from the CICS system and the CICS catalog.
DISCARD WEBSERVICE	Use the command to remove a WEBSERVICE from the CICS system and the CICS catalog.
INQUIRE BEAN	Command added to display information about a specified bean.
INQUIRE BRFACILITY	Command added to display information about installed bridge facilities.
INQUIRE CLASSCACHE	The INQUIRE CLASSCACHE command is added to give you information about the active shared class cache in the CICS region, and report the presence of any old shared class caches that are awaiting deletion.
INQUIRE CORBASERVER	Command added to display information about installed CORBASERVER resource definitions in the CICS region.
INQUIRE DISPATCHER	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.
INQUIRE DJAR	Command added to display information about installed DJAR resource definitions in the CICS region.
INQUIRE HOST	Use the command to retrieve information about a particular virtual HOST in the local CICS region.

Table 5. New CEMT commands (continued)

CEMT command	Explanation
INQUIRE JVM	The INQUIRE JVM command is added to enable you to identify JVMs in a CICS region and get information about their status.
INQUIRE JVMPOOL	Command added to display information about the pool of JVMs in the CICS region.
INQUIRE PIPELINE	Use the command to retrieve information about an installed PIPELINE.
INQUIRE URIMAP	Use the command to retrieve information about URIMAP resource definitions.
INQUIRE WEBSERVICE	Use the command to retrieve information about an installed WEBSERVICE.
INQUIRE WORKREQUEST	The INQUIRE WORKREQUEST command is added to enable you to track EJB tasks. You can: • determine which transactions are associated with a single request • correlate all transactions associated with a single request (for example, for accounting purposes)
PERFORM CLASSCACHE	The PERFORM CLASSCACHE command is added to enable you to start and reload the shared class cache, or to phase out, purge or forcepurge the shared class cache and the worker JVMs associated with it. While you are performing one of these operations, you can also change the size of the shared class cache, the JVM profile that is used for the master JVM, or the autostart status of the shared class cache.
PERFORM CORBASERVER	Command added to perform a specified action on the beans in a CORBASERVER resource definition. The action can be either PUBLISH or RETRACT.
PERFORM DJAR	Command added to perform a specified action on an installed DJAR resource definition. The action can be either PUBLISH or RETRACT.
PERFORM PIPELINE	Use the command to initiate a scan of the Web service binding directory that is specified in the WSBIND attribute of the PIPELINE definition.
SET BRFACILITY	Command added to enable you to flag the bridge facility for deletion.
SET CLASSCACHE	The SET CLASSCACHE command is added to enable you to set the status of autostart for the shared class cache.
SET CORBASERVER	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.
SET DISPATCHER	Command added to enable you to alter the system values used by CICS dispatcher
SET HOST	Use the command to Enable or disable a virtual HOST.
SET JVMPOOL	Command added to enable you to enable or disable the JVM pool, or terminate it altogether.
SET PIPELINE	Use the command to enable or disable a PIPELINE.
SET URIMAP	Use the command to enable or disable a URIMAP definition, and apply or remove redirection for a URIMAP definition.
SET WEBSERVICE	Use the command to set the validation status of a WEBSERVICE.
SET WORKREQUEST	The SET WORKREQUEST command is added to enable you to track EJB tasks. You can: • determine which transactions are associated with a single request • correlate all transactions associated with a single request (for example, for accounting purposes) • purge selected work requests .

For detailed information on all the new and changed CEMT transactions and options, see the *CICS Supplied Transactions* manual.

Changed CEMT commands

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

Table 6. Changed CEMT commands

CEMT command	Option	Explanation
INQUIRE AUTOINSTALL	AIBRIDGE	The AIBRIDGE option is added to return a value indicating whether the autoinstall URM is called for bridge facilities.
INQUIRE CORBASERVER	AUTOPUBLISH CLIENTCERT DJARDIR SSLUNAUTH UNAUTH ENABLESTATUS	These options display: • The status of autopublishing for enterprise beans • The 255-character name of the deployed JAR file directory • The names of the TCP/IP service definitions referenced by the CorbaServer (named by CLIENTCERT, SSLUNAUTH, and UNAUTH). • ENABLESTATUS displays a value indicating the current state of the CorbaServer (DISABLED, DISABLING, DISCARDING, ENABLED, or ENABLING). ENABLESTATUS replaces the STATE option, which is now obsolete.
INQUIRE DB2CONN	DB2GROUPID RESYNCMEMBER	These options are added to display • The DB2 group ID if CICS is using the DB2 group attach facility • The resynchronization policy to be used for units of work awaiting resolution. The possible values are RESYNC or NORESYNC.
INQUIRE DISPATCHER	ACTSSLTCBS ACTXPTCBS MAXSSLTCBS and MAXXPTCBS are added	ACTSSLTCBS displays the number of S8 mode open TCBs that are active, and MAXSSLTCBS displays the number that CICS is allowed to attach. ACTXPTCBS displays the number of X8 and X9 mode open TCBs that are active, and MAXXPTCBS displays the number that CICS is allowed to attach.
INQUIRE DOCTEMPLATE	HFSFILE is added	HFSFILE returns the fully-qualified name of the z/OS UNIX System Services HFS file where the template resides.
INQUIRE PROGRAM	JVMPROFILE LENV	The JVMPROFILE option is added to display name of the JVM profile for a Java program. The LENV CVDA value for the RUNTIME option replaces the LE370 value. Its meaning is unchanged and the numeric value associated with this CVDA remains 377.
INQUIRE PROGRAM	APIST is added RUNTIME has a new value	APIST displays the API attribute of the installed program definition. The values are: CICSAPI OPENAPI The XPLINK value for the RUNTIME option means that the program is a C or C++ program which has been compiled using the XPLINK option.

Table 6. Changed CEMT commands (continued)

CEMT command	Option	Explanation
INQUIRE REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION TYPE	The REQUESTMODEL resource definition now supports both CORBA and EJB requests, and these new attributes are added to support this dual purpose definition. Note that INTERFACE, MODULE, and OPERATION replace the OMGINTERFACE, OMGMODULE, and OMGOPERATION equivalent options of CICS TS 1.3.
INQUIRE SYSTEM	DEBUGTOOL	Displays a value (DEBUG or NODEBUG) indicating whether debugging profiles will be used to select programs that will run under the control of a debugging tool.
INQUIRE SYSTEM	FORCEQR has a revised description	The description of FORCEQR, and its value FORCE are altered to limit its relevance to CICSAPI programs, because it does not apply to OPENAPI programs.
INQUIRE TASK	BRFACILITY	This option is added to return an 8–byte field containing the facilitytoken for the bridge facility in use by the task.
INQUIRE TCPIP	ACTSOCKETS MAXSOCKETS	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.
INQUIRE TCPIP	CRLPROFILE and SSLCACHE are added	CRLPROFILE displays the name of the profile that authorizes CICS to use the certificate revocation lists on an LDAP server. SSLCACHE .displays whether CICS is using local or sysplex caching of session ids. The values are: CICS SYSPLEX .
INQUIRE TCPIPSERVICE	ATTACHSEC AUTHENTICATE CERTIFICATE DNSGROUP DNSSTATUS GROUPCRITICAL	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.
INQUIRE TCPIPSERVICE	MAXDATALEN is added	MAXDATALEN displays the maximum length of data that may be received by CICS as an HTTP server.
INQUIRE TERMINAL | NETNAME	NQNAME	This option is added to display the 17-character network qualified name of the terminal.
INQUIRE TRANSACTION	OTSTIMEOUT	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).
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 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 WORKREQUEST	WORKTYPE has a new value.	There is a new value SOAP for the WORKTYPE option.

Table 6. Changed CEMT commands (continued)

CEMT command	Option	Explanation
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 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	BEAN, JVMPROFILE, JVMPROGRAM	New resource types for which statistics can be recorded.
PERFORM STATISTICS	PIPELINE and WEBSERVICE are added.	
SET AUTOINSTALL	AIBRIDGE	This option is added to enable you to define whether the autoinstall URM is called for bridge facilities.
SET CORBASERVER	AUTOPUBLISH	This option is added to allow you to set the enterprise beans autopublish option in a CorbaServer.
SET CORBASERVER	DISABLED ENABLED	Specifies whether to enable or disable the 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 DISPATCHER	MAXSSLTCBS MAXXPTCBS are added	MAXSSLTCBS displays the maximum number of S8 mode open TCBs that CICS is allowed to attach. MAXXPTCBS specifies the maximum number of X8 and X9 mode open TCBs that CICS is allowed to attach.
SET JVMPOOL	TERMINATE	Deletes the shared class cache as well as the JVMs in the JVM pool.
SET PROGRAM	JVMPROFILE	For Java programs, this option specifies the 8–character name of a JVM profile that is to be used for the JVM in which the program runs. Any instances of this program that are currently running in a JVM with the old JVM profile are unaffected, and are allowed to finish running.
SET SYSTEM	DEBUG NODEBUG	Specifies whether debugging profiles will be used to select programs that will run under the control of a debugging tool.
SET SYSTEM	FORCEQR has a revised description	The description of FORCEQR, and its value FORCE are altered to limit its relevance to CICSAPI programs, because it does not apply to OPENAPI programs.
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.
SET TCPIPSERVICE	MAXDATALEN is added	MAXDATALEN specifies the maximum length of data that may be received by CICS as an HTTP server.
SET WORKREQUEST	WORKTYPE	There is a new value SOAP for the WORKTYPE option.

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 changes to CETR are:

- "Additions to CETR"
- "Controlling tracing for JVMs"
- "VTAM dynamic LU alias considerations" on page 21

Additions to CETR

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

BR Bridge domain
DP Debug Tool Interface domain
EJ Enterprise Java domain
IE ECI over TCP/IP domain
II IIOP domain
OT Object transactions services domain
PI Pipeline Manager domain
PT Partner management domain
RZ Request streams domain
SJ CICS JVM domain.

Controlling tracing for JVMs

CETR has new option screens to display and update trace settings for JVMs. Press PF6 on the main screen to access the JVM trace options screens. (Although the JVM trace options are part of the SJ component, they are controlled using the JVM trace options screens, rather than the component trace options screen.) You can use these screens to specify the JVM trace options, using the "free-form" 240–character field, and to specify trace settings for JVMs using the Standard and Special flags. You can then use the Transaction and Terminal Trace screen to switch on these flags for particular transactions. JVM trace can produce a large amount of output, so you should normally activate JVM tracing for special transactions, rather than turning it on globally for all transactions.

The default JVM trace options that are provided in CICS use the JVM trace point level specifications. The default settings for JVM Level 0 trace, JVM Level 1 trace, and JVM Level 2 trace specify LEVEL0, LEVEL1, and LEVEL2 respectively, so they map to the Level 0, Level 1 and Level 2 trace point levels for JVMs. A Level 0 trace point is very important, and this classification is reserved for extraordinary events and errors. Note that unlike CICS exception trace, which cannot be switched off, the JVM Level 0 trace is normally switched off unless JVM tracing is required. The Level 1 trace points and Level 2 trace points provide deeper levels of tracing. The JVM trace point levels go up to Level 9, which provide in-depth component detail. It

is suggested that you keep the CICS-supplied level specifications, but if you find that another JVM trace point level is more useful for your purposes than one of the default levels, you could change the level specification to map to your preferred JVM trace point level (for example, you could specify LEVEL5 instead of LEVEL2 for the JVMLEVEL2TRACE option). The default values for JVM trace options can be overridden using the CICS system initialization parameters JVMLEVEL0TRACE, JVMLEVEL1TRACE, JVMLEVEL2TRACE and JVMUSERTRACE.

You can add further parameters to the basic level specifications for JVM Level 0 trace, JVM Level 1 trace, and JVM Level 2 trace, if you want to include or exclude particular components or trace point types at the selected trace levels. If you want to create more complex specifications for JVM tracing which use multiple trace point levels, or if you do not want to use trace point levels at all in your specification, use the JVMUSERTRACE option to create a trace option string that includes the parameters of your choice. “Defining tracing for JVMs” in the *CICS Problem Determination Guide* has information about the JVM trace options that you can set using the JVM Level 0 trace, JVM Level 1 trace, JVM Level 2 trace, and JVM User trace levels. There is further information about JVM trace and about problem determination for JVMs in the *IBM Developer Kit and Runtime Environment, Java 2 Technology Edition, Version 1.4.2 Diagnostics Guide*, SC34-6358, which is available to download from www.ibm.com/developerworks/java/jdk/diagnosis/.

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 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.

Changes to transaction CWXN

There are several changes to the processing carried out by the CICS-supplied transaction CWXN, the Web attach transaction. The most significant of these are:

- If a matching URIMAP definition is found for an HTTP request, CWXN now invokes the analyzer program only if instructed to do so by the URIMAP definition.
- Where the HTTP version of the request is HTTP/1.1, CWXN carries out some of the responsibilities of an HTTP server by performing some basic acceptance

checks on the request. In response to these checks, CWXN might take action to return a response to the request without involving a user-written application program.

- CWXN pre-processes chunked and pipelined messages received from a Web client, so that user-written applications do not have to perform this processing.
  - Chunked messages are single messages split up and sent as a series of smaller messages (chunks). CWXN receives and assembles the chunks of the message to create a single HTTP request. CWXN checks that the message is complete before passing it to the user application. The user application can then process the request like any other HTTP request.
  - Pipelined messages are multiple messages sent in sequence, where the sender does not wait for a response after each message sent. A server must respond to these messages in the order that they are received. To ensure this, CWXN holds pipelined requests and releases them one at a time to the user application. The user application must send a response to the first request before receiving the next request from CWXN.
- Persistent connections are now the default behavior. The connection is only closed if the Web client requests closure, or if the timeout period is reached, or if the Web client is an HTTP/1.0 client that does not send a Keep-Alive header.
- Before CICS Transaction Server for z/OS, Version 3 Release 1, if a Web client and CICS had a persistent connection, the CWXN transaction would remain in the system for the duration of the persistent connection. Now, the CWXN transaction terminates after each request from the Web client has been passed to the alias transaction (CWBA or another transaction), or after the static response has been delivered. The Sockets listener task monitors the socket and initiates a new instance of CWXN for each request on the persistent connection. This behavior, known as an asynchronous receive, avoids the possibility of a deadlock in a situation where the maximum task specification (MXT) has been reached, when a CWXN transaction remaining in the system would not be able to attach alias transactions to process further requests. It also means that the maximum number of concurrent connections between CICS and Web clients is no longer limited by the MXT value, but can in theory be up to 64000. In terms of system activity, if you used persistent connections before CICS Transaction Server for z/OS, Version 3 Release 1, you should now see an increased transaction rate, but a decrease in the number of concurrent tasks.

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:

- CIRR—default CICS IIOP request receiver transaction
- CJMJ—CICS master JVM transaction
- CJTR—CICS Object Transaction Service (OTS) resynchronization transaction
- CPIR
- CPIS
- CRTP
- CWXU

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 4. 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).It covers the following topics:

- "Obsolete resource definition attributes"
- "Changed resource definition attributes" on page 24
- "New resource definition types and new attributes" on page 26
- "Other resource definition changes" on page 27
- "Upgrading the CSD" on page 33
- "Sharing the CSD between different releases of CICS" on page 35

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

Obsolete resource definition attributes

Table 7 shows obsolete resource definition attributes:

Table 7. Obsolete resource definition attributes

Resource type	Obsolete attributes	Explanation
CORBASERVER	SSL PORT SSLPORT	These attributes, which relate the CORBASERVER to the associated TCPIPSERVICE resources, were introduced in CICS TS 2.1. In CICS TS 2.2 they are superseded by CLIENTCERT, SSLUNAUTH and UNAUTH.
PROGRAM	HOTPOOL	Because of the removal of run-time support for Java program objects and hot-pooling (HPJ), this attribute is no longer relevant.
REQUESTMODEL	OMGINTERFACE OMGMODULE OMGOPERATION	These attributes, which were restricted to 31-characters, 58-characters, and 31-characters respectively, have been replaced by INTERFACE, MODULE, and OPERATION.
TYPETERM	XRFSIGNOFF	Replaced by RSTSIGNOFF. See "Signon retention with XRF and VTAM persistent sessions" for migration impact.

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,

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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 8 shows changes to resource definition attributes.

Table 8. Changed resource definition attributes

Resource type	Affected attributes	Explanation
DB2CONN	DB2ID TCBLIMIT	TCBLIMIT is treated differently, depending on the release of DB2 to which CICS is connected, and DB2ID is mutually exclusive with DB2GROUPID.
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. Users migrating from CICS TS 1.3 may already be aware of the following change if they applied the PTF for APAR PQ58283. 1. The value of RTIMOUT is given as minutes and seconds (mmss) in the range 1--7000. The rounding of this value that was performed by earlier releases of CICS no longer happens. CICS acts upon the RTIMOUT value exactly as it appears in the PROFILE definition. See 1 on page 25 for more information. 2. The READ TIMEOUT value on the transaction profile definition for MRO sessions is now observed by CICS. The field in the profile already exists. CICS honours it for ISC but used to ignore it for MRO. See 2 on page 25 for more information.
PROGRAM	CONCURENCY EXECKEY JVM JVMPROFILE	• There is a new significance to the CONCURRENCY(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. • The EXECKEY attribute now applies to programs that run in a JVM. You can use the same JVM profile to invoke a JVM in either of the keys. • For JVM, the DEBUG option is removed, leaving YES or NO as the only options. • The JVM profiles that you specify using the JVMPROFILE attribute are now files in the HFS directory that is specified by the system initialization parameter JVMPROFILEDIR, and you need to specify the name using the same combination of upper and lower case characters that is present in the HFS file name.

Table 8. Changed resource definition attributes (continued)

Resource type	Affected attributes	Explanation
TCPIPSERVICE	PORTNUMBER TRANSACTION	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.
TRANSACTION	SHUTDOWN	The meaning of this parameter is changed. It now applies to ALL transactions whether the transaction is associated with a terminal or not. Therefore, SHUTDOWN(ENABLED) should be specified on all TRANSACTIONS that you want to run during shutdown. Alternatively, specify them on the XLT used at shutdown.
TYPETERM	RSTSIGNOFF	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.

Notes:

1. In earlier releases, CICS rounded this value up to an exact multiple of 16.78 seconds, for all communications methods. This rounding is now removed, CICS acts upon the RTIMOUT value exactly as it appears in the PROFILE definition. If you have set particular RTIMOUT values, to take account of the rounding up to a multiple of 16.78 seconds, in order to achieve a particular behavior in your CICS region, you may need to reconsider the values that you have set.
2. In earlier Releases of CICS, read time-out is ignored for MRO sessions, tasks waiting on an MRO connection can hang indefinitely. If, for example, transactions in an AOR stall or deadlock for any reason the corresponding relay transactions in an MRO-connected TOR are left hanging. Eventually a problem in an AOR can cause the TOR to stall completely. Although you can prevent new transactions from being routed to, or queued for, the offending AOR, there has not been, until now, an easy way to purge every task that is in flight. This change to CICS enables the READ TIMEOUT value on the transaction profile definition for MRO sessions. The field in the profile already exists. CICS honours it for ISC but used to ignore it for MRO. CICS now checks this RTIMOUT value for MRO sessions. A new abend code is issued if the RTIMOUT value is exceeded for MRO sessions. By enabling the READ TIMEOUT value on the transaction profile definition for MRO sessions, a cause of intersystem queuing (sometimes referred to as "sympathy sickness") is eliminated. The situations which may benefit from this change include some which, because they result from stalls or deadlocks elsewhere, are unlikely to resolve themselves unaided.

DBCS languages: EPI and terminal emulator, change to server code pages

In CICS TS 2.2, for languages that use double-byte character sets (DBCS), changes were made to the server code pages supported for the EPI and the client terminal emulator function.

The server code page is determined from value 2 of the CGCSGID attribute of the TYPETERM definition used to install the virtual terminal definition. For DBCS languages, you need to specify a different server code page from that used in releases before CICS TS 2.2, in order to provide the correct SBCS and DBCS translation. This change is required for EPI clients and client terminal emulators to work correctly.

CICS Family: Communicating from CICS on System/390® lists the new server code pages supported for the EPI and terminal emulator for DBCS languages.

New resource definition types and new attributes

Table 9 shows new resource definition types and new attributes.

If you have existing resource definitions that were created before the new attributes for the resources were available, check those resource definitions after you upgrade to this CICS release, to ensure that the default values are suitable for your situation. In some situations, CICS enforces certain values for options if these are required for compatibility with existing options in your resource definition.

Table 9. New resource definition attributes

Resource type	New keywords	Explanation
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.
CORBASERVER	AUTOPUBLISH CERTIFICATE CLIENTCERT CORBASERVER DJARDIR HOST JNDIPREFIX SESSBEANTIME SHELF SSLUNAUTH STATUS UNAUTH	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.
DB2CONN	DB2GROUPID RESYNCMEMBER	The group ID and resync options are added to support the DB2 group attach facility.
DJAR	CORBASERVER HFSFILE	DJAR is a new type of resource definition to enable you to define a deployed JAR file.
PIPELINE		For details, see the *CICS Resource Definition Guide*.
PROGRAM	JVMPROFILE	• The JVMPROFILE option enables you to specify the name of the JVM profile needed to start a JVM for the program.

Table 9. New resource definition attributes (continued)

Resource type	New keywords	Explanation
REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION TYPE	The REQUESTMODEL resource definition now supports both CORBA and EJB requests, and the new attributes are added to enable definitions to be dual purpose. However, with INTERFACE, MODULE, and OPERATION replacing the old OMG*xxxxxx* equivalent keywords, and other changes, the new definition is incompatible with the REQUESTMODEL resource definition in CICS TS 1.3. See “Incompatibility of REQUESTMODEL resource definitions” on page 36 for details.
TCPIPSERVICE	ATTACHSEC AUTHENTICATE CERTIFICATE DNSGROUP GRPCRITICAL PROTOCOL	These new attributes are added to enhance CICS support for TCP/IP. PROTOCOL allows you to specify HTTP, IIOP, or ECI as the protocol supported by the TCPIPSERVICE; DNSGROUP and GRPCRITICAL are added to enable connection balancing. ATTACHSEC is introduced in support of the ECI protocol. AUTHENTICATE and CERTIFICATE are both introduced by the SSL-enabling APAR (PQ23421) in CICS TS 1.3 to specify the level of authentication required on the TCPIPSERVICE. The definition of CERTIFICATE is changed and now specifies the name of an X.509 certificate defined in a RACF key ring, and can be up to 32 bytes.
TERMINAL	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 the *CICS Resource Definition Guide*) when you implement LU alias support.
TRANSACTION	OTSTIMEOUT	The OTSTIMEOUT attribute specifies the default time that an Object Transaction Services (OTS) transaction is allowed to execute without the initiator taking a syncpoint.
URIMAP		For details, see the *CICS Resource Definition Guide*.
WEBSERVICE		For details, see the *CICS Resource Definition Guide*.

Other resource definition changes

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

- “Additions to IBM-supplied resource definitions”
- “Changes to IBM-supplied resource definitions” on page 30
- “Obsolete IBM-supplied resource definitions” on page 32
- “Updating user-modified IBM-supplied definitions” on page 32
- “Migrating copies of CICS-supplied resource definitions” on page 33

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
- DFHBR
- DFHBRCF

- DFHBRUT
- DFHBRVR
- DFHBRVSL
- DFHBRVSR
- DFHDP
- DFHDPWB
- DFHEJBU
- DFHEJCF
- DFHEJVR
- DFHEJVS
- DFHIPECI
- DFHOTS
- DFHPSSGN
- DFHRQS
- DFHSO
- DFH$BRLK

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.

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-mantained 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.

DFHDP

IBM-supplied group DFHDP contains the resource definitions for the new Application debugging profile manager 3270 interface (the CADP transaction), and for the Inactivate debugging profiles utility. The group contains:

PROGRAM definitions
DFHDPLU, DFHDPIN and DFHDPCP

TRANSACTION definitions
CADP and CIDP

MAPSET definitions
DFHDPMS

DFHDPWB

IBM-supplied group DFHDPWB contians the resource definitions for the new application debugging profile manager web interface. The group contains:

PROGRAM definitions
DFHDPWB, DFHDPWM0, DFHDPWM1, DFHDPWM2, DFHDPWM3, DFHDPWM4, DFHDPWM5, DFHDPWM6, DFHDPWT0, and DFHDPWF0

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.

DFHIPECI

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

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

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.

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.

DFHSO

IBM-supplied group DFHSO contains the resource definitions for External sockets support. The group contains:

PROGRAM definitions

DFHSOCI and DFHSOLI

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 below 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, DFHCOMP9, and DFHCOMPA, (or some of these) in their place. See Chapter 6, “The application programming interface (API),” on page 45.

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, DFHIIOP 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.

Moved to group DFHCOMPA

Group DFHJIIRP is obsolete. The definition that was in this group is now in the new compatibility group, DFHCOMPA.

When you upgrade the CSD using DFHCSDUP, DFHCOMPA is locked.

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$IIBS and DFJ$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$IIRB and DFJ$IIRH request model resource definitions. See “Incompatibility of REQUESTMODEL resource definitions” on page 36 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.

Obsolete IBM-supplied resource definitions

The following groups are obsolete:

- DFH$JAVA
- DFHAUGRP
- DFH$AFFY

DFH$JAVA

IBM-supplied sample application program group DFH$JAVA is removed. This group contained the resource definitions needed for the sample applications for Java support using VisualAge® for Java, Enterprise Edition for OS/390. The same sample applications are defined for use with a JVM by the DFH$JVM group.

DFHAUGRP

IBM-supplied group DFHAUGRP is removed. This group contained the resource definitions for the CICS transaction affinities utility.

DFH$AFFY

IBM-supplied sample group DFH$AFFY is removed. This group contained sample resource definitions for the CICS transaction affinities utility that you could modify to suit your requirements.

Removing obsolete definition groups from startup group lists.

Obsolete definition groups have been removed from the CICS-supplied default startup group list, DFHLIST.

If you use customized startup group lists, you must remove any obsolete definition groups from them.

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.

Migrating copies of CICS-supplied resource definitions

If you have made copies of CICS-supplied resource definitions, you may need to change your copies to match the changes which have been made to the supplied definitions for this release.

To help you, member DFH$CSDU in library SDFHSAMP contains ALTER commands that you can apply using the CSD utility program (DFHCSDUP).

1. Review your resource definitions to determine if you have copied any CICS-supplied definitions.
2. Review DFH$CSDU to determine if the changes which it contains should apply to your resource definitions.
3. Make any necessary changes to DFH$CSDU. It is advisable to make a copy of DFH$CSDU, and apply any changes to the copy.
4. Run DFHCSDUP using your modified version of DFH$CSDU as input.

Note: As supplied, the ALTER commands in DFH$CSDU specify `GROUP(*)`, which means that DFHCSDUP will attempt to change resources in the CICS-supplied groups. This is not permitted, and will result in message DFH5151. You can ignore this message.

Example

In CICS TS 2.3, JVMPROFILE(DFHJVMCD) was added to the definition of program DFHADJR. Therefore, DFH$CSDU contains the following command:

```
ALTER PROGRAM(DFHADJR) GROUP(*) JVMPROFILE(DFHJVMCD)
```

When you you run DFHCSDUP, the attribute is added to the definitions of program DFHADJR in all groups. Other attributes are unchanged.

Upgrading the CSD

There are two main steps to upgrading the CSD:

1. Changing the CSD average and maximum record size “Changing the CSD record size.”
2. Upgrading the IBM supplied definitions using the CSD utility UPGRADE command “Running the DFHCSDUP UPGRADE job” on page 35.

When you have successfully upgraded your CSD, you can review the topics “Sharing the CSD between different releases of CICS” on page 35 and “Incompatibility of REQUESTMODEL resource definitions” on page 36 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:

```
//BAKUPCSD JOB (1,BELL),CLASS=A
//ALTERDEF EXEC PGM=IDCAMS,REGION=0M
//SYSPRINT DD SYSOUT=A
//AMSDUMP  DD SYSOUT=A
//SYSIN    DD *
  ALTER CICSTS31.CICSH.DFHCSD.* -
      NEWNAME(CICSTS31.CICSH.DFHCSD.*.BACKUP)
  ALTER CICSTS31.CICSH.DFHCSD -
      NEWNAME(CICSTS31.CICSH.DFHCSD.BACKUP)
  IF LASTCC = 0 THEN -
      DEFINE CLUSTER (                        -
                NAME( CICSTS31.CICSH.DFHCSD ) -
                REC(10000)                    -
                VOLUME(SYSDA)                 -
                KEYS( 22 0 )                  -
                INDEXED                       -
                RECORDSIZE( 200 2000 )        -
                FREESPACE( 5 5 )              -
                SHAREOPTIONS( 2 )             -
                )                             -
      INDEX     (                             -
                NAME( CICSTS31.CICSH.DFHCSD.INDEX ) -
                )                           -
      DATA      (                           -
                NAME( CICSTS31.CICSH.DFHCSD.DATA )    -
                )
/*
//REPROCSD EXEC PGM=IDCAMS,REGION=0M,COND=(5,LT,ALTERDEF)
//SYSPRINT DD SYSOUT=A
//AMSDUMP  DD SYSOUT=A
//SYSIN    DD *
      REPRO INDATASET(CICSTS31.CICSH.DFHCSD.BACKUP) -
            OUTDATASET(CICSTS31.CICSH.DFHCSD)
/*
//
```

Figure 1. Sample job to rename and redefine the CSD

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 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 **z/OS Version 1 Release 4** 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,WALSH,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=CICSTS31.CICS.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=CICSTS31.CICSHURS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABOUT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD *
 DELETE GROUP(CEE)
/*
//*
//CSDUP2   EXEC PGM=DFHCSDUP,REGION=2M,PARM='CSD(READWRITE)'
//STEPLIB  DD DSN=CICSTS31.CICS.SDFHLOAD,DISP=SHR
//DFHCSD   DD DSN=CICSTS31.CICSHURS.DFHCSD,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABOUT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//SYSIN    DD DSN=SYS1.ZOS140.SCEESAMP(CEECCSD),DISP=SHR
/*
//
```

Figure 2. 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

Most releases of CICS make changes to the IBM-supplied groups of resource definitions that are included in the DFHLIST group list. In all such 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 10 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 10. For example, to run a CICS/ESA 4.1, with the CSD upgraded to CICS TS 3.1, append the compatibility group DFHCOMP9 followed by DFHCOMP8, DFHCOMP7, DFHCOMP6, and DFHCOMP5 at the end of your group list.

Table 10. Required compatibility groups for earlier releases of CICS

CICS release the CSD is shared with	The CICS release level of the CSD						
	CICS TS 3.1	**CICS TS 2.3**	**CICS TS 2.2**	**CICS TS 1.3**	**CICS TS 1.2**	**CICS TS 1.1**	**4.1**
CICS TS 2.3	None	None	Do not share	Do not share	Do not share	Do not share	Do not share
CICS TS 2.2	DFHCOMPA	DFHCOMPA	None	Do not share	Do not share	Do not share	Do not share
CICS TS 1.3	DFHCOMP9 DFHCOMP8	DFHCOMP9 DFHCOMP8	DFHCOMP8	None	Do not share	Do not share	Do not share
CICS TS 1.2	DFHCOMP9 DFHCOMP8 DFHCOMP7	DFHCOMP9 DFHCOMP8 DFHCOMP7	DFHCOMP8 DFHCOMP7	DFHCOMP7	None	Do not share	Do not share
CICS TS 1.1	DFHCOMP9 DFHCOMP8 DFHCOMP7 DFHCOMP6	DFHCOMP9 DFHCOMP8 DFHCOMP7 DFHCOMP6	DFHCOMP8 DFHCOMP7 DFHCOMP6	DFHCOMP7 DFHCOMP6	DFHCOMP6	None	Do not share
4.1	DFHCOMP9 DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP9 DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP6 DFHCOMP5	DFHCOMP5	None

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*xxxxxxxx* 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.

Chapter 5. 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 40
- "Monitoring control table, DFHMCT" on page 40
- "Support for temporary storage control tables (TSTs)" on page 41
- "Migrating TST entries to the CSD" on page 41
- "Obsolete sample JCL in REXX for CICS" on page 43
- "VSAM support withdrawn from DFHFCT macros" on page 44
- "Changes to DFHCNV macro" on page 44
- "Reassembling control tables" on page 44

Obsolete control tables

Table 11 shows obsolete control tables and parameters.

Table 11. Obsolete control tables

Control table	Macro	Explanation
DCT	DFHDCT	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 "Migrating DCT entries to the CSD" for more information about this change.

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.

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Changed control table parameters

Table 12 shows changes to control table parameters.

Table 12. Changed control table parameters

Resource type	Affected attributes	Explanation
DFHTCT	TYPE=SDSCI TYPE=LINE TYPE=TERMINAL	CICS no longer supports local TCAM terminals. These resource definition macro can no longer be used to define local TCAM terminals. See 40 for more detail.
DFHMCT	TYPE=RECORD	Because of the removal of run-time support for Java program objects and hot-pooling (HPJ), DFHTASK field 278, CICS MAXHPTCBS delay time, is no longer relevant. and is removed.

Note: It is still possible to define remote TCAM terminals. You can do this using either of the following methods:

1. A single DFHTCT TYPE=REMOTE macro.
2. A DFHTCT TYPE=REGION macro, followed by a DFHTCT TYPE=LINE and a DFHTCT TYPE=TERMINAL macro. CICS uses only the "remote" attributes of the DFHTCT TYPE=LINE and DFHTCT TYPE=TERMINAL macros.

CICS no longer supports BTAM terminals, even indirectly. You can no longer define BTAM terminals, even as remote resources.

Monitoring control table, DFHMCT

You can specify some new values on the INCLUDE and EXCLUDE operands of the DFHMCT TYPE=RECORD macro. These values allow you to include or exclude specific fields from performance-class monitoring records. The new values are shown in Table 13.

Table 13. Fields that can be included or excluded from performance-class monitoring records

Group Name	Field Id	Description
DFHEJBS	311	CorbaServer for which the request processor instance is handling requests
DFHEJBS	312	Number of enterprise bean activations that have occurred in this request processor
DFHEJBS	313	Number of enterprise bean passivations that have occurred in this request processor
DFHEJBS	314	Number of enterprise bean creation calls that have occurred in this request processor
DFHEJBS	315	Number of enterprise bean removal calls that have occurred in this request processor
DFHEJBS	316	Number of enterprise bean method calls executed in this request processor
DFHEJBS	317	Total for this request processor of fields 312–316
DFHTASK	252	User-task peak open TCB count

Table 13. Fields that can be included or excluded from performance-class monitoring records (continued)

Group Name	Field Id	Description
DFHTASK	264	User-task key 9 TCB dispatch time
DFHTASK	265	User-task key 9 TCB CPU time
DFHTASK	267	User-task J9 TCB CPU Time
DFHTASK	268	User-task TCB mismatch wait time
DFHTASK	279	MVS storage constraint delay time

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”

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.

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 2.3 or 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* compatible with earlier releases.
- To use a CICS TS 2.2 version of DFHUCNV, specify USREXIT=*new_ucnv_name*.

See Chapter 11, “User-replaceable programs,” on page 75.

Reassembling control tables

Reassemble *all* CICS control tables using the CICS TS 3.1` 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 CICS initialization fails when trying to load DFHCNV tables assembled using macros from an earlier release.

Chapter 6. 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 compatibility with future releases, 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 the *CICS Transaction Server for z/OS Release Guide*.

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 in the following topics:

- "Obsolete commands and options" on page 46
- "New commands and options" on page 46
- "Changed commands and options" on page 47
- "Member DFHEILID has moved" on page 48
- "Changes to RESP2 values" on page 48
- "Changes to the BMS map generation macro (DFHMSD)" on page 49
- "Change of rules for EXEC CICS SIGNON and SIGNOFF" on page 50
- "The API and terminal control" on page 51

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

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Obsolete commands and options

Table 14 shows the CICS application programming interface commands and options that are now obsolete.

Table 14. Obsolete API commands and options

Command	Options	Comments
• CONVERSE (SYSTEM/3) • CONVERSE (SYSTEM/7) • CONVERSE (2741) • CONVERSE (2770) • CONVERSE (2780) • CONVERSE (3600 BTAM) • CONVERSE (3735) • CONVERSE (3740) • ISSUE COPY (3270 display) • RECEIVE (SYSTEM/3) • RECEIVE (SYSTEM/7) • RECEIVE (2741) • RECEIVE (3600 BTAM) • RECEIVE (3735) • RECEIVE (3740) • SEND (SYSTEM/3) • SEND (SYSTEM/7) • SEND (2741) • SEND (3600 BTAM) • SEND (3735) • SEND (3740)		All these BTAM-related, EXEC CICS API commands are obsolete.

New commands and options

Table 15 shows the CICS application programming interface commands and options that are new.

Table 15. New API commands and options

Command	Options	Comments
• EXEC CICS DELETE CONTAINER (CHANNEL) • EXEC CICS GET CONTAINER (CHANNEL) • EXEC CICS MOVE CONTAINER (CHANNEL) • EXEC CICS PUT CONTAINER (CHANNEL) • EXEC CICS START TRANSID CHANNEL		
• EXEC CICS INVOKE WEBSERVICE • EXEC CICS SOAPFAULT ADD • EXEC CICS SOAPFAULT CREATE • EXEC CICS SOAPFAULT DELETE		

Table 15. New API commands and options (continued)

Command	Options	Comments
• EXEC CICS WEB OPEN • EXEC CICS WEB CONVERSE • EXEC CICS WEB CLOSE • EXEC CICS WEB SEND (CLIENT) • EXEC CICS WEB RECEIVE (CLIENT) • EXEC CICS WEB PARSE URL • EXEC CICS WEB CONVERTTIME • EXEC CICS WEB WRITE HTTPHEADER • EXEC CICS WEB READ HTTPHEADER • EXEC CICS WEB STARTBROWSE HTTPHEADER • EXEC CICS WEB READNEXT HTTPHEADER • EXEC CICS WEB ENDBROWSE HTTPHEADER • EXEC CICS WEB EXTRACT • EXEC CICS FORMATTIME • EXEC CICS EXTRACT TCPIP	SESSTOKEN is added to the EXEC CICS WEB xxx HTTPHEADER commands. MAXDATALEN	EXEC CICS WEB SEND and EXEC CICS WEB RECEIVE have a new range of options when used for CICS as an HTTP client: There are changes to the options available on most of the remaining EXEC CICS WEB commands. The changed commands can be used for both CICS as an HTTP client, and CICS as an HTTP server.

Changed commands and options

Table 16 shows the CICS application programming interface commands and options that are changed.

Table 16. Changed API commands and options

Command	Options	Comments
• EXEC CICS VERIFY PASSWORD		See “Changes to EXEC CICS VERIFY PASSWORD.”

Changes to EXEC CICS VERIFY PASSWORD

When you issue the EXEC CICS VERIFY PASSWORD command, CICS now enforces the revoked status of a user ID or a user's group connection. The new method CICS uses to verify the password is more efficient, but you might notice changes to the output that is produced when verification takes place.

CICS now attempts to verify a password using a RACROUTE REQUEST=EXTRACT request to the external security manager. If the password cannot be verified using this method, CICS uses a RACROUTE REQUEST=VERIFYX call. Before CICS TS for z/OS, Version 3.1, CICS always used the RACROUTE REQUEST=VERIFYX call, which is more expensive.

There are some differences in the output produced by the external security manager for the old and new methods of verifying a password. If your application programs relied on the output produced by the old method, you need to change them so that they do not depend on this output. The differences are:

- ESMRESP and ESMREASON codes are not supplied by the external security manager for the new method of verifying a password using a RACROUTE REQUEST=EXTRACT call. These are only produced if CICS needs to use the old method with a RACROUTE REQUEST=VERIFYX call. Your application

programs should always check the EIBRESP and EIBRESP2 values returned by the EXEC CICS VERIFY PASSWORD command, and not rely on the ESMRESP and ESMREASON codes.

- Message ICH70002I is not produced by the external security manager for the new method of verifying a password. The message is only produced if CICS needs to use the old method with a RACROUTE REQUEST=VERIFYX call. (The SETR PASSWORD(WARN(nn)) option must also be active in the external security manager for the message to be produced.) You should therefore not rely on receiving this message.

Member DFHEILID has moved

Member DFHEILID has moved from the SDFHC370 library to the SDFHSAMP library. The change affects the COPYLINK step of the sample jobs supplied by CICS and CICSPlex SM to translate, compile, link-edit and install application programs. The sample jobs supplied by CICS have names in the format DFHwxTyL (for example, DFHYITDL, DFHZITCL) and are supplied in the SDFHPROC library. If you are using an older version of these supplied sample jobs, or if you have created your own job based on the supplied samples, ensure that you apply the change for DFHEILID to the COPYLINK step in the job.

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 commandsand to qualify the PGMIDERR response to the EXEC CICS LOAD and RELEASE commands.

The new INVREQ RESP2 values are:

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.

49 The shared class cache is STOPPED and autostart is disabled, so a Java program requesting use of the shared class cache cannot be executed.

The RESP2 value 41 that qualified the INVREQ response to EXEC CICS LINK requests is removed, because it is now possible to link to more than one JVM program in the same CICS task:

41 A LINK has been attempted to a JVM program but there is already a JVM program on the link stack (only one JVM program is allowed on the program stack).

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:

```
//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 unpredicatability 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.

