CICS® Transaction Server for z/OS™

Migration Guide

Version 2 Release 1

GC34-5699-00

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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 123.

First edition (March 2001)

This edition applies to Version 2 Release 1 of CICS Transaction Server for z/OS, program number 5697-E93, 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 2, providing information for users who plan to migrate from CICS TS 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.

Who should read this book

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

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

What you need to know to understand this book

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

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

Notes on terminology

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

CICS TS, unless stated otherwise, refers to Version 2 Release 1 of CICS Transaction Server for OS/390.

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

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

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

MVS™ is used for the operating system, the Base Control Program (BCP) element of OS/390® and z/OS.

Part 1. General changes to CICS externals

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

Chapter 1. System initialization parameters

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

Obsolete system initialization parameters

Table 1 shows those system initialization parameters that are obsolete.

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

Table 1. Obsolete system initialization parameters

Obsolete keywords	Explanation
KEYFILE	This is replaced by the KEYRING system initialization parameter (see Table 3 on page 4).
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.

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
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 **II** IIOP domain **OT** Object transaction services domain **RZ** Request streams domain **SJ** JVM domain
STNTR*xx*	(Unchanged)	See SPCTR*xx* above for details of new domain codes.

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

New system initialization parameters

Table 3 shows new system initialization parameters.

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

Table 3. New system initialization parameters

Keywords	Operands	Explanation
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).
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.

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 SDFHLOAD library. You can use this to start a CICS region using most of the default values, and you don't even have to specify the table in your JCL—CICS loads DFHSIT by default if there is not a SIT parameter in your JCL.

Override defaults using the SYSIN data set

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

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

Chapter 2. CICS-supplied transactions

This chapter summarizes the changes to CICS-supplied transactions.

Obsolete options

Table 4 lists a number of obsolete options on CEMT commands.

Table 4. Obsolete CEMT options

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 9 for details of all the changes to the REQUESTMODEL resource definition.

Changed CEMT commands

Table 5 shows those CEMT commands that have changed in some way.

Table 5. Changed CEMT commands

CEMT command	Option	Explanation
INQUIRE PROGRAM	JVMPROFILE	This option added to display name of the JVM profile for a Java program.
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 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 TCPIPSERVICE	DNSGROUP DNSSTATUS GROUPCRITICAL	These options are added to display (1) the 18-character DNS group name that the TCPIPSERVICE registers with WLM; (2) the current status of the WLM/DNS status; and (3) whether the TCPIPSERVICE is a critical member of the DNS group.
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.

Table 5. Changed CEMT commands (continued)

CEMT command	Option	Explanation
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
SET TCPIP	MAXSOCKETS	This option is added to enable you to alter the maximum number of TCP/IP sockets allowed in the CICS region.
SET TCPIPSERVICE	DNSSTATUS	This option is added to enable you to alter the CICS DNS registration status.

New CEMT commands

Table 6 shows new CICS transactions.

Table 6. 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.
INQUIRE BEAN	Command added to display information about a specified bean
INQUIRE CORBASERVER	Command added to display information about installed CORBASERVER resource definitions in the CICS region.
INQUIRE DJAR	Command added to display information about installed DJAR resource definitions in the CICS region.
INQUIRE JVMPOOL	Command added to display information about the pool of JVMs in the CICS region.
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.
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 JVMPOOL	Command added to enable you to enable or disable the JVM pool, or terminate it altogether.

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

Changes to CETR

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

EJ Enterprise Java domain
II IIOP domain
OT Object transactions services domain
RZ Request streams domain
SJ CICS JVM domain.

VTAM® dynamic LU alias considerations

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

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.

Additions to CICS RACF category 1 transactions

There is one CICS internal system transaction 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 transaction is:

- CEJR—Enterprise Java resolution transaction
- CIRR—default CICS IIOP request receiver transaction
- CSGX—Data sharing global command processor
- CSLG—Response logger
- CSSX—Data sharing status exit processor

For a full list of all the CICS category 1 transactions, see the DFH$CAT1 CLIST, supplied in the SDFHSAMP library.

Chapter 3. Resource definition (online) changes

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

Obsolete resource definition parameters

Table 7 shows changes to resource definition parameters.

Table 7. Obsolete resource definition parameters

Resource type	Obsolete keywords	Explanation
REQUESTMODEL	OMGINTERFACE OMGMODULE OMGOPERATION	These keywords, which were restricted to 31-characters, 58-characters, and 31-characters respectively, have been replaced by INTERFACE, MODULE, and OPERATION.

Changed resource definition parameters

Table 8 shows changes to resource definition parameters.

Table 8. Changed resource definition parameters

Resource type	Affected keywords	Explanation
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.
PROGRAM	JVM	The DEBUG option is removed, leaving YES or NO as the only options.
TCPIPSERVICE	PORTNUMBER	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.

New resource definition types and new parameters

Table 9 shows new resource definition types and new parameters.

Table 9. New resource definition parameters

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.

Table 9. New resource definition parameters (continued)

Resource type	New keywords	Explanation
CORBASERVER	CERTIFICATE CORBASERVER HOST JNDIPREFIX PORT SSL SSLPORT SESSBEANTIME SHELF	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.
DJAR	CORBASERVER HFSFILE	DJAR is a new type of resource definition to enable you to define a deployed JAR file.
PROGRAM	JVMPROFILE	This option enables you to specify the name of the JVM profile needed to start a JVM for the program.
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 13 for details.
TCPIPSERVICE	AUTHENTICATE CERTIFICATE DNSGROUP GRPCRITICAL PROTOCOL	These new attributes are added to enhance CICS support for TCP/IP. PROTOCOL allows you to specify either HTTP or IIOP as the protocol supported by the TCPIPSERVICE; DNSGROUP and GRPCRITICAL are added to enable connection balancing. AUTHENTICATE and CERTIFICATE were 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 *CICS Resource Definition Guide*) when you implement LU alias support.
TRANSACTION	OTSTIMEOUT	This new attribute specifies the default time that an Object Transaction Services (OTS) transaction is allowed to execute without the initiator taking a syncpoint.

Upgrading the CSD

There are two main steps to upgrading the CSD:

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

When you have successfully upgraded your CSD, you can review the topics “Sharing the CSD between different releases of CICS” on page 12 and “Incompatibility of REQUESTMODEL resource definitions” on page 13 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 CICSTS21.CICSH.DFHCSD.* -
      NEWNAME(CICSTS21.CICSH.DFHCSD.*.BACKUP)
  ALTER CICSTS21.CICSH.DFHCSD -
      NEWNAME(CICSTS21.CICSH.DFHCSD.BACKUP)
  IF LASTCC = 0 THEN -
      DEFINE CLUSTER (                        -
                NAME( CICSTS21.CICSH.DFHCSD ) -
                REC(10000)                    -
                VOLUME(SYSDA)                 -
                KEYS( 22 0 )                  -
                INDEXED                       -
                RECORDSIZE( 200 2000 )        -
                FREESPACE( 5 5 )              -
                SHAREOPTIONS( 2 )             -
                )                             -
      INDEX     (                             -
                NAME( CICSTS21.CICSH.DFHCSD.INDEX ) -
                )                           -
      DATA      (                           -
                NAME( CICSTS21.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(CICSTS21.CICSH.DFHCSD.BACKUP) -
            OUTDATASET(CICSTS21.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 *CICS Operations and Utilities Guide*.

Sharing the CSD between different releases of CICS

Beginning with CICS/ESA® Version 3, there have been changes in each release of CICS to the IBM-supplied groups of resource definitions that are included in the DFHLIST group list. In all cases, the old versions of the CICS resource definitions are retained in compatibility groups, which are needed to support earlier releases if you share the CSD between different levels of CICS.

If, after upgrading a CSD, you plan to share the CSD with earlier releases of CICS, include the appropriate DFHCOMP*x* compatibility groups in your start-up group list to provide the required support for earlier releases. Table 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 2.1, append the compatibility group DFHCOMP8 followed by 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 2.1	**CICS TS 1.3**	**CICS TS 1.2**	**CICS TS 1.2**	**4.1**
CICS TS 1.3	DFHCOMP8	None	Do not share	Do not share	Do not share
CICS TS 1.2	DFHCOMP8 DFHCOMP7	DFHCOMP7	None	Do not share	Do not share
CICS TS 1.1	DFHCOMP8 DFHCOMP7 DFHCOMP6	DFHCOMP7 DFHCOMP6	DFHCOMP6	None	Do not share
4.1	DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP7 DFHCOMP6 DFHCOMP5	DFHCOMP6 DFHCOMP5	DFHCOMP5	None
3.3	DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5 DFHCOMP4	DFHCOMP7 DFHCOMP6 DFHCOMP5 DFHCOMP4	DFHCOMP6 DFHCOMP5 DFHCOMP4	DFHCOMP5 DFHCOMP4	DFHCOMP4

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 2.1 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 2.1 region, and you cannot install a CICS TS 2.1 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 2.1 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 2.1 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 2.1 region.

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

Additions to IBM-supplied resource definitions

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

- DFHADBD
- DFHADFD
- DFHADPD
- DFHEJCF
- DFHEJVR
- DFHEJVS
- DFHOTS
- DFHRQS

DFHADBD

The IBM-supplied group DFHADBD contains the definitions you need to install and run the sample enterprise bean. The definitions are: a DJAR, a CORBASERVER, a REQUESTMODEL, and a TCPIPSERVICE.

The definitions for the sample bean are in a separate group so that it can remain unlocked. This enables you to alter the definitions to suit your own requirements. It is *not* included in list DFHLIST when you initialize or upgrade the CSD.

DFHADFD

The IBM-supplied group DFHADFD contains the DFHADJM file resource definition needed for EJB application deployment using the CICS development deployment tool.

The DFHADJM file resource definition is in a separate group from the programs and transaction so that it can remain unlocked. This enables you to specify your own data set name. It is *not* included in list DFHLIST when you initialize or upgrade the CSD.

DFHADPD

The IBM-supplied group DFHADPD contains program and transaction resource definitions needed for EJB application deployment using the CICS development deployment tool.

In common with most of the IBM-supplied definitions, the DFHADBD group is locked and can be altered only by first copying the group. It is *not* 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.

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.

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.

Changes to IBM-supplied resource definitions

Some IBM-supplied resource definitions are changed or obsolete, and are moved to a new compatibility group, DFHCOMP8. The resource definitions removed and 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.

There are also 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 13for 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 *CICS Operations and Utilities Guide* for details of the DFHCSDUP SCAN command.

Chapter 4. Resource definition (macro) changes

This chapter summarizes the changes to the CICS resource definition macros for CICS control tables.

Obsolete control tables

Table 11 shows obsolete control tables.

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 .

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

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

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

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

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

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

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

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

Obsolete sample 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.

Reassembling control tables

Reassemble CICS control tables using the CICS TS 2.1 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.

Chapter 5. The application programming interface (API)

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

Program compatibility

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

For information about CICS support for application programming languages, see “Compilers and assembler” on page 109.

Changes to RESP2 values

Although CICS provides API command compatibility from release to release, functional changes to some CICS components can introduce new RESP2 values returned by CICS. There are some new RESP2 values for file control and program control requests.

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 2.1 regions to application programs, for both local and remote files.

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

Program control RESP2 values

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

The new INVREQ RESP2 values are:

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

43 A LINK has been attempted to a hot-pooled Java program object while there is already a hot-pooled program on the link stack.

44 A LINK has been attempted to a Java program but the JVM pool is disabled.

45 A LINK has been attempted to a JVM program, but the JVM profile cannot be found.

46 A LINK has been attempted to a JVM program, but the JVM profile is not valid.

47 A LINK has been attempted to a JVM program, but the system properties file cannot be found.

48 A LINK has been attempted to a JVM program, but the user class cannot be found.

The new PGMIDERR RESP2 value is:

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

NETNAME values on an ASSIGN command

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 6. The system programming interface (SPI)

This chapter summarizes the changes affecting the CICS system programming interface (SPI).

Program compatibility

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

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

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

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

Changed commands and options

Table 12 shows the system programming interface commands and options that are changed.

Table 12. Changed system programming commands

Command	Option	Description of change
COLLECT STATISTICS	CORBASERVER JVMPOOL REQUESTMODEL TCPIP	Options added to retrieve statistics for these new resource types resources.
CREATE PROGRAM	JVMPROFILE	Option added to specify the name of the JVM profile to be associated with the program.
CREATE REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTERFACETYPE 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 9 for more details.
CREATE TRANSACTION	OTSTIMEOUT	Option added to specify the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.
INQUIRE CONNECTION	NQNAME	Option added to return the 17-character network-qualified name for any connection that received an NQNAME from VTAM at bind time.
INQUIRE PROGRAM	JVMDEBUG JVMPROFILE	The JVMDEBUG option is obsolete and CICS always returns NODEBUG as the CVDA value if JVMDEBUG is specified. JVMPROFILE is added to return the name of the JVM profile associated with the specified program.

Table 12. Changed system programming commands (continued)

Command	Option	Description of change
INQUIRE NETNAME	NQNAME	Option added to return the 17-character network-qualified name for any terminal that received an NQNAME from VTAM at logon time.
INQUIRE REQUESTMODEL	BEANNAME CORBASERVER INTERFACE INTERFACETYPE MODULE OPERATION TYPE	Options added to return information about the enhanced request model resource definition.
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.
INQUIRE TCPIPSERVICE	CERTIFICATE DNSGROUP DNSSTATUS GRPCRITICAL PROTOCOL	Options added to return new information about the named TCP/IP service: 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® workload manager; GRPCRITICAL indicates whether the service is a critical member of the DNS group; and PROTOCOL indicates either HTTP or IIOP as the protocol used on this TCP/IP service.
INQUIRE TERMINAL	NQNAME	Option 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: **EJ** Enterprise Java domain **II** IIOP domain **OT** Object transaction services domain **RZ** Request streams domain **SJ** JVM domain
INQUIRE TRANSACTION	OTSTIMEOUT	Option added to obtain the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.
INQUIRE UOW	OTSID	Option added to obtain the first 128 bytes of the transaction identifier (TID) of the OTS transaction of which the UOW is part.
INQUIRE UOWLINK	HOST	Option added to obtain information about the partner in the OTS transaction associated with a distributed unit of work.
PERFORM STATISTICS	CORBASERVER JVMPOOL REQUESTMODEL TCPIP	Options added to write statistics for these new resource types.
SET PROGRAM	STATUS	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.

Table 12. Changed system programming commands (continued)

Command	Option	Description of change
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 4 for more information.
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.

New commands and options

Table 13 shows the commands and options that are new.

Table 13. New commands and options

Commands	Explanation
CREATE CORBASERVER	Command added to define and install a CORBASERVER resource definition.
CREATE DJAR	Command added to define and install a DJAR resource definition.
DISCARD CORBASERVER	Command added to discard an installed CORBASERVER resource definition.
DISCARD DJAR	Command added to discard an installed DJAR resource definition.
INQUIRE BEAN	Command added to return information about an enterprise bean.
INQUIRE CORBASERVER	Command added to return information about an installed CORBASERVER resource definition.
INQUIRE DJAR	Command added to return information about an installed DJAR resource definition.
INQUIRE JVMPOOL	Command added to return information about the pool of JVMs in a CICS region.
PERFORM CORBASERVER	Command added to perform a specified action (PUBLISH or RETRACT) on the beans in a CORBASERVER.
PERFORM DJAR	Command added to perform a specified action (PUBLISH or RETRACT) on a deployed JAR file.
SET CORBASERVER	Command added to enable you to set the time-out value for the session beans in a specified CORBASERVER.
SET JVMPOOL	Command added to enable you to change the status of the pool of JVMs in a CICS region or to terminate the JVMs in the pool.