The API and terminal control

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*

Chapter 7. 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 55
- "Obsolete commands and options" on page 60
- "Obsolete CVDA values" on page 61
- "Release levels on INQUIRE SYSTEM command" on page 61

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 compatibility with future releases of CICS 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 compatibility with future releases , at source and object level, for application programs that use the unaffected SPI commands.

New commands and options

Table 17 shows the new SPI commands and options.

Table 17. New commands and options

Commands	Explanation
CREATE CORBASERVER	Define and install a CORBASERVER resource definition.
CREATE PIPELINE	The CREATE PIPELINE command defines a PIPELINE in the local CICS region.
CREATE URIMAP	The CREATE URIMAP command defines a URIMAP in the local CICS region.
CREATE WEBSERVICE	The CREATE WEBSERVICE command defines a WEBSERVICE in the local CICS region.
DISCARD CORBASERVER	Discard an installed CORBASERVER resource definition.
DISCARD DJAR	Discard an installed DJAR resource definition.
DISCARD PIPELINE	The DISCARD PIPELINE command removes a PIPELINE from the CICS system and the CICS catalog.
DISCARD URIMAP	The DISCARD URIMAP command removes a URIMAP from the CICS system and the CICS catalog.
DISCARD WEBSERVICE	The DISCARD WEBSERVICE command removes a WEBSERVICE from the CICS system and the CICS catalog.

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Table 17. New commands and options (continued)

Commands	Explanation
EXTRACT STATISTICS	The EXTRACT STATISTICS command is added to provide statistics about new resource types, because the design of COLLECT STATISTICS prevented its further expansion. The syntax of EXTRACT STATISTICS is not like COLLECT STATISTICS, but the results of using EXTRACT STATISTICS are equivalent to those produced by COLLECT STATISTICS. For a full description of EXTRACT STATISTICS see the *CICS System Programming Reference*
INQUIRE BEAN	Return information about an enterprise bean.
INQUIRE BRFACILITY	Return information about installed bridge facilities.
INQUIRE CLASSCACHE	The INQUIRE CLASSCACHE command is added to give you information about the active shared class cache in the CICS region, and report the presence of any old shared class caches that are awaiting deletion.
INQUIRE CORBASERVER	Return information about an installed CORBASERVER resource definition.
INQUIRE DISPATCHER	Return CICS dispatcher system information, which includes information about pools of open TCBs.
INQUIRE DJAR	Return information about an installed DJAR resource definition.
INQUIRE JVM	The INQUIRE JVM command is added to enable you to identify JVMs in a CICS region and get information about their status. You can inquire on the status of a particular JVM, or browse through all of the JVMs in a CICS region by using the browse options (START, NEXT, and END) on the command.
INQUIRE JVMPOOL	Return information about the pool of JVMs in a CICS region.
INQUIRE JVMPROFILE	The INQUIRE JVMPROFILE command is added to retrieve the full path name of the HFS file for a JVM profile, and tell you whether or not a JVM with this profile uses the shared class cache. The command only finds JVM profiles that have been used during the lifetime of this CICS region, for JVMs that can run applications. You can inquire on a particular JVM profile, or browse through all of the JVMPROFILEs that have been used in a CICS region by using the browse options (START, NEXT, and END) on the command.
INQUIRE PIPELINE	The INQUIRE PIPELINE command retrieve information about an installed PIPELINE.
INQUIRE URIMAP	The INQUIRE URIMAP command retrieves information about URIMAP resource definitions.
INQUIRE WEBSERVICE	The INQUIRE WEBSERVICE command retrieves information about an installed WEBSERVICE.
INQUIRE WORKREQUEST	The INQUIRE WORKREQUEST command is added to enable you to track EJB tasks. You can: • determine which transactions are associated with a single request • correlate all transactions associated with a single request (for example, for accounting purposes)
PERFORM CORBASERVER	Perform a specified action (PUBLISH, RETRACT or SCAN) on the beans in a CORBASERVER.

Table 17. New commands and options (continued)

Commands	Explanation
PERFORM DJAR	Perform a specified action (PUBLISH or RETRACT) on a deployed JAR file.
PERFORM PIPELINE	The PERFORM PIPELINE command initiates a scan of the Web service binding directory that is specified in the WSBIND attribute of the PIPELINE definition.
SET BRFACILITY	Flag a bridge facility for deletion.
SET CORBASERVER	Set the time-out value for the session beans in a specified CORBASERVER.
SET DISPATCHER	Modify some CICS dispatcher system parameters.
SET HOST	The SET HOST command enables or disables a virtual HOST.
SET JVMPOOL	Change the status of the pool of JVMs in a CICS region or to terminate the JVMs in the pool.
SET PIPELINE	The SET PIPELINE command enables or disables a PIPELINE.
SET URIMAP	The SET URIMAP command enables or disables a URIMAP definition, and applies or removes redirection for a URIMAP definition.
SET WEBSERVICE	The SET WEBSERVICE command sets the validation status of a WEBSERVICE.

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

Changed commands and options

Table 18 shows the system programming interface commands and options that are changed.

Table 18. Changed system programming commands

Command	Option	Description of change
COLLECT STATISTICS	BEAN CORBASERVER JVMPOOL JVMPROFILE JVMPROGRAM REQUESTMODEL STATS STREAMNAME TCPIP	Options are added to retrieve statistics for these resource types. STREAMNAME, without a data-value, is added to provide global statistics for the CICS log manager.

Table 18. Changed system programming commands (continued)

Command	Option	Description of change
CREATE CORBASERVER	AUTOPUBLISH DJARDIR CLIENTCERT SSLUNAUTH UNAUTH STATUS	These options define: • The status of autopublishing for enterprise beans • The 255-character name of the deployed JAR file directory • The names of the TCP/IP service definitions referenced by the CorbaServer (named by CLIENTCERT, SSLUNAUTH, and UNAUTH). The STATUS option specifies whether the CorbaServer is to be installed in enabled or disabled state. The default is enabled.
CREATE DB2CONN	DB2GROUPID RESYNCMEMBER	Options added to specify the DB2 group ID and resynchronization policy for CICS DB2 group attach support.
CREATE PROGRAM	JVMPROFILE	JVMPROFILE is added to specify the name of the JVM profile to be associated with the program.
CREATE REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION TYPE	These attributes added for EJB support. In addition, there are some changes to existing attribute values and defaults. See the REQUESTMODEL resource definition entry in Table 9 on page 26 for more details.
CREATE TCPIPSERVICE	ATTACHSEC DSNGROUP GROUPCRITICAL PROTOCOL	Options added to 1. Specify the level of attach-time security required for TCP/IP connections to CICS Clients 2. Provide DNS connection optimization support for DNS 3. Specify the protocol used on this TCP/IP service.
CREATE TRANSACTION	OTSTIMEOUT	Option added to specify the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.
CREATE TYPETERM	RSTSIGNOFF	RSTSIGNOFF replaces XRFSIGNOFF, and which acts for either signon retention for VTAM persistent sessions or XRF.
INQUIRE AUTOINSTALL	AIBRIDGE	The AIBRIDGE option is added to return a value indicating whether the autoinstall URM is called for bridge facilities.
INQUIRE CONNECTION	NQNAME	• 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.

Table 18. Changed system programming commands (continued)

Command	Option	Description of change
INQUIRE CORBASERVER	AUTOPUBLISH DJARDIR CLIENTCERT SSLUNAUTH UNAUTH ENABLESTATUS	Options are added to return: • The status of autopublishing for enterprise beans • The 255-character name of the deployed JAR file directory • The names of the TCP/IP service definitions referenced by the CorbaServer (named by CLIENTCERT, SSLUNAUTH, and UNAUTH). • The ENABLESTATUS option returns a CVDA value indicating the current state of the CorbaServer (DISABLED, DISABLING, DISCARDING, ENABLED, or ENABLING). ENABLESTATUS replaces the STATE option, which is now obsolete.
INQUIRE DB2CONN	DB2GROUPID RESYNCMEMBER	Option added to return the DB2 group ID and resynchronization policy for the CICS DB2 connection.
INQUIRE JVMPOOL	JVMLEVEL0TRACE, JVMLEVEL1TRACE, JVMLEVEL2TRACE, JVMUSERTRACE	Return a 240–character data value giving the current options for JVM tracing, which are used when the associated level of tracing has been activated using the CICS-supplied transaction CETR, the SET TRACETYPE command, or the system initialization parameter SPCTRSJ.
INQUIRE NETNAME	see INQUIRE TERMINAL	see INQUIRE TERMINAL
INQUIRE PROGRAM	JVMPROFILE	Options are added to return: • The name of the JVM profile associated with the specified program.
INQUIRE REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION TYPE	Options added to return information about the enhanced request model resource definition.
INQUIRE SYSTEM	DEBUGTOOL	Options are added to return: • a CVDA value (DEBUG or NODEBUG) indicating whether debugging profiles will be used to select programs that will run under the control of a debugging tool.
INQUIRE TASK	BRFACILITY	The BRFACILITY option is added to return an 8–byte field containing the facilitytoken for the bridge facility in use by the task.
INQUIRE TCPIP	MAXSOCKET ACTSOCKET	Options added to return (1) the maximum number of IP sockets permitted in the CICS region; and (2) the current number of active sockets.

Table 18. Changed system programming commands (continued)

Command	Option	Description of change
INQUIRE TCPIPSERVICE	ATTACHSEC AUTHENTICATE CERTIFICATE DNSGROUP DNSSTATUS GRPCRITICAL PROTOCOL	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.
INQUIRE TERMINAL	NQNAME	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.
INQUIRE TRACETYPE	COMPID	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
INQUIRE TRANSACTION	OTSTIMEOUT	The OTSTIMEOUT option is added to obtain the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.
INQUIRE UOW	OTSTID	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.

Table 18. Changed system programming commands (continued)

Command	Option	Description of change
INQUIRE UOWLINK	HOST	The HOST option is added to obtain information about the partner in the OTS transaction associated with a distributed unit of work.
INQUIRE WORKREQUEST	WORKTYPE	A new value, SOAP, is added
PERFORM CORBASERVER	SCAN	Option added to scan the CorbaServer's deployed JAR file directory or new or updated deployed JAR files. added
PERFORM STATISTICS RECORD	BEAN CORBASERVER JVMPOOL JVMPROFILE JVMPROGRAM PIPELINE REQUESTMODEL STATS TCPIP	Options added to write statistics for these new resource types.
SET AUTOINSTALL	AIBRIDGE	The AIBRIDGE option is added to enable you to define whether the autoinstall URM is called for bridge facilities.
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.
SET PROGRAM	JVMPROFILE STATUS	• The JVMPROFILE option specifies the 8–character name of a JVM profile that is to be used for the JVM in which the program runs. Any instances of this program that are currently running in a JVM with the old JVM profile are unaffected, and are allowed to finish running. • 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	DEBUGTOOL(*cvda*)	The DEBUGTOOL option specifies whether debugging profiles will be used to select programs that will run under the control of a debugging tool.
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 8 for more information about MAXSOCKETS.

Table 18. Changed system programming commands (continued)

Command	Option	Description of change
SET TRACETYPE	COMPID	New codes are added to the list of component ids for which you can set special trace on. See INQUIRE TRACETYPE above for details.
SET WORKREQUEST	WORKTYPE	A new value, SOAP, is added

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

Obsolete commands and options

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

Table 19. Obsolete system programming commands and options

Command	Options	Comments / Explanation
CREATE CORBASERVER	PORT SSL SSLPORT	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.
CREATE PROGRAM	HOTPOOL	The CVDA values YES and NO were used with this option to specify whether or not the Java program object was to be run in a preinitialized Language Environment enclave.
CREATE TYPETERM	XRFSIGNOFF	This XRF-specific attribute is replaced by RSTSIGNOFF, which acts for either signon retention for VTAM persistent sessions or XRF. See “Signon retention with XRF and VTAM persistent sessions” on page 61 for migration impact.
INQUIRE CORBASERVER	PORT SSL SSLPORT STATE	The options PORT SSL AND SSLPORT , introduced in CICS TS 2.1, are obsolete, and at run-time CICS always returns the following values: • Zero for both PORT and SSLPORT • SSLNO for SSLPORT 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. The option STATE is replaced by ENABLESTATUS.
INQUIRE DISPATCHER	ACTHPTCBS MAXHPTCBS	ACTHPTCBS displayed the number of H8 mode open TCBs that were active, and MAXHPTCBS displayed the number that CICS was allowed to attach. H8 mode open TCBs no longer exist.
INQUIRE PROGRAM	JVMDEBUG	The JVMDEBUG option is obsolete and CICS always returns NODEBUG as the CVDA value if JVMDEBUG is specified.

Table 19. Obsolete system programming commands and options (continued)

Command	Options	Comments / Explanation
INQUIRE PROGRAM	HOTPOOLING HOTPOOL NOTHOTPOOL	The values Hotpool and Nothotpool were used to show whether or not the Java program object was to be run in a preinitialized Language Environment enclave.
SET DISPATCHER	MAXHPTCBS	This option used to specify the maximum number of H8 mode open TCBs that CICS was allowed to attach. H8 mode open TCBs no longer exist.
SET PROGRAM	HOTPOOL NOTHOTPOOL	The values Hotpool and Nothotpool were used to show whether or not the Java program object was to be run in a preinitialized Language Environment enclave.

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).

Obsolete CVDA values

Table 20 shows the CVDA values that are now obsolete.

Table 20. Obsolete CVDA values

CVDA	value
HOTPOOL	1065
NOTHOTPOOL	1066

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 030100 for CICS TS for z/OS Version 3 Release 1. Use the EXEC CICS INQUIRE SYSTEM OSLEVEL(data_area) command to determine the level of z/OS; CICS returns 010400 for z/OS Release 1.4.

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 version and release number are no longer implicit in the CICS level number.

The CICS level number in CICS TS 3.1 is 0640. This number is returned in the RELEASE parameter of the INQUIRE SYSTEM command. The 0640 number also appears in other forms such as 6.4.0 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 DFHPD640.

Chapter 8. CICS-supplied utility programs

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

- "Changed utility programs"
- "New utility programs" on page 66
- "New EJB utility sample programs" on page 66

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"
- "Changes to the trace formatting utility program, DFHTU640" on page 64
- "Changes to the IPCS dump exit routine, DFHPD640" on page 64
- "Changes to DFH$MOLS and DFH0STAT sample utility programs" on page 64
- "Changes to the Resource Manager for Enterprise Beans" on page 64
- "Changes to WebSphere utilities" on page 64

Changes to the CSD utility program, DFHCSDUP

The CSD utility program is enhanced to support new and changed resource types and attributes. See Chapter 4, "Resource definition (online) changes," on page 23 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.

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
- JVMPOOL
- REQUESTMODEL
- TCP/IP
- TCPIPSERVICE.

See the *CICS Performance Guide* for details of statistics data.

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Changes to the trace formatting utility program, DFHTU640

The trace formatting utility program is renamed to DFHTU640, where 640 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 DFHTU640 on the TYPETR parameter for these functional areas are the same as the CETR trace component codes.

See “Changes to CETR” on page 20 for a list of these.

Changes to the IPCS dump exit routine, DFHPD640

The dump formatting utility program is renamed to DFHPD640, where 640 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 20 for a list of these.

Changes to DFH$MOLS and DFH0STAT sample utility programs

DFH$MOLS, the sample program for formatting monitoring data, is enhanced to:

- 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 Release Guide for CICS TS for z/OS, Version 2.2 or the *CICS Performance Guide* for more information about DFH0STAT.

Changes to the Resource Manager for Enterprise Beans

You can now use the Resource Manager for Enterprise Beans to determine which version of GIOP is advertised in the published IOR for a specific enterprise bean.

For details of the Resource Manager for Enterprise Beans, see the *CICS Operations and Utilities Guide*.

Changes to WebSphere utilities

CICS TS for z/OS, Version 2.3 ships with WebSphere Application Server Version 5. This section describes how the WebSphere® utilities used with CICS differ from their counterparts in WebSphere Application Server Version 4, which was shipped with CICS TS for z/OS, Version 2.2.

The Assembly Toolkit (ATK) and the Application Assembly Tool (AAT)

The Assembly Toolkit (ATK) and the Application Assembly Tool (AAT) can both be used to deploy enterprise beans for use with CICS TS for z/OS, Version 2.3. It is recommended that you use the most recent version available to you.

- The Assembly Toolkit (ATK) is a component of the Application Server Toolkit (ASTK), which is supplied with WebSphere Application Server Version 5.1. (ASTK is also available through other distribution channels.)
- The Application Assembly Tool (AAT) is the predecessor to the ATK, and is a component of WebSphere Application Server Advanced Single Server Edition Version 4.0, and WebSphere Application Server Version 5.0. It is not included in WebSphere Application Server Version 5.1.

If you are using ATK to deploy your enterprise beans, you can choose the format that is used for saving each ejb-jar file, such as EJB 1.1 or EJB 2.0. It is recommended that where possible, you create deployment descriptors for EJB 1.1.

The AAT supplied with WebSphere Application Server Version 5.0 (but not that supplied with WebSphere Application Server Version 4.0) supports EJB 2.0 JAR files. If you use the WebSphere Version 5.0 AAT to edit an EJB 1.1 ejb-jar file, by default AAT saves the edited file in EJB 1.1 format. However, if you create a *new* ejb-jar file, AAT saves it in EJB 2.0 format.

Although CICS currently supports only Version 1.1 of the Enterprise JavaBeans specification, it tolerates EJB 2.0 JAR files. It ignores any 2.0-specific features in the deployment descriptor, except for local interfaces. (If you try to deploy an EJB 2.0 JAR file that contains local interfaces, CICS issues an error message and the JAR file becomes unresolved.)

The WebSphere COS Naming Directory Server

The COS Naming Directory Server supplied with WebSphere Application Server Version 5 differs from that supplied with WebSphere Application Server Version 4. From Version 5 onwards:

- The default TCP/IP port used by the COS Naming Directory Server is 2809 (rather than 900 in WebSphere Version 4).
- Java objects must be published to a specially-architected location called "`domain/legacyRoot`". (CICS publishes Java objects to a context defined by the JNDIPREFIX option of the CORBASERVER definition, where the JNDI prefix is a relative path.) If you do not specify the `/domain/legacyRoot` path from the root node of the name space, CICS tries to publish Java objects to a JNDI prefix location relative to the root node itself. This works for the COS Naming Directory Server supplied with WebSphere Application Server Version 4, but fails with that supplied with later versions of WebSphere Application Server.

  The recommended way to specify the location of your name server is on the `com.ibm.cics.ejs.nameserver` property in the JVM system properties file. If you use the COS Naming Directory Server supplied with WebSphere Application Server Version 5, you should specify the location like this:

```
com.ibm.cics.ejs.nameserver=iiop://mycsserv.hursley.ibm.com:2809/domain/legacyRoot
```

  For more information, see the *CICS System Definition Guide*.

New utility programs

Table 21 shows new utility programs.

Table 21. New utility programs

Program	Function	Description
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.

New EJB utility sample programs

CICS supplies three new utility programs for use with enterprise beans. The programs illustrate how to:

1. Publish a connection factory to a JNDI namespace (the `CICSConnectionFactoryPublish` sample). You can use the sample to create a **ConnectionFactory** object suitable for use with the CCI Connector for CICS TS, and to publish it to the JNDI namespace used by the local CICS region. An enterprise bean or Java program, running on CICS, can then perform a JNDI lookup to obtain a reference to the connection factory.
2. Retract a previously-published connection factory from the JNDI namespace (the `CICSConnectionFactoryRetract` sample).
3. Look up a connection factory in the JNDI namespace (the `CCI Connector` sample). This sample also shows you how to use the CCI Connector for CICS TS to call a CICS server program.

The `CICSConnectionFactoryPublish`, `CICSConnectionFactoryRetract`, and `CCI Connector` samples are described in *Java Applications in CICS*.

Chapter 9. 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 68
- "Changes to global user exit points" on page 69
- "New global user exit points" on page 70

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 3 Release 1 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 22 shows the global user-exit points that are obsolete.

Table 22. Obsolete global user-exit points

Exit name	Module or domain	Reason
XTCTIN	Terminal control program	This exit was invoked on TCAM input events. It is no longer called because CICS Transaction Server for z/OS, Version 3 Release 1 does not support the TCAM/ACB interface, and it only supports the TCAM/DCB interface indirectly.
XTCTOUT	Terminal control program	This exit was invoked on TCAM output events. It is no longer called because CICS Transaction Server for z/OS, Version 3 Release 1 does not support the TCAM/ACB interface, and it only supports the TCAM/DCB interface indirectly.

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Changes to the standard parameter list

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

- "Changes to the TCB two-character task indicators."
- "The complete list of TCB two-character task indicators."

Changes to the TCB two-character task indicators

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. TCB modes are represented in DFHUEPAR as both a two-character code and a symbolic value.

Table 23. TCB indicators removed from DFHUEPAR. Description

Symbolic value	2-byte code	Change	Description
UEPTH8	H8	Deletion	A Java hotpooling mode TCB
UEPTL9	L9	Addition	An L9 open TCB, used for OPENAPI programs that are in user key
UEPTX8	X8	Addition	An X8 open TCB, used for C and C++ programs, compiled with the XPLINK option, that are in CICS key
UEPTX9	X9	Addition	An X9 open TCB, used for C and C++ programs, compiled with the XPLINK option, that are in user key

The complete list of TCB two-character task indicators

Table 24. TCB indicators in DFHUEPAR

Symbolic value	2-byte code	Description
UEPTQR	QR	The quasi-reentrant mode TCB
UEPTRO	RO	The resource-owning mode TCB
UEPTCO	CO	The concurrent mode TCB
UEPTSZ	SZ	The FEPI mode TCB
UEPTRP	RP	The ONC/RPC mode TCB
UEPTFO	FO	The file-owning mode TCB
UEPTSL	SL	The sockets listener mode TCB
UEPTSO	SO	The sockets mode TCB
UEPTS8	S8	The secure sockets layer mode TCB
UEPTD2	D2	The CICS–DB2 housekeeping mode TCB
UEPTL8	L8	An L8 open TCB, used for OPENAPI TRUEs, or OPENAPI programs that are in CICS key
UEPTL9	L9	An L9 open TCB, used for OPENAPI programs that are in user key
UEPTJ8	J8	A J8 open TCB, used for JVMs that are in CICS key
UEPTJ9	J9	A J9 open TCB, used for JVMs that are in user key
UEPTJM	JM	A JM TCB, used for the master JVM that initializes the shared class cache

Table 24. TCB indicators in DFHUEPAR (continued)

Symbolic value	2-byte code	Description
UEPTX8	X8	An X8 open TCB, used for C and C++ programs, compiled with the XPLINK option, that are in CICS key
UEPTX9	X9	An X9 open TCB, used for C and C++ programs, compiled with the XPLINK option, that are in user key

Changes to global user exit points

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

Table 25. Changed global user exit points

Exit name	Description of changes
XFAINTU	**Parameter list change** **UEPFATK** Address of the 8–byte facilitytoken **UEPFAMCH** Address of a 1-byte value that indicates the mechanism used to start the user transaction using this bridge facility. Possible values are: **UEPFASTA** Started using START BREXIT. **UEPFALNK** Started using a link to DFHL3270. **UEPFAREG** 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: **UEPFAROU** This region is the router for this bridge facility. **UEPFAAOR** This region is the AOR for this bridge facility.
XICEREQ XICEREQC	Two new exit-specific parameters are added to these interval control exit points : **UEPDATE** Address of a fullword copy of the EIB date value (EIBDATE). **UEPTIME** Address of a fullword copy of the EIB time value (EIBTIME).
XPCFTCH	When the exit XPCFTCH is invoked from a C or C++ programs that was compiled with the XPLINK option, a flag is set indicating that any modified entry point address, if specified by the exit, will be ignored.
XPCTA	When the exit XPCTA is invoked from a C or C++ programs that was compiled with the XPLINK option, a flag is set indicating that a resume address, if specified by the exit, will be ignored.

Table 25. Changed global user exit points (continued)

Exit name	Description of changes
XRSINDI	**Parameter list change** **UEPIDTYP** 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: • UEIDBEAN EQU 34 Enterprise Bean • UEIDCSRV EQU 32 CorbaServer • UEIDDJAR EQU 33 DJAR

Changes because of channels

Global user exit programs cannot access containers created by application programs. They can, however, create their own channels and pass them to programs which they call.

Minor changes to the following exits are described in the *CICS Customization Guide*:

- XFCAREQ
- XFCAREQC
- XFCREQ
- XFCREQC
- XICEREQ
- XICEREQC
- XNQEREQ
- XNQEREQC
- XPCREQ
- XPCREQC
- XTDEREQ
- XTDEREQC
- XTSEREQ
- XTSEREQC

New global user exit points

Table 26 shows the new global user-exit points.

Table 26. New global user-exit points

Module or domain	Exit name	When invoked
EXEC interface program	XPCERES	XPCERES is invoked by the EXEC interface program, on the target region, before CICS processes either of the following kinds of dynamically-routed link request: • A distributed program link (DPL) call • A Link3270 bridge request It is described in the *CICS Customization Guide*.

Table 26. New global user-exit points (continued)

Module or domain	Exit name	When invoked
File control domain	XFCFRIN	For an introduction to XFCRIN see "XFCFRIN and XFCFROUT global user exits" XFCFRIN 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. For details of these global user exit points see the *CICS Customization Guide*.
	XFCFROUT	For an introduction to XFCROUT see "XFCFRIN and XFCFROUT global user exits" 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*.
Interval control program	XICERES	XICERES is invoked by the interval control program, before CICS processes a non-terminal-related EXEC CICS START request that has been dynamically routed to this region. It is described in the *CICS Customization Guide*.
Security manager domain	XSNEX	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 50 for details of the changed behavior). The intention behind XSNEX, and its supporting sample programs 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 50.

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*.

Chapter 10. 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 transaction manager"

Changes for transaction manager

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

- "Transaction management function, INQUIRE_CONTEXT"

Transaction management function, INQUIRE_CONTEXT

The INQUIRE_CONTEXT function of the DFHBRIQX macro returns new values:

- FACILITYTOKEN, containing the facility token of the bridge facility
- START_TYPE containing an indicator of how the 3270 bridge was started.

The BRIDGE_FACILITY_TOKEN value has been renamed BFB_TOKEN to avoid confusion.

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Chapter 11. User-replaceable programs

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

It covers the following topics:

- "Changes to user-replaceable programs"
- "New user-replaceable programs" on page 79

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. For example, there might be changes to the parameters passed to the programs, or there might be new actions that the programs need to take. To help you to identify any code changes that are required, compare your customized programs with the sample code in the user-replaceable sample programs provided with this CICS release.

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.

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 76 (DFHJVMAT)
- "The IIOP security program, DFHXOPUS" on page 76 (DFHXOPUS)
- "The program autoinstall program" on page 77 (DFHPGADX)
- "The terminal autoinstall program" on page 77 (DFHZATD*x*)
- The "The node error program" on page 77 (NEP).
- "The user-replaceable data conversion program" on page 78 (DFHUCNV)
- "DFHCNV" on page 78

The dynamic and distributed routing programs

- 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

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customized versions of the routing programs are recompiled using the latest DFHDYPDS DSECT supplied in library CICSTS31.CICS.SDFHMAC.

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

New abend code AIID

A new abend code, AIID, may be returned in the DYRABCDE field of the communications area passed to the distributed routing program, DFHDSRP, if the routing program is invoked for transaction abend. (Note that this invocation occurs on the *target* region, and then only if the routing program has specified, on a previous call on the routing region, that it should be re-invoked, on the target region, for transaction initiation, termination, and abend.)

AIID indicates to the distributed routing program that a routed method request for an enterprise bean or CORBA stateless object has failed, on the target region, because the target CorbaServer on the target region is disabled.

After a routing error, the routing program has better information on which to base a decision whether or not to remove an AOR from its routing set. For example:

- If a routing error occurs because the target AOR, or the connection to it, is unavailable, the routing program may decide to remove the AOR, temporarily, from its routing set, until sufficient time has elapsed for the AOR or connection to be repaired. In the meantime, it directs all requests to other AORs.
- If a routing error occurs because the target CorbaServer on the target AOR is disabled (and the AOR supports multiple CorbaServers), the routing program may decide *not* to remove the AOR from its routing set. It redirects the failed request to a different AOR, but recognizes that the first AOR remains a valid target for requests for objects supported by its other CorbaServers.

  For detailed information about how to code a distributed routing program to deal with a disabled CorbaServer, see the *CICS Customization Guide*.

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, DFHXOPUS

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.

The sample IIOP security program, DFHXOPUS, has been changed to handle GIOP 1.2 request headers. The actions taken by the sample program have not changed. However, versions of GIOP from 1.2 onwards do not support the IIOP Principal field in request headers. In some circumstances (where SSL(YES) or SSL(NO) is specified on the TCPIPSERVICE definition and there is no RACF user ID associated with the SSL client certificate), DFHXOPUS uses the first eight characters of the IIOP Principal, if there is one, to derive the user ID that it returns. For GIOP 1.2 requests, the IIOP Principal is not present and so DFHXOPUS will never return it as the user ID.

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 program

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 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 DFHZC 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
3405 3407 3409 3417 3418 3419 3420
3421 3422 3424 3429 3433 3434 3435 3444 3445 3446 3447 3453 3454 3455
3461 3462 3464 3465 3466 3468 3469 3470 3471 3474 3475 3476 3477 3479
3480 3481 3485 3486 3487 3488 3489 3490 3491 3495 4902 4903 4904 4905
4906 4907 4909 4910 4911 4912 4913 4914 4915 4916 4917 4918 4919
4920 4922 4929 4924 4925 4926 4927 4928 4930 4931 4932 4934 4935
4936 4937 4938 4939 4940 4941 4942 4943 4944 4945 4946 4947 4949
6591 6594 6595 6596
```

For details of all the action flags and their meanings, see the *CICS Customization Guide*.

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 44 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.

DFHCNV

There is a new DFHCNV macro parameter operand.

The new operand SYSDEF has been added to the TYPE=INITIAL and TYPE=ENTRY macro parameters CLINTCP and SRVERCP. These macros define the user-replaceable data conversion table DFHCNV. The DFHCNV TYPE=INITIAL macro defines the beginning of the conversion table. It gives a list of valid code pages. The DFHCNV TYPE=ENTRY macro specifies a name and type to uniquely identify a data resource. There must be one for each resource for which conversion is required.

For information about the format of the changed parameters, see the *CICS Family: Communicating from CICS on System/390* Guide.

New user-replaceable programs

The following user-replaceable programs are added:

- "DFHEJDNX"
- "DFHEJEP"
- "DFHJVMRO"
- "DFHAPXPO" on page 80

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*.

DFHJVMRO

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 DFHJVMRO 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*.

DFHAPXPO

DFHAPXPO is loaded during the PIPI preinitialization phase of each Language Environment enclave where C or C++ programs compiled with the XPLINK option are to be run. It allows you to alter the default Language Environment run-time options. See the *z/OS Version 1.4 Language Environment Programming Guide*, SC22-7561, for details of the Language Environment options that can be reset. The program must be written in Assembler language.

The source for DFHAPXPO is supplied in the CICSTS31.CICS.SDFHSAMP library.

For information on how you can tailor this user-replaceable program to your own requirements, see the *CICS Customization Guide*.

Chapter 12. 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 statistics records"
- "Calculating CICS and DB2 processor times for DB2 Version 6 or later" on page 83

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 1836 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.

For details of all new and changed monitoring fields, see the *CICS Performance Guide*.

Changes to statistics records

There are changes to CICS statistics records. These are usually because of new domains, or they are a result of enhancements to CICS. As a result, a number of statistics DSECTs have new or changed fields. The changed DSECTs are:

Copybook	For functional area
DFHA17DS	File resource statistics.
DFHD2GDS	CICS DB2 connection global statistics.
DFHD2RDS	CICS DB2 entry resource statistics.
DFHDSGDS	Dispatcher global statistics.
DFHEJBDS	Enterprise beans
DFHEJRDS	Enterprise Java CorbaServer resource statistics.

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DFHLGSDS Log stream resource statistics.

DFHMNTDS Transaction performance monitoring resource statistics.

DFHPGRDS (new DSECT)
JVM programs

DFHPIPDS (new DSECT)
Pipeline resource statistics

DFHPIWDS (new DSECT)
Webservice resource statistics

DFHSJGDS The JVM pool

DFHSJRDS (new DSECT)
JVM profiles

DFHSMSDS Storage above 16MB

DFHSORDS TCP/IP service resource statistics.

DFHSTGDS Statistics domain global statistics.

DFHWBRDS Urimap resource statistics

DFHWBSDS Urimap global statistics

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

DFHA17DS
DFHD2GDS
DFHD2RDS
DFHEJRDS
DFHLGSDS
DFHMNGDS
DFHSMSDS
DFHSORDS
DFHSTGDS

This is because the new fields are added to the end and do not affect the offsets of the unchanged fields. (Not all of these DSECTS existed at all earlier releases of CICS, but if you were using one or more of them, your application will simply not see the new fields.)

The changes to DFHDSGDS DFHMNTDS [1]and DFHSJGDS are such that the old DSECTs are not compatible with the new DSECT, and application programs using these DSECTs must be recompiled. (Again, a reminder that not all of these DSECTS existed at all earlier releases of CICS, but if you were using one or more of them, this statement applies to you.)

Collecting statistics for Java programs that run in a JVM

Statistics for Java programs that run in a JVM are collected separately from statistics for other programs, because the JVM programs are not loaded by CICS. CICS does not collect statistics for JVM programs when a COLLECT or PERFORM STATISTICS PROGRAM command is issued; to see them, you need to use the COLLECT or PERFORM STATISTICS JVMPROGRAM command instead.

1. Data is not written to SMF by DFHMNTDS. It is only relevant when used through the COLLECT STATISTICS interface.

However, when you browse program names using the INQUIRE PROGRAM command, JVM programs *are* found. If you have an application that collects statistics for programs by browsing with the INQUIRE PROGRAM command, and then issuing the COLLECT STATISTICS PROGRAM command for the program names that it finds, the application will now receive a “not found” response when it attempts to collect statistics for any JVM programs. (Previously, zeros would have been returned as statistics values for these programs.)

To avoid receiving this response, make the application check the RUNTIME value for each program name that it finds. If the RUNTIME value is JVM, the application should not issue the COLLECT STATISTICS PROGRAM command for that program name. If you want to see the statistics for programs with a RUNTIME value of JVM, you can make the application issue the COLLECT STATISTICS JVMPROGRAM command for those programs. Note that the statistics information that is collected for JVM programs is not the same as that collected for other programs.

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 the *CICS Customization Guide*.

The values in that list, which are new or revised for CICS TS Version 3 Release 1, are shown in Figure 3.

```
STID      STID
Symbolic  Value  Copybook      Type of record
name

STIWBG      101  DFHWBEDS      URIMAPs (Global) ID
STIWBR      104  DFHWBRDS      URIMAPs (Resource) ID
STIPIR      105  DFHPIRDS      PIPELINE (Resource) ID
STIPIW      106  DFHPIWDS      WEBSERVICE (Resource) ID
```

Figure 3. New Statistics data record copybooks related to STID name and value

For details of all the statistics, and all the supporting copybooks, see the *CICS Performance Guide*.

Calculating CICS and DB2 processor times for DB2 Version 6 or later

When CICS is connected to DB2 Version 6 or later, and is exploiting the open transaction environment, the CICS DB2 attachment facility uses CICS-managed open TCBs rather than CICS DB2 subtask TCBs. This means the CICS monitoring facility can measure activity that was previously only reported in the DB2 accounting record (the SMF type 101 record). For example, CICS can now measure the processor time consumed on the DB2 thread and the processor time consumed in DB2 (the CLASS 1 and CLASS 2 CPU time). When CICS is using L8 open TCBs, the CPU time reported for these TCBs by the CICS monitoring facility includes the DB2 CLASS 1 processor time.

When CICS is connected to DB2 Version 6 or later, **do not** add together the processor time from the CICS records (SMF type 110 records) and the DB2 accounting records (SMF type 101 records) when calculating the total processor time for a single transaction, because the DB2 processor time would then be included twice. The total processor time for a single transaction is recorded in the USRCPUT field in the CICS records (performance class data field 008 from group DFHTASK). This field includes all processor time used by the transaction when it

was executing on any TCB managed by the CICS dispatcher. “Important changes to accounting for processor time in the open transaction environment” on page 136 has more detailed information about this.

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 13, “Redefining and initializing the local and global catalogs,” on page 87
- Chapter 14, “Migration planning for application development,” on page 89
- Chapter 15, “Migration planning for BTAM and TCAM networks,” on page 91
- Chapter 16, “Migration planning for connector applications,” on page 93
- Chapter 17, “Migration planning for the CICS DB2 interface,” on page 95
- Chapter 18, “Migration planning for users of Debug Tool for z/OS,” on page 99
- Chapter 19, “Migration planning for enhanced inter-program data transfer: channels as modern-day COMMAREAs,” on page 101
- Chapter 20, “Migration planning for the integrated translator,” on page 105
- Chapter 21, “Migration planning for improved Internet security,” on page 107
- Chapter 22, “Migration planning for Java applications,” on page 109
- Chapter 23, “Migration planning for Language Environment,” on page 119
- Chapter 24, “Migration planning for the Link3270 bridge with the ACCUM option,” on page 121
- Chapter 25, “Migration planning for multiregion operation (MRO),” on page 123
- Chapter 26, “Migration planning for Named Counter and Shared Temporary Storage servers,” on page 127
- Chapter 27, “Migration planning for sample applications,” on page 129
- Chapter 28, “Migration planning for threadsafe programming and the open transaction environment (OTE),” on page 131
- Chapter 29, “Migration planning for CICS Web support applications,” on page 139
- Chapter 30, “Migration planning for the XPLINK option with C and C++ programs,” on page 143
- Chapter 31, “Migration planning for Business Transaction Services (BTS),” on page 145

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Chapter 13. Redefining and initializing the local and global catalogs

When you migrate to a new CICS release, you need to delete, redefine and initialize the CICS local catalog (LCD) and global catalog (GCD).

1. Delete your existing local catalog and global catalog.
2. Define and initialize new local and global catalogs, following the instructions in the *CICS System Definition Guide* for setting up catalog data sets. When you initialize the catalogs, make sure that you use the CICS TS for z/OS, Version 3.1 versions of the DFHRMUTL and DFHCCUTL utility programs and the sample jobs.
3. When you start the CICS region for the first time after migration, make sure that this is an initial start (with the START=INITIAL parameter).

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Chapter 14. Migration planning for application development

This chapter discusses changes to CICS translator support for high-level language language compilers. It covers the following topics:

- Translator support for high-level languages
- Runtime support
- Support for OO COBOL

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 the *CICS Transaction Server for z/OS Release Guide*.

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:

Language	CICS-online	EXCI	Integrated translator
C	DFHYITDL	DFHYXTDL	DFHZITDL (without XPLINK) DFHZITFL (with XPLINK)
C++	DFHYITEL	DFHYXTEL	DFHZITEL (without XPLINK) DFHZITGL (with XPLINK)
COBOL	DFHYITVL	DFHYXTVL	DFHZITCL
PL/I	DFHYITPL	DFHYXTPL	DFHZITPL

The following CICS translator options, which all relate to the unsupported compilers, are obsolete:

- ANSI85
- LANGLVL
- FE

The CICS translators ignore these and issue a return code 4 warning message.

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Runtime support

Although application program development support for old, obsolete compilers is withdrawn, CICS usually continues to provide runtime 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.

Support for OS/VS COBOL

In CICS TS 3.1, runtime support for OS/VS COBOL programs is withdrawn. If you attempt to use an OS/VS COBOL program, the abend code ALIK is issued, and CICS abnormally terminates the task and disables the program.

OS/VS COBOL programs must be upgraded to Language Environment-conforming COBOL, and recompiled against a level of COBOL compiler supported by CICS. Enterprise COBOL for z/OS Version 3 is the recommended compiler.

See the *CICS Application Programming Guide* for notes on converting OS/VS COBOL programs to Enterprise COBOL. The *Enterprise COBOL for z/OS: Compiler and Run-Time Migration Guide* has more detailed information about language differences, and describes facilities to help with conversion.

Support for OO COBOL

In CICS TS 3.1, COBOL class definitions and methods (object-oriented COBOL) cannot be used. This restriction includes both Java classes and COBOL classes.

Modules compiled in earlier CICS releases with the OOCOBOL translator option cannot execute in CICS TS 3.1. The OOCOBOL translator option was used for the older SOM-based (System Object Manager-based) OO COBOL, and runtime support for this form of OO COBOL was withdrawn in z/OS V1.2. The newer Java-based OO COBOL, which is used in Enterprise COBOL, is not supported by the CICS translator.

If you have existing SOM-based OO COBOL programs, you should rewrite your OO COBOL into procedural (non-OO) COBOL in order to use the Enterprise COBOL compiler. Note that the newer Java-based OO COBOL is not compatible with SOM-based OO COBOL programs, and is not intended as a migration path for SOM-based OO COBOL programs.

Chapter 15. Migration planning for BTAM and TCAM networks

This chapter covers migration for BTAM and TCAM networks. It covers the following topics:

- "BTAM networks"
- "TCAM networks"

BTAM networks

If you have a network of BTAM terminals connected to a back-level CICS terminal-owning region (TOR), you will not be able (as you were in previous CICS releases) to route transactions from them to a CICS TS for z/OS, Version 3.1 application-owning region (AOR). You must either upgrade your terminals or route to a previous version of CICS.

TCAM networks

the ACB interface of TCAM

If you have a network of terminals connected by the ACB interface of TCAM to a back-level CICS TOR, you will not be able (as you were in previous CICS releases) to route transactions from them to a CICS TS for z/OS, Version 3.1 AOR. You must migrate your connections to use TCAM/DCB or (preferably) ACF/VTAM, or route to a previous version of CICS. (All terminals that support TCAM/ACB also support ACF/VTAM.)

the DCB interface of TCAM

If you have a network of terminals connected by the DCB interface of TCAM to, for example, a CICS TS 2.3 TOR, you will not be able to migrate the TOR to CICS TS for z/OS, Version 3.1. To do so, you must migrate your connections to use ACF/VTAM.

If you have a network of terminals connected by the DCB interface of TCAM to a back-level CICS TOR, you will (as in previous CICS releases) be able to route transactions from them to a CICS TS for z/OS, Version 3.1 AOR. However, you are recommended to migrate your connections to use ACF/VTAM.

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Chapter 16. Migration planning for connector applications

Support for the CICS Connector for CICS TS, introduced in CICS TS for z/OS, Version 2.1, is withdrawn.

A CICS connector is a software component that allows a Java client application to invoke a CICS application. CICS TS for z/OS, Version 2.3 introduced a new CICS connector, the CCI Connector for CICS TS, that performs a similar role to the CICS Connector for CICS TS—that is, it enables a Java program or enterprise bean running on CICS Transaction Server for z/OS to link to a CICS server program. However, whereas the old CICS Connector for CICS TS implemented the IBM-proprietary CCF interface, the new CCI Connector for CICS TS implements the industry-standard Common Client Interface (CCI) defined by the J2EE Connector Architecture Specification, Version 1.0.

Since CICS TS for z/OS, Version 2.3 it has been recommended that:

- When writing new connector applications, you use the CCI Connector for CICS TS rather than the CICS Connector for CICS TS
- You migrate any existing applications that use the CICS Connector for CICS TS to use the CCI Connector for CICS TS instead

Because runtime support for the CICS Connector for CICS TS is withdrawn in CICS TS for z/OS, Version 3.1, these recommendations have now become mandatory. For advice on using the CCI Connector for CICS TS in new applications, and on migrating existing applications that use the CICS Connector for CICS TS to use the CCI Connector for CICS TS instead, see the *Java Applications in CICS*.

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Chapter 17. Migration planning for the CICS DB2 interface

This chapter discusses CICS database management with DB2. It covers the following topics:

- "DB2 migration"
- "DB2 group attach facility"
- "Enhancement to INQUIRE DB2TRAN" on page 97
- "DB2 performance enhancements" on page 97
- "Change of DSNCLI ownership" on page 98

DB2 migration

CICS supports the following releases of DB2:

- DB2 Universal Database™ Server for OS/390 and z/OS Version 7
- DB2 Universal Database Server for OS/390 and z/OS Version 8

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 product tape, and you must use this version of the attachment facility to connect a CICS Transaction Server region to DB2.

The CICS DB2 attachment facility 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.

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

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- 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 17 and Chapter 7, “The system programming interface (SPI),” on page 53 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, the user application programs must be threadsafe. In this case, no TCB switches are needed until the task terminates, unless it issues a non-threadsafe CICS request. If 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 66 for a summary of DFHEISUP, or the *CICS Operations and Utilities Guide* for more information about it.

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

CSD resource definitions for DB2

The interpretation of TCBLIMIT on the DB2CONN resource definition has changed. The change in meaning is as follows:

Table 27.

Attribute	CICS TS 1.3	Now
TCBLIMIT (on DB2CONN)	Specifies the number of subtask TCBs that CICS can create to process DB2 requests.	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.

INQUIRE DB2CONN TCBS command

The interpretation of the number of TCBs returned on the CEMT, or EXEC CICS, INQUIRE DB2CONN command has changed.

CICS TS 1.3

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.

Now

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.

Change of DSNCLI ownership

DSNCLI is the CICS-DB2 Language Interface module.

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 18. Migration planning for users of Debug Tool for z/OS

Debug Tool Version 5 Release 1, with PTF UQ88297 for APAR PQ94401, supports CICS TS for z/OS, Version 3.1. Earlier versions of the tool do not support this CICS release.

Debug Tool communicates with a remote debugger by using TCP/IP Sockets. With CICS TS for z/OS, Version 2.3 and later CICS releases, Debug Tool uses the CICS Sockets domain. With earlier CICS releases, Debug Tool used the TCP/IP Socket Interface for CICS feature of TCP/IP for MVS. If you use Debug Tool in remote debug mode:

- Ensure that TCP/IP support is enabled for the CICS region (see the *CICS Transaction Server for z/OS Installation Guide*).
- Now that the TCP/IP Socket Interface feature is not required by Debug Tool, determine whether you use it for any other purpose. If you do not, then you can remove the TCP/IP Socket Interface feature from your system.

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Chapter 19. Migration planning for enhanced inter-program data transfer: channels as modern-day COMMAREAs

This topic describes:
- "Migrating from COMMAREAs to channels"
- "Coexistence with other CICS products" on page 103

Migrating from COMMAREAs to channels

This topic describes:
- "Migration of existing functions"
- "Migration to the new function"

Migration of existing functions

- CICS application programs that use traditional communications areas (COMMAREAS) to exchange data continue to work as before.
- If you employ a user-written dynamic or distributed routing program for workload management, rather than CICSPlex SM, you must modify your program to handle the new values that it may be passed in the DYRLEVEL, DYRTYPE, and DYRVER fields of the DFHDYPDS communications area.

Migration to the new function

This section describes how you can migrate several types of existing application to use channels and containers rather than communication areas (COMMAREAs).

It's possible to replace a COMMAREA by a channel with a single container. While this may seem the simplest way to move from COMMAREAs to channels and containers, it's not good practice to do this. Because you're taking the time to change your application programs to exploit this new function, you should implement the "best practices" for channels and containers. Channels have several advantages over COMMAREAs and it pays to design your channels to make the most of these improvements.

Migrating LINK commands that pass COMMAREAs

To migrate two programs which use a COMMAREA on a LINK command to exchange a structure, change the instructions shown in Table 28.

Table 28. Migrating LINK commands that pass COMMAREAs

Program	Before	After
PROG1	EXEC CICS LINK PROGRAM(PROG2) COMMAREA(structure)	EXEC CICS PUT CONTAINER(structure-name) CHANNEL(channel-name) FROM(structure) EXEC CICS LINK PROGRAM(PROG2) CHANNEL(channel-name) ... EXEC CICS GET CONTAINER(structure-name) CHANNEL(channel-name) INTO(structure)

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Table 28. Migrating LINK commands that pass COMMAREAs (continued)

Program	Before	After

PROG2	EXEC CICS ADDRESS
	  COMMAREA(structure-ptr)
	...
	RETURN
		EXEC CICS GET CONTAINER(structure-name)
		  INTO(structure)
		...
		EXEC CICS PUT CONTAINER(structure-name)
		  FROM(structure)
		RETURN

Migrating XCTL commands that pass COMMAREAs

To migrate two programs which use a COMMAREA on an XCTL command to pass a structure, change the instructions shown in Table 29.

Table 29. Migrating XCTL commands that pass COMMAREAs

Program	Before	After

PROG1	EXEC CICS XCTL
	  PROGRAM(PROG2)
	  COMMAREA(structure)
		EXEC CICS PUT CONTAINER(structure-name)
		  CHANNEL(channel-name)
		  FROM(structure)
		EXEC CICS XCTL PROGRAM(PROG2)
		  CHANNEL(channel-name)
		...

PROG2	EXEC CICS ADDRESS
	  COMMAREA(structure-ptr)
	...
		EXEC CICS GET CONTAINER(structure-name)
		  INTO(structure)
		...

Migrating pseudoconversational COMMAREAs on RETURN commands

To migrate two programs which use COMMAREAs to exchange a structure as part of a pseudoconversation, change the instructions shown in Table 30.

Table 30. Migrating pseudoconversational COMMAREAs on RETURN commands

Program	Before	After

PROG1	EXEC CICS RETURN
	  TRANSID(PROG2)
	  COMMAREA(structure)
		EXEC CICS PUT CONTAINER(structure-name)
		  CHANNEL(channel-name)
		  FROM(structure)
		EXEC CICS RETURN TRANSID(TRAN2)
		  CHANNEL(channel-name)

PROG2	EXEC CICS ADDRESS
	  COMMAREA(structure-ptr)
		EXEC CICS GET CONTAINER(structure-name)
		  INTO(structure)

Migrating START data

To migrate two programs which use START data to exchange a structure, change the instructions shown in Table 31.

Table 31. Migrating START data

Program	Before	After

PROG1	EXEC CICS START
	  TRANSID(TRAN2)
	  FROM(structure)
		EXEC CICS PUT CONTAINER(structure-name)
		  CHANNEL(channel-name)
		  FROM(structure)
		EXEC CICS START TRANSID(TRAN2)
		  CHANNEL(channel-name)

Table 31. Migrating START data (continued)

Program	Before	After
PROG2	`EXEC CICS RETRIEVE INTO(structure)`	`EXEC CICS GET CONTAINER(structure-name) INTO(structure)`

Note that the new version of PROG2 is the same as that in the pseudoconversational example.

Migrating dynamically-routed applications

EXEC CICS LINK and EXEC CICS START commands, which can pass either COMMAREAs or channels, can be dynamically routed.

When a LINK or START command passes a COMMAREA rather than a channel, the routing program can, depending on the type of request, inspect or change the COMMAREA's contents. For LINK requests and transactions started by terminal-related START requests (which are handled by the *dynamic* routing program) but not for non-terminal-related START requests (which are handled by the *distributed* routing program) the routing program is given, in the DYRACMAA field of its communication area, the *address* of the application's COMMAREA, and can inspect and change its contents.

Note: The routing program's communication area is mapped by the DFHDYPDS DSECT.

If you migrate a dynamically-routed EXEC CICS LINK or START command to use a channel rather than a COMMAREA, the routing program is passed, in the DYRCHANL field of DFHDYPDS, the name of the channel. Note that the routing program is given the *name* of the channel, not its address, and so is unable to use the DYRCHANL field to inspect or change the contents of the channel's containers.

To give the routing program the same kind of functionality with channels, an application that uses a channel can create, within the channel, a special container named DFHROUTE. If the application issues a LINK or terminal-related START request (but not a non-terminal-related START request) that is to be dynamically routed, the dynamic routing program is given, in the DYRACMAA field of DFHDYPDS, the address of the DFHROUTE container, and can inspect and change its contents.

If you are migrating a program to pass a channel rather than a COMMAREA, you could use its existing COMMAREA structure to map DFHROUTE.

For introductory information about dynamic and distributed routing, see the *CICS Intercommunication Guide*. For information about writing a dynamic or distributed routing program, see the *CICS Customization Guide*.

Coexistence with other CICS products

A CICS TS 3.1 program can invoke a program on a remote CICS region and pass it a channel. For this to work successfully, the remote region must also be at the CICS TS 3.1 level.

Although pre-CICS TS 3.1 regions do not support channels, you can get them to tolerate channels by applying an APAR. By "tolerate" we mean that, if the back-level CICS region is passed a channel, it will return a meaningful abend code.

If a CICS TS 3.1 application tries to send a channel to a back-level region to which the appropriate APAR has been applied, the 3.1 transaction abends with a meaningful abend code. If a CICS TS 3.1 application tries to send a channel to a back-level region to which the appropriate APAR has *not* been applied, the results are unpredictable.

The following list shows the back-level CICS products that tolerate channels, with the APAR that must be applied in each case:

CICS Transaction Server for z/OS, Version 2 Release 3
APAR PQ92437

CICS Transaction Server for z/OS, Version 2 Release 2
APAR PQ92437

CICS Transaction Server for OS/390, Version 1 Release 3
APAR PQ93048

CICS Transaction Sever for VSE/ESA Release 1.1
APAR PQ83049

Chapter 20. Migration planning for the integrated translator

To install application programs into CICS libraries, you can use one of the CICS-supplied procedures for use with the integrated translator. Note that the procedures, DFHZITCL (for COBOL), DFHZITPL (for PL/I), and DFHZITDL, DFHZITEL, DFHZITFL, and DFHZITGL (for XL C/C++), 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 or XL C/C++ procedures, 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 89 for a list of all the procedures supplied for assembling and compiling application programs.

To use the CICS-supplied procedures 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,

  ```
  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:

  ```
  PARM='NODYNAM,LIB,OBJECT,RENT,MAP,XREF,CICS(''COBOL3,SP'')'
  ```

- To invoke the XL C/C++ compiler and the integrated translator, specify CICS as a compiler option; for example, in the PARM string, as follows:

  ```
  PARM=('RENT SOURCE CICS(SP,DEBUG)')"
  ```

Notes:

1. 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.
2. 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.
3. If the CICS TS 1.3 translator is set up to run with a CICS TS 3.1 LPALIB, Error Return Code 16 will be produced.

   CICS TS 3.1 uses AMODE(31) settings, while CICS TS 1.3 uses AMODE(24). If you intend to run a CICS TS 1.3 translator, you must add to your STEPLIB, an SDFHLOAD that contains the modules DFHEITAB and DFHEITBS from CICS TS 1.3. This addition must be placed prior to the CICS TS 3.1 SDFHLOAD. This will allow the CICS TS 1.3 translator to operate in a CICS TS 3.1 region.

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:

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- 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 21. Migration planning for improved Internet security

Migration of existing functions

- The default setting for the ENCRYPTION system initialization parameter has changed to STRONG. If you have no high encryption ciphers installed (security level 3) on z/OS, then you need to downgrade the default setting for the ENCRYPTION system initialization parameter.
- The NORMAL setting that has been used as the default in previous releases, has changed to MEDIUM for this release of CICS. For migration purposes, NORMAL is accepted as an alternative to MEDIUM.
- The SSLTCBS system initialization parameter is now obsolete and has been replaced by MAXSSLTCBS. MAXSSLTCBS controls the maximum number of S8 TCBs that are allowed to run concurrently in the open transaction environment (OTE) TCB pool for SSL.

Migration to the new function

- You can exploit the CIPHERS attribute to better control the encryption negotiation process between CICS and clients.
- You can use the CRLPROFILE and SSLCACHE system initialization parameters to verify certificates in the SSL handshake and improve the performance of the handshake through sharing the SSL cache across CICS regions.

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Chapter 22. Migration planning for Java applications

This chapter covers migration for Java applications. It covers the following topics:

- "Migration for Java applications that run in a JVM"
- "Running Java programs in a JVM without exploiting the new JVM functions" on page 111
- "Running Java programs in a JVM using the new JVM functions" on page 113
- "Migration for Java programs that do not run in a JVM (hpj-compiled Java program objects)" on page 116

Migration for Java applications that run in a JVM

CICS Transaction Server for z/OS Version 3 Release 1 supports the JVM provided by the IBM Software Developer Kit for z/OS, Java 2 Technology Edition, Version 1.4.2, which features the persistent reusable JVM technology.

Note: There are two versions of the IBM Software Developer Kit for z/OS, Java 2 Technology Edition, Version 1.4.2, a 31-bit and a 64-bit version. CICS Transaction Server for z/OS Version 3 Release 1 supports only the 31-bit version, which must be at the 1.4.2 level.

CICS Transaction Server for z/OS, Version 2 Release 2 supported the JVM provided by the IBM Developer Kit for OS/390 Java 2 Technology Edition Version 1.3.1s, which also featured the persistent reusable JVM technology. Java programs that ran under CICS Transaction Server for z/OS, Version 2 Release 2 and CICS Transaction Server for z/OS, Version 2 Release 3 can also run under CICS Transaction Server for z/OS Version 3 Release 1.

However, the older type of JVM that was introduced in CICS Transaction Server for OS/390, Version 1 Release 3, which was not reusable, is no longer supported. Any Java programs that ran under CICS Transaction Server for OS/390, Version 1 Release 3 must be migrated to Java 2 to run under the reusable JVM. Application migration issues are discussed at:

```
http://java.sun.com/j2se/1.4/compatibility.html
http://java.sun.com/products/jdk/1.3/compatibility.html#incompatibilities1.3
and
http://java.sun.com/products/jdk/1.2/compatibility.html
```

Support for the JVM provided by the IBM Software Developer Kit for z/OS, Java 2 Technology Edition, Version 1.4.2 completely replaces the JVM support provided in CICS TS 1.3. However, you can modify a JVM to run as a single-use JVM and not attempt serial reuse. A single-use JVM is initialized, is used to run a single Java program, and then is automatically destroyed without attempting a JVM reset. You can modify a JVM to be a single-use JVM by specifying either REUSE=NO, or the older option `Xresettable=NO`, in the JVM profile. The single-use JVM is like the earlier JVM that was supported by CICS in CICS TS 1.3. New Java applications should not be developed in such a way that they can only run in a single-use JVM.

To avoid problems with deprecated APIs, you should develop all new Java programs for CICS Transaction Server for z/OS Version 3 Release 1 using an application development environment that supports Java 2 at the same version of Java as used by CICS. You may run code compiled with an older version of Java in a new runtime, provided that it does not use APIs that have been removed in the newer version of Java. Note also that enterprise beans that support the EJB 1.0 specification need to be migrated to the EJB 1.1 specification level using the

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Assembly Toolkit (ATK) or the Application Assembly Tool (AAT), which are supplied with IBM WebSphere Application Server.. Enterprise beans developed using any version of the EJB specification after EJB 1.1 must restrict themselves to the EJB 1.1 APIs.

Invoking multiple Java programs in the same CICS task

The one-JVM-per-stack restriction has been removed. Previously, a stack of programs formed by a succession of EXEC CICS LINK commands, or JCICS program invocations, within the same CICS task, could not contain more than one JVM. (Distributed program link (DPL) requests were not restricted in this way.) As a CICS task could only use one JVM, applications designed in this way could only contain one Java component. Now, multiple JVMs can be allocated to a CICS task, so you can create an application that links together multiple Java programs in the same CICS region. You can also convert your existing complex applications piece by piece, by replacing programs written in other languages with programs written in Java.

Enterprise beans can now link to another Java program within the same CICS task. However, a single CICS task still cannot contain more than one enterprise bean, because CICS treats an execution of an enterprise bean as the start of a new task. You can create an application that includes more than one enterprise bean, but the application will not operate as a single task.

Execution key for Java programs that run in a JVM

The EXECKEY parameter on the PROGRAM resource definition is no longer ignored for Java programs. In CICS Transaction Server for OS/390, Version 1 Release 3 and CICS Transaction Server for z/OS, Version 2 Release 2, CICS made all Java programs execute in CICS key, but they now execute as specified by the EXECKEY parameter.

The default for this parameter is EXECKEY(USER), which means that the program runs in a JVM that executes in user key. (A new type of open TCB, the J9 TCB, is used for these JVMs.) As running applications in user key extends CICS storage protection, it could be beneficial to let most of your Java programs run in a JVM in user key.

You might find that in most cases, the PROGRAM resource definitions for your Java programs are still set to the default of EXECKEY(USER). If you changed the EXECKEY parameter on the PROGRAM resource definitions for any of your Java programs to specify EXECKEY(CICS), you will need to change them back to EXECKEY(USER) if you want them to run in user key. No changes are needed to your JVM profiles, because you can use the same JVM profile to create JVMs in both storage keys.

However, you might need to execute a JVM in CICS key if the Java program that uses the JVM is part of a transaction that specifies TASKDATAKEY(CICS). If this is the case, you need to ensure that the PROGRAM resource definition for the Java program specifies EXECKEY(CICS). Before CICS Transaction Server for z/OS, Version 2 Release 3, this setting would not have mattered, because CICS would have forced the program to execute in CICS key.

For enterprise beans, CIRP (the default transaction for REQUESTMODEL definitions) specifies TASKDATAKEY(USER), and the PROGRAM resource definition for DFJIIRP (the default request processor program) specifies EXECKEY(USER), so by default enterprise beans run in user key.

A JVM can be reused by programs that specify the same execution key on their PROGRAM resource definition. You can use the INQUIRE JVM command to find out the execution key in which a JVM has been invoked. A single CICS task can include Java programs running in CICS key, and Java programs running in user key.

Running Java programs in a JVM without exploiting the new JVM functions

If you are already running Java programs in a JVM, you need to take the following actions to continue running these applications:

- TThe Language Environment run-time library SCEERUN2 is now required to support the IBM JVM, in addition to the Language Environment run-time library SCEERUN. In your CICS startup job, the library SCEERUN2 must be defined in both the STEPLIB and DFHRPL concatenations. Both the libraries, SCEERUN and SCEERUN2, must be APF-authorized.For more information, see in “Installing CICS support for Language Environment” in the *CICS Transaction Server for z/OS Installation Guide*
- The library SDFJAUTH is now required for Java support. SDFJAUTH is the partitioned data set extended (PDSE) version of SDFHAUTH, and it contains some of the components of the SJ domain. A separate library is needed because these components are now built using XPLink (Extra Performance Linkage). As for the SDFHAUTH library, the SDFJAUTH library must be APF-authorized by adding it to the list of APF-authorized libraries in an appropriate member in SYS1.PARMLIB, and a STEPLIB DD statement must be provided for it in your startup job stream. “Authorizing the hlq.SDFHAUTH library” in the *CICS Transaction Server for z/OS Installation Guide* describes this procedure for the SDFHAUTH library, and you can follow the same procedure for the SDFJAUTH library.
- JVM profiles, which contain the JVM initialization options, are now kept as HFS files, rather than as members of a partitioned data set (PDS). The DFHJVM DD card in the CICS startup JCL, which referred to the PDS for the JVM profiles, is no longer required and should be removed. You can use several different JVM profiles in the same CICS region, and each is stored as a separate HFS file. The name of each JVM profile (that is, the name of the HFS file) must still be eight characters or less, so that it can be used in program definition. Use the JVMPROFILE attribute of a PROGRAM resource definition to name the JVM profile which is used to construct the JVM that runs the program.
- Ensure that the JVM profiles you want to use are in the HFS directory that is specified by the new JVMPROFILEDIR system initialization parameter, or use UNIX soft links to link to the JVM profiles from that directory. The default setting for the JVMPROFILEDIR system initialization parameter is `/usr/lpp/cicsts/cicsts31/JVMProfiles`. That is, the supplied setting for JVMPROFILEDIR points to the default directory for the sample JVM profiles. “Enabling CICS to locate the JVM profiles and JVM properties files” in *Java Applications in CICS* tells you how to ensure that CICS can access the JVM profiles in the JVMPROFILEDIR directory, and how to change it if required (for example, if you chose a different name during CICS installation for the directory containing the sample JVM profiles). Note that the JVM profiles DFHJVMPR and DFHJVMCD, and their associated JVM properties files, must always be available to CICS. Their uses are described later in this list. Both these JVM profiles must either be present in the directory that is specified by JVMPROFILEDIR, or linked to by means of UNIX soft links from that directory.

- If you have modified the supplied sample JVM profiles DFHJVMPR and DFHJVMPS, and you want to re-use them, migrate these from PDS members to HFS files, which you can do using the OCOPY TSO command. Note that for CICS Transaction Server for z/OS Version 3 Release 1 , there are changes to the options that are available in JVM profiles and JVM properties files. “Running Java programs in a JVM using the new JVM functions” on page 113 mentions some of these, and the *CICS Transaction Server for z/OS Release Guide* has more information about them. The *CICS System Definition Guide* has the full lists of options that you can specify using JVM profiles and JVM properties files. Before you re-use JVM profiles that you used for CICS TS for z/OS, Version 2.2 or CICS Transaction Server for OS/390, Version 1 Release 3, you should check whether you need to add any of the new options, or to copy any of the changes to existing options that have been made in the supplied sample JVM profiles for CICS Transaction Server for z/OS Version 3 Release 1. (For migration from CICS Transaction Server for OS/390, Version 1 Release 3, note in particular that the CICS_HOME parameter is renamed WORK_DIR.)
- If you decide not to re-use your existing JVM profiles, you need to set up new JVM profiles that contain settings which are suitable for your installation, and the paths to the application classes and resources that are needed for your applications. Note that the JVM profile DFHJVMPR is used if a Java program is defined as using a JVM but no JVM profile is specified, and it is used for sample programs, so this JVM profile always needs to be configured so that it can be used in your CICS region. “Setting up JVM profiles and JVM properties files” in *Java Applications in CICS* tells you how to do this.
- CICS-defined programs now have their own JVM profile, DFHJVMCD, to make them independent of any changes you make to the default JVM profile DFHJVMPR. DFHJVMCD is used by the default request processor program DFJIIRP, which is used by the CICS-supplied CIRP request processor transaction, and by DFJIIRQ, the CICS-key equivalent of DFJIIRP. DFHJVMCD has an associated JVM properties file, `dfjjvmcd.props`. You need to make changes to DFHJVMCD and `dfjjvmcd.props` to ensure that the settings in them are suitable for your installation (including the configuration for your JNDI nameserver). “Customizing or creating JVM profiles and JVM properties files” in *Java Applications in CICS* tells you how to do this. You also need to add classes to the shareable application class path for the applications that will use the request processor program. For enterprise beans, you need to add any classes, such as classes for utilities, that are required by your enterprise beans but are *not* included in the deployed JAR files for the enterprise beans. For CORBA stateless objects, you need to add the JAR files for the applications and any additional classes that are required. “Enabling applications to use a JVM” in *Java Applications in CICS* tells you how to do this.
- Because JVM profiles are now HFS files, case is important. When you specify the name of a JVM profile (for example, in a PROGRAM resource definition), you must enter it using the same combination of upper and lower case characters that is present in the HFS file name. The CEDA panels accept mixed case input for the JVMPROFILE field irrespective of your terminal's UCTRAN setting. However, this does not apply when values for this field are supplied on the CEDA command line, or when you are using another CICS transaction such as CEMT or CECI. If you need to enter the name of a JVM profile in mixed case when you use CEDA from the command line or when you use another CICS transaction, ensure that the terminal you use is correctly configured, with upper case translation suppressed.
- You should not specify your own parameters to be passed as environment variables to your Java application, as you were able to do in CICS Transaction Server for OS/390, Version 1 Release 3. CICS issues warning messages if it

finds unknown initialization options in a JVM profile. Instead, you should use the JVM properties file, which is a HFS file referenced by the JVMPROPS option in the JVM profile, to pass information to your Java application. If you have a user.properties file for your JVMs, you should also migrate the contents to the JVM properties file as appropriate, because CICS does not look for a user.properties file for the reusable JVM. The JVM profile itself should only be used to specify the options described in the *CICS System Definition Guide*.

- The user-replaceable module DFHJVMAT, which was introduced in CICS Transaction Server for OS/390, Version 1 Release 3, can still be used. However, DFHJVMAT is now only invoked if you specify INVOKE_DFHJVMAT=YES as an option on the JVM profile that you want to override, and if the JVM profile specifies either REUSE=NO, or the older option `Xresettable=NO` (that is, it is a single-use JVM). You cannot use DFHJVMAT with JVMs that are resettable or with the new continuous JVM. Resettable and continuous JVMs are more economical than single-use JVMs, so it is generally best to customize a JVM profile rather than using DFHJVMAT to override it. You can also use different JVM profiles to specify different sets of options, but you can only specify a single set of options using DFHJVMAT. Normally, a JVM profile provides sufficient flexibility to configure a JVM as required. Wherever possible, you should replace any function in your existing DFHJVMAT module using options that you can specify in the JVM profile. You should only use DFHJVMAT if you need to make unusual modifications. The *CICS Customization Guide* tells you how to use DFHJVMAT.
- The user-replaceable program DFHSJJ8O, which was used in CICS Transaction Server for z/OS, Version 2 Release 1 and CICS Transaction Server for z/OS, Version 2 Release 2 to construct the Language Environment enclave for the JVM, has been replaced by the user-replaceable program DFHJVMRO, which performs the same functions. If you had modified the settings specified in DFHSJJ8O to match more closely with the storage usage of your JVMs, you should repeat this process with DFHJVMRO, bearing in mind that the storage usage of your JVMs might have changed. “Tuning Language Environment enclave storage for JVMs” in the CICS Performance Guide tells you how to carry out this tuning process, and “Using DFHJVMRO to modify the Language Environment enclave for a JVM” in the *CICS Customization Guide* tells you how to modify the settings in DFHJVMRO.
- CICS now uses the z/OS shared library region, which enables address spaces to share dynamic link library (DLL) files. This feature enables your CICS regions to share the DLLs that are needed to create JVMs, rather than each region having to load them individually. The storage that is reserved for the shared library region is allocated in each CICS region when the first JVM is started in the region. The amount of storage that is allocated is controlled by the SHRLIBRGNSIZE parameter in z/OS. The minimum is 16M, and the z/OS default is 64M. You should check the setting for this parameter and, if necessary, tune it. “Tuning the z/OS shared library region” in the *CICS Performance Guide* tells you how to carry out this tuning process.