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

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 020100 for CICS TS for z/OS Version 2 Release 1, and returns 010300 for CICS TS for OS/390 Version 1 Release 3. Similarly, use the OSLEVEL option to determine the level of OS/390 or z/OS; CICS returns 020800 for OS/390 Release 8.

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

The CICS level number in CICS TS 2.1 is 0610. This number is returned in the RELEASE parameter of the INQUIRE SYSTEM command. The 0610 number also appears in other forms such as 6.1.0 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 DFHPD610.

Chapter 7. CICS-supplied utility programs

This chapter summarizes changes affecting CICS-supplied utility programs.

Changes to the CSD utility program, DFHCSDUP

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

The CSD utility program is enhanced also to handle changes to attributes on the following existing resource definitions:

- REQUESTMODEL
- TCPIPSERVICE
- PROGRAM
- TRANSACTION

See “Chapter 3. Resource definition (online) changes” on page 9 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 CorbaServers, JVM pools, request models, and TCP/IP. These resource types can be coded on the SELECT TYPE and IGNORE TYPE parameters using the keywords CORBASERVER, JVMPOOL, REQUESTMODEL, and TCPIP.

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

Changes to the trace formatting utility program, DFHTU610

The trace formatting utility program is renamed to DFHTU610, where 610 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/functions. The new identifiers that you can specify to DFHTU610 on the TYPETR parameter for these functional areas are the same as the CETR trace component codes.

See “Changes to CETR” on page 6 for a list of the new codes.

Changes to the IPCS dump exit routine, DFHPD610

The dump formatting utility program is renamed to DFHPD610, where 610 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. The new dump component keywords for use with the CICS IPCS dump exit routine are the same as the trace component codes. See “Changes to CETR” on page 6 for a list of these.

DFH$MOLS and DFH0STAT sample utility programs

DFH$MOLS, the sample monitoring program, is enhanced to handle SMF 110 monitoring data records for CICS TS Version 2 in addition to monitoring data for earlier releases of CICS.

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

Chapter 8. The global user-exit programming interface

This chapter summarizes changes to the global user-exit programming interface. 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 detailed implementation of CICS facilities. All global user-exit programs must be reassembled against the CICS TS Version 2 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.

Changes to the standard parameter list

There are changes to the DFHUEPAR standard parameter list. The list of TCB two-character codes and symbolic values addressed by the global user exit task indicator field, UEPGIND, is extended to include H8 TCB mode for hot-pooling Java programs. TCB modes are represented in DFHUEPAR as both a two-character code and a symbolic value, and the following table shows the complete list:

Table 14. TCB indicators in DFHUEPAR. Description

Symbolic value	2-byte code	Description
UEPTQR	QR	The quasi-reentrant mode TCB
UEPTCO	CO	The concurrent mode TCB
UEPTFO	FO	The file-owning mode TCB
UEPTRO	RO	The resource-owning mode TCB
UEPTRP	RP	The ONC/RPC mode TCB
UEPTSZ	SZ	The FEPI mode TCB
UEPTJ8	J8	The JVM mode TCB
UEPTH8	H8	The Java hot-pooling TCB
UEPTL8	L8	An open mode TCB
UEPTSL	SL	The sockets listener mode TCB
UEPTSO	SO	The sockets mode TCB
UEPTS8	S8	The secure sockets layer mode TCB
UEPTJS	JS	The CICS job step TCB

Changes to global user-exit points

Table 15 shows those global user-exit points that are changed in some way.

Table 15. Changed global user-exit points

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:
	`UEIDCSRV EQU 32 CorbaServer`
	`UEIDDJAR EQU 33 DJAR`
	`UEIDBEAN EQU 34 Enterprise Bean`

XICEREQ XICEREQC	Two new exit-specific parameters are added to these interval control exit points (initially by APAR PQ26514, October 1999): **UEPDATE** Address of a fullword copy of the EIB date value (EIBDATE). **UEPTIME** Address of a fullword copy of the EIB time value (EIBTIME).

Changes affecting file control EXEC interface API 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.

Two new global user exits introduced in the file control domain *are* invoked in the AOR and FOR:

XFCFRIN
is invoked on entry to the main file control request gate, FCFR.

XFCFROUT
is invoked after completion of a file control request.

If you previously used exits XFCREQ and XFCREQC in a FOR, you should now use the new exits to provide equivalent function. For more information about these exits, see *CICS Customization Guide*.

Note: A service PTF for the following APAR is required to support this function:

- PQ51277 (Introduce XFCFRIN and XFCFROUT exits)

Chapter 9. User-replaceable modules

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

Reassembling user-replaceable modules

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

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

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

Changes to user-replaceable modules

There are changes affecting the following user-replaceable modules:

- The dynamic and distributed routing programs (DFHDYP and DFHDSRP)
- The JVM options override program (DFHJVMAT)
- The IIOP security program (DFHXOPUS)
- The program autoinstall program (DFHPGADX)
- The terminal autoinstall program, and node error programs (DFHZATD*x*and NEPs)

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. Ensure your customized versions of the routing programs are recompiled using the latest DFHDYPDS DSECT supplied in library CICSTS21.CICS.SDFHMAC.

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 module to modify JVM initialization options, see *CICS Customization Guide*

The IIOP security program

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

The enhanced communications area is defined by a new DSECT named DFHIIURH, which defines the following control blocks:

- sXOPUS, the security communications area (COMMAREA) header
- The general Inter-ORB Protocol (GIOP) request header

DFHIIURH is supplied in the CICS SDFHC370 library.

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

The program autoinstall program

There is an addition to the parameter list used by the program autoinstall URM (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 module, see *CICS Customization Guide*

Terminal autoinstall and node error program changes

There are changes that affect the terminal autoinstall programs and the node error program (NEP) as a result of CICS support for the VTAM LU alias facility.

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 *CICS Customization Guide*.

Terminal autoinstall program

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.

For more information, see the *CICS Customization Guide*.

New user-replaceable modules

The following user-replaceable modules are added:

- DFHEJDNX
- DFHSJJ8O

DFHEJDNX

This new user-replaceable module 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 module, and write it in any of the CICS-supported languages (except Java), but its name must be DFHEJDNX.

For information about user-replaceable module DFHEJDNX, see *CICS Customization Guide*

DFHSJJ8O

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

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

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

Chapter 10. 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

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 1564 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 an MCT to selectively include or exclude specified fields. See the *CICS Resource Definition Guide* for information about coding an MCT to control data recording using the DFHMCT TYPE=RECORD macro.

Changes to statistics records

There are changes to CICS statistics records, generally because of the new domains, such as the Enterprise Java domain and the IIOP domain. Other changes are a result of enhancements to CICS support for the Java™ Virtual Machine (JVM) and to CICS exploitation of TCP/IP. 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.
DFHDSGDS	Dispatcher global statistics.
DFHMNTDS	Transaction performance monitoring resource statistics.
DFHSORDS	TCP/IP service resource statistics.

Existing application programs using the old versions of the changed DFHA17DS and DFHSORDS DSECTs are unaffected by the changes. This is because the new fields are added to the end and do not affect the offsets of the unchanged fields.

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

New and revised values in DFHSTIDS (statistics record identifiers)

The revised list of the statistics record identifiers, as described in the common statistics record copybook, DFHSTIDS, is shown in Figure 2.

STID Symbolic name	STID Value	Copybook	Type of record
STISMDSA	2	DFHSMSDS	Storage manager DSA ID
STISMD	5	DFHSMDDS	Storage manager domain subpool ID
STISMT	6	DFHSMTDS	Storage manager task subpool ID
STIXMG	10	DFHXMGDS	Transaction manager (global) ID
STIXMR	11	DFHXMRDS	Transaction manager (trans) ID
STIXMC	12	DFHXMCDS	Transaction manager (tclass) ID
STIFEPIP	16	DFHA22DS	FEPI pool ID
STIFEPIC	17	DFHA23DS	FEPI connection ID
STIFEPIT	18	DFHA24DS	FEPI target ID
STIVT	21	DFHA03DS	VTAM® statistics ID
STIPAUTO	23	DFHPGGDS	Program autoinstall ID
STIAUTO	24	DFHA04DS	Terminal autoinstall statistics ID
STILDR	25	DFHLDRDS	Loader (resid) ID
STIDBUSS	28	DFHDBUDS	DBCTL USS ID
STILDG	30	DFHLDGDS	Loader (global) ID
STITCR	34	DFHA06DS	Terminal control (resid) ID
STILSRR	39	DFHA08DS	LSRPOOL pool statistics (resid) ID
STILSRFR	40	DFHA09DS	LSRPOOL file statistics (by file) ID
STITDQR	42	DFHTQRDS	TDQUEUE (resid) ID
STITDQG	45	DFHTQGDS	TDQUEUE (global) ID
STITSQ	48	DFHTSGDS	TSQUEUE statistics ID
STICONSR	52	DFHA14DS	ISC/IRC system entry (resid) ID
STICONSS	54	DFHA21DS	ISC connection - system security
STIDS	59	DFHDSGDS	Dispatcher statistics ID
STIUSG	61	DFHUSGDS	User domain statistics ID
STITM	63	DFHA16DS	Table manager statistics ID
STIST	66	DFHSTGDS	Statistics statistics ID
STIFCR	67	DFHA17DS	File control (resid) ID
STICONMR	76	DFHA20DS	ISC/IRC mode entry (resid) ID
STIM	81	DFHMNGDS	Monitoring statistics (global) ID
STIMNR	82	DFHMNTDS	Monitoring statistics (resid) ID
STITDR	85	DFHTDRDS	Transaction dump (resid) ID
STITDG	87	DFHTDGDS	Transaction dump (global) ID
STISDR	88	DFHSDRDS	System dump (resid) ID
STISDG	90	DFHSDGDS	System dump (global) ID
STILGR	93	DFHLGRDS	Logger statistics (resource) ID
STILGS	94	DFHLGSDS	Log stream statistics (resource) ID
STINQG	97	DFHNQGDS	ENQ manager statistics (global) ID
STIRMG	99	DFHRMGDS	Recovery manager statistics (global) ID
STID2G	102	DFHD2GDS	DB2 connection statistics (global) ID
STID2R	103	DFHD2RDS	DB2 entry statistics (resource) ID
STISOG	107	DFHSOGDS	TCP/IP (global) ID
STISOR	108	DFHSORDS	TCP/IP services (resource) ID
STIIIR	111	DFHIIRDS	Request model (resource) ID
STIEJR	114	DFHEJRDS	Corbaserver (resource) ID
STISJG	117	DFHSJGDS	JVM pool statistics (global) ID

Figure 2. 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*.

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 11. 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 39.

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 3 on page 38 for an illustration of valid configurations for MRO with different levels of DFHIRP installed in the sysplex.

Migrating to the latest DFHIRP

The CICS TS DFHIRP is downward compatible, and designed to work with all releases of CICS.

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

1. Install the CICS SVC
Install the CICS TS SVC routine, DFHCSVC, in the LPA, and specify a new CICS SVC number for this routine in the MVS SVCPARM table. (If the new DFHCSVC has to coexist with an older version, rename one of them so that both versions can be installed in the LPA. However, this is not recommended or necessary: DFHCSVC is downward compatible and the latest CICS TS version supports all the earlier releases of CICS.)

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

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

4. Test current production release
Test your production MRO CICS regions, under your existing release of CICS,

but using the new SVC number and the new DFHIRP. For this test, run without any logon or bind-time security checking—that is, do not define any RACF FACILITY class profiles.

5. Define RACF FACILITY resource class profiles
Define the required DFHAPPL.*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.

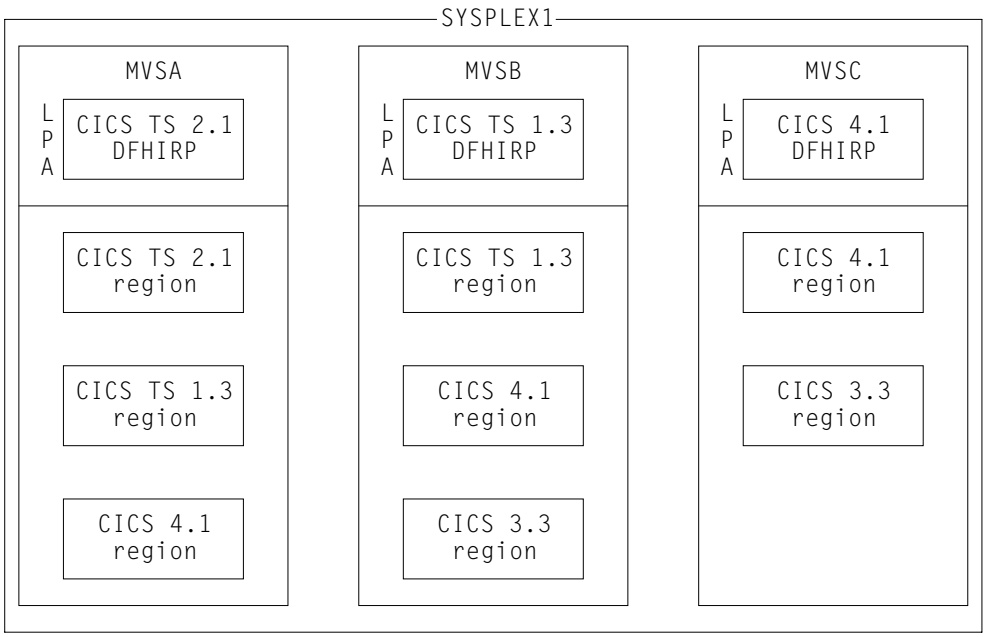

Figure 3. Illustration of valid configurations using DFHIRP in a sysplex

Note: All the CICS regions in SYSPLEX1 shown in Figure 3 can communicate across MRO links, because the DFHIRP in each MVS supports XCF/MRO.

- In MVSA, DFHIRP must be at the CICS TS 2.1 level, because CICS TS 2.1 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.

Chapter 12. Migration planning for Java applications

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

JVM programs

CICS supports the Java Virtual Machine (JVM) provided by the IBM Developer Kit, Java 2 Technology Edition, Version 1.3, only (the IBM persistent, reusable JVM). This means that Java applications written using an earlier level of Java may not execute correctly. For information about Java application migration issues, see the Sun Microsystems, Inc. Web site at `http://java.sun.com/j2se/1.3/compatibility.html`.

Configuration options allow the reusable JVM to be run in the same mode as the CICS TS 1.3 JVM, with small modifications to your customized initialization options. This might be necessary to execute programs that use Java interfaces that make the JVM non-resettable, such as multi-threading. It might also be necessary for compatibility reasons: for example, the old mode calls DFHJVMAT, which is restricted now to JVMs that are to be destroyed at the end of the program link request.

The user.properties file: CICS does not look for a user.properties file for the reusable JVM. Instead, it reads only the system properties file named on the JVMPROPS parameter in the JVM profile. If you have an existing user.properties file, migrate the contents to the system properties file as appropriate.

One-JVM-per-stack restriction: A stack of programs formed within the same CICS task by a succession of nested EXEC CICS LINK commands, or JCICS program invocations, cannot contain more than one JVM. This means that a JVM program cannot link, either directly or indirectly, to another JVM program in the same CICS region.

This restriction does not apply to distributed program link (DPL) requests, which means that you can DPL from a stack that already contains one JVM to a JVM program in another region.