Running Java programs in a JVM using the new JVM functions

You can take advantage of several new functions introduced by CICS enhancements to support for the IBM JVM:

- You can set up a shared class cache in each of your CICS regions, to enable the JVMs in each CICS region to share commonly-used class files and compiled classes. This means that the JVMs can start up faster, and you can reduce the cost of class loading. Most JVMs can use the shared class cache, but if you do not want certain JVMs to use it, you can set them to run independently (to be

standalone JVMs). You can alter the shared class cache in your CICS region while CICS is running, and monitor its status. New system initialization parameters and new CEMT and EXEC CICS commands are provided to enable you to carry out these tasks. You also need to set up JVM profiles and JVM properties files for the worker JVMs and for the master JVM that initializes the shared class cache. The sample JVM profiles DFHJVMPC (for a worker JVM) and DFHJVMCC (for a master JVM), and their associated JVM properties files, are provided to help you do this. *Java Applications in CICS* has more information about the shared class cache.

- You can specify a new level of reusability for JVMs. Before CICS TS for z/OS, Version 2.3, the level of reusability for JVMs was specified by the `Xresettable` option in the JVM profile. JVMs could either be resettable, that is, reused and reset between reuses (`Xresettable=YES`), or they could be single-use JVMs, that are thrown away after a single Java program has run in them (`Xresettable=NO`). CICS TS for z/OS, Version 2.3 introduces a new level of reusability for JVMs, the continuous JVM. JVMs with this level of reusability are kept in the JVM pool to be reused by further Java programs, but they are not reset after each use. The absence of a reset means that this type of JVM has faster transaction throughput and lower CPU usage, but it also means that the application code that runs in the next Java program or transaction might be affected by the actions of the previous program invocation. The three levels of reusability—the resettable JVM, the new continuous JVM, and the single-use JVM—are now controlled by the REUSE option in the JVM profile. REUSE=RESET creates a resettable JVM, which has the same reusability as the JVM that was created by `Xresettable=YES`; it is reused and reset. REUSE=YES creates the new continuous JVM, which is reused but not reset. REUSE=NO creates a single-use JVM, which has the same reusability as the JVM that was created by `Xresettable=NO`. "How JVMs are reused and reset" in *Java Applications in CICS* explains more about the three levels of reusability for JVMs, and has information about some important considerations for application design and development for Java programs that will run in a continuous JVM.

  The `Xresettable` option can still be used in JVM profiles to create a resettable JVM or a single-use JVM, but it cannot be used to create a continuous JVM. The CICS-supplied sample JVM profiles for CICS TS for z/OS, Version 2.3 use the REUSE option rather than the `Xresettable` option. If you are re-using existing JVM profiles and you want to include the REUSE option, it is advisable to remove the `Xresettable` option, although if the options conflict the REUSE option overrides the `Xresettable` option.
- You can browse through the JVMs in a particular CICS region, or inquire on the status of a particular JVM, using the CEMT or EXEC CICS INQUIRE JVM command.
- You can find the full path name of the HFS file for a JVM profile using the EXEC CICS INQUIRE JVMPROFILE command.
- You can change the JVM profile that is used for a program while CICS is running, using the JVMPROFILE option on the CEMT or EXEC CICS SET PROGRAM command. This enables you to phase in changes to your JVM profiles. Any instances of the program that are currently running in a JVM with the old JVM profile are unaffected, and are allowed to finish running their current Java program. New instances of the program will use a JVM with the new JVM profile that you have specified.
- You can use the JVMPROFILE and JVMPROGRAM options on the CEMT or EXEC CICS statistics commands to obtain statistics about JVM profiles or Java programs that run in JVMs. (To collect statistics about the amount of Language Environment heap storage that is used by the JVM, which forms part of the JVM

profile statistics, the LEHEAPSTATS=YES option must be specified in the relevant JVM profiles.) You can also see additional statistics about waiting times for TCBs of the correct mode (in the TCB Pool statistics) and JVMs that use the shared class cache (in the JVM Pool statistics).

- You can redirect output from your JVMs by using the USEROUTPUTCLASS option in JVM profiles to specify a Java class. You can redirect the output to various destinations, and you can add time stamps and headers to the records. Two CICS-supplied sample classes are provided, and you can use these sample classes as they are, or modify them, or write your own classes based on the samples. The output redirection facility enables developers using the same CICS region to separate out their own JVM output, and direct it to an identifiable destination of their choice. You should not use this facility in a production region, because it has a negative effect on the performance of JVMs. “Redirecting JVM output” in *Java Applications in CICS* tells you how to use the output redirection facility.
- You can use the CICS-supplied transaction CETR to control tracing for JVMs. In the new JVM trace options screens, you can set the JVM trace options for each trace level, and in the Transaction and Terminal Trace screen, you can activate JVM tracing for transactions that use the JVM.

  As alternatives to using CETR, you can set the default JVM trace options using the new CICS system initialization parameters JVMLEVEL0TRACE, JVMLEVEL1TRACE, JVMLEVEL2TRACE, and JVMUSERTRACE, or the EXEC CICS SET JVMPOOL command. You can also activate JVM trace using the CICS system initialization parameters SPCTRSJ or STNTRSJ, or the EXEC CICS SET TRACETYPE command. You can find out what the current JVM trace options are using the EXEC CICS INQUIRE JVMPOOL command.

  If you need to trace a JVM during its whole lifetime, including start-up and reset as well as the periods when it is being used by a transaction, you can still set and activate trace options using the **ibm.dg.trc.external** system property in the JVM properties file.

  JVM trace can produce a large amount of output, so you should normally activate JVM trace for special transactions, rather than turning it on globally for all transactions.

  For more information about JVM tracing, see “Controlling tracing for JVMs” in *Java Applications in CICS*.
- You can specify any dynamic link library (DLL) using the `Xrun` option in a JVM profile, and all the `Xrun` values that you include in a JVM profile are honoured. This means that you can specify values for the `Xrun` option in a JVM profile, and still use the JVM trace function for JVMs with that profile. (CICS automatically specifies `Xrundfhapjvmt` to drive the JVMRAS interface to perform tracing, and before CICS Transaction Server for z/OS, Version 2 Release 3, this was overridden by any value that you had specifed for the Xrun option.) The DLLs that you specify using the `Xrun`*`dllname`* option must be present in directories on the library path for the JVM, which is specified by the LIBPATH option in the JVM profile.
- You can use assertions in your Java programs and set up assertion checking at runtime. Using the ENABLEASSERTIONS and DISABLEASSERTIONS options in a JVM profile, you can specify that assertion checking should be enabled or disabled in all classes (except system classes), or in a package and in any subpackages that it has, or in an individual class. You can also specify that assertion checking should be enabled or disabled for all system classes in the JVM, using the SYSTEMASSERTIONS option. You can find more information about programming with assertions, and about enabling and disabling assertions, at http://java.sun.com/j2se/1.4.1/docs/guide/lang/assert.html.

Migration for Java programs that do not run in a JVM (hpj-compiled Java program objects)

Run-time support for Java program objects and for hot-pooling (HPJ) is withdrawn in CICS Transaction Server for z/OS Version 3 Release 1. Any Java programs that you had processed using the VisualAge for Java, Enterprise Edition for OS/390 bytecode binder (hpj) to run as Java program objects in CICS, must be migrated to run in a Java Virtual Machine (JVM). To do this:

- Set up the JVM environment, as described in "Setting up and using JVMs" in *Java Applications in CICS*.
- Place the class files (with the extension .class) for the Java programs in directories in HFS where they can be loaded by the JVM. Ensure that CICS has read and execute access to these directories, as described in "Giving CICS regions access to z/OS UNIX System Services and HFS directories and files" in *Java Applications in CICS*. In order to create Java program objects, you had to use the `javac` compiler (or an equivalent Java compiler, such as VisualAge for Java or WebSphere Studio Application Developer) to compile the Java source files into class files, and then use the VisualAge for Java, Enterprise Edition for OS/390 bytecode binder to compile the class files into Java program objects. If you saved the class files during this process, you can use these to run in the JVM. If you did not keep the class files, re-run the Java compiler against your Java source files to produce new class files. If you want to, you can build the class files into packages or JAR files (with the extension .jar) before placing them in the HFS directory.
- Modify the PROGRAM resource definitions to add the JVM, JVMCLASS, and JVMPROFILE options, and add the classes that the applications use to the class paths for their JVMs, as described in "Enabling applications to use a JVM" in *Java Applications in CICS*. Note that placing application classes on the shareable application class path, rather than on the standard class path, produces the best performance in a resettable JVM, and it should be your normal choice for loading application classes in a production environment.
- If the Java programs access DB2, follow the instructions in "Requirements to support Java programs in the CICS DB2 environment" in *CICS DB2 Guide* to add the necessary DB2 directories and files to the class paths in the JVM profiles, and ensure that you have applied any DB2 APARs that are needed for your version of DB2.
- Test that the Java programs work correctly in the JVMs that you have defined for them. Pay particular attention to the level of reusability that you choose for the JVMs, which is described in "How JVMs are reused and reset" in *Java Applications in CICS*.
  - Java program objects that are migrated to run in a **resettable JVM** are likely to suffer a significant performance degradation if they use Java methods that make the JVM unresettable. If a JVM is found to be unresettable, it is destroyed after use, so CICS incurs the CPU cost of initializing a new JVM. For details of the Java methods that make the JVM unresettable see the IBM Software Developer Kit for z/OS, Java 2 Technology Edition, Version 1.4.2 document, *Persistent Reusable Java Virtual Machine User's Guide*, SC34-6201. "Resettable JVMs (REUSE=RESET)" in *Java Applications in CICS* explains how to log unresettable actions when you are testing your applications in a JVM.
  - If your applications must perform unresettable actions, you can use a **single-use JVM**, but the performance of this type of JVM is inferior. With a single-use JVM, the CPU cost of initializing a new JVM is always incurred, and the only advantage over a resettable JVM is that no time is spent

checking whether or not the JVM has been made unresettable. The best strategy is to re-design the programs as soon as possible to eliminate unresettable actions, so that they can run in a resettable JVM or in a continuous JVM.

– A **continuous JVM** should not be selected until you are sure that your programs do not perform any unwanted unresettable actions, which would change the state of the JVM in undesirable ways. The continuous JVM is not destroyed if an unresettable action is performed in it, but careful coding is required to ensure that subsequent program invocations in the JVM are not adversely affected. “Continuous JVMs (REUSE=YES)” in *Java Applications in CICS* explains the design guidance for programs that are to be run in a continuous JVM. If you can re-design your programs following this guidance, the continuous JVM provides the best performance of the three types of JVM.

To avoid problems with deprecated APIs, you should develop all new Java programs forCICS Transaction Server for z/OS, Version 3 Release 1 using an application development environment that supports Java 2 at the same version of Java as used by CICS. You may run code compiled with an older version of Java in a new runtime, provided that it does not use APIs that have been removed in the newer version of Java. Note also that enterprise beans that support the EJB 1.0 specification need to be migrated to the EJB 1.1 specification level using the Assembly Toolkit (ATK) or the Application Assembly Tool (AAT), which are supplied with IBM WebSphere Application Server.. Enterprise beans developed using any version of the EJB specification after EJB 1.1 must restrict themselves to the EJB 1.1 APIs.

Chapter 23. Migration planning for Language Environment

In CICS Transaction Server for z/OS Version 3 Release 1, interfaces to the VS COBOL II, OS PL/I and C/370 runtimes are removed. Applications compiled and linked with these non Language Environment conforming products usually execute successfully under Language Environment in *compatibility mode*.

CICS support for OS/VS COBOL runtime is removed- Applications compiled at this level of COBOL must be re-compiled with a supported level of COBOL

Refer to the *Migration guides for Language Environment* and to the *Migration guides for the language in use* for further information.

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Chapter 24. Migration planning for the Link3270 bridge with the ACCUM option

This chapter covers migration for users of the Link3270 bridge with the ACCUM option.

There are two versions of the Link3270 bridge in CICS TS for z/OS, Version 3.1.

Link3270 bridge with basic support, provides the same support as that provided by the CICS Transaction Server for z/OS, Version 2 Release 2 Link3270 bridge.

For users migrating from releases prior to CICS Transaction Server for z/OS, Version 2 Release 2, there is further information in "Migration planning for the 3270 bridge."

Link3270 bridge with extended support provides support for the ACCUM option on the SEND TEXT, SEND MAP, and SEND CONTROL commands. To provide this support, two new vectors are introduced: SEND PAGE and PURGE MESSAGE. New copybooks are also provided.

If you only need basic support, no action is necessary. Use the basic copybooks as before. There is no need to recompile any existing Link3270 bridge programs.

If you wish to take advantage of the extended support provided by CICS Transaction Server for z/OS, Version 2 Release 3, recompile your Link3270 bridge programs (or compile new programs) using the extended copybooks and the extended support will be provided.

More information about the use of the Link3270 bridge can be found in the *CICS External Interfaces Guide*

Migration planning for the 3270 bridge

This chapter covers migration for the 3270 bridge.

The existing 3270 bridge mechanism using the START BREXIT interface is still supported, and applications continue to run unchanged, but you are recommended to migrate to the new Link3270 mechanism.

The Link3270 mechanism is the recommended way to use the 3270 bridge. Use of the START BREXIT interface is not described in CICS documentation for CICS TS Version 3, and you should refer to the publications for CICS Transaction Server for OS/390, Version 1 Release 3 if you need to implement new applications using this interface.

Migrating applications to Link3270

In previous releases of CICS, the bridge mechanism required the client (end-user) application to send messages to a monitor program, which established the bridge environment by issuing a START BREXIT command. User-supplied (or sample) bridge exit and formatter user-replaceable programs translated 3270 commands to messages that were sent to the client.

A sample program, DFH0CBRM, is provided to assist migration to the Link3270 mechanism. To use it, change your monitor program to issue an EXEC CICS LINK to DFH0CBRM, instead of issuing a START BREXITcommand. DFH0CBRM converts existing messages to Link3270 format messages and drives the new

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Link3270 mechanism. Note that there are some changes to error processing, such as abend codes. Any restrictions in the use of the migration aid, which uses the MQSeries® CICS interface header (MQCIH), are described in comments in the source of DFH0CBRM, which is supplied in SDFHSAMP library. The generated version is supplied in SDFHLOAD, ready to use.

Exploiting new Link3270 function

There is a one-to-one mapping between the old style message vectors and the Link3270 message vectors, but there are new fields in the Link3270 message header that should be reviewed if you want to exploit new function.

Chapter 25. 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 125.
- "CICS enables the READ TIMEOUT value" on page 125

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 4 on page 124 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 for z/OS, Version 3.1 DFHIRP module is compatible with earlier releases, and is 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 compatible with earlier releases 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).

   # Do not use the dynamic LPA function to replace DFHIRP for migration between releases, as this can cause incompatibility between control blocks, resulting in abend situations.

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

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.

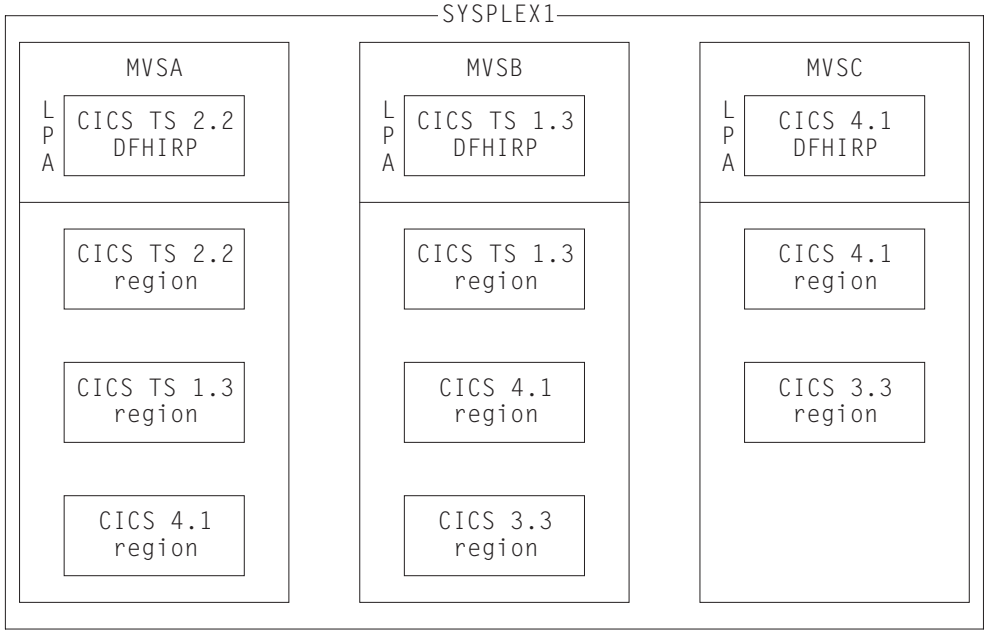

Figure 4. Illustration of valid configurations using DFHIRP in a sysplex

Note: All the CICS regions in SYSPLEX1 shown in Figure 4 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.

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.

CICS enables the READ TIMEOUT value

In earlier releases of CICS, read time-out is ignored for MRO sessions, tasks waiting on an MRO connection can hang indefinitely. If, for example, transactions in an AOR stall or deadlock for any reason the corresponding relay transactions in an MRO-connected TOR are left hanging. Eventually a problem in an AOR can cause the TOR to stall completely. Although you can prevent new transactions from being routed to, or queued for, the offending AOR, there has not been, until now, an easy way to purge every task that is in flight.

Now, CICS enables the READ TIMEOUT value on the transaction profile definition for MRO sessions. The field in the profile already exists. CICS honours it for ISC but used to ignore it for MRO. CICS now checks this RTIMOUT value for MRO sessions. A new abend code is issued if the RTIMOUT value is exceeded for MRO sessions. By enabling the READ TIMEOUT value on the transaction profile definition for MRO sessions, a cause of intersystem queuing (sometimes referred to as "sympathy sickness") is eliminated.

The situations which may benefit from this change include some which, because they result from stalls or deadlocks elsewhere, are unlikely to resolve themselves unaided.

Chapter 26. Migration planning for Named Counter and Shared Temporary Storage servers

Named Counter servers and Shared Temporary Storage servers can be at different levels in different MVS images, even when connected to the same coupling facility structure. They still function correctly in these circumstances. Each MVS image only uses a single server for each coupling facility structure, so all accesses to the coupling facility structure from each MVS image execute server code that is at the same level.

Upgraded Named Counter servers and Shared Temporary Storage servers include new support for automatic restart (using ARM) and system-managed processes (rebuild and duplexing). The existing data in the coupling facility is not affected by switching to the new level of server code, and can even be shared between old and new servers running on different MVS images. Existing CICS TS 1.3 regions can work with the new level of server, with the very minor exception that the CICS TS 1.3 EXEC-level named counter interface will report an exception if the CICS TS for z/OS, Version 3.1 named counter server indicates that system-managed rebuild is in progress, whereas the CICS TS for z/OS, Version 3.1 EXEC interface simply waits and retries in that situation.

A CICS TS for z/OS, Version 3.1 region can use a CICS TS 1.3 server, although the normal rule is that servers should be at the higher level.

All of the CF-related servers including the named counter server can be closed down immediately using the server CANCEL command.

There is no difference between the temporary storage server and the named counter server relating to recovery, in that both servers store all of their data in the coupling facility structure, so it will be lost if the structure fails or the coupling facility is re-IPLed. There may be a distinction from the application point of view, in that the scratch pad information stored in the temporary storage structure may be less important to continuous operation than sequence numbers stored in named counters.

The Application Programming Guide contains a section on Named Counter Recovery considerations. In a production environment, it is important to have some separate means of recreating the named counters if the coupling facility structure is lost, for example by determining the latest used counters from data bases.

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Chapter 27. Migration planning for sample applications

This chapter discusses changes to the use of CICS sample applications. It covers the following topics:

- "CSD record length changes" and DFH0FORC

CSD record length changes

Because of changes to the record length of the CSD, alter the JCL for the samples DFH$FORA, DFH0FORC and DFH$FORP as follows:

- Change the LRECL parameter on the FOROUT DD statement to 1536.
- make a corresponding change to the BLKSIZE parameter on the FOROUT DD statement.
-

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Chapter 28. Migration planning for threadsafe programming and the open transaction environment (OTE)

This chapter describes the changes you might have to make to your existing applications or configuration to exploit the open transaction environment (OTE) and to make your applications threadsafe. It covers the following topics:

- "What is the open transaction environment and how can I benefit from it?"
- "How can I make my applications exploit the open transaction environment?" on page 134
- "Important changes to accounting for processor time in the open transaction environment" on page 136

What is the open transaction environment and how can I benefit from it?

Before CICS Transaction Server for OS/390, Version 1 Release 3, user applications and exits operated in a restricted, or closed, environment. Although the applications could use the functionally-rich CICS application program interface (API), direct invocation of other services was not supported. This is because CICS ran all user transactions under a single z/OS TCB, known as the CICS quasi-reentrant (QR) TCB. Direct invocation of other services outside the scope of the CICS permitted interfaces could interfere with the use by CICS of the QR TCB. In particular, requests resulting in the suspension ("blocking") of the QR TCB, which happens when an MVS wait is issued, would cause all CICS tasks to wait.

The open transaction environment (OTE) function was added to CICS Transaction Server for OS/390, Version 1 Release 3 and later versions. The open transaction environment is an environment where CICS application code can use non-CICS services (facilities outside the scope of the CICS API) within the CICS address space, without interference with other transactions. Applications that exploit the open transaction environment run on their own open TCB, rather than on the QR TCB. Unlike the QR TCB, CICS does not perform sub-dispatching on an open TCB. If the application running on an open TCB invokes a non-CICS service which blocks the TCB, the TCB blocking does not affect other CICS tasks. For example, some services provided by DB2, MVS, UNIX System Services, or TCP/IP, might result in TCB blocking.

The open TCBs that are used in the open transaction environment are managed in separate pools, with each pool containing a different type, or operational mode, of open TCB. Each mode has a specific purpose, and is handled by CICS in a different way. The types, or modes, of open TCB are:

J8 mode TCBs and J9 mode TCBs

Open TCBs that are used to run Java programs under a Java Virtual Machine (JVM). The JVM is created on the TCB.

J8 TCBs are used for JVMs when the Java programs are defined as executing in CICS key, and J9 mode TCBs are used for JVMs when the Java programs are defined as executing in user key and storage protection is active. The maximum number of these TCBs that CICS will create in the JVM pool is controlled by the MAXJVMTCBS system initialization parameter. "How CICS manages JVMs in the JVM pool" in *Java Applications in CICS* has more information about how CICS manages JVMs and their TCBs.

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L8 mode TCBs and L9 mode TCBs
are both used to run OPENAPI programs, that is those defined as OPENAPI by their PROGRAM resource definition.
- L8 mode TCBs are used for CICSKEY OPENAPI application programs.
- L9 mode TCBs are used for USERKEY OPENAPI application programs.

The MAXOPENTCBS system initialization parameter controls the number of L8 and L9 TCBs in the OPEN TCB pool.

L8 mode TCBs
are also used when programs need access to a resource manager through a task-related user exit (TRUE) enabled using the OPENAPI option on the ENABLE PROGRAM command.

The CICS DB2 task-related user exit operates in OPENAPI mode (it is an open API TRUE). In this situation, the CICS DB2 attachment facility uses L8 TCBs for DB2 request processing. “Overview: How threads work” in the *CICS DB2 Guide* has more information about how CICS uses open TCBs as thread TCBs for the CICS DB2 attachment facility. “Enabling CICS DB2 applications to exploit the open transaction environment (OTE) through threadsafe programming” in the *CICS DB2 Guide* explains what your CICS DB2 application programs must do in order to gain performance benefits by continuing to run on the L8 mode TCB after the DB2 request has been completed.

L8 mode TCBs
are also used by CICS itself, because CICS uses OPENAPI CICSKEY programs which run on L8 TCBs:
- when accessing doctemplates and HTTP static responses that are stored on Hierarchical File System (HFS).
- when processing WebService requests and parsing XML.

X8 mode TCBs and X9 mode TCBs
are both used to run C and C++ programs compiled with the XPLINK option. X8 TCBs are used for programs in CICS key, and X9 mode TCBs are used for programs in user key. Each instance of an XPLink program uses one X8 or X9 TCB. in the *CICS Application Programming Guide* has more information about using XPLink.

“System initialization parameters for open TCBs” in the *CICS System Definition Guide* has more information about how CICS manages open TCBs, and about specifying the MAXJVMTCBS, MAXOPENTCBS and MAXXPTCBS system initialization parameters.

Note: All references to DB2 assume that you are using one of the currently supported versions of DB2. At the time of publishing these are Versions 7, 8 and 9. There are differences for versions prior to Version 6, and if you are attempting to work with any such unsupported combination, you should read the relevant information from earlier CICS publications.

The first benefit of the open transaction environment was that Java programs could run under CICS, either as hot-pooled Java program objects or in a JVM. From CICS Transaction Server for z/OS, Version 2 Release 2, applications that involve a task-related user exit enabled using the OPENAPI option on the ENABLE PROGRAM command can also exploit the open transaction environment to provide performance benefits. Task-related user exits like this are known as open API TRUEs. An open API TRUE will be given control under an L8 mode open TCB, and can use non-CICS APIs without having to create, manage and switch between

subtask TCBs. The CICS DB2 task-related user exit now operates as an open API TRUE . Existing or new CICS DB2 applications written in any language that access DB2 have the opportunity to gain the performance benefits provided by the open transaction environment.

These performance benefits can be gained because open TCBs, unlike the QR TCB or subtask thread TCBs, may be used for both non-CICS API requests (including requests to DB2) and application code. Because application code can be executed on the open TCB, the application should not need to switch between different TCBs several times during the execution of a CICS DB2 application. Before the open transaction environment was available, CICS used the QR TCB for the CICS DB2 task-related user exit and for the application program's code. Subtask thread TCBs were used for requests to DB2, and switching between the subtask TCB and the QR TCB took place for every DB2 request. With the open transaction environment, the same L8 TCB can be used by the CICS DB2 task-related user exit, the SQL requests that CICS makes to DB2, *and* any subsequent application code. The most important condition to be met to achieve this is that the user application program, the EXEC CICS commands used in the application, and any user exit programs involved with the application program, must be **threadsafe**. Only code that has been identified as threadsafe is permitted to execute on open TCBs. The next topic explains in detail what it means for an application to be threadsafe.

Where the correct conditions are met, the use of open TCBs for CICS DB2 applications decreases usage of the QR TCB, and avoids TCB switching. An ideal CICS DB2 application program for the open transaction environment is a threadsafe program, containing only threadsafe EXEC CICS commands, and using only threadsafe user exit programs. An application like this will move to an L8 TCB when it makes its first SQL request, and then continue to run on the L8 TCB through any amount of DB2 requests and application code, requiring no TCB switching. This situation produces a significant performance improvement where an application program issues multiple SQL calls. The gains are also significant when using an enterprise bean, because when enterprise beans make DB2 requests, they require additional TCB switches to and from the enterprise bean's own TCB. If the application program does not issue many SQL calls, the performance benefits might not be as significant.

In order to gain these performance benefits for CICS DB2 applications, you *must* meet the following conditions:

1. CICS must be connected to DB2 Version 6 or later. “Migrating to a different release of DB2” in the *CICS DB2 Guide* has full details of the CICS DB2 configuration needed to support the open transaction environment, including APARs that must be applied for DB2 and for CICS.
2. The system initialization parameter FORCEQR must not be set to YES. FORCEQR forces programs defined as threadsafe to run on the QR TCB, and it might be set to YES as a temporary measure while problems connected with threadsafe-defined programs are investigated and resolved.
3. The CICS DB2 application must have threadsafe application logic (that is, the native language code in between the EXEC CICS commands must be threadsafe), use only threadsafe EXEC CICS commands, and be defined to CICS as threadsafe. It must use only threadsafe dynamic plan exits, task-related user exits and global user exits. Only code that has been identified as threadsafe is permitted to execute on open TCBs. If your CICS DB2 application is not defined as threadsafe, or if it uses EXEC CICS commands or exits which are not threadsafe, TCB switching will take place and some or all of

the performance benefits of OTE exploitation will be lost. “How can I make my applications exploit the open transaction environment?” discusses all these requirements in more detail.

Additional information about how CICS DB2 applications use open TCBs can be found in “SQL, threadsafe and other programming considerations for CICS DB2 applications” in the *CICS DB2 Guide*

How can I make my applications exploit the open transaction environment?

When an application is defined to CICS as quasi-reentrant, it executes on the QR TCB. When running under this TCB, a program can be sure that no other quasi-reentrant program can run until it relinquishes control during a CICS request. Quasi-reentrancy therefore allows programs to access globally shared resources—for example, the CICS common work area (CWA)—without the need to protect those resources from concurrent access by other programs. Such resources are effectively locked exclusively to the running program, until it issues its next CICS request.

In the CICS open transaction environment (OTE), when application programs, task-related user exits (TRUEs), global user exit programs, and user-replaceable modules are defined to CICS as threadsafe, they can run concurrently on open TCBs. Because of this, they cannot rely on quasi-reentrancy to protect shared resources from concurrent access by another program. Furthermore, quasi-reentrant programs might also be placed at risk if they access shared resources that can also be accessed by a user task running concurrently under an open TCB. The techniques used by user programs to access shared resources must therefore take into account the possibility of simultaneous access by other programs. To gain the performance benefits of the open transaction environment while maintaining the integrity of shared resources, serialization techniques must be used to prohibit concurrent access to shared resources. Programs that use appropriate serialization techniques when accessing shared resources are described as threadsafe.

As we saw in “What is the open transaction environment and how can I benefit from it?” on page 131, only applications that involve a task-related user exit (TRUE) enabled using the OPENAPI option, such as applications which access DB2 resources, can gain performance benefits from being threadsafe. These are the only applications that might or might not be able to run on an open TCB.

The goal of making programs threadsafe is to enable them to remain on an open TCB, rather than switching back and forth between the open TCB and the QR TCB. TCB switching occurs in the following circumstances:

- When a program that is not defined as threadsafe makes a DB2 request, CICS switches from the QR TCB (where the program is executing) to an open TCB, and back to the QR TCB again when the DB2 request is complete.
- When a user exit program that is not defined as threadsafe is used in the course of a DB2 request, CICS switches from the open TCB (where the DB2 request is executing) to the QR TCB. The user exit program is executed on the QR TCB, and then the task is switched back to the open TCB to complete the DB2 request. For example, the XRMIIN and XRMIOUT global user exits might be invoked in the course of the DB2 request. If the exit programs are not defined as threadsafe, this TCB switching occurs. If the exit programs are defined as threadsafe, processing will continue throughout on the open TCB.

- When a program that is defined as threadsafe and is executing on an open TCB invokes any EXEC CICS commands which are not threadsafe, CICS switches back from the open TCB to the QR TCB to execute the non-threadsafe code. The program then continues to execute on the QR TCB. If the program does not make any further DB2 requests, then the switch back to the QR TCB is only a disadvantage because it increases the usage of your QR TCB for the time taken to run any remaining application code. However, if the program makes any further DB2 requests, CICS must switch back again to the open TCB.
- When a program that is defined as threadsafe and is executing on an open TCB invokes a task-related user exit program which is not defined as threadsafe, CICS switches back to the QR TCB and gives control to the task-related user exit program. When the task-related user exit program completes processing, the application program continues to execute on the QR TCB, in the same way as it would after issuing a non-threadsafe EXEC CICS command.
- When a program that is defined as threadsafe and is executing on an open TCB invokes a threadsafe CICS command, it is possible for a global user exit to be invoked as part of executing the command. If a global user exit program is used which is not defined as threadsafe, CICS switches back to the QR TCB and gives control to the global user exit program. When the user exit program completes processing, CICS switches back to the open TCB to continue processing the threadsafe CICS command.
- When a program that is defined as threadsafe and is executing on an open TCB completes, CICS switches back to the QR TCB for task termination. This switch is always necessary.

The maximum TCB switching for a CICS DB2 application would occur if your program used a non-threadsafe user exit program and a non-threadsafe EXEC CICS command after every DB2 request.

If you want to make an application program remain on an open TCB:

1. **Ensure that the program's logic is threadsafe.** That is, the native language code between the EXEC CICS commands must be threadsafe. If you define a program to CICS as threadsafe but include application logic that is not threadsafe, the results are unpredictable, and CICS is not able to protect you from the possible consequences. “Threadsafe programs” in the *CICS Application Programming Guide* tells you how to produce threadsafe application logic.
2. **Ensure that the program uses only threadsafe EXEC CICS commands.** The commands that are threadsafe are indicated in the command syntax diagrams in the *CICS Application Programming Reference* and the *CICS System Programming Reference* with the statement "This command is threadsafe", and are listed in Appendix L of the *CICS Application Programming Reference* and Appendix D of the *CICS System Programming Reference*. If you include a non-threadsafe EXEC CICS command in a program which is running on an open TCB, CICS switches back from the open TCB to the QR TCB to ensure that the command is processed safely. The TCB switching could be detrimental to the application's performance.

   # As well as checking EXEC CICS commands that you code explicitly, be aware
   # of high-level language constructs or Language Environment callable services
   # used by your program that result in using CICS services. CICS services used in
   # this way might involve non-threadsafe CICS commands, and cause a switch
   # back to the QR TCB. In particular, the COBOL statement DISPLAY UPON
   # SYSOUT, some types of PL/I and C++ output, and the Language Environment
   # callable services CEEMOUT and CEE3DMP, write data to the Language
   # Environment transient data destinations CESE and CESO. This involves an
   # EXEC CICS WRITE TD command, which is not threadsafe.

3. **Ensure that the program is defined to CICS as threadsafe.** Use the CONCURRENCY attribute of the program resource definition to do this. By defining a program to CICS as threadsafe, you are only specifying that the application logic is threadsafe, not that all the EXEC CICS commands included in the program are threadsafe. CICS can ensure that EXEC CICS commands are processed safely by using TCB switching. In order to permit your program to run on an open TCB, CICS needs you to guarantee that your application logic is threadsafe.
4. **Ensure that any user exit programs in the execution path used by the program are coded to threadsafe standards** *and* **defined to CICS as threadsafe.** This might include dynamic plan exits, global user exits, or task-related user exits. (Note for task-related user exits, enabling the exit program using the OPENAPI option on the ENABLE PROGRAM command means that CICS overrides the CONCURRENCY setting on the exit's program definition with OPENAPI.) When CICS is connected to DB2 Version 6 or later, the CICS DB2 task-related user exit DFHD2EX1 is threadsafe. “SQL, threadsafe and other programming considerations for CICS DB2 applications” in the *CICS DB2 Guide* has more information on other exits that are particularly important for CICS DB2 requests. These exits include the default dynamic plan exit DSNCUEXT (which is not defined as threadsafe), the alternative dynamic plan exit DFHD2PXT (which is defined as threadsafe), and the global user exits XRMIIN and XRMIOUT. Also be aware of the global user exits XEIIN and XEIOUT, which are invoked before and after EXEC CICS commands, and XPCFTCH, which is invoked before a PPT-defined program receives control. Be sure that user exit programs supplied by any vendor software are coded to threadsafe standards and defined to CICS as threadsafe.
5. **If you are coding a user exit program** (a global user exit or a task-related user exit), you can define it as threadsafe so that it can be used on the same L8 TCB as a threadsafe application which calls it. Additionally, a task-related user exit can be enabled using the OPENAPI option on the ENABLE PROGRAM command so that it will be given control under an L8 TCB, use non-CICS APIs without having to create and manage subtask TCBs, and exploit the open transaction environment for itself. (Enabling the exit program using the OPENAPI option on the ENABLE PROGRAM command means that CICS overrides the CONCURRENCY setting on the exit's program definition with OPENAPI.) Global user exit programs can be treated in the same way as an ordinary application program—by using threadsafe application logic and threadsafe EXEC CICS commands, and defining the program as threadsafe. “Writing global user exit programs” in the *CICS Customization Guide* has general information about writing this type of program. For task-related user exit programs, see “Writing a task-related user exit program” in the *CICS Customization Guide* for more detailed information about how this type of program can exploit the open transaction environment safely. Note when you enable an exit program using the OPENAPI option, this indicates to CICS that the program's logic is threadsafe.

Important changes to accounting for processor time in the open transaction environment

The CICS DB2 attachment facility uses CICS-managed open TCBs rather than CICS DB2 subtask TCBs. This means the CICS monitoring facility can measure activity that was previously (with DB2 Version 5 or earlier,) only reported in the DB2 accounting record (the SMF type 101 record). For example, CICS can now measure the processor time consumed on the DB2 thread and the processor time consumed in DB2 (the CLASS 1 and CLASS 2 CPU time). When CICS is using L8 open

TCBs, the CPU time reported for these TCBs by the CICS monitoring facility includes the DB2 CLASS 1 processor time.

When CICS is connected to DB2 Version 6 or later, **do not** add together the processor time from the CICS records (SMF type 110 records) and the DB2 accounting records (SMF type 101 records) when calculating the total processor time for a single transaction, because the DB2 processor time would then be included twice. The total processor time for a single transaction is recorded in the USRCPUT field in the CICS records (performance class data field 008 from group DFHTASK). This field includes all processor time used by the transaction when it was executing on any TCB managed by the CICS dispatcher. CICS-managed TCBs include the QR, RO, CO, J8, J9, L8, L9, X8 and X9 mode TCBs.

In the open transaction environment, the CICS L8 task processor time can also include the cost of creating a DB2 thread. If a transaction causes a DB2 thread to be created, you can expect the total task processor time accounted for to be higher than that accounted for by a CICS system running with earlier DB2 releases. Correspondingly, if at the end of a transaction, the thread is terminated (because it is unprotected and no other task is waiting to use it), then the cost of thread termination is included in the CICS L8 task processor time. Again, this cost is not accounted for by a CICS system connected to DB2 Version 5 or earlier.

From a DB2 perspective, when the CLASS 1 recording becomes active for a thread, it is now recording time spent on the L8 open TCB. Because the L8 TCB is used for both CICS activity and DB2 activity, this includes processor time spent in the CICS-DB2 attachment facility, including trace calls, and also includes processor time spent running application code (if the application is threadsafe) and threadsafe CICS commands on the open TCB. If a thread is reused, the thread housekeeping processor time is also included in the CLASS 1 processor time. As in previous releases, there is a proportion of thread creation and thread termination processing that is not captured by CLASS 1 time. The CLASS 1 processor time does not include any time spent running application code on the QR TCB. (When an application issues a non-threadsafe CICS command, it is forced back to the QR TCB.) When CICS is connected to DB2 Version 5 or earlier, CLASS 1 processor time does not include any processor time spent in application code, because all application code is executed under the QR TCB. The CLASS 2 processor time recorded by DB2, which is a subset of the CLASS 1 processor time showing the time spent in DB2 itself, is not affected by the open transaction environment.

For more information about calculating processor times for CICS and DB2 and a full explanation of how processor times are recorded, see “Accounting for processor usage in a CICS DB2 environment” in the *CICS DB2 Guide*.

Chapter 29. Migration planning for CICS Web support applications

This topic tells you about:

- “Migration of existing CICS Web support applications”
- “Migration to the new CICS Web support function” on page 141

Migration of existing CICS Web support applications

CICS Transaction Server for z/OS, Version 3 Release 1 is designed to support your existing CICS Web support architecture for both Web-aware and non-Web-aware application programs. The `EXEC CICS WEB` API command changes are designed to allow existing Web-aware application programs that send and receive HTTP messages to work unchanged, until you choose to migrate them to take advantage of the enhancements that are now available. If you continue to use existing CICS Web support applications, note these migration points:

- **If you are using CICS Web support to process non-HTTP requests, specify the new USER protocol on the TCPIPSERVICE definition that defines the port for these requests.** This also applies to HTTP requests with nonstandard request methods, which are now rejected if they are received on the HTTP protocol (previously, they were accepted and processed as non-HTTP). Processing for all non-HTTP requests must now be carried out under the USER protocol, so that they are protected from the basic acceptance checks which CICS carries out for requests using the HTTP protocol. The requests are flagged as non-HTTP and passed unchanged to the analyzer program for the TCPIPSERVICE. CICS Web support facilities are used for handling the request, but no acceptance checks are carried out for messages sent and received using this protocol.

  Note: Because only one active TCPIPSERVICE definition can exist for each port, non-HTTP requests can no longer use the same port as HTTP requests. The well-known port numbers 80 (for HTTP) and 443 (for HTTPS) must have the HTTP protocol and therefore cannot accept non-HTTP requests. Web clients must specify any changed port in the URL for their requests.

- **Check the settings for your TCPIPSERVICE resource definitions with the HTTP protocol.**
  1. The SOCKETCLOSE attribute must no longer have a zero setting (SOCKETCLOSE(0)).
     - A zero setting for SOCKETCLOSE means that CICS closes the connection immediately after receiving data from the Web client, unless further data is waiting. This means that persistent connections cannot be maintained.
     - A non-zero setting for SOCKETCLOSE enables persistent connections with both HTTP/1.1 clients, and HTTP/1.0 clients (where the client supports this).
  2. The new MAXDATALEN option should be specified to limit the maximum length of data that may be received by CICS as an HTTP server.
     - This setting helps to guard against denial of service attacks involving the transmission of large amounts of data.

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3. If you are using SSL, there are some changes to the security options available on the TCPIPSERVICE resource definition. The topic *Improvements to Internet security* in the *CICS Transaction Server Release Guide* explains these changes.

- **The code page conversion table (DFHCNV) is no longer required for CICS Web support.** However, if you want to continue to use an analyzer program that you coded in an earlier CICS release to reference DFHCNV, you must either continue to supply the entries in the code page conversion table, or change the analyzer program. Changing the analyzer program involves coding two new output parameters to specify the client and server code pages, in place of the output parameter that specified the name of a DFHCNV entry. If you do this, you do not need to migrate your DFHCNV entries.
- **If you use a code page other than 037 (the EBCDIC Latin character set) in your CICS Web support applications, use the LOCALCCSID system initialization parameter to specify this code page.** The LOCALCCSID system initialization parameter supplies the code page into which CICS converts inbound HTTP headers and query strings, including form data transmitted in a query string. Before CICS Transaction Server for z/OS, Version 3 Release 1, the code page for this conversion was specified by the DFHWBHH template in the DFHCNV code page conversion table. You can set the LOCALCCSID system initialization parameter to any EBCDIC code page into which the ASCII Latin-1 character set ISO-8859-1 (code page 819) can be converted. If LOCALCCSID is set to an unsuitable code page, CICS uses the default 037 for inbound HTTP headers and query strings.
- **If you have modified the user-replaceable Web error program DFHWBEP to customize the HTTP responses provided in error situations, be aware that CICS now uses additional status codes, and uses some existing status codes in a wider range of situations.**
  1. Check that your program is using an appropriate range of input parameters to identify the situation to which the customized response applies, rather than relying on the status code alone. The error code, abend code, message number, response and reason codes, or program name can be used to identify the situation that has given rise to the HTTP response. If these checks are not made, you might find that where CICS is using the status code for a new purpose, an inappropriately customized response is returned.
  2. Check that your program includes logic to pass through unchanged any HTTP responses with status codes that are not known to the program.
- **The DFHWBCLI interface, as supplied in SupportPac CA1M for CICS TS 2.3, is still supported in CICS Transaction Server for z/OS, Version 3 Release 1.** To gain enhanced functionality, you can migrate HTTP client applications that used the DFHWBCLI interface, to use the CICS WEB API commands for client requests (with the SESSTOKEN option). One important difference to note is that in the CICS WEB API, the use of a proxy server is specified by a user exit on the WEB OPEN command (XWBOPEN), and the URL of the proxy server is supplied by that user exit. The topic *Support for HTTP client requests from CICS applications* in the *CICS Transaction Server Release Guide* describes how HTTP client requests can now be made.

  If you continue to use the DFHWBCLI interface, note that the WBCLI_MEDIATYPE parameter is now required when using the DFHWBCLI interface for SEND requests that use the HTTP POST method (requests where WBCLI_FUNCTION_SEND and WBCLI_METHOD_POST are both set).

Migration to the new CICS Web support function

CICS Web support in CICS Transaction Server for z/OS, Version 3 Release 1 has many enhancements to provide automatic and administrator control of functions that were previously handled by user-replaceable programs. In particular, you are recommended to investigate migration possibilities for the following elements of your CICS Web support architecture:

- You should usually be able to replace the request processing functions of your analyzer program with URIMAP resource definitions, which can be changed and controlled using CICS system programming commands. URIMAP definitions can be used to match the URLs of requests and map them to application programs, and specify a converter program, alias transaction and user ID. If your analyzer program provides additional functions, you can continue to use it instead of a URIMAP definition, or you can combine it with a URIMAP definition. While migrating to the use of URIMAPs:
  1. You can introduce URIMAP resource definitions progressively for a small number of requests at a time. Depending on the type of processing carried out by your analyzer program, and the type of application that handles the request, you can choose whether or not to continue using the analyzer program in the processing path for each request.
  2. You might prefer to select and publish new URLs for requests handled by URIMAP resource definitions, rather than retaining your existing URLs. When you are ready to discontinue the use of the old processing path for a request, you can set up a URIMAP definition to permanently redirect requests from the old URL to the new URL.
  3. Ensure that your analyzer program still contains basic handling procedures for unrecognized requests, even if it is no longer involved in the processing path for any requests. The analyzer program is still required on the TCPIPSERVICE definition, and receives requests in situations such as the end user mis-typing a URL.
- For application programs that do not use the EXEC CICS WEB API commands but produce an HTTP response in a COMMAREA, CICS Web support is not able to assist with assembling the message structure correctly, or to carry out its full range of checks on the response. To take advantage of all the available CICS Web support facilities, it is recommended that you plan to convert these applications to Web-aware application programs that use the WEB API commands.
- URIMAP resource definitions can be used to deliver the contents of a CICS document or HFS file as a static response, or to deliver a redirection response, without involving a user-written application program. You could consider using this mechanism, instead of an application program, for simple responses that do not involve dynamic processing.
- Check that code page conversion is operating in the most efficient way. With minor changes to your application, you can take advantage of new CICS Web support facilities to:
  - Avoid setting up and using a code page conversion table (DFHCNV) for CICS Web support.
  - Allow CICS to identify and use the Web client's character set for code page conversion, rather than specifying this yourself.
  - Use the local system default (LOCALCCSID system initialization parameter) to identify the application program's code page, rather than specifying this yourself.
  - Convert to and from the UTF-8 and UTF-16 character sets.

In some cases, making these changes could enable you to discontinue the use of an analyzer program.

Chapter 30. Migration planning for the XPLINK option with C and C++ programs

This chapter describes the changes you might have to make to your existing applications or configuration to exploit the XPLINK option with C and C++ programs.

To continue running your C and C++ programs without exploiting the XPLINK option of the compiler, no action is needed.

The following steps show you how to take advantage of the support that is now available for XPLINK:

- Ensure that your C or C++ program is reentrant, and threadsafe, or modify it so that it conforms to these standards, see Chapter 28, “Migration planning for threadsafe programming and the open transaction environment (OTE),” on page 131
- If your program uses the XPCFTCH or XPCTA exits, take note of the advice in “Global User exits and XPLink” in the *CICS Application Programming Guide* that:
  - CICS disregards any attempt by XPCFTCH to modify the entry point.
  - CICS disregards any attempt by XPCTA to define a resume address.

  This is because the batch Language Environment runtime used for XPLink programs does not give control to CICS when a program abends, but goes through its own abend handling. When control reaches CICS, the Language Environment enclave has terminated, so CICS is unable to honor an entry point address or a resume address. You must find other ways to manage such requirements, or conclude that this program is not a suitable candidate for XPLINK optimization. One possible solution is to write a Language Environment abnormal termination exit, as described in the chapter “Customizing user exits” in the *z/OS Language Environment Customization* manual.
- Recompile the program using the XPLINK compiler option.
- Update the concurrency attribute of the PROGRAM resource definition for this program, setting the value to threadsafe.

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Chapter 31. Migration planning for Business Transaction Services (BTS)

This chapter describes what you should do when migrating your BTS environment to CICS TS 3.1.

Migrating the DFHLRQ data set

The local request queue data set is used to store pending BTS requests, such as timer requests, or requests to run activities. It is recoverable, and is used to ensure that, if CICS fails, no pending requests are lost.

Requests that CICS can execute immediately, such as requests to run activities, are stored on the data set only briefly. Requests that CICS cannot execute immediately, such as timer or unserviceable requests, might be stored for longer periods. When CICS has processed a request, the request is deleted from the data set.

If you have outstanding BTS activities for BTS processes within CICS, you should migrate the contents of your DFHLRQ data set as part of the migration. A utility such as IDCAMS COPY could be used to update the CICS TS 3.1 DFHLRQ data set with the contents of the DFHLRQ data set from your previous CICS release.

Be aware that even if you are not explicitly making use of BTS services in your applications, it is possible that they are being exploited by vendor code or IBM-supplied products executing within your CICS environment.

PTFs for earlier CICS releases modified the dynamic routing DSECT used for dynamic DPL and dynamic start requests. This caused the structure of DFHLRQ records to change. The PTF numbers are:

CICS TS 1.3
PTF UQ82768 (APAR PQ75814)

CICS TS 2.2
PTF UQ82632 (APAR PQ75834)

CICS TS 2.3
PTF UQ85555 (APAR PQ81378)

If you have one of these PTFs applied to your existing CICS system, the DFHLRQ records match the format of DFHLRQ records used in CICS TS 3.1, and so can be migrated using a utility such as IDCAMS COPY. However, if you do not have one of these PTFs applied to your existing CICS system, the DFHLRQ record format is **not** compatible with that used in CICS TS 3.1. In this case, you should complete your BTS workload prior to migration to CICS TS 3.1, and start with an empty DFHLRQ at that release.

Repository data sets

When a process is not executing under the control of the CICS business transaction services domain, its state and the states of its constituent activities are preserved by being written to a VSAM data set known as a repository.

To use BTS, you must define at least one BTS repository data set to MVS. You may decide to define more than one, assigning a different set of process-types to each.

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One reason for doing this might be storage efficiency, for example, if some of your process-types tend to produce longer records than others.

If you operate BTS in a sysplex, several CICS regions may share access to one or more repository data sets. This enables requests for the processes and activities stored on the data sets to be routed across the participating regions. As you migrate your CICS releases, you may therefore still share older versions of repository data sets. The expectation is that you would define and use different repository data sets as and when you wanted to assign different sets of process-types, rather than just because a CICS migration has occurred.

Part 3. Changes to CICSPlex SM

This part of the book contains information about migrating to CICS TS CICSPlexSM from an earlier release:

- Chapter 32, “Operations views changes,” on page 149
- Chapter 33, “Monitor view changes,” on page 153
- Chapter 34, “Business Application Services changes,” on page 155
- Chapter 35, “CICSPlex SM Problem determination changes,” on page 159
- Chapter 36, “The CICSPlex SM API,” on page 161
- Chapter 37, “Changes to generic alert structures used by CICSPlex SM,” on page 165
- Chapter 38, “New Web User Interface starter set views,” on page 167
- Chapter 39, “Web User Interface security changes,” on page 169
- Chapter 40, “System initialization parameter changes for CICSPlex SM,” on page 171
- Chapter 41, “Changes to CMAS journalling,” on page 173
- Chapter 42, “Migrating to CICS TS 3.1 CICSPlex SM,” on page 175

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Chapter 32. Operations views changes

This chapter summarizes the changes to CICSPlex SM operations views.It contains the following topic:

- "New WUI operations views"
- "New EUI operations views"
- "Changed operations views" on page 150

There are no new ISPF end user interface views in CICS Transaction Server for z/OS, Version 3 Release 1. See Chapter 38, "New Web User Interface starter set views," on page 167 for a complete list of new Web User Interface starter set views.

New WUI operations views

A number of new Web User Interface operations views have been introduced. To locate these views from the WUI main menu, click **CICS operations views** and follow the menu hyperlink in Table 32. There are no new ISPF end user interface views in CICS Transaction Server for z/OS, Version 3 Release 1.

Table 32. New Web User Interface operations view sets

Menu hyperlink	Associated resource
TCP/IP service operations views —> URI host	HOST
TCP/IP service operations views —> Pipeline	PIPELINE
TCP/IP service operations views —> URI map	URIMAP
TCP/IP service operations views —> URIMAP global statistics	URIMPGBL
TCP/IP service operations views —> Web service	WEBSERV

Table 33. New Web User Interface operations detailed view

View	Menu hyperlink	Associated resource
EYUSTARTTASK.DETAIL10	Active tasks —> Channel usage	TASK

New EUI operations views

Table 34 shows new End User Interface operations views that were introduced in CICS TS Version 2.

Table 34. New operations views

Operations view	**Explanation**
EJCOSE	A CICS resource that describes a CorbaServer object being managed by CICSPlex SM
EJDJAR	A CICS resource that describes a CICS-deployed JAR file object being managed by CICSPlex SM
EJCOBEAN	A CICS resource that describes an Enterprise Bean object in a CorbaServer being managed by CICSPlex SM

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Table 34. New operations views (continued)

Operations view	Explanation
EJDJBEAN	A CICS resource that describes an Enterprise Bean object in a CICS–deployed JAR FILE being managed by CICSPlex SM
JVMPOOL	A CICS resource that provides information about the pool of JVMs in the CICS address space
TCPIPGBL	A CICS resource that provides information about TCP/IP sockets support

Changed operations views

A number of operations views have changed. These changes have been made to both the ISPF end user interface view and the corresponding Web User Interface starter set view

Some views have added fields, others have changed the way they present information. (For example the fields might be presented in a different order, or some fields might have moved onto new screens.)

The views that have changed are shown in Table 35.

Table 35. Changed operations views

End user interface view	Web User Interface starter set view	What has changed
CICSRGN		New attributes added are: ACTHPTCBS ACTJVMTCBS MAXHPTCBS MAXJVMTCBS SUBTASKS
CICSRGND	EYUSTARTCICSRGN	A new attribute is added: DEBUGTOOL
CONNECT	Connections operations views —> ISC and MRO connections	New statistics attributes added.
CMAS		FEEDBACK error codes
DB2CONN		New attributes added: DB2GROUPID and RESYNCMEMBER
DB2TRAN		New attributes added: PLAN and PLANEXITNAME
DOCTEMP	Document template operations views —> Document template	New attribute and CVDA HFSFILE
EJCOBEAD	EYUSTARTEJCOBEAN	New attributes added: BEANACTIVATE, BEANPASSIVAT, BEANCREATES, BEANREMOVES, BEANMETHCALL
EJCOSE	Enterprise Java component operations views —> CorbaServers	New attributes CIPHERS and NUMCIPHERS
EJCOSED	EYUSTARTEJCOSE	New attributes added: ENABLESTATUS, OBJACTIVATES, OBJSTORES, FAILACTIVATE

Table 35. Changed operations views (continued)

End user interface view	Web User Interface starter set view	What has changed
EJDJBEAD	EYUSTARTEJDJBEAN	New attributes added: BEANACTIVATE, BEANPASSIVAT, BEANCREATES, BEANREMOVES, BEANMETHCALL
EXITTRUE		New attribute added: PURGEABLEST
JVMPOOLD	EYUSTARTJVMPOOL	New attributes added: JVMLVL0TRACE, JVMLVL1TRACE, JVMLVL2TRACE, JVMUSERTRACE, SJGCURRCACHE, SJGPEAKCACHE, SJGREQSCACHE.
PROGRAM		New attributes added: JVMPROFILE
PROGRAMD	EYUSTARTPROGRAM	New attributes JVMPROFILE, and PGRJUSECOUNT are added
RQMODEL		New attributes added: CORBASERVER, RTYPE, INTFACETYPE, BEANNAME, MODULE, INTERFACE, and OPERATION
TASK	Task operations views —> Active tasks	New attributes DSCHMDLY and MAXSTDLY
TCPIPS	EYUSTARTTCPIPS	New attributes are added: • ATTACHSEC • AUTHENTICATE • CERTIFICATE • DNSGROUP • DNSSTATUS • GRPCRITICAL • PRIVACY • PROTOCOL
TCPIPS	TCP/IP service operations views —> TCP/IP service	New attributes CIPHERS and NUMCIPHERS
TCPIPGBL	TCP/IP service operations views —> TCP/IP global satus	New attributes CRLSERVER and SSLCACHE
TERMNL		New attribute added: NQNAME
UOW		New attribute added: OTSTID
UOWLINK		New attributes added: RRMSURID and HOST
WORKREQ	Task operations views —> Work request	Changed attribute WORKTYPE

FEPI resources can no longer be installed from operations views and the install action has been removed from the FEPI operations views.

Chapter 33. Monitor view changes

This chapter summarizes the changes to CICSPlex SM monitor views. It contains the folowing topics:

- "Monitor view removed"
- "Changed monitor view"

Monitor view removed

The following Web User Interface monitor view has been removed:

- EYUSTARTMJOURNAL

You should review your applications and remove references to this obsolete resource.

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 36.

Table 36. Changed monitor view

Monitor view	What has changed
MTERMNL	New attribute added: ACQSTATUS

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Chapter 34. Business Application Services changes

This chapter summarizes the changes to Business Application Services (BAS) definition views. It contains the following topics:

- "New CICS resource definition (BAS) views"
- "Changed CICS resource definition (BAS) views"
- "New BAS definition objects" on page 156
- "Changed BAS definition objects" on page 156
- "Changes with RASGNDEF processing" on page 157

There are no new ISPF end user interface views in CICS Transaction Server for z/OS, Version 3 Release 1. See Chapter 38, "New Web User Interface starter set views," on page 167 for a complete list of new Web User Interface starter set views.

New CICS resource definition (BAS) views

A number of new Web User Interface CICS resource definition for business application services (BAS) view sets have been introduced. To access these views from the WUI main menu, click **Administration views —> Basic CICS resource administration views** and follow the menu hyperlink in Table 37.

There are no new ISPF end user interface views in CICS Transaction Server for z/OS, Version 3 Release 1.

Table 37. New CICS resource definition (BAS) view sets

Menu hyperlink	Associated resource
CICS resource definitions —> Pipeline definitions	PIPEDEF
CICS resource definitions in a resource group	RESINGRP
CICS resource definitions —> URI mapping definitions	URIMPDEF
CICS resource definitions —> Web service definitions	WEBSVDEF

Changed CICS resource definition (BAS) views

There are changes to existing CICS resource definition for business application services (BAS) views. These changes have been made to both the Web User Interface view and the corresponding ISPF end user interface view. To access the WUI views from the WUI main menu, click **Administration views —> Basic CICS resource administration views —> CICS resource definitions** and follow the menu hyperlink in Table 38.

Table 38. Changes to BAS views

WUI menu hyperlink	End user interface view	What has changed
Document template definitions	DOCDEF	New attribute and CVDA HFSFILE
Enterprise java corbaserver definitions	EJCODEF	New attribute CIPHERS

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Table 38. Changes to BAS views (continued)

WUI menu hyperlink	End user interface view	What has changed
Program definitions	PROGDEF	HOTPOOLING attribute not valid from CICS TS 3.1.
TCP/IP service definitions	TCPDEF	New attribute CIPHERS
Terminal definitions	TERMDEF	CONSOLE attribute not valid from CICS TS 3.1.

New BAS definition objects

Table 39 shows the new BAS definition objects.

Table 39. New BAS definition objects

BAS object	What is it?
EJCINGRP	BAS definition that describes the membership of a CorbaServer definition (EJCODEF) in a resource group.
EJCODEF	CICS definition that describes a CorbaServer.
EJDINGRP	BAS definition that describes the membership of a CICS-deployed JAR file definition (EJDJDEF) in a resource group.
EJDJDEF	CICS definition that describes a CICS-deployed JAR file.

Changed BAS definition objects

Table 40 shows the changes to existing BAS definition objects. These changes have been made to both the ISPF end user interface view and the corresponding Web User Interface starter set view.

Table 40. Changed BAS definition object

BAS object	Web User Interface starter set view	What has changed
DB2CDEF		New attributes added: DB2GROUPID RESYNCMEMBER
EJCODEF	EYUSTARTEJCODEF	New attribute added: STATUS
RQMDEF		New attributes added: BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION RTYPE

Table 40. Changed BAS definition object (continued)

BAS object	Web User Interface starter set view	What has changed
RESDESC		New attributes added: EJCDEFRG EJCDEFRS EJCDEFTS EJDDEFRG EJDDEFRS EJDDEFTS
TCPDEF	EYUSTARTTCPDEF	• New attribute added: ATTACHSEC • Attribute changed: AUTHENTICATE • New attribute added: PRIVACY
TYPTMDEF		New attribute added: RSTSIGNOFF

Changes with RASGNDEF processing

The change described in this topic was implemented through APARs for the following versions of CICSPlex SM:

- CICSPlex SM Version 1.4: APAR PK15477
- CICSPlex SM Version 2.2: APAR PK17773
- CICSPlex SM Version 2.3: APAR PK17773
- CICSPlex SM Version 3.1: APAR PK17787

If the version of CICSPlex SM **to** which you are migrating has the PTF for that APAR applied, but the version of CICSPlex SM **from** which you are migrating does **not** have the PTF for that APAR applied, then changes could occur in the way PROGDEFs and TRANDEFs are installed through RASGNDEFs (resource assignment definitions).

If a PROGDEF or TRANDEF is automatically installed through a RASGNDEF that specifies a USAGE of REMOTE and a MODE of STAT, then with CICSPlex SM Version 3.1 and the PTF for APAR PK17787, the REMOTESYSTEM used when the PROGDEF or TRANDEF is installed in the target system will be the CICS system ID (SYSIDNT) of the related system. In previous versions of CICSPlex SM which did not have the equivalent PTF applied, if the PROGDEF or TRANDEF specified a REMOTESYSTEM, or the RASGNDEF override specified a REMOTESYSTEM, this would be used.

You need to ensure that all BAS definitions are updated to tolerate this change before migrating to CICSPlex SM Version 3.1 with the PTF for APAR PK17787.

Table 41 on page 158 illustrates the differences in processing from previous versions of CICSPlex SM where the PTF for the APAR is not applied. CICA is the actual SYSIDNT of the target system. CICB is the actual SYSIDNT of the related system.

Table 41.

PROGDEF or TRANDEF REMOTE-SYSTEM	**RASGNDEF USAGE**	**RASGNDEF MODE**	**RASGNDEF REMOTE-SYSTEM OVERRIDE**	**Target REMOTE-SYSTEM** *without* **PTF applied**	**Target REMOTE-SYSTEM** *with* **PTF applied**
none	REMOTE	STAT	none	CICB	CICB
none	REMOTE	STAT	CICX	CICX	CICB (1)
CICZ	REMOTE	STAT	none	CICZ	CICB (1)
CICZ	REMOTE	STAT	CICX	CICX	CICB (1)
none	REMOTE	DYNAM	none	CICA	CICA (2)
none	REMOTE	DYNAM	CICX	CICX	CICX
CICZ	REMOTE	DYNAM	none	CICZ	CICZ
CICZ	REMOTE	DYNAM	CICX	CICX	CICX

Notes:

1. Note the difference from previous versions of CICSPlex SM where the PTF for the APAR is not applied.
2. CICSPlex SM BAS does not provide a value for this during install. CICS defaults to the target system's SYSIDNT.

Chapter 35. CICSPlex SM Problem determination changes

This chapter summarizes the changes to CICSPlex SM Problem determination. It contains the following topic:

- "MAS Sysdump / Trandump changes"

MAS Sysdump / Trandump changes

When the CICSPlex SM MAS agent starts, it will automatically add one CICS TRANDUMPCODE (TRANDUMP) entry for transaction dump code 'EYUN' and two SYSDUMPCODE (SYSDUMP) entries for system dump codes 'EYU0XZPT' and EYU0XZSD'.

These codes are primarily used for CICSPlex SM Web User Interface users who may want to use the ADD action from the EYUSTARTTRANDUMP and EYUSTARTSYSDUMP viewsets to add their own TRANDUMP or SYSDUMP entries.

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Chapter 36. The CICSPlex SM API

This chapter summarizes changes to the CICSPlex SM API. It contains the following topics:

- "Programs that connect to a previous release of CICSPlex SM"
- "Change to FEPI operations views"
- "Member DFHEILID has moved"
- "Obsolete resource tables" on page 162
- "New resource tables" on page 162
- "Changed resource tables" on page 163

Programs that connect to a previous release of CICSPlex SM

CICSPlex SM API programs that use the CONNECT verb specifying a VERSION keyword for a previous release of CICSPlex SM can experience significant increases in both CPU consumption by the CMAS address space, and data space storage utilization by the Environment Services System Services (ESSS) address space.

API programs that specify a CRITERIA string to limit the size of a result set on a GET or PERFORM OBJECT request, or use the SPECIFY FILTER verb, can experience the increase in CMAS CPU and ESSS storage. Batch job runtimes might also increase.

You are not required to recompile your CICSPlex SM API programs when you migrate releases. However, if you do not recompile affected programs, the CMAS has to convert the records from the current release format, to the level specified on the VERSION keyword on the CONNECT verb. This transformation process is highly intensive for CPU and storage when the result set is very large, for example, 300K to 500K records. The increases are observed in most cases when a criteria string is used to filter the result set; for example, specifying a criteria for the PROGRAM object using the NAME key for a specific or generic program. In this scenario, CICSPlex SM has to retrieve all program objects and return them to the CMAS where the API is connected, transform the records to the version of the API, and then apply the filtering.

If you recompile your programs to specify the VERSION keyword to match the current release of CICSPlex SM, this conversion does not take place, and there is no significant increase in storage or CPU consumption.

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.

Member DFHEILID has moved

Member DFHEILID has moved from the SDFHC370 library to the SDFHSAMP library. The change affects the COPYLINK step of the sample jobs supplied by CICS and CICSPlex SM to translate, compile, link-edit and install application programs. The sample job supplied by CICSPlex SM is supplied in member EYUEITDL of the SEYUPROC library. If you are using an older version of this

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supplied sample job, or if you have created your own job based on the supplied sample, ensure that you apply the change for DFHEILID to the COPYLINK step of the job.

Obsolete resource tables

The following resource tables have been removed because they are obsolete.

DSKJRNL
JOURNAL
JRNLDEF
JRNINGRP
SMFJRNL
TAPEJRNL
VOLUME
XTASK

New resource tables

Table 42 shows new resource tables.

Table 42. New resource tables

Resource table	What is it?
BATCHREP	Batched repository update job. (See note 1 on page 163 below.)
BRFACIL	LINK3270 bridge facility
CLCACHE	Shared class cache
EJCINGRP	EJCODEF in resource group
EJCOBEAN	Enterprise bean in CorbaServer
EJCODEF	CorbaServer definition
EJCOSE	CorbaServer
EJDINGRP	EJDJDEF in resource group
EJDJAR	CICS-deployed JAR file
EJDJBEAN	Enterprise bean in CICS-deployed JAR
EJDJDEF	CICS-deployed JAR file definition
HOST	URI virtual host information
JVM	JVM summary
JVMPOOL	JVMs in the CICS address space
JVMPROF	JVM profiles
METANAME	Information about all CVDASs, CVDATs, and EYUDAs
METAPARM	Information about a parameter for an action
PARMAVA	Allowable values for a parameter
PIPEDEF	PIPELINE resource definition
PIPELINE	Processing nodes acting on a service request and response
RESINGRP	Resource definitions in a resource group
TCPIPGBL	CICS internal TCP/IP sockets support
URIMAP	URI map information
URIMPDEF	URI map definition

Table 42. New resource tables (continued)

Resource table	What is it?
URIMPGBL	URI map global statistics
WEBSERV	Run time environment of a program deployed in a web services setting
WEBSVDEF	Web service resource definition
WORKREQ	EJB work requests and associated transactions

Notes:

1. The new BATCHREP resource table allows you to submit batched repository updates to run in a specified CMAS using the CICSPlex SM API. The CMAS to which the utility connects must be at CICS TS 3.1 or later.

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
- CONNECT
- DOCDEF
- DOCTEMP
- DSPGBL
- EJCODEF
- EJCOSE
- PROGDEF
- PROGRAM
- TASK
- TCPDEF
- TCPIPGBL
- TCPIPS
- TERMDEF
- TSMODEL (see note 4 on page 164)
- WORKREQ

- ATTR
- CMAS
- CICSRGN
- CONNECT
- CPLEXDEF
- CPLXCMAS
- DB2CDEF
- DB2CONN
- DB2TRAN
- DOCDEF
- DOCTEMP
- DSPGBL
- EJCOBEAN
- EJCODEF
- EJCOSE
- EJDJBEAN
- FILEDEF (see note 1)
- JVMPOOL
- MTERMNL
- NTERMNL
- OBJACT (see note 2 on page 164)
- OBJECT
- PROGDEF
- PROGRAM
- RESDESC
- REQID (see note 3 on page 164)
- RQMDEF
- RQMODEL
- TASK
- TCPDEF
- TCPIPGBL
- TCPIPS
- TERMDEF
- TERMNL
- TRANDEF
- TRANSVAL
- TSMODEL (see note 4 on page 164)
- TYPTMDEF
- UOW
- UOWLINK
- WORKREQ

Notes:

1. For the FILEDEF resource table the attributes RKP and SRCHM are no longer valid. You should review any CICSPlex SM API applications that use these attributes and make any corrections needed.

2. OBJACT base tables for GET, CREATE, SET, UPDATE and REMOVE are now returned when EXEC CPSM GETDEF is issued. Previously only actions applicable to EXEC CPSM PERFORM were returned as OBJACT base tables.
3. The datatype of the REQID base table attribute NAME has changed its data type from HEX to CHAR.
4. The TSMODEL base table attribute called DESCRIPTION in earlier releases, has been renamed to RSVRD1 in CICS TS 3.1.

Chapter 37. Changes to generic alert structures used by CICSPlex SM

This chapter describes a change to SNA generic alerts and resolutions as they are used by CICSPlex SM.

“Product Set ID” (X'10') MS common subvector is a “Product ID” (X'11') common subvector that identifies the product as IBM Software (X'04'). It contains a “Product Number” (X'08') Product ID subfield that identifies the product number. This has changed from 5695081 to 5655M15.

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Chapter 38. New Web User Interface starter set views

This chapter summarizes the additions to CICSPlex SM Web User Interface starter set views.

The new views are listed in Table 43 on page 168.

Note:
All Web User Interface starter set views begin with the prefix EYUSTART. This prefix has been omitted from the following list in the interests of brevity.

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Table 43. New Web User Interface views

ACTION	DB2TDEF	PRNINGRP
APACTV	DBCTLSS	PROCDEF
APSPEC	DOCDEF	PROFDEF
BRFACIL	DOCINGRP	PROGDEF
CLCACHE	DTRINGRP	PROINGRP
CMDMPAPS	EJCINGRP	PRTNDEF
CMDMSAPS	EJCODEF	RASGNDEF
CMTCMDEF	EJDINGRP	RASINDSC
CMTPMDEF	EJDJDEF	RASPROC
CONINGRP	ENQINGRP	RDSCPROC
CONNDEF	ENQMDEF	RESDESC
CPLEXDEF	EVALDEF	RESGROUP
CPLXCMAS	FENODDEF	RESINDSC
CRESAIMD	FEPOODEF	RQMDEF
CRESCONN	FEPRODEF	RQMINGRP
CRESDB2C	FETRGDEF	RTAACTV
CRESDB2E	FILEDEF	RTADEF
CRESDB2T	FILINGRP	RTAGROUP
CRESDOCT	FNOINGRP	RTAINAPS
CRESDSNM	FPOINGRP	RTAINGRP
CRESENQM	FPRINGRP	RTAINSPC
CRESFECO	FSEGDEF	RTASPEC
CRESFEND	FSGINGRP	SESINGRP
CRESFEPO	FTRINGRP	SESSDEF
CRESFETR	JRMINGRP	STAINGRP
CRESGLUE	JRNINGRP	STATDEF
CRESJRNL	JRNLDEF	SYSLINK
CRESJRNM	JRNMDEF	TCLINGRP
CRESMODE	JVM	TCPDEF
CRESPART	JVMPROF	TCPINGRP
CRESPRGM	LNKSMSCG	TDQDEF
CRESPROF	LNKSMSCS	TDQINGRP
CRESPRTY	LNKSRSCG	TERMDEF
CRESRQMD	LNKSRSCS	TRANDEF
CRESSDMP	LNKSWSCG	TRANGRP
CRESTCPS	LNKSWSCS	TRMINGRP
CRESTDMP	LSRDEF	TRNCLDEF
CRESTDQ	LSRINGRP	TRNINGRP
CRESTERM	MAPDEF	TSMDEF
CRESTRUE	MAPINGRP	TSMINGRP
CRESTSMD	MONDEF	TYPINGRP
CSGLCGCG	MONGROUP	TYPTMDEF
CSGLCGCS	MONINGRP	WLMATGRP
CSYSDEF	MONINSPC	WLMAWDEF
CSYSGRP	MONSPEC	WLMDEF
D2CINGRP	PARINGRP	WLMGROUP
D2EINGRP	PARTDEF	WLMINGRP
D2TINGRP	PERIODEF	WLMINSPC
DB2CDEF	PGMINGRP	WLMSPEC
DB2EDEF	PRCINGRP	WORKREQ

Chapter 39. Web User Interface security changes

In CICS Transaction Server for z/OS, Version 3 Release 1 you can use your external security manager to control user access to views, menus, help information and the View Editor. In order to do this you need to create an appropriate profile in the FACILITY class. The following ESM FACILITY profiles are available:

EYUWUI.`wui_server_applid`.VIEW.`viewsetname`
— used to protect view sets.