Migrating Java applications

You are recommended to run all Java programs in JVM mode. However, to ease migration from CICS TS 1.3, CICS TS Version 2.1 continues to support hpj-compiled programs, except for the following:

IIOP requests inbound or outbound)

Changes to the way CICS executes CORBA IIOP requests means that stateless CORBA objects now require a JVM. This means that CORBA IIOP requests cannot be executed by hpj-compiled Java programs as in CICS TS 1.3, but must be executed as JVM (bytecode) programs.

Thus, if you have hpj-compiled Java programs that in CICS TS 1.3 are invoked by CORBA IIOP requests, these must be recompiled using the IDL-to-Java

compiler supplied with IBM Developer Kit, Java 2 Technology Edition 1.3. See *Java Applications in CICS* for more information.

Enterprise beans
These must execute in JVM mode.

Common connector framework (CCF) client interface
Any Java applications that use the CCF client interface must run in JVM mode.

CICS continues to support non-IIOP hpj-compiled Java programs, which can run with or without the HOTPOOL option. CICS TS Version 2 supports hpj-compiled Java program objects that were developed using CICS TS 1.3 and its associated tooling. Such program objects will run in CICS TS Version 2 unchanged, but CICS provides no support for developing new hpj-compiled Java programs, or for modifying existing hpj-compiled Java programs. However, if you recompile such Java programs to run in JVM mode on CICS TS 2.1, you should specify the resettable option for the JVM. Note that such programs are likely to suffer a significant performance degradation if they use Java methods that make the JVM non-resettable. For details of the Java methods that make the JVM non-resettable see the IBM Developer Kit for OS/390, Java 2 Technology Edition document, *New IBM Technology featuring Persistent Reusable Java Virtual Machines*, SC34-6034.

To avoid problems with deprecated APIs, you should develop all new Java programs for CICS TS 2.1 using an application development environment that supports Java 2 at the SDK 1.3 level. You can use VisualAge for Java 3.5 but note that it supports the SDK 1.2 level. Note also that enterprise beans developed using VisualAge for Java V3.5, which supports the EJB 1.0 specification, need to be migrated to the EJB 1.1 specification level using the JAR development tool supplied with CICS TS.

If an hpj-compiled program that you migrate to run in HPJ-mode in CICS TS 2.1 requires modification, you are strongly recommended to recompile it to run in JVM mode. If this is not possible for some reason, rebuild the program as for CICS TS 1.3 using application development tooling appropriate to that release. Note that the JCICS Java classes (dfjcics.jar) provided with CICS TS 2.1 *cannot* be used for developing programs to be run in HPJ-mode, with or without hot-pooling.

JVM initialization options

In CICS TS 1.3 the JVM initialization options are specified in a single member of the partitioned data set (PDS) referenced by the DFHJVM statement, permitting only one JVM type per region. This is changed to permit multiple types of JVM per region, where the PDS referenced by the DFHJVM DD statement can contain many members. These members, referred to as JVM profiles, are named by the JVMPROFILE attribute of the program resource definition.

Not only has the method by which CICS selects the JVM initialization options changed, but also the options themselves have changed to support the new persistent reusable JVM provided by IBM Java 2. See the *CICS System Definition Guide* for details of all the new parameters. In particular, note that the CICS_HOME parameter, which is used in CICS TS 1.3 to name the CICS work directories, is renamed WORK_DIR to avoid confusion with the CICS installation directory.

With CICS support for the IBM persistent, reusable JVM, you should use the JVM profile to specify only the options described in *CICS System Definition Guide*. You can still specify your own parameters to be passed as environment variables to your application as in CICS TS 1.3, but this is deprecated, and CICS issues

warning messages if it finds unknown initialization options in a JVM profile. Instead, you should use the system properties file, referenced by the JVMPROPS JVM initialization option, to pass information to your Java application.

Changes to the DFHJVMAT user-replaceable module

CICS continues to support the user-replaceable module introduced in CICS TS 1.3 and can be used for the same purpose—to tailor the configuration of the JVM. However, in CICS TS 1.3 CICS invokes DFHJVMAT for all JVMs. Now, CICS invokes DFHJVMAT only for a JVM that is specified as not for reuse; that is, its profile specifies Xresettable=NO. DFHJVMAT is *not* invoked for JVMs that specify Xresettable=YES. This is because reuse relies on matching new requests for a JVM with the name of a JVM profile to find a JVM with the correct characteristics. This mechanism would fail if DFHJVMAT were allowed to modify the options specified in the profile when a JVM is first initialized.

Consider replacing any function in your existing DFHJVMAT module using options that you can specify in the JVM profile. For example, the -generate on the `stderr` and `stdout` parameters for the generation `stderr` and `stdout` files. Alternatively, use different JVM profiles for Java programs that have different requirements.

Chapter 13. Migration planning for the integrated translator

The CICS language translator is provided as an integral part of the following programming language compilers:

- IBM COBOL for OS/390 & VM, Version 2 Release 2, program number 5648-A25, with the PTF for APAR PQ45462
- IBM VisualAge® PL/I for OS/390, Version 2 Release 2.1, program number 5655-B22, with the PTF for APAR PQ45562

To install application programs into CICS libraries using one of the above compilers, you can either modify a CICS-supplied procedure, or develop your own JCL. In their supplied form, and without modification, the CICS-supplied procedures for COBOL and PL/I perform a separate translate step, and do not specify the options to invoke the integrated translator. You can continue to use these as supplied to translate, compile, and link-edit your application programs.

To use the CICS-supplied procedures to invoke the integrated translator, modify the JCL to remove the separate translate step, and 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'')'
  ```

Note: If you specify CICS translator options for the integrated translator in the PARM string, you need double apostrophes as shown in this example. If, however, you specify the options in your source program, you need single apostrophes (for example, you might have `CBL CICS('COBOL3,SP') APOST` as the CBL statement in your source program.

Note that the COBOL compiler recognizes only the keyword CICS for defining translator options, not the alternative options XOPT or XOPTS as in the case of the stand-alone translator supplied with CICS TS.

The CICS-supplied procedures that you can modify for use with the integrated translator are:

DFHYITPL
A procedure to compile CICS online application programs using a Language Environment-conforming PL/I compiler.

DFHYITVL
A procedure to compile CICS online application programs using a Language Environment-conforming COBOL compiler.

Nested COBOL program considerations

If you are compiling a COBOL application program that contains nested programs, the rules regarding the use of DFHEIBLK and DFHCOMMAREA described in the *CICS Application Programming Guide* apply only when you are using the CICS stand-alone translator.

When you use the integrated translator to compile nested programs, observe the following rules:

- You no longer need to code explicitly DFHEIBLK and DFHCOMMAREA on the USING phrase when calling a nested program, or on the PROCEDURE DIVISION USING phrase in the nested program, and they must be omitted.
- Because DFHCOMMAREA is not generated in a nested program, it cannot be REDEFINED as with the stand-alone translator. DFHCOMMAREA can be redefined with the global attribute in the outer-most (containing) program, and accessed from nested (contained) programs.

If you are unable to apply these rules for existing programs that you are modifying (including using COPY members to redefine DFHCOMMAREA in nested programs), continue using the stand-alone translator.

Part 3. Changes to CICSPlex SM

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

Chapter 14. Operations views changes

This chapter summarizes the changes to CICSPlex SM operations views.

Changed operations views

A number of operations views have changed as shown in Table 16.

Table 16. Changed operations views

Operations view	What has changed
CMAS	FEEDBACK error codes
PROGRAM	New attributes added: HOTPOOLING and JVMPROFILE
RQMODEL	New attributes added: CORBASERVER, RTYPE, INTFACETYPE, BEANNAME, MODULE, INTERFACE, and OPERATION
TCPIPS	New attributes added: AUTHENTICATE, CERTIFICATE, PROTOCOL, DNSGROUP, DNSSTATUS, and GRPCRITICAL
TERMNL	New attribute added: NQNAME
UOW	New attribute added: OTSTID
UOWLINK	New attributes added: RRMSURID and HOST

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

New operations views

Table 17 shows new operations views.

Table 17. 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
EJDJBEAN	A CICS resource that describes an Enterprise Bean object in a CICS–deployed JAR FILE being managed by CICSPlex SM

Chapter 15. Monitor view changes

This chapter summarizes the change to the CICSPlex SM MTERMNL monitor view.

Changed monitor view

The change to the MTERMNL monitor view is shown in Table 18.

Table 18. Changed monitor view

Monitor view	What has changed
MTERMNL	New attribute added: ACQSTATUS

Chapter 16. Business Application Services changes

This chapter summarizes the changes to Business Application Services (BAS) definition objects.

New BAS definition objects

Table 19 shows the new BAS definition objects introduced at this release.

Table 19. 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

There are changes to an existing BAS definition object. This is listed in Table 20.

Table 20. Changed BAS definition object

BAS object	What has changed
RQMDEF	New attributes added: CORBASERVER, RTYPE, INTFACETYPE, BEANNAME, MODULE, INTERFACE, and OPERATION
RESDESC	New attributes added: EJCDEFRG, EJCDEFTS, EJCDEFRS, EJDDEFRG, EJDDEFTS, and EJDDEFRS

Chapter 17. The CICSPlex SM API

This chapter summarizes changes to the CICSPlex SM API.

Change to FEPI operations views

The FEPOOL, FENODE, and FETRGT FEPI resources can only be installed from the BAS FEPI resource definitions and not from the FEPI operations views. That is, the INSTALL action is no longer valid for these operations views.

New resource tables

Table 21 shows new resource tables.

Table 21. New resource tables

Resource table	What is it?
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

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.

- CMAS
- CPLEXDEF
- CPLXCMAS
- MTERMNL
- NTERMNL
- PROGDEF
- PROGRAM
- RESDESC
- RQMDEF
- RQMODEL
- TCPDEF
- TCPIPS
- TERMNL
- TRANDEF
- TRANSVAL
- UOW
- UOWLINK

Chapter 18. Migrating to CICS TS 2.1 CICSPlex SM

This chapter presents information about the compatibility of previous releases of CICSPlex SM and CICS TS Version 2.1 CICSPlex SM.

Notes on terminology

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

Version 2.1
: Version 2 Release 1 (the CICSPlex SM element of CICS Transaction Server for z/OS, Version 2 Release 1)

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

Release 3
: Version 1 Release 3

Release 2
: Version 1 Release 2

The CICSPlex SM elements of CICS Transaction Server for z/OS, Version 2 Release 1 and CICS Transaction Server for OS/390 Version 1 Release 3 are **not** available as a separate products.

Sections in this chapter describe:

MASs running the following CICS releases are directly-connectable to CICSPlex SM Version 2.1:

- CICS Transaction Server for z/OS, Version 2 Release 1
- CICS Transaction Server for OS/390 Version 1 Release 3
- CICS Transaction Server for OS/390 Version 1 Release 2
- CICS Transaction Server for OS/390 Version 1 Release 1
- CICS for MVS/ESA™ Version 4.1
- CICS OS/2™ Versions 3.0 and 3.1

Running CICSPlex SM Version 2.1 and an earlier release concurrently

You can run CICSPlex SM Version 2.1, Release 4, Release 3, and Release 2 at the same time, with interconnected CMASs at different levels. The ability to do this allows gradual migration of the environment from Release 2, Release 3, and Release 4 to Version 2.1.

All users need to understand about the conditions for running Version 2.1 with Release 4, Release 3 or Release 2. Read the following section, "Conditions for running CICSPlex SM Version 2.1 and earlier releases concurrently" on page 58, then read "Performing migration procedures" on page 59 to understand how to migrate your supported releases before attempting the extra migration steps. If you then need to perform the extra steps to continue the management of unsupported CICS regions, see"Management of unsupported CICS regions" on page 75.

Conditions for running CICSPlex SM Version 2.1 and earlier releases concurrently

The following conditions apply to environments in which CICSPlex SM Version 2.1 and earlier releases of CICSPlex SM are running concurrently:

- The APARs in the following lists must be applied to the earlier release, whether it be Release 3 or Release 2, or both:

  Apply to Release 2 only
  - PQ05976

  Apply to Release 3 only
  - PQ09511
  - PQ20539
  - PQ21143
  - PQ21798
  - PQ23062

  Apply to Releases 2 and 3
  - PQ11318
  - PQ13281
  - PQ14319
  - PQ15180
  - PQ16586
  - PQ16588
  - PQ17747
  - PQ23016
  - PQ23027
  - PQ46169

  Apply to Release 4 only
  - PQ46169

  Latest information:
  The lists above were correct at the time of publication, but you should expect changes to be made as APARs are answered. The Preventive Service Planning section (3.2) of the *CICS Transaction Server for z/OS Program Directory* advises you to review the current PSP information for the most up-to-date details, and tells you how to obtain this information.

- In order for a CAS, a CMAS, and a MAS (including those MASs that act as Web User Interface servers), to communicate, they must all be running the same release of CICSPlex SM. That is:
  - A CMAS must be connected to a CAS running at the same release as the CMAS. You can access a CMAS directly only through a CAS running at the same release level. This is true both when the context is a CMAS and when the context is a 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 2.1 cannot be connected to a CAS running at Release 4, Release 3 or Release 2.

- A CMAS running at Version 2.1 can be connected to a CMAS running at Release 4, Release 3 or Release 2. However:
  - In a CICSplex that consists of CMASs at the Version 2.1 level and the Release 4, Release 3 or Release 2 level, the maintenance point CMAS must be at the Version 2.1 level. That is, when a CICSplex contains CMASs at both levels, the first CMAS converted to Version 2.1 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 2.1 CMAS. You must ensure that:
    - All API programs run so that they are connected to the Version 2.1 CMAS.
    - All TSO EUI sessions connect to the Version 2.1 CAS.
    - All Web User Interface servers connect to the Version 2.1 CAS.
  - When multiple CMASs at different CICSPlex SM release levels are running on the same MVS/ESA image, you must run a CAS for each release of the CMASs running on that MVS/ESA image. CASs running at different CICSPlex SM release levels cannot communicate directly.

Performing migration procedures

The migration from a previous release of CICSPlex SM to CICS TS Version 2.1 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.

Several skeleton post-installation members are distributed with CICSPlex SM. You should generate these post-installation members for use during the migration. (For information about generating the post-installation members, see the *CICS Transaction Server for z/OS Installation Guide*.)

To enable you to revert to the previous release of CICSPlex SM if you encounter problems during the migration to CICS TS Version 2.1 CICSPlex SM, you should take back-up copies of the previous release components such as JCL, CLISTs, CICS tables, and CMAS data repositories before you start the migration process.

Note: You can use the procedures in this section to migrate from Release 4, Release 3 and Release 2 of CICSPlex SM to CICS TS Version 2.1 CICSPlex SM.

Converting a CAS to Version 2.1

In order to provide for concurrent previous release and Version 2.1 CASs you must create a separate Version 2.1 CAS environment.

To convert a CAS from Release 4, Release 3 or Release 2 to Version 2.1, you will need to do the following:

- Review the IEASYSxx member in the SYS1.PARMLIB library. The NSYSLX value may need to be increased. (For information about the NSYSLX value for CICSPlex SM, see the *CICS Transaction Server for z/OS Installation Guide* manual.)

- Authorize the new Version 2.1 libraries. (For information about how to do this, see the *CICS Transaction Server for z/OS Installation Guide* manual.)
- (Only when running both a previous release and Version 2.1.) Define the VTAM requirements for the Version 2.1 CAS. You must perform the following steps:
  – Create a VTAM application definition
  – Update the configuration list
  – Activate the major nodes

  When the Version 2.1 CAS is going to communicate with another Version 2.1 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* manual.)
- Review the JCL in the EYUDEFDS member generated by the EYUISTAR job to ensure that the following steps were generated when the post-installation jobs were created:
  IPRMDEL
  IPRMALOC

  Then run the job to create a new BBIPARM parameter repository data set for the Version 2.1 CAS.

  If you are running both Release 4 and Version 2.1 and your Release 4 CASs currently share a single BBIPARM data set, your Version 2.1 CASs can share the same BBIPARM data set. However, a Release 3 or a Release 2 CAS and a Version 2.1 CAS cannot share the same BBIPARM data set. You must create a new, separate BBIPARM data set for Version 2.1. (For information about using EYUDEFDS, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Update your TSO sign-on procedure to use the Version 2.1 data sets. Use generated member EYUTSODS to temporarily allocate the libraries. (For information about updating your TSO sign-on procedure, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Review the changes made to the CICSPlex SM global security parameters for Version 2.1. Make sure the BBACTDEF DD statement in the CAS startup procedure references a data set containing the BBMTSS member distributed with Version 2.1. (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 2.1 data sets. If you are running both a previous release of CICSPlex SM and Version 2.1, 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 2.1 CAS is now ready for use.

Converting a CMAS to Version 2.1

You need to do the following:

- Review the IEASYSxx member in the SYS1.PARMLIB library.

  Note: Some of the parameters in the IEASYSxx member may need to be modified when you are running both a previous release and Version 2.1 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 2.1 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 2.1 library. (For information about this step, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Update the CSD file with the Version 2.1 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 2.1 group list EYU210L0. (For information about the CICS SIT parameters, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Reassemble the CICS resource definition table load modules. Reference the library containing the Version 2.1 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* manual.)
- Convert the data repository to Version 2.1. (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 2.1 names. If you are running an earlier version of EYUCMAS, you should add the following DD statement:

  ```
  //BBIPARM    DD  DISP=SHR,DSN=CICSTS21.CPSM.EYUIPRM
  ```

  (For information about the CMAS startup JCL, see the *CICS Transaction Server for z/OS Installation Guide*.)
- Verify the CICSPlex SM system parameters referenced by the EYUPARM DD statement. Ensure that the SSID value is the same as the value used to start the CAS to which this CMAS connects. (For information about these parameters, see the *CICS Transaction Server for z/OS Installation Guide*.)

The CMAS is ready to be cold started.

When you have successfully migrated all your systems to CICSPlex SM Version 2.1 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 64.)

Converting a MAS to Version 2.1

To convert a MAS to Version 2.1, you need to do the following:

- Authorize the Version 2.1 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 2.1 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 2.1 group of resource definitions. At Version 2.1, this group is EYU210G1. (For information about updating the CSD file for a MAS, see the *CICS Transaction Server for z/OS Installation Guide*.)

- If all MASs that use the same CSD and group list are being migrated at the same time, update the CSD to add the Version 2.1 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 2.1 MAS group.
  – Add the Version 2.1 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 22 lists the release group names for each environment.

Table 22. MAS CSD groups for previous releases of CICSPlex SM

Environment	Release 2 Group	Release 3 Group	Release 4 Group
Local MAS – USELPACOPY(NO)	EYU120G1	EYU130G1	EYU140G1
Remote MAS – USELPACOPY(NO)	EYU120G2	EYU130G2	EYU140G2
Local MAS – USELPACOPY(YES)	EYU120GB	EYU130GB	EYU140GB
Remote MAS – USELPACOPY(YES)	EYU120GC	EYU130GC	EYU140GC

  If a new group list is created, the GRPLIST CICS system initialization parameter for the MAS, in the SIT or in startup overrides, should be changed to specify the name of the new group list.
- When previous release modules are in the link pack area (LPA), you must ensure the Version 2.1 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 2.1 names. (For information about the MAS startup JCL, see the *CICS Transaction Server for z/OS Installation Guide*.)

The MAS is ready to be cold started.

When you have successfully migrated all your systems to CICSPlex SM Version 2.1 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 2.1 libraries. For information on how to do this, see the description of customizing the dynamic transaction routing program in *CICSPlex System Manager Managing Workloads*.

Application Programming Interface

CICSPlex SM API programs written to run in a previous release MAS can be run in a Version 2.1 MAS. You can either continue to access the data provided by the previous release or access the new data available from Version 2.1. For a discussion of the compatibility between releases of the API, see the *CICSPlex System Manager Application Programming Guide* book.

Converting a Web User Interface Server to Version 2.1

You should consider migrating a Web User Interface server after you migrate the CMAS to which it connects and before migrating any MASs.

As the CICS system that acts as your Web User Interface server is a local MAS, all the considerations that apply to a local MAS also apply to a Web User Interface server.

To convert a Web User Interface server to Version 2.1 you should:

- Migrate the MAS that acts as your Web User Interface server.
- Update the CSD file with the Version 2.1 Web User Interface group of definitions. At Version 2.1, this group is EYU210GW.
- Migrate the contents of the Web User Interface server repository (EYUWREP).

Migrating the MAS and updating the Web User Interface CSD group

To migrate the MAS and update the Web User Interface CSD group you should follow the instructions for converting a MAS as described in “Converting a MAS to Version 2.1” on page 61. You must also replace the CSD group EYU140GW with EYU210GW in the group list used by the Web User Interface server or create a new group list containing EYU210GW.

EYU210GW is included in the CSD when the CSD file is updated with the Version 2.1 group of resource definitions (EYU9nnG1).

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

To migrate the Web User Interface server repository to Version 2.1:

- Export your view set and menu definitions with your Web User Interface server still running at your current release. It is not necessary for the Web User Interface server to be connected to a CMAS to do this. For information about exporting definitions see the *CICSPlex System Manager Web User Interface Guide* .
- Create a new Web User Interface server repository for Version 2.1 using the JCL described in the *CICSPlex System Manager Web User Interface Guide*.
- Start the Web User Interface server at the new release using the new Web User Interface server repository.
- Import the new starter set definitions (the supplied set of view set and menu definitions with names beginning EYUSTART).

- Import your previous release view set and menu definitions, specifying the SKIP option on the Duplicate Names field of the COVC panel. This prevents the new starter set definitions being overwritten by starter set definitions exported from a previous release.

  Note: If you do 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 Version 2.1 Web User Interface server repository Release 4 view set and menu definitions.
2. You can import view set and menu definitions exported by a Version 2.1 Web User Interface server into a Release 4 Web User Interface server repository. However, any new attributes or resources introduced in Version 2.1 are not accessible in the Release 4 Web User Interface server. You may wish to remove these attributes and view sets using the View Editor. For information about the View Editor see the *CICSPlex System Manager Web User Interface Guide*.

Deleting the previous release definitions from CSD files

When you have successfully migrated all your systems to CICSPlex SM Version 2.1, you can delete the previous release definitions from each CMAS's and MAS's CSD. This can be done by upgrading each CSD using module EYU9R120 (for Release 2), EYU9R130 (for Release 3), or EYU9R140 (for Release 4), which are supplied in CICSTS21.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(EYU9Rnnn)
/*
```

Figure 4. JCL to delete previous release groups and group lists from the CSD

When this JCL is run, EYU9R120 attempts to delete all Release 2 groups and group lists from the CSD; EYU9R130 attempts to delete all Release 3 groups and group lists from the CSD; EYU9R140 attempts to delete all Release 4 groups and group lists from the CSD. However, because not all of the items the job attempts to delete are actually defined in the CSD, DFHCSDUP gives a return code of 04. The DFHCSDUP SYSPRINT output lists those items that were deleted and those that were not found. For further information about updating the CSD, see the *CICS Transaction Server for z/OS Installation Guide*.

A phased migration scenario

Figure 5, Figure 6 on page 67, Figure 7 on page 70, and Figure 8 on page 73 and the discussions that accompany them show a CICSPlex SM environment at an earlier release and the steps you would take to convert that environment to Version 2.1. 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

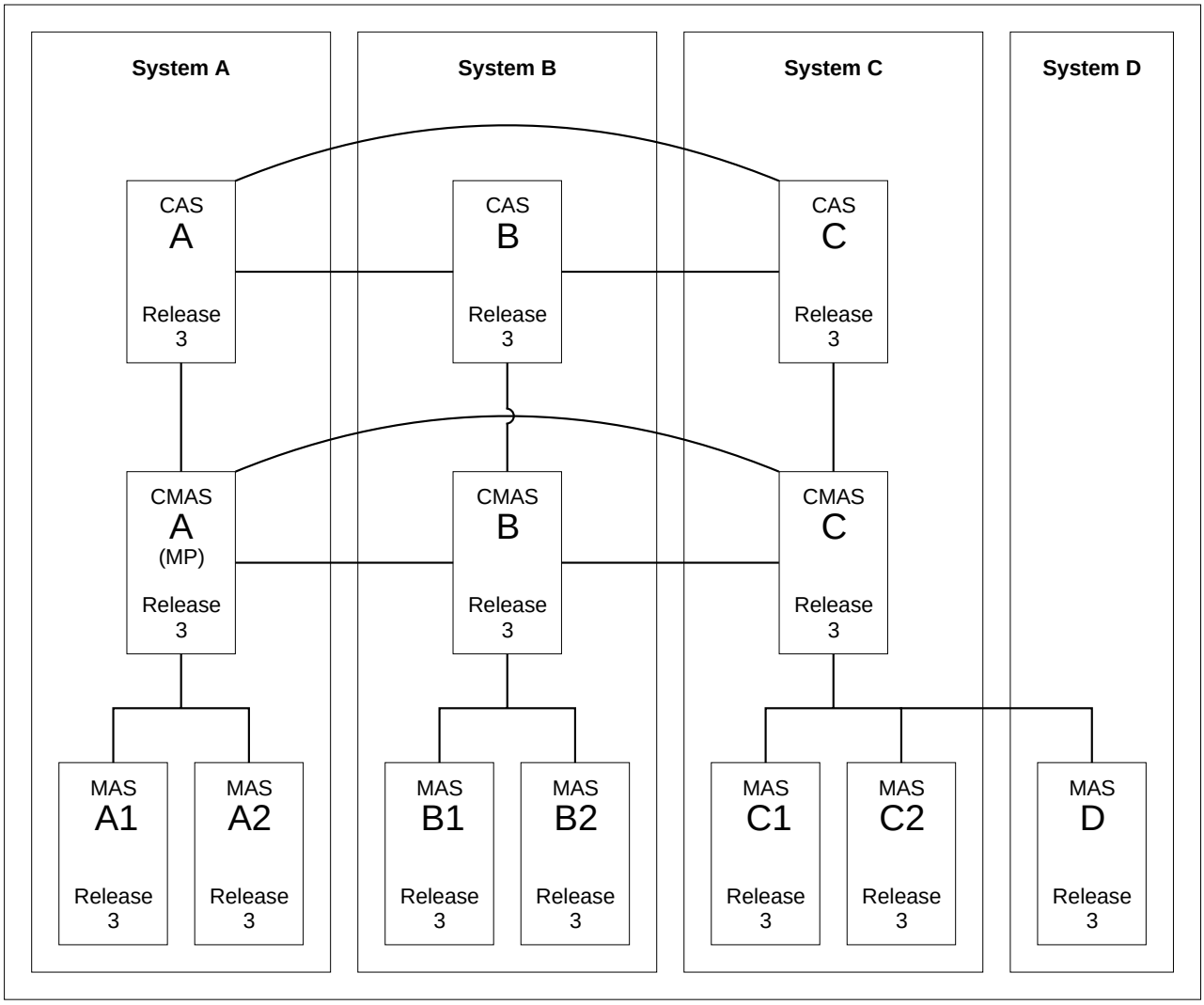

Figure 5. An environment at an earlier release

Figure 5 shows a CICSPlex SM environment that is made up of the following components:

- 4 MVS systems
- 3 CASs
  - All interconnected
- 3 CMASs
  - All interconnected
  - CMAS A connects to CAS A

(This is the maintenance point CMAS.)
CMAS B connects to CAS B
CMAS C connects to CAS C

- 1 CICSplex
  CMAS A is the maintenance point
- 7 CICS regions
  6 local MASs
  MAS A1 and MAS A2 connect to CMAS A
  MAS B1 and MAS B2 connect to CMAS B
  MAS C1 and MAS C2 connect to CMAS C
  1 remote MAS
  MAS D connects to CMAS C

Objective 1: Convert MP CMAS to Version 2.1

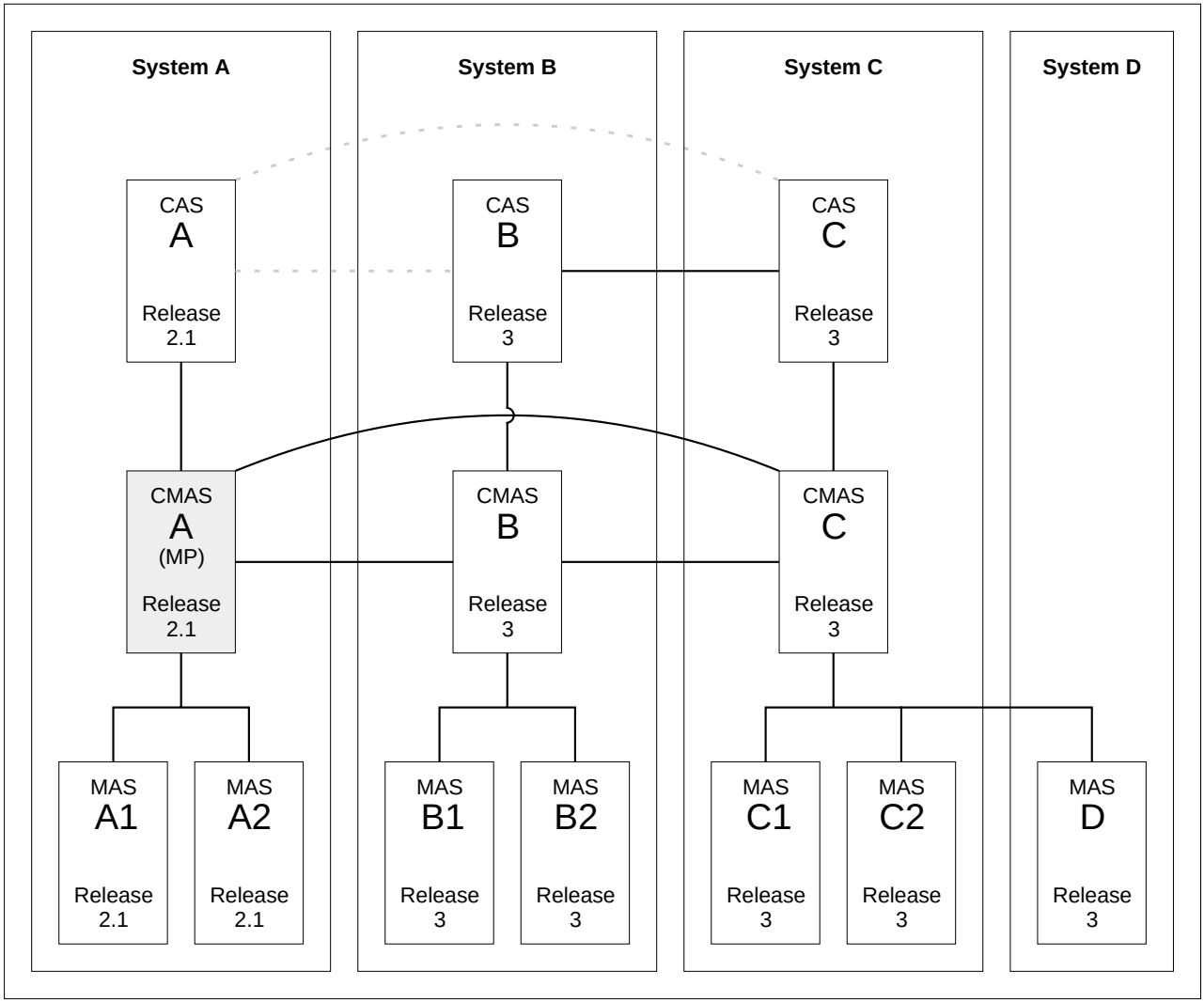

Figure 6. Converting the maintenance point CMAS to Version 2.1

As shown in Figure 6, when you complete Objective 1 the connections from CAS A to CAS B and from CAS A to CAS C will be removed.