EYUWUI.`wui_server_applid`.MENU.`menuname`
— used to protect menus

EYUWUI.`wui_server_applid`.HELP.`helpmembername`
— used to protect help pages.

EYUWUI.`wui_server_applid`.EDITOR.
— used to protect the View Editor..

where `wui_server_applid` is the CICS APPLID of the server.

Users can be given read or update access to views and menus:

- Read — to use the views or menus in the main interface; that is to allow you to prepare and protect views for specific user groups.
- Update — to create, update or remove items in the view editor or import using COVC; that is, allow you to open the view editor to more users, while restricting the view-sets and menus that individuals can modify.

If the ESM that you are using, neither grants nor refuses access to a profile (for example, if no RACF profile is defined), all users who are successfully signed on to the Web User Interface have access to the resources. You can make `not authorized` the default by setting up a generic profile.

Note: This security is designed to protect the views and menus themselves and not the objects they manage, which is covered by normal CICSPlex SM security.

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Chapter 40. System initialization parameter changes for CICSPlex SM

The following CICS System Initialization Table parameter value has changed:

WRKAREA=2048
The size of the Common Work Area has increased to 2048 bytes.

For a complete list of CICS system initialization parameters for a CMAS, see the *CICS Transaction Server for z/OS Installation Guide*.

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Chapter 41. Changes to CMAS journalling

Three new fields have been added to the EYUBCPJR DSECT:

- Two new fields have been added to CPJR_DEF_DATA:
  CPJR_DEF_MAJORVR
  Major version
  CPJR_DEF_MINORVR
  Minor version
- A new field has been added to CPJR_OPS_DATA:

  CPJR_ACTION
  Name of action

  CPJR_ACTION replaces CPJR_OPSTYPE which has been removed.

The EYUBCPJR DSECT is described in the *CICS Transaction Server for z/OS Installation Guide*.

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Chapter 42. Migrating to CICS TS 3.1 CICSPlex SM

This chapter presents information about the compatibility of previous releases of CICSPlex SM and CICS TS Version 3.1CICSPlex SM.

Notes on terminology

Throughout this chapter, CICSPlex SM releases are referred to as follows:

Version 3.1
Version 3 Release 1 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 3 Release 1)

Version 2.3
Version 2 Release 3 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 2 Release 3)

Version 2.2
Version 2 Release 2 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 2 Release 2)

Release 4
Version 1 Release 4 (the CICSPlex SM element of CICS Transaction Server for OS/390 Release 3)

The CICSPlex SM elements of CICS Transaction Server for z/OS Version 3 Release 1, CICS Transaction Server for z/OS, Version 2 Release 3 and CICS Transaction Server for z/OS, Version 2 Release 2 are **not** available as separate products.

Topics in this chapter describe:

- "Running CICSPlex SM Version 3.1 and an earlier release concurrently"
- "Conditions for running CICSPlex SM Version 3.1 and earlier releases concurrently" on page 176
- "Performing migration procedures" on page 177
- "A phased migration scenario" on page 184

MASs running the following CICS releases are directly-connectable to CICSPlex SM Version 3.1:

- CICS Transaction Server for z/OS Version 3 Release 1
- CICS Transaction Server for z/OS, Version 2 Release 3
- CICS Transaction Server for z/OS, Version 2 Release 2
- CICS Transaction Server for OS/390 Version 1 Release 3
- CICS for Windows component of IBM TXSeries 4.3.0 (with PTF 4)
- CICS for Windows component of IBM TXSeries 5.0

Running CICSPlex SM Version 3.1 and an earlier release concurrently

You can run CICSPlex SM Version 3.1, Version 2.3, Version 2.2, and Release 4 at the same time, with interconnected CMASs at different levels. The ability to do this allows gradual migration of the environment to Version 3.1. However, in CICS TS for z/OS, Version 3.1, a CICSPlex SM CMAS will run only in a CICS system at the same release level.

There are some conditions for running Version 3.1 with Release 4 that you should understand. Read the following section, "Conditions for running CICSPlex SM

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Version 3.1 and earlier releases concurrently," then read "Performing migration procedures" on page 177 to understand how to migrate your supported releases before attempting the extra migration steps.

Removal of support for Windows remote MAS

Previous releases of CICSPlex SM have supported the CICS for Windows component of TXSeries, Version 4.3.0.4 and TXSeries, Version 5.0 (also known as NT 4.3 and NT 5.0) in the management of a remote managed application system (RMAS). This support is no longer necessary and the CICSPlex SM TXSeries agent has been removed for CICS Transaction Server for z/OS, Version 3.1 and later releases. Therefore, it is no longer possible to set up a CICSPlex SM remote MAS agent for Windows.

You can continue to use the CICS Transaction Servers 2.3 or 2.2 for TXSeries support in CICSPlex SM.

Conditions for running CICSPlex SM Version 3.1 and earlier releases concurrently

The following conditions apply to environments in which CICSPlex SM Version 3.1 and earlier releases of CICSPlex SM are running concurrently:

- The APARs in the following list must be applied to Release 4:

  Apply to Release 4 only
  - PQ46169
  - PQ54384
  - PQ54004

  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.

- If you intend to use CICS TS 1.3 or CICS TS 2.2 with CICS TS 3.1, you must install the following maintenance to those releases:

  For CICS TS 1.3
  install APAR PQ65166, PTF UQ71532

  For CICS TS 2.2
  install APAR PQ65168, PTF UQ71534

- 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 CICSplex 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 3.1 cannot be connected to a CAS running at Release 4.
- A CMAS running at Version 3.1 can be connected to a CMAS running at Version 2.3, Version 2.2 or Release 4. However:
  - In a CICSplex that consists of CMASs at the Version 3.1 level and the Version 2.3, Version 2.2 or Release 4 level, the maintenance point CMAS must be at the Version 3.1 level. That is, when a CICSplex contains CMASs at more than one level, the first CMAS converted to Version 3.1 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 3.1 CMAS. You must ensure that:
    - All API programs run so that they are connected to the Version 3.1 CMAS.

      Note: This is only required if the API program needs to access new fields or later level CICS systems. If the API program connects to a lower level CMAS, any resource tables which contain new or updated fields for the new release would not be returned to the API program connected to the lower release level CMAS.
    - All TSO EUI sessions connect to the Version 3.1CAS.
    - All Web User Interface servers connect to the Version 3.1 CMAS.
  - When multiple CMASs at different CICSPlex SM release levels are running on the same MVS image, you must run a CAS for each release of the CMASs running on that MVS image. CASs running at different CICSPlex SM release levels cannot communicate directly.
  - You cannot view resources of a CICS Version 3.1 region using a CMAS running at an earlier release.

Performing migration procedures

The migration from a previous release of CICSPlex SM to CICS TS Version 3.1 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. The CAS running at the previous release level should only be used for administration of the CMAS-to-CMAS communications, for example using CMTCMDEF and CMTPMDEF, and not for normal operations or definition work.

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 3.1 CICSPlex SM, you should take back-up copies of the previous release components such as JCL, CLISTs, CICS tables, CMAS data repositories, and WUI repositories before you start the migration process.

Note: You can use the procedures in this section to migrate from Version 2.3, Version 2.2 or Release 4 of CICSPlex SM to CICS TS Version 3.1 CICSPlex SM.

Converting a CAS to Version 3.1

In order to provide for concurrent previous release and Version 3.1 CASs you must create a separate Version 3.1 CAS environment.

To convert a CAS from Version 2.3, Version 2.2 or Release 4 to Version 3.1, complete these steps.

Note: If you have used the CICSPlex SM EUI for your existing level of CICSPlex SM, log off TSO completely and then log on again before you make any changes to definitions or access the EUI for your new level of CICSPlex SM. Do the same if you need to access the EUI for your existing level of CICSPlex SM after accessing the EUI for the new level. Logging off TSO ensures that your allocation is cleared properly.

- 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 3.1 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 3.1.) Define the VTAM requirements for the Version 3.1 CAS. You must perform the following steps:
  - Create a VTAM application definition
  - Update the configuration list
  - Activate the major nodes

  When the Version 3.1 CAS is going to communicate with another Version 3.1 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 3.1CAS.

  If you are running Version 2.3, Version 2.2 or Release 4, as well as Version 3.1, and your earlier releases currently share a single BBIPARM data set, your Version 3.1 CASs can share the same BBIPARM data set. (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 3.1 data sets. Use generated member EYUTSODS to allocate the libraries temporarily. (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 3.1. Make sure the BBACTDEF DD statement in the CAS startup procedure references a data set containing the BBMTSS member distributed with Version 3.1. (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 3.1 data sets. If you are running both a previous release of CICSPlex SM and Version 3.1, 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 3.1 CAS is now ready for use.

Converting a CMAS to Version 3.1

You must migrate your CICSPlex SM CMAS to CICS TS Version 3.1 at the same time as you migrate the CICS system on which it runs. This is because in CICS Transaction Server for z/OS, Version 2 Release 3 a CICSPlex SM CMAS will run only in a CICS system at the same release level. During startup the CMAS checks the CICS release level and terminates with message EYUXL0142 if the release does not match.

To convert a CMAS to Version 3.1:

- 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 3.1 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 3.1 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 3.1 library. (For information about this step, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Update the CSD file with the Version 3.1 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 3.1 group list EYU310L0. (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 3.1 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 3.1. (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 3.1 names. If you are running an earlier version of EYUCMAS, you should add the following DD statement:

  ```
  //BBIPARM    DD  DISP=SHR,DSN=CICSTS31.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 3.1 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 183.)

Converting a MAS to Version 3.1

To convert a MAS to Version 3.1, you need to do the following:

- Authorize the Version 3.1 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 3.1 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 3.1 group of resource definitions. At Version 3.1, this group is EYU310G1. (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 3.1 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 3.1 MAS group.
  - Add the Version 3.1 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 44 lists the release group names for each environment.

Table 44. MAS CSD groups for previous releases of CICSPlex SM

Environment	Version 2.3 Group	Version 2.2 Group
Local MAS – USELPACOPY(NO)	EYU230G1	EYU220G1
Remote MAS – USELPACOPY(NO)	EYU230G2	EYU220G2
Local MAS – USELPACOPY(YES)	EYU230GB	EYU220GB
Remote MAS – USELPACOPY(YES)	EYU230GC	EYU220GC

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 3.1 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 3.1 names. (For information about the MAS startup JCL, see the *CICS Transaction Server for z/OS Installation Guide*.)
- In the sequential data set or partitioned data set member identified by the CICS SYSIN statement, verify that the CICS system initialization table (SIT) parameter **EDSALIM** is included, and set it to a value of at least 50MB. 50MB is the minimum EDSALIM required to start the MAS agent for CICSPlex SM Version 2.3 and later versions.

The MAS is ready to be cold started.

When you have successfully migrated all your systems to CICSPlex SM Version 3.1 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 3.1 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.

If your application programs have been modified to make a call to EYU9XLOP using the EYUAWTRA commarea, they must also be recompiled and link-edited with the Version 3.1 libraries.

Application programming interface

CICSPlex SM API programs written to run in a previous release MAS can be run in a Version 3.1 MAS. You can either continue to access the data provided by the previous release or access the new data available from Version 3.1. 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 3.1

Both the Web User Interface server and the CMAS that it connects to must be at the highest level of CICSPlex SM and CICS within the CICSplex. This means that both must be at the same level as the maintenance point CMAS.

Before you migrate a Web User Interface server, you must migrate the CMAS that it connects to. You must migrate the Web User Interface server before you migrate any other MASs. If the CMAS that the Web User Interface server connects to is not the maintenance point CMAS, you must migrate the maintenance point CMAS at the same time.

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 3.1 you should:

- Migrate the MAS that acts as your Web User Interface server.
- Update the CSD file with the Version 3.1 Web User Interface group of definitions. At Version 3.1, this group is EYU310GW.
- Migrate the contents of the Web User Interface server repository (EYUWREP).

If you have Web User Interface servers connected to CMASs other than the maintenance point CMAS, which have many other MASs connected to them, you might not want to migrate the other MASs at the same time as the CMAS. In that case you might consider using the following phased migration path:

1. Define a new Version 3.1 CMAS on the same MVS image as the Web User Interface server.
2. Connect the Version 3.1 CMAS to the CICSplex that the Web User Interface server CMAS is connected to. (It will not become available for use until the maintenance point CMAS has been migrated. If you see message EYUCP0022E at this time, there is no need to take any action.)
3. Migrate the maintenance point CMAS to Version 3.1 and take down the Web User Interface server at the same time. Migrate the Web User Interface server to Version 3.1 and, when you restart it, connect it to the Version 3.1 CMAS. The Version 3.1 CMAS should now connect successfully to the Version 3.1 maintenance point CMAS.
4. Migrate the remaining MASs when required, and connect them to the Version 3.1 CMAS as you restart them.
5. When you have moved all the MASs to the Version 3.1 CMAS, you can remove the original CMAS.

Assuming you are running the latest CICSPlex SM 2.3 and 3.1 maintenance levels, you can convert one LPAR at a time from 2.3 to 3.1.

- A CICSPlex SM 3.1 WUI can only connect to a 3.1 CMAS.
- A CICSPlex SM 2.3 WUI can only connect to a 2.3 CMAS.
- A CICSPlex SM 2.3 WUI connected to a 2.3 CMAS can retrieve data from a MAS connected to a 3.1 CMAS (assuming it is not a resource type which is unique to CICS TS 3.1) if the CMAS participates in the management of the CICSplex.
- A CICSPlex SM 2.2 WUI can only connect to a 2.2 CMAS.
- A CICSPlex SM 2.2 WUI connected to a 2.2 CMAS can retrieve data from a MAS connected to a 3.1 CMAS (assuming it is not a resource type which is unique to CICS TS 3.1) if the CMAS participates in the management of the CICSplex.
- A CICSPlex SM 3.1 WUI connected to a 3.1 CMAS can retrieve data from any MAS connected to any CMAS if the CMAS participates in the management of the CICSplex.

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 3.1” on page 180.

You must also replace the CSD group EYU230GW with EYU310GW in the group list used by the Web User Interface server or create a new group list containing EYU310GW. (For CICS Transaction Server for z/OS Version 3 Release 1 EYU310GW is included in the CSD when the CSD file is updated with the Version 3.1 resource definitions, EYU964G1).

Migrating the contents of the Web User Interface server repository (EYUWREP)

InCICS Transaction Server for z/OS Version 3 Release 1 some internal Web User Interface repository record versions have been incremented to facilitate the new features in view definitions For this reason, if your existing Web User Interface repository contains customized view sets or menus, it is essential that you migrate your view set and menu definitions.

To migrate the Web User Interface server repository to the current version:

- 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 using the JCL described in the *CICS Transaction Server for z/OS Installation 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 accidently 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 CICS TS for z/OS, Version 3.1 Web User Interface server repository, Version 2.3 or Version 2.2 view set and menu definitions.
2. You can import view set and menu definitions exported by a CICS TS for z/OS, Version 3.1 Web User Interface server into a CICS Transaction Server for z/OS, Version 2 Release 3 Web User Interface server repository. However, any new attributes or resources introduced in CICS TS for z/OS, Version 3.1 are not accessible in the CICS Transaction Server for z/OS, Version 2 Release 3 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 3.1, you can delete the Version 2.2 definitions from each CMAS's and MAS's CSD. This can be done by upgrading each CSD using module EYU9R220, which is supplied in CICSTS31.CPSM.SEYULOAD.