The conversion of the maintenance point CMAS A to Version 2.1 requires conversion to Version 2.1 for the following:
- MVS System A CICSPlex SM TSO users
- CAS A

- CMAS A
- MAS A1
- MAS A2

Step 1: Terminate executing regions that are to be converted

- If the following systems are in execution, terminate them:
  - CAS A
  - CMAS A
  - MAS A1
  - MAS A2

Step 2: Convert MVS System A CICSPlex SM TSO users to Version 2.1

- Create the appropriate data set allocations to point to Version 2.1 data sets. This must not affect the allocations for TSO users on MVS Systems B and C, which are still at the previous level.

Step 3: Convert CAS A to Version 2.1

- 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 CICSTS21.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS A to point to the Version 2.1 data sets.

  Note: The BBIPARM data set *must not* contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS A is first started. The new member will be reused when CAS A is subsequently restarted.
- Start CAS A.
- From the CAS A CASDEF view:
  - Issue the CHANGE action command to modify the VTAM APPL name for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INStall action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.

Step 4: Convert CMAS A to Version 2.1

- Ensure that modules EYU9A210 and EYU9X210 in the CICSTS21.CPSM.SEYULINK data set are in the MVS link-list concatenation.
- Update the CMAS A CSD file, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.

- Update the CICS group list for CMAS A.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS A to Version 2.1.
- Update the JCL used to start CMAS A to point to the Version 2.1 data sets and to connect to the correct CASNAME.
- Add the following statement to the CMAS startup JCL:

```
//* CPSM View Customization Datasets
//BBIPARM   DD  DISP=SHR,DSN=&IPRMDSN
```

- Start CMAS A.

Step 5: Convert MAS A1 and MAS A2 to Version 2.1

- Update the MAS A1 and MAS A2 CSD files, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.
- Update the CICS group lists for MAS A1 and MAS A2.
- Update the JCL used to start MAS A1 and for MAS A2 to point to the Version 2.1 data sets.
- Start MAS A1 and MAS A2.

Objective 2: Convert CMAS B to Version 2.1

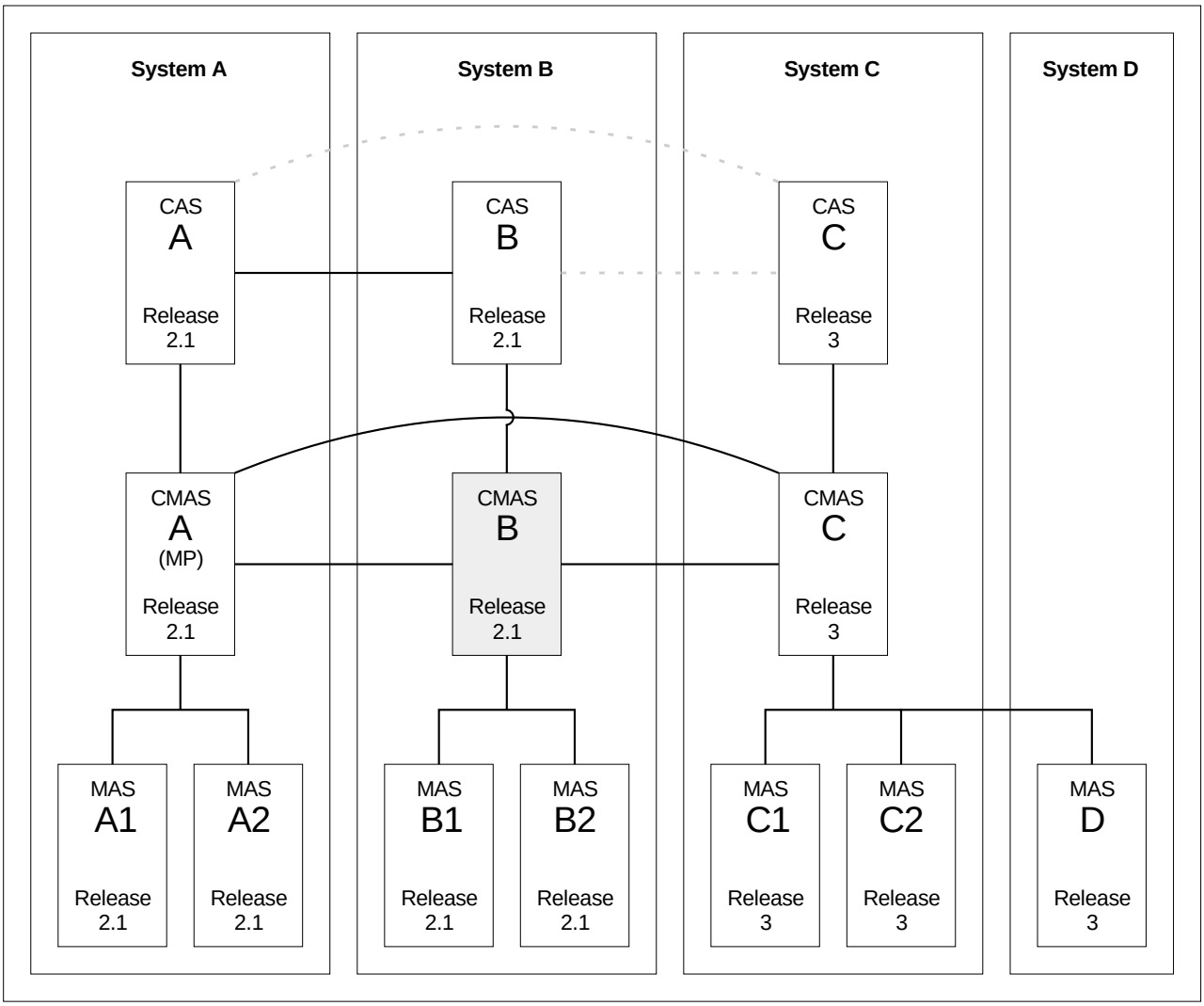

Figure 7. Converting CMAS B to Version 2.1

As shown in Figure 7, when you complete Objective 2 the connection from CAS A to CAS B will be reestablished and the connection from CAS B to CAS C will be removed. The conversion of CMAS B to Version 2.1 requires conversion to Version 2.1 for the following:

- MVS System B CICSPlex SM TSO users
- CAS B
- CMAS B
- MAS B1
- MAS B2

Step 1: Terminate executing regions that are to be converted

- IF THE FOLLOWING SYSTEMS ARE IN EXECUTION, TERMINATE THEM:
  - CAS B
  - CMAS B
  - MAS B1
  - MAS B2

Step 2: Convert MVS System B CICSPlex SM TSO users to Version 2.1

- Create the appropriate data set allocations to point to Version 2.1 data sets. This must not affect the allocations for TSO users on MVS System C, which is still at the previous level.

Step 3: Convert CAS B to Version 2.1

- 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 CICSTS21.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS B to point to the Version 2.1 data sets.

  Note: If CAS A and CAS B are not going to share the BBIPARM data set, then the BBIPARM data set for CAS B *must not* contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS B is first started. The new member will be reused when CAS B is subsequently restarted.
- Start CAS B.
- From the CAS B CASDEF view:
  - Issue the CHANGE action command to modify the VTAM ApplName for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INStall action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.
- Link CAS B to CAS A. The procedure for doing this depends upon whether the CASs share the BBIPARM data set.

  If CAS A and CAS B share the BBIPARM data set:
  - From the CAS A CASDEF view, issue the INStall action to install the definition for B.

  If CAS A and CAS B do not share the BBIPARM data set:
  - From the CAS A CASDEF view:
    - Issue the ADD action command to add a definition for CAS B.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.
  - From the CAS B CASDEF view:
    - Issue the ADD action command to add a definition for CAS A.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.

Step 4: Convert CMAS B to Version 2.1

- Ensure that modules EYU9A210 and EYU9X210 in the CICSTS21.CPSM.SEYULINK data set is in the MVS link-list concatenation.
- Update the CMAS B CSD file, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS B.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS B to Version 2.1.
- Update the JCL used to start CMAS B to point to the Version 2.1 data sets.
- Start CMAS B.

Step 5: Convert MAS B1 and MAS B2 to Version 2.1

- Update the MAS B1 and MAS B2 CSD files, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.
- Update the CICS group lists for MAS B1 and MAS B2.
- Update the JCL used to start MAS B1 and for MAS B2 to point to the Version 2.1 data sets and to connect to the correct CASNAME.
- Start MAS B1 and MAS B2.

Objective 3: Convert CMAS C to Version 2.1

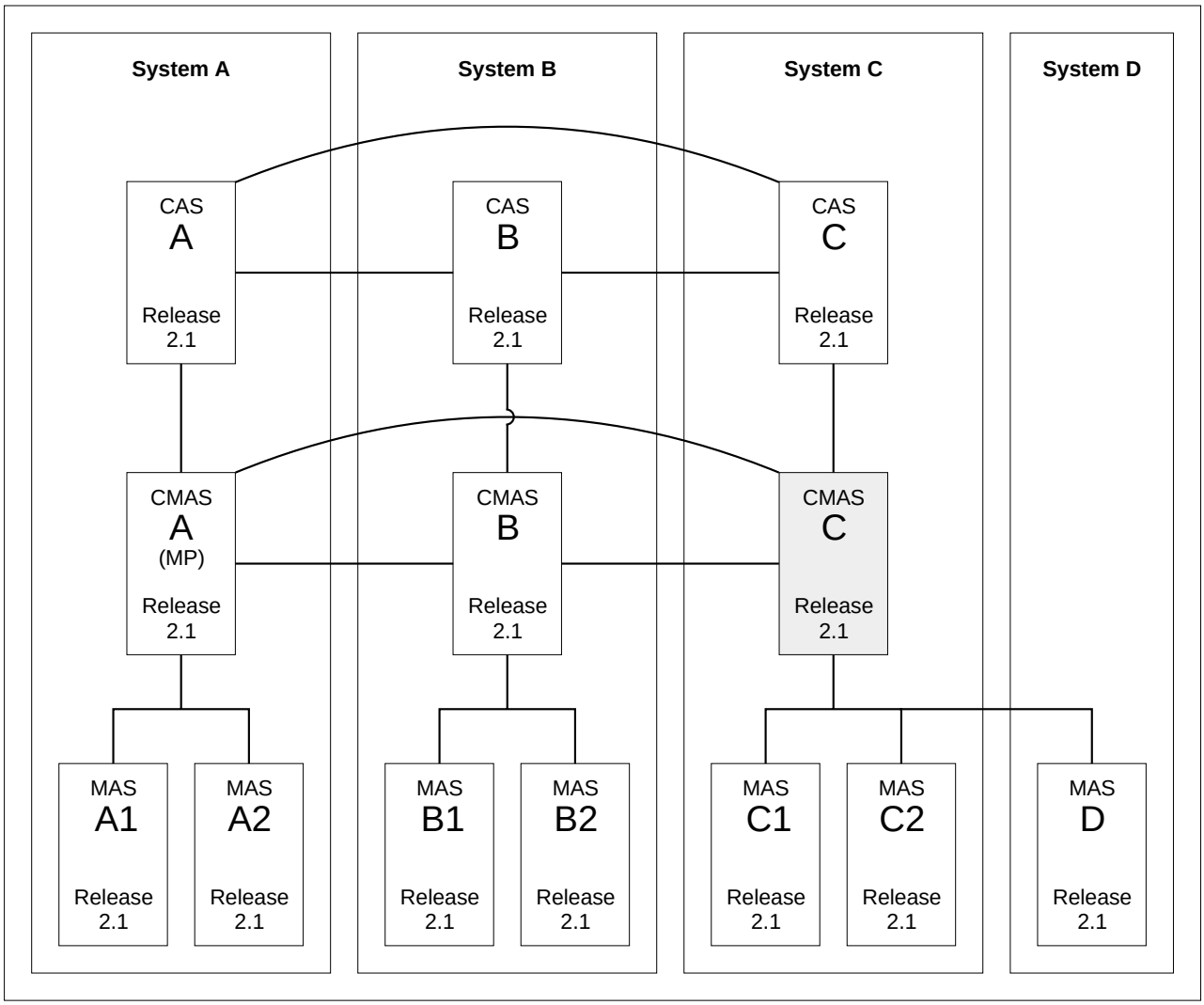

Figure 8. Converting CMAS C to Version 2.1

As shown in Figure 8, when you complete Objective 3 the connections from CAS C to CAS B and from CAS C to CAS A will be reestablished.

The conversion of CMAS C to Version 2.1 requires conversion to Version 2.1 for the following:

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

Step 1: Terminate executing regions that are to be converted

- If the following systems are in execution, terminate them:
  - CAS C
  - CMAS C
  - MAS C1

- MAS C2
- MAS D

Step 2: Convert MVS System C CICSPlex SM TSO users to Version 2.1

- Create the appropriate data set allocations to point to Version 2.1 data sets.

Step 3: Convert CAS C to Version 2.1

- Ensure that CAS A and CAS B are started.
- Change the appropriate IEAAPFxx member of the SYS1.PARMLIB library to authorize the CICSTS21.CPSM.SEYUAUTH library.
- Update the JCL used to start CAS C to point to the Version 2.1 data sets.

  Note: If CAS C is not going to share the BBIPARM data set with CAS A and CAS B, then the BBIPARM data set for CAS C *must not* contain a BBMTYB00 member. Member BBMTYB00 will be created dynamically when CAS C is first started. The new member will be reused when CAS C is subsequently restarted.
- Start CAS C.
- From the CAS C CASDEF view:
  - Issue the CHANGE action command to modify the VTAM ApplName for the current CAS (as indicated by a value of YES in the Cur Sys field).
  - Issue the INStall action command to install the change.
  - Issue the SAVE action command to save the changes in the BBIPARM data set.
- Link CAS C to CAS A and to CAS B. The procedure for doing this depends upon whether the CASs share the BBIPARM data set.

  If the CASs share the BBIPARM data set:
  - From the CAS A CASDEF view, issue the INStall action to install the definition for CAS C.
  - From the CAS B CASDEF view, issue the INStall action to install the definition for CAS C.

  If the CASs do not share the BBIPARM data set:
  - From the CAS A CASDEF view:
    - Issue the ADD action command to add a definition for CAS C.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.
  - From the CAS B CASDEF view:
    - Issue the ADD action command to add a definition for CAS C.
    - Issue the INStall action command to install the new definition.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.
  - From the CAS C CASDEF view:
    - Issue the ADD action command to add a definition for CASs A and B.
    - Issue the INStall action command to install the new definitions.
    - Issue the SAVE action command to save the changes in the BBIPARM data set.

Step 4: Convert CMAS C to Version 2.1

- Ensure that modules EYU9A210 and EYU9X210 in the CICSTS21.CPSM.SEYULINK data set are in the MVS link-list concatenation.
- Update the CMAS C CSD file, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.
- Update the CICS group list for CMAS C.
- Run EYU9XDUT to convert the EYUDREP data set for CMAS C to Version 2.1.
- Update the JCL used to start CMAS C to point to the Version 2.1 data sets and to connect to the correct CASNAME.
- Start CMAS C.

Step 5: Convert MAS C1, MAS C2, and MAS D to Version 2.1

- Update the MAS C1, MAS C2, and MAS D CSD files, using the resource definitions supplied in the CICSTS21.CPSM.SEYULOAD data set.
- Update the CICS group lists for MAS C1, MAS C2, and MAS D.
- Update the JCL used to start MAS C1, for MAS C2, and for MAS D to point to the Version 2.1 data sets.
- Start MASs C1, C2, and D.

Management of unsupported CICS regions

Where it is not currently possible to migrate a CICS region to a level that is supported by IBM Service (for example, your CICSplex may contain many MASs running unsupported releases of CICS and the resources required to migrate them all to a supported release may not yet be available to you), you may still manage it indirectly but you **must** use the end user interface (EUI), the application programming interface (API), business application services (BAS), and the real-time analysis (RTA) services provided in CICS TS Version 2.1 CICSPlex SM to do so.

Failure to use the interfaces provided at this release to manage indirectly those MASs running unsupported releases of CICS may give rise to such unpredictable and disastrous results as the inability to install resources, incorrect data being supplied to monitor and operations views, and existing data being unavailable.

Your enterprise may also have specific business—related reasons to postpone the migration of all systems to this release until a later point. For example, your CICSplex, situated on one continent but managed by you from another continent, may comprise many Release 3 CMASs managing many MASs running supported and unsupported releases of CICS. The resources required to migrate all Release 3 CMASs to this release may not yet be available to you at this site. You must, however, manage this CICSplex using the interfaces available at this release — you must, therefore, migrate the maintenance point CMAS and the CAS to which it connects to Version 2.1 (that is, the latest level).

Migration steps for the management of unsupported CICS releases

Figure 9 on page 76 is an example of such an environment where unsupported releases are being managed in the CICSplex. The example illustrated shows a Release 3 CMAS but this could equally be a Release 2 CMAS and the connected MAS might be running CICS Transaction Server for OS/390 Version 1 Release 1.

This example assumes Release 4 to be the latest release, however, you can apply the same scenario to Version 2.1, if that is your latest level.

Table 23 shows which CICS systems may be directly connected to which releases of CICSPlex SM.

Table 23. Directly-connectable CICS systems by CICSPlex SM release

CICS system	**CICSPlex SM component of CICS TS 2.1**	**CICSPlex SM component of CICS TS 1.3**	**CICSPlex SM 1.3**	**CICSPlex SM 1.2**
CICS TS 2.1	Yes	No	No	No
CICS TS 1.3	Yes	Yes	No	No
CICS TS 1.2	Yes	Yes	Yes	No
CICS TS 1.1	Yes	Yes	Yes	Yes
CICS for MVS/ESA 4.1	Yes	Yes	Yes	Yes
CICS for MVS/ESA 3.3	No	No	Yes	Yes
CICS for MVS 2.1.2	No	No	Yes	Yes
CICS for OS/2™ 3.1	Yes	Yes	No	No
CICS for OS/2 3.0	Yes	Yes	Yes	Yes
CICS/OS2 2.0.1	No	No	Yes	Yes

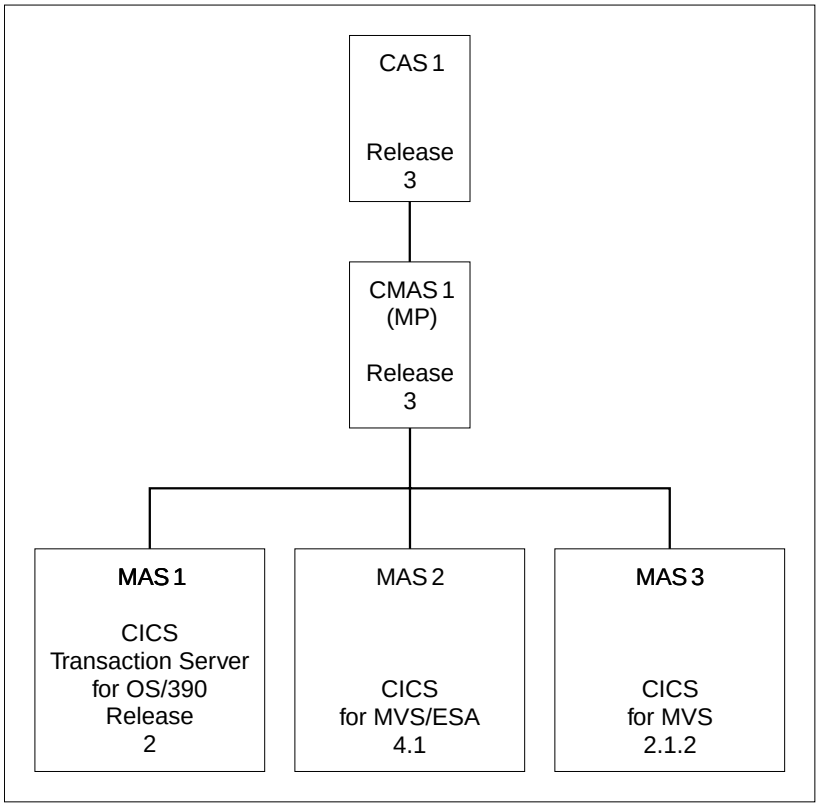

Figure 9. Management of unsupported MASs, prior to migration

In this situation, you must perform the following steps to convert your Release 3 or Release 2 CMAS to a CMAS that permits the indirect management of its connected unsupported (by IBM Service) MASs (MAS 3 in this example) by a Version 2.1 CMAS:

1. Recreate every CMAS at Release 3 or Release 2 which has unsupported CICS regions connected to it.
   - Create a new CMAS at the Release 3 or Release 2 level. See Figure 10; in this example, the new CMAS created at the earlier release is CMAS 2.
   - See the chapter “Setting up a CICSPlex SM Address Space (CMAS)” in the Setup manual in the library appropriate to the release of the CMAS.
2. Connect the CMAS to the CICSplex. See the chapter “Configuring a CMAS” in the Setup manual in the library appropriate to the release of the CMAS for information on how to do this.

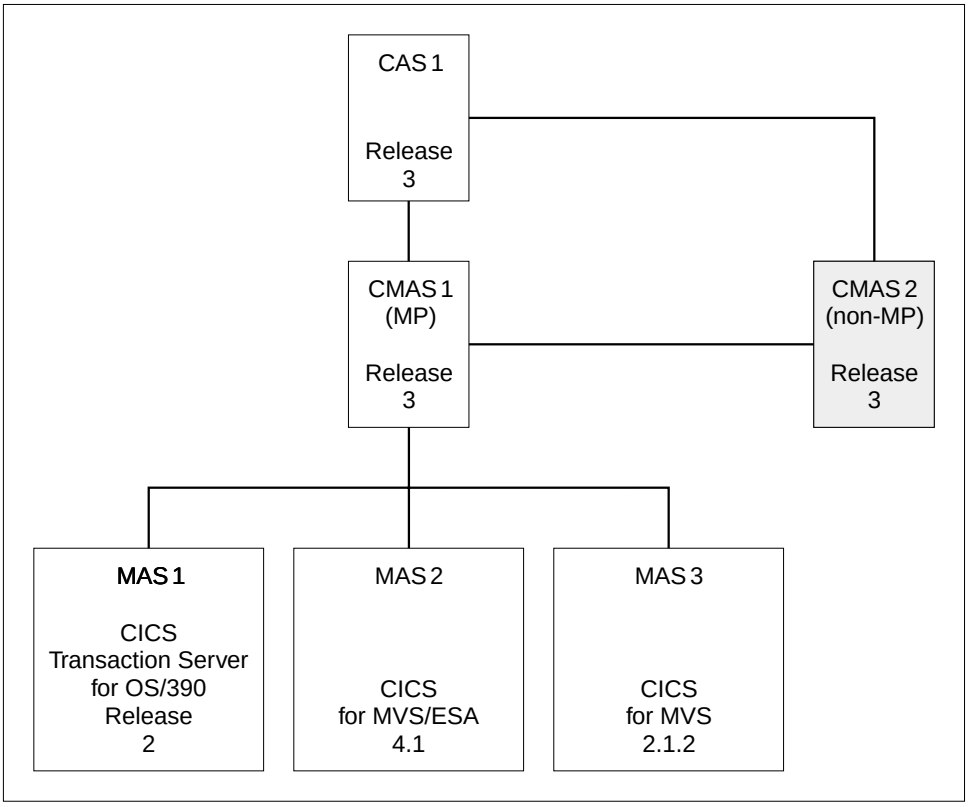

Figure 10. Recreate the CMAS at the previous release and connect it to the CICSplex

3. Shut down and restart the MASs running those unsupported releases of CICS (MAS 3 in this example) that you need to manage from Version 2.1. Ensure that they connect to this new CMAS (CMAS 2 in this example) by specifying its SYSID in the CMASSYSID(name) CICSPlex SM system parameter in the EYUPARM definitions for each connecting MAS. See Figure 11 on page 78.

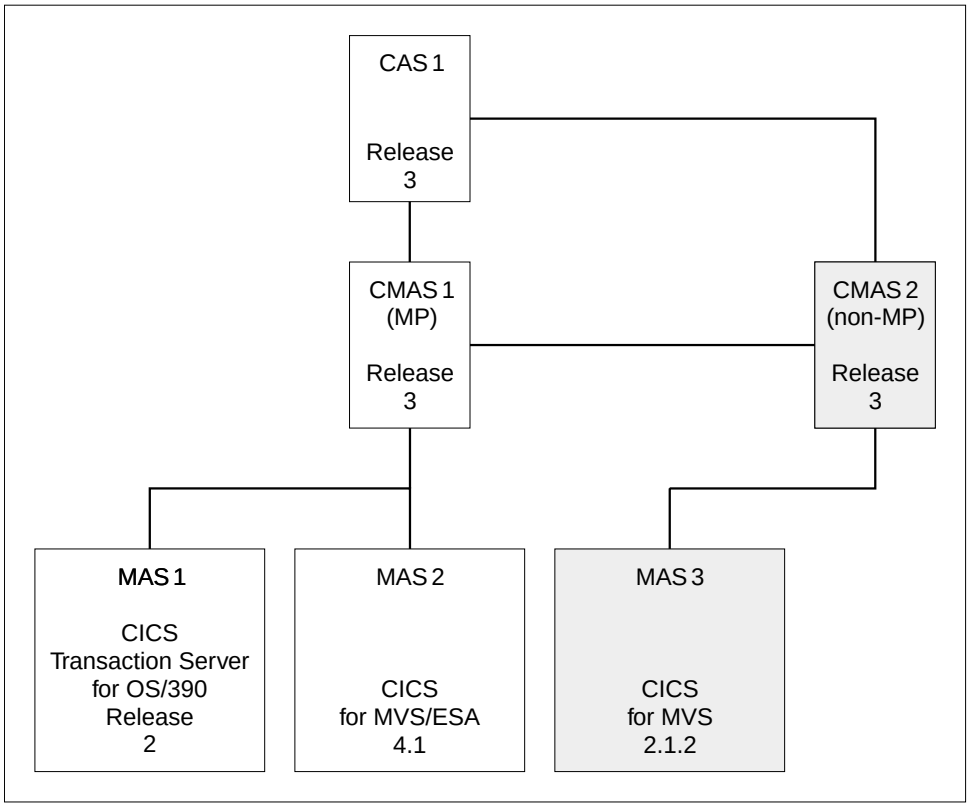

Figure 11. Connect the unsupported MASs to this new CMAS

4. If you need to maintain the new CMAS's communications links (either CMAS–to–CMAS links, or CMAS–to–RMAS links), you must also recreate the earlier release CAS and connect this new CMAS to it. Create this CAS before you perform the phased migration. Ensure that this CAS (in this example, it is CAS 2) has its own BBIPARM data set. See Figure 12 on page 79.

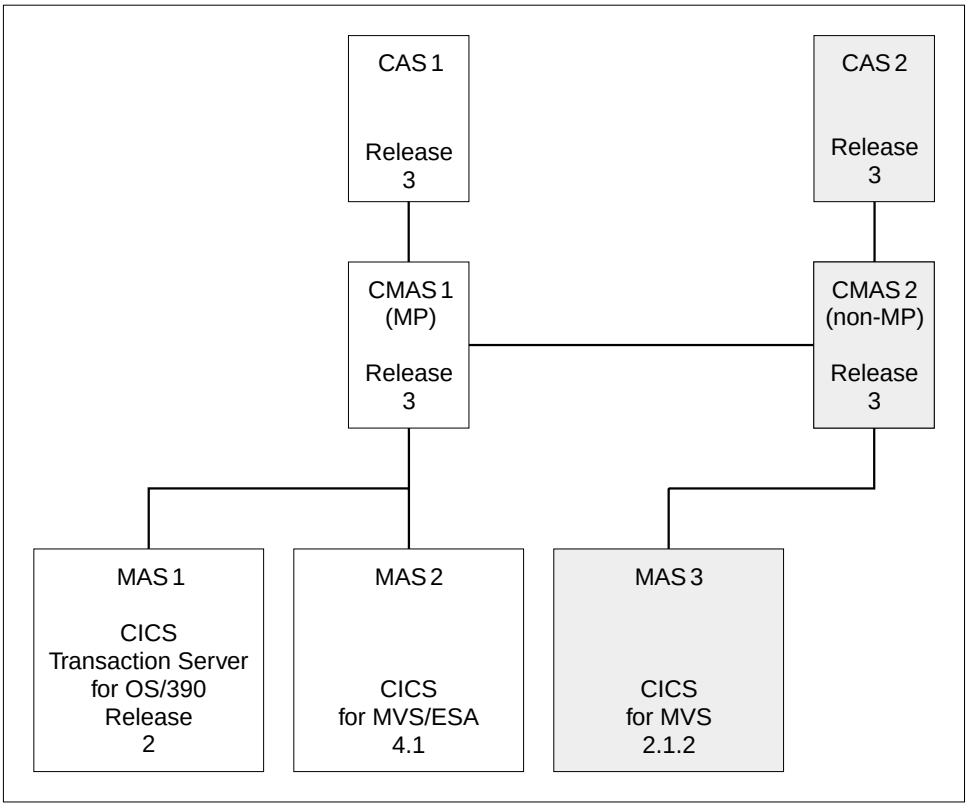

Figure 12. Recreate the CAS at the previous release

All management of MASs **must** be performed via the CAS at the latest level. The new CAS (CAS 2 in the example) must **only** be used to perform maintenance operations on the new CMAS (CMAS 2 in the example). Do **not** use this CAS to manage any MASs, including the unsupported MASs.

5. Perform a phased migration of the rest of the CICSplex. See “A phased migration scenario” on page 65 for a description of this process. In this example, the systems to be migrated in the phased migration process are CAS 1, CMAS 1, MAS 1, and MAS 2.

   Do **not** migrate the new CMAS (CMAS 2 in the example) and CAS (CAS 2 in the example) as part of this process.