```
//CSDUP   EXEC PGM=DFHCSDUP
//STEPLIB  DD  DSN=cics.index.SDFHLOAD,DISP=SHR
//         DD  DSN=cpsm.index.SEYULOAD,DISP=SHR
//DFHCSD   DD  DSN=cics.dfhcsd,DISP=SHR
//SYSPRINT DD  SYSOUT=*
//SYSIN    DD  *
 UPGRADE USING(EYU9R220)
/*
```

Figure 5. JCL to delete previous release groups and group lists from the CSD

When this JCL is run, EYU9R220 attempts to delete all Version 2.2 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 6 on page 185, Figure 7 on page 186, Figure 8 on page 189, and Figure 9 on page 192 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 3.1. 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

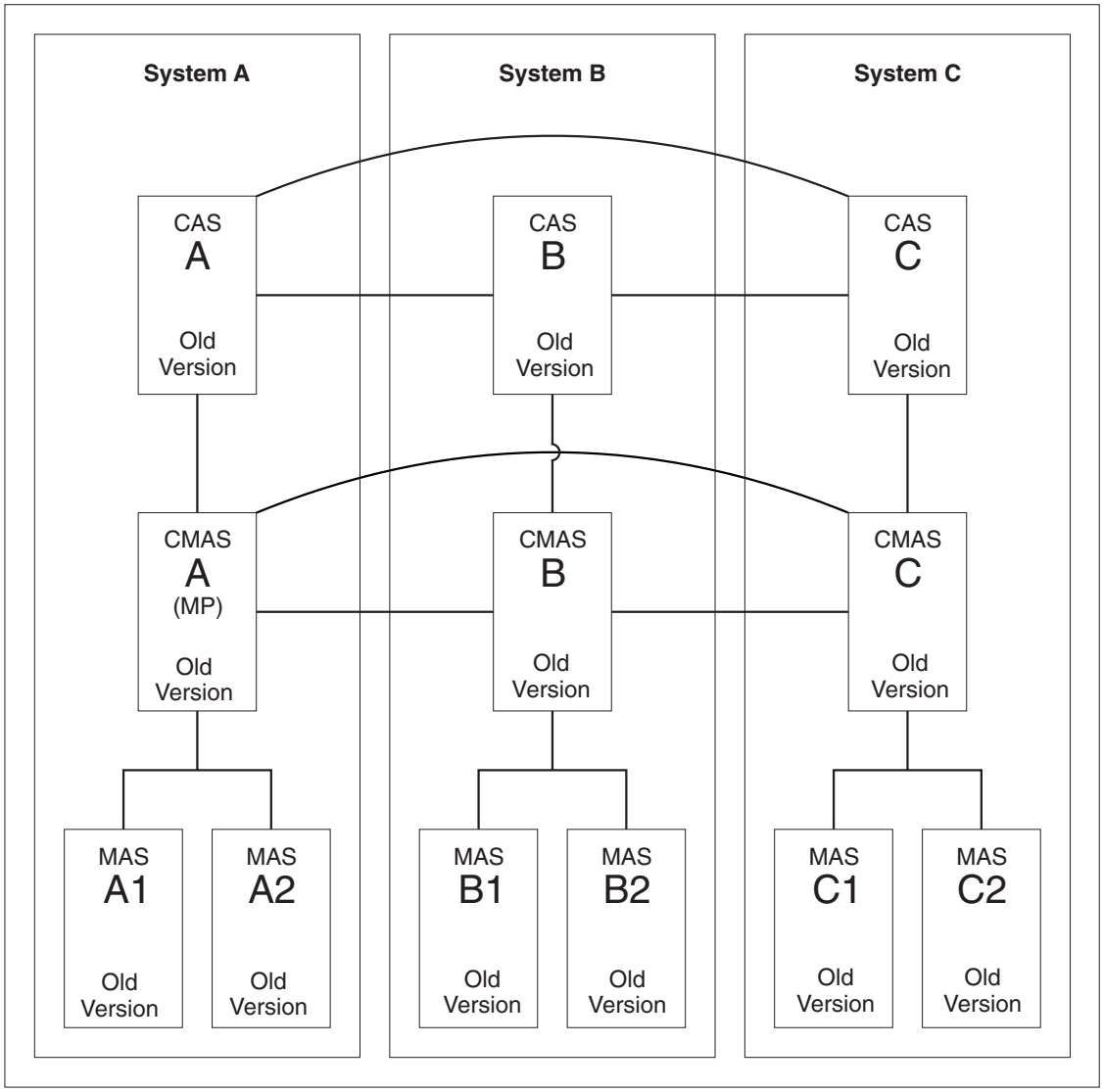

Figure 6. An environment at an earlier release

Figure 6 shows a CICSPlex SM environment that is made up of the following components:

- 3 MVS systems (System A, System B, System C)
- 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 CICSplex
  - CMAS A is the maintenance point
- 6 CICS regions
  - 6 local MASs

MAS A1 and MAS A2 connect to CMAS A (all are in System A)
MAS B1 and MAS B2 connect to CMAS B (all are in System B)
MAS C1 and MAS C2 connect to CMAS C (all are in System C)
Systems A, B and C are at the old CICS TS release.

Objective 1: Convert MP CMAS to the new version

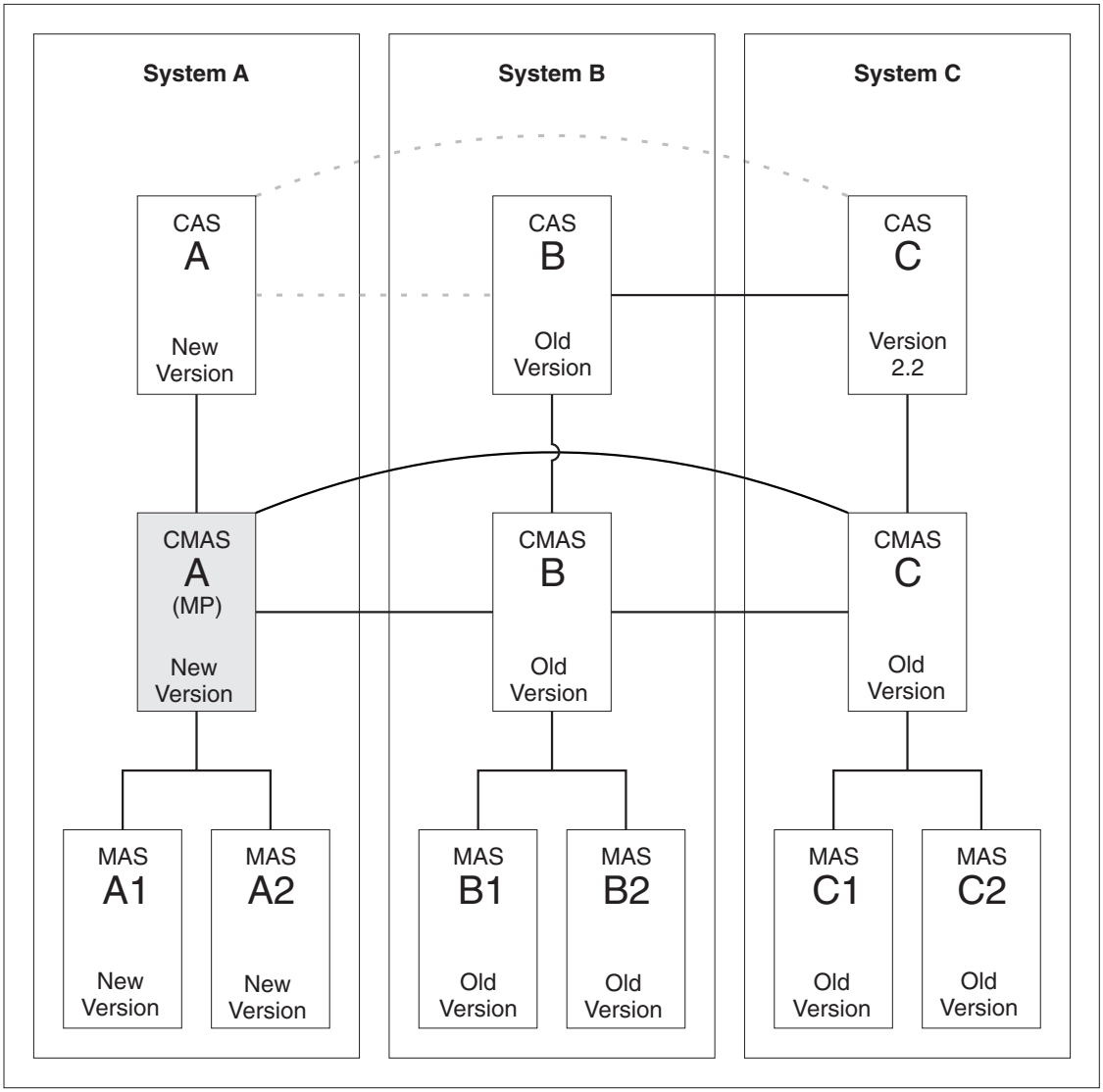

Figure 7. Converting the maintenance point CMAS to the new version

As shown in Figure 7, 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 the new version requires conversion 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 the new version

- Create the appropriate data set allocations to point to the new version 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 the new version

- 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 IEAAPFxx member of the SYS1.PARMLIB library to authorize the CICSTS31.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS A to point to the new 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:
  - If communication out of the CICSPlex is required, 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). Because the value is **null** (or blank) before you do this, you may find it easier to think of the action as *creating* the VTAM APPL name.
  - If communication out of the CICSPlex is not required, leave the VTAM APPL name blank in order to use XCF communication. The XCF group name should be EYUGR310 (this value should be picked up automatically).
  - 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 the new version

- Ensure that modules EYU9A310 and EYU9X310 in the CICSTS31.CPSM.SEYULINK data set are in the MVS link-list concatenation.

- Update the CMAS A CSD file, using the resource definitions supplied in the CICSTS31.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS A.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS A to the new Version.

  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 new 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.
- Start CMAS A.

Step 5: Convert MAS A1 and MAS A2 to the new version

- Update the MAS A1 and MAS A2 CSD files, using the resource definitions supplied in the CICSTS31.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 new data sets.
- Start MAS A1 and MAS A2.

Objective 2: Convert CMAS B to the new version

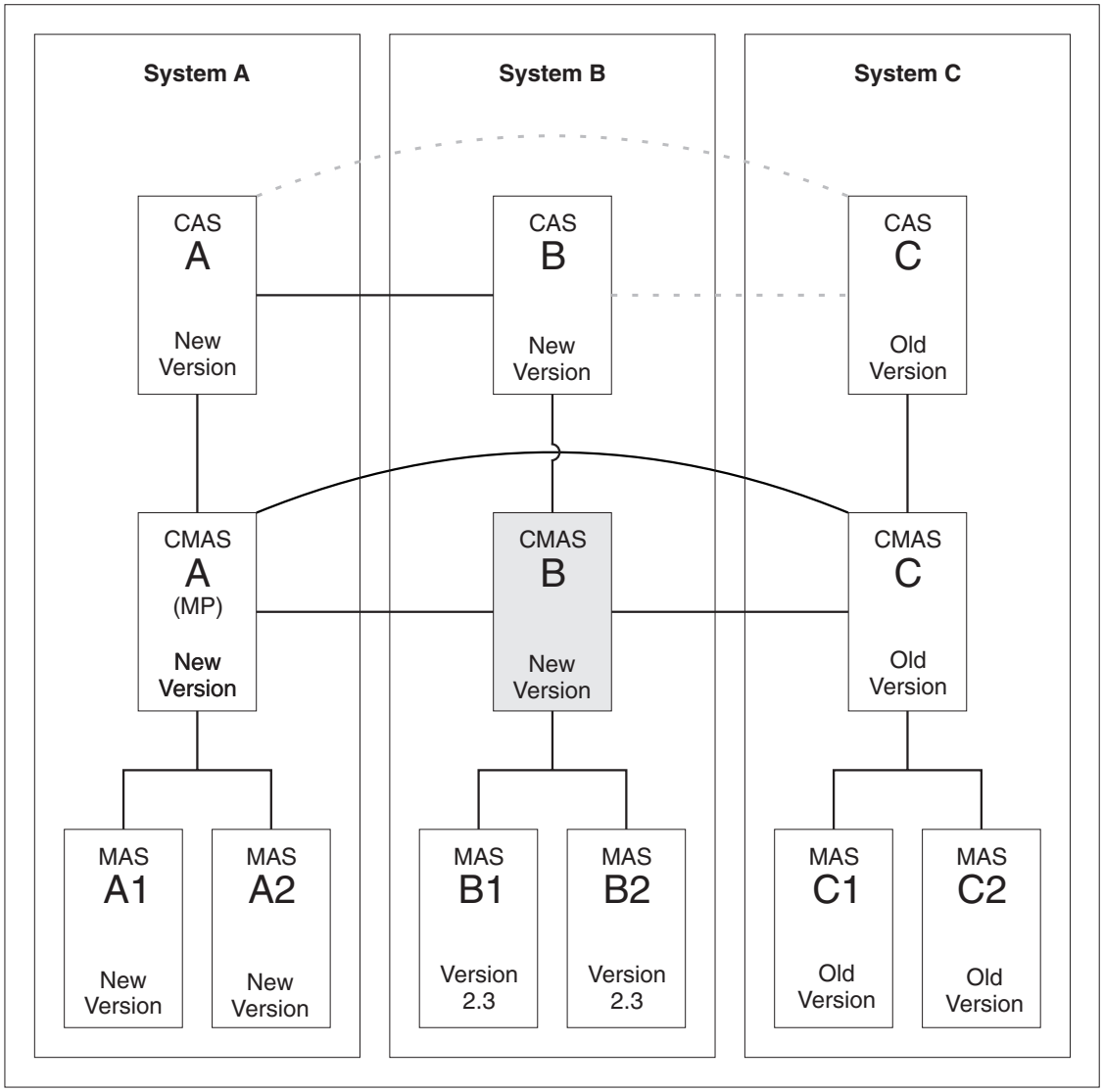

Figure 8. Converting CMAS B to the new version

As shown in Figure 8, 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 the new version requires conversion 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 the new version

- Create the appropriate data set allocations to point to the new version 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 the new version

- 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 CICSTS31.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS B to point to the new 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). Because the value is **null** (or blank) before you do this, you may find it easier to think of the action as *creating* the VTAM APPL name.
  – 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 the new version

- Ensure that modules EYU9A310 and EYU9X310 in the CICSTS31.CPSM.SEYULINK data set is in the MVS link-list concatenation.
- Update the CMAS B CSD file, using the resource definitions supplied in the CICSTS31.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS B.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS B to the new version.

  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 new 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.
- Start CMAS B.

Step 5: Convert MAS B1 and MAS B2 to the new version

- Update the MAS B1 and MAS B2 CSD files, using the resource definitions supplied in the CICSTS31.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 new data sets and to connect to the correct CASNAME.
- Start MAS B1 and MAS B2.

Objective 3: Convert CMAS C to the new version

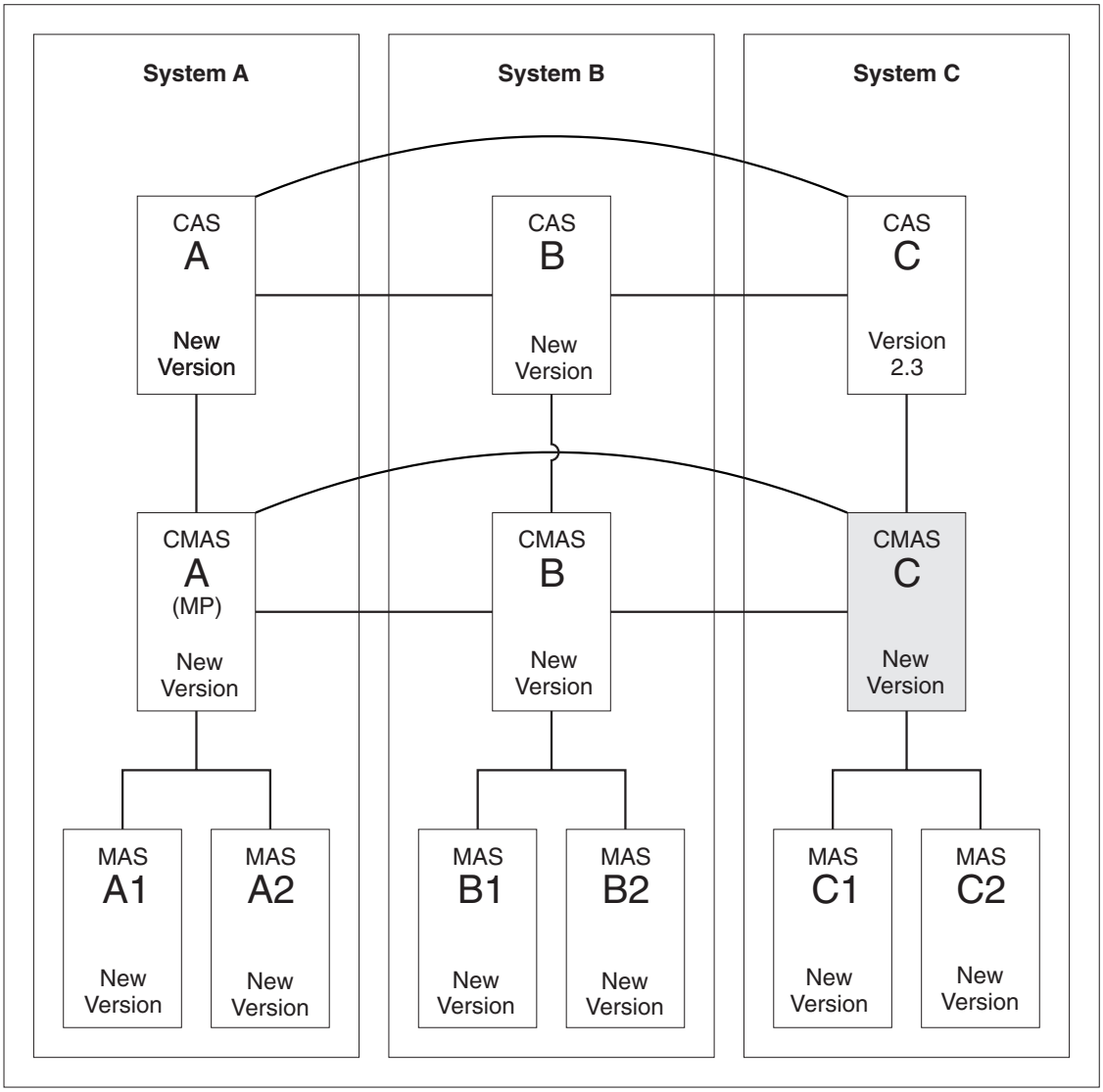

Figure 9. Converting CMAS C to the new version

As shown in Figure 9, 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 the new version requires conversion for the following:

- MVS System C CICSPlex SM TSO user
- CAS C
- CMAS C
- MAS C1
- MAS C2

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

– MAS C2

Step 2: Convert MVS System C CICSPlex SM TSO users to the new version

- Create the appropriate data set allocations to point to the new data sets.

Step 3: Convert CAS C to the new version

- Ensure that CAS A and CAS B are started.
- Change the appropriate IEAAPFxx member of the SYS1.PARMLIB library to authorize the CICSTS31.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS C to point to the new 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). Because the value is **null** (or blank) before you do this, you may find it easier to think of the action as *creating* the VTAM APPL name.
  – 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 the new version

- Ensure that modules EYU9A310 and EYU9X310 in the CICSTS31.CPSM.SEYULINK data set are in the MVS link-list concatenation.
- Update the CMAS C CSD file, using the resource definitions supplied in the CICSTS31.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS C.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS C to the new version.

  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 new 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.
- Start CMAS C.

Step 5: Convert MAS C1 and MAS C2 to the new version

- Update the MAS C1 and MAS C2 CSD files, using the resource definitions supplied in the CICSTS31.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 new data sets.
- Start MASs C1 and C2.

Part 4. CICS messages and codes

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

- Chapter 43, “Messages and codes,” on page 197

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Chapter 43. 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 232
- "Deleted messages" on page 233
- "New abend codes" on page 234
- "Deleted abend codes in CICS" on page 234

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
DP	Debug Tool Interface domain
EJ	The Enterprise Java domain
IE	ECI over TCP/IP
II	The IIOP domain
OT	Object transaction services domain
PI	Pipeline Manager domain
PT	Partner domain
RZ	The request streams domain
SJ	The CICS JVM domain

DFH5139 W CONSIDER IMPLICATIONS OF MIGRATING TYPE=SHARED ENTRIES.

DFH5151 I RESOURCE NOT ALTERED. *xxxxxxxx* **IS IBM-PROTECTED.**

DFH5250 E TO(*groupname***) CONTAINS TOO MANY NON CONTIGUOUS '*'**

DFH5260 E LENGTH OF 'TO' SUFFIX MUST BE EQUAL TO LENGTH OF 'GROUP' SUFFIX.

DFH5288 E GET-COMMAND TERMINATED AT USER'S REQUEST. RC=*xx***.**

DFH5544 E COMMAND NOT EXECUTED. *xxxxxxx* **MUST BE SPECIFIED AS** *yyyyyyy* **BECAUSE A PREVIOUS VALUE IS GENERIC.**

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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 *date time applid* **COMMAND NOT EXECUTED.** *xxxxxxx* **OPTION IS INVALID FOR A BACK LEVEL REQUESTMODEL.**

DFH5549 E **COMMAND NOT EXECUTED.** *xxxxxxx* **VALUE MUST NOT BE THE SAME AS** *yyyyyyy* **VALUE.**

DFH5550 E *keyword1* **IMPLIES** *keyword2***. THE DEFAULT VALUE HAS BEEN ASSUMED**

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*

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 *minimum_length* **to** *maximum_length* **characters in length.**

DFHAD0204 Passwords must be *minimum_length* **to** *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 specifed 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 (*target_directory_name***) on server (***server_name***).**

DFHAD0261 Could not read deployment configuration file specified by 'configDefLoc' init parameter value (*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: *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 *applid* **Unable to perform request - DFHCSD data set is invalid.**

DFHAM4902 E *applid* **Install of REQUESTMODEL** *resourcename* **failed because it is not a valid REQUESTMODEL for this level of CICS.**

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.**

DFHAM4912 E *applid* **Install of** *resource resourcename* **failed because** *attribute* **is invalid for this release.**

DFHAM4915 E *applid* **Install of** *resourcetype 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 | DJAR }resourcename* **has failed because it is a duplicate of one which already exists.**

DFHAM4921 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.**

DFHAM4922 E *applid* **The installation of***{ CORBASERVER | DJAR }resourcename* **has failed because the EJ resource resolution transaction, CEJR, could not attach.**

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.**

DFHAM4928 E *applid* **Install of** *{TCPIPSERVICE |CORBASERVER} resourcename* **failed because the specified certificate is** *{expired | not yet current | not owned by this CICS | not trusted}***.**

DFHAM4929 E *applid {URIMAP}***(***resourcename***) was not installed because of conflicting attributes.**

DFHAM4930 E *applid* **URIMAP(***urimap1***) not installed because it maps the same URI as** *urimap2***.**

DFHAM4931 E *applid* **The installation of WEBSERVICE** *resourcename* **failed because the associated** *{WSBIND file | PIPELINE}* **does not exist.**

DFHAM4932 E *applid* **The installation of** *{PIPELINE |WEBSERVICE} resourcename* **failed because the** *{hfsfile | PIPELINE}* **setup was not correct.**

DFHAM4933 E *applid* **The installation of PIPELINE** *resourcename* **failed because the WSDIR file specified is not accessible.**

DFHAP0801I *applid* **z/OS Conversion Services are not available.**

DFHAP0802 *applid* **Data conversion using CCSID** *ccsid1* **and CCSID** *ccsid2* **is not supported by this system.**

DFHAP0900 *applid* **MQ support for CICS Web Services is not available.**

DFHAP1206 *applid* **CEECCICS module not found.**

DFHAP1207 *applid* **CEEPIPI module not found.**

DFHAP1208 *applid* **Language Environment cannot support the Cobol language.**

DFHAP1209 *applid* **Language Environment cannot support the C/C++ languages.**

DFHAP1210 *applid* **Language Environment cannot support the PL/I language.**

DFHAP1211I *applid* **Language Environment initialization completed.**

DFHAP1218 *date time applid* **CEEPIPI function** *pipifn* **failed with return code** *r15rc***.**

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***.**

DFHAP1226 *date time applid* **Program** *program* **is defined as EXECKEY(USER) but transaction** *transaction* **as TASKDATAKEY(CICS): these attributes are incompatible.**

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***.**

DFHBA0105 *date time applid terminal userid tranid* **processtype definition entry** *processtype* **has been installed.**

DFHBA0235 The container record being processed is not complete.

DFHBR0202 *date time applid userid tranid* **Bridge facility autoinstall URM** *urmname* **has abended with code** *abcode***. The autoinstall function has been disabled.**

DFHBR0203 *date time applid userid tranid* **Bridge facility autoinstall URM** *urmname* **could not be linked. The autoinstall function has been disabled.**

DFHBR0204 *date time applid userid tranid* **Bridge facility autoinstall URM** *urmname* **is disabled. The request will fail.**

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* **rejected termid** *termid* **netname** *netname*.

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 code** *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.**

DFHBR0430 *date time applid* **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.**

DFHBR0431 *date time applid* **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.**

DFHBR0432 *date time applid* **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.**

DFHBR0433 *date time applid* **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 queue was purged.**

DFHBR0434 *date time applid* **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.**

DFHBR0436 *date time applid* **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.**

DFHBR0437 *date time applid* **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 could not be found in the intersystem table.**

DFHBR0438 *date time applid* **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.**

DFHBR0501 *date time applid* **File** *filename* **is not available.** *{The file is disabled | The file is not open | The file was not found | SMSVSAM server is not available | CFDT server is not available | The dataset is being copied | An IO error occurred |The file is defined as recoverable}***.**

DFHBR0502 *date time applid* **Not authorized to access file** *filename***.**

DFHBR0503 *date time applid* **File** *filename* **is full.**

DFHBR0504 *date time applid* **File** *filename* **record has been suppressed by user exit.**

DFHBR0505 *date time applid* **Bridge facility ranges have reached** *percent* **percent of total allocation.**

DFHBR0506 *date time applid* **Bridge facility ranges have reduced below** *percent* **percent of total allocation.**

DFHBR0507 *date time applid* **All Bridge facility ranges have been allocated.**

DFHBR0508 *date time applid* **File** *filename* **is not available. Sysid** *sysid* **error.**

DFHBR0601 *date time applid* **Bridge Link3270 security error. User** *userid1* **attempting to use facility allocated to** *userid2***.**

DFHCA5139 W *date time applid netname tranid* **Consider implications of migrating TYPE=SHARED entries.**

DFHCA5151 I *date time applid netname tranid* **Resource not altered.** *xxxxxxxx* **is IBM-protected.**

DFHCA5250 E TO(*groupname***) contains too many non contiguous '*'**

DFHCA5260 E Length of 'TO' suffix must be equal to length of 'GROUP' suffix.

DFHCA5288 E Get-command terminated at user's request. RC=*retcode*

DFHCA5544 E *date time applid* **Command not executed.** *xxxxxxx* **must be specified as** *yyyyyyy* **because a previous value is generic.**

DFHCA5546 E *date time applid* **Command not executed.** *xxxxxxx* **is not valid as a type** *yyyyyyy* **parameter.**

DFHCA5547 E *date time applid netname tranid* **Command not executed.** *xxxxxxx* **value** *yyyyyyy* **is invalid.**

DFHCA5548 E *date time applid* **Command not executed.** *xxxxxxx* **option is invalid for a back level REQUESTMODEL.**

DFHCA5549 E *date time applid* **Command not executed.** *xxxxxxx* **value must not be the same as** *yyyyyyy* **value.**

DFHCA5550 W *date time applid netname tranid keyword1* **implies** *keyword2* **. The default value has been assumed.**

DFHCA5551 E *date time applid* **Command not executed.** *keyword1* **cannot be specified as generic unless** *keyword2* **is also generic.**

DFHCE3540 Ensure that passwords are entered in the correct case.

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***.**

DFHCF0309 **Parameter** *parm* **on CANCEL command is incorrect. The only valid parameters are RESTART=YES or RESTART=NO.**

DFHCF0310 **Parameter** *parm* **on STOP command is incorrect. No parameters should be specified.**

DFHCF0481I **Waiting for structure** *strname* **to become available.**

DFHCF0482I **Retrying connection to structure** *strname*.

DFHCF0491 **ENFREQ ACTION=***action* **failed, return code** *retcode*.

DFHCQ0001 *applid* **An abend (code** *aaa/bbbb*) **has occurred at offset** *X'offset'* **in module** *modname*.

DFHCQ0002 *applid* **A severe error (code** *X'code'*) **has occurred in module** *modname*.

DFHCQ0100I *applid* **Console queue initialization has started.**

DFHCQ0101I *applid* **Console queue initialization has ended.**

DFHCQ0102I *applid* **Console queue initialization has failed.**

DFHCQ0103I *applid* **MVS console queue is open.**

DFHCQ0104I *applid* **MVS console queue is closed.**

DFHCQ0105I *applid* **CICS is busy. MVS modify command has been rejected.**

DFHCQ0200I *applid* **CEKL transaction enabled.**

DFHCQ0201I *applid* **CEKL transaction enabled only for INQUIRE.**

DFHCQ0210I *applid* **CEKL command ignored; INQUIRE or SET keyword must be specified.**

DFHCQ0211I *applid* **CEKL command ignored; input expected.**

DFHCQ0212I *applid* **CEKL command ignored; input beginning** *input* **is too long.**

DFHCQ0213I *applid* **CEKL command ignored. Keyword,** *keyword* **is repeated.**

DFHCQ0214I *applid* **CEKL command ignored. Keyword,** *invkwd* **is not supported.**

DFHCQ0215I *applid* **CEKL command ignored; Keyword,** *invkwd* **is ambiguous.**

DFHCQ0216I *applid* **CEKL command ignored;** *invval* **is non-numeric.**

DFHCQ0217I *applid* **CEKL command ignored;** *invkwd* **is out of range.**

DFHCQ0218I *applid* **CEKL command ignored;** *delim* **expected after** *kywd*.

DFHCQ0220I *applid* **CEKL INQUIRE command ignored; TASK keyword must be specified.**

DFHCQ0221I *applid* **CEKL INQUIRE command ignored; keyword expected.**

DFHCQ0224I *applid* **CEKL INQUIRE command ignored; keywords conflict.**

DFHCQ0230I *applid* **CEKL SET command ignored; TASK keyword must be specified.**

DFHCQ0231I *applid* **CEKL SET command ignored; keyword expected.**

DFHCQ0232I *applid* **CEKL SET command ignored; task number must be specified.**

DFHCQ0233I *applid* **CEKL SET command ignored; PURGE or FORCEPURCE or KILL keyword must be specified.**

DFHCQ0234I *applid* **CEKL SET command ignored; keywords conflict.**

DFHCQ0240I *applid* **CEKL INQUIRE: task number** *taskno* **not found.**

DFHCQ0241I *applid* **CEKL INQUIRE: task number** *taskno*, **found.**

DFHCQ0242I *applid* **CEKL INQUIRE: no tasks matched selection criteria.**

DFHCQ0243I *applid* **CEKL INQUIRE:** *notasks* **task(s) matched selection criteria.**

DFHCQ0250I *applid* **CEKL SET: task number** *taskno* **not found.**

DFHCQ0251I *applid* **CEKL SET: deferred PURGE request issued for task number** *taskno*.

DFHCQ0252I *applid* **CEKL SET: PURGE request issued for task number** *taskno*.

DFHCQ0253I *applid* **CEKL SET: PURGE request ignored; task number** *taskno* **is being purged.**

DFHCQ0254I *applid* **CEKL SET: PURGE request ignored; task number** *taskno* **is being forcepurged.**

DFHCQ0255I *applid* **CEKL SET: PURGE request ignored; task number** *taskno* **is being killed.**

DFHCQ0256I *applid* **CEKL SET: FORCEPURGE request issued for task number** *taskno*.

DFHCQ0257I *applid* **CEKL SET: FORCEPURGE request ignored; task number** *taskno* **is being forcepurged.**

DFHCQ0258I *applid* **CEKL SET: FORCEPURGE request ignored; task number** *taskno* **is being killed.**

DFHCQ0259I *applid* **CEKL SET: KILL request issued for task number** *taskno*.

DFHCQ0260I *applid* **CEKL SET: KILL request ignored; task number** *taskno* **is being killed.**

DFHCQ0261I *applid* **CEKL SET: PURGE request rejected for system task number** *taskno*.

DFHCQ0262I *applid* **CEKL SET: FORCEPURGE request rejected for system task number** *taskno*.

DFHCQ0263I *applid* **CEKL SET: KILL request rejected for system task number** *taskno*.

DFHCQ0264I *applid* **CEKL SET: PURGE request rejected; task number** *taskno* **is not purgeable.**

DFHCQ0265I *applid* **CEKL SET: FORCEPURGE request ignored; task number** *taskno* **is being purged.**

DFHCQ0266I *applid* **CEKL SET: KILL request ignored; task number** *taskno* **is being purged.**

DFHCZ0150 *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.**

DFHCZ0151 *date time applid userid termid tranid program name class*::*method* **This method failed because the number of systems requested of** *nosys*, **is too large. The maximum number of systems supported is** *max*.

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*.

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*.

DFHCZ0380 *date time applid userid termid tranid program name* **An attempt to allocate storage in** *module* **failed.**

DFHCZ0381 *date time applid userid termid tranid program name* **JNI call 'GetByteArrayElements()' in** *module* **failed.**

DFHCZ0382 *date time applid userid termid tranid program name* **JNI call 'GetStringUTFChars()' in** *module* **failed.**

DFHCZ0383 *date time applid userid termid tranid program name* **JNI call 'NewObject()' in** *module* **failed.**

DFHCZ0384 *date time applid userid termid tranid program name* **JNI call 'GetMethodID()' in** *module* **failed.**

DFHCZ0385 *date time applid userid termid tranid program name* **JNI call 'FindClass()' in** *module* **failed.**

DFHCZ0386 *date time applid userid termid tranid program name* **JNI call 'GetFieldID()' in** *module* **failed.**

DFHDB2024I *date time applid* **The CICS-DB2 attachment is in standby. For resync purposes only, connection has been made to DB2 restart-light subsystem** *db2-id{ | group }db2-group*

DFHDB2064 *date time applid* **Resynchronization outstanding for subsystem** *db2id* **after DB2 Group Attach has connected to subsystem** *db2id2*

DFHDB2211 *date time applid* **Maxopentcbs setting of** *xxx* **in the SIT conflicts with the tcblimit setting of** *yyy* **in the DB2CONN definition.**

DFHDH0107I *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.**

DFHDP0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHDP0002 *applid* **A severe error (code** *X'code'***) has occurred in module** *modname***.**

DFHDP0100 *applid* **An unexpected exception response with reason code** *X'code'* **has been returned by CICS file control to module** *modname***. The debugging profiles file,** *filename***, is not usable.**

DFHDP0200 *applid* **Debug Tool is back level. LE Debugging profiles may be defined but not used on this system.**

DFHDP0300 *applid num* **debugging profile(s) have been inactivated.**

DFHDP0301 *applid* **The file DFHDPFMB is not available. No debugging profiles have been inactivated.**

DFHDS0010 *applid* **Kill request accepted for transaction id** *transid***, transaction number** *tranum***, userid** *userid***.**

DFHDS0011 *applid* **Kill request reaccepted for transaction id** *transid***, transaction number** *tranum***, userid** *userid***.**

DFHDU0217 *applid* **SDUMPX request completed with a return code of X'04'. A complete or partial dump has been taken.**

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* **is not installed.**

DFHEJ0746 *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.**

DFHEJ0747 *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.**

DFHEJ0748 *date time applid userid* **Error found during install of CorbaServer** *CorbaServer_name* **because TCPIPSERVICE** *tcpipservice* **named in the CorbaServer for UNAUTH has SSL(YES|CLIENTAUTH) set. SSL(NO) should be set.**

DFHEJ0751 *date time applid* **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.**

DFHEJ0761 I *date time applid userid* **CorbaServer** *CorbaServer_name* **has been set to be enabled.**

DFHEJ0762 I *date time applid userid* **CorbaServer** *CorbaServer_name* **has been set to be disabled.**

DFHEJ0901 *date time applid* **DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has been created.**

DFHEJ0902 *date time applid* **DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **was not created.**

DFHEJ0906 *date time applid* **The EJ Resolution Transaction** *transaction_name* **did not attach.**

DFHEJ0921 *date time applid* **DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **was successfully deleted.**

DFHEJ0934 *date time applid* **DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has failed Resolution while it was being copied to the Shelf.**

DFHEJ0935 *date time applid* **Catalog read for update during Resolution processing for DJar** *DJar_name* **failed.**

DFHEJ0936 *date time applid* **DJar** *DJar_name* **Catalog Resolution processing returned bad data.**

DFHEJ0937 *date time applid* **DJar** *DJar_name* **Catalog Resolution processing returned an invalid DJar.**

DFHEJ0940 *date time applid* **State updating failed while copying the DJar to the shelf during Resolution processing for DJar** *DJar_name***.**

DFHEJ0946 *date time applid* **The Beans contained within DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **were not correctly confirmed during Bean Resolution.**

DFHEJ0947 *date time applid* **Beans contained within DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **are invalid and unusable.**

DFHEJ0948 *date time applid* **Deletion of Beans contained within DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **succeeded.**

DFHEJ0949 *date time applid* **Deletion of Beans contained within DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **failed.**

DFHEJ0951 *date time applid* **State updating failed while loading Beans from the DJar during Resolution processing for DJar** *DJar_name***.**

DFHEJ0961 *date time applid* **About to wait for the availability of DJar** *DJar_name***.**

DFHEJ0962 *date time applid* **DJar** *DJar_name* **availability wait ended in error because the DJar was not defined.**

DFHEJ0963 *date time applid* **DJar** *DJar_name* **availability wait ended successfully.**

DFHEJ0964 *date time applid* **DJar** *DJar_name* **availability wait ended in error because the DJar was in the UNUSABLE state.**

DFHEJ0965 *date time applid* **DJar** *DJar_name* **availability wait ended in error because the DJar was in the UNRESOLVED state.**

DFHEJ0966 *date time applid* **DJar** *DJar_name* **availability wait ended in error because an error occurred during the wait.**

DFHEJ0971 *date time applid* **About to wait for the availability of all Beans contained within DJars associated with CorbaServer** *CorbaServer_name***.**

DFHEJ0972 *date time applid* **All Beans contained within DJars associated with CorbaServer** *CorbaServer_name* **are now available for use.**

DFHEJ0973 *date time applid* **Bean wait for DJars associated with CorbaServer** *CorbaServer_name* **failed.**

DFHEJ1101 *date time applid* **Bean** *Bean_name* **from DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has not been created because the CorbaServer is absent.**

DFHEJ1102 *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.**

DFHEJ1103 *date time applid* **Bean** *Bean_name* **from DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has not been created because the DJar is absent.**

DFHEJ1104 *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.**

DFHEJ1105 *date time applid* **Bean** *Bean_name* **from DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has not been created because the Bean is already present.**

DFHEJ1106 *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.**

DFHEJ1107 *date time applid* **Bean** *Bean_name* **from DJar** *DJar_name* **within CorbaServer** *CorbaServer_name* **has not been created.**

DFHEJ1301 *date time applid* **The elements portion of the Enterprise Java Domain did not initialize. Enterprise Java function is unavailable.**

DFHEJ1302 *date time applid* **The elements portion of the Enterprise Java Domain successfully initialized.**

DFHEJ1510 *date time applid* **CorbaServer** *CorbaServer_name* **previously failed Resolution and was found in the INITING state.**

DFHEJ1513 *date time applid* **CorbaServer** *CorbaServer_name* **previously failed Resolution and was found in the RESOLVING state.**

DFHEJ1518 *date time applid* **CorbaServer** *CorbaServer_name* **is UNUSABLE.**

DFHEJ1520 *date time applid* **CorbaServer** *CorbaServer_name* **is now accessible.**

DFHEJ1521 *date time applid* **CorbaServer** *CorbaServer_name* **is UNRESOLVED.**

DFHEJ1530 *date time applid* **DJar** *DJar_name* **previously failed Resolution and was found in the INIITING state.**

DFHEJ1533 *date time applid* **DJar** *DJar_name* **previously failed Resolution and was found in the RESOLVING state.**

DFHEJ1538 *date time applid* **DJar** *DJar_name* **and the Beans it contains are UNUSABLE.**

DFHEJ1540 *date time applid* **DJar** *DJar_name* **and the Beans it contains are now accessible.**

DFHEJ1541 *date time applid* **DJar** *DJar_name* **and the Beans it contains are UNRESOLVED.**

DFHEJ1801 *date time applid userid* **The EJ domain is unable to run the Enterprise Java event URM:** *module***. Reason(***X'reason'***)**

DFHEJ5001 *date time applid* **The HFS file** *hfs_name* **for DJar** *DJar_name* **could not be found.**

DFHEJ5002 *date time applid* **Unable to delete JAR file** *DJar_file_name* **from the Shelf directory** *shelf_partition***.**

DFHEJ5003 *date time applid* **CICS is unable to write to the destination file** *hfs_file_name* **while installing DJar** *djar_name***.**

DFHEJ5004 *date time applid* **The container encountered problems processing the contents of the HFS file referred to by DJar** *DJar_name***.**

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.**

DFHEJ5043 E *date time applid userid* **An exception occurred processing DJar** *file_name* **. The following exception message may help to diagnose the problem:** *exception_message*

DFHEJ5044 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***.**

DFHEJ5045 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. Duplicate element of type** *element_type* **found with name** *element_name* **.**

DFHEJ5046 E *date time applid userid* **DJar** *djar_name* **is invalid.**

DFHEJ5047 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. An element of type** *element_type* **and value** *element_value* **references another element that cannot be found.**

DFHEJ5048 E *date time applid userid* **Invalid Resource found in DJar** *djar_name***. Class** *class_name* **for bean** *bean_name* **does not implement** *interface_name* **.**

DFHEJ5049 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. Bean** *bean_name* **implements the SessionSynchronization interface but has a n incompatible deployment descriptor.**

DFHEJ5050 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. An element of type** *element_type* **and value** *element_value* **for bean** *bean_name* **has an invalid value.**

DFHEJ5051 E *date time applid userid* **DJar** *djar_name* **is not fully deployed. Class** *class_name* **cannot be found.**

DFHEJ5052 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. An element of type** *parent_element* **is missing a subelement of type** *missing_element***.**

DFHEJ5053 E *date time applid userid* **Missing Resource in DJar** *djar_name***. Resource** *resource_name* **cannot be found.**

DFHEJ5054 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. An element of type** *element_type* **and value** '*element_value*' **is not a valid XML NMTOKEN.**

DFHEJ5055 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name***. No Session beans defined.**

DFHEJ5056 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name*. **An element of type** *element_type* **and name** *element_name* **is missing a JNDI binding.**

DFHEJ5057 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name*. **An unexpected element of type** *element_type* **was found.**

DFHEJ5058 E *date time applid userid* **XML Parse failure in the deployment descriptor for DJar** *djar_name*. **Problem found at line** *line_number* **and column** *column_number*. **The XML parser returned the following exception message:** *XML_message* .

DFHEJ5059 W *date time applid userid*. **One or more non-Session beans were found and ignored for DJar** *djar_name*.

DFHEJ5060 E *date time applid userid* **A problem was found in the manifest file for DJar** *djar_name*. **The problem was found in the following manifest entry:** *attribute*.

DFHEJ5061 E *date time applid userid* **DJar** *djar_name* **contains a bean whose name includes characters CICS canno t accept. The bean name is:** *bean_name* .

DFHEJ5062 E *date time applid userid* **Error found in the deployment descriptor for DJar** *djar_name*. **Bean** *bean_name* **has EJB 2.0 local interfaces. These are not supported in CICS.**

DFHEJ5101 *date time applid* **Cannot activate** *bean class exception*.

DFHEJ5102 *date time applid* **Cannot passivate** *bean class exception*.

DFHEJ5103 *date time applid* **Unable to passivate enterprise bean** *bean class exception*.

DFHEJ5104 *date time applid* **Exception thrown by discard strategy** *element exception*.

DFHEJ5105 *date time applid* **Encountered a failure in the fireAlarm method** *exception*.

DFHEJ5106 *date time applid* **Failed to get the wrapper for home:** *exception*.

DFHEJ5107 *date time applid* **LRU thread was interrupted. Terminating.** *exception*.

DFHEJ5108 *date time applid* **Caught an exception during LRU sweep** *class exception*.

DFHEJ5109 *date time applid* **Coordinator was not available** *exception*.

DFHEJ5110 *date time applid userid* **Bean** *bean_name* **has an incomplete EJB Reference. Reference is** *reference*.

DFHEJ5111 *date time applid userid* **Bean** *bean_name* **has an incomplete EJB Resource Reference specified. Resou rce Reference is** *reference*.

DFHEJ5112 *date time applid userid* **Bean** *bean_name* **has an EJB environment entry with an invalid value specif ied. Environment entry is** *env_entry*.

DFHEJ5113 *date time applid userid* **Unexpected naming problem occurred:** *message*

DFHEJ5114 *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 .**

DFHEJ6000 *date time applid* **The CICS EJB container failed to find the requested plugin** *plugin*.

DFHEJ6001 *date time applid* **The CICS EJB container plugin** *plugin* **has thrown exception** *exception*.

DFHEX0004 **Jobname:** *jobname*, **Stepname:** *stepname*, **Procname:** *procname*, **Sysid in SMF:** *sysid*, **Applid:** *applid*.

DFHFC0175 *date time applid tranid trannum termid userid*. **Transactional VSAM unit of recovery** *X'urid'* **running in job** *jobname* **on Transactional VSAM instance** *TVSInstance* **in MVS** *mvsid* **holds** *{add to end lock | internal lock | exclusive lock on key | shared lock on key }X'keyid'* **in data set** *dsname* **causing** *{true | false}* **contention.**

DFHFC0177 *date time applid tranid termid userid*. **Transactional VSAM unit of recovery id** *X'urid'* **running in** *jobname/TVSInstance* **in MVS** *mvsid* **holds** *{add to end lock | internal lock | exclusive lock on key | shared lock on key }X'key1'* **on data set** *dsname1* **and is waiting for** *{add to end lock |internal lock | exclusive lock on key |shared lock on key }X'key2'* **on data set** *dsname2*.

DFHFC0179 *date time applid termid userid*. **Transaction** *tranid* **with transaction number** *trannum* **encountered an RLS retained lock held on data set** *dsname* **by unit of recovery** *X'urid'* **within Transactional VSAM instance** *TVSInstance*.

DFHFC0313I *applid* **VSAM has returned an error with an RPL feedback - return code :** *X'rc'* **component code :** *X'cc'* **error code :** *X'ec'* **for file :** *filename* **and dsname :** *dataset* **The data set may be out of synch with its Alternate Indices.**

DFHFC0314I *applid* **VSAM has insufficient LSR buffers to fully backout the failed request.**

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*.

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.**

DFHIE1004 *date time applid client_ip_addr tcpipservice* **Data received from the client had an invalid length field.**

DFHIE1005 *date time applid client_ip_addr tcpipservice* **ECI client install failed.**

DFHIE1006 *date time applid client_ip_addr tcpipservice* **ECI request received before install.**

DFHIE1007 *date time applid client_ip_addr tcpipservice* **Invalid install request.**

DFHIE1008 *date time applid client_ip_addr tcpipservice* **Install request received from unsupported version of the client.**

DFHIE1009 *date time applid client_ip_addr tcpipservice* **Unsupported codepage** *codepage* **specified in client install.**

DFHIE1010 *date time applid client_ip_addr tcpipservice* **Data arrived when CICS in SEND state.**

DFHIE1011 *date time applid client_ip_addr tcpipservice* **Invalid data received from client.**

DFHIE1012 *date time applid client_ip_addr tcpipservice* **Install request from the client did not contain the client codepage.**

DFHIE1013 *date time applid client_ip_addr tcpipservice* **Unexpected connection level PING reply received.**

DFHIE1101 *date time applid client_ip_addr tcpipservice* **Error obtaining IE domain storage. Task terminated.**

DFHIE1102 *date time applid client_ip_addr tcpipservice* **Invalid parameter list passed to IE domain.**

DFHIE1103 *date time applid client_ip_addr tcpipservice* **Invalid request by mirror task.**

DFHIE1104 *date time applid client_ip_addr tcpipservice* **Error attempting socket receive from ECI client.**

DFHIE1105 *date time applid client_ip_addr tcpipservice* **Error attempting socket send to ECI client.**

DFHIE1106 *date time applid client_ip_addr tcpipservice* **Error attempting to wait for client data.**

DFHIE1107 *date time applid client_ip_addr tcpipservice* **Error freeing IE domain storage. Task terminated.**

DFHIE1201 *date time applid client_ip_addr tcpipservice* **Error attaching mirror transaction id** *transid***.**

DFHIE1202 *date time applid client_ip_addr tcpipservice* **ECI request timed out. Abnormal termination initiated.**

DFHIE1203 *date time applid client_ip_addr tcpipservice* **EPI request attempted by TCP/IP connected client.**

DFHIE1204 *date time applid client_ip_addr tcpipservice* **Data lost during ECI request processing.**

DFHIE1205 *date time applid client_ip_addr tcpipservice* **Unrecognizable data received from a TCP/IP connected client.**

DFHIE1206 *date time applid client_ip_addr tcpipservice* **Mirror transaction id** *transid* **is disabled.**

DFHIE1207 *date time applid client_ip_addr tcpipservice* **Mirror transaction id** *transid* **not found.**

DFHIE1208 *date time applid client_ip_addr tcpipservice* **Mirror transaction id** *transid* **has been disabled because CICS is shutting down.**

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.**

DFHII0110 E *date time applid client_ip_addr tcpipservice* **The request receiver received a request with no object key. Reason(***X'pointId'***).**

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 tcpipservice* **The request receiver received a fragment when none was expected.**

DFHII0205 *date time applid client_ip_addr tcpipservice* **The request receiver received a messageType of messageError.**

DFHII0206 *date time applid client_ip_addr tcpipservice* **The request receiver received a messageType of reply or locateReply which is not supported.**

DFHII0207 *date time applid client_ip_addr tcpipservice* **The request receiver received a messageType of closeConnection which is not supported.**

DFHII0208 *date time applid client_ip_addr tcpipservice* **The request receiver received a GIOP header with an invalid messageType.**

DFHII0209 *date time applid client_ip_addr tcpipservice* **The request receiver is unable to parse a request header.**

DFHII0210 *date time applid* **The request receiver is unable to run the security URM:** *module***. Reason(***X'reason'***)**

DFHII0211 *date time applid client_ip_addr tcpipservice* **The request receiver received an invalid GIOP header when expecting a fragment.**

DFHII0212 *date time applid client_ip_addr tcpipservice* **The request receiver socket receive timed out.** *n* **request stream replies are outstanding.**

DFHII0213 *date time applid* **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* **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 tcpipservice* **The request receiver socb_notify_gate was driven but the resume for the task failed.**

DFHII0216 E *date time applid client_ip_addr tcpipservice* **The request receiver asynchronous socket receive failed with an IO error.**

DFHII0217 *date time applid client_ip_addr tcpipservice* **The request receiver received a GIOP header with an invalid length.**

DFHII0218 *date time applid client_ip_addr tcpipservice* **The request receiver socket first receive timed out.**

DFHII0219 *date time applid* **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* **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 tcpipservice* **The Request Receiver failed to receive a request due to a socket client error.**

DFHII0222 *date time applid client_ip_addr tcpipservice* **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 tcpipservice* **The Request Receiver is unable to obtain storage.**

DFHII0224 *date time applid client_ip_addr tcpipservice* **The Request Receiver received a request. Processing cannot continue because a security check has failed.**

DFHII0225 *date time applid client_ip_addr tcpipservice* **The Request Receiver received a request without a valid security context for TCPIPSERVICE AUTHENTICATION(***{none | basic | asserted | kerberos | certificate }***).**

DFHII0226 *date time applid client_ip_addr tcpipservice* **The Request Receiver is unable to send a reply to the client.**

DFHII0227 E *date time applid client_ip_addr tcpipservice* **The request receiver socket has been closed. Replies outstanding:** *replies***. Fragments in progress:** *fragments*