Having completed these steps, you **must** use the latest level EUI, API, RTA and BAS services to manage the unsupported CICS regions connected to this CMAS. Figure 13 on page 80 shows the scenario after these migration steps have been successfully implemented.

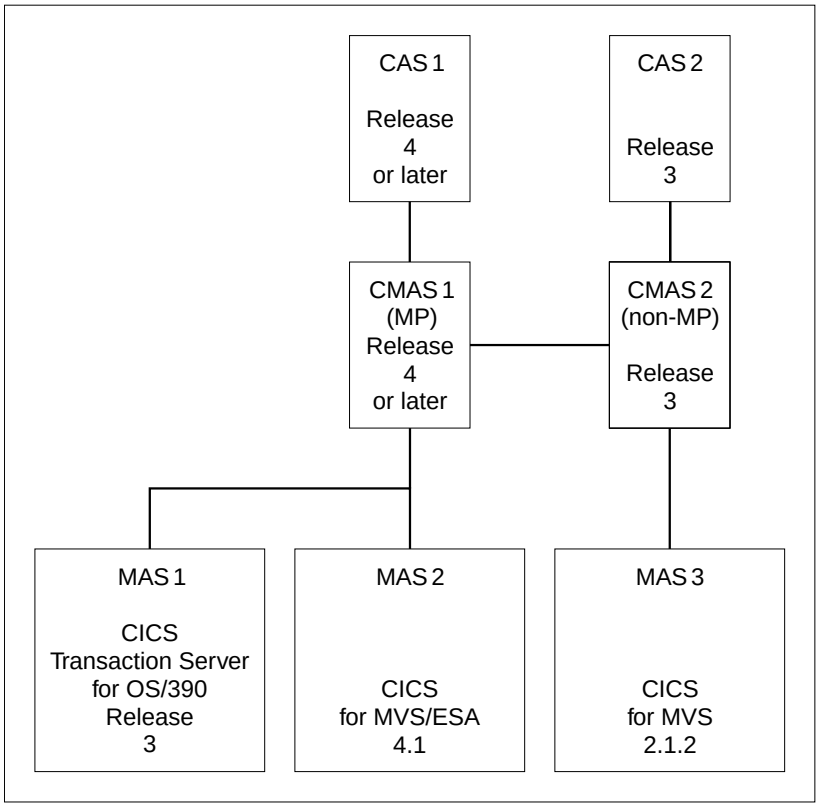

Figure 13. Indirect management of unsupported releases

Migrating application programs in this environment

You can continue to run your application programs without amendment in this environment where you are indirectly managing from Version 2.1 CICSPlex SM those MASs that are directly connected to a Release 4, Release 3 or Release 2 CMAS. However, should you wish to exploit the new features and function available at this release, you should consider reviewing the code in your application programs.

To access the most up-to-date resource tables, you should recompile your programs with CONNECT VERSION(0*nnn*) coded, where *nnn* is the latest version of CICSPlex SM. To avoid, however, the unpredictable problems that may occur in this environment, you should ensure that the application environment used by your programs is at the highest available level.

Providing a Version 2.1 application environment: To ensure that your existing application programs can exploit the new function available at this release, continue to run successfully, and avoid the unpredictable problems that may occur in this environment, take the following steps:

- Batch application programs
  - Use the runtime module, EYU9AB00, supplied in CICSTS21.CPSM.SEYUAUTH
  - Recompile and re-linkedit, using the stub routine module, EYU9ABSI supplied in CICSTS21.CPSM.SEYUAUTH.
- CICS application programs

- Connect the MAS on which this application runs to a Version 2.1 CMAS so that it can use its runtime module.
- Recompile and re-linkedit the program using the stub module, EYU9AMSI, supplied in CICSTS21.CPSM.SEYULOAD

Part 4. CICS messages and codes

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

Chapter 19. Messages and codes

This chapter covers the following messages and codes topics:

- It lists CICS messages and abend codes that are added, changed, or deleted, under the following topics.
  - "New messages"
  - "Changed messages" on page 104
  - "Deleted messages" on page 104
  - "New abend codes" on page 104
  - "Deleted abend codes" on page 105
- It explains a change in the date format in messages ("Date format changed to 4-digit year" on page 105).

See the *CICS Messages and Codes* book for a full description of CICS messages.

New messages

In the following new messages, *condmsg* indicates that, where possible, a conditional message from the linked system is appended to this message.

Note: Many of these new messages are issued by CICS components with the following component codes:

AD	Application deployment
EJ	The Enterprise Java domain
II	The IIOP domain
OT	Object transaction services domain
RZ	The request streams domain
SJ	The CICS JVM domain

DFHAD0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHAD0005 An unrecoverable error has occurred in the EJB component of the CICS Development Deployment Tool for EJB Technology.

DFHAD0006 An unrecoverable error has occurred in the web application component of the CICS Development Deployment Tool for EJB Technology.

DFHAD0200 User (*user_ID***) is not defined in deployment configuration file.**

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.

DFHAD0220 Permission to connect with server (*server_name***) denied.**

DFHAD0221 **Connection to server (***server_name***) using port (***FTP_port_number***) was refused.**

DFHAD0222 **No account for user** *user_name* **exists on server** *server_name***.**

DFHAD0223 **No route to host (***server_name***).**

DFHAD0224 **Timed out trying to connect to server (***server_name***).**

DFHAD0225 **Unable to connect user** *user_name* **with server** *server_name***. Further details from server: (***failure_details***).**

DFHAD0226 **Unable to delete file (***file_name***) in directory** *directory_path* **on server (***server_name***).**

DFHAD0227 **Unable to save file (***file_name***) in directory** *directory_path* **on server (***server_name***).**

DFHAD0228 **Failed to retrieve current directory path on server (***server_name***).**

DFHAD0229 **Unable to change to directory (***target_directory_name***) from path** *current_directory_path* **on server (***server_name***).**

DFHAD0230 **Unable to create directory (***target_directory_name***) from path** *current_directory_path* **on server (***server_name***).**

DFHAD0232 **Unable to change to deployment base directory (***target_directory_name***) on server (***server_name***).**

DFHAD0233 **Unable to execute FTP SITE CHMOD command on file (***file_name***) in path (***current_file_path***) on server (***server_name***).**

DFHAD0234 **Password expired for user (***user_ID***) on server (***server_name***).**

DFHAD0235 **Timed out waiting for a response.**

DFHAD0236 **File upload error.**

DFHAD0240 **File (***filename***) has zero length.**

DFHAD0241 **File (***filename***) is not a JAR file.**

DFHAD0242 **Path to JAR file not entered.**

DFHAD0243 **Cannot create temp directory at (***directory***).**

DFHAD0244 **Cannot write to temp directory (***directory***).**

DFHAD0247 **Invalid characters in JAR file name (***JAR_filename***).**

DFHAD0248 **The JAR file is already being used by user** *user_ID* **in CorbaServer** *CorbaServer_name***.**

DFHAD0249 **The JAR file size exceeds** *maximum_JAR_size***KB.**

DFHAD0250 **Invalid characters in JAR path (***JAR_path***).**

DFHAD0251 **Uploaded JAR path (***JAR_path***) exceeds 240 characters.**

DFHAD0260 **The CICS Development Deployment Tool for EJB Technology is currently unable to service requests.**

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.**

DFHAD0301 **An unrecoverable error occurred when running CICS system program** *program_name*. **The last API command executed was** *CICS_API_command*, **which returned the values of RESP (***resp***), RESP2 (***resp2***).**

DFHAD0302 **An unrecoverable error occurred when running CICS system program (***program_name***).**

DFHAD0303 **The EJB component of the CICS Development Deployment Tool for EJB Technology cannot be located.**

DFHAD0305 **The EJB component of the CICS Development Deployment Tool for EJB Technology cannot be created.**

DFHAD0310 **The given JAR file cannot be undeployed because it has not been deployed.**

DFHAD0311 **Whilst attempting to publish the JAR file to the name space, a time out occurred. The name of the DJAR representing the JAR file is** *DJAR_name*.

DFHAD0312 **The JAR cannot be installed in the CorbaServer you selected as the CICS CORBASERVER resource** *CORBASERVER_name* **does not exist.**

DFHAD0313 **An attempt to publish the JAR file to the name space failed. DJAR** *DJAR_name*, **which is representing the JAR file is in an unresol ved state.**

DFHAD0314 **An existing CICS DJAR definition for the JAR could not be discarded. The name of the DJAR is** *DJAR_name* **and the values returned from the CICS DISCARD DJAR operation were RESP (***resp***) & RESP2 (***resp2***).**

DFHAD0315 **A CICS DJAR definition could not be created for the JAR. The name of the DJAR is** *DJAR_name* **and the values returned from the CICS CREATE DJAR operation were RESP (***resp***) & RESP2 (***resp2***).**

DFHAD0316 **A DJAR definition could not be successfully created for the JAR. This may be because there is insufficient disk space.**

DFHAD0317 **REQUESTMODEL definitions could not be generated for bean** *bean_name* **because of missing Java resources.**

DFHAD0318 **Bean** *bean_name* **does not have a method on the remote interface** *remote_interface* **that matches the method** *'method'_element* **as described in the deployment descriptor.**

DFHAD0320 **There is no XML message file matching the locale of the Websphere Application Server.**

DFHAD0321 **Errors were encountered during the parsing of the deployment configuration file.**

DFHAD0322 **Unexpected error occurred while parsing the deployment configuration file.**

DFHAD0323 **The XML parser could not find or read the specified deployment configuration file.**

DFHAD0324 **Invalid values have been specified in the deployment configuration file.**

DFHAD0325 **XML parsing error (***error_message***) at line number (***linenumber***).**

DFHAD0326 **XML parsing error (***error_message***).**

DFHAD0327 **Invalid 'CorbaServer' (***'CorbaServer'_name***) specified for 'User' with 'Userid' (***'Userid'_value***).**

DFHAD0328 **Element** *Element_name* **contains an invalid trace value,** *trace_value***.**

DFHAD0329 **A 'CorbaServer' with a 'CICSName' tag of** *'CorbaServer'_name* **has been found, which is of an invalid size.**

DFHAD0330 **A non-numeric value (***value***) was specified for attribute** *attribute_name* **at element** *element_name***, where a numeric value was expected.**

DFHAD0331 **An invalid value of** *value* **has been specified for attribute** *attribute_name***.**

DFHAD0332 **Expected values were missing from the deployment configuration file and/or its DTD file.**

DFHAD0333 **The expected element name (***element_name***) is missing.**

DFHAD0334 **The attribute** *attribute_name* **is not present for element** *element_name***.**

DFHAD0335 **A 'Userid' (***'Userid'_value***) specified in the deployment configuration file is not unique.**

DFHAD0336 **A 'LogicalName' (***'LogicalName'_value***) specified in 'Bindings' section of deployment configuration file is not unique.**

DFHAD0337 **Cannot open trace handler because 'TraceLogPath' specifies an existing directory: (***'TraceLogPath'_value***).**

DFHAD0338 **Cannot open trace handler because 'TraceLogPath' specifies an invalid file path: (***'TraceLogPath'_value***).**

DFHAD0339 **'LocalJarBase' specifies an invalid directory path: (***'LocalJarBase'_value***).**

DFHAD0340 **Empty values were supplied for attributes in the deployment configuration file.**

DFHAD0341 **The attribute** *attribute_name* **for element** *element_name* **has been supplied with an empty value.**

DFHAD0342 **A 'CorbaServer' 'FriendlyName' (***'FriendlyName'_value***) specified in 'CorbaServers' section of deployment configuration file is not unique.**

DFHAD0400 **Deployment information found in the JAR is invalid or incomplete.**

DFHAD0401 **An attempt was made to open a JAR that could not be found.**

DFHAD0402 **An unrecoverable error has occurred whilst working with the JAR.**

DFHAD0403 **The JAR you have selected is invalid.**

DFHAD0404 **The XMI version of the deployment descriptor found in the JAR is invalid or corrupt.**

DFHAD0405 **The JAR has no session beans defined in the deployment descriptor.**

DFHAD0406 **XMI runtime deployment data found in the JAR is either invalid or corrupt.**

DFHAD0407 **XMI CICS resource definition data found in the JAR is either invalid or corrupt.**

DFHAD0408 **The JAR contains a bean with a name longer than 240 characters. The name of the bean is** *bean_name***.**

DFHAD0409 **One or more beans defined by a 'session' element in the deployment descriptor contained a 'resource-ref' or 'ejb-ref' element that could not be resolved to a JNDI look up name. The following bean and referen ce pairs could not be resolved:**
bean_and_reference_pairs

DFHAD0410 **The JAR contains a bean that causes the CICS Development Deployment Tool to generate a REQUESTMODEL with an OPERATION field of greater than 255 characters. The name of the bean is** *bean_name* **and the method causing the problem is** *method***.**

DFHAD0500 CICS Development Deployment Tool for EJB Technology, version {0}

DFHAD0501 CICS Development Deployment Tool for EJB Technology is starting.

DFHAD0502 CICS Development Deployment Tool for EJB Technology has started.

DFHAD0503 CICS Development Deployment Tool for EJB Technology is shutting down.

DFHAD0504 CICS Development Deployment Tool for EJB Technology has shut down.

DFHAD2000 I *date time applid* **A** *resource_type* **named** *resource_name* **was created by** *user_id***.**

DFHAD2001 I *date time applid* **A** *resource_type* **named** *resource_name* **was discarded by** *user_id***.**

DFHAD2002 I *date time applid* **A** *resource_type* **named** *resource_name* **was updated by** *user_id***.**

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.**

DFHAM4904 E *applid* **Opening TCPIPSERVICE** *tcpipservice* **has failed because port** *portno* **is already in use.**

DFHAM4906 E *applid* **Opening TCPIPSERVICE** *tcpipservice* **has failed because port** *portno* **is not authorized.**

DFHAM4911 W *applid* **Transaction** *tranid* **installed but at least one of ALIAS, TASKREQ or XTRANID failed to be replaced because it exists as a primary transaction.**

DFHAM4915 E *applid* **Install of** *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.**

DFHAP0360 *date time applid* **An attempt to establish security for userid** *userid* **has failed. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHAP1219 *date time applid edcmsg*

DFHAP1220 *date time applid* **CICS HotPooling could not load or execute the program called** *dllname***.**

DFHAP1221 *date time applid methodname* **could not be found in DLL or class** *dllname***.**

DFHAP1222 *date time applid* **The method** *methodname* **in the DLL or class** *dllname* **was executed. However, the method returned an error response of** *jret***.**

DFHAP1223 *date time applid* **HotPooling can not call the main method in class** *classname***.**

DFHAP1224 I *date time applid* **CEEPIPI not available, HotPooling cannot be used.**

DFHAP1225 *date time applid* **CEEPIPI function** *pipifn* **failed with return code** *r15rc***.**

DFHAP1300 *date time applid* **The JVM at address** *X'jvm_anchor'* **on thread** *X'thread_anchor'* **has encountered an error (reason code:** *X'reason_code'***) and has requested further diagnostic data from CICS. More information may be found in the stderr file:** *stderr***.**

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.

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.**

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***.**

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*.

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.**

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***.**

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.**

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.**

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*.

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*.

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*.

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*.

DFHIE0001 *applid* **An abend (code** *aaa/bbbb*) **has occurred at offset** *X'offset'* **in module** *modname*.

DFHIE0002 *applid* **A severe error (code** *X'code'*) **has occurred in module** *modname*.

DFHIE0003 *applid* **Insufficient storage to satisfy Getmain (code** *X'code'*) **in module** *modname*.

DFHIE0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname***.**

DFHIE0360 *date time applid* **An attempt to establish security for userid** *userid* **has failed. Transaction** *tranid* **cannot be started without a terminal. SAF codes are (***X'safresp'***,***X'safreas'***). ESM codes are (***X'esmresp'***,***X'esmreas'***).**

DFHIE0999 *date time applid* **An attempt to start transaction CIEP by something other than an attach request from sockets domain has been made. This is not allowed.**

DFHII0001 *applid* **An abend (code** *aaa/bbbb***) has occurred at offset** *X'offset'* **in module** *modname***.**

DFHII0002 *applid* **A severe error (code** *X'code'***) has occurred in module** *modname***.**

DFHII0004 *applid* **A possible loop has been detected at offset** *X'offset'* **in module** *modname***.**

DFHII0100 *date time applid client_ip_addr tcpipservice* **The request receiver invoked the security URM** *urmname* **which denied permission for the request.**

DFHII0101 *date time applid client_ip_addr tcpipservice* **The request receiver received a request with an invalid object key.**

DFHII0102 *date time applid client_ip_addr tcpipservice* **The request receiver is unable to send a request to the request processor.**

DFHII0103 *date time applid client_ip_addr tcpipservice* **The request receiver is unable to receive a reply from the request processor.**

DFHII0104 *date time applid client_ip_addr tcpipservice* **The request receiver received a request on a connection whose TCPIPSERVICE specified AUTHENTICATE(CERTIFICATE) but no CERTIFICATE_USERID is available.**

DFHII0105 *date time applid client_ip_addr tcpipservice* **The request receiver received a request but the userid** *userid* **supplied by the URM** *urmname* **is not authorised.**

DFHII0106 *date time applid client_ip_addr tcpipservice* **The request receiver find request stream failed.**

DFHII0107 *date time applid client_ip_addr tcpipservice* **The request receiver is unable to receive a reply from the request processor. Request ID:** *req_id*

DFHII0108 *date time applid client_ip_addr tcpipservice* **The request receiver was notified that a reply could not be delivered for requestId** *req_id***. Reason:** *{Request Processor ABEND. | Request Stream closed. | Timeout.}*

DFHII0109 *date time applid client_ip_addr tcpipservice* **The request receiver received a request with an OTS PropagationContext with a null coordinator.**

DFHII0200 *date time applid client_ip_addr tcpipservice* **The request receiver SOCB notify gate is unable to attach transaction** *transaction***.**

DFHII0201 *date time applid client_ip_addr tcpipservice* **The request receiver received an invalid GIOP header.**

DFHII0202 *date time applid client_ip_addr tcpipservice* **The request receiver received a GIOP header for an unsupported version.**

DFHII0203 *date time applid client_ip_addr tcpipservice* **The request receiver was expecting to receive a fragment but did not.**

DFHII0204 *date time applid client_ip_addr 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.**

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.**

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.**

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.**

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.**

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***.**

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**

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*.

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*.

DFHOT0104 *applid* **A system exception has been received in the response to a GIOP request. The server that sent the response can be id entified by the following IOR -** *IOR*.

DFHPD0133 **Specified task not found.**

DFHPD0134 **Link to module CEEERRIP has failed.**

DFHPD0135 **Program check occurred with CEEERRIP in control.**

DFHRD0121 I *date time applid terminal userid tranid* **INSTALL CORBASERVER(***corbaserver-name***)**

DFHRD0122 I *date time applid terminal userid tranid* **INSTALL DJAR(***djar-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'*.

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.**

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***.**

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***'.**

DFHTR5001 THE LOAD FOR A FEATURE PROGRAM HAS FAILED.

DFHTR5002 FEATURE FORMATTING PROGRAM HAS FAILED.

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*

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**

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***.**

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***.**

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***.**

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.

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

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.**

Changed messages

The following is a list of the changed messages, where either the actual message text, or any of the supporting explanatory text, may have changed:

DFHAM4889
DFHAM4901
DFHAM4904
DFHAM4906
DFHAM4907
DFHAP0705
DFHCF0203
DFHCF0307
DFHCZ0211
DFHCZ0213
DFHCZ0221
DFHCZ0223
DFHCZ0225
DFHCZ0227
DFHCZ0233
DFHNC0203
DFHNC0307
DFHPA1907
DFHPA1908
DFHPA1909
DFHRM0129
DFHRP1907
DFHSN1214
DFHSO0111
DFHSO0117
DFHTC2522
DFHTC2534
DFHWB0725
DFHWB0730
DFHWB0732
DFHXQ0203
DFHXQ0307
DFHZC3444
DFHZC4900
DFHZC4932
DFHZC4933
DFHZC4934
DFHZC4935
DFHZC4936
DFHZC4946
DFHZC4947

Deleted messages

The following is a list of the deleted messages:

DFHAM4904
DFHAM4906
DFHAP1400
DFHAP1401
DFHAP1402
DFHAP1403
DFHAP1404
DFHAP1405
DFHAP1406
DFHAP1407
DFHAP1408
DFHAP1409
DFHCA5171
DFHCA5172
DFHCA5173
DFHCA5267
DFHCA5268
DFHCA5269
DFHFC0105
DFHTD1212
DFH5171
DFH5172
DFH5173
DFH5267
DFH5268
DFH5269

New abend codes

The following is a list of the new abend codes added to CICS:

AALV
ACRN
ADCV
AIEA
AIIA
AIIT
AII1
AII2
AII3
AII4
AII5
AJHA
AJHB
AJHC
AJHD
AJHE
AJHF
AJH0
AJH1
AJH2
AJH3
AJH4
AJH5
AJH8
AJH9
AJMC
AJ10
AJ11
AJ12
AOTA
AOTB
ASJC
ASJD
ASJE
ASJF
ASJG
ASJG
ASJH
ASJI
ASOB
ASOC
ASOL
ASPD
ASQE
ATCM
ATNB
ATNC
AWBO
AWC7
AWC8

Deleted abend codes

The following is a list of the abend codes deleted from CICS:

AAMG	AIOH
ADPM	AIOI
AFCD	AIOJ
AIOA	AIOK
AIOB	AIOV
AIOC	AIO0
AIOD	AIO1
AIOE	AIO2
AIOF	AIO3
AIOG	AIO4

Date format changed to 4-digit year

In those CICS messages that are issued with a date/time stamp, the year format is changed to display a 4–digit year, as in the following example:

```
DFHLG0302 12/22/2000 08:39:34 CICSHT61 Journal name DFHLOG has been installed.
 Journal type: MVS
 CICSHT##.CICSHT61.DFHLOG.
```

Part 5. Prerequisite program products

This part of the book contains information about prerequisite software needed to run CICS TS Release 3.

Chapter 20. Prerequisite program products

This chapter lists the program products that you need with CICS TS.

Minimum prerequisite software

Table 24. Minimum releases of software needed to support CICS TS Version 2 Release 1

Product	Minimum Version and Release level.
OS/390	Version 2 Release 8 **Note:** OS/390 includes , as base elements, many of the products required by CICS TS, such as MVS™, DFSMS™, VTAM, TCP/IP, and Language Environment®, therefore these are not listed separately. CICS requires the Language Environment library SCEERUN, which must be included in either the CICS STEPLIB concatenation or the LNKLIST.
ACF/TCAM (DCB)	Version 2 Release 4 TCAM is required only if your terminal network includes TCAM devices.
CICSVR	Version 2 Release 3 if you use IBM CICS VSAM Recovery (CICSVR) as your VSAM forward recovery utility.
IBM Developer Kit for OS/390, Java 2 Technology Edition,	Version 1.3 if you use Java bytecode application programs and enterprise beans. This product (5655–D35), together with a special enhancement, provides the software development environment and Java compiler, and the Java run-time environment, which includes the persistent, reusable JVM.
IBM DATABASE 2™	Version 5 Release 1 if you have CICS-DB2 applications.
IMS/ESA® DM	Version 5 Release 1 DBCTL if you have CICS-DL/I applications.
RACF Security Server	RACF Security Server, available with OS/390 Release 8, provides for CICS TS security needs.

Compilers and assembler

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

- High Level Assembler/MVS & VM & VSE Version 1.1 (5696-234)
- IBM VisualAge PL/I for OS/390 Version 2 Release 2 (5655-B22)
- IBM PL/I for MVS & VM (5688-235)
- OS PL/I Optimizing Compiler Version 2 Release 1 (5668-910)
- OS PL/I Optimizing Compiler Version 1 Release 5.1 (5734-PL1), or later
- IBM COBOL for OS/390 & VM Version 2 Release 2 (5648-A25)
- IBM COBOL for MVS & VM (5688-197)
- VS COBOL II (5668-958 and 5688-023)
- IBM C/C++ for MVS/ESA™ (5655-121)
- C/370 (5688-040 and 5688-187).

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

- SAA AD/Cycle COBOL/370™®™ (5688-197)

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

If you specify COBOL2 as the translator option with one of the following COBOL compilers:

- IBM COBOL for OS/390 & VM
- IBM COBOL for MVS & VM
- SAA AD/Cycle COBOL/370

the CICS translator generates a COBOL RES option which causes a warning message with return code 4 from the compiler, as follows:

```
IGYOS4046-I   The "RESIDENT" option specification is no longer required
              The resident runtime library support is always used.
```

To avoid this warning, specify the translator option COBOL3 when compiling with the above compilers. COBOL3 also ensures that CICS translator-generated output is in mixed case.

Limited support for old compilers and assembler

Compilers and assembler mentioned earlier in this chapter are fully supported. Some of them are out-of-service.

This section deals with other old COBOL compilers and the H assembler. They are all out-of-service, but CICS continues to provide a level of support for them. The varying degrees of support, and the compilers and assembler to which that support applies, are described below.

Execution-time support for H assembler

CICS retains translation and execution-time support for application programs assembled by the MVS Assembler H Version 2 (5668-962).

Continued support for old COBOL applications

CICS continues to provide full execution-time support for application programs compiled by the following out-of-service COBOL compilers:

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

The CICS translator also continues to provide the same support for OS/VS COBOL as earlier versions of CICS/ESA® and CICS/MVS®, and there are no plans at present to remove this support. Nevertheless, you are recommended to migrate your old COBOL application programs to a current release of a COBOL compiler. If you are unable to migrate all your old COBOL application programs to a current-release compiler, consider the following:

- There are several alternatives for maintaining old COBOL application programs, which all extend support for OS/VS COBOL. Support is provided for:
  - OS/VS COBOL application programs link-edited with VS COBOL II and running under VS COBOL II Version 1 Release 4
  - OS/VS COBOL applications link-edited with VS COBOL II and running under Language Environment for MVS & VM or Language Environment OS/390
  - OS/VS COBOL applications link-edited with Language Environment for MVS & VM and running under Language Environment for MVS & VM
  - OS/VS COBOL applications link-edited with Language Environment OS/390 and running under Language Environment of OS/390.

These solutions are referred to as **run-time migration**.

You can obtain service support for OS/VS COBOL and VS COBOL II programs indefinitely by using the Language Environment run-time library to support run-time migration as described above.

Part 6. Appendixes

Bibliography

CICS Transaction Server for z/OS

CICS Transaction Server for z/OS Release Guide	GC34-5701
CICS Transaction Server for z/OS Migration Guide	GC34-5699
CICS Transaction Server for z/OS Installation Guide	GC34-5697
CICS Transaction Server for z/OS Program Directory	GI10-2525
CICS Transaction Server for z/OS Licensed Program Specification	GC34-5698

The above titles are the only unlicensed books available in hardcopy for CICS Transaction Server for z/OS Version 2 Release 1. All the remaining CICS and CICSPlex SM books are supplied in softcopy only in the CICS Information Center, which is distributed on CD-ROM.

CICS books for CICS Transaction Server for z/OS

General	
CICS User's Handbook	SX33-6116
CICS Transaction Server for z/OS Glossary	GC34-5696
Administration	
CICS System Definition Guide	SC34-5725
CICS Customization Guide	SC34-5706
CICS Resource Definition Guide	SC34-5722
CICS Operations and Utilities Guide	SC34-5717
CICS Supplied Transactions	SC34-5724
Programming	
CICS Application Programming Guide	SC34-5702
CICS Application Programming Reference	SC34-5703
CICS System Programming Reference	SC34-5726
CICS Front End Programming Interface User's Guide	SC34-5710
CICS C++ OO Class Libraries	SC34-5705
CICS Distributed Transaction Programming Guide	SC34-5708
CICS Business Transaction Services	SC34-5704
Java Applications in CICS	SC34-5881
Diagnosis	
CICS Problem Determination Guide	GC33-5719
CICS Messages and Codes	GC34-5716
CICS Diagnosis Reference	LY33-6097
CICS Data Areas	LY33-6096
CICS Trace Entries	SC34-5727
CICS Supplementary Data Areas	LY33-6098
Communication	
CICS Intercommunication Guide	SC34-5712
CICS Family: Interproduct Communication	SC34-0824
CICS Family: Communicating from CICS on System/390	SC34-1697
CICS External Interfaces Guide	SC34-5709
CICS Internet Guide	SC34-5713
Special topics	
CICS Recovery and Restart Guide	SC34-5721
CICS Performance Guide	SC34-5718
CICS IMS Database Control Guide	SC34-5711
CICS RACF Security Guide	SC34-5720

CICS Shared Data Tables Guide	SC34-5723
CICS Transaction Affinities Utility Guide	SC34-5728
CICS DB2 Guide	SC34-5707

CICSPlex SM books for CICS Transaction Server for z/OS

General	
CICSPlex SM Concepts and Planning	GC34-5732
CICSPlex SM User Interface Guide	SC34-5743
CICSPlex SM Commands Reference Summary	SX33-6117
CICSPlex SM Web User Interface Guide	SC34-5403
Administration and Management	
CICSPlex SM Administration	SC34-5729
CICSPlex SM Operations Views Reference	SC34-5739
CICSPlex SM Monitor Views Reference	SC34-5738
CICSPlex SM Managing Workloads	SC34-5735
CICSPlex SM Managing Resource Usage	SC34-5734
CICSPlex SM Managing Business Applications	SC34-5733
Programming	
CICSPlex SM Application Programming Guide	SC34-5730
CICSPlex SM Application Programming Reference	SC34-5731
Diagnosis	
CICSPlex SM Resource Tables Reference	SC34-5741
CICSPlex SM Messages and Codes	GC34-5737
CICSPlex SM Problem Determination	GC34-5740

Other CICS books

Designing and Programming CICS Applications	SR23-9692
CICS Application Migration Aid Guide	SC33-0768
CICS Family: API Structure	SC33-1007
CICS Family: Client/Server Programming	SC33-1435
CICS Transaction Gateway for OS/390 Administration	SC34-5528
CICS Family: General Information	GC33-0155
CICS 4.1 Sample Applications Guide	SC33-1173
CICS/ESA 3.3 XRF Guide	SC33-0661

Note: The *CICS Transaction Server for OS/390: Planning for Installation* book that was part of the library for CICS Transaction Server for OS/390, Version 1 Release 3, is now merged with the *CICS Transaction Server for z/OS Installation Guide*. If you have any questions about the CICS Transaction Server for z/OS library, see *CICS Transaction Server for z/OS Installation Guide* which discusses both hardcopy and softcopy books and the ways that the books can be ordered.

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Updates to the softcopy are clearly marked by revision codes (usually a “#” character) to the left of the changes.

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