DFHII0228 E *date time applid client_ip_addr tcpipservice* **The request receiver socket has been closed.**

DFHII0229 E *date time applid client_ip_addr tcpipservice* **The request receiver received a GIOP fragment with no preceeding request for requestId:** *requestId*

DFHII0230 *date time applid* **The request processor request streams notify gate was driven but the task no longer exists.**

DFHII0231 *date time applid* **The request processor request streams notify gate was driven but the resume for the task failed.**

DFHII0232 *date time applid* **The request processor is unable to receive a request from the request receiver.**

DFHII0233 *date time applid* **The request processor is unable to receive a reply from a target ORB.**

DFHII0234 *date time applid* **The request processor is unable to send a reply to the request receiver.**

DFHII0235 *date time applid* **The request processor is unable to send a request to a target ORB.**

DFHII0236 *date time applid* **The request processor is unable to receive a reply or a request from a target ORB or the request receiver.**

DFHII0237 *date time applid* **The request handler is unable to create or join a request stream because transaction** *tranid* **is not installed.**

DFHII0238 *date time applid* **The request processor received a request with an invalid header.**

DFHII0239 *date time applid* **A request processor request does not contain a valid cicsTaskTrackingContext.**

DFHII0240 *date time applid* **The request processor received a reply with an invalid header.**

DFHII0241 *date time applid* **The request processor received a reply fragment with an invalid header.**

DFHII0242 *date time applid* **The request processor did not receive a reply fragment.**

DFHII0243 *date time applid* **The request processor received a messageError reply.**

DFHII0244 *date time applid* **The request processor received an invalid GIOPMessageType.**

DFHII0245 *date time applid* **The request processor received an unknown GIOPMessageType.**

DFHII0246 *date time applid* **The request processor received an unexpected GIOPFragment.**

DFHII0247 *date time applid* **The request processor is unable to receive a** *{reply from a target ORB | request from the Request Receiver}*. **Reason:** *{ABEND. | Request Stream closed. | Timeout.}*

DFHII0248 *date time applid* **The request processor may have been started invalidly.**

DFHII0249 *date time applid* **The Request Processor received a reply which indicated that a fragment is expected. This is not supported for GIOP 1.1 and earlier.**

DFHII0250 E *date time applid* **The request processor received an invalid reply fragment.**

DFHII0251 E *date time applid client_ip_addr tcpipservice* **The request receiver received a GIOP fragment whose length is not divisible by 8.**

DFHII0252 E *date time applid* **The request processor received a fragmented reply whose length is not divisible by 8.**

DFHII0300 *date time applid* **The CICS ORB failed to find the requested plugin** *plugin*.

DFHII0301 *date time applid* **The CICS ORB plugin** *plugin* **has thrown exception** *exception*.

DFHII0401 *date time applid* **REQUESTMODEL** *rqmodelname* **has been installed.**

DFHII0402 *date time applid* **REQUESTMODEL** *rqmodelname* **has been discarded.**

DFHII0601 *date time applid* **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 XSRC 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*.

DFHII1015 *date time applid* **Invalid port number** *connPort* **used for** *sslType* **connection to CORBASERVER** *serverName*, **with port** *port*, **sslPort** *sslPort*.

DFHII1016 *date time applid* **Failure obtaining JNDI context for CORBASERVER** *serverName*, **prefix** *jndiPrefix* **at level** *prefixPart*. **Exception** *exc* **was received.**

DFHII1017 *date time applid* **Badly formed JNDI prefix:** *prefix* **in CORBASERVER** *serverName*. **The JNDI NameParser threw exception** *exc*.

DFHII1018 *date time applid* **Failed to bind CORBA stateless GenericFactory for CORBASERVER** *serverName* **to JNDI subcontext** *jndiPrefix* **as** *jndiName*. **Exception** *exc* **was received.**

DFHII1019 *date time applid* **CORBA stateless GenericFactory for CORBASERVER** *serverName* **bound to JNDI subcontext** *jndiPrefix* **as** *jndiName*.

DFHII1020 *date time applid* **Failed to create HFS shelf** *shelfName* **for CORBASERVER** *serverName*.

DFHII1021 *date time applid* **Failed to unbind CORBA stateless GenericFactory for CORBASERVER** *serverName* **from JNDI subcontext** *jndiPrefix*. **Exception received** *exc*.

DFHII1022 *date time applid* **CORBA stateless GenericFactory for CORBASERVER** *serverName* **unbound from JNDI subcontext** *jndiPrefix*.

DFHII1023 *date time applid* **Failed to delete GenericFactory IOR file** *fileName* **from the shelf of CORBASERVER** *serverName*.

DFHII1024 *date time applid* **JNDI subcontext** *subcontext* **destroyed during processing of CORBASERVER** *serverName* **with prefix** *jndiPrefix*.

DFHII1025 *date time applid* **Failed to delete HFS shelf** *shelfName* **for CORBASERVER** *serverName*.

DFHII1026 *date time applid* **CORBASERVER** *serverName* **not installed.**

DFHII1027 *date time applid* **CORBA stateless GenericFactory for CORBASERVER** *serverName* **written to the shelf as** *fileName*.

DFHII1028 *date time applid* **Name server not defined for CORBASERVER** *serverName* **being initialized for PROGRAM** *pgmName*.

DFHII1029 *date time applid* **CORBA stateless GenericFactory file** *fileName* **deleted from the shelf of CORBASERVER** *serverName*.

DFHII1030 *date time applid* **CORBA stateless GenericFactory for CORBASERVER** *serverName* **not found at JNDI subcontext** *jndiPrefix*.

DFHII1031 *date time applid* **Unable to obtain JNDI InitialContext** *jndiPrefix* **for CORBASERVER** *serverName*.

DFHII1032 *date time applid* **JNDI subcontext** *subContext* **created during processing of CORBASERVER** *serverName* .

DFHII1033 *date time applid* **JNDI subcontext** *subContext* **for CORBASERVER** *serverName* **not found during RETRACT.**

DFHII1034 *date time applid* **No write access to file** *fileName* **for creation of shelf** *shelfName*.

DFHII1035 *date time applid* **GenericFactory IOR file** *fileName* **not found on the shelf of CORBASERVER** *serverName*.

DFHII1036 *date time applid* **Unexpected ORB creation within the scope of CORBASERVER** *serverName* **for PROGRAM** *pgmName*.

DFHII1037 *date time applid* **CORBASERVER** *serverName* **has received a request with AUTHTYPE** *authType*. **The** *attrName* **attribute in the request has a value of (***value1***) which does not match the value (***value2***) configured for the CORBASERVER.**

DFHII1038 *date time applid* **CORBASERVER** *serverName* **does not have a TCPIPSERVICE configured for AUTHTYPE** *authType*.

DFHII1050 W *date time applid* **Maximum version of GIOP has not been specified. Defaulting to GIOP 1.1 .**

DFHKE0414 BAD RETURN FROM MVS SERVICE CSRL16J.

DFHKE0500 *applid* **MAXPROCUSER exceeded while executing '***service-routine***'.**

DFHKE0501 *applid* **The Kernel received a return value of** *X'rvalue'*, **a return code of** *X'rcode'* **and a return reason of** *X'rreason'* **from the** *uss* **service-routine.**

DFHLG0760 *date time applid* **Log stream** *lsn* **not trimmed by keypoint processing. Number of keypoints since last trim occurred:** *trimnum*.

DFHLG0788 *applid* **The System Log journals DFHLOG and DFHSHUNT have been defined on the same MVS logstream (***logstream***). This is invalid. CICS will terminate.**

DFHME0138 Message *msgno* **not issued by** *module* **because MVS WTO is short on storage**

DFHME0139 *applid* **(Module:***modname***) Message** *msgno* **has been suppressed by KILL processing.**

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.**

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*.

DFHNC0309 Parameter *parm* **on CANCEL command is incorrect. The only valid parameters are RESTART=YES or RESTART=NO.**

DFHNC0310 Parameter *parm* **on STOP command is incorrect. No parameters should be specified.**

DFHNC0481I Waiting for structure *strname* **to become available.**

DFHNC0482I Retrying connection to structure *strname*.

DFHNC0491 ENFREQ ACTION=*action* **failed, return code** *retcode*.

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** *module*.

DFHOT0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname*.

DFHOT0101 *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'*.

DFHPD0133 Specified task not found.

DFHPD0134 Link to module CEEERRIP has failed.

DFHPD0135 Program check occurred with CEEERRIP in control.

DFHPI0001 *applid* **An abend (code** *aaa/bbbb*) **has occurred at offset** *X'offset'* **in module** *modname*.

DFHPI0002 *applid* **A severe error (code** *X'code'*) **has occurred in module** *modname*.

DFHPI0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname*.

DFHPI0110 *date time applid* **An attempt to start transaction CPIH by something other than an attach request from web domain has been made. This is not allowed.**

DFHPI0111 *date time applid tranid* **Call to Websphere MQ function** *function* **returned with reason code** *reason_code*. **Transaction abended.**

DFHPI0112 *date time applid tranid* **Unable to locate URIMAP to match HOST** *hostname* **and PATH** *pathname*. **Unable to process inbound MQ message.**

DFHPI0113 *date time applid tranid* **URIMAP** *urimapname* **has been located for HOST** *hostname* **and PATH** *pathname*, **but does not have USAGE(PIPELINE). Unable to process inbound MQ message.**

DFHPI0114 *date time applid tranid* **The pipeline MQ transport mechanism failed because a call to Websphere MQ function** *function* **returned with reason code** *reason_code*.

DFHPI0300 *date time applid* **CICS could not invoke WEBSERVICE** *WebService* **because it was unable to find container .**

DFHPI0301 *date time applid* **CICS was unable to link to program** *program_name* **while attempting to invoke webservice** *WebService***.** *{The program abended. | The program was not defined. | The program was not enabled. | The program was not loadable. | No further details are available.}*

DFHPI0400 *date time applid tranid* **The CICS pipeline HTTP transport mechanism failed to send a request because** *{it was using an invalid host codepage | of a socket error}***.**

DFHPI0401 *date time applid tranid* **The CICS pipeline HTTP transport mechanism failed to send a response or receive a request because** *{the codepage was not found | of a socket error | the connection was closed}***.**

DFHPI0402 *date time applid tranid* **The CICS pipeline HTTP transport mechanism failed to send a request because the URI specified an unknown host:** *hostname***.**

DFHPI0500 *date time applid tranid* **The CICS Pipeline Manager DFHPIPM encountered an error while trying to link to program** *program_name***.** *{The program abended. | The program was not defined. | The program was not enabled. | The program was not loadable. | No further details are available.}* **PIPELINE:** *pipeline***.**

DFHPI0501 *date time applid tranid* **The CICS Pipeline Manager cannot proceed as the pipeline is unusable.** *{The pipeline was not found. | The pipeline is disabled. | The pipeline was of the wrong type.}* **PIPELINE:** *pipeline***.**

DFHPI0502 *date time applid tranid* **The CICS Pipeline Manager has failed to receive a request from the underlying transport. TRANSPORT:** *transport***, PIPELINE:** *pipeline***.**

DFHPI0503 *date time applid tranid* **The CICS Pipeline Manager has failed to send a response on the underlying transport. TRANSPORT:** *transport***, PIPELINE:** *pipeline***.**

DFHPI0504 *date time applid tranid* **The CICS Pipeline Manager has failed to communicate with a remote server due to an error in the underlying transport. TRANSPORT:** *transport***, PIPELINE:** *pipeline***.**

DFHPI0505 *date time applid tranid* **The CICS Pipeline Manager has failed to communicate with a remote server as no URI was provided. PIPELINE:** *pipeline***.**

DFHPI0506 *date time applid tranid* **The CICS Pipeline Manager has failed to communicate with a remote server due to an invalid URI scheme being specified. URI:** *uri***, PIPELINE:** *pipeline***.**

DFHPI0507 *date time applid tranid* **The CICS Pipeline Manager has failed to receive a response from an application handling task.***{The request timed out. | The application task abended. | The connection to the application task was closed.}* **PIPELINE:** *pipeline***.**

DFHPI0508 E *date time applid* **The pipeline manager is unable to create or join a request stream because it is unable to reach the target for transaction** *tranid* **with userid** *userid***.**

DFHPI0509 E *date time applid* **The pipeline manager is unable to create or join a request stream because transaction** *tranid* **is not installed.**

DFHPI0510 E *date time applid* **The pipeline manager is unable to create or join a request stream because it has encountered a severe error for transaction** *tranid* **with userid** *userid***.**

DFHPI0600 *date time applid* **The CICS SOAP handler has been passed a container that is not DATATYPE(CHAR).**

DFHPI0601 *date time applid* **The CICS SOAP handler has been passed data that does not begin with a '<' character.**

DFHPI0700 S *date time applid userid* **PIPELINE** *pipeline* **PL/I support is required in order to use pipelines.**

DFHPI0701 I *date time applid userid* **PIPELINE** *pipeline* **has been created.**

DFHPI0702 E *date time applid userid* **PIPELINE** *pipeline* **encountered an error in the configuration file** *filename* **for pipeline at offset** *X'offset'*. **The element name is** *elementname*.

DFHPI0703 I *date time applid userid* **PIPELINE** *pipeline* **is about to scan the WSDIR directory.**

DFHPI0704 I *date time applid userid* **PIPELINE** *pipeline* **Implicit scan has completed. Number of wsbind files found in the WSDIR directory:** *num_files*. **Number of successful webservice creates:** *num_ok*. **Number of failed webservice creates:** *num_failed*.

DFHPI0705 E *date time applid userid* **PIPELINE** *pipeline* **encountered an error writing the configuration to the der ived shelf** *derived-shelf*. **The response code from the HFS write was** *X'uss-response'* **and the reason code was '***X'uss-reason'*.

DFHPI0706 E *date time applid userid* **PIPELINE** *pipeline* **resolution failed because it cannot be determined if this is a requester or provider pipeline.**

DFHPI0707 E *date time applid userid* **PIPELINE** *pipeline* **resolution failed because namespace prefixes are not supp orted in the XML configuration file.**

DFHPI0708 E *date time applid userid* **PIPELINE** *pipeline* **resolution failed because the XML configuration file cann ot be found.**

DFHPI0709 E *date time applid userid* **PIPELINE** *pipeline* **resolution failed because the XML configuration file cann ot be copied to the derived shelf.**

DFHPI0710 I *date time applid userid* **PIPELINE** *pipeline* **was successfully discarded.**

DFHPI0711 E *date time applid userid* **PIPELINE** *pipeline* **resolution failed because the SAX parser returned error c ode** *X'errcode'*. **The error was at offset** *X'offset'* **in the CFGFILE. The first eight bytes of data at this offset are: '***hexdata*'.

DFHPI0712 E *date time applid userid* **PIPELINE** *pipeline* **failed to install due to insufficient access rights to a HFS file.**

DFHPI0713 E *date time applid userid* **PIPELINE** *pipelinename* **The pipeline resolution transaction CPIR did not attach.**

DFHPI0714 E *date time applid userid* **PIPELINE** *pipeline* **failed to install. The directory specified in the WSDIR p arameter is invalid.**

DFHPI0715 I *date time applid userid* **PIPELINE** *pipeline* **Explicit scan has completed. Number of wsbind files found in the WSDIR directory:** *num_files*. **Webservices successful create/update:** *num_ok*. **Webservices not requiring update:** *num_nun*. **Webservices failed create/update:** *num_failed*.

DFHPI0716 E *date time applid userid* **Unable to dynamically create a webservice for PIPELINE** *pipeline*. **The complete WSBIND file name is too long.**

DFHPI0720 E *date time applid userid* **PIPELINE** *pipeline* **encountered an error in the configuration file** *filename* **at offset** *X'offset'*. **Found :** *element_found* **yet expected :** *element_expected*.

DFHPI0730 *date time applid* **An attempt to register a remote webservice as a participant in unit of work -** *X'uowid'* **has failed.**

DFHPI0800 E *date time applid userid* **Atomic Transaction processing failed because the SAX parser returned error code** *X'errcode'*. **The error was at offset** *X'offset'* **in the SOAP message.**

DFHPI0901 I *date time applid userid* **New WEBSERVICE** *WebService* **is being created during a scan against PIPELINE** *Pipeline*.

DFHPI0902 I *date time applid userid* **WEBSERVICE** *WebService* **is being updated during a scan against PIPELINE** *Pipeline*.

DFHPI0903 I *date time applid userid* **New URIMAP** *UriMap* **is being created during a scan against PIPELINE** *Pipeline* **for WEBSERVICE** *WebService*.

DFHPI0904 I *date time applid userid* **URIMAP** *UriMap* **could not be created for WEBSERVICE** *WebService* **in PIPELINE** *Pipeline*. **The URI that could not be allocated is: '** *Uri*'.

DFHPI0910 I *date time applid userid* **WEBSERVICE** *WebService* **within PIPELINE** *Pipeline* **has been created.**

DFHPI0911 E *date time applid userid* **WEBSERVICE** *WebService* **within PIPELINE** *Pipeline* **was not created because:** *{there is insuffient storage | there is a directory domain error | the specified PIPELINE is not installed | a lock cannot be obtained | there is a duplicate resource error}*.

DFHPI0912 I *date time applid userid* **WEBSERVICE** *WebService* **was successfully discarded.**

DFHPI0913 I *date time applid userid* **WEBSERVICE** *WebService* **is being discarded.**

DFHPI0914 E *date time applid userid* **WEBSERVICE** *WebService* **is UNUSABLE because:** *{the WSBind file was not found | CICS is not authorized to read the WSBind file | there is insufficient storage to load the WSBind file | the HFS read for the WSBind file failed | writing the WSBind file to the shelf failed | the PIPELINE is incompatible with this WEBSERVICE | the CPIR resolution transaction could not be attached | the direction of the PIPELINE can't be determined | the WSBind file is corrupt | the WSBind file has an invalid version number | the WSBind file has an out of date version number | the WSBind file product number was not recognised}*.

DFHPI0915 I *date time applid userid* **WEBSERVICE** *WebService* **is now INSERVICE and is ready for use.**

DFHPI0916 E *date time applid userid* **WEBSERVICE** *WebService* **within PIPELINE** *Pipeline* **was not created because it clashes with another WEBSERVICE of the same name in PIPELINE** *Pipeline*.

DFHPI0998 *date time applid* **The Outbound Router program, DFHPIRT, has received a non-NORMAL response while attempting to get the pipeline name from the DFHWS-PIPELINE container. The resulting error code is** *X'code'*.

DFHPI0999 *date time applid* **The Outbound Router program, DFHPIRT, has received an error from the Pipeline Manager.**

DFHPI1001 *date time applid* **Validation of a** *{request | response}* **message for webservice** *webservicename* **and operation** *operationname* **failed. The failure response contains the following message: '***message*'.

DFHPI1002 *date time applid* **Validation of a** *{request | response}* **message for webservice** *webservicename* **and operation** *operationname* **was successful.**

DFHPI1003 *date time applid* **No current channel located. Validation cannot occur.**

DFHPI1004 *date time applid* **The attempt to link to DFHPIVAL to perform validation failed.**

DFHPI1005 *date time applid* **Attempt to link to program** *progname* **failed. SOAP conversions cannot be performed. Module:** *modname*

DFHPI1006 *date time applid* **The WSBIND file used for WEBSERVICE** *WebService* **is not a type which CICS can use. Module:** *modname*

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***.**

DFHRD0121 I *date time applid terminal userid tranid* **INSTALL CORBASERVER(***corbaserver-name***)**

DFHRD0122 I *date time applid terminal userid tranid* **INSTALL DJAR(***djar-name***)**

DFHRD0123 I *date time applid terminal userid tranid* **INSTALL URIMAP(***urimap-name***)**

DFHRD0124 I *date time applid terminal userid tranid* **INSTALL PIPELINE(***pipeline-name***)**

DFHRD0125 I *date time applid terminal userid tranid* **INSTALL WEBSERVICE(***webservice-name***)**

DFHRM0128 *date time applid* **Intersystem 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** *netuowid* **local UOW** *X'localuowid'***.**

DFHRM0137 *applid* **Recovery of local logname failed. Recovery cannot continue.**

DFHRM0315I AUTOCOLD OR AUTOINIT SHOULD NOT BE USED.

DFHRZ0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHRZ0002 *applid* **A severe error (code** *X'code'***) has occurred in module** *module***.**

DFHRZ0201 *date time applid* **The call to invoke the Distributed Routing Program,** *program***, has failed. Refer to message DFHRZ0105.**

DFHRZ0202 *date time applid* **The Distributed Routing Program,** *program***, has returned a bad response. See following message DFHRZ0105.**

DFHRZ0203 *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***.**

DFHRZ0204 *date time applid* **The call to invoke the Distributed Routing Program,** *program***, has failed due to an invalid AMODE.**

DFHRZ0205 *date time applid* **The call to invoke the Distributed Routing Program,** *program***, has failed. The program was not loadable.**

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'code'***) 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'* **).**

DFHSJ0204 *date time applid* **A call to CEEPIPI with function code CALL_SUB has failed. (Return code was -** *X'rc'* **).**

DFHSJ0205 *date time applid* **A call to CEEPIPI with function code CALL_SUB has failed. (Return code was -** *X'rc'* **).**

DFHSJ0501 *date time applid* **An attempt to obtain the CICS Wrapper class** *wrapper_name* **using the JNI function 'FindClass' has failed.**

DFHSJ0502 *date time applid* **Attempt to change the HFS working directory to** *pathname* **has failed. Runtime error message is** *errmsg*

DFHSJ0503 *date time applid* **Attempt to load DLL** *dllname* **has failed. Runtime error message is** *errmsg*

DFHSJ0504 *date time applid* **Invalid profile** *sdata* **specified.**

DFHSJ0505 *date time applid* **Attempt to open jvmprofile** *filename* **has failed. Runtime error message is** *errmsg*

DFHSJ0506 *date time applid* **The environment variable** *env_var* **found in JVM Profile** *JVMprof* **is not recognized.**

DFHSJ0507 *date time applid* **The option** *option* **is not recognized, and has been ignored.**

DFHSJ0508 *date time applid* **Option** *option* **in member** *JVMProf* **has been ignored.**

DFHSJ0509 *date time applid* **Attempt to open JVM system properties file** *filename* **has failed. Runtime error message is** *errmsg*

DFHSJ0510 *date time applid* **Attempt to fetch user-replaceable module DFHJVMAT has failed.**

DFHSJ0511 *date time applid* **Attempt to open** *filename* **in work directory** *dirname* **for output has failed. Runtime error message is** *errmsg*

DFHSJ0512 *date time applid* **Unexpected end of file whilst concatenating lines in system properties file.**

DFHSJ0513 *date time applid* **Unable to build trusted middleware classpath:** *option*.

DFHSJ0514 *date time applid* **Problem encountered on line** *line_number* **of the JVM profile:** *reason*.

DFHSJ0515 *date time applid* **Problem encountered on line** *line_number* **of the JVM system properties file:** *reason*.

DFHSJ0517 *date time applid* **Required environment variable** *env_var* **is missing from JVM Profile** *JVMprof*.

DFHSJ0518 *date time applid* **An attempt to obtain the JNI extension interface pointer for a JVM, has failed. A CICS request to get a pointer to the Java Native Interface (JNI) Extension Interface for a Java Virtual Machine (JVM) has failed.**

DFHSJ0519 *date time applid* **The setting for environment variable** *env_var1* **conflicts with that for** *env_var2* **in JVM Profile** *JVMprof*. **The value of environment variable** *env_var3* **is assumed.**

DFHSJ0520 *date time applid* **The setting for environment variable** *env_var1* **in JVM Profile** *JVMprof* **is not valid for a Master JVM.**

DFHSJ0701 *date time applid* **Transaction** *transid* **can only be initiated by CICS.** *transid* **will terminate. Transaction** *transid* **is a CICS system transaction**

DFHSJ0702 *date time applid* **Transaction** *transid* **unsuccessfully attempted to create a JM TCB.** *transid* **will terminate. Transaction** *transid*

DFHSJ0703 *date time applid* **Transaction** *transid* **unsuccessfully attempted to change TCB mode.** *transid* **will terminate. Transaction** *transid*

DFHSJ0704 *date time applid* **Transaction** *transid* **unsuccessfully attempted to restore its TCB mode.** *transid* **will terminate. Transaction** *transid*

DFHSJ0705 *date time applid* **Transaction** *transid* **unsuccessfully attempted to delete a JM TCB.** *transid* **will terminate. Transaction** *transid*

DFHSJ0706 *date time applid* **During processing of transaction** *tranid*, **a call to CEEPIPI with function code INIT_SUB_DP has failed. (Return code was -** *X'rc'* **).**

DFHSJ0707 *date time applid* **During processing of transaction** *tranid*, **a call to CEEPIPI with function code CALL_SUB has failed. (Return code was -** *X'rc'* **, sub-routine return code was -** *X'subrc'* **).**

DFHSJ0708 *date time applid* **During processing of transaction** *tranid*, **a call to CEEPIPI with function code TERM has failed. (Return code was -** *X'rc'* **).**

DFHSJ0801 *date time applid* **An attempt to create a Java Virtual Machine using the JNI has failed.**

DFHSJ0802 *date time applid* **Attempt to load DLL** *dllname* **has failed. Runtime error message is** *errmsg*

DFHSJ0803 *date time applid* **Attempt to change the HFS working directory to** *pathname* **has failed. Runtime error message is** *errmsg*

DFHSJ0900 *date time applid* **Illegal Java version. CICS requires at least Java version** *min_ver* **but has found Java version** *current_ver* **.**

DFHSJ0901 I *date time applid* **Current version of Java is:** *current_ver* **.**

DFHSJ0902 *date time applid userid termid tranid program name* **Uncaught exception from application.**

DFHSJ0903 *date time applid userid termid tranid program name* **Exception** *exception* **occurred invoking main method in class** *className*.

DFHSJ0904 *date time applid userid termid tranid program name* **Exception** *exception* **occurred creating object reference for class** *className*.

DFHSJ0905 *date time applid userid termid tranid program name* **Class name** *className* **is invalid.**

DFHSJ0906 *date time applid* **The CICS Java Wrapper class failed to find the requested plugin** *plugin*.

DFHSJ0907 *date time applid tranidprogram name trannum userid termid* **The CICS Java Wrapper plugin** *plugin* **has thrown exception** *exception*.

DFHSM0137 *applid* **The amount of MVS storage available to CICS is low.**

DFHSM0138 *applid* **The amount of MVS storage available to CICS is no longer low.**

DFHSM0139 *applid* **The amount of MVS storage available to CICS is critically low.**

DFHSM0140 *applid* **The amount of MVS storage available to CICS is no longer critically low.**

DFHSO0102 *date time applid* **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.**

DFHSO0121 *applid* **No TCBs have been initialized for SSL processing. Secure Sockets Layer has been deactivated.**

DFHSO0122 *date time applid* **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 | Not authorized |Self-signed certificate | Invalid session state | Handle creation failed |No private key | Untrusted Certificate Authority | Expired certificate | Invalid cipher suite | Handshake abandoned by client}***. Client:** *clientaddr*, **TCPIPSERVICE:** *tcpipservice*.

DFHSO0124 *applid* **The MAXSOCKETS system initialization parameter has a value of** *mmmmm* **which exceeds the MAXFILEPROC value of** *nnnnn*. **The MAXSOCKETS value has been set to the lower value.**

DFHSO0125 *applid* **The MAXSOCKETS parameter retrieved from the catalog has a value of** *mmmmm* **which exceeds the MAXFILEPROC value of** *nnnnn*. **The MAXSOCKETS value has been set to the lower value.**

DFHSO0126 W *applid* **One or more recovered TCPIPSERVICE definitions has not been opened because the MAXSOCKETS limit has been reached.**

DFHSO0127 *applid* **MAXPROCUSER exceeded while executing '***service-routine*'.

DFHST0228 An invalid extract parameter ( ) has been specified for the DFHSTUP utility.

DFHST0229 Unable to locate the extract library member *member*.

DFHST0230 Unable to load the extract library member *member*.

DFHST0231 The extract exit program has been unloaded during clean-up processing following the interception of an abend.

DFHST0232 S An abend (code *aaa/bbbb*) **has occurred in extract exit program** *modname*. **Extract exit processing has been terminated.**

DFHST0233 I DFHSTUP report suppressed. Report options requested only an EXTRACT userprogram to be invoked.

DFHST0234 S EXTRACT terminated at user's request RC=*retcode*.

DFHST0235 S An abend (code *aaa/bbbb*) **has occurred in program** *modname*.

DFHTR2006 UNKNOWN ENTRY PASSED FOR FORMATTING.

DFHTR5001 THE LOAD FOR A FEATURE PROGRAM HAS FAILED.

DFHTR5002 FEATURE FORMATTING PROGRAM HAS FAILED.

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.**

DFHUS0070 *applid* **Security check for CICS region userid (***userid***) has failed. SAF codes are (***X'safresp'*,*X'safreas'***). ESM codes are (***X'esmresp'*,*X'esmreas'***). USAD reason code is (***reason***).**

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*

DFHWB0152 E *date time applid client_ip_addr tcpipservice* **The request receiver SOCB notify gate is unable to attach transaction** *transaction*.

DFHWB0153 E *date time applid client_ip_addr tcpipservice* **The web asynchronous socket receive failed with an IO error.**

DFHWB0363 *date time applid tranid* **A client certificate that maps to a valid userid is required. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr*. **TCPIPSERVICE:** *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**

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**

DFHWB0734 *date time applid tranid* **CICS Web attach processing failed because the SSL handshake with the client has failed. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr.{ | TCPIPSERVICE: }tcpipservice* **A Secure Sockets Layer connection from a client with address**

DFHWB0736 *date time applid tranid* **The method in the received HTTP request is not implemented by the server. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*.

DFHWB0737 *date time applid tranid* **CICS Web support has detected that the version of the incoming HTTP request is higher than the version that CICS supports. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*.

DFHWB0738 *date time applid tranid* **CICS Web Support has detected that the incoming HTTP request has a version that is at least HTTP/1.1 but has no host header. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*.

DFHWB0739 *date time applid tranid* **An invalid EXPECT header has been received. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0740 *date time applid tranid* **An HTTP/1.0 client has sent an EXPECT header which is not supported. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0741 *date time applid tranid* **An HTTP socket receive request has timed out. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0742 *date time applid tranid* **Conversion of HTTP header failed. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr.{ | TCPIPSERVICE: }tcpipservice* **The conversion of the inbound HTTP header has failed and this**

DFHWB0743 *date time applid tranid* **The CICS Web characterset codepage is invalid. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr.{ | TCPIPSERVICE: }tcpipservice* **The CICS Web characterset codepage is invalid and this has**

DFHWB0744 *date time applid tranid* **The CICS Web host codepage is invalid. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr.{ | TCPIPSERVICE: }tcpipservice* **The CICS Web host codepage is invalid and this has**

DFHWB0745 *date time applid tranid* **Conversion of user data failed. Host IP address:** *hostaddr*. **Client IP address:** *clientaddr.{ | TCPIPSERVICE: }tcpipservice* **The conversion of the inbound user data has failed and this**

DFHWB0746 *date time applid tranid* **The maximum length of data that can be received has been exceeded. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0747 *date time applid tranid* **A Content-Length and Transfer-Encoding conflict has been detected. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0748 *date time applid tranid* **An invalid Chunk Size header has been received. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0749 *date time applid tranid* **An invalid Trailer has been received. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHWB0750 *date time applid tranid* **HTTP warning request header received. Warning:** *warnvalue* **Host IP address:** *hostaddr* **Client IP address:** *clientaddr* **A warning header has been received on an incoming**

DFHWB0751 *date time applid tranid* **A precondition specified by an If-Unmodified-Since header has failed. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*.

DFHWB0752 *date time applid tranid* **HTTP Warning response header received. Warning:** *warnvalue* **Client IP address:** *clientaddr* **Server IP address:** *serveraddr*. **A warning header has been received in response to an**

DFHWB0753 *date time applid* **Transaction** *tranid* **chunked request incomplete. Session token:** *X'sesstoken'*. **The transaction has terminated with an incomplete chunked**

DFHWB0754 *date time applid tranid* **An invalid Chunk has been received. Client IP address:** *clientaddr*. **TCPIPSERVICE:** *tcpipservice*

DFHXQ0121I Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

DFHXQ0122 IXCARM REQUEST=*reqtype* **failed, return code** *retcode*, **reason code** *rsncode*.

DFHXQ0309 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.**

DFHXQ0481I Waiting for structure *strname* **to become available.**

DFHXQ0482I Retrying connection to structure *strname*.

DFHXQ0491 ENFREQ ACTION=*action* **failed, return code** *retcode*.

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*.

DFHZC0151 *date time applid* **Transaction** *transid* **was started invalidly.** *transid* **will terminate. Transaction** *transid* **was started invalidly.**

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.**

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.**

DFHZC2119 E *date time applid termid tranid* **LUSTAT received on pipeline session incorrectly requests a definite response. ((***instance***) Module name: {DFHZRAC})**

DFHZC6334 E *date time applid* **Install for connection** *tttt* **failed. A session with the same name already exists.**

DFHZC6907 I *date time applid* **Autoinstall starting for netname** *netname***. Network qualified name is** *netid.realnet***.**

DFHZC6908 I *date time applid* **Autoinstall in progress for netname** *netname***. TN3270 IP address is** *tnaddr***.**

DFHZN2200 *date time applid* **FREE IMPLICIT failed during syncpoint processing for session** *session id* **, remote system** *netname***. Transid** *transid***. The original abend code was** *abend code***.**

DFH5551 E COMMAND NOT EXECUTED. *keyword1* **CANNOT BE SPECIFIED AS GENERIC UNLESS** *keyword2* **IS ALSO GENERIC.**

DFH5552 S COMMAND NOT EXECUTED. CIPHER VALUE '*value***' IS NOT IN THE VALID SET (***list***).**

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:

DFH5287E
DFH5541E
DFHAI0201
DFHAI0202
DFHAI0203
DFHAM4800
DFHAM4801
DFHAM4805
DFHAM4808
DFHAM4809
DFHAM4810
DFHAM4815
DFHAM4819
DFHAM4820
DFHAM4830
DFHAM4831
DFHAM4840
DFHAM4844
DFHAM4845
DFHAM4846
DFHAM4847
DFHAM4848
DFHAM4849
DFHAM4852
DFHAM4854
DFHAM4855
DFHAM4856
DFHAM4857
DFHAM4860
DFHAM4861
DFHAM4862
DFHAM4863
DFHAM4866
DFHAM4867
DFHAM4868
DFHAM4869
DFHAM4875
DFHAM4876
DFHAM4877
DFHAM4879
DFHAM4881
DFHAM4882
DFHAM4834E
DFHAM4889E
DFHAM4920E
DFHAM4883
DFHAM4884
DFHAM4888
DFHAM4889
DFHAM4891
DFHAM4901
DFHAM4902
DFHAM4904
DFHAM4906
DFHAM4907
DFHAM4910
DFHAP0705
DFHAP1200
DFHAP1203
DFHAP1213
DFHAP1214
DFHAU5034
DFHBR0427
DFHCF0203
DFHCF0307I
DFHCZ0211
DFHCZ0213
DFHCZ0221
DFHCZ0223
DFHCZ0225
DFHCZ0227
DFHCZ0233
DFHDB2016
DFHDB2018
DFHDB2023I
DFHDB2025I
DFHDB2037
DFHDU1609
DFHEJ0755
DFHEJ1513
DFHEJ1521
DFHEJ5114
DFHFC0164
DFHFC0166
DFHFC0174
DFHII0108
DFHDH0105
DFHII0202
DFHII0212
DFHII0225
DFHII0601
DFHLG0760
DFHLG0772
DFHNC0203
DFHNC0307
DFHPA1924
DFHRM0129
DFHSJ0506
DFHSJ0508
DFHSN1214
DFHSO0111
DFHSO0117
DFHSO0123
DFHST0204
DFHST0206
DFHST0216
DFHST0229
DFHST0230
DFHST0231
DFHTC2522
DFHTC2534
DFHWB0725
DFHWB0730
DFHWB0732
DFHXQ0203
DFHXQ0307
DFHZC3444
DFHZC4900
DFHZC4932
DFHZC4933
DFHZC4934
DFHZC4935
DFHZC4936
DFHZC4946
DFHZC4947
DFHZC4947
DFHZC6901
DFHTO6003E
DFHTO6004E

Deleted messages

The following is a list of the messages deleted:

DFH5171
DFH5172
DFH5173
DFH5267
DFH5268
DFH5269

DFHAP1219
DFHAP1220
DFHAP1221
DFHAP1222
DFHAP1223
DFHAP1224
DFHAP1225
DFHAU2101
DFHAU2102
DFHAU2103
DFHAU2104
DFHAU2105
DFHAU2106
DFHAU2107
DFHAU2110
DFHAU2111
DFHAU2114
DFHAU2115
DFHAU2116
DFHAU2117
DFHAU2118
DFHAU2119
DFHAU2120
DFHAU2121
DFHAU2122
DFHAU2125
DFHAU2127
DFHAU2201
DFHAU2202
DFHAU2203
DFHAU2204
DFHAU2205
DFHAU2206
DFHAU2210
DFHAU2211
DFHAU2212
DFHAU2214
DFHAU2216
DFHAU2217
DFHAU2218
DFHAU2220
DFHAU2221

DFHAP1201
DFHAP1202
DFHAP1204
DFHAP1205
DFHFC0105
DFHII0203
DFHII0211
DFHAU2222
DFHAU2224
DFHAU2225
DFHAU2226
DFHAU2227
DFHAU2228
DFHAU2229
DFHAU2230
DFHAU2231
DFHAU2233
DFHAU2234
DFHAU2235
DFHAU3301
DFHAU3302
DFHAU3303
DFHAU3304
DFHAU3305
DFHAU3306
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DFHAU3308
DFHAU3310
DFHAU3311
DFHAU3312
DFHAU3313
DFHAU3314
DFHAU3315
DFHAU4100
DFHAU4200
DFHAU5000
DFHAU5001
DFHAU5002
DFHAU5004
DFHAU5005
DFHAU5006
DFHAU5007
DFHAU5008
DFHAU5008
DFHAU5009
DFHAU5010
DFHAU5011
DFHAU5014
DFHAU5015

DFHII0605
DFHII0606
DFHMN0102
DFHMN0111
DFHSO0127
DFHTD1212
DFHTO6022
DFHAU5016
DFHAU5017
DFHAU5018
DFHAU5019
DFHAU5020
DFHAU5021
DFHAU5022
DFHAU5023
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DFHAU5040
DFHAU5042
DFHAU5043
DFHCZ0150
DFHCZ0151
DFHCZ0152
DFHCZ0153
DFHCZ0154
DFHCZ0155
DFHCZ0156
DFHCZ0157
DFHCZ0158
DFHCZ0159
DFHSI1513
DFHSI1520
DFHZC6310
DFHZC6311

New abend codes

The following is a list of the new abend codes added to CICS:

AAL8	ADPC	AJAD	AOTA
AALV	ADPD	AJAE	AOTB
ABMY	ADPI	AJAF	ASJC
ABR4	AEZR	AJAG	ASJD
ABR5	AEZS	AJH0	ASJE
ABR6	AEZT	AJH1	ASJF
ABRX	AEZU	AJH2	ASJG
ABXB	AIEA	AJH3	ASJI
ABXU	AIEB	AJH4	ASJJ
ABXV	AII1	AJH5	ASOB
ACNC	AII2	AJH8	ASOD
ACND	AII3	AJH9	ASOC
ACNE	AII4	AJHA	ASOL
ACRN	AII5	AJHB	ASPD
ACSK	AIIA	AJHC	ASQE
AD3C	AIID	AJHD	ATDS
AD3E	AIIT	AJHE	ATD3
AD3F	AITH	AJHF	ATD9
AD3J	AJ10	AJMC	ATNB
AD3K	AJ11	ALIH	ATNC
AD3L	AJ12	ALII	AWBN
ADCV	AJAA	ANQF	AWBO
ADPA	AJAB	ANSA	AWC7
ADPB	AJAC	ANSB	AWC8
			AZIG
AALW	AKKE	APID	AWSH
AALX	AKKG	APIE	AWSL
AD3H	AKKH	APIF	AWSN
AEYF	ALIJ	APIG	AWSP
AEZV	ALIK	APIH	AWSQ
AEZW	ALX1	APII	AWSR
AEZX	ALX2	APIJ	AWSS
AIIP	ALX3	APIK	AWST
AITI	ALX4	APIL	AWSU
AKKA	ALX5	APIM	AXGA
AKKB	APIA	AWBP	AXTS
AKKC	APIB	AWSC	AXTU
AKKD	APIC		

Deleted abend codes in CICS

The following is a list of the abend codes deleted from CICS:

AAMG	AEC4	AFCD
ADPM	AEC5	ALIB
AEC3	AEC6	ALIE

AJHA	AJH9	AUYF	AUZK
AJHB	ALIA	AUYG	AUZL
AJHC	APC4	AUYH	AUZN
AJHD	APC5	AUYI	AUZO
AJHE	APC6	AUYJ	AUZQ
AJHF	APC7	AUZA	AUZR
AJH0	APC8	AUZB	AUZS
AJH1	APC9	AUZC	AUZU
AJH2	AUXA	AUZD	AUZV
AJH3	AUXB	AUZF	AUZY
AJH4	AUYA	AUZH	AUZZ
AJH5	AUYC	AUZI	AUZ1
AJH8	AUYE	AUZJ	

The following is a list of abend codes which, if they exist in your system, are deleted from CICS for this release. (We say, “IF they exist”, because these codes are added to earlier releases of CICS by a PTF which may or may not have been applied at the time you migrate to CICS TS 3.1).

AXF9
AXTT

Part 5. Requirements

The hardware and software requirements for CICS Transaction Server for z/OS, Version 3 Release 1 are described in the *CICS Transaction Server for z/OS Release Guide* . This includes information about pre-requisite program products that appeared here in the documentation for earlier releases of CICS.

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Part 6. Appendixes

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Bibliography

The CICS Transaction Server for z/OS library

The published information for CICS Transaction Server for z/OS is delivered in the following forms:

The CICS Transaction Server for z/OS Information Center
The CICS Transaction Server for z/OS Information Center is the primary source of user information for CICS Transaction Server. The Information Center contains:

- Information for CICS Transaction Server in HTML format.
- Licensed and unlicensed CICS Transaction Server books provided as Adobe Portable Document Format (PDF) files. You can use these files to print hardcopy of the books. For more information, see "PDF-only books."
- Information for related products in HTML format and PDF files.

One copy of the CICS Information Center, on a CD-ROM, is provided automatically with the product. Further copies can be ordered, at no additional charge, by specifying the Information Center feature number, 7014.

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